

Intermec Technologies Corporation

Model: RW10

Tested to the following Specifications:

**FCC 22H:2010
FCC 24E:2010**

Report No. INMC0656

Report Prepared By



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

© 2011 Northwest EMC, Inc

EMC Test Report

Certificate of Test
Last Date of Test: January 7, 2011
Intermec Technologies Corporation
Model: RW10

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

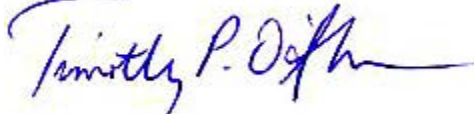
The measurement facility used to collect the data is located at:

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 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



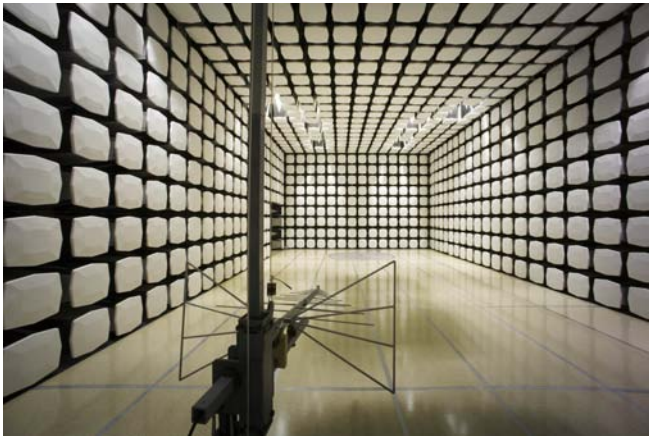
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

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:	RW10
First Date of Test:	December 27, 2010
Last Date of Test:	January 7, 2011
Receipt Date of Samples:	December 17, 2010
Equipment Design Stage:	Production
Equipment Condition:	No Damage

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

UMTS radio module

Testing Objective:

To demonstrate compliance to the radiated power and radiated out of band emissions requirements of FCC 22H and FCC 24E when using an Intermec antenna.

CONFIGURATION 1 INMC0656

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
UMTS radio module	Intermec Technologies Corporation	RW10	012479000038036
Handheld Computer (contains antenna that was tested with the module).	Intermec Technologies Corporation	CN70E	24411047157
PIFA Antenna	Laird	805-668-001	none

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Host Board for radio module	Intermec Technologies Corporation	1201477-2.0	MCDK2485
AC Power Adapter	Elpac Power Systems	FW1805	068413

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	1.8m	No	AC Mains	AC Power Adapter
DC Power	No	1.8m	No	AC Power Adapter	Host Board
Antenna Cable	Yes	0.1m	No	Host Board	Handheld Computer
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	12/27/2010	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	12/29/2010	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	1/7/2011	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.

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 INVESTIGATED

Transmitting UMTS HSPA
Transmitting WCDMA Rel 99
Transmitting EGPRS (Edge)
Transmitting GPRS (GMSK)

Channels Tested

Ch. 128, 824.2MHz
Ch. 190, 836.6MHz
Ch 251, 848.8MHz
Ch. 4132, 826.5MHz
Ch. 4182, 837MHz
Ch. 4233, 846.6MHz

POWER SETTINGS INVESTIGATED

5VDC

FREQUENCY RANGE INVESTIGATED

Start Frequency	30MHz	Stop Frequency	9GHz
-----------------	-------	----------------	------

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 placed on a remotely controlled turntable, and the measurement antenna is placed 3 meters from the transmitter. The turntable azimuth is varied to maximize the level of 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.

Out of Band Emissions - Part 22

EMC

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 01/06/11
Customer: Intermec Technologies Corporation	Temperature: 20.4
Attendees: None	Humidity: 35%
Project: None	Barometric Pres.: 1023
Tested by: Ethan Schoonover	Power: 5VDC
	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	TIA/EIA-603-B:2002

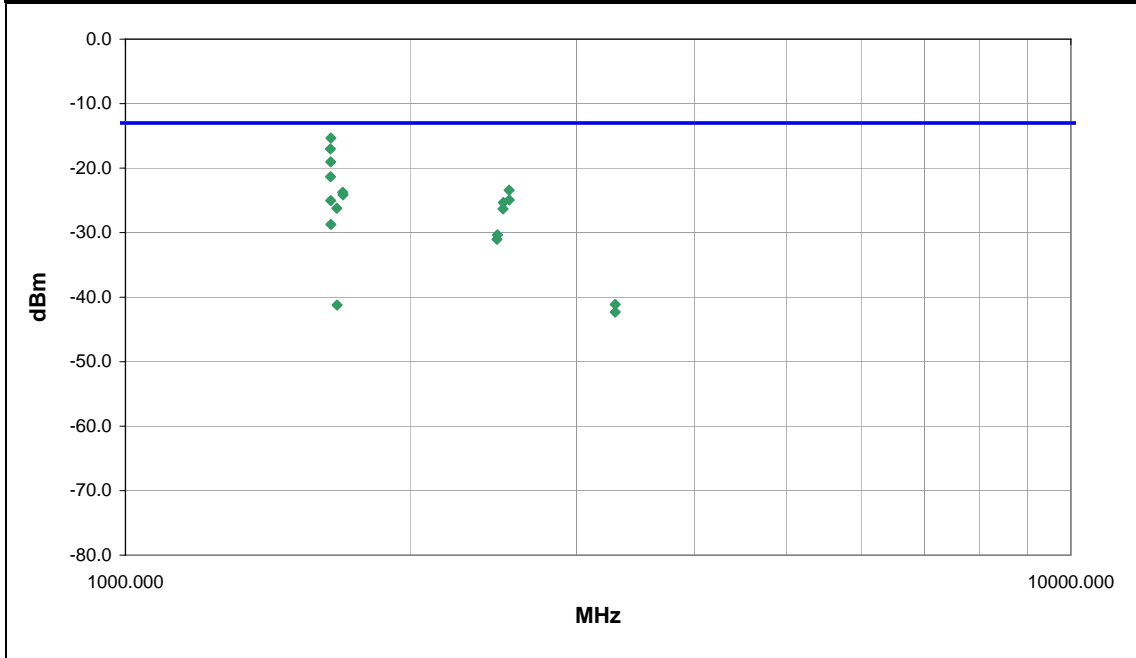
TEST PARAMETERS	
Antenna Height(s) (m) 1 - 4	Test Distance (m) 3

COMMENTS
None

EUT OPERATING MODES
Transmitting GPRS

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	1	Signature 
Configuration #	1	
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1649.583	145.0	1.1	V-Horn	PK	2.93E-05	-15.3	-13.0	-2.3	EUT Horz
1647.508	133.0	1.3	H-Horn	PK	1.98E-05	-17.0	-13.0	-4.0	EUT on edge.
1648.375	124.0	1.0	H-Horn	PK	1.25E-05	-19.0	-13.0	-6.0	EUT Horz
1648.250	196.0	1.6	V-Horn	PK	7.36E-06	-21.3	-13.0	-8.3	EUT on edge.
2545.992	42.0	1.1	V-Horn	PK	4.54E-06	-23.4	-13.0	-10.4	EUT Horz
1697.567	335.0	1.1	H-Horn	PK	4.24E-06	-23.7	-13.0	-10.7	EUT Horz
1698.650	113.0	1.1	V-Horn	PK	3.86E-06	-24.1	-13.0	-11.1	EUT Horz
2547.250	179.0	1.1	H-Horn	PK	3.21E-06	-24.9	-13.0	-11.9	EUT Horz
1648.942	25.0	1.3	H-Horn	PK	3.14E-06	-25.0	-13.0	-12.0	EUT Vert
2510.450	39.0	1.1	V-Horn	PK	2.93E-06	-25.3	-13.0	-12.3	EUT Horz
1672.917	190.0	3.3	H-Horn	PK	2.38E-06	-26.2	-13.0	-13.2	EUT Horz
2508.750	332.0	1.1	H-Horn	PK	2.33E-06	-26.3	-13.0	-13.3	EUT Horz
1649.250	92.0	1.6	V-Horn	PK	1.34E-06	-28.7	-13.0	-15.7	EUT Vert
2473.975	11.0	1.1	V-Horn	PK	9.27E-07	-30.3	-13.0	-17.3	EUT Horz
2471.642	328.0	1.1	H-Horn	PK	7.89E-07	-31.0	-13.0	-18.0	EUT Horz
3295.833	190.0	1.1	V-Horn	PK	7.71E-08	-41.1	-13.0	-28.1	EUT Horz
1674.767	214.0	2.2	V-Horn	PK	7.54E-08	-41.2	-13.0	-28.2	EUT Horz
3296.150	188.0	1.1	H-Horn	PK	5.85E-08	-42.3	-13.0	-29.3	EUT Horz

Out of Band Emissions - Part 22

EMC

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 01/06/11
Customer: Intermec Technologies Corporation	Temperature: 21.1
Attendees: None	Humidity: 35%
Project: None	Barometric Pres.: 1020
Tested by: Ethan Schoonover	Power: 5VDC
	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	TIA/EIA-603-B:2002

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

COMMENTS
None

EUT OPERATING MODES

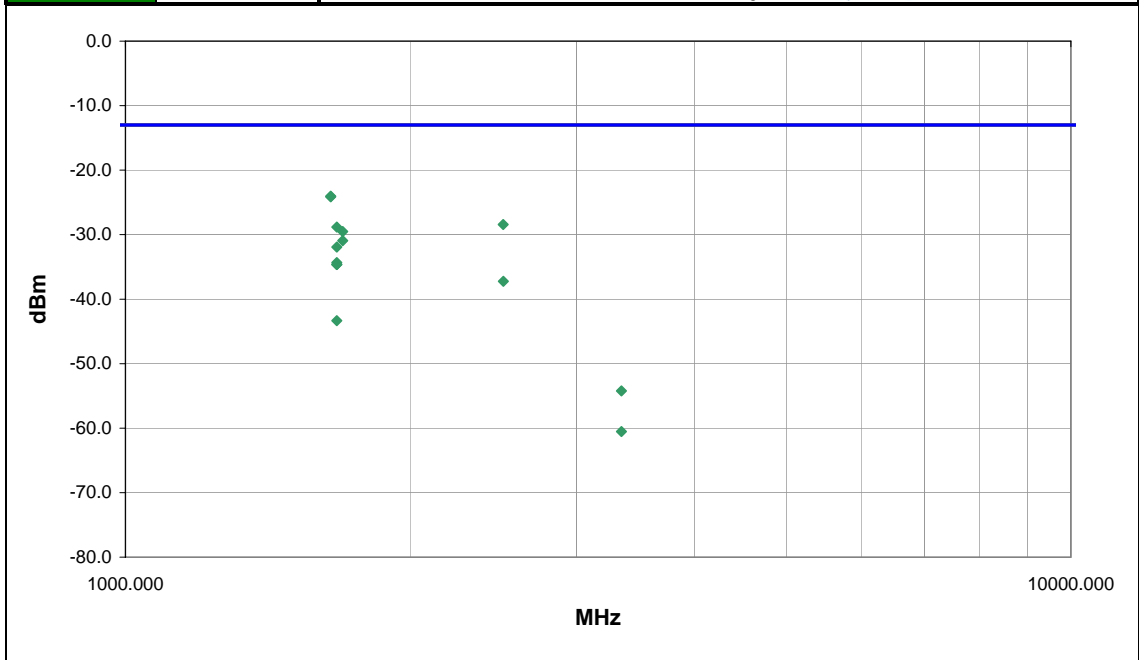
Transmitting EGPRS

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
1648.448	199.0	2.0	H-Horn	PK	3.95E-06	-24.0	-13.0	-11.0	EUT horz.
1648.418	122.0	1.1	V-Horn	PK	3.86E-06	-24.1	-13.0	-11.1	EUT horz.
2509.810	315.0	1.1	H-Horn	PK	1.44E-06	-28.4	-13.0	-15.4	EUT horz.
1673.197	125.0	1.7	H-Horn	PK	1.31E-06	-28.8	-13.0	-15.8	EUT horz.
1697.588	310.0	1.0	H-Horn	PK	1.11E-06	-29.5	-13.0	-16.5	EUT horz.
1697.573	90.0	1.1	V-Horn	PK	8.07E-07	-30.9	-13.0	-17.9	EUT horz.
1673.237	230.0	2.3	H-Horn	PK	6.41E-07	-31.9	-13.0	-18.9	EUT vert.
1673.153	190.0	1.7	H-Horn	PK	3.69E-07	-34.3	-13.0	-21.3	EUT on edge.
1673.193	123.0	1.4	V-Horn	PK	3.44E-07	-34.6	-13.0	-21.6	EUT horz.
1673.268	197.0	1.3	V-Horn	PK	3.44E-07	-34.6	-13.0	-21.6	EUT vert.
2509.865	0.0	1.4	V-Horn	PK	1.89E-07	-37.2	-13.0	-24.2	EUT horz.
1673.157	214.0	1.9	V-Horn	PK	4.65E-08	-43.3	-13.0	-30.3	EUT on edge.
3346.407	192.0	1.1	V-Horn	PK	3.78E-09	-54.2	-13.0	-41.2	EUT horz.
3346.458	323.0	1.1	H-Horn	PK	8.85E-10	-60.5	-13.0	-47.5	EUT horz.

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 01/06/11
Customer: Intermec Technologies Corporation	Temperature: 20.43
Attendees: None	Humidity: 35%
Project: None	Barometric Pres.: 1023
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2011	TIA/EIA-603-B:2002

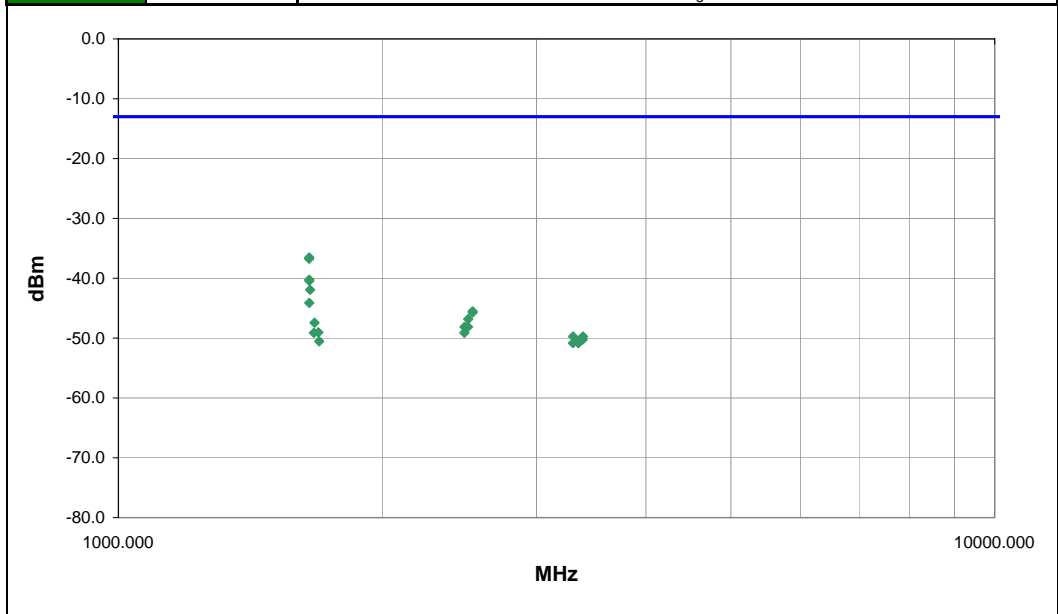
TEST PARAMETERS
Antenna Height(s) (m) 1 - 4 Test Distance (m) 3

COMMENTS
None

EUT OPERATING MODES
Transmitting Cell band V WCDMA

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	8	Signature 
Configuration #	1	
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1651.440	133.0	1.0	V-Horn	PK	2.22E-07	-36.5	-13.0	-23.5	Low channel EUT on side
1650.240	67.0	1.3	H-Horn	PK	2.12E-07	-36.7	-13.0	-23.7	Low channel EUT on side
1651.440	247.0	1.0	V-Horn	PK	9.49E-08	-40.2	-13.0	-27.2	Low channel EUT vertical
1651.133	136.0	1.0	V-Horn	PK	9.06E-08	-40.4	-13.0	-27.4	Low channel EUT on side
1654.467	341.0	1.3	H-Horn	PK	6.41E-08	-41.9	-13.0	-28.9	Low channel EUT on side
1651.480	299.0	1.3	H-Horn	PK	3.86E-08	-44.1	-13.0	-31.1	Low channel EUT vertical
2536.620	217.0	1.5	H-Horn	PK	2.80E-08	-45.5	-13.0	-32.5	High channel EUT on side
2536.720	181.0	1.0	V-Horn	PK	2.67E-08	-45.7	-13.0	-32.7	High channel EUT on side
2507.150	250.0	1.0	V-Horn	PK	2.08E-08	-46.8	-13.0	-33.8	Mid channel EUT on side
1674.317	286.0	1.0	H-Horn	PK	1.81E-08	-47.4	-13.0	-34.4	Mid channel EUT on side
2482.537	202.0	1.0	V-Horn	PK	1.54E-08	-48.1	-13.0	-35.1	Low channel EUT on side
2505.860	216.0	1.3	H-Horn	PK	1.54E-08	-48.1	-13.0	-35.1	Mid channel EUT on side
1691.520	185.0	2.2	V-Horn	PK	1.25E-08	-49.0	-13.0	-36.0	High channel EUT on side
1671.217	194.0	1.3	V-Horn	PK	1.22E-08	-49.1	-13.0	-36.1	Mid channel EUT on side
2482.030	223.0	1.0	H-Horn	PK	1.22E-08	-49.1	-13.0	-36.1	Low channel EUT on side
3303.120	119.0	1.0	H-Horn	PK	1.06E-08	-49.7	-13.0	-36.7	Low channel EUT on side
3390.340	280.0	1.0	H-Horn	PK	1.06E-08	-49.7	-13.0	-36.7	High channel EUT on side
3387.220	6.0	1.0	V-Horn	PK	9.49E-09	-50.2	-13.0	-37.2	High channel EUT on side
3352.740	164.0	1.0	V-Horn	PK	9.06E-09	-50.4	-13.0	-37.4	Mid channel EUT on side
1694.920	257.0	1.0	H-Horn	PK	8.85E-09	-50.5	-13.0	-37.5	High channel EUT on side

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 01/07/11
Customer: Intermec Technologies Corporation	Temperature: 21.1
Attendees: None	Humidity: 35%
Project: None	Barometric Pres.: 1020
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV12

TEST SPECIFICATIONS	
FCC 22H:2011	Test Method TIA/EIA-603-B:2002

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	0

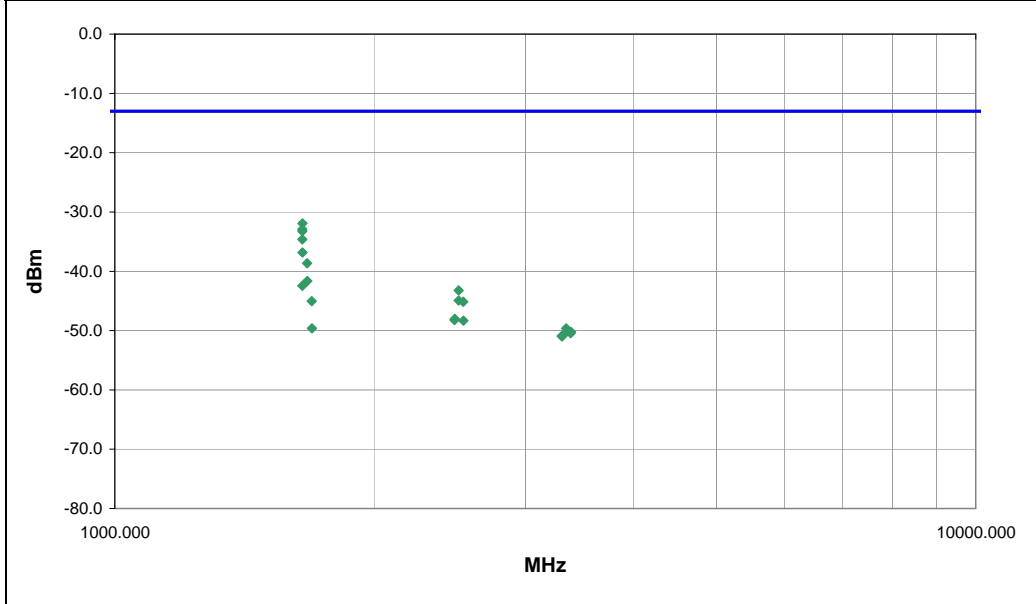
COMMENTS
None

EUT OPERATING MODES
Transmitting UMS HSPA cell band V

DEVIATIONS FROM TEST STANDARC
No deviations.

Run #	10
Configuration #	1
Results	Pass

[Signature]
Signature



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1652.250	162.0	1.0	V-Horn	PK	6.41E-07	-31.9	-13.0	-18.9	Low channel EUT back
1651.033	283.0	1.0	V-Horn	PK	5.09E-07	-32.9	-13.0	-19.9	Low channel EUT vertical
1651.467	214.0	1.8	H-Horn	PK	4.75E-07	-33.2	-13.0	-20.2	Low channel EUT back
1651.550	343.0	1.0	H-Horn	PK	3.44E-07	-34.6	-13.0	-21.6	Low channel EUT vertical
1651.717	78.0	1.0	V-Horn	PK	2.08E-07	-36.8	-13.0	-23.8	Low channel EUT side
1672.500	162.0	1.0	V-Horn	PK	1.37E-07	-38.6	-13.0	-25.6	Mid channel EUT on back
1673.467	197.0	2.4	H-Horn	PK	6.87E-08	-41.6	-13.0	-28.6	Mid channel EUT on back
1651.300	24.0	2.2	H-Horn	PK	5.72E-08	-42.4	-13.0	-29.4	Low channel EUT side
2508.450	313.0	1.0	H-Horn	PK	4.75E-08	-43.2	-13.0	-30.2	Mid channel EUT on back
2507.717	281.0	1.0	V-Horn	PK	3.21E-08	-44.9	-13.0	-31.9	Mid channel EUT on back
1693.683	167.0	1.0	V-Horn	PK	3.14E-08	-45.0	-13.0	-32.0	High channel EUT on back
2539.867	316.0	1.0	H-Horn	PK	3.07E-08	-45.1	-13.0	-32.1	High channel EUT on back
2482.517	307.0	1.0	H-Horn	PK	1.57E-08	-48.0	-13.0	-35.0	Low channel EUT on back
2480.333	215.0	1.0	V-Horn	PK	1.50E-08	-48.2	-13.0	-35.2	Low channel EUT on back
2540.617	339.0	1.9	V-Horn	PK	1.47E-08	-48.3	-13.0	-35.3	High channel EUT on back
3344.350	235.0	1.0	V-Horn	PK	1.09E-08	-49.6	-13.0	-36.6	Mid channel EUT on back
1693.950	42.0	1.0	H-Horn	PK	1.09E-08	-49.6	-13.0	-36.6	High channel EUT on back
3349.917	71.0	2.6	H-Horn	PK	9.71E-09	-50.1	-13.0	-37.1	Mid channel EUT on back
3388.117	80.0	1.0	V-Horn	PK	9.49E-09	-50.2	-13.0	-37.2	High channel EUT on back
3384.283	128.0	2.9	H-Horn	PK	9.06E-09	-50.4	-13.0	-37.4	High channel EUT on back

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

Cell Band V UMTS HSPA
 Cell Band V WCDMA Rel99
 Cell Band EGPRS (EDGE) single slot
 Cell Band GPRS (GMSK) single slot,

POWER SETTINGS INVESTIGATED

5VDC

FREQUENCY RANGE INVESTIGATED

Start Frequency	824MHz	Stop Frequency	849MHz
-----------------	--------	----------------	--------

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
Signal Generator	Agilent	E8257D	TGX	12/10/2008	25
e-Amplifier (FOR REFERENCE ONLY)	Hewlett-Packard	83017A	APL	NCR	0
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	24
EV01 Cables	N/A	Bilog Cables	EVA	7/9/2010	13
Antenna, Biconilog	EMCO	3141	AXE	1/14/2010	13
Spectrum Analyzer	Agilent	E4446A	AAQ	1/6/2010	12

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. The 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.

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 12/27/10
Customer: Intermec Technologies Corporation	Temperature: 20.43
Attendees: none	Humidity: 35%
Project: None	Barometric Pres.: 1023
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV01

TEST SPECIFICATIONS		Test Method
FCC 22H:2010		TIA/EIA-603-B:2002

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

COMMENTS

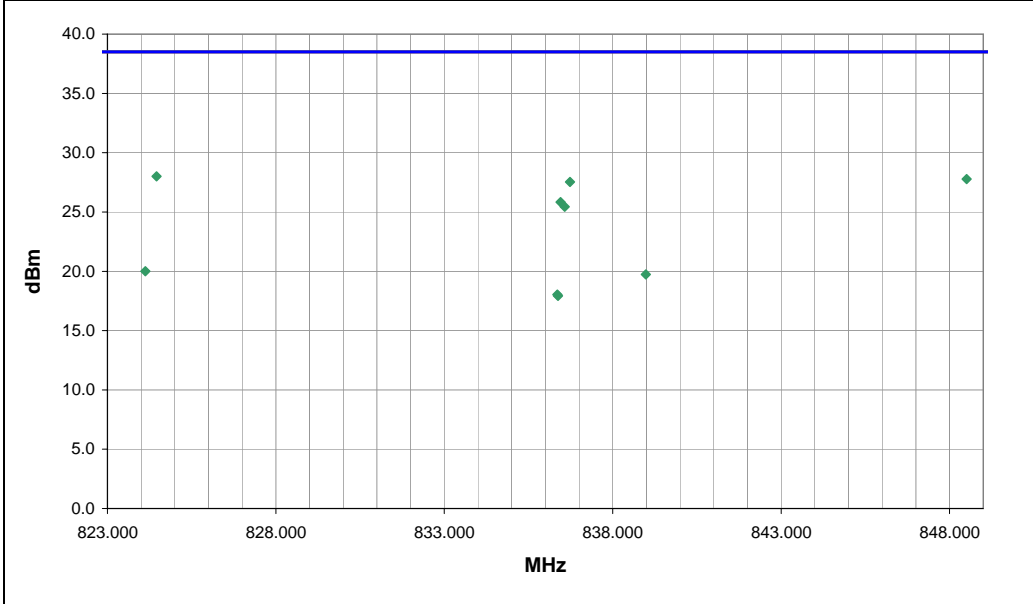
EUT OPERATING MODES

Cell Band GPRS (GMSK) single slot,
DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	2
Configuration #	1
Results	Pass

Signature



Freq (MHz)	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
824.458	6.32E-01	28.0	38.5	-10.5	Low channel EUT Vertical
848.508	6.00E-01	27.8	38.5	-10.7	High Channel EUT Vertical
836.733	5.68E-01	27.5	38.5	-11.0	Mid Channel EUT Vertical
836.450	3.84E-01	25.8	38.5	-12.7	Mid Channel EUT On Back
836.575	3.50E-01	25.4	38.5	-13.1	Mid Channel EUT On Side
849.083	1.77E-01	22.5	38.5	-16.0	High Channel EUT On Side
824.125	1.00E-01	20.0	38.5	-18.5	Low Channel EUT On Side
838.983	9.42E-02	19.7	38.5	-18.8	Mid Channel EUT On Side
836.358	6.37E-02	18.0	38.5	-20.5	Mid Channel EUT Vertical
836.375	6.21E-02	17.9	38.5	-20.6	Mid Channel EUT On Back

EUT: RW10	Work Order: INMC0656
Serial Number: 01247900038036	Date: 12/28/10
Customer: Intermec Technologies Corporation	Temperature: 20.97
Attendees: none	Humidity: 40%
Project: None	Barometric Pres.: 1008.4
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV01

TEST SPECIFICATIONS		Test Method
FCC 22H:2010		TIA/EIA-603-B:2002

TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	0

COMMENTS

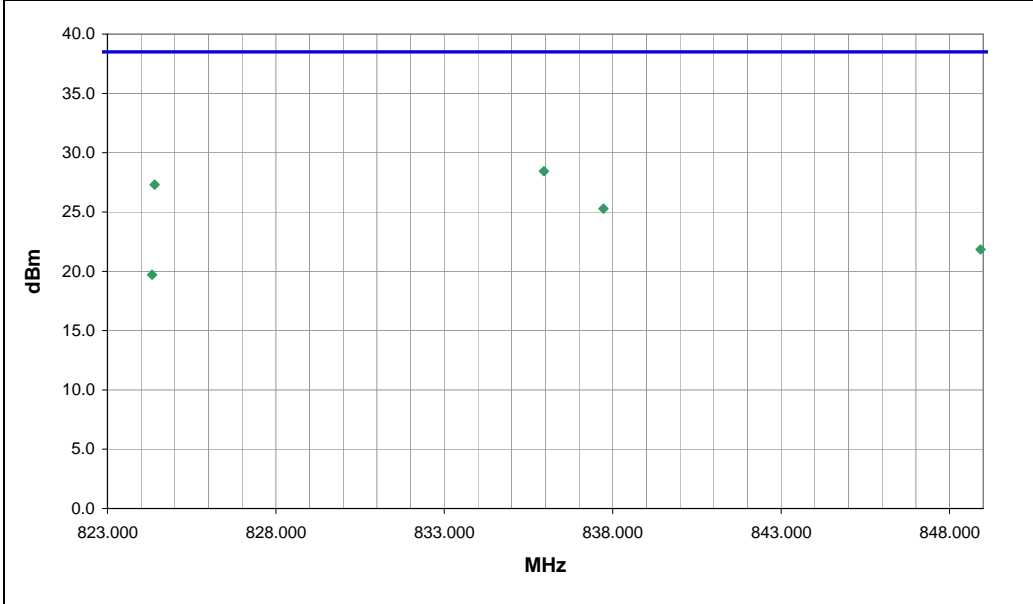
EUT OPERATING MODES

Cell Band EGPRS (EDGE) single slot

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	3	Signature 
Configuration #	1	
Results	Pass	



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
835.958			100.0	1.0			H-Bilog	PK	6.98E-01	28.4	38.5	-10.1	Mid Channel EUT Vertical
824.400			176.0	1.0			H-Bilog	PK	5.38E-01	27.3	38.5	-11.2	Low Channel EUT Vertical
849.725			130.0	1.1			H-Bilog	PK	3.96E-01	26.0	38.5	-12.5	High Channel EUT Vertical
837.725			87.0	1.0			V-Bilog	PK	3.37E-01	25.3	38.5	-13.2	Mid Channel EUT On Side
848.917			87.0	1.0			V-Bilog	PK	1.53E-01	21.8	38.5	-16.7	High Channel EUT On Side
824.325			84.0	1.8			V-Bilog	PK	9.35E-02	19.7	38.5	-18.8	Low Channel EUT On Side

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 12/28/10
Customer: Intermec Technologies Corporation	Temperature: 20.97
Attendees: none	Humidity: 40%
Project: None	Barometric Pres.: 1008.4
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV01

TEST SPECIFICATIONS		Test Method
FCC 22H:2010		TIA/EIA-603-B:2002

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

COMMENTS

EUT OPERATING MODES

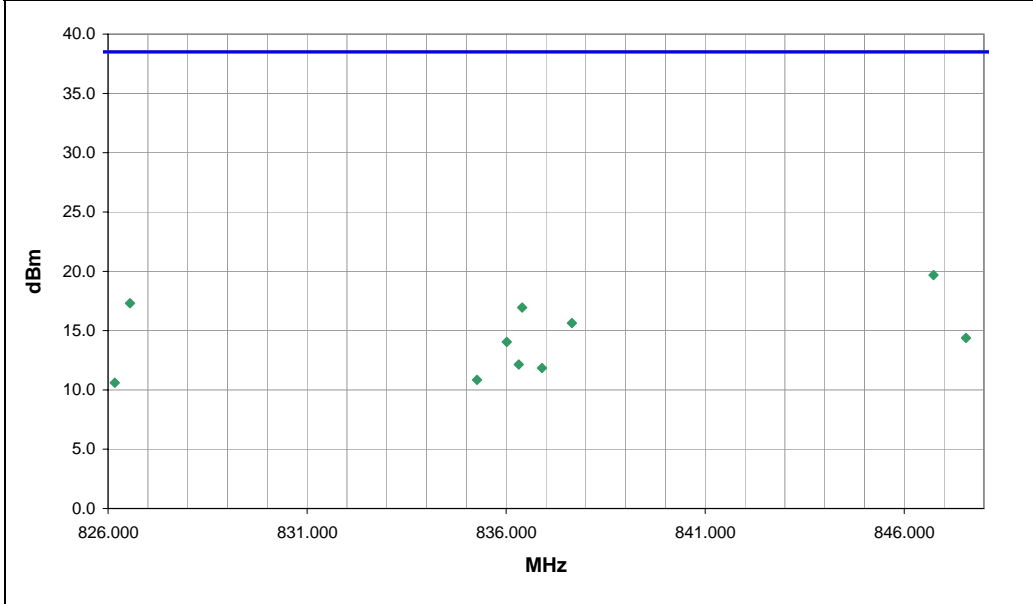
Cell Band V WCDMA Rel99

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
846.733	147.0	1.0	H-Bilog	PK	9.28E-02	19.7	38.5	-18.8	High Channel EUT Vertical
826.550	145.0	1.0	H-Bilog	PK	5.38E-02	17.3	38.5	-21.2	Low Channel EUT Vertical
836.400	106.0	1.1	H-Bilog	PK	4.94E-02	16.9	38.5	-21.6	Mid Channel EUT Vertical
837.650	333.0	1.0	H-Bilog	PK	3.66E-02	15.6	38.5	-22.9	Mid Channel EUT On Back
847.550	217.0	1.2	V-Bilog	PK	2.74E-02	14.4	38.5	-24.1	High Channel EUT Vertical
836.017	8.0	1.5	V-Bilog	PK	2.54E-02	14.0	38.5	-24.5	Mid Channel EUT Vertical
836.317	157.0	1.3	V-Bilog	PK	1.64E-02	12.1	38.5	-26.4	Mid Channel EUT On Side
836.900	352.0	1.2	V-Bilog	PK	1.53E-02	11.8	38.5	-26.7	Mid Channel EUT On Back
835.267	120.0	1.1	H-Bilog	PK	1.21E-02	10.8	38.5	-27.7	Mid Channel EUT On Side
826.167	105.0	1.4	V-Bilog	PK	1.15E-02	10.6	38.5	-27.9	Low Channel EUT Vertical

EMC

Effective Radiated Power (ERP)

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 12/28/10
Customer: Intermec Technologies Corporation	Temperature: 20.97
Attendees: none	Humidity: 40%
Project: None	Barometric Pres.: 1008.4
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV01

TEST SPECIFICATIONS		Test Method
FCC 22H:2010		TIA/EIA-603-B:2002

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

COMMENTS

EUT OPERATING MODES

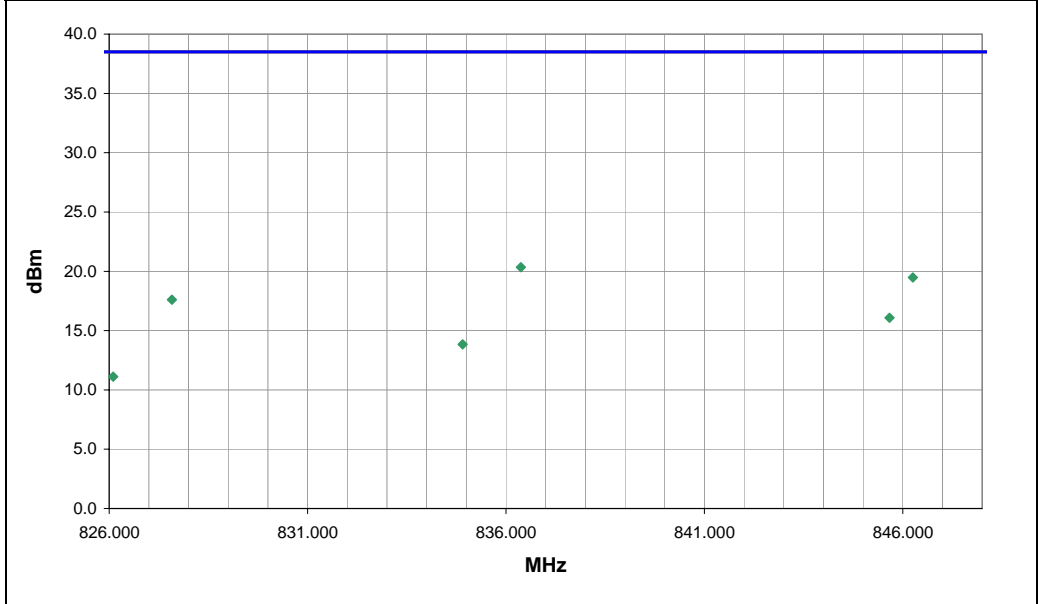
Cell Band V UMTS HSPA

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	5
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
836.373	144.0	1.0	H-Bilog	PK	1.08E-01	20.3	38.5	-18.2	Mid Channel EUT Vertical
846.253	155.0	1.0	H-Bilog	PK	8.87E-02	19.5	38.5	-19.0	High Channel EUT Vertical
827.580	138.0	1.0	H-Bilog	PK	5.77E-02	17.6	38.5	-20.9	Low Channel EUT Vertical
845.667	47.0	1.5	V-Bilog	PK	4.05E-02	16.1	38.5	-22.4	High Channel EUT Vertical
834.907	131.0	1.3	V-Bilog	PK	2.42E-02	13.8	38.5	-24.7	Mid Channel EUT Vertical
826.100	93.0	1.4	V-Bilog	PK	1.29E-02	11.1	38.5	-27.4	Low Channel EUT Vertical

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 INVESTIGATED

Transmitting UMTS HSPA cell band V
Transmitting WCDMA Rel 99, Band II
Transmitting Cell band V WCDMA
Transmitting PCS 1900 EGPRS (GMSK)
Transmitting PCS 1900 GPRS (GMSK)
Transmitting EGPRS
Transmitting GPRS

Channels Tested

Ch. 512, 1850.2MHz
Ch. 661, 1880MHz
Ch 810, 1909.8MHz
Ch. 9262, 1852.4MHz
Ch. 9400, 1880MHz
Ch. 9538, 1907.6MHz

POWER SETTINGS INVESTIGATED

5VDC

FREQUENCY RANGE INVESTIGATED

Start Frequency	30MHz	Stop Frequency	20GHz
-----------------	-------	----------------	-------

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	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 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 placed on a remotely controlled turntable, and the measurement antenna is placed 3 meters from the transmitter. The turntable azimuth is varied to maximize the level of 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.

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 01/06/11
Customer: Intermec Technologies Corporation	Temperature: 21.1
Attendees: None	Humidity: 35%
Project: None	Barometric Pres.: 1020
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV12

TEST SPECIFICATIONS	
FCC 24E:2011	Test Method TIA/EIA-603-B:2002

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

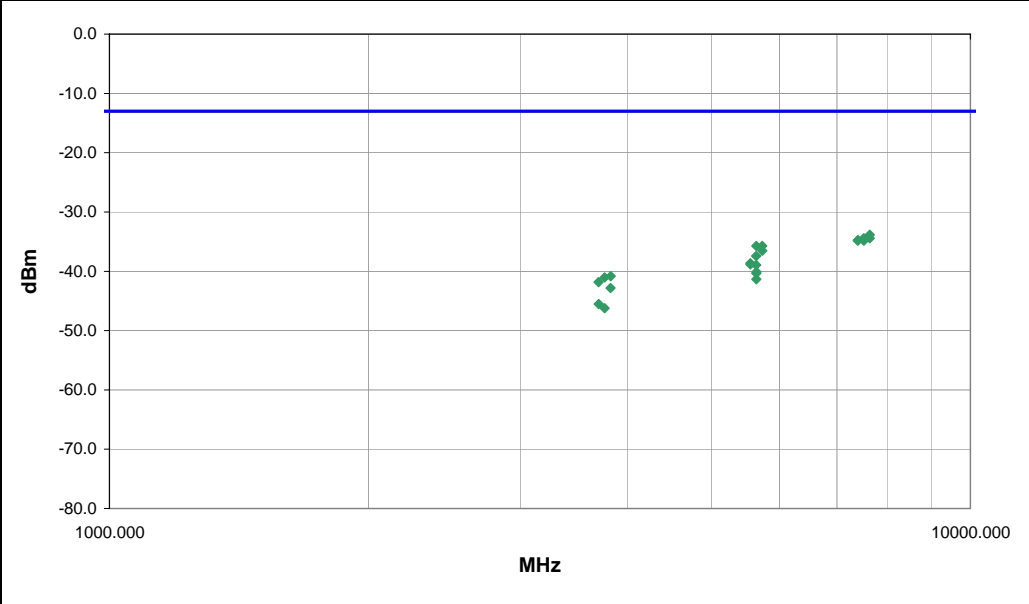
COMMENTS
None

EUT OPERATING MODES
Transmitting PCS 1900 GPRS (GMSK)

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
7641.325	0.0	2.0	V-Horn	PK	4.14E-07	-33.8	-13.0	-20.8	High channel EUT vertical
7520.325	78.0	1.0	H-Horn	PK	3.61E-07	-34.4	-13.0	-21.4	Mid channel EUT on side
7639.408	240.0	1.0	H-Horn	PK	3.61E-07	-34.4	-13.0	-21.4	High channel EUT On side
7402.083	357.0	1.9	V-Horn	PK	3.37E-07	-34.7	-13.0	-21.7	Low channel EUT On side
7519.708	123.0	1.4	H-Horn	PK	3.29E-07	-34.8	-13.0	-21.8	Mid channel EUT vertical
7399.783	360.0	2.0	V-Horn	PK	3.29E-07	-34.8	-13.0	-21.8	Low channel EUT vertical
5640.958	225.0	1.0	H-Horn	PK	2.67E-07	-35.7	-13.0	-22.7	Mid channel EUT on side
5730.333	182.0	1.0	H-Horn	PK	2.67E-07	-35.7	-13.0	-22.7	High channel EUT On side
5729.967	188.0	1.0	V-Horn	PK	2.22E-07	-36.5	-13.0	-23.5	High channel EUT vertical
5639.575	325.0	1.0	H-Horn	PK	1.81E-07	-37.4	-13.0	-24.4	Mid channel EUT on back
5551.183	272.0	1.0	V-Horn	PK	1.37E-07	-38.6	-13.0	-25.6	Low channel EUT vertical
5552.400	326.0	1.6	V-Horn	PK	1.31E-07	-38.8	-13.0	-25.8	Low channel EUT On side
5639.475	225.0	1.2	V-Horn	PK	1.28E-07	-38.9	-13.0	-25.9	Mid channel EUT Vertical
5642.392	124.0	1.0	H-Horn	PK	9.71E-08	-40.1	-13.0	-27.1	Mid channel EUT Vertical
5639.917	349.0	1.0	V-Horn	PK	9.27E-08	-40.3	-13.0	-27.3	Mid channel EUT on back
3820.767	199.0	1.4	V-Horn	PK	8.26E-08	-40.8	-13.0	-27.8	High channel EUT vertical
3760.592	345.0	1.3	H-Horn	PK	7.89E-08	-41.0	-13.0	-28.0	Mid channel EUT vertical
5641.925	251.0	1.2	V-Horn	PK	7.36E-08	-41.3	-13.0	-28.3	Mid channel EUT on side
3699.683	166.0	1.0	V-Horn	PK	6.56E-08	-41.8	-13.0	-28.8	Low channel EUT vertical
3819.233	192.0	1.0	H-Horn	PK	5.21E-08	-42.8	-13.0	-29.8	High channel EUT On side

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 01/06/11
Customer: Intermec Technologies Corporation	Temperature: 21.1
Attendees: None	Humidity: 35%
Project: None	Barometric Pres.: 1020
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV12

TEST SPECIFICATIONS	
FCC 24E:2011	Test Method TIA/EIA-603-B:2002

TEST PARAMETERS	
Antenna Height(s) (m)	1 - 4
Test Distance (m)	0

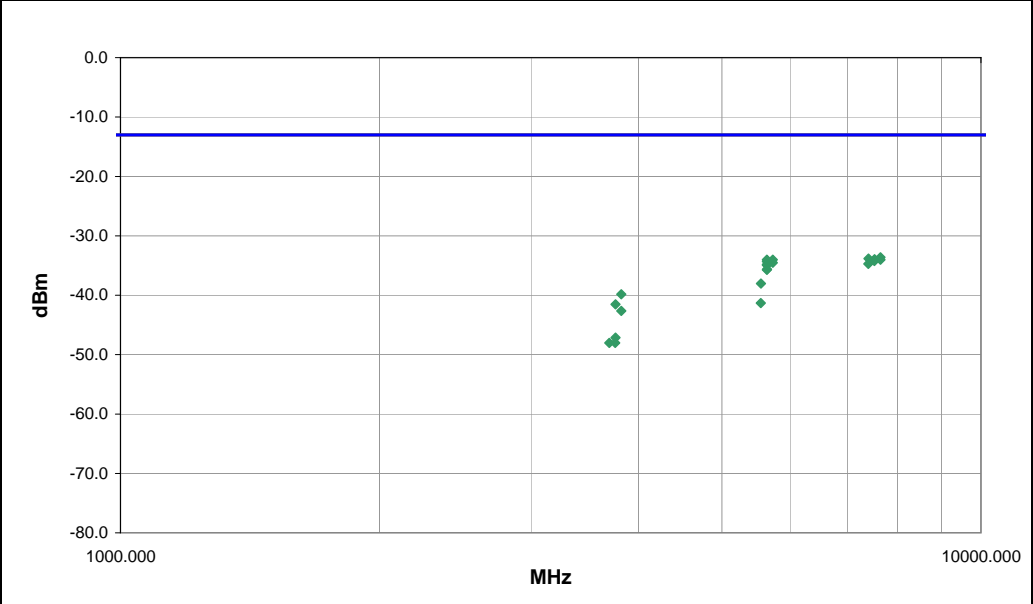
COMMENTS
None

EUT OPERATING MODES
Transmitting PCS 1900 EGPRS (GMSK)

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	5
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
7641.667	202.0	1.0	V-Horn	PK	4.34E-07	-33.6	-13.0	-20.6	High channel EUT Vertical
7402.292	274.0	3.4	H-Horn	PK	4.14E-07	-33.8	-13.0	-20.8	Low channel EUT on side
7521.425	325.0	1.0	V-Horn	PK	4.05E-07	-33.9	-13.0	-20.9	Mid channel EUT vertical
5729.467	192.0	1.0	H-Horn	PK	3.95E-07	-34.0	-13.0	-21.0	High channel EUT on side
7641.575	238.0	1.0	H-Horn	PK	3.95E-07	-34.0	-13.0	-21.0	High channel EUT on side
5640.142	179.0	1.6	H-Horn	PK	3.95E-07	-34.0	-13.0	-21.0	Mid channel EUT on side
7517.592	22.0	1.0	H-Horn	PK	3.78E-07	-34.2	-13.0	-21.2	Mid channel EUT on side
5639.733	160.0	1.6	H-Horn	PK	3.69E-07	-34.3	-13.0	-21.3	Mid channel EUT vertical
5729.625	175.0	1.0	V-Horn	PK	3.52E-07	-34.5	-13.0	-21.5	High channel EUT Vertical
7398.617	12.0	1.9	V-Horn	PK	3.37E-07	-34.7	-13.0	-21.7	Low channel EUT Vertical
5640.108	240.0	1.6	H-Horn	PK	3.29E-07	-34.8	-13.0	-21.8	Mid channel EUT on back
5639.750	122.0	1.4	V-Horn	PK	3.21E-07	-34.9	-13.0	-21.9	Mid channel EUT vertical
5640.308	195.0	1.4	V-Horn	PK	2.74E-07	-35.6	-13.0	-22.6	Mid channel EUT on side
5639.833	117.0	1.4	V-Horn	PK	2.67E-07	-35.7	-13.0	-22.7	Mid channel EUT on back
5550.925	196.0	1.0	H-Horn	PK	1.57E-07	-38.0	-13.0	-25.0	Low channel EUT on side
3819.192	162.0	1.0	H-Horn	PK	1.04E-07	-39.8	-13.0	-26.8	High channel EUT on side
5548.933	251.0	1.0	V-Horn	PK	7.36E-08	-41.3	-13.0	-28.3	Low channel EUT Vertical
3760.233	157.0	1.0	V-Horn	PK	7.03E-08	-41.5	-13.0	-28.5	Mid channel EUT vertical
3819.275	258.0	1.0	V-Horn	PK	5.46E-08	-42.6	-13.0	-29.6	High channel EUT Vertical
3760.325	91.0	1.2	H-Horn	PK	1.94E-08	-47.1	-13.0	-34.1	Mid channel EUT on side

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 01/07/11
Customer: Intermec Technologies Corporation	Temperature: 21.1
Attendees: None	Humidity: 35%
Project: None	Barometric Pres.: 1021
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV12

TEST SPECIFICATIONS	
FCC 24E:2011	Test Method TIA/EIA-603-B:2002

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

COMMENTS
None

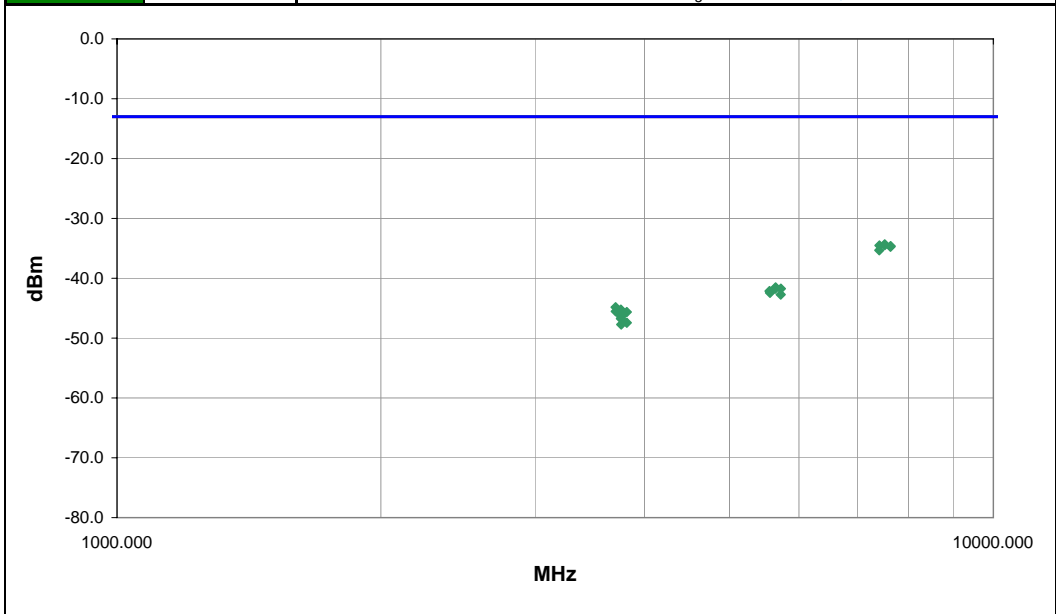
EUT OPERATING MODES

Transmitting WCDMA Rel 99, Band II

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	9	Signature 
Configuration #	1	
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
7517.383	180.0	1.0	H-Horn	PK	3.69E-07	-34.3	-13.0	-21.3	Mid channel EUT vertical
7520.833	224.0	2.7	V-Horn	PK	3.61E-07	-34.4	-13.0	-21.4	Mid channel EUT vertical
7413.350	282.0	1.0	V-Horn	PK	3.52E-07	-34.5	-13.0	-21.5	Low channel EUT vertical
7634.967	196.0	1.2	V-Horn	PK	3.44E-07	-34.6	-13.0	-21.6	High channel EUT vertical
7631.983	254.0	2.9	H-Horn	PK	3.37E-07	-34.7	-13.0	-21.7	High channel EUT vertical
7409.967	180.0	1.0	H-Horn	PK	2.93E-07	-35.3	-13.0	-22.3	Low channel EUT vertical
5643.717	328.0	1.0	H-Horn	PK	7.03E-08	-41.5	-13.0	-28.5	Mid channel EUT vertical
5638.017	274.0	2.8	V-Horn	PK	6.72E-08	-41.7	-13.0	-28.7	Mid channel EUT vertical
5721.650	205.0	1.0	H-Horn	PK	6.72E-08	-41.7	-13.0	-28.7	High channel EUT vertical
5554.250	300.0	1.0	H-Horn	PK	6.13E-08	-42.1	-13.0	-29.1	Low channel EUT vertical
5559.683	0.0	2.0	V-Horn	PK	5.72E-08	-42.4	-13.0	-29.4	Low channel EUT vertical
5719.417	9.0	1.0	V-Horn	PK	5.33E-08	-42.7	-13.0	-29.7	High channel EUT vertical
3706.717	145.0	1.0	V-Horn	PK	3.29E-08	-44.8	-13.0	-31.8	Low channel EUT vertical
3758.117	329.0	1.0	H-Horn	PK	3.00E-08	-45.2	-13.0	-32.2	Mid channel EUT vertical
3758.867	230.0	1.6	V-Horn	PK	2.86E-08	-45.4	-13.0	-32.4	Mid channel EUT vertical
3706.967	233.0	1.0	H-Horn	PK	2.80E-08	-45.5	-13.0	-32.5	Low channel EUT vertical
3817.583	285.0	1.0	V-Horn	PK	2.74E-08	-45.6	-13.0	-32.6	High channel EUT vertical
3758.150	9.0	1.0	H-Horn	PK	2.50E-08	-46.0	-13.0	-33.0	Mid channel EUT on back
3761.150	6.0	1.6	V-Horn	PK	2.28E-08	-46.4	-13.0	-33.4	Mid channel EUT on side
3758.367	83.0	1.0	H-Horn	PK	2.12E-08	-46.7	-13.0	-33.7	Mid channel EUT on side

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 01/07/11
Customer: Intermec Technologies Corporation	Temperature: 21.1
Attendees: None	Humidity: 35%
Project: None	Barometric Pres.: 1020
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV12

TEST SPECIFICATIONS		Test Method	
FCC 24E:2011		TIA/EIA-603-B:2002	

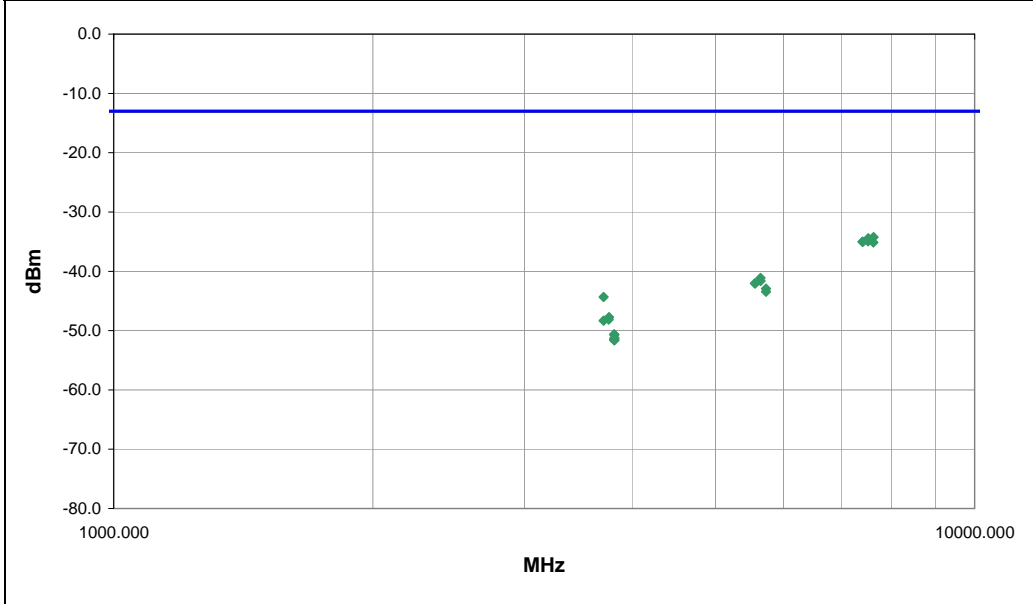
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	0

COMMENTS
None

EUT OPERATING MODES
Transmitting WCDMA Rel 99, Band II

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	13	 Signature
Configuration #	1	
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
7629.942	177.0	1.0	V-Horn	PK	3.78E-07	-34.2	-13.0	-21.2	High Channel EUT vertical
7522.450	42.0	1.0	H-Horn	PK	3.61E-07	-34.4	-13.0	-21.4	Mid Channel EUT on side
7520.350	30.0	1.0	V-Horn	PK	3.21E-07	-34.9	-13.0	-21.9	Mid Channel EUT vertical
7410.958	132.0	3.0	V-Horn	PK	3.14E-07	-35.0	-13.0	-22.0	Low Channel EUT vertical
7411.858	96.0	1.0	H-Horn	PK	3.14E-07	-35.0	-13.0	-22.0	Low Channel EUT on side
7627.967	159.0	1.0	H-Horn	PK	3.07E-07	-35.1	-13.0	-22.1	High Channel EUT on side
5640.242	194.0	1.0	H-Horn	PK	7.71E-08	-41.1	-13.0	-28.1	Mid Channel EUT on side
5640.025	359.0	2.0	V-Horn	PK	6.87E-08	-41.6	-13.0	-28.6	Mid Channel EUT vertical
5555.950	253.0	1.0	H-Horn	PK	6.27E-08	-42.0	-13.0	-29.0	Low Channel EUT on side
5559.417	225.0	1.0	V-Horn	PK	6.27E-08	-42.0	-13.0	-29.0	Low Channel EUT vertical
5724.425	170.0	1.0	V-Horn	PK	5.09E-08	-42.9	-13.0	-29.9	High Channel EUT vertical
5722.917	146.0	2.3	H-Horn	PK	4.54E-08	-43.4	-13.0	-30.4	High Channel EUT on side
3706.483	143.0	1.0	H-Horn	PK	3.69E-08	-44.3	-13.0	-31.3	Low Channel EUT on side
3760.708	95.0	1.0	H-Horn	PK	1.69E-08	-47.7	-13.0	-34.7	Mid Channel EUT on side
3758.667	171.0	1.0	V-Horn	PK	1.54E-08	-48.1	-13.0	-35.1	Mid Channel EUT vertical
3706.850	0.0	2.4	V-Horn	PK	1.47E-08	-48.3	-13.0	-35.3	Low Channel EUT vertical
3813.892	62.0	1.0	V-Horn	PK	8.65E-09	-50.6	-13.0	-37.6	High Channel EUT vertical
3815.125	42.0	3.1	H-Horn	PK	8.46E-09	-50.7	-13.0	-37.7	High Channel EUT on side
3817.183	78.0	1.0	V-Horn	PK	7.54E-09	-51.2	-13.0	-38.2	High Channel EUT on back
3813.167	117.0	1.0	V-Horn	PK	7.20E-09	-51.4	-13.0	-38.4	High Channel EUT on side

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

PCS UMTS HSPA Band 2
PCS WCDMA Rel99 Band 2
PCS 1900 GPRS (EDGE)
PCS 1900 GPRS (GMSK)

POWER SETTINGS INVESTIGATED

5VDC

FREQUENCY RANGE INVESTIGATED

Start Frequency	1849MHz	Stop Frequency	1910MHz
-----------------	---------	----------------	---------

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
Signal Generator	Agilent	E8257D	TGX	12/10/2008	25
Power Sensor	Gigatronics	80701A	SPL	1/7/2010	13
Power Meter	Gigatronics	8651A	SPM	1/7/2010	13
Antenna, Horn	EMCO	3115	AHE	10/22/2009	24
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	7/9/2010	13
Antenna, Horn	EMCO	3115	AHC	7/8/2010	24
Attenuator	S.M. Electronics	SA18N5W-06	AWP	2/15/2010	13
Spectrum Analyzer	Agilent	E4446A	AAQ	1/6/2010	12

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.

EMC Effective Radiated Power (EIRP)

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 12/29/10
Customer: Intermec Technologies Corporation	Temperature: 20.97
Attendees: none	Humidity: 40%
Project: None	Barometric Pres.: 1008.4
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV01

TEST SPECIFICATIONS		Test Method
FCC 24E:2010		TIA/EIA-603-B:2002

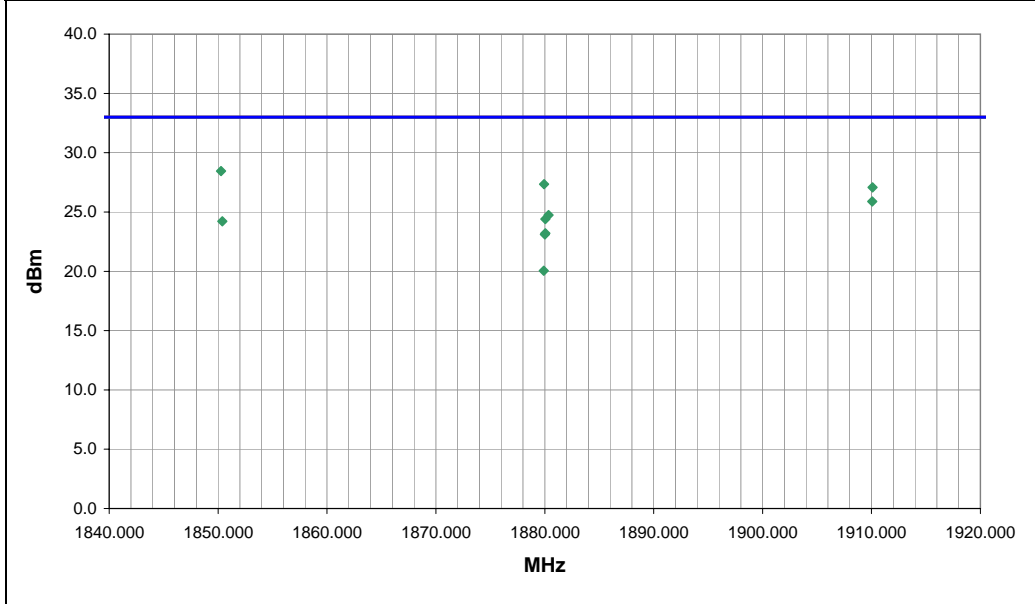
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	0

COMMENTS
None

EUT OPERATING MODES
PCS 1900 GPRS (GMSK)

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	6	 Signature
Configuration #	1	
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1850.275	186.0	1.0	H-Horn	PK	7.00E-01	28.4	33.0	-4.6	Low Channel EUT On Side
1879.933	184.0	1.0	H-Horn	PK	5.43E-01	27.3	33.0	-5.7	Mid Channel EUT On Side
1910.092	178.0	1.0	H-Horn	PK	5.10E-01	27.1	33.0	-5.9	High Channel EUT On Side
1910.075	279.0	1.0	V-Horn	PK	3.88E-01	25.9	33.0	-7.1	High Channel EUT On Back
1880.342	71.0	1.0	H-Horn	PK	2.98E-01	24.7	33.0	-8.3	Mid Channel EUT On Back
1880.058	78.0	1.4	V-Horn	PK	2.75E-01	24.4	33.0	-8.6	Mid Channel EUT On Back
1880.383	277.0	1.1	V-Horn	PK	2.64E-01	24.2	33.0	-8.8	Low Channel EUT On Back
1880.058	9.0	1.4	V-Horn	PK	2.09E-01	23.2	33.0	-9.8	Mid Channel EUT Vertical
1880.008	212.0	1.3	V-Horn	PK	2.05E-01	23.1	33.0	-9.9	Mid Channel EUT On Side
1879.908	319.0	1.0	H-Horn	PK	1.01E-01	20.0	33.0	-13.0	Mid Channel EUT Vertical

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 12/29/10
Customer: Intermec Technologies Corporation	Temperature: 20.97
Attendees: none	Humidity: 40%
Project: None	Barometric Pres.: 1008.4
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV01

TEST SPECIFICATIONS		Test Method
FCC 24E:2010		TIA/EIA-603-B:2002

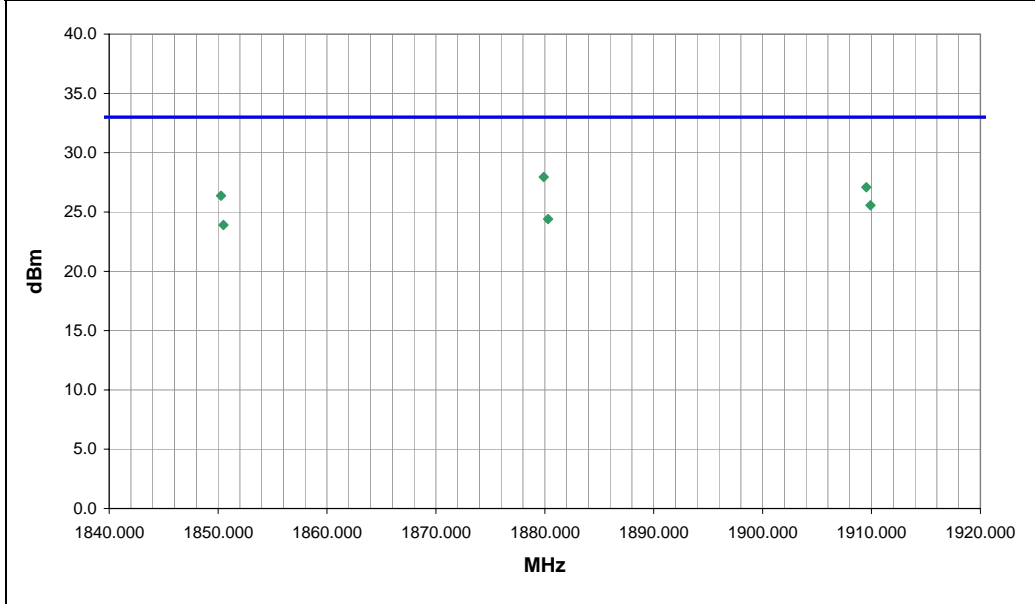
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS
None

EUT OPERATING MODES
PCS 1900 GPRS (EDGE)

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	7	 Signature
Configuration #	1	
Results	Pass	



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1879.900	213.0	1.0	H-Horn	PK	6.23E-01	27.9	33.0	-5.1	Mid Channel EUT On Side
1909.517	182.0	1.0	H-Horn	PK	5.11E-01	27.1	33.0	-5.9	High Channel EUT On Side
1850.275	185.0	1.0	H-Horn	PK	4.34E-01	26.4	33.0	-6.6	Low Channel EUT On Side
1909.908	271.0	1.0	V-Horn	PK	3.60E-01	25.6	33.0	-7.4	High Channel EUT On Back
1880.300	322.0	1.2	V-Horn	PK	2.76E-01	24.4	33.0	-8.6	Mid Channel EUT On Side
1850.492	312.0	1.1	V-Horn	PK	2.46E-01	23.9	33.0	-9.1	Low Channel EUT On Back

EUT: RW10	Work Order: INMC0656
Serial Number: 012479000038036	Date: 12/29/10
Customer: Intermec Technologies Corporation	Temperature: 20.97
Attendees: none	Humidity: 40%
Project: None	Barometric Pres.: 1008.4
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV01

TEST SPECIFICATIONS		Test Method
FCC 24E:2010		TIA/EIA-603-B:2002

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

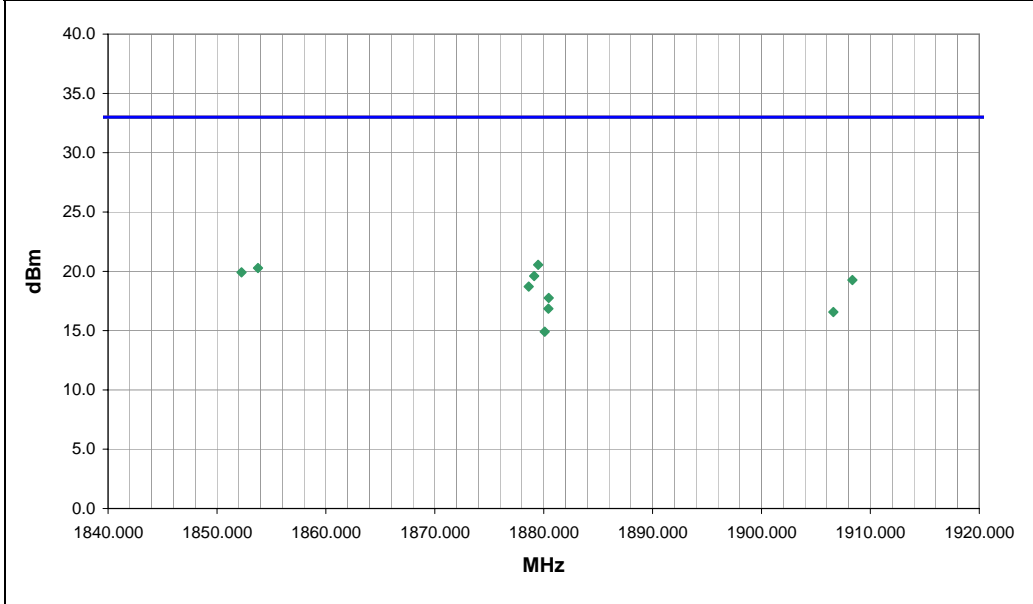
COMMENTS
None

EUT OPERATING MODES

PCS WCDMA Rel99 Band 2

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	8	 Signature
Configuration #	1	
Results	Pass	



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1879.493			172.0	1.0			H-Horn	PK	1.13E-01	20.5	33.0	-12.5	Mid Channel EUT On Side
1853.760			245.0	1.5			H-Horn	PK	1.06E-01	20.3	33.0	-12.7	Low Channel EUT On Side
1852.253			169.0	1.3			V-Horn	PK	9.79E-02	19.9	33.0	-13.1	Low Channel EUT Vertical
1879.133			175.0	1.2			V-Horn	PK	9.14E-02	19.6	33.0	-13.4	Mid Channel EUT Vertical
1908.347			169.0	1.2			V-Horn	PK	8.44E-02	19.3	33.0	-13.7	Low Channel EUT Vertical
1878.627			283.0	1.0			V-Horn	PK	7.43E-02	18.7	33.0	-14.3	Mid Channel EUT On Back
1880.467			291.0	1.4			H-Horn	PK	5.95E-02	17.7	33.0	-15.3	Mid Channel EUT Vertical
1880.440			276.0	1.0			H-Horn	PK	4.84E-02	16.8	33.0	-16.2	Mid Channel EUT On Back
1906.600			78.0	1.3			V-Horn	PK	4.53E-02	16.6	33.0	-16.4	High Channel EUT Vertical
1880.093			210.0	1.2			V-Horn	PK	3.10E-02	14.9	33.0	-18.1	Mid Channel EUT On Side

EUT: RW10	Work Order: INMC0656
Serial Number: 01247900038036	Date: 12/29/10
Customer: Intermec Technologies Corporation	Temperature: 20.97
Attendees: none	Humidity: 40%
Project: None	Barometric Pres.: 1008.4
Tested by: Travis Rychener	Power: 5VDC
	Job Site: EV01


TEST SPECIFICATIONS		Test Method
FCC 24E:2010		TIA/EIA-603-B:2002

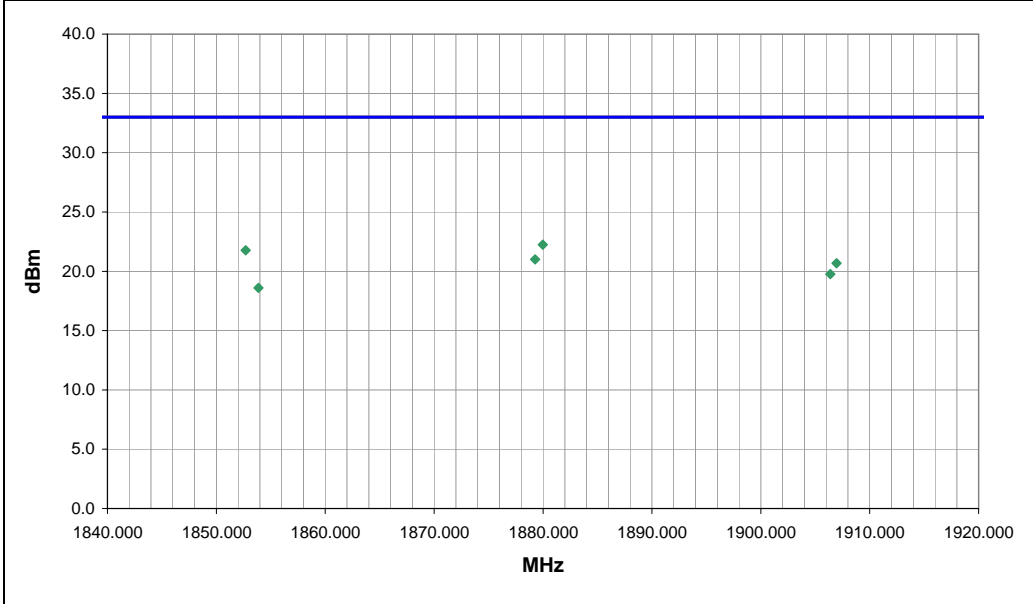
TEST PARAMETERS			
Antenna Height(s) (m)	1 - 4	Test Distance (m)	3

COMMENTS
None

EUT OPERATING MODES
PCS UMTS HSPA Band 2

DEVIATIONS FROM TEST STANDARD
No deviations.

Run #	9	 Signature
Configuration #	1	
Results	Pass	



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1879.973			242.0	1.6			H-Horn	PK	1.68E-01	22.2	33.0	-10.8	Mid Channel EUT On Side
1852.693			242.0	1.5			H-Horn	PK	1.50E-01	21.8	33.0	-11.2	Low Channel EUT On Side
1879.280			183.0	1.3			V-Horn	PK	1.26E-01	21.0	33.0	-12.0	Mid Channel EUT Vertical
1906.960			187.0	1.0			H-Horn	PK	1.17E-01	20.7	33.0	-12.3	High Channel EUT On Side
1906.373			181.0	1.2			V-Horn	PK	9.47E-02	19.8	33.0	-13.2	High Channel EUT Vertical
1853.867			156.0	1.3			V-Horn	PK	7.26E-02	18.6	33.0	-14.4	Low Channel EUT Vertical