

Spectrum Technology

EM5625

September 14, 2005

Report No. SPTE0011.1

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: September 14, 2005
Spectrum Technology
Model: EM5625

Emissions			
Specification	Test Method	Pass	Fail
FCC 24.238(a) Spurious Radiated Emissions:2004	TIA/EIA 603-B:2001	<input checked="" type="checkbox"/>	<input type="checkbox"/>
FCC 22.917(a) Spurious Radiated Emissions:2004	TIA/EIA 603-B:2001	<input checked="" type="checkbox"/>	<input type="checkbox"/>
FCC 24.232(b) Effective Radiated Power (EIRP):2004	TIA/EIA 603-B:2001	<input checked="" type="checkbox"/>	<input type="checkbox"/>
FCC 22.913(a) Effective Radiated Power (ERP):2004	TIA/EIA 603-B:2001	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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 recognized 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.



200629-0
200630-0
200676-0

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).



Technology International: Assessed in accordance with ISO Guide 25 defining the general international requirements for the competence of calibration and testing laboratories and with ITI assessment criteria LACO196. Based upon that assessment, Interference Technology International, Ltd., has granted approval for specifications implementing the EU Directive on EMC (89/336/EEC and amendments). The scope of the approval was provided on a Schedule of Assessment supplied with the certificate and is available upon request.



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 and R-1025, Irvine: C-2094 and R-1943, Newberg: C-1877 and R-1760, 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>

What is measurement uncertainty?

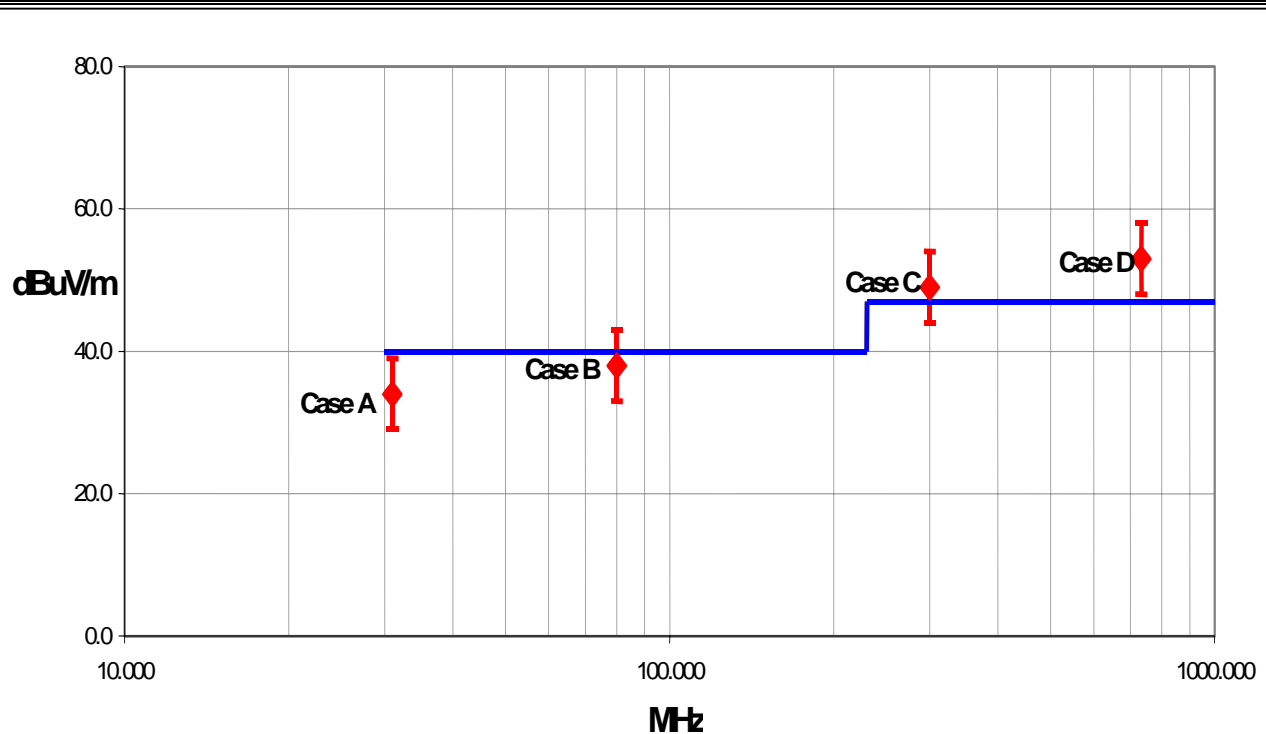
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. The following statement of measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" value. In the case of transient tests (ESD, EFT, Surge, Voltage Dips and Interruptions), the test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements.

The following documents were the basis for determining the uncertainty levels of our measurements:

- "ISO Guide to the Expression of Uncertainty in Measurements", October 1993
- "NIS81: The Treatment of Uncertainty in EMC Measurements", May 1994
- "IEC CISPR 16-3 A1 f1 Ed.1: Radio-interference measurements and statistical techniques", December 2000

How might measurement uncertainty be applied to test results?

If the diamond marks the measured value for the test and the vertical bars bracket the range of + and - measurement uncertainty, then test results can be interpreted from the diagram below.



Test Result Scenarios:

Case A: Product complies.

Case B: Product conditionally complies. It is not possible to say with 95% confidence that the product complies.

Case C: Product conditionally does not comply. It is not possible to say with 95% confidence that the product does not comply.

Case D: Product does not comply.

Radiated Emissions ≤ 1 GHz

Value (dB)

Test Distance	Probability Distribution	Biconical Antenna		Log Periodic Antenna		Dipole Antenna	
		3m	10m	3m	10m	3m	10m
Combined standard uncertainty $u_c(y)$	normal	+ 1.86	+ 1.82	+ 2.23	+ 1.29	+ 1.31	+ 1.25
		- 1.88	- 1.87	- 1.41	- 1.26	- 1.27	- 1.25
Expanded uncertainty U (level of confidence ≈ 95%)	normal (k=2)	+ 3.72	+ 3.64	+ 4.46	+ 2.59	+ 2.61	+ 2.49
		- 3.77	- 3.73	- 2.81	- 2.52	- 2.55	- 2.49

Radiated Emissions > 1 GHz

Value (dB)

Test Distance	Probability Distribution	Without High Pass Filter		With High Pass Filter	
		3m	10m	3m	10m
Combined standard uncertainty $u_c(y)$	normal	+ 1.29	+ 1.38	- 1.25	- 1.35
		- 1.25	- 1.35	- 1.25	- 1.35
Expanded uncertainty U (level of confidence ≈ 95%)	normal (k=2)	+ 2.57	+ 2.76	- 2.51	- 2.70
		- 2.51	- 2.70	- 2.51	- 2.70

Conducted Emissions

	Probability Distribution	Value (+/- dB)
Combined standard uncertainty $u_c(y)$	normal	1.48
Expanded uncertainty U (level of confidence ≈ 95 %)	normal (k = 2)	2.97

Radiated Immunity

	Probability Distribution	Value (+/- dB)
Combined standard uncertainty $u_c(y)$	normal	1.05
Expanded uncertainty U (level of confidence ≈ 95 %)	normal (k = 2)	2.11

Conducted Immunity

	Probability Distribution	Value (+/- dB)
Combined standard uncertainty $u_c(y)$	normal	1.05
Expanded uncertainty U (level of confidence ≈ 95 %)	normal (k = 2)	2.10

Legend

$u_c(y)$ = square root of the sum of squares of the individual standard uncertainties

U = combined standard uncertainty multiplied by the coverage factor: k . This defines an interval about the measured result that will encompass the true value with a confidence level of approximately 95%. If a higher level of confidence is required, then $k=3$ (CL of 99.7%) can be used. Please note that with a coverage factor of one, $u_c(y)$ yields a confidence level of only 68%.



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 – EV10

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



Oregon

Trails End Facility

Labs TE01 – TE03

30475 NE Trails End Lane
Newberg, OR 97132
(503) 844-4066
FAX (503) 537-0735



Washington

Sultan Facility

Labs SU01 – SU07

14128 339th Ave. SE
Sultan, WA 98294
(888) 364-2378
FAX (360) 793-2536

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:	EM5625
First Date of Test:	September 6, 2005
Last Date of Test:	September 7, 2005
Receipt Date of Samples:	September 6, 2005
Equipment Design Stage:	Production
Equipment Condition:	No visual damage.

Information Provided by the Party Requesting the Test

Clocks/Oscillators:	Not provided.
I/O Ports:	None, the EUT is an embedded module within a host system.

Functional Description of the EUT (Equipment Under Test):

The EUT is a dual band CDMA embedded modem for installation in the IX600 ruggedized notebook PC.

Client Justification for EUT Selection:

The product is an engineering sample, representative of the final product.

Client Justification for Test Selection:

These tests satisfy the requirements for FCC Part 22H and Part 24E.

Equipment modifications

Item	Test	Date	Modification	Note	Disposition of EUT
1	Spurious Radiated Emissions	09/06/2005	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.
2	Effective Radiated Power	09/07/2005	No EMI suppression devices were added or modified during this test.	Same configuration as in previous test.	EUT remained at Northwest EMC.

Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

GSM PCS Low Ch. 25 = 1851.2 MHz
GSM PCS Mid Ch. 600 = 1880 MHz
GSM PCS High Ch. 1175 = 1908.75 MHz
GSM Cellular Low Ch. 1013 = 824.7 MHz
GSM Cellular Mid Ch. 383 = 836.5 MHz
GSM Cellular High Ch. 777 = 848.3 MHz

Operating Modes Investigated:

Transmit

Data Rates Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Other Settings Investigated:

Configuration 1	GSM Radio in Laptop
Configuration 2	GSM Radio in Laptop with Laptop Docked in Vehicular Mount

Software\Firmware Applied During Test

Exercise software	Procomm Plus Terminal	Version	4.8
Description			
The system was tested using special software on the host laptop to exercise the functions of the EUT during the testing.			

EUT and Peripherals**Configuration 1: Modem in IX600 Laptop.**

Description	Manufacturer	Model/Part Number	Serial Number
EUT-GSM Radio	Itronix, Corp.	MC75	Unknown
Host Laptop	Itronix, Corp.	IX600	8147M0100852500169M000
AC Adapter	Lite-On Technology Corporation	PA-1700-02	25100685015100005FVL03
Microphone	Telex	Unknown	Unknown
Headphones	Sony	Unknown	Unknown

EUT and Peripherals**Configuration 2: Modem in IX600 Laptop. Laptop Docked in Vehicular Mount**

Description	Manufacturer	Model/Part Number	Serial Number
EUT-GSM Radio	Itronix, Corp.	EM5625	Unknown
Host Laptop	Itronix, Corp.	IX600	8147M0100852500169M000
AC Adapter	Lite-On Technology Corporation	PA-1700-02	25100685015100005FVL03
Vehicular Mount	Spectrum Technology	M 050526 Dock	8147M270015220072EM000
GSM Antenna	MaxRad	BMLPUDB800/1900	Unknown
Keyboard	Gateway	2196003-00-001	15410263
Mouse	Microsoft	1.1A PS/2	1408762-40000
Wi-Fi Antenna	Vertex	245L09W	100805
Microphone	Telex	Unknown	Unknown
Headphones	Sony	Unknown	Unknown

Cables**Configuration 1: Modem in IX600 Laptop.**

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Leads	No	1.5	Yes	Host Laptop	AC Adapter
AC Power	No	1.8	No	AC Adapter	AC Mains
Serial	Yes	1.1	No	Unterminated	Host Laptop
Video	Yes	1.1	No	Unterminated	Host Laptop
USB(x2)	Yes	1.2	No	Unterminated	Host Laptop
Audio	No	1.6	No	Microphone	Host Laptop
Audio	No	1.4	No	Headphones	Host Laptop
LAN	No	1.4	No	Unterminated	Host Laptop
Modem	No	1.4	No	Unterminated	Host Laptop

Cables**Configuration 2: Modem in IX600 Laptop. Laptop Docked in Vehicular Mount.**

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Leads	No	1.5	Yes	Host Laptop	AC Adapter
AC Power	No	1.8	No	AC Adapter	AC Mains
Antenna	Yes	4.0	No	Vehicular Mount	GSM Antenna
Mouse	PA	1.6	PA	Mouse	Vehicular Mount
Keyboard	PA	1.6	PA	Keyboard	Vehicular Mount
Serial	Yes	1.0	No	Unterminated	Vehicular Mount
Serial	Yes	1.8	No	Unterminated	Vehicular Mount
Parallel	Yes	1.0	No	Unterminated	Vehicular Mount
Video	Yes	1.1	No	Unterminated	Vehicular Mount
Antenna	Yes	1.0	No	Wi-Fi Antenna	Vehicular Mount
USB(x2)	Yes	1.2	No	Unterminated	Vehicular Mount
Audio	No	1.6	No	Microphone	Vehicular Mount
Audio	No	1.4	No	Headphones	Vehicular Mount

Measurement Equipment					
Description	Manufacturer	Model	Identifier	Last Cal	Interval
Pre-Amplifier	Miteq	AM-1616-1000	AOL	08/02/2005	13 mo
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	08/02/2005	13 mo
High Pass Filter	Micro-Tronics	HPM50114	HFN	03/09/2005	13 mo
High Pass Filter	Micro-Tronics	HPM50111	HFO	03/09/2005	13 mo
Antenna, Biconilog	EMCO	3141	AXE	12/03/2003	24 mo
Antenna, Horn	EMCO	3115	AHC	08/30/2005	12 mo
Attenuator	Coaxicom	66702 5910-20	RBJ	02/25/2005	13 mo
Attenuator	Coaxicom	66702 5910-10	RBI	02/25/2005	13 mo
Antenna, Horn	EMCO	3160-08	AHK	NCR	NA
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APC	02/17/2005	13 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	06/15/2005	13 mo
Antenna, Horn	EMCO	3160-09	AHG	NCR	NA
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	02/15/2005	13 mo
Antenna, Horn	EMCO	3115	AHF	03/18/2004	24 mo
Signal Generator	Hewlett Packard	8341B	TGN	02/07/2005	13 mo
Antenna, Dipole (ADAA included)	Roberts	Roberts	ADA	01/06/2005	24 mo

Test Description

Requirement: Per 2.1053, the field strength of spurious radiation was measured in the far-field at an FCC Listed semi-anechoic chamber up to 25 GHZ. The applicable limits are 22.917(a) for the cellular band, and 24.238(a) for the PCS band.

Per 22.917(a), The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB (-13 dBm).


Per 24.238(a), The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB (-13 dBm).

Configuration: 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 band transmit frequencies. For each 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 EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

Test Methodology: For licensed transmitters, the FCC references ANSI/TIA-603-B as the measurement procedure standard. ANSI/TIA-603-B Section 2.2.12 describes a method for measuring radiated emissions that utilizes an antenna substitution method:

At an approved test site, the transmitter is placed on a remotely controlled turntable, and the measurement antenna is placed 3 meters from the transmitter. The turntable azimuth is varied to maximize the level of emissions. The height of the measurement antenna is also varied from 1 to 4 meters. The amplitude and frequency of the highest emissions are noted. The transmitter is then replaced with a $\frac{1}{2}$ wave dipole that is successively tuned to each of the highest emissions. A signal generator is connected to the dipole (horn antenna for frequencies above 1 GHz), and its output is adjusted to match the level previously noted for each frequency. The output of the signal generator is recorded, and by factoring in the cable loss to the dipole antenna and its gain; the power (ERP or e.i.r.p) is determined for each radiated emission.

Completed by:



EUT:	EM5625	Work Order:	SPTE0011
Serial Number:	Unknown	Date:	09/06/05
Customer:	Spectrum Technology	Temperature:	23
Attendees:	Rod Munro	Humidity:	38%
Project:	None	Barometric Pressure:	30.15
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 24.238(a):2004	TIA/EIA 603-B:2001

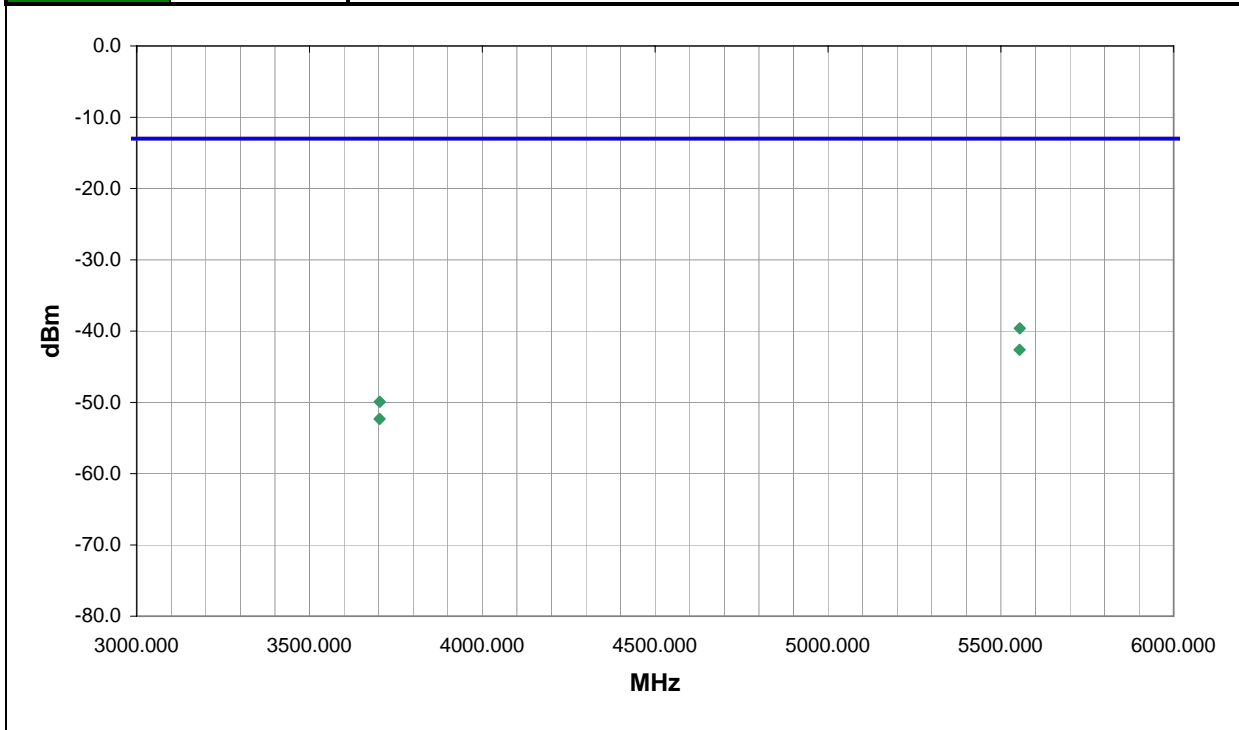
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
Modem in iX600 Laptop

EUT OPERATING MODES
Transmitting CDMA PCS low channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	1	 Signature
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
5554.623	21.0	1.2	V-Horn	PK	1.089E-07	-39.6	-13.0	-26.6
5554.095	348.0	1.7	H-Horn	PK	5.459E-08	-42.6	-13.0	-29.6
3703.301	101.0	2.0	H-Horn	PK	1.017E-08	-49.9	-13.0	-36.9
3702.484	131.0	1.2	V-Horn	PK	5.850E-09	-52.3	-13.0	-39.3

EUT:	EM5625	Work Order:	SPTE0011
Serial Number:	Unknown	Date:	09/06/05
Customer:	Spectrum Technology	Temperature:	23
Attendees:	Rod Munro	Humidity:	38%
Project:	None	Barometric Pressure:	30.15
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 24.238(a):2004	TIA/EIA 603-B:2001

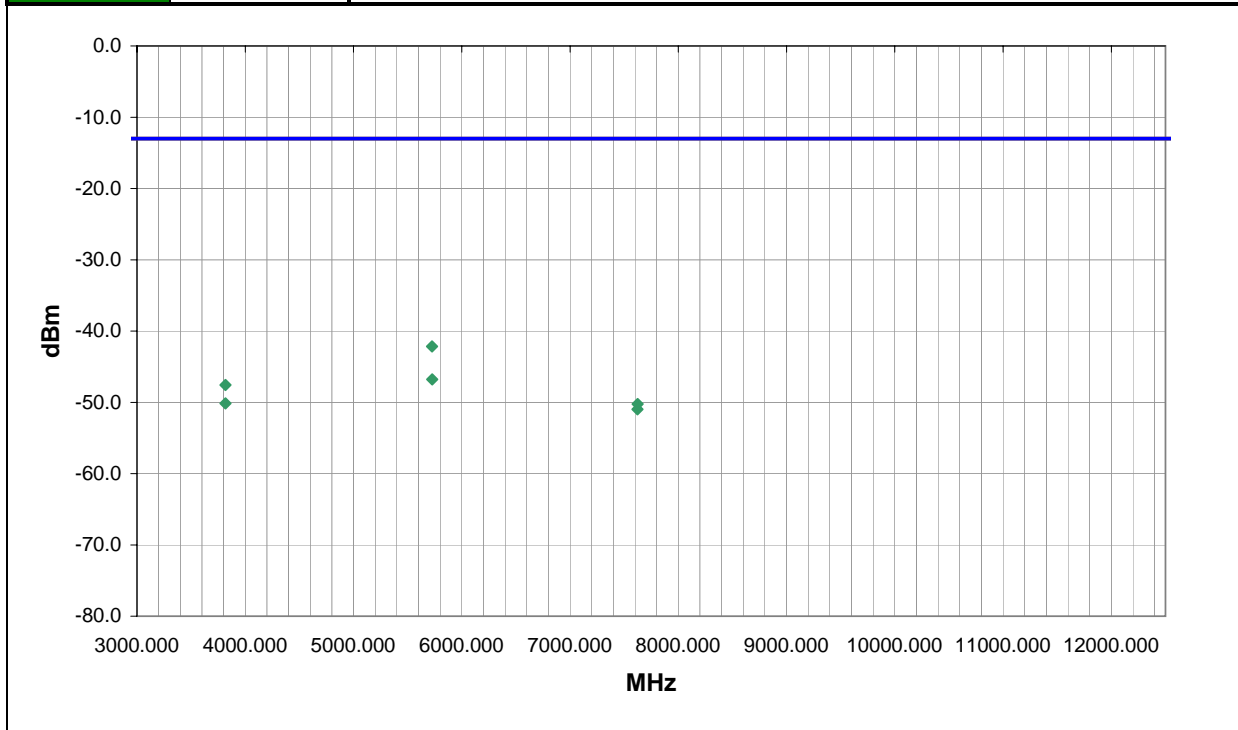
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
Modem in IX600 Laptop

EUT OPERATING MODES
Transmitting CDMA PCS high channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	2	 Signature
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
5725.446	96.0	1.2	V-Horn	PK	-42.2	-13.0	-29.2
5726.303	314.0	2.7	H-Horn	PK	-46.8	-13.0	-33.8
3817.132	16.0	1.2	V-Horn	PK	-47.6	-13.0	-34.6
3817.908	352.0	1.3	H-Horn	PK	-50.1	-13.0	-37.1
7623.356	148.0	1.4	V-Horn	PK	-51.0	-13.0	-38.0
7624.116	35.0	1.3	H-Horn	PK	-50.2	-13.0	-37.2

EUT:	EM5625	Work Order:	SPTE0011
Serial Number:	Unknown	Date:	09/06/05
Customer:	Spectrum Technology	Temperature:	23
Attendees:	Rod Munro	Humidity:	38%
Project:	None	Barometric Pressure:	30.15
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 24.238(a):2004	TIA/EIA 603-B:2001

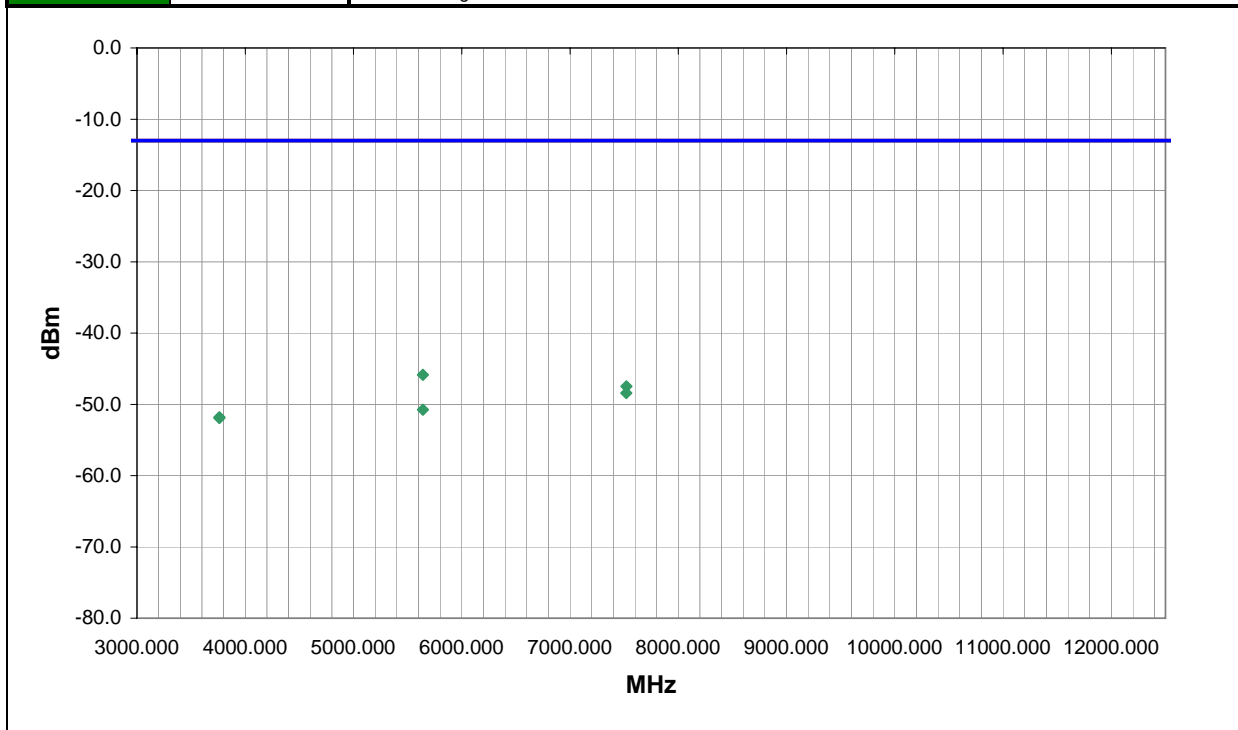
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
Modem in IX600 Laptop

EUT OPERATING MODES
Transmitting CDMA PCS mid channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	3	 Signature
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
7520.770	313.0	1.0	V-Horn	PK	-47.5	-13.0	-34.5
5640.695	100.0	1.2	V-Horn	PK	-45.9	-13.0	-32.9
7519.458	345.0	1.3	H-Horn	PK	-48.4	-13.0	-35.4
3760.385	92.0	2.0	H-Horn	PK	-51.9	-13.0	-38.9
5640.457	19.0	1.3	H-Horn	PK	-50.7	-13.0	-37.7
3760.505	177.0	1.2	V-Horn	PK	-51.8	-13.0	-38.8

EUT:	EM5625	Work Order:	SPTE0011
Serial Number:	Unknown	Date:	09/06/05
Customer:	Spectrum Technology	Temperature:	23
Attendees:	Rod Munro	Humidity:	38%
Project:	None	Barometric Pressure:	30.15
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS		Test Method
FCC 24.238(a):2004		TIA/EIA 603-B:2001

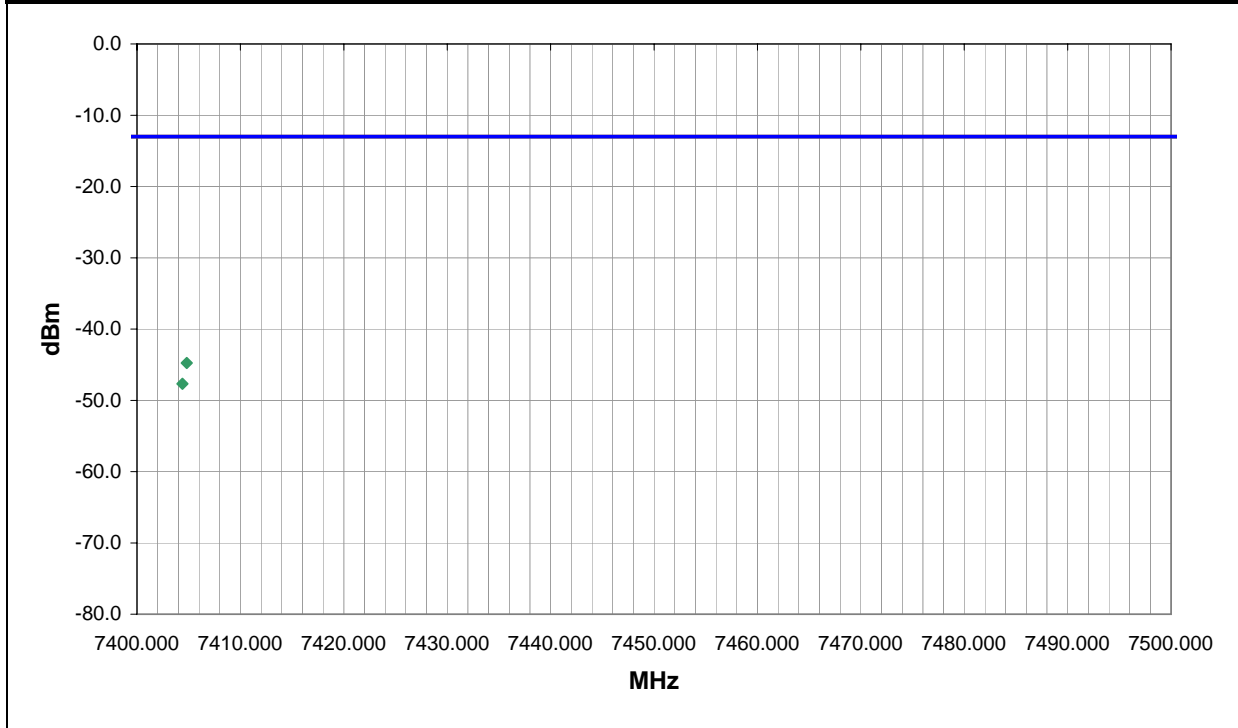
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS
Modem in IX600 Laptop

EUT OPERATING MODES
Transmitting CDMA PCS low channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	4	 Signature
Configuration #		
Results	Pass	



Freq (MHz)		Azimuth (degrees)	Height (meters)		Polarity	Detector	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
7404.819		110.0	1.5		V-Horn	PK	-44.8	-13.0	-31.8
7404.395		18.0	1.2		H-Horn	PK	-47.7	-13.0	-34.7

EUT: EM5625	Work Order: SPTE0011
Serial Number: Unknown	Date: 09/06/05
Customer: Spectrum Technology	Temperature: 23
Attendees: None	Humidity: 38%
Project: None	Barometric Pressure: 30.15
Tested by: Holly Ashkannejhad	Power: 120VAC/60Hz
	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 22.917(a): 2004	TIA/EIA 603-B:2001

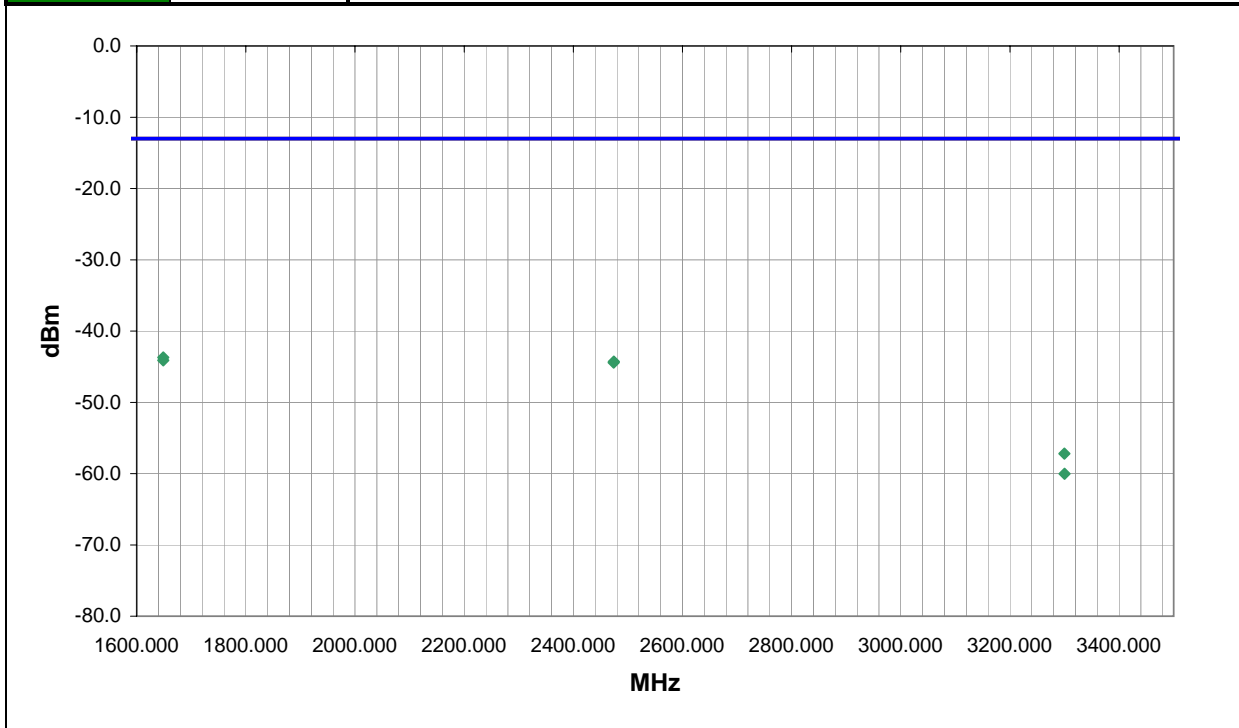
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
Modem in iX600 Laptop

EUT OPERATING MODES
Transmitting CDMA Cellular low channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	5	Signature <i>Holly Ashkannejhad</i>
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
1648.669	123.0	1.3	H-Horn	PK	4.262E-08	-43.7	-13.0	-30.7
1648.801	44.0	1.7	V-Horn	PK	3.877E-08	-44.1	-13.0	-31.1
2474.221	340.0	1.6	V-Horn	PK	3.724E-08	-44.3	-13.0	-31.3
2473.800	189.0	1.5	H-Horn	PK	3.607E-08	-44.4	-13.0	-31.4
3299.640	52.0	1.2	V-Horn	PK	1.910E-09	-57.2	-13.0	-44.2
3299.969	200.0	2.1	H-Horn	PK	9.929E-10	-60.0	-13.0	-47.0

EUT: EM5625	Work Order: SPTE0011
Serial Number: Unknown	Date: 09/06/05
Customer: Spectrum Technology	Temperature: 23
Attendees: None	Humidity: 38%
Project: None	Barometric Pressure: 30.15
Tested by: Holly Ashkannejhad	Power: 120VAC/60Hz
	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 22.917(a):2004	TIA/EIA 603-B:2001

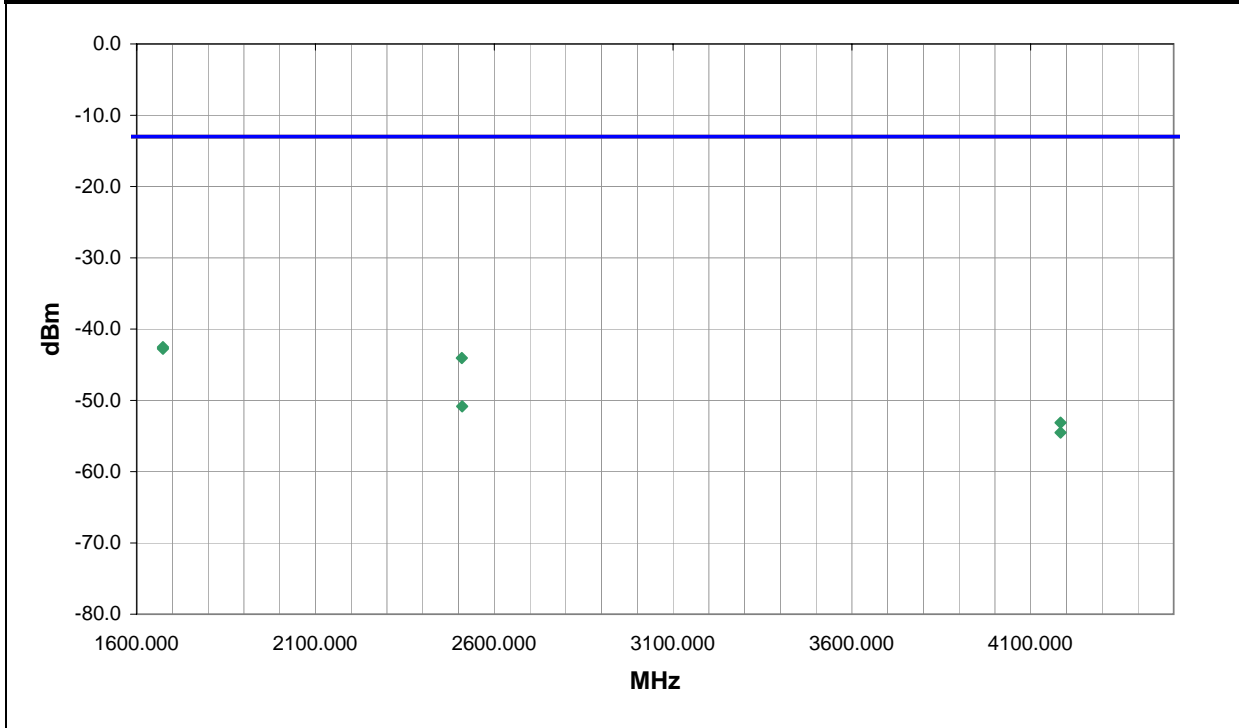
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS
Modem in IX600 Laptop

EUT OPERATING MODES
Transmitting CDMA Cellular mid channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	6	Signature <i>Holly Ashkannejhad</i>
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
1673.271	184.0	1.3	H-Horn	PK	5.589E-08	-42.5	-13.0	-29.5
1673.310	169.0	1.6	V-Horn	PK	5.302E-08	-42.8	-13.0	-29.8
2509.200	189.0	1.5	H-Horn	PK	3.924E-08	-44.1	-13.0	-31.1
2510.312	307.0	1.2	V-Horn	PK	8.241E-09	-50.8	-13.0	-37.8
4183.764	171.0	1.2	V-Horn	PK	4.854E-09	-53.1	-13.0	-40.1
4183.421	93.0	1.9	H-Horn	PK	3.536E-09	-54.5	-13.0	-41.5

EUT: EM5625	Work Order: SPTE0011
Serial Number: Unknown	Date: 09/06/05
Customer: Spectrum Technology	Temperature: 23
Attendees: None	Humidity: 38%
Project: None	Barometric Pressure: 30.15
Tested by: Holly Ashkannejhad	Power: 120VAC/60Hz
	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 22.917(a):2004	TIA/EIA 603-B:2001

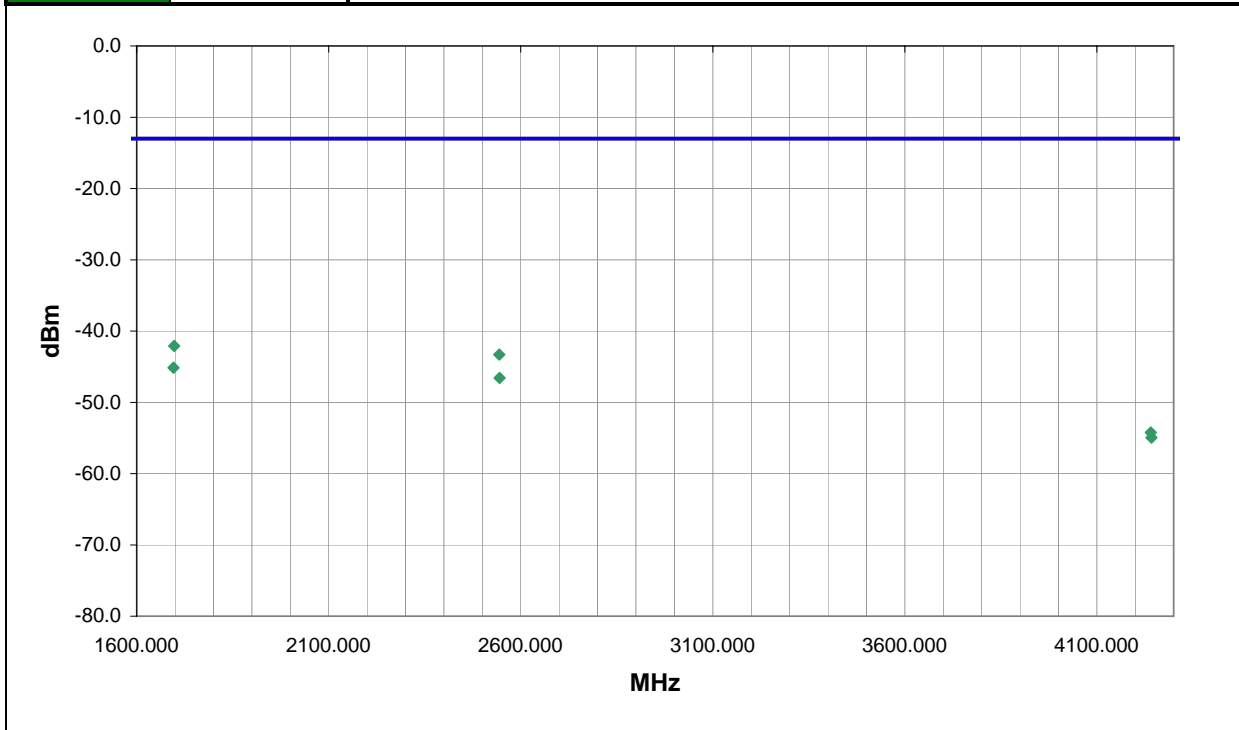
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS
Modem in IX600 Laptop

EUT OPERATING MODES
Transmitting CDMA Cellular high channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	7	Signature <i>Holly Ashkannejhad</i>
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
1697.317	236.0	2.0	V-Horn	PK	6.172E-08	-42.1	-13.0	-29.1
2544.220	188.0	1.4	H-Horn	PK	4.681E-08	-43.3	-13.0	-30.3
1695.960	168.0	1.3	H-Horn	PK	3.056E-08	-45.1	-13.0	-32.1
2544.769	343.0	1.8	V-Horn	PK	2.194E-08	-46.6	-13.0	-33.6
4240.436	170.0	1.2	V-Horn	PK	3.773E-09	-54.2	-13.0	-41.2
4241.982	99.0	1.9	H-Horn	PK	3.193E-09	-55.0	-13.0	-42.0

EUT:	EM5625	Work Order:	SPTE0011
Serial Number:	Unknown	Date:	09/07/05
Customer:	Spectrum Technology	Temperature:	23
Attendees:	None	Humidity:	38%
Project:	None	Barometric Pressure:	30.15
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 24.238(a):2004	TIA/EIA 603-B:2001

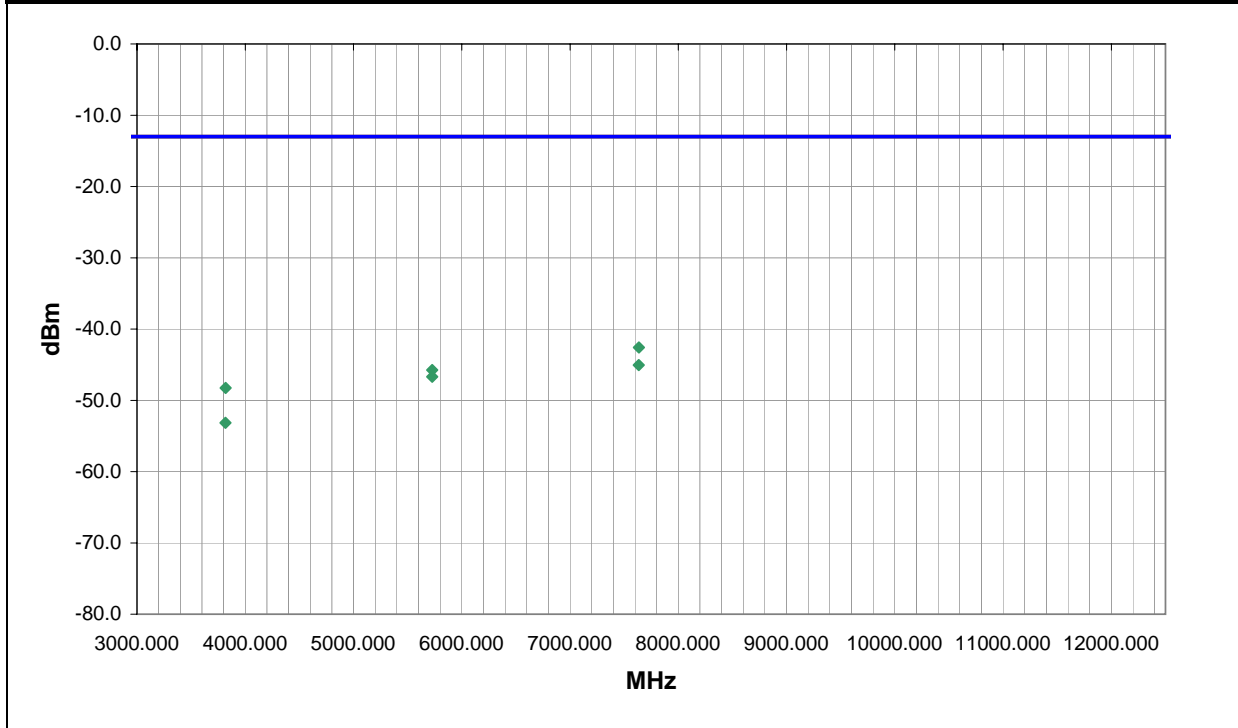
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
Modem in IX600 Laptop with vehicular mount

EUT OPERATING MODES
Transmitting CDMA PCS high channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	8	 Signature
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
7635.820	95.0	1.6	V-Horn	PK	-42.6	-13.0	-29.6
7634.464	11.0	2.2	H-Horn	PK	-45.0	-13.0	-32.0
5727.154	110.0	1.3	V-Horn	PK	-45.8	-13.0	-32.8
5726.713	345.0	1.7	H-Horn	PK	-46.7	-13.0	-33.7
3818.228	90.0	2.1	V-Horn	PK	-48.3	-13.0	-35.3
3817.295	89.0	1.3	H-Horn	PK	-53.1	-13.0	-40.1

EUT:	EM5625	Work Order:	SPTE0011
Serial Number:	Unknown	Date:	09/07/05
Customer:	Spectrum Technology	Temperature:	23
Attendees:	None	Humidity:	38%
Project:	None	Barometric Pressure:	30.15
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 24.238(a):2004	TIA/EIA 603-B:2001

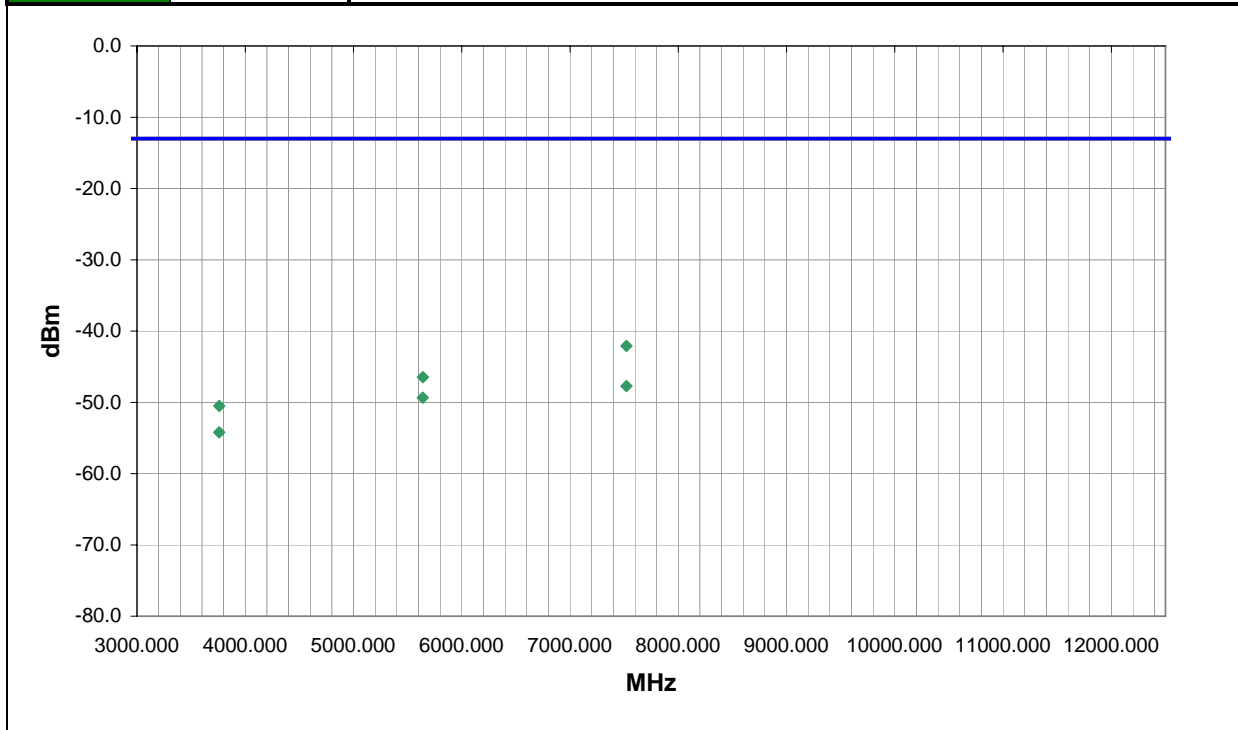
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
Modem in IX600 Laptop with vehicular mount

EUT OPERATING MODES
Transmitting CDMA PCS mid channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	9	 Signature
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
7520.716	92.0	2.0	V-Horn	PK		-42.1	-13.0	-29.1
5640.865	41.0	2.6	V-Horn	PK		-46.5	-13.0	-33.5
7520.867	65.0	1.3	H-Horn	PK		-47.7	-13.0	-34.7
5640.001	348.0	1.6	H-Horn	PK		-49.3	-13.0	-36.3
3760.015	152.0	1.7	V-Horn	PK		-50.5	-13.0	-37.5
3759.468	104.0	2.2	H-Horn	PK		-54.2	-13.0	-41.2

EUT:	EM5625	Work Order:	SPTE0011
Serial Number:	Unknown	Date:	09/07/05
Customer:	Spectrum Technology	Temperature:	23
Attendees:	None	Humidity:	38%
Project:	None	Barometric Pressure:	30.15
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 24.238(a):2004	TIA/EIA 603-B:2001

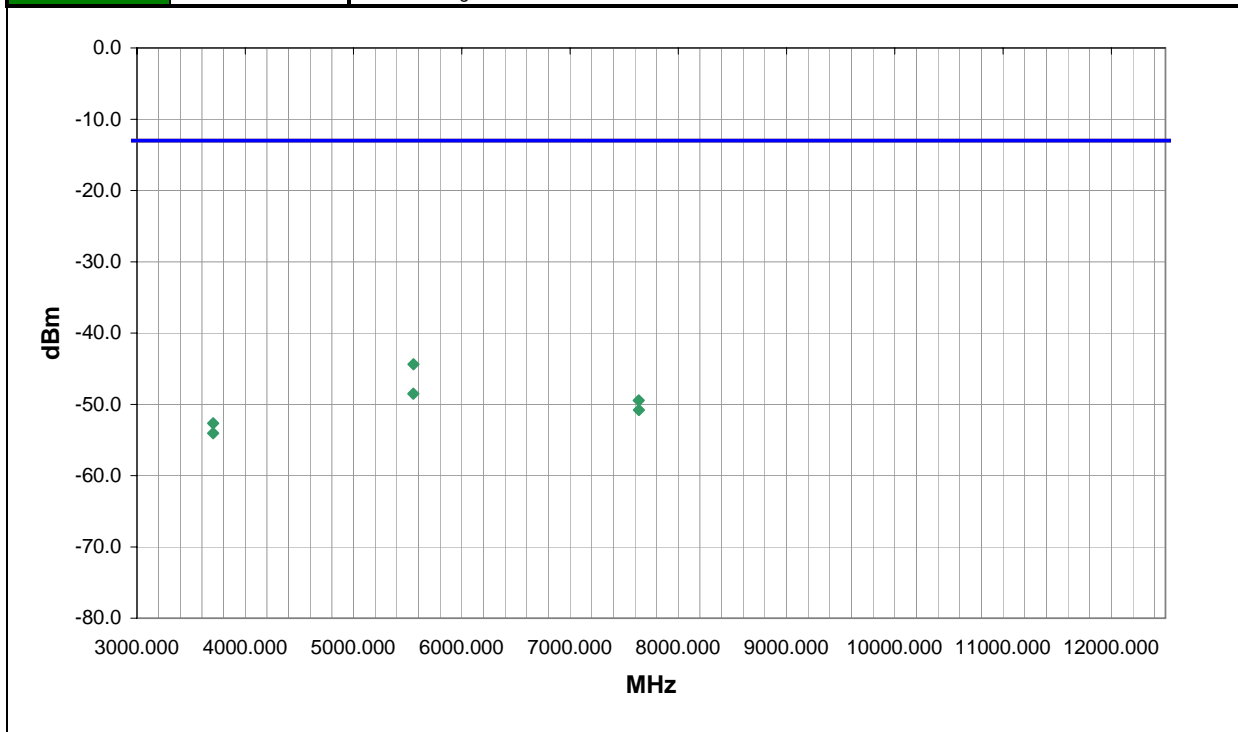
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
Modem in IX600 Laptop with vehicular mount

EUT OPERATING MODES
Transmitting CDMA PCS low channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	10	 Signature
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
5554.393	55.0	1.3	V-Horn	PK	-44.4	-13.0	-31.4
5552.875	319.0	2.1	H-Horn	PK	-48.5	-13.0	-35.5
7634.674	190.0	3.2	H-Horn	PK	-49.4	-13.0	-36.4
7636.391	173.0	1.2	V-Horn	PK	-50.8	-13.0	-37.8
3702.951	140.0	1.4	V-Horn	PK	-52.7	-13.0	-39.7
3702.768	216.0	1.2	V-Horn	PK	-54.1	-13.0	-41.1

EUT:	EM5625	Work Order:	SPTE0011
Serial Number:	Unknown	Date:	09/07/05
Customer:	Spectrum Technology	Temperature:	23
Attendees:	None	Humidity:	38%
Project:	None	Barometric Pressure:	30.15
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS Test Method

FCC 22.917(a):2004	TIA/EIA 603-B:2001
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TEST PARAMETERS

Antenna Height(s) (m)	1 - 4	Test Distance (m)	3
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COMMENTS

Modem in IX600 Laptop with vehicular mount

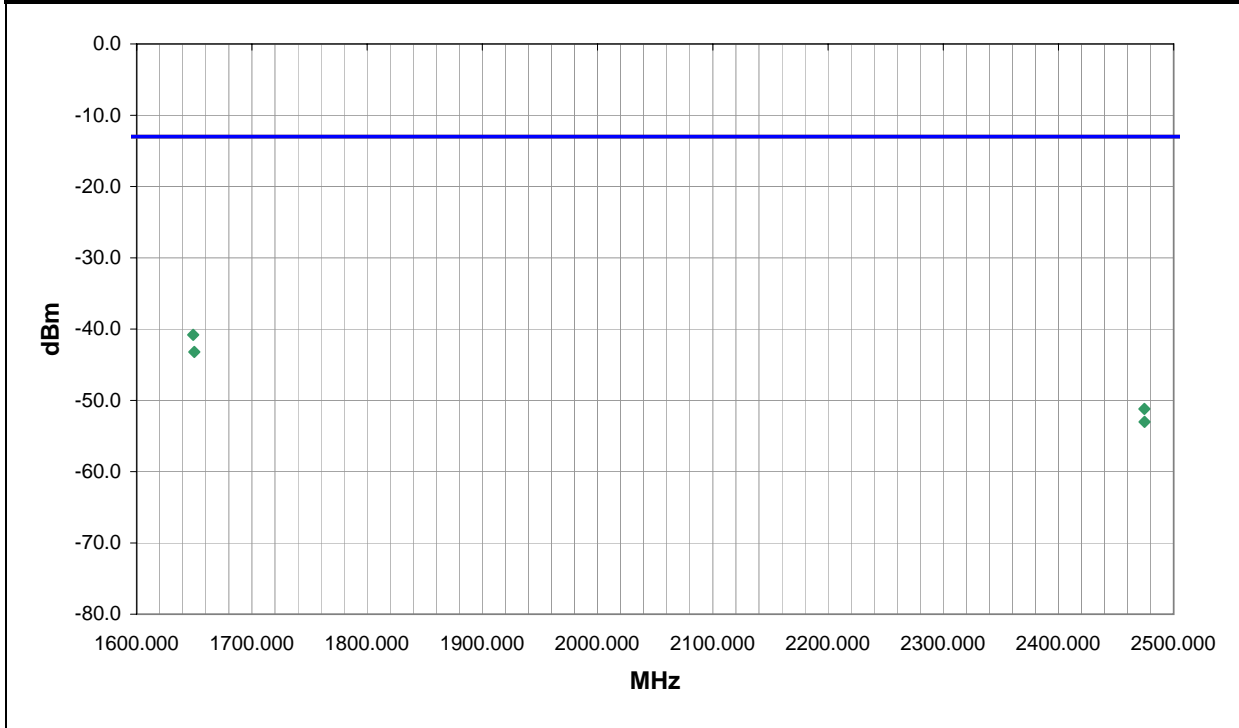
EUT OPERATING MODES

Transmitting CDMA Cellular low channel

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	11	 Signature
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
1649.015	329.0	2.0	V-Horn	PK	8.288E-08	-40.8	-13.0	-27.8
1650.026	128.0	1.3	H-Horn	PK	4.781E-08	-43.2	-13.0	-30.2
2474.610	133.0	1.6	V-Horn	PK	7.603E-09	-51.2	-13.0	-38.2
2474.731	344.0	1.3	H-Horn	PK	4.978E-09	-53.0	-13.0	-40.0

EUT:	EM5625	Work Order:	SPTE0011
Serial Number:	Unknown	Date:	09/07/05
Customer:	Spectrum Technology	Temperature:	23
Attendees:	None	Humidity:	38%
Project:	None	Barometric Pressure:	30.15
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 22.917(a):2004	TIA/EIA 603-B:2001

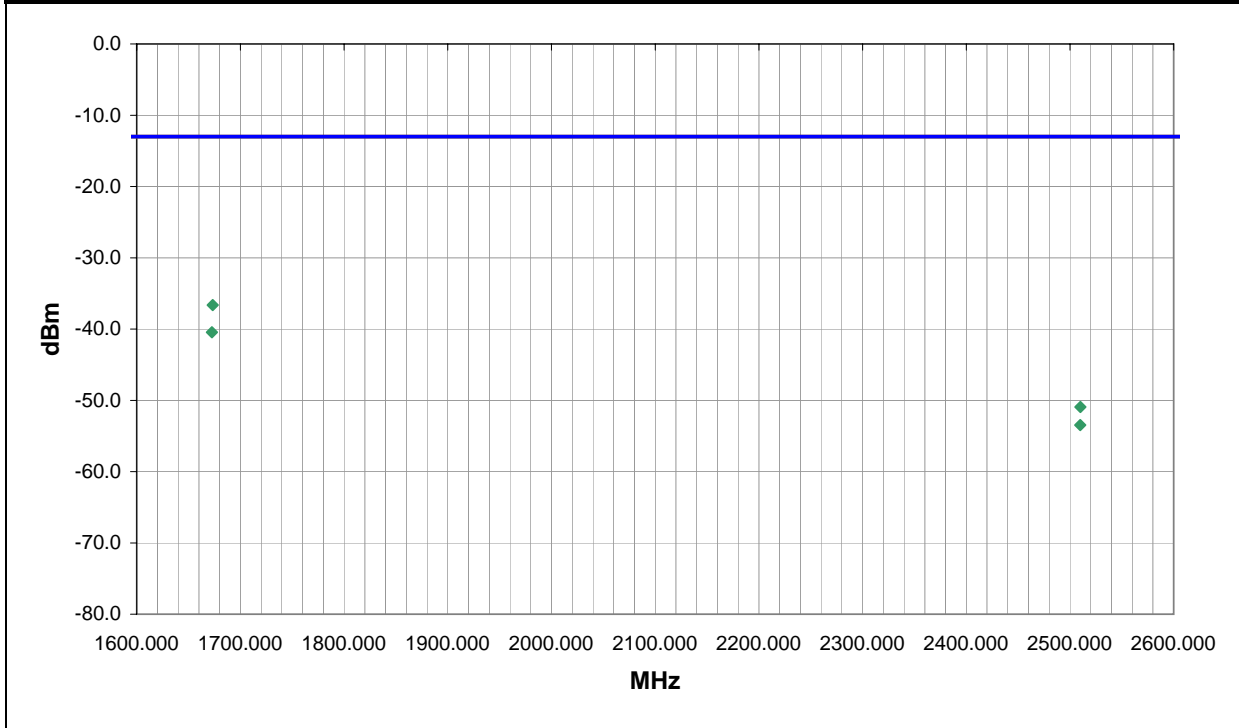
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
Modem in IX600 Laptop with vehicular mount

EUT OPERATING MODES
Transmitting CDMA Cellular mid channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	12	 Signature
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
1673.337	133.0	1.3	H-Horn	PK	2.174E-07	-36.6	-13.0	-23.6
1672.572	85.0	1.2	V-Horn	PK	9.006E-08	-40.5	-13.0	-27.5
2510.036	156.0	1.2	V-Horn	PK	8.054E-09	-50.9	-13.0	-37.9
2509.862	123.0	2.4	H-Horn	PK	4.504E-09	-53.5	-13.0	-40.5

EUT:	EM5625	Work Order:	SPTE0011
Serial Number:	Unknown	Date:	09/07/05
Customer:	Spectrum Technology	Temperature:	23
Attendees:	None	Humidity:	38%
Project:	None	Barometric Pressure:	30.15
Tested by:	Rod Peloquin	Power:	120VAC/60Hz
		Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 22.917(a):2004	TIA/EIA 603-B:2001

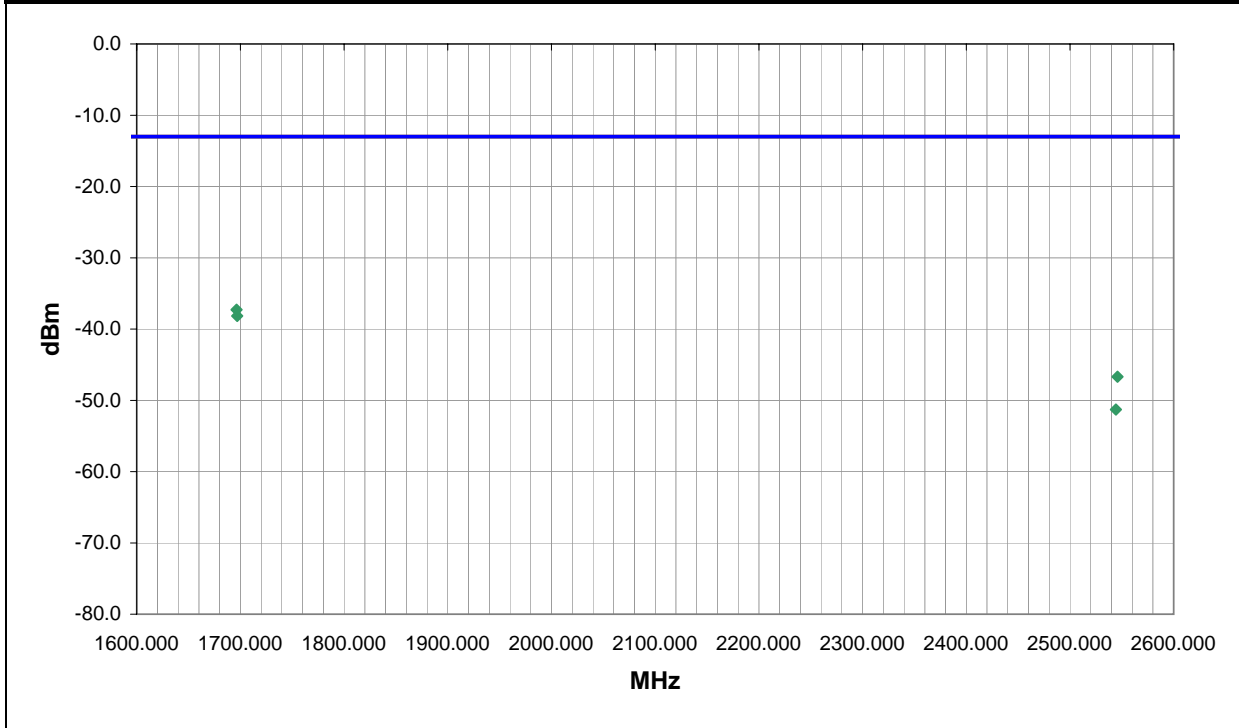
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
Modem in IX600 Laptop with vehicular mount

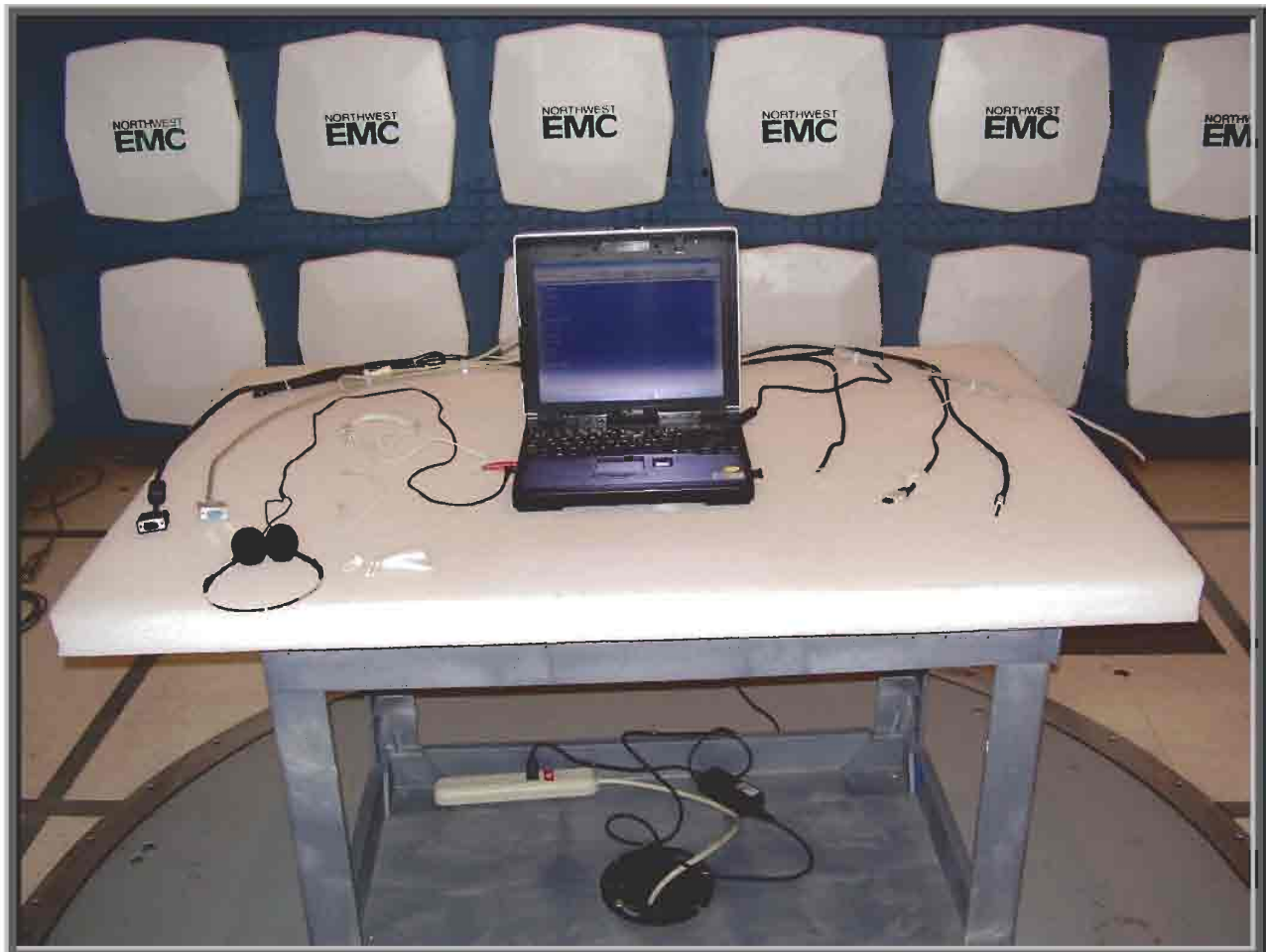
EUT OPERATING MODES
Transmitting CDMA Cellular high channel

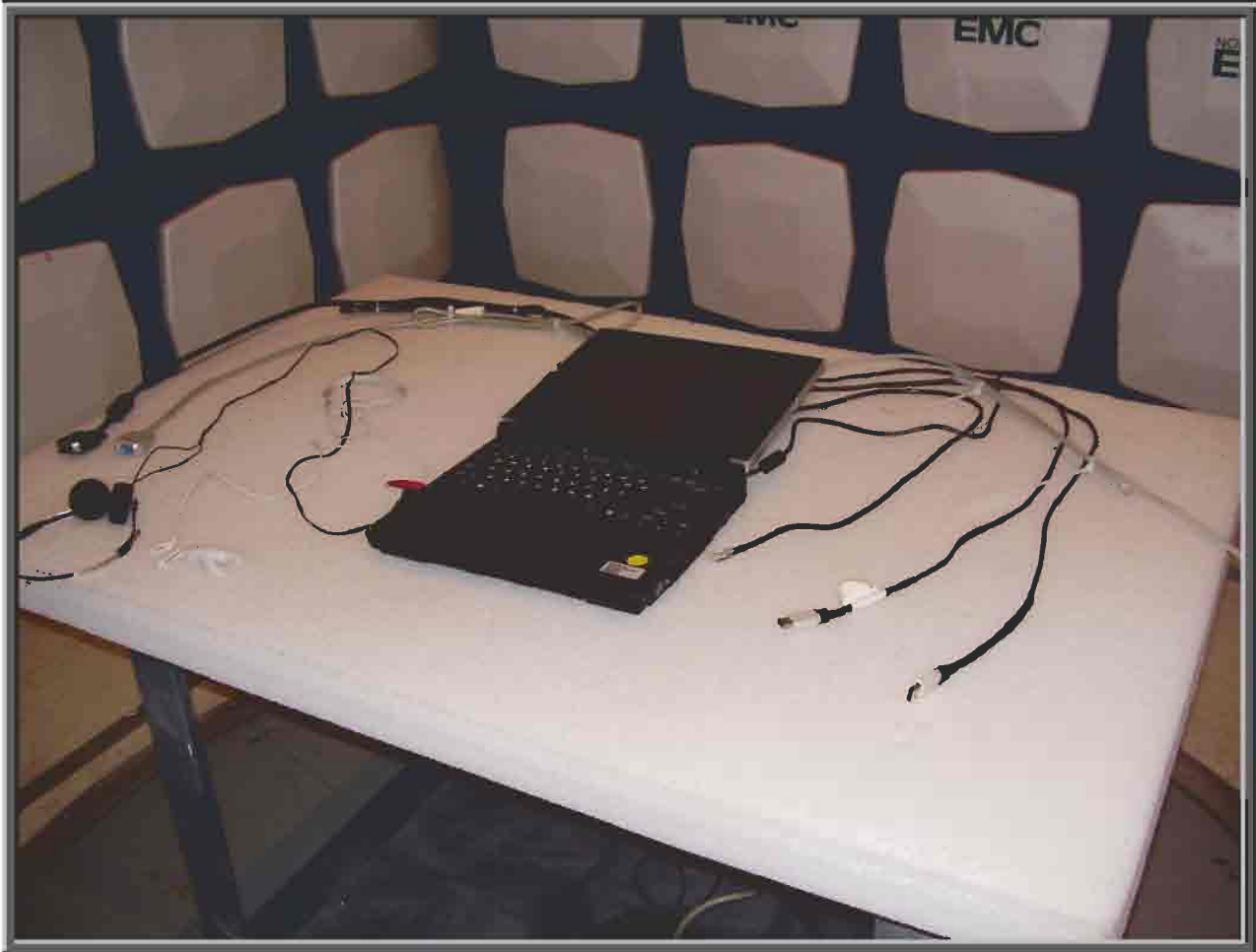
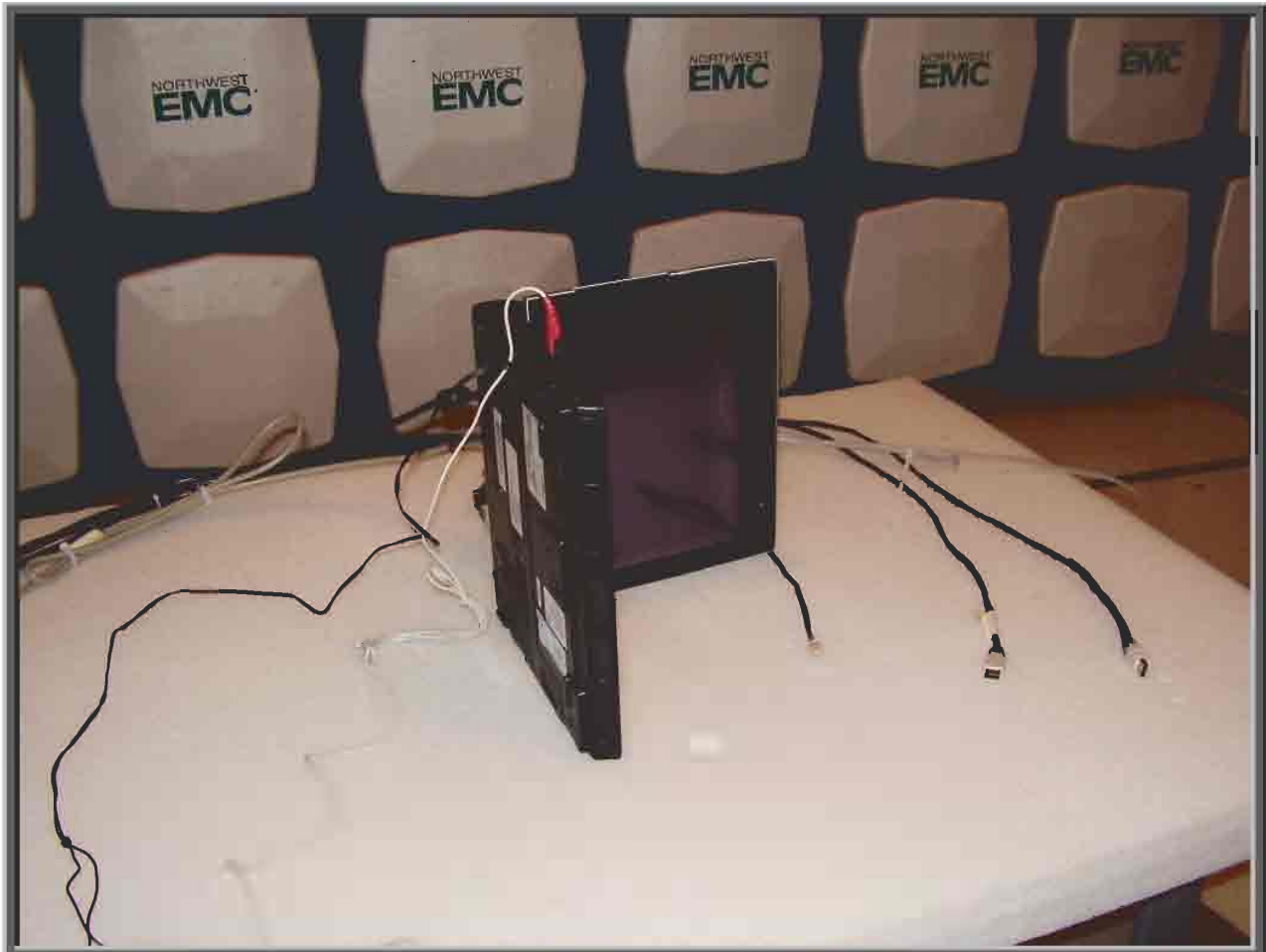
DEVIATIONS FROM TEST STANDARD
No deviations.

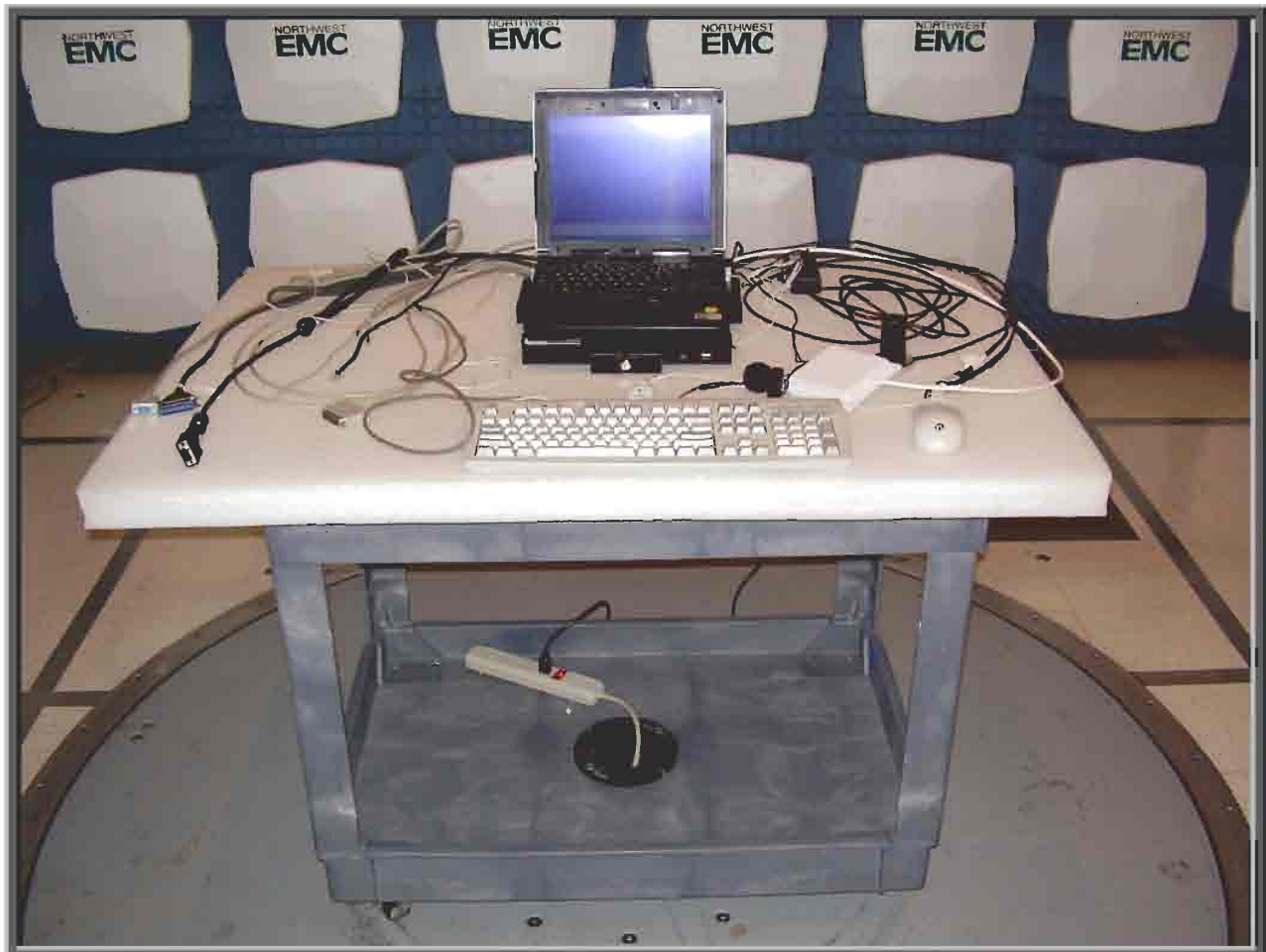
Run #	13	 Signature
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
1696.334	169.0	1.2	V-Horn	PK	1.865E-07	-37.3	-13.0	-24.3
1696.926	334.0	1.4	H-Horn	PK	1.531E-07	-38.1	-13.0	-25.1
2545.882	134.0	1.2	V-Horn	PK	2.143E-08	-46.7	-13.0	-33.7
2544.305	168.0	1.3	H-Horn	PK	7.418E-09	-51.3	-13.0	-38.3









Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

GSM PCS Low Ch. 25 = 1851.2 MHz
GSM PCS Mid Ch. 600 = 1880 MHz
GSM PCS High Ch. 1175 = 1908.75 MHz
GSM Cellular Low Ch. 1013 = 824.7 MHz
GSM Cellular Mid Ch. 383 = 836.5 MHz
GSM Cellular High Ch. 777 = 848.3 MHz

Operating Modes Investigated:

Transmit

Data Rates Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Other Settings Investigated:

Configuration 1	GSM Radio in Laptop
Configuration 2	GSM Radio in Laptop with Laptop Docked in Vehicular Mount

Software\Firmware Applied During Test

Exercise software	Procomm Plus Terminal	Version	4.8
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Description

The system was tested using special software on the host laptop to exercise the functions of the EUT during the testing.
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EUT and Peripherals**Configuration 1: Modem in IX600 Laptop.**

Description	Manufacturer	Model/Part Number	Serial Number
EUT-GSM Radio	Itronix, Corp.	MC75	Unknown
Host Laptop	Itronix, Corp.	IX600	8147M0100852500169M000
AC Adapter	Lite-On Technology Corporation	PA-1700-02	25100685015100005FVL03
Microphone	Telex	Unknown	Unknown
Headphones	Sony	Unknown	Unknown

EUT and Peripherals**Configuration 2: Modem in IX600 Laptop. Laptop Docked in Vehicular Mount**

Description	Manufacturer	Model/Part Number	Serial Number
EUT-GSM Radio	Itronix, Corp.	EM5625	Unknown
Host Laptop	Itronix, Corp.	IX600	8147M0100852500169M000
AC Adapter	Lite-On Technology Corporation	PA-1700-02	25100685015100005FVL03
Vehicular Mount	Spectrum Technology	M 050526 Dock	8147M270015220072EM000
GSM Antenna	MaxRad	BMLPUDB800/1900	Unknown
Keyboard	Gateway	2196003-00-001	15410263
Mouse	Microsoft	1.1A PS/2	1408762-40000
Wi-Fi Antenna	Vertex	245L09W	100805
Microphone	Telex	Unknown	Unknown
Headphones	Sony	Unknown	Unknown

Cables**Configuration 1: Modem in IX600 Laptop.**

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Leads	No	1.5	Yes	Host Laptop	AC Adapter
AC Power	No	1.8	No	AC Adapter	AC Mains
Serial	Yes	1.1	No	Unterminated	Host Laptop
Video	Yes	1.1	No	Unterminated	Host Laptop
USB(x2)	Yes	1.2	No	Unterminated	Host Laptop
Audio	No	1.6	No	Microphone	Host Laptop
Audio	No	1.4	No	Headphones	Host Laptop
LAN	No	1.4	No	Unterminated	Host Laptop
Modem	No	1.4	No	Unterminated	Host Laptop

Cables**Configuration 2: Modem in IX600 Laptop. Laptop Docked in Vehicular Mount.**

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Leads	No	1.5	Yes	Host Laptop	AC Adapter
AC Power	No	1.8	No	AC Adapter	AC Mains
Antenna	Yes	4.0	No	Vehicular Mount	GSM Antenna
Mouse	PA	1.6	PA	Mouse	Vehicular Mount
Keyboard	PA	1.6	PA	Keyboard	Vehicular Mount
Serial	Yes	1.0	No	Unterminated	Vehicular Mount
Serial	Yes	1.8	No	Unterminated	Vehicular Mount
Parallel	Yes	1.0	No	Unterminated	Vehicular Mount
Video	Yes	1.1	No	Unterminated	Vehicular Mount
Antenna	Yes	1.0	No	Wi-Fi Antenna	Vehicular Mount
USB(x2)	Yes	1.2	No	Unterminated	Vehicular Mount
Audio	No	1.6	No	Microphone	Vehicular Mount
Audio	No	1.4	No	Headphones	Vehicular Mount

Measurement Equipment					
Description	Manufacturer	Model	Identifier	Last Cal	Interval
Pre-Amplifier	Miteq	AM-1616-1000	AOL	08/02/2005	13 mo
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	08/02/2005	13 mo
Antenna, Biconilog	EMCO	3141	AXE	12/03/2003	24 mo
Antenna, Horn	EMCO	3115	AHC	08/30/2005	12 mo
Attenuator	Coaxicom	66702 5910-20	RBJ	02/25/2005	13 mo
Attenuator	Coaxicom	66702 5910-10	RBI	02/25/2005	13 mo
Spectrum Analyzer	Agilent	E4446A	AAQ	06/15/2005	13 mo
Antenna, Horn	EMCO	3115	AHF	03/18/2004	24 mo
Signal Generator	Hewlett Packard	8341B	TGN	02/07/2005	13 mo
Antenna, Dipole (ADAA included)	Roberts	Roberts	ADA	01/06/2005	24 mo

Test Description

Requirement: The applicable limits are 22.913(a) for the cellular band, and 24.232(b) for the PCS band.

Per 22.913(a), the ERP of any mobile and auxiliary test transmitters must not exceed 7 Watts (38.45dBm).

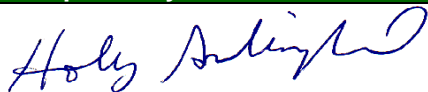
Per 24.232(b), the EIRP of any mobile/portable station must not exceed 2 Watts (33dBm).

Configuration: 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 band transmit frequencies. Emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization.

Test Methodology: For licensed transmitters, the FCC references ANSI/TIA-603-B as the measurement procedure standard. ANSI/TIA-603-B Section 2.2.12 describes a method for measuring radiated emissions that utilizes an antenna substitution method:

At an approved test site, the transmitter is placed on a remotely controlled turntable, and the measurement antenna is placed 3 meters from the transmitter. The turntable azimuth is varied to maximize the level of emissions. The height of the measurement antenna is also varied from 1 to 4 meters. The amplitude and frequency of the highest emissions are noted. The transmitter is then replaced with a ½ wave dipole that is successively tuned to each of the highest emissions. A signal generator is connected to the dipole (horn antenna for frequencies above 1 GHz), and its output is adjusted to match the level previously noted for each frequency. The output of the signal generator is recorded, and by factoring in the cable loss to the dipole antenna and its gain; the power (ERP or e.i.r.p) is determined for each radiated emission.

Completed by:



EUT: EM5625	Work Order: SPTE0011
Serial Number: Unknown	Date: 09/07/05
Customer: Spectrum Technology	Temperature: 23
Attendees: None	Humidity: 38%
Project: None	Barometric Pressure: 30.15
Tested by: Holly Ashkannejhad	Power: 120VAC/60Hz
	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 24.232(b):2004	TIA/EIA 603-B:2001

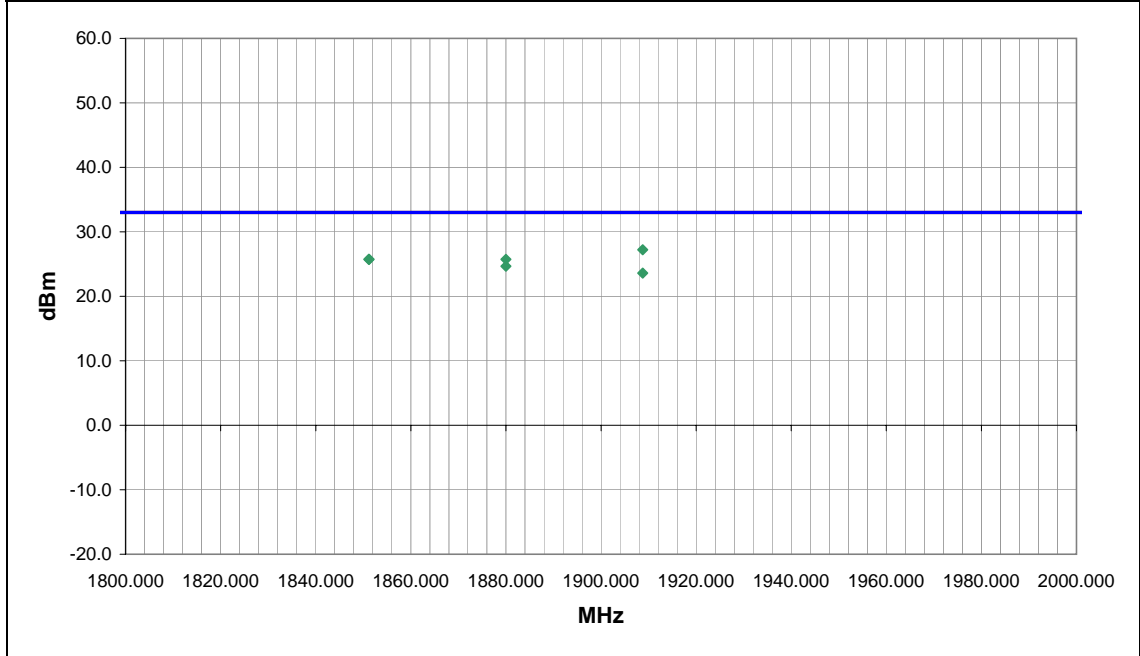
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
Modem in IX600 Laptop with vehicular mount

EUT OPERATING MODES
Transmitting CDMA PCS, see comments for channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	14	Signature <i>Holly Ashkannejhad</i>
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1908.750	165.0	1.0	V-Horn	PK	0.5272	27.2	33.0	-5.8	High Channel
1851.200	36.0	1.8	H-Horn	PK	0.3761	25.8	33.0	-7.2	Low channel
1880.000	33.0	1.4	H-Horn	PK	0.3740	25.7	33.0	-7.3	Mid channel
1851.200	343.0	1.4	V-Horn	PK	0.3719	25.7	33.0	-7.3	Low channel
1880.000	83.0	1.3	V-Horn	PK	0.2925	24.7	33.0	-8.3	Mid channel
1908.750	164.0	1.7	H-Horn	PK	0.2293	23.6	33.0	-9.4	High Channel

EUT: EM5625	Work Order: SPTE0011
Serial Number: Unknown	Date: 09/07/05
Customer: Spectrum Technology	Temperature: 23
Attendees: None	Humidity: 38%
Project: None	Barometric Pressure: 30.15
Tested by: Holly Ashkannejhad	Power: 120VAC/60Hz
	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 22.913(a):2004	TIA/EIA 603-B:2001

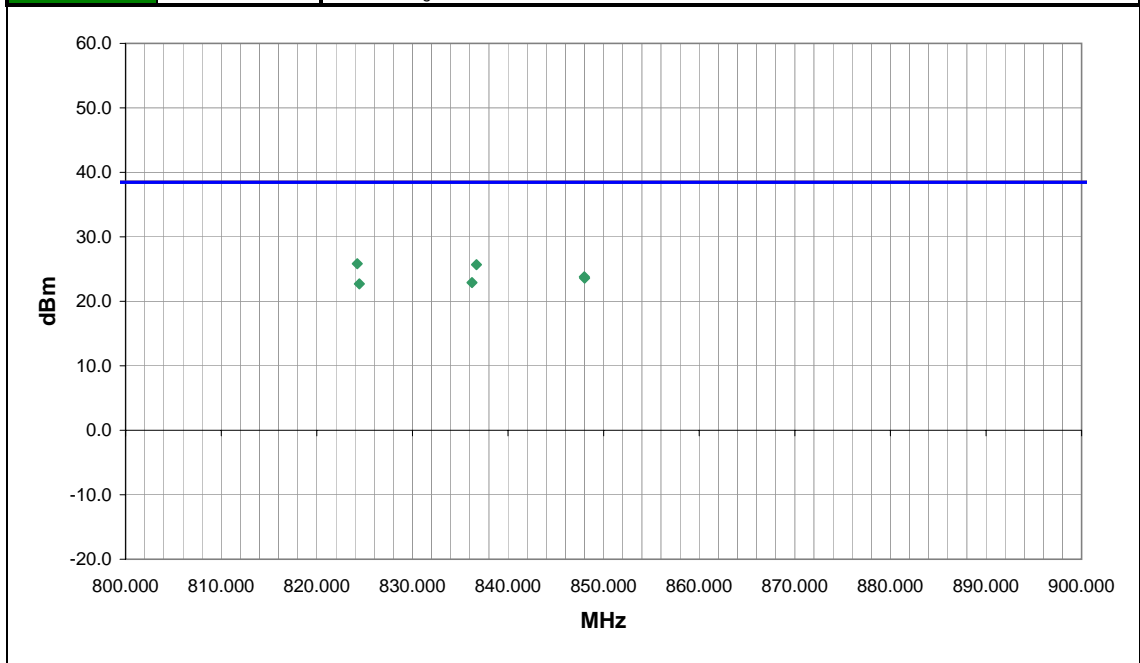
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS
Modem in IX600 Laptop with vehicular mount

EUT OPERATING MODES
Transmitting CDMA cellular, see comments for channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	15	Signature <i>Holly Ashkannejhad</i>
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
824.240	148.0	1.9	V-Bilog	PK	0.3819	25.8	38.5	-12.6	Low Channel
836.700	143.0	1.8	V-Bilog	PK	0.3690	25.7	38.5	-12.8	Mid channel
847.980	144.0	1.8	V-Bilog	PK	0.2402	23.8	38.5	-14.6	High Channel
848.020	169.0	1.0	H-Bilog	PK	0.2286	23.6	38.5	-14.9	High Channel
836.240	174.0	1.0	H-Bilog	PK	0.1950	22.9	38.5	-15.5	Mid channel
824.450	331.0	1.1	H-Bilog	PK	0.1866	22.7	38.5	-15.7	Low Channel

EUT: EM5625	Work Order: SPTE0011
Serial Number: Unknown	Date: 09/07/05
Customer: Spectrum Technology	Temperature: 23
Attendees: None	Humidity: 38%
Project: None	Barometric Pressure: 30.15
Tested by: Holly Ashkannejhad	Power: 120VAC/60Hz
	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 22.913(a):2004	TIA/EIA 603-B:2001

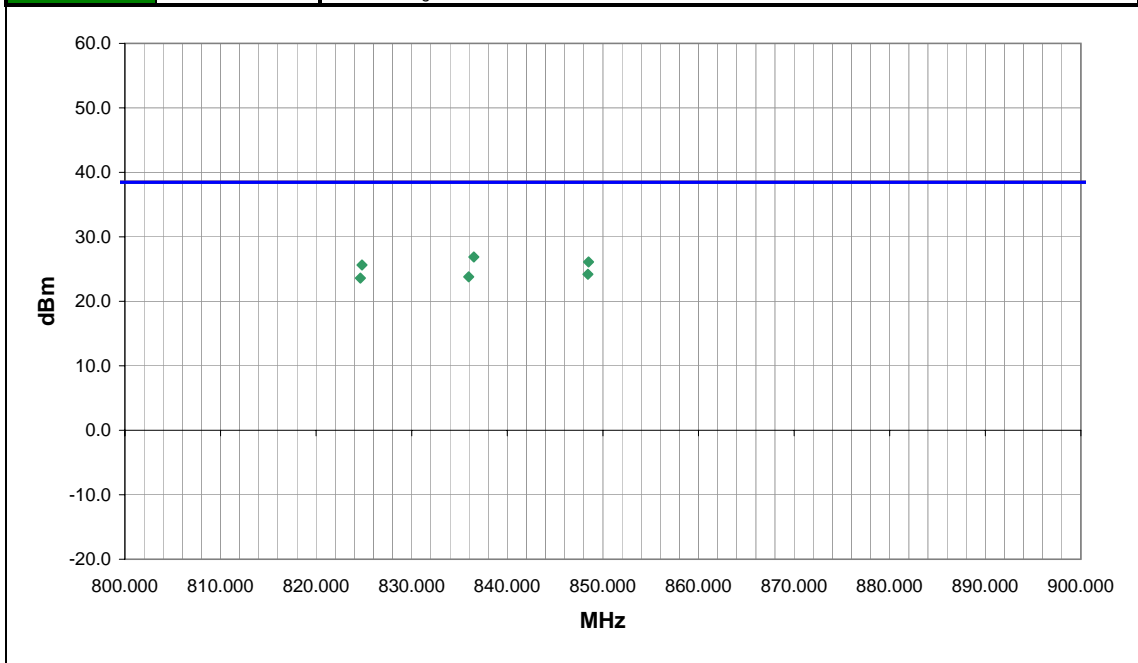
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
Modem in IX600 Laptop

EUT OPERATING MODES
Transmitting CDMA cellular, see comments for channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	16	Signature <i>Holly Ashkannejhad</i>
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
836.500	222.0	1.0	V-Bilog	PK	0.4862	26.9	38.5	-11.6	Mid channel
848.510	216.0	1.1	V-Bilog	PK	0.4085	26.1	38.5	-12.3	High channel
824.800	281.0	1.8	V-Bilog	PK	0.3652	25.6	38.5	-12.8	Low channel
848.430	103.0	1.7	H-Bilog	PK	0.2625	24.2	38.5	-14.3	High channel
835.970	86.0	1.6	H-Bilog	PK	0.2399	23.8	38.5	-14.6	Mid channel
824.640	89.0	1.0	H-Bilog	PK	0.2296	23.6	38.5	-14.8	Low channel

EUT: EM5625	Work Order: SPTE0011
Serial Number: Unknown	Date: 09/07/05
Customer: Spectrum Technology	Temperature: 23
Attendees: None	Humidity: 38%
Project: None	Barometric Pressure: 30.15
Tested by: Holly Ashkannejhad	Power: 120VAC/60Hz
	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 24.232(b):2004	TIA/EIA 603-B:2001

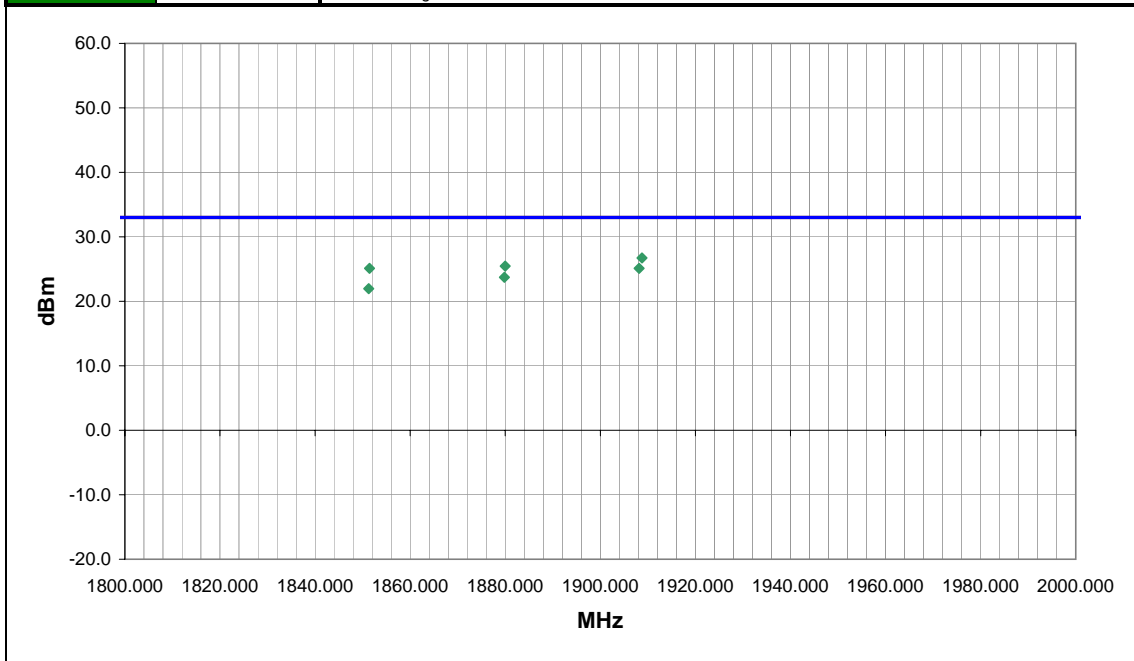
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
Modem in IX600 Laptop

EUT OPERATING MODES
Transmitting CDMA PCS, see comments for channel

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	17	Signature <i>Holly Ashkannejhad</i>
Configuration #		
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1908.750	111.0	1.4	V-Horn	PK	0.4698	26.7	33.0	-6.3	High channel
1880.000	210.0	2.2	V-Horn	PK	0.3517	25.5	33.0	-7.5	Mid channel
1908.160	92.0	1.5	H-Horn	PK	0.3239	25.1	33.0	-7.9	High channel
1851.450	222.0	1.1	V-Horn	PK	0.3239	25.1	33.0	-7.9	Low channel
1879.810	263.0	1.6	H-Horn	PK	0.2360	23.7	33.0	-9.3	Mid channel
1851.290	251.0	1.7	H-Horn	PK	0.1568	22.0	33.0	-11.0	Low channel

