Test Report

T-0329-3620-02 JP

Type / Model Name:	**BSB00090**
FCC ID:	**W5IBSB00090**
Product Description:	**Local Positioning Radar**
Applicant:	**SYMEO GmbH**

Registration No. DAT-P-121/02-01

EMC -- TEST REPORT

Test Report No. : T-0329-3620-02 JP	2010-09-30 Date of issue

Type / Model Name : BSB00090

FCC ID W5IBSB00090

Product Description : Local Positioning Radar

Applicant : SYMEO GmbH

Address : Professor-Messerschmitt-Str. 3

85579 Neubiberg /Munich

Germany

Manufacturer : SYMEO GmbH

Address : Professor-Messerschmitt-Str. 3

85579 Neubiberg /Munich

Germany

Test Result according to the standards listed in clause 1 test standards:	**POSITIVE**

DAT-P-121/02-01
KBA-P 00057-01

File No. **T-0329-3620-02 JP**

Contents

1 TEST STANDARDS

The tests were performed according to following standards:

FCC Part 15 Subpart A : 2009	Code of Regulations Part 15 (Radio Frequency Devices), Subpart A (General) of the Federal Communication Commission (FCC)
FCC Part 15 Subpart B : 2009	Code of Regulations Part 15 (Radio Frequency Devices), Subpart B (Unintentional Radiators) of the Federal Communication Commission (FCC) Applied Paragraphs: §15.107, §15.109
ANSI C63.4-2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz – 40 GHz

2 OVERVIEW TEST RESULT

Performed test(s)	Result		
	Passed	Failed	Not performed
Conducted disturbance	X		
Radiated disturbance in the frequency range 30MHz – 1000MHz	X		
Radiated disturbance in the frequency range 1GHz – 18GHz	X		

3 SUMMARY

GENERAL REMARKS:

The frequency range was scanned from 9 kHz to 18GHz.

FINAL ASSESSMENT:

The equipment under test **fulfills** the EMC requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records

Testing commenced on : 2010-06-21

Testing concluded on : 2010-07-22

Checked by:

Digital unterschrieben
von Frank Scharnowski
Datum: 2010.09.30
14:53:32 +02'00'

Frank Scharnowski
Quality Manager

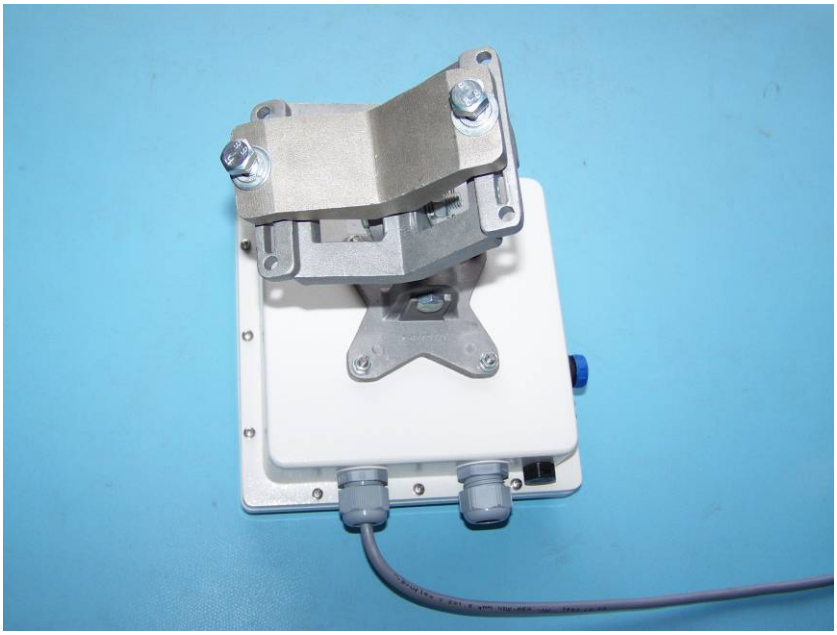
Tested by:

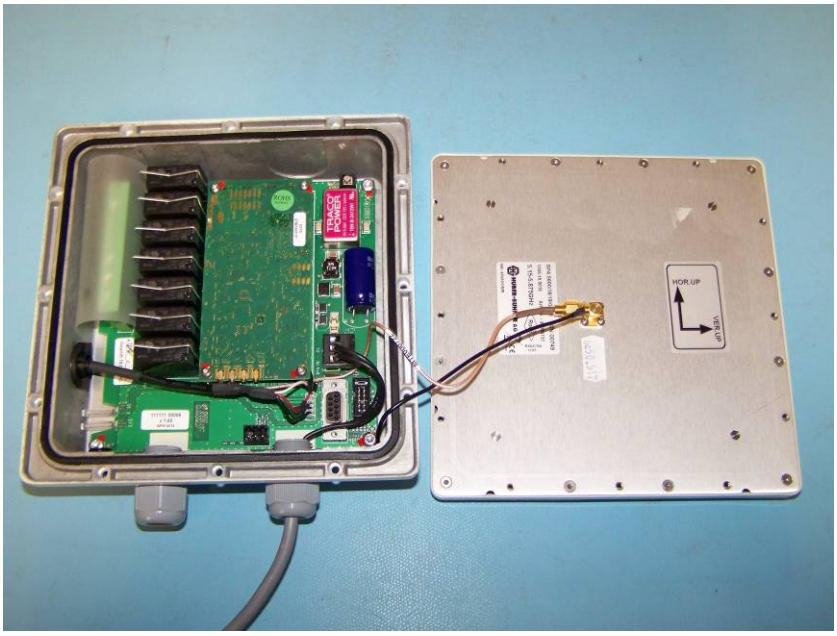
Jürgen Pessinger
2010.09.30
14:45:53 +02'00'

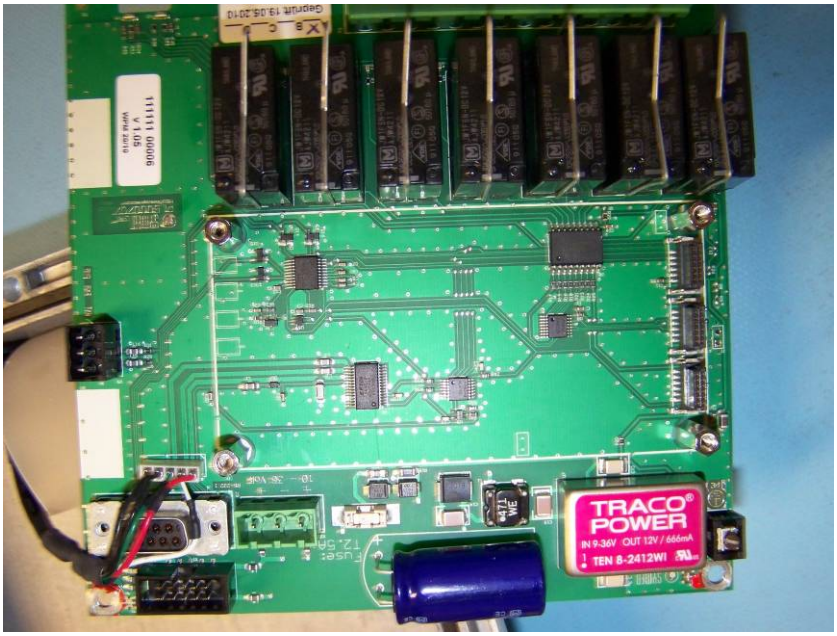
Jürgen Pessinger

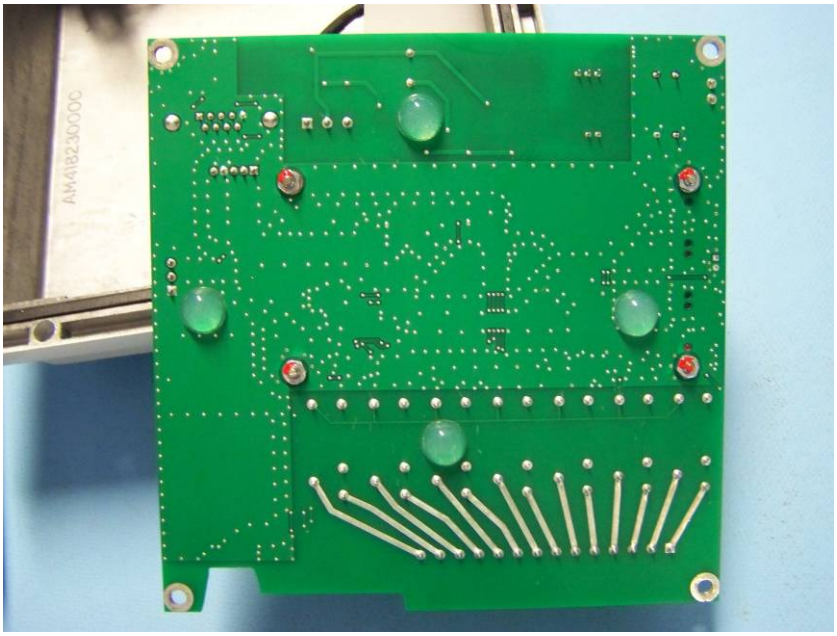
4 EQUIPMENT UNDER TEST

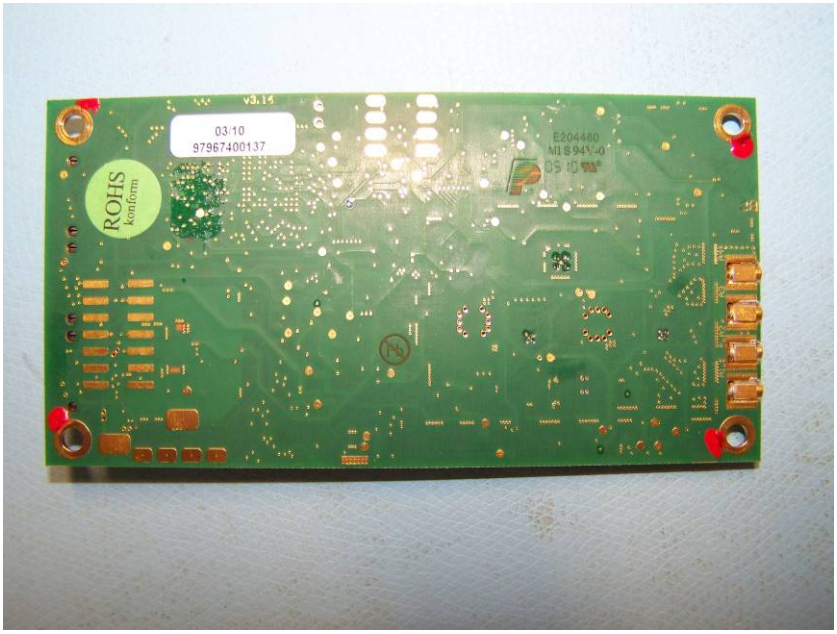
4.1 Photo documentation of the EuT




HOR.UP
VERT.UP


TRACO POWER
IN 9-36V OUT 12V / 666mA
TEN 8-2412WI

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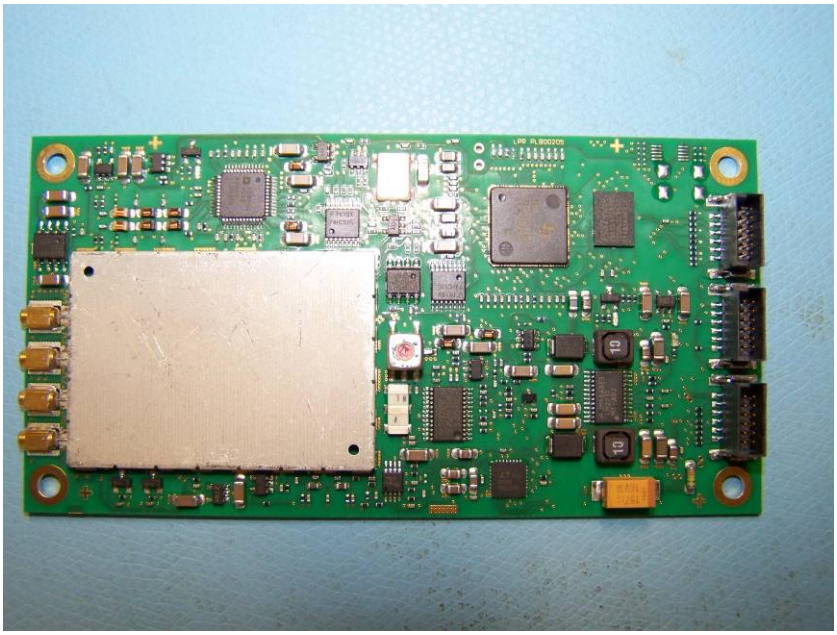
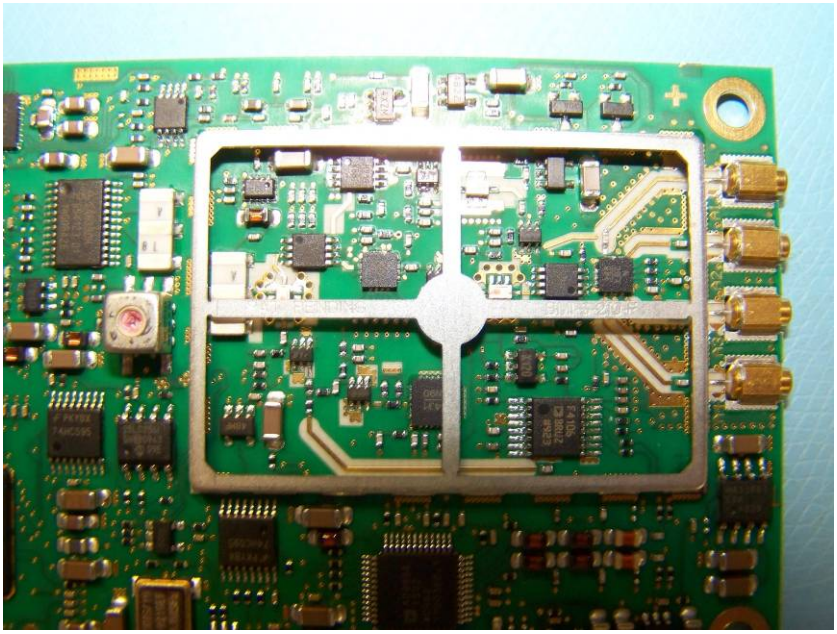
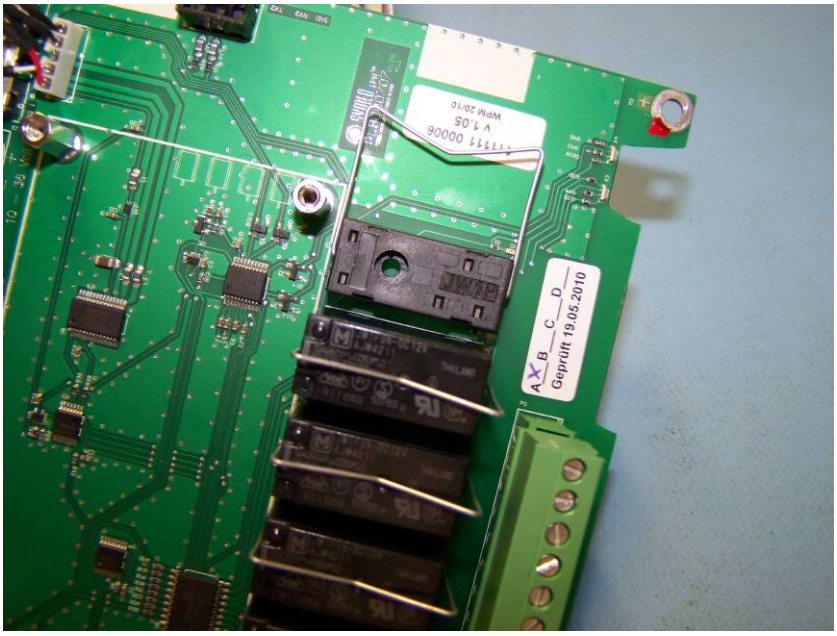
ROHS
konform






A X B C D
Geprüft 19.05.2010

4.2 Power supply system

Power supply voltage: 10-36V DC

4.3 Short description of the Equipment under Test (EuT)

The EuT is a wireless module for the use in systems for contactless, real time determination of distances and positions.

Number of tested samples: 1
Serial number: none

Dimensions: L: 19cm W: 19cm H: 8cm

Radio equipment characteristics

FSK Channel

Frequency band(s):	5725MHz – 5875MHz
Operating frequency:	5737MHz – 5863MHz
Channel spacing:	1MHz
Number of RF-channels:	38 channels (CH08 – CH45)
Comments:	None

Measurement band

Frequency band(s):	5725MHz – 5875MHz
Operating frequency:	Depends on FSK channel usage*
Channel spacing:	variable
Number of RF-channels:	1 distance measurement band
Comments:	None

*measurement band is located between last available FSK channel in upper FSK frequency range and the first available FSK channel in the lower FSK frequency range, with a clearance of 3MHz.

EuT operation mode:

The equipment under test was operated during the measurement under the following conditions:

- Testsoftware active, CH08 (5863MHz) adjusted

- Testsoftware active, CH27 (5755MHz) adjusted

- Testsoftware active, CH45 (5737MHz) adjusted

EuT configuration:

The following interface cables and peripheral devices were connected during the measurements:

Interface cables:

Interface cable	Length [m]	Type	Line		Line termination
			shielded	unshielded	
DC power line	1,6	2-wires	☐	☒	Power supply
USB cable	0,7	4-wires	☒	☐	Laptop

Peripheral devices:

Kind of equipment		Model and/or Manufacturer
Power supply		MTE000933, Symeo GmbH
Laptop		Tecra A2, Toshiba

5 TEST ENVIRONMENT

5.1 Address of the test laboratory

emitel AG
Ohmstrasse 1
94342 STRASSKIRCHEN
DEUTSCHLAND

Laboratory registration numbers:

DAR Registration number:	DAT-P-121/02-01
DAR Registration number:	KBA-P 00057-01
SNCH Registration number:	SNCH 001/2005 ext 01
FCC Registration number:	765810
IC Registration number:	IC 5066A-1
VCCI Registration number:	T-215; C-3049; R-2765

5.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 86-106 kPa

All atmospheric pressure values refer to our Laboratory altitude of 324m.

5.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16-4-2 /11.2003 „Uncertainties, statistics and limit modelling – Uncertainty in EMC measurements“ and is documented in the quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer does have the sole responsibility for the continued compliance of the device.

5.4 Measurement Protocol for FCC, VCCI and AUSTEL

5.4.1 GENERAL INFORMATION

5.4.1.1 Test Methodology

Conducted and radiated disturbance testing is performed according to the procedures in International Special Committee on Radio Interference (CISPR) Publication 22 (1997+A1:2000+A2:2002), European Standard EN 55022 (1998+A1:2000+A2:2003)and Australian Standard AS 3548 (which are based on CISPR 22).

The Japanese standard, "Voluntary Control Council for Interference (VCCI) by Data Processing Equipment and Electronic Office Machines, Technical Requirements" is technically equivalent to CISPR 22 (1997+A1:2000 +A2:2002). For official compliance, a conformance report must be sent to and accepted by the VCCI.

In compliance with FCC Docket 92-152, "Harmonization of Rules for Digital Devices Incorporate International Standards", testing for FCC compliance may be done following the ANSI C63.4-2003 procedures and using the CISPR 22 Limits.

5.4.1.2 Measurement Error

The data and results referenced in this document are true and accurate. The reader is cautioned that there is some measurement variability due to the tolerances of the test equipment that can contribute to a nominal product measurement uncertainty. The measurement uncertainty was calculated for all measurements listed in this test report according to CISPR 16-4-2 and is documented in the emitel AG quality system according to DIN EN ISO/IEC 17025. Furthermore, component differences and manufacturing process variability of production units similar to that tested may result in additional product uncertainty. If necessary, refer to the test lab for the actual measurement uncertainty for specific tests. The manufacturer has the sole responsibility of continued compliance of the device.

5.4.1.3 Justification

The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into it's characteristic impedance or left unterminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum disturbances from the unit.

5.4.2 CONDUCTED DISTURBANCE

The final level, expressed in dBμV, is arrived at by taking the reading directly from the EMI receiver. This level is compared directly to the CISPR limit, which is equivalent to the Australian AS 3548 limit.

To convert between dBμV and μV, the following conversions apply:
dBμV = 20(log μV)
μV = Inverse log(dBμV/20)

5.4.3 RADIATED DISTURBANCE

The final level, expressed in dBµV/m, is arrived at by taking the reading from the EMI receiver (Level dBµV) and adding the antenna correction factor and cable loss factor (Factor dB) to it. This is done automatically in the EMI receiver, where the correction factor are stored. This result then has the CISPR limit subtracted from it to provide the Delta which gives the tabular data as shown in the data sheets in section 5.2. The CISPR 22 limit is equivalent to the Australian AS 3548 limit.

Example:	CISPR B		Delta						
	Frequency (MHz)	Level (dBµV)	+	Factor (dB)	=	Final (dBµV/m)	-	Limit (dBµV/m)	=	CISPR B (dB)
	37.19	10.2	+	12.0	=	22.2	-	40.0	=	-17.8

5.4.4 DETAILS OF TEST PROCEDURES

5.4.4.1 General Standard Information

The test methods used comply with CISPR Publication 22 (1997+A1:2000+A2:2002), EN 55022 (1998+A1:2000+ A2:2003) and AS 3548 (1992) - "Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment" and with ANSI C63.4-2003 - "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz."

5.4.4.2 Conducted disturbance

Conducted disturbance on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi peak detection, and a Line Impedance Stabilization Network (LISN), with 50Ω/50 µH (CISPR 16) characteristics. Table top equipment is placed on a non-conducting table 80 centimetres above the floor and is positioned 40 centimetres from the vertical ground plane (wall) of the screen room. If the minimum passing margin appears to be less than 20 dB with a peak mode measurement, the emissions are remeasured using a tuned receiver with quasi peak and average detection and recorded on the data sheets.

5.4.4.3 Radiated disturbance

Radiated disturbance from the EUT are measured in the frequency range of 30 to 1000 MHz using a tuned receiver and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi peak detection and measurements above 1000 MHz are made with a 1 MHz/6 dB bandwidth and average/peak detection. Table top equipment is placed on a 1.0 X 1.5 meter non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Interface cables that are closer than 40 centimetres to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimetres from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna was positioned 3, 10 or 30 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT are rotated 360 degrees.

6 TEST CONDITIONS AND RESULTS

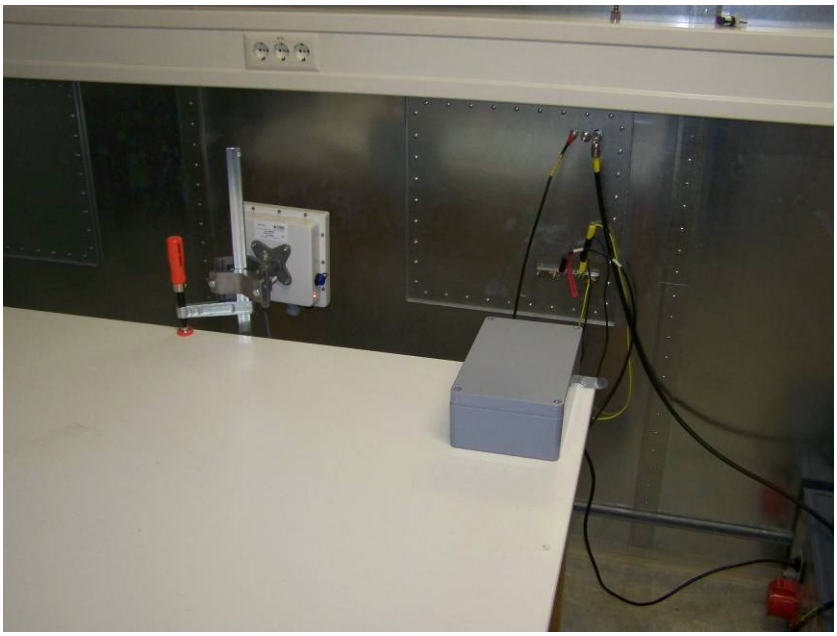
6.1 Conducted disturbance

For test instruments and accessories used see section 7 Part **A 4**.

6.1.1 Description of the test location

Test location: Shielded Room SK5

6.1.2 Photo documentation of the test set-up



6.1.3 Test specification

Environmental conditions: Temperature: 27°C Humidity: 39% Atmospheric pressure: 98kPa

Frequency range: 0.15 MHz - 30 MHz

The test was carried out in the following operation mode(s):
- Testsoftware active, CH08 (5863MHz) adjusted
- Testsoftware active, CH27 (5755MHz) adjusted
- Testsoftware active, CH45 (5737MHz) adjusted

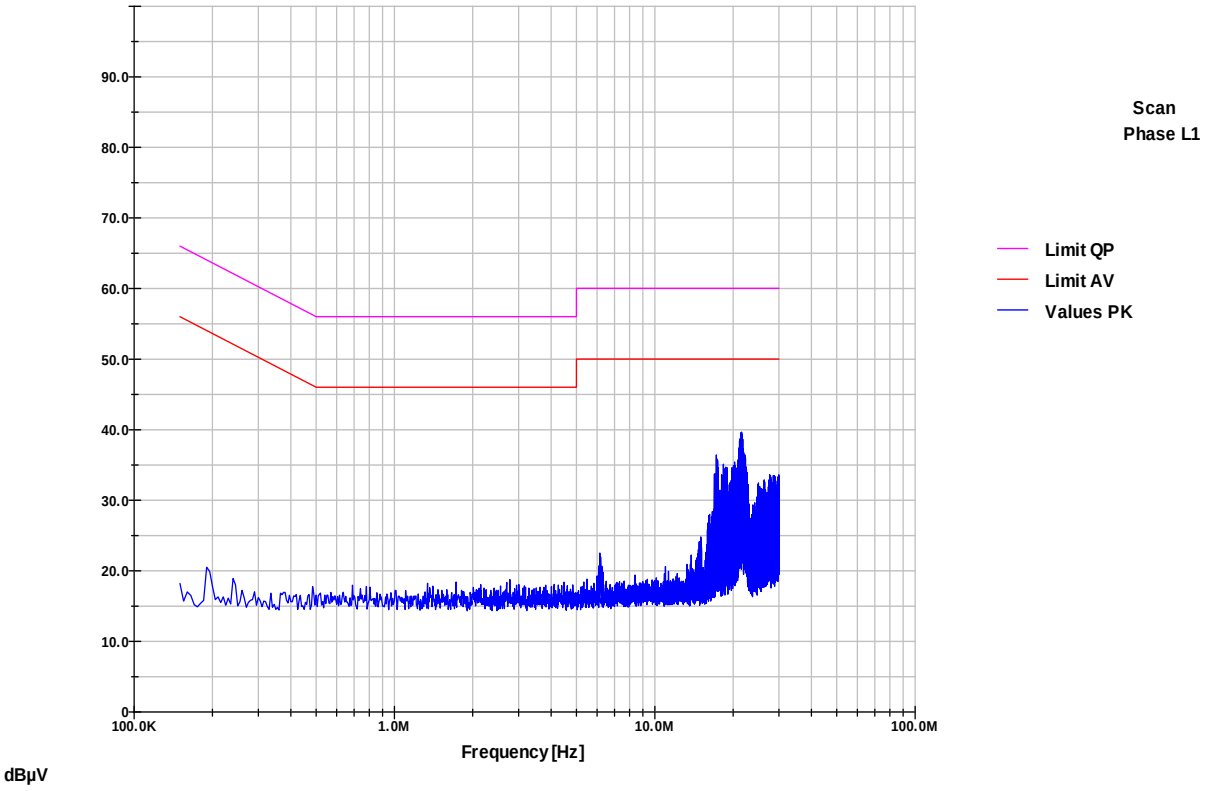
6.1.4 Test result

The requirements are **FULFILLED.**

Remarks: The measurements were made at AC input port of the power supply unit

6.1.5 Test protocol

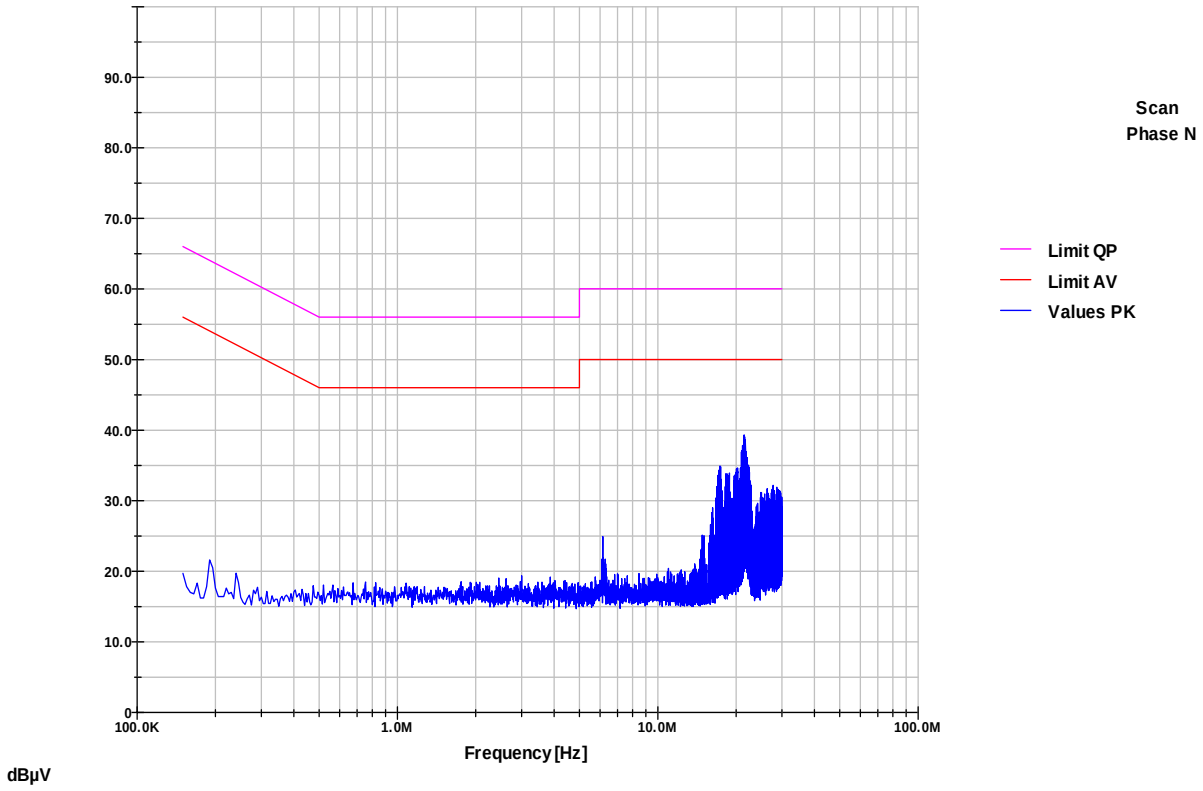
Date of test:	2010-07-06
Operator:	Jürgen Pessinger
Mode:	Testsoftware active, CH08 (5863MHz) adjusted
Standard:	FCC Part 15.107
Test:	Conducted Emission Test
Detector:	QP / AV
Result:	Limit kept
Applied to:	Phase L1
Remark:	none



Minimum margin to limit: -19,8 dB

Frequency [MHz]	Reading [dBµV] QP	Reading [dBµV] AV	Correction [dB]	Values [dBµV] QP	Values [dBµV] AV	Limit [dBµV] QP	Limit [dBµV] AV	Margin [dB] QP	Margin [dB] AV
21,490	35,3	29,7	0,5	35,8	30,2	60,0	50,0	-24,2	-19,8

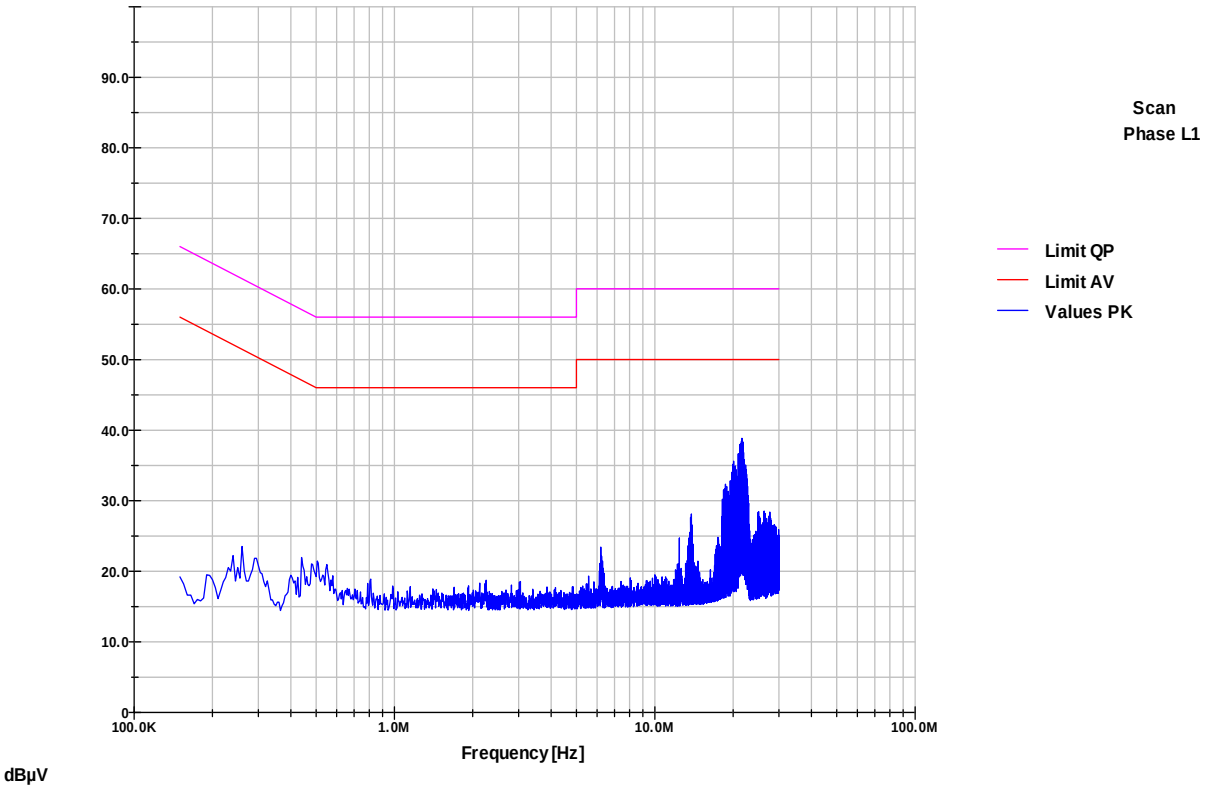
Date of test:	2010-07-06
Operator:	Jürgen Pessinger
Mode:	Testsoftware active, CH08 (5863MHz) adjusted
Standard:	FCC Part 15.107
Test:	Conducted Emission Test
Detector:	QP / AV
Result:	Limit kept
Applied to:	Phase N
Remark:	none



Minimum margin to limit: -20,4 dB

Frequency [MHz]	Reading [dBµV] QP	Reading [dBµV] AV	Correction [dB]	Values [dBµV] QP	Values [dBµV] AV	Limit [dBµV] QP	Limit [dBµV] AV	Margin [dB] QP	Margin [dB] AV
21,490	34,6	29,1	0,5	35,1	29,6	60,0	50,0	-24,9	-20,4

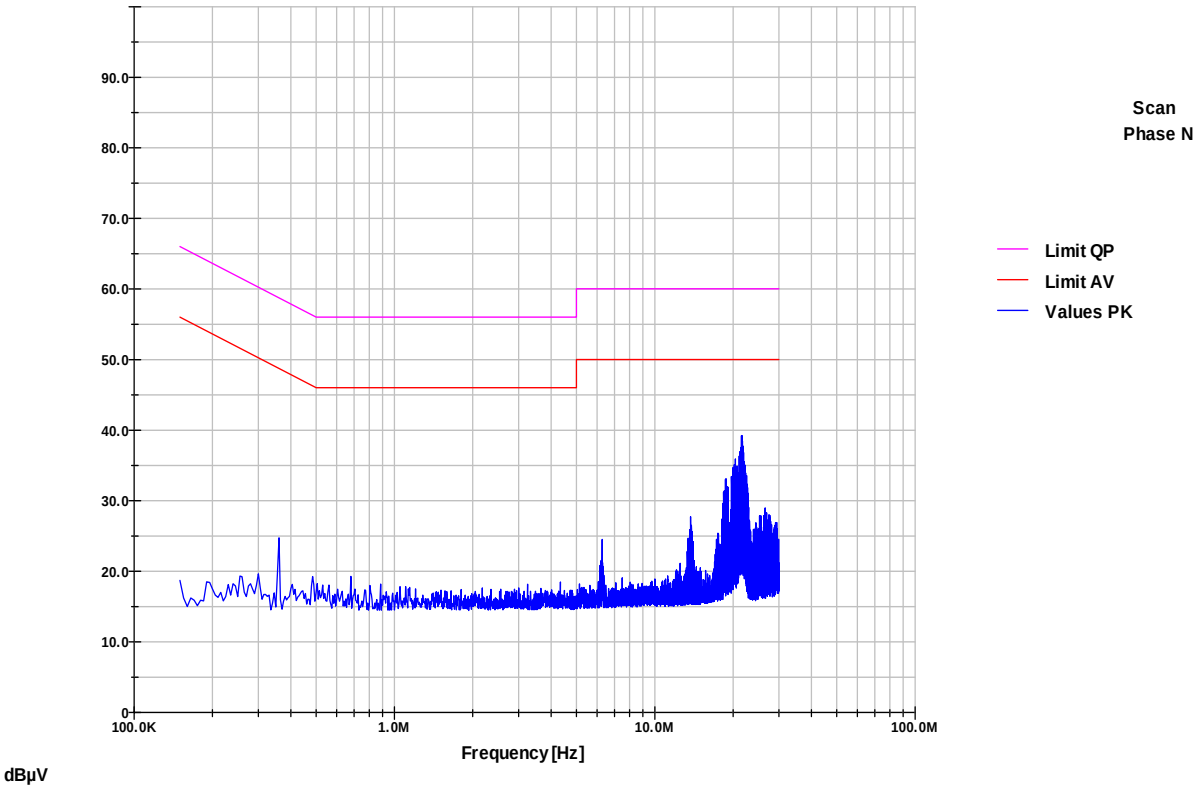
Date of test:	2010-07-06
Operator:	Jürgen Pessinger
Mode:	Testsoftware active, CH27 (5755MHz) adjusted
Standard:	FCC Part 15.107
Test:	Conducted Emission Test
Detector:	QP / AV
Result:	Limit kept
Applied to:	Phase L1
Remark:	none



Minimum margin to limit: -22,1 dB

Frequency [MHz]	Reading [dBµV] QP	Reading [dBµV] AV	Correction [dB]	Values [dBµV] QP	Values [dBµV] AV	Limit [dBµV] QP	Limit [dBµV] AV	Margin [dB] QP	Margin [dB] AV
21,613	33,2	27,4	0,5	33,7	27,9	60,0	50,0	-26,3	-22,1

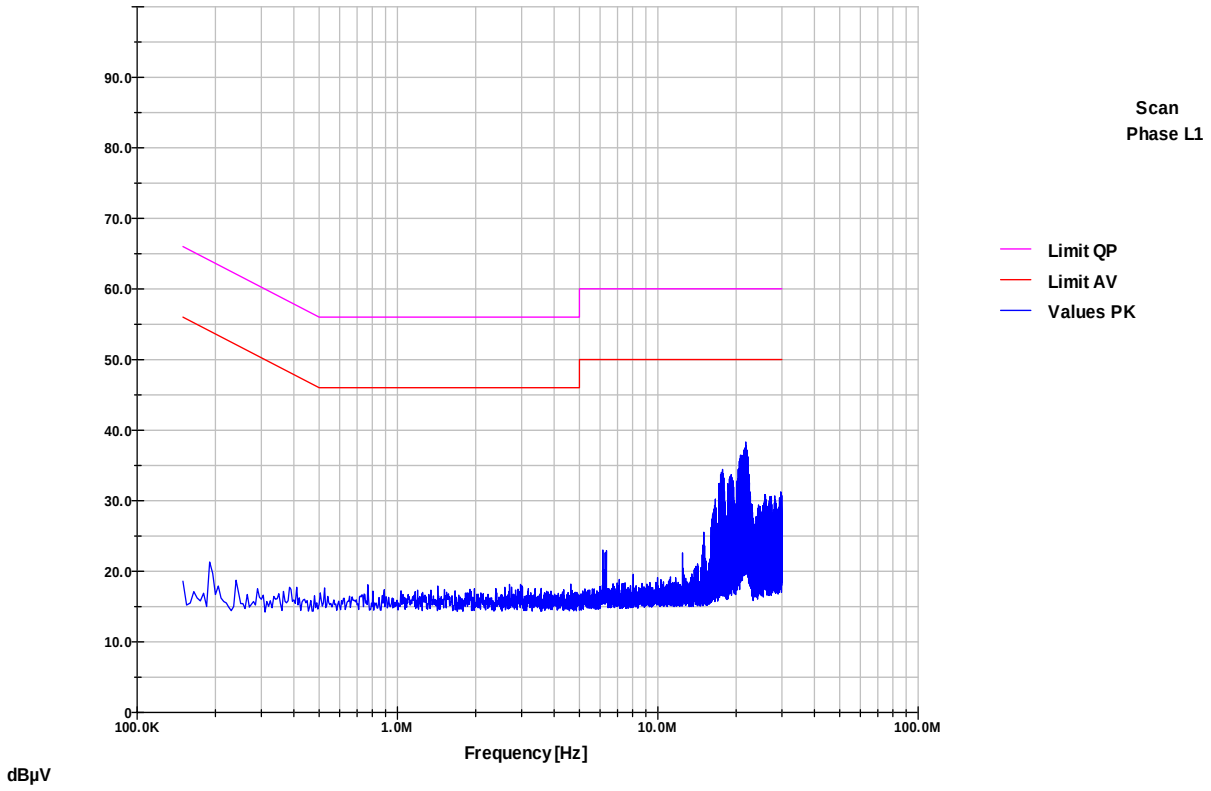
Date of test:	2010-07-06
Operator:	Jürgen Pessinger
Mode:	Testsoftware active, CH27 (5755MHz) adjusted
Standard:	FCC Part 15.107
Test:	Conducted Emission Test
Detector:	QP / AV
Result:	Limit kept
Applied to:	Phase N
Remark:	



Minimum margin to limit: -16,6 dB

Frequency	Reading [dBµV]		Correction	Values [dBµV]		Limit [dBµV]		Margin [dB]	
[MHz]	QP	AV	[dB]	QP	AV	QP	AV	QP	AV
21,623	36,2	32,9	0,5	36,7	33,4	60,0	50,0	-23,3	-16,6

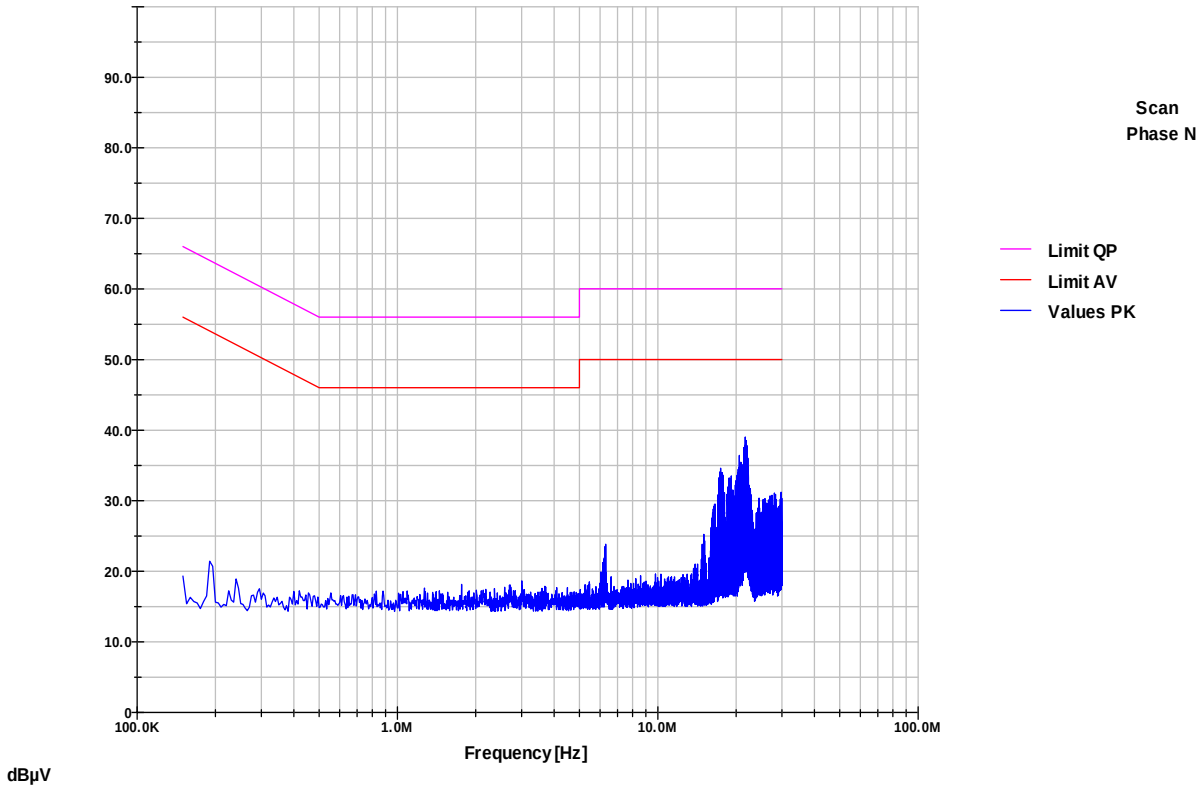
Date of test:	2010-07-06
Operator:	Jürgen Pessinger
Mode:	Testsoftware active, CH45 (5737MHz) adjusted
Standard:	FCC Part 15.107
Test:	Conducted Emission Test
Detector:	QP / AV
Result:	Limit kept
Applied to:	Phase L1
Remark:	none



Minimum margin to limit: -20,7 dB

Frequency	Reading [dBµV]		Correction	Values [dBµV]		Limit [dBµV]		Margin [dB]	
[MHz]	QP	AV	[dB]	QP	AV	QP	AV	QP	AV
21,780	35,3	28,8	0,5	35,8	29,3	60,0	50,0	-24,2	-20,7

Date of test:	2010-07-06
Operator:	Jürgen Pessinger
Mode:	Testsoftware active, CH45 (5737MHz) adjusted
Standard:	FCC Part 15.107
Test:	Conducted Emission Test
Detector:	QP / AV
Result:	Limit kept
Applied to:	Phase N
Remark:	none



Minimum margin to limit: -20,2 dB

Frequency [MHz]	Reading [dBµV] QP	Reading [dBµV] AV	Correction [dB]	Values [dBµV] QP	Values [dBµV] AV	Limit [dBµV] QP	Limit [dBµV] AV	Margin [dB] QP	Margin [dB] AV
21,780	35,5	29,3	0,5	36,0	29,8	60,0	50,0	-24,0	-20,2

6.2 Radiated disturbance in the frequency range 30MHz – 1000MHz

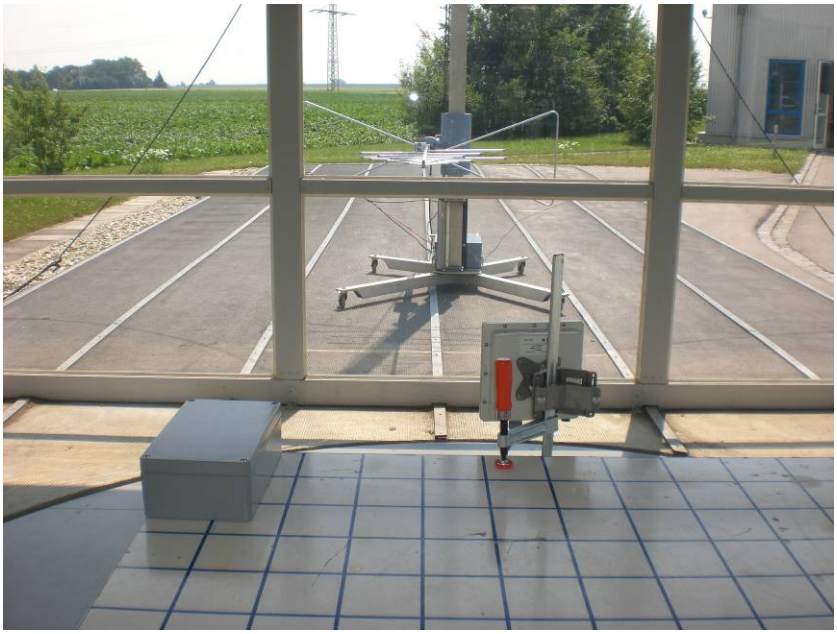
For test instruments and accessories used see section 7 Part **SER 2**.

6.2.1 Description of the test location

Test location: OATS 3

Test distance: 3 metres

6.2.2 Photo documentation of the test set-up



6.2.3 Test specification

Environmental conditions: Temperature: 25°C Humidity: 50% Atmospheric pressure: 98kPa

Frequency range: 30 MHz - 1000 MHz

The test was carried out in the following operation mode(s):
- Testsoftware active, CH08 (5863MHz) adjusted
- Testsoftware active, CH27 (5755MHz) adjusted
- Testsoftware active, CH45 (5737MHz) adjusted

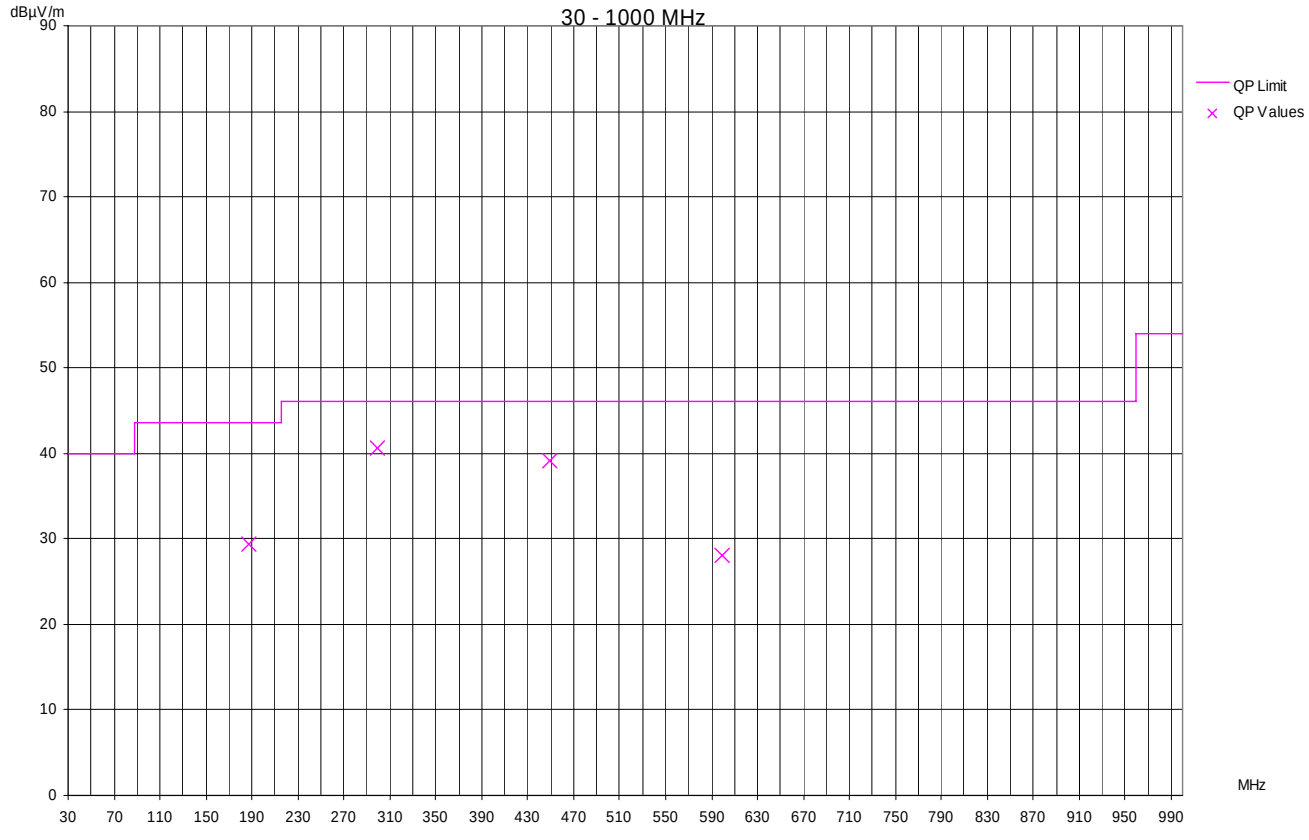
6.2.4 Test result

The requirements are **FULFILLED.**

Remarks: none

6.2.5 Test protocol

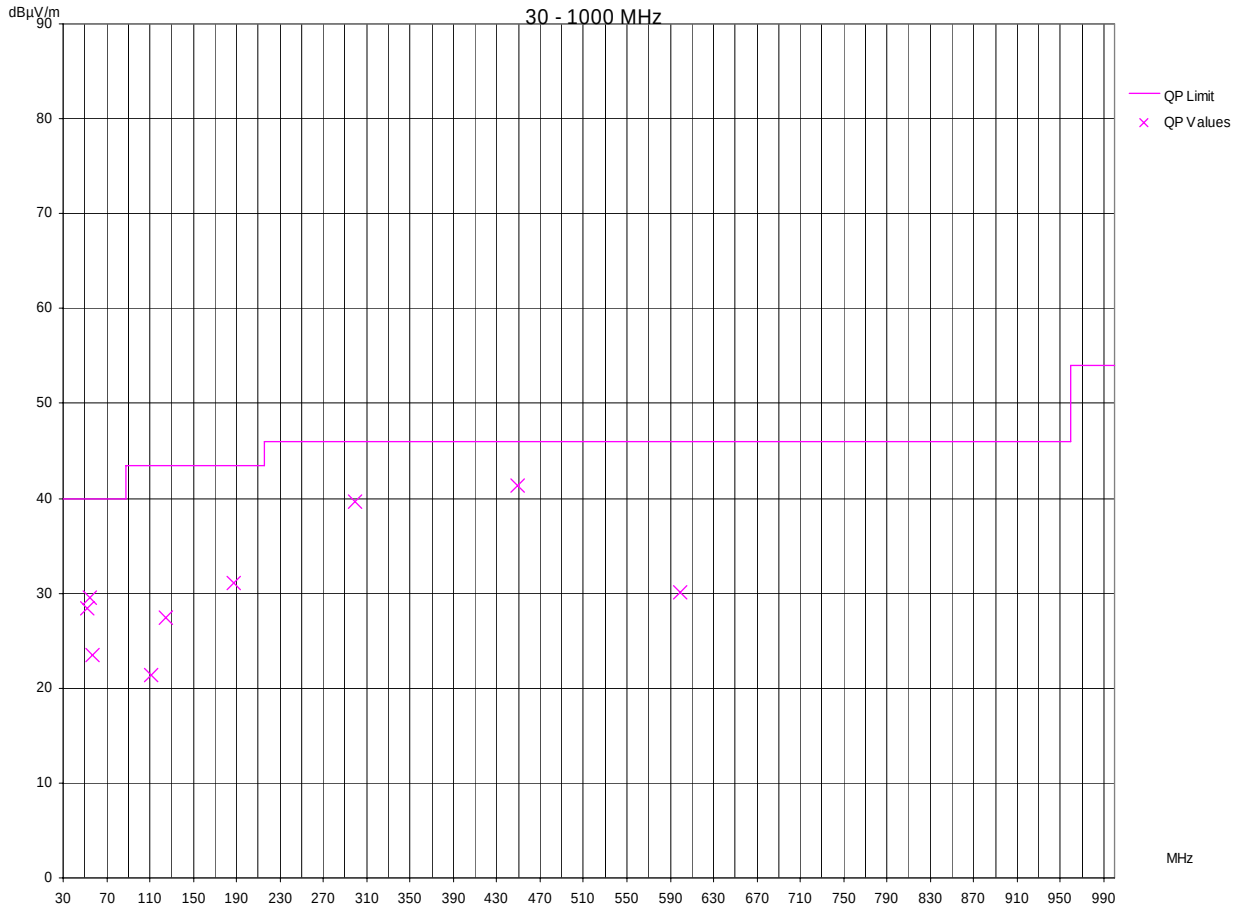
Date of test:	2010-06-30
Operator:	Jürgen Pessinger
Mode:	TX mode CH08 (5863MHz)
Standard:	FCC Part 15.109
Test:	Radiated Emission Test (Distance 3m)
Detector:	QP
Result:	Limit kept
Applied to:	Horizontal
Remark:	none



Minimum margin to limit: -5,3 dB

Frequency [MHz]	Reading [dBµV] QP	Correction [dB]	Values [dBµV/m] QP	Limit [dBµV/m] QP	Margin [dB] QP
187,325	16,8	12,7	29,5	43,5	-14,0
299,723	24,1	16,6	40,7	46,0	-5,3
449,583	19,2	20,0	39,2	46,0	-6,8
599,437	5,1	23,0	28,1	46,0	-17,9

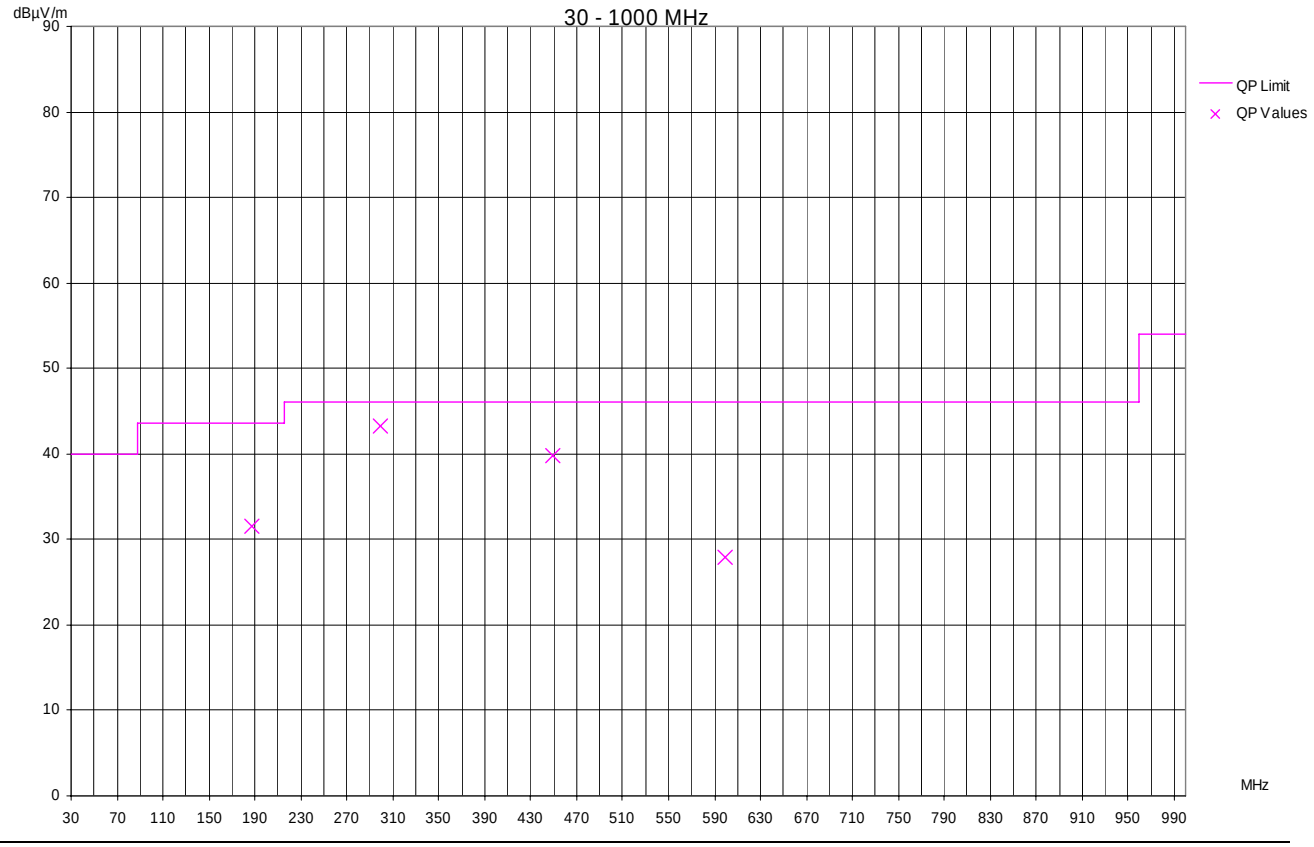
Date of test:	2010-06-30
Operator:	Jürgen Pessinger
Mode:	TX mode CH08 (5863MHz)
Standard:	FCC Part 15.109
Test:	Radiated Emission Test (Distance 3m)
Detector:	QP
Result:	Limit kept
Applied to:	Vertical
Remark:	none



Minimum margin to limit: -4,7 dB

Frequency [MHz]	Reading [dBµV] QP	Correction [dB]	Values [dBµV/m] QP	Limit [dBµV/m] QP	Margin [dB] QP
52,481	13,8	14,6	28,4	40,0	-11,6
54,555	15,2	14,4	29,6	40,0	-10,4
57,500	9,8	13,7	23,5	40,0	-16,5
111,421	7,9	13,5	21,4	43,5	-22,1
124,500	15,7	11,7	27,4	43,5	-16,1
187,325	18,4	12,7	31,1	43,5	-12,4
299,724	23,1	16,6	39,7	46,0	-6,3
449,579	21,3	20,0	41,3	46,0	-4,7
599,437	7,1	23,0	30,1	46,0	-15,9

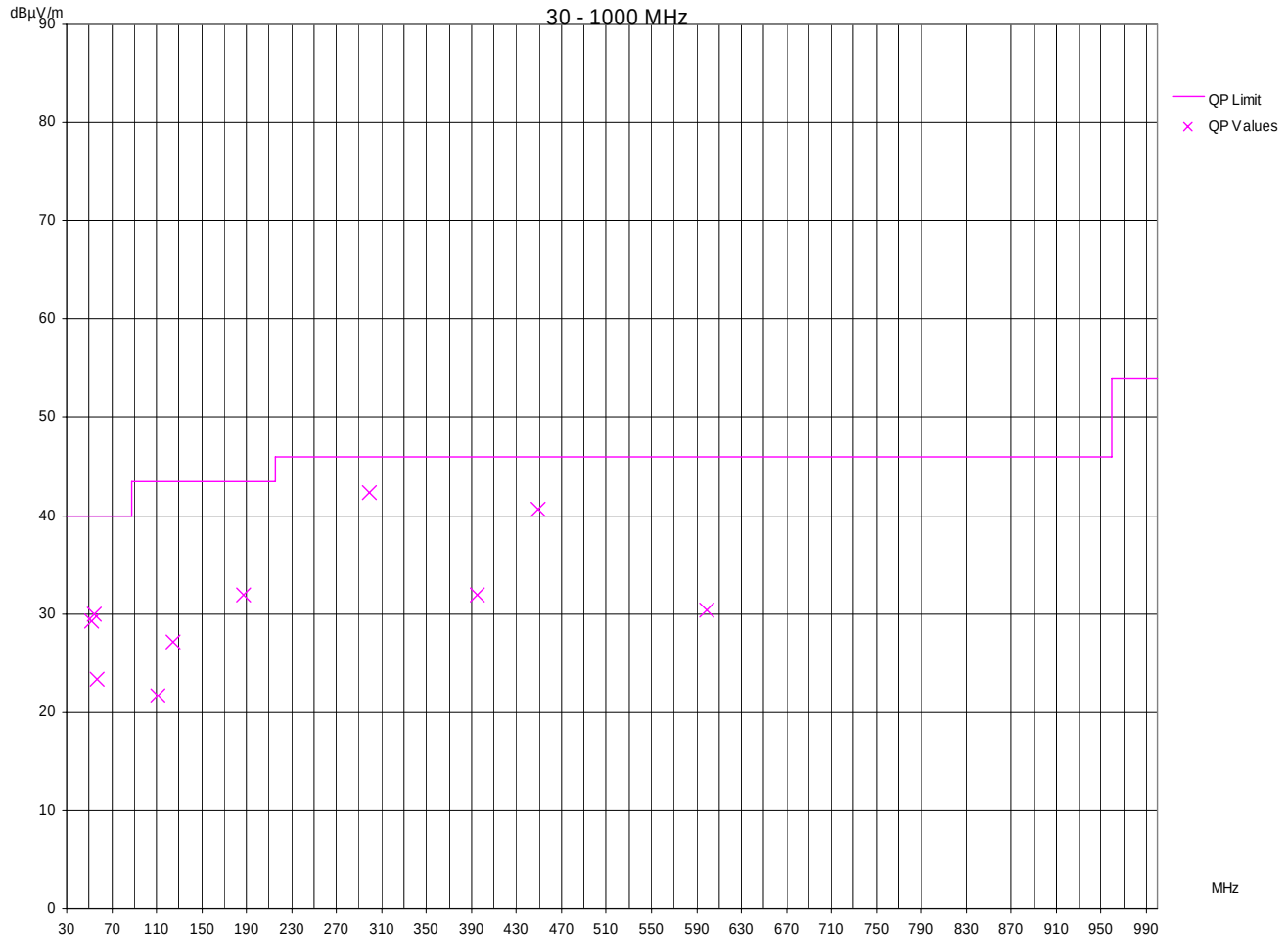
Date of test:	2010-06-30
Operator:	Jürgen Pessinger
Mode:	TX mode CH27 (5755MHz)
Standard:	FCC Part 15.109
Test:	Radiated Emission Test (Distance 3m)
Detector:	QP
Result:	Limit kept
Applied to:	Horizontal
Remark:	none



Minimum margin to limit: -2,7 dB

Frequency [MHz]	Reading [dBµV] QP	Correction [dB]	Values [dBµV/m] QP	Limit [dBµV/m] QP	Margin [dB] QP
187,325	18,8	12,7	31,5	43,5	-12,0
299,723	26,7	16,6	43,3	46,0	-2,7
449,583	19,8	20,0	39,8	46,0	-6,2
599,437	4,9	23,0	27,9	46,0	-18,1

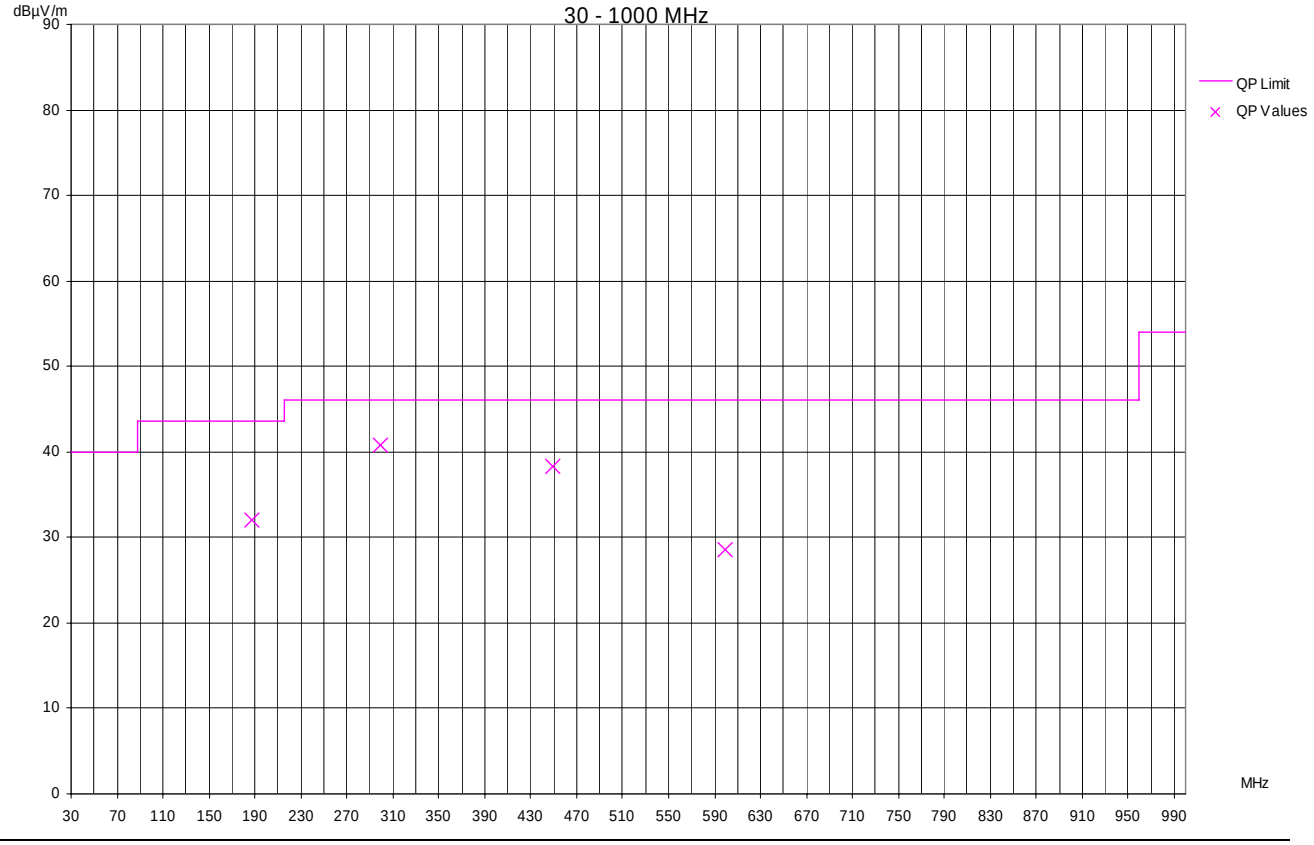
Date of test:	2010-06-30
Operator:	Jürgen Pessinger
Mode:	TX mode CH27 (5755MHz)
Standard:	FCC Part 15.109
Test:	Radiated Emission Test (Distance 3m)
Detector:	QP
Result:	Limit kept
Applied to:	Vertical
Remark:	none



Minimum margin to limit: -3,7 dB

Frequency [MHz]	Reading [dBµV] QP	Correction [dB]	Values [dBµV/m] QP	Limit [dBµV/m] QP	Margin [dB] QP
52,481	14,7	14,6	29,3	40,0	-10,7
54,555	15,6	14,4	30,0	40,0	-10,0
57,500	9,6	13,7	23,3	40,0	-16,7
111,421	8,2	13,5	21,7	43,5	-21,8
124,500	15,4	11,7	27,1	43,5	-16,4
187,325	19,2	12,7	31,9	43,5	-11,6
299,724	25,7	16,6	42,3	46,0	-3,7
394,720	13,1	18,8	31,9	46,0	-14,1
449,579	20,7	20,0	40,7	46,0	-5,3
599,437	7,3	23,0	30,3	46,0	-15,7

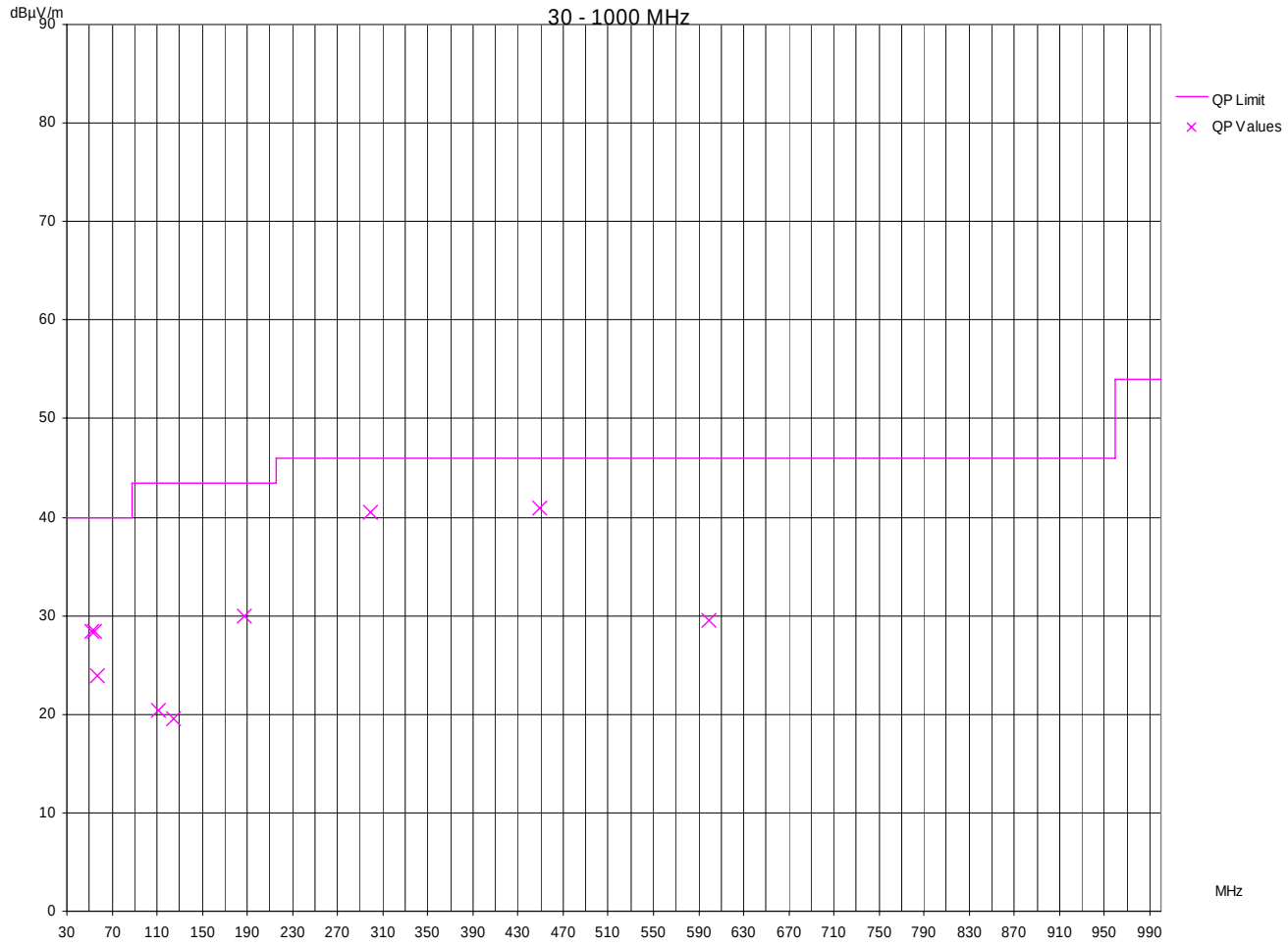
Date of test:	2010-06-30
Operator:	Jürgen Pessinger
Mode:	TX mode CH45 (5737MHz)
Standard:	FCC Part 15.109
Test:	Radiated Emission Test (Distance 3m)
Detector:	QP
Result:	Limit kept
Applied to:	Horizontal
Remark:	none



Minimum margin to limit: -5,2 dB

Frequency [MHz]	Reading [dBµV] QP	Correction [dB]	Values [dBµV/m] QP	Limit [dBµV/m] QP	Margin [dB] QP
187,325	19,3	12,7	32,0	43,5	-11,5
299,723	24,2	16,6	40,8	46,0	-5,2
449,583	18,4	20,0	38,4	46,0	-7,6
599,437	5,5	23,0	28,5	46,0	-17,5

Date of test:	2010-06-30
Operator:	Jürgen Pessinger
Mode:	TX mode CH45 (5737MHz)
Standard:	FCC Part 15.109
Test:	Radiated Emission Test (Distance 3m)
Detector:	QP
Result:	Limit kept
Applied to:	Vertical
Remark:	none



Minimum margin to limit: -5,1 dB

Frequency [MHz]	Reading [dBµV] QP	Correction [dB]	Values [dBµV/m] QP	Limit [dBµV/m] QP	Margin [dB] QP
52,481	13,9	14,6	28,5	40,0	-11,5
54,555	14,1	14,4	28,5	40,0	-11,5
57,500	10,2	13,7	23,9	40,0	-16,1
111,421	6,8	13,5	20,3	43,5	-23,2
124,500	7,9	11,7	19,6	43,5	-23,9
187,325	17,3	12,7	30,0	43,5	-13,5
299,724	23,9	16,6	40,5	46,0	-5,5
449,579	20,9	20,0	40,9	46,0	-5,1
599,437	6,5	23,0	29,5	46,0	-16,5

6.3 Radiated disturbance in the frequency range 1GHz – 18GHz

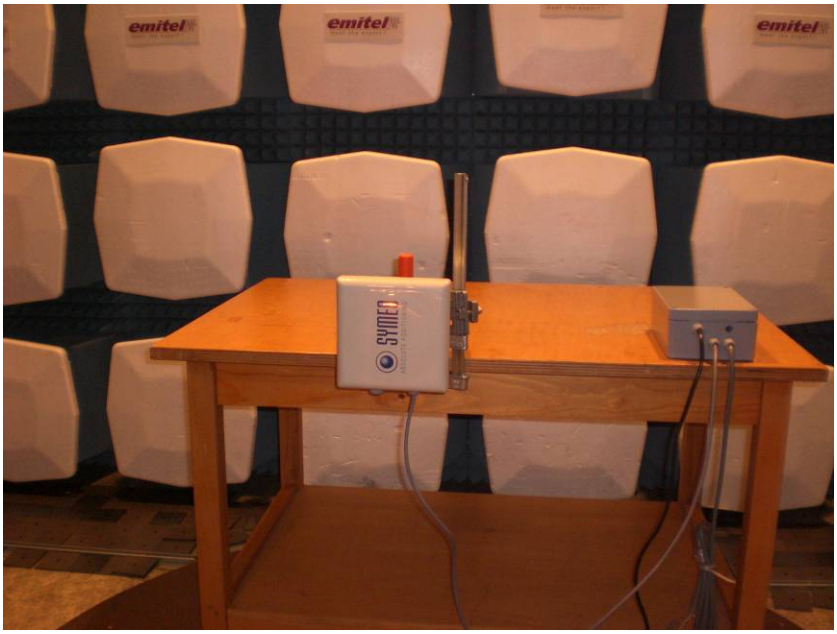
For test instruments and accessories used see section 7 Part **SER 3**.

6.3.1 Description of the test location

Test location: Anechoic Chamber A4

Test distance: 3 metres

6.3.2 Photo documentation of the test set-up



6.3.3 Test specification

Environmental conditions: Temperature: 23°C Humidity: 43% Atmospheric pressure: 98kPa

Frequency range: 1 GHz – 18GHz

The test was carried out in the following operation mode(s):
- Testsoftware active, CH08 (5863MHz) adjusted
- Testsoftware active, CH27 (5755MHz) adjusted
- Testsoftware active, CH45 (5737MHz) adjusted

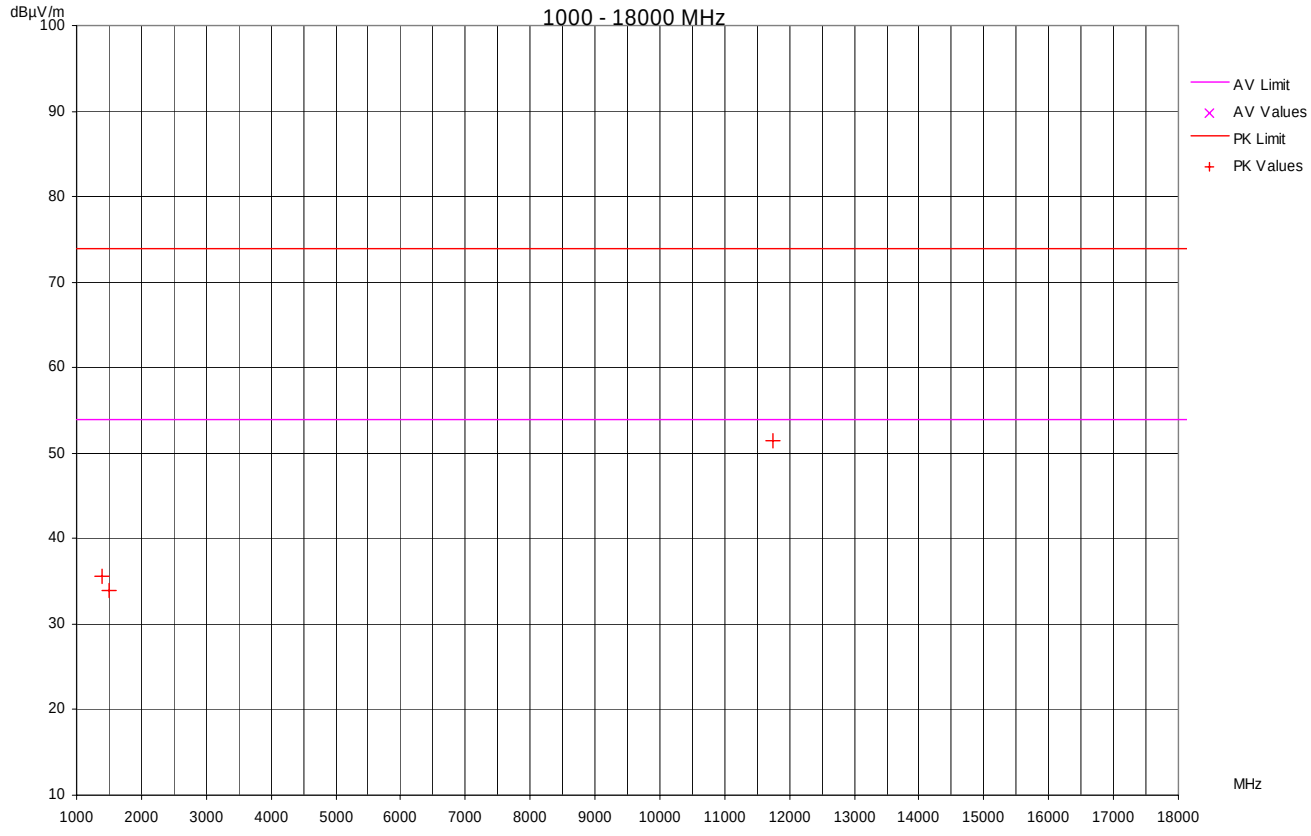
6.3.4 Test result

The requirements are

Remarks: none

6.3.5 Test protocol

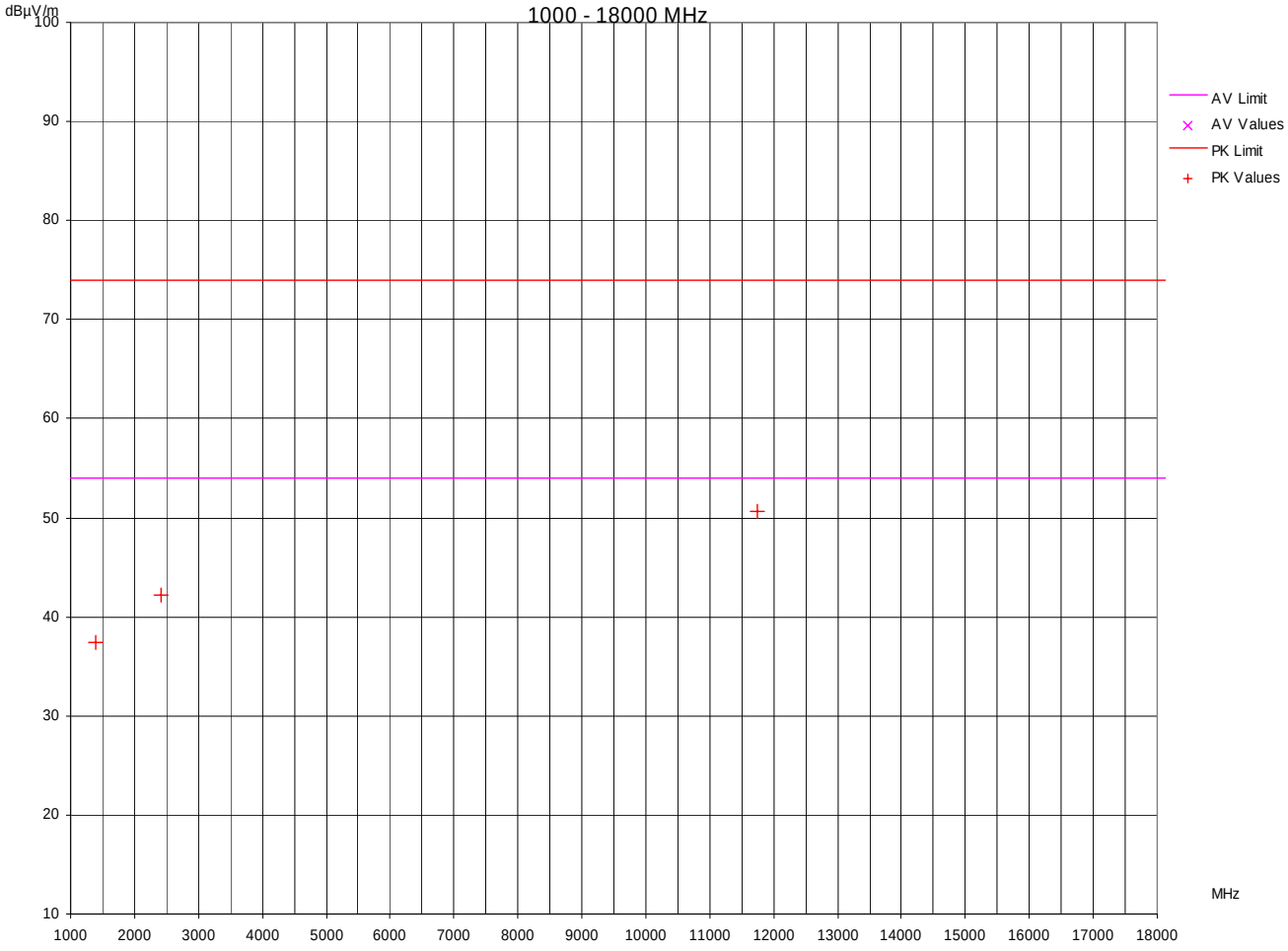
Date of test:	2010-06-22
Operator:	Jürgen Pessinger
Mode:	Testcycle is running, Channel 08 (5863MHz) active, maximum TX Power
Standard:	FCC Part 15.109
Test:	Radiated Emission Test (Distance 3m)
Detector:	AV / PK
Result:	Limit kept
Applied to:	Horizontal
Remark:	none



Minimum margin to limit: -22,6 dB

Frequency [MHz]	Reading [dBµV] AV	Reading [dBµV] PK	Correction [dB]	Values [dBµV/m] AV	Values [dBµV/m] PK	Limit [dBµV/m] AV	Limit [dBµV/m] PK	Margin [dB] AV	Margin [dB] PK
1403,000	--	45,9	-10,4		35,6	54,0	74,0		-38,4
1494,000	--	44,0	-10,1		33,9	54,0	74,0		-40,1
11742,000	--	42,5	8,9		51,4	54,0	74,0		-22,6

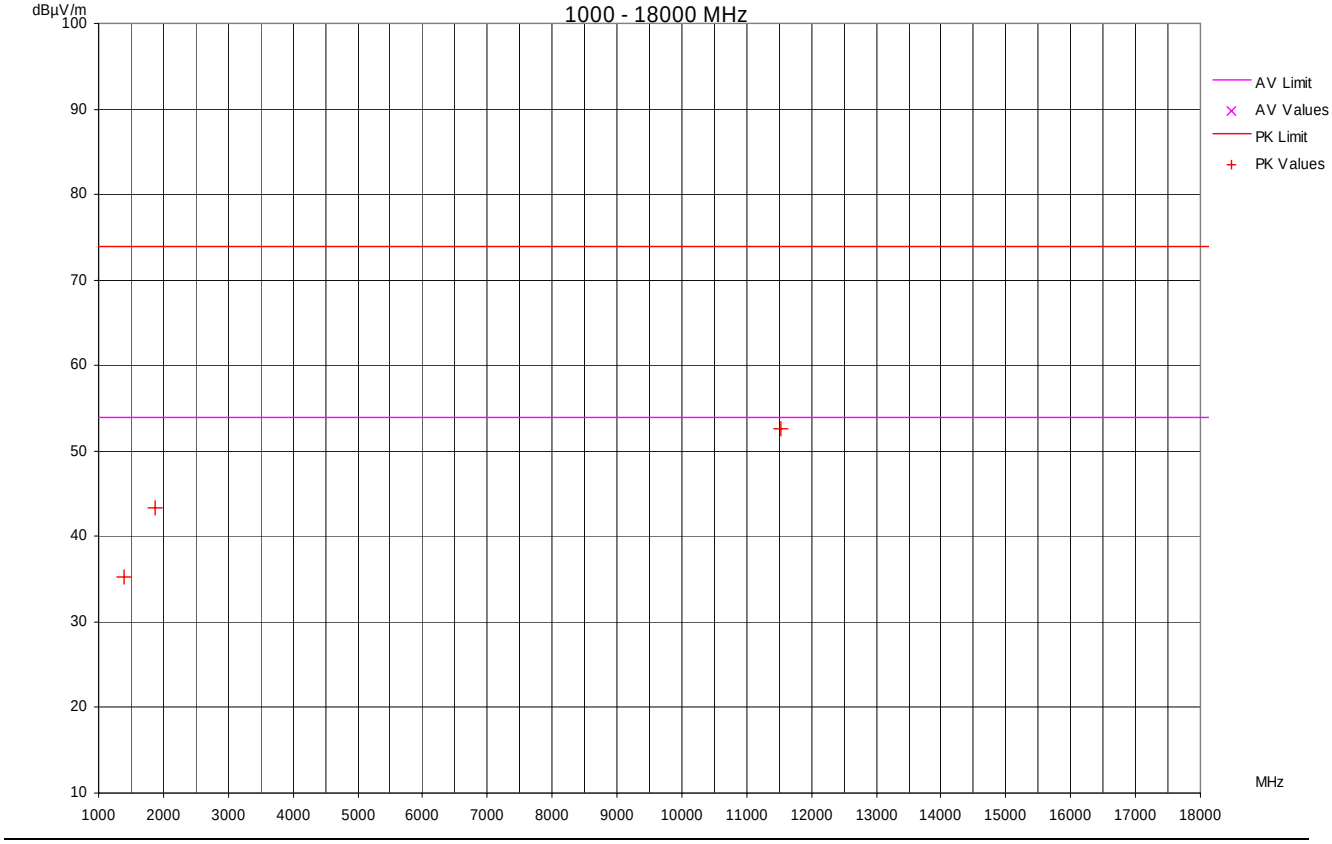
Date of test:	2010-06-22
Operator:	Jürgen Pessinger
Mode:	Testcycle is running, Channel 08 (5863MHz) active, maximum TX Power
Standard:	FCC Part 15.109
Test:	Radiated Emission Test (Distance 3m)
Detector:	AV / PK
Result:	Limit kept
Applied to:	Vertical
Remark:	none



Minimum margin to limit: -23,3 dB

Frequency [MHz]	Reading [dBµV] AV	Reading [dBµV] PK	Correction [dB]	Values [dBµV/m] AV	Values [dBµV/m] PK	Limit [dBµV/m] AV	Limit [dBµV/m] PK	Margin [dB] AV	Margin [dB] PK
1390,000	--	47,8	-10,4		37,4	54,0	74,0		-36,6
2417,000	--	48,6	-6,4		42,2	54,0	74,0		-31,8
11742,000	--	41,8	8,9		50,6	54,0	74,0		-23,3

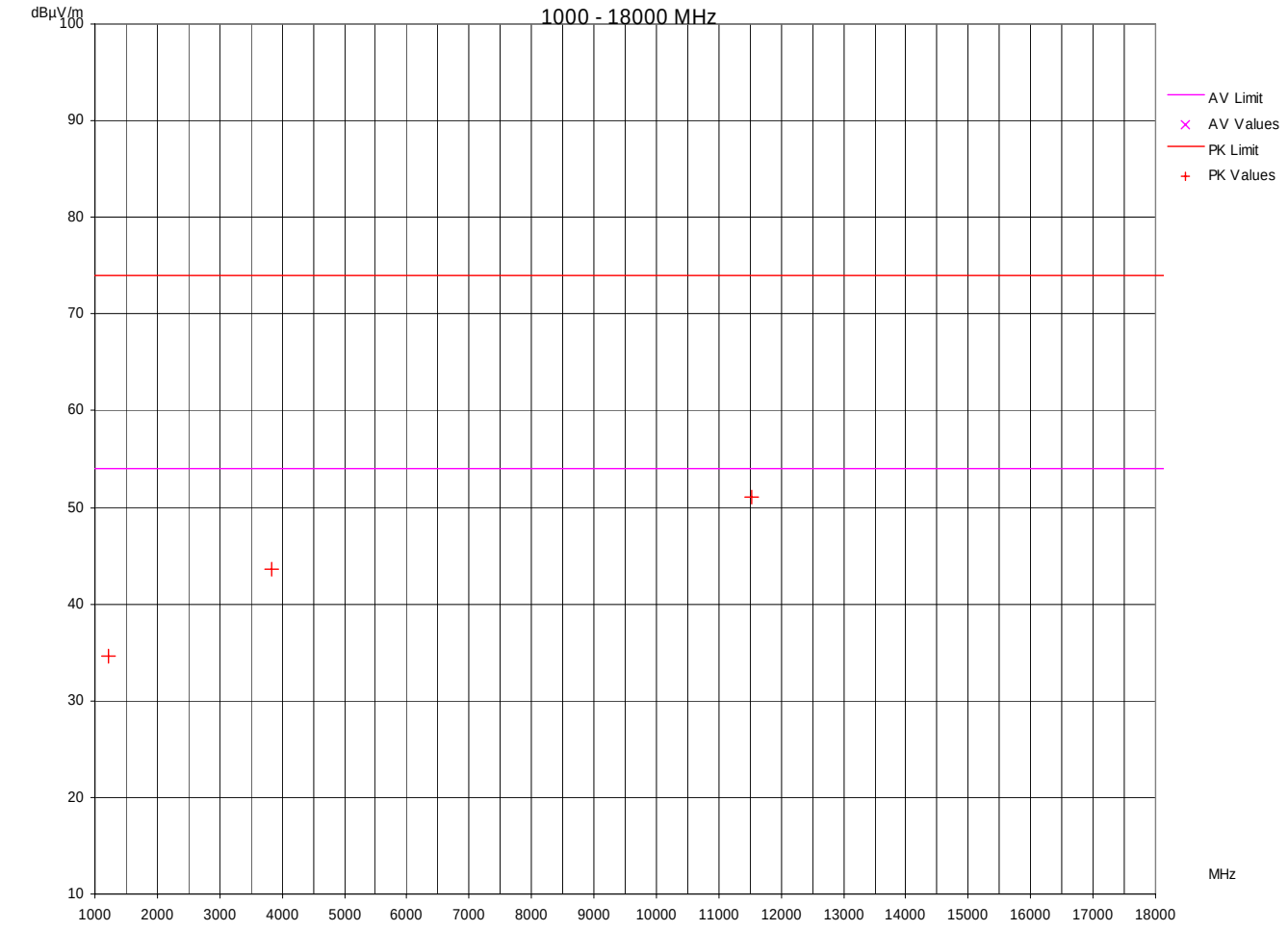
Date of test:	2010-05-21
Operator:	Jürgen Pessinger
Mode:	Testcycle is running, Channel 27 (5755MHz) active, maximum TX Power
Standard:	FCC Part 15.109
Test:	Radiated Emission Test (Distance 3m)
Detector:	AV / PK
Result:	Limit kept
Applied to:	Horizontal
Remark:	none



Minimum margin to limit: -21,3 dB

Frequency [MHz]	Reading [dBµV] AV	Reading [dBµV] PK	Correction [dB]	Values [dBµV/m] AV	Values [dBµV/m] PK	Limit [dBµV/m] AV	Limit [dBµV/m] PK	Margin [dB] AV	Margin [dB] PK
1384,000	--	45,6	-10,4		35,2	54,0	74,0		-38,8
1876,000	--	50,7	-7,3		43,4	54,0	74,0		-30,6
11518,000	--	43,9	8,8		52,7	54,0	74,0		-21,3

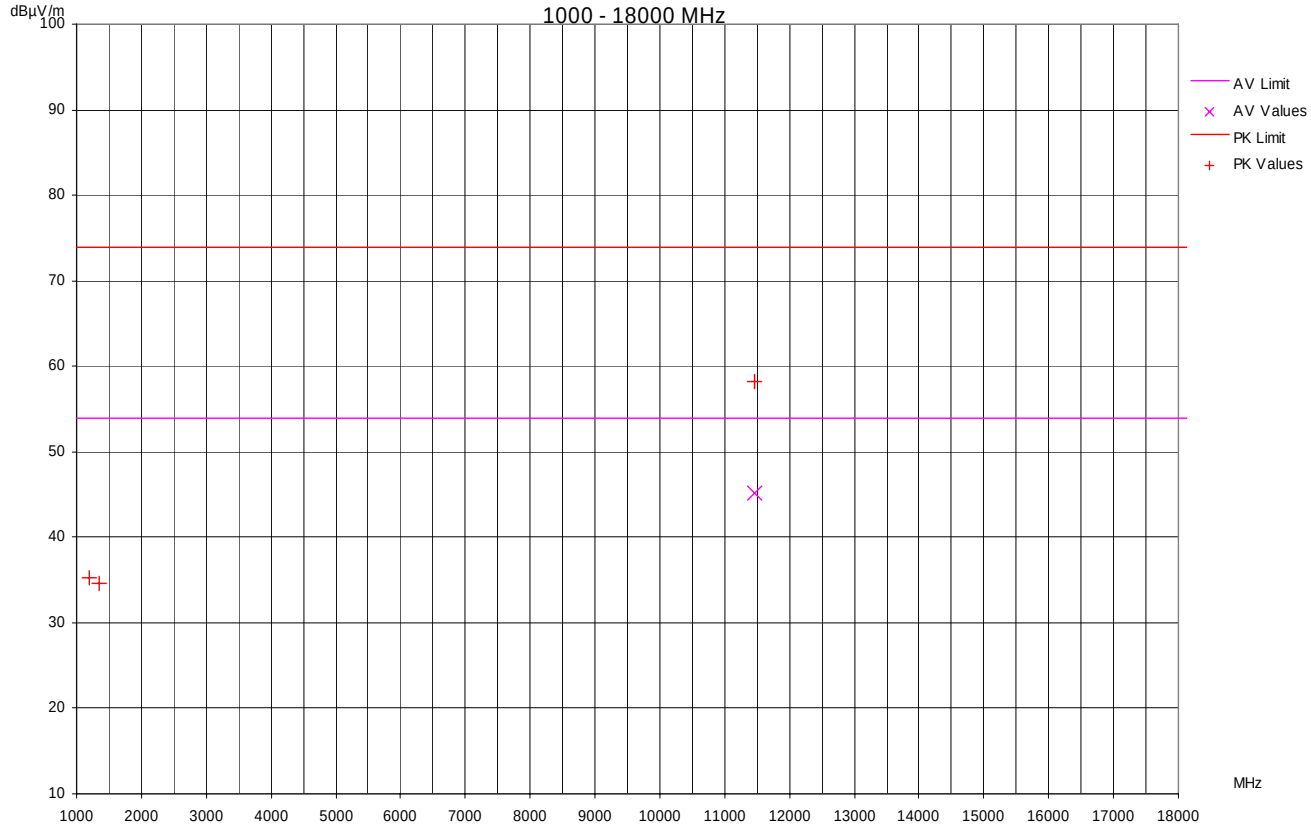
Date of test:	2010-05-21
Operator:	Jürgen Pessinger
Mode:	Testcycle is running, Channel 27 (5755MHz) active, maximum TX Power
Standard:	FCC Part 15.109
Test:	Radiated Emission Test (Distance 3m)
Detector:	AV / PK
Result:	Limit kept
Applied to:	Vertical
Remark:	none



Minimum margin to limit: -22,9 dB

Frequency [MHz]	Reading [dBµV] AV	Reading [dBµV] PK	Correction [dB]	Values [dBµV/m] AV	Values [dBµV/m] PK	Limit [dBµV/m] AV	Limit [dBµV/m] PK	Margin [dB] AV	Margin [dB] PK
1208,000	--	45,5	-10,9		34,6	54,0	74,0		-39,3
3834,000	--	45,0	-1,3		43,7	54,0	74,0		-30,3
11518,000	--	42,3	8,8		51,1	54,0	74,0		-22,9

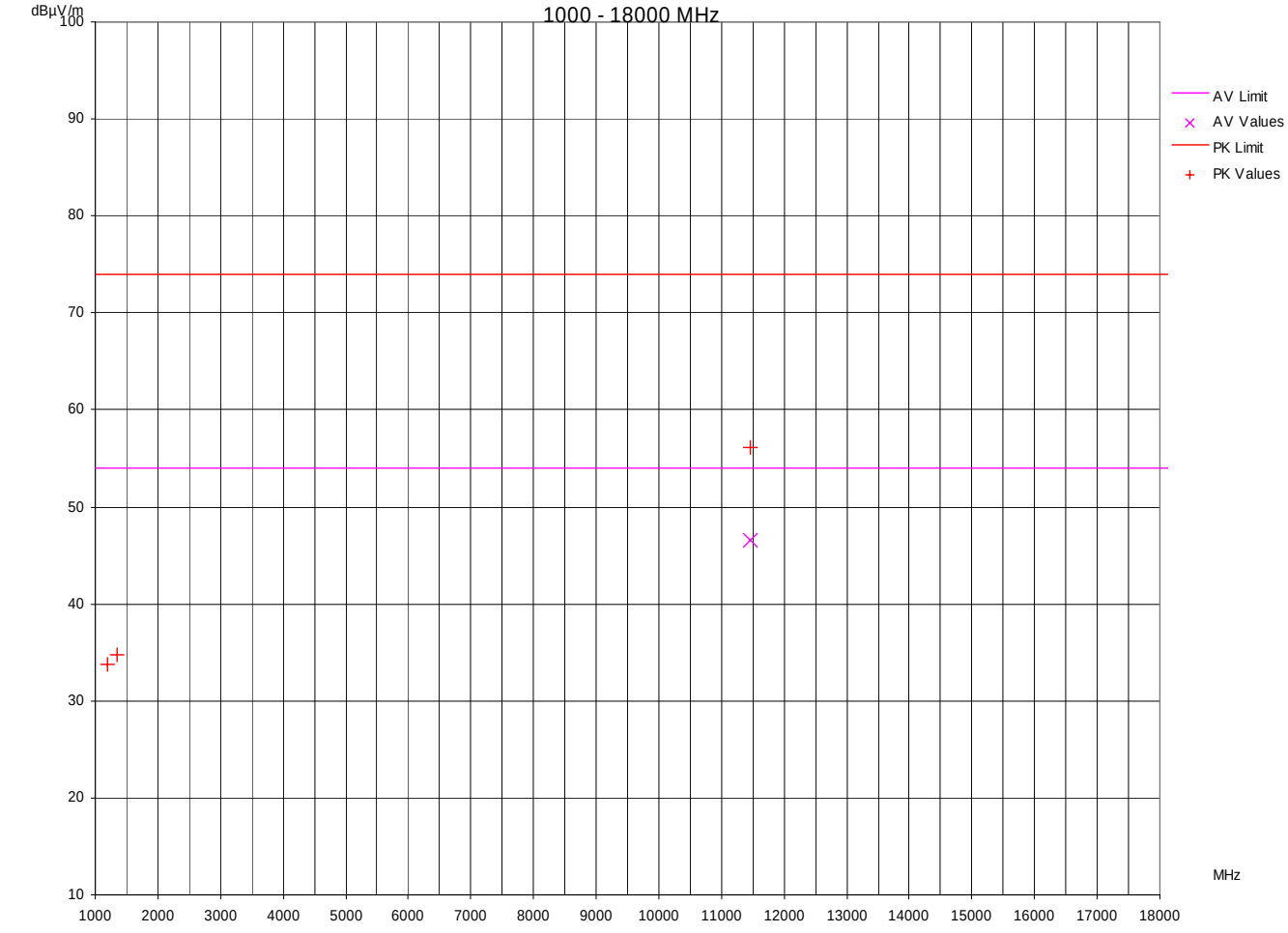
Date of test:	2010-06-22
Operator:	Jürgen Pessinger
Mode:	Testcycle is running, Channel 45 (5737MHz) active, maximum TX Power
Standard:	FCC Part 15.109
Test:	Radiated Emission Test (Distance 3m)
Detector:	AV / PK
Result:	Limit kept
Applied to:	Horizontal
Remark:	none



Minimum margin to limit: -8,8 dB

Frequency [MHz]	Reading [dBµV] AV	Reading [dBµV] PK	Correction [dB]	Values [dBµV/m] AV	Values [dBµV/m] PK	Limit [dBµV/m] AV	Limit [dBµV/m] PK	Margin [dB] AV	Margin [dB] PK
1195,000	--	46,2	-10,9		35,3	54,0	74,0		-38,7
1338,000	--	45,1	-10,5		34,6	54,0	74,0		-39,4
11450,800	36,4	49,4	8,8	45,2	58,2	54,0	74,0	-8,8	-15,8

Date of test:	2010-06-22
Operator:	Jürgen Pessinger
Mode:	Testcycle is running, Channel 45 (5737MHz) active, maximum TX Power
Standard:	FCC Part 15.109
Test:	Radiated Emission Test (Distance 3m)
Detector:	AV / PK
Result:	Limit kept
Applied to:	Vertical
Remark:	none



Minimum margin to limit: -7,4 dB

Frequency [MHz]	Reading [dBµV] AV	Reading [dBµV] PK	Correction [dB]	Values [dBµV/m] AV	Values [dBµV/m] PK	Limit [dBµV/m] AV	Limit [dBµV/m] PK	Margin [dB] AV	Margin [dB] PK
1195,000	--	44,7	-10,9		33,7	54,0	74,0		-40,2
1338,000	--	45,3	-10,5		34,8	54,0	74,0		-39,2
11450,700	37,8	47,4	8,8	46,6	56,2	54,0	74,0	-7,4	-17,8

7 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used, in addition to the test accessories, are calibrated and verified regularly.

Test ID	Model Type	Equipment No.	Next Calib.	Last Calib.	Next Verif.	Last Verif.
A 4	ESH 3	01-02/03-01-005	18/02/2011	18/02/2010		
	ESH 2 - Z 5	01-02/20-01-001			12/04/2011	12/04/2010
	ESH 3 - Z 2	01-02/50-02-020	18/02/2011	18/02/2010		
	BNC-3000-N	01-02/50-07-008				
	N-5000-N	01-02/50-07-009				
	Tile Version 3.4K20	01-02/68-09-001				
SER 2	ESVP	01-02/03-01-002	13/11/2010	13/11/2009		
	HM 5012	01-02/11-01-001				
	VULB 9163	01-02/24-01-006	24/10/2011	24/10/2008		
	N-40000-N	01-02/50-05-043				
	N-30000-N	01-02/50-05-044				
SER 3	AMF-40-005-180-24-10P	01-02/17-02-009			01/12/2010	01/12/2009
	3115	01-02/24-01-011	08/05/2013	08/05/2008		
	HCC	01-02/50-01-021				
	FA210A0050M0000	01-02/50-01-067				
	RST 070	01-05/60-02-003				
	FSP 30	02-02/11-05-001	04/05/2011	04/05/2010		
	R2	02-02/30-09-001			22/02/2011	22/02/2010
	C12-K1K1-157	02-02/50-06-001				