Test Report

Product Name	HP Smart Wi-Fi Display
Model No	DP-803AH(Sd828)
FCC ID.	PPQ-DP803AH

Applicant	Lite-On Technology Corp.
Address	4F,90,Chien 1 Road,Chung-Ho,Taipei Hsien 235,Taiwan,R.O.C.

Date of Receipt	June. 22, 2009
Issue Date	July. 16, 2009
Report No.	096335R-RFUSP13V01
Report Version	V1.0

Test Report Certification

Issue Date: July. 16, 2009
Report No.: 096335R-RFUSP13V01

Accredited by NIST (NVLAP)
NVLAP Lab Code: 200533-0

Product Name	HP Smart Wi-Fi Display
Applicant	Lite-On Technology Corp.
Address	4F,90,Chien 1 Road,Chung-Ho,Taipei Hsien 235,Taiwan,R.O.C.
Manufacturer	DONG GUAN G-COM COMPUTER CO., LTD.
Model No.	DP-803AH(Sd828)
Rated Voltage	AC 120V/60Hz
Working Voltage	AC 100-240V, 50-60Hz
Trade Name	HP
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2008 ANSI C63.4: 2003
Test Result	Complied

NVLAP Lab Code: 200533-0

The test results relate only to the samples tested.
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Approved By :
(Manager / Vincent Lin)

Testing Laboratory
0914

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	HP Smart Wi-Fi Display
Trade Name	HP
Model No.	DP-803AH(Sd828)
FCC ID.	PPQ-DP803AH
Frequency Range	2412-2462MHz
Number of Channels	802.11b/g: 11
Data Speed	802.11b: 1 - 11Mbps, 802.11g: 6 - 54Mbps
Type of Modulation	802.11b:DSSS DBPSK, DQPSK, CCK 802.11g: OFDM BPSK, QPSK, 16QAM, 64QAM
Antenna Type	PIFA
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto
Power Adapter (1)	MFR: Powertron ,M/N: PA1015-2HU Input: AC 100-240V, 50-60Hz,0.4A Output: DC 12V, 1.25A Cable Out: Non-Shielded, 1.5m
Power Adapter (2)	MFR: DVE, M/N: DSA-15P-12 US 120144 Input: AC 100-240V, 50/60Hz,0.5A Output: DC 12V, 1.2A Cable Out: Non-Shielded, 1.5m

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	JOYMAX	IFF-L015MPXX-361	PIFA	2dBi in 2.4 GHz

802.11b/g Center Frequency of Each Channel:

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

Note:

1. The EUT is a HP Smart Wi-Fi Display with a built-in 2.4GHz WLAN transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps、802.11g is 6Mbps)
4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices
5. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

1.2. Operational Description

The EUT is a HP Smart Wi-Fi Display, compliant with IEEE 802.11b and IEEE 802.11g standard and using 11 channels in 2.4GHz. Using IEEE 802.11b standard, the RF carrier is DBPSK, DQPSK and CCK and the device provides four kinds of transmitting rate 1, 2, 5,5 and 11Mbps. Using IEEE 802.11g standard, the RF carrier is OFDM and the device provides eight kinds of transmitting rate 6, 9, 12, 18, 24, 36, 48 and 54Mbps.

This HP Smart Wi-Fi Display is a high-efficiency Wireless LAN product. It can connect to a wireless network and share resources, such as files and photos without through the network cables. Operation in 2.4GHz Direct Sequence Spread Spectrum (DSSS) radio transmission, it can communicate with any IEEE 802.11b and IEEE 802.11g network.
Another information please refer to users manual.

Test Mode:	Mode 1: Transmit (802.11b 1Mbps)
	Mode 2: Transmit (802.11g 6Mbps)

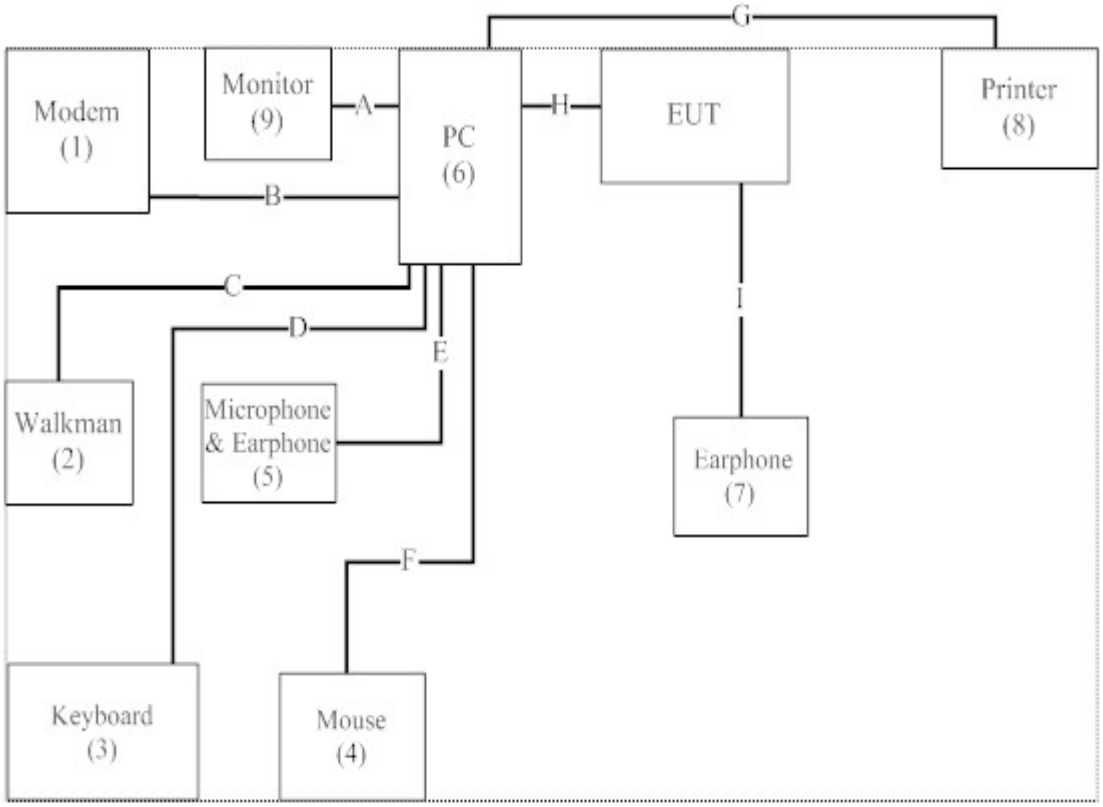
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Modem	ACEEX	DM-1414	0102027547	Non-Shielded, 1.8m
2	Walkman	AIWA	HS-TA164	N/A	N/A
3	Keyboard	COMPAQ	KB-0133	B55940MGAPK00M	N/A
4	Mouse	HP	M-S69	N/A	N/A
5	Microphone & Earphone	PCHOME	N/A	N/A	N/A
6	PC	ITEM	Manufacturer	Model No.	Non-Shielded, 1.8m
		CPU	INTEL	CELERON CPU 2.93GHz	
		RAM	LONG DIMM	DDR2-533 256M	
		MB	ASUS	P5GD2-TVM/S	
		HDD	HITACHI	82.3G/7200RPM	
		VGA	ASUS	EN6600/TD/256M/A	
		POWER	ASUS	S-30FP 300W	
		ODD	ASUS	DVD-E616A2/A5/QT	
		FLOPPY	N/A	1.44MB/2 MODE/BLACK	
7	Earphone	Lite-On	N/A	N/A	N/A
8	Printer	EPSON	StyLus C63	FAPY093590	Non-Shielded, 1.8m
9	LCD Monitor	CMV	CT-730D	FNC122F57CA1025	Non-Shielded, 1.8m

Signal Cable Type		Signal cable Description
A	D-SUB Cable	Shielded, 1.8m with two ferrite cores bonded.
B	RS232 Cable	Shielded, 1.5m
C	Audio Cable	Non-Shielded, 1.6m
D	PS/2 Keyboard Cable	Shielded, 1.8m
E	Earphone & Microphone Cable	Non-Shielded, 1.6m
F	PS/2 Mouse	Shielded, 1.8m
G	Printer Cable	Shielded, 1.2m
H	USB Cable	Shielded, 1m
I	Earphone Cable	Non-Shielded, 1.4m

1.4. Configuration of Tested System



1.5. EUT Exercise Software

(1)	Setup the EUT as shown in section 1.4
(2)	The Personal Computer connects test fixture via RS232 interface.
(3)	Set the test mode, the test channel and the data rate.
(4)	Remote test fixture & RS232 Cable
(5)	Verify that the EUT works properly

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://tw.quietek.com/modules/myalbum/
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/

Site Description: File on
Federal Communications Commission
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Registration Number: 92195

Accreditation on NVLAP
NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation
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FCC Accreditation Number: TW1014

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2. Conducted Emission

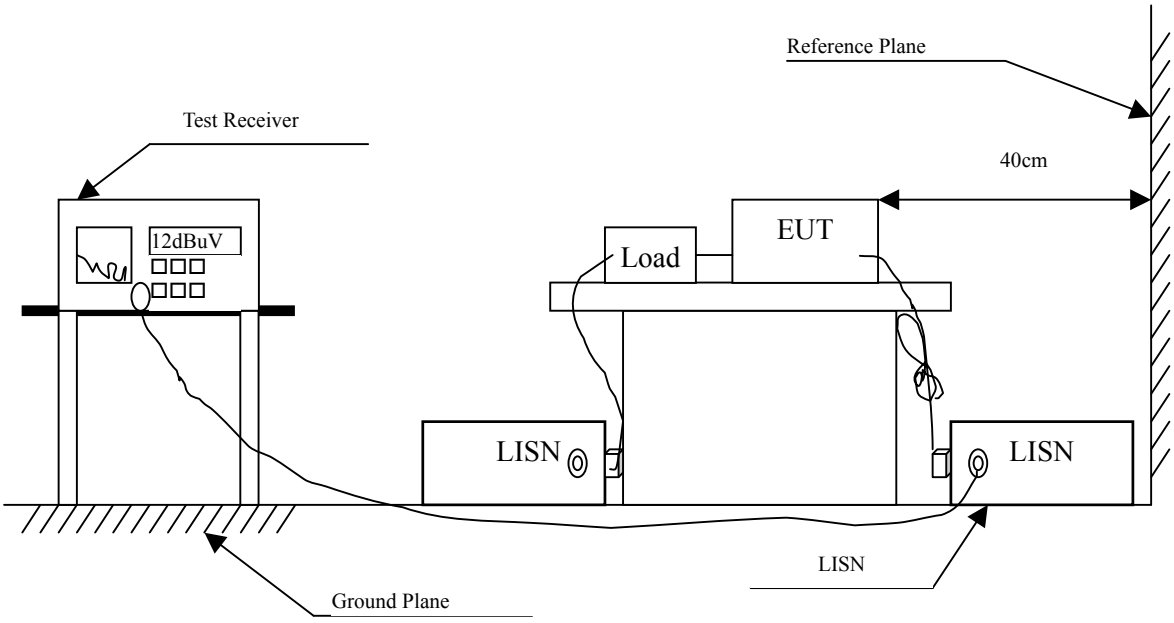
2.1. Test Equipment

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2009	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2009	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2009	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2009	
5	No.1 Shielded Room			N/A	

Note: All instruments are calibrated every one year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : HP Smart Wi-Fi Display
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz) –Adapter 1

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.275	9.659	40.010	49.669	-12.760	62.429
0.380	9.650	37.640	47.290	-12.139	59.429
0.541	9.640	28.660	38.300	-17.700	56.000
1.048	9.670	27.030	36.700	-19.300	56.000
3.084	9.690	23.390	33.080	-22.920	56.000
10.580	9.850	33.660	43.510	-16.490	60.000
Average					
0.275	9.659	29.650	39.309	-13.120	52.429
0.380	9.650	28.480	38.130	-11.299	49.429
0.541	9.640	18.620	28.260	-17.740	46.000
1.048	9.670	15.510	25.180	-20.820	46.000
3.084	9.690	13.220	22.910	-23.090	46.000
10.580	9.850	25.220	35.070	-14.930	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : HP Smart Wi-Fi Display
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz) –Adapter 1

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.267	9.675	39.960	49.635	-13.022	62.657
0.380	9.650	37.320	46.970	-12.459	59.429
0.498	9.640	29.840	39.480	-16.577	56.057
1.209	9.670	25.090	34.760	-21.240	56.000
4.654	9.700	25.110	34.810	-21.190	56.000
9.349	9.820	32.290	42.110	-17.890	60.000
Average					
0.267	9.675	30.410	40.085	-12.572	52.657
0.380	9.650	27.810	37.460	-11.969	49.429
0.498	9.640	18.000	27.640	-18.417	46.057
1.209	9.670	12.730	22.400	-23.600	46.000
4.654	9.700	14.840	24.540	-21.460	46.000
9.349	9.820	22.690	32.510	-17.490	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : HP Smart Wi-Fi Display
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz) –Adapter 2

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.197	9.709	37.730	47.439	-17.218	64.657
0.322	9.650	29.010	38.660	-22.426	61.086
0.447	9.640	24.790	34.430	-23.084	57.514
0.755	9.643	20.750	30.393	-25.607	56.000
5.056	9.700	23.140	32.840	-27.160	60.000
14.841	9.986	26.190	36.176	-23.824	60.000
Average					
0.197	9.709	27.560	37.269	-17.388	54.657
0.322	9.650	19.190	28.840	-22.246	51.086
0.447	9.640	13.050	22.690	-24.824	47.514
0.755	9.643	9.930	19.573	-26.427	46.000
5.056	9.700	12.390	22.090	-27.910	50.000
14.841	9.986	19.460	29.446	-20.554	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : HP Smart Wi-Fi Display
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437MHz) –Adapter 2

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.197	9.719	37.330	47.049	-17.608	64.657
0.252	9.685	31.110	40.795	-22.291	63.086
0.396	9.650	27.040	36.690	-22.281	58.971
1.334	9.670	18.830	28.500	-27.500	56.000
5.728	9.720	22.690	32.410	-27.590	60.000
14.252	9.969	27.210	37.179	-22.821	60.000
Average					
0.197	9.719	27.380	37.099	-17.558	54.657
0.252	9.685	17.910	27.595	-25.491	53.086
0.396	9.650	17.760	27.410	-21.561	48.971
1.334	9.670	6.280	15.950	-30.050	46.000
5.728	9.720	11.660	21.380	-28.620	50.000
14.252	9.969	20.470	30.439	-19.561	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : HP Smart Wi-Fi Display
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz) –Adapter 1

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.267	9.665	39.900	49.565	-13.092	62.657
0.330	9.650	39.510	49.160	-11.697	60.857
0.443	9.640	27.140	36.780	-20.849	57.629
0.939	9.670	25.420	35.090	-20.910	56.000
1.591	9.680	23.980	33.660	-22.340	56.000
9.611	9.820	32.710	42.530	-17.470	60.000
Average					
0.267	9.665	30.490	40.155	-12.502	52.657
0.330	9.650	28.760	38.410	-12.447	50.857
0.443	9.640	15.400	25.040	-22.589	47.629
0.939	9.670	14.750	24.420	-21.580	46.000
1.591	9.680	13.140	22.820	-23.180	46.000
9.611	9.820	24.290	34.110	-15.890	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : HP Smart Wi-Fi Display
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz) –Adapter 1

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.271	9.672	40.870	50.542	-12.001	62.543
0.330	9.660	39.550	49.210	-11.647	60.857
0.365	9.651	38.560	48.211	-11.646	59.857
0.533	9.640	28.910	38.550	-17.450	56.000
1.271	9.670	25.580	35.250	-20.750	56.000
9.947	9.840	34.230	44.070	-15.930	60.000
Average					
0.271	9.672	31.150	40.822	-11.721	52.543
0.330	9.660	29.060	38.720	-12.137	50.857
0.365	9.651	25.610	35.261	-14.596	49.857
0.533	9.640	18.530	28.170	-17.830	46.000
1.271	9.670	14.470	24.140	-21.860	46.000
9.947	9.840	25.150	34.990	-15.010	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : HP Smart Wi-Fi Display
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz) –Adapter 2

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 1					
Quasi-Peak					
0.154	9.760	35.030	44.791	-21.095	65.886
0.185	9.719	35.790	45.509	-19.491	65.000
0.252	9.675	30.490	40.165	-22.921	63.086
0.396	9.650	26.870	36.520	-22.451	58.971
5.857	9.720	22.580	32.300	-27.700	60.000
13.170	9.918	26.810	36.728	-23.272	60.000
Average					
0.154	9.760	24.180	33.941	-21.945	55.886
0.185	9.719	23.200	32.919	-22.081	55.000
0.252	9.675	17.770	27.445	-25.641	53.086
0.396	9.650	16.740	26.390	-22.581	48.971
5.857	9.720	11.790	21.510	-28.490	50.000
13.170	9.918	17.900	27.818	-22.182	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : HP Smart Wi-Fi Display
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437MHz) –Adapter 2

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV	dB	dBuV
Line 2					
Quasi-Peak					
0.193	9.721	36.930	46.651	-18.120	64.771
0.255	9.683	30.080	39.762	-23.238	63.000
0.326	9.660	27.560	37.220	-23.751	60.971
0.400	9.650	26.150	35.800	-23.057	58.857
6.474	9.730	21.220	30.950	-29.050	60.000
14.119	9.960	27.210	37.170	-22.830	60.000
Average					
0.193	9.721	27.730	37.451	-17.320	54.771
0.255	9.683	20.090	29.772	-23.228	53.000
0.326	9.660	17.830	27.490	-23.481	50.971
0.400	9.650	14.620	24.270	-24.587	48.857
6.474	9.730	10.250	19.980	-30.020	50.000
14.119	9.960	20.440	30.400	-19.600	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ “ means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Equipment

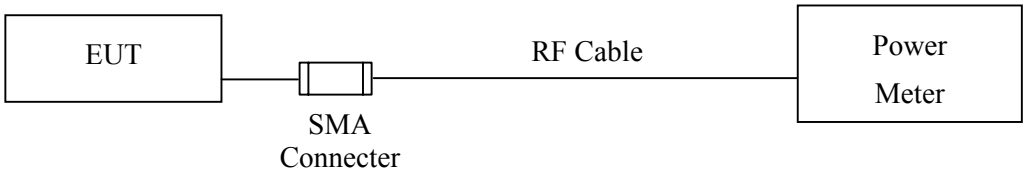
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Power Meter	Anritsu	ML2495A/6K00003357	May, 2009
X	Power Sensor	Anritsu	MA2491A/034457	May, 2009

Note: 1. All instruments are calibrated every one year.
2. The test instruments marked by "X" are used to measure the final test results.

3.2. Test Setup

Conducted Measurement



3.3. Limits

The maximum peak power shall be less 1 Watt.

3.4. Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

3.5. Uncertainty

± 1.27 dB

3.6. Test Result of Peak Power Output

Product : HP Smart Wi-Fi Display
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Cable Loss=0.5dB		Output Power (dBm)					
Channel No.	Frequency (MHz)	Average Power For different Data Rate (Mbps)				Peak Power	Required Limit
		1	2	5.5	11	1	
1	2412.00	15.33	15.20	14.98	15.28	18.16	1Watt= 30 dBm
6	2437.00	15.11	--	--	--	17.93	1Watt= 30 dBm
11	2462.00	15.24	--	--	--	18.03	1Watt= 30 dBm

Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Product : HP Smart Wi-Fi Display
Test Item : Peak Power Output Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Cable Loss=0.5dB		Output Power (dBm)									
Channel No.	Frequency (MHz)	Average Power For different Data Rate (Mbps)								Peak Power	Required Limit
		6	9	12	18	24	36	48	54	6	
1	2412.00	13.86	13.75	13.8	13.77	13.75	13.8	13.75	13.75	21.82	1Watt= 30 dBm
6	2437.00	13.63	--	--	--	--	--	--	--	21.31	1Watt= 30 dBm
11	2462.00	13.10	--	--	--	--	--	--	--	20.82	1Watt= 30 dBm

Note: Peak Power Output Value =Reading value on peak power meter + cable loss

4. Radiated Emission

4.1. Test Equipment

The following test equipment are used during the radiated emission test:

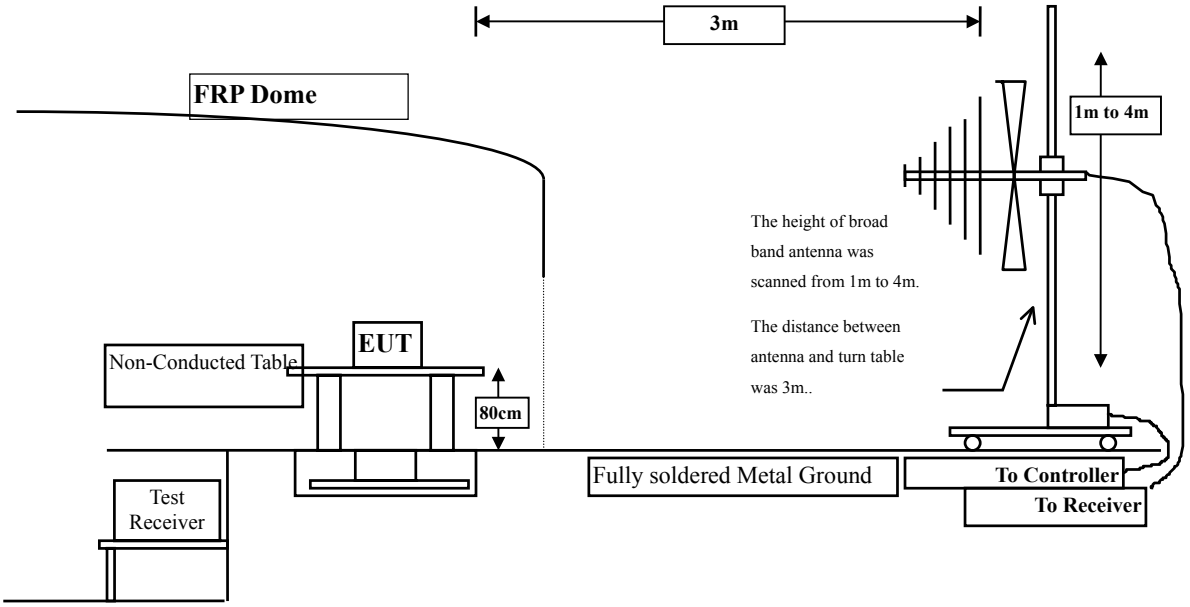
Test Site	Equipment		Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2009
	X	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2008
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2008
	X	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2008
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2009
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

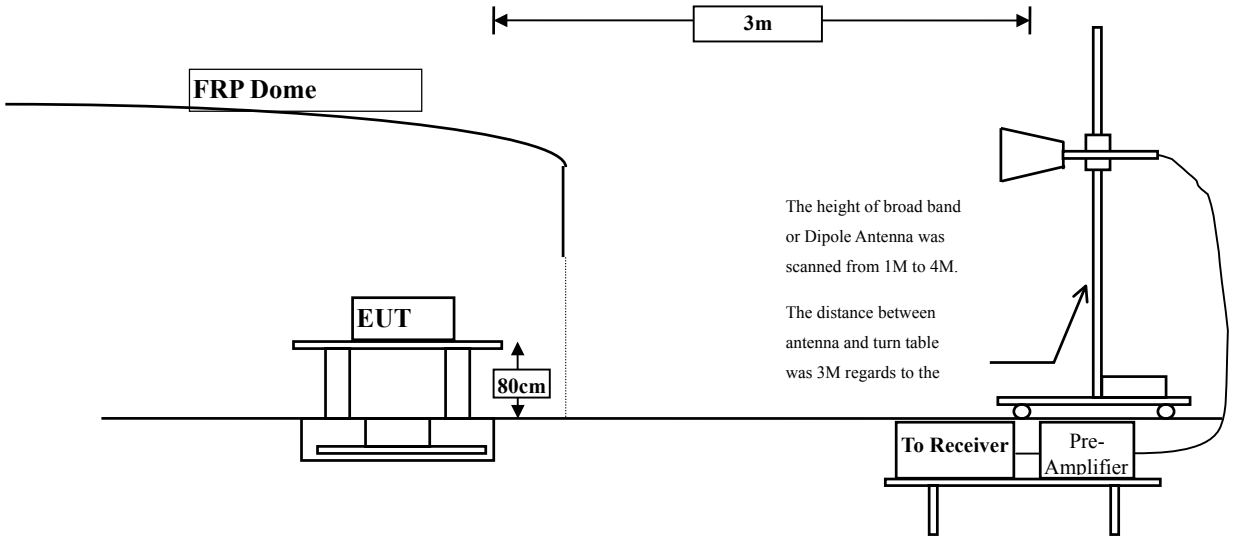
2. The test instruments marked with "X" are used to measure the final test results.

4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



4.3. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	uV/m @3m	dBuV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks: E field strength (dBuV/m) = 20 log E field strength (uV/m)

4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2003 and tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2003 on radiated measurement.
The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.
Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.
The measurement is divided into the Preliminary Measurement and the Final Measurement.
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.
The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.
The measurement frequency range from 30MHz - 10th Harmonic of fundamental was investigated.

4.5. Uncertainty

± 3.9 dB above 1GHz
± 3.8 dB below 1GHz

4.6. Test Result of Radiated Emission

Product : HP Smart Wi-Fi Display
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.478	56.747	60.225	-13.775	74.000
7236.000	7.874	48.582	56.456	-17.544	74.000
9648.000	13.283	44.113	57.396	-16.604	74.000
Average					
Detector:					
4824.000	3.478	48.878	52.356	-1.644	54.000
7236.000	7.874	42.176	50.050	-3.950	54.000
9648.000	13.283	34.437	47.720	-6.280	54.000
Vertical					
Peak Detector:					
4824.000	3.570	57.666	61.236	-12.764	74.000
7236.000	8.819	47.541	56.360	-17.640	74.000
9648.000	13.761	44.820	58.580	-15.420	74.000
Average					
Detector:					
4824.000	3.570	48.012	51.582	-2.418	54.000
7236.000	8.819	36.741	45.560	-8.440	54.000
9648.000	13.761	33.240	47.000	-7.000	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : HP Smart Wi-Fi Display
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.100	59.236	62.336	-11.664	74.000
7311.000	7.417	49.433	56.850	-17.150	74.000
9748.000	13.322	41.938	55.260	-18.740	74.000
Average					
Detector:					
4874.000	3.100	48.590	51.690	-2.310	54.000
7311.000	7.417	41.233	48.650	-5.350	54.000
9748.000	13.322	33.338	46.660	-7.340	54.000
Vertical					
Peak Detector:					
4874.000	3.574	57.676	61.250	-12.750	74.000
7311.000	8.230	51.130	59.360	-14.640	74.000
9748.000	13.421	44.229	57.650	-16.350	74.000
Average					
Detector:					
4874.000	3.574	47.656	51.230	-2.770	54.000
7311.000	8.230	41.790	50.020	-3.980	54.000
9748.000	13.421	33.539	46.960	-7.040	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : HP Smart Wi-Fi Display
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4924.000	3.364	56.886	60.250	-13.750	74.000
7386.000	6.624	48.036	54.660	-19.340	74.000
9848.000	13.631	43.620	57.250	-16.750	74.000
Average					
Detector:					
4924.000	3.364	48.726	52.090	-1.910	54.000
7386.000	6.624	43.036	49.660	-4.340	54.000
9848.000	13.631	21.020	34.650	-19.350	54.000
Vertical					
Peak Detector:					
4924.000	4.221	55.799	60.020	-13.980	74.000
7386.000	7.305	51.945	59.250	-14.750	74.000
9848.000	13.600	44.170	57.770	-16.230	74.000
Average					
Detector:					
4924.000	4.221	48.749	52.970	-1.030	54.000
7386.000	7.305	40.545	47.850	-6.150	54.000
9848.000	13.600	26.950	40.550	-13.450	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : HP Smart Wi-Fi Display
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2412MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4824.000	3.478	56.662	60.140	-13.860	74.000
7236.000	7.874	48.776	56.650	-17.350	74.000
9648.000	13.648	39.572	53.220	-20.780	74.000
Average Detector:					
4824.000	3.478	46.542	50.020	-3.980	54.000
7236.000	7.874	37.486	45.360	-8.640	54.000
Vertical					
Peak Detector:					
4824.000	3.570	56.470	60.040	-13.960	74.000
7236.000	8.819	46.531	55.350	-18.650	74.000
9648.000	13.761	38.630	52.390	-21.610	74.000
Average Detector:					
4824.000	3.570	46.080	49.650	-4.350	54.000
7236.000	8.819	35.611	44.430	-9.570	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : HP Smart Wi-Fi Display
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Peak Detector:					
4874.000	3.100	56.550	59.650	-14.350	74.000
7311.000	7.417	50.463	57.880	-16.120	74.000
9748.000	13.322	39.758	53.080	-20.920	74.000
Average					
Detector:					
4874.000	3.100	46.120	49.220	-4.780	54.000
7311.000	7.417	38.133	45.550	-8.450	54.000
Vertical					
Peak Detector:					
4874.000	3.574	56.386	59.960	-14.040	74.000
7311.000	8.230	49.360	57.590	-16.410	74.000
9748.000	13.421	39.909	53.330	-20.670	74.000
Average					
Detector:					
4874.000	3.574	45.246	48.820	-5.180	54.000
7311.000	8.230	39.020	47.250	-6.750	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : HP Smart Wi-Fi Display
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal Peak Detector:					
4924.000	3.364	56.856	60.220	-13.780	74.000
7386.000	6.624	50.626	57.250	-16.750	74.000
9848.000	13.631	39.590	53.220	-20.780	74.000
Average Detector:					
4924.000	3.364	46.486	49.850	-4.150	54.000
7386.000	6.624	40.626	47.250	-6.750	54.000
Vertical Peak Detector:					
4924.000	4.221	55.429	59.650	-14.350	74.000
7386.000	7.305	47.945	55.250	-18.750	74.000
9848.000	13.600	39.840	53.440	-20.560	74.000
Average Detector:					
4924.000	4.221	44.739	48.960	-5.040	54.000
7386.000	7.305	39.345	46.650	-7.350	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. The average measurement was not performed when the peak measured data under the limit of average detection.
6. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : HP Smart Wi-Fi Display
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz) –Adapter 1

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
289.475	-7.855	46.936	39.081	-6.919	46.000
359.800	-3.850	37.406	33.556	-12.444	46.000
565.925	2.725	33.500	36.225	-9.775	46.000
638.675	4.180	34.080	38.260	-7.740	46.000
791.450	4.740	33.161	37.901	-8.099	46.000
866.625	4.450	33.416	37.866	-8.134	46.000
Vertical					
97.900	-5.840	45.089	39.249	-4.251	43.500
289.475	-7.815	42.323	34.508	-11.492	46.000
362.225	-4.645	41.251	36.606	-9.394	46.000
667.775	1.600	33.955	35.555	-10.445	46.000
721.125	1.735	34.129	35.864	-10.136	46.000
910.275	5.470	33.558	39.028	-6.972	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : HP Smart Wi-Fi Display
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps)(2437 MHz) –Adapter 2

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
300.550	-7.713	46.971	39.258	-6.742	46.000
400.250	-1.245	34.495	33.250	-12.750	46.000
495.500	-0.370	37.620	37.250	-8.750	46.000
588.650	3.776	32.474	36.250	-9.750	46.000
665.500	3.865	30.685	34.550	-11.450	46.000
977.000	5.480	30.520	36.000	-18.000	54.000
Vertical					
100.590	-5.278	40.528	35.250	-8.250	43.500
362.360	-4.635	38.700	34.065	-11.935	46.000
366.350	-4.359	38.880	34.520	-11.480	46.000
465.520	-1.650	37.270	35.620	-10.380	46.000
655.500	1.622	33.338	34.960	-11.040	46.000
922.560	5.634	28.867	34.500	-11.500	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : HP Smart Wi-Fi Display
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz) –Adapter 1

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
97.900	-6.280	39.732	33.452	-10.048	43.500
289.475	-7.855	44.153	36.298	-9.702	46.000
548.950	1.930	33.739	35.669	-10.331	46.000
602.300	4.270	33.640	37.910	-8.090	46.000
728.400	3.560	33.773	37.333	-8.667	46.000
869.050	4.430	33.260	37.690	-8.310	46.000
Vertical					
97.900	-5.840	43.864	38.024	-5.476	43.500
289.475	-7.815	43.348	35.533	-10.467	46.000
359.800	-4.820	39.599	34.779	-11.221	46.000
580.475	0.445	34.125	34.570	-11.430	46.000
878.750	4.870	33.334	38.204	-7.796	46.000
949.075	5.985	33.898	39.883	-6.117	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : HP Smart Wi-Fi Display
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)(2437 MHz) –Adapter 2

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
100.650	-5.312	40.662	35.350	-8.150	43.500
299.650	-7.750	43.110	35.360	-10.640	46.000
556.300	2.275	33.925	36.200	-9.800	46.000
723.600	3.500	32.850	36.350	-9.650	46.000
755.300	3.944	31.685	35.630	-10.370	46.000
898.600	4.185	29.865	34.050	-11.950	46.000
Vertical					
95.650	-6.652	42.002	35.350	-8.150	43.500
298.600	-8.871	44.511	35.640	-10.360	46.000
559.300	-0.090	36.180	36.090	-9.910	46.000
580.360	0.442	35.579	36.020	-9.980	46.000
775.300	2.548	33.653	36.200	-9.800	46.000
945.600	5.939	28.311	34.250	-11.750	46.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.
6. The average measurement was not performed when the peak measured data under the limit of average detection.

5. RF antenna conducted test

5.1. Test Equipment

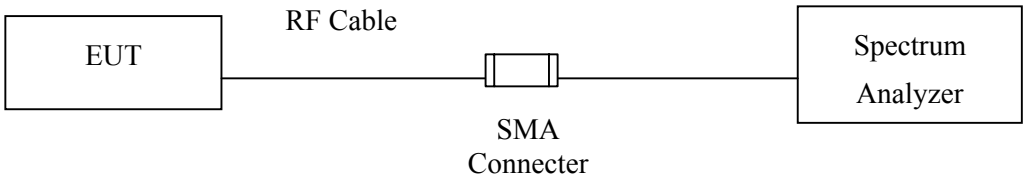
The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
	Spectrum Analyzer	R&S	FSP40 / 100170	Nov, 2008
	Spectrum Analyzer	Agilent	E4407B / US39440758	May, 2009
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2009

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

5.2. Test Setup

RF antenna Conducted Measurement:



5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

5.4. Test Procedure

The EUT was tested according to DTS test procedure of Mar. 2005 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

5.5. Uncertainty

The measurement uncertainty
Conducted is defined as ± 1.27dB

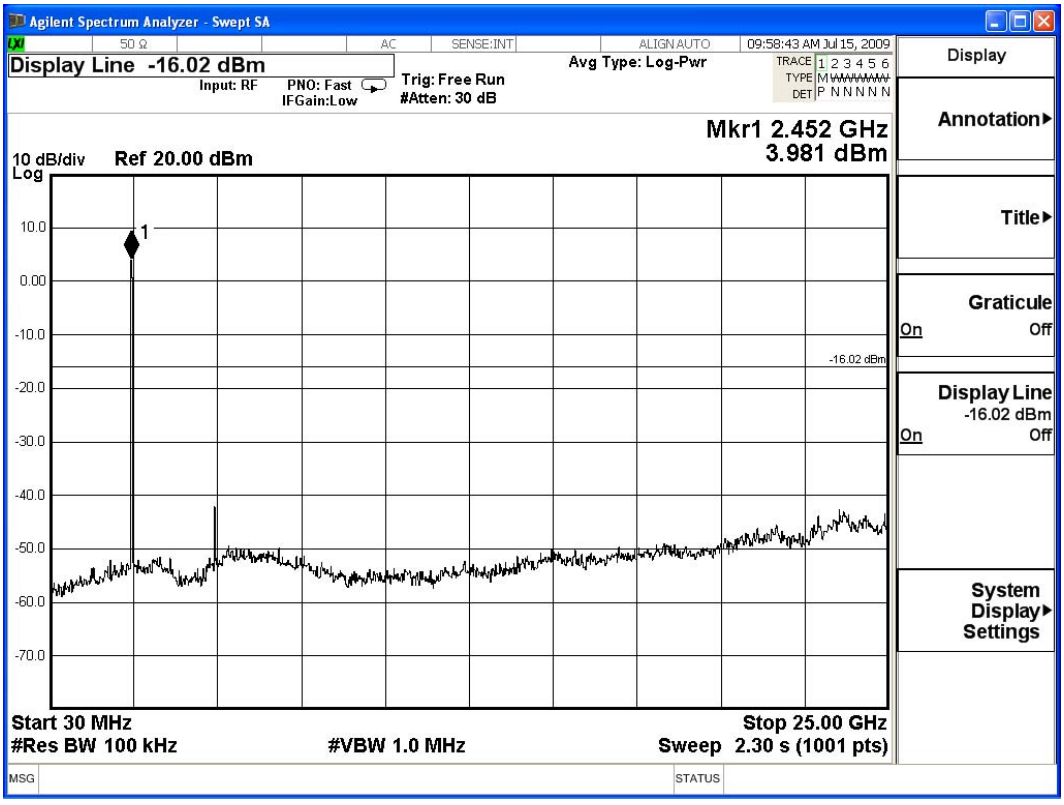
5.6. Test Result of RF antenna conducted test

Product : HP Smart Wi-Fi Display
Test Item : RF antenna conducted test
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (802.11b 1Mbps)

Channel 01 (2412MHz) 30MHz-25GHz

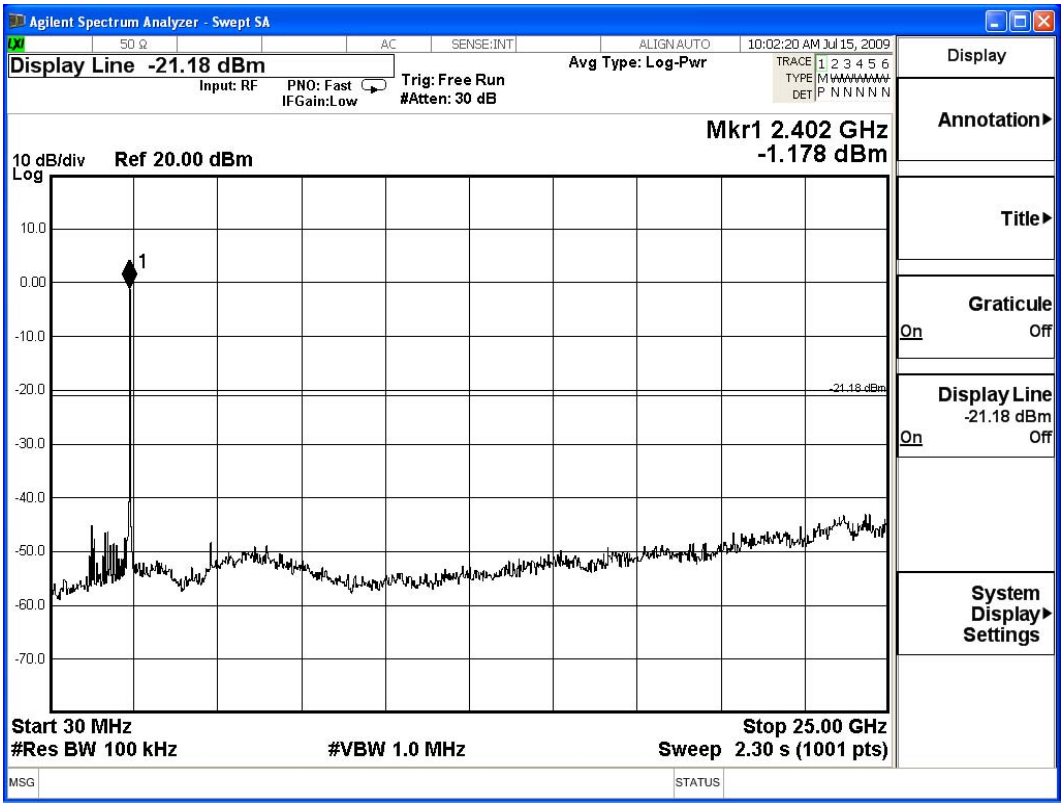
Channel 06 (2437MHz) 30MHz-25GHz

Channel 11 (2462MHz) 30MHz-25GHz



Product : HP Smart Wi-Fi Display
Test Item : RF Antenna Conducted Spurious
Test Site : No.3 OATS
Test Mode : Mode 2: Transmit (802.11g 6Mbps)

Channel 01 (2412MHz) 30MHz-25GHz



Channel 06 (2437MHz) 30MHz-25GHz

Channel 11 (2462MHz) 30MHz-25GHz