Intermec Technologies Corporation

1000CP03C

Report #:INMC0686

Report Prepared By Northwest EMC Inc.

NORTHWEST EMC – (888) 364-2378 – www.nwemc.com

California – Minnesota – Oregon – New York – Washington

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Last Date of Test: September 26, 2011
Intermec Technologies Corporation
Model: 1000CP03C

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**

Deviations From Test Standards

None

Approved By:

Tim O'Shea, Operations Manager

NVLAP Lab Code: 200881-0

Test Facility

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

Northwest EMC, Inc.
9349 W Broadway Ave.
Brooklyn Park, MN 55445

Phone: (763) 425-2281 Fax: (763) 424-3469

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

Revision History

Revision Number	Description	Date	Page Number
00	None		

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-3265, 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/

Locations

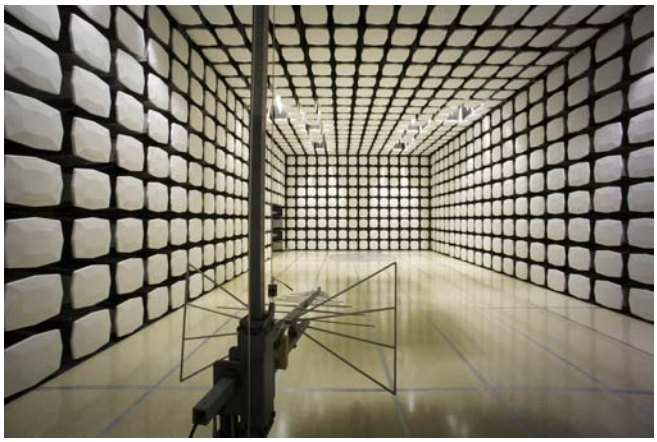
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

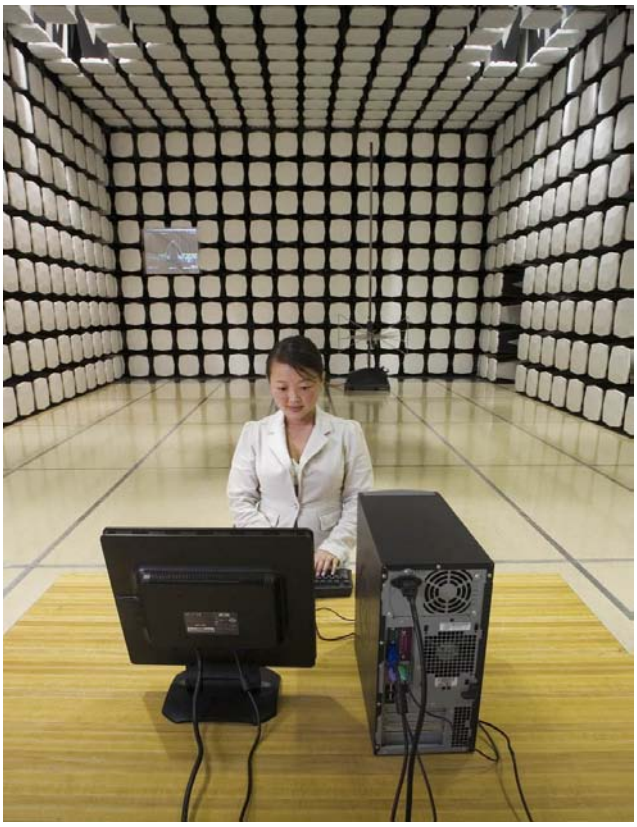
California
Labs OC01-OC13
41 Tesla
Irvine, CA 92618
(949) 861-8918

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





Product Description

Client and Equipment Under Test (EUT) Information

Company Name:	Intermec Technologies Corporation
Address:	6001 36th Avenue West
City, State, Zip:	Everett, WA 98203-1264
Test Requested By:	Sean MacKellar
Model:	1000CP03C
First Date of Test:	September 8, 2011
Last Date of Test:	September 26, 2011
Receipt Date of Samples:	September 8, 2011
Equipment Design Stage:	Production
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
Handheld Computer

Testing Objective:
To demonstrate compliance to the radiated power and radiated out of band emissions requirements of FCC 22H and FCC 24E.

Configurations

Configuration 1 INMC0686

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CN70	Intermec Technologies Corporation	1000CP03C	14621142024

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply	Intermec Technologies Corporation	9001AE02	36161000660

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Power	No	1.8m	No	Power Supply	AC Mains
DC Power	No	1.8m	No	CN70	Power Supply
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Configuration 2 INMC0686

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CN70	Intermec Technologies Corporation	1000CP03C	14621142024

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Power Supply Snap-On	Intermec Technologies Corporation	9001AE01	3166100184
Snap-On Adapter	Intermec Technologies Corporation	A3	225-768-001

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

Modifications

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	9/8/2011	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.
2	9/9/2011	Out of Band Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	9/27/2011	Effective Radiated Power (ERP)	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 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. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting, All Bits Up. EV-DO Rel A or CDMA 1xRTT RC3 SO55 (See Comments).

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

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FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	10 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
Universal Radio Communication Tester	Rhode & Schwarz	CMU200	BSU	NCR	0 mo
Antenna, Horn	ETS	3115	AJA	5/13/2011	24 mo
Power Sensor	Agilent	N8481A	SQN	9/23/2010	24 mo
Power Meter	Agilent	N1913A	SQL	9/23/2010	24 mo
Signal Generator	Agilent	N5183A	TIA	1/18/2011	12 mo
.5-1 GHz Notch Filter	K&L Microwave	3TNF-500/1000-N/N	HGS	11/1/2010	24 mo
High Pass Filter	Micro-Tronics	HPM50108	HGP	7/9/2010	24 mo
Low Pass Filter 0-425 MHz	Micro-Tronics	LPM50003	HGO	7/9/2010	24 mo
Attenuator, 20 dB, 'SMA'	SM Electronics	SA6-20	REO	7/1/2011	12 mo
MN05 Cables	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	7/1/2011	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	7/1/2011	12 mo
Antenna, Horn	ETS	3160-07	AXP	NCR	0 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	7/1/2011	12 mo
MN05 Cables	ESM Cable Corp.	uble Ridge Guide Horn Cabl	MNI	7/1/2011	12 mo
Antenna, Horn (DRG)	ETS Lindgren	3115	AIP	6/29/2011	24 mo
Pre-Amplifier	Miteq	AM-1616-1000	AVY	7/1/2011	12 mo
MN05 Cables	ESM Cable Corp.	Bilog Cables	MNH	2/2/2011	12 mo
Antenna, Biconilog	ETS Lindgren	3142D	AXN	12/30/2009	24 mo
Spectrum Analyzer	Agilent	E4446A	AAT	2/15/2011	12 mo

MEASUREMENT BANDWIDTHS

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

Measurements were made using the IF bandwidths and detectors specified. No video filter was used, except in the case of the FCC Average Measurements above 1GHz. In that case, a peak detector with a 10Hz video bandwidth 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. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are 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.

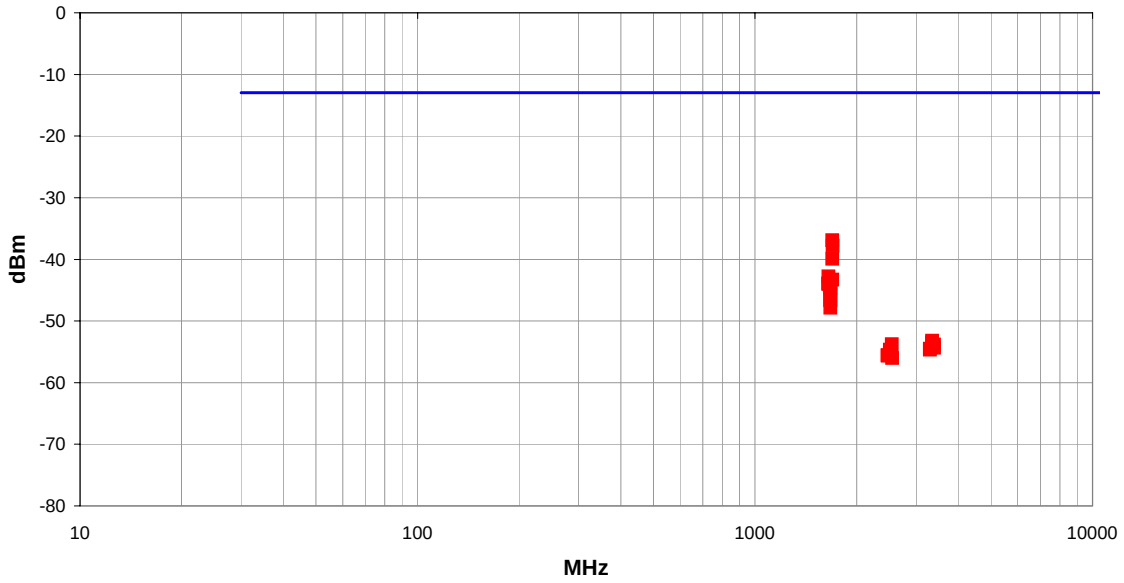
For the purposes of preliminary measurements, the field strength of the spurious emissions can be measured and compared with a 3 meter limit. The 3 meter limit was calculated to be 82.5 dBuV/m at 3 meters. The final measurements must be made utilizing the substitution method described above.

Out of Band Emissions - Part 22

Work Order:	INMC0686	**Date:**	09/08/11	Trevor Buls	
Project:	None	**Temperature:**	23.81 °C		
Job Site:	MN05	**Humidity:**	49.67% RH		
Serial Number:	14621142024	**Barometric Pres.:**	1018.4 mbar	**Tested by:**	Trevor Buls
EUT:	1000CP03C				
Configuration:	1				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting, All Bits Up. EV-DO Rel A or CDMA 1xRTT RC3 SO55 (See Comments).				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 22H:2011	ANSI/TIA/EIA-603-C:2004

Run #	2	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments	
	1696.033	1.2	239.0	Horz	PK	2.04E-07	-36.9	-13.0	-23.9	High Ch, EUT Horizontal, EVDO	
	1697.008	1.1	138.0	Vert	PK	1.66E-07	-37.8	-13.0	-24.8	High Ch, EUT Horizontal, EVDO	
	1695.958	1.2	244.0	Horz	PK	1.02E-07	-39.9	-13.0	-26.9	High Ch, EUT Horizontal	
	1649.901	1.2	201.0	Horz	PK	5.26E-08	-42.8	-13.0	-29.8	Low Ch, EUT Horizontal, EVDO	
	1696.017	1.2	187.0	Vert	PK	4.67E-08	-43.3	-13.0	-30.3	High Ch, EUT Horizontal	
	1650.068	1.3	220.0	Horz	PK	4.08E-08	-43.9	-13.0	-30.9	Low Ch, EUT Horizontal	
	1672.388	1.2	52.0	Horz	PK	4.03E-08	-44.0	-13.0	-31.0	Mid Ch, EUT Horizontal	
	1649.960	1.0	85.0	Vert	PK	3.99E-08	-44.0	-13.0	-31.0	Low Ch, EUT Horizontal	
	1649.301	1.2	308.0	Vert	PK	3.99E-08	-44.0	-13.0	-31.0	Low Ch, EUT Horizontal, EVDO	
	1673.888	1.0	164.0	Horz	PK	3.67E-08	-44.3	-13.0	-31.3	Mid Ch, EUT Vertical	
	1672.329	1.1	54.0	Horz	PK	3.43E-08	-44.7	-13.0	-31.7	Mid Ch, EUT Horizontal, EVDO	
	1673.854	1.2	246.0	Vert	PK	3.35E-08	-44.7	-13.0	-31.7	Mid Ch, EUT Vertical	
	1673.596	1.1	306.0	Vert	PK	2.66E-08	-45.7	-13.0	-32.7	Mid Ch, EUT Horizontal, EVDO	
	1673.796	1.2	197.0	Vert	PK	2.21E-08	-46.5	-13.0	-33.5	Mid Ch, EUT on Side	
	1673.538	1.5	304.0	Horz	PK	2.16E-08	-46.6	-13.0	-33.6	Mid Ch, EUT on Side	
	1672.879	1.2	310.0	Vert	PK	1.64E-08	-47.9	-13.0	-34.9	Mid Ch, EUT Horizontal	
	3348.342	2.5	122.0	Vert	PK	4.78E-09	-53.2	-13.0	-40.2	Mid Ch, EUT Horizontal	
	3346.825	1.2	218.0	Horz	PK	4.45E-09	-53.5	-13.0	-40.5	Mid Ch, EUT Horizontal	
	2546.183	1.3	220.0	Horz	PK	4.16E-09	-53.8	-13.0	-40.8	High Ch, EUT Horizontal	
	3393.325	1.0	152.0	Horz	PK	4.12E-09	-53.9	-13.0	-40.9	High Ch, EUT Horizontal	

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. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting, All Bits Up. EV-DO Rel A or CDMA 1xRTT RC3 SO55 (See Comments)

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

INMC0686 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	823 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
Antenna, Dipole	EMCO	3121C-DB4	ADI	1/5/2010	36 mo
Power Sensor	Agilent	N8481A	SQN	9/23/2010	24 mo
Power Meter	Agilent	N1913A	SQL	9/23/2010	24 mo
Signal Generator	Agilent	N5183A	TIA	1/18/2011	12 mo
MN05 Cables	ESM Cable Corp.	Bilog Cables	MNH	2/2/2011	12 mo
Antenna, Biconilog	ETS Lindgren	3142D	AXN	12/30/2009	24 mo
Attenuator, 20 dB, 'SMA'	SM Electronics	SA6-20	REO	7/1/2011	12 mo
Spectrum Analyzer	Agilent	E4446A	AAT	2/15/2011	12 mo
Antenna, Horn	ETS	3115	AJA	5/13/2011	24 mo
Universal Radio Communication Tester	Rhode & Schwarz	CMU200	BSU	NCR	0 mo

MEASUREMENT BANDWIDTHS

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

Measurements were made using the IF bandwidths and detectors specified. No video filter was used, except in the case of the FCC Average Measurements above 1GHz. In that case, a peak detector with a 10Hz video bandwidth 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. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are 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.

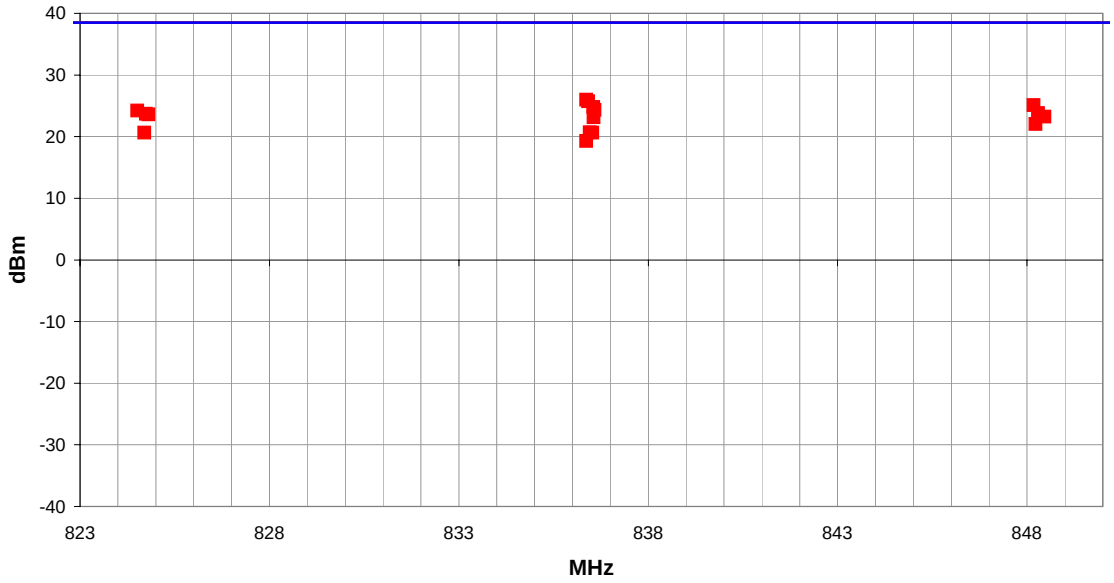
The EUT was transmitting while set at the lowest channel, and the highest channel available. The amplitude and frequency were noted. The EUT was then replaced with a ½ wave dipole that was successively tuned to the highest emission. A signal generator was connected to the dipole antenna and its output 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 dipole antenna the effective radiated power for each emission was determined.

Effective Radiated Power (ERP)

Work Order:	INMC0686	**Date:**	09/26/11	Trevor Buls	
Project:	None	**Temperature:**	23.8 °C		
Job Site:	MN05	**Humidity:**	40.56% RH		
Serial Number:	14621142024	**Barometric Pres.:**	1013.1 mbar	**Tested by:**	Trevor Buls
EUT:	1000CP03C				
Configuration:	2				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting, All Bits Up. EV-DO Rel A or CDMA 1xRTT RC3 SO55 (See Comments)				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 22H:2011	ANSI/TIA/EIA-603-C:2004

Run #	56	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments	
	836.361	1.5	6.0	Vert	PK	3.95E-01	26.0	38.5	-12.5	EUT on Side, EVDO	
	836.418	1.0	98.0	Horz	PK	3.72E-01	25.7	38.5	-12.8	EUT Horizontal, EVDO	
	848.173	1.0	105.0	Horz	PK	3.25E-01	25.1	38.5	-13.4	EUT Horizontal, EVDO	
	836.547	1.0	342.0	Horz	PK	3.03E-01	24.8	38.5	-13.7	EUT Horizontal	
	836.581	1.5	2.0	Vert	PK	2.70E-01	24.3	38.5	-14.2	EUT on Side	
	824.515	1.0	97.0	Horz	PK	2.64E-01	24.2	38.5	-14.3	EUT Horizontal, EVDO	
	848.295	1.0	102.0	Horz	PK	2.41E-01	23.8	38.5	-14.7	EUT Horizontal	
	824.736	1.5	104.0	Vert	PK	2.35E-01	23.7	38.5	-14.8	EUT on Side, EVDO	
	824.805	1.0	104.0	Horz	PK	2.30E-01	23.6	38.5	-14.9	EUT Horizontal	
	848.462	1.2	244.0	Vert	PK	2.11E-01	23.3	38.5	-15.3	EUT on Side, EVDO	
	836.558	1.0	89.0	Vert	PK	2.05E-01	23.1	38.5	-15.4	EUT Vertical	
	848.222	1.1	244.0	Vert	PK	1.60E-01	22.1	38.5	-16.5	EUT on Side	
	836.458	2.5	311.0	Vert	PK	1.18E-01	20.7	38.5	-17.8	EUT Horizontal	
	836.523	1.0	312.0	Horz	PK	1.15E-01	20.6	38.5	-17.9	EUT on Side	
	824.700	1.5	95.0	Vert	PK	1.15E-01	20.6	38.5	-17.9	EUT on Side	
	836.368	1.0	128.0	Horz	PK	8.53E-02	19.3	38.5	-19.2	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. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting, All Bits Up. EV-DO Rev A or CDMA 1xRTT RC3 SO55 (See Comments).

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

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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
Universal Radio Communication Tester	Rhode & Schwarz	CMU200	BSU	NCR	0 mo
Antenna, Horn	ETS	3115	AJA	5/13/2011	24 mo
Signal Generator	Agilent	N5183A	TIA	1/18/2011	12 mo
Power Meter	Agilent	N1913A	SQL	9/23/2010	24 mo
Power Sensor	Agilent	N8481A	SQN	9/23/2010	24 mo
1-2 GHz Notch Filter	K&L Microwave	3TNF-1000/2000-N/N	HGT	11/1/2010	24 mo
High Pass Filter	Micro-Tronics	HPM50111	HGQ	7/9/2010	24 mo
Low Pass Filter	Micro-Tronics	LPM50004	HGK	7/9/2010	24 mo
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	4/15/2011	12 mo
MN05 Cables	N/A	18-26GHz Standard Gain Horn Cable	EVD	4/15/2011	12 mo
Antenna, Horn	ETS	3160-09	AHG	NCR	0 mo
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	7/1/2011	12 mo
Antenna, Horn	ETS Lindgren	3160-08	AIQ	NCR	0 mo
MN05 Cables	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	7/1/2011	12 mo
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	7/1/2011	12 mo
Antenna, Horn	ETS	3160-07	AXP	NCR	0 mo
Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	7/1/2011	12 mo
MN05 Cables	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	7/1/2011	12 mo
Antenna, Horn (DRG)	ETS Lindgren	3115	AIP	6/29/2011	24 mo
Pre-Amplifier	Miteq	AM-1616-1000	AVY	7/1/2011	12 mo
MN05 Cables	ESM Cable Corp.	Bilog Cables	MNH	2/2/2011	12 mo
Antenna, Biconilog	ETS Lindgren	3142D	AXN	12/30/2009	24 mo
Spectrum Analyzer	Agilent	E4446A	AAT	2/15/2011	12 mo

MEASUREMENT BANDWIDTHS

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

Measurements were made using the IF bandwidths and detectors specified. No video filter was used, except in the case of the FCC Average Measurements above 1GHz. In that case, a peak detector with a 10Hz video bandwidth 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. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are 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.

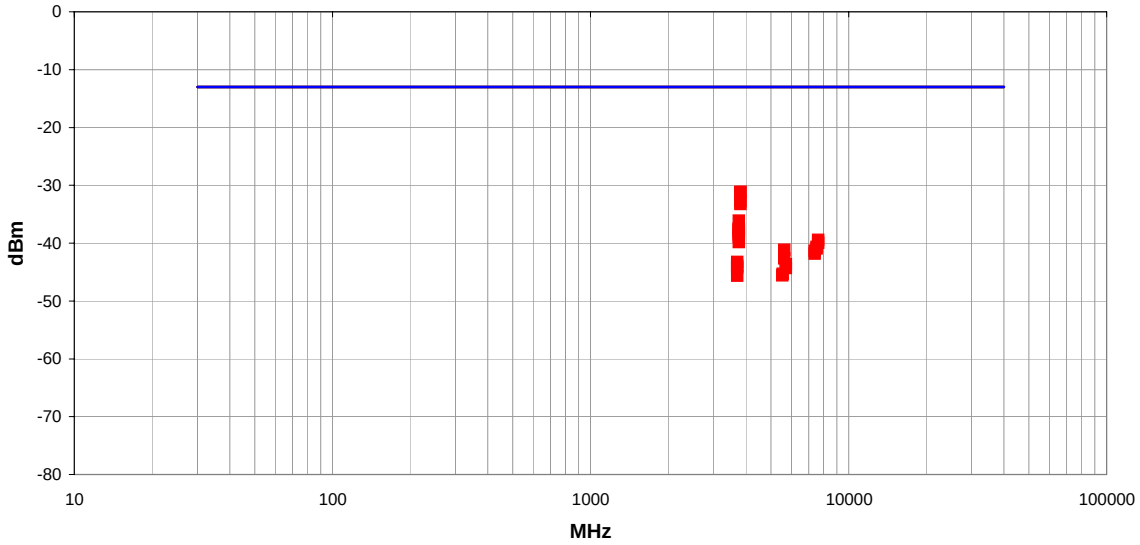
For the purposes of preliminary measurements, the field strength of the spurious emissions can be measured and compared with a 3 meter limit. The 3 meter limit was calculated to be 82.5 dBuV/m at 3 meters. The final measurements must be made utilizing the substitution method described above

Out of Band Emissions - Part 24

Work Order:	INMC0686	**Date:**	09/09/11	Trevor Buls	
Project:	None	**Temperature:**	23.86 °C		
Job Site:	MN05	**Humidity:**	50.22% RH		
Serial Number:	14621142024	**Barometric Pres.:**	1010.8 mbar	**Tested by:**	Trevor Buls
EUT:	1000CP03C				
Configuration:	1				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting, All Bits Up. EV-DO Rev A or CDMA 1xRTT RC3 SO55 (See Comments).				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 24E:2011	ANSI/TIA/EIA-603-C:2004

Run #	32	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments	
	3818.113	1.2	272.0	Horz	PK	7.71E-07	-31.1	-13.0	-18.1	High Ch, EUT Horizontal	
	3818.246	1.4	231.0	Horz	PK	7.54E-07	-31.2	-13.0	-18.2	High Ch, EUT Horizontal, EVDO	
	3818.195	1.1	10.0	Vert	PK	5.33E-07	-32.7	-13.0	-19.7	High Ch, EUT Horizontal	
	3818.228	1.2	10.0	Vert	PK	4.75E-07	-33.2	-13.0	-20.2	High Ch, EUT Horizontal, EVDO	
	3759.239	1.3	29.0	Vert	PK	2.44E-07	-36.1	-13.0	-23.1	Mid Ch, EUT Horizontal	
	3759.322	1.0	222.0	Horz	PK	1.81E-07	-37.4	-13.0	-24.4	Mid Ch, EUT Horizontal	
	3760.555	1.0	229.0	Vert	PK	1.73E-07	-37.6	-13.0	-24.6	Mid Ch, EUT on Side	
	3761.047	1.0	201.0	Vert	PK	1.65E-07	-37.8	-13.0	-24.8	Mid Ch, EUT Vertical	
	3760.839	1.0	5.0	Vert	PK	1.54E-07	-38.1	-13.0	-25.1	Mid Ch, EUT Horizontal, EVDO	
	3760.739	1.2	204.0	Horz	PK	1.40E-07	-38.5	-13.0	-25.5	Mid Ch, EUT Vertical	
	3760.747	1.1	12.0	Horz	PK	1.28E-07	-38.9	-13.0	-25.9	Mid Ch, EUT on Side	
	7637.085	1.0	209.0	Vert	PK	1.14E-07	-39.4	-13.0	-26.4	High Ch, EUT Horizontal	
	3760.622	1.0	265.0	Horz	PK	1.04E-07	-39.8	-13.0	-26.8	Mid Ch, EUT Horizontal, EVDO	
	7633.582	1.0	98.0	Horz	PK	1.01E-07	-39.9	-13.0	-26.9	High Ch, EUT Horizontal	
	7519.028	3.3	161.0	Vert	PK	8.63E-08	-40.6	-13.0	-27.6	Mid Ch, EUT Horizontal	
	7517.551	2.4	77.0	Horz	PK	8.06E-08	-40.9	-13.0	-27.9	Mid Ch, EUT Horizontal	
	5639.220	1.1	179.0	Vert	PK	7.64E-08	-41.2	-13.0	-28.2	Mid Ch, EUT Horizontal	
	7402.725	1.0	195.0	Vert	PK	7.35E-08	-41.3	-13.0	-28.3	Low Ch, EUT Horizontal	
	7406.687	3.5	106.0	Horz	PK	6.59E-08	-41.8	-13.0	-28.8	Low Ch, EUT Horizontal	
	5639.530	1.0	170.0	Horz	PK	5.41E-08	-42.7	-13.0	-29.7	Mid Ch, EUT Horizontal	
	3703.221	1.3	30.0	Horz	PK	4.73E-08	-43.3	-13.0	-30.3	Low Ch, EUT Horizontal, EVDO	
	5725.489	1.0	200.0	Vert	PK	4.32E-08	-43.6	-13.0	-30.6	High Ch, EUT Horizontal	
	3703.348	1.3	33.0	Vert	PK	4.02E-08	-44.0	-13.0	-31.0	Low Ch, EUT Horizontal, EVDO	
	3703.106	1.0	23.0	Vert	PK	3.75E-08	-44.3	-13.0	-31.3	Low Ch, EUT Horizontal	
	5726.049	1.0	168.0	Horz	PK	3.68E-08	-44.3	-13.0	-31.3	High Ch, EUT Horizontal	
	5554.354	1.0	158.0	Horz	PK	2.96E-08	-45.3	-13.0	-32.3	Low Ch, EUT Horizontal	
	5552.446	1.0	87.0	Vert	PK	2.76E-08	-45.6	-13.0	-32.6	Low Ch, EUT Horizontal	
	3703.354	1.0	272.0	Horz	PK	2.72E-08	-45.7	-13.0	-32.7	Low Ch, 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. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting, All Bits Up. EV-DO Rel A or CDMA 1xRTT RC3 SO55 (See Comments)

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

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FREQUENCY RANGE INVESTIGATED

Start Frequency	1850 MHz	Stop Frequency	1910 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
Universal Radio Communication Tester	Rhode & Schwarz	CMU200	BSU	NCR	0 mo
Power Sensor	Agilent	N8481A	SQN	9/23/2010	24 mo
Power Meter	Agilent	N1913A	SQL	9/23/2010	24 mo
Antenna, Horn	ETS	3115	AJA	5/13/2011	24 mo
Signal Generator	Agilent	N5183A	TIA	1/18/2011	12 mo
Attenuator, 10db, 'SMA'	S.M. Electronics	SA18H-10	REN	7/1/2011	12 mo
MN05 Cables	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	7/1/2011	12 mo
Antenna, Horn (DRG)	ETS Lindgren	3115	AIP	6/29/2011	24 mo
Spectrum Analyzer	Agilent	E4446A	AAT	2/15/2011	12 mo

MEASUREMENT BANDWIDTHS

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

Measurements were made using the IF bandwidths and detectors specified. No video filter was used, except in the case of the FCC Average Measurements above 1GHz. In that case, a peak detector with a 10Hz video bandwidth 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. The expanded measurement uncertainty for radiated emissions measurements is less than +/- 4 dB, and for conducted emissions measurements is less than +/- 2.7 dB. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for measurement uncertainty are 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.

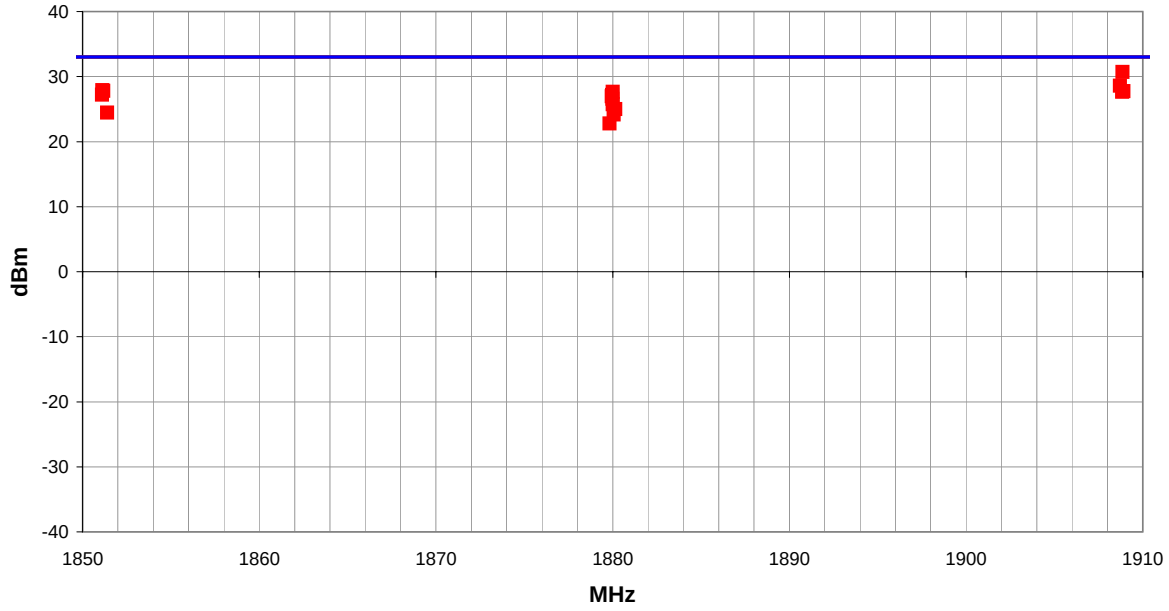
The EUT was transmitting while set at the lowest channel, and the highest channel available. The amplitude and frequency were noted. The EUT was then replaced with a ½ wave dipole that was successively tuned to the highest emission. A signal generator was connected to the dipole antenna and its output 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 dipole antenna the effective radiated power for each emission was determined.

Effective Radiated Power (EIRP)

Work Order:	INMC0686	**Date:**	09/08/11		
Project:	None	**Temperature:**	23.68 °C		
Job Site:	MN05	**Humidity:**	46.94% RH		
Serial Number:	14621142024	**Barometric Pres.:**	1025.8 mbar	**Tested by:**	Trevor Buls
EUT:	1000CP03C				
Configuration:	1				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting, All Bits Up. EV-DO Rel A or CDMA 1xRTT RC3 SO55 (See Comments)				
Deviations:	None				
Comments:	None				

Test Specifications	**Test Method**
FCC 24E:2011	ANSI/TIA/EIA-603-C:2004

Run #	1	**Test Distance (m)**	3	**Antenna Height(s)**	1-4m	**Results**	Pass



	Freq (MHz)	Antenna Height (meters)	Azimuth (degrees)	Polarity/ Transducer Type	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments	
	1908.858	1.0	134.0	Vert	PK	1.17E+00	30.7	33.0	-2.3	EUT Horizontal, EVDO	
	1908.708	1.0	135.0	Vert	PK	7.19E-01	28.6	33.0	-4.4	EUT Horizontal	
	1851.117	1.2	112.0	Horz	PK	6.19E-01	27.9	33.0	-5.1	EUT Vertical	
	1851.175	1.6	73.0	Horz	PK	6.05E-01	27.8	33.0	-5.2	EUT Vertical, EVDO	
	1908.908	1.2	90.0	Horz	PK	5.97E-01	27.8	33.0	-5.2	EUT Vertical	
	1908.833	1.2	64.0	Horz	PK	5.83E-01	27.7	33.0	-5.3	EUT Vertical, EVDO	
	1880.017	1.0	139.0	Vert	PK	5.82E-01	27.7	33.0	-5.4	EUT Horizontal	
	1851.108	1.0	108.0	Vert	PK	5.28E-01	27.2	33.0	-5.8	EUT Horizontal	
	1879.967	1.2	101.0	Horz	PK	5.22E-01	27.2	33.0	-5.8	EUT Vertical, EVDO	
	1879.950	1.0	140.0	Vert	PK	4.95E-01	27.0	33.0	-6.1	EUT Horizontal, EVDO	
	1879.992	1.1	282.0	Vert	PK	4.52E-01	26.6	33.0	-6.5	EUT Vertical	
	1880.017	1.0	209.0	Vert	PK	3.76E-01	25.8	33.0	-7.3	EUT on Side	
	1880.150	1.4	257.0	Horz	PK	3.15E-01	25.0	33.0	-8.0	EUT Vertical	
	1851.400	1.0	112.0	Vert	PK	2.77E-01	24.4	33.0	-8.6	EUT Horizontal, EVDO	
	1880.067	1.0	256.0	Horz	PK	2.62E-01	24.2	33.0	-8.8	EUT on Side	
	1879.833	1.0	206.0	Horz	PK	1.90E-01	22.8	33.0	-10.2	EUT Horizontal	