

Straubing, 04 September 2006

TEST-REPORT

No. 55456-060260-2 (Edition 2)

for

i-CARD CF Q/NA

CF Card Reader

Applicant: IDENTEC SOLUTIONS AG

**Test Specifications: FCC Code of Federal Regulations,
CFR 47, Part 15,
Sections 15.107, 15.109, 15.111(a), 15.205,
15.207, 15.215 and 15.249**

**Industry Canada Radio Standards
Specifications
RSS-Gen Issue 1, Sections 7.2.2, 7.2.3 and
RSS-210 Issue 6, Sections 2.2, A2.9
(Category I Equipment)**

Note:

The test data of this report is related only to the individual item which has been tested. This report shall not be reproduced except in full extent without the written approval of the testing laboratory.

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1 Description of the Equipment Under Test (EUT)

General data of EUT	
Type designation ¹ :	i-CARD CF Q/NA
Parts ² :	
Serial number(s):	06081C0047
Manufacturer:	IDENTEC SOLUTIONS AG
Type of equipment:	CF Card Reader
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:	916 MHz
Type of modulation:	ASK
Pulse train:	---
Pulse width:	---
Number of RF-channels:	1
Channel spacing:	---
Designation of emissions ³ :	10K0A1D
Type of antenna:	Dedicated Antenna
Size/length of antenna:	70 mm
Connection of antenna:	<input checked="" type="checkbox"/> detachable <input type="checkbox"/> not detachable
Type of power supply:	DC supply over CF Card Port
Specifications for power supply:	nominal voltage: 5.0 V minimum voltage: 4.5 V maximum voltage: 5.5 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):	IDENTEC SOLUTIONS AG Millenniumspark 2 A-6890 Lustenau
Contact person:	Mr. Vogel
Contract identification:	46600117
Receipt of EUT:	31 March 2006
Date(s) of test:	April 2006
Note(s):	

Report details

Report number:	55456-060260-2
Edition:	2
Issue date:	11 July 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, 15.111(a), 15.205, 15.207, 15.215 and 15.249

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, Sections 2.2, 2.6, A2.9 (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

The tests were performed in two operation modes:
 - Transmitting continuously with -4 dBm nominal
 - Receive mode

Configuration of EUT

The EUT was configured as CF plugin-device of a laptop PC.

List of ports and cables

<i>Port</i>	<i>Description</i>	<i>Classification⁴</i>	<i>Cable type</i>	<i>Cable length</i>
1	AC supply of laptop PC	ac power	Unshielded	1 m
2	PCMCIA port of laptop PC	signal/control port	Unshielded	direct connection
3	Antenna connector	signal/control port	Shielded	direct connection

List of devices connected to EUT

<i>Item</i>	<i>Description</i>	<i>Type Designation</i>	<i>Serial no. or ID</i>	<i>Manufacturer</i>
	Not applicable			

List of support devices

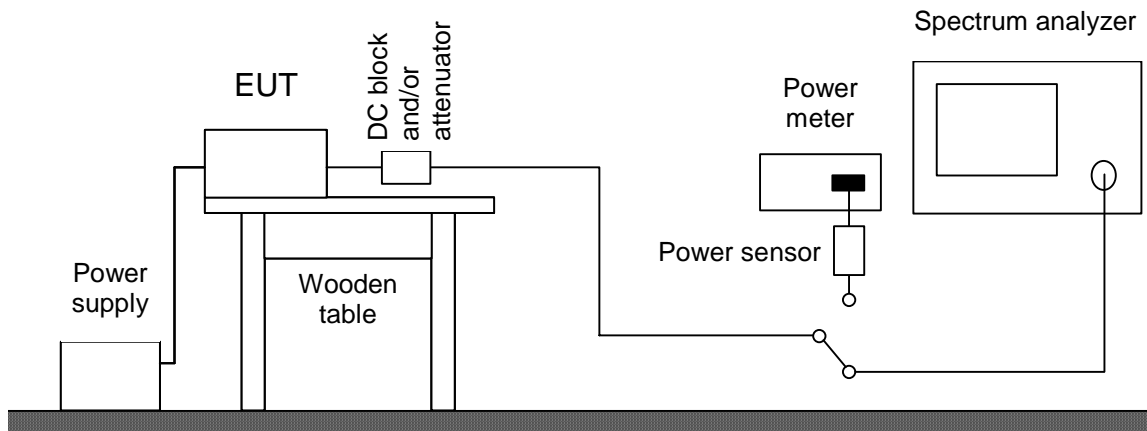
<i>Item</i>	<i>Description</i>	<i>Type Designation</i>	<i>Serial no. or ID</i>	<i>Manufacturer</i>
1	Laptop PC	DELL latitude		DELL

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

6 Measurement Procedures

6.1 Conducted Output Power

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 2, section 2.1046(a) IC RSS-Gen Issue 1, section 4.6
Guide:	CFR 47 Part 2, section 2.1046 / IC RSS-Gen Issue 1
<p>Conducted output power is measured at the RF output terminals (e.g. antenna connector if antenna is detachable) when the transmitter is adjusted in accordance with the tune-up procedure, if applicable. The RF output terminals are connected to a spectrum analyzer and/or a power meter with appropriate sensor. If required, a resistive matching network equal to the impedance specified or employed for the antenna is used as well as dc block and appropriate attenuators (50 Ohms). The electrical characteristics of the radio frequency load attached to the output terminals shall be stated, if applicable.</p> <p>If a spectrum analyzer is used and no other settings are specified resolution bandwidth shall be selected according to the carrier frequency f_c and set to 10 kHz ($150 \text{ kHz} \leq f_c < 30 \text{ MHz}$), 100 kHz ($30 \text{ MHz} \leq f_c < 1 \text{ GHz}$) or 1 MHz ($f_c \geq 1 \text{ GHz}$). The video bandwidth shall be at least three times greater than the resolution bandwidth. The settings used have to be indicated within the appropriate test record(s).</p>	



Test instruments used:

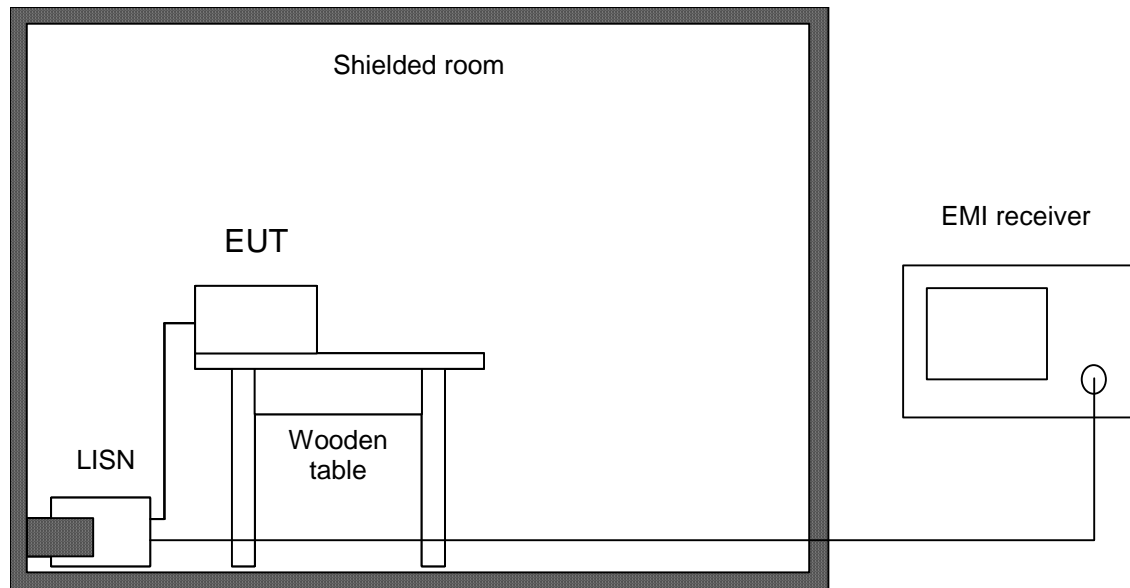
Used	Type	Model	Serial No. or ID	Manufacturer
<input checked="" type="checkbox"/>	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
<input type="checkbox"/>	EMI test receiver	ESPI7	836914/0002	Rohde & Schwarz
<input type="checkbox"/>	EMI test receiver	ESMI	839379/013 839587/006	Rohde & Schwarz
<input type="checkbox"/>	Power meter	NRVS	836856/015	Rohde & Schwarz
<input type="checkbox"/>	Peak power sensor	NRV-Z31	8579604.03	Rohde & Schwarz
<input type="checkbox"/>	Power sensor	NRV-Z52	837901/030	Rohde & Schwarz
<input type="checkbox"/>	Power sensor	NRV-Z4	863828/015	Rohde & Schwarz
<input checked="" type="checkbox"/>	DC-block	7006	A2798	Weinschel
<input checked="" type="checkbox"/>	Attenuator	4776-10	9412	Narda
<input type="checkbox"/>	Attenuator	4776-20	9503	Narda

6.2 Bandwidth Measurements

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 2, section 2.202(a) CFR 47 Part 15, section 15.215(c) IC RSS-Gen Issue 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 / IC RSS-Gen Issue 1, sections 4.4.1 and 4.4.2
Measurement setup:	<input type="checkbox"/> See below Conducted: <input checked="" type="checkbox"/> Radiated: Radiated Emission in Fully or Semi Anechoic Room (6.4)
<p>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.</p> <p>If radiated measurements are performed the same test setups and instruments are used as with radiated emission measurements for the appropriate frequency range.</p> <p>The analyzer settings are specified by the test description of the appropriate test record(s).</p>	

6.3 Conducted AC Powerline Emission

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.107 and 15.207 IC RSS-Gen Issue 1, section 7.2.2
Guide:	ANSI C63.4 (CISPR 22)
<p>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:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>	

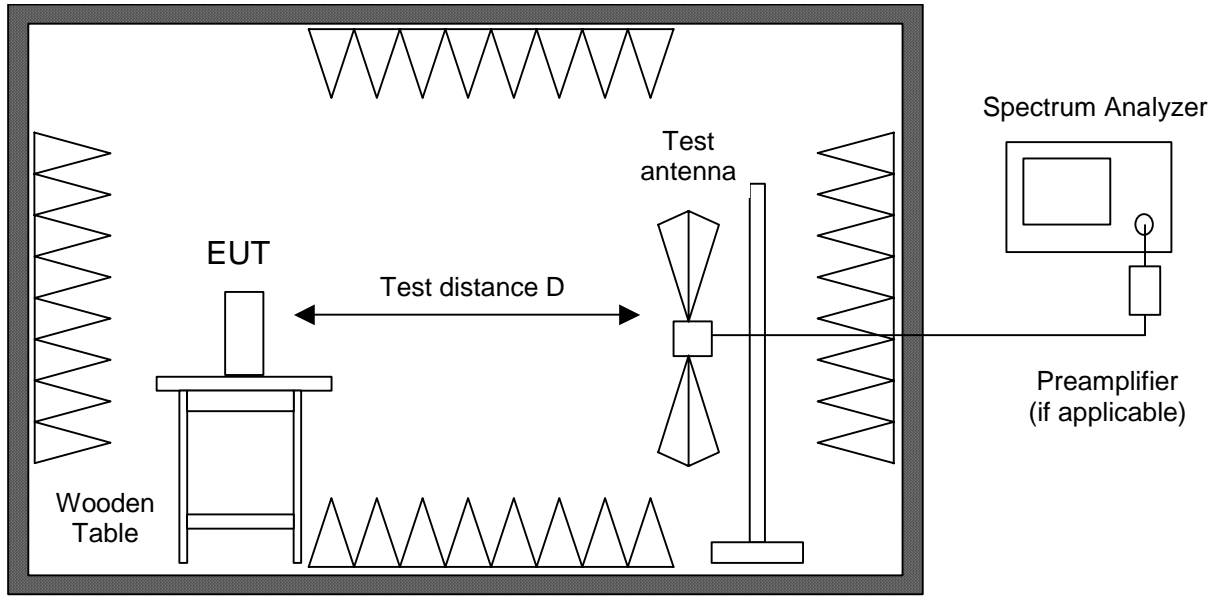


Test instruments used:

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

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



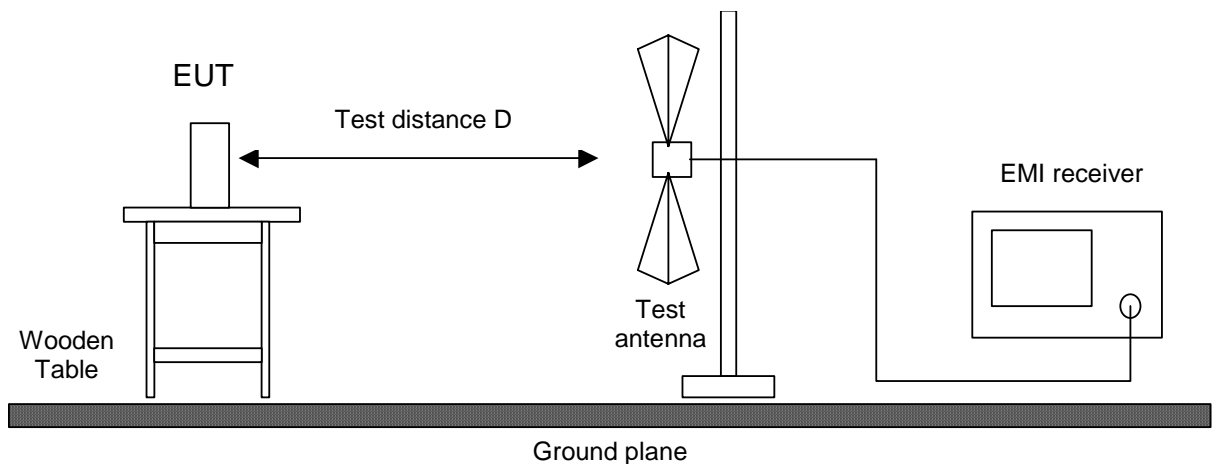
Fully or semi anechoic room

Test instruments used:

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

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 15.249 IC RSS-Gen Issue 1, sections 6(a), 7.2.3.2 IC RSS-210 Issue 6, section A2.9
Guide:	ANSI C63.4
<p>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.</p> <p>If the radiated emission limits are expressed in terms of the average value of the emission there also is a peak limit corresponding to 20 dB above the maximum permitted average limit. Additionally, if pulsed operation is employed, the average field strength is determined by averaging over one complete pulse train, including blanking intervals, as specified in CFR 47 Part 15 section 15.35(c). If the pulse train exceeds 0.1 second that 0.1 second interval during which the value of the emission is at its maximum is selected for calculation. The pulse train correction is added to the peak value of the emission to get the average value.</p> <p>Hand-held or body-worn devices are 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.</p> <p>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.</p>	

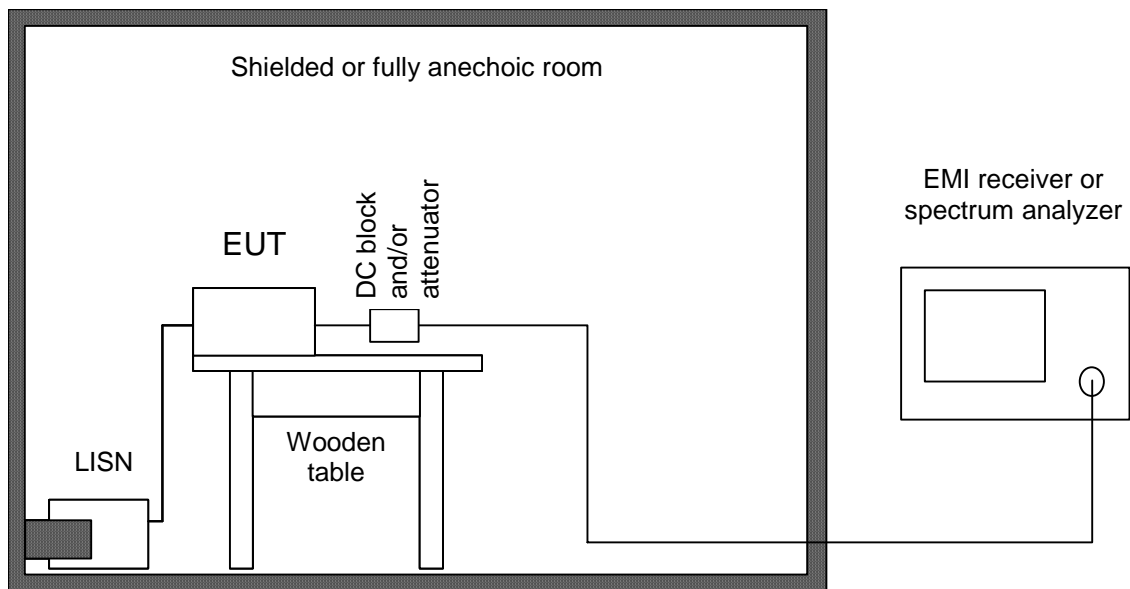


Test instruments used:

Used	Type		Model	Serial No. or ID	Manufacturer
<input checked="" type="checkbox"/>	EMI receiver		ESVP	881120/024	Rohde & Schwarz
<input checked="" type="checkbox"/>	Biconical antenna	EG 1	HK 116	842204/001	Rohde & Schwarz
<input checked="" type="checkbox"/>	Log. per. antenna	EG 1	HL 223	841516/023	Rohde & Schwarz
<input checked="" type="checkbox"/>	Open field test site		EG 1	1450	Senton

6.6 Antenna Power Conduction Emission of Receivers

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, section 15.111(a) IC RSS-Gen Issue 1, sections 6(b) and 7.2.3.1
Guide:	ANSI C63.4
<p>The receiver antenna terminal is connected to the 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 power at the antenna terminal is measured in the frequency range as specified in CFR 47 Part 15 section 15.33.</p> <p>The peak detector of the spectrum analyzer is selected and resolution as well as video bandwidth are set to 100 kHz (below 1 GHz) or 1 MHz (above 1 GHz).</p> <p>If required, preamplifiers are used. Special care is taken to avoid overload (using appropriate attenuators and filters if necessary).</p>	



Test instruments used:

Used	Type	Model	Serial No. or ID	Manufacturer
<input checked="" type="checkbox"/>	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
<input type="checkbox"/>	EMI test receiver	ESMI	839379/013 839587/006	Rohde & Schwarz
<input checked="" type="checkbox"/>	DC-block	7006	A2798	Weinschel
<input type="checkbox"/>	Attenuator	4776-10	9412	Narda
<input type="checkbox"/>	Attenuator	4776-20	9503	Narda
<input type="checkbox"/>	Preamplifier	CPA9231A	3393	Schaffner
<input type="checkbox"/>	Preamplifier 1-8 GHz	AFS3-00100800-32-LN	847743	Miteq
<input type="checkbox"/>	Preamplifier 0.5-8 GHz	AMF-4D-005080-25-13P	860149	Miteq
<input type="checkbox"/>	Preamplifier 8-18 GHz	ACO/180-3530	32641	CTT
<input type="checkbox"/>	Shielded room	No. 1	1451	Albatross Projects
<input checked="" type="checkbox"/>	Fully anechoic room	No. 2	1452	Albatross Projects
<input type="checkbox"/>	Shielded room	No. 4	3FD-100 544	Euroshield
<input type="checkbox"/>	Shielded room	No. 5	5468	Ray Proof Division

7 Photographs Taken During Testing

Test setup for conducted AC powerline emission measurement



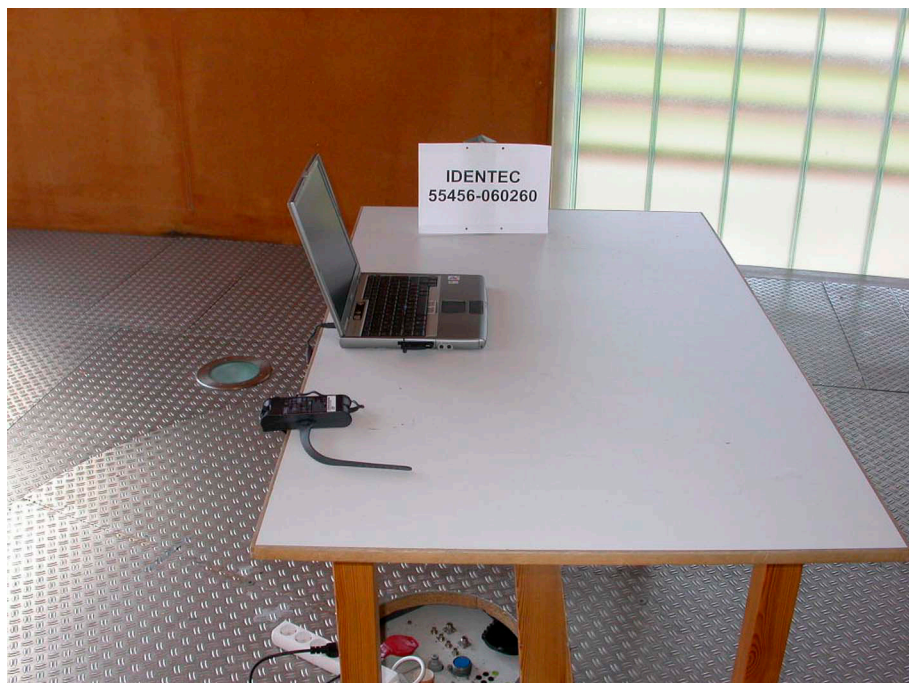
**Test setup for radiated emission measurement
(fully anechoic room)**



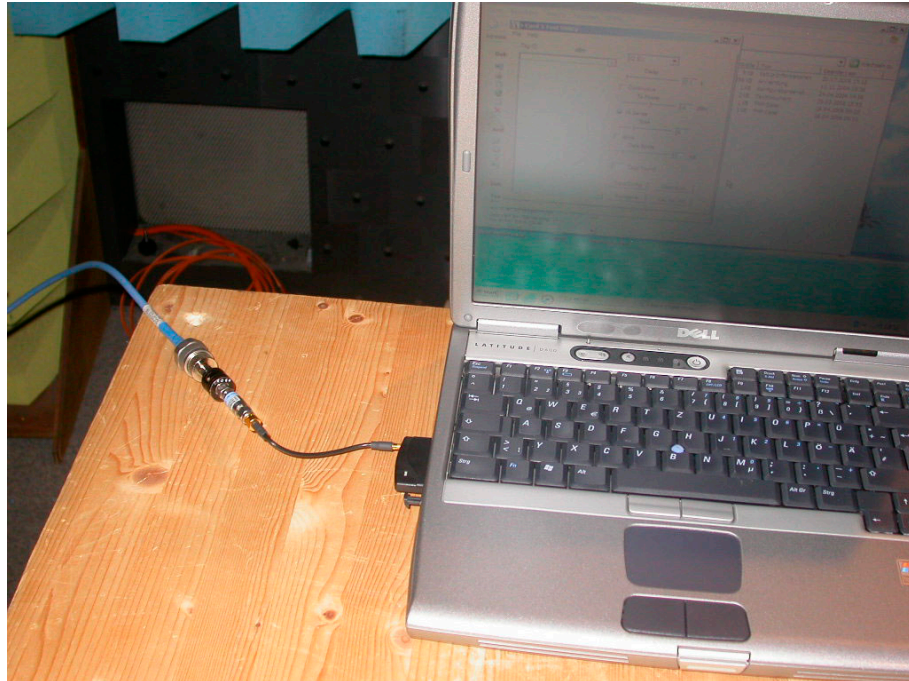
**Test setup for radiated emission measurement
(open field test site)**



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



Test setup for antenna power conduction emission of receivers measurement



8 Test Results for Transmitter

FCC CFR 47 Parts 2 and 15			
<i>Section(s)</i>	<i>Test</i>	<i>Page</i>	<i>Result</i>
2.1046(a)	Conducted output power	27	Recorded
2.202(a)	Occupied bandwidth	28	Recorded
15.215(c)	Bandwidth of the emission	33	Test passed
2.201, 2.202	Class of emission	35	Calculated
15.203	Antenna requirement	36	Test passed
15.35(c)	Pulse train measurement for pulsed operation	---	Not applicable
15.205(a)	Restricted bands of operation	37	Test passed
15.207	Conducted AC powerline emission 150 kHz to 30 MHz	38	Test passed
15.205(b) 15.249	Radiated emission 9 kHz to 30 MHz	---	Not applicable according to CFR 47 Part 15, section 15.33(a)
15.205(b) 15.215(b) 15.249	Radiated emission 30 MHz to 10 GHz	40	Test passed

IC RSS-Gen Issue 1			
<i>Section(s)</i>	<i>Test</i>	<i>Page</i>	<i>Result</i>
4.6	Transmitter output power (conducted)	27	Recorded
4.4.1	Occupied Bandwidth	28	Recorded
3.2(h), 8	Designation of emissions	35	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	41	Exempted from SAR and RF evaluation

IC RSS-210 Issue 6			
<i>Section(s)</i>	<i>Test</i>	<i>Page</i>	<i>Result</i>
2.2(a)	Restricted bands and unwanted emission frequencies	37	Test passed
2.2(b)(c), 2.6 A2.9	Unwanted emissions 9 kHz to 30 MHz	---	Not applicable according to IC RSS-Gen Issue 1, section 4.7
2.2(b)(c), 2.6 A2.9	Unwanted emissions 30 MHz to 10 GHz	40	Test passed

8.1 Conducted Output Power

Rules and specifications:	CFR 47 Part 2, section 2.1046(a) IC RSS-Gen Issue 1, section 4.6
Guide:	CFR 47 Part 2, section 2.1046 / IC RSS-Gen Issue 1
Description:	Conducted output power shall be measured at the RF output terminals (e.g. antenna connector if antenna is detachable) when the transmitter is adjusted in accordance with the tune-up procedure, if applicable. The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.
Measurement procedure:	Conducted Output Power (6.1)

Comment:	
Date of test:	19 April 2006
Test site:	Unshielded room

Antenna gain: dBi							
Mode	Frequency (MHz)	Power Type	Reading (dBm)	Correction (dB)	Output Power (dBm)	Limit (dBm)	Margin (dB)
	917.5	PEP	-12.6	11.4	-1.3	-1.3	0.0

Note 1: If applicable, PEP (peak envelope power) and RMS values are measured using a power meter with appropriate sensor.

Note 2: If applicable, peak or average values are measured using a spectrum analyzer with resolution and video bandwidth set to: RBW =, VBW =

Note 3: If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power limit is reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.2 Occupied Bandwidth

Rules and specifications:	CFR 47 Part 2, section 2.202(a) ANSI C63.4, annex H.6	
Guide:	ANSI C63.4	
Description:	<p>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.</p> <p>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.</p> <p>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:</p>	
	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 (6.2)	

Comment:	
Date of test:	19 April 2006
Test site:	Fully anechoic room, cabin no. 2

Occupied Bandwidth (99 %):

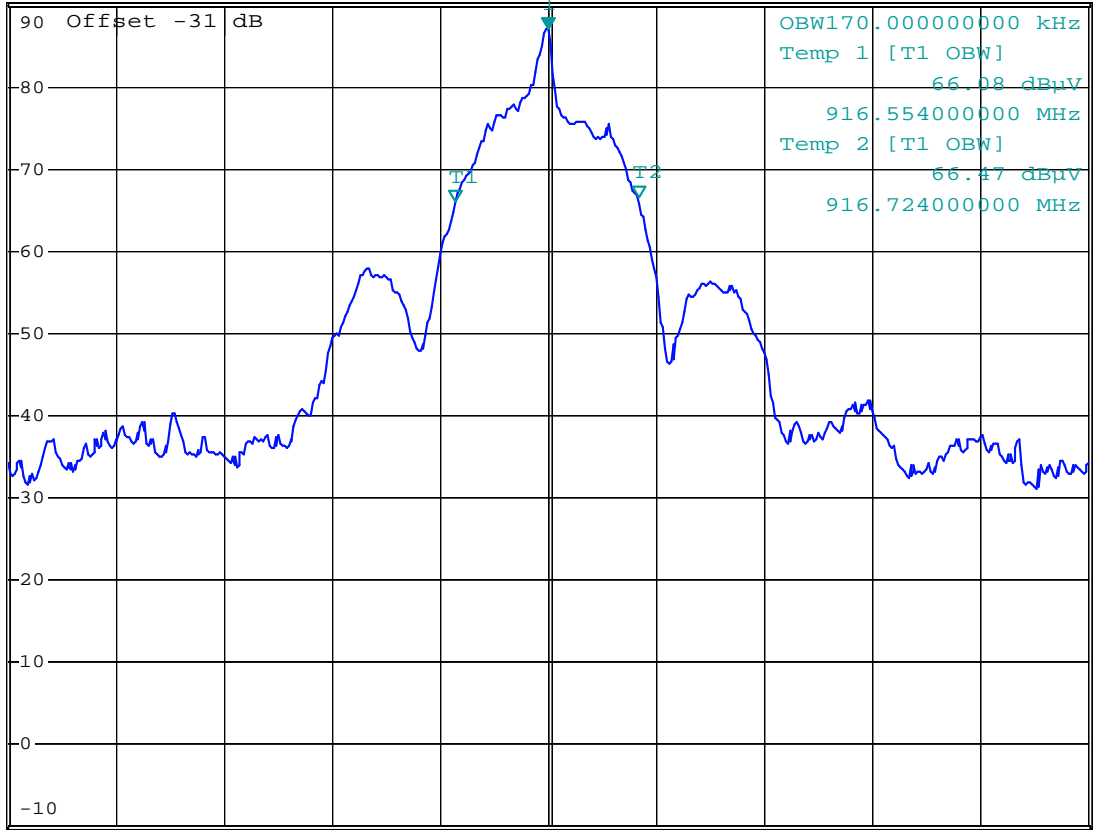


*RBW 10 kHz Marker 1 [T1]
 *VBW 30 kHz 86.88 dBµV
 SWT 10 ms 916.640000000 MHz

Ref 90 dBµV

*Att 30 dB

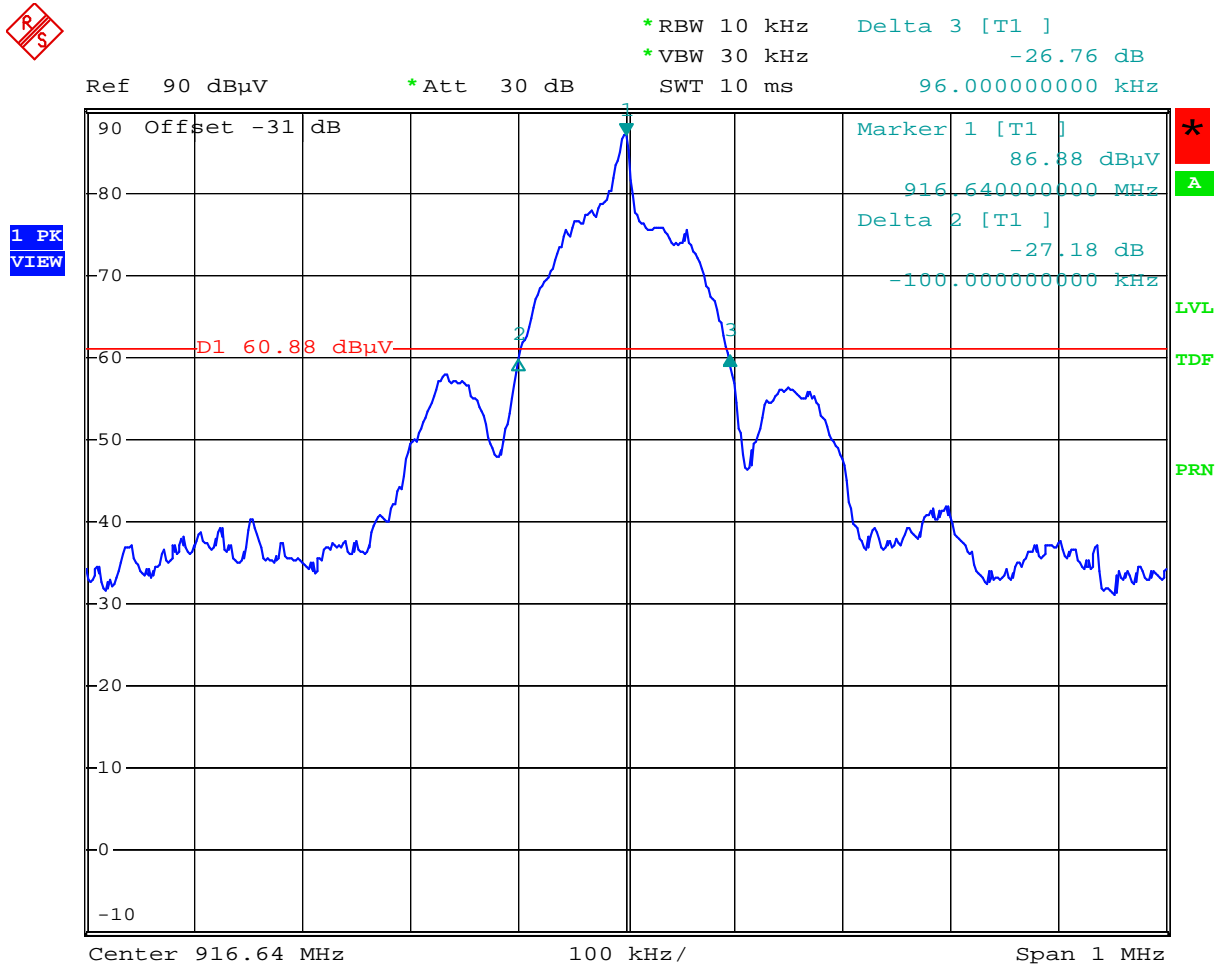
1 PK
 VIEW



Comment: Identec 060260: Occupied Bandwidth
 Date: 19.APR.2006 09:22:47

Occupied Bandwidth (99 %): 170.0 kHz

Occupied Bandwidth (-26 dB):



Comment: Identec 060260: Occupied Bandwidth
 Date: 19.APR.2006 09:23:50

Occupied Bandwidth (-26 dB): 196 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:	<p>If not specified in the applicable RSS the occupied bandwidth is measured as the 99% emission bandwidth.</p> <p>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.</p> <p>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.</p>
Measurement procedure:	Bandwidth Measurements (6.2)
Comment:	
Date of test:	19 April 2006
Test site:	Fully anechoic room, cabin no. 2

Occupied Bandwidth (99 %):

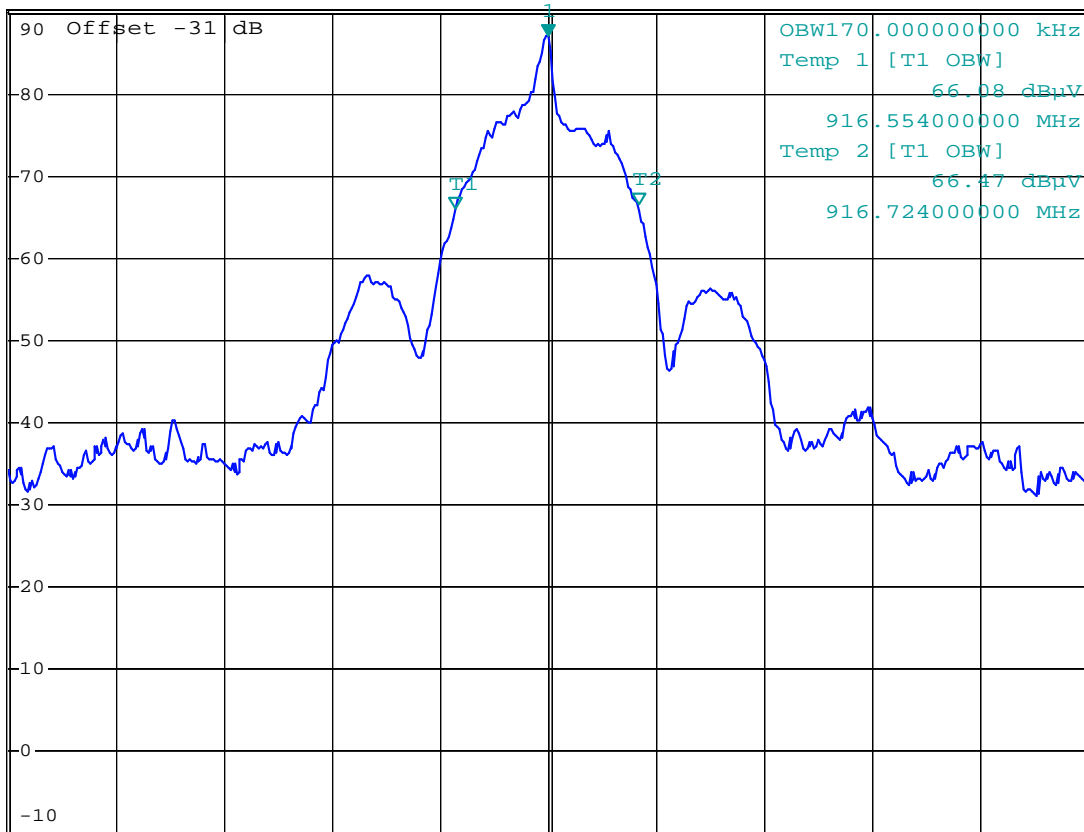


*RBW 10 kHz Marker 1 [T1]
 *VBW 30 kHz 86.88 dBμV
 SWT 10 ms 916.640000000 MHz

Ref 90 dBμV

*Att 30 dB

1 PK
 VIEW



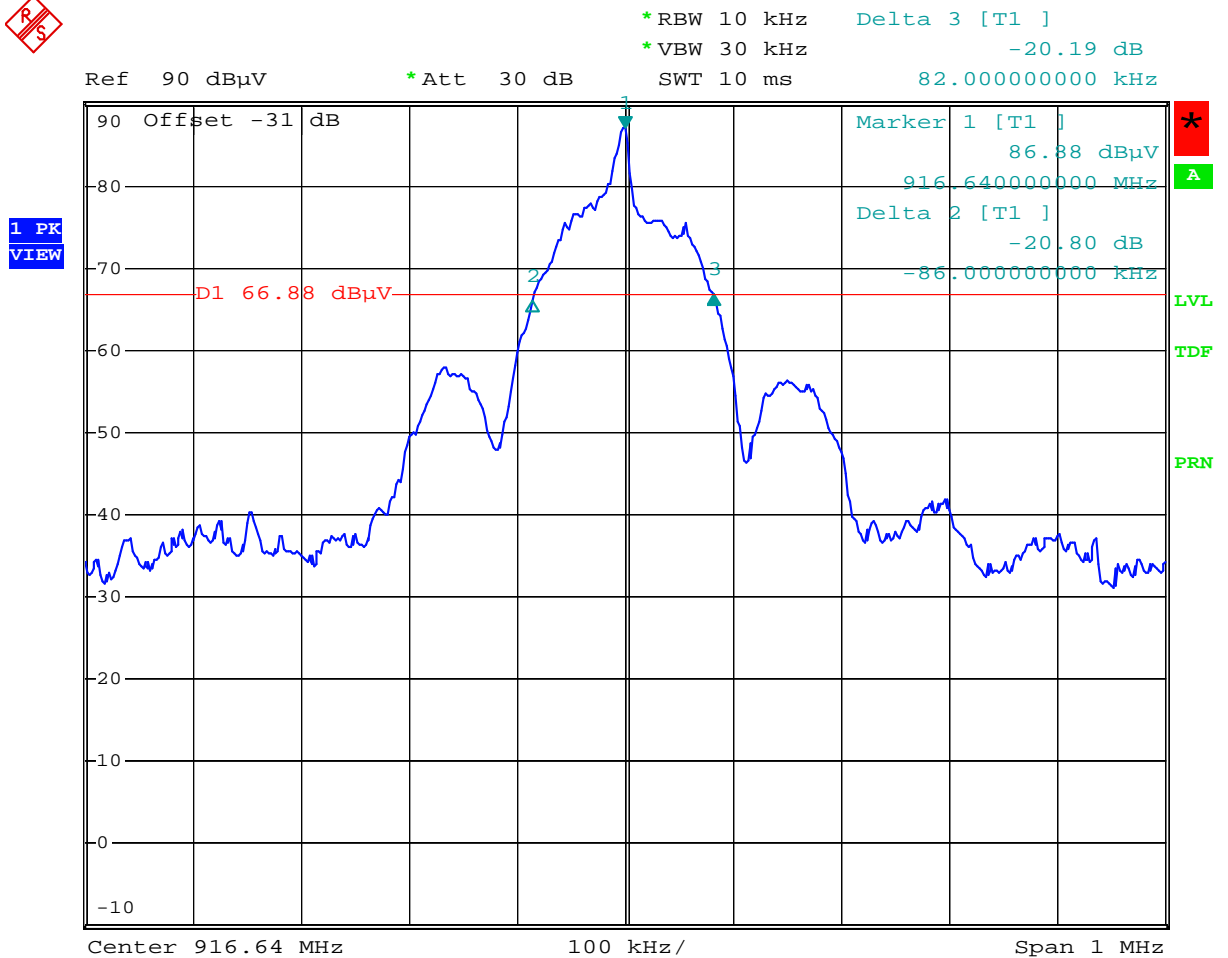
Comment: Identec 060260: Occupied Bandwidth
 Date: 19.APR.2006 09:22:47

Occupied Bandwidth (99 %): 170.0 kHz

8.3 Bandwidth of the Emission

Rules and specifications:	CFR 47 Part 15, section 15.215(c)	
Guide:	ANSI C63.4	
Description:	<p>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.</p> <p>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.</p> <p>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:</p>	
	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 (6.2)	

Comment:	
Date of test:	19 April 2006
Test site:	Fully anechoic room, cabin no. 2



Comment: Identec 060260: Emission Bandwidth
 Date: 19.APR.2006 09:25:07

Permitted frequency band:	902 - 928 MHz	
20 dB bandwidth:	167.0 kHz	
Carrier frequency stability:	<input type="checkbox"/> specified	<input checked="" type="checkbox"/> not specified
Maximum frequency tolerances:		
Bandwidth of the emission:	within permitted frequency band ⁵ : <input checked="" type="checkbox"/> yes <input type="checkbox"/> 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.

8.4 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:	Amplitude Modulation
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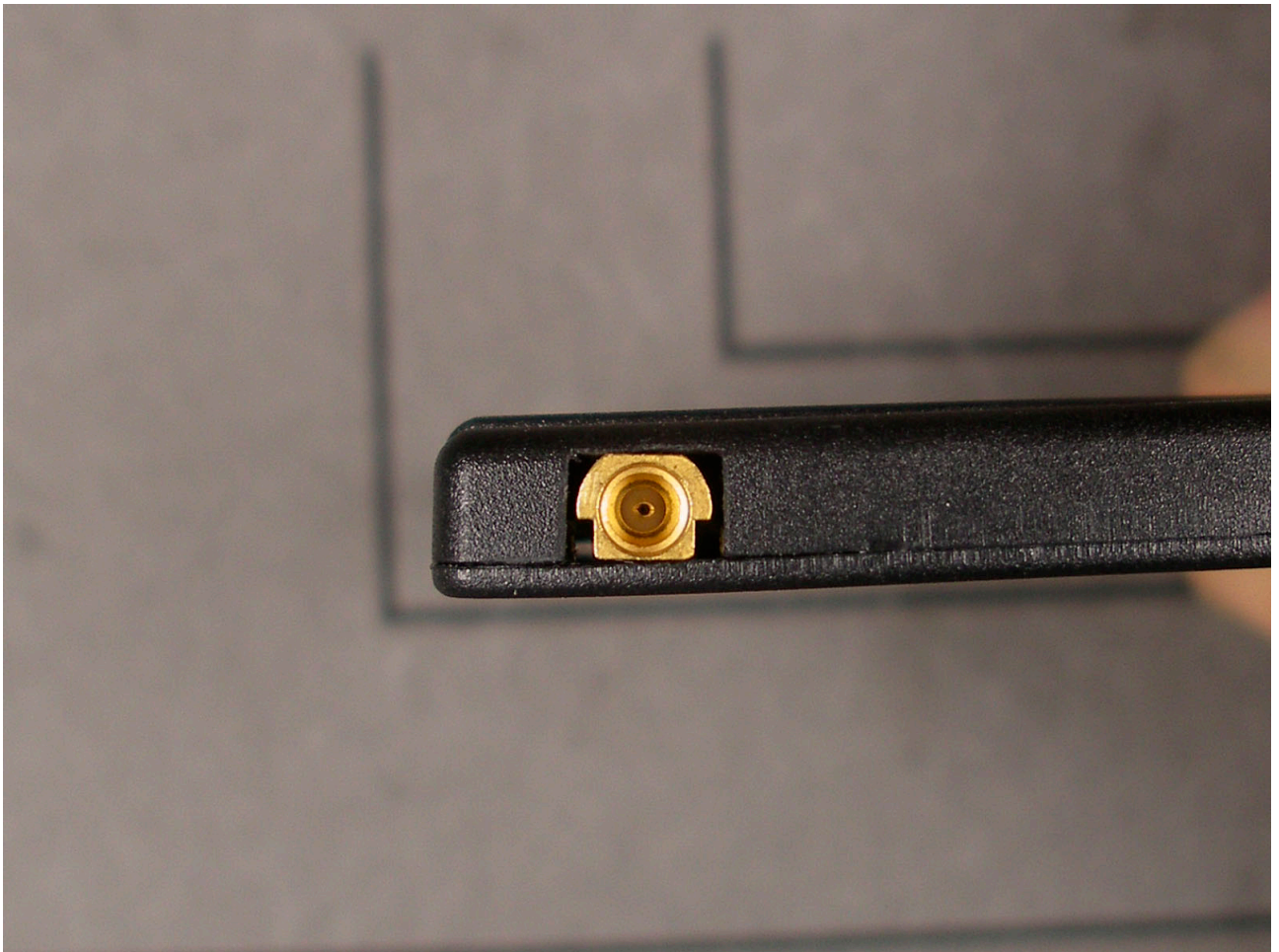
B_n = Necessary Bandwidth	$B_n = 2BK$
B = Modulation rate	$B = 5 \text{ kHz}$
K = Overall numerical factor	$K = 1$
Calculation:	$B_n = 2 \cdot (5 \text{ kHz}) \cdot 1 = 10 \text{ kHz}$

Designation of Emissions:	10K0A1D
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8.5 Antenna Requirement

Rules and specifications:	CFR 47 Part 15, section 15.203
Limit:	An intentional radiator shall be designed to ensure that no antenna other than the furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section.

Evaluation:	The antenna connector is MMCX style.
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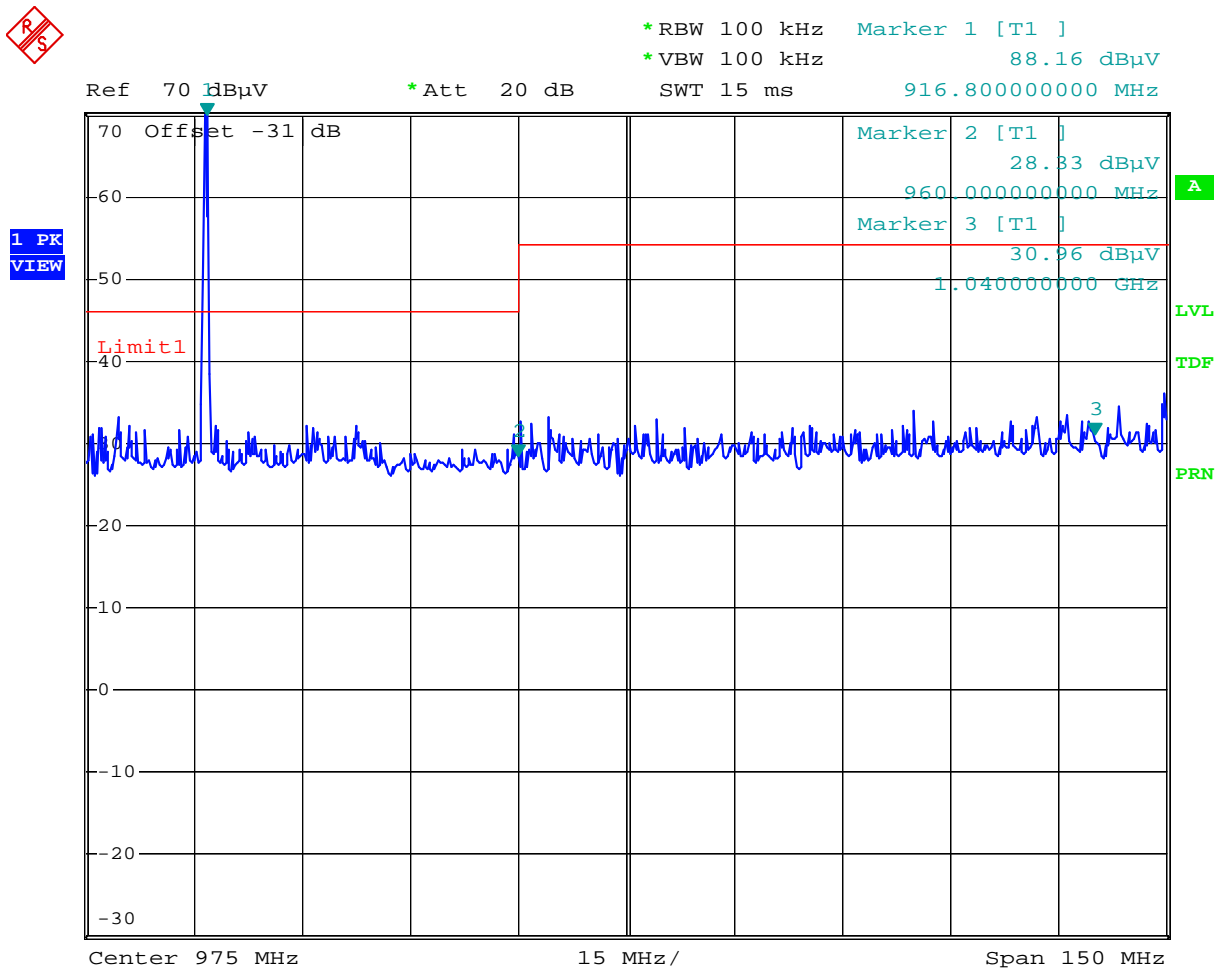


Test Result:	Test passed
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8.6 Restricted Bands of Operation

Rules and specifications:	CFR 47 Part 15, section 15.205(a) IC RSS-210 Issue 6, 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 6, section 2.2(a).
Measurement procedure:	Radiated Emission in Fully or Semi Anechoic Room (6.4)

Date of test:	19 April 2006
Test site:	Fully anechoic room, cabin no. 2
Test distance:	3 meters



Comment: Identec 060260: Restricted Bands of Operation
 Date: 19.APR.2006 09:19:37

Test Result:	Test passed
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8.7 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 (dB μ V)	
		Quasi-peak	Average
	0.15 - 0.5	66 to 56	56 to 46
	0.5 - 5	56	46
	5 - 30	60	50
Measurement procedure:	Conducted AC Powerline Emission (6.3)		

Comment:	
Date of test:	24 April 2006
Test site:	Shielded room, cabin no. 4

Test Result:	Test passed
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Tested on:	L1
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Frequency (MHz)	Detector	Reading Value (dB μ V)	Correction Factor (dB)	Final Value (dB μ V)	Limit (dB μ V)	Margin (dB)
0.210	Quasi-Peak	46.5	0.0	46.5	63.2	16.7
0.640	Quasi-Peak	34.1	0.0	34.1	56.0	21.9

Tested on: N

Frequency (MHz)	Detector	Reading Value (dB μ V)	Correction Factor (dB)	Final Value (dB μ V)	Limit (dB μ V)	Margin (dB)
0.205	Quasi-Peak	47.7	0.0	47.7	63.4	15.7
0.535	Quasi-Peak	38.0	0.0	38.0	56.0	18.0
0.725	Quasi-Peak	37.8	0.0	37.8	56.0	18.2
0.840	Quasi-Peak	34.7	0.0	34.7	56.0	21.3
1.240	Quasi-Peak	31.6	0.0	31.6	56.0	24.4
2.065	Quasi-Peak	31.6	0.0	31.6	56.0	24.4
4.855	Quasi-Peak	35.3	0.0	35.3	56.0	20.7
7.340	Quasi-Peak	32.9	0.0	32.9	60.0	27.1

Sample calculation of final values:

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

8.8 Radiated Emission Measurement 30 MHz to 10 GHz

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		
Limit:	Frequency of Emission (MHz)	Field Strength ($\mu\text{V}/\text{m}$)	Field Strength (dB $\mu\text{V}/\text{m}$)
	30 - 88	100	40.0
	88 - 216	150	43.5
	216 - 960	200	46.0
	Above 960	500	54.0
Additionally, the level of any unwanted emissions shall not exceed the level of the fundamental emission.			
Measurement procedures:	Radiated Emission in Fully or Semi Anechoic Room (6.4) Radiated Emission at Open Field Test Site (6.5)		

Comment:	
Date of test:	19 April 2006, 24 April 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
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Frequency (MHz)	Antenna Polarization	Detector	Receiver Reading (dB μV)	Correction Factor (dB/m)	Pulse Train Correction (dB)	Final Value (dB $\mu\text{V}/\text{m}$)	Limit (dB $\mu\text{V}/\text{m}$)	Margin (dB)
175.100	vertical	Quasi-Peak	6.8	15.1		21.9	43.5	21.6
333.000	horizontal	Quasi-Peak	16.5	16.9		33.4	46.0	12.6
464.200	horizontal	Quasi-Peak	9.5	19.6		29.1	46.0	16.9
464.600	vertical	Quasi-Peak	8.8	19.6		28.4	46.0	17.6
752.000	vertical	Quasi-Peak	16.3	24.3		40.6	46.0	5.4
840.400	vertical	Quasi-Peak	14.8	25.5		40.3	46.0	5.7
916.600	vertical	Quasi-Peak	67.4	26.2		93.6	94.0	0.4
1816.000	vertical	Peak	9.5	31.4		40.9	54.0	13.1
1900.000	vertical	Peak	11.4	31.8		43.1	54.0	10.9
1990.000	vertical	Peak	11.0	32.2		43.2	54.0	10.8
2080.000	vertical	Peak	10.7	32.5		43.2	54.0	10.8
2164.000	vertical	Peak	10.1	32.7		42.9	54.0	11.1
2254.000	vertical	Peak	9.9	33.0		42.9	54.0	11.2

Sample calculation of final values:

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

8.9 Exposure of Humans to RF Fields

Rules and specifications:	IC RSS-Gen Issue 2, section 3
Guide:	IC RSS-102 Issue 2, section 2.5

Exposure of Humans to RF Fields	Applicable	Declared by applicant	Measured	Exemption
The antenna is				
<input checked="" type="checkbox"/> detachable				
The conducted output power (CP in watts) is measured at the antenna connector: $CP = 750 \mu W$ The effective isotropic radiated power (EIRP in watts) is calculated using <input checked="" type="checkbox"/> the numerical antenna gain: $G = 1.64$ $EIRP = G \cdot CP \Rightarrow EIRP = 1.23 mW$ <input checked="" type="checkbox"/> the field strength ⁶ in V/m: $FS = 47.9 mV/m$ $EIRP = \frac{(FS \cdot D)^2}{30} \Rightarrow EIRP = 688.32 \mu W$ with: Distance between the antennas in m: $D = 3 m$		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> not detachable				
A field strength measurement is used to determine the effective isotropic radiated power (EIRP in watts) given by ⁶ : $EIRP = \frac{(FS \cdot D)^2}{30} \Rightarrow EIRP = \dots\dots\dots W$ with: Field strength in V/m: $FS = \dots\dots\dots V/m$ Distance between the two antennas in m: $D = \dots\dots\dots m$			<input type="checkbox"/>	<input type="checkbox"/>
Selection of output power				
The output power TP is the higher of the conducted or effective isotropic radiated power (e.i.r.p.): $TP = 1.23 mW$				

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				
<input checked="" type="checkbox"/> less than or equal to 20 cm <input type="checkbox"/> greater than 20 cm		<input checked="" type="checkbox"/>		
Transmitting device is				
<input type="checkbox"/> in the vicinity of the human head <input type="checkbox"/> body-worn		<input checked="" type="checkbox"/>		
SAR evaluation				
SAR evaluation is required if the separation distance between the user and the device is less than or equal to 20 cm.				
<input checked="" type="checkbox"/> 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.				<input type="checkbox"/>
<input type="checkbox"/> 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.				<input type="checkbox"/>
<input type="checkbox"/> 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.				<input type="checkbox"/>
<input type="checkbox"/> 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.				<input type="checkbox"/>
<input type="checkbox"/> 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.				
<input type="checkbox"/> The device operates below 1.5 GHz and its e.i.r.p. is equal to or less than 2.5 W.				<input type="checkbox"/>
<input type="checkbox"/> 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.				<input type="checkbox"/>
<input type="checkbox"/> RF exposure evaluation is documented in test report no.				

9 Test Results for Receiver

FCC CFR 47 Part 15			
<i>Section(s)</i>	<i>Test</i>	<i>Page</i>	<i>Result</i>
15.107	Conducted AC powerline emission 150 kHz to 30 MHz	38	Test passed
15.109	Radiated emission 30 MHz to 5 GHz	44	Test passed
15.111(a)	Antenna power conduction emission of receivers 9 kHz to 5 GHz	45	Test passed

IC RSS-Gen Issue 1			
<i>Section(s)</i>	<i>Test</i>	<i>Page</i>	<i>Result</i>
7.2.2	Receiver 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	44	Test passed
6(b), 7.2.3.1	Receiver spurious emissions (antenna conducted) 9 kHz to 5 GHz	45	Test passed

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 ($\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)
	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:	19 April 2006, 24 April 2006
Test site:	Frequencies \leq 1 GHz: Open field test site Frequencies $>$ 1 GHz: Fully anechoic room, cabin no. 2
Test distance:	3 meters

Test Result:	Test passed
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Frequency (MHz)	Antenna Polarization	Detector	Receiver Reading (dB μV)	Correction Factor (dB/m)	Final Value (dB $\mu\text{V/m}$)	Limit (dB $\mu\text{V/m}$)	Margin (dB)
464.000	horizontal	Quasi-Peak	12.6	19.6	32.2	46.0	13.8
596.800	horizontal	Quasi-Peak	9.5	21.9	31.4	46.0	14.6
731.900	vertical	Quasi-Peak	14.7	24.2	38.9	46.0	7.1
733.400	horizontal	Quasi-Peak	9.8	24.2	34.0	46.0	12.0

Sample calculation of field final values:

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

9.2 Antenna Power Conduction Emission of Receivers 9 kHz to 5 GHz

Rules and specifications:	CFR 47 Part 15, section 15.111(a) IC RSS-Gen Issue 1, sections 6(b) and 7.2.3.1		
Guide:	ANSI C63.4		
Limit:	Frequency of Emission (MHz)	Antenna power conduction limits for receivers	
		CFR 47 Part 15	IC RSS-Gen
	30 - 1000 Above 1000	2 nW (-57 dBm) 2 nW (-57 dBm)	2 nW (-57 dBm) 5 nW (-53 dBm)
Measurement procedure:	Antenna Power Conduction Emission of Receivers (6.6)		

Comment:	
Date of test:	19 April 2006
Test site:	Shielded room, cabin no. 1
Tested on:	

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

No emissions above noise level detected

Sample calculation of final values:

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

10 Referenced Regulations

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

<input checked="" type="checkbox"/>	CFR 47 Part 2	Code of Federal Regulations Part 2 (Frequency allocation and radio treaty matters; General rules and regulations) of the Federal Communication Commission (FCC)	October 10, 2004
<input checked="" type="checkbox"/>	CFR 47 Part 15	Code of Federal Regulations Part 15 (Radio Frequency Devices) of the Federal Communication Commission (FCC)	September 19, 2005
<input checked="" type="checkbox"/>	ANSI C63.4	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	December 11, 2003 (published on January 30, 2004)
<input checked="" type="checkbox"/>	RSS-Gen	Radio Standards Specification RSS-Gen Issue 1 containing General Requirements and Information for the Certification of Radiocommunication Equipmment, published by Industry Canada	September 2005
<input checked="" type="checkbox"/>	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
<input type="checkbox"/>	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
<input checked="" type="checkbox"/>	RSS-102	Radio Standards Specification RSS-102 Issue 2: Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)	November 2005
<input type="checkbox"/>	ICES-003	Interference-Causing Equipment Standard ICES-003 Issue 4 for Digital Apparatus, published by Industry Canada	February 7, 2004
<input checked="" type="checkbox"/>	CISPR 22	Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, "Information Technology Equipment – Radio Disturbance Characteristics – Limits and Methods of Measurement"	1997
<input type="checkbox"/>	CAN/CSA-CEI/IEC CISPR 22	Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment	2002
<input checked="" type="checkbox"/>	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:
i-Card CF Q/NA

Serial no.:
06081C0047

Applicant:
Identec Solutions AG

Test site:
Shielded room, cabin no. 4

Tested on:
Linecord
Phase L1

Date of test:
04/24/2006

Operator:
M. Steindl

Test performed:
semi automatically

File name:

Mode:
- with DELL laptop
AC 115 V power supply

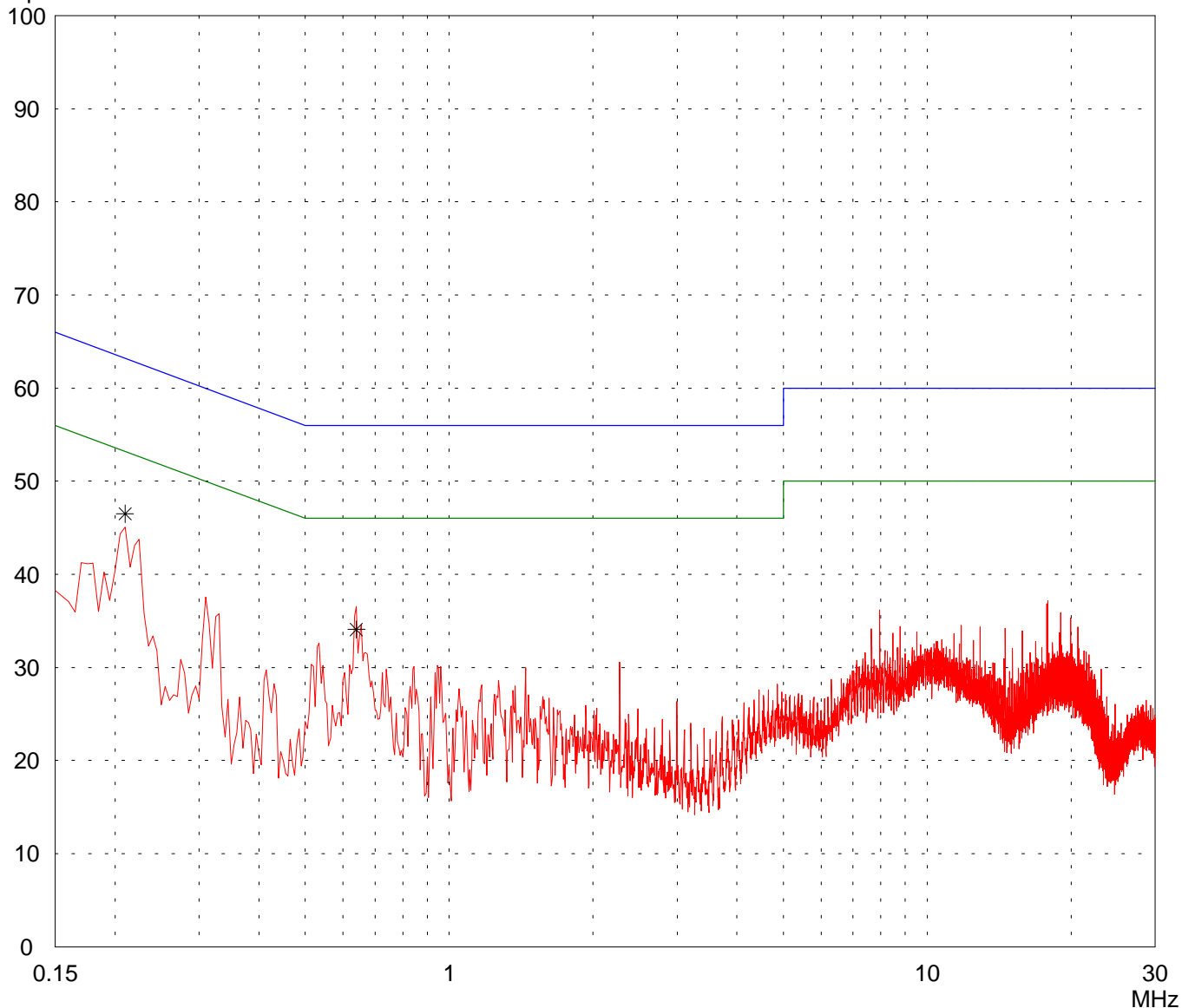
- TX mode, normal operation

Detector:
Peak / Final Results: QP

Final results:
20 dB Margin 25 Subranges

dB μ V

Limit1: FCC C / QP Limit2: FCC C / AV



Result:
Limit kept

Project file:
55456-060260-2

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

Model:
i-Card CF Q/NA

Serial no.:
06081C0047

Applicant:
Identec Solutions AG

Test site:
Shielded room, cabin no. 4

Tested on:
Linecord
Phase N

Date of test:
04/24/2006

Operator:
M. Steindl

Test performed:
semi automatically

File name:

Mode:

- with DELL laptop
AC 115 V power supply

- TX mode, normal operation

Detector:

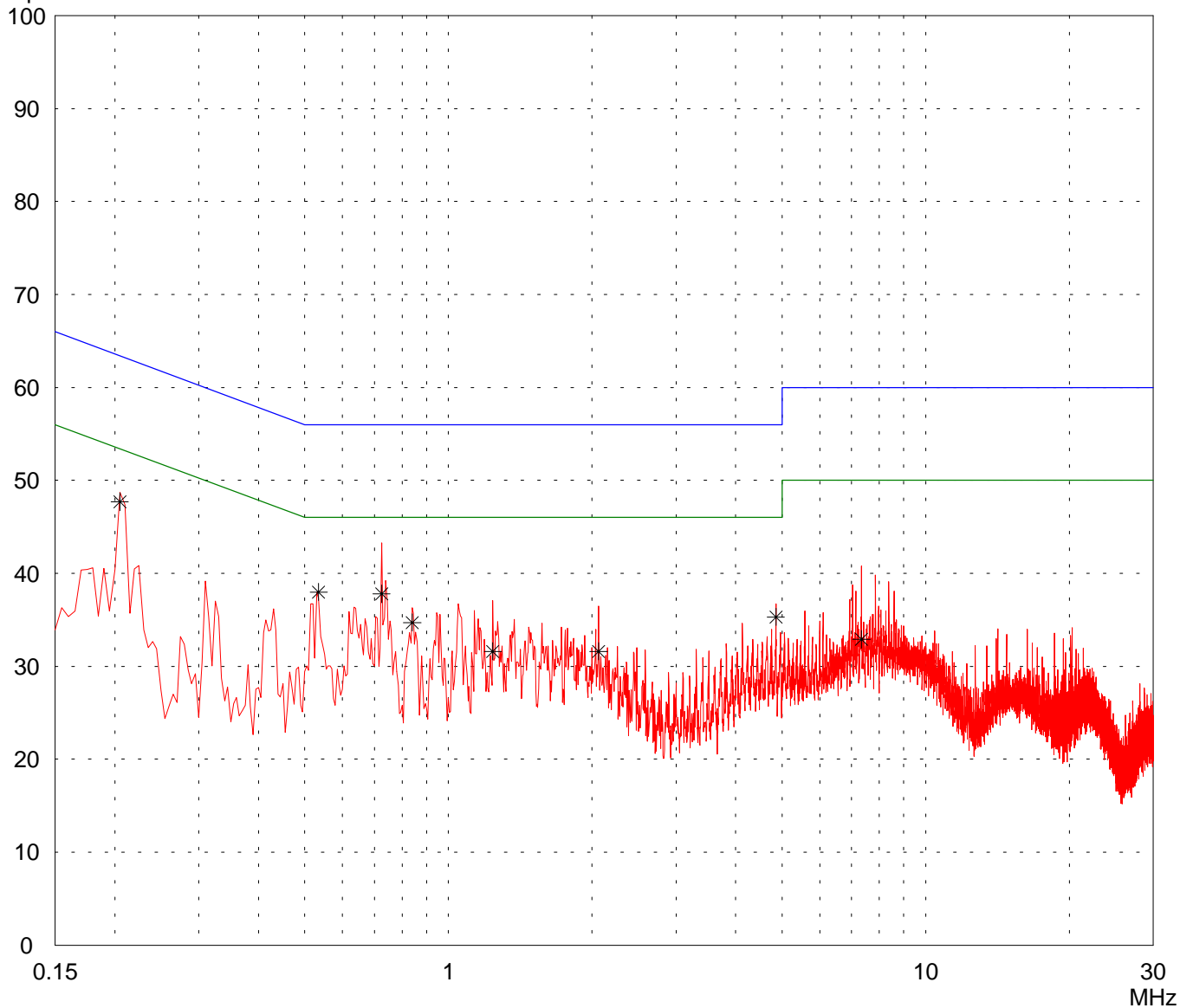
Peak / Final Results: QP

Final results:

Selected by hand

dB μ V

Limit1: FCC C / QP Limit2: FCC C / AV

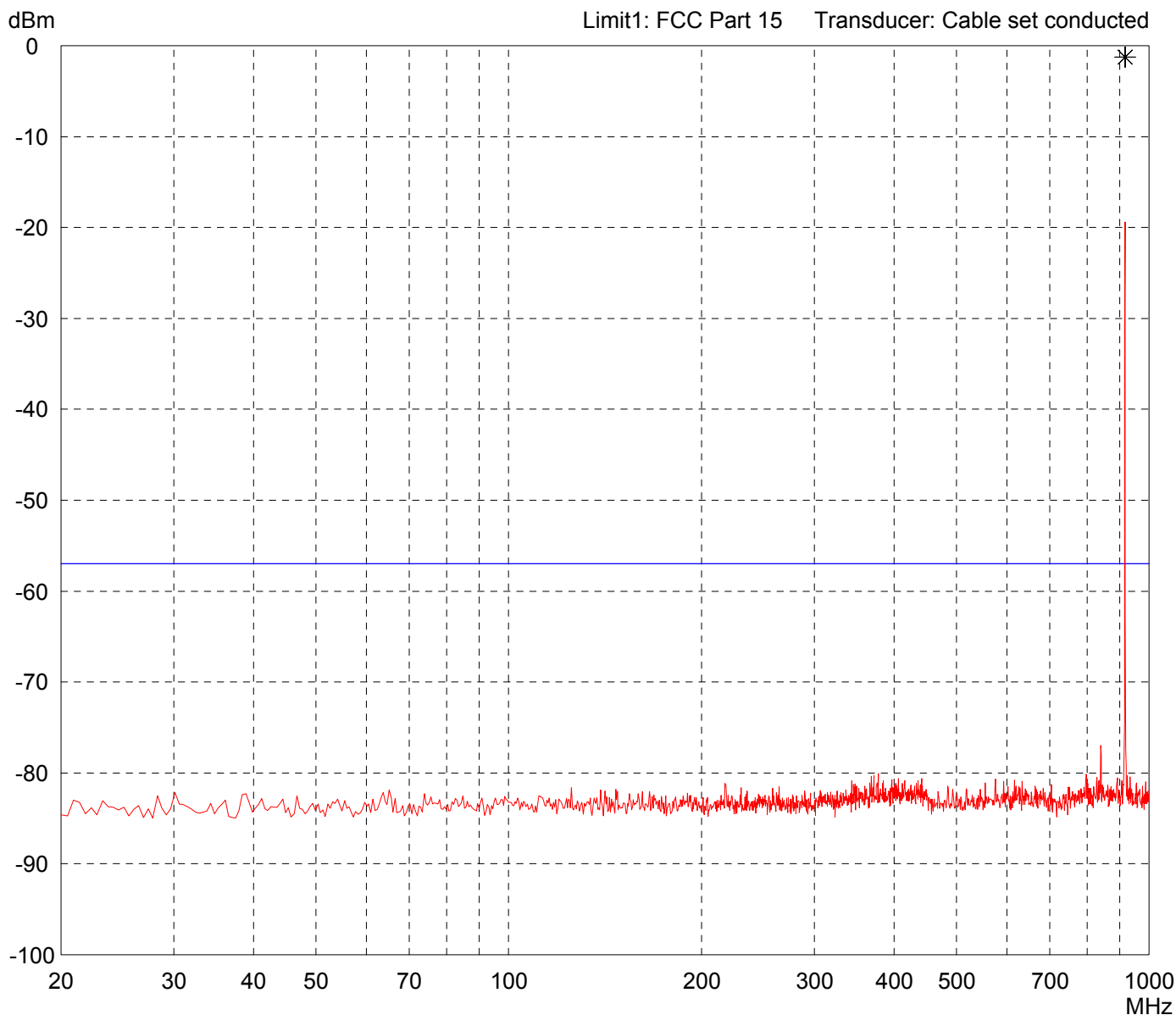


Result:
Limit kept

Project file:
55456-060260-2

Conducted Emission Test 20 MHz - 1 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: i-Card CF Q/NA	Comment: - with DELL laptop - carrier power: -4dBm (nominal) - transmitting continuously with modulation
Serial no.: 06081C0047	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Antenna connector	
Date of test: 04/19/2006	
Test performed: by hand	File name: default.emi
Detector: Peak	List of values: Selected by hand



Result: Limit kept - Carrier excluded	Project file: 55456-60260-2
--	--------------------------------

Conducted Emission Test 1 GHz - 10 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model:
i-Card CF Q/NA

Serial no.:
06081C0047

Applicant:
Identec Solutions AG

Test site:
Fully anechoic room, cabin no. 2

Tested on:
Antenna connector

Date of test:
04/19/2006

Operator:
M. Steindl

Test performed:
by hand

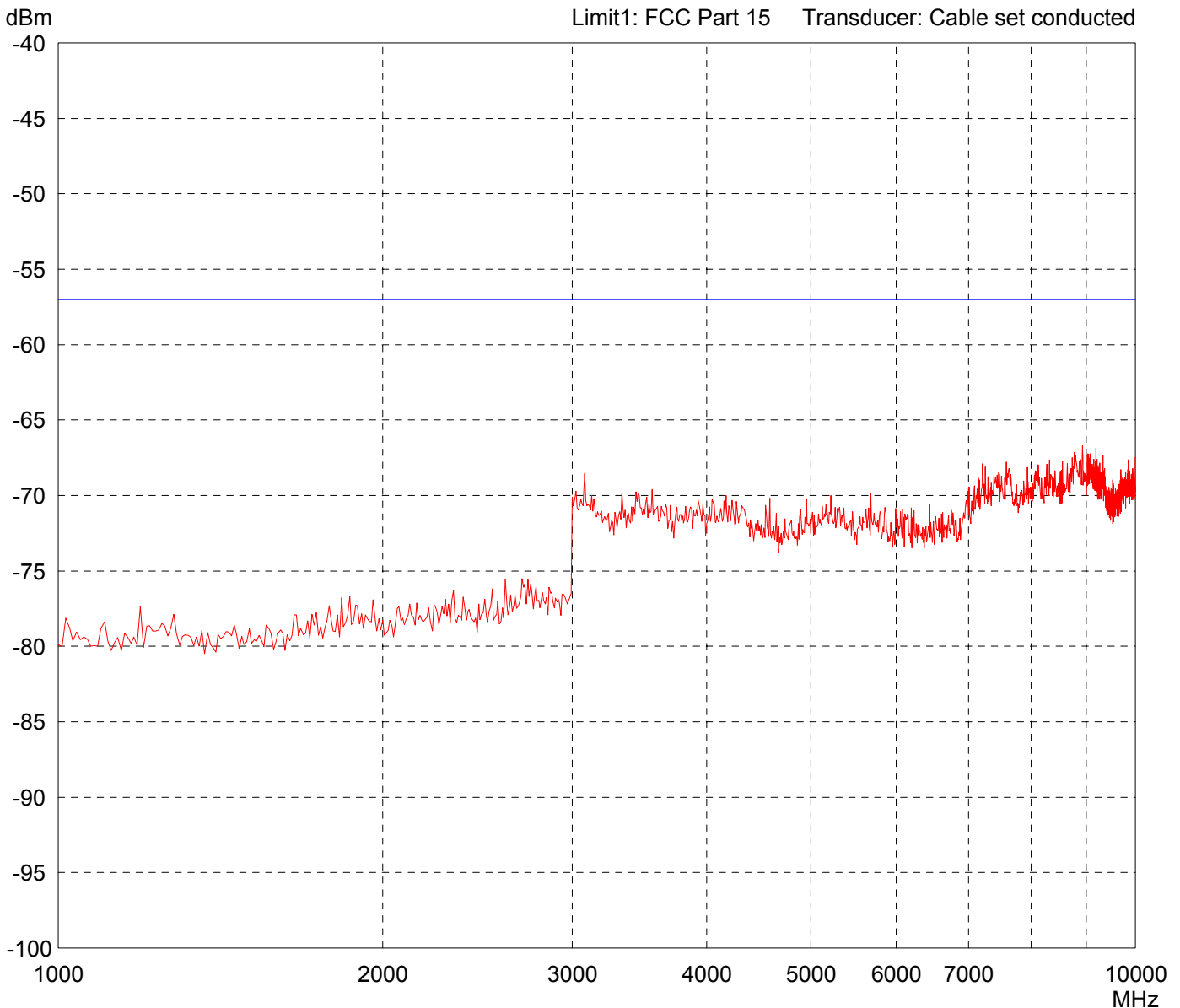
File name:
default.emi

Comment:

- with DELL laptop
- carrier power: -4dBm (nominal)
- transmitting continuously with modulation

Detector:
Peak

List of values:
Selected by hand

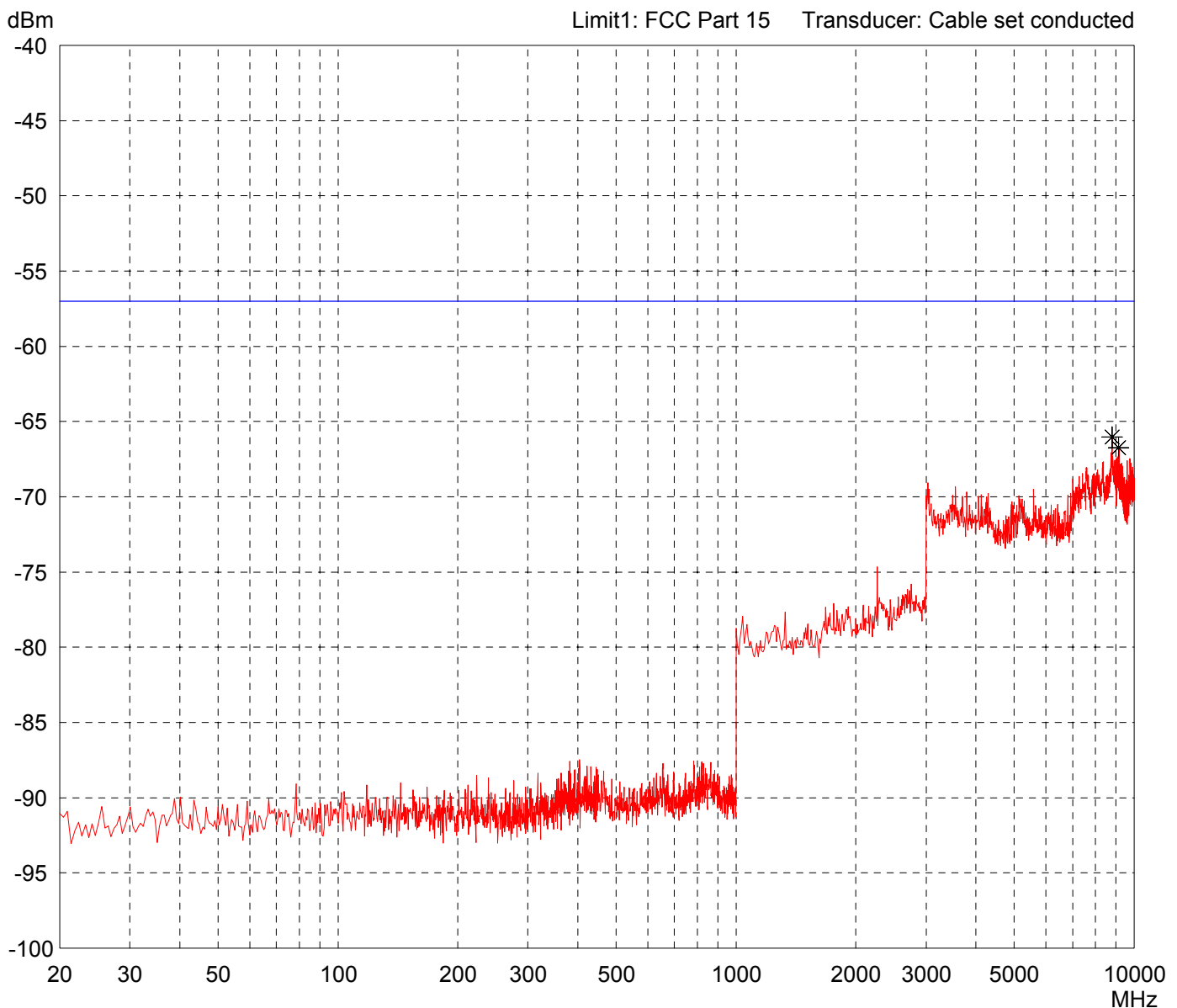


Result:
Limit kept

Project file:
55456-60260-2

Conducted Emission Test 20 MHz - 10 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: i-Card CF Q/NA	Comment: - with DELL laptop - RX / standby
Serial no.: 06081C0047	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Antenna connector	
Date of test: 04/19/2006	
Test performed: by hand	File name: default.emi
Detector: Peak	List of values: 10 dB Margin 50 Subranges



Result: Limit kept	Project file: 55456-60260-2
-----------------------	--------------------------------

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

Model:
i-Card CF Q/NA

Serial no.:
06081C0047

Applicant:
Identec Solutions AG

Test site:
Fully anechoic room, cabin no. 2

Tested on:
Test distance 3 metres
Horizontal Polarization

Date of test:
04/19/2006

Operator:
M. Steindl

Test performed:
automatically

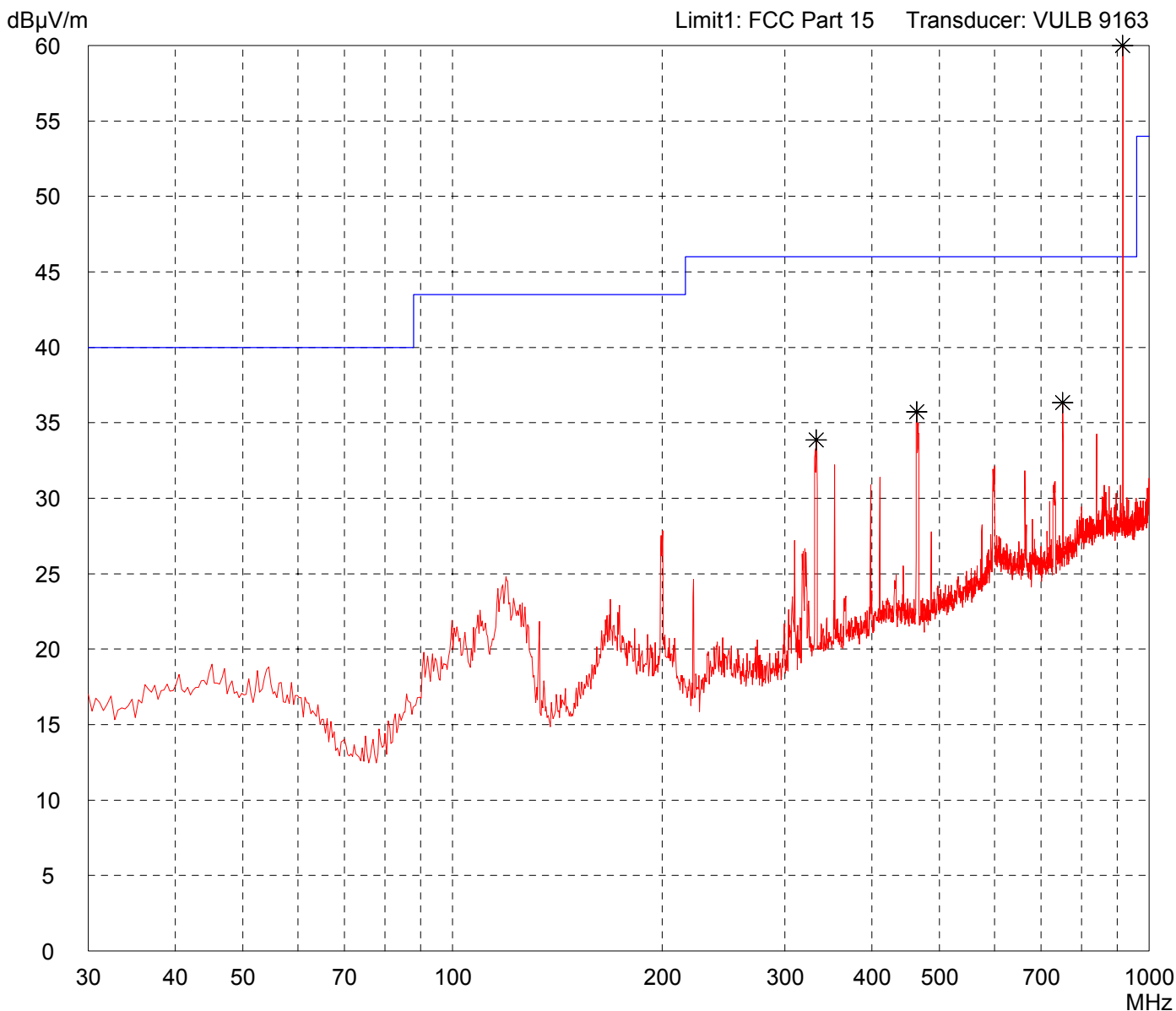
File name:
default.emi

Comment:

- with DELL laptop
- carrier power: -4 dBm (nominal)
- antenna in vertical position
- transmitting continuously with modulation

Detector:
Peak

List of values:
Selected by hand



Result:
Prescan

Project file:
55456-60260-2

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

Model:
i-Card CF Q/NA

Serial no.:
06081C0047

Applicant:
Identec Solutions AG

Test site:
Fully anechoic room, cabin no. 2

Tested on:
Test distance 3 metres
Vertical Polarization

Date of test:
04/19/2006

Operator:
M. Steindl

Test performed:
automatically

File name:
default.emi

Comment:

- with DELL laptop
- carrier power: -4 dBm (nominal)
- antenna in vertical position
- transmitting continuously with modulation

Detector:
Peak

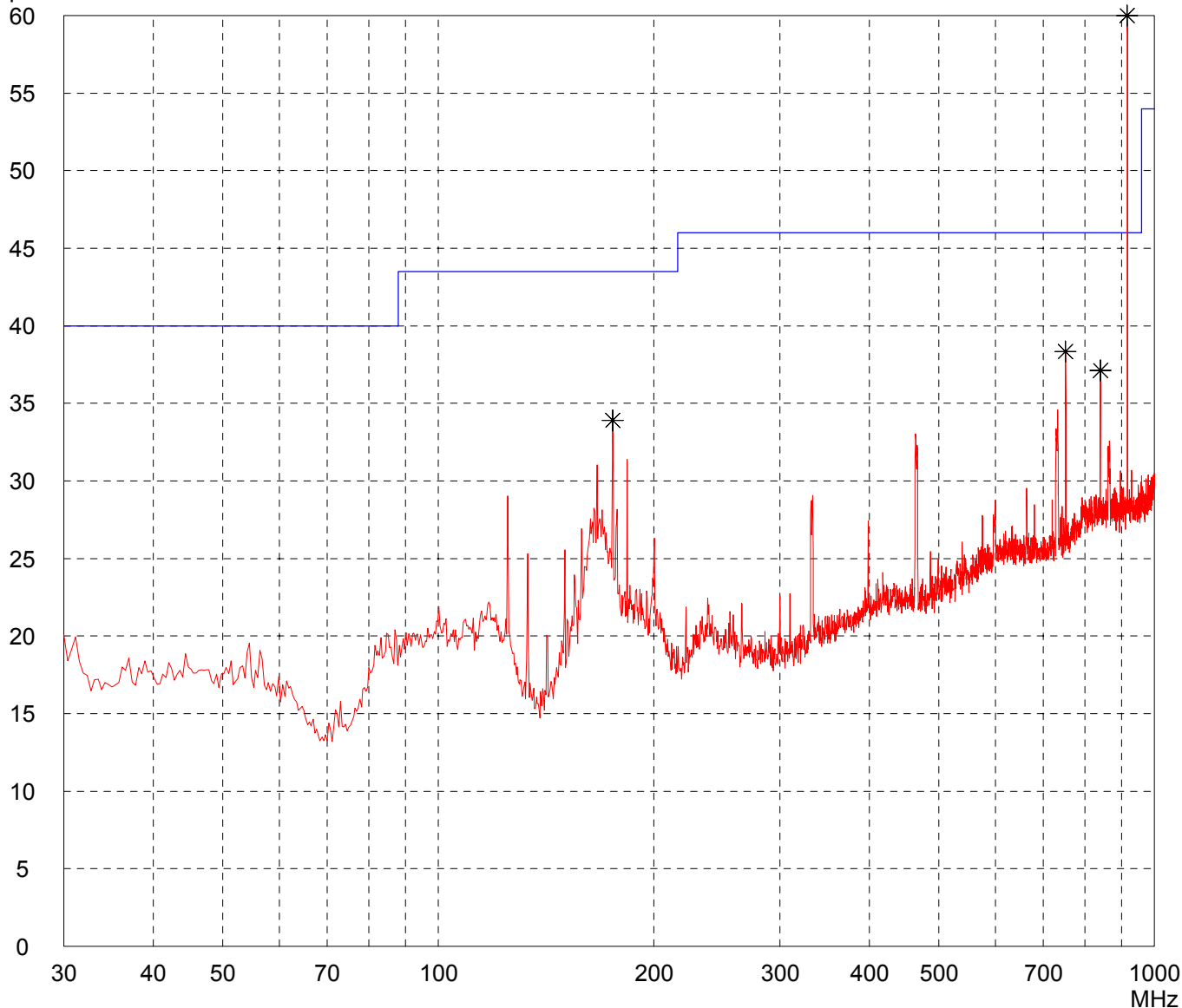
List of values:

10 dB Margin

50 Subranges

dB μ V/m

Limit1: FCC Part 15 Transducer: VULB 9163

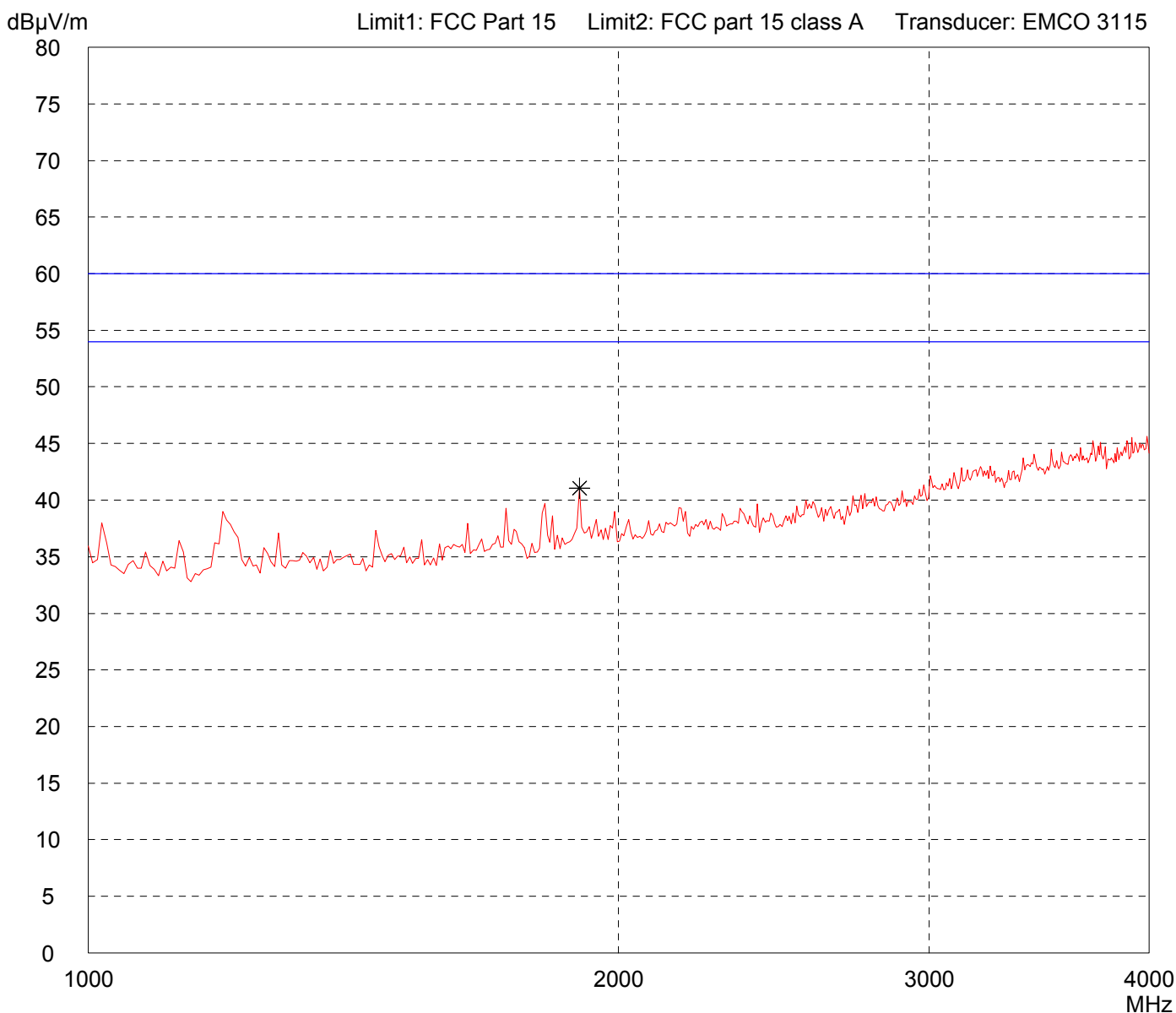


Result:
Prescan

Project file:
55456-60260-2

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

<p>Model: i-Card CF Q/NA</p> <p>Serial no.: 06081C0047</p> <p>Applicant: Identec Solutions AG</p> <p>Test site: Fully anechoic room, cabin no. 2</p> <p>Tested on: Test distance 3 metres Horizontal Polarization</p> <p>Date of test: 04/19/2006 Operator: M. Steindl</p> <p>Test performed: automatically File name: default.emi</p>	<p>Comment:</p> <ul style="list-style-type: none"> - with DELL laptop - carrier power: -4 dBm (nominal) - antenna in vertical position - transmitting continuously with modulation
<p>Detector: Peak</p>	<p>List of values: Selected by hand</p>



<p>Result: Limit kept</p>	<p>Project file: 55456-60260-2</p>
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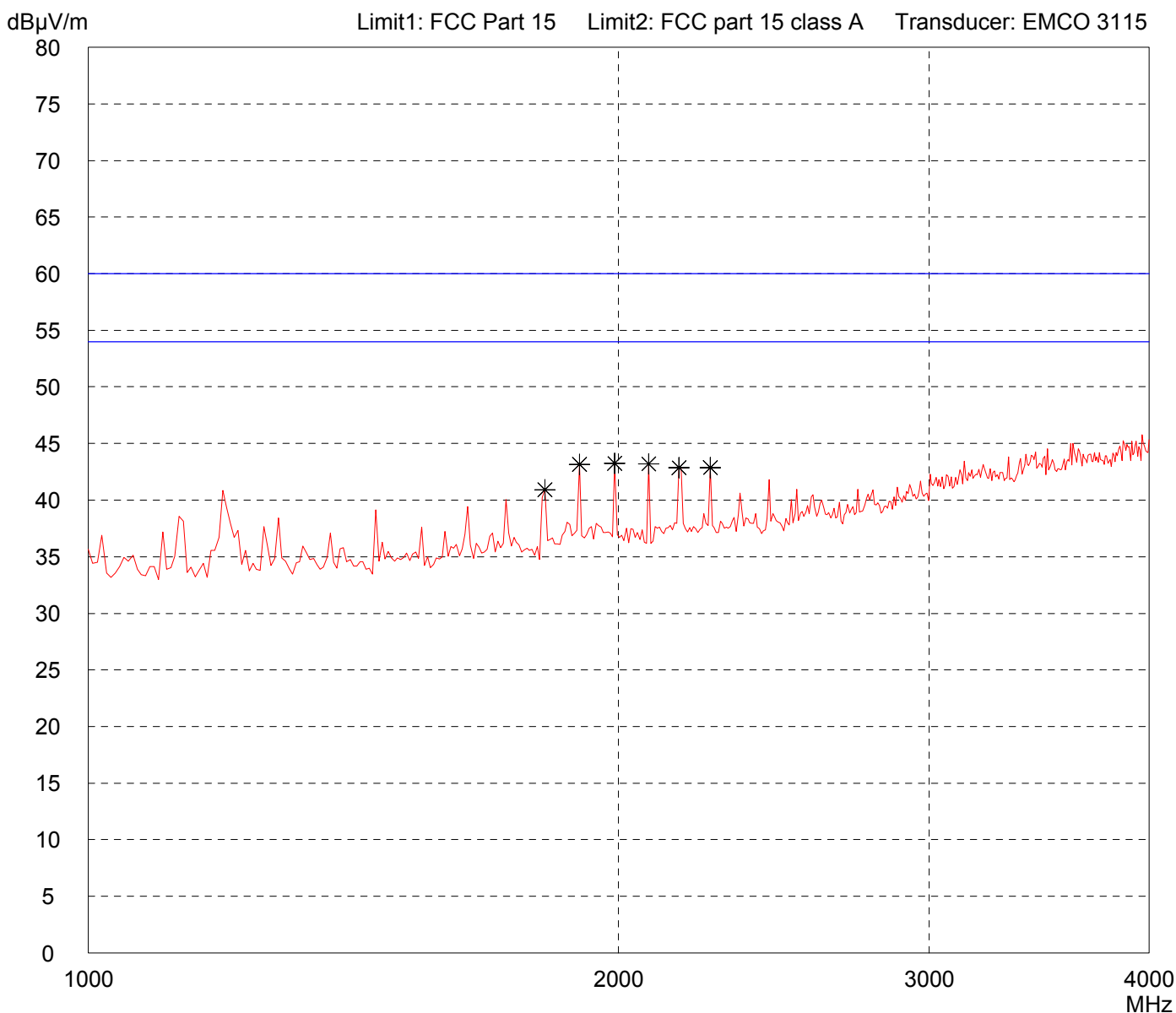
Radiated Emission Test 1 GHz - 4 GHz acc. to FCC Part 15 (EMCO 3115)

Model: i-Card CF Q/NA	
Serial no.: 06081C0047	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 04/19/2006	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Comment: - with DELL laptop - carrier power: -4 dBm (nominal) - antenna in vertical position - transmitting continuously with modulation
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Detector: Peak

List of values: Selected by hand



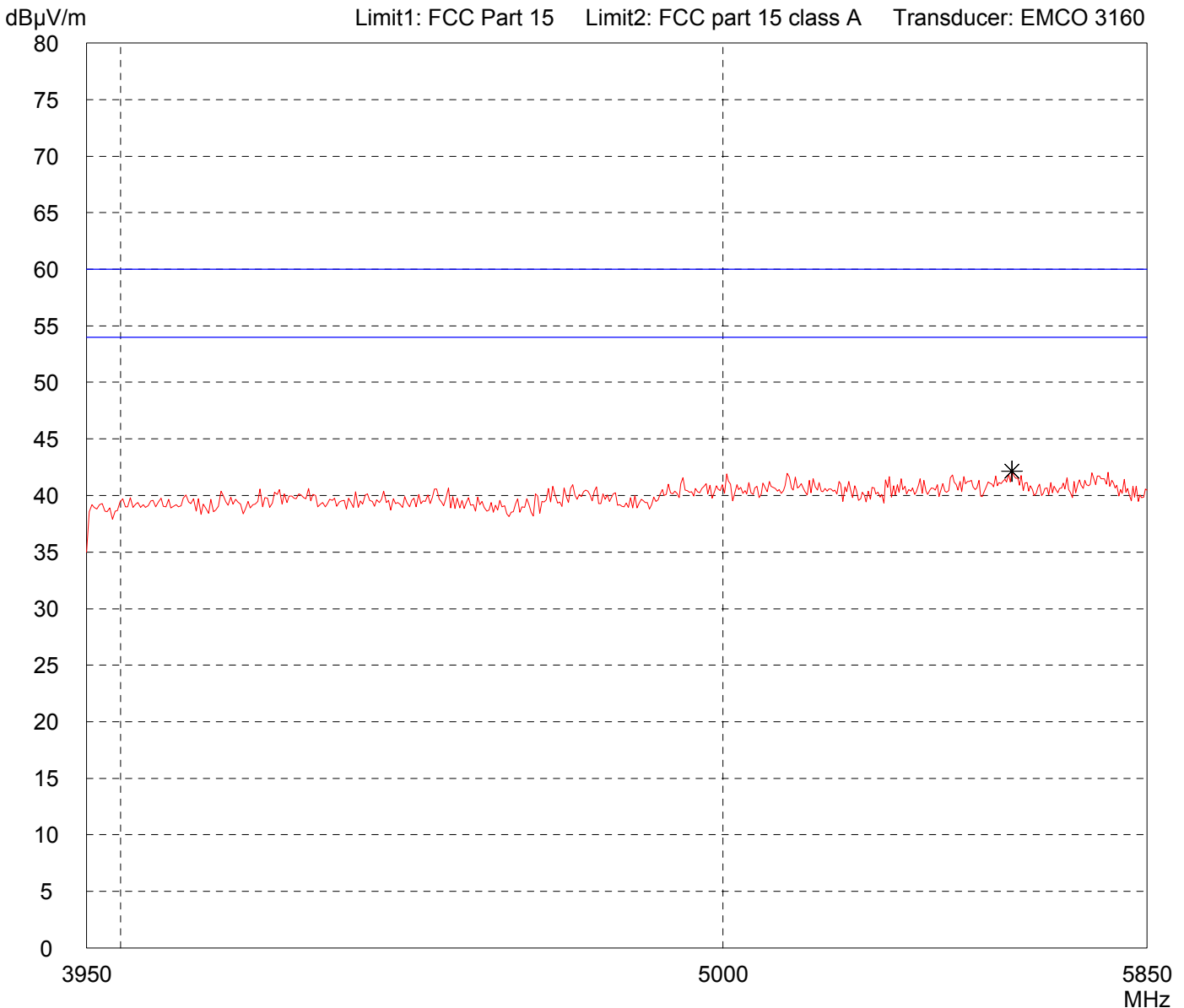
Result: Limit kept

Project file: 55456-60260-2

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

<p>Model: i-Card CF Q/NA</p> <p>Serial no.: 06081C0047</p> <p>Applicant: Identec Solutions AG</p> <p>Test site: Fully anechoic room, cabin no. 2</p> <p>Tested on: Test distance 3 metres Horizontal Polarization</p> <p>Date of test: 04/19/2006 Operator: M. Steindl</p> <p>Test performed: automatically File name: default.emi</p>	<p>Comment:</p> <ul style="list-style-type: none"> - with DELL laptop - carrier power: -4 dBm (nominal) - antenna in vertical position - transmitting continuously with modulation
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<p>Detector: Peak</p>	<p>List of values: Selected by hand</p>
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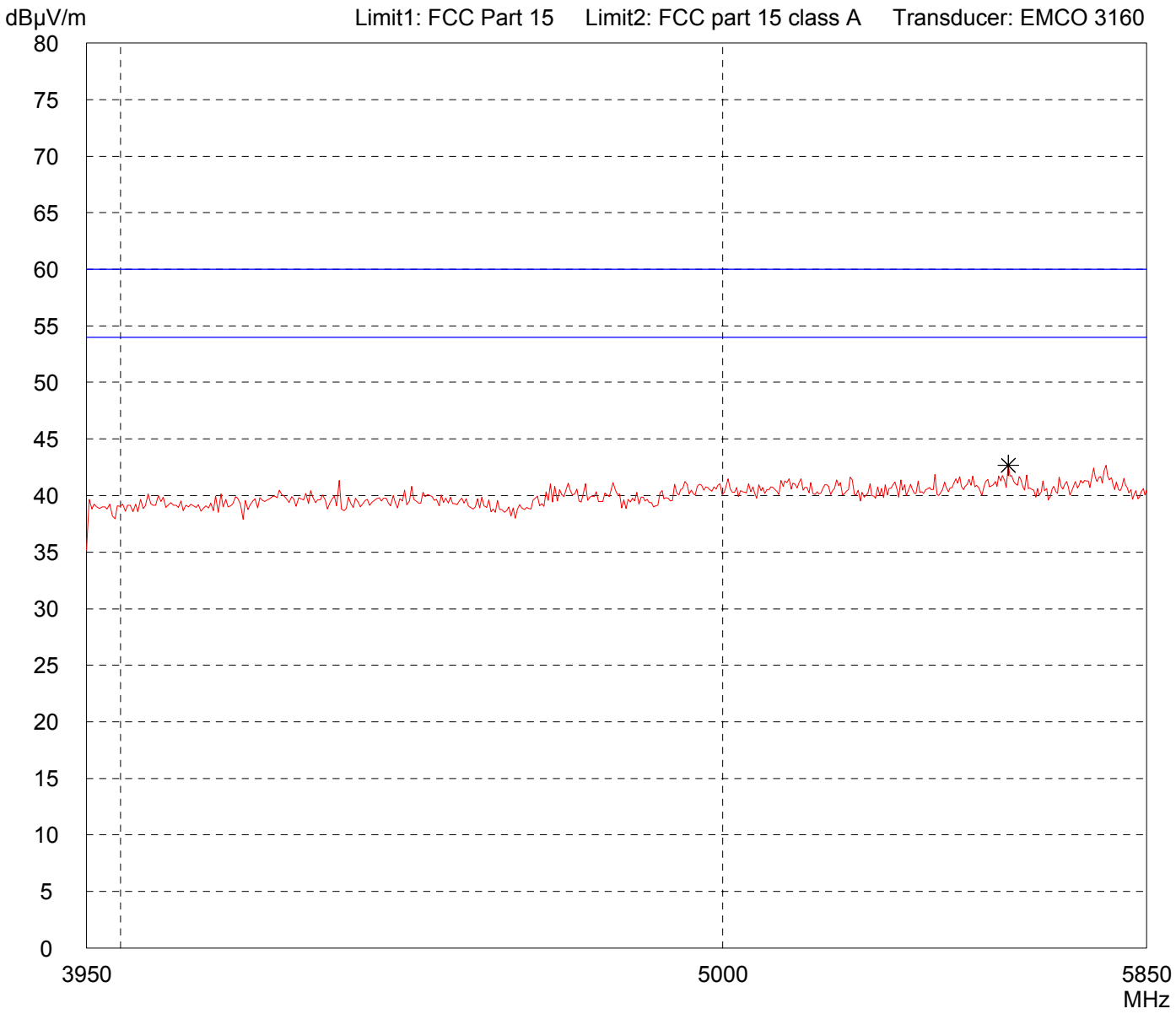


<p>Result: Limit kept</p>	<p>Project file: 55456-60260-2</p>
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Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 (EMCO 3160)

<p>Model: i-Card CF Q/NA</p> <p>Serial no.: 06081C0047</p> <p>Applicant: Identec Solutions AG</p> <p>Test site: Fully anechoic room, cabin no. 2</p> <p>Tested on: Test distance 3 metres Vertical Polarization</p> <p>Date of test: Operator: 04/19/2006 M. Steindl</p> <p>Test performed: File name: automatically default.emi</p>	<p>Comment:</p> <ul style="list-style-type: none"> - with DELL laptop - carrier power: -4 dBm (nominal) - antenna in vertical position - transmitting continuously with modulation
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<p>Detector: Peak</p>	<p>List of values: Selected by hand</p>
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<p>Result: Limit kept</p>	<p>Project file: 55456-60260-2</p>
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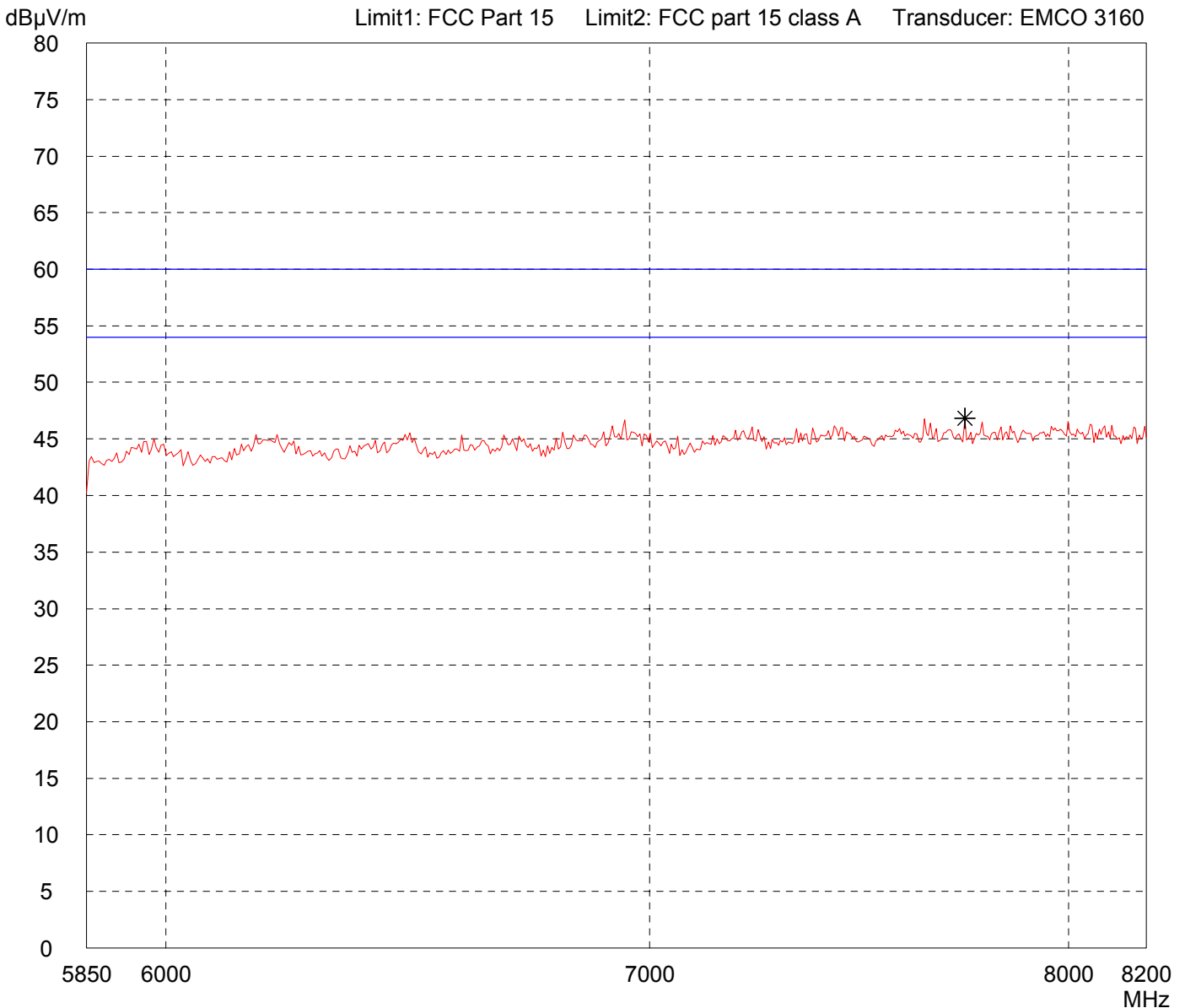
Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 (EMCO 3160)

Model: i-Card CF Q/NA	
Serial no.: 06081C0047	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 04/19/2006	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Comment: - with DELL laptop - carrier power: -4 dBm (nominal) - antenna in vertical position - transmitting continuously with modulation
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Detector: Peak

List of values: Selected by hand

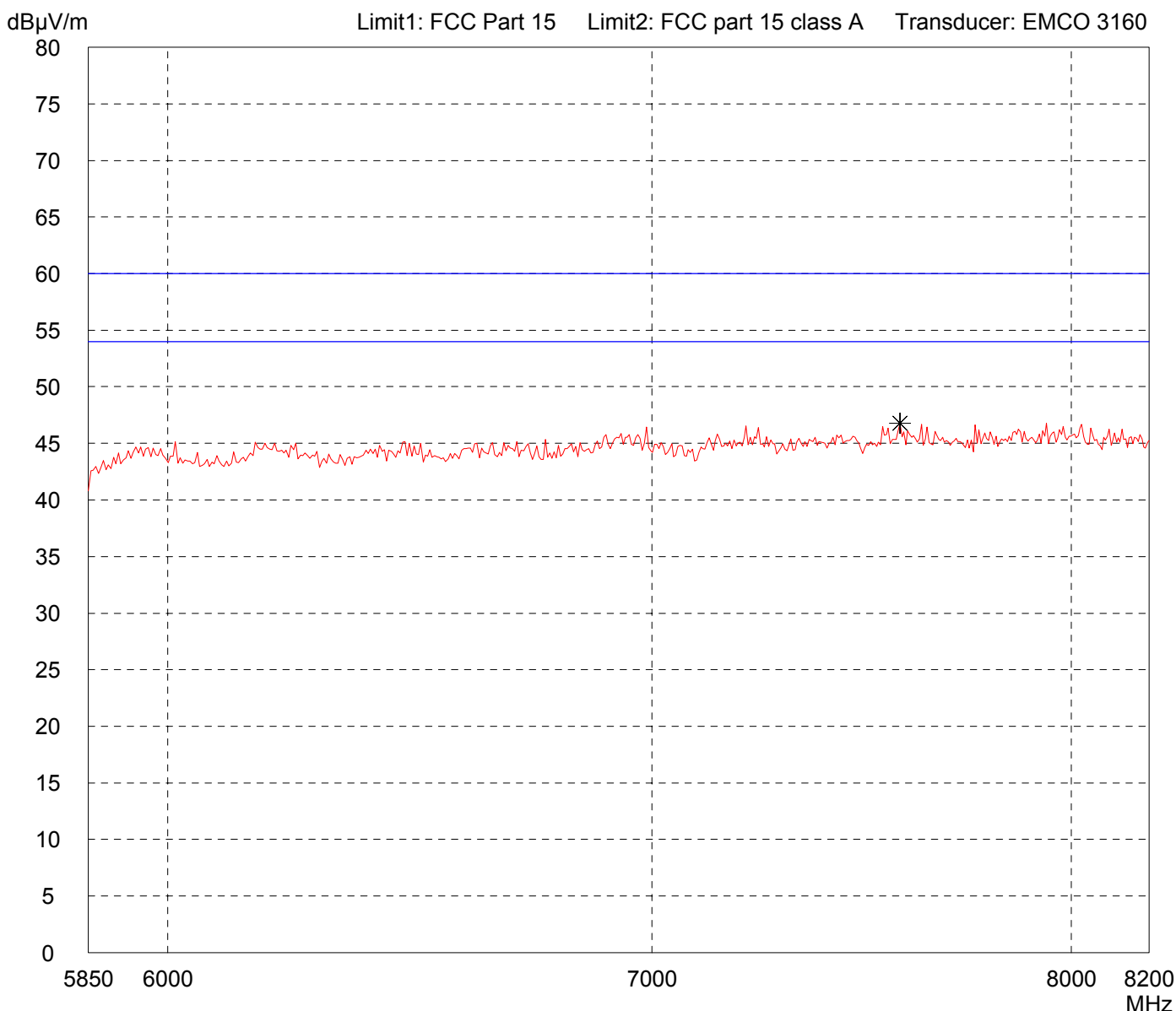


Result: Limit kept

Project file: 55456-60260-2

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

<p>Model: i-Card CF Q/NA</p> <p>Serial no.: 06081C0047</p> <p>Applicant: Identec Solutions AG</p> <p>Test site: Fully anechoic room, cabin no. 2</p> <p>Tested on: Test distance 3 metres Vertical Polarization</p> <p>Date of test: 04/19/2006 Operator: M. Steindl</p> <p>Test performed: automatically File name: default.emi</p>	<p>Comment:</p> <ul style="list-style-type: none"> - with DELL laptop - carrier power: -4 dBm (nominal) - antenna in vertical position - transmitting continuously with modulation
<p>Detector: Peak</p>	<p>List of values: Selected by hand</p>



<p>Result: Limit kept</p>	<p>Project file: 55456-60260-2</p>
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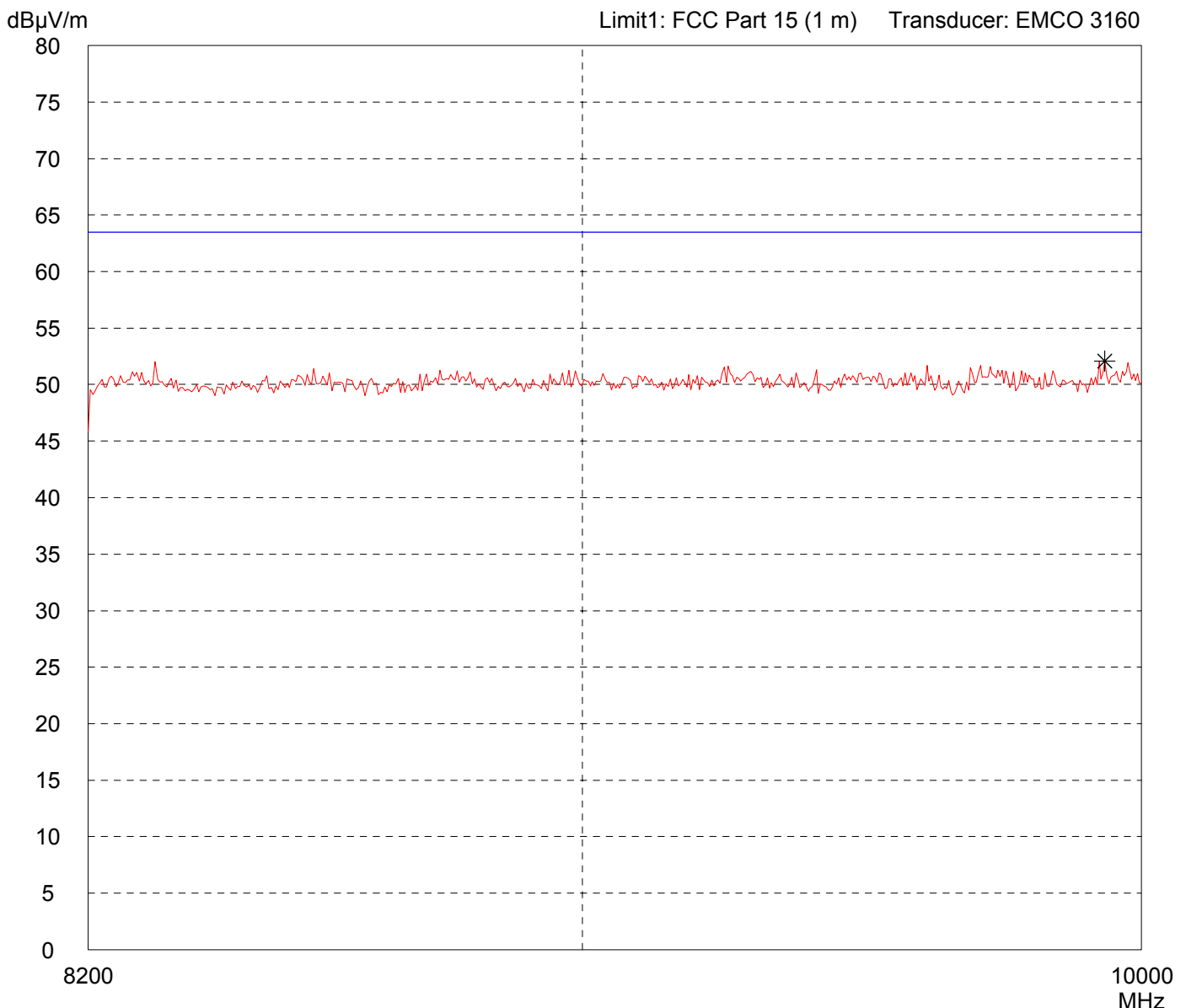
Radiated Emission Test 8.2 GHz - 10 GHz acc. to FCC Part 15 (EMCO 3160)

Model: i-Card CF Q/NA	
Serial no.: 06081C0047	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 04/19/2006	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Comment: - with DELL laptop - carrier power: -4 dBm (nominal) - antenna in vertical position - transmitting continuously with modulation
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Detector: Peak

List of values: Selected by hand



Result: Limit kept

Project file: 55456-60260-2

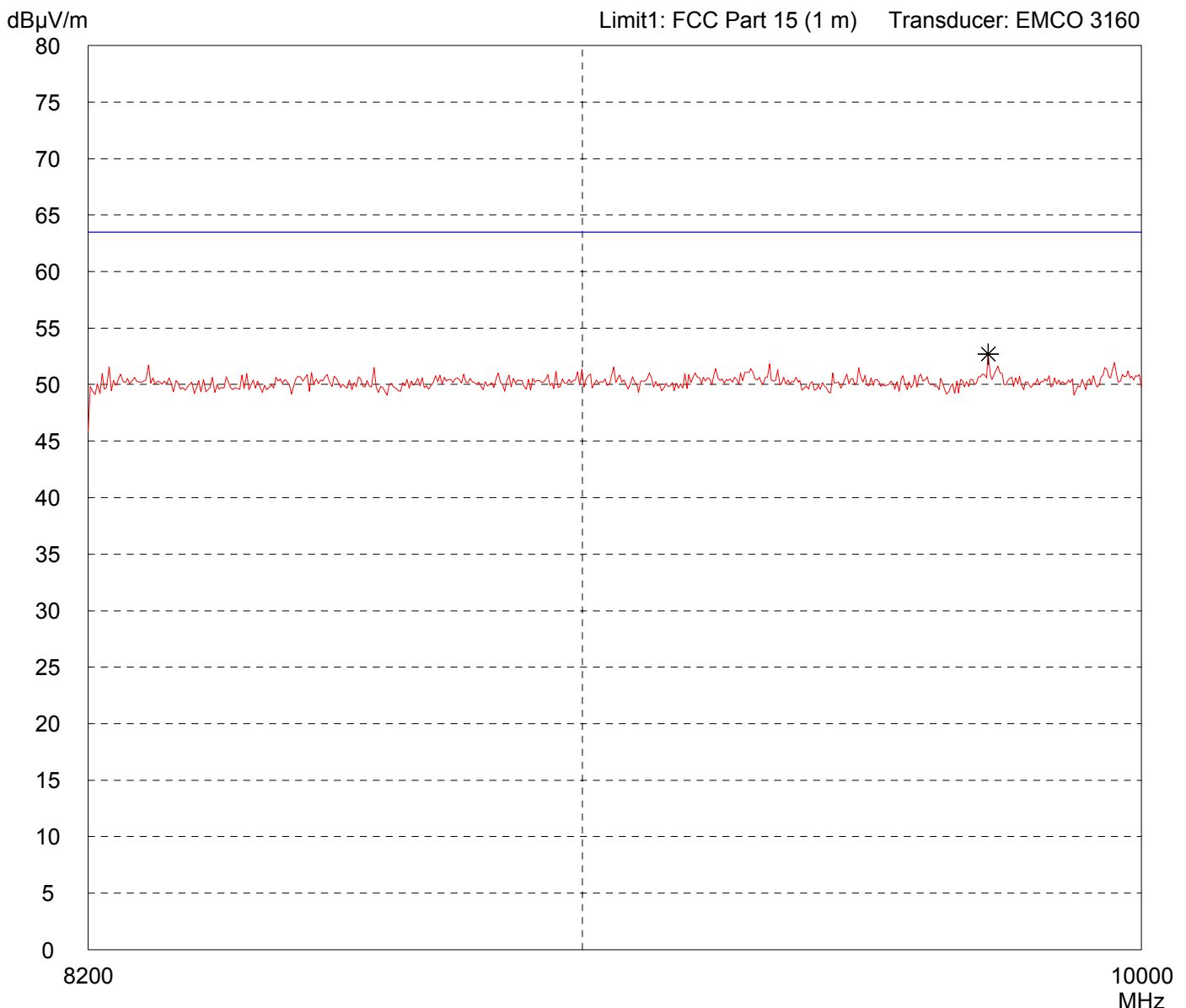
Radiated Emission Test 8.2 GHz - 10 GHz acc. to FCC Part 15 (EMCO 3160)

Model: i-Card CF Q/NA	
Serial no.: 06081C0047	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 04/19/2006	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Comment: - with DELL laptop - carrier power: -4 dBm (nominal) - antenna in vertical position - transmitting continuously with modulation
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Detector: Peak

List of values: Selected by hand



Result: Limit kept

Project file: 55456-60260-2

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

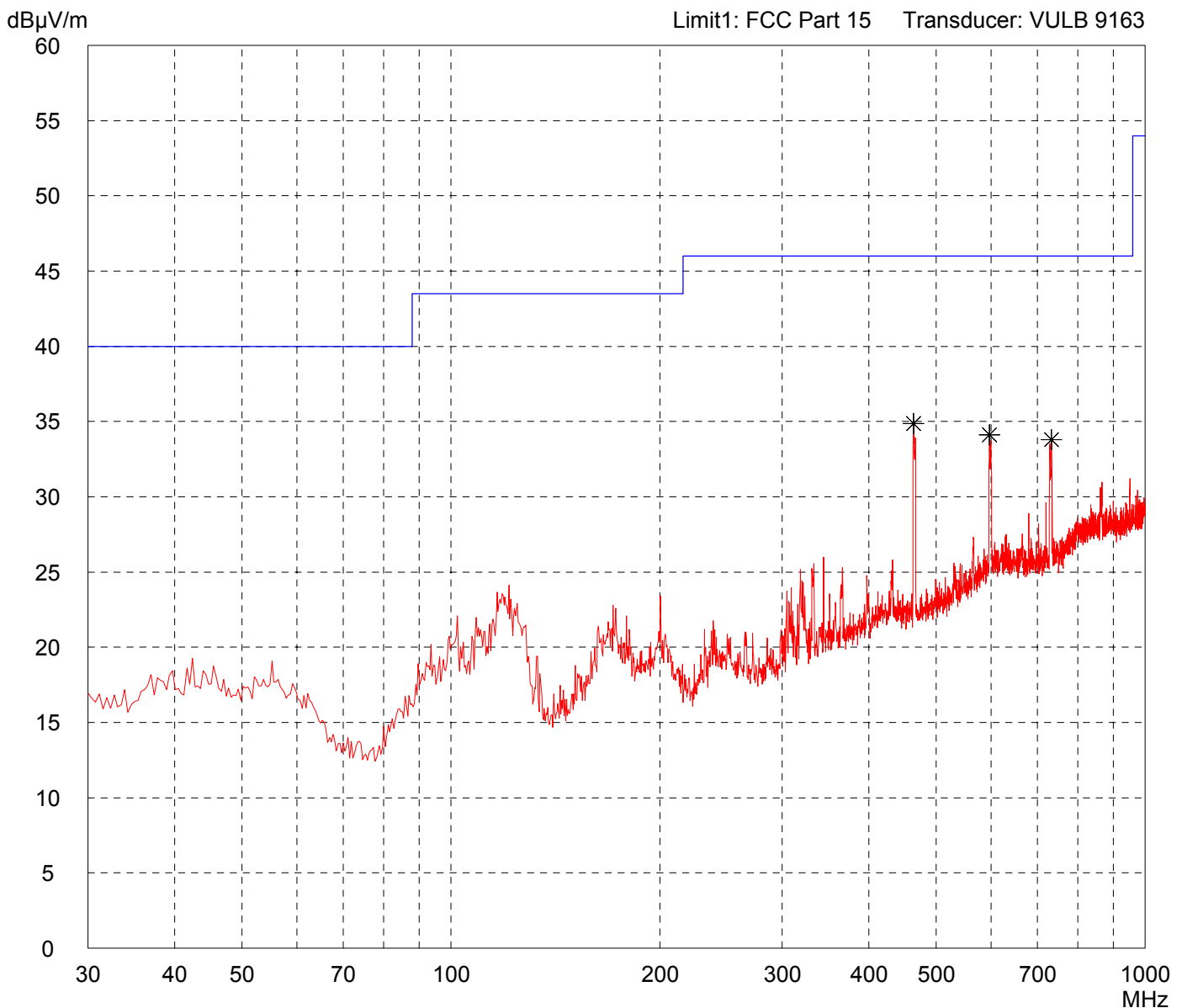
Model: i-Card CF Q/NA	
Serial no.: 06081C0047	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 04/19/2006	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Comment:
- with DELL laptop

- RX / standby
- antenna in vertical position

Detector: Peak

List of values:
Selected by hand



Result: Prescan

Project file:
55456-60260-2

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

Model:
i-Card CF Q/NA

Serial no.:
06081C0047

Applicant:
Identec Solutions AG

Test site:
Fully anechoic room, cabin no. 2

Tested on:
Test distance 3 metres
Vertical Polarization

Date of test:
04/19/2006

Operator:
M. Steindl

Test performed:
automatically

File name:
default.emi

Comment:

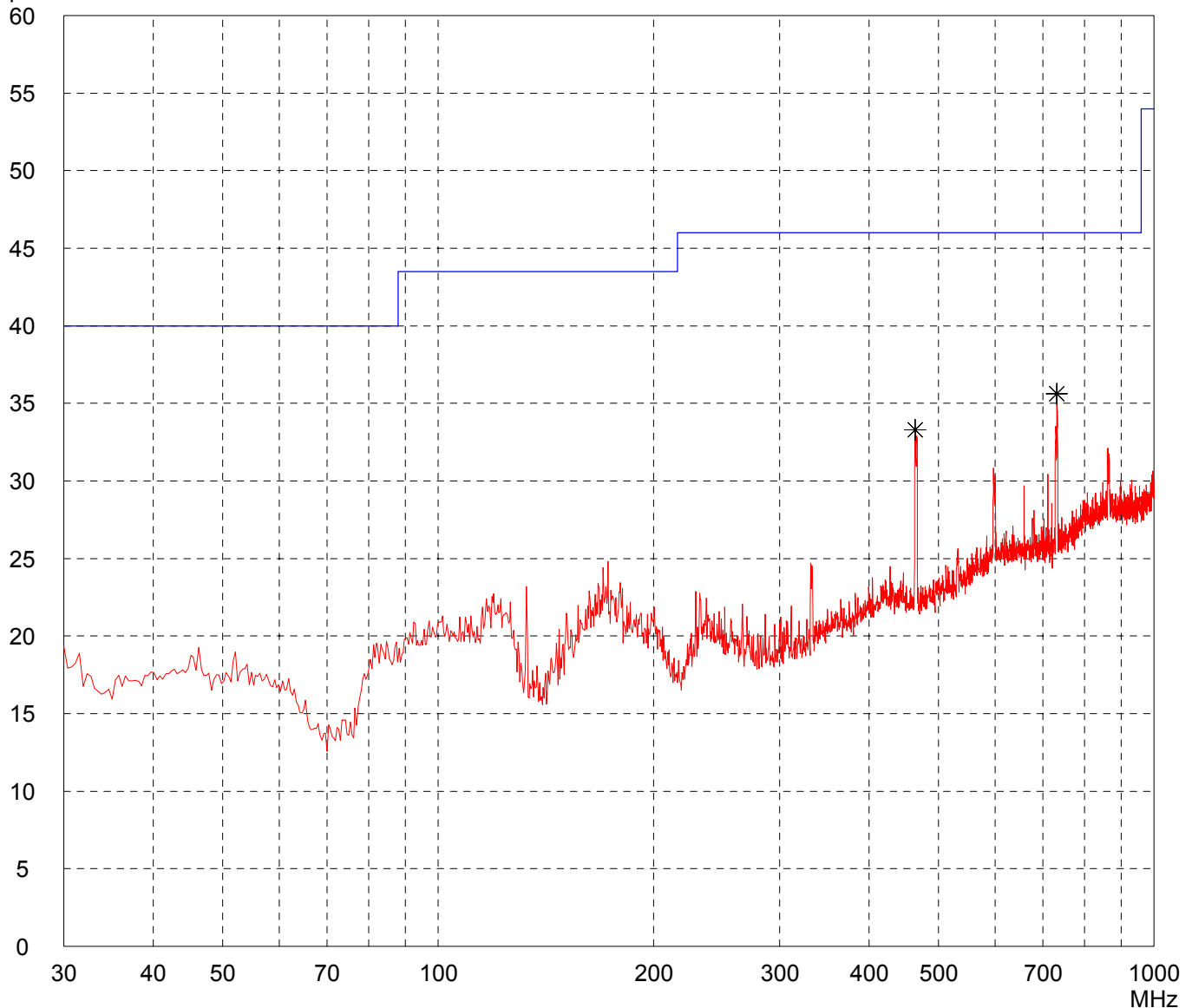
- with DELL laptop
- RX / standby
- antenna in vertical position

Detector:
Peak

List of values:
Selected by hand

dB μ V/m

Limit1: FCC Part 15 Transducer: VULB 9163



Result:
Prescan

Project file:
55456-60260-2

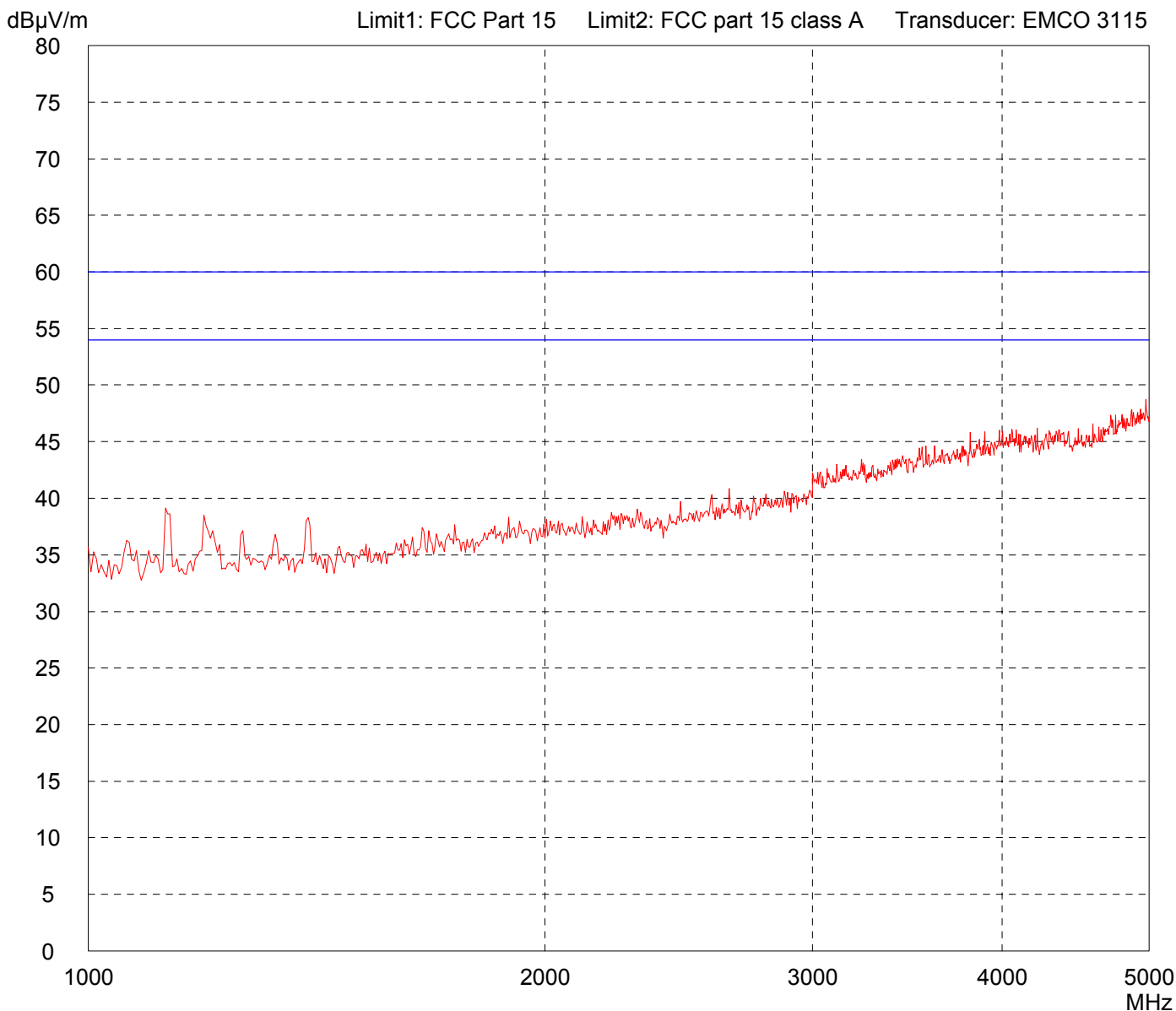
Radiated Emission Test 1 GHz - 5 GHz acc. to FCC Part 15 (EMCO 3115)

Model: i-Card CF Q/NA	
Serial no.: 06081C0047	
Applicant: Identec Solutions AG	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 04/19/2006	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Comment: - with DELL laptop - RX / standby - antenna in vertical position
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Detector: Peak

List of values: Selected by hand



Result: Prescan

Project file: 55456-60260-2
