

Exhibit P: Spurious Conducted Emissions

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

Frequency Range Investigated

| | | | |
|-----------------|-------|----------------|--------|
| Start Frequency | 0 MHz | Stop Frequency | 25 GHz |
|-----------------|-------|----------------|--------|

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(c), in any 100 kHz bandwidth outside the authorized band, the maximum level of radio frequency power must be at least 20dB down from the highest emission level within the authorized band. The measurement is made with the spectrum analyzer's resolution bandwidth set to 100 kHz, and the video bandwidth set to greater than or equal to the resolution bandwidth.

Configuration: 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 using direct sequence modulation. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

Completed by:



NORTHWEST
EMC

EMISSIONS DATA SHEET

Rev BETA
01/30/01

| | | | |
|--------------------|----------------------|--------------|---------------|
| EUT: | MPC13A-20 | Work Order: | INMC0023 |
| Serial Number: | 002-026 | Date: | 07/23/02 |
| Customer: | Intermec Corporation | Temperature: | 26 degrees C |
| Attendees: | None | Humidity: | 43% RH |
| Customer Ref. No.: | N/A | Power: | DC from E-net |

TEST SPECIFICATIONS

Specification: 47 CFR 15.247(c) Year: Most Current Method: FCC 97-114, ANSI C63.4 Year: 1992

SAMPLE CALCULATIONS

COMMENTS

Tested in WA22 Access Point

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

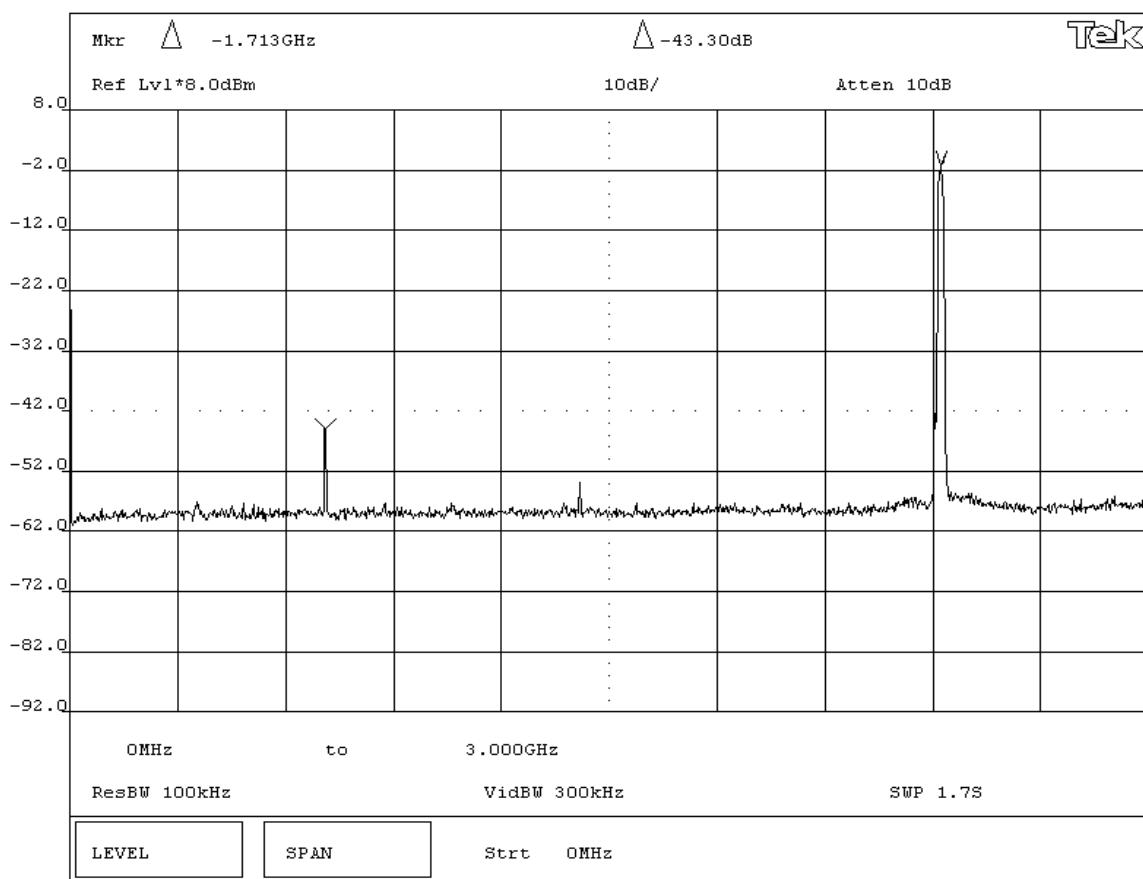
Pass

SIGNATURE

Tested By: 

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Low Channel 0MHz-3GHz



KNOB 2

KNOB 1

KEYPAD

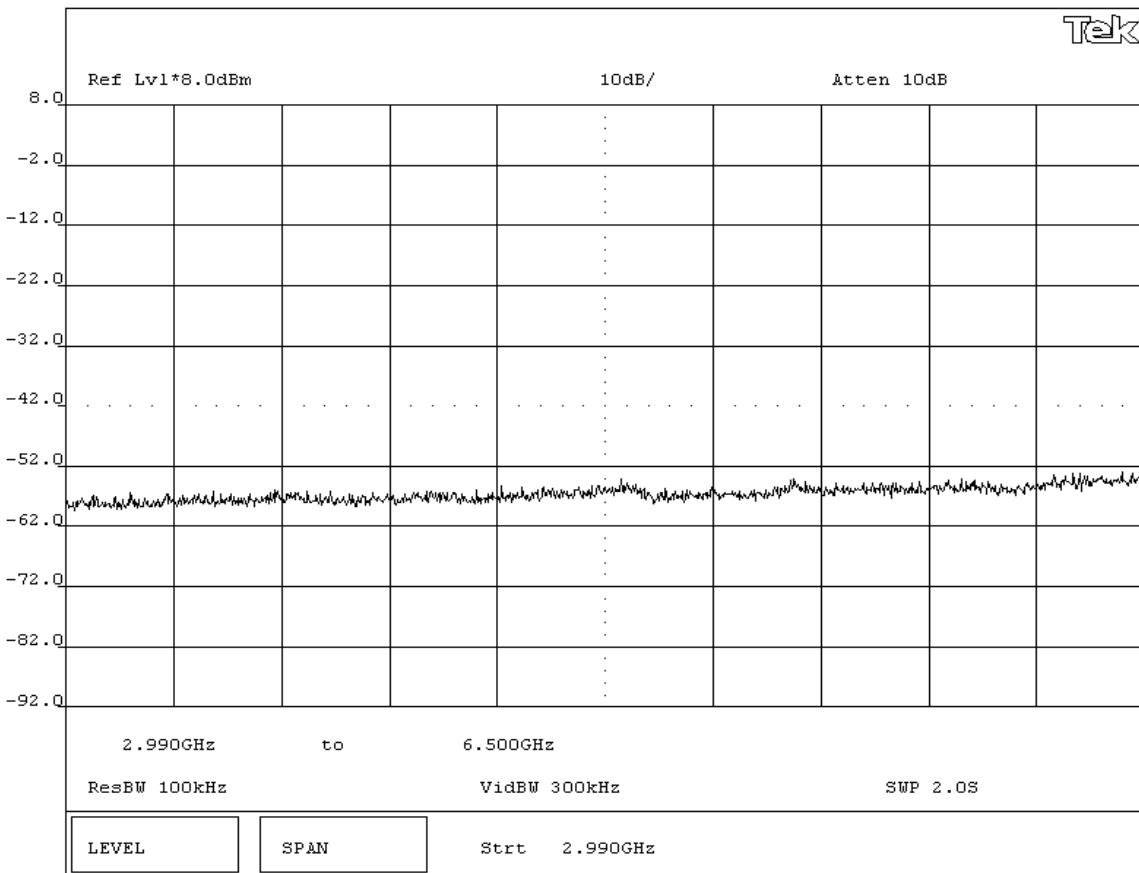
Tektronix 2784

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EMISSIONS DATA SHEET

Rev BETA
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| | | | | | | | | |
|--|----------------------|-------|--------------|--------------------------------|--------------|-----------|--------|--|
| EUT: | MPC13A-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(c) | | Year: | Most Current | Method: FCC 97-114, ANSI C63.4 | | Year: | 1992 | |
| SAMPLE CALCULATIONS | | | | | | | | |
| COMMENTS | | | | | | | | |
| Tested in WA22 Access Point | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | |
| Modulated by PRBS at maximum data rate | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | |
| None | | | | | | | | |
| REQUIREMENTS | | | | | | | | |
| Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental | | | | | | | | |
| RESULTS | | | | | | | | |
| Pass | | | | | | | | |
| SIGNATURE | | | | | | | | |
|  Tested By: _____ | | | | | | | | |
| DESCRIPTION OF TEST | | | | | | | | |
| Antenna Conducted Spurious Emissions - Low Channel 3GHz-6.5GHz | | | | | | | | |



KNOB 2

KNOB 1

KEYPAD

Tektronix 2784

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EMISSIONS DATA SHEET

Rev BETA
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| | | | |
|--------------------|----------------------|--------------|---------------|
| EUT: | MPC13A-20 | Work Order: | INMC0023 |
| Serial Number: | 002-026 | Date: | 07/23/02 |
| Customer: | Intermec Corporation | Temperature: | 26 degrees C |
| Attendees: | None | Humidity: | 43% RH |
| Customer Ref. No.: | N/A | Power: | DC from E-net |

TEST SPECIFICATIONS

Specification: 47 CFR 15.247(c) Year: Most Current Method: FCC 97-114, ANSI C63.4 Year: 1992

SAMPLE CALCULATIONS

COMMENTS

Tested in WA22 Access Point

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

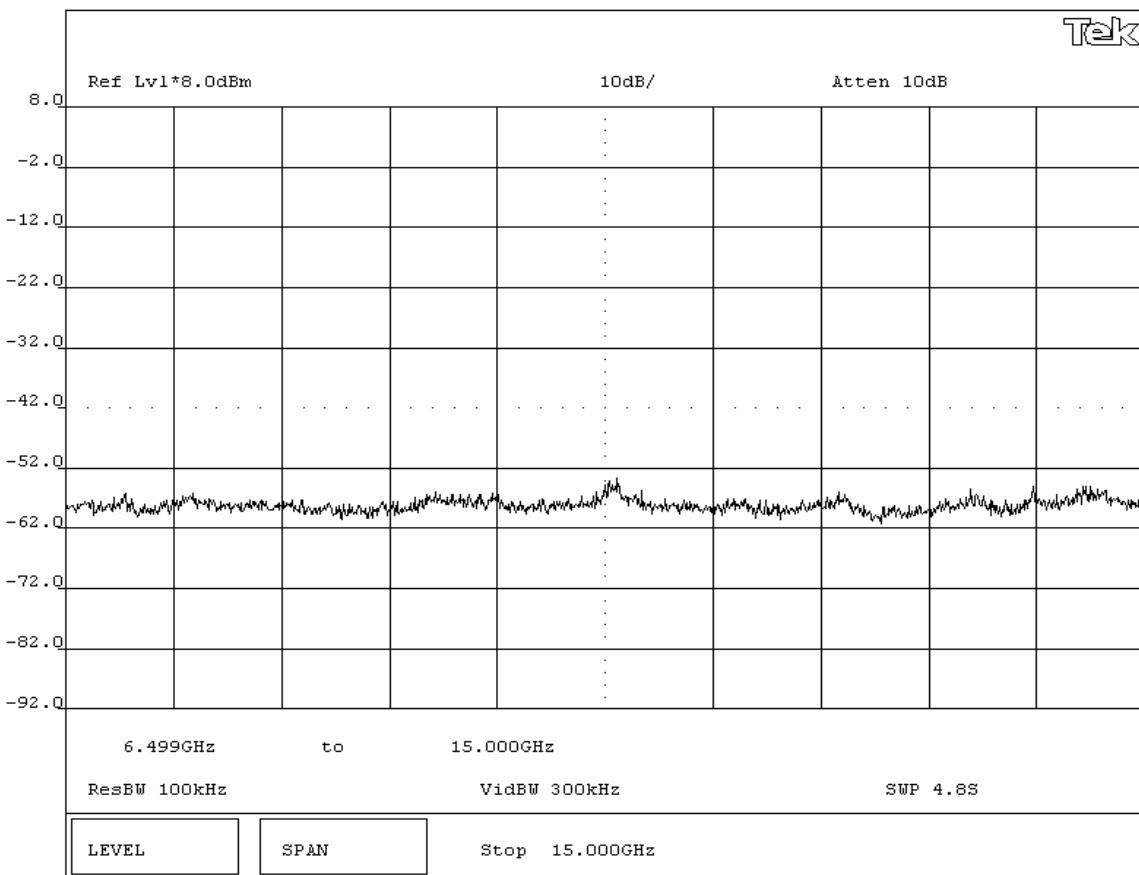
Pass

SIGNATURE

Tested By: Greg Kiemel

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Low Channel 6.5GHz-15GHz



KNOB 2

KNOB 1

KEYPAD

Tektronix 2784

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EMISSIONS DATA SHEET

Rev BETA
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| | | | |
|--------------------|----------------------|--------------|---------------|
| EUT: | MPC13A-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 |
| Customer Ref. No.: | N/A | Power: | DC from E-net |

TEST SPECIFICATIONS

Specification: 47 CFR 15.247(c) Year: Most Current Method: FCC 97-114, ANSI C63.4 Year: 1992

SAMPLE CALCULATIONS

COMMENTS

Tested in WA22 Access Point

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

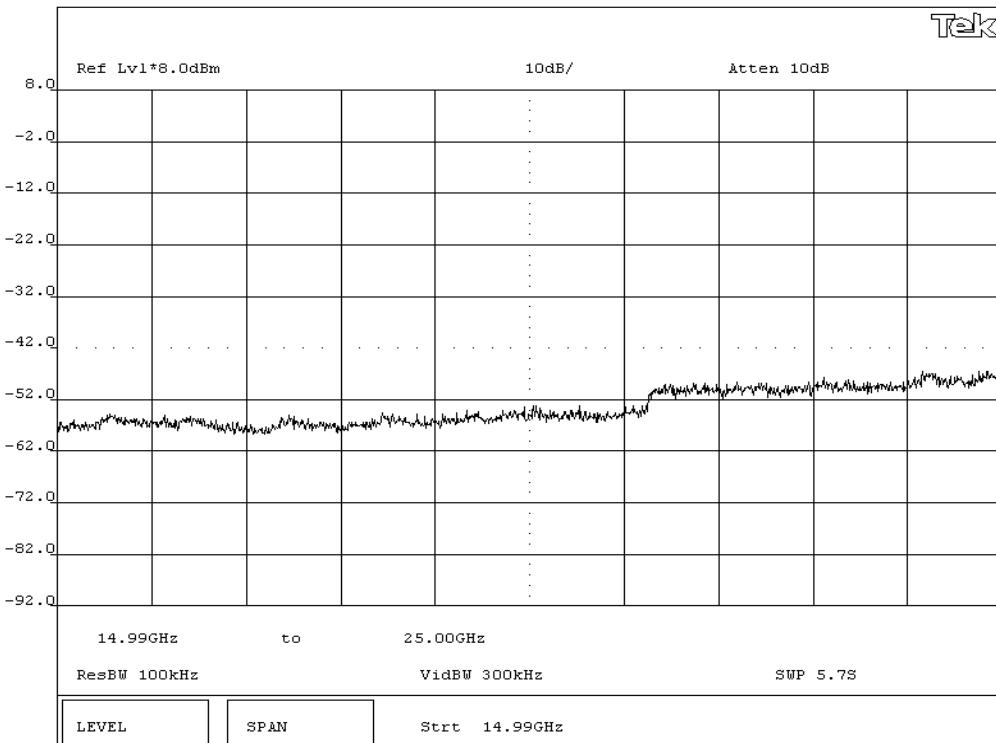
Pass

SIGNATURE

Tested By: Greg Kiemel

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Low Channel 15GHz - 25GHz



KNOB 2

KNOB 1

KEYPAD

Tektronix

2784

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| | | | |
|--------------------|----------------------|--------------|---------------|
| EUT: | MPC13A-20 | Work Order: | INMC0023 |
| Serial Number: | 002-026 | Date: | 07/23/02 |
| Customer: | Intermec Corporation | Temperature: | 26 degrees C |
| Attendees: | None | Humidity: | 43% RH |
| Customer Ref. No.: | N/A | Power: | DC from E-net |

TEST SPECIFICATIONS

Specification: 47 CFR 15.247(c) Year: Most Current Method: FCC 97-114, ANSI C63.4 Year: 1992

SAMPLE CALCULATIONS

COMMENTS

Tested in WA22 Access Point

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

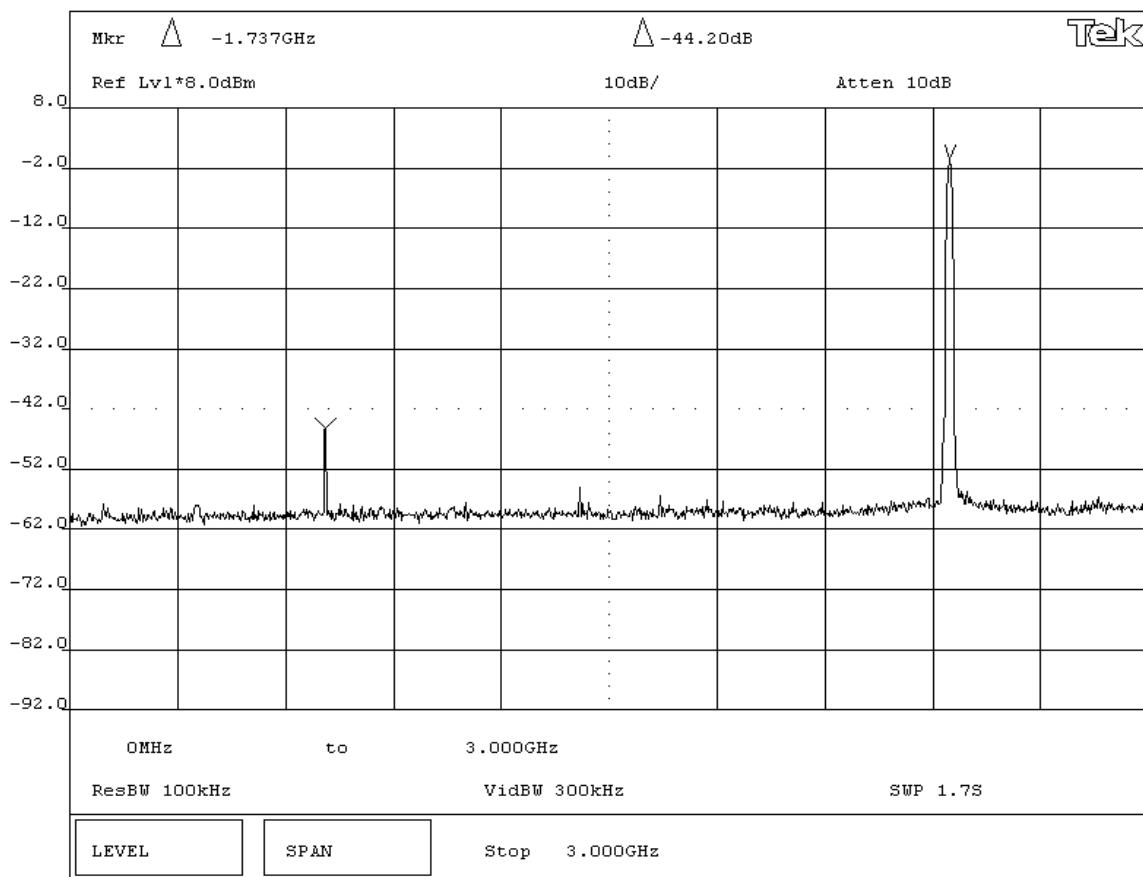
Pass

SIGNATURE

Tested By: 

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Mid Channel 0MHz-3GHz



KNOB 2

KNOB 1

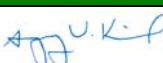
KEYPAD

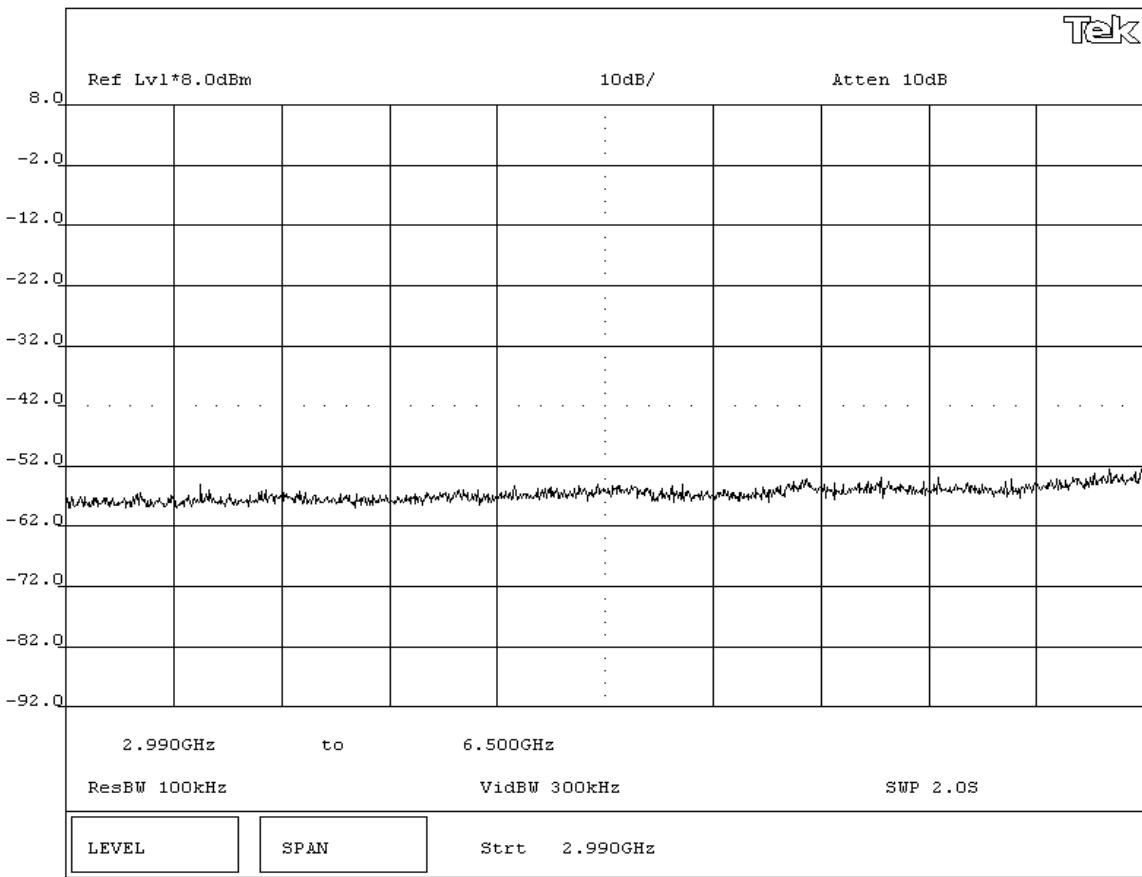
Tektronix 2784

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EMISSIONS DATA SHEET

Rev BETA
01/30/01

| | | | | | | | | |
|--|----------------------|-------|--------------|--------------------------------|--------------|-----------|--------|--|
| EUT: | MPC13A-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(c) | | Year: | Most Current | Method: FCC 97-114, ANSI C63.4 | | Year: | 1992 | |
| SAMPLE CALCULATIONS | | | | | | | | |
| COMMENTS | | | | | | | | |
| Tested in WA22 Access Point | | | | | | | | |
| EUT OPERATING MODES | | | | | | | | |
| Modulated by PRBS at maximum data rate | | | | | | | | |
| DEVIATIONS FROM TEST STANDARD | | | | | | | | |
| None | | | | | | | | |
| REQUIREMENTS | | | | | | | | |
| Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental | | | | | | | | |
| RESULTS | | | | | | | | |
| Pass | | | | | | | | |
| SIGNATURE | | | | | | | | |
|  Tested By: _____ | | | | | | | | |
| DESCRIPTION OF TEST | | | | | | | | |
| Antenna Conducted Spurious Emissions - Mid Channel 3GHz-6.5GHz | | | | | | | | |



KNOB 2

KNOB 1

KEYPAD

Tektronix 2784

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| | | | |
|--------------------|----------------------|--------------|---------------|
| EUT: | MPC13A-20 | Work Order: | INMC0023 |
| Serial Number: | 002-026 | Date: | 07/23/02 |
| Customer: | Intermec Corporation | Temperature: | 26 degrees C |
| Attendees: | None | Humidity: | 43% RH |
| Customer Ref. No.: | N/A | Power: | DC from E-net |

TEST SPECIFICATIONS

Specification: 47 CFR 15.247(c) Year: Most Current Method: FCC 97-114, ANSI C63.4 Year: 1992

SAMPLE CALCULATIONS

COMMENTS

Tested in WA22 Access Point

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

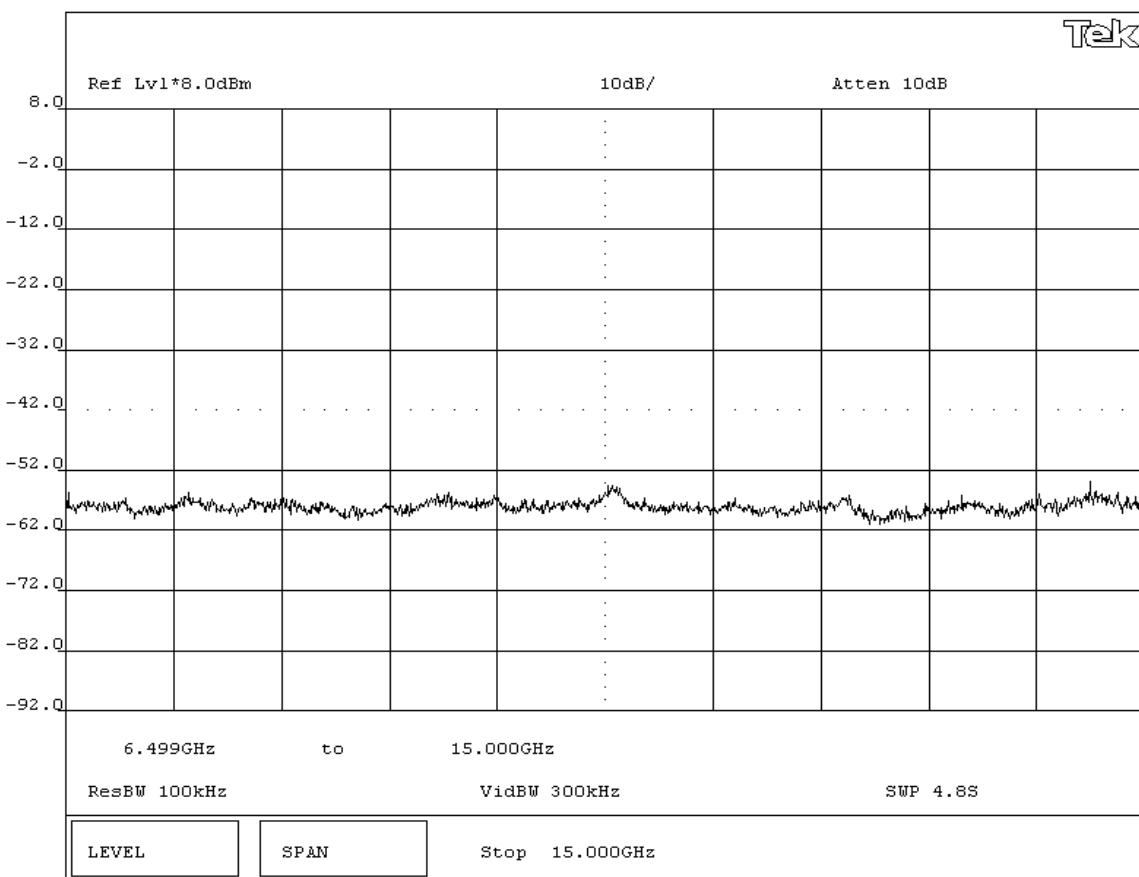
Pass

SIGNATURE

Tested By: 

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Mid Channel 6.5GHz-15GHz



KNOB 2

KNOB 1

KEYPAD

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| | | | |
|--------------------|----------------------|--------------|---------------|
| EUT: | MPC13A-20 | Work Order: | INMC0023 |
| Serial Number: | 002-026 | Date: | 07/23/02 |
| Customer: | Intermec Corporation | Temperature: | 26 degrees C |
| Attendees: | None | Humidity: | 43% RH |
| Customer Ref. No.: | N/A | Power: | DC from E-net |
| | | Job Site: | EV06 |

TEST SPECIFICATIONS

Specification: 47 CFR 15.247(c) Year: Most Current Method: FCC 97-114, ANSI C63.4 Year: 1992

SAMPLE CALCULATIONS

COMMENTS

Tested in WA22 Access Point

FUT OPERATING MODES

Modulated by PBBS at maximum data rate

DEVIATIONS FROM TEST STANDARDS

DEVIATION
None

None

REQUIREMENTS Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental.

Maximum Results

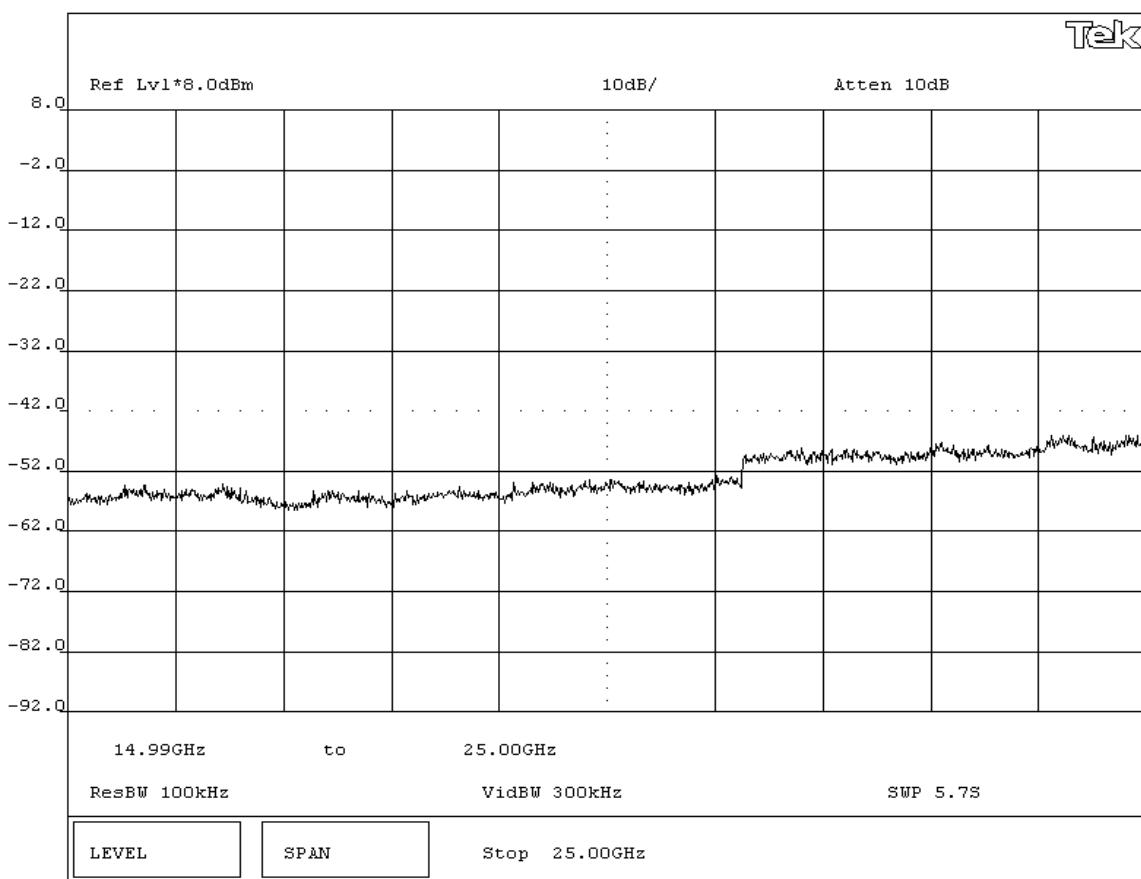
RESULTS

Pass

Tested By: AB

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - Mid Channel 15GHz-25GHz



KNOB 2

SPAN

Stop 25.00GHz

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| | | | |
|--------------------|----------------------|--------------|---------------|
| EUT: | MPC13A-20 | Work Order: | INMC0023 |
| Serial Number: | 002-026 | Date: | 07/23/02 |
| Customer: | Intermec Corporation | Temperature: | 26 degrees C |
| Attendees: | None | Humidity: | 43% RH |
| Customer Ref. No.: | N/A | Power: | DC from E-net |

TEST SPECIFICATIONS

Specification: 47 CFR 15.247(c) Year: Most Current Method: FCC 97-114, ANSI C63.4 Year: 1992

SAMPLE CALCULATIONS

COMMENTS

Tested in WA22 Access Point

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

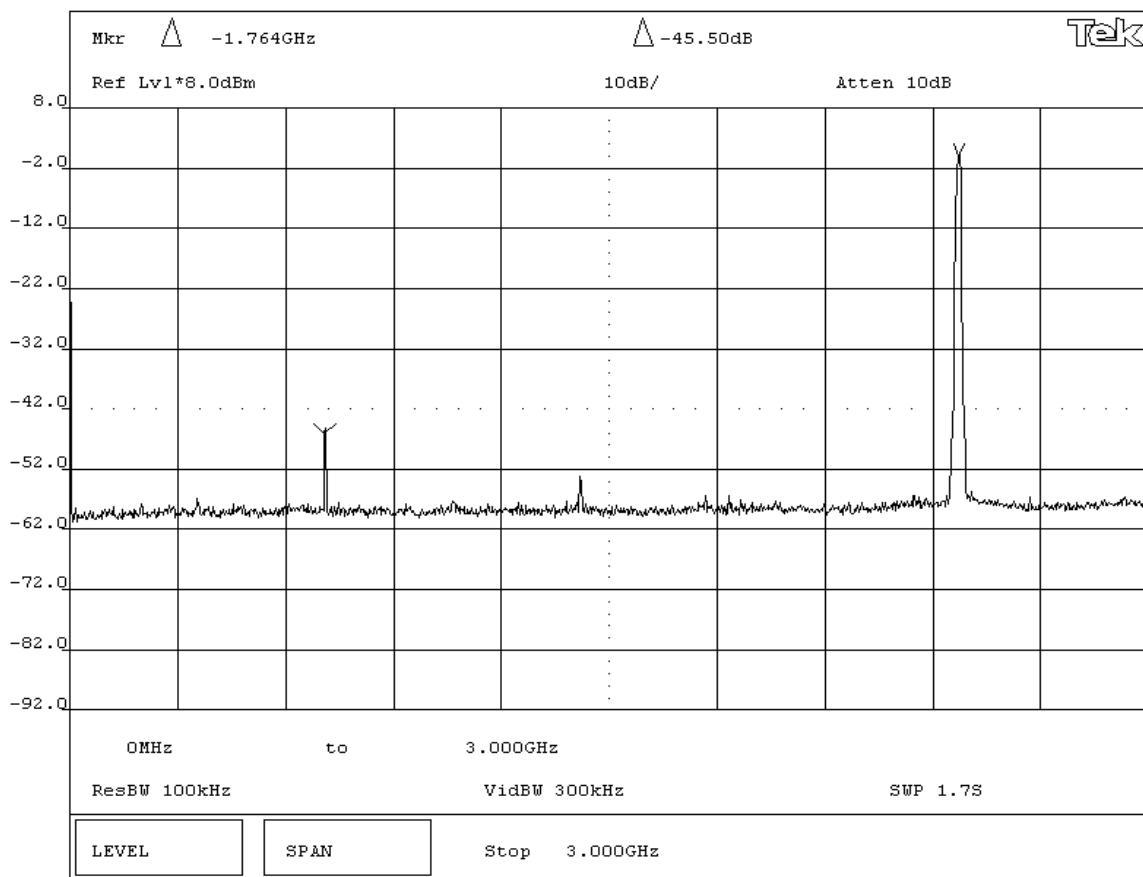
Pass

SIGNATURE

Tested By: 

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - High Channel 0MHz-3GHz



KNOB 2

KNOB 1

KEYPAD

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Rev BETA
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| | | | |
|--------------------|----------------------|--------------|---------------|
| EUT: | MPC13A-20 | Work Order: | INMC0023 |
| Serial Number: | 002-026 | Date: | 07/23/02 |
| Customer: | Intermec Corporation | Temperature: | 26 degrees C |
| Attendees: | None | Humidity: | 43% RH |
| Customer Ref. No.: | N/A | Power: | DC from E-net |

TEST SPECIFICATIONS

Specification: 47 CFR 15.247(c) Year: Most Current Method: FCC 97-114, ANSI C63.4 Year: 1992

SAMPLE CALCULATIONS

COMMENTS

Tested in WA22 Access Point

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

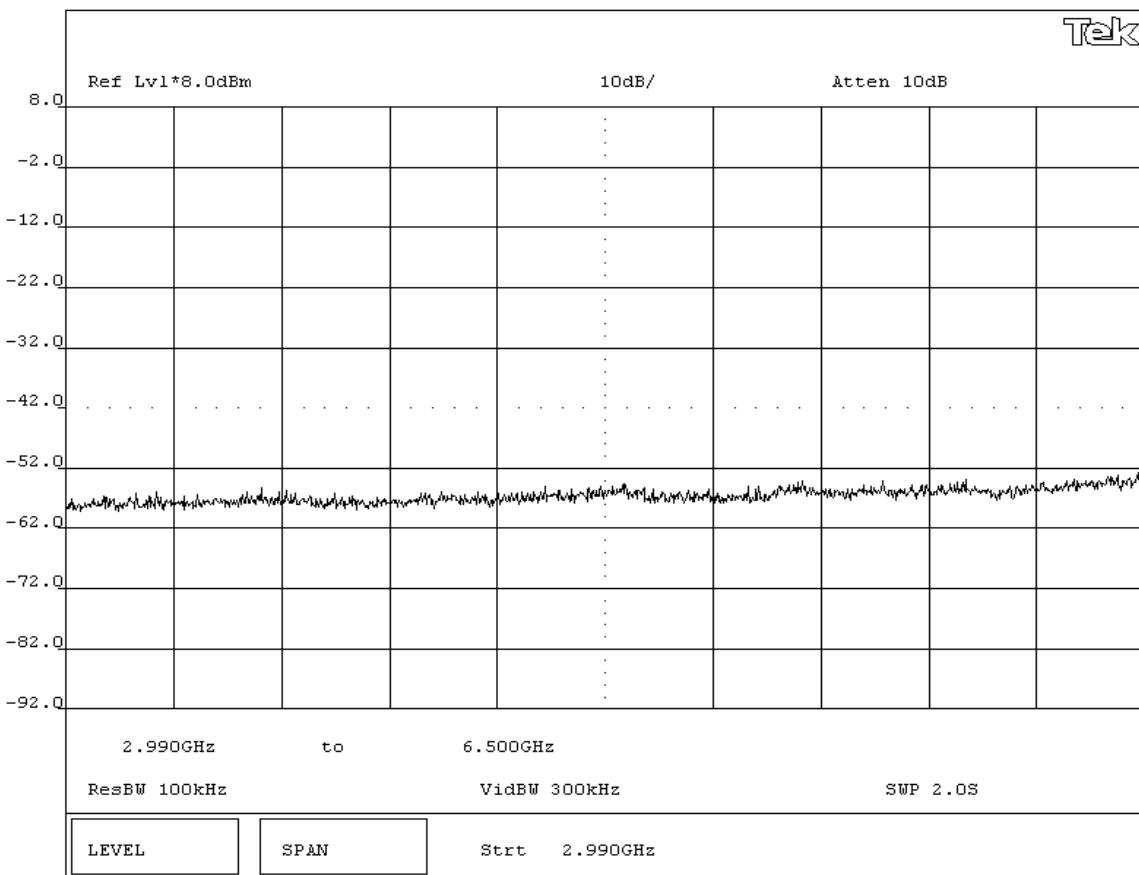
Pass

SIGNATURE

Tested By: 

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - High Channel 3GHz-6.5GHz



KNOB 2

KNOB 1

KEYPAD

Tektronix 2784

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Rev BETA
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| | | | |
|--------------------|----------------------|--------------|---------------|
| EUT: | MPC13A-20 | Work Order: | INMC0023 |
| Serial Number: | 002-026 | Date: | 07/23/02 |
| Customer: | Intermec Corporation | Temperature: | 26 degrees C |
| Attendees: | None | Humidity: | 43% RH |
| Customer Ref. No.: | N/A | Power: | DC from E-net |

TEST SPECIFICATIONS

| | | | | | | | |
|----------------|------------------|-------|--------------|---------|------------------------|-------|------|
| Specification: | 47 CFR 15.247(c) | Year: | Most Current | Method: | FCC 97-114, ANSI C63.4 | Year: | 1992 |
|----------------|------------------|-------|--------------|---------|------------------------|-------|------|

SAMPLE CALCULATIONS

COMMENTS

Tested in WA22 Access Point

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

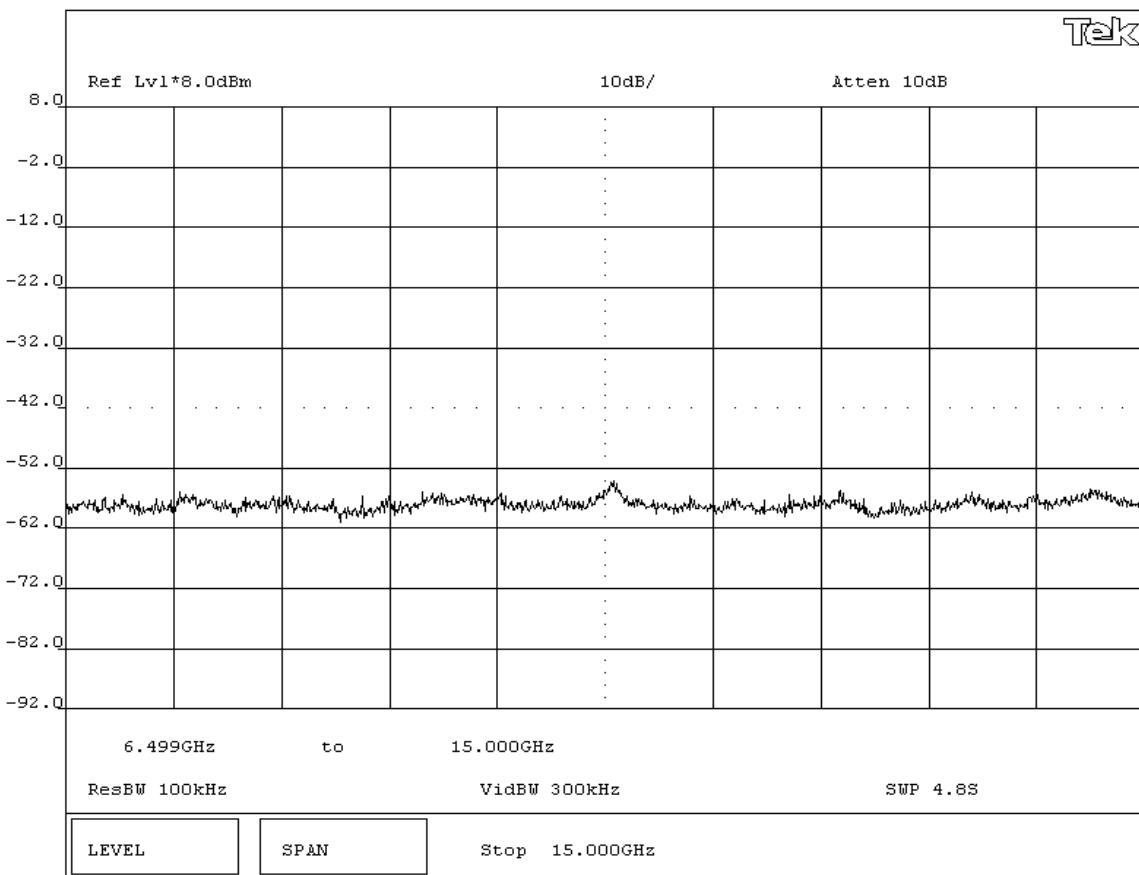
Pass

SIGNATURE

Tested By: 

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - High Channel 6.5GHz-15GHz



KNOB 2

KNOB 1

KEYPAD

Tektronix 2784

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| | | | |
|--------------------|----------------------|--------------|---------------|
| EUT: | MPC13A-20 | Work Order: | INMC0023 |
| Serial Number: | 002-026 | Date: | 07/23/02 |
| Customer: | Intermec Corporation | Temperature: | 26 degrees C |
| Attendees: | None | Humidity: | 43% RH |
| Customer Ref. No.: | N/A | Power: | DC from E-net |

TEST SPECIFICATIONS

| | | | | | | | |
|----------------|------------------|-------|--------------|---------|------------------------|-------|------|
| Specification: | 47 CFR 15.247(c) | Year: | Most Current | Method: | FCC 97-114, ANSI C63.4 | Year: | 1992 |
|----------------|------------------|-------|--------------|---------|------------------------|-------|------|

SAMPLE CALCULATIONS

COMMENTS

Tested in WA22 Access Point

EUT OPERATING MODES

Modulated by PRBS at maximum data rate

DEVIATIONS FROM TEST STANDARD

None

REQUIREMENTS

Maximum level of any spurious emission outside of the authorized band is 20 dB down from the fundamental

RESULTS

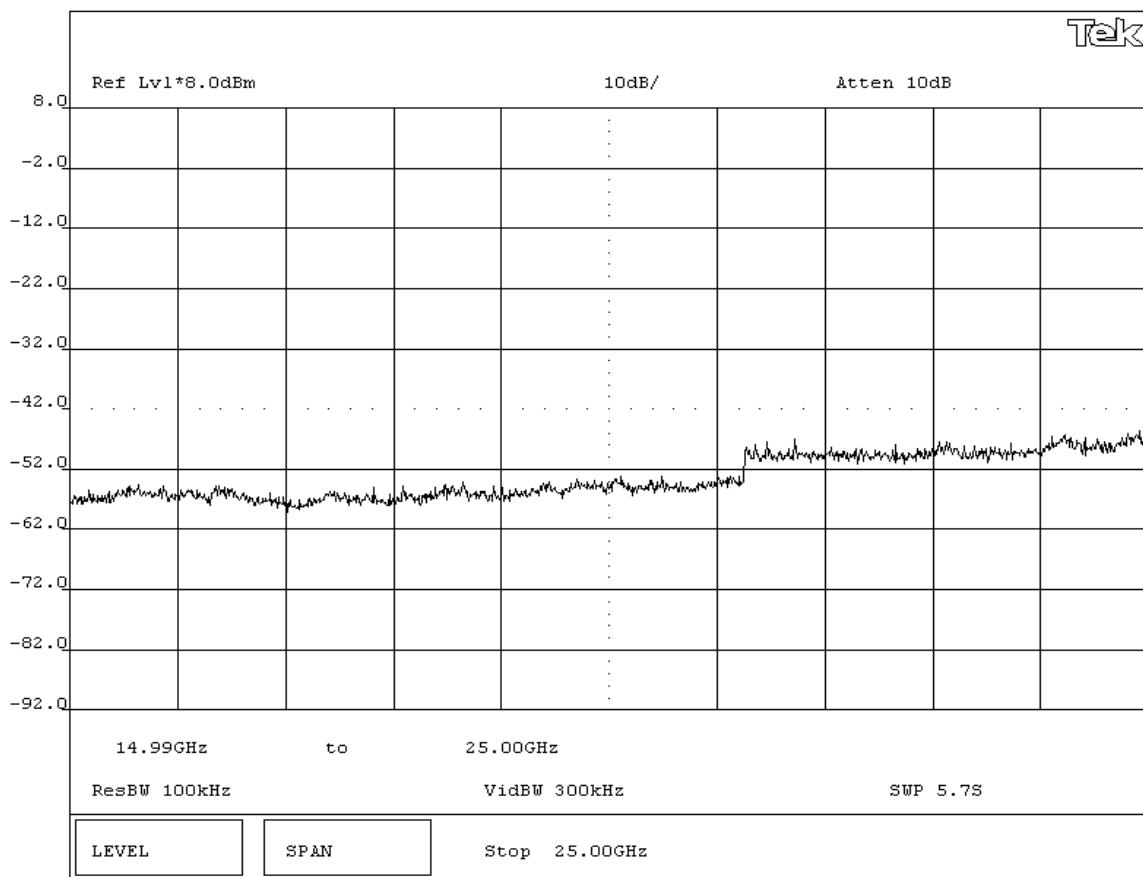
Pass

SIGNATURE

Tested By: 

DESCRIPTION OF TEST

Antenna Conducted Spurious Emissions - High Channel 15GHz-25GHz



KNOB 2

KNOB 1

KEYPAD

Tektronix 2784