



SENTON

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January 20, 2010

Prüfbericht / *Test Report*

Nr. / No. 14912-01386-2 (Edition 1)

Applicant: Siemens AG
Type of equipment: Antenna for UHF RFID Reader
Type designation: RF620A with RF660R
Order No.: 2072020771
Test standards: FCC Code of Federal Regulations,
CFR 47, Part 15,
Sections 15.205, 15.215 and 15.247

Industry Canada Radio Standards Specifications
RSS-210 Issue 7, Sections 2.2, 2.6 and A8 (Category I Equipment)

Note:

The test data of this report is related 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 Description of the Equipment Under Test (EUT)

General data of EUT	
Type designation ¹ :	RF620A with RF660R
Parts ² :	Reader: RF660R Antenna: RF620A
Serial number(s):	Test sample
Manufacturer:	Siemens AG
Type of equipment:	Antenna for UHF RFID Reader
Version:	As received
FCC ID:	NXW-RF660
Additional parts/accessories:	

Technical data of EUT	
Application frequency range:	902 - 929 MHz
Frequency range:	902.25 - 928.75 MHz
Operating frequency:	915.25 MHz
Type of modulation:	DSB-ASK and SSB-ASK
Pulse train:	---
Pulse width:	---
Number of RF-channels:	50
Channel spacing:	500 kHz
Designation of emissions ³ :	500KK7D
Type of antenna:	External antenna
Size/length of antenna:	75 x 75 mm
Connection of antenna:	<input type="checkbox"/> detachable <input checked="" type="checkbox"/> not detachable
Type of power supply:	DC supply
Specifications for power supply:	nominal voltage: 24 V

¹ Type designation of the system if EUT consists of more than one part.

² Type designations of the parts of the system, if applicable.

³ Also known as "Class of Emission".



2 Administrative Data

Application details

Applicant (full address):	Siemens AG Siemensstraße 2 - 4 D-90766 Fürth
Contact person:	Dr. Thomas Erik Schilhabel
Contract identification:	
Receipt of EUT:	January 19, 2010
Date(s) of test:	January 19, 2010
Note(s):	This test report is intended for a permissive change. For further details please refer to the original test report. Mr. Gerhard Rötter representing the applicant attended all testings.

Report details

Report number:	14912-01386-2
Edition:	1
Issue date:	January 20, 2010

3 Identification of the Test Laboratory

Details of the Test Laboratory

Company name:	TÜV SÜD SENTON GmbH
Address:	Aeussere Fruehlingstrasse 45 D-94315 Straubing Germany
Laboratory accreditation:	DAR-Registration No. DAT-PL-171/94-03
FCC test site registration number	90926
Industry Canada test site registration:	3050A
Contact person:	Mr. Johann Roidt
	Phone: (+49) (0)9421 5522-0 Fax: (+49) (0)9421 5522-99

4 Summary

Summary of test results

The tested sample complies with the requirements set forth in the

Code of Federal Regulations CFR 47, Part 15, Sections 15.205, 15.215 and 15.247(d)

of the Federal Communication Commission (FCC) and the

Radio Standards Specifications

RSS-210 Issue 7, Sections 2.2, 2.6 and A8.5 (Category I Equipment)

of Industry Canada (IC).

Personnel involved in this report

Laboratory Manager:



Mr. Johann Roidt

Responsible for testing:



Mr. Martin Steindl

Responsible for test report:

Mr. Martin Steindl

5 Operation Mode and Configuration of EUT

Operation Mode(s)

Transmitting continuously with 915.25 MHz

Configuration(s) of EUT

The EUT was configured as antenna of a RF660R tag reader system, one for transmitting path, one for receiving path.

List of ports and cables

<i>Port</i>	<i>Description</i>	<i>Classification⁴</i>	<i>Cable type</i>	<i>Cable length</i>
1	DC supply 6GT2491-1HH50	dc power	Unshielded	5 m
2	Antenna TX 6GT2815-BH30	signal/control port	Shielded	3 m
3	Antenna RX 6GT2815-BH30	signal/control port	Shielded	3 m

List of devices connected to EUT

<i>Item</i>	<i>Description</i>	<i>Type Designation</i>	<i>Serial no. or ID</i>	<i>Manufacturer</i>

List of support devices

<i>Item</i>	<i>Description</i>	<i>Type Designation</i>	<i>Serial no. or ID</i>	<i>Manufacturer</i>
1	UHF RFID Reader	RF660R	SN101866402.002	Siemens
2	SIMATIC AC/DC adapter		6GT2898-0AA00	
3	RS232/RS422 converter ⁵			Sintech

⁴ Ports shall be classified as ac power, dc power or signal/control port

⁵ Used for configuration, only.

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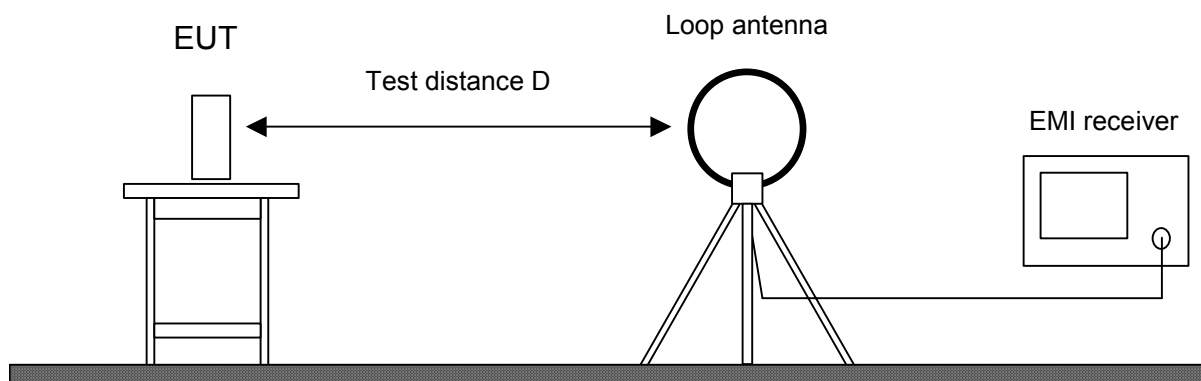
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eMail: senton@tuev-sued.de
Web: www.tuev-sued.de/senton



6 Measurement Procedures

6.1 Radiated Emission Measurement 9 kHz to 30 MHz

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.205(b) and 15.247 IC RSS-210 Issue 7, sections 2.2(b)(c), 2.6 and A8.5
Guide:	ANSI C63.4
<p>Radiated emission in the frequency range 9 kHz to 30 MHz is measured using an active loop antenna. First the whole spectrum of emission caused by the equipment is recorded at a distance of 3 meters in a fully or semi anechoic room with the detector of the spectrum analyzer or EMI receiver set to peak. This configuration is also used for recording the spectrum of intentional radiators.</p> <p>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. EUT is rotated all around to find the maximum levels of emissions. Equipment and cables are placed and moved within the range of position likely to find their maximum emissions.</p> <p>If worst case emission of the EUT cannot be recorded with EUT in standard position and loop antenna in vertical polarization the EUT (or the radiating part of the EUT) is rotated by 90 degrees instead of changing the loop antenna to horizontal polarization. This procedure is selected to minimize the influence of the environment (e.g. effects caused by the floor especially with longer distances).</p> <p>Final measurement is performed at a test distance D of 30 meters using an open field test site. In case the regulation requires testing at other distances, the result is extrapolated by either making measurements at an additional distance D of 10 meters to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). In cases of very low emissions measurements are performed at shorter distances and results are extrapolated to the required distance. The provisions of CFR 47 Part 15 sections 15.31(d) and (f)(2) apply. According to CFR 47 Part 15 section 15.209(d) final measurement is performed with detector function set to quasi-peak except for the frequency bands 9 to 90 kHz and 110 to 490 kHz where, for non-pulsed operation, average detector is employed.</p> <p>If the radiated emission limits are expressed in terms of the average value of the emission there also is a peak limit corresponding to 20 dB above the maximum permitted average limit. Additionally, if pulsed operation is employed, the average field strength is determined by averaging over one complete pulse train, including blanking intervals, as specified in CFR 47 Part 15 section 15.35(c). If the pulse train exceeds 0.1 second that 0.1 second interval during which the value of the emission is at its maximum is selected for calculation. The pulse train correction is added to the peak value of the emission to get the average value.</p>	



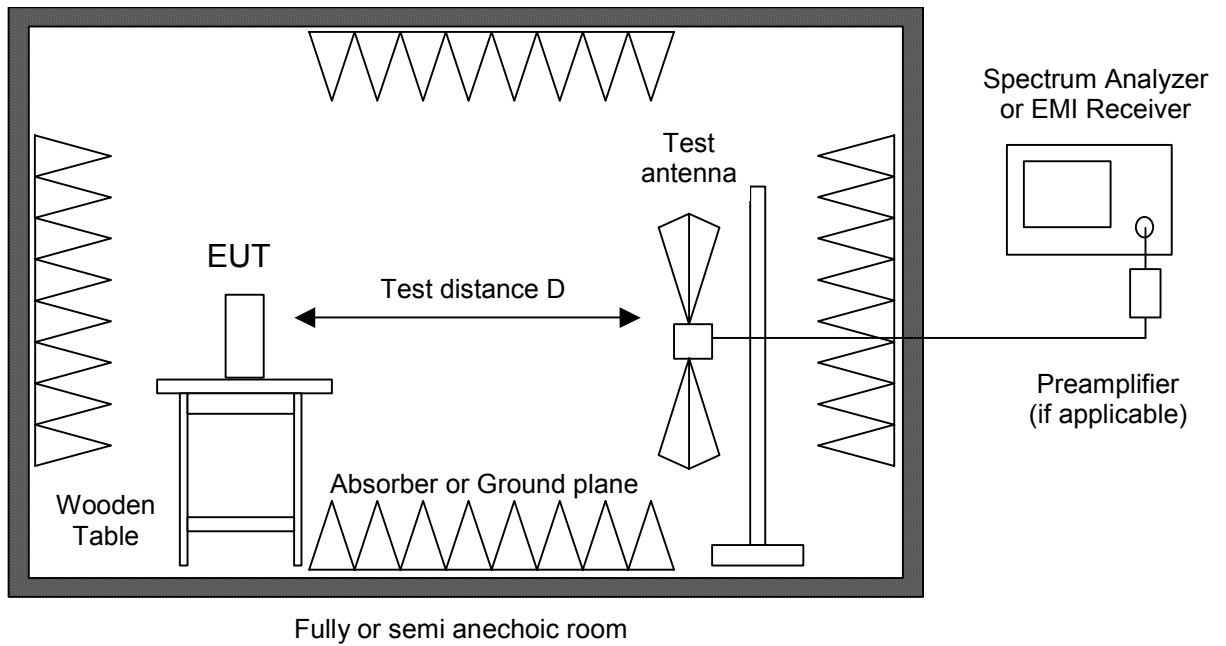


Test instruments used:

Used	Type	Model	Serial No. or ID	Manufacturer
<input checked="" type="checkbox"/>	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
<input type="checkbox"/>	EMI test receiver	ESMI	839379/013 839587/006	Rohde & Schwarz
<input checked="" type="checkbox"/>	Test receiver	ESHS 10	860043/016	Rohde & Schwarz
<input type="checkbox"/>	Preamplifier	CPA9231A	3393	Schaffner
<input checked="" type="checkbox"/>	Loop antenna	HFH2-Z2	882964/1	Rohde & Schwarz
<input checked="" type="checkbox"/>	Fully anechoic room	No. 2	1452	Albatross Projects
<input type="checkbox"/>	Semi-anechoic room	No. 3	1453	Siemens
<input checked="" type="checkbox"/>	Open field test site	EG 1	1450	Senton

6.2 Radiated Emission in Fully or Semi Anechoic Room

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.109, 15.215(b) and 15.249 IC RSS-Gen Issue 2, sections 6(a), 7.2.3.2 IC RSS-210 Issue 7, section A2.9
Guide:	ANSI C63.4
<p>Radiated emission in fully or semi anechoic room is measured in the frequency range from 30 MHz to the maximum frequency as specified in CFR 47 Part 15 section 15.33.</p> <p>Measurements are made in both the horizontal and vertical planes of polarization in a fully or semi anechoic room using a spectrum analyzer with the detector function set to peak and resolution as well as video bandwidth set to 100 kHz (below 1 GHz) or 1 MHz (above 1 GHz). Final measurements in the frequency range from 30 MHz to 1 GHz are made in both the horizontal and vertical planes of polarization in a semi anechoic room using a EMI receiver with the detector function set to quasi-peak and the measurement bandwidth of the test receiver is set to 120 kHz.</p> <p>Testing up to 1 GHz is performed with a linear polarized logarithmic periodic antenna combined with a 4:1 broadband dipole ("Trilog broadband antenna"). For testing above 1 GHz horn antennas are used.</p> <p>All tests below 18 GHz are performed at a test distance D of 3 meters. For higher frequencies the test distance is reduced (e.g. to 1 meter) due to the sensitivity of the measuring instrument(s) and the test results are calculated according to CFR 47 Part 15 section 15.31(f)(1) using an extrapolation factor of 20 dB/decade. If required, preamplifiers are used for the whole frequency range. Special care is taken to avoid overload, using appropriate attenuators and filters, if necessary.</p> <p>If the radiated emission limits are expressed in terms of the average value of the emission there also is a peak limit corresponding to 20 dB above the maximum permitted average limit. Additionally, if pulsed operation is employed, the average field strength is determined by averaging over one complete pulse train, including blanking intervals, as specified in CFR 47 Part 15 section 15.35(c). If the pulse train exceeds 0.1 second that 0.1 second interval during which the value of the emission is at its maximum is selected for calculation. The pulse train correction is added to the peak value of the emission to get the average value.</p> <p>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.</p> <p>During testing the EUT is rotated all around to find the maximum levels of emissions. Equipment and cables are placed and moved within the range of position likely to find their maximum emissions.</p> <p>For final testing below 1 GHz an open field test-site is used and the plots recorded in the fully or semi anechoic room are indicated as prescans.</p>	



Test instruments used:

Used	Type	Model	Serial No. or ID	Manufacturer
<input checked="" type="checkbox"/>	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
<input type="checkbox"/>	Spectrum analyzer	R 3271	05050023	Advantest
<input type="checkbox"/>	EMI test receiver	ESMI	839379/013 839587/006	Rohde & Schwarz
<input checked="" type="checkbox"/>	EMI test receiver	ESU8	100232	Rohde & Schwarz
<input checked="" type="checkbox"/>	Preamplifier	CPA9231A	3393	Schaffner
<input type="checkbox"/>	Preamplifier	R14601		Advantest
<input checked="" type="checkbox"/>	Preamplifier 1-8 GHz	AFS3-00100800-32-LN	847743	Miteq
<input type="checkbox"/>	Preamplifier 0.5-8 GHz	AMF-4D-005080-25-13P	860149	Miteq
<input checked="" type="checkbox"/>	Preamplifier 8-18 GHz	ACO/180-3530	32641	CTT
<input type="checkbox"/>	External Mixer	WM782A	845881/005	Tektronix
<input type="checkbox"/>	Harmonic Mixer	FS-Z30	843389/007	Rohde & Schwarz
	Accessories			
<input checked="" type="checkbox"/>	Trilog broadband antenna	VULB 9163	9163-188	Schwarzbeck
<input checked="" type="checkbox"/>	Trilog broadband antenna	VULB 9163	9163-214	Schwarzbeck
<input checked="" type="checkbox"/>	Horn antenna	3115	9508-4553	EMCO
<input type="checkbox"/>	Horn antenna	3160-03	9112-1003	EMCO
<input checked="" type="checkbox"/>	Horn antenna	3160-04	9112-1001	EMCO
<input checked="" type="checkbox"/>	Horn antenna	3160-05	9112-1001	EMCO
<input checked="" type="checkbox"/>	Horn antenna	3160-06	9112-1001	EMCO
<input checked="" type="checkbox"/>	Horn antenna	3160-07	9112-1008	EMCO
<input type="checkbox"/>	Horn antenna	3160-08	9112-1002	EMCO
<input type="checkbox"/>	Horn antenna	3160-09	9403-1025	EMCO
<input type="checkbox"/>	Horn antenna	3160-10	399185	EMCO
<input checked="" type="checkbox"/>	Fully anechoic room	No. 2	1452	Albatross Projects
<input type="checkbox"/>	Semi-anechoic room	No. 3	1453	Siemens
<input checked="" type="checkbox"/>	Semi-anechoic room	No. 8	2057	Albatross Projects

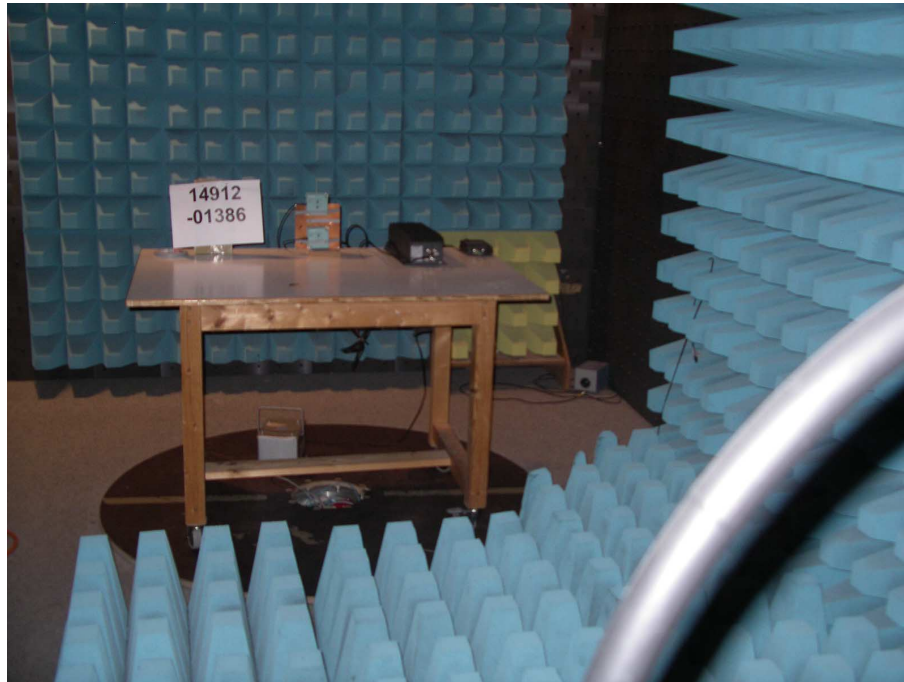
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7 Photographs Taken During Testing

Test setup for radiated emission measurement 9 kHz – 30 MHz



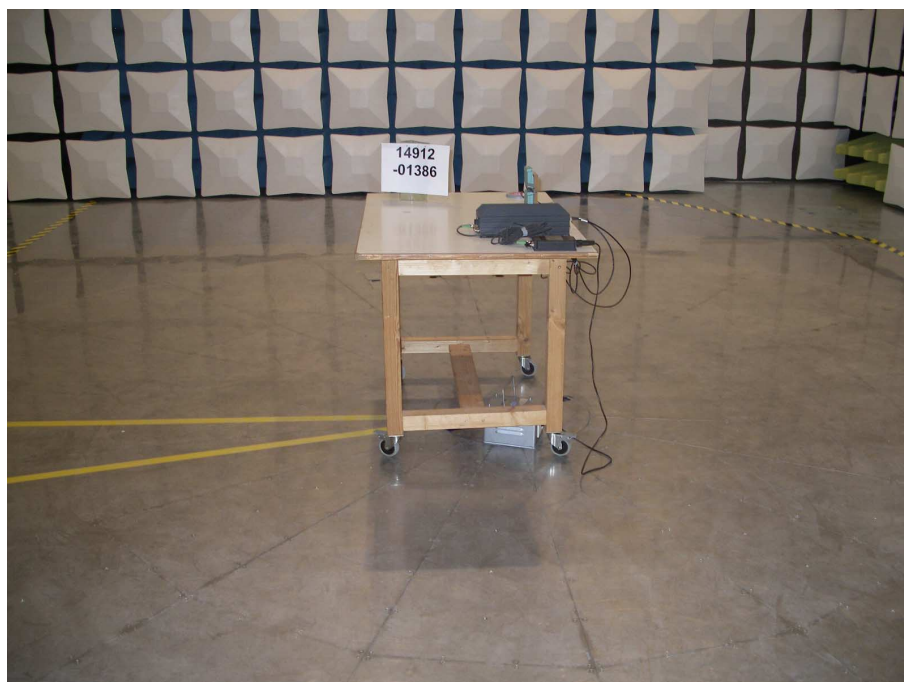
Test setup for radiated emission measurement (fully anechoic room)



Test setup for radiated emission measurement (semi anechoic room)



**Test setup for radiated emission measurement
(semi anechoic room)
- continued -**



8 Test Results

FCC CFR 47 Parts 2 and 15			
Section(s)	Test	Page	Result
2.1046(a)	Conducted output power		Not applicable
2.202(a)	Occupied bandwidth		Not performed
15.204	Antenna requirement		Not performed
15.215(c)	Bandwidth of the emission		Not performed
2.201, 2.202	Class of emission		Calculated
15.35(c)	Pulse train measurement for pulsed operation		Not applicable
15.205(a)	Restricted bands of operation		Not performed
15.247(a)(1)(i)	Channel Bandwidth		Not performed
15.247(a)(1)	Hopping channel separation		Not performed
15.247(a)(1)(i)	Number of hopping frequencies used		Not performed
15.247(a)(1)(i)	Time occupancy on any channel		Not performed
15.247(b)(2)	Maximum peak output power		Not performed
15.207	Conducted AC powerline emission 150 kHz to 30 MHz		Not performed
15.247(d)	Conducted emissions		Not performed
15.205(b) 15.247(d)	Radiated emission 9 kHz to 30 MHz	21	Test passed
15.205(b) 15.215(b) 15.247(d)	Radiated emission 30 MHz to 10 GHz	22	Test passed
15.247(i) 2.1093	RF exposure requirement		Not performed

IC RSS-Gen Issue 2			
<i>Section(s)</i>	<i>Test</i>	<i>Page</i>	<i>Result</i>
4.8	Transmitter output power (conducted)		Not applicable
4.6.1	Occupied Bandwidth		Not performed
3.2(h), 8	Designation of emissions		Not performed
4.5	Pulsed operation		Not applicable
7.2.2	Transmitter AC power lines conducted emissions 150 kHz to 30 MHz		Not performed
5.5	Exposure of Humans to RF Fields		Not performed

IC RSS-210 Issue 7			
<i>Section(s)</i>	<i>Test</i>	<i>Page</i>	<i>Result</i>
2.2(a)	Restricted bands and unwanted emission frequencies		Not performed
7.1.4	Antenna requirement		Not performed
A8.1(c)	Channel bandwidth		Not performed
A8.1(b)	Hopping channel separation		Not performed
A8.1(c)	Number of hopping frequencies used		Not performed
A8.1(c)	Time occupancy on any channel		Not performed
A8.4(1)	Maximum output power		Not performed
A8.5	Conducted emissions		Not performed
2.2(b)(c) 2.6 A8.5	Unwanted emissions 9 kHz to 30 MHz	21	Test passed
2.2(b)(c) 2.6 A8.5	Unwanted emissions 30 MHz to 10 GHz	22	Test passed

8.1 Radiated Emission Measurement 9 kHz to 30 MHz

Rules and specifications:	CFR 47 Part 15, sections 15.205 and 15.209 IC RSS-210 Issue 7, sections 2.2 and 2.6			
Guide:	ANSI C63.4			
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).			
Limit according to 15.209:	Frequency of Emission (MHz)	Field Strength ($\mu\text{V}/\text{m}$)	Field Strength ($\text{dB}\mu\text{V}/\text{m}$)	Measurement Distance d (meters)
	0.009 - 0.490	2400/F(kHz)	67.6 - 20 · log(F(kHz))	300
	0.490 - 1.705	24000/F(kHz)	87.6 - 20 · log(F(kHz))	30
	1.705 - 30.000	30	29.5	30
	Additionally, the level of any unwanted emissions shall not exceed the level of the fundamental emission.			
Measurement procedure:	Radiated Emission Measurement 9 kHz to 30 MHz (6.1)			

Comment:	
Date of test:	January 19, 2010
Test site:	Open field test site

All emissions show more than 20 dB margin to the limit, no values recorded.

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

8.2 Radiated Emission Measurement 30 MHz to 10 GHz

Rules and specifications:	CFR 47 Part 15, sections 15.215(b) and 15.247 IC RSS-210 Issue 7, section A8		
Guide:	ANSI C63.4		
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).		
Limit according to 15.209:	Frequency of Emission (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)
	30 - 88	100	40.0
	88 - 216	150	43.5
	216 - 960	200	46.0
	Above 960	500	54.0
	Additionally, the level of any unwanted emissions shall not exceed the level of the fundamental emission.		
Measurement procedures:	Radiated Emission in Fully or Semi Anechoic Room (6.2)		

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

Comment:	
Date of test:	January 19, 2010
Test site:	Frequencies ≤ 1 GHz: Open field test site Frequencies > 1 GHz: Fully anechoic room, cabin no. 2
Test distance:	Frequencies ≤ 8.2 GHz: 3 meters Frequencies > 8.2 GHz: 1 meters

Frequency (MHz)	Antenna Polarization	Detector	Receiver Reading (dBµV)	Correction Factor (dB/m)	Pulse Train Correction (dB)	Final Value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
222.000	vertical	Quasi-Peak	9.2	12.9		22.1	88.3	66.2
915.250	vertical	Quasi-Peak	92.5	24.7		117.2		

Sample calculation of final values:

$$\text{Final Value (dB}\mu\text{V/m)} = \text{Reading Value (dB}\mu\text{V)} + \text{Correction Factor (dB/m)} + \text{Pulse Train Correction (dB)}$$

9 Referenced Regulations

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

<input checked="" type="checkbox"/>	CFR 47 Part 2	Code of Federal Regulations Part 2 (Frequency allocation and radio treaty matters; General rules and regulations) of the Federal Communication Commission (FCC)	October 1, 2008
<input checked="" type="checkbox"/>	CFR 47 Part 15	Code of Federal Regulations Part 15 (Radio Frequency Devices) of the Federal Communication Commission (FCC)	October 1, 2008
<input checked="" type="checkbox"/>	ANSI C63.4	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	December 11, 2003 (published on January 30, 2004)
<input checked="" type="checkbox"/>	RSS-Gen	Radio Standards Specification RSS-Gen Issue 2 containing General Requirements and Information for the Certification of Radiocommunication Equipment, published by Industry Canada	June 2007
<input checked="" type="checkbox"/>	RSS-210	Radio Standards Specification RSS-210 Issue 7 for Low Power Licence-Exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment, published by Industry Canada	June 2007
<input type="checkbox"/>	RSS-310	Radio Standards Specification RSS-310 Issue 2 for Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category II Equipment, published by Industry Canada	June 2007
<input checked="" type="checkbox"/>	RSS-102	Radio Standards Specification RSS-102 Issue 3: Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) , published by Industry Canada	June 2009
<input type="checkbox"/>	ICES-003	Interference-Causing Equipment Standard ICES-003 Issue 4 for Digital Apparatus, published by Industry Canada	February 7, 2004
<input checked="" type="checkbox"/>	CISPR 22	Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, "Information Technology Equipment – Radio Disturbance Characteristics – Limits and Methods of Measurement"	1997
<input type="checkbox"/>	CAN/CSA-CEI/IEC CISPR 22	Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment	2002

-
- TRC-43 Notes Regarding Designation of Emission (Including Necessary Bandwidth and Classification), Class of Station and Nature of Service, published by Industry Canada October 9, 1982

10 Revision History

Revision History			
<i>Edition</i>	<i>Date</i>	<i>Issued by</i>	<i>Modifications</i>
1	20.01.2010	M. Steindl (cj)	First edition

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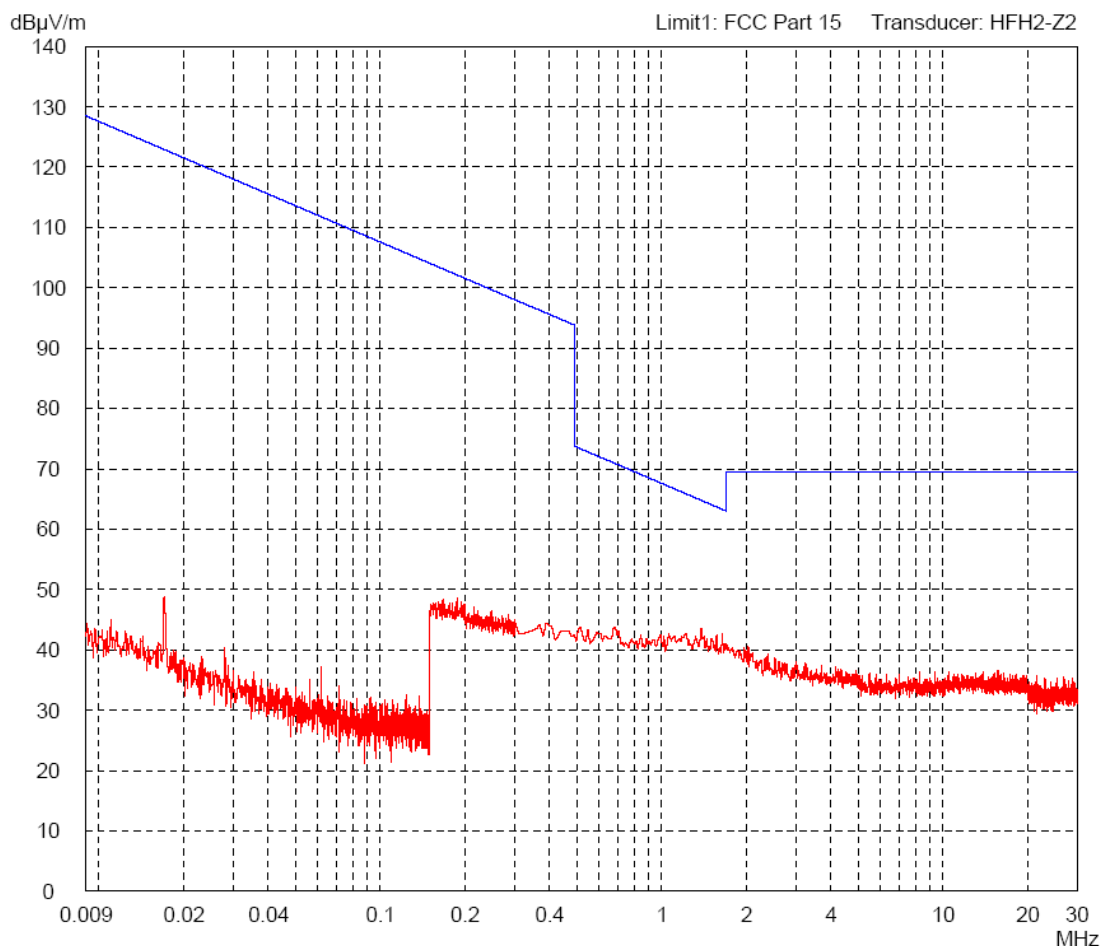


11 Charts taken during testing

**Radiated Emission Test 9 kHz - 30 MHz
 acc. to FCC Part 15 Subpart C (FAR)**

Model: RF620A with RF660R	Comment: - DC 24 V power supply with AC/DC adapter - Transmitting continuously on single frequency - Frequency: 915.25 MHz
Serial no.: SN 101866402.002	
Applicant: Siemens AG I IA SC IC FS RD2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres	
Date of test: 01/19/2010 Operator: M. Steindl	
Test performed: by hand File name: default.emi	

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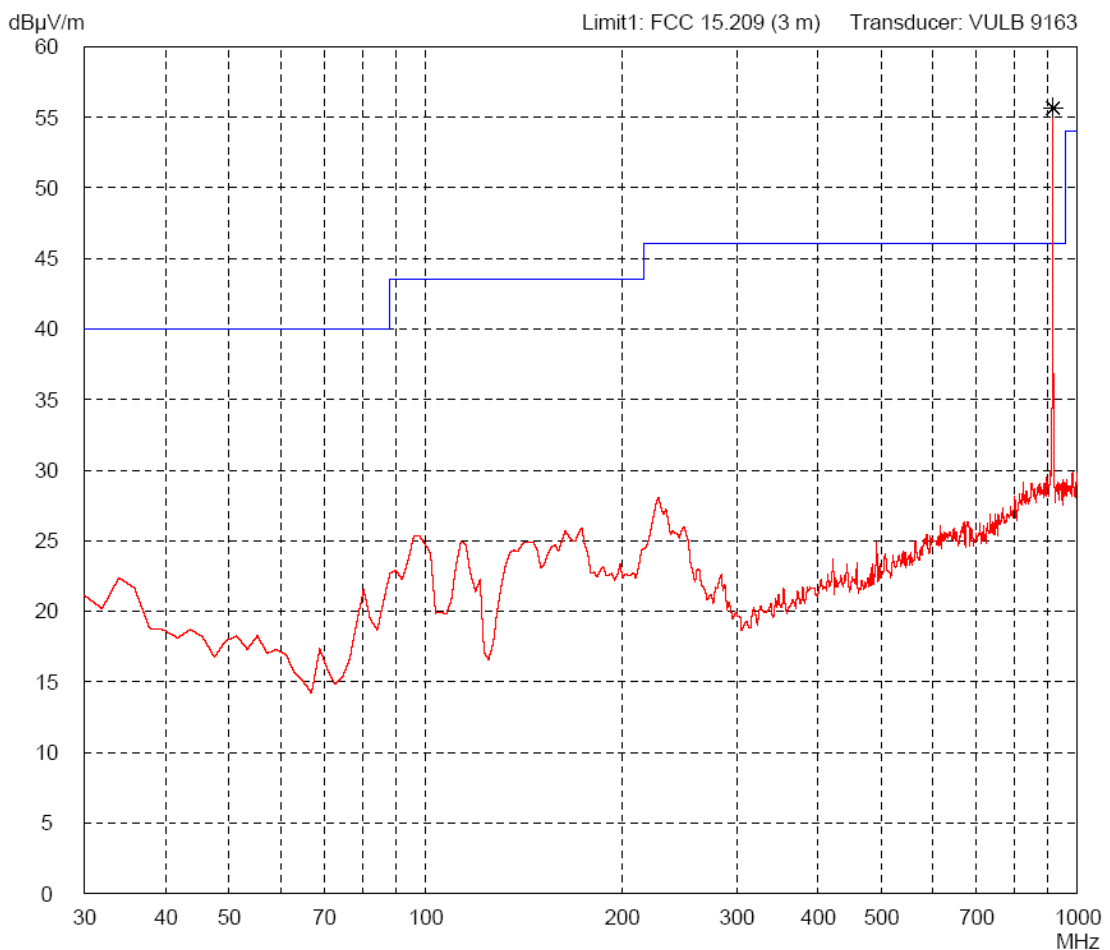


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**Radiated Emission Test 30 MHz - 1 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

Model: RF620A with RF660R	Comment: - DC 24 V power supply with AC/DC adapter - Transmitting continuously on single frequency - Frequency: 915.25 MHz - With notch filter set to carrier frequency
Serial no.: SN 101866402.002	
Applicant: Siemens AG I IA SC IC FS RD2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 01/19/2010 Operator: M. Steindl	
Test performed: automatically File name: default.emi	

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

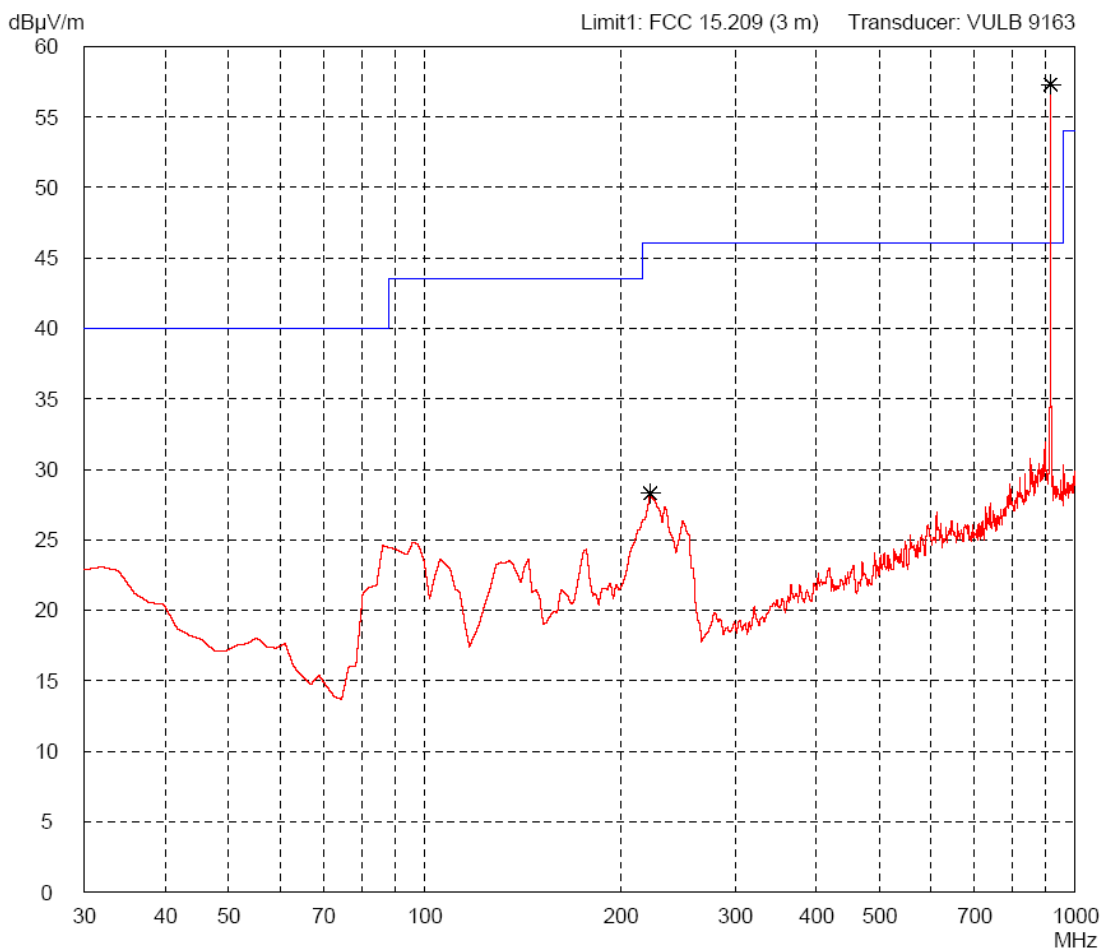


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**Radiated Emission Test 30 MHz - 1 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

Model: RF620A with RF660R	Comment: - DC 24 V power supply with AC/DC adapter - Transmitting continuously on single frequency - Frequency: 915.25 MHz - With notch filter set to carrier frequency
Serial no.: SN 101866402.002	
Applicant: Siemens AG I IA SC IC FS RD2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 01/19/2010 Operator: M. Steindl	
Test performed: automatically File name: default.emi	

Detector: Peak	List of values: Selected by hand
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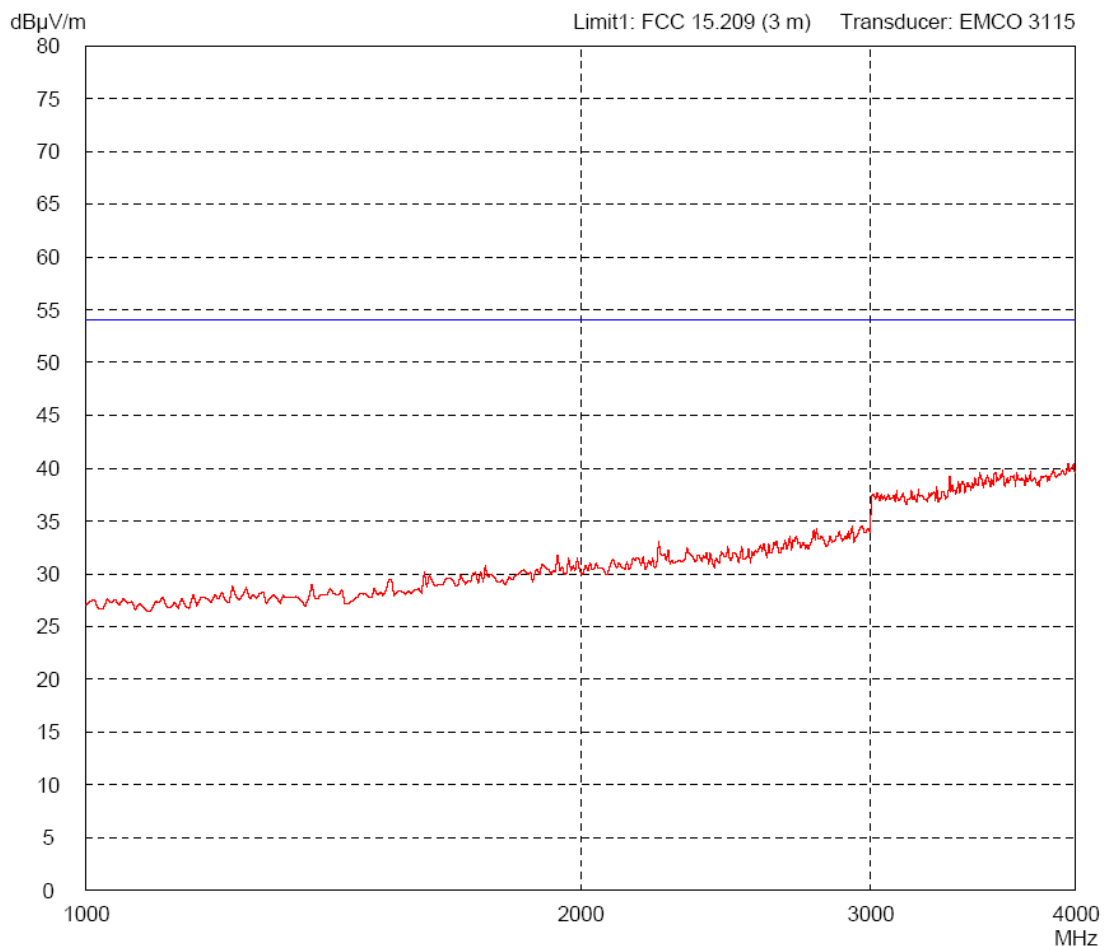


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**Radiated Emission Test 1 GHz - 4 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

<p>Model: RF620A with RF660R</p> <p>Serial no.: SN 101866402.002</p> <p>Applicant: Siemens AG I IA SC IC FS RD2</p> <p>Test site: Fully anechoic room, cabin no. 2</p> <p>Tested on: Test distance 3 metres Horizontal Polarization</p> <p>Date of test: 01/19/2010 Operator: M. Steindl</p> <p>Test performed: automatically File name: default.emi</p>	<p>Comment:</p> <ul style="list-style-type: none"> - DC 24 V power supply with AC/DC adapter - Transmitting continuously on single frequency - Frequency: 915.25 MHz - With high-pass-filter
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<p>Detector: Peak</p>	<p>List of values: 10 dB Margin 50 Subranges</p>
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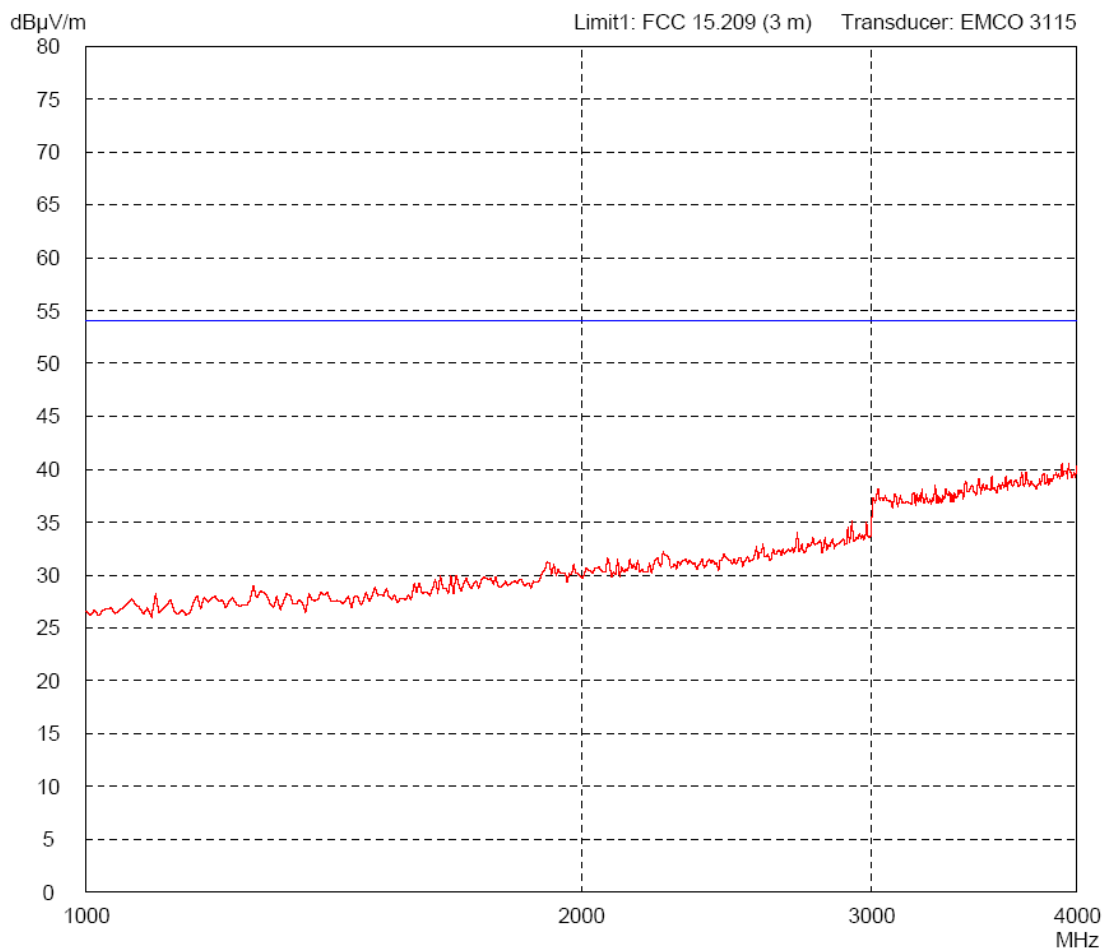


<p>Result: Prescan</p>	<p>Project file: 14912-01386 Page of Pages</p>
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**Radiated Emission Test 1 GHz - 4 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

<p>Model: RF620A with RF660R</p> <p>Serial no.: SN 101866402.002</p> <p>Applicant: Siemens AG I IA SC IC FS RD2</p> <p>Test site: Fully anechoic room, cabin no. 2</p> <p>Tested on: Test distance 3 metres Vertical Polarization</p> <p>Date of test: Operator: 01/19/2010 M. Steindl</p> <p>Test performed: File name: automatically default.emi</p>	<p>Comment:</p> <ul style="list-style-type: none"> - DC 24 V power supply with AC/DC adapter - Transmitting continuously on single frequency - Frequency: 915.25 MHz - With high-pass-filter
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<p>Detector: Peak</p>	<p>List of values: 10 dB Margin 50 Subranges</p>
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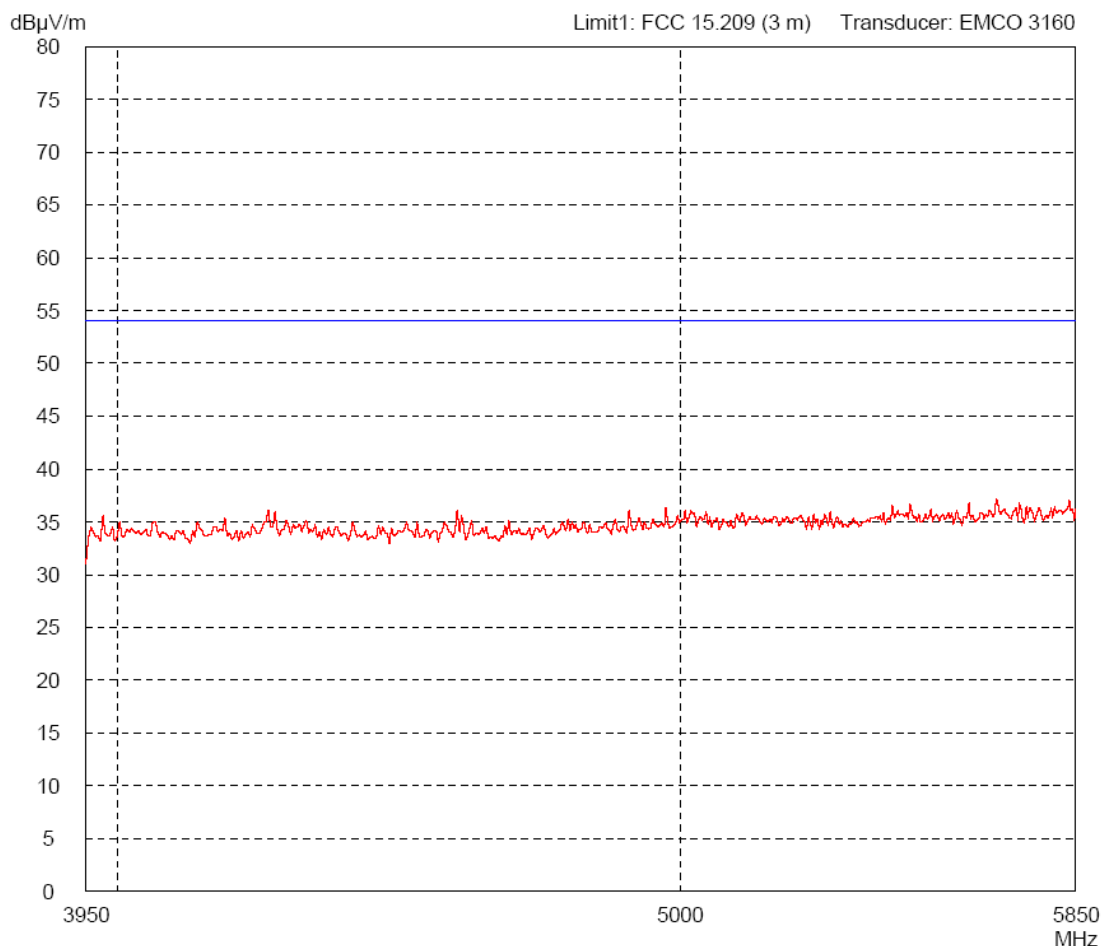


<p>Result: Prescan</p>	<p>Project file: 14912-01386 Page of Pages</p>
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**Radiated Emission Test 3.95 GHz - 5.85 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

Model: RF620A with RF660R	Comment: - DC 24 V power supply with AC/DC adapter - Transmitting continuously on single frequency - Frequency: 915.25 MHz - With high-pass-filter
Serial no.: SN 101866402.002	
Applicant: Siemens AG I IA SC IC FS RD2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 01/19/2010 Operator: M. Steindl	
Test performed: automatically File name: default.emi	

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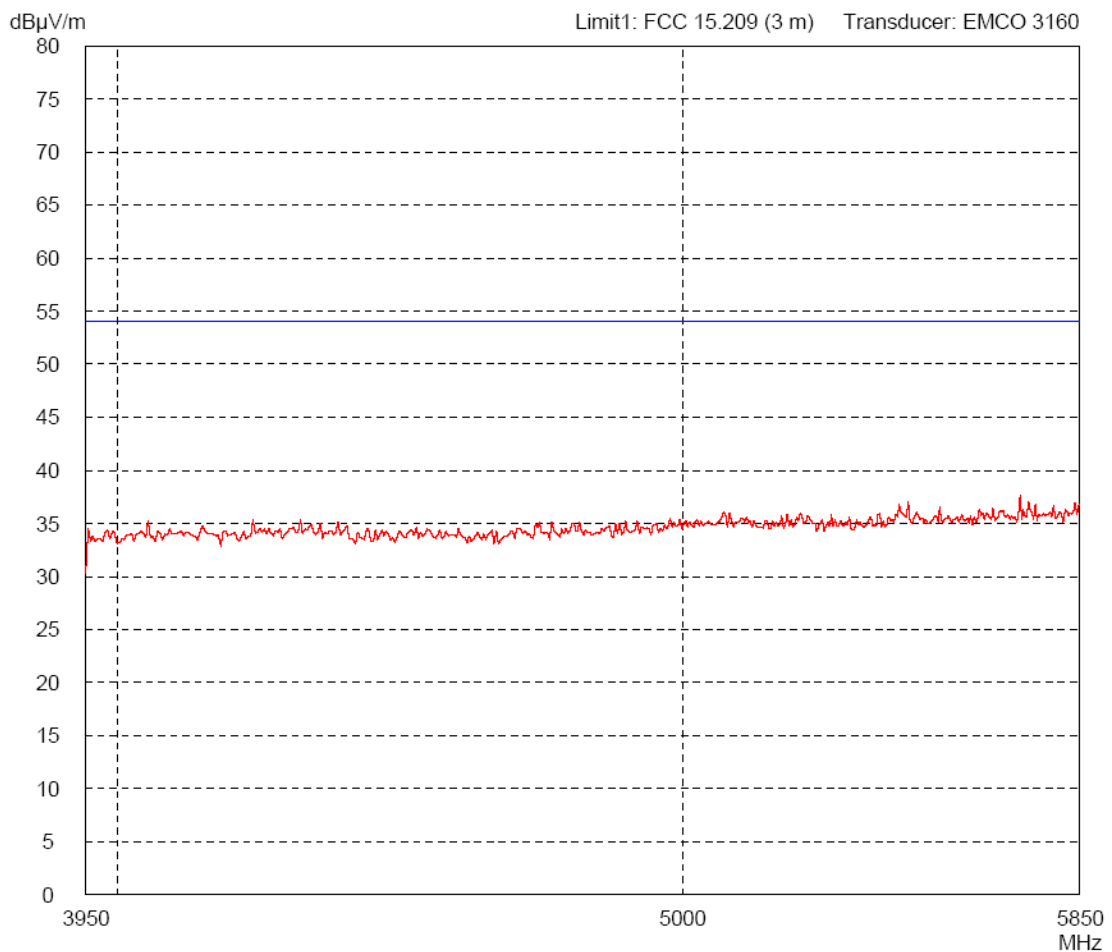


Result: Prescan	Project file: 14912-01386	Page of Pages
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**Radiated Emission Test 3.95 GHz - 5.85 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

<p>Model: RF620A with RF660R</p> <p>Serial no.: SN 101866402.002</p> <p>Applicant: Siemens AG I IA SC IC FS RD2</p> <p>Test site: Fully anechoic room, cabin no. 2</p> <p>Tested on: Test distance 3 metres Vertical Polarization</p> <p>Date of test: 01/19/2010 Operator: M. Steindl</p> <p>Test performed: automatically File name: default.emi</p>	<p>Comment:</p> <ul style="list-style-type: none"> - DC 24 V power supply with AC/DC adapter - Transmitting continuously on single frequency - Frequency: 915.25 MHz - With high-pass-filter
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<p>Detector: Peak</p>	<p>List of values: 10 dB Margin 50 Subranges</p>
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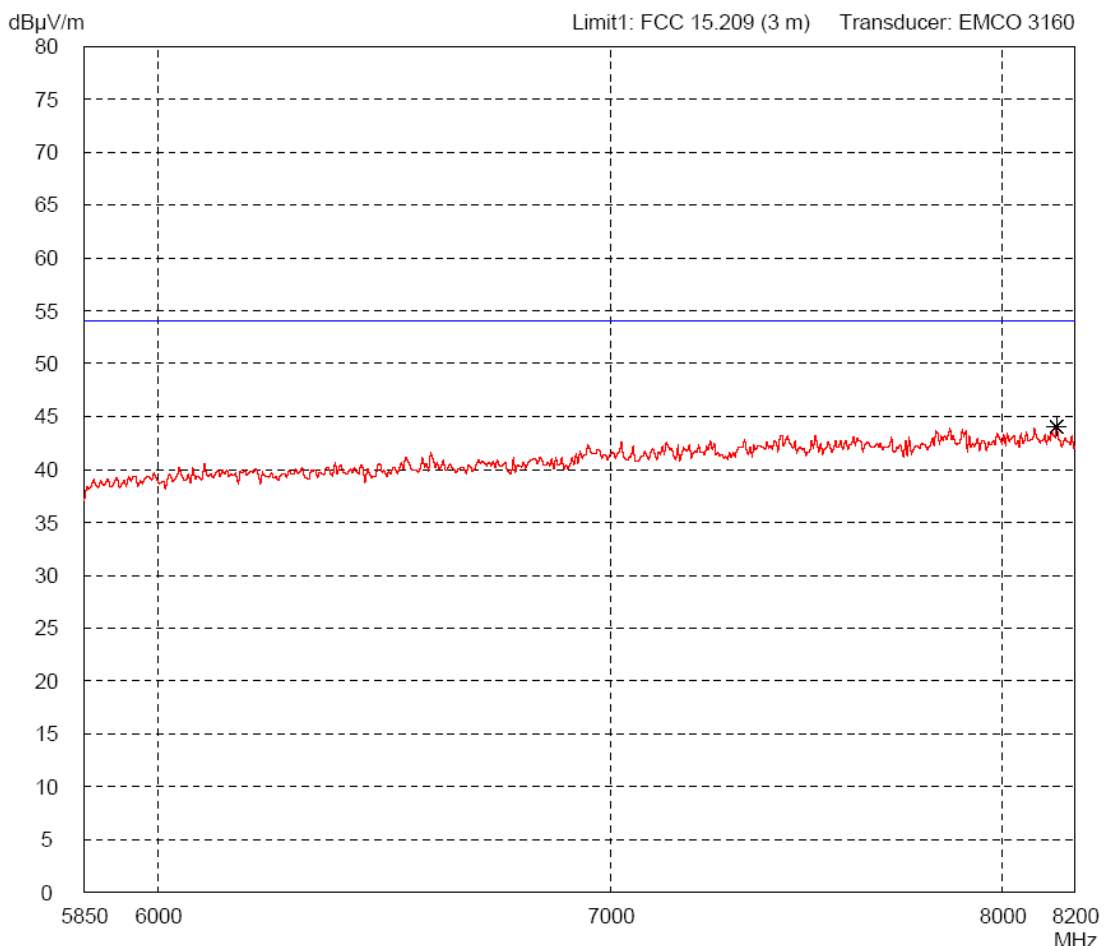


<p>Result: Prescan</p>	<p>Project file: 14912-01386</p> <p style="text-align: right;">Page of Pages</p>
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**Radiated Emission Test 5.85 GHz - 8.2 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

Model: RF620A with RF660R	Comment: - DC 24 V power supply with AC/DC adapter - Transmitting continuously on single frequency - Frequency: 915.25 MHz - With high-pass-filter
Serial no.: SN 101866402.002	
Applicant: Siemens AG I IA SC IC FS RD2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 01/19/2010 Operator: M. Steindl	
Test performed: automatically File name: default.emi	

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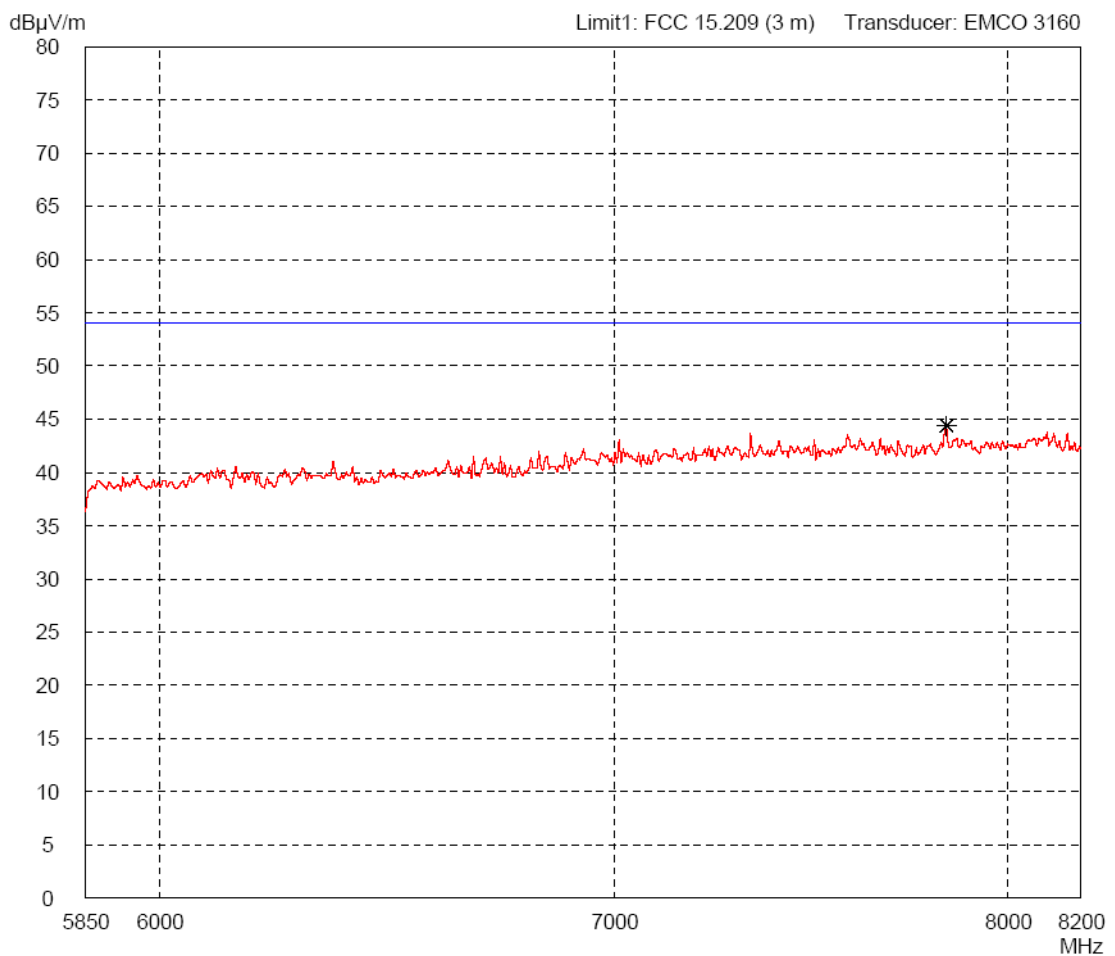


Result: Prescan	Project file: 14912-01386	Page of Pages
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**Radiated Emission Test 5.85 GHz - 8.2 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

Model: RF620A with RF660R	Comment: - DC 24 V power supply with AC/DC adapter - Transmitting continuously on single frequency - Frequency: 915.25 MHz - With high-pass-filter
Serial no.: SN 101866402.002	
Applicant: Siemens AG I IA SC IC FS RD2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 01/19/2010 Operator: M. Steindl	
Test performed: automatically File name: default.emi	

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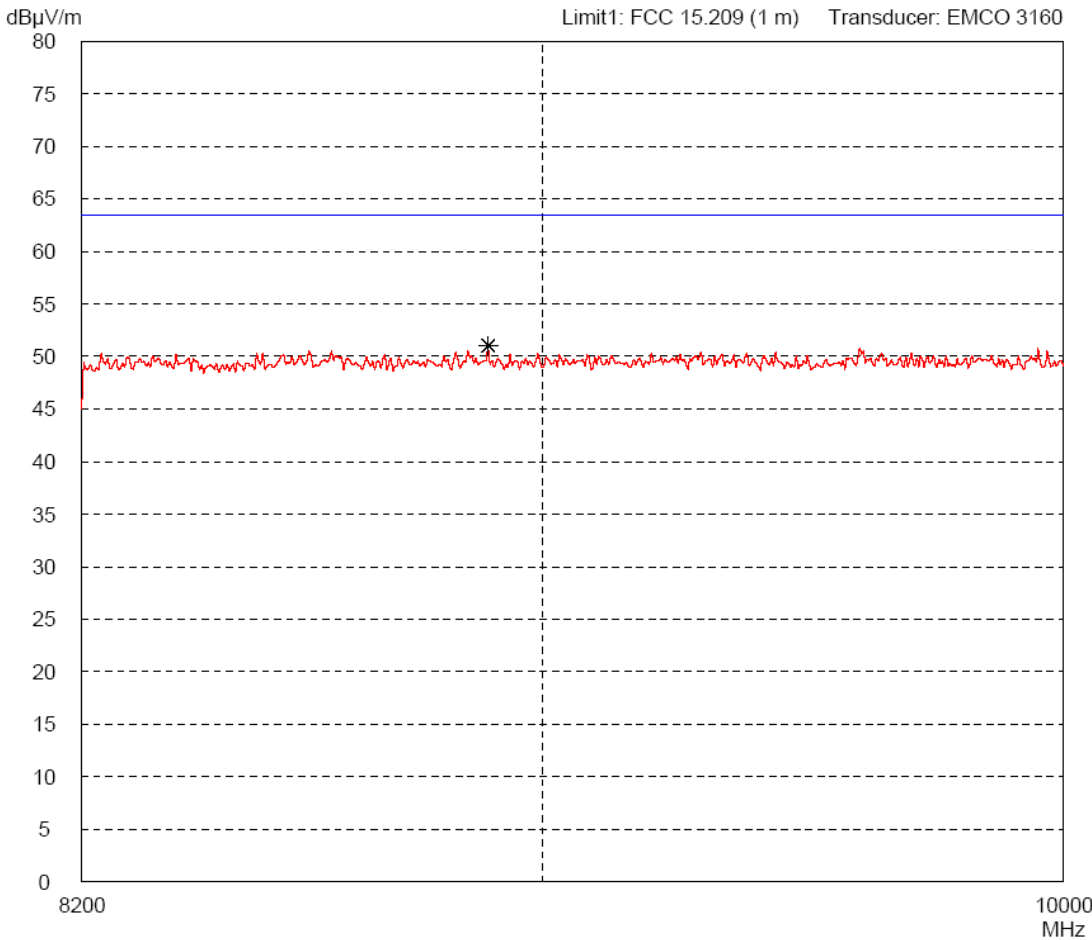


Result: Prescan	Project file: 14912-01386	Page of Pages
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**Radiated Emission Test 8.2 GHz - 10 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

Model: RF620A with RF660R	Comment: - DC 24 V power supply with AC/DC adapter - Transmitting continuously on single frequency - Frequency: 915.25 MHz - With high-pass-filter
Serial no.: SN 101866402.002	
Applicant: Siemens AG I IA SC IC FS RD2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 01/19/2010 Operator: M. Steindl	
Test performed: automatically File name: default.emi	

Detector: Peak	List of values: Selected by hand
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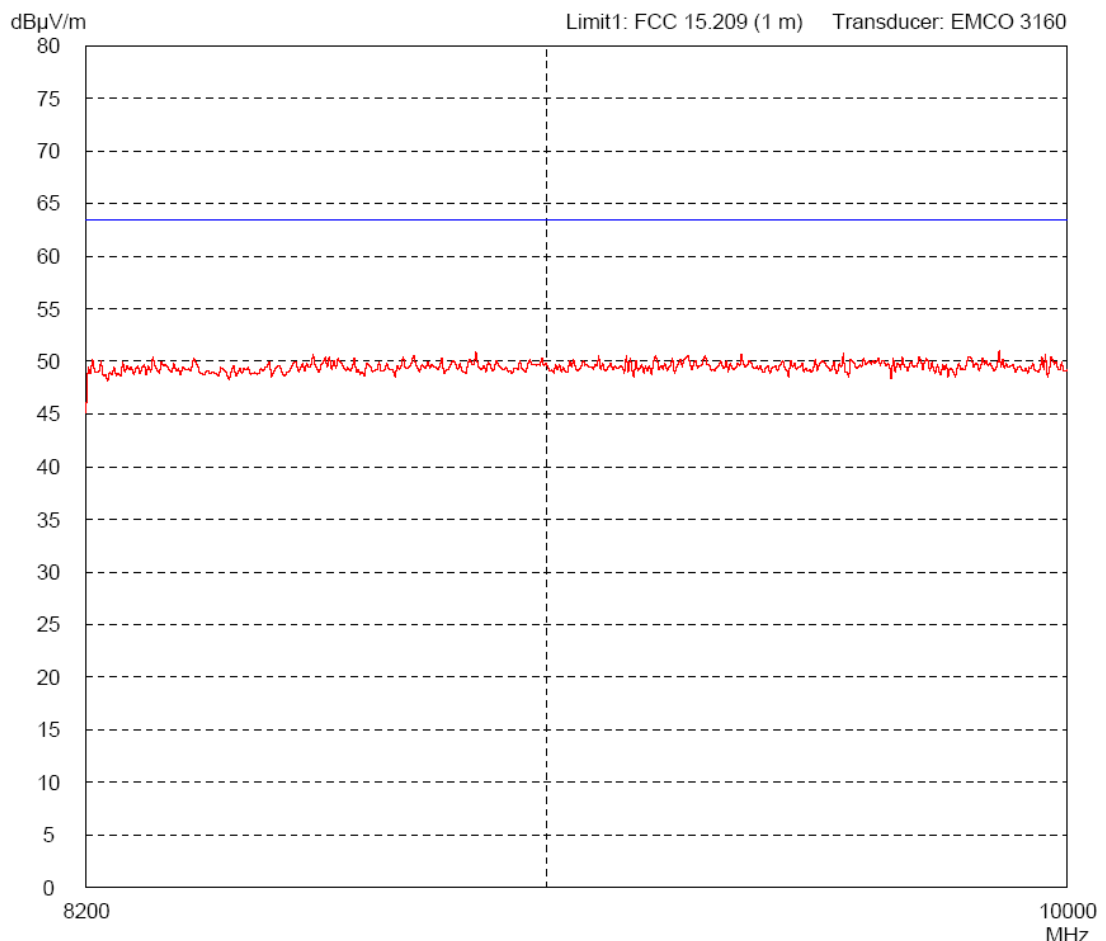


Result: Prescan	Project file: 14912-01386	Page of Pages
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**Radiated Emission Test 8.2 GHz - 10 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

Model: RF620A with RF660R	Comment: - DC 24 V power supply with AC/DC adapter - Transmitting continuously on single frequency - Frequency: 915.25 MHz - With high-pass-filter
Serial no.: SN 101866402.002	
Applicant: Siemens AG I IA SC IC FS RD2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 01/19/2010 Operator: M. Steindl	
Test performed: automatically File name: default.emi	

Detector: Peak	List of values: 10 dB Margin 50 Subranges
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Result: Prescan	Project file: 14912-01386	Page of Pages
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