Intermec Technologies Corporation

Test Report

CDMA (EM3420) in 700C

Co-located with Bluetooth and 802.11(b) in 700C
Co-located with Bluetooth and 802.11(b) in 700C and Bluetooth in 6820
Co-located with 802.11(b) in 700C and RFID in IP3

July 9, 2004

Report No. ITRM0030.3

Report Prepared By:

1-888-EMI-CERT

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Issue Date: July 9, 2004
Intermec Technologies Corporation
Model: CDMA (EM3420) in 700C

Emissions			
Specification	**Test Method**	**Pass**	**Fail**
FCC 15.107 AC Powerline Conducted Emissions (Receive Mode):2003	ANSI C63.4:2001	☒	☐
FCC 15.109 Radiated Emissions (Receive Mode):2003	ANSI C63.4:2001	☒	☐
FCC 22H & 24E Frequency Stability:2003	TIA/EIA-603:2001	☒	☐
FCC 22H & 24E Effective Radiated Power:2003	TIA/EIA-603:2001	☒	☐
FCC 22H & 24E Occupied Bandwidth:2003	TIA/EIA-603:2001	☒	☐
FCC 2.1046 Output Power:2003	TIA/EIA-603:2001	☒	☐
FCC 22H & 24E Spurious Conducted Emissions:2003	TIA/EIA-603:2001	☒	☐
FCC 22H & 24E Spurious Radiated Emissions:2003	TIA/EIA-603:2001	☒	☐

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

Test Facility

- The measurement facility used to collect the data is located at:
  Northwest EMC, Inc.; 22975 NW Evergreen Parkway, Suite 400; Hillsboro, OR 97124
  Phone: (503) 844-4066 Fax: 844-3826
  This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada.

Approved By:

Don Facteau, 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
00	None		

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. Accreditation has been granted to Northwest EMC, Inc. under Certificate Numbers: 200629-0, 200630-0, and 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 TUV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TUV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TUV's current Listing of CARAT Laboratories available from TUV. A certificate was issued to represent that this laboratory continues to meet TUV's CARAT Program requirements. Certificate No. USA0401C

Accreditations and Authorizations

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. - Evergreen: C-1071 and R-1025, Trails End: 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?

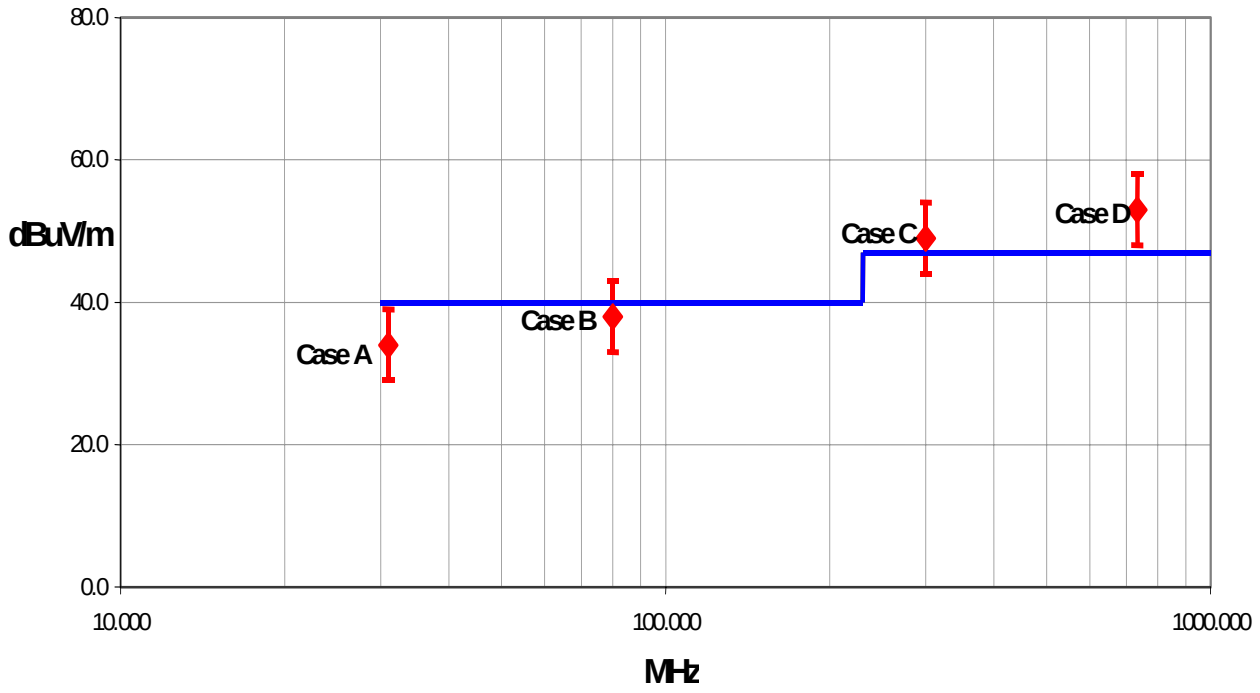
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. The following 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)					
	Probability Distribution	Biconical Antenna		Log Periodic Antenna		Dipole Antenna	
Test Distance		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 ≈ 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)		
	Probability Distribution	Without High Pass Filter	With High Pass Filter
Combined standard uncertainty $u_c(y)$	normal	+ 1.29 - 1.25	+ 1.38 - 1.35
Expanded uncertainty ***U*** (level of confidence ≈ 95%)	normal (k=2)	+ 2.57 - 2.51	+ 2.76 - -2.70

Conducted Emissions		
	Probability Distribution	Value (+/- dB)
Combined standard uncertainty ***uc(y)***	normal	1.48
Expanded uncertainty ***U*** (level of confidence ≈ 95 %)	normal (k = 2)	2.97

Radiated Immunity		
	Probability Distribution	Value (+/- dB)
Combined standard uncertainty ***uc(y)***	normal	1.05
Expanded uncertainty ***U*** (level of confidence ≈ 95 %)	normal (k = 2)	2.11

Conducted Immunity		
	Probability Distribution	Value (+/- dB)
Combined standard uncertainty ***uc(y)***	normal	1.05
Expanded uncertainty ***U*** (level of confidence ≈ 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, uc(y) yields a confidence level of only 68%.

California

Orange County Facility

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

Oregon

Evergreen Facility

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

Oregon

Trails End Facility

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

Washington

Sultan Facility

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

Party Requesting the Test	
Company Name:	Intermec Technologies Corporation
Address:	550 Second St. SE
City, State, Zip:	Cedar Rapids, IA 52401-2023
Test Requested By:	Scott Holub
Equipment Under Test:	CDMA Radio
Model:	EM3420
First Date of Test:	06-22-2004
Last Date of Test:	07-07-2004
Receipt Date of Samples:	06-15-2004
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.

Functional Description of the EUT (Equipment Under Test):

The EUT is a CDMA Radio Module installed in Intermec's 700C Handheld Computer. The radio can transmit alone or simultaneously with a Bluetooth radio and 802.11(b) radio that are also installed in the 700C. There are two other co-located radio configurations possible. The 700C can be installed in the Intermec IP3 Pistol Grip. When in this configuration, the CDMA Radio transmits simultaneously with the 802.11(b) radio in the 700C, as well as the RFID radio in the IP3. Finally, the 700C can be installed in the Intermec 6820 Printer. When in this configuration, the CDMA Radio transmits simultaneously with the 802.11(b) and Bluetooth radios in the 700C, as well as the Bluetooth radio in the 6820 Printer.

Client Justification for EUT Selection:

The EUT is a representative production sample.

Client Justification for Test Selection:

These tests satisfy the requirements FCC Part 22 for the CDMA Cellular band and FCC Part 24 for the CDMA PCS band..

EUT Photo

Equipment modifications					
Item	Test	Date	Modification	Note	Disposition of EUT
1	Spurious Radiated Emissions	06/21/2004 – 07/07/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.
2	Field Strength of Fundamental Emission	06/21/2004-06/25/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.
3	Radiated Emissions – Receive Mode	06/25/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.
4	Frequency Stability	07/01/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT was returned to client following testing.
5	Output Power	07/01/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT was returned to client following testing.
6	Occupied Bandwidth	07/01/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT was returned to client following testing.
7	Spurious Conducted Emissions	07/01/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT was returned to client following testing.
8	Conducted Emissions – Receive Mode	07/07/2004	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT was returned to client following testing.

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:
Receive

Data Rates Investigated:
Maximum

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
120 VAC, 60 Hz.

Other Settings Investigated:
Cellular Band
805-606-102 Dual Band CDMA 900/1900 MHz Antenna

Software\Firmware Applied During Test			
Exercise software	CDMA FCC Test	**Version**	6/7/04
Description			
The system was tested using special test software to exercise the functions of the device during the testing including channel, band, and operating mode.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CDMA Radio	Intermec Technologies Corporation	EM3420	Unknown
Handheld Computer	Intermec Technologies Corporation	700C	13790400008
AC Adapter	Elpac Power Systems	FW1812	014869

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Leads	PA	1.4	No	Handheld Computer	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**
Antenna, Horn	EMCO	3160-09	AHG	NCR	NA
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	10/08/2003	12 mo
Antenna, Horn	EMCO	3160-08	AHK	NCR	NA
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APC	10/08/2003	12 mo
Antenna, Horn	EMCO	3115	AHC	09/18/2003	12 mo
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APJ	01/05/2004	13 mo
Antenna, Biconilog	EMCO	3141	AXE	12/03/2003	24 mo
Pre-Amplifier	Amplifier Research	LN1000A	APS	02/05/2004	13 mo
High Pass Filter	Micro-Tronics	HPM50111	HFO	04/13/2004	13 mo
Attenuator	Pasternack	PE7001-10	ATD	02/03/2004	13 mo
Attenuator		2082-6148-20	ATE	02/03/2004	13 mo
Antenna, Horn	EMCO	3115	AHF	03/18/2004	24 mo
Signal Generator	Hewlett Packard	8341B	TGN	01/23/2004	13 mo
Antenna, Dipole (ADAA included)	Roberts	Roberts	ADA	12/27/2002	24 mo
Spectrum Analyzer	Hewlett-Packard	8566B	AAL	12/23/2003	13 mo
Quasi-Peak Adapter	Hewlett-Packard	85650A	AQF	12/23/2003	13 mo
Spectrum Analyzer	Tektronix	2784	AAO	02/26/2003	24 mo

Test Description

The final radiated emissions test was performed using the parameters described above as worst case. That final test was conducted at a facility that meets the ANSI C63.4 NSA requirements. The frequency range noted in the data sheets was scanned/tested at that facility. Emissions were maximized as specified, by maximizing table azimuth, antenna height, and cable manipulation.

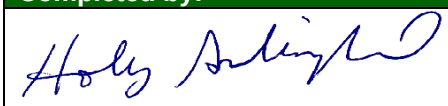
Using the mode of operation and configuration noted within this report, a final radiated emissions test was performed. The frequency range investigated (scanned), is also noted in this report. Radiated emissions measurements were made at the EUT azimuth and antenna height such that the maximum radiated emissions level will be detected. This requires the use of a turntable and an antenna positioner. The preferred method of a continuous azimuth search is utilized for frequency scans of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly polarized antenna was positioned at the specified distance from the periphery of the EUT.

Note: The specified distance is the horizontal separation between the closest periphery of the EUT and the center of the axis of the elements of the receiving antenna. However, if the receiving antenna is a log-periodic array, the specified distance shall be the distance between the closest periphery of the EUT and the front-to-back center of the array of elements.

Tests were made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement was varied in height above the conducting ground plane to obtain the maximum signal strength. Though specified in the report, the measurement distance shall be 1 meter, 3 meters, 5 meters, 10 meters, or 30 meters. At any measurement distance, the antenna height was varied from 1 meter to 4 meters. These height scans apply for both horizontal and vertical polarization, except that for vertical polarization the minimum height of the center of the antenna shall be increased so that the lowest point of the bottom of the antenna clears the ground surface by at least 25 cm.

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
Measurements were made using the bandwidths and detectors specified. No video filter was used.			

Completed by:



NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.13 05/06/2004

EUT:	CDMA in 700C	Work Order:	ITRM0030
Serial Number:		Date:	06/25/04
Customer:	Intermec Technologies Corporation	Temperature:	76
Attendees:	none	Humidity:	37%
Cust. Ref. No.:		Barometric Pressure	29.81
Tested by:	Holly Ashkannejhad	Power: 120VAC, 60Hz	Job Site: EV01

TEST SPECIFICATIONS

Specification:	FCC 15.109(a) Class B	Year:	2003
Method:	ANSI C63.4	Year:	2001

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

CDMA radio installed in 700C Handheld Computer.

EUT OPERATING MODES

Receiving Low or Mid channel; CDMA Cellular Band, Stand-alone

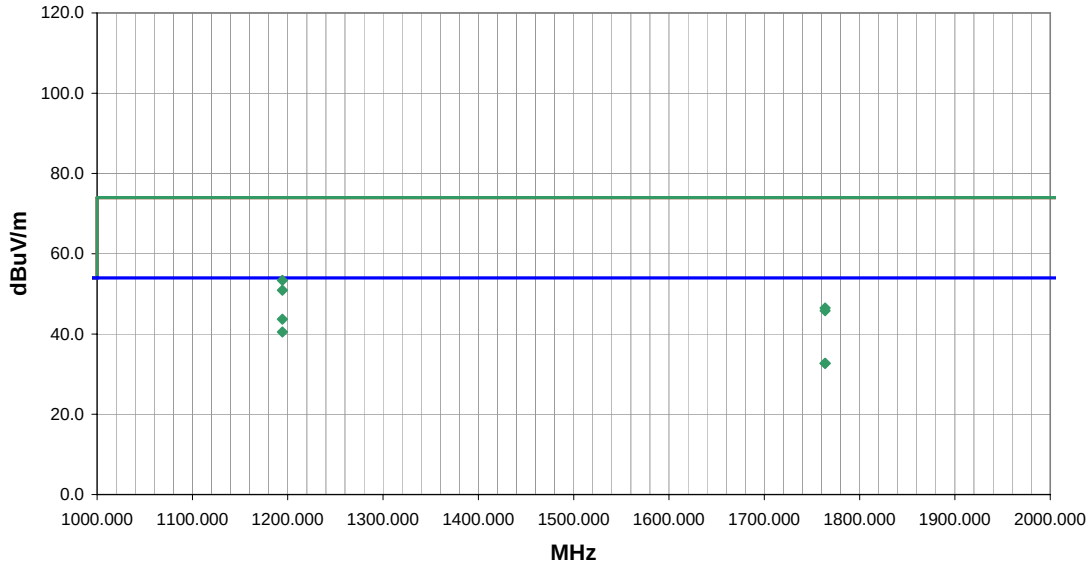
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	23

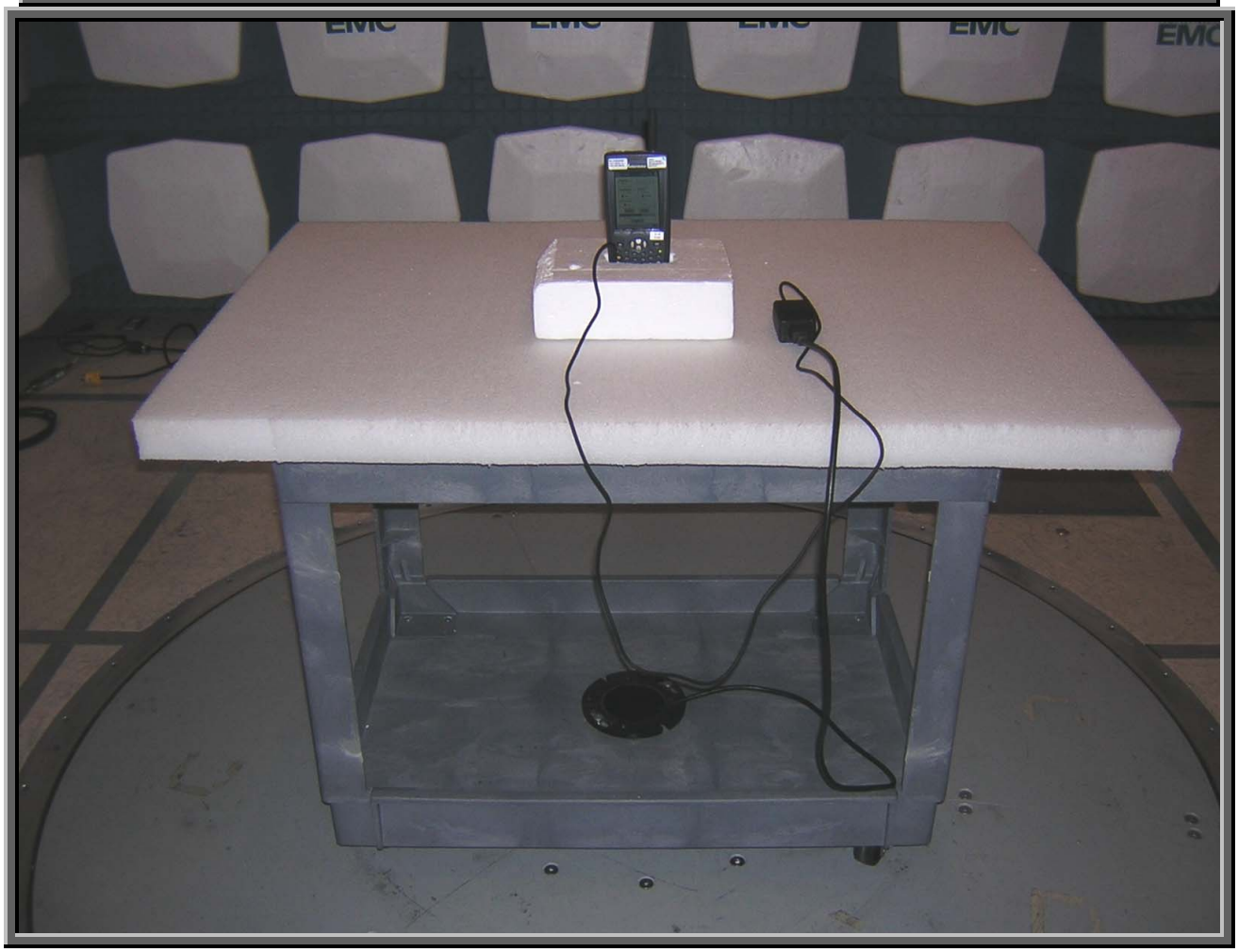
Other

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)	Comments
1194.468	35.1	8.6	147.0	1.1	3.0	0.0	V-Horn	AV	0.0	43.7	54.0	-10.3	Low channel
1194.468	31.9	8.6	133.0	1.1	3.0	0.0	H-Horn	AV	0.0	40.5	54.0	-13.5	Low channel
1763.883	27.4	5.3	60.0	1.3	3.0	0.0	H-Horn	AV	0.0	32.7	54.0	-21.3	Mid channel
1763.883	27.4	5.3	100.0	1.2	3.0	0.0	V-Horn	AV	0.0	32.7	54.0	-21.3	Mid channel
1194.468	44.8	8.6	147.0	1.1	3.0	0.0	V-Horn	PK	0.0	53.4	74.0	-20.6	Low channel
1763.883	41.2	5.3	60.0	1.3	3.0	0.0	H-Horn	PK	0.0	46.5	74.0	-27.5	Mid channel
1763.883	40.5	5.3	100.0	1.2	3.0	0.0	V-Horn	PK	0.0	45.8	74.0	-28.2	Mid channel
1194.468	42.3	8.6	133.0	1.1	3.0	0.0	H-Horn	PK	0.0	50.9	74.0	-23.1	Low channel


EMC
NORTHWEST
EMC


EMC


Intermec
Eval Unit

Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. All of the EUT parameters listed below were investigated. This includes, but may not be limited to, CPU speeds, video resolution settings, operational modes, and input voltages.

Operating Modes Investigated:
Receiving Low Channel
Receiving Mid Channel
Receiving High Channel

Power Input Settings Investigated:
120 VAC, 60 Hz

Antennas Investigated:
Dual Band CDMA 900/1900 MHz

Software Applied During Test			
Exercise software	CDMA FCC Test	**Version**	6/7/04
Description			
The system was tested using special test software to exercise the functions of the device during the testing including channel, modulation, and mode.			

EUT and Peripherals in Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer	Intermec Technologies Corporation	700C	13790400008
AC Adapter	Elpac Power Systems	FW1812	014869
CDMA Radio	Intermec Technologies Corporation	EM3420	Unknown

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Leads	PA	1.4	No	Handheld Computer	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	LIP	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	12/23/2003	13 mo
Spectrum Analyzer	Hewlett-Packard	8566B	AAL	12/23/2003	13 mo
Spectrum Analyzer Display	Hewlett Packard	85662A	AALD	12/23/2003	13 mo

Conducted Emissions

Test Description

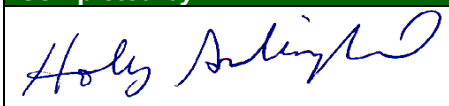
Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50 Ω measuring port is terminated by a 50 Ω EMI meter or a 50 Ω resistive load. All 50 Ω measuring ports of the LISN are terminated by 50Ω.

Measurement Bandwidths

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

Measurements were made using the bandwidths and detectors specified. No video filter was used.

Completed by:



NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.13 05/06/2004

EUT:	CDMA in 700C			Work Order:	ITRM0030
Serial Number:				Date:	07/07/04
Customer:	Intermec Technologies Corporation			Temperature:	77
Attendees:	none			Humidity:	39%
Cust. Ref. No.:				Barometric Pressure	30.09
Tested by:	Holly Ashkannejhad	Power:	120VAC, 60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.107 AC Powerline Conducted Emissions	Year:	2003
Method:	ANSI C63.4	Year:	2001

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

CDMA(cellular) in 700C.

EUT OPERATING MODES

Receiving CDMA (cellular) Low Channel

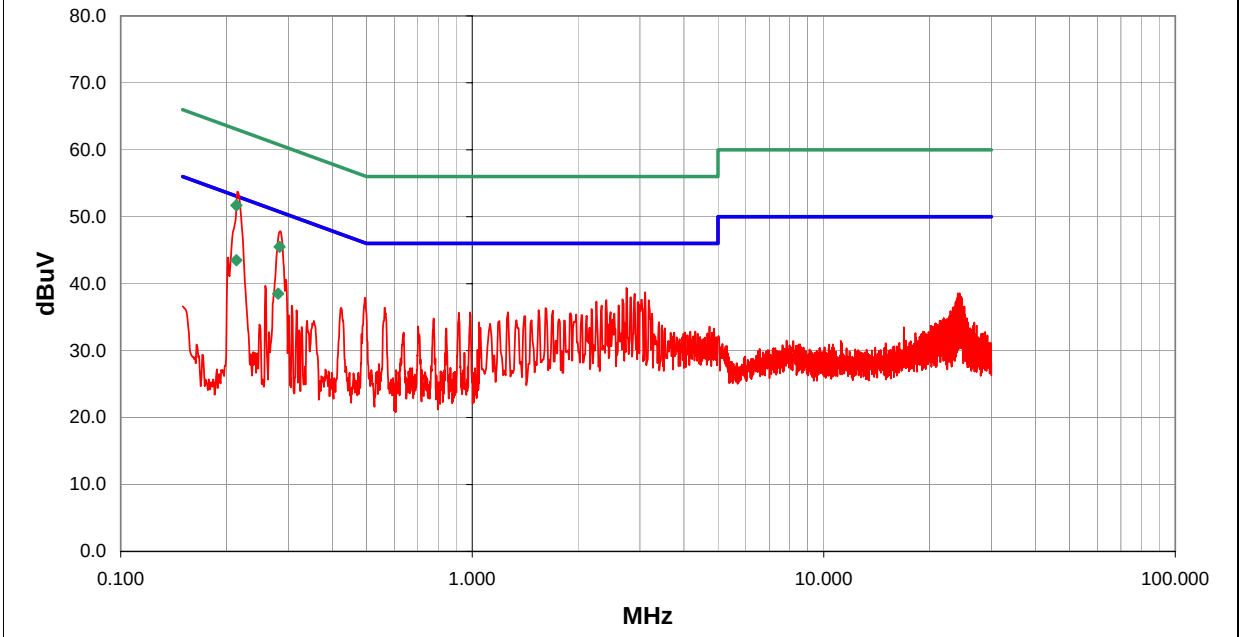
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	N	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)
0.213	23.5			0.0	0.0	20.0		AV		43.5	53.1	-9.6
0.213	31.7			0.0	0.0	20.0		QP		51.7	63.1	-11.4
0.280	18.5			0.0	0.0	20.0		AV		38.5	50.8	-12.3
0.283	25.5			0.0	0.0	20.0		QP		45.5	60.7	-15.2
0.284	27.7			0.0	0.1	20.0				47.8	50.7	-2.9
2.746	18.9			0.0	0.5	20.0				39.4	46.0	-6.6
3.106	18.2			0.0	0.5	20.0				38.7	46.0	-7.3
2.896	18.0			0.0	0.5	20.0				38.5	46.0	-7.5
2.826	17.5			0.0	0.5	20.0				38.0	46.0	-8.0
0.496	17.7			0.0	0.2	20.0				37.9	46.1	-8.2
2.676	17.2			0.0	0.5	20.0				37.7	46.0	-8.3
3.036	17.1			0.0	0.5	20.0				37.6	46.0	-8.4
2.406	17.1			0.0	0.4	20.0				37.5	46.0	-8.5
3.176	17.0			0.0	0.5	20.0				37.5	46.0	-8.5
2.256	16.9			0.0	0.4	20.0				37.3	46.0	-8.7
2.966	16.8			0.0	0.5	20.0				37.3	46.0	-8.7
2.606	16.3			0.0	0.5	20.0				36.8	46.0	-9.2
2.336	16.3			0.0	0.4	20.0				36.7	46.0	-9.3
0.563	16.2			0.0	0.2	20.0				36.4	46.0	-9.6

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.13 05/06/2004

EUT:	CDMA in 700C			Work Order:	ITRM0030
Serial Number:				Date:	07/07/04
Customer:	Intermec Technologies Corporation			Temperature:	77
Attendees:	none			Humidity:	39%
Cust. Ref. No.:				Barometric Pressure	30.09
Tested by:	Holly Ashkannejhad	Power:	120VAC, 60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.107 AC Powerline Conducted Emissions	Year:	2003
Method:	ANSI C63.4	Year:	2001

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

CDMA(cellular) in 700C.

EUT OPERATING MODES

Receiving CDMA (cellular) Low Channel

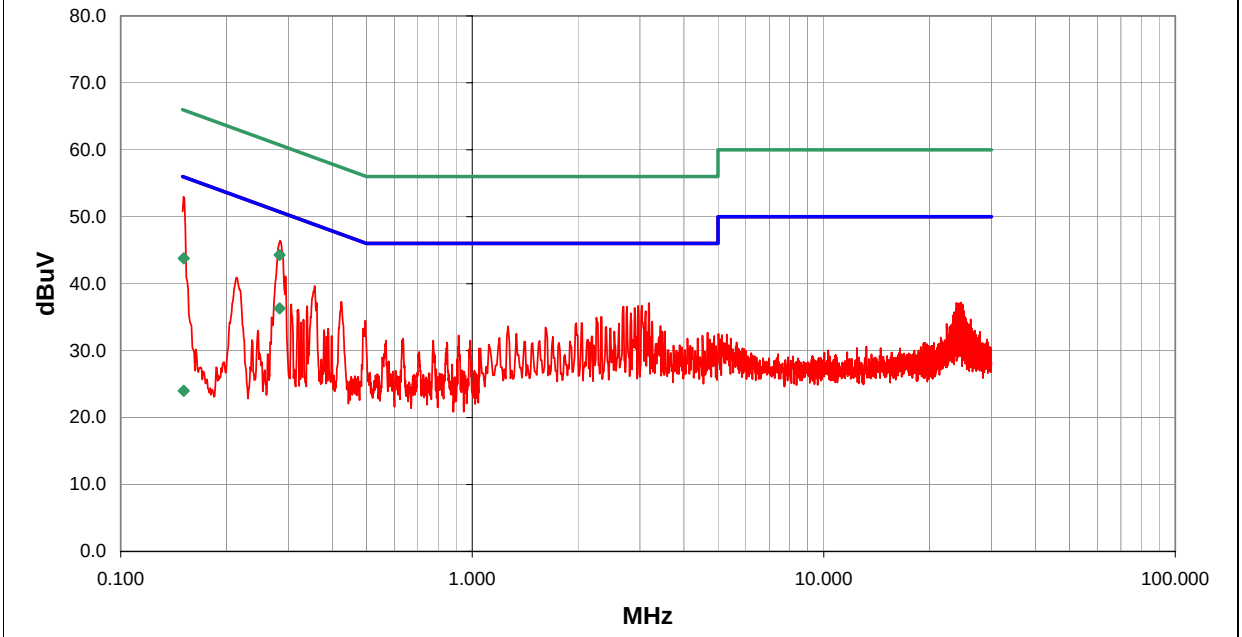
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	L1	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)
0.283	16.3			0.0	0.0	20.0		AV		36.3	50.7	-14.4
0.283	24.3			0.0	0.0	20.0		QP		44.3	60.7	-16.4
0.151	23.8			0.0	0.0	20.0		QP		43.8	65.9	-22.1
0.151	4.0			0.0	0.0	20.0		AV		24.0	55.9	-31.9
0.151	32.9			0.0	0.1	20.0				53.0	56.0	-3.0
0.284	26.3			0.0	0.1	20.0				46.4	50.7	-4.3
3.186	16.6			0.0	0.5	20.0				37.1	46.0	-8.9
0.356	19.5			0.0	0.2	20.0				39.7	48.8	-9.2
3.036	16.2			0.0	0.5	20.0				36.7	46.0	-9.3
0.294	21.0			0.0	0.1	20.0				41.1	50.4	-9.3
2.966	16.2			0.0	0.5	20.0				36.7	46.0	-9.3
2.756	16.1			0.0	0.5	20.0				36.6	46.0	-9.4
2.696	16.1			0.0	0.5	20.0				36.6	46.0	-9.4
2.896	15.9			0.0	0.5	20.0				36.4	46.0	-9.6
0.425	17.1			0.0	0.2	20.0				37.3	47.4	-10.1
3.116	15.4			0.0	0.5	20.0				35.9	46.0	-10.1
2.826	15.1			0.0	0.5	20.0				35.6	46.0	-10.4
2.336	14.6			0.0	0.4	20.0				35.0	46.0	-11.0
2.256	14.5			0.0	0.4	20.0				34.9	46.0	-11.1

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.13 05/06/2004

EUT:	CDMA in 700C			Work Order:	ITRM0030
Serial Number:				Date:	07/07/04
Customer:	Intermec Technologies Corporation			Temperature:	77
Attendees:	none			Humidity:	39%
Cust. Ref. No.:				Barometric Pressure	30.09
Tested by:	Holly Ashkannejhad	Power:	120VAC, 60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.107 AC Powerline Conducted Emissions	Year:	2003
Method:	ANSI C63.4	Year:	2001

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

CDMA(cellular) in 700C.

EUT OPERATING MODES

Receiving CDMA (cellular) Mid Channel

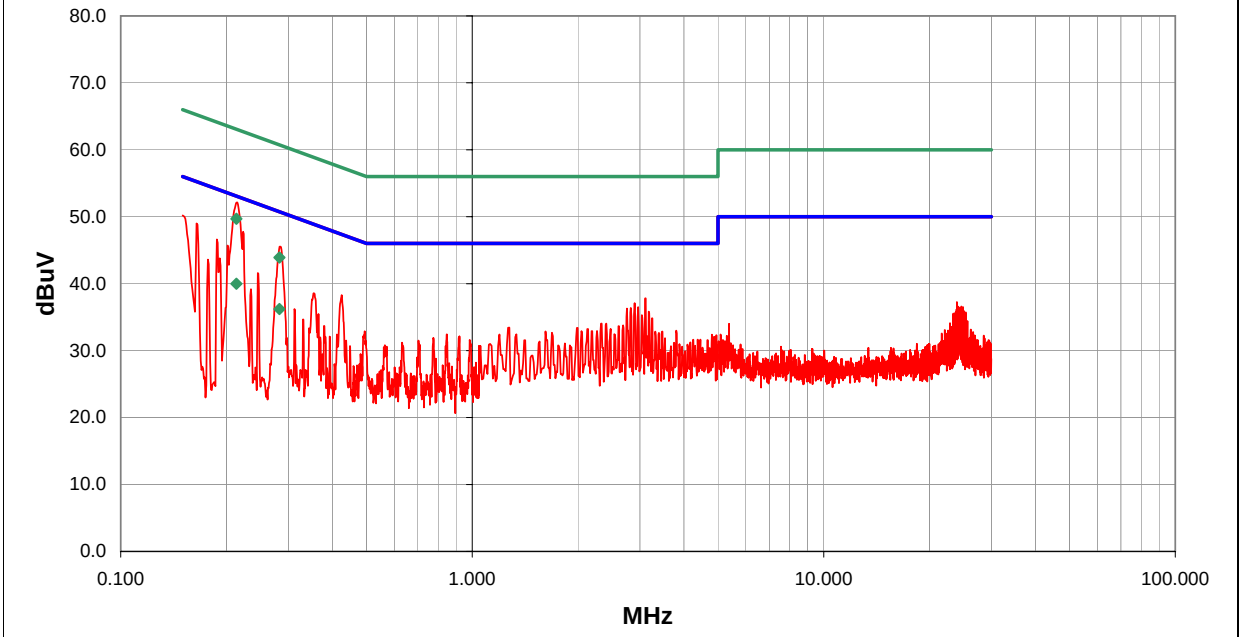
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	L1	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)
0.213	20.0			0.0	0.0	20.0		AV		40.0	53.1	-13.1
0.213	29.7			0.0	0.0	20.0		QP		49.7	63.1	-13.4
0.283	16.2			0.0	0.0	20.0		AV		36.2	50.7	-14.5
0.283	23.9			0.0	0.0	20.0		QP		43.9	60.7	-16.8
0.215	32.0			0.0	0.1	20.0				52.1	53.0	-0.9
0.223	27.6			0.0	0.1	20.0				47.7	52.7	-5.0
0.283	25.4			0.0	0.1	20.0				45.5	50.7	-5.2
0.150	30.1			0.0	0.1	20.0				50.2	56.0	-5.8
0.164	28.9			0.0	0.1	20.0				49.0	55.2	-6.2
0.188	26.5			0.0	0.1	20.0				46.6	54.1	-7.5
0.201	25.6			0.0	0.1	20.0				45.7	53.6	-7.9
3.116	17.3			0.0	0.5	20.0				37.8	46.0	-8.2
2.896	16.6			0.0	0.5	20.0				37.1	46.0	-8.9
0.425	18.1			0.0	0.2	20.0				38.3	47.3	-9.0
2.966	16.0			0.0	0.5	20.0				36.5	46.0	-9.5
2.826	15.9			0.0	0.5	20.0				36.4	46.0	-9.6
2.756	15.8			0.0	0.5	20.0				36.3	46.0	-9.7
0.191	23.7			0.0	0.1	20.0				43.8	54.0	-10.2
3.176	15.3			0.0	0.5	20.0				35.8	46.0	-10.2

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.13 05/06/2004

EUT:	CDMA in 700C			Work Order:	ITRM0030
Serial Number:				Date:	07/07/04
Customer:	Intermec Technologies Corporation			Temperature:	77
Attendees:	none			Humidity:	39%
Cust. Ref. No.:				Barometric Pressure	30.09
Tested by:	Holly Ashkannejhad	Power:	120VAC, 60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.107 AC Powerline Conducted Emissions	Year:	2003
Method:	ANSI C63.4	Year:	2001

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

CDMA(cellular) in 700C.

EUT OPERATING MODES

Receiving CDMA (cellular) Mid Channel

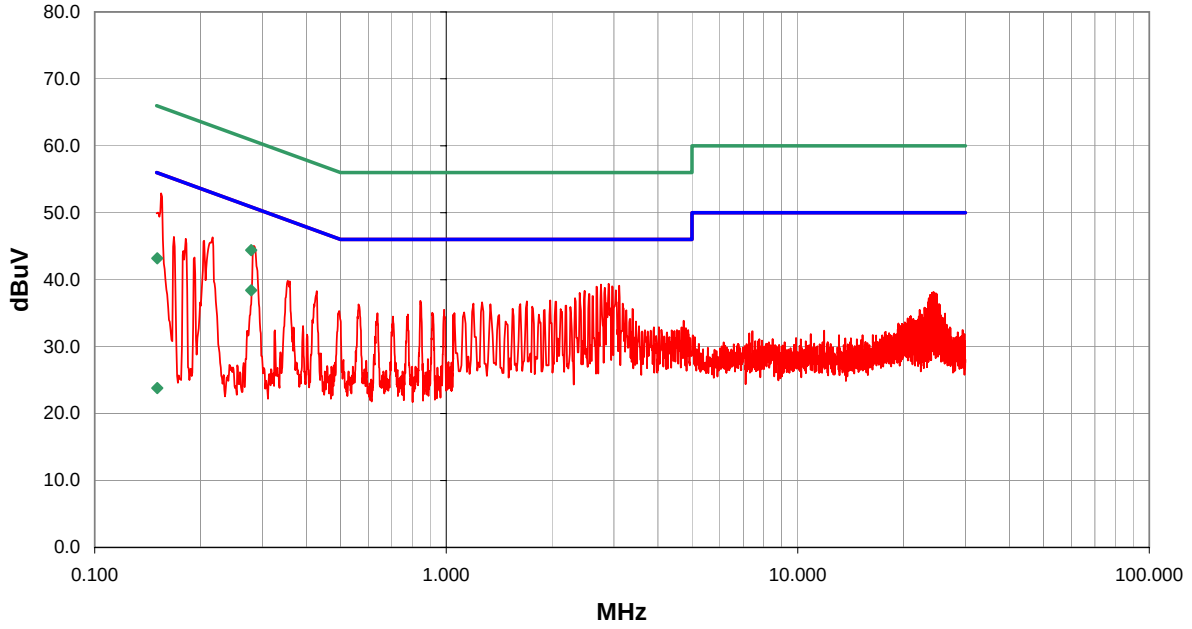
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	N	4

Other

Tested By: Holly Ashkannejhad



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)
0.279	18.4			0.0	0.0	20.0		AV		38.4	50.9	-12.5
0.279	24.4			0.0	0.0	20.0		QP		44.4	60.9	-16.5
0.151	23.2			0.0	0.0	20.0		QP		43.2	66.0	-22.8
0.151	3.8			0.0	0.0	20.0		AV		23.8	56.0	-32.2
0.155	32.8			0.0	0.1	20.0				52.9	55.8	-2.9
0.283	24.9			0.0	0.1	20.0				45.0	50.7	-5.7
2.896	18.9			0.0	0.5	20.0				39.4	46.0	-6.6
0.217	26.2			0.0	0.1	20.0				46.3	52.9	-6.6
2.756	18.8			0.0	0.5	20.0				39.3	46.0	-6.7
3.106	18.6			0.0	0.5	20.0				39.1	46.0	-6.9
2.966	18.5			0.0	0.5	20.0				39.0	46.0	-7.0
2.676	18.5			0.0	0.5	20.0				39.0	46.0	-7.0
2.826	18.3			0.0	0.5	20.0				38.8	46.0	-7.2
3.036	17.9			0.0	0.5	20.0				38.4	46.0	-7.6
0.205	25.7			0.0	0.1	20.0				45.8	53.4	-7.6
2.476	17.9			0.0	0.4	20.0				38.3	46.0	-7.7
2.396	17.6			0.0	0.4	20.0				38.0	46.0	-8.0
2.556	17.4			0.0	0.5	20.0				37.9	46.0	-8.1
0.182	26.0			0.0	0.1	20.0				46.1	54.4	-8.3

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.13 05/06/2004

EUT:	CDMA in 700C			Work Order:	ITRM0030
Serial Number:				Date:	07/07/04
Customer:	Intermec Technologies Corporation			Temperature:	77
Attendees:	none			Humidity:	39%
Cust. Ref. No.:				Barometric Pressure	30.09
Tested by:	Holly Ashkannejhad	Power:	120VAC, 60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.107 AC Powerline Conducted Emissions	Year:	2003
Method:	ANSI C63.4	Year:	2001

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

CDMA(cellular) in 700C.

EUT OPERATING MODES

Receiving CDMA (cellular) High Channel

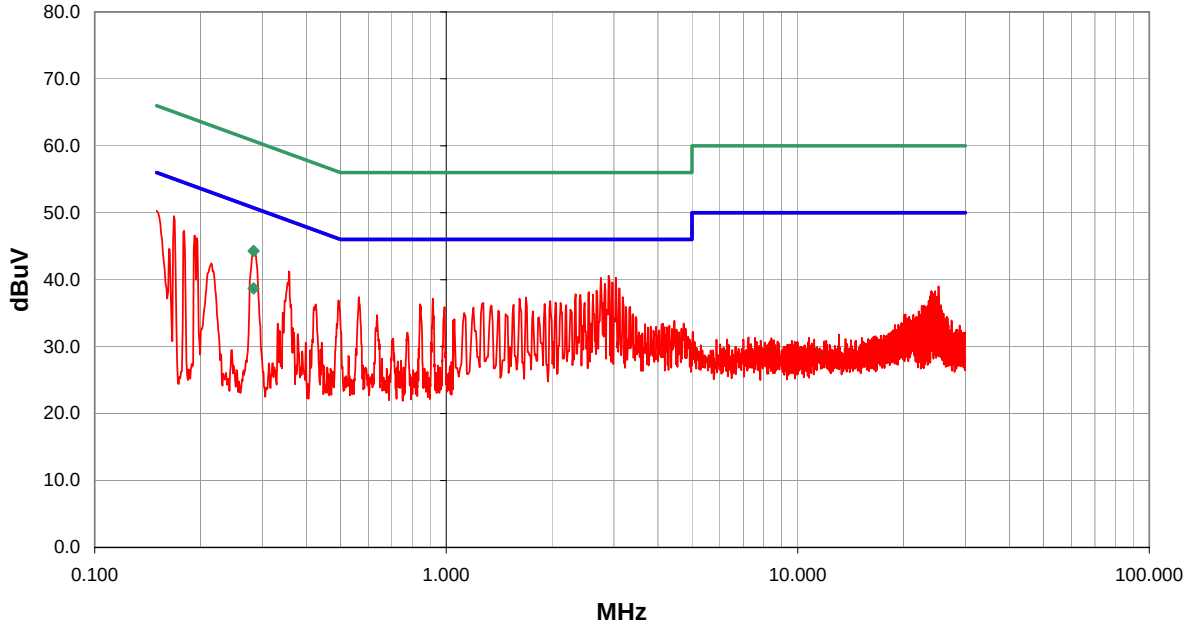
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	N	5

Other

Tested By: Holly Ashkannejhad



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)
0.283	18.7			0.0	0.0	20.0		AV		38.7	50.7	-12.0
0.283	24.3			0.0	0.0	20.0		QP		44.3	60.7	-16.4
2.896	20.1			0.0	0.5	20.0				40.6	46.0	-5.4
0.168	29.4			0.0	0.1	20.0				49.5	55.1	-5.6
3.036	19.8			0.0	0.5	20.0				40.3	46.0	-5.7
0.150	30.2			0.0	0.1	20.0				50.3	56.0	-5.7
2.756	19.8			0.0	0.5	20.0				40.3	46.0	-5.7
0.284	24.5			0.0	0.1	20.0				44.6	50.7	-6.1
2.966	19.1			0.0	0.5	20.0				39.6	46.0	-6.4
2.826	18.9			0.0	0.5	20.0				39.4	46.0	-6.6
0.180	27.2			0.0	0.1	20.0				47.3	54.5	-7.2
3.106	18.2			0.0	0.5	20.0				38.7	46.0	-7.3
0.192	26.5			0.0	0.1	20.0				46.6	53.9	-7.3
0.357	21.1			0.0	0.2	20.0				41.3	48.8	-7.5
0.195	26.1			0.0	0.1	20.0				46.2	53.8	-7.6
2.676	17.9			0.0	0.5	20.0				38.4	46.0	-7.6
2.546	17.7			0.0	0.5	20.0				38.2	46.0	-7.8
2.336	17.4			0.0	0.4	20.0				37.8	46.0	-8.2
2.616	17.3			0.0	0.5	20.0				37.8	46.0	-8.2

NORTHWEST EMC

CONDUCTED EMISSIONS DATA SHEET

REV df4.13 05/06/2004

EUT:	CDMA in 700C			Work Order:	ITRM0030
Serial Number:				Date:	07/07/04
Customer:	Intermec Technologies Corporation			Temperature:	77
Attendees:	none			Humidity:	39%
Cust. Ref. No.:				Barometric Pressure	30.09
Tested by:	Holly Ashkannejhad	Power:	120VAC, 60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.107 AC Powerline Conducted Emissions	Year:	2003
Method:	ANSI C63.4	Year:	2001

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

CDMA(cellular) in 700C.

EUT OPERATING MODES

Receiving CDMA (cellular) High Channel

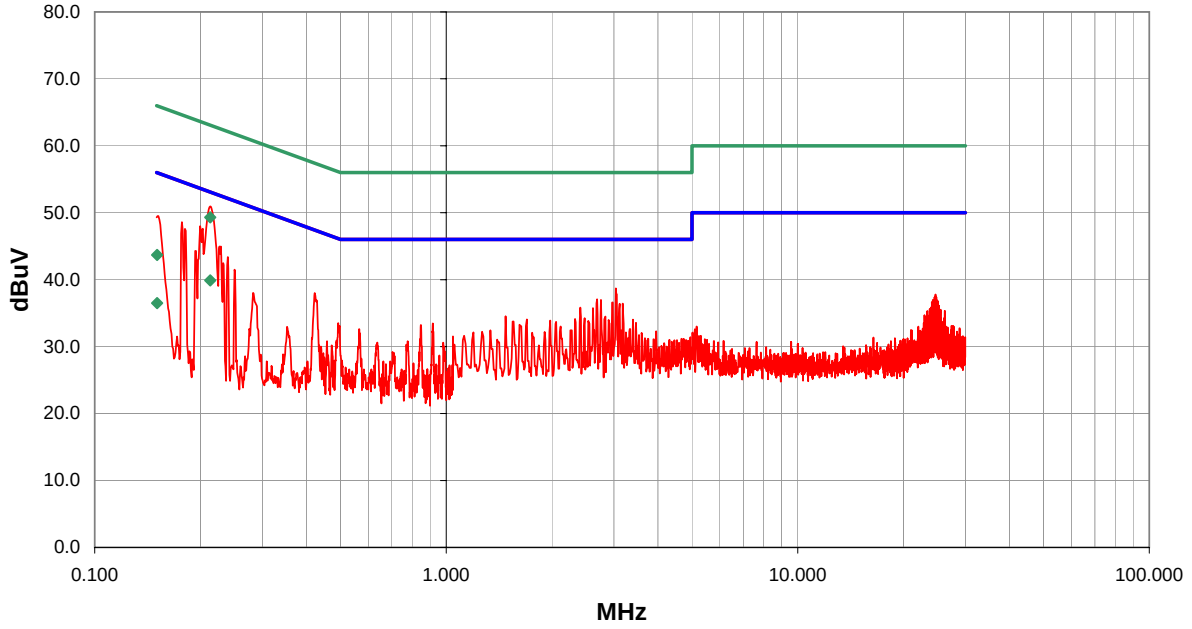
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Line	Run #
Pass	L1	6

Other

Tested By: Holly Ashkannejhad



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)
0.213	19.9			0.0	0.0	20.0		AV		39.9	53.1	-13.2
0.213	29.3			0.0	0.0	20.0		QP		49.3	63.1	-13.8
0.151	16.5			0.0	0.0	20.0		AV		36.5	56.0	-19.5
0.151	23.7			0.0	0.0	20.0		QP		43.7	66.0	-22.3
0.214	30.8			0.0	0.1	20.0				50.9	53.1	-2.1
0.200	27.9			0.0	0.1	20.0				48.0	53.6	-5.6
0.203	27.5			0.0	0.1	20.0				47.6	53.5	-5.9
0.177	28.5			0.0	0.1	20.0				48.6	54.6	-6.0
0.151	29.4			0.0	0.1	20.0				49.5	56.0	-6.5
0.181	27.5			0.0	0.1	20.0				47.6	54.5	-6.9
3.036	18.2			0.0	0.5	20.0				38.7	46.0	-7.3
0.228	24.8			0.0	0.2	20.0				45.0	52.5	-7.6
0.239	23.2			0.0	0.2	20.0				43.4	52.1	-8.7
2.686	16.6			0.0	0.5	20.0				37.1	46.0	-8.9
2.756	16.5			0.0	0.5	20.0				37.0	46.0	-9.0
0.423	17.8			0.0	0.2	20.0				38.0	47.4	-9.4
2.976	16.1			0.0	0.5	20.0				36.6	46.0	-9.4
3.176	15.9			0.0	0.5	20.0				36.4	46.0	-9.6
3.116	15.9			0.0	0.5	20.0				36.4	46.0	-9.6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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:
Transmitting

Antennas Investigated:
805-606-004 Single Band CDMA 1900 MHz Antenna
805-606-102 Dual Band CDMA 900/1900 MHz Antenna

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
120 VAC, 60 Hz.

Other Settings Investigated:
Cellular
PCS

Software\Firmware Applied During Test			
Exercise software	CDMA FCC Test	**Version**	6/7/04
Description			
The system was tested using special test software to exercise the functions of the device during the testing including channel, band, and operating mode.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
CDMA Radio	Intermec Technologies Corporation	EM3420	Unknown
Handheld Computer	Intermec Technologies Corporation	700C	13790400008
AC Adapter	Elpac Power Systems	FW1812	014869

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Leads	PA	1.4	No	Handheld Computer	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**
Antenna, Horn	EMCO	3115	AHC	09/18/2003	12 mo
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APJ	01/05/2004	13 mo
Antenna, Biconilog	EMCO	3141	AXE	12/03/2003	24 mo
Pre-Amplifier	Amplifier Research	LN1000A	APS	02/05/2004	13 mo
Attenuator	Pasternack	PE7001-10	ATD	02/03/2004	13 mo
Attenuator		2082-6148-20	ATE	02/03/2004	13 mo
Antenna, Horn	EMCO	3115	AHF	03/18/2004	24 mo
Signal Generator	Hewlett Packard	8341B	TGN	01/23/2004	13 mo
Antenna, Dipole (ADAA included)	Roberts	Roberts	ADA	12/27/2002	24 mo
Spectrum Analyzer	Hewlett-Packard	8566B	AAL	12/23/2003	13 mo
Quasi-Peak Adapter	Hewlett-Packard	85650A	AQF	12/23/2003	13 mo

Test Description

Requirement: Per 2.1046, the peak power of the modulated carrier was measured. The applicable limits are 22.913(a) for the cellular band, and 24.232(b) for the PCS band.

Per 22.913(a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

Per 24.232(b), Mobile/portable stations are limited to 2 Watts e.i.r.p. peak power.

Configuration: Spectrum analyzer, signal generator, and linearly polarized antennas were used to measure the fundamental emissions. The orientation of the EUT was varied in 3 orthogonal axes to maximize the level of emissions. The EUT was configured to transmit at the highest output at low, mid, and high channels. The EUT was tested with each antenna. Only one antenna can be used at a time.

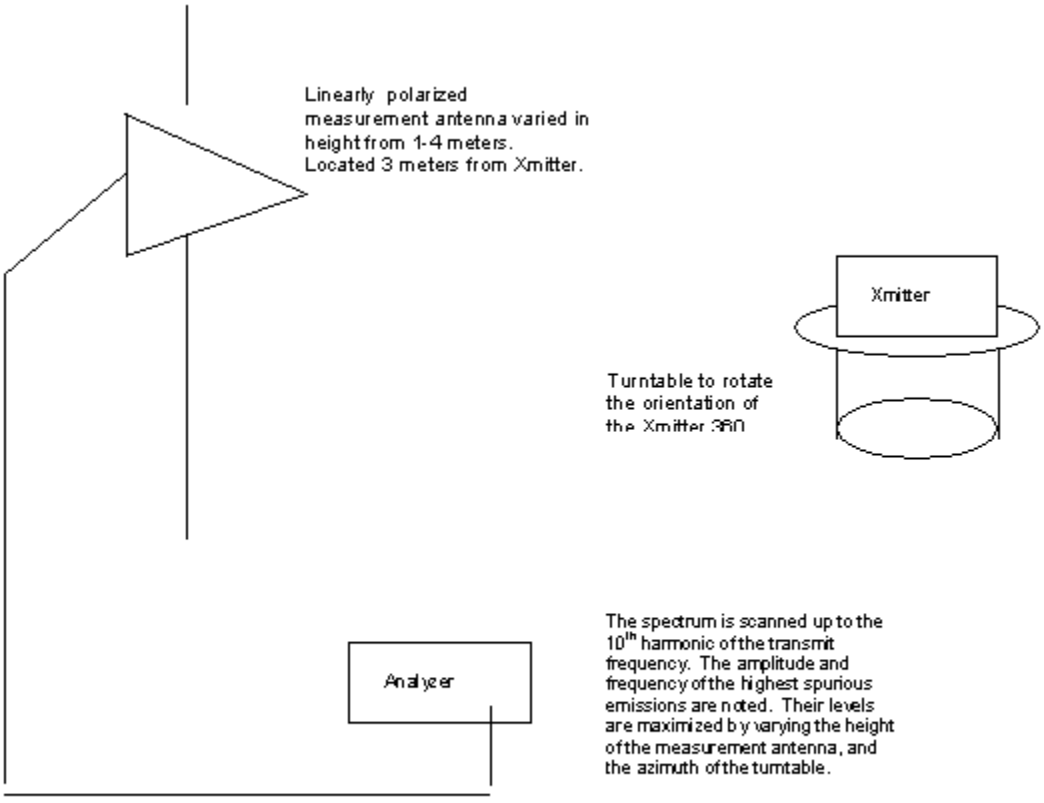
The substitution method as described in TIA/EIA-603 Section 2.2.12 was used.

Test Methodology: 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 emissions that utilizes an antenna substitution method:

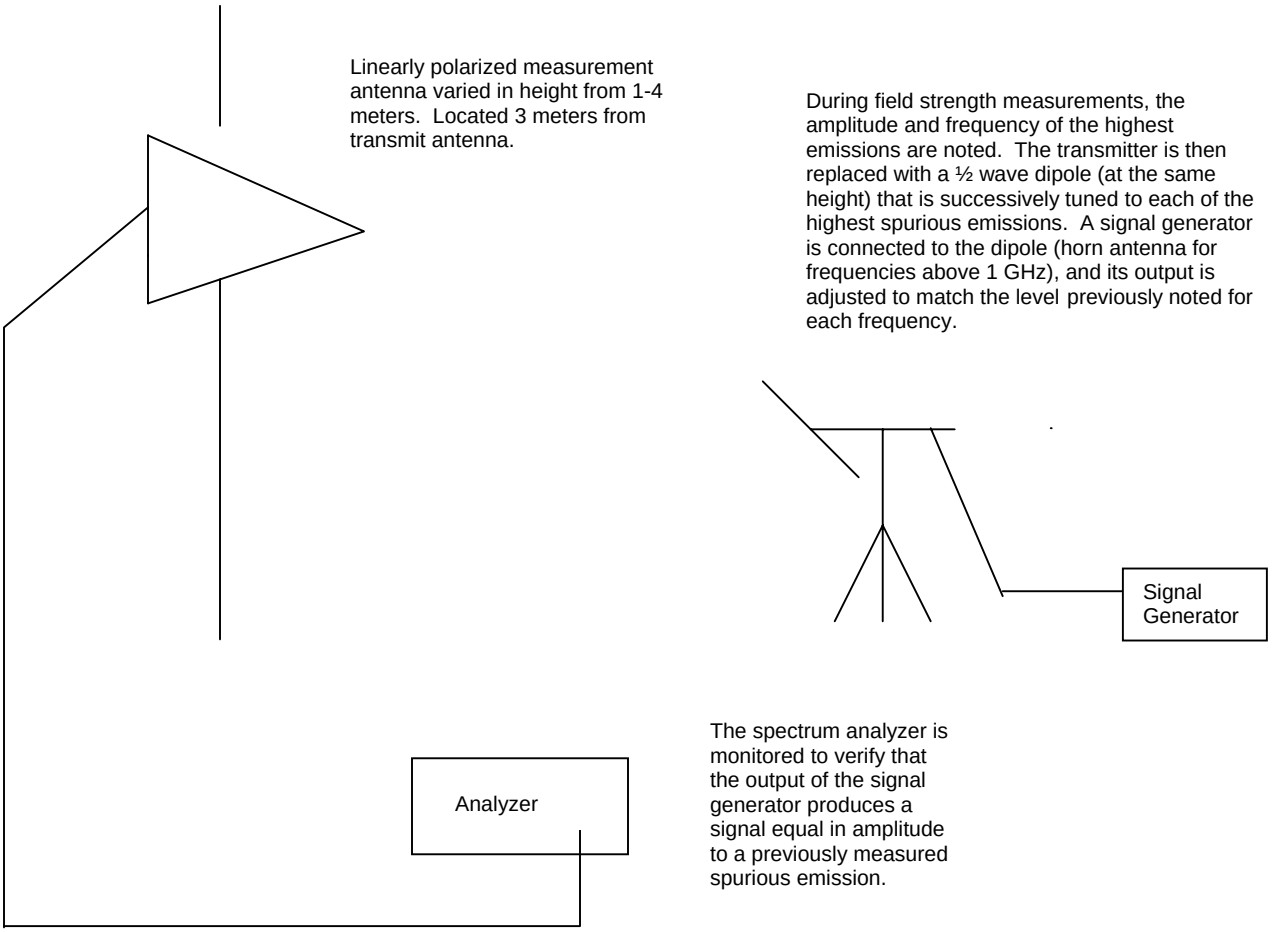
At an approved test site, the transmitter is place on a remotely controlled turntable, and the measurement antenna is placed 3 meters from the transmitter. The turntable azimuth is varied to maximize the level of emissions. The height of the measurement antenna is also varied from 1 to 4 meters. The 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 emissions. 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 dipole antenna and its gain; the power (ERP or e.i.r.p) is determined for each radiated emission.

Test Setup Diagram

Test Setup for Field Strength Measurements



Test Setup for Power Measurements Utilizing the Antenna Substitution Method



Completed by:

Holly Darling

NORTHWEST EMC

Apparent Power Data Sheet

REV df4.13 05/06/2004

EUT:	CDMA in 700C			Work Order:	ITRM0030
Serial Number:				Date:	06/25/04
Customer:	Intermec Technologies Corporation			Temperature:	76
Attendees:	none			Humidity:	42%
Cust. Ref. No.:				Barometric Pressure	30.09
Tested by:	Holly Ashkannejhad	Power:	120VAC, 60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 24.232(b)	Year:	2003
Method:	TIA/EIA-603	Year:	1998

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

CDMA radio installed in 700C Handheld Computer. Single Band CDMA 1900 MHz antenna.

EUT OPERATING MODES

Transmitting Low, Mid, or High channel; CDMA PCS Band, Stand-alone

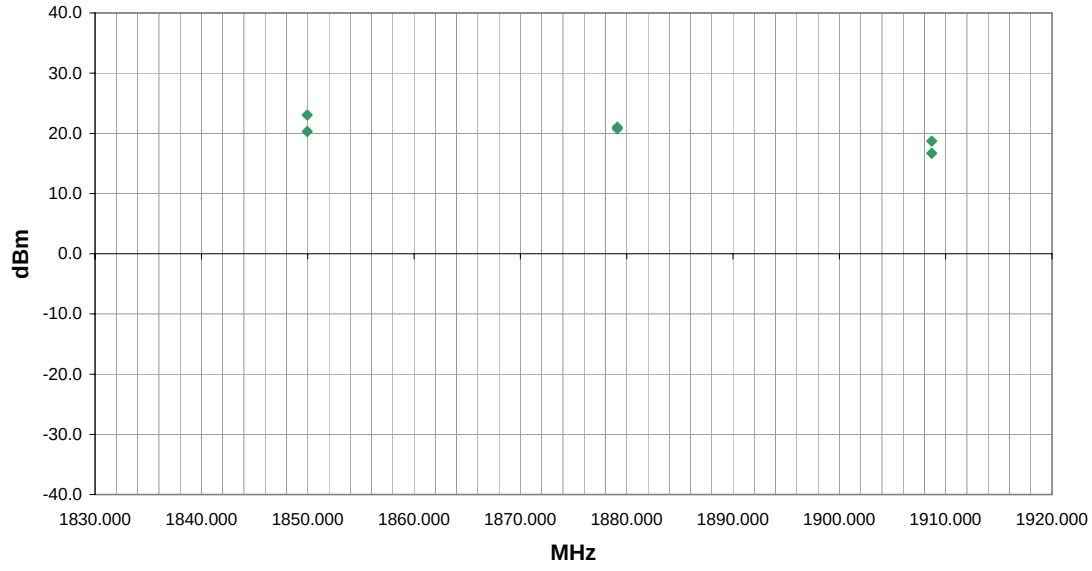
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	21

Other

Tested By:



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector		EIRP (dBm)		EIRP (Watts)	Comments
1849.950			11.0	1.3			H-Horn	PK		23.1		0.202012	Low Channel
1879.110			165.0	1.6			H-Horn	PK		21.0		0.126734	Mid Channel
1879.110			351.0	1.2			V-Horn	PK		20.8		0.119198	Mid Channel
1849.950			56.0	1.3			V-Horn	PK		20.3		0.107301	Low Channel
1908.690			360.0	1.7			V-Horn	PK		18.7		0.074464	High Channel
1908.690			218.0	1.3			H-Horn	PK		16.7		0.046818	High Channel

NORTHWEST EMC

Apparent Power Data Sheet

REV df4.13 05/06/2004

EUT:	CDMA in 700C			Work Order:	ITRM0030
Serial Number:				Date:	06/25/04
Customer:	Intermec Technologies Corporation			Temperature:	76
Attendees:	none			Humidity:	42%
Cust. Ref. No.:				Barometric Pressure	30.09
Tested by:	Holly Ashkannejhad	Power:	120VAC, 60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 24.232(b)	Year:	2003
Method:	TIA/EIA-603	Year:	1998

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

CDMA radio installed in 700C Handheld Computer. Dual Band CDMA 900/1900MHz antenna.

EUT OPERATING MODES

Transmitting Low, Mid, or High channel; CDMA PCS Band, Stand-alone

DEVIATIONS FROM TEST STANDARD

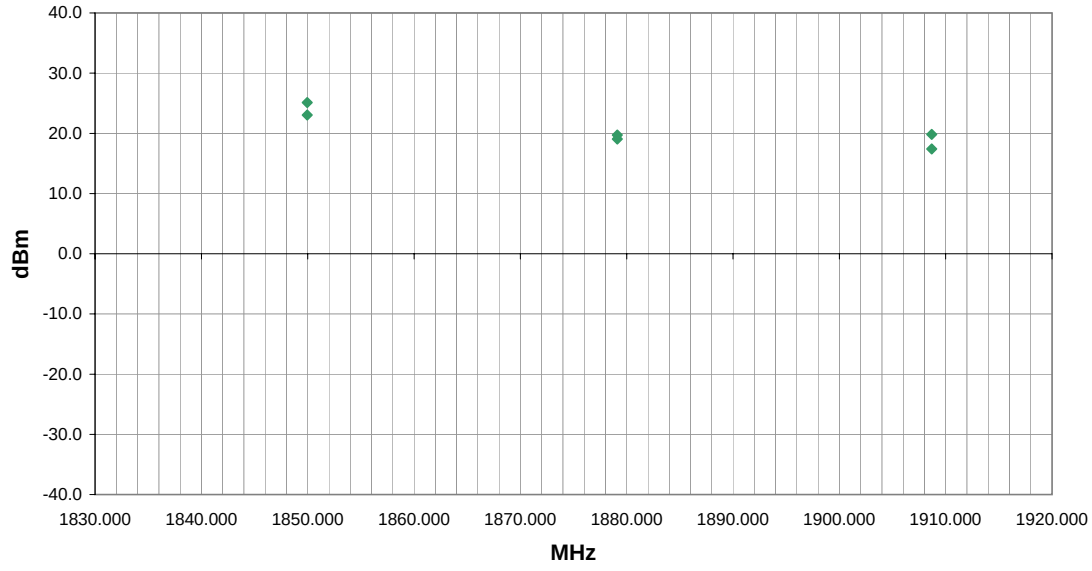
No deviations.

RESULTS	Run #
Pass	22

Other

Holly Ashkannejhad

Tested By:



Freq (MHz)			Azimuth (degrees)	Height (meters)			Polarity	Detector		EIRP (dBm)		EIRP (Watts)	Comments
1849.950			351.0	1.3			V-Horn	PK		25.1		0.324043	Low Channel
1849.950			355.0	1.3			H-Horn	PK		23.1		0.202012	Low Channel
1908.690			11.0	1.2			V-Horn	PK		19.8		0.095928	High Channel
1879.110			360.0	1.3			H-Horn	PK		19.7		0.093949	Mid Channel
1879.110			361.0	1.3			V-Horn	PK		19.1		0.080588	Mid Channel
1908.690			181.0	1.3			H-Horn	PK		17.4		0.055007	High Channel

NORTHWEST EMC

Apparent Power Data Sheet

REV df4.13 05/06/2004

EUT:	CDMA in 700C	Work Order:	ITRM0030
Serial Number:		Date:	06/21/04
Customer:	Intermec Technologies Corporation	Temperature:	76
Attendees:	none	Humidity:	37%
Cust. Ref. No.:		Barometric Pressure	29.81
Tested by:	Holly Ashkannejhad	Power: 120VAC, 60Hz	Job Site: EV01

TEST SPECIFICATIONS

Specification:	FCC 22.917(e)	Year:	2003
Method:	TIA/EIA-603	Year:	1998

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

CDMA radio installed in 700C Handheld Computer. Dual Band CDMA 900/1900MHz antenna.

EUT OPERATING MODES

Transmitting Low, Mid, or High channel; CDMA Cellular Band stand-alone

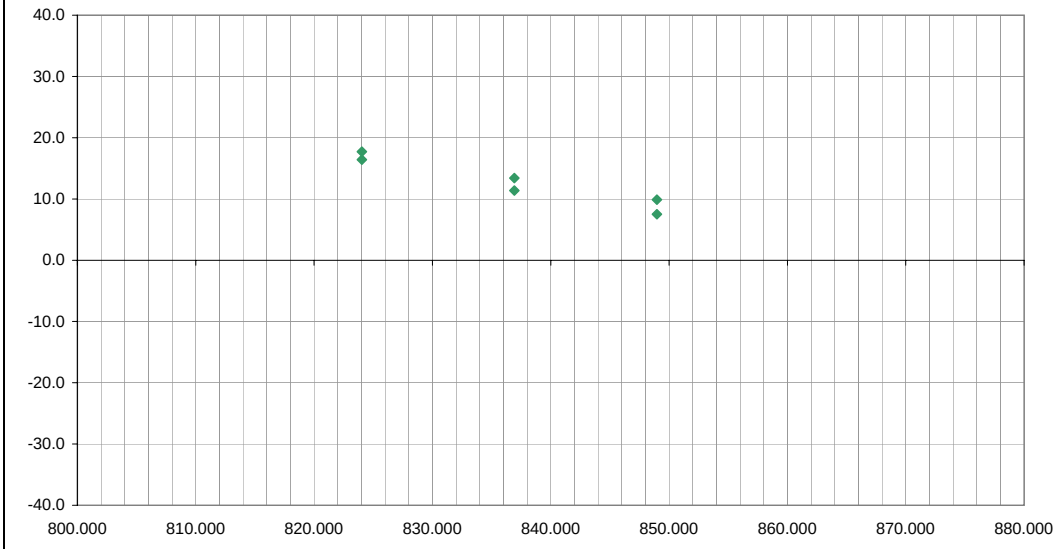
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	1

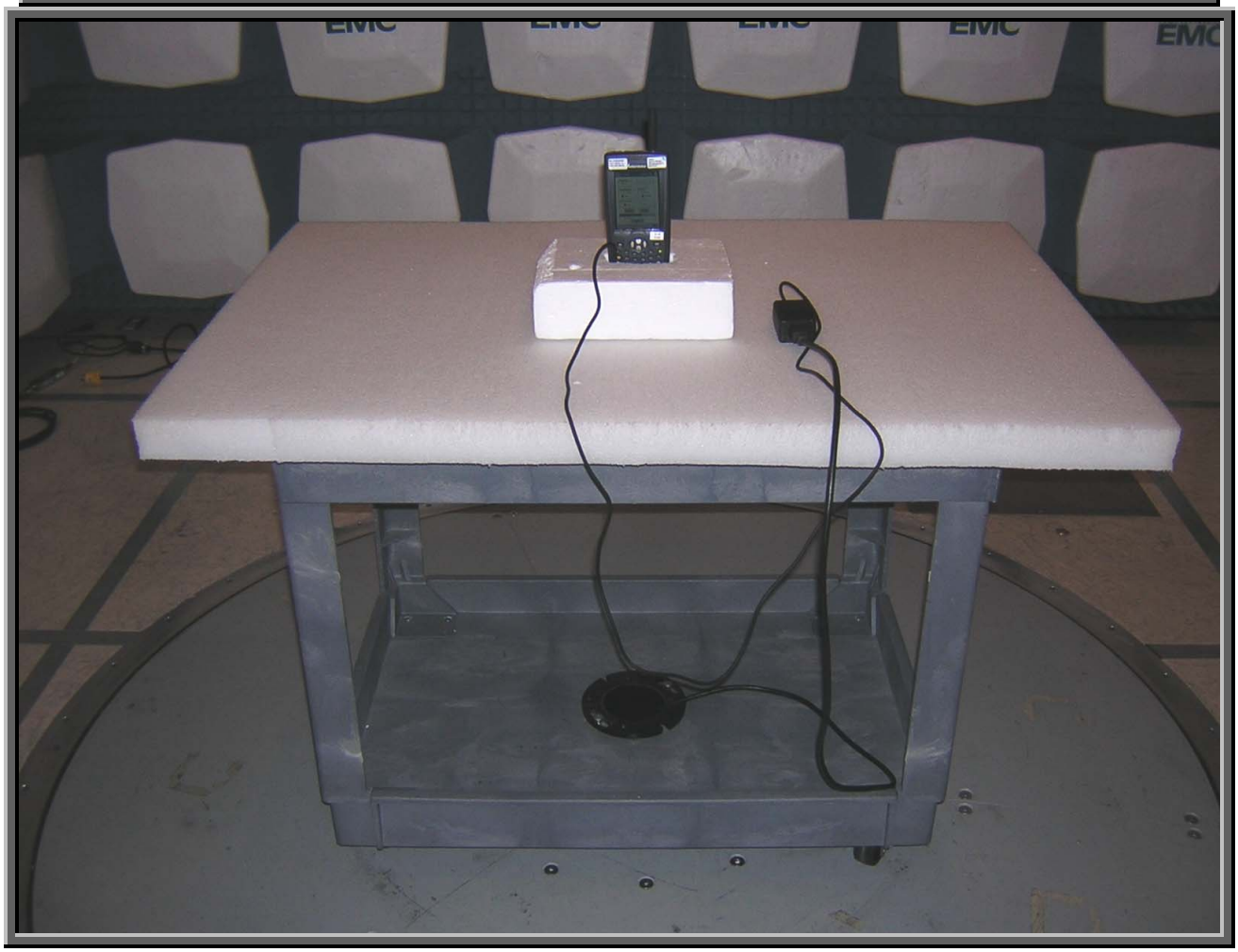
Other

Tested By: Holly Ashkannejhad



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	ERP (dBm)	ERP (Watts)	Comments
824.042	184.0	1.0	H-Bilog	PK	17.7	0.059012	Low channel
824.042	113.0	1.2	V-Bilog	PK	16.4	0.043819	Low channel
836.930	180.0	1.0	H-Bilog	PK	13.4	0.021877	Mid channel
836.930	71.0	1.2	V-Bilog	PK	11.4	0.013719	Mid channel
848.975	186.0	1.1	H-Bilog	PK	9.9	0.009752	High Channel
848.975	276.0	1.2	V-Bilog	PK	7.5	0.005646	High Channel


EMC
NORTHWEST EMC


EMC


Intermec
Eval Unit


Eval
Unit
Intermec

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:
Typical

Data Rates Investigated:
Maximum

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
120 VAC, 60 Hz.

Other Settings Investigated:
Cellular
PCS

Software\Firmware Applied During Test			
Exercise software	CDMA FCC Test	**Version**	6/7/04
Description			
The system was tested using special test software to exercise the functions of the device during the testing including channel, band, and operating mode.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer	Intermec Technologies Corporation	700C	13790400008
AC Adapter	Elpac Power Systems	FW1812	014869
CDMA Radio	Intermec Technologies Corporation	EM3420	Unknown

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Leads	PA	1.4	No	Handheld Computer	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	Tektronix	2784	AAO	02/26/2003	24 mo

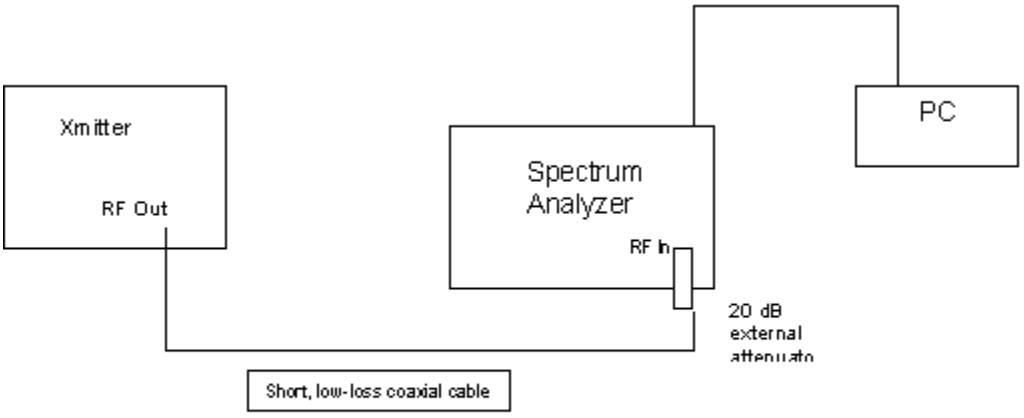
Test Description

Test Description

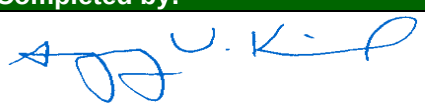
Requirement: Per 47 CFR 22.917, and 24.238, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10log(P) dB. Per 47 CFR 2.1049, the occupied bandwidth was measured at the RF output terminals with analyzer plots made for each band.

Configuration: A spectrum analyzer was used to measure the occupied bandwidth. A 20dB external attenuator was used on the RF input of the spectrum analyzer. In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter was employed. The nominal carrier frequency was adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits. The emission power was measured relative to a reference baseline of the transmitter power.

Test Setup Diagram



Completed by:



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1049, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10log(P) db.

RESULTS

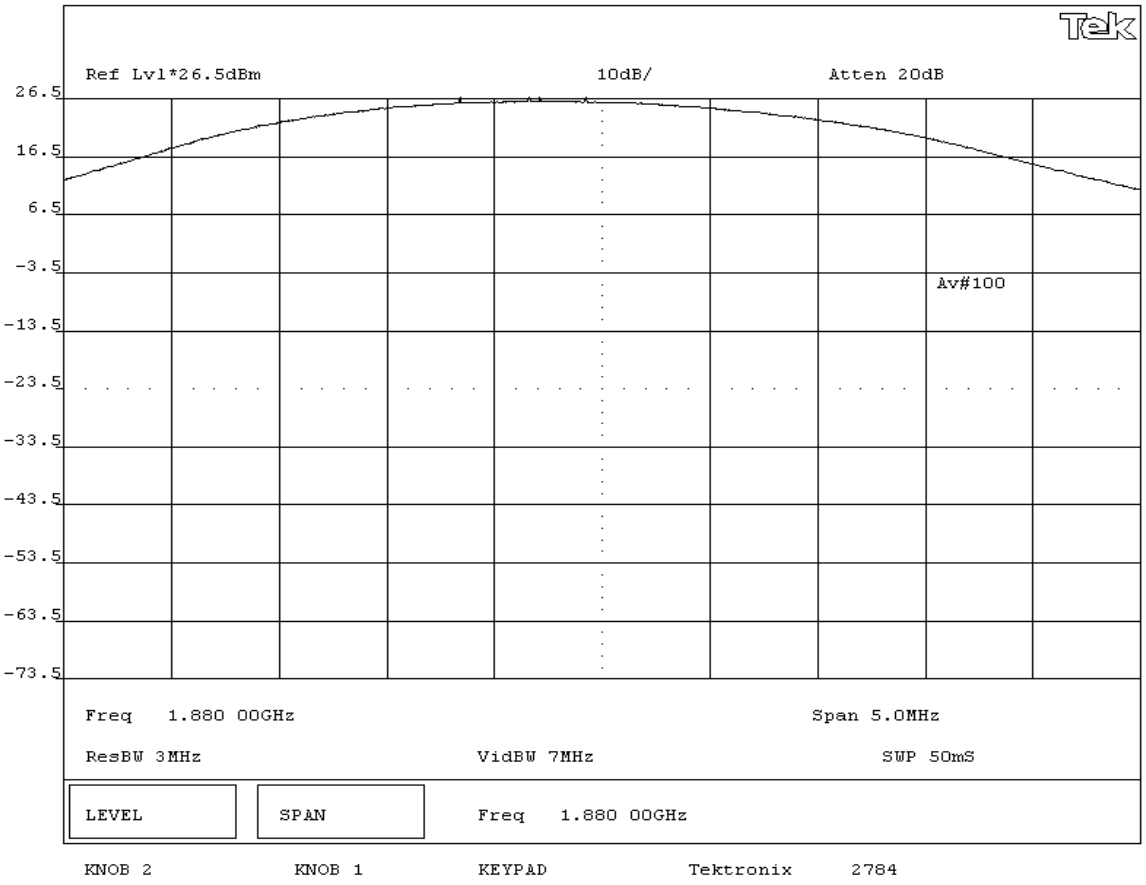
Pass

SIGNATURE

Tested By: A.J.U.K.

DESCRIPTION OF TEST

Occupied Bandwidth - Reference Level Plot - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1049, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10log(P) db.

RESULTS

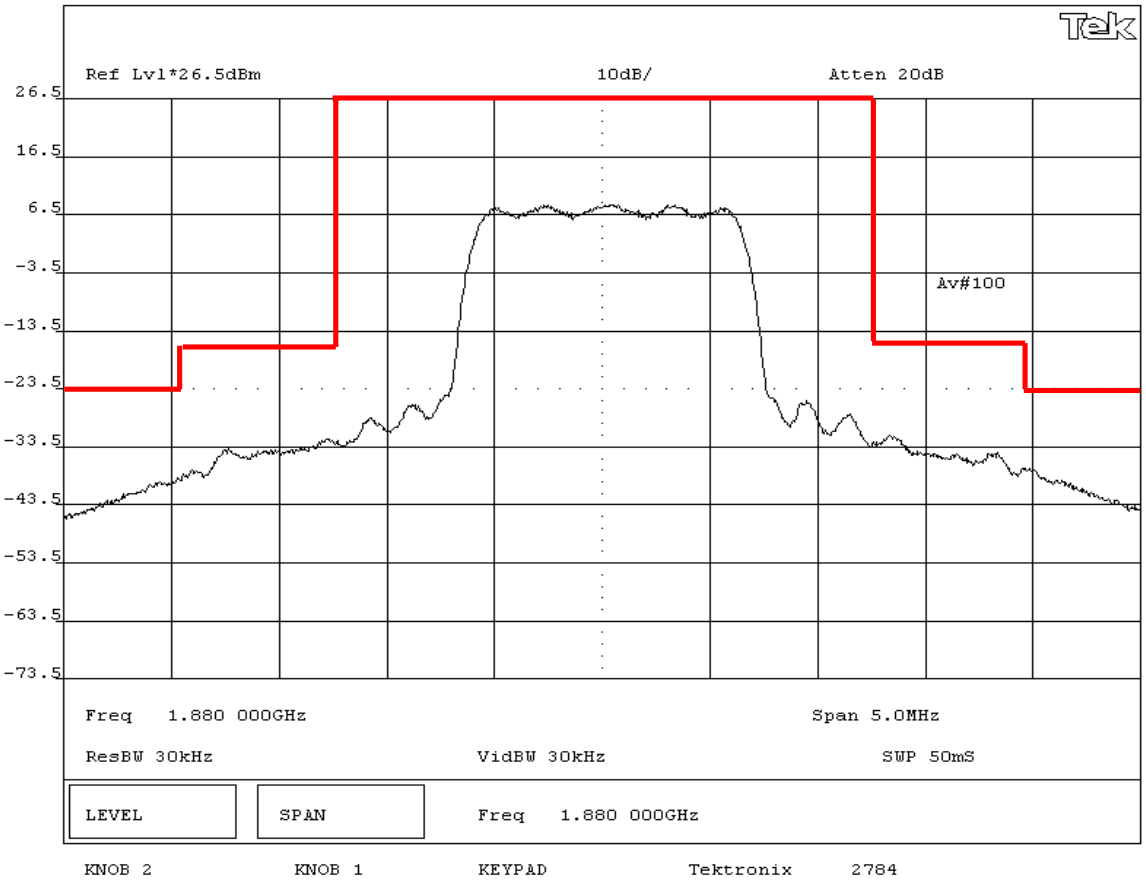
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Occupied Bandwidth - Mid Channel - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1049, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10log(P) db.

RESULTS

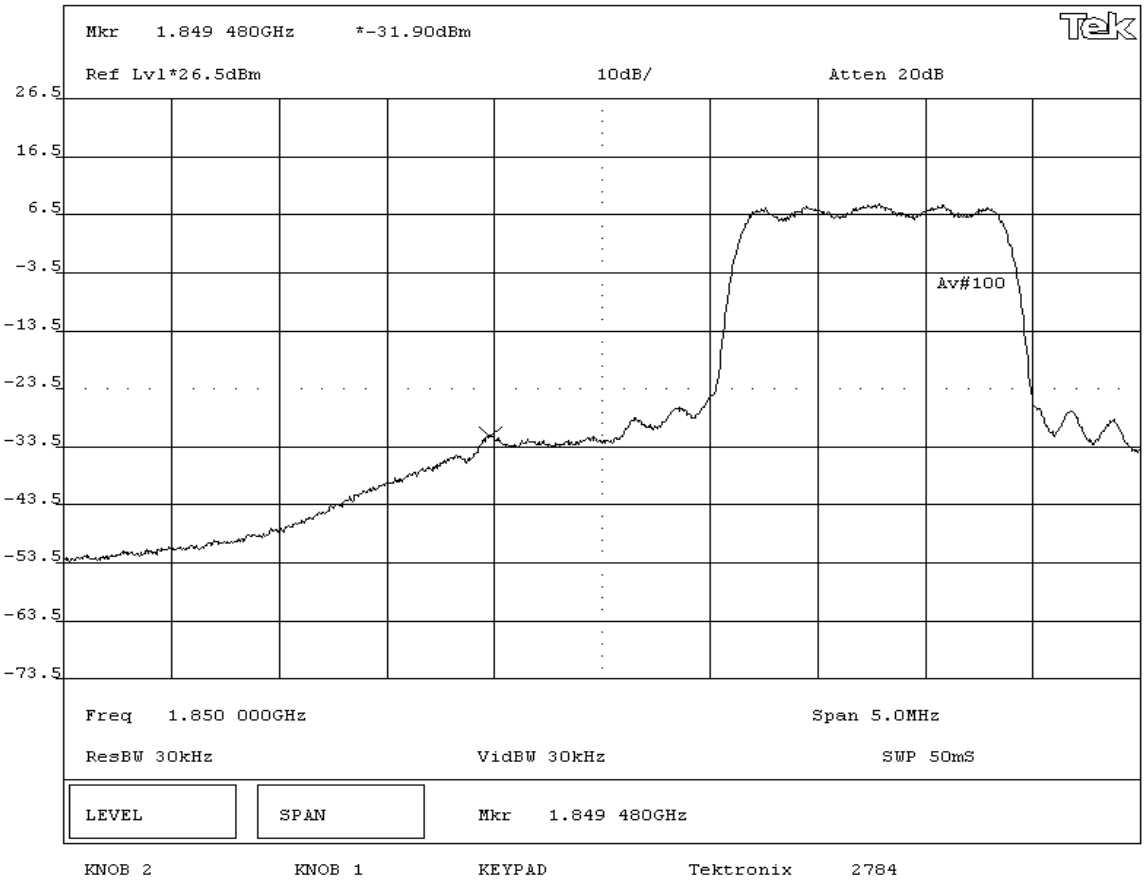
Pass

SIGNATURE

Tested By: A. J. U. Kiel

DESCRIPTION OF TEST

Occupied Bandwidth - Lower Band Edge - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1049, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10log(P) db.

RESULTS

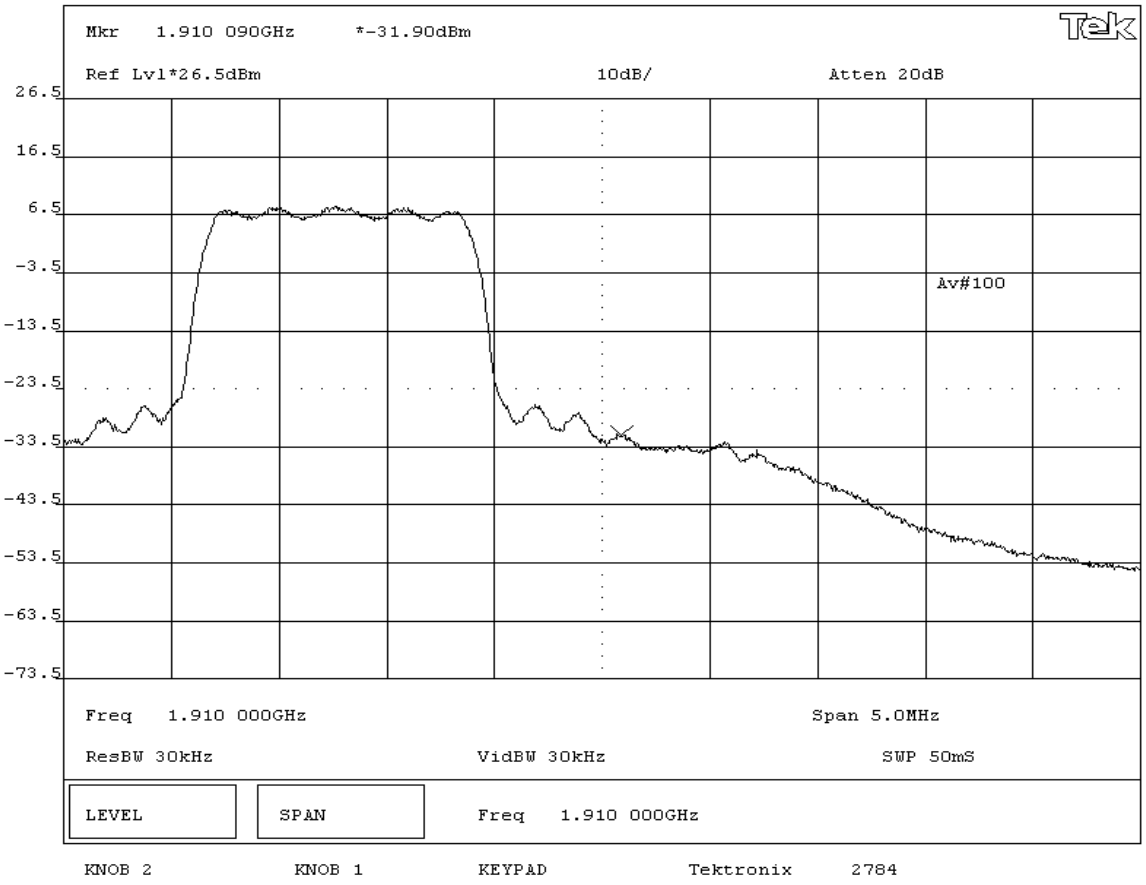
Pass

SIGNATURE

Tested By: A. J. U. Kiel

DESCRIPTION OF TEST

Occupied Bandwidth - Upper Band Edge - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1049, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10log(P) db.

RESULTS

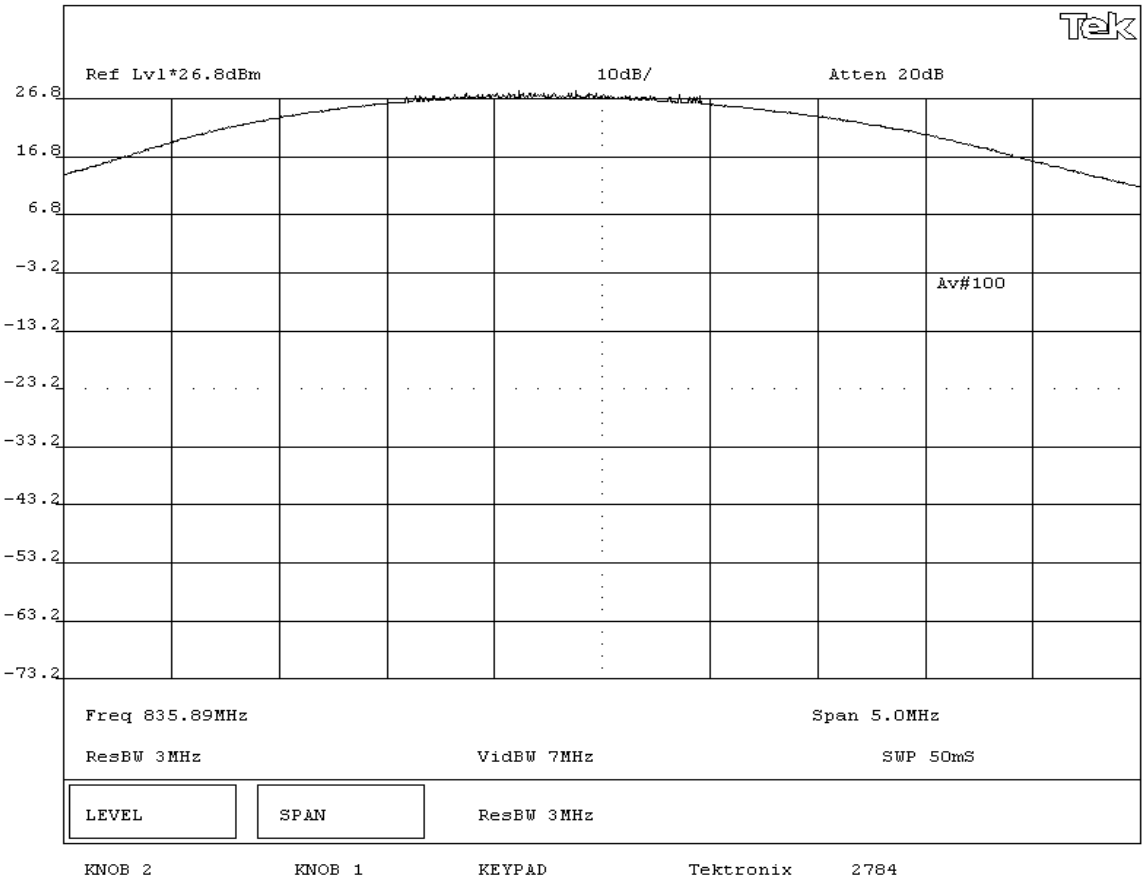
Pass

SIGNATURE

Tested By: A. U. Kiemel

DESCRIPTION OF TEST

Occupied Bandwidth - Reference Level Plot - Cellular Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1049, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10log(P) db.

RESULTS

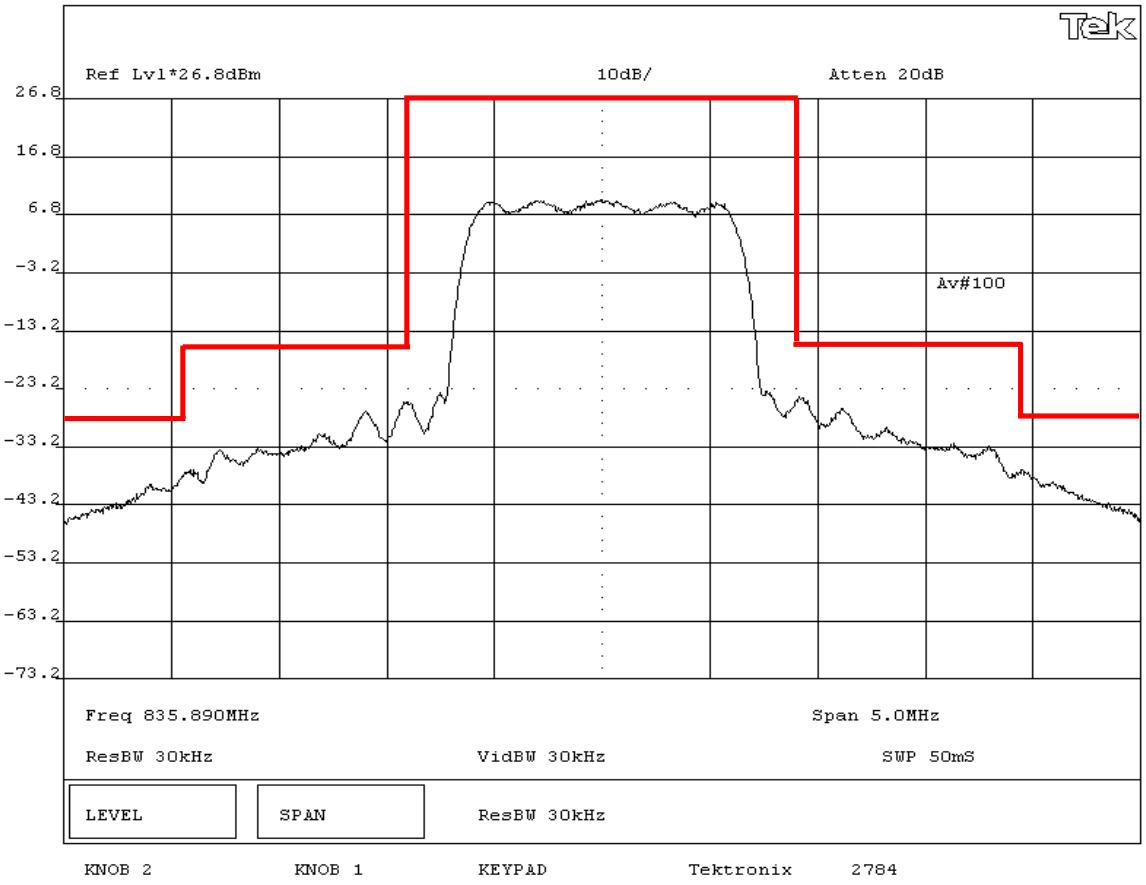
Pass

SIGNATURE

Tested By: A.J. U. Kiel

DESCRIPTION OF TEST

Occupied Bandwidth - Mid Channel - Cellular Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1049, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10log(P) db.

RESULTS

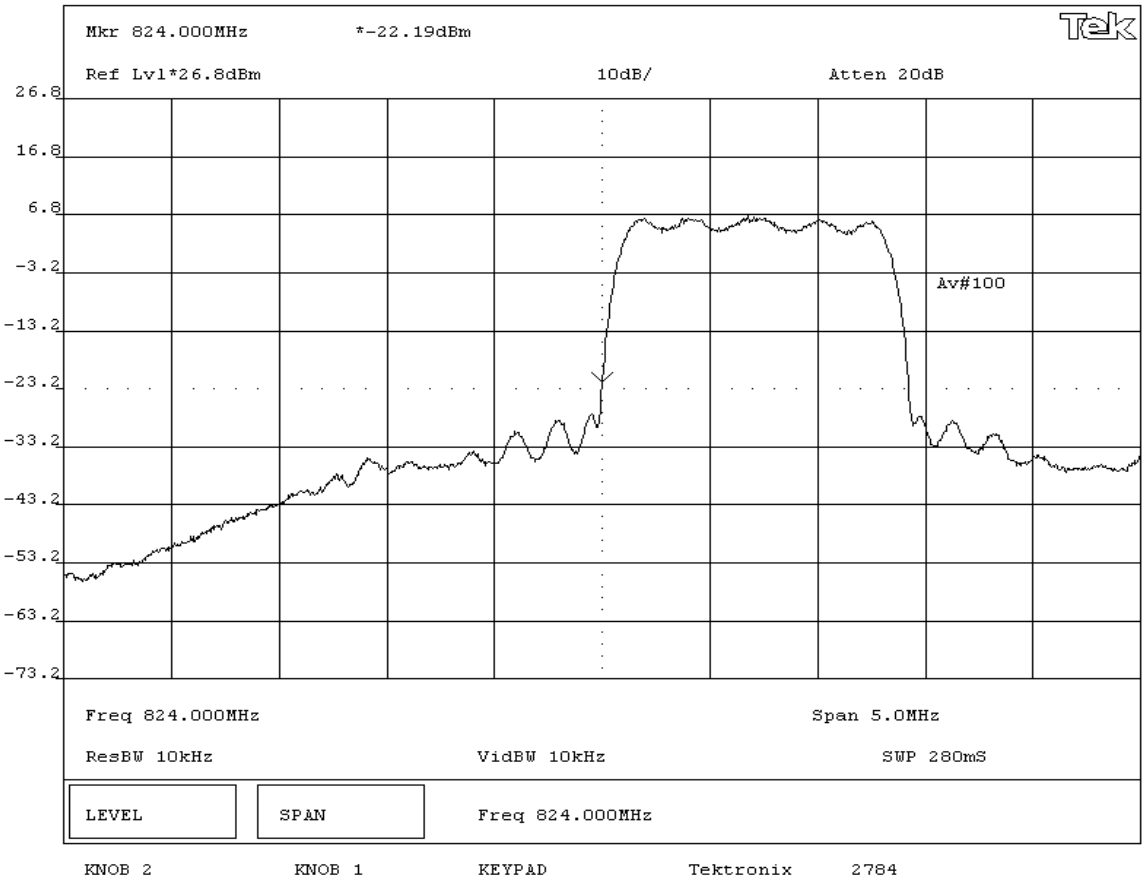
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Occupied Bandwidth - Lower Band Edge - Cellular Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1049, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10log(P) db.

RESULTS

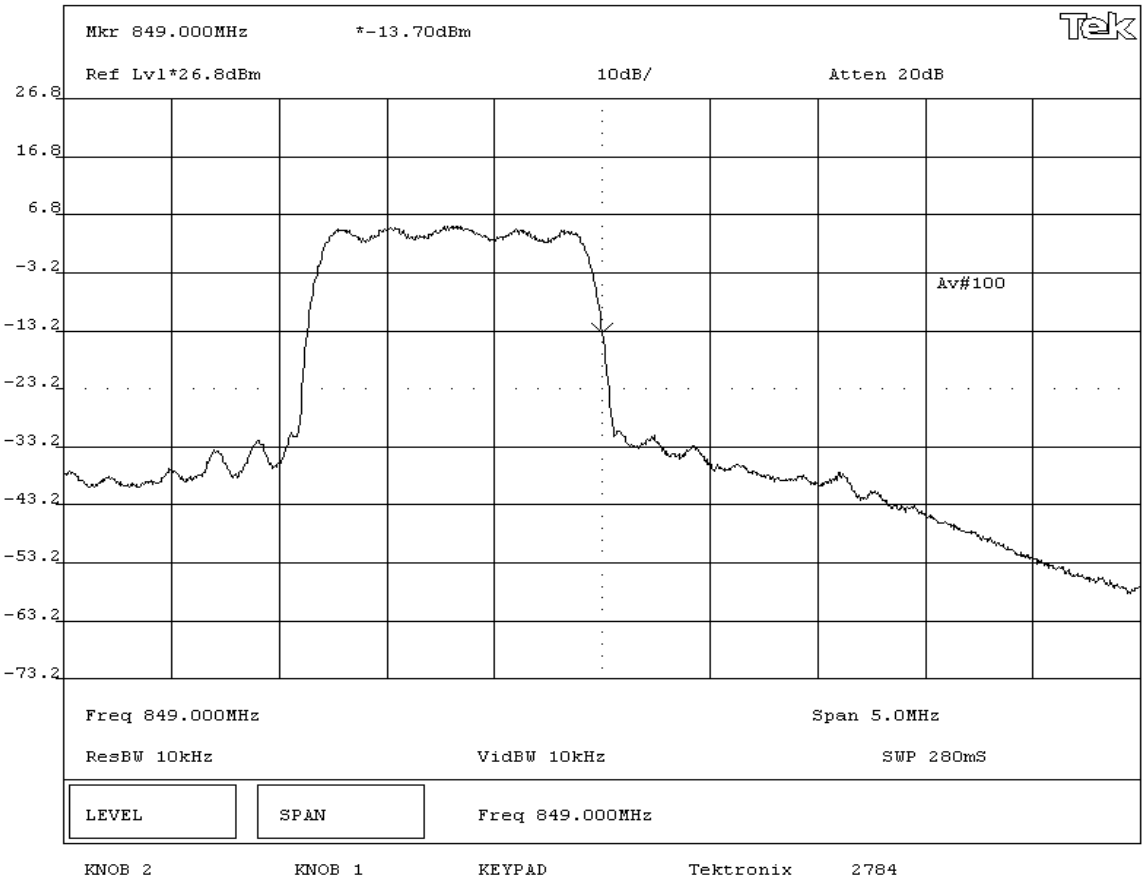
Pass

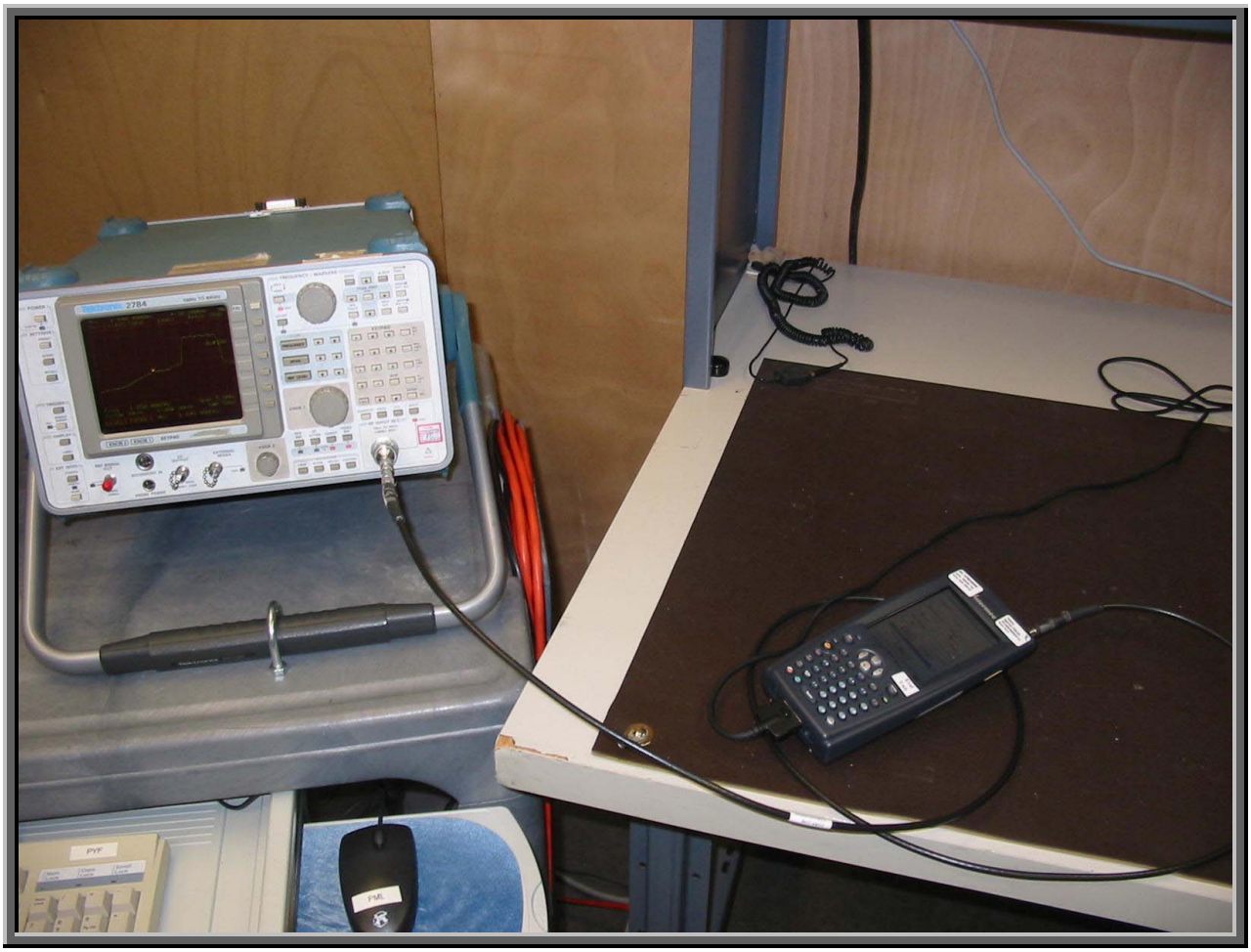
SIGNATURE

Tested By: A. J. U. Kiel

DESCRIPTION OF TEST

Occupied Bandwidth - Upper Band Edge - Cellular Band




2784
PYF
PML

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:
Typical

Data Rates Investigated:
Maximum

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
120 VAC, 60 Hz.

Other Settings Investigated:
Cellular
PCS

Software\Firmware Applied During Test			
Exercise software	CDMA FCC Test	**Version**	6/7/04
Description			
The system was tested using special test software to exercise the functions of the device during the testing including channel, band, and operating mode.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer	Intermec Technologies Corporation	700C	13790400008
AC Adapter	Elpac Power Systems	FW1812	014869
CDMA Radio	Intermec Technologies Corporation	EM3420	Unknown

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Leads	PA	1.4	No	Handheld Computer	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.					

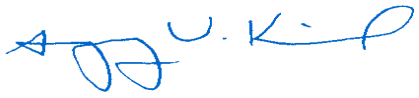
Measurement Equipment					
Description	**Manufacturer**	**Model**	**Identifier**	**Last Cal**	**Interval**
Power Meter	Hewlett Packard	E4418A	SPA	06/21/2002	27 mo
Power Sensor	Hewlett-Packard	8481H	SPB	06/21/2002	27 mo
Signal Generator	Hewlett Packard	8341B	TGN	01/23/2004	13 mo
RF Amplifier	Amplifier Research	25S1G4A	TRO	NCR	NA
RF Detector	RLC Electronics	CR-133-R	ZZA	NCR	NA
Oscilloscope	Tektronix	TDS 3052	TOF	07/16/2003	12 mo

Test Description

Requirement: Per 47 CFR 2.1046, the conducted power output was measured at the RF output terminals after the tune-up procedure.

Configuration: The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The peak measurement was made using a direct connection between the RF output of the EUT and a RF detector diode. The output of the diode was measured with the oscilloscope. The signal generator and amplifier, tuned to the transmit frequency, were then substituted for the EUT. The CW output of the signal generator was adjusted until the output of the RF detector diode match the level produced when connected to the EUT. The power meter and sensor were then used to measure the output power level of the signal generator.

Completed by:



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1046	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum peak conducted output power is measured.

RESULTS	AMPLITUDE
Pass	480 mW (Cellular band), 447 mW (PCS band)

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Output Power - Low, Mid, & High Channels

Cellular Band

Frequency (MHz)	Power (mW)
824.70	480
835.89	444
848.31	468

PCS Band

Frequency (MHz)	Power (mW)
1851.25	393
1880.00	447
1908.75	342

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:
Mid

Operating Modes Investigated:
No Modulation

Data Rates Investigated:
n/a

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
Varied both mains voltage to AC adapter and DC voltage to host (700C)

Other Settings Investigated:
Cellular
PCS

Software\Firmware Applied During Test			
Exercise software	CDMA FCC Test	**Version**	6/7/04
Description			
The system was tested using special test software to exercise the functions of the device during the testing including channel, band, and operating mode.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer	Intermec Technologies Corporation	700C	13790400007
AC Adapter	Elpac Power Systems	FW1812	014869
CDMA Radio	Intermec Technologies Corporation	EM3420	Unknown

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Leads	PA	1.4	No	Handheld Computer	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	Tektronix	2784	AAO	02/26/2003	24 mo
Chamber, Temp./Humidity Chamber	Cincinnati Sub Zero (CSZ)	ZH-32-2-2-H/AC	TBA	09/25/2003	12 mo
Multimeter	Fluke	79	MMC	09/09/2003	12 mo
DC Power Supply	Topward	TPS-2000	TPD	NCR	NA
Harmonic/Flicker Test System	Hewlett-Packard	6843A	THB	03/05/2004	12 mo

Test Description

Requirement: Per 47 CFR 2.1055 and 24.235, the frequency stability shall be measured with variation of ambient temperature and primary supply voltage. A spectrum analyzer or frequency counter can be used to measure the frequency stability. If using a spectrum analyzer, it must have a precision frequency reference that exceeds the stability requirement of the transmitter. A temperature / humidity chamber is required.

Configuration:

Variation of AC Mains Supply Voltage

The primary supply voltage was varied from 85% to 115% of nominal. The EUT can be operated while the host unit is charging, so an AC lab supply was used to vary the supply voltage from 115% to 85% of 120 V, 60 Hz.

Variation of Battery Supply Voltage

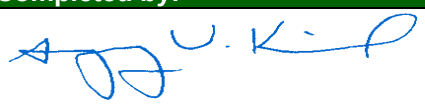
The EUT can be battery operated without connection to the AC mains, so a DC lab supply was used to vary the supply voltage up to 115% of 7.2 Vdc and down to the EUT's voltage end point of 7.1 V dc.

Variation of Ambient Temperature

Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-30° to +60° C) and at 10°C intervals.

Measurements were made at mid frequency in both the cellular and PCS bands. A radiated measurement was made using a spectrum analyzer and a near field probe. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

Completed by:



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	06/29/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV09

TEST SPECIFICATIONS

Specification:	47 CFR 2.1055	Year:	Most Current	Method:	TIA/EIA - 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Transmitting mid band with no modulation (CW mode).

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Minimum frequency stability of 2.5 parts per million (ppm) for variations of temperature and supply voltage (AC and battery power)

RESULTS	MINIMUM FREQUENCY STABILITY
Pass	1.42 ppm

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Frequency Stability

Frequency Stability with Variation of Ambient Temperature (Primary Supply = 120V, 60Hz)

Temp (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
-30	836.52000	836.520076	0.09	2.5
-20	836.52000	836.520068	0.08	2.5
-10	836.52000	836.519949	0.06	2.5
0	836.52000	836.519866	0.16	2.5
10	836.52000	836.519726	0.33	2.5
20	836.52000	836.520248	0.30	2.5
30	836.52000	836.520857	1.02	2.5
40	836.52000	836.521192	1.42	2.5
50	836.52000	836.520199	0.24	2.5
60	836.52000	836.520185	0.22	2.5

Frequency Stability with Variation of Primary Supply Voltage (Ambient Temperature = 20°C)

Voltage (VAC, 60Hz)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
138 (115%)	836.52000	836.520248	0.30	2.5
132 (110%)	836.52000	836.520248	0.30	2.5
126 (105%)	836.52000	836.520248	0.30	2.5
120 (100%)	836.52000	836.520248	0.30	2.5
114 (95%)	836.52000	836.520248	0.30	2.5
108 (90%)	836.52000	836.520248	0.30	2.5
102 (85%)	836.52000	836.520248	0.30	2.5

Frequency Stability with Variation of Battery Voltage (Ambient Temperature = 20°C)

Voltage (VDC)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
8.28 (115%)	836.52000	836.520282	0.34	2.5
7.92 (110%)	836.52000	836.520243	0.29	2.5
7.56 (105%)	836.52000	836.520204	0.24	2.5
7.2 (100%)	836.52000	836.520248	0.30	2.5
7.1 (end point)	836.52000	836.520137	0.16	2.5

NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	06/29/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV09

TEST SPECIFICATIONS

Specification:	47 CFR 2.1055 , 24.235	Year:	Most Current	Method:	TIA/EIA - 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

EUT OPERATING MODES

Transmitting mid band with no modulation (CW mode).

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Minimum frequency stability of 2.5 parts per million (ppm) for variations of temperature and supply voltage (AC and battery power)

RESULTS	MINIMUM FREQUENCY STABILITY
Pass	2.19 ppm

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Frequency Stability

Frequency Stability with Variation of Ambient Temperature (Primary Supply = 120V, 60Hz)

Temp (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
-30	1880.00000	1879.999399	0.32	2.5
-20	1880.00000	1879.998923	0.57	2.5
-10	1880.00000	1879.997677	1.24	2.5
0	1880.00000	1879.996016	2.12	2.5
10	1880.00000	1879.995879	2.19	2.5
20	1880.00000	1879.997115	1.53	2.5
30	1880.00000	1879.998244	0.93	2.5
40	1880.00000	1879.999610	0.21	2.5
50	1880.00000	1879.999750	0.13	2.5
60	1880.00000	1879.999800	0.11	2.5

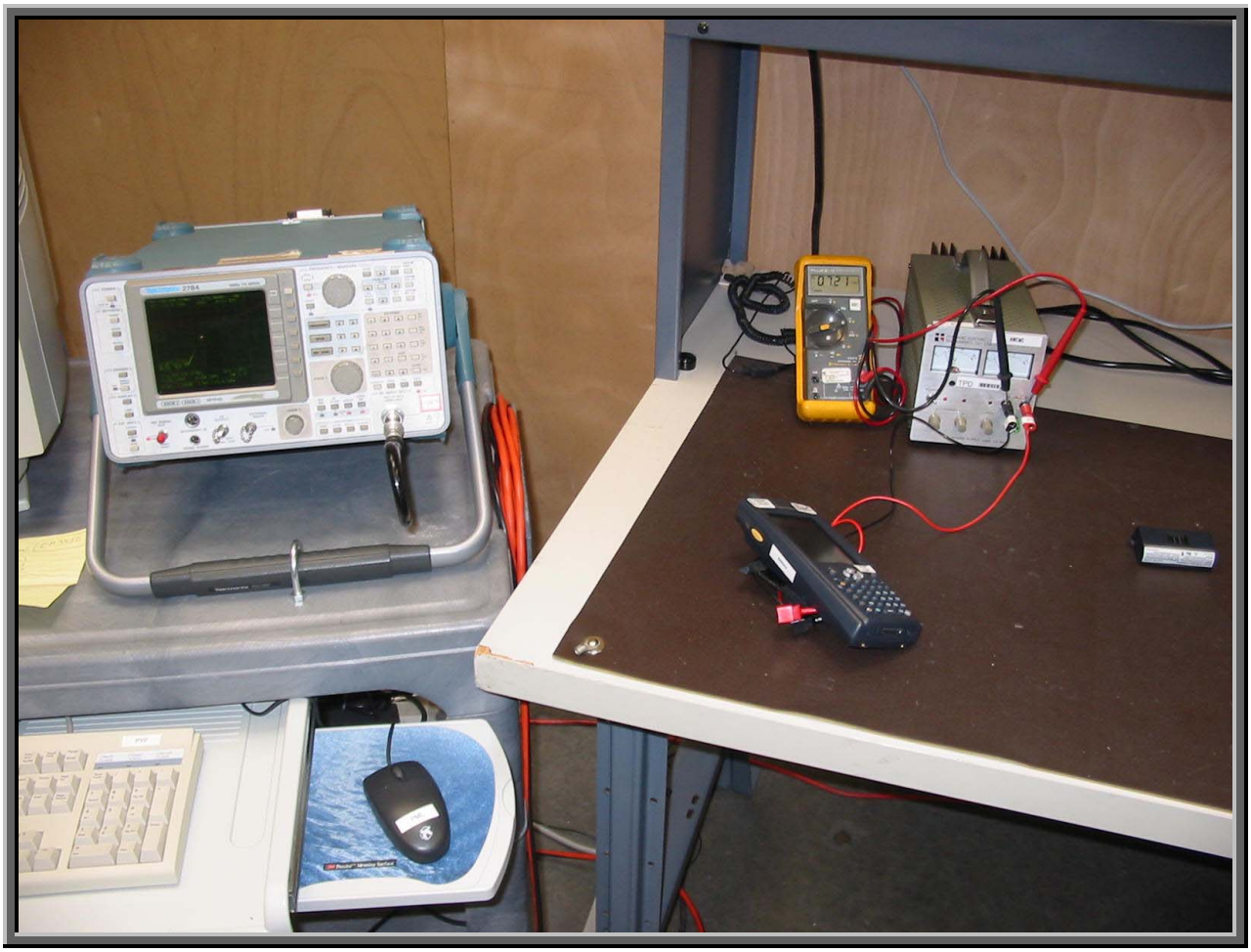
Frequency Stability with Variation of Primary Supply Voltage (Ambient Temperature = 20°C)

Voltage (VAC, 60Hz)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
138 (115%)	1880.00000	1879.997115	1.53	2.5
132 (110%)	1880.00000	1879.997115	1.53	2.5
126 (105%)	1880.00000	1879.997115	1.53	2.5
120 (100%)	1880.00000	1879.997115	1.53	2.5
114 (95%)	1880.00000	1879.997115	1.53	2.5
108 (90%)	1880.00000	1879.997115	1.53	2.5
102 (85%)	1880.00000	1879.997115	1.53	2.5

Frequency Stability with Variation of Battery Voltage (Ambient Temperature = 20°C)

Voltage (VDC)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
8.28 (115%)	1880.00000	1879.997801	1.17	2.5
7.92 (110%)	1880.00000	1879.997547	1.30	2.5
7.56 (105%)	1880.00000	1879.997230	1.47	2.5
7.2 (100%)	1880.00000	1879.997115	1.53	2.5
7.1 (end point)	1880.00000	1879.997085	1.55	2.5


Z32
CAUTION



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:
Typical

Data Rates Investigated:
Maximum

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
120 VAC, 60 Hz.

Other Settings Investigated:
Cellular
PCS

Frequency Range Investigated			
Start Frequency	0 MHz	**Stop Frequency**	20 GHz

Software\Firmware Applied During Test			
Exercise software	CDMA FCC Test	**Version**	6/7/04
Description			
The system was tested using special test software to exercise the functions of the device during the testing including channel, band, and operating mode.			

EUT and Peripherals			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Handheld Computer	Intermec Technologies Corporation	700C	13790400008
AC Adapter	Elpac Power Systems	FW1812	014869
CDMA Radio	Intermec Technologies Corporation	EM3420	Unknown

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Leads	PA	1.4	No	Handheld Computer	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.					

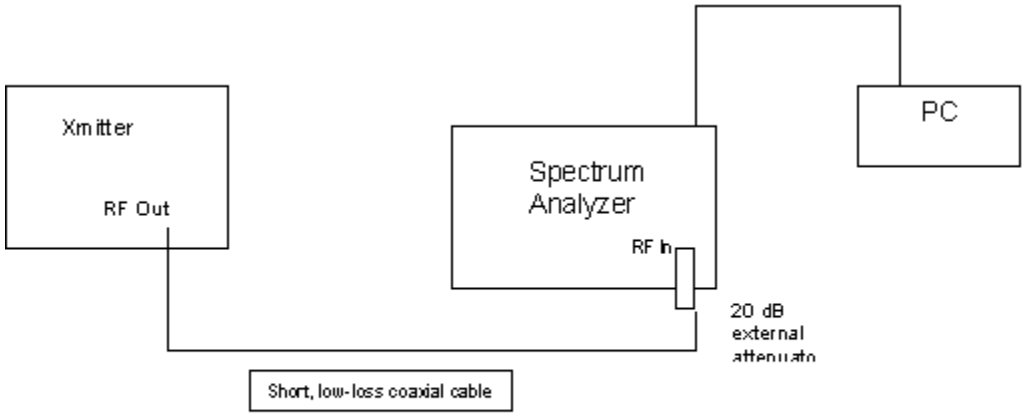
Measurement Equipment					
Description	**Manufacturer**	**Model**	**Identifier**	**Last Cal**	**Interval**
Spectrum Analyzer	Tektronix	2784	AAO	02/26/2003	24 mo

Test Description

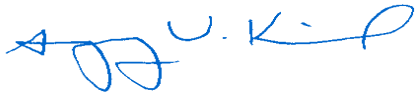
Requirement: Per 47 CFR 22.917, and 24.238, the peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to –13 dBm. Per 47 CFR 2.1051, the spurious emissions were measured at the RF output terminals with analyzer plots made for each modulation type.

Configuration: A spectrum analyzer was used to scan from 0 to 20 GHz. A 1MHz resolution bandwidth was used. No video filtering was employed. A 20dB external attenuator was used on the RF input of the spectrum analyzer.

Test Setup Diagram



Completed by:



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

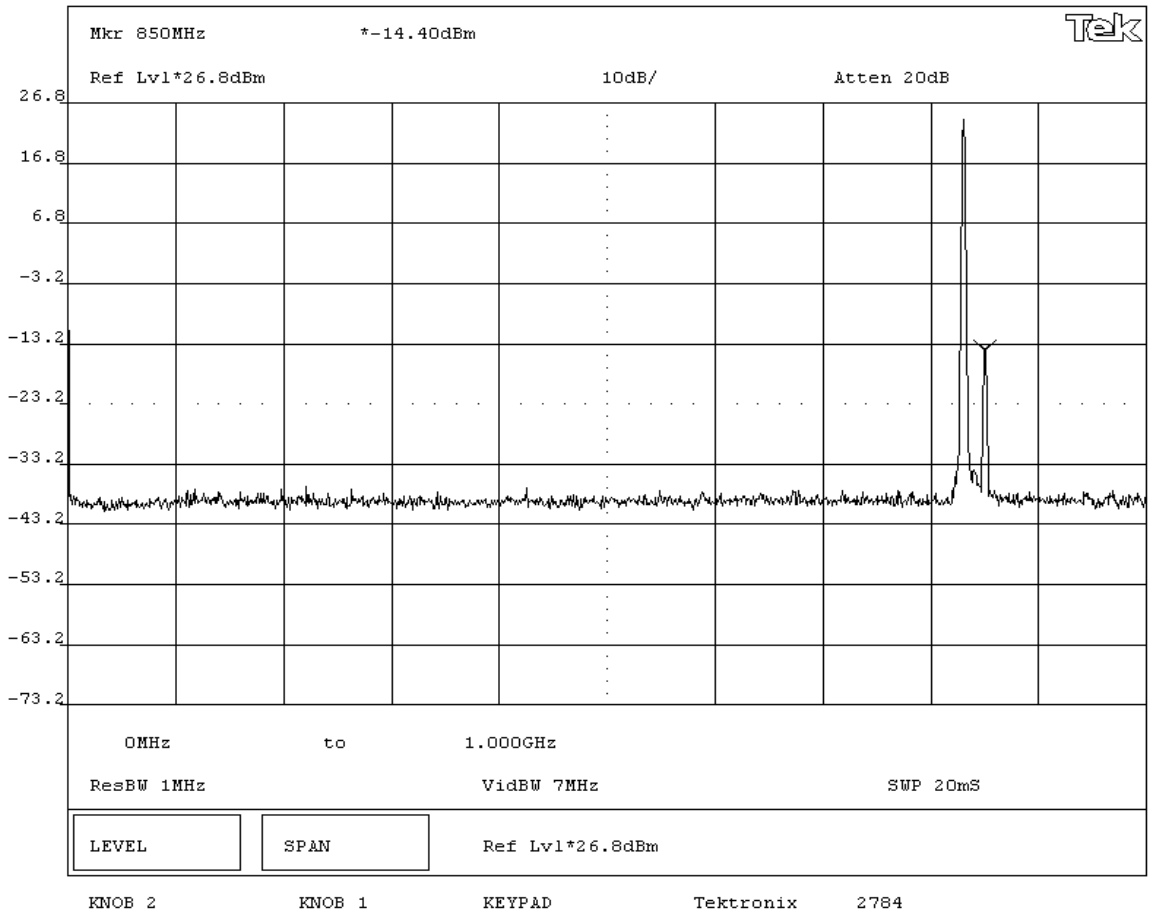
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Low Channel - Cellular Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

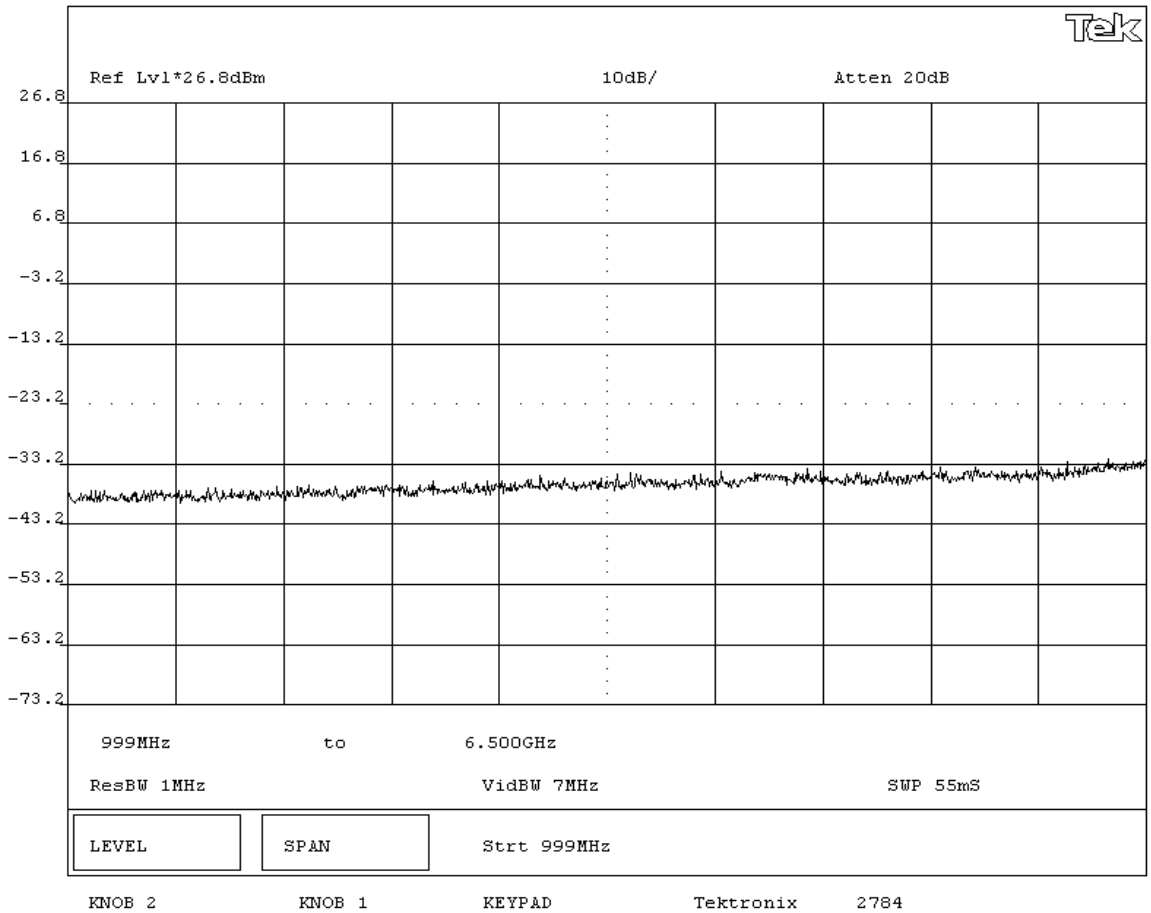
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Low Channel - Cellular Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

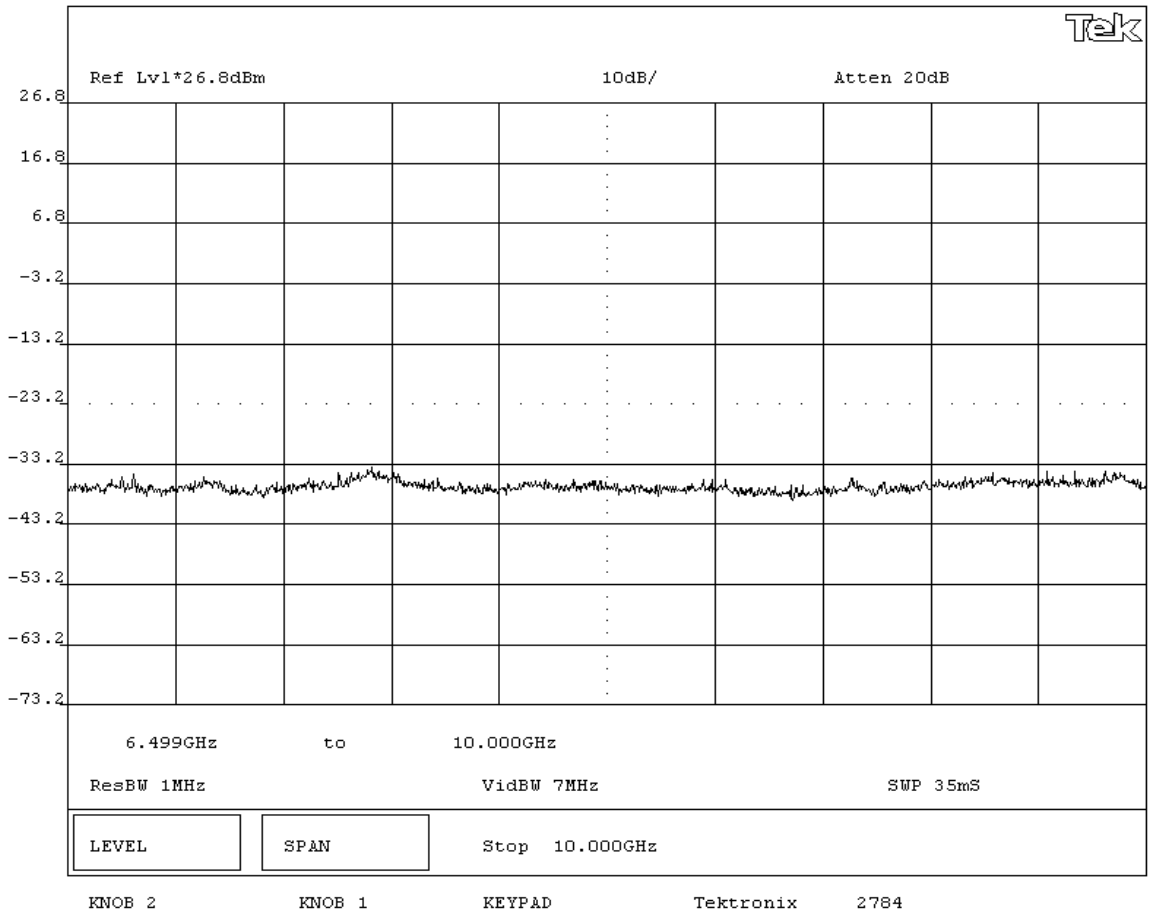
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Low Channel - Cellular Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

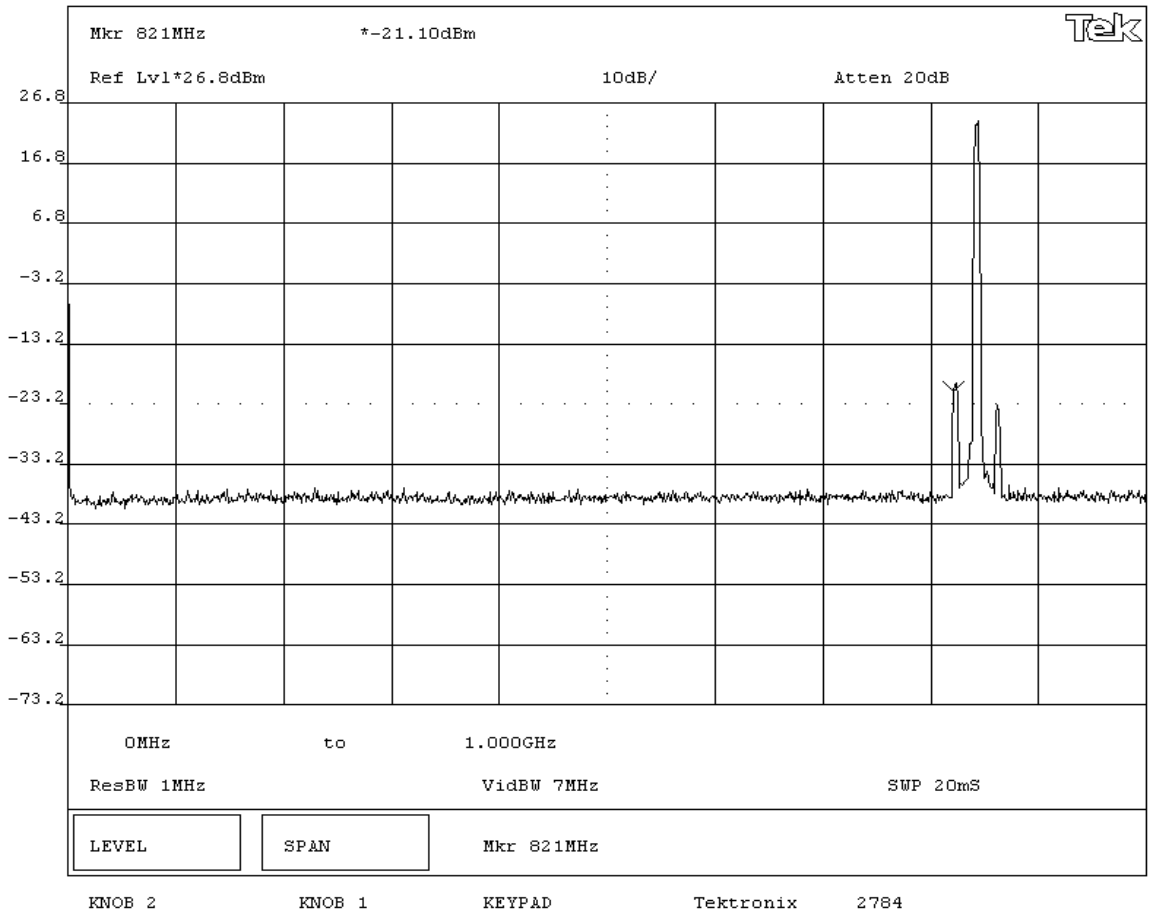
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Mid Channel - Cellular Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

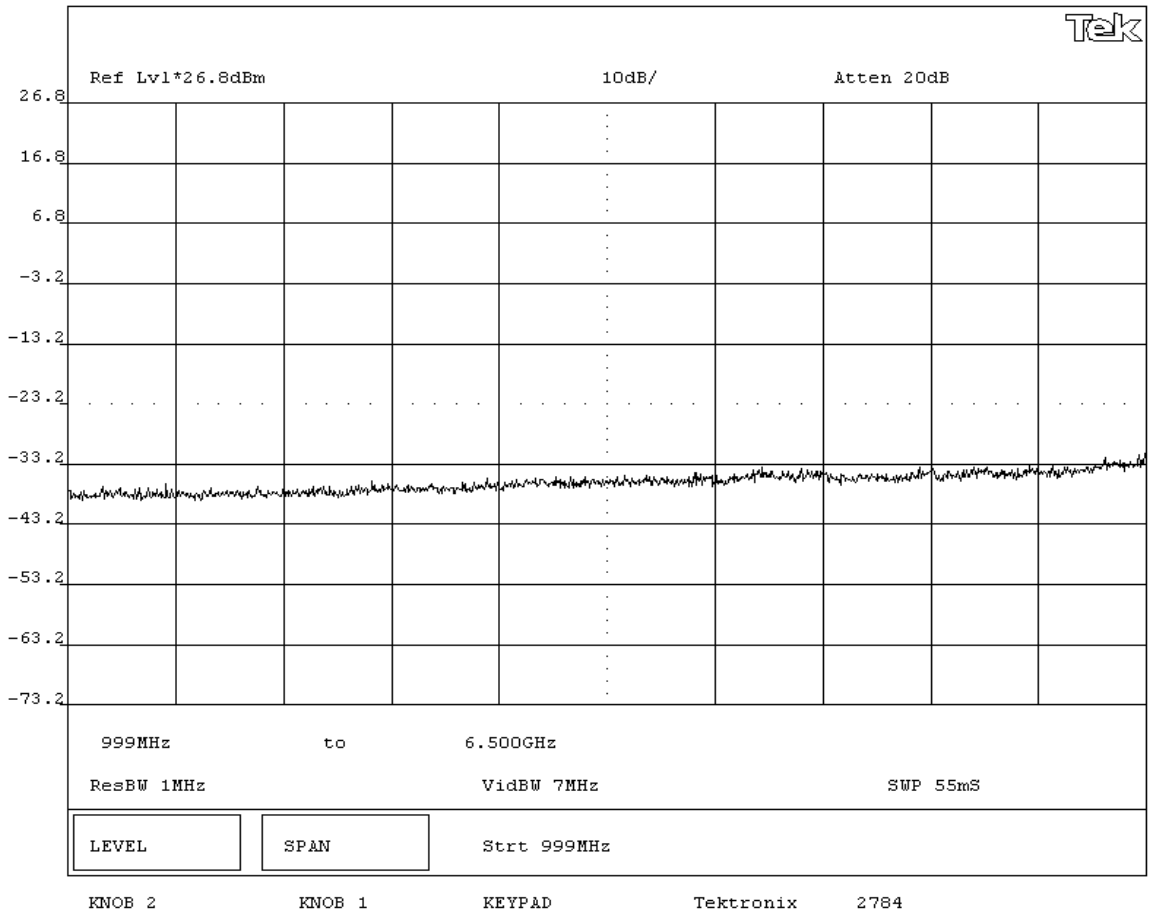
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Mid Channel - Cellular Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

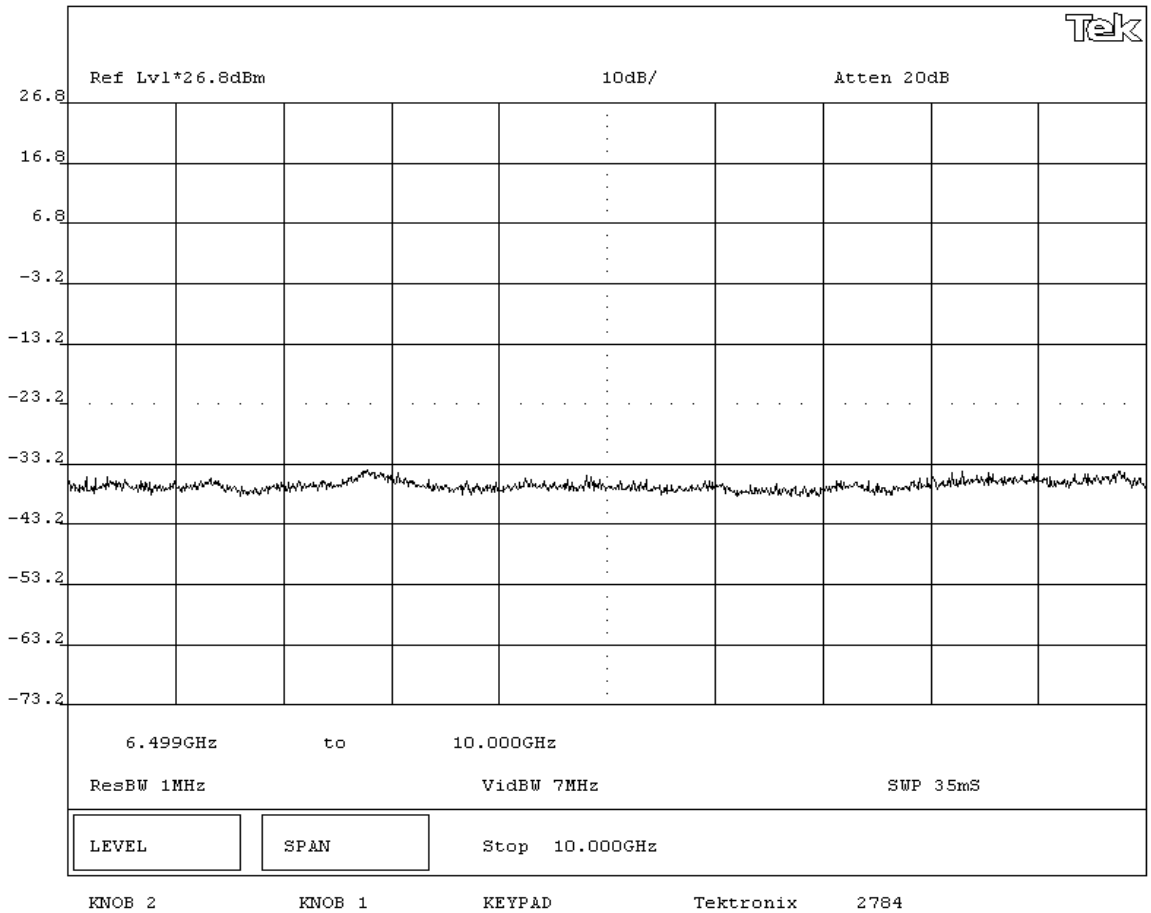
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Mid Channel - Cellular Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

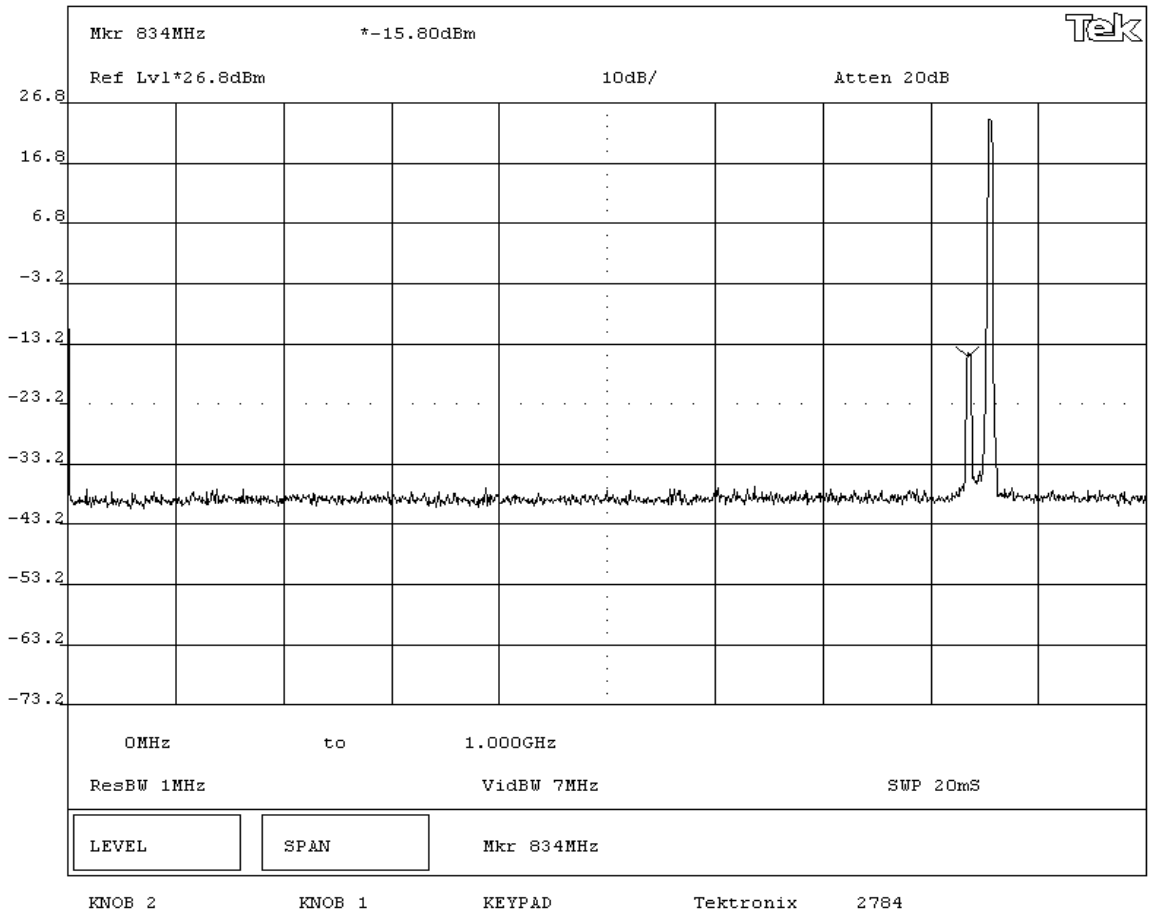
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - High Channel - Cellular Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

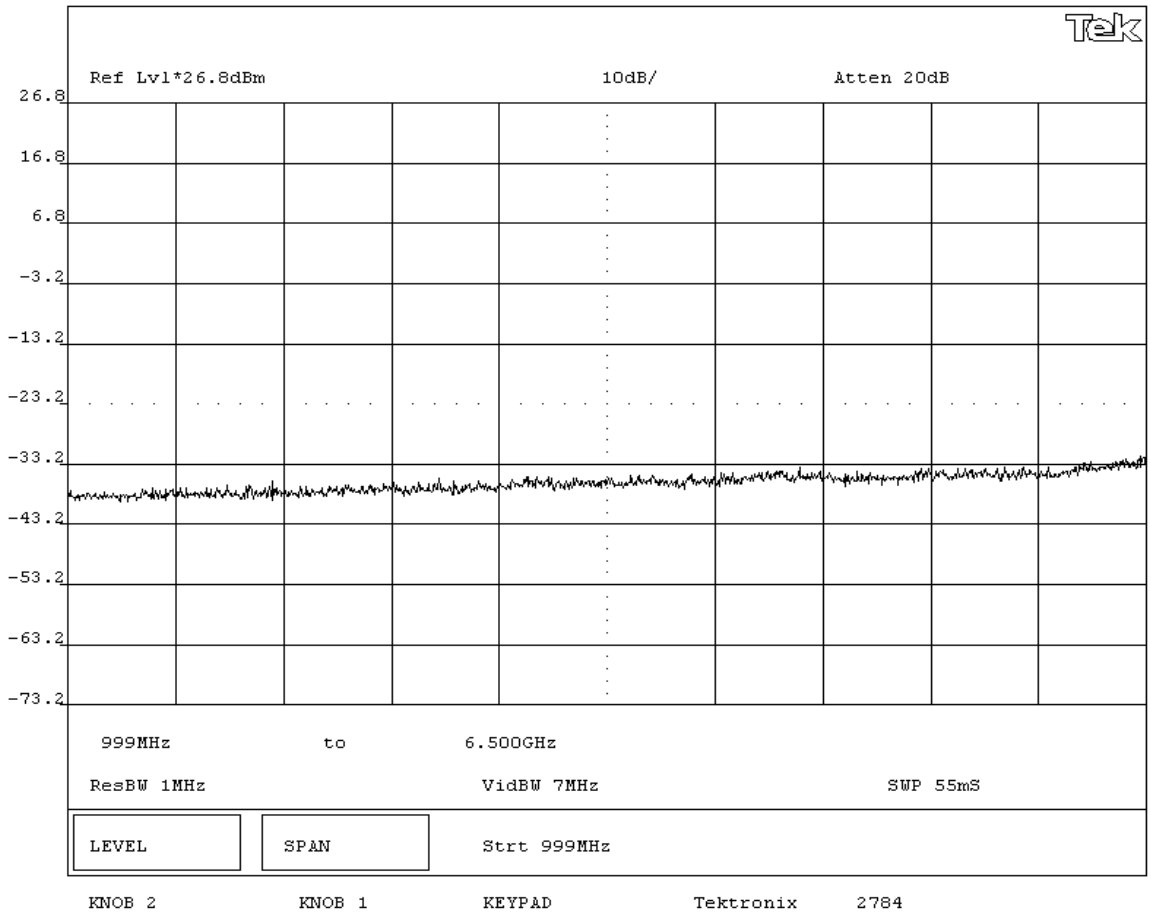
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - High Channel - Cellular Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

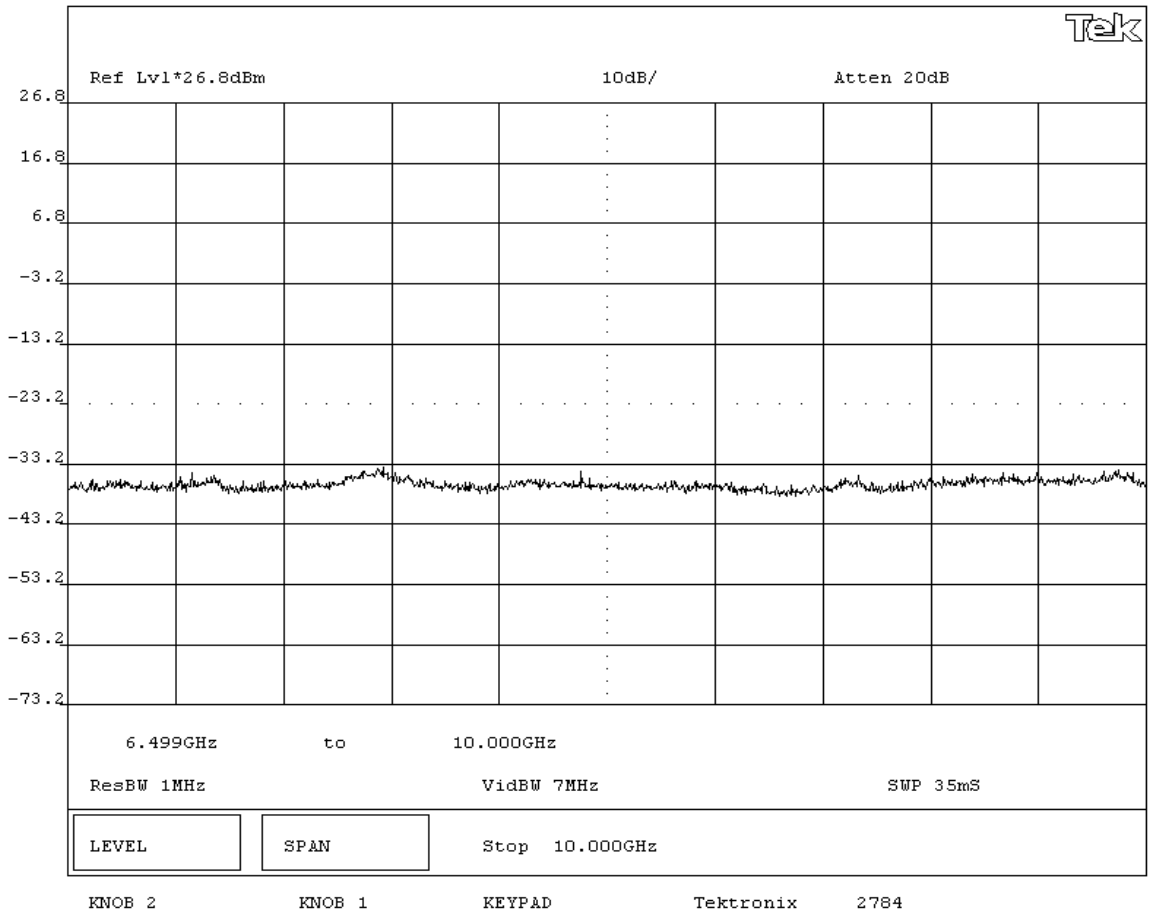
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - High Channel - Cellular Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

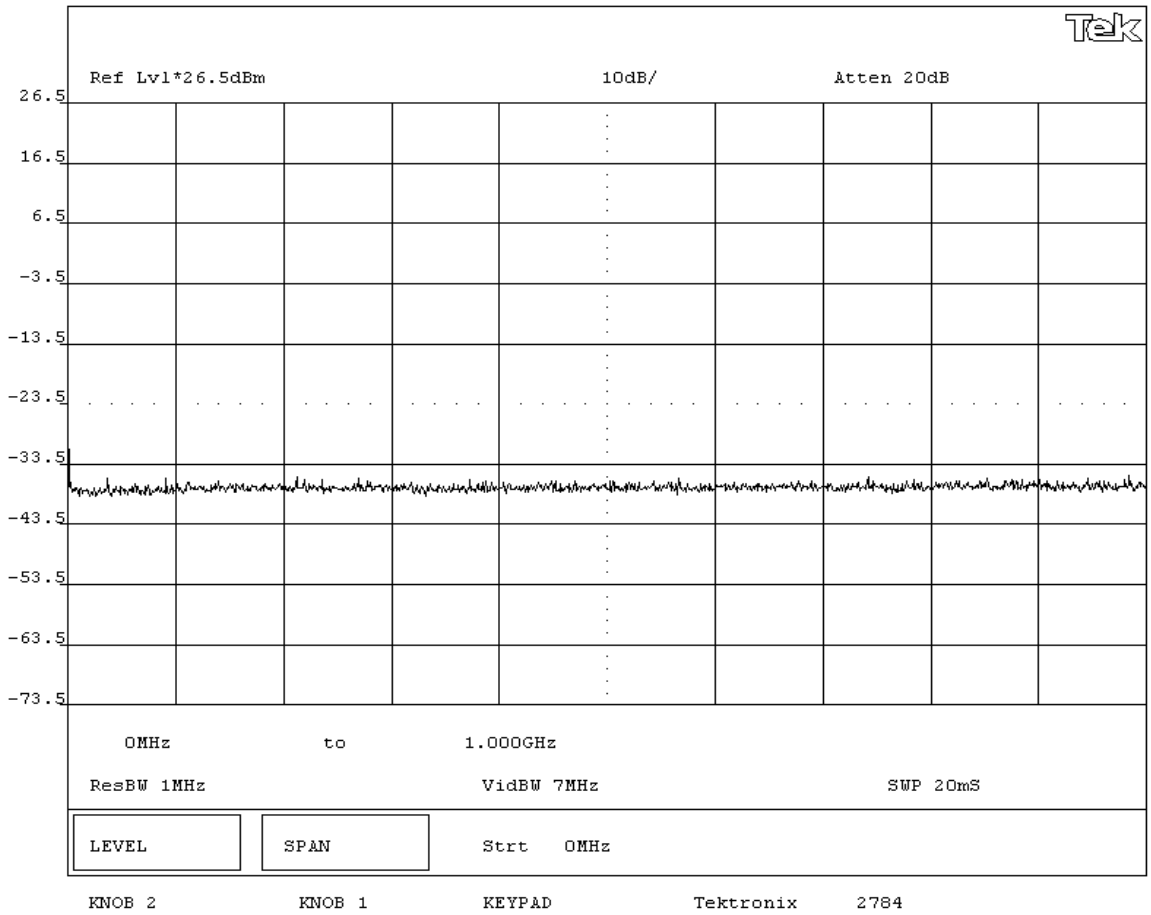
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Low Channel - PCS Band



NORTHWEST
EMC

EMISSIONS DATA SHEET

Rev BETA
01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

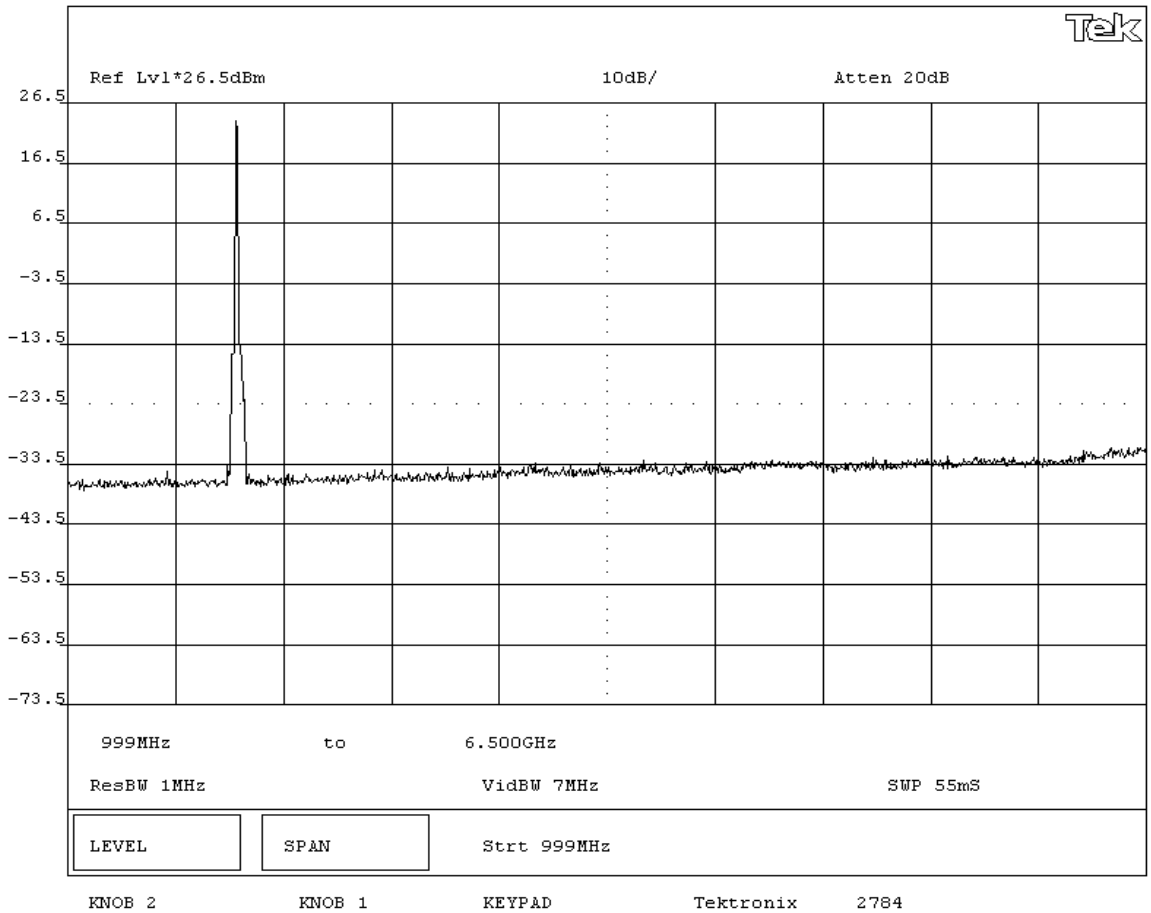
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Low Channel - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

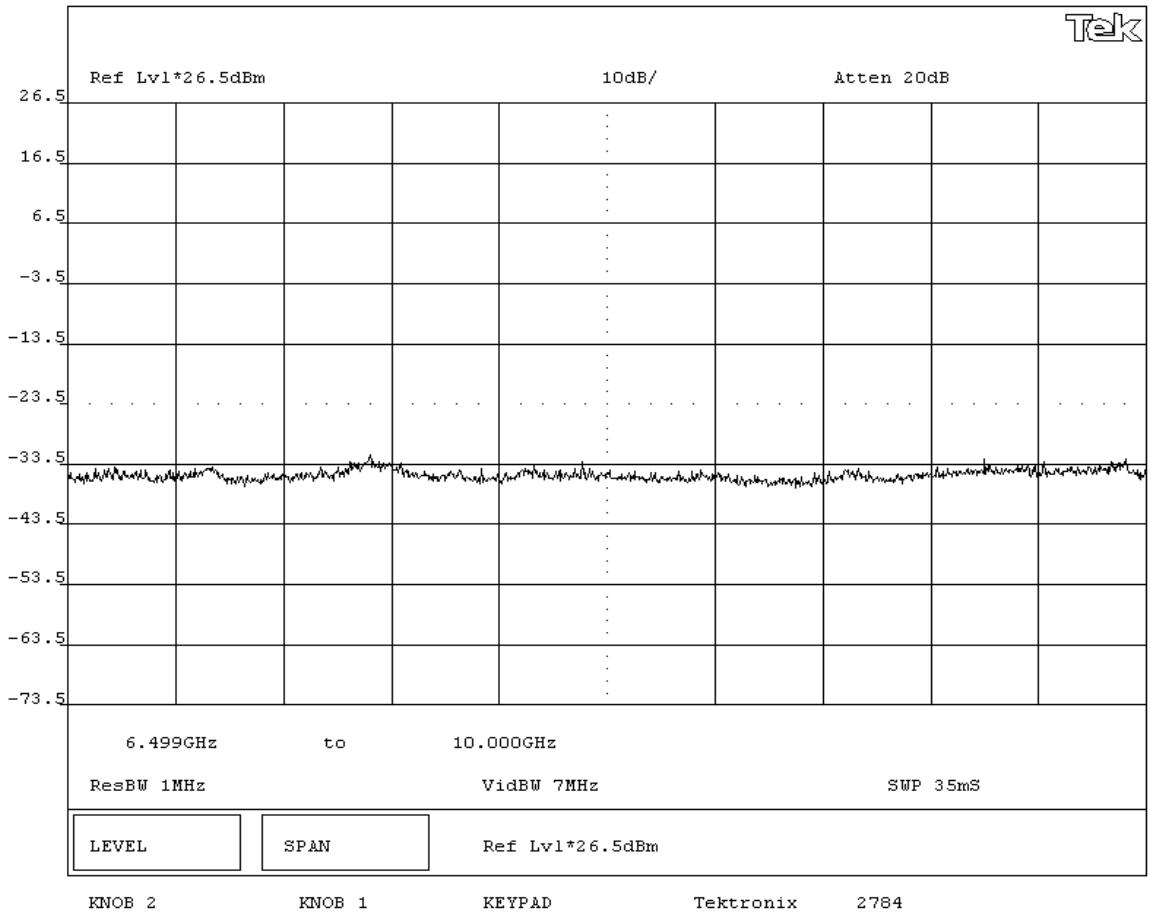
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Low Channel - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

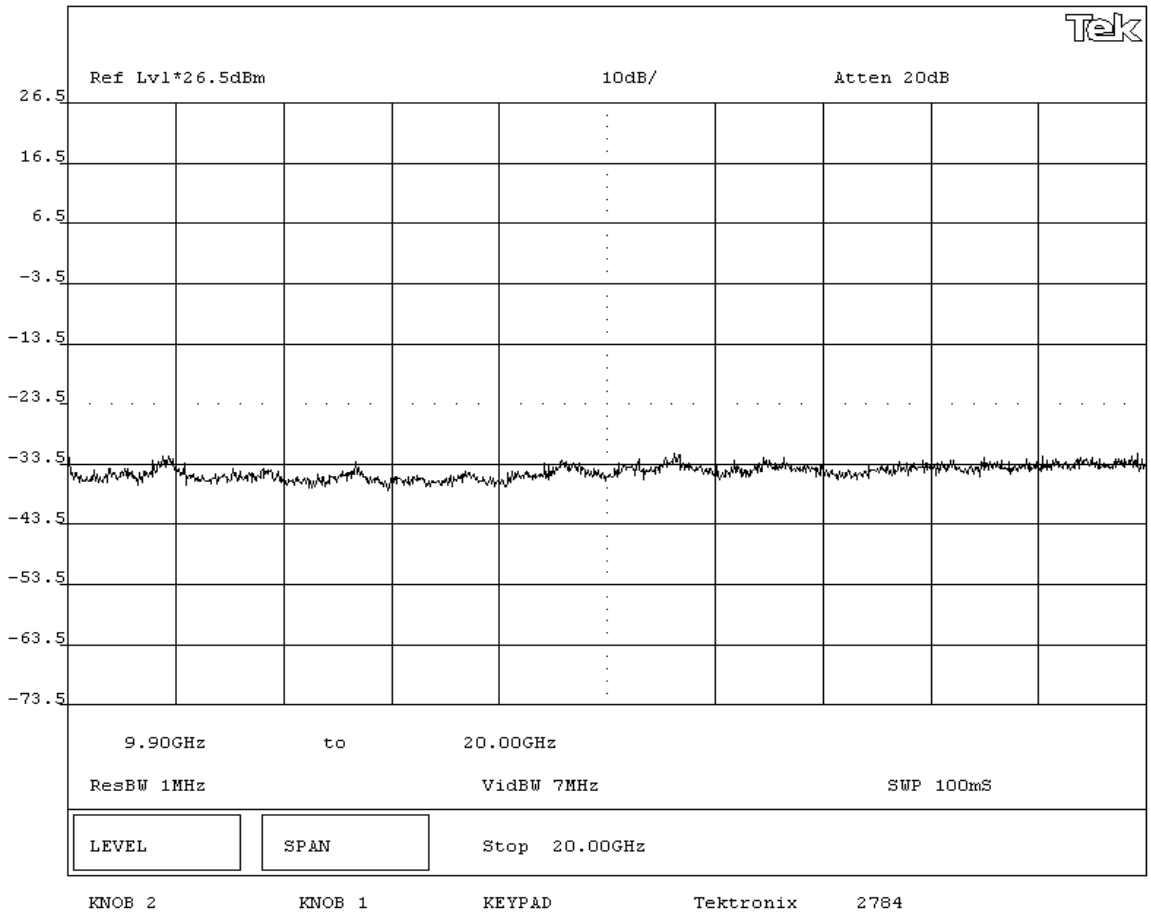
Pass

SIGNATURE

Tested By: A. U. Kiel

DESCRIPTION OF TEST

Spurious Conducted Emissions - Low Channel - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

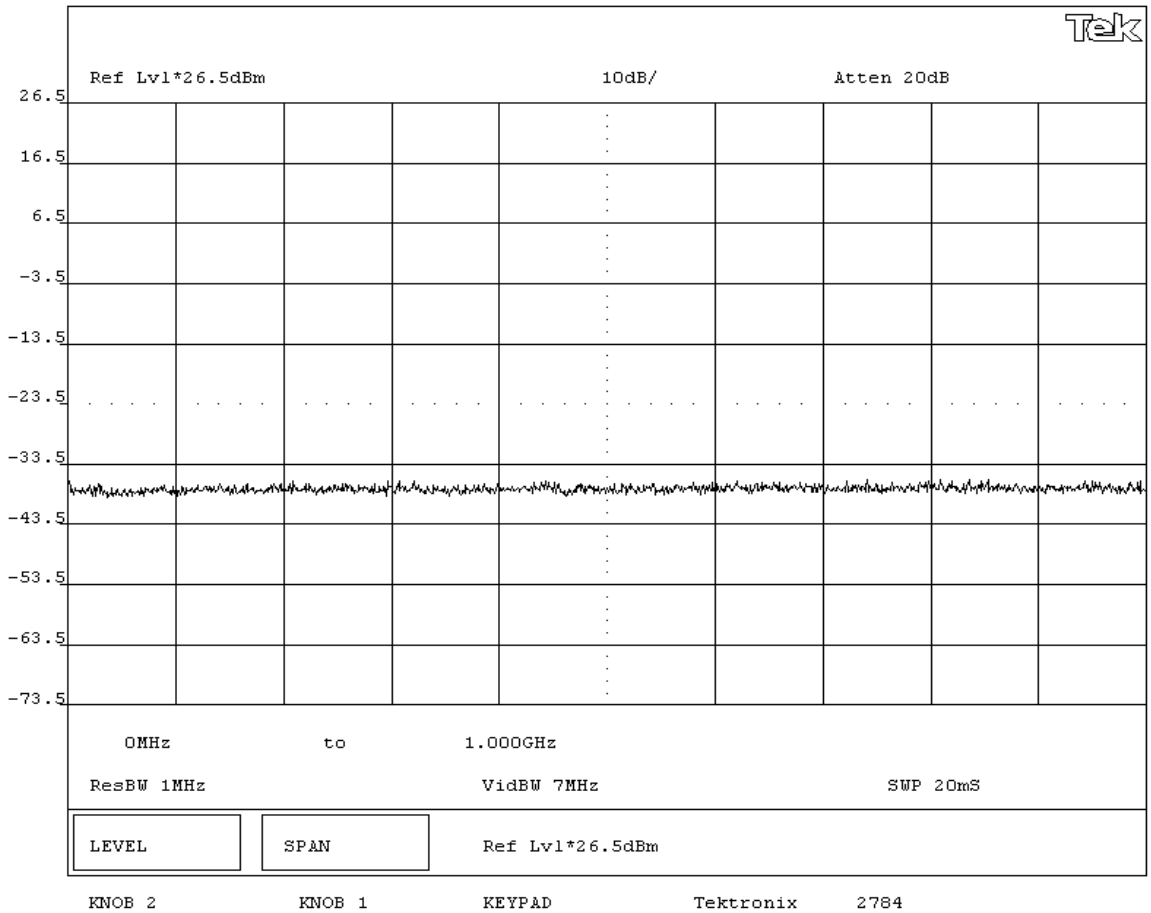
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Mid Channel - PCS Band



NORTHWEST
EMC

EMISSIONS DATA SHEET

Rev BETA
01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

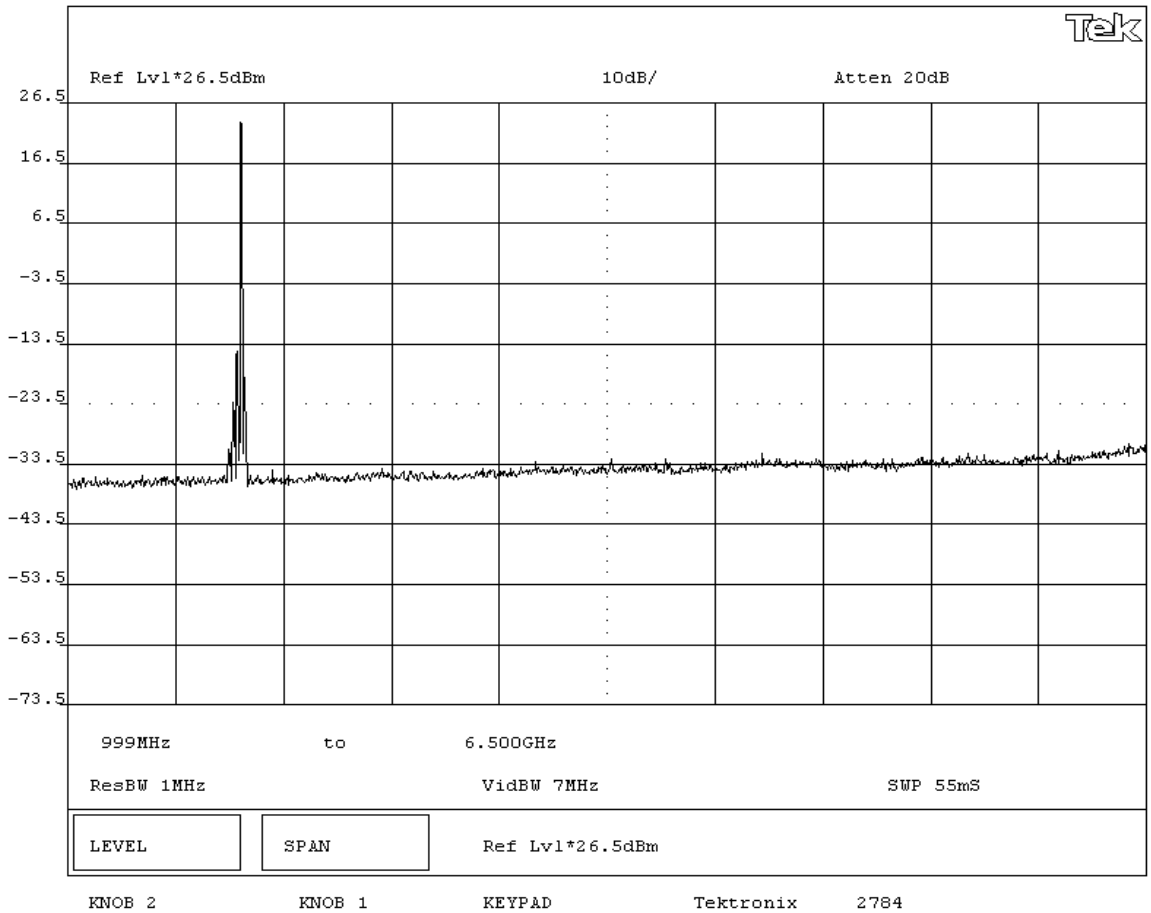
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Mid Channel - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

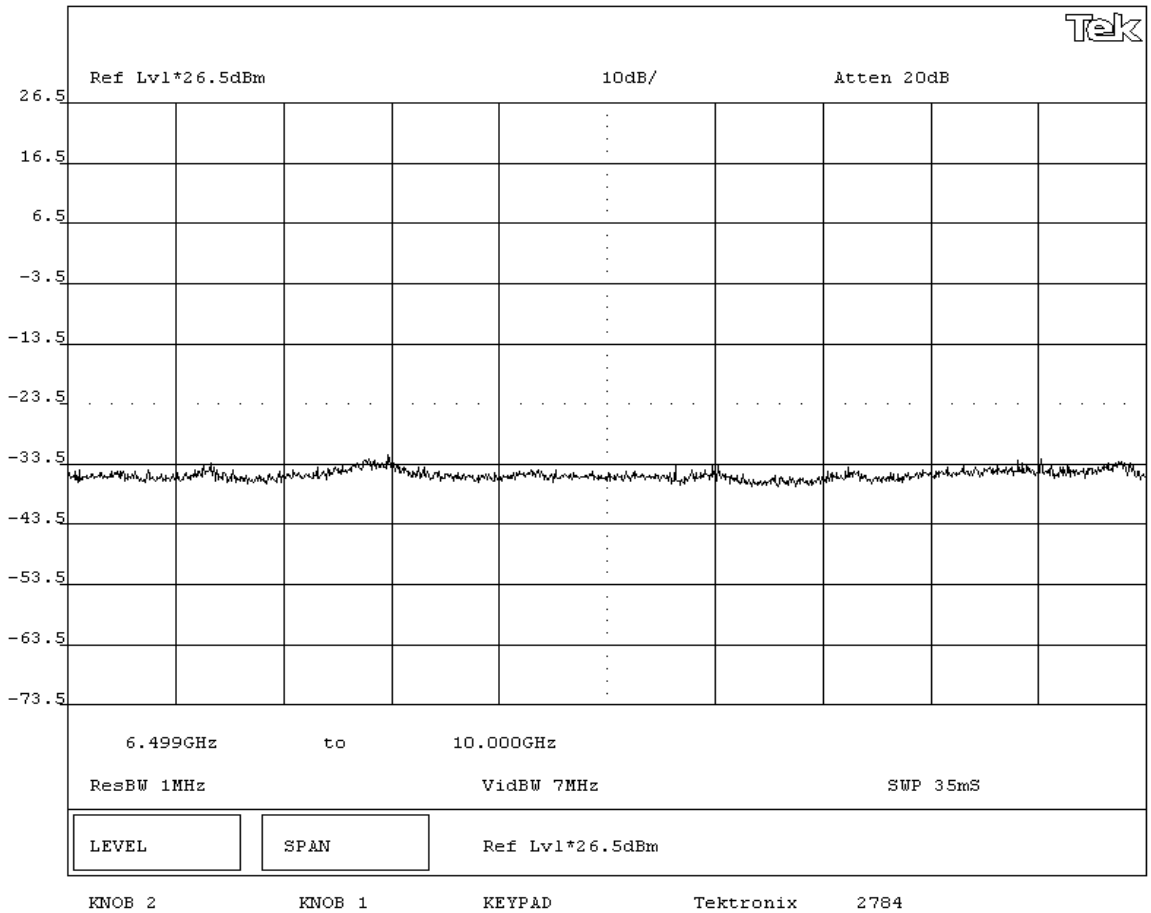
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Mid Channel - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

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Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

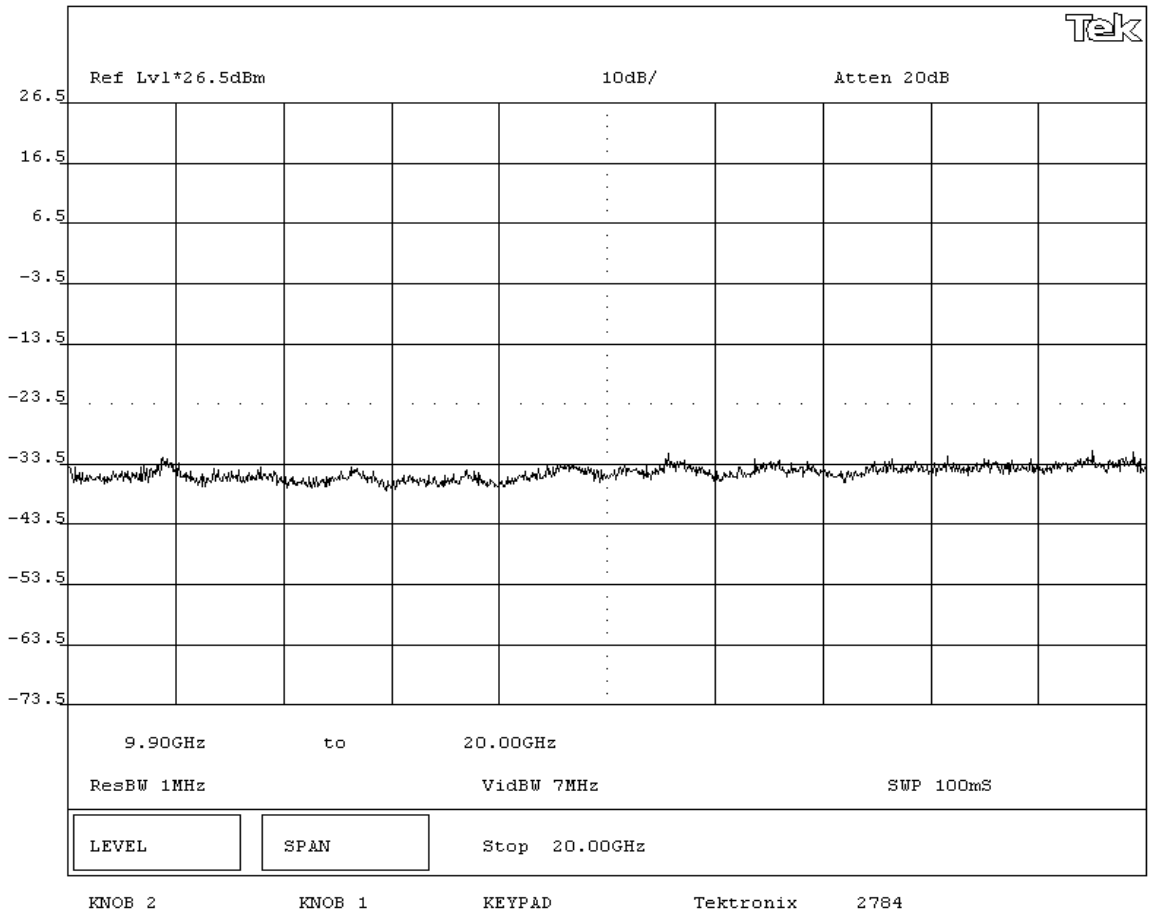
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - Mid Channel - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

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Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

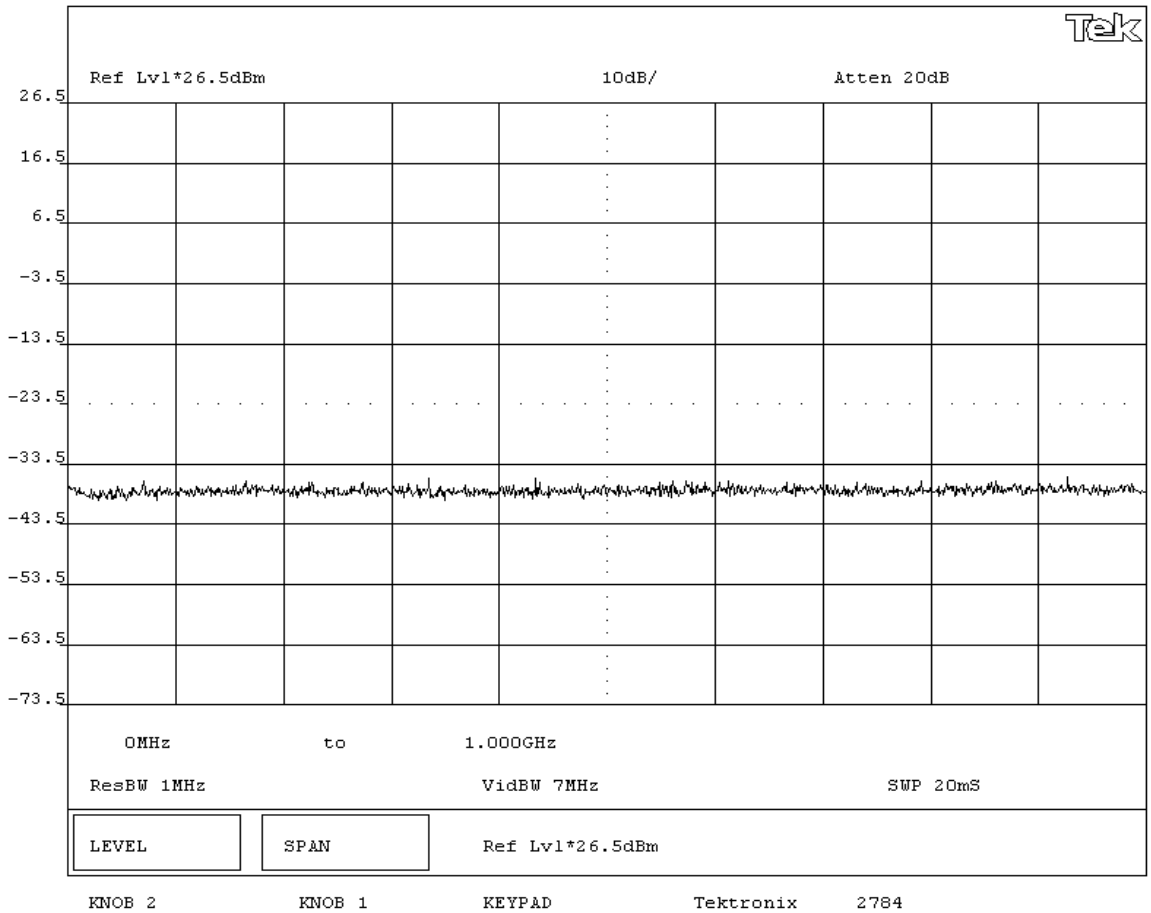
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - High Channel - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

Tested in 700C Handheld Computer

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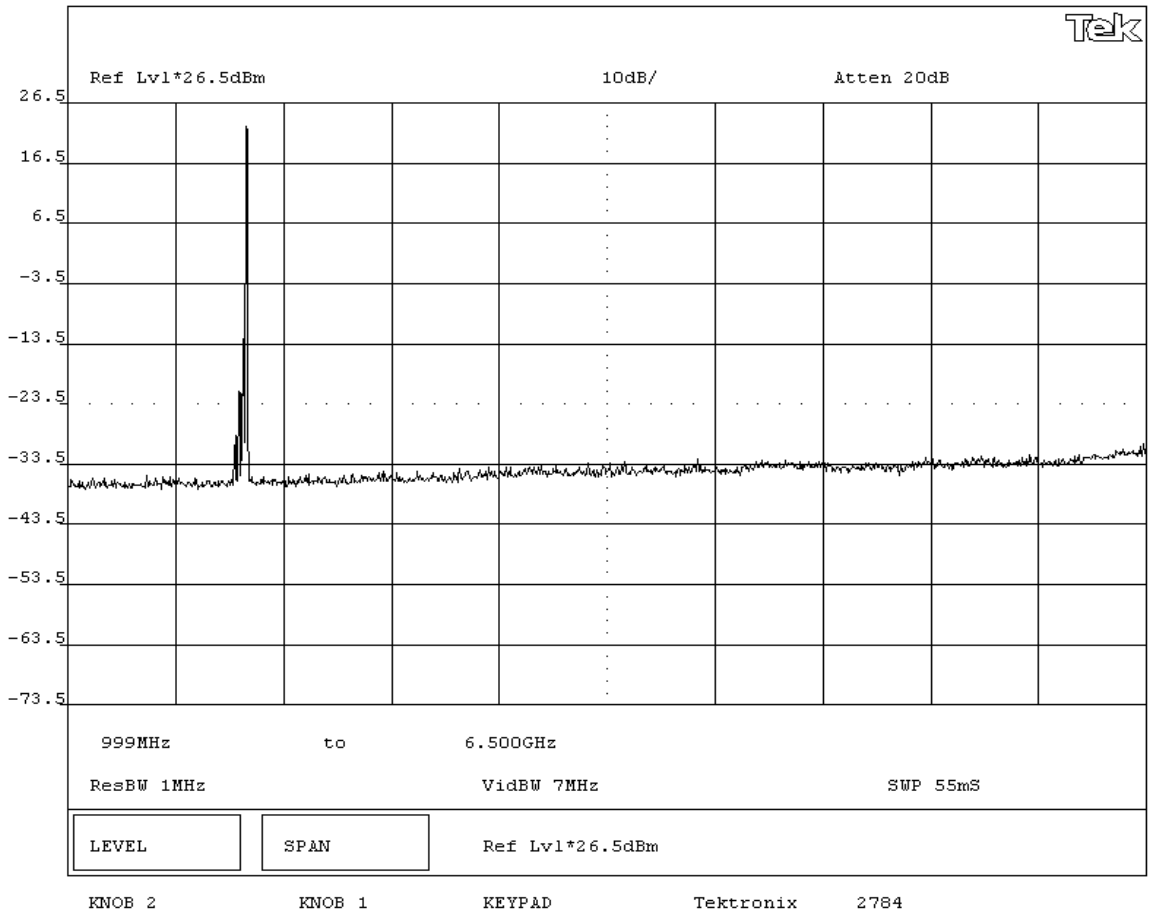
SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - High Channel - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

COMMENTS

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EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

The peak conducted power of spurious emissions, up to the 10th harmonic of the transmit frequency, must be less than or equal to -13 dBm

RESULTS

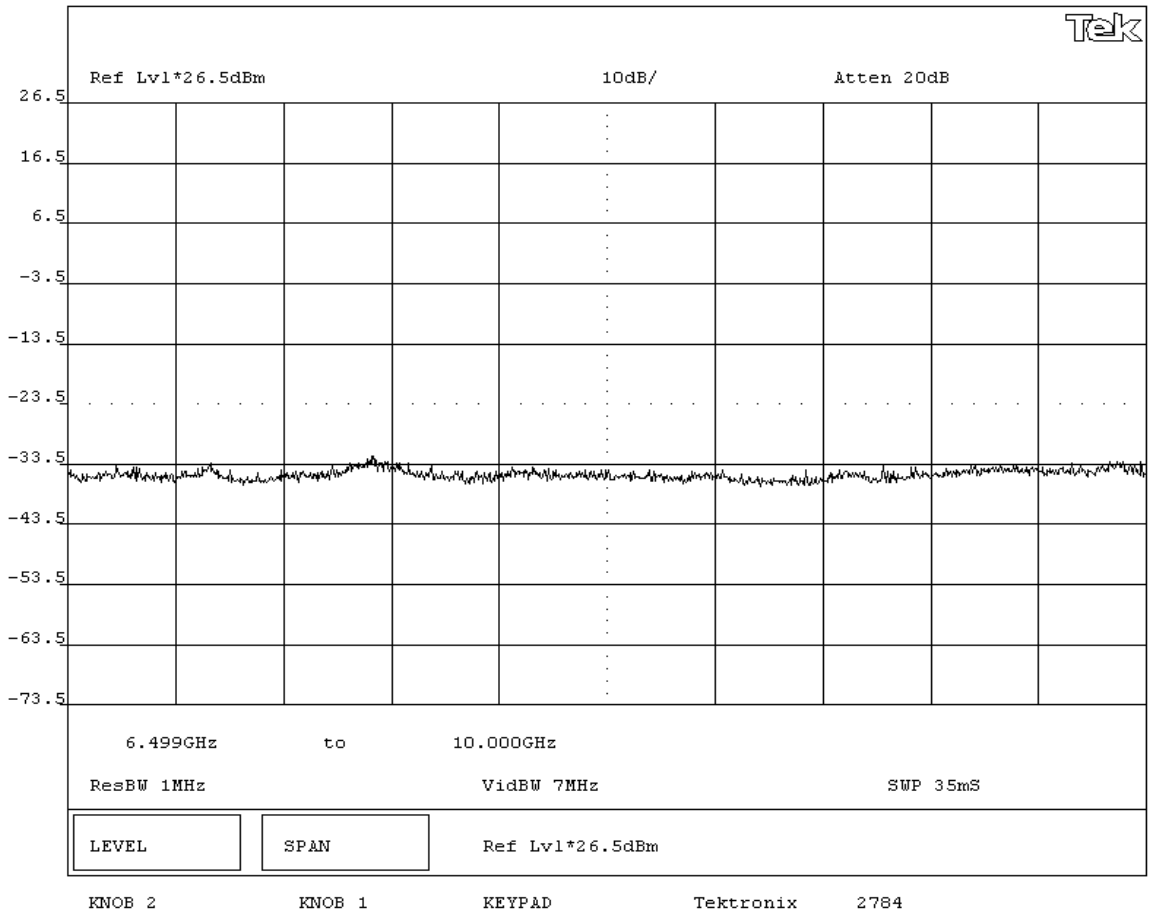
Pass

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - High Channel - PCS Band



NORTHWEST EMC

EMISSIONS DATA SHEET

Rev BETA 01/30/01

EUT:	EM3420			Work Order:	ITRM0030
Serial Number:	13790400008			Date:	07/01/04
Customer:	Intermec Corporation			Temperature:	73 F
Attendees:	none	Tested by:	Greg Kiemel	Humidity:	41%
Customer Ref. No.:	N/A	Power:	DC from Host Unit	Job Site:	EV06

TEST SPECIFICATIONS

Specification:	47 CFR 2.1051, 22.917, 24.238	Year:	Most Current	Method:	TIA / EIA 603	Year:	2001

SAMPLE CALCULATIONS

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EUT OPERATING MODES

Modulated by PRBS at maximum data rate, at maximum output power.

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

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SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Spurious Conducted Emissions - High Channel - PCS Band