

# **Exhibit O: Power Spectral Density**

**FCC ID: HN2PC24-11**

## 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
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### Data Rates Investigated:

Maximum
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### Output Power Setting(s) Investigated:

Maximum
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### Power Input Settings Investigated:

5VDC
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## Software\Firmware Applied During Test

Exercise software	FCCTST24.BIN	Version	Unknown
Description			
The system was tested using the FCCTST24.BIN software to exercise the functions of the device during the testing.			

## 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-PCMCIA Card	INTERMEC	P24-11-FC/R	02UT34371446
Extender Card	Swart Interconnect	EXT-PCM-68-SM3	060501-212
Host Device	INTERMEC	2435	27300200205
5VDC Adapter	INTERMEC	0-302029-01	N/A

## Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
5VDC power	No	1.9	PA	5VDC Adapter	EUT

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

## Measurement Equipment

Description	Manufacturer	Model	Identifier	Last Cal	Interval
Spectrum Analyzer	Tektronix	2784	AAO	03/08/2001	24 mo

## Test Description

**Requirement:** Per 47 CFR 15.247(d), the peak power spectral density conducted from the antenna port of a direct sequence transmitter must not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission.

**Configuration:** 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 using direct sequence modulation. Per the procedure outlined in FCC 97-114, 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  $1.5 \times 10^6 \div 3 \times 10^3 = 500$  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 34.7 dB for correction to 3 kHz."*

Completed by:



NORTHWEST **EMC** **EMISSIONS DATA SHEET** Transmitters Rev df11/13/02

EUT:	PC24-11-FC/R	Work Order:	INMC0036
Serial Number:	02UT34371446	Date:	11/15/02
Customer:	INTERMEC Corporation	Temperature:	22 °C
Attendees:	None	Humidity:	45%
Customer Ref. No.:	None	Bar. Pressure:	30.75
Tested by:	Rod Peloquin	Power:	5VDC
		Job Site:	EV06

<b>TEST SPECIFICATIONS</b>			
Specification:	47 CFR 15.247(d)	Year:	Most Current
Method:	FCC 97-114, ANSI C63.4	Year:	1992

**SAMPLE CALCULATIONS**  
 Meter reading on spectrum analyzer is internally compensated for cable loss and external attenuation.  
 Power Spectral Density per 3kHz bandwidth = Power Spectral Density per 1 Hz bandwidth + Bandwidth Correction Factor.  
 Bandwidth Correction Factor =  $10 \cdot \log(3 \text{ kHz} / 1 \text{ Hz}) = 34.7 \text{ dB}$


**COMMENTS**  
 None

**EUT OPERATING MODES**  
 modulated

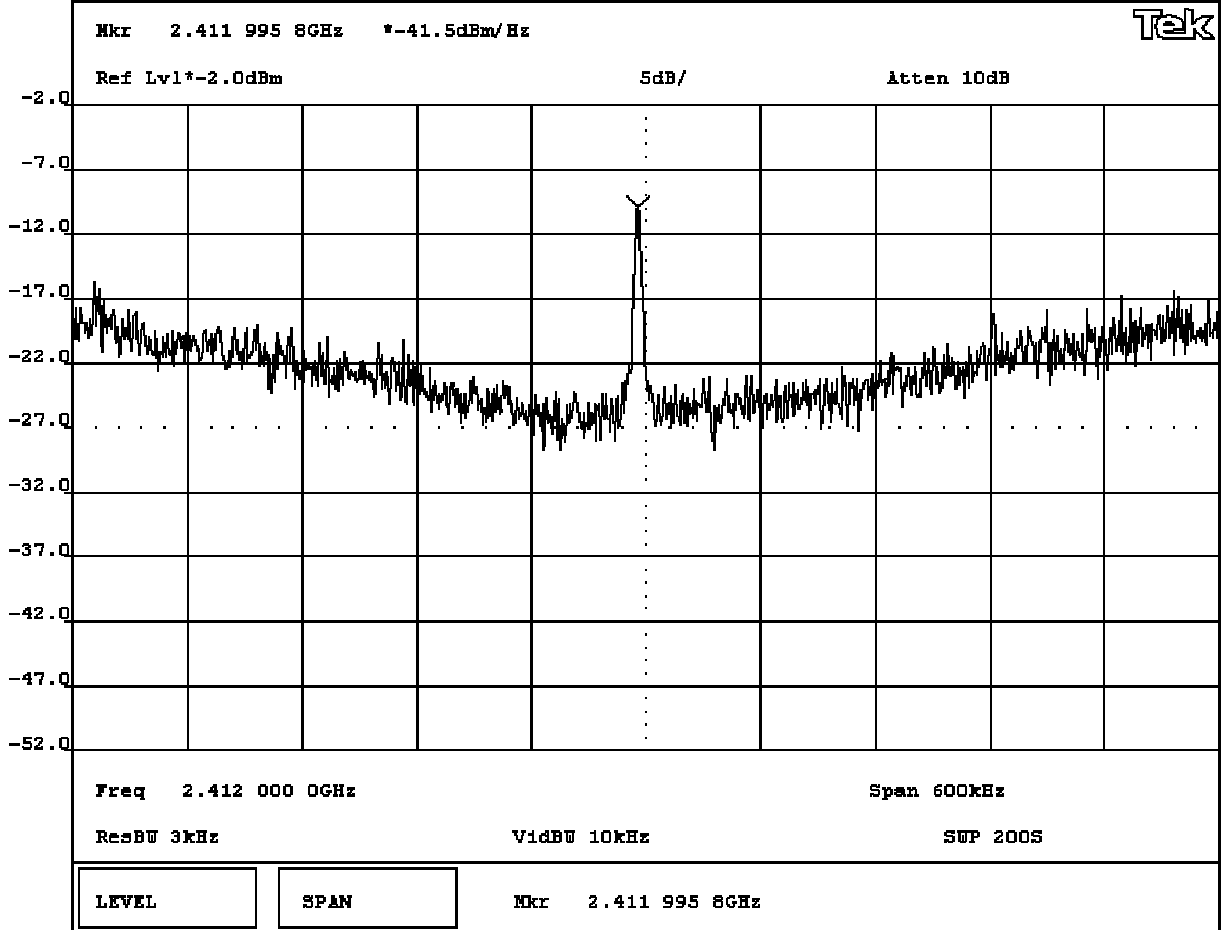
**DEVIATIONS FROM TEST STANDARD**  
 None

**REQUIREMENTS**  
 Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band

**RESULTS**  
 AMPLITUDE  
 Pass -6.8dBm / 3KHz

**SIGNATURE**  
  
 Tested By: \_\_\_\_\_

**DESCRIPTION OF TEST**  
 Power Spectral Density - Low Channel



NORTHWEST **EMC** **EMISSIONS DATA SHEET** Transmitters Rev df11/13/02

EUT:	PC24-11-FC/R	Work Order:	INMC0036
Serial Number:	02UT34371446	Date:	11/15/02
Customer:	INTERMEC Corporation	Temperature:	22 °C
Attendees:	None	Humidity:	45%
Customer Ref. No.:	None	Bar. Pressure:	30.75
Tested by:	Rod Peloquin	Power:	5VDC
		Job Site:	EV06

<b>TEST SPECIFICATIONS</b>			
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Method:	FCC 97-114, ANSI C63.4	Year:	1992

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 Bandwidth Correction Factor =  $10 \cdot \log(3 \text{ kHz} / 1 \text{ Hz}) = 34.7 \text{ dB}$


**COMMENTS**  
 None

**EUT OPERATING MODES**  
 modulated

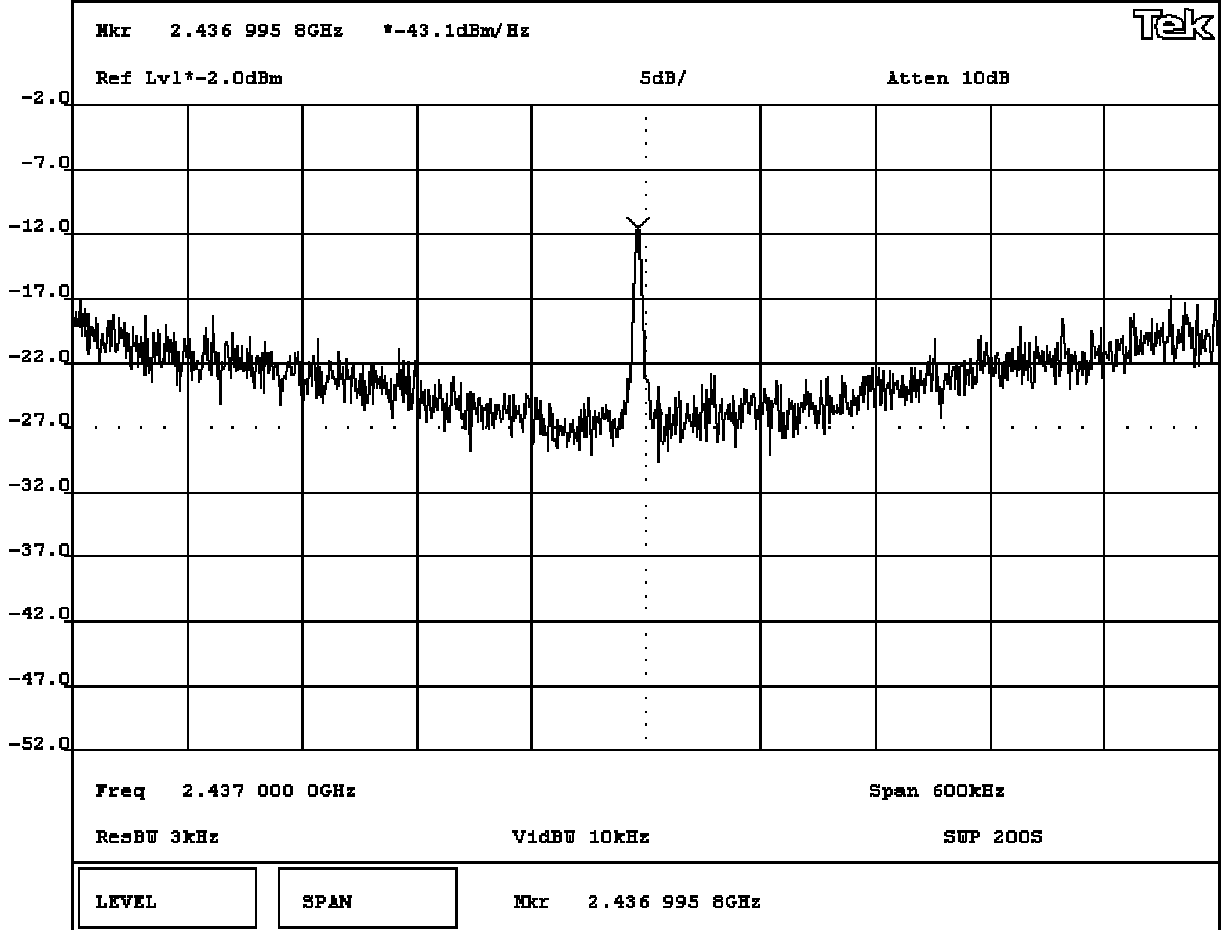
**DEVIATIONS FROM TEST STANDARD**  
 None

**REQUIREMENTS**  
 Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band

**RESULTS**  
 AMPLITUDE  
 Pass -8.4dBm / 3KHz

**SIGNATURE**  
  
 Tested By: \_\_\_\_\_

**DESCRIPTION OF TEST**  
**Power Spectral Density - Mid Channel**



NORTHWEST **EMC** **EMISSIONS DATA SHEET** Transmitters Rev df11/13/02

EUT:	PC24-11-FC/R	Work Order:	INMC0036
Serial Number:	02UT34371446	Date:	11/15/02
Customer:	INTERMEC Corporation	Temperature:	22 °C
Attendees:	None	Humidity:	45%
Customer Ref. No.:	None	Bar. Pressure:	30.75
Tested by:	Rod Peloquin	Power:	5VDC
		Job Site:	EV06

<b>TEST SPECIFICATIONS</b>			
Specification:	47 CFR 15.247(d)	Year:	Most Current
Method:	FCC 97-114, ANSI C63.4	Year:	1992

**SAMPLE CALCULATIONS**  
 Meter reading on spectrum analyzer is internally compensated for cable loss and external attenuation.  
 Power Spectral Density per 3kHz bandwidth = Power Spectral Density per 1 Hz bandwidth + Bandwidth Correction Factor.  
 Bandwidth Correction Factor =  $10 \cdot \log(3 \text{ kHz} / 1 \text{ Hz}) = 34.7 \text{ dB}$


**COMMENTS**  
 None

**EUT OPERATING MODES**  
 modulated

**DEVIATIONS FROM TEST STANDARD**  
 None

**REQUIREMENTS**  
 Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band

**RESULTS**  
 AMPLITUDE  
 Pass -8.6dBm / 3KHz

**SIGNATURE**  
  
 Tested By: \_\_\_\_\_

**DESCRIPTION OF TEST**  
 Power Spectral Density - High Channel

