Intermec Technologies Corporation

DDIB

Report No. INMC0500.2

Report Prepared By

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

EMC Test Report

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Last Date of Test: December 13, 2008
Intermec Technologies Corporation
Model: DDIB

Emissions			
Test Description	**Specification**	**Test Method**	**Pass/Fail**
Spurious Radiated Emissions	FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000	**Pass**
Occupied Bandwidth	FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000	**Pass**
Output Power	FCC 15.247 (DTS):2008	ANSI C63.4:2003 KDB No. 558074	**Pass**
Power Spectral Density	FCC 15.247 (DTS):2008	ANSI C63.4:2003 KDB No. 558074	**Pass**
Spurious Conducted Emissions	FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000	**Pass**
Band Edge Compliance	FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000	**Pass**
AC Powerline Conducted Emissions	FCC 15.207:2008	ANSI C63.4:2003	**Pass**

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

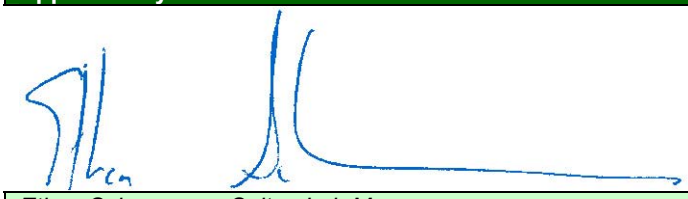
Test Facility

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

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

Phone: (503) 844-4066 Fax: 844-3826
This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834D-2).

Approved By:



Ethan Schoonover, Sultan Lab Manager

NVLAP

NVLAP Lab Code: 200630-0

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

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

Revision Number	Description	Date	Page Number
00	None		

FCC: Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.

NVLAP: Northwest EMC, Inc. is accredited under the United States Department of Commerce, National Institute of Standards and Technology, and 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 2004/108/EC, and ANSI C63.4. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.

NVLAP LAB CODE 200629-0
NVLAP LAB CODE 200630-0
NVLAP LAB CODE 200676-0
NVLAP LAB CODE 200761-0

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-Gen, Issue 2 and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements. (*Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2)*

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.

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).

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 Numbers. - Hillsboro: C-1071, R-1025, C-2687, T-289, and R-2318, Irvine: R-1943, C-2766, and T-298, Sultan: R-871, C-1784, and T-294).*

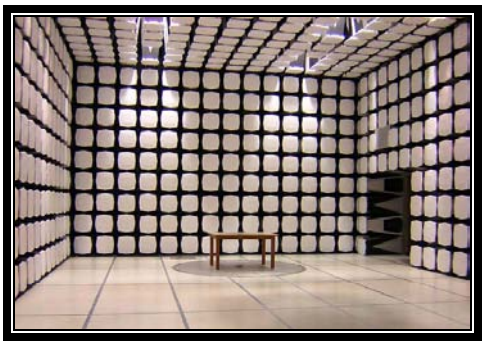
BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement (US0017). License No.SL2-IN-E-1017.

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

KCC: Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157)*

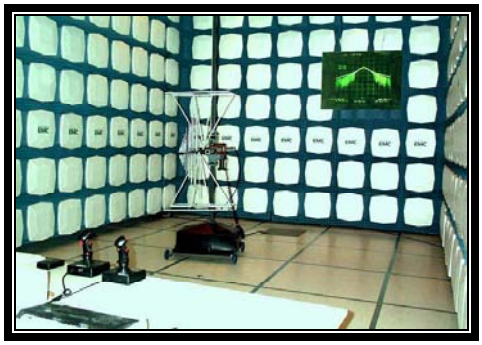
SCOPE

For details on the Scopes of our Accreditations, please visit:
http://www.nwemc.com/accreditations/



California – Orange County Facility
Labs OC01 – OC13

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



Oregon – Evergreen Facility
Labs EV01 – EV11

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

Washington – Sultan Facility
Labs SU01 – SU07

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

Party Requesting the Test

Company Name:	Intermec Technologies Corporation
Address:	6001 36th Avenue West
City, State, Zip:	Everett, WA 98203-1264
Test Requested By:	Sean MacKellar
Model:	DDIB
First Date of Test:	November 19, 2008
Last Date of Test:	December 13, 2008
Receipt Date of Samples:	November 14, 2008
Equipment Design Stage:	Prototype
Equipment Condition:	No Damage

Information Provided by the Party Requesting the Test

Functional Description of the EUT (Equipment Under Test):
One combination 802.11a/b/g - Bluetooth radio module installed in an industrial handheld computer.

Testing Objective:
Seeking to demonstrate compliance of the Bluetooth portion of the module under FCC 15.247 for operation in the 2.4 GHz band.

CONFIGURATION 1 INMC0500

Software/Firmware Running during test	
Description	**Version**
Intermec Radio Test Software, 'radio_with reset.vi'	Version 1.0 Oct 2008

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT - 802.11 / Bluetooth radio	Intermec	DDIB	Proto 13

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Host Extender Card	None	None	None
Host Computer	Dell	Latitude D600	None
External Dipole Antenna	Laird Technologies	WTS2450-RPSMA	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Power	PA	1.6m	PA	Host Computer	Power Adapter
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 2 INMC0500

Software/Firmware Running during test	
Description	**Version**
Broadcom Bluetool	0.9.1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT - 802.11 / Bluetooth radio	Intermec	DDIB	Proto 13

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Host Extender Card	None	None	None
Host Computer	Dell	Latitude D600	None
Power Adapter	Dell	None	None
Chip Antenna	Laird Technologies	WIC2450-A	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Power (USB)	Yes	1.6m	No	Host Extender Card	Host Computer
Power	PA	1.6m	PA	Host Computer	Power Adapter
AC Power	No	1.6m	No	Power Adapter	AC Mains
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 3 INMC0500

Software/Firmware Running during test	
Description	**Version**
Broadcom Bluetool	0.9.1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT - 802.11 / Bluetooth radio	Intermec	DDIB	Proto 13

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Host Extender Card	None	None	None
Host Computer	Dell	Latitude D600	None
Power Adapter	Dell	None	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Power (USB)	Yes	1.6m	No	Host Extender Card	Host Computer
Power	PA	1.6m	PA	Host Computer	Power Adapter
AC Power	No	1.6m	No	Power Adapter	AC Mains
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 7 INMC0500

Software/Firmware Running during test	
Description	**Version**
BroadTest	v1.4

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
EUT - Bluetooth radio	Intermec	DDIB	000B6B97B9D3

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Battery Replacer module	Intermec	None	None
CK3 Hand Held Computer	Intermec	CK3	20310858065
DC Power Supply (test equipment)	Topward Electric	TPS-2000	TDP

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power	No	1.0m	PA	Battery Replacer module	DC Power Supply (test equipment)
AC Power	No	1.0m	No	AC Mains	DC Power Supply (test equipment)
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	11/19/2008	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
2	11/21/2008	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	11/24/2008	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	12/1/2008	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	12/8/2008	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	12/11/2008	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
7	12/13/2008	AC Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.

BLUETOOTH APPROVALS

FCC Procedure Received from Joe Dichoso on 2-15-02

The following exhibit indicates the FCC Spread Spectrum requirements in Section 15.247 for devices meeting the Bluetooth Specifications in the 2.4 GHz band as of February 2001 operating in the USA. The purpose of this exhibit is to help expedite the approval process for Bluetooth devices. This exhibit provides items that vary for each device and also provides a list of items that are common to Bluetooth devices that explains the remaining requirements. The list of common items can be submitted for each application for equipment authorization. This exhibit only specifies requirements in Section 15.247, requirements in other rule Sections for intentional radiators such as in Section 15.203 or 15.207 must be also be addressed. A Bluetooth device is a FHSS transmitter in the data mode and applies as a Hybrid spread spectrum device in the acquisition mode.

For each individual device, the following items, 1-7 will vary from one device to another and must be submitted.

1) The occupied bandwidth in Section 15.247(a)(1)(ii).
2) Conducted output power specified in Section 15.247(b)(1).
3) EIRP limit in Section 15.247(b)(3).
4) RF safety requirement in Section 15.247(b)(4)
5) Spurious emission limits in Section 15.247(c).
6) Processing gain and requirements for Hybrids in Section 15.247(f) in the acquisition mode.
7) Power spectral density requirement in Section 15.247(f) in the acquisition mode.

For all devices, the following items, 1-12, are common to all Bluetooth devices and will not vary from one device to another. This list can be copied into the filing.

1 Output power and channel separation of a Bluetooth device in the different operating modes:

The different operating modes (data-mode, acquisition-mode) of a Bluetooth device don't influence the output power and the channel spacing. There is only one transmitter which is driven by identical input parameters concerning these two parameters.
Only a different hopping sequence will be used. For this reason, the RF parameters in one op-mode is sufficient.

2 Frequency range of a Bluetooth device:

The maximum frequency of the device is: **2402 – 2480 M**Hz.
This is according the Bluetooth Core Specification V 1.0B (+ critical errata) for devices which will be operated in the USA. Other frequency ranges (e.g. for Spain, France, Japan) which are allowed according the Core Specification must **not be** supported by the device.

3 Co-ordination of the hopping sequence in data mode to avoid simultaneous occupancy by multiple transmitters:

Bluetooth units which want to communicate with other units must be organized in a structure called piconet. This piconet consist of max. 8 Bluetooth units. One unit is the master the other seven are the slaves. The master co-ordinates frequency occupation in this piconet for all units. As the master hop sequence is derived from it's BD address which is unique for every Bluetooth device, additional masters intending to establish new piconets will always use different hop sequences.

4 Example of a hopping sequence in data mode:

Example of a 79 hopping sequence in data mode:
40, 21, 44, 23, 42, 53, 46, 55, 48, 33, 52, 35, 50, 65, 54, 67,
56, 37, 60, 39, 58, 69, 62, 71, 64, 25, 68, 27, 66, 57, 70, 59,
72, 29, 76, 31, 74, 61, 78, 63, 01, 41, 05, 43, 03, 73, 07, 75,
09, 45, 13, 47, 11, 77, 15, 00, 64, 49, 66, 53, 68, 02, 70, 06,
01, 51, 03, 55, 05, 04

5 Equally average use of frequencies in data mode and short transmissions:

The generation of the hopping sequence in connection mode depends essentially on two input values:
1. LAP/UAP of the master of the connection
2. Internal master clock

The LAP (lower address part) are the 24 LSB's of the 48 BD_ADDRESS. The BD_ADDRESS is an unambiguous number of every Bluetooth unit. The UAP (upper address part) are the 24 MSB's of the 48 BD_ADDRESS. The internal clock of a Bluetooth unit is derived from a free running clock which is never adjusted and is never turned off. For synchronization with other units, only the offsets are used. It has no relation to the time of the day. Its resolution is at least half the RX/TX slot length of 312.5 µs. The clock has a cycle of about one day (23h30). In most case it is implemented as 28 bit counter. For the deriving of the hopping sequence the entire LAP (24 bits), 4 LSB's (4 bits) (Input 1) and the 27 MSB's of the clock (Input 2) are used. With this input values different mathematical procedures (permutations, additions, XOR-operations) are performed to generate the sequence. This will be done at the beginning of every new transmission.
Regarding short transmissions, the Bluetooth system has the following behavior:
The first connection between the two devices is established, a hopping sequence is generated. For transmitting the wanted data, the complete hopping sequence is not used and the connection ends. The second connection will be established. A new hopping sequence is generated. Due to the fact that the Bluetooth clock has a different value, because the period between the two transmission is longer (and it cannot be shorter) than the minimum resolution of the clock (312.5 µs). The hopping sequence will always differ from the first one.

6 Receiver input bandwidth, synchronization and repeated single or multiple packets:

The input bandwidth of the receiver is 1 MHz.
In every connection, one Bluetooth device is the master and the other one is the slave. The master determines the hopping sequence (see chapter 5). The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master. Additionally the type of connection (e.g. single or multi-slot packet) is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing is according to the packet type of the connection. Also, the slave of the connection uses these settings. Repeating of a packet has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case. That means, a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence

7 Dwell time in data mode

The dwell time of 0.3797s within a 30 second period in data mode is independent from the packet type (packet length). The calculation for a 30 second period is a follows:
Dwell time = time slot length * hop rate / number of hopping channels *30s
Example for a DH1 packet (with a maximum length of one time slot)
Dwell time = 625 µs * 1600 1/s / 79 * 30s = 0.3797s (in a 30s period)

For multi-slot packet the hopping is reduced according to the length of the packet.
Example for a DH5 packet (with a maximum length of five time slots)
Dwell time = 5 * 625 µs * 1600 * 1/5 *1/s / 79 * 30s = 0.3797s (in a 30s period)
This is according the Bluetooth Core Specification V 1.0B (+ critical errata) for all Bluetooth devices. Therefore, all Bluetooth devices **comply** with the FCC dwell time requirement in the data mode.
This was checked during the Bluetooth Qualification tests.
The Dwell time in hybrid mode is approximately 2.6 mS (in a 12.8s period)

8 Channel Separation in hybrid mode

The nominal channel spacing of the Bluetooth system is 1Mhz independent of the operating mode.
The maximum “initial carrier frequency tolerance” which is allowed for Bluetooth is fcenter = 75 kHz.
This was checked during the Bluetooth Qualification tests (Test Case: TRM/CA/07-E) for three frequencies (2402, 2441, 2480 MHz).

9 Derivation and examples for a hopping sequence in hybrid mode

For the generation of the inquiry and page hop sequences the same procedures as described for the data mode are used (see item 5), but this time with different input vectors:
**For the inquiry hop sequence, a predefined fixed address is always used. This results in the same 32 frequencies used by all devices doing an inquiry but every time with a different start frequency and phase in this sequence.
**For the page hop sequence, the device address of the paged unit is used as the input vector. This results in the use of a subset of 32 frequencies which is specific for that initial state of the connection establishment between the two units. A page to different devices would result in a different subset of 32 frequencies.
So it is ensured that also in hybrid mode, the frequency is used equally on average.
Example of a hopping sequence in inquiry mode:
48, 50, 09, 13, 52, 54,41, 45, 56, 58, 11, 15, 60, 62, 43, 47, 00, 02, 64, 68, 04, 06, 17, 21, 08, 10, 66, 70, 12, 14, 19, 23
Example of a hopping sequence in paging mode:
08, 57, 68, 70, 51, 02, 42, 40, 04, 61, 44, 46, 63, 14, 50, 48, 16, 65, 52, 54, 67, 18, 58, 56, 20, 53, 60, 62, 55, 06, 66, 64

10 Receiver input bandwidth and synchronization in hybrid mode:

The receiver input bandwidth is the same as in the data mode (1 MHz). When two Bluetooth devices establish contact for the first time, one device sends an inquiry access code and the other device is scanning for this inquiry access code. If two devices have been connected previously and want to start a new transmission, a similar procedure takes place. The only difference is, instead of the inquiry access code, a special access code, derived from the BD_ADDRESS of the paged device will be, will be sent by the master of this connection. Due to the fact that both units have been connected before (in the inquiry procedure) the paging unit has timing and frequency information about the page scan of the paged unit. For this reason the time to establish the connection is reduced.

11 Spread rate / data rate of the direct sequence signal

The Spread rate / Data rate in inquiry and paging mode can be defined via the access code. The access code is the only criterion for the system to check if there is a valid transmission or not. If you regard the presence of a valid access code as one bit of information, and compare it with the length of the access code of 68 bits, the Spread rate / Data rate will be 68/1.

12 Spurious emission in hybrid mode

The Dwell in hybrid mode is shorter than in data mode. For this reason the spurious emissions average level in data mode is worst case. The spurious emissions peak level is the same for both modes.

SPURIOUS RADIATED EMISSIONS

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

MODES OF OPERATION
GFSK, DH5
4/Pi-DQPSK, 2DH5
8-DPSK, 3DH5

CHANNELS USED FOR FINAL DATA
Low channel 1, 2402MHz
Mid channel 39, 2439MHz
High channel 79, 2480MHz

POWER SETTINGS INVESTIGATED
USB to Host

POWER SETTINGS USED FOR FINAL DATA
USB to Host

FREQUENCY RANGE INVESTIGATED			
Start Frequency	30MHz	Stop Frequency	25GHz

CLOCKS AND OSCILLATORS
None Provided

SAMPLE CALCULATIONS
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4446A	AAT	12/7/2007	13
EV01 Cables		Bilog Cables	EVA	5/19/2008	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	5/19/2008	13
Antenna, Biconilog	EMCO	3141	AXE	1/15/2008	24
EV01 Cables		Double Ridge Horn Cables	EVB	5/19/2008	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	5/19/2008	13
Antenna, Horn	EMCO	3115	AHC	8/12/2008	24
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	6/30/2008	13
Antenna, Horn	ETS	3160-07	AHU	NCR	0
EV01 Cables		Standard Gain Horns Cables	EVF	11/13/2008	13
Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	6/30/2008	13
Antenna, Horn	ETS	3160-08	AHV	NCR	0
EV01 Cables		18-26GHz Standard Gain Horn Cable	EVD	12/2/2008	13
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	12/2/2008	13
Antenna, Horn	EMCO	3160-09	AHG	NCR	0

MEASUREMENT BANDWIDTHS

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

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

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

NORTHWEST

EMC — SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.07.21
EMI 2008.7.3

EUT:	DDIB	Work Order:	INMC0500
Serial Number:	Proto 13	Date:	11/24/08
Customer:	Intermec Technologies Corporation	Temperature:	21
Attendees:	None	Humidity:	33%
Project:	None	Barometric Pres.:	30.31
Tested by:	Jennifer Herrett	Power: USB to Host	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2008	ANSI C63.4:2003, DA 00-705:2000

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

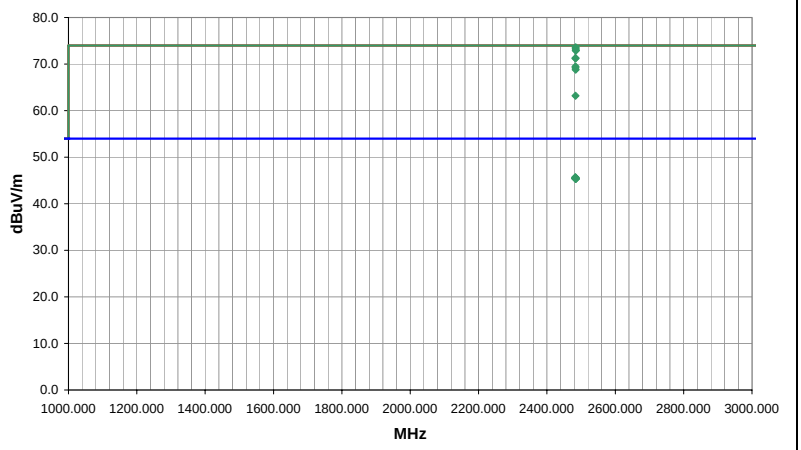
Transmitting Bluetooth, High Channel, See comments for data rate information

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	5
Configuration #	2
Results	Pass

Signature: Jennifer Herrett



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
2484.098	55.1	-1.5	354.0	1.1	3.0	20.0	H-Horn	PK	0.0	73.6	74.0	-0.4	EUT horizontal, laptop typical. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
2483.892	54.8	-1.5	237.0	1.1	3.0	20.0	V-Horn	PK	0.0	73.3	74.0	-0.7	EUT on side, laptop on face. DH5, GFSK, Pkt type 15, Pkt size 339
2484.387	54.5	-1.5	56.0	1.1	3.0	20.0	V-Horn	PK	0.0	73.0	74.0	-1.0	EUT on side, laptop on face. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
2484.460	54.4	-1.5	14.0	1.1	3.0	20.0	V-Horn	PK	0.0	72.9	74.0	-1.1	EUT on side, laptop on face. 3-DH5, 8-DPSK, Pkt type 31, Pkt size 1021
2483.785	52.8	-1.5	0.0	1.4	3.0	20.0	H-Horn	PK	0.0	71.3	74.0	-2.7	EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
2483.590	52.7	-1.5	289.0	1.1	3.0	20.0	H-Horn	PK	0.0	71.2	74.0	-2.8	EUT vertical, laptop on side. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
2483.797	51.0	-1.5	5.0	1.1	3.0	20.0	V-Horn	PK	0.0	69.5	74.0	-4.5	EUT vertical, laptop on side. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
2483.552	50.7	-1.5	0.0	1.1	3.0	20.0	H-Horn	PK	0.0	69.2	74.0	-4.8	EUT on side, laptop on face. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
2484.242	50.3	-1.5	70.0	1.1	3.0	20.0	V-Horn	PK	0.0	68.8	74.0	-5.2	EUT horizontal, laptop typical. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
2483.108	27.2	-1.5	354.0	1.1	3.0	20.0	H-Horn	AV	0.0	45.7	54.0	-8.3	EUT horizontal, laptop typical. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
2483.375	27.1	-1.5	14.0	1.1	3.0	20.0	V-Horn	AV	0.0	45.6	54.0	-8.4	EUT on side, laptop on face. 3-DH5, 8-DPSK, Pkt type 31, Pkt size 1021
2483.247	27.0	-1.5	289.0	1.1	3.0	20.0	H-Horn	AV	0.0	45.5	54.0	-8.5	EUT vertical, laptop on side. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
2483.875	27.0	-1.5	237.0	1.1	3.0	20.0	V-Horn	AV	0.0	45.5	54.0	-8.5	EUT on side, laptop on face. DH5, GFSK, Pkt type 15, Pkt size 339
2483.040	26.9	-1.5	94.0	1.1	3.0	20.0	H-Horn	AV	0.0	45.4	54.0	-8.6	EUT horizontal, laptop typical. 3-DH5, 8-DPSK, Pkt type 31, Pkt size 1021
2483.682	26.9	-1.5	70.0	1.1	3.0	20.0	V-Horn	AV	0.0	45.4	54.0	-8.6	EUT horizontal, laptop typical. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
2483.770	26.9	-1.5	0.0	1.4	3.0	20.0	H-Horn	AV	0.0	45.4	54.0	-8.6	EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
2484.563	26.9	-1.5	5.0	1.1	3.0	20.0	V-Horn	AV	0.0	45.4	54.0	-8.6	EUT vertical, laptop on side. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
2484.733	26.9	-1.5	56.0	1.1	3.0	20.0	V-Horn	AV	0.0	45.4	54.0	-8.6	EUT on side, laptop on face. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
2484.846	26.9	-1.5	0.0	1.1	3.0	20.0	H-Horn	AV	0.0	45.4	54.0	-8.6	EUT on side, laptop on face. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
2483.757	44.7	-1.5	94.0	1.1	3.0	20.0	H-Horn	PK	0.0	63.2	74.0	-10.8	EUT horizontal, laptop typical. 3-DH5, 8-DPSK, Pkt type 31, Pkt size 1021

NORTHWEST EMC

SPURIOUS RADIATED EMISSIONS DATA SHEET

PSA 2007.07.21
EMI 2008.7.3

EUT:	DDIB	Work Order:	INMC0500
Serial Number:	Proto 13	Date:	11/24/08
Customer:	Intermec Technologies Corporation	Temperature:	21
Attendees:	None	Humidity:	33%
Project:	None	Barometric Pres.:	30.31
Tested by:	Jennifer Herrett	Power: USB to Host	Job Site: EV12

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2008	ANSI C63.4:2003, DA 00-705:2000

TEST PARAMETERS

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

COMMENTS

None

EUT OPERATING MODES

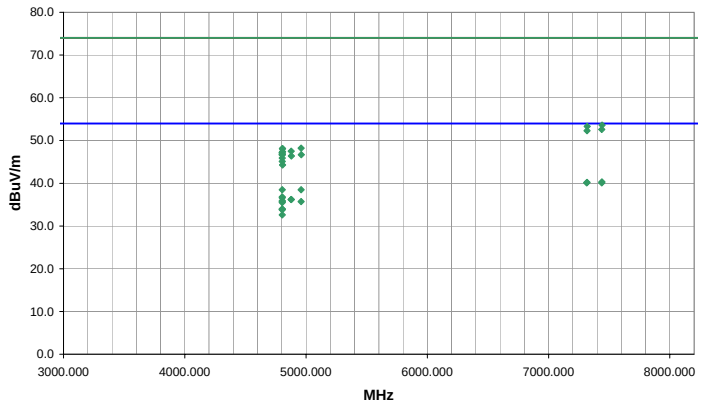
Transmitting Bluetooth, See comments for channel and data rate information

DEVIATIONS FROM TEST STANDARD

No deviations.

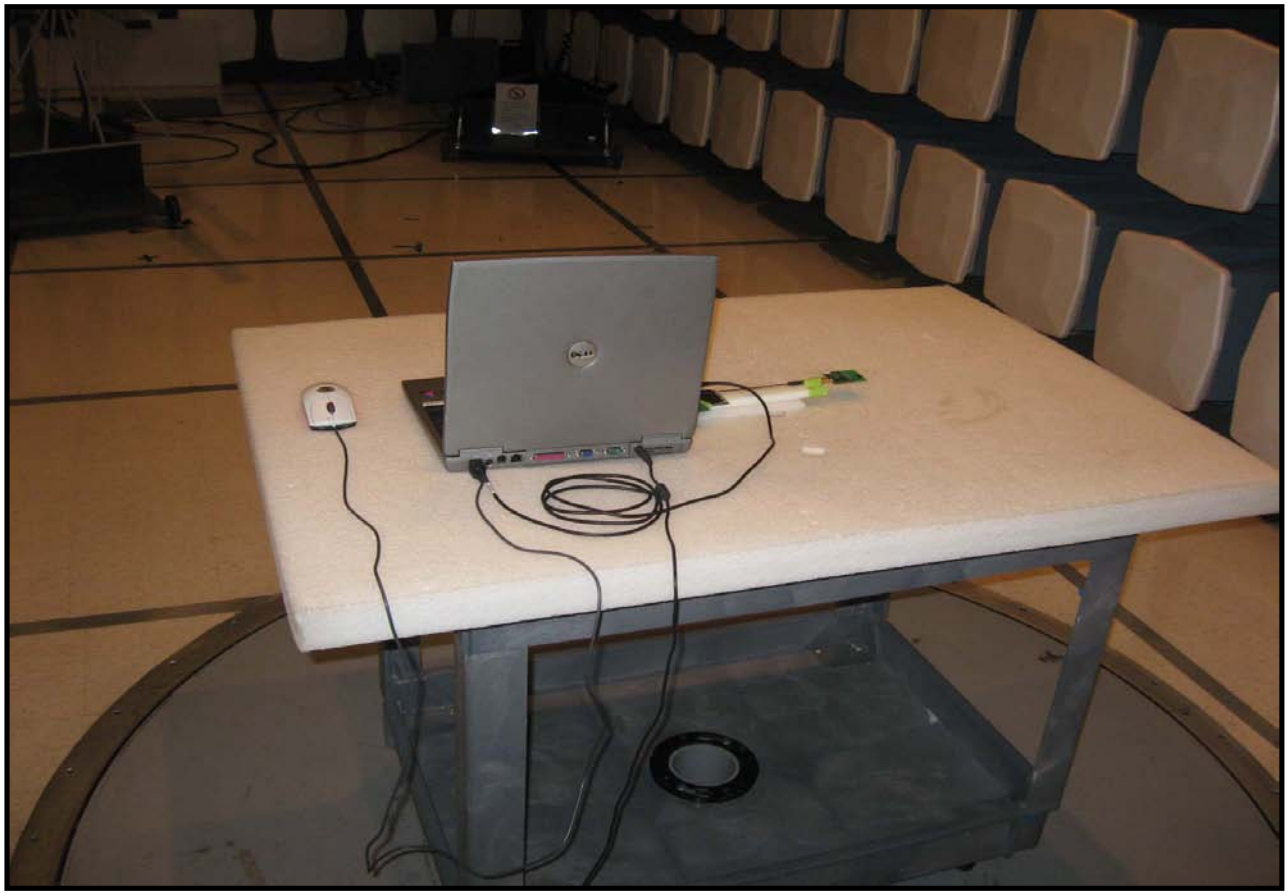
Run #	6
Configuration #	2
Results	Pass

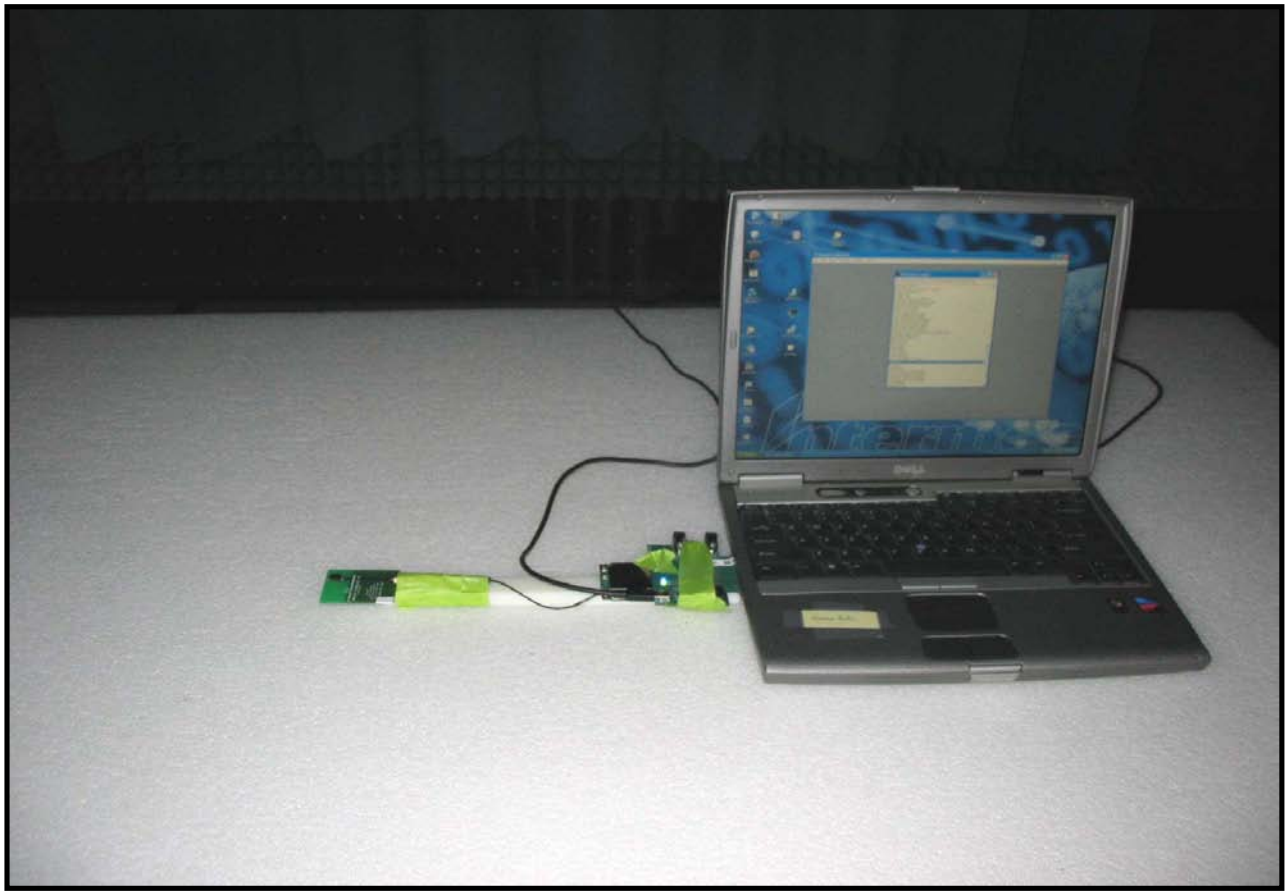
Signature

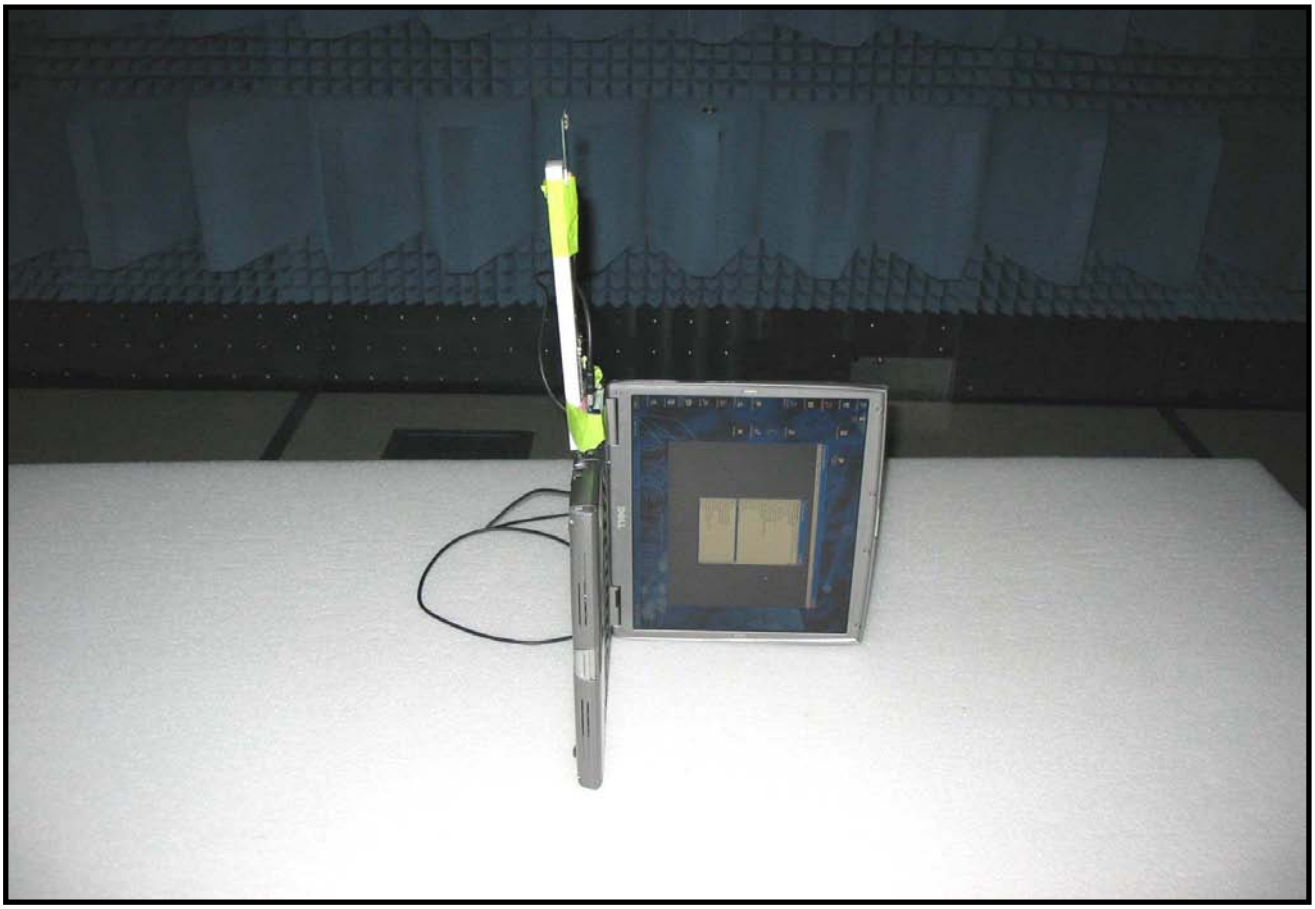


Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
7440.058	25.9	14.4	192.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.3	54.0	-13.7	High channel. EUT vertical, laptop on side. DH5, GFSK, Pkt type 15, Pkt size 339
7316.883	26.1	14.1	308.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.2	54.0	-13.8	Mid channel. EUT vertical, laptop on side. DH5, GFSK, Pkt type 15, Pkt size 339
7314.208	26.0	14.1	0.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.1	54.0	-13.9	Mid channel. EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
7438.250	25.7	14.4	90.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.1	54.0	-13.9	High channel. EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
4804.002	31.9	6.6	166.0	1.1	3.0	0.0	V-Horn	AV	0.0	38.5	54.0	-15.5	Low channel. EUT vertical, laptop on side. DH5, GFSK, Pkt type 15, Pkt size 339
4960.008	31.4	7.1	169.0	1.0	3.0	0.0	H-Horn	AV	0.0	38.5	54.0	-15.5	High channel. EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
4804.004	30.2	6.6	30.0	1.2	3.0	0.0	H-Horn	AV	0.0	36.8	54.0	-17.2	Low channel. EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
4803.983	30.0	6.6	180.0	1.1	3.0	0.0	V-Horn	AV	0.0	36.6	54.0	-17.4	Low channel. EUT vertical, laptop on side. 3-DH5, 8-DPSK, Pkt type 31, Pkt size 1021
4878.025	29.3	6.9	157.0	1.0	3.0	0.0	V-Horn	AV	0.0	36.2	54.0	-17.8	Mid channel. EUT vertical, laptop on side. DH5, GFSK, Pkt type 15, Pkt size 339
4878.042	29.3	6.9	182.0	1.0	3.0	0.0	H-Horn	AV	0.0	36.2	54.0	-17.8	Mid channel. EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
4803.976	29.4	6.5	65.0	1.2	3.0	0.0	V-Horn	AV	0.0	35.9	54.0	-18.1	Low channel. EUT on side, laptop on face. DH5, GFSK, Pkt type 15, Pkt size 339
4804.008	29.1	6.6	56.0	1.2	3.0	0.0	H-Horn	AV	0.0	35.7	54.0	-18.3	Low channel. EUT on side, laptop on face. DH5, GFSK, Pkt type 15, Pkt size 339
4960.017	28.6	7.1	175.0	1.0	3.0	0.0	V-Horn	AV	0.0	35.7	54.0	-18.3	High channel. EUT vertical, laptop on side. DH5, GFSK, Pkt type 15, Pkt size 339
4804.042	28.9	6.6	151.0	1.1	3.0	0.0	V-Horn	AV	0.0	35.5	54.0	-18.5	Low channel. EUT vertical, laptop on side. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
4803.946	27.4	6.6	108.0	1.2	3.0	0.0	H-Horn	AV	0.0	34.0	54.0	-20.0	Low channel. EUT vertical, laptop on side. DH5, GFSK, Pkt type 15, Pkt size 339
4804.017	27.4	6.5	161.0	1.1	3.0	0.0	H-Horn	AV	0.0	33.9	54.0	-20.1	Low channel. EUT horizontal, laptop typical. 3-DH5, 8-DPSK, Pkt type 31, Pkt size 1021
4804.025	27.2	6.6	173.0	1.1	3.0	0.0	H-Horn	AV	0.0	33.8	54.0	-20.2	Low channel. EUT horizontal, laptop typical. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
7441.633	39.2	14.4	192.0	1.0	3.0	0.0	V-Horn	PK	0.0	53.6	74.0	-20.4	High channel. EUT vertical, laptop on side. DH5, GFSK, Pkt type 15, Pkt size 339
7318.892	39.2	14.1	0.0	1.0	3.0	0.0	H-Horn	PK	0.0	53.3	74.0	-20.7	Mid channel. EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
4803.944	26.0	6.6	256.0	1.2	3.0	0.0	V-Horn	AV	0.0	32.6	54.0	-21.4	Low channel. EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
7438.725	38.2	14.4	90.0	1.0	3.0	0.0	H-Horn	PK	0.0	52.6	74.0	-21.4	High channel. EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
7316.883	38.2	14.1	308.0	1.0	3.0	0.0	V-Horn	PK	0.0	52.3	74.0	-21.7	Mid channel. EUT vertical, laptop on side. DH5, GFSK, Pkt type 15, Pkt size 339
4960.008	41.1	7.1	169.0	1.0	3.0	0.0	H-Horn	PK	0.0	48.2	74.0	-25.8	High channel. EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
4804.650	41.5	6.6	180.0	1.1	3.0	0.0	V-Horn	PK	0.0	48.1	74.0	-25.9	Low channel. EUT vertical, laptop on side. 3-DH5, 8-DPSK, Pkt type 31, Pkt size 1021
4805.767	41.5	6.6	166.0	1.1	3.0	0.0	V-Horn	PK	0.0	48.1	74.0	-25.9	Low channel. EUT vertical, laptop on side. DH5, GFSK, Pkt type 15, Pkt size 339
4877.942	40.6	6.9	182.0	1.0	3.0	0.0	H-Horn	PK	0.0	47.5	74.0	-26.5	Mid channel. EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
4806.225	40.8	6.6	151.0	1.1	3.0	0.0	V-Horn	PK	0.0	47.4	74.0	-26.6	Low channel. EUT vertical, laptop on side. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
4802.475	40.6	6.6	65.0	1.2	3.0	0.0	V-Horn	PK	0.0	47.2	74.0	-26.8	Low channel. EUT on side, laptop on face. DH5, GFSK, Pkt type 15, Pkt size 339
4804.183	40.3	6.6	30.0	1.2	3.0	0.0	H-Horn	PK	0.0	46.9	74.0	-27.1	Low channel. EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339
4803.475	40.1	6.6	161.0	1.1	3.0	0.0	H-Horn	PK	0.0	46.7	74.0	-27.3	Low channel. EUT horizontal, laptop typical. 3-DH5, 8-DPSK, Pkt type 31, Pkt size 1021
4803.883	40.1	6.6	56.0	1.2	3.0	0.0	H-Horn	PK	0.0	46.7	74.0	-27.3	Low channel. EUT on side, laptop on face. DH5, GFSK, Pkt type 15, Pkt size 339
4960.408	39.6	7.1	175.0	1.0	3.0	0.0	V-Horn	PK	0.0	46.7	74.0	-27.3	High channel. EUT vertical, laptop on side. DH5, GFSK, Pkt type 15, Pkt size 339
4878.283	39.5	6.9	157.0	1.0	3.0	0.0	V-Horn	PK	0.0	46.4	74.0	-27.6	Mid channel. EUT vertical, laptop on side. DH5, GFSK, Pkt type 15, Pkt size 339
4804.150	39.3	6.6	173.0	1.1	3.0	0.0	H-Horn	PK	0.0	45.9	74.0	-28.1	Low channel. EUT horizontal, laptop typical. 2-DH5, pi/4-DQPSK, Pkt type 30, Pkt size 679
4803.933	38.5	6.6	108.0	1.2	3.0	0.0	H-Horn	PK	0.0	45.1	74.0	-28.9	Low channel. EUT vertical, laptop on side. DH5, GFSK, Pkt type 15, Pkt size 339
4806.017	37.7	6.6	256.0	1.2	3.0	0.0	V-Horn	PK	0.0	44.3	74.0	-29.7	Low channel. EUT horizontal, laptop typical. DH5, GFSK, Pkt type 15, Pkt size 339


NORTHWEST
EMC







OCCUPIED BANDWIDTH

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4407B	AAU	12/7/2007	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The 20 dB occupied bandwidth was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting in a no hop mode at its maximum data rate for each of the three different modulations available.

NORTHWEST EMC

OCCUPIED BANDWIDTH

XMit 2007.06.13

EUT:	DDIB			**Work Order:**	INMC0500
Serial Number:	Proto 13			**Date:**	11/21/08
Customer:	Intermec Technologies Corporation			**Temperature:**	22°C
Attendees:	None			**Humidity:**	43%
Project:	None			**Barometric Pres.:**	30.22
Tested by:	Rod Peloquin	**Power:**	3.3Vdc via Host	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000

COMMENTS

Transmitting from the Bluetooth radio

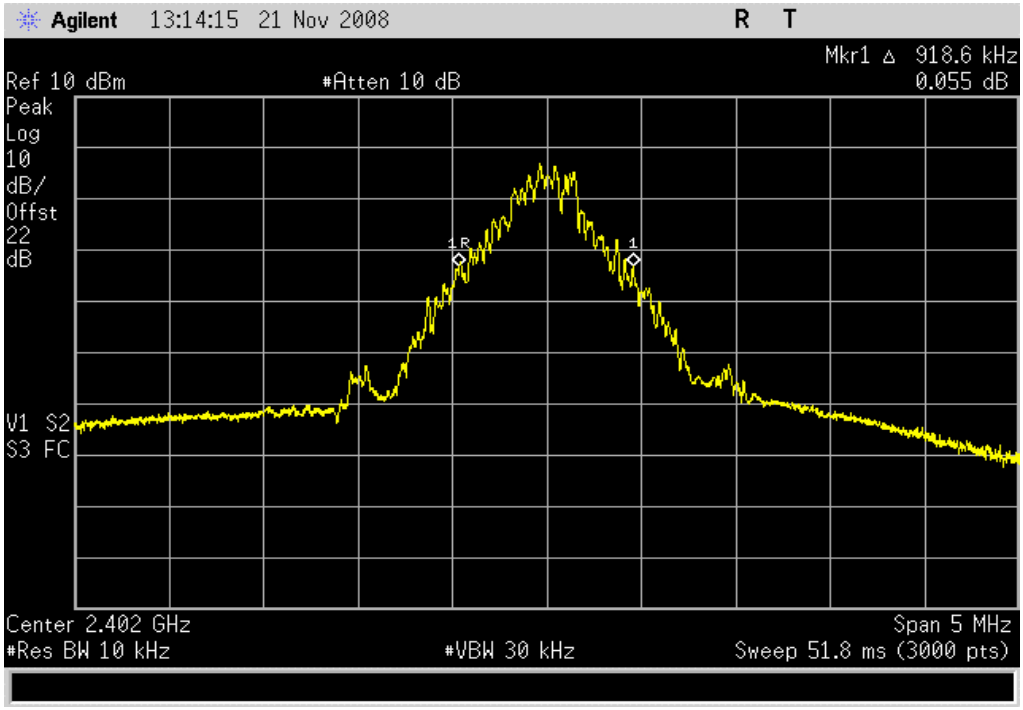
DEVIATIONS FROM TEST STANDARD

No Deviations

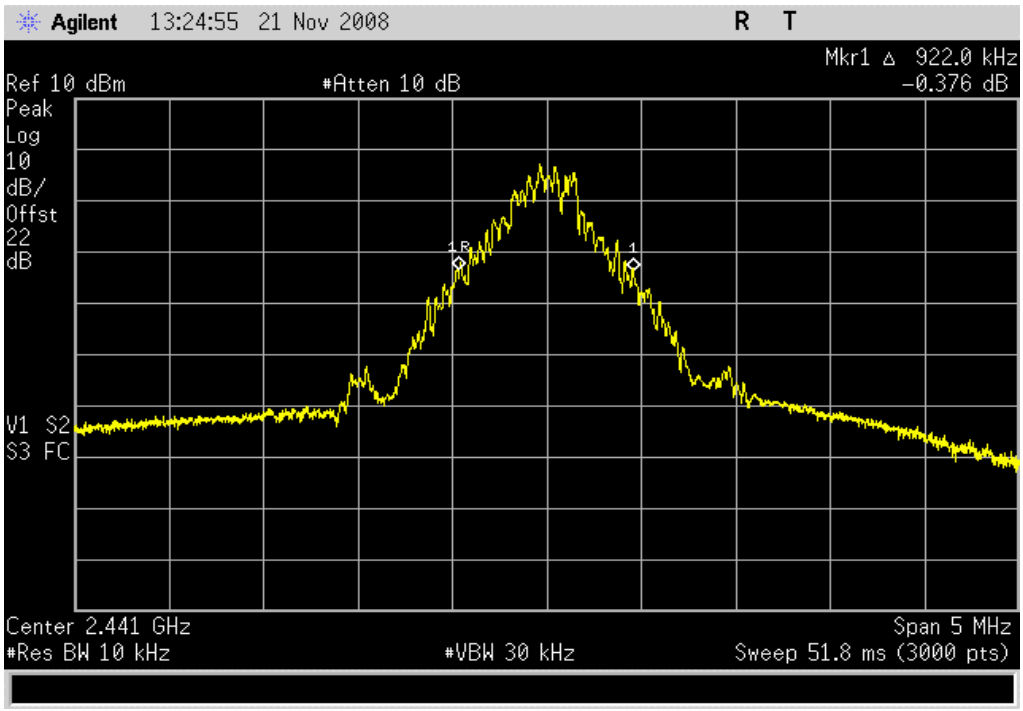
Configuration #	**2**	*Signature*

		Value	Limit	Results
GFSK, DH5				
	Low Channel, 2402MHz	918.6 kHz	1.5 MHz	Pass
	Mid Channel, 2441 MHz	922.0 kHz	1.5 MHz	Pass
	High Channel, 2480 MHz	917.0 kHz	1.5 MHz	Pass
pi/4-DQPSK, 2DH5				
	Low Channel, 2402MHz	1.322 MHz	1.5 MHz	Pass
	Mid Channel, 2441 MHz	1.324 MHz	1.5 MHz	Pass
	High Channel, 2480 MHz	1.324 MHz	1.5 MHz	Pass
8DPSK, 3DH5				
	Low Channel, 2402MHz	1.289 MHz	1.5 MHz	Pass
	Mid Channel, 2441 MHz	1.285 MHz	1.5 MHz	Pass
	High Channel, 2480 MHz	1.280 MHz	1.5 MHz	Pass

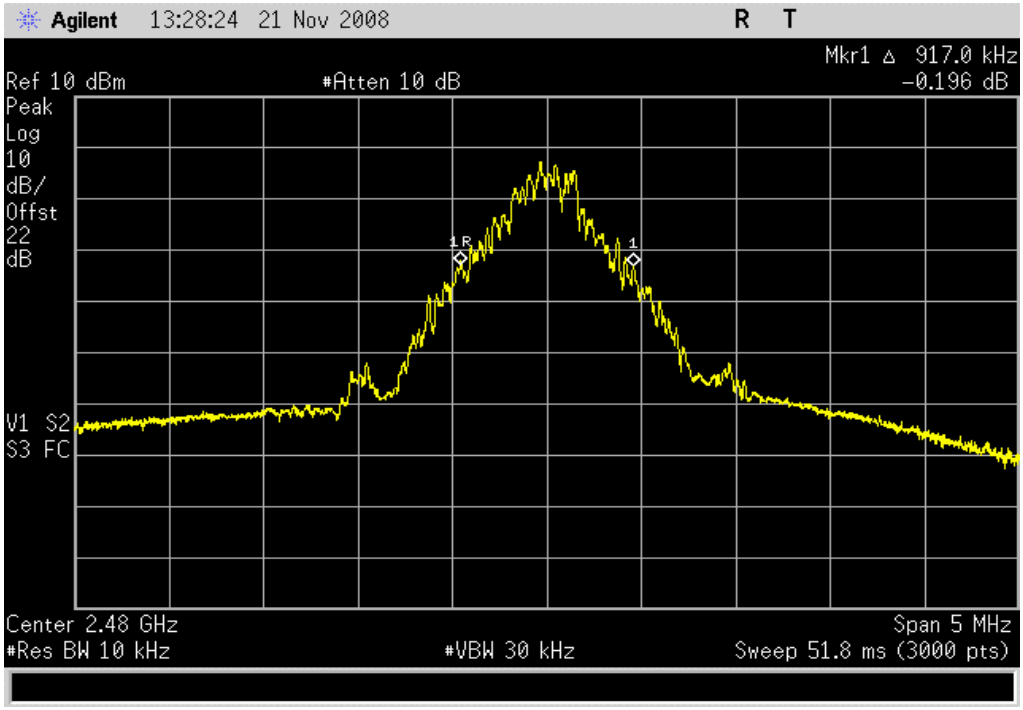
GFSK, DH5, Low Channel, 2402MHz					
Result:	Pass	**Value:**	918.6 kHz	**Limit:**	1.5 MHz



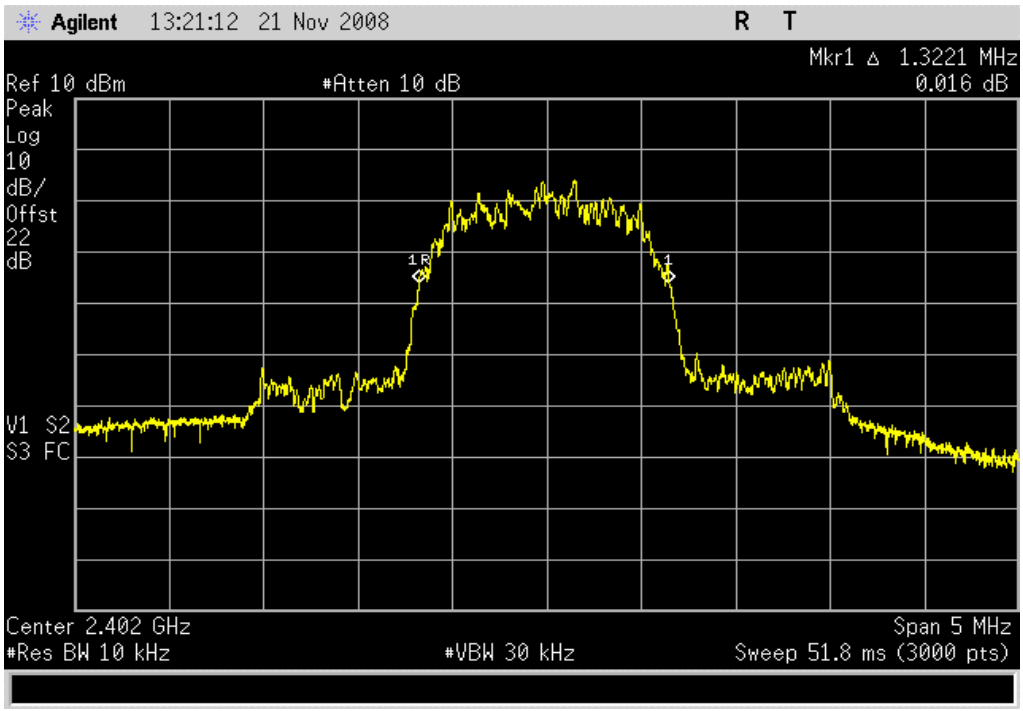
GFSK, DH5, Mid Channel, 2441 MHz					
Result:	Pass	**Value:**	922.0 kHz	**Limit:**	1.5 MHz



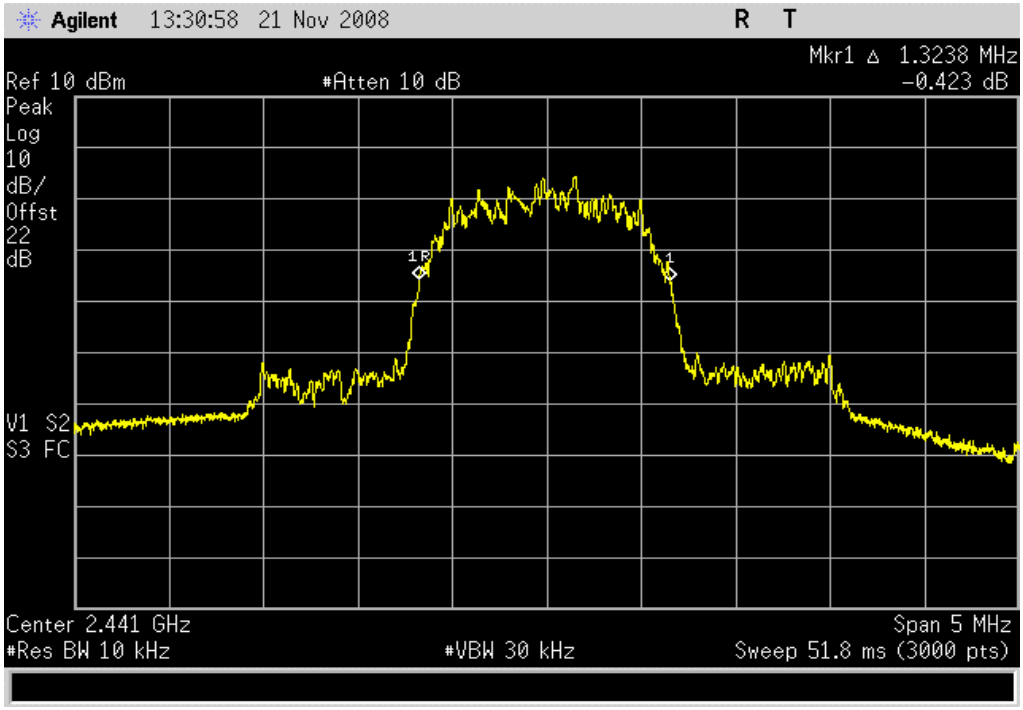
GFSK, DH5, High Channel, 2480 MHz					
Result:	Pass	**Value:**	917.0 kHz	**Limit:**	1.5 MHz



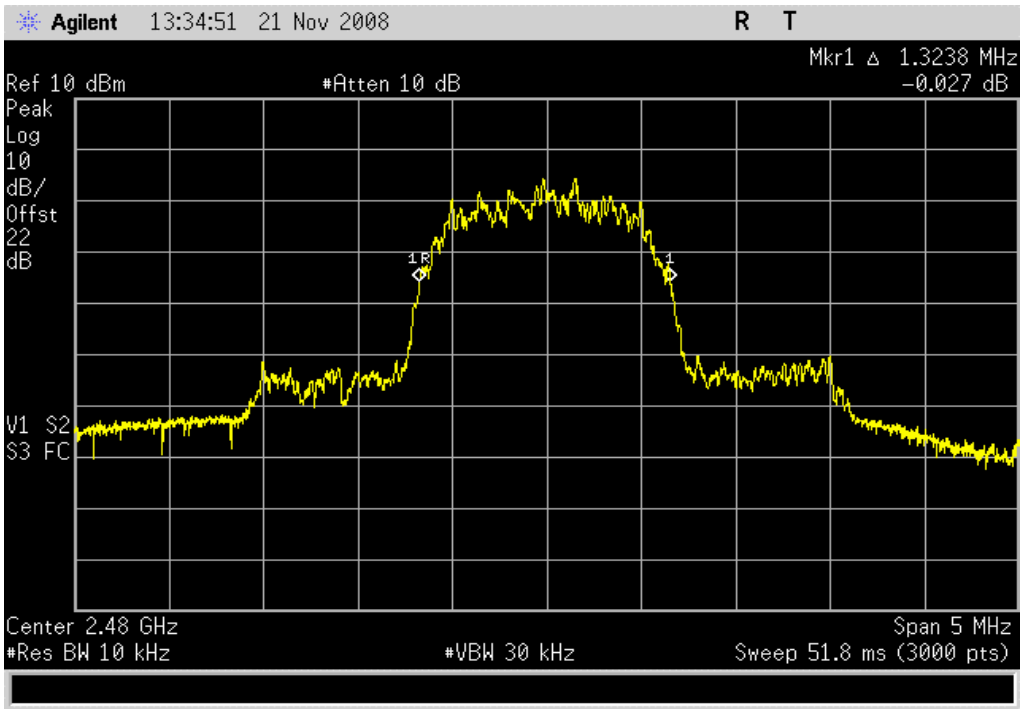
pi/4-DQPSK, 2DH5, Low Channel, 2402MHz					
Result:	Pass	**Value:**	1.322 MHz	**Limit:**	1.5 MHz



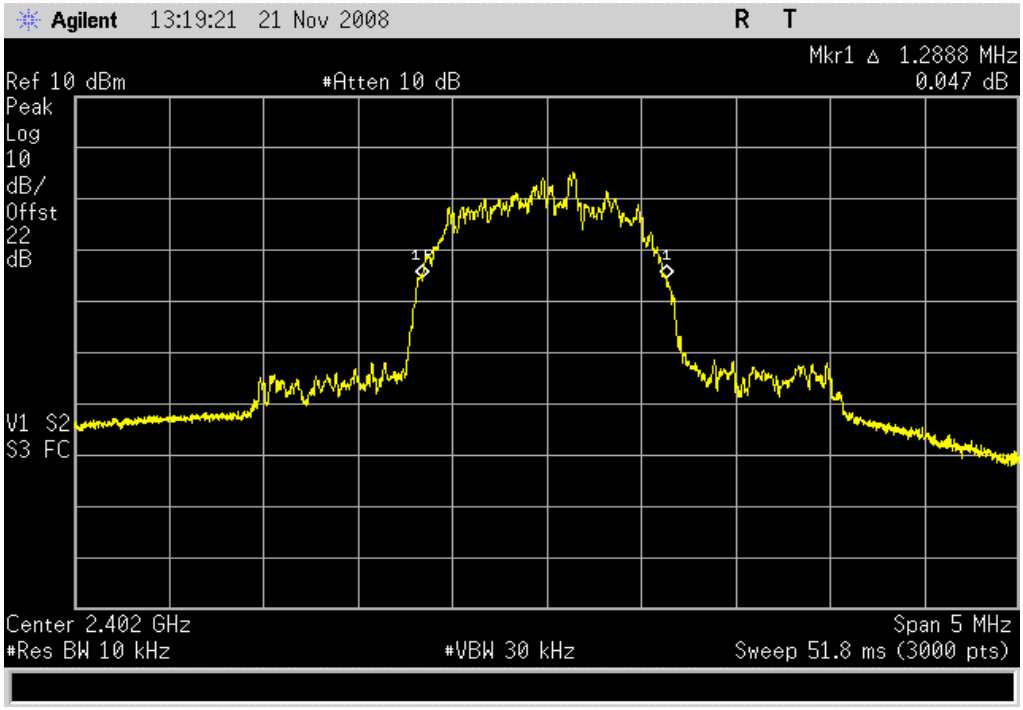
pi/4-DQPSK, 2DH5, Mid Channel, 2441 MHz					
Result:	Pass	**Value:**	1.324 MHz	**Limit:**	1.5 MHz



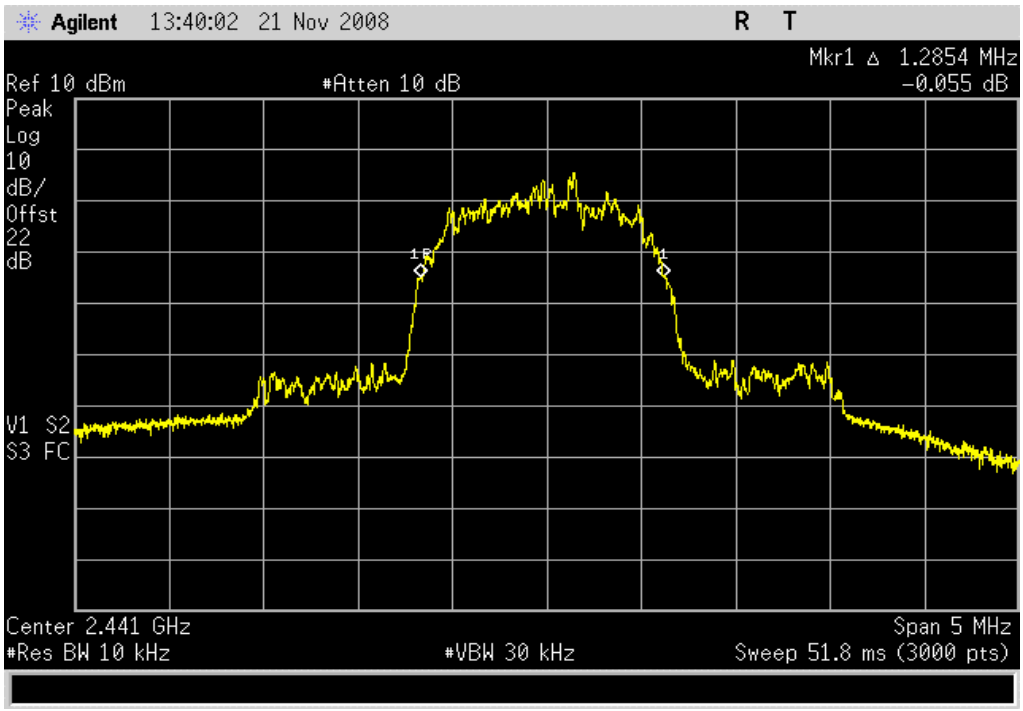
pi/4-DQPSK, 2DH5, High Channel, 2480 MHz					
Result:	Pass	**Value:**	1.324 MHz	**Limit:**	1.5 MHz



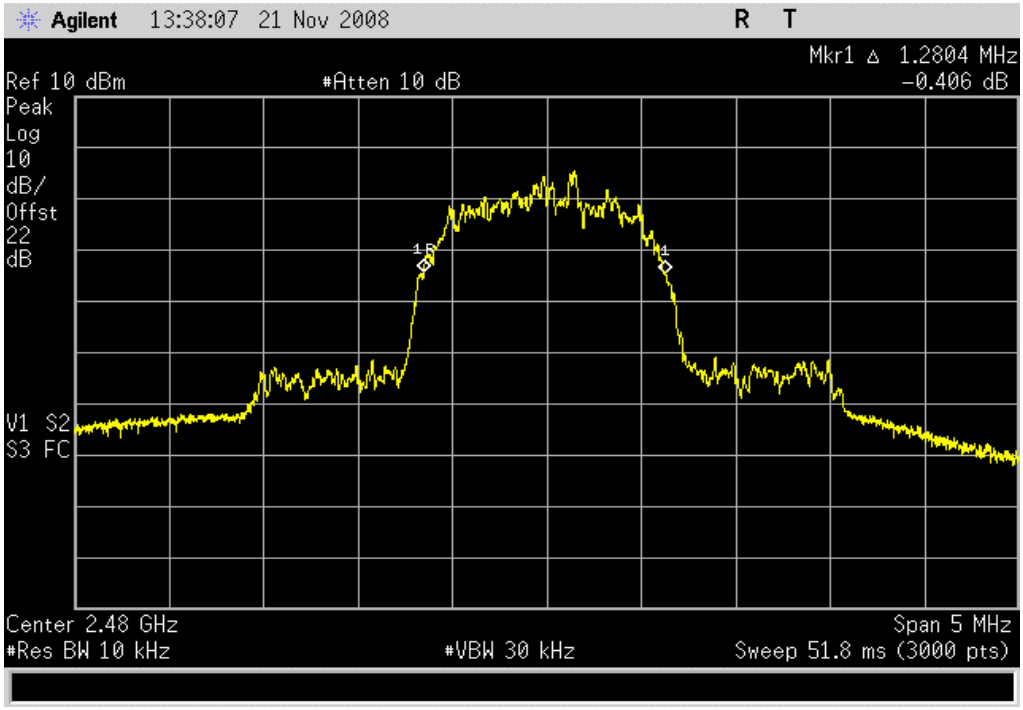
8DPSK, 3DH5, Low Channel, 2402MHz					
Result:	Pass	**Value:**	1.289 MHz	**Limit:**	1.5 MHz



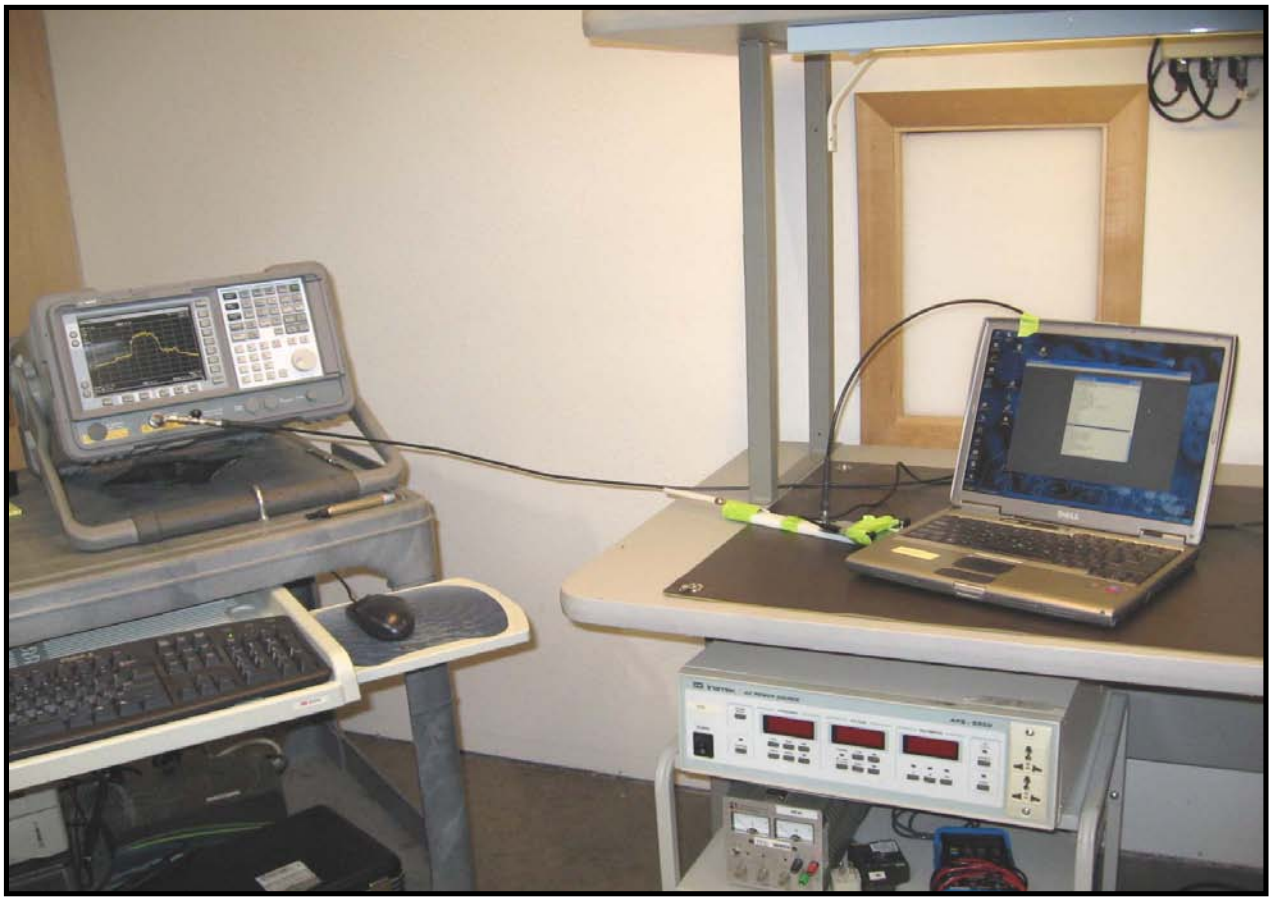
8DPSK, 3DH5, Mid Channel, 2441 MHz					
Result:	Pass	**Value:**	1.285 MHz	**Limit:**	1.5 MHz



8DPSK, 3DH5, High Channel, 2480 MHz					
Result:	Pass	**Value:**	1.280 MHz	**Limit:**	1.5 MHz



OCCUPIED BANDWIDTH



OUTPUT POWER

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4407B	AAU	12/7/2007	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13
Power Meter	Gigatronics	8651A	SPM	12/7/2007	13
Power Sensor	Gigatronics	80701A	SPL	12/7/2007	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/7/2007	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The peak output power was measured with the EUT set to low, medium, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. . The EUT was transmitting in a no hop mode at its maximum data rate for each of the three different modulations available.

De Facto EIRP Limit: Per 47 CFR 15.247 (b)(1-3), the EUT meets the de facto EIRP limit of +36dBm.

NORTHWEST EMC

OUTPUT POWER

XMit 2007.06.13

EUT:	DDIB			**Work Order:**	INMC0500
Serial Number:	Proto 13			**Date:**	11/19/08
Customer:	Intermec Technologies Corporation			**Temperature:**	22°C
Attendees:	None			**Humidity:**	43%
Project:	None			**Barometric Pres.:**	30.22
Tested by:	Rod Peloquin	**Power:**	3.3Vdc via Host	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2008	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

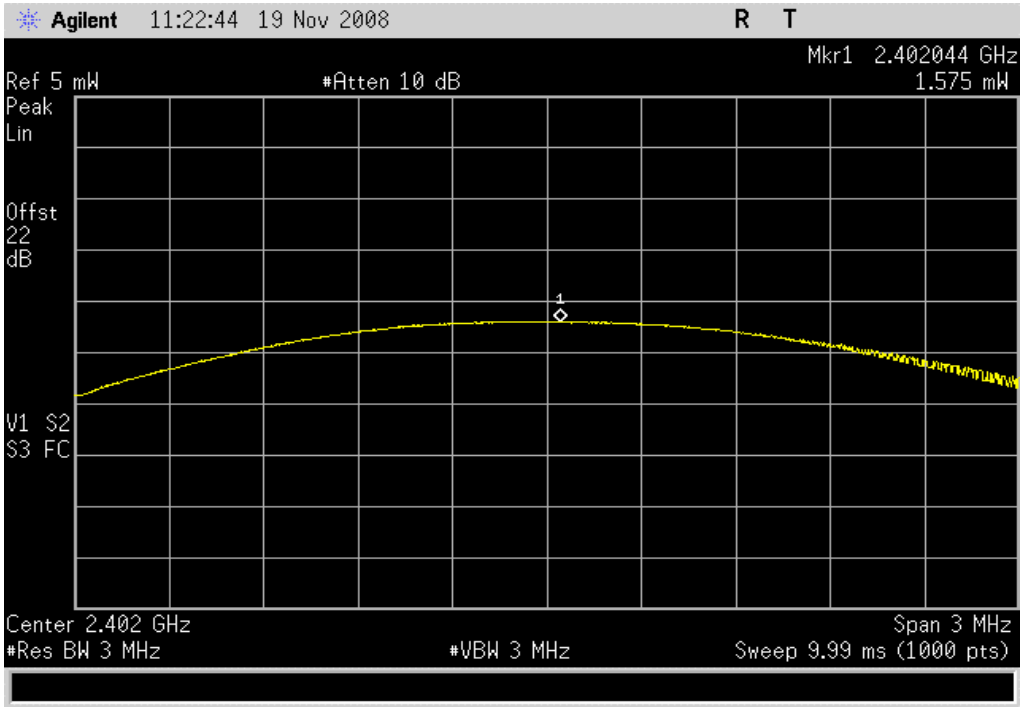
DEVIATIONS FROM TEST STANDARD

No Deviations.

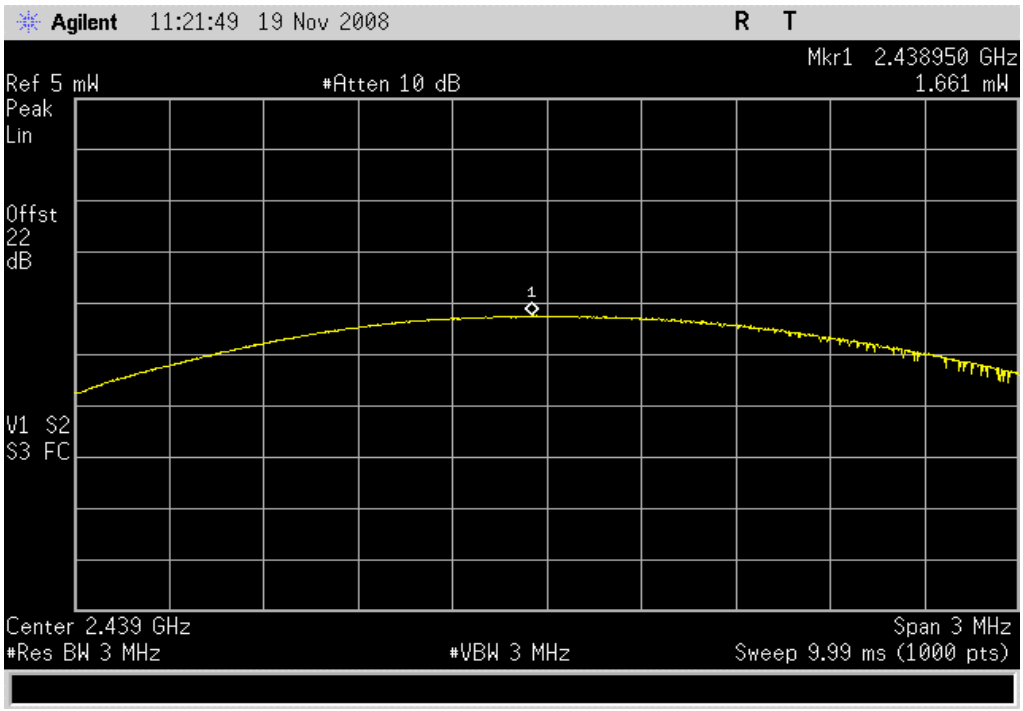
Configuration #	**1**	*Signature*

		Value	Limit	Results
DH5, GFSK				
	Low Channel	1.58 mW	1 W	Pass
	Mid Channel	1.66 mW	1 W	Pass
	High Channel	1.69 mW	1 W	Pass
2DH5, 4-DQPSK				
	Low Channel	2.53 mW	1 W	Pass
	Mid Channel	2.68 mW	1 W	Pass
	High Channel	2.76 mW	1 W	Pass
3DH5, 8-DPSK				
	Low Channel	2.85 mW	1 W	Pass
	Mid Channel	3.05 mW	1 W	Pass
	High Channel	3.11 mW	1 W	Pass

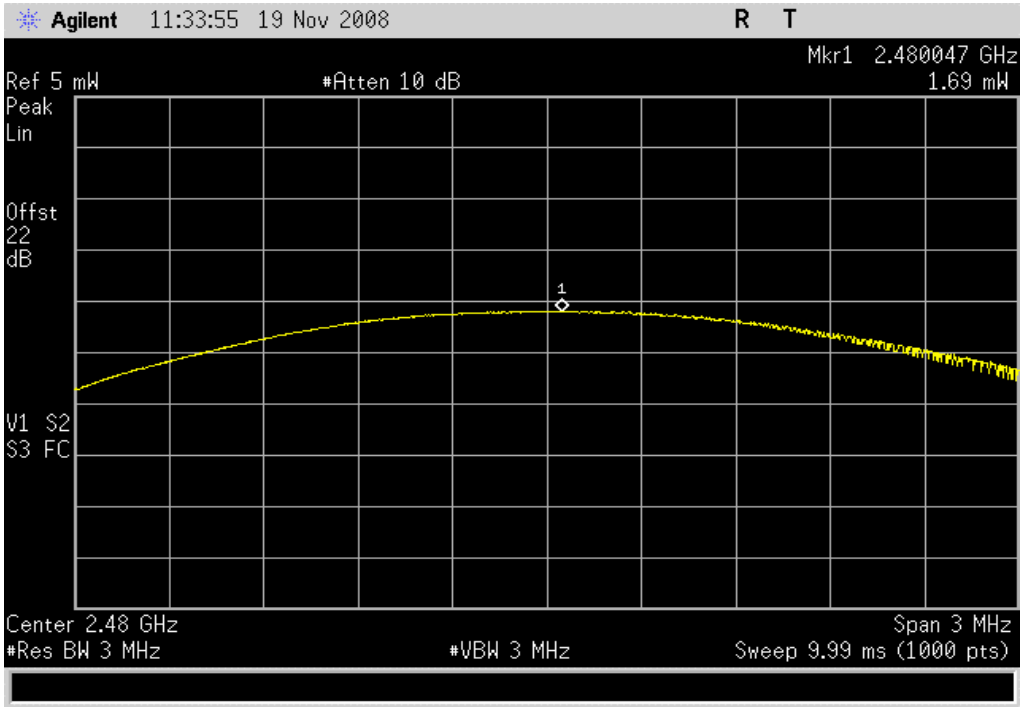
DH5, GFSK, Low Channel					
Result:	Pass	**Value:**	1.58 mW	**Limit:**	1 W



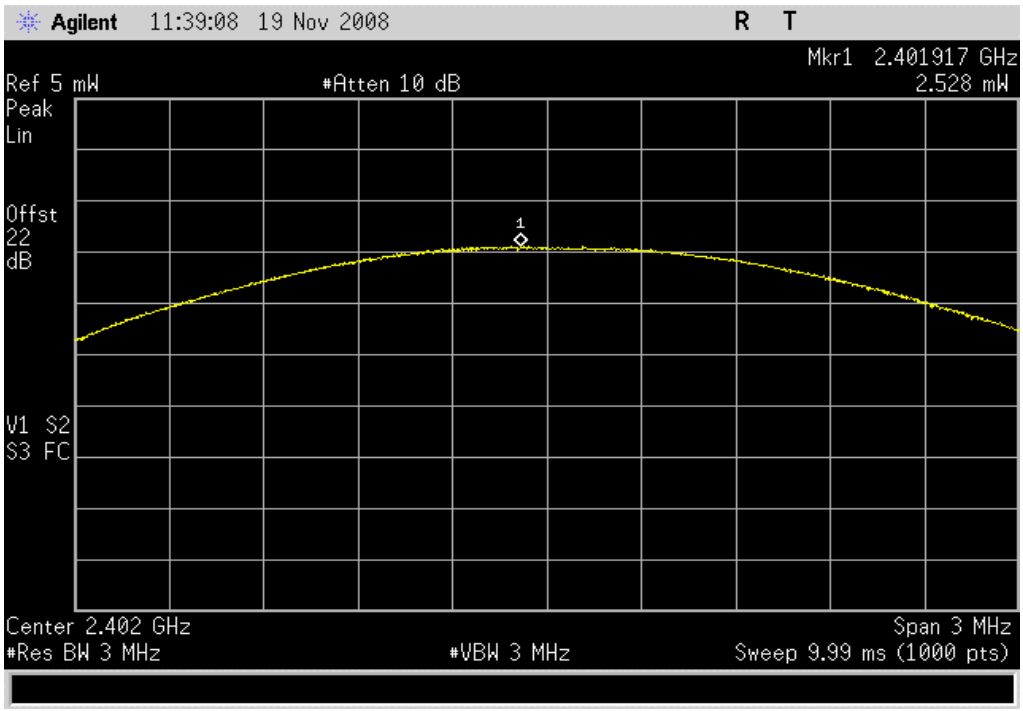
DH5, GFSK, Mid Channel					
Result:	Pass	**Value:**	1.66 mW	**Limit:**	1 W



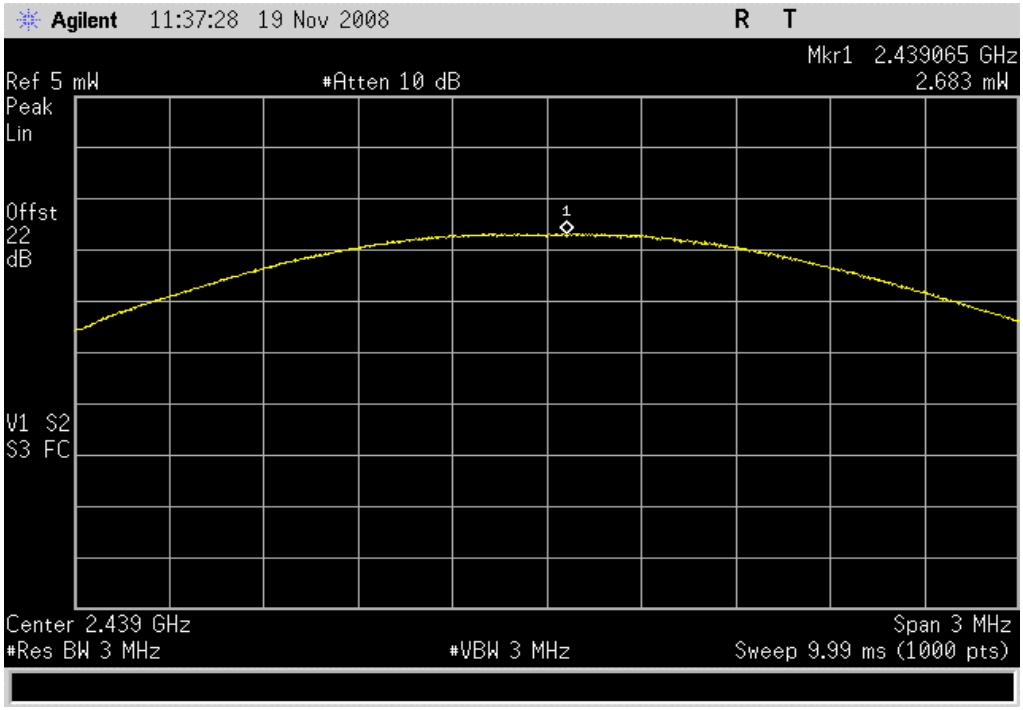
DH5, GFSK, High Channel					
Result:	Pass	**Value:**	1.69 mW	**Limit:**	1 W



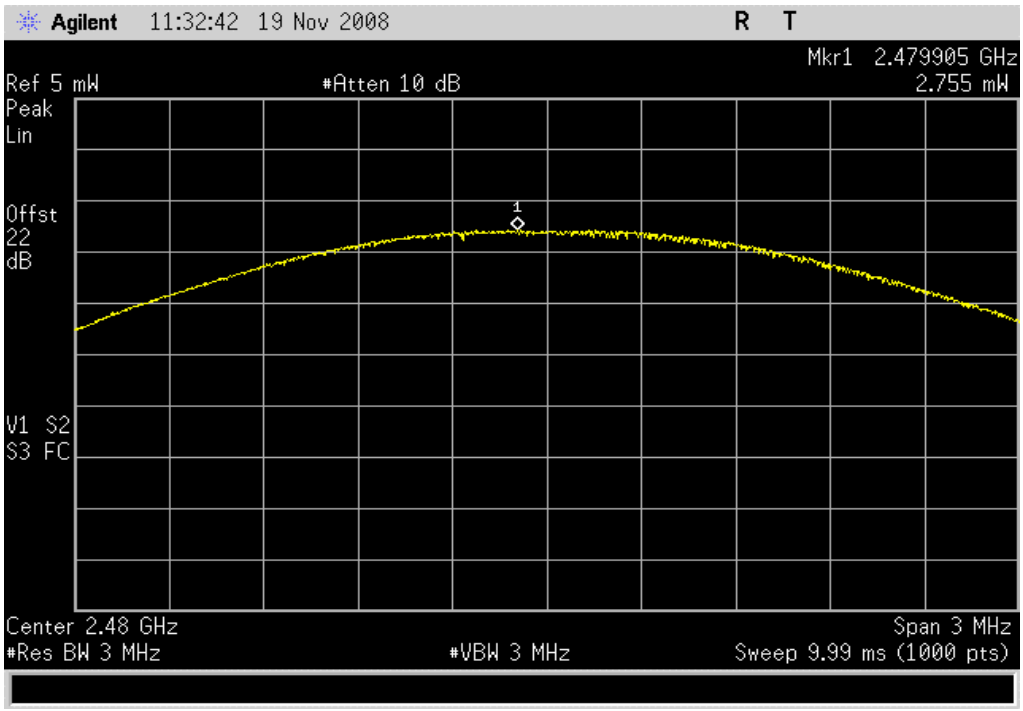
2DH5, 4-DQPSK, Low Channel					
Result:	Pass	**Value:**	2.53 mW	**Limit:**	1 W



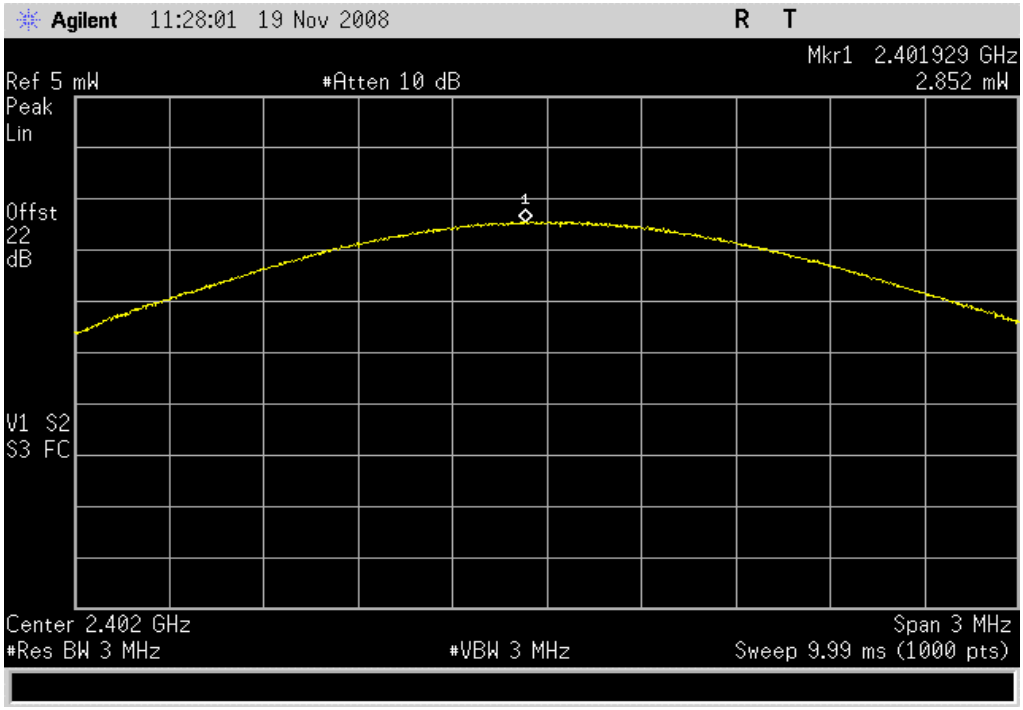
2DH5, 4-DQPSK, Mid Channel					
Result:	Pass	**Value:**	2.68 mW	**Limit:**	1 W



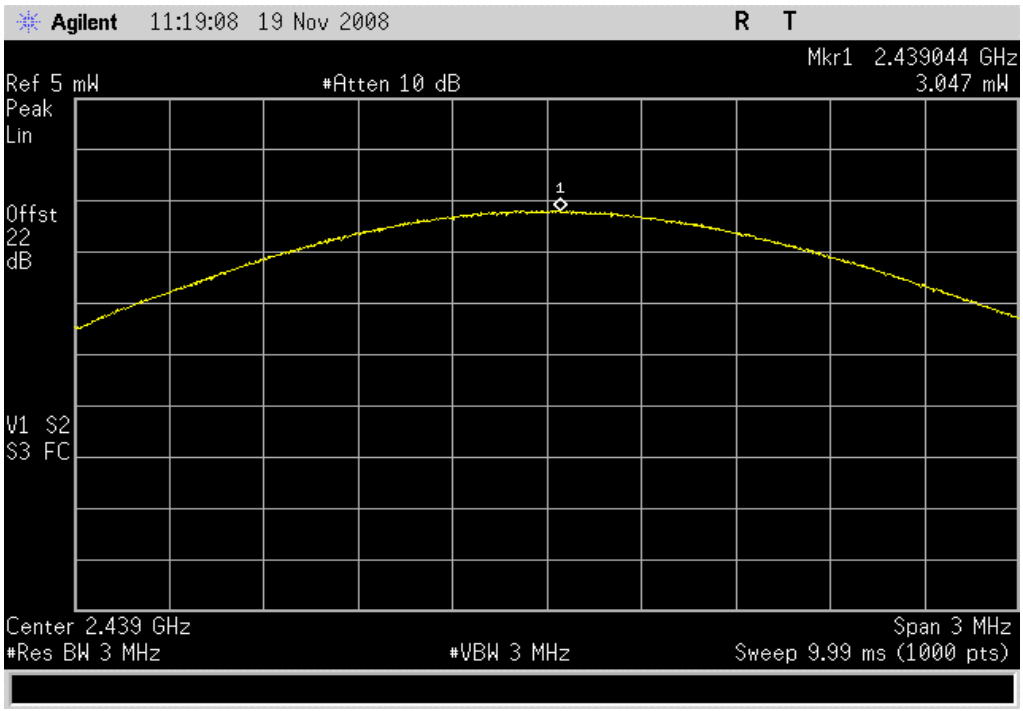
2DH5, 4-DQPSK, High Channel					
Result:	Pass	**Value:**	2.76 mW	**Limit:**	1 W



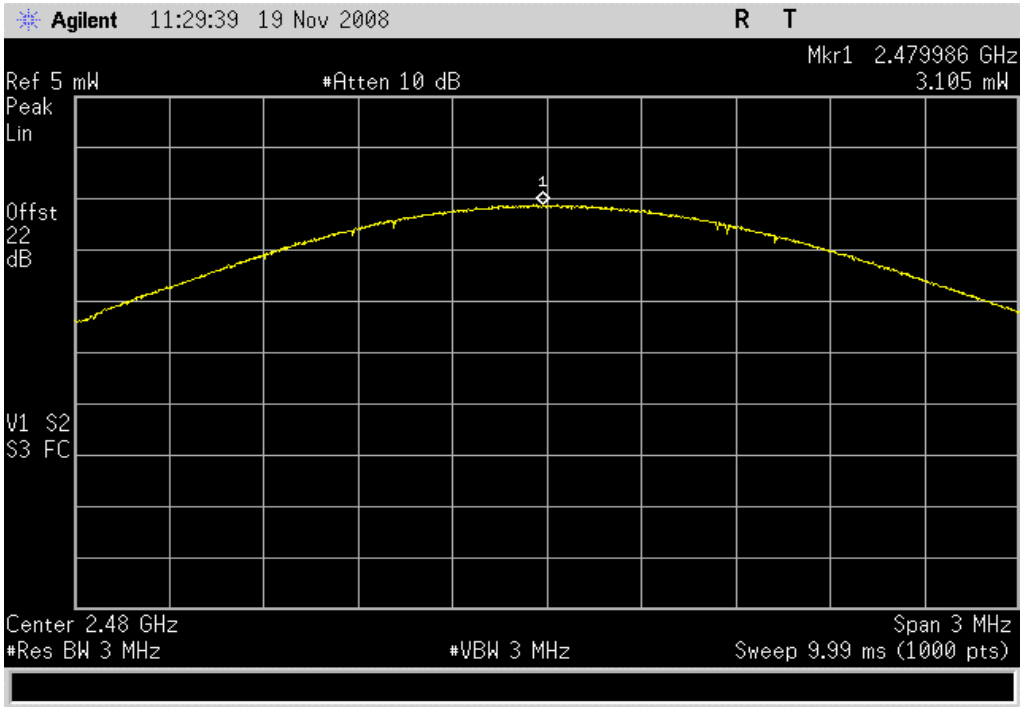
3DH5, 8-DPSK, Low Channel					
Result:	Pass	**Value:**	2.85 mW	**Limit:**	1 W



3DH5, 8-DPSK, Mid Channel					
Result:	Pass	**Value:**	3.05 mW	**Limit:**	1 W



3DH5, 8-DPSK, High Channel					
Result:	Pass	**Value:**	3.11 mW	**Limit:**	1 W



BAND EDGE COMPLIANCE

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13
Power Meter	Gigatronics	8651A	SPM	12/7/2007	13
Power Sensor	Gigatronics	80701A	SPL	12/7/2007	13
Spectrum Analyzer	Agilent	E4407B	AAU	12/12/2008	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/7/2007	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to low and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode. The channels closest to the band edges were selected. The spectrum was scanned across each band edge from 5 MHz below the band edge to 5 MHz above the band edge.

NORTHWEST EMC

BAND EDGE COMPLIANCE

XMit 2007.06.13

EUT:	DDIB			Work Order:	INMC0500
Serial Number:	Proto 13			Date:	12/08/08
Customer:	Intermec Technologies Corporation			Temperature:	20°C
Attendees:	None			Humidity:	34%
Project:	None			Barometric Pres.:	30.22
Tested by:	Rod Peloquin	Power:	3.3Vdc via Host	Job Site:	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000

COMMENTS

None

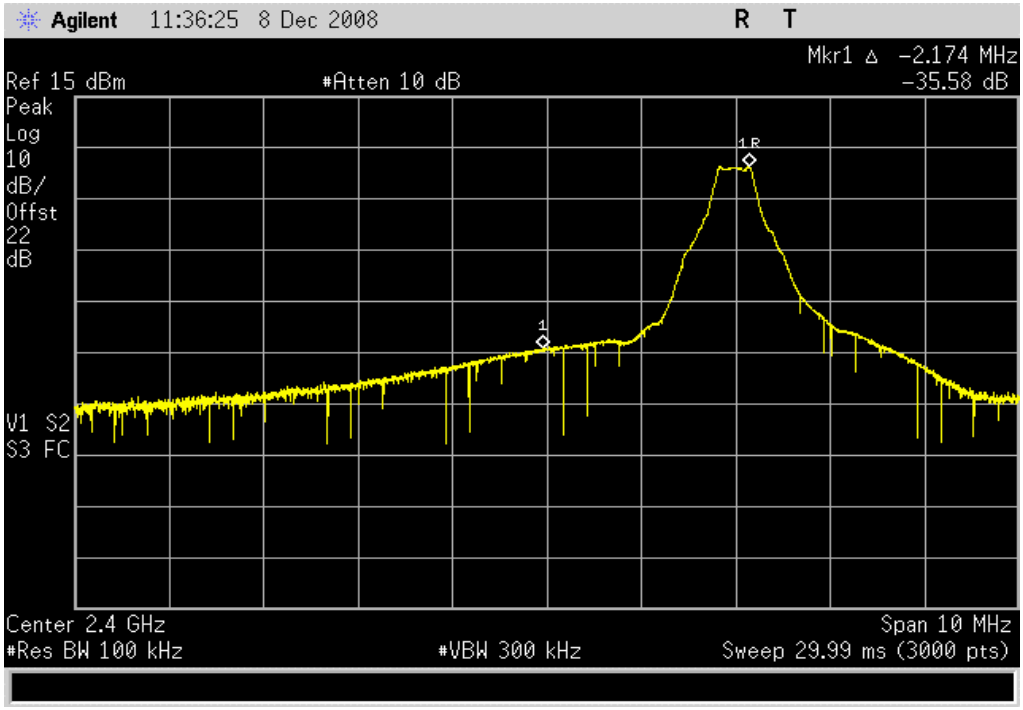
DEVIATIONS FROM TEST STANDARD

No Deviations

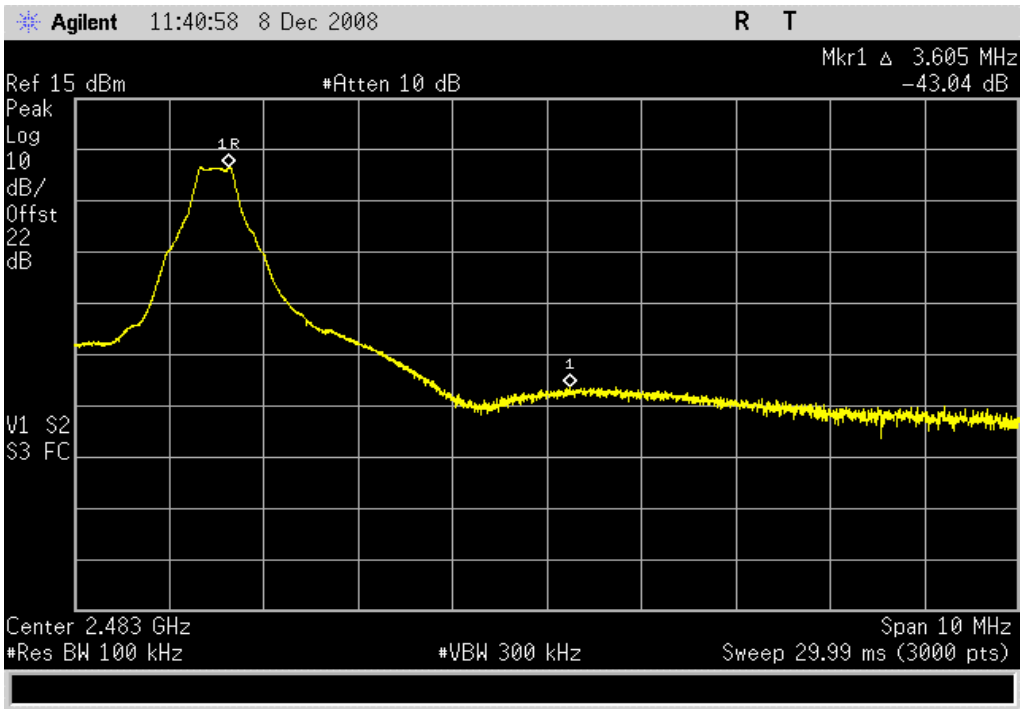
Configuration #	3	Signature

		Value	Limit	Results
GFSK, DH5				
	Low Channel	-35.6 dBc	≤ -20 dBc	Pass
	High Channel	-43.0 dBc	≤ -20 dBc	Pass
pi/4-DQPSK, 2DH5				
	Low Channel	-35.4 dBc	≤ -20 dBc	Pass
	High Channel	-42.8 dBc	≤ -20 dBc	Pass
8-DPSK, 3DH5				
	Low Channel	-35.8 dBc	≤ -20 dBc	Pass
	High Channel	-43.6 dBc	≤ -20 dBc	Pass

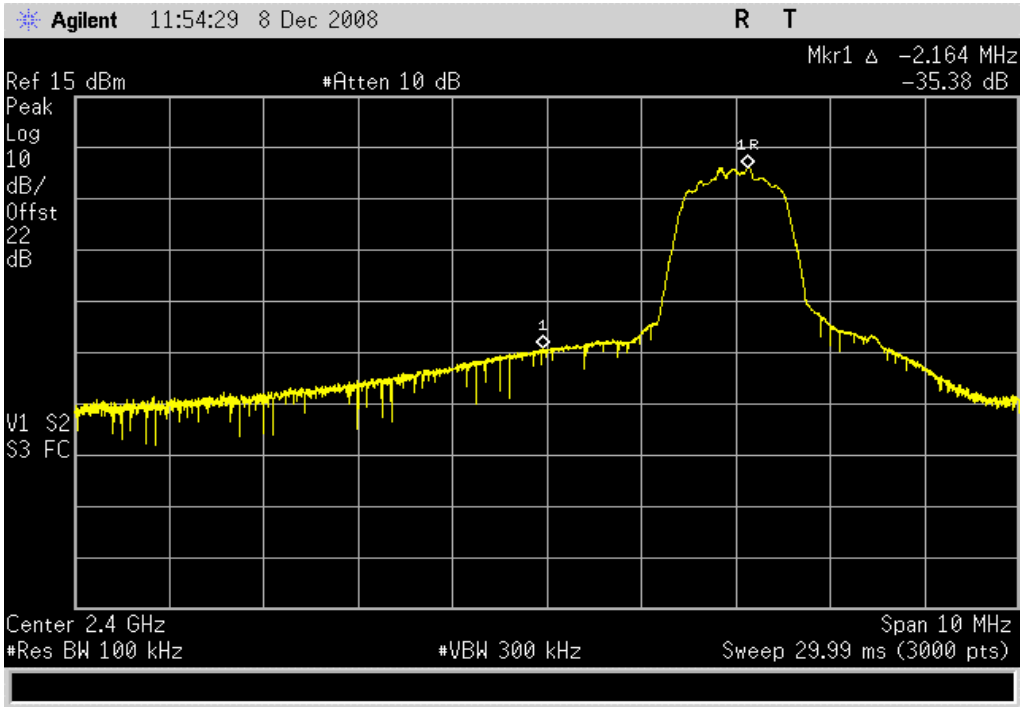
GFSK, DH5, Low Channel					
Result:	Pass	**Value:**	-35.6 dBc	**Limit:**	≤ -20 dBc



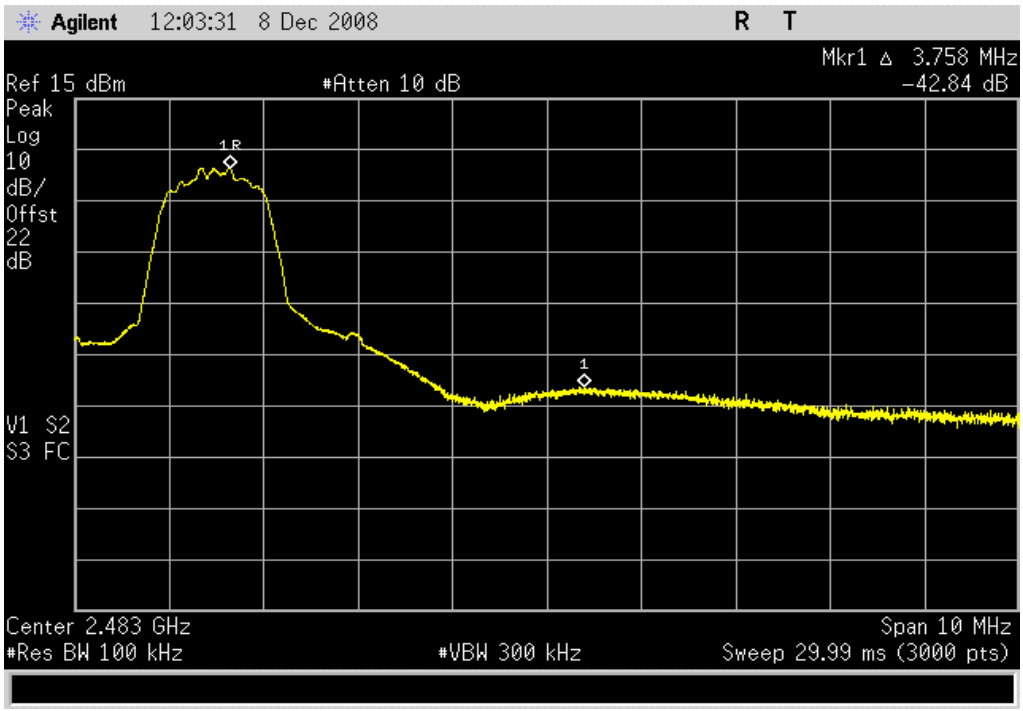
GFSK, DH5, High Channel					
Result:	Pass	**Value:**	-43.0 dBc	**Limit:**	≤ -20 dBc



pi/4-DQPSK, 2DH5, Low Channel					
Result:	Pass	**Value:**	-35.4 dBc	**Limit:**	≤ -20 dBc

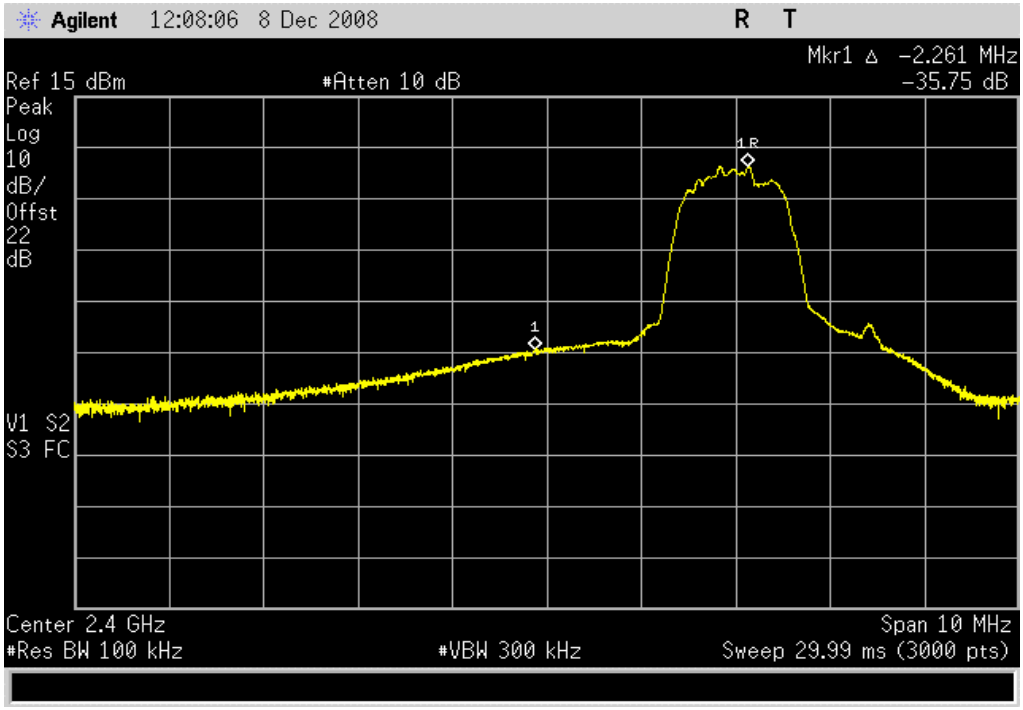


pi/4-DQPSK, 2DH5, High Channel					
Result:	Pass	**Value:**	-42.8 dBc	**Limit:**	≤ -20 dBc

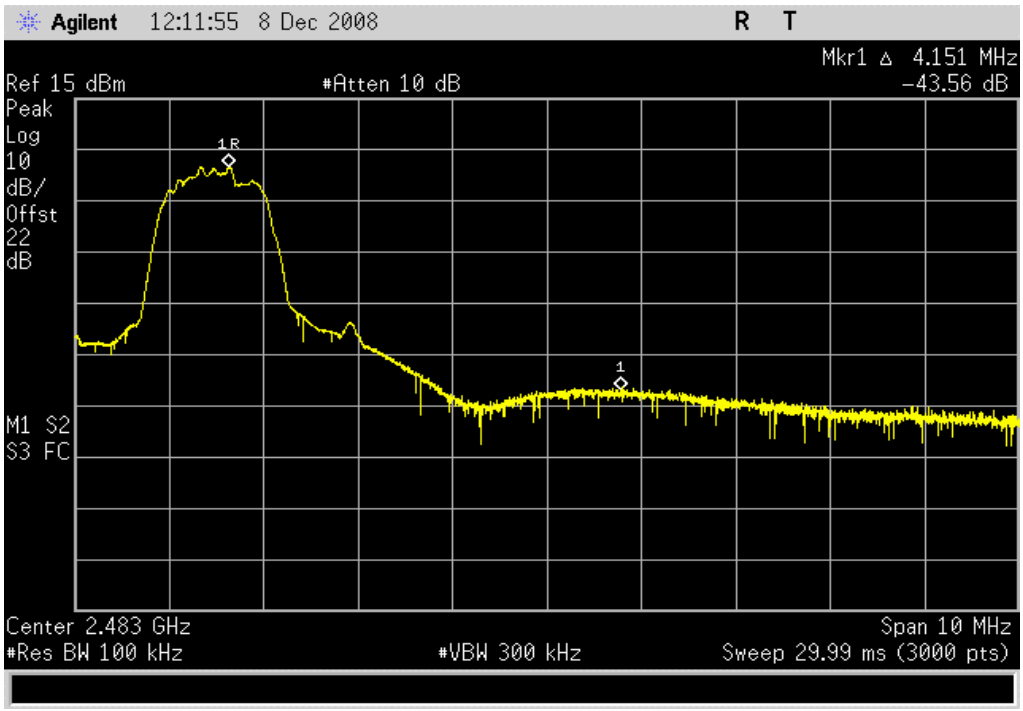


BAND EDGE COMPLIANCE

8-DPSK, 3DH5, Low Channel					
Result:	Pass	**Value:**	-35.8 dBc	**Limit:**	≤ -20 dBc



8-DPSK, 3DH5, High Channel					
Result:	Pass	**Value:**	-43.6 dBc	**Limit:**	≤ -20 dBc



SPURIOUS CONDUCTED EMISSIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The spurious RF conducted emissions were measured with the EUT set to low, medium, and high transmit frequencies. The measurements were made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate in a no hop mode. For each transmit frequency, the spectrum was scanned throughout the specified frequency.

NORTHWEST EMC

SPURIOUS CONDUCTED EMISSIONS

XMit 2007.06.13

EUT:	DDIB			**Work Order:**	INMC0500
Serial Number:	Proto 13			**Date:**	12/11/08
Customer:	Intermec Technologies Corporation			**Temperature:**	21°C
Attendees:	None			**Humidity:**	36%
Project:	None			**Barometric Pres.:**	30.22
Tested by:	Rod Peloquin	**Power:**	3.3Vdc via Host	**Job Site:**	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (FHSS):2008	ANSI C63.4:2003 DA 00-705:2000

COMMENTS

None

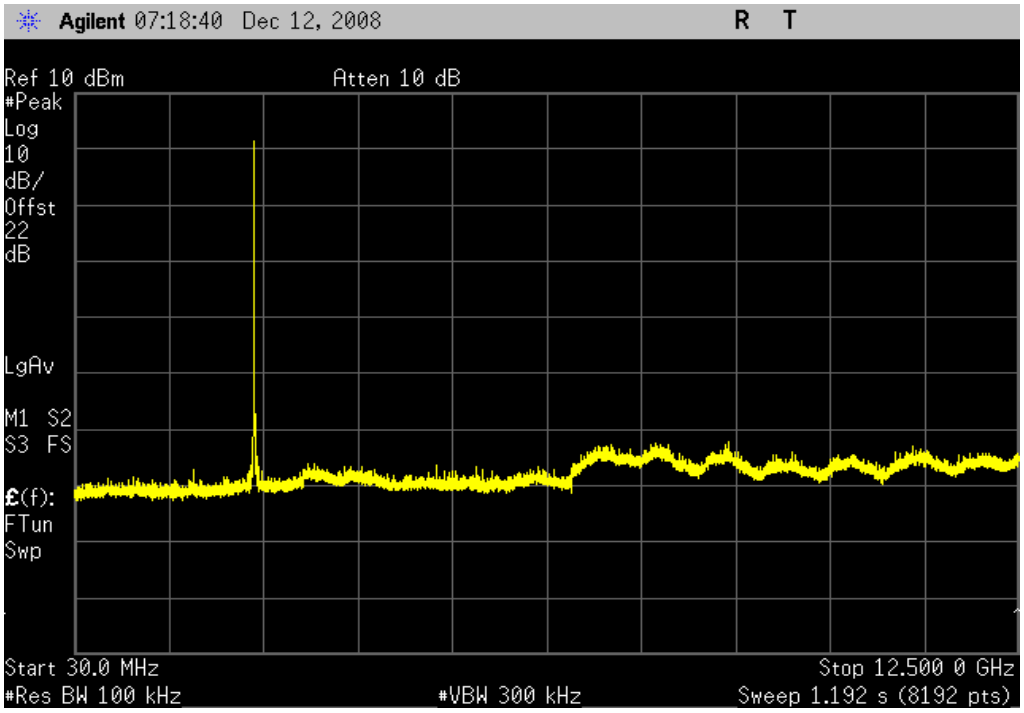
DEVIATIONS FROM TEST STANDARD

No Deviations

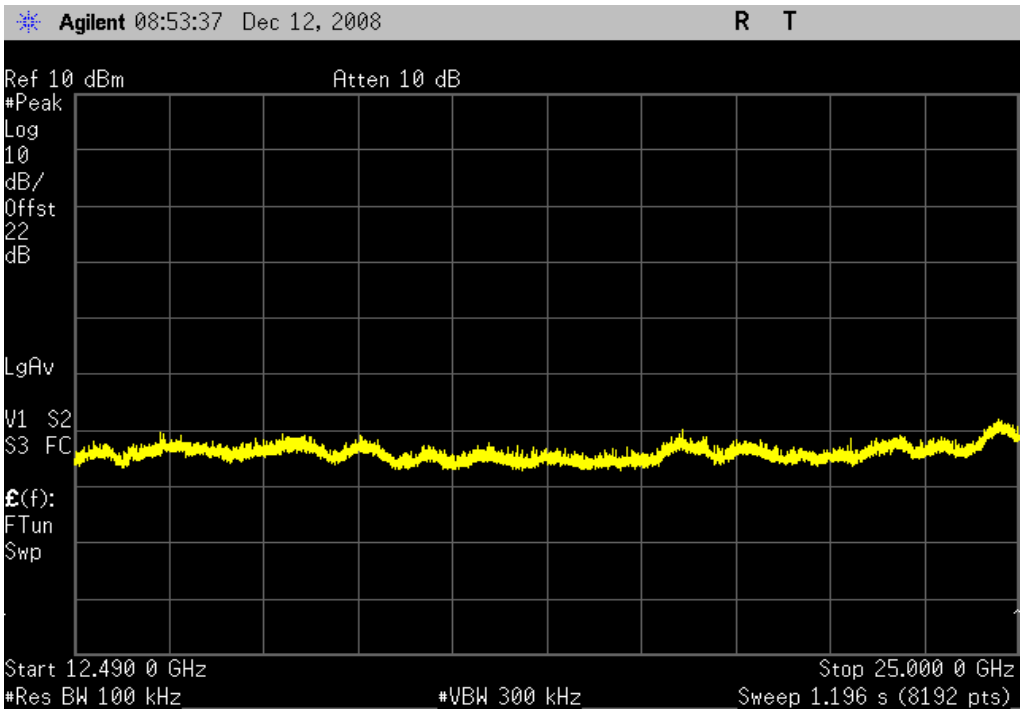
Configuration #	3	Signature

		Value	Limit	Results
GFSK, DH5				
	Low Channel			
	30MHz - 12.5GHz	< -40 dBc	≤ -20 dBc	Pass
	12.4GHz-25GHz	< -40 dBc	≤ -20 dBc	Pass
	Mid Channel			
	30MHz - 12.5GHz	< -40 dBc	≤ -20 dBc	Pass
	12.4GHz-25GHz	< -40 dBc	≤ -20 dBc	Pass
	High Channel			
	30MHz - 12.5GHz	< -40 dBc	≤ -20 dBc	Pass
	12.4GHz-25GHz	< -40 dBc	≤ -20 dBc	Pass
pi/4-DQPSK, 2DH5				
	Low Channel			
	30MHz - 12.5GHz	< -40 dBc	≤ -20 dBc	Pass
	12.4GHz-25GHz	< -40 dBc	≤ -20 dBc	Pass
	Mid Channel			
	30MHz - 12.5GHz	< -40 dBc	≤ -20 dBc	Pass
	12.4GHz-25GHz	< -40 dBc	≤ -20 dBc	Pass
	High Channel			
	30MHz - 12.5GHz	< -40 dBc	≤ -20 dBc	Pass
	12.4GHz-25GHz	< -40 dBc	≤ -20 dBc	Pass
8DPSK, 3DH5				
	Low Channel			
	30MHz - 12.5GHz	< -40 dBc	≤ -20 dBc	Pass
	12.4GHz-25GHz	< -40 dBc	≤ -20 dBc	Pass
	Mid Channel			
	30MHz - 12.5GHz	< -40 dBc	≤ -20 dBc	Pass
	12.4GHz-25GHz	< -40 dBc	≤ -20 dBc	Pass
	High Channel			
	30MHz - 12.5GHz	< -40 dBc	≤ -20 dBc	Pass
	12.4GHz-25GHz	< -40 dBc	≤ -20 dBc	Pass

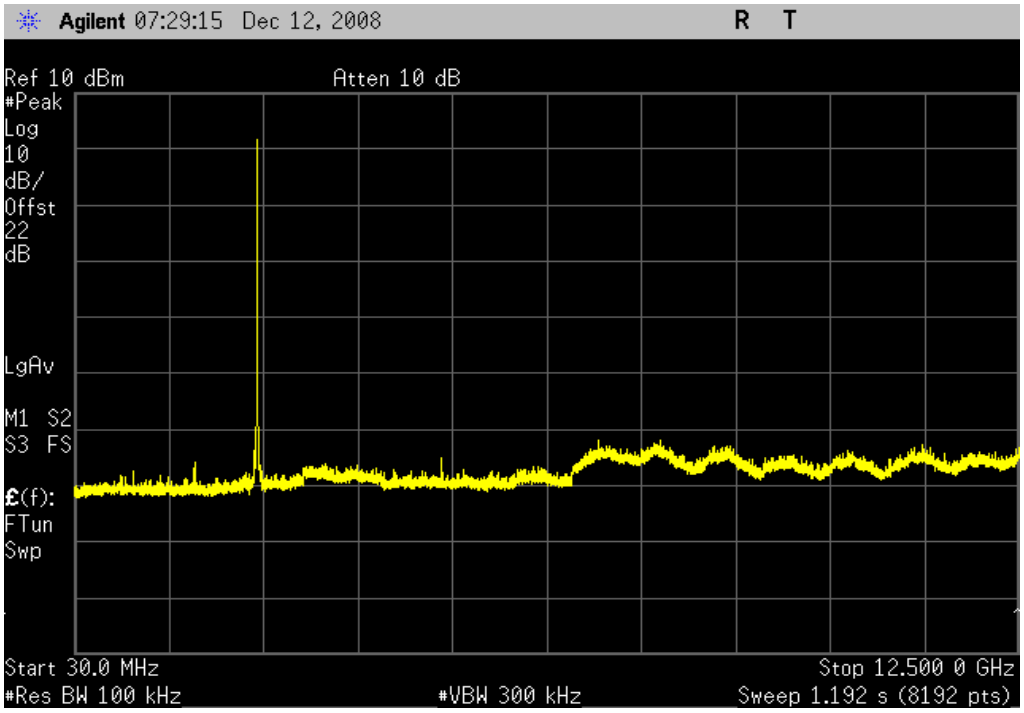
GFSK, DH5, Low Channel, 30MHz - 12.5GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



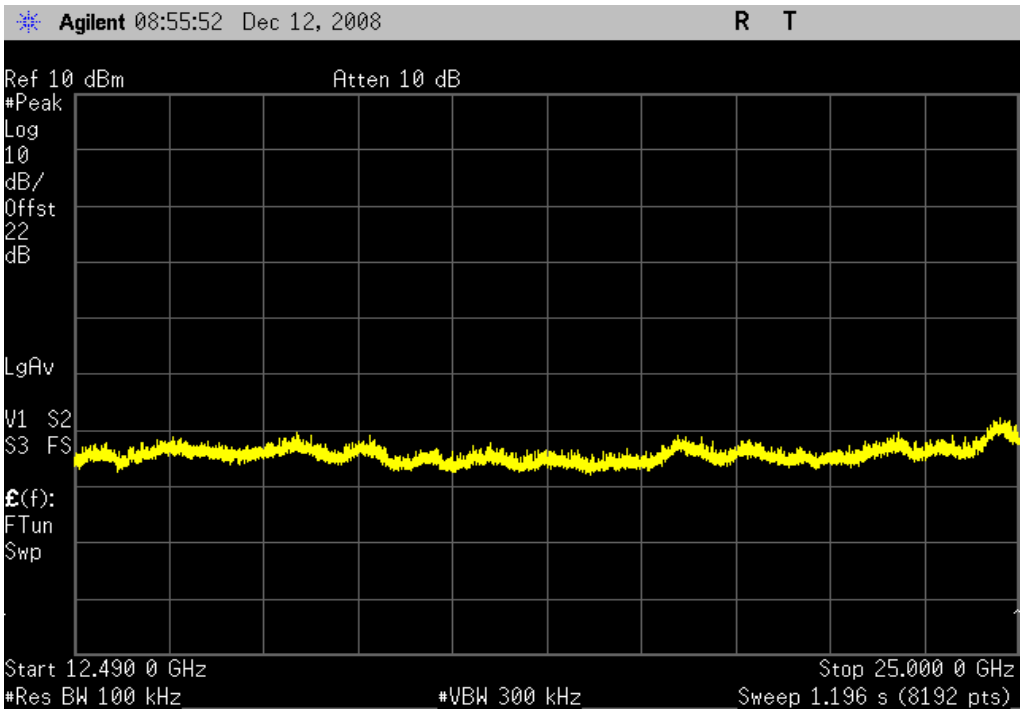
GFSK, DH5, Low Channel, 12.4GHz-25GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



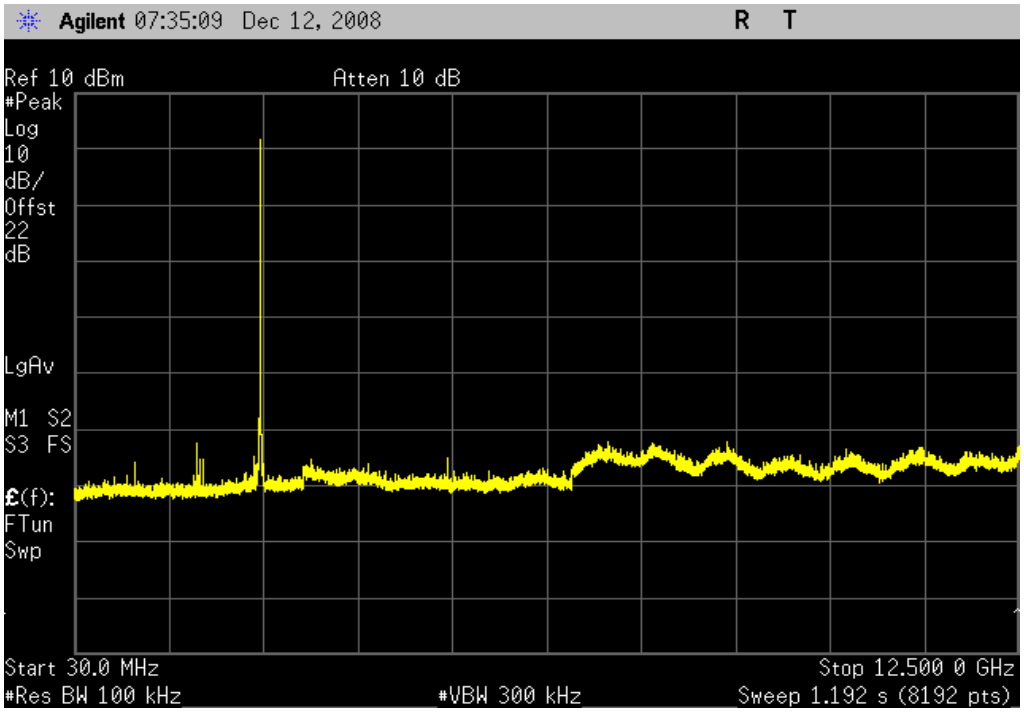
GFSK, DH5, Mid Channel, 30MHz - 12.5GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



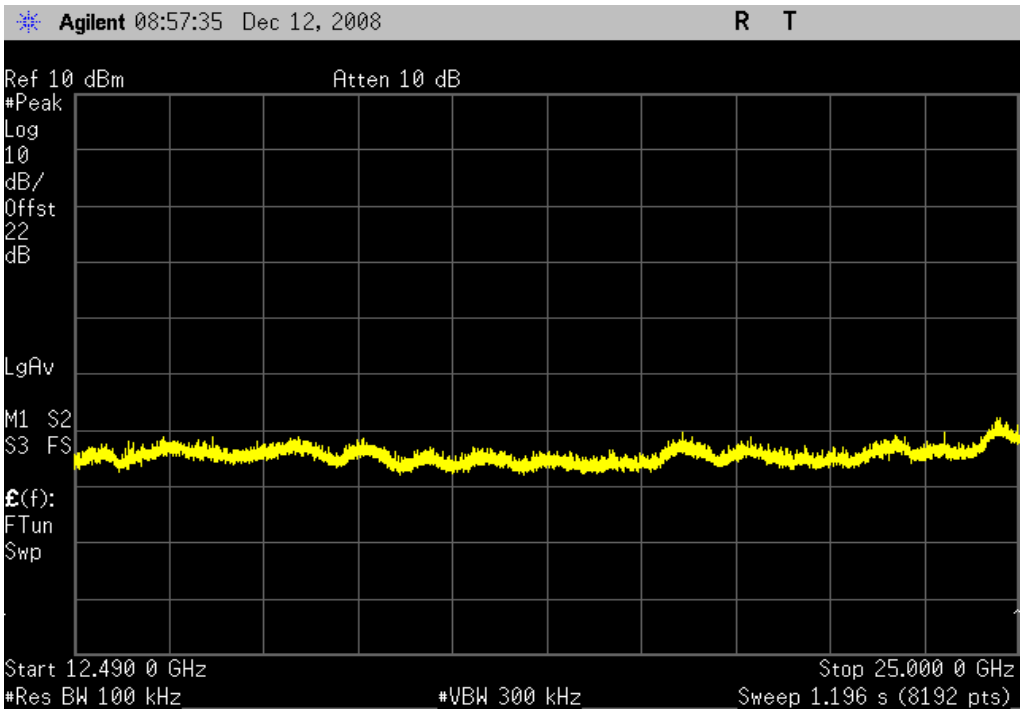
GFSK, DH5, Mid Channel, 12.4GHz-25GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



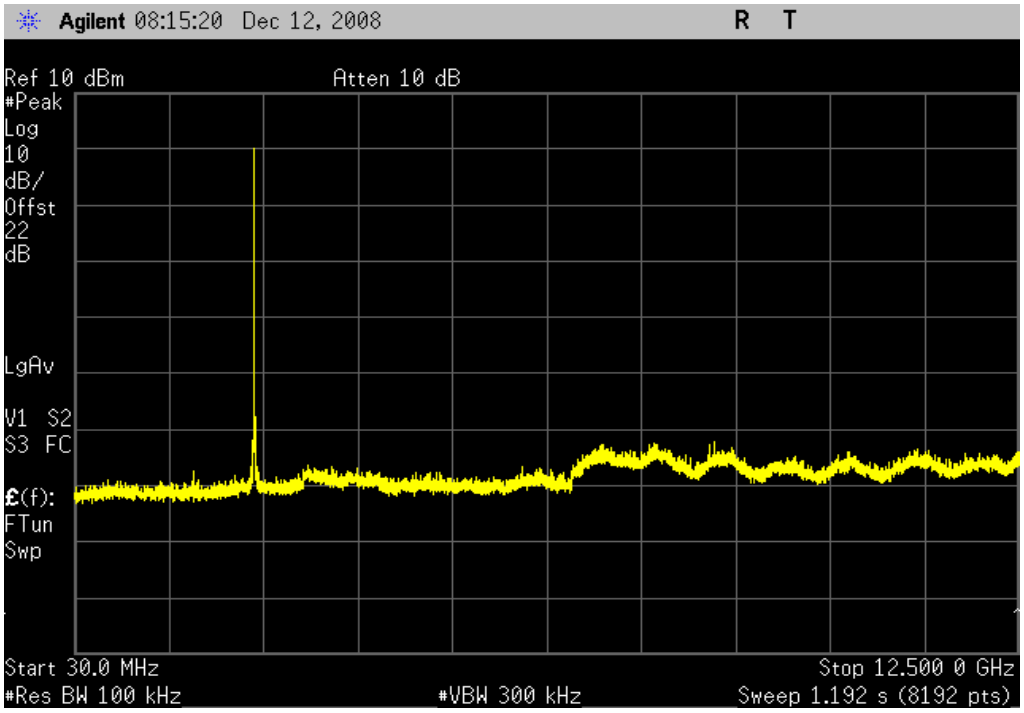
GFSK, DH5, High Channel, 30MHz - 12.5GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



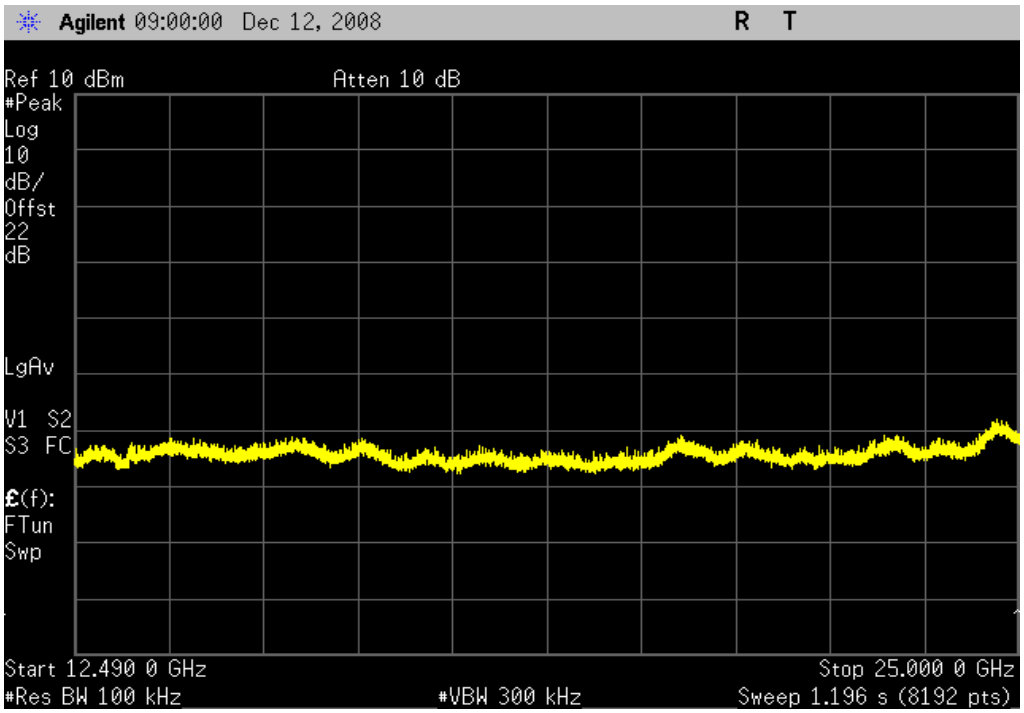
GFSK, DH5, High Channel, 12.4GHz-25GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



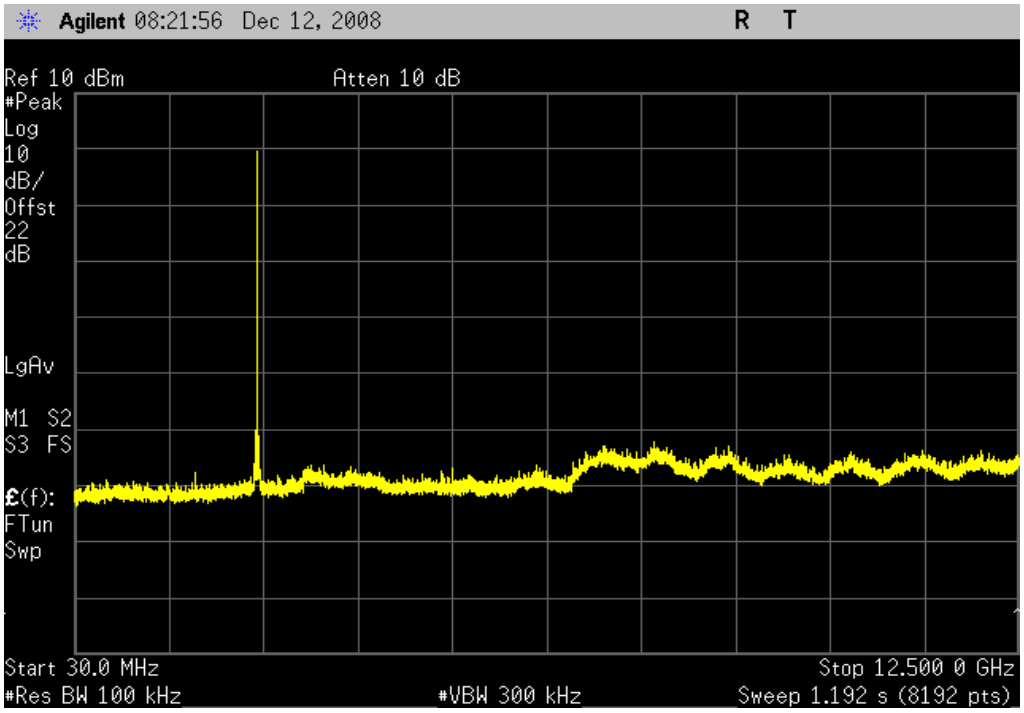
pi/4-DQPSK, 2DH5, Low Channel, 30MHz - 12.5GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



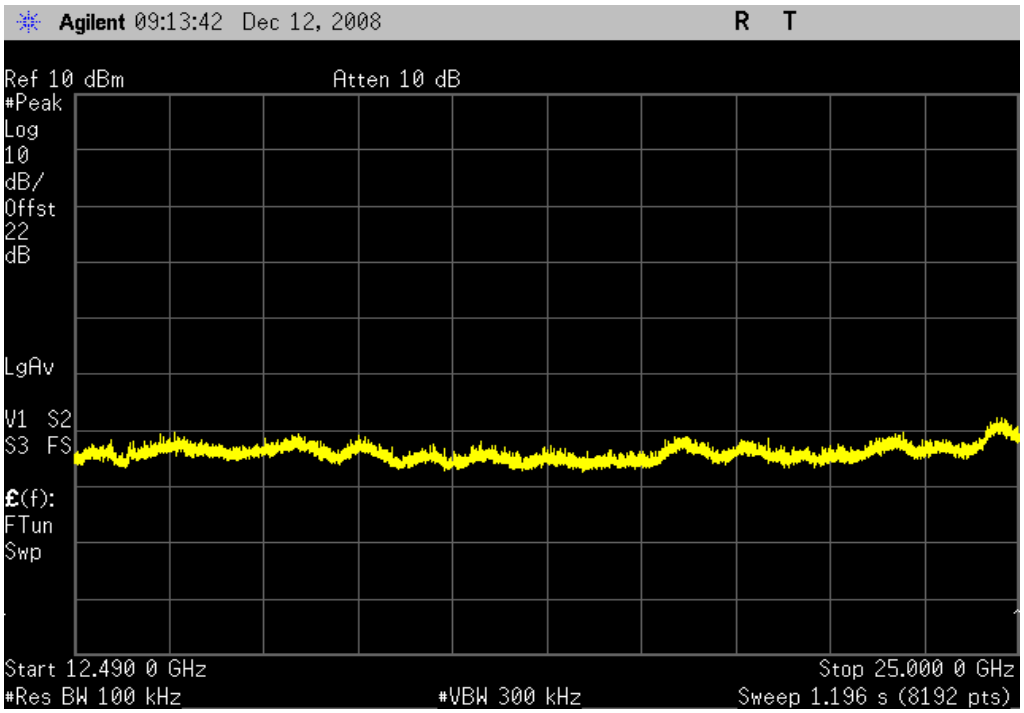
pi/4-DQPSK, 2DH5, Low Channel, 12.4GHz-25GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



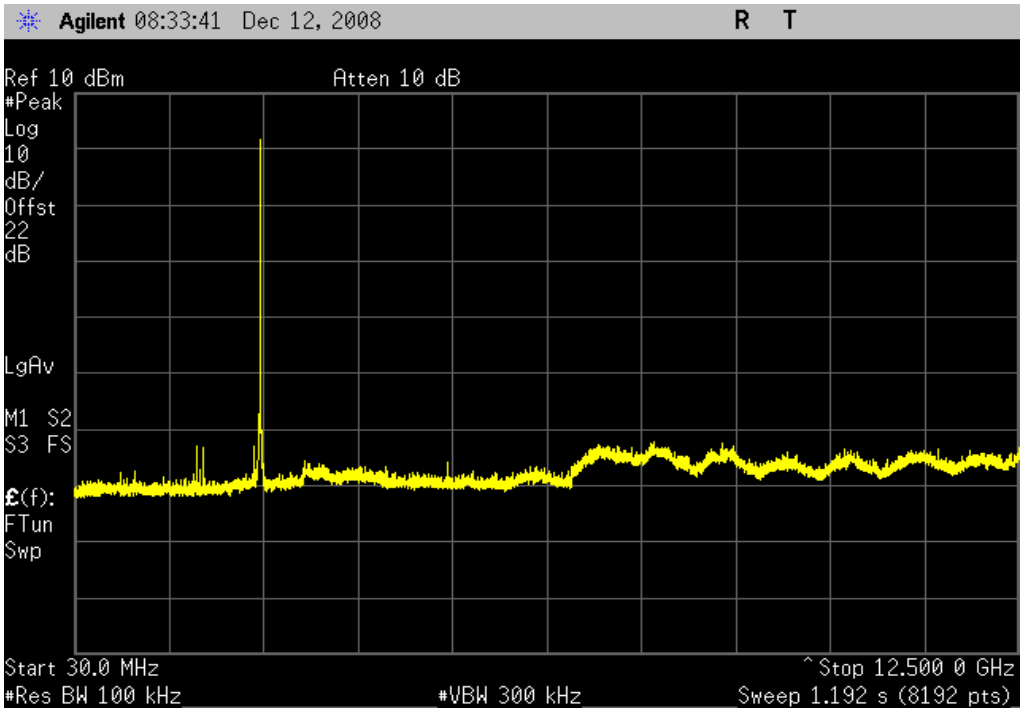
pi/4-DQPSK, 2DH5, Mid Channel, 30MHz - 12.5GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



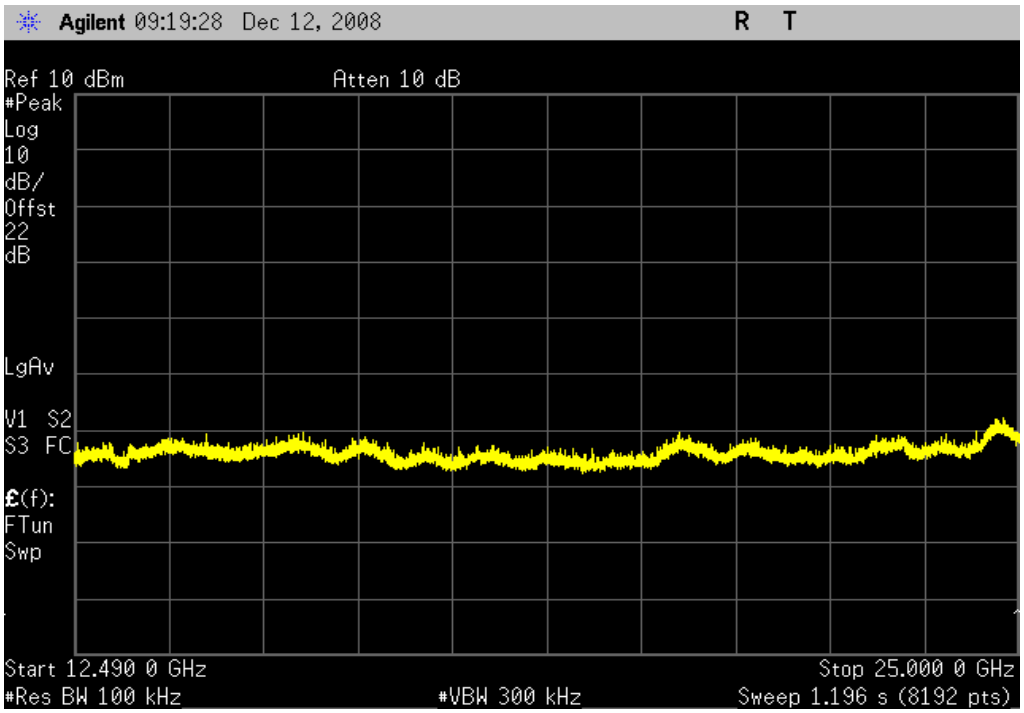
pi/4-DQPSK, 2DH5, Mid Channel, 12.4GHz-25GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



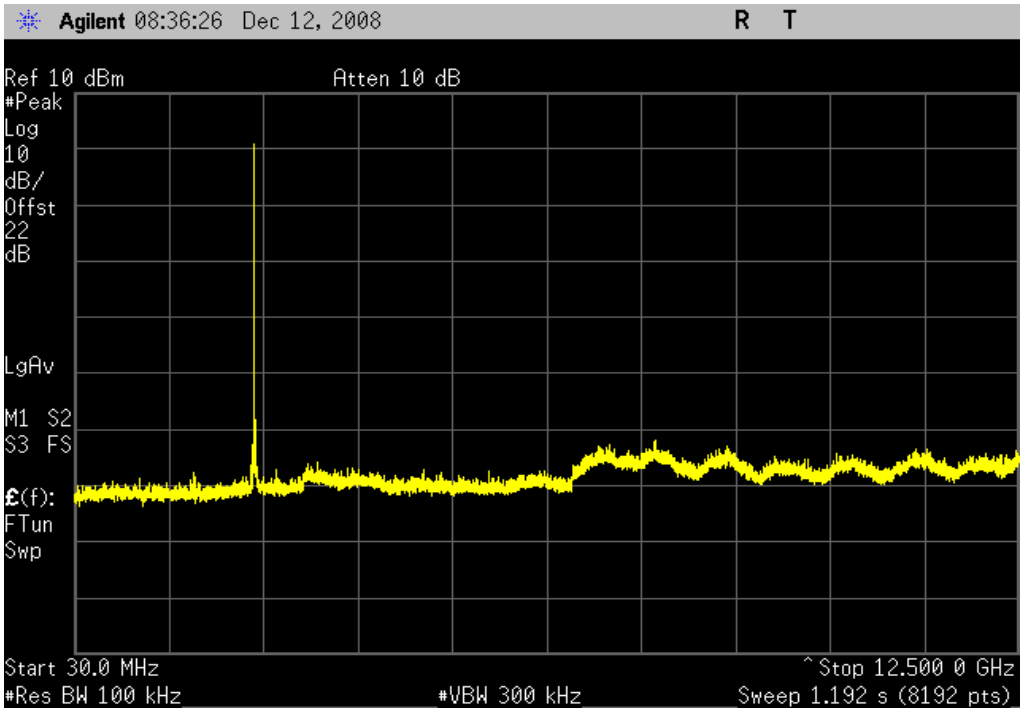
pi/4-DQPSK, 2DH5, High Channel, 30MHz - 12.5GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



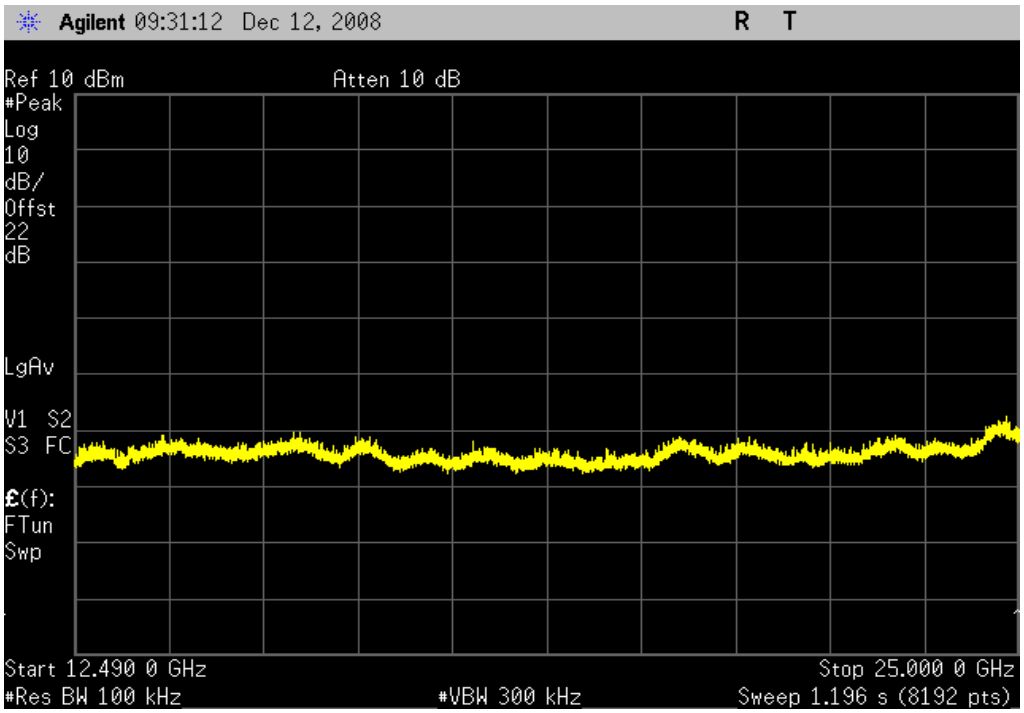
pi/4-DQPSK, 2DH5, High Channel, 12.4GHz-25GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



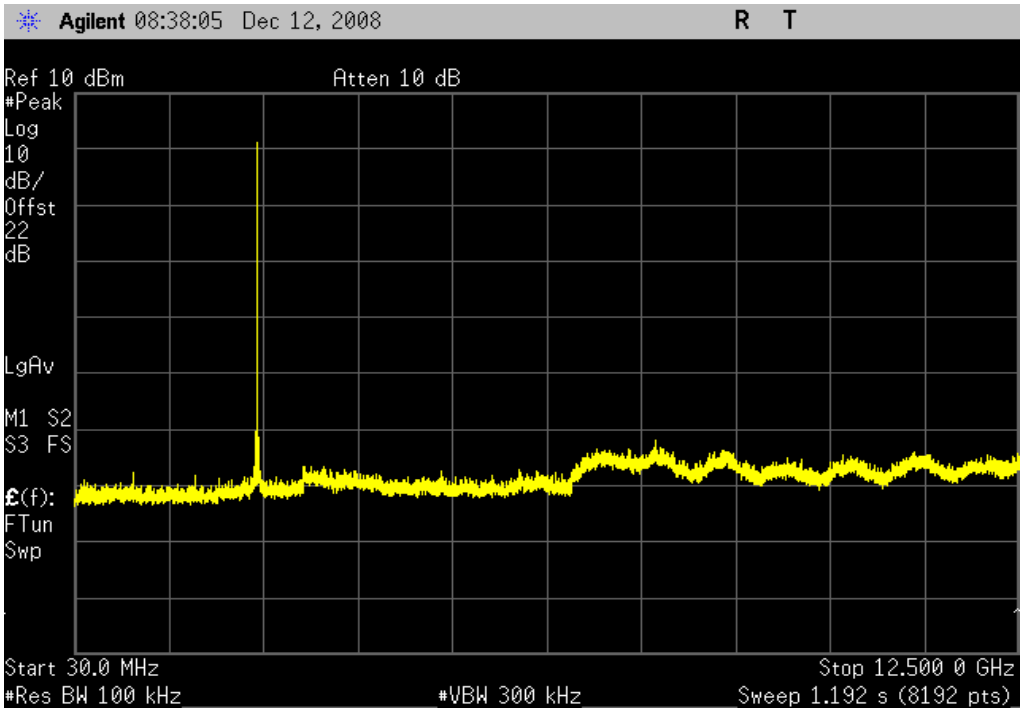
8DPSK, 3DH5, Low Channel, 30MHz - 12.5GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



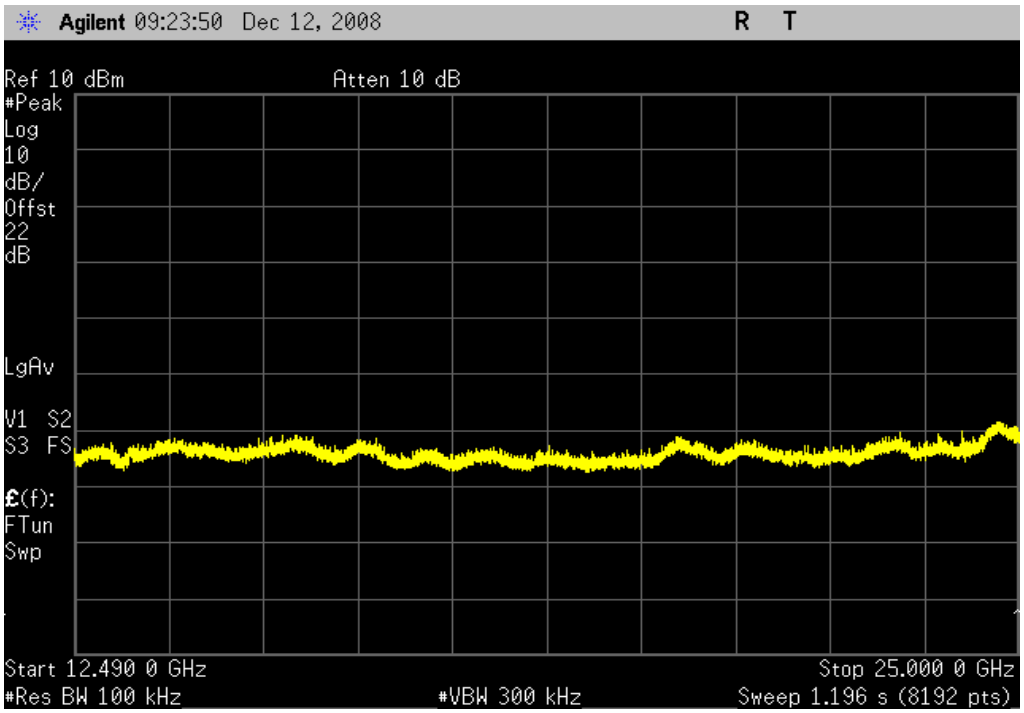
8DPSK, 3DH5, Low Channel, 12.4GHz-25GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



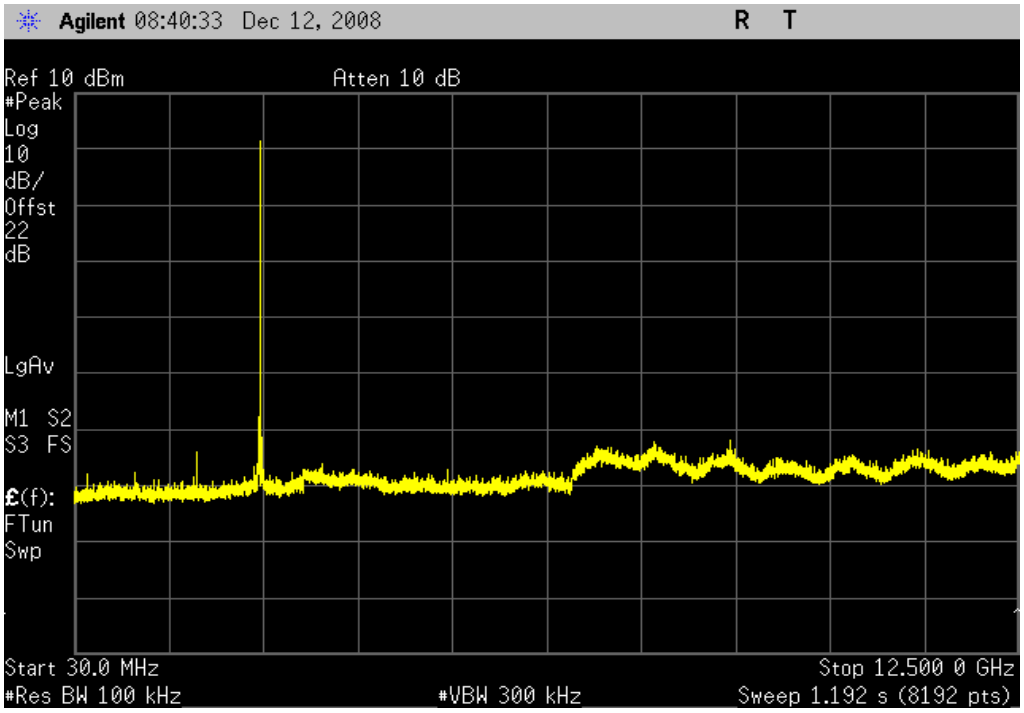
8DPSK, 3DH5, Mid Channel, 30MHz - 12.5GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



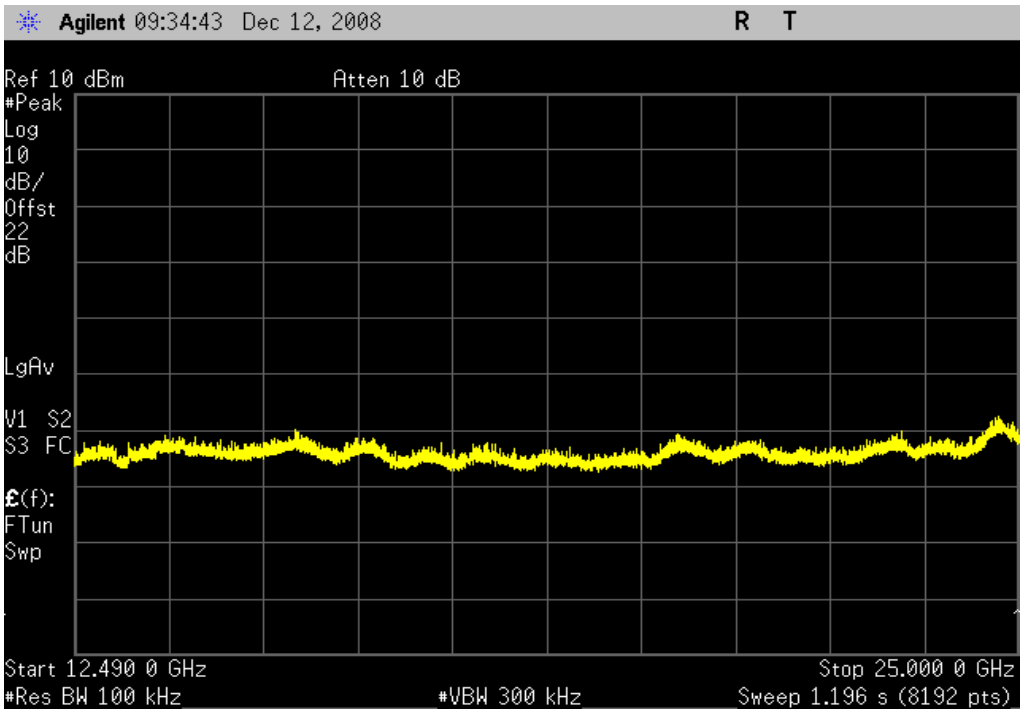
8DPSK, 3DH5, Mid Channel, 12.4GHz-25GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc

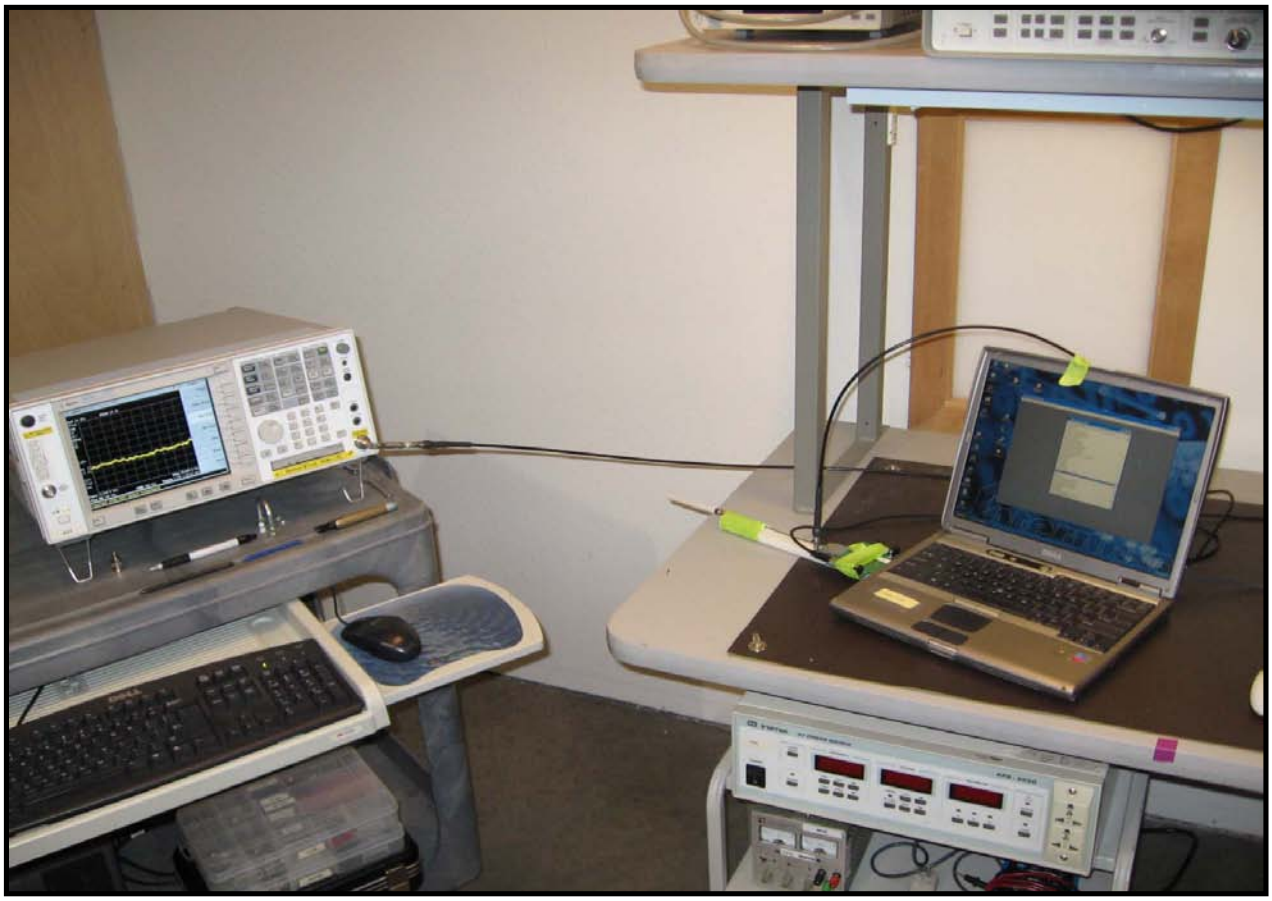


8DPSK, 3DH5, High Channel, 30MHz - 12.5GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc



8DPSK, 3DH5, High Channel, 12.4GHz-25GHz					
Result:	Pass	**Value:**	< -40 dBc	**Limit:**	≤ -20 dBc





POWER SPECTRAL DENSITY

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Agilent	E4407B	AAU	12/7/2007	13
Attenuator 20 dB, SMA M/F 26GHz	S.M. Electronics	SA26B-20	AUY	6/27/2008	13
Power Meter	Gigatronics	8651A	SPM	12/7/2007	13
Power Sensor	Gigatronics	80701A	SPL	12/7/2007	13
Signal Generator	Hewlett-Packard	8648D	TGC	12/7/2007	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The peak power spectral density measurements were measured with the EUT set to low, mid, and high transmit frequencies. The measurement was made using a direct connection between the RF output of the EUT and the spectrum analyzer. The EUT was transmitting at its maximum data rate for each modulation type available. Per the procedure outlined in FCC KDB 558074, March 23, 2005, the spectrum analyzer was used as follows:

> The emission peak(s) were located and zoom in on within the passband. The resolution bandwidth was set to 3 kHz, the video bandwidth was set to greater than or equal to the resolution bandwidth. The sweep speed was set equal to the span divided by 3 kHz (sweep = (SPAN/3 kHz)). For example, given a span of 1.5 MHz, the sweep should be 1.5 x 10^6 ÷ 3 x 10^3 = 500 seconds. External attenuation was used and added to the reading. The following FCC procedure was used for modifying the power spectral density measurements:

"If the spectrum line spacing cannot be resolved on the available spectrum analyzer, the noise density function on most modern conventional spectrum analyzers will directly measure the noise power density normalized to a 1 Hz noise power bandwidth. Add 35 dB for correction to 3 kHz."

NORTHWEST EMC

POWER SPECTRAL DENSITY

XMit 2007.06.13

EUT:	DDIB			Work Order:	INMC0500
Serial Number:	Proto 13			Date:	12/01/08
Customer:	Intermec Technologies Corporation			Temperature:	22°C
Attendees:	None			Humidity:	44%
Project:	None			Barometric Pres.:	30.03
Tested by:	Rod Peloquin	Power:	3.3Vdc via Host	Job Site:	EV06

TEST SPECIFICATIONS	Test Method
FCC 15.247 (DTS):2008	ANSI C63.4:2003 KDB No. 558074

COMMENTS

None

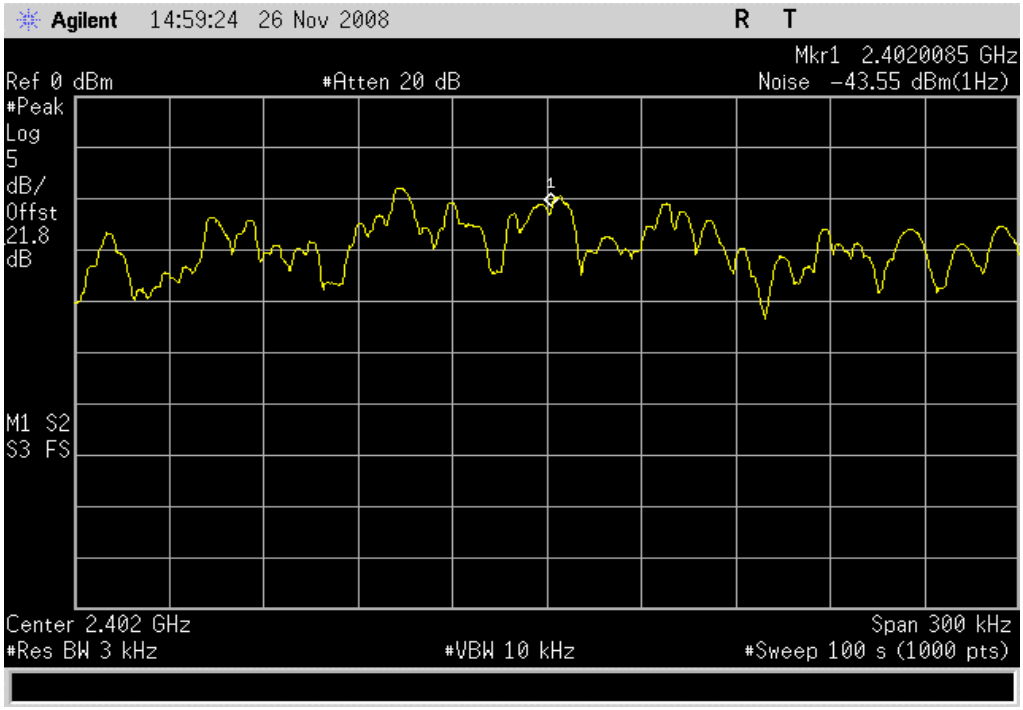
DEVIATIONS FROM TEST STANDARD

No Deviations.

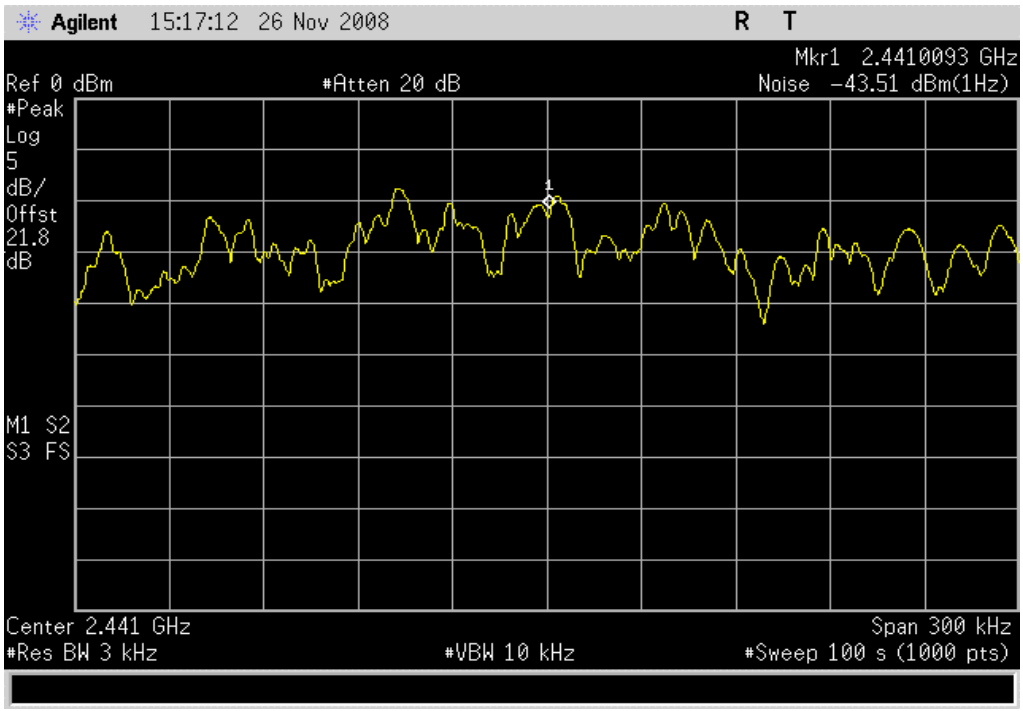
Configuration #	3	Signature

		Value	Limit	Results
DH5, GFSK				
	Low Channel	-8.8 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	Mid Channel	-8.7 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	High Channel	-8.6 dBm / 3 kHz	8 dBm / 3 kHz	Pass
2-DH5, Pi/4-DQPSK				
	Low Channel	-12.6 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	Mid Channel	-12.1 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	High Channel	-11.9 dBm / 3 kHz	8 dBm / 3 kHz	Pass
3-DH5, 8-DPSK				
	Low Channel	-12.9 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	Mid Channel	-12.7 dBm / 3 kHz	8 dBm / 3 kHz	Pass
	High Channel	-12.6 dBm / 3 kHz	8 dBm / 3 kHz	Pass

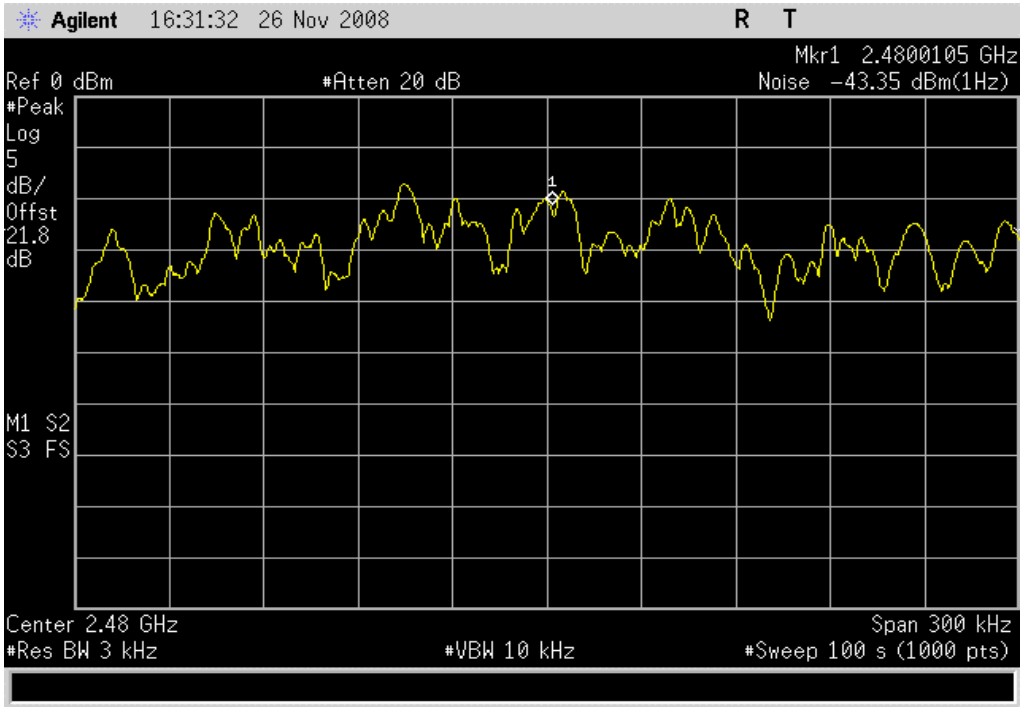
DH5, GFSK, Low Channel					
Result:	Pass	**Value:**	-8.8 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



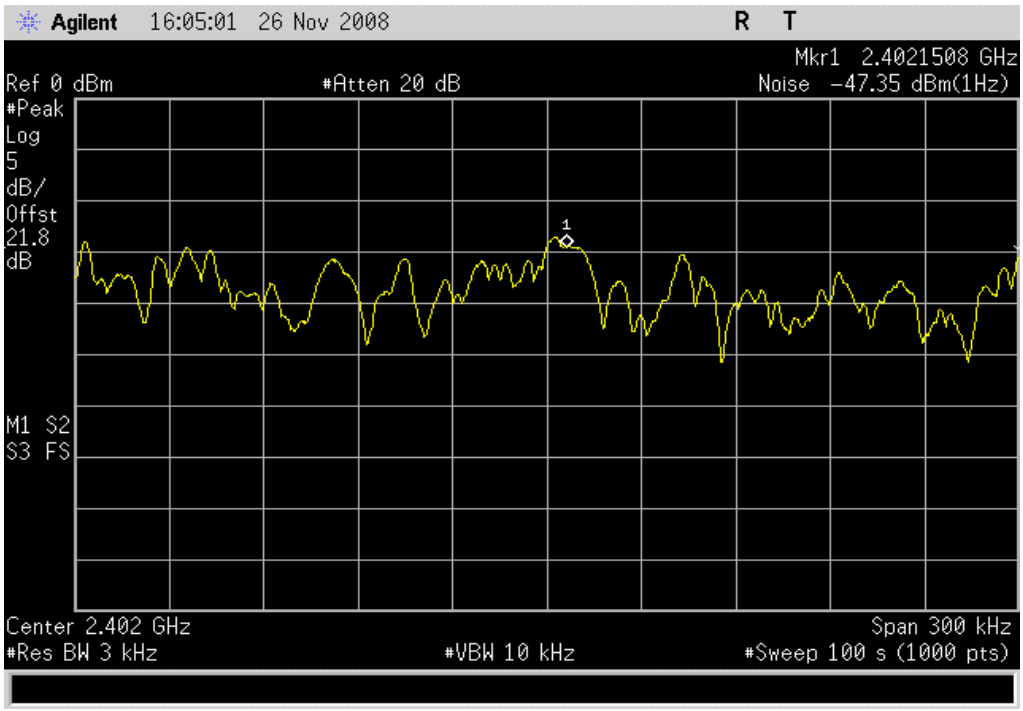
DH5, GFSK, Mid Channel					
Result:	Pass	**Value:**	-8.7 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



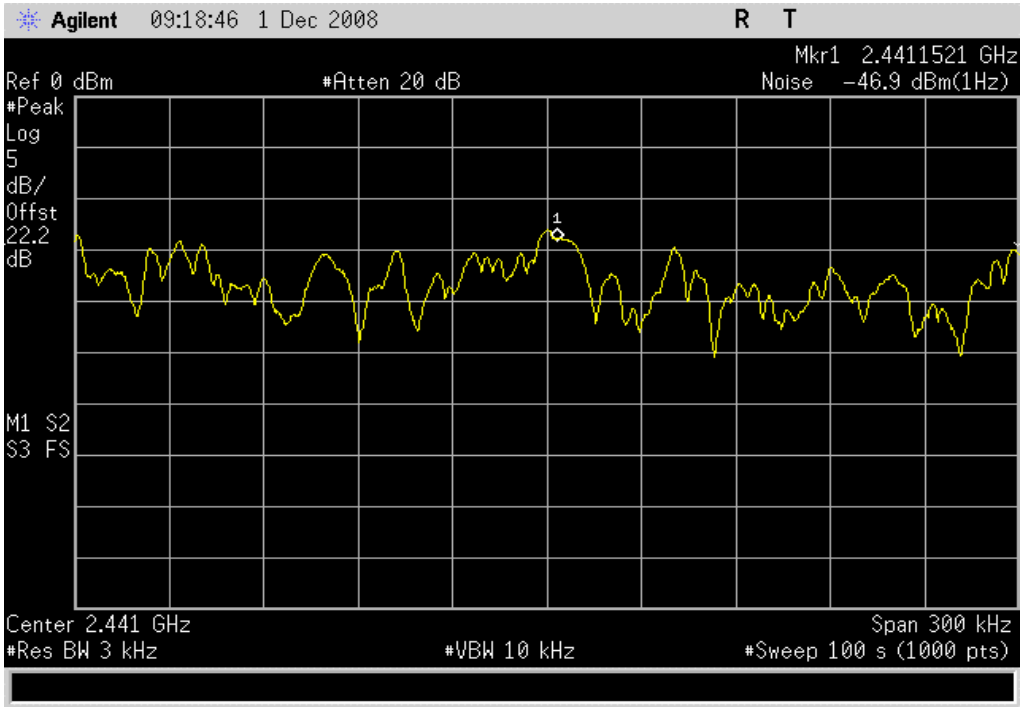
DH5, GFSK, High Channel					
Result:	Pass	**Value:**	-8.6 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



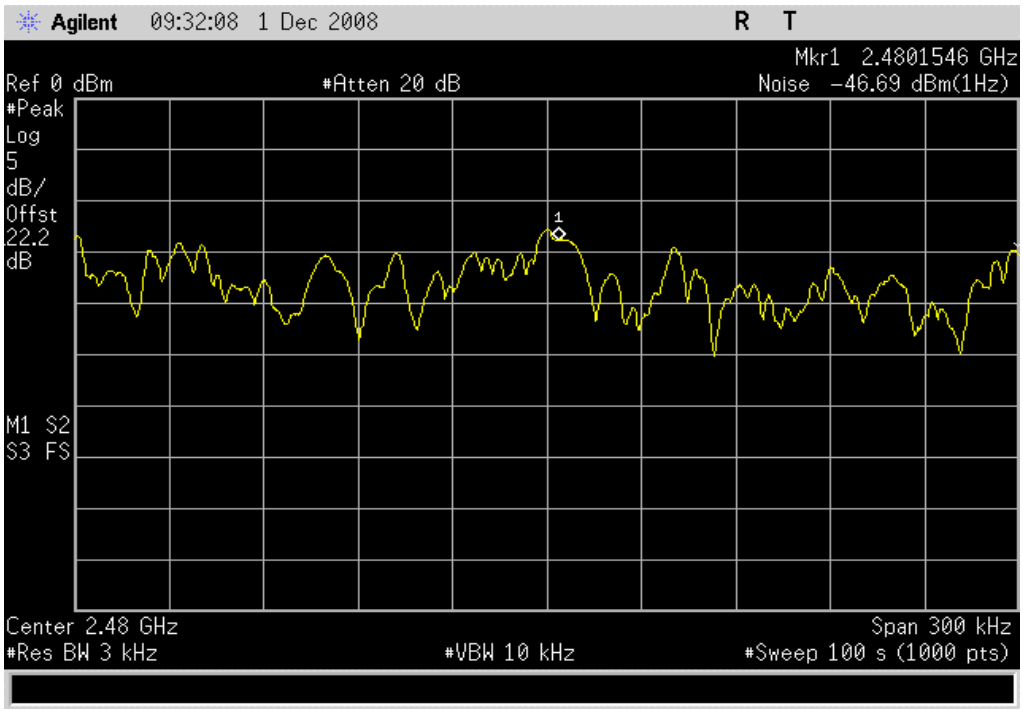
2-DH5, Pi/4-DQPSK, Low Channel					
Result:	Pass	**Value:**	-12.6 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



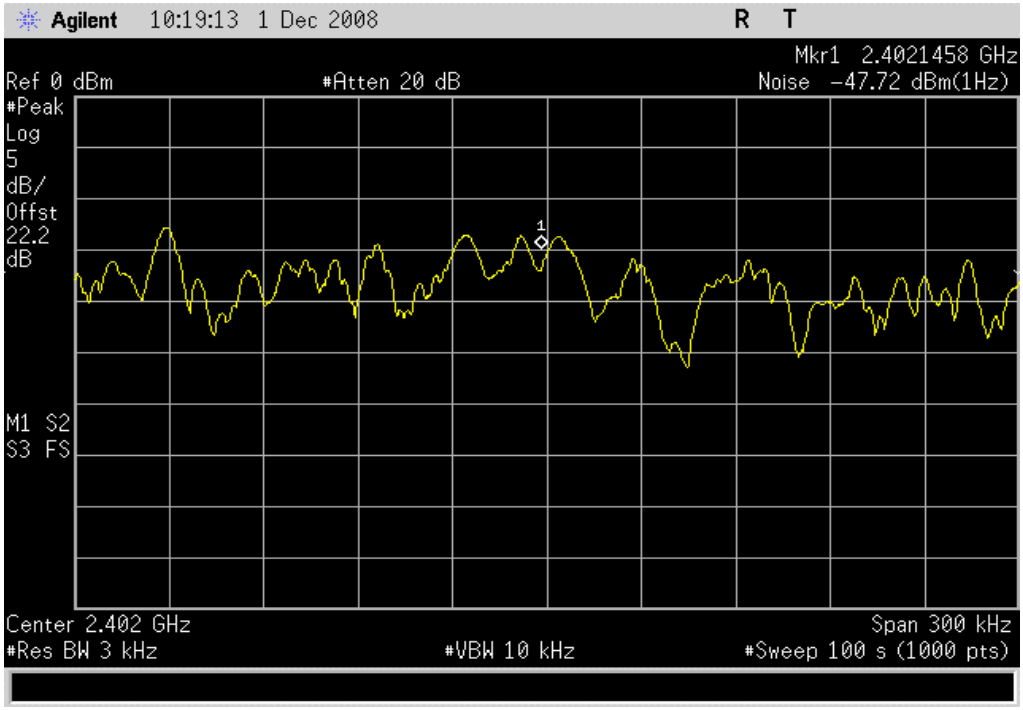
2-DH5, Pi/4-DQPSK, Mid Channel					
Result:	Pass	**Value:**	-12.1 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



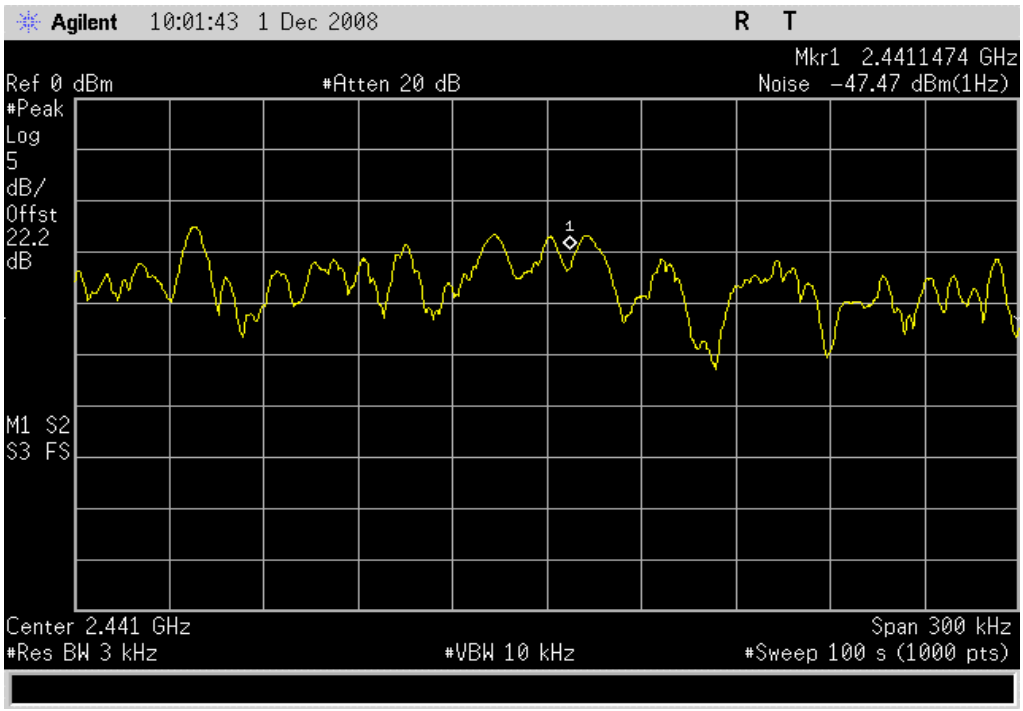
2-DH5, Pi/4-DQPSK, High Channel					
Result:	Pass	**Value:**	-11.9 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



3-DH5, 8-DPSK, Low Channel					
Result:	Pass	**Value:**	-12.9 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz

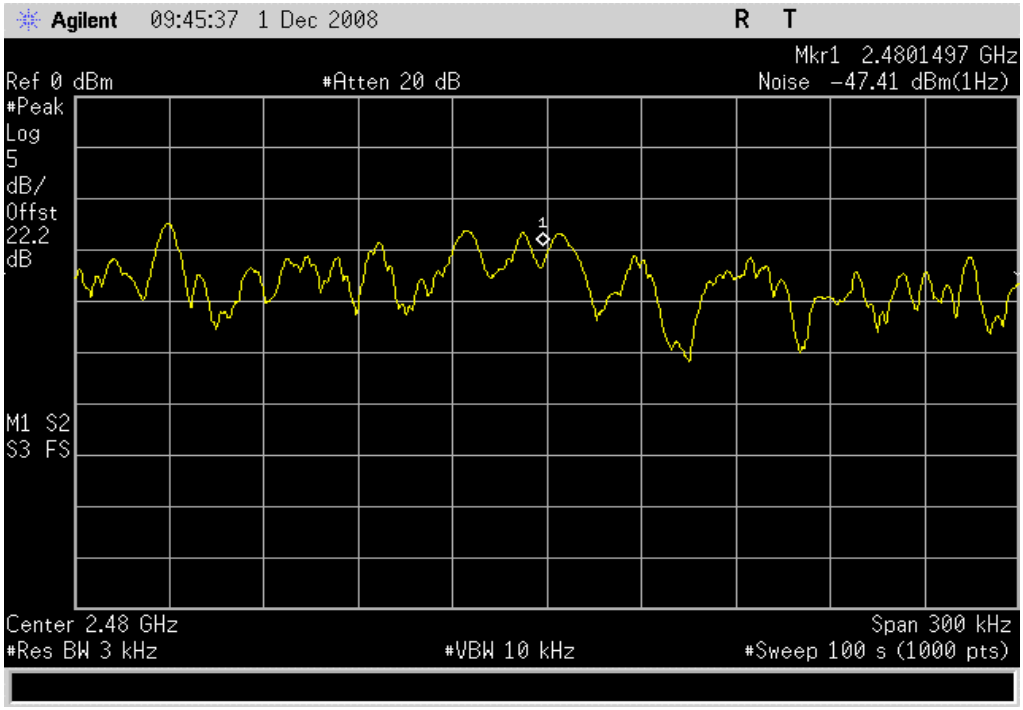


3-DH5, 8-DPSK, Mid Channel					
Result:	Pass	**Value:**	-12.7 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



POWER SPECTRAL DENSITY

3-DH5, 8-DPSK, High Channel					
Result:	Pass	**Value:**	-12.6 dBm / 3 kHz	**Limit:**	8 dBm / 3 kHz



POWER SPECTRAL DENSITY

AC POWERLINE CONDUCTED EMISSIONS

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

MODES OF OPERATION
Transmitting Bluetooth GFSK/ DH5, high channel
Transmitting Bluetooth GFSK/ DH5, mid channel
Transmitting Bluetooth GFSK/ DH5, low channel

POWER SETTINGS INVESTIGATED
3.7 VDC via 120V/60Hz

CONFIGURATIONS INVESTIGATED
7 - AC Powerline Conducted Emissions - Bluetooth

SAMPLE CALCULATIONS
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Receiver	Rohde & Schwarz	ESCI	ARH	8/28/2008	12 mo
Attenuator	Coaxicom	66702 2910-20	ATO	6/30/2008	13 mo
High Pass Filter	T.T.E.	7766	HFG	2/5/2008	13 mo
LISN	Solar	9252-50-R-24-BNC	LIR	1/4/2008	13 mo
EV07 Cables		Conducted Cables	EVG	5/2/2008	13 mo

MEASUREMENT BANDWIDTHS

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

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

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

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 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm.

NORTHWEST

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PSA-ESCI 2008.12.10
Version 2008.3.31

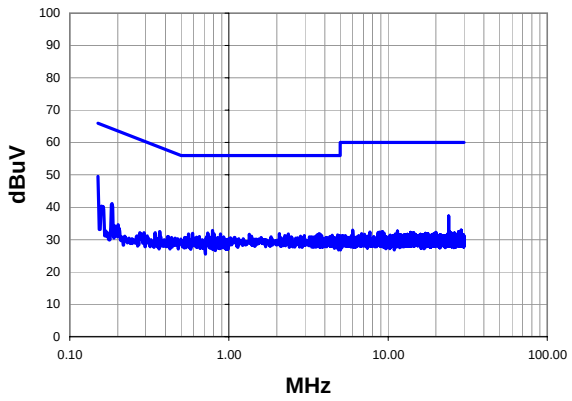
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	INMC0500	**Date:**	12/13/08		
Project:	None	**Temperature:**	20.3°C		
Job Site:	EV07	**Humidity:**	33.3		
Serial Number:	000B6B8D3470	**Barometric Pres.:**	1000.9mb	**Tested by:**	Rod Peloquin
EUT:	DDIB				
Configuration:	7 - AC Powerline Conducted Emissions - Bluetooth				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	3.7 VDC via 120V/60Hz				
Operating Mode:	Transmitting Bluetooth GFSK/ DH5, low channel				
Deviations:	No deviations.				
Comments:	Radio module in host hand held computer powered via linear power supply.				

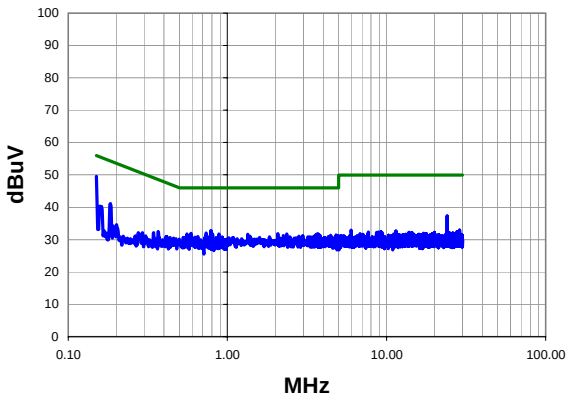
Test Specifications	**Test Method**
FCC 15.207:2008	ANSI C63.4:2003

Run #	35	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.150	27.5	22.1	49.6	66.0	-16.4
24.020	16.5	20.8	37.3	60.0	-22.7
0.184	19.8	21.4	41.2	64.3	-23.1
0.789	12.1	20.7	32.8	56.0	-23.2
0.736	11.3	20.7	32.0	56.0	-24.0
0.592	11.1	20.8	31.9	56.0	-24.1
2.072	11.3	20.6	31.9	56.0	-24.1
3.680	11.2	20.6	31.8	56.0	-24.2
0.808	11.1	20.7	31.8	56.0	-24.2
0.558	10.9	20.9	31.8	56.0	-24.2
0.884	11.1	20.7	31.8	56.0	-24.2
2.360	11.1	20.6	31.7	56.0	-24.3
1.344	11.1	20.6	31.7	56.0	-24.3
3.752	11.0	20.6	31.6	56.0	-24.4
4.824	10.8	20.6	31.4	56.0	-24.6
3.600	10.8	20.6	31.4	56.0	-24.6
4.464	10.7	20.6	31.3	56.0	-24.7
2.248	10.7	20.6	31.3	56.0	-24.7
4.984	10.6	20.7	31.3	56.0	-24.7
3.832	10.6	20.6	31.2	56.0	-24.8

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.150	27.5	22.1	49.6	56.0	-6.4
24.020	16.5	20.8	37.3	50.0	-12.7
0.184	19.8	21.4	41.2	54.3	-13.1
0.789	12.1	20.7	32.8	46.0	-13.2
0.736	11.3	20.7	32.0	46.0	-14.0
0.592	11.1	20.8	31.9	46.0	-14.1
2.072	11.3	20.6	31.9	46.0	-14.1
3.680	11.2	20.6	31.8	46.0	-14.2
0.808	11.1	20.7	31.8	46.0	-14.2
0.558	10.9	20.9	31.8	46.0	-14.2
0.884	11.1	20.7	31.8	46.0	-14.2
2.360	11.1	20.6	31.7	46.0	-14.3
1.344	11.1	20.6	31.7	46.0	-14.3
3.752	11.0	20.6	31.6	46.0	-14.4
4.824	10.8	20.6	31.4	46.0	-14.6
3.600	10.8	20.6	31.4	46.0	-14.6
4.464	10.7	20.6	31.3	46.0	-14.7
2.248	10.7	20.6	31.3	46.0	-14.7
4.984	10.6	20.7	31.3	46.0	-14.7
3.832	10.6	20.6	31.2	46.0	-14.8

NORTHWEST

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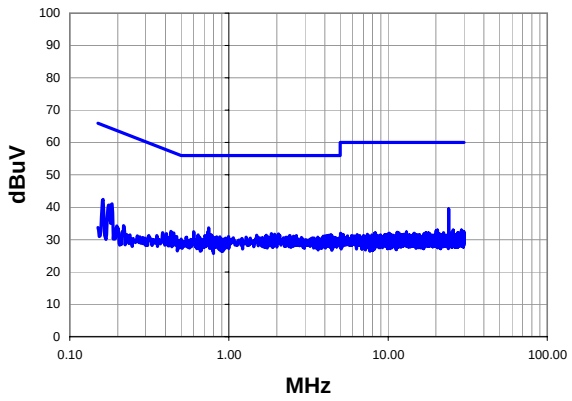
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	INMC0500	**Date:**	12/13/08		
Project:	None	**Temperature:**	20.3°C		
Job Site:	EV07	**Humidity:**	33.3		
Serial Number:	000B6B8D3470	**Barometric Pres.:**	1000.9mb	**Tested by:**	Rod Peloquin
EUT:	DDIB				
Configuration:	7 - AC Powerline Conducted Emissions - Bluetooth				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	3.7 VDC via 120V/60Hz				
Operating Mode:	Transmitting Bluetooth GFSK/ DH5, low channel				
Deviations:	No deviations.				
Comments:	Radio module in host hand held computer powered via linear power supply.				

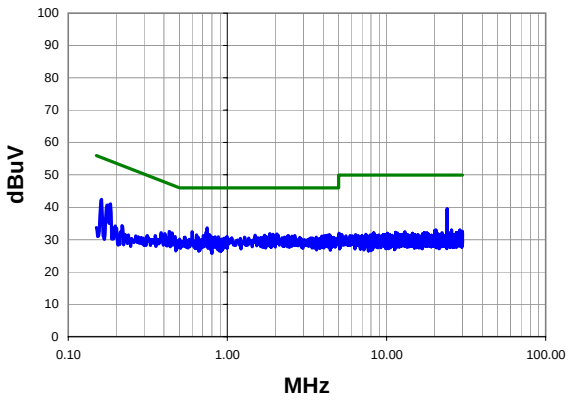
Test Specifications	**Test Method**
FCC 15.207:2008	ANSI C63.4:2003

Run #	36	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
24.020	18.6	20.8	39.4	60.0	-20.6
0.745	12.9	20.7	33.6	56.0	-22.4
0.162	20.6	21.8	42.4	65.4	-22.9
0.184	19.7	21.4	41.1	64.3	-23.2
0.601	11.6	20.8	32.4	56.0	-23.6
0.176	19.1	21.6	40.7	64.7	-24.0
1.848	11.3	20.6	31.9	56.0	-24.1
2.048	11.2	20.6	31.8	56.0	-24.2
1.936	11.1	20.6	31.7	56.0	-24.3
4.376	10.9	20.6	31.5	56.0	-24.5
0.772	10.8	20.7	31.5	56.0	-24.5
0.640	10.6	20.8	31.4	56.0	-24.6
1.720	10.8	20.6	31.4	56.0	-24.6
1.496	10.8	20.6	31.4	56.0	-24.6
4.256	10.7	20.6	31.3	56.0	-24.7
0.432	11.6	20.9	32.5	57.2	-24.7
4.128	10.6	20.6	31.2	56.0	-24.8
2.408	10.6	20.6	31.2	56.0	-24.8
2.648	10.6	20.6	31.2	56.0	-24.8
0.706	10.4	20.8	31.2	56.0	-24.8

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
24.020	18.6	20.8	39.4	50.0	-10.6
0.745	12.9	20.7	33.6	46.0	-12.4
0.162	20.6	21.8	42.4	55.4	-12.9
0.184	19.7	21.4	41.1	54.3	-13.2
0.601	11.6	20.8	32.4	46.0	-13.6
0.176	19.1	21.6	40.7	54.7	-14.0
1.848	11.3	20.6	31.9	46.0	-14.1
2.048	11.2	20.6	31.8	46.0	-14.2
1.936	11.1	20.6	31.7	46.0	-14.3
4.376	10.9	20.6	31.5	46.0	-14.5
0.772	10.8	20.7	31.5	46.0	-14.5
0.640	10.6	20.8	31.4	46.0	-14.6
1.720	10.8	20.6	31.4	46.0	-14.6
1.496	10.8	20.6	31.4	46.0	-14.6
4.256	10.7	20.6	31.3	46.0	-14.7
0.432	11.6	20.9	32.5	47.2	-14.7
4.128	10.6	20.6	31.2	46.0	-14.8
2.408	10.6	20.6	31.2	46.0	-14.8
2.648	10.6	20.6	31.2	46.0	-14.8
0.706	10.4	20.8	31.2	46.0	-14.8

NORTHWEST

EMC

AC POWERLINE CONDUCTED EMISSIONS

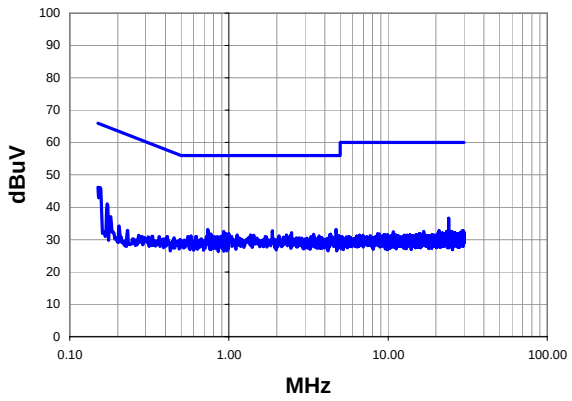
PSA-ESCI 2008.12.10
Version 2008.3.31

Work Order:	INMC0500	**Date:**	12/13/08		
Project:	None	**Temperature:**	20.3°C		
Job Site:	EV07	**Humidity:**	33.3		
Serial Number:	000B6B8D3470	**Barometric Pres.:**	1000.9mb	**Tested by:**	Rod Peloquin
EUT:	DDIB				
Configuration:	7 - AC Powerline Conducted Emissions - Bluetooth				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	3.7 VDC via 120V/60Hz				
Operating Mode:	Transmitting Bluetooth GFSK/ DH5, mid channel				
Deviations:	No deviations.				
Comments:	Radio module in host hand held computer powered via linear power supply.				

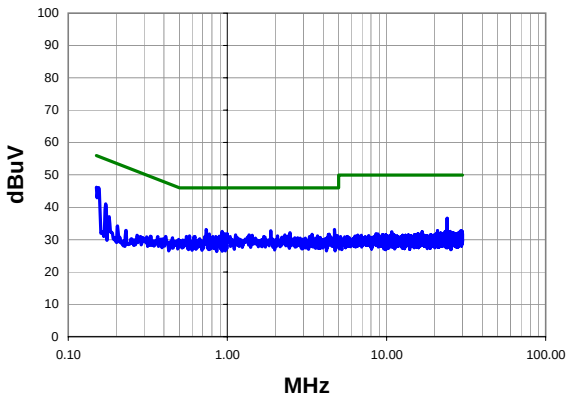
Test Specifications	**Test Method**
FCC 15.207:2008	ANSI C63.4:2003

Run #	37	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.155	24.1	22.0	46.1	65.7	-19.7
0.150	24.1	22.1	46.2	66.0	-19.8
0.736	12.4	20.7	33.1	56.0	-22.9
4.712	12.5	20.6	33.1	56.0	-22.9
1.872	12.1	20.6	32.7	56.0	-23.3
24.020	15.8	20.8	36.6	60.0	-23.4
0.925	11.9	20.6	32.5	56.0	-23.5
0.172	19.4	21.6	41.0	64.9	-23.8
2.472	11.5	20.6	32.1	56.0	-23.9
0.964	11.2	20.6	31.8	56.0	-24.2
0.998	11.2	20.6	31.8	56.0	-24.2
0.769	11.0	20.7	31.7	56.0	-24.3
4.352	11.0	20.6	31.6	56.0	-24.4
3.408	11.0	20.6	31.6	56.0	-24.4
2.296	10.9	20.6	31.5	56.0	-24.5
1.128	10.9	20.6	31.5	56.0	-24.5
1.368	10.9	20.6	31.5	56.0	-24.5
1.432	10.8	20.6	31.4	56.0	-24.6
4.920	10.6	20.6	31.2	56.0	-24.8
2.424	10.6	20.6	31.2	56.0	-24.8

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.155	24.1	22.0	46.1	55.7	-9.7
0.150	24.1	22.1	46.2	56.0	-9.8
0.736	12.4	20.7	33.1	46.0	-12.9
4.712	12.5	20.6	33.1	46.0	-12.9
1.872	12.1	20.6	32.7	46.0	-13.3
24.020	15.8	20.8	36.6	50.0	-13.4
0.925	11.9	20.6	32.5	46.0	-13.5
0.172	19.4	21.6	41.0	54.9	-13.8
2.472	11.5	20.6	32.1	46.0	-13.9
0.964	11.2	20.6	31.8	46.0	-14.2
0.998	11.2	20.6	31.8	46.0	-14.2
0.769	11.0	20.7	31.7	46.0	-14.3
4.352	11.0	20.6	31.6	46.0	-14.4
3.408	11.0	20.6	31.6	46.0	-14.4
2.296	10.9	20.6	31.5	46.0	-14.5
1.128	10.9	20.6	31.5	46.0	-14.5
1.368	10.9	20.6	31.5	46.0	-14.5
1.432	10.8	20.6	31.4	46.0	-14.6
4.920	10.6	20.6	31.2	46.0	-14.8
2.424	10.6	20.6	31.2	46.0	-14.8

NORTHWEST

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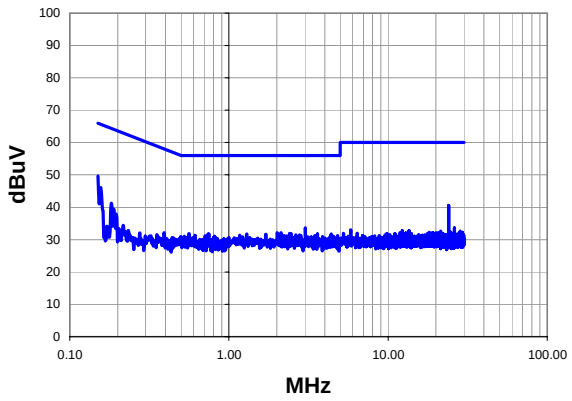
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	INMC0500	**Date:**	12/13/08		
Project:	None	**Temperature:**	20.3°C		
Job Site:	EV07	**Humidity:**	33.3		
Serial Number:	000B6B8D3470	**Barometric Pres.:**	1000.9mb	**Tested by:**	Rod Peloquin
EUT:	DDIB				
Configuration:	7 - AC Powerline Conducted Emissions - Bluetooth				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	3.7 VDC via 120V/60Hz				
Operating Mode:	Transmitting Bluetooth GFSK/ DH5, mid channel				
Deviations:	No deviations.				
Comments:	Radio module in host hand held computer powered via linear power supply.				

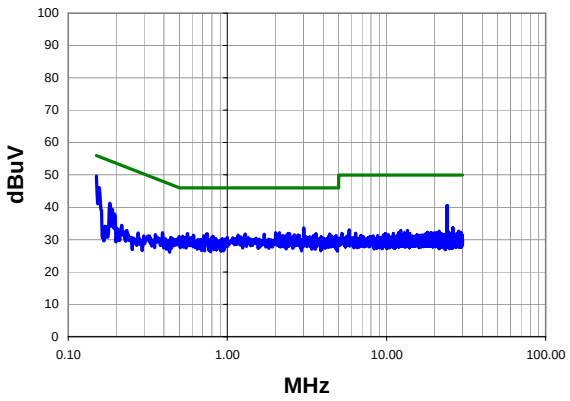
Test Specifications	**Test Method**
FCC 15.207:2008	ANSI C63.4:2003

Run #	38	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.150	27.6	22.1	49.7	66.0	-16.3
24.020	19.7	20.8	40.5	60.0	-19.5
0.157	24.2	21.9	46.1	65.6	-19.5
3.024	13.0	20.6	33.6	56.0	-22.4
0.182	19.8	21.4	41.2	64.4	-23.2
2.008	11.5	20.6	32.1	56.0	-23.9
2.120	11.5	20.6	32.1	56.0	-23.9
2.408	11.3	20.6	31.9	56.0	-24.1
0.560	11.0	20.9	31.9	56.0	-24.1
2.464	11.2	20.6	31.8	56.0	-24.2
1.296	11.2	20.6	31.8	56.0	-24.2
0.738	11.0	20.7	31.7	56.0	-24.3
4.384	11.1	20.6	31.7	56.0	-24.3
3.600	11.1	20.6	31.7	56.0	-24.3
1.712	11.1	20.6	31.7	56.0	-24.3
2.632	10.8	20.6	31.4	56.0	-24.6
2.776	10.8	20.6	31.4	56.0	-24.6
1.168	10.8	20.6	31.4	56.0	-24.6
0.612	10.5	20.8	31.3	56.0	-24.7
0.189	18.1	21.3	39.4	64.1	-24.7

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.150	27.6	22.1	49.7	56.0	-6.3
24.020	19.7	20.8	40.5	50.0	-9.5
0.157	24.2	21.9	46.1	55.6	-9.5
3.024	13.0	20.6	33.6	46.0	-12.4
0.182	19.8	21.4	41.2	54.4	-13.2
2.008	11.5	20.6	32.1	46.0	-13.9
2.120	11.5	20.6	32.1	46.0	-13.9
2.408	11.3	20.6	31.9	46.0	-14.1
0.560	11.0	20.9	31.9	46.0	-14.1
2.464	11.2	20.6	31.8	46.0	-14.2
1.296	11.2	20.6	31.8	46.0	-14.2
0.738	11.0	20.7	31.7	46.0	-14.3
4.384	11.1	20.6	31.7	46.0	-14.3
3.600	11.1	20.6	31.7	46.0	-14.3
1.712	11.1	20.6	31.7	46.0	-14.3
2.632	10.8	20.6	31.4	46.0	-14.6
2.776	10.8	20.6	31.4	46.0	-14.6
1.168	10.8	20.6	31.4	46.0	-14.6
0.612	10.5	20.8	31.3	46.0	-14.7
0.189	18.1	21.3	39.4	54.1	-14.7

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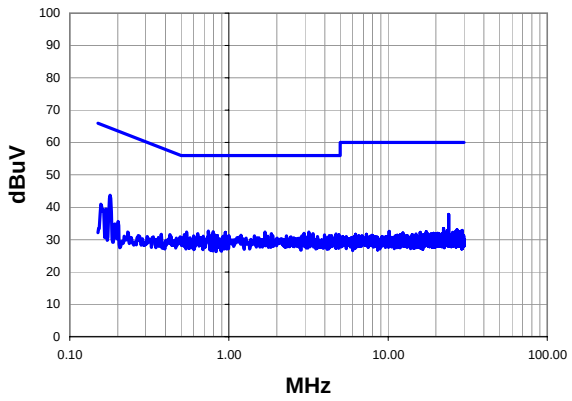
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	INMC0500	**Date:**	12/13/08		
Project:	None	**Temperature:**	20.3°C		
Job Site:	EV07	**Humidity:**	33.3		
Serial Number:	000B6B8D3470	**Barometric Pres.:**	1000.9mb	**Tested by:**	Rod Peloquin
EUT:	DDIB				
Configuration:	7 - AC Powerline Conducted Emissions - Bluetooth				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	3.7 VDC via 120V/60Hz				
Operating Mode:	Transmitting Bluetooth GFSK/ DH5, high channel				
Deviations:	No deviations.				
Comments:	Radio module in host hand held computer powered via linear power supply.				

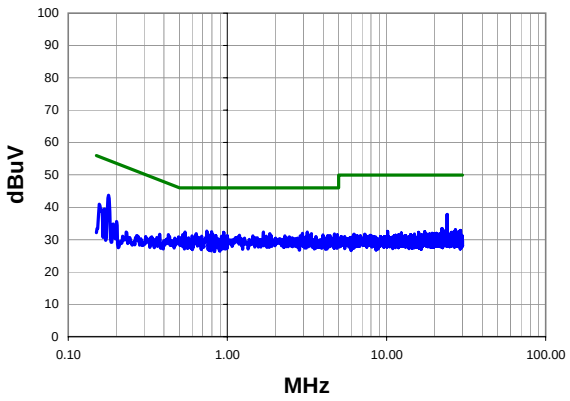
Test Specifications	**Test Method**
FCC 15.207:2008	ANSI C63.4:2003

Run #	39	**Line:**	High Line	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.179	22.2	21.5	43.7	64.5	-20.9
24.020	16.9	20.8	37.7	60.0	-22.3
0.742	11.9	20.7	32.6	56.0	-23.4
0.796	11.7	20.7	32.4	56.0	-23.6
0.541	11.5	20.9	32.4	56.0	-23.6
3.176	11.7	20.6	32.3	56.0	-23.7
1.688	11.7	20.6	32.3	56.0	-23.7
0.949	11.6	20.6	32.2	56.0	-23.8
2.960	11.3	20.6	31.9	56.0	-24.1
1.848	11.3	20.6	31.9	56.0	-24.1
3.368	11.2	20.6	31.8	56.0	-24.2
0.636	11.0	20.8	31.8	56.0	-24.2
4.704	11.1	20.6	31.7	56.0	-24.3
0.810	10.9	20.7	31.6	56.0	-24.4
0.526	10.7	20.9	31.6	56.0	-24.4
3.224	10.9	20.6	31.5	56.0	-24.5
0.786	10.8	20.7	31.5	56.0	-24.5
4.912	10.8	20.6	31.4	56.0	-24.6
3.992	10.8	20.6	31.4	56.0	-24.6
1.192	10.8	20.6	31.4	56.0	-24.6

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.179	22.2	21.5	43.7	54.5	-10.9
24.020	16.9	20.8	37.7	50.0	-12.3
0.742	11.9	20.7	32.6	46.0	-13.4
0.796	11.7	20.7	32.4	46.0	-13.6
0.541	11.5	20.9	32.4	46.0	-13.6
3.176	11.7	20.6	32.3	46.0	-13.7
1.688	11.7	20.6	32.3	46.0	-13.7
0.949	11.6	20.6	32.2	46.0	-13.8
2.960	11.3	20.6	31.9	46.0	-14.1
1.848	11.3	20.6	31.9	46.0	-14.1
3.368	11.2	20.6	31.8	46.0	-14.2
0.636	11.0	20.8	31.8	46.0	-14.2
4.704	11.1	20.6	31.7	46.0	-14.3
0.810	10.9	20.7	31.6	46.0	-14.4
0.526	10.7	20.9	31.6	46.0	-14.4
3.224	10.9	20.6	31.5	46.0	-14.5
0.786	10.8	20.7	31.5	46.0	-14.5
4.912	10.8	20.6	31.4	46.0	-14.6
3.992	10.8	20.6	31.4	46.0	-14.6
1.192	10.8	20.6	31.4	46.0	-14.6

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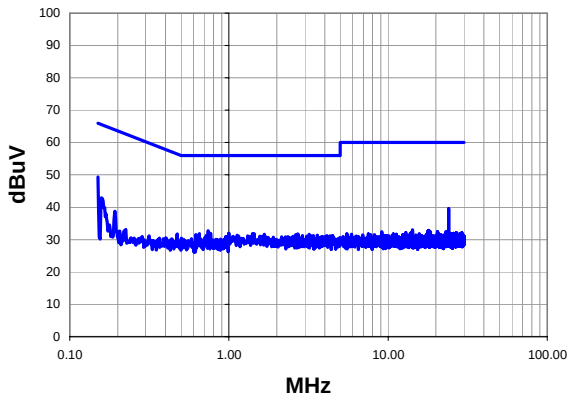
AC POWERLINE CONDUCTED EMISSIONS

Work Order:	INMC0500	**Date:**	12/13/08		
Project:	None	**Temperature:**	20.3°C		
Job Site:	EV07	**Humidity:**	33.3		
Serial Number:	000B6B8D3470	**Barometric Pres.:**	1000.9mb	**Tested by:**	Rod Peloquin
EUT:	DDIB				
Configuration:	7 - AC Powerline Conducted Emissions - Bluetooth				
Customer:	Intermec Technologies Corporation				
Attendees:	None				
EUT Power:	3.7 VDC via 120V/60Hz				
Operating Mode:	Transmitting Bluetooth GFSK/ DH5, high channel				
Deviations:	No deviations.				
Comments:	Radio module in host hand held computer powered via linear power supply.				

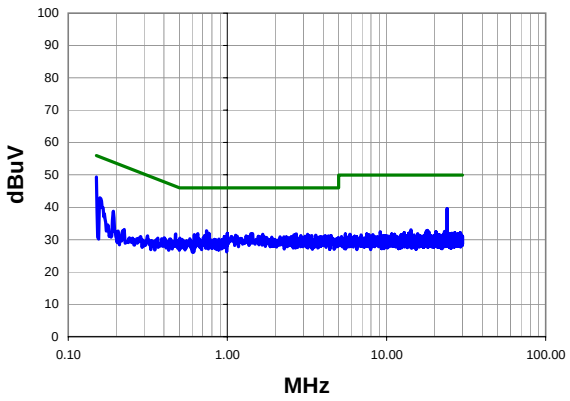
Test Specifications	**Test Method**
FCC 15.207:2008	ANSI C63.4:2003

Run #	40	**Line:**	Neutral	**Ext. Attenuation:**	20	**Results**	Pass

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.150	27.3	22.1	49.4	66.0	-16.6
24.020	18.7	20.8	39.5	60.0	-20.5
0.159	21.0	21.9	42.9	65.5	-22.7
0.740	12.0	20.7	32.7	56.0	-23.3
1.000	11.4	20.6	32.0	56.0	-24.0
0.767	11.2	20.7	31.9	56.0	-24.1
0.652	11.1	20.8	31.9	56.0	-24.1
1.408	11.3	20.6	31.9	56.0	-24.1
2.712	11.1	20.6	31.7	56.0	-24.3
1.672	11.1	20.6	31.7	56.0	-24.3
3.192	11.0	20.6	31.6	56.0	-24.4
2.672	11.0	20.6	31.6	56.0	-24.4
0.619	10.7	20.8	31.5	56.0	-24.5
2.616	10.8	20.6	31.4	56.0	-24.6
1.128	10.8	20.6	31.4	56.0	-24.6
0.473	10.9	20.9	31.8	56.5	-24.7
3.592	10.7	20.6	31.3	56.0	-24.7
0.719	10.5	20.8	31.3	56.0	-24.7
4.480	10.6	20.6	31.2	56.0	-24.8
4.112	10.6	20.6	31.2	56.0	-24.8

Peak Data - vs - Average Limit

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Compared to Spec. (dB)
0.150	27.3	22.1	49.4	56.0	-6.6
24.020	18.7	20.8	39.5	50.0	-10.5
0.159	21.0	21.9	42.9	55.5	-12.7
0.740	12.0	20.7	32.7	46.0	-13.3
1.000	11.4	20.6	32.0	46.0	-14.0
0.767	11.2	20.7	31.9	46.0	-14.1
0.652	11.1	20.8	31.9	46.0	-14.1
1.408	11.3	20.6	31.9	46.0	-14.1
2.712	11.1	20.6	31.7	46.0	-14.3
1.672	11.1	20.6	31.7	46.0	-14.3
3.192	11.0	20.6	31.6	46.0	-14.4
2.672	11.0	20.6	31.6	46.0	-14.4
0.619	10.7	20.8	31.5	46.0	-14.5
2.616	10.8	20.6	31.4	46.0	-14.6
1.128	10.8	20.6	31.4	46.0	-14.6
0.473	10.9	20.9	31.8	46.5	-14.7
3.592	10.7	20.6	31.3	46.0	-14.7
0.719	10.5	20.8	31.3	46.0	-14.7
4.480	10.6	20.6	31.2	46.0	-14.8
4.112	10.6	20.6	31.2	46.0	-14.8