



Product Service

Choose certainty.
Add value.

13.11.2012

Page 1 of 132

Prüfbericht / Test Report

Nr. / No. 11297-04682 (Edition 4)

Applicant: KATHREIN Werke KG
Type of equipment: Antenna Line Configurator with WLAN
Type designation: Antenna Line Configurator 86010156
Order No.: 15066594
Test standards: FCC Code of Federal Regulations,
CFR 47, Part 15,
Sections 15.107, 15.109, 15.111(a), 15.205, 15.207, 15.215 and 15.247

Industry Canada Radio Standards Specifications
RSS-GEN Issue 3, Sections 6.2, 7.2.2 and 7.2.4 and
RSS-210 Issue 8, Section 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.

Table of Contents

1	Description of the Equipment Under Test (EUT)	4
2	Administrative Data	5
3	Identification of the Test Laboratory	6
4	Summary	7
5	Operation Mode and Configuration of EUT	8
6	Measurement Procedures	9
6.1	Conducted Output Power	9
6.2	Bandwidth Measurements	11
6.3	Conducted AC Powerline Emission	13
6.4	Radiated Emission Measurement 9 kHz to 30 MHz	15
6.5	Radiated Emission in Fully or Semi Anechoic Room	17
6.6	Radiated Emission at Alternative Test Site	19
7	Photographs Taken During Testing	21
8	Test Results	26
8.1	6 dB-Bandwidth	28
8.2	Designation of Emissions	31
8.3	Restricted Bands of Operation	32
8.4	Spectral Power Density	36
8.5	Maximum output power	39
8.6	Conducted Powerline Emission Measurement 150 kHz to 30 MHz	42
8.7	Conducted Emission Measurement 30 MHz to 25 GHz	44
8.8	Radiated Emission Measurement 9 kHz to 30 MHz	47
8.9	Radiated Emission Measurement 30 MHz to 25 GHz	48
8.10	RF exposure requirement	52
8.11	Exposure of Humans to RF Fields	53
9	Test Results for Receiver	56
9.1	Conducted Powerline Emission Measurement 150 kHz to 30 MHz	57
9.2	Radiated Emission Measurement 30 MHz to 12.5 GHz	59

10	Referenced Regulations	60
11	Test Equipment List with Calibration Data.....	62
12	Revision History	63
13	Charts taken during testing	64

1 Description of the Equipment Under Test (EUT)

General data of EUT	
Type designation ¹ :	Antenna Line Configurator 86010156
Parts ² :	
Serial number(s):	Test sample
Manufacturer:	Kathrein Werke KG
Type of equipment:	Antenna Line Configurator with WLAN
Version:	As received with firmware update
FCC ID:	
Additional parts/accessories:	

Technical data of EUT	
Application frequency range:	2400.0 - 2483.5 MHz
Frequency range:	2412 MHz – 2462 MHz
Operating frequency:	2412 MHz, 2442 MHz, 2462 MHz
Type of modulation:	Phase Shift Keying
Pulse train:	---
Pulse width:	---
Number of RF-channels:	11
Channel spacing:	5 MHz
Designation of emissions ³ :	16M0G1D
Type of antenna:	Integrated chip antenna
Size/length of antenna:	3.2 x 1.6 mm
Connection of antenna:	☐ detachable ☒ not detachable
Type of power supply:	Battery supply
Specifications for power supply:	nominal voltage: 14.8 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):	KATHREIN Werke KG Anton-Kathrein-Straße 1 - 3 P.O. Box 10 04 44 D 83004 Rosenheim
Contact person:	Mr. Manfred Horn
Contract identification:	15066594
Receipt of EUT:	June 4, 2012
Date(s) of test:	June 6, 2012 – June 12, 2012 November 7, 2012 and November 9, 2012
Note(s):	

Report details	
Report number:	11297-04682
Edition:	4
Issue date:	13.11.2012

3 Identification of the Test Laboratory

Details of the Test Laboratory	
Company name:	TÜV SÜD Product Service GmbH
Address:	Aeussere Fruehlingstrasse 45 D-94315 Straubing Germany
FCC test site registration number	90926
Industry Canada test site registration:	3050A-2
Contact person:	Mr. Johann Roidt
	Phone: +49 9421 5522-0 Fax: +49 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 15.107, 15.109, 15.111(a), 15.205, 15.207, 15.215, 15.247 and 2.1093

of the Federal Communication Commission (FCC) and the

**Radio Standards Specifications
RSS-Gen Issue 3, Sections 6.2, 7.2.2 and 7.2.4 and
RSS-210 Issue 8, Section A8 (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 mode: Polling on predefined channel, access point active
- Receiving mode: Access point deactivated, wlan0 up

Configuration(s) of EUT

The EUT was configured as stand alone equipment

List of ports and cables

Port	Description	Classification ⁴	Cable type	Cable length
1	AC input of AC/DC adapter	ac power	Unshielded	2 m
2	DC input of EUT	dc power	Unshielded	2 m
3	RS-485 control interface	signal/control port	Shielded	1 m
4	RF control interface	signal/control port	Shielded	5 m

List of devices connected to EUT

Item	Description	Type Designation	Serial no. or ID	Manufacturer
1	Motor	16910426	Test sample KATHREIN	KATHREIN
2	Remote Control Unit	86010148	CSF1816428	KATHREIN

List of support devices

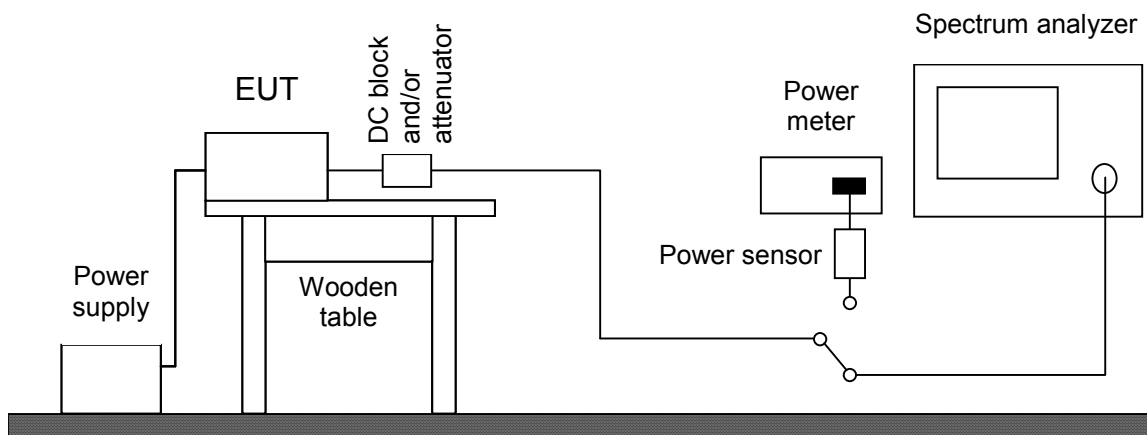
Item	Description	Type Designation	Serial no. or ID	Manufacturer

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

6 Measurement Procedures

6.1 Conducted Output Power

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 2, section 2.1046(a) IC RSS-Gen Issue 3, section 4.8
Guide:	CFR 47 Part 2, section 2.1046 / IC RSS-Gen Issue 3
Conducted output power is measured at the RF output terminals (e.g. antenna connector if antenna is detachable) when the transmitter is adjusted in accordance with the tune-up procedure, if applicable. The RF output terminals are connected to a spectrum analyzer and/or a power meter with appropriate sensor. If required, a resistive matching network equal to the impedance specified or employed for the antenna is used as well as dc block and appropriate attenuators (50 Ohms). The electrical characteristics of the radio frequency load attached to the output terminals shall be stated, if applicable. If a spectrum analyzer is used and no other settings are specified resolution bandwidth shall be selected according to the carrier frequency f_c and set to 10 kHz ($150 \text{ kHz} \leq f_c < 30 \text{ MHz}$), 100 kHz ($30 \text{ MHz} \leq f_c < 1 \text{ GHz}$) or 1 MHz ($f_c \geq 1 \text{ GHz}$). The video bandwidth shall be at least three times greater than the resolution bandwidth. The settings used have to be indicated within the appropriate test record(s). If a spectrum analyzer is used and the emission bandwidth of the EUT is greater than the maximum resolution bandwidth of the spectrum analyzer, the conducted output power will be measured using the integrated band power function of the spectrum analyzer within the emission bandwidth measured.	

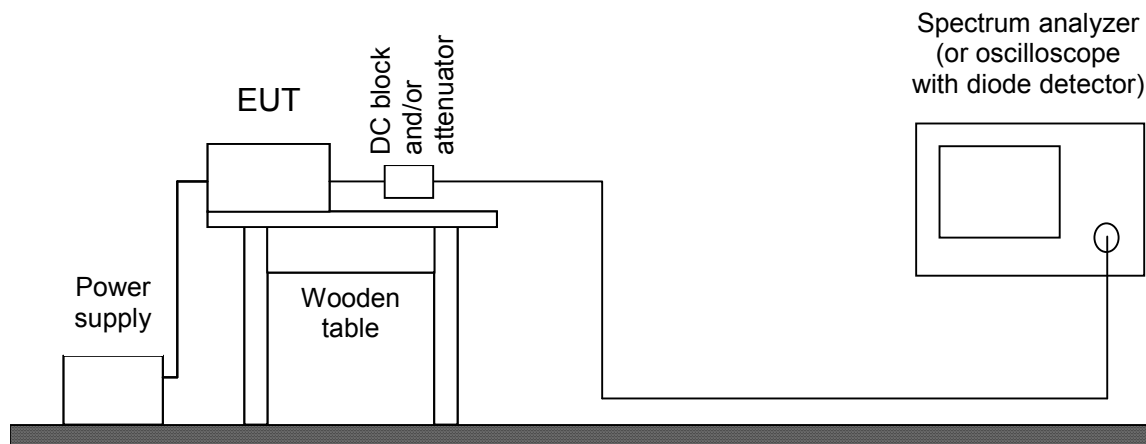


Test instruments used:

Type	Designation	Inv.-no.	Serial No. or ID	Manufacturer
☐ Spectrum analyzer	FSP30	1666	100036	Rohde & Schwarz
☐ EMI test receiver	ESPI7	1711	836914/0002	Rohde & Schwarz
☒ Network- and Spectrum analyzer	ZVL6	2034	100377	Rohde & Schwarz
☐ EMI test receiver	ESMI	1569	839379/013 839587/006	Rohde & Schwarz
☐ Power meter	NRVS	1264	836856/015	Rohde & Schwarz
☐ Peak power sensor	NRV-Z31	1701	8579604.03	Rohde & Schwarz
☐ Power sensor	NRV-Z52	1499	837901/030	Rohde & Schwarz
☐ Power sensor	NRV-Z4	1034	863828/015	Rohde & Schwarz
☐ DC-block	7006	1636	A2798	Weinschel
☐ Attenuator	4776-10	1638	9412	Narda
☐ Attenuator	4776-20	1639	9503	Narda

6.2 Bandwidth Measurements

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 2, section 2.202(a) CFR 47 Part 15, section 15.215(c) IC RSS-Gen Issue 3, sections 4.6.1 and 4.6.2 IC RSS-210 Issue 8, section A1.1.3 ANSI C63.4, annex H.6
Guide:	ANSI C63.4 / IC RSS-Gen Issue 3, sections 4.6.1 and 4.6.2
Measurement setup:	☒ Conducted: See below ☐ Radiated: Radiated Emission in Fully or Semi Anechoic Room (6.5)
If antenna is detachable bandwidth measurements shall be performed at the antenna connector (conducted measurement) when the transmitter is adjusted in accordance with the tune-up procedure, if applicable. The RF output terminals are connected to a spectrum analyzer. If required, a resistive matching network equal to the impedance specified or employed for the antenna is used as well as dc block and appropriate attenuators (50 Ohms). The electrical characteristics of the radio frequency load attached to the output terminals shall be stated, if applicable. If radiated measurements are performed the same test setups and instruments are used as with radiated emission measurements for the appropriate frequency range. The analyzer settings are specified by the test description of the appropriate test record(s).	



Test instruments used:

Type	Designation	Inv.-no.	Serial No. or ID	Manufacturer
☐ Spectrum analyzer	FSP30	1666	100036	Rohde & Schwarz
☒ EMI test receiver	ESPI7	1711	836914/0002	Rohde & Schwarz
☐ EMI test receiver	ESMI	1569	839379/013 839587/006	Rohde & Schwarz
☐ Diode detector negative	8473D	1581	01492	Hewlett Packard
☐ Oscilloscope	54602B	1535	US35060304	Hewlett Packard
☐ Digital oscilloscope	Wave Surfer 452	1796	LCRY0301J11938	LeCroy
☐ Test probe	TP 01	1628	001	TÜV SÜD PS
☐ DC-block	7006	1636	A2798	Weinschel
☐ Attenuator	4776-10	1638	9412	Narda
☐ Attenuator	4776-20	1639	9503	Narda

6.3 Conducted AC Powerline Emission

Measurement Procedure:

Rules and specifications: CFR 47 Part 15, sections 15.107 and 15.207
 IC RSS-GEN Issue 3, section 7.2.4

Guide: ANSI C63.4 (CISPR 22)

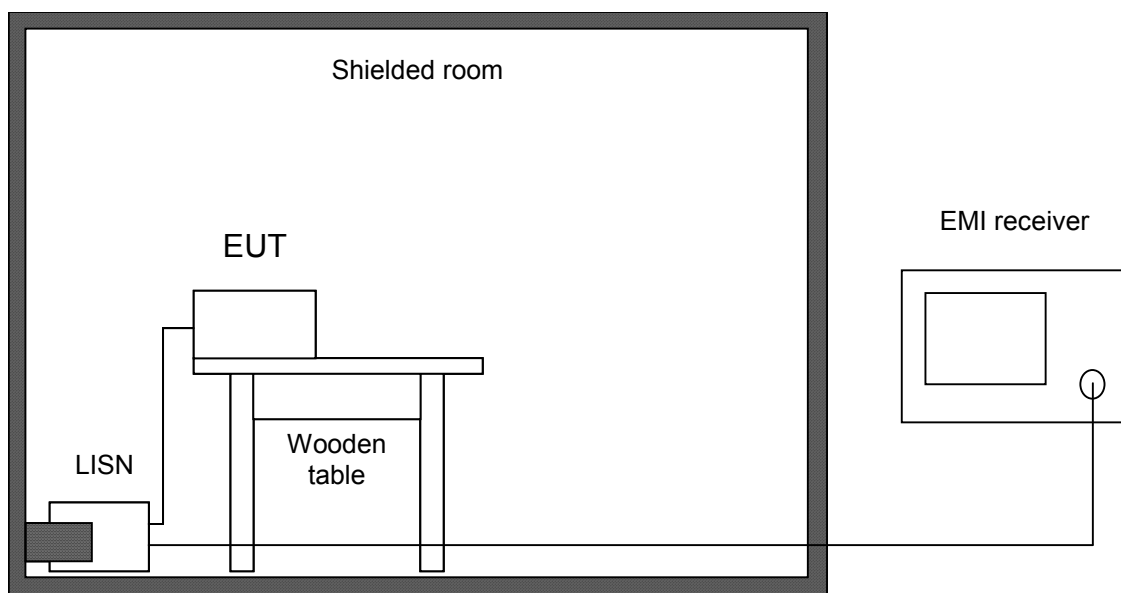
Conducted emission tests in the frequency range 150 kHz to 30 MHz are performed using Line Impedance Stabilization Networks (LISNs). To simplify testing with quasi-peak and average detector the following procedure is used:

First the whole spectrum of emission caused by the equipment under test (EUT) is recorded with detector set to peak using CISPR bandwidth of 10 kHz. After that all emission levels having less margin than 10 dB to or exceeding the average limit are retested with detector set to quasi-peak.

If average limit is kept with quasi-peak levels no additional scan with average detector is necessary. In cases of emission levels between quasi-peak and average limit an additional scan with detector set to average is performed.

According to ANSI C63.4, section 13.1.3.1, testing of intentional radiators with detachable antenna shall be performed using a suitable dummy load connected to the antenna output terminals. Otherwise, the tests shall be made with the antenna connected and, if adjustable, fully extended.

Testing with dummy load may be necessary to distinguish (unintentional) conducted emissions on the supply lines from (intentional) emissions radiated by the antenna and coupling directly to supply lines and/or LISN. Usage of dummy load has to be stated in the appropriate test record(s) and notes should be added to clarify the test setup.



Test instruments used:

Type	Designation	Inv.-no.	Serial No. or ID	Manufacturer
☒ Test receiver	ESHS 10	1028	860043/016	Rohde & Schwarz
☒ V-network	ESH 3-Z5	1059	894785/005	Rohde & Schwarz
☐ V-network	ESH 3-Z5	1218	830952/025	Rohde & Schwarz
☐ Artificial mains network	ESH 2-Z5	1536	842966/004	Rohde & Schwarz
☐ Shielded room	No. 1	1451	---	Albatross
☒ Shielded room	No. 4	1454	3FD 100 544	Euroshield

6.4 Radiated Emission Measurement 9 kHz to 30 MHz

Measurement Procedure:

Rules and specifications: CFR 47 Part 15, sections 15.215(b) and 15.231(b)(3)
 IC RSS-210 Issue 8, section A1.1.2(b)

Guide: ANSI C63.4

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.

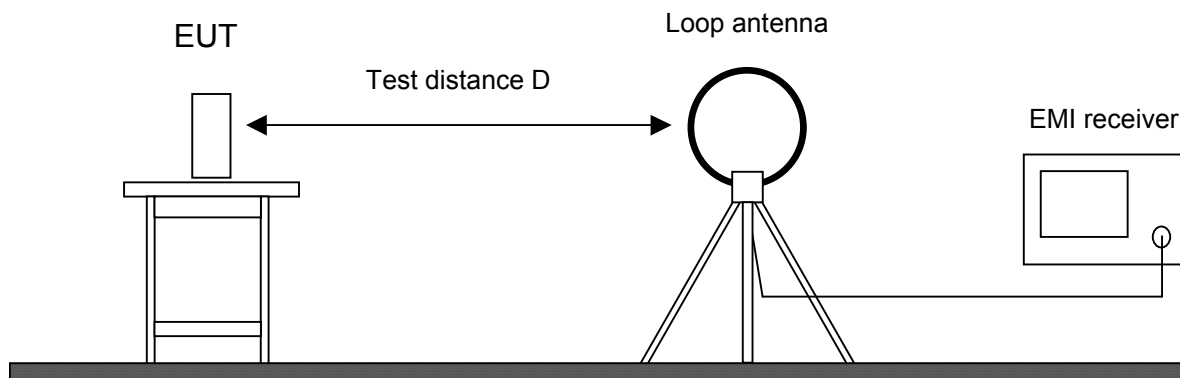
Hand-held or body-worn devices are rotated through three orthogonal axes to determine which attitude and configuration produces the highest emission relative to the limit and therefore shall be used for final testing.

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.

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).

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.

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.



Test instruments used:

Type	Designation	Inv.-no.	Serial No. or ID	Manufacturer
☒ Spectrum analyzer	FSP30	1666	100036	Rohde & Schwarz
☐ EMI test receiver	ESMI	1569	839379/013 839587/006	Rohde & Schwarz
☐ Test receiver	ESHS 10	1028	860043/016	Rohde & Schwarz
☐ Preamplifier	Cabin no. 2 CPA9231A	1651	3393	Schaffner
☒ Loop antenna	HFH2-Z2	1016	882964/1	Rohde & Schwarz
☒ Fully anechoic room	No. 2	1452	---	Albatross
☐ Semi anechoic room	No. 3	1453	---	Siemens
☐ Semi anechoic room	No. 8	2057	---	Albatross

6.5 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 3, section 6.1 IC RSS-210 Issue 8, section A2.9
Guide:	ANSI C63.4

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.

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

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.

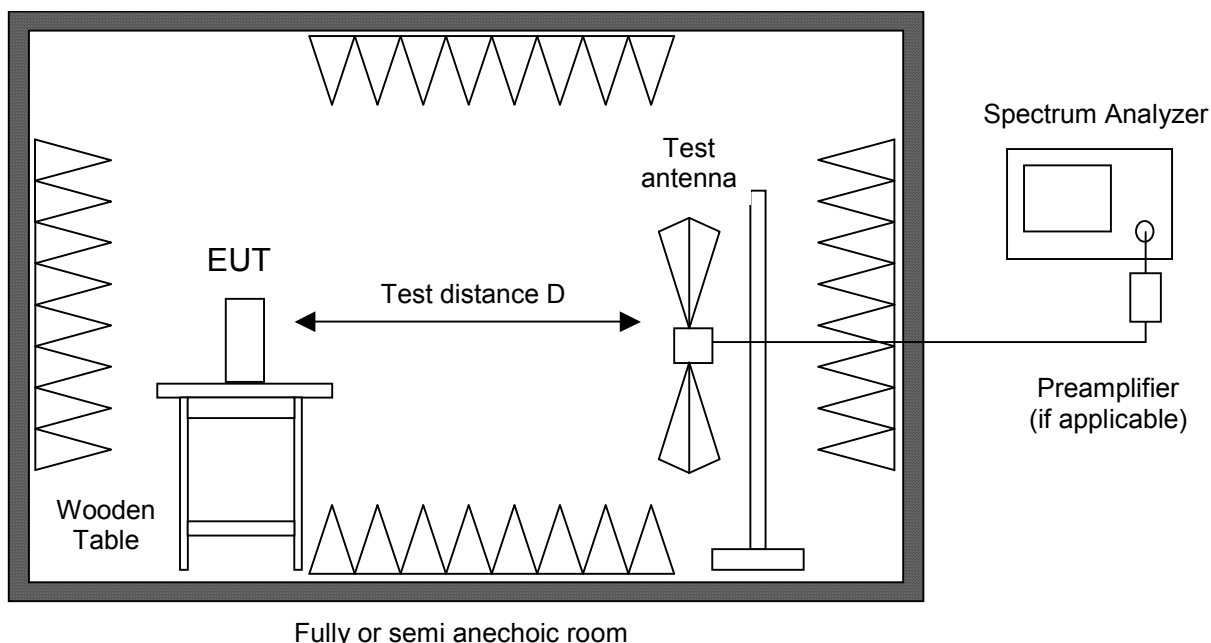
All tests below 8.2 GHz are performed at a test distance D of 3 meters. For higher frequencies the test distance may be reduced (e.g. to 1 meter) due to the sensitivity of the measuring instrument(s) and the test results are calculated according to CFR 47 Part 15 section 15.31(f)(1) using an extrapolation 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.

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.

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.

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.

For final testing below 1 GHz a semi anechoic room complying with the NSA requirements of ANSI C63.4 for alternative test sites is used (see 6.6). If prescans are recorded in fully anechoic room they are indicated appropriately.



Test instruments used:

Type		Designation	Inv.-no.	Serial No. or ID	Manufacturer
☒	Spectrum analyzer	FSP30	1666	100036	Rohde & Schwarz
☐	EMI test receiver	Cabin no. 3 ESPI7	2010	101018	Rohde & Schwarz
☐	EMI test receiver	ESU8	2044	100232	Rohde & Schwarz
☒	EMI test receiver	ESMI	1569	839379/013 839587/006	Rohde & Schwarz
☒	Preamplifier	Cabin no. 2 CPA9231A	1651	3393	Schaffner
☐	Preamplifier	R14601	1142	13120026	Advantest
☒	Preamplifier (1 - 8 GHz)	AFS3-00100800-32-LN	1684	847743	Miteq
☐	Preamplifier (0.5 - 8 GHz)	AMF-4D-005080-25-13P	1685	860149	Miteq
☒	Preamplifier (8 - 18 GHz)	ACO/180-3530	1484	32641	CTT
☐	External Mixer	WM782A	1576	845881/005	Tektronix
☐	Harmonic Mixer Accessories	FS-Z30	1577	624413/003	Rohde & Schwarz
☒	Trilog antenna	Cabin no. 2 VULB 9163	1722	9163-188	Schwarzbeck
☐	Trilog antenna	Cabin no. 3 VULB 9163	1802	9163-214	Schwarzbeck
☐	Trilog antenna	Cabin no. 8 VULB 9163	2058	9163-408	Schwarzbeck
☒	Horn antenna	3115	1516	9508-4553	EMCO
☐	Horn antenna	3160-03	1010	9112-1003	EMCO
☐	Horn antenna	3160-04	1011	9112-1001	EMCO
☒	Horn antenna	3160-05	1012	9112-1001	EMCO
☒	Horn antenna	3160-06	1013	9112-1001	EMCO
☒	Horn antenna	3160-07	1014	9112-1008	EMCO
☒	Horn antenna	3160-08	1015	9112-1002	EMCO
☒	Horn antenna	3160-09	1265	9403-1025	EMCO
☐	Horn antenna	3160-10	1575	399185	EMCO
☒	Fully anechoic room	No. 2	1452	---	Albatross
☐	Semi anechoic room	No. 3	1453	---	Siemens
☐	Semi anechoic room	No. 8	2057	---	Albatross

6.6 Radiated Emission at Alternative Test Site

Measurement Procedure:

Rules and specifications:	CFR 47 Part 15, sections 15.109, 15.215(b) and 15.249 IC RSS-GEN Issue 3, section 6.1 IC RSS-210 Issue 8, section A2.9
Guide:	ANSI C63.4

Radiated emission in the frequency range 30 MHz to 1 GHz is measured within a semi-anechoic room with groundplane complying with the NSA requirements of ANSI C63.4 for alternative test sites. A linear polarized logarithmic periodic antenna combined with a 4:1 broadband dipole ("Trilog broadband antenna") is used. The measurement bandwidth of the test receiver is set to 120 kHz with quasi-peak detector selected.

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.

Hand-held or body-worn devices are tested in the position producing the highest emission relative to the limit as verified by prescans in fully anechoic room.

If no prescan in a fully anechoic room is used first a peak scan is performed in four positions to get the whole spectrum of emission caused by EUT with the measuring antenna raised and lowered from 1 to 4 m to find table position, antenna height and antenna polarization for the maximum emission levels.

Data reduction is applied to these results to select those levels having less margin than 10 dB to or exceeding the limit using subranges and limited number of maximums. Further maximization is following.

With detector of the test receiver set to quasi-peak final measurements are performed immediately after frequency zoom (for drifting disturbances) and maximum adjustment.

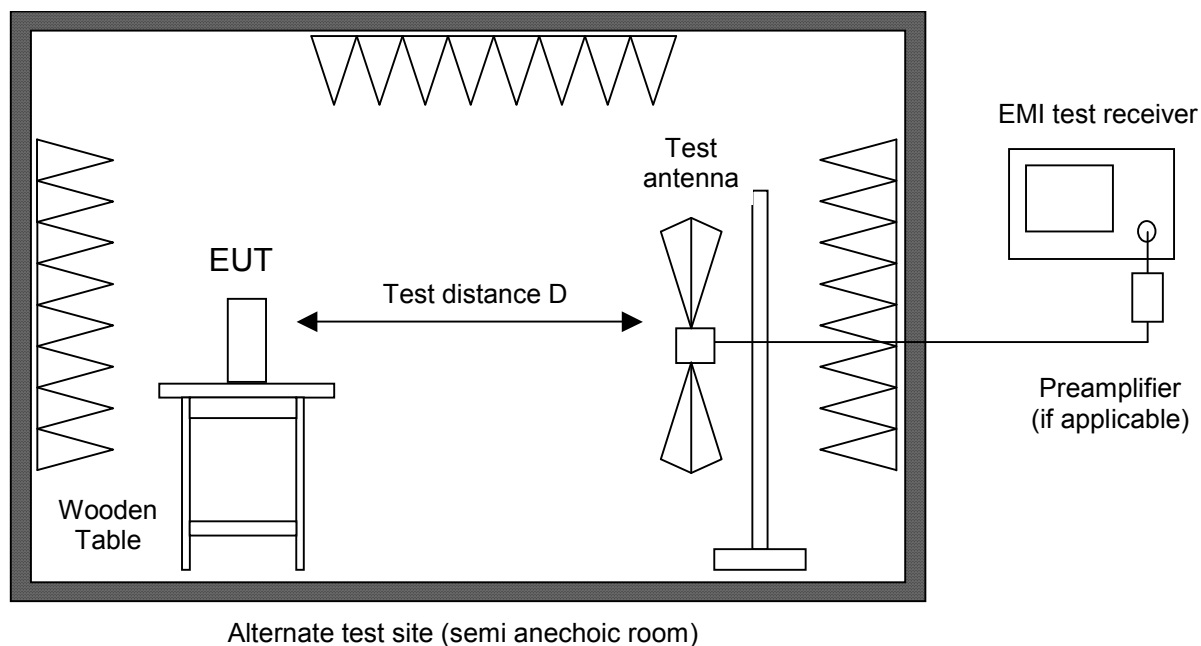
Equipment and cables are placed and moved within the range of position likely to find their maximum emissions.

In cases where prescans in a fully anechoic room are taken (e. g. if EUT is operating for a short time only or battery is discharged quickly) final measurements with quasi-peak detector are performed manually at frequencies indicated by prescan with EUT rotating all around and receiving antenna raising and lowering within 1 meter to 4 meters to find the maximum levels of emission.

Equipment and cables are placed and moved within the range of position likely to find their maximum emissions.

For measuring emissions of intentional radiators and receivers a test distance D of 3 meters is selected.

Testing of unintentional radiators is performed at a distance of 10 meters. If limits specified for 3 meters shall be used for measurements performed at 10 meters distance the limits are calculated according to CFR 47 Part 15 section 15.31(d) and (f)(1) using an inverse linear-distance extrapolation factor of 20 dB/decade.



Test instruments used:

Type		Designation	Inv.-no.	Serial No. or ID	Manufacturer
☒	EMI test receiver	ESU8	2044	100232	Rohde & Schwarz
☒	Trilog antenna	Cabin no. 8 VULB 9163	2058	9163-408	Schwarzbeck
☒	Semi anechoic room	No. 8	2057	---	Albatross

7 Photographs Taken During Testing

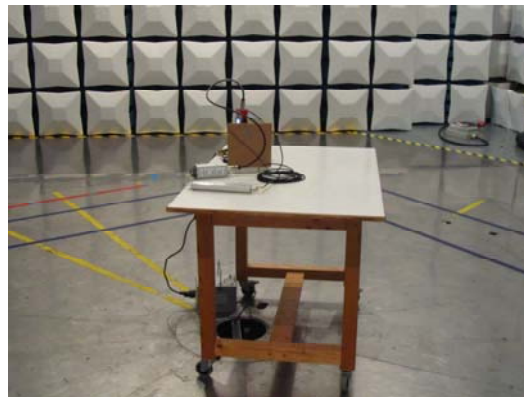
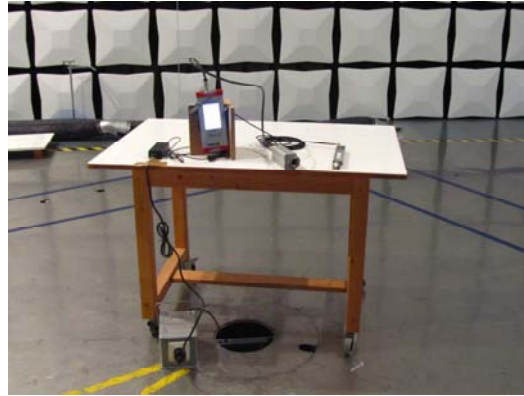
Test setup for conducted AC powerline emission measurement



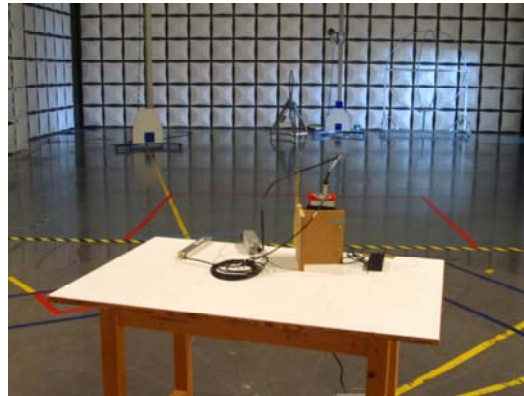
Test setup for radiated emission measurement (fully anechoic room)



Test setup for radiated emission measurement (alternate test site)



Test setup for radiated emission measurement (alternate test site) - 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 Applicable
15.204	Antenna requirement	---	Integrated Antenna
15.215(c)	Bandwidth of the emission	---	Not applicable
2.201, 2.202	Class of emission	31	Calculated
15.35(c)	Pulse train measurement for pulsed operation	---	Not applicable
15.205(a)	Restricted bands of operation	32	Test passed
15.247(a)(2)	6 dB-bandwidth	28	Test passed
15.247(e)	Spectral power density	36	Test passed
15.247(b)(3)	Maximum peak output power	39	Test passed
15.207	Conducted AC powerline emission 150 kHz to 30 MHz	42	Test passed
15.247(d)	Conducted emissions	44	Test passed
15.205(b) 15.247(d)	Radiated emission 9 kHz to 30 MHz	47	Test passed
15.205(b) 15.215(b) 15.247(d)	Radiated emission 30 MHz to 25 GHz	48	Test passed
15.247(i) 2.1093	RF exposure requirement	52	Test passed

IC RSS-Gen Issue 3			
Section(s)	Test	Page	Result
4.8	Transmitter output power (conducted)	---	Not applicable
4.6.1	Occupied Bandwidth	---	Not applicable
8	Designation of emissions	31	Calculated
4.5	Pulsed operation	---	Not applicable
7.1.2	Antenna requirement	---	Integrated antenna
7.2.4	Transmitter AC power lines conducted emissions 150 kHz to 30 MHz	42	Test passed
2.2(a)	Restricted bands and unwanted emission frequencies	32	Test passed
7.2.2(b)(c) 7.2.5	Unwanted emissions 9 kHz to 30 MHz	47	Test passed
7.2.2(b)(c) 7.2.5	Unwanted emissions 30 MHz to 25 GHz	48	Test passed
5.6	Exposure of Humans to RF Fields	53	Exempted from SAR and RF evaluation

IC RSS-210 Issue 8			
Section(s)	Test	Page	Result
A8.2(a)	6 dB-bandwidth	28	Test passed
A8.2(b)	Spectral power density	36	Test passed
A8.4(4)	Maximum output power	39	Test passed
A8.5	Conducted emissions	44	Test passed
A8.5	Unwanted emissions 9 kHz to 30 MHz	47	Test passed
A8.5	Unwanted emissions 30 MHz to 25 GHz	48	Test passed

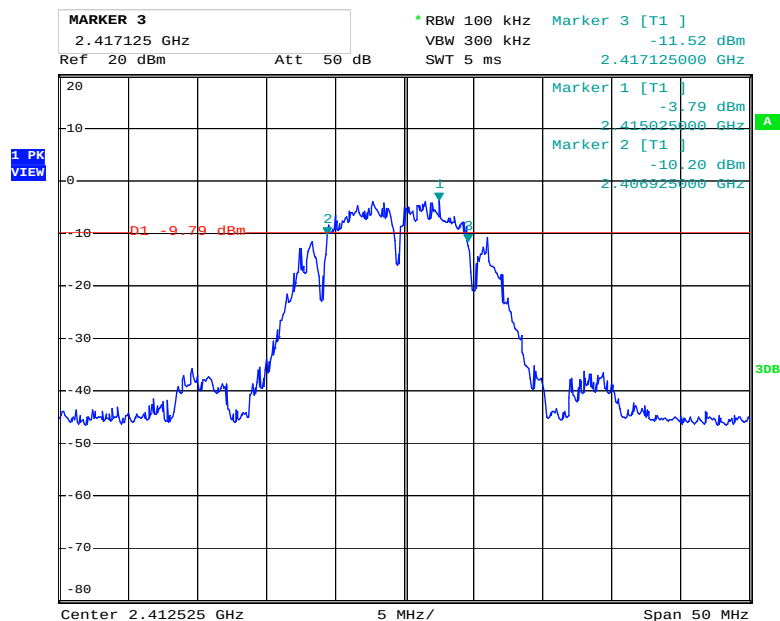
8.1 6 dB-Bandwidth

Rules and specifications:	CFR 47 Part 15, section 15.247(a)(2) IC RSS-210 Issue 8, section A8.2(a)
Guide:	ANSI C63.4
Limit:	The minimum 6 dB bandwidth shall be at least 500 kHz
Measurement procedure:	Radiated Emission in Fully or Semi Anechoic Room (6.5)

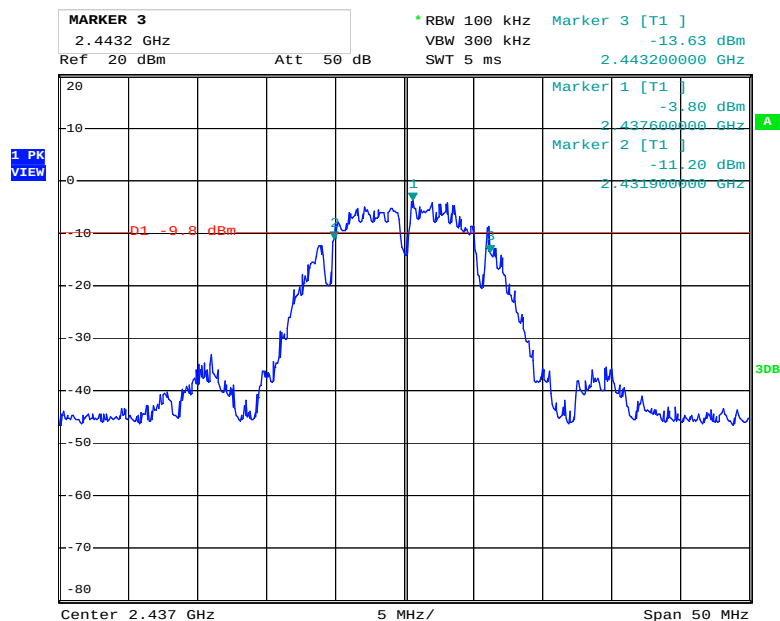
Comment:	
Date of test:	June 12, 2012
Test site:	Unshielded room

Frequency (MHz)	Channel Bandwidth (MHz)	Limit (MHz)	Result
2412	10.2	≥ 0.5	Pass
2442	11.3	≥ 0.5	Pass
2462	10.4	≥ 0.5	Pass

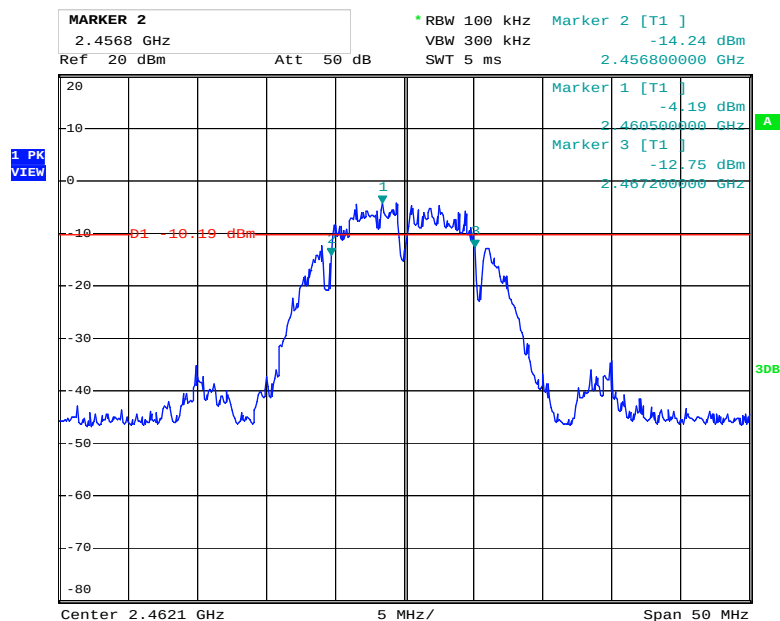
Test Result:	Test passed
--------------	-------------



Date: 12.JUN.2012 10:54:11



Date: 12.JUN.2012 11:12:14



Date: 12.JUN.2012 11:18:57

8.2 Designation of Emissions

Rules and specifications:	CFR 47 Part 2, sections 2.201 and 2.202 IC RSS-Gen Issue 3, section 8
Guide:	ANSI C63.4 / TRC-43

Type of modulation:	Phase Shift Keying (PSK)
---------------------	--------------------------

B_n = Necessary Bandwidth	$B_n = 2BK$
K = Overall numerical factor	K = 1
B = Modulation rate	B = 8 MHz
Calculation:	$B_n = 2 \cdot (8 \text{ MHz}) \cdot 1 = 16 \text{ MHz}$

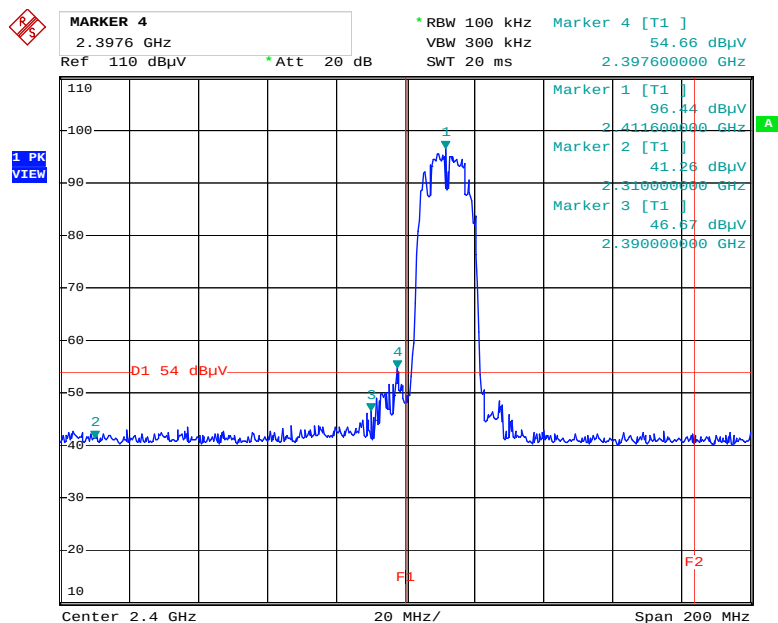
Designation of Emissions:	16M0G1D
---------------------------	----------------

8.3 Restricted Bands of Operation

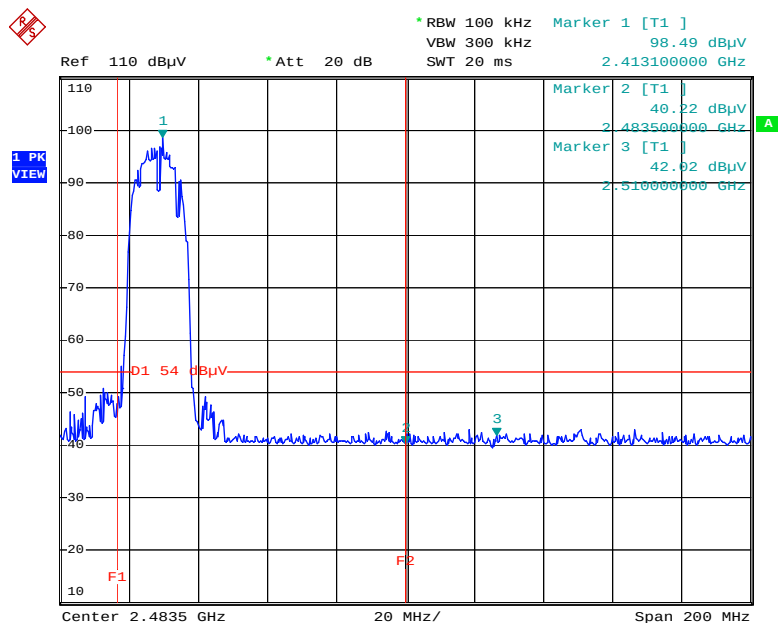
Rules and specifications:	CFR 47 Part 15, section 15.205(a) IC RSS-210 Issue 8, section 2.2(a)
Guide:	ANSI C63.4
Limit:	Only spurious emissions are permitted in any of the frequency bands listed in CFR 47 Part 15, section 15.205(a) or IC RSS-210 Issue 8, section 2.2(a).
Measurement procedure:	Radiated Emission in Fully or Semi Anechoic Room (6.5)

Comment:	
Date of test:	November 9, 2012
Test site:	Fully anechoic room, cabin no. 2
Test distance:	3 meters

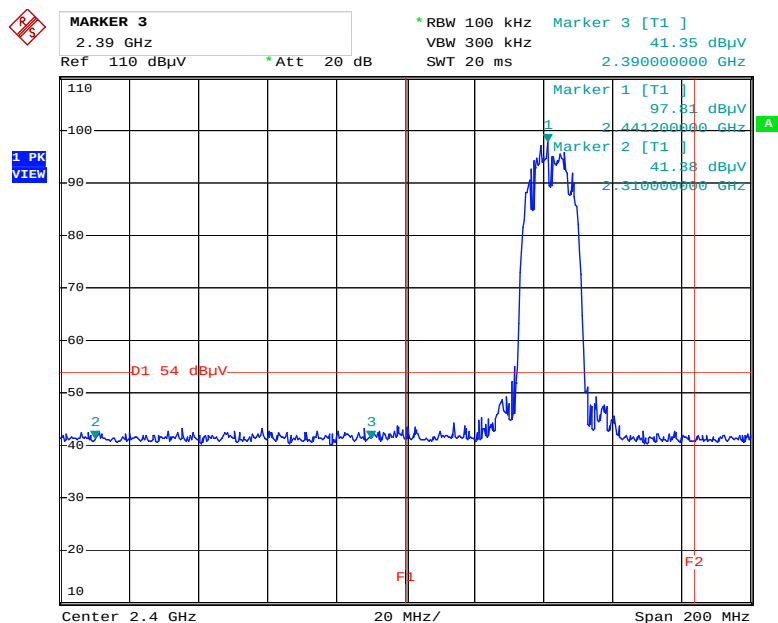
Test Result:	Test passed
--------------	-------------



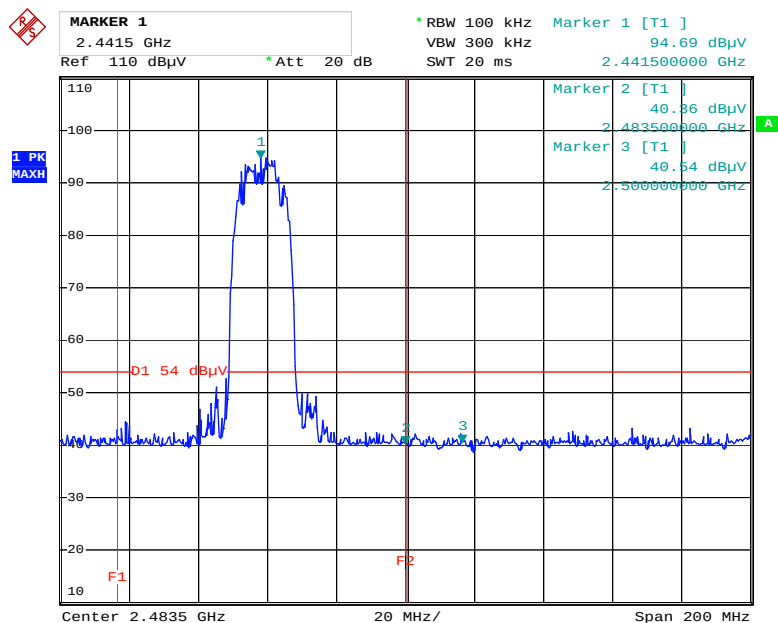
Date: 9.NOV.2012 14:46:52



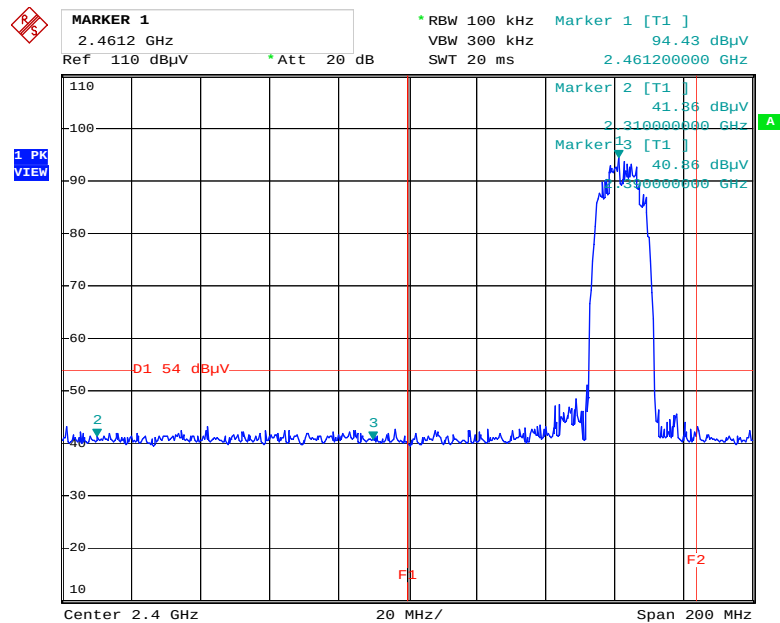
Date: 9.NOV.2012 14:48:26



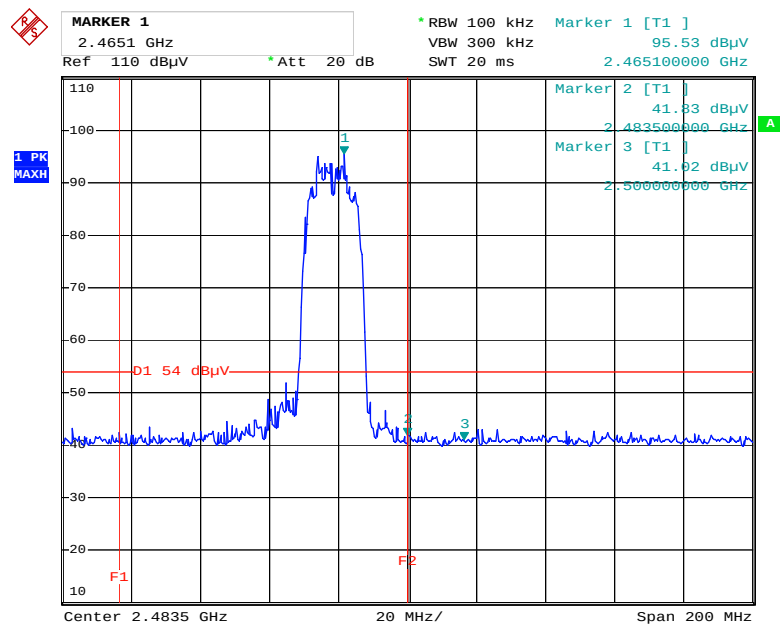
Date: 9.NOV.2012 14:44:33



Date: 9.NOV.2012 14:40:05



Date: 9.NOV.2012 14:35:48



Date: 9.NOV.2012 14:38:00

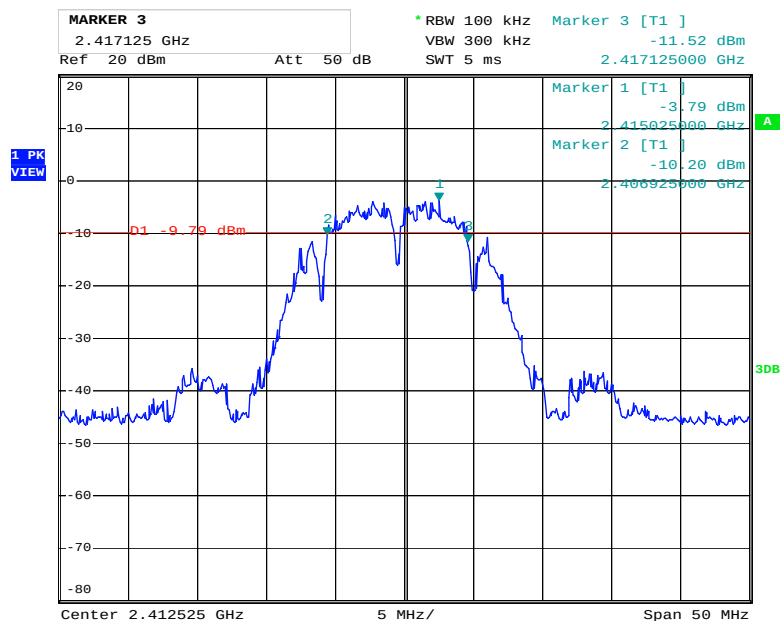
8.4 Spectral Power Density

Rules and specifications:	CFR 47 Part 15, section 15.247(e) IC RSS-210 Issue 8, section A8.2(b)
Guide:	ANSI C63.4
Limit:	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
Measurement procedure:	Radiated Emission in Fully or Semi Anechoic Room (6.5)

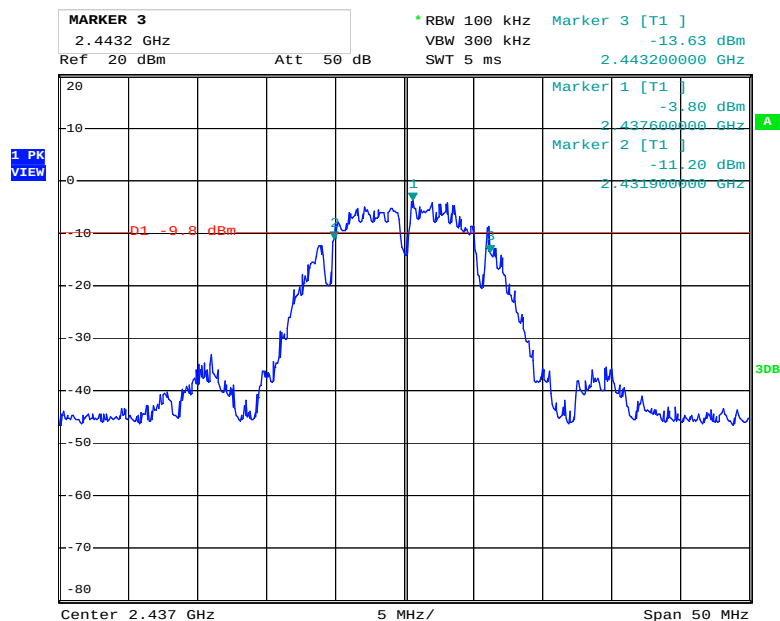
Comment:	
Date of test:	June 12, 2012
Test site:	Unshielded room

Frequency (MHz)	Reading (dBm)	Correction (dB)	Spectral Power Density (dBm)	Limit (dBm)	Result
2412	-3.79	-15.2	-19.0	≤ 8.0	Pass
2442	-3.80	-15.2	-19.0	≤ 8.0	Pass
2462	-4.19	-15.2	-19.4	≤ 8.0	Pass

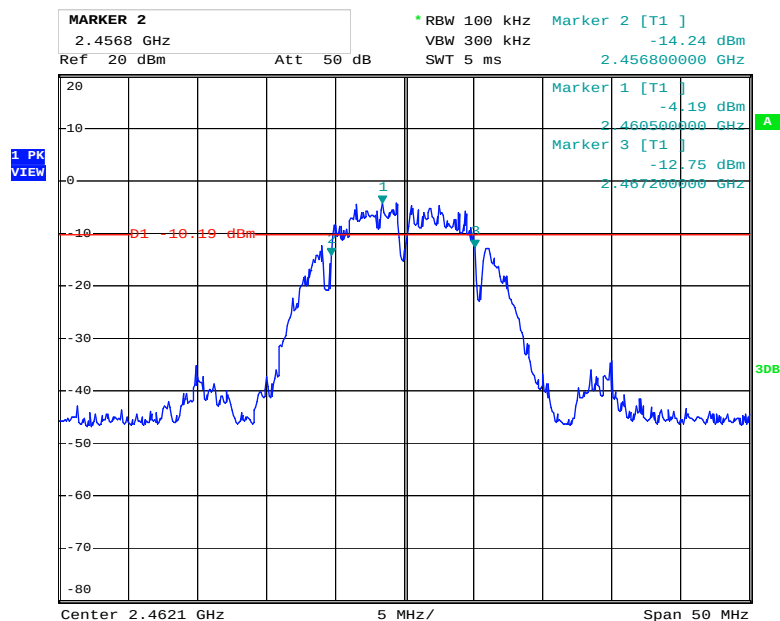
Test Result:	Test passed
--------------	-------------



Date: 12.JUN.2012 10:54:11



Date: 12.JUN.2012 11:12:14



Date: 12.JUN.2012 11:18:57

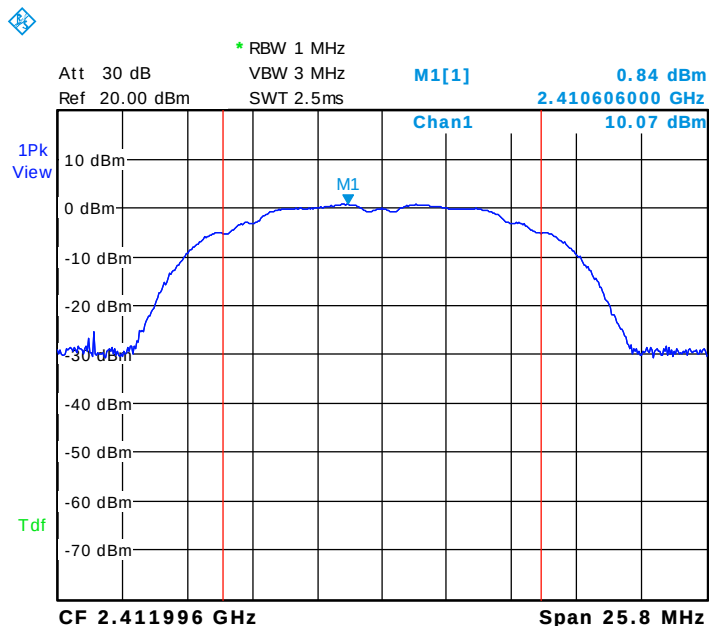
8.5 Maximum output power

Rules and specifications:	CFR 47 Part 15, section 15.247(b)(2) IC RSS-210 Issue 8, section A8.4(4)
Guide:	ANSI C63.4
Limit:	The maximum output power is 1 W (30 dBm) for systems employing digital modulation.
Measurement procedure:	Conducted Output Power (6.1)

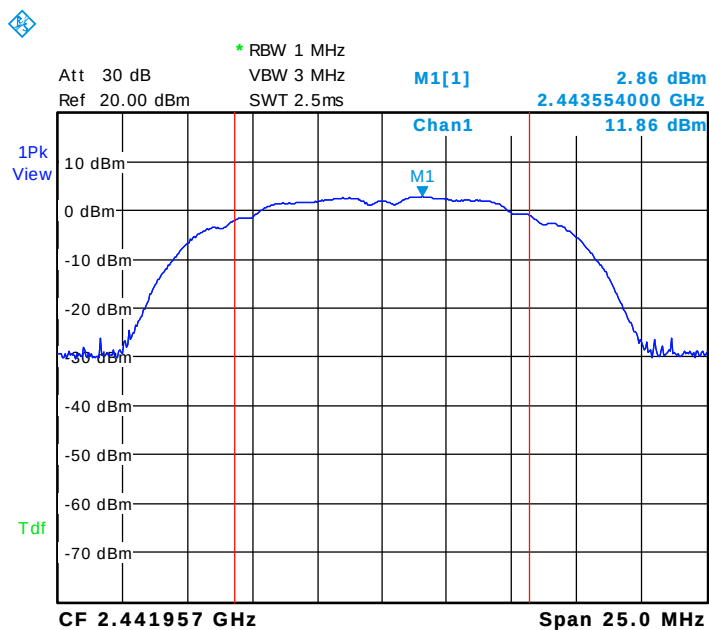
Comment:	
Date of test:	November 7, 2012
Test site:	Fully anechoic room, cabin no. 2
Test distance:	3 meters

Frequency (MHz)	Output power (dBm)	Limit (dBm)	Result
2412	10.07	≤ 30.0	Pass
2442	11.86	≤ 30.0	Pass
2462	11.34	≤ 30.0	Pass

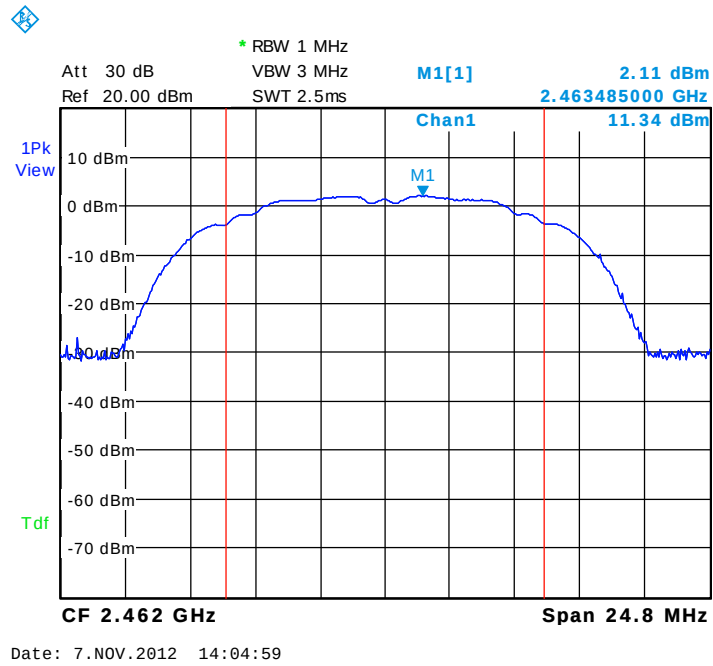
Test Result:	Test passed
--------------	-------------



Date: 7.NOV.2012 12:57:26



Date: 7.NOV.2012 13:57:55



8.6 Conducted Powerline Emission Measurement 150 kHz to 30 MHz

Rules and specifications:	CFR 47 Part 15, section 15.207 IC RSS-Gen Issue 3, section 7.2.4		
Guide:	ANSI C63.4 / CISPR 22		
Limit:	Frequency of Emission (MHz)	Conducted Limit (dBµV)	
		Quasi-peak	Average
	0.15 - 0.5	66 to 56	56 to 46
	0.5 - 5	56	46
	5 - 30	60	50
Measurement procedure:	Conducted AC Powerline Emission (6.3)		

Comment:	
Date of test:	June 11, 2012
Test site:	Shielded room, cabin no. 4

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

Tested on:	L1
------------	----

Frequency (MHz)	Detector	Reading Value (dBµV)	Correction Factor (dB)	Final Value (dBµV)	Limit (dBµV)	Margin (dB)
0.200	Average	33.5	0.0	33.5	53.6	20.1
0.210	Quasi-Peak	49.3	0.0	49.3	63.2	13.9
0.270	Quasi-Peak	46.1	0.0	46.1	61.1	15.0
0.325	Quasi-Peak	41.0	0.0	41.0	59.6	18.6
0.385	Quasi-Peak	44.3	0.0	44.3	58.2	13.9
0.410	Average	29.1	0.0	29.1	47.6	18.5
0.445	Quasi-Peak	44.0	0.0	44.0	57.0	13.0
0.480	Average	23.0	0.0	23.0	46.3	23.3
0.545	Quasi-Peak	27.4	0.0	27.4	56.0	28.6
0.815	Quasi-Peak	32.0	0.0	32.0	56.0	24.0
0.835	Quasi-Peak	33.5	0.0	33.5	56.0	22.5
1.090	Quasi-Peak	30.7	0.0	30.7	56.0	25.3
1.515	Quasi-Peak	32.4	0.0	32.4	56.0	23.6
1.845	Quasi-Peak	31.8	0.0	31.8	56.0	24.2
2.205	Quasi-Peak	33.0	0.0	33.0	56.0	23.0
2.850	Quasi-Peak	34.0	0.0	34.0	56.0	22.0
3.190	Quasi-Peak	33.7	0.0	33.7	56.0	22.3
3.815	Quasi-Peak	32.5	0.0	32.5	56.0	23.5
4.510	Quasi-Peak	30.2	0.0	30.2	56.0	25.8

Tested on:	N
------------	---

Frequency (MHz)	Detector	Reading Value (dBµV)	Correction Factor (dB)	Final Value (dBµV)	Limit (dBµV)	Margin (dB)
0.195	Quasi-Peak	50.1	0.0	50.1	63.8	13.7
0.270	Quasi-Peak	44.3	0.0	44.3	61.1	16.8
0.320	Quasi-Peak	40.3	0.0	40.3	59.7	19.4
0.400	Quasi-Peak	41.6	0.0	41.6	57.9	16.3
0.480	Quasi-Peak	44.3	0.0	44.3	56.3	12.0
0.480	Average	26.2	0.0	26.2	46.3	20.1
0.535	Quasi-Peak	32.9	0.0	32.9	56.0	23.1
0.745	Quasi-Peak	33.0	0.0	33.0	56.0	23.0
0.825	Quasi-Peak	34.9	0.0	34.9	56.0	21.1
1.180	Quasi-Peak	35.7	0.0	35.7	56.0	20.3
1.455	Quasi-Peak	34.0	0.0	34.0	56.0	22.0
1.875	Quasi-Peak	35.1	0.0	35.1	56.0	20.9
2.145	Quasi-Peak	33.9	0.0	33.9	56.0	22.1
2.575	Quasi-Peak	33.9	0.0	33.9	56.0	22.1
3.185	Quasi-Peak	32.2	0.0	32.2	56.0	23.8
4.240	Quasi-Peak	28.4	0.0	28.4	56.0	27.6
4.895	Quasi-Peak	29.0	0.0	29.0	56.0	27.0

Sample calculation of final values:

$$\text{Final Value (dBµV)} = \text{Reading Value (dBµV)} + \text{Correction Factor (dB)}$$

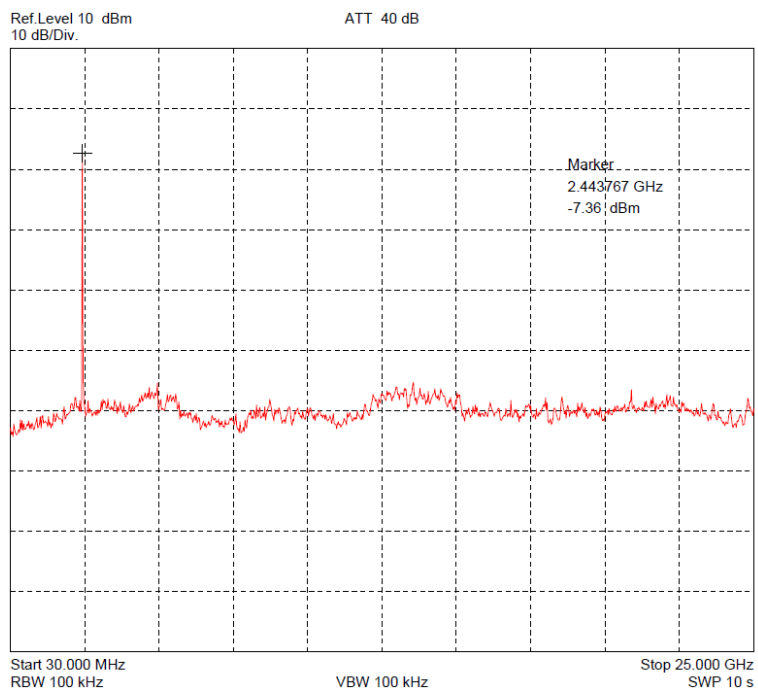
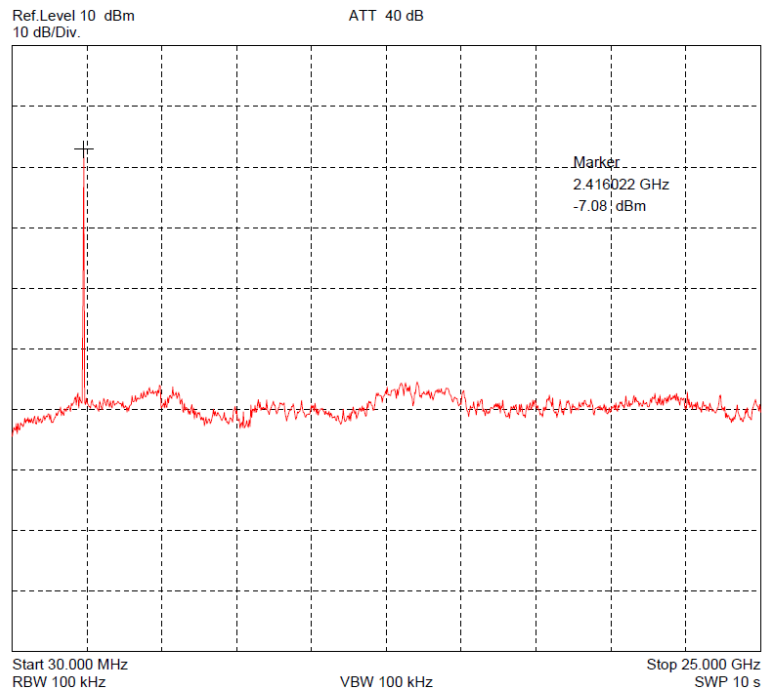
8.7 Conducted Emission Measurement 30 MHz to 25 GHz

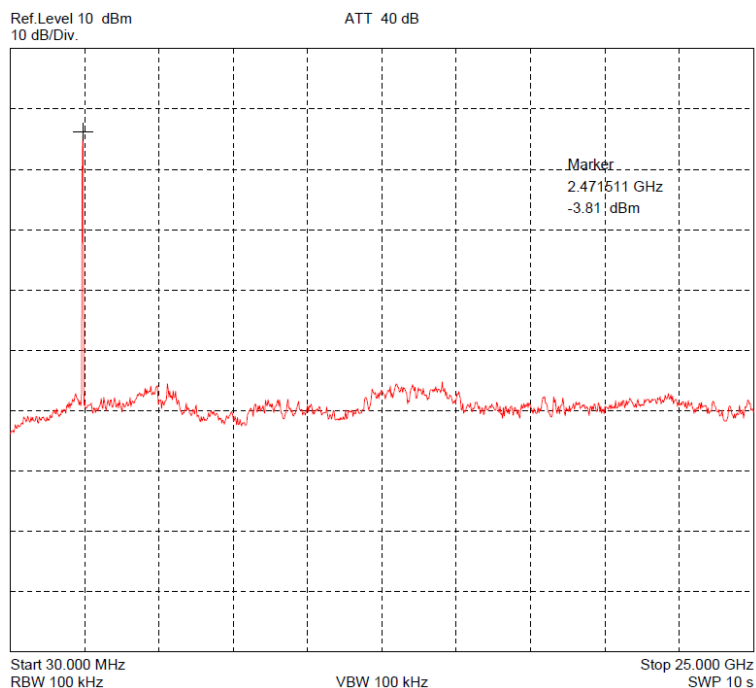
Rules and specifications:	CFR 47 Part 15, section 15.247(d) IC RSS-210 Issue 8, section A8.5
Guide:	ANSI C63.4
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the frequency power that is produced by the 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 radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits
Measurement procedure:	Conducted Output Power (6.1)

Comment:	
Date of test:	June 12, 2012
Test site:	Unshielded room

Except carrier no emissions above noise floor detected

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





8.8 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 8, sections 7.2.2(b)(c) and 7.2.5			
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 acc. to 15.209:	Frequency of Emission (MHz)	Field Strength (µV/m)	Field Strength (dBµV/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 (6.4)			

Comment:	
Date of test:	June 6, 2012
Test site:	Fully anechoic room, cabin no. 2Fully anechoic room, cabin no. 2

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

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

8.9 Radiated Emission Measurement 30 MHz to 25 GHz

Rules and specifications:	CFR 47 Part 15, sections 15.215(b) and 15.247 IC RSS-210 Issue 8, sections 7.2.2(b)(c) and 7.2.5 IC RSS-210 Issue 8, 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 acc. 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 (6.5) Radiated Emission at Alternative Test Site (6.6)		

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

Comment:	Final measurement below 1 GHz performed for maximum emissions on highest channel, only
Mode:	Transmitting continuously on lowest channel
Date of test:	June 6, 2012, June 11, 2012, June 12, 2012
Test site:	Frequencies ≤ 1 GHz: Alternate test side 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)
266.650	horizontal	Quasi-Peak	29.4	8.3		37.7	46.0	8.3
299.980	horizontal	Quasi-Peak	26.2	9.9		36.1	46.0	9.9
366.680	horizontal	Quasi-Peak	28.0	9.0		37.0	46.0	9.0
399.900	horizontal	Quasi-Peak	10.8	17.6		28.4	46.0	17.6
433.340	horizontal	Quasi-Peak	24.4	10.8		35.2	46.0	10.8
456.910	horizontal	Quasi-Peak	24.0	11.0		35.0	46.0	11.0
533.360	horizontal	Quasi-Peak	38.6	3.7		42.3	46.0	3.7
766.660	horizontal	Quasi-Peak	25.4	10.3		35.7	46.0	10.3
800.000	horizontal	Quasi-Peak	38.2	3.9		42.1	46.0	3.9
933.310	horizontal	Quasi-Peak	30.4	7.8		38.2	46.0	7.8
2413.000	vertical	Peak	66.4	33.4		99.8		

Sample calculation of final values:

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

Comment:	Final measurement below 1 GHz performed for maximum emissions on highest channel, only
Mode:	Transmitting continuously on middle channel
Date of test:	June 6, 2012, June 11, 2012, June 12, 2012
Test site:	Frequencies ≤ 1 GHz: Alternate test side 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)
266.650	horizontal	Quasi-Peak	29.4	8.3		37.7	46.0	8.3
299.980	horizontal	Quasi-Peak	26.2	9.9		36.1	46.0	9.9
366.680	horizontal	Quasi-Peak	28.0	9.0		37.0	46.0	9.0
399.900	horizontal	Quasi-Peak	10.8	17.6		28.4	46.0	17.6
433.340	horizontal	Quasi-Peak	24.4	10.8		35.2	46.0	10.8
456.910	horizontal	Quasi-Peak	24.0	11.0		35.0	46.0	11.0
533.360	horizontal	Quasi-Peak	38.6	3.7		42.3	46.0	3.7
766.660	horizontal	Quasi-Peak	25.4	10.3		35.7	46.0	10.3
800.000	horizontal	Quasi-Peak	38.2	3.9		42.1	46.0	3.9
933.310	horizontal	Quasi-Peak	30.4	7.8		38.2	46.0	7.8
1924.000	horizontal	Peak	13.5	31.9		45.4	54.0	8.6
2442.000	vertical	Peak	69.8	33.5		103.3		

Sample calculation of final values:

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

Comment:	Final measurement below 1 GHz performed for maximum emissions on highest channel, only
Mode:	Transmitting continuously on highest channel
Date of test:	June 6, 2012, June 11, 2012, June 12, 2012
Test site:	Frequencies ≤ 1 GHz: Alternate test side 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)
266.650	horizontal	Quasi-Peak	29.4	8.3		37.7	46.0	8.3
299.980	horizontal	Quasi-Peak	26.2	9.9		36.1	46.0	9.9
366.680	horizontal	Quasi-Peak	28.0	9.0		37.0	46.0	9.0
399.900	horizontal	Quasi-Peak	10.8	17.6		28.4	46.0	17.6
433.340	horizontal	Quasi-Peak	24.4	10.8		35.2	46.0	10.8
456.910	horizontal	Quasi-Peak	24.0	11.0		35.0	46.0	11.0
533.360	horizontal	Quasi-Peak	38.6	3.7		42.3	46.0	3.7
766.660	horizontal	Quasi-Peak	25.4	10.3		35.7	46.0	10.3
800.000	horizontal	Quasi-Peak	38.2	3.9		42.1	46.0	3.9
933.310	horizontal	Quasi-Peak	30.4	7.8		38.2	46.0	7.8
2462.000	horizontal	Peak	66.2	33.5		99.7		

Sample calculation of final values:

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

8.10 RF exposure requirement

Rules and specifications:	CFR 47 Part 15, section 15.247(i) CFR 47 Part 1, sections 1.1307(b)(1)				
Guide:	OET Bulletin 65, Edition 97-01				
Limits:	Limits for general population / uncontrolled exposure				
	Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time (minutes)
	0.3 - 1.34	614	1.63	(100)*	30
	1.34 - 30	824 / f	2.19 / f	(180 / f ²)*	30
	30 - 300	27.5	0.073	0.2	30
	300 - 1500	---	---	f/1500	30
	1500 - 100000	---	---	1.0	30
	f = frequency in MHz				
	* Plane-wave equivalent power density				

Spectral power density		Declared by applicant	Measured
Prediction ⁵ :	$S = P G / 4 \pi R^2$		
Where:	S = Power density P = Power input of antenna G = Power gain of the antenna relativ to an isotropic radiator R = Distance to the center of radiation of the antenna		
Maximum output power:	P = 11.86 dBm = 15.35 mW	☒	☒
Antenna gain:	G = 2.3 dB = 1.70	☒	
Prediction distance:	R = 20 cm		
Power density at 20 cm:	S = 0.005 mW/cm ²		
Limit	S _{lim} = 1.0 mW/cm ²		

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

⁵ MPE Prediction of MPE according to equation from page 19 of OET Bulletin 65, Ed. 97-01

8.11 Exposure of Humans to RF Fields

Rules and specifications:	IC RSS-Gen Issue 3, section 5.6
Guide:	IC RSS-102 Issue 3, section 2.5

Exposure of Humans to RF Fields	Applicable	Declared by applicant	Measured	Exemption
The antenna is				
☐ detachable				
The conducted output power (CP in watts) is measured at the antenna connector: $CP = \dots\dots\dots \text{ W}$ The effective isotropic radiated power (EIRP in watts) is calculated using ☐ the numerical antenna gain: $G = \dots\dots\dots$ $EIRP = G \cdot CP \Rightarrow EIRP = \dots\dots\dots \text{ W}$ ☐ the field strength⁶ in V/m: $FS = \dots\dots\dots \text{ V/m}$ $EIRP = \frac{(FS \cdot D)^2}{30} \Rightarrow EIRP = \dots\dots\dots \text{ W}$ with: Distance between the antennas in m: $D = \dots\dots\dots \text{ m}$			☐	
☒ not detachable				
A field strength measurement is used to determine the effective isotropic radiated power (EIRP in watts) given by⁶: $EIRP = \frac{(FS \cdot D)^2}{30} \Rightarrow EIRP = 6.4 \text{ mW}$ with: Field strength in V/m: $FS = 103.3 \text{ dB}\mu\text{V/m}$ $= 146.22 \text{ mV}$ Distance between the two antennas in m: $D = 3 \text{ m}$			☒	
Selection of output power				
The output power TP is the higher of the conducted or effective isotropic radiated power (e.i.r.p.):				

⁶ The conversion formula is valid only for properly matched antennas. In other cases the transmitter output power may have to be measured by a terminated measurement when applying the exemption clauses. If an open area test site is used for field strength measurement, the effect due to the metal ground reflecting plane should be subtracted from the maximum field strength value in order to reference it to free space, before calculating TP.



$TP = 6.4 \text{ mW}$				
-----------------------	--	--	--	--

9 Test Results for Receiver

FCC CFR 47 Part 15

Section(s)	Test	Page	Result
15.107	Conducted AC powerline emission 150 kHz to 30 MHz	57	Test passed
15.109	Radiated emission 30 MHz to 12.5 GHz	59	Test passed
15.111(a)	Antenna power conduction emission of receivers 9 kHz to 12.5 GHz	---	Not applicable

IC RSS-Gen Issue 3

Section(s)	Test	Page	Result
7.2.4	Conducted AC powerline emission 150 kHz to 30 MHz	57	Test passed
6.1	Receiver spurious emissions (radiated) 30 MHz to 12.5 GHz	59	Test passed
6.2	Receiver spurious emissions (antenna conducted) 9 kHz to 12.5 GHz	---	Not applicable

9.1 Conducted Powerline Emission Measurement 150 kHz to 30 MHz

Rules and specifications:	CFR 47 Part 15, section 15.107 IC RSS-Gen Issue 3, section 7.2.4		
Guide:	ANSI C63.4 / CISPR 22		
Limit:	Frequency of Emission (MHz)	Conducted Limit (dBµV)	
		Quasi-peak	Average
	0.15 - 0.5	66 to 56	56 to 46
	0.5 - 5	56	46
	5 - 30	60	50
Measurement procedure:	Conducted AC Powerline Emission (6.3)		

Comment:	
Date of test:	June 11, 2012
Test site:	Shielded room, cabin no. 4

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

Tested on:	L1
------------	----

Frequency (MHz)	Detector	Reading Value (dBµV)	Correction Factor (dB)	Final Value (dBµV)	Limit (dBµV)	Margin (dB)
0.195	Quasi-Peak	47.3	0.0	47.3	63.8	16.5
0.270	Quasi-Peak	40.3	0.0	40.3	61.1	20.8
0.345	Quasi-Peak	38.6	0.0	38.6	59.1	20.5
0.405	Quasi-Peak	41.4	0.0	41.4	57.8	16.4
0.500	Quasi-Peak	38.5	0.0	38.5	56.0	17.5
0.540	Quasi-Peak	30.4	0.0	30.4	56.0	25.6
1.795	Quasi-Peak	27.1	0.0	27.1	56.0	28.9
2.060	Quasi-Peak	26.8	0.0	26.8	56.0	29.2
2.810	Quasi-Peak	26.8	0.0	26.8	56.0	29.2
3.270	Quasi-Peak	28.3	0.0	28.3	56.0	27.7
3.610	Quasi-Peak	28.3	0.0	28.3	56.0	27.7

Tested on:

N

Frequency (MHz)	Detector	Reading Value (dBµV)	Correction Factor (dB)	Final Value (dBµV)	Limit (dBµV)	Margin (dB)
0.195	Quasi-Peak	48.3	0.0	48.3	63.8	15.5
0.265	Quasi-Peak	42.4	0.0	42.4	61.3	18.9
0.340	Quasi-Peak	39.4	0.0	39.4	59.2	19.8
0.420	Quasi-Peak	39.7	0.0	39.7	57.4	17.7
0.485	Quasi-Peak	43.0	0.0	43.0	56.3	13.3
0.645	Quasi-Peak	34.6	0.0	34.6	56.0	21.4
0.720	Quasi-Peak	31.8	0.0	31.8	56.0	24.2
0.940	Quasi-Peak	34.4	0.0	34.4	56.0	21.6
1.180	Quasi-Peak	33.9	0.0	33.9	56.0	22.1
1.525	Quasi-Peak	33.2	0.0	33.2	56.0	22.8
1.865	Quasi-Peak	32.5	0.0	32.5	56.0	23.5
2.155	Quasi-Peak	32.2	0.0	32.2	56.0	23.8
2.555	Quasi-Peak	31.7	0.0	31.7	56.0	24.3
3.080	Quasi-Peak	29.5	0.0	29.5	56.0	26.5
3.615	Quasi-Peak	28.7	0.0	28.7	56.0	27.3
4.975	Quasi-Peak	28.1	0.0	28.1	56.0	27.9

Sample calculation of final values:

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

9.2 Radiated Emission Measurement 30 MHz to 12.5 GHz

Rules and specifications:	CFR 47 Part 15, section 15.109 (Class B) IC RSS-Gen Issue 3, sections 6.1		
Guide:	ANSI C63.4		
Limit:	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
Measurement procedures:	Radiated Emission in Fully or Semi Anechoic Room (6.5) Radiated Emission at Alternative Test Site (6.6)		

Comment:	
Date of test:	June 6, 2012, June 12, 2012
Test site:	Frequencies ≤ 1 GHz: Semi-anechoic room, cabin no. 8 Frequencies > 1 GHz: Fully anechoic room, cabin no. 2
Test distance:	Frequencies ≤ 8.2 GHz: 3 meters Frequencies > 8.2 GHz: 1 meters

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

Frequency (MHz)	Antenna Polarization	Detector	Receiver Reading (dBµV)	Correction Factor (dB/m)	Final Value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
266.650	horizontal	Quasi-Peak	28.6	8.7	37.3	46.0	8.7
299.980	horizontal	Quasi-Peak	26.4	9.8	36.2	46.0	9.8
366.680	horizontal	Quasi-Peak	27.0	9.5	36.5	46.0	9.5
400.000	horizontal	Quasi-Peak	30.6	7.7	38.3	46.0	7.7
533.320	horizontal	Quasi-Peak	42.6	1.7	44.3	46.0	1.7
766.670	horizontal	Quasi-Peak	25.6	10.2	35.8	46.0	10.2
800.000	horizontal	Quasi-Peak	37.8	4.1	41.9	46.0	4.1
933.310	horizontal	Quasi-Peak	31.2	7.4	38.6	46.0	7.4

Sample calculation of field final values:

$$\text{Final Value (dBµV/m)} = \text{Reading Value (dBµV)} + \text{Correction Factor (dB/m)}$$

10 Referenced Regulations

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

☒	CFR 47 Part 2	Code of Federal Regulations Part 2 (Frequency allocation and radio treaty matters; General rules and regulations) of the Federal Communication Commission (FCC)	October 1, 2011
☒	CFR 47 Part 15	Code of Federal Regulations Part 15 (Radio Frequency Devices) of the Federal Communication Commission (FCC)	October 1, 2011
☒	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)
☐	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	June 7, 2009 (published on September 15, 2009)
☒	RSS-Gen	Radio Standards Specification RSS-Gen Issue 3 containing General Requirements and Information for the Certification of Radiocommunication Equipment, published by Industry Canada	December 2010
☒	RSS-210	Radio Standards Specification RSS-210 Issue 8 for Low Power Licence-Exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment, published by Industry Canada	December 2010
☐	RSS-310	Radio Standards Specification RSS-310 Issue 3 for Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category II Equipment, published by Industry Canada	December 2010
☒	RSS-102	Radio Standards Specification RSS-102 Issue 4: Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands), published by Industry Canada	March 2010, footnote 13 updated December 2010
☐	ICES-003	Interference-Causing Equipment Standard ICES-003 Issue 4 for Digital Apparatus, published by Industry Canada	February 7, 2004
☒	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

☐	CAN/CSA- CEI/IEC CISPR 22	Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment	2002
		CAN/CSA CISPR 22-10 Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement (Adopted IEC CISPR 22:2008, sixth edition, 2008-09)	
☐	CAN/CSA CISPR 22-10	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement (Adopted IEC CISPR 22:2008, sixth edition, 2008-09)	2010
☒	TRC-43	Notes Regarding Designation of Emissions (Including Necessary Bandwidth and Classification), Class of Station and Nature of Service, published by Industry Canada	October, 2008

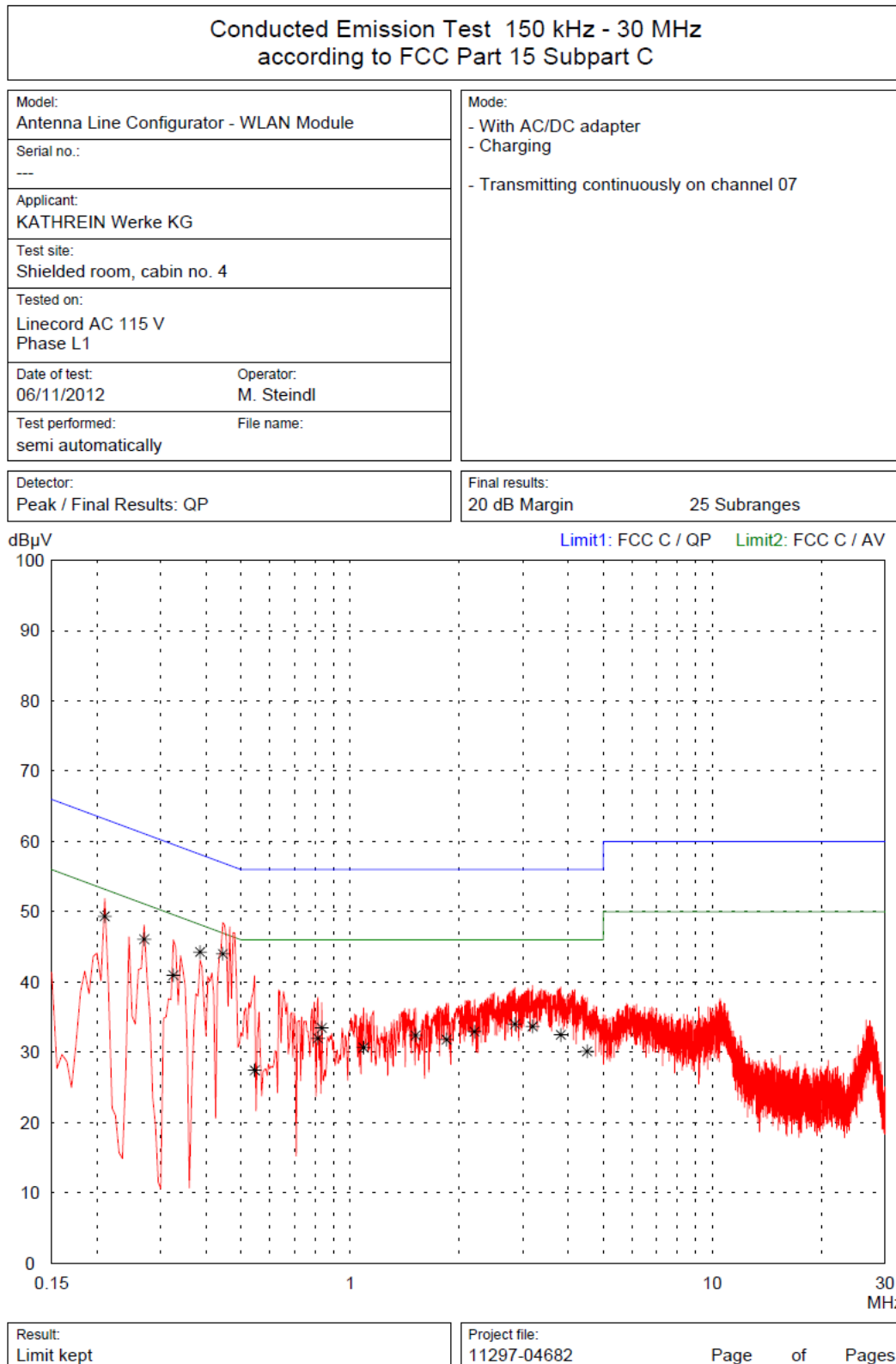
11 Test Equipment List with Calibration Data

Type	Inv.-No.	Type Designation	Serial Number	Manufacturer	Calibration Organization	Last Calibration	Next Calibration
EMI test receiver	1028	ESHS10	860043/016	Rohde & Schwarz	Rohde & Schwarz	10/2010	04/2012
EMI test receiver	1569	ESMI	839379/013	Rohde & Schwarz	Rohde & Schwarz	10/2009	10/2012
EMI test receiver	1711	ESPI7	836914/0002	Rohde & Schwarz	Rohde & Schwarz	05/2011	11/2012
EMI test receiver	2044	ESU8	100232	Rohde & Schwarz	Rohde & Schwarz	12/2010	06/2012
Spectrum analyser	1666	FSP30	100063	Rohde & Schwarz	Rohde & Schwarz	05/2011	11/2012
Preamplifier	1484	ACO/180-3530	32641	CTT	TÜV SÜD PS	06/2011	12/2012
Preamplifier	1651	CPA9231A	3393	Schaffner Electrotest	TÜV SÜD PS	05/2010	05/2012
Preamplifier	1684	AFS3-00100800-32-LN	847743	MITEQ	TÜV SÜD PS	10/2011	04/2013
V-network	1059	ESH3-Z5	894785/005	Rohde & Schwarz	Rohde & Schwarz	08/2011	08/2013
Loop antenna	1016	HFH2-Z2	882964/0001	Rohde & Schwarz	Rohde & Schwarz	05/2011	11/2012
Double ridged waveguide horn antenna	1516	3115	9508-4553	EMCO Elektronik	Seibersdorf Laboratories	10/2010	10/2012
TRILOG Broadband Antenna	2058	VULB 9163	9163-408	Schwarzbeck	Rohde & Schwarz	05/2011	11/2012
Horn Antenna	1012	3160-05	9112-1001	EMCO	---	No calibration required	
Horn Antenna	1013	3160-06	9112-1001	EMCO	---	No calibration required	
Horn Antenna	1014	3160-07	9112-1008	EMCO	---	No calibration required	
Horn Antenna	1015	3160-08	9112-1002	EMCO	---	No calibration required	
Horn Antenna	1265	3160-09	9112-1025	EMCO	---	No calibration required	

12 Revision History

Revision History			
<i>Edition</i>	<i>Date</i>	<i>Issued by</i>	<i>Modifications</i>
1	12.06.2012	Martin Steindl (az)	First edition
2	17.09.2012	M. Steindl	Correction from modular approval to normal approval
3	09.11.2012	M. Steindl	Updated measurements to guide for performing compliance measurements
4	13.11.2012	M. Steindl	Correction of RF exposure calculation and typographic correction

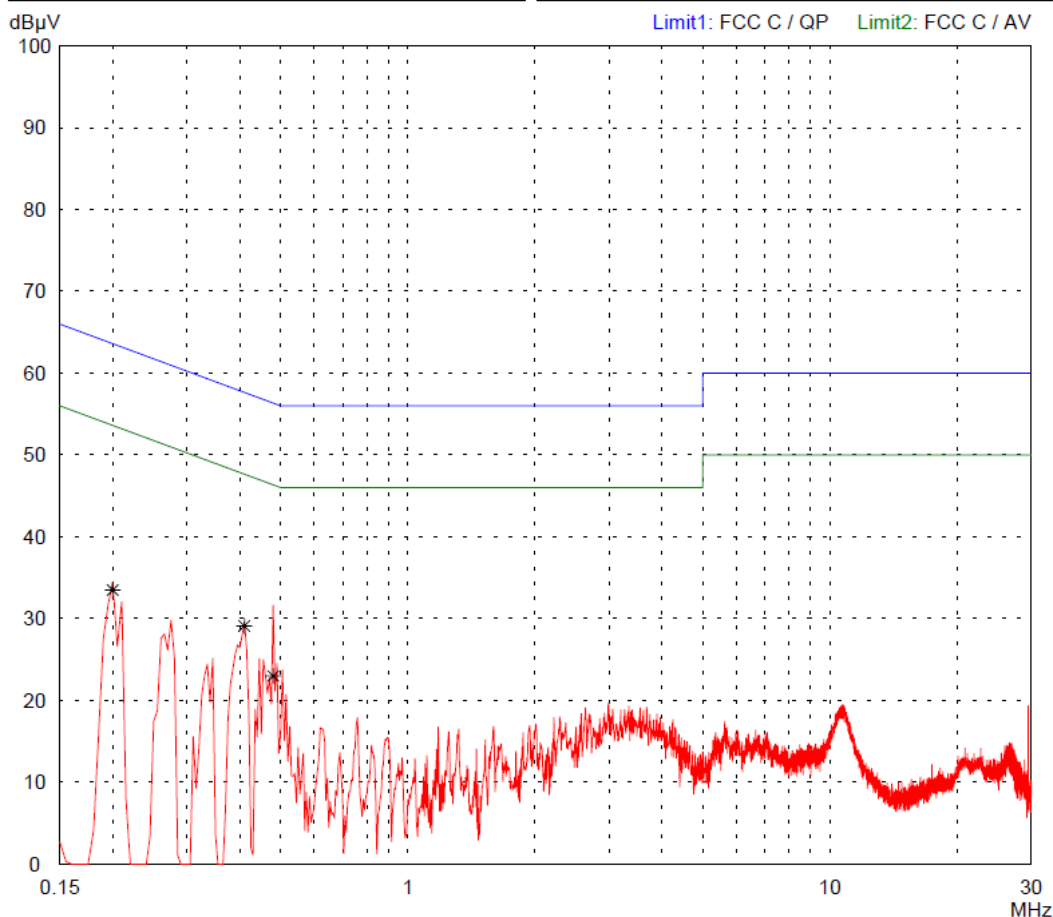
13 Charts taken during testing



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

Model: Antenna Line Configurator - WLAN Module	Mode: - With AC/DC adapter - Charging - Transmitting continuously on channel 07
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord AC 115 V Phase L1	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name:

Detector: Average / Final Results: AV	Final results: 20 dB Margin 25 Subranges
---	---

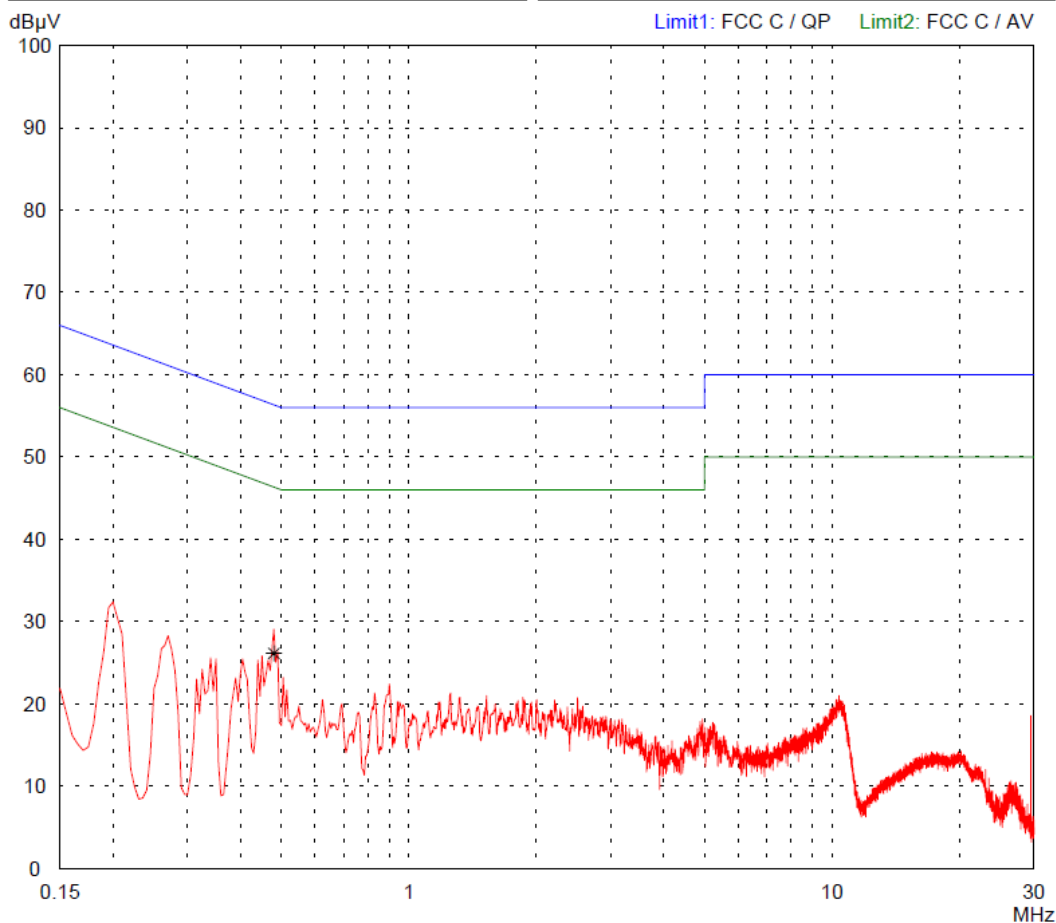


Result: Limit kept	Project file: 11297-04682
------------------------------	-------------------------------------

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

Model: Antenna Line Configurator - WLAN Module	Mode: - With AC/DC adapter - Charging - Transmitting continuously on channel 07
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord AC 115 V Phase N	
Date of test: 06/11/2012	
Test performed: automatically	File name:

Detector: Average / Final Results: AV	Final results: 20 dB Margin	25 Subranges
--	--------------------------------	--------------

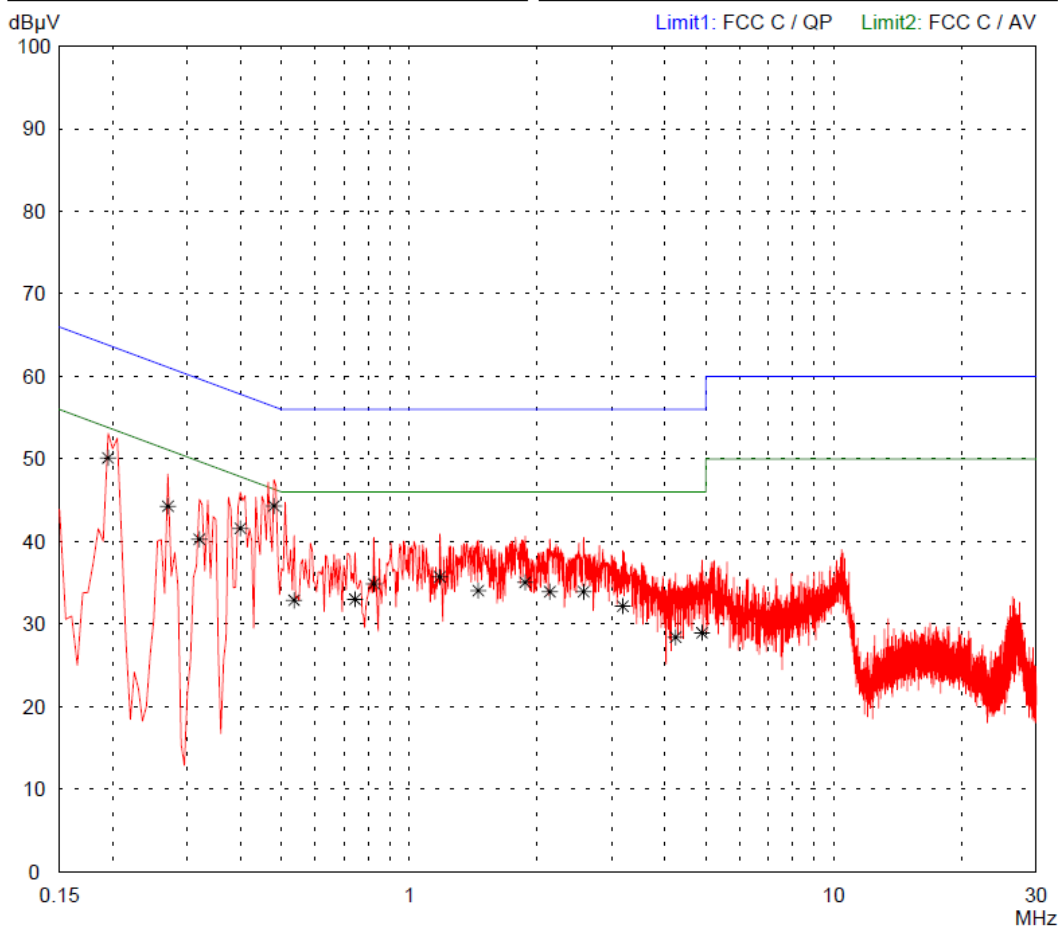


Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	---------------

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

Model: Antenna Line Configurator - WLAN Module		Mode: - With AC/DC adapter - Charging - Transmitting continuously on channel 07
Serial no.: ---		
Applicant: KATHREIN Werke KG		
Test site: Shielded room, cabin no. 4		
Tested on: Linecord AC 115 V Phase N		
Date of test: 06/11/2012	Operator: M. Steindl	
Test performed: semi automatically	File name:	

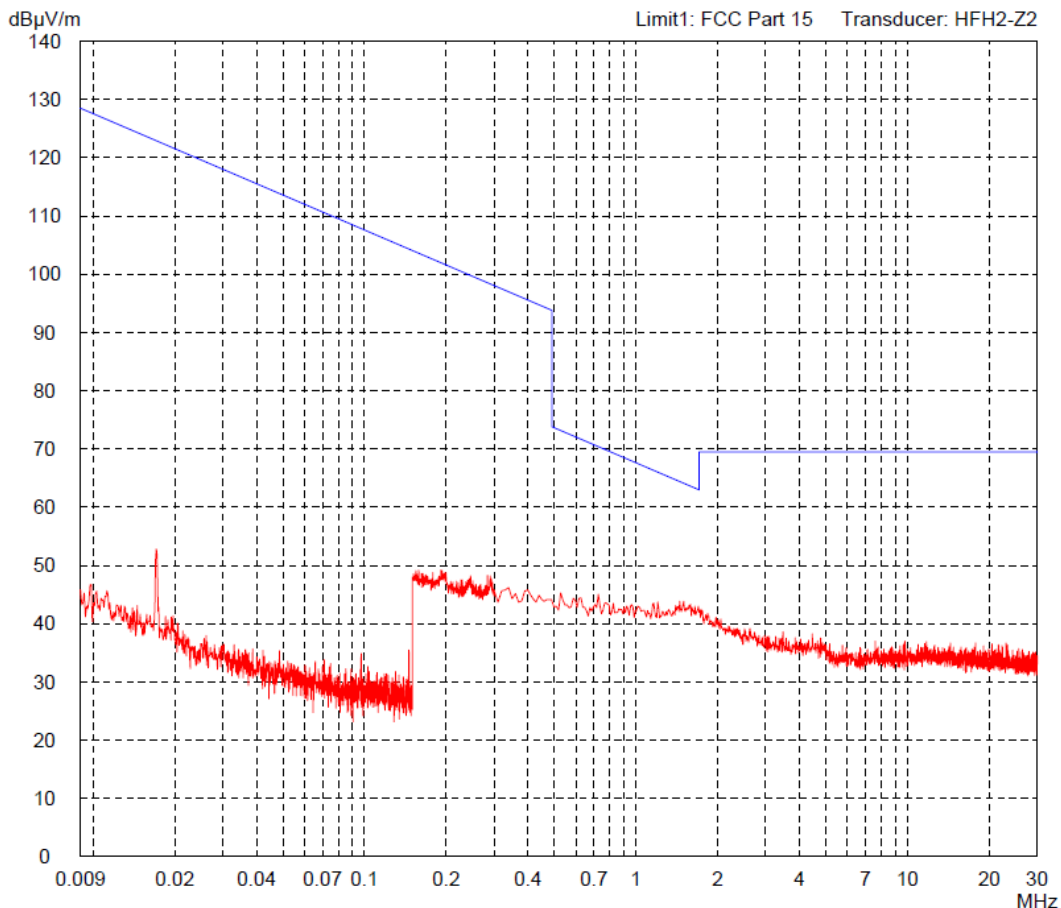
Detector: Peak / Final Results: QP	Final results: 20 dB Margin 25 Subranges
---------------------------------------	--



Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	---------------------

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

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 01
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: by hand	File name: default.emi
Detector: Peak	
List of values: 10 dB Margin 50 Subranges	

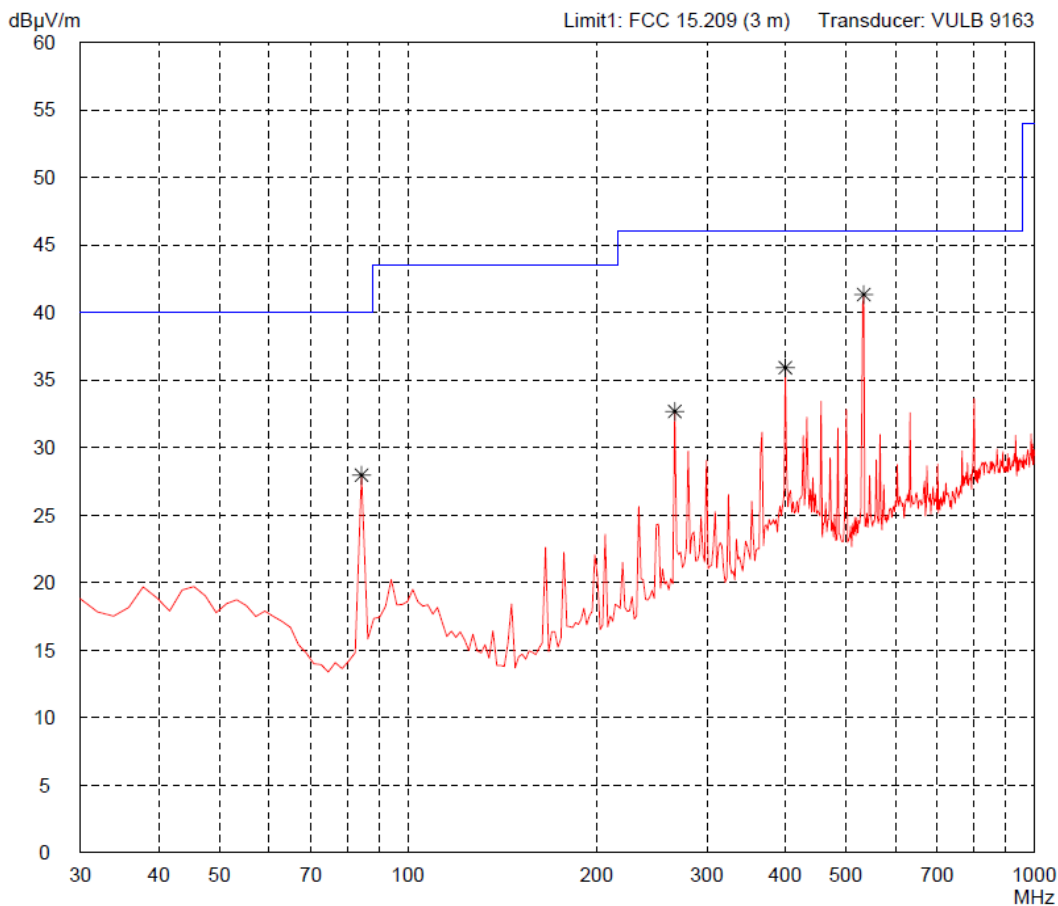


Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------

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

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 1
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 06/06/2012	
Test performed: automatically	File name: default.emi

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

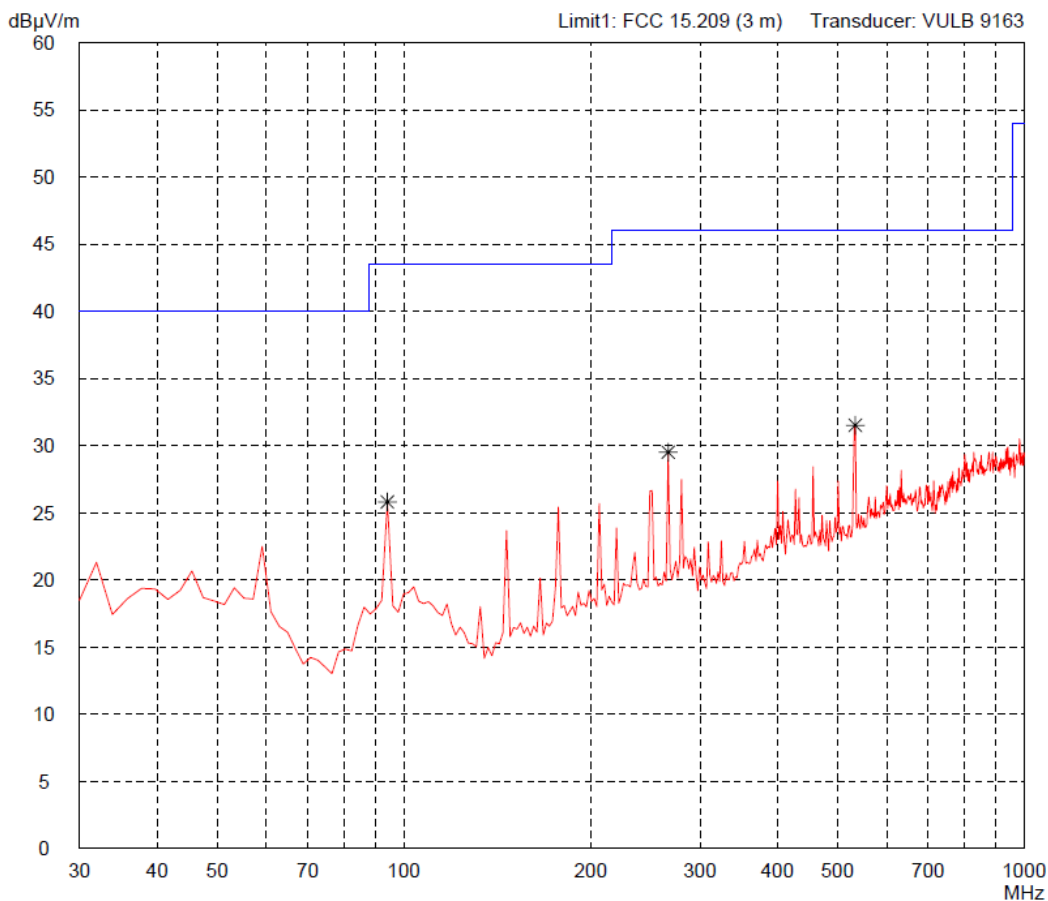


Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------

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

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 1
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 06/06/2012	
Test performed: automatically	File name: default.emi

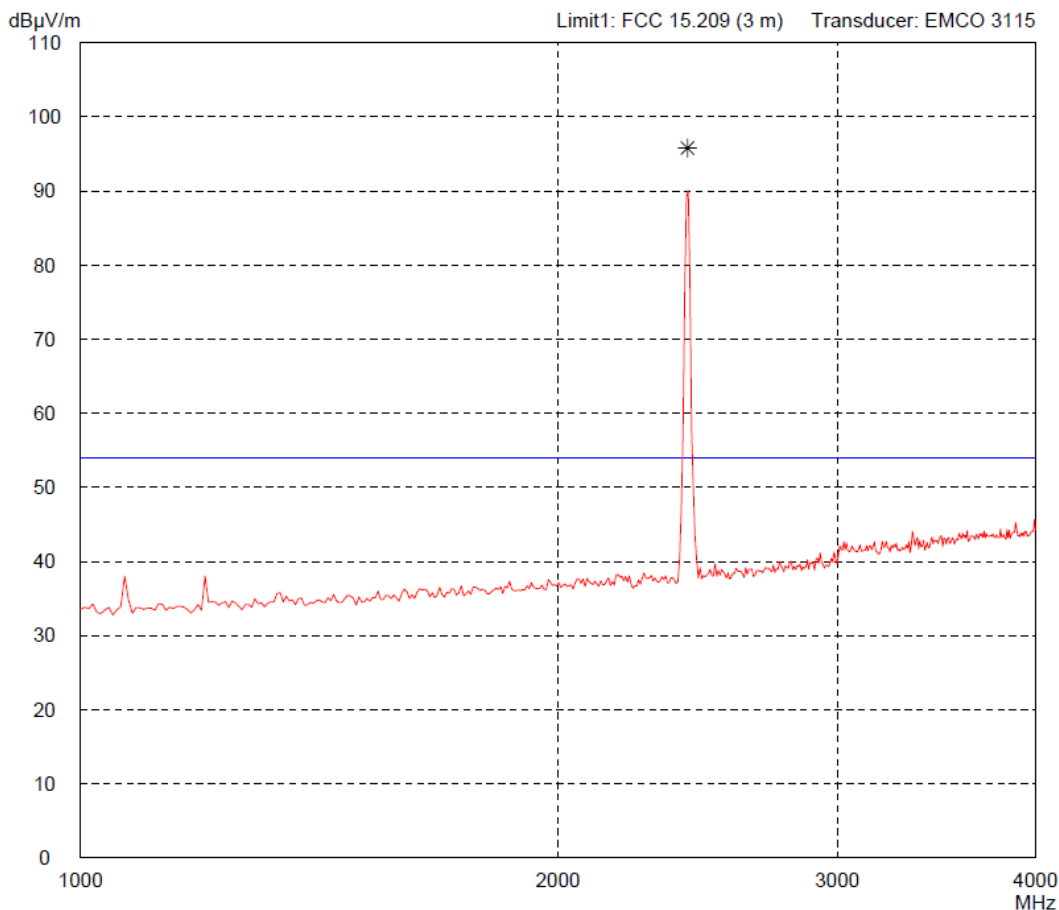
Detector: Peak	List of values: Selected by hand
-------------------	-------------------------------------



Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------------

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

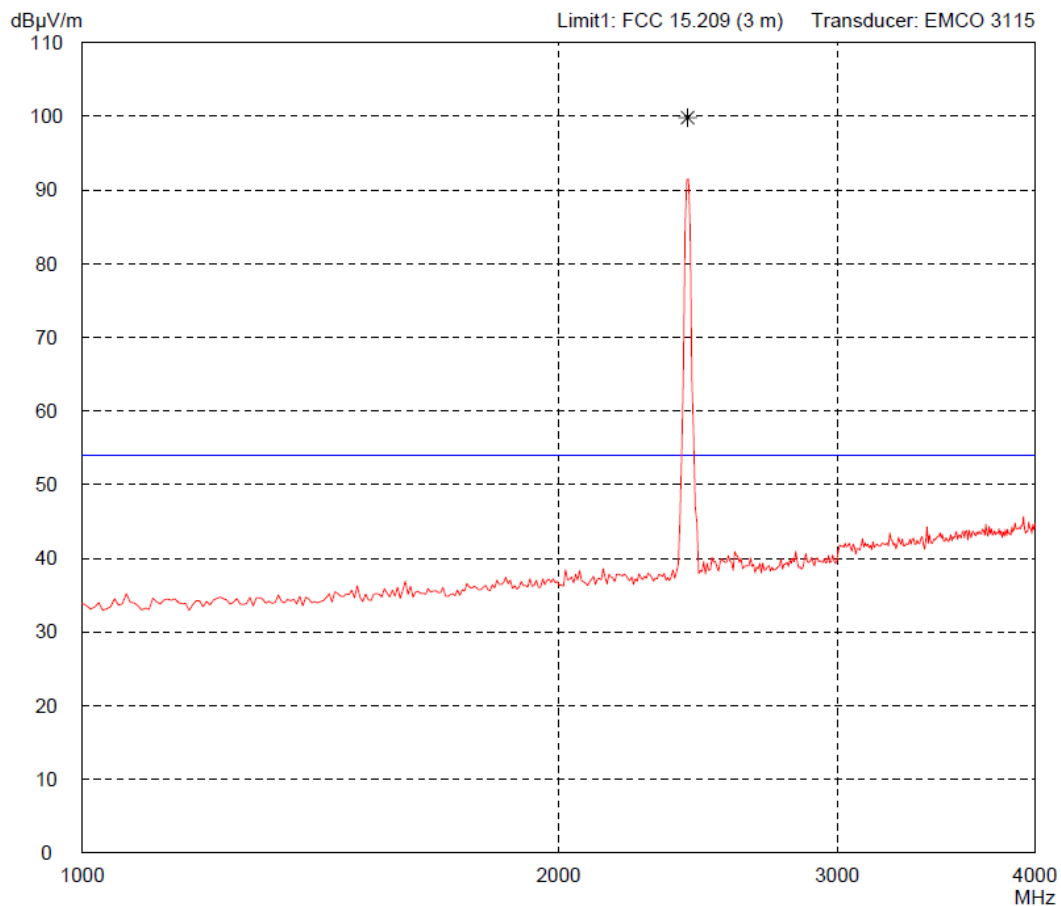
Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 1
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi
Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 11297-04682
	Page of Pages

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

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Model: Antenna Line Configurator - WLAN-Modul</td> </tr> <tr> <td colspan="2">Serial no.: ---</td> </tr> <tr> <td colspan="2">Applicant: KATHREIN Werke KG</td> </tr> <tr> <td colspan="2">Test site: Fully anechoic room, cabin no. 2</td> </tr> <tr> <td colspan="2">Tested on: Test distance 3 metres Vertical Polarization</td> </tr> <tr> <td>Date of test: 06/11/2012</td> <td>Operator: M. Steindl</td> </tr> <tr> <td>Test performed: automatically</td> <td>File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul		Serial no.: ---		Applicant: KATHREIN Werke KG		Test site: Fully anechoic room, cabin no. 2		Tested on: Test distance 3 metres Vertical Polarization		Date of test: 06/11/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Comment: - Battery supply - Transmitting continuously on channel 1</td> </tr> </table>	Comment: - Battery supply - Transmitting continuously on channel 1
Model: Antenna Line Configurator - WLAN-Modul																
Serial no.: ---																
Applicant: KATHREIN Werke KG																
Test site: Fully anechoic room, cabin no. 2																
Tested on: Test distance 3 metres Vertical Polarization																
Date of test: 06/11/2012	Operator: M. Steindl															
Test performed: automatically	File name: default.emi															
Comment: - Battery supply - Transmitting continuously on channel 1																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Detector: Peak</td> </tr> </table>	Detector: Peak	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>List of values: Selected by hand</td> </tr> </table>	List of values: Selected by hand													
Detector: Peak																
List of values: Selected by hand																

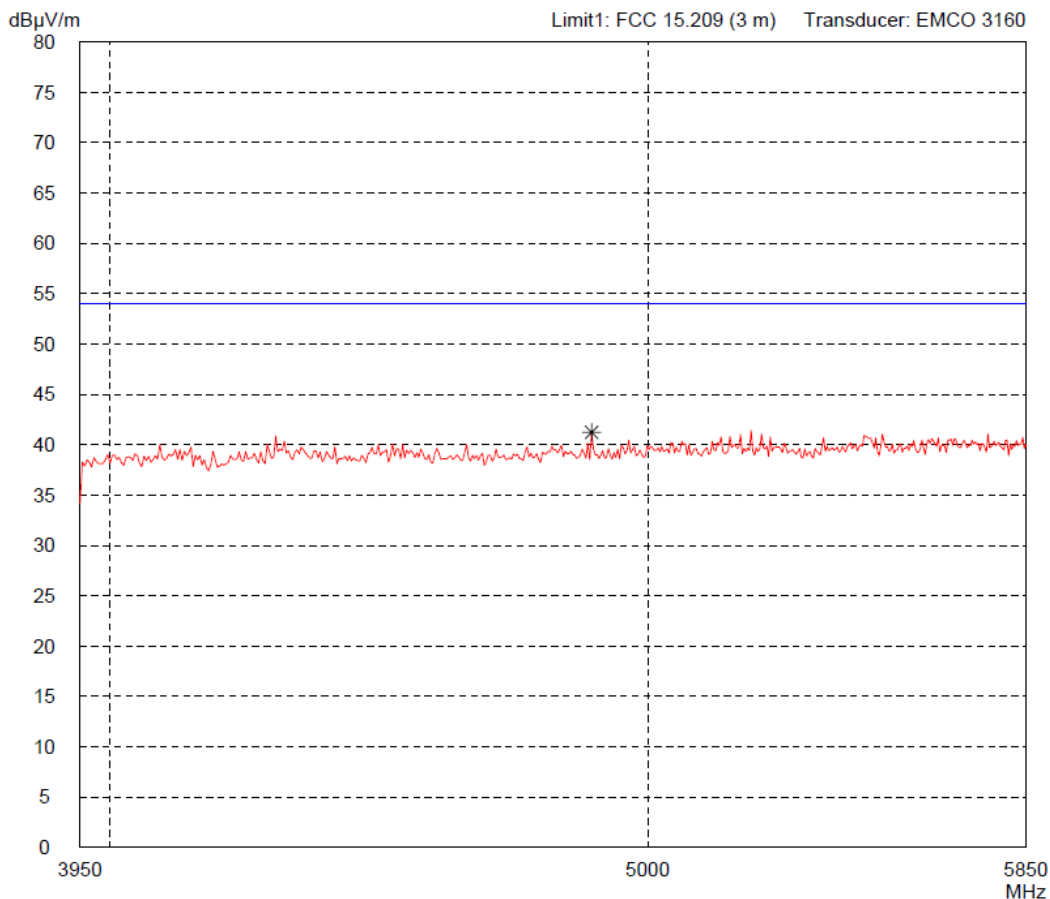


<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Result: Prescan</td> </tr> </table>	Result: Prescan	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Project file: 11297-04682</td> <td style="text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Result: Prescan				
Project file: 11297-04682	Page of Pages			

Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 Subpart C (FAR)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Model: Antenna Line Configurator - WLAN-Modul</td> </tr> <tr> <td colspan="2">Serial no.: ---</td> </tr> <tr> <td colspan="2">Applicant: KATHREIN Werke KG</td> </tr> <tr> <td colspan="2">Test site: Fully anechoic room, cabin no. 2</td> </tr> <tr> <td colspan="2">Tested on: Test distance 3 metres Horizontal Polarization</td> </tr> <tr> <td>Date of test: 06/11/2012</td> <td>Operator: M. Steindl</td> </tr> <tr> <td>Test performed: automatically</td> <td>File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul		Serial no.: ---		Applicant: KATHREIN Werke KG		Test site: Fully anechoic room, cabin no. 2		Tested on: Test distance 3 metres Horizontal Polarization		Date of test: 06/11/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Comment: - Battery supply - Transmitting continuously on channel 1</td> </tr> </table>	Comment: - Battery supply - Transmitting continuously on channel 1
Model: Antenna Line Configurator - WLAN-Modul																
Serial no.: ---																
Applicant: KATHREIN Werke KG																
Test site: Fully anechoic room, cabin no. 2																
Tested on: Test distance 3 metres Horizontal Polarization																
Date of test: 06/11/2012	Operator: M. Steindl															
Test performed: automatically	File name: default.emi															
Comment: - Battery supply - Transmitting continuously on channel 1																

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

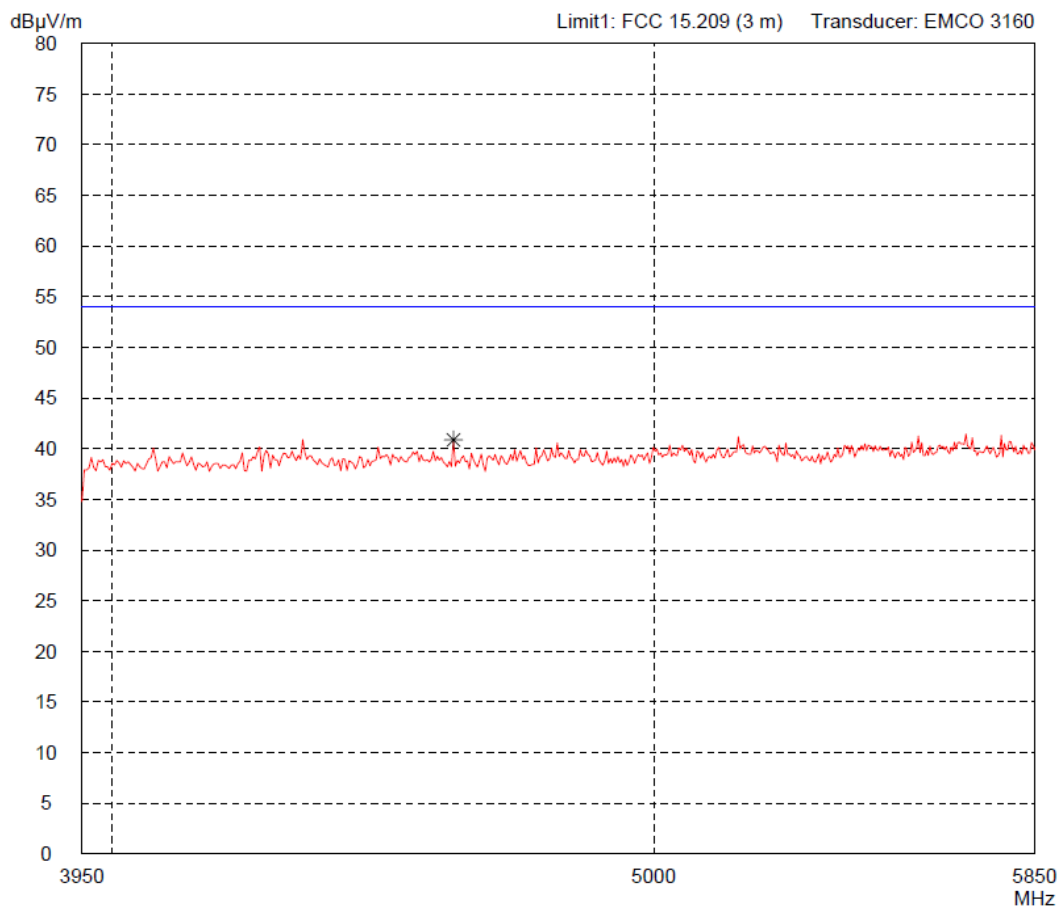


Result: Prescan	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Project file: 11297-04682</td> <td style="text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Project file: 11297-04682	Page of Pages		

Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 1
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 06/11/2012	
Test performed: automatically	File name: default.emi

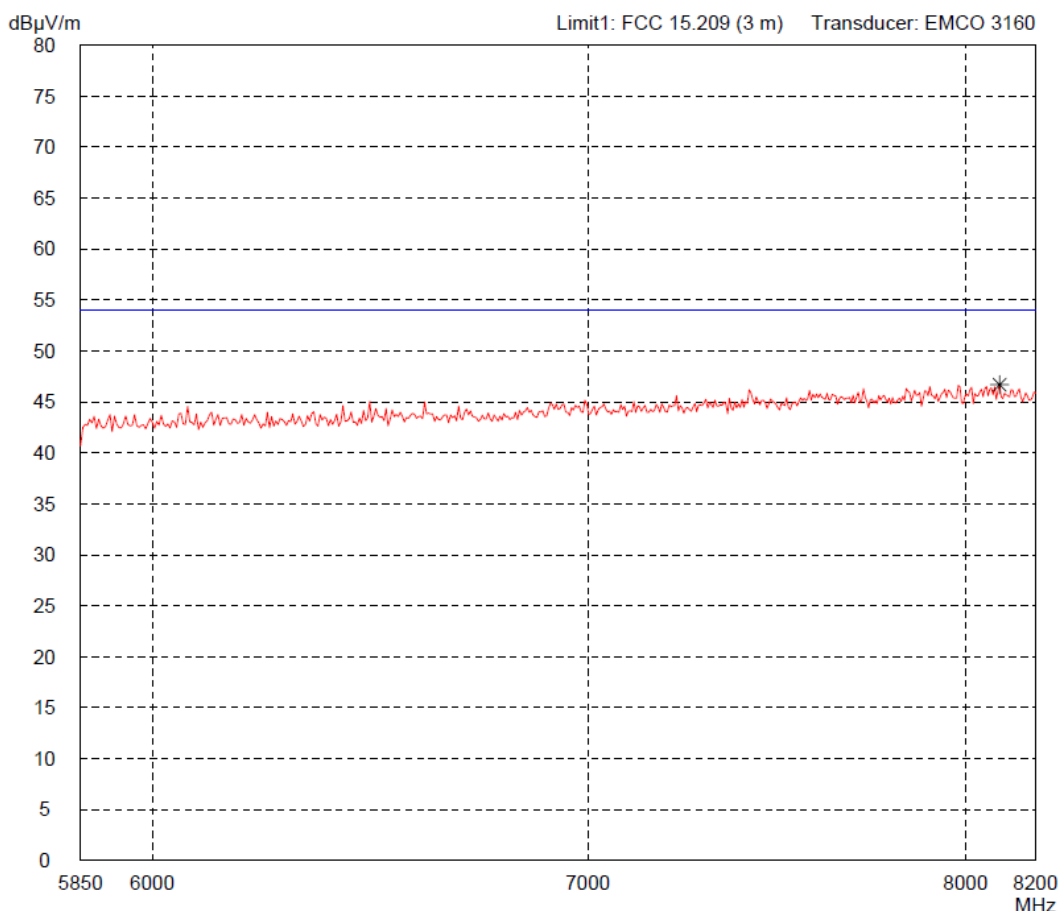
Detector: Peak	List of values: Selected by hand
-------------------	-------------------------------------



Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------

Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 Subpart C (FAR)

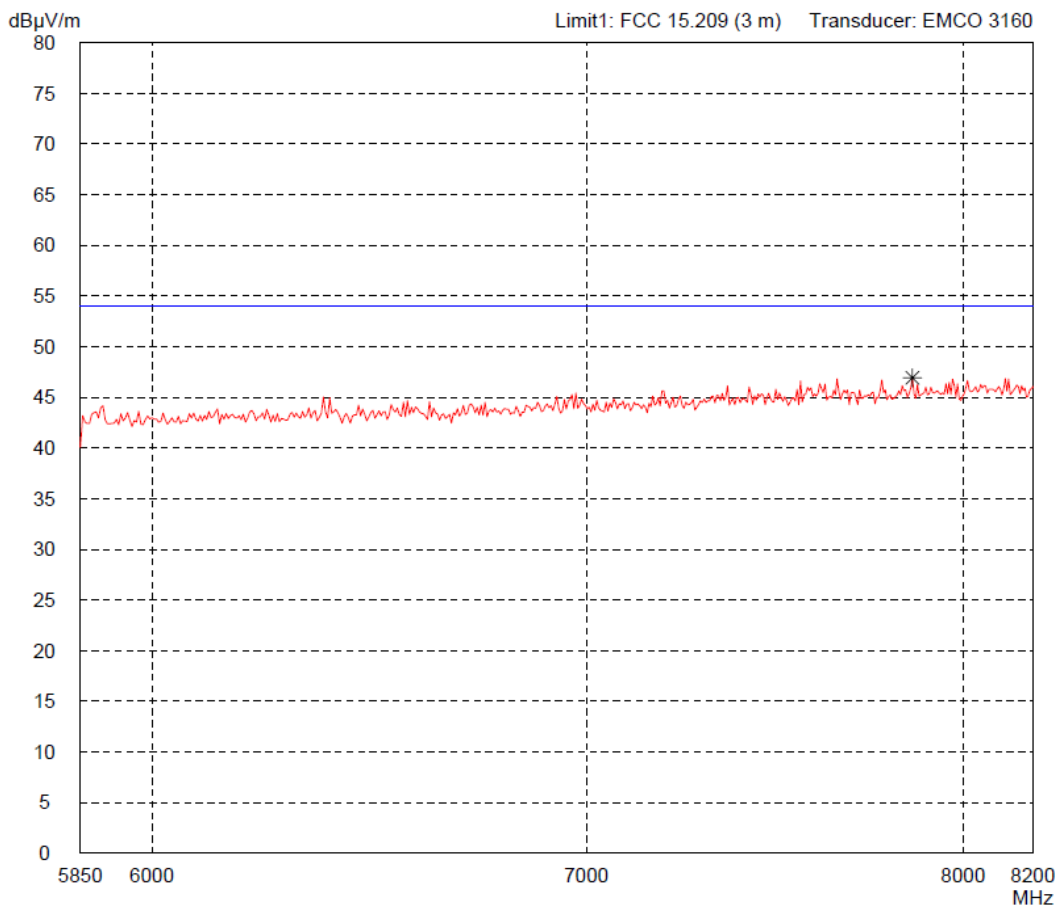
Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 01
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi
Detector: Peak	
List of values: Selected by hand	



Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------

Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 Subpart C (FAR)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Model:</td><td style="padding: 2px;">Antenna Line Configurator - WLAN-Modul</td></tr> <tr><td style="padding: 2px;">Serial no.:</td><td style="padding: 2px;">---</td></tr> <tr><td style="padding: 2px;">Applicant:</td><td style="padding: 2px;">KATHREIN Werke KG</td></tr> <tr><td style="padding: 2px;">Test site:</td><td style="padding: 2px;">Fully anechoic room, cabin no. 2</td></tr> <tr><td style="padding: 2px;">Tested on:</td><td style="padding: 2px;">Test distance 3 metres Vertical Polarization</td></tr> <tr> <td style="padding: 2px;">Date of test:</td><td style="padding: 2px;">Operator:</td></tr> <tr> <td style="padding: 2px;">06/11/2012</td><td style="padding: 2px;">M. Steindl</td></tr> <tr> <td style="padding: 2px;">Test performed:</td><td style="padding: 2px;">File name:</td></tr> <tr> <td style="padding: 2px;">automatically</td><td style="padding: 2px;">default.emi</td></tr> </table>	Model:	Antenna Line Configurator - WLAN-Modul	Serial no.:	---	Applicant:	KATHREIN Werke KG	Test site:	Fully anechoic room, cabin no. 2	Tested on:	Test distance 3 metres Vertical Polarization	Date of test:	Operator:	06/11/2012	M. Steindl	Test performed:	File name:	automatically	default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Comment:</td></tr> <tr><td style="padding: 2px;">- Battery supply</td></tr> <tr><td style="padding: 2px;">- Transmitting continuously on channel 01</td></tr> </table>	Comment:	- Battery supply	- Transmitting continuously on channel 01
Model:	Antenna Line Configurator - WLAN-Modul																					
Serial no.:	---																					
Applicant:	KATHREIN Werke KG																					
Test site:	Fully anechoic room, cabin no. 2																					
Tested on:	Test distance 3 metres Vertical Polarization																					
Date of test:	Operator:																					
06/11/2012	M. Steindl																					
Test performed:	File name:																					
automatically	default.emi																					
Comment:																						
- Battery supply																						
- Transmitting continuously on channel 01																						
Detector: Peak	List of values: Selected by hand																					

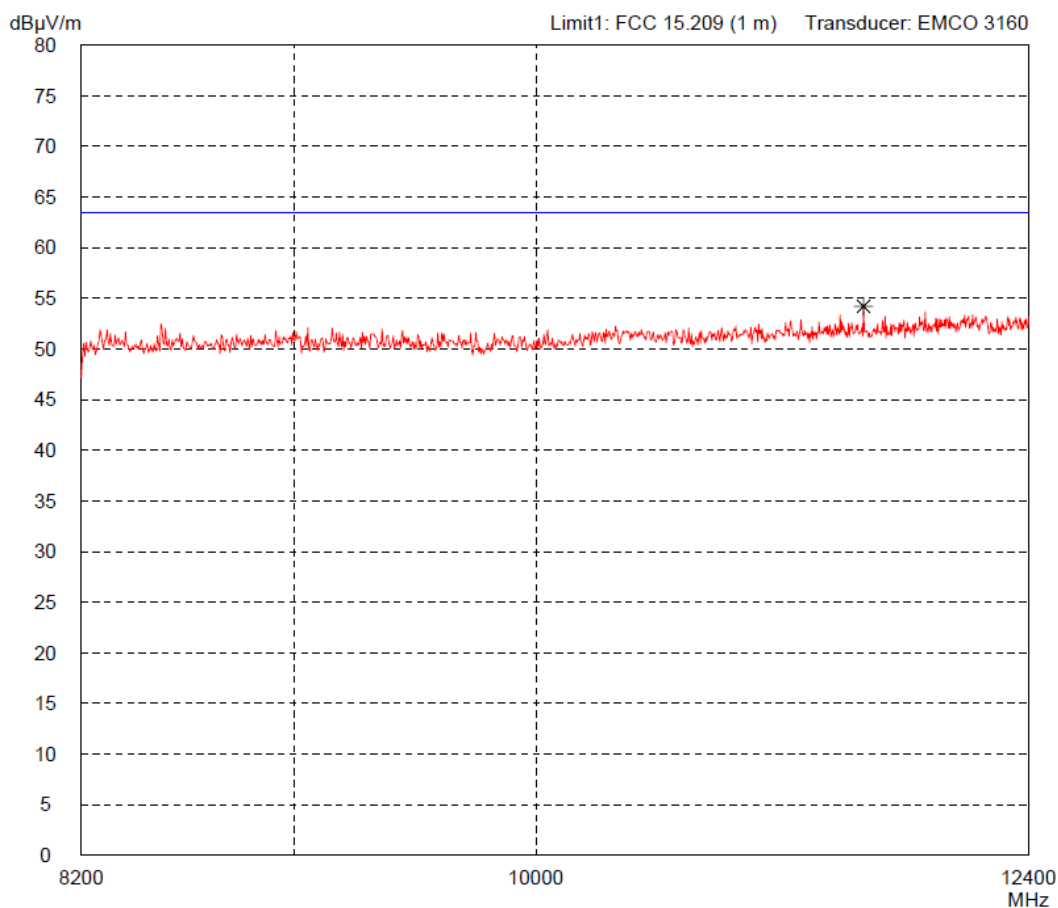


Result: Prescan	Project file: 11297-04682
--------------------	------------------------------

Page of Pages

Radiated Emission Test 8.2 GHz - 12.4 GHz acc. to FCC Part 15 Subpart C (FAR)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Model: Antenna Line Configurator - WLAN-Modul</td> </tr> <tr> <td colspan="2">Serial no.: ---</td> </tr> <tr> <td colspan="2">Applicant: KATHREIN Werke KG</td> </tr> <tr> <td colspan="2">Test site: Fully anechoic room, cabin no. 2</td> </tr> <tr> <td colspan="2">Tested on: Test distance 1 meter Horizontal Polarization</td> </tr> <tr> <td>Date of test: 06/11/2012</td> <td>Operator: M. Steindl</td> </tr> <tr> <td>Test performed: automatically</td> <td>File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul		Serial no.: ---		Applicant: KATHREIN Werke KG		Test site: Fully anechoic room, cabin no. 2		Tested on: Test distance 1 meter Horizontal Polarization		Date of test: 06/11/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Comment: - Battery supply - Transmitting continuously on channel 01</td> </tr> </table>	Comment: - Battery supply - Transmitting continuously on channel 01
Model: Antenna Line Configurator - WLAN-Modul																
Serial no.: ---																
Applicant: KATHREIN Werke KG																
Test site: Fully anechoic room, cabin no. 2																
Tested on: Test distance 1 meter Horizontal Polarization																
Date of test: 06/11/2012	Operator: M. Steindl															
Test performed: automatically	File name: default.emi															
Comment: - Battery supply - Transmitting continuously on channel 01																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Detector: Peak</td> </tr> </table>	Detector: Peak	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>List of values: Selected by hand</td> </tr> </table>	List of values: Selected by hand													
Detector: Peak																
List of values: Selected by hand																

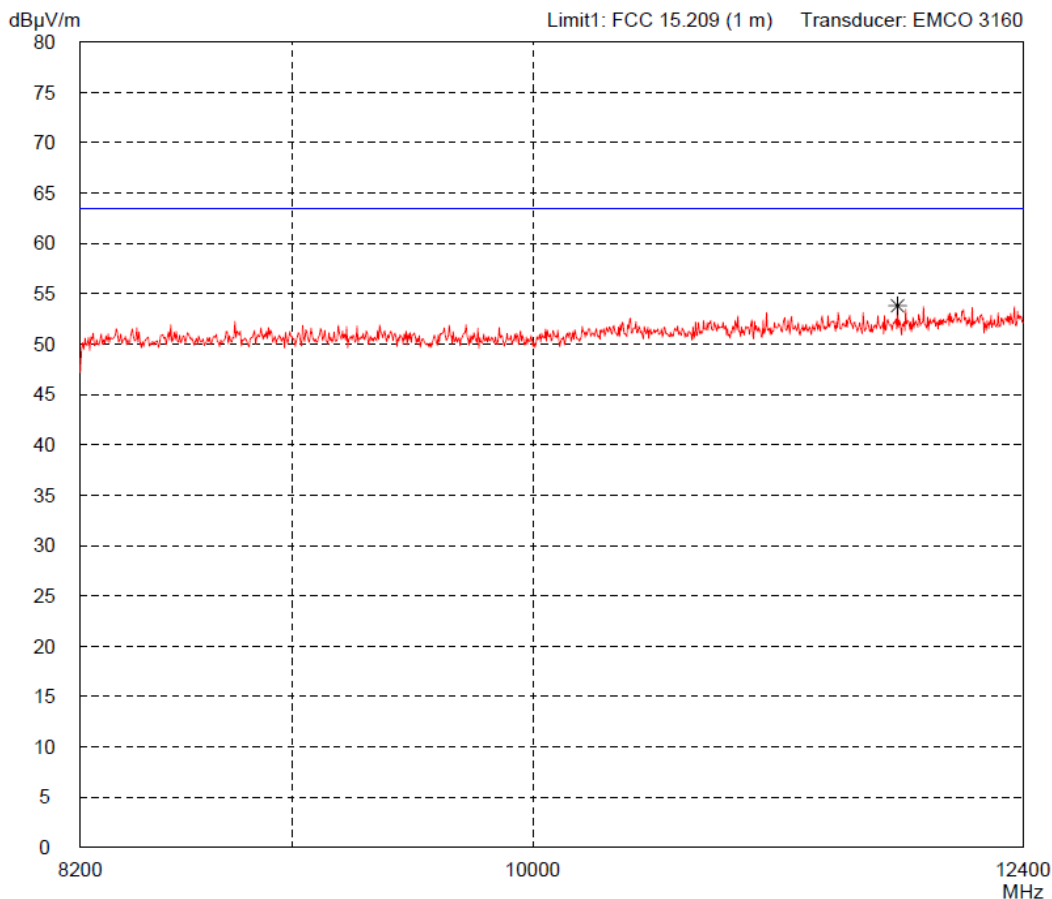


<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Result: Prescan</td> </tr> </table>	Result: Prescan	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Project file: 11297-04682</td> <td style="text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Result: Prescan				
Project file: 11297-04682	Page of Pages			

Radiated Emission Test 8.2 GHz - 12.4 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul Serial no.: --- Applicant: KATHREIN Werke KG Test site: Fully anechoic room, cabin no. 2 Tested on: Test distance 1 meter Vertical Polarization Date of test: 06/11/2012 Operator: M. Steindl Test performed: automatically File name: default.emi	Comment: - Battery supply - Transmitting continuously on channel 01
--	--

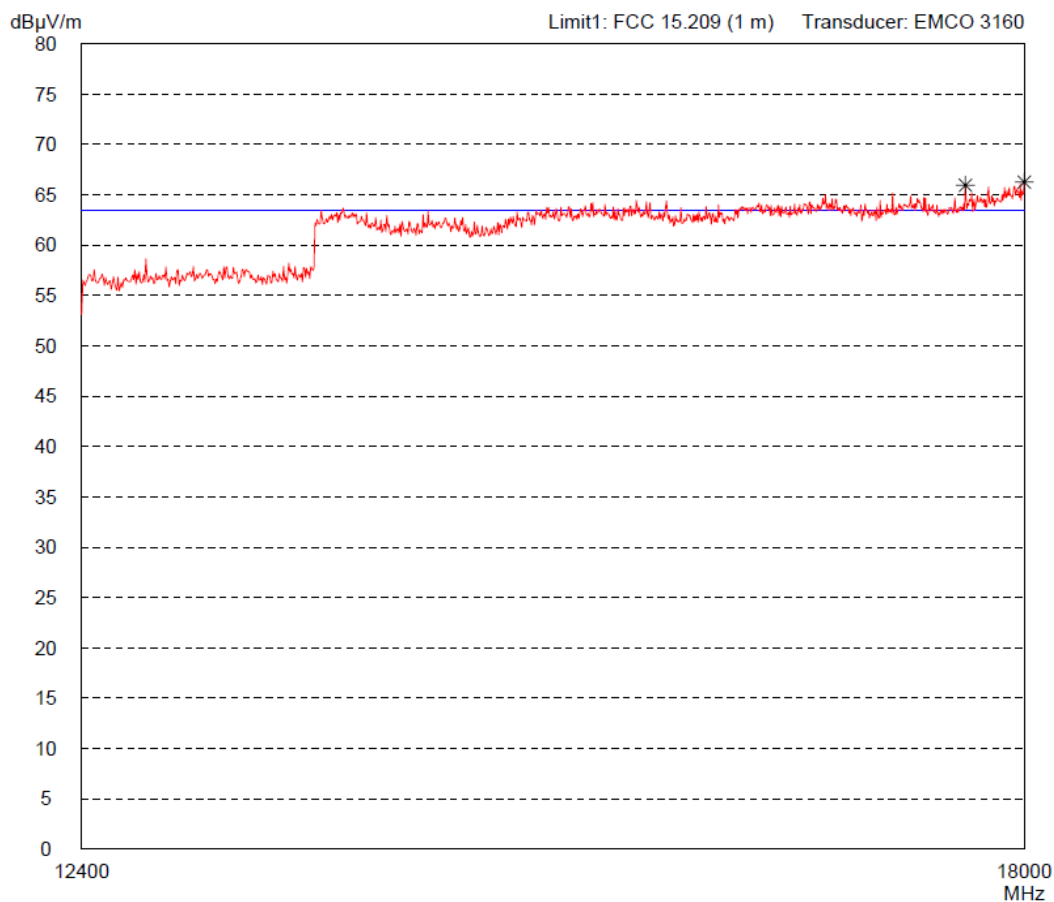
Detector: Peak	List of values: Selected by hand
----------------------------------	--



Result: Prescan	Project file: 11297-04682 Page of Pages
-----------------------------------	---

Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 Subpart C (FAR)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Model: Antenna Line Configurator - WLAN-Modul</td> </tr> <tr> <td colspan="2">Serial no.: ---</td> </tr> <tr> <td colspan="2">Applicant: KATHREIN Werke KG</td> </tr> <tr> <td colspan="2">Test site: Fully anechoic room, cabin no. 2</td> </tr> <tr> <td colspan="2">Tested on: Test distance 1 meter Horizontal Polarization</td> </tr> <tr> <td>Date of test: 06/11/2012</td> <td>Operator: M. Steindl</td> </tr> <tr> <td>Test performed: automatically</td> <td>File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul		Serial no.: ---		Applicant: KATHREIN Werke KG		Test site: Fully anechoic room, cabin no. 2		Tested on: Test distance 1 meter Horizontal Polarization		Date of test: 06/11/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Comment: - Battery supply - Transmitting continuously on channel 01</td> </tr> </table>	Comment: - Battery supply - Transmitting continuously on channel 01
Model: Antenna Line Configurator - WLAN-Modul																
Serial no.: ---																
Applicant: KATHREIN Werke KG																
Test site: Fully anechoic room, cabin no. 2																
Tested on: Test distance 1 meter Horizontal Polarization																
Date of test: 06/11/2012	Operator: M. Steindl															
Test performed: automatically	File name: default.emi															
Comment: - Battery supply - Transmitting continuously on channel 01																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Detector: Peak</td> </tr> </table>	Detector: Peak	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>List of values: Selected by hand</td> </tr> </table>	List of values: Selected by hand													
Detector: Peak																
List of values: Selected by hand																

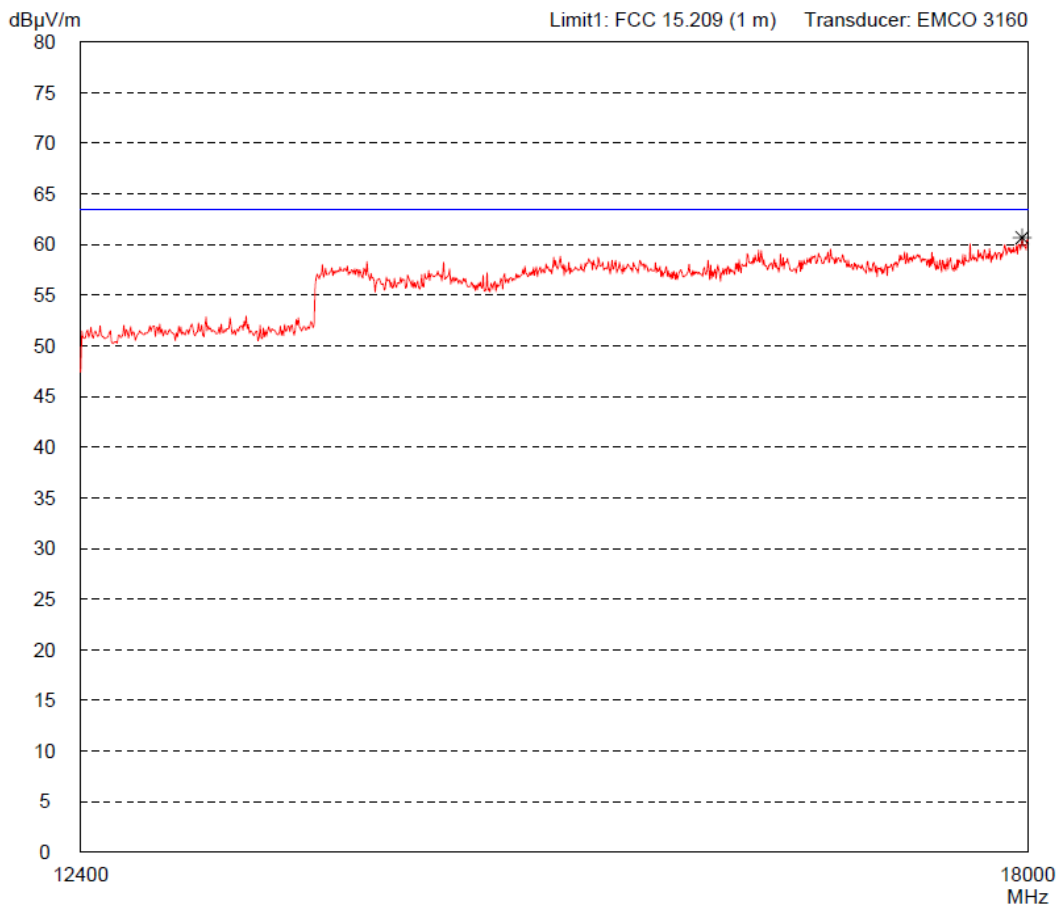


<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Result: Prescan</td> </tr> </table>	Result: Prescan	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Project file: 11297-04682</td> <td style="text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Result: Prescan				
Project file: 11297-04682	Page of Pages			

Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 01
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization, VBW = 100 kHz	
Date of test: 06/11/2012 Operator: M. Steindl	
Test performed: automatically	File name: default.emi

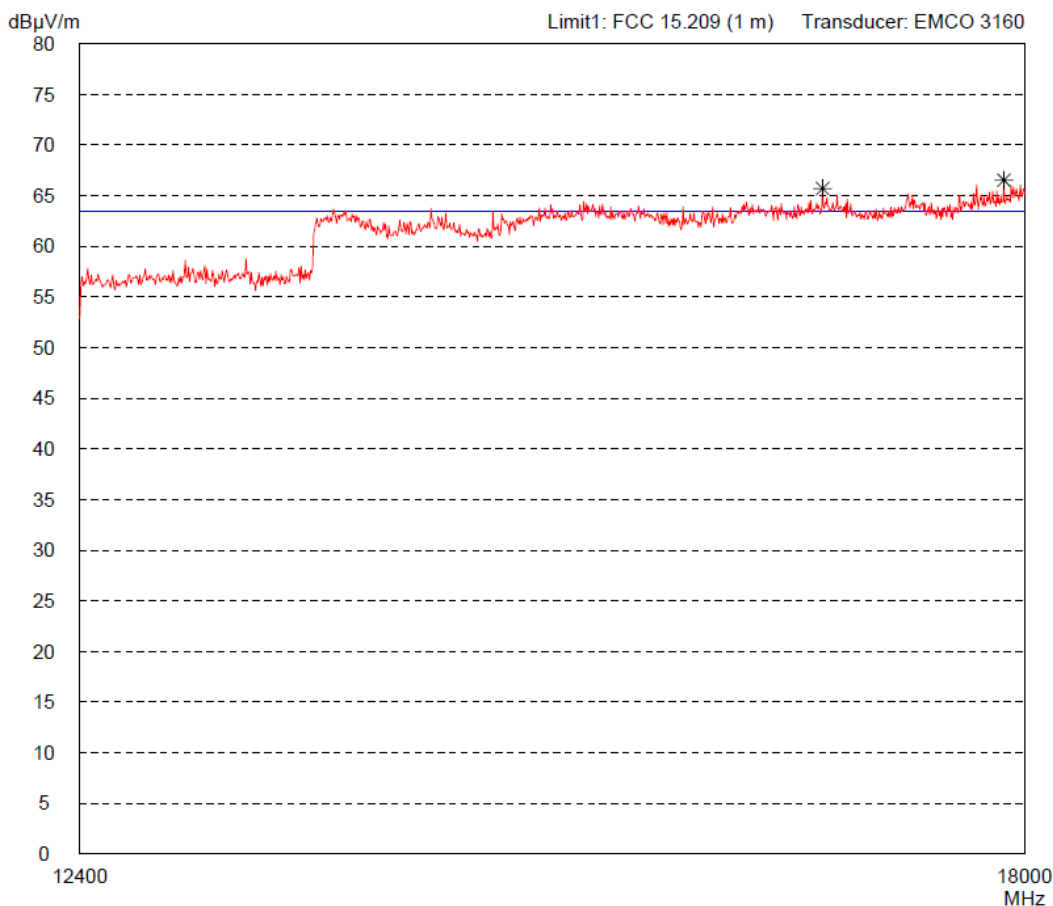
Detector: Peak	List of values: Selected by hand
-------------------	-------------------------------------



Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	-------------------------

Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 Subpart C (FAR)

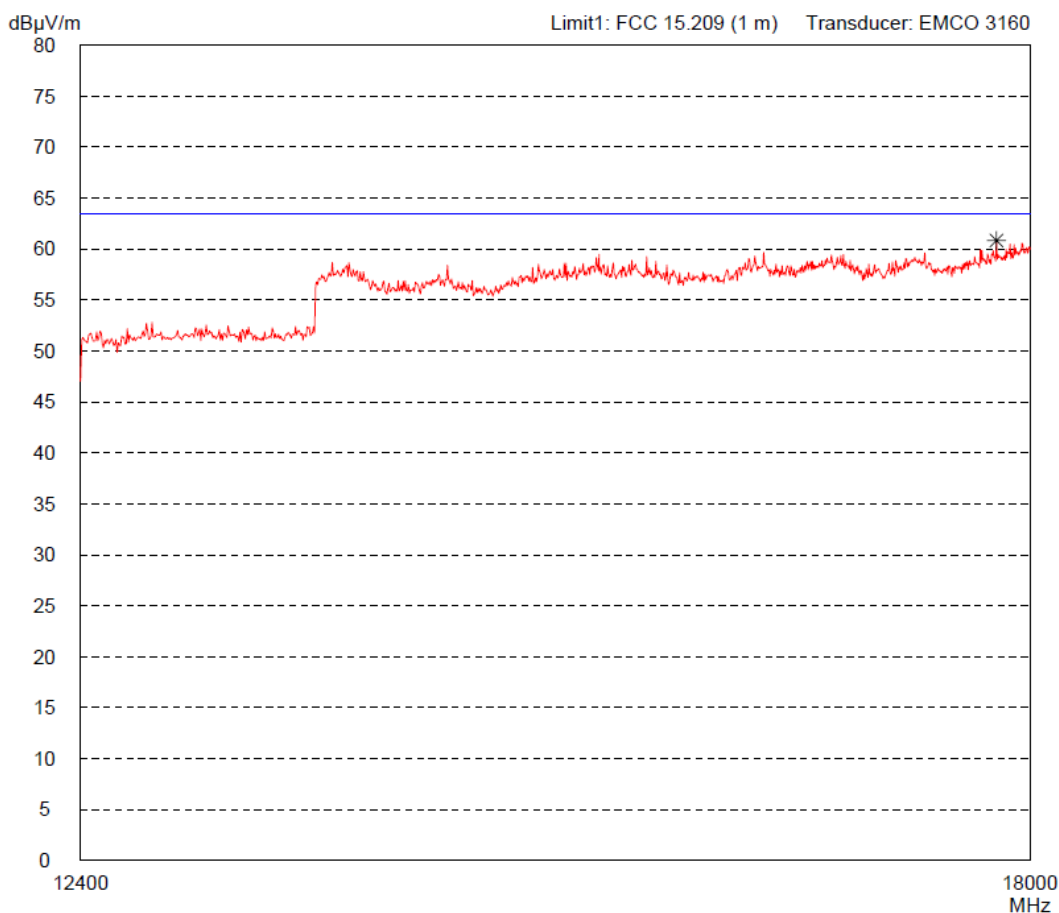
Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 01
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi
Detector: Peak	
List of values: Selected by hand	



Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------

Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 Subpart C (FAR)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Model:</td><td style="padding: 2px;">Antenna Line Configurator - WLAN-Modul</td></tr> <tr><td style="padding: 2px;">Serial no.:</td><td style="padding: 2px;">---</td></tr> <tr><td style="padding: 2px;">Applicant:</td><td style="padding: 2px;">KATHREIN Werke KG</td></tr> <tr><td style="padding: 2px;">Test site:</td><td style="padding: 2px;">Fully anechoic room, cabin no. 2</td></tr> <tr><td style="padding: 2px;">Tested on:</td><td style="padding: 2px;">Test distance 1 meter Vertical Polarization, VBW = 100 kHz</td></tr> <tr><td style="padding: 2px;">Date of test:</td><td style="padding: 2px;">Operator:</td></tr> <tr><td style="padding: 2px;">06/11/2012</td><td style="padding: 2px;">M. Steindl</td></tr> <tr><td style="padding: 2px;">Test performed:</td><td style="padding: 2px;">File name:</td></tr> <tr><td style="padding: 2px;">automatically</td><td style="padding: 2px;">default.emi</td></tr> </table>	Model:	Antenna Line Configurator - WLAN-Modul	Serial no.:	---	Applicant:	KATHREIN Werke KG	Test site:	Fully anechoic room, cabin no. 2	Tested on:	Test distance 1 meter Vertical Polarization, VBW = 100 kHz	Date of test:	Operator:	06/11/2012	M. Steindl	Test performed:	File name:	automatically	default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Comment:</td></tr> <tr><td style="padding: 2px;">- Battery supply</td></tr> <tr><td style="padding: 2px;">- Transmitting continuously on channel 01</td></tr> </table>	Comment:	- Battery supply	- Transmitting continuously on channel 01
Model:	Antenna Line Configurator - WLAN-Modul																					
Serial no.:	---																					
Applicant:	KATHREIN Werke KG																					
Test site:	Fully anechoic room, cabin no. 2																					
Tested on:	Test distance 1 meter Vertical Polarization, VBW = 100 kHz																					
Date of test:	Operator:																					
06/11/2012	M. Steindl																					
Test performed:	File name:																					
automatically	default.emi																					
Comment:																						
- Battery supply																						
- Transmitting continuously on channel 01																						
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Detector:</td></tr> <tr><td style="padding: 2px;">Peak</td></tr> </table>	Detector:	Peak	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">List of values:</td></tr> <tr><td style="padding: 2px;">Selected by hand</td></tr> </table>	List of values:	Selected by hand																	
Detector:																						
Peak																						
List of values:																						
Selected by hand																						



<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Result:</td></tr> <tr><td style="padding: 2px;">Limit kept</td></tr> </table>	Result:	Limit kept	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Project file:</td></tr> <tr><td style="padding: 2px;">11297-04682</td></tr> </table> Page of Pages	Project file:	11297-04682
Result:					
Limit kept					
Project file:					
11297-04682					

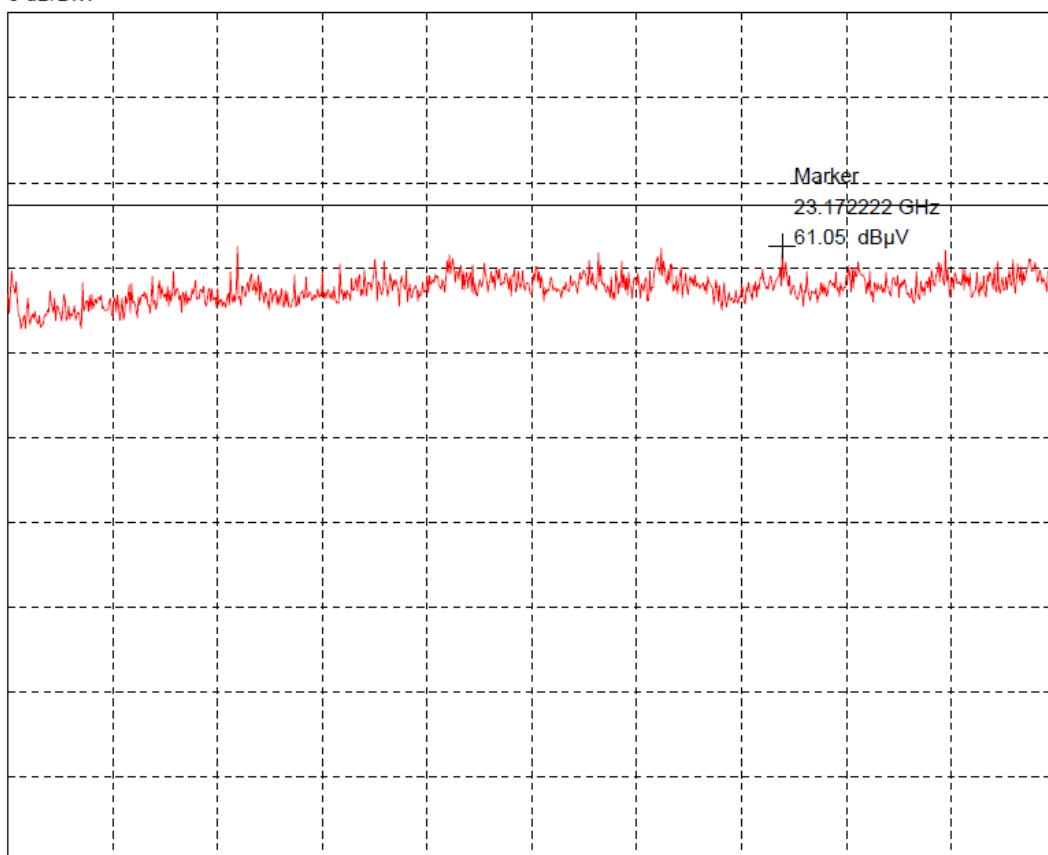
Radiated Emission Test acc. to FCC Part 15 Subpart C

Model: Antenna Line Configurator - WLAN-Module	Mode: - Battery supply - Transmitting continuously on channel 1 - Test Distance: 1 m - Polarisation: Horizontal
Serial No.: ---	
Applicant: KATHREIN Werke KG	

Ref.Level 74.8 dBµV
 5 dB/Div.

ATT 0 dB

Ref. Offset 42.8 dB



Start 18.000 GHz
 RBW 1 MHz

VBW 1 MHz

Stop 25.000 GHz
 SWP 40 ms

Tested by: M. Steindl	Project-No.: 11297-04682
Date: 2012-06-12	Page of pages

Radiated Emission Test acc. to FCC Part 15 Subpart C

Model:
Antenna Line Configurator - WLAN-Module

Serial No.:

Applicant:
KATHREIN Werke KG

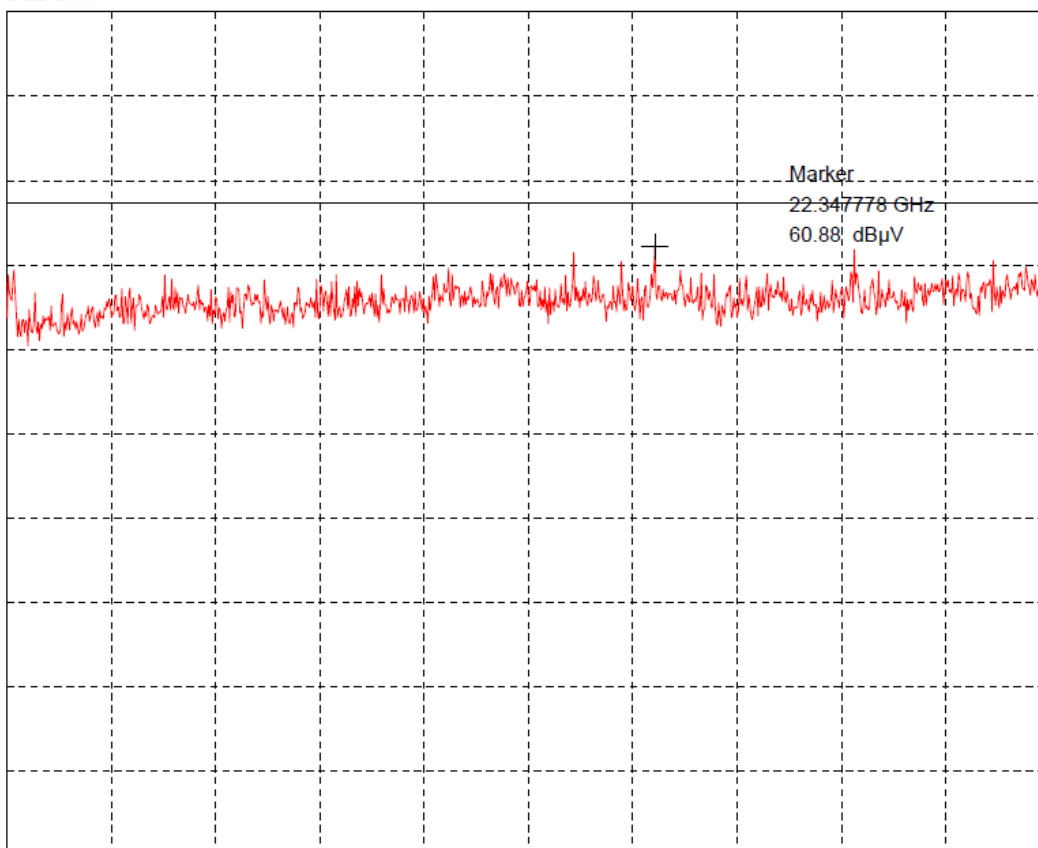
Mode:

- Battery supply
- Transmitting continuously on channel 1
- Test Distance: 1 m
- Polarisation: Vertical

Ref.Level 74.8 dBµV
5 dB/Div.

ATT 0 dB

Ref. Offset 42.8 dB



Start 18.000 GHz
RBW 1 MHz

VBW 1 MHz

Stop 25.000 GHz
SWP 40 ms

Tested by:
M. Steindl

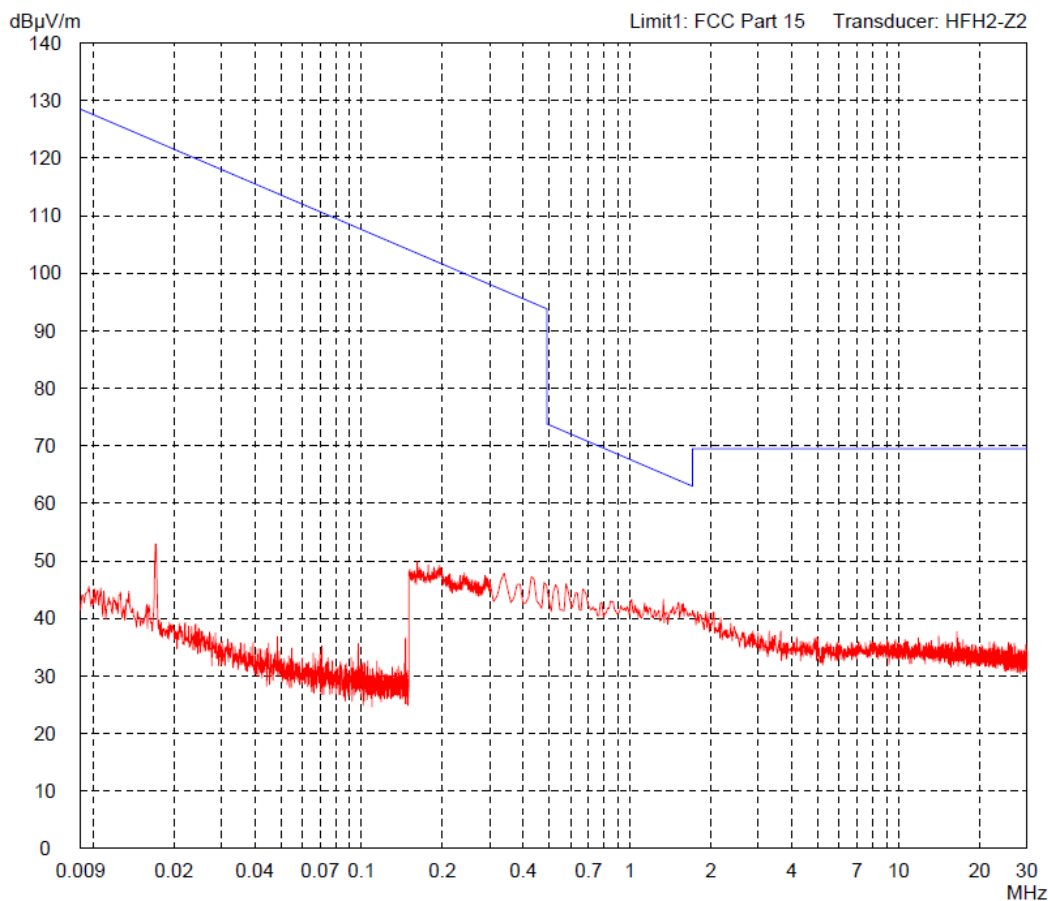
Date:
2012-06-12

Project-No.:
11297-04682

Page of pages

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

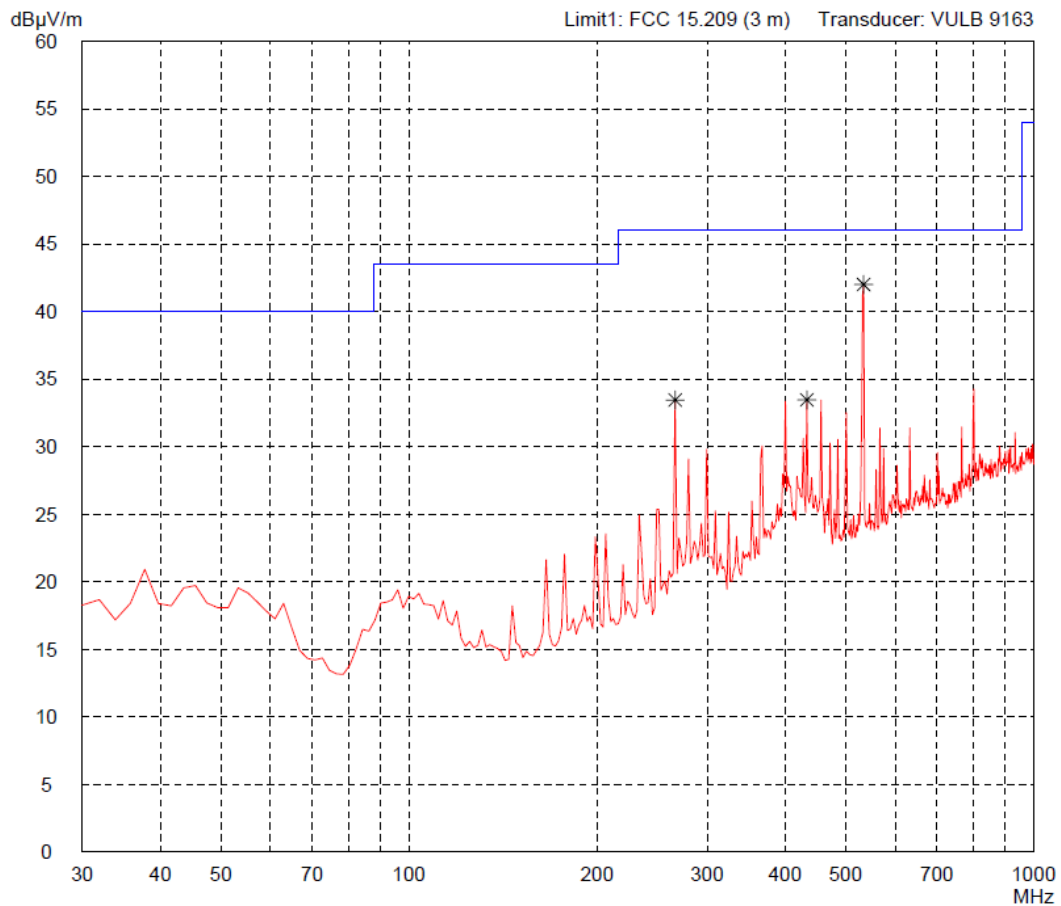
Model: Antenna Line Configurator - WLAN-Modul Serial no.: --- Applicant: KATHREIN Werke KG Test site: Fully anechoic room, cabin no. 2 Tested on: Test distance 3 metres Date of test: 06/11/2012 Operator: M. Steindl Test performed: by hand File name: default.emi	Comment: - Battery supply - Transmitting continuously on channel 07
Detector: Peak	List of values: 10 dB Margin 50 Subranges



Result: Prescan	Project file: 11297-04682 Page of Pages
-----------------------------------	---

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

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 7
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 06/06/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi
Detector: Peak	
List of values: Selected by hand	

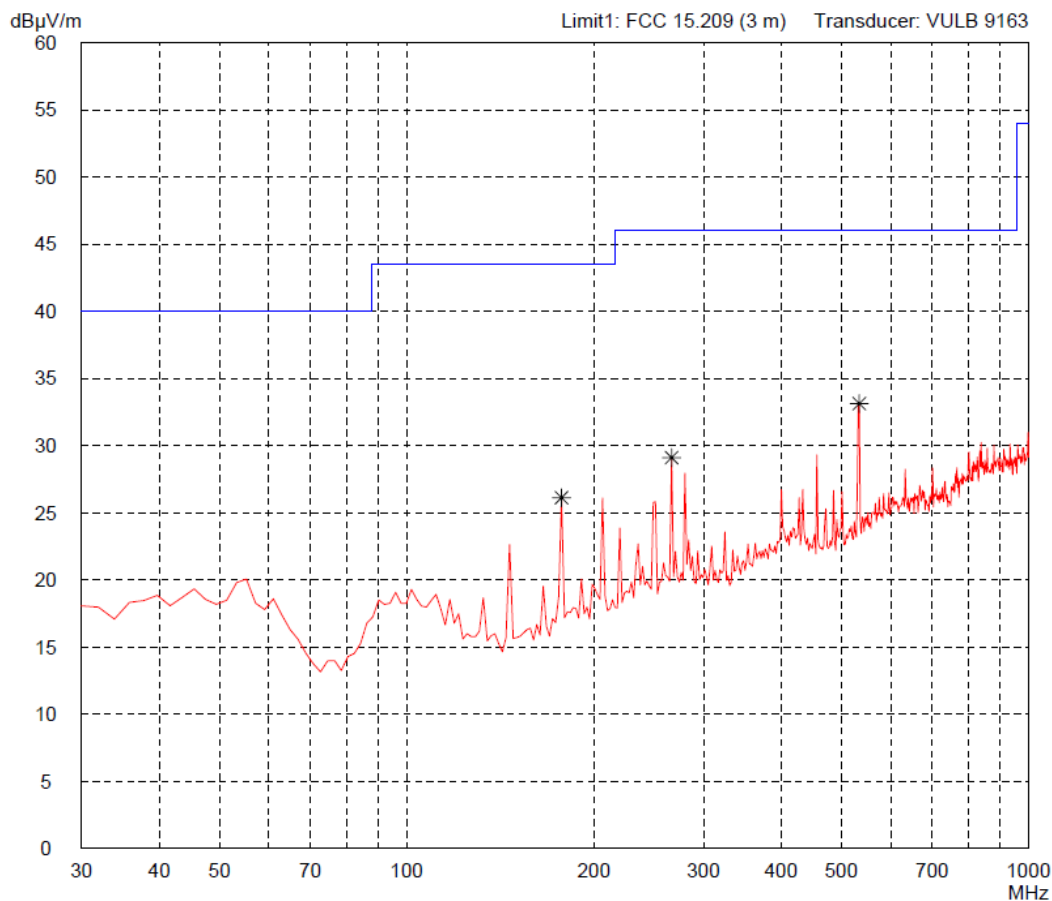


Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------

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

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 7
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 06/06/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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

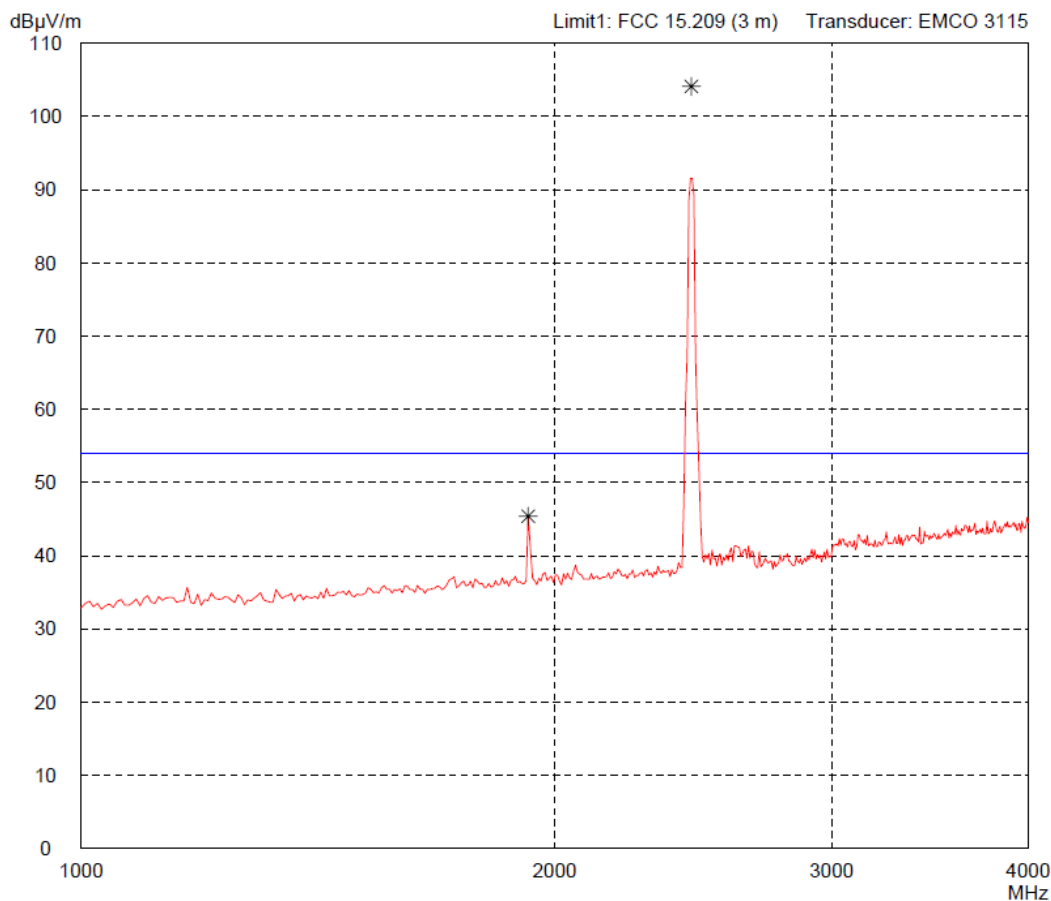


Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------------

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

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 7
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 06/06/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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

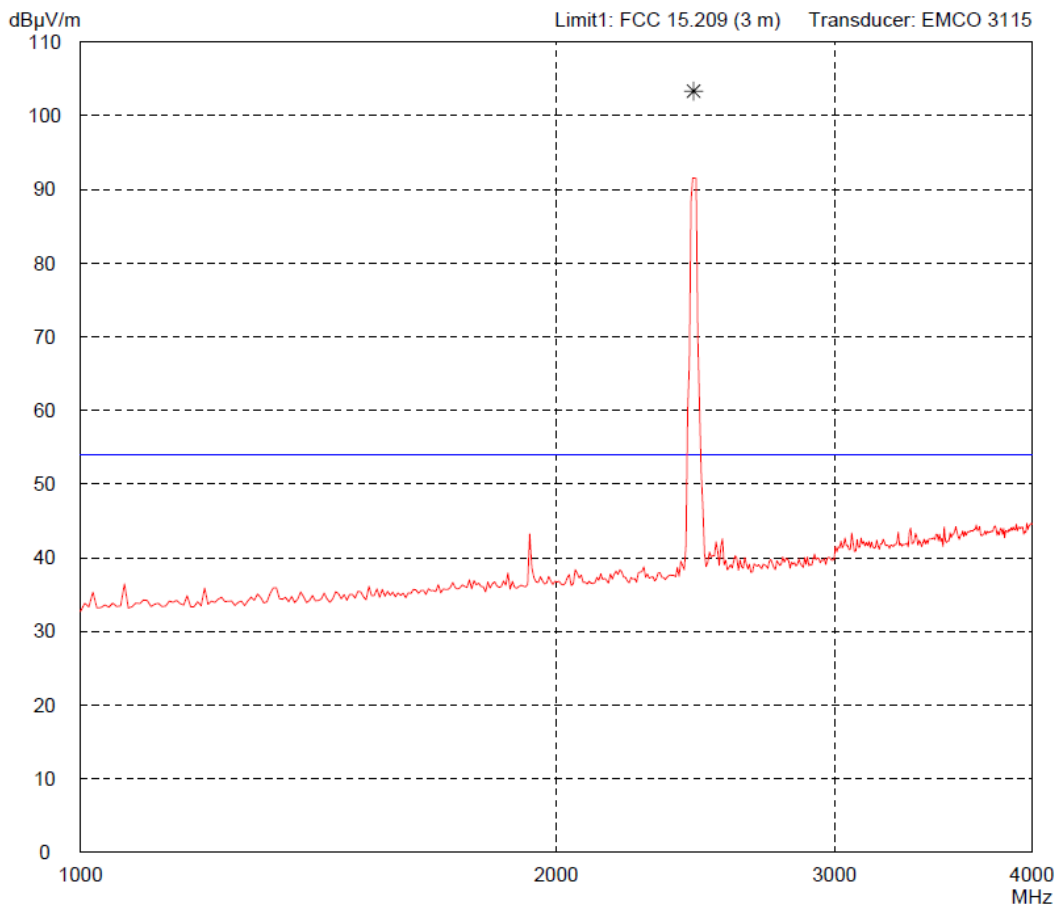


Result: Prescan	Project file: 11297-04682
---------------------------	-------------------------------------

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

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 7
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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



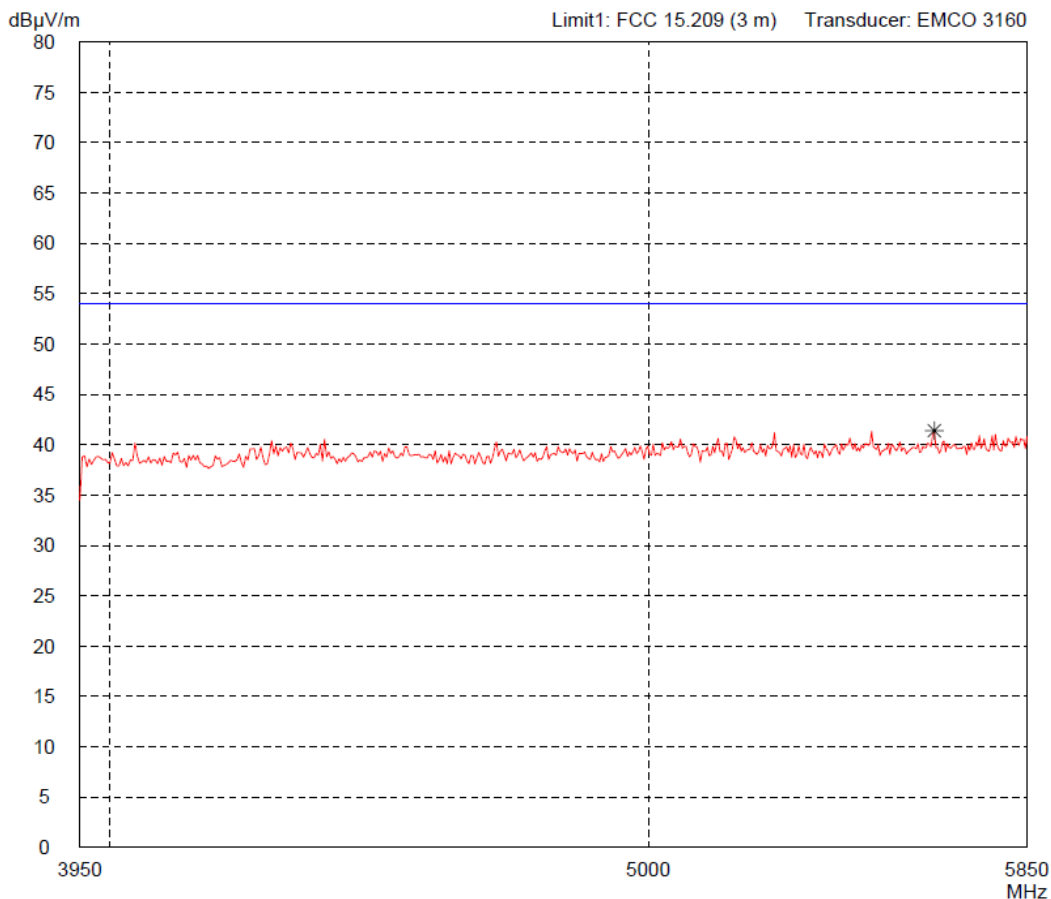
Result: Prescan	Project file: 11297-04682
---------------------------	-------------------------------------

Page of Pages

Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 Subpart C (FAR)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Model: Antenna Line Configurator - WLAN-Modul</td> </tr> <tr> <td colspan="2">Serial no.: ---</td> </tr> <tr> <td colspan="2">Applicant: KATHREIN Werke KG</td> </tr> <tr> <td colspan="2">Test site: Fully anechoic room, cabin no. 2</td> </tr> <tr> <td colspan="2">Tested on: Test distance 3 metres Horizontal Polarization</td> </tr> <tr> <td>Date of test: 06/11/2012</td> <td>Operator: M. Steindl</td> </tr> <tr> <td>Test performed: automatically</td> <td>File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul		Serial no.: ---		Applicant: KATHREIN Werke KG		Test site: Fully anechoic room, cabin no. 2		Tested on: Test distance 3 metres Horizontal Polarization		Date of test: 06/11/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Comment: - Battery supply - Transmitting continuously on channel 7</td> </tr> </table>	Comment: - Battery supply - Transmitting continuously on channel 7
Model: Antenna Line Configurator - WLAN-Modul																
Serial no.: ---																
Applicant: KATHREIN Werke KG																
Test site: Fully anechoic room, cabin no. 2																
Tested on: Test distance 3 metres Horizontal Polarization																
Date of test: 06/11/2012	Operator: M. Steindl															
Test performed: automatically	File name: default.emi															
Comment: - Battery supply - Transmitting continuously on channel 7																

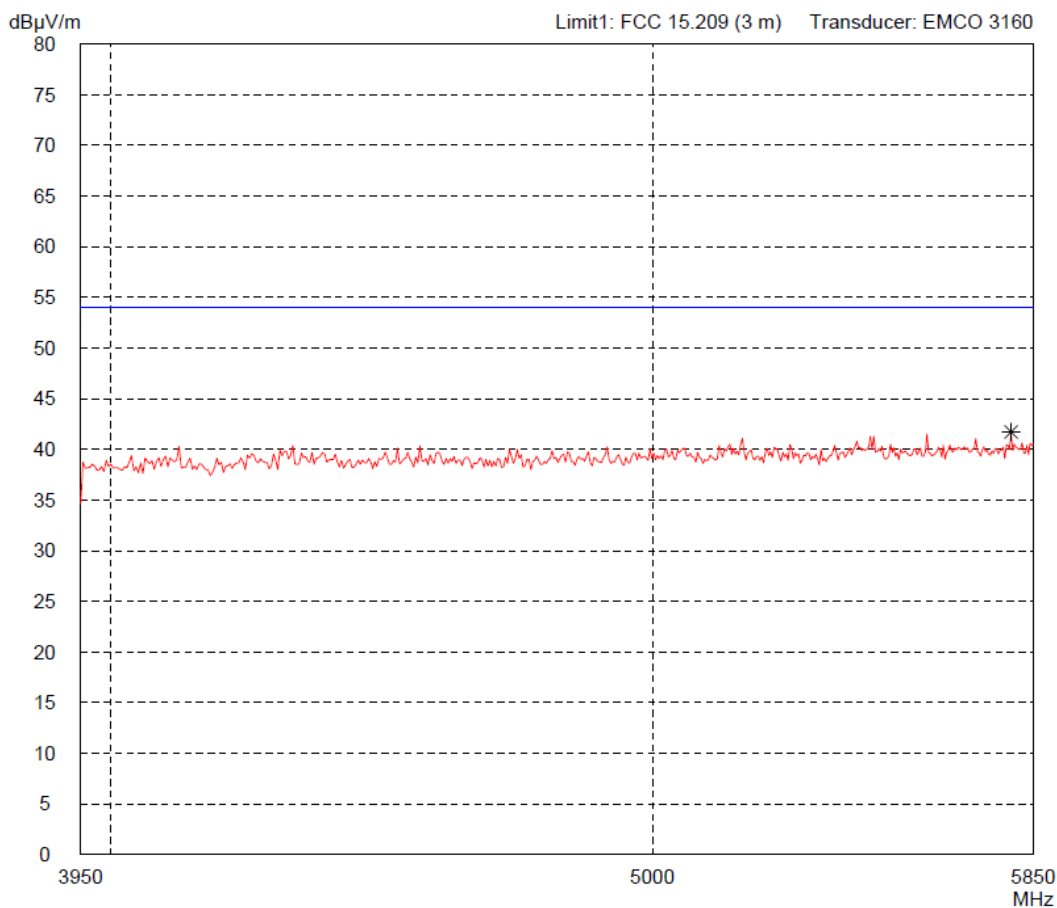
Detector: Peak	List of values: Selected by hand
-------------------	-------------------------------------



Result: Prescan	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Project file: 11297-04682</td> <td style="text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Project file: 11297-04682	Page of Pages		

Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 7
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi
Detector: Peak	
List of values: Selected by hand	

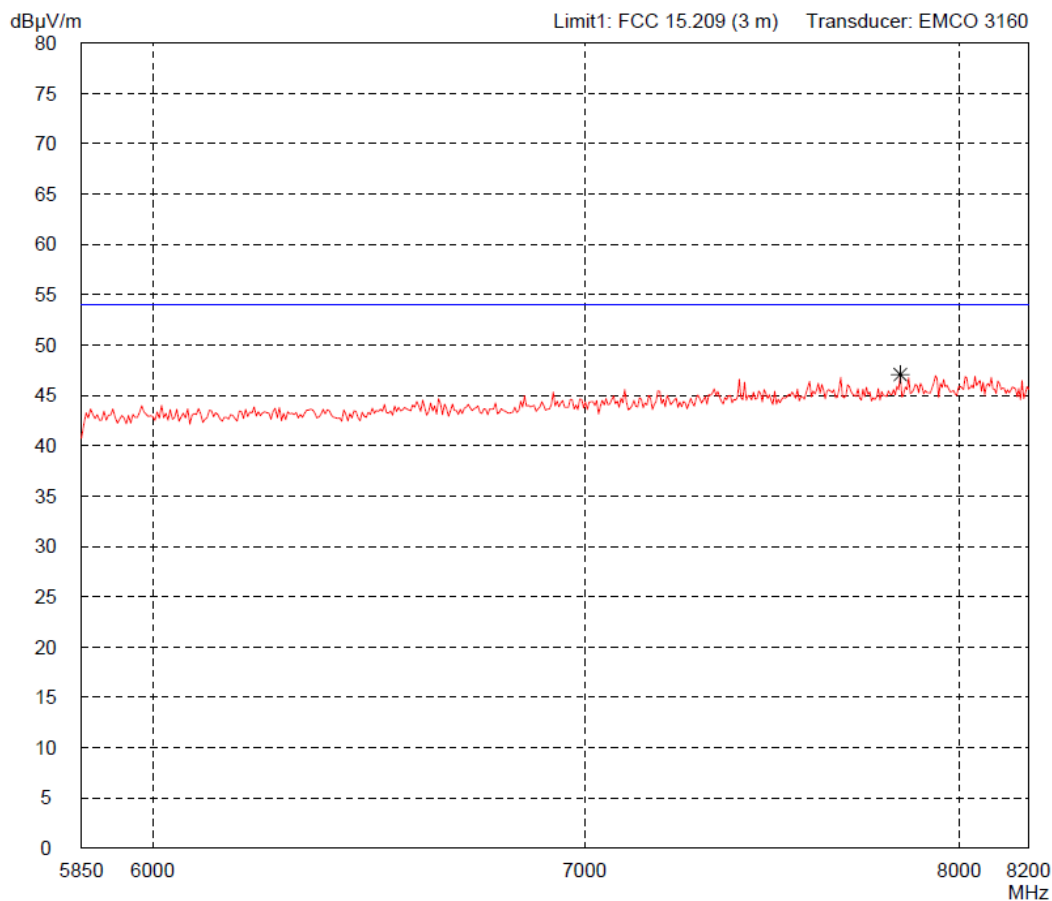


Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------

Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 07
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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



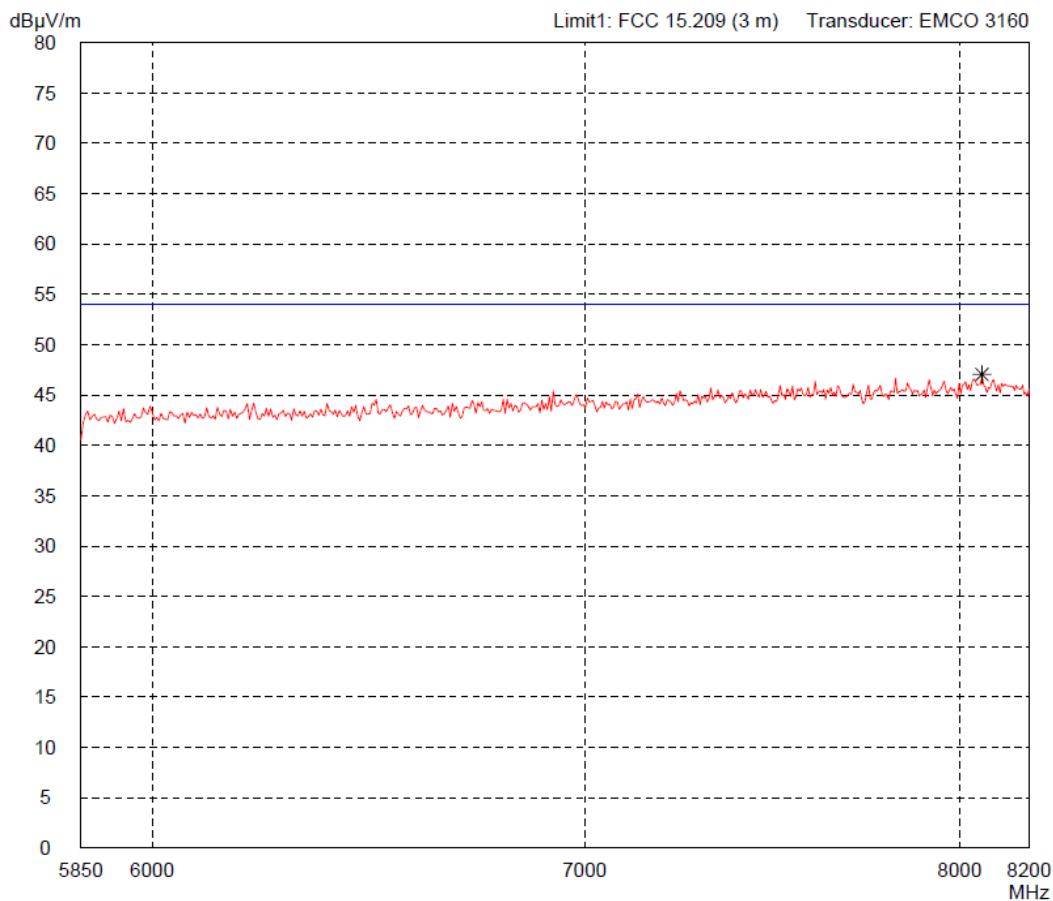
Result: Prescan	Project file: 11297-04682
---------------------------	-------------------------------------

Page of Pages

**Radiated Emission Test 5.85 GHz - 8.2 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 07
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 06/11/2012 Operator: M. Steindl Test performed: automatically File name: default.emi	

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

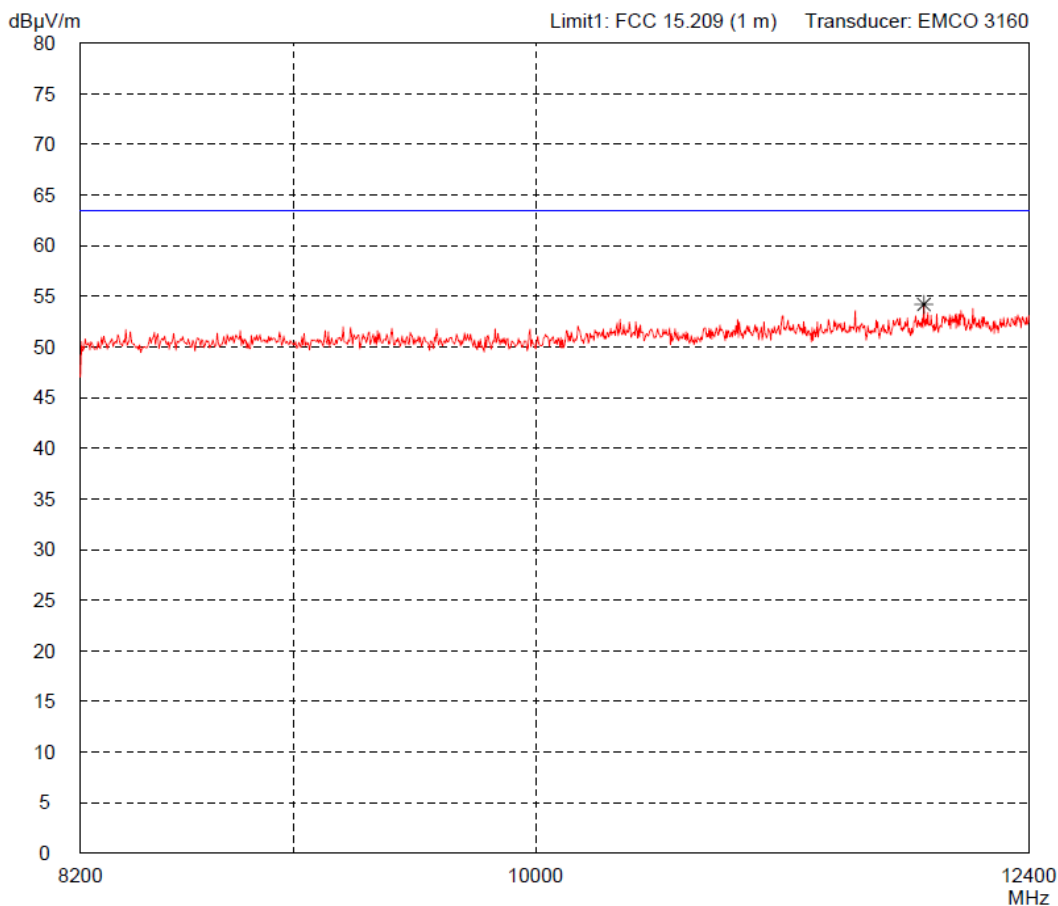


Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------------

**Radiated Emission Test 8.2 GHz - 12.4 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 07
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 06/11/2012	
Test performed: automatically	File name: default.emi

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

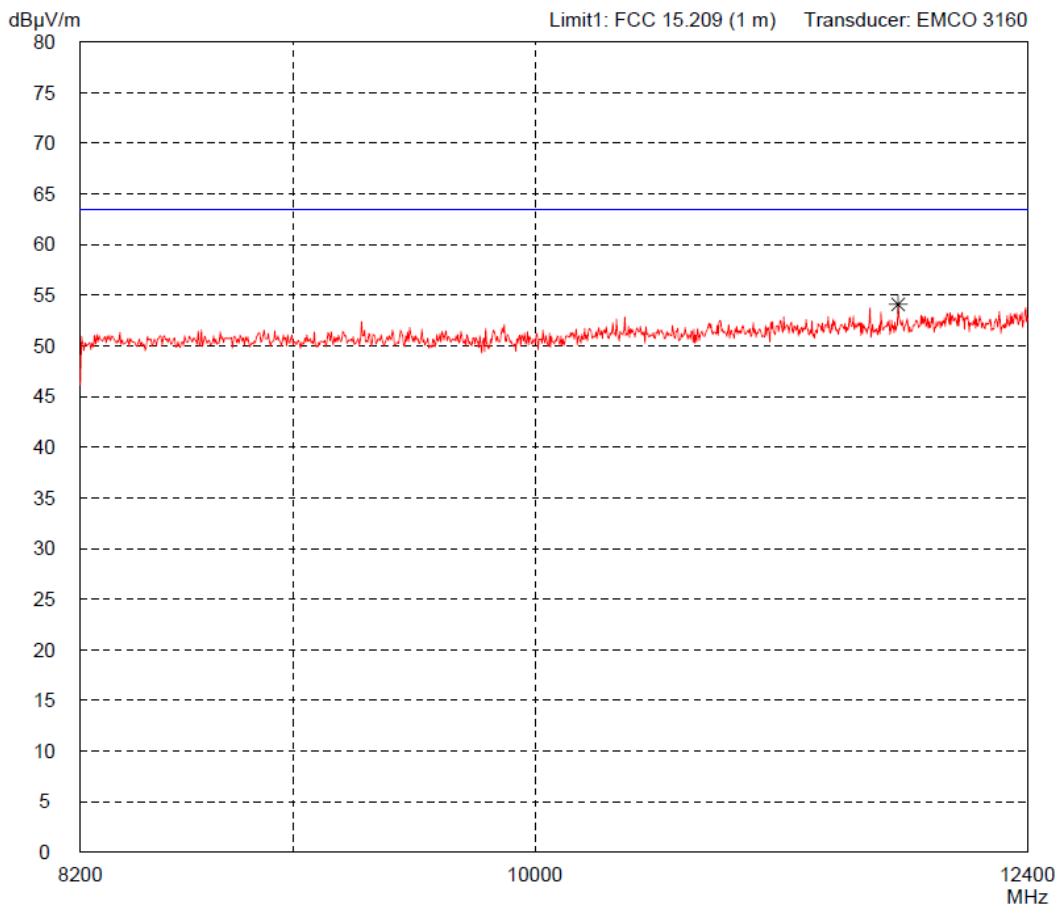


Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	---------------

Radiated Emission Test 8.2 GHz - 12.4 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 07
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 06/11/2012 Operator: M. Steindl	
Test performed: automatically	File name: default.emi

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

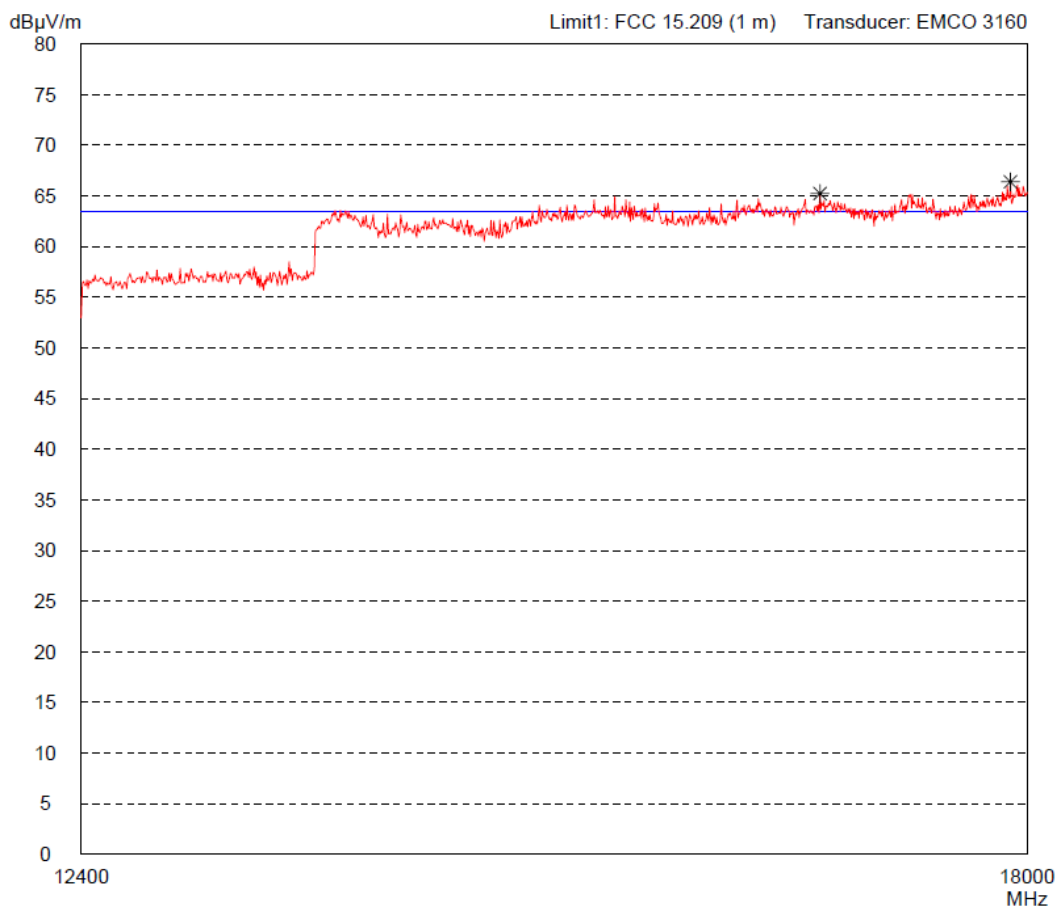


Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	-------------------------

Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul Serial no.: --- Applicant: KATHREIN Werke KG Test site: Fully anechoic room, cabin no. 2 Tested on: Test distance 1 meter Horizontal Polarization Date of test: 06/11/2012 Operator: M. Steindl Test performed: automatically File name: default.emi	Comment: - Battery supply - Transmitting continuously on channel 07
--	--

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

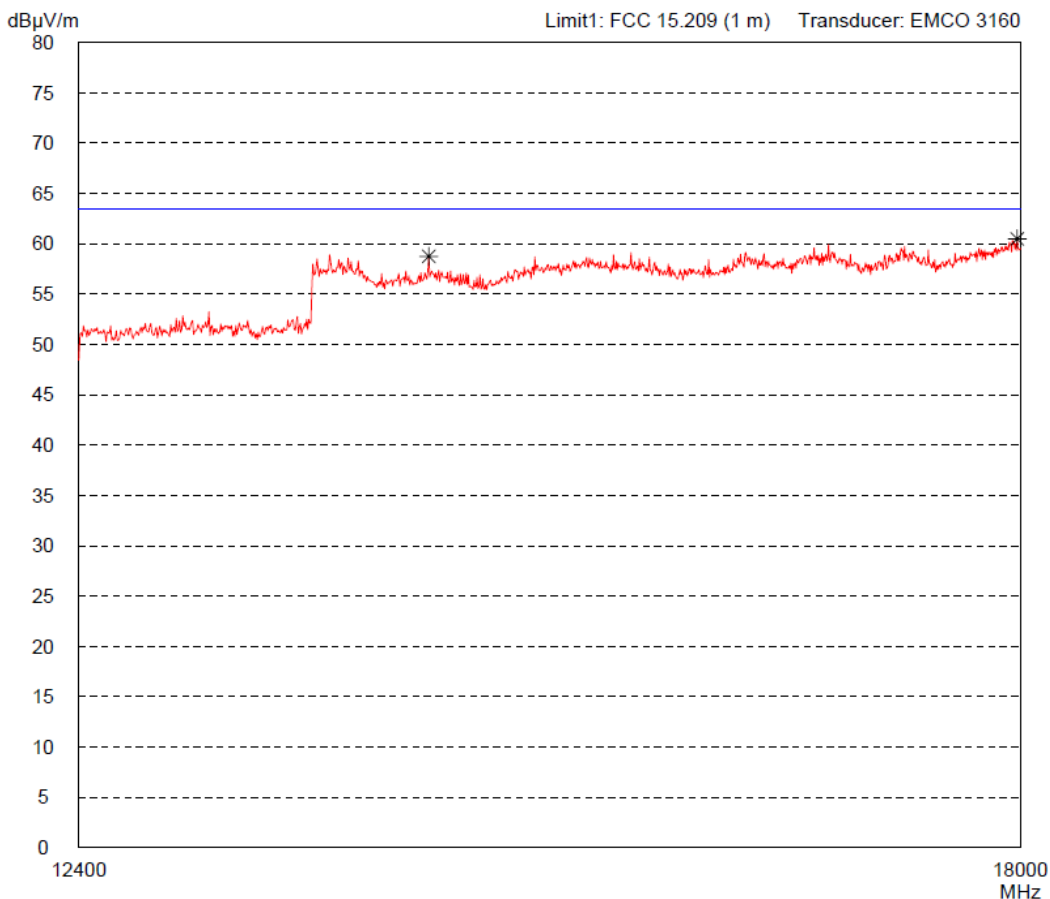


Result: Prescan	Project file: 11297-04682 Page of Pages
---------------------------	---

Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 07
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization, VBW = 100 kHz	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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

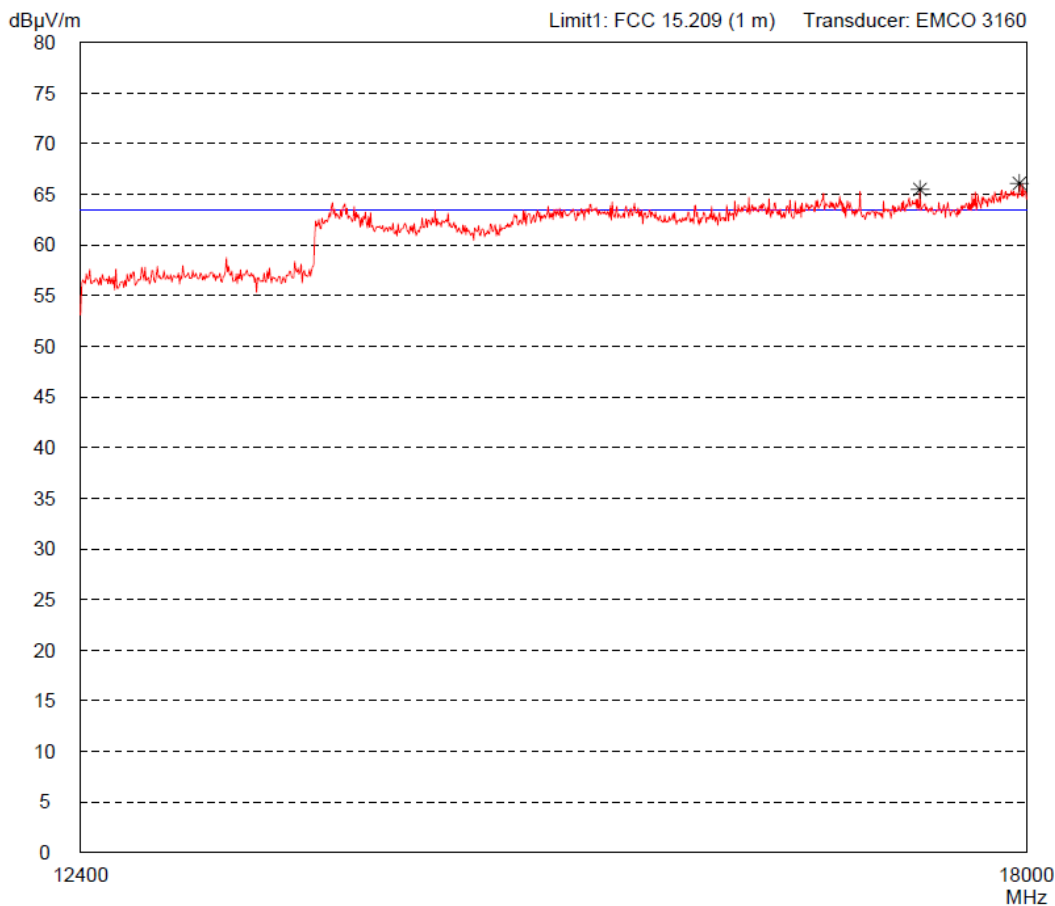


Result: Limit kept	Project file: 11297-04682
------------------------------	-------------------------------------

Page of Pages

Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 Subpart C (FAR)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Model: Antenna Line Configurator - WLAN-Modul</td> </tr> <tr> <td colspan="2">Serial no.: ---</td> </tr> <tr> <td colspan="2">Applicant: KATHREIN Werke KG</td> </tr> <tr> <td colspan="2">Test site: Fully anechoic room, cabin no. 2</td> </tr> <tr> <td colspan="2">Tested on: Test distance 1 meter Vertical Polarization</td> </tr> <tr> <td>Date of test: 06/11/2012</td> <td>Operator: M. Steindl</td> </tr> <tr> <td>Test performed: automatically</td> <td>File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul		Serial no.: ---		Applicant: KATHREIN Werke KG		Test site: Fully anechoic room, cabin no. 2		Tested on: Test distance 1 meter Vertical Polarization		Date of test: 06/11/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Comment: - Battery supply - Transmitting continuously on channel 07</td> </tr> </table>	Comment: - Battery supply - Transmitting continuously on channel 07
Model: Antenna Line Configurator - WLAN-Modul																
Serial no.: ---																
Applicant: KATHREIN Werke KG																
Test site: Fully anechoic room, cabin no. 2																
Tested on: Test distance 1 meter Vertical Polarization																
Date of test: 06/11/2012	Operator: M. Steindl															
Test performed: automatically	File name: default.emi															
Comment: - Battery supply - Transmitting continuously on channel 07																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Detector: Peak</td> </tr> </table>	Detector: Peak	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>List of values: Selected by hand</td> </tr> </table>	List of values: Selected by hand													
Detector: Peak																
List of values: Selected by hand																

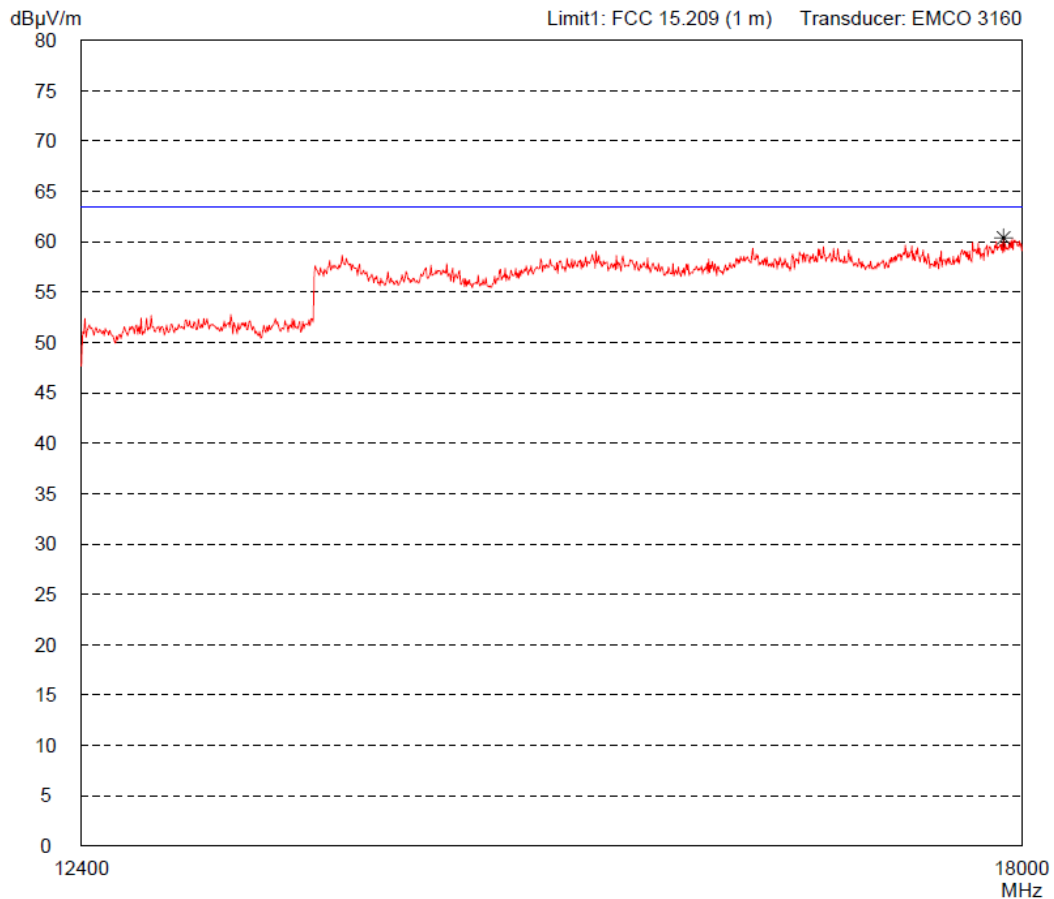


<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Result: Prescan</td> </tr> </table>	Result: Prescan	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Project file: 11297-04682</td> <td style="text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Result: Prescan				
Project file: 11297-04682	Page of Pages			

**Radiated Emission Test 12.4 GHz - 18 GHz
 acc. to FCC Part 15 Subpart C (FAR)**

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 07
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization, VBW = 100 kHz	
Date of test: 06/11/2012 Operator: M. Steindl	
Test performed: automatically	File name: default.emi

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



Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	-------------------------

Radiated Emission Test acc. to FCC Part 15 Subpart C

Model:
Antenna Line Configurator - WLAN-Module

Serial No.:

Applicant:
KATHREIN Werke KG

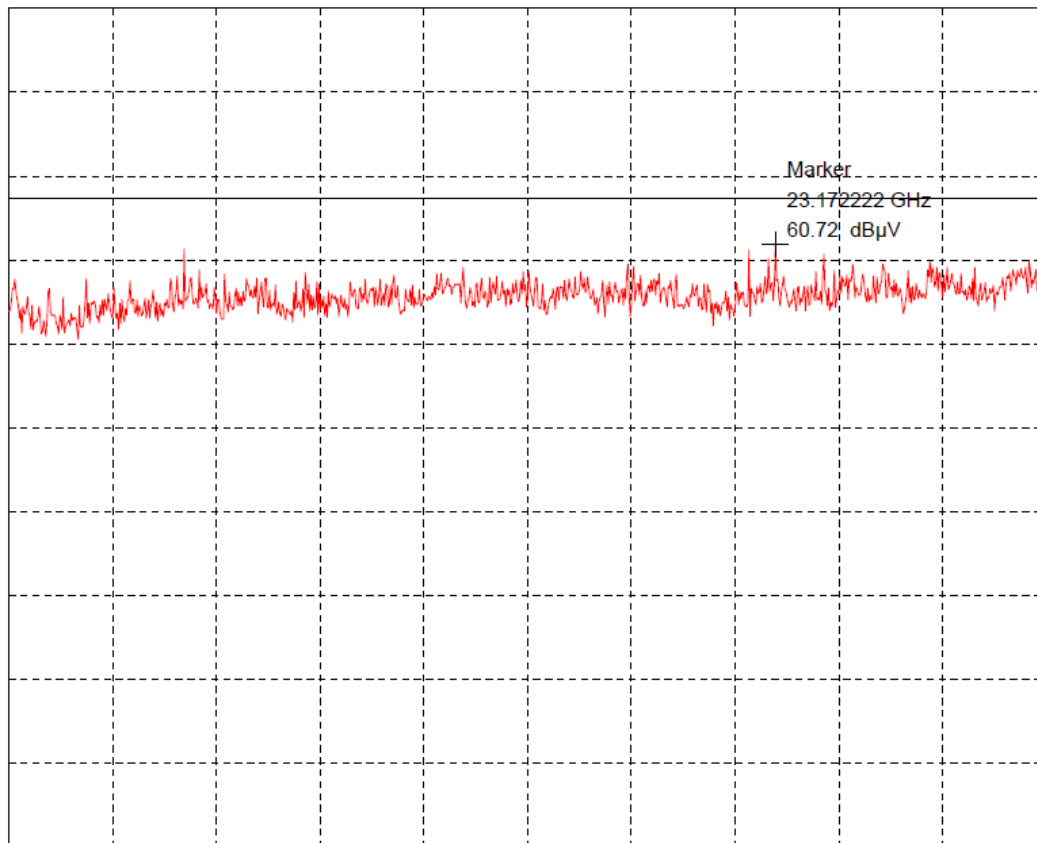
Mode:

- Battery supply
- Transmitting continuously on channel 7
- Test Distance: 1 m
- Polarisation: Horizontal

Ref. Level 74.8 dB μ V
5 dB/Div.

ATT 0 dB

Ref. Offset 42.8 dB



Start 18.000 GHz
RBW 1 MHz

VBW 1 MHz

Stop 25.000 GHz
SWP 40 ms

Tested by:
M. Steindl

Date:
2012-06-12

Project-No.:
11297-04682

Page of pages

Radiated Emission Test acc. to FCC Part 15 Subpart C

Model:
Antenna Line Configurator - WLAN-Module

Serial No.:

Applicant:
KATHREIN Werke KG

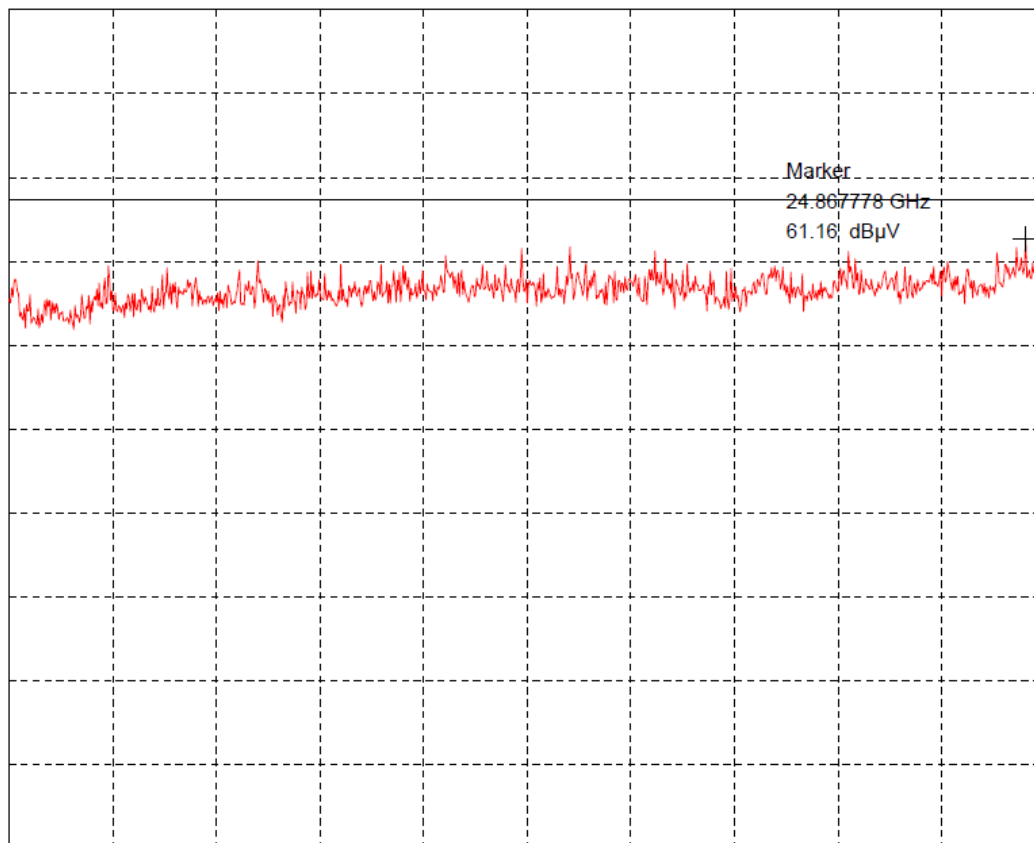
Mode:

- Battery supply
- Transmitting continuously on channel 7
- Test Distance: 1 m
- Polarisation: Vertical

Ref.Level 74.8 dB μ V
5 dB/Div.

ATT 0 dB

Ref. Offset 42.8 dB



Start 18.000 GHz
RBW 1 MHz

VBW 1 MHz

Stop 25.000 GHz
SWP 40 ms

Tested by:
M. Steindl

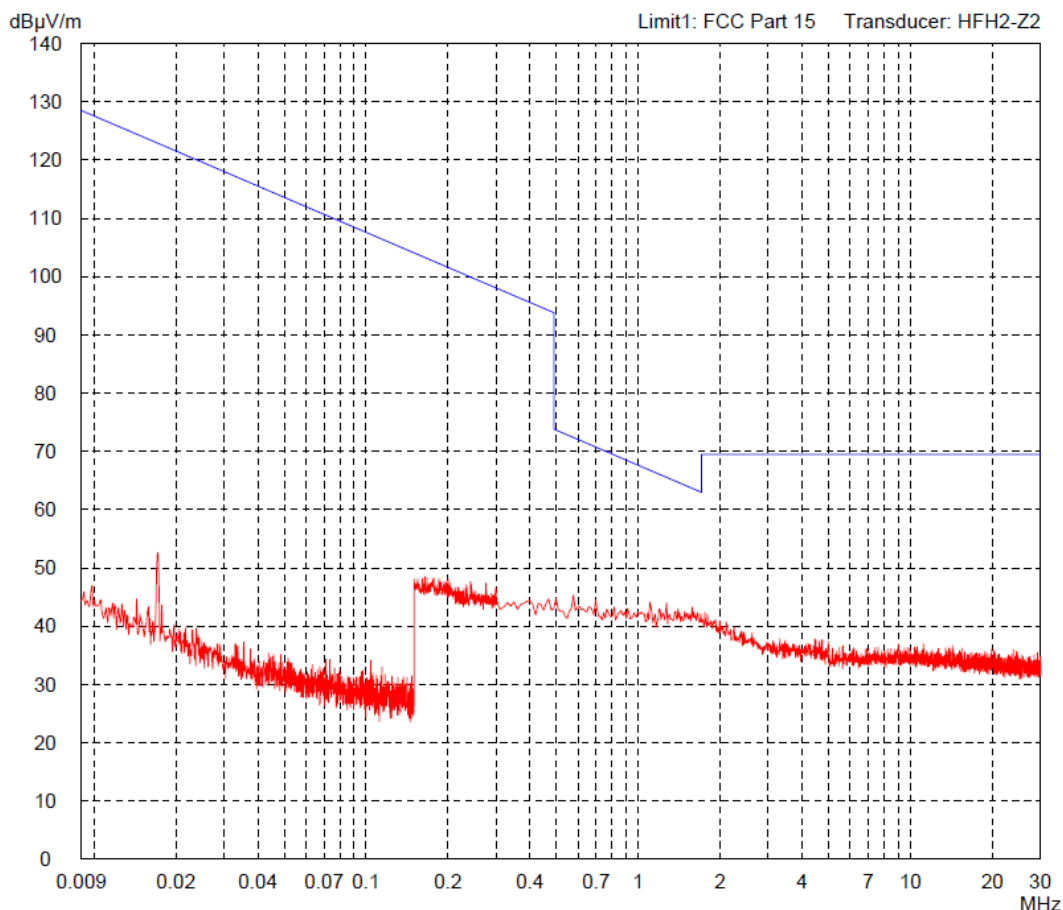
Date:
2012-06-12

Project-No.:
11297-04682

Page of pages

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

Model: Antenna Line Configurator - WLAN-Modul Serial no.: --- Applicant: KATHREIN Werke KG Test site: Fully anechoic room, cabin no. 2 Tested on: Test distance 3 metres Date of test: 06/11/2012 Operator: M. Steindl Test performed: by hand File name: default.emi	Comment: - Battery supply - Transmitting continuously on channel 11
Detector: Peak	List of values: 10 dB Margin 50 Subranges

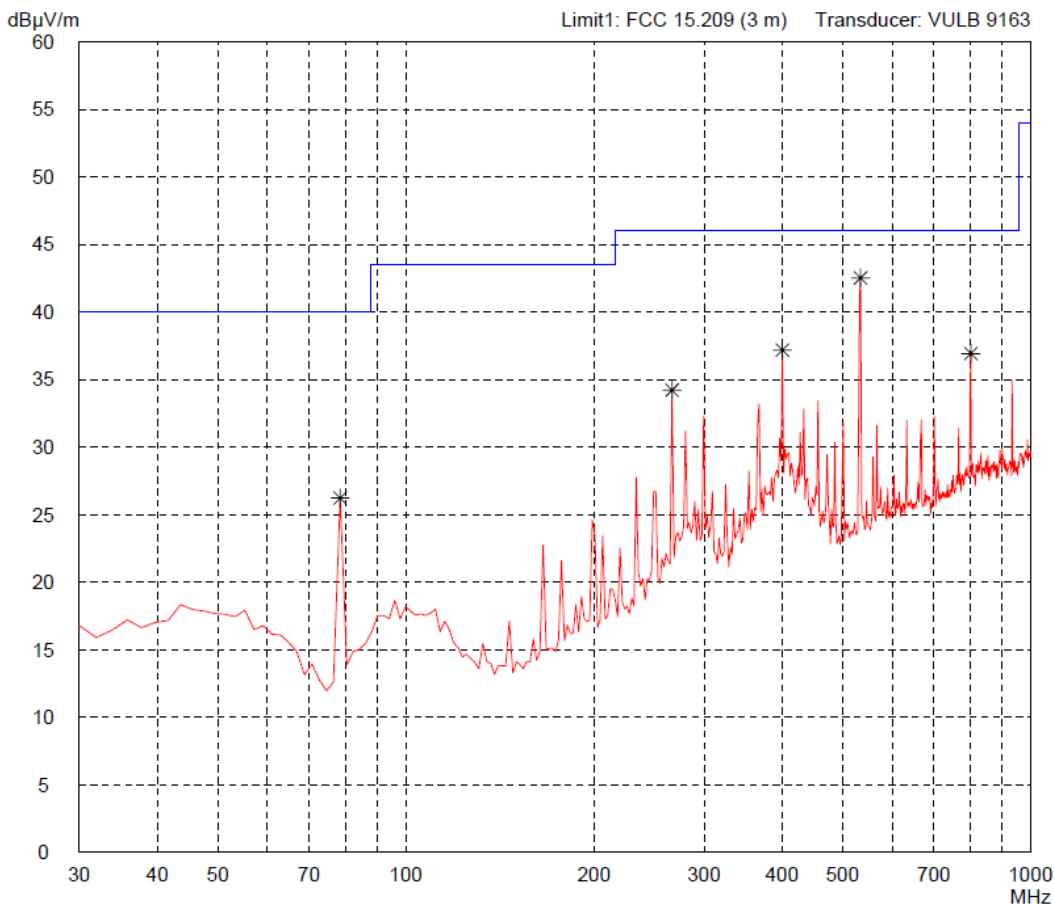


Result: Prescan	Project file: 11297-04682 Page of Pages
-----------------------------------	---

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

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 11
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 06/11/2012	
Test performed: automatically	File name: default.emi

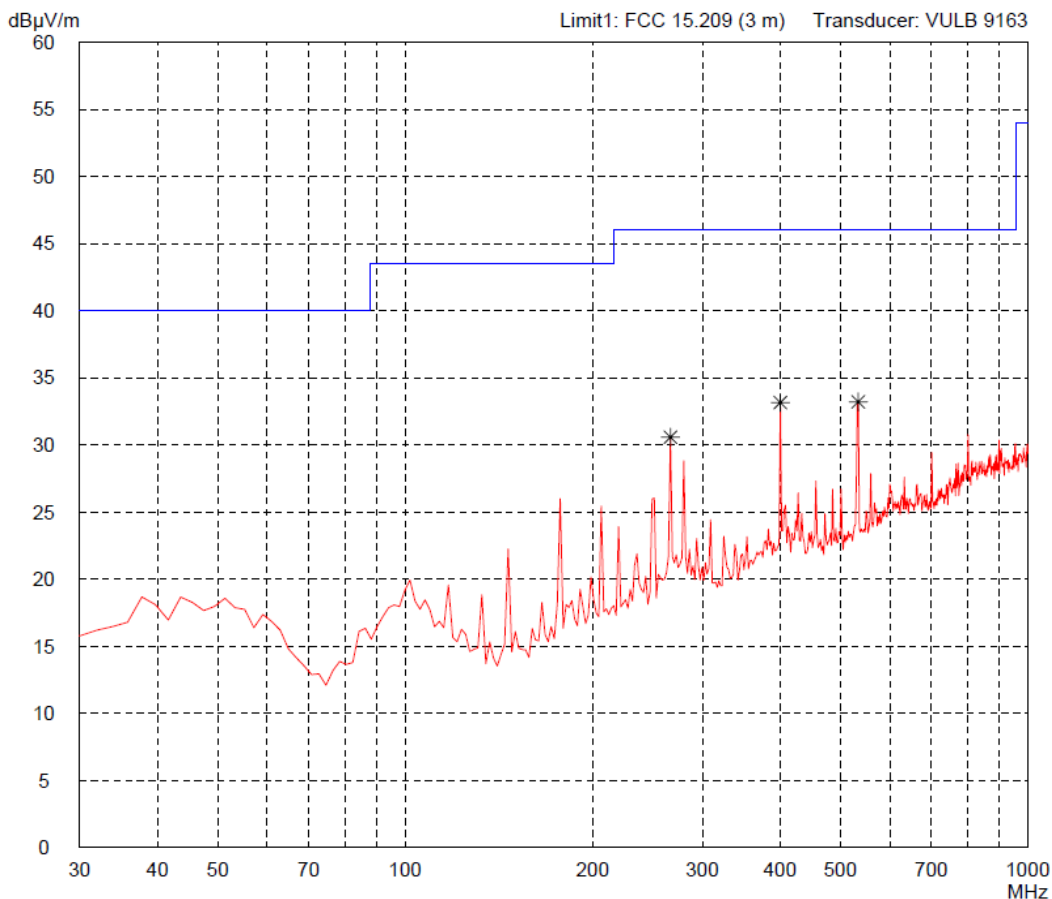
Detector: Peak	List of values: Selected by hand
-------------------	-------------------------------------



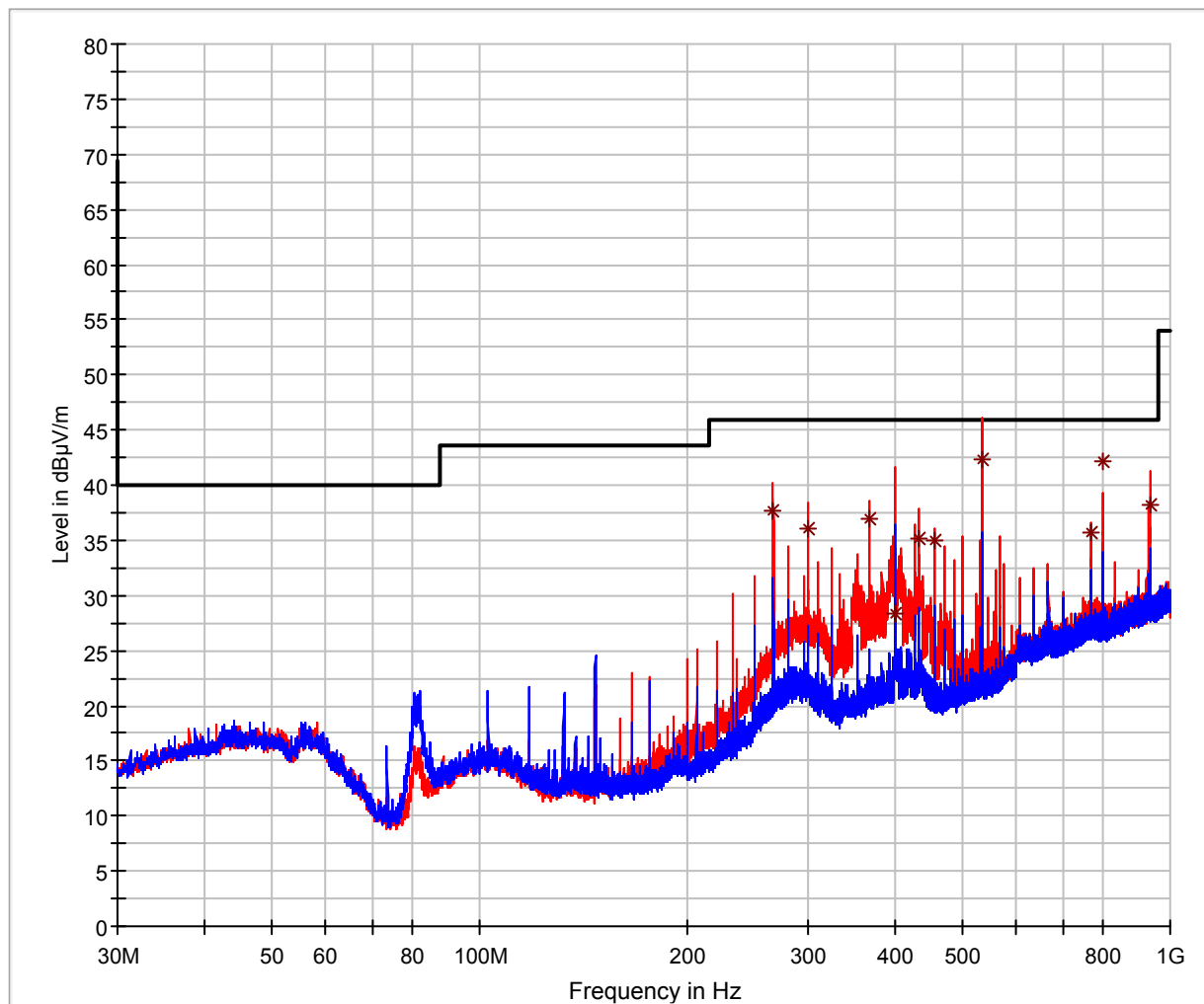
Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------

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

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 11
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi
Detector: Peak	
List of values: Selected by hand	



Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	---------------------

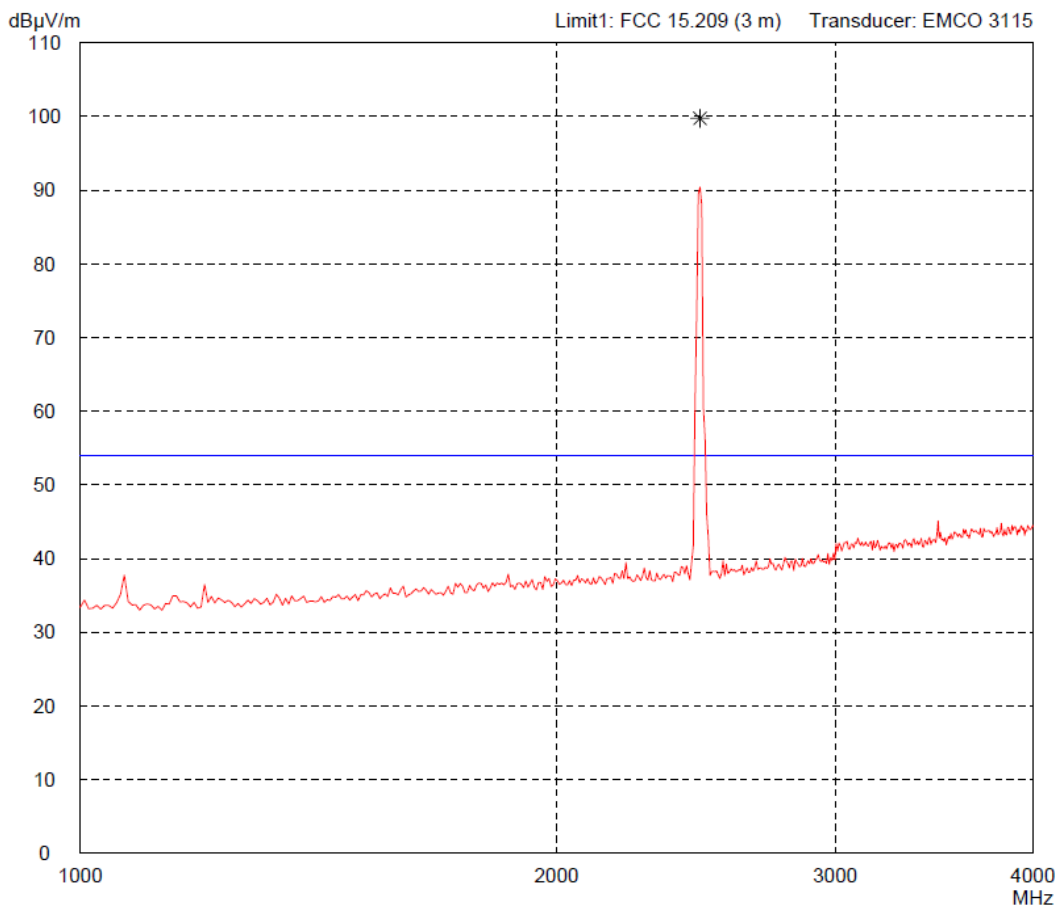


— FCC 15.209
— Preview Result 1H-PK+
— Preview Result 1V-PK+ * Final Result 1-QPK

Final measurement of radiated emissions 30 MHz – 1 GHz
Transmitting continuously at channel 11

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

Model: Antenna Line Configurator - WLAN-Modul Serial no.: --- Applicant: KATHREIN Werke KG Test site: Fully anechoic room, cabin no. 2 Tested on: Test distance 3 metres Horizontal Polarization Date of test: 06/11/2012 Operator: M. Steindl Test performed: automatically File name: default.emi	Comment: - Battery supply - Transmitting continuously on channel 11
Detector: Peak	List of values: Selected by hand

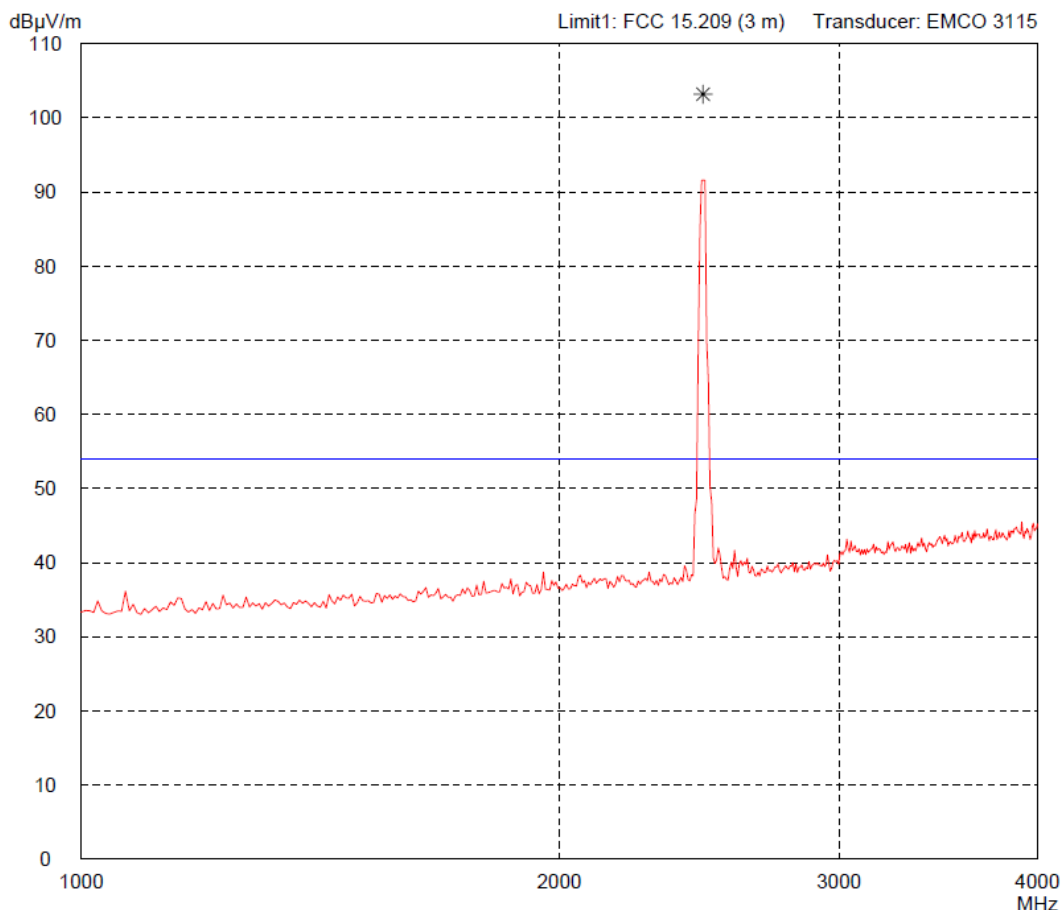


Result: Prescan	Project file: 11297-04682
-----------------------------------	---

Page of Pages

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

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Model:</td><td style="padding: 2px;">Antenna Line Configurator - WLAN-Modul</td></tr> <tr><td style="padding: 2px;">Serial no.:</td><td style="padding: 2px;">---</td></tr> <tr><td style="padding: 2px;">Applicant:</td><td style="padding: 2px;">KATHREIN Werke KG</td></tr> <tr><td style="padding: 2px;">Test site:</td><td style="padding: 2px;">Fully anechoic room, cabin no. 2</td></tr> <tr><td style="padding: 2px;">Tested on:</td><td style="padding: 2px;">Test distance 3 metres Vertical Polarization</td></tr> <tr> <td style="padding: 2px;">Date of test:</td><td style="padding: 2px;">Operator:</td></tr> <tr> <td style="padding: 2px;">06/11/2012</td><td style="padding: 2px;">M. Steindl</td></tr> <tr> <td style="padding: 2px;">Test performed:</td><td style="padding: 2px;">File name:</td></tr> <tr> <td style="padding: 2px;">automatically</td><td style="padding: 2px;">default.emi</td></tr> </table>	Model:	Antenna Line Configurator - WLAN-Modul	Serial no.:	---	Applicant:	KATHREIN Werke KG	Test site:	Fully anechoic room, cabin no. 2	Tested on:	Test distance 3 metres Vertical Polarization	Date of test:	Operator:	06/11/2012	M. Steindl	Test performed:	File name:	automatically	default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Comment:</td></tr> <tr><td style="padding: 2px;">- Battery supply</td></tr> <tr><td style="padding: 2px;">- Transmitting continuously on channel 11</td></tr> </table>	Comment:	- Battery supply	- Transmitting continuously on channel 11
Model:	Antenna Line Configurator - WLAN-Modul																					
Serial no.:	---																					
Applicant:	KATHREIN Werke KG																					
Test site:	Fully anechoic room, cabin no. 2																					
Tested on:	Test distance 3 metres Vertical Polarization																					
Date of test:	Operator:																					
06/11/2012	M. Steindl																					
Test performed:	File name:																					
automatically	default.emi																					
Comment:																						
- Battery supply																						
- Transmitting continuously on channel 11																						
Detector: Peak	List of values: Selected by hand																					

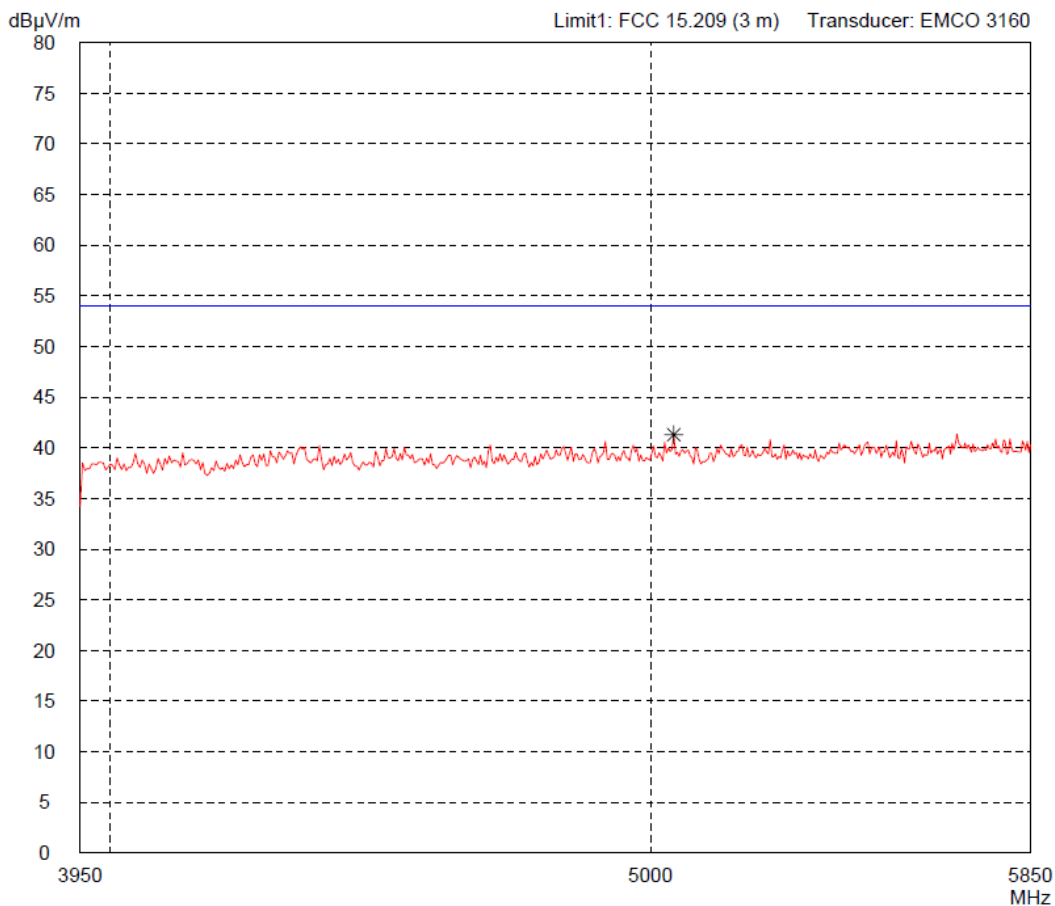


Result: Prescan	Project file: 11297-04682
--------------------	------------------------------

Page of Pages

Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 Subpart C (FAR)

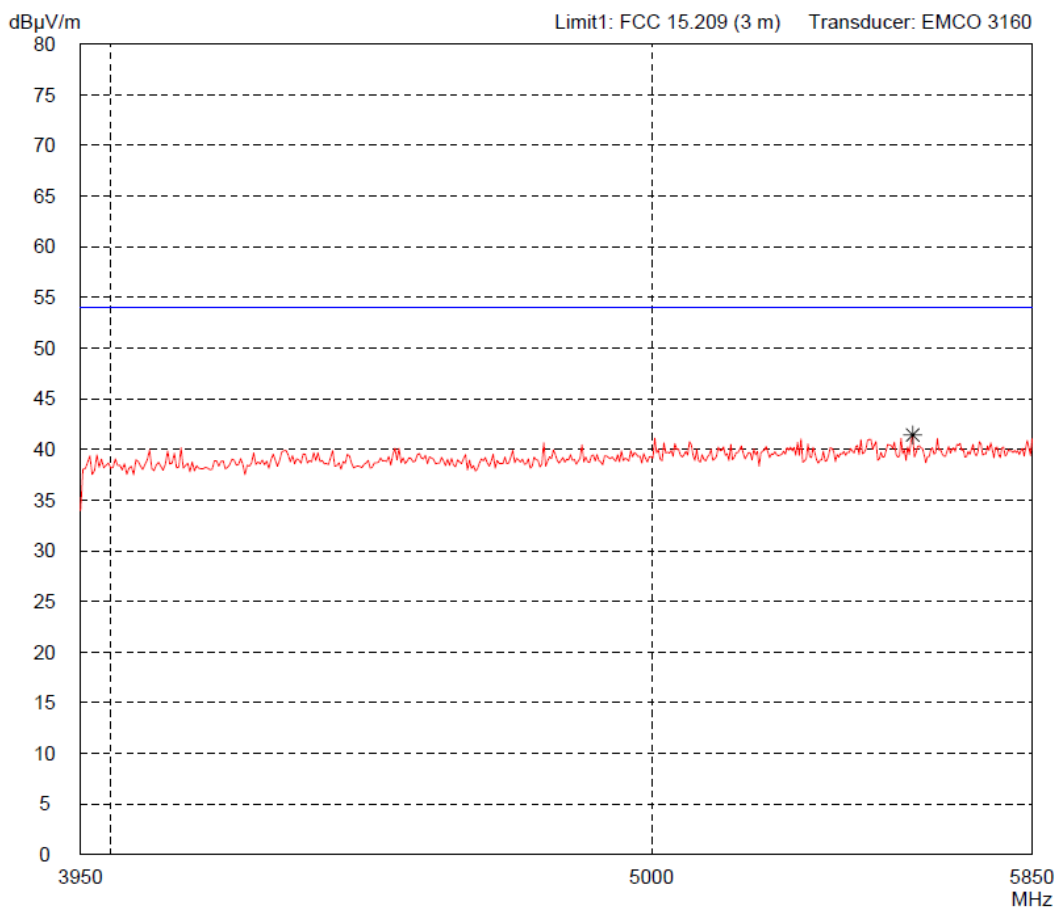
Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 11
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 06/11/2012	
Test performed: automatically	File name: default.emi
Detector: Peak	
List of values: Selected by hand	



Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------

Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 11
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi
Detector: Peak	
List of values: Selected by hand	

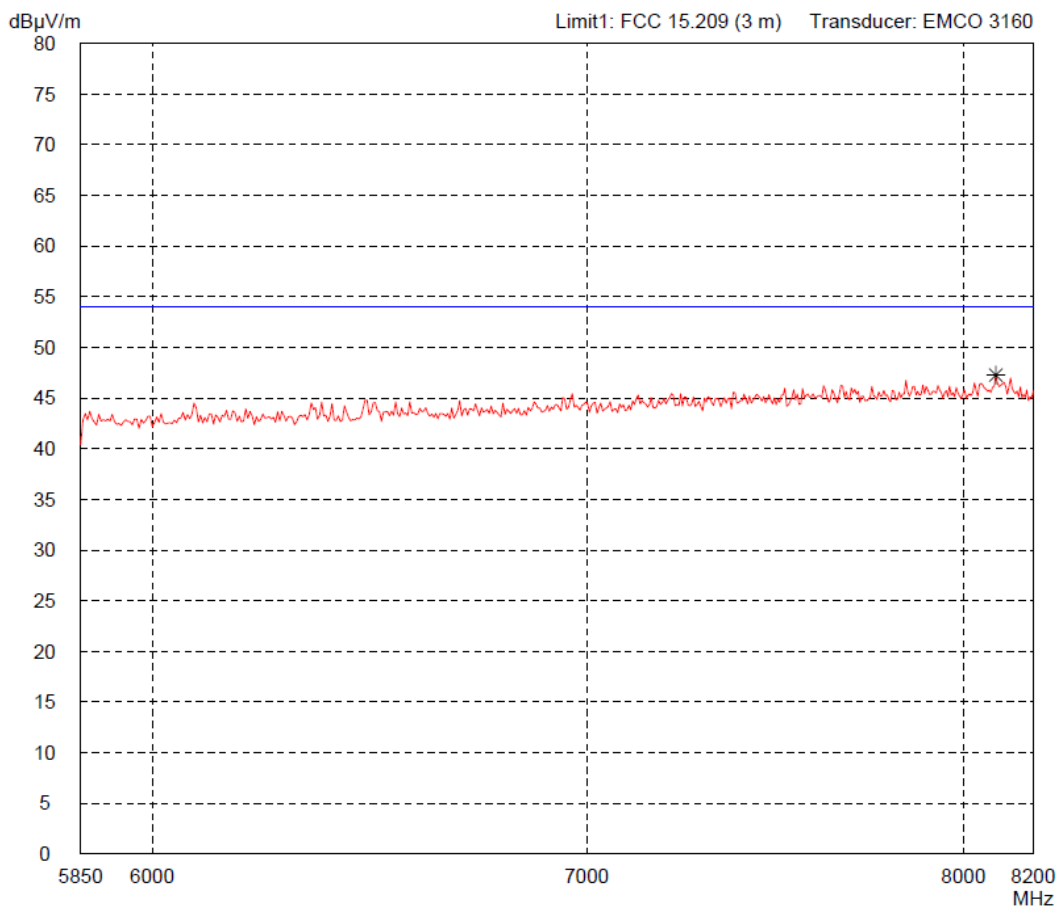


Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------

Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 11
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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

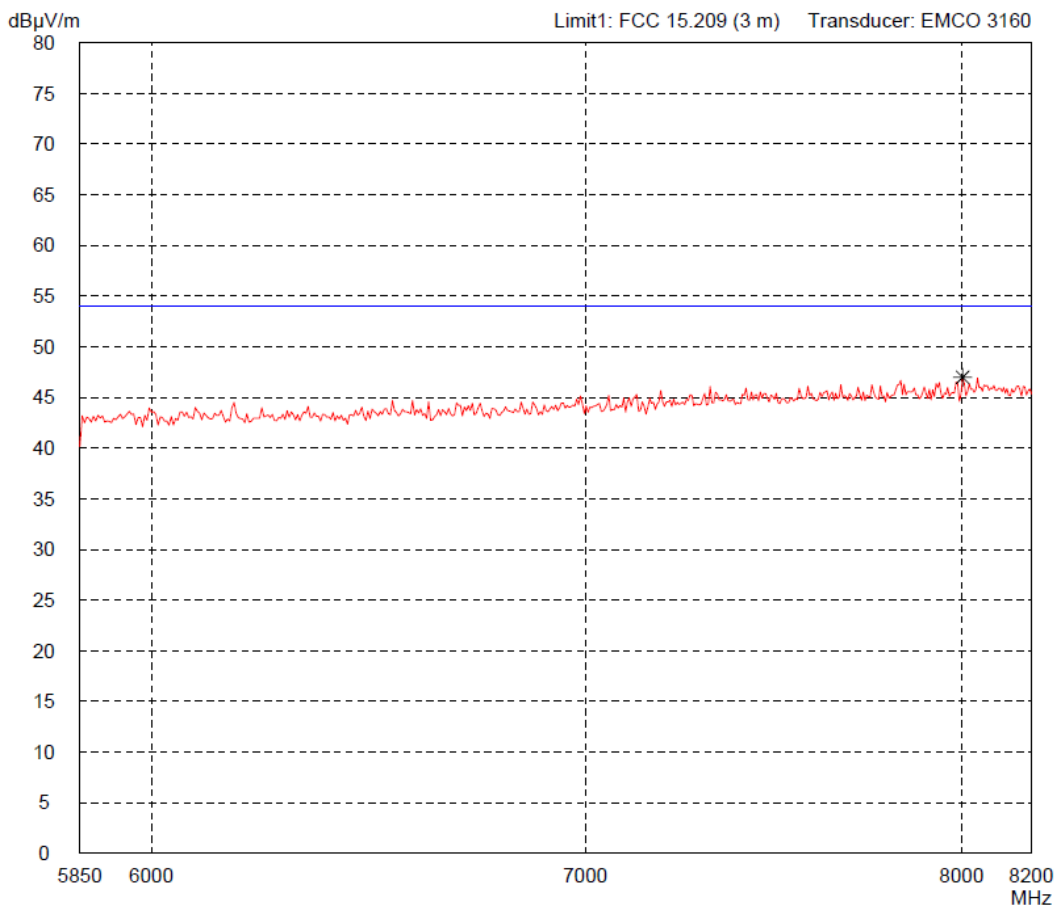


Result: Prescan	Project file: 11297-04682
---------------------------	-------------------------------------

Page of Pages

Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 Subpart C (FAR)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Model:</td><td style="padding: 2px;">Antenna Line Configurator - WLAN-Modul</td></tr> <tr><td style="padding: 2px;">Serial no.:</td><td style="padding: 2px;">---</td></tr> <tr><td style="padding: 2px;">Applicant:</td><td style="padding: 2px;">KATHREIN Werke KG</td></tr> <tr><td style="padding: 2px;">Test site:</td><td style="padding: 2px;">Fully anechoic room, cabin no. 2</td></tr> <tr><td style="padding: 2px;">Tested on:</td><td style="padding: 2px;">Test distance 3 metres Vertical Polarization</td></tr> <tr> <td style="padding: 2px;">Date of test:</td><td style="padding: 2px;">Operator:</td></tr> <tr> <td style="padding: 2px;">06/11/2012</td><td style="padding: 2px;">M. Steindl</td></tr> <tr> <td style="padding: 2px;">Test performed:</td><td style="padding: 2px;">File name:</td></tr> <tr> <td style="padding: 2px;">automatically</td><td style="padding: 2px;">default.emi</td></tr> </table>	Model:	Antenna Line Configurator - WLAN-Modul	Serial no.:	---	Applicant:	KATHREIN Werke KG	Test site:	Fully anechoic room, cabin no. 2	Tested on:	Test distance 3 metres Vertical Polarization	Date of test:	Operator:	06/11/2012	M. Steindl	Test performed:	File name:	automatically	default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Comment:</td></tr> <tr><td style="padding: 2px;">- Battery supply</td></tr> <tr><td style="padding: 2px;">- Transmitting continuously on channel 11</td></tr> </table>	Comment:	- Battery supply	- Transmitting continuously on channel 11
Model:	Antenna Line Configurator - WLAN-Modul																					
Serial no.:	---																					
Applicant:	KATHREIN Werke KG																					
Test site:	Fully anechoic room, cabin no. 2																					
Tested on:	Test distance 3 metres Vertical Polarization																					
Date of test:	Operator:																					
06/11/2012	M. Steindl																					
Test performed:	File name:																					
automatically	default.emi																					
Comment:																						
- Battery supply																						
- Transmitting continuously on channel 11																						
Detector: Peak	List of values: Selected by hand																					

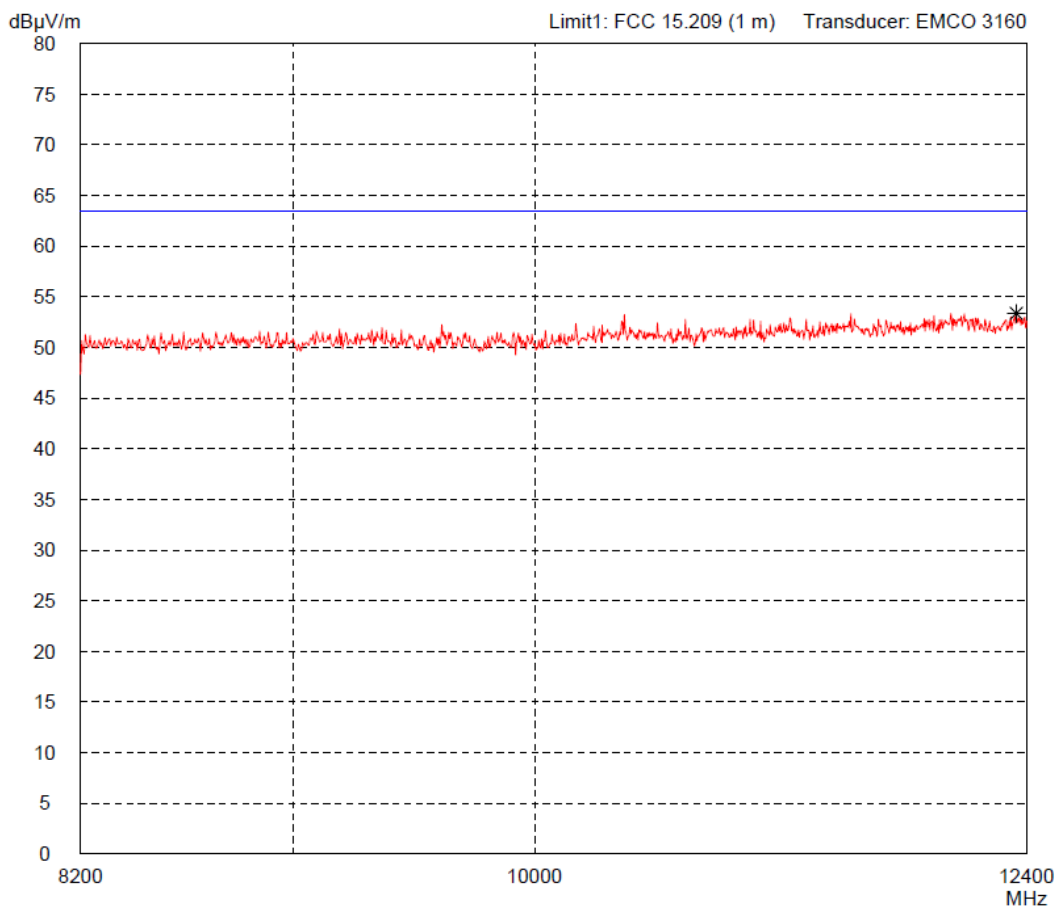


Result: Prescan	Project file: 11297-04682
--------------------	------------------------------

Page of Pages

Radiated Emission Test 8.2 GHz - 12.4 GHz acc. to FCC Part 15 Subpart C (FAR)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Model: Antenna Line Configurator - WLAN-Modul</td> </tr> <tr> <td colspan="2">Serial no.: ---</td> </tr> <tr> <td colspan="2">Applicant: KATHREIN Werke KG</td> </tr> <tr> <td colspan="2">Test site: Fully anechoic room, cabin no. 2</td> </tr> <tr> <td colspan="2">Tested on: Test distance 1 meter Horizontal Polarization</td> </tr> <tr> <td>Date of test: 06/11/2012</td> <td>Operator: M. Steindl</td> </tr> <tr> <td>Test performed: automatically</td> <td>File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul		Serial no.: ---		Applicant: KATHREIN Werke KG		Test site: Fully anechoic room, cabin no. 2		Tested on: Test distance 1 meter Horizontal Polarization		Date of test: 06/11/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Comment: - Battery supply - Transmitting continuously on channel 11</td> </tr> </table>	Comment: - Battery supply - Transmitting continuously on channel 11
Model: Antenna Line Configurator - WLAN-Modul																
Serial no.: ---																
Applicant: KATHREIN Werke KG																
Test site: Fully anechoic room, cabin no. 2																
Tested on: Test distance 1 meter Horizontal Polarization																
Date of test: 06/11/2012	Operator: M. Steindl															
Test performed: automatically	File name: default.emi															
Comment: - Battery supply - Transmitting continuously on channel 11																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Detector: Peak</td> </tr> </table>	Detector: Peak	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>List of values: Selected by hand</td> </tr> </table>	List of values: Selected by hand													
Detector: Peak																
List of values: Selected by hand																

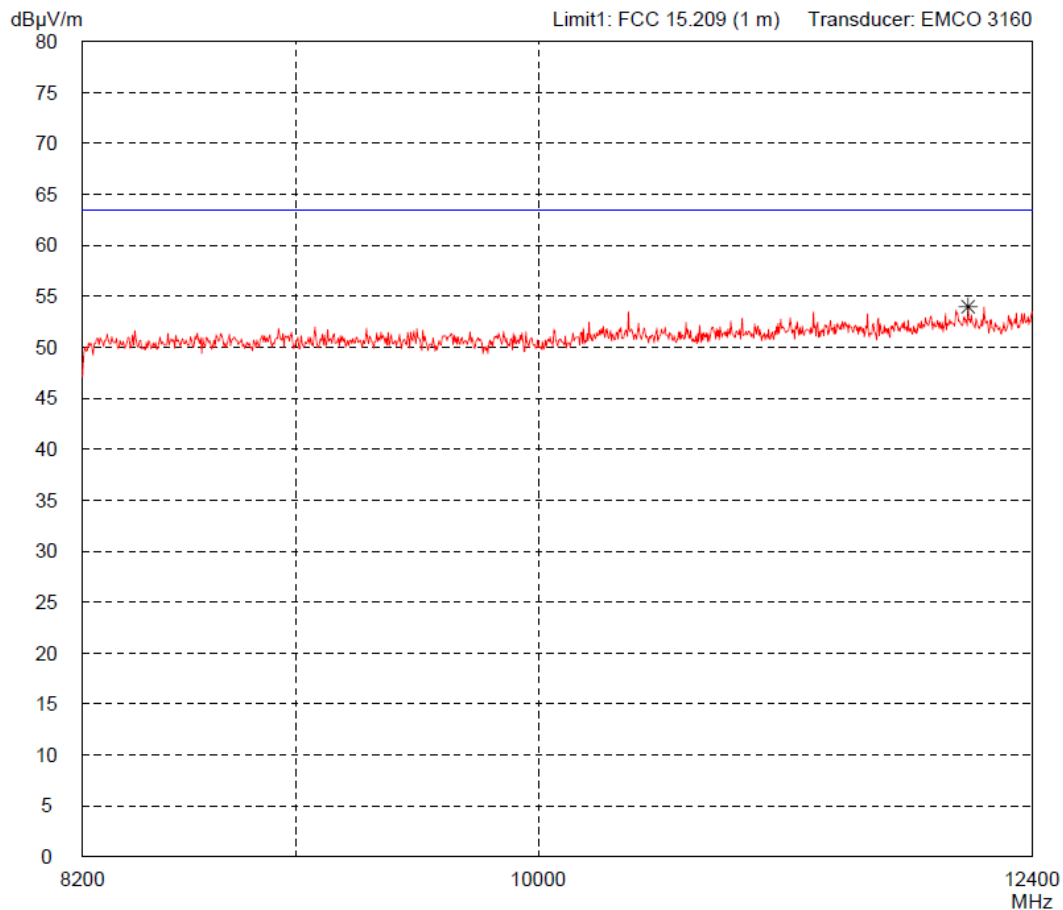


<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Result: Limit kept</td> </tr> </table>	Result: Limit kept	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Project file: 11297-04682</td> <td style="text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Result: Limit kept				
Project file: 11297-04682	Page of Pages			

Radiated Emission Test 8.2 GHz - 12.4 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 11
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 06/11/2012 Operator: M. Steindl	
Test performed: automatically File name: default.emi	

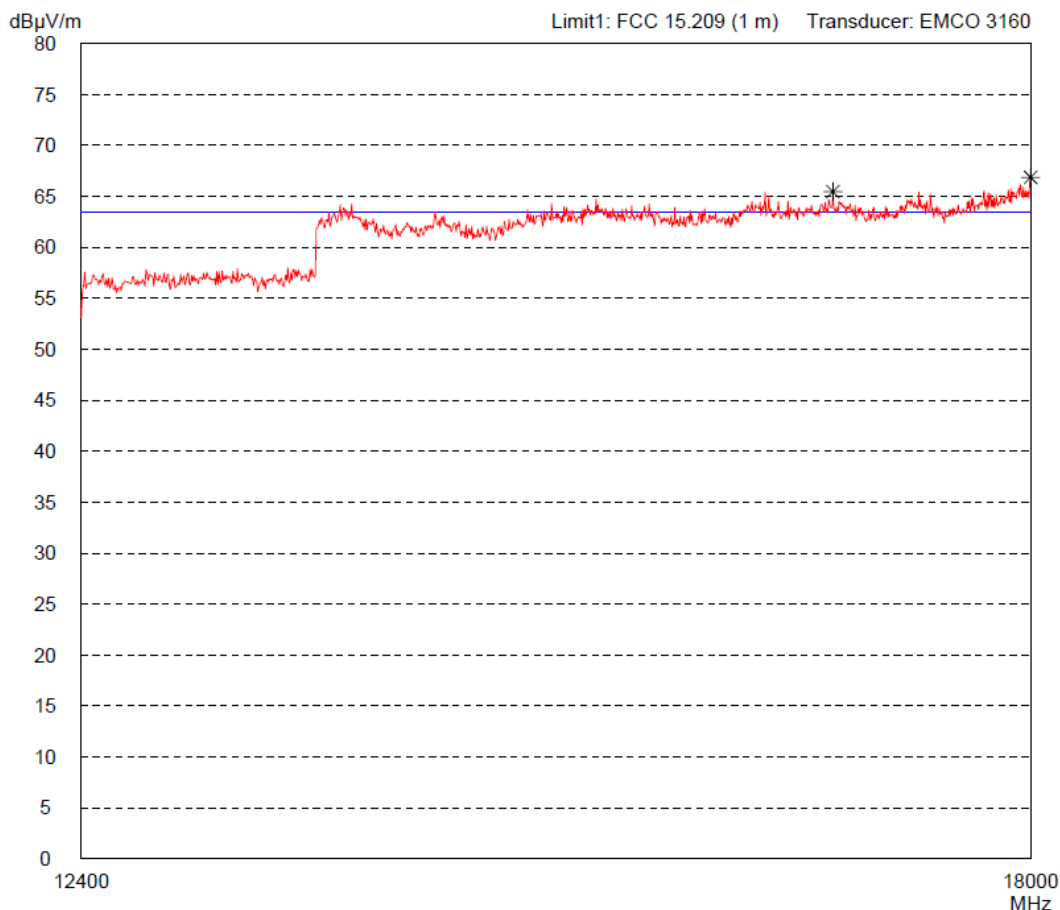
Detector: Peak	List of values: Selected by hand
-------------------	-------------------------------------



Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	-------------------------

Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 Subpart C (FAR)

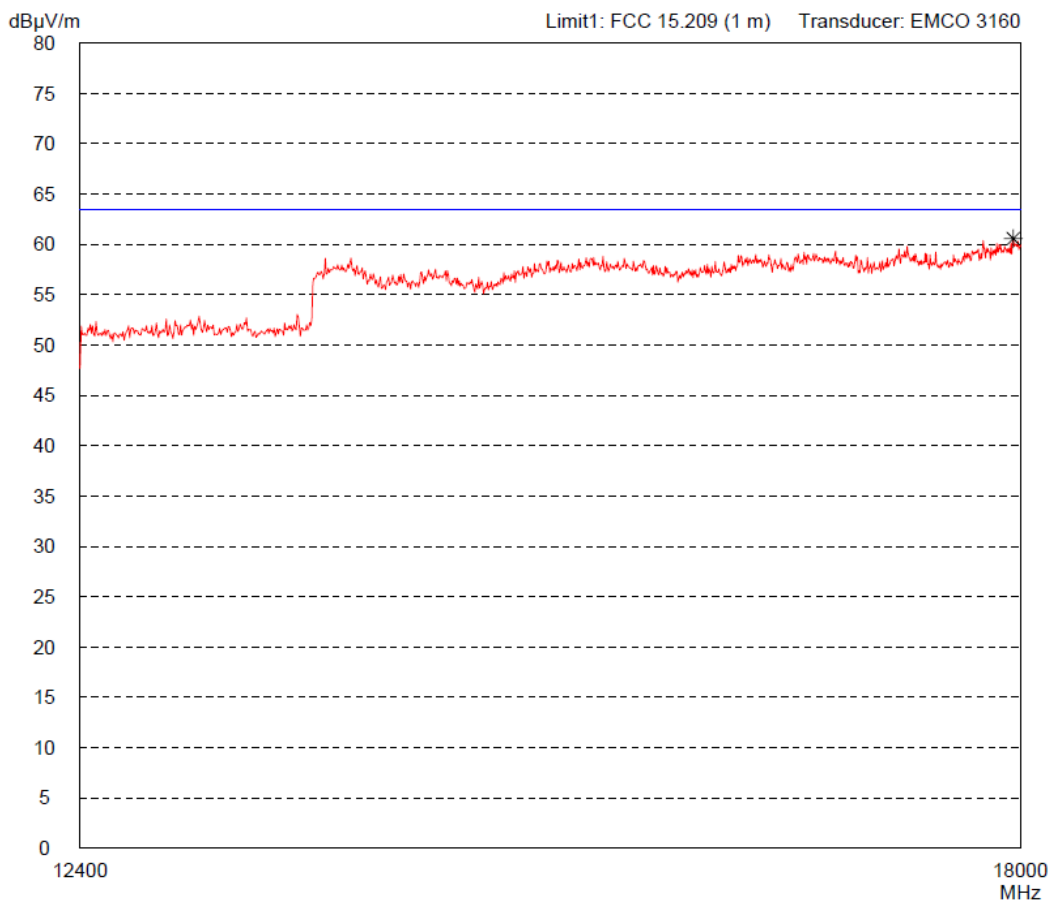
Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 11
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi
Detector: Peak	
List of values: Selected by hand	



Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------

Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 Subpart C (FAR)

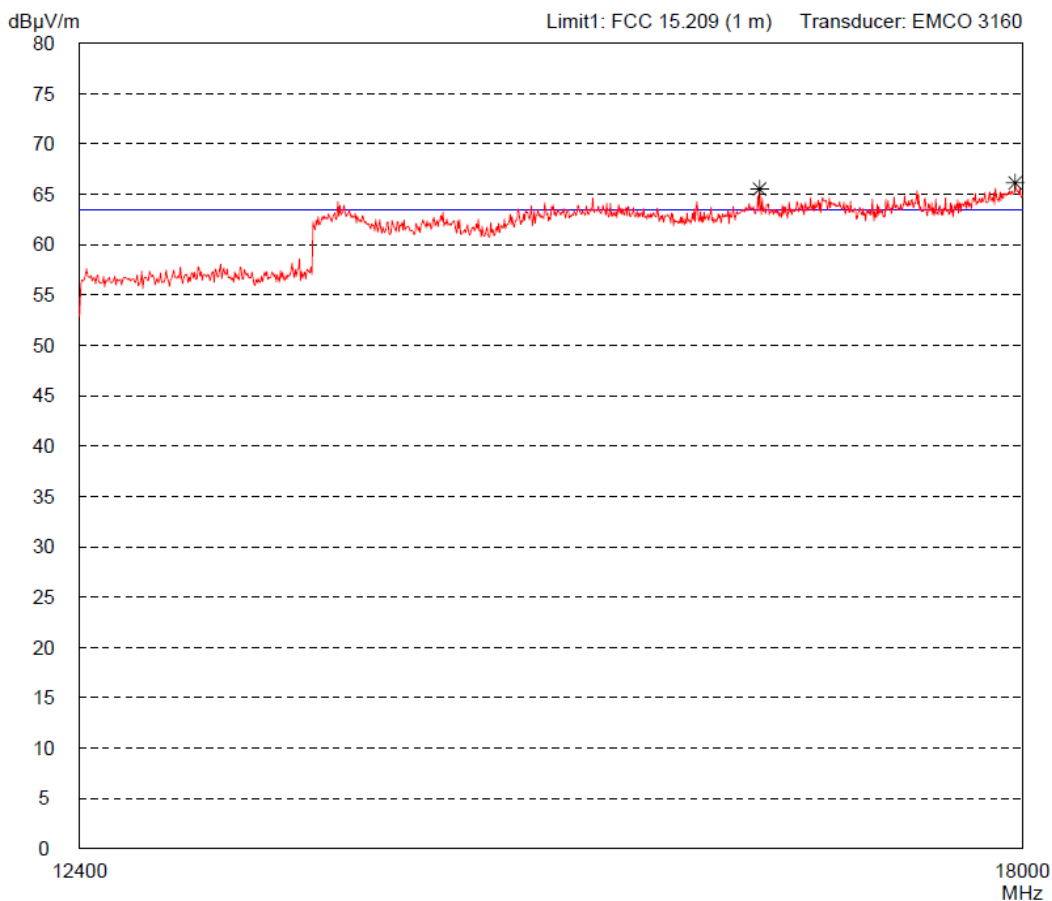
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Model: Antenna Line Configurator - WLAN-Modul</td> </tr> <tr> <td colspan="2">Serial no.: ---</td> </tr> <tr> <td colspan="2">Applicant: KATHREIN Werke KG</td> </tr> <tr> <td colspan="2">Test site: Fully anechoic room, cabin no. 2</td> </tr> <tr> <td colspan="2">Tested on: Test distance 1 meter Horizontal Polarization, VBW = 100 kHz</td> </tr> <tr> <td>Date of test: 06/11/2012</td> <td>Operator: M. Steindl</td> </tr> <tr> <td>Test performed: automatically</td> <td>File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul		Serial no.: ---		Applicant: KATHREIN Werke KG		Test site: Fully anechoic room, cabin no. 2		Tested on: Test distance 1 meter Horizontal Polarization, VBW = 100 kHz		Date of test: 06/11/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Comment: - Battery supply - Transmitting continuously on channel 11</td> </tr> </table>	Comment: - Battery supply - Transmitting continuously on channel 11
Model: Antenna Line Configurator - WLAN-Modul																
Serial no.: ---																
Applicant: KATHREIN Werke KG																
Test site: Fully anechoic room, cabin no. 2																
Tested on: Test distance 1 meter Horizontal Polarization, VBW = 100 kHz																
Date of test: 06/11/2012	Operator: M. Steindl															
Test performed: automatically	File name: default.emi															
Comment: - Battery supply - Transmitting continuously on channel 11																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Detector: Peak</td> </tr> </table>	Detector: Peak	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>List of values: Selected by hand</td> </tr> </table>	List of values: Selected by hand													
Detector: Peak																
List of values: Selected by hand																



<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Result: Limit kept</td> </tr> </table>	Result: Limit kept	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Project file: 11297-04682</td> <td style="text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Result: Limit kept				
Project file: 11297-04682	Page of Pages			

Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 11
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi
Detector: Peak	
List of values: Selected by hand	

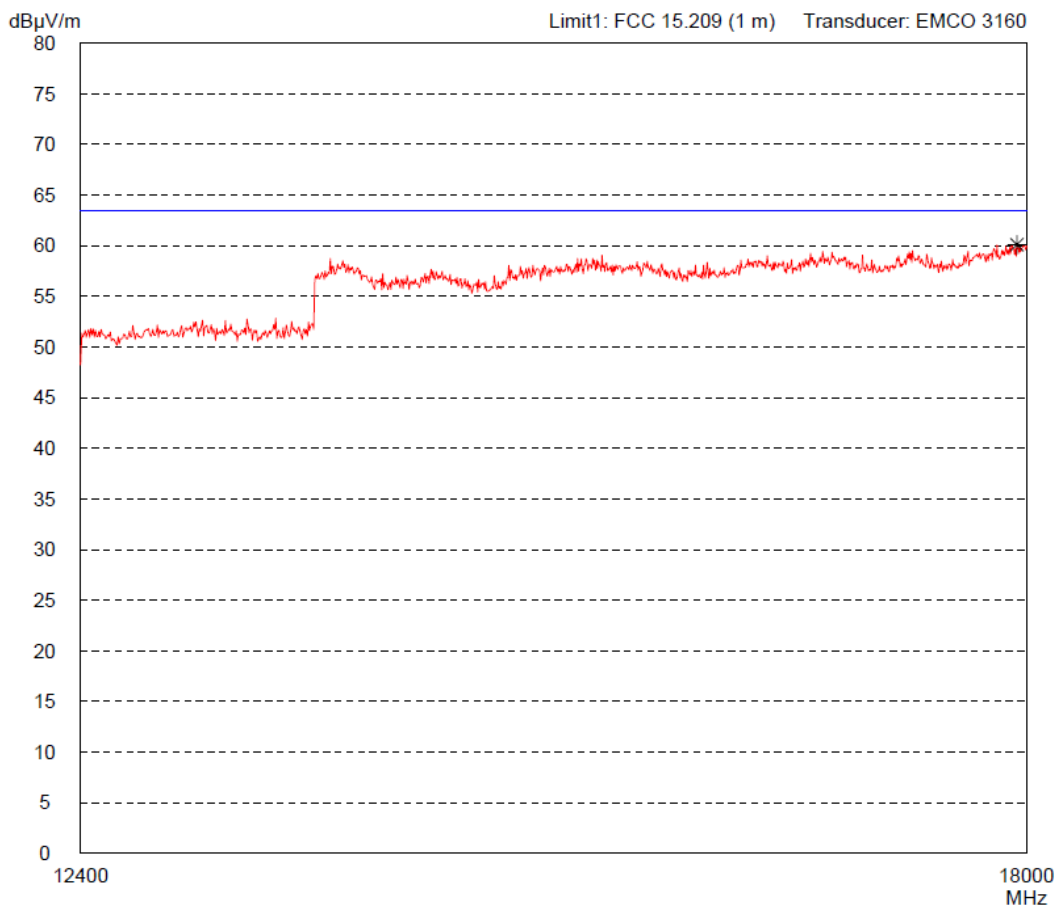


Result: Prescan	Project file: 11297-04682	Page of Pages
--------------------	------------------------------	---------------------

Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 Subpart C (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Transmitting continuously on channel 11
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization, VBW = 100 kHz	
Date of test: 06/11/2012 Operator: M. Steindl	
Test performed: automatically	File name: default.emi

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



Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	-------------------------

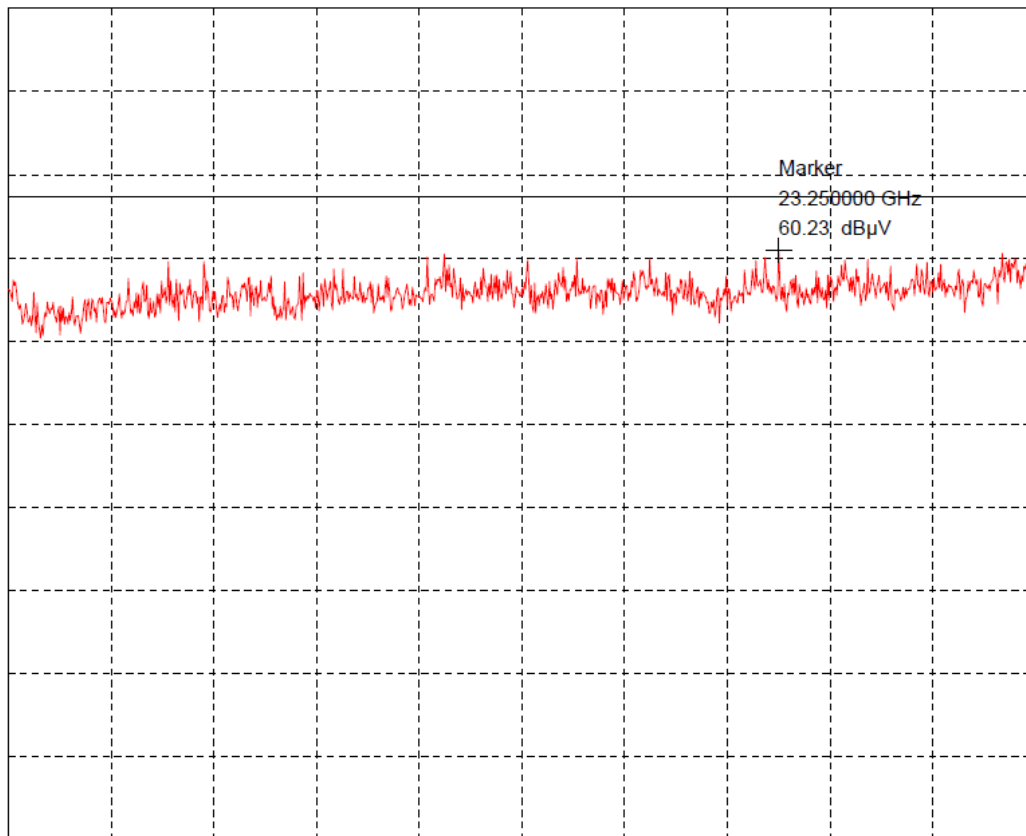
Radiated Emission Test acc. to FCC Part 15 Subpart C

Model: Antenna Line Configurator - WLAN-Module	Mode: - Battery supply
Serial No.: ---	- Transmitting continuously on channel 11
Applicant: KATHREIN Werke KG	- Test Distance: 1 m
	- Polarisation: Horizontal

Ref. Level 74.8 dBµV
 5 dB/Div.

ATT 0 dB

Ref. Offset 42.8 dB



Start 18.000 GHz
 RBW 1 MHz

VBW 1 MHz

Stop 25.000 GHz
 SWP 40 ms

Tested by: M. Steindl	Project-No.: 11297-04682
Date: 2012-06-12	Page of pages

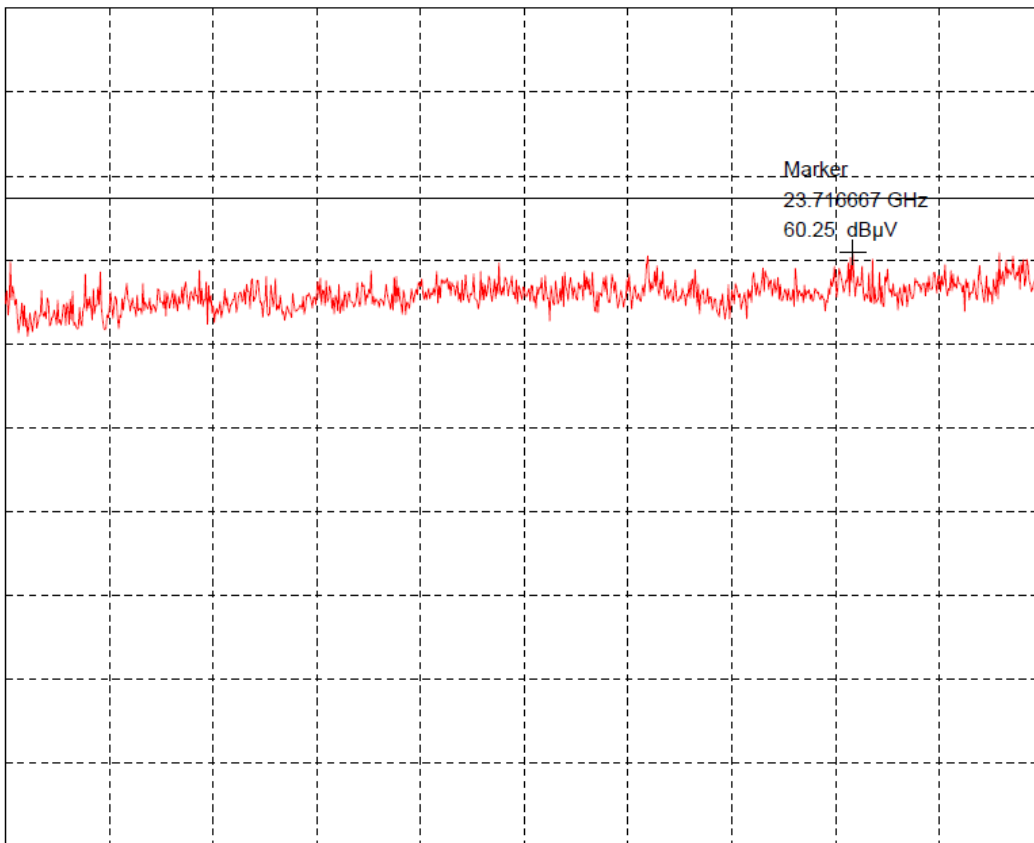
Radiated Emission Test acc. to FCC Part 15 Subpart C

Model: Antenna Line Configurator - WLAN-Module	Mode: - Battery supply
Serial No.: ---	- Transmitting continuously on channel 11
Applicant: KATHREIN Werke KG	- Test Distance: 1 m
	- Polarisation: Vertical

Ref.Level 74.8 dBµV
 5 dB/Div.

ATT 0 dB

Ref. Offset 42.8 dB



Start 18.000 GHz
 RBW 1 MHz

VBW 1 MHz

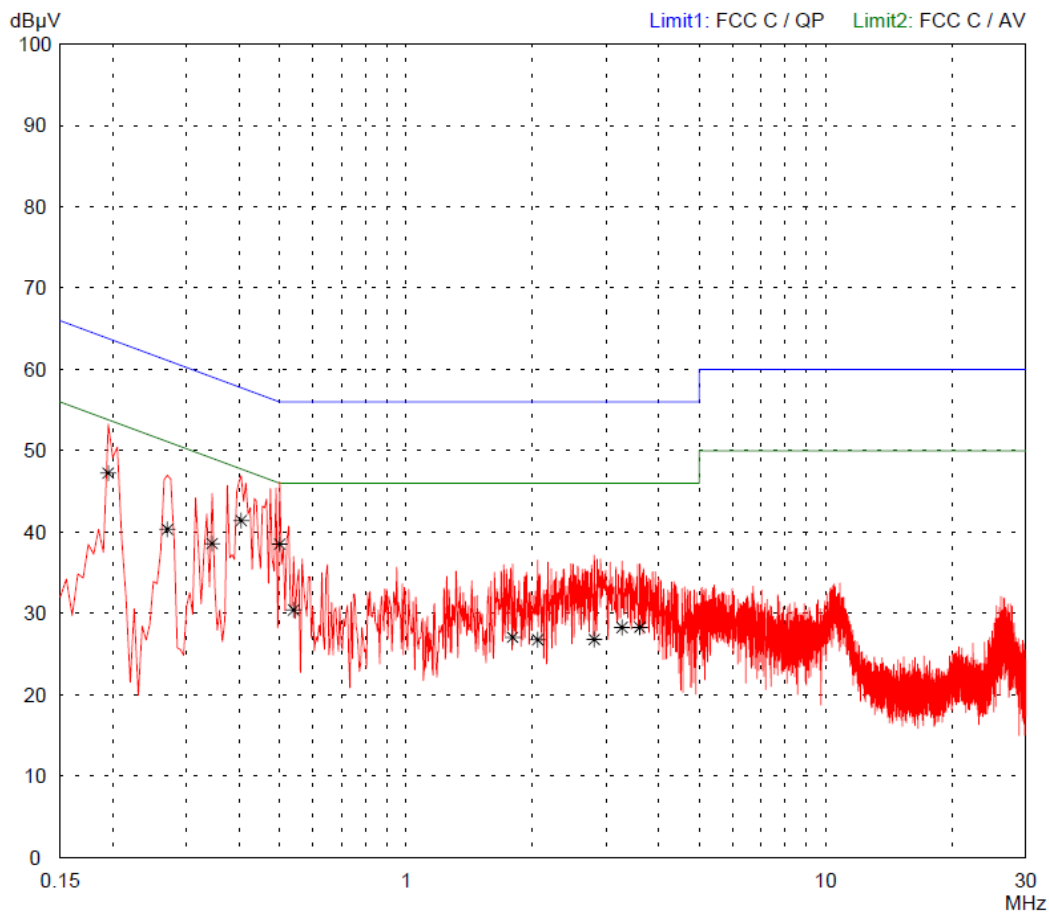
Stop 25.000 GHz
 SWP 40 ms

Tested by: M. Steindl	Project-No.: 11297-04682
Date: 2012-06-12	Page of pages

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

Model: Antenna Line Configurator - WLAN Module	Mode: - With AC/DC adapter - Charging - Receiving mode
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord AC 115 V Phase L1	
Date of test: 06/11/2012	
Operator: M. Steindl	
Test performed: semi automatically	
File name: ---	

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

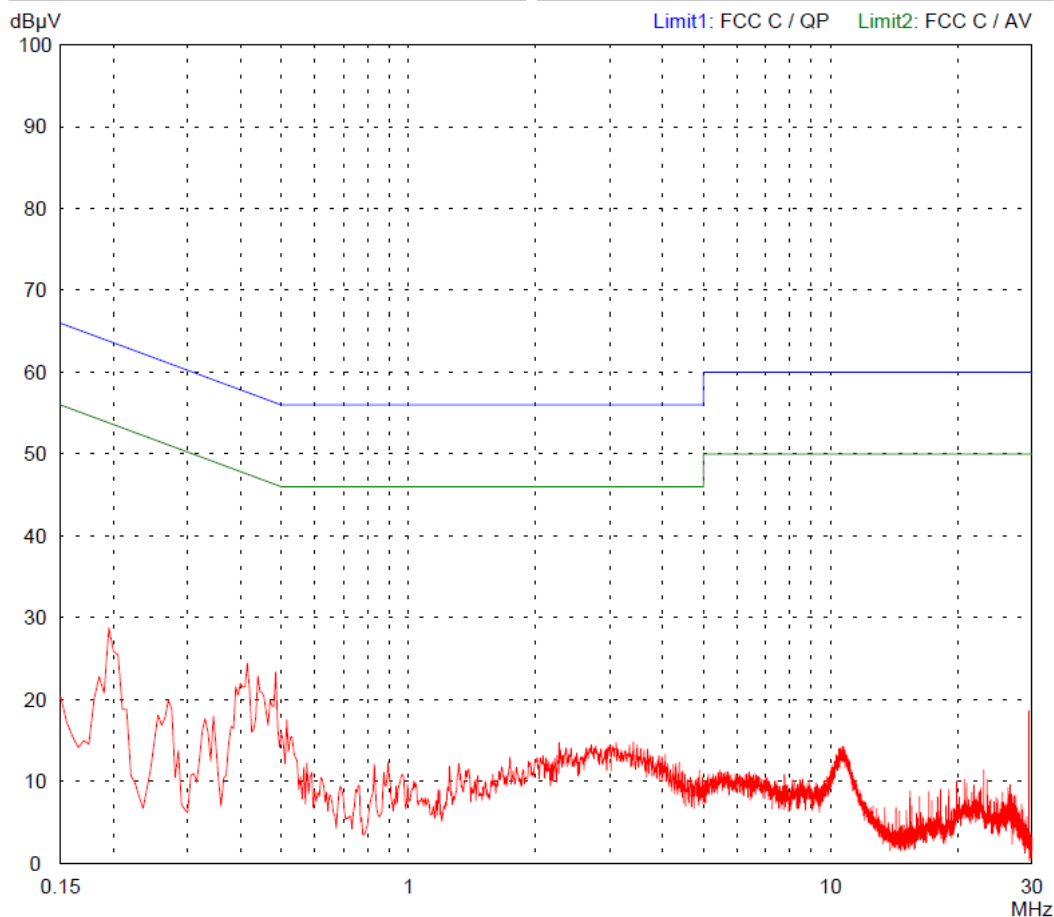


Result: Limit kept	Project file: 11297-04682	Page of Pages
------------------------------	-------------------------------------	---------------

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

Model: Antenna Line Configurator - WLAN Module	Mode: - With AC/DC adapter - Charging - Receiving mode
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord AC 115 V Phase L1	
Date of test: 06/11/2012	
Test performed: automatically	File name:

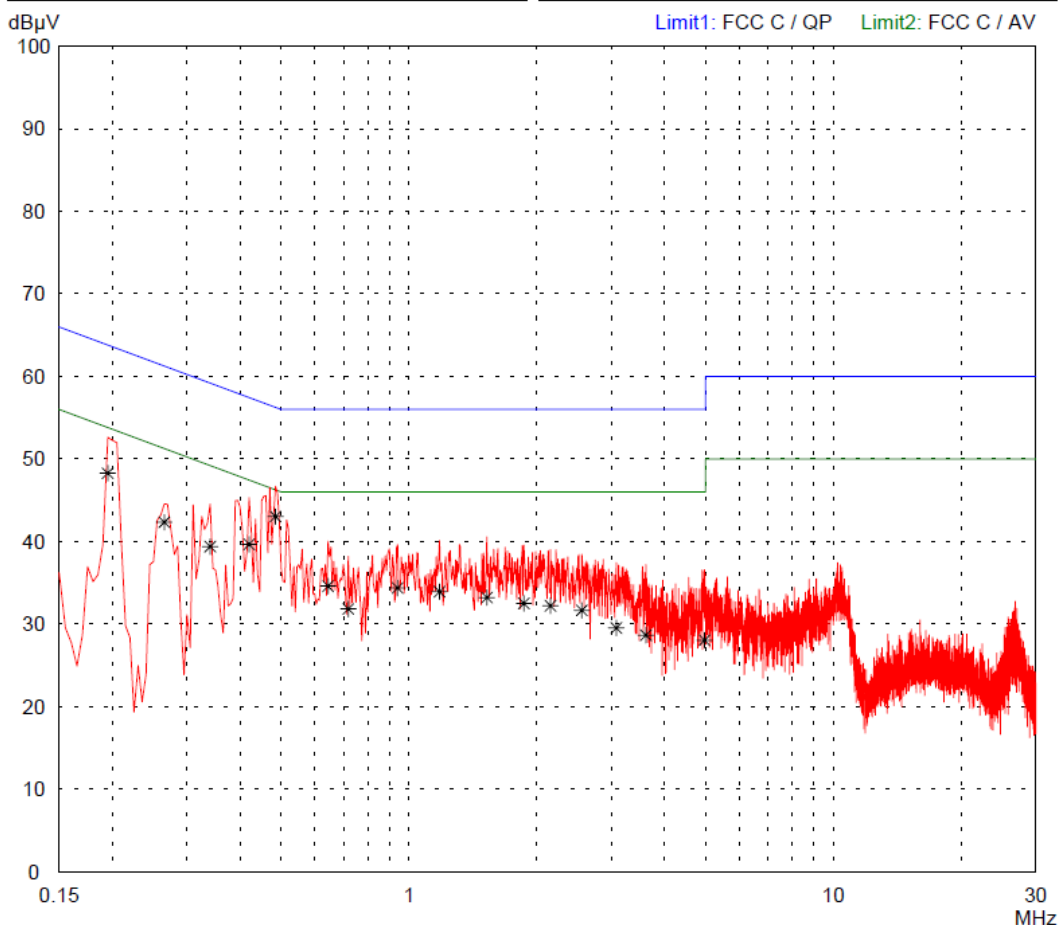
Detector: Average / Final Results: AV	Final results: 20 dB Margin	25 Subranges
--	--------------------------------	--------------



Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	---------------

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

Model: Antenna Line Configurator - WLAN Module		Mode: - With AC/DC adapter - Charging - Receiving mode
Serial no.: ---		
Applicant: KATHREIN Werke KG		
Test site: Shielded room, cabin no. 4		
Tested on: Linecord AC 115 V Phase N		
Date of test: 06/11/2012	Operator: M. Steindl	Final results: 20 dB Margin 25 Subranges
Test performed: semi automatically	File name:	
Detector: Peak / Final Results: QP		

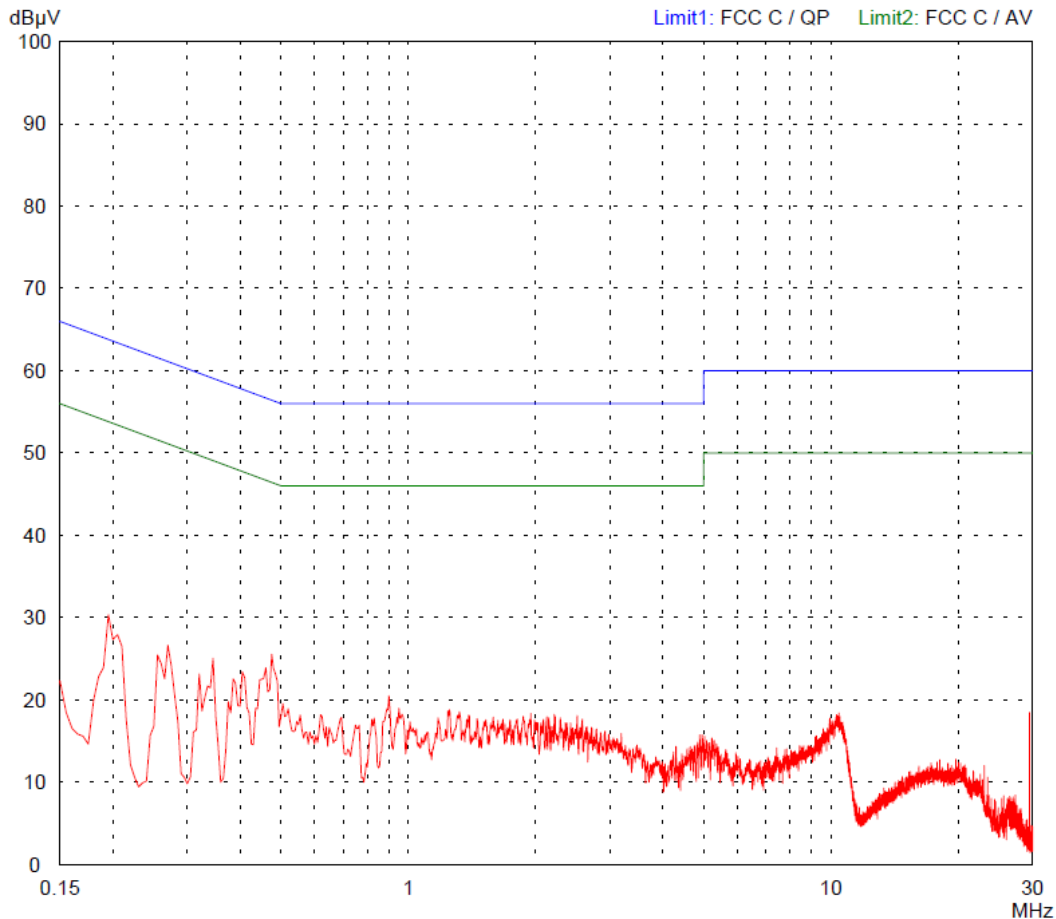


Result: Limit kept	Project file: 11297-04682	Page of Pages
------------------------------	-------------------------------------	---------------------

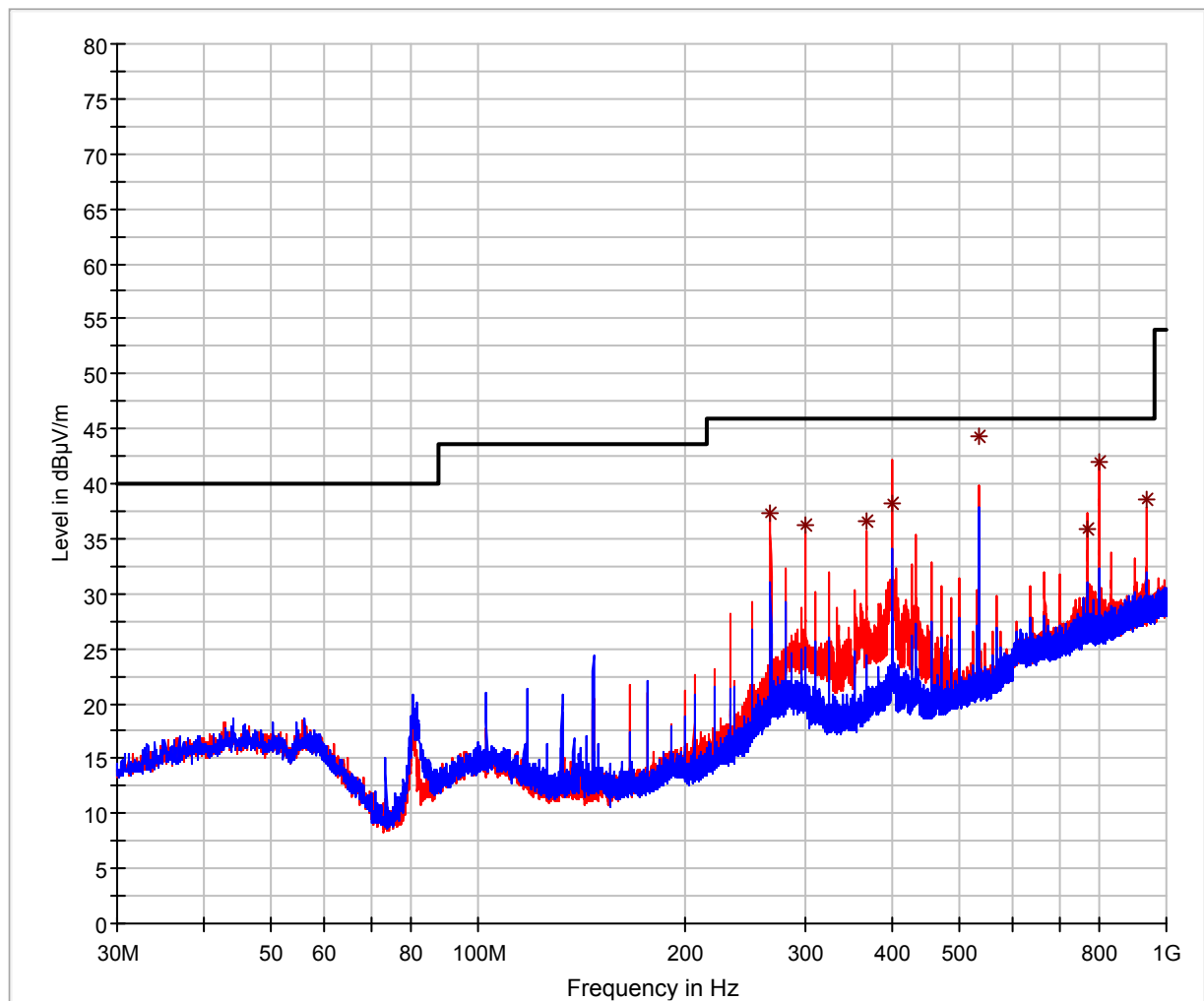
Conducted Emission Test 150 kHz - 30 MHz according to FCC Part 15 Subpart C

Model: Antenna Line Configurator - WLAN Module	Mode: - With AC/DC adapter - Charging - Receiving mode
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord AC 115 V Phase N	
Date of test: 06/11/2012	Operator: M. Steindl
Test performed: automatically	File name:

Detector: Average / Final Results: AV	Final results: 20 dB Margin 25 Subranges
--	--



Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	---------------

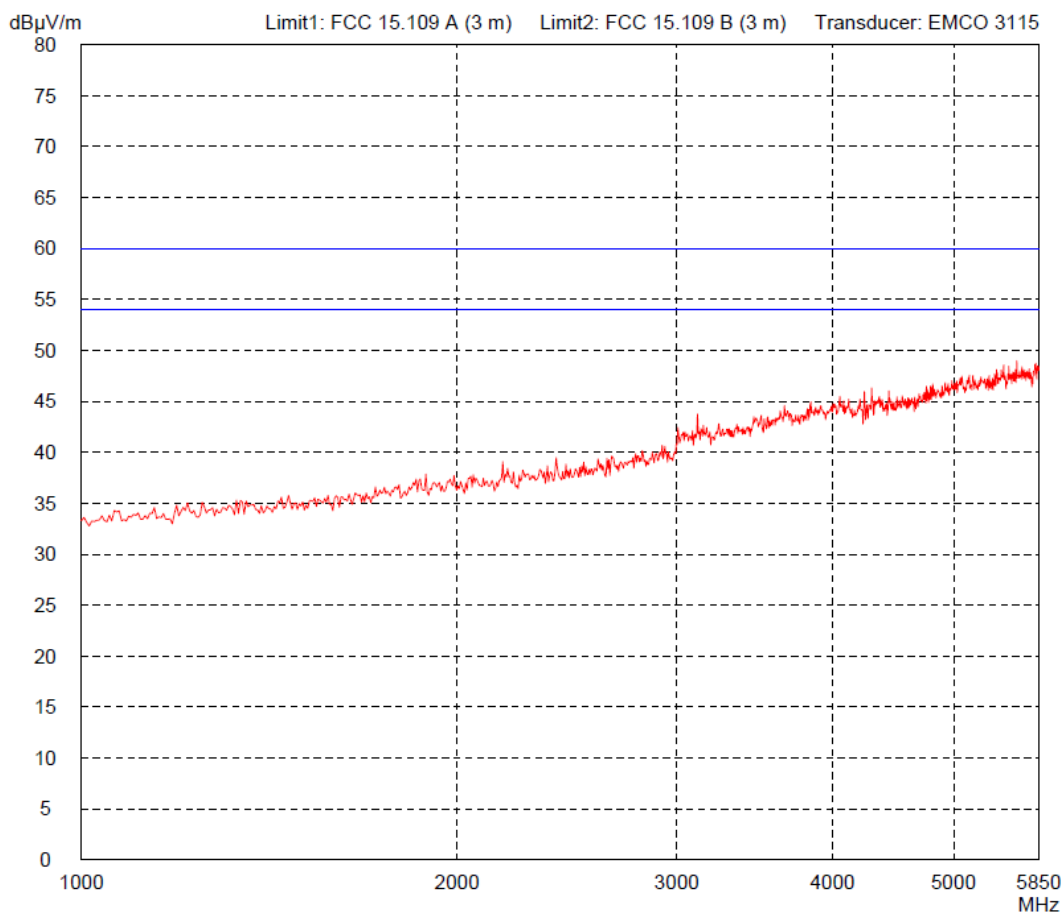


— FCC 15.109 Class B
 — Preview Result 1V-PK+
 — Preview Result 1H-PK+
 * Final Result 1-QPK

Radiated Emissions 30 MHz – 1 GHz
 Receiving mode

Radiated Emission Test 1 GHz - 5.85 GHz acc. to FCC Part 15 Subpart B (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Receiving mode
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 06/06/2012	Operator: M. Steindl
Test performed: automatically	File name: default.emi
Detector: Peak	
List of values: Selected by hand	

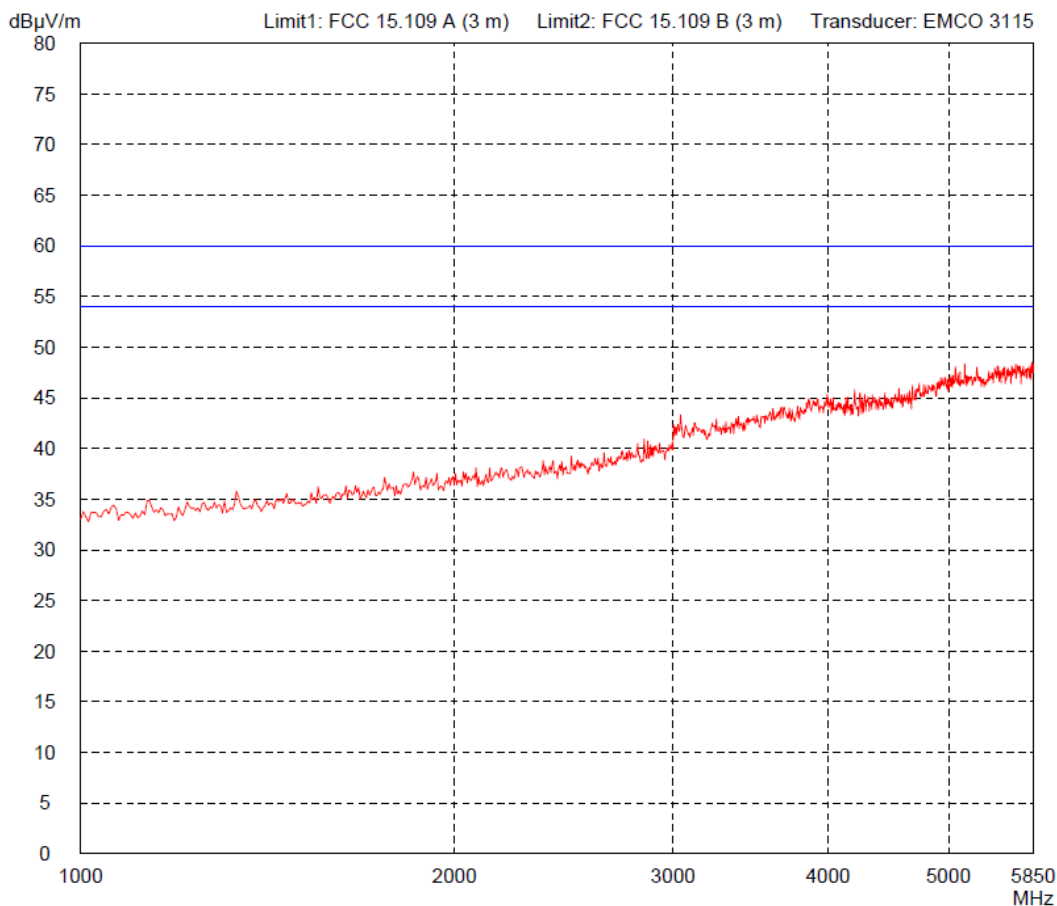


Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	---------------

Radiated Emission Test 1 GHz - 5.85 GHz acc. to FCC Part 15 Subpart B (FAR)

Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Receiving mode
Serial no.: ---	
Applicant: KATHREIN Werke KG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 06/06/2012	
Test performed: automatically	File name: default.emi

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

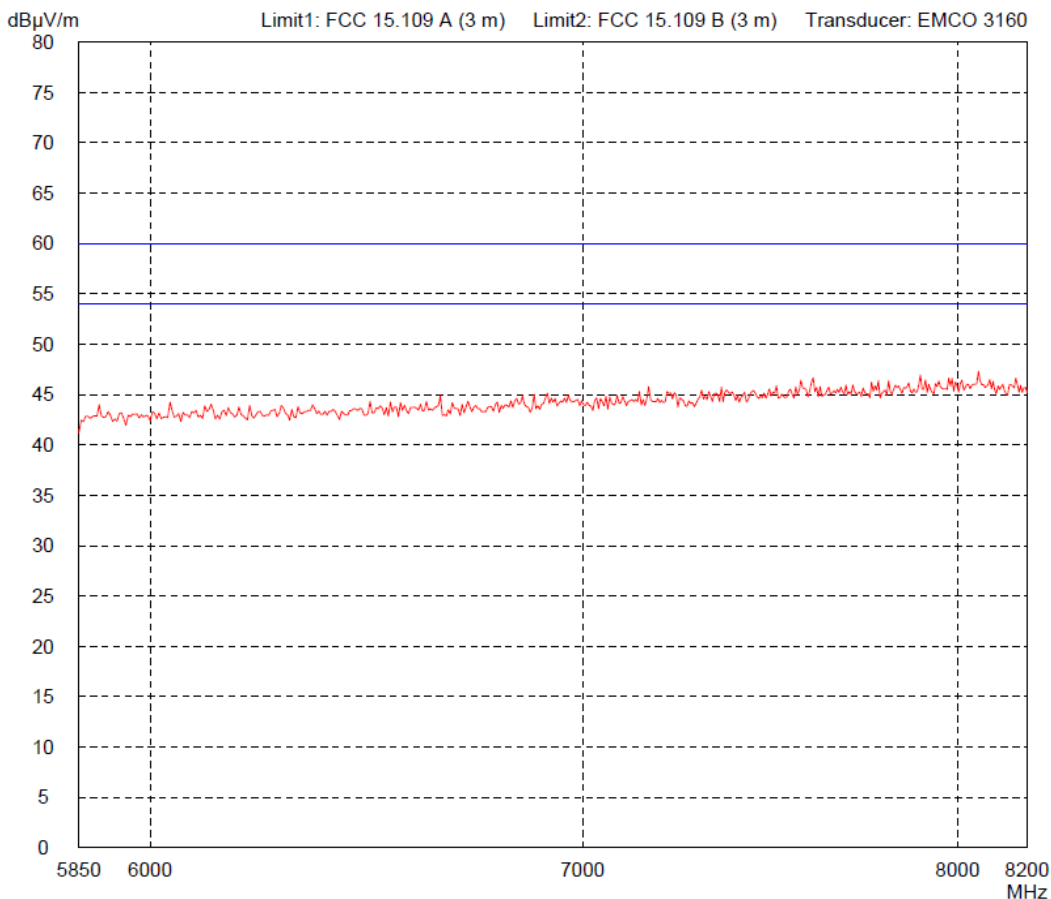


Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	---------------

Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 Subpart B (FAR)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Model: Antenna Line Configurator - WLAN-Modul</td></tr> <tr><td style="padding: 2px;">Serial no.: ---</td></tr> <tr><td style="padding: 2px;">Applicant: KATHREIN Werke KG</td></tr> <tr><td style="padding: 2px;">Test site: Fully anechoic room, cabin no. 2</td></tr> <tr><td style="padding: 2px;">Tested on: Test distance 3 metres Horizontal Polarization</td></tr> <tr> <td style="padding: 2px; width: 50%;">Date of test: 06/06/2012</td> <td style="padding: 2px; width: 50%;">Operator: M. Steindl</td> </tr> <tr> <td style="padding: 2px;">Test performed: automatically</td> <td style="padding: 2px;">File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul	Serial no.: ---	Applicant: KATHREIN Werke KG	Test site: Fully anechoic room, cabin no. 2	Tested on: Test distance 3 metres Horizontal Polarization	Date of test: 06/06/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	Comment: - Battery supply - Receiving mode
Model: Antenna Line Configurator - WLAN-Modul										
Serial no.: ---										
Applicant: KATHREIN Werke KG										
Test site: Fully anechoic room, cabin no. 2										
Tested on: Test distance 3 metres Horizontal Polarization										
Date of test: 06/06/2012	Operator: M. Steindl									
Test performed: automatically	File name: default.emi									

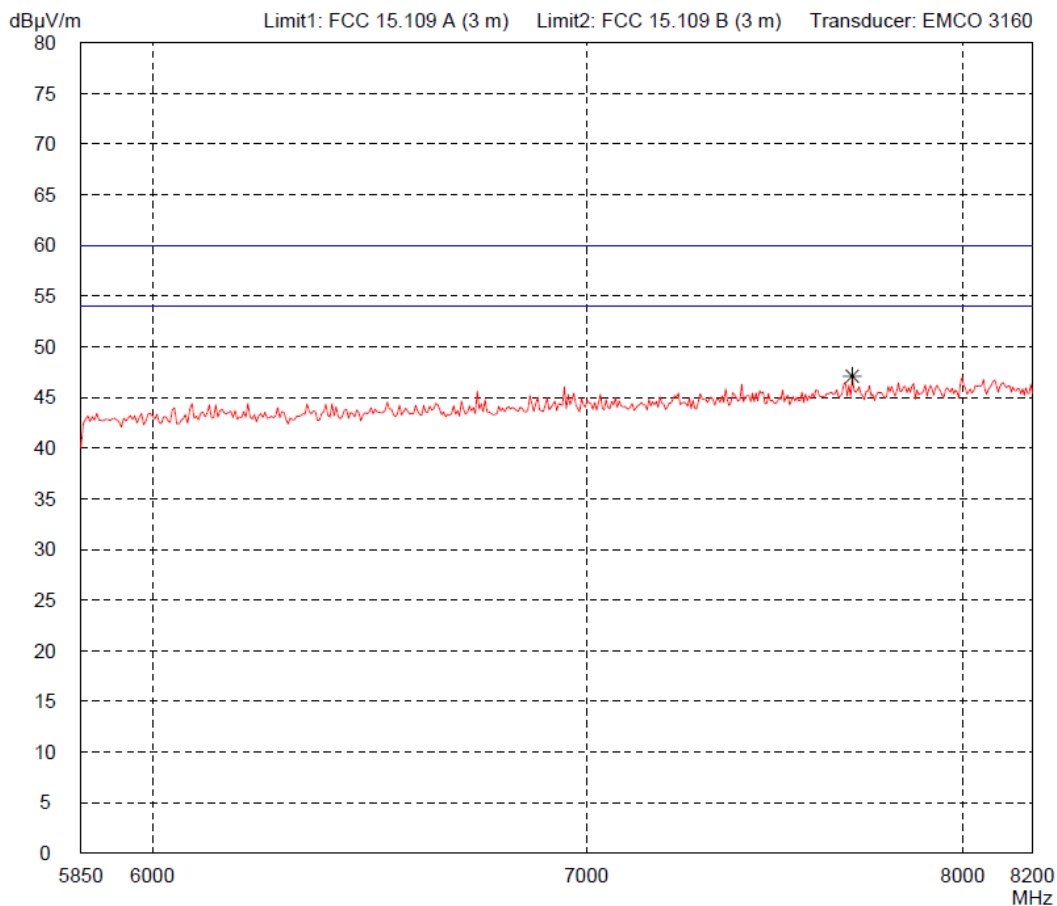
Detector: Peak	List of values: Selected by hand
-------------------	-------------------------------------



Result: Limit kept	<table style="width: 100%;"> <tr> <td>Project file: 11297-04682</td> <td style="text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Project file: 11297-04682	Page of Pages		

Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 Subpart B (FAR)

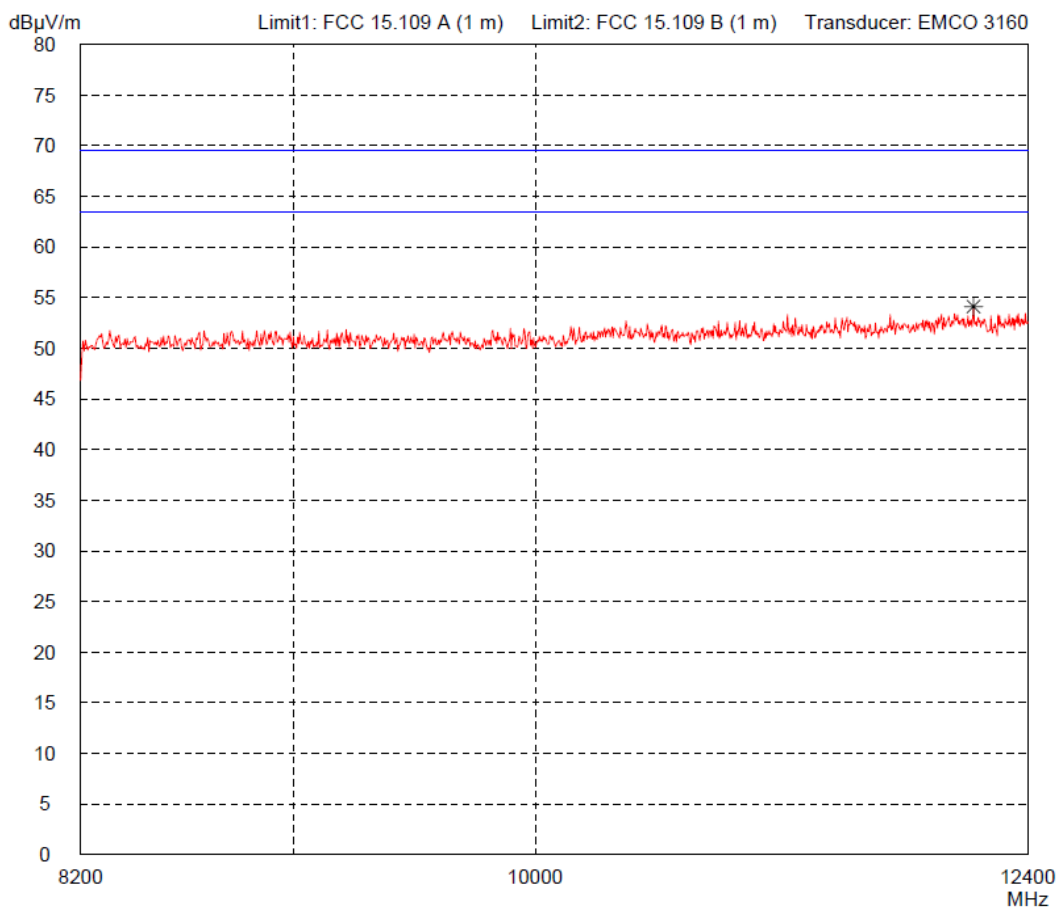
Model: Antenna Line Configurator - WLAN-Modul	Comment: - Battery supply - Receiving mode	
Serial no.: ---		
Applicant: KATHREIN Werke KG		
Test site: Fully anechoic room, cabin no. 2		
Tested on: Test distance 3 metres Vertical Polarization		
Date of test: 06/06/2012		Operator: M. Steindl
Test performed: automatically	File name: default.emi	
Detector: Peak		List of values: Selected by hand



Result: Limit kept	Project file: 11297-04682	Page of Pages
-----------------------	------------------------------	---------------

Radiated Emission Test 8.2 GHz - 12.4 GHz acc. to FCC Part 15 Subpart B (FAR)

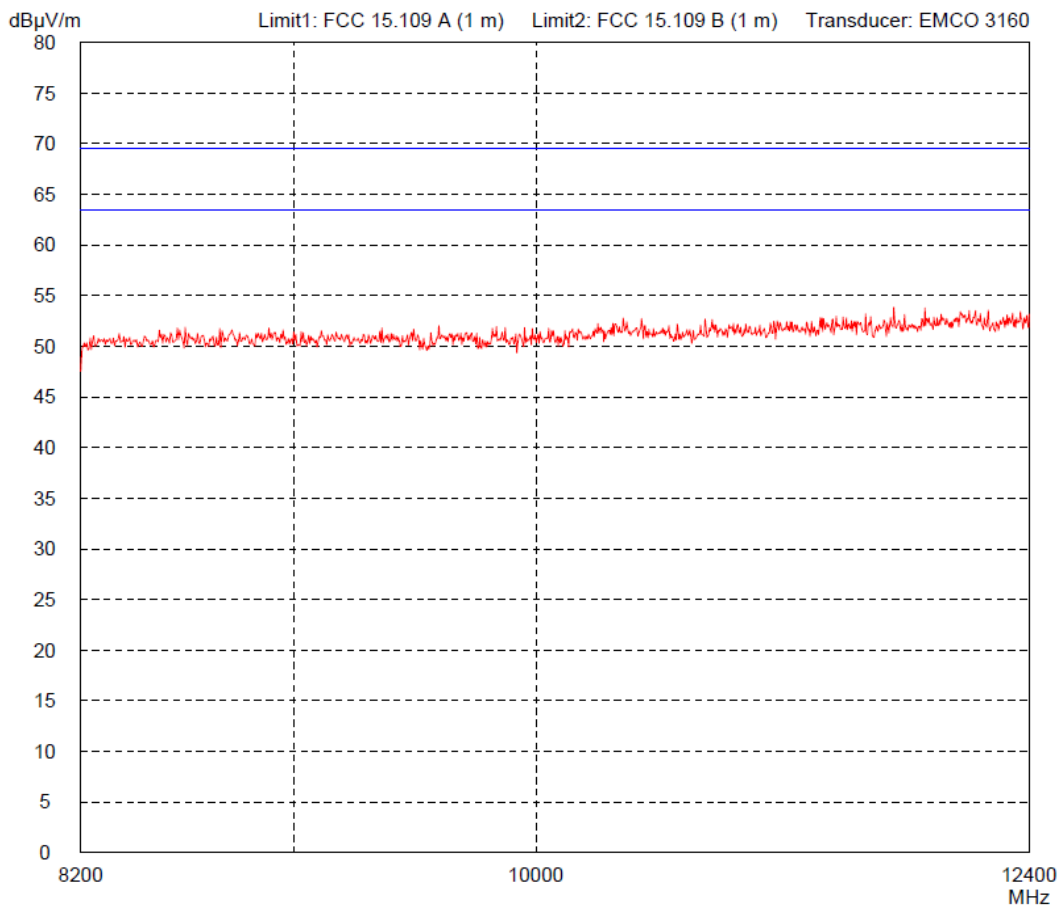
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Model: Antenna Line Configurator - WLAN-Modul</td> </tr> <tr> <td colspan="2">Serial no.: ---</td> </tr> <tr> <td colspan="2">Applicant: KATHREIN Werke KG</td> </tr> <tr> <td colspan="2">Test site: Fully anechoic room, cabin no. 2</td> </tr> <tr> <td colspan="2">Tested on: Test distance 1 meter Horizontal Polarization</td> </tr> <tr> <td>Date of test: 06/06/2012</td> <td>Operator: M. Steindl</td> </tr> <tr> <td>Test performed: automatically</td> <td>File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul		Serial no.: ---		Applicant: KATHREIN Werke KG		Test site: Fully anechoic room, cabin no. 2		Tested on: Test distance 1 meter Horizontal Polarization		Date of test: 06/06/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Comment: - Battery supply - Receiving mode</td> </tr> </table>	Comment: - Battery supply - Receiving mode	
Model: Antenna Line Configurator - WLAN-Modul																	
Serial no.: ---																	
Applicant: KATHREIN Werke KG																	
Test site: Fully anechoic room, cabin no. 2																	
Tested on: Test distance 1 meter Horizontal Polarization																	
Date of test: 06/06/2012	Operator: M. Steindl																
Test performed: automatically	File name: default.emi																
Comment: - Battery supply - Receiving mode																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Detector: Peak</td> </tr> </table>	Detector: Peak	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>List of values: 10 dB Margin 50 Subranges</td> </tr> </table>	List of values: 10 dB Margin 50 Subranges														
Detector: Peak																	
List of values: 10 dB Margin 50 Subranges																	



<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Result: Limit kept</td> </tr> </table>	Result: Limit kept	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Project file: 11297-04682</td> <td style="text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Result: Limit kept				
Project file: 11297-04682	Page of Pages			

Radiated Emission Test 8.2 GHz - 12.4 GHz acc. to FCC Part 15 Subpart B (FAR)

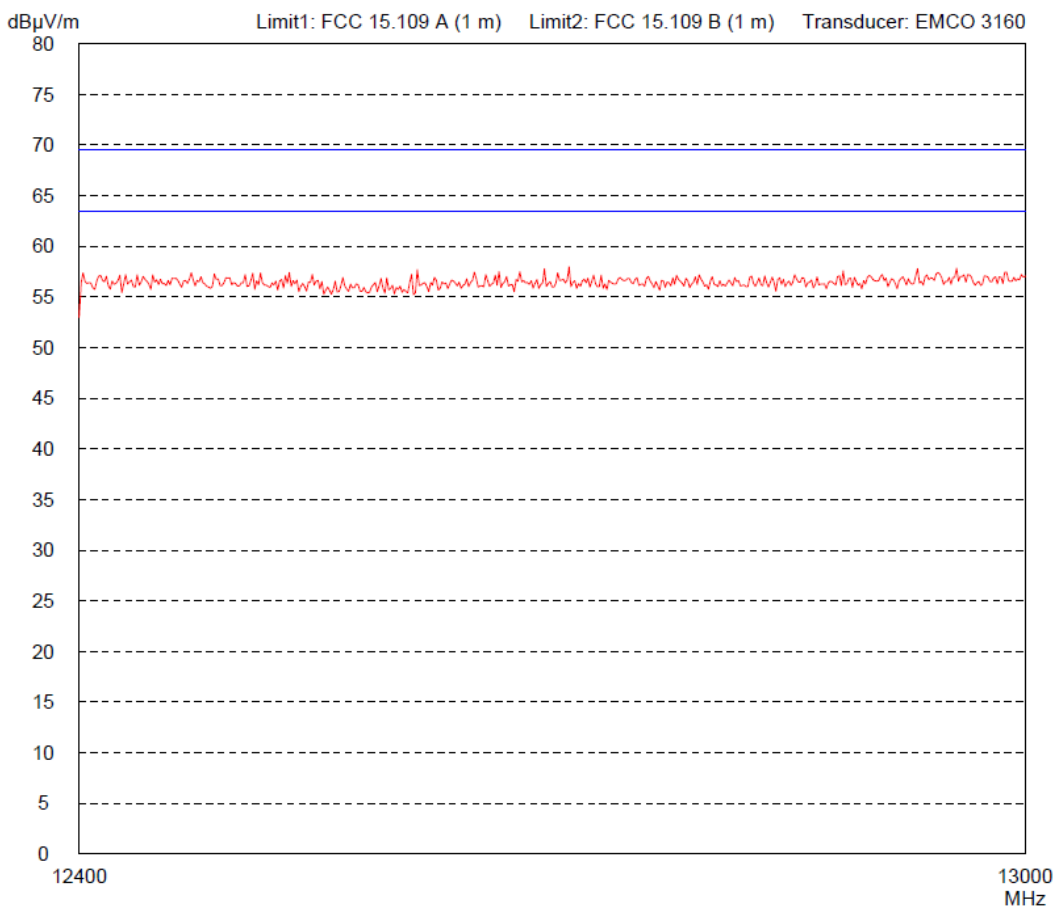
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Model: Antenna Line Configurator - WLAN-Modul</td></tr> <tr><td style="padding: 2px;">Serial no.: ---</td></tr> <tr><td style="padding: 2px;">Applicant: KATHREIN Werke KG</td></tr> <tr><td style="padding: 2px;">Test site: Fully anechoic room, cabin no. 2</td></tr> <tr><td style="padding: 2px;">Tested on: Test distance 1 meter Vertical Polarization</td></tr> <tr> <td style="padding: 2px; width: 50%;">Date of test: 06/06/2012</td> <td style="padding: 2px; width: 50%;">Operator: M. Steindl</td> </tr> <tr> <td style="padding: 2px;">Test performed: automatically</td> <td style="padding: 2px;">File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul	Serial no.: ---	Applicant: KATHREIN Werke KG	Test site: Fully anechoic room, cabin no. 2	Tested on: Test distance 1 meter Vertical Polarization	Date of test: 06/06/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Comment: - Battery supply - Receiving mode</td></tr> </table>	Comment: - Battery supply - Receiving mode
Model: Antenna Line Configurator - WLAN-Modul											
Serial no.: ---											
Applicant: KATHREIN Werke KG											
Test site: Fully anechoic room, cabin no. 2											
Tested on: Test distance 1 meter Vertical Polarization											
Date of test: 06/06/2012	Operator: M. Steindl										
Test performed: automatically	File name: default.emi										
Comment: - Battery supply - Receiving mode											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Detector: Peak</td></tr> </table>	Detector: Peak	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">List of values: Selected by hand</td></tr> </table>	List of values: Selected by hand								
Detector: Peak											
List of values: Selected by hand											



<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="padding: 2px;">Result: Limit kept</td></tr> </table>	Result: Limit kept	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Project file: 11297-04682</td> <td style="padding: 2px; text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Result: Limit kept				
Project file: 11297-04682	Page of Pages			

Radiated Emission Test 12.4 GHz - 13 GHz acc. to FCC Part 15 Subpart B (FAR)

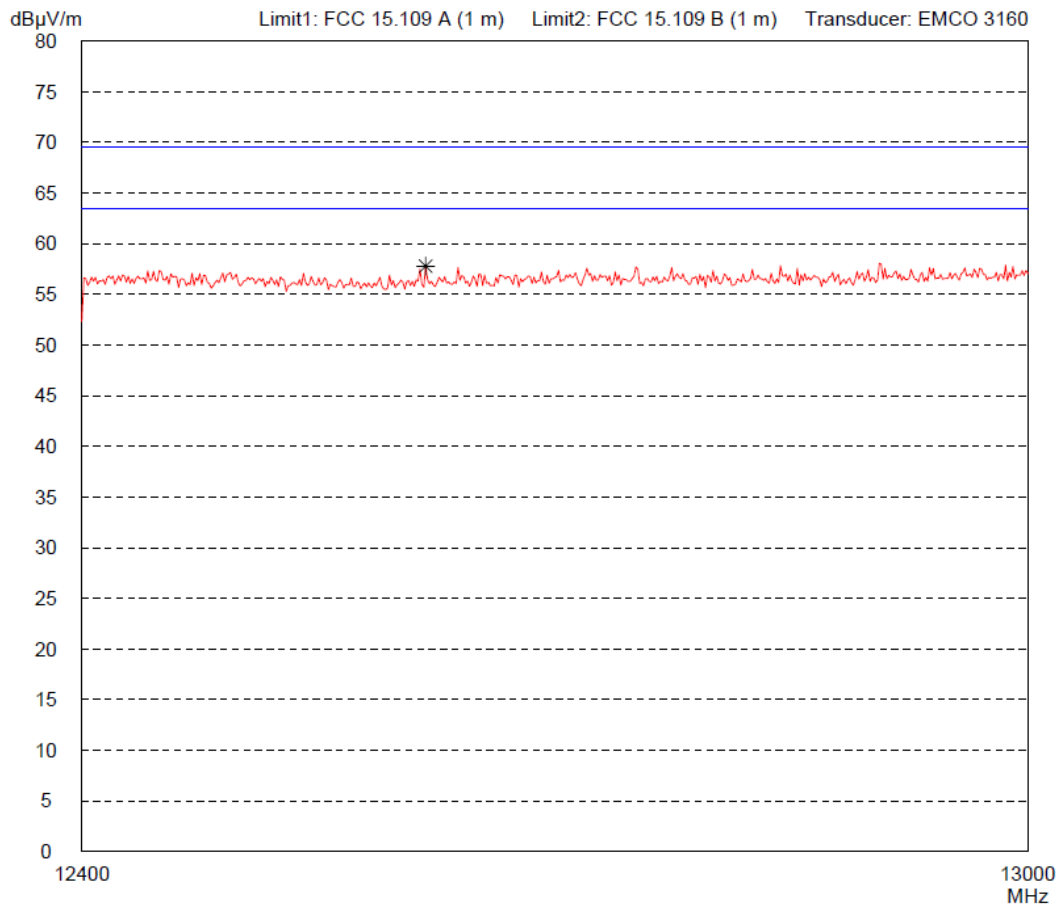
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Model: Antenna Line Configurator - WLAN-Modul</td> </tr> <tr> <td colspan="2">Serial no.: ---</td> </tr> <tr> <td colspan="2">Applicant: KATHREIN Werke KG</td> </tr> <tr> <td colspan="2">Test site: Fully anechoic room, cabin no. 2</td> </tr> <tr> <td colspan="2">Tested on: Test distance 1 meter Horizontal Polarization</td> </tr> <tr> <td>Date of test: 06/06/2012</td> <td>Operator: M. Steindl</td> </tr> <tr> <td>Test performed: automatically</td> <td>File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul		Serial no.: ---		Applicant: KATHREIN Werke KG		Test site: Fully anechoic room, cabin no. 2		Tested on: Test distance 1 meter Horizontal Polarization		Date of test: 06/06/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Comment: - Battery supply - Receiving mode</td> </tr> </table>	Comment: - Battery supply - Receiving mode
Model: Antenna Line Configurator - WLAN-Modul																
Serial no.: ---																
Applicant: KATHREIN Werke KG																
Test site: Fully anechoic room, cabin no. 2																
Tested on: Test distance 1 meter Horizontal Polarization																
Date of test: 06/06/2012	Operator: M. Steindl															
Test performed: automatically	File name: default.emi															
Comment: - Battery supply - Receiving mode																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Detector: Peak</td> </tr> </table>	Detector: Peak	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>List of values: Selected by hand</td> </tr> </table>	List of values: Selected by hand													
Detector: Peak																
List of values: Selected by hand																



<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Result: Limit kept</td> </tr> </table>	Result: Limit kept	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Project file: 11297-04682</td> <td style="text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Result: Limit kept				
Project file: 11297-04682	Page of Pages			

Radiated Emission Test 12.4 GHz - 13 GHz acc. to FCC Part 15 Subpart B (FAR)

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Model: Antenna Line Configurator - WLAN-Modul</td> </tr> <tr> <td colspan="2">Serial no.: ---</td> </tr> <tr> <td colspan="2">Applicant: KATHREIN Werke KG</td> </tr> <tr> <td colspan="2">Test site: Fully anechoic room, cabin no. 2</td> </tr> <tr> <td colspan="2">Tested on: Test distance 1 meter Vertical Polarization</td> </tr> <tr> <td>Date of test: 06/06/2012</td> <td>Operator: M. Steindl</td> </tr> <tr> <td>Test performed: automatically</td> <td>File name: default.emi</td> </tr> </table>	Model: Antenna Line Configurator - WLAN-Modul		Serial no.: ---		Applicant: KATHREIN Werke KG		Test site: Fully anechoic room, cabin no. 2		Tested on: Test distance 1 meter Vertical Polarization		Date of test: 06/06/2012	Operator: M. Steindl	Test performed: automatically	File name: default.emi	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Comment: - Battery supply - Receiving mode</td> </tr> </table>	Comment: - Battery supply - Receiving mode
Model: Antenna Line Configurator - WLAN-Modul																
Serial no.: ---																
Applicant: KATHREIN Werke KG																
Test site: Fully anechoic room, cabin no. 2																
Tested on: Test distance 1 meter Vertical Polarization																
Date of test: 06/06/2012	Operator: M. Steindl															
Test performed: automatically	File name: default.emi															
Comment: - Battery supply - Receiving mode																
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Detector: Peak</td> </tr> </table>	Detector: Peak	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>List of values: Selected by hand</td> </tr> </table>	List of values: Selected by hand													
Detector: Peak																
List of values: Selected by hand																



<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Result: Limit kept</td> </tr> </table>	Result: Limit kept	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Project file: 11297-04682</td> <td style="text-align: right;">Page of Pages</td> </tr> </table>	Project file: 11297-04682	Page of Pages
Result: Limit kept				
Project file: 11297-04682	Page of Pages			