Intermec Technologies Corporation

1000CP03S

Report #: INMC0747.1

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: January 12, 2012
Intermec Technologies Corporation
Model: 1000CP03S

Emissions

Test Description	Specification	Test Method	Pass/Fail
Out of Band Emissions	FCC 22H:2012	ANSI/TIA/EIA-603-C-2004	**Pass**
Out of Band Emissions	FCC 24E:2012	ANSI/TIA/EIA-603-C-2004	**Pass**
Effective Radiated Power (ERP)	FCC 22H:2012	ANSI/TIA/EIA-603-C-2004	**Pass**
Effective Radiated Power (EIRP)	FCC 24E:2012	ANSI/TIA/EIA-603-C-2004	**Pass**

Deviations From Test Standards

None

Approved By:

Tim O'Shea, Operations Manager

NVLAP Lab Code: 200630-0

Test Facility

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

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400
Hillsboro, OR 97124

Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834D-1).

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 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

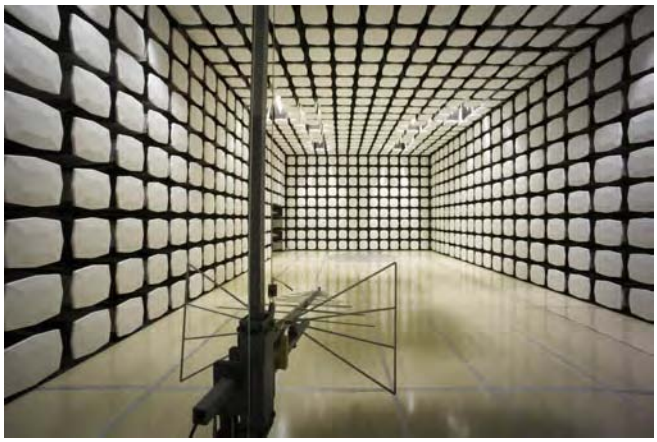
Oregon
Labs EV01-EV12
22975 NW Evergreen Pkwy
Suite 400
Hillsboro, OR 97124
(503) 844-4066

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:	Pat Helton
Model:	1000CP03S
First Date of Test:	January 3, 2012
Last Date of Test:	January 11, 2012
Receipt Date of Samples:	January 3, 2012
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 FCC Part 22H and 24E for ERP, EIRP and Out of Band requirements

Configurations

Configuration 1 INMC0747

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

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
A1 Hand Held Computer	Intermec Technologies Corp	1000CP03S	187U1191609

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Ethernet SNAPON	Intermec Technologies Corp	225-769-001	None
Power Supply	Intermec Technologies Corp	A3	269

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Cable	No	1.8 m	No	Power Supply	AC Mains
DC Leads	PA	1.0m	PA	SNAPON	Power Supply
Ethernet cable	Yes	1.0m	No	SNAPON	Unterminated
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	1/3/2012	Effective Radiated Power (ERP)	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	1/4/2012	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	1/12/2012	Out of Band Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

OUT OF BAND EMISSIONS - PART 22H

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. 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 1xRTT, SC3, SO32 +SCH, Cell Band

CHANNELS TESTED

Low = Ch.1013, 824.7MHz
Mid = Ch. 384, 836.52MHz
High = Ch. 777, 848.31MHz

POWER SETTINGS INVESTIGATED

120VAC/60Hz

CONFIGURATIONS INVESTIGATED

INMC0747-1

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
Wireless Communication Test Set	Agilent	E5515C	BSV	NCR	0
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	36
Antenna, Horn	EMCO	3115	AHE	NCR	0
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Signal Generator	Agilent	E8257D	TGX	3/22/2011	12
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2011	12
Low Pass Filter 0-425 MHz	Micro-Tronics	LPM50003	HGL	7/14/2010	24
.5-1 GHz Notch Filter	K&L Microwave	3TNF-500/1000-N/N	HFT	1/11/2011	24
High Pass Filter	Micro-Tronics	50108	HGF	1/9/2012	24
Antenna, Biconilog	EMCO	3141	AXG	3/15/2010	24
EV12 Cables	N/A	Bilog Cables	EVS	6/1/5403	12
Pre-Amplifier	Miteq	AM-1616-1000	AVM	6/20/2011	12
Antenna, Horn	ETS	3115	AIB	9/8/2010	24
EV12 Cables	N/A	Double Ridge Horn Cables	EVT	10/6/2011	12
Pre-Amplifier	Miteq	AMF-3D00100800-32-13P	AVF	6/20/2011	12
Antenna, Horn	ETS	3160.07	AHZ	9/8/2010	24
EV12 Cables	N/A	Standard Gain Horn Cables	EVU	6/20/2011	12
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVH	6/20/2011	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 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 22H

EUT:	1000CP03S	Work Order:	INMC0747
Serial Number:	187U1191609	Date:	01/12/12
Customer:	Intermec Technologies Corporation	Temperature:	22
Attendees:	none	Humidity:	21%
Project:	None	Barometric Pres.:	30.36
Tested by:	Rod Peloquin	Power: 120VAC/60Hz	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 22H:2012	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

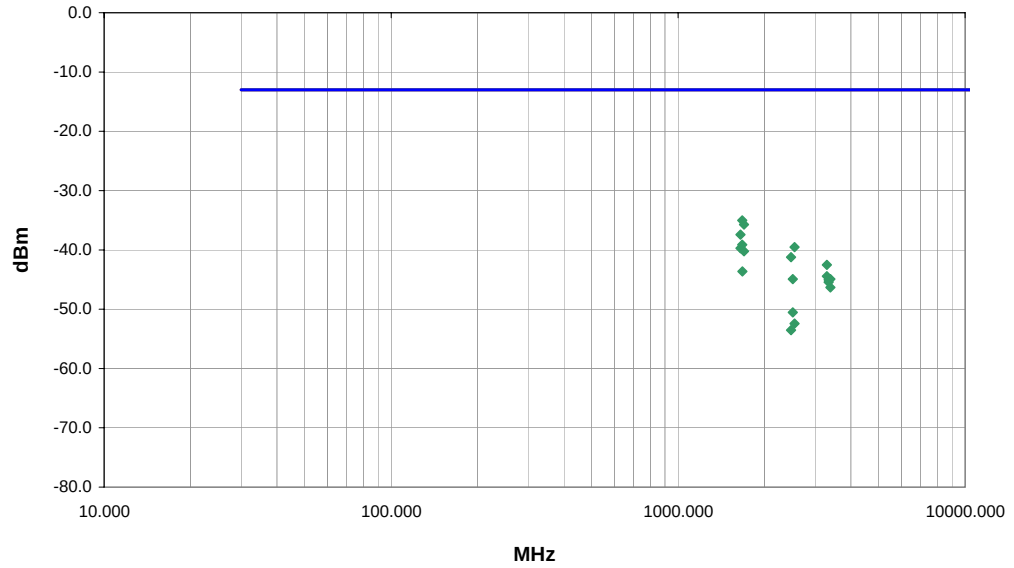
Transmitting 1xRTT, SC3, SO32 +SCH, Cell Band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	10
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
1673.147			73.0	1.7			V-Horn	PK	3.14E-07	-35.0	-13.0	-22.0	Mid channel, EUT horizontal
1696.847			65.0	1.1			V-Horn	PK	2.67E-07	-35.7	-13.0	-22.7	High channel, EUT horizontal
1649.858			291.0	1.2			H-Horn	PK	1.81E-07	-37.4	-13.0	-24.4	Low channel, EUT vertical
1673.192			58.0	2.2			H-Horn	PK	1.22E-07	-39.1	-13.0	-26.1	Mid channel, EUT vertical
2544.947			256.0	1.0			V-Horn	PK	1.11E-07	-39.5	-13.0	-26.5	High channel, EUT horizontal
1649.507			126.0	1.3			V-Horn	PK	1.06E-07	-39.7	-13.0	-26.7	Low channel, EUT horizontal
1696.687			61.0	1.7			H-Horn	PK	9.49E-08	-40.2	-13.0	-27.2	High channel, EUT vertical
2473.880			248.0	1.3			V-Horn	PK	7.54E-08	-41.2	-13.0	-28.2	Low channel, EUT horizontal
3298.673			225.0	1.2			V-Horn	PK	5.59E-08	-42.5	-13.0	-29.5	Low channel, EUT horizontal
1673.747			114.0	1.5			H-Horn	PK	4.34E-08	-43.6	-13.0	-30.6	Mid channel, EUT horizontal
3298.950			354.0	1.2			H-Horn	PK	3.61E-08	-44.4	-13.0	-31.4	Low channel, EUT vertical
2509.233			255.0	1.0			V-Horn	PK	3.21E-08	-44.9	-13.0	-31.9	Mid channel, EUT horizontal
3391.873			221.0	1.2			V-Horn	PK	3.21E-08	-44.9	-13.0	-31.9	High channel, EUT horizontal
3346.333			237.0	1.1			H-Horn	PK	3.14E-08	-45.0	-13.0	-32.0	Mid channel, EUT vertical
3346.167			224.0	1.2			V-Horn	PK	2.86E-08	-45.4	-13.0	-32.4	Mid channel, EUT horizontal
3393.133			201.0	1.4			H-Horn	PK	2.33E-08	-46.3	-13.0	-33.3	High channel, EUT vertical
2508.652			48.0	1.2			H-Horn	PK	8.85E-09	-50.5	-13.0	-37.5	Mid channel, EUT vertical
2544.013			335.0	1.2			H-Horn	PK	5.72E-09	-52.4	-13.0	-39.4	High channel, EUT vertical
2473.508			353.0	1.0			H-Horn	PK	4.44E-09	-53.5	-13.0	-40.5	Low channel, EUT vertical

OUT OF BAND EMISSIONS - PART 24E

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 1xRTT, SC3, SO32 +SCH, PCS 1900

CHANNELS TESTED

Low = Ch. 25, 1851.25MHz
Mid = Ch. 600, 1880MHz
High = Ch. 1175, 1908.75MHz

POWER SETTINGS INVESTIGATED

120VAC/60Hz

CONFIGURATIONS INVESTIGATED

INMC0747 - 1

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
Spectrum Analyzer	Agilent	E4440A	AFD	7/5/2011	12
Low Pass Filter	Micro-Tronics	LPM50004	HGG	7/22/2010	24
1-2 GHz Notch Filter	K&L Microwave	3TNF-1000/2000-N/N	HFU	1/11/2011	24
High Pass Filter	Micro-Tronics	50111	HGE	7/14/2010	24
Wireless Communication Test Set	Agilent	E5515C	BSV	NCR	0
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	36
Antenna, Horn	EMCO	3115	AHE	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/9/2012	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
Signal Generator	Agilent	E8257D	TGX	3/22/2011	12
Antenna, Biconilog	EMCO	3141	AXG	3/15/2010	24
Pre-Amplifier	Miteq	AM-1616-1000	AVM	6/20/2011	12
Antenna, Horn	ETS	3115	AIB	9/8/2010	24
EV12 Cables	N/A	Double Ridge Horn Cables	EVT	10/6/2011	12
Pre-Amplifier	Miteq	AMF-3D00100800-32-13P	AVF	6/20/2011	12
Antenna, Horn	ETS	3160.07	AHZ	9/8/2010	24
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVH	6/20/2011	12
Antenna, Horn	ETS	3160-08	AIA	NCR	0
EV12 Cables	N/A	Standard Gain Horn Cables	EVU	6/20/2011	12
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVI	7/5/2011	12
Antenna, Horn	ETS Lindgren	3160-09	AIV	NCR	0
Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	9/12/2011	12
Cable	ESM Cable Corp.	KMKM-72	EVY	9/12/2011	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 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 24E

EUT:	1000CP03S			**Work Order:**	INMC0747
Serial Number:	187U1191609			**Date:**	01/11/12
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	21%
Project:	None			**Barometric Pres.:**	30.36
Tested by:	Rod Peloquin	**Power:**	120VAC/60Hz	**Job Site:**	EV12

TEST SPECIFICATIONS	Test Method
FCC 24E:2012	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

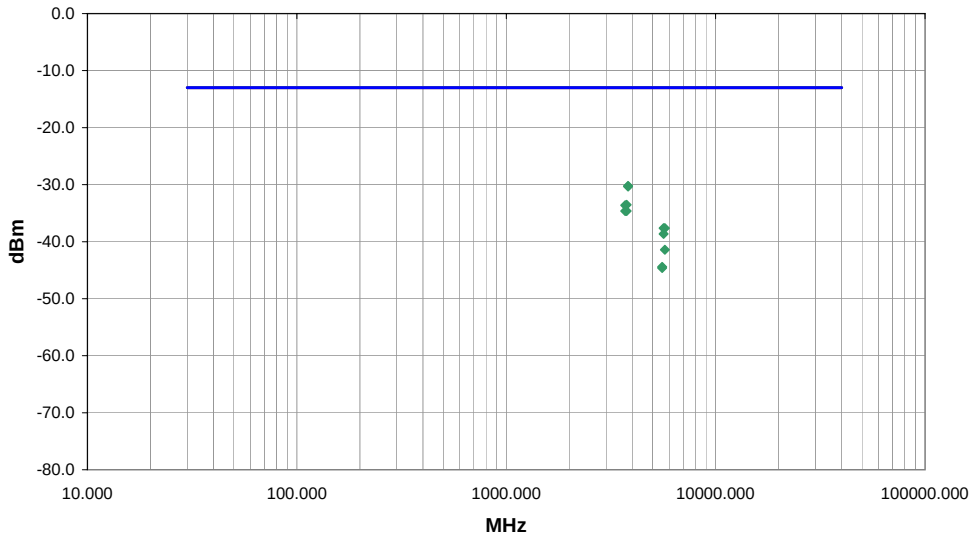
Transmitting 1xRTT, SC3, SO32 +SCH, PCS 1900

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	9
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
3818.173			353.0	1.0			H-Horn	PK	9.49E-07	-30.2	-13.0	-17.2	High Channel, EUT horizontal
3817.907			325.0	1.1			V-Horn	PK	9.27E-07	-30.3	-13.0	-17.3	High Channel, EUT horizontal
3759.987			338.0	1.0			V-Horn	PK	4.44E-07	-33.5	-13.0	-20.5	Mid Channel, EUT horizontal
3702.100			347.0	1.0			H-Horn	PK	4.34E-07	-33.6	-13.0	-20.6	Low Channel, EUT horizontal
3701.653			0.0	1.0			V-Horn	PK	3.44E-07	-34.6	-13.0	-21.6	Low Channel, EUT horizontal
3760.047			332.0	1.0			H-Horn	PK	3.44E-07	-34.6	-13.0	-21.6	Mid Channel, EUT horizontal
5640.173			58.0	1.0			V-Horn	PK	1.73E-07	-37.6	-13.0	-24.6	Mid Channel, EUT horizontal
5725.600			313.0	1.0			H-Horn	PK	1.73E-07	-37.6	-13.0	-24.6	High Channel, EUT horizontal
5640.907			347.0	1.2			H-Horn	PK	1.37E-07	-38.6	-13.0	-25.6	Mid Channel, EUT horizontal
5727.450			20.0	1.0			V-Horn	PK	7.20E-08	-41.4	-13.0	-28.4	High Channel, EUT horizontal
5554.260			149.0	1.0			V-Horn	PK	3.61E-08	-44.4	-13.0	-31.4	Low Channel, EUT horizontal
5555.130			183.0	1.0			H-Horn	PK	3.44E-08	-44.6	-13.0	-31.6	Low Channel, 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, EV-DO Rev A, Cell band

CHANNELS TESTED

Low = Ch.1013, 824.7MHz
Mid = Ch. 384, 836.52MHz
High = Ch. 777, 848.31MHz

POWER SETTINGS INVESTIGATED

120VAC/60Hz

CONFIGURATIONS INVESTIGATED

INMC0747 - 1

FREQUENCY RANGE INVESTIGATED

Start Frequency	824 MHz	Stop Frequency	849 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
Spectrum Analyzer	Agilent	E4446A	AAQ	6/24/2011	12
Antenna, Biconilog	EMCO	3142	AXJ	5/17/2011	12
EV01 Cables	N/A	Bilog Cables	EVA	6/28/2011	12
Antenna, Dipole	ETS	3121C-DB4	ADH	3/6/2009	36
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	5/5/2011	12
Power Meter	Gigatronics	8651A	SPM	1/7/2010	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0

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

Effective Radiated Power (ERP)

EUT:	1000CP03S			**Work Order:**	INMC0747
Serial Number:	187U1191609			**Date:**	01/03/12
Customer:	Intermec Technologies Corporation			**Temperature:**	22
Attendees:	none			**Humidity:**	34%
Project:	None			**Barometric Pres.:**	30.22
Tested by:	Carl Engholm	**Power:**	120VAC/60Hz	**Job Site:**	EV01

TEST SPECIFICATIONS	Test Method
FCC 22H:2012	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

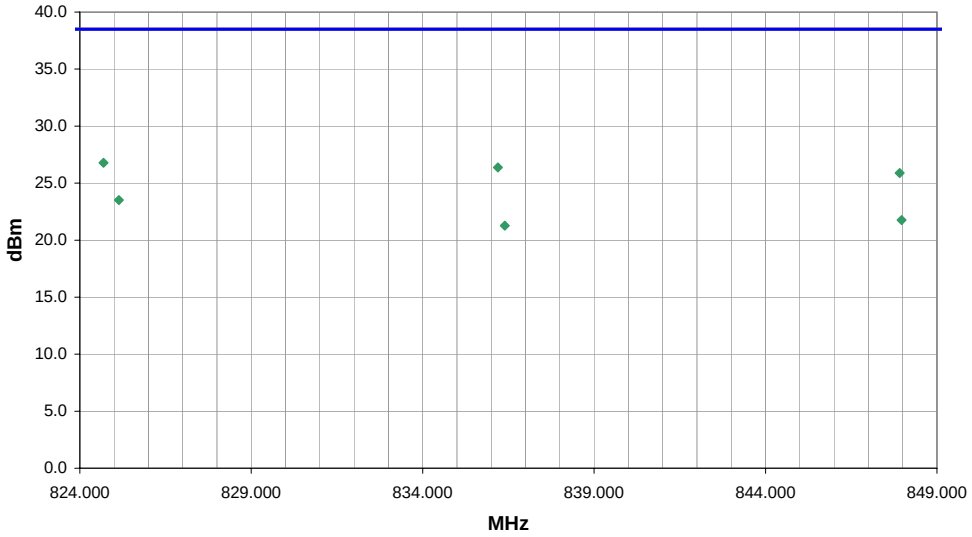
Transmitting, EV-DO Rev A, Cell band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	2
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	ERP (Watts)	ERP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
824.690			252.0	1.0			H-Bilog	PK	4.78E-01	26.8	38.5	-11.7	Low Channel, EUT horizontal
836.193			253.0	1.1			H-Bilog	PK	4.34E-01	26.4	38.5	-12.1	Mid Channel, EUT horizontal
847.913			251.0	1.1			H-Bilog	PK	3.87E-01	25.9	38.5	-12.6	High Channel, EUT horizontal
825.137			174.0	1.2			V-Bilog	PK	2.24E-01	23.5	38.5	-15.0	Low Channel, EUT on side
847.967			168.0	1.1			V-Bilog	PK	1.50E-01	21.8	38.5	-16.7	High Channel, EUT on side
836.397			175.0	1.1			V-Bilog	PK	1.34E-01	21.3	38.5	-17.2	Mid Channel, EUT on side

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, EV-DO Rev A, PCS band

CHANNELS TESTED

Low = Ch. 25, 1851.25 MHz
Mid = Ch. 600, 1880 MHz
High = Ch. 1175, 1908.75 MHz

POWER SETTINGS INVESTIGATED

120VAC/60Hz

CONFIGURATIONS INVESTIGATED

INMC0747-1

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
Attenuator, 6dB	S.M. Electronics	18N-06	AWN	5/5/2011	12
Universal Radio Communication Tester	Rhode & Schwarz	CMU200	BSU	NCR	0
Spectrum Analyzer	Agilent	E4446A	AAQ	6/24/2011	12
Antenna, Horn	EMCO	3115	AHJ	NCR	0
EV01 Cables	N/A	Double Ridge Horn Cables	EVB	6/28/2011	12
Antenna, Horn	EMCO	3115	AHE	NCR	0
Power Meter	Gigatronics	8651A	SPM	1/7/2010	24
Power Sensor	Gigatronics	80701A	SPL	7/8/2011	24
MXG Vector Signal Generator	Agilent	N5182A	TIF	NCR	0

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 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.

Effective Radiated Power (EIRP)

EUT:	1000CP03S			Work Order:	INMC0747
Serial Number:	187U1191609			Date:	01/04/12
Customer:	Intermec Technologies Corporation			Temperature:	22
Attendees:	none			Humidity:	41%
Project:	None			Barometric Pres.:	30.23
Tested by:	Dan Haas	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

	Test Method
FCC 24E:2012	ANSI/TIA/EIA-603-C-2004

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

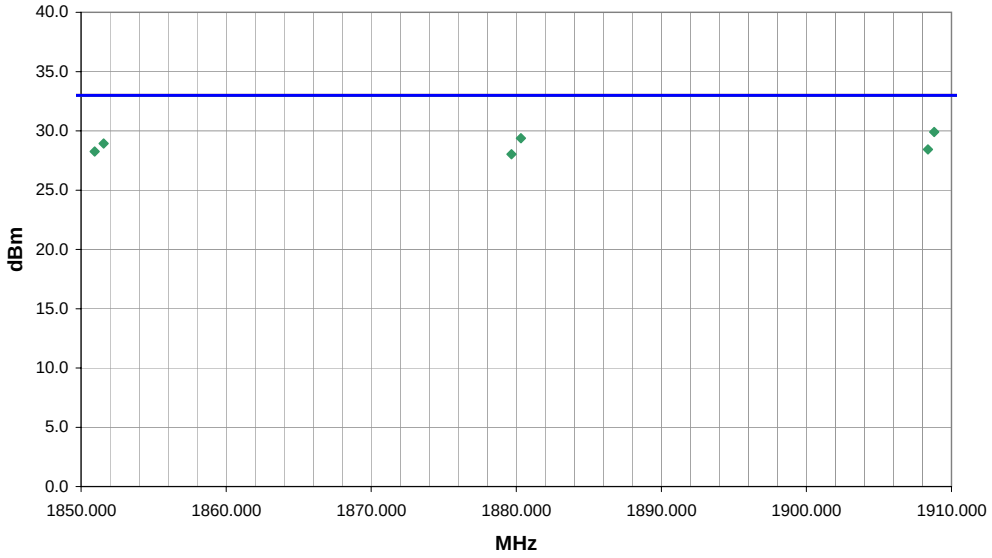
Transmitting, EV-DO Rev A, PCS band

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	4
Configuration #	1
Results	Pass

Signature



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector	EIRP (Watts)	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1908.805			255.0	1.4			H-Horn	PK	9.77E-01	29.9	33.0	-3.1	High channel, EUT vertical.
1880.320			258.0	1.2			H-Horn	PK	8.67E-01	29.4	33.0	-3.6	Mid channel, EUT vertical.
1851.560			258.0	1.2			H-Horn	PK	7.83E-01	28.9	33.0	-4.1	Low channel, EUT vertical.
1908.375			300.0	1.2			V-Horn	PK	6.98E-01	28.4	33.0	-4.6	High channel, EUT vertical.
1850.935			307.0	1.2			V-Horn	PK	6.70E-01	28.3	33.0	-4.7	Low channel, EUT vertical.
1879.670			259.0	1.2			V-Horn	PK	6.35E-01	28.0	33.0	-5.0	Mid channel, EUT vertical.