**Exhibit L: AC Conducted Emissions** 

FCC ID: HN2WN-5MP01

# **AC Powerline Conducted Emissions**

Revision 2/4/02

## **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:**

120 VAC, 60 Hz.

### Other Settings Investigated:

Low, mid, and high channels were tested with both the integral antennas and the highest gain removable antenna.

Frequency Range Investigated				
Start Frequency	150 kHz	Stop Frequency	30 MHz	

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 WA21 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.

# **AC Powerline Conducted Emissions**

Revision 2/4/02

## **EUT and Peripherals**

Description	Manufacturer	Model/Part Number	Serial Number
Omni antenna	Intermec	072760	N/A
Corner reflector antenna	Intermec	072762	N/A
Two Integral omni antennas	Intermec	072664	N/A
EUT-802.11(a) radio module installed in WA21 Access Point	Intermec	WN-5MP01	002-032
Laptop PC (config only)	Gateway	Solo 2500	BC699085606

### **Cables**

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Serial	Yes	1.5	No	Access Point	Unterminated
Antenna Adapter Cable	Yes	1.8	No	Access Point	Omni antenna
Antenna adapter cable	Yes	.35	No	Access Point	Corner reflector antenna
AC Power	No	1.8	No	Access Point	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
High Pass Filter	TTE	H97-100k-50-720B	HFC	12/11/2001	12 mo
LISN	Solar	9252-50-R-24-BNC	LIP	06/12/2002	12 mo

## **Test Description**

**Requirement:** Per 47 15.407(b)(5) and 15.207(d), if the EUT is connected to the AC power line indirectly, obtaining its power from another device that is connected to the AC power line, then it should be tested to demonstrate compliance with the conducted limits of 15.207.

<u>Configuration</u>: The AC power line conducted emissions were measured with the EUT operating at the lowest, the highest, and a middle channel in each operational band. The EUT was transmitting at its maximum data rate. For each mode, the spectrum was scanned from 150 kHz to 30 MHz. The test setup and procedures were in accordance with ANSI C63.4-1992.

Completed by:
Rocky la Relenge

#### **CONDUCTED EMISSIONS DATA SHEET EMC** Work Order: INMC0024 EUT: WN-5MP01 Serial Number: 002-032 Date: 8/19/02 9:15 Customer: INTERMEC Corporation Temperature: 72 Attendees: None Humidity: 38% Cust. Ref. No.: Barometric Pressure 30 Tested by: Rod Peloquin Power: 120VAC/60Hz Job Site: EV01 SPECIFICATIONS Specification: CISPR22 Class B Year: 1997 Method: CISPR 22 Year: 1997 SAMPLE CALCULATIONS Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation low channel, tested in WA21, Tx radio a with intergral antennas, corner mount and omni on radio b **EUT OPERATING MODES DEVIATIONS FROM TEST STANDARD** Pass Other Tested By: 80 70 60 50 dBuV 40 30 20 10 0 0.1 1 10 100 MHz External Compared to Freq Amplitude Transducer Cable Attenuation Detector Adjusted Spec. Limit (MHz) (dBuV) (dB) (dB) (dB) dBuV dBuV (dB) 0.202 0.193 23.7 0.0 0.2 20.0 43.9 53.9 -10.0 0.348 20.0 38.3 49.0 -10.7 18.1 0.0 0.2 0.227 21.0 0.0 0.2 20.0 41.2 52.5 -11.4 0.175 42.3 54 7 -12.5 22 1 0.0 0.2 20.0 0.221 19.6 0.0 0.2 20.0 39.8 52.8 -13.0 0.352 15.3 0.0 0.2 20.0 35.5 48.9 -13.4 0.465 11.0 0.2 20.0 31.2 46.6 -15.4 13.920 50.0 -16.4 12.5 0.0 1.1 20.0 33.6 13.344 12.5 0.0 1.0 20.0 33.5 50.0 -16.5 20.0 0.264 14.3 0.0 0.2 34.5 51.3 -16.8 13.680 20.0 33.2 -16.8 12.1 0.0 1.1 50.0 13.464 12.0 0.0 1.0 20.0 33.0 50.0 -17.0 2.316 8.4 0.0 0.5 20.0 28.9 46.0 -17.1 2.646 8.3 20.0 28.8 46.0 -17.2 4.197 8.0 0.0 0.6 20.0 28.6 46.0 -17.4 3.276 8.0 0.0 0.5 20.0 28.5 46.0 -17.5 4.777 7.9 0.0 0.6 20.0 28.5 46.0 -17.5

46.0

46.0

50.0

-17.7

-17.7

-17.8

28.3

28.3

32.2

7.9

7.7

11.2

0.0

0.0

0.0

0.4

0.6

1.0

20.0

20.0

20.0

1.775

4.597

#### **CONDUCTED EMISSIONS DATA SHEET EMC** Work Order: INMC0024 EUT: WN-5MP01 Serial Number: 002-032 Date: 8/19/02 9:19 Customer: INTERMEC Corporation Temperature: 72 Attendees: None Humidity: 38% Cust. Ref. No.: Barometric Pressure 30 Tested by: Rod Peloquin Power: 120VAC/60Hz Job Site: EV01 SPECIFICATIONS Specification: CISPR22 Class B Year: 1997 Method: CISPR 22 Year: 1997 SAMPLE CALCULATIONS Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation low channel, tested in WA21, Tx radio a with intergral antennas, corner mount and omni on radio b **EUT OPERATING MODES DEVIATIONS FROM TEST STANDARD** No deviations Pass Other 80 70 60 50 dBuV 40 30 20 10 0 0.1 1 10 100 MHz External Compared to Freq Amplitude Transducer Cable Attenuation Detector Adjusted Spec. Limit (MHz) (dBuV) (dB) (dB) (dB) dBuV dBuV (dB) 0.200 0.183 25.1 0.0 0.2 20.0 45.3 54.3 -9.1 0.171 20.0 54.9 -10.8 24.0 0.0 44.1 0.1 0.218 21.6 0.0 0.2 20.0 41.8 52.9 -11.1 0.236 40.5 52 2 -11.8 20.3 0.0 0.2 20.0 0.150 22.7 0.0 0.1 20.0 42.8 56.0 -13.2 0.221 19.4 0.0 0.2 20.0 39.6 52.8 -13.2 0.160 21.5 20.0 41.6 55.5 -13.8 0.389 20.0 48.1 -15.0 12.9 0.0 0.2 33.1 0.345 13.4 0.0 0.2 20.0 33.6 49.1 -15.5 0.359 12.3 0.0 0.2 20.0 32.5 48.8 -16.3 0.4 20.0 29.4 46.0 -16.6 1.675 9.0 0.0 0.5 2.456 8.6 0.0 20.0 29.1 46.0 -16.9 13.008 12.0 0.0 1.0 20.0 33.0 50.0 -17.0 12.648 12.0 1.0 20.0 33.0 50.0 -17.0 13.128 11.8 0.0 1.0 20.0 32.8 50.0 -17.2 0.356 11.4 0.0 0.2 20.0 31.6 48.8 -17.2 12.768 11.1 0.0 1.0 20.0 32.1 50.0 -17.9

2.876

13.704

3.556

7.5

10.9

7.4

0.0

0.0

0.0

0.5

1.1

0.5

20.0

20.0

20.0

28.0

32.0

27.9

46.0

50.0

46.0

-18.0

-18.0

-18.1

#### **CONDUCTED EMISSIONS DATA SHEET EMC** Work Order: INMC0024 EUT: WN-5MP01 Serial Number: 002-032 Date: 8/19/02 9:20 Customer: INTERMEC Corporation Temperature: 72 Attendees: None Humidity: 38% Cust. Ref. No.: Barometric Pressure 30 Tested by: Rod Peloquin Power: 120VAC/60Hz Job Site: EV01 SPECIFICATIONS Specification: CISPR22 Class B Year: 1997 Method: CISPR 22 Year: 1997 SAMPLE CALCULATIONS Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation mid channel, tested in WA21, Tx radio a with intergral antennas, corner mount and omni on radio b **EUT OPERATING MODES DEVIATIONS FROM TEST STANDARD** Pass Other Tested By: 80 70 60 50 dBuV 40 30 20 10 0 0.1 1 10 100 MHz External Compared to Freq Amplitude Transducer Cable Attenuation Detector Adjusted Spec. Limit (MHz) (dBuV) (dB) (dB) (dB) dBuV dBuV (dB) 0.194 0.229 24.7 0.0 0.2 20.0 44.9 52.5 -7.6 0.238 23.0 0.2 20.0 43.2 52.2 -9.0 0.0 0.175 24.2 0.0 0.2 20.0 44.4 54.7 -10.4 0.211 42 7 53.2 -10.5 22.5 0.0 0.2 20.0 0.353 16.2 0.0 0.2 20.0 36.4 48.9 -12.5 0.160 21.3 0.0 0.1 20.0 41.4 55.5 -14.0 0.269 15.9 0.2 20.0 36.1 51.2 -15.1 12.888 13.5 20.0 34.5 -15.5 0.0 1.0 50.0 13.008 13.3 0.0 1.0 20.0 34.3 50.0 -15.7 20.0 12.552 12.6 0.0 1.0 33.6 50.0 -16.4 13.236 20.0 50.0 -16.6 12.4 0.0 1.0 33.4 13.128 12.4 0.0 1.0 20.0 33.4 50.0 -16.6 13.356 12.3 0.0 1.0 20.0 33.3 50.0 -16.7 12.792 12.2 1.0 20.0 33.2 50.0 -16.8 14.064 12.1 0.0 1.1 20.0 33.2 50.0 -16.8 13.704 12.1 0.0 20.0 33.2 50.0 -16.8 1.1 4.777 8.1 0.0 0.6 20.0 28.7 46.0 -17.3

46.0

50.0

46.0

28.5

32.4

28.3

-17.5

-17.6

-17.7

3.756

13.584

1.915

8.0

11.3

7.9

0.0

0.0

0.0

0.5

1.1

0.4

20.0

20.0

#### **CONDUCTED EMISSIONS DATA SHEET EMC** Work Order: INMC0024 EUT: WN-5MP01 Serial Number: 002-032 Date: 8/19/02 9:22 Customer: INTERMEC Corporation Temperature: 72 Attendees: None Humidity: 38% Cust. Ref. No.: Barometric Pressure 30 Tested by: Rod Peloquin Power: 120VAC/60Hz Job Site: EV01 SPECIFICATIONS Specification: CISPR22 Class B Year: 1997 Method: CISPR 22 Year: 1997 SAMPLE CALCULATIONS Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation mid channel, tested in WA21, Tx radio a with intergral antennas, corner mount and omni on radio b **EUT OPERATING MODES DEVIATIONS FROM TEST STANDARD** No deviations Pass Other Tested By: 80 70 60 50 dBuV 40 30 20 10 0 0.1 1 10 100 MHz External Compared to Freq Amplitude Transducer Cable Attenuation Detector Adjusted Spec. Limit (MHz) (dBuV) (dB) (dB) (dB) dBuV dBuV (dB) 0.347 0.174 24.2 0.0 0.1 20.0 44.3 54.8 -10.4 0.200 22.6 20.0 42.8 53.6 -10.8 0.0 0.2 0.229 21.3 0.0 0.2 20.0 41.5 52.5 -11.0 40.4 0.239 -11.8 20.2 0.0 0.2 20.0 52.1 0.218 20.1 0.0 0.2 20.0 40.3 52.9 -12.7 0.157 21.2 0.0 0.1 20.0 41.3 55.6 -14.3 12.888 13.5 0.0 1.0 20.0 34.5 50.0 -15.5 0.286 20.0 35.1 -15.6 14.9 0.0 0.2 50.6 0.302 14.4 0.0 0.2 20.0 34.6 50.2 -15.6 12.792 20.0 12.4 0.0 1.0 33.4 50.0 -16.6 13.008 20.0 50.0 -16.7 12.3 0.0 1.0 33.3 13.368 12.1 0.0 1.0 20.0 33.1 50.0 -16.9 13.704 11.9 0.0 1.1 20.0 33.0 50.0 -17.0 13.608 11.8 1.1 20.0 32.9 50.0 -17.1 13.944 11.5 0.0 1.1 20.0 32.6 50.0 -17.4 13.848 11.5 0.0 20.0 32.6 50.0 -17.4 1.1 1.895 8.0 0.0 0.4 20.0 28.4 46.0 -17.6

1.0

1.0

1.0

20.0

20.0

20.0

0.0

0.0

0.0

12.672

13.248

13.152

11.4

11.3

11.3

-17.6

-17.7

-17.7

50.0

50.0

50.0

32.4

32.3

#### **CONDUCTED EMISSIONS DATA SHEET EMC** Work Order: INMC0024 EUT: WN-5MP01 Serial Number: 002-032 Date: 8/19/02 9:24 Customer: INTERMEC Corporation Temperature: 72 Attendees: None Humidity: 38% Cust. Ref. No.: Barometric Pressure 30 Tested by: Rod Peloquin Power: 120VAC/60Hz Job Site: EV01 SPECIFICATIONS Specification: CISPR22 Class B Year: 1997 Method: CISPR 22 Year: 1997 SAMPLE CALCULATIONS Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation high channel, tested in WA21, Tx radio a with intergral antennas, corner mount and omni on radio b **EUT OPERATING MODES DEVIATIONS FROM TEST STANDARD** No deviations Pass Other 80 70 60 50 dBuV 40 30 20 10 0 0.1 1 10 100 MHz External Compared to Freq Amplitude Transducer Cable Attenuation Detector Adjusted Spec. Limit (MHz) (dBuV) (dB) (dB) (dB) dBuV dBuV (dB) 0.182 0.165 23.2 0.0 0.1 20.0 43.3 55.2 -11.8 0.235 20.0 39.0 52.3 -13.3 18.8 0.0 0.2 13.020 13.4 0.0 1.0 20.0 34.4 50.0 -15.6 35.4 51.0 -15.6 0.275 15.2 0.0 0.2 20.0 0.344 13.3 0.0 0.2 20.0 33.5 49.1 -15.6 0.353 13.0 0.0 0.2 20.0 33.2 48.9 -15.7 0.224 16.7 0.0 0.2 20.0 36.9 52.7 -15.8 13.968 -15.8 13.1 0.0 1.1 20.0 34.2 50.0 13.248 13.1 0.0 1.0 20.0 34.1 50.0 -15.9 20.0 12.672 13.1 0.0 1.0 34.1 50.0 -15.9 13.848 20.0 34.0 50.0 -16.0 12.9 0.0 1.1 13.368 12.9 0.0 1.0 20.0 33.9 50.0 -16.1 13.488 12.8 0.0 1.0 20.0 33.8 50.0 -16.2 0.395 11.3 0.2 20.0 31.5 48.0 -16.4 0.218 16.2 0.0 0.2 20.0 36.4 52.9 -16.5 12.792 12.4 0.0 1.0 20.0 33.4 50.0 -16.6 0.776 9.0 0.0 0.3 20.0 29.3 46.0 -16.7

13.152

13.608

14.064

12.3

12.1

11.9

0.0

0.0

0.0

1.0

1.1

20.0

20.0

20.0

-16.7

-16.8

-17.0

50.0

50.0

50.0

33.3

33.2

#### **CONDUCTED EMISSIONS DATA SHEET EMC** Work Order: INMC0024 EUT: WN-5MP01 Serial Number: 002-032 Date: 8/19/02 9:25 Customer: INTERMEC Corporation Temperature: 72 Attendees: None Humidity: 38% Cust. Ref. No.: Barometric Pressure 30 Tested by: Rod Peloquin Power: 120VAC/60Hz Job Site: EV01 SPECIFICATIONS Specification: CISPR22 Class B Year: 1997 Method: CISPR 22 Year: 1997 SAMPLE CALCULATIONS Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation high channel, tested in WA21, Tx radio a with intergral antennas, corner mount and omni on radio b **EUT OPERATING MODES DEVIATIONS FROM TEST STANDARD** Pass Other Tested By: 80 70 60 50 dBuV 40 30 20 10 0 0.1 1 10 100 MHz External Compared to Freq Amplitude Transducer Cable Attenuation Detector Adjusted Spec. Limit (MHz) (dBuV) (dB) (dB) (dB) dBuV dBuV (dB) 0.209 0.231 20.6 0.0 0.2 20.0 40.8 52.4 -11.6 13.728 20.0 35.0 50.0 -15.0 13.9 0.0 1.1 0.372 12.6 0.0 0.2 20.0 32.8 48.4 -15.6 0.263 35.6 51.4 -15.8 15.4 0.0 0.2 20.0 12.792 13.0 0.0 1.0 20.0 34.0 50.0 -16.0 0.355 12.6 0.0 0.2 20.0 32.8 48.8 -16.0 13.260 12.9 0.0 1.0 20.0 33.9 50.0 -16.1 13.596 -16.3 12.6 0.0 1.1 20.0 33.7 50.0 13.488 12.3 0.0 1.0 20.0 33.3 50.0 -16.7 20.0 13.020 12.2 0.0 1.0 33.2 50.0 -16.8 20.0 46.0 -16.8 3.306 8.7 0.0 0.5 29.2 0.287 13.6 0.0 0.2 20.0 33.8 50.6 -16.8 12.912 12.1 0.0 1.0 20.0 33.1 50.0 -16.9 3.996 8.4 20.0 29.0 46.0 -17.0 12.672 11.8 0.0 1.0 20.0 32.8 50.0 -17.2 13.848 11.6 0.0 20.0 32.7 50.0 -17.3 1.1 2.476 8.1 0.0 0.5 20.0 28.6 46.0 -17.4

2.036

13.140

4.617

8.1

11.3

0.0

0.0

0.0

0.5

1.0

0.6

20.0

20.0

20.0

46.0

50.0

46.0

28.6

32.3

28.3

-17.4

-17.7

-17.7

#### **CONDUCTED EMISSIONS DATA SHEET EMC** Work Order: INMC0024 EUT: WN-5MP01 Serial Number: 002-032 Date: 8/19/02 9:28 Customer: INTERMEC Corporation Temperature: 72 Attendees: None Humidity: 38% Cust. Ref. No.: Barometric Pressure 30 Tested by: Rod Peloquin Power: 120VAC/60Hz Job Site: EV01 SPECIFICATIONS Specification: CISPR22 Class B Year: 1997 Method: CISPR 22 Year: 1997 SAMPLE CALCULATIONS Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation Low channel, tested in WA21, Tx radio b corner mount antenna, Rx radio b omni antenna **EUT OPERATING MODES DEVIATIONS FROM TEST STANDARD** Pass Other Tested By: 80 70 60 50 dBuV 40 30 20 10 0 0.1 1 10 100 MHz External Compared to Freq Amplitude Transducer Cable Attenuation Detector Adjusted Spec. Limit (MHz) (dBuV) (dB) (dB) (dB) dBuV dBuV (dB) 0.344 0.352 17.0 0.0 0.2 20.0 37.2 48.9 -11.7 0.239 20.0 40.3 -11.9 20.1 0.0 0.2 52.1 0.152 21.6 0.0 0.1 20.0 41.7 55.9 -14.2 0.379 48.3 -14.3 13.8 0.0 0.2 20.0 34 0 0.290 14.3 0.0 0.2 20.0 34.5 50.5 -16.0 13.860 12.4 0.0 1.1 20.0 33.5 50.0 -16.5 12.816 12.4 0.0 1.0 20.0 33.4 50.0 -16.6 12.936 20.0 33.0 50.0 -17.0 12.0 0.0 1.0 13.512 11.9 0.0 1.0 20.0 32.9 50.0 -17.1 20.0 12.696 11.7 0.0 1.0 32.7 50.0 -17.30.489 20.0 28.7 46.2 8.5 0.0 0.2 -17.42.736 7.9 0.0 0.5 20.0 28.4 46.0 -17.6 13.728 11.3 0.0 1.1 20.0 32.4 50.0 -17.6 0.399 10.0 20.0 30.2 47.9 -17.6 13.392 11.3 0.0 1.0 20.0 32.3 50.0 -17.7 2.936 7.8 0.0 0.5 20.0 28.3 46.0 -17.7 13.992 11.2 0.0 20.0 32.3 50.0 -17.7 1.1

1.375

4.917

13.632

7.8

7.6

11.1

0.0

0.0

0.0

0.4

0.6

20.0

20.0

20.0

-17.8

-17.8

-17.8

46.0

46.0

50.0

28.2

28.2

#### **CONDUCTED EMISSIONS DATA SHEET EMC** Work Order: INMC0024 EUT: WN-5MP01 Serial Number: 002-032 Date: 8/19/02 9:29 Customer: INTERMEC Corporation Temperature: 72 Attendees: None Humidity: 38% Cust. Ref. No.: Barometric Pressure 30 Tested by: Rod Peloquin Power: 120VAC/60Hz Job Site: EV01 SPECIFICATIONS Specification: CISPR22 Class B Year: 1997 Method: CISPR 22 Year: 1997 SAMPLE CALCULATIONS Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation Low channel, tested in WA21, Tx radio b corner mount antenna, Rx radio b omni antenna **EUT OPERATING MODES DEVIATIONS FROM TEST STANDARD** Pass Other Tested By: 80 70 60 50 dBuV 40 30 20 10 0 0.1 1 10 100 MHz External Compared to Freq Amplitude Transducer Cable Attenuation Detector Adjusted Spec. Limit (MHz) (dBuV) (dB) (dB) (dB) dBuV dBuV (dB) -11.7 0.206 19.6 0.0 0.2 20.0 39.8 53.4 -13.6 0.152 20.0 55.9 -14.2 21.6 0.0 41.7 0.1 0.348 -14.5 14.3 0.0 0.2 20.0 34.5 49.0 20.0 52.0 0.242 37 4 -14.7 17.2 0.0 0.2 0.224 17.3 0.0 0.2 20.0 37.5 52.7 -15.2 0.258 16.0 0.0 0.2 20.0 36.2 51.5 -15.3 12.696 12.4 0.0 1.0 20.0 33.4 50.0 -16.6 12.924 1.0 20.0 33.2 50.0 -16.8 12.2 0.0 13.056 12.0 0.0 1.0 20.0 33.0 50.0 -17.0 20.0 1.355 8.5 0.0 0.4 28.9 46.0 -17.1 12.816 1.0 20.0 32.9 50.0 11.9 0.0 -17.1 13.272 11.8 0.0 1.0 20.0 32.8 50.0 -17.2 3.256 8.3 0.0 0.5 20.0 28.8 46.0 -17.2 1.735 8.1 20.0 28.5 46.0 -17.5 3.056 8.0 0.0 0.5 20.0 28.5 46.0 -17.5 4.037 7.9 0.0 0.6 20.0 28.5 46.0 -17.5 0.376 10.6 0.0 0.2 20.0 30.8 48.4 -17.6

0.323

13.752

3.916

11.8

11.3

7.8

0.0

0.0

0.0

0.2

1.1

0.6

20.0

20.0

20.0

-17.6

-17.6

-17.6

49.6

50.0

46.0

32.0

32.4

#### **CONDUCTED EMISSIONS DATA SHEET EMC** Work Order: INMC0024 EUT: WN-5MP01 Serial Number: 002-032 Date: 8/19/02 9:31 Customer: INTERMEC Corporation Temperature: 72 Attendees: None Humidity: 38% Cust. Ref. No.: Barometric Pressure 30 Tested by: Rod Peloquin Power: 120VAC/60Hz Job Site: EV01 SPECIFICATIONS Specification: CISPR22 Class B Year: 1997 Method: CISPR 22 Year: 1997 SAMPLE CALCULATIONS Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation Mid channel, tested in WA21, Tx radio b corner mount antenna, Rx radio b omni antenna **EUT OPERATING MODES DEVIATIONS FROM TEST STANDARD** Pass Other Tested By: 80 70 60 50 dBuV 40 30 20 10 0 0.1 1 10 100 MHz External Compared to Freq Amplitude Transducer Cable Attenuation Detector Adjusted Spec. Limit (MHz) (dBuV) (dB) (dB) (dB) dBuV dBuV (dB) 0.240 41.8 -10.3 0.205 21.6 0.0 0.2 20.0 41.8 53.4 -11.7 0.227 0.2 20.0 39.0 52.5 -13.6 18.8 0.0 13.536 13.9 0.0 1.0 20.0 34.9 50.0 -15.1 12.816 50.0 34 9 -15.1 13.9 0.0 1.0 20.0 13.404 13.4 0.0 1.0 20.0 34.4 50.0 -15.6 0.473 10.6 0.0 0.2 20.0 30.8 46.5 -15.6 12.936 13.3 0.0 1.0 20.0 34.3 50.0 -15.7 13.752 -15.7 13.2 0.0 1.1 20.0 34.3 50.0 13.056 13.2 0.0 1.0 20.0 34.2 50.0 -15.8 20.0 13.176 13.0 0.0 1.0 34.0 50.0 -16.0 13.296 20.0 33.9 50.0 -16.1 12.9 0.0 1.0 0.263 15.0 0.0 0.2 20.0 35.2 51.3 -16.1 13.632 12.8 0.0 1.1 20.0 33.9 50.0 -16.1 0.361 12.0 20.0 32.2 48.7 -16.5 0.314 13.1 0.0 0.2 20.0 33.3 49.9 -16.6 0.295 13.6 0.0 0.2 20.0 33.8 50.4 -16.6 12.576 12.4 0.0 1.0 20.0 33.4 50.0 -16.6

13.992

13.872

2.896

12.0

11.8

8.3

0.0

0.0

0.0

1.1

1.1

0.5

20.0

20.0

20.0

-16.9

-17.1

-17.2

50.0

50.0

46.0

33.1

32.9

#### **CONDUCTED EMISSIONS DATA SHEET EMC** Work Order: INMC0024 EUT: WN-5MP01 Serial Number: 002-032 Date: 8/19/02 9:33 Customer: INTERMEC Corporation Temperature: 72 Attendees: None Humidity: 38% Cust. Ref. No.: Barometric Pressure 30 Tested by: Rod Peloquin Power: 120VAC/60Hz Job Site: EV01 SPECIFICATIONS Specification: CISPR22 Class B Year: 1997 Method: CISPR 22 Year: 1997 SAMPLE CALCULATIONS Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation Mid channel, tested in WA21, Tx radio b corner mount antenna, Rx radio b omni antenna **EUT OPERATING MODES DEVIATIONS FROM TEST STANDARD** No deviations Pass Other Tested By: 80 70 60 50 dBuV 40 30 20 10 0 0.1 1 10 100 MHz External Compared to Freq Amplitude Transducer Cable Attenuation Detector Adjusted Spec. Limit (MHz) (dBuV) (dB) (dB) (dB) dBuV dBuV (dB) 0.210 44.9 0.352 18.4 0.0 0.2 20.0 38.6 48.9 -10.3 0.192 20.0 53.9 -12.2 21.6 0.0 0.2 41.8 0.236 18.8 0.0 0.2 20.0 39.0 52.2 -13.3 42.0 0.161 55.4 -13.4 21.9 0.0 0.1 20.0 0.165 21.3 0.0 0.1 20.0 41.4 55.2 -13.7 0.243 17.6 0.0 0.2 20.0 37.8 52.0 -14.2 12.936 13.5 0.0 1.0 20.0 34.5 50.0 -15.5 0.270 20.0 35.6 -15.5 15.4 0.0 0.2 51.1 13.524 13.3 0.0 1.0 20.0 34.3 50.0 -15.7 12.840 20.0 13.3 0.0 1.0 34.3 50.0 -15.713.404 20.0 34.2 50.0 -15.8 13.2 0.0 1.0 0.378 12.3 0.0 0.2 20.0 32.5 48.3 -15.8 13.872 13.1 0.0 1.1 20.0 34.2 50.0 -15.8 13.164 13.1 1.0 20.0 50.0 -15.9 0.333 13.2 0.0 0.2 20.0 33.4 49.4 -16.0 13.752 12.9 0.0 1.1 20.0 34.0 50.0 -16.0 13.992 12.5 0.0 20.0 33.6 50.0 -16.4 1.1

13.284

12.600

13.656

12.5

12.4

12.3

0.0

0.0

0.0

1.0

1.0

20.0

20.0

20.0

50.0

50.0

50.0

33.5

33.4

33.4

-16.5

-16.6

-16.6

#### **CONDUCTED EMISSIONS DATA SHEET EMC** Work Order: INMC0024 EUT: WN-5MP01 Serial Number: 002-032 Date: 8/19/02 9:35 Customer: INTERMEC Corporation Temperature: 72 Attendees: None Humidity: 38% Cust. Ref. No.: Barometric Pressure 30 Tested by: Rod Peloquin Power: 120VAC/60Hz Job Site: EV01 SPECIFICATIONS Specification: CISPR22 Class B Year: 1997 Method: CISPR 22 Year: 1997 SAMPLE CALCULATIONS Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation High channel, tested in WA21, Tx radio b corner mount antenna, Rx radio b omni antenna **EUT OPERATING MODES DEVIATIONS FROM TEST STANDARD** Pass Other Tested By: 80 70 60 50 dBuV 40 30 20 10 0 0.1 1 10 100 MHz External Compared to Freq Amplitude Transducer Cable Attenuation Detector Adjusted Spec. Limit (MHz) (dBuV) (dB) (dB) (dB) dBuV dBuV (dB) 0.220 0.203 23.5 0.0 0.2 20.0 43.7 53.5 -9.8 0.343 0.2 20.0 37.5 -11.6 17.3 0.0 49.1 0.245 19.8 0.0 0.2 20.0 40.0 51.9 -11.9 0.238 40.0 52.2 -12.2 198 0.0 0.2 20.0 13.536 15.6 0.0 1.0 20.0 36.6 50.0 -13.4 13.176 15.4 0.0 1.0 20.0 36.4 50.0 -13.6 0.279 17.1 0.0 0.2 20.0 37.3 50.9 -13.6 13.656 50.0 -14.0 14.9 0.0 1.1 20.0 36.0 13.416 14.8 0.0 1.0 20.0 35.8 50.0 -14.2 20.0 -14.2 13.056 14.8 0.0 1.0 35.8 50.0 12.936 20.0 35.7 50.0 -14.3 14.7 0.0 1.0 12.720 14.6 0.0 1.0 20.0 35.6 50.0 -14.4 0.353 13.8 0.0 0.2 20.0 34.0 48.9 -14.9 12.828 14.0 1.0 20.0 35.0 50.0 -15.0 13.296 13.8 0.0 1.0 20.0 34.8 50.0 -15.2 0.316 14.4 0.0 0.2 20.0 34.6 49.8 -15.2 13.764 13.7 0.0 1.1 20.0 34.8 50.0 -15.2

0.466

0.262

12.600

11.1

15.9

13.5

0.0

0.0

0.0

0.2

0.2

1.0

20.0

20.0

20.0

31.3

36.1

34.5

46.6

51.4

50.0

-15.2

-15.3

-15.5

#### **CONDUCTED EMISSIONS DATA SHEET EMC** Work Order: INMC0024 EUT: WN-5MP01 Serial Number: 002-032 Date: 8/19/02 9:37 Customer: INTERMEC Corporation Temperature: 72 Attendees: None Humidity: 38% Cust. Ref. No.: Barometric Pressure 30 Tested by: Rod Peloquin Power: 120VAC/60Hz Job Site: EV01 SPECIFICATIONS Specification: CISPR22 Class B Year: 1997 Method: CISPR 22 Year: 1997 SAMPLE CALCULATIONS Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation High channel, tested in WA21, Tx radio b corner mount antenna, Rx radio b omni antenna **EUT OPERATING MODES DEVIATIONS FROM TEST STANDARD** No deviations Pass Other Tested By: 80 70 60 50 dBuV 40 30 20 10 0 0.1 1 10 100 MHz External Compared to Freq Amplitude Transducer Cable Attenuation Detector Adjusted Spec. Limit (MHz) (dBuV) (dB) (dB) (dB) dBuV dBuV (dB) 0.233 13.536 16.0 0.0 1.0 20.0 37.0 50.0 -13.0 12.828 20.0 37.0 50.0 -13.0 16.0 0.0 1.0 13.296 50.0 15.9 0.0 1.0 20.0 36.9 -13.1 0.353 35.8 48 9 -13.1 15.6 0.0 0.2 20.0 0.348 15.6 0.0 0.2 20.0 35.8 49.0 -13.2 13.176 15.2 0.0 1.0 20.0 36.2 50.0 -13.8 12.960 15.1 0.0 1.0 20.0 36.1 50.0 -13.9 13.644 15.0 20.0 36.1 50.0 -13.9 0.0 1.1 13.416 15.0 0.0 1.0 20.0 36.0 50.0 -14.0 20.0 13.068 15.0 0.0 1.0 36.0 50.0 -14.0 13.764 20.0 35.9 50.0 -14.1 14.8 0.0 1.1 0.151 21.5 0.0 0.1 20.0 41.6 56.0 -14.3 12.720 14.4 0.0 1.0 20.0 35.4 50.0 -14.6 0.217 17.7 0.2 20.0 37.9 52.9 -15.1 0.181 19.1 0.0 0.2 20.0 39.3 -15.2 12.588 13.6 0.0 1.0 20.0 34.6 50.0 -15.4 0.164 19.5 0.0 0.1 20.0 39.6 55.3 -15.6

1.0

1.0

0.2

20.0

20.0

20.0

34.3

34.2

32.8

50.0

50.0

49.1

-15.7

-15.8

-16.3

0.0

0.0

0.0

12.360

12.480

0.343

13.3

13.2