Exhibit O: Power Spectral Density

FCC ID: HN2MPCI3A-20

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

Data Rates Investigated:
Maximum

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
DC from E-net

Software\Firmware Applied During Test

Exercise software	AP Monitor	Version	V5.97
Description			
A notebook PC controls the radio through a serial port connection on the WA22 access point. Hyper Terminal running in Windows 98 address the AP monitor commands for setting the transmit channel and data rate.			

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 - 802.11 (b) radio module installed in WA22 Access Point	Intermec	MPCI3A-20	022-026
Power bridge	Intermec	071579	U01156281006901
Laptop PC	Panasonic	CF-35	7KHSA02247

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Serial cable	Yes	1.5	No	Access Point	Laptop
Ethernet cable	No	7.5	No	Power Bridge	Access Point
AC power	No	1.9	No	Power Bridge	AC mains

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

Measurement Equipment

Description	Manufacturer	Model	Identifier	Last Cal	Interval
Spectrum Analyzer	Tektronix	2784	AAO	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 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 34.7 dB for correction to 3 kHz."

Completed by:

_____

EUT: MPCI3A-20		**Work Order:** INMC0023	
Serial Number: 002-026		**Date:** 07/23/02	
Customer: Intermec Corporation		**Temperature:** 26 degrees C	
Attendees: None	**Tested by:** Greg Kiemel	**Humidity:** 43% RH	
Customer Ref. No.: N/A	**Power:** DC from E-net	**Job Site:** EV06	

TEST SPECIFICATIONS

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*log(3 kHz / 1 Hz) = 34.7 dB

COMMENTS

Tested in WA22 Access Point

EUT OPERATING MODES

Modulated by PRBS at maximum data rate
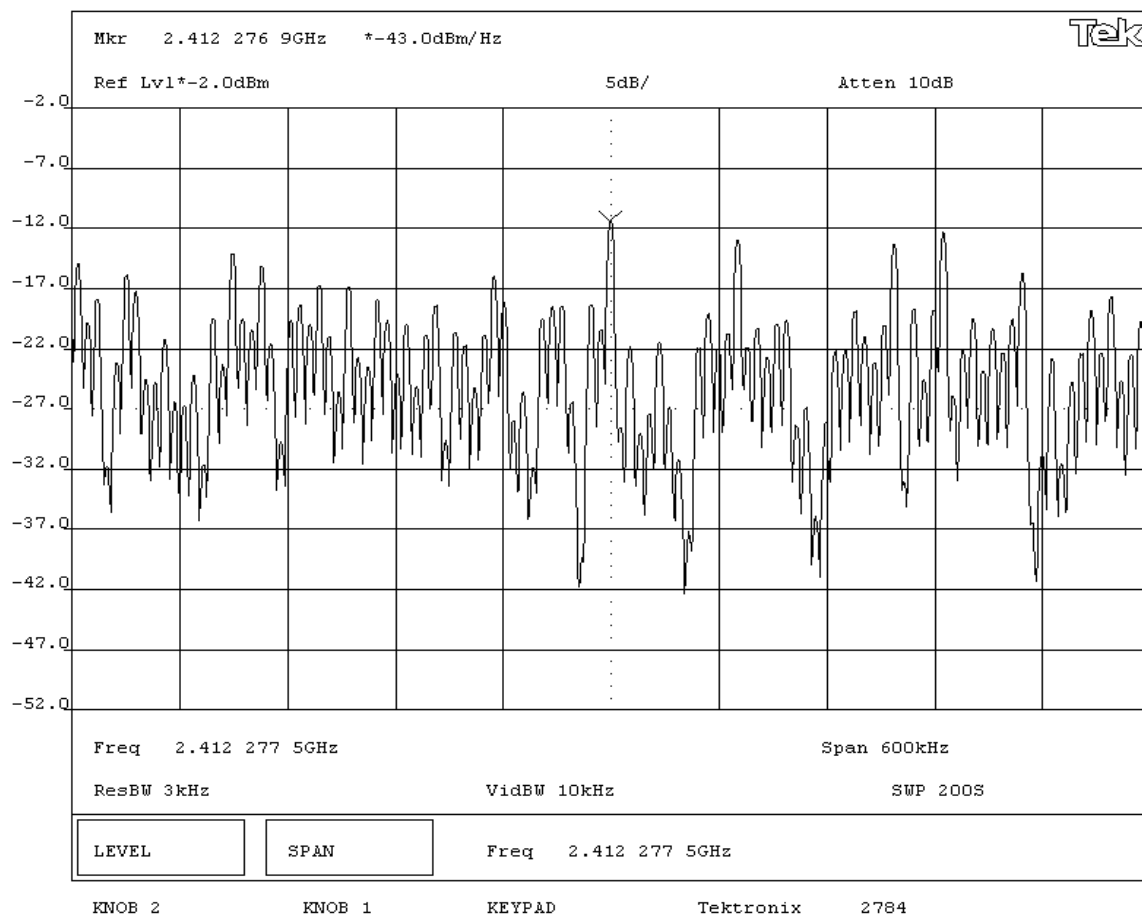
DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum peak power spectral density conducted from a DSSS transmitter does not exceed 8 dBm in any 3 kHz band
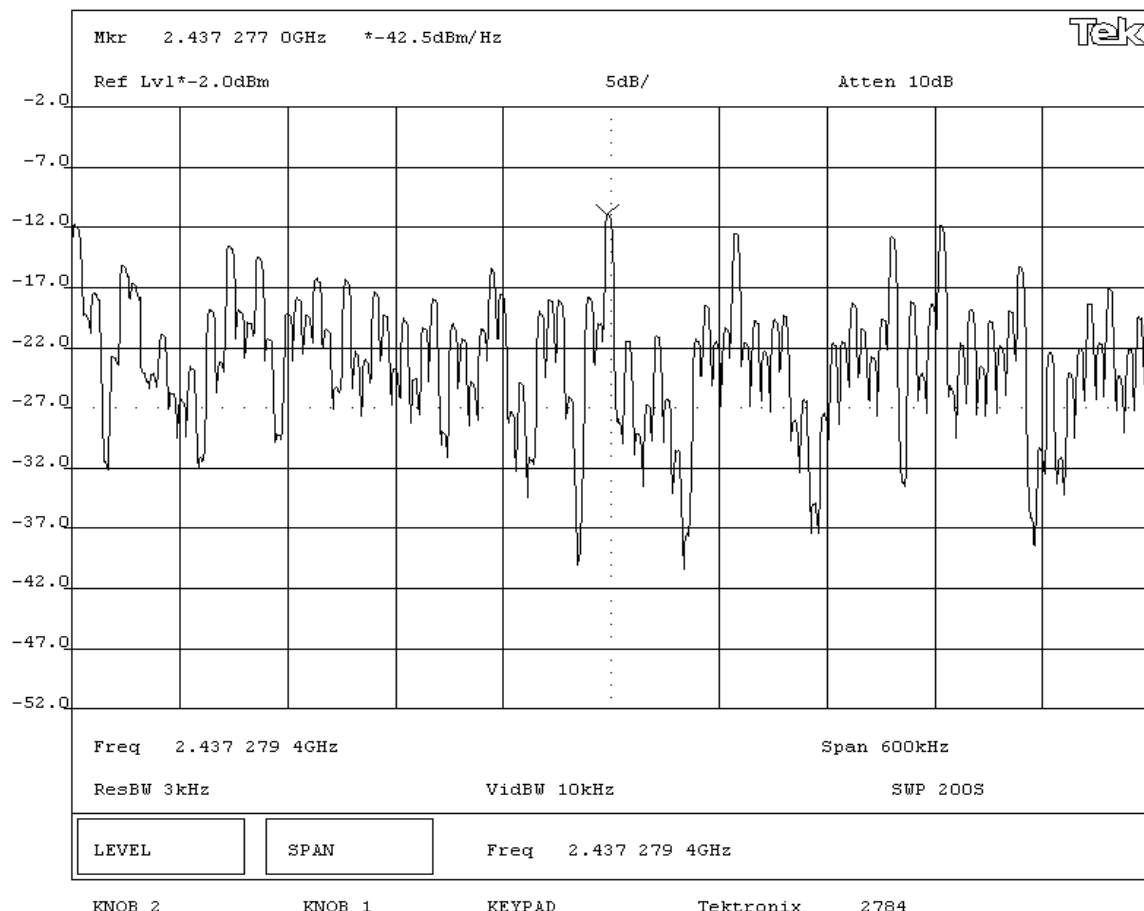
RESULTS	**AMPLITUDE**
Pass	Power Spectral Density = -8.3 dBm / 3kHz

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Power Spectral Density - Low Channel

Mkr   2.412 276 9GHz   *-43.0dBm/Hz

Ref Lvl*-2.0dBm   5dB/   Atten 10dB

Freq   2.412 277 5GHz   Span 600kHz

ResBW 3kHz   VidBW 10kHz   SWP 200S

LEVEL	SPAN	Freq 2.412 277 5GHz

KNOB 2   KNOB 1   KEYPAD   Tektronix   2784

EMISSIONS DATA SHEET

EUT:	MPCI3A-20	**Work Order:**	INMC0023
Serial Number:	002-026	**Date:**	07/23/02
Customer:	Intermec Corporation	**Temperature:**	26 degrees C
Attendees:	None	**Tested by:** Greg Kiemel	**Humidity:** 43% RH
Customer Ref. No.:	N/A	**Power:** DC from E-net	**Job Site:** EV06

TEST SPECIFICATIONS

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*log(3 kHz / 1 Hz) = 34.7 dB

COMMENTS

Tested in WA22 Access Point

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

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	Power Spectral Density = -7.8 dBm / 3kHz

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Power Spectral Density - Mid Channel

EMISSIONS DATA SHEET

Rev BETA
01/30/01

EUT: MPCI3A-20		**Work Order:** INMC0023	
Serial Number: 002-026		**Date:** 07/23/02	
Customer: Intermec Corporation		**Temperature:** 26 degrees C	
Attendees: None	**Tested by:** Greg Kiemel	**Humidity:** 43% RH	
Customer Ref. No.: N/A	**Power:** DC from E-net	**Job Site:** EV06	

TEST SPECIFICATIONS

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*log(3 kHz / 1 Hz) = 34.7 dB

COMMENTS

Tested in WA22 Access Point

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

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	Power Spectral Density = -7.5 dBm / 3kHz

SIGNATURE

Tested By: _____

DESCRIPTION OF TEST

Power Spectral Density - High Channel


```
Mkr   2.462 278 8GHz   *-42.2dBm/Hz

Ref Lvl*-2.0dBm              5dB/              Atten 10dB
 -2.0
 -7.0
-12.0
-17.0
-22.0
-27.0
-32.0
-37.0
-42.0
-47.0
-52.0

Freq  2.462 280 0GHz                    Span 600kHz

ResBW 3kHz              VidBW 10kHz              SWP 200S

LEVEL       SPAN       Freq  2.462 280 0GHz

KNOB 2       KNOB 1       KEYPAD      Tektronix    2784
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