

Exhibit K: Power Spectral Density

FCC ID: EJM-X400

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:

High

Mid

Low

Operating Modes Investigated:

Typical

Data Rates Investigated:

Maximum

Output Power Setting(s) Investigated:

Maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Software\Firmware Applied During Test

Exercise software	Standard Production Software	Version	2.1.0.104-4400
Description			
The system was tested using standard operating production software to exercise the functions of the device during the testing. The software resides in Flash on the baseboard of the EUT.			

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
Radio Module	Intel Corporation	WL-350F V05	00904B0A83FD
EUT	Intel Corporation	AnyPoint DSL Gateway 4400	0007E9036749
PC	Dell	Inspiron 7000	9043346BY16251A
EUT Power Supply	CUI Stack	TEAD-48-121200UT	0210

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
CAT 5 E-net	No	2.0	No	EUT	PC
DC Power	No	1.5	No	EUT Power Supply	EUT
AC Power	No	1.8	No	EUT Power Supply	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 4400 and 1400 use the same radio module, antennas, power supply, base board layout, and enclosure. The difference is the 4400 has a DSL interface, and the 1400 has an Ethernet interface. Since the radio module is the same, the test was performed in a representative system: the 4400. 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:

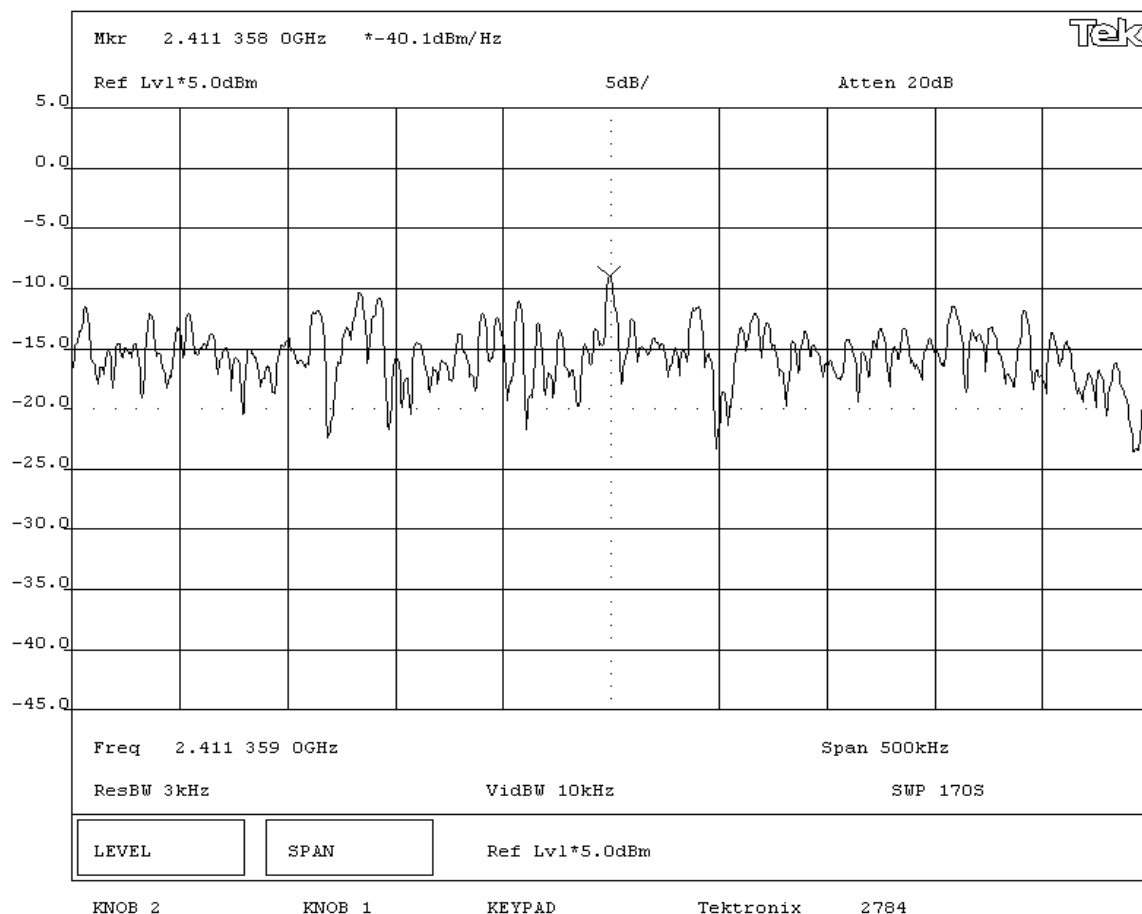
The emission peak(s) were located and zoom in on within the passband. The resolution bandwidth was set to 3 kHz, the video bandwidth was set to greater than or equal to the resolution bandwidth. The sweep speed was set equal to the span divided by 3 kHz (sweep = $(SPAN/3 \text{ kHz})$). For example, 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."

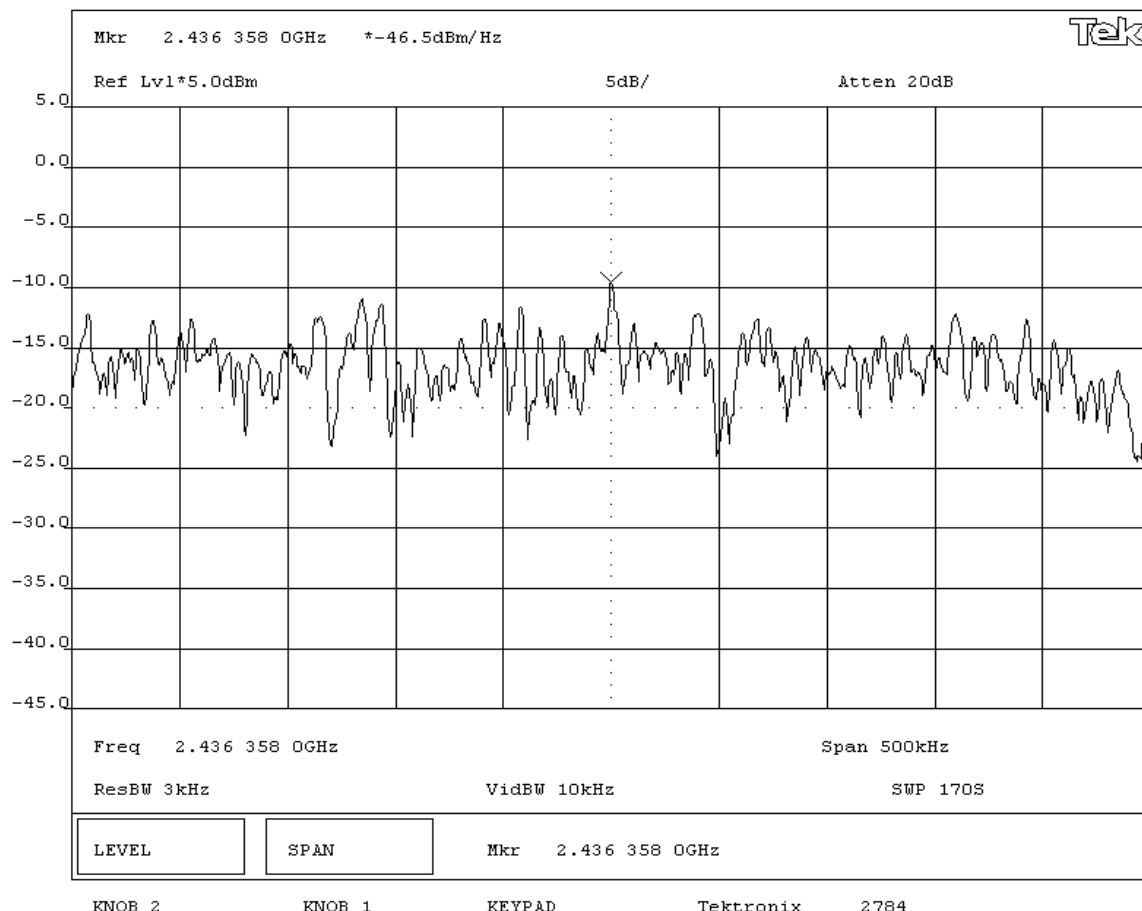
Completed by:




NORTHWEST EMC		EMISSIONS DATA SHEET		Rev BETA 01/30/01	
EUT: AnyPoint DSL Gateway 4400			Work Order: INTE4561		
Serial Number: 0007E9036749			Date: 05/21/02		
Customer: Intel Corporation			Temperature: 21 degrees C		
Attendees: Mike Espig		Tested by: Greg Kiemel		Humidity: 39% RH	
Customer Ref. No.: N/A		Power: 120V, 60 Hz		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 = $10 \cdot \log(3\text{kHz}/1\text{Hz})$					
COMMENTS					
WL-350F installed in EUT					
EUT OPERATING MODES					
Modulated by stream of "1010101" data at maximum data rate, maximum output power					
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 = -5.3 dBm / 3kHz					
SIGNATURE					
<div style="text-align: center;">  Tested By: _____ </div>					
DESCRIPTION OF TEST					
Power Spectral Density - Low Channel					



NORTHWEST EMC		EMISSIONS DATA SHEET		Rev BETA 01/30/01	
EUT: AnyPoint DSL Gateway 4400			Work Order: INTE4561		
Serial Number: 0007E9036749			Date: 05/21/02		
Customer: Intel Corporation			Temperature: 21 degrees C		
Attendees: Mike Espig		Tested by: Greg Kiemel		Humidity: 39% RH	
Customer Ref. No.: N/A		Power: 120V, 60 Hz		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 = $10 \cdot \log(3\text{kHz}/1\text{Hz})$					
COMMENTS					
WL-350F installed in EUT					
EUT OPERATING MODES					
Modulated by stream of "1010101" data at maximum data rate, maximum output power					
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 = -11.7 dBm / 3kHz		
SIGNATURE					
<div style="text-align: center;">  Tested By: _____ </div>					
DESCRIPTION OF TEST					
Power Spectral Density - Mid Channel					



NORTHWEST EMC		EMISSIONS DATA SHEET		Rev BETA 01/30/01	
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Serial Number: 0007E9036749			Date: 05/21/02		
Customer: Intel Corporation			Temperature: 21 degrees C		
Attendees: Mike Espig		Tested by: Greg Kiemel		Humidity: 39% RH	
Customer Ref. No.: N/A		Power: 120V, 60 Hz		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(3kHz/1Hz)					
COMMENTS					
WL-350F installed in EUT					
EUT OPERATING MODES					
Modulated by stream of "1010101" data at maximum data rate, maximum output power					
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 = -4.7 dBm / 3kHz		
SIGNATURE					
<div style="text-align: center;">  Tested By: _____ </div>					
DESCRIPTION OF TEST					
Power Spectral Density - High Channel					

