

Exhibit J: Technical Report - Part 1 of 4

FCC ID: HN22011B-2

Spurious Radiated Emissions Test Report from NWEMC

FCC ID: HN22011B-2

Measurement/Technical Report


General Information

Applicant:	Intermec Corporation
Address:	6001 36 th Avenue West
City, State, Zip	Everett, WA 98203-9280
Test Requested By:	Carl Turk
Model:	700C
FCC ID:	HN22011B-2
First Date of Test:	June 10, 2002
Last Date of Test:	September 22, 2002
Receipt Date of Samples:	June 10, 2002
Job Number	INMC0019

Scope

Regulatory Authority	Federal Communications Commission
Approval Type	Certification
Equipment Type	Unlicensed, Low Power Spread Spectrum Transmitter
Rule Part	47 CFR 15.247(c)
Rule Exemptions	None
Related Submittals or Grants	None

Report Information

Prepared By	Vicki Albertson, Technical Report and Documentation Manager Northwest EMC, Inc.
Signature	
Issued By	Northwest EMC, Inc. 22975 NW Evergreen Parkway, Suite 400 Hillsboro, Oregon 97124 Ph. (503) 844-4066 Fax (503) 844-3826
Report Number	INMC0019
Date Issued	September 26, 2002

Test Facility

The measurement facility used to collect the radiated and conducted data is located at

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400
Hillsboro, OR 97124
(503) 844-4066
Fax: 844-3826

This site has been fully described in a report filed with the FCC (Federal Communications Commission), and accepted by the FCC in a letter maintained in our files.

Laboratory Accreditation

A2LA has granted accreditation to Northwest EMC, Inc. to perform the Electromagnetic Compatibility (EMC) tests described in the Scope of Accreditation. Assessment performed to ISO/IEC 17025.
Certificate Number: 1936-01, Certificate Number: 1936-02, Certificate Number 1936-03

Spurious Radiated Emissions

FCC ID: HN22011B-2

Transmitting in Stand-Alone Configuration

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:

Low
Mid
High

Operating Modes Investigated:

Typical

Antennas Investigated:

Internal (Folded Monopole)
External (Tuned Dipole)

Data Rates Investigated:

Maximum

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

Battery
120V, 60 Hz

Frequency Range Investigated

Start Frequency	30 MHz	Stop Frequency	25GHz
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Software\Firmware Applied During Test

Exercise software	80211test	Version	Unknown
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Description
The system was tested using special software. The 802.11(b) test software configured the radio to transmit at low, mid, or high channels.

Equipment Modifications

No EMI suppression devices were added or modified. The EUT was tested as delivered.

EUT and Peripherals

Description	Manufacturer	Model/Part Number	Serial Number
EUT	INTERMEC	700C	EV0013
Power Supply	ELPAC	FW1812	004678
External Antenna (Tuned Dipole)	Mobilemark	805-606	None
Internal Antenna (Folded Monopole)	SeaRay	805-608	None

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC	PA	1.85	PA	Power Supply	EUT
AC	No	2.0	No	Power Supply	AC Mains

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

Measurement Equipment

Description	Manufacturer	Model	Identifier	Last Cal	Interval
Spectrum Analyzer	Hewlett-Packard	8566B	AAL	03/19/2002	12 mo
Pre-Amplifier	Amplifier Research	LN1000A	APS	12/03/2001	12 mo
Antenna, Biconilog	EMCO	3141	AXE	12/31/2001	12 mo
Pre-Amplifier	Miteq	AMF-4D-010120-30-10P	AOP	07/09/2002	12 mo
Antenna, Horn	EMCO	3115	AHC	08/12/2002	12 mo
Spectrum Analyzer	Tektronix	2784	AAO	03/08/2001	24 mo
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APC	07/09/2002	12 mo
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	01/17/2000	36 mo
Antenna, Horn	EMCO	3160-09	AHG	01/15/2000	36 mo
DC Power Supply	Topward	TPS-2000	TPD	NCR	0 mo
High Pass Filter	RLC Electronics	F-100-4000-5-R (HPF>	HFF	02/04/2002	12 mo

Test Description

Requirement: Per 15.247(c), the field strength of any spurious emissions or modulation products that fall in a restricted band, as defined in 47 CFR 15.205, is measured. The peak level must comply with the limits specified in 47 CFR 15.35(b). The average level (taken with a 10Hz VBW) must comply with the limits specified in 15.209.

Configuration: The highest gain of each type of antenna to be used with the EUT was tested. In addition, the lowest gain of all the antennas to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.4:1992). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

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 **OATS DATA SHEET** REV d2.02 05/20/2002

EUT: 700C	Work Order: INMC0019
Serial Number: EV0013	Date: 6/10/02 - 9/22/02
Customer: INTERMEC Corporation	Temperature: 73
Attendees: None	Humidity: 35%
Cust. Ref. No.:	Barometric Pressure: 30.26
Tested by: Greg Kiemel	Power: 120V, 60 Hz
	Job Site: EV01

TEST SPECIFICATIONS	
Specification: FCC Part 15.247(c)	Year: 2002
Method: ANSI C63.4	Year: 1992

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
 See notes below

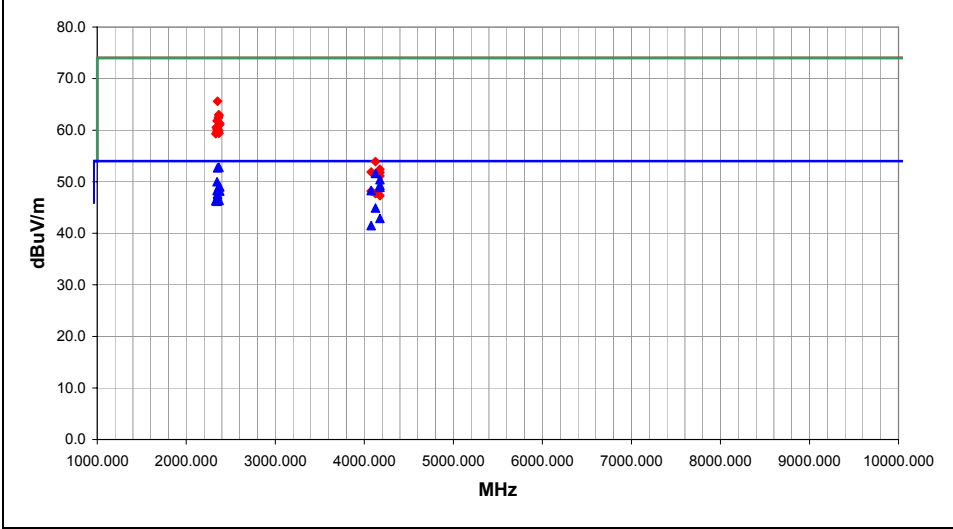
EUT OPERATING MODES
 Modulated at maximum data rate

DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Test Distance (m)	Run #
Pass	3	6

Other


 Tested By:



Freq (MHz)	Amplitude (dBUV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBUV/m	Spec. Limit dBUV/m	Compared to Spec. (dB)	Comments
2366.800	32.5	0.3	59.0	1.2	3.0	20.0	V-Horn	AV	0.0	52.8	54.0	-1.2	"mid channel, internal antenna"
2351.900	32.4	0.3	79.0	1.2	3.0	20.0	V-Horn	AV	0.0	52.7	54.0	-1.3	"mid channel, internal antenna"
4125.920	45.6	6.0	177.0	1.5	3.0	0.0	H-Horn	AV	0.0	51.6	54.0	-2.4	"high channel, internal antenna"
4175.912	44.5	5.9	84.0	1.1	3.0	0.0	V-Horn	AV	0.0	50.4	54.0	-3.6	"high channel, internal antenna"
2345.992	31.1	-1.1	148.0	1.0	3.0	20.0	V-Horn	AV	0.0	50.0	54.0	-4.0	"low channel, internal antenna"
4175.912	43.4	5.9	185.0	1.3	3.0	0.0	H-Horn	AV	0.0	49.3	54.0	-4.7	"low channel, internal antenna"
2366.600	30.1	-1.1	276.0	1.1	3.0	20.0	V-Horn	AV	0.0	49.0	54.0	-5.0	"low channel, external antenna"
2375.999	30.2	-1.2	107.0	2.5	3.0	20.0	H-Horn	AV	0.0	49.0	54.0	-5.0	"low channel, external antenna"
4175.912	43.0	5.9	180.0	1.3	3.0	0.0	H-Horn	AV	0.0	48.9	54.0	-5.1	"mid channel, internal antenna"
2360.660	29.5	-1.1	152.0	1.3	3.0	20.0	V-Horn	AV	0.0	48.4	54.0	-5.6	"mid channel, internal antenna"
4075.908	42.3	6.0	343.0	1.3	3.0	0.0	H-Horn	AV	0.0	48.3	54.0	-5.7	"high channel, internal antenna"
2345.980	29.4	-1.1	91.0	1.1	3.0	20.0	H-Horn	AV	0.0	48.3	54.0	-5.7	"high channel, internal antenna"
2376.657	29.4	-1.2	168.0	1.6	3.0	20.0	V-Horn	AV	0.0	48.2	54.0	-5.8	"low channel, external antenna"
2352.000	28.7	-1.1	110.0	2.6	3.0	20.0	H-Horn	AV	0.0	47.6	54.0	-6.4	"low channel, external antenna"
2351.900	26.8	0.3	169.0	2.2	3.0	20.0	H-Horn	AV	0.0	47.1	54.0	-6.9	"high channel, internal antenna"
2337.300	27.6	-1.2	79.0	1.2	3.0	20.0	H-Horn	AV	0.0	46.4	54.0	-7.6	"high channel, internal antenna"
2366.600	27.5	-1.1	107.0	2.6	3.0	20.0	H-Horn	AV	0.0	46.4	54.0	-7.6	"high channel, internal antenna"
2366.800	26.1	0.3	48.0	1.3	3.0	20.0	H-Horn	AV	0.0	46.4	54.0	-7.6	"high channel, internal antenna"
2331.987	27.5	-1.2	103.0	1.4	3.0	20.0	H-Horn	AV	0.0	46.3	54.0	-7.7	"mid channel, internal antenna"
2346.651	27.3	-1.1	124.0	2.6	3.0	20.0	H-Horn	AV	0.0	46.2	54.0	-7.8	"mid channel, internal antenna"
4125.920	38.9	6.0	197.0	1.4	3.0	0.0	V-Horn	AV	0.0	44.9	54.0	-9.1	"high channel, external antenna"
4175.912	37.0	5.9	123.0	1.2	3.0	0.0	V-Horn	AV	0.0	42.9	54.0	-11.1	"high channel, internal antenna"
4075.908	35.5	6.0	278.0	1.2	3.0	0.0	V-Horn	AV	0.0	41.5	54.0	-12.5	"high channel, internal antenna"
2351.900	45.3	0.3	78.0	1.2	3.0	20.0	V-Horn	PK	0.0	65.6	74.0	-8.4	"high channel, external antenna"
2366.600	44.1	-1.1	276.0	1.1	3.0	20.0	V-Horn	PK	0.0	63.0	74.0	-11.0	"high channel, internal antenna"
2366.800	42.5	0.3	59.0	1.2	3.0	20.0	V-Horn	PK	0.0	62.8	74.0	-11.2	"high channel, internal antenna"
2360.660	43.5	-1.1	152.0	1.3	3.0	20.0	V-Horn	PK	0.0	62.4	74.0	-11.6	"high channel, internal antenna"
2345.992	42.9	-1.1	148.0	1.0	3.0	20.0	V-Horn	PK	0.0	61.8	74.0	-12.2	"high channel, internal antenna"
2376.657	42.5	-1.2	168.0	1.6	3.0	20.0	V-Horn	PK	0.0	61.3	74.0	-12.7	"high channel, internal antenna"
2375.999	42.3	-1.2	107.0	2.5	3.0	20.0	H-Horn	PK	0.0	61.1	74.0	-12.9	"high channel, internal antenna"
2352.000	41.8	-1.1	110.0	2.6	3.0	20.0	H-Horn	PK	0.0	60.7	74.0	-13.3	"high channel, internal antenna"
2337.300	41.7	-1.2	79.0	1.2	3.0	20.0	H-Horn	PK	0.0	60.5	74.0	-13.5	"high channel, internal antenna"
2351.900	39.9	0.3	169.0	2.2	3.0	20.0	H-Horn	PK	0.0	60.2	74.0	-13.8	"high channel, internal antenna"
2345.980	41.2	-1.1	91.0	1.1	3.0	20.0	H-Horn	PK	0.0	60.1	74.0	-13.9	"high channel, internal antenna"
2366.600	41.0	-1.1	107.0	2.6	3.0	20.0	H-Horn	PK	0.0	59.9	74.0	-14.1	"mid channel, external antenna"
2346.651	40.8	-1.1	124.0	2.6	3.0	20.0	H-Horn	PK	0.0	59.7	74.0	-14.3	"high channel, external antenna"
2366.800	39.1	0.3	48.0	1.3	3.0	20.0	H-Horn	PK	0.0	59.4	74.0	-14.6	"low channel, external antenna"
2331.987	40.5	-1.2	103.0	1.4	3.0	20.0	H-Horn	PK	0.0	59.3	74.0	-14.7	"mid channel, external antenna"
4125.920	47.9	6.0	177.0	1.5	3.0	0.0	H-Horn	PK	0.0	53.9	74.0	-20.1	"high channel, external antenna"
4175.912	46.5	5.9	84.0	1.1	3.0	0.0	V-Horn	PK	0.0	52.4	74.0	-21.6	"low channel, external antenna"
4075.908	45.9	6.0	343.0	1.3	3.0	0.0	H-Horn	PK	0.0	51.9	74.0	-22.1	"mid channel, external antenna"
4175.912	45.9	5.9	180.0	1.3	3.0	0.0	H-Horn	PK	0.0	51.8	74.0	-22.2	"low channel, external antenna"
4175.912	45.2	5.9	185.0	1.3	3.0	0.0	H-Horn	PK	0.0	51.1	74.0	-22.9	"high channel, external antenna"
4075.908	42.2	6.0	278.0	1.2	3.0	0.0	V-Horn	PK	0.0	48.2	74.0	-25.8	"low channel, external antenna"
4125.920	41.7	6.0	197.0	1.4	3.0	0.0	V-Horn	PK	0.0	47.7	74.0	-26.3	"mid channel, external antenna"
4175.912	41.4	5.9	123.0	1.2	3.0	0.0	V-Horn	PK	0.0	47.3	74.0	-26.7	"high channel, external antenna"

Transmitting Simultaneously with CDMA Radio

FCC ID: HN22011B-2

Purpose: This exhibit was used for the certification of FCC ID: HN2SB555-2. While simultaneously transmitting, spurious emissions from FCC ID: HN2SB555-2 were compared to 22.917(e) and 24.238(a) limits; and spurious emissions from FCC ID: HN22011B-2 were compared to 15.247(c) limits.

Simultaneous Transmission: FCC ID: HN22011B-2 will be co-located with two other radios: FCC ID:HN2SB555-2 (CDMA radio), and FCC ID:HN2ABTM3-3 (Bluetooth radio). Any two of the three radios can transmit simultaneously. All three radios cannot transmit simultaneously. Each radio transmits through its own antenna.

The following is an excerpt from the FCC / TCB Training Q & A, October 2002, Day 2, Question 7:

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

Since the Bluetooth radio has such a low EIRP (.001W) and is a frequency hopper, the worst case simultaneous transmission mode was determined to be the CDMA radio transmitting simultaneously with FCC ID: HN22011B-2 (EIRP = 0.056 W & single channel operation). The CDMA radio was tested in both cellular and PCS modes while simultaneously transmitting with FCCID: HN22011B-2. Simultaneous low, mid, and high transmit frequencies were investigated from 30 MHz to 25 GHz.

In addition, all the possible combinations of harmonic emissions from the CDMA radio and FCC ID: HN22011B-2 were compared numerically. It was determined that only channels 526 (1876 MHz) and 930 (1896 MHz) in PCS mode could have harmonic emissions that coincide with the center frequency of harmonic emissions from FCC ID: HN22011B-2 (tuned to channels 1 (2412 MHz) and 6 (2437 MHz) respectively). The frequency range from 10 to 18 GHz was investigated for these channel combinations.

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:

Low

Mid

High

Operating Modes Investigated:

PSC Mode

Cellular Mode

PSC Mode simultaneously transmitting with co-located 802.11(b) radio
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Cellular Mode simultaneously transmitting with co-located 802.11(b) radio

Antennas Investigated:

PSTGO-1900SCI

PSTGO-900 / 1900SCI

Data Rates Investigated:

Maximum

Power Input Settings Investigated:

Battery

Frequency Range Investigated

Start Frequency	30 MHz	Stop Frequency	25 GHz
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Software\Firmware Applied During Test

Exercise software	Sierra SMART	Version	V.046
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Description

The system was tested using special software developed to test all functions of the device during the test.

Equipment Modifications

No EMI suppression devices were added or modified. The EUT was tested as delivered.

EUT and Peripherals

Description	Manufacturer	Model/Part Number	Serial Number
EUT-Radio	Intermec	SB555	6301FEOC
Host Device	Intermec	700C	E02093050443010
Antenna	Mobile Mark	PSTGO-1900SCI	N/A
Antenna	Mobile Mark	PSTGO-900 / 1900SCI	N/A

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
N/A	N/A	N/A	N/A	N/A	N/A

PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.

Measurement Equipment

Description	Manufacturer	Model	Identifier	Last Cal	Interval
Spectrum Analyzer	Hewlett-Packard	8566B	AAL	03/19/2002	12 mo
Pre-Amplifier	Amplifier Research	LN1000A	APS	12/03/2001	14 mo
Antenna, Biconilog	EMCO	3141	AXE	12/31/2001	36 mo
Antenna, Horn	EMCO	3115	AHJ	05/23/2002	12 mo
Pre-Amplifier	Miteq	AMF-4D-010120-30-10P	AOP	07/09/2002	12 mo
Spectrum Analyzer	Tektronix	2784	AAO	03/08/2001	24 mo
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	01/17/2000	36 mo
Antenna, Horn	EMCO	3160-09	AHG	01/15/2000	36 mo
DC Power Supply	Topward	TPS-2000	TPD	NCR	N/A
Signal Generator	Hewlett-Packard	8341B	TGM	01/09/02	12 mo
Antenna, Horn	EMCO	3115	AHF	03/03/02	12 mo

Test Description

Requirement: Per 2.1053, the field strength of spurious radiation was measured in the far-field at an FCC Listed semi-anechoic chamber up to 25 GHz. The applicable limits are 22.917(e) for the cellular band, and 24.238(a) for the PCS band.

Per 22.917(e), the mean power of out of band emissions must be attenuated below the mean power of the unmodulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at least $43 + 10 \log (P)$ dB. (-13 dBm).

Per 24.238(a), 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 $43 + 10 \log (P)$ dB. (-13 dBm).

Configuration: Spectrum analyzer, signal generator, and linearly polarized antennas were used to measure radiated harmonics and spurious emissions. The orientation of the EUT and measurement antenna were manipulated 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 for the highest spurious emissions. The EUT was tested individually, then while simultaneously transmitting with a co-located radio.

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 spurious emissions that utilizes an antenna substitution method:

At an approved test site, the transmitter is placed on a remotely controlled turntable, and the measurement antenna is placed 3 meters from the transmitter. The turntable azimuth is varied to maximize the level of

spurious emissions. The height of the measurement antenna is also varied from 1 to 4 meters. The amplitude and frequency of the highest emissions are noted. The transmitter is then replaced with a $\frac{1}{2}$ wave dipole that is successively tuned to each of the highest spurious 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 (dBm) into an ideal $\frac{1}{2}$ wave dipole antenna is determined for each radiated spurious emission.

For the purposes of preliminary measurements, the field strength of the spurious emissions can be measured and compared with a 3 meter limit. The final measurements must be made utilizing the substitution method described above. The 3 meter limit was calculated to be 84.3 dBuV/m at 3 meters. This was based upon an output power of 0.224 W.

Simultaneous Transmission: The EUT will be co-located with two other radios: FCC ID:HN22011B-2 (802.11(b) radio), and FCC ID:HN2ABTM3-3 (Bluetooth radio). Any two of the three radios can transmit simultaneously. All three radios cannot transmit simultaneously. Each radio transmits through its own antenna.

The following is an excerpt from the FCC / TCB Training Q & A, October 2002, Day 2, Question 7:

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

Since the Bluetooth radio has such a low EIRP (.001W) and is a frequency hopper, the worst case simultaneous transmission mode was determined to be the EUT transmitting simultaneously with the 802.11(b) radio (EIRP = 0.056 W & single channel operation). The EUT was tested in both cellular and PCS modes while simultaneously transmitting with the 802.11(b) radio. Simultaneous low, mid, and high transmit frequencies were investigated from 30 MHz to 25 GHz.

In addition, all the possible combinations of harmonic emissions from the EUT and the 802.11(b) radio were compared numerically. It was determined that only channels 526 (1876 MHz) and 930 (1896 MHz) in PCS mode could have harmonic emissions that coincide with the center frequency of harmonic emissions from the 802.11(b) radio (tuned to channels 1 (2412 MHz) and 6 (2437 MHz) respectively). The frequency range from 10 to 18 GHz was investigated for these channel combinations.

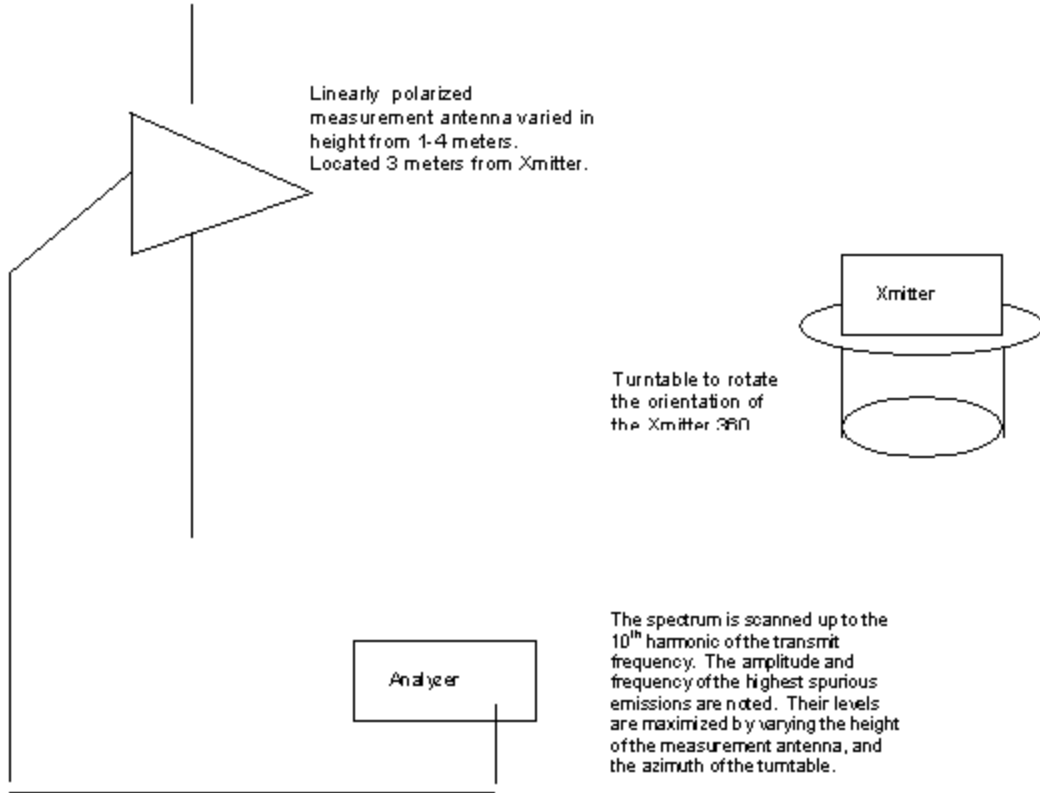
Bandwidths Used for Measurements

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

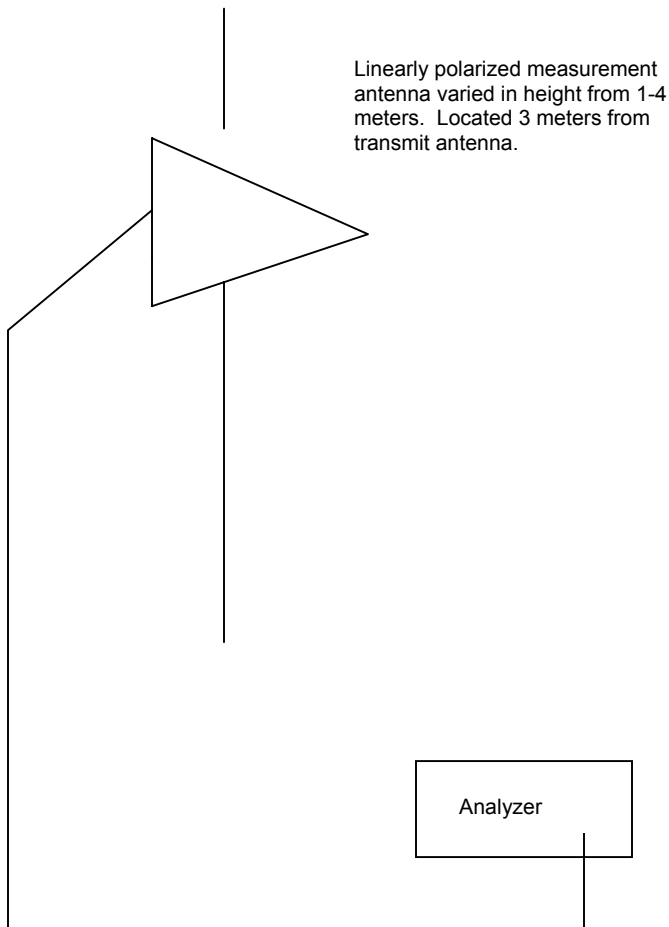
Measurements were made using the bandwidths and detectors specified. No video filter was used.

Test Setup Diagram

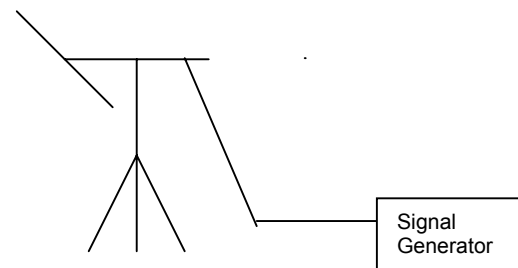
Test Setup for Field Strength Measurements



Test Setup for Power Measurements Utilizing the Antenna Substitution Method



During field strength measurements, the amplitude and frequency of the highest emissions are noted. The transmitter is then replaced with a $\frac{1}{2}$ wave dipole (at the same height) that is successively tuned to each of the highest spurious 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 spectrum analyzer is monitored to verify that the output of the signal generator produces a signal equal in amplitude to a previously measured spurious emission.

Completed by:

Rocky Lee Felting

Apparent Power Data Sheet

EUT: SB555 Radio used in Model 700C		Work Order: INMC0044
Serial Number: 6301FEOC		Date: 12/31/02
Customer: INTERMEC Corporation		Temperature: 73
Attendees: None		Humidity: 34%
Cust. Ref. No.:		Barometric Pressure: 29.75
Tested by: Rod Peloquin	Power: Battery	Job Site: EV01

TEST SPECIFICATIONS	
Specification: FCC Part 24E	Year: 2002
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
 Antenna PSTGO-900 / 1900SCI

EUT OPERATING MODES
 Transmitting in PCS mode and 802.11(b) mode

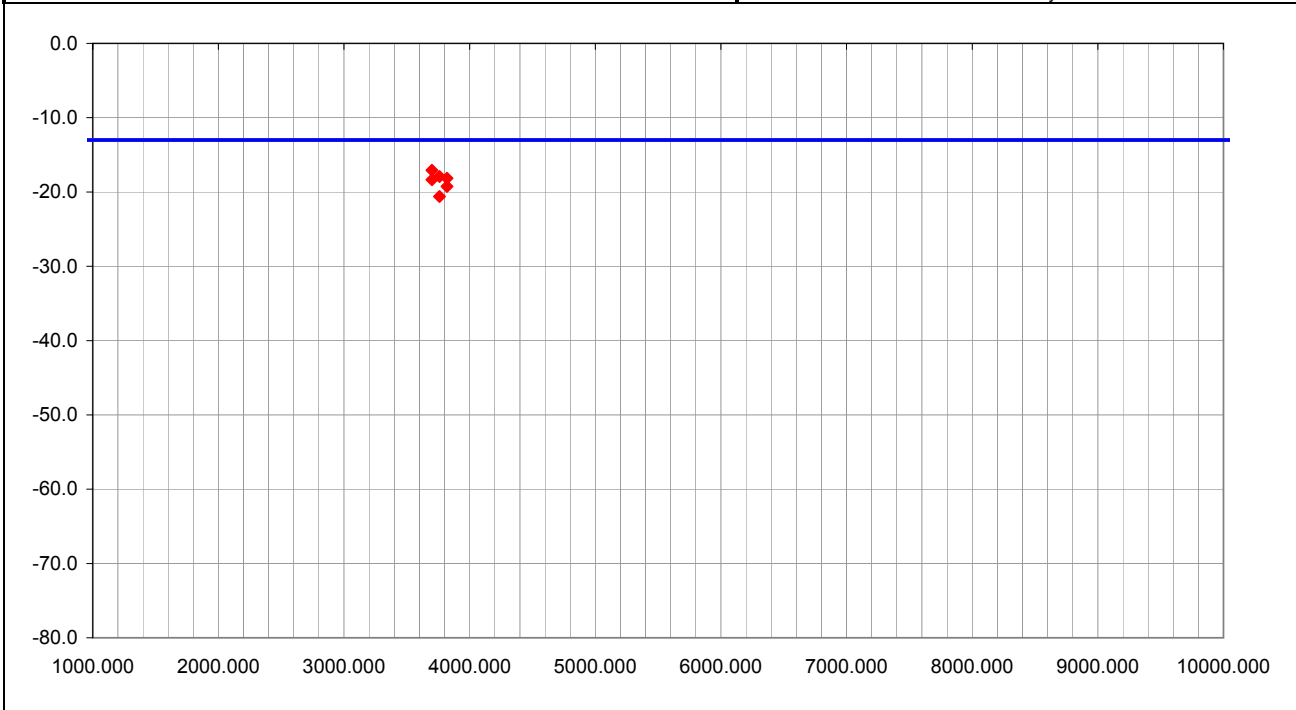
DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Test Distance (m)	Run #
Pass	3	14

Other



 Tested By:



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
3699.356	71.0	2.0	H-Horn	PK	-17.1	-13.0	-4.1	Low Channel
3759.348	49.0	1.9	H-Horn	PK	-17.9	-13.0	-4.9	Mid Channel
3819.360	20.0	1.9	H-Horn	PK	-19.2	-13.0	-6.2	High Channel
3819.360	344.0	1.0	V-Horn	PK	-18.2	-13.0	-5.2	High Channel
3699.356	153.0	1.0	V-Horn	PK	-18.3	-13.0	-5.3	Low Channel
3759.400	355.0	1.3	V-Horn	PK	-20.6	-13.0	-7.6	Mid Channel

Apparent Power Data Sheet

EUT: SB555 Radio used in Model 700C		Work Order: INMC0044
Serial Number: 6301FEOC		Date: 12/31/02
Customer: INTERMEC Corporation		Temperature: 73
Attendees: None		Humidity: 34%
Cust. Ref. No.:		Barometric Pressure: 29.75
Tested by: Rod Peloquin	Power: Battery	Job Site: EV01

TEST SPECIFICATIONS	
Specification: FCC Part 22.901(d)	Year: 2002
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

Antenna PSTGO-900 / 1900SCI

EUT OPERATING MODES

Transmitting in Cellular mode and 802.11(b) mode

DEVIATIONS FROM TEST STANDARD

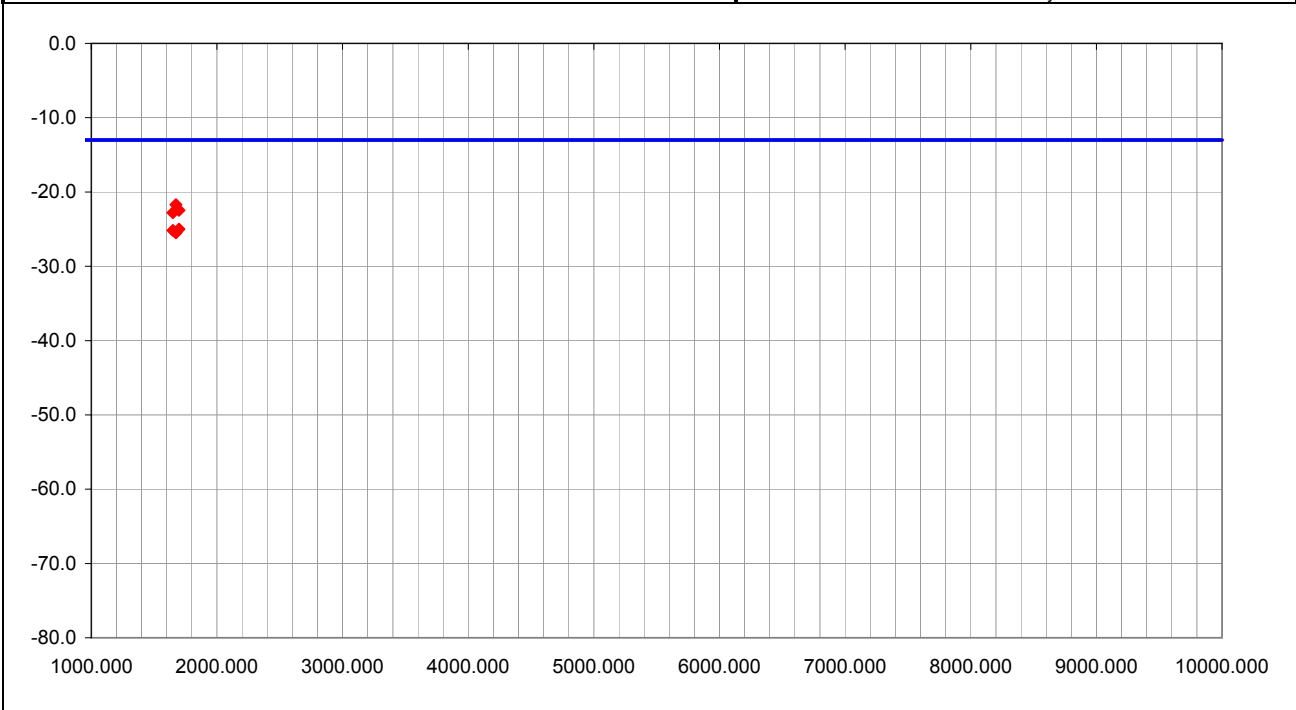
No deviations.

RESULTS	Test Distance (m)	Run #
Pass	3	16

Other



 Tested By:



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)	Comments
1673.360	319.0	1.2	V-Horn	PK	-21.7	-13.0	-8.7	Mid Channel
1697.360	113.0	1.3	H-Horn	PK	-25.0	-13.0	-12.0	High Channel
1697.360	19.0	1.2	V-Horn	PK	-22.5	-13.0	-9.5	High Channel
1649.360	78.0	1.3	H-Horn	PK	-25.2	-13.0	-12.2	Low Channel
1649.360	116.0	1.2	V-Horn	PK	-22.8	-13.0	-9.8	Low Channel
1673.360	176.0	1.3	H-Horn	PK	-25.5	-13.0	-12.5	Mid Channel

OATS DATA SHEET

EUT: SB555 Radio used in Model 700C		Work Order: INMC0044
Serial Number: 6301FEOC	Date: 01/02/03	
Customer: INTERMEC Corporation	Temperature: 72	
Attendees: None	Humidity: 35%	
Cust. Ref. No.:	Barometric Pressure: 29.92	
Tested by: Rod Peloquin	Power: Battery	Job Site: EV01

TEST SPECIFICATIONS	
Specification: FCC Part 15.247(c)	Year: 2001
Method: ANSI C63.4	Year: 1992

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
 Antenna PSTGO-900 / 1900SCI

EUT OPERATING MODES
 Transmitting in Cellular mode and 802.11(b) mode

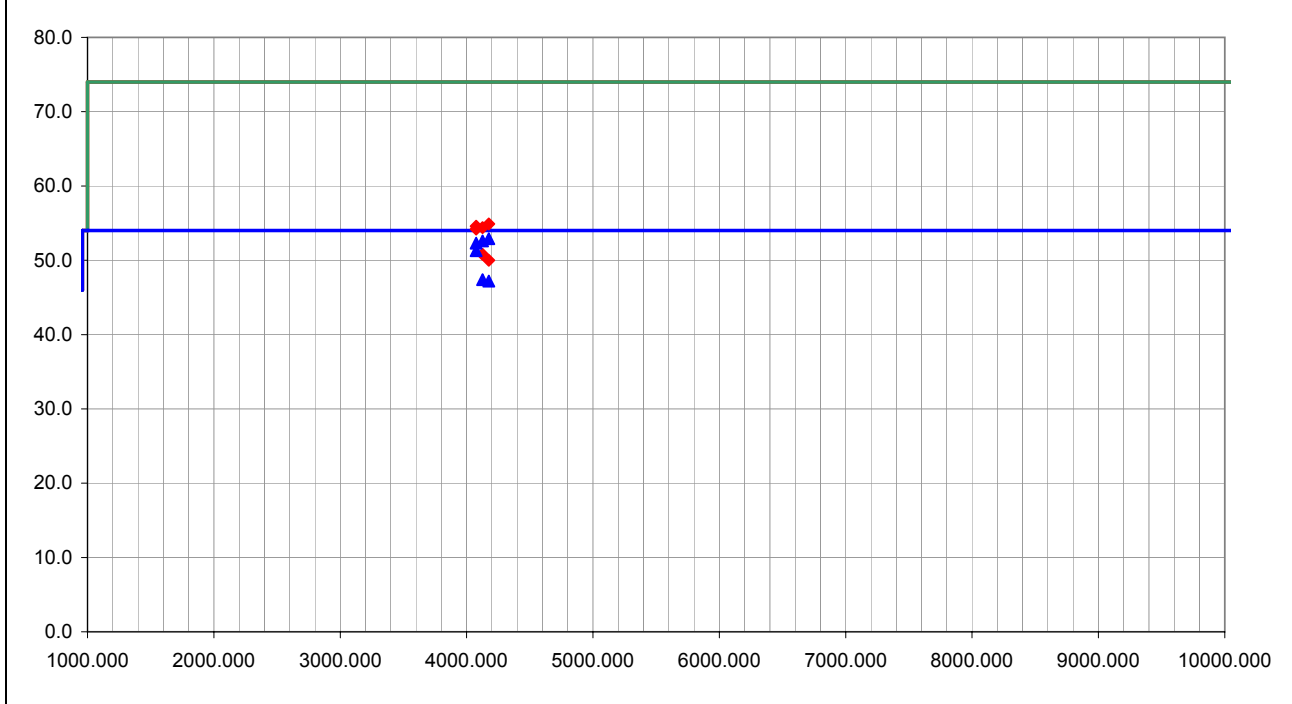
DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Test Distance (m)	Run #
Pass	3	18

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
4176.000	47.0	5.9	16.0	1.3	3.0	0.0	H-Horn	AV	0.0	52.9	54.0	-1.1	High Channel
4126.000	46.6	6.0	360.0	1.7	3.0	0.0	H-Horn	AV	0.0	52.6	54.0	-1.4	Mid Channel
4076.000	46.3	6.0	86.0	1.3	3.0	0.0	V-Horn	AV	0.0	52.3	54.0	-1.7	Low Channel
4076.000	45.3	6.0	66.0	1.8	3.0	0.0	H-Horn	AV	0.0	51.3	54.0	-2.7	Low Channel
4126.000	41.4	6.0	348.0	1.3	3.0	0.0	V-Horn	AV	0.0	47.4	54.0	-6.6	Mid Channel
4176.000	41.3	5.9	342.0	1.1	3.0	0.0	V-Horn	AV	0.0	47.2	54.0	-6.8	High Channel
4176.000	49.0	5.9	16.0	1.3	3.0	0.0	H-Horn	PK	0.0	54.9	74.0	-19.1	High Channel
4076.000	48.6	6.0	86.0	1.3	3.0	0.0	V-Horn	PK	0.0	54.6	74.0	-19.4	Low Channel
4126.000	48.4	6.0	360.0	1.7	3.0	0.0	H-Horn	PK	0.0	54.4	74.0	-19.6	Mid Channel
4076.000	48.2	6.0	66.0	1.8	3.0	0.0	H-Horn	PK	0.0	54.2	74.0	-19.8	Low Channel
4126.000	44.8	6.0	348.0	1.3	3.0	0.0	V-Horn	PK	0.0	50.8	74.0	-23.2	Mid Channel
4176.000	44.1	5.9	329.0	1.2	3.0	0.0	V-Horn	PK	0.0	50.0	74.0	-24.0	High Channel

EUT: SB555 Radio used in Model 700C		Work Order: INMC0044
Serial Number: 6301FEOC		Date: 01/02/03
Customer: INTERMEC Corporation		Temperature: 73
Attendees: None		Humidity: 34%
Cust. Ref. No.:		Barometric Pressure: 29.75
Tested by: Rod Peloquin	Power: Battery	Job Site: EV01

TEST SPECIFICATIONS	
Specification: FCC Part 15.247(c)	Year: 2001
Method: ANSI C63.4	Year: 1992

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
 Antenna PSTGO-900 / 1900SCI

EUT OPERATING MODES
 Transmitting in PCS mode and 802.11(b) mode

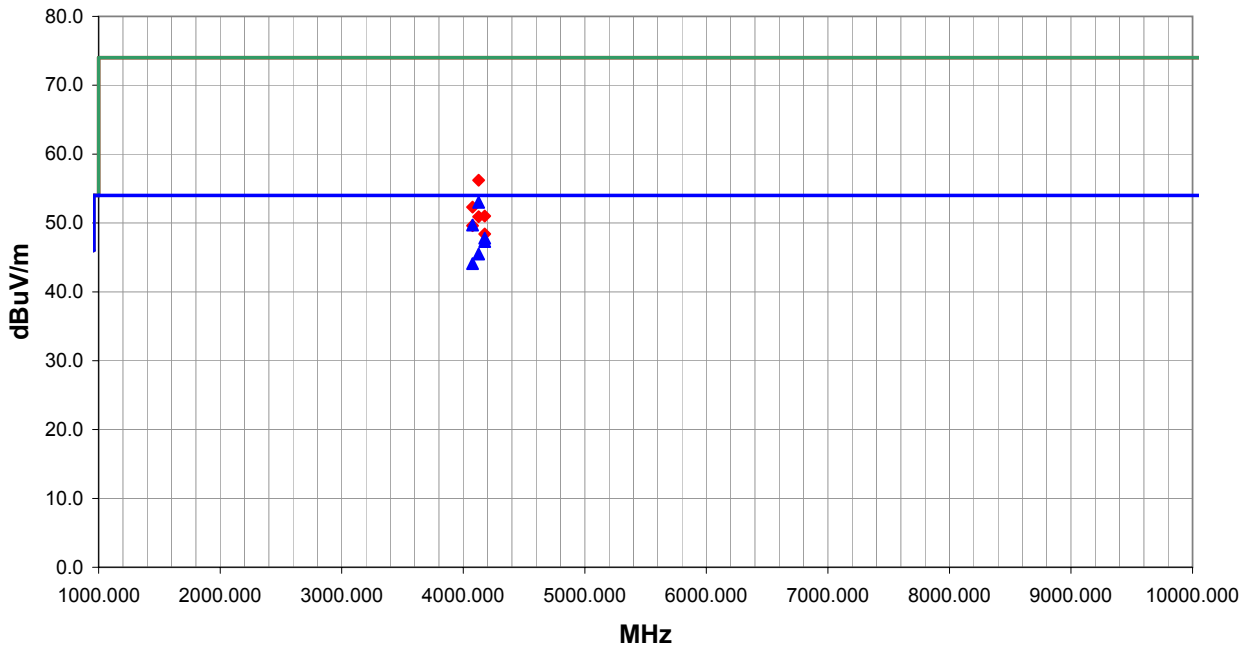
DEVIATIONS FROM TEST STANDARD
 No deviations.

RESULTS	Test Distance (m)	Run #
Pass	3	20

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
4126.000	47.0	6.0	31.0	1.5	3.0	0.0	H-Horn	AV	0.0	53.0	54.0	-1.0	Mid Channel
4076.000	43.7	6.0	226.0	1.1	3.0	0.0	V-Horn	AV	0.0	49.7	54.0	-4.3	Low Channel
4176.000	41.9	5.9	57.0	1.2	3.0	0.0	V-Horn	AV	0.0	47.8	54.0	-6.2	High Channel
4176.000	41.4	5.9	143.0	1.3	3.0	0.0	H-Horn	AV	0.0	47.3	54.0	-6.7	High Channel
4126.000	39.5	6.0	135.0	1.2	3.0	0.0	V-Horn	AV	0.0	45.5	54.0	-8.5	Mid Channel
4076.000	38.1	6.0	221.0	1.3	3.0	0.0	H-Horn	AV	0.0	44.1	54.0	-9.9	Low Channel
4126.000	50.2	6.0	31.0	1.5	3.0	0.0	H-Horn	PK	0.0	56.2	74.0	-17.8	Mid Channel
4076.000	46.3	6.0	226.0	1.1	3.0	0.0	V-Horn	PK	0.0	52.3	74.0	-21.7	Low Channel
4176.000	45.1	5.9	143.0	1.3	3.0	0.0	H-Horn	PK	0.0	51.0	74.0	-23.0	High Channel
4126.000	44.9	6.0	135.0	1.2	3.0	0.0	V-Horn	PK	0.0	50.9	74.0	-23.1	Mid Channel
4076.000	43.6	6.0	221.0	1.3	3.0	0.0	H-Horn	PK	0.0	49.6	74.0	-24.4	Low Channel
4176.000	42.5	5.9	145.0	1.2	3.0	0.0	V-Horn	PK	0.0	48.4	74.0	-25.6	High Channel

Apparent Power Data Sheet

EUT:	SB555 Radio used in Model 700C	Work Order:	INMC0044
Serial Number:	6301FEOC	Date:	12/31/02
Customer:	INTERMEC Corporation	Temperature:	75
Attendees:	None	Humidity:	33%
Cust. Ref. No.:		Barometric Pressure:	29.75
Tested by:	Rod Peloquin	Power:	Battery
		Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 24E	Year:	2002
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

Antenna PSTGO-900 / 1900SCI

EUT OPERATING MODES

Transmitting in Channel 526 (1876MHz) PCS mode and Channel 1 (2412MHz) 802.11(b) mode

DEVIATIONS FROM TEST STANDARD

No deviations.

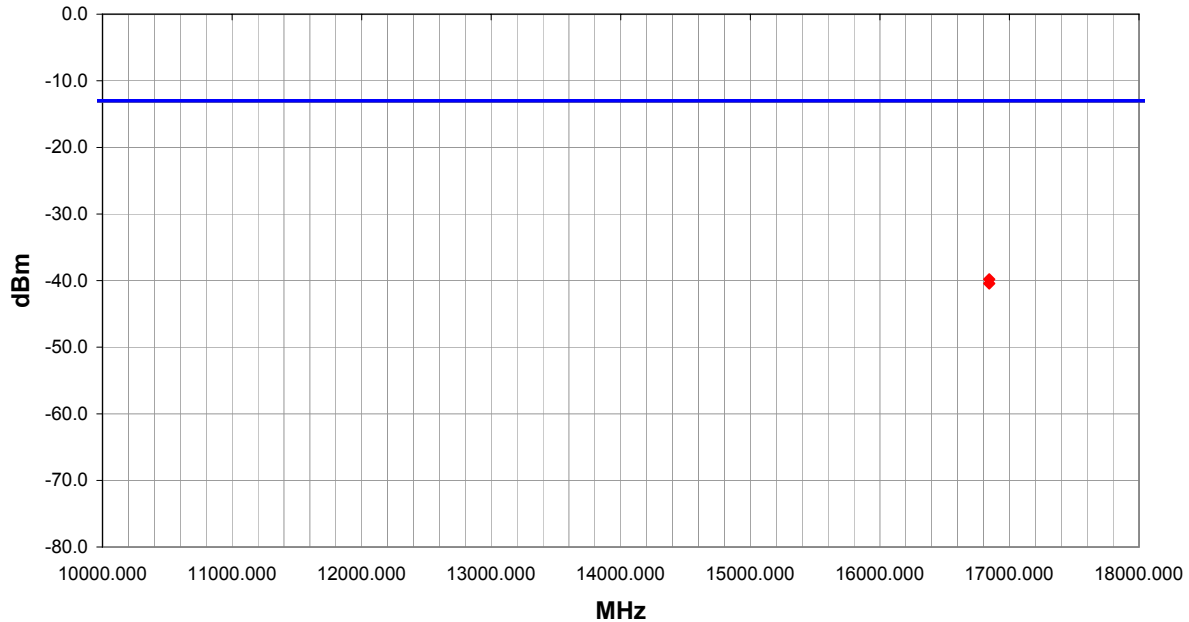
RESULTS

Results	Test Distance (m)	Run #
Pass	1	22

Other



Tested By:



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
16844.000	135.0	1.2	H-Horn	PK	-40.4	-13.0	-27.4
16844.000	140.0	1.2	V-Horn	PK	-39.8	-13.0	-26.8

Apparent Power Data Sheet

EUT:	SB555 Radio used in Model 700C	Work Order:	INMC0044
Serial Number:	6301FEOC	Date:	12/31/02
Customer:	INTERMEC Corporation	Temperature:	73
Attendees:	None	Humidity:	34%
Cust. Ref. No.:		Barometric Pressure:	29.75
Tested by:	Rod Peloquin	Power:	Battery
		Job Site:	EV01

TEST SPECIFICATIONS	
Specification:	FCC Part 24E
Method:	TIA/EIA-603
Year:	2002
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

Antenna PSTGO-900 / 1900SCI

EUT OPERATING MODES

Transmitting in Channel 930 (1896MHz) PCS mode and Channel 6 (2437MHz) 802.11(b) mode

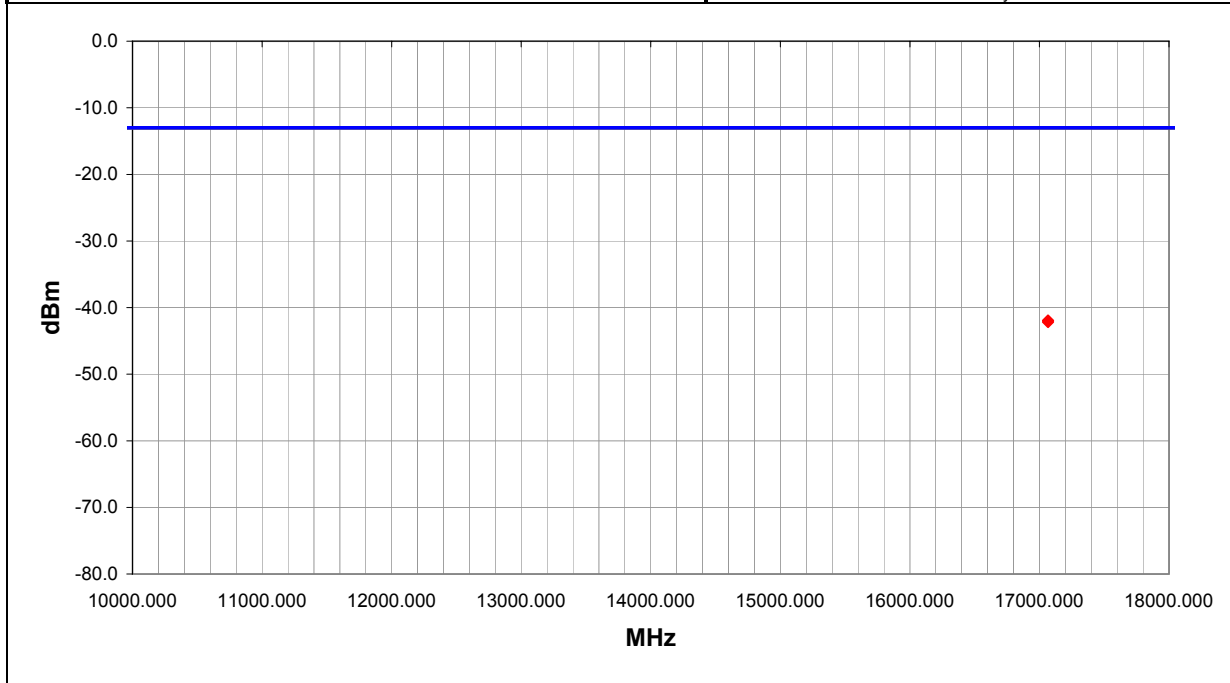
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Test Distance (m)	Run #
Pass	1	24

Other


 Tested By: _____



Freq (MHz)	Azimuth (degrees)	Height (meters)	Polarity	Detector	EIRP (dBm)	Spec. Limit (dBm)	Compared to Spec. (dB)
17066.000	180.0	1.0	H-Horn	PK	-42.2	-13.0	-29.2
17066.000	180.0	1.0	V-Horn	PK	-41.9	-13.0	-28.9