Senton GmbH
Aeussere Fruehlingstrasse 45
D-94315 Straubing

Straubing, 13 September 2006

T E S T - R E P O R T

No. 57403-060316-2 (Edition 2)

for

WRX01

Nurse Call Transceiver

Applicant:	Vigil Health Solutions Inc.
Test Specifications:	FCC Code of Federal Regulations, CFR 47, Part 15, Sections 15.107, 15.109, 15.207 15.215 and 15.247 Industry Canada Radio Standards Specifications RSS-Gen Issue 1, Sectons 7.2.2, 7.2.3 and RSS-210 Issue 6, Section A8 (Category I Equipment)

Table of Contents

1 Description of the Equipment Under Test (EUT)

General data of EUT	
Type designation[1]:	WRX01
Parts[2]:	
Serial number(s):	
Manufacturer:	Vigil Health Solutions Inc.
Type of equipment:	Nurse Call Transceiver
Version:	As delivered
FCC ID:	
Additional parts/accessories:	---

Technical data of EUT	
Application frequency range:	902 - 928 MHz
Frequency range:	902 - 928 MHz
Operating frequency:	915 MHz
Type of modulation:	FM
Pulse train:	---
Pulse width:	---
Number of RF-channels:	---
Channel spacing:	---
Designation of emissions[3]:	250kF1D
Type of antenna:	Monopole
Size/length of antenna:	16.5 cm
Connection of antenna:	☒ detachable ☐ not detachable
Antenna connector:	Reverse Polarity SMA
Type of power supply:	Battery supply - lithium type
Specifications for power supply:	nominal voltage: 3.6 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):	Vigil Health Solutions Inc. 2102-4464 Markham Street V8Z 7X8 Victoria British Columbia Canada
Contact person:	Steven Smith
Receipt of EUT:	30 June 2006
Date(s) of test:	July - August 2006
Note(s):	---

Report details	
Report number:	57403-060316-2
Edition:	2
Issue date:	13 September 2006

3 Identification of the Test Laboratory

Details of the Test Laboratory	
Company name:	Senton GmbH EMI/EMC Test Center
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:	IC 3050
Contact person:	Mr. Johann Roidt Phone: (+49) (0)9421 5522-0 Fax: (+49) (0)9421 5522-99

4 Summary

Summary of test results
The tested sample complies with the requirements set forth in the **Code of Federal Regulations CFR 47, Part 15, Sections 15.107, 15.109, 15.207 15.215 and 15.247** of the Federal Communication Commission (FCC) and the **Radio Standards Specifications** **RSS-Gen Issue 1, Sections 7.2.2, 7.2.3 and** **RSS-210 Issue 6, 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
Tests were performed with on lowest, middle and highest channel.

Configuration of EUT
The EUT was configured as stand alone device. The SDK board was used for adjusting the channel and mode only.

List of ports and cables				
Port	*Description*	*Classification*[4]	*Cable type*	*Cable length*
1	CAN connector	DC supply signal / control port	shielded	3 m

List of devices connected to EUT				
Item	*Description*	*Type Designation*	*Serial no. or ID*	*Manufacturer*
	Not applicable			

List of support devices				
Item	*Description*	*Type Designation*	*Serial no. or ID*	*Manufacturer*
1	SDK board with remote connector	Test Board		Aerocomm
2	AC/DC convertor			Vigil

[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) and 15.247(a)(2) IC RSS-Gen Issue 1, sections 4.4.1 and 4.4.2 IC RSS-210 Issue 6, section A1.1.3 ANSI C63.4, annex H.6
Guide:	ANSI C63.4
Measurement setup:	☐ Conducted: See below ☒ Radiated: Radiated Emission in Fully or Semi Anechoic Room (6.3)

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).

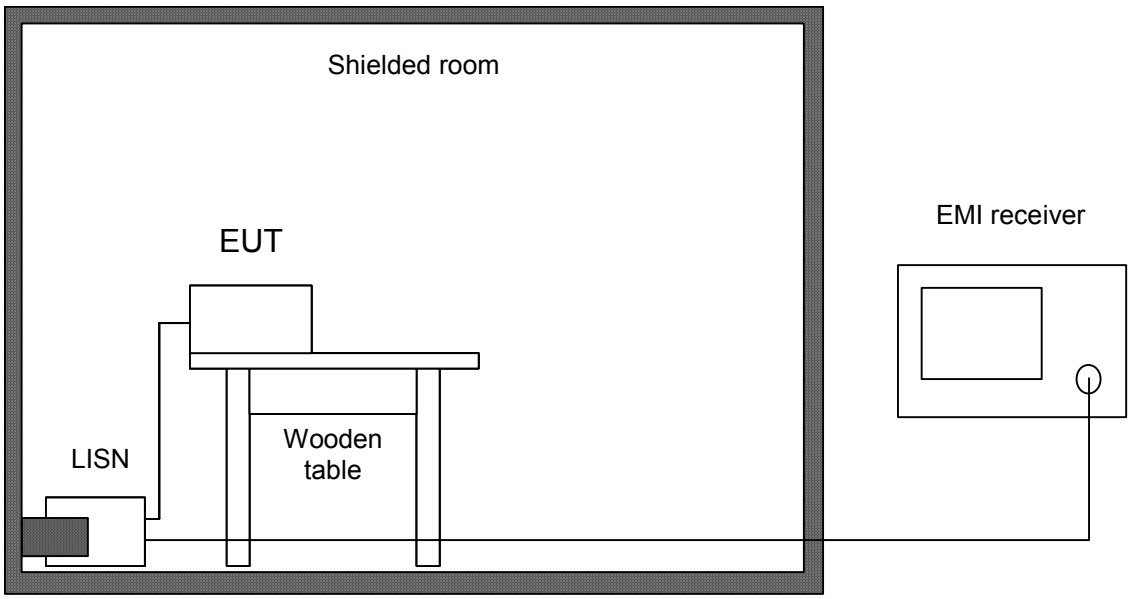
6.2 Conducted AC Powerline Emission

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.107 and 15.207 IC RSS-Gen Issue 1, 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 in Fully or Semi Anechoic Room

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.215(b) and 15.249 IC RSS-210 Issue 6, 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 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.

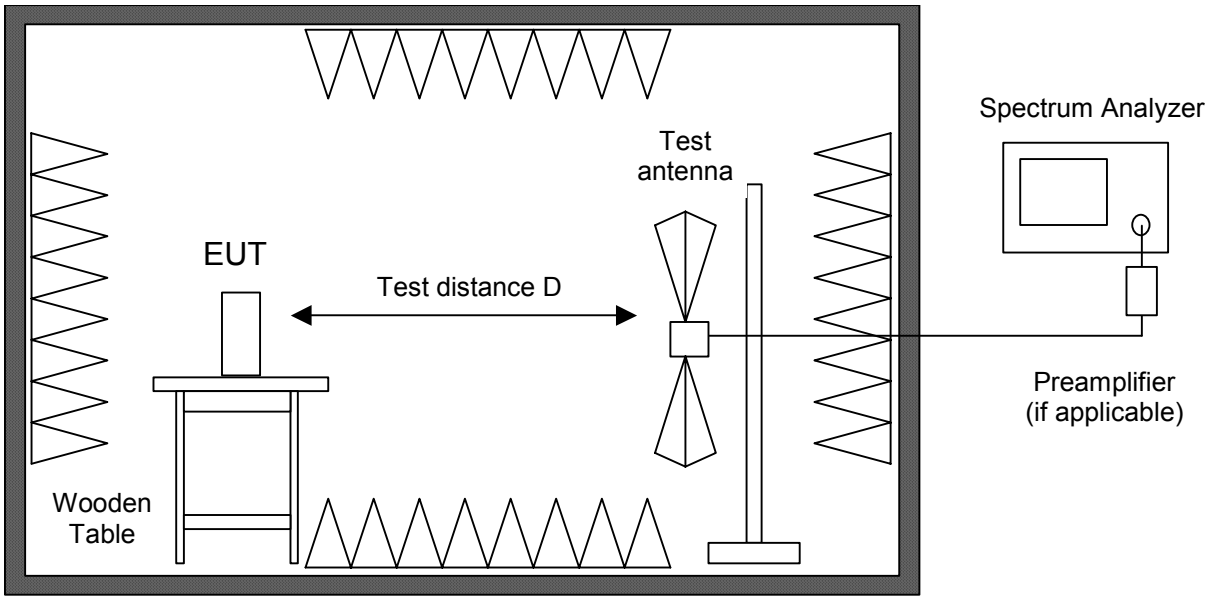
All tests below 18 GHz are performed at a test distance D of 3 meters. For higher frequencies the test distance is reduced (e.g. to 1 meter) due to the sensitivity of the measuring instrument(s) and the test results are calculated according to CFR 47 Part 15 section 15.31(f)(1) using an extrapolation factor of 20 dB/decade. If required, preamplifiers are used for the whole frequency range. Special care is taken to avoid overload, using appropriate attenuators and filters, if necessary.

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
☐	Spectrum analyzer	R 3271	05050023	Advantest
☐	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 Accessories	FS-Z30	843389/007	Rohde & Schwarz
☒	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

6.4 Radiated Emission at Open Field Test Site

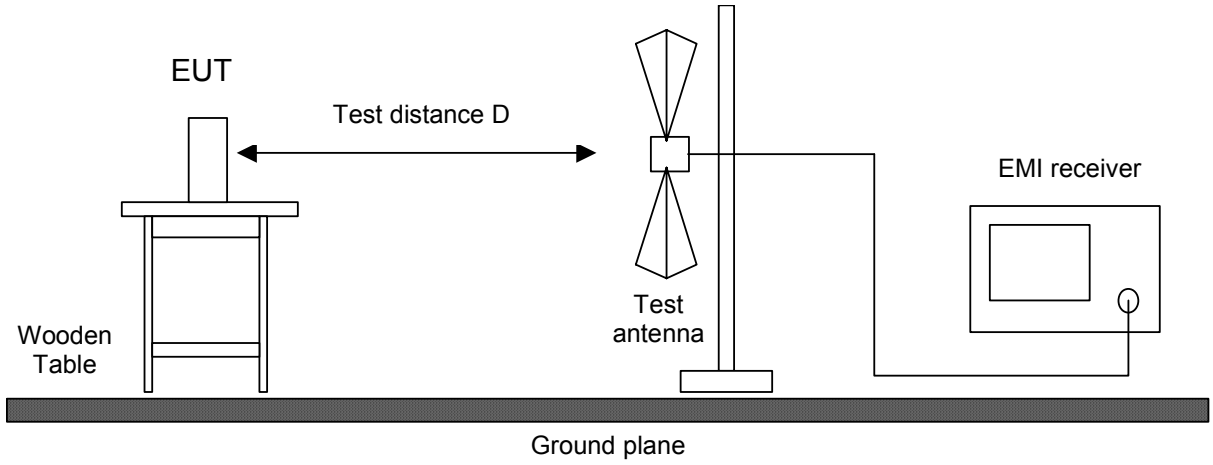
Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.215(b) and 15.249 IC RSS-210 Issue 6, section A2.9
Guide:	ANSI C63.4

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.



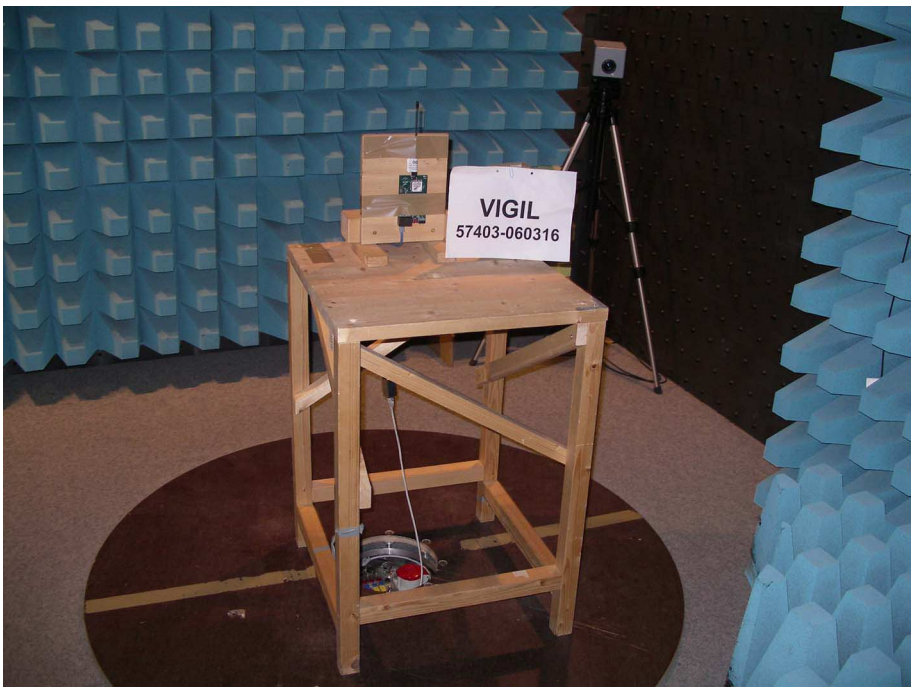
Test instruments used:

Used	Type		Model	Serial No. or ID	Manufacturer
☒	EMI receiver		ESVP	881120/024	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 (fully anechoic room)



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
2.1093	RF Exposure Requirement	68	Test passed
2.202(a)	Occupied bandwidth	22	Recorded
15.215(c)	Bandwidth of the emission	33	Test passed
2.201, 2.202	Class of emission	37	Calculated
15.35(c)	Pulse train measurement for pulsed operation	---	Not applicable
15.207	Conducted AC powerline emission 150 kHz to 30 MHz	38	Test passed
15.247(a)(1)	Channel Bandwidth	40	Test passed
15.247(a)(1)	Hopping channel separation	41	Test passed
15.247(a)(1)(i)	Number of hopping frequencies used	45	Test passed
15.247(a)(1)(i)	Dwell time of each frequency within a 10 second period of time	47	Test passed
15.247(b)(2)	Maximum Peak Output Power	54	Test passed
15.247(c)	Spurious emissions 30 MHz to 10 GHz - conducted	58	Test passed
15.247(c)	Spurious emissions 30 MHz to 10 GHz - radiated	64	Test passed
15.247(g)	Compliance with applicable requirements for FHSS	---	Test passed
15.247(h)	Limitation on avoidance on hopping in occupied channel	---	Test passed

IC RSS-Gen Issue 1			
Section(s)	*Test*	*Page*	*Result*
4.6	Transmitter output power (conducted)	---	Not applicable
4.4.1	Occupied Bandwidth	22	Recorded
3.2(h), 8	Designation of emissions	37	Calculated
4.3	Pulsed operation	---	Not applicable
7.2.2	Transmitter AC power lines conducted emissions 150 kHz to 30 MHz	38	Test passed
5.5	Exposure of Humans to RF Fields	69	Exempted from SAR and RF evaluation

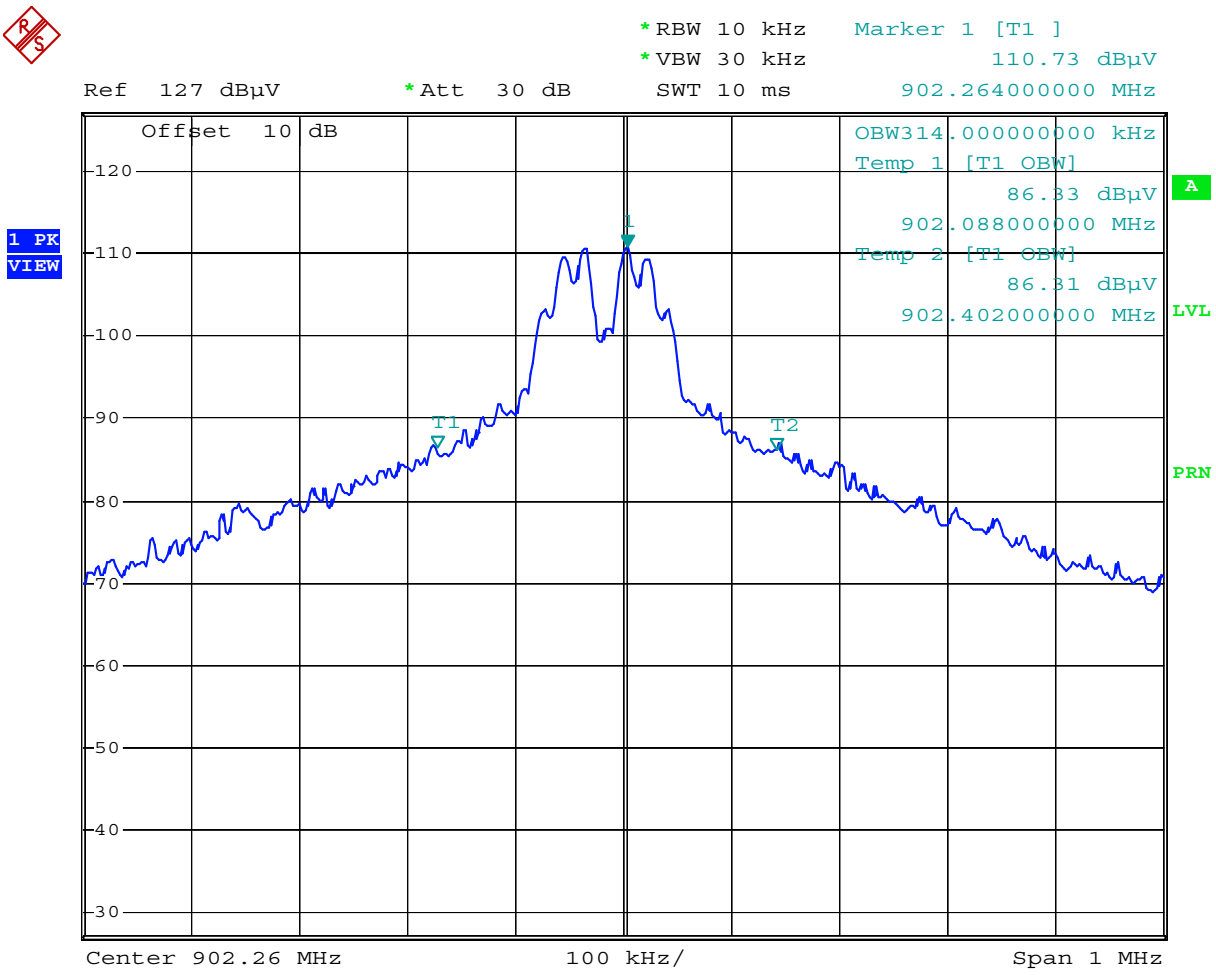
IC RSS-210 Issue 6			
Section(s)	*Test*	*Page*	*Result*
A8.1(2)	Channel bandwidth	40	Test passed
A8.1(2)	Hopping channel separation	41	Test passed
A8.1(4)	Number of hopping frequencies used	45	Test passed
A8.1(4)	Time occupancy on any channel	47	Test passed
A8.4(2)	Maximum peak output power	54	Test passed
A8.5	Spurious emissions 30 MHz to 10 GHz - conducted	58	Test passed
A8.5	Spurious emissions 30 MHz to 10 GHz - radiated	64	Test passed

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:	4 August 2006
Test site:	Fully anechoic room, cabin no. 2

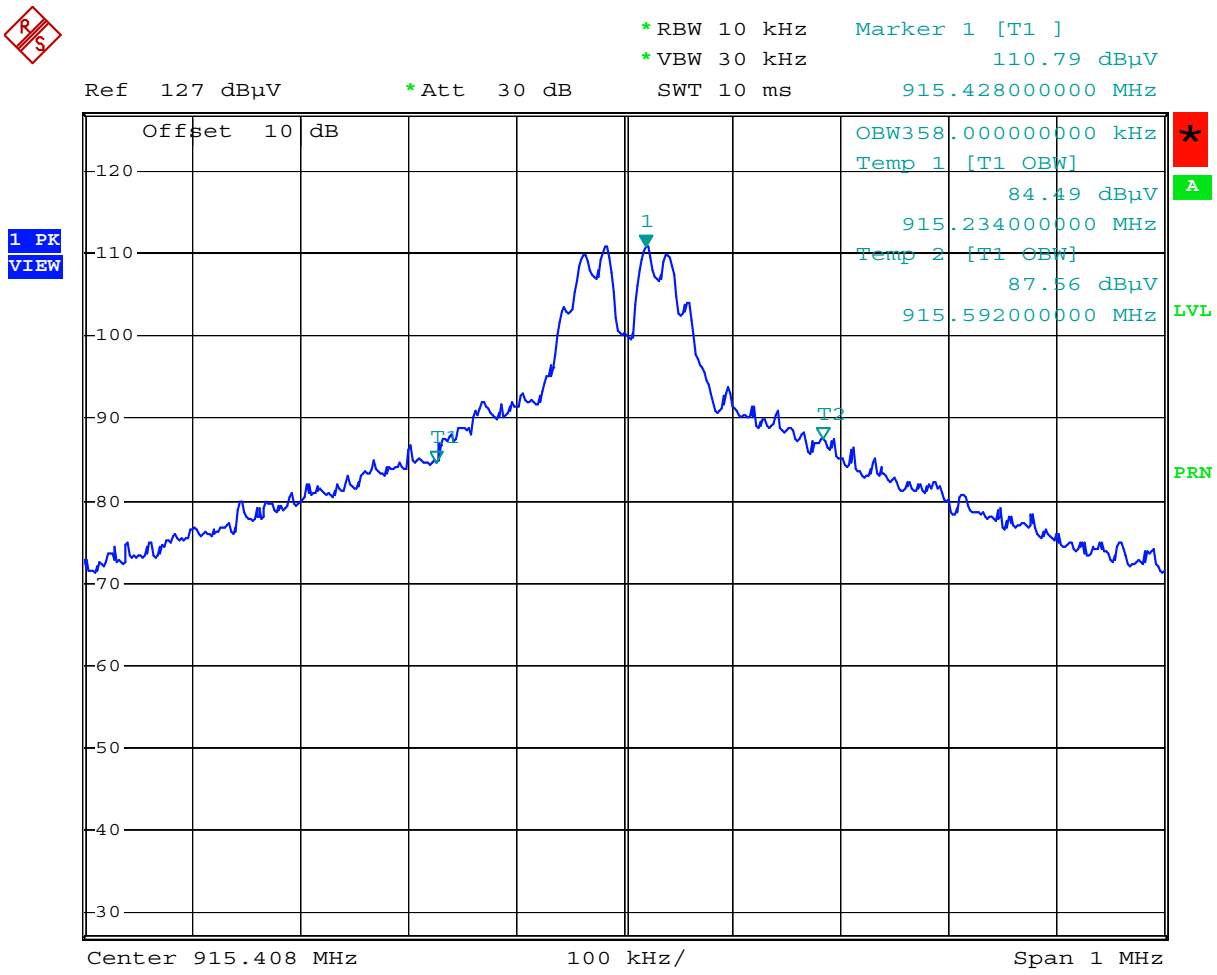
Occupied Bandwidth (99 %) on lowest channel:



Comment: vigil 060316: Occupied Bandwidth
Date: 4.AUG.2006 14:04:06

Occupied Bandwidth (99 %):	**314 kHz**

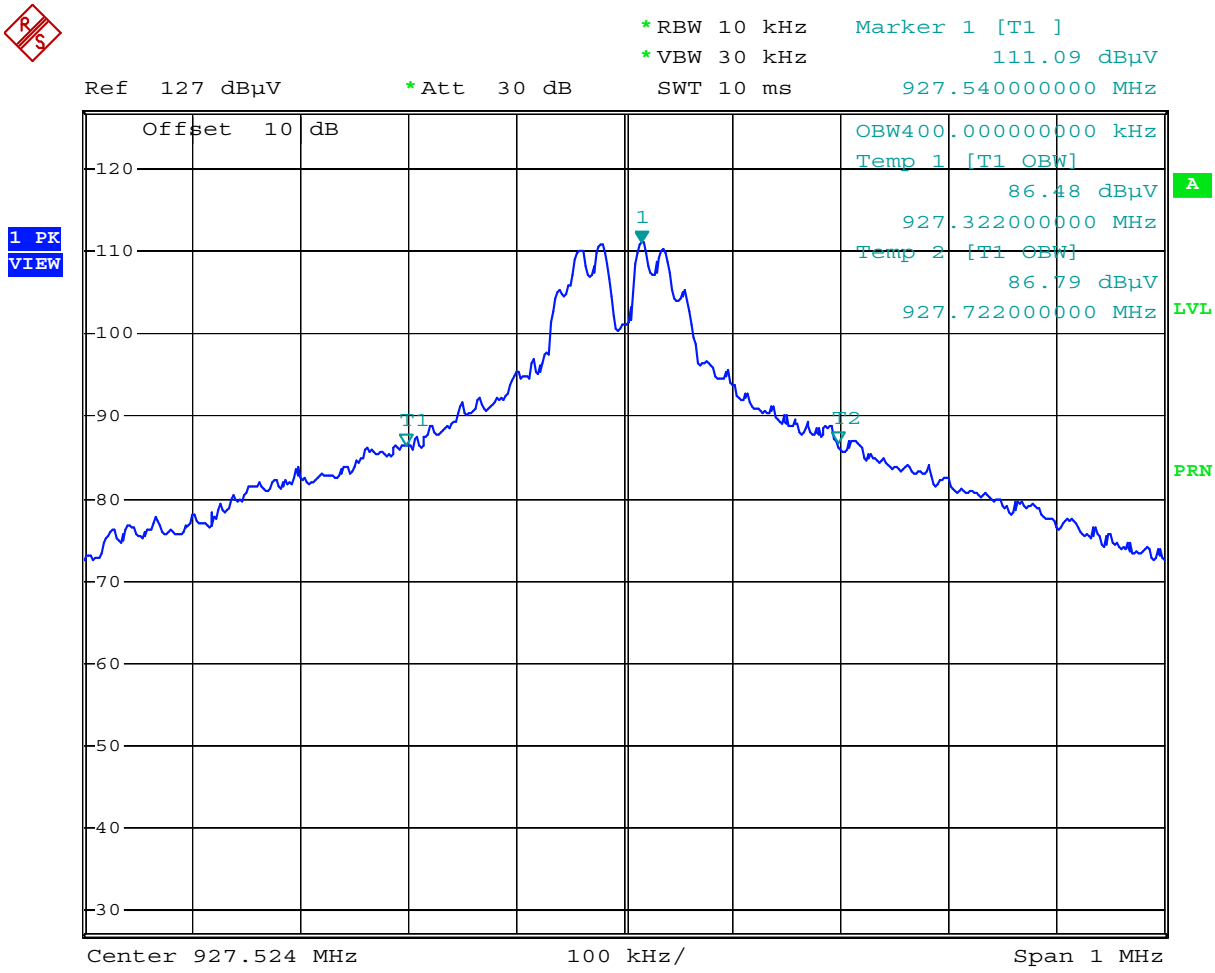
Occupied Bandwidth (99 %) on middle channel:



Comment: vigil 060316: Occupied Bandwidth
Date: 4.AUG.2006 14:21:32

Occupied Bandwidth (99 %):	**358 kHz**

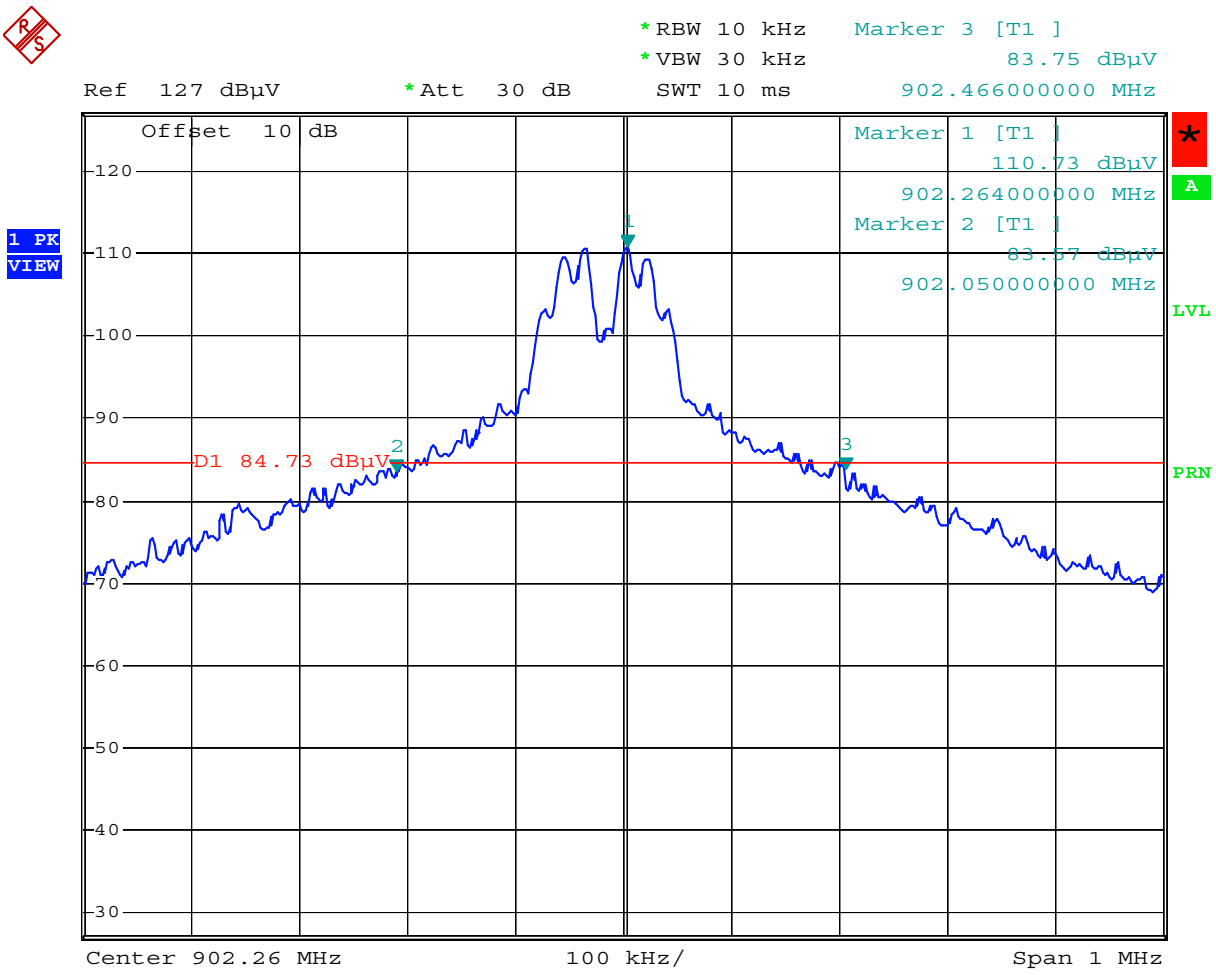
Occupied Bandwidth (99 %) on highest channel:



Comment: vigil 060316: Occupied Bandwidth
Date: 4.AUG.2006 14:12:28

Occupied Bandwidth (99 %):	**400 kHz**

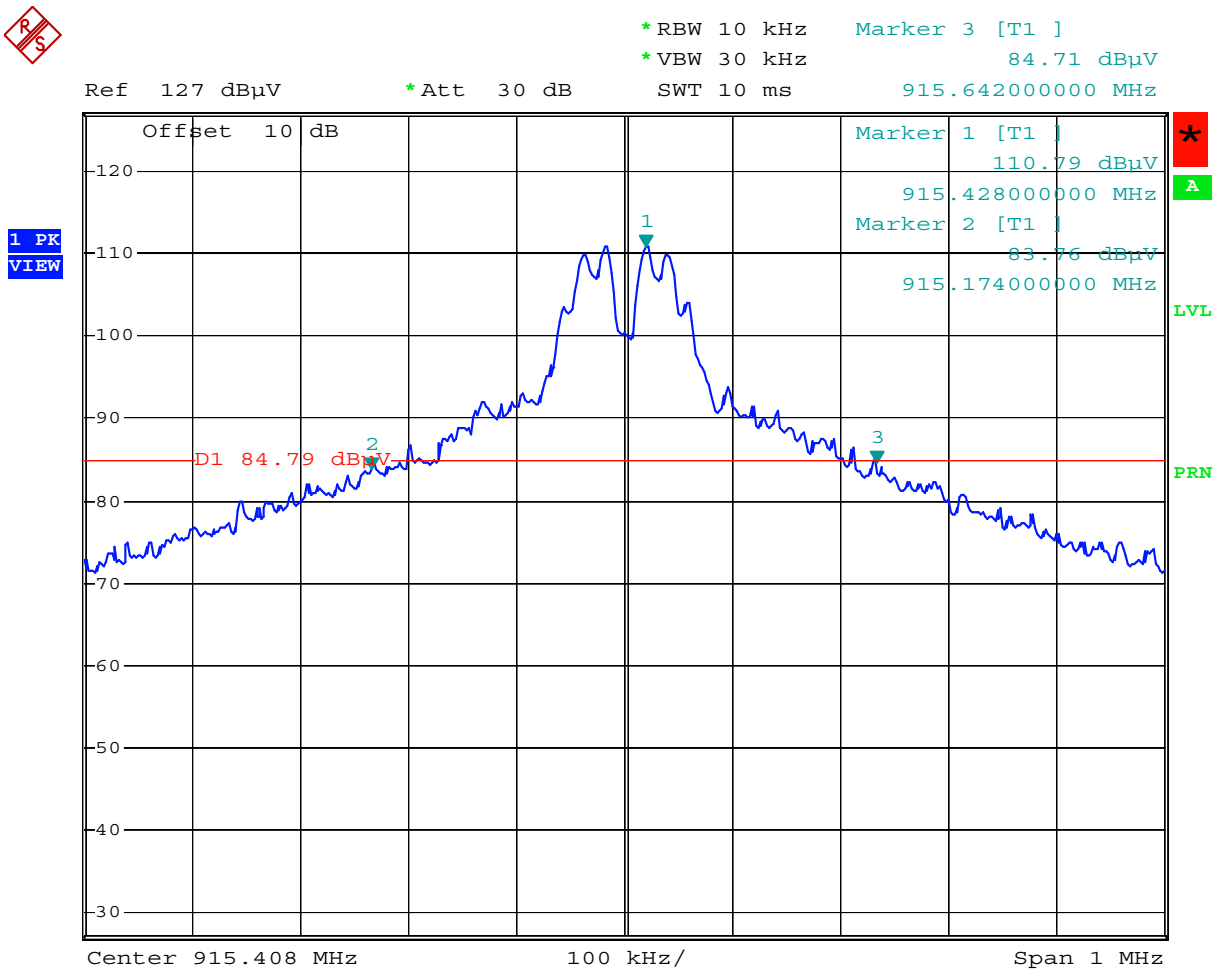
Occupied Bandwidth (-26 dB) on lowest channel:



Comment: vigil 060316: Occupied Bandwidth
Date: 4.AUG.2006 14:05:22

Occupied Bandwidth (-26 dB):	**405 kHz**

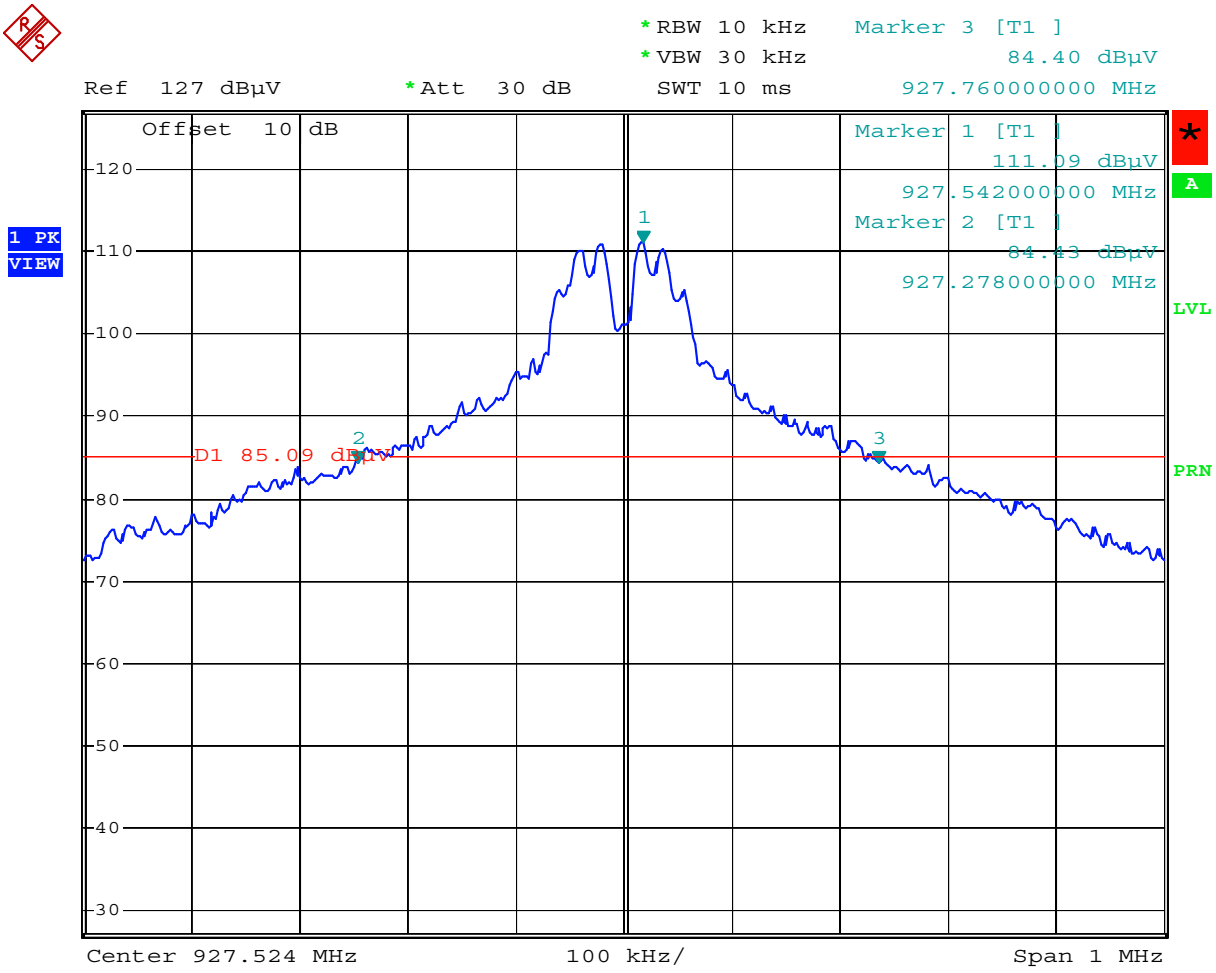
Occupied Bandwidth (-26 dB) on middle channel:



Comment: vigil 060316: Occupied Bandwidth
Date: 4.AUG.2006 14:22:21

Occupied Bandwidth (-26 dB):	**468 kHz**

Occupied Bandwidth (-26 dB) on highest channel:



Comment: vigil 060316: Occupied Bandwidth
Date: 4.AUG.2006 14:13:36

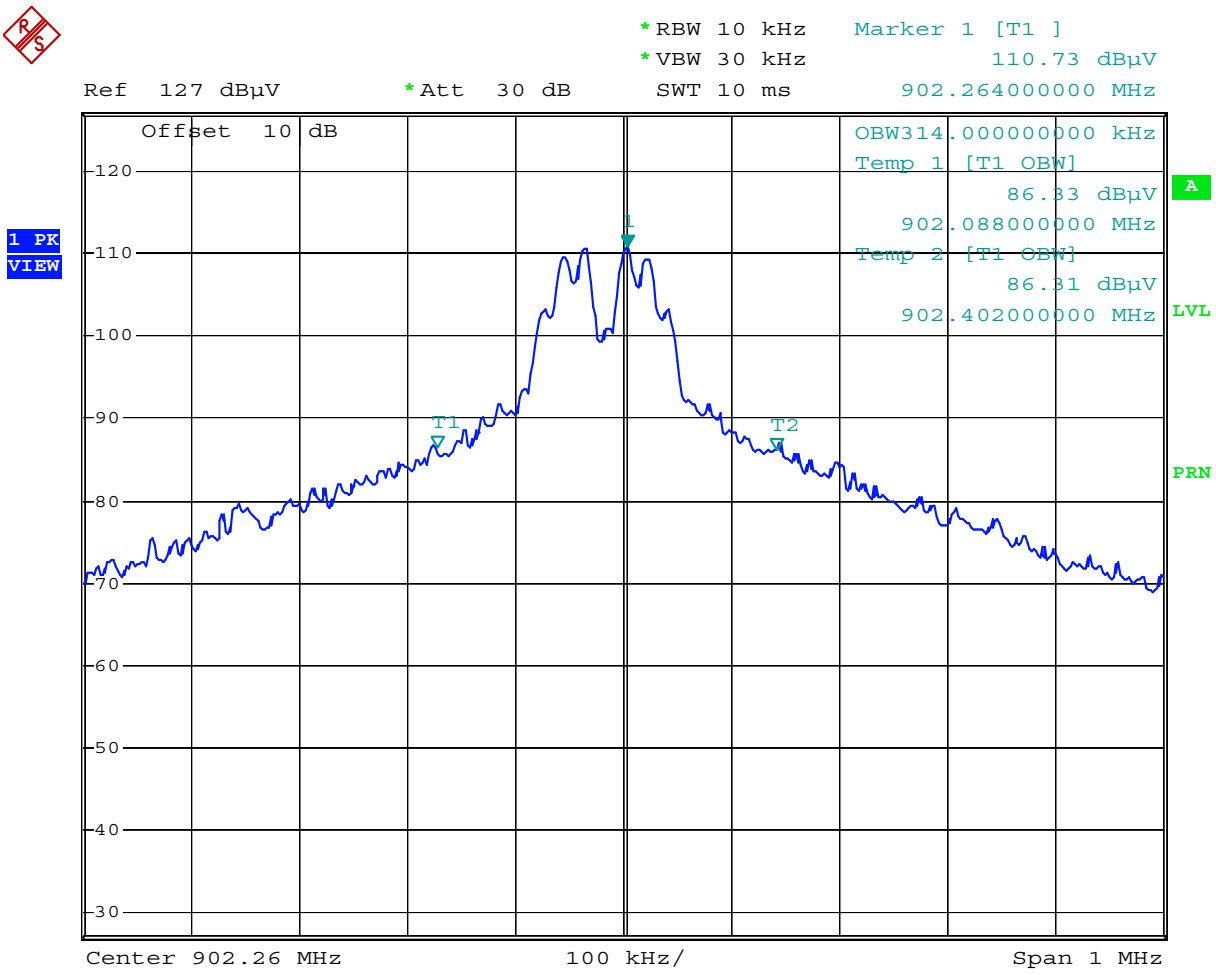
Occupied Bandwidth (-26 dB):	**482 kHz**

Occupied Bandwidth (continued)

Rules and specifications:	IC RSS-Gen Issue 1, section 4.4.1
Guide:	IC RSS-Gen Issue 1, section 4.4.1
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:	4 August 2006
Test site:	Fully anechoic room, cabin no. 2

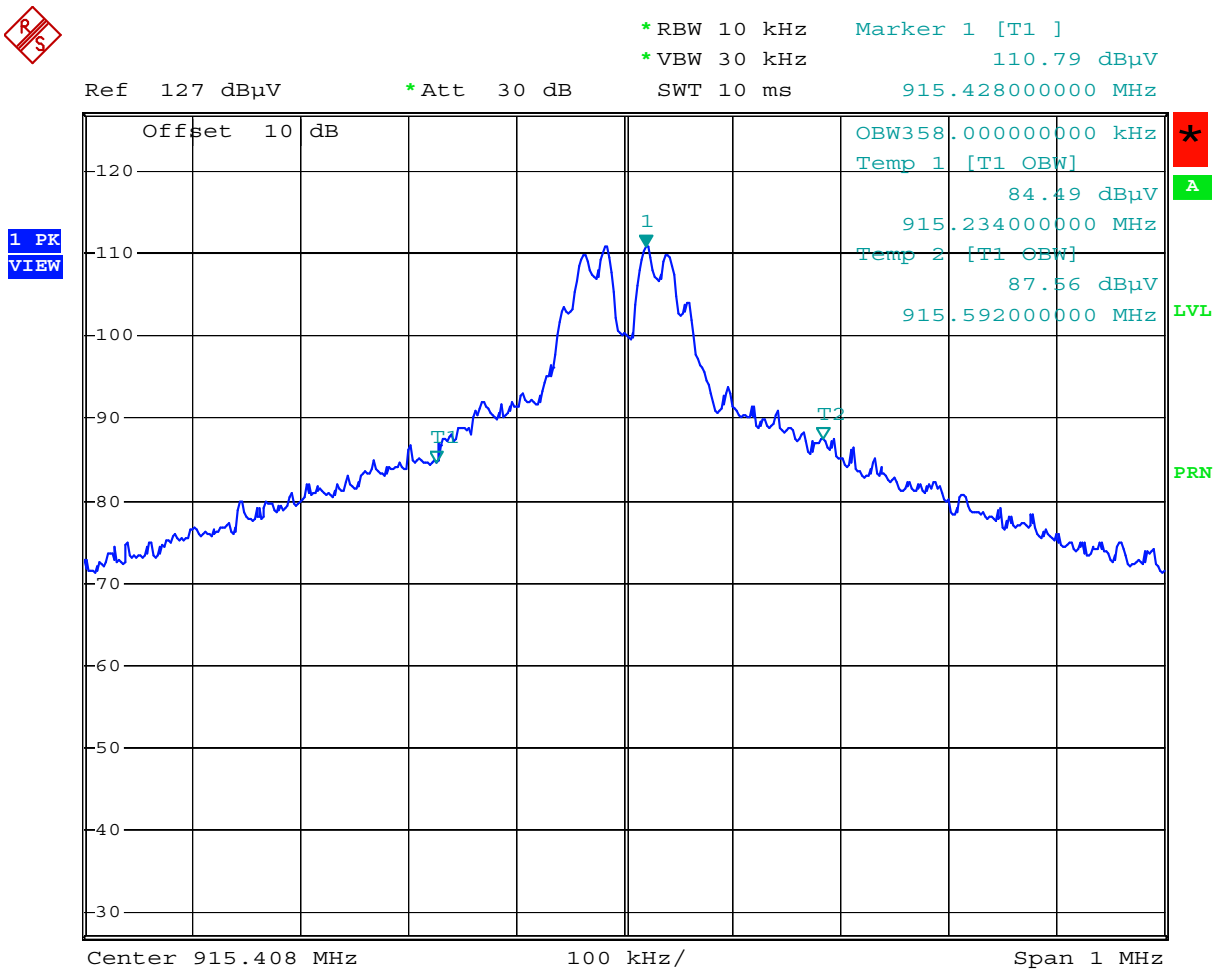
Occupied Bandwidth (99 %) on lowest channel:



Comment: vigil 060316: Occupied Bandwidth
Date: 4.AUG.2006 14:04:06

Occupied Bandwidth (99 %):	**314 kHz**

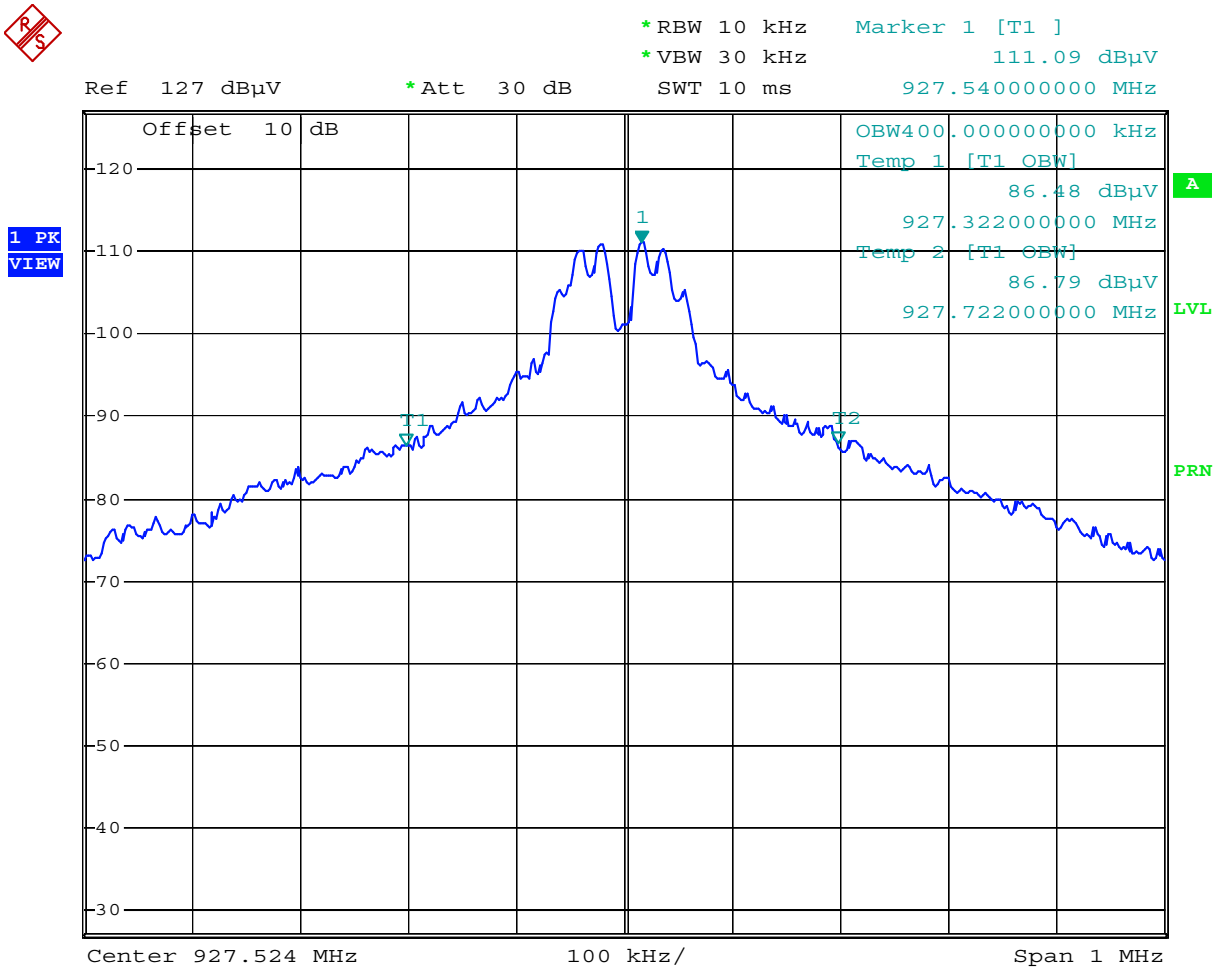
Occupied Bandwidth (99 %) on middle channel:



Comment: vigil 060316: Occupied Bandwidth
Date: 4.AUG.2006 14:21:32

Occupied Bandwidth (99 %):	**358 kHz**

Occupied Bandwidth (99 %) on highest channel:



Comment: vigil 060316: Occupied Bandwidth
Date: 4.AUG.2006 14:12:28

Occupied Bandwidth (99 %):	**400 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

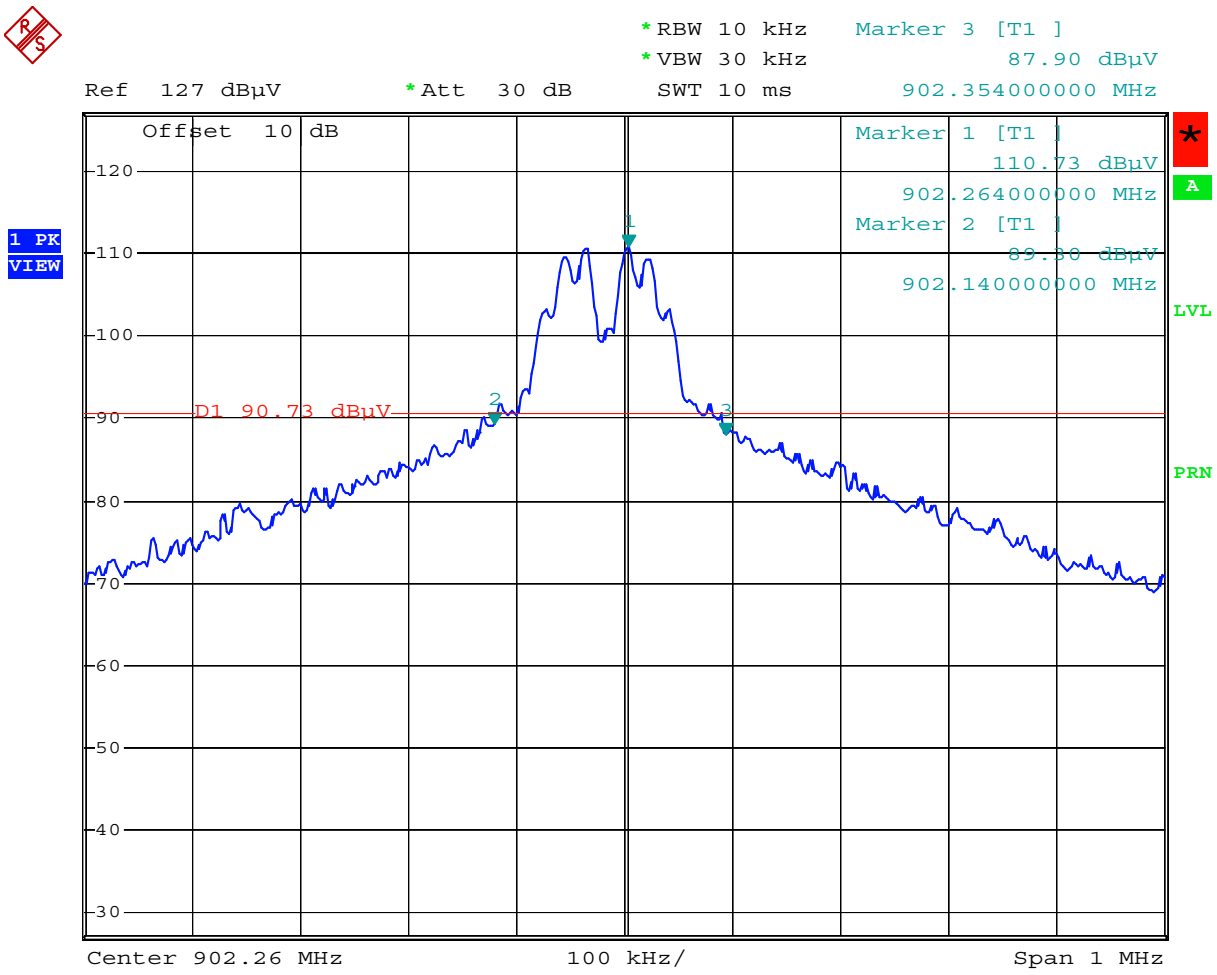
The video bandwidth shall be at least three times greater than the resolution bandwidth.

Measurement procedure:	Bandwidth Measurements (6.1)

Comment:	
Date of test:	8 August 2006
Test site:	Fully anechoic room, cabin no. 2

Test Result:	Test passed

-20 dB bandwidth on lowest channel:

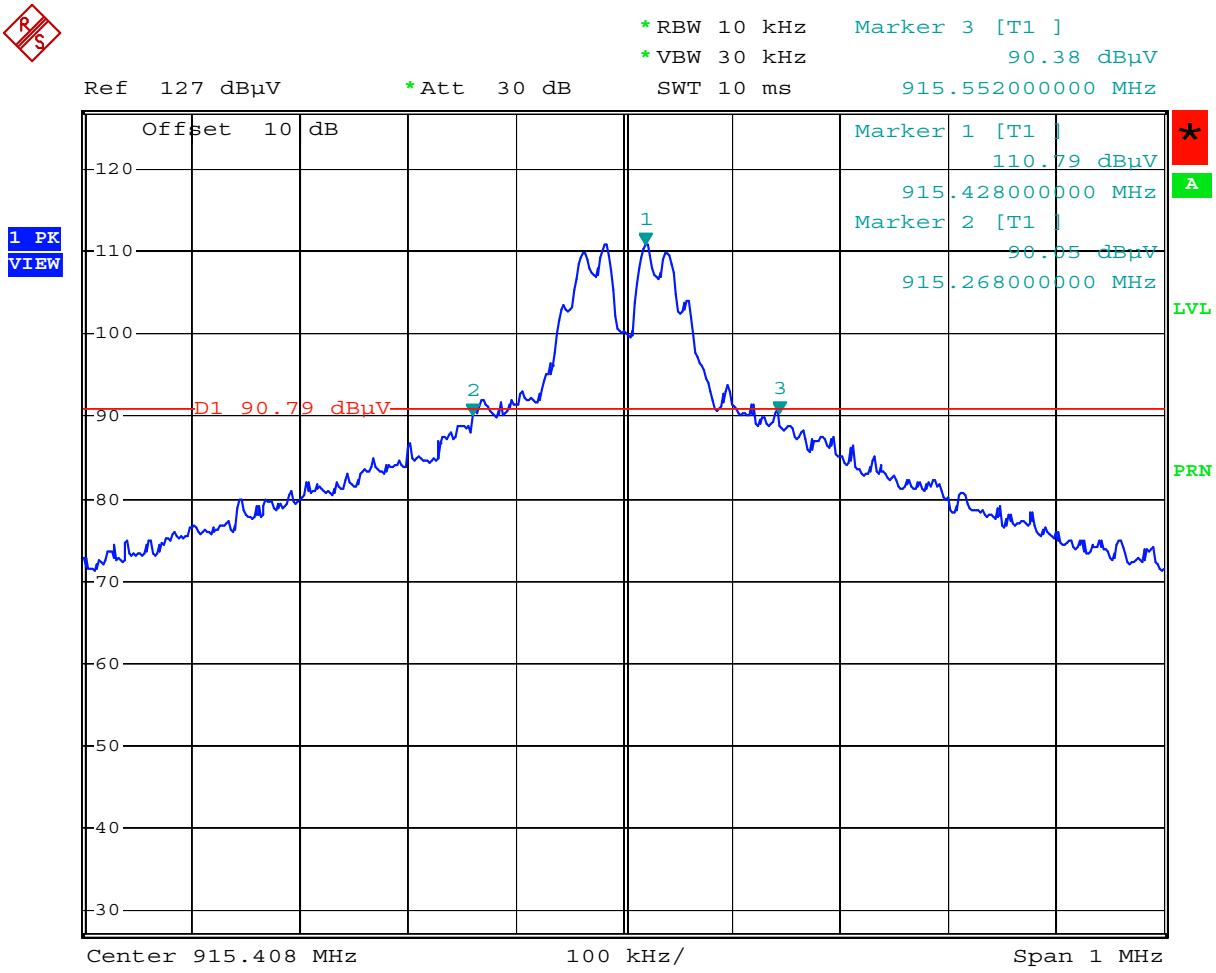


Comment: vigil 060316: Emission Bandwidth
Date: 4.AUG.2006 14:06:26

Permitted frequency band:	**902 - 928** MHz	
20 dB bandwidth:	**214 kHz**	
Carrier frequency stability: Maximum frequency tolerances:	☐ **specified**	☒ **not specified**
Bandwidth of the emission:		**within permitted frequency band[5]:** ☒ **yes** ☐ **no**

[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.

-20 dB bandwidth on middle channel:

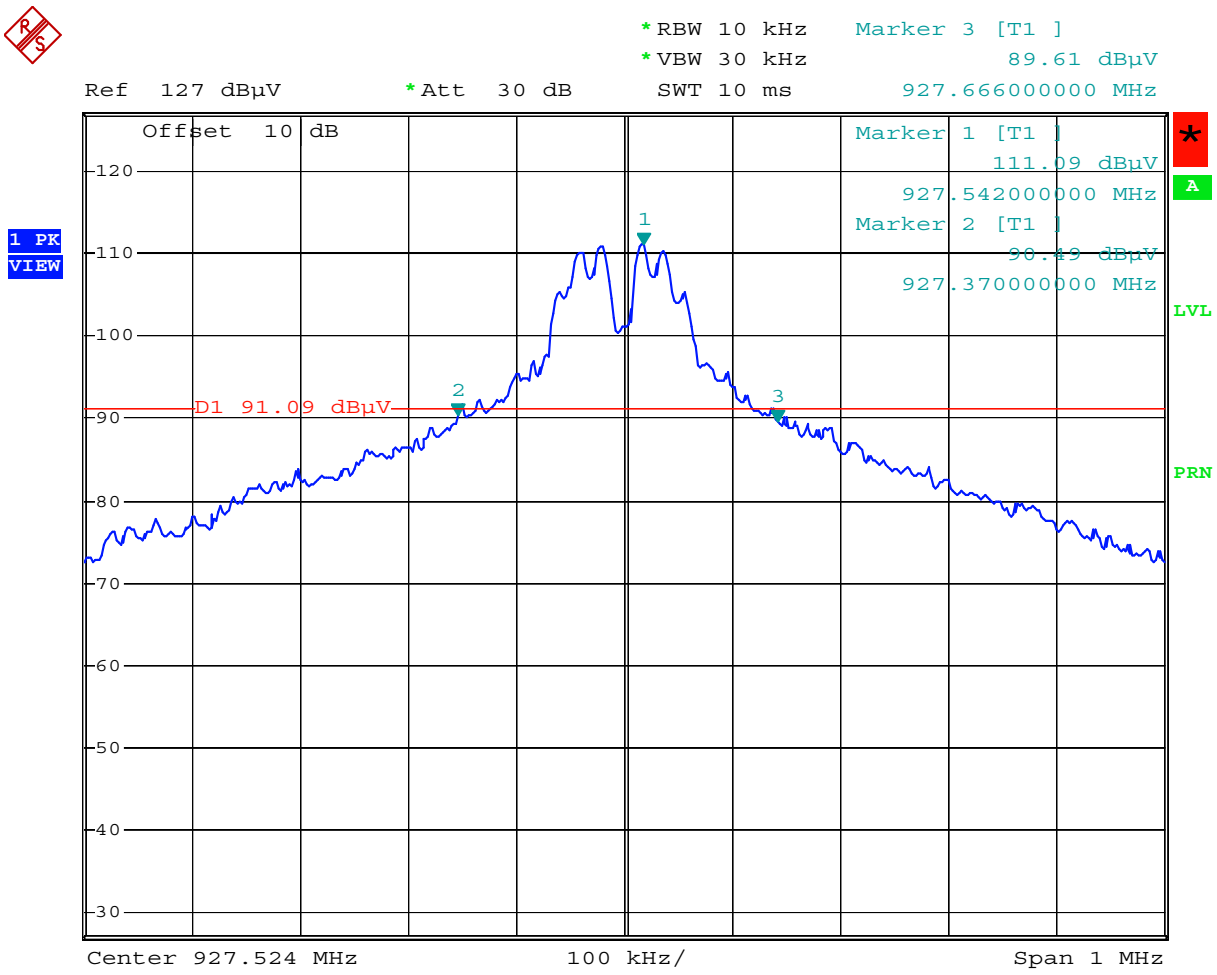


Comment: vigil 060316: Emission Bandwidth
Date: 4.AUG.2006 14:22:59

Permitted frequency band:	**902 - 928** MHz	
20 dB bandwidth:	**284 kHz**	
Carrier frequency stability: Maximum frequency tolerances:	☐ **specified**	☒ **not specified**
Bandwidth of the emission:		**within permitted frequency band[6]:** ☒ **yes** ☐ **no**

[6] 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.

-20 dB bandwidth on highest channel:



Comment: vigil 060316: Emission Bandwidth
Date: 4.AUG.2006 14:14:19

Permitted frequency band:	**902 - 928** MHz	
20 dB bandwidth:	**296 kHz**	
Carrier frequency stability: Maximum frequency tolerances:	☐ **specified**	☒ **not specified**
Bandwidth of the emission:		**within permitted frequency band[7]:** ☒ **yes** ☐ **no**

[7] 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 Designation of Emissions

Rules and specifications:	CFR 47 Part 2, sections 2.201 and 2.202 IC RSS-Gen Issue 1, sections 3.2(h) and 8
Guide:	ANSI C63.4 / TRC-43

Type of modulation:	Frequency Modulation

B_n = Necessary Bandwidth	B_n = 2M + 2DK
M = Modulation frequency	M = 105 kHz
D = Peak deviation	D = 20 kHz
K = Overall numerical factor	K = 1
Calculation:	$B_n = 2 \cdot (105\ kHz) + 2 \cdot (20\ kHz) \cdot 1 = 250\ kHz$

Designation of Emissions:	**250kF1D**

8.4 Conducted Powerline Emission Measurement 150 kHz to 30 MHz

Rules and specifications:	CFR 47 Part 15, section 15.207 IC RSS-Gen Issue 1, 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)		

Comment:	
Date of test:	17 July 2006
Test site:	Shielded room, cabin no. 1

Test Result:	Test passed

Tested on:	L1

Frequency (MHz)	Detector	Reading Value (dBµV)	Correction Factor (dB)	Final Value (dBµV)	Limit (dBµV)	Margin (dB)
0.350	Quasi-Peak	39.8	0.0	39.8	59.0	19.2
0.405	Quasi-Peak	37.8	0.0	37.8	57.8	20.0
0.465	Quasi-Peak	36.5	0.0	36.5	56.6	20.1
3.480	Quasi-Peak	36.7	0.0	36.7	56.0	19.3
3.710	Quasi-Peak	36.2	0.0	36.2	56.0	19.8
11.578	Quasi-Peak	38.4	0.0	38.4	60.0	21.6
15.359	Quasi-Peak	42.7	0.0	42.7	60.0	**17.3**
19.220	Quasi-Peak	38.6	0.0	38.6	60.0	21.4
22.910	Quasi-Peak	37.8	0.0	37.8	60.0	22.2

Tested on:	N

Frequency (MHz)	Detector	Reading Value (dBµV)	Correction Factor (dB)	Final Value (dBµV)	Limit (dBµV)	Margin (dB)
0.175	Quasi-Peak	43.6	0.0	43.6	64.7	21.1
11.115	Quasi-Peak	40.4	0.0	40.4	60.0	19.6
15.595	Quasi-Peak	45.2	0.0	45.2	60.0	14.8
16.065	Quasi-Peak	46.2	0.0	46.2	60.0	**13.8**
22.910	Quasi-Peak	37.9	0.0	37.9	60.0	22.1

Sample calculation of final values:

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

8.5 Channel Bandwidth

Rules and specifications:	CFR 47 Part 15, section 15.247(a)(1)(i) RSS-210, Issue 6, section A8(3)
Guide:	ANSI C63.4
Limit:	The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
Measurement procedure:	Bandwidth Measurements (6.1)

Comment:	
Date of test:	8 August 2006
Test site:	Fully anechoic room, cabin no. 2

Channel Frequency	Channel Bandwidth		Result
	Measured	Limit	
Low (902.22 MHz)	214 kHz	≤ 500 kHz	**Passed**
Middle (915.39 MHz)	284 kHz	≤ 500 kHz	**Passed**
High (927.40 MHz)	296 kHz	≤ 500 kHz	**Passed**

Test Result:	Test passed

8.6 Hopping Channel Separation

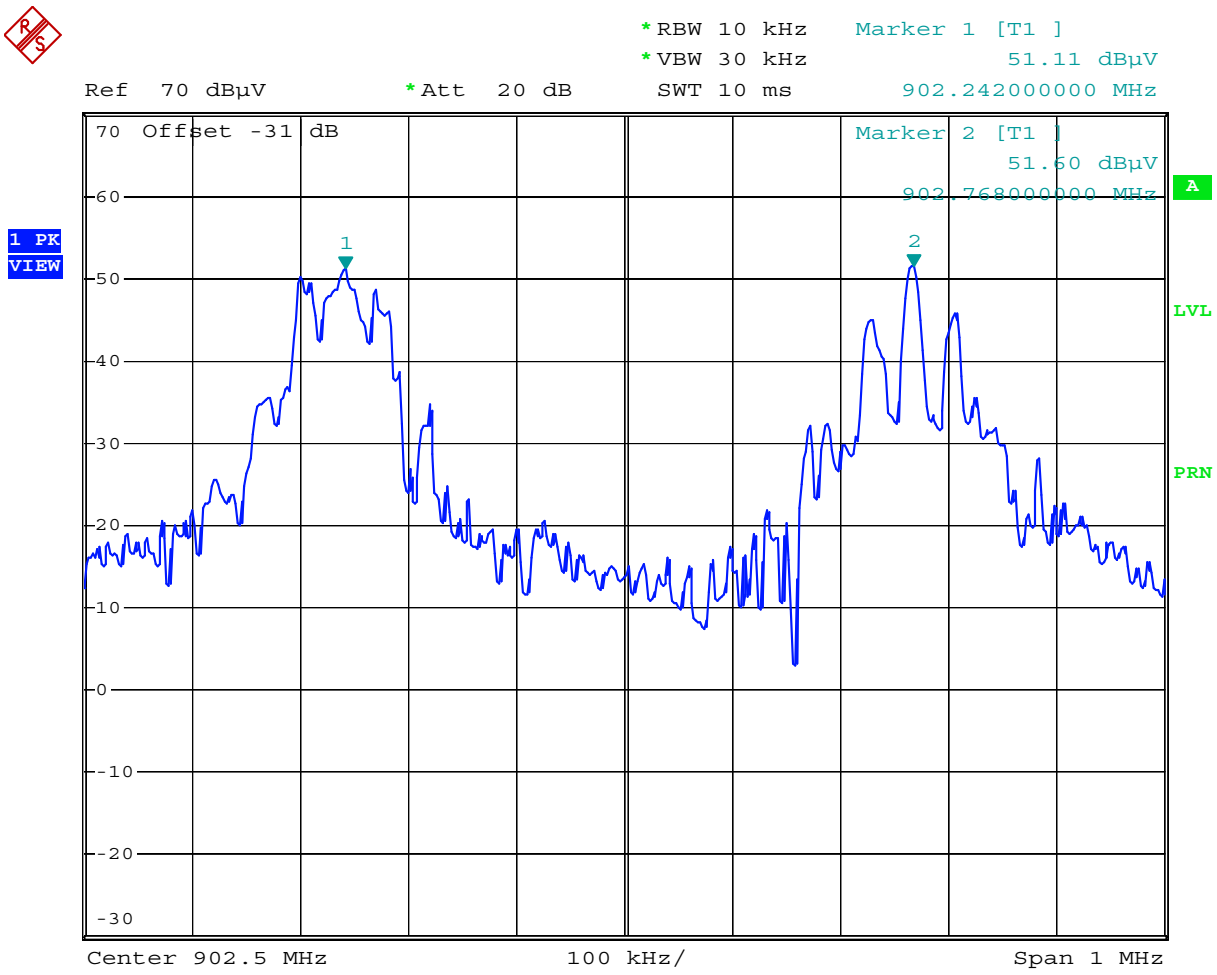
Rules and specifications:	CFR 47 Part 15, section 15.247(a)(1)(i) RSS-210, Issue 6, section A8(3)
Guide:	ANSI C63.4
Limit:	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth, whichever is greater
Measurement procedure:	Bandwidth Measurements (6.1)

Comment:	
Date of test:	8 August 2006
Test site:	Fully anechoic room, cabin no. 2

Channel Frequency	Hopping Channel Separation		Result
	Measured	Required	
Low (902.22 MHz)	526 kHz	≤ 214 kHz	**Passed**
Middle (915.39 MHz)	530 kHz	≤ 282 kHz	**Passed**
High (927.40 MHz)	278 kHz	≤ 296 kHz	**Passed**

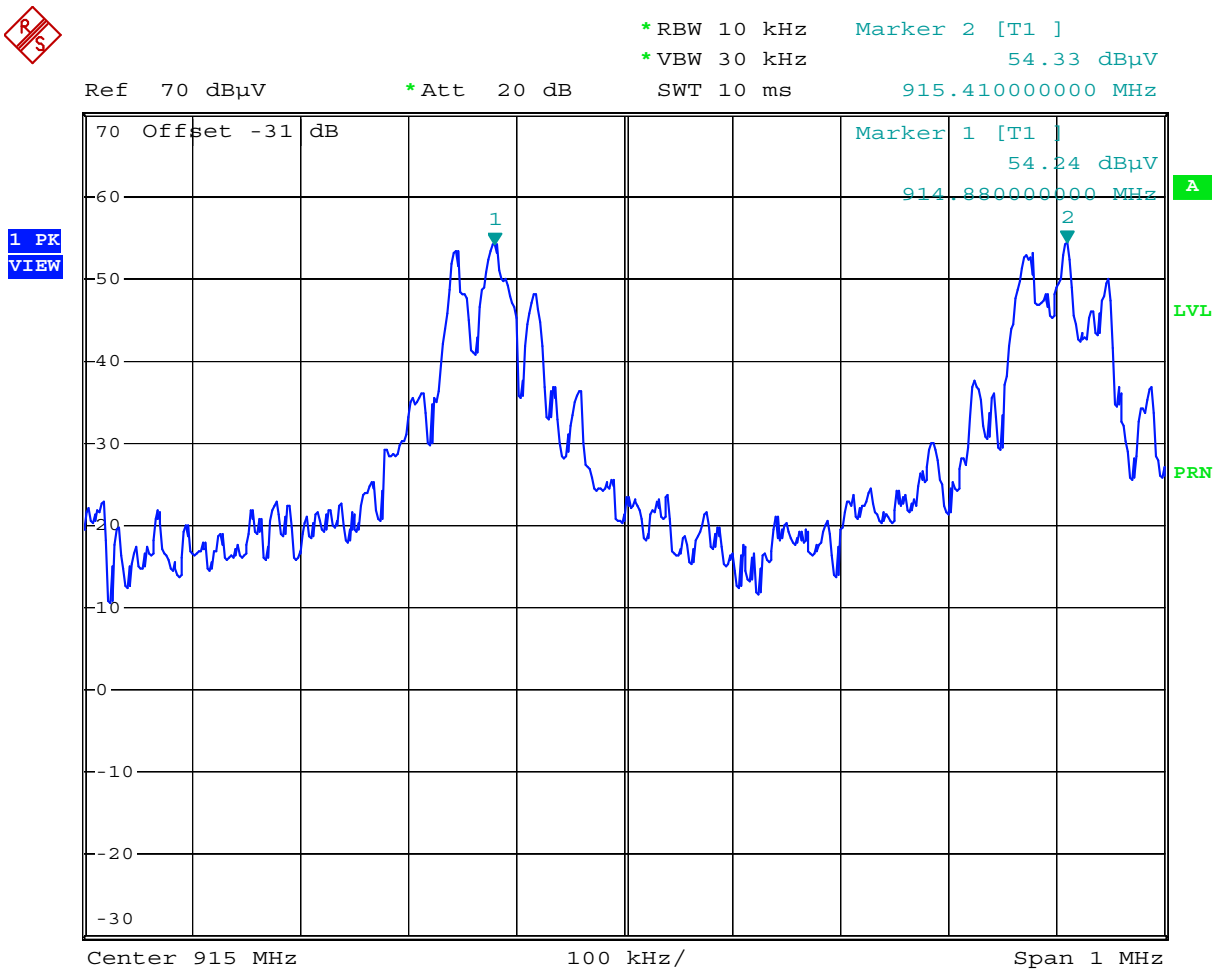
Test Result:	Test passed

Lowest Channel:



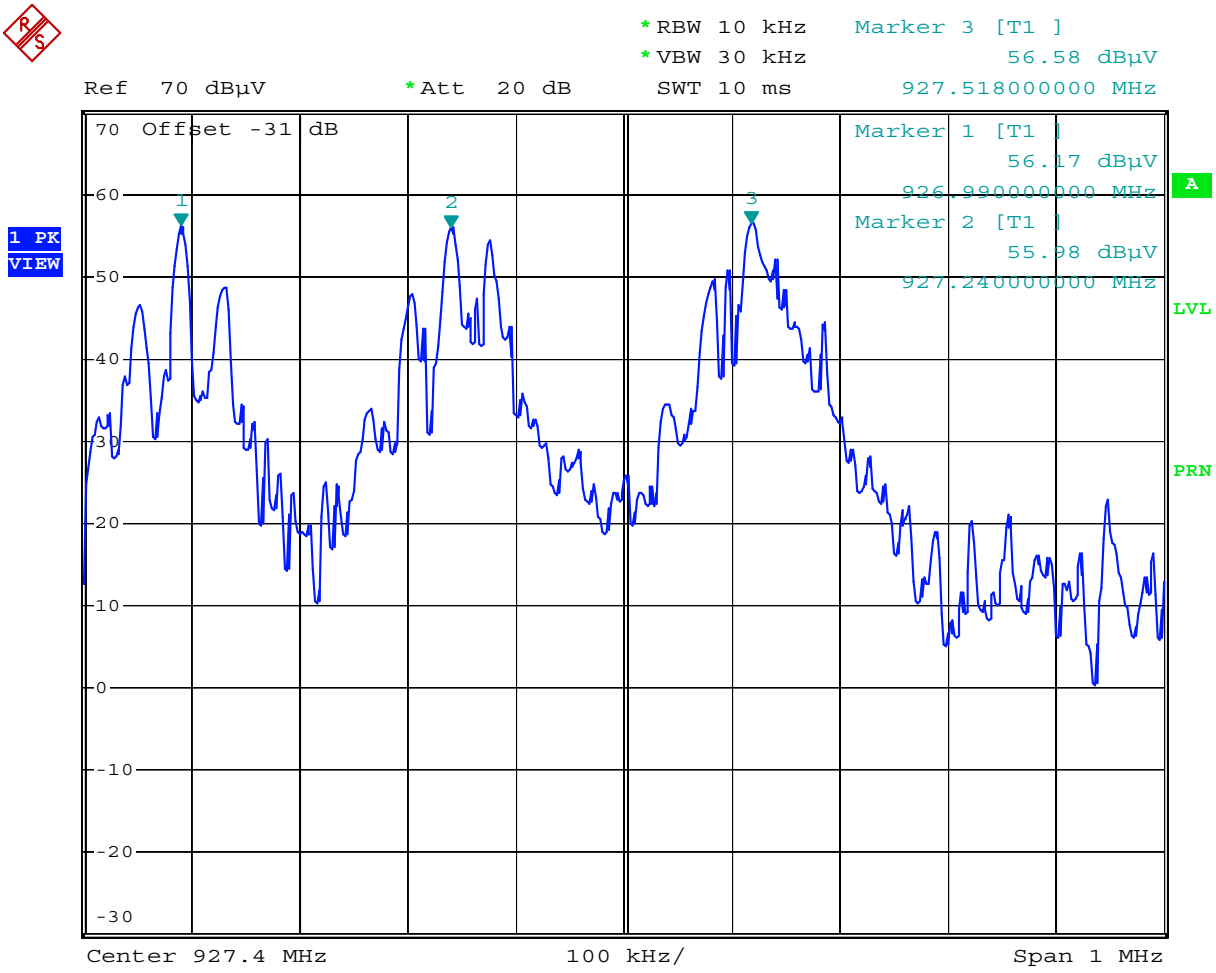
Comment: vigil 060316: Hopping Channel Separation
Date: 4.AUG.2006 11:26:17

Middle Channel:



Comment: vigil 060316: Hopping Channel Separation
Date: 4.AUG.2006 11:30:20

Highest Channel:



Comment: vigil 060316: Hopping Channel Separation
Date: 4.AUG.2006 11:27:57

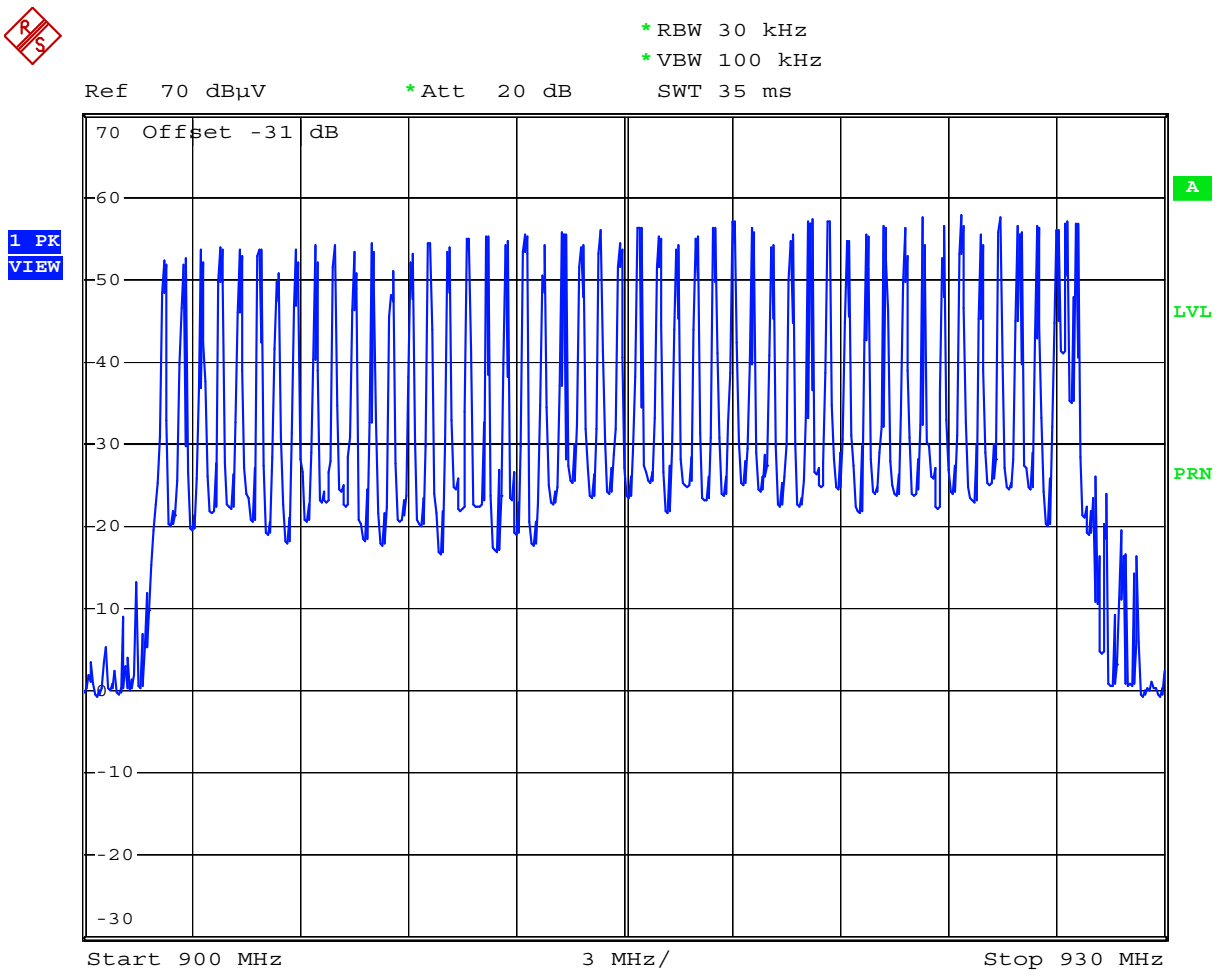
8.7 Number of Hopping Frequencies

Rules and specifications:	CFR 47 Part 15, section 15.247(a)(1)(i) RSS-210, Issue 6, section A8(3)
Guide:	ANSI C63.4
Limit:	If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies; if the 20 dB bandwith of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies.
Measurement procedure:	Bandwidth Measurements (6.1)

Comment:	
Date of test:	8 August 2006
Test site:	Fully anechoic room, cabin no. 2

Number of Hopping Frequencies		Result
Measured	**Required**	
50	≥50	**Passed**

Test Result:	Test passed



Comment: vigil 060316: Number of Hopping Channels
Date: 4.AUG.2006 11:23:18

8.8 Time Occupancy on any Channel

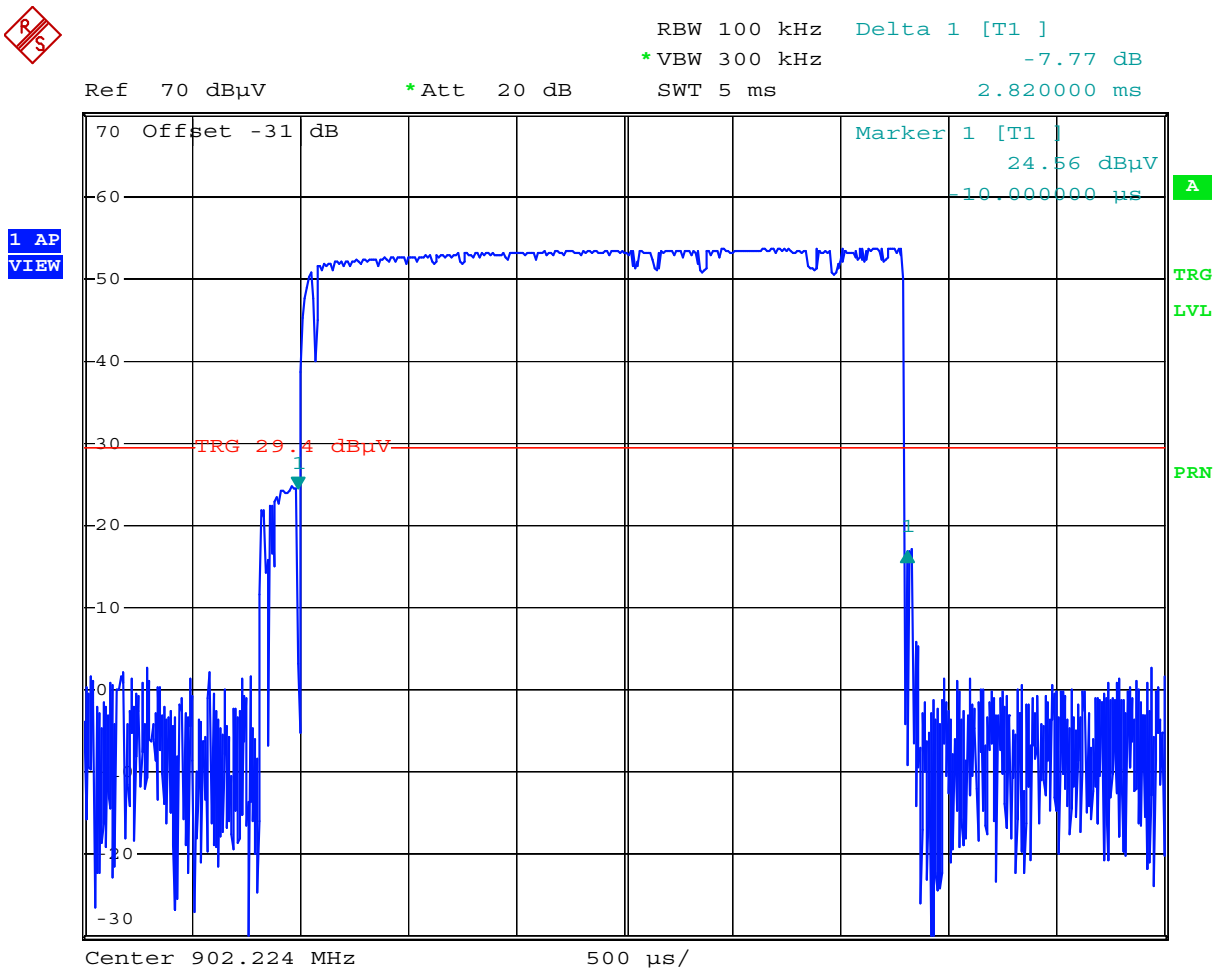
Rules and specifications:	CFR 47 Part 15, section 15.247(a)(1)(i) RSS-210, Issue 6, section A8(3)
Guide:	ANSI C63.4
Limit:	If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwith of the hopping channel is 250 kHz or greater, the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 seconds period.
Measurement procedure:	Bandwidth Measurements (6.1)

Comment:	
Date of test:	8 August 2006
Test site:	Fully anechoic room, cabin no. 2

Channel Frequency	Time Occupancy		Result
	Measured	Required	
Low (902.22 MHz)	2.82 ms · 11 = 31.02 ms in 10 s period	< 400 ms in 10 s period	**Passed**
Middle (915.39 MHz)	2.82 ms · 11 = 31.02 ms in 10 s period	< 400 ms in 10 s period	**Passed**
High (927.40 MHz)	2.82 ms · 11 = 31.02 ms in 10 s period	< 400 ms in 20 s period	**Passed**

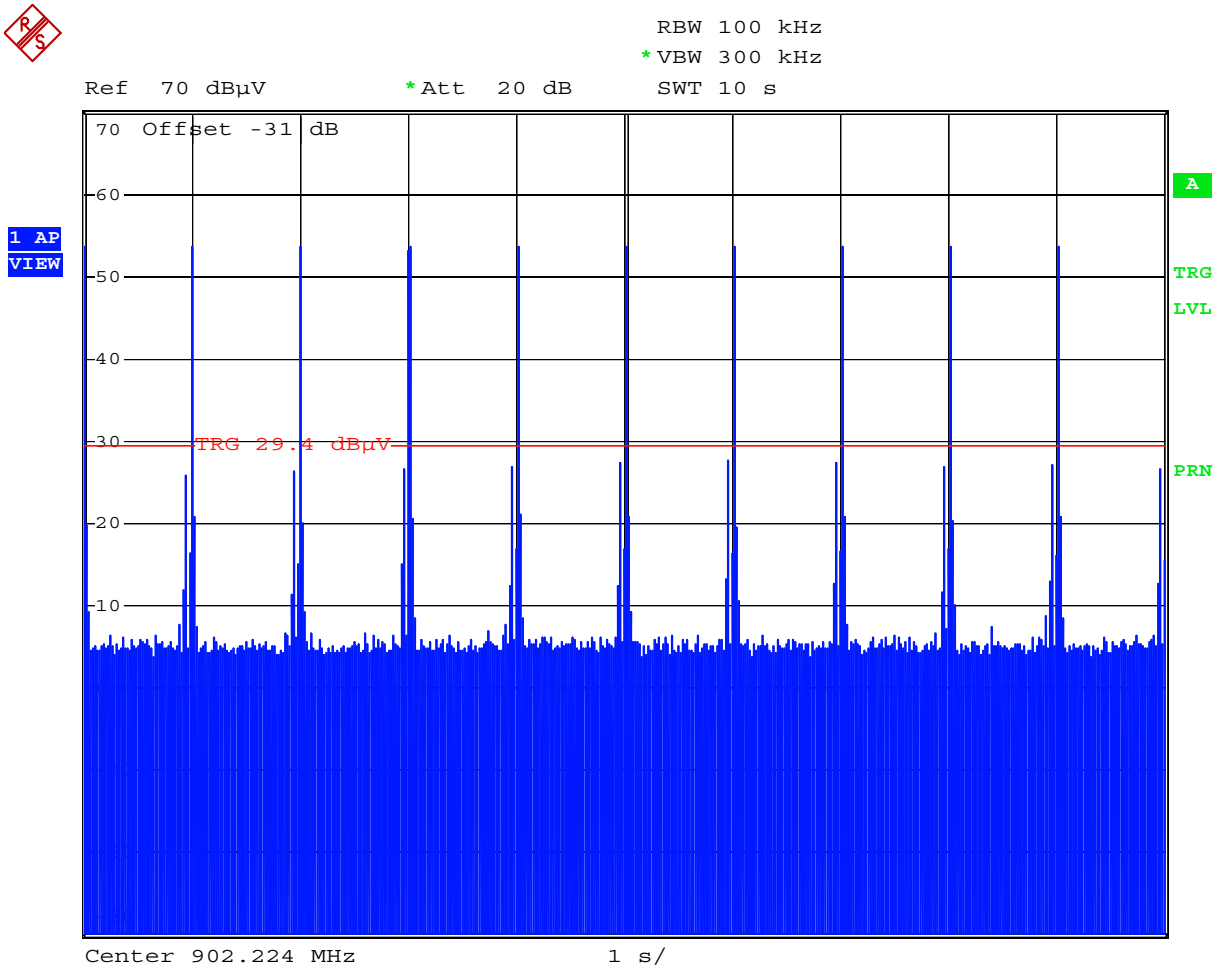
Test Result:	Test passed

Lowest Channel:



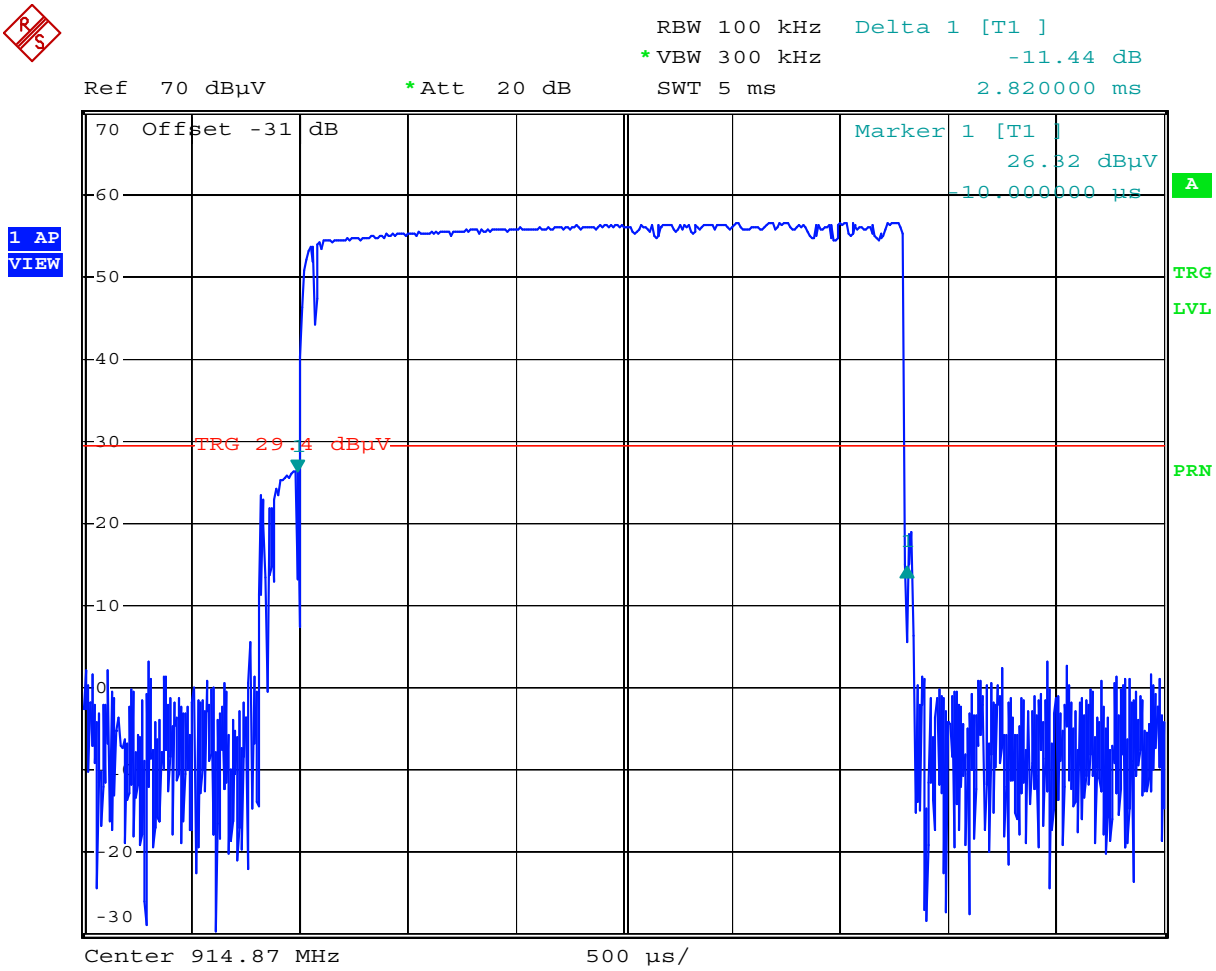
Comment: vigil 060316: Time Occupancy
Date: 4.AUG.2006 11:32:38

Lowest Channel - continued:



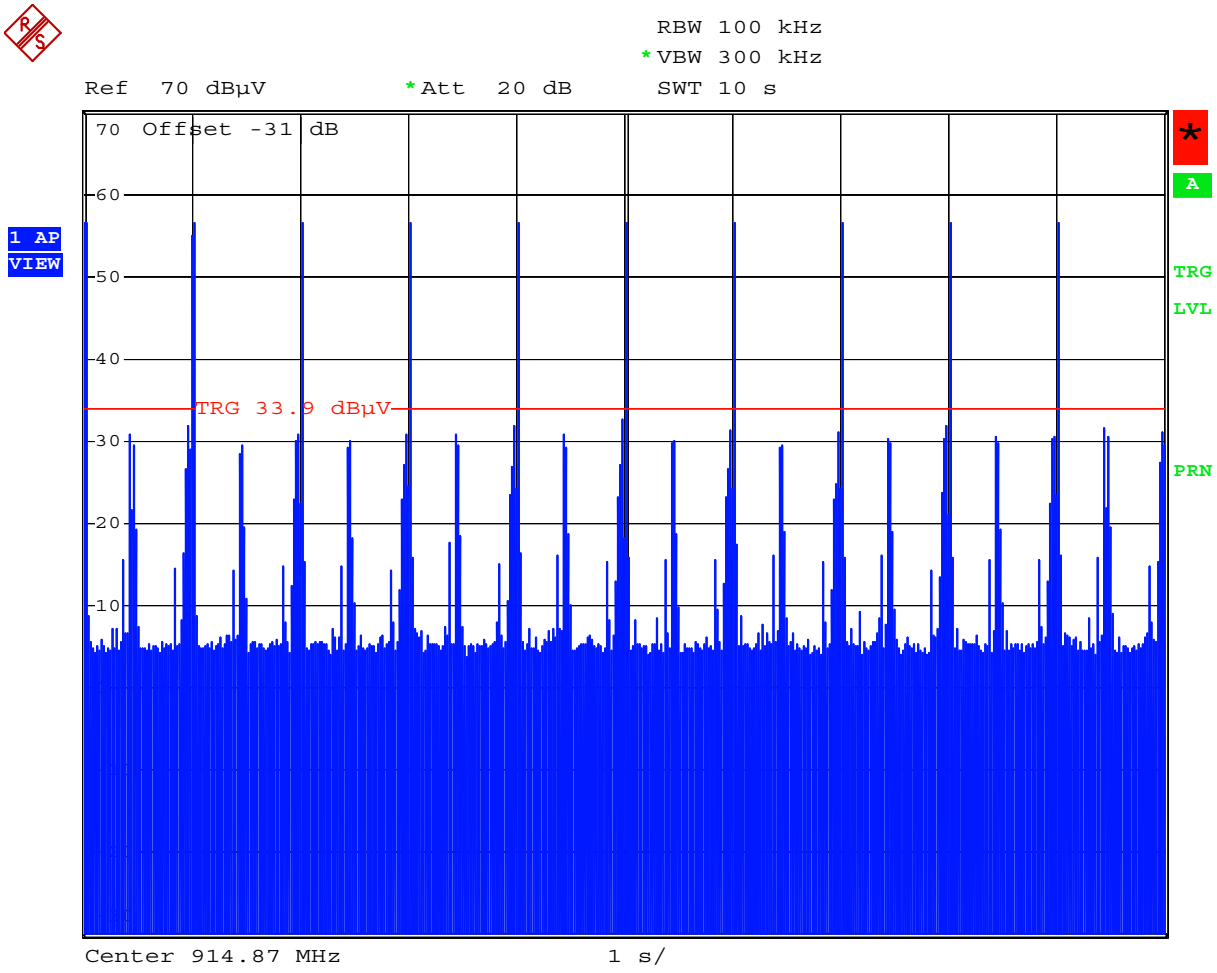
Comment: vigil 060316: Time Occupancy
Date: 4.AUG.2006 11:33:22

Middle Channel:



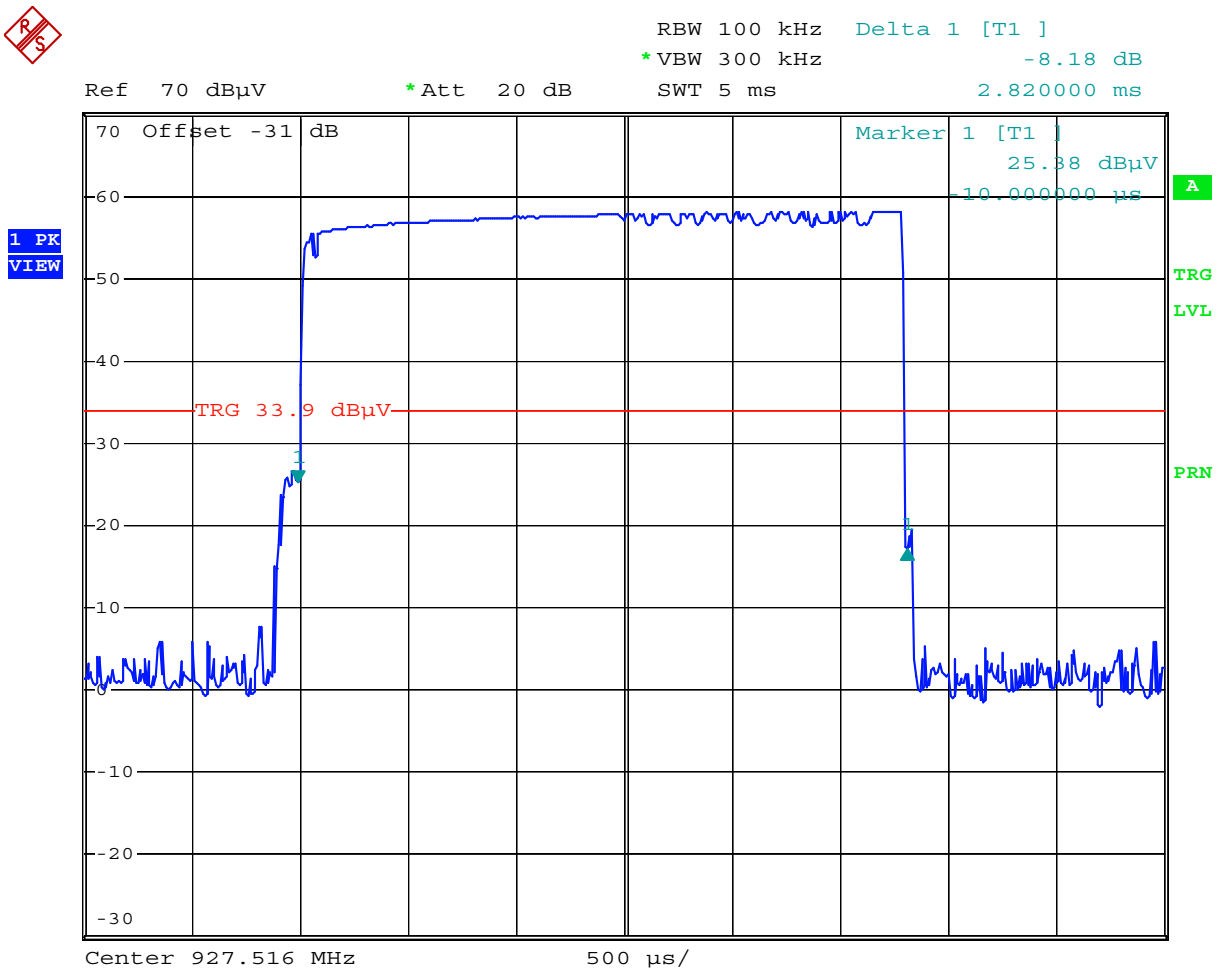
Comment: vigil 060316: Time Occupancy
Date: 4.AUG.2006 11:34:36

Middle Channel - continued:



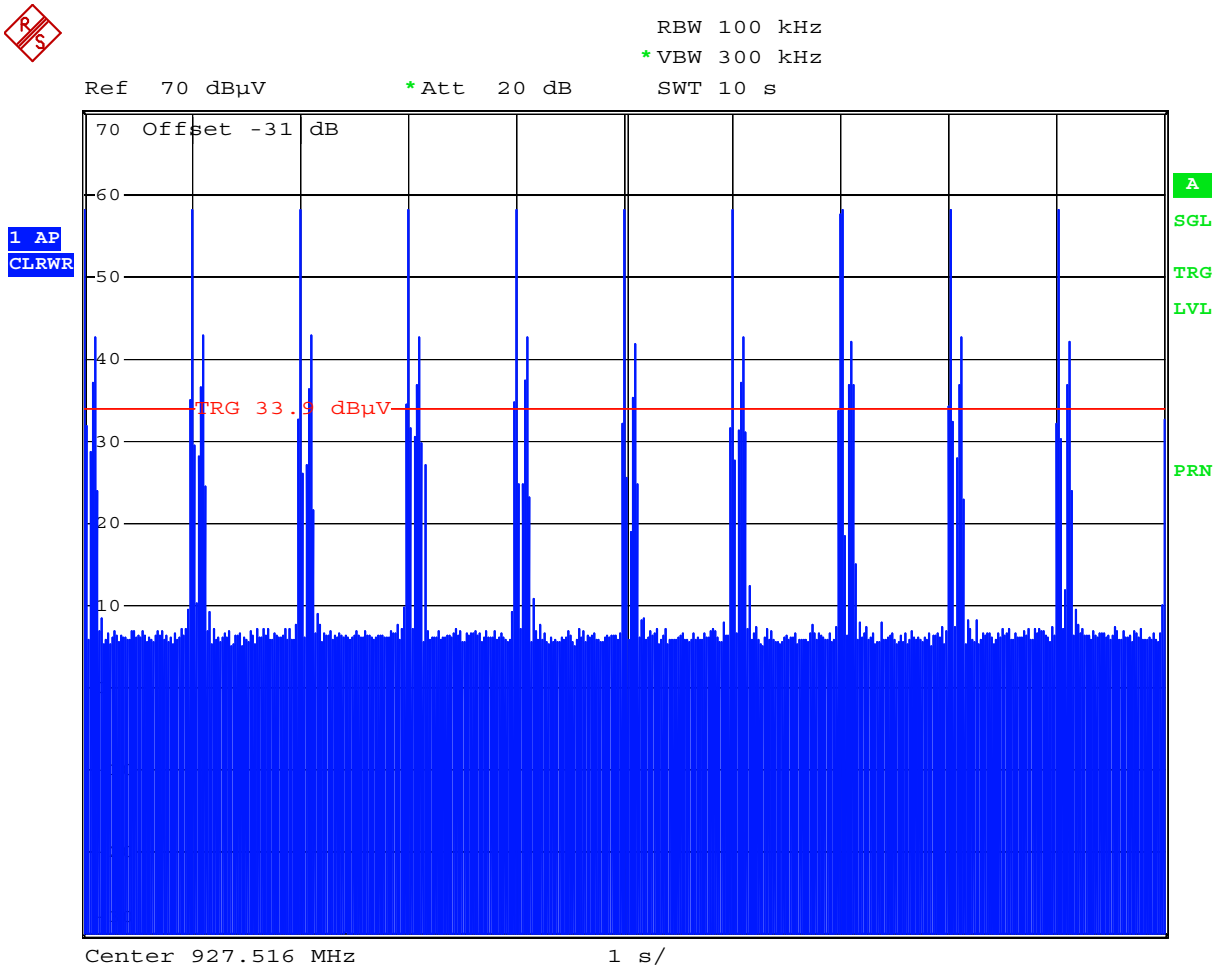
Comment: vigil 060316: Time Occupancy
Date: 4.AUG.2006 11:35:31

Highest Channel:



Comment: vigil 060316: Time Occupancy
Date: 4.AUG.2006 11:37:12

Highest Channel - continued:



Comment: vigil 060316: Time Occupancy
Date: 4.AUG.2006 11:37:50

8.9 Carrier Power Measurment

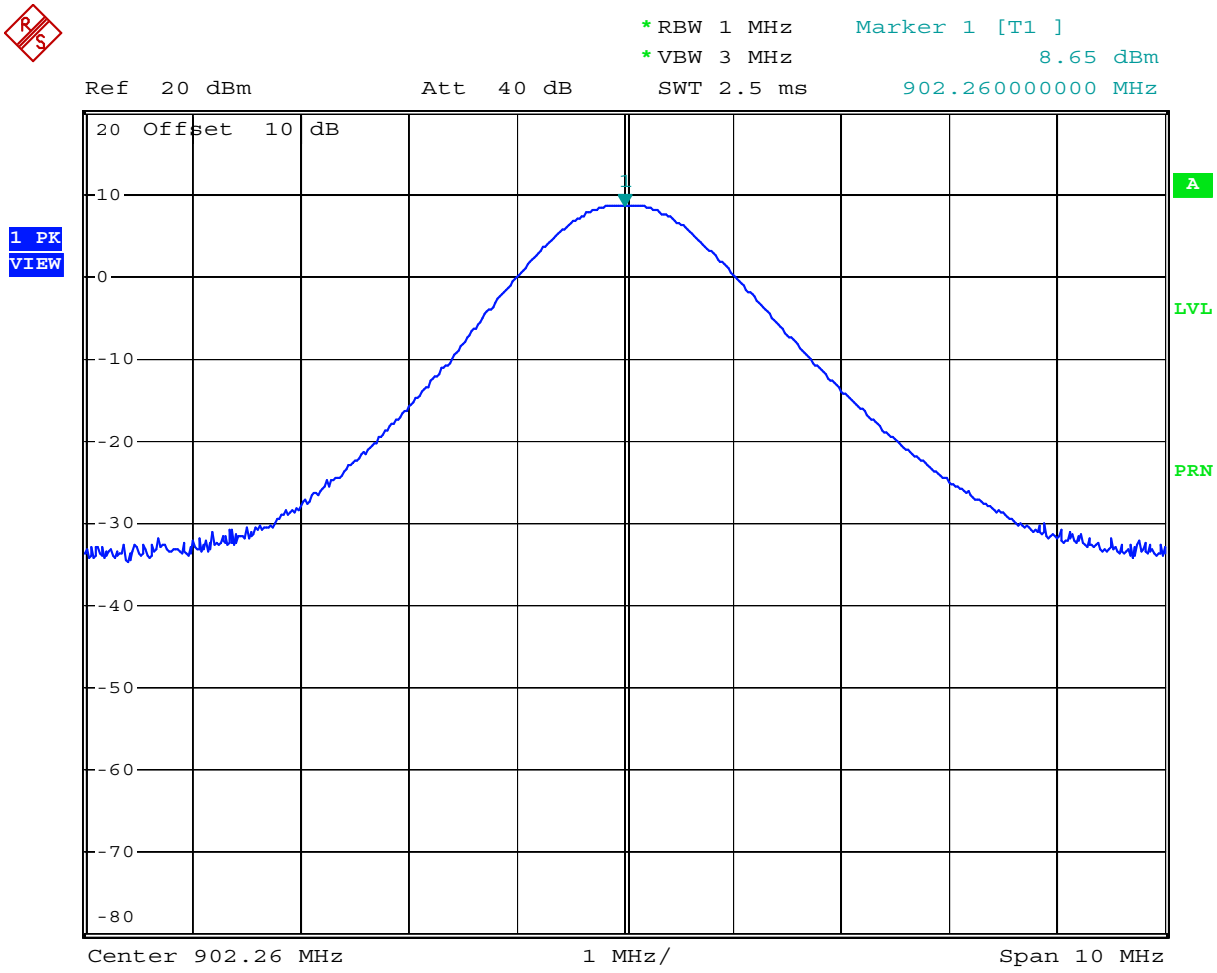
Rules and specifications:	CFR 47 Part 15, section 15.247(b)(1) IC RSS-210, issue 6, section A8.4(2)
Guide:	ANSI C63.4
Limit:	For frequency hopping systems operation in the 902 - 928 MHz band: 1watt for systems employing at least 50 hopping channels; and 0.25 watt for systems employing less than 50 hopping channels, but at leas 25 hopping channels.
Measurement procedures:	Conducted Measurement

Comment:	
Date of test:	8 August 2006
Test site:	Fully anechoic room, cabin no. 2
Test distance:	3 meters

Channel Frequency	Carrier Power		Result
	Measured	Required	
Low (902.22 MHz)	8.65 dBm	≤30 dBm	**Passed**
Middle (915.39 MHz)	8.88 dBm	≤30 dBm	**Passed**
High (927.40 MHz)	8.94 dBm	≤30 dBm	**Passed**

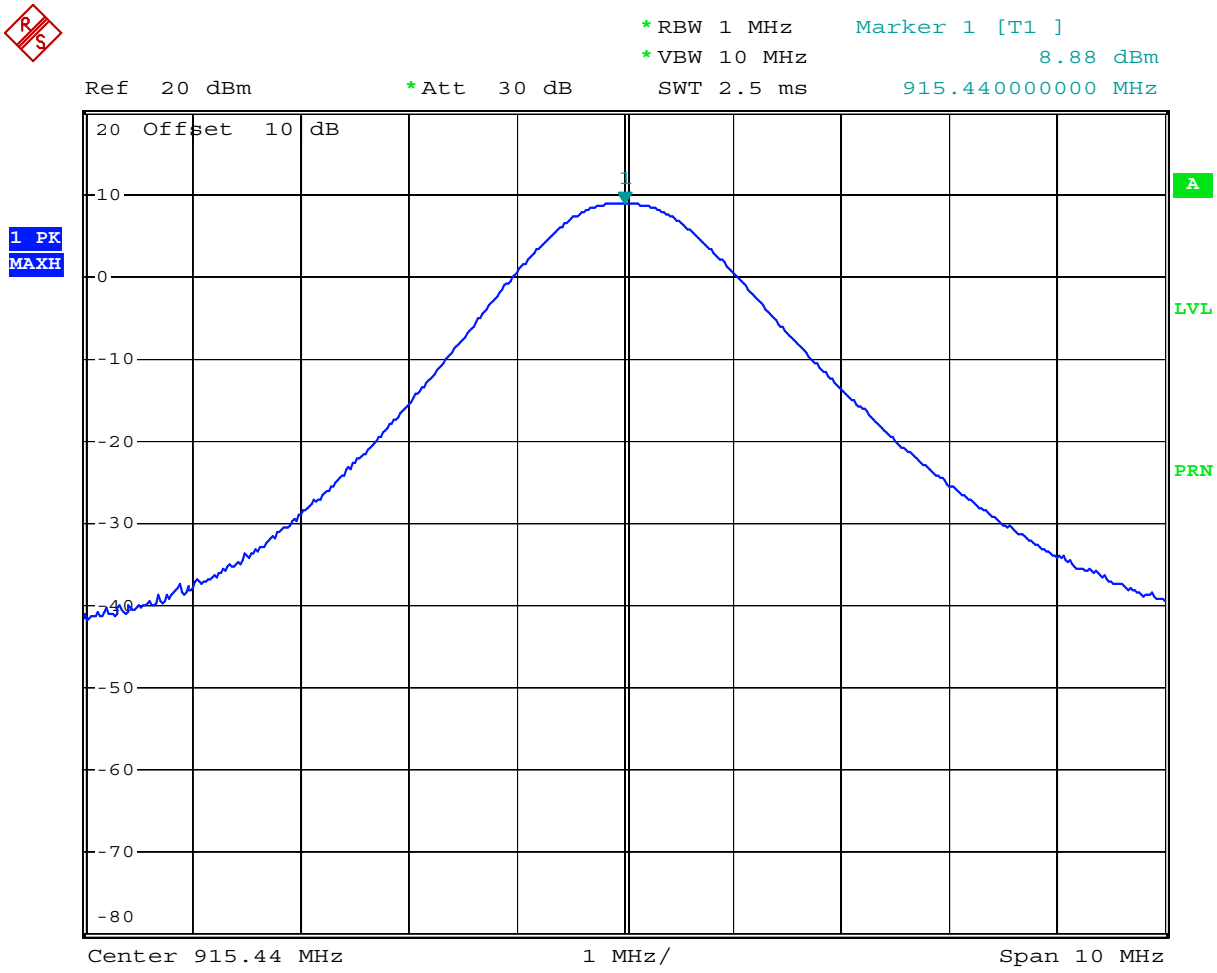
Test Result:	Test passed

Lowest Channel:



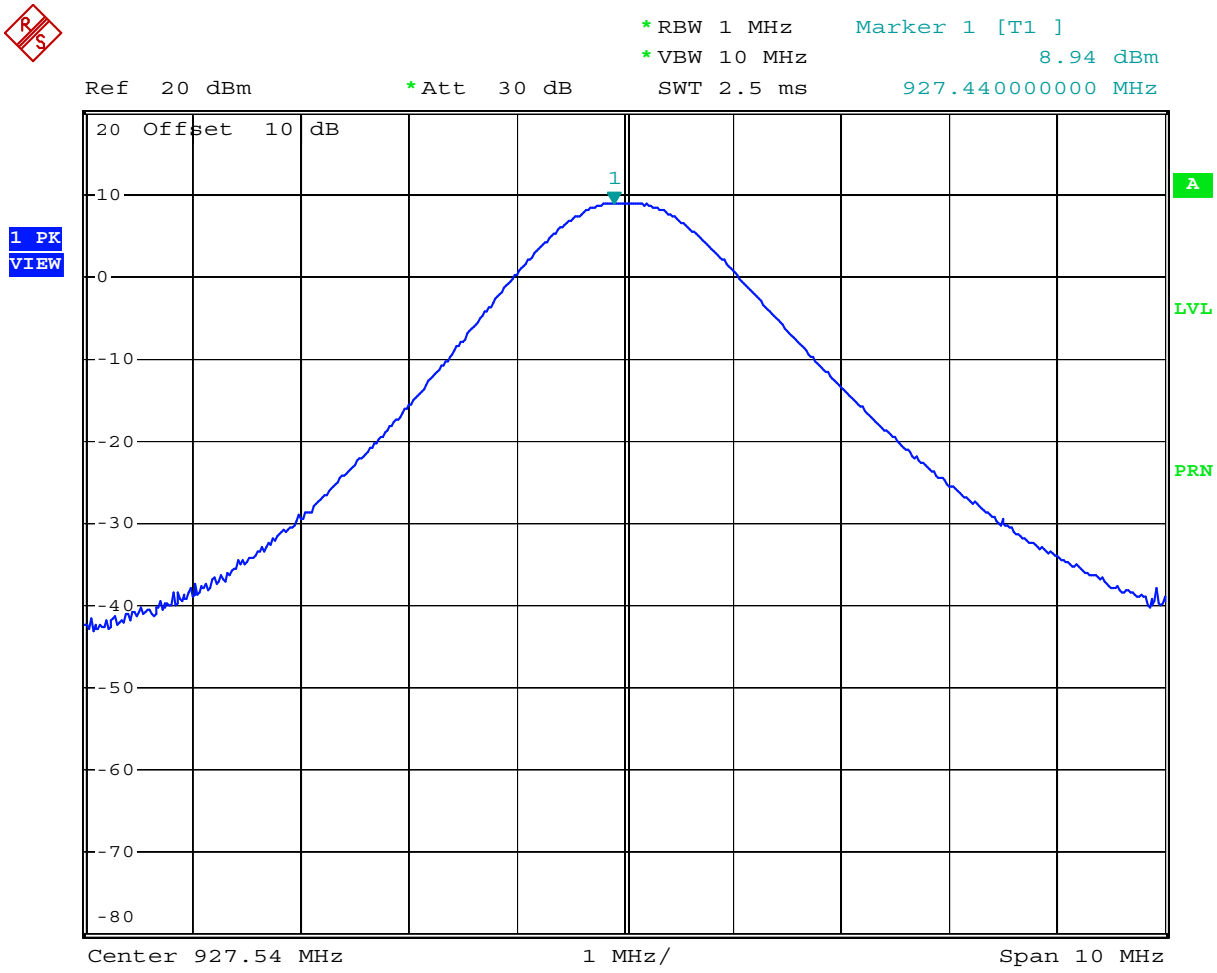
Comment: vigil 060316: Carrier Power
Date: 4.AUG.2006 14:01:31

Middle Channel:



Comment: vigil 060316: Carrier Power
Date: 4.AUG.2006 14:19:15

Highest Channel:



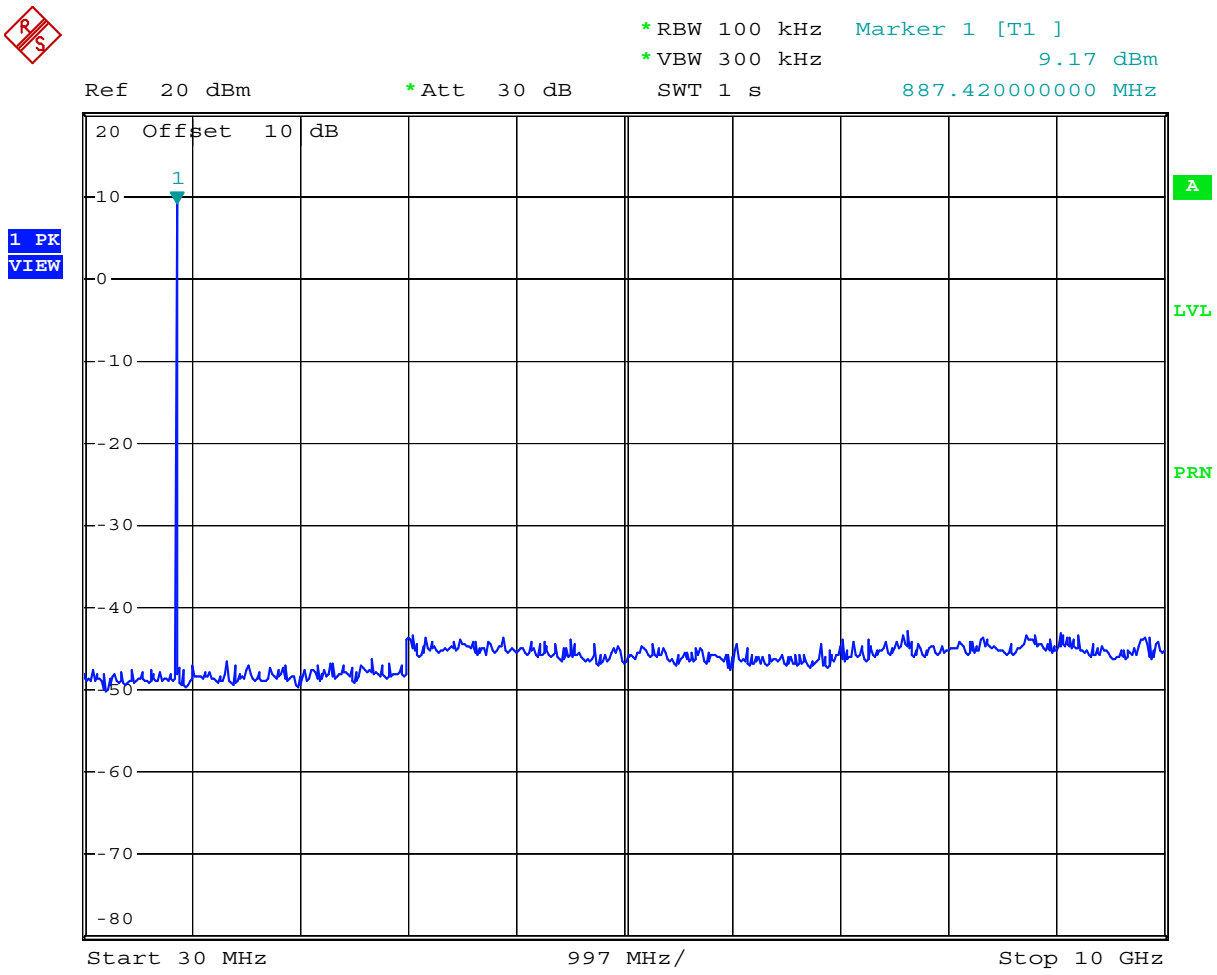
Comment: vigil 060316: Carrier Power
Date: 4.AUG.2006 14:18:38

8.10 Spurious emissions 30 MHz to 10 GHz - conducted

Rules and specifications:	CFR 47 Part 15, sections 15.247(d) IC RSS-210 Issue 6, 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 radio frequency power that is prduced 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. In addition, radiated emissions which fall in the restricted bands, as specified in section 15.205(a), must also comply with the radiated emission limits. specified in section 15.209(a).
Measurement procedures:	Radiated Emission in Fully or Semi Anechoic Room (6.3) Radiated Emission at Open Field Test Site (6.4)

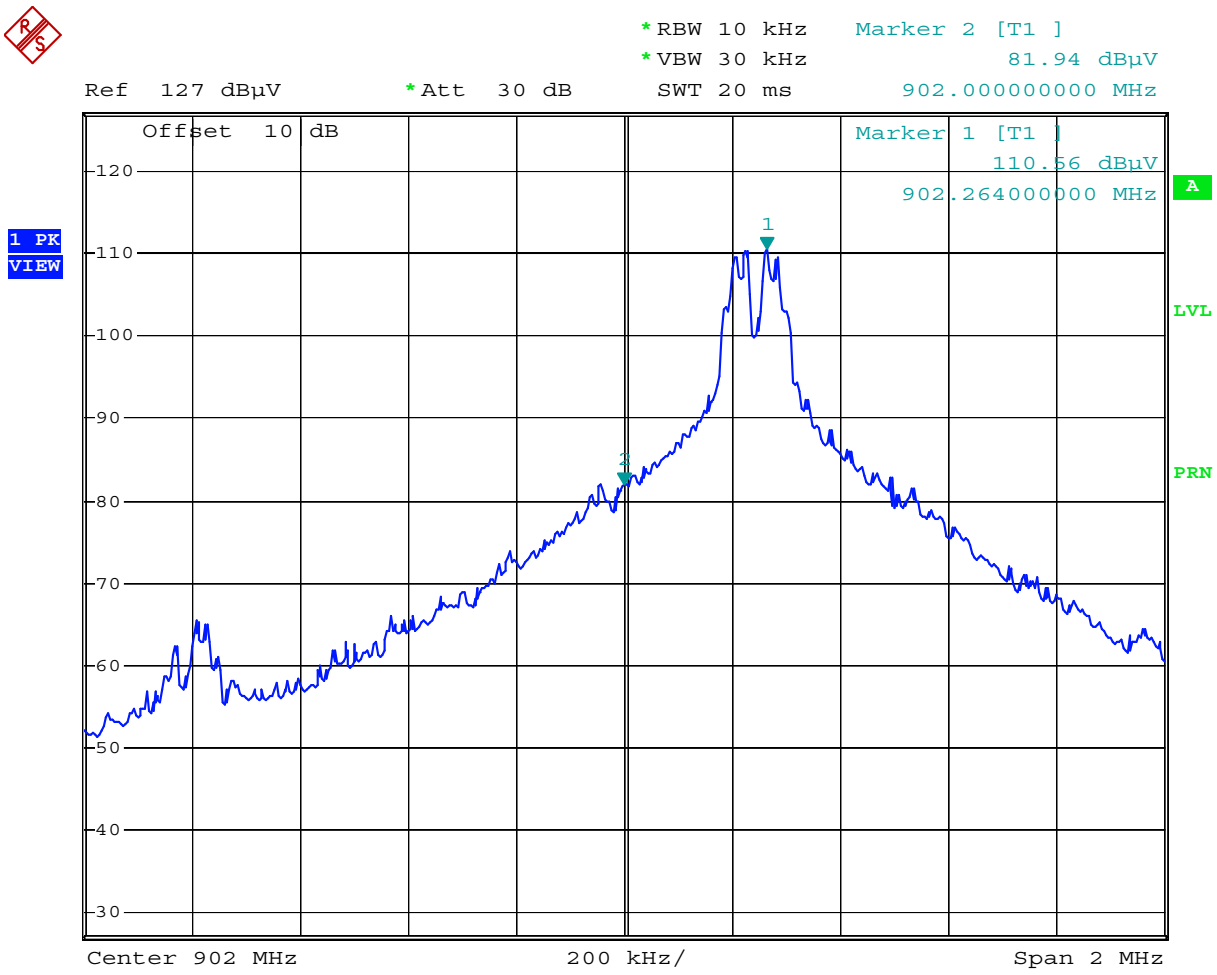
Test Result:	Test passed

Lowest Channel:



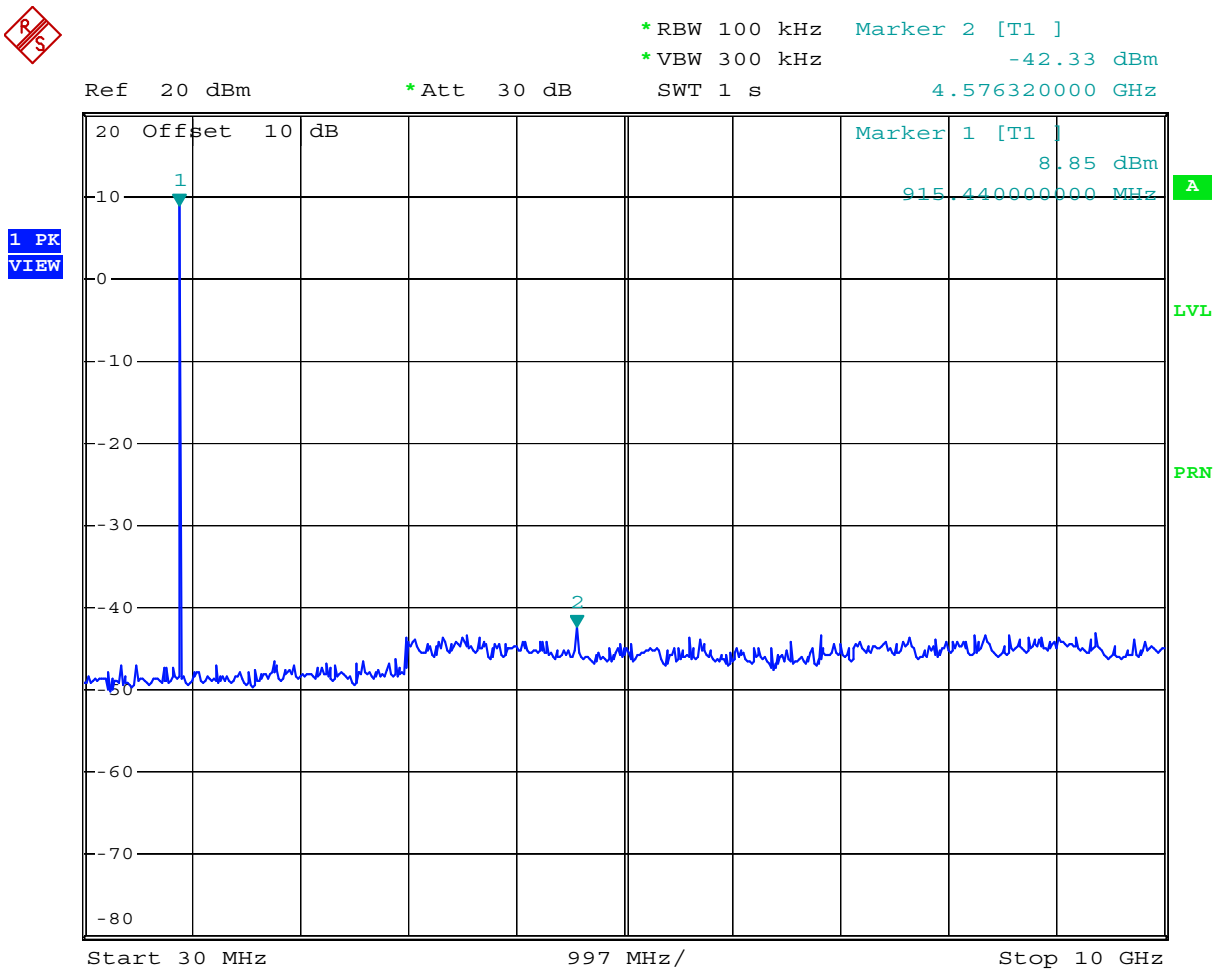
Comment: vigil 060316: Conducted Emissions
Date: 4.AUG.2006 14:17:35

Lowest Channel - continued:



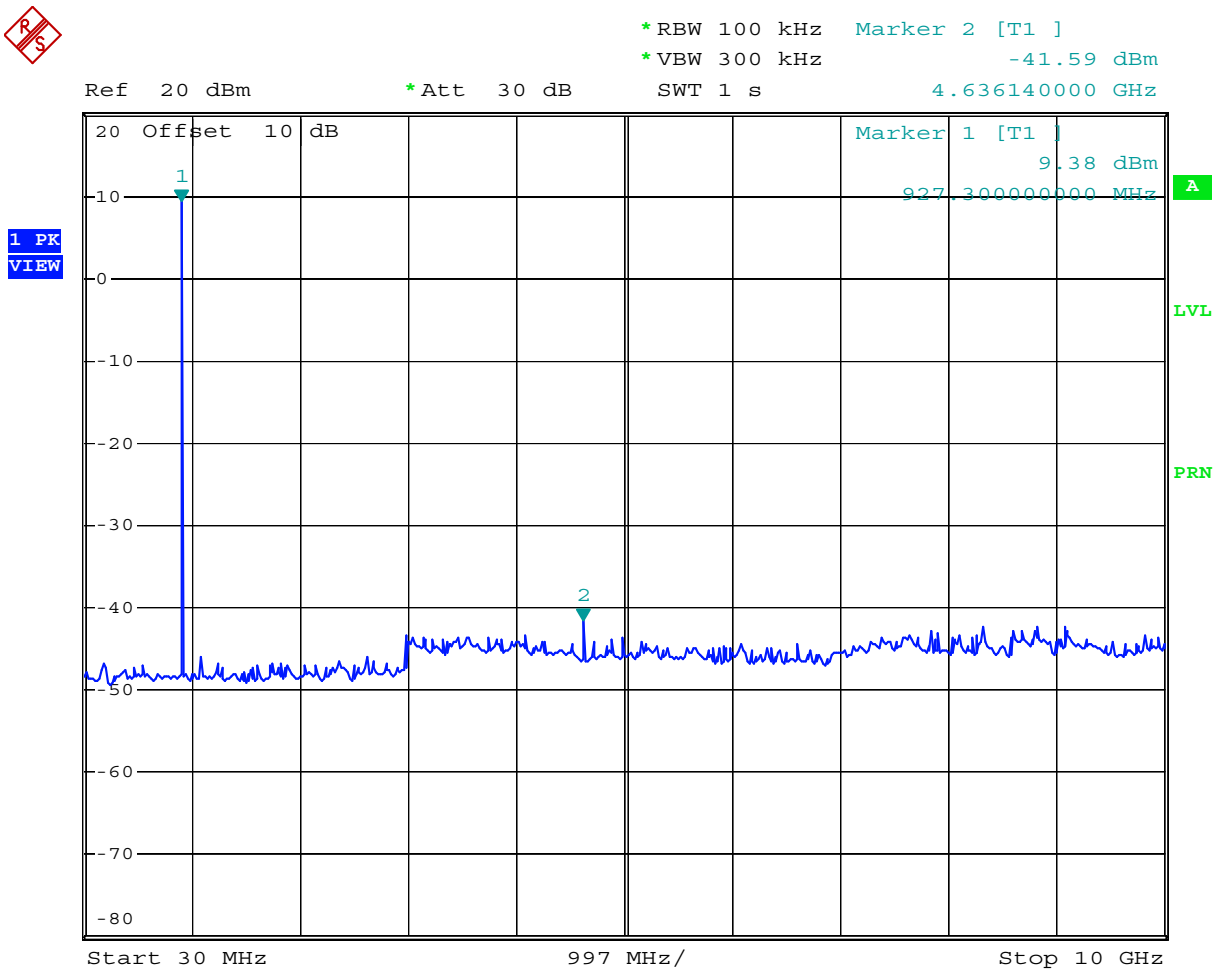
Comment: vigil 060316: Band Edge
Date: 4.AUG.2006 14:07:57

Middle Channel:



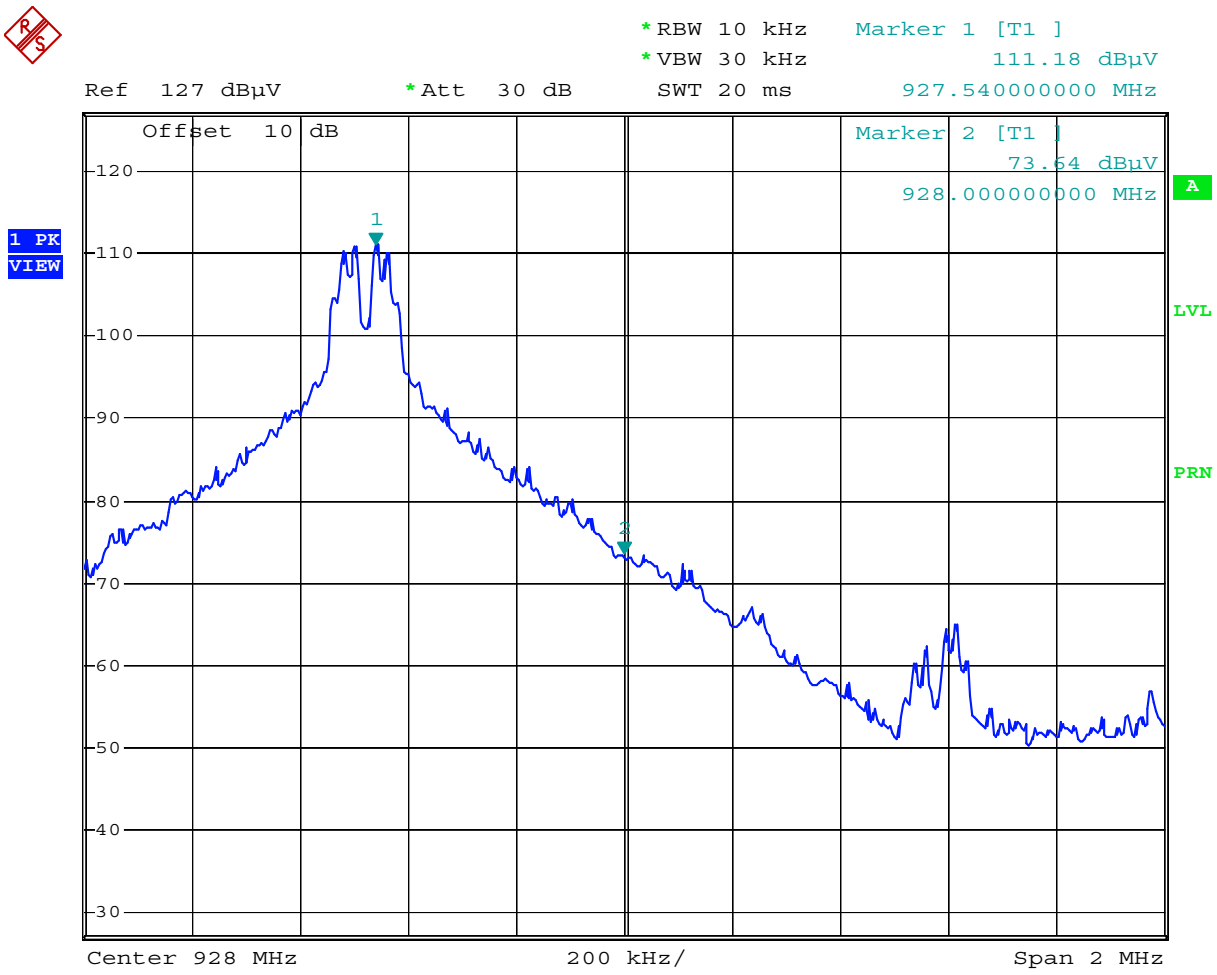
Comment: vigil 060316: Conducted Emissions
Date: 4.AUG.2006 14:19:58

Highest Channel:



Comment: vigil 060316: Conducted Emissions
Date: 4.AUG.2006 14:16:48

Highest Channel - continued:



Comment: vigil 060316: Band Edge
Date: 4.AUG.2006 14:10:49

8.11 Spurious emissions 30 MHz to 10 GHz - radiated

Rules and specifications:	CFR 47 Part 15, sections 15.247(d) IC RSS-210 Issue 6, 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 radio frequency power that is prduced 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. In addition, radiated emissions which fall in the restricted bands, as specified in section 15.205(a), must also comply with the radiated emission limits. specified in section 15.209(a).
Measurement procedures:	Radiated Emission in Fully or Semi Anechoic Room (6.3) Radiated Emission at Open Field Test Site (6.4)

Test Result:	Test passed

Comment:	
Date of test:	1 August 2006
Mode:	Transmitting continuously on lowest channel
Test site:	Frequencies ≤ 1 GHz: Open field test site Frequencies > 1 GHz: Fully anechoic room, cabin no. 2
Test distance:	3 meters for frequencies ≤ 8.2 GHz 1 meters for frequencies > 8.2 GHz

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)
516.090	vertical	Quasi-Peak	16.4	20.8		37.2	90.1	52.9
545.590	vertical	Quasi-Peak	18.3	20.9		39.2	90.1	50.9
604.570	vertical	Quasi-Peak	16.5	22.1		38.6	90.1	51.5
902.260	vertical	Quasi-Peak	83.7	26.4		110.1		
961.220	vertical	Quasi-Peak	17.0	27.5		44.5	54.0	9.5
1066.000	vertical	Peak	17.5	28.0		45.5	54.0	8.5
1804.000	horizontal	Peak	11.0	31.3		42.3	90.1	47.8
2710.000	horizontal	Peak	9.5	34.6		44.2	54.0	9.8
3616.000	vertical	Peak	10.9	38.1		49.1	54.0	**4.9**
4512.400	horizontal	Peak	12.7	34.0		46.7	54.0	7.4
5413.000	vertical	Peak	10.8	34.9		45.7	54.0	8.4
6315.300	horizontal	Peak	10.7	38.2		48.9	90.1	41.2
7217.700	horizontal	Peak	13.6	39.0		52.6	90.1	37.5
9024.400	horizontal	Peak	12.9	43.7		56.6	63.5	6.9
9928.000	horizontal	Peak	9.4	44.4		53.8	90.1	36.3

Note: For test distances other 3 meters the limit was extrapolated using a extrapolation factor of 20 dB/decade.

Sample calculation of final values:

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

Comment:	
Date of test:	1 August 2006
Mode:	Transmitting continuously on middle channel
Test site:	Frequencies ≤ 1 GHz: Open field test site Frequencies > 1 GHz: Fully anechoic room, cabin no. 2
Test distance:	3 meters for frequencies ≤ 8.2 GHz 1 meters for frequencies > 8.2 GHz

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)
516.090	vertical	Quasi-Peak	16.6	20.8		37.4	84.8	47.4
545.590	vertical	Quasi-Peak	17.9	20.9		38.8	84.8	46.0
604.570	vertical	Quasi-Peak	16.1	22.1		38.2	84.8	46.6
915.340	vertical	Quasi-Peak	83.6	26.3		109.9		
974.390	vertical	Quasi-Peak	18.1	28.0		46.1	54.0	7.9
1084.000	vertical	Peak	17.8	28.1		45.8	54.0	8.2
1828.000	horizontal	Peak	11.8	31.4		43.2	84.8	41.6
2746.000	vertical	Peak	10.5	34.8		45.3	54.0	8.7
3664.000	horizontal	Peak	11.8	38.3		50.1	54.0	3.9
4577.000	vertical	Peak	14.4	34.1		48.5	54.0	5.5
5496.600	vertical	Peak	10.7	34.9		45.7	84.8	39.1
6409.300	vertical	Peak	12.5	38.3		50.8	84.8	34.0
7325.800	vertical	Peak	13.8	39.1		52.9	54.0	**1.1**
8239.600	horizontal	Peak	14.9	43.2		58.0	63.5	5.5
9154.000	horizontal	Peak	14.8	43.8		58.6	63.5	4.9

Note: For test distances other 3 meters the limit was extrapolated using a extrapolation factor of 20 dB/decade.

Sample calculation of final values:

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

Comment:	
Date of test:	1 August 2006
Mode:	Transmitting continuously on highest channel
Test site:	Frequencies ≤ 1 GHz: Open field test site Frequencies > 1 GHz: Fully anechoic room, cabin no. 2
Test distance:	3 meters for frequencies ≤ 8.2 GHz 1 meters for frequencies > 8.2 GHz

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)
516.090	vertical	Quasi-Peak	16.4	20.8		37.2	90.0	52.8
545.590	vertical	Quasi-Peak	17.0	20.9		37.9	90.0	52.1
604.570	vertical	Quasi-Peak	16.1	22.1		38.2	90.0	51.8
927.550	vertical	Quasi-Peak	83.8	26.2		110.0		
986.500	vertical	Quasi-Peak	17.5	28.3		45.8	54.0	8.2
1096.000	vertical	Peak	19.4	28.1		47.5	54.0	6.5
1858.000	vertical	Peak	12.3	31.6		43.8	90.0	46.2
2782.000	vertical	Peak	11.0	35.0		46.0	54.0	8.1
3712.000	horizontal	Peak	11.1	38.4		49.5	54.0	4.5
4637.800	vertical	Peak	18.5	34.1		52.6	54.0	**1.4**
6493.900	vertical	Peak	12.3	38.3		50.6	90.0	39.4
7419.800	horizontal	Peak	12.7	39.2		51.8	54.0	2.2
8347.600	horizontal	Peak	17.3	43.3		60.5	63.5	3.0
9276.400	horizontal	Peak	12.8	43.9		56.7	90.0	33.4

Note: For test distances other 3 meters the limit was extrapolated using a extrapolation factor of 20 dB/decade.

Sample calculation of final values:

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

8.12 RF-Exposure

Rules and specifications:	CFR 47 Part 1, section 1.1310 CFR 47 Part 15, section 15.247(b)(4)			
Guide:	OET Bulletin 65, Edition 97-01			
Limit:	Limits for General Population / Uncontrolled Exposure:			
	Frequency range [MHz]	Electric field strength [V/m]	Magnetic field strength [A/m]	Power density [mW/cm²]
	0.3 – 1.34	614	1.63	*(100)
	1.34 – 30	824 / f	2.19 / f	*(180 / f²)
	30 – 300	27.5	0.073	0.2
	300 – 1500	---	---	f / 1500
	1500 - 100000	---	---	1.0
	Averaging time is 30 minutes for all frequency ranges.			
	f: Frequency in MHz *: Plane-wave equivalent power density			

MPE Prediction of MPE according to equation from page 19 of OET Bulletin 65, Edition 97-01**:**

$$\mathbf{S = (P\ G) / (4\ \pi\ R^2)}$$

Where: S = Power Density
P = Power to the Antenna
G = Gain of Antenna
R = Distance to the center of radiation of the antenna

Equivalent Isotropic Radiated Power (maximum measured):	8.94 dBm = 7.83 mW
Antenna Gain	3 dB = 2.00
Prediction distance:	20 cm
Power density at 20 cm:	**312 µW/cm²**
Limit:	601 mW/cm²

Test Result:	Test passed

8.13 Exposure of Humans to RF Fields

Rules and specifications:	IC RSS-Gen Issue 1, 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 = **8.94dBm = 7.83 mW**			☒	
The effective isotropic radiated power (EIRP in watts) is calculated using				
☒ the numerical antenna gain: G = **2.00**; $EIRP = G \cdot CP \Rightarrow EIRP$ = **15.66 mW**		☒		
☒ the field strength[8] in V/m: FS = **110.1 dBµV/m = 319.9 mV/m**; $EIRP = \frac{(FS \cdot D)^2}{30} \Rightarrow EIRP$ = **30.70 mW**			☒	
with: Distance between the antennas in m: D = **3.0 m**			☒	
☐ not detachable				
A field strength measurement is used to determine the effective isotropic radiated power (EIRP in watts) given by[8]: $EIRP = \frac{(FS \cdot D)^2}{30} \Rightarrow EIRP$ = **..... W**				
with: Field strength in V/m: FS = **..... dBµV/m**			☐	
Distance between the two antennas in m: D = **..... 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 = **30.70 mW**				

[8] 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	38	Test passed
15.109	Radiated emission 30 MHz to 5 GHz	72	Test passed
15.111(a)	Antenna power conduction emission of receivers 9 kHz to 5 GHz	---	Not applicable

IC RSS-Gen Issue 1			
Section(s)	*Test*	*Page*	*Result*
7.2.2	Transmitter AC power lines conducted emissions 150 kHz to 30 MHz	38	Test passed
6(a), 7.2.3.2	Receiver spurious emissions (radiated) 30 MHz to 5 GHz	72	Test passed
6(b), 7.2.3.1	Receiver spurious emissions (antenna conducted) 9 kHz to 5 GHz	---	Not applicable

9.1 Radiated Emission Measurement 30 MHz to 5 GHz

Rules and specifications:	CFR 47 Part 15, section 15.109 (Class B) IC RSS-Gen Issue 1, 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 (6.3) Radiated Emission at Open Field Test Site (6.4)		

Comment:	
Date of test:	1 August 2006
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)
915.280	vertical	Quasi-Peak	15.4	26.3	41.7	46.0	**4.3**

Sample calculation of field final values:

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

10 Referenced Regulations

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

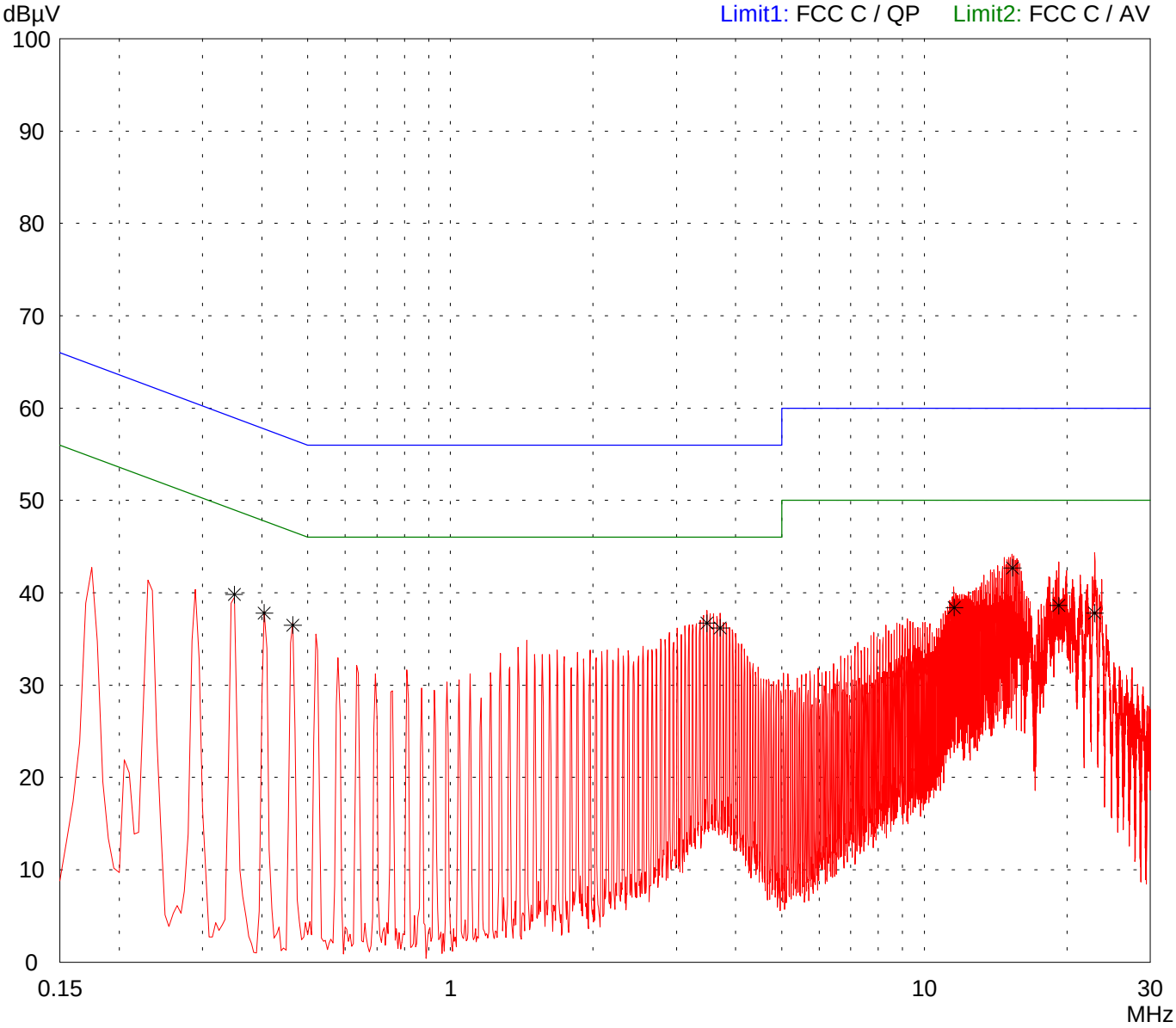
☒	CFR 47 Part 2	Code of Federal Regulations Part 2 (Frequency allocation and radio treaty matters; General rules and regulations) of the Federal Communication Commission (FCC)	October 10, 2004
☒	CFR 47 Part 15	Code of Federal Regulations Part 15 (Radio Frequency Devices) of the Federal Communication Commission (FCC)	September 19, 2005
☒	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 1 containing General Requirements and Information for the Certification of Radiocommunication Equimpment, published by Industry Canada	September 2005
☒	RSS-210	Radio Standards Specification RSS-210 Issue 6 for Low Power Licence-Exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment, published by Industry Canada	September 2005
☐	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

11 Charts taken during testing

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

Model: WRX01	Mode: - 115 V power supply with dedicated AC/DC adapter - normal operation mode
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord Phase L1	
Date of test: 07/17/2006 / Operator: M. Steindl	
Test performed: semi automatically / File name:	

Detector: Peak / Final Results: QP	Final results: Selected by hand

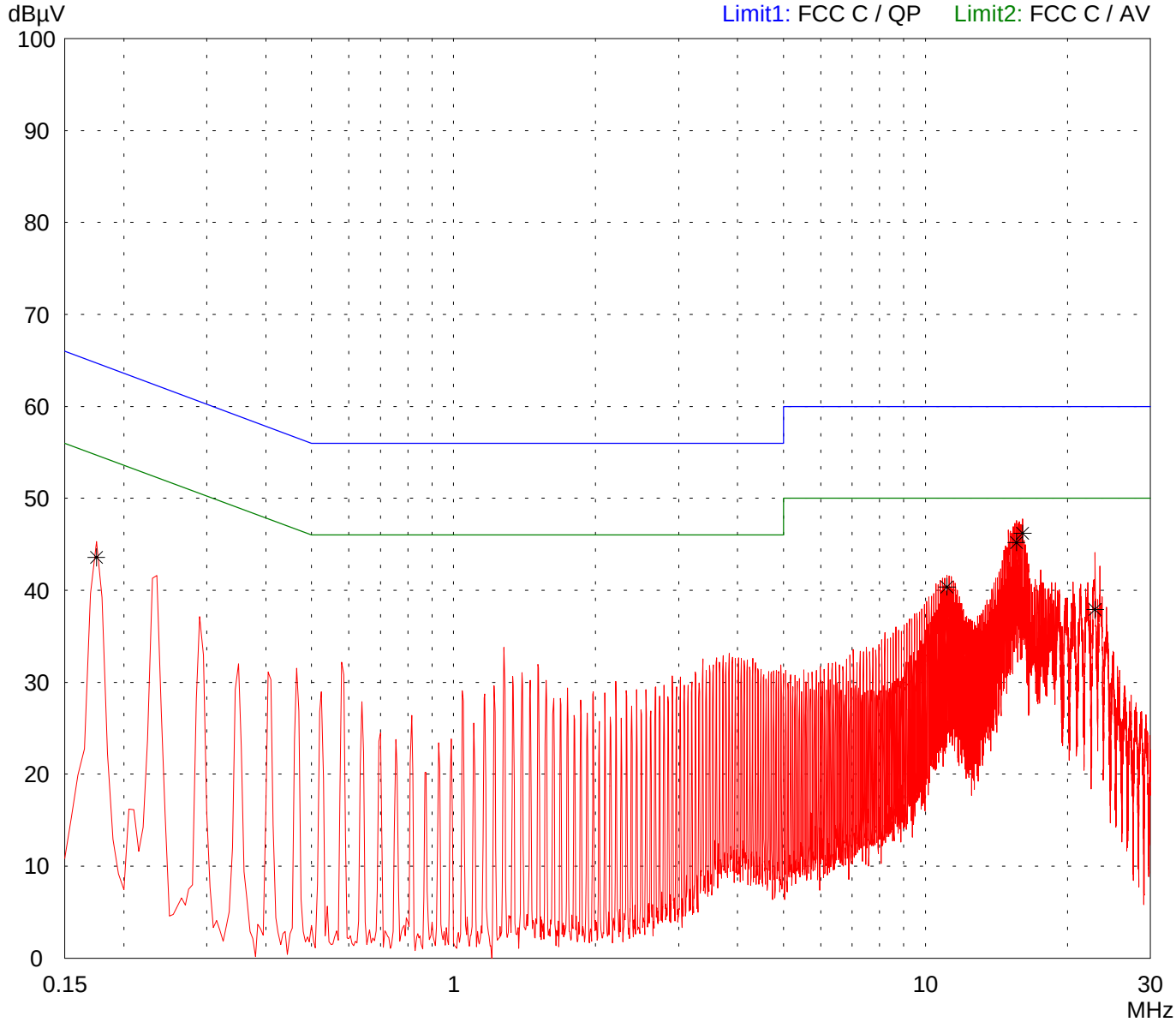


Result: Limit kept	Project file: 50516-060368

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

Model: WRX01	Mode: - 115 V power supply with dedicated AC/DC adapter - normal operation mode
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Shielded room, cabin no. 4	
Tested on: Linecord Phase N	
Date of test: 07/17/2006 / Operator: M. Steindl	
Test performed: semi automatically / File name:	

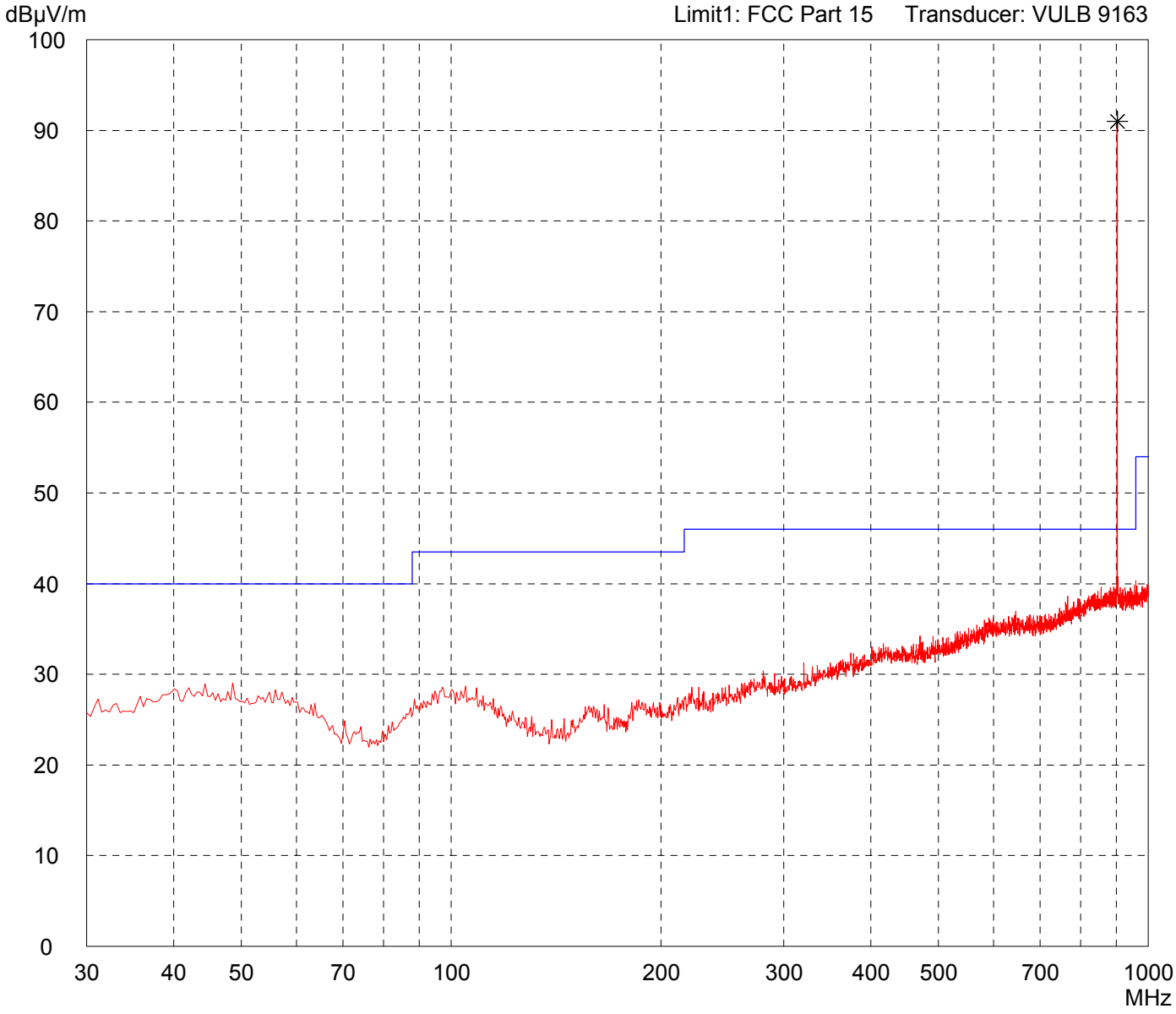
Detector: Peak / Final Results: QP	Final results: 20 dB Margin 25 Subranges



Result: Limit kept	Project file: 50516-060368

Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: WRX01	Comment: - external DC supply - transmitting continuously on lowest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/21/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand

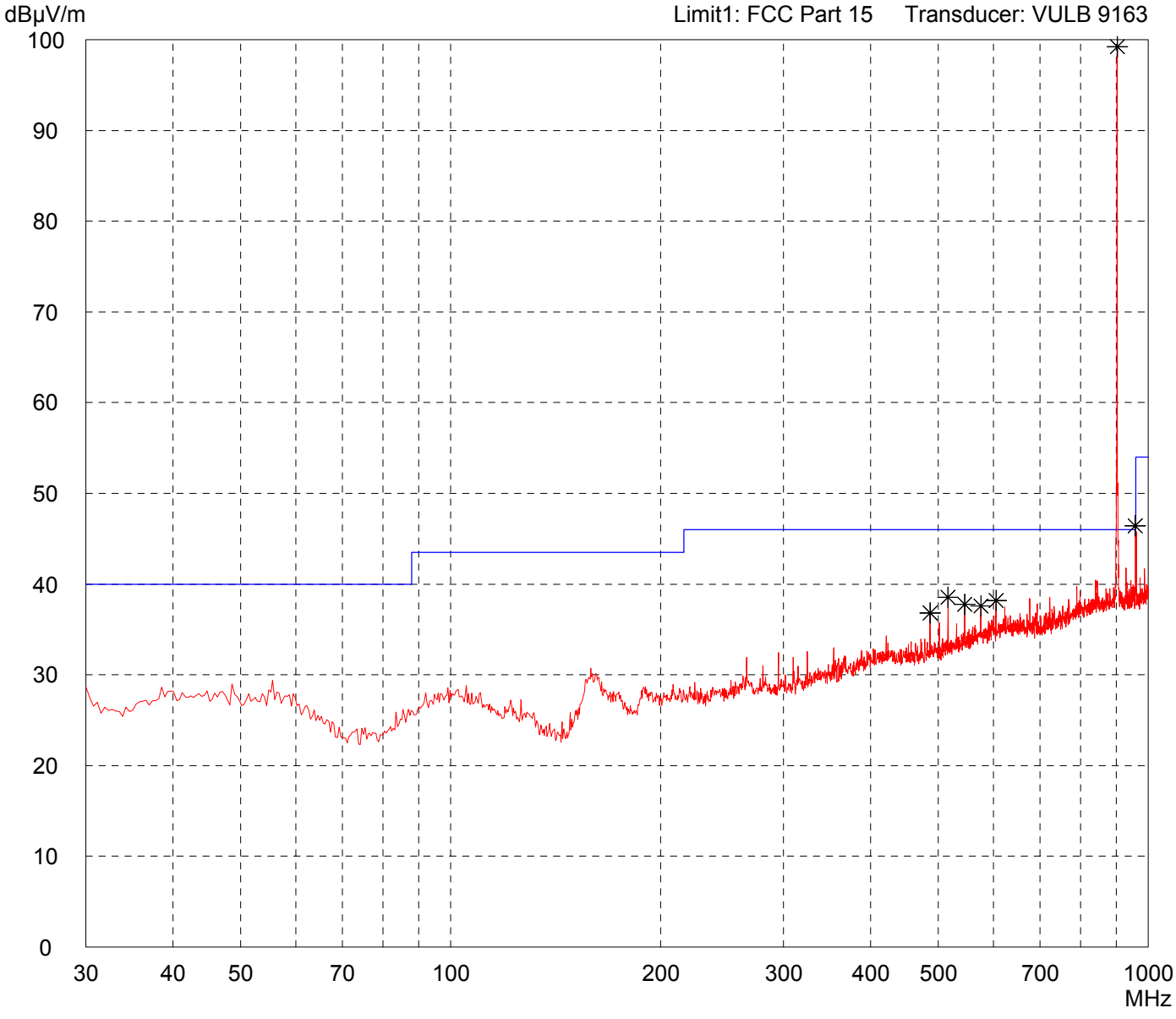


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: WRX01	Comment: - external DC supply - transmitting continuously on lowest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/21/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



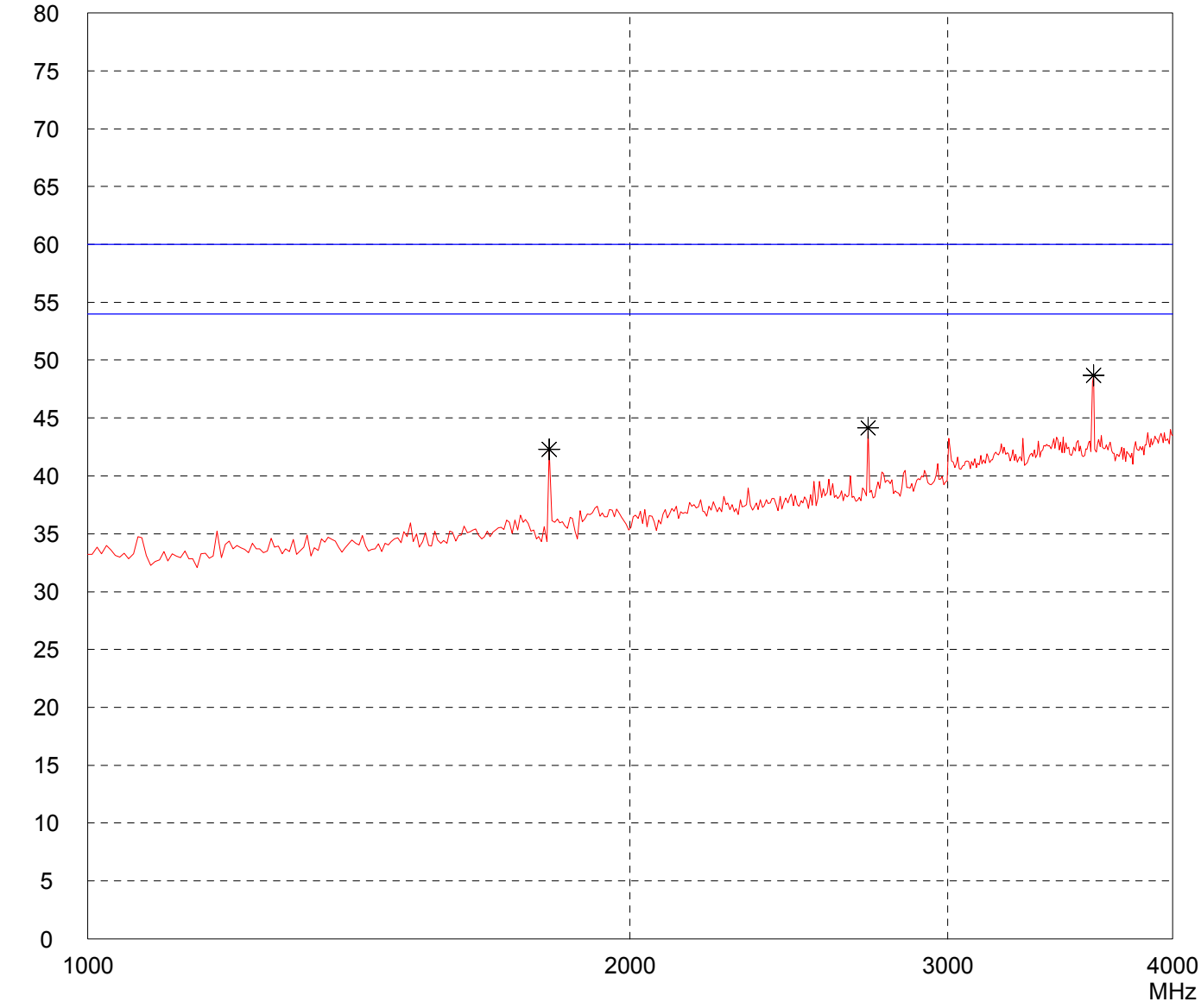
Result: Prescan	Project file: 50516-60368

Radiated Emission Test 1 GHz - 4 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: WRX01	Comment: - external DC supply - transmitting continuously on lowest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

dBµV/m Limit1: FCC Part 15 Limit2: FCC part 15 class A Transducer: EMCO 3115

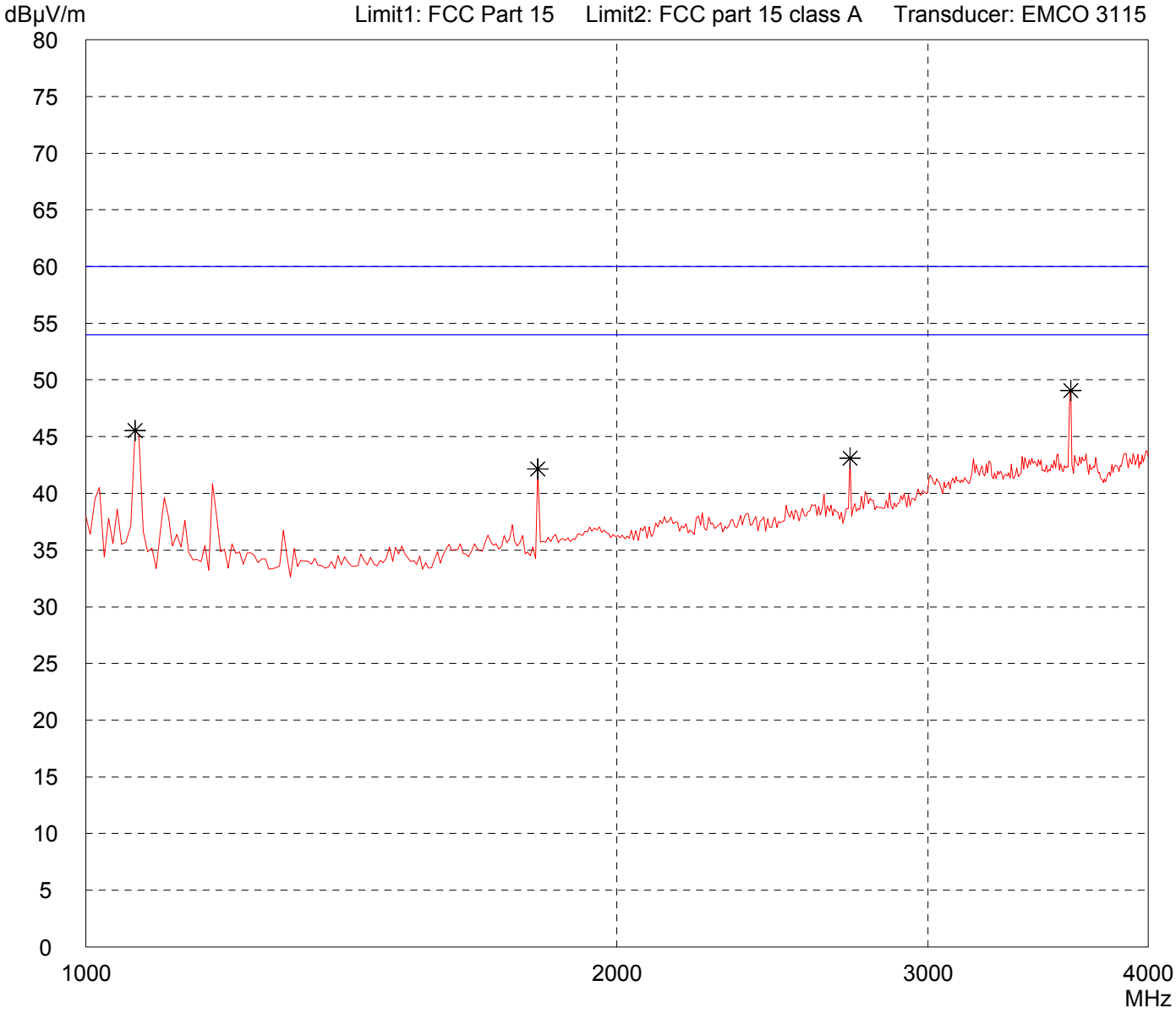


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 1 GHz - 4 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: WRX01	Comment: - external DC supply - transmitting continuously on lowest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



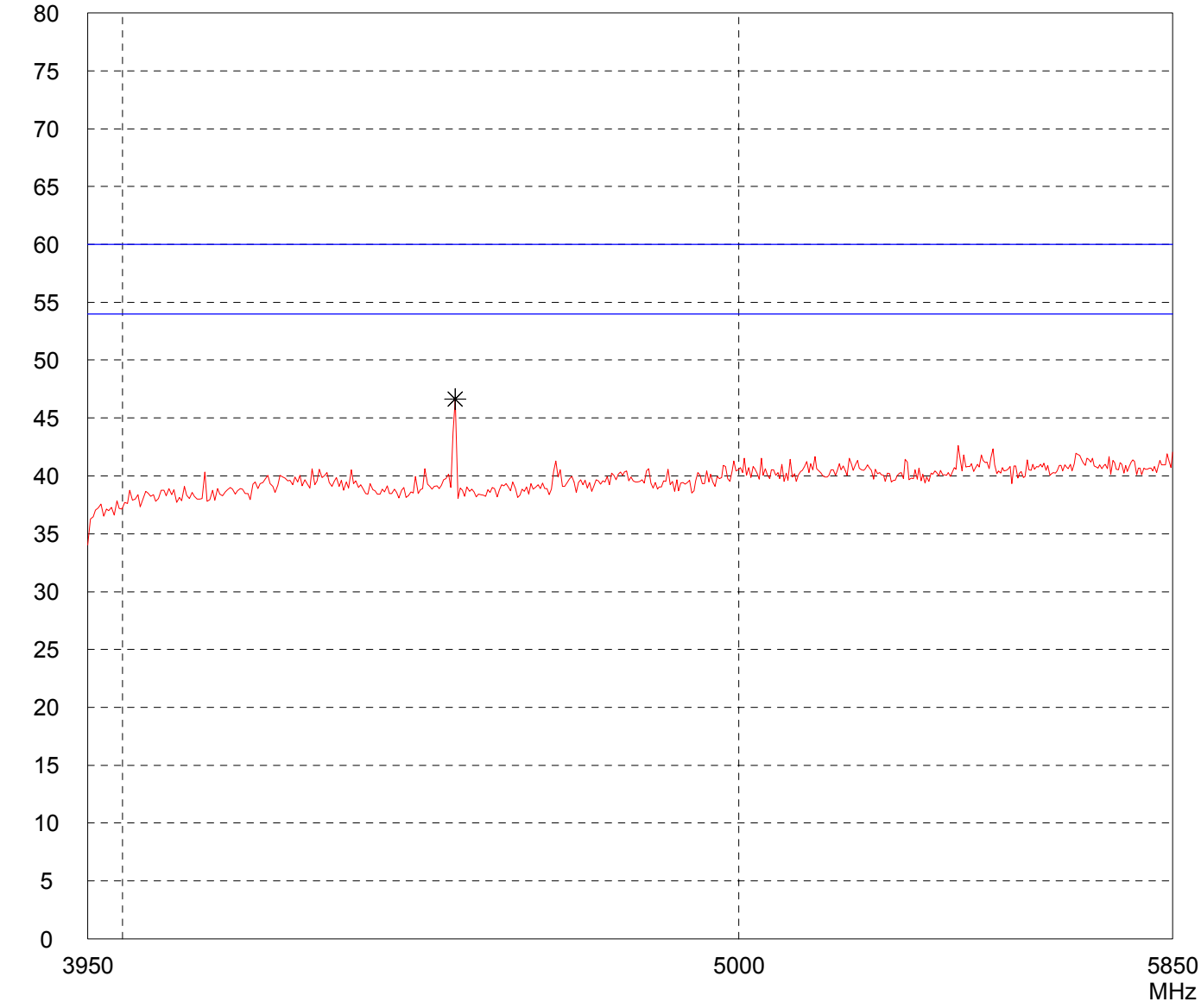
Result: Prescan	Project file: 50516-60368

Radiated Emission Test 3.95 GHz - 5.85 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on lowest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

dBµV/m Limit1: FCC Part 15 Limit2: FCC part 15 class A Transducer: EMCO 3160



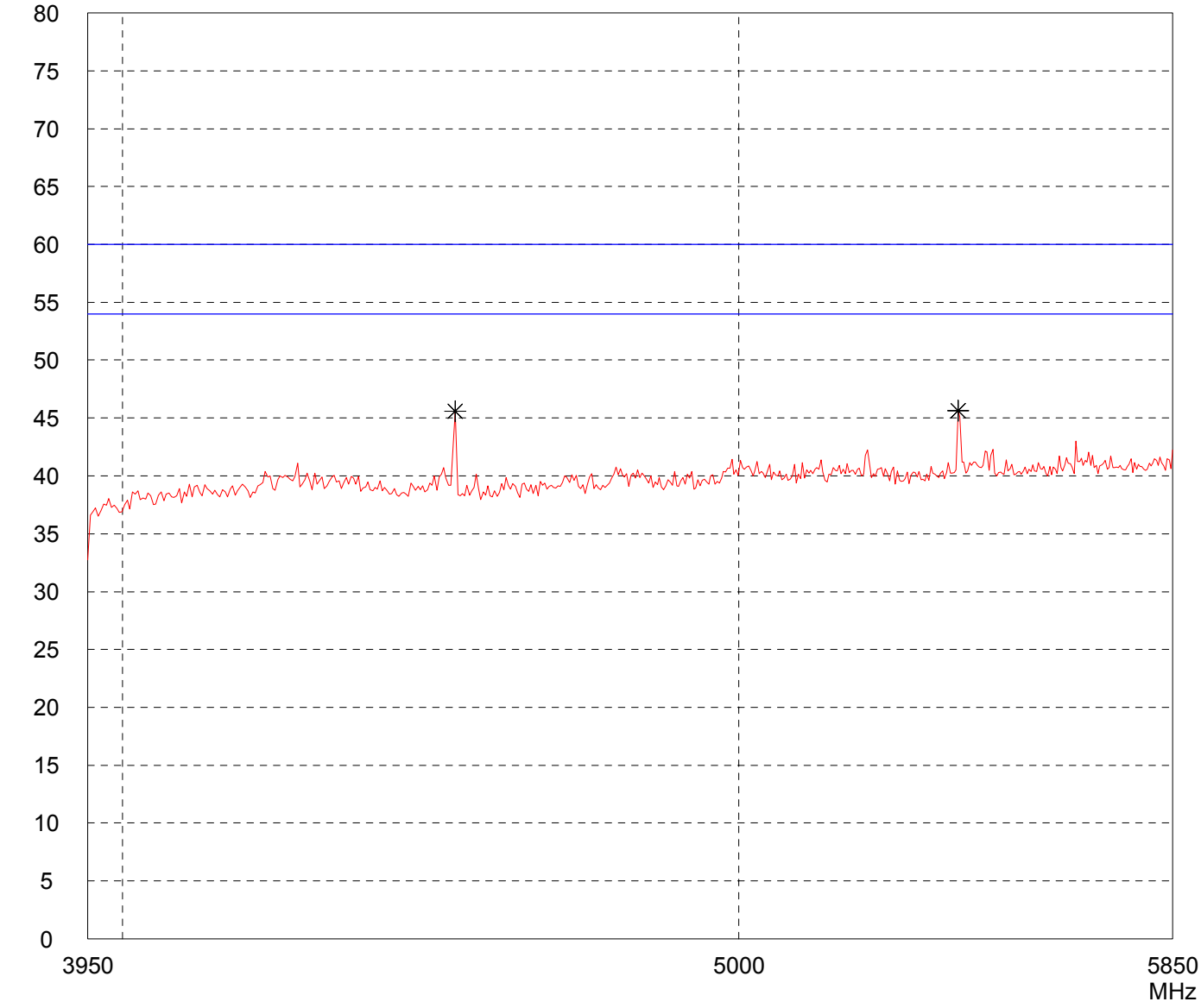
Result: Prescan	Project file: 50516-60368

Radiated Emission Test 3.95 GHz - 5.85 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on lowest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

dBµV/m Limit1: FCC Part 15 Limit2: FCC part 15 class A Transducer: EMCO 3160



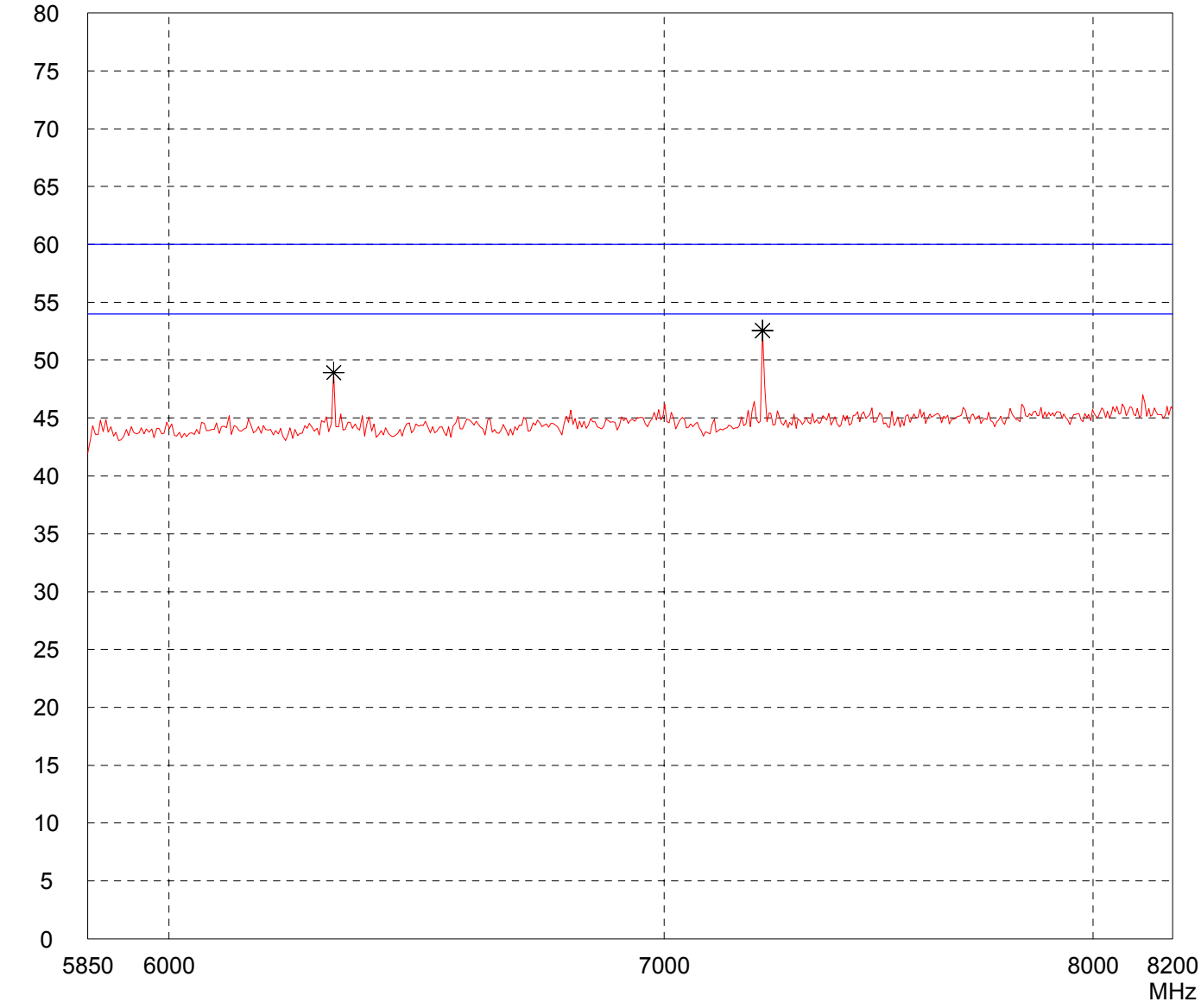
Result: Prescan	Project file: 50516-60368

Radiated Emission Test 5.85 GHz - 8.2 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on lowest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

dBµV/m Limit1: FCC Part 15 Limit2: FCC part 15 class A Transducer: EMCO 3160

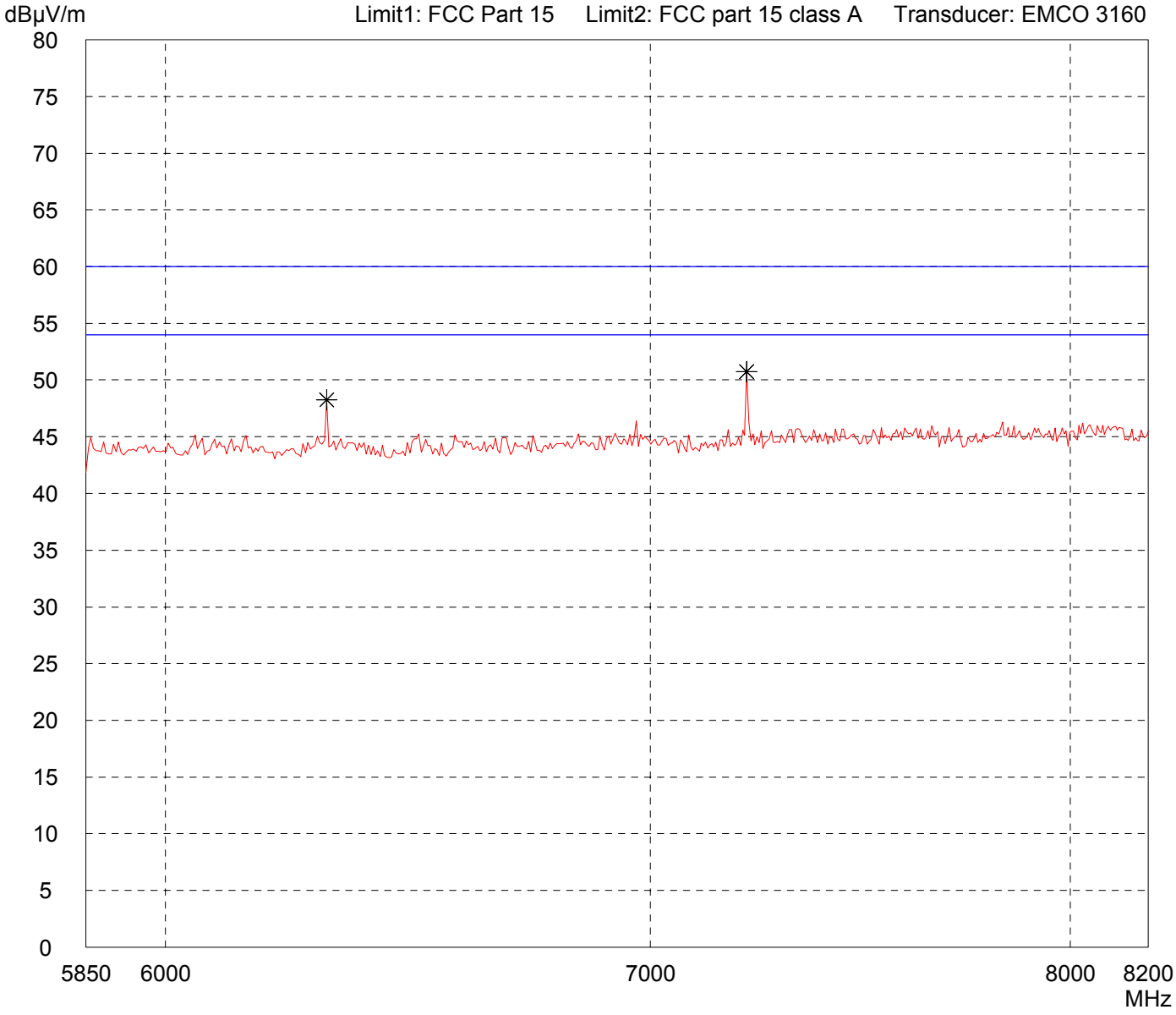


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 5.85 GHz - 8.2 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on lowest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

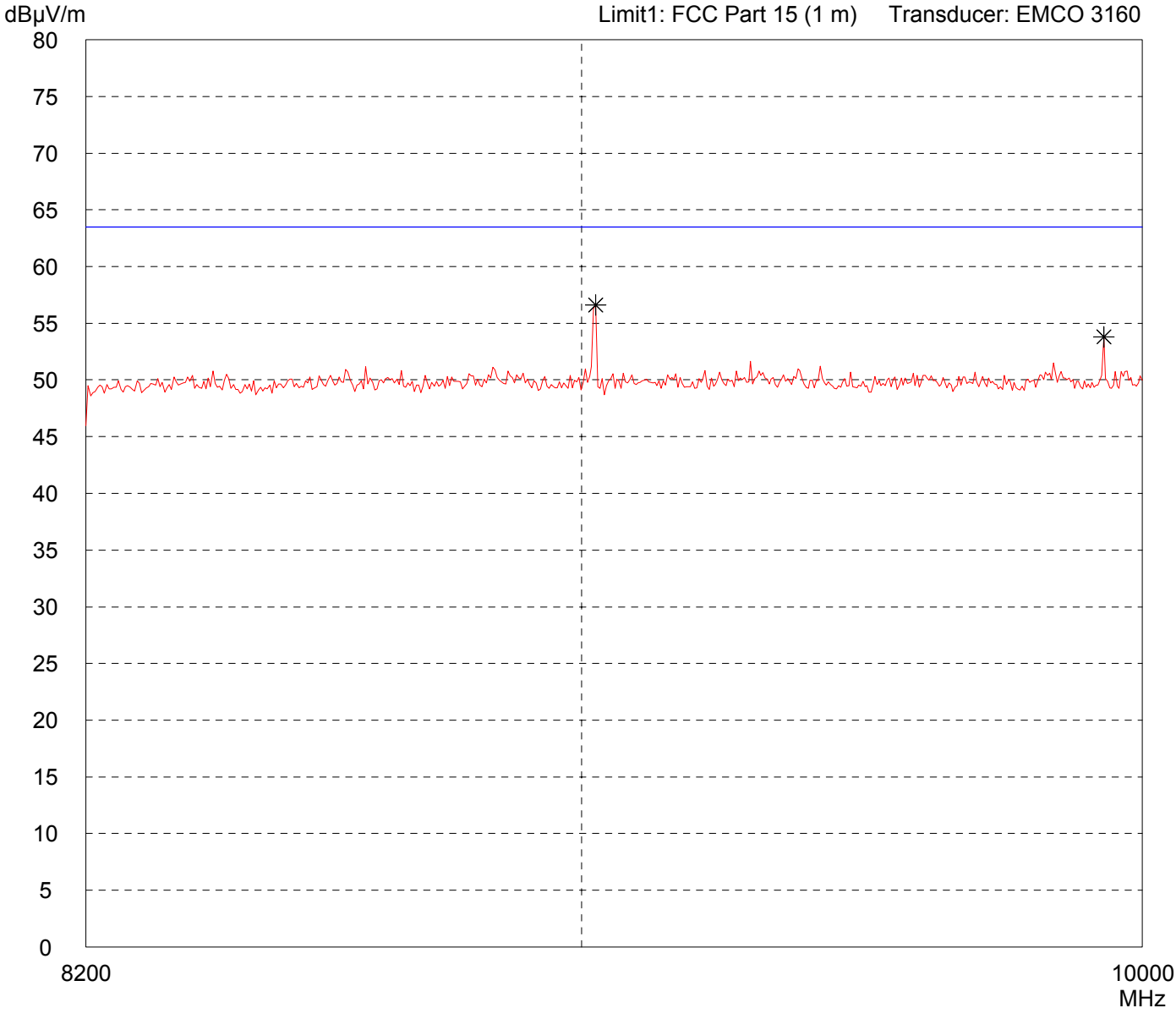


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 8.2 GHz - 10 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on lowest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

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

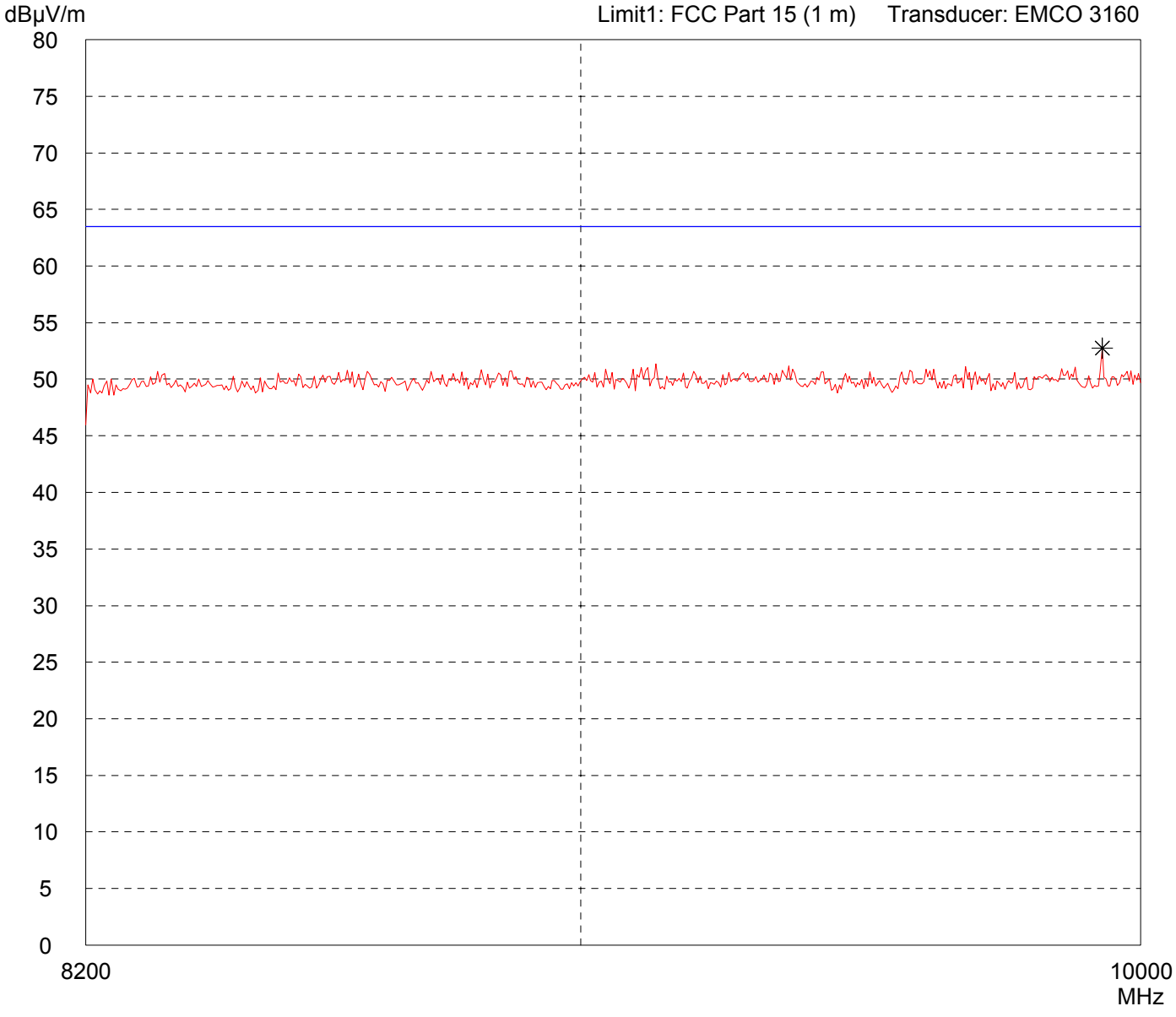


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 8.2 GHz - 10 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on lowest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

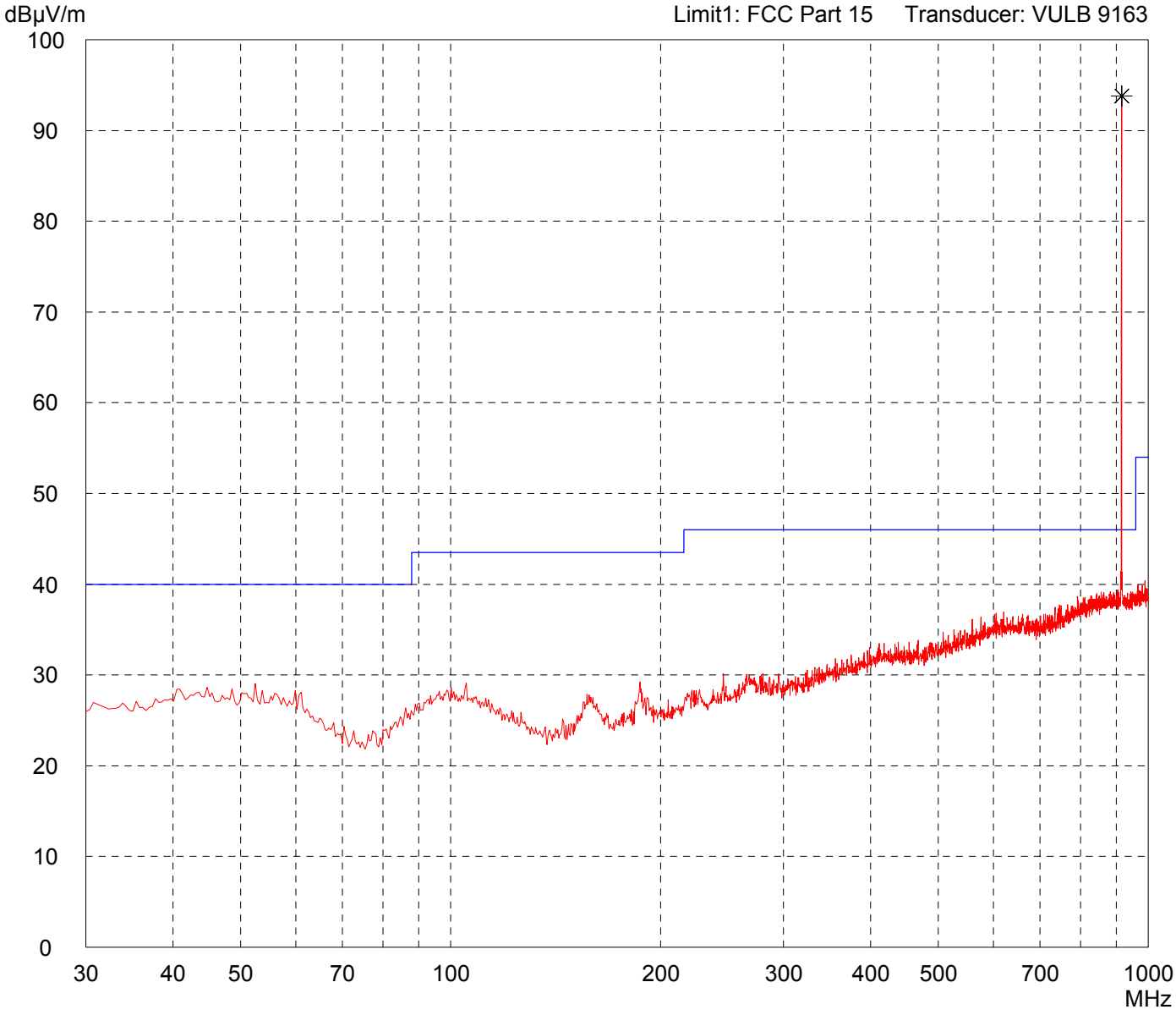
Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50516-60368

Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

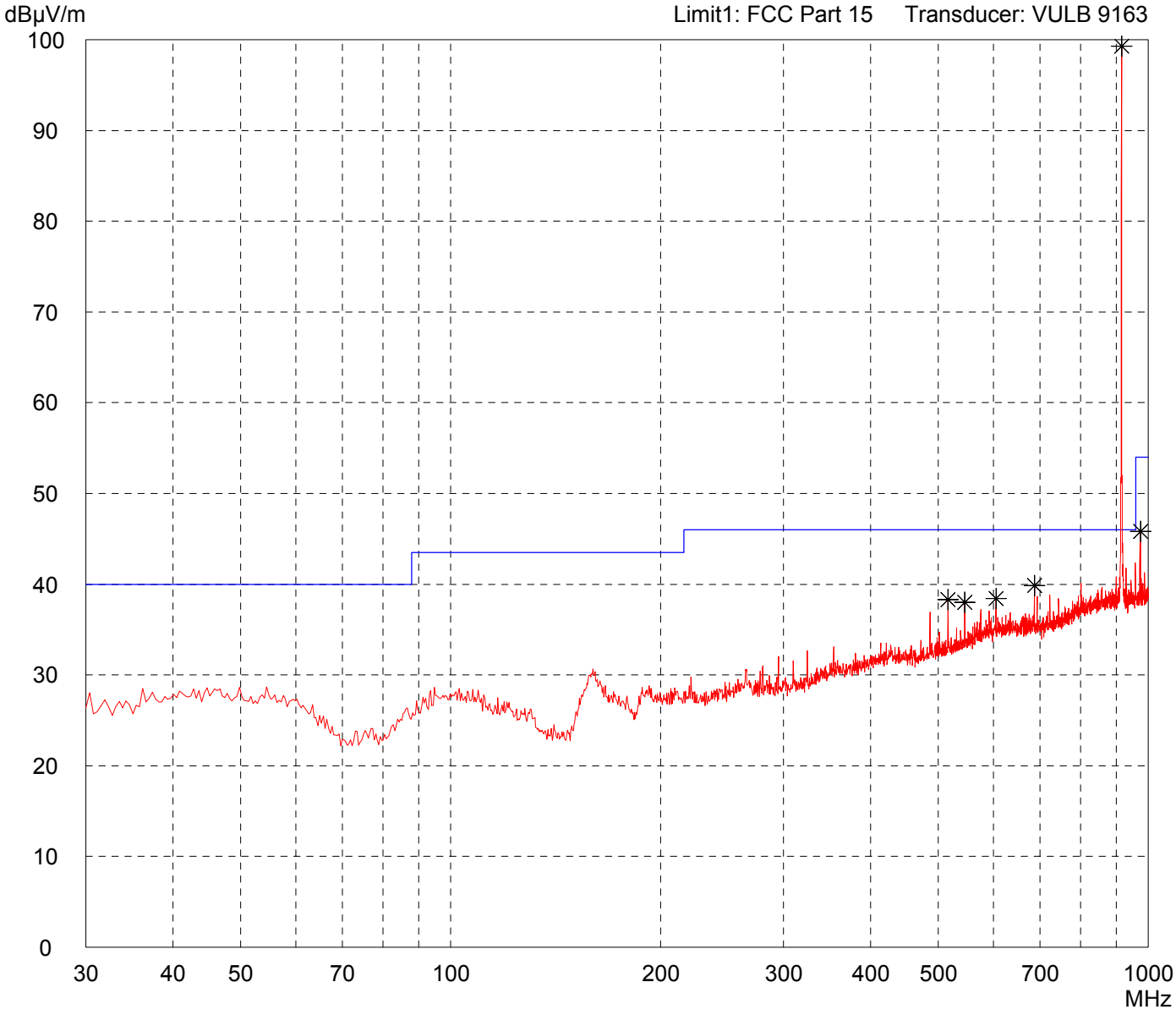
Model: WRX01	Comment: - external DC supply - transmitting continuously on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/21/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50516-60368

Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: WRX01	Comment: - external DC supply - transmitting continuously on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/21/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand

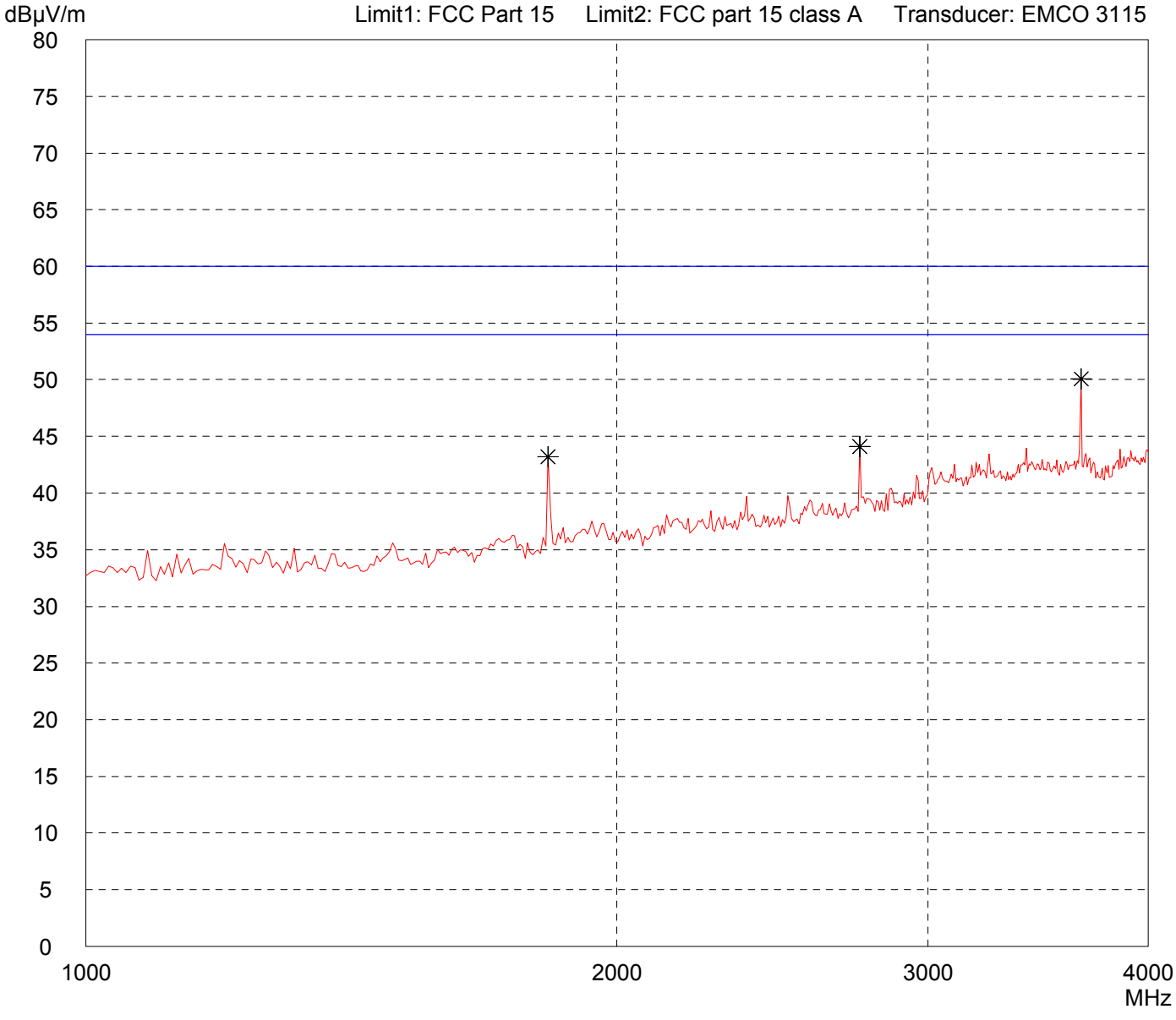


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 1 GHz - 4 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: WRX01	Comment: - external DC supply - transmitting continuously on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

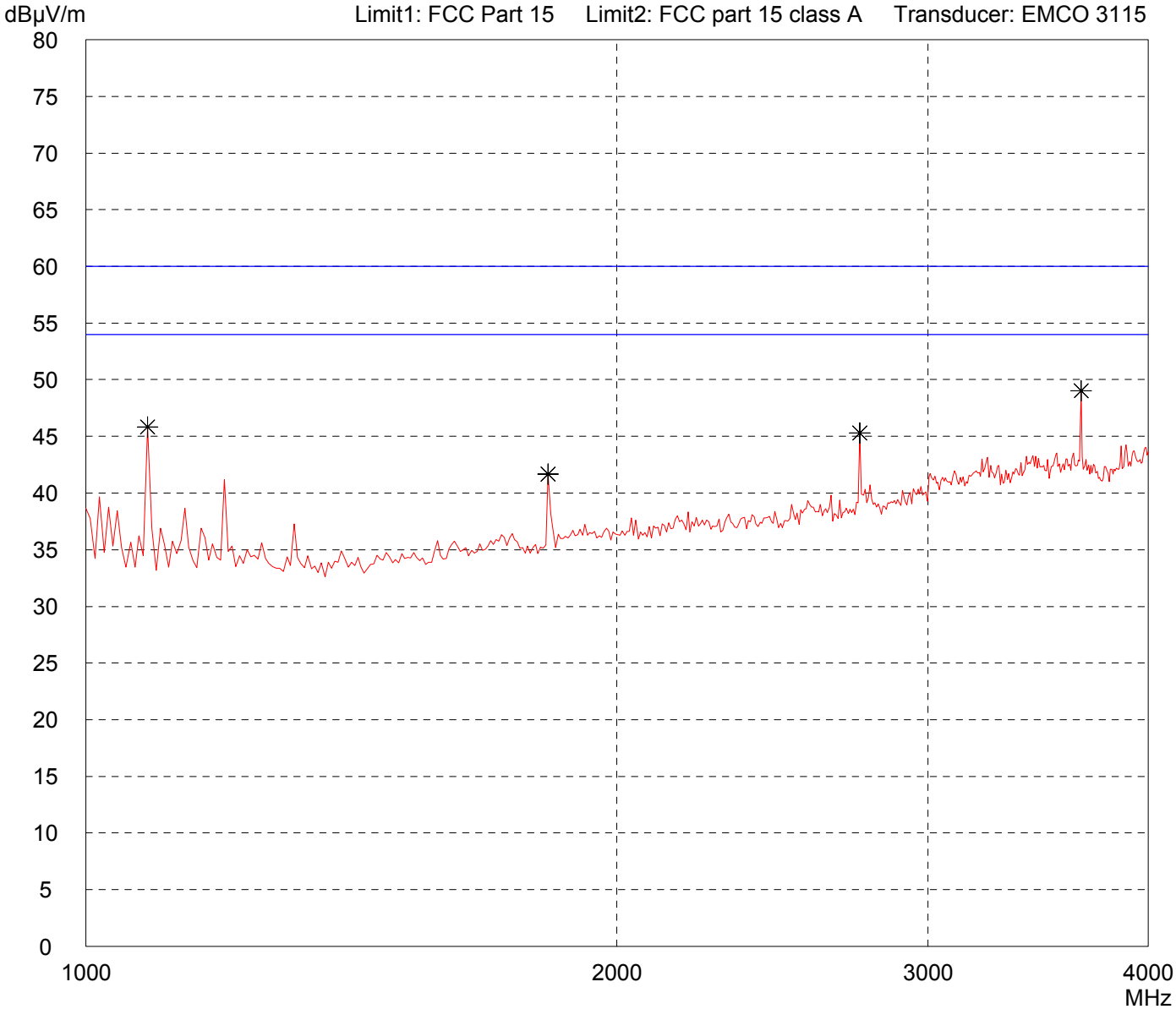


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 1 GHz - 4 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: WRX01	Comment: - external DC supply - transmitting continuously on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

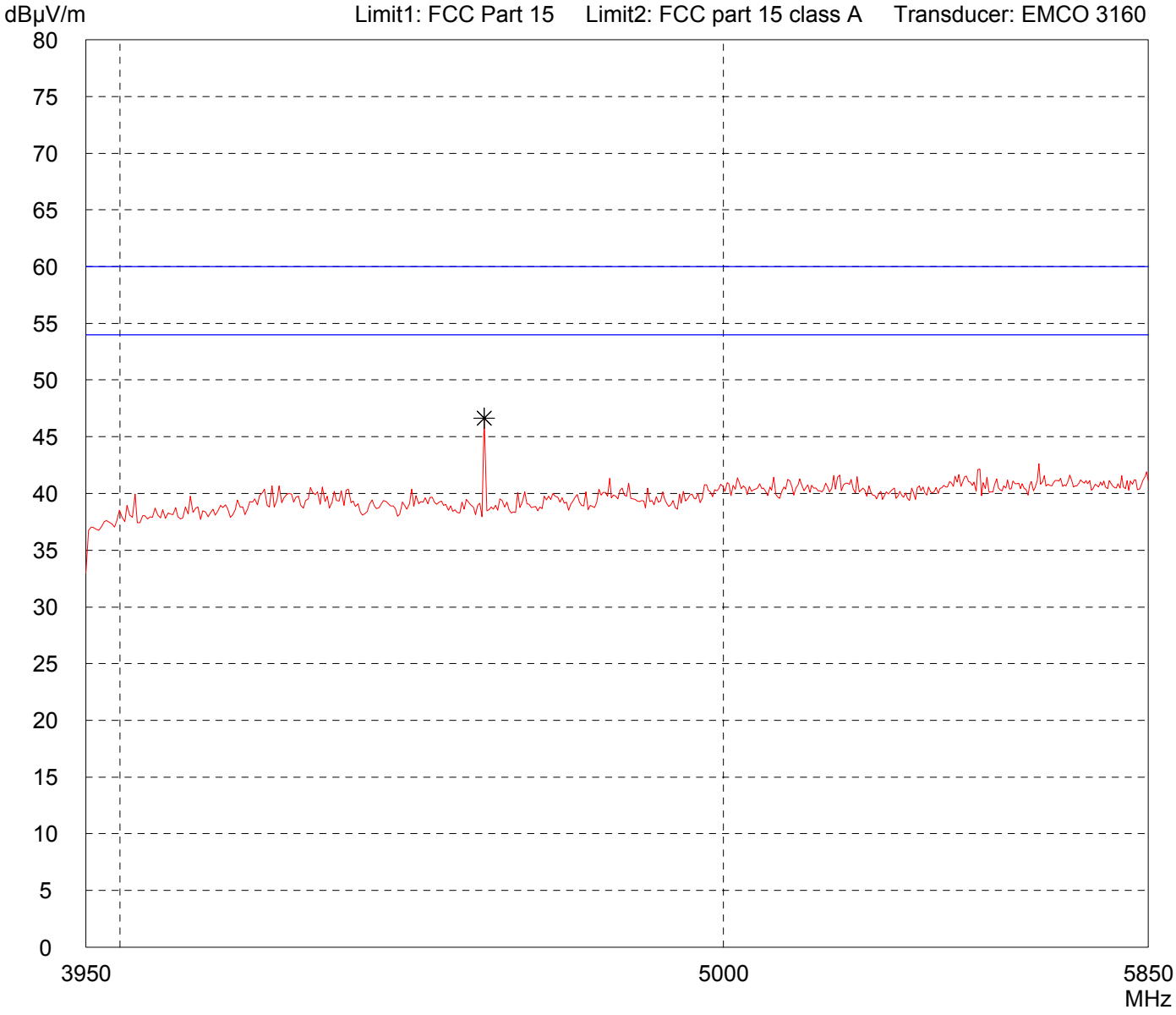


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 3.95 GHz - 5.85 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50516-60368

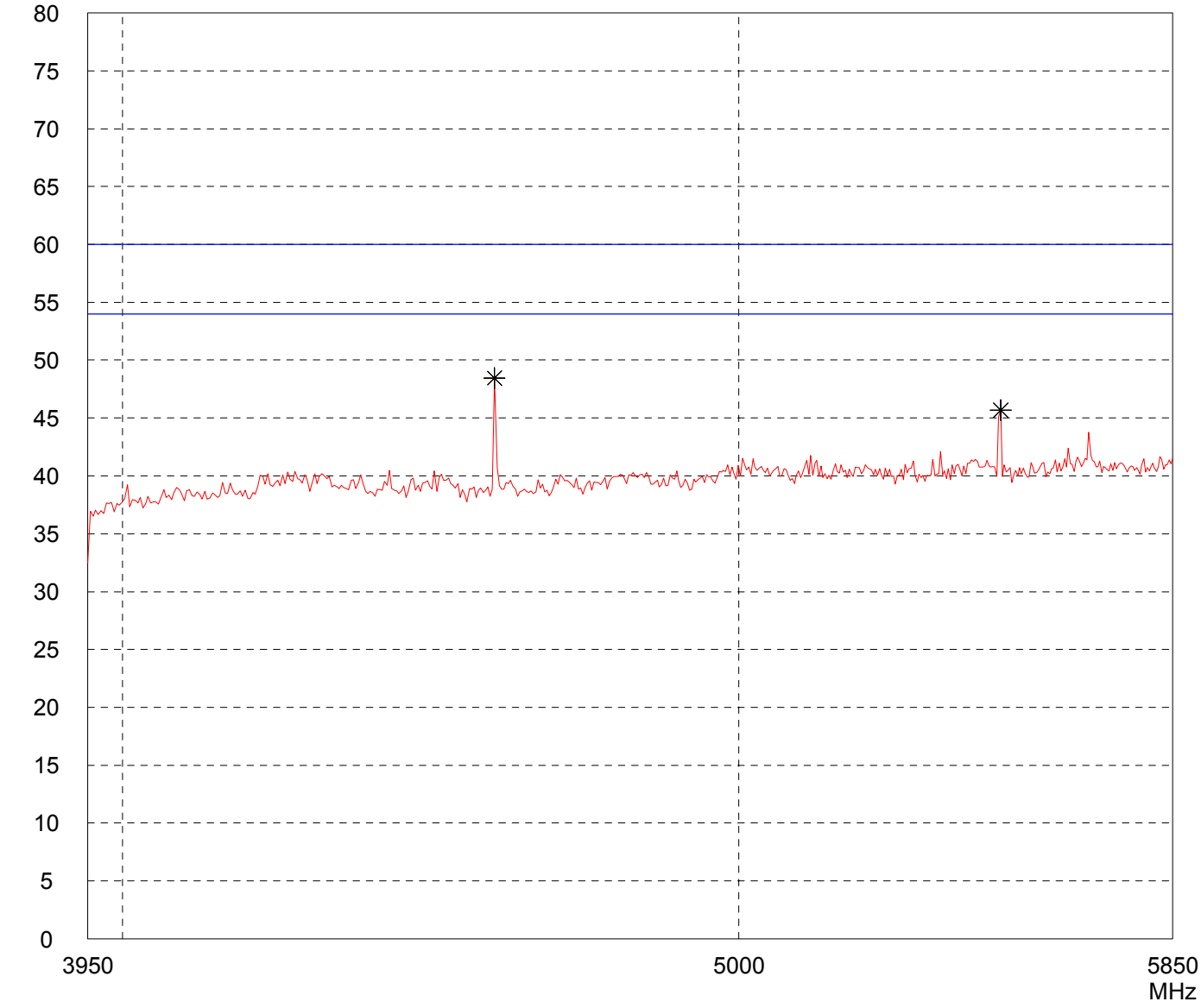
Senton GmbH / Aeussere Fruehlingstrasse 45 / D-94315 Straubing / Germany / Tel. +49 (0)9421 5522-0 / Fax +49 (0)9421 5522-99

Radiated Emission Test 3.95 GHz - 5.85 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

dBµV/m Limit1: FCC Part 15 Limit2: FCC part 15 class A Transducer: EMCO 3160



Result: Prescan	Project file: 50516-60368

Radiated Emission Test 5.85 GHz - 8.2 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

Result: Prescan	Project file: 50516-60368

Radiated Emission Test 5.85 GHz - 8.2 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

Result: Prescan	Project file: 50516-60368

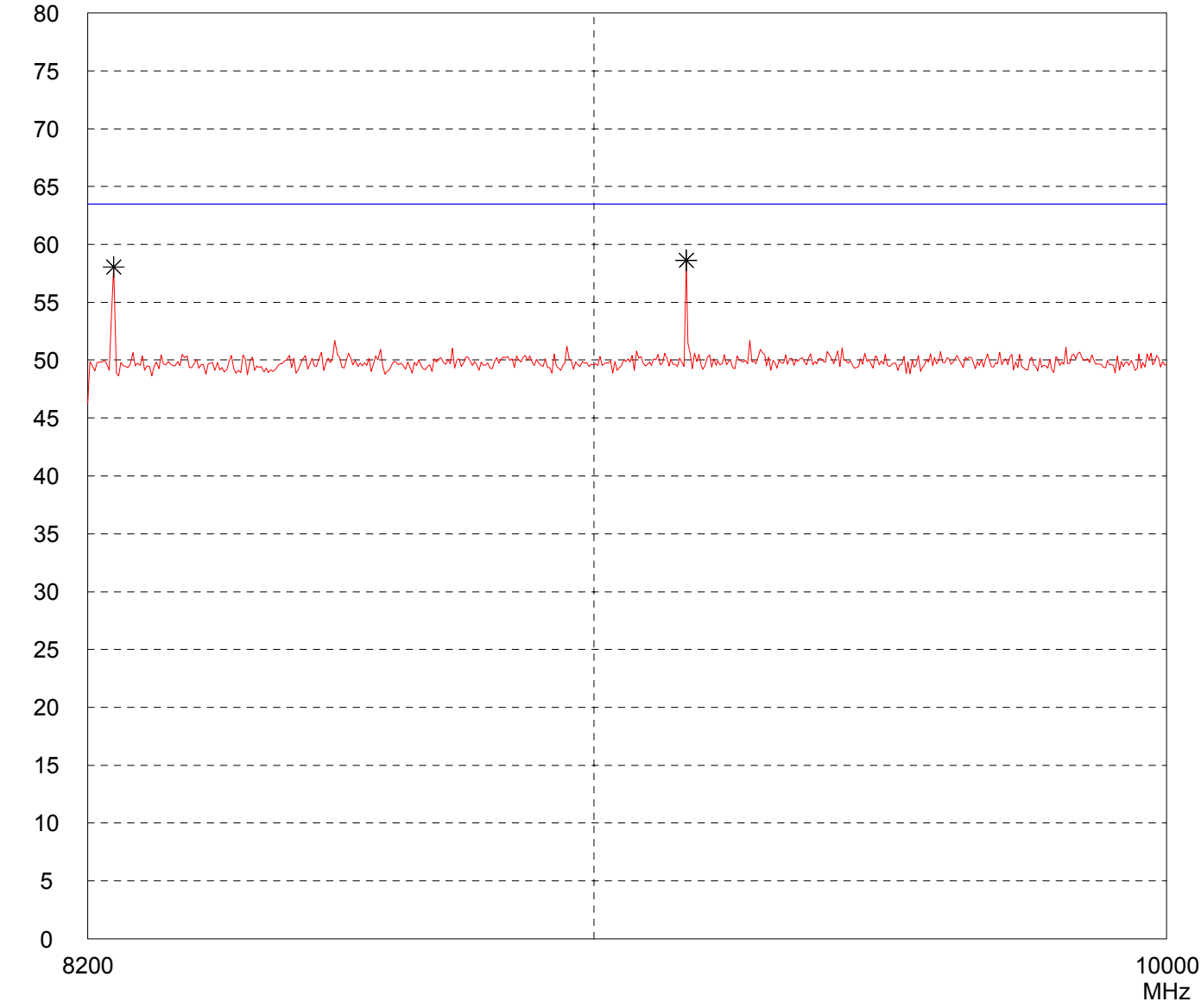
Radiated Emission Test 8.2 GHz - 10 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

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

dBµV/m

Limit1: FCC Part 15 (1 m) Transducer: EMCO 3160

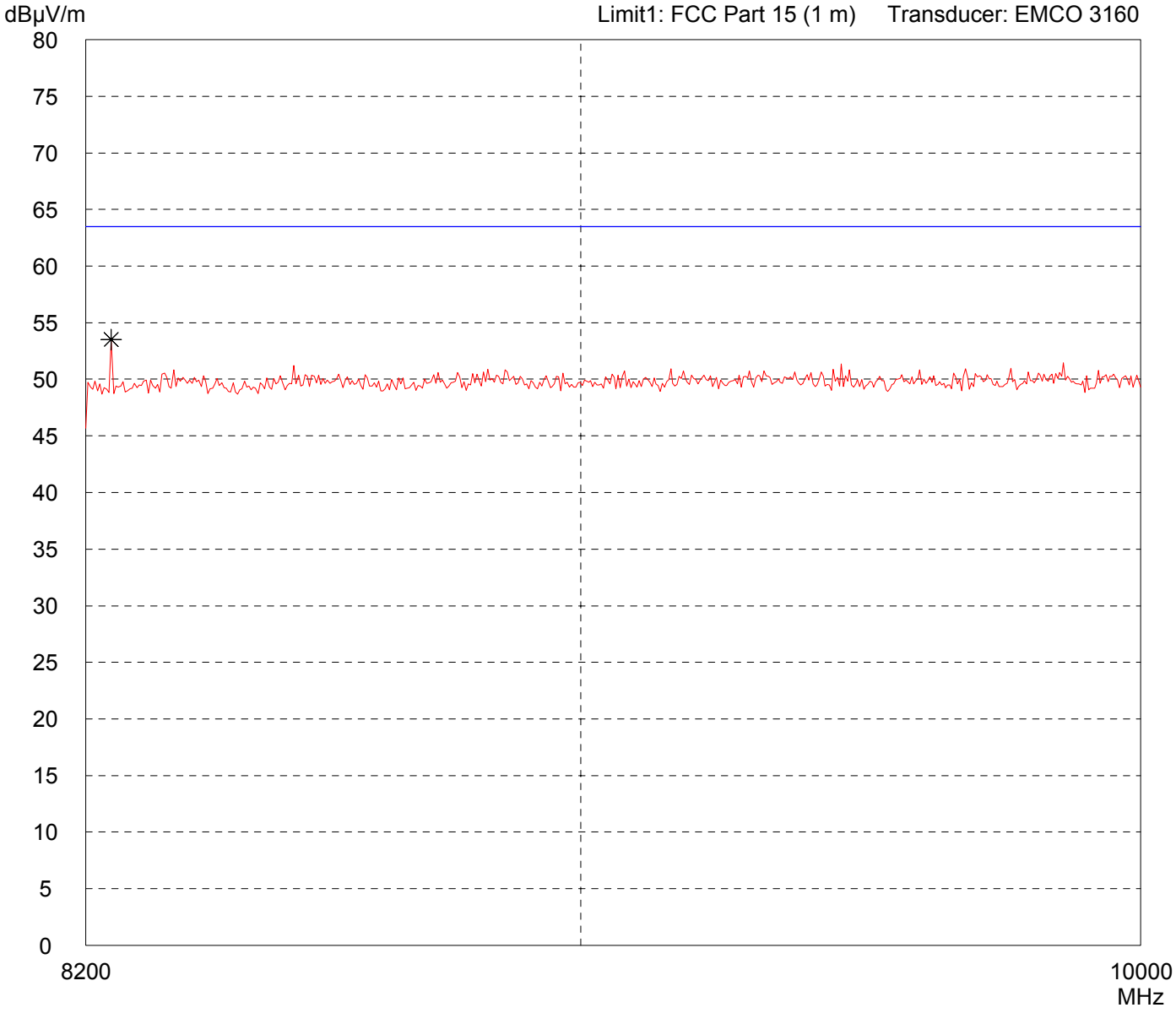


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 8.2 GHz - 10 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

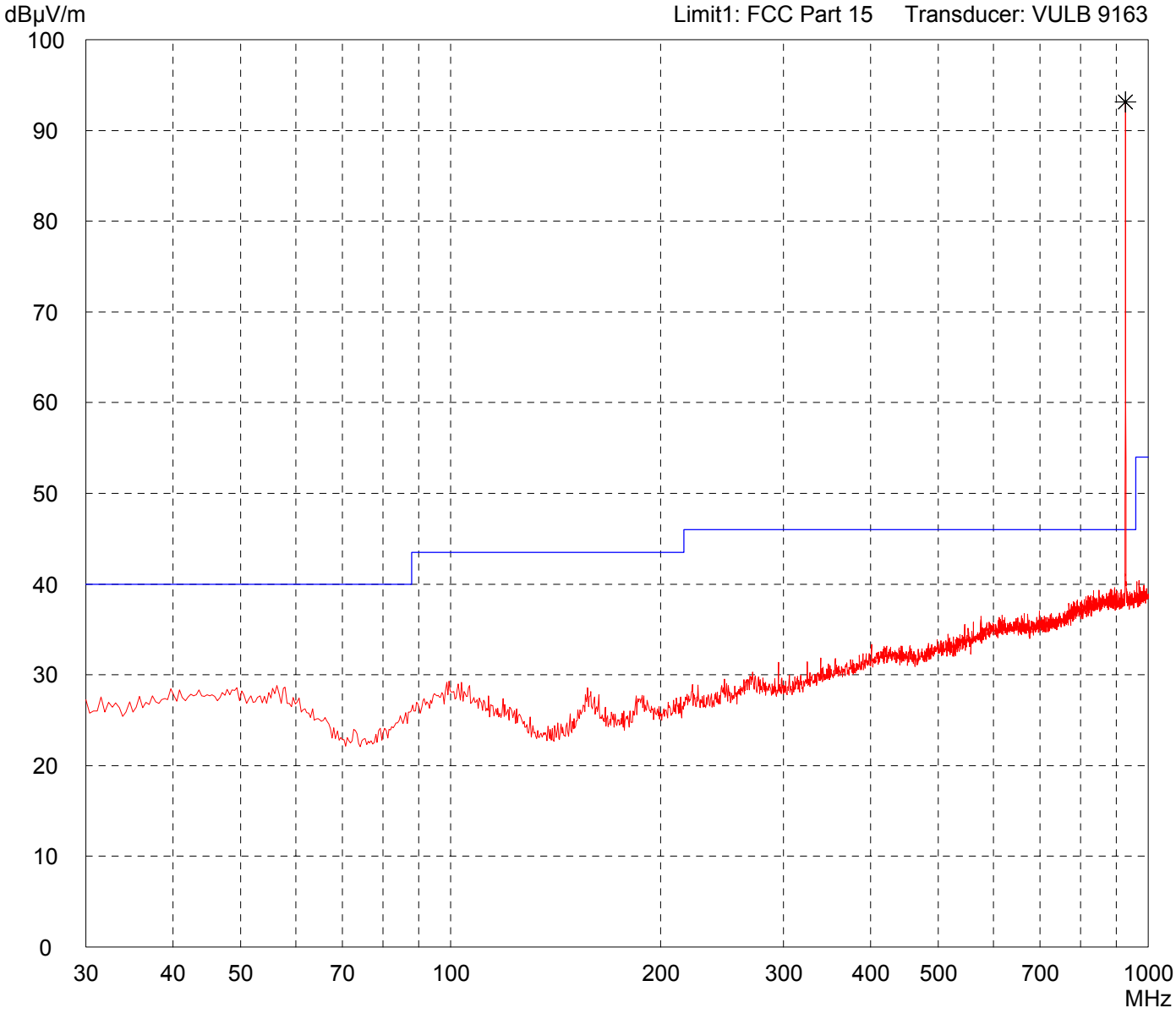
Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50516-60368

Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: WRX01	Comment: - external DC supply - transmitting continuously on highest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/21/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand

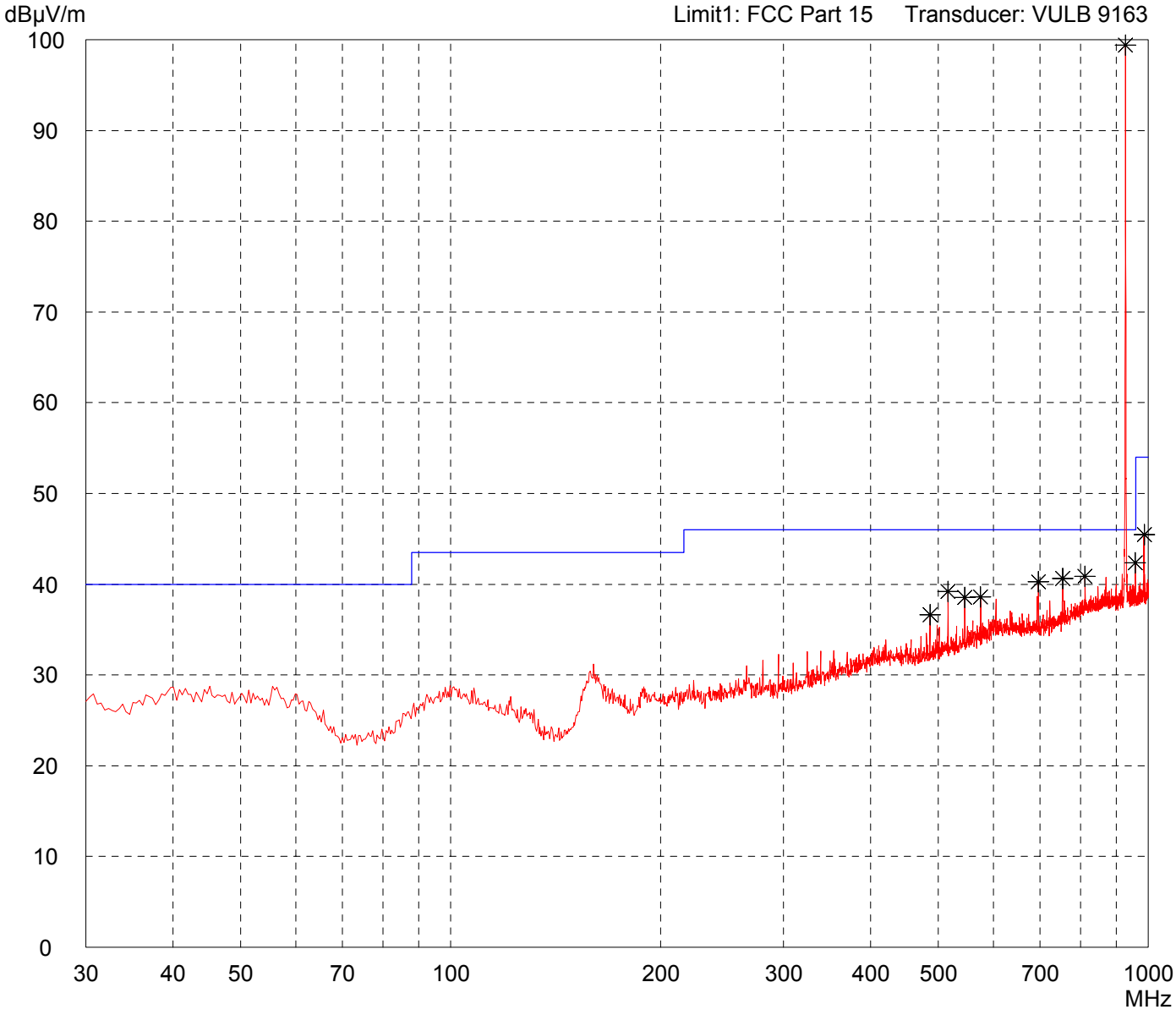


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: WRX01	Comment: - external DC supply - transmitting continuously on highest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/21/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

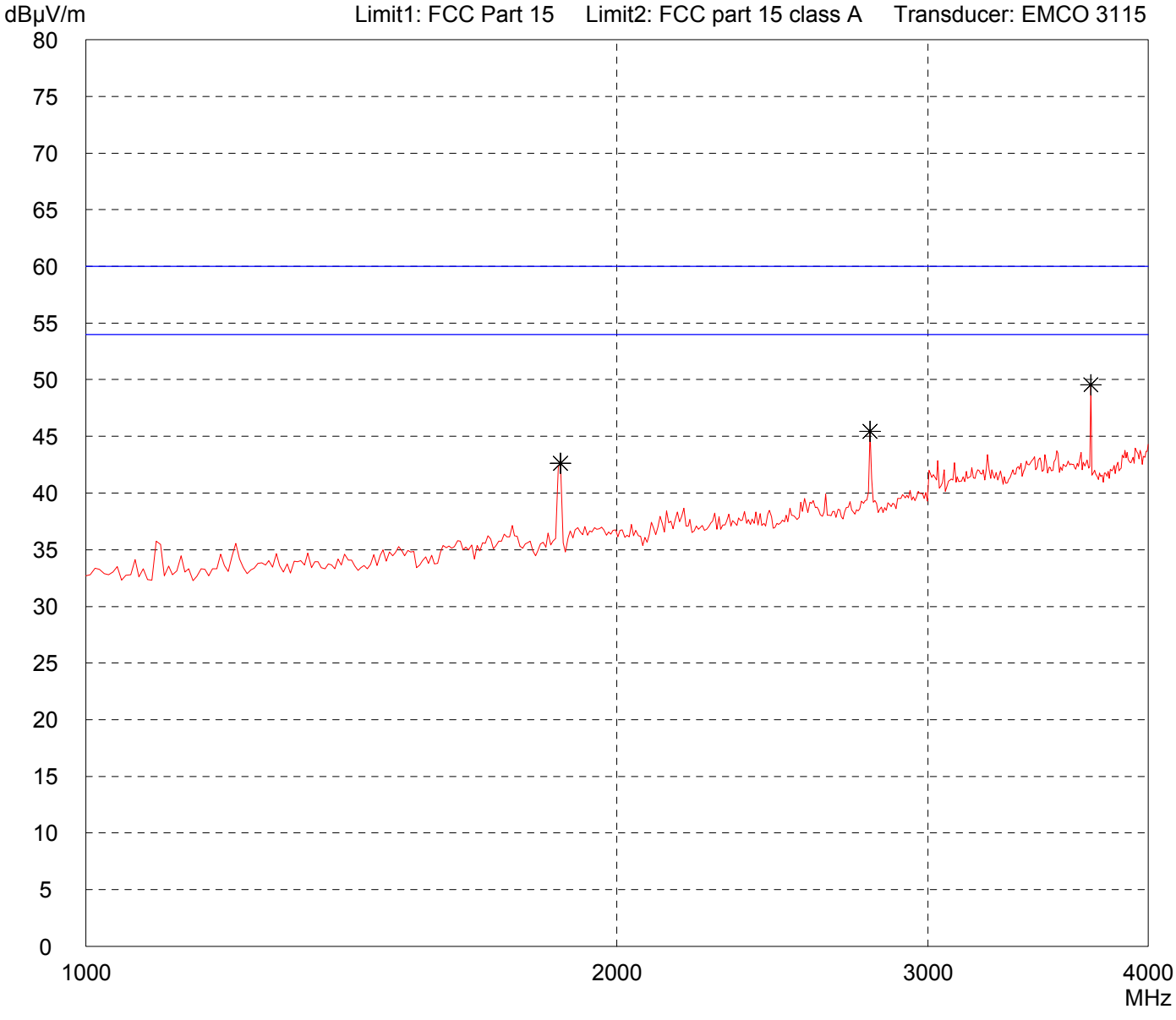


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 1 GHz - 4 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: WRX01	Comment: - external DC supply - transmitting continuously on highest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

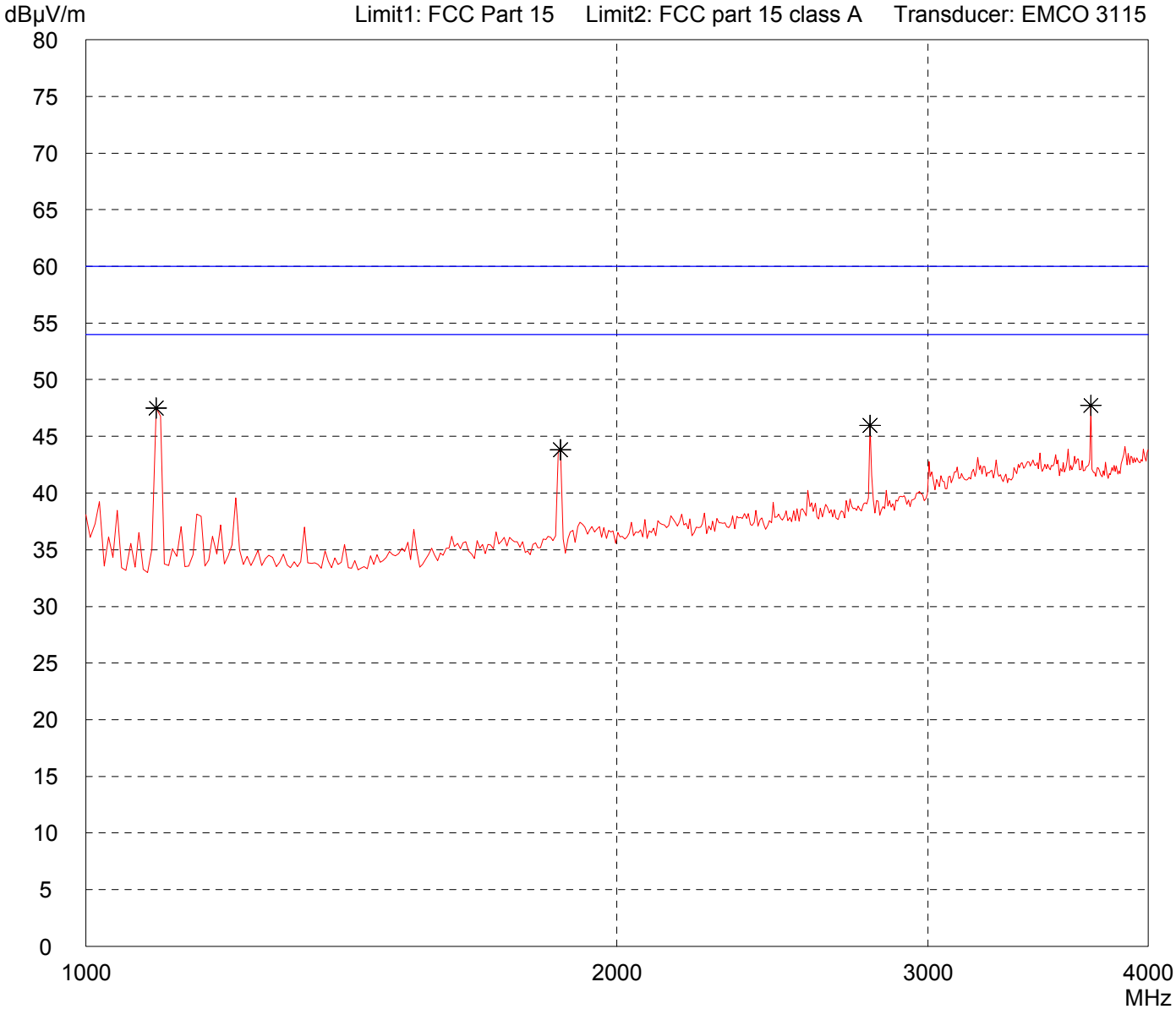


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 1 GHz - 4 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: WRX01	Comment: - external DC supply - transmitting continuously on highest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



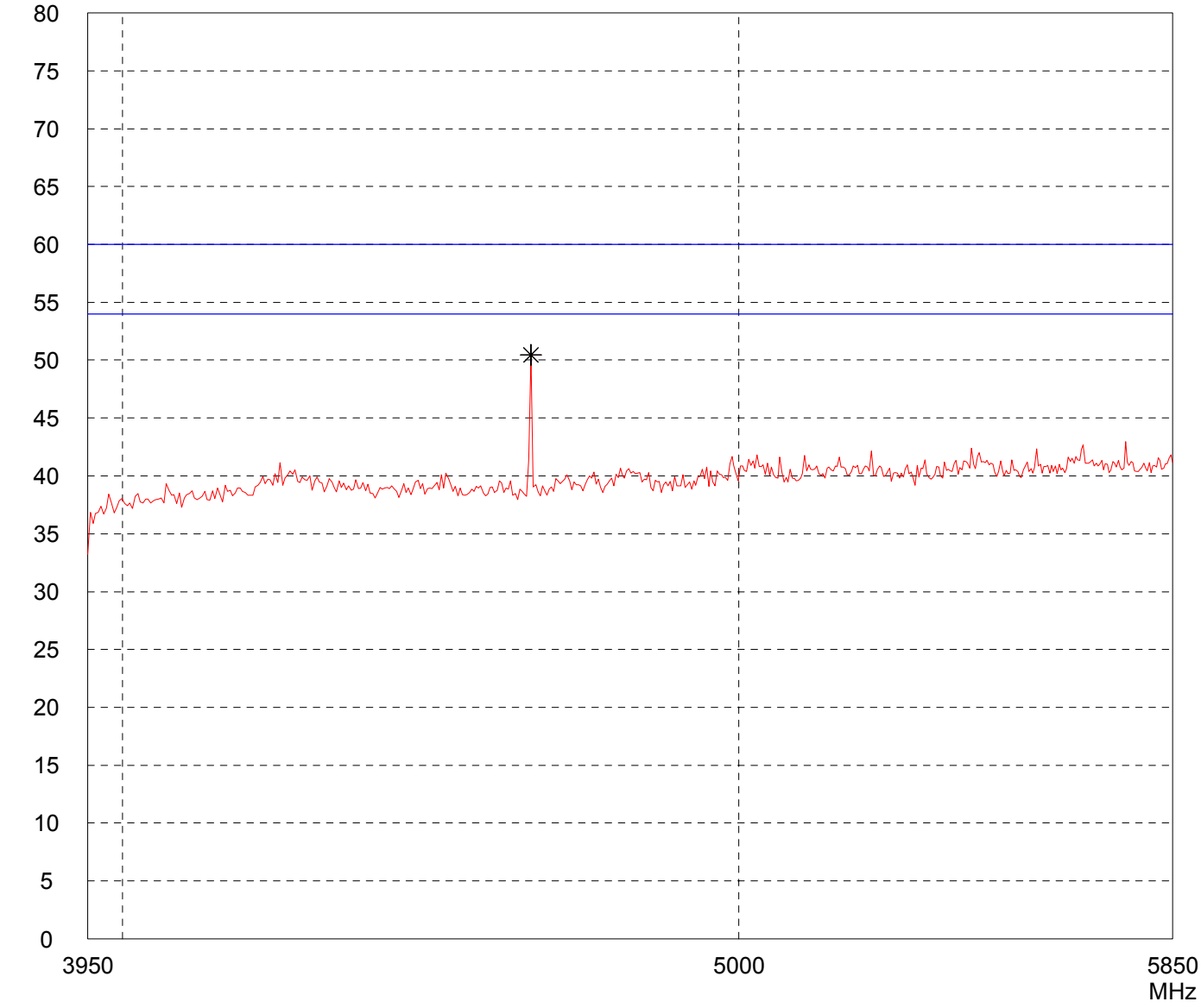
Result: Prescan	Project file: 50516-60368

Radiated Emission Test 3.95 GHz - 5.85 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on highest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

dBµV/m Limit1: FCC Part 15 Limit2: FCC part 15 class A Transducer: EMCO 3160



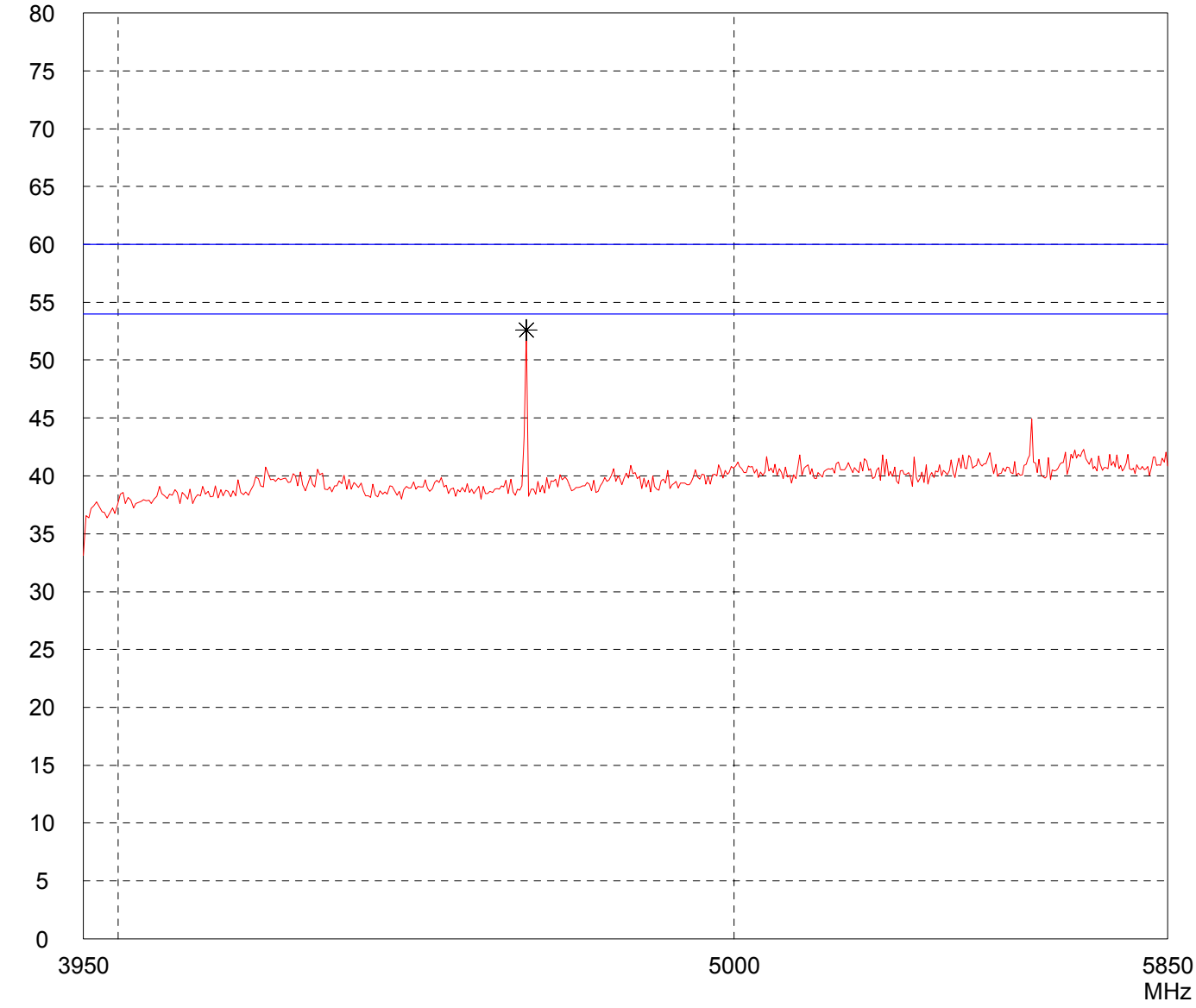
Result: Prescan	Project file: 50516-60368

Radiated Emission Test 3.95 GHz - 5.85 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on highest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

dBµV/m Limit1: FCC Part 15 Limit2: FCC part 15 class A Transducer: EMCO 3160

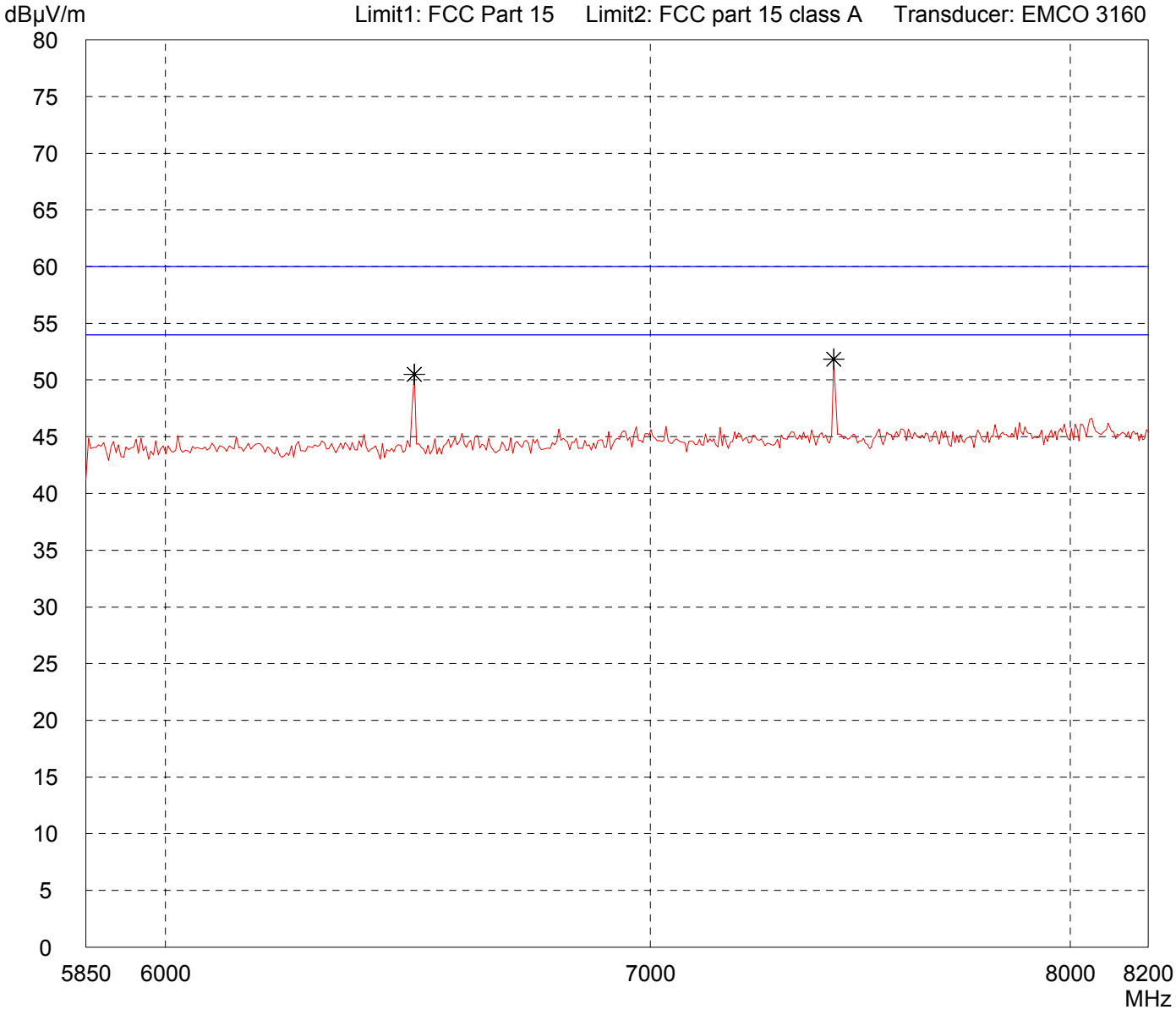


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 5.85 GHz - 8.2 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on highest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50516-60368

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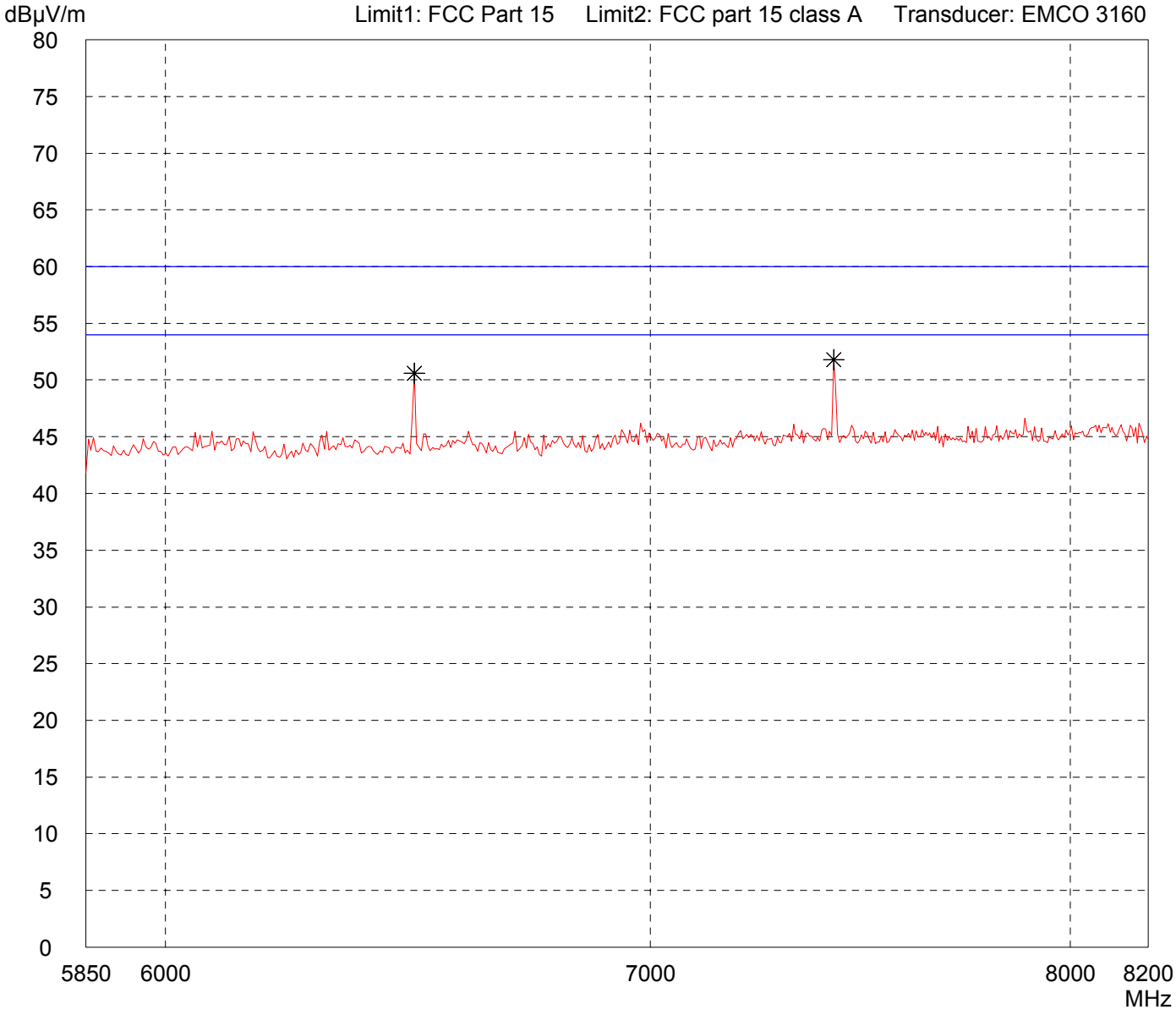
Radiated Emission Test 5.85 GHz - 8.2 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on highest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50516-60368

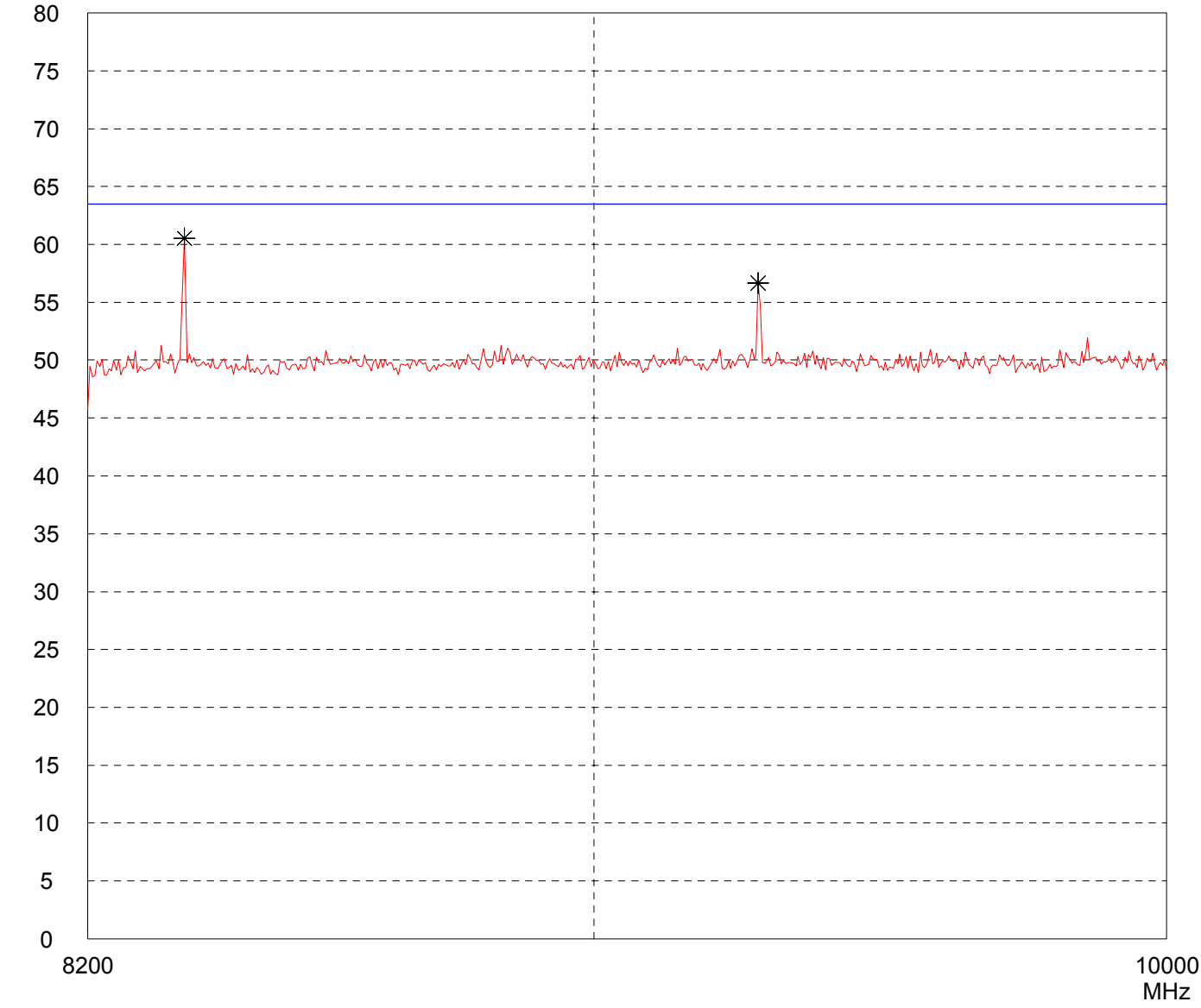
Radiated Emission Test 8.2 GHz - 10 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on highest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

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

dBµV/m

Limit1: FCC Part 15 (1 m) Transducer: EMCO 3160



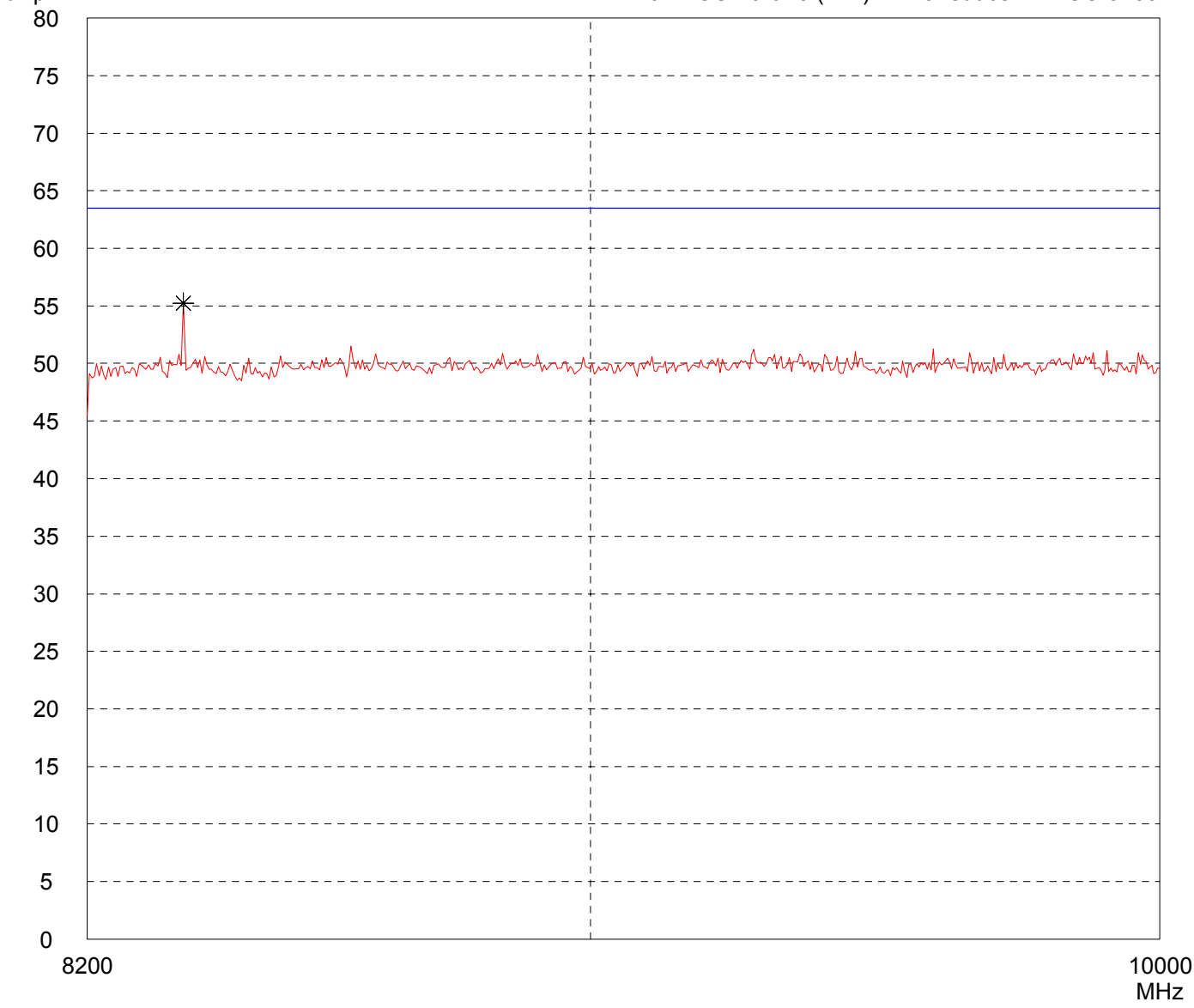
Result: Prescan	Project file: 50516-60368

Radiated Emission Test 8.2 GHz - 10 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: WRX01	Comment: - external DC supply - transmitting continuously on highest channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 07/19/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

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

dBµV/m — Limit1: FCC Part 15 (1 m) — Transducer: EMCO 3160

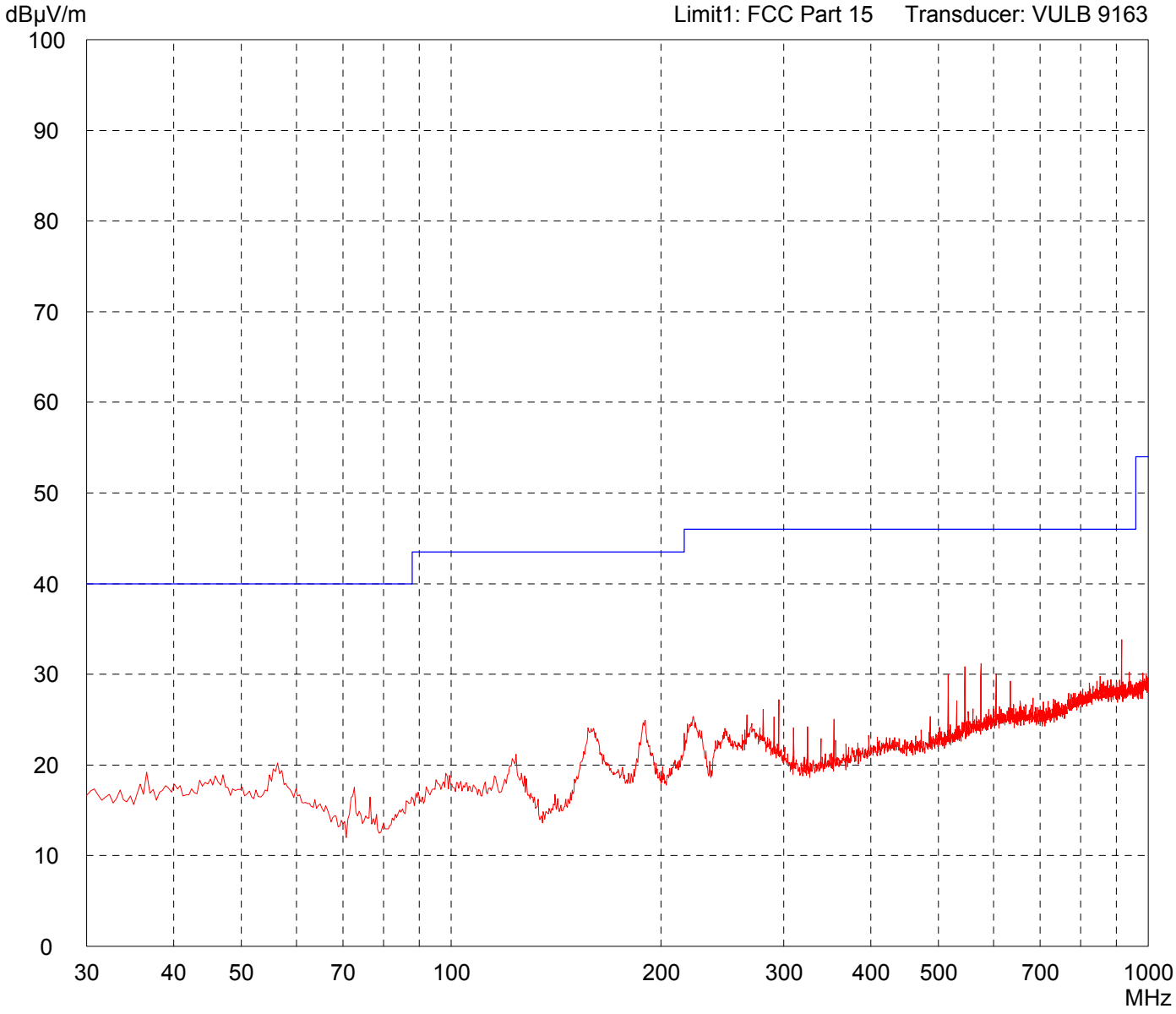


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: WRX01	Comment: - external DC supply - receiving on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 07/21/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

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

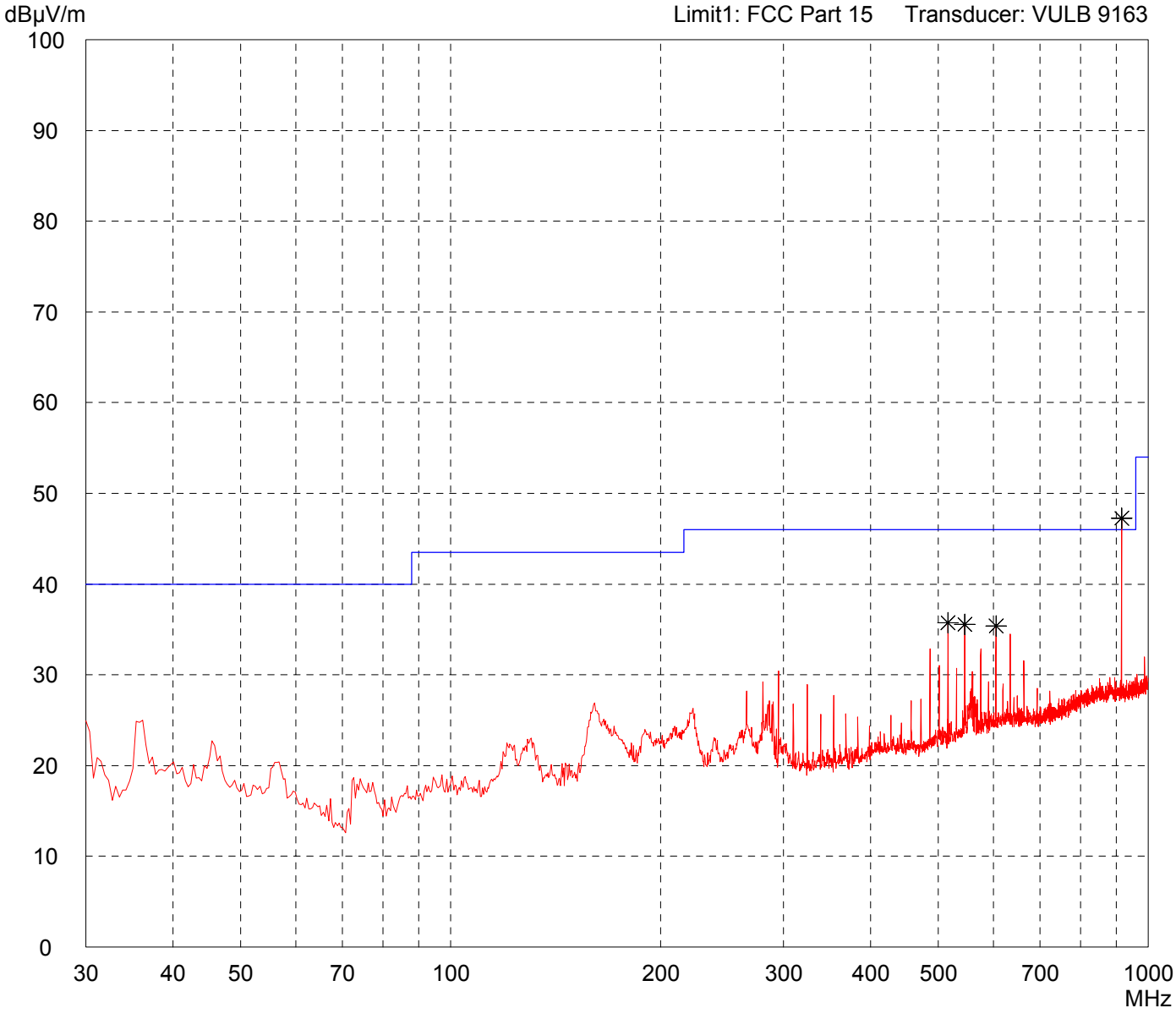


Result: Prescan	Project file: 50516-60368

Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: WRX01	Comment: - external DC supply - receiving on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 07/21/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50516-60368

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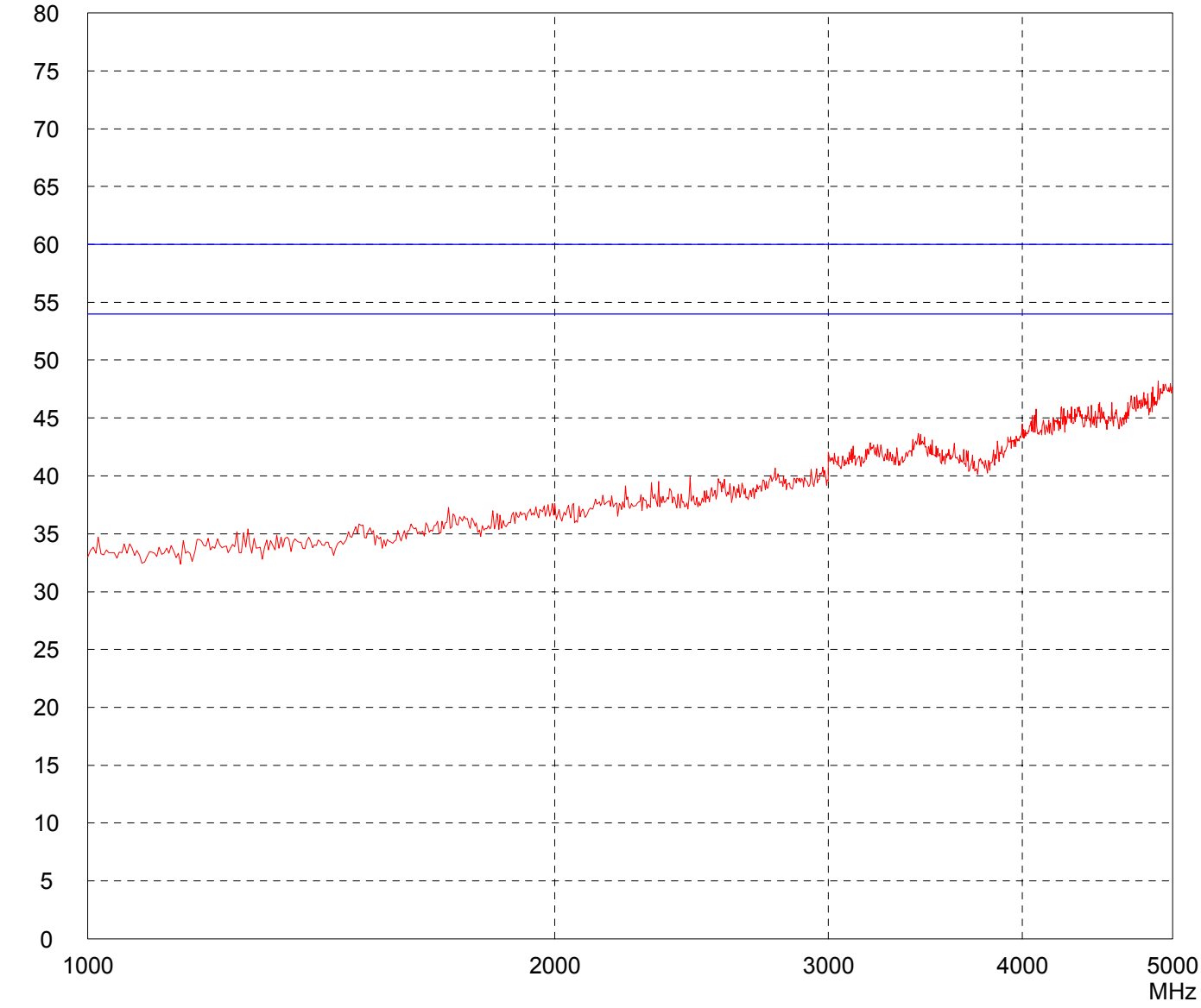
Radiated Emission Test 1 GHz - 5 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: WRX01	Comment: - external DC supply - receiving on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 08/04/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

dBµV/m Limit1: FCC Part 15 Limit2: FCC part 15 class A Transducer: EMCO 3115

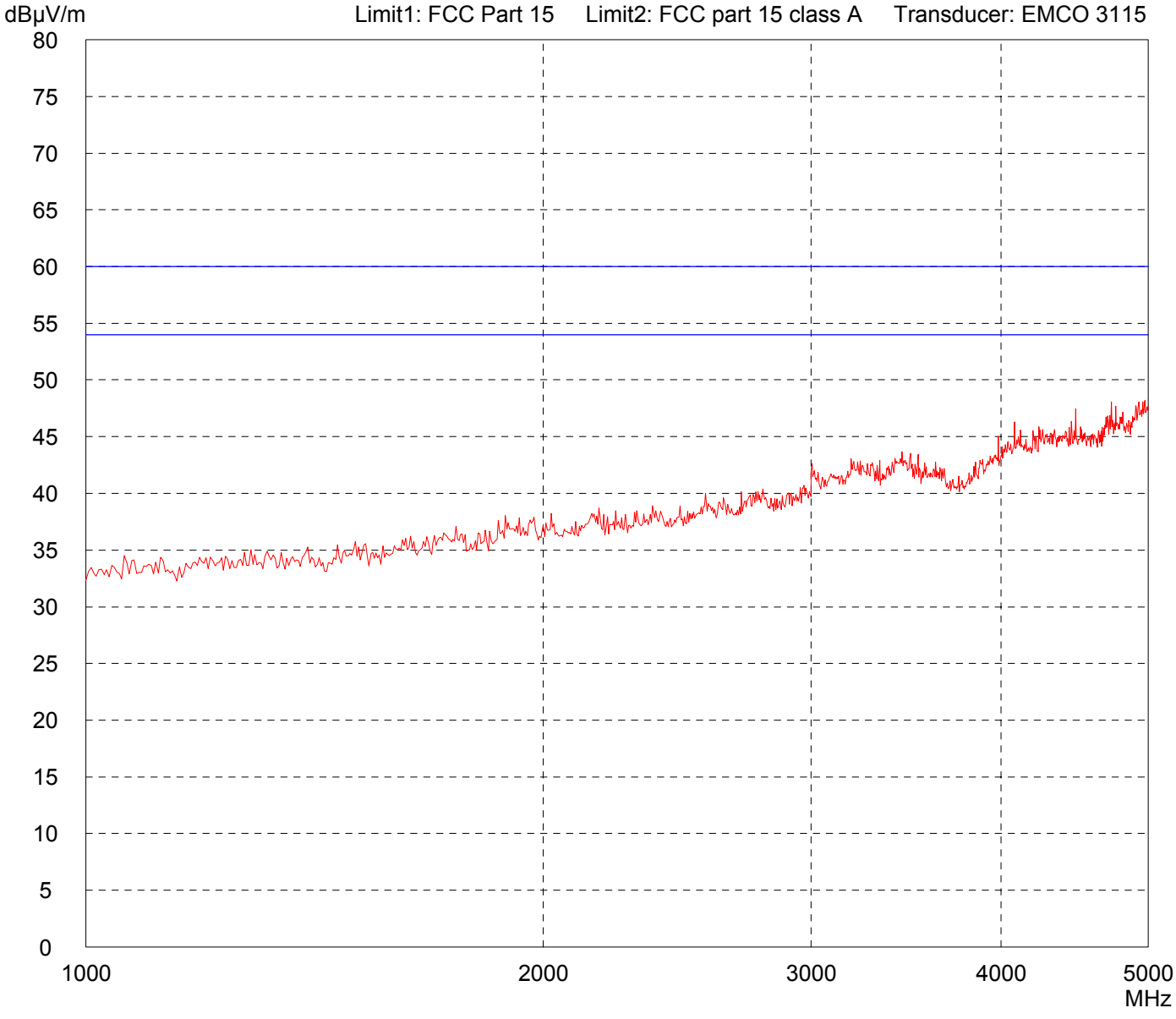


Result: Limit kept	Project file: 57403-60316

Radiated Emission Test 1 GHz - 5 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: WRX01	Comment: - external DC supply - receiving on middle channel
Serial no.: ---	
Applicant: Vigil Health Solutions Inc.	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 08/04/2006 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



Result: Limit kept	Project file: 57403-60316