Test Report

for

FCC Part 15 Subpart B & C & E
Class II Permissive Change

of

Product Name

Intel PRO/Wireless 3945ABG Network Connection

Model

WM3945ABG

Applied by:

Intel Corporation
2111 NE 25th Avenue
Hillsboro, Oregon 9
USA

Test Performed by:

International Standards Laboratory

No. 120, Lane 180, San Ho Tsuen, Hsin Ho Rd.
Lung-Tan Hsiang, Tao Yuan County 325
Taiwan, R.O.C.
Tel:(03)407-1718 Fax:(03)407-1738

Contents of Report

1. General

1.1 Certification of Accuracy of Test Data

Standards:	CFR 47 Part 15 Subpart B Class B CFR 47 Part 15 Subpart C (Section 15.247) CFR 47 Part 15 Subpart E (Section 15.407)
Test Procedure:	ANSI C63.4:2003
Equipment Tested:	Intel PRO/Wireless 3945ABG Network Connection
Model:	WM3945ABG
Built-In Tablet PC	Brand Name: Lenovo Model Name: 6363/ 6364/ 6365/ 6366/ 6367/ 6368 Project Name: ThinkPad X60 Tablet Series
Applied by:	Intel Corporation
Sample received Date:	2006/08/23
Final test Date :	2006/09/05
Test Result	PASS
Test Site:	Chamber 02, Conduction 02
Temperature	Refer to each site test data
Humidity:	Refer to each site test data
Test Engineer:	Jerry Chiou

All the tests in this report have been performed and recorded in accordance with the standards described above and performed by an independent electromagnetic compatibility consultant, International Standards Laboratory.

The test results contained in this report accurately represent the measurements of the characteristics and the energy generated by sample equipment under test at the time of the test. The sample equipment tested as described in this report is in compliance with the limits of above standards.

Approve & Signature

Eddy Hsiung/Director

Test results given in this report apply only to the specific sample(s) tested under stated test conditions. This report shall not be reproduced other than in full without the explicit written consent of ISL. This report totally contains 73 pages, including 1 cover page , 3 contents page, and 69 pages for the test description. This report must not be use to claim product endorsement by NVLAP or any agency of the U.S. Government.

This test data shown below is traceable to NIST or national or international standard. International Standards Laboratory certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 853(a).

2. Test Results Summary

The 802.11b functions of EUT has been tested according to the FCC regulations listed below:

Tested Standards: 47 CFR Part 15 Subpart C			
Standard Section	Test Type	Result	Remarks
15.207	AC Power Line Emissions	Pass	
15.247(a)(2)	Spectrum Bandwidth Of DSSS device	Pass	
15.247(b)	Max. Peak Output Power	Pass	
15.247(c)	Radiated Emissions 30MHz – 25 GHz	Pass	
15.247 (c)	Band Edge Measurement	Pass	
15.247(b)(4)	Radiation Exposure	Pass	SAR report attached
15.247 (d)	Power Spectral Density	Pass	

The 802.11g functions of EUT has been tested according to the FCC regulations listed below:

Tested Standards: 47 CFR Part 15 Subpart C			
Standard Section	Test Type	Result	Remarks
15.207	AC Power Line Emissions	Pass	
15.247(a)(2)	Spectrum Bandwidth Of DSSS device	Pass	
15.247(b)	Max. Peak Output Power	Pass	
15.247(c)	Radiated Emissions 30MHz – 25 GHz	Pass	
15.247 (c)	Band Edge Measurement	Pass	
15.247(b)(4)	Radiation Exposure	Pass	SAR report attached
15.247 (d)	Power Spectral Density	Pass	

The 802.11a functions of EUT has been tested to the FCC regulations listed below:

Tested Standards: 47 CFR Part 15 Subpart E			
Standard Section	Test Type	Result	Remarks
15.407 (a)(1)(2)(3)	Peak Transmit Power	Pass	
15.407 (a)(1)(2)(3)	Peak Power Spectral Density	Pass	
15.407 (a)(6)	Peak Power Excursion	Pass	
15.407 (b)(5)	AC Power Line Emissions	Pass	
15.407 (b)(5)	Radiated Emissions 30MHz – 40 GHz	Pass	
15.407(f)	Radiation exposure	Pass	SAR report attached
15.407 (g)	Frequency Stability	Pass	

3. Description of Equipment Under Test (EUT)

Description:	Intel PRO/Wireless 3945ABG Network Connection
Model No.:	WM3945ABG
FCC ID:	PD9LEN3945ABG
Brand:	Intel
Frequency Range of 802.11a:	5150 - 5250 MHz 5250 - 5350 MHz 5725 - 5850 MHz
Frequency Range of 802.11b/g:	2400 - 2483.5 MHz
Support channel:	
802.11a Normal mode	13 Channels
802.11b/g	11 Channels
Modulation Skill:	
802.11a Normal mode	OFDM (6 Mbps – 54 Mbps)
	802.11b DBPSK(1Mbps), DQPSK(2Mbps), CCK(5.5/11Mbps)
802.11g	OFDM (6M - 54Mbps)
Antennas Type:	
Main antenna:	IFA (P/N: 25.90354.001) made by Wistron NeWeb Corp.
Aux antenna:	IFA (P/N: 25.90355.001) made by Wistron NeWeb Corp.
Antenna Connected: 802.11a/b/g	Connected to RF connector on the PCB of the WLAN Adapter .The user is not possible to change the antenna without disassembling the notebook computer.
Antenna peak Gain:	
Main antenna	0.9 dBi (11b,11g), 1.92 dBi (11a)
Aux antenna	1.52 dBi (11b,11g), 2.78 dBi (11a)
Power Type of wireless module:	3.3V DC from Notebook PC

The channel and the operation frequency of 802.11a Normal Mode is listed below:

Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	40	5200
44	5220	48	5240
52	5260	56	5280
60	5300	64	5320
149	5745	153	5765
157	5785	161	5805
165	5825		

The channel and the operation frequency of 802.11b and 802.11g is listed below:

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437		

There is a difference from the original application: Add a new antenna

Antennas Type:

Main antenna: IFA (P/N: 25.90354.001) made by Wistron NeWeb Corp.

Aux antenna: IFA (P/N: 25.90355.001) made by Wistron NeWeb Corp.

Antenna peak Gain:

Main antenna : 0.9 dBi (11b,11g), 1.92 dBi (11a)

Aux antenna: 1.52 dBi (11b,11g), 2.78 dBi (11a)

4. TEST RESULTS (802.11a)

4.1 Maximum Peak Output Power [Section 15.407 (a)(1)(2)(3)]

4.1.1 Test Procedure

The transmitter output of EUT was connected to the peak power analyzer.

4.1.2 Test Setup

Frequency Band	Limit
5.15 – 5.25 GHz	The lesser of 50mW (17dBm) or 4dBm+10logB
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm+10logB

Note: B is the 26dB emission bandwith in MHz

4.1.3 Test Data: (Normal Mode)

Temp. (deg. C): 25

Test Engr: Jerry Chiou Humidity (%): 50

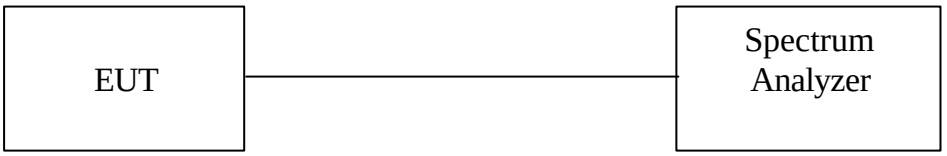
Channel	Frequency (Mhz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
36	5180	15.06	1.3	43.25	16.36	30	Pass
48	5240	15.6	1.3	48.98	16.9	30	Pass
52	5260	17.11	1.3	69.34	18.41	30	Pass
64	5320	16.95	1.3	66.83	18.25	30	Pass

4.2 Peak Power Spectral Density [Section 15.407(a)(1)(2)(3)]

4.2.1 Test Procedure

1. The Transmitter output of EUT was connected to the spectrum analyzer.
   Equipment mode: Spectrum analyzer
   Detector function: Peak mode
   SPAN: 30MHz or 50MHz
   RBW: 1MHz
   VBW: 3MHz
   Sweep time: 30 or 50 sec.
   Center frequency: fundamental frequency tested
2. Peak search was read to the peak power after maximum hold function is completed.

4.2.2 Test Setup



4.2.3 Test Data: (Normal Mode)

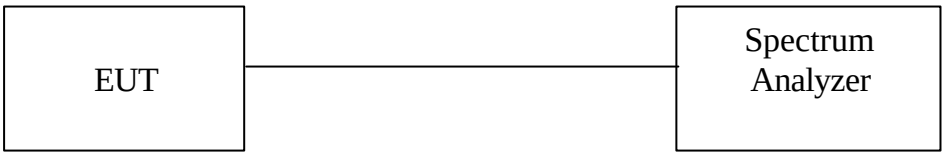
Please refer to Aegis Labs, Inc. Report Number: INTEL-051026F
FCC ID: PD9LEN3945ABG

4.3 Peak Power Excursion Measurement [Section 15.407(a)(6)]

4.3.1 Test Procedure

1. The Transmitter output of EUT was connected to the spectrum analyzer.
2. Frequency SPAN of Spectrum: 30MHz or 50MHz.
3. Trace 1 : RBW: 1MHz, VBW: 3MHz. Using positive detector and Max -hold
4. Trace 2 : RBW: 1MHz, VBW: 3MHz. Using Sample detector and Max-hold
5. Record the largest difference between Trace 1 and Trace 2.

4.3.2 Test Setup



4.3.3 Test Data: (Normal Mode)

Please refer to Aegis Labs, Inc. Report Number: INTEL-051026F
FCC ID: PD9LEN3945ABG

4.4 Powerline Conducted Emissions [Section 15.207 & 15.407 (b)(5)]

4.4.1 EUT Configuration

The EUT was set up on the non-conductive table that is 1.0 by 1.5 meter, 80cm above ground. The wall of the shielded room was located 40cm to the rear of the EUT.

Power to the EUT was provided through the LISN. The impedance vs. frequency characteristic of the LISN is complied with the limit used.

Both lines (neutral and hot) were connected to the LISN in series at testing. A coaxial-type connector which provides one 50 ohms terminating impedance was provided for connecting the test instrument. The excess length of the power cord was folded back and forth at the center of the lead so as to form a bundle not exceeding 40cm in length.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

If the EUT is a Personal Computer or a peripheral of personal computer, and the personal computer has an auxiliary AC outlet which can be used for providing power to an external monitor, then all measurements will be made with the monitor power from first the computer-mounted AC outlet and then a floor-mounted AC outlet.

4.4.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. The main power line conducted EMI tests were run on the hot and neutral conductors of the power cord and the results were recorded. The effect of varying the position of the interface cables has been investigated to find the configuration that produces maximum emission.

At the frequencies where the peak values of the emissions were higher than 6dß below the applicable limits, the emissions were also measured with the quasi-peak detectors. At the frequencies where the quasi-peak values of the emissions were higher than 6dß below the applicable average limits, the emissions were also measured with the average detectors.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

4.4.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range:	150 KHz--30MHz
Detector Function:	Quasi-Peak/Average
Bandwidth (RBW):	9KHz

4.4.4 Test Data:

Please refer to Aegis Labs, Inc. Report Number: INTEL-051026F
FCC ID: PD9LEN3945ABG

4.5 Radiated Emission Measurement [Section 15.209 & 15.407(b)(5)]

4.5.1 EUT Configuration

The equipment under test was set up on the 10 meter chamber with measurement distance of 3 meters. The EUT was placed on a non-conductive table 80cm above ground.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

4.5.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. We found the maximum readings by varying the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured.

30M to 1GHz: The highest emissions between 30 MHz to 1000 MHz were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission.

1GHz – 40GHz: The highest emissions were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in peak mode to determine the precise amplitude of the emission. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission. During test the EMI receiver and spectrum was setup according to para. 6.5.3.

For the test of 2^{nd} to 10^{th} harmonics frequencies , the equipment setup was also refer to para.6.5.3. The frequencies were tested using Peak mode first, if the test data is higher than the emissions limit, an additional measurement using Average mode will be performed and the average reading will be compared to the limit and record in test report.

4.5.3 EMI Receiver/Spectrum Analyzer Configuration

Frequency Range Tested:	30MHz~1000MHz
Detector Function:	Quasi-Peak Mode
Resolution Bandwidth (RBW):	120KHz
Video Bandwidth (VBW)	1MHz
Frequency Range Tested:	1GHz – 40 GHz
Detector Function:	Peak Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	3MHz
Frequency Range Tested:	30MHz – 40 GHz
Detector Function:	Average Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	10 Hz

4.5.4 Test Data (30MHz – 1GHz) .

30M – 1GHz Open Field Radiated Emissions (Horizontal)

Operator:JerryChiou
Temperature(C):27
Humidity(%):63

Frequency	RxAmp.	AntFact	CableLoss	PreAmpGain	Corrct.Emi.	Limit	Margin	Ant.Pos.	TablePos
MHz	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg)
47.46	25.65	8.62	1.36	0.00	35.63	40.00	-4.37	196.00	51.00
140.58	16.30	10.25	2.48	0.00	29.04	43.50	-14.46	102.00	18.00
142.52	18.27	10.10	2.50	0.00	30.87	43.50	-12.63	102.00	148.00
147.37	19.50	9.71	2.53	0.00	31.74	43.50	-11.76	102.00	180.00
167.74	16.84	8.62	2.69	0.00	28.15	43.50	-15.35	196.00	2.00
244.37	21.20	10.86	3.32	0.00	35.38	46.00	-10.62	196.00	312.00
371.44	9.70	16.07	4.52	0.00	30.29	46.00	-15.71	102.00	326.00
452.92	8.94	16.27	5.23	0.00	30.44	46.00	-15.56	102.00	343.00

30M – 1GHz Open Field Radiated Emissions (Vertical)

Operator:JerryChiou
Temperature(C):27
Humidity(%):63

Frequency	RxAmp.	AntFact	CableLoss	PreAmpGain	Corrct.Emi.	Limit	Margin	Ant.Pos.	TablePos.
MHz	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg)
47.46	20.20	8.62	1.36	0.00	30.17	40.00	-9.83	196.00	51.00
146.4	17.34	9.79	2.52	0.00	29.65	43.50	-13.85	102.00	180.00
199.75	17.92	8.89	2.95	0.00	29.76	43.50	-13.74	102.00	180.00
225.94	18.71	8.76	3.19	0.00	30.65	46.00	-15.35	196.00	34.00
248.25	18.14	11.44	3.35	0.00	32.93	46.00	-13.07	196.00	312.00
253.1	15.82	12.10	3.38	0.00	31.31	46.00	-14.69	196.00	295.00
443.22	10.55	16.16	5.13	0.00	31.85	46.00	-14.15	102.00	293.00
729.37	3.57	19.70	7.41	0.00	30.68	46.00	-15.32	196.00	115.00
897.18	1.48	20.60	8.69	0.00	30.77	46.00	-15.23	102.00	180.00

* NOTE: During the pre-test, the EUT has been tested for Channel 36, 48, 52, 64 of Normal Mode and transmit from Main and Aux antenna respectively to get all the critical emission frequencies. In the final test all the critical emission frequencies has been tested and the test data are listed above.

Margin=Corrected Amplitude–Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 30MHz to 1GHz have been tested

4.5.5 Test Data (1GHz – 40 GHz, Transmitting).

1GHz~ 40 GHz (Horizontal), Normal Mode, Channel 36: 5180 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
6739.86	46.58pk	37.70	3.26	37.47	50.06pk	54.00av	-3.94	101	155
6955.64	46.53pk	38.86	3.13	37.29	51.23pk	54.00av	-2.77	101	117
7099.5	45.84pk	39.26	2.92	37.07	50.95pk	54.00av	-3.05	101	124

1GHz~ 40 GHz (Vertical), Normal Mode, Channel 36: 5180 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
6718.28	47.00pk	37.58	3.27	37.49	50.36pk	54.00av	-3.64	101	159
7027.57	45.56pk	39.14	3.05	37.20	50.56pk	54.00av	-3.44	101	113
10353.8	37.48pk	39.52	3.28	34.55	45.73pk	54.00av	-8.27	101	82

Note: " * ": Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level+Correction Factor<Limit-6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit.

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Normal Mode, Channel 48: 5240 MHz

Operator:JerryChiou

RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
6711.09	47.02pk	37.54	3.27	37.49	50.34pk	54.00av	-3.66	101	160
6962.84	47.19pk	38.90	3.12	37.28	51.93pk	54.00av	-2.07	101	116

1GHz~ 40 GHz (Vertical), Normal Mode, Channel 48: 5240 MHz

Operator:JerryChiou

RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
6739.86	46.70pk	37.70	3.26	37.47	50.19pk	54.00av	-3.81	101	155
7092.31	45.57pk	39.25	2.94	37.09	50.67pk	54.00av	-3.33	101	122
10471.3	33.46pk	39.42	3.23	34.58	41.54pk	54.00av	-12.46	101	110

Note: " * ": Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level+Correction Factor<Limit-6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit.

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Normal Mode, Channel 52: 5260 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
6732.67	47.38pk	37.66	3.26	37.47	50.82pk	54.00av	-3.18	101	157
6977.22	45.80pk	38.98	3.11	37.27	50.63pk	54.00av	-3.37	101	113

1GHz~ 40 GHz (Vertical), Normal Mode, Channel 52: 5260 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
6754.25	46.57pk	37.77	3.25	37.46	50.13pk	54.00av	-3.87	101	153
6991.61	45.76pk	39.05	3.11	37.26	50.66pk	54.00av	-3.34	101	110
10510.5	33.71pk	39.40	3.22	34.59	41.75pk	54.00av	-12.25	102	119

Note: " * ": Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level+Correction Factor<Limit-6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit.

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Normal Mode, Channel 64: 5320 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
6596	46.38pk	36.92	3.34	37.59	49.05pk	54.00av	-4.95	101	181
6747.05	46.63pk	37.73	3.25	37.46	50.16pk	54.00av	-3.84	101	154

1GHz~ 40 GHz (Vertical), Normal Mode, Channel 64: 5320 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
6962.84	46.56pk	38.90	3.12	37.28	51.30pk	54.00av	-2.70	101	116
10637.8	36.88pk	39.43	3.28	34.62	44.97pk	54.00av	-9.03	102	149

Note: " * ": Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level+Correction Factor<Limit-6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit.

All frequencies from 1GHz to 40 GHz have been tested.

4.6 Band Edge Measurement (Section 15.407 (b) (1) (2))

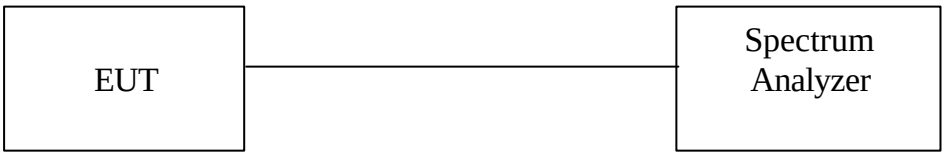
4.6.1 Test Procedure (Conducted)

1. The Transmitter output of EUT was connected to the spectrum analyzer.
   Equipment mode: Spectrum analyzer

Peak Mode:	
SPAN	100MHz
RBW	1MHz
VBW	1MHz
Sweep Time	200msec.

2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed.
3. Find the next peak frequency outside the operation frequency band.

4.6.2 Test Setup (Conducted)



4.6.3 Test Data (conducted):

Please refer to Aegis Labs, Inc. Report Number: INTEL-051026F
FCC ID: PD9LEN3945ABG

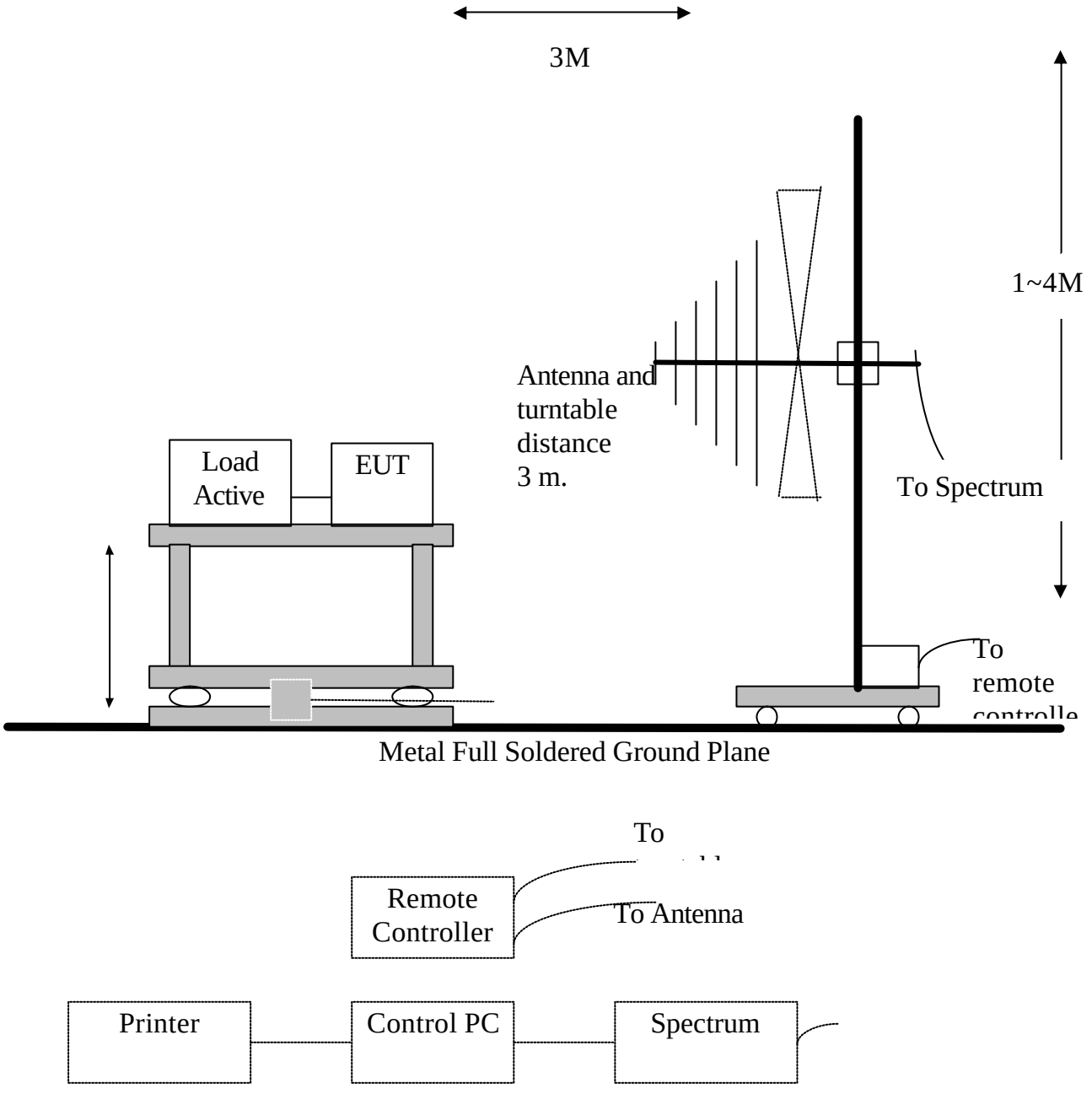
4.6.4 Bandedge Measurement Test Procedure (Radiated)

1. Antenna and Turntable test procedure same as Radiated Emissions measurement listed in Para. 6.5
   Equipment mode: Spectrum analyzer

Peak Mode:	
SPAN	100MHz
RBW	1MHz
VBW	3MHz
Sweep Time	200msec.
AVE Mode:	
SPAN	100MHz
RBW	1MHz
VBW	10Hz
Sweep Time	20 sec.

2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed.
3. Find the next peak frequency outside the operation frequency band.
4. Get the spectrum reading after Maximum Hold function is completed.

4.6.5 Test Setup (Radiated)



4.6.6 Test Data (Radiated):

Band Edge measurement (Radiated)

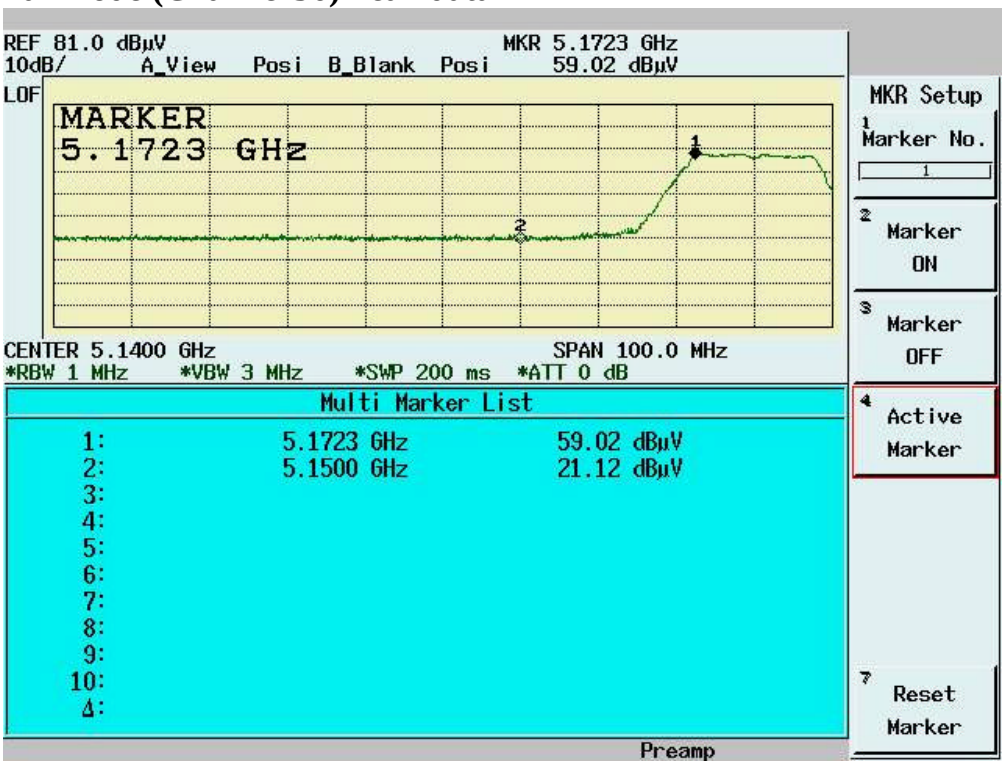
Temperature (deg. C): 25

Test Engineer: Jerry Chiou Humidity (%): 50

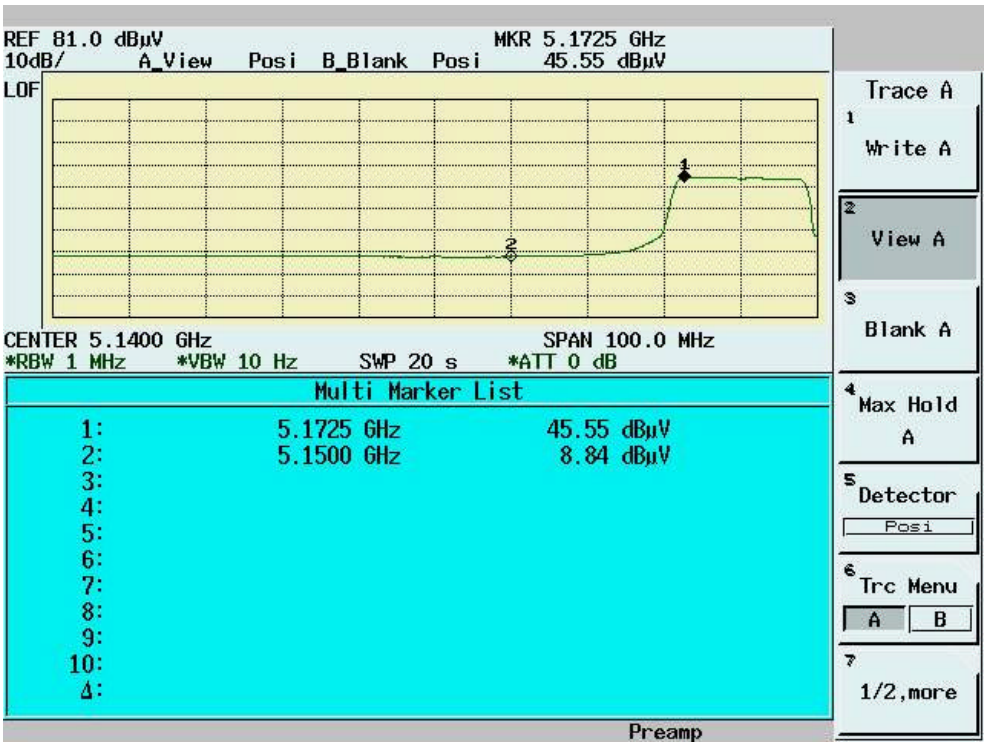
Outside Channel (Normal)	Frequency (MHz)	Spectrum Reading (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Pass/Fail
36 (Peak)	5150	21.12	39.03	39.03	74	Pass
36 (Average)	5150	8.84	39.03	39.03	54	Pass
64 (Peak)	5350	20.83	39.34	39.34	74	Pass
64 (Average)	5350	8.95	39.34	39.34	54	Pass

Note: "pk": peak reading
"av": average reading
Emission Level=Spectrum Reading+Correction Factor
Correction Factor =Antenna Factor+cable loss
Both Horizontal and Vertical polarization have been tested and the worst data is listed above.

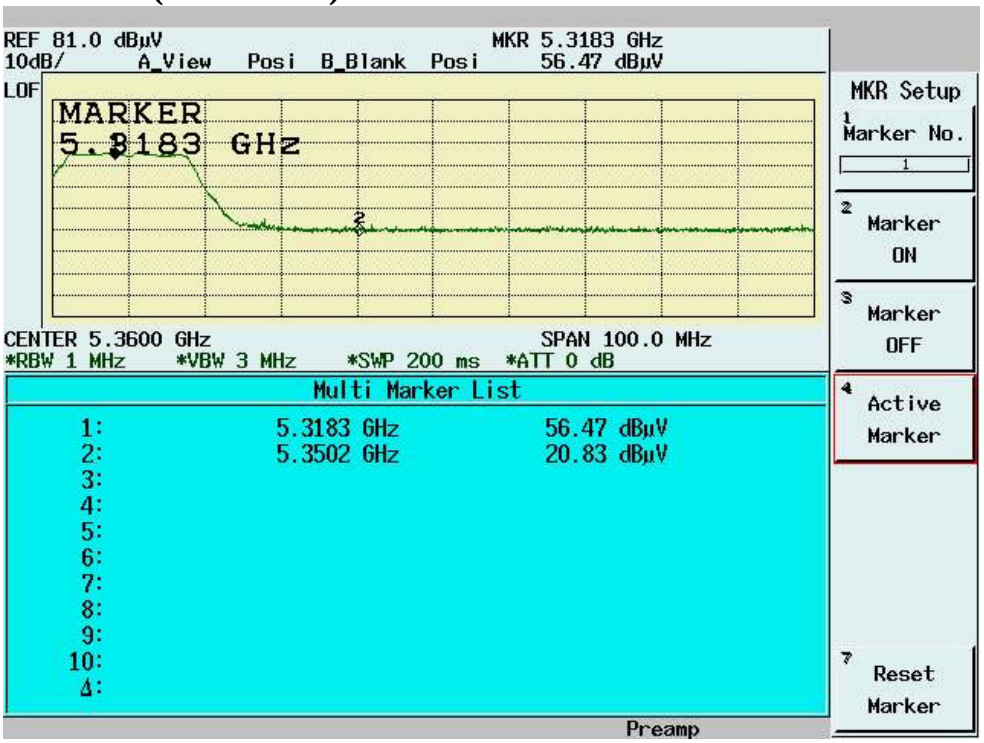
Band Edge measurement for radiated emission in Restricted Band(Radiated)
Normal Mode (Channel 36) Peak data



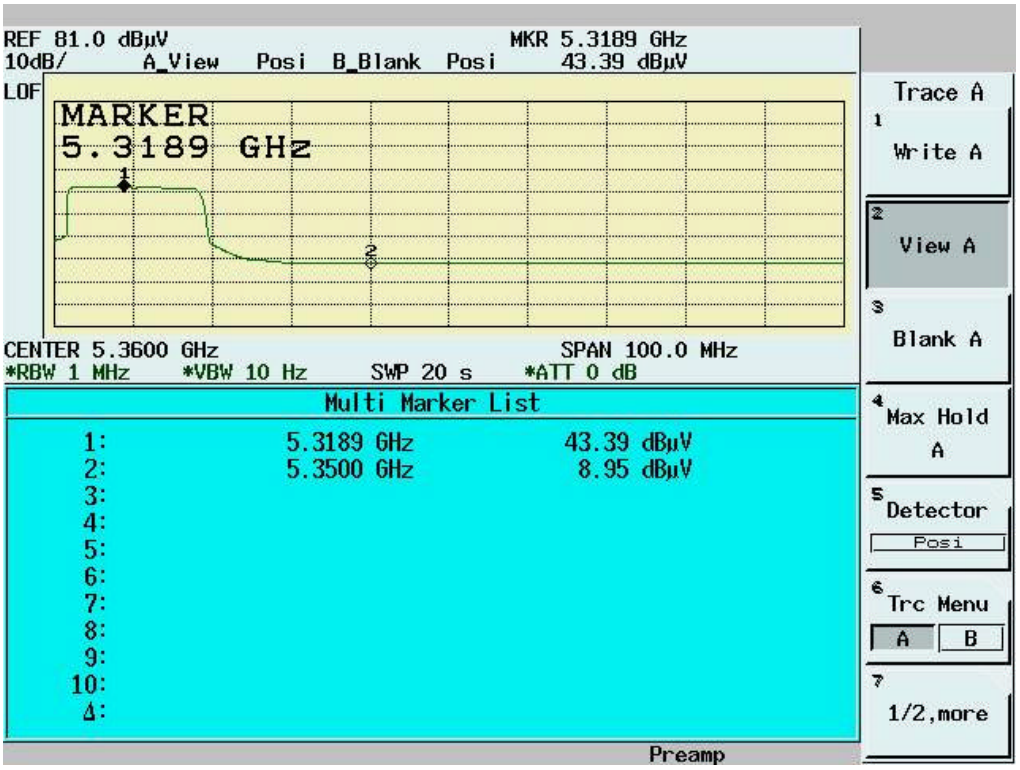
Normal Mode (Channel 36) Average Data



Normal Mode (Channel 64) Peak data



Normal Mode (Channel 64) Average data



4.7 RF Exposure Measurement [Section 15.407(f)(4) & 1.1307(b)]

Refer to SAR Test Report

4.8 Frequency Stability [Section 15.407(g)]

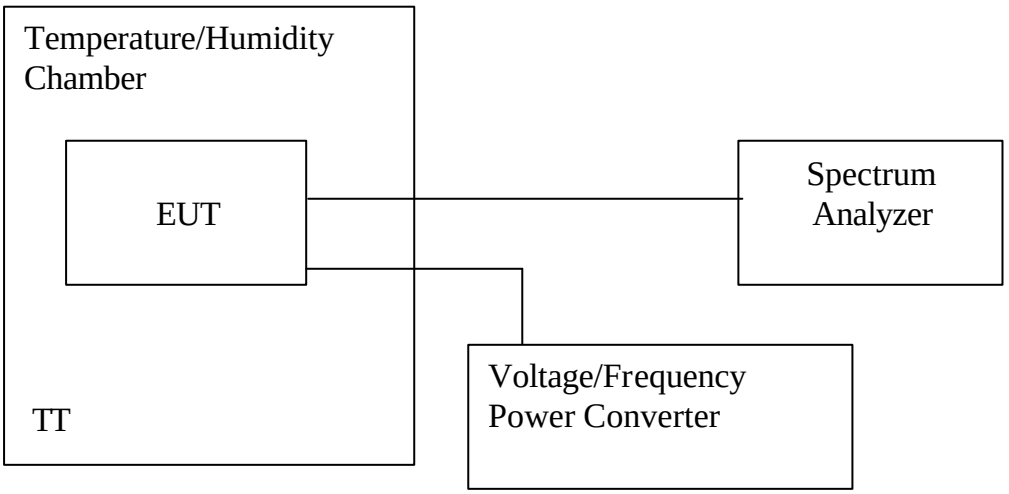
4.8.1 Limits of Frequency Stability Measurement

The frequency tolerance of the carrier sing shall be maintained within +/- 0.02% of the operating frequency over the operation temperature range of EUT (0^0C~35^0C), and variation in the primary supply voltage from 85% to 115% of the rated supply voltage (115V AC) at 20^0C.

4.8.2 Test Procedure

1. The EUT was placed in the Temperature/Humidity Chamber and powered by a Voltage/Frequency Power converter.
2. Connect the RF output of EUT to Spectrum. Turn on the EUT.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the chamber temperature to stabilize. Turn the EUT on and measure the operating frequency after 2, 5, 10 minutes.
5. Set the Voltage/Frequency Power Converter to 85% and 115% of supply voltage, then repeat step 2, 3, 4 respectively.
6. Repeat step 2 , 3, 4, 5 with the temperature of chamber set to the lowest temperature.
7. Repeat step 2 , 3, 4, 5 with the temperature of chamber set to 20^0C.

4.8.3 Test Setup



4.8.4 Test Data

Please refer to Aegis Labs, Inc. Report Number: INTEL-051026F
FCC ID: PD9LEN3945ABG

5. TEST RESULTS (802.11a(5725MHz~5850MHz)&802.11b)

5.1 Powerline Conducted Emissions [Section 15.207]

5.1.1 EUT Configuration

The EUT was set up on the non-conductive table that is 1.0 by 1.5 meter, 80cm above ground. The wall of the shielded room was located 40cm to the rear of the EUT.

Power to the EUT was provided through the LISN. The impedance vs. frequency characteristic of the LISN is complied with the limit used.

Both lines (neutral and hot) were connected to the LISN in series at testing. A coaxial-type connector which provides one 50 ohms terminating impedance was provided for connecting the test instrument. The excess length of the power cord was folded back and forth at the center of the lead so as to form a bundle not exceeding 40cm in length.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

If the EUT is a Personal Computer or a peripheral of personal computer, and the personal computer has an auxiliary AC outlet which can be used for providing power to an external monitor, then all measurements will be made with the monitor power from first the computer-mounted AC outlet and then a floor-mounted AC outlet.

5.1.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. The main power line conducted EMI tests were run on the hot and neutral conductors of the power cord and the results were recorded. The effect of varying the position of the interface cables has been investigated to find the configuration that produces maximum emission.

At the frequencies where the peak values of the emissions were higher than 6dß below the applicable limits, the emissions were also measured with the quasi-peak detectors. At the frequencies where the quasi-peak values of the emissions were higher than 6dß below the applicable average limits, the emissions were also measured with the average detectors.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

5.1.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range	150 KHz--30MHz
Detector Function	Quasi-Peak/Average
Bandwidth (RBW)	9KHz

5.1.4 Test Data:

Please refer to Aegis Labs, Inc. Report Number: INTEL-051026F
FCC ID: PD9LEN3945ABG

5.2 Bandwidth for DSSS [Section 15.247 (a)(2)]

5.2.1 Test Procedure

The Transmitter output of EUT was connected to the spectrum analyzer. The 6 dB bandwidth of the fundamental frequency was measured. The setting of spectrum analyzer is as follows

Equipment mode	Spectrum analyzer
Detector function	Peak mode
RBW	100KHz
VBW	100KHz

5.2.2 Test Setup

5.2.3 Test Data:

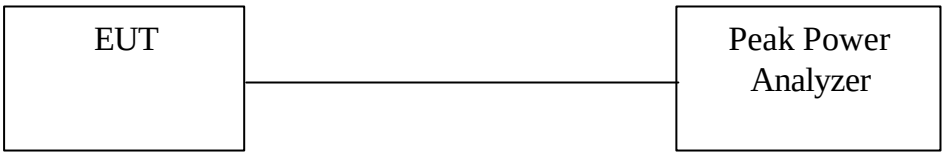
Please refer to Aegis Labs, Inc. Report Number: INTEL-051025F
FCC ID: PD9LEN3945ABG

5.3 DSSS Maximum Peak Output Power [Section 15.247 (b)(1)]

5.3.1 Test Procedure

The Transmitter output of EUT was connected to the peak power analyzer.

5.3.2 Test Setup



5.3.3 Test Data

Temp. (deg. C): 25

Test Engr: Jerry Chiou Humidity (%): 50

Channel	Frequency (Mhz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
149	5745	17.87	1.3	82.60	19.17	30	Pass
157	5785	18.59	1.3	97.50	19.89	30	Pass
165	5825	18.13	1.3	87.70	19.43	30	Pass

Temp. (deg. C): 25

Test Engr: Jerry Chiou Humidity (%): 50

Channel	Frequency (Mhz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
1	2412	18.64	1.1	94.19	19.74	30	Pass
6	2437	19.26	1.1	108.64	20.36	30	Pass
11	2462	19.05	1.1	103.51	20.15	30	Pass

5.4 Radiated Emission Measurement [Section [15.247(c)(4)]

5.4.1 EUT Configuration

The equipment under test was set up on the 10 meter chamber with measurement distance of 3 meters. The EUT was placed on a non-conductive table 80cm above ground.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

5.4.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. We found the maximum readings by varying the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured.

30M to 1GHz: The highest emissions between 30 MHz to 1000 MHz were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission.

1GHz – 25GHz: The highest emissions were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in peak mode to determine the precise amplitude of the emission. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission. During test the EMI receiver and spectrum was setup ac*cording to EMI Receiver/Spectrum Analyzer Configuration.*

For the test of 2^{nd} to 10^{th} harmonics frequencies , the equipment setup was also refer to *EMI Receiver/Spectrum Analyzer Configuration*. The frequencies were tested using Peak mode first, if the test data is higher than the emissions limit, an additional measurement using Average mode will be performed and the average reading will be compared to the limit and record in test report.

5.4.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range Tested:	30MHz~1000MHz
Detector Function:	Quasi-Peak Mode
Resolution Bandwidth (RBW):	120KHz
Video Bandwidth (VBW)	1MHz

Frequency Range Tested:	1GHz – 25 GHz
Detector Function:	Peak Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	3MHz

Frequency Range Tested:	1GHz – 25 GHz
Detector Function:	Average Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	10 Hz

5.4.4 Test Data (30MHz – 1GHz):

30M – 1GHz Open Field Radiated Emissions (Horizontal)

Operator:JerryChiou
Temperature(C):27
Humidity(%):63

Frequency	RxAmp.	AntFact	CableLoss	PreAmpGain	Corrct.Emi.	Limit	Margin	Ant.Pos.	TablePos.
MHz	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg)
146.4	19.14	9.79	2.52	0.00	31.45	43.50	-12.05	103.00	261.00
225.94	21.20	8.76	3.19	0.00	33.14	46.00	-12.86	103.00	147.00
234.67	20.78	9.56	3.26	0.00	33.60	46.00	-12.40	196.00	148.00
243.4	18.81	10.71	3.31	0.00	32.84	46.00	-13.16	196.00	263.00
247.28	18.29	11.29	3.34	0.00	32.92	46.00	-13.08	196.00	279.00
255.04	14.14	12.36	3.40	0.00	29.90	46.00	-16.10	196.00	296.00
453.89	8.91	16.29	5.24	0.00	30.44	46.00	-15.56	103.00	16.00
801.15	1.80	20.11	8.06	0.00	29.98	46.00	-16.02	196.00	116.00
889.42	1.48	20.60	8.66	0.00	30.74	46.00	-15.26	196.00	214.00

30M – 1GHz Open Field Radiated Emissions (Vertical)

Operator:JerryChiou
Temperature(C):27
Humidity(%):63

Frequency	RxAmp.	AntFact	CableLoss	PreAmpGain	Corrct.Emi.	Limit	Margin	Ant.Pos.	TablePos.
MHz	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg)
47.46	15.00	8.62	1.36	0.00	24.98	40.00	-15.02	103.00	147.00
51.34	15.41	7.22	1.44	0.00	24.06	40.00	-15.94	103.00	114.00
230.79	18.34	9.09	3.23	0.00	30.67	46.00	-15.33	196.00	263.00
241.46	17.84	10.42	3.30	0.00	31.56	46.00	-14.44	196.00	263.00
443.22	11.45	16.16	5.13	0.00	32.74	46.00	-13.26	103.00	16.00
451.95	9.90	16.25	5.22	0.00	31.37	46.00	-14.63	103.00	16.00
580.96	6.60	18.66	6.28	0.00	31.54	46.00	-14.46	196.00	67.00
743.92	2.39	20.05	7.60	0.00	30.04	46.00	-15.96	103.00	65.00

NOTE:

- During the Pre-test, the EUT has been tested for Channel 1 , 6, 11 and Channel 149, 157,165 of 802.11a Normal Mode transmit from Main and Aux antenna respectively to get all the critical emission frequencies. In the final test all the critical emission frequencies has been tested and the test data are listed above.
- Margin = Corrected Amplitude – Limit
  Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
  A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 30MHz to 1GHz have been tested

5.4.5 Test Data (1GHz – 25 GHz) .

802.11a

1GHz~ 40 GHz (Horizontal), Normal Mode Channel 149: 5745 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
7473.53	45.30pk	39.86	2.27	36.41	51.01pk	54.00av	-2.99	101	178
7588.61	45.52pk	40.02	2.28	36.13	51.69pk	54.00av	-2.31	100	195

1GHz~ 40 GHz (Vertical) Normal Mode, Channel 149: 5745 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
7092.31	45.90pk	39.25	2.94	37.09	51.00pk	54.00av	-3.00	101	122
7538.26	45.77pk	39.95	2.25	36.26	51.70pk	54.00av	-2.30	100	188

Note: " * ": Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level+Correction Factor<Limit-6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit.

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Normal Mode Channel 157: 5785 MHz

Operator:JerryChiou

RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
6739.86	46.66pk	37.70	3.26	37.47	50.14pk	54.00av	-3.86	101	155
6962.84	46.29pk	38.90	3.12	37.28	51.03pk	54.00av	-2.97	101	116

1GHz~ 40 GHz (Vertical) Normal Mode, Channel 157: 5785 MHz

Operator:JerryChiou

RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
6747.05	47.23pk	37.73	3.25	37.46	50.75pk	54.00av	-3.25	101	154
6955.64	46.30pk	38.86	3.13	37.29	51.00pk	54.00av	-3.00	101	117

Note: " * ": Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level+Correction Factor<Limit-6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit.

All frequencies from 1GHz to 40 GHz have been tested.

1GHz~ 40 GHz (Horizontal), Normal Mode, Channel 165: 5825 MHz

Operator:JerryChiou

RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
6732.67	46.82pk	37.66	3.26	37.47	50.26pk	54.00av	-3.74	101	157
6977.22	45.81pk	38.98	3.11	37.27	50.63pk	54.00av	-3.37	101	113

1GHz~ 40 GHz (Vertical), Normal Mode, Channel 165: 5825 MHz

Operator:JerryChiou

RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
6711.09	46.61pk	37.54	3.27	37.49	49.93pk	54.00av	-4.07	101	160
6962.84	46.81pk	38.90	3.12	37.28	51.55pk	54.00av	-2.45	101	116

Note: " * ": Fundamental Frequency
" pk": peak reading
"av": average reading
The Spectrum noise level+Correction Factor<Limit-6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit.

All frequencies from 1GHz to 40 GHz have been tested.

802.11b

1GHz~ 25 GHz (Horizontal), Channel 1: 2412 MHz

Operator:JerryChiou

RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1661.84	45.96pk	28.16	2.35	23.75	52.72pk	54.00av	-1.28	101	66
7222.78	31.98pk	38.09	3.85	26.60	47.33pk	54.00av	-6.67	101	142

1GHz~ 25 GHz (Vertical), Channel 1: 2412 MHz

Operator:JerryChiou

RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1307.19	44.84pk	25.91	2.21	23.90	49.06pk	54.00av	-4.94	101	91
1656.84	42.08pk	28.12	2.35	23.75	48.79pk	54.00av	-5.21	101	67
7222.78	34.58pk	38.09	3.85	26.60	49.92pk	54.00av	-4.08	101	142
9641.86	37.05pk	38.84	3.94	24.84	55.00pk	74.00pk	-19.00	102	7
9656.01	32.91av	38.84	3.94	24.84	50.59av	54.00av	-3.41	102	7

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- " * ": Fundamental Frequency
- "**": Not in the restricted band, Limit level=Fundamental Emission-20dB
- " pk": peak mode
- "av": average mode
- "---": No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

All frequencies from 1GHz to 25 GHz have been tested.

1GHz~ 25 GHz (Horizontal) , Channel 6 : 2437 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1656.84	45.23pk	28.12	2.35	23.75	51.95pk	54.00av	-2.05	101	67
9728.77	31.20pk	38.69	4.00	24.78	49.10pk	54.00av	-4.90	102	5

1GHz~ 25 GHz (Vertical), Channel 6 : 2437 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1659.34	40.71pk	28.14	2.35	23.75	47.45pk	54.00av	-6.55	101	67
7295.2	33.05pk	38.38	3.88	26.57	48.74pk	54.00av	-5.26	101	152
9728.77	37.55pk	38.69	4.00	24.78	55.45pk	74.00pk	-18.55	102	5
9744.99	31.59av	38.69	4.00	24.78	49.49av	54.00av	-4.51	102	5
12162.3	34.41pk	41.67	4.55	28.32	52.31pk	54.00av	-1.69	100	128

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- " * ": Fundamental Frequency
- "**": Not in the restricted band, Limit level=Fundamental Emission-20dB
- " pk": peak mode
- "av": average mode
- "---": No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

All frequencies from 1GHz to 25 GHz have been tested.

1GHz~ 25 GHz (Horizontal), Channel 11: 2462 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1659.34	42.62pk	28.14	2.35	23.75	49.35pk	54.00av	-4.65	101	67
1989.01	39.98pk	30.91	2.59	23.75	49.73pk	54.00av	-4.27	100	44

1GHz~ 25 GHz (Vertical), Channel 11 : 2462 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1656.84	42.27pk	28.12	2.35	23.75	48.99pk	54.00av	-5.01	101	67
7367.63	33.66pk	38.67	3.92	26.54	49.71pk	54.00av	-4.29	101	163
9830.17	36.52pk	38.51	4.07	24.72	54.38pk	74.00pk	-19.62	101	3
9838.72	29.86av	38.51	4.07	24.72	47.72av	54.00av	-6.28	101	3

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- " * ": Fundamental Frequency
- "**": Not in the restricted band, Limit level=Fundamental Emission-20dB
- " pk": peak mode
- "av": average mode
- "---": No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

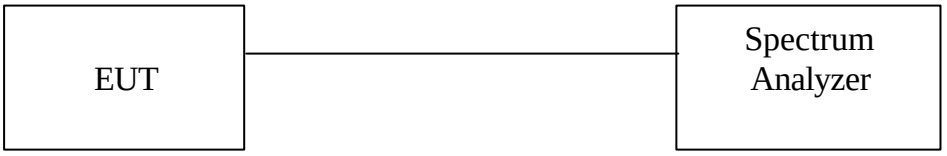
All frequencies from 1GHz to 25 GHz have been tested.

5.5 Band Edge Measurement

5.5.1 Test Procedure (Conducted)

1. The transmitter output of EUT was connected to the spectrum analyzer.
   Equipment mode: Spectrum analyzer
   Detector function: Peak mode
   SPAN: 100MHz
   RBW: 100KHz
   VBW: 100KHz
   Center frequency: 2.4GHz, 2.4835GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed
3. Find the next peak frequency outside the operation frequency band

5.5.2 Test Setup (Conducted)



5.5.3 Test Data:

Please refer to Aegis Labs, Inc. Report Number: INTEL-051025F
FCC ID: PD9LEN3945ABG

5.5.4 Test Procedure (Radiated)

1. Antenna and Turntable test procedure same as Radiated Emission Measurement.
   Equipment mode: Spectrum analyzer
   Detector function: Peak mode
   SPAN: 100MHz
   RBW: 1MHz
   VBW: 3MHz
   Center frequency: 2.395GHz, 2.48GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed.
3. Find the next peak frequency outside the operation frequency band
4. For peak frequency emission level measurement in Restricted Band
   Change RBW: 1MHz
   VBW: 10Hz
   Span: 100MHz.
5. Get the spectrum reading after Maximum Hold function is completed.

5.5.5 Test Setup (Radiated)

Same as *Radiated Emission Measurement*

5.5.6 Test Data

Table Band Edge measurement (Radiated)

802.11a

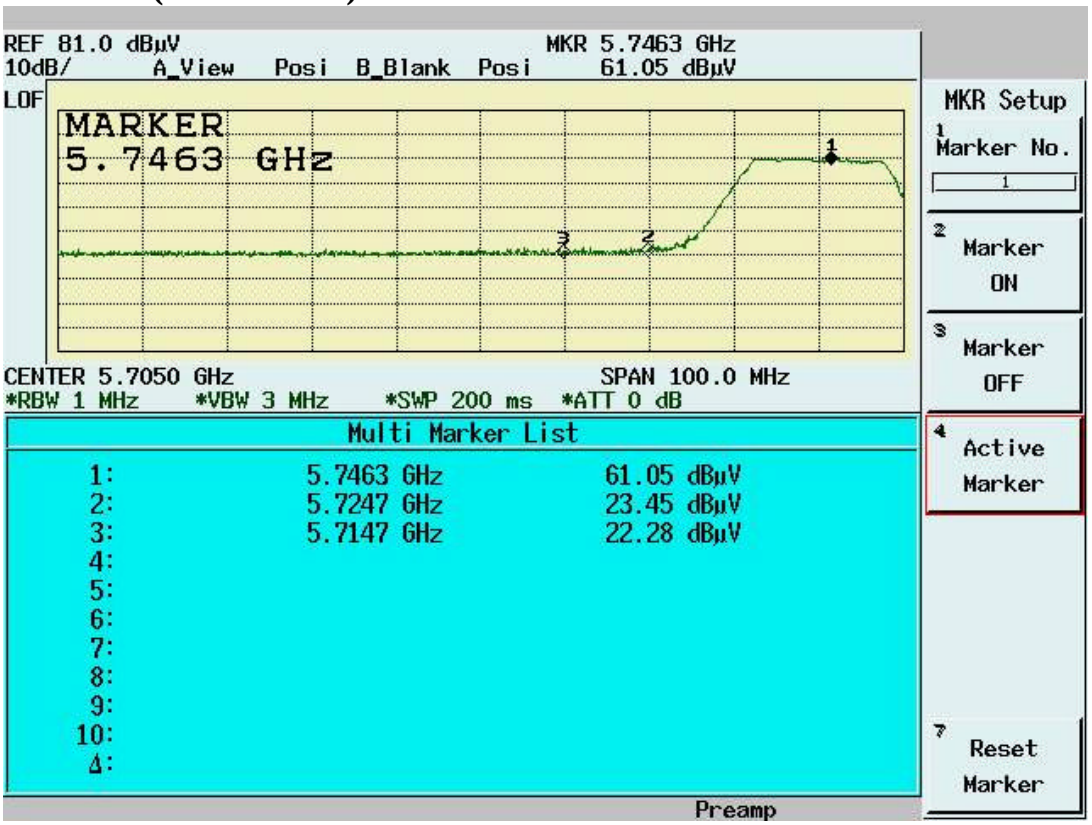
Temp. (deg. C): 25

Test Engr: Jerry Chiou

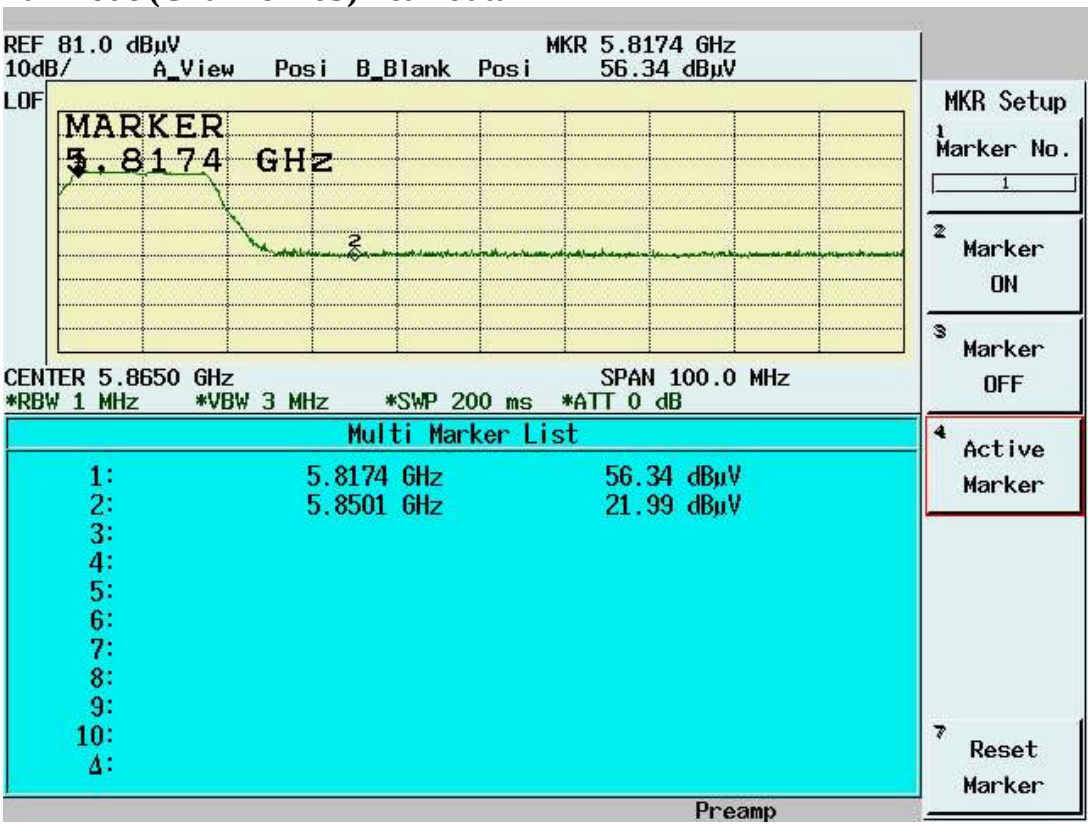
Humidity (%): 50

Description	Frequency (MHz)	Spectrum Reading (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	dBc (Limit: > 20dBc)	Limit (dBuV/m)	Equip. Setup VBW	Pass or Fail
Channel_149 (peak mode)	5746.3	61.05	39.41	100.46	---	---	3MHz	---
Outside band (peak mode)	5724.7	23.45	39.41	62.86	37.6	---	3MHz	Pass
Channel_165 (peak mode)	5817.4	56.34	39.42	95.76	---	---	3MHz	---
Outside band (peak mode)	5850.1	21.99	39.45	61.44	34.32	---	3MHz	Pass

Normal Mode (Channel 149) Peak data



Normal Mode (Channel 165) Peak data



802.11b

Temp. (deg. C): 25

Test Engr: Jerry Chiou

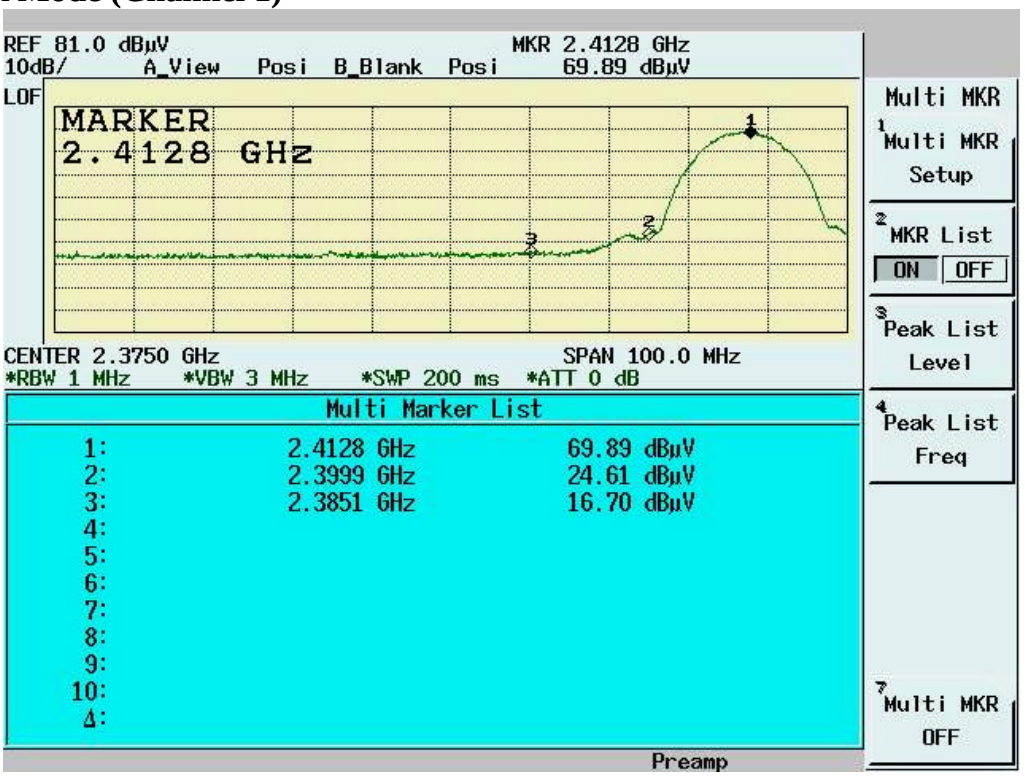
Humidity (%): 50

Description	Frequency (MHz)	Spectrum Reading (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	dBc (Limit: > 20dBc)	Limit (dBuV/m)	Equip. Setup VBW	Pass or Fail
Channel_1 (average mode)	2412.8	64.13	35.48	99.61	---	---	10Hz	---
Channel_1 (peak mode)	2412.8	69.89	35.48	105.37	---	---	3MHz	---
Outside band (peak mode)	2399.9	24.61	35.48	60.09	45.28	---	3MHz	Pass
Channel_11 (average mode)	2462.7	64.3	35.5	99.8	---	---	10Hz	---
Channel_11 (peak mode)	2462.9	69.72	35.5	105.22	---	---	3MHz	---
Outside band (peak mode)	2483.6	16.01	35.51	51.52	53.7	---	3MHz	Pass
Channel_1 Restricted band (peak mode)	2385.1	16.7	35.47	52.17	---	74	3MHz	Pass
Restricted band (average mode)	2386.1	5.98	35.47	41.45	---	54	10Hz	Pass
Channel_11 Restricted band (peak mode)	2483.6	16.01	35.51	51.52	---	74	3MHz	Pass
Restricted band (average mode)	2483.5	5.96	35.51	41.47	---	54	10Hz	Pass

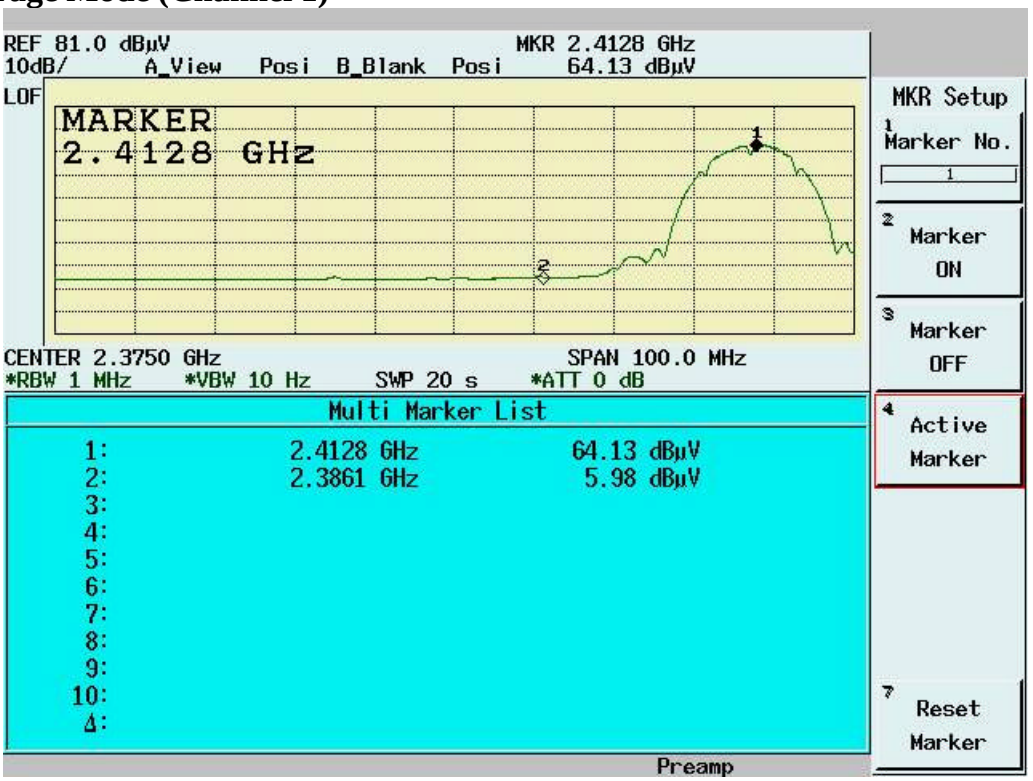
Note:

- The Spectrum plot of emission level measurement in Restricted band is attached.
- Emission Level=Spectrum Reading+Correction Factor
- Correction Factor=Antenna Factor+cable loss–amplifier gain
- Both Horizontal and Vertical polarizaion have been tested and the worst data is listed above.

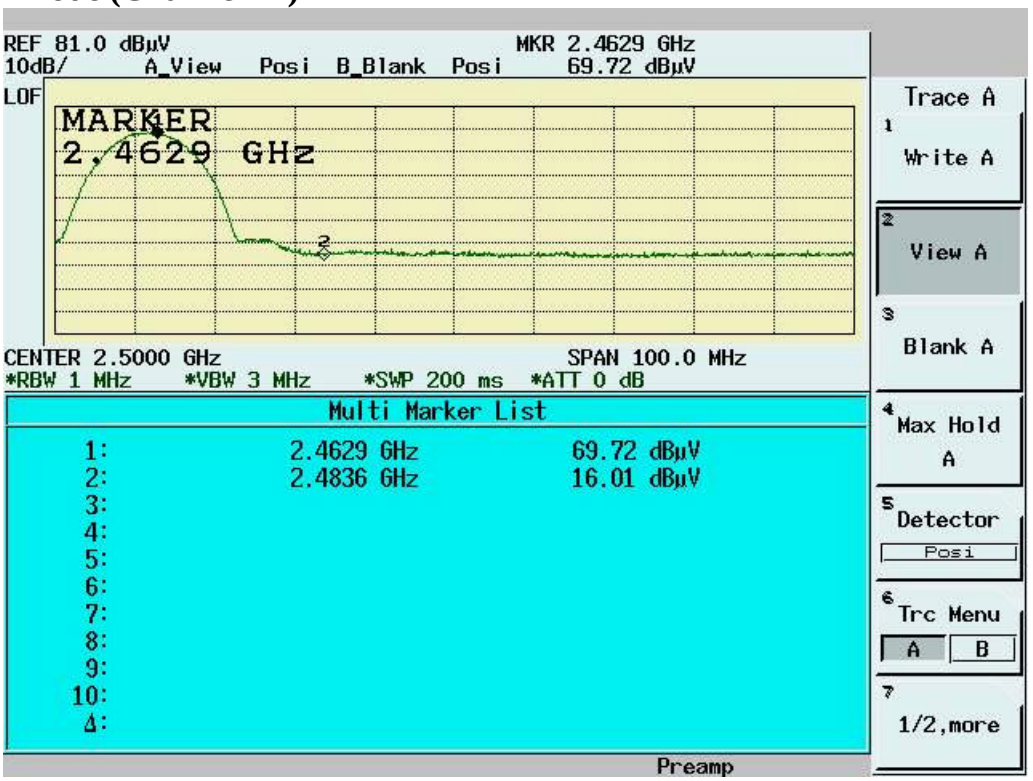
Band Edge measurement for radiated emission in Restricted Band(Radiated) Peak Mode (Channel 1)



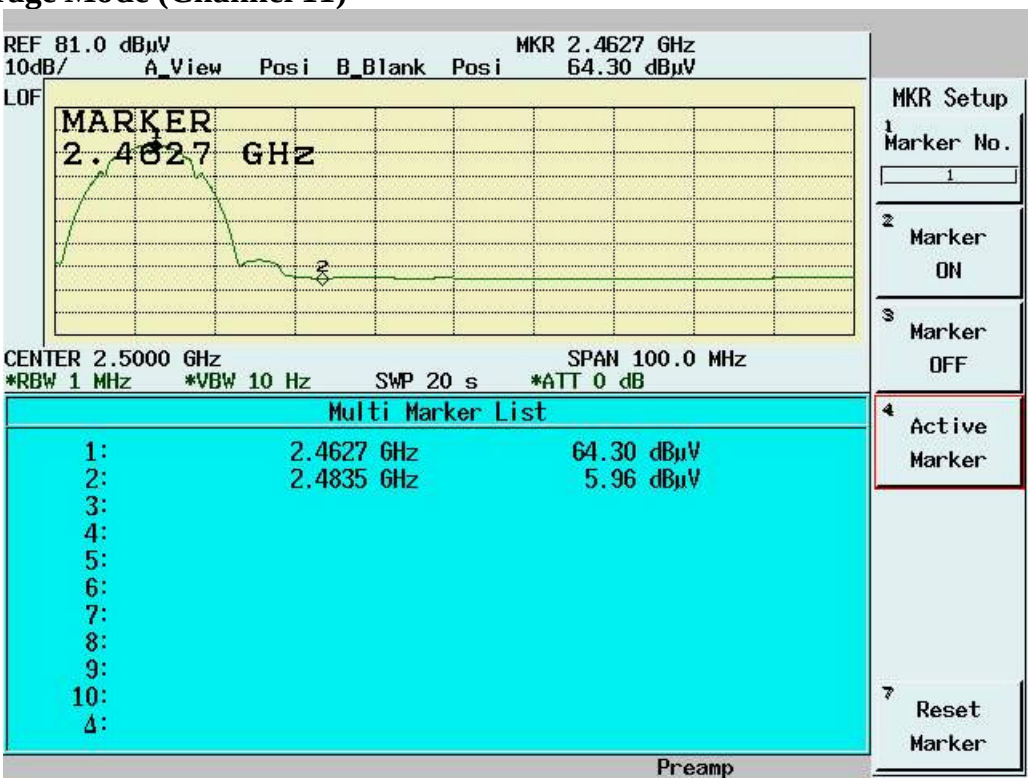
Band Edge measurement for radiated emission in Restricted Band(Radiated) Average Mode (Channel 1)



Band Edge measurement for radiated emission in Restricted Band(Radiated) Peak Mode (Channel 11)



Band Edge measurement for radiated emission in Restricted Band(Radiated) Average Mode (Channel 11)



5.6 RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]

See SARreport

5.7 DSSS Peak Power Spectral Density [Section 15.247(d)]

5.7.1 Test Procedure

1. The Transmitter output of EUT was connected to the spectrum analyzer.
   Equipment mode: Spectrum analyzer
   Detector function: Peak mode
   SPAN:1.5MHz
   RBW: 3KHz
   VBW: 30KHz
   Center frequency: fundamental frequency tested.
   Sweep time= 500 sec.
2. Using Peak Search to read the peak power after Maximum Hold function is completed.

5.7.2 Test Setup

5.7.3 Test Data

Please refer to Aegis Labs, Inc. Report Number: INTEL-051025F
FCC ID: PD9LEN3945ABG

6. TEST RESULTS (802.11g)

6.1 Powerline Conducted Emissions [Section 15.207]

6.1.1 EUT Configuration

The EUT was set up on the non-conductive table that is 1.0 by 1.5 meter, 80cm above ground. The wall of the shielded room was located 40cm to the rear of the EUT.

Power to the EUT was provided through the LISN. The impedance vs. frequency characteristic of the LISN is complied with the limit used.

Both lines (neutral and hot) were connected to the LISN in series at testing. A coaxial-type connector which provides one 50 ohms terminating impedance was provided for connecting the test instrument. The excess length of the power cord was folded back and forth at the center of the lead so as to form a bundle not exceeding 40cm in length.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

If the EUT is a Personal Computer or a peripheral of personal computer, and the personal computer has an auxiliary AC outlet which can be used for providing power to an external monitor, then all measurements will be made with the monitor power from first the computer-mounted AC outlet and then a floor-mounted AC outlet.

6.1.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. The main power line conducted EMI tests were run on the hot and neutral conductors of the power cord and the results were recorded. The effect of varying the position of the interface cables has been investigated to find the configuration that produces maximum emission.

At the frequencies where the peak values of the emissions were higher than 6dß below the applicable limits, the emissions were also measured with the quasi-peak detectors. At the frequencies where the quasi-peak values of the emissions were higher than 6dß below the applicable average limits, the emissions were also measured with the average detectors.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

6.1.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range	150 KHz--30MHz
Detector Function	Quasi-Peak/Average
Bandwidth (RBW)	9KHz

6.1.4 Test Data:

Please refer to Aegis Labs, Inc. Report Number: INTEL-051026F
FCC ID: PD9LEN3945ABG

6.2 Bandwidth for DSSS [Section 15.247 (a)(2)]

6.2.1 Test Procedure

The Transmitter output of EUT was connected to the spectrum analyzer. The 6 dB bandwidth of the fundamental frequency was measured. The setting of spectrum analyzer is as follows

Equipment mode	Spectrum analyzer
Detector function	Peak mode
RBW	100KHz
VBW	100KHz

6.2.2 Test Setup

6.2.3 Test Data:

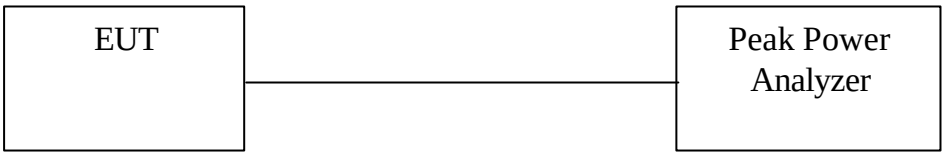
Please refer to Aegis Labs, Inc. Report Number: INTEL-051025F
FCC ID: PD9LEN3945ABG

6.3 DSSS Maximum Peak Output Power [Section 15.247 (b)(1)]

6.3.1 Test Procedure

The Transmitter output of EUT was connected to the peak power analyzer.

6.3.2 Test Setup



6.3.3 Test Data

Temp. (deg. C): 25

Test Engr: Jerry Chiou Humidity (%): 50

Channel	Frequency (Mhz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
1	2412	23.35	1.1	278.61	24.45	30	Pass
6	2437	23.84	1.1	311.89	24.94	30	Pass
11	2462	23.06	1.1	260.62	24.16	30	Pass

6.4 Radiated Emission Measurement [Section [15.247(c)(4)]

6.4.1 EUT Configuration

The equipment under test was set up on the 10 meter chamber with measurement distance of 3 meters. The EUT was placed on a non-conductive table 80cm above ground.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

6.4.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. We found the maximum readings by varying the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured.

30M to 1GHz: The highest emissions between 30 MHz to 1000 MHz were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission.

1GHz – 25GHz: The highest emissions were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in peak mode to determine the precise amplitude of the emission. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission. During test the EMI receiver and spectrum was setup ac*cording to EMI Receiver/Spectrum Analyzer Configuration.*

For the test of 2^{nd} to 10^{th} harmonics frequencies , the equipment setup was also refer to *EMI Receiver/Spectrum Analyzer Configuration*. The frequencies were tested using Peak mode first, if the test data is higher than the emissions limit, an additional measurement using Average mode will be performed and the average reading will be compared to the limit and record in test report.

6.4.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range Tested:	30MHz~1000MHz
Detector Function:	Quasi-Peak Mode
Resolution Bandwidth (RBW):	120KHz
Video Bandwidth (VBW)	1MHz

Frequency Range Tested:	1GHz – 25 GHz
Detector Function:	Peak Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	3MHz

Frequency Range Tested:	1GHz – 25 GHz
Detector Function:	Average Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	10 Hz

6.4.4 Test Data (30MHz – 1GHz):

30M – 1GHz Open Field Radiated Emissions (Horizontal) Channel 1, 6, 11

Operator:JerryChiou
Temperature(C):27
Humidity(%):63

Frequency	RxAmp.	AntFact	CableLoss	PreAmpGain	Corrct.Emi.	Limit	Margin	Ant.Pos.	TablePos.
MHz	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg)
147.37	19.95	9.71	2.53	0.00	32.18	43.50	-11.32	103.00	131.00
224	21.79	8.64	3.16	0.00	33.59	46.00	-12.41	196.00	66.00
225.94	21.76	8.76	3.19	0.00	33.70	46.00	-12.30	103.00	359.00
233.7	23.20	9.44	3.25	0.00	35.90	46.00	-10.10	103.00	196.00
246.31	18.40	11.15	3.33	0.00	32.88	46.00	-13.12	103.00	229.00
453.89	9.70	16.29	5.24	0.00	31.23	46.00	-14.77	103.00	16.00
801.15	2.41	20.11	8.06	0.00	30.59	46.00	-15.41	103.00	196.00
952.47	1.31	21.30	9.05	0.00	31.66	46.00	-14.34	196.00	326.00

30M – 1GHz Open Field Radiated Emissions (Vertical) Channel 1, 6, 11

Operator:JerryChiou
Temperature(C):27
Humidity(%):63

Frequency	RxAmp.	AntFact	CableLoss	PreAmpGain	Corrct.Emi.	Limit	Margin	Ant.Pos.	TablePos.
MHz	(dBuV)	(dB/m)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg)
47.46	21.69	8.62	1.36	0.00	31.66	40.00	-8.34	103.00	343.00
51.34	15.00	7.22	1.44	0.00	23.66	40.00	-16.34	103.00	114.00
225.94	19.94	8.76	3.19	0.00	31.88	46.00	-14.12	103.00	359.00
232.73	18.90	9.33	3.25	0.00	31.47	46.00	-14.53	103.00	196.00
235.64	17.93	9.68	3.26	0.00	30.87	46.00	-15.13	196.00	1.00
443.22	11.93	16.16	5.13	0.00	33.22	46.00	-12.78	103.00	16.00
453.89	11.99	16.29	5.24	0.00	33.52	46.00	-12.48	103.00	16.00
743.92	2.78	20.05	7.60	0.00	30.44	46.00	-15.56	196.00	98.00
959.26	2.03	21.30	9.14	0.00	32.47	46.00	-13.53	196.00	180.00

NOTE:

- During the Pre-test, the EUT has been tested for Channel 1 , 6, 11 transmit from Main and Aux antenna respectively to get all the critical emission frequencies. In the final test all the critical emission frequencies has been tested and the test data are listed above.
- Margin = Corrected Amplitude – Limit
  Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
  A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 30MHz to 1GHz have been tested

6.4.5 Test Data (1GHz – 25 GHz) .

1GHz~ 25 GHz (Horizontal), Channel 1: 2412 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1661.84	46.69pk	28.16	2.35	23.75	53.45pk	54.00av	-0.55	101	66
7222.78	34.12pk	38.09	3.85	26.60	49.46pk	54.00av	-4.54	101	142
9627.37	30.48pk	38.87	3.93	24.85	48.43pk	54.00av	-5.57	102	7
12046.5	34.95pk	41.83	4.71	28.46	53.03pk	54.00av	-0.97	100	97

1GHz~ 25 GHz (Vertical), Channel 1: 2412 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1327.17	47.63pk	26.00	2.21	23.88	51.96pk	54.00av	-2.04	101	89
1661.84	45.96pk	28.16	2.35	23.75	52.72pk	54.00av	-1.28	101	66
7222.78	38.66pk	38.09	3.85	26.60	54.01pk	74.00pk	-19.99	101	142
7217.21	25.91av	38.09	3.85	26.60	41.26av	54.00av	-12.74	101	142
9627.37	36.88pk	38.87	3.93	24.85	54.82pk	74.00pk	-19.18	102	7
9648.59	23.14av	38.87	3.93	24.85	41.08av	54.00av	-12.92	102	7
12046.5	47.81pk	41.83	4.71	28.46	65.89pk	74.00pk	-18.11	100	97
12059.3	27.18av	41.83	4.71	28.46	45.35av	54.00av	-8.65	100	97

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- " * ": Fundamental Frequency
- "**": Not in the restricted band, Limit level=Fundamental Emission-20dB
- " pk": peak mode
- "av": average mode
- "---": No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

All frequencies from 1GHz to 25 GHz have been tested.

1GHz~ 25 GHz (Horizontal) , Channel 6 : 2437 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1659.34	47.07pk	28.14	2.35	23.75	53.81pk	54.00av	-0.19	101	67
7295.2	33.06pk	38.38	3.88	26.57	48.76pk	54.00av	-5.24	101	152
9743.26	32.76pk	38.66	4.01	24.77	50.66pk	54.00av	-3.34	102	5
12176.8	34.80pk	41.65	4.53	28.30	52.68pk	54.00av	-1.32	100	132

1GHz~ 25 GHz (Vertical), Channel 6 : 2437 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1659.34	46.91pk	28.14	2.35	23.75	53.64pk	54.00av	-0.36	101	67
7309.69	39.01pk	38.44	3.89	26.56	54.78pk	74.00pk	-19.22	101	154
7316.82	22.81av	38.44	3.89	26.56	38.58av	54.00av	-15.42	101	154
9728.77	39.94pk	38.69	4.00	24.78	57.84pk	74.00pk	-16.16	102	5
9730.98	27.27av	38.69	4.00	24.78	45.17av	54.00av	-8.83	102	5
12162.3	43.87pk	41.67	4.55	28.32	61.77pk	74.00pk	-12.23	100	128
12184.3	25.98av	41.67	4.55	28.32	43.88av	54.00av	-10.12	100	128

Note:

- According to the standards used,Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- " * ": Fundamental Frequency
- "**": Not in the restricted band, Limit level=Fundamental Emission-20dB
- " pk": peak mode
- "av": average mode
- "---": No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

All frequencies from 1GHz to 25 GHz have been tested.

1GHz~ 25 GHz (Horizontal), Channel 11: 2462 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1656.84	46.92pk	28.12	2.35	23.75	53.64pk	54.00av	-0.36	101	67
7382.12	32.70pk	38.73	3.93	26.53	48.82pk	54.00av	-5.18	101	165
9844.66	32.07pk	38.48	4.08	24.71	49.93pk	54.00av	-4.07	101	3

1GHz~ 25 GHz (Vertical), Channel 11 : 2462 MHz

Operator:JerryChiou RBW:1MHz
Humidity(%):36
Temperature(C):24

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1659.34	47.06pk	28.14	2.35	23.75	53.80pk	54.00av	-0.20	101	67
7382.12	38.98pk	38.73	3.93	26.53	55.11pk	74.00pk	-19.89	101	165
7369.88	26.57av	38.73	3.93	26.53	42.7av	54.00av	-11.3	101	165
9815.68	39.38pk	38.53	4.06	24.73	57.25pk	74.00pk	-16.75	101	4
9847.80	22.46av	38.53	4.06	24.73	40.33av	54.00av	-13.67	101	4
12278.2	36.82pk	41.51	4.39	28.18	54.54pk	74.00pk	-19.46	100	158
12271.8	28.11av	41.51	4.39	28.18	43.83av	54.00av	-8.17	100	158

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- " * ": Fundamental Frequency
- "**": Not in the restricted band, Limit level=Fundamental Emission-20dB
- " pk": peak mode
- "av": average mode
- "---": No meter reading data due to the emission level is smaller than spectrum noise level.
- The Spectrum noise level+Correction Factor < Limit - 6 dB
- Margin=Corrected Amplitude – Limit
- Corrected Amplitude=Radiated Amplitude+Antenna Correction Factor+Cable Loss-Pre-Amplifier Gain
- A margin of -8dB means that the emission is 8dB below the limit.

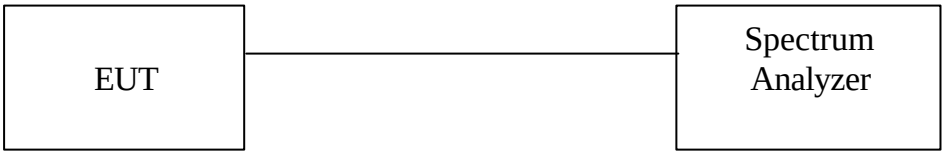
All frequencies from 1GHz to 25 GHz have been tested.

6.5 Band Edge Measurement

6.5.1 Test Procedure (Conducted)

1. The transmitter output of EUT was connected to the spectrum analyzer.
   Equipment mode: Spectrum analyzer
   Detector function: Peak mode
   SPAN: 100MHz
   RBW: 100KHz
   VBW: 100KHz
   Center frequency: 2.4GHz, 2.4835GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed
3. Find the next peak frequency outside the operation frequency band

6.5.2 Test Setup (Conducted)



6.5.3 Test Data:

Please refer to Aegis Labs, Inc. Report Number: INTEL-051025F
FCC ID: PD9LEN3945ABG

6.5.4 Test Procedure (Radiated)

1. Antenna and Turntable test procedure same as Radiated Emission Measurement.
   Equipment mode: Spectrum analyzer
   Detector function: Peak mode
   SPAN: 100MHz
   RBW: 1MHz
   VBW: 3MHz
   Center frequency: 2.395GHz, 2.48GHz.
2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed.
3. Find the next peak frequency outside the operation frequency band
4. For peak frequency emission level measurement in Restricted Band ,
   Change RBW: 1MHz
   VBW: 10Hz
   Span: 100MHz.
5. Get the spectrum reading after Maximum Hold function is completed.

6.5.5 Test Setup (Radiated)

Same as *Radiated Emission Measurement*

6.5.6 Test Data

Table Band Edge measurement (Radiated)

Temp. (deg. C): 25

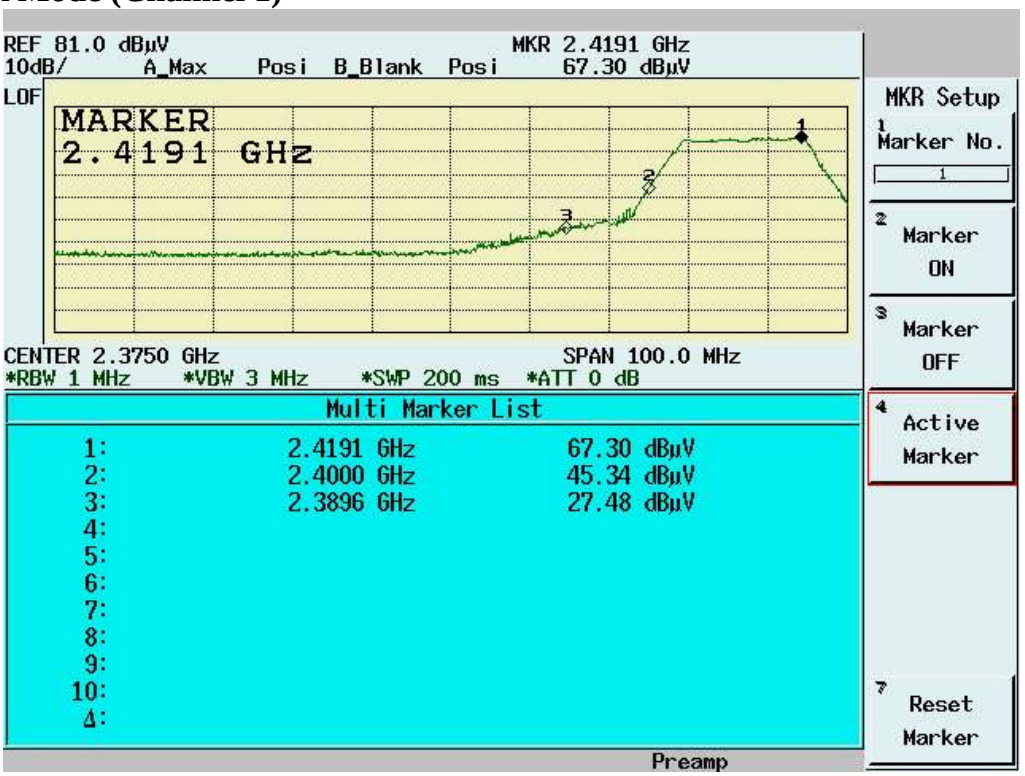
Test Engr: Jerry Chiou Humidity (%): 50

Description	Frequency (MHz)	Spectrum Reading (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	dBc (Limit: > 20dBc)	Limit (dBuV/m)	Equip. Setup VBW	Pass or Fail
Channel_1 (average mode)	2419.4	52.52	35.48	88	---	---	10Hz	---
Channel_1 (peak mode)	2419.1	67.3	35.48	102.78	---	---	3MHz	---
Outside band (peak mode)	2400	45.34	35.48	80.82	21.96	---	3MHz	Pass
Channel_11 (average mode)	2460.8	57.4	35.5	92.9	---	---	10Hz	---
Channel_11 (peak mode)	2459.3	72.02	35.5	107.52	---	---	3MHz	---
Outside band (peak mode)	2483.6	35.74	35.51	71.25	36.27	---	3MHz	Pass
Channel_1 Restricted band (peak mode)	2389.6	27.48	35.47	62.95	---	74	3MHz	Pass
Restricted band (average mode)	2390	9.45	35.47	44.92	---	54	10Hz	Pass
Channel_11 Restricted band (peak mode)	2483.6	35.74	35.51	71.25	---	74	3MHz	Pass
Restricted band (average mode)	2483.5	15.02	35.51	50.53	---	54	10Hz	Pass

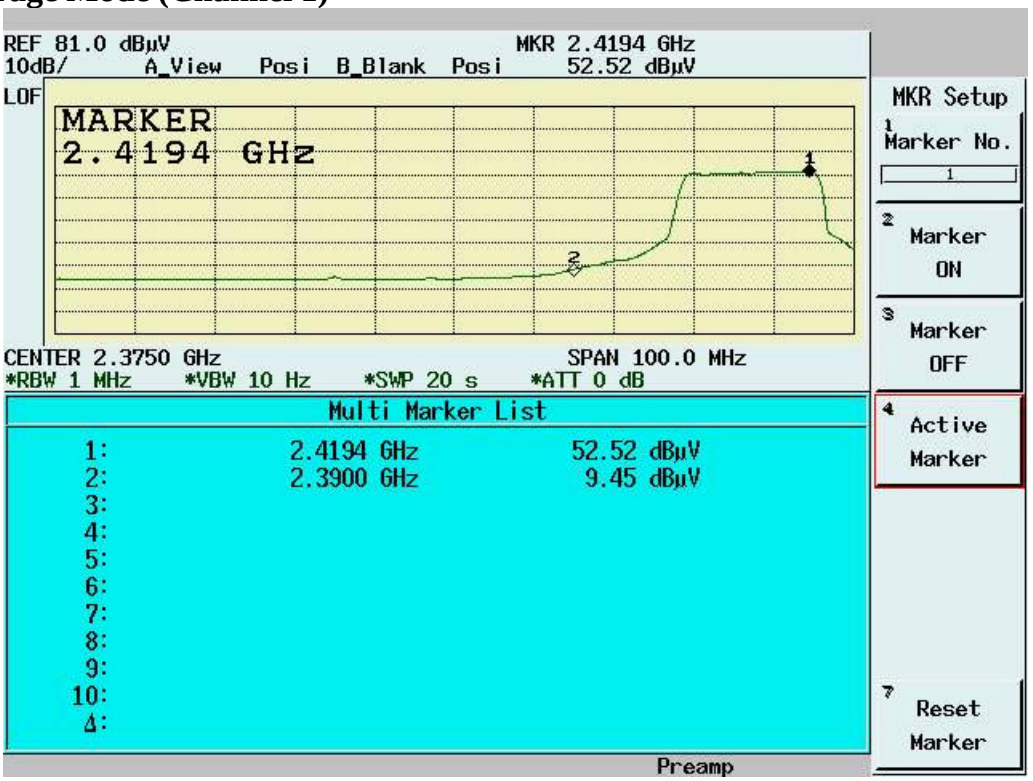
Note:

- The Spectrum plot of emission level measurement in Restricted band is attached.
- Emission Level=Spectrum Reading+Correction Factor
- Correction Factor=Antenna Factor+cable loss–amplifier gain
- Both Horizontal and Vertical polarizaion have been tested and the worst data is listed above.

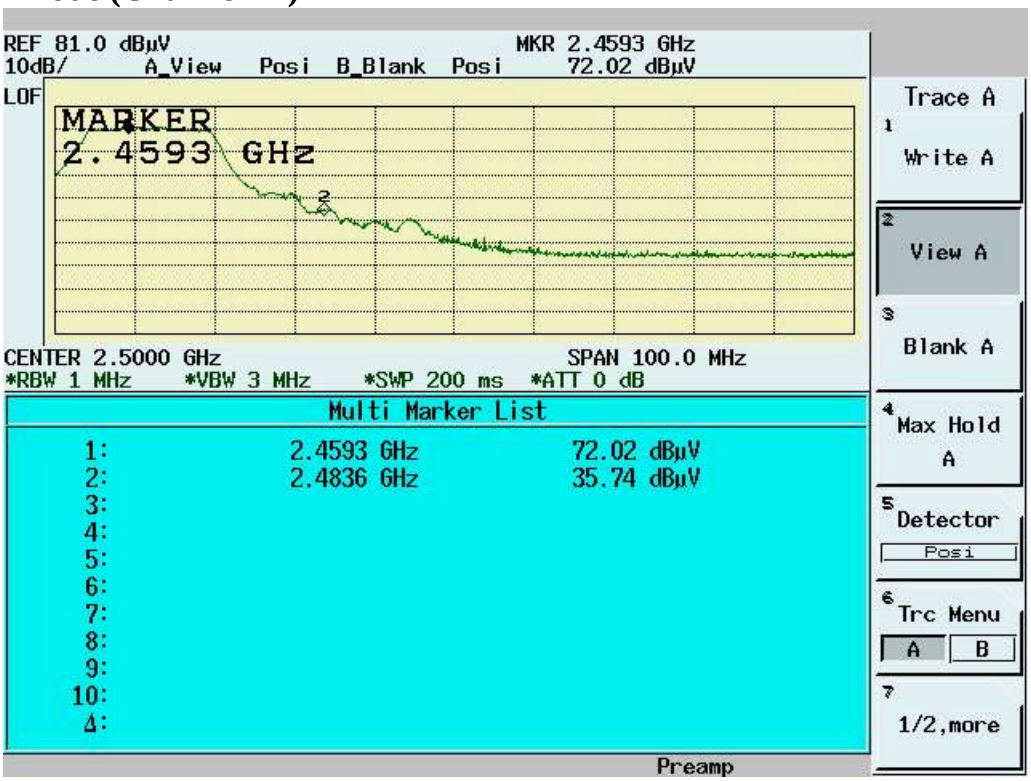
Band Edge measurement for radiated emission in Restricted Band(Radiated) Peak Mode (Channel 1)



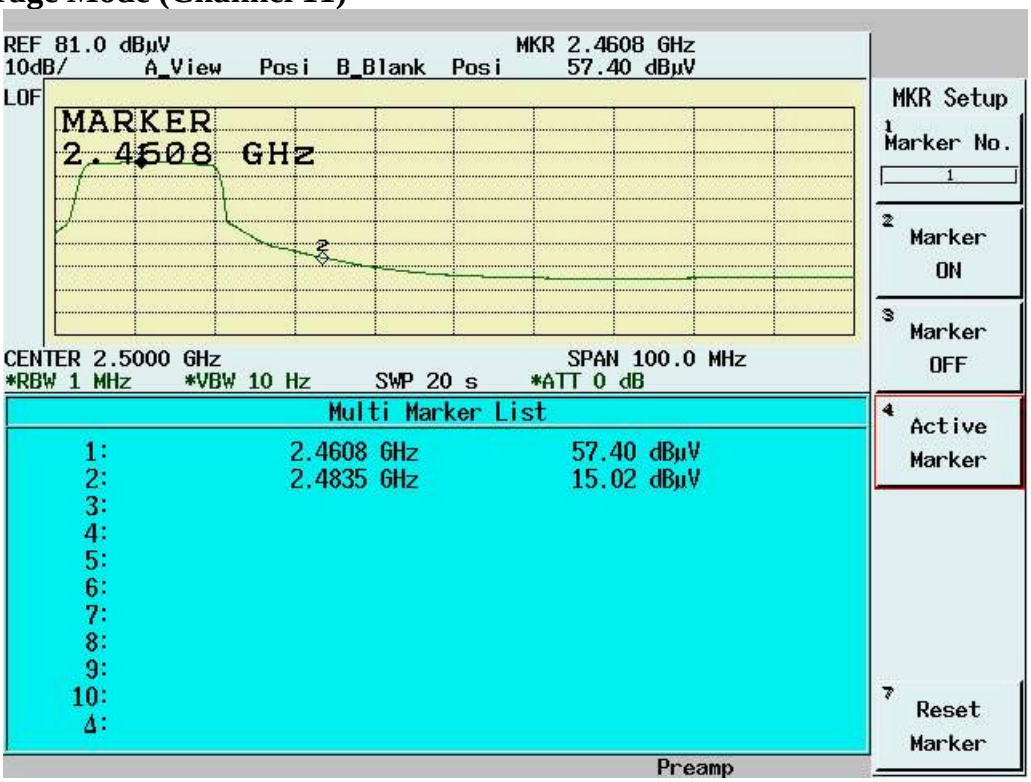
Band Edge measurement for radiated emission in Restricted Band(Radiated) Average Mode (Channel 1)



Band Edge measurement for radiated emission in Restricted Band(Radiated) Peak Mode (Channel 11)



Band Edge measurement for radiated emission in Restricted Band(Radiated) Average Mode (Channel 11)



6.6 RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]

See SAR report

6.7 DSSS Peak Power Spectral Density [Section 15.247(d)]

6.7.1 Test Procedure

1. The Transmitter output of EUT was connected to the spectrum analyzer.
   Equipment mode: Spectrum analyzer
   Detector function: Peak mode
   SPAN:1.5MHz
   RBW: 3KHz
   VBW: 30KHz
   Center frequency: fundamental frequency tested.
   Sweep time= 500 sec.
2. Using Peak Search to read the peak power after Maximum Hold function is completed.

6.7.2 Test Setup

6.7.3 Test Data

Please refer to Aegis Labs, Inc. Report Number: INTEL-051025F
FCC ID: PD9LEN3945ABG

7. Appendix

7.1 Appendix A: Measurement Procedure for Power line Conducted Emissions

The measurements are performed in a 3.5m x 3.4m x 2.5m shielded room, which referred as Conduction 01 test site, or a 3m x 3m x 2.3m test site, which referred as Conduction 02 test site. The EUT was placed on non-conduction 1.0m x 1.5m table, which is 0.8 meters above an earth-grounded.

Power to the EUT was provided through the LISN which has the Impedance (50ohm/50uH) vs. Frequency Characteristic in accordance with the required standard. Power to the LISNs were filtered to eliminate ambient signal interference and these filters were bonded to the ground plane. Peripheral equipment required to provide a functional system (support equipment) for EUT testing was powered from the second LISN through a ganged, metal power outlet box which is bonded to the ground plane at the LISN.

If the EUT is supplied with a flexible power cord, the power cord length in excess of the distance separating the EUT from the LISN shall be folded back and forth at the center of the lead so as to form a bundle not exceeding 40cm in length. If the EUT is provided with a permanently coiled power cord, bundling of the cord is not required. If the EUT is supplied without a power cord, the EUT shall be connected to the LISN by a power cord of the type specified by the manufacturer which shall not be longer than 1 meter. The excess power cord shall be bundled as described above. If a non-flexible power cord is provided with the EUT, it shall be cut to the length necessary to attach the EUT to the LISN and shall not be bundled.

The interconnecting cables were arranged and moved to get the maximum emission. Both the line of power cord, hot and neutral, were measured.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

7.2 Appendix B: Test Procedure for Radiated Emissions

Preliminary Measurements in the Anechoic Chamber

The radiated emissions are initially measured in the anechoic chamber at a measurement distance of 3 meters. Desktop EUT are placed on a wooden stand 0.8 meter in height. The measurement antenna is 3 meters from the EUT. The test setup in anechoic chamber is the same as open site. The turntable rotated 360°C. The antenna height is varied from 1-2.5m. The primary objective of the radiated measurements in the anechoic chamber is to identify the frequency spectrum in the absence of the electromagnetic environment existing on the open test site. The frequencies can then be pre-selected on the open test site to obtain the corresponding amplitude. The initial scan is made with the spectrum analyzer in automatic sweep mode. The spectrum peaks are then measured manually to determine the exact frequencies.

Measurements on the Open Site or 10m EMC Chamber

The radiated emissions test will then be repeated on the open site or 10m EMC chamber to measure the amplitudes accurately and without the multiple reflections existing in the shielded room. The EUT and support equipment are set up on the turntable of one of the 3 or 10 meter open field sites. Desktop EUT are set up on a wooden stand 0.8 meter above the ground.

For the initial measurements, the receiving antenna is varied from 1-4 meter height and is changed in the vertical plane from vertical to horizontal polarization at each frequency. Both reading are recorded with the quasi-peak detector with 120KHz bandwidth. For frequency between 30 MHz and 1000MHz, the reading is recorded with peak detector or quasi-peak detector. For frequency above 1 GHz, the reading is recorded with peak detector or average detector with 1 MHz bandwidth.

At the highest amplitudes observed, the EUT is rotated in the horizontal plane while changing the antenna polarization in the vertical plane to maximize the reading. The interconnecting cables were arranged and moved to get the maximum emission. Once the maximum reading is obtained, the antenna elevation and polarization will be varied between specified limits to maximize the readings.

7.3 Appendix C: Test Equipment

7.3.1 Test Equipment List

Location	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Conduction	Coaxial Cable 1F-C2	Harbourindustries	RG400	1F-C2	05/20/2006	05/20/2007
Conduction	Digital Hygro-Thermometer Conduct	MicroLife	HT-2126G	ISL-Conduction 02	11/30/2004	11/30/2006
Conduction	EMI Receiver 02	HP	85460A	3448A00183	10/01/2005	10/01/2006
Conduction	LISN 01	R&S	ESH2-Z5	890485/013	05/05/2006	05/05/2007
Conduction	LISN 06	R&S	ESH3-Z5	828874/009	12/13/2005	12/13/2006
Radiation	BILOG Antenna 08	Schaffner	CBL6112B	2756	06/07/2006	06/07/2007
Radiation	Coaxial Cable Chmb 02-10M	Belden	RG-8/U	Chmb 02-10M	12/28/2005	12/28/2006
Radiation	Digital Hygro-Thermometer Chmb 02	MicroLife	HT-2126G	Chmb 02	11/30/2004	12/30/2006
Radiation	EMI Receiver 03	HP	85460A	3448A00209	04/01/2006	04/01/2007
Radiation	Spectrum Analyzer 13	Advantest	R3132	121200411	02/17/2006	02/17/2007
Radiation	Horn Antenna 02	Com-Power	AH-118	10088	07/22/2006	07/22/2007
Radiation	Horn Antenna 04	Com-Power	AH-826	081-001	01/13/2006	01/13/2007
Radiation	Horn Antenna 05	Com-Power	AH-640	100A	09/30/2005	09/30/2006
Radiation	Microwave Cable RF SK-01	HUBER+SUHNERAG.	Sucoflex 102	22139 /2	07/07/2006	07/07/2007
Chamber 05	Peak Power Analyzer	HP	8990A	3621A01269	03/28/2006	03/28/2007
Chamber 05	Power Sensor Radar	HP	84815A	3318A01828	03/28/2006	03/28/2007
Radiation	Preamplifier 02	MITEQ	AFS44-00102650-40-10P-44	728229	11/28/2005	11/28/2006
Radiation	Preamplifier 10	MITEQ	JS-26004000-27-5A	818471	11/22/2005	11/22/2006
Radiation	High Pass Filter 01	HEWLETT-PACKARD	84300-80038	001	N/A	N/A
Radiation	High Pass Filter 02	HEWLETT-PACKARD	84300-80039	005	N/A	N/A
Radiation	Spectrum Analyzer 14	Advantest	R3182	140600028	11/22/2005	11/22/2006

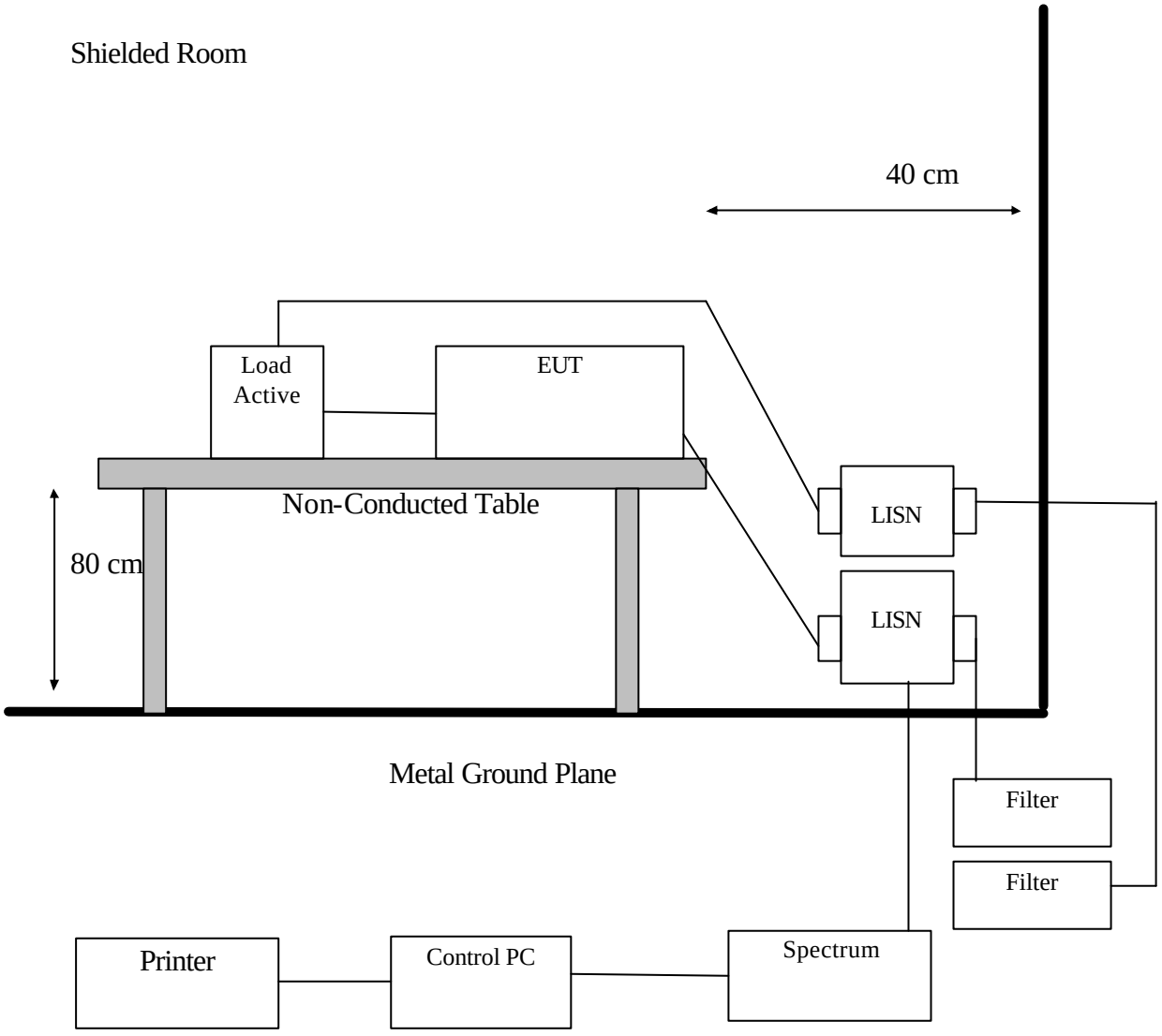
Note: Calibration is traceable to NIST or national or international standards.

7.3.2 Software for Controlling Spectrum/Receiver and Calculating Test Data

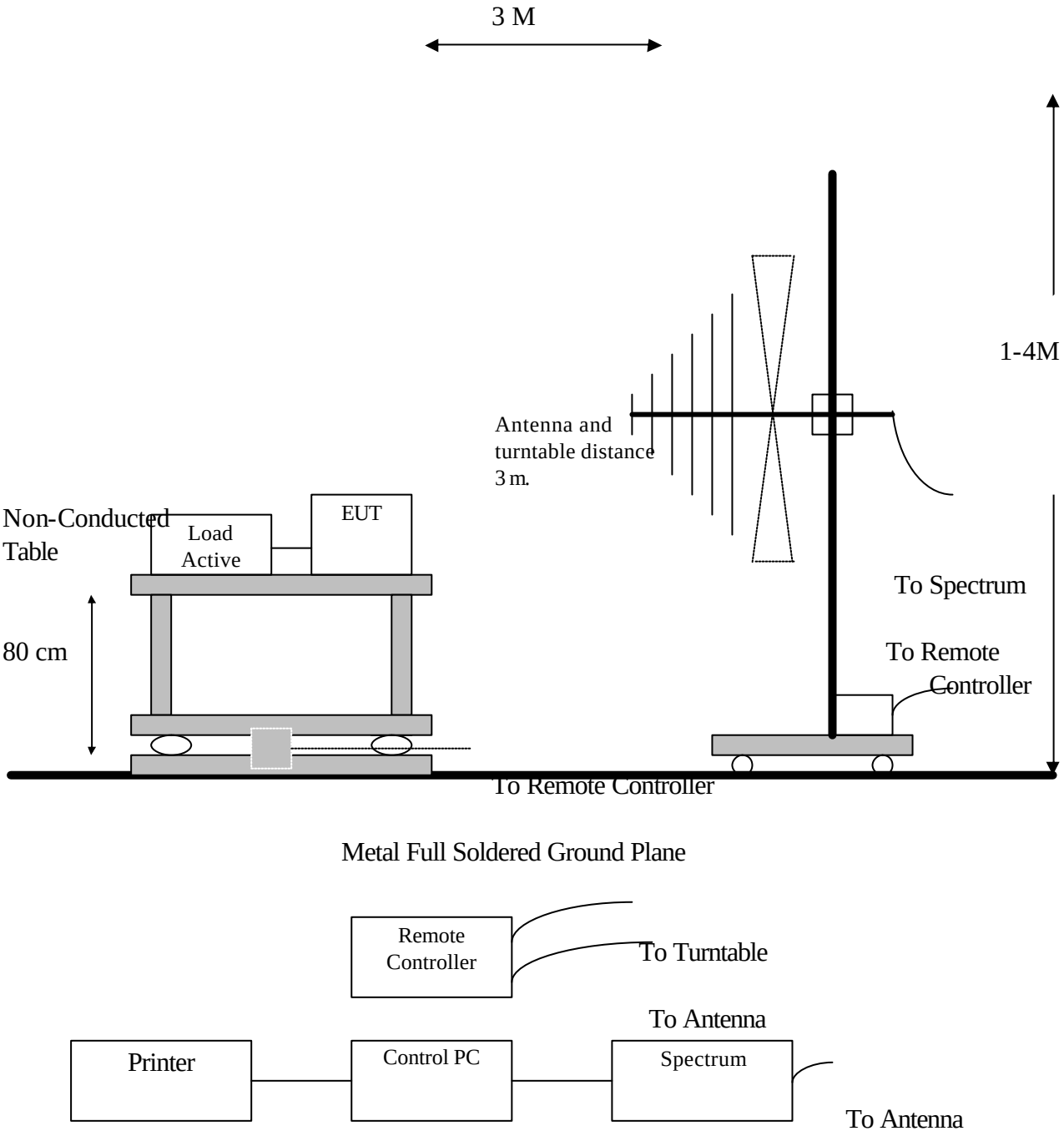
Radiation/Conduction	Filename	Version	Issued Date
Conduction	Tile.exe	1.12E	7/7/2000
Radiation	Tile.exe	1.12C	6/16/2000

7.4 Appendix D: Layout of EUT and Support Equipment

7.4.1 General Conducted Test Configuration



7.4.2 General Radiation Test Configuration



7.5 Appendix E: Description of Support Equipment

7.5.1 Description of Support Equipment

Description:	IBM Tablet Personal Computer
Brand Name:	Lenovo
Model Name:	6363/ 6364/ 6365/ 6366/ 6367/ 6368
Project Name:	ThinkPad X60 Tablet Series
Serial Number:	N/A
Power Supply Type:	Lenovo 65W 20V (MODEL: PA-1650-17)
Hard Disk Driver:	FUJITSU 60GB SATA (MODEL: MHT2060BH)
DDR:	HYNIX 512MB (MODEL: HYMP564S64BP6 -C4)
Battery	SANYO 8cells (MODEL: BTP-B6K8)
Power In Port:	one
USB Connector:	three
VGA Port:	one
Line Out Port:	one
MIC In Port:	one
Modem Card:	MDC 1.5 Foxconn
LAN Connector:	one
PCMCIA Slot:	one
Modem Connector:	one
SD Card reader:	one
BT:	USI (MODEL: BM-GP-CS-08)
Wireless LAN Card:	INTEL 802.11a+b+g (MODEL: 3945ABG)
Bluetooth:	BDC 2.0 Foxconn
WWAN:	WWAN MC8755 Sierra

7.5.2 Software for Controlling Support Unit

Test programs exercising various part of EUT were used. The programs were executed as follows:

A. Read and write to the disk drives.
B. The RF software makes the transmitter continuously sending RF signals
C. Repeat the above steps.

	Filename	Issued Date
CRTU 3945ABG version 4.0.18.0000	CRTU.exe	2005/10/16

7.5.3 I/O Cable Condition of EUT and Support Units

Description	Path	Cable Length	Cable Type	Connector Type
AC Power Cord	110V (~240V) to AC Power Cord Inlet (3-pin)	1.8M	Nonshielded, Detachable	Plastic Head

7.6 Appendix F: Accuracy of Measurement

Test Site: Conduction 02

Item	Source of Uncertainty	Probability Distribution	Total Uncertainties (dB)		Standard Uncertainty (dB)	
1	Systematic Effects: (Assessment from 20 repeat observation; 1 reading on EUT)	Normal	k=2	0.104	k=1	0.052
2	Random Effects: (Assessment from 20 random observations; 1 reading on EUT)	Normal	k=2	0.330	k=1	0.165
3	Receiver Calibration	Rectangular	k=1.73	1.000	k=1	0.577
4	LISN Factor Calibration	Normal	k=2	1.200	k=1	0.600
5	Cable Loss Calibration	Normal	k=2	1.000	k=1	0.500
6	Combined Standard Uncertainty Uc(y)	Normal			k=1	0.850
7	**Total Uncertainty @95% mim. Confidence Level**	**Normal**	**k=2**	**1.701**		

Measurement Uncertainty Calculations:

Uc (y) = square root (u_1 (y)^2 + u_2 (y)^2 + ...+u_n (y)^2)

U = 2 * Uc (y)

Note: The measurement Uncertainties mentioned above also refer to NIS 81-1994 of NAMAS : The treatment of Uncertainty in EMC Measurement.

Test Site: Chamber 02-3M

Item	Source of Uncertainty	Probability Distribution	Total Uncertainties (dB)		Standard Uncertainty (dB)	
1	Systematic Effects: (Assessment from 20 repeat observation; 1 reading on EUT)	Normal	k=2	0.067	k=1	0.034
2	Random Effects: (Assessment from 20 random observations; 1 reading on EUT)	Normal	k=2	0.103	k=1	0.052
3	Receiver Calibration	Rectangular	k=1.73	1.000	k=1	0.577
4	Antenna Factor Calibration	Normal	k=2	1.700	k=1	0.850
5	Cable Loss Calibration	Normal	k=2	1.000	k=1	0.500
6	Combined Standard Uncertainty Uc(y)	Normal			k=1	1.029
7	**Total Uncertainty @95% mim. Confidence Level**	**Normal**	**k=2**	**2.059**		

Measurement Uncertainty Calculations:

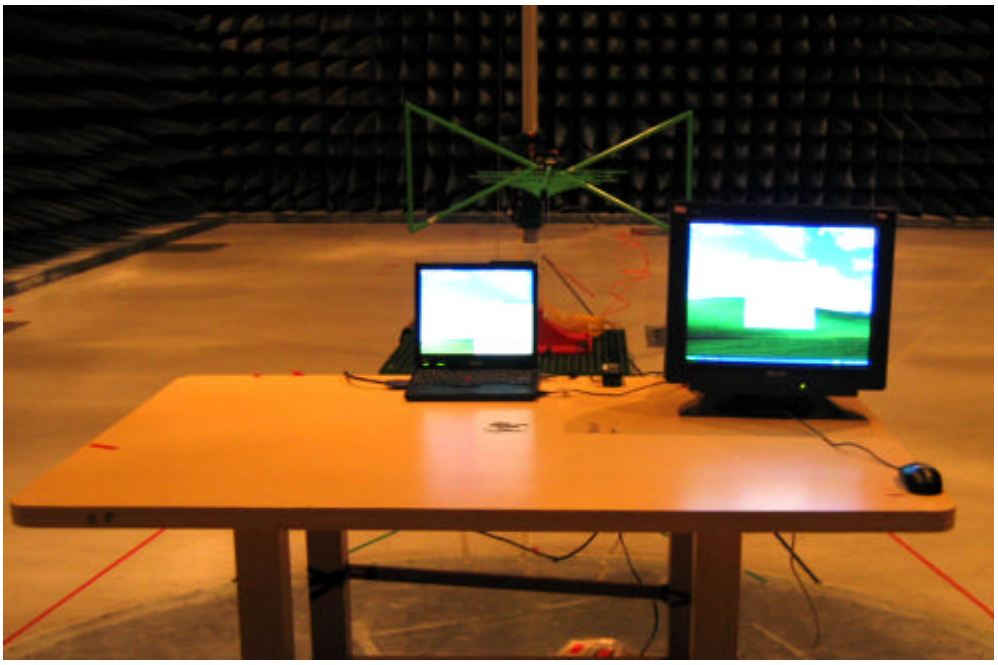
Uc (y) = square root (u_1 (y)^2 + u_2 (y)^2 + ...+u_n (y)^2)

U = 2 * Uc (y)

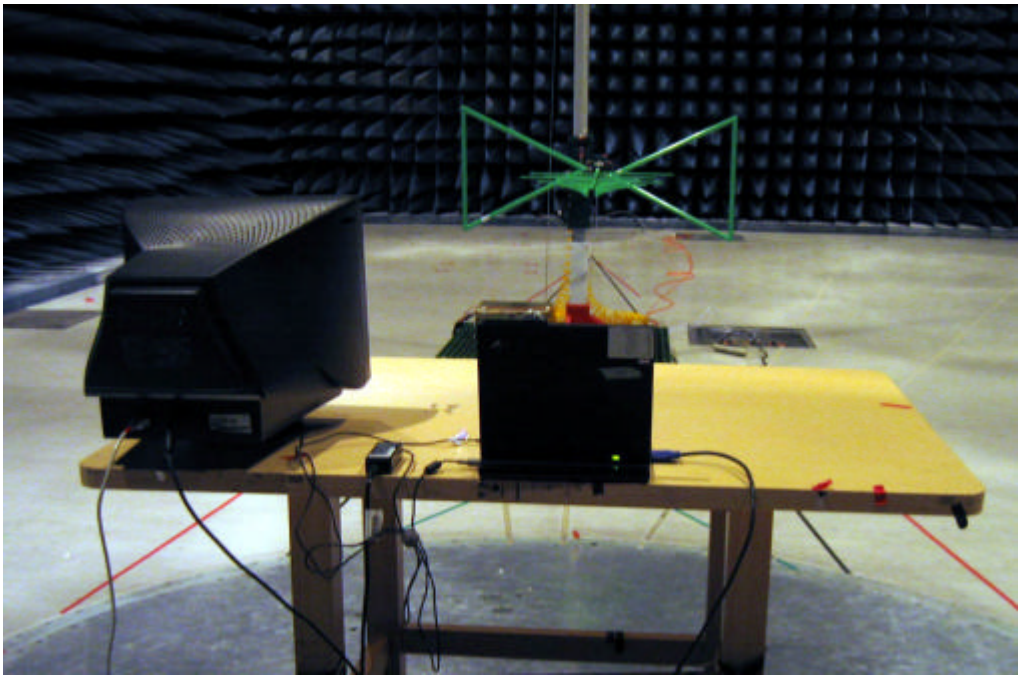
Note: The measurement Uncertainties mentioned above also refer to NIS 81-1994 of NAMAS : The treatment of Uncertainty in EMC Measurement.

7.7 Appendix G: Photographs of EUT Configuration Test Set Up

The Front View of Highest Radiated Set-up For EUT



The Back View of Highest Radiated Set-up For EUT



7.8 Appendix H: Antenna Spec.

Please refer to the attached file.