

Intermec Technologies Corporation

PB42 Printer and CK60 w/ BTM311 Radio

January 13, 2005

Report No. INMC0163 Rev 01

Report Prepared By:



www.nwemc.com

1-888-EMI-CERT

Test Report



22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Issue Date: January 13, 2005

Intermec Technologies Corporation

Model: PB42 Printer and CK60 w/BTM311 Radio

		Emissions	
Specification	Test Method	Pass	Fail
FCC 15.247(d) Spurious Radiated Emissions:2004	ANSI C63.4:2003/ DA 00-705	☒	☐
FCC 15.247(d) Spurious Radiated Emissions:2004 (Simultaneous Transmit)	ANSI C63.4:2003/ DA 00-705	☒	☐
FCC 15.207 AC Powerline Conducted Emissions:2004	ANSI C63.4:2003	☒	☐

Modifications made to the product

See the Modifications section of this report

Test Facility

The measurement facilities 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

The sites have been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada.

Approved By:

Don Fecteau, IS Manager

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested, the specific description is noted in each of the individual sections of the test report supporting this certificate of test.

Revision Number	Description	Date	Page Number
01	Changed comments regarding how EUT was powered	1/24/05	14-18, 21, 28-33
01	Revised model name on cover page and C.O.T.	1/24/05	1,2
01	Revised EUT name to reflect both PB42 printer and CK60 w/BTM311 radio	1/24/05	19-21,
01	Revised various EUT/Peripheral name information	1/24/05	12, 26

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 recognized under the United States Department of Commerce, National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 89/336/EEC, ANSI C63.4, MIL-STD 461E, DO-160D and SAE J1113. 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.



200629-0
200630-0
200676-0

Industry Canada: Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS 212, Issue 1 (Provisional) 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.



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



TÜV Product Service: Included in TÜV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TÜV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TÜV's current Listing of CARAT Laboratories available from TÜV. A certificate was issued to represent that this laboratory continues to meet TÜV's CARAT Program requirements. Certificate No. USA0401C



TÜV Rheinland: Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.



NEMKO: Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).



Technology International: Assessed in accordance with ISO Guide 25 defining the general international requirements for the competence of calibration and testing laboratories and with ITI assessment criteria LACO196. Based upon that assessment Interference Technology International, Ltd., has granted approval for specifications implementing the EU Directive on EMC (89/336/EEC and amendments). The scope of the approval was provided on a Schedule of Assessment supplied with the certificate and is available upon request.



Australia/New Zealand: The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body. (NVLAP)



VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. (*Registration Nos. - Hillsboro: C-1071 and R-1025, Irvine: C-2094 and R-1943, Newberg: C-1877 and R-1760, Sultan: R-871, C-1784 and R-1761*)



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. License No.SL2-IN-E-1017.



GOST: Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification



SCOPE

For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/scope.asp>

What is measurement uncertainty?

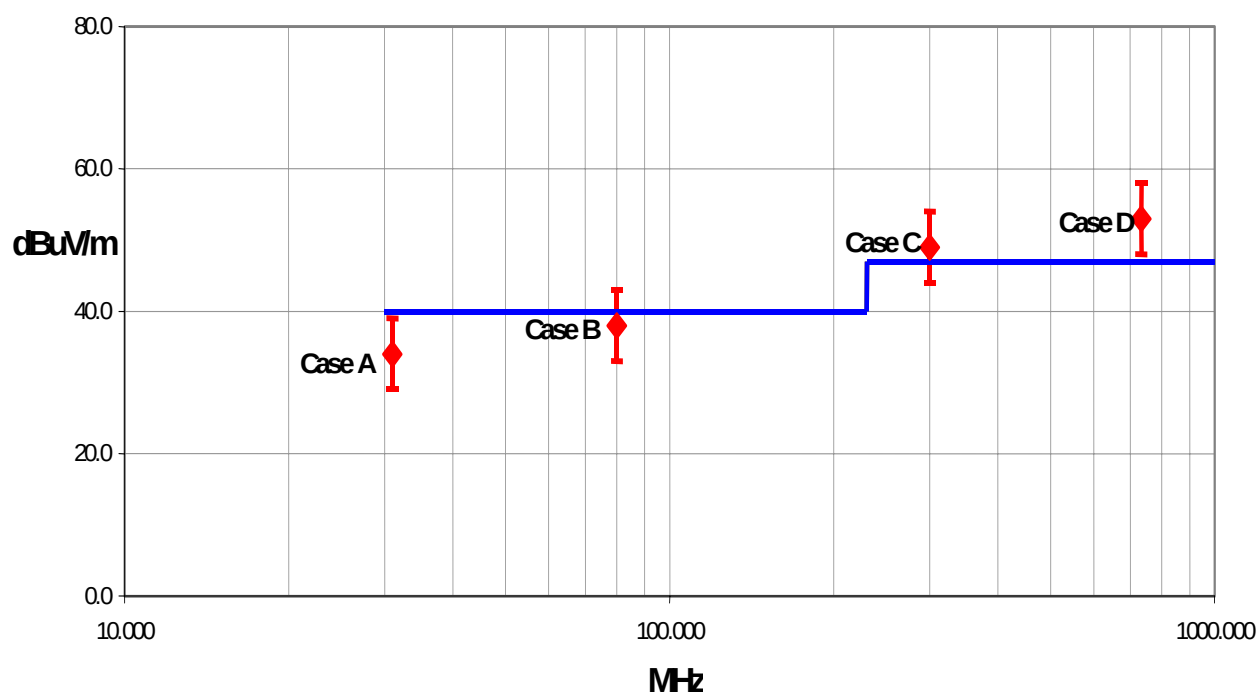
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. The following statement of measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" value. In the case of transient tests (ESD, EFT, Surge, Voltage Dips and Interruptions), the test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements.

The following documents were the basis for determining the uncertainty levels of our measurements:

- "ISO Guide to the Expression of Uncertainty in Measurements", October 1993
- "NIS81: The Treatment of Uncertainty in EMC Measurements", May 1994
- "IEC CISPR 16-3 A1 f1 Ed.1: Radio-interference measurements and statistical techniques", December 2000

How might measurement uncertainty be applied to test results?

If the diamond marks the measured value for the test and the vertical bars bracket the range of + and – measurement uncertainty, then test results can be interpreted from the diagram below.



Test Result Scenarios:

Case A: Product complies.

Case B: Product conditionally complies. It is not possible to say with 95% confidence that the product complies.

Case C: Product conditionally does not comply. It is not possible to say with 95% confidence that the product does not comply.

Case D: Product does not comply.

Radiated Emissions ≤ 1 GHz

Value (dB)

Test Distance	Probability Distribution	Biconical Antenna		Log Periodic Antenna		Dipole Antenna	
		3m	10m	3m	10m	3m	10m
Combined standard uncertainty $u_c(y)$	normal	+ 1.86 - 1.88	+ 1.82 - 1.87	+ 2.23 - 1.41	+ 1.29 - 1.26	+ 1.31 - 1.27	+ 1.25 - 1.25
Expanded uncertainty U (level of confidence $\approx 95\%$)	normal (k=2)	+ 3.72 - 3.77	+ 3.64 - 3.73	+ 4.46 - 2.81	+ 2.59 - 2.52	+ 2.61 - 2.55	+ 2.49 - 2.49

Radiated Emissions > 1 GHz

Value (dB)

Test Distance	Probability Distribution	Without High Pass Filter		With High Pass Filter	
		3m	10m	3m	10m
Combined standard uncertainty $u_c(y)$	normal	+ 1.29 - 1.25	+ 1.29 - 1.25	+ 1.38 - 1.35	+ 1.38 - 1.35
Expanded uncertainty U (level of confidence $\approx 95\%$)	normal (k=2)	+ 2.57 - 2.51	+ 2.57 - 2.51	+ 2.76 - 2.70	+ 2.76 - 2.70

Conducted Emissions

Test Distance	Probability Distribution	Value (+/- dB)
Combined standard uncertainty $u_c(y)$	normal	1.48
Expanded uncertainty U (level of confidence $\approx 95\%$)	normal (k = 2)	2.97

Radiated Immunity

Test Distance	Probability Distribution	Value (+/- dB)
Combined standard uncertainty $u_c(y)$	normal	1.05
Expanded uncertainty U (level of confidence $\approx 95\%$)	normal (k = 2)	2.11

Conducted Immunity

Test Distance	Probability Distribution	Value (+/- dB)
Combined standard uncertainty $u_c(y)$	normal	1.05
Expanded uncertainty U (level of confidence $\approx 95\%$)	normal (k = 2)	2.10

Legend

$u_c(y)$ = square root of the sum of squares of the individual standard uncertainties

U = combined standard uncertainty multiplied by the coverage factor: k . This defines an interval about the measured result that will encompass the true value with a confidence level of approximately 95%. If a higher level of confidence is required, then $k=3$ (CL of 99.7%) can be used. Please note that with a coverage factor of one, $u_c(y)$ yields a confidence level of only 68%.

**California****Orange County Facility****Labs OC01 – OC13**

41 Tesla Ave.
Irvine, CA 92618
(888) 364-2378
FAX (503) 844-3826

**Oregon****Evergreen Facility****Labs EV01 – EV10**

22975 NW Evergreen Pkwy.,
Suite 400
Hillsboro, OR 97124
(503) 844-4066
FAX (503) 844-3826

**Oregon****Trails End Facility****Labs TE01 – TE03**

30475 NE Trails End Lane
Newberg, OR 97132
(503) 844-4066
FAX (503) 537-0735

**Washington****Sultan Facility****Labs SU01 – SU07**

14128 339th Ave. SE
Sultan, WA 98294
(888) 364-2378
FAX (360) 793-2536

Party Requesting the Test

Company Name:	INTERMEC Technologies Corporation
Address:	6001 36th Avenue West
City, State, Zip:	Everett, WA 98203-1264
Test Requested By:	Katie Molina
Model:	PB42 Printer and CK60 w/BTM311 Radio
First Date of Test:	12-20-2004
Last Date of Test:	01-10-2005
Receipt Date of Samples:	12-20-2004
Equipment Design Stage:	Production
Equipment Condition:	No visual damage.

Information Provided by the Party Requesting the Test

Clocks/Oscillators:	Not provided at the time of test.
I/O Ports:	Communication

Functional Description of the EUT (Equipment Under Test):

The PB42 is a portable printer. The CK60 is a handheld mobile computer that scans barcodes and transmits data to the PB42 for printing.

Client Justification for EUT Selection:

Engineering sample with typical load configuration.

Client Justification for Test Selection:

These tests satisfy the FCC and IC requirements for the US and Canadian markets.

Additional Information:

Utilize the existing FCC grant for the Mitsumi radio in the PB42 to complete the Intermec grant for the overall product. The PB42 can be worn near the body. The initial release of the product will be for a specific customer application in which the PB42 will be used in conjunction with the CK60 handheld terminal. The CK60 contains the BTM311 Bluetooth radio recently certified.

EUT Photo

Equipment modifications					
Item	Test	Date	Modification	Note	Disposition of EUT
1	Spurious Radiated Emissions – Co-located Radios	12/23/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.
2	Spurious Radiated Emissions - Standalone	12/23/2004	No EMI suppression devices were added or modified during this test.	Standalone configuration.	EUT remained at Northwest EMC.
3	AC Powerline Conducted Emissions	12/23/2004	No EMI suppression devices were added or modified during this test.	Same configuration as in previous test.	EUT remained at Northwest EMC.
4	Spurious Radiated Emissions – Co-located Radios	12/26/2004	No EMI suppression devices were added or modified during this test.	Co-located radios configuration.	EUT remained at Northwest EMC.
5	Spurious Radiated Emissions - Standalone	12/26/2004	No EMI suppression devices were added or modified during this test.	Standalone configuration.	EUT remained at Northwest EMC.

Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

High
Mid
Low

Operating Modes Investigated:

No Hop

Data Rates Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.
Battery

Other Settings Investigated:

Co-located with CK60
Standalone

Frequency Range Investigated

Start Frequency	30 MHz	Stop Frequency	26 GHz
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Software\Firmware Applied During Test

Exercise software	BlueTest	Version	Unknown
Description			
The Bluetest software exercises the Bluetooth radio in the printer and the handheld computer and allows for channel selection.			

EUT and Peripherals

Description	Manufacturer	Model/Part Number	Serial Number
Radio (CK60)	Actiontec	BTM311	Unknown
Bluetooth Enabled Printer	Intermec Technologies Corporation	PB42	SAC001
AC Adapter	Elpac Power Systems	FW5012-760	004275
Host - Handheld Mobile Computer	Intermec Technologies Corporation	CK60	26390400073

Remote Equipment Outside of Test Setup Boundary

Description	Manufacturer	Model/Part Number	Serial Number
Laptop Computer	Dell	Latitude	Loaner #5
Equipment isolated from the EUT so as not to contribute to the measurement result is considered to be outside the test setup boundary			

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Communication Cable	No	2.0	No	Host - Printer	Unterminated during test (Connected during set-up)
DC Leads	PA	1.6	PA	Host - Printer	AC Adapter
AC Power	No	2.0	No	AC Adapter	AC Mains
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Measurement Equipment

Description	Manufacturer	Model	Identifier	Last Cal	Interval
Spectrum Analyzer	Hewlett-Packard	8566B	AAL	12/02/2004	13 mo
Spectrum Analyzer Display	Hewlett Packard	85662A	AALD	12/02/2004	13 mo
Quasi-Peak Adapter	Hewlett-Packard	85650A	AQF	12/02/2004	13 mo
Pre-Amplifier	Amplifier Research	LN1000A	APS	02/05/2004	13 mo
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APJ	01/05/2004	13 mo
Antenna, Horn	EMCO	3115	AHC	09/07/2004	12 mo
Antenna, Biconilog	EMCO	3141	AXE	12/03/2003	24 mo
Antenna, Horn	EMCO	3160-08	AHK	NCR	NA
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APC	10/08/2003	15 mo
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	10/08/2003	15 mo
Antenna, Horn	EMCO	3160-09	AHG	NCR	NA

Test Description

Requirement: The field strength of any spurious emissions or modulation products that fall in a restricted band, as defined in 47 CFR 15.205, is measured. The peak level must comply with the limits specified in 47 CFR 15.35(b). The average level (taken with a 10Hz VBW) must comply with the limits specified in 15.209.

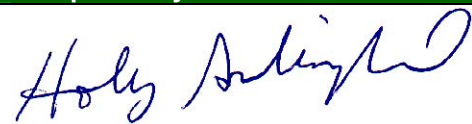
Configuration: The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

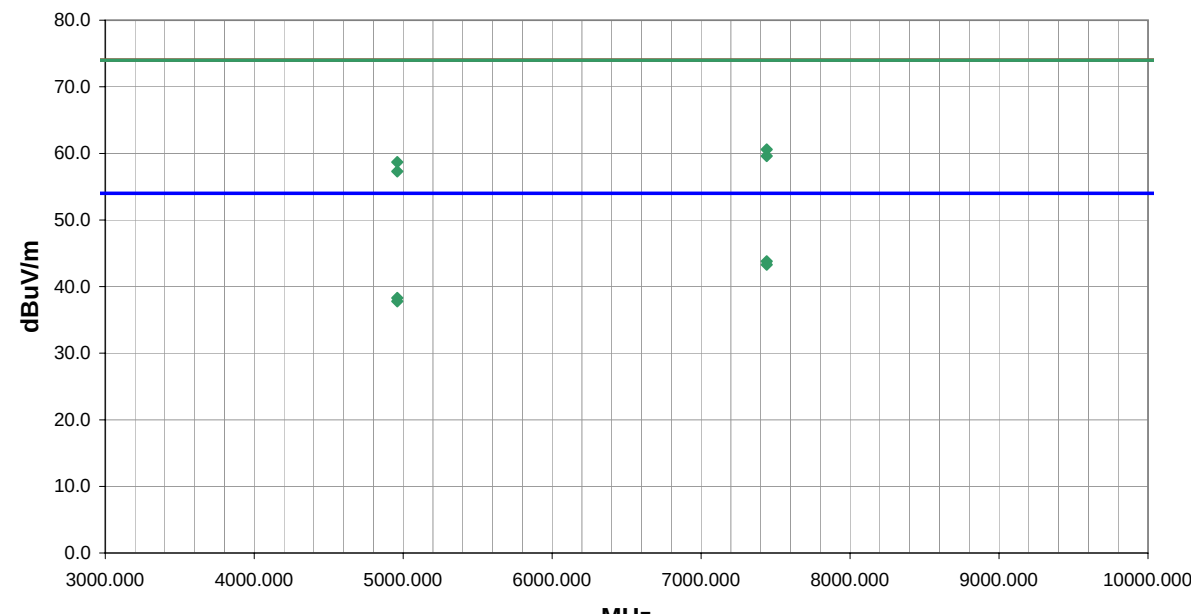
Simultaneous Transmission: For co-located radios, it is necessary to measure the field strength of spurious emissions, while co-located radios are transmitting simultaneously. The following is an excerpt from the FCC/TCB training Q & A, October 2002, Day 2, Question 7:

Assuming that the radios do not share an antenna, only radiated tests for simultaneous transmission is required. If the radios share an antenna, antenna conducted measurements would also be required. Only one set of worst case simultaneous transmission data is going to be requested to be submitted at this time. The test engineer should indicate the worst case condition and provide justification as to why the worst case condition was chosen. The grantee should be reminded that even if the FCC requests one set of data, they are responsible for compliance for all modes of simultaneous transmission.

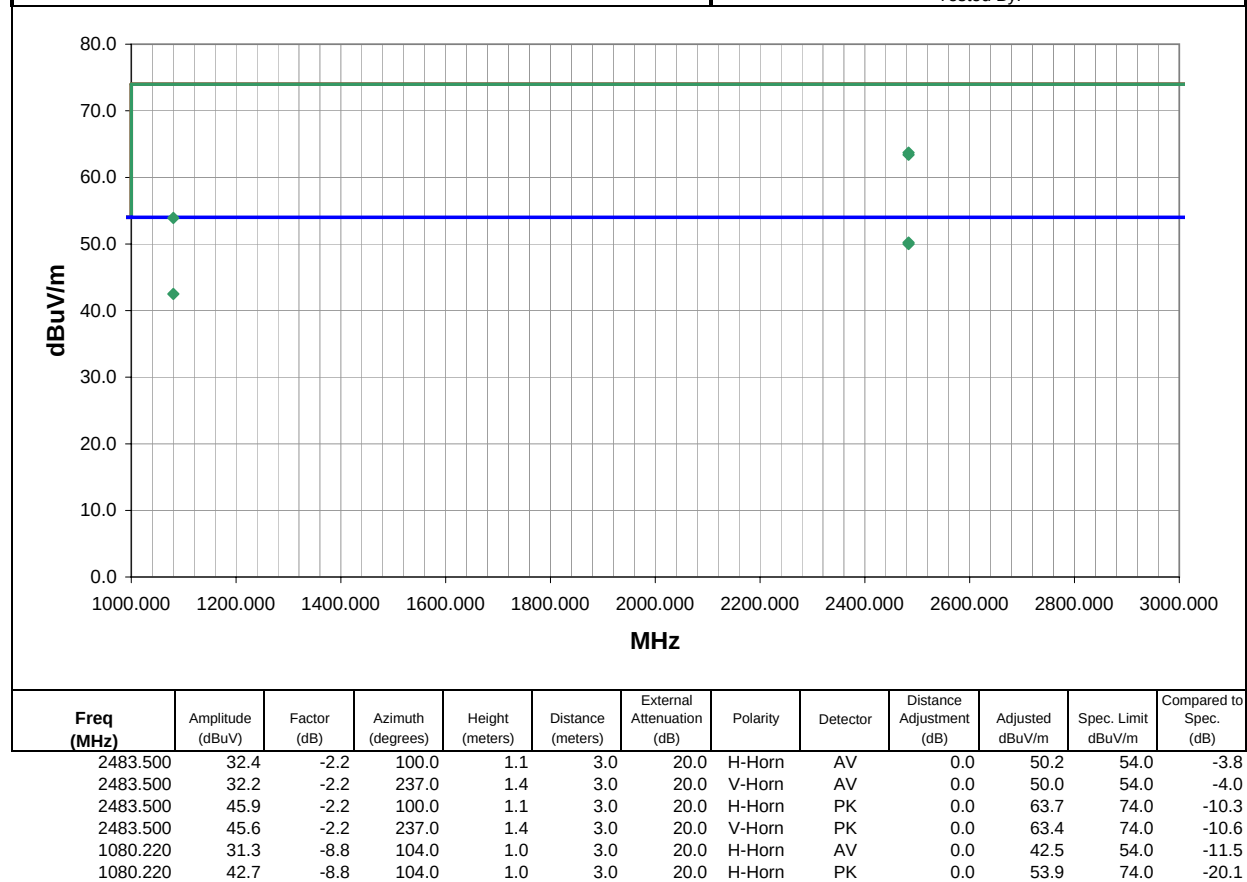
Bandwidths Used for Measurements			
Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 – 0.15	1.0	0.2	0.2
0.15 – 30.0	10.0	9.0	9.0
30.0 – 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0
<i>Measurements were made using the bandwidths and detectors specified. No video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

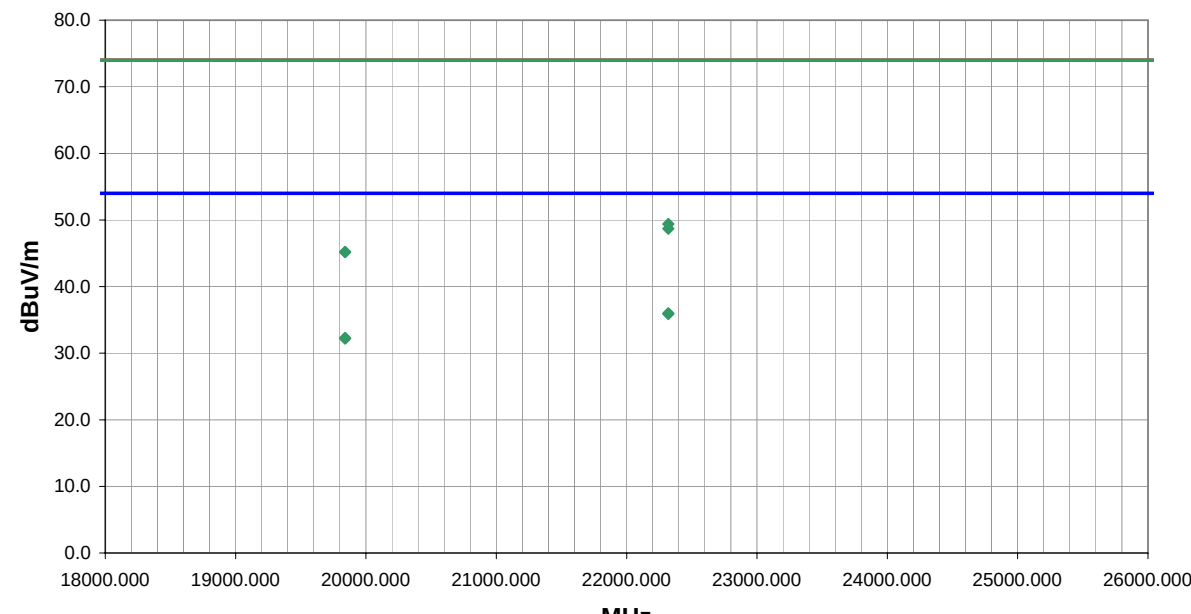
Completed by:

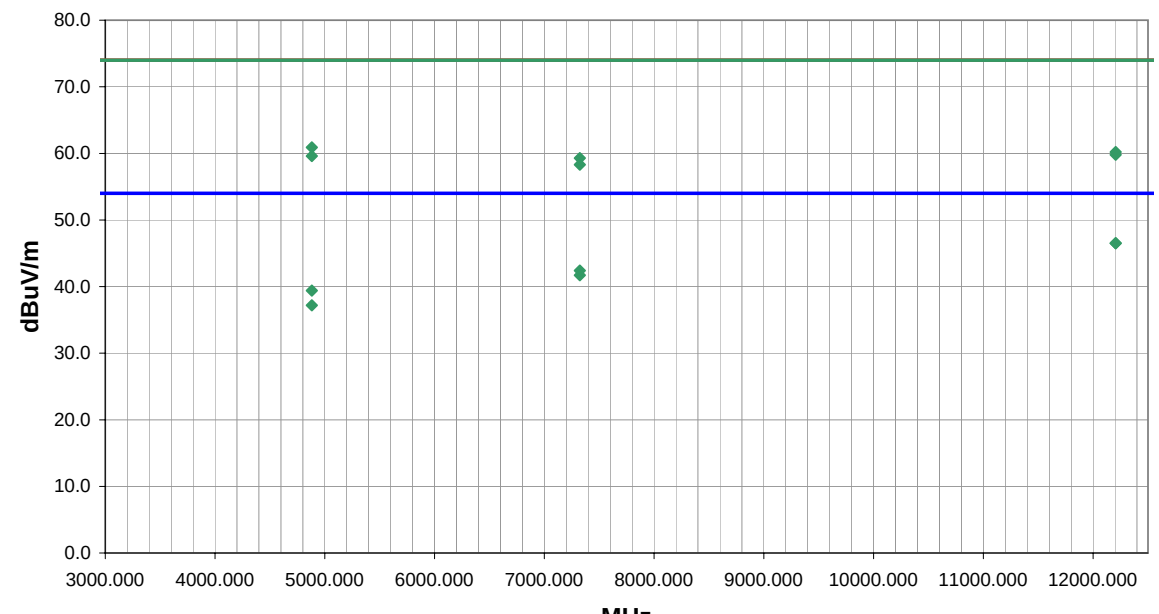


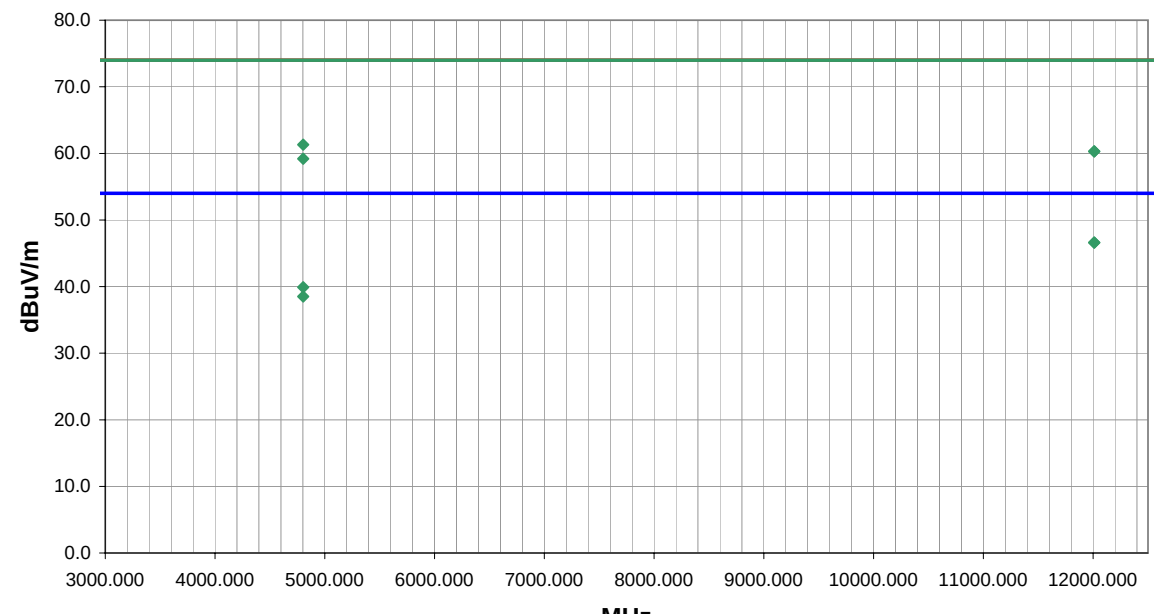
NORTHWEST EMC										RADIATED EMISSIONS DATA SHEET				REV df4.7 12/21/2004	
EUT: PB42 printer						Work Order: INMC0163									
Serial Number: SAC001						Date: 12/23/04									
Customer: INTERMEC Technologies Corporation						Temperature: 22									
Attendees: none						Humidity: 32%									
Cust. Ref. No.:						Barometric Pressure: 30.53									
Tested by: Holly Ashkannejhad				Power: 120VAC, 60Hz		Job Site: EV01									
TEST SPECIFICATIONS															
Specification: FCC 15.247(d) Spurious Radiated Emissions:2004						Method: ANSI C63.4:2003									
SAMPLE CALCULATIONS															
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation															
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator															
COMMENTS															
AC Powered															
EUT OPERATING MODES															
Transmitting no-hop, high channel (2480MHz).															
DEVIATIONS FROM TEST STANDARD															
No deviations.															
RESULTS										Run #					
Pass										4					
Other															
										 Tested By:					
															
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)			
7440.107	32.7	11.1	98.0	2.1	3.0	0.0	H-Horn	AV	0.0	43.8	54.0	-10.2			
7440.107	32.2	11.1	164.0	1.4	3.0	0.0	H-Horn	AV	0.0	43.3	54.0	-10.7			
7440.107	49.5	11.1	98.0	2.1	3.0	0.0	H-Horn	PK	0.0	60.6	74.0	-13.4			
7440.107	48.5	11.1	164.0	1.4	3.0	0.0	H-Horn	PK	0.0	59.6	74.0	-14.4			
4959.979	55.1	3.6	249.0	1.5	3.0	0.0	V-Horn	PK	0.0	58.7	74.0	-15.3			
4959.979	34.7	3.6	249.0	1.5	3.0	0.0	V-Horn	AV	0.0	38.3	54.0	-15.7			
4959.979	34.2	3.6	59.0	1.6	3.0	0.0	H-Horn	AV	0.0	37.8	54.0	-16.2			
4959.979	53.7	3.6	59.0	1.6	3.0	0.0	H-Horn	PK	0.0	57.3	74.0	-16.7			

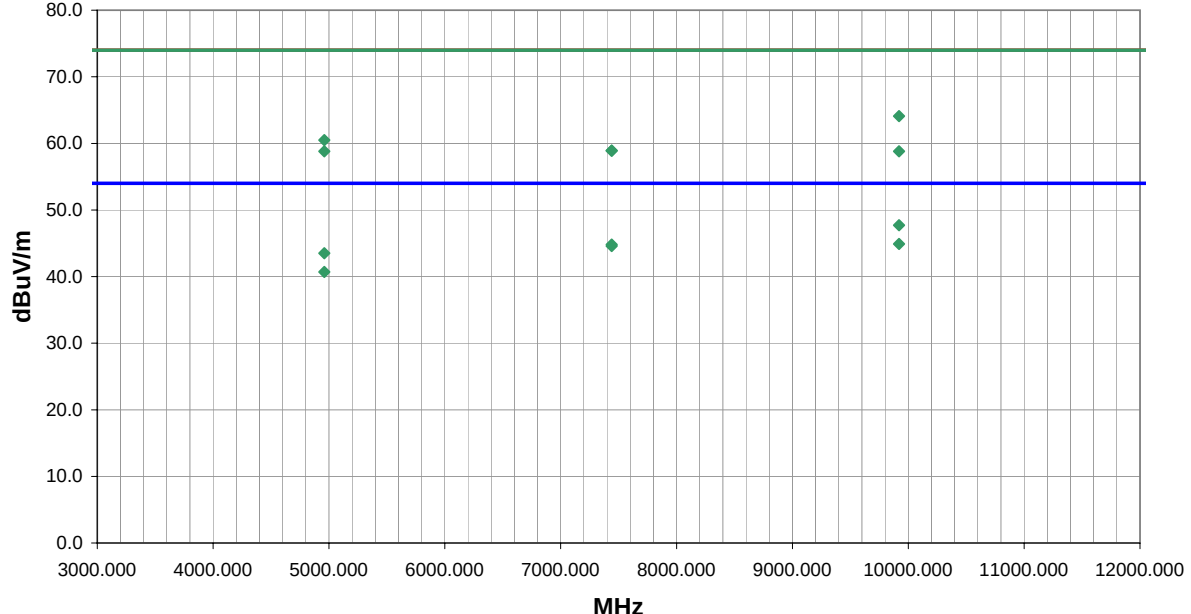
NORTHWEST EMC		RADIATED EMISSIONS DATA SHEET		REV df4.7 12/21/2004	
EUT: PB42 printer			Work Order: INMC0163		
Serial Number: SAC001			Date: 12/23/04		
Customer: INTERMEC Technologies Corporation			Temperature: 22		
Attendees: none			Humidity: 32%		
Cust. Ref. No.:			Barometric Pressure: 30.53		
Tested by: Holly Ashkannejhad		Power: 120VAC, 60Hz		Job Site: EV01	
TEST SPECIFICATIONS					
Specification: FCC 15.247(d) Spurious Radiated Emissions:2004			Method: ANSI C63.4:2003		
SAMPLE CALCULATIONS					
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation					
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator					
COMMENTS					
AC Powered					
EUT OPERATING MODES					
Transmitting no-hop, high channel (2480MHz).					
DEVIATIONS FROM TEST STANDARD					
No deviations.					
RESULTS					Run #
Pass					5
Other					
					 Tested By:

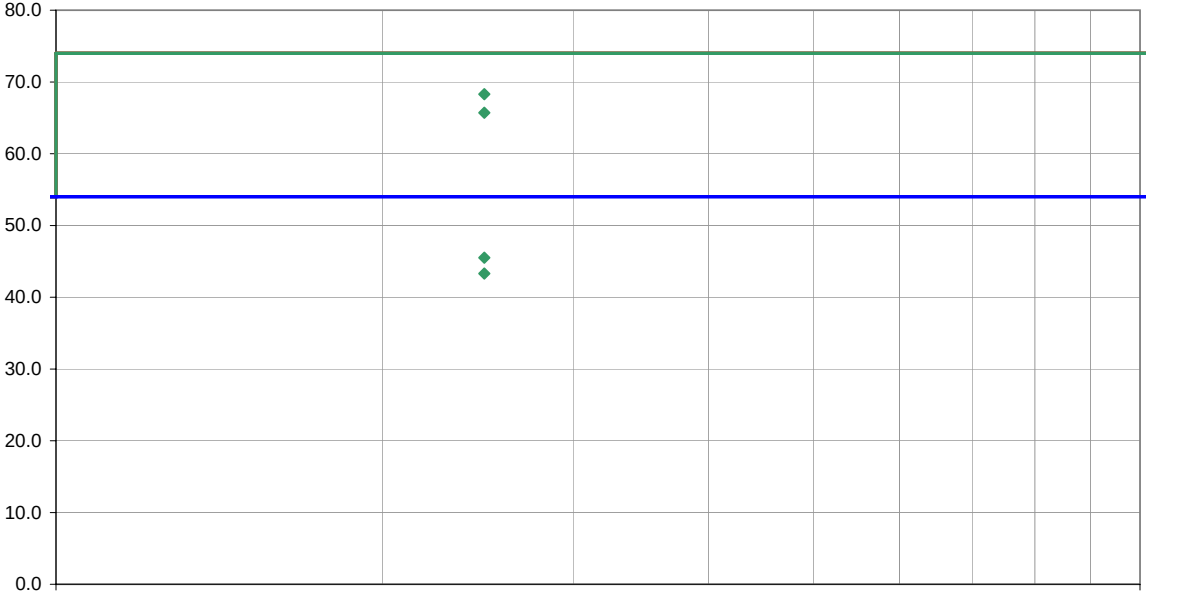


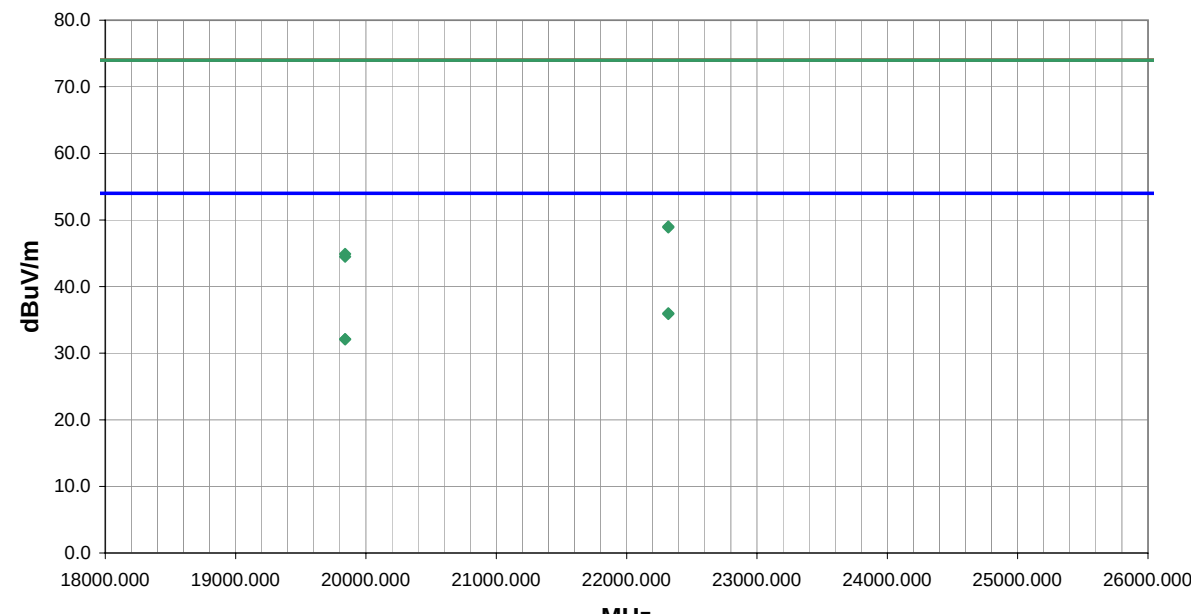
NORTHWEST EMC		RADIATED EMISSIONS DATA SHEET		REV df4.7 12/21/2004								
EUT: PB42 printer			Work Order: INMC0163									
Serial Number: SAC001			Date: 12/26/04									
Customer: INTERMEC Technologies Corporation			Temperature: 24									
Attendees: none			Humidity: 31%									
Cust. Ref. No.:			Barometric Pressure: 30.53									
Tested by: Holly Ashkannejhad		Power: 120VAC/60Hz		Job Site: EV01								
TEST SPECIFICATIONS												
Specification: FCC 15.247(d) Spurious Radiated Emissions:2004			Method: ANSI C63.4:2003									
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Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation												
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Transmitting no-hop, high channel (2480MHz).												
DEVIATIONS FROM TEST STANDARD												
No deviations.												
RESULTS					Run #							
Pass					6							
Other												
					 Tested By:							
												
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
22320.000	26.8	9.2	360.0	1.0	3.0	0.0	I-High Horr	AV	0.0	36.0	54.0	-18.0
22320.000	26.7	9.2	-1.0	1.0	3.0	0.0	V-High Horr	AV	0.0	35.9	54.0	-18.1
19840.000	23.4	8.9	360.0	1.0	3.0	0.0	I-High Horr	AV	0.0	32.3	54.0	-21.7
19840.000	23.3	8.9	0.0	1.0	3.0	0.0	V-High Horr	AV	0.0	32.2	54.0	-21.8
22320.000	40.2	9.2	-1.0	1.0	3.0	0.0	V-High Horr	PK	0.0	49.4	74.0	-24.6
22320.000	39.5	9.2	360.0	1.0	3.0	0.0	I-High Horr	PK	0.0	48.7	74.0	-25.3
19840.000	36.3	8.9	360.0	1.0	3.0	0.0	I-High Horr	PK	0.0	45.2	74.0	-28.8
19840.000	36.3	8.9	0.0	1.0	3.0	0.0	V-High Horr	PK	0.0	45.2	74.0	-28.8

NORTHWEST EMC										ACQ 2005.1.3 EMI 2005.1.3			
RADIATED EMISSIONS DATA SHEET													
EUT: PB42 printer					Work Order: INMC0163								
Serial Number: SAC001					Date: 01/10/05								
Customer: INTERMEC Technologies Corporation					Temperature: 22								
Attendees: None					Humidity: 29%								
Cust. Ref. No.:					Barometric Pressure: 30.06								
Tested by: Holly Ashkannejhad			Power: 120VAC, 60Hz		Job Site: EV01								
TEST SPECIFICATIONS													
Specification: FCC 15.247(d) Spurious Radiated Emissions:2004					Method: ANSI C63.4:2003								
SAMPLE CALCULATIONS													
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation													
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator													
COMMENTS													
AC Powered													
EUT OPERATING MODES													
No hop, mid channel (2441MHz)													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
RESULTS												Run #	
Pass												6	
Other													
 Tested By:													
													
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	
12205.000	26.1	20.4	245.0	2.0	3.0	0.0	V-Horn	AV	0.0	46.5	54.0	-7.5	
12205.000	26.1	20.4	37.0	1.3	3.0	0.0	H-Horn	AV	0.0	46.5	54.0	-7.5	
7322.993	31.9	10.5	46.0	1.2	3.0	0.0	V-Horn	AV	0.0	42.4	54.0	-11.6	
7322.993	31.2	10.5	43.0	1.6	3.0	0.0	H-Horn	AV	0.0	41.7	54.0	-12.3	
4881.988	57.3	3.6	301.0	1.2	3.0	0.0	V-Horn	PK	0.0	60.9	74.0	-13.1	
12205.000	39.8	20.4	245.0	2.0	3.0	0.0	V-Horn	PK	0.0	60.2	74.0	-13.8	
12205.000	39.4	20.4	37.0	1.3	3.0	0.0	H-Horn	PK	0.0	59.8	74.0	-14.2	
4881.988	56.0	3.6	69.0	1.4	3.0	0.0	H-Horn	PK	0.0	59.6	74.0	-14.4	
4881.988	35.8	3.6	301.0	1.2	3.0	0.0	V-Horn	AV	0.0	39.4	54.0	-14.6	
7322.993	48.8	10.5	46.0	1.2	3.0	0.0	V-Horn	PK	0.0	59.3	74.0	-14.7	
7322.993	47.8	10.5	43.0	1.6	3.0	0.0	H-Horn	PK	0.0	58.3	74.0	-15.7	
4881.988	33.6	3.6	69.0	1.4	3.0	0.0	H-Horn	AV	0.0	37.2	54.0	-16.8	

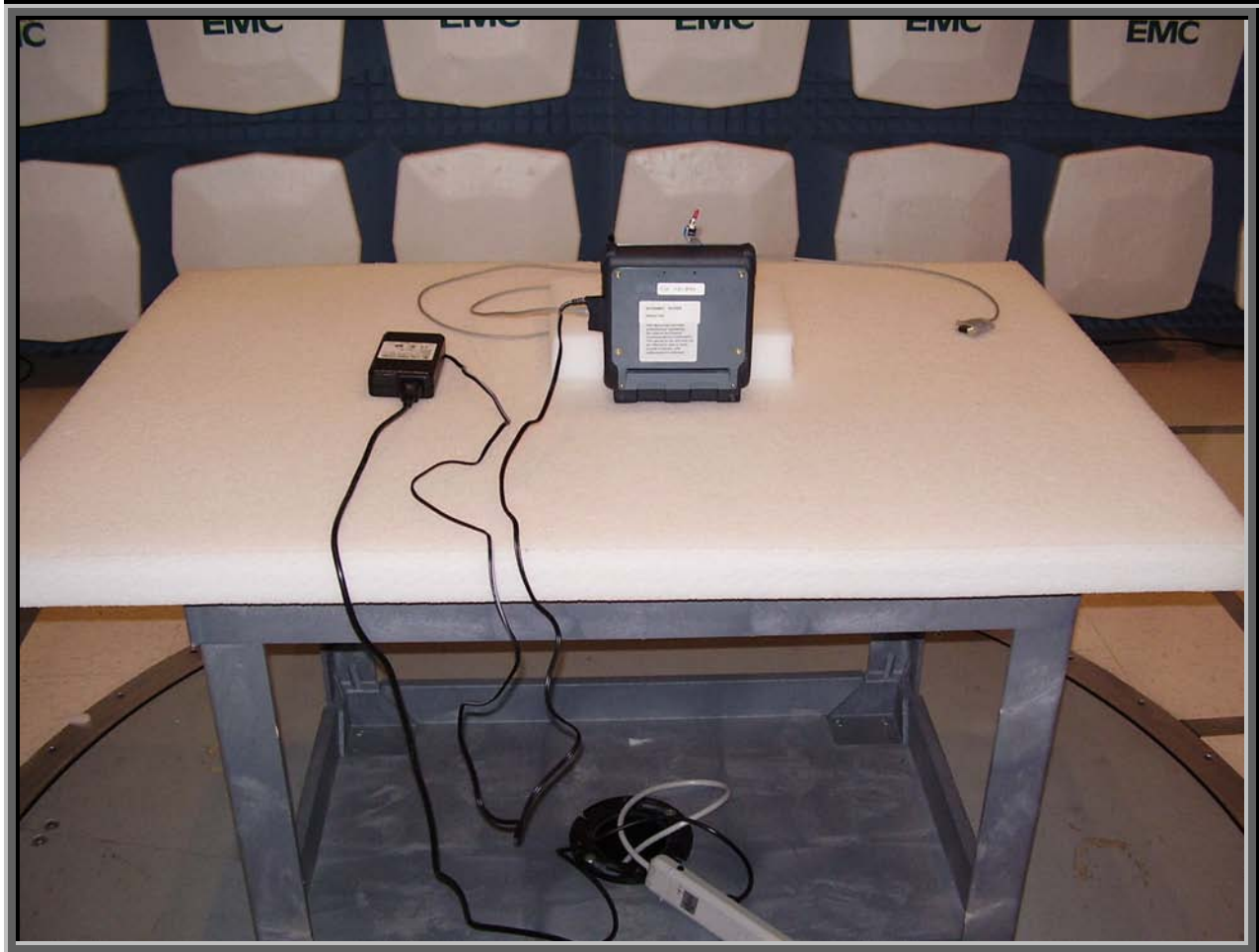
NORTHWEST EMC										RADIATED EMISSIONS DATA SHEET					ACQ 2005.1.3 EMI 2005.1.3
EUT: PB42 printer										Work Order: INMC0163					
Serial Number: SAC001										Date: 01/10/05					
Customer: INTERMEC Technologies Corporation										Temperature: 22					
Attendees: None										Humidity: 29%					
Cust. Ref. No.:										Barometric Pressure: 30.06					
Tested by: Holly Ashkannejhad						Power: 120VAC, 60Hz		Job Site: EV01							
TEST SPECIFICATIONS															
Specification: FCC 15.247(d) Spurious Radiated Emissions:2004						Method: ANSI C63.4:2003									
SAMPLE CALCULATIONS															
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation															
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator															
COMMENTS															
AC Powered															
EUT OPERATING MODES															
No hop, low channel (2402MHz)															
DEVIATIONS FROM TEST STANDARD															
No deviations.															
RESULTS															
Pass													Run #		
													7		
Other						 Tested By:									
															
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)			
12010.000	26.5	20.1	250.0	2.5	3.0	0.0	H-Horn	AV	0.0	46.6	54.0	-7.4			
12010.000	26.5	20.1	236.0	3.7	3.0	0.0	V-Horn	AV	0.0	46.6	54.0	-7.4			
4803.917	58.0	3.3	167.0	1.4	3.0	0.0	H-Horn	PK	0.0	61.3	74.0	-12.7			
12010.000	40.2	20.1	250.0	2.5	3.0	0.0	H-Horn	PK	0.0	60.3	74.0	-13.7			
12010.000	40.2	20.1	236.0	3.7	3.0	0.0	V-Horn	PK	0.0	60.3	74.0	-13.7			
4803.917	36.6	3.3	167.0	1.4	3.0	0.0	H-Horn	AV	0.0	39.9	54.0	-14.1			
4803.917	55.9	3.3	22.0	1.2	3.0	0.0	V-Horn	PK	0.0	59.2	74.0	-14.8			
4803.917	35.2	3.3	22.0	1.2	3.0	0.0	V-Horn	AV	0.0	38.5	54.0	-15.5			

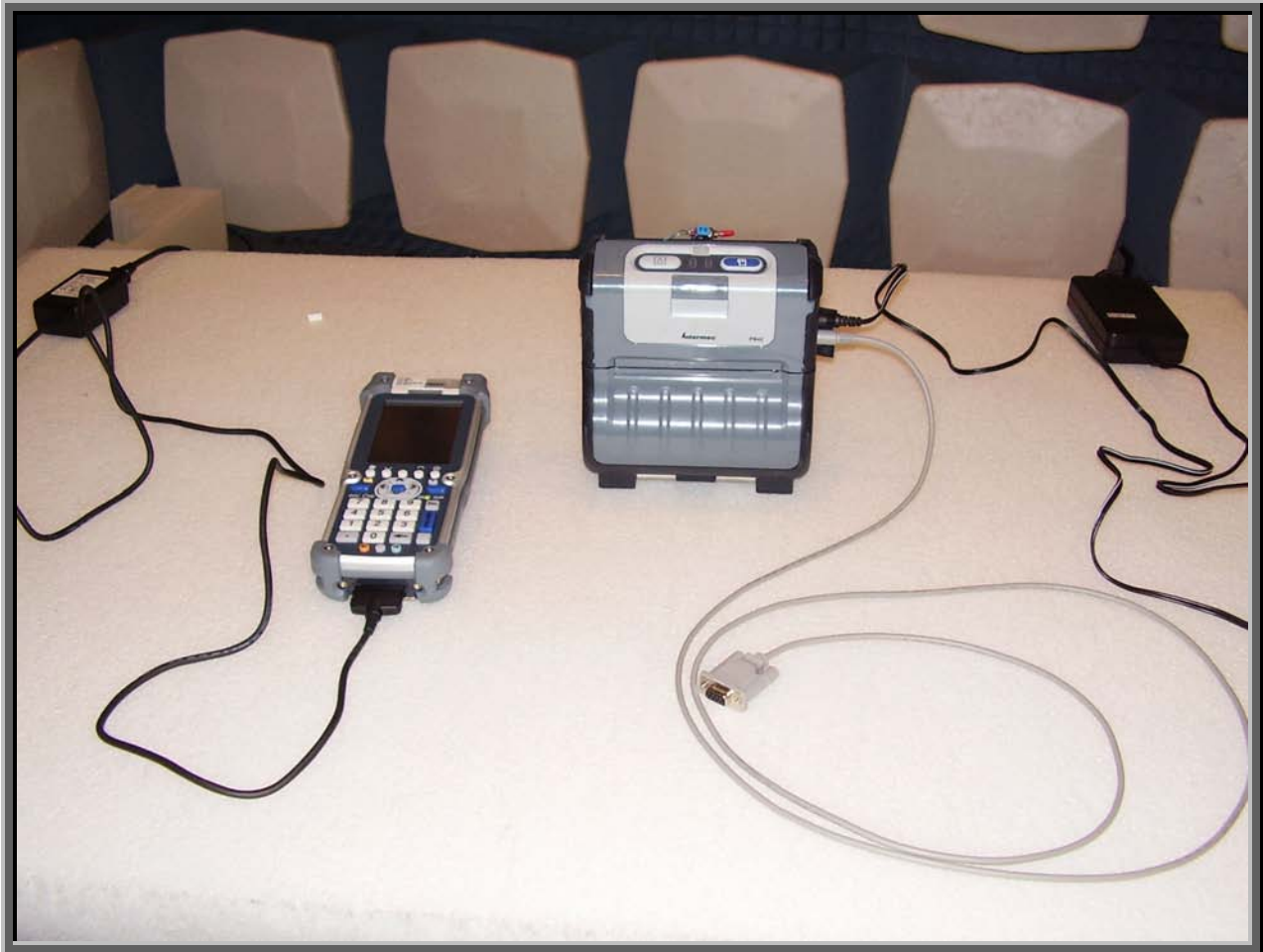
NORTHWEST EMC										RADIATED EMISSIONS DATA SHEET				REV d4.6 12/14/2004	
EUT: PB42 printer and CK60 w/BTM311 radio										Work Order: INMC0163					
Serial Number:										Date: 12/20/04					
Customer: INTERMEC Technologies Corporation										Temperature: 22					
Attendees: none										Humidity: 33%					
Cust. Ref. No.:										Barometric Pressure: 30.48					
Tested by: Dan Haas					Power: 120VAC/60Hz					Job Site: EV01					
TEST SPECIFICATIONS															
Specification: FCC 15.247(d) Spurious Radiated Emissions:2004										Method: ANSI C63.4:2003					
SAMPLE CALCULATIONS															
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation															
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator															
COMMENTS															
PB42 (SN:SAC001) and CK60 (SN:26390400062) co-located on tabletop with radios installed.															
EUT OPERATING MODES															
No-hop, High channel (2480MHz) on both radios.															
DEVIATIONS FROM TEST STANDARD															
No deviations.															
RESULTS												Run #			
Pass												1			
Other															
										 Tested By:					
															
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)			
9920.004	31.5	16.2	278.0	1.2	3.0	0.0	V-Horn	AV	0.0	47.7	54.0	-6.3			
9920.004	28.7	16.2	199.0	1.3	3.0	0.0	H-Horn	AV	0.0	44.9	54.0	-9.1			
7439.983	33.7	11.1	206.0	1.2	3.0	0.0	H-Horn	AV	0.0	44.8	54.0	-9.2			
7439.983	33.5	11.1	224.0	1.2	3.0	0.0	V-Horn	AV	0.0	44.6	54.0	-9.4			
9920.004	47.9	16.2	278.0	1.2	3.0	0.0	V-Horn	PK	0.0	64.1	74.0	-9.9			
4959.990	39.9	3.6	244.0	1.1	3.0	0.0	H-Horn	AV	0.0	43.5	54.0	-10.5			
4959.990	37.1	3.6	258.0	1.3	3.0	0.0	V-Horn	AV	0.0	40.7	54.0	-13.3			
4959.990	56.9	3.6	258.0	1.3	3.0	0.0	V-Horn	PK	0.0	60.5	74.0	-13.5			
7439.983	47.8	11.1	206.0	1.2	3.0	0.0	H-Horn	PK	0.0	58.9	74.0	-15.1			
7439.983	47.8	11.1	224.0	1.2	3.0	0.0	V-Horn	PK	0.0	58.9	74.0	-15.1			
4959.990	55.2	3.6	244.0	1.1	3.0	0.0	H-Horn	PK	0.0	58.8	74.0	-15.2			
9920.004	42.6	16.2	199.0	1.3	3.0	0.0	H-Horn	PK	0.0	58.8	74.0	-15.2			

NORTHWEST EMC										RADIATED EMISSIONS DATA SHEET				REV d4.6 12/14/2004	
EUT: PB42 printer and CK60 w/BTM311 radio										Work Order: INMC0163					
Serial Number:										Date: 12/20/04					
Customer: INTERMEC Technologies Corporation										Temperature: 22					
Attendees: none										Humidity: 33%					
Cust. Ref. No.:										Barometric Pressure: 30.48					
Tested by: Dan Haas					Power: 120VAC/60Hz					Job Site: EV01					
TEST SPECIFICATIONS															
Specification: FCC 15.247(d) Spurious Radiated Emissions:2004										Method: ANSI C63.4:2003					
SAMPLE CALCULATIONS															
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation															
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator															
COMMENTS															
PB42 (SN:SAC001) and CK60 (SN:26390400062) co-located on tabletop with radios installed.															
EUT OPERATING MODES															
No-hop, High channel (2480MHz) on both radios.															
DEVIATIONS FROM TEST STANDARD															
No deviations.															
RESULTS												Run #			
Pass												2			
Other															
										 Tested By:					
															
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)			
2483.500	50.5	-2.2	242.0	2.6	3.0	20.0	H-Horn	PK	0.0	68.3	74.0	-5.7			
2483.500	47.9	-2.2	330.0	1.2	3.0	20.0	V-Horn	PK	0.0	65.7	74.0	-8.3			
2483.500	27.7	-2.2	242.0	2.6	3.0	20.0	H-Horn	AV	0.0	45.5	54.0	-8.5			
2483.500	25.5	-2.2	330.0	1.2	3.0	20.0	V-Horn	AV	0.0	43.3	54.0	-10.7			

NORTHWEST EMC										RADIATED EMISSIONS DATA SHEET				REV df4.7 12/21/2004	
EUT: PB42 printer and CK60 w/BTM311 radio										Work Order: INMC0163					
Serial Number: SAC001										Date: 12/26/04					
Customer: INTERMEC Technologies Corporation										Temperature: 24					
Attendees: none										Humidity: 31%					
Cust. Ref. No.:										Barometric Pressure: 30.53					
Tested by: Holly Ashkannejhad						Power: 120VAC/60Hz		Job Site: EV01							
TEST SPECIFICATIONS															
Specification: FCC 15.247(d) Spurious Radiated Emissions:2004						Method: ANSI C63.4:2003									
SAMPLE CALCULATIONS															
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation															
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator															
COMMENTS															
PB42 (SN:SAC001) and CK60 (SN:2639040073) colocated on tabletop with radios installed. AC Powered															
EUT OPERATING MODES															
No-hop, high channel (2480MHz) on both radios.															
DEVIATIONS FROM TEST STANDARD															
No deviations.															
RESULTS												Run #			
Pass												7			
Other															
										 Tested By:					
															
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)			
22320.000	26.8	9.2	337.0	1.0	3.0	0.0	V-High Horr	AV	0.0	36.0	54.0	-18.0			
22320.000	26.7	9.2	220.0	1.1	3.0	0.0	I-High Horr	AV	0.0	35.9	54.0	-18.1			
19840.000	23.2	8.9	360.0	1.0	3.0	0.0	I-High Horr	AV	0.0	32.1	54.0	-21.9			
19840.000	23.2	8.9	-1.0	1.0	3.0	0.0	V-High Horr	AV	0.0	32.1	54.0	-21.9			
22320.000	39.8	9.2	220.0	1.1	3.0	0.0	I-High Horr	PK	0.0	49.0	74.0	-25.0			
22320.000	39.7	9.2	337.0	1.0	3.0	0.0	V-High Horr	PK	0.0	48.9	74.0	-25.1			
19840.000	36.0	8.9	-1.0	1.0	3.0	0.0	V-High Horr	PK	0.0	44.9	74.0	-29.1			
19840.000	35.6	8.9	360.0	1.0	3.0	0.0	I-High Horr	PK	0.0	44.5	74.0	-29.5			









Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

High

Mid

Low

Operating Modes Investigated:

No Hop

Data Rates Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Other Settings Investigated:

Co-located with CK60

Standalone

Software/Firmware Applied During Test

Exercise software	BlueTest	Version	Unknown
Description			
The Bluetest software exercises the Bluetooth radio in the printer and the handheld computer and allows for channel selection.			

EUT and Peripherals

Description	Manufacturer	Model/Part Number	Serial Number
Bluetooth Enabled Printer	Intermec Technologies Corporation	PB42	SAC001
AC Adapter	Elpac Power Systems	FW5012-760	004275

Remote Equipment Outside of Test Setup Boundary

Description	Manufacturer	Model/Part Number	Serial Number
Laptop Computer	Dell	Latitude	Loaner #5
Equipment isolated from the EUT so as not to contribute to the measurement result is considered to be outside the test setup boundary			

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Communication Cable	No	2.0	No	Host - Printer	Unterminated during test (Connected to Laptop for setup)
DC Leads	PA	1.6	PA	Host - Printer	AC Adapter
AC Power	No	2.0	No	AC Adapter	AC Mains
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

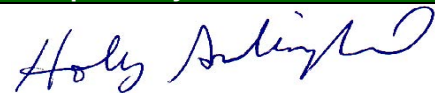
Measurement Equipment					
Description	Manufacturer	Model	Identifier	Last Cal	Interval
LISN	Solar	9252-50-R-24-BNC	LIN	12/16/2003	13 mo
High Pass Filter	TTE	H97-100k-50-720B	HFC	02/01/2004	13 mo
Quasi-Peak Adapter	Hewlett-Packard	85650A	AQF	12/02/2004	13 mo
Spectrum Analyzer	Hewlett-Packard	8566B	AAL	12/02/2004	13 mo

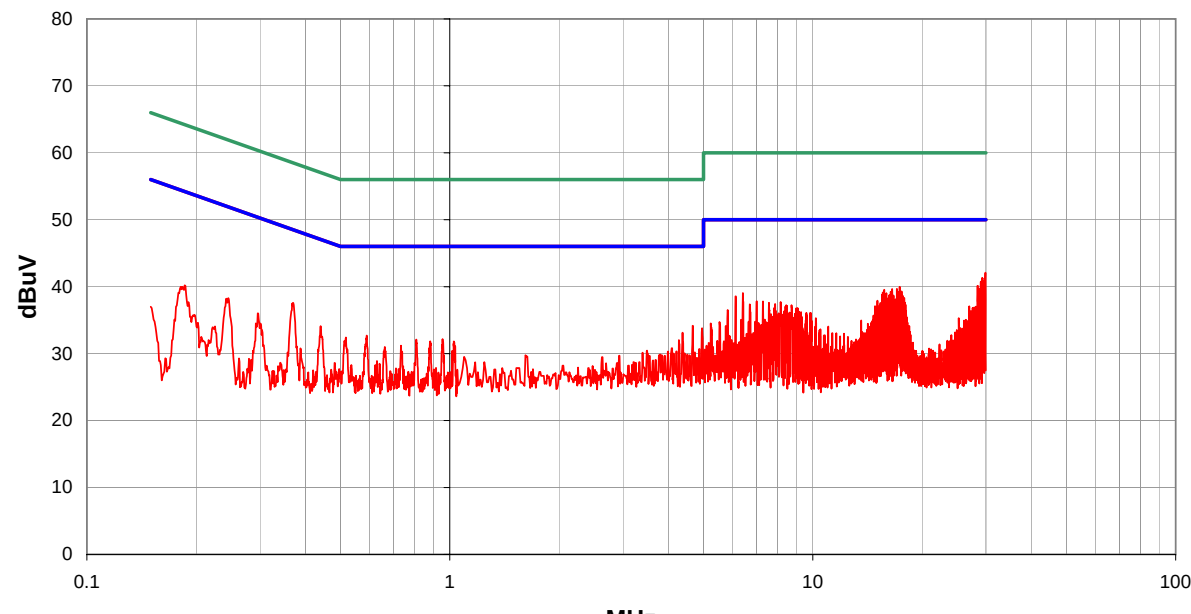
Test Description

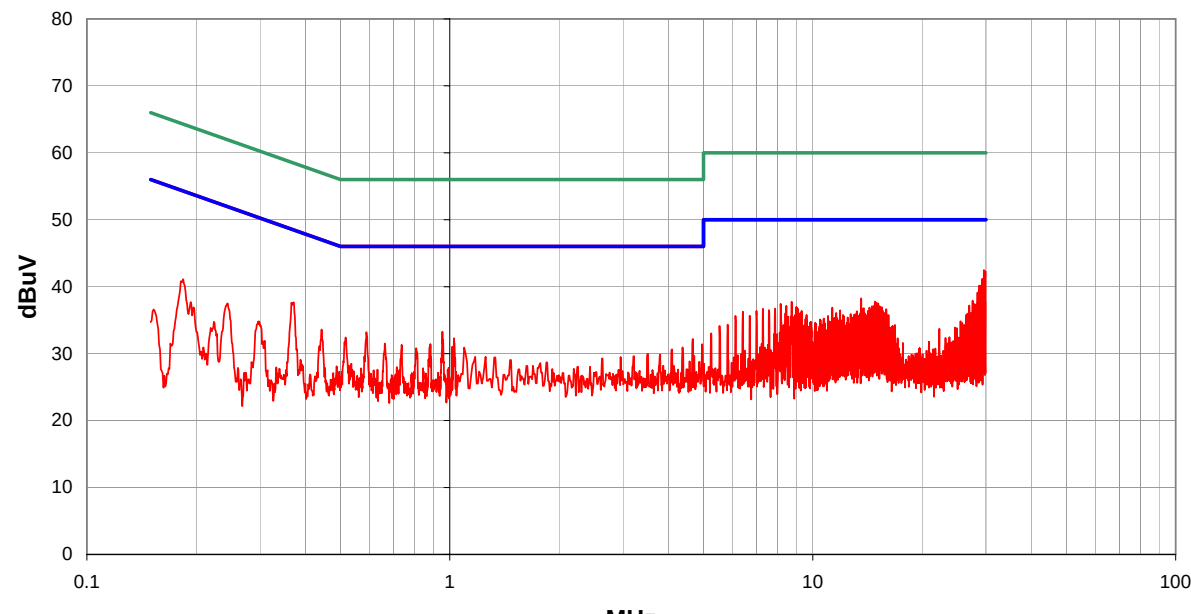
Requirement: Per 47 15.207(d), if the EUT is connected to the AC power line indirectly, obtaining its power from another device that is connected to the AC power line, then it should be tested to demonstrate compliance with the conducted limits of 15.207.

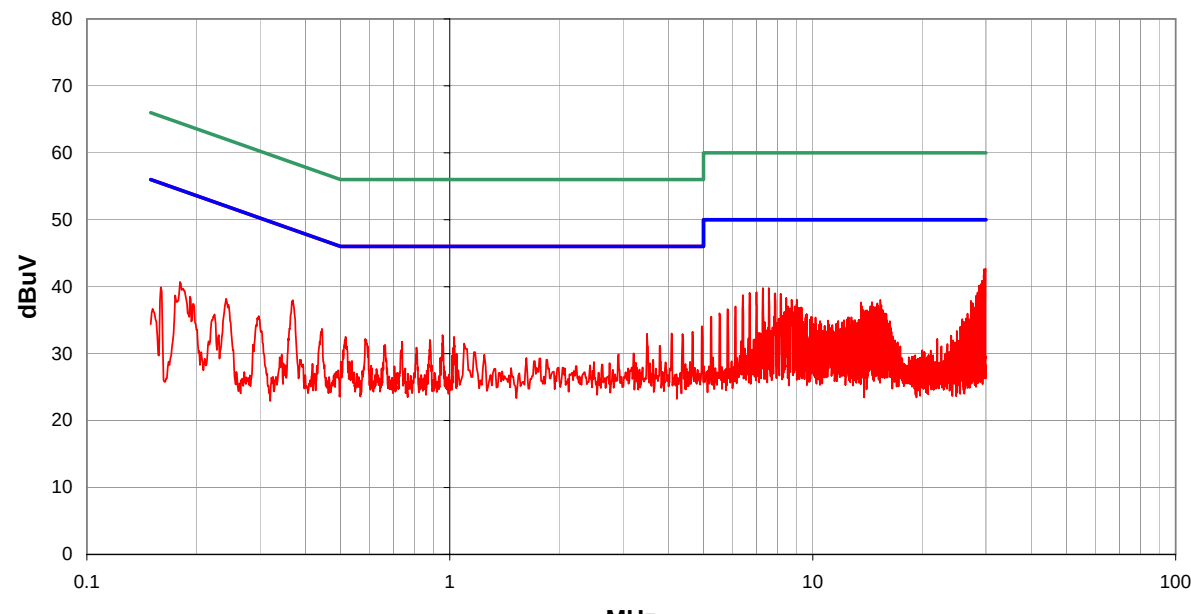
Configuration: The EUT will be powered from a device that could be connected to the AC power line. Therefore, the measurements were made on the device used to power the EUT. The AC power line conducted emissions were measured with the EUT operating at the lowest, the highest, and a middle channel in the operational band. The EUT was transmitting at its maximum data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.4-2003.

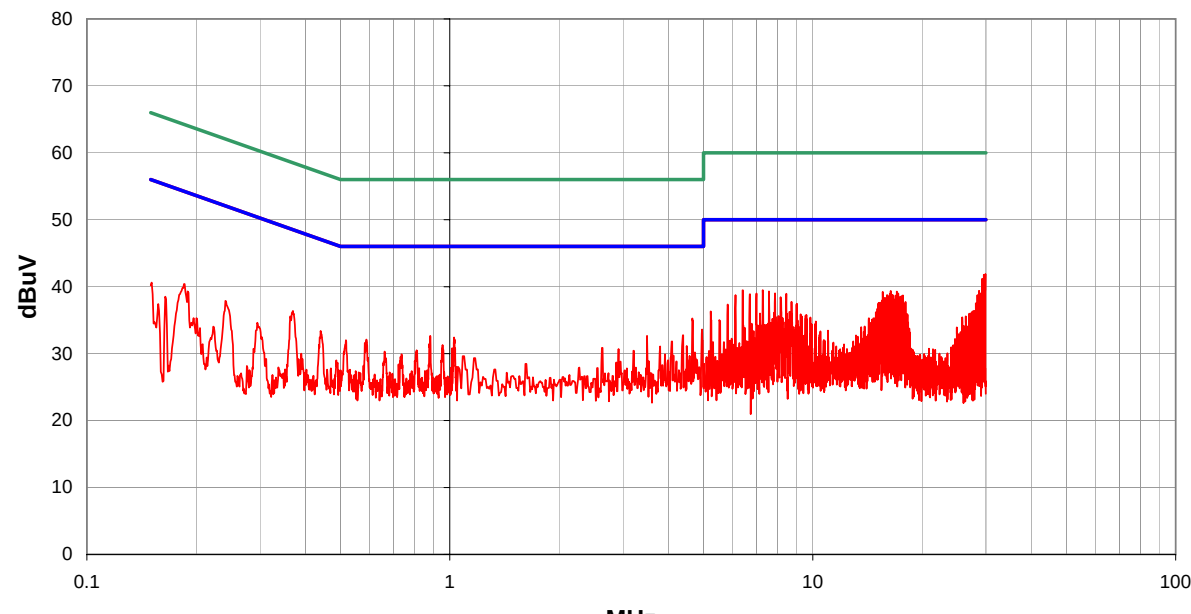
Completed by:

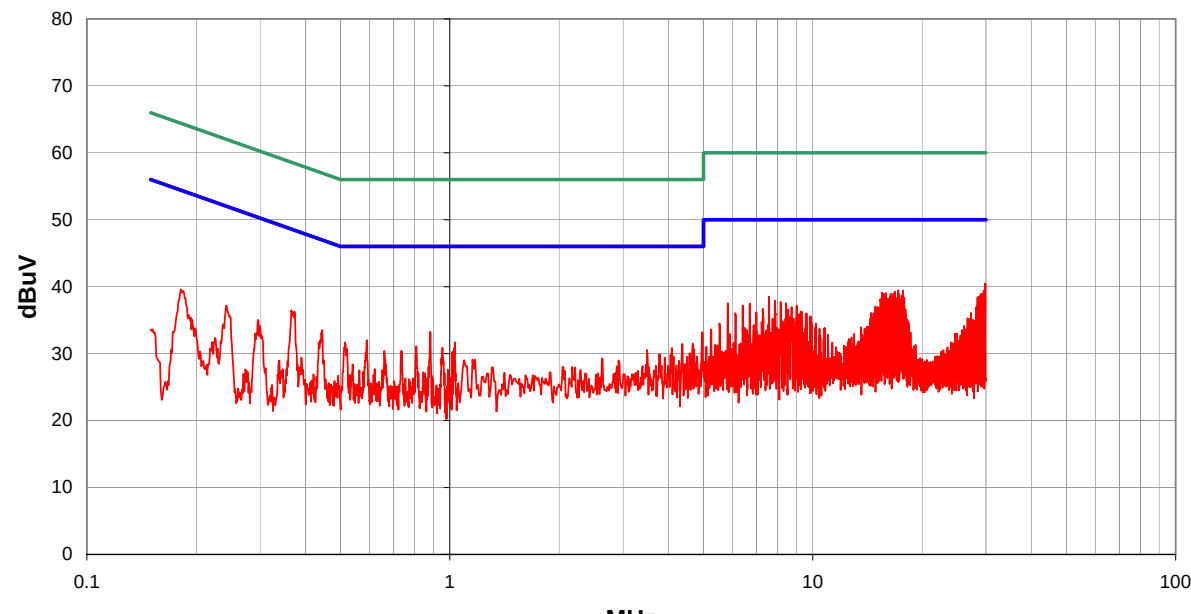


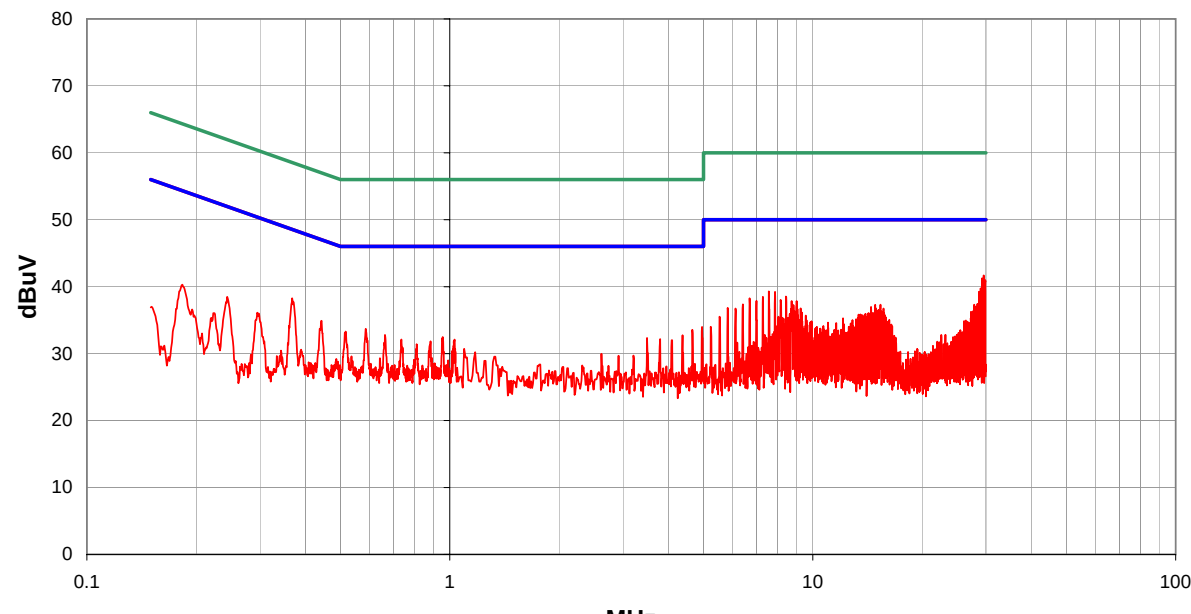
NORTHWEST EMC		CONDUCTED EMISSIONS DATA SHEET				REV d4.7 12/21/2004						
EUT: PB42					Work Order: INMC0163							
Serial Number: SAC001					Date: 12/23/04							
Customer: INTERMEC Technologies Corporation					Temperature: 24							
Attendees: none					Humidity: 31%							
Cust. Ref. No.:					Barometric Pressure: 30.53							
Tested by: Holly Ashkannejhad				Power: 120VAC, 60Hz		Job Site: EV01						
TEST SPECIFICATIONS												
Specification: FCC 15.207 AC Powerline Conducted Emissions:2004					Method: ANSI C63.4:2003							
SAMPLE CALCULATIONS												
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation												
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator												
COMMENTS												
AC Powered												
EUT OPERATING MODES												
Transmitting no-hop, high channel (2480MHz).												
DEVIATIONS FROM TEST STANDARD												
No deviations.												
RESULTS					Line		Run #					
Pass					L1		1					
Other					 Tested By:							
												
Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
29.912	20.4			0.0	1.7	20.0				42.1	50.0	-7.9
29.340	19.6			0.0	1.7	20.0				41.3	50.0	-8.7
29.626	19.2			0.0	1.7	20.0				40.9	50.0	-9.1
29.032	19.1			0.0	1.7	20.0				40.8	50.0	-9.2
28.460	18.5			0.0	1.6	20.0				40.1	50.0	-9.9
17.352	18.8			0.0	1.2	20.0				40.0	50.0	-10.0
17.064	18.5			0.0	1.2	20.0				39.7	50.0	-10.3
16.548	18.5			0.0	1.2	20.0				39.7	50.0	-10.3
28.746	18.0			0.0	1.6	20.0				39.6	50.0	-10.4
15.744	18.4			0.0	1.1	20.0				39.5	50.0	-10.5
17.568	18.1			0.0	1.2	20.0				39.3	50.0	-10.7
16.392	18.1			0.0	1.2	20.0				39.3	50.0	-10.7
17.424	18.0			0.0	1.2	20.0				39.2	50.0	-10.8
17.208	18.0			0.0	1.2	20.0				39.2	50.0	-10.8
15.600	18.0			0.0	1.1	20.0				39.1	50.0	-10.9
0.371	17.4			0.0	0.2	20.0				37.6	48.5	-10.9
6.418	18.3			0.0	0.8	20.0				39.1	50.0	-10.9
15.960	17.9			0.0	1.1	20.0				39.0	50.0	-11.0
15.888	17.7			0.0	1.1	20.0				38.8	50.0	-11.2

NORTHWEST EMC		CONDUCTED EMISSIONS DATA SHEET				REV d4.7 12/21/2004						
EUT: PB42					Work Order: INMC0163							
Serial Number: SAC001					Date: 12/23/04							
Customer: INTERMEC Technologies Corporation					Temperature: 24							
Attendees: none					Humidity: 31%							
Cust. Ref. No.:					Barometric Pressure: 30.53							
Tested by: Holly Ashkannejhad				Power: 120VAC, 60Hz	Job Site: EV01							
TEST SPECIFICATIONS												
Specification: FCC 15.207 AC Powerline Conducted Emissions:2004				Method: ANSI C63.4:2003								
SAMPLE CALCULATIONS												
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation												
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator												
COMMENTS												
AC Powered												
EUT OPERATING MODES												
Transmitting no-hop, high channel (2480MHz).												
DEVIATIONS FROM TEST STANDARD												
No deviations.												
RESULTS					Line	Run #						
Pass					N	2						
Other					 Tested By:							
												
Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
29.626	20.8			0.0	1.7	20.0				42.5	50.0	-7.5
29.912	20.6			0.0	1.7	20.0				42.3	50.0	-7.7
29.340	19.5			0.0	1.7	20.0				41.2	50.0	-8.8
28.999	18.5			0.0	1.7	20.0				40.2	50.0	-9.8
28.746	18.5			0.0	1.6	20.0				40.1	50.0	-9.9
0.371	17.5			0.0	0.2	20.0				37.7	48.5	-10.8
28.449	17.5			0.0	1.6	20.0				39.1	50.0	-10.9
13.608	17.2			0.0	1.0	20.0				38.2	50.0	-11.8
27.580	16.3			0.0	1.6	20.0				37.9	50.0	-12.1
14.856	16.7			0.0	1.1	20.0				37.8	50.0	-12.2
8.749	16.9			0.0	0.8	20.0				37.7	50.0	-12.3
14.988	16.5			0.0	1.1	20.0				37.6	50.0	-12.4
15.144	16.4			0.0	1.1	20.0				37.5	50.0	-12.5
8.159	16.6			0.0	0.8	20.0				37.4	50.0	-12.6
27.888	15.8			0.0	1.6	20.0				37.4	50.0	-12.6
28.174	15.7			0.0	1.6	20.0				37.3	50.0	-12.7
0.954	13.0			0.0	0.3	20.0				33.3	46.0	-12.7
0.589	13.0			0.0	0.2	20.0				33.2	46.0	-12.8
14.928	16.1			0.0	1.1	20.0				37.2	50.0	-12.8

NORTHWEST EMC		CONDUCTED EMISSIONS DATA SHEET				REV d4.7 12/21/2004						
EUT: PB42		Work Order: INMC0163										
Serial Number: SAC001		Date: 12/23/04										
Customer: INTERMEC Technologies Corporation		Temperature: 24										
Attendees: none		Humidity: 31%										
Cust. Ref. No.:		Barometric Pressure: 30.53										
Tested by: Holly Ashkannejhad		Power: 120VAC, 60Hz		Job Site: EV01								
TEST SPECIFICATIONS												
Specification: FCC 15.207 AC Powerline Conducted Emissions:2004		Method: ANSI C63.4:2003										
SAMPLE CALCULATIONS												
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation												
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator												
COMMENTS												
AC Powered												
EUT OPERATING MODES												
Transmitting no-hop, mid channel (2441MHz).												
DEVIATIONS FROM TEST STANDARD												
No deviations.												
RESULTS		Line		Run #								
Pass		N		3								
Other		 Tested By:										
												
Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
29.912	21.0			0.0	1.7	20.0				42.7	50.0	-7.3
29.615	20.9			0.0	1.7	20.0				42.6	50.0	-7.4
29.307	19.2			0.0	1.7	20.0				40.9	50.0	-9.1
29.032	18.7			0.0	1.7	20.0				40.4	50.0	-9.6
28.735	18.5			0.0	1.6	20.0				40.1	50.0	-9.9
7.568	19.0			0.0	0.8	20.0				39.8	50.0	-10.2
7.288	19.0			0.0	0.8	20.0				39.8	50.0	-10.2
0.370	17.8			0.0	0.2	20.0				38.0	48.5	-10.5
6.998	18.4			0.0	0.8	20.0				39.2	50.0	-10.8
28.460	17.5			0.0	1.6	20.0				39.1	50.0	-10.9
6.698	18.3			0.0	0.8	20.0				39.1	50.0	-10.9
7.878	18.2			0.0	0.8	20.0				39.0	50.0	-11.0
8.159	18.1			0.0	0.8	20.0				38.9	50.0	-11.1
6.418	18.0			0.0	0.8	20.0				38.8	50.0	-11.2
28.174	17.0			0.0	1.6	20.0				38.6	50.0	-11.4
8.449	17.5			0.0	0.8	20.0				38.3	50.0	-11.7
4.957	13.4			0.0	0.7	20.0				34.1	46.0	-11.9
9.039	17.2			0.0	0.9	20.0				38.1	50.0	-11.9
8.749	17.2			0.0	0.8	20.0				38.0	50.0	-12.0

NORTHWEST EMC		CONDUCTED EMISSIONS DATA SHEET				REV df4.7 12/21/2004						
EUT: PB42		Work Order: INMC0163										
Serial Number: SAC001		Date: 12/23/04										
Customer: INTERMEC Technologies Corporation		Temperature: 24										
Attendees: none		Humidity: 31%										
Cust. Ref. No.:		Barometric Pressure: 30.53										
Tested by: Holly Ashkannejhad		Power: 120VAC, 60Hz		Job Site: EV01								
TEST SPECIFICATIONS												
Specification: FCC 15.207 AC Powerline Conducted Emissions:2004		Method: ANSI C63.4:2003										
SAMPLE CALCULATIONS												
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation												
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator												
COMMENTS												
AC Powered												
EUT OPERATING MODES												
Transmitting no-hop, mid channel (2441MHz).												
DEVIATIONS FROM TEST STANDARD												
No deviations.												
RESULTS		Line		Run #								
Pass		L1		4								
Other		 Tested By:										
												
Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
29.901	20.2			0.0	1.7	20.0				41.9	50.0	-8.1
29.615	20.1			0.0	1.7	20.0				41.8	50.0	-8.2
29.318	19.5			0.0	1.7	20.0				41.2	50.0	-8.8
7.278	18.7			0.0	0.8	20.0				39.5	50.0	-10.5
6.418	18.7			0.0	0.8	20.0				39.5	50.0	-10.5
16.392	18.2			0.0	1.2	20.0				39.4	50.0	-10.6
28.724	17.7			0.0	1.6	20.0				39.3	50.0	-10.7
7.578	18.5			0.0	0.8	20.0				39.3	50.0	-10.7
17.052	18.1			0.0	1.2	20.0				39.3	50.0	-10.7
4.657	14.6			0.0	0.7	20.0				35.3	46.0	-10.7
15.588	18.1			0.0	1.1	20.0				39.2	50.0	-10.8
7.868	18.2			0.0	0.8	20.0				39.0	50.0	-11.0
17.208	17.8			0.0	1.2	20.0				39.0	50.0	-11.0
6.998	18.2			0.0	0.8	20.0				39.0	50.0	-11.0
29.032	17.3			0.0	1.7	20.0				39.0	50.0	-11.0
16.320	17.8			0.0	1.2	20.0				39.0	50.0	-11.0
8.459	18.1			0.0	0.8	20.0				38.9	50.0	-11.1
6.718	18.1			0.0	0.8	20.0				38.9	50.0	-11.1
16.608	17.6			0.0	1.2	20.0				38.8	50.0	-11.2

NORTHWEST EMC		CONDUCTED EMISSIONS DATA SHEET				REV d4.7 12/21/2004						
EUT: PB42		Work Order: INMC0163										
Serial Number: SAC001		Date: 12/23/04										
Customer: INTERMEC Technologies Corporation		Temperature: 24										
Attendees: none		Humidity: 31%										
Cust. Ref. No.:		Barometric Pressure: 30.53										
Tested by: Holly Ashkannejhad		Power: 120VAC, 60Hz		Job Site: EV01								
TEST SPECIFICATIONS												
Specification: FCC 15.207 AC Powerline Conducted Emissions:2004		Method: ANSI C63.4:2003										
SAMPLE CALCULATIONS												
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation												
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator												
COMMENTS												
AC Powered												
EUT OPERATING MODES												
Transmitting no-hop, low channel (2402MHz).												
DEVIATIONS FROM TEST STANDARD												
No deviations.												
RESULTS		Line		Run #								
Pass		L1		5								
Other		 Tested By:										
												
Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
29.890	18.8			0.0	1.7	20.0				40.5	50.0	-9.5
17.208	18.3			0.0	1.2	20.0				39.5	50.0	-10.5
17.736	18.2			0.0	1.2	20.0				39.4	50.0	-10.6
29.582	17.7			0.0	1.7	20.0				39.4	50.0	-10.6
16.848	18.1			0.0	1.2	20.0				39.3	50.0	-10.7
15.504	18.0			0.0	1.1	20.0				39.1	50.0	-10.9
15.888	17.9			0.0	1.1	20.0				39.0	50.0	-11.0
29.318	17.3			0.0	1.7	20.0				39.0	50.0	-11.0
16.704	17.8			0.0	1.2	20.0				39.0	50.0	-11.0
16.392	17.8			0.0	1.2	20.0				39.0	50.0	-11.0
15.660	17.8			0.0	1.1	20.0				38.9	50.0	-11.1
17.280	17.7			0.0	1.2	20.0				38.9	50.0	-11.1
29.010	17.2			0.0	1.7	20.0				38.9	50.0	-11.1
17.580	17.5			0.0	1.2	20.0				38.7	50.0	-11.3
16.536	17.5			0.0	1.2	20.0				38.7	50.0	-11.3
16.320	17.4			0.0	1.2	20.0				38.6	50.0	-11.4
28.735	16.9			0.0	1.6	20.0				38.5	50.0	-11.5
7.578	17.7			0.0	0.8	20.0				38.5	50.0	-11.5
28.460	16.8			0.0	1.6	20.0				38.4	50.0	-11.6

NORTHWEST EMC		CONDUCTED EMISSIONS DATA SHEET				REV d4.7 12/21/2004						
EUT: PB42		Work Order: INMC0163										
Serial Number: SAC001		Date: 12/23/04										
Customer: INTERMEC Technologies Corporation		Temperature: 24										
Attendees: none		Humidity: 31%										
Cust. Ref. No.:		Barometric Pressure: 30.53										
Tested by: Holly Ashkannejhad		Power: 120VAC, 60Hz		Job Site: EV01								
TEST SPECIFICATIONS												
Specification: FCC 15.207 AC Powerline Conducted Emissions:2004		Method: ANSI C63.4:2003										
SAMPLE CALCULATIONS												
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation												
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator												
COMMENTS												
AC Powered												
EUT OPERATING MODES												
Transmitting no-hop, low channel (2402MHz).												
DEVIATIONS FROM TEST STANDARD												
No deviations.												
RESULTS		Line		Run #								
Pass		N		6								
Other		 Tested By:										
												
Freq (MHz)	Amplitude (dBuV)			Transducer (dB)	Cable (dB)	External Attenuation (dB)		Detector (blank equal peaks [PK] from scan)		Adjusted dBuV	Spec. Limit dBuV	Compared to Spec. (dB)
29.593	20.0			0.0	1.7	20.0				41.7	50.0	-8.3
29.318	19.6			0.0	1.7	20.0				41.3	50.0	-8.7
29.890	19.3			0.0	1.7	20.0				41.0	50.0	-9.0
29.010	18.1			0.0	1.7	20.0				39.8	50.0	-10.2
0.368	18.1			0.0	0.2	20.0				38.3	48.6	-10.3
7.568	18.5			0.0	0.8	20.0				39.3	50.0	-10.7
28.735	17.6			0.0	1.6	20.0				39.2	50.0	-10.8
7.868	18.4			0.0	0.8	20.0				39.2	50.0	-10.8
8.439	17.7			0.0	0.8	20.0				38.5	50.0	-11.5
7.288	17.7			0.0	0.8	20.0				38.5	50.0	-11.5
6.698	17.5			0.0	0.8	20.0				38.3	50.0	-11.7
8.159	17.2			0.0	0.8	20.0				38.0	50.0	-12.0
4.957	13.3			0.0	0.7	20.0				34.0	46.0	-12.0
0.443	14.7			0.0	0.2	20.0				34.9	47.0	-12.1
6.998	17.1			0.0	0.8	20.0				37.9	50.0	-12.1
9.029	17.0			0.0	0.9	20.0				37.9	50.0	-12.1
8.749	17.0			0.0	0.8	20.0				37.8	50.0	-12.2
0.586	13.5			0.0	0.2	20.0				33.7	46.0	-12.3
4.657	12.9			0.0	0.7	20.0				33.6	46.0	-12.4



