Intermec Technologies Corporation

IM5r3

Report No. ITRM0188 Rev 01

Report Prepared By

NORTHWEST EMC

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

EMC Test Report

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Last Date of Test: January 2, 2009
Intermec Technologies Corporation
Model: IM5r3

Emissions			
Test Description	**Specification**	**Test Method**	**Pass/Fail**
Spurious Radiated Emissions	FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000	**Pass**
Occupied Bandwidth	FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000	**Pass**
Channel Spacing	FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000	**Pass**
Number of Channels	FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000	**Pass**
Dwell Time	FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000	**Pass**
Output Power	FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000	**Pass**
Band Edge Compliance	FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000	**Pass**
Spurious Conducted Emissions	FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000	**Pass**
AC Powerline Conducted Emissions	FCC 15.207:2009	ANSI C63.4:2003	**Pass**

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 (Site filing #2834D-1).

Approved By:

Donald Facteau, IS Manager

NVLAP Lab Code: 200630-0

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
01	Updated limits and improved formatting.	3/30/09	12-67

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 2004/108/EC, and ANSI C63.4. 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.

NVLAP LAB CODE 200629-0
NVLAP LAB CODE 200630-0
NVLAP LAB CODE 200676-0
NVLAP LAB CODE 200761-0

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-Gen, Issue 2 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. (*Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2)*

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.

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, C-2687, T-289, and R-2318, Irvine: R-1943, C-2766, and T-298, Sultan: R-871, C-1784, and T-294).*

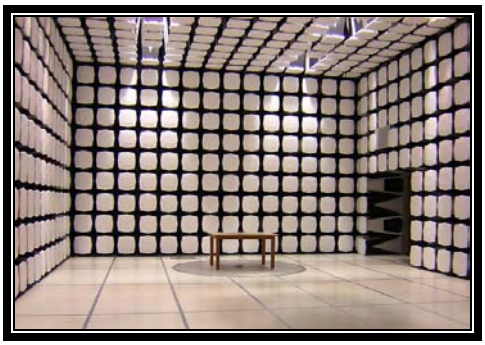
BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement (US0017). License No.SL2-IN-E-1017.

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

KCC: Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157)*

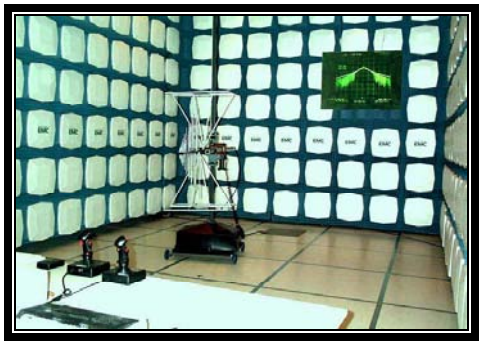
SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/accreditations/



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:	Intermec Technologies Corporation
Address:	550 Second St. SE
City, State, Zip:	Cedar Rapids, IA 52401-2023
Test Requested By:	Dave Fry
Model:	IM5r3
First Date of Test:	December 29, 2008
Last Date of Test:	January 2, 2009
Receipt Date of Samples:	December 19, 2008
Equipment Design Stage:	Prototype
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

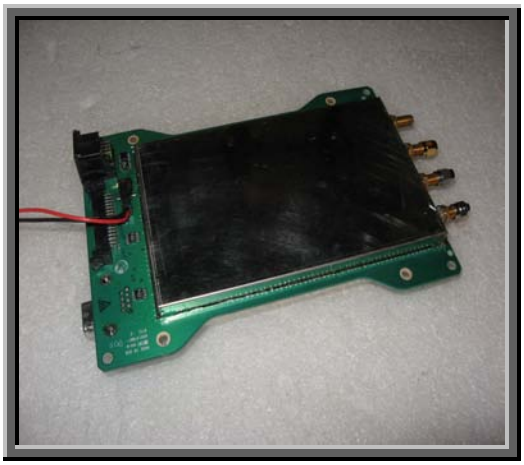
Functional Description of the EUT (Equipment Under Test):

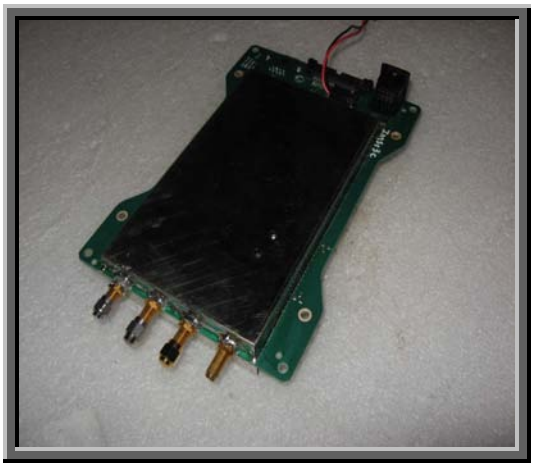
The IM5r3 is a new 915 MHz RFID radio module (FHSS). Operation is at 1 Watt conducted power in the 902.75 - 927.25 MHz band as a FHSS system. The radio has four antenna ports however it only transmits on a single port at a time. As an RFID product targeting passive tags, the receiver operates on the same frequency as the transmitter only with the transmitter engaged with no provision to engage the receiver unless the transmitter is enabled. It has two data rates PRASK 42 kbps and OOK 34 kbps. Four antennas will be tested.

Testing Objective:

It is seeking certification with full modular approval under 15.247.

EUT Photo





CONFIGURATION 1 ITRM0188

Software/Firmware Running during test	
Description	**Version**
Windows XP Pro	5.1 (sp2)
HyperTerminal	6.3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
RFID Radio Module	Intermec Technologies Corporation	IM5r3	Proto
Antenna 1	Intermec	805-626-001	L423-71307-007
Antenna Coax 1	Intermec	236-021-001	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	MAGTECH	SPU24-104	02343674

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	1.8m	No	AC Mains	DC Power Supply
DC Power	No	1.8m	No	DC Power Supply	RFID Radio Module
Serial	Yes	1.8m	No	RFID Radio Module	Unterminated
Antenna Cable 1	Yes	3.95m	No	RFID Radio Module	Antenna 1
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 2 ITRM0188

Software/Firmware Running during test	
Description	**Version**
Windows XP Pro	5.1 (sp2)
HyperTerminal	6.3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
RFID Radio Module	Intermec Technologies Corporation	IM5r3	Proto
Antenna 2	Laird Technologies	805-816-002	46080023
Antenna Coax 1	Intermec	236-021-001	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	MAGTECH	SPU24-104	02343674

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	1.8m	No	AC Mains	DC Power Supply
DC Power	No	1.8m	No	DC Power Supply	RFID Radio Module
Serial	Yes	1.8m	No	RFID Radio Module	Unterminated
Antenna Cable 1	Yes	3.95m	No	RFID Radio Module	Antenna 2
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 3 ITRM0188

Software/Firmware Running during test	
Description	**Version**
Windows XP Pro	5.1 (sp2)
HyperTerminal	6.3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
RFID Radio Module	Intermec Technologies Corporation	IM5r3	Proto
Antenna 3	Huber-Suhner	Art. No.: 84039146	00114
Antenna Coax 1	Intermec	236-021-001	None
Antenna Coax 2	Intermec	CA-2361-01-183	None

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	MAGTECH	SPU24-104	02343674

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	1.8m	No	AC Mains	DC Power Supply
DC Power	No	1.8m	No	DC Power Supply	RFID Radio Module
Serial	Yes	1.8m	No	RFID Radio Module	Unterminated
Antenna Cable 1 and 2	Yes	5.75m	No	RFID Radio Module	Antenna 3
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 4 ITRM0188

Software/Firmware Running during test	
Description	**Version**
Windows XP Pro	5.1 (sp2)
HyperTerminal	6.3

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
RFID Radio Module	Intermec Technologies Corporation	IM5r3	Proto

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
DC Power Supply	MAGTECH	SPU24-104	02343674
Laptop PC	Dell	PP01L	8YWZB01

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	1.8m	No	AC Mains	DC Power Supply
DC Power	No	1.8m	No	DC Power Supply	RFID Radio Module
Serial	Yes	1.8m	No	RFID Radio Module	Unterminated
Antenna Cable 1 and 2	Yes	5.75m	No	RFID Radio Module	Antenna 3
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	12/29/2008	Number of Channels	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	12/29/2008	Output Power	Modified from delivered configuration. Supercedes all Previous Modifications.	Adjusted power output to meet specifications. Modification done by Ethan Schoonover.	EUT remained at Northwest EMC following the test.
3	12/29/2008	Band Edge Compliance	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	12/29/2008	Spurious 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.
5	12/29/2008	Occupied Bandwidth	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.
6	12/29/2008	Channel Spacing	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.
7	12/29/2008	Dwell Time	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.
8	12/31/2008	Spurious Radiated 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.
9	1/2/2009	AC Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was complete.

SPURIOUS RADIATED EMISSIONS

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

Continuous Tx, tagtype=EPCC1G2.

MODE USED FOR FINAL DATA

Continuous Tx, tagtype=EPCC1G2.

POWER SETTINGS INVESTIGATED

8.6VDC

POWER SETTINGS USED FOR FINAL DATA

8.6VDC

FREQUENCY RANGE INVESTIGATED

Start Frequency	30MHz	Stop Frequency	10GHz

CLOCKS AND OSCILLATORS

902.75MHz, 915.25MHz, 927.25MHz

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
Spectrum Analyzer	Agilent	E4446A	AAT	12/12/2008	13
High Pass Filter 1.2 - 18 GHz	Micro-Tronics	HPM50108	HFV	5/21/2008	13
.5-1 GHz Notch Filter	K&L Microwave	3TNF-500/1000-N/N	HFT	7/2/2008	24
Low Pass Filter 0-425 MHz	Micro-Tronics	LPM50003	LFB	8/5/2008	13
Antenna, Biconilog	EMCO	3141	AXE	1/15/2008	24
Antenna, Horn	EMCO	3115	AHC	8/12/2008	24
Pre-Amplifier	Miteq	AM-1616-1000	AOL	5/19/2008	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	5/19/2008	13
EV01 Cables		Bilog Cables	EVA	5/19/2008	13
EV01 Cables		Double Ridge Horn Cables	EVB	5/19/2008	13

MEASUREMENT BANDWIDTHS

	Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (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 band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. 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 (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.07.21
EMI 2008.7.3

EUT:	IM5r3	Work Order:	ITRM0188
Serial Number:	Prototype	Date:	12/31/08
Customer:	Intermec Technologies Corporation	Temperature:	21.3° C
Attendees:	None	Humidity:	33%
Project:	None	Barometric Pres.:	1019.6mb
Tested by:	Dan Haas	Power: 8.6VDC	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2007	ANSI C63.4:2003, DA 00-705:2000

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

COMMENTS

805-816-002 antenna. See notes for EUT orientation and channel. Transmitting from port 1 "worse case".

EUT OPERATING MODES

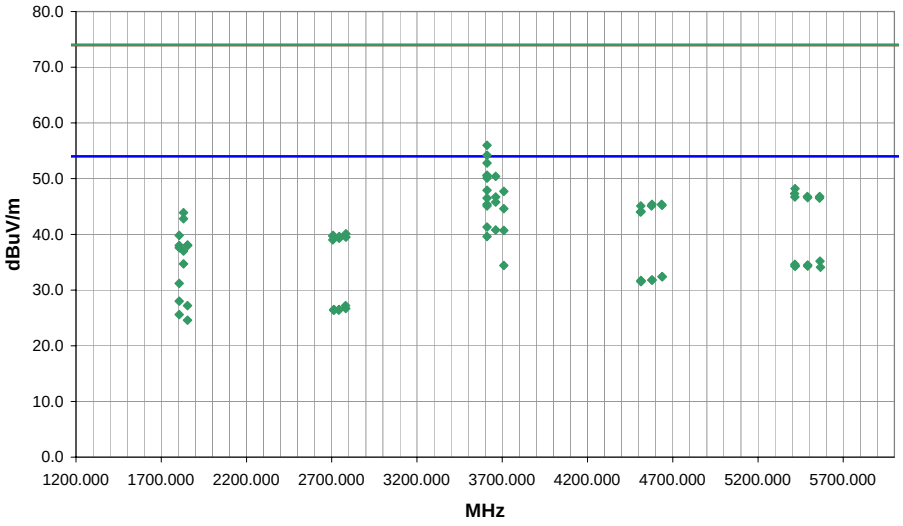
Continuous Tx, tagtype=EPCC1G2.

DEVIATIONS FROM TEST STANDARD

No deviations.

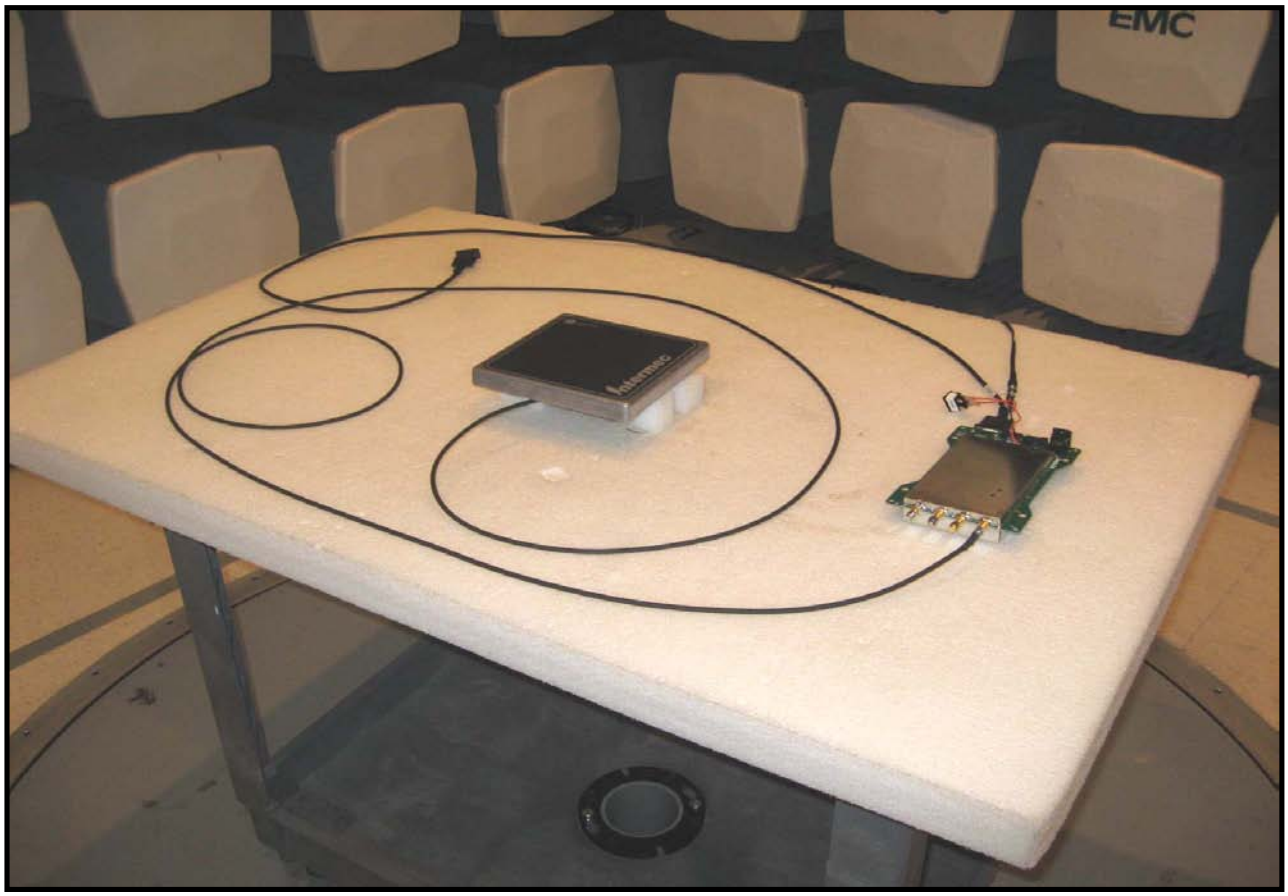
Run #	3
Configuration #	2
Results	Pass

Signature



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)	Comments
3611.033	45.9	6.9	349.0	1.0	3.0	0.0	V-Horn	AV	0.0	52.8	54.0	-1.2	EUT vertical, channel 5 (902.75MHz)
3611.033	43.7	6.9	360.0	1.6	3.0	0.0	H-Horn	AV	0.0	50.6	54.0	-3.4	EUT on side, channel 5 (902.75MHz)
3661.008	38.7	7.1	-1.0	1.0	3.0	0.0	V-Horn	AV	0.0	45.8	54.0	-8.2	EUT vertical, channel 30 (915.25MHz)
3611.075	38.5	6.9	139.0	1.0	3.0	0.0	H-Horn	AV	0.0	45.4	54.0	-8.6	EUT horizontal, channel 5 (902.75MHz)
3611.050	38.2	6.9	355.0	1.0	3.0	0.0	H-Horn	AV	0.0	45.1	54.0	-8.9	EUT vertical, channel 5 (902.75MHz)
3611.083	34.4	6.9	209.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.3	54.0	-12.7	EUT horizontal, channel 5 (902.75MHz)
3661.025	33.7	7.1	360.0	1.5	3.0	0.0	H-Horn	AV	0.0	40.8	54.0	-13.2	EUT on side, channel 30 (915.25MHz)
3709.042	33.3	7.4	1.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.7	54.0	-13.3	EUT on side, channel 54 (927.25MHz)
3611.042	32.7	6.9	360.0	1.3	3.0	0.0	V-Horn	AV	0.0	39.6	54.0	-14.4	EUT on side, channel 5 (902.75MHz)
1830.525	37.7	-0.7	57.0	1.0	3.0	0.0	V-Horn	AV	0.0	37.0	54.0	-17.0	EUT vertical, channel 30 (915.25MHz)
3610.950	49.1	6.9	349.0	1.0	3.0	0.0	V-Horn	PK	0.0	56.0	74.0	-18.0	EUT vertical, channel 5 (902.75MHz)
5563.508	23.5	11.7	64.0	1.0	3.0	0.0	H-Horn	AV	0.0	35.2	54.0	-18.8	EUT on side, channel 54 (927.25MHz)
1830.517	35.4	-0.7	67.0	1.8	3.0	0.0	H-Horn	AV	0.0	34.7	54.0	-19.3	EUT on side, channel 30 (915.25MHz)
5416.583	23.0	11.6	-1.0	1.4	3.0	0.0	H-Horn	AV	0.0	34.6	54.0	-19.4	EUT on side, channel 5 (902.75MHz)
5491.592	22.7	11.8	359.0	2.1	3.0	0.0	V-Horn	AV	0.0	34.5	54.0	-19.5	EUT vertical, channel 30 (915.25MHz)
3709.075	27.0	7.4	360.0	1.4	3.0	0.0	V-Horn	AV	0.0	34.4	54.0	-19.6	EUT vertical, channel 54 (927.25MHz)
5416.675	22.7	11.6	69.0	3.1	3.0	0.0	V-Horn	AV	0.0	34.3	54.0	-19.7	EUT vertical, channel 5 (902.75MHz)
5419.358	22.7	11.6	350.0	1.0	3.0	0.0	H-Horn	AV	0.0	34.3	54.0	-19.7	EUT vertical, channel 5 (902.75MHz)
5491.425	22.5	11.8	158.0	1.0	3.0	0.0	H-Horn	AV	0.0	34.3	54.0	-19.7	EUT on side, channel 30 (915.25MHz)
3610.942	47.3	6.9	360.0	1.6	3.0	0.0	H-Horn	PK	0.0	54.2	74.0	-19.8	EUT on side, channel 5 (902.75MHz)
5566.258	22.4	11.7	135.0	3.3	3.0	0.0	V-Horn	AV	0.0	34.1	54.0	-19.9	EUT vertical, channel 54 (927.25MHz)
4637.642	23.3	9.1	189.0	2.5	3.0	0.0	H-Horn	AV	0.0	32.4	54.0	-21.6	EUT on side, channel 54 (927.25MHz)
4637.925	23.3	9.1	320.0	1.0	3.0	0.0	V-Horn	AV	0.0	32.4	54.0	-21.6	EUT vertical, channel 54 (927.25MHz)
4577.308	23.0	8.8	132.0	2.8	3.0	0.0	V-Horn	AV	0.0	31.8	54.0	-22.2	EUT vertical, channel 30 (915.25MHz)
4579.158	23.0	8.8	144.0	1.0	3.0	0.0	H-Horn	AV	0.0	31.8	54.0	-22.2	EUT on side, channel 30 (915.25MHz)
4513.817	23.2	8.5	334.0	1.0	3.0	0.0	H-Horn	AV	0.0	31.7	54.0	-22.3	EUT vertical, channel 5 (902.75MHz)
4514.033	23.1	8.5	351.0	1.0	3.0	0.0	H-Horn	AV	0.0	31.6	54.0	-22.4	EUT on side, channel 5 (902.75MHz)
4513.958	23.0	8.5	115.0	1.0	3.0	0.0	V-Horn	AV	0.0	31.5	54.0	-22.5	EUT vertical, channel 5 (902.75MHz)
1805.542	32.0	-0.8	38.0	1.0	3.0	0.0	V-Horn	AV	0.0	31.2	54.0	-22.8	EUT vertical, channel 5 (902.75MHz)
3611.042	43.6	6.9	139.0	1.0	3.0	0.0	H-Horn	PK	0.0	50.5	74.0	-23.5	EUT horizontal, channel 5 (902.75MHz)
3661.150	43.3	7.1	-1.0	1.0	3.0	0.0	V-Horn	PK	0.0	50.4	74.0	-23.6	EUT vertical, channel 30 (915.25MHz)
3610.892	43.2	6.9	355.0	1.0	3.0	0.0	H-Horn	PK	0.0	50.1	74.0	-23.9	EUT vertical, channel 5 (902.75MHz)
5416.892	36.6	11.6	350.0	1.0	3.0	0.0	H-Horn	PK	0.0	48.2	74.0	-25.8	EUT vertical, channel 5 (902.75MHz)
1805.550	28.9	-0.9	322.0	1.0	3.0	0.0	H-Horn	AV	0.0	28.0	54.0	-26.0	EUT vertical, channel 5 (902.75MHz)
3611.258	41.0	6.9	209.0	1.0	3.0	0.0	V-Horn	PK	0.0	47.9	74.0	-26.1	EUT horizontal, channel 5 (902.75MHz)
3709.242	40.3	7.4	1.0	1.0	3.0	0.0	H-Horn	PK	0.0	47.7	74.0	-26.3	EUT on side, channel 54 (927.25MHz)
5414.217	35.7	11.6	69.0	3.1	3.0	0.0	V-Horn	PK	0.0	47.3	74.0	-26.7	EUT vertical, channel 5 (902.75MHz)
1854.492	27.7	-0.5	56.0	1.0	3.0	0.0	V-Horn	AV	0.0	27.2	54.0	-26.8	EUT vertical, channel 54 (927.25MHz)
2781.633	24.1	3.1	174.0	1.0	3.0	0.0	H-Horn	AV	0.0	27.2	54.0	-26.8	EUT on side, channel 54 (927.25MHz)
5489.308	35.0	11.8	359.0	2.1	3.0	0.0	V-Horn	PK	0.0	46.8	74.0	-27.2	EUT vertical, channel 30 (915.25MHz)
5562.017	35.1	11.7	64.0	1.0	3.0	0.0	H-Horn	PK	0.0	46.8	74.0	-27.2	EUT on side, channel 54 (927.25MHz)
2781.917	23.6	3.1	85.0	1.0	3.0	0.0	V-Horn	AV	0.0	26.7	54.0	-27.3	EUT vertical, channel 54 (927.25MHz)
3661.108	39.6	7.1	360.0	1.5	3.0	0.0	H-Horn	PK	0.0	46.7	74.0	-27.3	EUT on side, channel 30 (915.25MHz)
5416.492	35.1	11.6	-1.0	1.4	3.0	0.0	H-Horn	PK	0.0	46.7	74.0	-27.3	EUT on side, channel 5 (902.75MHz)
5491.242	34.8	11.8	158.0	1.0	3.0	0.0	H-Horn	PK	0.0	46.6	74.0	-27.4	EUT on side, channel 30 (915.25MHz)

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)	Comments
2712.283	23.7	2.8	341.0	3.2	3.0	0.0	H-Horn	AV	0.0	26.5	54.0	-27.5	EUT vertical, channel 5 (902.75MHz)
2742.525	23.6	2.9	20.0	2.3	3.0	0.0	H-Horn	AV	0.0	26.5	54.0	-27.5	EUT on side, channel 30 (915.25MHz)
5561.100	34.8	11.7	135.0	3.3	3.0	0.0	V-Horn	PK	0.0	46.5	74.0	-27.5	EUT vertical, channel 54 (927.25MHz)
3610.933	39.6	6.9	360.0	1.3	3.0	0.0	V-Horn	PK	0.0	46.5	74.0	-27.5	EUT on side, channel 5 (902.75MHz)
2711.883	23.6	2.8	98.0	1.0	3.0	0.0	V-Horn	AV	0.0	26.4	54.0	-27.6	EUT vertical, channel 5 (902.75MHz)
2711.925	23.6	2.8	148.0	3.3	3.0	0.0	H-Horn	AV	0.0	26.4	54.0	-27.6	EUT on side, channel 5 (902.75MHz)
2741.183	23.5	2.9	286.0	2.7	3.0	0.0	V-Horn	AV	0.0	26.4	54.0	-27.6	EUT vertical, channel 30 (915.25MHz)
1805.533	26.5	-0.9	-1.0	1.4	3.0	0.0	H-Horn	AV	0.0	25.6	54.0	-28.4	EUT on side, channel 5 (902.75MHz)
4634.950	36.3	9.1	189.0	2.5	3.0	0.0	H-Horn	PK	0.0	45.4	74.0	-28.6	EUT on side, channel 54 (927.25MHz)
4578.092	36.6	8.8	144.0	1.0	3.0	0.0	H-Horn	PK	0.0	45.4	74.0	-28.6	EUT on side, channel 30 (915.25MHz)
4637.325	36.1	9.1	320.0	1.0	3.0	0.0	V-Horn	PK	0.0	45.2	74.0	-28.8	EUT vertical, channel 54 (927.25MHz)
4512.758	36.6	8.5	115.0	1.0	3.0	0.0	V-Horn	PK	0.0	45.1	74.0	-28.9	EUT vertical, channel 5 (902.75MHz)
4575.250	36.3	8.8	132.0	2.8	3.0	0.0	V-Horn	PK	0.0	45.1	74.0	-28.9	EUT vertical, channel 30 (915.25MHz)
1854.450	25.1	-0.5	316.0	1.0	3.0	0.0	H-Horn	AV	0.0	24.6	54.0	-29.4	EUT on side, channel 54 (927.25MHz)
3709.083	37.2	7.4	360.0	1.4	3.0	0.0	V-Horn	PK	0.0	44.6	74.0	-29.4	EUT vertical, channel 54 (927.25MHz)
4514.167	35.6	8.5	351.0	1.0	3.0	0.0	H-Horn	PK	0.0	44.1	74.0	-29.9	EUT on side, channel 5 (902.75MHz)
4510.817	35.5	8.5	334.0	1.0	3.0	0.0	H-Horn	PK	0.0	44.0	74.0	-30.0	EUT vertical, channel 5 (902.75MHz)
1830.375	44.6	-0.7	57.0	1.0	3.0	0.0	V-Horn	PK	0.0	43.9	74.0	-30.1	EUT vertical, channel 30 (915.25MHz)
1830.533	43.5	-0.7	67.0	1.8	3.0	0.0	H-Horn	PK	0.0	42.8	74.0	-31.2	EUT on side, channel 30 (915.25MHz)
2783.233	37.0	3.1	85.0	1.0	3.0	0.0	V-Horn	PK	0.0	40.1	74.0	-33.9	EUT vertical, channel 54 (927.25MHz)
1805.608	40.7	-0.9	38.0	1.0	3.0	0.0	V-Horn	PK	0.0	39.8	74.0	-34.2	EUT vertical, channel 5 (902.75MHz)
2707.800	37.0	2.8	148.0	3.3	3.0	0.0	H-Horn	PK	0.0	39.8	74.0	-34.2	EUT on side, channel 5 (902.75MHz)
2706.408	36.9	2.8	98.0	1.0	3.0	0.0	V-Horn	PK	0.0	39.7	74.0	-34.3	EUT vertical, channel 5 (902.75MHz)
2743.692	36.7	2.9	20.0	2.3	3.0	0.0	H-Horn	PK	0.0	39.6	74.0	-34.4	EUT on side, channel 30 (915.25MHz)
2783.050	36.4	3.1	174.0	1.0	3.0	0.0	H-Horn	PK	0.0	39.5	74.0	-34.5	EUT on side, channel 54 (927.25MHz)
2743.767	36.4	2.9	286.0	2.7	3.0	0.0	V-Horn	PK	0.0	39.3	74.0	-34.7	EUT vertical, channel 30 (915.25MHz)
2705.875	36.2	2.8	341.0	3.2	3.0	0.0	H-Horn	PK	0.0	39.0	74.0	-35.0	EUT vertical, channel 5 (902.75MHz)
1854.375	38.6	-0.5	56.0	1.0	3.0	0.0	V-Horn	PK	0.0	38.1	74.0	-35.9	EUT vertical, channel 54 (927.25MHz)
1805.533	38.9	-0.9	322.0	1.0	3.0	0.0	H-Horn	PK	0.0	38.0	74.0	-36.0	EUT vertical, channel 5 (902.75MHz)
1854.575	38.5	-0.5	316.0	1.0	3.0	0.0	H-Horn	PK	0.0	38.0	74.0	-36.0	EUT on side, channel 54 (927.25MHz)
1805.350	38.5	-0.9	-1.0	1.4	3.0	0.0	H-Horn	PK	0.0	37.6	74.0	-36.4	EUT on side, channel 5 (902.75MHz)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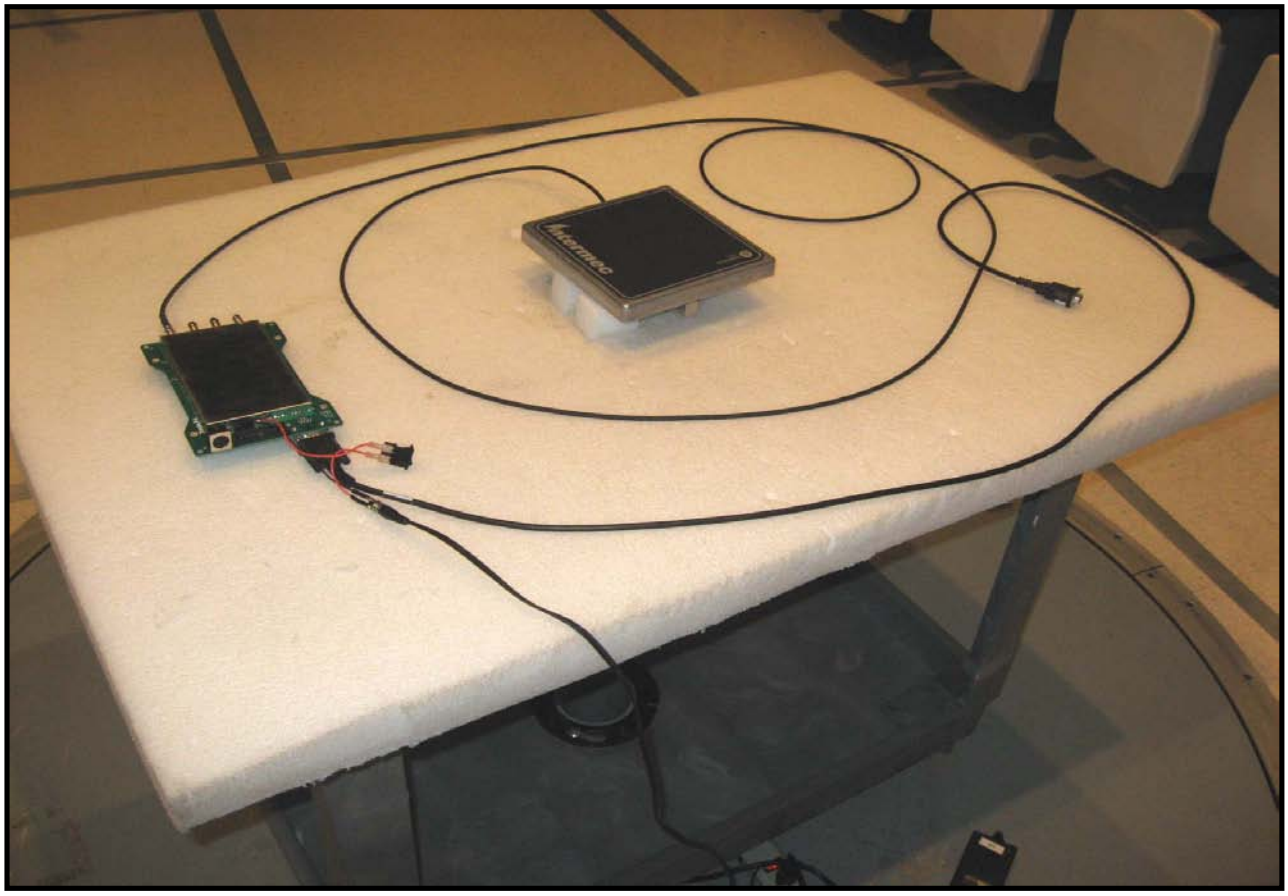

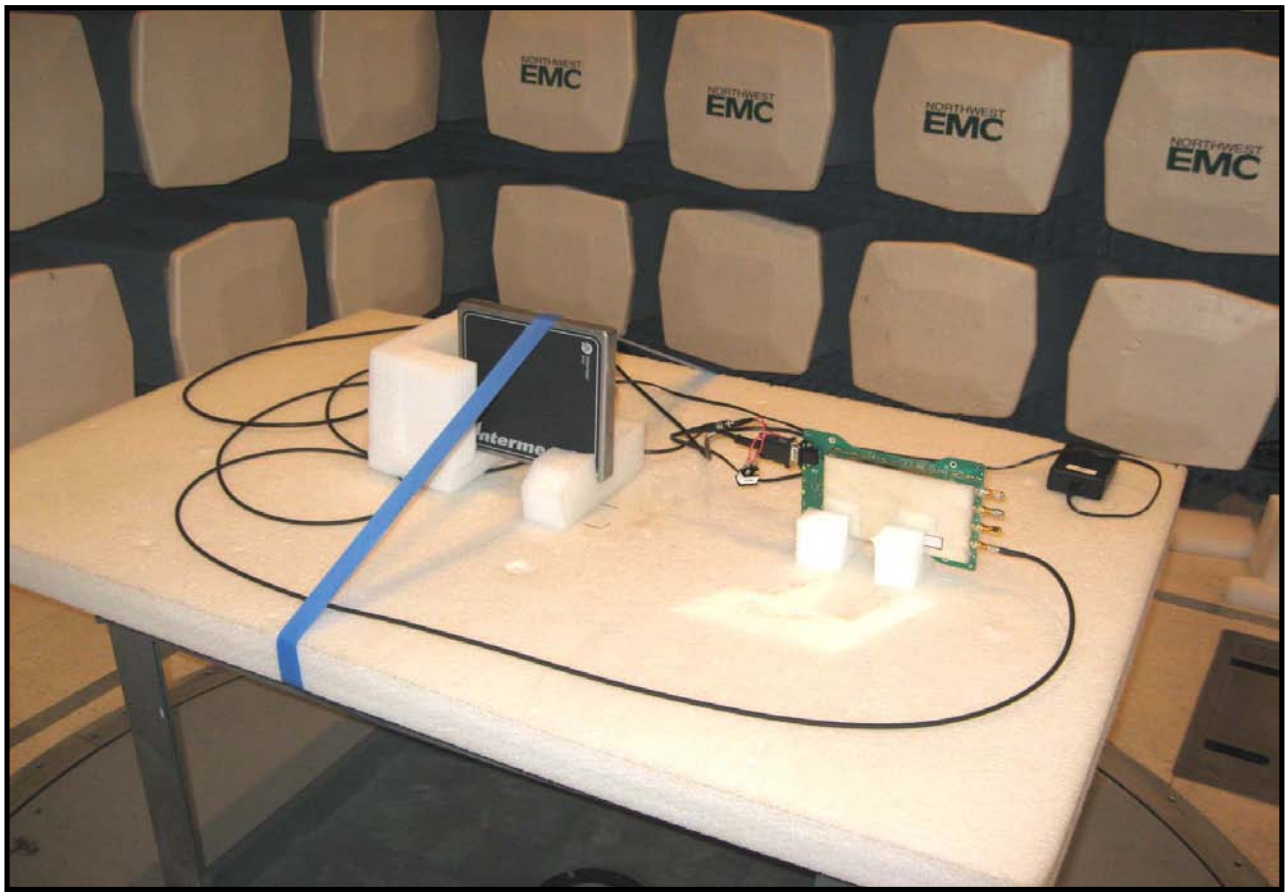
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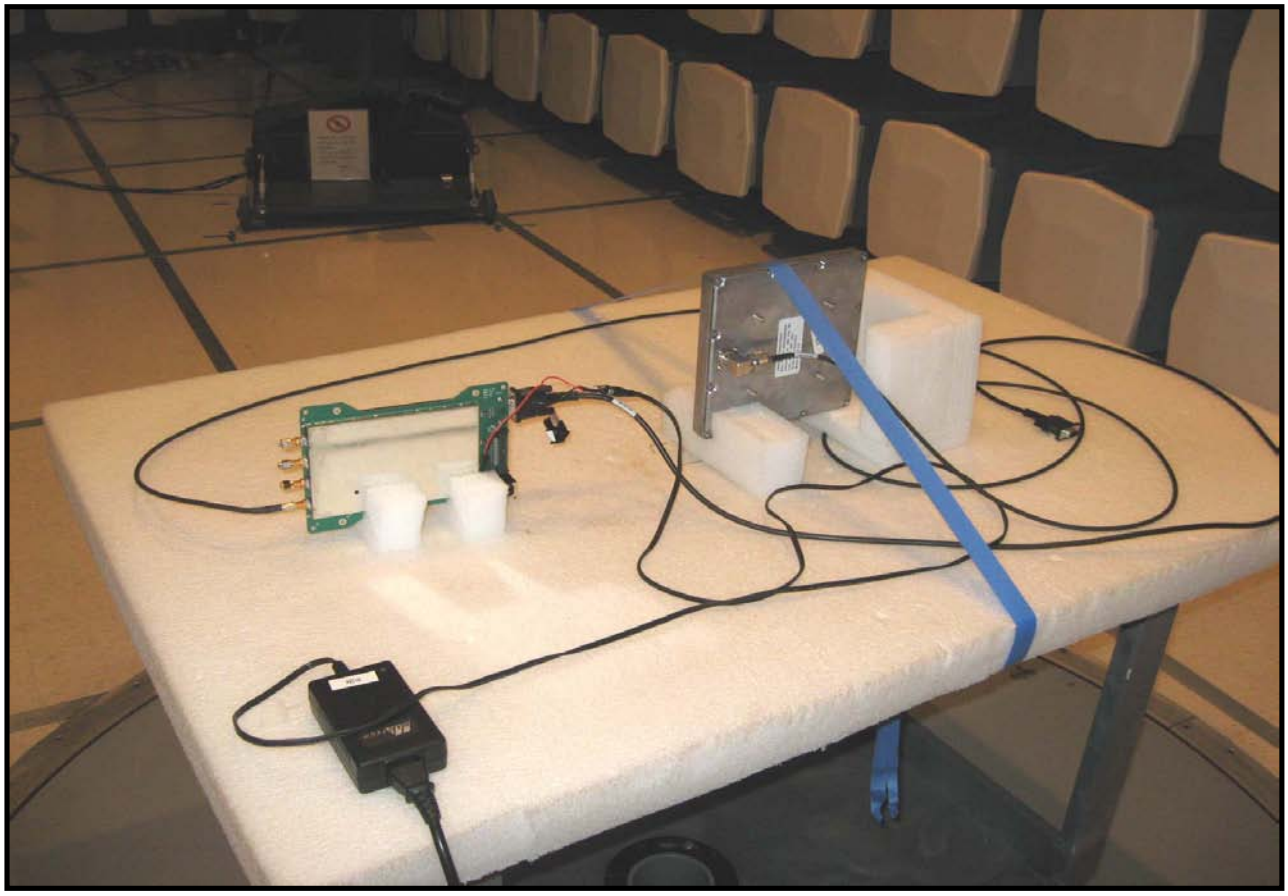

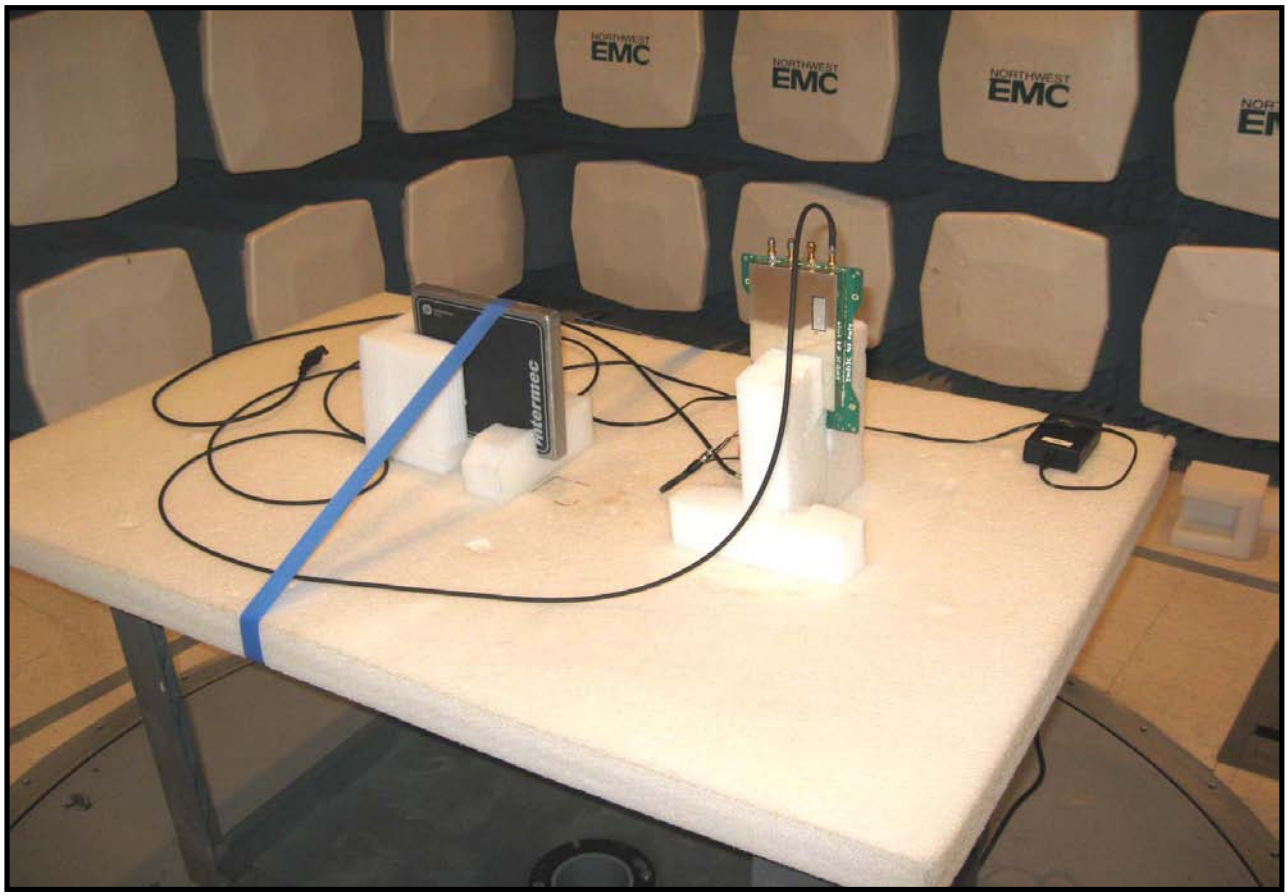
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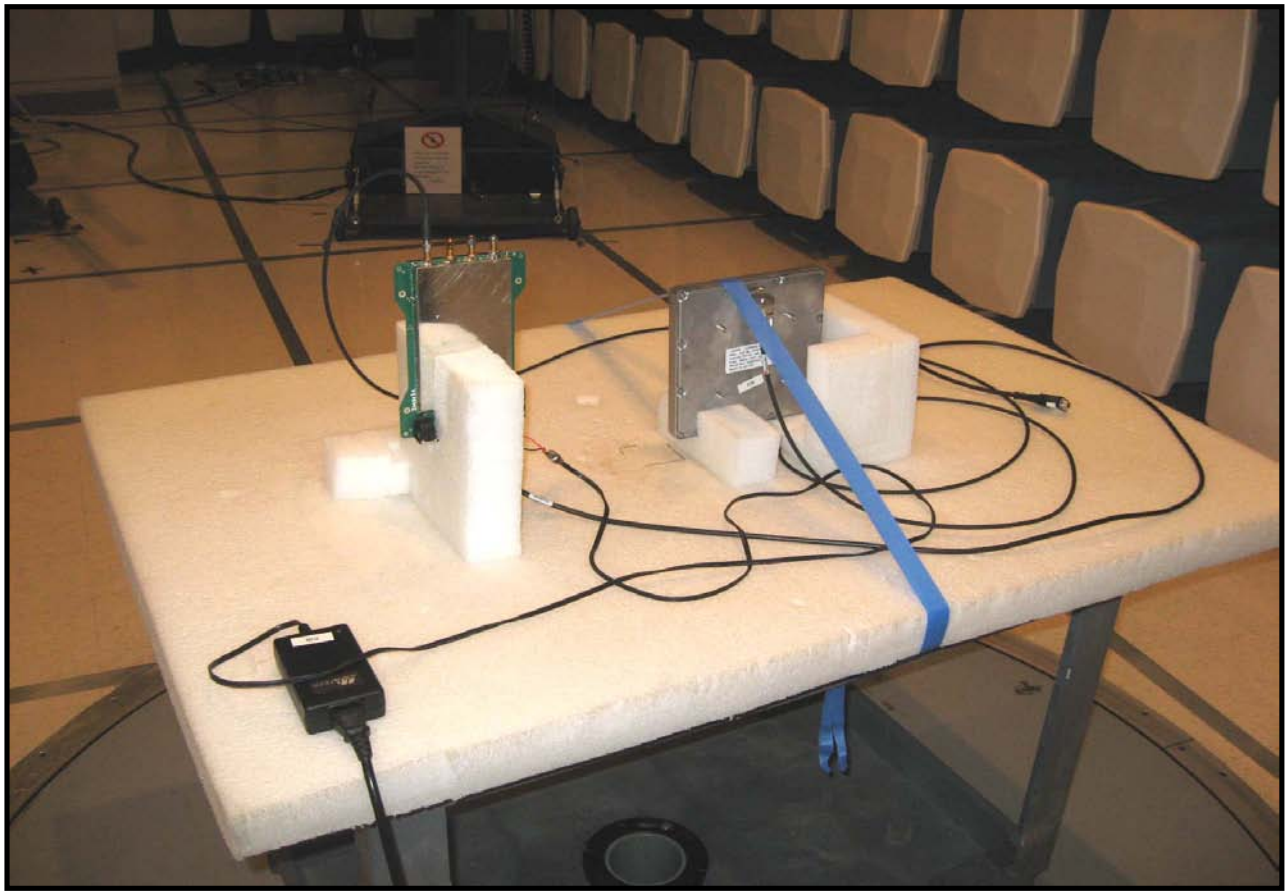


SPURIOUS RADIATED EMISSIONS

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

Continuous Tx, tagtype=EPCC1G2.

MODE USED FOR FINAL DATA

Continuous Tx, tagtype=EPCC1G2.

POWER SETTINGS INVESTIGATED

8.6VDC

POWER SETTINGS USED FOR FINAL DATA

8.6VDC

FREQUENCY RANGE INVESTIGATED

Start Frequency	30MHz	Stop Frequency	10GHz

CLOCKS AND OSCILLATORS

902.75MHz, 915.25MHz, 927.25MHz

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
Spectrum Analyzer	Agilent	E4446A	AAT	12/12/2008	13
High Pass Filter 1.2 - 18 GHz	Micro-Tronics	HPM50108	HFV	5/21/2008	13
.5-1 GHz Notch Filter	K&L Microwave	3TNF-500/1000-N/N	HFT	7/2/2008	24
Low Pass Filter 0-425 MHz	Micro-Tronics	LPM50003	LFB	8/5/2008	13
Antenna, Biconilog	EMCO	3141	AXE	1/15/2008	24
Antenna, Horn	EMCO	3115	AHC	8/12/2008	24
Pre-Amplifier	Miteq	AM-1616-1000	AOL	5/19/2008	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	5/19/2008	13
EV01 Cables		Bilog Cables	EVA	5/19/2008	13
EV01 Cables		Double Ridge Horn Cables	EVB	5/19/2008	13

MEASUREMENT BANDWIDTHS

	Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (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 band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. 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 (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

NORTHWEST
EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.07.21
EMI 2008.7.3

EUT:	IM5r3	**Work Order:**	ITRM0188
Serial Number:	Prototype	**Date:**	12/31/08
Customer:	Intermec Technologies Corporation	**Temperature:**	21.3° C
Attendees:	None	**Humidity:**	33%
Project:	None	**Barometric Pres.:**	1019.6mb
Tested by:	Dan Haas	**Power:** 8.6VDC	**Job Site:** EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2007	ANSI C63.4:2003, DA 00-705:2000

TEST PARAMETERS

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

COMMENTS

Huber Suhner antenna. See notes for EUT orientation and channel. Transmitting from port 1 "worse case".

EUT OPERATING MODES

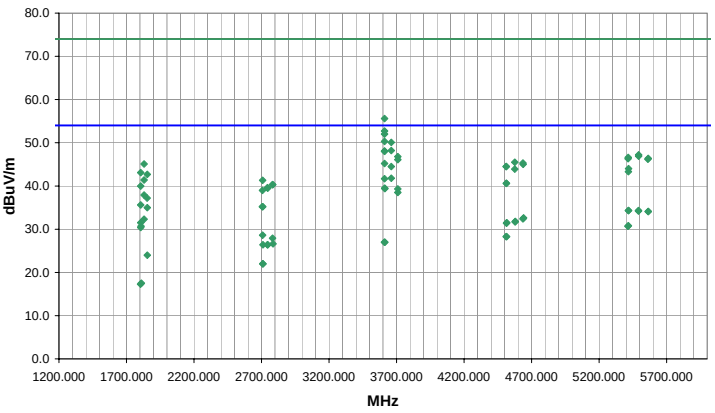
Continuous Tx, tagtype=EPCC1G2.

DEVIATIONS FROM TEST STANDARD

No deviations.

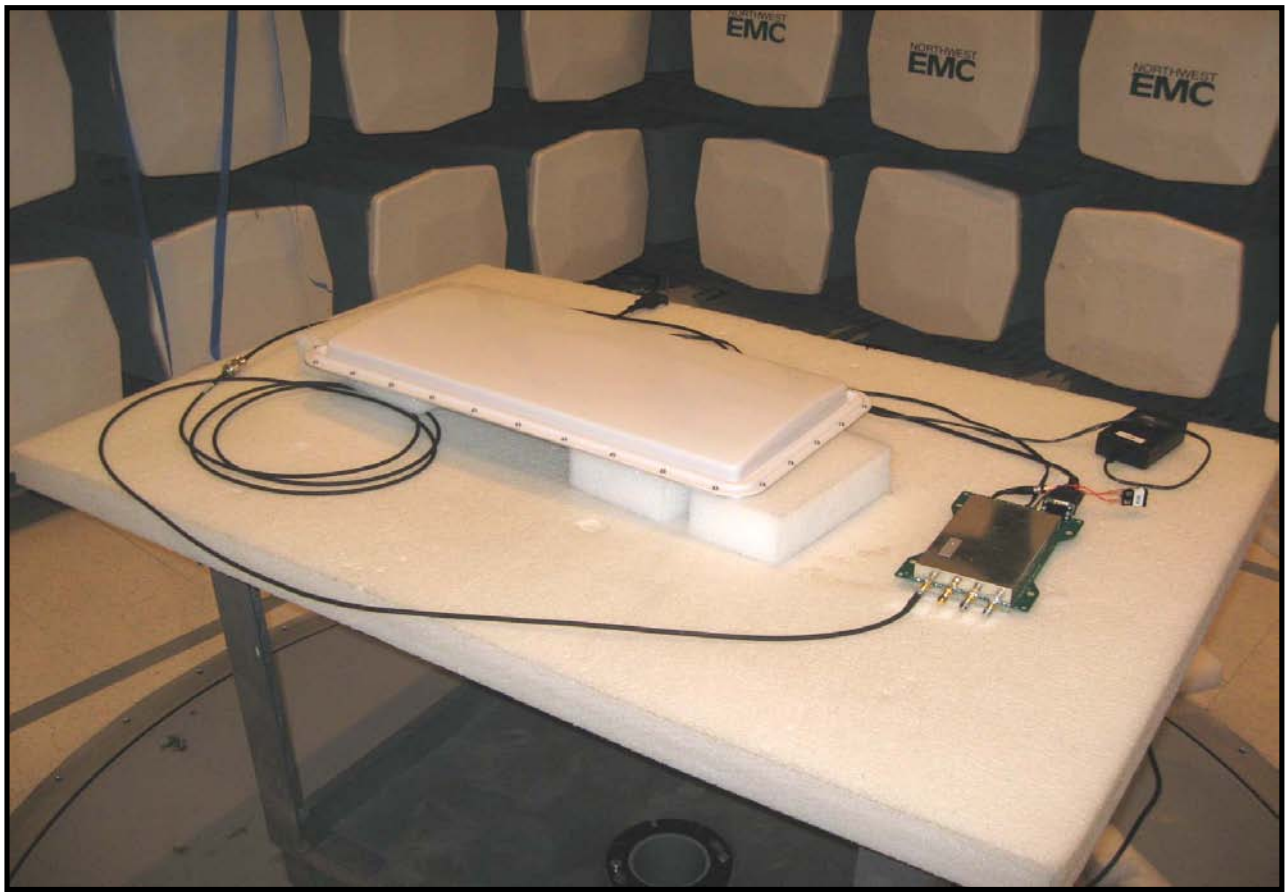
Run #	4
Configuration #	3
Results	Pass

Signature



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)	Comments
3611.042	45.8	6.9	14.0	1.0	3.0	0.0	V-Horn	AV	0.0	52.7	54.0	-1.3	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
3611.025	41.2	6.9	350.0	1.4	3.0	0.0	H-Horn	AV	0.0	48.1	54.0	-5.9	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
3611.025	38.3	6.9	277.0	2.6	3.0	0.0	H-Horn	AV	0.0	45.2	54.0	-8.8	EUT and antenna horizontal (face up) orientation, channel 5 (902.75MHz)
3661.033	37.4	7.1	2.0	1.0	3.0	0.0	V-Horn	AV	0.0	44.5	54.0	-9.5	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
3661.075	34.7	7.1	5.0	1.0	3.0	0.0	H-Horn	AV	0.0	41.8	54.0	-12.2	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
3611.008	34.8	6.9	48.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.7	54.0	-12.3	EUT and antenna horizontal (face up) orientation, channel 5 (902.75MHz)
3709.025	31.9	7.4	2.0	1.0	3.0	0.0	V-Horn	AV	0.0	39.3	54.0	-14.7	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
3709.058	31.1	7.4	-1.0	1.6	3.0	0.0	H-Horn	AV	0.0	38.5	54.0	-15.5	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
1830.483	38.6	-0.7	58.0	1.0	3.0	0.0	V-Horn	AV	0.0	37.9	54.0	-16.1	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
1805.500	36.4	-0.8	71.0	1.0	3.0	0.0	V-Horn	AV	0.0	35.6	54.0	-18.4	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
3611.058	48.7	6.9	14.0	1.0	3.0	0.0	V-Horn	PK	0.0	55.6	74.0	-18.4	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
1854.525	35.5	-0.5	15.0	1.0	3.0	0.0	V-Horn	AV	0.0	35.0	54.0	-19.0	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
5417.450	22.7	11.6	127.0	3.3	3.0	0.0	H-Horn	AV	0.0	34.3	54.0	-19.7	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
5417.983	22.7	11.6	83.0	1.0	3.0	0.0	V-Horn	AV	0.0	34.3	54.0	-19.7	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
5491.558	22.5	11.8	25.0	1.0	3.0	0.0	V-Horn	AV	0.0	34.3	54.0	-19.7	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
5491.750	22.4	11.8	242.0	1.0	3.0	0.0	H-Horn	AV	0.0	34.2	54.0	-19.8	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
5563.467	22.4	11.7	318.0	2.9	3.0	0.0	V-Horn	AV	0.0	34.1	54.0	-19.9	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
5564.192	22.4	11.7	145.0	2.6	3.0	0.0	H-Horn	AV	0.0	34.1	54.0	-19.9	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
4640.800	23.5	9.1	5.0	2.9	3.0	0.0	H-Horn	AV	0.0	32.6	54.0	-21.4	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
4636.183	23.3	9.1	18.0	1.0	3.0	0.0	V-Horn	AV	0.0	32.4	54.0	-21.6	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
1830.542	33.0	-0.7	347.0	1.0	3.0	0.0	H-Horn	AV	0.0	32.3	54.0	-21.7	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
3610.983	45.1	6.9	350.0	1.4	3.0	0.0	H-Horn	PK	0.0	52.0	74.0	-22.0	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
4579.325	23.0	8.8	0.0	2.3	3.0	0.0	H-Horn	AV	0.0	31.8	54.0	-22.2	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
4578.050	22.9	8.8	317.0	1.0	3.0	0.0	V-Horn	AV	0.0	31.7	54.0	-22.3	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
1805.533	32.3	-0.8	344.0	1.4	3.0	0.0	H-Horn	AV	0.0	31.5	54.0	-22.5	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
4516.217	23.0	8.5	121.0	1.0	3.0	0.0	V-Horn	AV	0.0	31.5	54.0	-22.5	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
4514.133	22.9	8.5	96.0	2.7	3.0	0.0	H-Horn	AV	0.0	31.4	54.0	-22.6	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
5416.925	19.2	11.6	298.0	1.0	3.0	0.0	V-Horn	AV	0.0	30.8	54.0	-23.2	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
5413.325	19.1	11.6	144.0	3.4	3.0	0.0	H-Horn	AV	0.0	30.7	54.0	-23.3	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
3611.025	43.4	6.9	277.0	2.6	3.0	0.0	H-Horn	PK	0.0	50.3	74.0	-23.7	EUT and antenna horizontal (face up) orientation, channel 5 (902.75MHz)
3661.075	43.0	7.1	2.0	1.0	3.0	0.0	V-Horn	PK	0.0	50.1	74.0	-23.9	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
2708.267	25.8	2.8	355.0	1.0	3.0	0.0	H-Horn	AV	0.0	28.6	54.0	-25.4	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
4512.308	19.8	8.5	23.0	1.0	3.0	0.0	H-Horn	AV	0.0	28.3	54.0	-25.7	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
4515.517	19.8	8.5	220.0	1.0	3.0	0.0	V-Horn	AV	0.0	28.3	54.0	-25.7	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
3661.042	41.1	7.1	5.0	1.0	3.0	0.0	H-Horn	PK	0.0	48.2	74.0	-25.8	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
3610.833	41.1	6.9	48.0	1.0	3.0	0.0	V-Horn	PK	0.0	48.0	74.0	-26.0	EUT and antenna horizontal (face up) orientation, channel 5 (902.75MHz)
2781.733	24.8	3.1	-1.0	1.5	3.0	0.0	H-Horn	AV	0.0	27.9	54.0	-26.1	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
5492.708	35.4	11.8	25.0	1.0	3.0	0.0	V-Horn	PK	0.0	47.2	74.0	-26.8	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
3610.092	20.1	6.9	277.0	3.3	3.0	0.0	H-Horn	AV	0.0	27.0	54.0	-27.0	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
3614.158	20.1	6.9	112.0	1.0	3.0	0.0	V-Horn	AV	0.0	27.0	54.0	-27.0	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
5493.100	35.1	11.8	242.0	1.0	3.0	0.0	H-Horn	PK	0.0	46.9	74.0	-27.1	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
3709.200	39.4	7.4	2.0	1.0	3.0	0.0	V-Horn	PK	0.0	46.8	74.0	-27.2	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
2784.800	23.5	3.1	141.0	1.0	3.0	0.0	V-Horn	AV	0.0	26.6	54.0	-27.4	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
5415.300	35.0	11.6	127.0	3.3	3.0	0.0	H-Horn	PK	0.0	46.6	74.0	-27.4	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
2711.208	23.6	2.8	315.0	1.3	3.0	0.0	V-Horn	AV	0.0	26.4	54.0	-27.6	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
5564.033	34.7	11.7	145.0	2.6	3.0	0.0	H-Horn	PK	0.0	46.4	74.0	-27.6	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
2743.525	23.5	2.9	179.0	1.0	3.0	0.0	V-Horn	AV	0.0	26.4	54.0	-27.6	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
2745.725	23.5	2.9	-1.0	1.2	3.0	0.0	H-Horn	AV	0.0	26.4	54.0	-27.6	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
5414.450	34.7	11.6	83.0	1.0	3.0	0.0	V-Horn	PK	0.0	46.3	74.0	-27.7	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
5561.333	34.5	11.7	318.0	2.9	3.0	0.0	V-Horn	PK	0.0	46.2	74.0	-27.8	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
3709.292	38.7	7.4	-1.0	1.6	3.0	0.0	H-Horn	PK	0.0	46.1	74.0	-27.9	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
4575.325	36.7	8.8	317.0	1.0	3.0	0.0	V-Horn	PK	0.0	45.5	74.0	-28.5	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
4636.150	36.2	9.1	5.0	2.9	3.0	0.0	H-Horn	PK	0.0	45.3	74.0	-28.7	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
1830.425	45.8	-0.7	58.0	1.0	3.0	0.0	V-Horn	PK	0.0	45.1	74.0	-28.9	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
4637.775	35.9	9.1	18.0	1.0	3.0	0.0	V-Horn	PK	0.0	45.0	74.0	-29.0	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
4511.958	36.0	8.5	121.0	1.0	3.0	0.0	V-Horn	PK	0.0	44.5	74.0	-29.5	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
4513.200	36.0	8.5	96.0	2.7	3.0	0.0	H-Horn	PK	0.0	44.5	74.0	-29.5	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
1854.642	24.5	-0.5	359.0	1.8	3.0	0.0	H-Horn	AV	0.0	24.0	54.0	-30.0	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
5417.950	32.4	11.6	144.0	3.4	3.0	0.0	H-Horn	PK	0.0	44.0	74.0	-30.0	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
4575.200	35.1	8.8	0.0	2.3	3.0	0.0	H-Horn	PK	0.0	43.9	74.0	-30.1	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
5416.908	31.7	11.6	298.0	1.0	3.0	0.0	V-Horn	PK	0.0	43.3	74.0	-30.7	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
1805.567	44.0	-0.9	71.0	1.0	3.0	0.0	V-Horn	PK	0.0	43.1	74.0	-30.9	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
1854.425	43.2	-0.5	15.0	1.0	3.0	0.0	V-Horn	PK	0.0	42.7	74.0	-31.3	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
2709.058	19.2	2.8	250.0	1.3	3.0	0.0	V-Horn	AV	0.0	22.0	54.0	-32.0	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
2711.300	19.2	2.8	230.0	1.0	3.0	0.0	H-Horn	AV	0.0	22.0	54.0	-32.0	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
1830.208	42.1	-0.7	347.0	1.0	3.0	0.0	H-Horn	PK	0.0	41.4	74.0	-32.6	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
2708.342	38.5	2.8	355.0	1.0	3.0	0.0	H-Horn	PK	0.0	41.3	74.0	-32.7	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
4513.367	32.1	8.5	23.0	1.0	3.0	0.0	H-Horn	PK	0.0	40.6	74.0	-33.4	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
4514.542	32.1	8.5	220.0	1.0	3.0	0.0	V-Horn	PK	0.0	40.6	74.0	-33.4	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
2782.200	37.2	3.1	-1.0	1.5	3.0	0.0	H-Horn	PK	0.0	40.3	74.0	-33.7	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
2783.608	37.2	3.1	141.0	1.0	3.0	0.0	V-Horn	PK	0.0	40.3	74.0	-33.7	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
1805.633	40.9	-0.9	344.0	1.4	3.0	0.0	H-Horn	PK	0.0	40.0	74.0	-34.0	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)
2743.875	36.7	2.9	-1.0	1.2	3.0	0.0	H-Horn	PK	0.0	39.6	74.0	-34.4	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
2746.075	36.6	2.9	179.0	1.0	3.0	0.0	V-Horn	PK	0.0	39.5	74.0	-34.5	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 30 (915.25MHz)
3612.067	32.6	6.9	112.0	1.0	3.0	0.0	V-Horn	PK	0.0	39.5	74.0	-34.5	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
3613.175	32.5	6.9	277.0	3.3	3.0	0.0	H-Horn	PK	0.0	39.4	74.0	-34.6	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
2707.208	36.2	2.8	315.0	1.3	3.0	0.0	V-Horn	PK	0.0	39.0	74.0	-35.0	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 5 (902.75MHz)

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)	Comments
1809.892	18.2	-0.7	199.0	1.0	3.0	0.0	V-Horn	AV	0.0	17.5	54.0	-36.5	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
1804.708	18.2	-0.9	-1.0	1.4	3.0	0.0	H-Horn	AV	0.0	17.3	54.0	-36.7	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
1852.442	37.7	-0.5	359.0	1.8	3.0	0.0	H-Horn	PK	0.0	37.2	74.0	-36.8	EUT vertical, antenna Azimuth Wide Beam Width orientation, channel 54 (927.25MHz)
2705.858	32.4	2.8	230.0	1.0	3.0	0.0	H-Horn	PK	0.0	35.2	74.0	-38.8	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
2709.492	32.4	2.8	250.0	1.3	3.0	0.0	V-Horn	PK	0.0	35.2	74.0	-38.8	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
1807.575	31.6	-0.9	199.0	1.0	3.0	0.0	V-Horn	PK	0.0	30.7	74.0	-43.3	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)
1805.325	31.3	-0.9	-1.0	1.4	3.0	0.0	H-Horn	PK	0.0	30.4	74.0	-43.6	EUT on side, antenna Elevation Wide Beam Width orientation, channel 5 (902.75MHz)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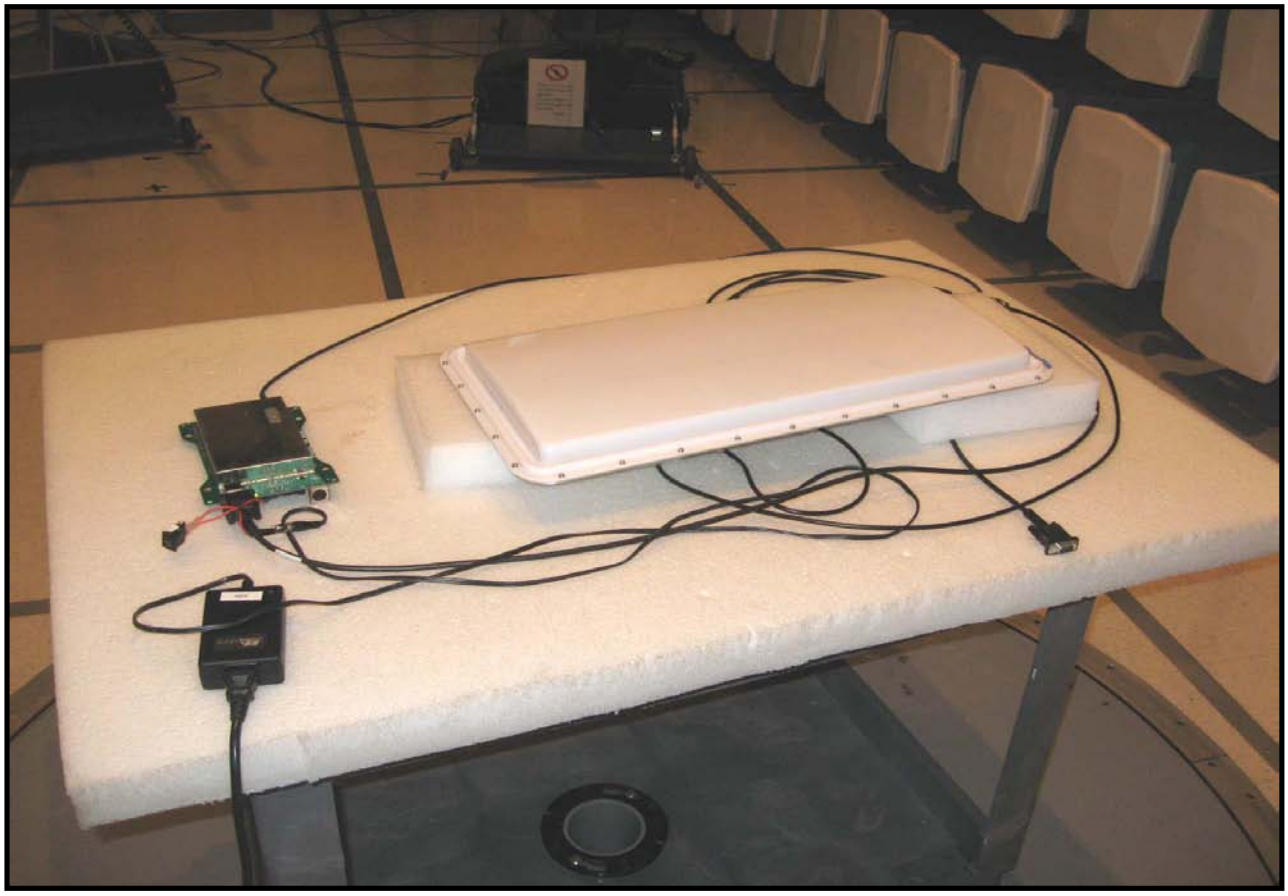

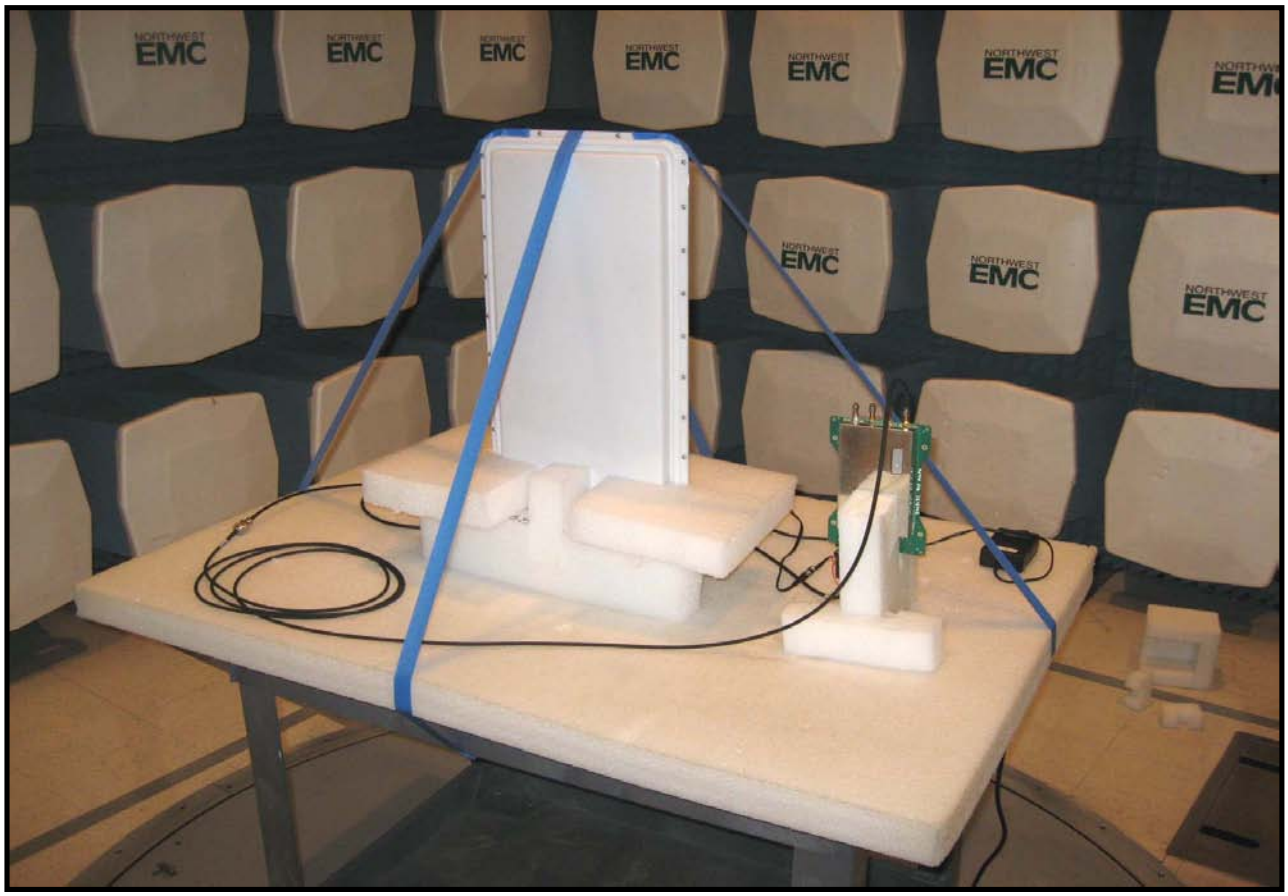
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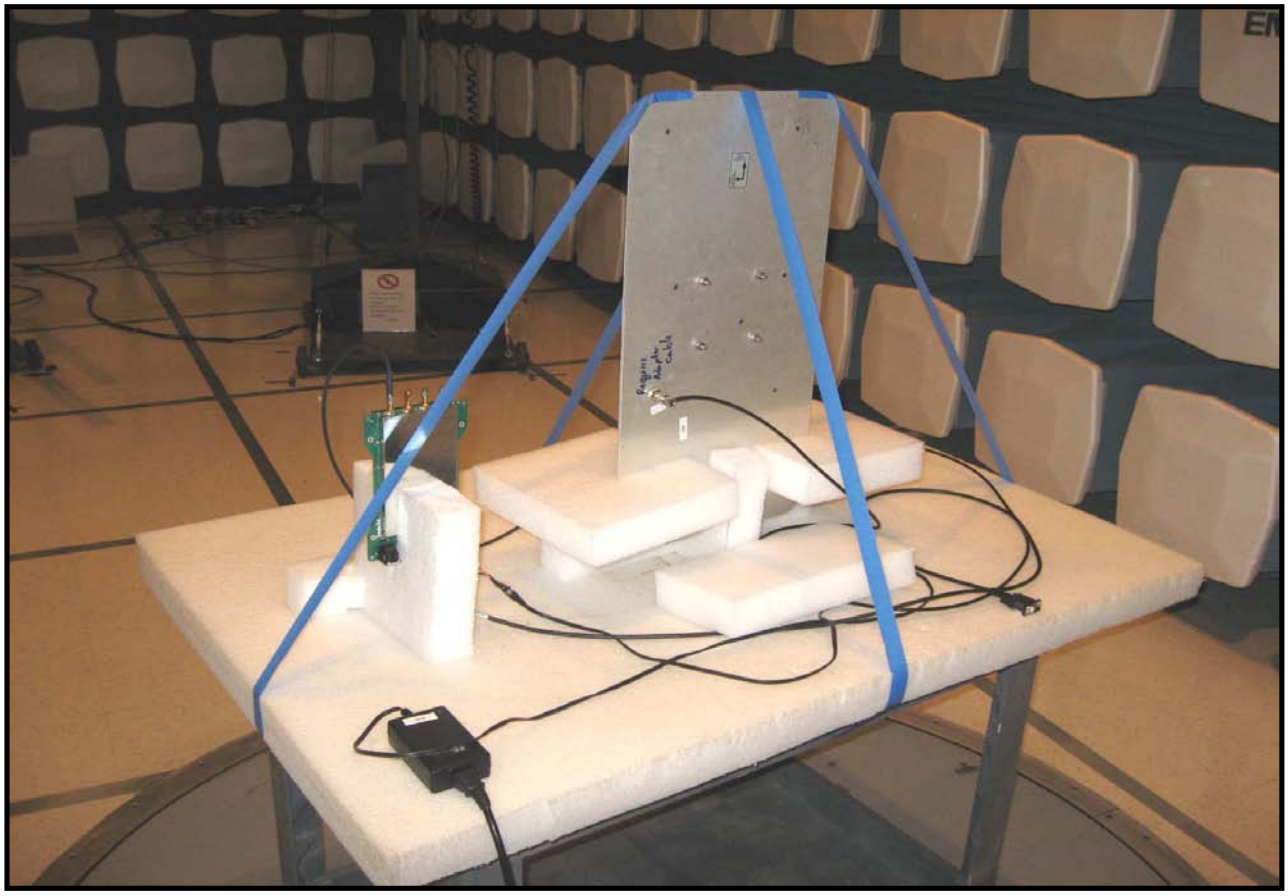


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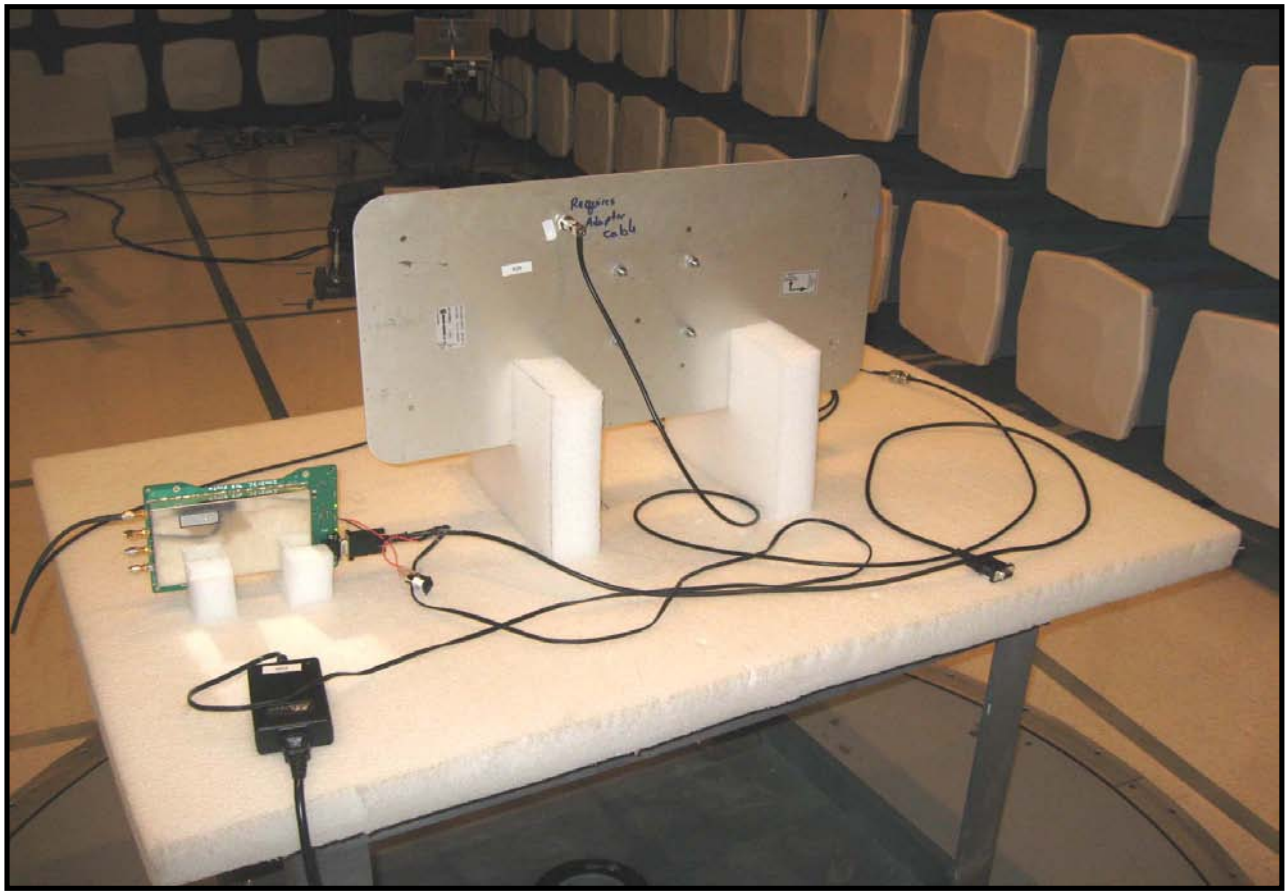


CHANNEL SPACING

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
DC Block	Miteq	DCB4000	None	9/16/2008	13
Attenuator	Weinschel Corp.	54A-20	RBL	9/16/2008	13
Spectrum Analyzer	Agilent	E4446A	AAT	12/12/2008	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/9/2008	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 EUT was operated in pseudorandom hopping mode. The spectrum was scanned across two adjacent peaks. The separation between the peaks of these channels was measured.

NORTHWEST EMC

CHANNEL SPACING

XMit 2008.12.29

EUT:	IM5r3			**Work Order:**	ITRM0188
Serial Number:	Prototype			**Date:**	12/29/08
Customer:	Intermec Technologies Corporation			**Temperature:**	21.3° C
Attendees:	None			**Humidity:**	33%
Project:	None			**Barometric Pres.:**	1013.5mb
Tested by:	Ethan Schoonover	**Power:**	120V/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000

COMMENTS

Transmitting from port 1 "worse case".

DEVIATIONS FROM TEST STANDARD

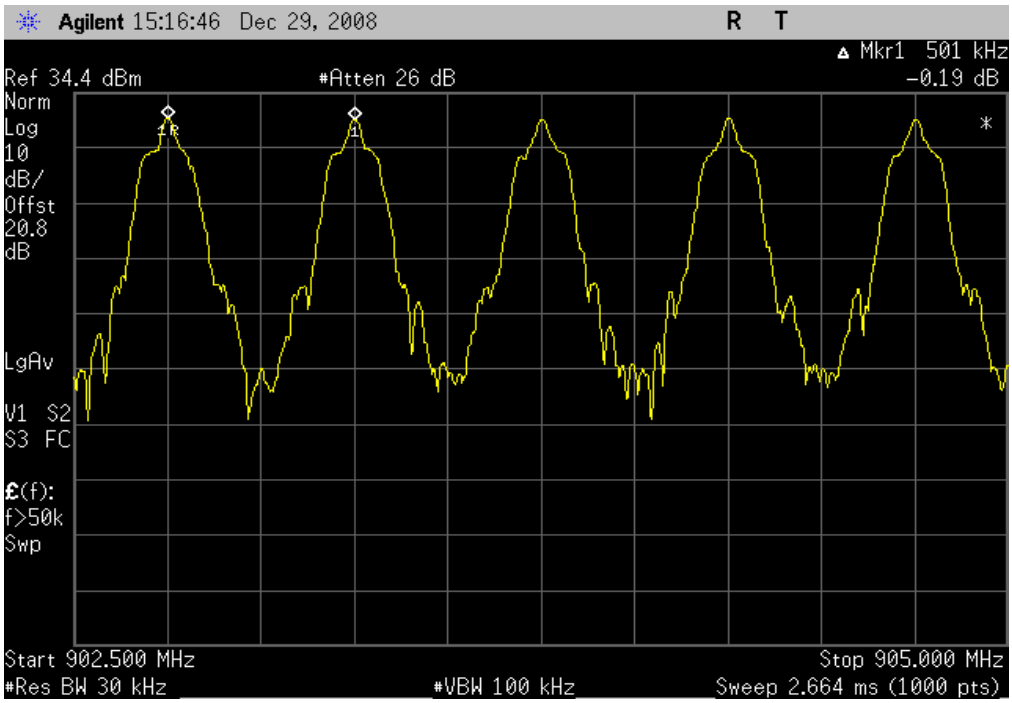
No Deviations

Configuration #	4	Signature

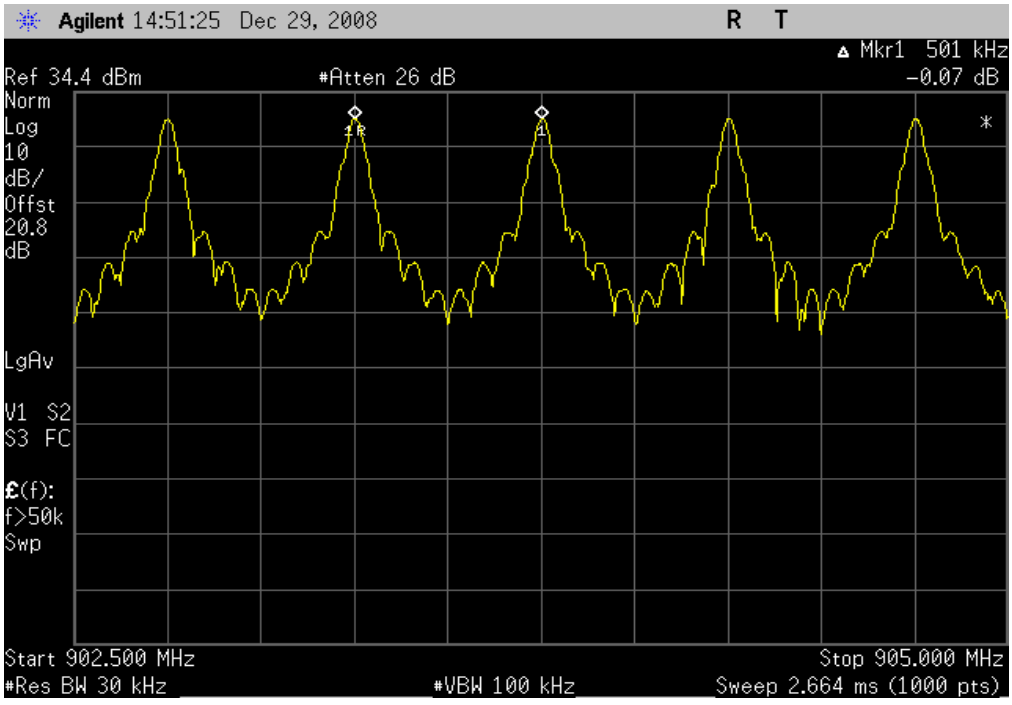
	Value	Limit ≥ 20 dB bandwidth	Results
OOK	501kHz	202 kHz	Pass
G2	501kHz	202 kHz	Pass

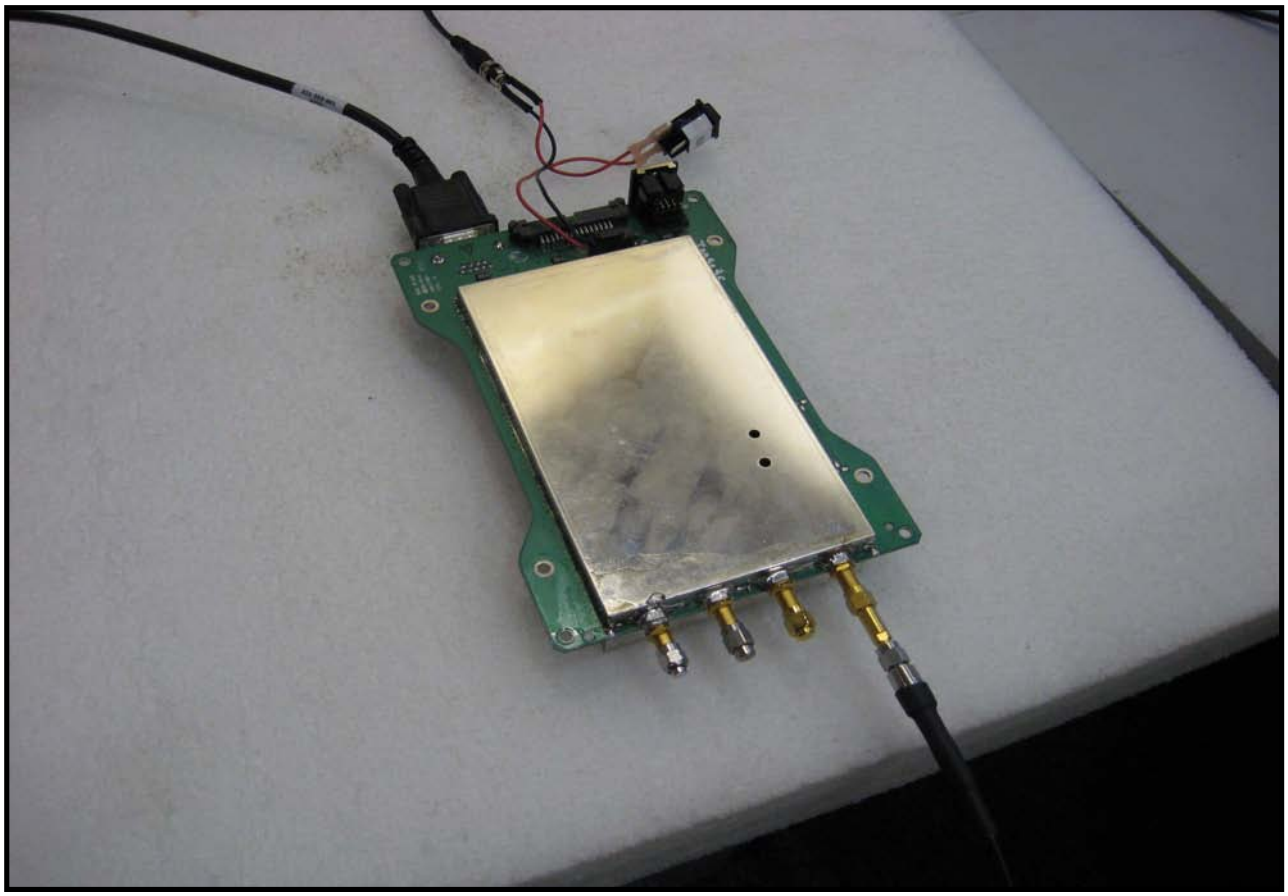
CHANNEL SPACING

OOK					
Result:	Pass	**Value:**	501kHz	**Limit:**	202 kHz



G2					
Result:	Pass	**Value:**	501kHz	**Limit:**	202 kHz






DELL

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
DC Block	Miteq	DCB4000	None	9/16/2008	13
Attenuator	Weinschel Corp.	54A-20	RBL	9/16/2008	13
Spectrum Analyzer	Agilent	E4446A	AAT	12/12/2008	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/9/2008	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 average dwell time per hopping channel was measured at one hopping channel in the middle of the authorized band. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The hopping function of the EUT was enabled.

NORTHWEST EMC

DWELL TIME

XMit 2008.12.29

EUT:	IM5r3			**Work Order:**	ITRM0188
Serial Number:	Prototype			**Date:**	12/29/08
Customer:	Intermec Technologies Corporation			**Temperature:**	21.3° C
Attendees:	None			**Humidity:**	33%
Project:	None			**Barometric Pres.:**	1013.5mb
Tested by:	Ethan Schoonover	**Power:**	120V/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000

COMMENTS

Transmitting from port 1 "worse case".

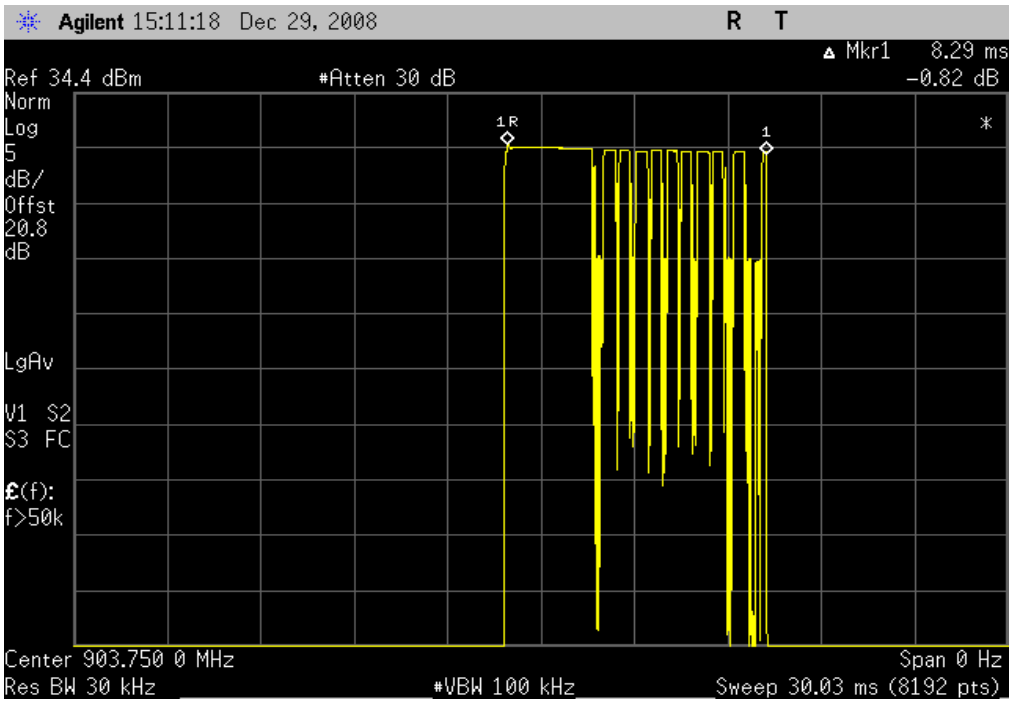
DEVIATIONS FROM TEST STANDARD

No Deviations

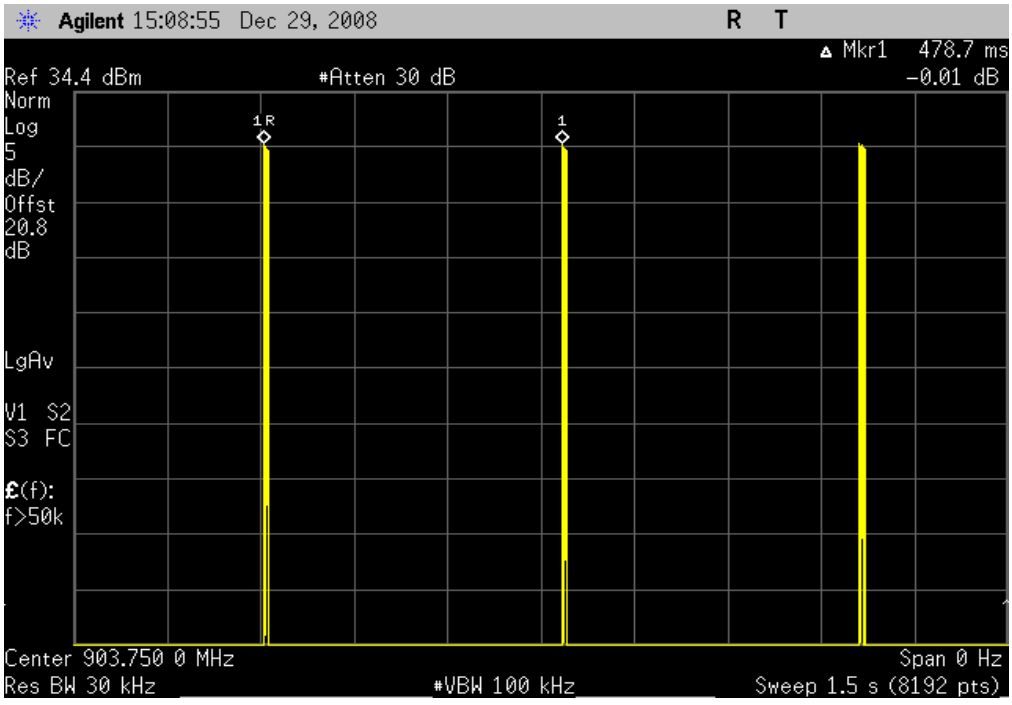
Configuration #	4	Signature

		Value	Limit	Results
OOK				
	Pulse Width			
	Mid Channel, 915.25 MHz	8.29ms		
	Period			
	Mid Channel, 915.25 MHz	478.7ms		
	Total Dwell Time in a 20 sec Period			
	Mid Channel, 915.25 MHz	0.348s	≤ 0.4s in a 20s. Period	Pass
PRASK				
	Pulse Width			
	Mid Channel, 915.25 MHz	24.63ms		
	Period			
	Mid Channel, 915.25 MHz	1.29s		
	Total Dwell Time in a 20 sec Period			
	Mid Channel, 915.25 MHz	.394s	≤ 0.4s in a 20s. Period	Pass

OOK, Mid Channel, 915.25 MHz	
Pulse Width	**Value:** 8.29ms



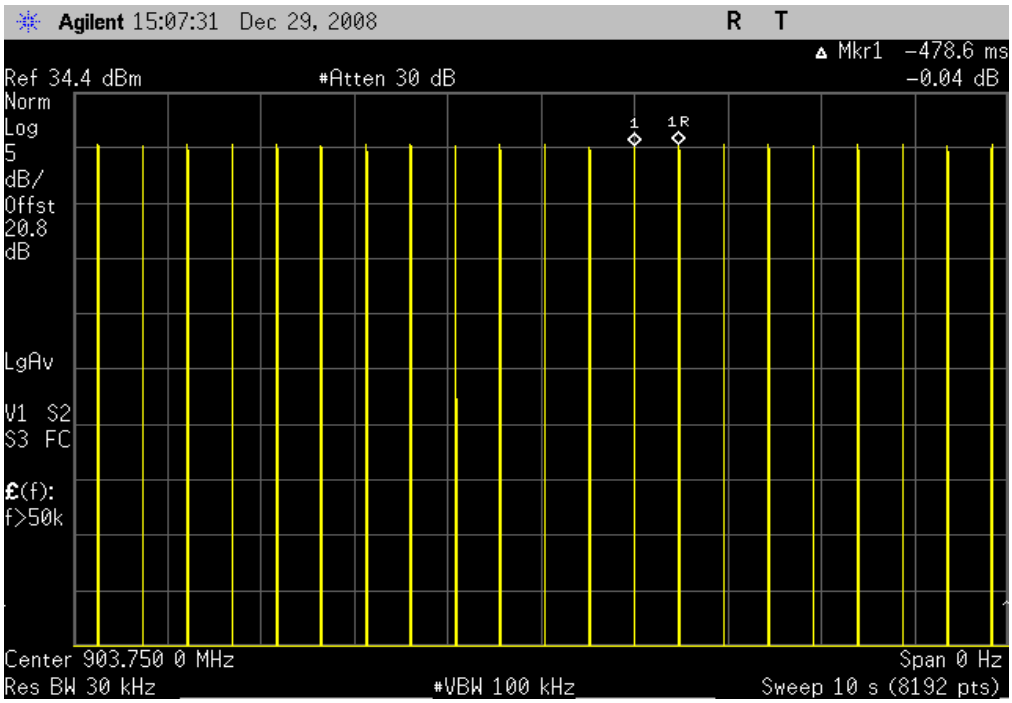
OOK, Mid Channel, 915.25 MHz	
Period	**Value:** 478.7ms



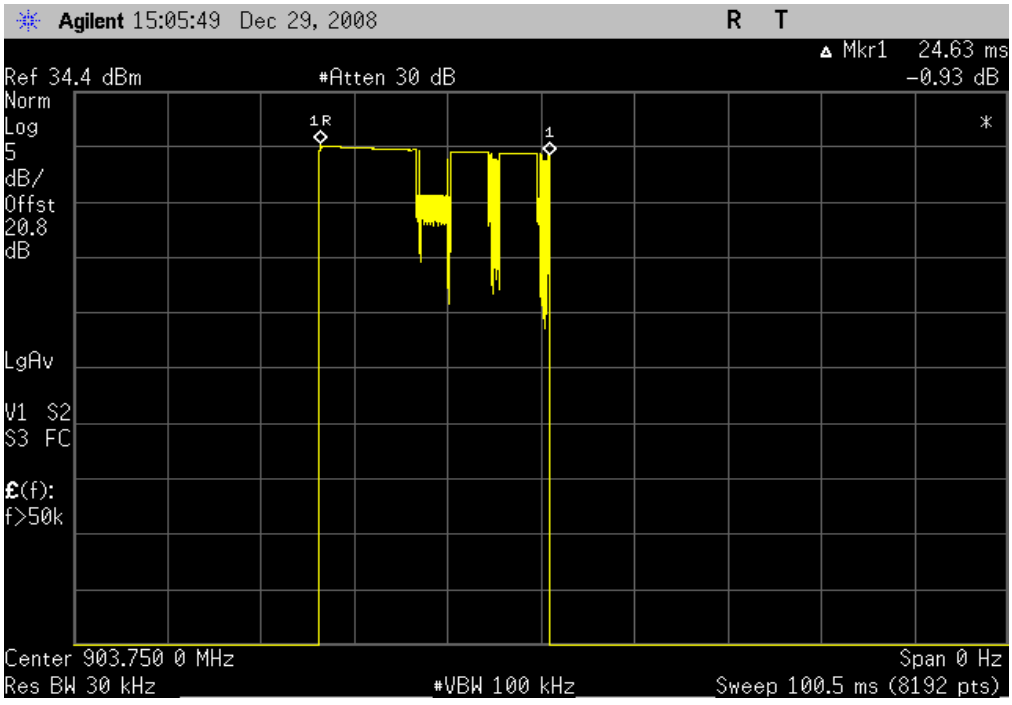
DWELL TIME

OOK, Mid Channel, 915.25 MHz					
Result:	Pass	**Value:**	0.348s	**Limit:**	≤ 0.4s in a 20s. Period

Total Dwell Time in a 20s Period = Pulse Width * (20s / period of pulse) = .00829s * 42 = 0.348s

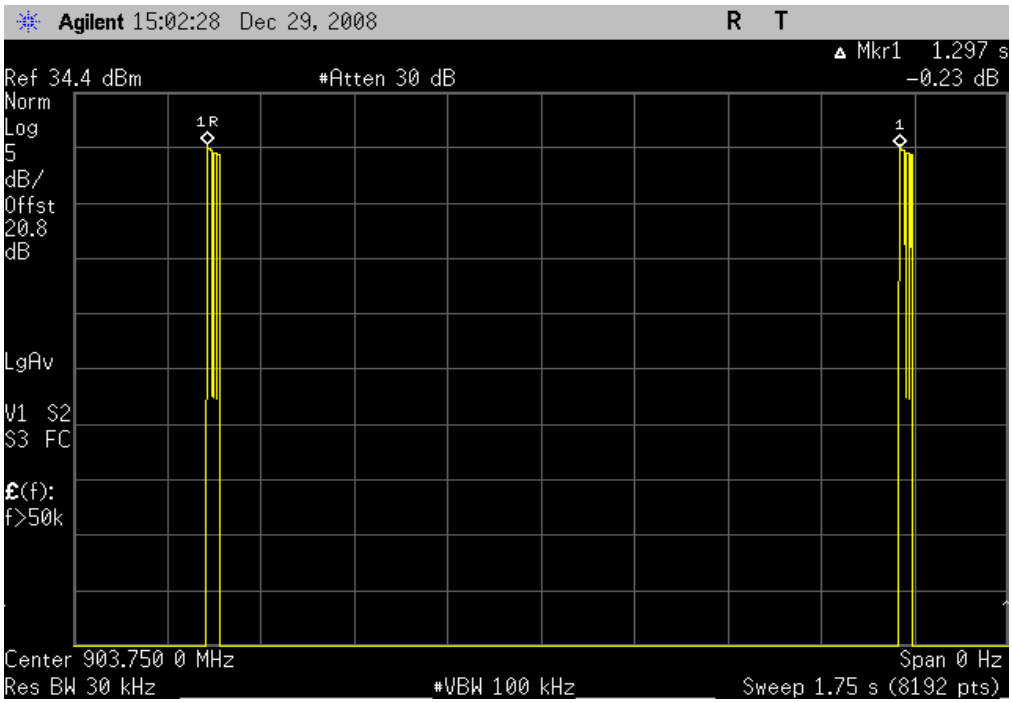


PRASK, Mid Channel, 915.25 MHz			
Pulse Width	**Value:**	24.63ms	



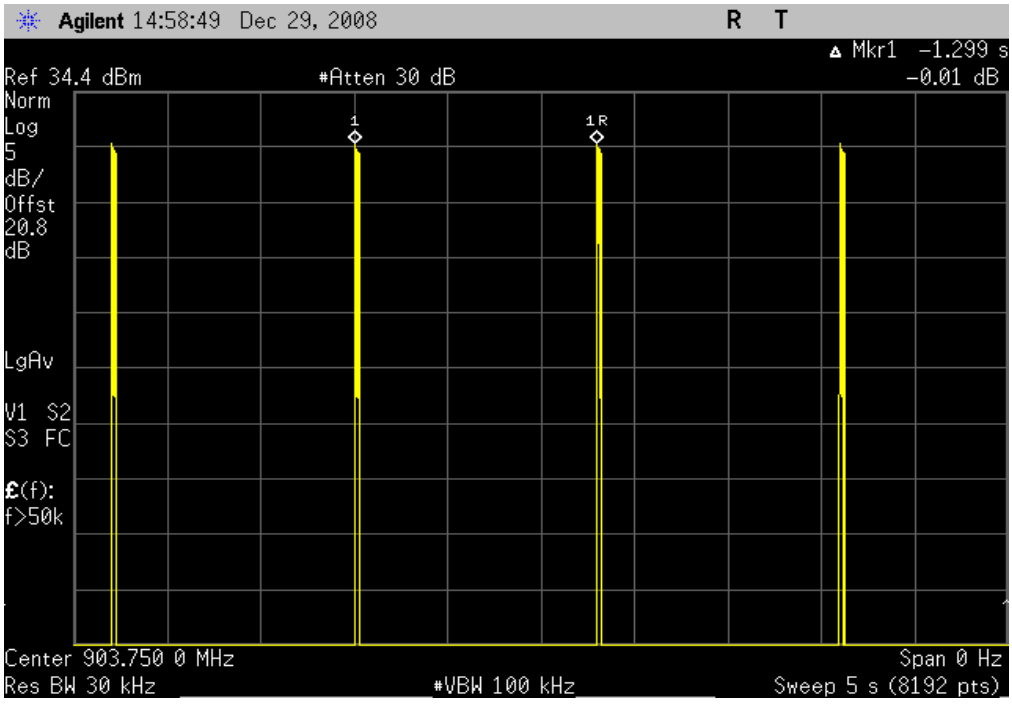
DWELL TIME

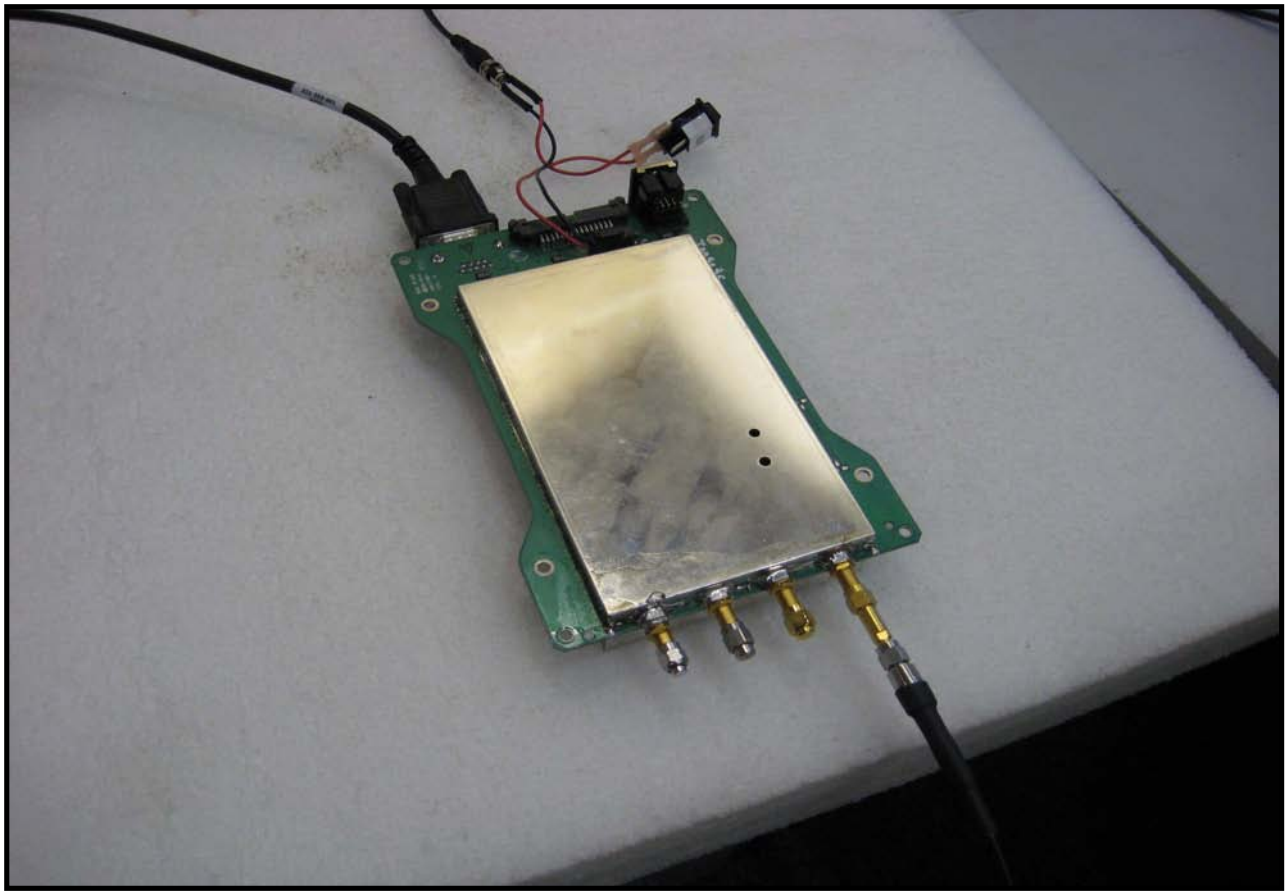
PRASK, Mid Channel, 915.25 MHz		
Period	**Value:**	1.29s



PRASK, Mid Channel, 915.25 MHz				
Result: Pass	**Value:**	.394s	**Limit:**	≤ 0.4s in a 20s. Period

Total Dwell Time in a 20s Period = Pulse Width * (20s / period of pulse) = .02463s * 16 = 0.394s





NUMBER OF CHANNELS

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
DC Block	Miteq	DCB4000	None	9/16/2008	13
Attenuator	Weinschel Corp.	54A-20	RBL	9/16/2008	13
Spectrum Analyzer	Agilent	E4446A	AAT	12/12/2008	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/9/2008	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 number of hopping frequencies was measured across the authorized band. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The hopping function of the EUT was enabled.

NORTHWEST EMC

NUMBER OF CHANNELS

XMit 2008.12.29

EUT:	IM5r3			**Work Order:**	ITRM0188
Serial Number:	Prototype			**Date:**	12/29/08
Customer:	Intermec Technologies Corporation			**Temperature:**	21.3° C
Attendees:	None			**Humidity:**	33%
Project:	None			**Barometric Pres.:**	1013.5mb
Tested by:	Ethan Schoonover	**Power:**	120V/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000

COMMENTS

Transmitting from port 1 "worse case".

DEVIATIONS FROM TEST STANDARD

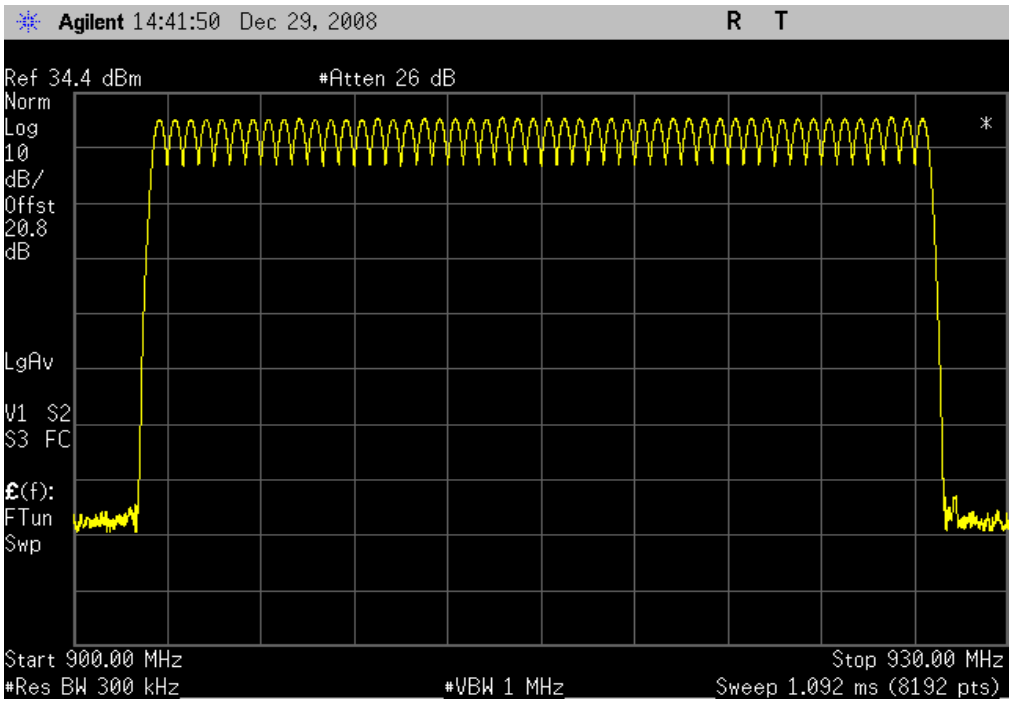
No Deviations

Configuration #	4	Signature

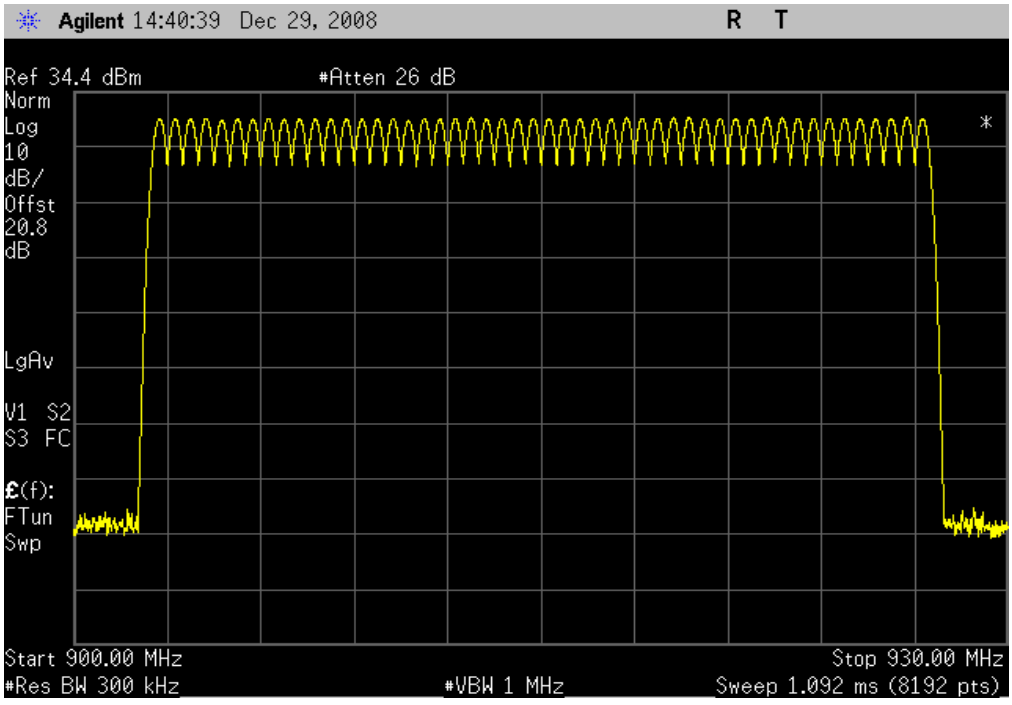
	Value	Limit	Results
OOK	50	≥ 50	Pass
PRASK	50	≥ 50	Pass

NUMBER OF CHANNELS

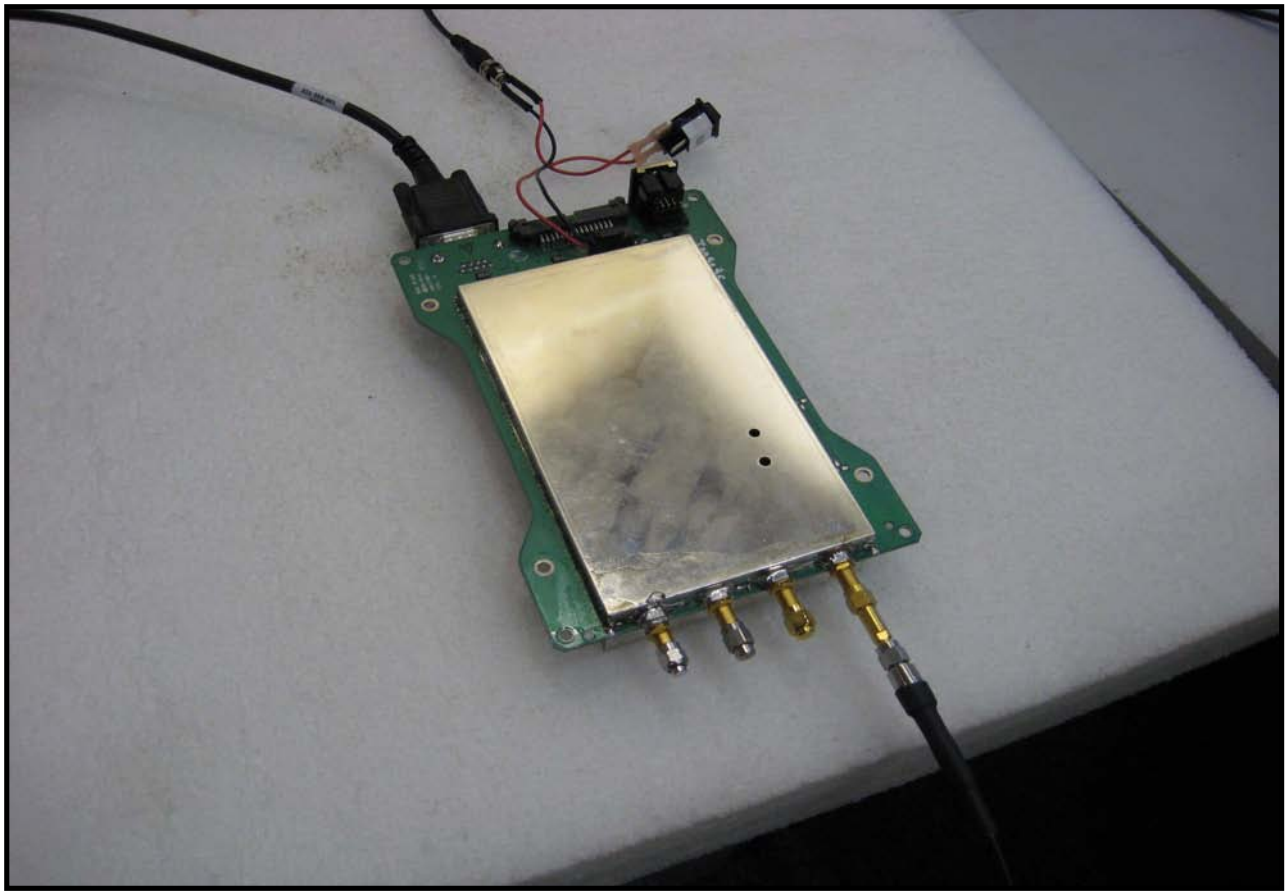
OOK					
Result:	Pass	**Value:**	50	**Limit:**	≥ 50



PRASK					
Result:	Pass	**Value:**	50	**Limit:**	≥ 50



NUMBER OF CHANNELS



NUMBER OF CHANNELS

OCCUPIED BANDWIDTH

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
DC Block	Miteq	DCB4000	None	9/16/2008	13
Attenuator	Weinschel Corp.	54A-20	RBL	9/16/2008	13
Spectrum Analyzer	Agilent	E4446A	AAT	12/12/2008	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/9/2008	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 occupied bandwidth was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode.

NORTHWEST EMC

OCCUPIED BANDWIDTH

XMit 2008.12.29

EUT:	IM5r3			**Work Order:**	ITRM0188
Serial Number:	Prototype			**Date:**	12/29/08
Customer:	Intermec Technologies Corporation			**Temperature:**	21.3° C
Attendees:	None			**Humidity:**	33%
Project:	None			**Barometric Pres.:**	1013.5mb
Tested by:	Ethan Schoonover	**Power:**	120V/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000

COMMENTS

Transmitting from port 1 "worse case".

DEVIATIONS FROM TEST STANDARD

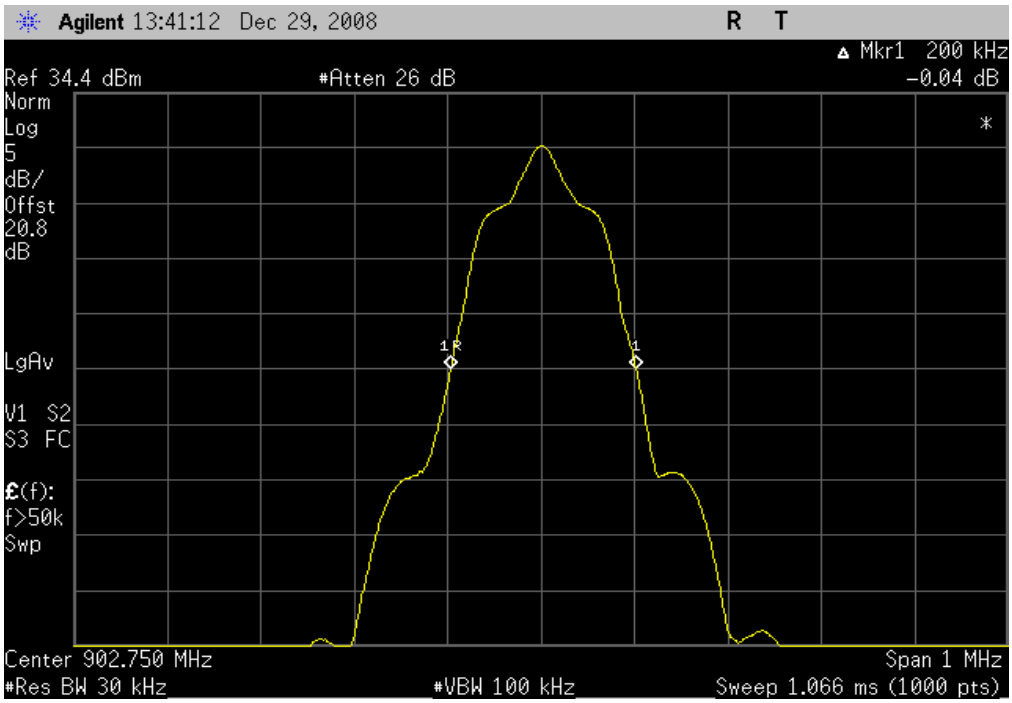
No Deviations

Configuration #	4	Signature

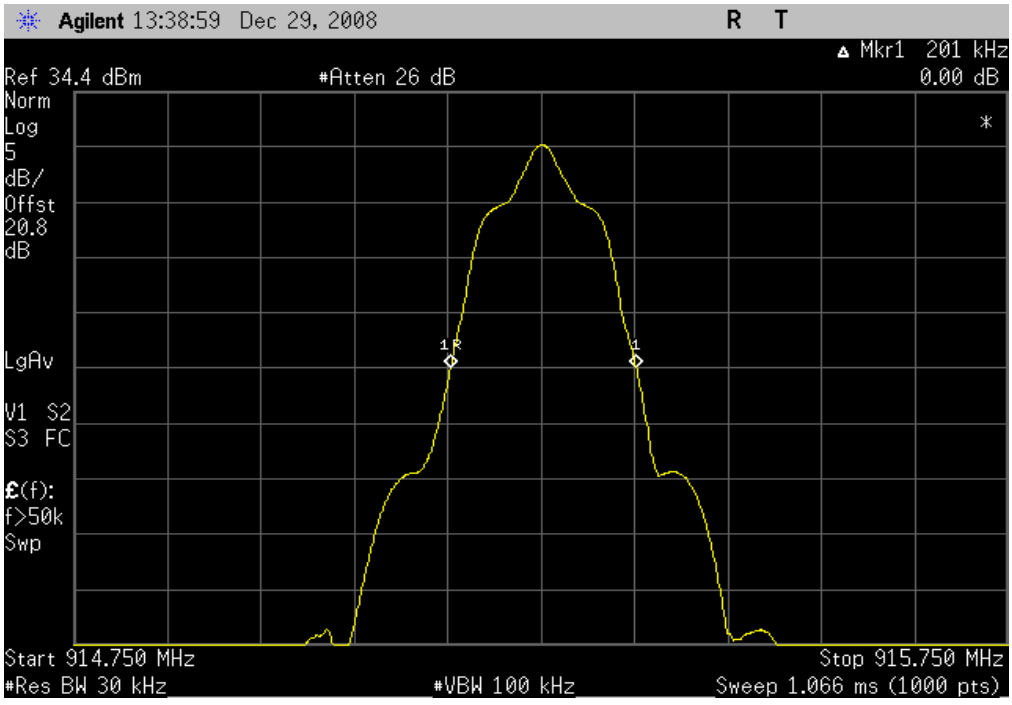
		Value	Limit ≤ channel separation	Results
OOK				
	Low Channel, 902.75MHz	200kHz	≤ 501kHz	Pass
	Mid Channel, 915.25 MHz	201kHz	≤ 501kHz	Pass
	High Channel, 927.25 MHz	202kHz	≤ 501kHz	Pass
PRASK				
	Low Channel, 902.75MHz	197kHz	≤ 501kHz	Pass
	Mid Channel, 915.25 MHz	198kHz	≤ 501kHz	Pass
	High Channel, 927.25 MHz	198kHz	≤ 501kHz	Pass

OCCUPIED BANDWIDTH

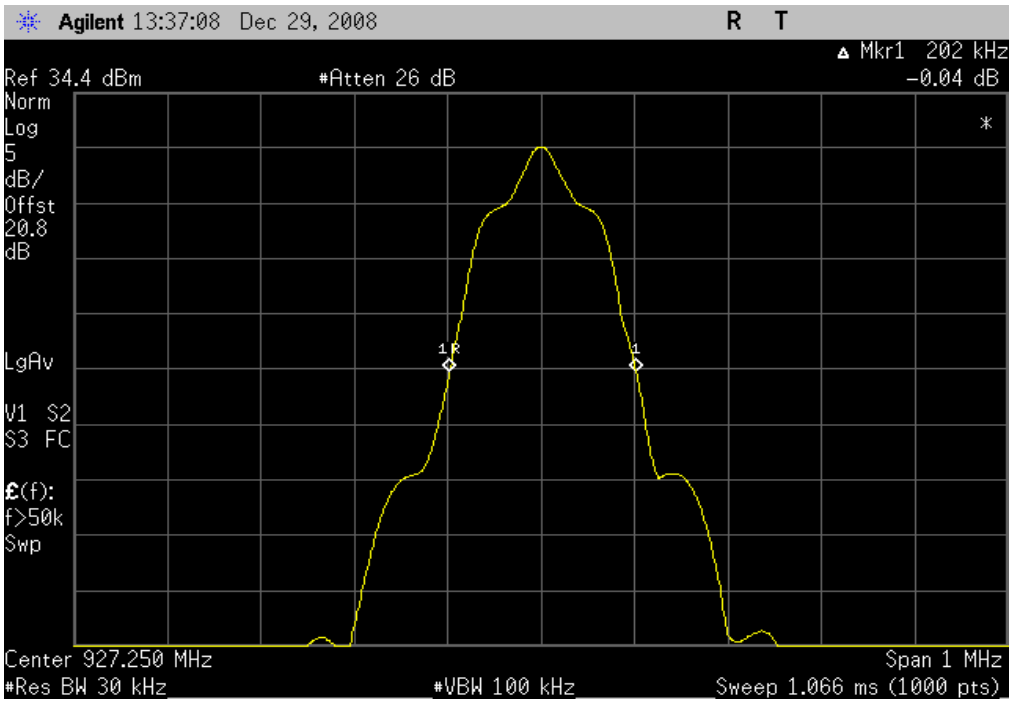
OOK, Low Channel, 902.75MHz					
Result:	Pass	**Value:**	200kHz	**Limit:**	≤ 501kHz



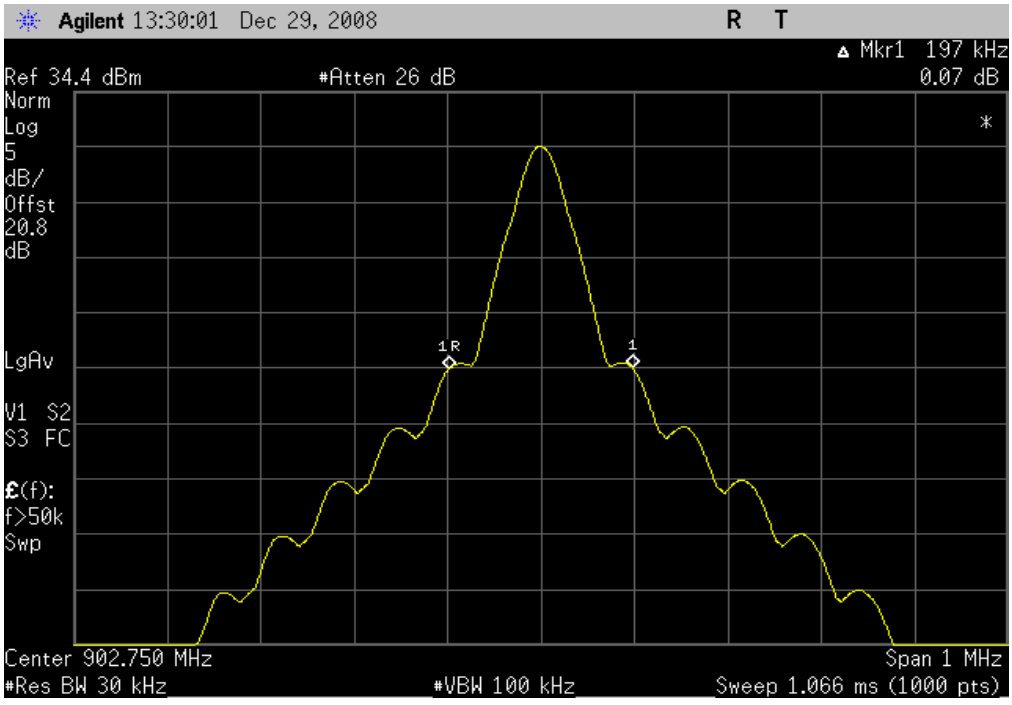
OOK, Mid Channel, 915.25 MHz					
Result:	Pass	**Value:**	201kHz	**Limit:**	≤ 501kHz



OOK, High Channel, 927.25 MHz					
Result:	Pass	**Value:**	202kHz	**Limit:**	≤ 501kHz

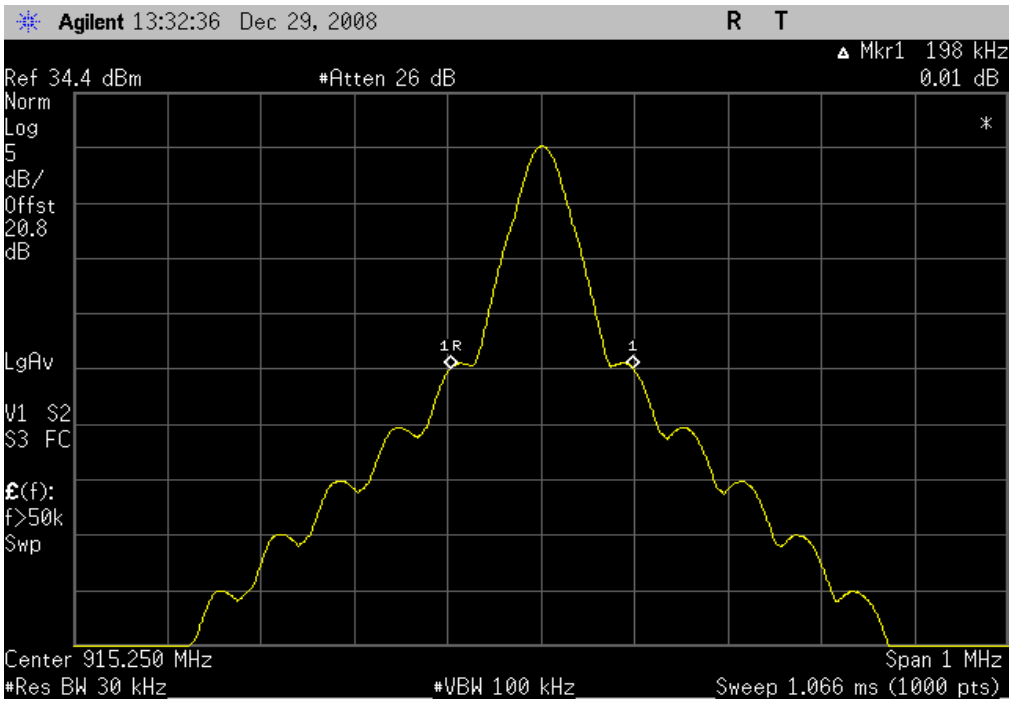


PRASK, Low Channel, 902.75MHz					
Result:	Pass	**Value:**	197kHz	**Limit:**	≤ 501kHz

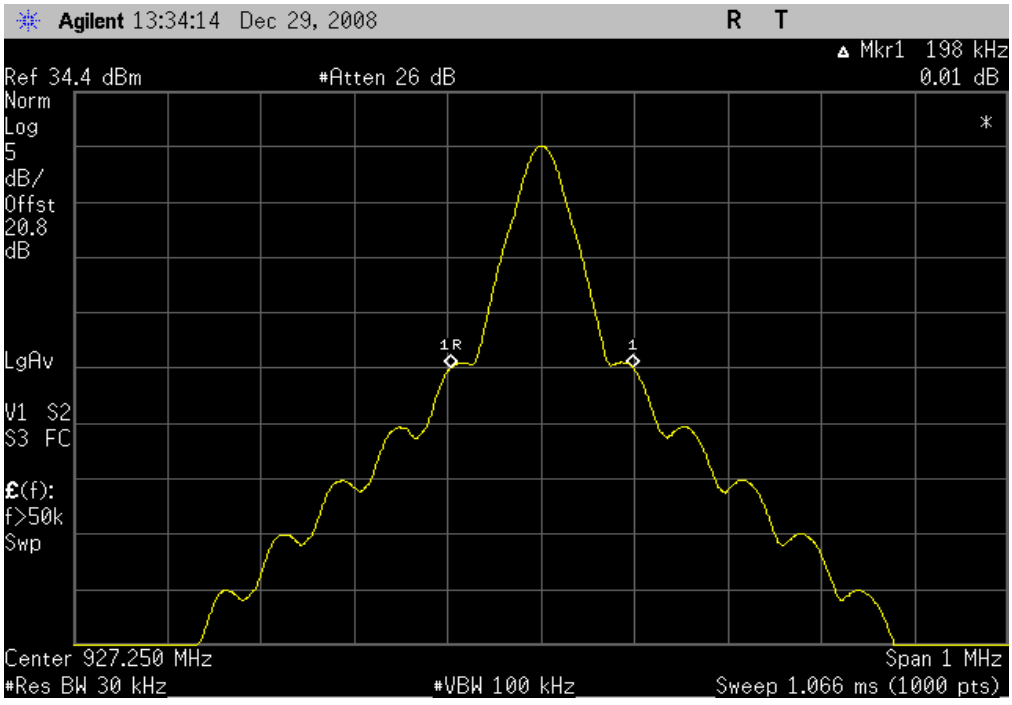


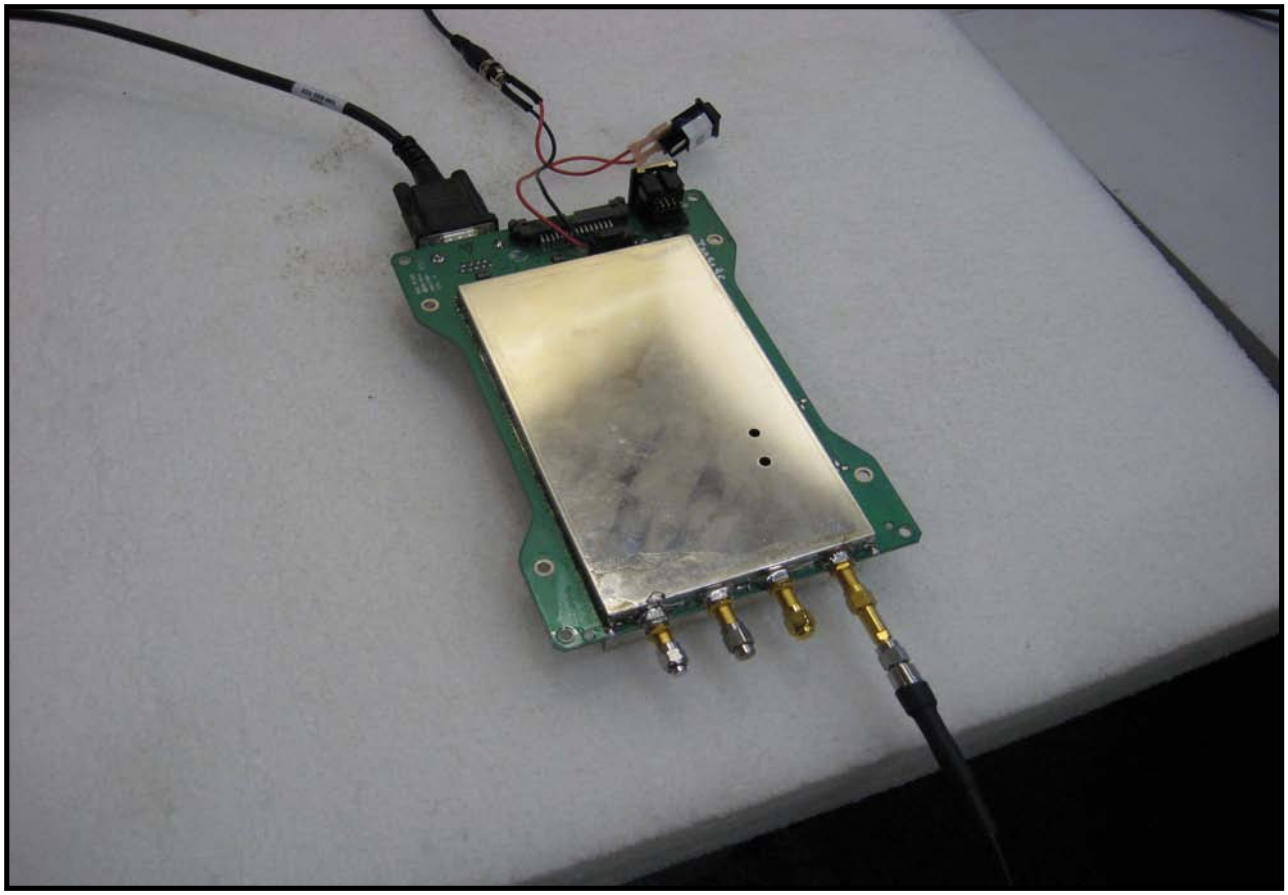
OCCUPIED BANDWIDTH

PRASK, Mid Channel, 915.25 MHz					
Result:	Pass	**Value:**	198kHz	**Limit:**	≤ 501kHz



PRASK, High Channel, 927.25 MHz					
Result:	Pass	**Value:**	198kHz	**Limit:**	≤ 501kHz





OCCUPIED BANDWIDTH

OUTPUT POWER

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
DC Block	Miteq	DCB4000	None	9/16/2008	13
Attenuator	Weinschel Corp.	54A-20	RBL	9/16/2008	13
Spectrum Analyzer	Agilent	E4446A	AAT	12/12/2008	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/9/2008	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 peak output power was measured with the EUT set to the middle channel on all four ports. The worst case port was then selected for the remaining low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.

NORTHWEST EMC

OUTPUT POWER

XMit 2008.12.29

EUT:	IM5r3			**Work Order:**	ITRM0188
Serial Number:	Prototype			**Date:**	12/29/08
Customer:	Intermec Technologies Corporation			**Temperature:**	21.3° C
Attendees:	None			**Humidity:**	33%
Project:	None			**Barometric Pres.:**	1013.5mb
Tested by:	Ethan Schoonover	**Power:**	120V/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000

COMMENTS

Transmitting from port 1 "worse case".

DEVIATIONS FROM TEST STANDARD

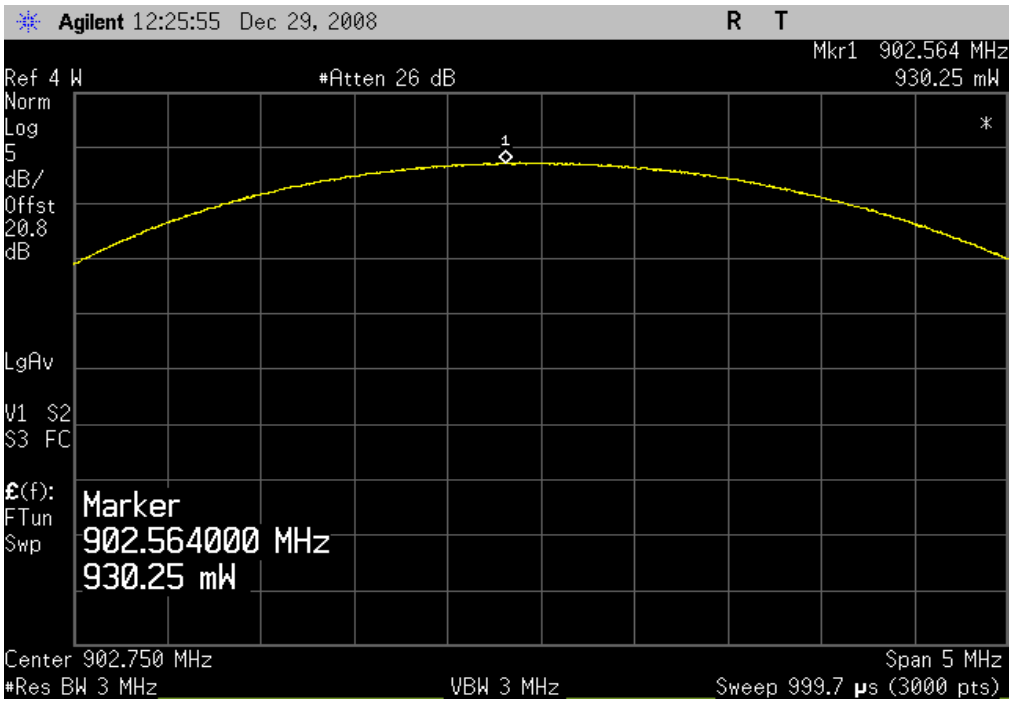
No Deviations

Configuration #	4	Signature

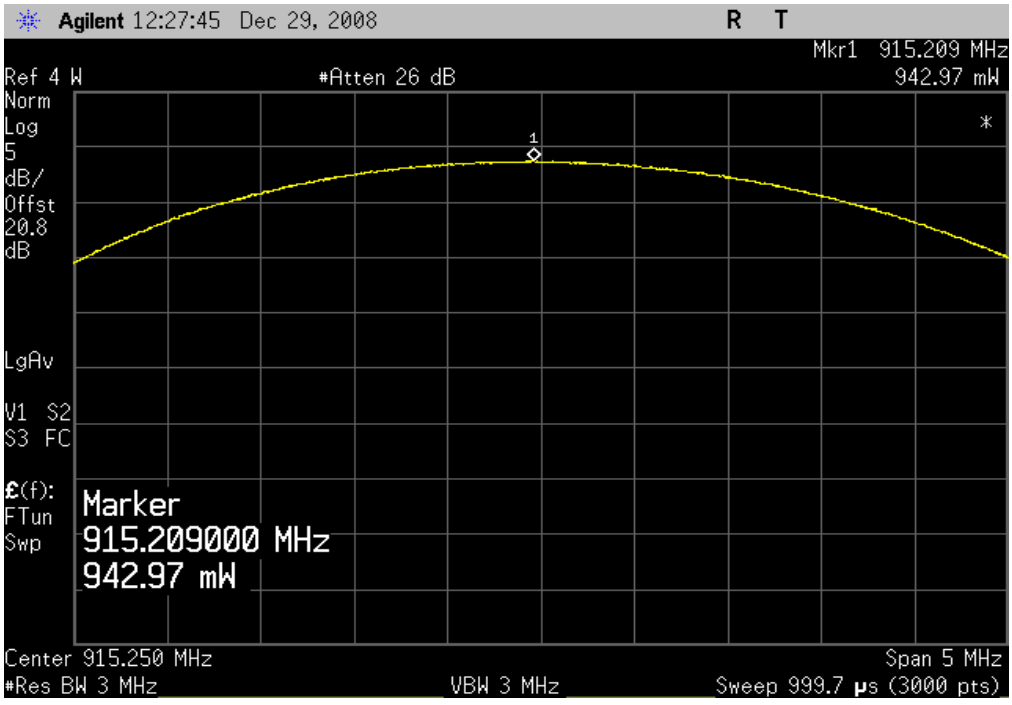
			Value	Limit	Results
OOK					
	Low Channel, 902.75MHz	Port 1	930mW	1Watt	Pass
	Mid Channel, 915.25 MHz	Port 1	943mW	1Watt	Pass
	High Channel, 927.25 MHz	Port 1	922mW	1Watt	Pass
PRASK					
	Low Channel, 902.75MHz	Port 1	913mW	1Watt	Pass
	Mid Channel, 915.25 MHz	Port 1	916mW	1Watt	Pass
	High Channel, 927.25 MHz	Port 1	909mW	1Watt	Pass

OUTPUT POWER

OOK, Low Channel, 902.75MHz					
Result:	Pass	**Value:**	930mW	**Limit:**	1Watt

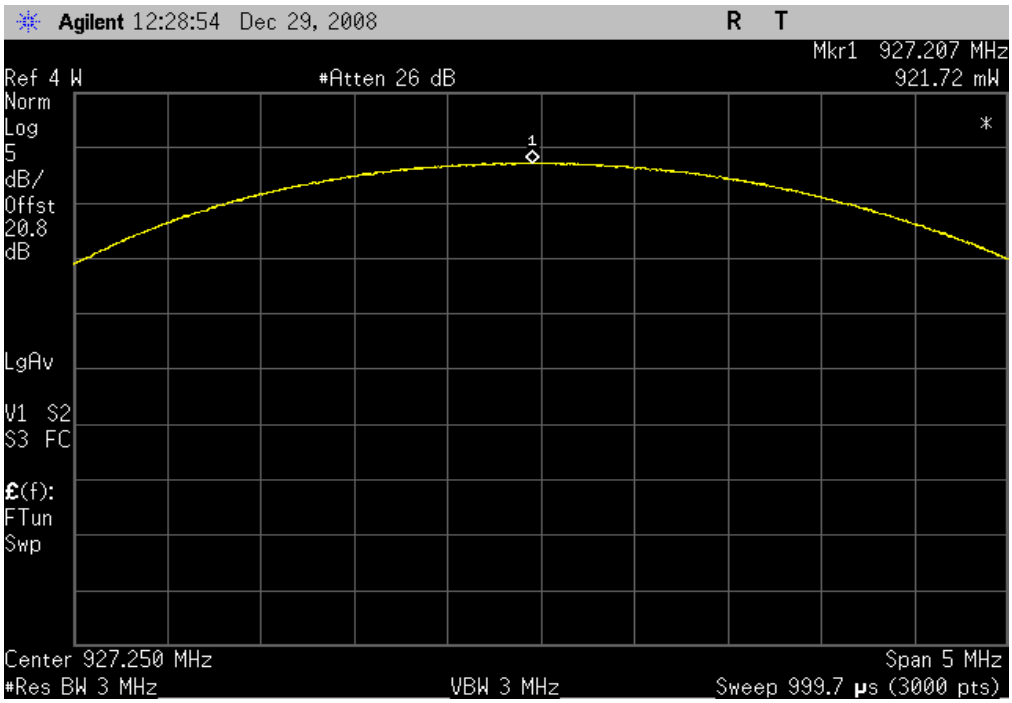


OOK, Mid Channel, 915.25 MHz					
Result:	Pass	**Value:**	943mW	**Limit:**	1Watt

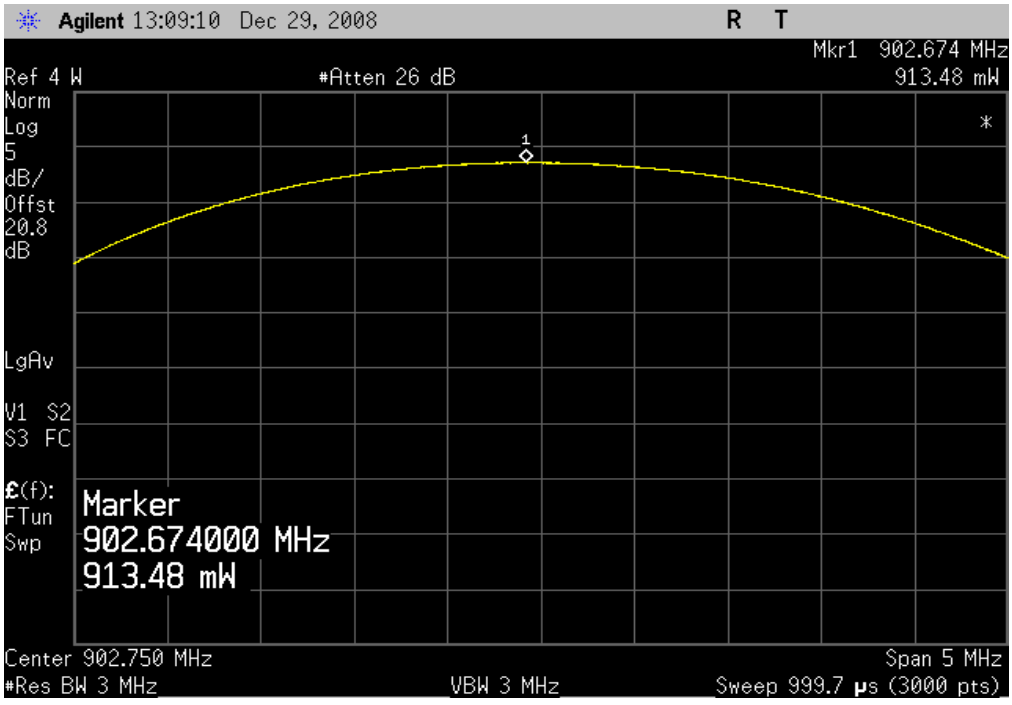


OUTPUT POWER

OOK, High Channel, 927.25 MHz					
Result:	Pass	**Value:**	922mW	**Limit:**	1Watt

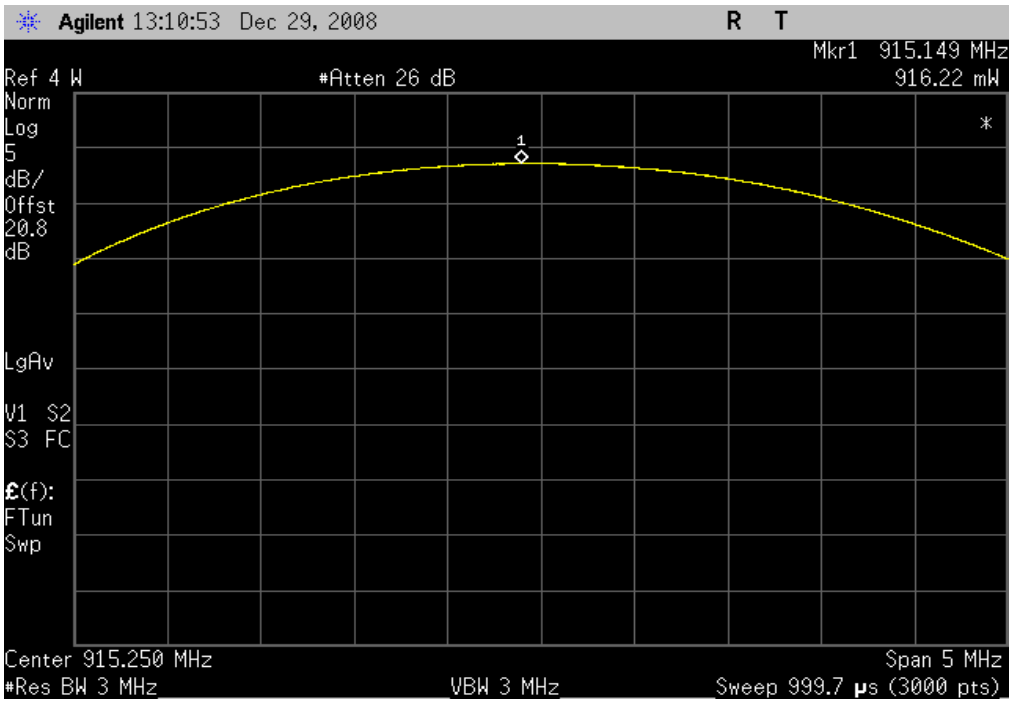


PRASK, Low Channel, 902.75MHz					
Result:	Pass	**Value:**	913mW	**Limit:**	1Watt

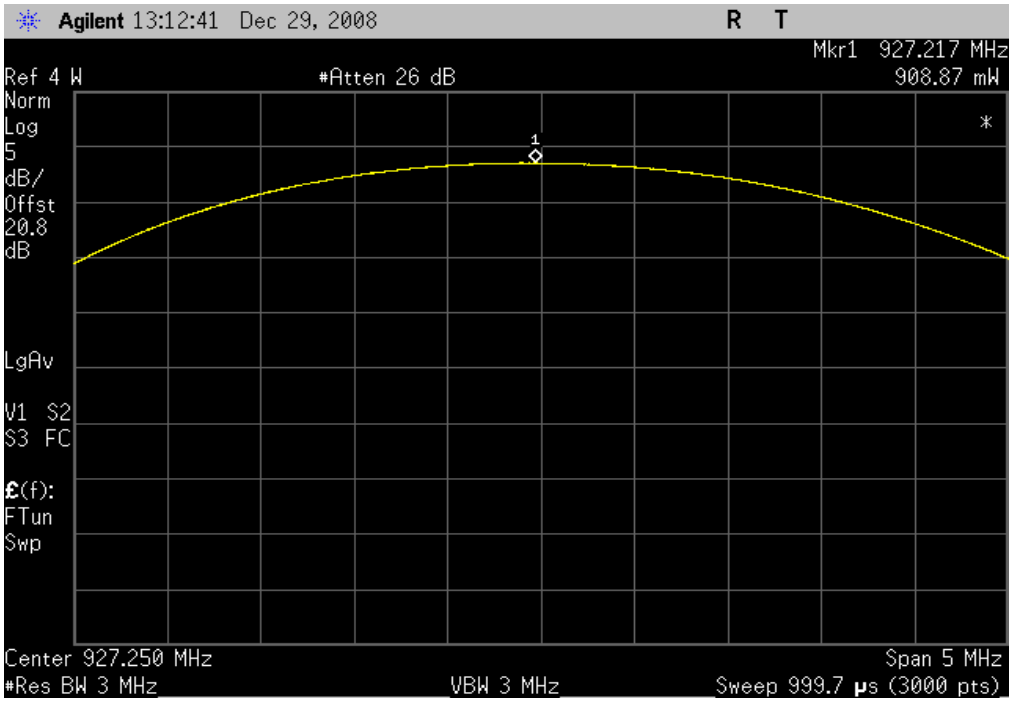


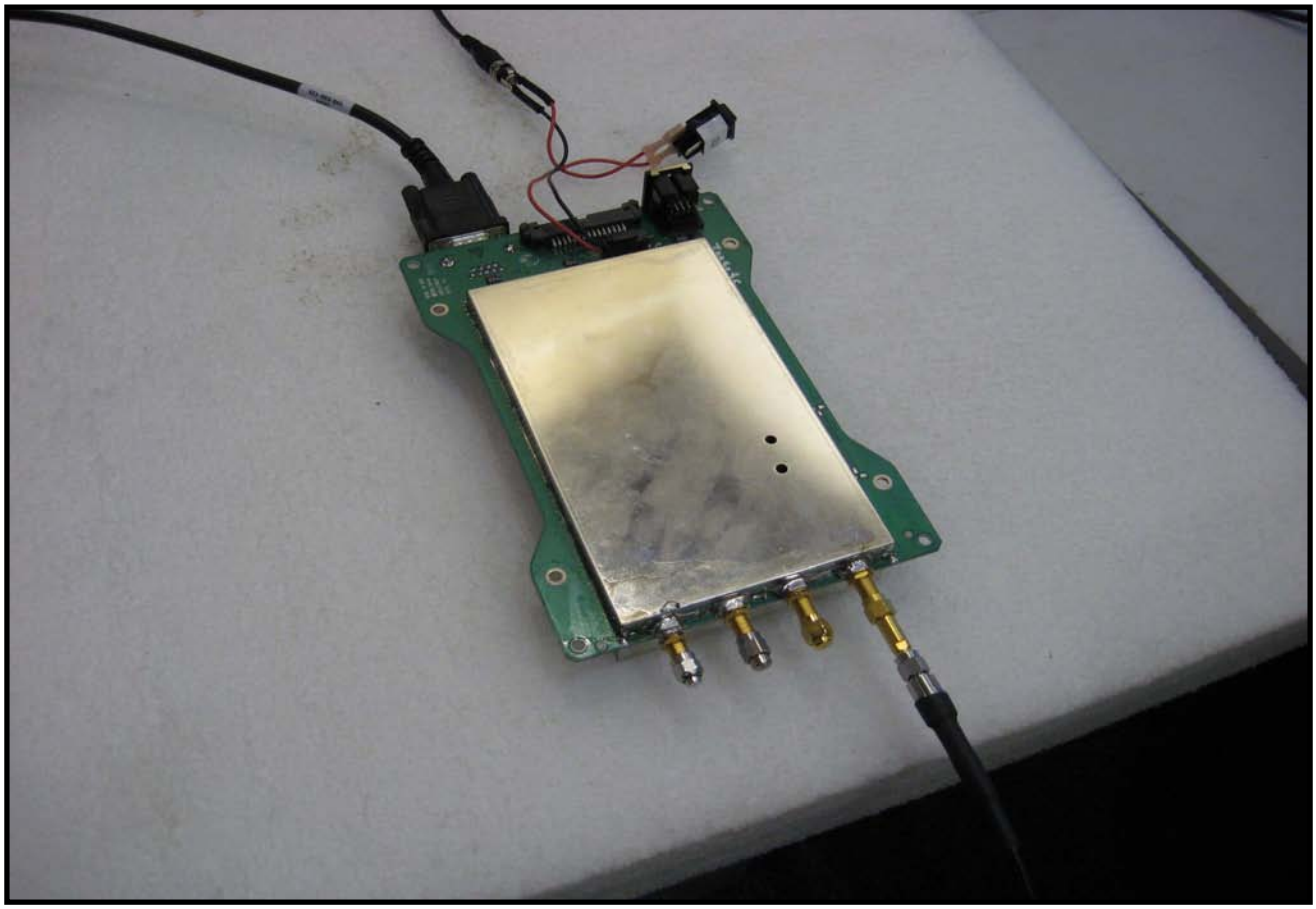
OUTPUT POWER

PRASK, Mid Channel, 915.25 MHz					
Result:	Pass	**Value:**	916mW	**Limit:**	Pass



PRASK, High Channel, 927.25 MHz					
Result:	Pass	**Value:**	909mW	**Limit:**	1Watt





BAND EDGE COMPLIANCE

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
DC Block	Miteq	DCB4000	None	9/16/2008	13
Attenuator	Weinschel Corp.	54A-20	RBL	9/16/2008	13
Spectrum Analyzer	Agilent	E4446A	AAT	12/12/2008	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/9/2008	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 spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to low and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode. The channels closest to the band edges were selected. The spectrum was scanned across each band edge from 5 MHz below the band edge to 5 MHz above the band edge.

NORTHWEST EMC

BAND EDGE COMPLIANCE

XMit 2008.12.29

EUT:	IM5r3			**Work Order:**	ITRM0188
Serial Number:	Prototype			**Date:**	12/29/08
Customer:	Intermec Technologies Corporation			**Temperature:**	21.3° C
Attendees:	None			**Humidity:**	33%
Project:	None			**Barometric Pres.:**	1013.5mb
Tested by:	Ethan Schoonover	**Power:**	120V/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000

COMMENTS

Transmitting from port 1 "worse case".

DEVIATIONS FROM TEST STANDARD

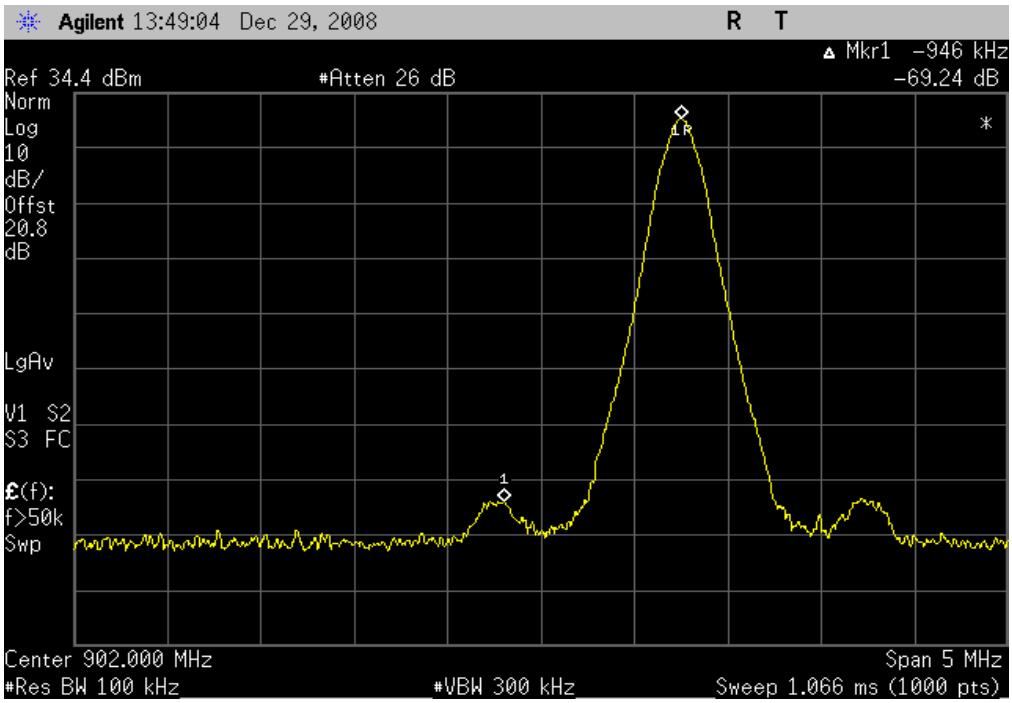
No Deviations

Configuration #	4	Signature

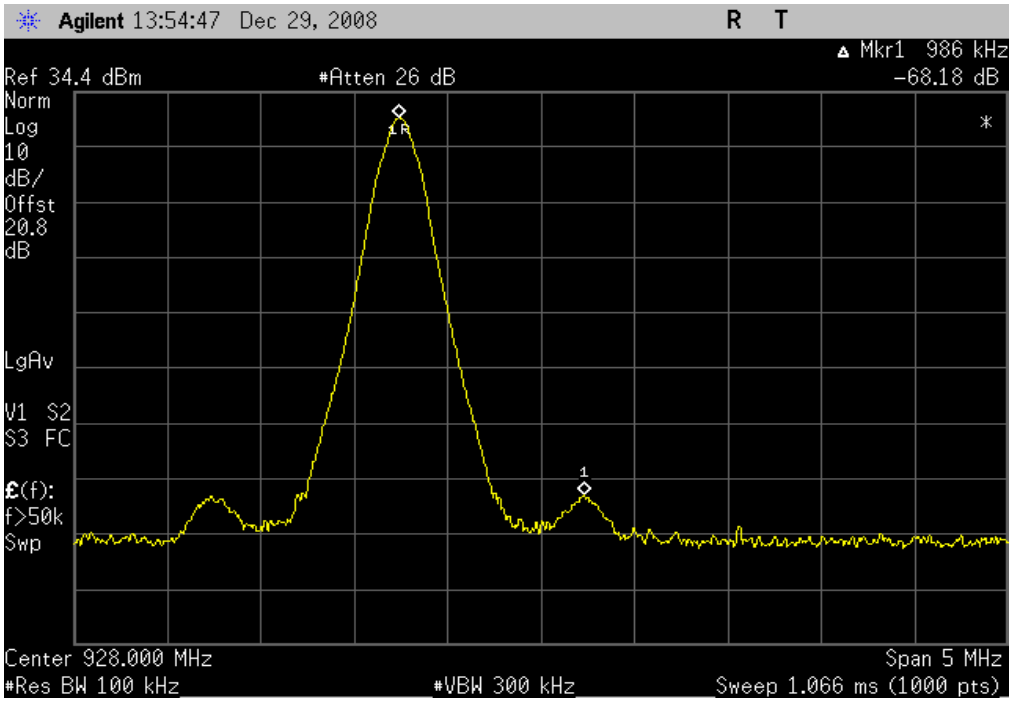
		Value	Limit	Results
OOK				
	Low Channel, 902.75 MHz	-69.24 dBc	< -20 dBc	Pass
	High Channel, 927.25 MHz	-68.18 dBc	< -20 dBc	Pass
PRASK				
	Low Channel, 902.75 MHz	-60.85 dBc	< -20 dBc	Pass
	High Channel, 927.25 MHz	-60.5 dBc	< -20 dBc	Pass

BAND EDGE COMPLIANCE

OOK, Low Channel, 902.75 MHz					
Result:	Pass	**Value:**	-69.24 dBc	**Limit:**	< -20 dBc

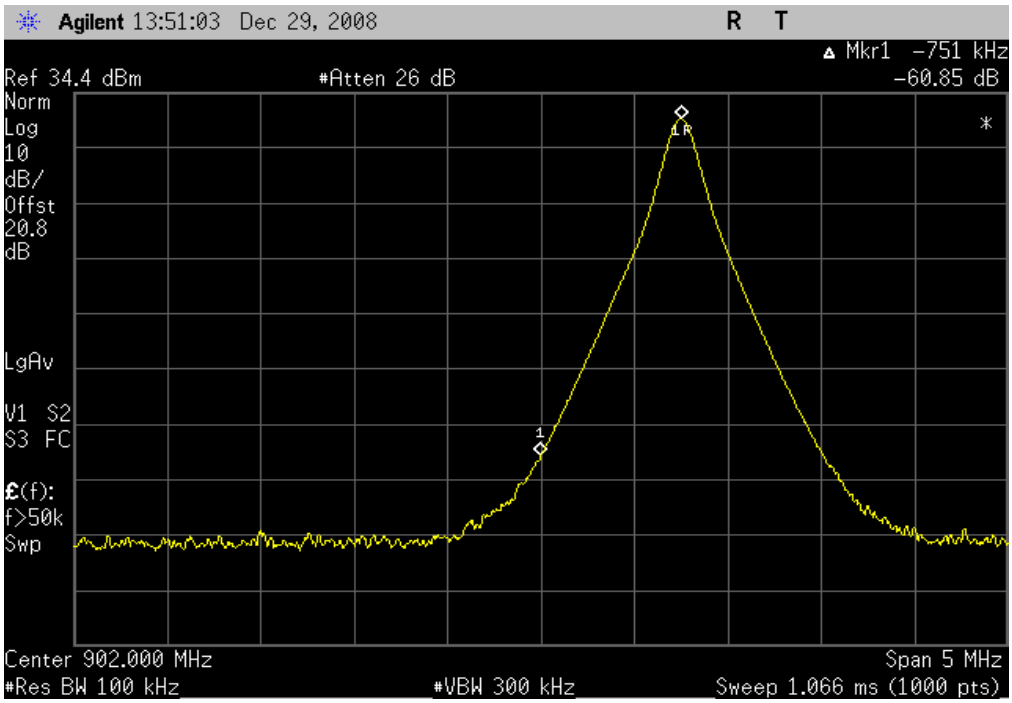


OOK, High Channel, 927.25 MHz					
Result:	Pass	**Value:**	-68.18 dBc	**Limit:**	< -20 dBc

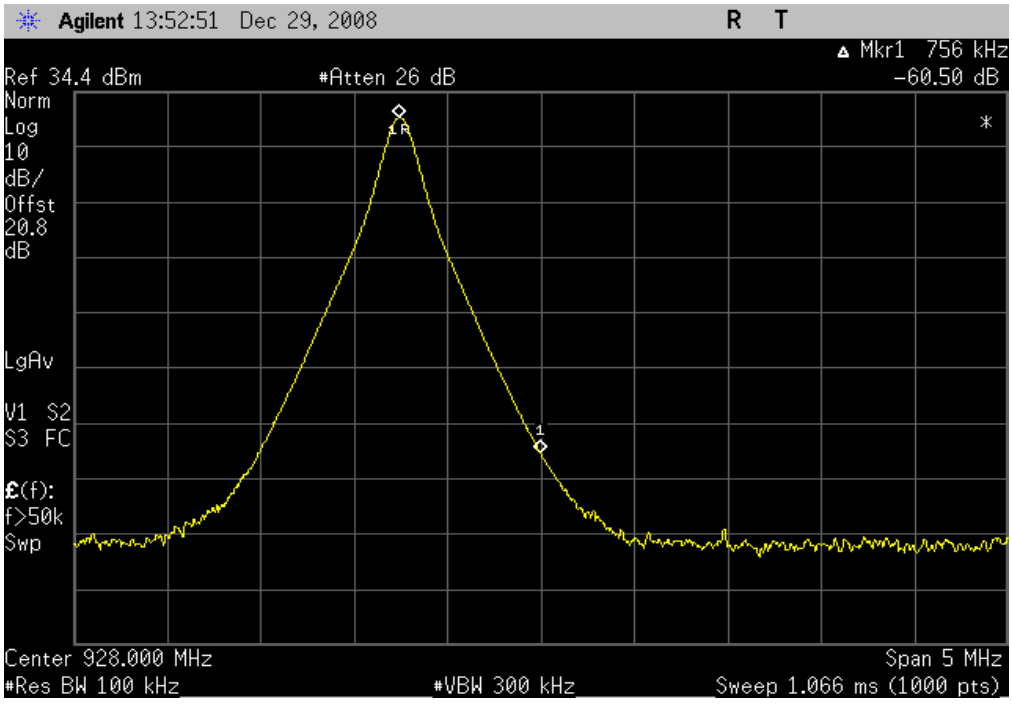


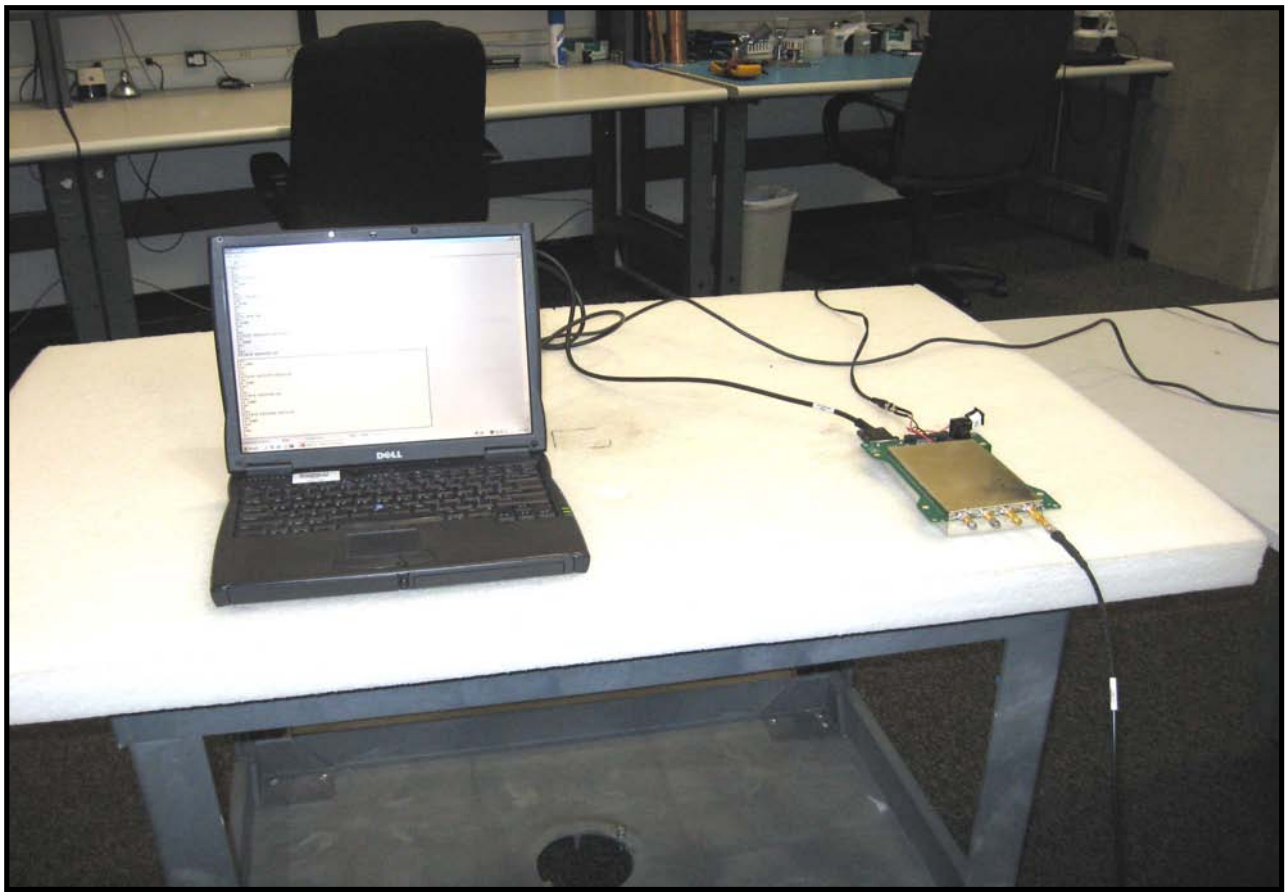
BAND EDGE COMPLIANCE

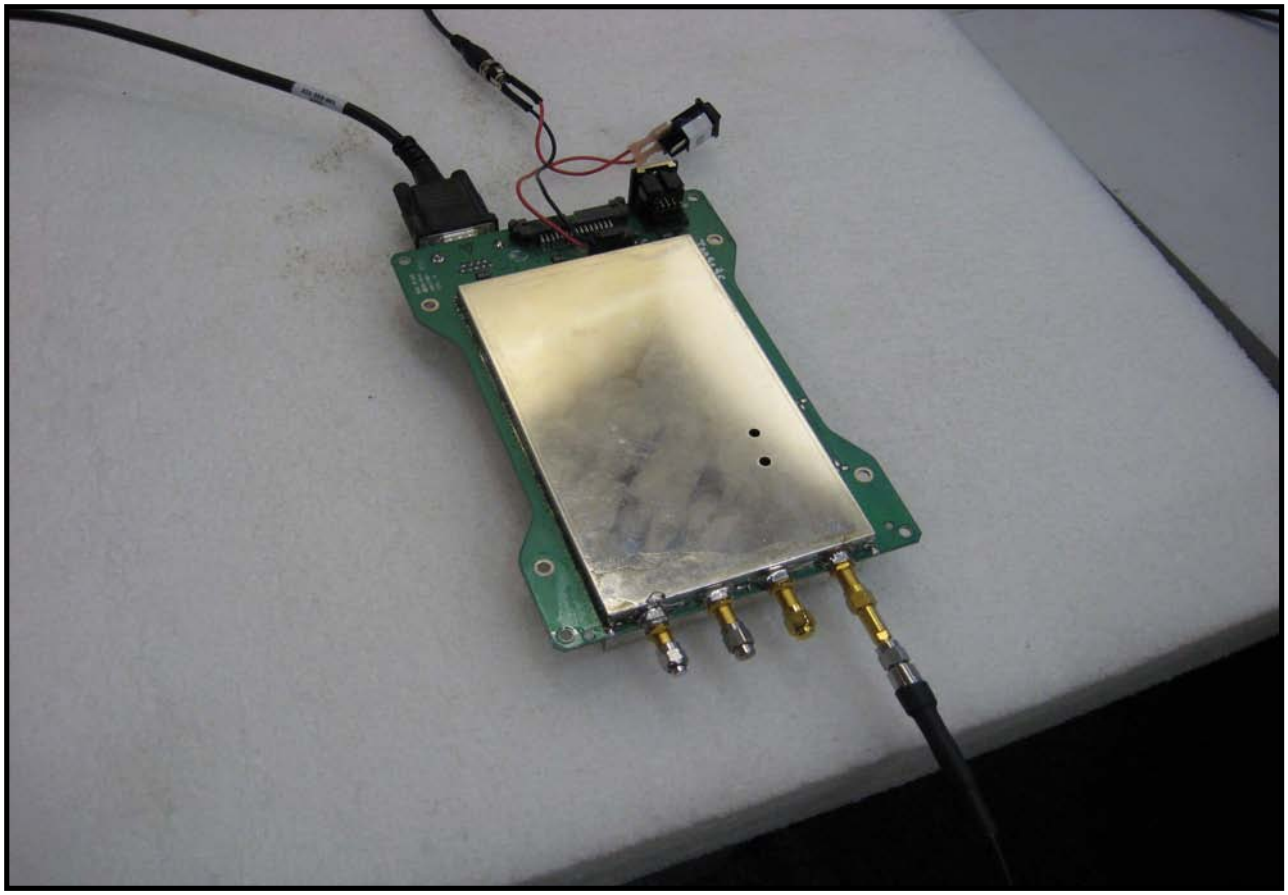
OOK, Low Channel, 902.75 MHz					
Result:	Pass	**Value:**	-60.85 dBc	**Limit:**	< -20 dBc



OOK, High Channel, 927.25 MHz					
Result:	Pass	**Value:**	-60.5 dBc	**Limit:**	< -20 dBc







BAND EDGE COMPLIANCE

SPURIOUS CONDUCTED EMISSIONS

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
DC Block	Miteq	DCB4000	None	9/16/2008	13
Attenuator	Weinschel Corp.	54A-20	RBL	9/16/2008	13
Spectrum Analyzer	Agilent	E4446A	AAT	12/12/2008	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/9/2008	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 spurious RF conducted emissions were measured with the EUT set to low, medium, and high transmit frequencies. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode. For each transmit frequency, the spectrum was scanned throughout the specified frequency.

NORTHWEST EMC

SPURIOUS CONDUCTED EMISSIONS

XMit 2008.12.29

EUT:	IM5r3			**Work Order:**	ITRM0188
Serial Number:	Prototype			**Date:**	12/29/08
Customer:	Intermec Technologies Corporation			**Temperature:**	21.3° C
Attendees:	None			**Humidity:**	33%
Project:	None			**Barometric Pres.:**	1013.5mb
Tested by:	Ethan Schoonover	**Power:**	120V/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000

COMMENTS

Transmitting from port 1 "worse case".

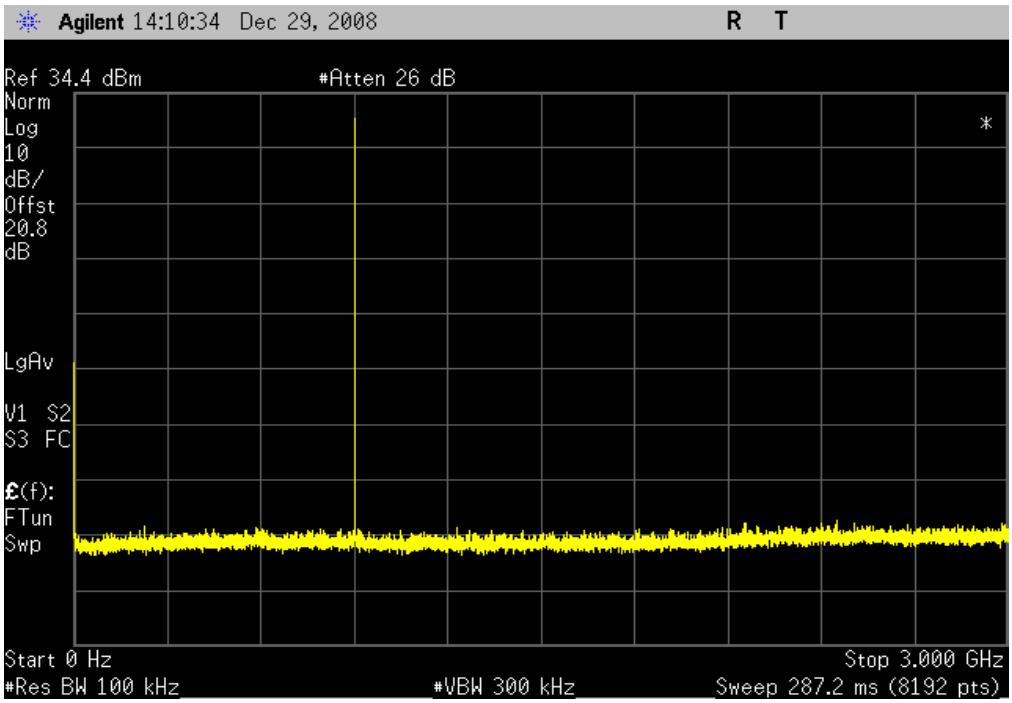
DEVIATIONS FROM TEST STANDARD

No Deviations

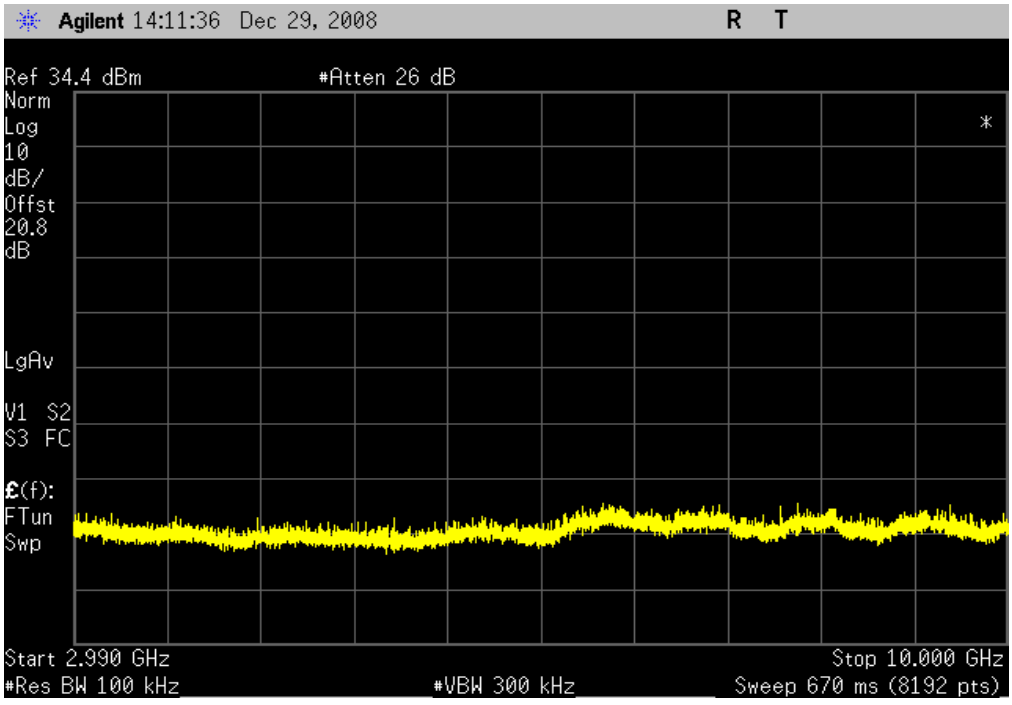
Configuration #	4	Signature

		Value	Limit	Results
OOK				
	Low Channel			
	0Hz - 3GHz	< -40dBc	< -20 dBc	Pass
	3GHz-10GHz	< -40dBc	< -20 dBc	Pass
	Mid Channel			
	0Hz - 3GHz	< -40dBc	< -20 dBc	Pass
	3GHz-10GHz	< -40dBc	< -20 dBc	Pass
	High Channel			
	0Hz - 3GHz	< -40dBc	< -20 dBc	Pass
	3GHz-10GHz	< -40dBc	< -20 dBc	Pass
PRASK				
	Low Channel			
	0Hz - 3GHz	< -40dBc	< -20 dBc	Pass
	3GHz-10GHz	< -40dBc	< -20 dBc	Pass
	Mid Channel			
	0Hz - 3GHz	< -40dBc	< -20 dBc	Pass
	3GHz-10GHz	< -40dBc	< -20 dBc	Pass
	High Channel			
	0Hz - 3GHz	< -40dBc	< -20 dBc	Pass
	3GHz-10GHz	< -40dBc	< -20 dBc	Pass

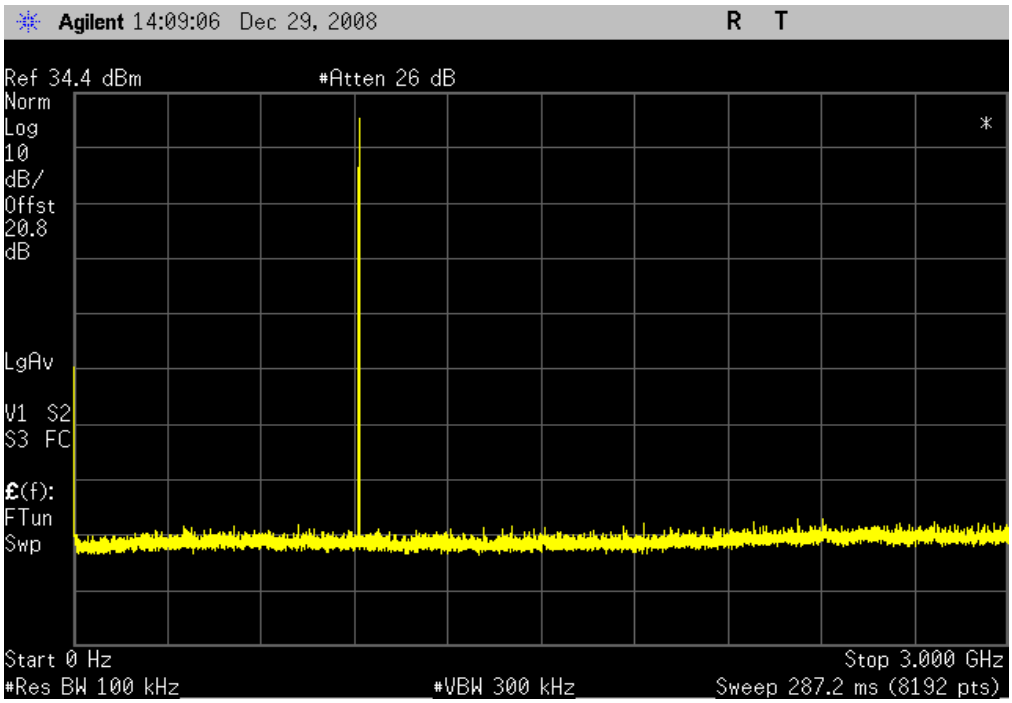
OOK, Low Channel, 0Hz - 3GHz					
Result:	Pass	**Value:**	< -40dBc	**Limit:**	< -20 dBc



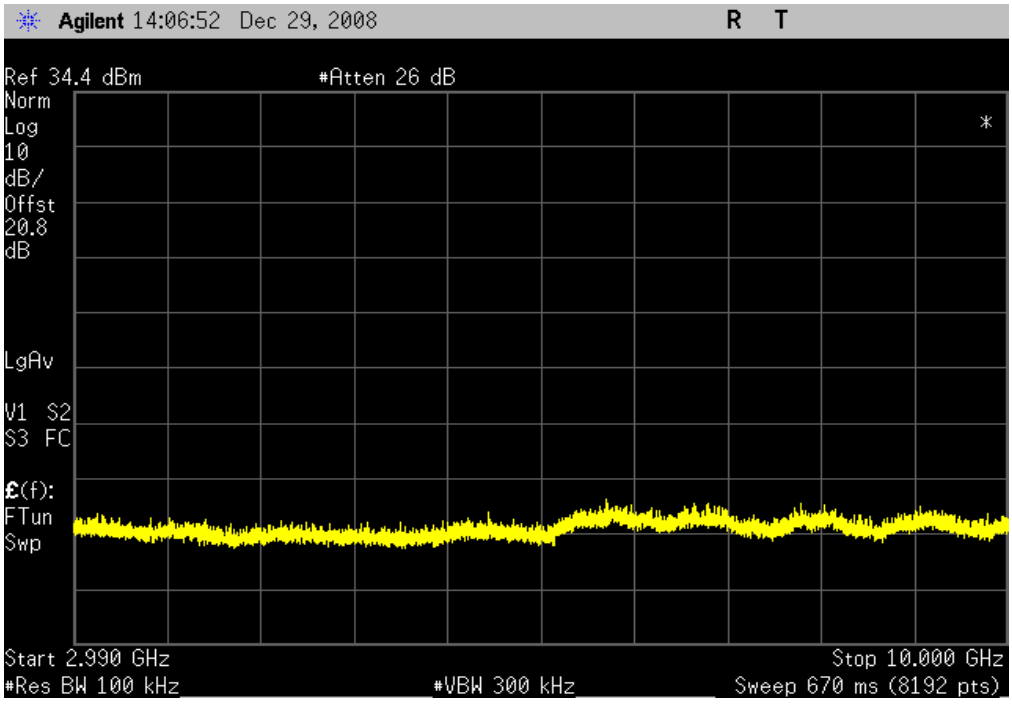
OOK, Low Channel, 30GHz - 10GHz					
Result:	Pass	**Value:**	< -40dBc	**Limit:**	< -20 dBc



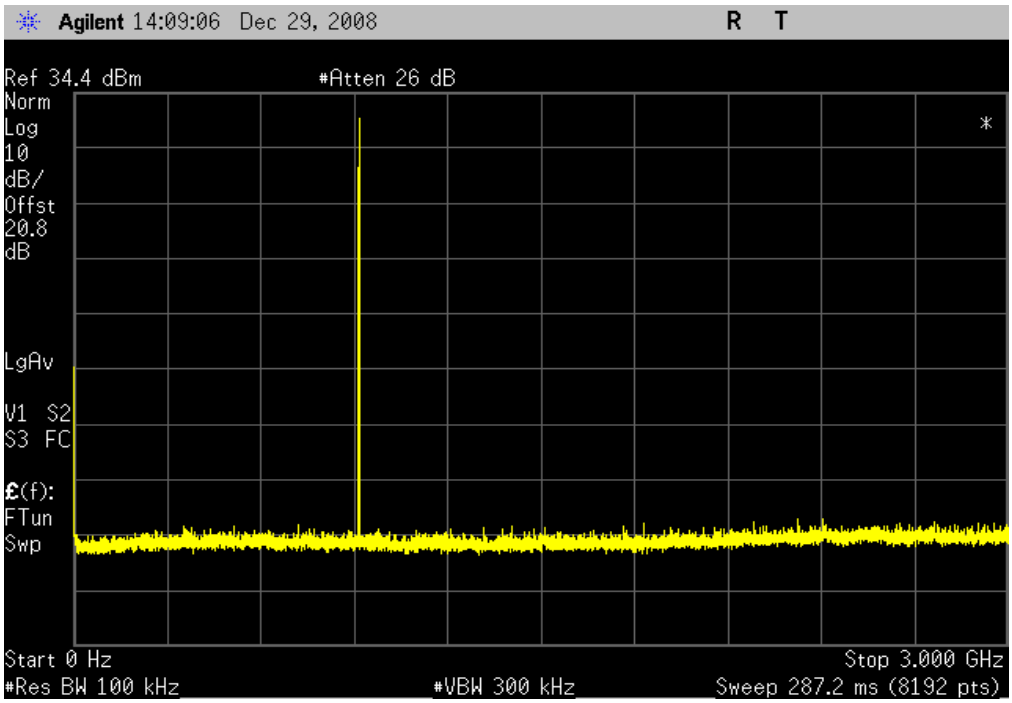
OOK, Mid Channel, 0Hz - 3GHz					
Result:	Pass	**Value:**	< -40dBc	**Limit:**	< -20 dBc



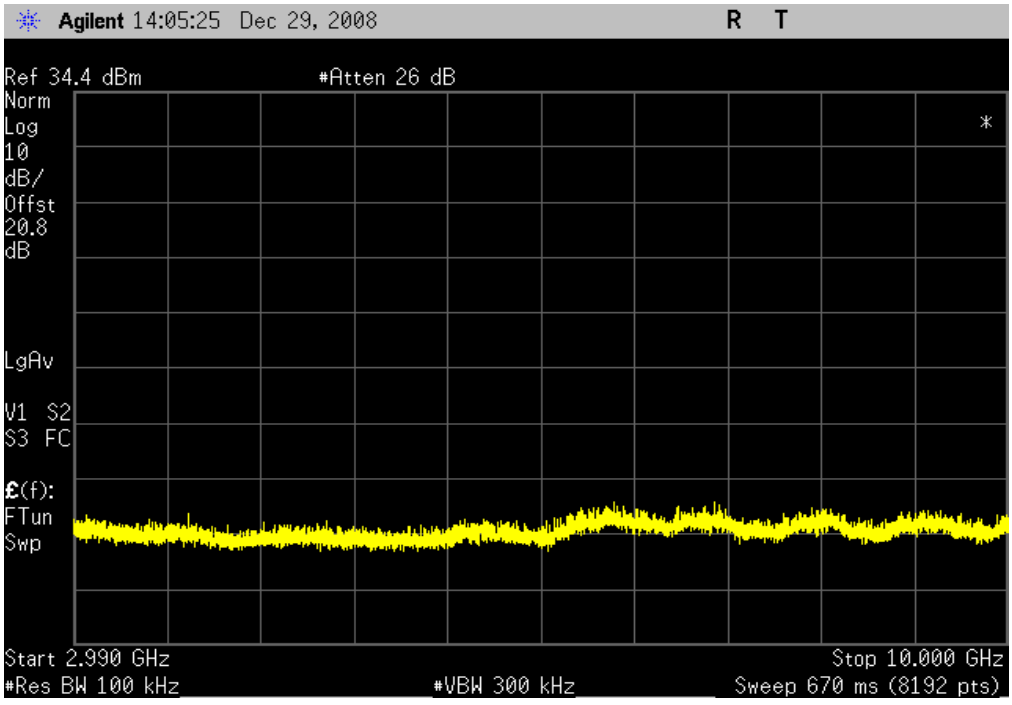
OOK, Mid Channel, 30GHz - 10GHz					
Result:	Pass	**Value:**	< -40dBc	**Limit:**	< -20 dBc



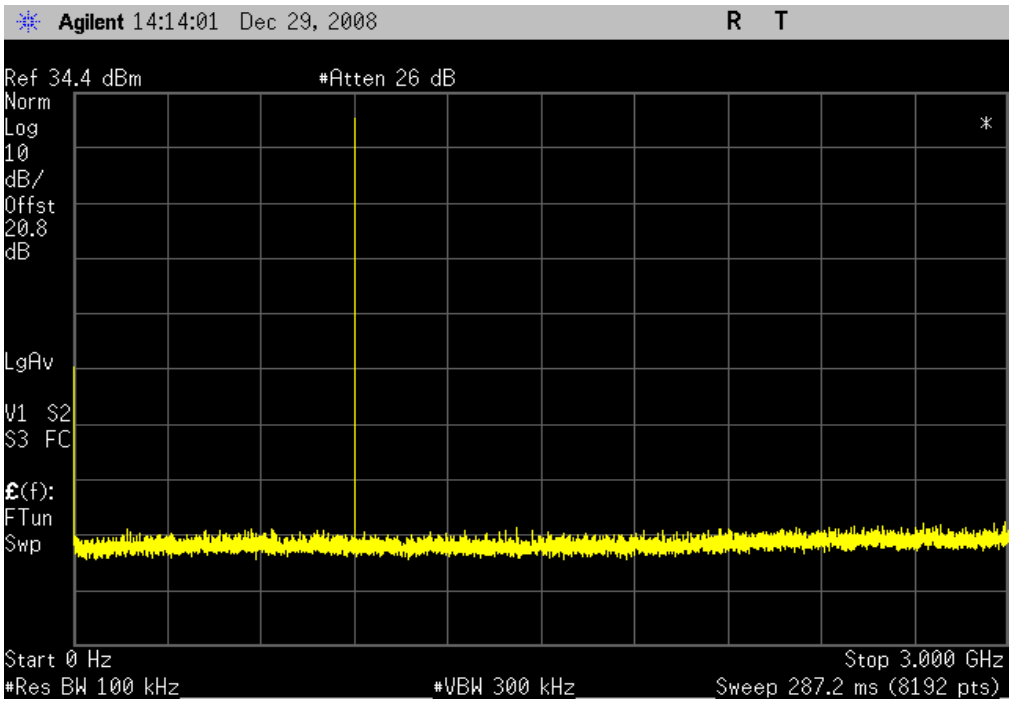
OOK, High Channel, 0Hz - 3GHz					
Result:	Pass	**Value:**	< -40dBc	**Limit:**	< -20 dBc



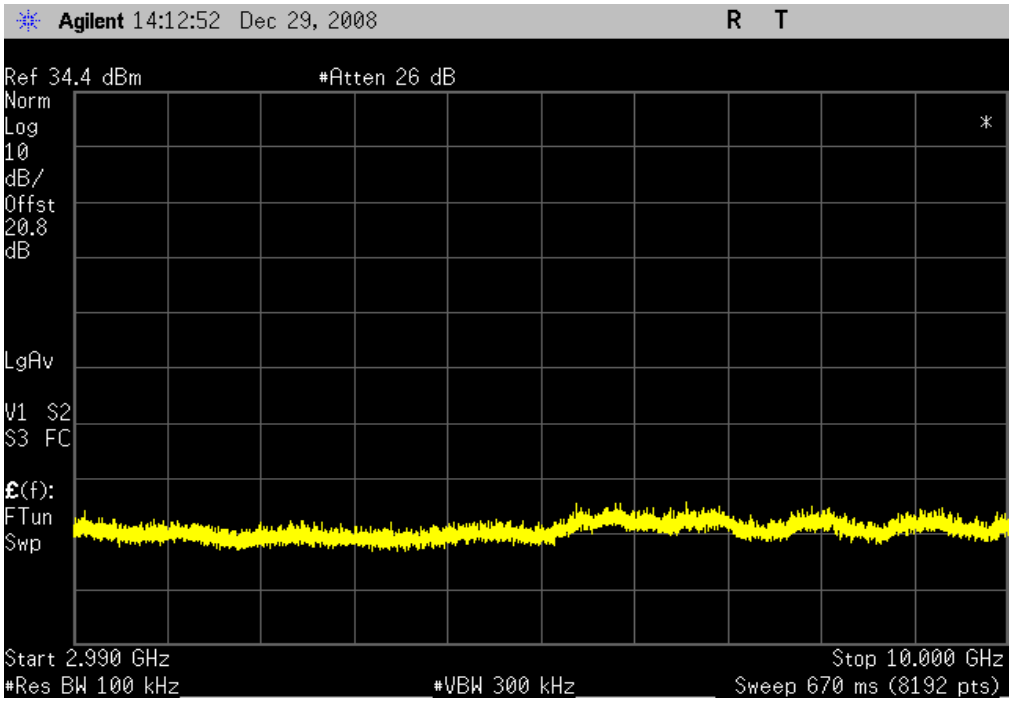
OOK, High Channel, 30GHz - 10GHz					
Result:	Pass	**Value:**	< -40dBc	**Limit:**	< -20 dBc



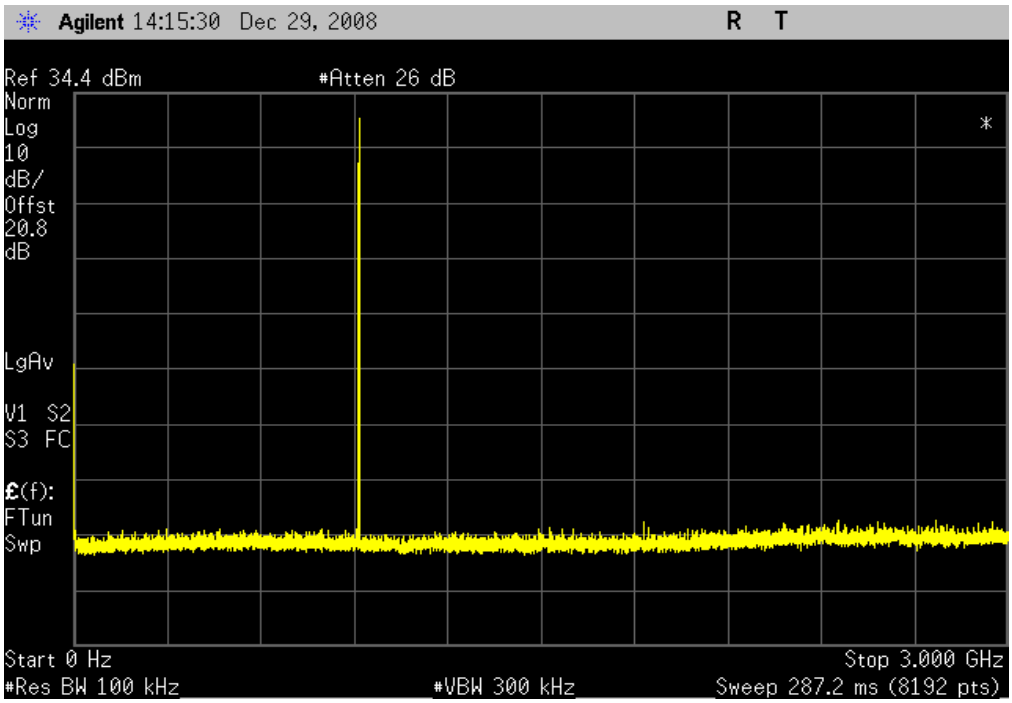
PRASK, Low Channel, 0Hz - 3GHz					
Result:	Pass	**Value:**	< -40dBc	**Limit:**	< -20 dBc



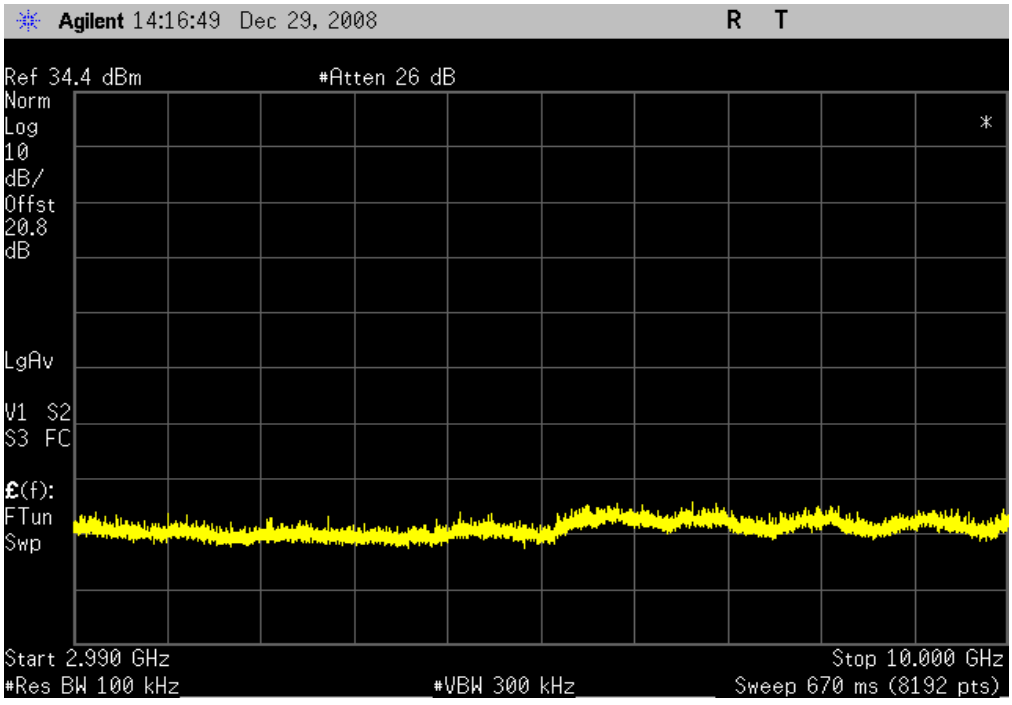
PRASK, Low Channel, 30GHz - 10GHz					
Result:	Pass	**Value:**	< -40dBc	**Limit:**	< -20 dBc



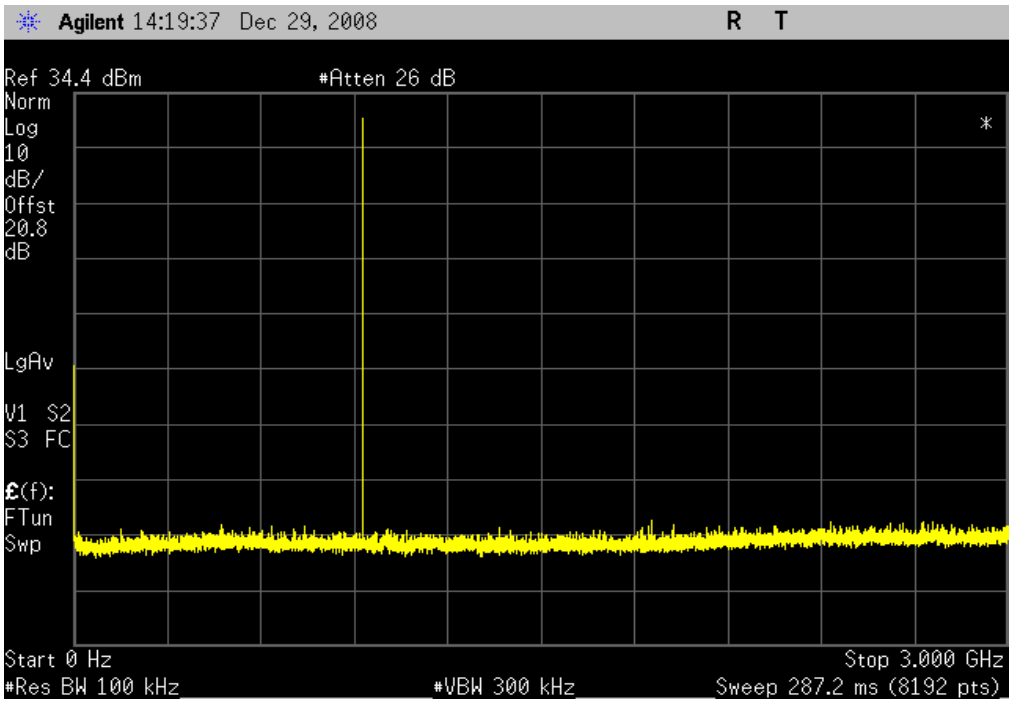
PRASK, Mid Channel, 0Hz - 3GHz					
Result:	Pass	**Value:**	< -40dBc	**Limit:**	< -20 dBc



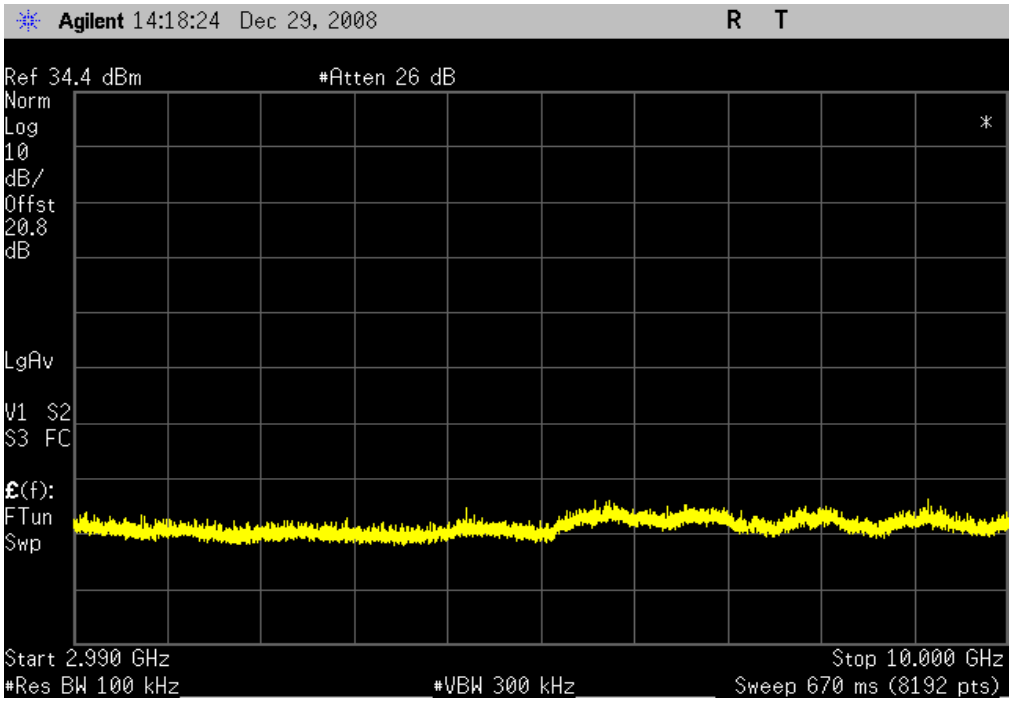
PRASK, Mid Channel, 30GHz - 10GHz					
Result:	Pass	**Value:**	< -40dBc	**Limit:**	< -20 dBc

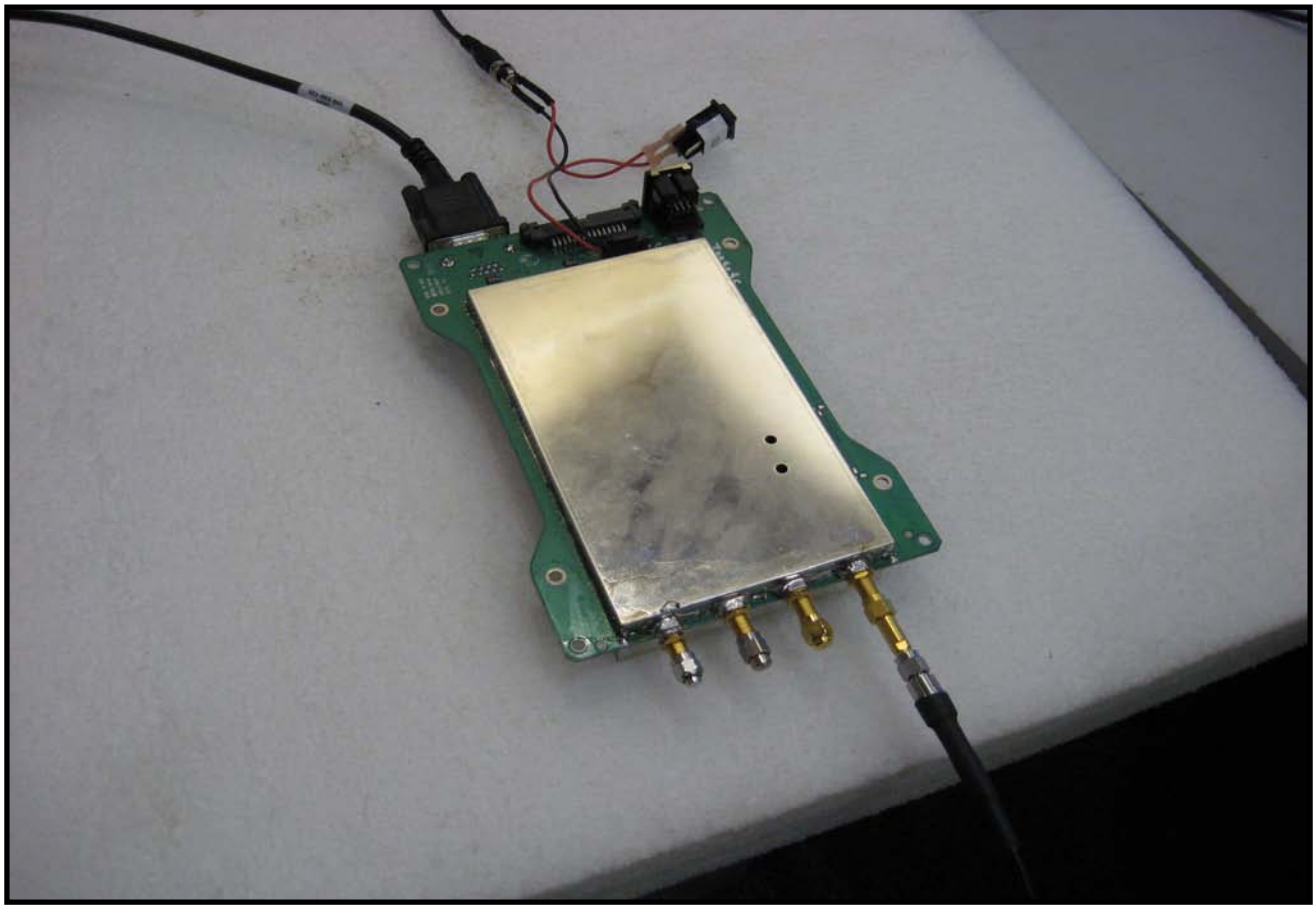


PRASK, High Channel, 0Hz - 3GHz					
Result:	Pass	**Value:**	< -40dBc	**Limit:**	< -20 dBc



PRASK, High Channel, 30GHz - 10GHz					
Result:	Pass	**Value:**	< -40dBc	**Limit:**	< -20 dBc





AC POWERLINE CONDUCTED EMISSIONS

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
Continuous Tx, channel 54 (927.25MHz), tagtype=EPCC1G2
Continuous Tx, channel 30 (915.25MHz), tagtype=EPCC1G2
Continuous Tx, channel 5 (902.75MHz), tagtype=G2
Continuous Tx, channel 5 (902.75MHz), tagtype=EPCC1G2

POWER SETTINGS INVESTIGATED
120V/60Hz

CONFIGURATIONS INVESTIGATED
ITRM0188 - 1

SAMPLE CALCULATIONS
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Receiver	Rohde & Schwarz	ESCI	ARH	8/28/2008	12 mo
Attenuator	Coaxicom	66702 2910-20	ATO	6/30/2008	13 mo
High Pass Filter	T.T.E.	7766	HFG	2/5/2008	13 mo
EV07 Cables		Conducted Cables	EVG	5/2/2008	13 mo
LISN	Solar	9252-50-R-24-BNC	LIP	1/4/2008	13 mo
LISN	Solar	9252-50-R-24-BNC	LIR	1/4/2008	13 mo

MEASUREMENT BANDWIDTHS

	Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (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

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 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm.

NORTHWEST

EMC

AC POWERLINE CONDUCTED EMISSIONS

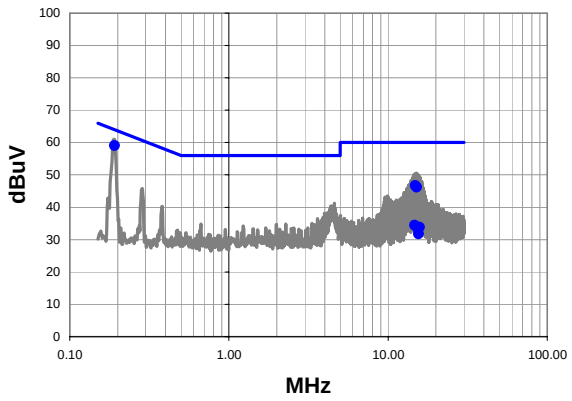
PSA-ESCI 2008.12.15
Version 2008.3.31

Work Order:	ITRM0188	**Date:**	01/02/09		
Project:	None	**Temperature:**	21.3° C		
Job Site:	EV07	**Humidity:**	33.2		
Serial Number:	Prototype	**Barometric Pres.:**	1013.5mb	**Tested by:**	Dan Haas
EUT:	IM5r3				
Configuration:	1 - 805-626-001 Emissions Configuration				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	120V/60Hz				
Operating Mode:	Continuous Tx, channel 5 (902.75MHz), tagtype=EPCC1G2				
Deviations:	No deviations.				
Comments:	805-626-001 antenna, EUT horizontal. Transmitting from port 1 "worse case".				

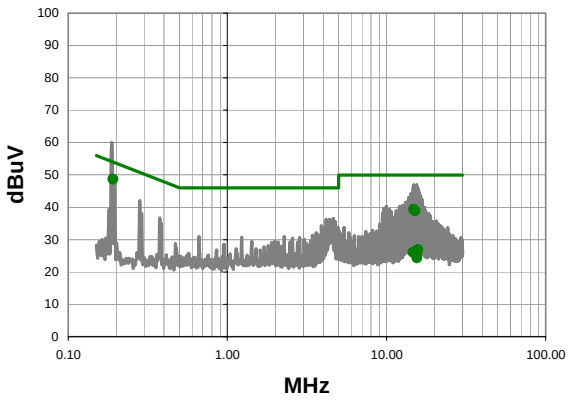
Test Specifications	**Test Method**
FCC 15.207:2009	ANSI C63.4:2003

Run #	1	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.191	37.8	21.2	59.0	64.0	-5.0
14.826	25.9	20.8	46.7	60.0	-13.3
15.098	25.4	20.8	46.2	60.0	-13.8
14.728	13.7	20.8	34.5	60.0	-25.5
15.792	13.1	20.8	33.9	60.0	-26.1
15.512	12.5	20.8	33.3	60.0	-26.7
15.578	11.0	20.8	31.8	60.0	-28.2

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.191	27.4	21.2	48.6	54.0	-5.4
14.826	18.6	20.8	39.4	50.0	-10.6
15.098	18.1	20.8	38.9	50.0	-11.1
15.792	6.1	20.8	26.9	50.0	-23.1
14.728	5.3	20.8	26.1	50.0	-23.9
15.512	4.8	20.8	25.6	50.0	-24.4
15.578	3.6	20.8	24.4	50.0	-25.6

NORTHWEST

EMC

PSA-ESCI 2008.12.15
Version 2008.3.31

AC POWERLINE CONDUCTED EMISSIONS

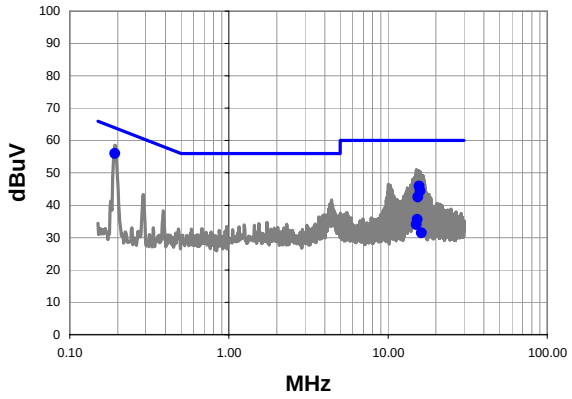
Work Order:	ITRM0188	**Date:**	01/02/09		
Project:	None	**Temperature:**	21.3° C		
Job Site:	EV07	**Humidity:**	33.2		
Serial Number:	Prototype	**Barometric Pres.:**	1013.5mb	**Tested by:**	Dan Haas

EUT:	IM5r3
Configuration:	1 - 805-626-001 Emissions Configuration
Customer:	Intermec Technologies Corporation
Attendees:	None
EUT Power:	120V/60Hz
Operating Mode:	Continuous Tx, channel 5 (902.75MHz), tagtype=EPCC1G2
Deviations:	No deviations.
Comments:	805-626-001 antenna, EUT horizontal. Transmitting from port 1 "worse case".

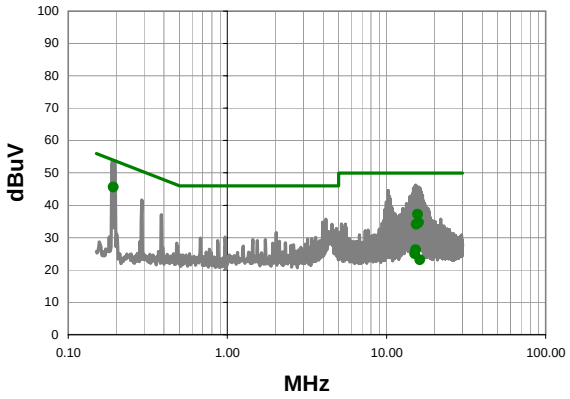
Test Specifications	**Test Method**
FCC 15.207:2009	ANSI C63.4:2003

Run #	2	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.192	34.8	21.2	56.0	63.9	-7.9
15.660	25.1	20.8	45.9	60.0	-14.1
15.938	23.6	20.8	44.4	60.0	-15.6
15.382	21.8	20.8	42.6	60.0	-17.4
15.282	14.8	20.8	35.6	60.0	-24.4
15.068	13.3	20.8	34.1	60.0	-25.9
16.228	10.7	20.8	31.5	60.0	-28.5

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.192	24.4	21.2	45.6	53.9	-8.3
15.660	16.4	20.8	37.2	50.0	-12.8
15.938	13.9	20.8	34.7	50.0	-15.3
15.382	13.4	20.8	34.2	50.0	-15.8
15.282	5.4	20.8	26.2	50.0	-23.8
15.068	4.3	20.8	25.1	50.0	-24.9
16.228	2.4	20.8	23.2	50.0	-26.8

NORTHWEST
EMC

PSA-ESCI 2008.12.15
Version 2008.3.31

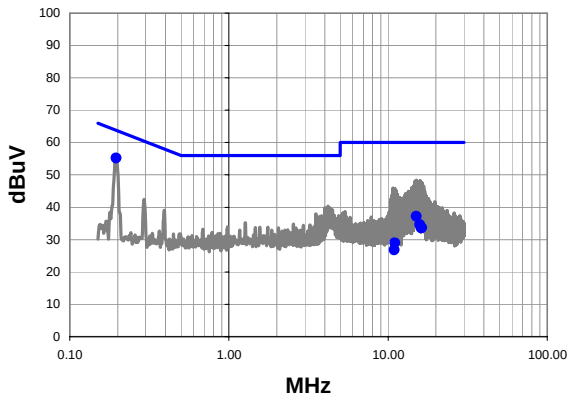
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	ITRM0188	**Date:**	01/02/09		
Project:	None	**Temperature:**	21.3° C		
Job Site:	EV07	**Humidity:**	33.2		
Serial Number:	Prototype	**Barometric Pres.:**	1013.5mb	**Tested by:**	Dan Haas
EUT:	IM5r3				
Configuration:	1 - 805-626-001 Emissions Configuration				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	120V/60Hz				
Operating Mode:	Continuous Tx, channel 5 (902.75MHz), tagtype=G2				
Deviations:	No deviations.				
Comments:	805-626-001 antenna, EUT horizontal. Transmitting from port 1 "worse case".				

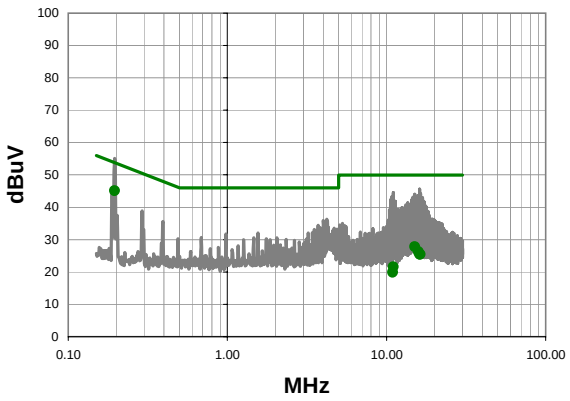
Test Specifications	**Test Method**
FCC 15.207:2009	ANSI C63.4:2003

Run #	3	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.196	34.1	21.1	55.2	63.8	-8.5
15.056	16.4	20.8	37.2	60.0	-22.8
15.852	13.9	20.8	34.7	60.0	-25.3
16.322	12.9	20.8	33.7	60.0	-26.3
16.142	12.9	20.8	33.7	60.0	-26.3
11.050	8.3	20.7	29.0	60.0	-31.0
10.938	6.1	20.7	26.8	60.0	-33.2

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.196	24.0	21.1	45.1	53.8	-8.6
15.056	7.0	20.8	27.8	50.0	-22.2
15.852	5.5	20.8	26.3	50.0	-23.7
16.142	4.8	20.8	25.6	50.0	-24.4
16.322	4.7	20.8	25.5	50.0	-24.5
11.050	0.8	20.7	21.5	50.0	-28.5
10.938	-0.8	20.7	19.9	50.0	-30.1

NORTHWEST

EMC

PSA-ESCI 2008.12.15
Version 2008.3.31

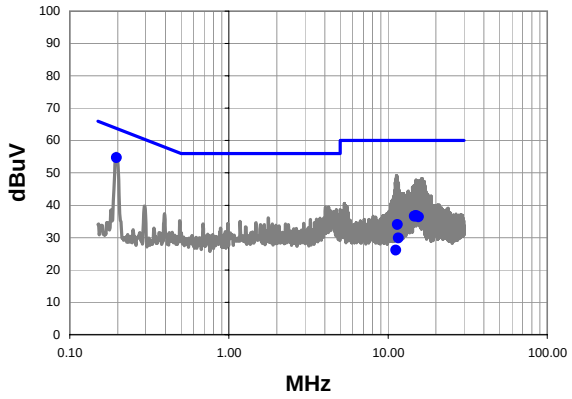
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	ITRM0188	**Date:**	01/02/09		
Project:	None	**Temperature:**	21.3° C		
Job Site:	EV07	**Humidity:**	33.2		
Serial Number:	Prototype	**Barometric Pres.:**	1013.5mb	**Tested by:**	Dan Haas
EUT:	IM5r3				
Configuration:	1 - 805-626-001 Emissions Configuration				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	120V/60Hz				
Operating Mode:	Continuous Tx, channel 5 (902.75MHz), tagtype=G2				
Deviations:	No deviations.				
Comments:	805-626-001 antenna, EUT horizontal. Transmitting from port 1 "worse case".				

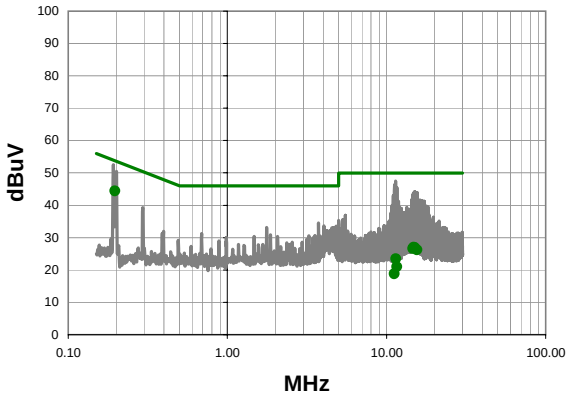
Test Specifications	**Test Method**
FCC 15.207:2009	ANSI C63.4:2003

Run #	4	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.197	33.6	21.1	54.7	63.7	-9.0
15.072	16.0	20.8	36.8	60.0	-23.2
14.878	15.9	20.8	36.7	60.0	-23.3
14.658	15.8	20.8	36.6	60.0	-23.4
15.542	15.6	20.8	36.4	60.0	-23.6
11.432	13.3	20.7	34.0	60.0	-26.0
11.614	9.1	20.7	29.8	60.0	-30.2
11.212	5.4	20.7	26.1	60.0	-33.9

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.197	23.3	21.1	44.4	53.7	-9.3
14.878	6.2	20.8	27.0	50.0	-23.0
15.072	6.1	20.8	26.9	50.0	-23.1
14.658	5.8	20.8	26.6	50.0	-23.4
15.542	5.4	20.8	26.2	50.0	-23.8
11.432	2.7	20.7	23.4	50.0	-26.6
11.614	0.2	20.7	20.9	50.0	-29.1
11.212	-1.9	20.7	18.8	50.0	-31.2

NORTHWEST
EMC

PSA-ESCI 2008.12.15
Version 2008.3.31

AC POWERLINE CONDUCTED EMISSIONS

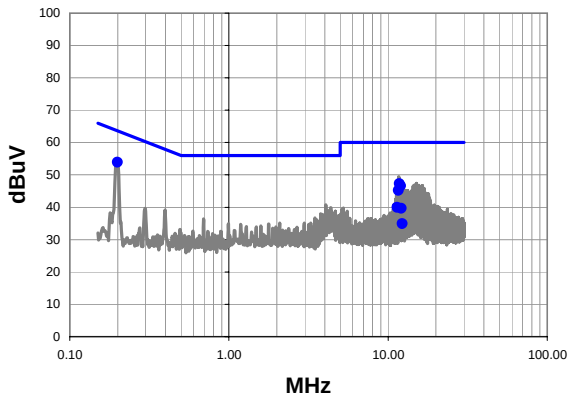
Work Order:	ITRM0188	**Date:**	01/02/09		
Project:	None	**Temperature:**	21.3° C		
Job Site:	EV07	**Humidity:**	33.2		
Serial Number:	Prototype	**Barometric Pres.:**	1013.5mb	**Tested by:**	Dan Haas

EUT:	IM5r3
Configuration:	1 - 805-626-001 Emissions Configuration
Customer:	Intermec Technologies Corporation
Attendees:	None
EUT Power:	120V/60Hz
Operating Mode:	Continuous Tx, channel 30 (915.25MHz), tagtype=EPCC1G2
Deviations:	No deviations.
Comments:	805-626-001 antenna, EUT horizontal. Transmitting from port 1 "worse case".

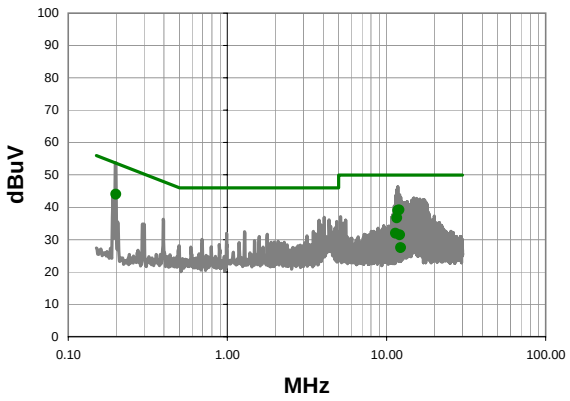
Test Specifications	**Test Method**
FCC 15.207:2009	ANSI C63.4:2003

Run #	5	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.199	32.8	21.1	53.9	63.7	-9.8
11.798	26.5	20.7	47.2	60.0	-12.8
12.002	25.8	20.7	46.5	60.0	-13.5
11.602	24.5	20.7	45.2	60.0	-14.8
11.402	19.2	20.7	39.9	60.0	-20.1
12.092	18.9	20.7	39.6	60.0	-20.4
12.292	14.2	20.7	34.9	60.0	-25.1

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.199	22.9	21.1	44.0	53.7	-9.7
12.002	18.4	20.7	39.1	50.0	-10.9
11.798	18.2	20.7	38.9	50.0	-11.1
11.602	16.0	20.7	36.7	50.0	-13.3
11.402	11.2	20.7	31.9	50.0	-18.1
12.092	10.7	20.7	31.4	50.0	-18.6
12.292	6.8	20.7	27.5	50.0	-22.5

NORTHWEST

EMC

PSA-ESCI 2008.12.15
Version 2008.3.31

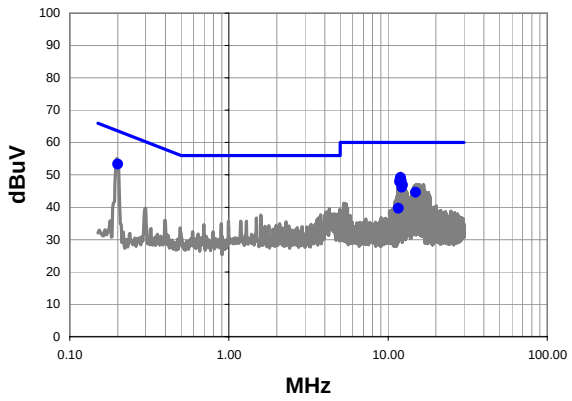
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	ITRM0188	**Date:**	01/02/09		
Project:	None	**Temperature:**	21.3° C		
Job Site:	EV07	**Humidity:**	33.2		
Serial Number:	Prototype	**Barometric Pres.:**	1013.5mb	**Tested by:**	Dan Haas
EUT:	IM5r3				
Configuration:	1 - 805-626-001 Emissions Configuration				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	120V/60Hz				
Operating Mode:	Continuous Tx, channel 30 (915.25MHz), tagtype=EPCC1G2				
Deviations:	No deviations.				
Comments:	805-626-001 antenna, EUT horizontal. Transmitting from port 1 "worse case".				

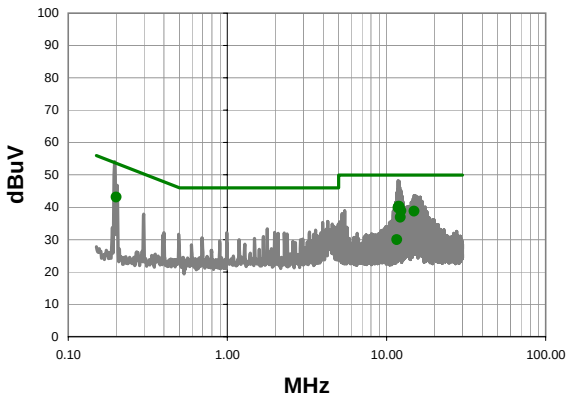
Test Specifications	**Test Method**
FCC 15.207:2009	ANSI C63.4:2003

Run #	6	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.200	32.3	21.1	53.4	63.6	-10.3
12.018	28.4	20.7	49.1	60.0	-10.9
11.922	28.0	20.7	48.7	60.0	-11.3
12.118	27.4	20.7	48.1	60.0	-11.9
11.818	27.1	20.7	47.8	60.0	-12.2
12.322	26.1	20.7	46.8	60.0	-13.2
12.222	25.4	20.7	46.1	60.0	-13.9
14.912	23.8	20.8	44.6	60.0	-15.4
11.622	18.9	20.7	39.6	60.0	-20.4

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
12.018	19.5	20.7	40.2	50.0	-9.8
11.922	19.5	20.7	40.2	50.0	-9.8
11.818	19.1	20.7	39.8	50.0	-10.2
0.200	22.1	21.1	43.2	53.6	-10.5
12.118	18.8	20.7	39.5	50.0	-10.5
12.322	18.1	20.7	38.8	50.0	-11.2
14.912	18.0	20.8	38.8	50.0	-11.2
12.222	16.2	20.7	36.9	50.0	-13.1
11.622	9.2	20.7	29.9	50.0	-20.1

NORTHWEST
EMC

PSA-ESCI 2008.12.15
Version 2008.3.31

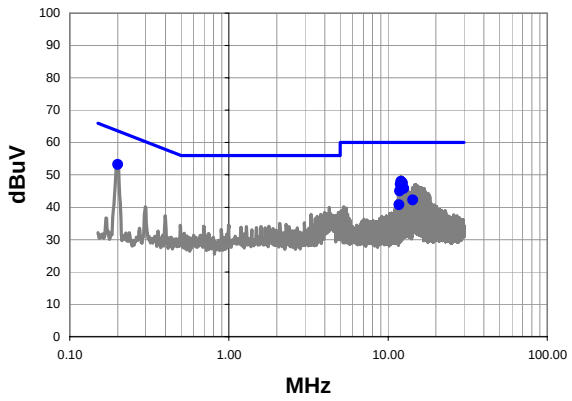
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	ITRM0188	**Date:**	01/02/09		
Project:	None	**Temperature:**	21.3° C		
Job Site:	EV07	**Humidity:**	33.2		
Serial Number:	Prototype	**Barometric Pres.:**	1013.5mb	**Tested by:**	Dan Haas
EUT:	IM5r3				
Configuration:	1 - 805-626-001 Emissions Configuration				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	120V/60Hz				
Operating Mode:	Continuous Tx, channel 54 (927.25MHz), tagtype=EPCC1G2				
Deviations:	No deviations.				
Comments:	805-626-001 antenna, EUT horizontal. Transmitting from port 1 "worse case".				

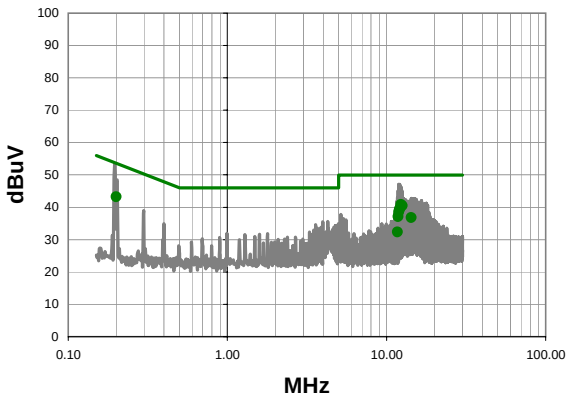
Test Specifications	**Test Method**
FCC 15.207:2009	ANSI C63.4:2003

Run #	7	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.200	32.2	21.1	53.3	63.6	-10.4
12.044	27.2	20.7	47.9	60.0	-12.1
12.138	27.1	20.7	47.8	60.0	-12.2
12.338	26.7	20.7	47.4	60.0	-12.6
11.938	26.3	20.7	47.0	60.0	-13.0
12.538	25.0	20.7	45.7	60.0	-14.3
11.842	24.3	20.7	45.0	60.0	-15.0
14.332	21.5	20.8	42.3	60.0	-17.7
11.742	20.0	20.7	40.7	60.0	-19.3

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
12.338	20.1	20.7	40.8	50.0	-9.2
12.538	19.7	20.7	40.4	50.0	-9.6
0.200	22.2	21.1	43.3	53.6	-10.4
12.138	18.9	20.7	39.6	50.0	-10.4
12.044	18.4	20.7	39.1	50.0	-10.9
11.938	17.7	20.7	38.4	50.0	-11.6
11.842	16.4	20.7	37.1	50.0	-12.9
14.332	16.0	20.8	36.8	50.0	-13.2
11.742	11.6	20.7	32.3	50.0	-17.7

NORTHWEST
EMC

PSA-ESCI 2008.12.15
Version 2008.3.31

AC POWERLINE CONDUCTED EMISSIONS

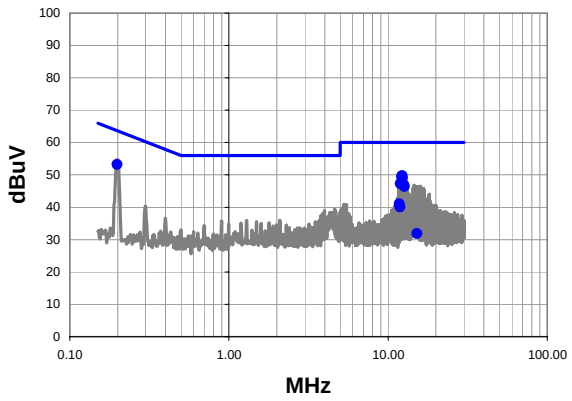
Work Order:	ITRM0188	**Date:**	01/02/09		
Project:	None	**Temperature:**	21.3° C		
Job Site:	EV07	**Humidity:**	33.2		
Serial Number:	Prototype	**Barometric Pres.:**	1013.5mb	**Tested by:**	Dan Haas

EUT:	IM5r3
Configuration:	1 - 805-626-001 Emissions Configuration
Customer:	Intermec Technologies Corporation
Attendees:	None
EUT Power:	120V/60Hz
Operating Mode:	Continuous Tx, channel 54 (927.25MHz), tagtype=EPCC1G2
Deviations:	No deviations.
Comments:	805-626-001 antenna, EUT horizontal. Transmitting from port 1 "worse case".

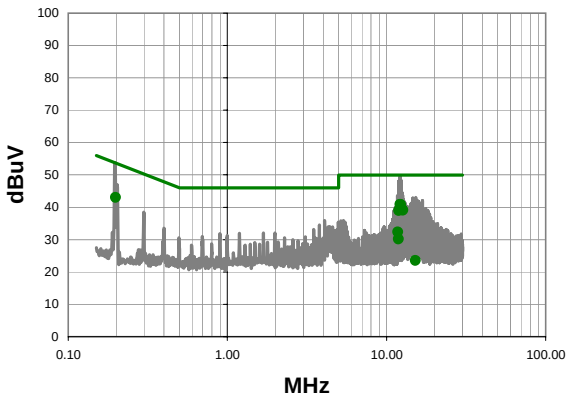
Test Specifications	**Test Method**
FCC 15.207:2009	ANSI C63.4:2003

Run #	8	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
12.264	29.0	20.7	49.7	60.0	-10.3
0.198	32.1	21.1	53.2	63.7	-10.5
12.158	28.7	20.7	49.4	60.0	-10.6
12.358	28.2	20.7	48.9	60.0	-11.1
11.962	26.5	20.7	47.2	60.0	-12.8
12.562	26.2	20.7	46.9	60.0	-13.1
12.662	25.6	20.7	46.3	60.0	-13.7
11.762	20.3	20.7	41.0	60.0	-19.0
11.862	19.3	20.7	40.0	60.0	-20.0
15.218	11.1	20.8	31.9	60.0	-28.1

Average Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
12.264	20.1	20.7	40.8	50.0	-9.2
12.158	20.1	20.7	40.8	50.0	-9.2
12.358	19.0	20.7	39.7	50.0	-10.3
12.562	18.6	20.7	39.3	50.0	-10.7
0.198	21.9	21.1	43.0	53.7	-10.7
12.662	18.3	20.7	39.0	50.0	-11.0
11.962	18.2	20.7	38.9	50.0	-11.1
11.762	11.6	20.7	32.3	50.0	-17.7
11.862	9.4	20.7	30.1	50.0	-19.9
15.218	2.8	20.8	23.6	50.0	-26.4