EXHIBIT O – Supplemental Emissions Test Report

FCC ID O2Z-BT2

A. Bettner
2/15/01

Modular Approval Emissions Tests
Taken at NW EMC
January, 2001

The purpose of these tests is to conduct similar tests to those requested by the FCC for Intel's modular approval grant (OZ-BT1, November 2000) on a similar Bluetooth module. As in the previous request by the FCC for emissions data (Refer to Exhibit OO of grant OZ-BT1), a subset consisting of three sets of data were taken (see **Appendix A** for a description of the original complete set of tests):

1) Measurement of emissions from the highest gain antenna connected directly to the module (with minimal transmission line (highest output power))

2) Measurement of emissions from the module connected to a straight microstrip (resonant length) between the module and the antenna.

3) Measurement of emissions from the same configuration as 2), only with a 50 ohm shielded load in place of the antenna.

4) Measurement of emissions from the module connected to a meandered microstrip (resonant length) plus coax (resonant length) connected to the highest gain antenna

Test 1) establishes the "worst case" emissions test since the highest gain antenna is being used and the length of transmission line (loss) is minimized.

Test 2) demonstrates whether the spurious emissions are increased by the addition of resonant section of open microstrip transmission line.

Test 3) (with 50 ohm shielded termination) demonstrates whether the transmission line itself is radiating.

Test 4) is a "worst case" emissions test based on a combination of both an open meandered line of resonant length and a piece of coax of resonant length.

Resonant lengths of open transmission line and cable were computed using the equations found in **Appendix B**, attached.

Test results:

Test results for each of the configurations described above may be found in **Appendix C**. No detectable emissions from the radio were found at any frequencies below 2400 MHz or above 7500 MHz. Configuration 1) produced the highest level of radiated emissions: at 7320 MHz the peak level was 2.5dB below the 74 dBuV/m peak limit, the highest average level was also at 7320 MHz with a margin of 6.9 dB below the 54 dBuV/m average limit. Configuration 1) is the worst case condition because it transmits the highest power (shortest coax, highest gain antenna). No other configuration, including an open transmission line produced a condition exceeding these levels.

While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT and transmission line/antenna configuration in 3 orthogonal planes (per ANSI C63.4:1992). A preamp and high pass filter were use for this test in order to provide sufficient measurement sensitivity.

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Appendix A.
Original Proposed Tests
(From previous MA filing OZ2-BT1)

1. To demonstrate that the microstrip transmission line radiates only minimally, Intel will perform and record a scan test on the module with an antenna connected and with the antenna disconnected. When the antenna is disconnected, the transmission line will be terminated with a shielded 50 ohm SMA termination. The length of microstrip transmission line is to be an integer fraction of the center frequency, 2440 MHz. Any one of the four antennas to be used with the module may be used for this test.

2. To demonstrate that a coaxial cable connected to the microstrip transmission line radiates only minimally, Intel will perform and record a scan test on the module with and without the cable connected to the transmission line. Any one of the four antennas can be used with the module. The length of the coaxial cable is to be an integer fraction of the center frequency, 2440 MHz.

3. For the following tests, the same length of microstrip transmission line as in (1) (i.e. an integer fraction of the center frequency, 2440 MHz) shall be used, connected on one end to the transmission line and on the other end to one of the antennas to be used with the module. The following tests shall be performed and recorded:

(a) a minimum dimension (W and H) 50 ohm transmission line will be tested in a straight line and a meandered line (two 45 degree angle turns) configuration; Intel estimates that the minimum dimension line trace will be approximately 7 mil by 4.4 mil; (b) a maximum dimension (W and H) 50 ohm transmission line will be tested in a straight line and a meandered line (at least two 45 degree angle turns) configuration; Intel estimates that the maximum dimension line trace will be approximately 115 mil by 63 mil. The same antenna as used in Paragraph 2 shall be used with the foregoing tests.

4. Intel will perform a test with the same antenna used in Paragraph 3, connected as close to the module as may be implemented by an OEM customer.

5. Using the test configuration which produces the "worse case" test results from Paragraphs 3 and 4 above, Intel will test the three other types of antennas which will be marketed with the module in the worse case configuration. No other test with the three antennas will be required.

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Appendix B
Transmission Line Calculations

Coax:

A section of coaxial cable producing common mode emissions will have an electrical length of simply:

L(meters) = c/f

Where c = 3 x 10^8 meters
And f= freq (Hz)

For this case, we want the line to be 3 wavelengths long at 2440 MHz, or one wavelength long at 813 MHz.

L = 3 x 10^8 / 813 x 10^6 = .363 meters = 14.3 inches (air)

Microstrip:

For the **wide microstrip line** the following parameters were used:

H (board thickness) = 0.062 inches
Er (Dielectric constant) = 4.5 (for FR-4 material)
F0 (center frequency) = 2440 MHz

For a 50 ohm line:

W (line width) = 0.115 inches
L (1080 degrees, for resonance at 813 MHz) = 7.822 inches

For the **narrow (6 mil**), the following parameters were used:

Er (Dielectric constant) = 4.5 (for FR-4 material)
F0 (center frequency) = 2440 MHz

For a 50 ohm line:

H (board height) = 4 mil
L(1080 degrees, for resonance at 813 MHz) = 7.95 inches

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2/15/01

Appendix C
Emissions Data

Configurations

1) Measurement of emissions from the highest gain antenna connected directly to the module (with minimal transmission line (highest output power))

2) Measurement of emissions from the module connected to a straight microstrip (resonant length) between the module and the antenna.

3) Measurement of emissions from the same configuration as 2), only with a 50 ohm shielded load in place of the antenna.

4) Measurement of emissions from the module connected to a meandered microstrip (resonant length) plus coax (resonant length) connected to the highest gain antenna

Minimum Margins (dB)

Detector	Config 1.	Config 2.	Config 3.	Config 4.
Average	-6.9	-11.1	-10.4	-8.7
Peak	-2.5	-13.8	-13.6	-11.9

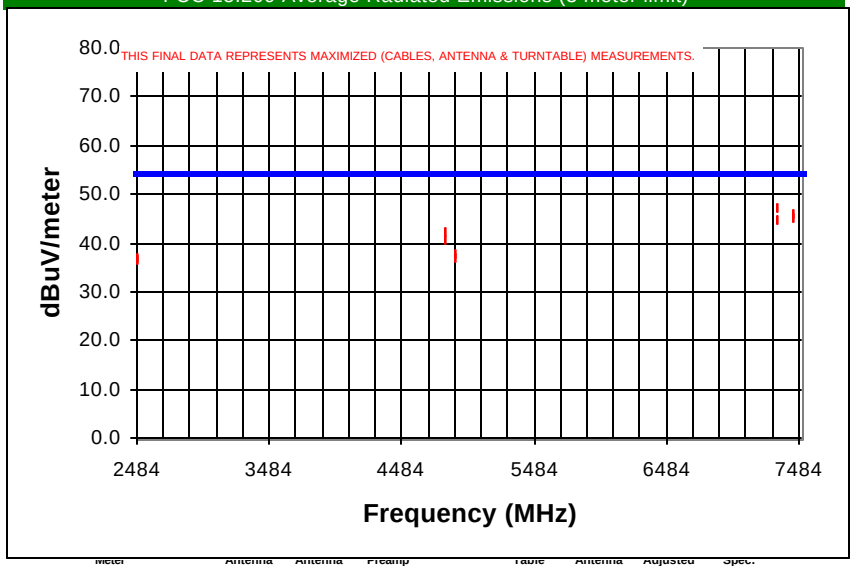
Complete test results are found on the following pages.

Northwest EMC, Inc., Radiated and Conducted Emissions Data Sheets

Rev 3.5
01/11/01

EUT:	Serial Number:	Job Number:	Date:
Intel(R) Personal Wireless Module	**New module #2 1/15/01**	**INSC0011**	**01/16/01**
Manufacturer:	Test Engineer:	Job Site:	
Intel Corporation	**Greg Kiemel**	**EV01**	
Customer Reference Number:	Software:	Power:	
Comments:	**No hop, antenna 'B'**		
		Temperature (°C):	% Humidity:
		20	**34**

FCC 15.209 Average Radiated Emissions (3 meter limit)



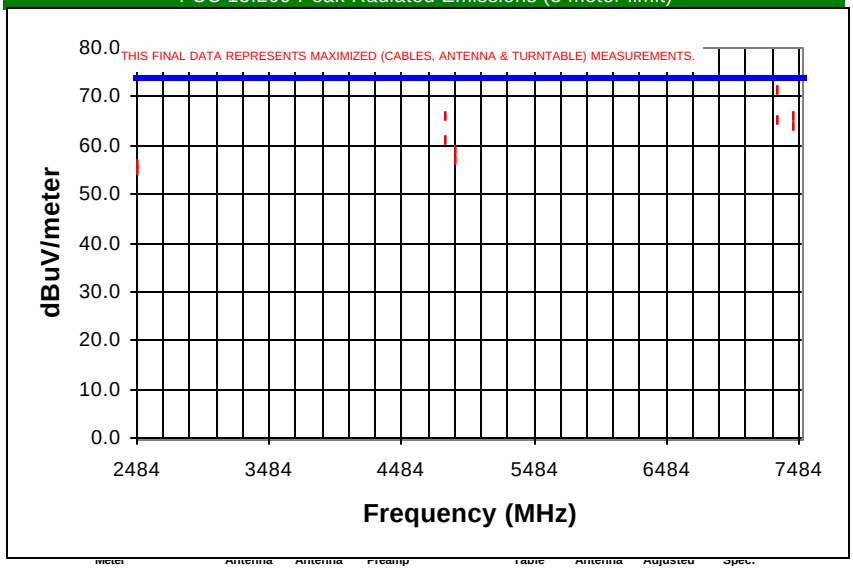
Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Antenna Polarity	Preamp Gain (dB)	Cable Loss (dB)	Table Azimuth (degrees)	Antenna Height (meters)	Adjusted Level (dBuV/m)	Spec. Limit (dBuV/m)	Margin (dB)	Comment
2483.500	40.4	AV	27.9	VHRN	33.9	2.6	185.0	1.3	37.0	54.0	-17.1	High Xmit freq.
2483.500	40.0	AV	27.9	HHRN	33.9	2.6	245.0	2.2	36.6	54.0	-17.5	High Xmit freq.
4803.787	39.4	AV	32.8	VHRN	34.3	4.4	117.0	2.8	42.3	54.0	-11.7	Low Xmit freq.
4803.805	37.7	AV	32.8	HHRN	34.3	4.4	143.0	2.8	40.6	54.0	-13.4	Low Xmit freq.
4880.000	34.9	AV	32.9	VHRN	34.3	4.4	120.0	2.8	37.9	54.0	-16.1	Mid Xmit freq.
4880.000	33.9	AV	32.9	HHRN	34.3	4.4	229.0	2.1	36.9	54.0	-17.1	Mid Xmit freq.
7320.060	36.2	AV	36.8	VHRN	31.8	5.9	245.0	2.0	47.1	54.0	-6.9	Mid Xmit freq.
7320.060	33.9	AV	36.8	HHRN	31.8	5.9	241.0	2.1	44.8	54.0	-9.2	Mid Xmit freq.
7440.000	33.3	AV	37.3	HHRN	31.4	5.9	295.0	2.0	45.1	54.0	-8.9	High Xmit freq.
7440.000	34.0	AV	37.3	VHRN	31.4	5.9	247.0	2.3	45.8	54.0	-8.3	High Xmit freq.

Northwest EMC, Inc., Radiated and Conducted Emissions Data Sheets

Rev 3.5
01/11/01

EUT:	Serial Number:	Job Number:	Date:
Intel(R) Personal Wireless Module	**New module #2 1/15/01**	**INSC0011**	**01/16/01**
Manufacturer:	Test Engineer:	Job Site:	
Intel Corporation	**Greg Kiemel**	**EV01**	
Customer Reference Number:	Software:	Power:	
Comments:	**No hop, antenna 'B'**		
		Temperature (°C):	% Humidity:
		20	**34**

FCC 15.209 Peak Radiated Emissions (3 meter limit)



Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Antenna Polarity	Preamp Gain (dB)	Cable Loss (dB)	Table Azimuth (degrees)	Antenna Height (meters)	Adjusted Level (dBuV/m)	Spec. Limit (dBuV/m)	Margin (dB)	Comment
2483.500	59.8	PK	27.9	VHRN	33.9	2.6	185.0	1.3	56.4	74.0	-17.7	High Xmit freq.
2483.500	58.5	PK	27.9	HHRN	33.9	2.6	245.0	2.2	55.1	74.0	-18.9	High Xmit freq.
4803.787	63.0	PK	32.8	VHRN	34.3	4.4	117.0	2.8	65.9	74.0	-8.1	Low Xmit freq.
4803.805	58.1	PK	32.8	HHRN	34.3	4.4	143.0	2.8	61.0	74.0	-13.1	Low Xmit freq.
4880.000	56.2	PK	32.9	VHRN	34.3	4.4	120.0	2.8	59.2	74.0	-14.8	Mid Xmit freq.
4880.000	54.1	PK	32.9	HHRN	34.3	4.4	229.0	2.1	57.1	74.0	-16.9	Mid Xmit freq.
7320.060	54.3	PK	36.8	HHRN	31.8	5.9	241.0	2.1	65.2	74.0	-8.8	Mid Xmit freq.
7320.060	60.7	PK	36.8	VHRN	31.8	5.9	245.0	2.0	71.6	74.0	-2.5	Mid Xmit freq.
7440.000	54.2	PK	37.3	VHRN	31.4	5.9	247.0	2.3	66.0	74.0	-8.0	High Xmit freq.
7440.000	52.2	PK	37.3	HHRN	31.4	5.9	295.0	2.0	64.0	74.0	-10.0	High Xmit freq.

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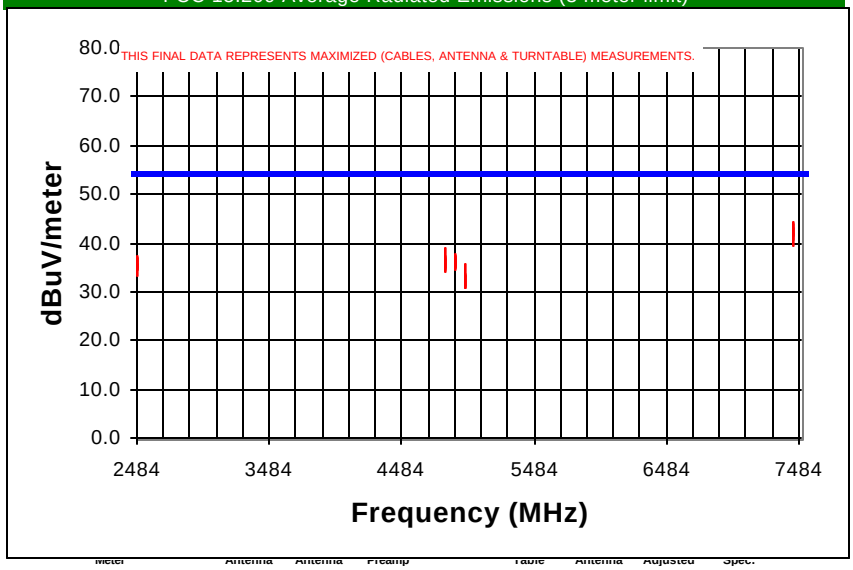
Northwest EMC, Inc., Radiated and Conducted Emissions Data Sheets 01/11/01

EUT:	Serial Number:	Job Number:	Date:
Intel(R) Personal Wireless Module	**New module #2 1/15/01**	**INSC0014**	**01/24/01**
Manufacturer:	Test Engineer:	Job Site:	
Intel Corporation	**Rod Peloquin**	**EV01**	
Customer Reference Number:	Software:	Power:	

Comments: **No hop, Antenna 'B' connected to straight, resonant length microstrip**

Temperature (°C):	% Humidity:
18	**34**

FCC 15.209 Average Radiated Emissions (3 meter limit)



Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Antenna Polarity	Preamp Gain (dB)	Cable Loss (dB)	Table Azimuth (degrees)	Antenna Height (meters)	Adjusted Level (dBuV/m)	Spec. Limit (dBuV/m)	Margin (dB)	Comment
2483.500	39.0	AV	27.9	VHRN	33.9	2.6	268.0	1.5	35.6	54.0	-18.5	High Xmit freq., microstrip flat
2483.500	39.3	AV	27.9	HHRN	33.9	2.6	222.0	2.4	35.9	54.0	-18.1	High Xmit freq., microstrip on side
2483.500	39.1	AV	27.9	VHRN	33.9	2.6	296.0	1.2	35.7	54.0	-18.3	High Xmit freq., microstrip on side
2483.500	38.0	AV	27.9	HHRN	33.9	2.6	204.0	2.2	34.6	54.0	-19.4	High Xmit freq., microstrip flat
4804.000	32.5	AV	32.8	HHRN	34.3	4.4	224.0	2.7	35.4	54.0	-18.6	Low Xmit freq., microstrip flat
4804.000	34.9	AV	32.8	HHRN	34.3	4.4	230.0	2.1	37.8	54.0	-16.3	Low Xmit freq., microstrip on side
4804.000	32.7	AV	32.8	VHRN	34.3	4.4	310.0	1.3	35.6	54.0	-18.4	Low Xmit freq., microstrip flat
4804.000	33.4	AV	32.8	VHRN	34.3	4.4	288.0	1.4	36.3	54.0	-17.8	Low Xmit freq., microstrip on side
4880.000	32.6	AV	32.9	VHRN	34.3	4.4	242.0	2.3	35.6	54.0	-18.5	Mid Xmit freq., microstrip on side
4880.000	32.9	AV	32.9	VHRN	34.3	4.4	154.0	1.3	35.9	54.0	-18.1	Mid Xmit freq., microstrip flat
4880.000	33.1	AV	32.9	HHRN	34.3	4.4	57.0	1.9	36.1	54.0	-17.9	Mid Xmit freq., microstrip flat
4880.000	33.6	AV	32.9	HHRN	34.3	4.4	214.0	2.0	36.6	54.0	-17.4	Mid Xmit freq., microstrip on side
4960.000	29.1	AV	33.0	VHRN	34.3	4.5	68.0	1.4	32.3	54.0	-21.8	High Xmit freq., microstrip flat
4960.000	31.4	AV	33.0	HHRN	34.3	4.5	210.0	2.0	34.6	54.0	-19.4	High Xmit freq., microstrip on side
4960.000	28.7	AV	33.0	VHRN	34.3	4.5	200.0	2.0	31.9	54.0	-22.1	High Xmit freq., microstrip on side
4960.000	29.0	AV	33.0	HHRN	34.3	4.5	199.0	2.1	32.2	54.0	-21.8	High Xmit freq., microstrip flat
7440.000	31.0	AV	37.3	VHRN	31.4	5.9	219.0	1.6	42.8	54.0	-11.2	High Xmit freq., microstrip on side
7440.000	31.1	AV	37.3	VHRN	31.4	5.9	76.0	1.4	42.9	54.0	-11.1	High Xmit freq., microstrip flat
7440.000	30.0	AV	37.3	HHRN	31.4	5.9	228.0	1.9	41.8	54.0	-12.2	High Xmit freq., microstrip on side
7440.000	28.8	AV	37.3	HHRN	31.4	5.9	235.0	2.3	40.6	54.0	-13.4	High Xmit freq., microstrip flat

Rev 3.5

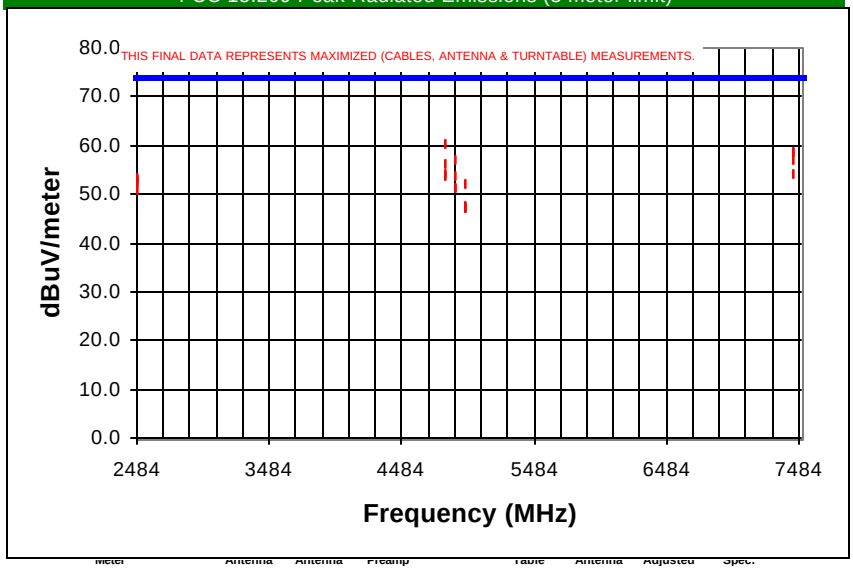
Northwest EMC, Inc., Radiated and Conducted Emissions Data Sheets 01/11/01

EUT:	Serial Number:	Job Number:	Date:
Intel(R) Personal Wireless Module	**New module #2 1/15/01**	**INSC0014**	**01/24/01**
Manufacturer:	Test Engineer:	Job Site:	
Intel Corporation	**Rod Peloquin**	**EV01**	
Customer Reference Number:	Software:	Power:	

Comments: **No hop, Antenna 'B' connected to straight, resonant length microstrip**

Temperature (°C):	% Humidity:
18	**34**

FCC 15.209 Peak Radiated Emissions (3 meter limit)



Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Antenna Polarity	Preamp Gain (dB)	Cable Loss (dB)	Table Azimuth (degrees)	Antenna Height (meters)	Adjusted Level (dBuV/m)	Spec. Limit (dBuV/m)	Margin (dB)	Comment
2483.500	56.9	PK	27.9	HHRN	33.9	2.6	222.0	2.4	53.5	74.0	-20.6	High Xmit freq., microstrip on side
2483.500	56.3	PK	27.9	VHRN	33.9	2.6	268.0	1.5	52.9	74.0	-21.2	High Xmit freq., microstrip flat
2483.500	56.0	PK	27.9	VHRN	33.9	2.6	296.0	1.2	52.6	74.0	-21.5	High Xmit freq., microstrip on side
2483.500	54.3	PK	27.9	HHRN	33.9	2.6	204.0	2.2	50.9	74.0	-23.2	High Xmit freq., microstrip flat
4804.000	53.4	PK	32.8	VHRN	34.3	4.4	288.0	1.4	56.3	74.0	-17.7	Low Xmit freq., microstrip on side
4804.000	51.1	PK	32.8	VHRN	34.3	4.4	310.0	1.3	54.0	74.0	-20.0	Low Xmit freq., microstrip flat
4804.000	57.3	PK	32.8	HHRN	34.3	4.4	230.0	2.1	60.2	74.0	-13.8	Low Xmit freq., microstrip on side
4804.000	50.8	PK	32.8	HHRN	34.3	4.4	224.0	2.7	53.7	74.0	-20.4	Low Xmit freq., microstrip flat
4880.000	50.9	PK	32.9	VHRN	34.3	4.4	242.0	2.3	53.9	74.0	-20.1	Mid Xmit freq., microstrip on side
4880.000	54.0	PK	32.9	HHRN	34.3	4.4	214.0	2.0	57.0	74.0	-17.0	Mid Xmit freq., microstrip on side
4880.000	48.1	PK	32.9	VHRN	34.3	4.4	154.0	1.3	51.1	74.0	-22.9	Mid Xmit freq., microstrip flat
4880.000	48.5	PK	32.9	HHRN	34.3	4.4	57.0	1.9	51.5	74.0	-22.6	Mid Xmit freq., microstrip flat
4960.000	44.3	PK	33.0	HHRN	34.3	4.5	199.0	2.1	47.5	74.0	-26.6	High Xmit freq., microstrip flat
4960.000	49.1	PK	33.0	HHRN	34.3	4.5	210.0	2.0	52.3	74.0	-21.8	High Xmit freq., microstrip on side
4960.000	44.1	PK	33.0	VHRN	34.3	4.5	68.0	1.4	47.3	74.0	-26.7	High Xmit freq., microstrip flat
4960.000	44.0	PK	33.0	VHRN	34.3	4.5	200.0	2.0	47.2	74.0	-26.9	High Xmit freq., microstrip on side
7440.000	46.9	PK	37.3	VHRN	31.4	5.9	76.0	1.4	58.7	74.0	-15.4	High Xmit freq., microstrip flat
7440.000	46.7	PK	37.3	VHRN	31.4	5.9	219.0	1.6	58.5	74.0	-15.5	High Xmit freq., microstrip on side
7440.000	42.5	PK	37.3	HHRN	31.4	5.9	235.0	2.3	54.3	74.0	-19.8	High Xmit freq., microstrip flat
7440.000	45.2	PK	37.3	HHRN	31.4	5.9	228.0	1.9	57.0	74.0	-17.1	High Xmit freq., microstrip on side

Rev 3.5

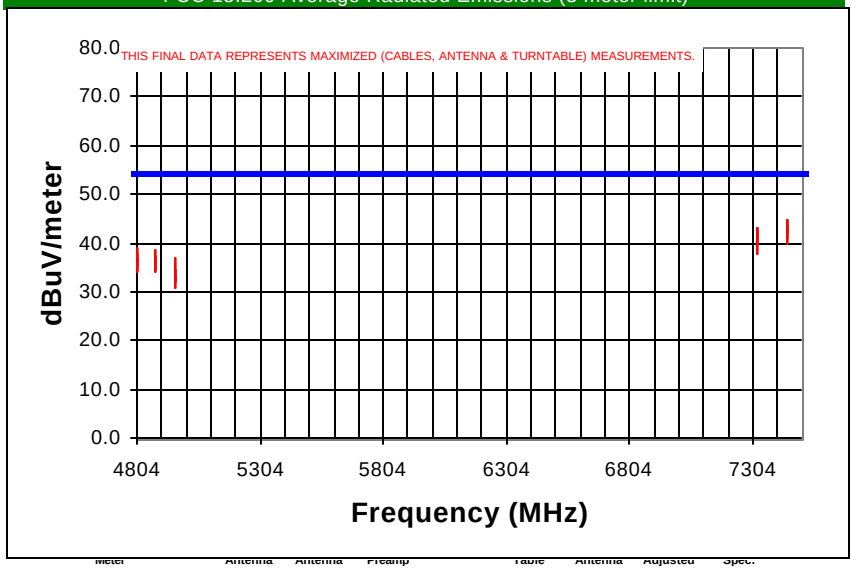
Northwest EMC, Inc., Radiated and Conducted Emissions Data Sheets 01/11/01

EUT:	Serial Number:	Job Number:	Date:
Intel(R) Personal Wireless Module	**New module #2 1/15/01**	**INSC0014**	**01/29/01**
Manufacturer:	Test Engineer:	Job Site:	
Intel Corporation	**Rod Peloquin**	**EV01**	
Customer Reference Number:	Software:	Power:	

Comments: **No hop, no antenna: 50 ohm terminator connected to straight, resonant length microstrip**

Temperature (°C):	% Humidity:
18	**34**

FCC 15.209 Average Radiated Emissions (3 meter limit)



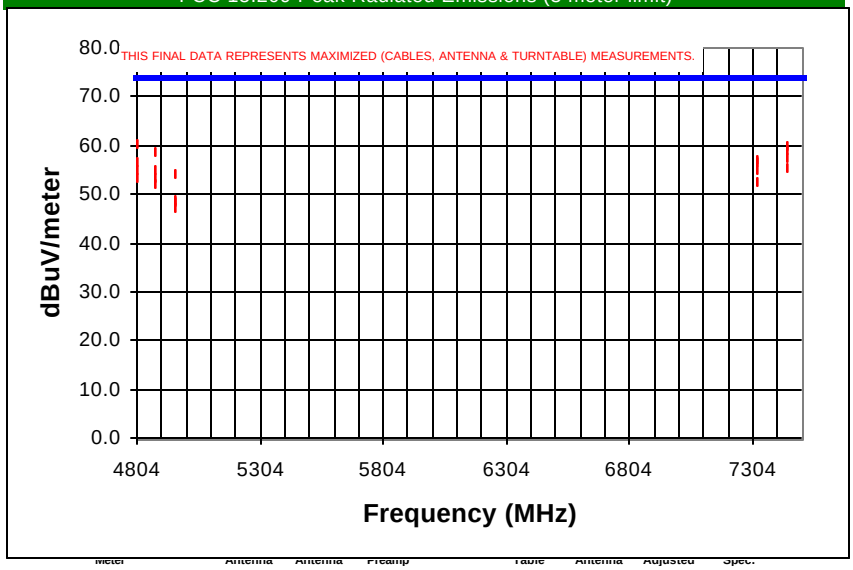
Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Antenna Polarity	Preamp Gain (dB)	Cable Loss (dB)	Table Azimuth (degrees)	Antenna Height (meters)	Adjusted Level (dBuV/m)	Spec. Limit (dBuV/m)	Margin (dB)	Comment
4804.000	35.0	AV	32.8	HHRN	34.3	4.4	257.0	2.1	37.9	54.0	-16.1	Low Xmit freq., microstrip on side
4804.000	32.9	AV	32.8	HHRN	34.3	4.4	13.0	2.1	35.8	54.0	-18.3	Low Xmit freq., microstrip flat
4804.000	32.4	AV	32.8	VHRN	34.3	4.4	307.0	2.1	35.3	54.0	-18.7	Low Xmit freq., microstrip flat
4804.000	33.6	AV	32.8	VHRN	34.3	4.4	269.0	1.4	36.5	54.0	-17.5	Low Xmit freq., microstrip on side
4880.000	33.3	AV	32.9	VHRN	34.3	4.4	203.0	1.2	36.3	54.0	-17.8	Mid Xmit freq., microstrip flat
4880.000	32.6	AV	32.9	VHRN	34.3	4.4	214.0	2.3	35.6	54.0	-18.4	Mid Xmit freq., microstrip on side
4880.000	32.2	AV	32.9	HHRN	34.3	4.4	345.0	1.9	35.2	54.0	-18.8	Mid Xmit freq., microstrip flat
4880.000	34.4	AV	32.9	HHRN	34.3	4.4	205.0	2.0	37.4	54.0	-16.6	Mid Xmit freq., microstrip on side
4960.000	32.5	AV	33.0	HHRN	34.3	4.5	204.0	2.1	35.7	54.0	-18.4	High Xmit freq., microstrip on side
4960.000	30.1	AV	33.0	HHRN	34.3	4.5	57.0	2.0	33.3	54.0	-20.8	High Xmit freq., microstrip flat
4960.000	29.0	AV	33.0	VHRN	34.3	4.5	297.0	1.5	32.2	54.0	-21.8	High Xmit freq., microstrip on side
4960.000	30.0	AV	33.0	VHRN	34.3	4.5	70.0	1.4	33.2	54.0	-20.9	High Xmit freq., microstrip flat
7320.000	30.0	AV	36.8	HHRN	31.8	5.9	229.0	2.0	40.9	54.0	-13.1	Mid Xmit freq., microstrip on side
7320.000	28.1	AV	36.8	HHRN	31.8	5.9	35.0	1.9	39.0	54.0	-15.0	Mid Xmit freq., microstrip flat
7320.000	30.9	AV	36.8	VHRN	31.8	5.9	86.0	1.4	41.8	54.0	-12.2	Mid Xmit freq., microstrip flat
7320.000	31.1	AV	36.8	VHRN	31.8	5.9	217.0	1.6	42.0	54.0	-12.1	Mid Xmit freq., microstrip on side
7440.000	31.8	AV	37.3	VHRN	31.4	5.9	251.0	1.6	43.6	54.0	-10.4	High Xmit freq., microstrip flat
7440.000	29.3	AV	37.3	HHRN	31.4	5.9	208.0	1.9	41.1	54.0	-12.9	High Xmit freq., microstrip flat
7440.000	31.6	AV	37.3	VHRN	31.4	5.9	237.0	1.5	43.4	54.0	-10.6	High Xmit freq., microstrip on side
7440.000	30.5	AV	37.3	HHRN	31.4	5.9	238.0	2.1	42.3	54.0	-11.7	High Xmit freq., microstrip on side

Rev 3.5

Northwest EMC, Inc., Radiated and Conducted Emissions Data Sheets 01/11/01

EUT:	Serial Number:	Job Number:	Date:
Intel(R) Personal Wireless Module	**New module #2 1/15/01**	**INSC0014**	**01/29/01**
Manufacturer:	Test Engineer:	Job Site:	
Intel Corporation	**Rod Peloquin**	**EV01**	
Customer Reference Number:	Software:	Power:	
Comments:	**No hop, no antenna: 50 ohm terminator connected to straight, resonant length microstrip**		
		Temperature (°C):	% Humidity:
		18	**34**

FCC 15.209 Peak Radiated Emissions (3 meter limit)



Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Antenna Polarity	Preamp Gain (dB)	Cable Loss (dB)	Table Azimuth (degrees)	Antenna Height (meters)	Adjusted Level (dBuV/m)	Spec. Limit (dBuV/m)	Margin (dB)	Comment
4804.000	57.5	PK	32.8	HHRN	34.3	4.4	257.0	2.1	60.4	74.0	-13.6	Low Xmit freq., microstrip on side
4804.000	50.3	PK	32.8	VHRN	34.3	4.4	307.0	2.1	53.2	74.0	-20.9	Low Xmit freq., microstrip flat
4804.000	53.7	PK	32.8	VHRN	34.3	4.4	269.0	1.4	56.6	74.0	-17.4	Low Xmit freq., microstrip on side
4804.000	52.0	PK	32.8	HHRN	34.3	4.4	13.0	2.1	54.9	74.0	-19.2	Low Xmit freq., microstrip flat
4880.000	49.1	PK	32.9	HHRN	34.3	4.4	345.0	1.9	52.1	74.0	-21.9	Mid Xmit freq., microstrip flat
4880.000	51.8	PK	32.9	VHRN	34.3	4.4	203.0	1.2	54.8	74.0	-19.2	Mid Xmit freq., microstrip flat
4880.000	55.6	PK	32.9	HHRN	34.3	4.4	205.0	2.0	58.6	74.0	-15.4	Mid Xmit freq., microstrip on side
4880.000	50.5	PK	32.9	VHRN	34.3	4.4	214.0	2.3	53.5	74.0	-20.5	Mid Xmit freq., microstrip on side
4960.000	51.1	PK	33.0	HHRN	34.3	4.5	204.0	2.1	54.3	74.0	-19.8	High Xmit freq., microstrip on side
4960.000	45.5	PK	33.0	HHRN	34.3	4.5	57.0	2.0	48.7	74.0	-25.3	High Xmit freq., microstrip flat
4960.000	45.4	PK	33.0	VHRN	34.3	4.5	70.0	1.4	48.6	74.0	-25.4	High Xmit freq., microstrip flat
4960.000	44.2	PK	33.0	VHRN	34.3	4.5	297.0	1.5	47.4	74.0	-26.7	High Xmit freq., microstrip on side
7320.000	46.1	PK	36.8	VHRN	31.8	5.9	217.0	1.6	57.0	74.0	-17.1	Mid Xmit freq., microstrip on side
7320.000	45.9	PK	36.8	VHRN	31.8	5.9	86.0	1.4	56.8	74.0	-17.2	Mid Xmit freq., microstrip flat
7320.000	43.9	PK	36.8	HHRN	31.8	5.9	229.0	2.0	54.8	74.0	-19.2	Mid Xmit freq., microstrip on side
7320.000	41.8	PK	36.8	HHRN	31.8	5.9	35.0	1.9	52.7	74.0	-21.3	Mid Xmit freq., microstrip flat
7440.000	48.1	PK	37.3	VHRN	31.4	5.9	251.0	1.6	59.9	74.0	-14.2	High Xmit freq., microstrip flat
7440.000	47.3	PK	37.3	VHRN	31.4	5.9	237.0	1.5	59.1	74.0	-14.9	High Xmit freq., microstrip on side
7440.000	43.5	PK	37.3	HHRN	31.4	5.9	208.0	1.9	55.3	74.0	-18.7	High Xmit freq., microstrip flat
7440.000	45.6	PK	37.3	HHRN	31.4	5.9	238.0	2.1	57.4	74.0	-16.6	High Xmit freq., microstrip on side

Northwest EMC, Inc., Radiated and Conducted Emissions Data Sheets

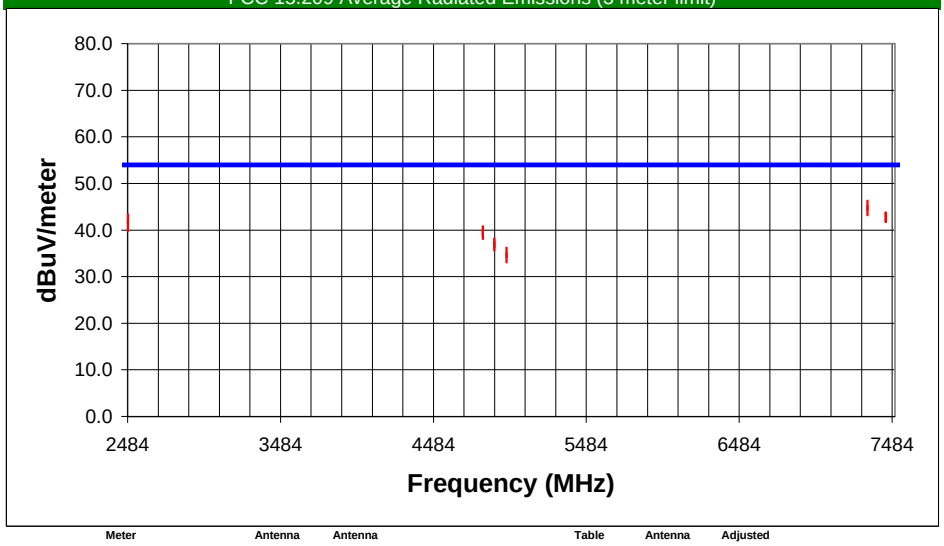
Rev 3.4
10/11/00

EUT:	Serial Number:	Job Number:	Date:
Intel(R) Personal WirelessModule	**New module #2 1/15/01**	**INSC0014**	**02/12/01**
Manufacturer:	Test Engineer:	Job Site:	
Intel Corporation	**Greg Kiemel**	**EV01**	
Customer Reference Number:	Software:	Power:	

Comments: **No hop, Antenna B connected to 7.822 inch long coax that is connected to 7.822 inch long meandering microstrip PCB etch (wide trace).**

Temperature (°C):	% Humidity:
22	**33**

FCC 15.209 Average Radiated Emissions (3 meter limit)



Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Antenna Polarity	Preamp Gain (dB)	Cable Loss (dB)	Table Azimuth (degrees)	Antenna Height (meters)	Adjusted Level (dBuV/m)	Spec. Limit (dBuV/m)	Margin (dB)	Comment
2483.500	43.3	AV	30.4	HHRN	33.9	2.6	63.0	2.1	42.4	54.0	-11.6	High Band
2483.500	41.7	AV	30.4	VHRN	33.9	2.6	0.0	1.0	40.8	54.0	-13.2	High Band
4804.000	35.3	AV	34.4	HHRN	34.3	4.4	208.0	2.2	39.8	54.0	-14.2	Low Band
4804.000	34.5	AV	34.4	VHRN	34.3	4.4	82.0	1.4	39.0	54.0	-15.0	Low Band
4880.000	32.0	AV	34.5	HHRN	34.3	4.4	243.0	2.2	36.6	54.0	-17.4	Mid Band
4880.000	32.6	AV	34.5	VHRN	34.3	4.4	187.0	2.0	37.2	54.0	-16.8	Mid Band
4960.000	30.3	AV	34.7	VHRN	34.3	4.5	173.0	1.1	35.2	54.0	-18.8	High Band
4960.000	29.2	AV	34.7	HHRN	34.3	4.5	57.0	2.1	34.1	54.0	-20.0	High Band
7320.000	33.8	AV	37.4	VHRN	31.8	5.9	248.0	1.5	45.3	54.0	-8.7	Mid Band
7320.000	32.7	AV	37.4	HHRN	31.8	5.9	231.0	1.9	44.2	54.0	-9.8	Mid Band
7440.160	30.7	AV	37.5	HHRN	31.4	5.9	227.0	1.9	42.7	54.0	-11.3	High Band
7440.160	30.8	AV	37.5	VHRN	31.4	5.9	240.0	1.7	42.8	54.0	-11.2	High Band

Northwest EMC, Inc., Radiated and Conducted Emissions Data Sheets

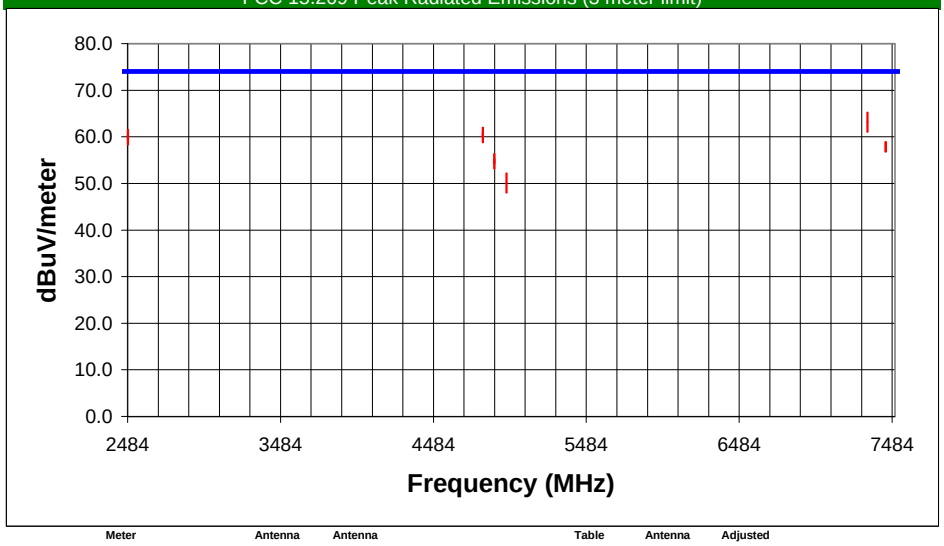
Rev 3.4
10/11/00

EUT:	Serial Number:	Job Number:	Date:
Intel(R) Personal Wireless Module	**New module #2 1/15/01**	**INSC0014**	**02/12/01**
Manufacturer:	Test Engineer:	Job Site:	
Intel Corporation	**Greg Kiemel**	**EV01**	
Customer Reference Number:	Software:	Power:	

Comments: **No hop, Antenna B connected to 7.822 inch long coax that is connected to 7.822 inch long meandering microstrip PCB etch (wide trace).**

	Temperature (°C):	% Humidity:
	22	**33**

FCC 15.209 Peak Radiated Emissions (3 meter limit)



Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Antenna Polarity	Preamp Gain (dB)	Cable Loss (dB)	Table Azimuth (degrees)	Antenna Height (meters)	Adjusted Level (dBuV/m)	Spec. Limit (dBuV/m)	Margin (dB)	Comment
2483.500	61.4	PK	30.4	VHRN	33.9	2.6	0.0	1.0	60.5	74.0	-13.5	High Band
2483.500	60.3	PK	30.4	HHRN	33.9	2.6	63.0	2.1	59.4	74.0	-14.7	High Band
4804.000	55.3	PK	34.4	VHRN	34.3	4.4	82.0	1.4	59.8	74.0	-14.2	Low Band
4804.000	56.5	PK	34.4	HHRN	34.3	4.4	208.0	2.2	61.0	74.0	-13.0	Low Band
4880.000	49.6	PK	34.5	HHRN	34.3	4.4	243.0	2.2	54.2	74.0	-19.8	Mid Band
4880.000	50.8	PK	34.5	VHRN	34.3	4.4	187.0	2.0	55.4	74.0	-18.6	Mid Band
4960.000	46.3	PK	34.7	VHRN	34.3	4.5	173.0	1.1	51.2	74.0	-22.9	High Band
4960.000	44.2	PK	34.7	HHRN	34.3	4.5	57.0	2.1	49.1	74.0	-25.0	High Band
7320.000	52.7	PK	37.4	VHRN	31.8	5.9	248.0	1.5	64.2	74.0	-9.8	Mid Band
7320.000	50.6	PK	37.4	HHRN	31.8	5.9	231.0	1.9	62.1	74.0	-11.9	Mid Band
7440.160	45.9	PK	37.5	VHRN	31.4	5.9	240.0	1.7	57.9	74.0	-16.1	High Band
7440.160	45.9	PK	37.5	HHRN	31.4	5.9	227.0	1.9	57.9	74.0	-16.2	High Band