

Prüfbericht - Nr.: 21140994_002

Test Report No.:

Seite 1 von 22

Page 1 of 22

Auftraggeber: Julius Blum GmbH

Client:

Industriestr. 1
6973 Höchst
Österreich

Gegenstand der Prüfung: AVENTOS SERVO DRIVE

Test item:

Bezeichnung:

21P5020

Serien-Nr.:

Identification:

21A00L33

Serial No.:

Wareneingangs-Nr.:

81952

Eingangsdatum:

2009-03-05

Receipt No.:

Date of receipt:

Prüfart:

TÜV Rheinland Product Safety GmbH, Köln, Germany

Testing location:

Prüfgrundlage:

FCC 47 CFR Ch.1 Part 15 2007-09-20 Emission

Test specification:

Section 15.207 (a), limits same as IEC/CISPR 22:1997 (EN 55022:1998) Class B

Section 15.109 (a) Class B

Section 15.109 (g), i.e. IEC/CISPR 22:1997 (EN 55022:1998) Class B

Section 15.209 (Intentional radiator)

Section 15.249 (Intentional radiator)

Section 15.31 (e) and Section 15.215 (c)

Prüfergebnis:

Der Prüfgegenstand entspricht oben genannten Prüfgrundlagen

Test Result:

The test item passed the test specification(s)

Prüflaboratorium:

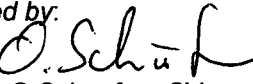
TÜV Rheinland Product Safety GmbH, Köln, Germany

Testing Laboratory:

geprüft / tested by:

kontrolliert / reviewed by:

2009-11-30


O. Schaefer, SV

2009-11-30


K. Jauerlich, SV

Datum
Date

Name / Stellung
Name / Position

Unterschrift
Signature

Datum
Date

Name / Stellung
Name / Position

Unterschrift
Signature

Sonstiges / Other Aspects:

FCC Registration No. 91096, 2007-Dec-05

Anhang / Annex:1 Fotodokumentation / Test setup

Anhang / Annex:2 Fotodokumentation / Photo Documentation

Abkürzungen: P(ass) = entspricht Prüfgrundlage
F(all) = entspricht nicht Prüfgrundlage
N/A = nicht anwendbar
N/T = nicht getestet

Abbreviations: P(ass) = passed
F(all) = failed
N/A = not applicable
N/T = not tested

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.

Verwendete Messgeräte sind in der linken Spalte mit einem Kreuz **x** markiert
 [used instruments are marked with an **x** in the left column]

Störaussendung [emission]					
Test / Gerät [test / device]	Type	Hersteller [manufacturer]	Inv. – Nr. /Ser. - Nr.	kal. bis [cal. till]	
Funkstörspannung / –strom [conducted disturbance]					
x EMI Receiver 9kHz-30MHz	FMLK 1518 D	Schwarzbeck	14200382	2009-08	
x Netznachbildung [AMN]	ESH 3-Z5	Rohde & Schwarz	14200683	2010-05	
x Schirmkabine [shielded room]	B 83102 S1-X10	Siemens	---	---	
Elektr. Funkstörfeldstärke 2 [radiated disturbance SAC]					
EMI Receiver 25-1000MHz	VUMA 1521 A	Schwarzbeck	14200621	2009-01	
EMI Receiver 25-1000MHz	VUMA 1524	Schwarzbeck	14200418	2009-03	
EMI Receiver < 2,75GHz	ESCS 30	Rohde & Schwarz	14201360	2010-01	
EMI Receiver < 26,5GHz	ESU 26	Rohde & Schwarz	30401912	2009-11	
x EMI Receiver < 26,5GHz	ESMI	Rohde & Schwarz	14200550	2010-10	
x BiConiLog-Ant 26-3000MHz	3142B	EMCO	14201363	2011-06	
Horn-Ant. 0,8-5GHz	BBHA 9120A	Schwarzbeck	30402211	2010-09	
x Horn-Ant 1-10GHz	BBHA 9120B 202	Schwarzbeck	14200694	2010-02	
Horn-Ant 1-10GHz	BBHA 9120B 204	Schwarzbeck	14200695	2009-10	
Horn-Ant 2-18GHz	BBHA 9120C 376	Schwarzbeck	30401857	2009-07	
x Horn-Ant 2-18GHz	BBHA 9120C 377	Schwarzbeck	30401858	2009-03	
Horn-Ant 15-26,5GHz	BBHA 9170 311	Schwarzbeck	30401855	2009-03	
x Horn-Ant 15-26,5GHz	BBHA 9170 312	Schwarzbeck	30401856	2009-03	
x Semi Anechoic Chamber SAC		ETS	14201372	2010-06	
Weitere Messgeräte [other testequipment]					
Digital-Multimeter	Metra Hit 16	ABB	14200346	2010-06	
x Digital-Multimeter	Metra Hit 23S	Gossen	14200699	2009-09	
Oszilloskop [oscilloscope]	TDS 3052B	Tektronix	30401734	2010-02	
x Temperature / Humidity	615	testo	30401660	2009-08	

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

All measurement equipment calibrations are traceable to DKD or where calibration is performed outside Germany, to equivalent nationally recognized standards organizations.

The measurement facilities for conducted and for radiated disturbances of TRPS GmbH in Cologne, Am Grauen Stein, has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules. Measurement data will be accepted in conjunction with applications for Certification under Parts 15 and 18 of the Commission's Rules.

Registration-Number: 91096

Date of Listing: 2007-Dec-05

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Messunsicherheit [measurement uncertainty]

Where relevant, following measurement uncertainty levels have been estimated for tests performed on the apparatus.

	Expanded Uncertainty	
	U_{Lab}	U_{CISPR}
Conducted Emission 0,15 to 30 MHz, Power Line	2,70 dB	3,6 dB
Radiated Emission 9kHz to 30MHz, Magnetic Field 3m	4,16 dB	5,2 dB
Radiated Emission 30 to 300MHz, OATS 3m or 10m	5,11 dB	5,2 dB
Radiated Emission 300 to 1000MHz, OATS 3m	4,71 dB	5,2 dB
Radiated Emission 30 to 1000MHz, Semi Anechoic Chamber 3m	4,91 dB	5,2 dB
Radiated Emission 1000 to 2750MHz, Semi Anechoic Chamber 3m	4,89 dB	under consid.

Calculated in accordance with UKAS LAB 34
Uncertainty figures are valid to a confidence level of 95%

Test period : 2009-03-05 till 2009-04-14

1. Vereinbarungen [requirements and agreements]

Auftragsgemäß wurde an dem vorgestellten Prüfling eine EMV-Prüfung durchgeführt. Die Prüfung erfolgte nach den folgenden Grundlagen.

[The tested device got investigated by the following requirements and standards]

Störaussendung [Emission]

FCC 47 CFR Ch.1 Part 15

Section 15.207 (a) limits same as IEC/CISPR 22:1997 Class B (EN 55022:1998 Kl. B)	Störspannung, AC-Eingang [conducted noise, AC power input]
Section 15.109 (a) Class B	El. Störfeldstärke [radiated el. noise]
Section 15.209	El. Störfeldstärke [radiated el. noise]
Section 15.249	
Section 15.31 (e) and Section 15.215 (c)	Voltage Variation Bandedge Compliance
ANSI C63.4:2003	Test Procedures

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1.1. Übersicht der Prüfergebnisse [Summary of test results]

Elektromagnetische Aussendung [Emission tests]	Ergebnis [result]
Funktörspannung am Netzanschluss [Mains terminal disturbance voltage]	Pass
Funktörspannung, Knackstörungen [Disturbance voltage, clicks]	N/A
Funktörspannung/-strom [conducted cont. disturbance]	N/A
Funktörleistung [Disturbance power]	N/A
Funktörfeldstärke [Radiated disturbance] „Unintentional“	N/A
Funktörfeldstärke [Radiated disturbance] „Intentional“	Pass
Oberschwingungsströme [Harmonic current emissions]	N/A
Spannungsschwankungen [Voltage fluctuations]	N/A

Elektromagnetische Beeinflussbarkeit [Immunity tests]	Ergebnis [result]
Leitungsgeführte Störgrößen, induziert durch HF-Felder [Conducted disturbances, induced by radio frequency fields]	N/A
Hochfrequente elektromagnetische Felder [Radiated, radio-frequency electromagnetic fields]	N/A
Schnelle transiente elektrische Störgrößen/Burst [Electrical fast transient/burst]	N/A
Spannungseinbrüche, Kurzzeitunterbrechungen und Spannungsschwankungen [Voltage dips, short interruptions and voltage variations]	N/A
Stoßspannungen [Surge]	N/A
Entladung statischer Elektrizität [Electrostatic discharge]	N/A
Magnetfelder mit energietechn. Freq. [Power frequent magnetic fields]	N/A

Abkürzungen [abbreviations]:

Pass	Anforderungen erfüllt	[requirements fulfilled or test passed]
Fail	Anforderungen nicht erfüllt	[requirements not fulfilled or test failed]
N/A	Nicht anwendbar/gefordert	[not applicable/requested]
A/nT	Anwendbar, nicht getestet	[applicable, not tested]

Begründung für anwendbare, jedoch nicht durchgeführte Prüfungen

[Reason for applicable but not executed tests]

Nr. [No.]	Begründung [Reason]
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1.2. Einteilung des Prüflings [classification of EUT]

Der Prüfling wird klassifiziert in Kategorie
[The EUT is classified into category]

FCC 47CFR Part 15 Subpart C Section 15.201
Intentional Radiator

Certification

2. Informationen zum Prüfling [information about EUT]

Geräteart [kind of device]: Siehe Seite 1 dieses Berichtes [refer to page 1 of this report]
Type: Siehe Seite 1 dieses Berichtes [refer to page 1 of this report]
Ser. Nr.: Siehe Seite 1 dieses Berichtes [refer to page 1 of this report]

Gerätevarianten [EUT variants]: Keine [none]

Andere Bezeichnung
[brandname]: NN

Nennspannung [rated voltage]: EUT 21P5020 = 3 V DC
EUT 21A00L33 = 120 V AC

Netzfrequenz [frequency]: 60 Hz

Nennstrom [rated current]: ---

Nennleistung [rated power]: Keine spezif. Daten vorhanden [no specific data available]

Schutzklasse [protection class]: II

Konstruktion/Aufbau:
[constructional details] Siehe Foto- bzw. System-Dokumentation
Abmessungen [dimensions] [refer to photo and system documentation]

Schnittstellen [interfaces, ports]
Eingang [input]: ---

Intern [internal]: ---

Ausgang [output]: ---

Ein/Ausgang [bidir. I/O] ---

EMV relevante Daten
[EMC relevant data] Weitere Daten siehe System-Dokumentation in Anhang 3
Systemfreq. [system freq.]: [for further information refer to appendix 3]
Channel 1 = 2403 MHz
Channel 2 = 2440 MHz
Channel 3 = 2477 MHz

Filter [filter]: ---

Erdung [grounding]: ---

Schirmung [shielding]: Keine [None]

Besondere EMV-Massnahmen
[special EMC measures]: ---

Sonstiges [other aspects]: ---

Betriebsart während der
Prüfungen [EUT mode]: 1 Standby and Transmit

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3. Prüfaufbau [EUT configuration]

Der Prüfaufbau erfolgte entsprechend den Angaben der genannten EMV-Normen.
Die Messungen und Tests wurden unter "worst case"-Bedingungen durchgeführt, d.h., es wurden typische Anordnungen und Betriebszustände gewählt bzw. angenommen und für maximale Störaussendung optimiert (sogenannte "Ungünstigste Konfiguration").
Die maximalen Störaussendungswerte wurden dokumentiert.
Einzelheiten sind (auch) der Fotodokumentation zu entnehmen, in der die Konfigurationen maximaler Störaussendung dargestellt sind.
Soweit nicht anders angegeben, gelten diese Angaben für alle nachfolgenden Messungen.

[The test setup was made in accordance with mentioned EMC standards.
Measurements and tests were executed under "worst case" conditions. Typical EUT arrangements or operating modes were chosen or assumed and for maximum emission optimized (a so called "unfavourable configuration").
Maximum emissions are reported.
Details of test setup or adjustments are (also) shown inside the photo documentation, in which configurations of maximum emission are displayed.
As far as not mentioned otherwise these statements are valid for all following tests.]

Testkonfiguration [tested configuration]
Prüfling EUT: ---
[Equipment Under Test EUT]

Verwendete Zusatzgeräte AE: ---
[Auxiliary Equipment AE]

Versorgung [supply]: Wie in Kap. 2 [same as in chapter 2]

Testsoftware [testsoftware]: ---

Überwachung während Prüfung: ---
[supervision during test]

Abkürzungen [abbreviations]	N/A	Nicht anwendbar [not applicable]
	NN	Nicht bekannt [not named]
	NC	Nicht bestückt [not connected]

4. Prüfungen [EMC tests]

4.1. Funkstörspannung an Netzanschlüssen 0,15 – 30 MHz [conducted cont. disturbance at mains terminals]

Prüfgrundlage [test bases]: FCC Part 15 Class B Section 15.207 (a)
 IEC/CISPR 22 Class B
 EN 55022 Klasse B

Grenzwerte [limits] Funkstörspannung [cond. noise]		Quasi-Peak QP 9kHz	Mittelwert Av 9kHz
FCC Part 15.207 IEC/CISPR 22 Class B EN 55022 Klasse B	0,15 - 0,5 MHz	66 - 56 dB μ V	56 - 46 dB μ V
	0,5 - 5 MHz	56 dB μ V	46 dB μ V
	5 - 30 MHz	60 dB μ V	50 dB μ V

FCC Part 15.107 (b) Class A IEC/CISPR 22 Class A EN 55022 Klasse A	0,15 - 0,5 MHz	79 dB μ V	66 dB μ V
	0,5 - 5 MHz	73 dB μ V	60 dB μ V
	5 - 30 MHz	73 dB μ V	60 dB μ V

Messung auf [tested port]: AC_In

Länge der Versorg.-leitung [length]: ca. 2m

Betriebsart [EUT mode]: siehe Kap. 2 [refer to chapter 2]
 Prüfaufbau [test setup]: siehe Kap. 3 [refer to chapter 3]

Messergebnis [test data]: siehe Anhang 1 [refer to appendix 1]

Anmerkungen [comments]: ---

Prüfergebnis [test result]:
X Anforderungen erfüllt [Req. fulfilled, Passed]
 --- Anforderungen nicht erfüllt [Req. not fulfilled, Failed]
 --- Informativ getestet [Informatively tested]
 --- Nicht anwendbar/gefordert [Not Applicable/Requested]
 --- Nicht getestet [Not tested]

Datum [date]: siehe Messwertediagramme [refer to test result diagrams]

4.2. El. Funkstörfeldstärke, [radiated disturbance, intentional radiator]

Prüfgrundlage [test bases]: FCC Part 15.209
 FCC Part 15.249

Grenzwerte [limits]		L2	L3
FCC Part 15.209	0.009 – 0.490 MHz		2400/F(kHz) 300m !
	0.490 – 1.705 MHz		2400/F(kHz)
	1.705 - 30 MHz	70 dBµV/m	30 dBµV/m
Detektor [detector] Messentfernung [distance]:		QP, 120 kHz d2 = 3 m	QP, 120 kHz d3 = 30 m
Entf.-Formel [distance formula] by FCC Part 15.31 (f) (2)	L2 = L3 + 40 dB/dec.		

Grenzwerte [limits]		L2	L1
FCC Part 15.209	30 - 88 MHz	40 dBµV/m	29,5 dBµV/m
	88 – 216 MHz	43,5 dBµV/m	33 dBµV/m
	216 – 960 MHz	46 dBµV/m	35,5 dBµV/m
	> 960 MHz	54 dBµV/m	43,5 dBµV/m
Detektor [detector]	< 1000 MHz	QP, 120 kHz	
	> 1000 MHz	Av, 1 MHz	
Messentfernung [distance]:		d2 = 3 m	d1 = 10 m
Entf.-Formel [distance formula] by FCC Part 15.31 (f) (1) by EN 55022 10.6	$L2 = L1 + 20 \text{ dB/dec.}$ $L2 = L1 * (d1/d2) = L1 + 20 * \lg d1/d2 = L1 + 10,46 \text{ dB}$		

Grenzwerte [limits]			
FCC Part 15.249 (b) (1)	902 – 928 MHz	N/A	
	2400 - 2483,5 MHz	50 mV/m	
	5725 – 5875 MHz	N/A	
	outside these bands	Limits as	FCC Part 15.209
Detektor [detector] Messentfernung [distance]:		Pk d2 = 3 m	

Obere Messfrequenz [upper freq. of measurement] FCC Part 15 Section 15.33 (a)	from 30 MHz To 25 GHz
---	--------------------------

Messort [location]: Absorberkammer [semi anechoic chamber]

Prüftisch [turn table]
 Dimension 1,5m, Höhe [height] 0,8m
 Material Holz, nichtleitend [wood, non-conductive]
 Messentfernung [distance]: 3 m

Messmethode [method] According ANSI C63.4:2003

Betriebsart [EUT mode]: siehe Kap. 2 und Anhang 1
 [refer to chapter 2 and appendix 1]
 Prüfaufbau [test setup]: siehe Kap. 3 [refer to chapter 3]
 Messergebnis [test data]: siehe Anhang 1 [refer to appendix 1]

EUT 21A00L33
 Channel 1 = 13.33 mV/m
 Channel 2 = 11.88 mV/m
 Channel 3 = 11.88 mV/m

EUT 21P5020
 Channel 1 = 10.35 mV/m
 Channel 2 = 10.00 mV/m
 Channel 3 = 9.44 mV/m

(Limit is 50 mV/m)

Messunsicherheit [measurement uncertainty]: Erweiterte Messunsicherheit [expanded uncertainty] = 4,89 dB

Anmerkungen [comments]: The transmitter was modulated.

Prüfergebnis [test result]:
X Anforderungen erfüllt [Req. fulfilled, Passed]
 --- Anforderungen nicht erfüllt [Req. not fulfilled, Failed]
 --- Nicht anwendbar/gefordert [Not Applicable/Requested]
 --- Nicht getestet [Not tested]

Field Strength Calculations: The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured level. The basic equation with a sample calculation is as follows:

Where: Field Strength = Measured Level + Antenna Factor + Cable Attenuation Factor – Amplifier Gain

Example: FS = 30,0 + 7,4 + 1,1 - 0 = 38,5dBuV/m

Level in uV/m = Common Antilogarithm [(38,5dBuV/m)/20] = 84,1uV/m

Max. Emission
No signals found

Frequency / GHz	Peak	Average	Polarization

X, Y and Z positions were tested and “X” position was found to be worst case.

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4:2003.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions. The Analyser was set to max. hold. All test was performed with Peak and Average detector. All values are the same. The Res.Bw and Vid.Bw for the above table is 1 MHz. The report shows the max. value we found from both EUT's.

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Frequency error or frequency drift						
Measurement uncertainty: $\pm 1 \times 10^{-7}$						
21A00L33						
Tx Freq. (MHz)	Temp. (°C)	Voltage (V)	Frequency (MHz)	Error (kHz)	Verdict	Remark
2403	T _{nor}	V _{nor}	2403.021	21	Pass	---
	T _{min}	V _{min}	2403.019	19	Pass	
		V _{max}	2403.019	19	Pass	
		V _{min}	2403.018	18	Pass	
	T _{max}	V _{min}	2403.018	18	Pass	
		V _{max}	2403.018	18	Pass	

Frequency error or frequency drift						
Measurement uncertainty: $\pm 1 \times 10^{-7}$						
21A00L33						
Tx Freq. (MHz)	Temp. (°C)	Voltage (V)	Frequency (MHz)	Error (kHz)	Verdict	Remark
2440	T _{nor}	V _{nor}	2440.020	20	Pass	---
	T _{min}	V _{min}	2440.021	21	Pass	
		V _{max}	2440.021	21	Pass	
		V _{min}	2440.019	19	Pass	
	T _{max}	V _{min}	2440.019	19	Pass	
		V _{max}	2440.019	19	Pass	

Frequency error or frequency drift						
Measurement uncertainty: $\pm 1 \times 10^{-7}$						
Limit: ± 60 ppm						
21A00L33						
Tx Freq. (MHz)	Temp. (°C)	Voltage (V)	Frequency (MHz)	Error (kHz)	Verdict	Remark
2477	T _{nor}	V _{nor}	2477.018	18	Pass	---
	T _{min}	V _{min}	2477.021	21	Pass	
		V _{max}	2477.021	21	Pass	
		V _{min}	2477.018	18	Pass	
	T _{max}	V _{min}	2477.018	18	Pass	
		V _{max}	2477.018	18	Pass	

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Frequency error or frequency drift						
Measurement uncertainty: $\pm 1 \times 10^{-7}$						
21P5020						
Tx Freq. (MHz)	Temp. (°C)	Voltage (V)	Frequency (MHz)	Error (kHz)	Verdict	Remark
2403	T _{nor}	V _{nor}	2403.020	20	Pass	---
	T _{min}	V _{min}	-	-	-	
		V _{nor}	2403.021	21	Pass	
	T _{max}	V _{min}	-	-	-	
		V _{nor}	2403.019	19	Pass	

Frequency error or frequency drift						
Measurement uncertainty: $\pm 1 \times 10^{-7}$						
21P5020						
Tx Freq. (MHz)	Temp. (°C)	Voltage (V)	Frequency (MHz)	Error (kHz)	Verdict	Remark
2440	T _{nor}	V _{nor}	2440.020	20	Pass	---
	T _{min}	V _{min}	-	-	-	
		V _{nor}	2440.022	22	Pass	
	T _{max}	V _{min}	-	-	-	
		V _{nor}	2440.019	19	Pass	

Frequency error or frequency drift						
Measurement uncertainty: $\pm 1 \times 10^{-7}$						
21P5020						
Tx Freq. (MHz)	Temp. (°C)	Voltage (V)	Frequency (MHz)	Error (kHz)	Verdict	Remark
2477	T _{nor}	V _{nor}	2477.018	18	Pass	---
	T _{min}	V _{min}	-	-	-	
		V _{nor}	2477.020	20	Pass	
	T _{max}	V _{min}	-	-	-	
		V _{nor}	2477.019	19	Pass	

The Voltage is internal stabilized.

(2) The frequency tolerance of the carrier signal shall be maintained within + 0.001% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. **For battery operated equipment, the equipment tests shall be performed using a new battery.**

Bandedge	
Measurement uncertainty: $\pm 1 \times 10^{-7}$ EUT 21A00L33	
Low frequency at 20 db bandwidth (GHz)	High frequency at 20 db bandwidth (GHz)
2,402471	2,403529
2,476483	2,477517

Bandedge	
Measurement uncertainty: $\pm 1 \times 10^{-7}$ EUT 21P5020	
Low frequency at 20 db bandwidth (GHz)	High frequency at 20 db bandwidth (GHz)
2,402517	2,403483
2,476540	2,477460

99% BW for Canada RSS-210 Issue 7	
EUT 21P5020	
Tx Freq. (MHz)	Bandwidth / MHz
2403	0,980
2440	0,982
2477	0,982

99% BW for Canada RSS-210 Issue 7	
EUT 21A00L33	
Tx Freq. (MHz)	Bandwidth / MHz
2403	0,982
2440	0,980
2477	0,984

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Maximum Permissible Exposure (MPE) 21P5020			
According to 1.1307 (b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the commissions's guideline.			
Calculation Result	MPE distance	Limit (mW/cm²)	Result
Max. MPE = 0.000000314 mW/cm² The SAR measurement is not required.	20 cm	1	Pass

Equation (3) given in OET Bulletin 65 is used to estimate the MPE distance.

$$S = (PG) / (4\pi R^2)$$

S= power density, in mW/cm²
 P= power input to the antenna, in mW
 G= numeric gain of the antenna,
 R= distance of the center of the antenna, in cm

Maximum Permissible Exposure (MPE) 21A00L33			
According to 1.1307 (b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the commissions's guideline.			
Calculation Result	MPE distance	Limit (mW/cm²)	Result
Max. MPE = 0.000000499 mW/cm² The SAR measurement is not required.	20 cm	1	Pass

Equation (3) given in OET Bulletin 65 is used to estimate the MPE distance.

$$S = (PG) / (4\pi R^2)$$

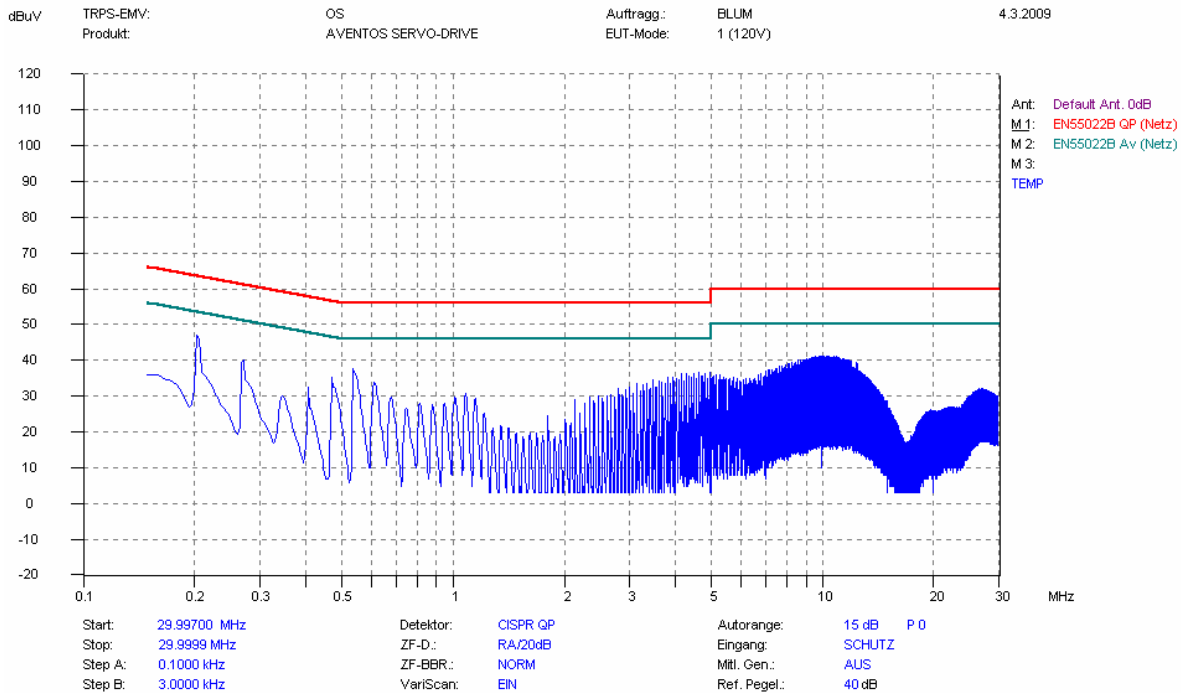
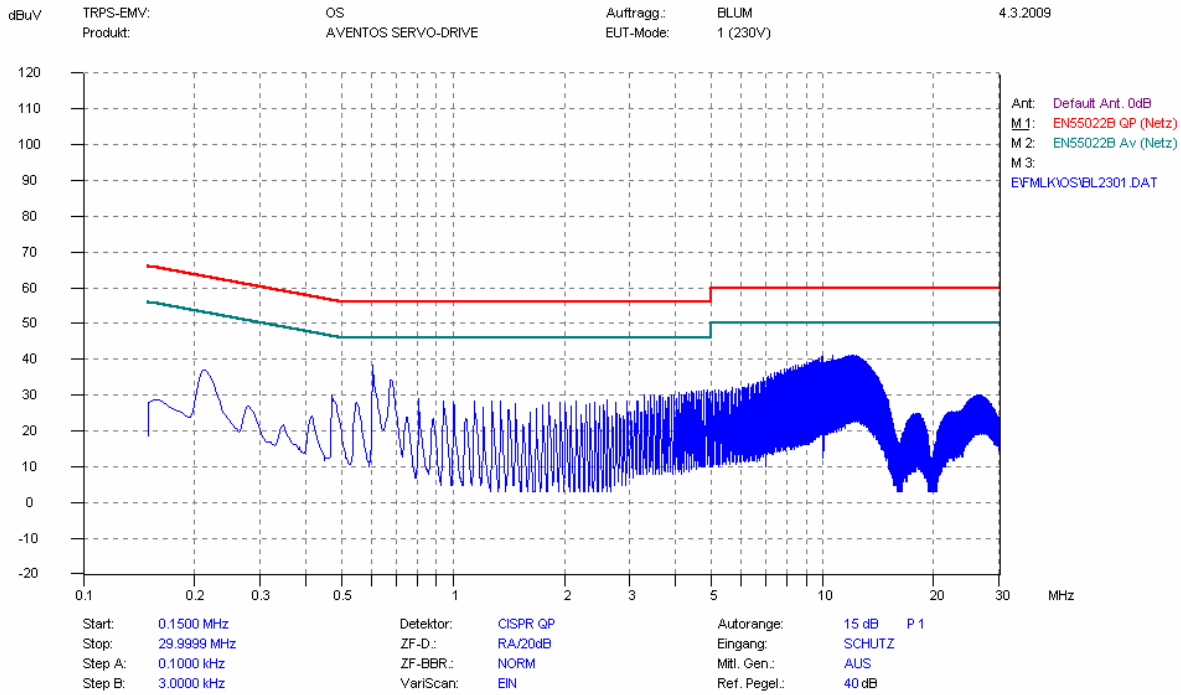
S= power density, in mW/cm²
 P= power input to the antenna, in mW
 G= numeric gain of the antenna,
 R= distance of the center of the antenna, in cm

Anhang 1 [Appendix 1]

Messdiagramme [Test Data]

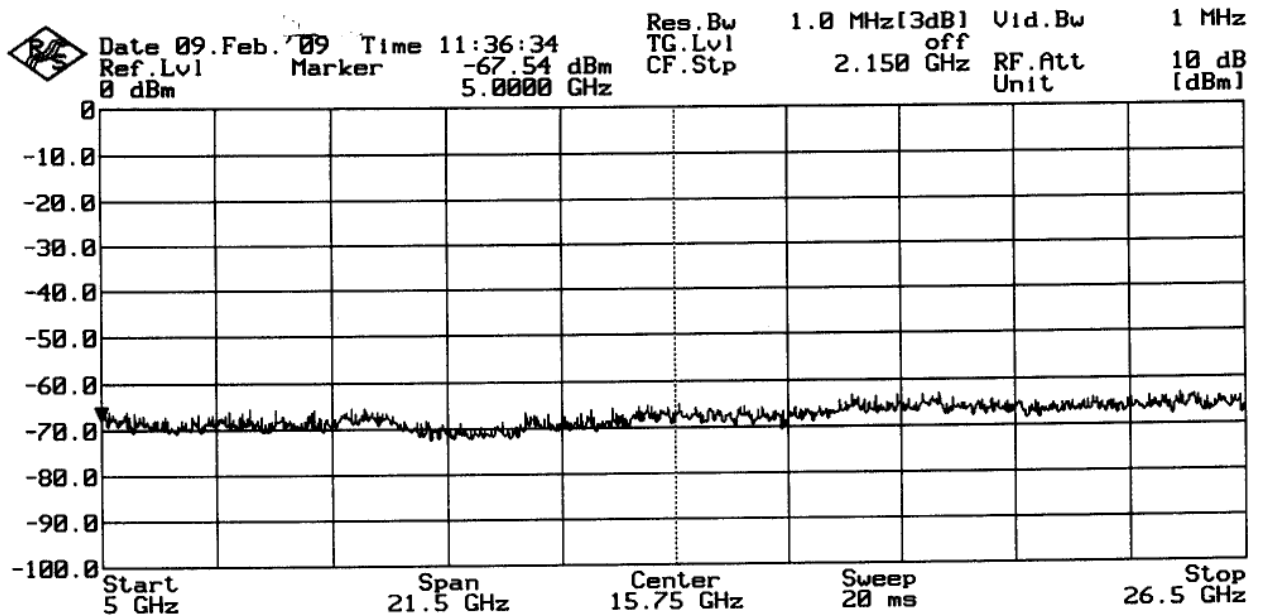
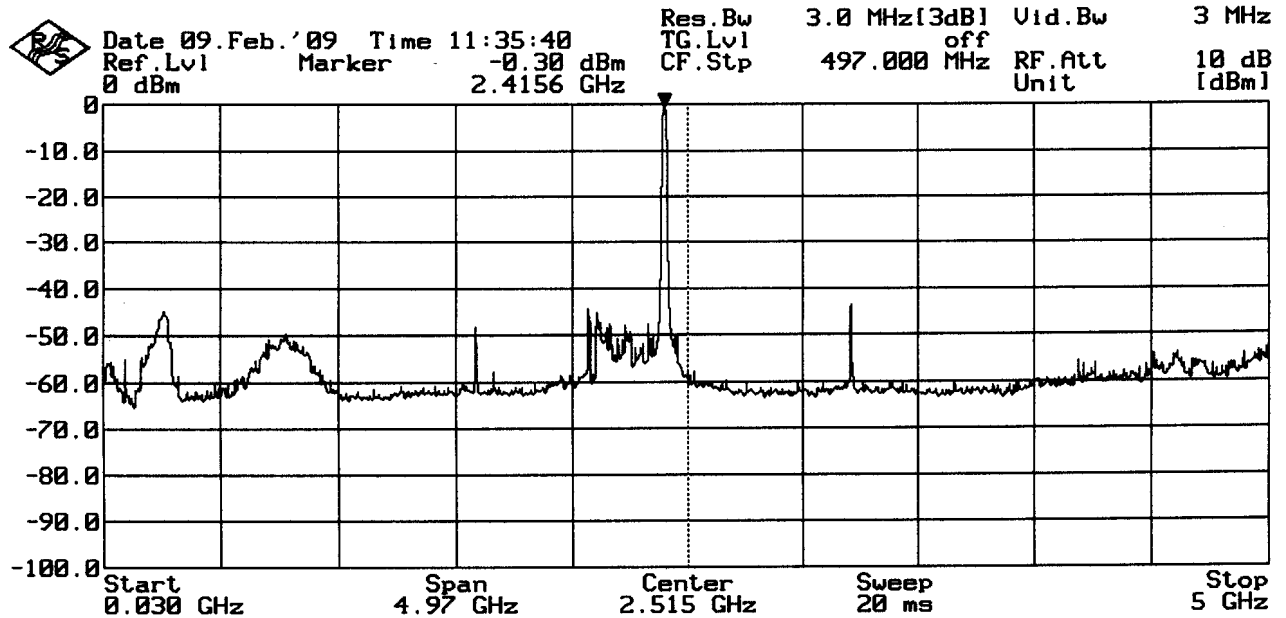
conducted cont. disturbance at mains terminals

EUT 21A00L33



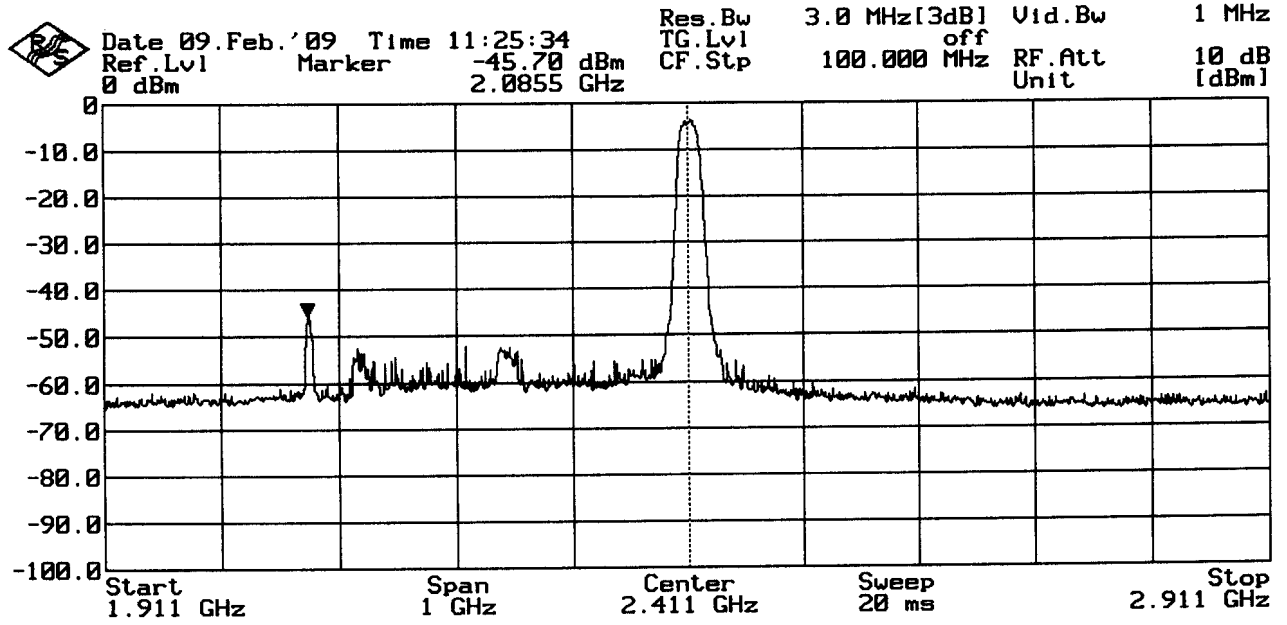
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Spurious emissions / relative measurement
 Relative measurement in a distance from 2 cm with a horn antenna
EUT 21P5020

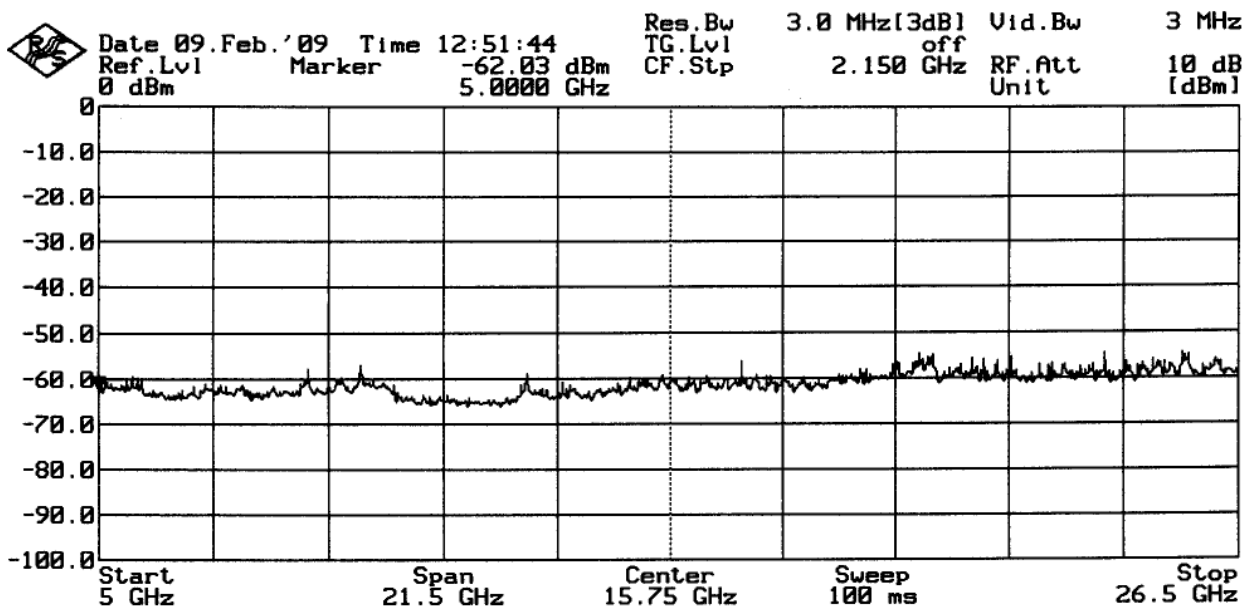
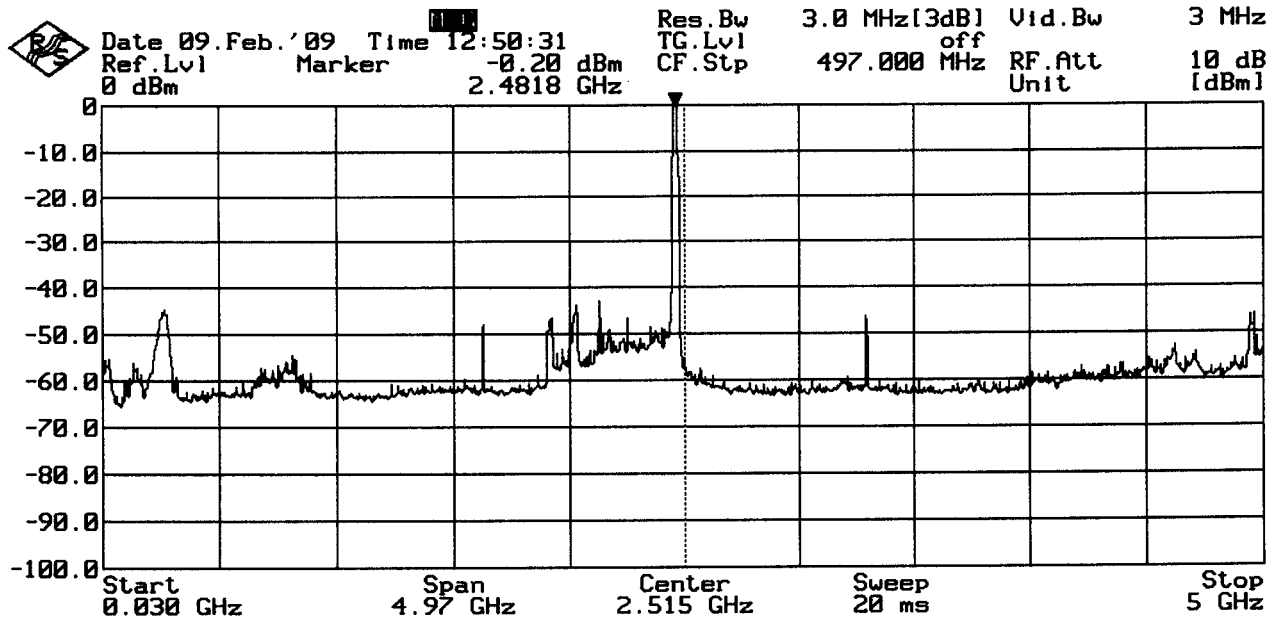


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Spurious emissions / relative measurement
 Relative measurement in a distance from 2 cm with a horn antenna
 21P5020

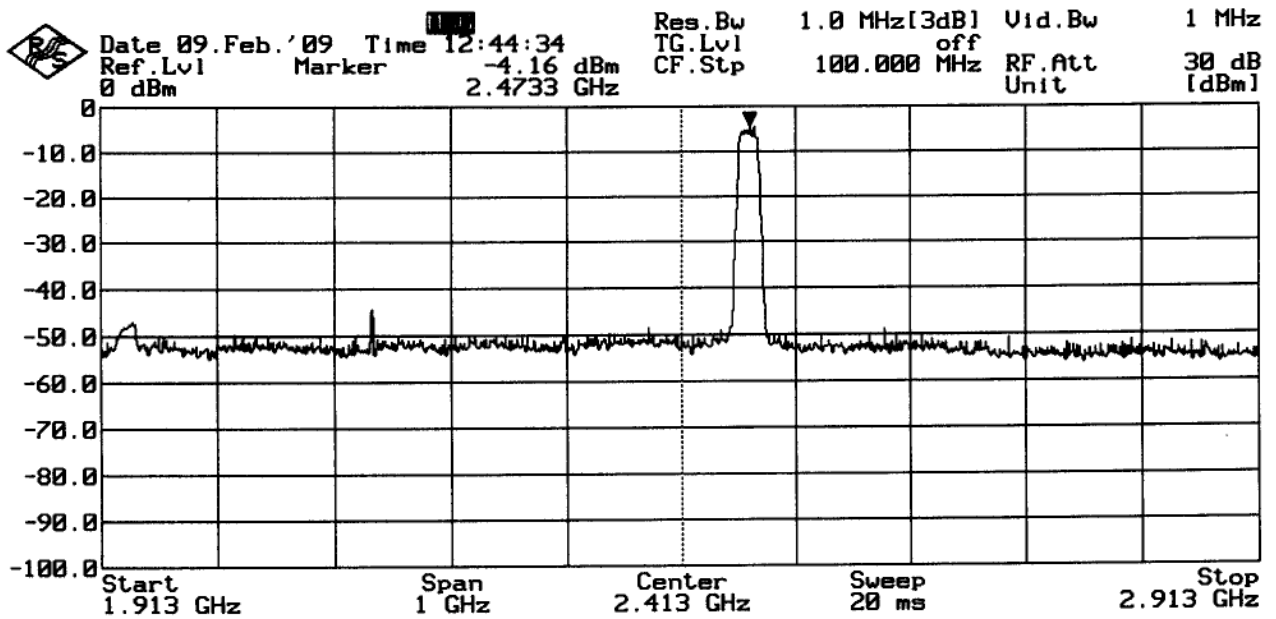


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Spurious emissions / relative measurement
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Ende des Prüfberichtes / *End of Testreport*