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July 13, 2009

Prüfbericht / *Test Report* Nr. / *No.* 69860-00094-5 (Edition 3)

Applicant:	IDENTEC SOLUTIONS Deutschland GmbH
Type of equipment:	UHF Transponder Reader
Type designation:	i-Port F310
Order No.:	1930117
Test standards:	FCC Code of Federal Regulations, CFR 47, Part 15, Sections 15.107, 15.109, 15.205, 15.207, 15.215,15.231 and 15.240 Industry Canada Radio Standards Specifications RSS-Gen Issue 2, Sections 7.2.2, 7.2.3 and RSS-210 Issue 7, Sections 2.2, A1.1 and A5 (Category I Equipment)

Table of Contents

1 Description of the Equipment Under Test (EUT)

General data of EUT	
Type designation[1]:	i-Port F310
Parts[2]:	
Serial number(s):	384369
Manufacturer:	IDENTEC SOLUTIONS Deutschland GmbH
Type of equipment:	UHF Transponder Reader
Version:	As received
FCC ID:	---
Additional parts/accessories:	

Technical data of EUT		
Application frequency range:	433.5 - 434.5 MHz	
Frequency range:	433.92 MHz	
Operating frequency:	433.92 MHz	
Type of modulation:	FSK	
Pulse train:	Not applicable	
Pulse width:	Not applicable	
Number of RF-channels:	1	
Channel spacing:	---	
Designation of emissions[3]:	248kF1D	
Type of antenna:	Integrated	
Size/length of antenna:	17 cm	
Connection of antenna:	☐ detachable	☒ not detachable
Type of power supply:	AC supply	
Specifications for power supply:	nominal voltage:	110 V
	nominal frequency:	60 Hz

[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):	IDENTEC SOLUTIONS Deutschland GmbH Hertzstraße 10 69469 Weinheim Deutschland
Contact person:	Herr Hans-Günther Meuthen
Order number:	1930117
Receipt of EUT:	April 20, 2009
Date(s) of test:	April - June 2009
Note(s):	Mr. Meuthen representing the applicant attended testings on April 20, 2009 and April 21, 2009

Report details	
Report number:	69860-00094-5
Edition:	3
Issue date:	July 13, 2009

3 Identification of the Test Laboratory

Details of the Test Laboratory	
Company name:	TÜV SÜD SENTON GmbH
Address:	Aeussere Fruehlingstrasse 45 D-94315 Straubing Germany
Laboratory accreditation:	DAR-Registration No. DAT-P-171/94-02
FCC test site registration number	90926
Industry Canada test site registration:	3050A-1
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, 15.205, 15.207, 15.215, 15.231(a)-(d) and 15.240** of the Federal Communication Commission (FCC) and the **Radio Standards Specifications** **RSS-Gen Issue 2, Sections 7.2.2, 7.2.3 and** **RSS-210 Issue 7, Sections 2.2, A1.1.1 to A1.1.4 and A5 (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 Modes
Full tests were performed in transmitting and receiving mode.

Configuration of EUT
The EUT was configured as software-triggered device. The TX power was set to -15dBm by software. The control software was installed on a laptop PC. All cables were attached. The EUT was operated with its internal AC/DC adapter and an external AC/DC adapter.

List of devices connected to EUT

Item	*Description*	*Type Designation*	*Serial no. or ID*	*Manufacturer*

List of support devices

Item	*Description*	*Type Designation*	*Serial no. or ID*	*Manufacturer*
1	Laptop PC	DELL dimension		DELL
2	AC / DC adapter	MPP 15 Compit		Inhome Products

List of ports and cables				
Port	*Description*	*Classification*[4]	*Cable type*	*Cable length*
1	AC supply of EUT	ac power	Unshielded	2.4 m
2	AC supply of AC/DC adapter	ac power	Unshielded	direct contact
3	DC supply of AC/DC adapter	dc power	Unshielded	1.5 m
4	RS485 / DC output	dc power signal/control port	Unshielded	2.9 m
5	RS485 / DC input	dc power signal/control port	Unshielded	2.9 m
6	RS232 / USB	signal/control port	Shielded	2.3 m
7	ETH 10/100	signal/control port	Shielded	2.8 m

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

6 Measurement Procedures

6.1 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 2, sections 4.6.1 and 4.6.2 IC RSS-210 Issue 7, section A1.1.3 ANSI C63.4, annex H.6
Guide:	ANSI C63.4 / IC RSS-Gen Issue 2, sections 4.6.1 and 4.6.2
Measurement setup:	☐ Conducted: See below ☒ Radiated: Radiated Emission in Fully or Semi Anechoic Room (6.4)

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).

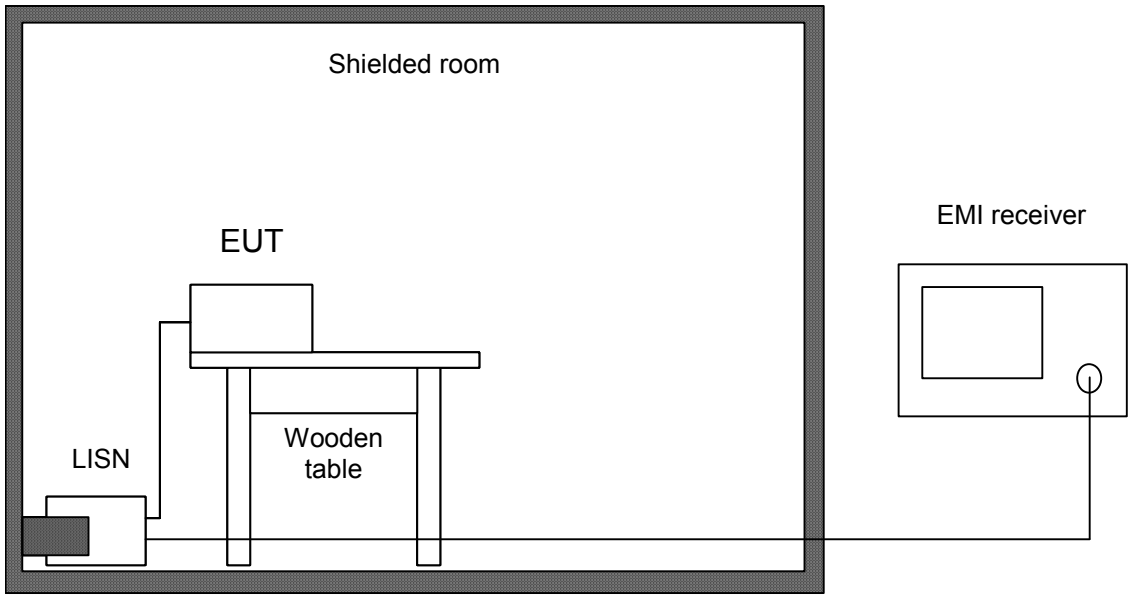
6.2 Conducted AC Powerline Emission

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.107 and 15.207 IC RSS-Gen Issue 2, section 7.2.2
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:

Used	Type	Model	Serial No. or ID	Manufacturer
☒	EMI receiver	ESHS 10	860043/016	Rohde & Schwarz
☒	LISN	ESH3-Z5	862770/021	Rohde & Schwarz
☐	LISN	ESH3-Z5	830952/025	Rohde & Schwarz
☐	Artificial mains network	ESH 2-Z5	842966/004	Rohde & Schwarz
☒	Shielded room	No. 1	1451	Albatross Projects
☐	Shielded room	No. 4	3FD-100 544	Euroshield

6.3 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 7, section A1.1.2(b)
Guide:	ANSI C63.4

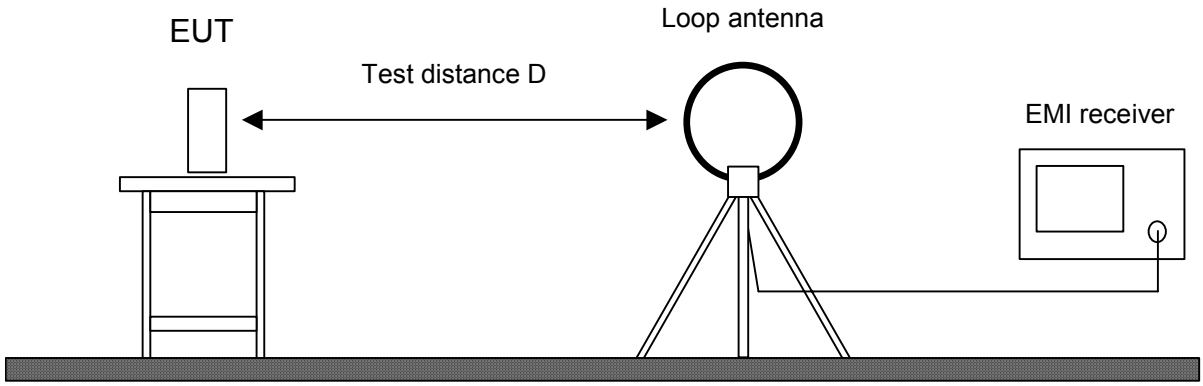
Radiated emission in the frequency range 9 kHz to 30 MHz is measured using an active loop antenna. First the whole spectrum of emission caused by the equipment is recorded at a distance of 3 meters in a fully or semi anechoic room with the detector of the spectrum analyzer or EMI receiver set to peak. 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:

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

6.4 Radiated Emission in Fully or Semi Anechoic Room

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.109, 15.215(b) and 15.231 IC RSS-Gen Issue 2, sections 6(a) and 7.2.3.2 IC RSS-210 Issue 7, section A1.1.2
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 in a fully anechoic room using a spectrum analyzer with the detector function set to peak and resolution as well as video bandwidth set to 100 kHz (below 1 GHz) or 1 MHz (above 1 GHz).

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.

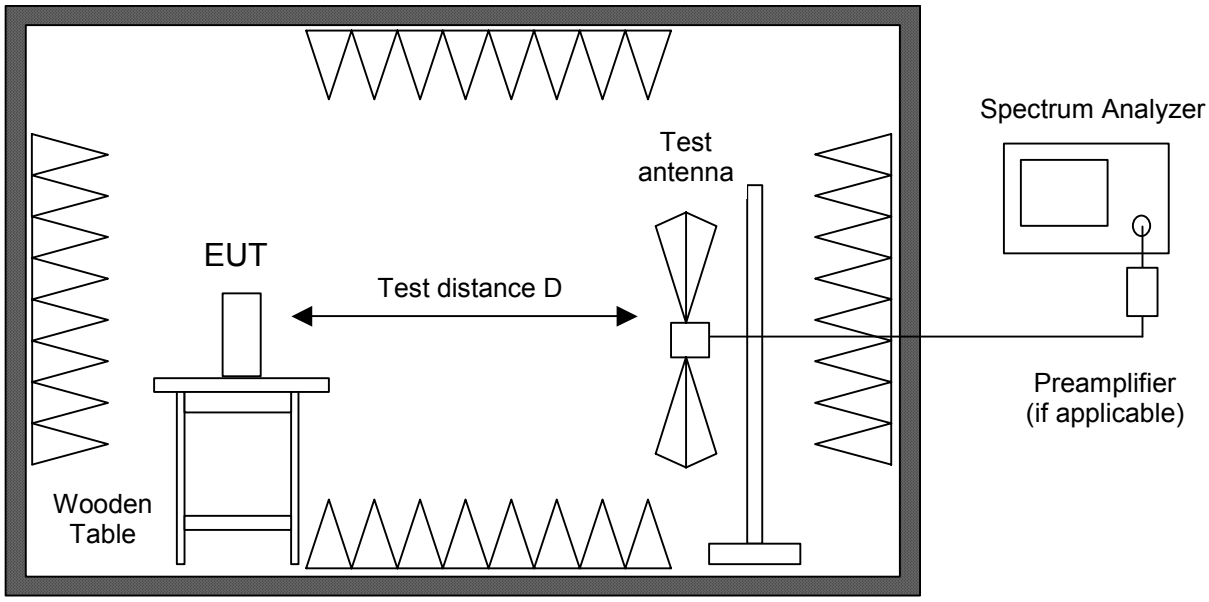
All tests below 8.2 GHz are performed at a test distance D of 3 meters. For higher frequencies the test distance may be reduced (e.g. to 1 meter) due to the sensitivity of the measuring instrument(s) and the test results are calculated according to CFR 47 Part 15 section 15.31(f)(1) using an extrapolation 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 an open field test-site is used and the plots recorded in the fully or semi anechoic room are indicated as prescans.



Fully or semi anechoic room

Test instruments used:

Used	Type	Model	Serial No. or ID	Manufacturer
☒	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
☐	EMI test receiver	ESPI7	101018	Rohde & Schwarz
☐	EMI test receiver	ESMI	839379/013 839587/006	Rohde & Schwarz
☒	Preamplifier	CPA9231A	3393	Schaffner
☐	Preamplifier	R14601		Advantest
☒	Preamplifier 1-8 GHz	AFS3-00100800-32-LN	847743	Miteq
☐	Preamplifier 0.5-8 GHz	AMF-4D-005080-25-13P	860149	Miteq
☐	Preamplifier 8-18 GHz	ACO/180-3530	32641	CTT
☐	External Mixer	WM782A	845881/005	Tektronix
☐	Harmonic Mixer	FS-Z30	843389/007	Rohde & Schwarz
	Accessories			
☒	Trilog broadband antenna	VULB 9163	9163-188	Schwarzbeck
☒	Horn antenna	3115	9508-4553	EMCO
☐	Horn antenna	3160-03	9112-1003	EMCO
☐	Horn antenna	3160-04	9112-1001	EMCO
☐	Horn antenna	3160-05	9112-1001	EMCO
☐	Horn antenna	3160-06	9112-1001	EMCO
☐	Horn antenna	3160-07	9112-1008	EMCO
☐	Horn antenna	3160-08	9112-1002	EMCO
☐	Horn antenna	3160-09	9403-1025	EMCO
☐	Horn antenna	3160-10	399185	EMCO
☒	Fully anechoic room	No. 2	1452	Albatross Projects
☐	Semi-anechoic room	No. 3	1453	Siemens

6.5 Radiated Emission at Open Field Test Site

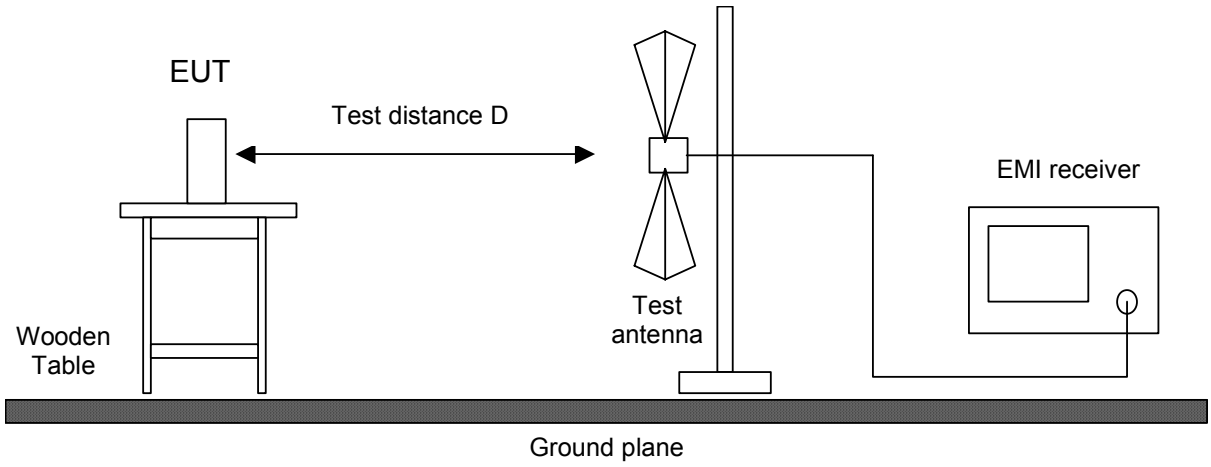
Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.109, 15.215(b) and 15.231 IC RSS-Gen Issue 2, sections 6(a) and 7.2.3.2 IC RSS-210 Issue 7, section A1.1.2
Guide:	ANSI C63.4

Radiated emission at open field test site is measured in the frequency range 30 MHz to 1 GHz using a biconical antenna up to 300 MHz and a logarithmic periodic antenna above. 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 the fully anechoic room. EUT is rotated all around and receiving antenna is raised and lowered 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.



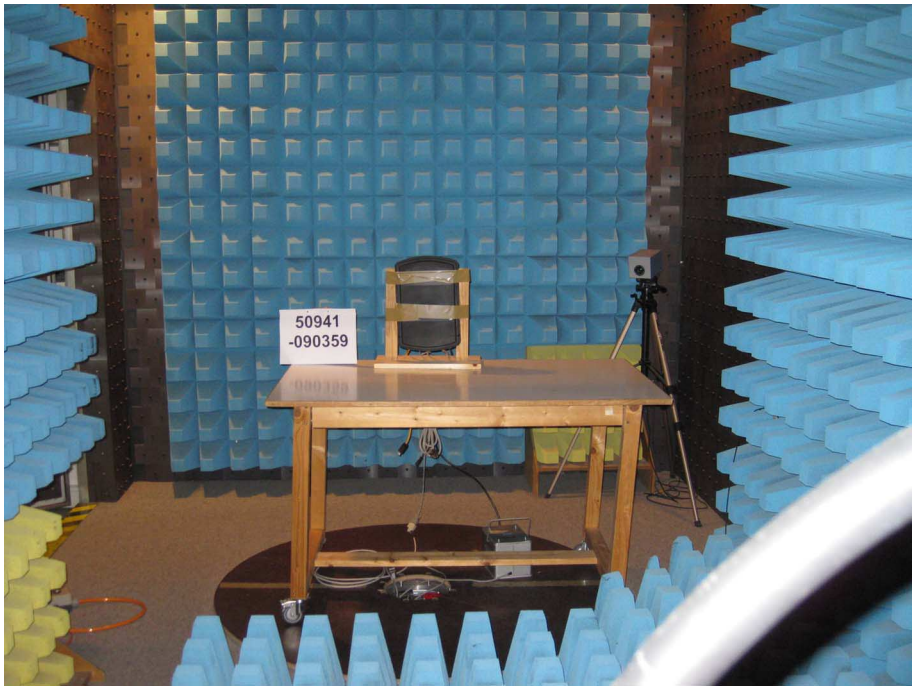
Test instruments used:

Used	Type		Model	Serial No. or ID	Manufacturer
☒	EMI receiver	EG 1	ESVP	881120/024	Rohde & Schwarz
☐	EMI receiver		ESVP	891846/003	Rohde & Schwarz
☒	Biconical antenna	EG 1	HK 116	842204/001	Rohde & Schwarz
☒	Log. per. antenna	EG 1	HL 223	841516/023	Rohde & Schwarz
☒	Open field test site		EG 1	1450	Senton

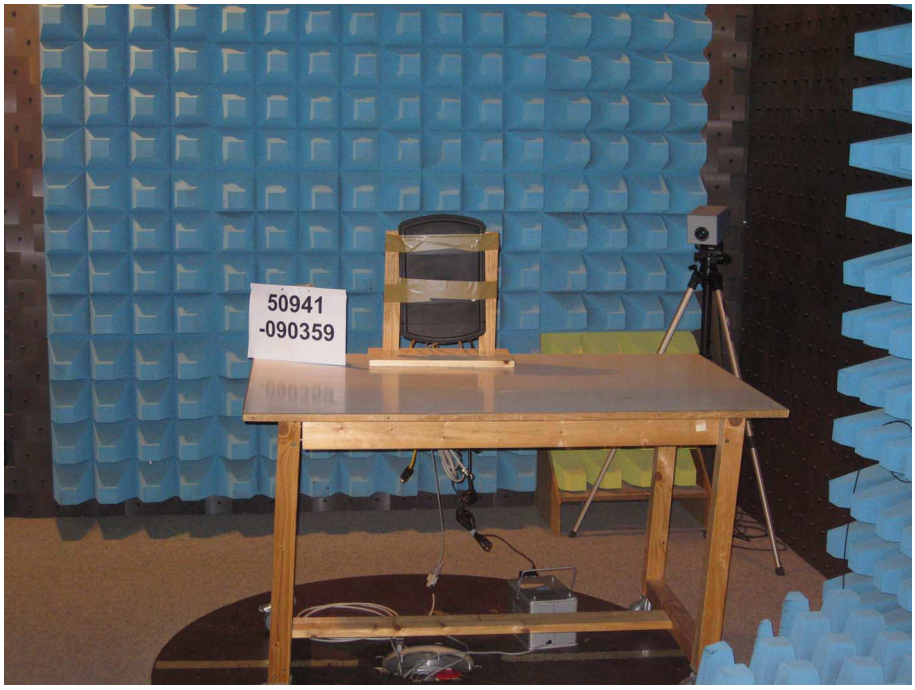
7 Photographs Taken During Testing

Test setup for conducted AC powerline emission measurement

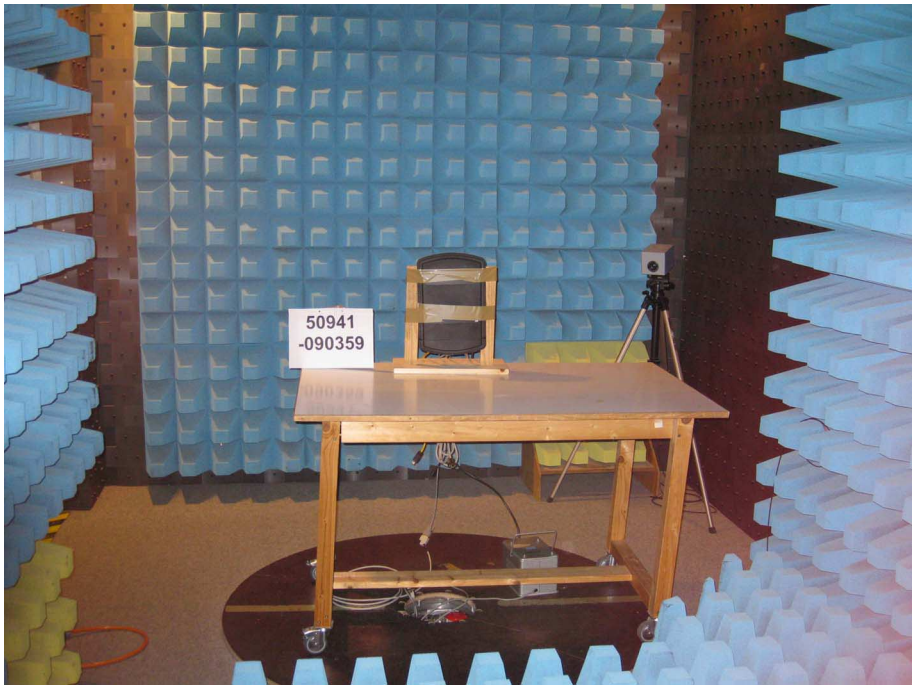
Test setup for radiated emission measurement 9 kHz – 30 MHz



Test setup for radiated emission measurement (fully anechoic room)



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



Test setup for radiated emission measurement (open field test site)

Test setup for radiated emission measurement (open field test site) - continued -

8 Test Results for Transmitter

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	27	Recorded
15.215(c) 15.231(c)	Bandwidth of the emission	31	Test passed
2.201, 2.202	Class of emission	34	Calculated
15.35(c)	Pulse train measurement for pulsed operation	---	Not applicable
15.205(a)	Restricted bands of operation	35	Test passed
15.207	Conducted AC powerline emission 150 kHz to 30 MHz	37	Test passed
15.231(a) 15.240(b)	Periodic operation requirements	41	Test passed
15.205(b) 15.231(b)	Radiated emission 9 kHz to 30 MHz	44	Test passed
15.205(b) 15.215(b) 15.231(b) 15.240(b)	Radiated emission 30 MHz to 4.5 GHz	45	Test passed
15.231(d)	Carrier frequency stability	---	Not applicable

IC RSS-Gen Issue 2			
Section(s)	*Test*	*Page*	*Result*
4.8	Transmitter output power (conducted)	---	Not applicable
4.6.1	Occupied Bandwidth	27	Recorded
3.2(h), 8	Designation of emissions	34	Calculated
4.5	Pulsed operation		Not applicable
7.2.2	Transmitter AC power lines conducted emissions 150 kHz to 30 MHz	37	Test passed
5.5	Exposure of Humans to RF Fields	47	Exempted from SAR and RF evaluation

IC RSS-210 Issue 7			
Section(s)	*Test*	*Page*	*Result*
2.2(a)	Restricted bands and unwanted emission frequencies	35	Test passed
A1.1.1 A5	Requirements for momentarily operated devices	41	Test passed
A1.1.2 2.2(b)(c), 2.6	Unwanted emissions 9 kHz to 30 MHz	44	Test passed
A1.1.2 2.2(b)(c), 2.6	Unwanted emissions 30 MHz to 4.5 GHz	45	Test passed
A1.1.3	Bandwidth of momentary signals	33	Test passed
A1.1.4	Carrier frequency stability	---	Not applicable

8.1 Occupied Bandwidth

Rules and specifications:	CFR 47 Part 2, section 2.202(a) ANSI C63.4, annex H.6
Guide:	ANSI C63.4
Description:	The occupied bandwidth according to CFR 47 Part 2, section 2.202(a), is measured as the 99% emission bandwidth, i.e. below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5% of the total mean power radiated by a given emission. The occupied bandwidth according to ANSI C63.4, annex H.6; is measured as the frequency range defined by the points that are 26 dB down relative to the maximum level of the modulated carrier. The resolution bandwidth of the spectrum analyzer shall be set to a value greater than 5.0% of the allowed bandwidth. If no bandwidth specifications are given, the following guidelines are used:

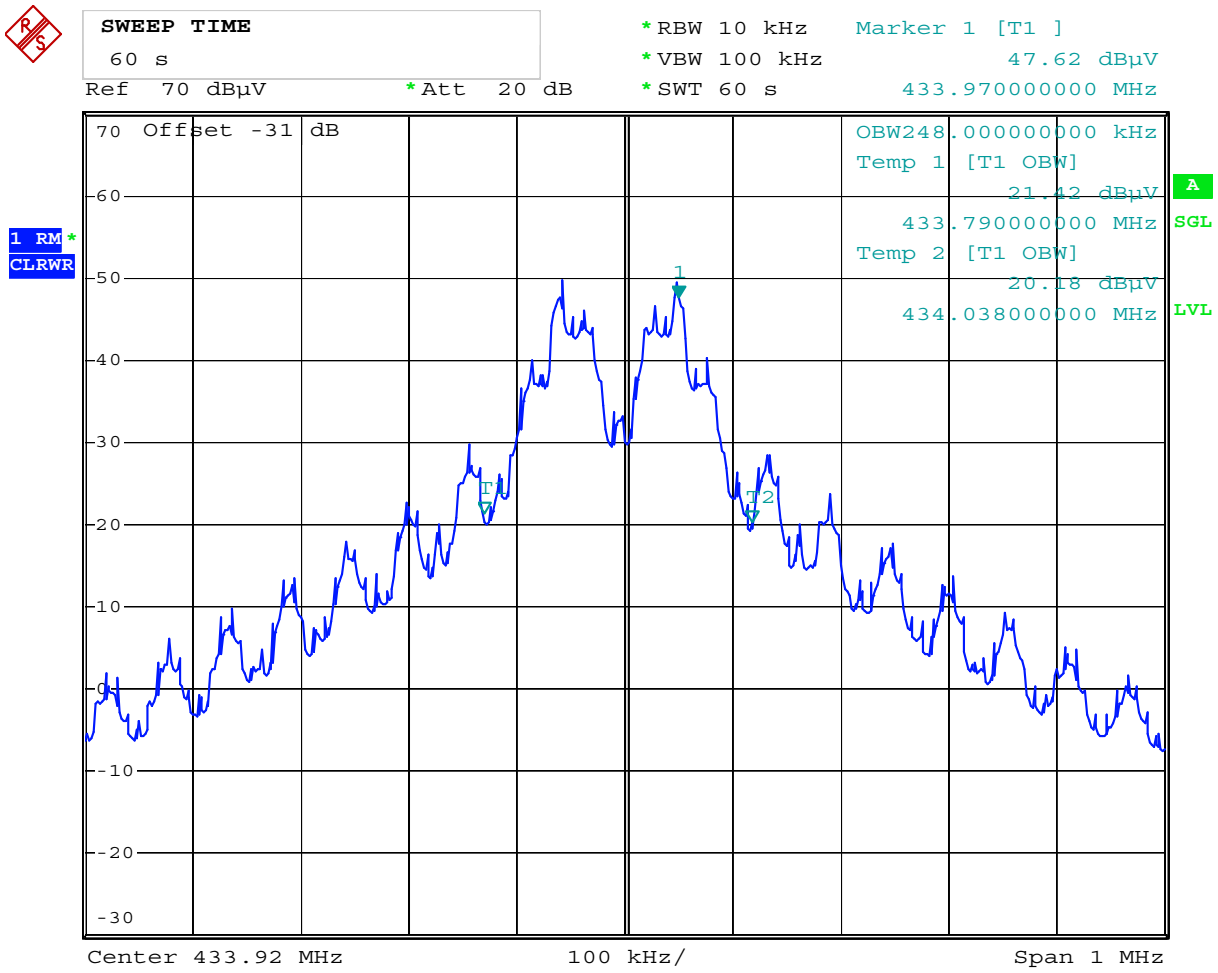
Fundamental frequency	Minimum resolution bandwidth
9 kHz to 30 MHz	1 kHz
30 MHz to 1000 MHz	10 kHz
1000 MHz to 40 GHz	100 kHz

The video bandwidth shall be at least three times greater than the resolution bandwidth.

Measurement procedure:	Bandwidth Measurements (6.1)

Comment:	
Date of test:	April 20, 2009
Test site:	Fully anechoic room, cabin no. 2

Occupied Bandwidth (99 %):



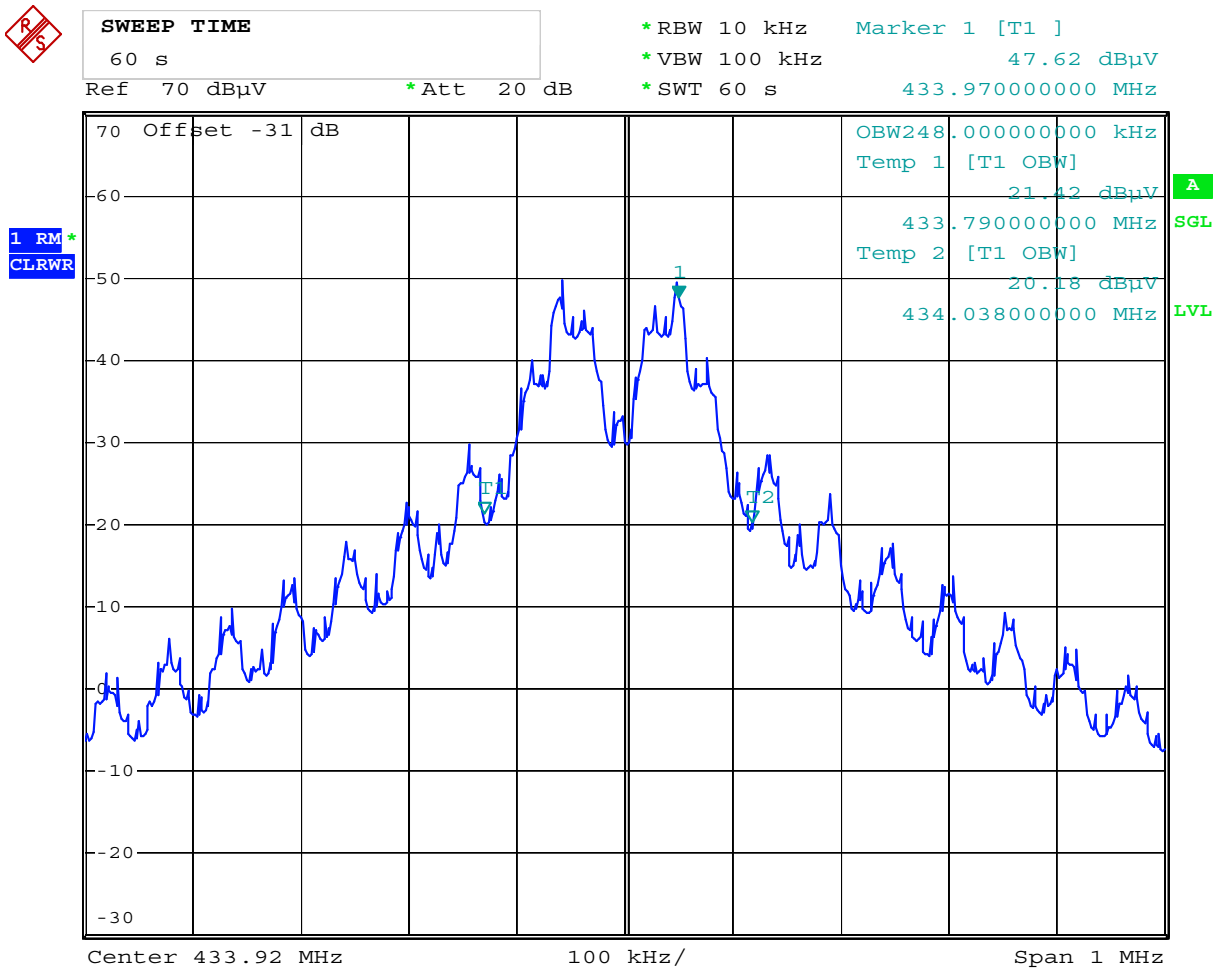
Occupied Bandwidth (99 %):	**248 kHz**

Occupied Bandwidth (continued)

Rules and specifications:	IC RSS-Gen Issue 2, section 4.6.1
Guide:	IC RSS-Gen Issue 2, section 4.6.1
Description:	If not specified in the applicable RSS the occupied bandwidth is measuredas the 99% emission bandwidth. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1% of the selected span as is possible without being below 1%. The video bandwidth shall be set to 3 times the resolution bandwidth. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is also recorded. The span between the two recorded frequencies is the occupied bandwidth.
Measurement procedure:	Bandwidth Measurements (6.1)

Comment:	
Date of test:	April 20, 2009
Test site:	Fully anechoic room, cabin no. 2

Occupied Bandwidth (99 %):



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Occupied Bandwidth (99 %):	**248 kHz**

8.2 Bandwidth of the Emission

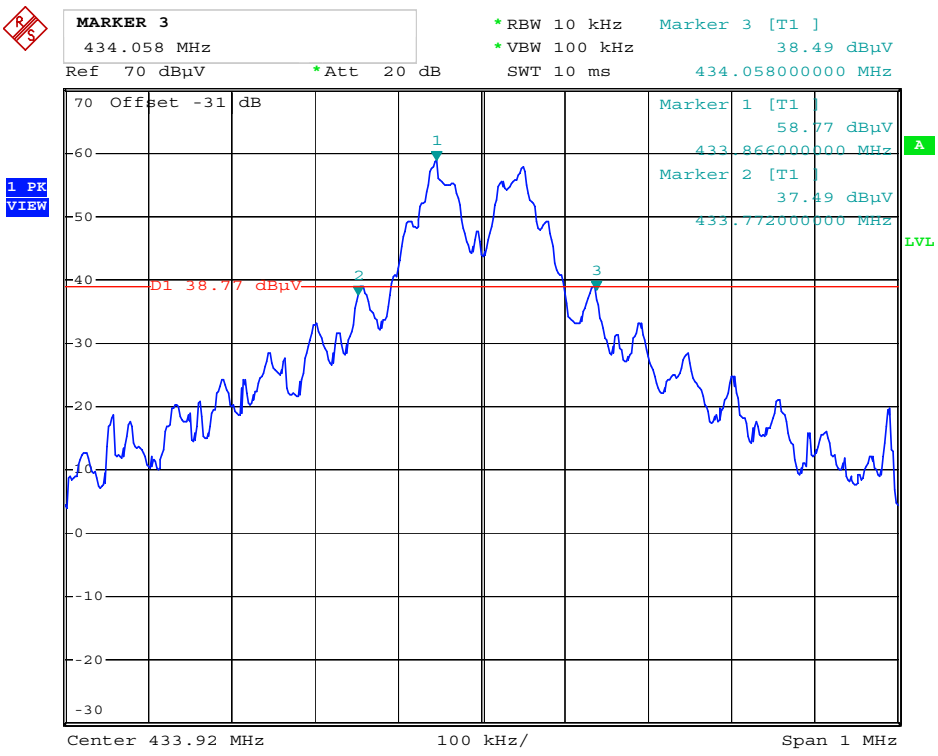
Rules and specifications:	CFR 47 Part 15, section 15.215(c)
Guide:	ANSI C63.4
Description:	The 20 dB bandwidth of the emission is measured as the frequency range defined by the points that are 20 dB down relative to the maximum level of the modulated carrier. For intentional radiators operating under the alternative provisions to the general emission limits the requirement to contain the 20 dB bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation. The resolution bandwidth of the spectrum analyzer shall be set to a value greater than 5.0% of the allowed bandwidth. If no bandwidth specifications are given, the following guidelines are used:

Fundamental frequency	Minimum resolution bandwidth
9 kHz to 30 MHz	1 kHz
30 MHz to 1000 MHz	10 kHz
1000 MHz to 40 GHz	100 kHz

The video bandwidth shall be at least three times greater than the resolution bandwidth.

Measurement procedure:	Bandwidth Measurements (6.1)

Comment:	
Date of test:	April 20, 2009
Test site:	Fully anechoic room, cabin no. 2



Permitted frequency band:	**433.5 - 434.5 MHz**	
20 dB bandwidth:	**286 kHz**	
Carrier frequency stability: Maximum frequency tolerances:	☐ **specified**	☒ **not specified**
Bandwidth of the emission:	**286kHz**	**within permitted frequency band[5]:** ☒ **yes** ☐ **no**

Test Result:	Test passed

[5] If a frequency stability is not specified, it is recommended that the fundamental emission is kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

8.3 Bandwidth of Momentary Signals

Rules and specifications:	IC RSS-210 Issue 7, section A1.1.3
Guide:	IC RSS-Gen Issue 2, section 4.6.1
Limit:	For the purpose of Section A1.1, the 99% bandwidth shall be no wider than 0.25% of the centre frequency for devices operating between 70 and 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the centre frequency.

Operating frequency: Bandwidth limit:	**433.92 MHz** **1084.8 kHz**
Occupied bandwidth:	**248 kHz**
Emission bandwidth within bandwidth limit:	☒ **yes** ☐ **no**

Test Result:	Test passed

8.4 Designation of Emissions

Rules and specifications:	CFR 47 Part 2, sections 2.201 and 2.202 IC RSS-Gen Issue 2, sections 3.2(h) and 8
Guide:	ANSI C63.4 / TRC-43

Type of modulation:	Frequency Shift Keying (FSK)

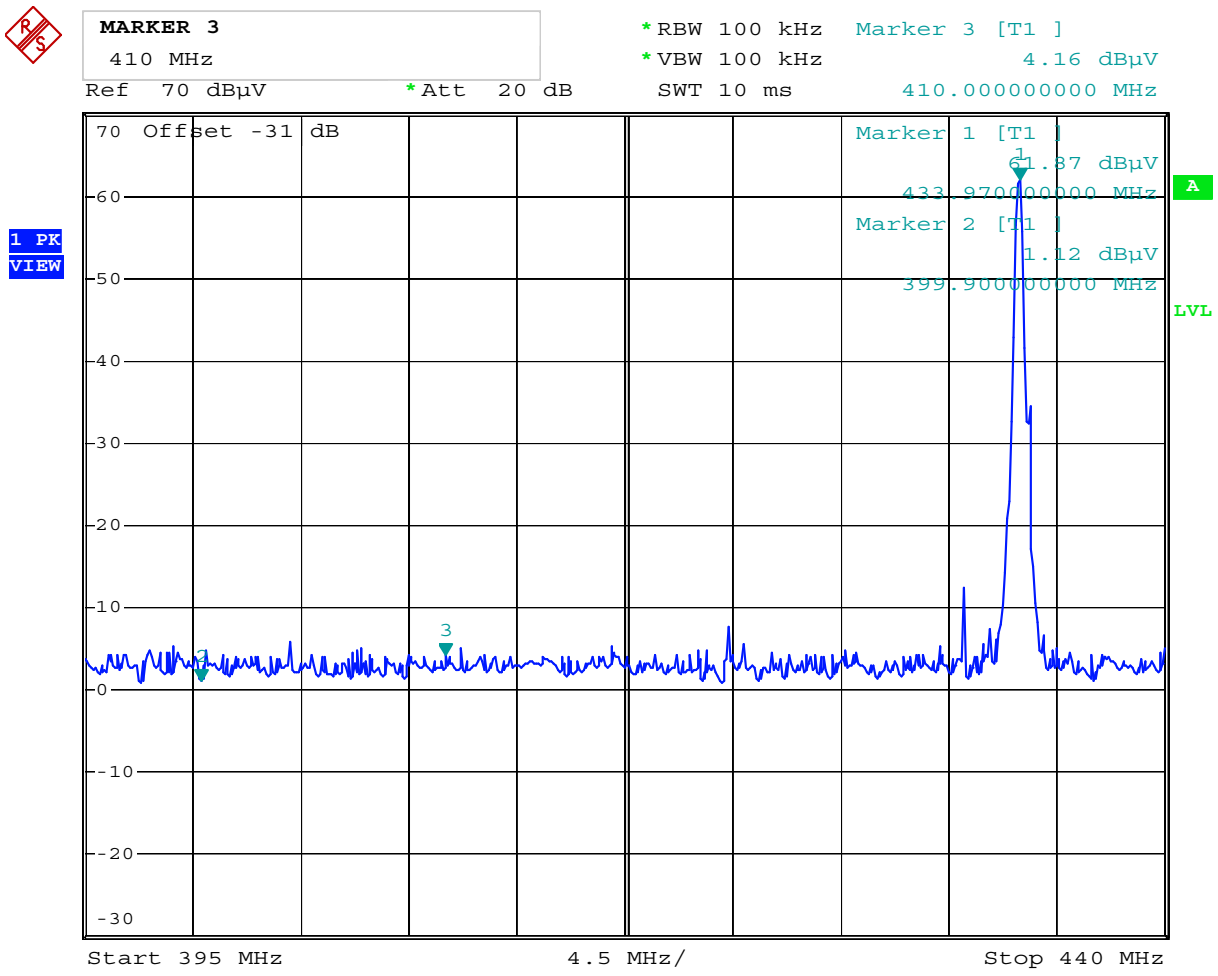
B_n = Necessary Bandwidth	$B_n = 2DK + B$
D = Peak deviation	D = 54 kHz
K = Overall numerical factor	K = 1
B = Modulation rate	B = 70 kHz
Calculation:	$B_n = 2 \cdot (54\ kHz) \cdot 1 + 2 \cdot (70\ kHz) = 248\ kHz$

Designation of Emissions:	**248kF1D**

8.5 Restricted Bands of Operation

Rules and specifications:	CFR 47 Part 15, section 15.205(a) IC RSS-210 Issue 7, 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 7, section 2.2(a).
Measurement procedure:	Radiated Emission in Fully or Semi Anechoic Room (6.4)

Comment:	
Date of test:	April 20, 2009
Test site:	Fully anechoic room, cabin no. 2
Test distance:	3 meters



Date: 20.APR.2009 14:23:15

Test Result:	Test passed

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 2, section 7.2.2		
Guide:	ANSI C63.4 / CISPR 22		
Limit:	Frequency of Emission (MHz)	Conducted Limit (dBµV)	
		Quasi-peak	Average
	0.15 - 0.5 0.5 - 5 5 - 30	66 to 56 56 60	56 to 46 46 50
Measurement procedure:	Conducted AC Powerline Emission (6.2)		

Test Result:	Test passed

Comment:	Test performed with internal AC supply
Date of test:	May 15, 2009
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)
0.170	Quasi-Peak	47.9	0.0	47.9	65.0	17.1
0.170	Average	46.9	0.0	46.9	55.0	8.1
0.255	Quasi-Peak	46.0	0.0	46.0	61.6	15.6
0.255	Average	45.0	0.0	45.0	51.6	6.6
0.300	Quasi-Peak	43.5	0.0	43.5	60.2	16.7
0.300	Average	43.0	0.0	43.0	50.2	7.2
0.420	Average	30.8	0.0	30.8	47.4	16.6
0.505	Average	33.4	0.0	33.4	46.0	12.6
0.590	Average	33.5	0.0	33.5	46.0	12.5
0.675	Quasi-Peak	43.8	0.0	43.8	56.0	12.2
0.675	Average	42.3	0.0	42.3	46.0	3.7
0.760	Quasi-Peak	44.3	0.0	44.3	56.0	11.7
0.760	Average	43.2	0.0	43.2	46.0	**2.8**
0.845	Average	32.9	0.0	32.9	46.0	13.1
1.180	Average	25.9	0.0	25.9	46.0	20.1
1.265	Average	26.5	0.0	26.5	46.0	19.5

Tested on:	N

Frequency (MHz)	Detector	Reading Value (dBµV)	Correction Factor (dB)	Final Value (dBµV)	Limit (dBµV)	Margin (dB)
0.170	Quasi-Peak	47.9	0.0	47.9	55.0	7.1
0.170	Average	49.3	0.0	49.3	65.0	15.7
0.250	Average	46.1	0.0	46.1	61.8	15.7
0.255	Quasi-Peak	45.4	0.0	45.4	51.6	6.2
0.300	Quasi-Peak	40.4	0.0	40.4	50.2	9.8
0.335	Average	41.3	0.0	41.3	59.3	18.0
0.420	Quasi-Peak	30.8	0.0	30.8	47.4	16.6
0.505	Quasi-Peak	33.4	0.0	33.4	46.0	12.6
0.590	Quasi-Peak	33.4	0.0	33.4	46.0	12.6
0.675	Quasi-Peak	42.0	0.0	42.0	46.0	4.0
0.675	Average	43.7	0.0	43.7	56.0	12.3
0.760	Quasi-Peak	42.7	0.0	42.7	46.0	**3.3**
0.760	Average	44.2	0.0	44.2	56.0	11.8
0.845	Quasi-Peak	32.3	0.0	32.3	46.0	13.7
1.180	Quasi-Peak	25.4	0.0	25.4	46.0	20.6
1.265	Quasi-Peak	26.4	0.0	26.4	46.0	19.6

Sample calculation of final values:

Final Value (dBµV) = Reading Value (dBµV) + Correction Factor (dB)

Comment:	Test performed with external AC/DC adapter
Date of test:	April 21, 2009
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)
0.625	Quasi-Peak	33.6	0.0	33.6	56.0	22.4
0.730	Quasi-Peak	37.8	0.0	37.8	56.0	**18.2**
0.840	Quasi-Peak	35.7	0.0	35.7	56.0	20.3

Tested on:	N

Frequency (MHz)	Detector	Reading Value (dBµV)	Correction Factor (dB)	Final Value (dBµV)	Limit (dBµV)	Margin (dB)
0.730	Quasi-Peak	37.6	0.0	37.6	56.0	**18.4**
0.845	Quasi-Peak	34.4	0.0	34.4	56.0	21.6

Sample calculation of final values:

Final Value (dBµV) = Reading Value (dBµV) + Correction Factor (dB)

8.7 Periodic Operation Requirements

Rules and specifications:	CFR 47 Part 15, section 15.231(a) CFR 47 Part 15, section 15.240(b) IC RSS-210 Issue 7, section A1.1.1 IC RSS-210 Issue 7, section A5(a)
Guide:	---

Periodic operation requirements	Applicable	Declared by applicant	Test performed	Passed
The transmitter is used for				
☐ security or safety applications ☐ other applications		☒		
The transmitter is operated				
☐ manually ☐ automatically		☒		
Periodic operation according to				
☒ CFR 47 Part 15, section 15.231(a) / IC RSS-210 Issue 7, section A1.1.1				
Only control signals are sent and there is no continuous transmission	☐	☐	☐	☐
A manually operated transmitter employs a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released	☒	☐	☐	☒
A transmitter activated automatically ceases transmission within 5 seconds after activation	☐	☐	☐	☐
Periodic transmissions at regular predetermined intervals are ☐ not performed ☐ performed with total transmission time of two seconds per hour or less (for polling or supervision transmissions to determine system integrity of transmitters used in security or safety applications)	☐	☐	☐	☐
☐ CFR 47 Part 15, section 15.231(e) / IC RSS-210 Issue 7, section A1.1.5				
The device is provided with a means for automatically limiting operation so that the duration of each transmission is not greater than one second and the silent period between transmissions is at least 30 times the duration of the transmission but in no case less than 10 seconds.	☐	☐	☐	☐
☒ CFR 47 Part 15, section 15.240(b) / IC RSS-210 Issue 7, section A5(a)				
The device shall be provided with a means for limiting operation so that the duration of each transmission shall not be greater than 60 seconds and be only permitted to reinitiate an interrogation in the case of a transmission error. Absent such a transmission error, the silent period between transmissions shall not be less than 10 seconds	☒	☐	☐	☒

Note: Result may be based on the appropriate declaration of the applicant (i.e. no test is performed). However, in this case there is no verification by the test laboratory.

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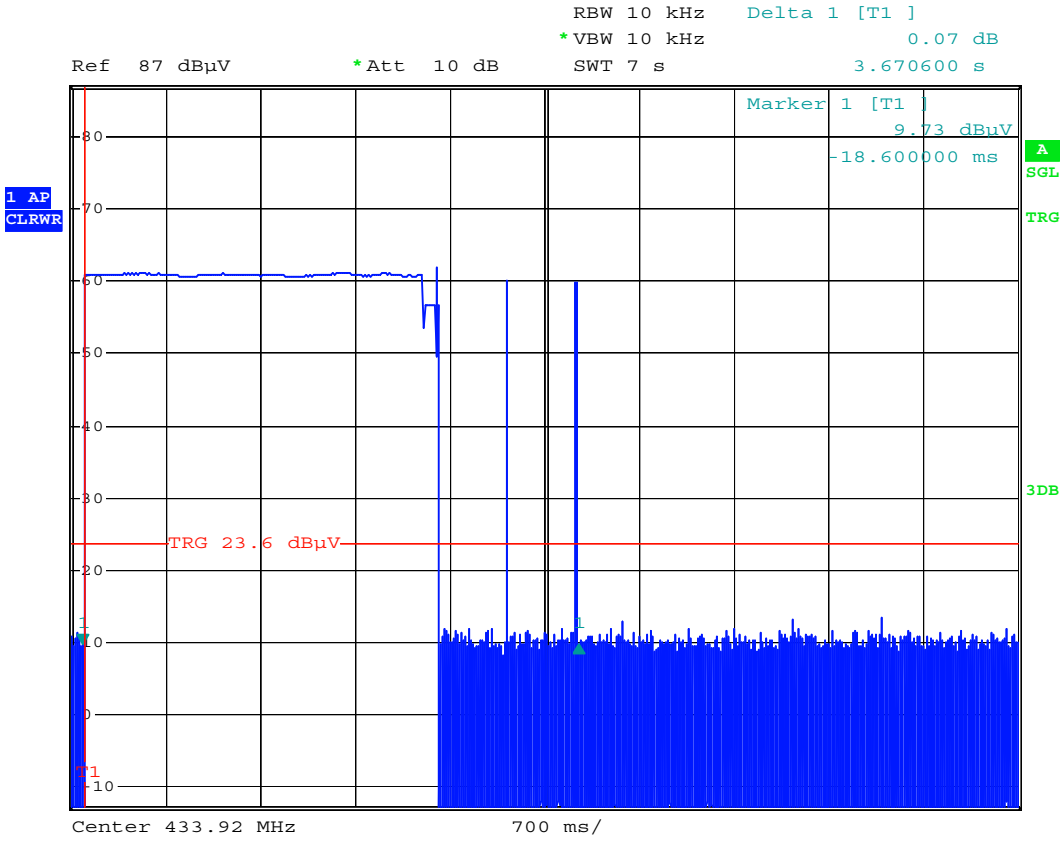

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8.8 Radiated Emission Measurement 9 kHz to 30 MHz

Rules and specifications:	CFR 47 Part 15, sections 15.215(b) and 15.231(b)(3) IC RSS-210 Issue 7, section A1.1.2(b)			
Guide:	ANSI C63.4			
Limit:	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 (6.3)			

Comment:	
Date of test:	April 20, 2009
Test site:	Open field test site

Test Result:	Test passed

No emissions above noise level detected

Sample calculation of final values:

Extrapolation Factor (dB) = (Log(d) - Log(d_1)) · Extrapolation Factor (dB/decade)

Final Value (dBµV/m) = Reading Value d_1 (dBµV) + Correction Factor (dB/m) + Extrapolation Factor (dB) + Pulse Train Correction (dB)

Note: Extrapolation factor (dB) and final value (dBµV/m) are relating to distance d.

8.9 Radiated Emission Measurement 30 MHz to 4.5 GHz

Rules and specifications:		CFR 47 Part 15, sections 15.205, 15.215(b), 15.231(b), 15.240(b) IC RSS-210 Issue 7, sections A1.1.2 and A5(b)
Guide:		ANSI C63.4
Limit:	15.231, A1.1.2:	In addition to the provisions of section 15.205, the field strength shall not exceed the levels as listed in the table below or the general limits shown in section 15.209, whichever limit permits a higher field strength. In no case shall the level of the unwanted emissions exceed the field strength of the fundamental emission.

Frequency of Emission (MHz)	Field Strength of Fundamental (µV/m)	Field Strength of Fundamental (dBµV/m)	Field Strength of Spurious Emissions (µV/m)	Field Strength of Spurious Emissions (dBµV/m)
40.66 - 40.70	2,250	67.0	225 **	47.0
70 - 130	1,250	61.9	125	41.9
130 - 174	1,250 to 3,750 *	61.9 to 71.5	125 to 375 *	41.9 to 51.5
174 - 260	3,750	71.5	375	51.5
260 - 470	3,750 to 12,500 *	71.5 to 81.9	375 to 1,250 *	51.5 to 61.9
Above 470	12,500	81.9	1,250	61.9

* linear interpolations ** for harmonics only

	15.240, A5(b):	The fieldstrength of any emissions radiated within the specified band shall not exceed 11000 µV/m (80.8 dBµV/m) at a distance of 3 m. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The peak level of any emissions within the specified band shall not exceed 55000 µV/m (94.8 dBµV/m) measured at a distance of 3 m. The field strength of emissions radiated on any frequency outside the specified band shall not exceed the general radiated emission limits.
Measurement procedures:		Radiated Emission in Fully or Semi Anechoic Room (6.4) Radiated Emission at Open Field Test Site (6.5)

Comment:	
Date of test:	April 20, 2009 May 15, 2009
Test site:	Frequencies ≤ 1 GHz: Open field test site Frequencies > 1 GHz: Fully anechoic room, cabin no. 2
Test distance:	3 meters

Test Result:	Test passed

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)
125.014	vertical	Quasi-Peak	28.0	12.7		40.7	43.5	**2.8**
140.016	vertical	Quasi-Peak	16.4	13.5		29.9	43.5	13.6
140.024	horizontal	Quasi-Peak	13.1	13.5		26.6	43.5	16.9
150.028	vertical	Quasi-Peak	24.2	13.9		38.1	43.5	5.4
175.020	horizontal	Quasi-Peak	24.3	15.0		39.3	43.5	4.2
433.920	vertical	Quasi-Peak	56.9	19.6		76.5	80.8	4.3
500.060	horizontal	Quasi-Peak	13.6	21.0		34.6	46.0	11.4

Sample calculation of final values:

Final Value (dBµV/m) = Reading Value (dBµV) + Correction Factor (dB/m) + Pulse Train Correction (dB)

8.10 Exposure of Humans to RF Fields

Rules and specifications:	IC RSS-Gen Issue 2, section 5.5
Guide:	IC RSS-102 Issue 2, 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 = **..... W**			☐	
The effective isotropic radiated power (EIRP in watts) is calculated using				
☐ the numerical antenna gain: G = **.....** $EIRP = G \cdot CP \Rightarrow EIRP$ = **..... W**		☐		
☐ the field strength[6] in V/m: FS = **..... V/m** $EIRP = \frac{(FS \cdot D)^2}{30} \Rightarrow EIRP$ = **..... W**			☐	
with: Distance between the antennas in m: D = **..... m**			☐	
☒ not detachable				
A field strength measurement is used to determine the effective isotropic radiated power (EIRP in watts) given by[6]: $EIRP = \frac{(FS \cdot D)^2}{30} \Rightarrow EIRP$ = **13.4 · 10^{-6} W**				
with: Field strength in V/m: FS = **6.68 V/m** Distance between the two antennas in m: D = **3 m**			☒ ☒	
Selection of output power				
The output power TP is the higher of the conducted or effective isotropic radiated power (e.i.r.p.): TP = **13.4 · 10^{-6} W**				

[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.

Exposure of Humans to RF Fields (continued)	Applicable	Declared by applicant	Measured	Exemption
Separation distance between the user and the transmitting device is				
☐ less than or equal to 20 cm ☒ greater than 20 cm		☒		
Transmitting device is				
☐ in the vicinity of the human head ☐ body-worn		☒		
SAR evaluation				
SAR evaluation is required if the separation distance between the user and the device is less than or equal to 20 cm.				
☐ The device operates from 3 kHz up to 1 GHz inclusively and its source-based time-averaged output power is less than, or equal to 200 mW for General Public Use and 1000 mW for Controlled Use.				☐
☐ The device operates above 1 GHz up to 2.2 GHz inclusively and its source-based time-averaged output power is less than, or equal to 100 mW for General Public Use and 500 mW for Controlled Use.				☐
☐ The device operates above 2.2 GHz up to 3 GHz inclusively and its source-based time-averaged output power is less than, or equal to 20 mW for General Public Use and 100 mW for Controlled Use.				☐
☐ The device operates above 3 GHz up to 6 GHz inclusively and its source-based time-averaged output power) is less than, or equal to 10 mW for General Public Use and 50 mW for Controlled Use.				☐
☐ SAR evaluation is documented in test report no.				
RF exposure evaluation				
RF exposure evaluation is required if the separation distance between the user and the device is greater than 20 cm.				
☒ The device operates below 1.5 GHz and its e.i.r.p. is equal to or less than 2.5 W.				☒
☐ The device operates at or above 1.5 GHz and the e.i.r.p. of the device is equal to or less than 5 W.				☐
☐ RF exposure evaluation is documented in test report no.				

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	---	Not applicable
15.109	Radiated emission 30 MHz to 2.5 GHz	50	Test passed
15.111(a)	Antenna power conduction emission of receivers 9 kHz to 2.5 GHz	---	Not applicable

IC RSS-Gen Issue 2			
Section(s)	*Test*	*Page*	*Result*
7.2.2	Transmitter AC power lines conducted emissions 150 kHz to 30 MHz	---	Not applicable
6(a), 7.2.3.2	Receiver spurious emissions (radiated) 30 MHz to 2.5 GHz	50	Test passed
6(b), 7.2.3.1	Receiver spurious emissions (antenna conducted) 9 kHz to 2.5 GHz	---	Not applicable

9.1 Radiated Emission Measurement 30 MHz to 2.5 GHz

Rules and specifications:	CFR 47 Part 15, section 15.109 (Class B) IC RSS-Gen Issue 2, sections 6(a) and 7.2.3.2		
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 (6.4) Radiated Emission at Open Field Test Site (6.5)		

Comment:	
Date of test:	June 19, 2009
Test site:	Frequencies ≤ 1 GHz: Open field test site Frequencies > 1 GHz: Fully anechoic room, cabin no. 2
Test distance:	3 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)
125.014	vertical	Quasi-Peak	23.5	12.7	36.2	43.5	7.3
175.190	vertical	Quasi-Peak	26.5	15.0	41.5	43.5	**2.0**
500.050	horizontal	Quasi-Peak	15.3	21.0	36.3	46.0	9.7

Sample calculation of field final values:

Final Value (dBµV/m) = Reading Value (dBµV) + Correction Factor (dB/m)

10 Referenced Regulations

11 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, 2008
☒	CFR 47 Part 15	Code of Federal Regulations Part 15 (Radio Frequency Devices) of the Federal Communication Commission (FCC)	October 1, 2008
☒	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)
☒	RSS-Gen	Radio Standards Specification RSS-Gen Issue 2 containing General Requirements and Information for the Certification of Radiocommunication Equimpment, published by Industry Canada	June 2007
☒	RSS-210	Radio Standards Specification RSS-210 Issue 7 for Low Power Licence-Exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment, published by Industry Canada	June 2007
☐	RSS-310	Radio Standards Specification RSS-310 Issue 1 for Low Power Licence-Ecempt Radiocommunicaton Devices (All Frequency Bands): Category II Equipment, published by Industry Canada	September 2005
☒	RSS-102	Radio Standards Specification RSS-102 Issue 2: Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)	November 2005
☐	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

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

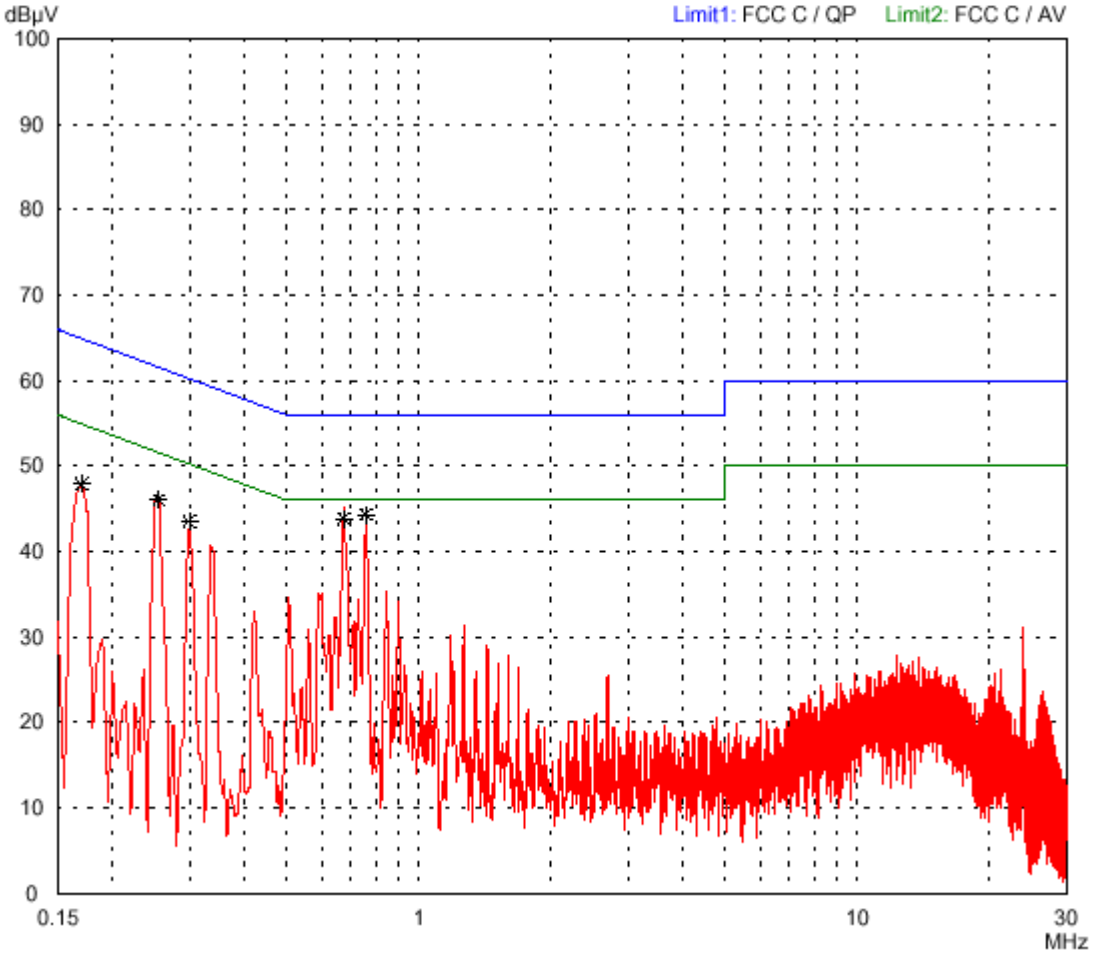
12 Revision History

Revision History			
Edition	*Date*	*Issued by*	*Modifications*
1	June 22, 2009	M. Steindl (aw)	First Edition
2	June 30, 2009	Christa Jäger	Edition 2 Update "Referenced Regulations"
3	July 13, 2009	Christa Jäger	Edition 3: Page 7 "Configuration of EUT" changed Page 13 "Measurement procedure for radiated emission measurement 9 kHz to 30 MHz": Loop antenna marked

13 Charts taken during testing

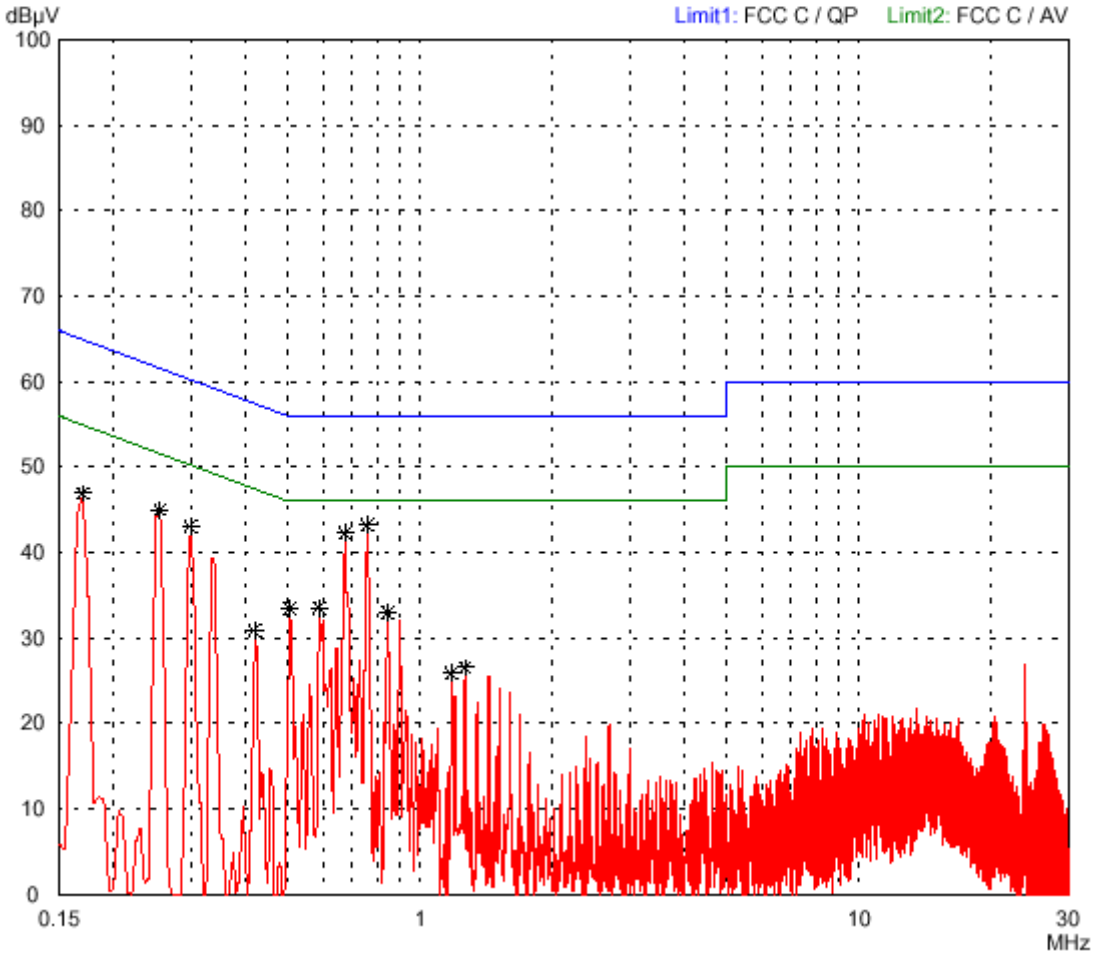
Conducted Emission Test 150 kHz - 30 MHz
according to FCC Part 15 Subpart C

Model: i-Port 310	Mode: - 110 V AC power supply - Transmitting continuously (Reading tag) - Power: 15 dBm - With ferrites on RS232 and RS485in
Serial no.: 384369 (mod)	
Applicant: IDENTEC SOLUTIONS AG	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord AC 110 V Phase L1	
Date of test: 05/14/2009 / Operator: M. Steindl	
Test performed: automatically / File name:	
Detector: Peak / Final Results: QP	Final results: Selected by hand



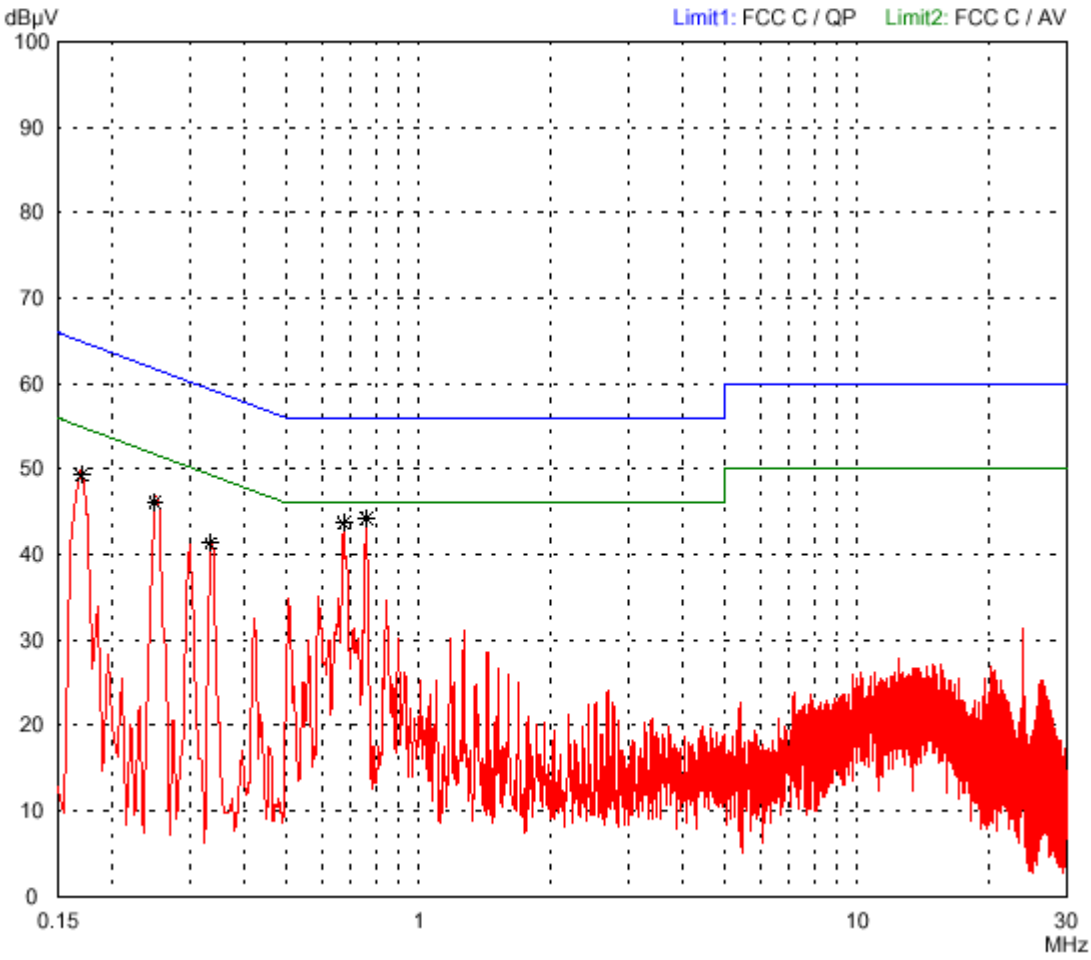
Conducted Emission Test 150 kHz - 30 MHz according to FCC Part 15 Subpart C

Model: i-Port 310	Mode: - 110 V AC power supply - Transmitting continuously (Reading tag) - Power: 15 dBm - With ferrites on RS232 and RS485in
Serial no.: 384369 (mod)	
Applicant: IDENTEC SOLUTIONS AG	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord AC 110 V Phase L1	
Date of test: 05/14/2009 / Operator: M. Steindl	
Test performed: automatically / File name:	
Detector: Average / Final Results: AV	Final results: Selected by hand



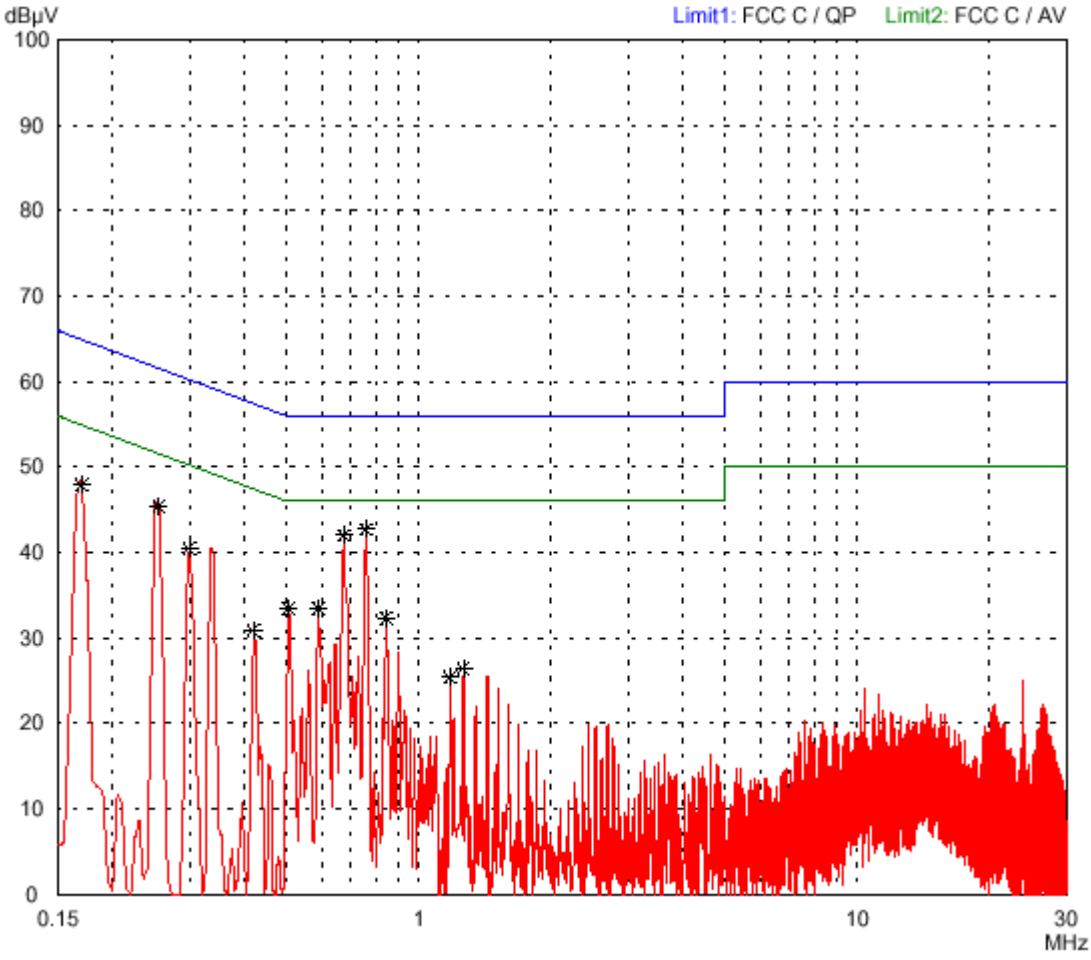
Conducted Emission Test 150 kHz - 30 MHz
according to FCC Part 15 Subpart C

Model: i-Port 310	Mode: - 110 V AC power supply - Transmitting continuously (Reading tag) - Power: 15 dBm - With ferrites on RS232 and RS485in
Serial no.: 384369 (mod)	
Applicant: IDENTEC SOLUTIONS AG	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord AC 110 V Phase N	
Date of test: 05/14/2009 / Operator: M. Steindl	
Test performed: automatically / File name:	
Detector: Peak / Final Results: QP	Final results: Selected by hand



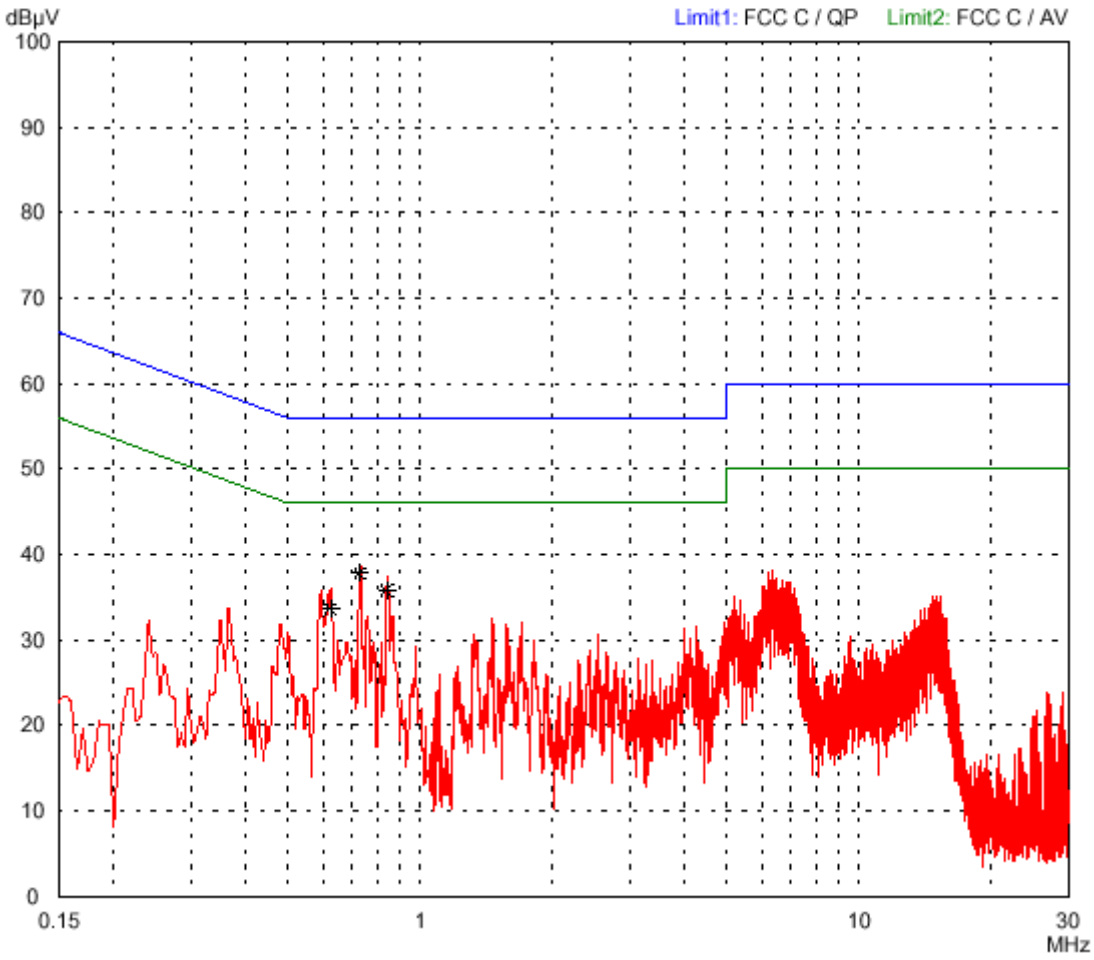
Conducted Emission Test 150 kHz - 30 MHz
according to FCC Part 15 Subpart C

Model: i-Port 310	Mode: - 110 V AC power supply - Transmitting continuously (Reading tag) - Power: 15 dBm - With ferrites on RS232 and RS485in
Serial no.: 384369 (mod)	
Applicant: IDENTEC SOLUTIONS AG	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord AC 110 V Phase N	
Date of test: 05/14/2009 / Operator: M. Steindl	
Test performed: automatically / File name:	
Detector: Average / Final Results: AV	Final results: Selected by hand



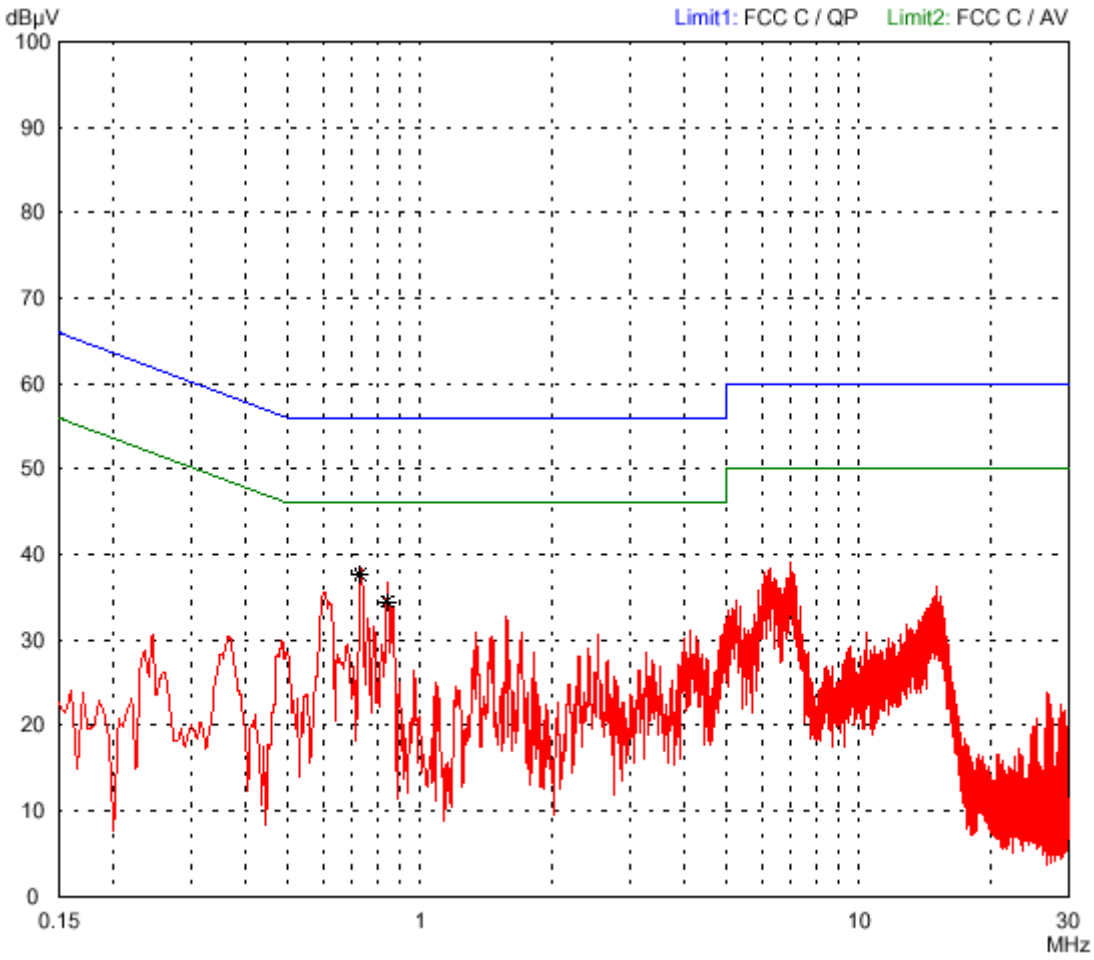
Conducted Emission Test 150 kHz - 30 MHz
according to FCC Part 15 Subpart C

Model: i-Port310	Mode: - 110 V AC power supply - External AC/DC adapter - Transmitting Random ISO Packets - Power: -15 dBm - With ferrites on RS232 and RS385in
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord AC 110 V Phase L1	
Date of test: 04/21/2009 — Operator: M. Steindl	
Test performed: automatically — File name:	
Detector: Peak / Final Results: QP	Final results: 20 dB Margin — 25 Subranges



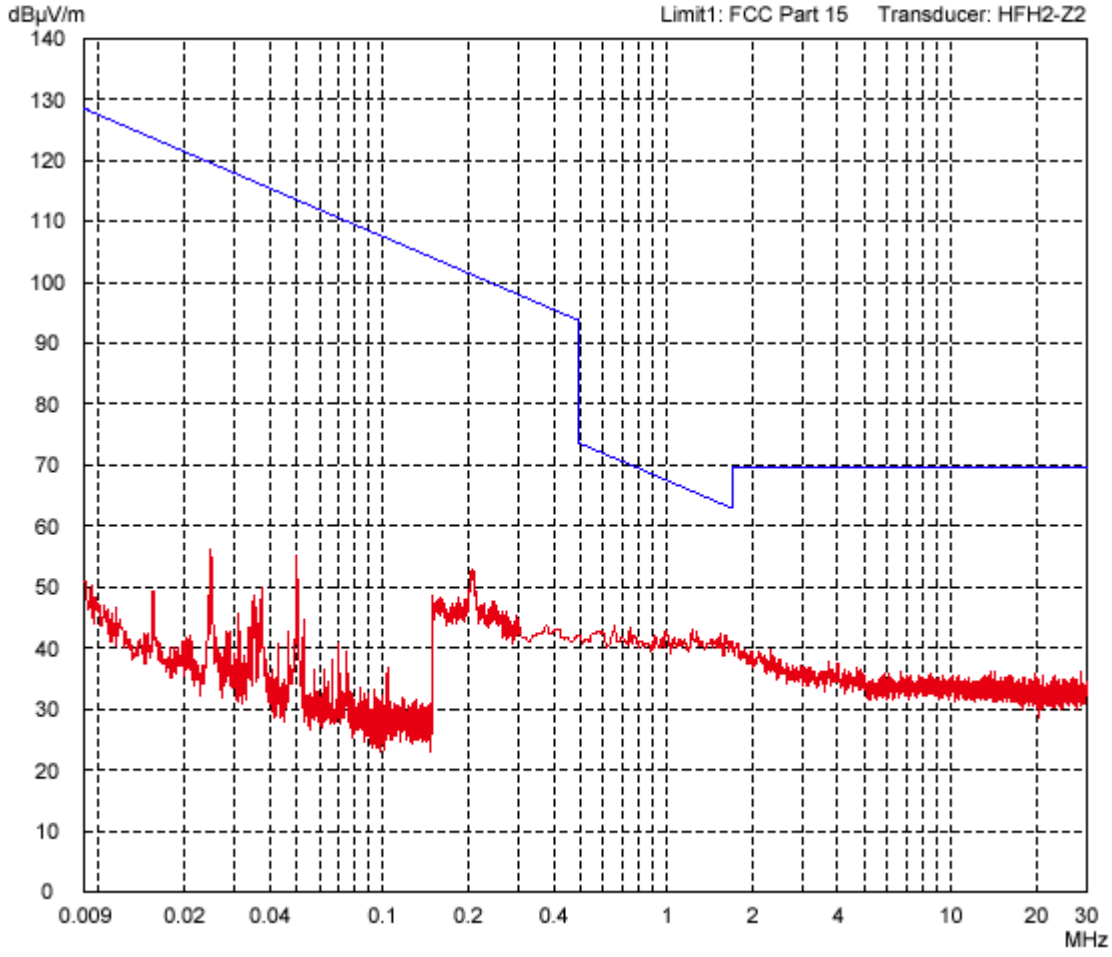
Conducted Emission Test 150 kHz - 30 MHz
according to FCC Part 15 Subpart C

Model: i-Port310	Mode: - 110 V AC power supply - External AC/DC adapter - Transmitting Random ISO Packets - Power: -15 dBm - With ferrites on RS232 and RS385in
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord AC 110 V Phase N	
Date of test: 04/21/2009 — Operator: M. Steindl	
Test performed: automatically — File name:	
Detector: Peak / Final Results: QP	Final results: 20 dB Margin — 25 Subranges



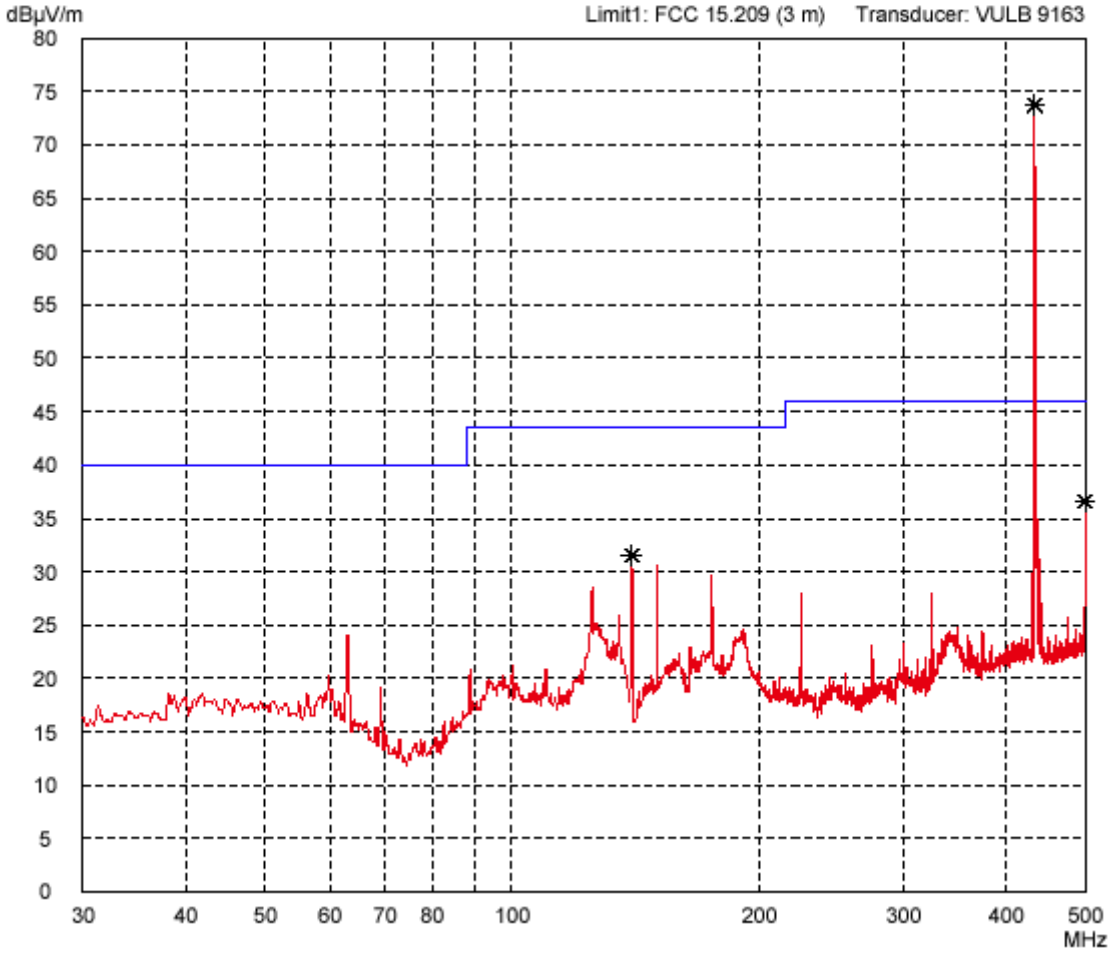
Radiated Emission Test 9 kHz - 30 MHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - Internal power supply - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: by hand / File name: default.emi	
Detector: Peak	List of values: 10 dB Margin 50 Subranges



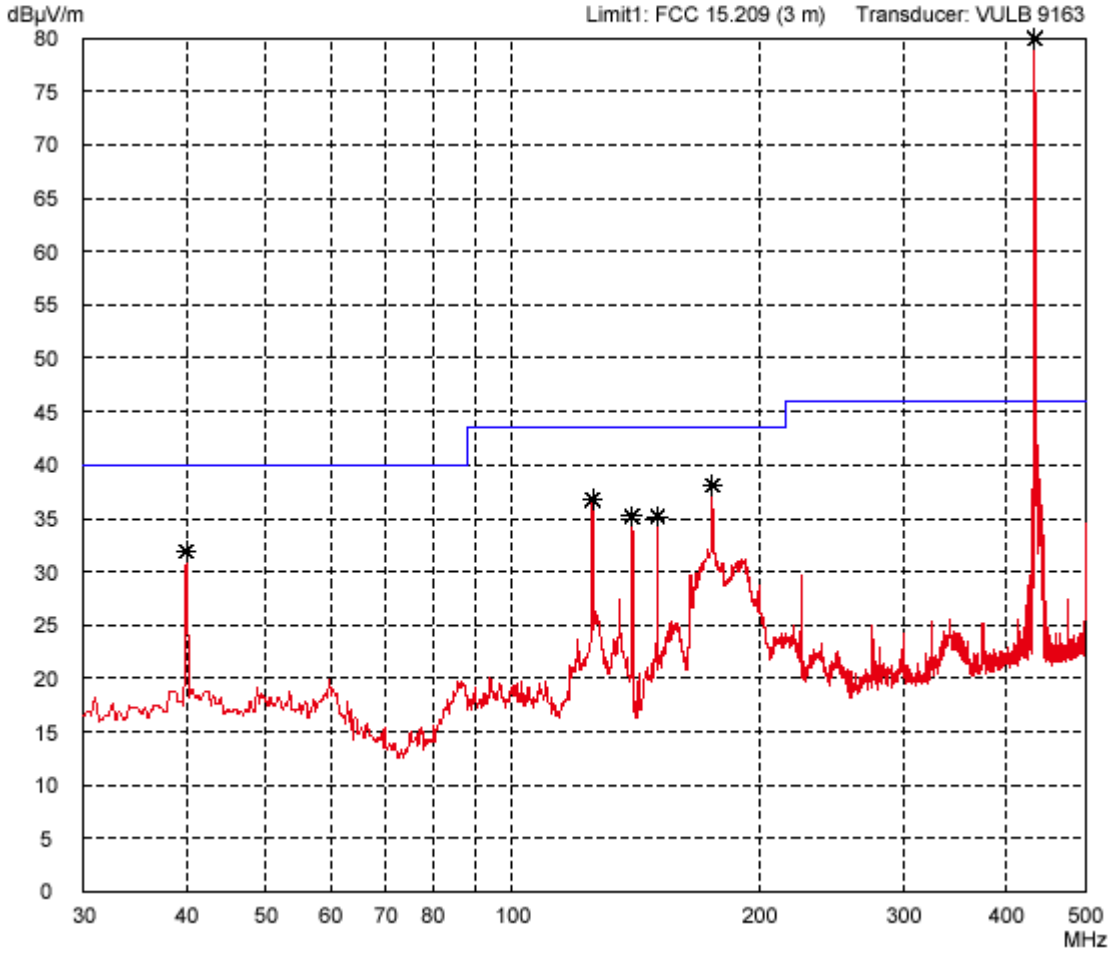
Radiated Emission Test 30 MHz - 500 MHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - Internal power supply - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand



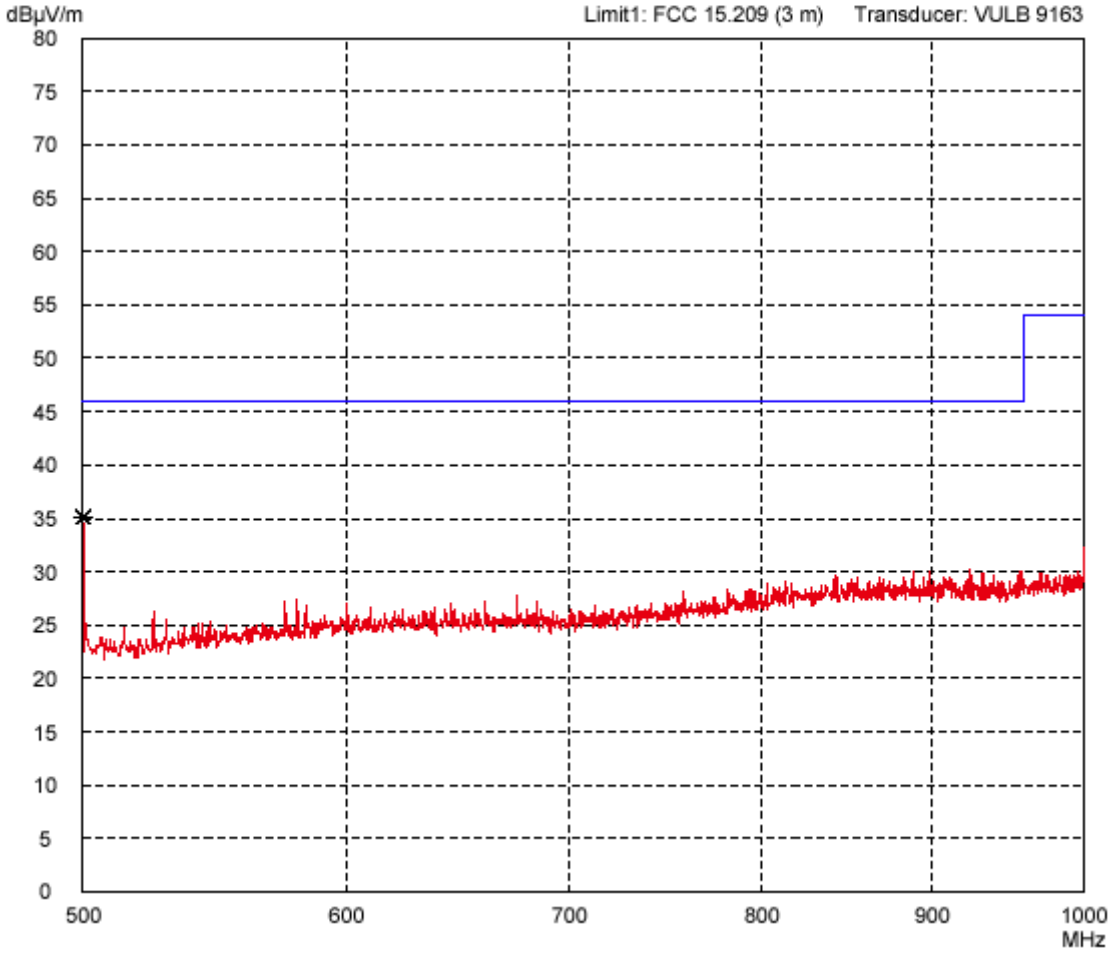
Radiated Emission Test 30 MHz - 500 MHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - Internal power supply - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: 10 dB Margin / 50 Subranges



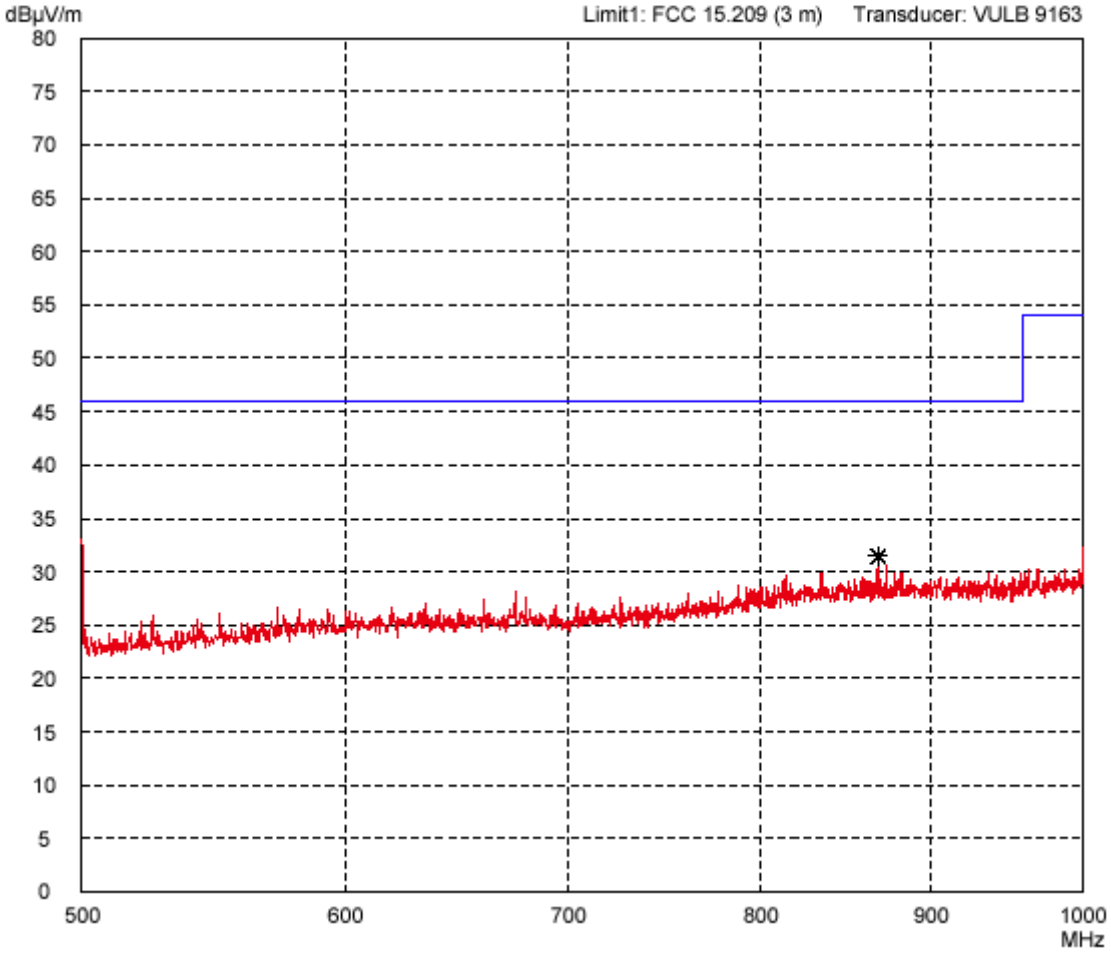
Radiated Emission Test 500 MHz - 1 GHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - Internal power supply - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand



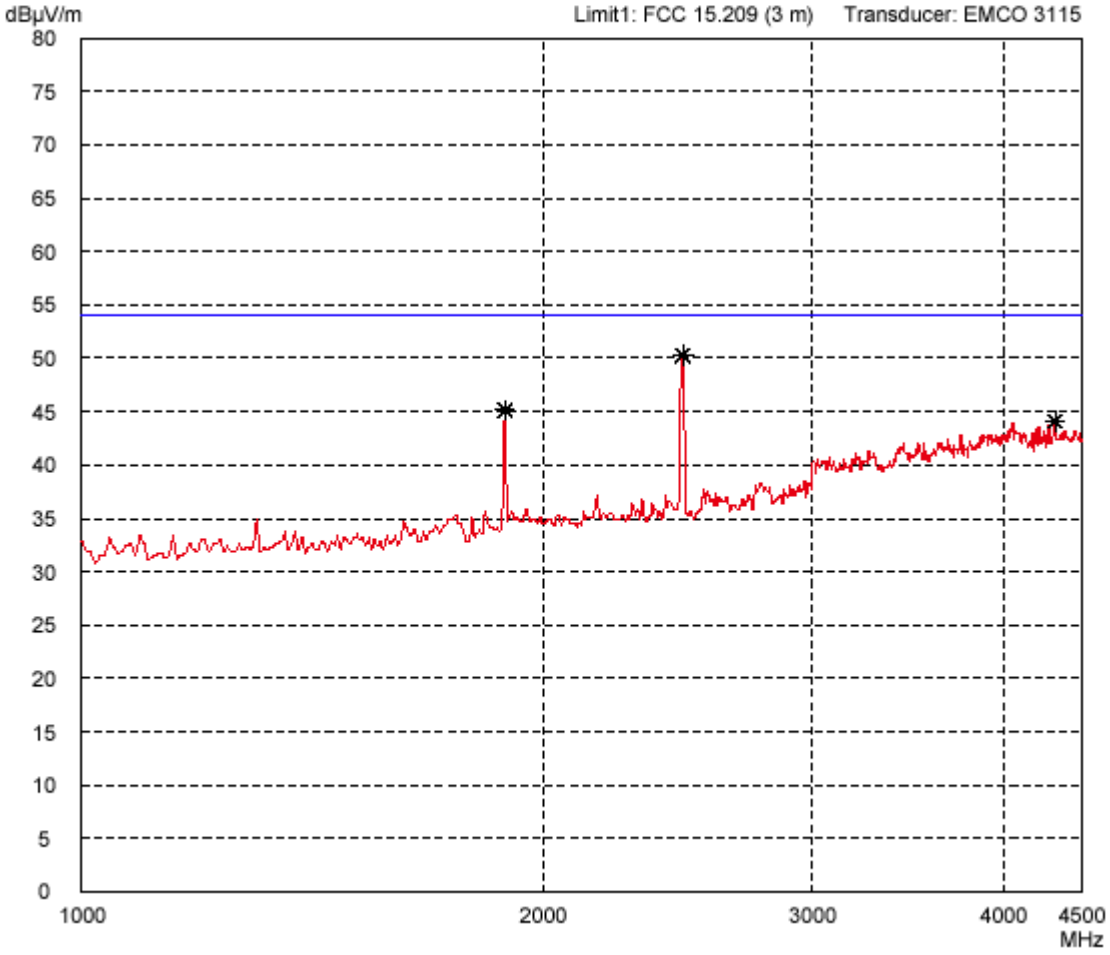
Radiated Emission Test 500 MHz - 1 GHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - Internal power supply - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand



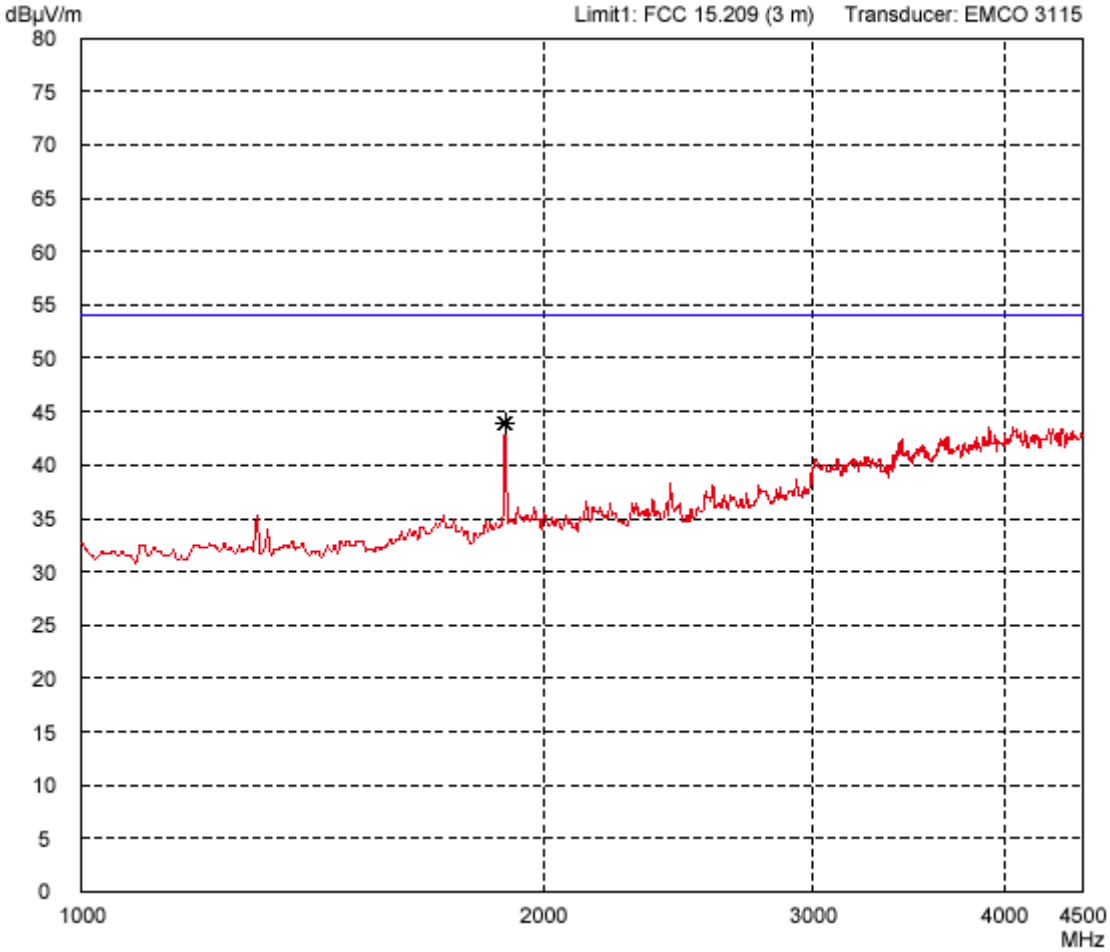
Radiated Emission Test 1 GHz - 4.5 GHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - Internal power supply - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand



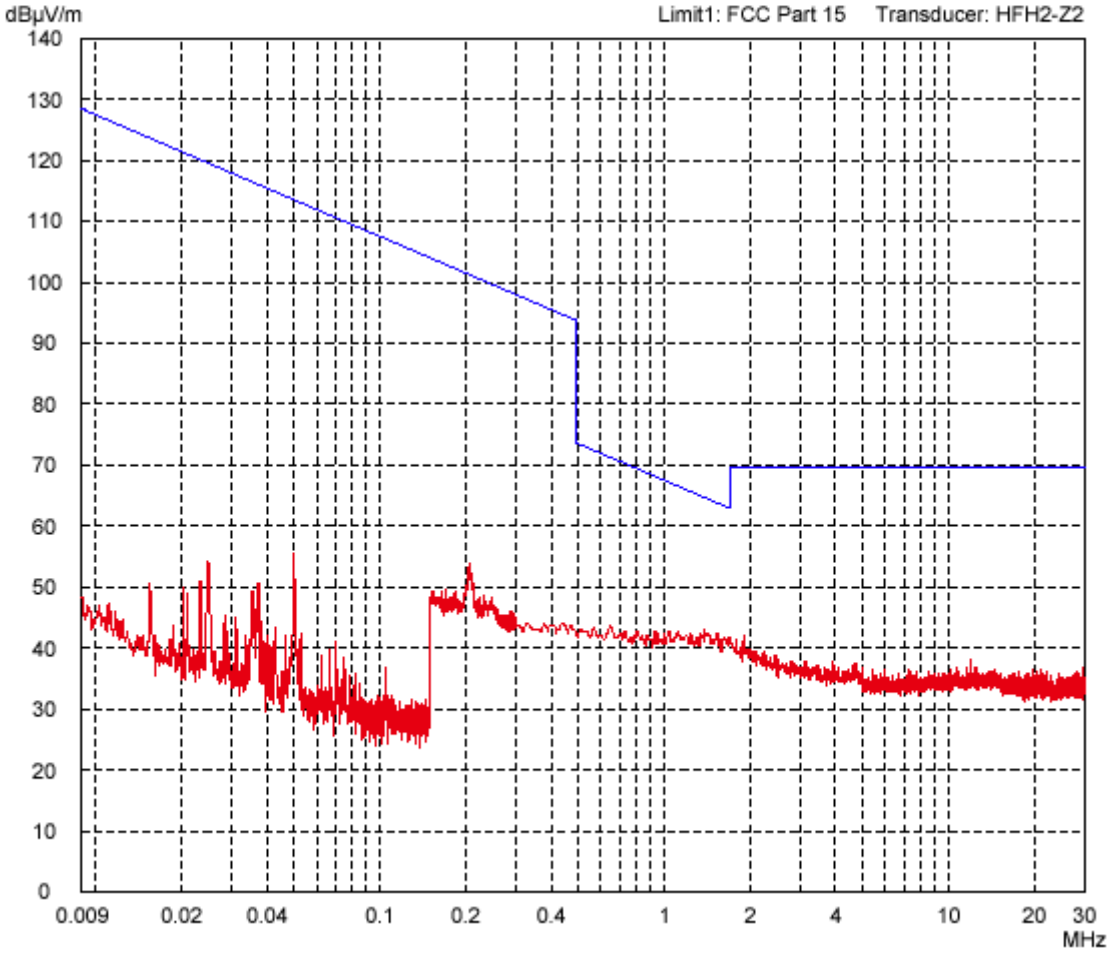
Radiated Emission Test 1 GHz - 4.5 GHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - Internal power supply - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand



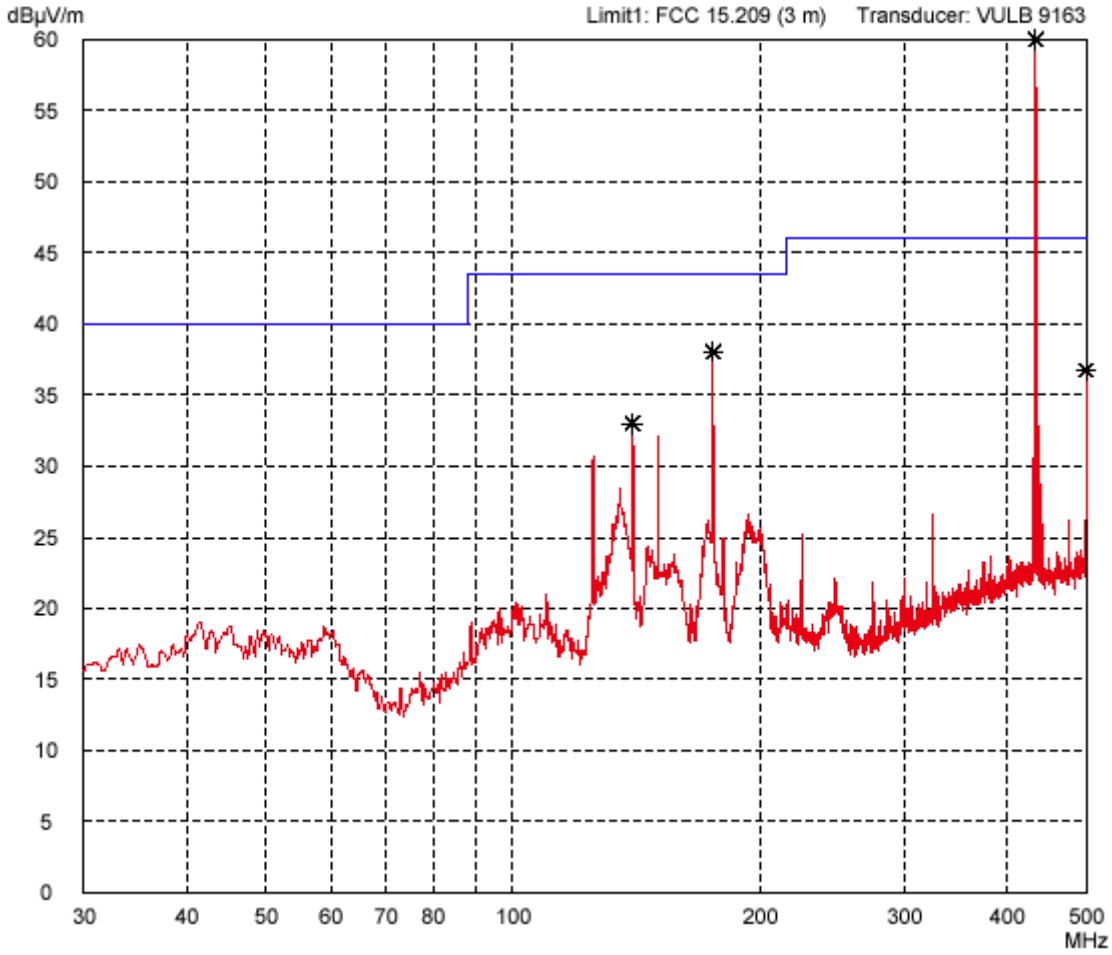
Radiated Emission Test 9 kHz - 30 MHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - External AC/DC adapter - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: by hand / File name: default.emi	
Detector: Peak	List of values: 10 dB Margin / 50 Subranges



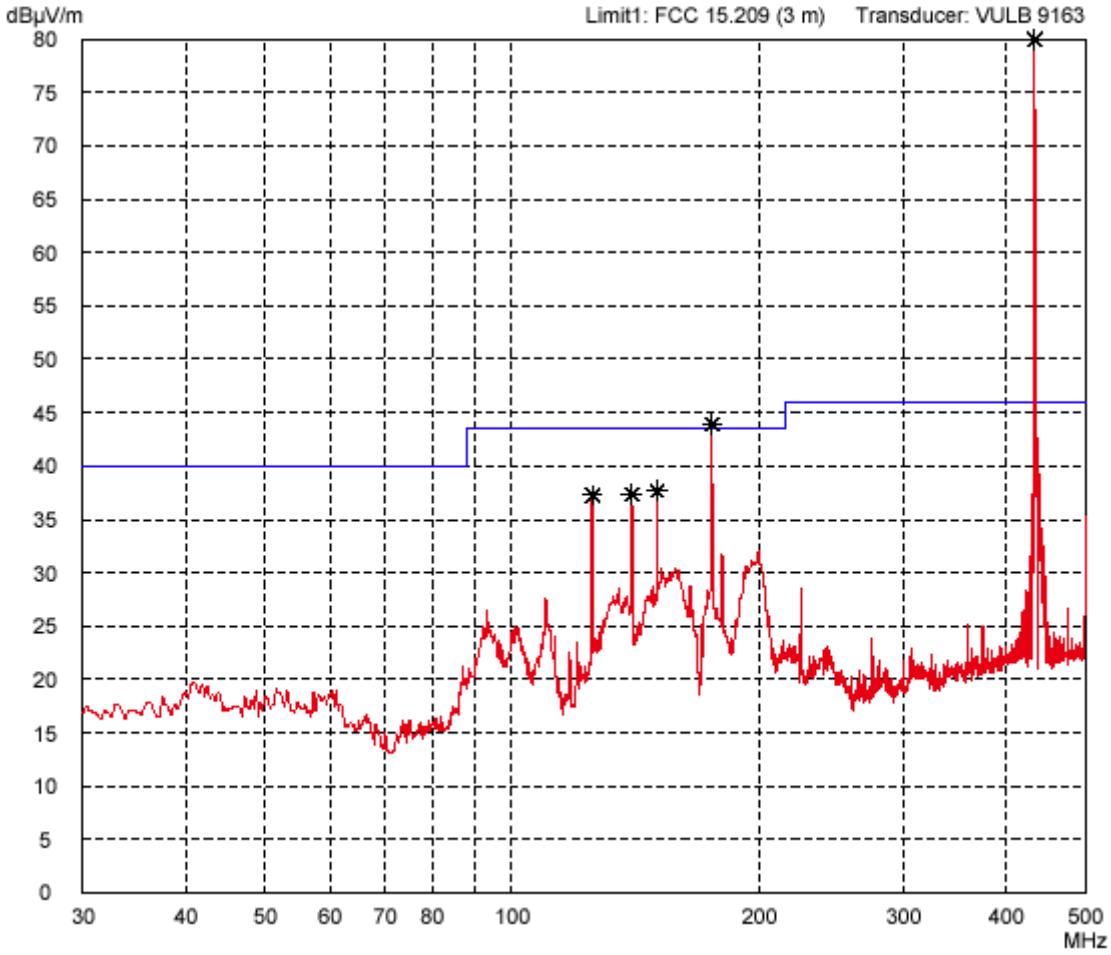
Radiated Emission Test 30 MHz - 500 MHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - External AC/DC adapter - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 04/20/2009 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	
Detector: Peak	List of values: Selected by hand



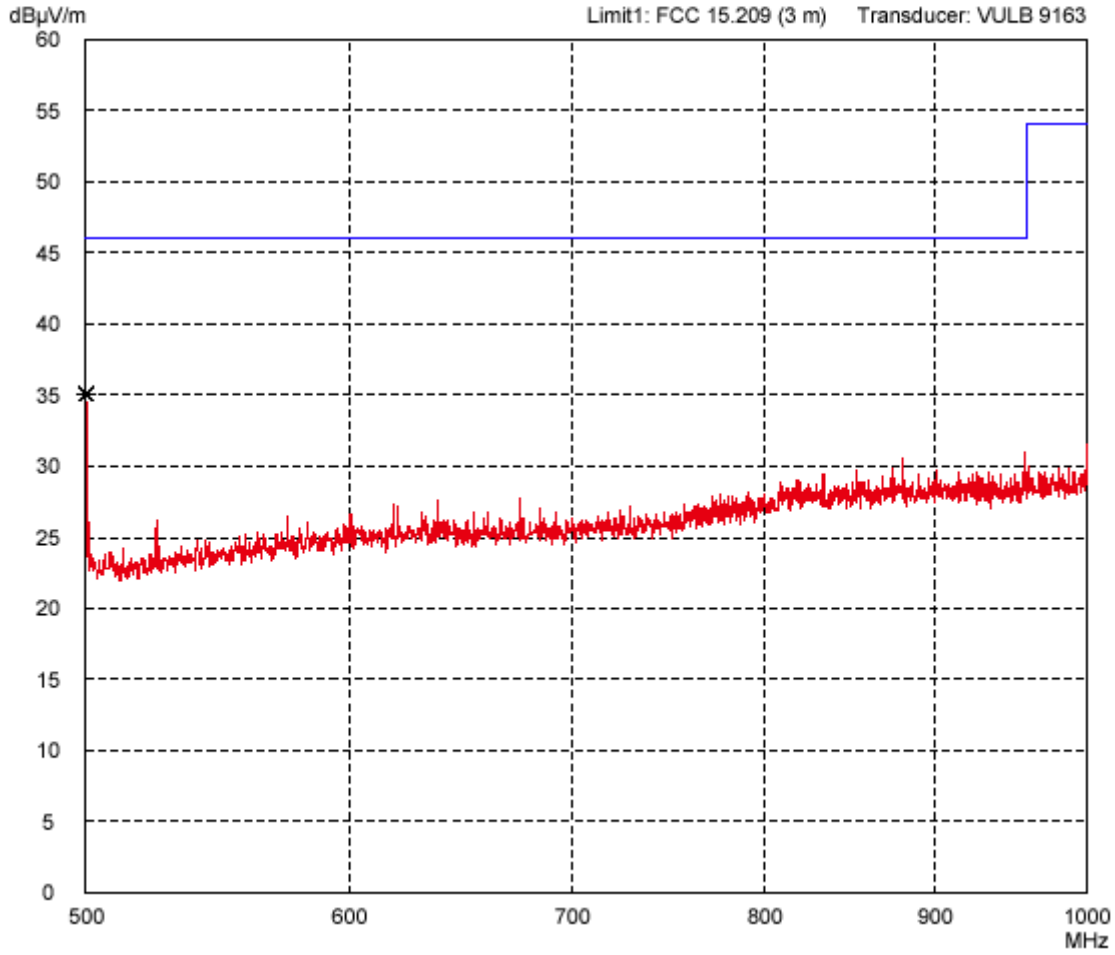
Radiated Emission Test 30 MHz - 500 MHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - External AC/DC adapter - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: 10 dB Margin / 50 Subranges



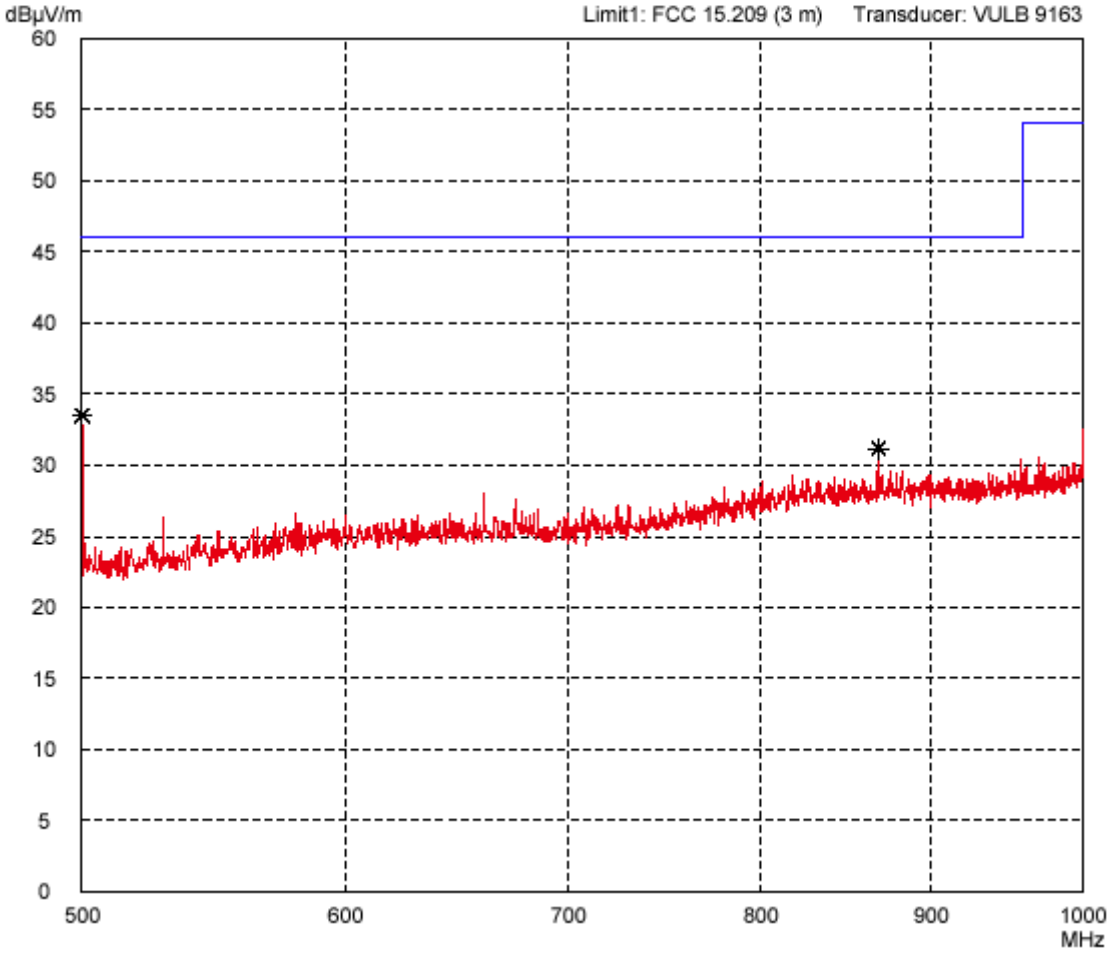
Radiated Emission Test 500 MHz - 1 GHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - External AC/DC adapter - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand



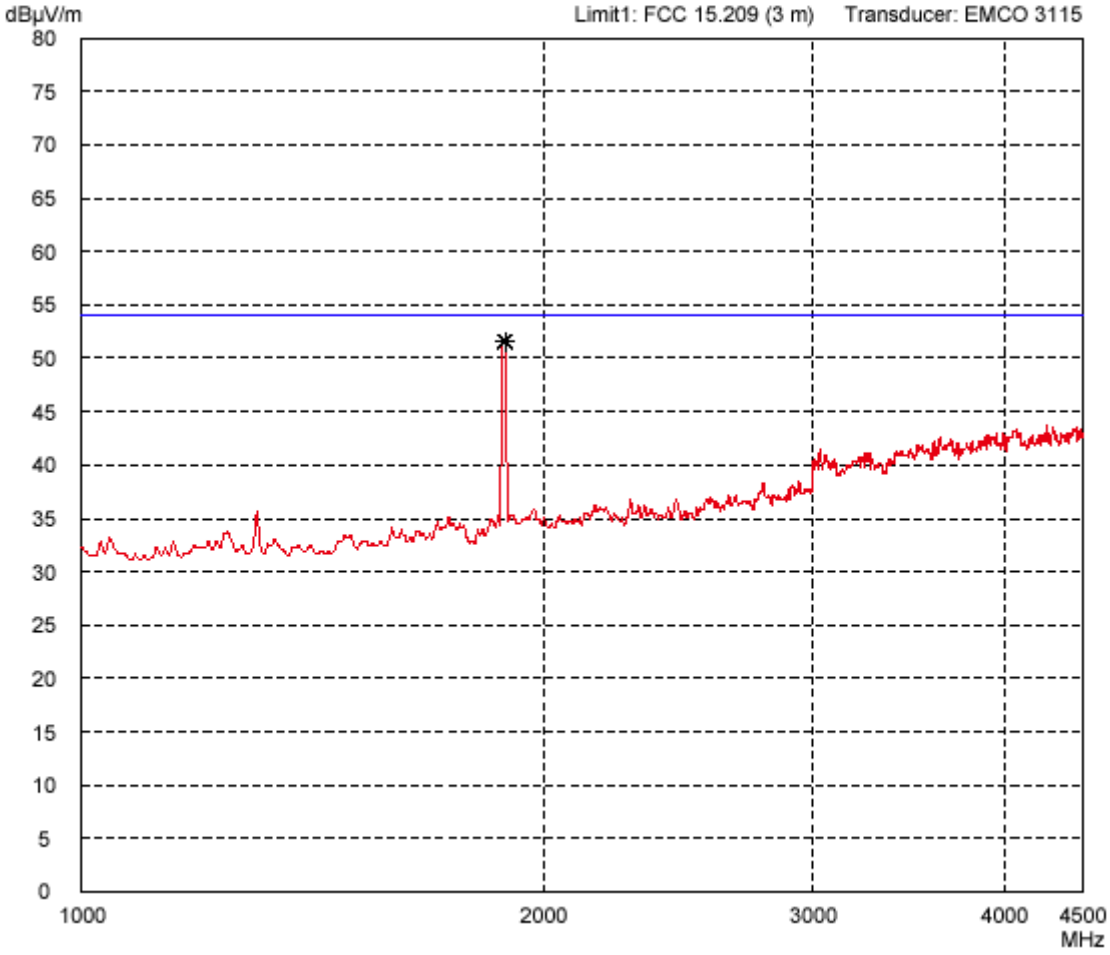
Radiated Emission Test 500 MHz - 1 GHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - External AC/DC adapter - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand



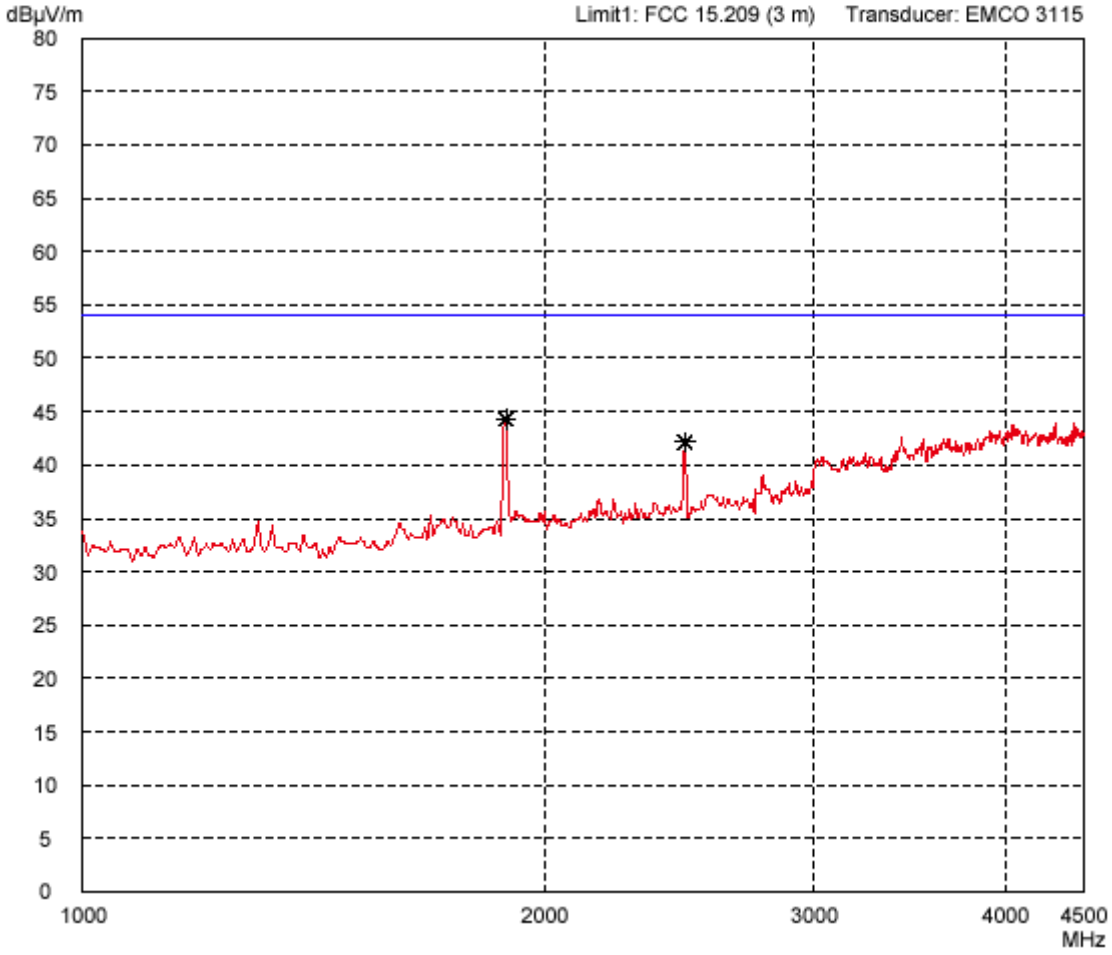
Radiated Emission Test 1 GHz - 4.5 GHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - External AC/DC adapter - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: 10 dB Margin / 50 Subranges



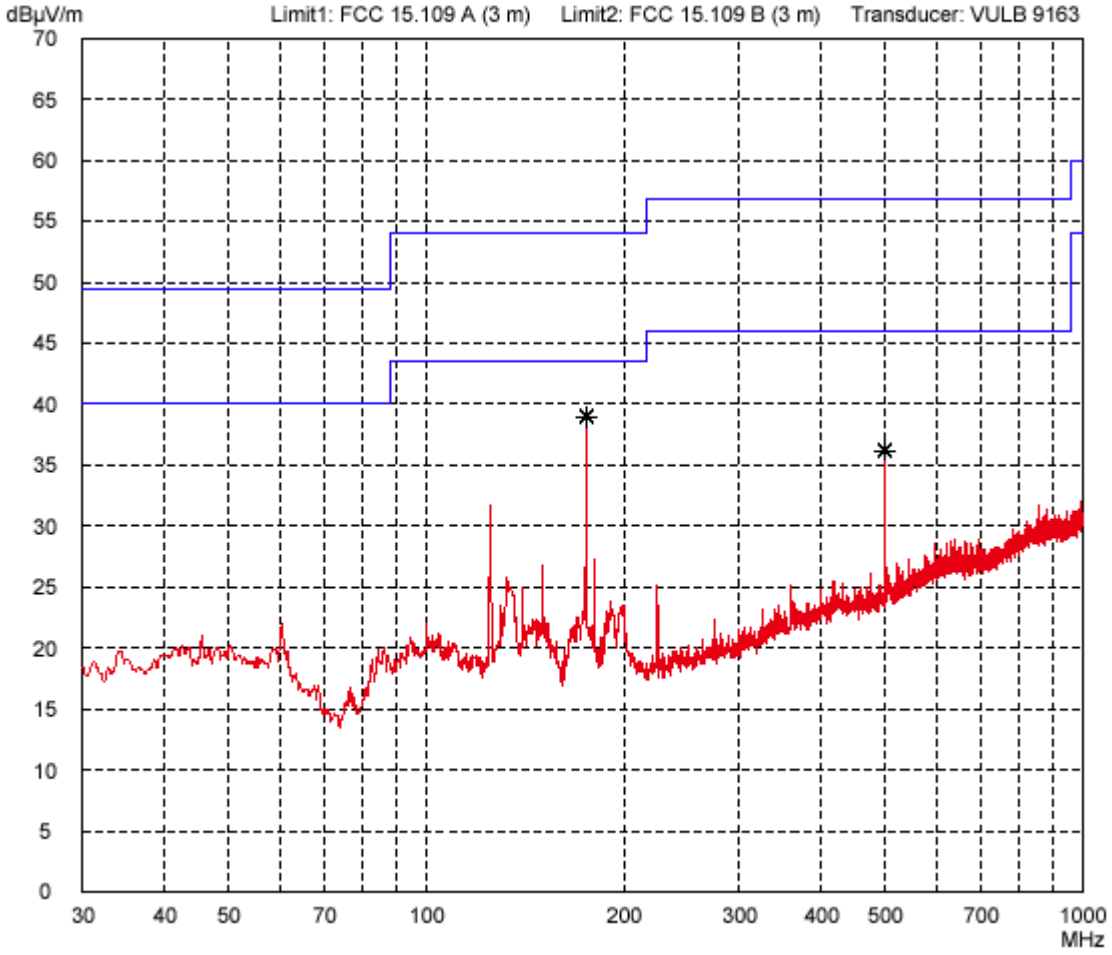
Radiated Emission Test 1 GHz - 4.5 GHz
acc. to FCC Part 15 Subpart C (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - External AC/DC adapter - Transmitting Random ISO Packets - Power: -15 dBm
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 04/20/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand



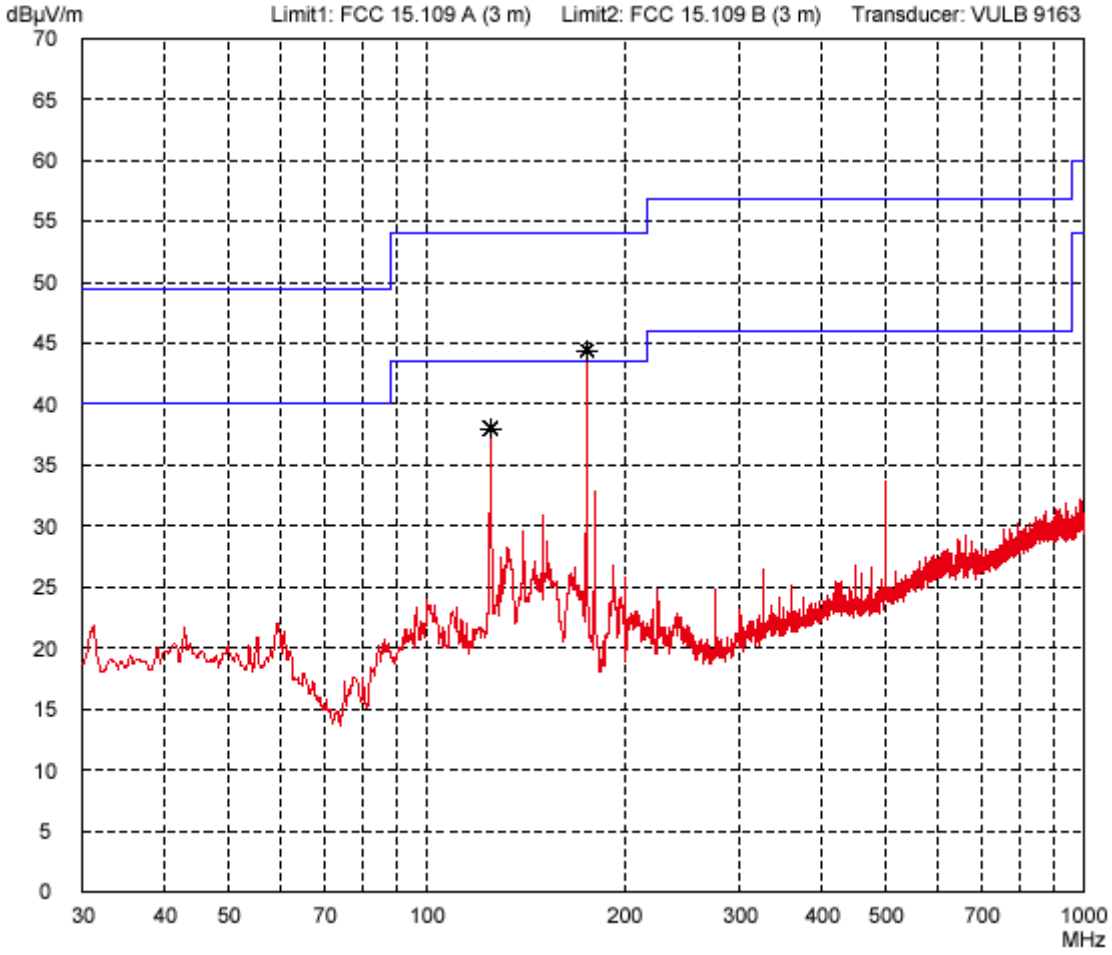
Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 Subpart B (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - External AC/DC adapter - Receiving mode
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 04/21/2009 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	
Detector: Peak	List of values: 10 dB Margin — 50 Subranges



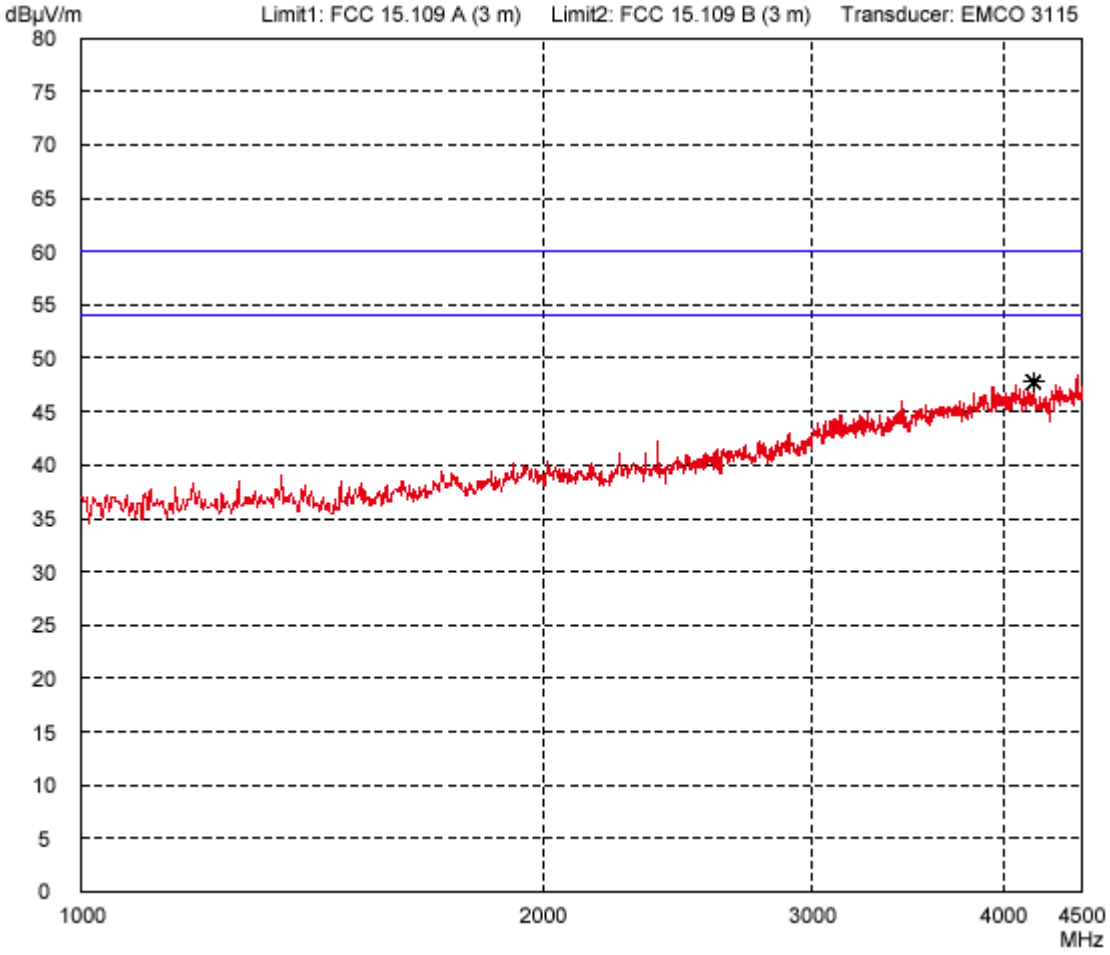
Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 Subpart B (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - External AC/DC adapter - Receiving mode
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 04/21/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: 10 dB Margin / 50 Subranges



Radiated Emission Test 1 GHz - 4.5 GHz
acc. to FCC Part 15 Subpart B (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - External AC/DC adapter - Receiving mode
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 04/22/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand



Radiated Emission Test 1 GHz - 4.5 GHz
acc. to FCC Part 15 Subpart B (FAR)

Model: i-Port310	Comment: - 110 V AC power supply - External AC/DC adapter - Receiving mode
Serial no.: 384369	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 04/22/2009 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand