Intermec Technologies Corporation

1000CP01UO
1000CP02UO
1001CP01UO

Tested to the following Specifications:

FCC 22H:2010
FCC 24E:2010

Report No. INMC0662

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 27, 2011
Intermec Technologies Corporation
Model: 1000CP01UO, 1000CP02UO, 1001CP01UO

Emissions			
Test Description	**Specification**	**Test Method**	**Pass/Fail**
Out of Band Emissions	FCC 22H:2011	ANSI/TIA/EIA-603-C-2004	**Pass**
Out of Band Emissions	FCC 24E:2011	ANSI/TIA/EIA-603-C-2004	**Pass**
Effective Radiated Power (ERP)	FCC 22H:2011	ANSI/TIA/EIA-603-C-2004	**Pass**
Effective Radiated Power (EIRP)	FCC 24E:2011	ANSI/TIA/EIA-603-C-2004	**Pass**

Modifications made to the product
See the Modifications section of this report

Test Facility

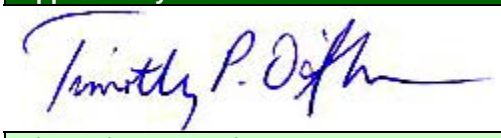
The measurement facility used to collect the data is located at:

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-2).

Approved By:



Tim O'Shea, Operations Manager

NVLAP

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
00	None		

Barometric Pressure

The recorded barometric pressure has been normalized to sea level.

Accreditations and Authorizations

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 National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. NVLAP is administered by the National Institute of Standards and Technology (NIST), an agency of the U.S. Commerce Department. 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.

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, Brooklyn Park: 2834E-1)*

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.

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).

Accreditations and Authorizations

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, G-84, C-2687, T-1658, and R-2318, Irvine: R-1943, G-85, C-2766, and T-1659, Sultan: R-871, G-83, C-1784, and T-1511, Brooklyn Park: R-3125, G-86, G-141, C-3464, and T-1634).*

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).

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, Brooklyn Park: US0175)*

VIETNAM

Vietnam MIC has approved Northwest EMC as an accredited test lab. Per Decision No. 194/QD-QLCL (dated December 15, 2009), Northwest EMC test reports can be used for Vietnam approval submissions.

SCOPE

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

Northwest EMC Locations

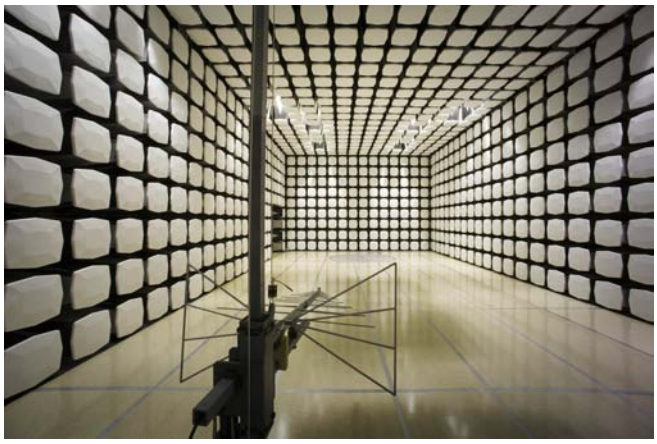
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

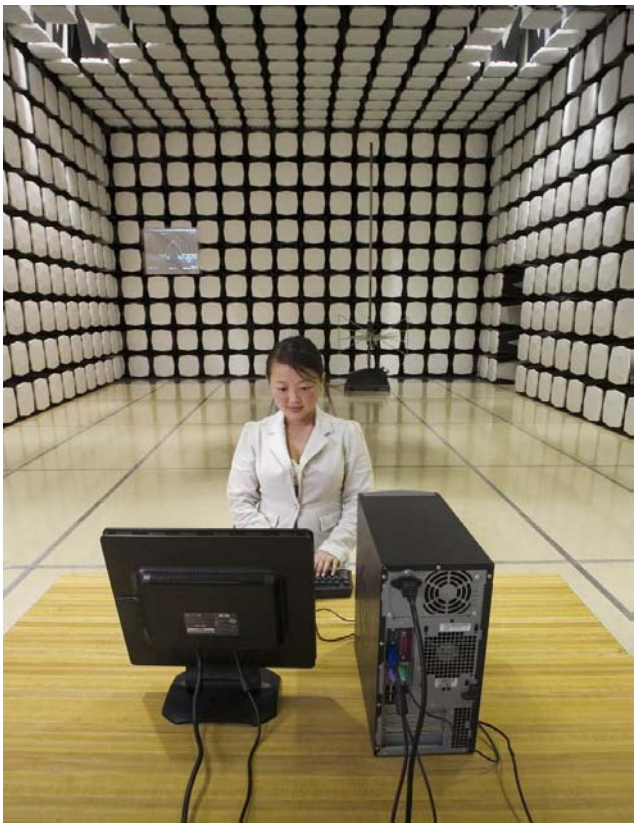
California
Labs OC01-OC13
41 Tesla
Irvine, CA 92618
(949) 861-8918

Minnesota
Labs MN01-MN08
9349 W Broadway Ave.
Brooklyn Park,
MN 55445
(763) 425-2281

Washington
Labs SU01-SU07
14128 339th Ave. SE
Sultan, WA 98294
(360) 793-8675

New York
Labs WA01-WA04
4939 Jordan Rd.
Elbridge, NY 13060
(315) 685-0796





Party Requesting the Test

Company Name:	Intermec Technologies Corporation
Address:	6001 36th Avenue West
City, State, Zip:	Everett, WA 98203-1264
Test Requested By:	Wayne Rieger
Model:	1000CP01UO, 1000CP02UO, 1001CP01UO
First Date of Test:	January 11, 2011
Last Date of Test:	January 27, 2011
Receipt Date of Samples:	January 11, 2011
Equipment Design Stage:	Preproduction
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):

Handheld computers containing the Intermec Model RW10 radio module. The module is a UMTS radio.

The handheld computers also contain the Intermec Model RC12 radio module. The module is an 802.11a/b/g/n radio module

Testing Objective:

To demonstrate compliance with FCC 22H and FCC 24E requirements. The RW10 radio module has been previously tested in a stand-alone configuration using an antenna of the same type and gain. This testing in the Models 100CP01UO, 1000CP02UO, and 1001CP01UO handheld computers was done for an additional assurance of compliance.

CONFIGURATION 1 INMC0660

Software/Firmware Running during test	
Description	**Version**
Windows Mobile	6.5

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer, A1	Intermec Technologies Corp	1000CP01UO	24411047041

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply	Intermec Technologies Corp	AE39	02061000875
USB SNAPON	Intermec Technologies Corp	225-773-001	HDIP D-SUB, A3
Battery Pack	Intermec Technologies Corp	1000AB01	16961002196

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

CONFIGURATION 2 INMC0660

Software/Firmware Running during test	
Description	**Version**
Windows Mobile	6.5

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer, B1	Intermec Technologies Corp	1000CP02UO	24411047146

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply	Intermec Technologies Corp	AE39	02061000875
USB SNAPON	Intermec Technologies Corp	225-773-001	HDIP D-SUB, A3
Battery Pack	Intermec Technologies Corp	1000AB01	16961002196

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

CONFIGURATION 3 INMC0660

Software/Firmware Running during test	
Description	**Version**
Windows Mobile	6.5

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer, C1	Intermec Technologies Corp	1001CP01UO	25411047063

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply	Intermec Technologies Corp	AE39	02061000875
USB SNAPON	Intermec Technologies Corp	225-773-001	HDIP D-SUB, A3
Battery Pack	Intermec Technologies Corp	1001AB01	16661001916

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

CONFIGURATION 1 INMC0662

Software/Firmware Running during test	
Description	**Version**
Windows Mobile	6.5

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer, A1	Intermec Technologies Corp	1000CP01UO	24411047041

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply	Intermec Technologies Corp	AE39	02061000875
USB SNAPON	Intermec Technologies Corp	225-773-001	HDIP D-SUB, A3
Battery Pack	Intermec Technologies Corp	1000AB01	16961002196

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

CONFIGURATION 2 INMC0662

Software/Firmware Running during test	
Description	**Version**
Windows Mobile	6.5

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer, B1	Intermec Technologies Corp	1000CP02UO	24411047146

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply	Intermec Technologies Corp	AE39	02061000875
USB SNAPON	Intermec Technologies Corp	225-773-001	HDIP D-SUB, A3
Battery Pack	Intermec Technologies Corp	1000AB01	16961002196

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

CONFIGURATION 3 INMC0662

Software/Firmware Running during test	
Description	**Version**
Windows Mobile	6.5

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer, C1	Intermec Technologies Corp	1001CP01UO	25411047063

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply	Intermec Technologies Corp	AE39	02061000875
USB SNAPON	Intermec Technologies Corp	225-773-001	HDIP D-SUB, A3
Battery Pack	Intermec Technologies Corp	1001AB01	16661001916

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	1.8m	No	Power Supply	AC Mains
DC Leads	No	1.8m	Yes	SNAPON	Power Supply
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	1/11/2011	Effective Radiated Power (ERP)	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	1/26/2011	Effective Radiated Power (EIRP)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	1/27/2011	Out of Band Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Out of Band Emissions - Part 22H

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
Transmitting HSPA, Cell Band
Transmitting WCDMA rel 99, Cell Band
Transmitting E-GPRS (EDGE), Cell Band
Transmitting GPRS (GMSK), Cell Band

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	9 GHz

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

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4440A	AFD	6/1/2009	24
High Pass Filter	Micro-Tronics	50108	HGF	1/18/2010	13
Antenna, Horn	EMCO	3115	AHE	10/22/2009	24
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	24
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27
Pre-Amplifier	Miteq	AMF-3D00100800-32-13P	AVF	7/14/2010	13
EV12 Cables	N/A	Double Ridge Horn Cables	EVT	11/22/2010	13
Antenna, Horn	ETS	3115	AIB	9/8/2010	24

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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The highest gain antenna to be used with the EUT was tested for final measurements. The EUT was configured for the lowest, a middle, and the highest transmit frequency in each operational band. For each configuration, the spectrum was scanned throughout the specified range. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

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

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

For the purposes of preliminary measurements, the field strength of the spurious emissions can be measured and compared with a 3 meter limit. The 3 meter limit was calculated to be 82.5 dBuV/m at 3 meters. The final measurements must be made utilizing the substitution method described above

NORTHWEST EMC

Out of Band Emissions - Part 22H

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01UO	Work Order:	INMC0662
Serial Number:	24411047041	Date:	01/24/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

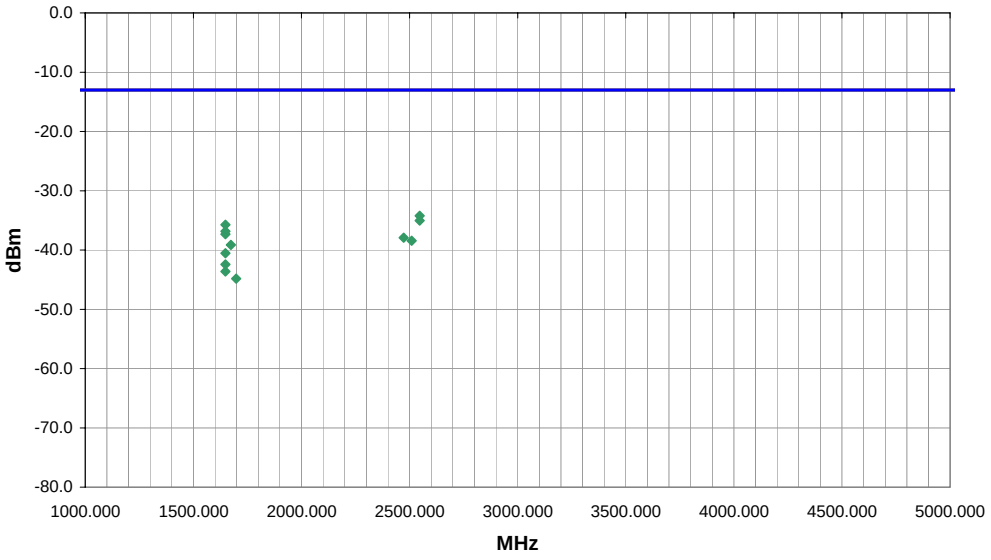
Transmitting GPRS (GMSK), Cell Band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	1
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2546.397			36.0	1.3			H-Horn	PK	3.78E-07	-34.2	-13.0	-21.2	High Channel, EUT vertical
2546.403			85.0	1.2			V-Horn	PK	3.14E-07	-35.0	-13.0	-22.0	High Channel, EUT on side
1648.583			0.0	1.0			H-Horn	PK	2.67E-07	-35.7	-13.0	-22.7	Low Channel, EUT vertical
1648.403			90.0	1.0			V-Horn	PK	2.08E-07	-36.8	-13.0	-23.8	Low Channel, EUT on side
1648.527			194.0	1.0			H-Horn	PK	1.85E-07	-37.3	-13.0	-24.3	Low Channel, EUT horizontal
2472.727			6.0	1.1			H-Horn	PK	1.61E-07	-37.9	-13.0	-24.9	Low Channel, EUT vertical
2509.980			26.0	1.3			H-Horn	PK	1.44E-07	-38.4	-13.0	-25.4	Mid Channel, EUT vertical
1673.283			-1.0	1.0			H-Horn	PK	1.22E-07	-39.1	-13.0	-26.1	Mid Channel, EUT vertical
1648.470			254.0	1.1			V-Horn	PK	8.85E-08	-40.5	-13.0	-27.5	Low Channel, EUT vertical
1648.293			108.0	1.4			V-Horn	PK	5.72E-08	-42.4	-13.0	-29.4	Low Channel, EUT horizontal
1648.367			348.0	1.0			H-Horn	PK	4.34E-08	-43.6	-13.0	-30.6	Low Channel, EUT on side
1697.725			-1.0	1.0			H-Horn	PK	3.29E-08	-44.8	-13.0	-31.8	high Channel, EUT vertical

NORTHWEST EMC

Out of Band Emissions - Part 22H

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01UO	Work Order:	INMC0662
Serial Number:	24411047041	Date:	01/24/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

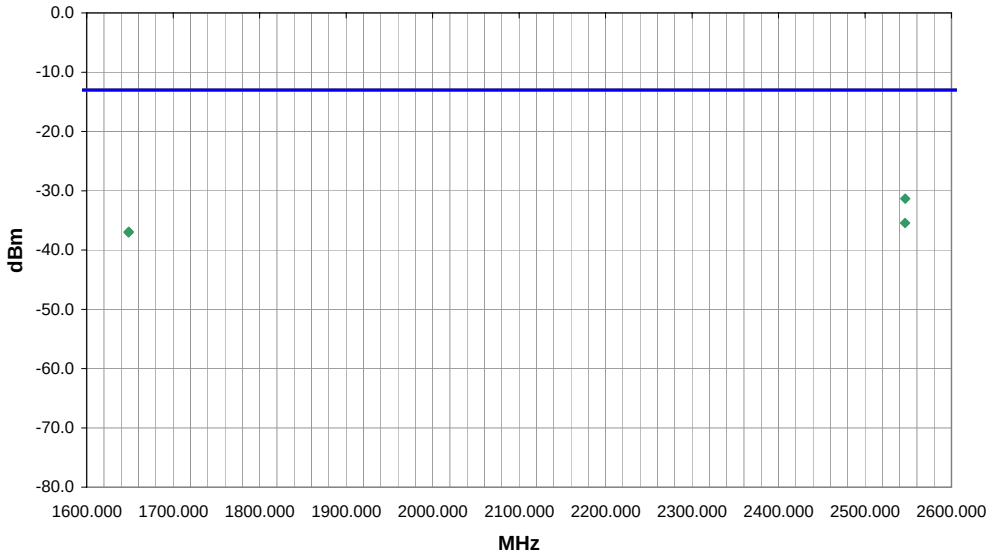
Transmitting E-GPRS (EDGE), Cell Band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	2
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2546.623			29.0	1.0			H-Horn	PK	7.36E-07	-31.3	-13.0	-18.3	High Channel, EUT vertical
2546.413			84.0	1.2			V-Horn	PK	2.86E-07	-35.4	-13.0	-22.4	High Channel, EUT on side
1648.587			108.0	1.0			V-Horn	PK	2.03E-07	-36.9	-13.0	-23.9	Low Channel, EUT on side
1648.487			0.0	1.1			H-Horn	PK	1.98E-07	-37.0	-13.0	-24.0	Low Channel, EUT vertical

NORTHWEST EMC

Out of Band Emissions - Part 22H

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01UO	Work Order:	INMC0662
Serial Number:	24411047041	Date:	01/24/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

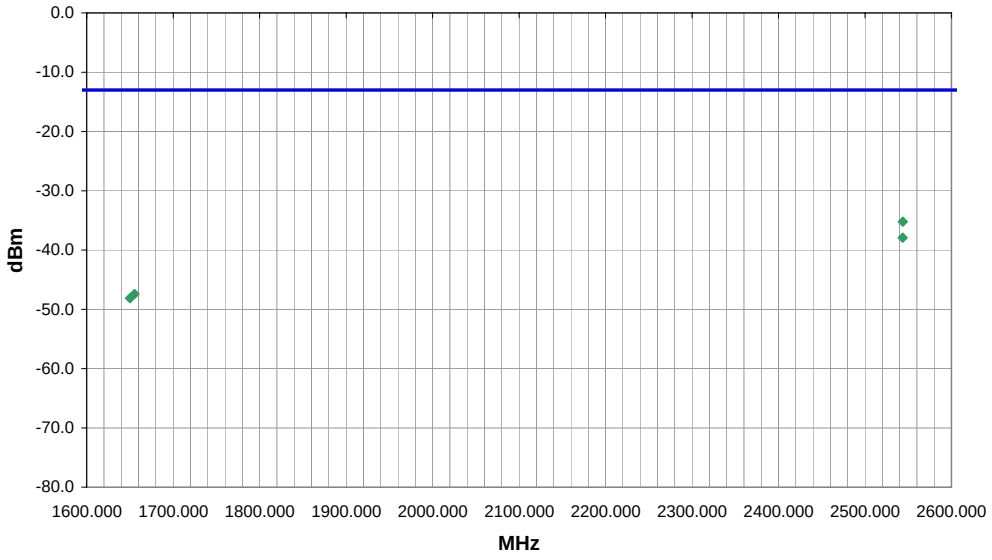
Transmitting WCDMA rel 99, Cell Band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	3
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2543.683			30.0	1.3			H-Horn	PK	3.00E-07	-35.2	-13.0	-22.2	High Channel, EUT vertical
2543.500			86.0	1.4			V-Horn	PK	1.61E-07	-37.9	-13.0	-24.9	High Channel, EUT on side
1655.367			339.0	1.1			H-Horn	PK	1.81E-08	-47.4	-13.0	-34.4	Low Channel, EUT vertical
1650.183			35.0	1.0			V-Horn	PK	1.54E-08	-48.1	-13.0	-35.1	Low Channel, EUT on side

NORTHWEST EMC

Out of Band Emissions - Part 22H

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01UO	Work Order:	INMC0662
Serial Number:	24411047041	Date:	01/24/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

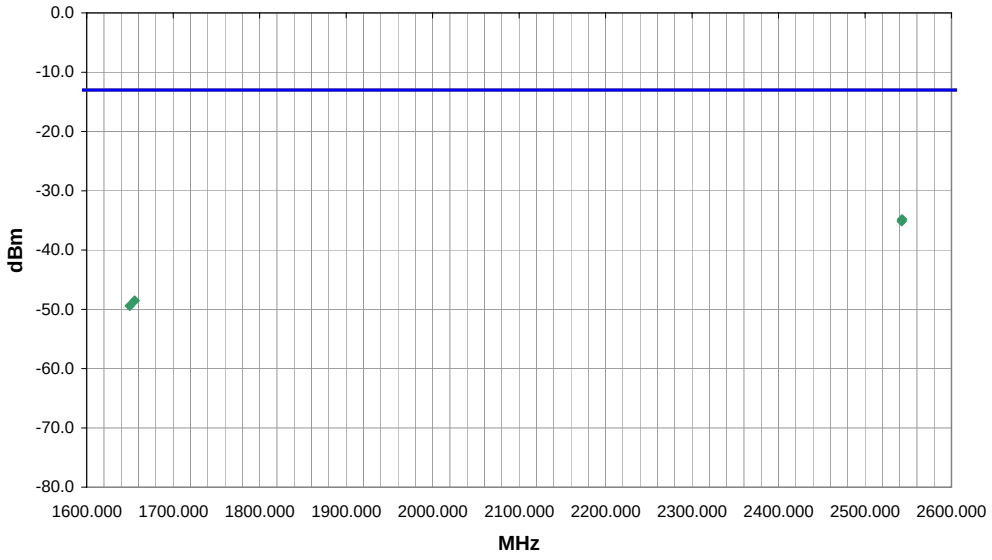
Transmitting HSPA, Cell Band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	4
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2542.750			19.0	1.1			V-Horn	PK	3.29E-07	-34.8	-13.0	-21.8	High Channel, EUT vertical
2542.400			82.0	1.1			V-Horn	PK	3.07E-07	-35.1	-13.0	-22.1	High Channel, EUT on side
1655.467			340.0	1.0			H-Horn	PK	1.40E-08	-48.5	-13.0	-35.5	Low Channel, EUT vertical
1649.833			38.0	1.0			V-Horn	PK	1.14E-08	-49.4	-13.0	-36.4	Low Channel, EUT on side

Out of Band Emissions - Part 22H

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
Transmitting HSPA, Cell Band
Transmitting WCDMA Rel 99, Cell Band
Transmitting E-GPRS (EDGE), Cell Band
Transmitting GPRS, Cell Band

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	9 GHz

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4440A	AFD	6/1/2009	24
High Pass Filter	Micro-Tronics	50108	HGF	1/18/2010	13
Antenna, Horn	EMCO	3115	AHE	10/22/2009	24
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	24
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27
Pre-Amplifier	Miteq	AMF-3D00100800-32-13P	AVF	7/14/2010	13
EV12 Cables	N/A	Double Ridge Horn Cables	EVT	11/22/2010	13
Antenna, Horn	ETS	3115	AIB	9/8/2010	24

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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The highest gain antenna to be used with the EUT was tested for final measurements. The EUT was configured for the lowest, a middle, and the highest transmit frequency in each operational band. For each configuration, the spectrum was scanned throughout the specified range. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

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

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

For the purposes of preliminary measurements, the field strength of the spurious emissions can be measured and compared with a 3 meter limit. The 3 meter limit was calculated to be 82.5 dBuV/m at 3 meters. The final measurements must be made utilizing the substitution method described above

NORTHWEST EMC

Out of Band Emissions - Part 22H

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02UO	Work Order:	INMC0662
Serial Number:	24411047146	Date:	01/24/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

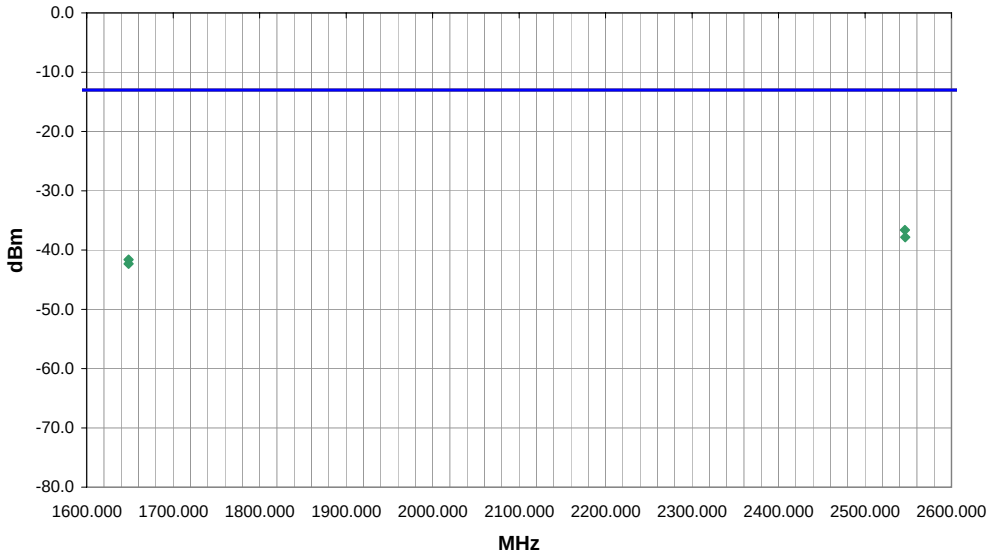
Transmitting GPRS, Cell Band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	5
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2546.213			39.0	1.0			H-Horn	PK	2.17E-07	-36.6	-13.0	-23.6	High Channel, EUT vertical
2546.573			100.0	1.2			V-Horn	PK	1.65E-07	-37.8	-13.0	-24.8	High Channel, EUT on side
1648.443			54.0	1.0			V-Horn	PK	6.87E-08	-41.6	-13.0	-28.6	Low Channel, EUT on side
1648.530			349.0	1.1			H-Horn	PK	5.85E-08	-42.3	-13.0	-29.3	Low Channel, EUT vertical

NORTHWEST EMC

Out of Band Emissions - Part 22H

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02UO	Work Order:	INMC0662
Serial Number:	24411047146	Date:	01/24/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

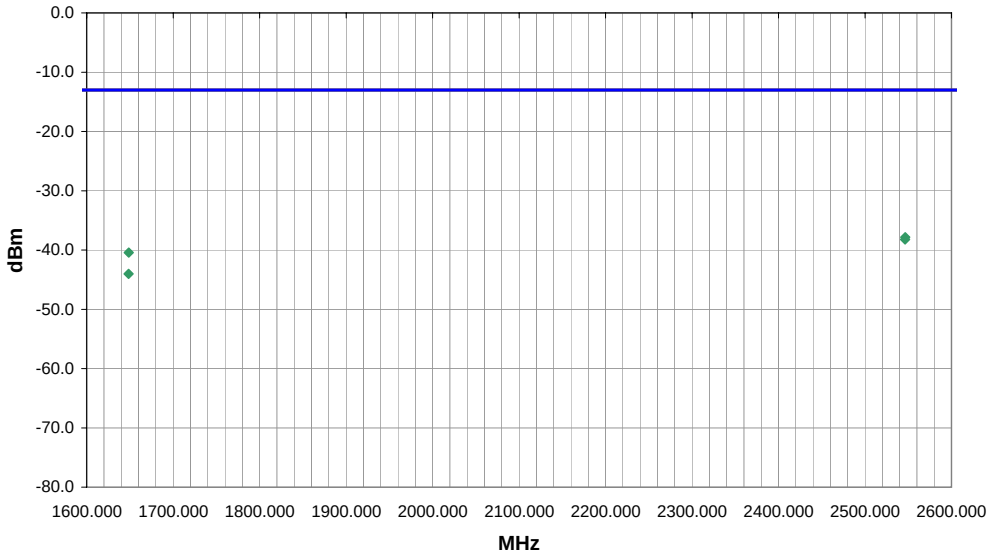
Transmitting E-GPRS (EDGE), Cell Band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	6
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2546.573			100.0	1.2			V-Horn	PK	1.65E-07	-37.8	-13.0	-24.8	High Channel, EUT on side
2546.317			26.0	1.0			H-Horn	PK	1.50E-07	-38.2	-13.0	-25.2	Low Channel, EUT vertical
1648.650			66.0	1.0			V-Horn	PK	9.06E-08	-40.4	-13.0	-27.4	Low Channel, EUT on side
1648.560			9.0	1.1			H-Horn	PK	3.95E-08	-44.0	-13.0	-31.0	Low Channel, EUT vertical

NORTHWEST EMC

Out of Band Emissions - Part 22H

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02UO	Work Order:	INMC0662
Serial Number:	24411047146	Date:	01/24/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

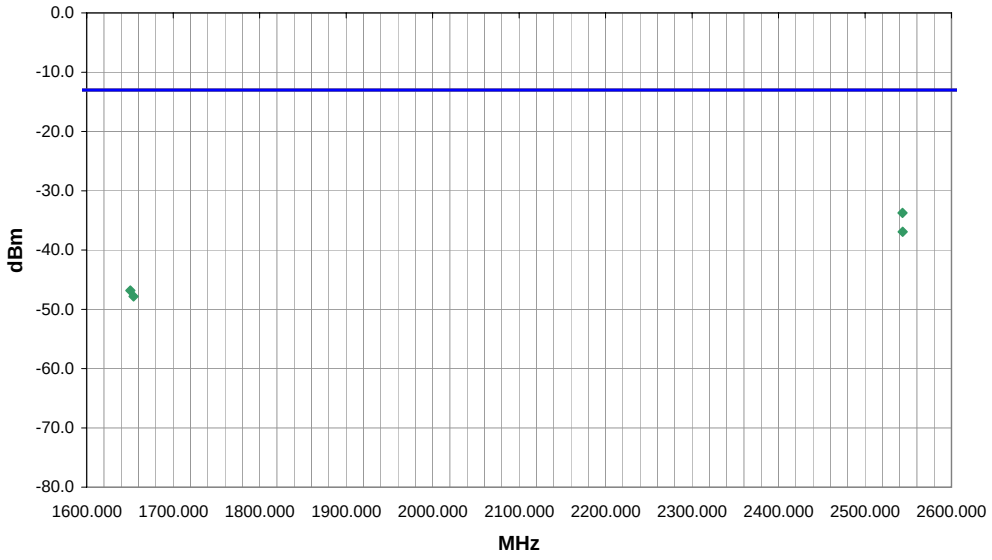
Transmitting WCDMA Rel 99, Cell Band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	7
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2543.367			25.0	1.2			H-Horn	PK	4.24E-07	-33.7	-13.0	-20.7	High Channel, EUT vertical
2543.533			84.0	1.0			V-Horn	PK	2.03E-07	-36.9	-13.0	-23.9	High Channel, EUT on side
1650.467			360.0	1.0			H-Horn	PK	2.08E-08	-46.8	-13.0	-33.8	Low Channel, EUT vertical
1654.187			101.0	1.4			V-Horn	PK	1.65E-08	-47.8	-13.0	-34.8	Low Channel, EUT on side

NORTHWEST EMC

Out of Band Emissions - Part 22H

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02UO	Work Order:	INMC0662
Serial Number:	24411047146	Date:	01/24/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

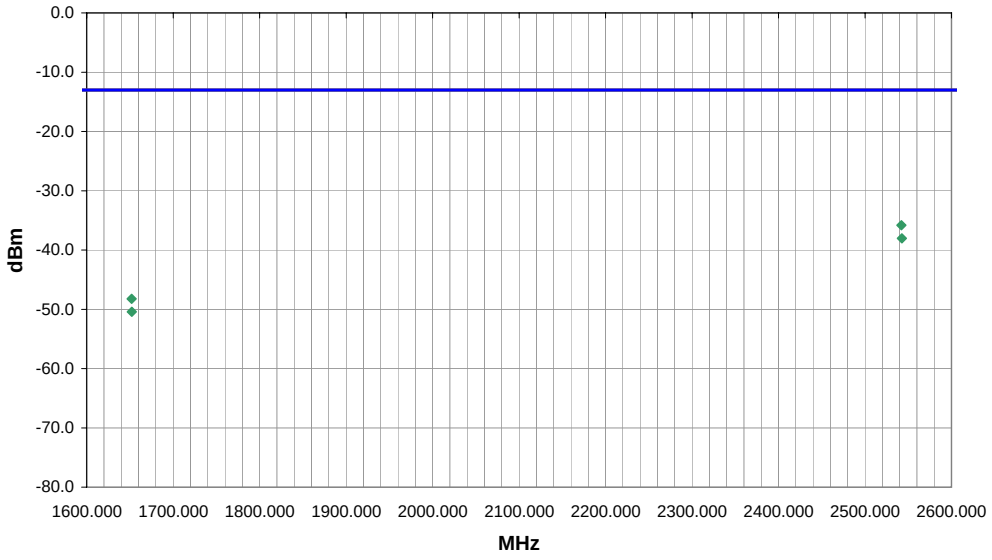
Transmitting HSPA, Cell Band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	8
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2542.100			31.0	1.2			H-Horn	PK	2.61E-07	-35.8	-13.0	-22.8	High Channel, EUT vertical
2542.683			93.0	1.0			V-Horn	PK	1.57E-07	-38.0	-13.0	-25.0	High Channel, EUT on side
1651.967			360.0	1.0			H-Horn	PK	1.50E-08	-48.2	-13.0	-35.2	Low Channel, EUT vertical
1652.217			127.0	1.0			V-Horn	PK	9.06E-09	-50.4	-13.0	-37.4	Low Channel, EUT on side

OUT OF BAND EMISSIONS - Part 22

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
Transmitting HSPA, Cell band
Transmitting WCDMA Rel 99, Cell band
Transmitting E-GPRS (EDGE), Cell band
Transmitting GPRS (GMSK), Cell band

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	9 GHz

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

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4440A	AFD	6/1/2009	24
High Pass Filter	Micro-Tronics	50108	HGF	1/18/2010	13
Antenna, Horn	EMCO	3115	AHE	10/22/2009	24
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	24
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27
Pre-Amplifier	Miteq	AMF-3D00100800-32-13P	AVF	7/14/2010	13
Antenna, Horn	ETS	3115	AIB	9/8/2010	24
EV12 Cables	N/A	Double Ridge Horn Cables	EVT	11/22/2010	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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The highest gain antenna to be used with the EUT was tested for final measurements. The EUT was configured for the lowest, a middle, and the highest transmit frequency in each operational band. For each configuration, the spectrum was scanned throughout the specified range. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

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

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

For the purposes of preliminary measurements, the field strength of the spurious emissions can be measured and compared with a 3 meter limit. The 3 meter limit was calculated to be 82.5 dBuV/m at 3 meters. The final measurements must be made utilizing the substitution method described above

NORTHWEST EMC

OUT OF BAND EMISSIONS - Part 22

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01UO	Work Order:	INMC0662
Serial Number:	25411047063	Date:	01/27/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

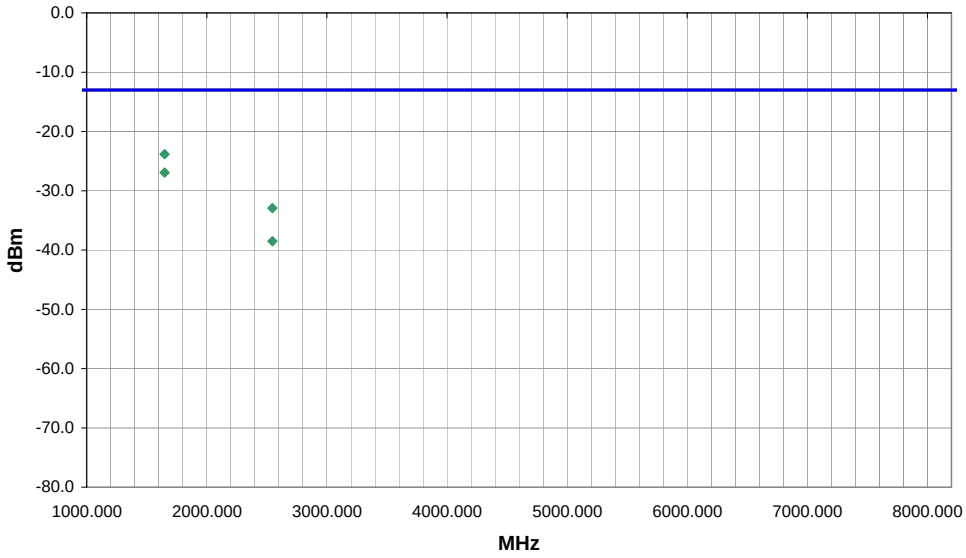
Transmitting GPRS (GMSK), Cell band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	9
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1648.567			72.0	1.0			V-Horn	PK	4.14E-06	-23.8	-13.0	-10.8	Low Channel, EUT on side
1648.533			31.0	1.0			H-Horn	PK	2.03E-06	-26.9	-13.0	-13.9	Low Channel, EUT vertical
2546.377			33.0	1.0			H-Horn	PK	5.09E-07	-32.9	-13.0	-19.9	High Channel, EUT vertical
2546.223			100.0	1.1			V-Horn	PK	1.40E-07	-38.5	-13.0	-25.5	High Channel, EUT on side

NORTHWEST EMC

OUT OF BAND EMISSIONS - Part 22

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01UO	Work Order:	INMC0662
Serial Number:	25411047063	Date:	01/27/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

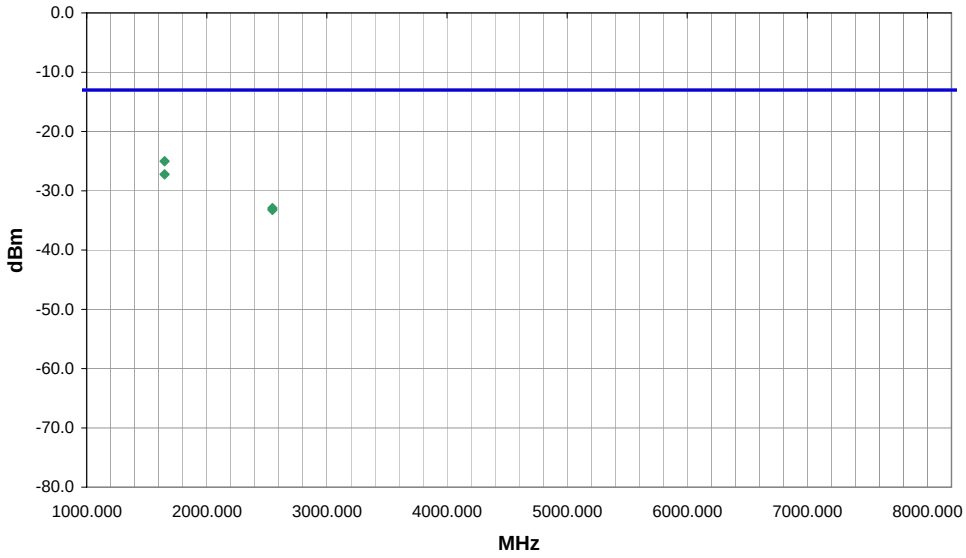
Transmitting E-GPRS (EDGE), Cell band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	10
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1648.450			66.0	1.0			V-Horn	PK	3.14E-06	-25.0	-13.0	-12.0	Low Channel, EUT on side
1648.610			34.0	1.0			H-Horn	PK	1.89E-06	-27.2	-13.0	-14.2	Low Channel, EUT vertical
2546.620			32.0	1.0			H-Horn	PK	5.09E-07	-32.9	-13.0	-19.9	High Channel, EUT vertical
2546.200			78.0	1.2			V-Horn	PK	4.75E-07	-33.2	-13.0	-20.2	High Channel, EUT on side

NORTHWEST EMC

OUT OF BAND EMISSIONS - Part 22

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01UO	Work Order:	INMC0662
Serial Number:	25411047063	Date:	01/27/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

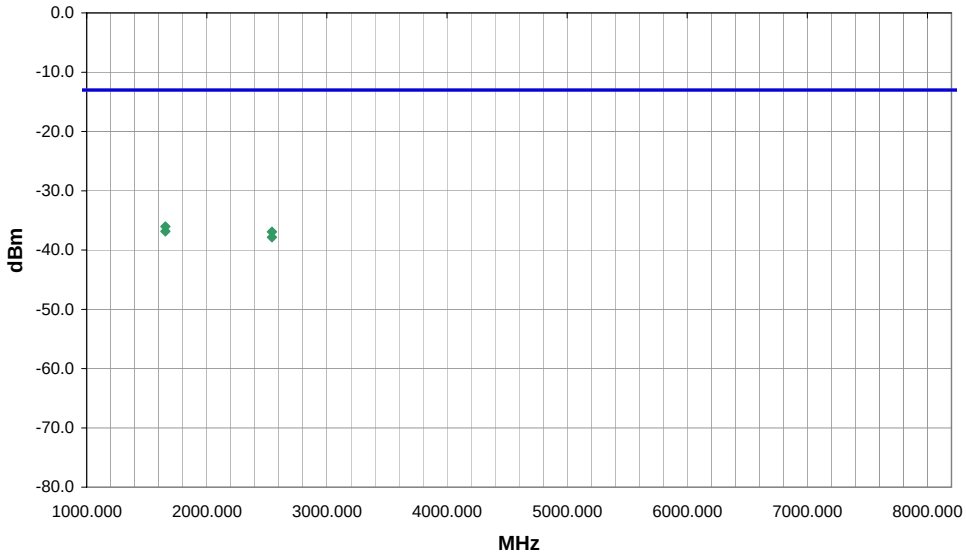
Transmitting WCDMA Rel 99, Cell band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	11
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1655.173			68.0	1.0			V-Horn	PK	2.50E-07	-36.0	-13.0	-23.0	Low Channel, EUT on side
1655.200			3.0	1.0			H-Horn	PK	2.08E-07	-36.8	-13.0	-23.8	Low Channel, EUT vertical
2542.683			8.0	1.0			H-Horn	PK	2.03E-07	-36.9	-13.0	-23.9	High Channel, EUT vertical
2542.533			87.0	1.0			V-Horn	PK	1.65E-07	-37.8	-13.0	-24.8	High Channel, EUT on side

NORTHWEST EMC

OUT OF BAND EMISSIONS - Part 22

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01UO	Work Order:	INMC0662
Serial Number:	25411047063	Date:	01/27/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

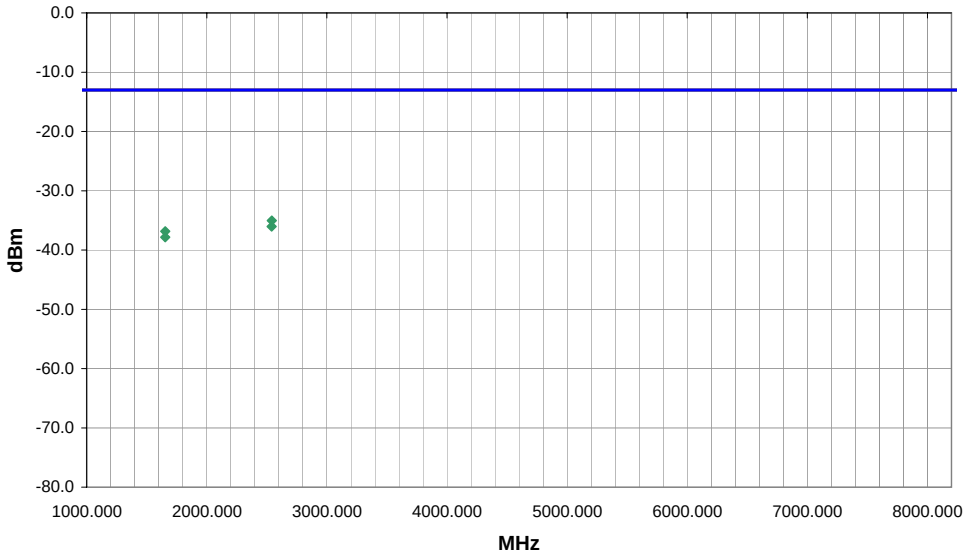
Transmitting HSPA, Cell band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	12
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
2540.917			107.0	1.1			V-Horn	PK	3.14E-07	-35.0	-13.0	-22.0	High Channel, EUT on side
2540.517			14.0	1.0			H-Horn	PK	2.50E-07	-36.0	-13.0	-23.0	High Channel, EUT vertical
1653.517			81.0	1.0			V-Horn	PK	2.08E-07	-36.8	-13.0	-23.8	Low Channel, EUT on side
1654.700			3.0	1.0			H-Horn	PK	1.65E-07	-37.8	-13.0	-24.8	Low Channel, EUT vertical

Effective Radiated Power (ERP)

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
Transmitting Cellular Band, HSPA
Transmitting Cellular Band, WCDMA Rel 99
Transmitting Cellular Band, E-GPRS, 1 Slot
Transmitting Cellular Band, GPRS, 1 Slot

CHANNELS TESTED
GSM Low = Ch. 128, 824.2 MHz
GSM Mid = Ch.190, 836.6 MHz
GSM High = Ch. 251, 848.8 MHz
UMTS Low = Ch.4132, 826.5 MHz
UMTS Mid = Ch. 4182, 837 MHz
UMTS High = Ch. 4233, 846.6 MHz

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	824 MHz	Stop Frequency	848 MHz

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	E4440	AFE	11/29/2010	12
Antenna, Bilog	Teseq	CBL 6141B	AXR	11/29/2010	13
EV01 Cables	N/A	Bilog Cables	EVA	7/9/2010	13
Attenuator, 'N'	Coaxicom	66702 5910-6	ATZ	4/19/2010	13
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	24
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27

MEASUREMENT BANDWIDTHS				
	Frequency Range	**Peak Data**	**Quasi-Peak Data**	**Average Data**
	(MHz)	**(kHz)**	**(kHz)**	**(kHz)**
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0
Measurements were made using the bandwidths and detectors specified. No video filter was used.				

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The fundamental emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height (1-4 meters) and polarizationThe amplitude and frequency of the highest emission were noted. The EUT was then replaced with a ½ wave dipole that was successively tuned to the highest emission. A signal generator was connected to the dipole, and its output was adjusted to match the level previously noted for each frequency. The output of the signal generator was recorded. The signal generator, amplifier, and cable were then connected to an analyzer and the power output was recorded. By factoring in the dipole antenna gain (dBi), the effective radiated power for the maximum fundamental emission was determined. The ERP value was obtained from taking the value in EIRP – 2.15.

NORTHWEST EMC

Effective Radiated Power (ERP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01U			**Work Order:**	INMC0660
Serial Number:	24411047041			**Date:**	01/11/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	29.95
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

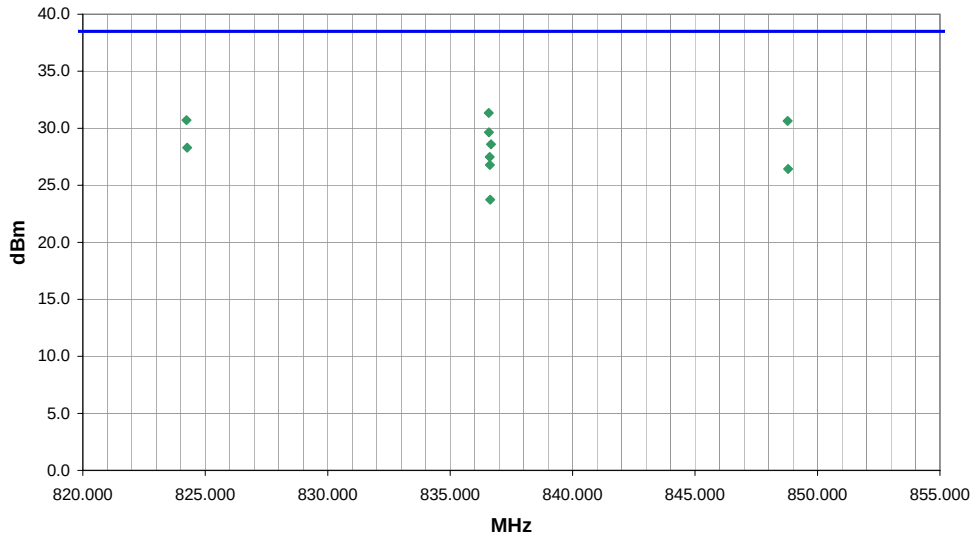
Transmitting Cellular Band, GPRS, 1 Slot

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	1
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
836.577			269.0	1.1			H-Bilog	PK	1.36E+00	31.3	38.5	-7.2	Mid Channel, EUT horizontal
824.233			270.0	1.1			H-Bilog	PK	1.18E+00	30.7	38.5	-7.8	Low Channel, EUT horizontal
848.780			269.0	1.1			H-Bilog	PK	1.16E+00	30.6	38.5	-7.9	High Channel, EUT horizontal
836.583			89.0	1.0			H-Bilog	PK	9.20E-01	29.6	38.5	-8.9	Mid Channel, EUT on side
836.670			174.0	1.8			V-Bilog	PK	7.23E-01	28.6	38.5	-9.9	Mid Channel, EUT on side
824.263			167.0	1.8			V-Bilog	PK	6.76E-01	28.3	38.5	-10.2	Low Channel, EUT on side
836.613			216.0	1.9			V-Bilog	PK	5.61E-01	27.5	38.5	-11.0	Mid Channel, EUT vertical
836.623			23.0	1.6			V-Bilog	PK	4.78E-01	26.8	38.5	-11.7	Mid Channel, EUT horizontal
848.797			168.0	1.7			V-Bilog	PK	4.40E-01	26.4	38.5	-12.1	High Channel, EUT on side
836.637			195.0	1.0			H-Bilog	PK	2.37E-01	23.7	38.5	-14.8	Mid Channel, EUT vertical

NORTHWEST EMC

Effective Radiated Power (ERP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01U			**Work Order:**	INMC0660
Serial Number:	24411047041			**Date:**	01/11/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	29.95
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

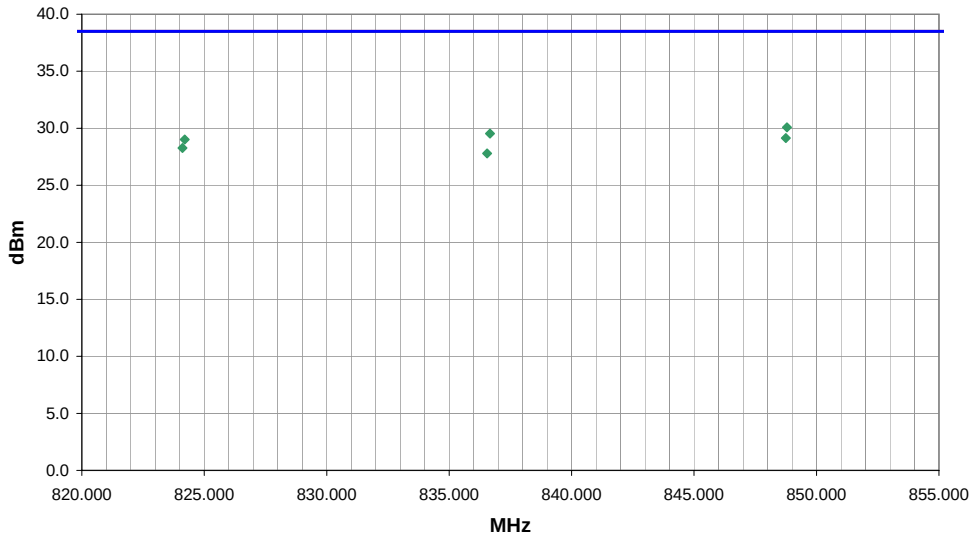
Transmitting Cellular Band, E-GPRS, 1 Slot

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	2
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
848.790			245.0	1.0			H-Bilog	PK	1.02E+00	30.1	38.5	-8.4	High Channel, EUT horizontal
836.670			250.0	1.0			H-Bilog	PK	8.99E-01	29.5	38.5	-9.0	Mid Channel, EUT horizontal
848.750			164.0	1.7			V-Bilog	PK	8.20E-01	29.1	38.5	-9.4	High Channel, EUT on side
824.203			246.0	1.0			H-Bilog	PK	7.96E-01	29.0	38.5	-9.5	Low Channel, EUT horizontal
824.110			163.0	1.7			V-Bilog	PK	6.71E-01	28.3	38.5	-10.2	Low Channel, EUT on side
836.550			162.0	1.8			V-Bilog	PK	6.01E-01	27.8	38.5	-10.7	Mid Channel, EUT on side

NORTHWEST EMC

Effective Radiated Power (ERP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01U			**Work Order:**	INMC0660
Serial Number:	24411047041			**Date:**	01/11/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	29.95
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

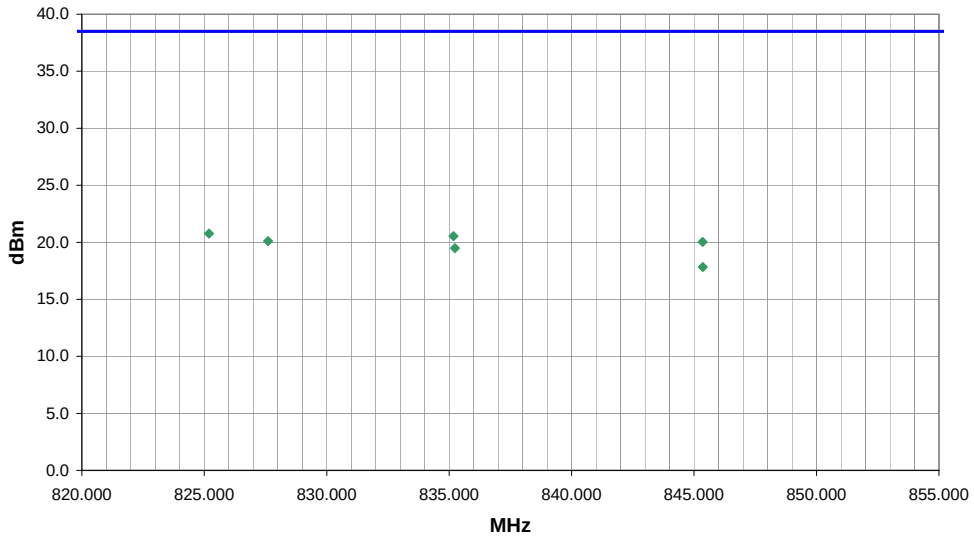
Transmitting Cellular Band, WCDMA Rel 99

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	3
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
825.192			162.0	1.8			V-Bilog	PK	1.19E-01	20.8	38.5	-17.7	Low Channel, EUT on side
835.175			241.0	1.0			H-Bilog	PK	1.13E-01	20.5	38.5	-18.0	Mid Channel, EUT horizontal
827.608			242.0	1.0			H-Bilog	PK	1.03E-01	20.1	38.5	-18.4	Low Channel, EUT horizontal
845.350			242.0	1.0			H-Bilog	PK	1.01E-01	20.0	38.5	-18.5	High Channel, EUT horizontal
835.233			162.0	1.8			V-Bilog	PK	8.89E-02	19.5	38.5	-19.0	Mid Channel, EUT on side
845.358			161.0	1.7			V-Bilog	PK	6.08E-02	17.8	38.5	-20.7	High Channel, EUT on side

NORTHWEST EMC

Effective Radiated Power (ERP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01U			**Work Order:**	INMC0660
Serial Number:	24411047041			**Date:**	01/11/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	29.95
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

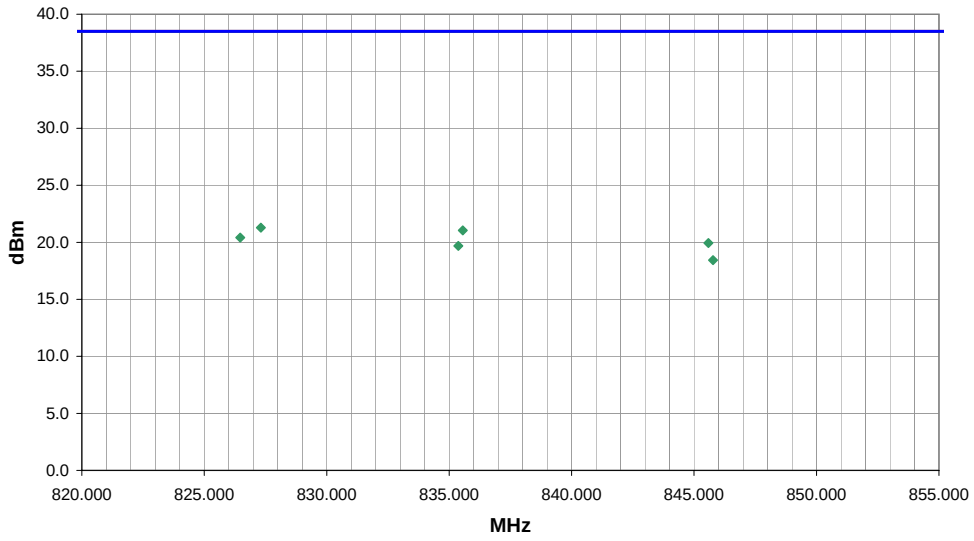
Transmitting Cellular Band, HSPA

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	4
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
827.308			172.0	1.0			V-Bilog	PK	1.35E-01	21.3	38.5	-17.2	Low Channel, EUT on side
835.559			236.0	1.0			H-Bilog	PK	1.27E-01	21.0	38.5	-17.5	Mid Channel, EUT horizontal
826.467			236.0	1.0			H-Bilog	PK	1.10E-01	20.4	38.5	-18.1	Low Channel, EUT horizontal
845.583			236.0	1.0			H-Bilog	PK	9.86E-02	19.9	38.5	-18.6	High Channel, EUT horizontal
835.375			167.0	1.0			V-Bilog	PK	9.31E-02	19.7	38.5	-18.8	Mid Channel, EUT on side
845.775			167.0	1.0			V-Bilog	PK	6.98E-02	18.4	38.5	-20.1	High Channel, EUT on side

Effective Radiated Power (ERP)

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
Transmitting E-GPRS (Edge)
Transmitting GPRS (GMSK)
Transmitting UMTS HSPA
Transmitting WCDMA Rel99

CHANNELS TESTED
GSM Low = Ch. 128, 824.2 MHz
GSM Mid = Ch.190, 836.6 MHz
GSM High = Ch. 251, 848.8 MHz
UMTS Low = Ch.4132, 826.5 MHz
UMTS Mid = Ch. 4182, 837 MHz
UMTS High = Ch. 4233, 846.6 MHz

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	824 MHz	Stop Frequency	850 MHz

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	E4440	AFE	11/29/2010	12
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	24
EV01 Cables	N/A	Bilog Cables	EVA	7/9/2010	13
Antenna, Bilog	Teseq	CBL 6141B	AXR	11/29/2010	13
Attenuator, 'N'	Coaxicom	66702 5910-6	ATZ	4/19/2010	13
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27

MEASUREMENT BANDWIDTHS				
	Frequency Range	**Peak Data**	**Quasi-Peak Data**	**Average Data**
	(MHz)	**(kHz)**	**(kHz)**	**(kHz)**
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0
Measurements were made using the bandwidths and detectors specified. No video filter was used.				

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The fundamental emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height (1-4 meters) and polarizationThe amplitude and frequency of the highest emission were noted. The EUT was then replaced with a ½ wave dipole that was successively tuned to the highest emission. A signal generator was connected to the dipole, and its output was adjusted to match the level previously noted for each frequency. The output of the signal generator was recorded. The signal generator, amplifier, and cable were then connected to an analyzer and the power output was recorded. By factoring in the dipole antenna gain (dBi), the effective radiated power for the maximum fundamental emission was determined. The ERP value was obtained from taking the value in EIRP – 2.15.

NORTHWEST EMC

Effective Radiated Power (ERP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02U			**Work Order:**	INMC0660
Serial Number:	24411047146			**Date:**	01/11/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	29.95
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

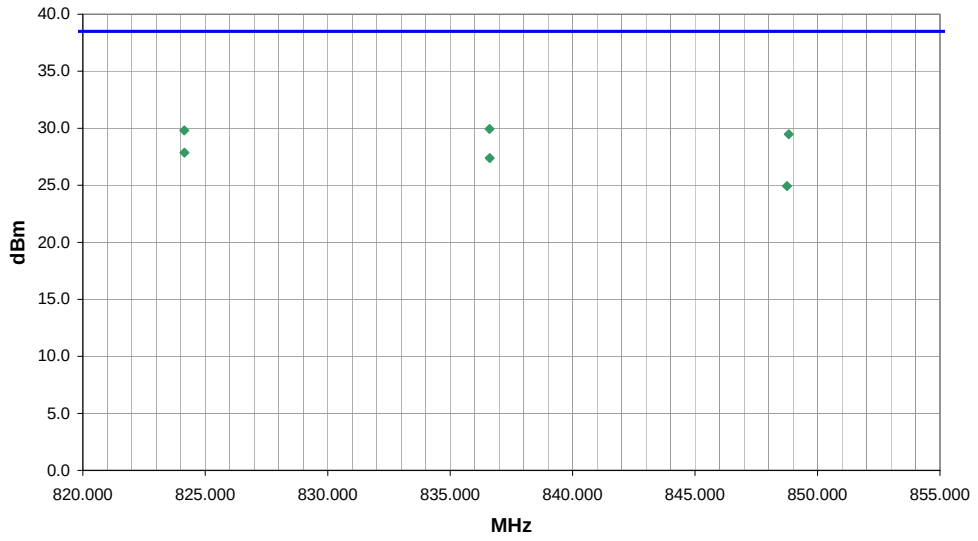
Transmitting Cellular Band, GPRS, 1 Slot

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	5
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
836.607			262.0	1.0			H-Bilog	PK	9.86E-01	29.9	38.5	-8.6	Mid Channel, EUT horizontal
824.140			264.0	1.1			H-Bilog	PK	9.57E-01	29.8	38.5	-8.7	Low Channel, EUT horizontal
848.823			264.0	1.0			H-Bilog	PK	8.87E-01	29.5	38.5	-9.0	High Channel, EUT horizontal
824.150			179.0	1.0			V-Bilog	PK	6.12E-01	27.9	38.5	-10.6	Low Channel, EUT on side
836.613			176.0	1.0			V-Bilog	PK	5.48E-01	27.4	38.5	-11.1	Mid Channel, EUT on side
848.757			180.0	1.0			V-Bilog	PK	3.12E-01	24.9	38.5	-13.6	High Channel, EUT on side

NORTHWEST EMC

Effective Radiated Power (ERP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02U			**Work Order:**	INMC0660
Serial Number:	24411047146			**Date:**	01/11/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	29.95
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

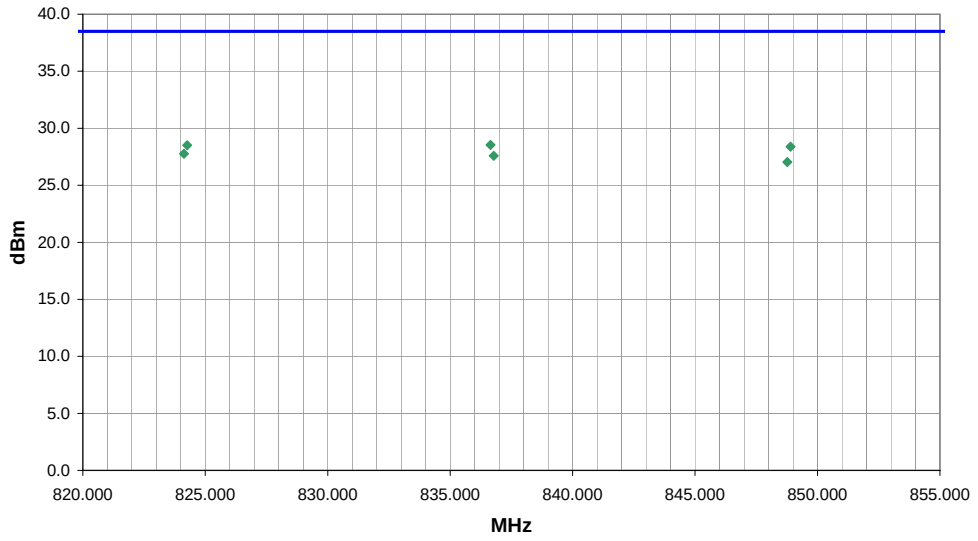
Transmitting Cellular Band, E-GPRS, 1 Slot

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	6
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
836.647			252.0	1.0			H-Bilog	PK	7.14E-01	28.5	38.5	-10.0	Mid Channel, EUT horizontal
824.263			244.0	1.0			H-Bilog	PK	7.10E-01	28.5	38.5	-10.0	Low Channel, EUT horizontal
848.900			252.0	1.0			H-Bilog	PK	6.88E-01	28.4	38.5	-10.1	High Channel, EUT horizontal
824.130			182.0	1.0			V-Bilog	PK	5.98E-01	27.8	38.5	-10.7	Low Channel, EUT on side
836.777			177.0	1.0			V-Bilog	PK	5.74E-01	27.6	38.5	-10.9	Mid Channel, EUT on side
848.767			166.0	1.6			V-Bilog	PK	5.05E-01	27.0	38.5	-11.5	High Channel, EUT on side

NORTHWEST EMC

Effective Radiated Power (ERP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02U			**Work Order:**	INMC0660
Serial Number:	24411047146			**Date:**	01/11/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	29.95
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

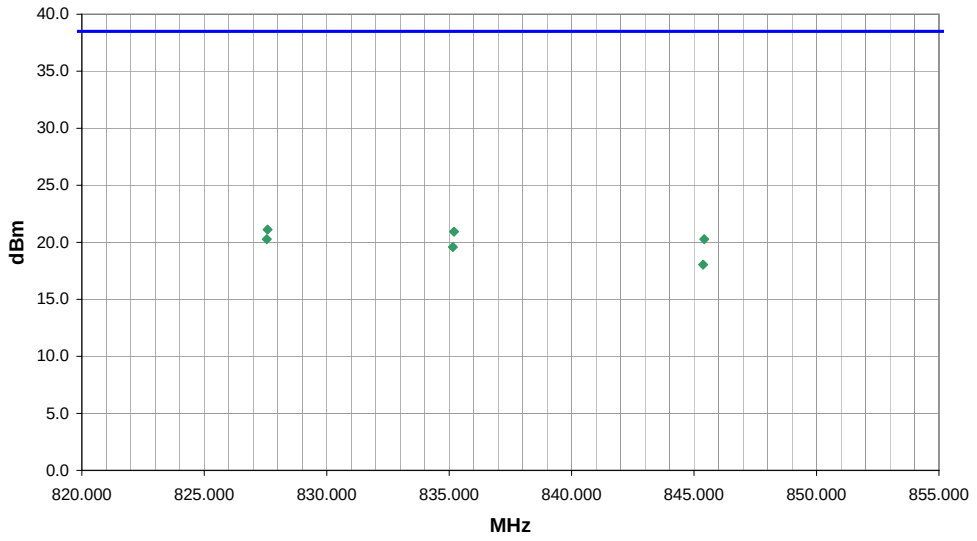
Transmitting Cellular Band, WCDMA Rel 99

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	7
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
827.583			247.0	1.0			H-Bilog	PK	1.29E-01	21.1	38.5	-17.4	Low Channel, EUT horizontal
835.200			247.0	1.0			H-Bilog	PK	1.24E-01	20.9	38.5	-17.6	Mid Channel, EUT horizontal
845.417			247.0	1.0			H-Bilog	PK	1.07E-01	20.3	38.5	-18.2	High Channel, EUT horizontal
827.550			182.0	2.2			V-Bilog	PK	1.06E-01	20.3	38.5	-18.2	Low Channel, EUT on side
835.150			182.0	2.2			V-Bilog	PK	9.10E-02	19.6	38.5	-18.9	Mid Channel, EUT on side
845.367			182.0	2.2			V-Bilog	PK	6.36E-02	18.0	38.5	-20.5	High Channel, EUT on side

NORTHWEST EMC

Effective Radiated Power (ERP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02U			**Work Order:**	INMC0660
Serial Number:	24411047146			**Date:**	01/11/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	29.95
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

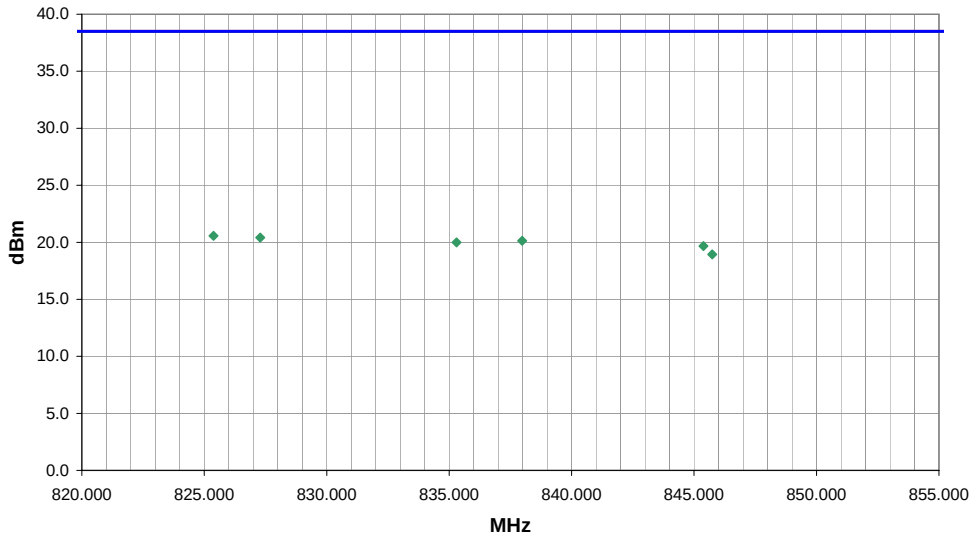
Transmitting Cellular Band, HSPA

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	8
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
825.375			181.0	2.1			V-Bilog	PK	1.14E-01	20.6	38.5	-17.9	Low Channel, EUT on side
827.283			253.0	1.0			H-Bilog	PK	1.10E-01	20.4	38.5	-18.1	Low Channel, EUT horizontal
837.983			254.0	1.0			H-Bilog	PK	1.03E-01	20.1	38.5	-18.4	Mid Channel, EUT horizontal
835.300			181.0	2.1			V-Bilog	PK	9.98E-02	20.0	38.5	-18.5	Mid Channel, EUT on side
845.383			256.0	1.0			H-Bilog	PK	9.28E-02	19.7	38.5	-18.8	High Channel, EUT horizontal
845.742			181.0	2.1			V-Bilog	PK	7.83E-02	18.9	38.5	-19.6	High Channel, EUT on side

Effective Radiated Power (ERP)

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
Transmitting E-GPRS (Edge)
Transmitting GPRS (GMSK)
Transmitting UMTS HSPA
Transmitting WCDMA Rel99

CHANNELS TESTED
GSM Low = Ch. 128, 824.2 MHz
GSM Mid = Ch.190, 836.6 MHz
GSM High = Ch. 251, 848.8 MHz
UMTS Low = Ch.4132, 826.5 MHz
UMTS Mid = Ch. 4182, 837 MHz
UMTS High = Ch. 4233, 846.6 MHz

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	824 MHz	Stop Frequency	850 MHz

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	E4440	AFE	11/29/2010	12
Antenna, Bilog	Teseq	CBL 6141B	AXR	11/29/2010	13
EV01 Cables	N/A	Bilog Cables	EVA	7/9/2010	13
Attenuator, 'N'	Coaxicom	66702 5910-6	ATZ	4/19/2010	13
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	24
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27

MEASUREMENT BANDWIDTHS				
	Frequency Range	**Peak Data**	**Quasi-Peak Data**	**Average Data**
	(MHz)	**(kHz)**	**(kHz)**	**(kHz)**
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0
Measurements were made using the bandwidths and detectors specified. No video filter was used.				

MEASUREMENT UNCERTAINTY

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The fundamental emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height (1-4 meters) and polarizationThe amplitude and frequency of the highest emission were noted. The EUT was then replaced with a ½ wave dipole that was successively tuned to the highest emission. A signal generator was connected to the dipole, and its output was adjusted to match the level previously noted for each frequency. The output of the signal generator was recorded. The signal generator, amplifier, and cable were then connected to an analyzer and the power output was recorded. By factoring in the dipole antenna gain (dBi), the effective radiated power for the maximum fundamental emission was determined. The ERP value was obtained from taking the value in EIRP – 2.15.

NORTHWEST EMC

Effective Radiated Power (ERP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01U			**Work Order:**	INMC0660
Serial Number:	25411047063			**Date:**	01/11/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	29.95
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

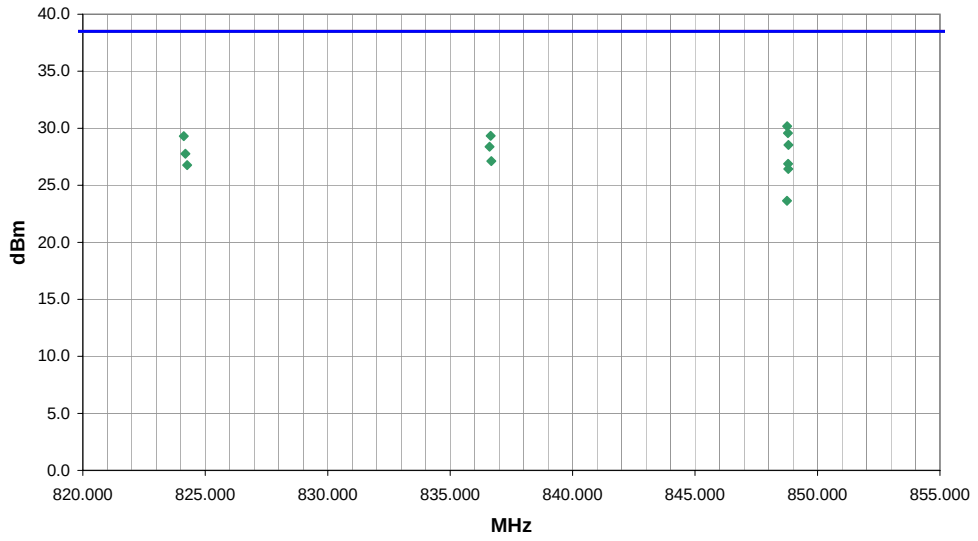
Transmitting Cellular Band, GPRS, 1 Slot

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	9
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
848.763			162.0	1.0			H-Bilog	PK	1.04E+00	30.2	38.5	-8.3	High Channel, EUT horizontal
848.793			200.0	1.0			H-Bilog	PK	9.07E-01	29.6	38.5	-8.9	High Channel, EUT on side
836.657			163.0	1.0			H-Bilog	PK	8.59E-01	29.3	38.5	-9.2	Mid Channel, EUT horizontal
824.120			169.0	1.0			H-Bilog	PK	8.53E-01	29.3	38.5	-9.2	Low Channel, EUT horizontal
848.813			136.0	1.0			V-Bilog	PK	7.14E-01	28.5	38.5	-10.0	High Channel, EUT vertical
836.607			135.0	1.1			V-Bilog	PK	6.90E-01	28.4	38.5	-10.1	Mid Channel, EUT vertical
824.187			138.0	1.1			V-Bilog	PK	5.98E-01	27.8	38.5	-10.7	Low Channel, EUT vertical
836.683			165.0	1.3			V-Bilog	PK	5.16E-01	27.1	38.5	-11.4	Mid Channel, EUT on side
848.797			139.0	1.3			H-Bilog	PK	4.87E-01	26.9	38.5	-11.6	High Channel, EUT vertical
824.263			164.0	1.3			V-Bilog	PK	4.75E-01	26.8	38.5	-11.7	Low Channel, EUT on side
848.807			298.0	1.3			V-Bilog	PK	4.40E-01	26.4	38.5	-12.1	High Channel, EUT on side
848.757			188.0	1.3			V-Bilog	PK	2.31E-01	23.6	38.5	-14.9	High Channel, EUT horizontal

NORTHWEST EMC

Effective Radiated Power (ERP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01U	Work Order:	INMC0660
Serial Number:	25411047063	Date:	01/11/11
Customer:	Intermec Technologies Corporation	Temperature:	22
Attendees:	none	Humidity:	38%
Project:	None	Barometric Pres.:	29.95
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

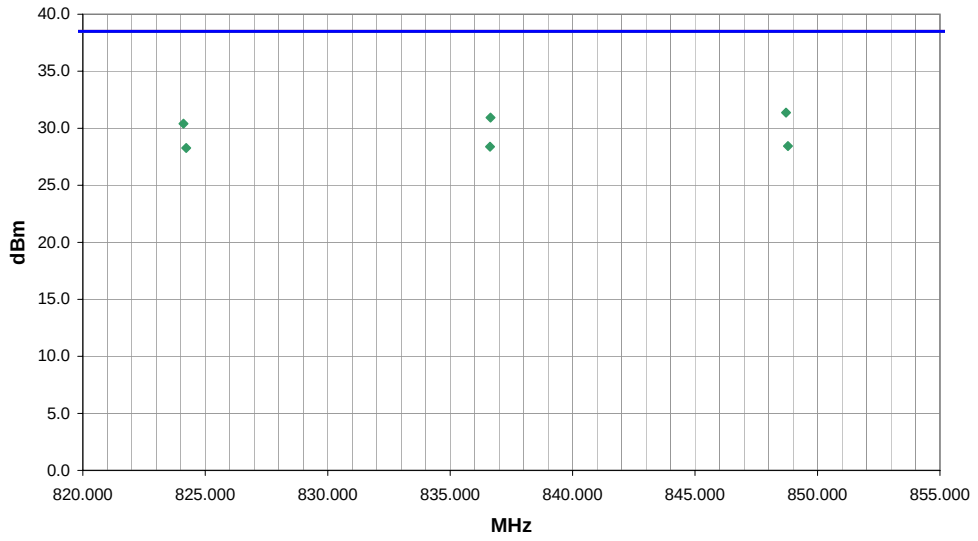
Transmitting Cellular Band, E-GPRS, 1 Slot

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	10
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
848.713			123.0	1.0			H-Bilog	PK	1.37E+00	31.4	38.5	-7.1	High Channel, EUT horizontal
836.647			123.0	1.0			H-Bilog	PK	1.24E+00	30.9	38.5	-7.6	Mid Channel, EUT horizontal
824.107			123.0	1.0			H-Bilog	PK	1.10E+00	30.4	38.5	-8.1	Low Channel, EUT horizontal
848.794			139.0	1.0			V-Bilog	PK	6.98E-01	28.4	38.5	-10.1	High Channel, EUT vertical
836.630			140.0	1.1			V-Bilog	PK	6.90E-01	28.4	38.5	-10.1	Mid Channel, EUT vertical
824.220			175.0	1.9			V-Bilog	PK	6.71E-01	28.3	38.5	-10.2	Low Channel, EUT vertical

NORTHWEST EMC

Effective Radiated Power (ERP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01U			**Work Order:**	INMC0660
Serial Number:	25411047063			**Date:**	01/11/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	29.95
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

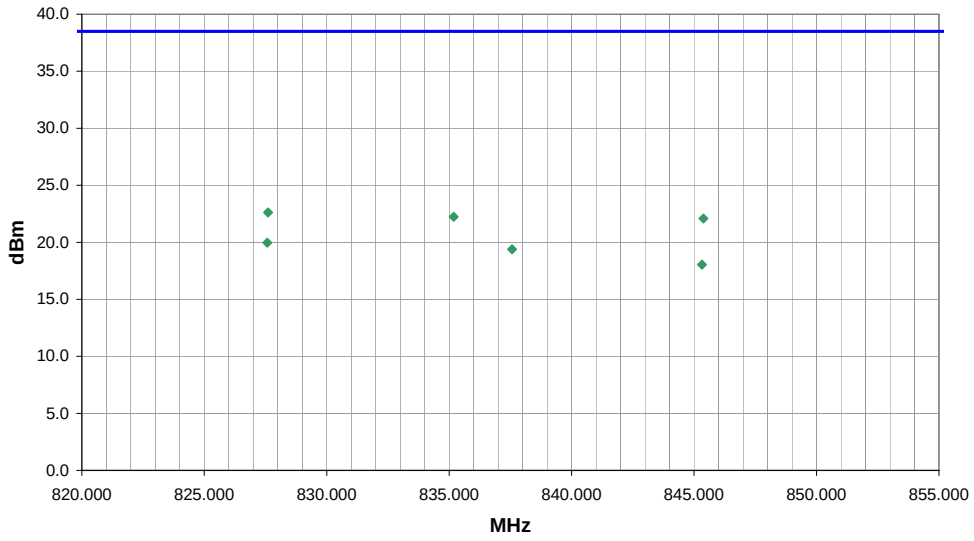
Transmitting Cellular Band, WCDMA Rel 99

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	11
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
827.608			123.0	1.0			H-Bilog	PK	1.82E-01	22.6	38.5	-15.9	Low Channel, EUT horizontal
835.183			123.0	1.0			H-Bilog	PK	1.67E-01	22.2	38.5	-16.3	Mid Channel, EUT horizontal
845.383			123.0	1.0			H-Bilog	PK	1.61E-01	22.1	38.5	-16.4	High Channel, EUT horizontal
827.575			257.0	1.1			V-Bilog	PK	9.93E-02	20.0	38.5	-18.5	Low Channel, EUT vertical
837.567			250.0	1.1			V-Bilog	PK	8.69E-02	19.4	38.5	-19.1	Mid Channel, EUT vertical
845.325			250.0	1.1			V-Bilog	PK	6.36E-02	18.0	38.5	-20.5	High Channel, EUT vertical

NORTHWEST EMC

Effective Radiated Power (ERP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01U			**Work Order:**	INMC0660
Serial Number:	25411047063			**Date:**	01/11/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	38%
Project:	None			**Barometric Pres.:**	29.95
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

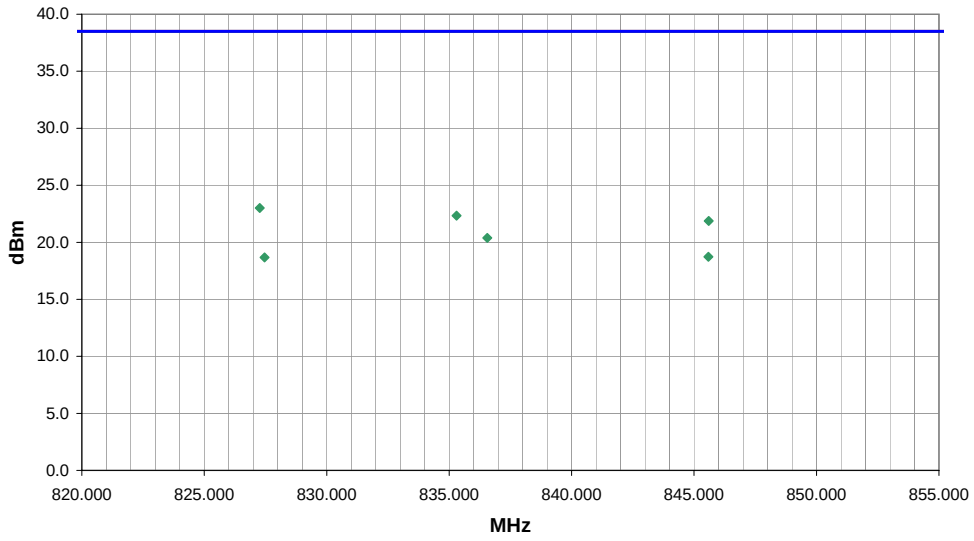
Transmitting Cellular Band, HSPA

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	12
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
827.267			121.0	1.1			H-Bilog	PK	2.00E-01	23.0	38.5	-15.5	Low Channel, EUT horizontal
835.300			121.0	1.1			H-Bilog	PK	1.71E-01	22.3	38.5	-16.2	Mid Channel, EUT horizontal
845.600			121.0	1.1			H-Bilog	PK	1.54E-01	21.9	38.5	-16.6	High Channel, EUT horizontal
836.559			283.0	1.0			V-Bilog	PK	1.09E-01	20.4	38.5	-18.1	Mid Channel, EUT vertical
845.583			283.0	1.0			V-Bilog	PK	7.48E-02	18.7	38.5	-19.8	High Channel, EUT vertical
827.458			306.0	1.1			V-Bilog	PK	7.36E-02	18.7	38.5	-19.8	Low Channel, EUT vertical

OUT OF BAND EMISSIONS - Part 24

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

Transmitting PCS Band, E-GPRS (EDGE)
Transmitting PCS Band, GPRS (GMSK)

POWER SETTINGS INVESTIGATED

120VAC/60Hz

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	20 GHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVH	7/14/2010	13
EV12 Cables	N/A	Standard Gain Horn Cables	EVU	7/14/2010	13
Antenna, Horn	ETS	3160.07	AHZ	9/8/2010	24
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVI	7/14/2010	13
Antenna, Horn	ETS	3160-08	AIA	NCR	0
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	9/15/2010	13
Cable	ESM Cable Corp	KMKM-72	EVY	9/15/2010	13
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0
Spectrum Analyzer	Agilent	E4440A	AFD	6/1/2009	24
Antenna, Horn	EMCO	3115	AHE	10/22/2009	24
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	24
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27
High Pass Filter	Micro-Tronics	50111	HGE	7/14/2010	13
Pre-Amplifier	Miteq	AMF-3D00100800-32-13P	AVF	7/14/2010	13
Antenna, Horn	ETS	3115	AIB	9/8/2010	24
EV12 Cables	N/A	Double Ridge Horn Cables	EVT	11/22/2010	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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The highest gain antenna to be used with the EUT was tested for final measurements. The EUT was configured for the lowest, a middle, and the highest transmit frequency in each operational band. For each configuration, the spectrum was scanned throughout the specified range. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

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

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

For the purposes of preliminary measurements, the field strength of the spurious emissions can be measured and compared with a 3 meter limit. The 3 meter limit was calculated to be 82.5 dBuV/m at 3 meters. The final measurements must be made utilizing the substitution method described above

NORTHWEST EMC

OUT OF BAND EMISSIONS - Part 24

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01UO	Work Order:	INMC0662
Serial Number:	24411047041	Date:	01/27/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

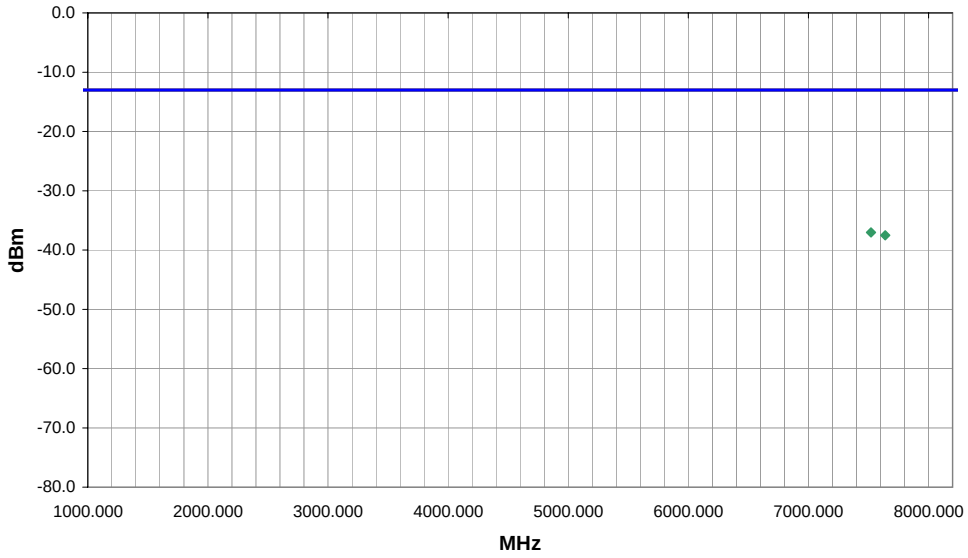
Transmitting PCS Band, GPRS (GMSK)

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	15
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
7520.230			32.0	1.3			H-Horn	PK	1.98E-07	-37.0	-13.0	-24.0	Mid Channel, EUT vertical
7638.888			358.0	1.9			V-Horn	PK	1.77E-07	-37.5	-13.0	-24.5	High Channel, EUT vertical

NORTHWEST EMC

OUT OF BAND EMISSIONS - Part 24

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01UO	Work Order:	INMC0662
Serial Number:	24411047041	Date:	01/27/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

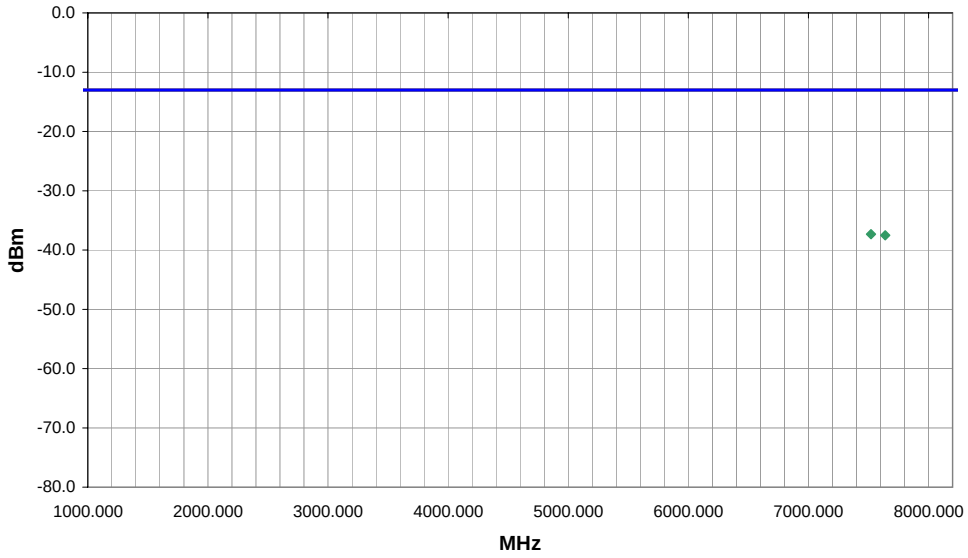
Transmitting PCS Band, E-GPRS (EDGE)

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	16
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
7520.360			38.0	1.1			H-Horn	PK	1.85E-07	-37.3	-13.0	-24.3	Mid Channel, EUT vertical
7639.342			358.0	1.9			V-Horn	PK	1.77E-07	-37.5	-13.0	-24.5	High Channel, EUT vertical

OUT OF BAND EMISSIONS - Part 24

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
Transmitting PCS Band, E-GPRS (EDGE)
Transmitting PCS Band, GPRS (GMSK)

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	20 GHz

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVH	7/14/2010	13
EV12 Cables	N/A	Standard Gain Horn Cables	EVU	7/14/2010	13
Antenna, Horn	ETS	3160.07	AHZ	9/8/2010	24
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVI	7/14/2010	13
Antenna, Horn	ETS	3160-08	AIA	NCR	0
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	9/15/2010	13
Cable	ESM Cable Corp	KMKM-72	EVY	9/15/2010	13
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0
Spectrum Analyzer	Agilent	E4440A	AFD	6/1/2009	24
Antenna, Horn	EMCO	3115	AHE	10/22/2009	24
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	24
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27
High Pass Filter	Micro-Tronics	50111	HGE	7/14/2010	13
Pre-Amplifier	Miteq	AMF-3D00100800-32-13P	AVF	7/14/2010	13
Antenna, Horn	ETS	3115	AIB	9/8/2010	24
EV12 Cables	N/A	Double Ridge Horn Cables	EVT	11/22/2010	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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The highest gain antenna to be used with the EUT was tested for final measurements. The EUT was configured for the lowest, a middle, and the highest transmit frequency in each operational band. For each configuration, the spectrum was scanned throughout the specified range. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

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

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

For the purposes of preliminary measurements, the field strength of the spurious emissions can be measured and compared with a 3 meter limit. The 3 meter limit was calculated to be 82.5 dBuV/m at 3 meters. The final measurements must be made utilizing the substitution method described above

NORTHWEST EMC

OUT OF BAND EMISSIONS - Part 24

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02UO	Work Order:	INMC0662
Serial Number:	24411047146	Date:	01/27/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

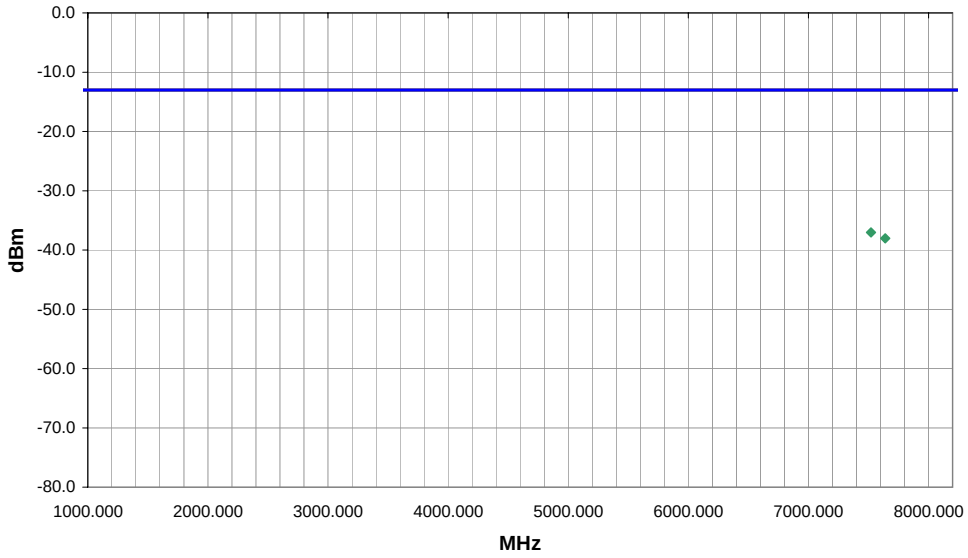
Transmitting PCS Band, GPRS (GMSK)

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	17
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
7520.035			38.0	1.1			H-Horn	PK	1.98E-07	-37.0	-13.0	-24.0	Mid Channel, EUT vertical
7639.315			352.0	2.2			V-Horn	PK	1.57E-07	-38.0	-13.0	-25.0	High Channel, EUT vertical

NORTHWEST EMC

OUT OF BAND EMISSIONS - Part 24

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02UO	Work Order:	INMC0662
Serial Number:	24411047146	Date:	01/27/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

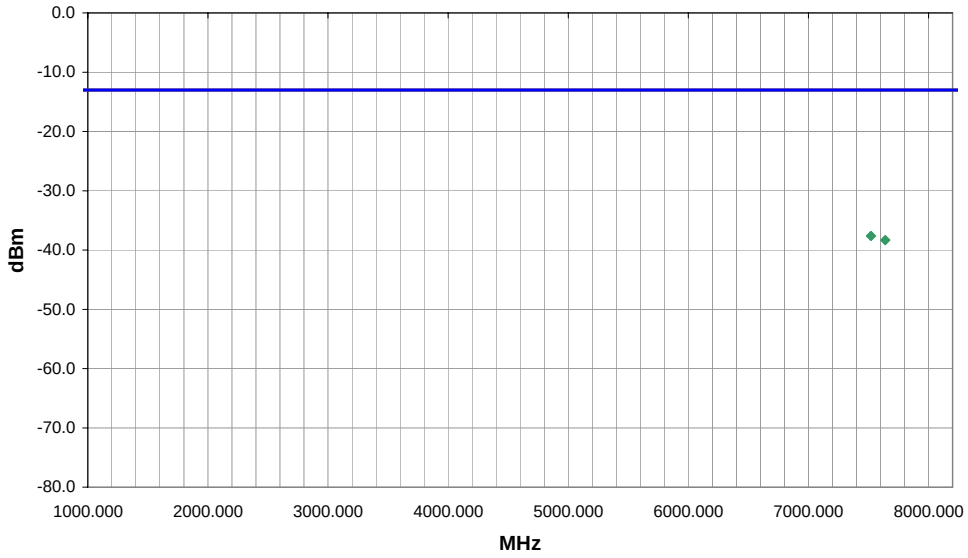
Transmitting PCS Band, E-GPRS (EDGE)

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	18
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
7520.183			34.0	1.3			H-Horn	PK	1.73E-07	-37.6	-13.0	-24.6	Mid Channel, EUT vertical
7639.237			339.0	1.8			V-Horn	PK	1.47E-07	-38.3	-13.0	-25.3	High Channel, EUT vertical

OUT OF BAND EMISSIONS - Part 24

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
Transmitting PCS Band, E-GPRS (EDGE)
Transmitting PCS Band, GPRS (GMSK)

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30 MHz	Stop Frequency	20 GHz

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVH	7/14/2010	13
EV12 Cables	N/A	Standard Gain Horn Cables	EVU	7/14/2010	13
Antenna, Horn	ETS	3160.07	AHZ	9/8/2010	24
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVI	7/14/2010	13
Antenna, Horn	ETS	3160-08	AIA	NCR	0
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	9/15/2010	13
Cable	ESM Cable Corp	KMKM-72	EVY	9/15/2010	13
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0
Spectrum Analyzer	Agilent	E4440A	AFD	6/1/2009	24
Antenna, Horn	EMCO	3115	AHE	10/22/2009	24
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	24
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27
High Pass Filter	Micro-Tronics	50111	HGE	7/14/2010	13
Pre-Amplifier	Miteq	AMF-3D00100800-32-13P	AVF	7/14/2010	13
Antenna, Horn	ETS	3115	AIB	9/8/2010	24
EV12 Cables	N/A	Double Ridge Horn Cables	EVT	11/22/2010	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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The highest gain antenna to be used with the EUT was tested for final measurements. The EUT was configured for the lowest, a middle, and the highest transmit frequency in each operational band. For each configuration, the spectrum was scanned throughout the specified range. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.10:2009). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

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

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

For the purposes of preliminary measurements, the field strength of the spurious emissions can be measured and compared with a 3 meter limit. The 3 meter limit was calculated to be 82.5 dBuV/m at 3 meters. The final measurements must be made utilizing the substitution method described above

NORTHWEST EMC

OUT OF BAND EMISSIONS - Part 24

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01UO	**Work Order:**	INMC0662
Serial Number:	25411047063	**Date:**	01/27/11
Customer:	Intermec Technologies Corporation	**Temperature:**	20.43
Attendees:	None	**Humidity:**	35%
Project:	None	**Barometric Pres.:**	1023
Tested by:	Rod Peloquin	**Power:** 120VAC/60Hz	**Job Site:** EV12

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

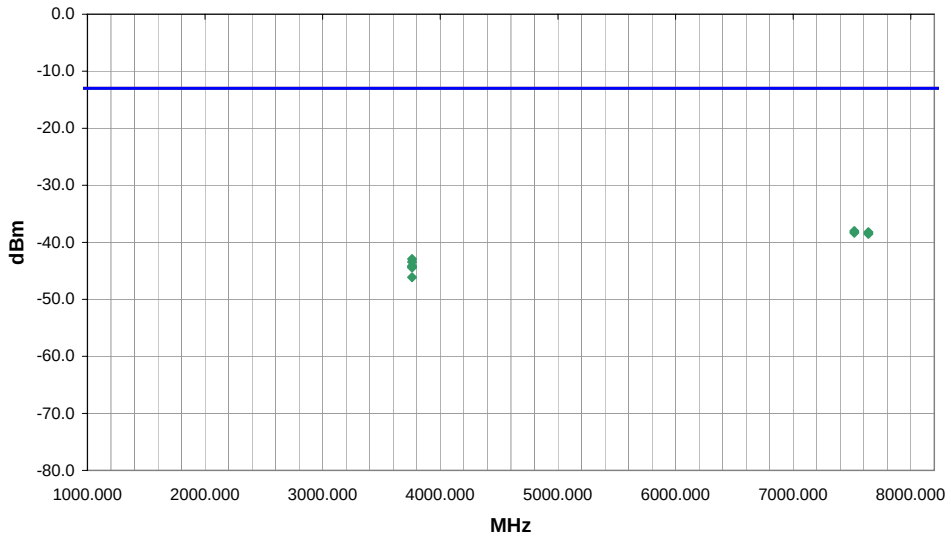
Transmitting PCS Band, GPRS (GMSK)

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	13
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
7519.832			313.0	1.0			V-Horn	PK	1.57E-07	-38.0	-13.0	-25.0	Mid Channel, EUT vertical
7639.275			330.0	1.5			V-Horn	PK	1.50E-07	-38.2	-13.0	-25.2	High Channel, EUT vertical
7519.310			216.0	1.0			H-Horn	PK	1.47E-07	-38.3	-13.0	-25.3	Mid Channel, EUT horizontal
7638.985			0.0	1.0			H-Horn	PK	1.40E-07	-38.5	-13.0	-25.5	High Channel, EUT horizontal
3760.057			332.0	1.0			V-Horn	PK	5.09E-08	-42.9	-13.0	-29.9	Mid Channel, EUT vertical
3759.957			337.0	1.1			H-Horn	PK	4.54E-08	-43.4	-13.0	-30.4	Mid Channel, EUT horizontal
3760.165			328.0	1.2			H-Horn	PK	3.86E-08	-44.1	-13.0	-31.1	Mid Channel, EUT vertical
3760.183			21.0	1.0			V-Horn	PK	3.69E-08	-44.3	-13.0	-31.3	Mid Channel, EUT on side
3759.928			14.0	1.0			H-Horn	PK	3.61E-08	-44.4	-13.0	-31.4	Mid Channel, EUT on side
3759.880			176.0	1.4			V-Horn	PK	2.44E-08	-46.1	-13.0	-33.1	Mid Channel, EUT horizontal

NORTHWEST EMC

OUT OF BAND EMISSIONS - Part 24

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01UO	Work Order:	INMC0662
Serial Number:	25411047063	Date:	01/27/11
Customer:	Intermec Technologies Corporation	Temperature:	20.43
Attendees:	None	Humidity:	35%
Project:	None	Barometric Pres.:	1023
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

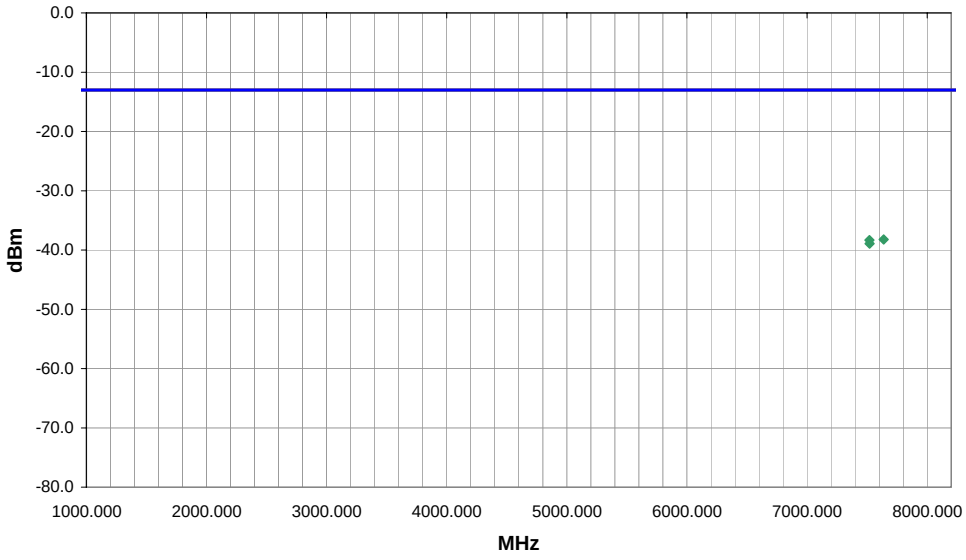
Transmitting PCS Band, E-GPRS (EDGE)

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	14
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
7638.518			338.0	1.9			V-Horn	PK	1.50E-07	-38.2	-13.0	-25.2	High Channel, EUT vertical
7519.670			20.0	1.0			H-Horn	PK	1.47E-07	-38.3	-13.0	-25.3	Mid Channel, EUT vertical
7520.195			175.0	1.3			H-Horn	PK	1.28E-07	-38.9	-13.0	-25.9	Mid Channel, EUT horizontal

Effective Radiated Power (EIRP)

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
Transmitting PCS Band, HSPA
Transmitting PCS Band, WCDMA Rel 99
Transmitting PCS Band, E-GPRS (EDGE)
Transmitting PCS Band, GPRS (GMSK)

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	1840 MHz	Stop Frequency	1920 MHz

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	AAQ	1/10/2011	12
Antenna, Horn	EMCO	3115	AHC	7/8/2010	24
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	7/9/2010	13
Antenna, Horn	EMCO	3115	AHE	10/22/2009	24
Attenuator, 'N'	Coaxicom	66702 5910-6	ATZ	4/19/2010	13
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27

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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The fundamental emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height (1-4 meters) and polarization and manipulating the EUT antenna in 3 orthogonal planes The antennas to be used with the EUT were tested. The EUT was transmitting while set at the lowest channel, a middle channel, and the highest channel available. The amplitude and frequency were noted. The EUT was then replaced with a horn antenna. A signal generator was connected to the horn antenna and its output was adjusted to match the level previously noted for each frequency. The output of the signal generator was recorded, and by factoring in the gain (dBi) of the horn antenna the effective radiated power for each emission was determined.

NORTHWEST EMC

Effective Radiated Power (EIRP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01UO	Work Order:	INMC0660
Serial Number:	24411047041	Date:	01/25/11
Customer:	Intermec Technologies Corporation	Temperature:	22
Attendees:	none	Humidity:	37%
Project:	None	Barometric Pres.:	30.4 in
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

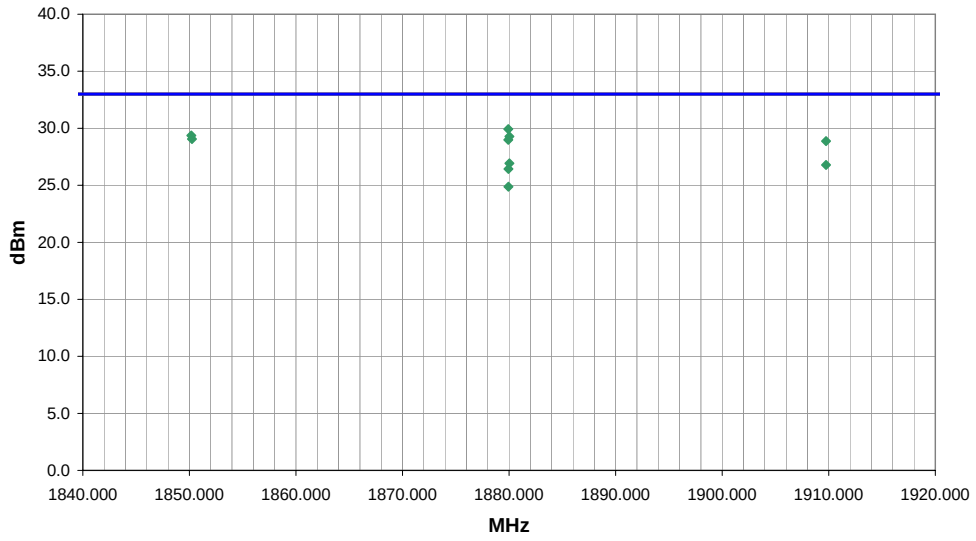
Transmitting PCS Band, GPRS (GMSK)

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	13
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1879.920			116.0	1.2			V-Horn	PK	9.84E-01	29.9	33.0	-3.1	Mid Channel, EUT on side
1850.180			183.0	1.1			H-Horn	PK	8.63E-01	29.4	33.0	-3.6	Low Channel, EUT horizontal
1880.033			181.0	1.1			H-Horn	PK	8.47E-01	29.3	33.0	-3.7	Mid Channel, EUT horizontal
1850.233			114.0	1.2			V-Horn	PK	8.05E-01	29.1	33.0	-3.9	Low Channel, EUT on side
1879.927			30.0	1.4			H-Horn	PK	7.91E-01	29.0	33.0	-4.0	Mid Channel, EUT vertical
1909.740			84.0	1.1			V-Horn	PK	7.73E-01	28.9	33.0	-4.1	High Channel, EUT on side
1880.023			74.0	1.1			V-Horn	PK	4.93E-01	26.9	33.0	-6.1	Mid Channel, EUT vertical
1909.743			184.0	1.1			H-Horn	PK	4.76E-01	26.8	33.0	-6.2	High Channel, EUT horizontal
1879.933			139.0	1.2			V-Horn	PK	4.40E-01	26.4	33.0	-6.6	Mid Channel, EUT horizontal
1879.937			164.0	1.8			H-Horn	PK	3.08E-01	24.9	33.0	-8.1	Mid Channel, EUT on side

NORTHWEST EMC

Effective Radiated Power (EIRP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01UO			**Work Order:**	INMC0660
Serial Number:	24411047041			**Date:**	01/25/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	37%
Project:	None			**Barometric Pres.:**	30.4 in
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

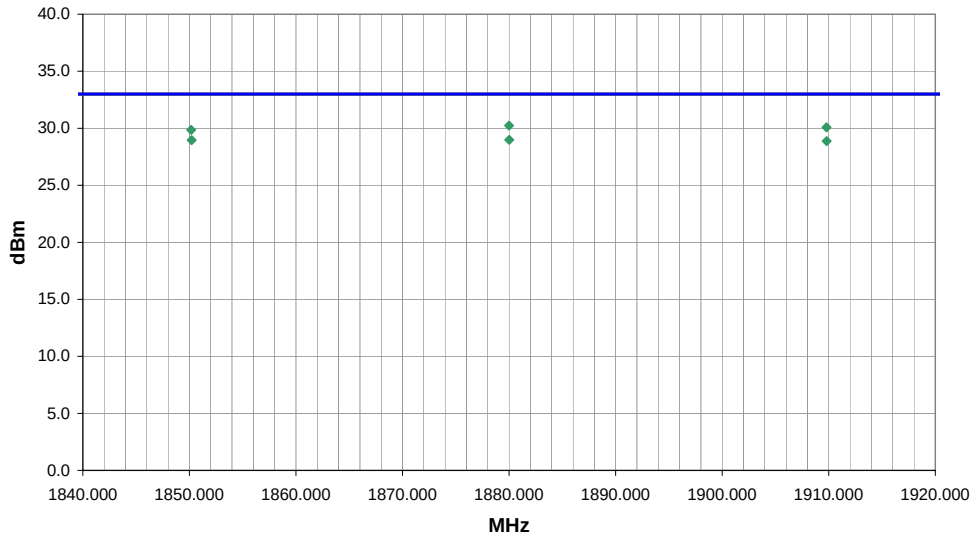
Transmitting PCS Band, E-GPRS (EDGE)

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	14
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1879.997			119.0	1.2			V-Horn	PK	1.05E+00	30.2	33.0	-2.8	Mid Channel, EUT on side
1909.797			67.0	1.1			H-Horn	PK	1.02E+00	30.1	33.0	-2.9	High Channel, EUT horizontal
1850.170			84.0	1.2			V-Horn	PK	9.68E-01	29.9	33.0	-3.1	Low Channel, EUT on side
1880.013			75.0	1.1			H-Horn	PK	7.91E-01	29.0	33.0	-4.0	Mid Channel, EUT horizontal
1850.210			58.0	1.1			H-Horn	PK	7.87E-01	29.0	33.0	-4.0	Low Channel, EUT horizontal
1909.803			87.0	1.1			V-Horn	PK	7.73E-01	28.9	33.0	-4.1	High Channel, EUT on side

NORTHWEST EMC

Effective Radiated Power (EIRP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01UO			Work Order:	INMC0660
Serial Number:	24411047041			Date:	01/25/11
Customer:	Intermec Technologies Corporation			Temperature:	22
Attendees:	none			Humidity:	37%
Project:	None			Barometric Pres.:	30.4 in
Tested by:	Rod Peloquin	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

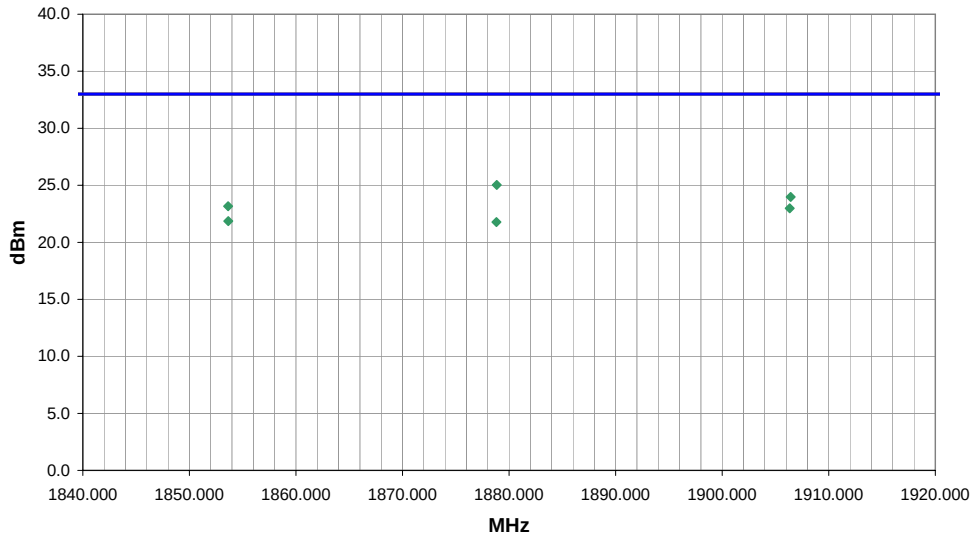
Transmitting PCS Band, WCDMA Rel 99

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	15
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1878.840			115.0	1.1			V-Horn	PK	3.18E-01	25.0	33.0	-8.0	Mid Channel, EUT on side
1906.420			64.0	1.1			H-Horn	PK	2.50E-01	24.0	33.0	-9.0	High Channel, EUT horizontal
1853.640			79.0	1.2			V-Horn	PK	2.07E-01	23.2	33.0	-9.8	Low Channel, EUT on side
1906.330			111.0	1.1			V-Horn	PK	1.99E-01	23.0	33.0	-10.0	High Channel, EUT on side
1853.650			60.0	1.1			H-Horn	PK	1.53E-01	21.9	33.0	-11.1	Low Channel, EUT horizontal
1878.820			78.0	1.1			H-Horn	PK	1.51E-01	21.8	33.0	-11.2	Mid Channel, EUT horizontal

NORTHWEST EMC

Effective Radiated Power (EIRP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP01UO			Work Order:	INMC0660
Serial Number:	24411047041			Date:	01/25/11
Customer:	Intermec Technologies Corporation			Temperature:	22
Attendees:	none			Humidity:	37%
Project:	None			Barometric Pres.:	30.4 in
Tested by:	Rod Peloquin	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

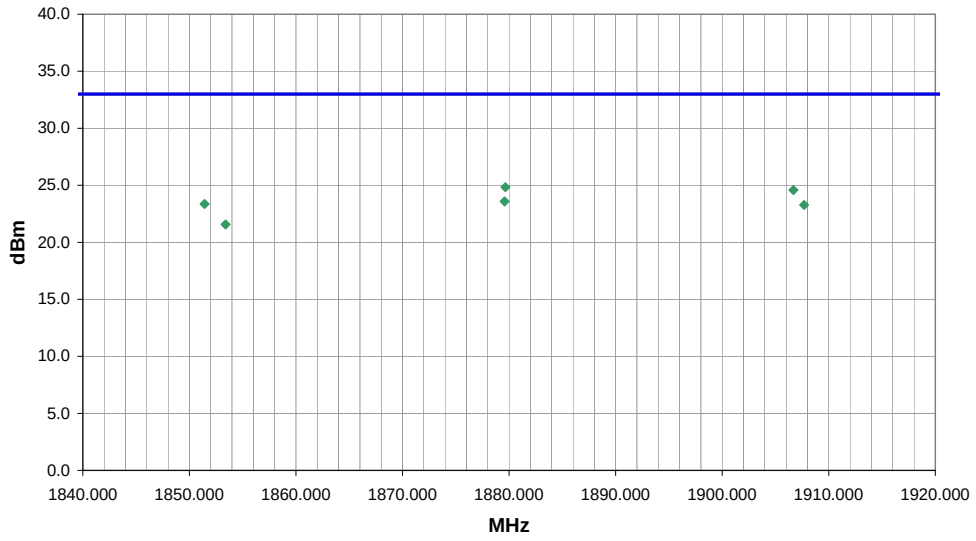
Transmitting PCS Band, HSPA

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	16
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1879.650			112.0	1.2			V-Horn	PK	3.04E-01	24.8	33.0	-8.2	Mid Channel, EUT on side
1906.680			62.0	1.1			H-Horn	PK	2.87E-01	24.6	33.0	-8.4	High Channel, EUT horizontal
1879.580			79.0	1.1			H-Horn	PK	2.28E-01	23.6	33.0	-9.4	Mid Channel, EUT horizontal
1851.420			84.0	1.2			V-Horn	PK	2.17E-01	23.4	33.0	-9.6	Low Channel, EUT on side
1907.690			86.0	1.1			V-Horn	PK	2.13E-01	23.3	33.0	-9.7	High Channel, EUT on side
1853.390			61.0	1.2			H-Horn	PK	1.43E-01	21.6	33.0	-11.4	Low Channel, EUT horizontal

Effective Radiated Power (EIRP)

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
Transmitting PCS Band, HSPA
Transmitting PCS Band, WCDMA Rel 99
Transmitting PCS Band, E-GPRS (EDGE)
Transmitting PCS Band, GPRS (GMSK)

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	1840 MHz	Stop Frequency	1920 MHz

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	AAQ	1/10/2011	12
Antenna, Horn	EMCO	3115	AHC	7/8/2010	24
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	7/9/2010	13
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	5/3/2010	13
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27

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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The fundamental emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height (1-4 meters) and polarization and manipulating the EUT antenna in 3 orthogonal planes The antennas to be used with the EUT were tested. The EUT was transmitting while set at the lowest channel, a middle channel, and the highest channel available. The amplitude and frequency were noted. The EUT was then replaced with a horn antenna. A signal generator was connected to the horn antenna and its output was adjusted to match the level previously noted for each frequency. The output of the signal generator was recorded, and by factoring in the gain (dBi) of the horn antenna the effective radiated power for each emission was determined.

NORTHWEST EMC

Effective Radiated Power (EIRP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02UO			**Work Order:**	INMC0660
Serial Number:	24411047146			**Date:**	01/25/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	37%
Project:	None			**Barometric Pres.:**	30.4 in
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

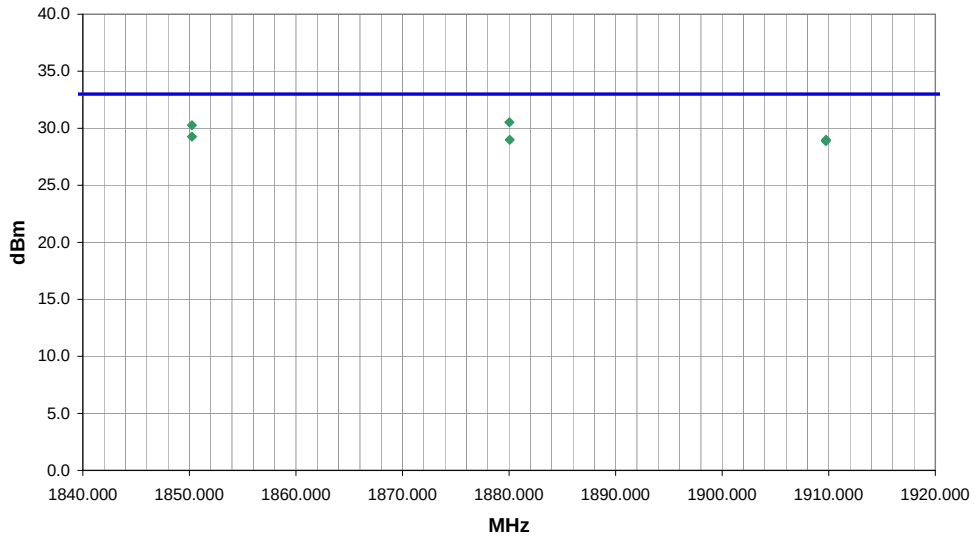
Transmitting PCS Band, GPRS (GMSK)

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	17
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1880.027			117.0	1.2			V-Horn	PK	1.13E+00	30.5	33.0	-2.5	Mid Channel, EUT on side
1850.237			83.0	1.2			V-Horn	PK	1.06E+00	30.3	33.0	-2.7	Low Channel, EUT on side
1850.237			187.0	1.2			H-Horn	PK	8.43E-01	29.3	33.0	-3.7	Low Channel, EUT horizontal
1880.053			85.0	1.1			H-Horn	PK	7.91E-01	29.0	33.0	-4.0	Mid Channel, EUT horizontal
1909.740			62.0	1.1			H-Horn	PK	7.91E-01	29.0	33.0	-4.0	High Channel, EUT horizontal
1909.730			80.0	1.2			V-Horn	PK	7.73E-01	28.9	33.0	-4.1	High Channel, EUT on side

NORTHWEST EMC

Effective Radiated Power (EIRP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02UO			**Work Order:**	INMC0660
Serial Number:	24411047146			**Date:**	01/25/11
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	37%
Project:	None			**Barometric Pres.:**	30.4 in
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

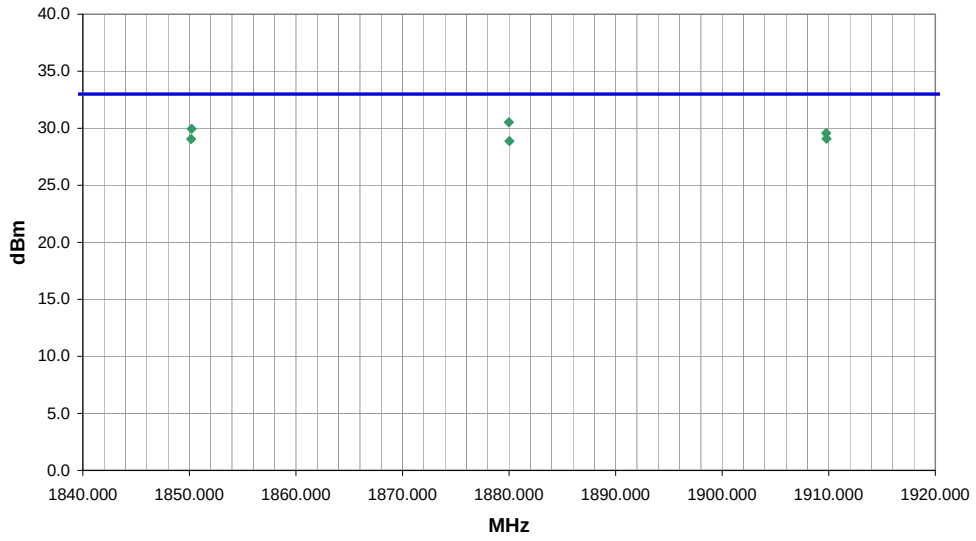
Transmitting PCS Band, E-GPRS (EDGE)

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	18
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1879.987			111.0	1.2			V-Horn	PK	1.13E+00	30.5	33.0	-2.5	Mid Channel, EUT on side
1850.213			81.0	1.2			V-Horn	PK	9.91E-01	30.0	33.0	-3.0	Low Channel, EUT on side
1909.753			68.0	1.2			H-Horn	PK	9.08E-01	29.6	33.0	-3.4	High Channel, EUT horizontal
1909.793			85.0	1.1			V-Horn	PK	8.09E-01	29.1	33.0	-3.9	High Channel, EUT on side
1850.170			64.0	1.2			H-Horn	PK	8.05E-01	29.1	33.0	-3.9	Low Channel, EUT horizontal
1880.030			79.0	1.2			H-Horn	PK	7.73E-01	28.9	33.0	-4.1	Mid Channel, EUT horizontal

NORTHWEST EMC

Effective Radiated Power (EIRP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02UO	Work Order:	INMC0660
Serial Number:	24411047146	Date:	01/25/11
Customer:	Intermec Technologies Corporation	Temperature:	22
Attendees:	none	Humidity:	37%
Project:	None	Barometric Pres.:	30.4 in
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

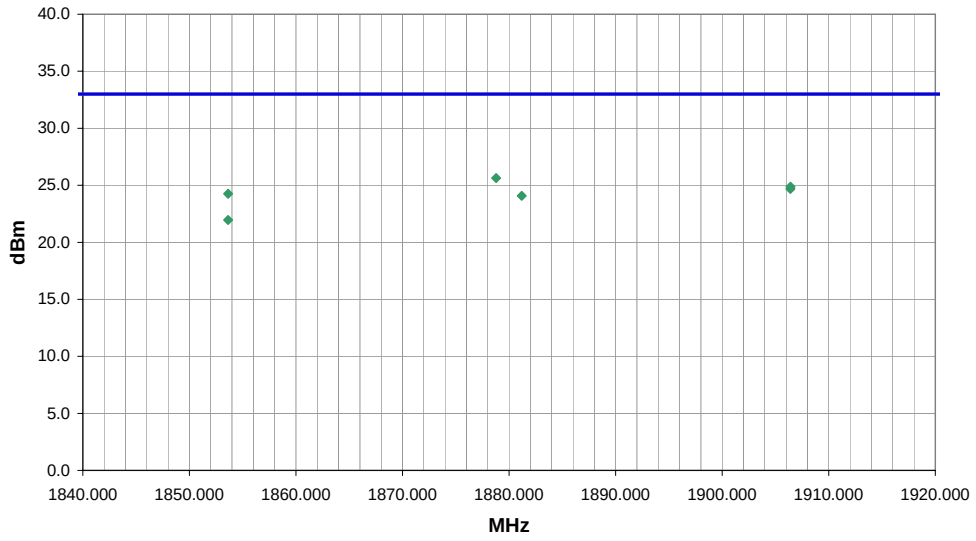
Transmitting PCS Band, WCDMA Rel 99

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	19
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1878.780			86.0	1.2			V-Horn	PK	3.66E-01	25.6	33.0	-7.4	Mid Channel, EUT horizontal
1906.410			69.0	1.2			H-Horn	PK	3.08E-01	24.9	33.0	-8.1	High Channel, EUT horizontal
1906.400			104.0	1.2			V-Horn	PK	2.94E-01	24.7	33.0	-8.3	High Channel, EUT on side
1853.640			85.0	1.2			V-Horn	PK	2.67E-01	24.3	33.0	-8.7	Low Channel, EUT on side
1881.190			82.0	1.2			H-Horn	PK	2.56E-01	24.1	33.0	-8.9	Mid Channel, EUT on side
1853.640			63.0	1.2			H-Horn	PK	1.57E-01	22.0	33.0	-11.0	Low Channel, EUT horizontal

NORTHWEST EMC

Effective Radiated Power (EIRP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1000CP02UO	Work Order:	INMC0660
Serial Number:	24411047146	Date:	01/26/11
Customer:	Intermec Technologies Corporation	Temperature:	22
Attendees:	none	Humidity:	38%
Project:	None	Barometric Pres.:	1002.3
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

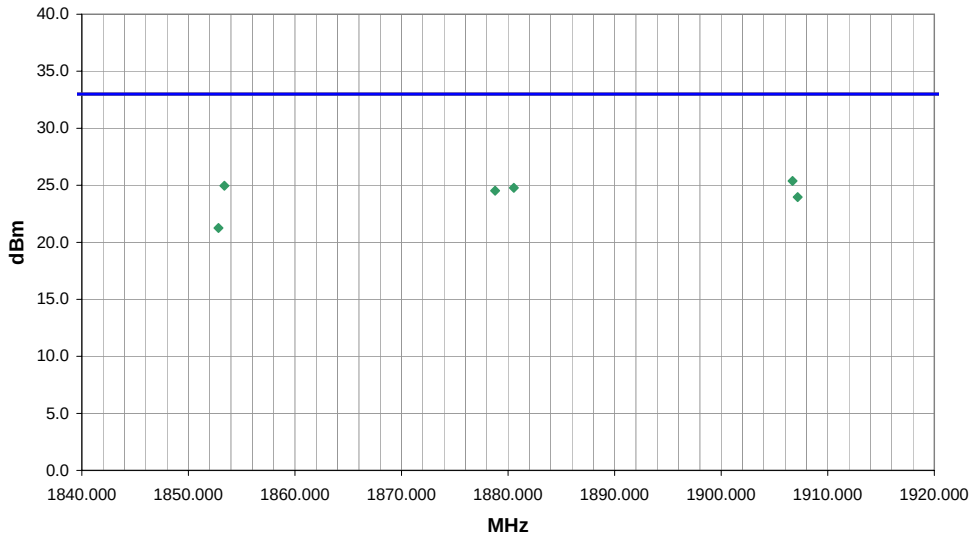
Transmitting PCS Band, HSPA

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	20
Configuration #	2
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1906.690			83.0	1.1			V-Horn	PK	3.45E-01	25.4	33.0	-7.6	High Channel, EUT on side
1853.380			114.0	1.3			V-Horn	PK	3.13E-01	25.0	33.0	-8.0	Low Channel, EUT on side
1880.540			80.0	1.1			H-Horn	PK	3.01E-01	24.8	33.0	-8.2	Mid Channel, EUT horizontal
1878.790			114.0	1.3			V-Horn	PK	2.84E-01	24.5	33.0	-8.5	Mid Channel, EUT on side
1907.170			71.0	1.2			H-Horn	PK	2.49E-01	24.0	33.0	-9.0	High Channel, EUT horizontal
1852.820			78.0	1.2			H-Horn	PK	1.34E-01	21.3	33.0	-11.7	Low Channel, EUT horizontal

Effective Radiated Power (EIRP)

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
Transmitting PCS Band, HSPA
Transmitting PCS Band, WCDMA Rel 99
Transmitting PCS Band, E-GPRS (EDGE)
Transmitting PCS Band, GPRS (GFSK)

POWER SETTINGS INVESTIGATED
120VAC/60Hz

FREQUENCY RANGE INVESTIGATED			
Start Frequency	1840 MHz	Stop Frequency	1920 MHz

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	AAQ	1/10/2011	12
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	7/9/2010	13
Antenna, Horn	EMCO	3115	AHC	7/8/2010	24
Antenna, Horn	EMCO	3115	AHE	10/22/2009	24
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	5/3/2010	13
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Signal Generator	Agilent	E8257D	TGX	12/10/2008	27

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

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. The measurement uncertainty estimation is available upon request.

TEST DESCRIPTION

The fundamental emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height (1-4 meters) and polarization and manipulating the EUT antenna in 3 orthogonal planes The antennas to be used with the EUT were tested. The EUT was transmitting while set at the lowest channel, a middle channel, and the highest channel available. The amplitude and frequency were noted. The EUT was then replaced with a horn antenna. A signal generator was connected to the horn antenna and its output was adjusted to match the level previously noted for each frequency. The output of the signal generator was recorded, and by factoring in the gain (dBi) of the horn antenna the effective radiated power for each emission was determined.

NORTHWEST EMC

Effective Radiated Power (EIRP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01UO			Work Order:	INMC0660
Serial Number:	25411047063			Date:	01/26/11
Customer:	Intermec Technologies Corporation			Temperature:	22
Attendees:	none			Humidity:	38%
Project:	None			Barometric Pres.:	1002.3
Tested by:	Rod Peloquin	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

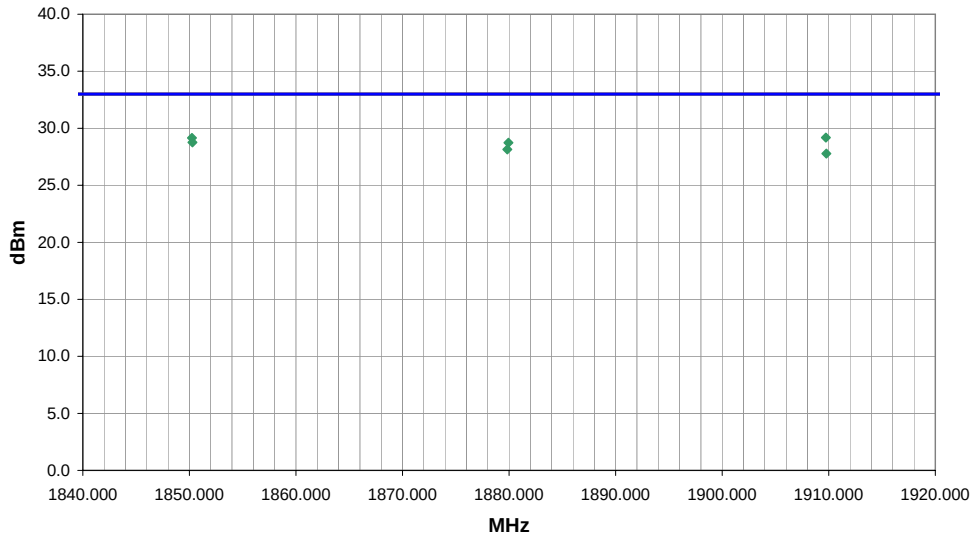
Transmitting PCS Band, GPRS (GFSK)

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	21
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1909.737			87.0	1.2			H-Horn	PK	8.28E-01	29.2	33.0	-3.8	High Channel, EUT horizontal
1850.243			88.0	1.2			V-Horn	PK	8.24E-01	29.2	33.0	-3.8	Low Channel, EUT on side
1850.280			83.0	1.2			H-Horn	PK	7.52E-01	28.8	33.0	-4.2	Low Channel, EUT horizontal
1879.943			100.0	1.2			V-Horn	PK	7.48E-01	28.7	33.0	-4.3	Mid Channel, EUT on side
1879.840			90.0	1.2			H-Horn	PK	6.53E-01	28.2	33.0	-4.9	Mid Channel, EUT horizontal
1909.777			117.0	1.2			V-Horn	PK	6.00E-01	27.8	33.0	-5.2	High Channel, EUT on side

NORTHWEST EMC

Effective Radiated Power (EIRP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01UO	Work Order:	INMC0660
Serial Number:	25411047063	Date:	01/26/11
Customer:	Intermec Technologies Corporation	Temperature:	22
Attendees:	none	Humidity:	38%
Project:	None	Barometric Pres.:	1002.3
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

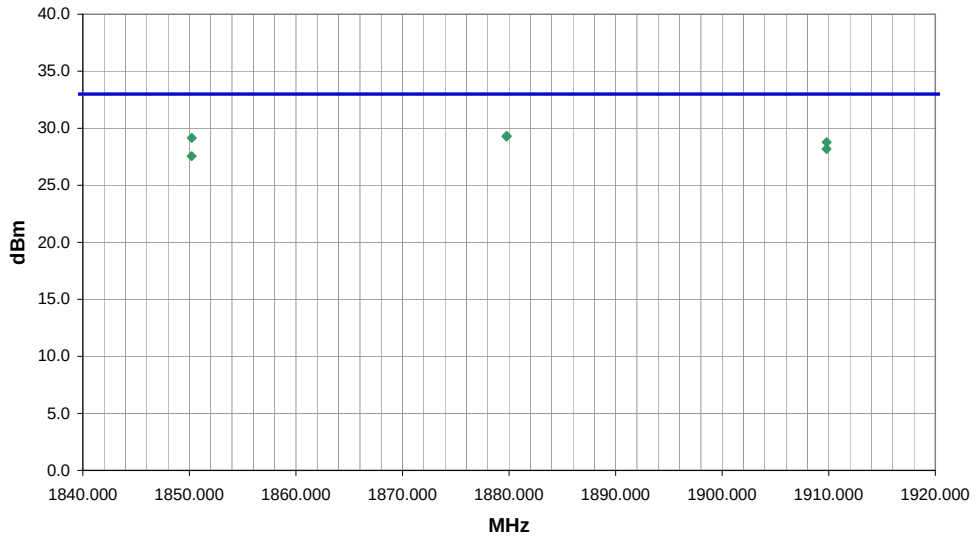
Transmitting PCS Band, E-GPRS (EDGE)

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	22
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1879.780			105.0	1.2			V-Horn	PK	8.57E-01	29.3	33.0	-3.7	Mid Channel, EUT on side
1879.757			74.0	1.2			H-Horn	PK	8.47E-01	29.3	33.0	-3.7	Mid Channel, EUT horizontal
1850.227			88.0	1.2			V-Horn	PK	8.24E-01	29.2	33.0	-3.8	Low Channel, EUT on side
1909.810			80.0	1.1			H-Horn	PK	7.55E-01	28.8	33.0	-4.2	High Channel, EUT horizontal
1909.787			118.0	1.2			V-Horn	PK	6.58E-01	28.2	33.0	-4.8	High Channel, EUT on side
1850.207			37.0	1.1			H-Horn	PK	5.70E-01	27.6	33.0	-5.4	Low Channel, EUT horizontal

NORTHWEST EMC

Effective Radiated Power (EIRP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01UO	Work Order:	INMC0660
Serial Number:	25411047063	Date:	01/26/11
Customer:	Intermec Technologies Corporation	Temperature:	22
Attendees:	none	Humidity:	38%
Project:	None	Barometric Pres.:	1002.3
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

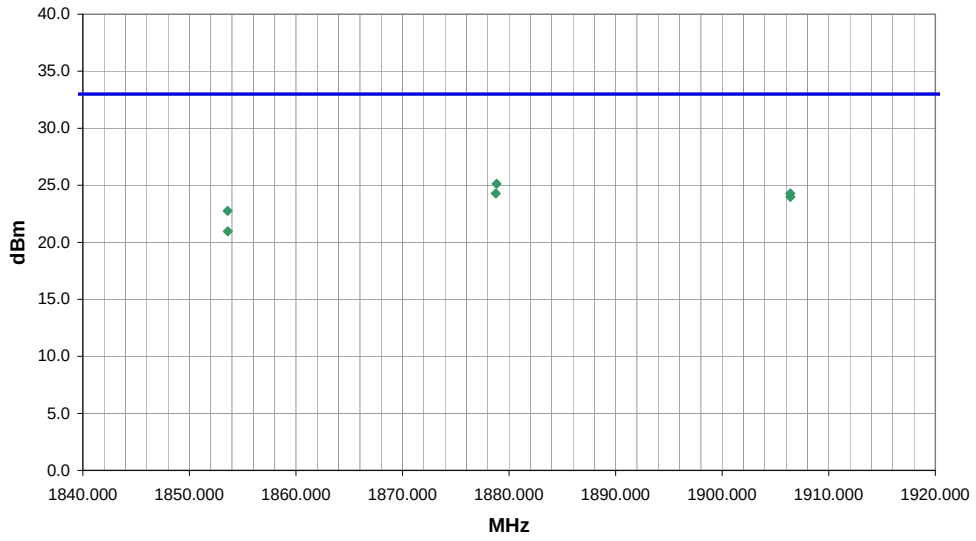
Transmitting PCS Band, WCDMA Rel 99

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	23
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1878.830			114.0	1.2			V-Horn	PK	3.26E-01	25.1	33.0	-7.9	Mid Channel, EUT horizontal
1878.760			75.0	1.2			H-Horn	PK	2.68E-01	24.3	33.0	-8.7	Mid Channel, EUT horizontal
1906.390			79.0	1.1			V-Horn	PK	2.68E-01	24.3	33.0	-8.7	High Channel, EUT horizontal
1906.400			80.0	1.2			H-Horn	PK	2.50E-01	24.0	33.0	-9.0	High Channel, EUT horizontal
1853.590			79.0	1.2			V-Horn	PK	1.89E-01	22.8	33.0	-10.2	Low Channel, EUT horizontal
1853.610			75.0	1.2			H-Horn	PK	1.25E-01	21.0	33.0	-12.0	Low Channel, EUT horizontal

NORTHWEST EMC

Effective Radiated Power (EIRP)

PSA 2008.07.21
EMI 2008.1.9

EUT:	1001CP01UO	Work Order:	INMC0660
Serial Number:	25411047063	Date:	01/26/11
Customer:	Intermec Technologies Corporation	Temperature:	22
Attendees:	none	Humidity:	38%
Project:	None	Barometric Pres.:	1002.3
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV01

TEST SPECIFICATIONS	Test Method
FCC 24E:2011	ANSI/TIA/EIA-603-C-2004

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

COMMENTS

None

EUT OPERATING MODES

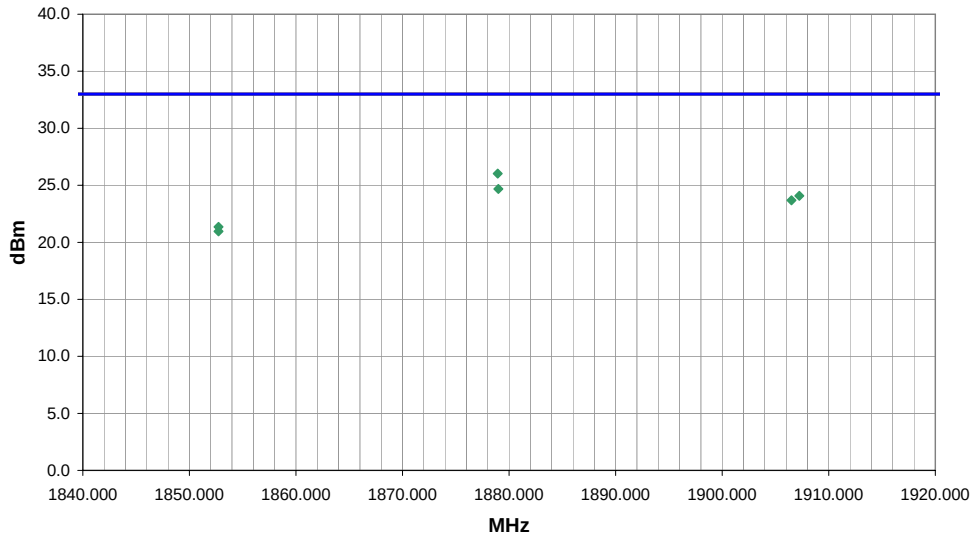
Transmitting PCS Band, HSPA

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	24
Configuration #	3
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1878.930			92.0	1.2			V-Horn	PK	4.01E-01	26.0	33.0	-7.0	Mid Channel, EUT on side
1879.000			77.0	1.2			H-Horn	PK	2.94E-01	24.7	33.0	-8.3	Mid Channel, EUT horizontal
1907.240			77.0	1.2			H-Horn	PK	2.56E-01	24.1	33.0	-8.9	High Channel, EUT horizontal
1906.500			102.0	1.2			V-Horn	PK	2.33E-01	23.7	33.0	-9.3	High Channel, EUT on side
1852.730			87.0	1.2			V-Horn	PK	1.37E-01	21.4	33.0	-11.6	Low Channel, EUT on side
1852.740			71.0	1.2			H-Horn	PK	1.25E-01	21.0	33.0	-12.0	Low Channel, EUT horizontal