

Spectrum Technology

IX270-MC5720

July 10, 2006

Report No. SPTE0020.1

Report Prepared By



www.nwemc.com
1-888-EMI-CERT

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EMC Test Report



22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test
Issue Date: July 10, 2006
Spectrum Technology
Model: IX270-MC5720

Emissions				
Test Description	Specification	Test Method	Pass	Fail
AC Powerline Conducted Emissions of the Receiver	FCC 15.107:2006	ANSI C63.4:2003	☒	☐
Effective Radiated Power	FCC 22H:2006	ANSI/TIA/EIA-603-B:2002	☒	☐
Effective Radiated Power	FCC 24E:2006	ANSI/TIA/EIA-603-B:2002	☒	☐
Spurious Radiated Emissions of the Receiver	FCC 15.109:2006	ANSI C63.4:2003	☒	☐
Out of Band Emissions	FCC 22H:2006	ANSI/TIA/EIA-603-B:2002	☒	☐
Out of Band Emissions	FCC 24E:2006	ANSI/TIA/EIA-603-B:2002	☒	☐

Modifications made to the product

See the Modifications section of this report

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400; Hillsboro, OR 97124
Phone: (503) 844-4066
Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada.

Approved By:

Greg Kiemel, Director of Engineering

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

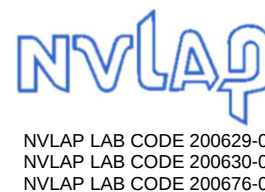
Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested, the specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Revision Number	Description	Date	Page Number
00	None		

FCC: Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.



NVLAP: Northwest EMC, Inc. is accredited under the United States Department of Commerce, National Institute of Standards and Technology, and National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 89/336/EEC, ANSI C63.4, MIL-STD 461E, DO-160D and SAE J1113. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.



Industry Canada: Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS 212, Issue 1 (Provisional) and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements.



CAB: Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.



TÜV Product Service: Included in TÜV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TÜV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TÜV's current Listing of CARAT Laboratories, available from TÜV. A certificate was issued to represent that this laboratory continues to meet TÜV's CARAT Program requirements. Certificate No. USA0401C.



TÜV Rheinland: Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.



NEMKO: Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).



Australia/New Zealand: The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).



VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. (Registration Numbers. - Hillsboro: C-1071, R-1025, and R-2318, Irvine: C-2094 and R-1943, Sultan: R-871, C-1784 and R-1761).



BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement. License No.SL2-IN-E-1017.



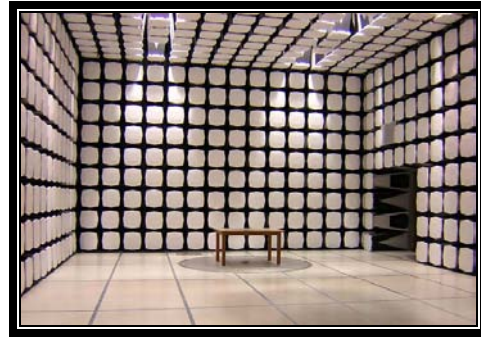
GOST: Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification



SCOPE

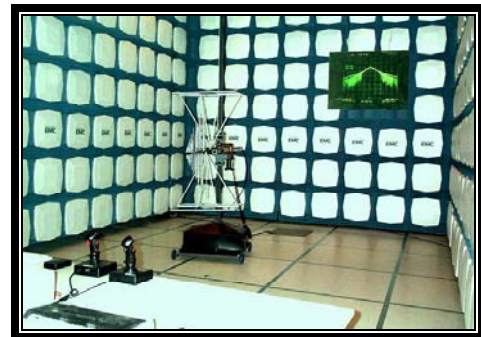
For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/scope.asp>



**California – Orange County Facility
Labs OC01 – OC13**

41 Tesla Ave. Irvine, CA 92618
(888) 364-2378 Fax: (503) 844-3826



**Oregon – Evergreen Facility
Labs EV01 – EV11**

22975 NW Evergreen Pkwy. Suite 400 Hillsboro, OR 97124
(503) 844-4066 Fax: (503) 844-3826



**Washington – Sultan Facility
Labs SU01 – SU07**

14128 339th Ave. SE Sultan, WA 98294
(888) 364-2378

Party Requesting the Test

Company Name:	Spectrum Technology
Address:	209 Dayton Street Suite #205
City, State, Zip:	Edmonds, WA 98020
Test Requested By:	Rod Munro
Model:	IX270-MC5720
First Date of Test:	June 26, 2006
Last Date of Test:	June 29, 2006
Receipt Date of Samples:	June 26, 2006
Equipment Design Stage:	Prototype
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test**Functional Description of the EUT (Equipment Under Test):**

GSM/GPRS Radio installed in an Itronix notebook computer.

Testing Objective:

These radiated and AC powerline conducted emissions tests are required to demonstrate compliance of the GSM/GPRS radio module to FCC Parts 22 and 24, as well as the receiver requirement of FCC 15B while installed in the Itronix Model Titan XR1 notebook computer. The GSM/GPRS radio was previously certified. The antenna port conducted emissions are still representative of those contained in the original filing.

CONFIGURATION 1 SPTE0020**Software/Firmware Running during test**

Description	Version
Procomm Plus Terminal	4.8 Build 71

EUT

Description	Manufacturer	Model/Part Number	Serial Number
EUT	Itronix, Corp.	IX270-MC5720	Unknown

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
Host IX270 Notebook PC	Itronix, Corp.	IX-270	None
AC Adapter	Delta Electronics	ADP-90SB BB	VCW0552024972
Vehicle Mount	Itronix, Corp.	IX270 Vehicle Mount	None
CF Card Reader	Itronix, Corp.	SDDR-91	None
USB Mouse	Logitech	M-BE58	LZE02357693
Keyboard	Microsoft	E06401COMB	51061
Headphones	Unknown	None	None
Antenna Terminator	Unknown	None	None
USB Gamepad	Microsoft	X04-63237	00623744

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	1.8m	No	AC Adapter	AC Mains
DC Lead	PA	1.8m	PA	AC Adapter	Host Notebook PC
USB	Yes	1.0m	No	Vehicle Mount	CF Card Reader
USB	Yes	1.0m	No	Vehicle Mount	Unterminated
USB	Yes	1.6m	No	Vehicle Mount	USB Gamepad
Keyboard	PA	1.8m	PA	Vehicle Mount	Keyboard
Mouse	PA	1.8m	PA	Vehicle Mount	Mouse
Audio	Yes	1.0m	No	Vehicle Mount	Unterminated
Serial	Yes	1.0m	No	Vehicle Mount	Unterminated
Serial	Yes	1.0m	No	Vehicle Mount	Unterminated
VGA	Yes	1.0m	No	Vehicle Mount	Unterminated
Microphone	Yes	1.0m	No	Vehicle Mount	Unterminated
Speaker	Yes	1.0m	No	Vehicle Mount	Headphones

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

CONFIGURATION 2 SPTE0020**Software/Firmware Running during test**

Description	Version
Procomm Plus Terminal	4.8 Build 71

EUT

Description	Manufacturer	Model/Part Number	Serial Number
EUT	Itronix, Corp.	IX270-MC5720	Unknown

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
Internal Antenna	unknown	Unknown	Unknown
Host IX270 Notebook PC	Itronix, Corp.	IX-270	None
AC Adapter	Delta Electronics	ADP-90SB BB	VCW0552024972
CF Card Reader	Itronix, Corp.	SDDR-91	None
USB Mouse	Logitech	M-BE58	LZE02357693
Headphones	Unknown	None	None
Antenna Terminator	Unknown	None	None
USB Gamepad	Microsoft	X04-63237	00623744

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	1.8m	No	AC Adapter	AC Mains
DC Lead	PA	1.8m	PA	AC Adapter	Host Notebook PC
USB	Yes	1.0m	No	Host IX270 Notebook PC	Unterminated
USB	Yes	1.0m	No	Host IX270 Notebook PC	CF Card Reader
USB	Yes	1.0m	No	Host IX270 Notebook PC	Unterminated
Serial	Yes	1.0m	No	Host IX270 Notebook PC	Unterminated
Ethernet	Yes	1.0m	No	Host IX270 Notebook PC	Unterminated
Modem	Yes	1.0m	No	Host IX270 Notebook PC	Unterminated
Microphone	Yes	1.0m	No	Host IX270 Notebook PC	Unterminated
Speaker	Yes	1.0m	No	Host IX270 Notebook PC	Headphones
VGA	Yes	1.0m	No	Host IX270 Notebook PC	Unterminated

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

CONFIGURATION 3 SPTE0020**Software/Firmware Running during test**

Description	Version
Procomm Plus Terminal	4.8 Build 71

EUT

Description	Manufacturer	Model/Part Number	Serial Number
EUT	Itronix, Corp.	IX270-MC5720	Unknown

Peripherals in test setup boundary

Description	Manufacturer	Model/Part Number	Serial Number
Host IX270 Notebook PC	Itronix, Corp.	IX-270	None
AC Adapter	Delta Electronics	ADP-90SB BB	VCW0552024972
Vehicle Mount	Itronix, Corp.	IX270 Vehicle Mount	None
CF Card Reader	Itronix, Corp.	SDDR-91	None
USB Mouse	Logitech	M-BE58	LZE02357693
Keyboard	Microsoft	E06401COMB	51061
Headphones	Unknown	None	None
Antenna Terminator	Unknown	None	None
USB Gamepad	Microsoft	X04-63237	00623744

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	1.8m	No	AC Adapter	AC Mains
DC Lead	PA	1.8m	PA	AC Adapter	Host Notebook PC
USB	Yes	1.0m	No	Vehicle Mount	CF Card Reader
USB	Yes	1.0m	No	Vehicle Mount	Unterminated
USB	Yes	1.6m	No	Vehicle Mount	USB Gamepad
Keyboard	PA	1.8m	PA	Vehicle Mount	Keyboard
Mouse	PA	1.8m	PA	Vehicle Mount	Mouse
External antenna	Yes	1.0m	No	Vehicle Mount	Antenna Terminator
Audio	Yes	1.0m	No	Vehicle Mount	Unterminated
Serial	Yes	1.0m	No	Vehicle Mount	Unterminated
Serial	Yes	1.0m	No	Vehicle Mount	Unterminated
VGA	Yes	1.0m	No	Vehicle Mount	Unterminated
Microphone	Yes	1.0m	No	Vehicle Mount	Unterminated
Speaker	Yes	1.0m	No	Vehicle Mount	Headphones

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	6/26/2006	ERP/EIRP of Fundamental (Substitution Method)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	6/27/2006	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	6/28/2006	Spurious Emissions of the Receiver	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	6/29/2006	Out of Band Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Receive cellular band low channel

Receive cellular band high channel

Receive cellular band mid channel

POWER SETTINGS INVESTIGATED

120VAC/60Hz

FREQUENCY RANGE INVESTIGATED

Start Frequency

30 MHz

Stop Frequency

5 GHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
EV01 cables g,h,j			EVB	3/30/2006	13
EV01 cables c,g, h			EVA	3/30/2006	13
Spectrum Analyzer	Agilent	E4446A	AAT	4/4/2006	12
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	8/2/2005	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	1/4/2006	13
Antenna, Horn	EMCO	3115	AHC	8/30/2005	12
Antenna, Biconilog	EMCO	3141	AXE	12/28/2005	24

MEASUREMENT BANDWIDTHS

	Frequency Range	Peak Data	Quasi-Peak Data	Average Data
	(MHz)	(kHz)	(kHz)	(kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

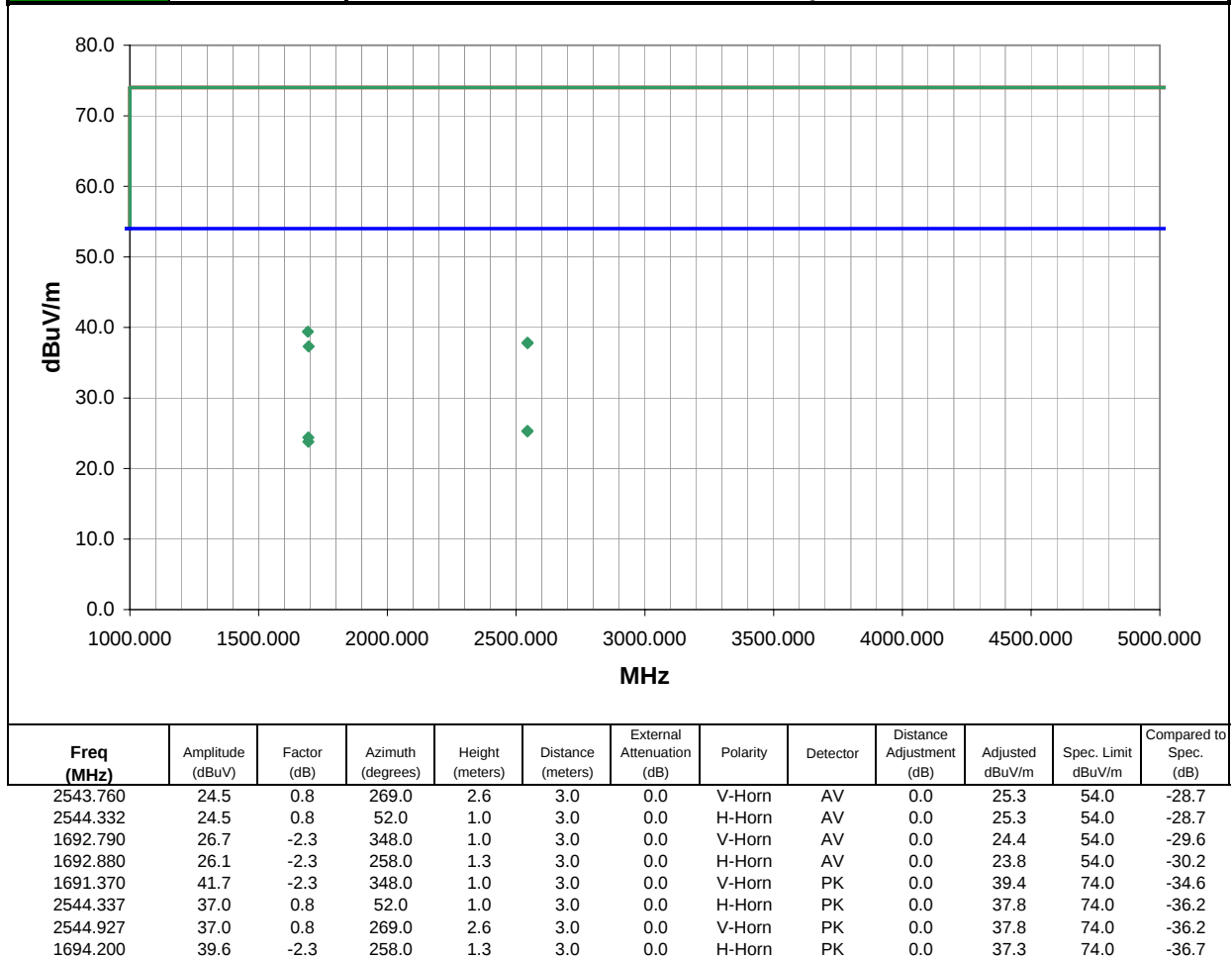
TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high channel receive frequencies. For this configuration, the spectrum was scanned throughout the specified range. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

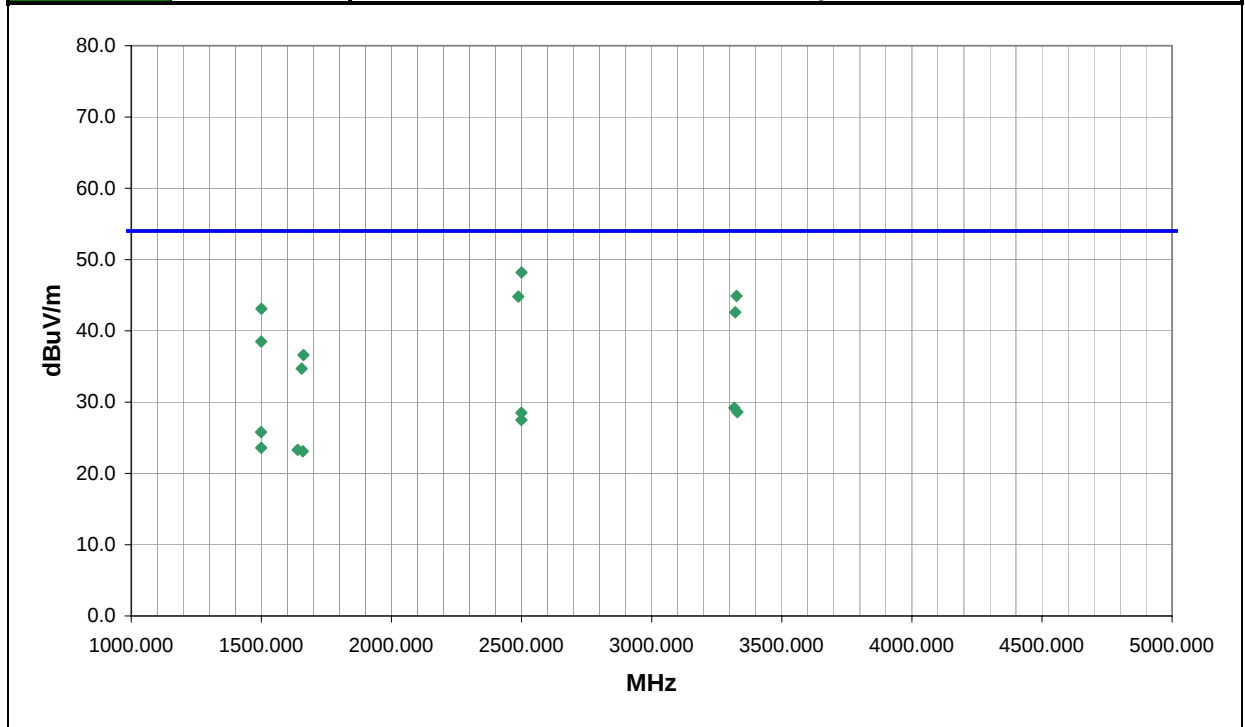
NORTHWEST		Spurious Radiated Emissions of the Receiver				PSA 2006.05.30 EMI 2006.6.15	
EMC							
EUT: IX270-MC5720				Work Order: SPTE0020			
Serial Number: Unknown				Date: 06/28/06			
Customer: Spectrum Technology				Temperature: 24			
Attendees: None				Humidity: 40%			
Project: None				Barometric Pres.: 30.28			
Tested by: Holly Ashkannejhad		Power: 120VAC/60Hz		Job Site: EV01			
TEST SPECIFICATIONS				Test Method			
FCC 15.109(a):2006				ANSI C63.4:2003			
TEST PARAMETERS							
Antenna Height(s) (m)		1 - 4		Test Distance (m)		3	
COMMENTS							
Internal antenna, standalone notebook							
EUT OPERATING MODES							
Receive cellular band mid channel							
DEVIATIONS FROM TEST STANDARD							
No deviations.							
Run #		8		Signature <i>Holly Ashkannejhad</i>			
Configuration #		2					
Results		Pass					
				NVLAP Lab Code 200630-0			

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
1675.410	28.1	-2.5	183.0	1.0	3.0	0.0	H-Horn	AV	0.0	25.6	54.0	-28.4
2511.417	24.4	0.6	18.0	1.3	3.0	0.0	V-Horn	AV	0.0	25.0	54.0	-29.0
2510.280	24.2	0.6	349.0	1.0	3.0	0.0	H-Horn	AV	0.0	24.8	54.0	-29.2
1660.170	25.8	-2.5	344.0	1.0	3.0	0.0	V-Horn	AV	0.0	23.3	54.0	-30.7
2509.090	37.4	0.6	18.0	1.3	3.0	0.0	V-Horn	PK	0.0	38.0	74.0	-36.0
2510.267	37.0	0.6	349.0	1.0	3.0	0.0	H-Horn	PK	0.0	37.6	74.0	-36.4
1665.810	39.5	-2.5	344.0	1.0	3.0	0.0	V-Horn	PK	0.0	37.0	74.0	-37.0
1675.310	39.0	-2.5	183.0	1.0	3.0	0.0	H-Horn	PK	0.0	36.5	74.0	-37.5

NORTHWEST EMC		Spurious Radiated Emissions of the Receiver		PSA 2006.05.30 EMI 2006.6.15	
EUT: IX270-MC5720			Work Order: SPTE0020		
Serial Number: Unknown			Date: 06/28/06		
Customer: Spectrum Technology			Temperature: 24		
Attendees: None			Humidity: 40%		
Project: None			Barometric Pres.: 30.28		
Tested by: Holly Ashkannejhad		Power: 120VAC/60Hz		Job Site: EV01	
TEST SPECIFICATIONS			Test Method		
FCC 15.109(a):2006			ANSI C63.4:2003		
TEST PARAMETERS					
Antenna Height(s) (m)		1 - 4		Test Distance (m)	
				3	
COMMENTS					
Internal antenna, standalone notebook					
EUT OPERATING MODES					
Receive cellular band high channel					
DEVIATIONS FROM TEST STANDARD					
No deviations.					
Run #		9		Signature <i>Holly Ashkannejhad</i>	
Configuration #		2			
Results		Pass			
NVLAP Lab Code 200630-0					



NORTHWEST EMC		Spurious Radiated Emissions of the Receiver		PSA 2006.05.30 EMI 2006.6.15
EUT: IX270-MC5720		Work Order: SPTE0020		
Serial Number: Unknown		Date: 06/28/06		
Customer: Spectrum Technology		Temperature: 24		
Attendees: None		Humidity: 40%		
Project: None		Barometric Pres.: 30.28		
Tested by: Holly Ashkannejhad		Power: 120VAC/60Hz	Job Site: EV01	
TEST SPECIFICATIONS		Test Method		
FCC 15.109(a):2006		ANSI C63.4:2003		
TEST PARAMETERS				
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3	
COMMENTS				
Internal antenna, standalone notebook				
EUT OPERATING MODES				
Receive cellular band low channel				
DEVIATIONS FROM TEST STANDARD				
No deviations.				
Run #	10	NVLAP Lab Code 200630-0 Signature <i>Holly Ashkannejhad</i>		
Configuration #	2			
Results	Pass			



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
2499.840	47.7	0.5	298.0	1.0	3.0	0.0	V-Horn	PK	0.0	48.2	54.0	-5.8
3326.240	41.5	3.4	10.0	1.0	3.0	0.0	V-Horn	PK	0.0	44.9	54.0	-9.1
2487.550	44.3	0.5	90.0	1.0	3.0	0.0	H-Horn	PK	0.0	44.8	54.0	-9.2
1499.900	46.5	-3.4	257.0	1.0	3.0	0.0	V-Horn	PK	0.0	43.1	54.0	-10.9
3321.000	39.2	3.4	284.0	1.0	3.0	0.0	H-Horn	PK	0.0	42.6	54.0	-11.4
1499.450	41.9	-3.4	-1.0	1.3	3.0	0.0	H-Horn	PK	0.0	38.5	54.0	-15.5
1661.610	39.2	-2.6	354.0	1.0	3.0	0.0	V-Horn	PK	0.0	36.6	54.0	-17.4
1654.720	37.3	-2.6	93.0	1.0	3.0	0.0	H-Horn	PK	0.0	34.7	54.0	-19.3
3317.560	25.8	3.4	10.0	1.0	3.0	0.0	V-Horn	AV	0.0	29.2	54.0	-24.8
3329.590	25.2	3.4	284.0	1.0	3.0	0.0	H-Horn	AV	0.0	28.6	54.0	-25.4
2498.970	28.0	0.5	298.0	1.0	3.0	0.0	V-Horn	AV	0.0	28.5	54.0	-25.5
2499.090	27.0	0.5	90.0	1.0	3.0	0.0	H-Horn	AV	0.0	27.5	54.0	-26.5
1498.930	29.2	-3.4	257.0	1.0	3.0	0.0	V-Horn	AV	0.0	25.8	54.0	-28.2
1499.230	27.0	-3.4	-1.0	1.3	3.0	0.0	H-Horn	AV	0.0	23.6	54.0	-30.4
1639.400	25.9	-2.6	93.0	1.0	3.0	0.0	H-Horn	AV	0.0	23.3	54.0	-30.7
1659.430	25.6	-2.5	354.0	1.0	3.0	0.0	V-Horn	AV	0.0	23.1	54.0	-30.9

NORTHWEST EMC		Spurious Radiated Emissions of the Receiver				PSA 2006.05.30 EMI 2006.6.15						
EUT: IX270-MC5720					Work Order: SPTE0020							
Serial Number: Unknown					Date: 06/28/06							
Customer: Spectrum Technology					Temperature: 24							
Attendees: None					Humidity: 40%							
Project: None					Barometric Pres.: 30.28							
Tested by: Holly Ashkannejhad				Power: 120VAC/60Hz	Job Site: EV01							
TEST SPECIFICATIONS					Test Method							
FCC 15.109(a):2006					ANSI C63.4:2003							
TEST PARAMETERS												
Antenna Height(s) (m)				1 - 4	Test Distance (m)		3					
COMMENTS												
Internal antenna, standalone notebook												
EUT OPERATING MODES												
Receive cellular band low channel												
DEVIATIONS FROM TEST STANDARD												
No deviations.												
Run #	11			<i>Holly Ashkannejhad</i> Signature								
Configuration #	2											
Results	Pass											
NVLAP Lab Code 200630-0												
The graph plots dBuV/m (Y-axis, 0.0 to 80.0) against MHz (X-axis, 10.000 to 1000.000). A blue line represents the test limit, which is 40.0 dBuV/m from 30 MHz to 100 MHz, 45.0 dBuV/m from 100 MHz to 200 MHz, and 55.0 dBuV/m from 200 MHz to 1000 MHz. Green diamonds represent individual test results, mostly falling below the limit line.												
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
49.931	38.7	-4.7	307.0	1.0	3.0	0.0	V-Bilog	QP	0.0	34.0	40.0	-6.0
104.036	42.8	-6.0	0.0	2.1	3.0	0.0	H-Bilog	QP	0.0	36.8	43.5	-6.7
176.257	41.1	-4.9	177.0	1.0	3.0	0.0	V-Bilog	QP	0.0	36.2	43.5	-7.3
104.840	41.9	-6.0	260.0	1.0	3.0	0.0	V-Bilog	QP	0.0	35.9	43.5	-7.6
177.348	38.7	-4.9	174.0	1.7	3.0	0.0	H-Bilog	QP	0.0	33.8	43.5	-9.7
875.225	24.0	10.4	328.0	1.0	3.0	0.0	H-Bilog	QP	0.0	34.4	46.0	-11.6
875.218	23.7	10.4	359.0	2.3	3.0	0.0	V-Bilog	QP	0.0	34.1	46.0	-11.9
50.616	30.1	-4.8	209.0	3.6	3.0	0.0	H-Bilog	QP	0.0	25.3	40.0	-14.7
456.016	24.7	4.2	185.0	1.0	3.0	0.0	V-Bilog	QP	0.0	28.9	46.0	-17.1
822.660	17.9	10.1	77.0	1.0	3.0	0.0	V-Bilog	QP	0.0	28.0	46.0	-18.0
822.240	17.8	10.0	203.0	1.0	3.0	0.0	H-Bilog	QP	0.0	27.8	46.0	-18.2
395.750	22.6	3.1	8.0	1.0	3.0	0.0	V-Bilog	QP	0.0	25.7	46.0	-20.3
450.464	20.9	3.9	96.0	1.0	3.0	0.0	H-Bilog	QP	0.0	24.8	46.0	-21.2
391.373	19.0	3.0	63.0	3.4	3.0	0.0	H-Bilog	QP	0.0	22.0	46.0	-24.0





Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Transmit PCS band low channel
Transmit PCS band mid channel
Transmit PCS band high channel
Transmit Cell band low channel
Transmit Cell band mid channel
Transmit Cell band high channel

CHANNELS INVESTIGATED

Low channel
Mid channel
High channel

POWER SETTINGS INVESTIGATED

120VAC/60Hz

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 26 GHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Dipole (part of ADA)	ETS	3121C-DB4	ADAA	1/6/2005	24
Antenna, Dipole (ADAA included)	Roberts	Roberts	ADA	1/6/2005	24
Signal Generator	Hewlett Packard	8341B	TGN	1/26/2006	13
Antenna, Horn	EMCO	3115	AHJ	5/20/2005	24
EV01 Cable D			EVD	3/30/2006	13
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	3/23/2006	13
Antenna, Horn	EMCO	3160-09	AHG	NCR	0
EV01 cables g,h,i			EVF	4/17/2006	13
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APC	5/12/2006	13
Antenna, Horn	EMCO	3160-08	AHK	NCR	0
EV01 cables g,h,j			EVB	3/30/2006	13
EV01 cables c,g, h			EVA	3/30/2006	13
Low Pass Filter 0-1000 MHz	Micro-Tronics	LPM50004	LFD	9/28/2005	13
High Pass Filter 1.2 - 18 GHz	Micro-Tronics	HPM50108	HFV	9/28/2005	13
High Pass Filter	Micro-Tronics	HPM50111	HFO	4/4/2006	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	8/2/2005	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	1/4/2006	13
Antenna, Horn	EMCO	3115	AHC	8/30/2005	12
Antenna, Biconilog	EMCO	3141	AXE	12/28/2005	24
Spectrum Analyzer	Agilent	E4446A	AAT	4/4/2006	12

MEASUREMENT BANDWIDTHS

Frequency Range	Peak Data	Quasi-Peak Data	Average Data
(MHz)	(kHz)	(kHz)	(kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was transmitting while set at the lowest channel, a middle channel, and the highest channel available of each band and each modulation type. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes.

The amplitude and frequency of the highest emissions were noted. The EUT was then replaced with a horn antenna. A signal generator was connected to the horn antenna and its output was adjusted to match the level previously noted for each frequency. The output of the signal generator was recorded, and by factoring in the cable loss to the dipole antenna and its gain (dBi); the effective radiated power for each radiated spurious emission was determined.

NORTHWEST		Out of Band Emissions		PSA 2006.05.30 EMI 2006.6.15						
EMC		EUT: IX270-MC5720		Work Order: SPTE0020						
Serial Number: Unknown		Customer: Spectrum Technology		Date: 06/26/06						
Attendees: None		Project: None		Temperature: 24						
Tested by: Holly Ashkannejhad		Power: 120VAC/60Hz		Humidity: 40%						
TEST SPECIFICATIONS		Test Method		Barometric Pres.: 30.28						
FCC 22H:2006		ANSI/TIA/EIA-603-B:2002		Job Site: EV01						
TEST PARAMETERS										
Antenna Height(s) (m)		Test Distance (m)								
1 - 4		3								
COMMENTS										
Internal antenna, standalone notebook										
EUT OPERATING MODES										
Transmit cellular band										
DEVIATIONS FROM TEST STANDARD										
No deviations.										
Run #	6	NVLAP Lab Code 200630-0 Signature <i>Holly Ashkannejhad</i>								
Configuration #	2									
Results	Pass									
Freq (MHz)		Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1649.596		190.0	1.1	V-Horn	PK	1.05E-07	-39.8	-13.0	-26.8	Low channel, EUT typical position
2509.928		176.0	1.2	H-Horn	PK	6.72E-08	-41.7	-13.0	-28.7	Mid channel, EUT on side
2545.608		168.0	1.2	H-Horn	PK	5.55E-08	-42.6	-13.0	-29.6	High channel, EUT on side
1697.042		327.0	1.1	V-Horn	PK	5.30E-08	-42.8	-13.0	-29.8	High channel, EUT typical position
1696.233		101.0	1.3	H-Horn	PK	4.46E-08	-43.5	-13.0	-30.5	High channel, EUT on side
2474.658		179.0	1.2	V-Horn	PK	3.76E-08	-44.3	-13.0	-31.3	Low channel, EUT typical position
1649.286		100.0	1.2	H-Horn	PK	3.66E-08	-44.4	-13.0	-31.4	Low channel, EUT on side
1672.633		360.0	1.9	V-Horn	PK	3.46E-08	-44.6	-13.0	-31.6	Mid channel, EUT typical position
3345.942		193.0	1.2	V-Horn	PK	3.39E-08	-44.7	-13.0	-31.7	Mid channel, EUT typical position
1672.699		30.0	1.2	H-Horn	PK	3.25E-08	-44.9	-13.0	-31.9	Mid channel, EUT on side
2509.319		153.0	1.2	V-Horn	PK	3.02E-08	-45.2	-13.0	-32.2	Mid channel, EUT typical position
1697.125		197.0	1.3	V-Horn	PK	2.42E-08	-46.2	-13.0	-33.2	High channel, EUT on side
2474.933		175.0	1.2	H-Horn	PK	2.30E-08	-46.4	-13.0	-33.4	Low channel, EUT on side
2544.650		155.0	1.2	V-Horn	PK	2.27E-08	-46.4	-13.0	-33.4	High channel, EUT typical position
1696.825		217.0	1.2	H-Horn	PK	2.04E-08	-46.9	-13.0	-33.9	High channel, EUT typical position
3298.768		182.0	1.8	V-Horn	PK	1.80E-08	-47.4	-13.0	-34.4	Low channel, EUT typical position
1697.075		133.0	1.4	V-Horn	PK	1.53E-08	-48.2	-13.0	-35.2	High channel, EUT screen horizontal
3392.083		276.0	1.2	H-Horn	PK	1.21E-08	-49.2	-13.0	-36.2	High channel, EUT on side
3345.242		300.0	1.2	H-Horn	PK	1.12E-08	-49.5	-13.0	-36.5	Mid channel, EUT on side
3392.567		203.0	1.2	V-Horn	PK	9.67E-09	-50.1	-13.0	-37.1	High channel, EUT typical position

NORTHWEST

EMC

Out of Band Emissions

PSA 2006.05.30
EMI 2006.6.15

EUT: IX270-MC5720		Work Order: SPT0020	
Serial Number: Unknown		Date: 06/26/06	
Customer: Spectrum Technology		Temperature: 24	
Attendees: None		Humidity: 40%	
Project: None		Barometric Pres.: 30.28	
Tested by: Holly Ashkannejhad		Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS

FCC 24E:2006

Test Method

ANSI/TIA/EIA-603-B:2002

TEST PARAMETERS

Antenna Height(s) (m)

1 - 4

Test Distance (m)

3

COMMENTS

Internal antenna, standalone notebook

EUT OPERATING MODES

Transmit PCS band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	7	NVLAP Lab Code 200630-0	Signature <i>Holly Ashkannejhad</i>
Configuration #	2		
Results	Pass		

0.0

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

-70.0

-80.0

dBm

3700.000

4200.000

4700.000

5200.000

5700.000

6200.000

6700.000

7200.000

7700.000

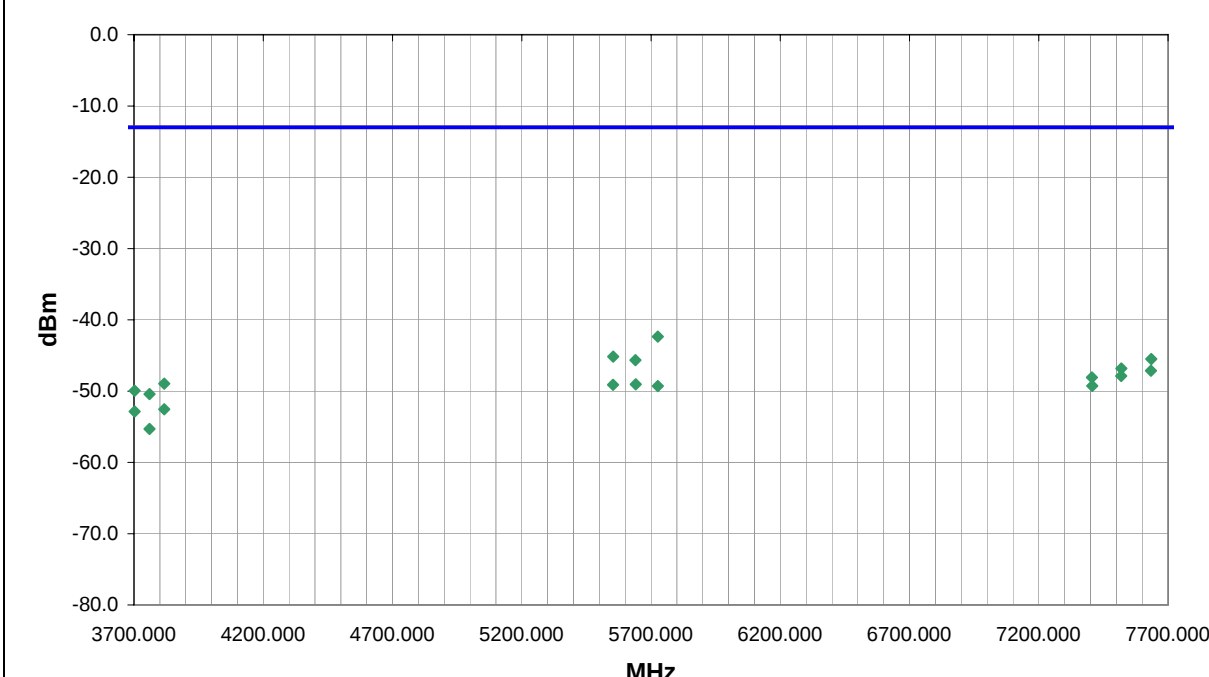
MHz

Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
3817.192			342.0	1.0			H-Horn	PK	1.72E-07	-37.6	-13.0	-24.6	High channel, EUT on side
3817.108			176.0	1.0			V-Horn	PK	9.42E-08	-40.3	-13.0	-27.3	High channel, EUT typical position
5725.275			328.0	1.0			V-Horn	PK	9.01E-08	-40.5	-13.0	-27.5	High channel, EUT typical position
3701.792			193.0	1.0			V-Horn	PK	7.85E-08	-41.1	-13.0	-28.1	Low channel, EUT typical position
5554.033			226.0	1.3			H-Horn	PK	7.75E-08	-41.1	-13.0	-28.1	Low channel, EUT on side
5553.567			319.0	1.0			V-Horn	PK	7.30E-08	-41.4	-13.0	-28.4	Low channel, EUT typical position
7634.717			225.0	1.0			H-Horn	PK	5.20E-08	-42.8	-13.0	-29.8	High channel, EUT on side
7634.075			343.0	1.0			V-Horn	PK	4.80E-08	-43.2	-13.0	-30.2	High channel, EUT typical position
3760.525			198.0	1.3			V-Horn	PK	4.46E-08	-43.5	-13.0	-30.5	Mid channel, EUT typical position
3702.292			354.0	1.0			H-Horn	PK	3.83E-08	-44.2	-13.0	-31.2	Low channel, EUT on side
7520.467			254.0	1.0			V-Horn	PK	3.65E-08	-44.4	-13.0	-31.4	Mid channel, EUT typical position
5639.550			313.0	1.0			V-Horn	PK	3.58E-08	-44.5	-13.0	-31.5	Mid channel, EUT typical position
5726.567			223.0	1.4			H-Horn	PK	3.03E-08	-45.2	-13.0	-32.2	High channel, EUT on side
3760.100			12.0	1.0			H-Horn	PK	2.94E-08	-45.3	-13.0	-32.3	Mid channel, EUT on side
7519.342			203.0	1.3			H-Horn	PK	2.50E-08	-46.0	-13.0	-33.0	Mid channel, EUT on side
5640.858			0.0	1.8			H-Horn	PK	1.46E-08	-48.3	-13.0	-35.3	Mid channel, EUT on side
7406.267			199.0	1.0			H-Horn	PK	1.45E-08	-48.4	-13.0	-35.4	Low channel, EUT on side
7405.583			175.0	1.4			V-Horn	PK	1.27E-08	-49.0	-13.0	-36.0	Low channel, EUT typical position

NORTHWEST										PSA 2006.05.30 EMI 2006.6.15					
EMC Out of Band Emissions															
EUT: IX270-MC5720								Work Order: SPTE0020							
Serial Number: Unknown								Date: 06/29/06							
Customer: Spectrum Technology								Temperature: 24							
Attendees: None								Humidity: 40%							
Project: None								Barometric Pres.: 30.28							
Tested by: Rod Peloquin				Power: 120VAC/60Hz				Job Site: EV01							
TEST SPECIFICATIONS								Test Method							
FCC 22H:2006								ANSI/TIA/EIA-603-B:2002							
TEST PARAMETERS															
Antenna Height(s) (m)				1 - 4				Test Distance (m)				3			
COMMENTS															
External antenna terminated, vehicle mount configuration															
EUT OPERATING MODES															
Transmit cellular band															
DEVIATIONS FROM TEST STANDARD															
No deviations.															
Run #		8													
Configuration #		3													
Results		Pass													
												NVLAP Lab Code 200630-0		Signature	

Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
2509.611			313.0	1.2			V-Horn	PK	3.72E-08	-44.3	-13.0	-31.3
2545.168			313.0	1.2			V-Horn	PK	3.43E-08	-44.6	-13.0	-31.6
1649.642			360.0	1.2			V-Horn	PK	3.33E-08	-44.8	-13.0	-31.8
2474.264			280.0	1.2			V-Horn	PK	2.32E-08	-46.3	-13.0	-33.3
1673.198			12.0	1.1			V-Horn	PK	2.18E-08	-46.6	-13.0	-33.6
1696.655			299.0	1.1			V-Horn	PK	1.72E-08	-47.7	-13.0	-34.7
2509.302			345.0	1.2			H-Horn	PK	5.99E-09	-52.2	-13.0	-39.2
2473.936			0.0	2.3			H-Horn	PK	3.81E-09	-54.2	-13.0	-41.2
3346.789			-1.0	1.2			V-Horn	PK	3.16E-09	-55.0	-13.0	-42.0
3393.168			5.0	1.2			V-Horn	PK	2.32E-09	-56.3	-13.0	-43.3
2544.696			332.0	1.2			H-Horn	PK	2.21E-09	-56.6	-13.0	-43.6
3298.696			-1.0	1.2			V-Horn	PK	2.16E-09	-56.6	-13.0	-43.6
1672.586			30.0	1.2			H-Horn	PK	2.10E-09	-56.8	-13.0	-43.8
1696.669			229.0	1.2			H-Horn	PK	1.82E-09	-57.4	-13.0	-44.4
3298.265			89.0	3.2			H-Horn	PK	1.45E-09	-58.4	-13.0	-45.4
3393.995			23.0	1.2			H-Horn	PK	1.24E-09	-59.1	-13.0	-46.1
3345.833			29.0	1.2			H-Horn	PK	1.17E-09	-59.3	-13.0	-46.3
1649.183			247.0	1.6			H-Horn	PK	9.63E-10	-60.2	-13.0	-47.2

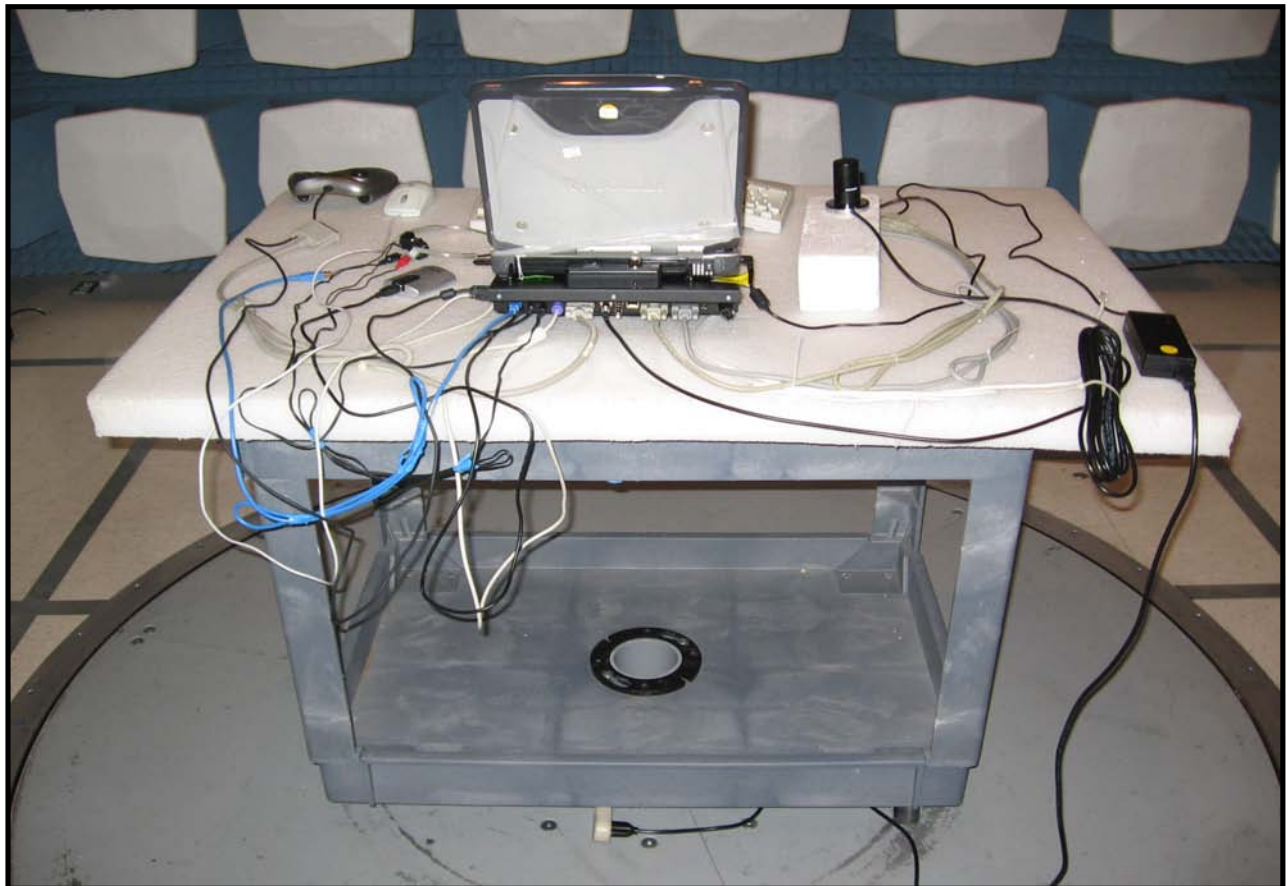
NORTHWEST		PSA 2006.05.30 EMI 2006.6.15	
EMC		Out of Band Emissions	
EUT: IX270-MC5720		Work Order: SPTE0020	
Serial Number: Unknown		Date: 06/29/06	
Customer: Spectrum Technology		Temperature: 24	
Attendees: None		Humidity: 40%	
Project: None		Barometric Pres.: 30.28	
Tested by: Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV01	
TEST SPECIFICATIONS		Test Method	
FCC 24E:2006		ANSI/TIA/EIA-603-B:2002	
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3
COMMENTS			
External antenna terminated, vehicle mount configuration			
EUT OPERATING MODES			
Transmit PCS band			
DEVIATIONS FROM TEST STANDARD			
No deviations.			
Run #	9	 Signature	
Configuration #	3		
Results	Pass		
		NVLAP Lab Code 200630-0	



Freq (MHz)			Azimuth (degrees)	Height (meters)		Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
5726.132			348.0	1.0		V-Horn	PK	5.82E-08	-42.4	-13.0	-29.4
5553.425			319.0	1.0		V-Horn	PK	3.04E-08	-45.2	-13.0	-32.2
7635.149			343.0	1.0		V-Horn	PK	2.83E-08	-45.5	-13.0	-32.5
5639.836			337.0	1.0		V-Horn	PK	2.72E-08	-45.7	-13.0	-32.7
7519.021			360.0	1.5		H-Horn	PK	2.08E-08	-46.8	-13.0	-33.8
7633.532			168.0	1.0		H-Horn	PK	1.93E-08	-47.1	-13.0	-34.1
7518.565			201.0	1.0		V-Horn	PK	1.63E-08	-47.9	-13.0	-34.9
7405.274			228.0	1.0		H-Horn	PK	1.55E-08	-48.1	-13.0	-35.1
3817.252			333.0	1.0		V-Horn	PK	1.27E-08	-49.0	-13.0	-36.0
5641.024			213.0	1.0		H-Horn	PK	1.25E-08	-49.0	-13.0	-36.0
5553.297			343.0	1.0		H-Horn	PK	1.23E-08	-49.1	-13.0	-36.1
7406.500			146.0	1.0		V-Horn	PK	1.18E-08	-49.3	-13.0	-36.3
5726.074			340.0	1.0		H-Horn	PK	1.18E-08	-49.3	-13.0	-36.3
3702.503			235.0	1.0		V-Horn	PK	1.01E-08	-50.0	-13.0	-37.0
3759.761			332.0	1.0		V-Horn	PK	9.11E-09	-50.4	-13.0	-37.4
3817.238			160.0	1.0		H-Horn	PK	5.56E-09	-52.5	-13.0	-39.5
3702.686			123.0	1.0		H-Horn	PK	5.16E-09	-52.9	-13.0	-39.9
3760.137			66.0	1.0		H-Horn	PK	2.94E-09	-55.3	-13.0	-42.3







Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Transmit PCS band low, mid, and high channels

Transmit cell band low, mid, and high channels

POWER SETTINGS INVESTIGATED

120VAC/60Hz

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4446A	AAT	4/4/2006	12
Antenna, Biconilog	EMCO	3141	AXE	12/28/2005	24
Antenna, Horn	EMCO	3115	AHC	8/30/2005	12
Signal Generator	Hewlett Packard	8341B	TGN	1/26/2006	13
Antenna, Horn	EMCO	3115	AHJ	5/20/2005	24
Antenna, Dipole (ADAA included)	Roberts	Roberts	ADA	1/6/2005	24
EV01 cables c,g, h			EVA	3/30/2006	13
EV01 cables g,h,j			EVB	3/30/2006	13

MEASUREMENT UNCERTAINTY

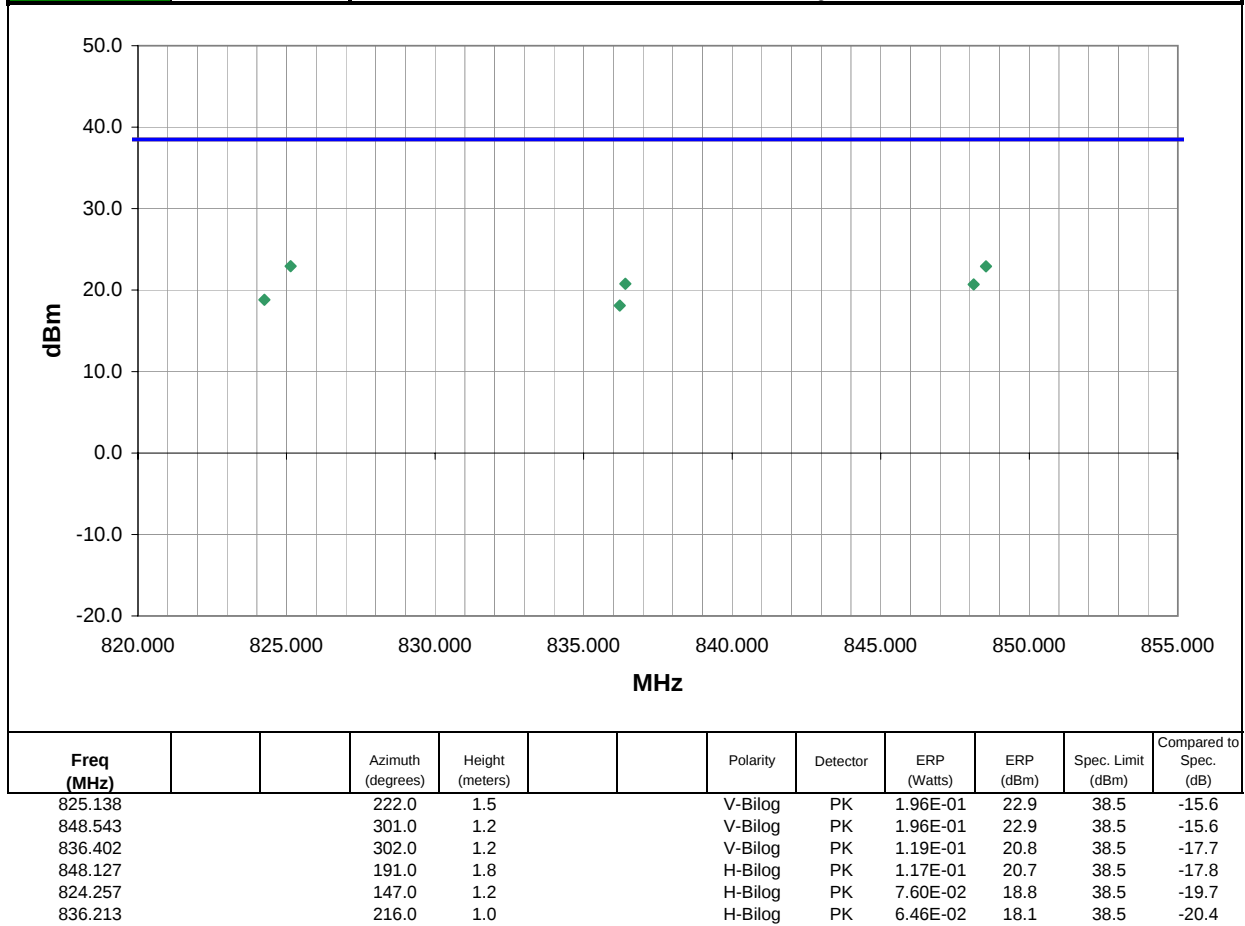
Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

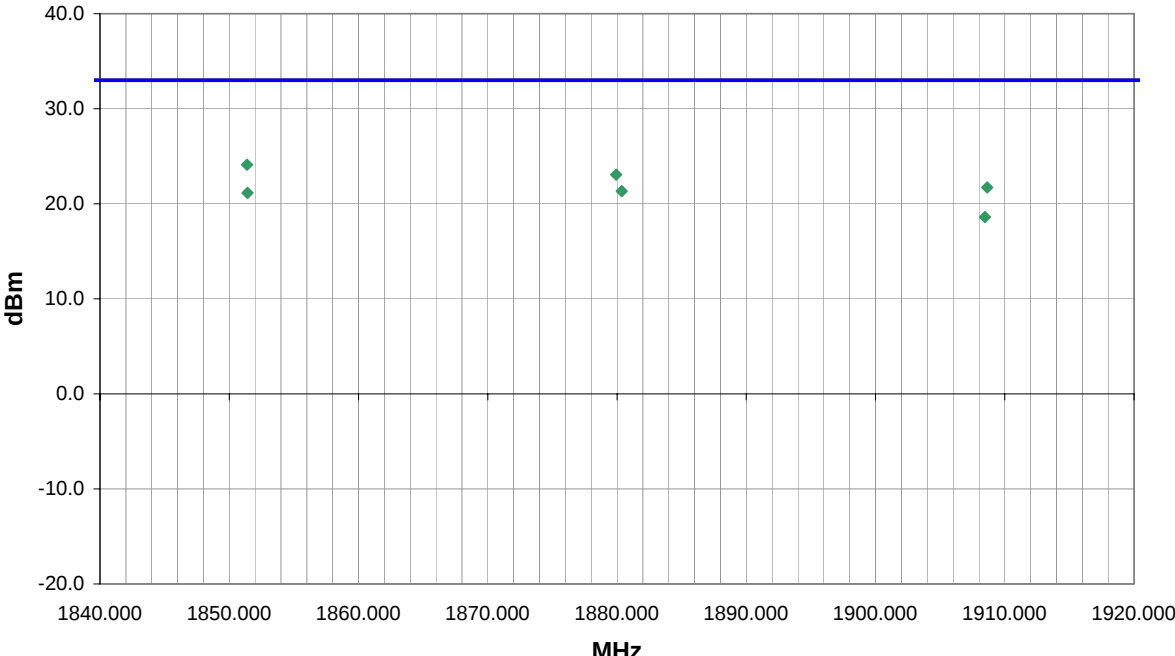
TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was transmitting and/or receiving while set at the lowest channel, a middle channel, and the highest channel available. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes

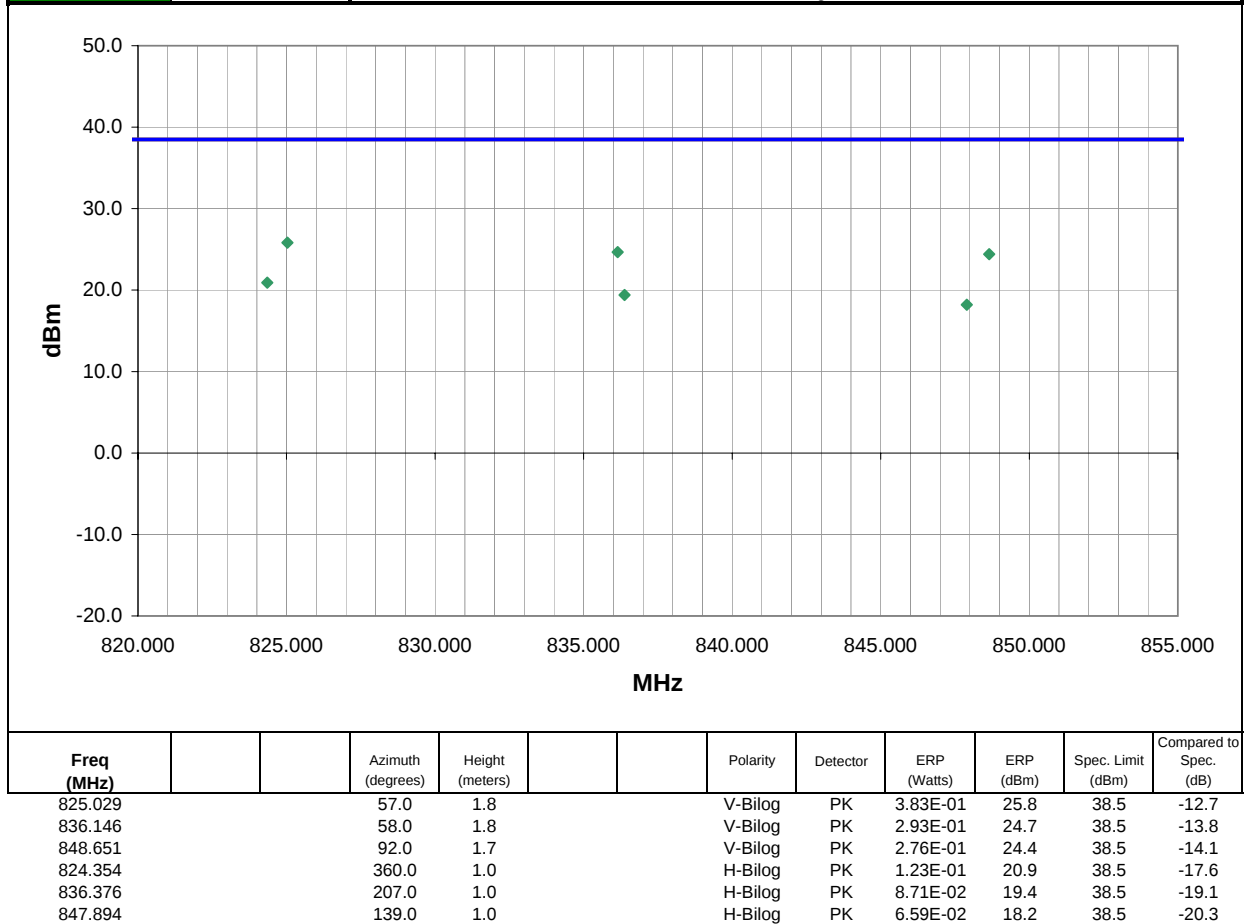
The amplitude and frequency of the highest emissions were noted. The EUT was then replaced with a horn antenna. A signal generator was connected to the horn antenna and its output was adjusted to match the level previously noted for each frequency. The output of the signal generator was recorded, and by factoring in the cable loss to the dipole antenna and its gain (dBi); the effective radiated power for each radiated spurious emission was determined.

NORTHWEST		Effective Radiated Power (ERP)		PSA 2006.05.30 EMI 2006.6.15	
EUT: IX270-MC5720		Work Order: SPTE0020			
Serial Number: Unknown		Date: 06/26/06			
Customer: Spectrum Technology		Temperature: 24			
Attendees: None		Humidity: 40%			
Project: None		Barometric Pres.: 30.28			
Tested by: Rod Peloquin		Power: 120VAC/60Hz		Job Site: EV01	
TEST SPECIFICATIONS			Test Method		
FCC 22H:2006			ANSI/TIA/EIA-603-B:2002		
TEST PARAMETERS					
Antenna Height(s) (m)		1 - 4		Test Distance (m)	
				0	
COMMENTS					
External antenna, vehicle mount					
EUT OPERATING MODES					
Transmit cell band					
DEVIATIONS FROM TEST STANDARD					
No deviations.					
Run #		1		 Signature	
Configuration #		1			
Results		Pass			
NVLAP Lab Code 200630-0					

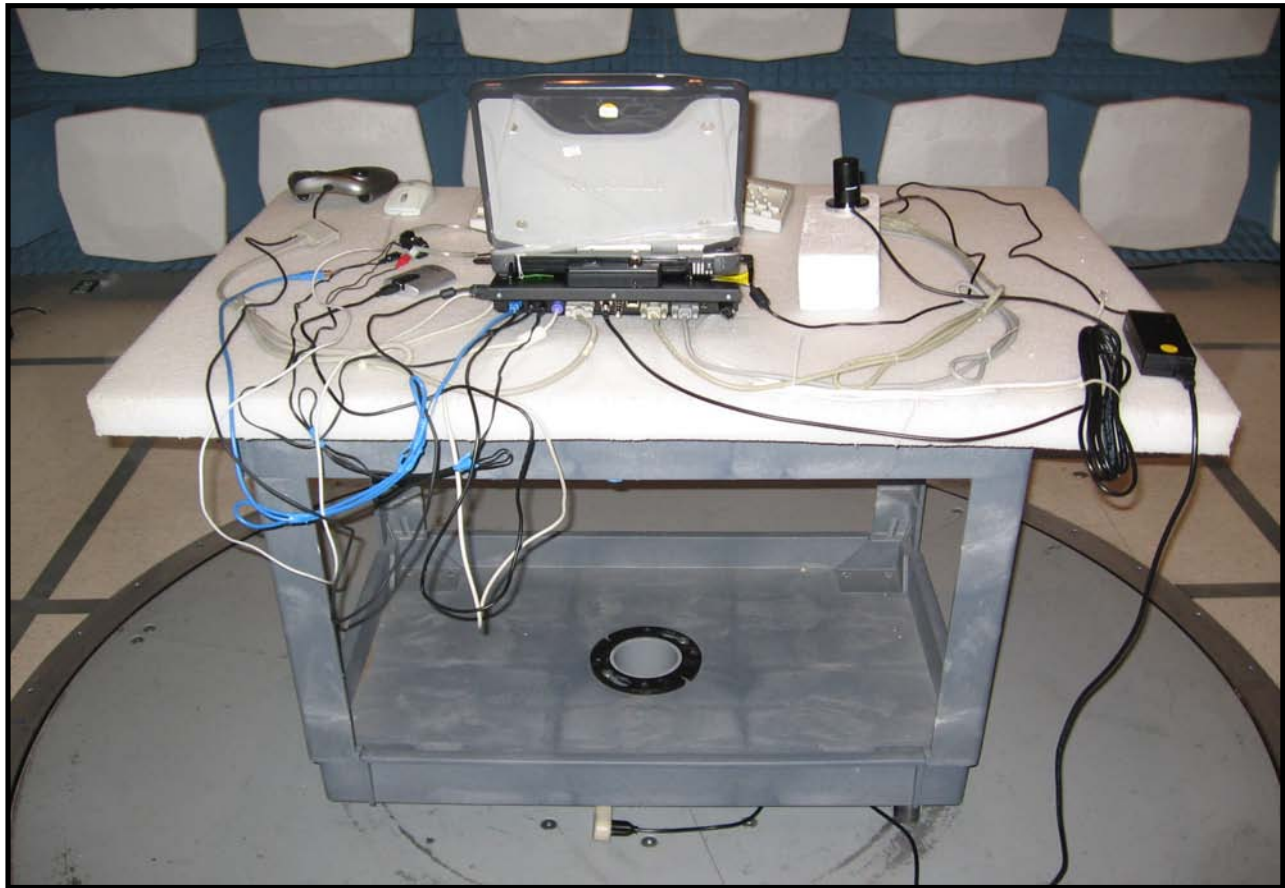


NORTHWEST		Effective Radiated Power (EIRP)		PSA 2006.05.30 EMI 2006.6.15							
EUT: IX270-MC5720		Work Order: SPTE0020									
Serial Number: Unknown		Date: 06/26/06									
Customer: Spectrum Technology		Temperature: 24									
Attendees: None		Humidity: 40%									
Project: None		Barometric Pres.: 30.28									
Tested by: Rod Peloquin		Power: 120VAC/60Hz		Job Site: EV01							
TEST SPECIFICATIONS		Test Method									
FCC 24E:2006		ANSI/TIA/EIA-603-B:2002									
TEST PARAMETERS											
Antenna Height(s) (m)		1 - 4		Test Distance (m) 0							
COMMENTS											
External antenna, vehicle mount											
EUT OPERATING MODES											
Transmit PCS band											
DEVIATIONS FROM TEST STANDARD											
No deviations.											
Run #	2	 Signature									
Configuration #	1										
Results	Pass										
NVLAP Lab Code 200630-0											
											
Freq (MHz)			Azimuth (degrees)	Height (meters)		Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
1851.381			191.0	1.4		V-Horn	PK	2.57E-01	24.1	33.0	-8.9
1879.936			191.0	1.0		V-Horn	PK	2.02E-01	23.1	33.0	-9.9
1908.637			199.0	1.3		V-Horn	PK	1.49E-01	21.7	33.0	-11.3
1880.369			272.0	1.3		H-Horn	PK	1.36E-01	21.3	33.0	-11.7
1851.416			290.0	1.7		H-Horn	PK	1.30E-01	21.2	33.0	-11.8
1908.461			284.0	3.0		H-Horn	PK	7.25E-02	18.6	33.0	-14.4

NORTHWEST		Effective Radiated Power (ERP)		PSA 2006.05.30 EMI 2006.6.15	
EUT: IX270-MC5720		Work Order: SPTE0020			
Serial Number: Unknown		Date: 06/26/06			
Customer: Spectrum Technology		Temperature: 24			
Attendees: None		Humidity: 40%			
Project: None		Barometric Pres.: 30.28			
Tested by: Rod Peloquin		Power: 120VAC/60Hz		Job Site: EV01	
TEST SPECIFICATIONS			Test Method		
FCC 22H:2006			ANSI/TIA/EIA-603-B:2002		
TEST PARAMETERS					
Antenna Height(s) (m)		1 - 4		Test Distance (m)	
				0	
COMMENTS					
Internal antenna, standalone notebook					
EUT OPERATING MODES					
Transmit cell band					
DEVIATIONS FROM TEST STANDARD					
No deviations.					
Run #		4		 Signature	
Configuration #		2			
Results		Pass			
NVLAP Lab Code 200630-0					









Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

MODES OF OPERATION

Receive Cell Band Low Channel

Receive Cell Band Mid Channel

Receive Cell Band High Channel

POWER SETTINGS INVESTIGATED

120VAC/60Hz

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Receiver	Rohde & Schwarz	1166.5950.03	100205	6/10/2006	13
LISN	Solar	9252-50-R-24-BNC	LIP	12/13/2005	13
Attenuator	Coaxicom	66702 2910-20	RBR	5/3/2006	13
High Pass Filter	T.T.E.	7766	HFG	12/19/2005	13
EV07 cable d	ESM Cable	N/a	EVG	3/30/2006	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

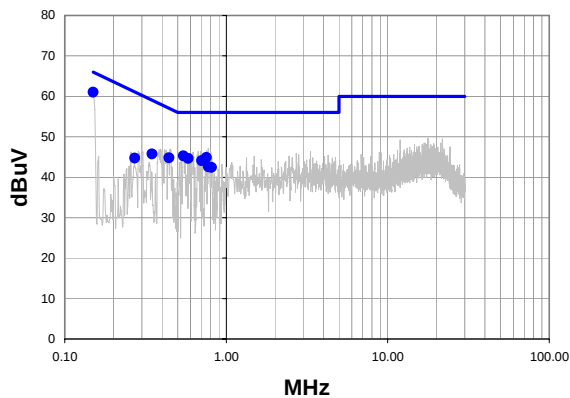
TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50 Ω measuring port is terminated by a 50 Ω EMI meter or a 50 Ω resistive load. All 50 Ω measuring ports of the LISN are terminated by 50 Ω .

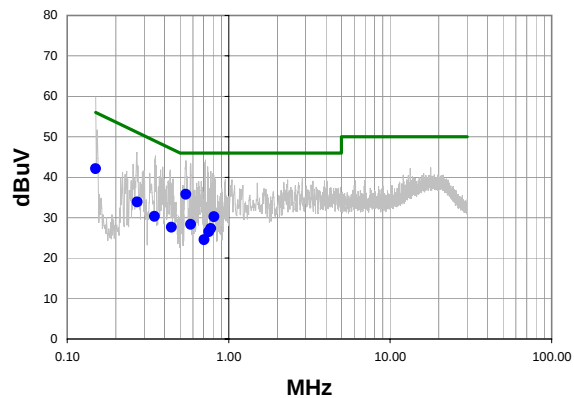
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	SPT0020	Date:	06/27/06	<i>Roddy Le Pelouin</i>			
Project:	None	Temperature:	24				
Job Site:	EV07	Humidity:	34%				
Serial Number:	Unknown	Barometric Pres.:	29.98				
EUT Power:	120VAC/60Hz			Tested by: Rod Peloquin			
Configuration:	2						
Customer:	Spectrum Technology						
Attendees:	None						
EUT:	IX270-MC5720						
OPERATING MODES:	Receive mode, cell band, low channel						
DEVIATIONS:	No deviations.						
COMMENTS:	Internal antenna, standalone notebook						
TEST SPECIFICATIONS			Test Method				
FCC 15.107			ANSI C63.4				
Run #	1	Line:	High Line	Ext. Attenuation:	20	Results	Pass

Quasi-Peak



Average



Quasi Peak Data - vs - Quasi Peak Limit

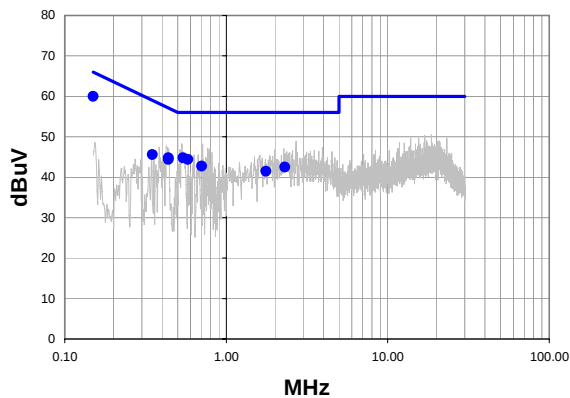
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.150	41.000	0.000	61.000	66.000	-5.000
0.544	25.300	0.000	45.300	56.000	-10.700
0.754	24.900	0.000	44.900	56.000	-11.100
0.582	24.600	0.000	44.600	56.000	-11.400
0.706	24.100	0.000	44.100	56.000	-11.900
0.442	24.800	0.000	44.800	57.024	-12.224
0.348	25.700	0.000	45.700	59.010	-13.310
0.776	22.600	0.000	42.600	56.000	-13.400
0.812	22.400	0.000	42.400	56.000	-13.600
0.271	24.700	0.000	44.700	61.087	-16.387

Average Data - vs - Average Limit

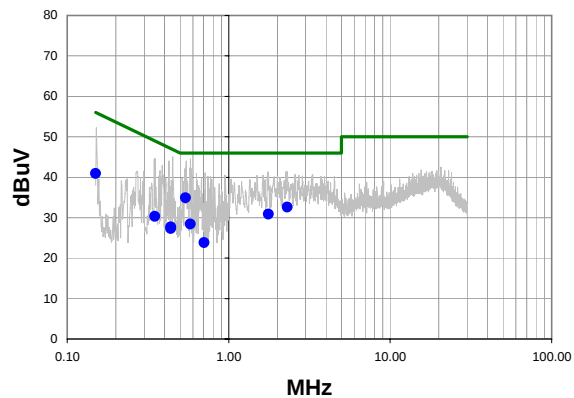
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.544	15.800	0.000	35.800	46.000	-10.200
0.150	22.100	0.000	42.100	56.000	-13.900
0.812	10.200	0.000	30.200	46.000	-15.800
0.271	13.900	0.000	33.900	51.087	-17.187
0.582	8.300	0.000	28.300	46.000	-17.700
0.776	7.300	0.000	27.300	46.000	-18.700
0.348	10.300	0.000	30.300	49.010	-18.710
0.442	7.600	0.000	27.600	47.024	-19.424
0.754	6.500	0.000	26.500	46.000	-19.500
0.706	4.500	0.000	24.500	46.000	-21.500

Work Order:	SPT0020	Date:	06/27/06				
Project:	None	Temperature:	24				
Job Site:	EV07	Humidity:	34%				
Serial Number:	Unknown	Barometric Pres.:	29.98				
EUT Power:	120VAC/60Hz			Tested by: Rod Peloquin			
Configuration:	2						
Customer:	Spectrum Technology						
Attendees:	None						
EUT:	IX270-MC5720						
OPERATING MODES:	Receive mode, cell band, low channel						
DEVIATIONS:	No deviations.						
COMMENTS:	Internal antenna, standalone notebook						
TEST SPECIFICATIONS FCC 15.107			Test Method ANSI C63.4				
Run #	2	Line:	Neutral	Ext. Attenuation:	20	Results	Pass

Quasi-Peak



Average



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.150	40.000	0.000	60.000	66.000	-6.000
0.542	24.800	0.000	44.800	56.000	-11.200
0.580	24.400	0.000	44.400	56.000	-11.600
0.439	24.800	0.000	44.800	57.081	-12.281
0.439	24.400	0.000	44.400	57.081	-12.681
0.704	22.700	0.000	42.700	56.000	-13.300
0.349	25.600	0.000	45.600	58.986	-13.386
2.308	22.500	0.000	42.500	56.000	-13.500
1.764	21.500	0.000	41.500	56.000	-14.500

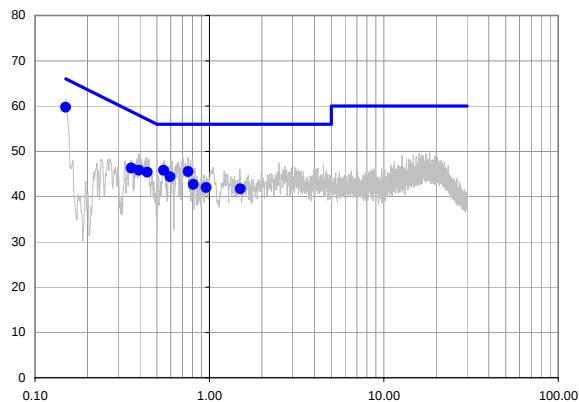
Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.542	14.900	0.000	34.900	46.000	-11.100
2.308	12.600	0.000	32.600	46.000	-13.400
0.150	20.900	0.000	40.900	56.000	-15.100
1.764	10.900	0.000	30.900	46.000	-15.100
0.580	8.400	0.000	28.400	46.000	-17.600
0.349	10.300	0.000	30.300	48.986	-18.686
0.439	7.700	0.000	27.700	47.081	-19.381
0.439	7.300	0.000	27.300	47.081	-19.781
0.704	3.800	0.000	23.800	46.000	-22.200

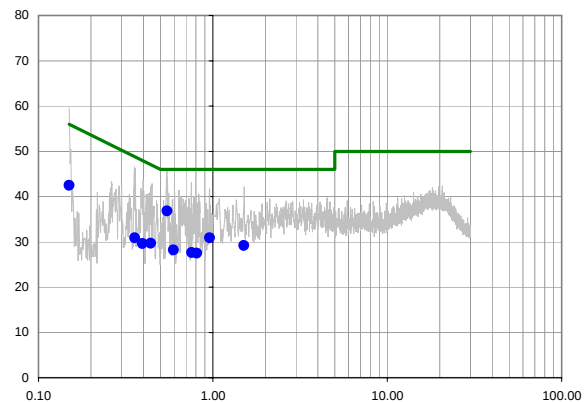
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	SPT0020	Date:	06/27/06				
Project:		Temperature:	24				
Job Site:	EV07	Humidity:	34%				
Serial Number:	unknown	Barometric Pres.:	29.98				
EUT Power:	120VAC/60Hz			Tested by: Rod Peloquin			
Configuration:	Notebook Standalone						
Customer:	Spectrum Technology						
Attendees:	none						
EUT:	IX270-MC5720						
OPERATING MODES:	Receive mode, cell band, mid channel						
DEVIATIONS:	No deviations.						
COMMENTS:	Internal antenna, standalone notebook						
TEST SPECIFICATIONS FCC 15.107			Test Method ANSI C63.4				
Run #	13	Line:	High Line	Ext. Attenuation:	20	Results	Pass

Quasi-Peak



Average



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.150	39.700	0.000	59.700	66.000	-6.300
0.547	25.800	0.000	45.800	56.000	-10.200
0.757	25.500	0.000	45.500	56.000	-10.500
0.594	24.400	0.000	44.400	56.000	-11.600
0.440	25.400	0.000	45.400	57.062	-11.662
0.394	25.800	0.000	45.800	57.979	-12.179
0.356	26.300	0.000	46.300	58.821	-12.521
0.808	22.700	0.000	42.700	56.000	-13.300
0.957	22.000	0.000	42.000	56.000	-14.000
1.504	21.700	0.000	41.700	56.000	-14.300

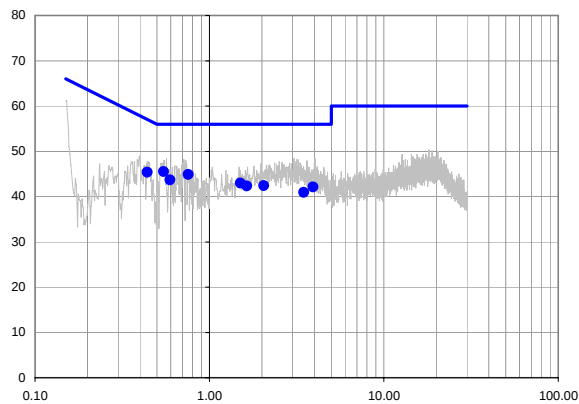
Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.547	16.800	0.000	36.800	46.000	-9.200
0.150	22.500	0.000	42.500	56.000	-13.500
0.957	10.900	0.000	30.900	46.000	-15.100
1.504	9.200	0.000	29.200	46.000	-16.800
0.440	9.700	0.000	29.700	47.062	-17.362
0.594	8.200	0.000	28.200	46.000	-17.800
0.356	10.900	0.000	30.900	48.821	-17.921
0.394	9.600	0.000	29.600	47.979	-18.379
0.757	7.600	0.000	27.600	46.000	-18.400
0.808	7.500	0.000	27.500	46.000	-18.500

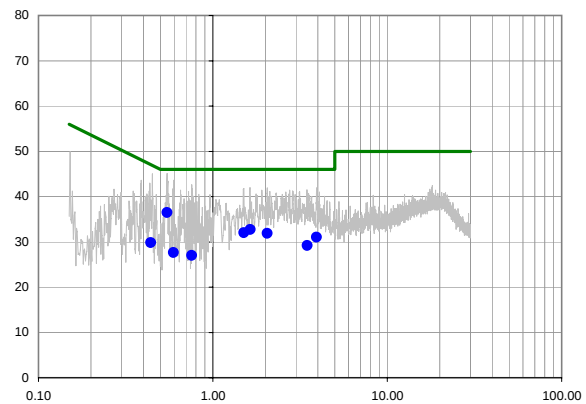
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	SPT0020	Date:	06/27/06				
Project:		Temperature:	24				
Job Site:	EV07	Humidity:	34%				
Serial Number:	unknown	Barometric Pres.:	29.98				
EUT Power:	120VAC/60Hz			Tested by: Rod Peloquin			
Configuration:	Notebook Standalone						
Customer:	Spectrum Technology						
Attendees:	none						
EUT:	IX270-MC5720						
OPERATING MODES:	Receive mode, cell band, mid channel						
DEVIATIONS:	No deviations.						
COMMENTS:	Internal antenna, standalone notebook						
TEST SPECIFICATIONS			Test Method				
FCC 15.107			ANSI C63.4				
Run #	14	Line:	Neutral	Ext. Attenuation:	20	Results	Pass

Quasi-Peak



Average



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.546	25.500	0.000	45.500	56.000	-10.500
0.757	24.900	0.000	44.900	56.000	-11.100
0.441	25.400	0.000	45.400	57.043	-11.643
0.594	23.700	0.000	43.700	56.000	-12.300
1.504	23.000	0.000	43.000	56.000	-13.000
2.048	22.400	0.000	42.400	56.000	-13.600
1.636	22.300	0.000	42.300	56.000	-13.700
3.932	22.100	0.000	42.100	56.000	-13.900
3.476	20.900	0.000	40.900	56.000	-15.100

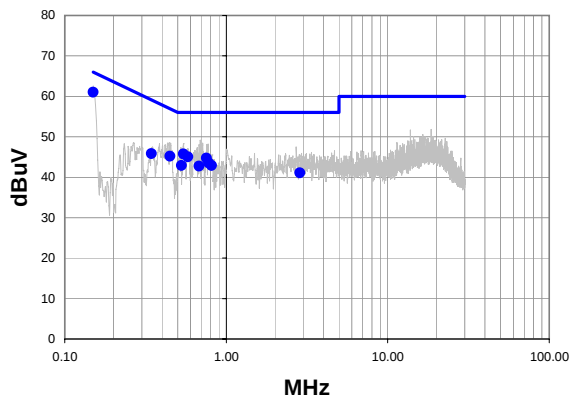
Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.546	16.500	0.000	36.500	46.000	-9.500
1.636	12.700	0.000	32.700	46.000	-13.300
1.504	12.000	0.000	32.000	46.000	-14.000
2.048	11.900	0.000	31.900	46.000	-14.100
3.932	11.000	0.000	31.000	46.000	-15.000
3.476	9.200	0.000	29.200	46.000	-16.800
0.441	9.800	0.000	29.800	47.043	-17.243
0.594	7.600	0.000	27.600	46.000	-18.400
0.757	7.000	0.000	27.000	46.000	-19.000

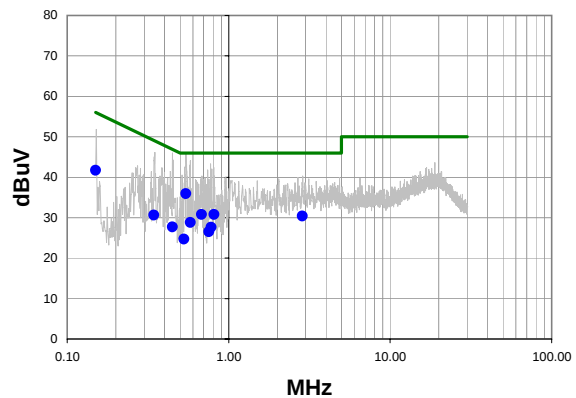
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	SPT0020	Date:	06/27/06				
Project:	None	Temperature:	24				
Job Site:	EV07	Humidity:	34%				
Serial Number:	Unknown	Barometric Pres.:	29.98				
EUT Power:	120VAC/60Hz			Tested by: Rod Peloquin			
Configuration:	2						
Customer:	Spectrum Technology						
Attendees:	None						
EUT:	IX270-MC5720						
OPERATING MODES:	Receive mode, cell band, high channel						
DEVIATIONS:	No deviations.						
COMMENTS:	Internal antenna, standalone notebook						
TEST SPECIFICATIONS FCC 15.107			Test Method ANSI C63.4				
Run #	5	Line:	High Line	Ext. Attenuation:	20	Results	Pass

Quasi-Peak



Average



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.150	41.000	0.000	61.000	66.000	-5.000
0.544	25.700	0.000	45.700	56.000	-10.300
0.578	25.000	0.000	45.000	56.000	-11.000
0.754	24.700	0.000	44.700	56.000	-11.300
0.449	25.200	0.000	45.200	56.894	-11.694
0.780	23.500	0.000	43.500	56.000	-12.500
0.812	22.900	0.000	42.900	56.000	-13.100
0.528	22.900	0.000	42.900	56.000	-13.100
0.345	25.800	0.000	45.800	59.082	-13.282
0.680	22.700	0.000	42.700	56.000	-13.300
2.864	21.100	0.000	41.100	56.000	-14.900

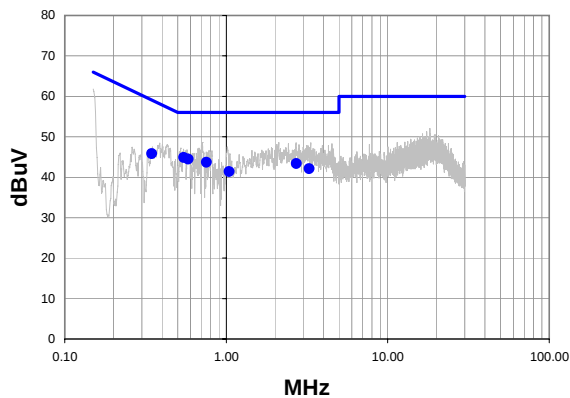
Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.544	15.900	0.000	35.900	46.000	-10.100
0.150	21.700	0.000	41.700	56.000	-14.300
0.812	10.800	0.000	30.800	46.000	-15.200
0.680	10.800	0.000	30.800	46.000	-15.200
2.864	10.400	0.000	30.400	46.000	-15.600
0.578	8.800	0.000	28.800	46.000	-17.200
0.780	7.600	0.000	27.600	46.000	-18.400
0.345	10.600	0.000	30.600	49.082	-18.482
0.449	7.700	0.000	27.700	46.894	-19.194
0.754	6.500	0.000	26.500	46.000	-19.500
0.528	4.700	0.000	24.700	46.000	-21.300

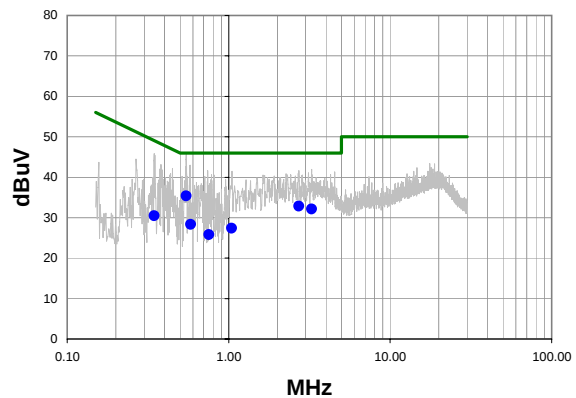
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	SPT0020	Date:	06/27/06				
Project:	None	Temperature:	24				
Job Site:	EV07	Humidity:	34%				
Serial Number:	Unknown	Barometric Pres.:	29.98				
EUT Power:	120VAC/60Hz			Tested by: Rod Peloquin			
Configuration:	2						
Customer:	Spectrum Technology						
Attendees:	None						
EUT:	IX270-MC5720						
OPERATING MODES	Receive mode, cell band, high channel						
DEVIATIONS	No deviations.						
COMMENTS	Internal antenna, standalone notebook						
TEST SPECIFICATIONS FCC 15.107			Test Method ANSI C63.4				
Run #	6	Line:	Neutral	Ext. Attenuation:	20	Results	Pass

Quasi-Peak



Average



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.546	24.900	0.000	44.900	56.000	-11.100
0.581	24.500	0.000	44.500	56.000	-11.500
0.754	23.700	0.000	43.700	56.000	-12.300
2.724	23.400	0.000	43.400	56.000	-12.600
0.346	25.800	0.000	45.800	59.058	-13.258
3.264	22.100	0.000	42.100	56.000	-13.900
1.044	21.400	0.000	41.400	56.000	-14.600

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
0.546	15.400	0.000	35.400	46.000	-10.600
2.724	12.800	0.000	32.800	46.000	-13.200
3.264	12.100	0.000	32.100	46.000	-13.900
0.581	8.300	0.000	28.300	46.000	-17.700
0.346	10.500	0.000	30.500	49.058	-18.558
1.044	7.400	0.000	27.400	46.000	-18.600
0.754	5.800	0.000	25.800	46.000	-20.200

