Test of DNMA-83 802.11 a/b/g/n Wireless Module

To: FCC 47 CFR Part 15.247 & IC RSS-210

Test Report Serial No.: HWPD03-A4

TEST REPORT

FROM

Test of DNMA-83 802.11 a/b/g/n Wireless Module
to
To: FCC 47 CFR Part 15.247 & IC RSS-210

Class II Permissive Change, FCC ID: RTP-DNMA83

Additional Antenna

Test Report Serial No.: HWPD03-A4

This report supersedes NONE

Applicant: Hewlett Packard
200 Forest Street MR01-2/M18
Marlborough
Massachusetts 01752-3085 , USA

Product Function: 802.11a/b/g/n Wireless Access Card

Copy No: pdf Issue Date: 20th July 2009

This Test Report is Issued Under the Authority of;

MiCOM Labs, Inc.
440 Boulder Court, Suite 200
Pleasanton, CA 94566 USA
Phone: +1 (925) 462-0304
Fax: +1 (925) 462-0306
www.micomlabs.com

ACCREDITED
CERTIFICATE #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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ACCREDITATION, LISTINGS & RECOGNITION

MiCOM Labs, Inc. an accredited laboratory complies with the international standard BS EN ISO/IEC 17025. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-01.pdf

THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

MICOM LABS
Pleasanton, CA

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated 18 June 2005*).

Presented this 26th day of February 2008.

President
For the Accreditation Council
Certificate Number 2381.01
Valid to November 30, 2009

For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

LISTINGS

MiCOM Labs test facilities are listed by the following organizations;

North America

United States of America
Federal Communications Commission (FCC) Listing #: 102167

Canada

Industry Canada (IC) Listing #:4143A-2

Japan Registration

VCCI Membership Number: 2959

- Radiation 3 meter site; Registration No. R-2881
- Line Conducted, Registration Nos. C-3181 & T-1470
- Emissions; Registration Nos. C-3180 & T-1469

RECOGNITION

APEC MRA (Asia-Pacific Economic Community Mutual Recognition Agreement)

Conformity Assessment Body (CAB) – MiCOM Labs

Test data generated by MiCOM Labs is accepted in the following countries under the APEC MRA.

Country	Recognition Body	Phase	CAB Identification No.
Australia	Australian Communications and Media Authority (ACMA)	I	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)	I	
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)	I	
Singapore	Infocomm Development Authority (IDA)	I	
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)	I I	

DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft		
Rev A	20th July 2009	Initial release.

1. TEST RESULT CERTIFICATE

Applicant:	Hewlett Packard 200 Forest Street MR01-2/M18 Marlborough Massachusetts 01752-3085 , USA	Tested By:	MiCOM Labs, Inc. 440 Boulder Court Suite 200 Pleasanton California, 94566, USA
EUT:	Wireless Access Card	Telephone:	+1 925 462 0304
Model:	DNMA-83	Fax:	+1 925 462 0306
S/N:	D029829A043BJ01		
Test Date(s):	4th May to 5th June '09	Website:	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC 47 CFR Part 15.247 & IC RSS-210 Limited to Radiated Testing of Additional Antennas	EQUIPMENT COMPLIES

MiCOM Labs, Inc. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Notes:

1. This document reports conditions under which testing was conducted and the results of testing performed.
2. Details of test methods used have been recorded and kept on file by the laboratory.
3. Test results apply only to the item(s) tested.

ACCREDITED
CERTIFICATE #2381.01

Approved & Released for MiCOM Labs, Inc. by:

Graeme Grieve
Quality Manager MiCOM Labs,

Gordon Hurst
President & CEO MiCOM Labs, Inc.

2. REFERENCES AND MEASUREMENT UNCERTAINTY

2.1. Normative References

Ref.	Publication	Year	Title
(i)	FCC 47 CFR Part Sub-Part C 15.247	2007	Code of Federal Regulations
(ii)	Industry Canada RSS-210	Issue 7 June 2007	Low Power License-Exempt Radiocommunication Devices (All Frequency Bands): Category 1 Equipment
(iii)	Industry Canada RSS-Gen	Issue 2 June 2007	General Requirements and Information for the Certification of Radiocommunication Equipment
(iv)	ANSI C63.4	2003	American National Standards for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
(v)	CISPR 22/ EN 55022	1997 1998	Limits and Methods of Measurements of Radio Disturbance Characteristics of Information Technology Equipment
(vi)	M 3003	Edition 1 Dec. 1997	Expression of Uncertainty and Confidence in Measurements
(vii)	LAB34	Edition 1 Aug 2002	The expression of uncertainty in EMC Testing
(viii)	ETSI TR 100 028	2001	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
(ix)	A2LA	14th September 2005	Reference to A2LA Accreditation Status – A2LA Advertising Policy
(x)	FCC Public Notice – DA 02-2138	2002	Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices

2.2. Test and Uncertainty Procedures

Conducted and radiated emission measurements were conducted in accordance with American National Standards Institute ANSI C63.4, listed in the Normative References section of this report.

Measurement uncertainty figures are calculated in accordance with ETSI TR 100 028 Parts 1 and 2.

Measurement uncertainties stated are based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95 % in accordance with UKAS document M 3003 listed in the Normative References section of this report.

3. PRODUCT DETAILS AND TEST CONFIGURATIONS

3.1. Technical Details

Details	Description
Purpose:	Test of the DNMA-83 802.11 a/b/g/n Wireless Module in the frequency ranges 2,400 – 2,483.5 and 5725 – 5,850 MHz to FCC Part 15.247 and Industry Canada RSS-210 regulations.
Applicant:	Hewlett Packard 200 Forest Street MR01-2/M18 Marlborough Massachusetts 01752-3085 , USA
Manufacturer:	Winstron NEWEB Corp
Laboratory performing the tests:	MiCOM Labs, Inc. 440 Boulder Court, Suite 200 Pleasanton, California 94566 USA
FCC ID:	RTP-DNMA83
IC ID:	4891A-DNMA83
Test report reference number:	HWPD03-A4
Date EUT received:	4th May 2009
Standard(s) applied:	FCC 47 CFR Part 15.247 & IC RSS-210
Dates of test (from - to):	4th May to 5th June 2009
No of Units Tested:	1
Type of Equipment:	802.11a/b/g/n Wireless Access Card
Applicants Trade Name:	WLAN a+b+g+n mini-PCI Module
Model(s):	DNMA-83
Software Release	5.3
Hardware Release:	-030
Declared Frequency Range(s):	2,400 to 2,483.5 MHz 5,725 to 5,850 MHz
Type of Modulation:	Per 802.11 –CCK, BPSK, QPSK, DSSS, OFDM
Declared Nominal Output Power: (Average Power)	802.11a: Legacy +18 dBm 802.11b: Legacy +20 dBm 802.11g: Legacy +20 dBm
EUT Modes of Operation:	Legacy 802.11a/b/g/n
Transmit/Receive Operation:	Time Division Duplex
Rated Input Voltage and Current:	Power Supply 3.3 Vdc @ 1 A
Operating Temperature Range:	Declared range 0 to +40ºC
ITU Emission Designator:	802.11a Legacy 16M9W7D 802.11n HT-20 18M1W7D 802.11n HT-40 37M3W7D
Frequency Stability:	±20 ppm max
Equipment Dimensions:	2.5” x 2.5”
Weight:	2oz
Primary function of equipment:	Wireless Access Card for transmitting data and voice

3.2. Scope of Test Program

RF Testing

The scope of the compliance program was to test three additional antennas for the DNMA-83 802.11 a/b/g/n wireless module in the frequency ranges 2,400 – 2,483.5 MHz and 5725 – 5,850 MHz for compliance against FCC 47 CFR Part 15.247 and Industry Canada RSS-210 specifications.

The antennas tested are detailed in section 3.4 “Antenna Details”.

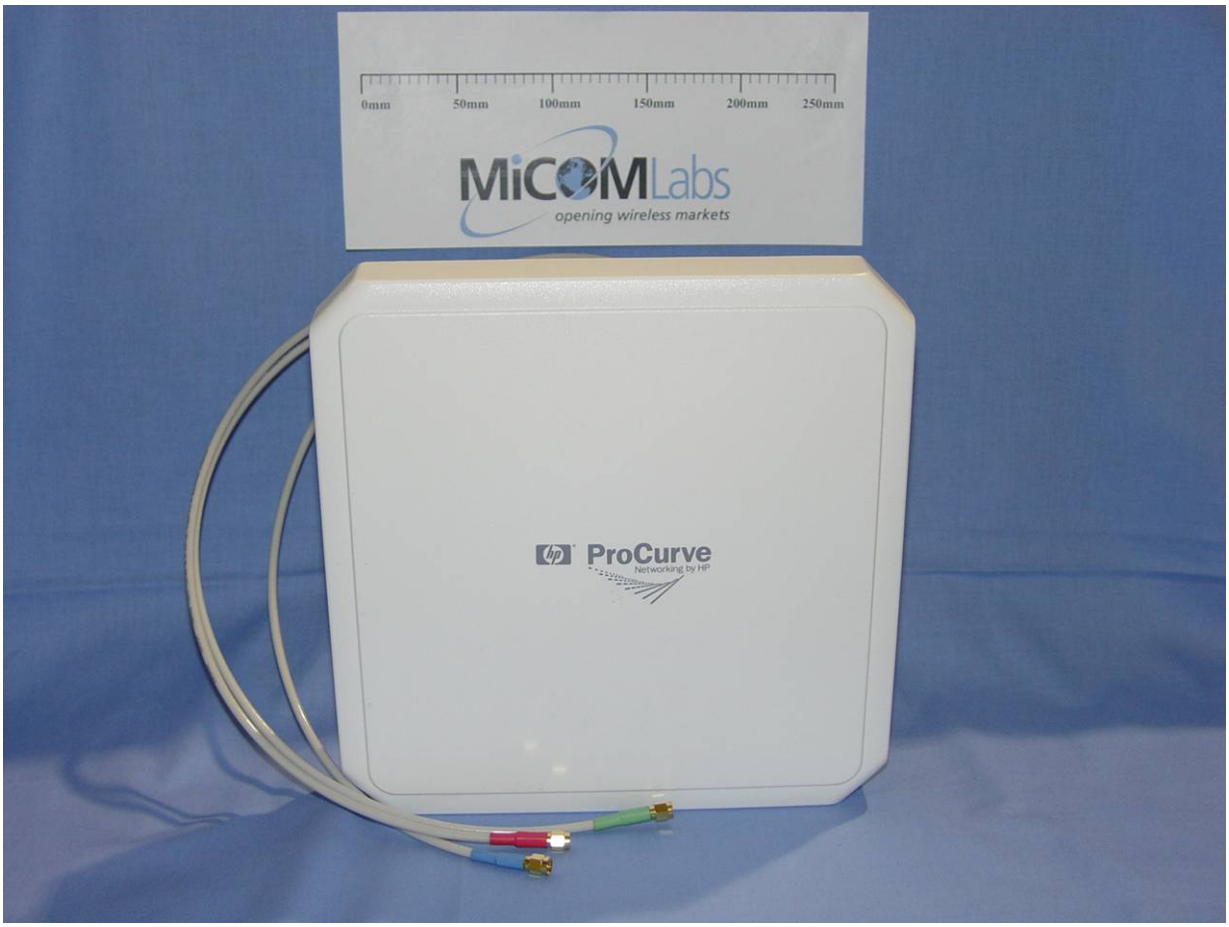
Although this is for a Limited Modular Approval (LMA) the module was tested in a host device; HP MSM-410 Wireless Access Point.

Only spurious emissions above 1 GHz were performed in order to provide compliance.

Identification

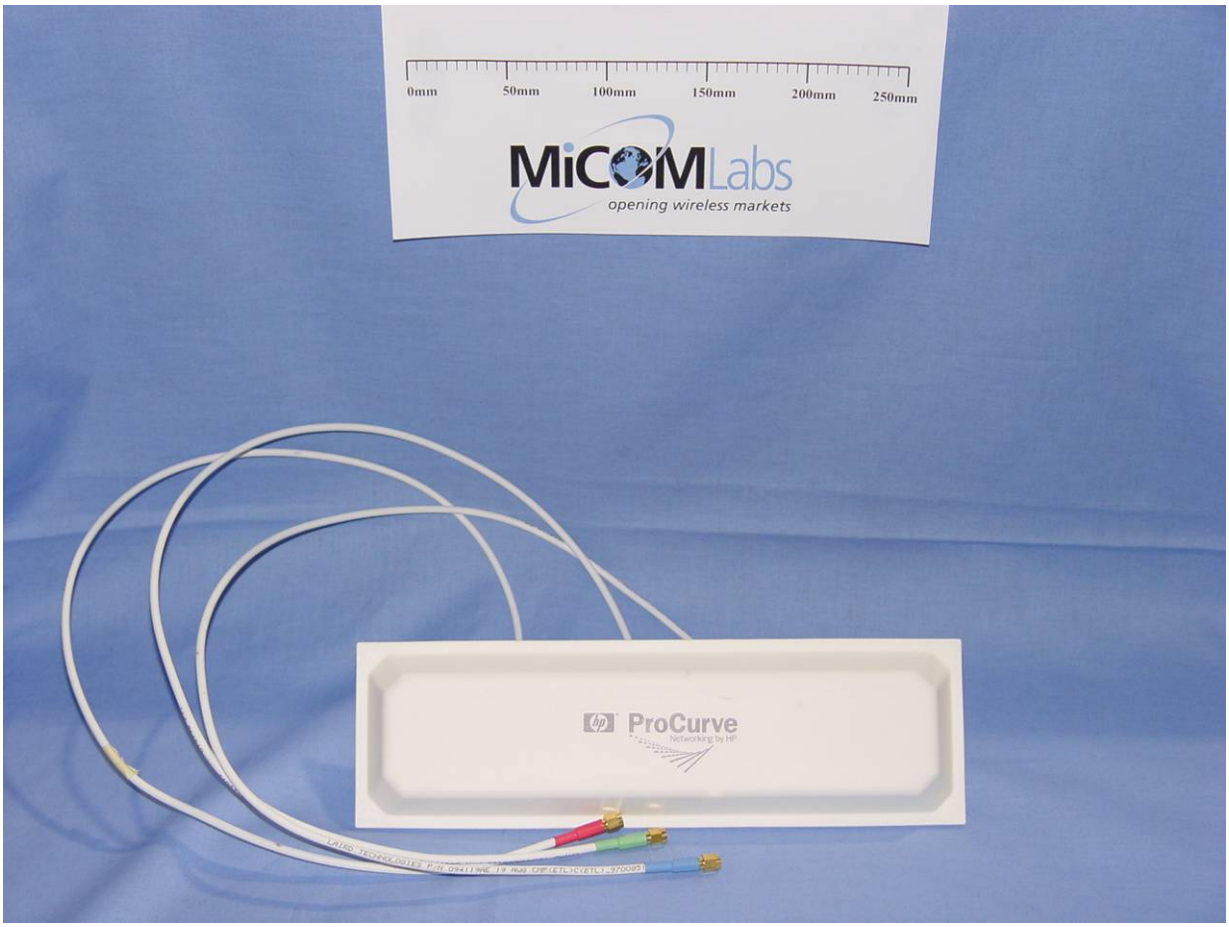
FCC ID: RTP-DNMA83
IC ID: 4891A-DNMA83

J9169A Antenna

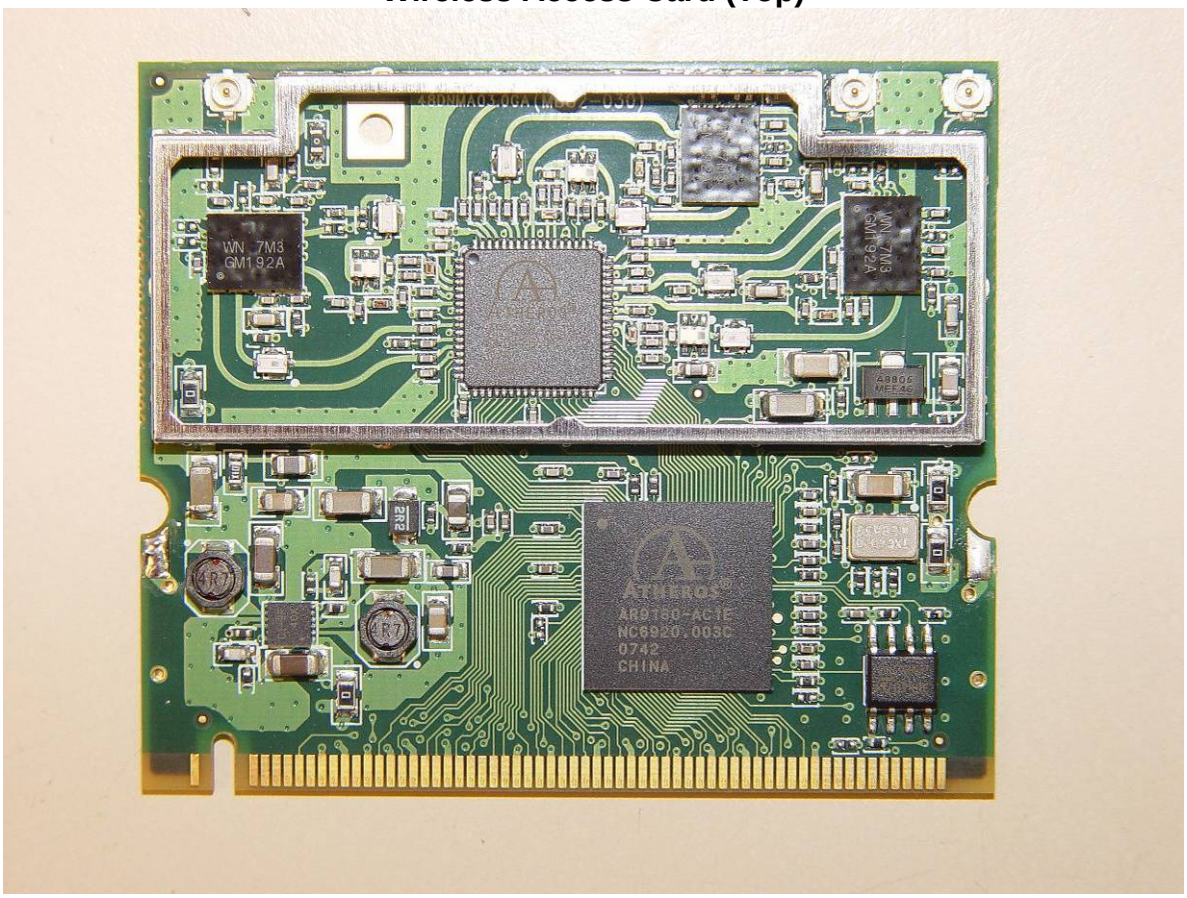


J9170A Antenna

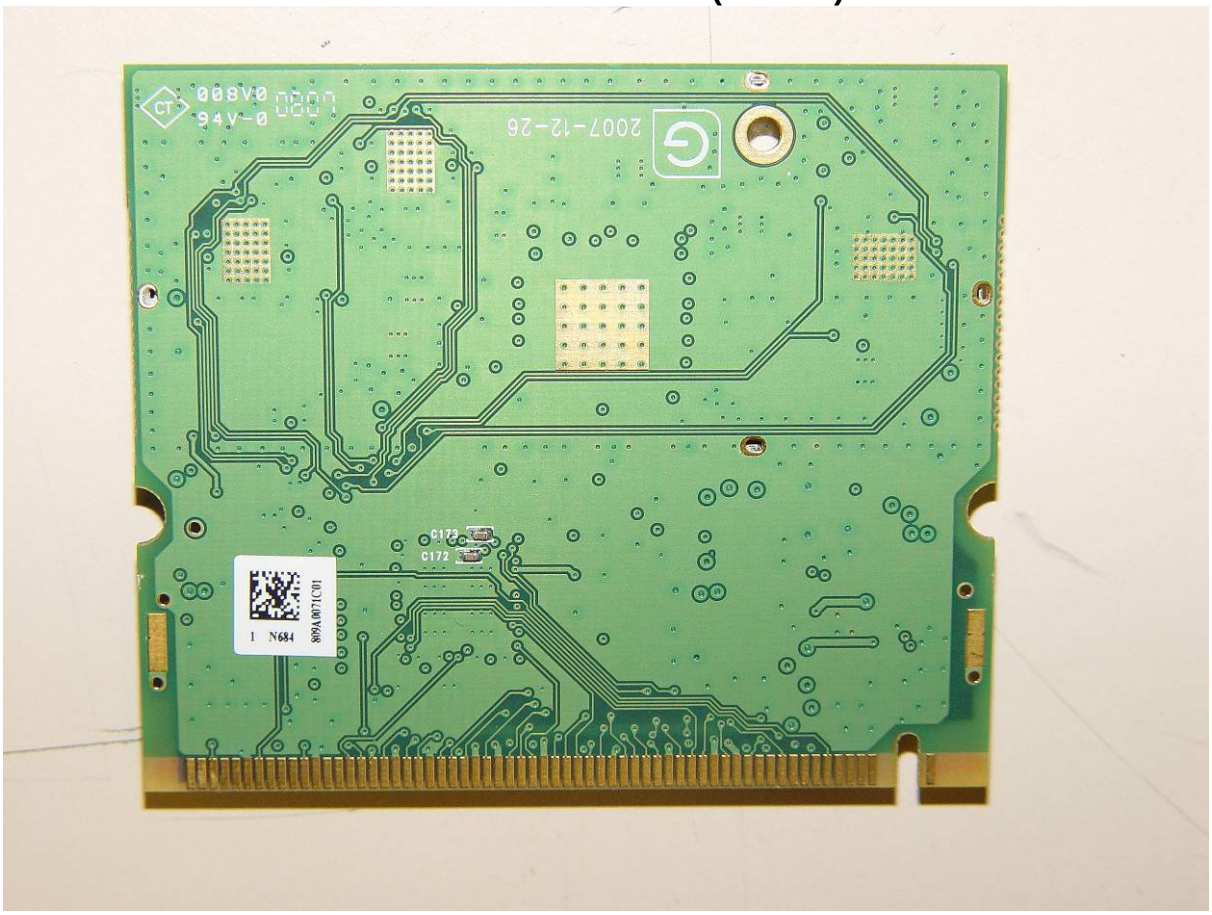
J9171A Antenna



802.11 a/b/g/n DNMA-83 wireless card
Wireless Access Card (Top)



802.11 a/b/g/n DNMA-83 wireless card
Wireless Access Card (Bottom)



3.3. Equipment Model(s) and Serial Number(s)

Type (EUT/ Support)	Equipment Description (Including Brand Name)	Mfr	Model No.	Serial No.
EUT	Access Card		DNMA-83	D029829A043BJ01
Support	Wireless Access Point	HP	MSM410	--
Support	Laptop PC	HP		

3.4. Antenna Details

Antenna	Gain (dBi) 2,400 – 2,483.5 MHz	Gain (dBi) 5,725 – 5,850 MHz
J9169A	8.0	10.7
J9170A	10.9	13.5
J9171A	3.0	4.0

3.5. Cabling and I/O Ports

Number and type of I/O ports on supporting wireless access point

1. 1 X RJ-45 , 10/100/1000 BASE-T Ethernet
2. 1 X RJ-45 , 10/100/1000 BASE-T Ethernet with POE.

3.6. Test Configurations

Testing was performed to determine the highest power level versus bit rate. The variant with the highest power was used to exercise the product.

Matrix of test configurations

Operational Mode(s) (802.11)	Variant	Data Rates with Highest Power	Frequencies (MHz)
b	Legacy	1 MBit/s	2,412 2,437 2,462
g	Legacy	6 MBit/s	
n	HT-20	6.5 MCS	
	HT-40	13.5 MCS	2,422 2,442 2,452
a	Legacy	6 MBit/s	5,745 5,785 5,825
n	HT-20	6.5 MCS	
	HT-40	13.5 MCS	5,755 5,785 5,815

3.7. Equipment Modifications

The following modifications were required to bring the equipment into compliance:

In order to meet the spurious emissions and band edge requirements of the FCC and IC standards the transmitter power was set in accordance with the following tables for each model of antenna.

Antenna J9169A

15.247 - 2.4 GHz Channels

Operational Mode	Frequency	Test Code Value From Test Plan	Spurious Emissions Value *	Band-Edge Value *	Test Code Power Setting	Max Compliant Power
	[MHz]					[dBm]
b	2412	17.5			17.5	24.1
	2437	18			18	24.1
	2462	18			18	24.1
g	2412	18		17	17	22.9
	2437	18			18	23.9
	2462	18		17.5	17.5	23.2
HT-20	2412	18		17	17	22.9
	2437	18			18	24.0
	2462	18		16.5	16.5	22.2
HT-40	2422	18		14	14	20.1
	2437	18			18	24.2
	2452	18		14	14	20.0

15.247 - 5 GHz Channels

Operational Mode	Frequency	Test Code Value From Test Plan	Spurious Emissions Value *	Band-Edge Value *	Test Code Power Setting	Max Compliant Power
	[MHz]					[dBm]
a	5745	18			18	23.6
	5785	18			18	22.8
	5825	18			18	22.4
HT-20	5745	18			18	23.7
	5785	18			18	22.7
	5825	18			18	22.3
HT-40	5755	17			16.5	22.7
	5785	17			17	22.3
	5795	17			17	22.1

Antenna J9170A

15.247 - 2.4 GHz Channels

Operational Mode	Frequency	Test Code Value From Test Plan	Spurious Emissions Value *	Band-Edge Value *	Test Code Power Setting	Max Compliant Power
	[MHz]					[dBm]
b	2412	17.5			17.5	24.1
	2437	18	17		17	23.1
	2462	18	15		15	21.1
g	2412	18		15	15	20.9
	2437	18			18	23.9
	2462	18		14.5	14.5	20.2
HT-20	2412	18		14	14	19.9
	2437	18			18	24.0
	2462	18		14.5	14.5	20.2
HT-40	2422	18	17	10.5	10.5	16.6
	2437	18	17		17	23.2
	2452	18	17	11.5	11.5	17.5

15.247 - 5 GHz Channels

Operational Mode	Frequency	Test Code Value From Test Plan	Spurious Emissions Value *	Band-Edge Value *	Test Code Power Setting	Max Compliant Power
	[MHz]					[dBm]
a	5745	16.5			16.5	22.3
	5785	17.5			17.5	22.4
	5825	18			18	22.4
HT-20	5745	16.5			16.5	22.3
	5785	17.5			17.5	22.2
	5825	18			18	22.3
HT-40	5755	16.5	15.5		15.5	21.2
	5785	175	15.5		15.5	20.8
	5795	17	15		15	20.1

Antenna J9171A

15.247 - 2.4 GHz Channels

Operational Mode	Frequency	Test Code Value From Test Plan	Spurious Emissions Value *	Band-Edge Value *	Test Code Power Setting	Max Compliant Power
	[MHz]					[dBm]
b	2412	17.5			17.5	24.1
	2437	18			18	24.1
	2462	18			18	24.1
g	2412	18		17	17	22.9
	2437	18			18	23.9
	2462	18		15.5	15.5	21.2
HT-20	2412	18		15.5	15.5	21.4
	2437	18			18	24.0
	2462	18		15	15	20.7
HT-40	2422	18		13	13	19.1
	2437	18			18	24.2
	2452	18		12.5	12.5	18.5

15.247 - 5 GHz Channels

Operational Mode	Frequency	Test Code Value From Test Plan	Spurious Emissions Value *	Band-Edge Value *	Test Code Power Setting	Max Compliant Power
	[MHz]					[dBm]
a	5745	18			18	23.6
	5785	18			18	22.8
	5825	18			18	22.4
HT-20	5745	18			18	23.7
	5785	18			18	22.7
	5825	18			18	22.3
HT-40	5755	17			17	22.7
	5785	17			17	22.3
	5795	17			17	22.1

3.8. Deviations from the Test Standard

The following deviations from the test standard were required in order to complete the test program:

1. None

3.9. Subcontracted Testing or Third Party Data

1. NONE

4. TEST SUMMARY

List of Measurements (continued)

The following table represents the list of measurements required under the **FCC CFR47 Part 15.247, Industry Canada RSS-210,** and **Industry Canada RSS-Gen.**

Section(s)	Test Items	Description	Condition	Result	Test Report Section
15.247(d) **15.205 /** **15.209** **A8.5** **2.2** **2.6** **4.7**	Radiated Emissions	Restricted Bands	Radiated	Complies	5.1.1
	Transmitter Radiated Spurious Emissions	Emissions above 1 GHz		Complies	*5.1.1.1*
	Radiated Band Edge	Band-edge results Peak Emissions		Complies	*5.1.1.1*
Industry Canada only **RSS-Gen §4.8, §6**	Receiver Radiated Spurious Emissions	Emissions above 1 GHz		Complies	*5.1.1.2*

Note 1: *Test results reported in this document relate only to the items tested*
Note 2: *The required tests demonstrated compliance as per client declaration of test configuration, monitoring methodology and associated pass/fail criteria*
Note 3: *Section 3.7 'Equipment Modifications' highlights the modifications that were required to bring the product into compliance with the above test matrix*

5. TEST RESULTS

5.1. Device Characteristics

5.1.1. Radiated Emissions (15.247, RSS-210)

5.1.1.1. Transmitter Radiated Spurious Emissions (above 1 GHz) and Radiated Band Edge Measurements (Restricted Bands)

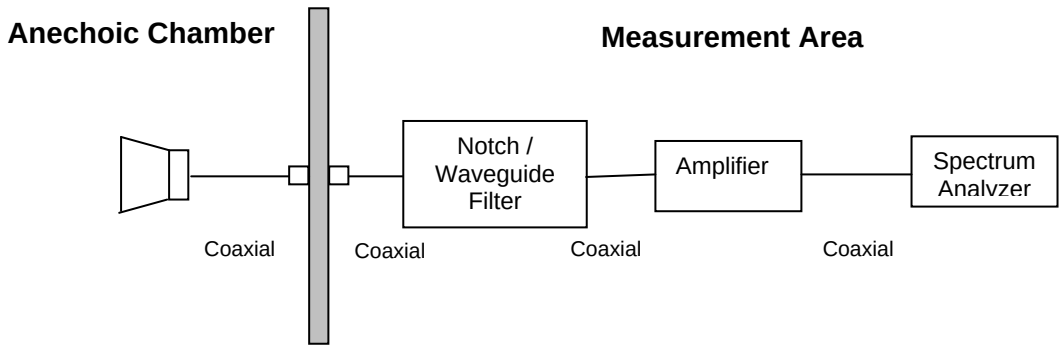
FCC, Part 15 Subpart C §15.247(d) 15.205; 15.209
Industry Canada RSS-210 §A8.5, §2.2, §2.6
Industry Canada RSS-Gen §4.7

Test Procedure

Radiated emissions above 1 GHz are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in peak hold mode. Depending on the frequency band spanned a notch filter and waveguide filter was used to remove the fundamental frequency. The highest emissions relative to the limit are listed for each frequency spanned.

All measurements on any frequency or frequencies over 1 MHz are based on the use of measurement instrumentation employing an average detector function. All measurements above 1 GHz were performed using a minimum resolution bandwidth of 1 MHz.

Test Measurement Set up



Measurement set up for Radiated Emission Test

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

FS = R + AF + CORR - FO

where: FS = Field Strength
R = Measured Spectrum analyzer Input Amplitude
AF = Antenna Factor
CORR = Correction Factor = CL – AG + NFL
CL = Cable Loss
AG = Amplifier Gain
FO = Distance Falloff Factor
NFL = Notch Filter Loss or Waveguide Loss

For example:
Given receiver input reading of 51.5 dBμV; Antenna Factor of 8.5 dB; Cable Loss of 1.3 dB; Falloff Factor of 0 dB, an Amplifier Gain of 26 dB and Notch Filter Loss of 1 dB. The Field Strength of the measured emission is:

FS = 51.5 + 8.5 + 1.3 - 26.0 +1 = 36.3 dBμV/m

Conversion between dBμV/m (or dBμV) and μV/m (or μV) are done as:

Level (dBμV/m) = 20 * Log (level (μV/m))

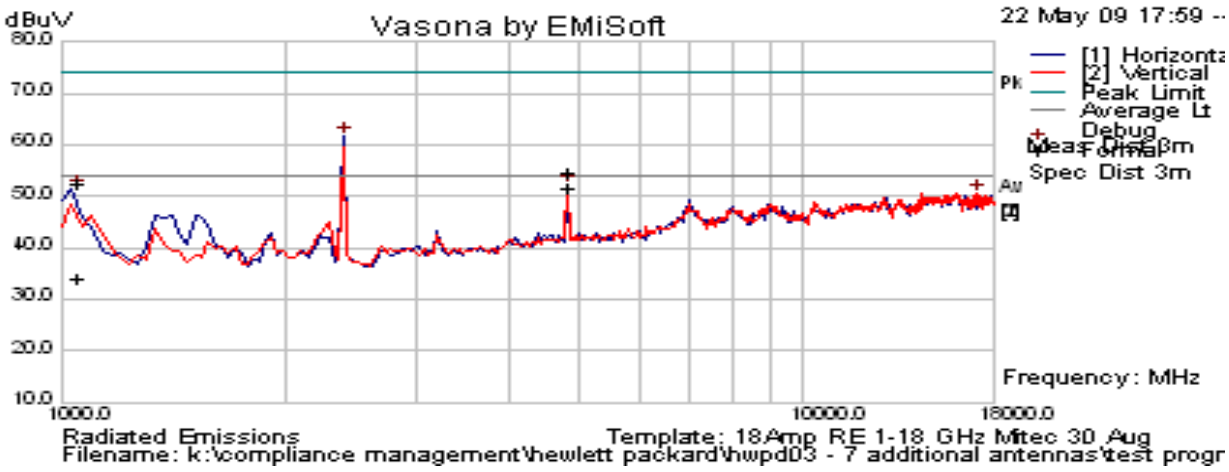
40 dBμV/m = 100 μV/m
48 dBμV/m = 250 μV/m

Ambient conditions.
Temperature: 17 to 23°C Relative humidity: 31 to 57 % Pressure: 999 to 1012 mbar

Radio Parameters
Duty Cycle: 100%
Output: Modulated Carrier

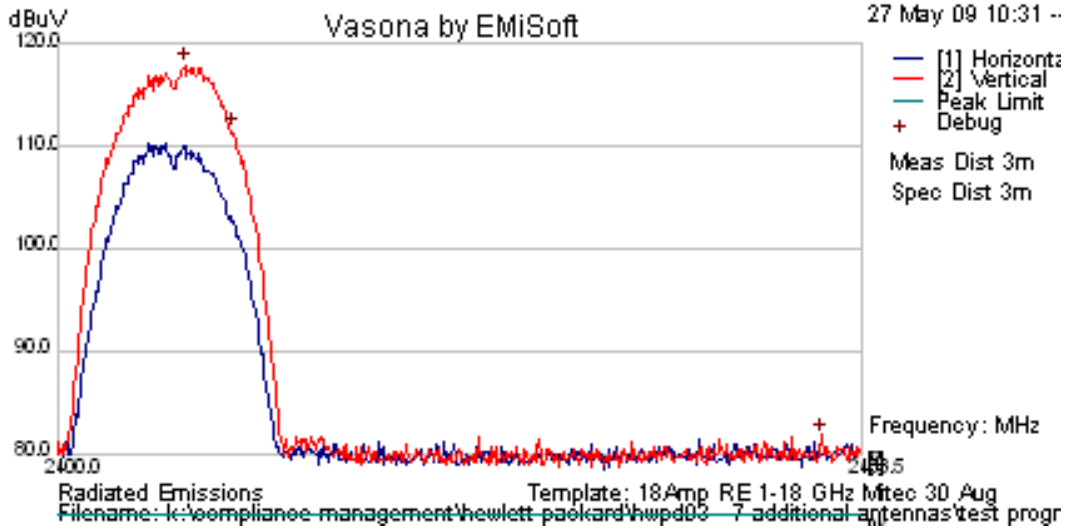
ANTENNA J9169 Radiated Emissions in the 2,400 – 2,483.5 MHz Band

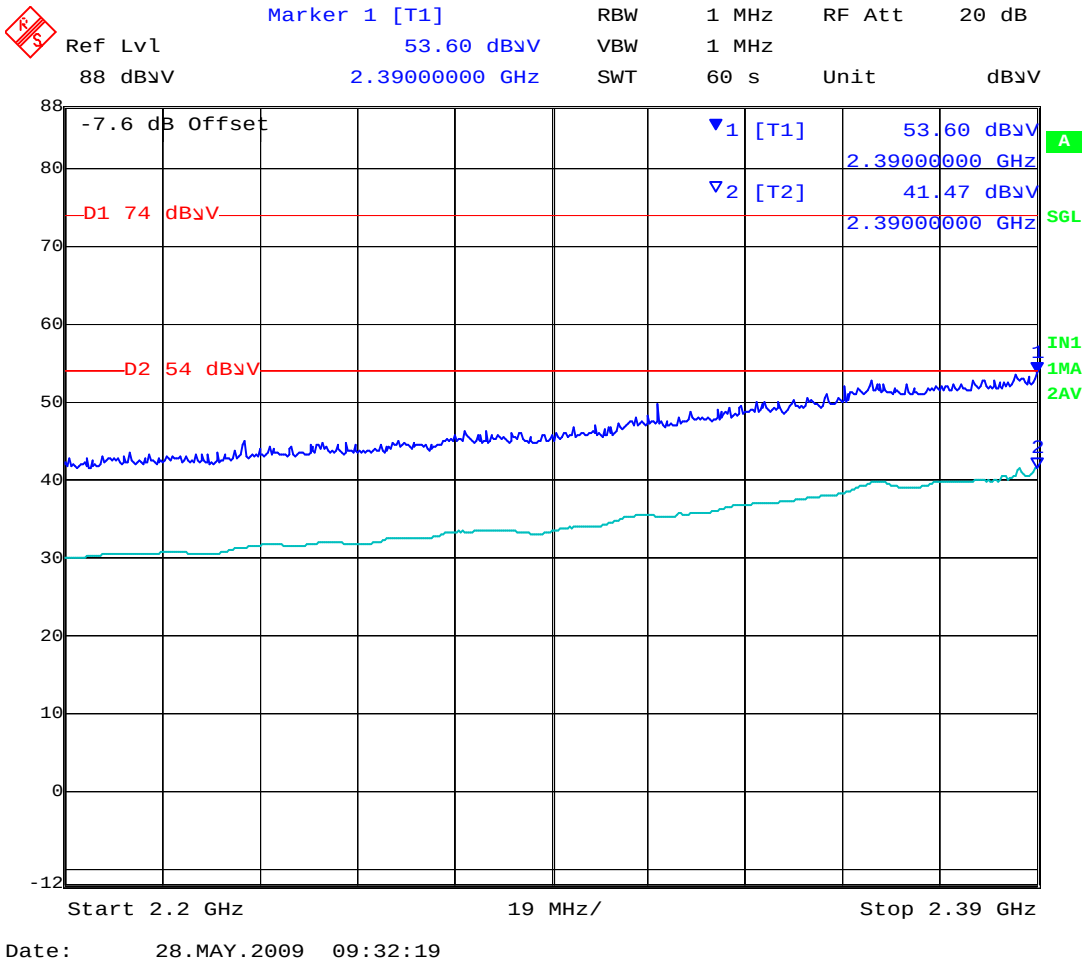
Date	22nd May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2412
Antenna Model	J9169A Antenna / Gain = 8 dBi
Power setting	17.5 dBm in ART Test Utility
Test Conditions	802.11b 1 Mb/s; MSM410 DNMA-83 Platform Radio



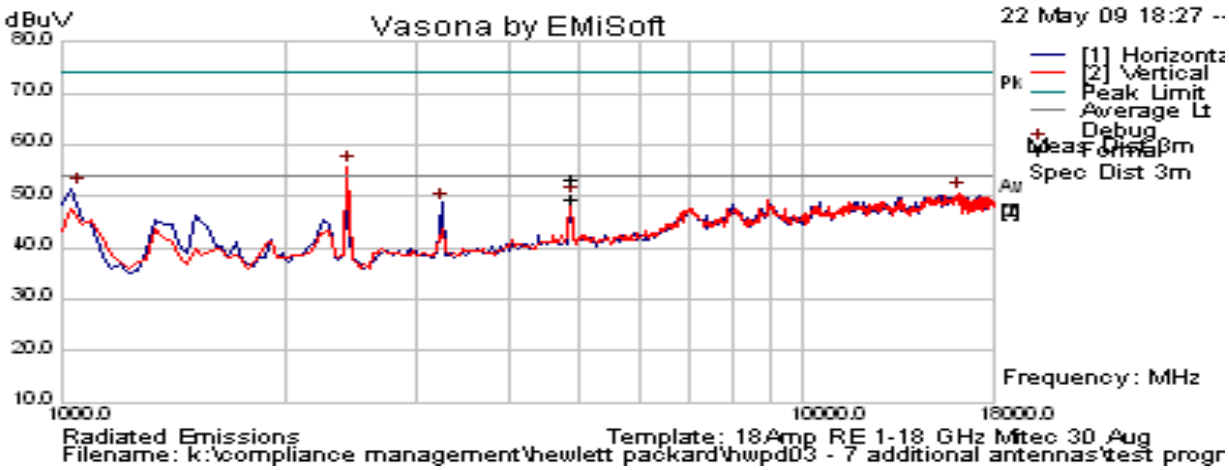
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2413.052	72.59	12.96	32.35	117.9	Peak [Scan]	V						
1058.808	47.69	2.01	-15.65	34.05	Average Max	H	154	129	54	-19.95	Pass	RB
1058.808	66.15	2.01	-15.65	52.51	Peak Max	H	154	129	74	-21.49	Pass	RB
4824.068	56.06	4.47	-8.75	51.78	Average Max	V	109	10	54	-2.22	Pass	RB
4824.068	58.9	4.47	-8.75	54.62	Peak Max	V	109	10	74	-19.38	Pass	RB
2390.0000	Power Setting = 17.5			53.60	Peak Max	V	--	--	74	-20.40	Pass	Band Edge
2390.0000				41.47	Average Max	V	--	--	54	-12.53	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



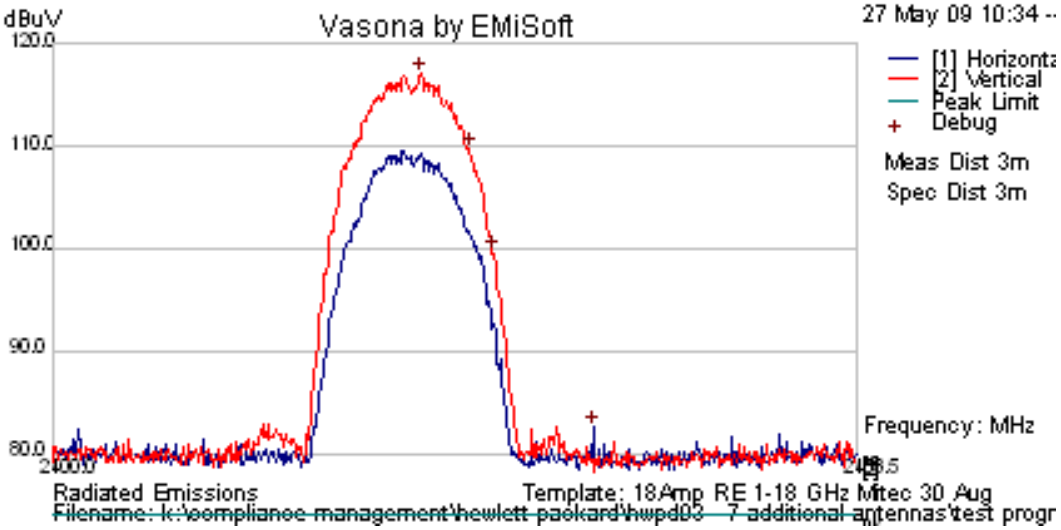


Date	22nd May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2437
Antenna Model	J9169A Antenna / Gain = 8 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11b 1 Mb/s; MSM410 DNMA-83 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2437.985	71.73	12.97	32.37	117.1	Peak [Scan]	V						
4874.008	57.44	4.51	-8.75	53.2	Peak Max	H	117	23	74	-20.8	Pass	RB
4874.008	53.85	4.51	-8.75	49.61	Average Max	H	117	23	54	-4.39	Pass	RB
1058.808	66.15	2.01	-15.65	52.51	Peak Max	H	154	129	74	-21.49	Pass	RB
1058.808	47.69	2.01	-15.65	34.05	Average Max	H	154	129	54	-19.95	Pass	RB
3249.354	56.39	3.49	-11.14	48.75	Peak [Scan]	H	100	0	54	-5.25	Pass	NRB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band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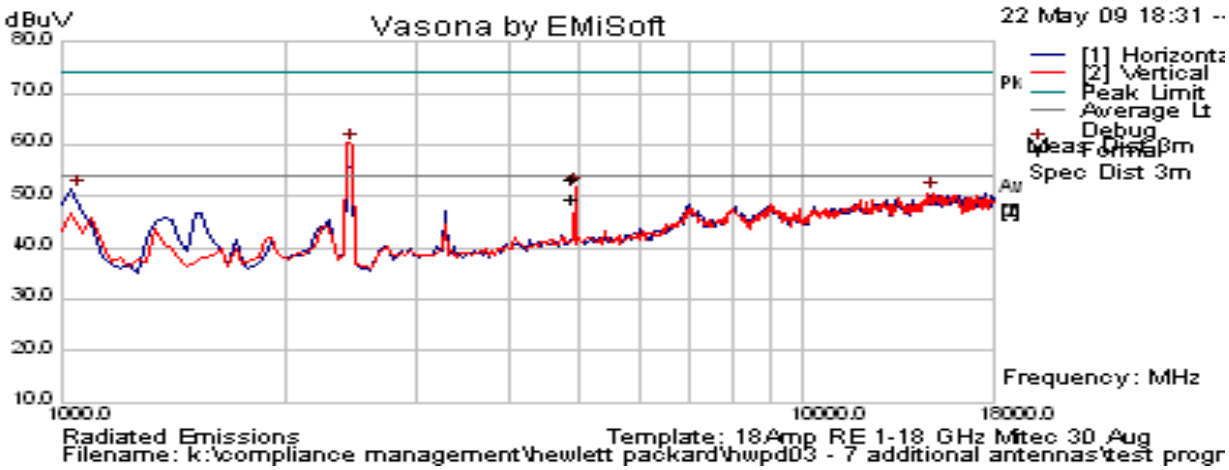
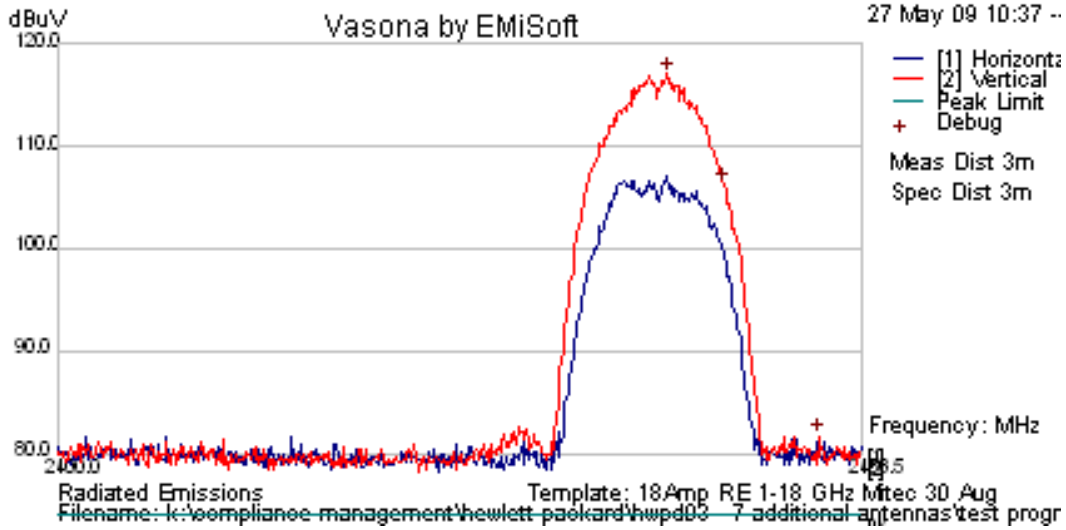
27 May 09 10:34
120.0
110.0
100.0
90.0
80.0
[1] Horizonta
[2] Vertical
Peak Limit
Debug
Meas Dist 3m
Spec Dist 3m
Frequency: MHz
Radiated Emissions
Template: 18Amp RE 1-18 GHz Mitec 30 Aug
Filename: k:\compliance management\hewlett packard\hwpd03 7 additional antennas\test progr

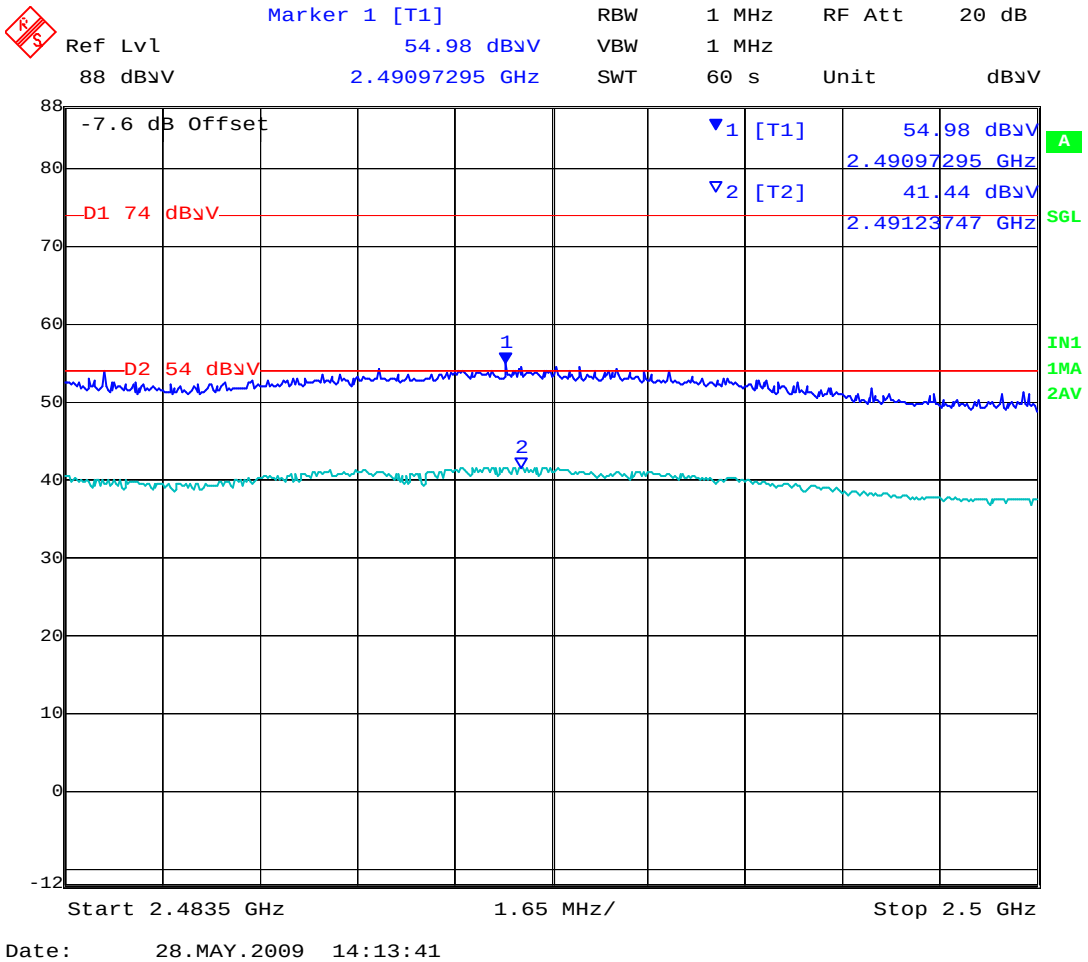
Date	22nd May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2462
Antenna Model	J9169A Antenna / Gain = 8 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11b 1 Mb/s; MSM410 DNMA-83 Platform Radio



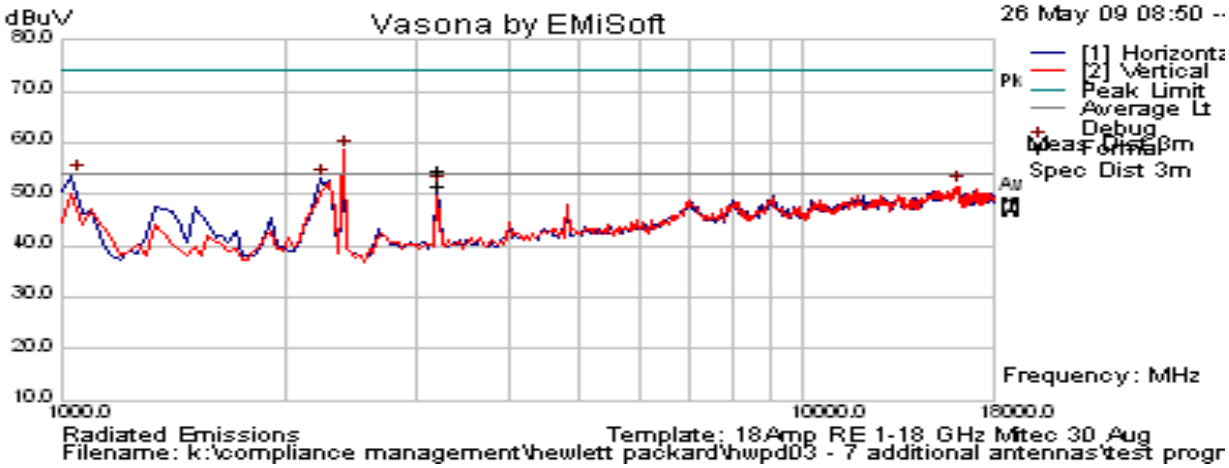
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2463.085	71.66	12.98	32.38	117	Peak [Scan]	V						
4924.044	59.27	4.55	-8.76	55.07	Peak Max	V	109	39	74	-18.93	Pass	RB
4924.044	53.66	4.55	-8.76	49.46	Average Max	V	109	39	54	-4.54	Pass	RB
1058.808	66.15	2.01	-15.65	52.51	Peak Max	H	154	129	74	-21.49	Pass	RB
1058.808	47.69	2.01	-15.65	34.05	Average Max	H	154	129	54	-19.95	Pass	RB
2490.97295	Power Setting = 18			54.98	Peak Max	V	--	--	74	-19.02	Pass	Band Edge
2491.23747				41.44	Average Max	V	--	--	54	-12.56	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



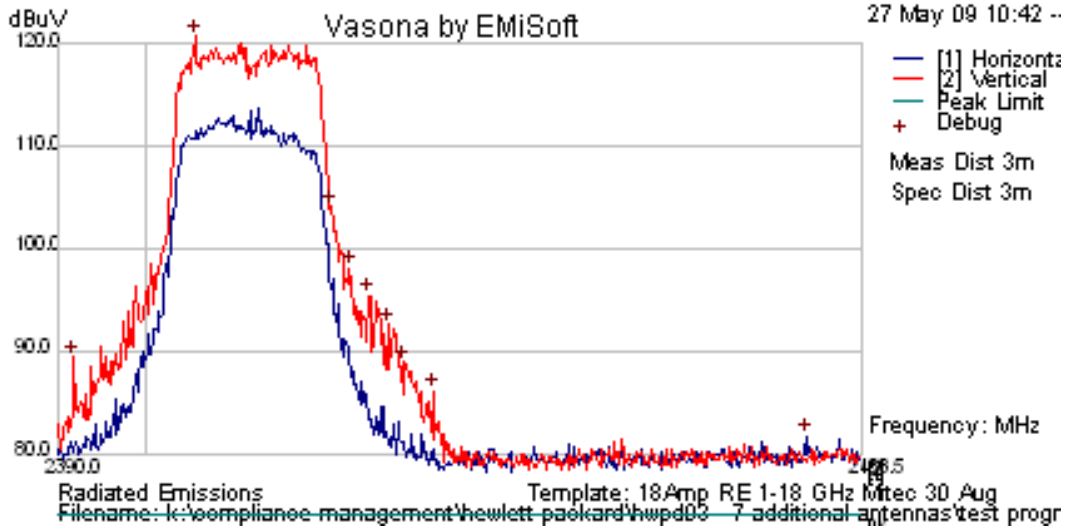


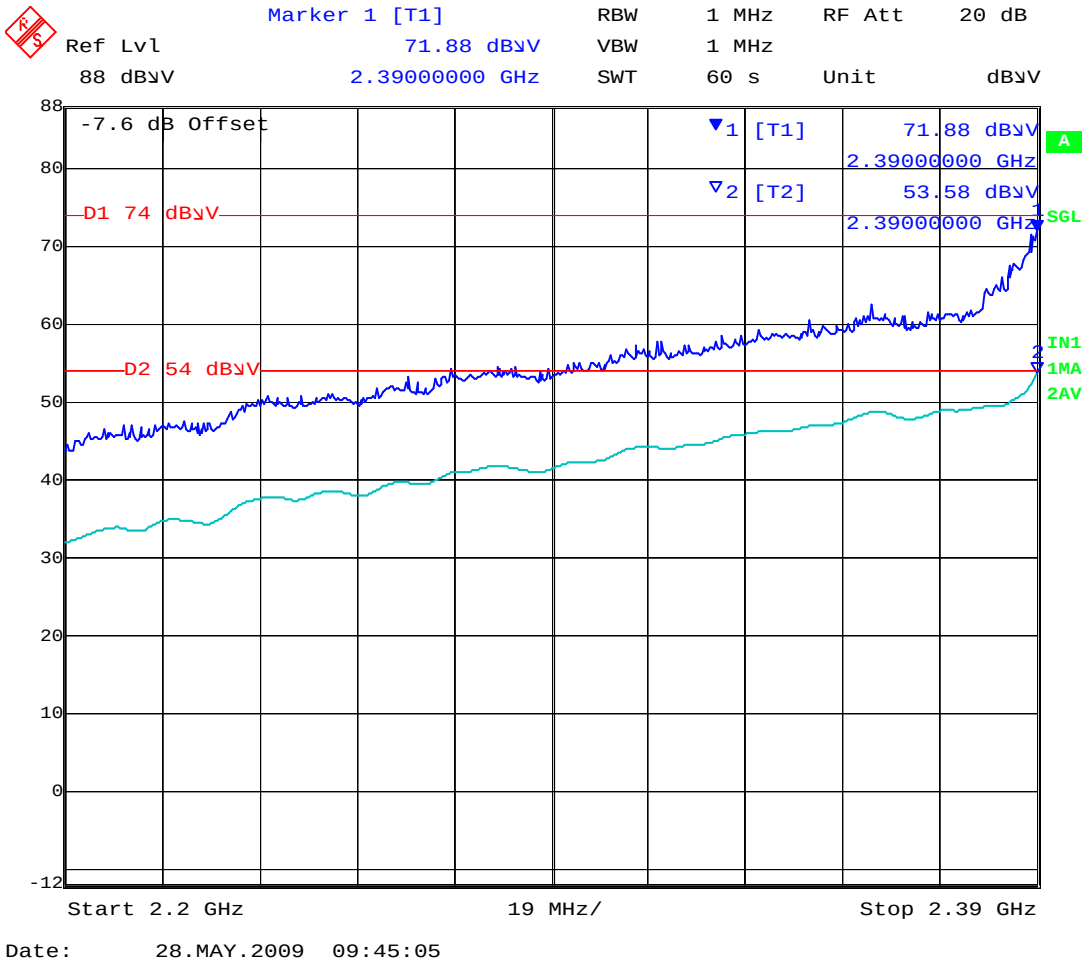
Date	26th May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2412
Antenna Model	J9169A Antenna / Gain = 8 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11g 6 Mb/s; MSM410 DNMA-83 Platform Radio



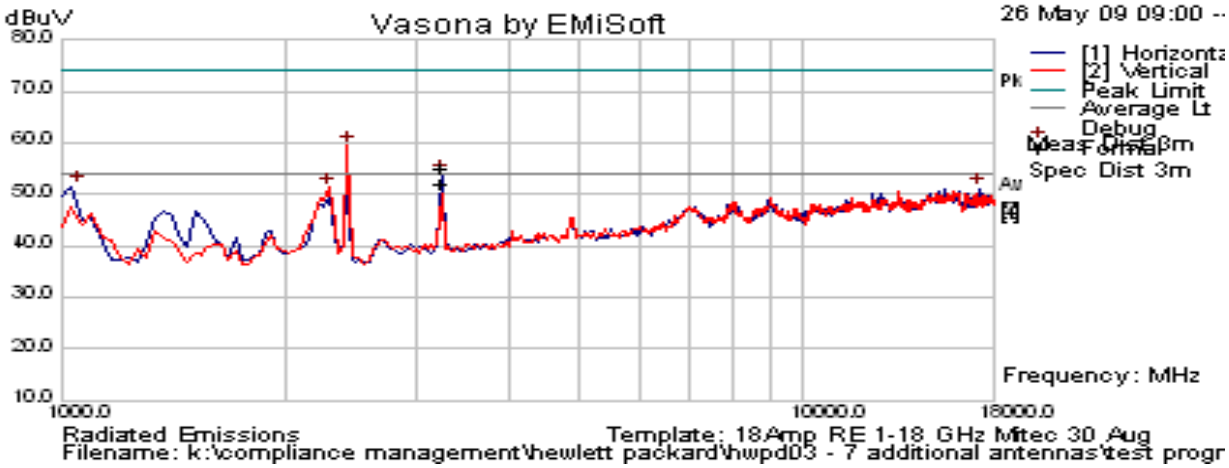
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2405.739	75.41	12.96	32.35	120.7	Peak [Scan]	V						
3216.023	62.36	3.48	-11.08	54.76	Peak Max	V	130	21	74	-19.24	Pass	NRB
3216.023	59.08	3.48	-11.08	51.48	Average Max	V	130	21	54	-2.52	Pass	NRB
1058.808	66.15	2.01	-15.65	52.51	Peak Max	H	154	129	74	-21.49	Pass	RB
1058.808	47.69	2.01	-15.65	34.05	Average Max	H	154	129	54	-19.95	Pass	RB
2247.295	60.65	2.88	-10.58	52.95	Peak [Scan]	H	100	0	54	-1.05	Pass	RB - BE
2390.0000	Power Setting = 13			71.88	Peak Max	V	--	--	74	-2.12	Pass	Band Edge
2390.0000				53.58	Average Max	V	--	--	54	-0.42	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



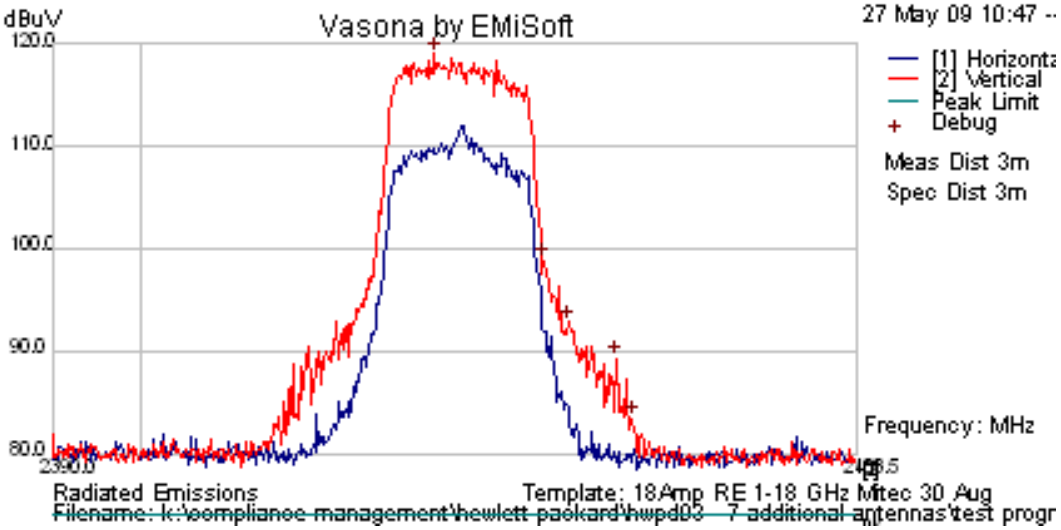


Date	26th May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2437
Antenna Model	J9169A Antenna / Gain = 8 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11g 6 Mb/s; MSM410 DNMA-83 Platform Radio

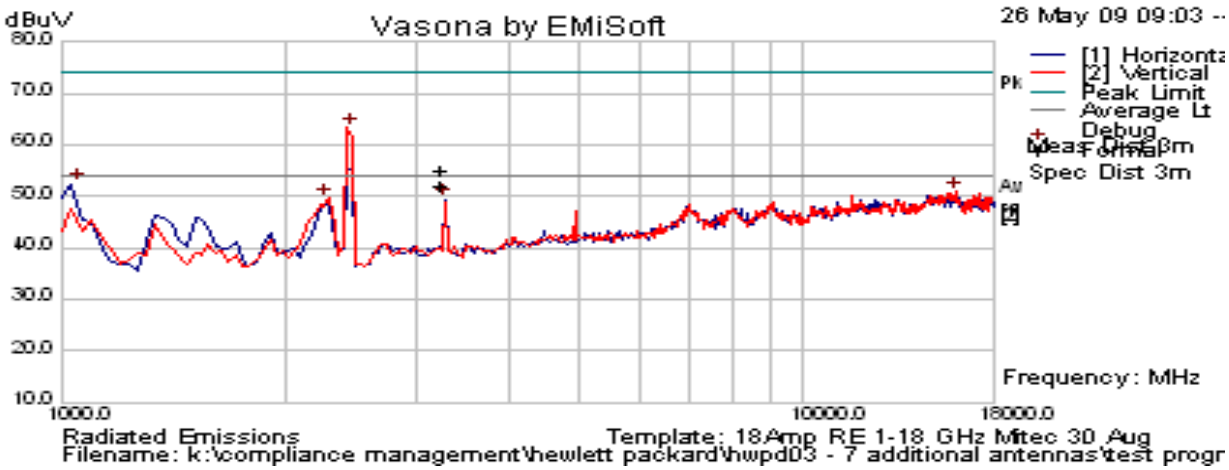


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2434.033	73.68	12.97	32.36	119	Peak [Scan]	V						
3249.303	62.78	3.49	-11.14	55.14	Peak Max	H	100	360	74	-18.86	Pass	NRB
3249.303	59.7	3.49	-11.14	52.06	Average Max	V	129	12	54	-1.94	Pass	NRB
1058.808	66.15	2.01	-15.65	52.51	Peak Max	H	154	129	74	-21.49	Pass	RB
1058.808	47.69	2.01	-15.65	34.05	Average Max	H	154	129	54	-19.95	Pass	RB
2286.092	58.91	2.9	-10.56	51.25	Peak [Scan]	V	100	0	54	-2.75	Pass	RB-BE

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

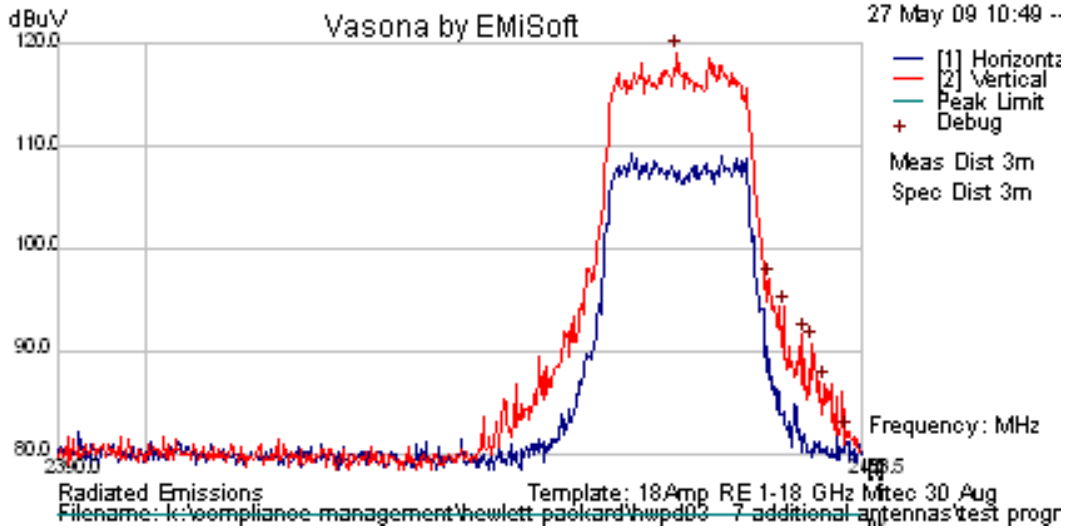

dBuV
Vasona by EMiSoft
27 May 09 10:47 --
120.0
110.0
100.0
90.0
80.0
[1] Horizonta
[2] Vertical
Peak Limit
Debug
Meas Dist 3m
Spec Dist 3m
Frequency: MHz
Radiated Emissions
Template: 18Amp RE 1-18 GHz Mitec 30 Aug
Filename: k:\compliance management\hewlett packard\hwpd03 7 additional antennas\test progr

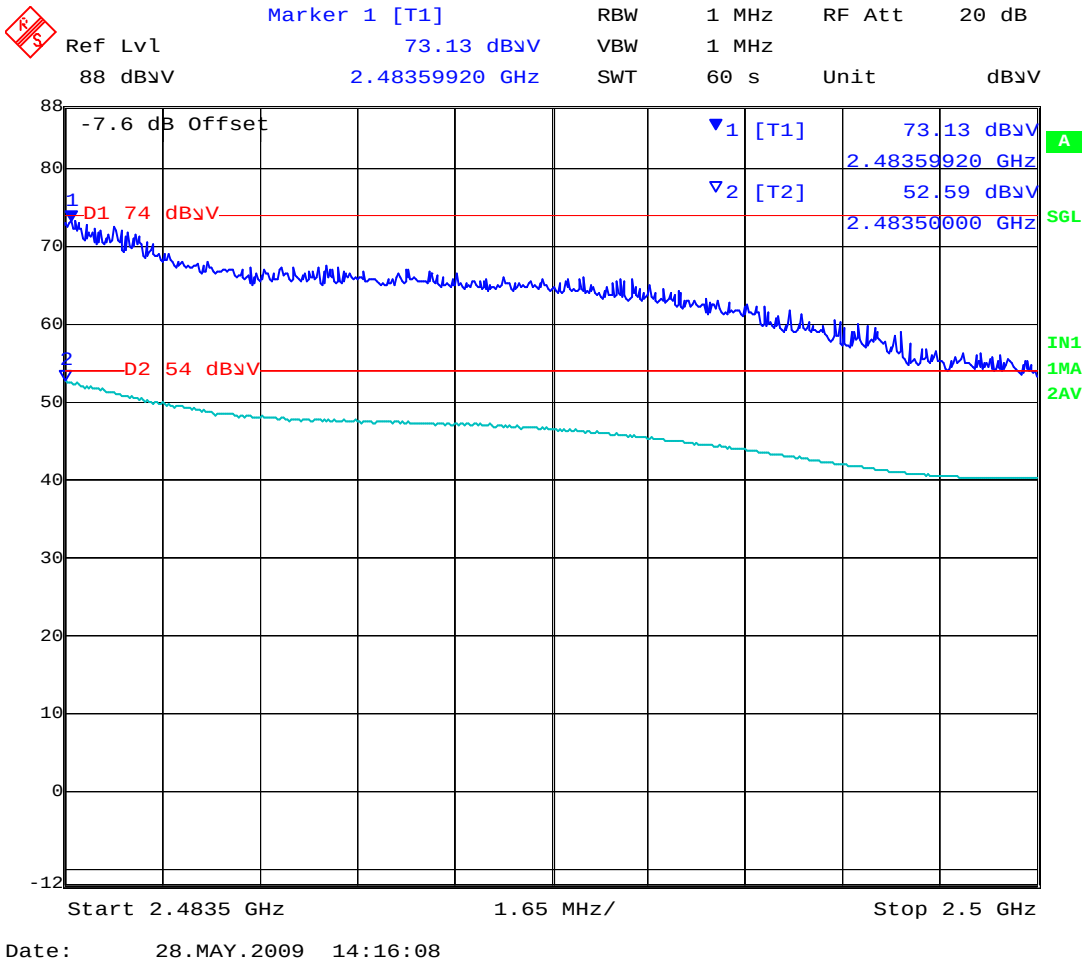
Date	26th May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2462
Antenna Model	J9169A Antenna / Gain = 8 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11g 6 Mb/s; MSM410 DNMA-83 Platform Radio



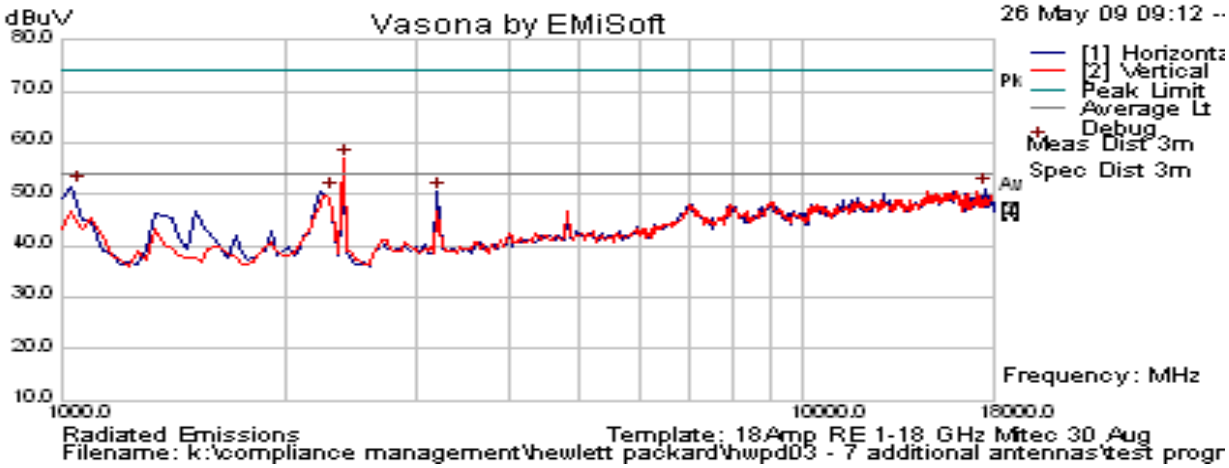
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2461.765	73.86	12.98	32.38	119.2	Peak [Scan]	V						
3282.702	56.98	3.51	-11.08	49.4	Peak	H	100	0	54	-4.6	Pass	NRB
1058.808	66.15	2.01	-15.65	52.51	Peak Max	H	154	129	74	-21.49	Pass	RB
1058.808	47.69	2.01	-15.65	34.05	Average Max	H	154	129	54	-19.95	Pass	RB
2269.419	57.24	2.89	-10.57	49.56	Peak [Scan]	V	100	0	54	-4.44	Pass	RB-BE
2483.5992	Power Setting = 15			73.13	Peak Max	V	--	--	74	-0.87	Pass	Band Edge
2483.5000				52.59	Average Max	V	--	--	54	-1.41	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



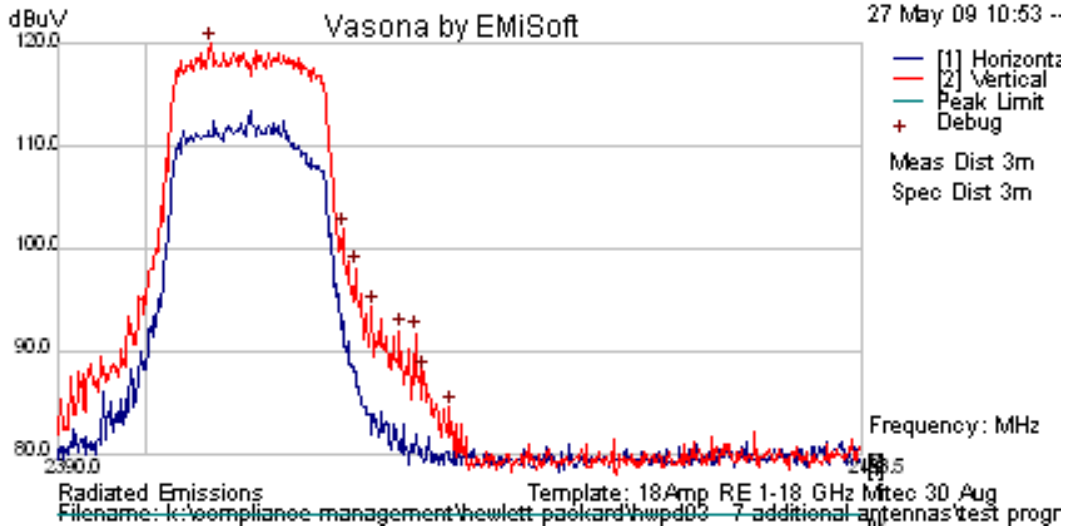


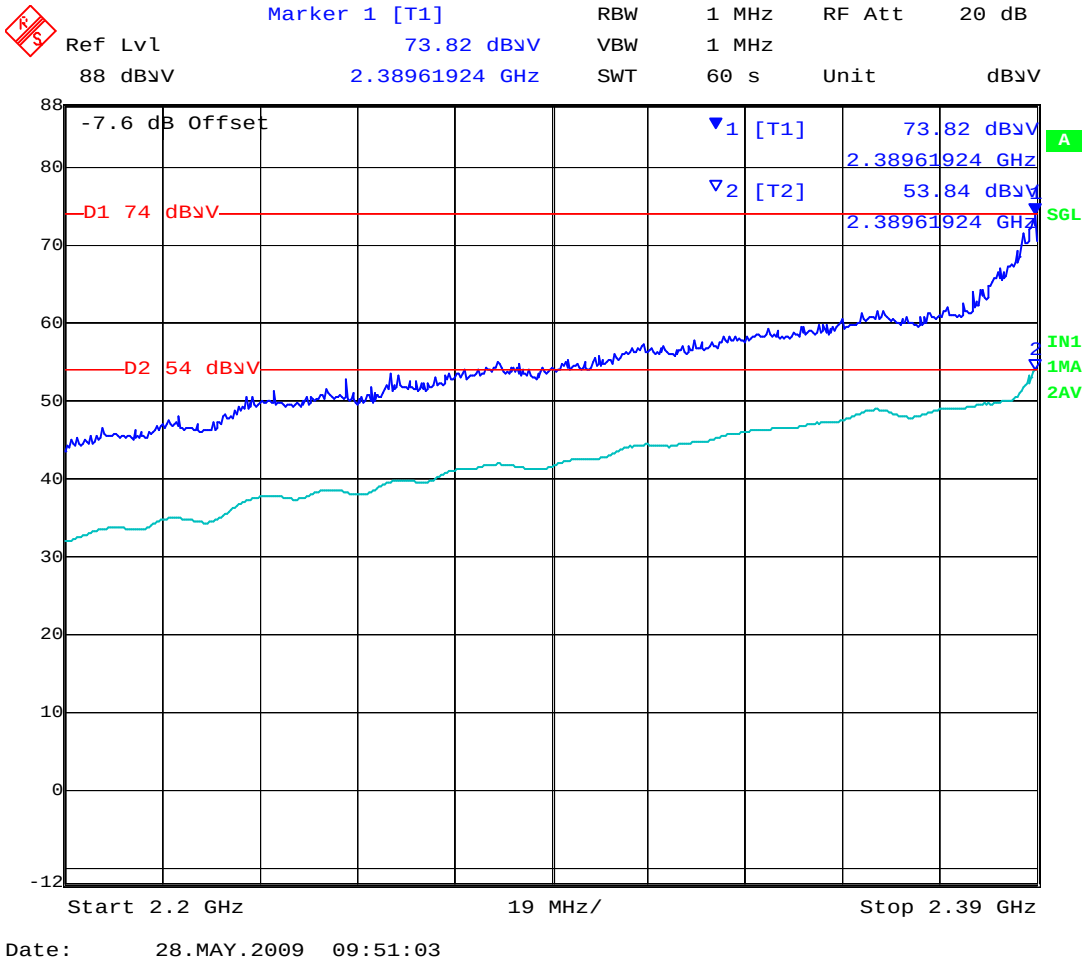
Date	26th May, 2009
Engineer	CSB
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2412
Antenna Model	J9169A Antenna / Gain = 8 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11 HT-20 6.5 MCS MSM410 DNMA-83 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2407.613	74.73	12.96	32.35	120	Peak [Scan]	V						
1058.808	66.15	2.01	-15.65	52.51	Peak Max	H	154	129	74	-21.49	Pass	RB
1058.808	47.69	2.01	-15.65	34.05	Average Max	H	154	129	54	-19.95	Pass	RB
3216.156	57.99	3.48	-11.08	50.39	Peak [Scan]	H	100	0	54	-3.61	Pass	NRB
2306.934	57.99	2.91	-10.52	50.38	Peak [Scan]	H	100	0	54	-3.62	Pass	NRB - BE
2390.0000	Power Setting = 17.0			73.82	Peak Max	V	--	--	74	-0.18	Pass	Band Edge
2390.0000				53.84	Average Max	V	--	--	54	-0.16	Pass	Band Edge

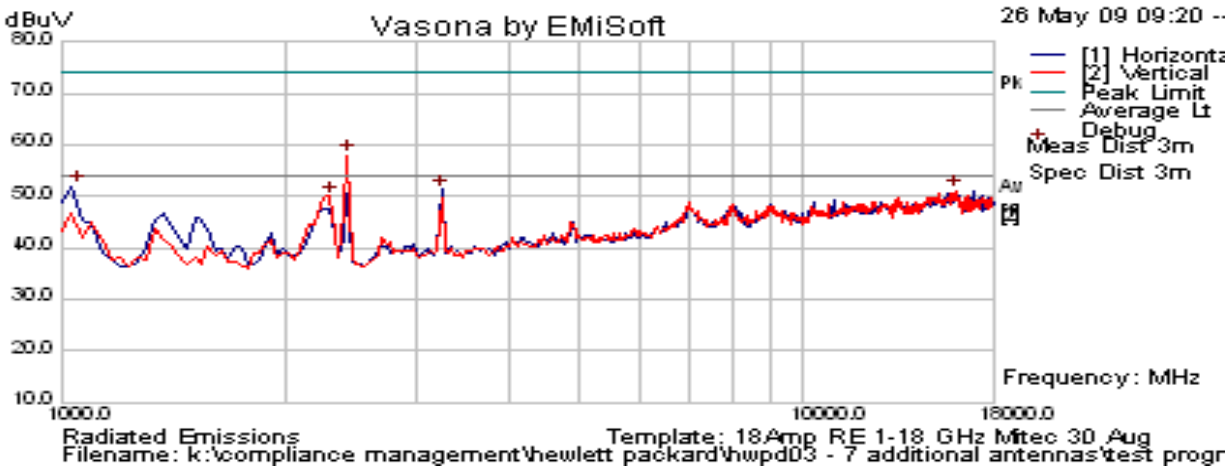
Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band





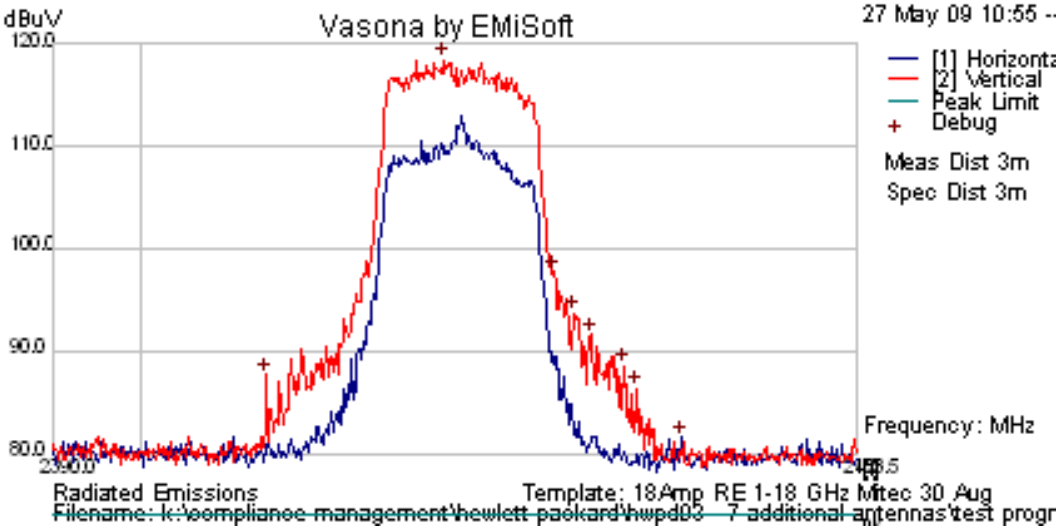
Date: 28.MAY.2009 09:51:03

Date	26th May, 2009
Engineer	CSB
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2437
Antenna Model	J9169A Antenna / Gain = 8 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11 HT-20 6.5 MCS MSM410 DNMA-83 Platform Radio

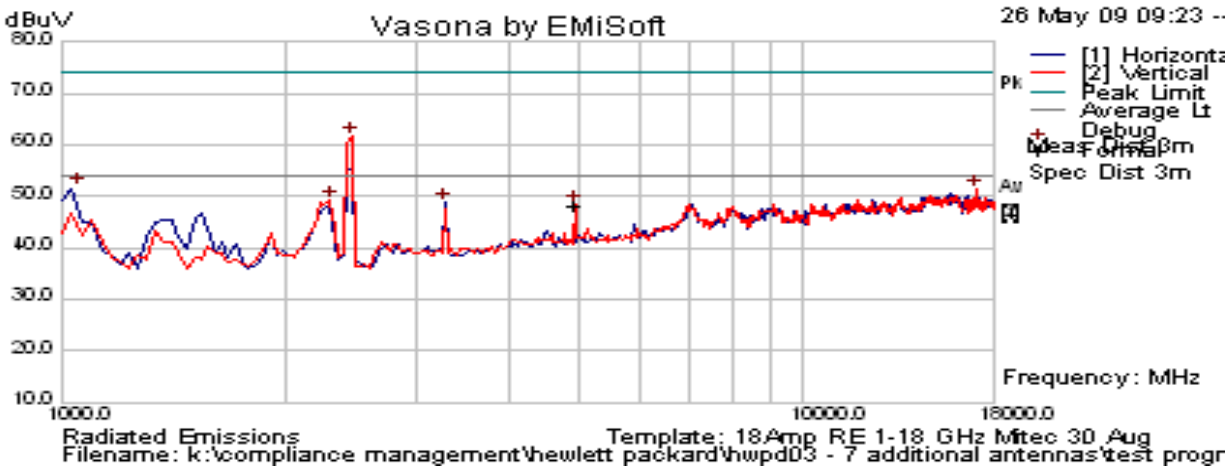


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2434.97	73.12	12.97	32.36	118.5	Peak [Scan]	V						
1058.808	66.15	2.01	-15.65	52.51	Peak Max	H	154	129	74	-21.49	Pass	RB
1058.808	47.69	2.01	-15.65	34.05	Average Max	H	154	129	54	-19.95	Pass	RB
3249.39	58.88	3.49	-11.14	51.24	Peak [Scan]	H	100	0	54	-2.76	Pass	NRB
2307.495	57.57	2.91	-10.52	49.96	Peak [Scan]	V	100	0	54	-4.04	Pass	NRB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

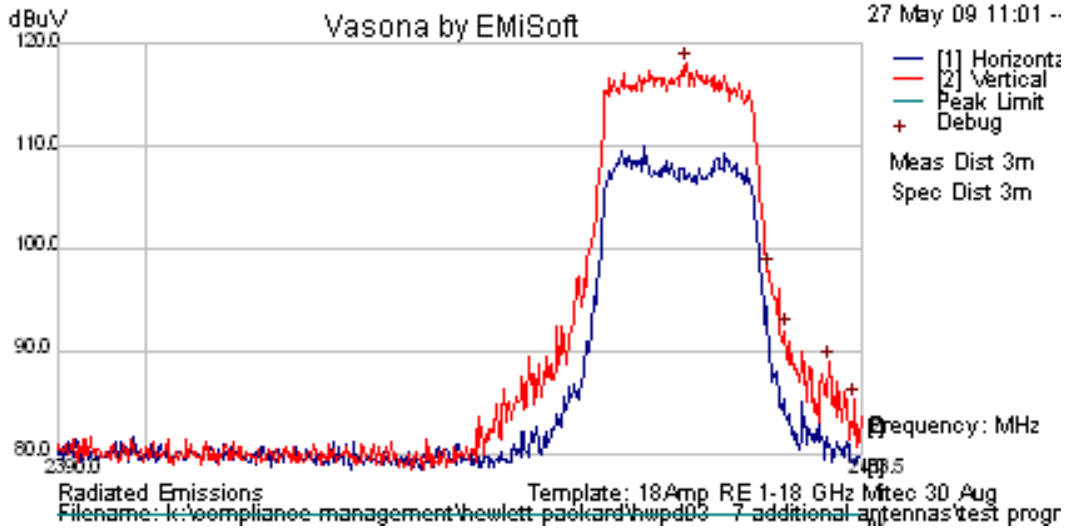

dBuV
Vasona by EMiSoft
27 May 09 10:55
[1] Horizonta
[2] Vertical
Peak Limit
Debug
Meas Dist 3m
Spec Dist 3m
120.0
110.0
100.0
90.0
80.0
Frequency: MHz
Radiated Emissions
Template: 18Amp RE 1-18 GHz Mitec 30 Aug
Filename: k:\compliance management\hewlett packard\hwpd03 7 additional antennas\test progr

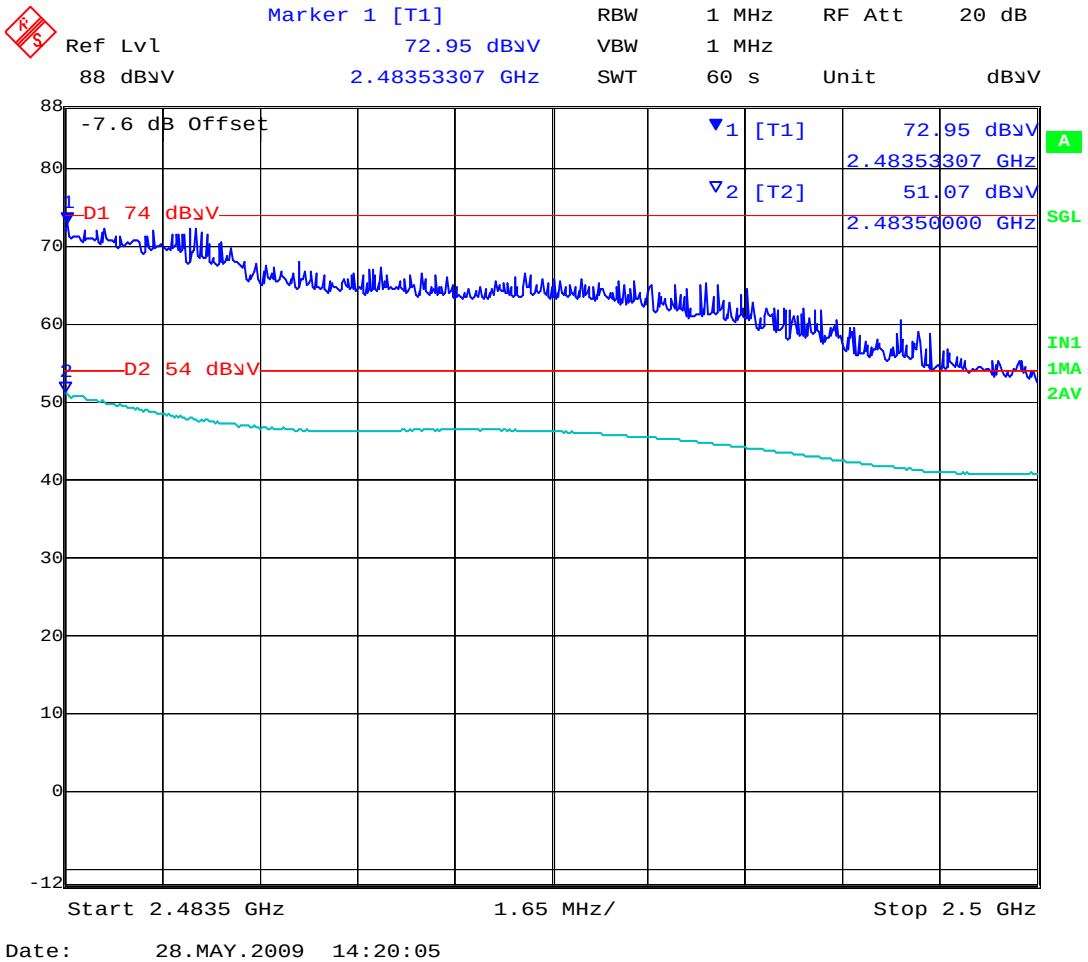
Date	26th May, 2009
Engineer	CSB
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2462
Antenna Model	J9169A Antenna / Gain = 8 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11 HT-20 6.5 MCS MSM410 DNMA-83 Platform Radio



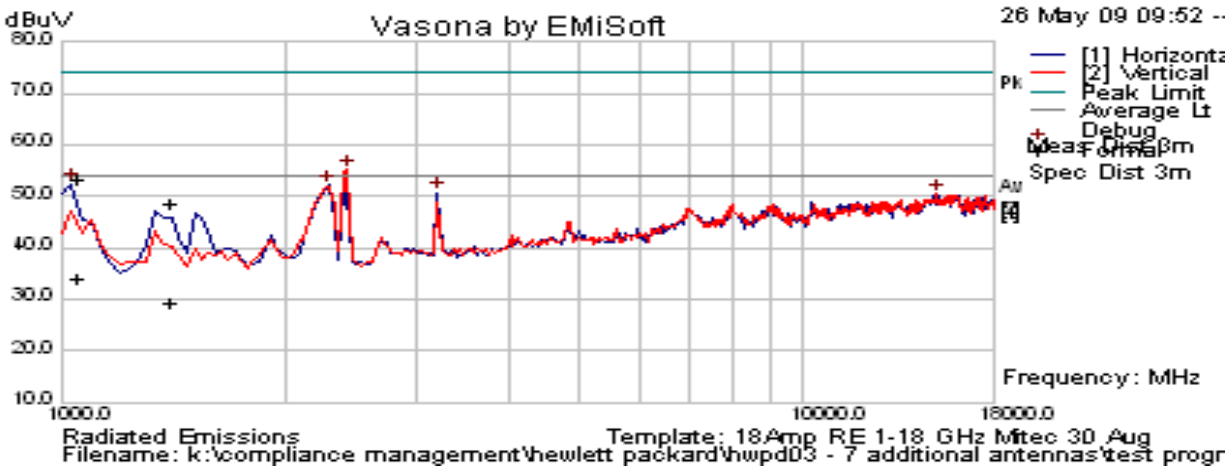
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2462.889	72.76	12.98	32.38	118.1	Peak [Scan]	V						
4933.699	53.5	4.56	-8.77	49.3	Peak Max	V	101	21	74	-24.7	Pass	RB
4933.699	38.29	4.56	-8.77	34.09	Average Max	V	101	21	54	-19.91	Pass	RB
1058.808	66.15	2.01	-15.65	52.51	Peak Max	H	154	129	74	-21.49	Pass	RB
1058.808	47.69	2.01	-15.65	34.05	Average Max	H	154	129	54	-19.95	Pass	RB
3282.694	56.45	3.51	-11.08	48.87	Peak [Scan]	H	100	0	54	-5.13	Pass	NRB
2307.495	56.72	2.91	-10.52	49.11	Peak [Scan]	V	100	0	54	-4.89	Pass	NRB - BE
2483.5330	Power Setting = 16.5			72.95	Peak Max	V	--	--	74	-1.05	Pass	Band Edge
2483.5000				51.07	Average Max	V	--	--	54	-2.93	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



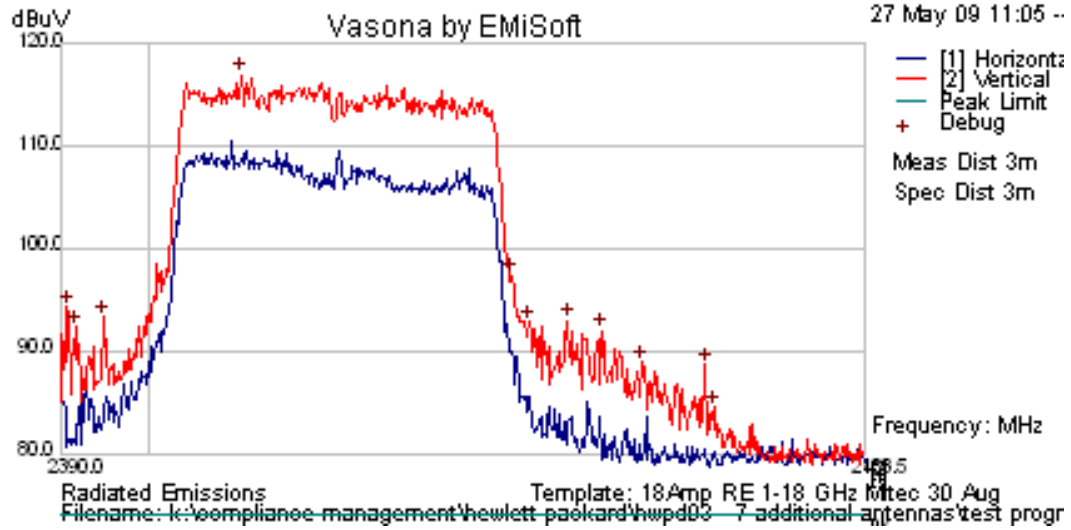


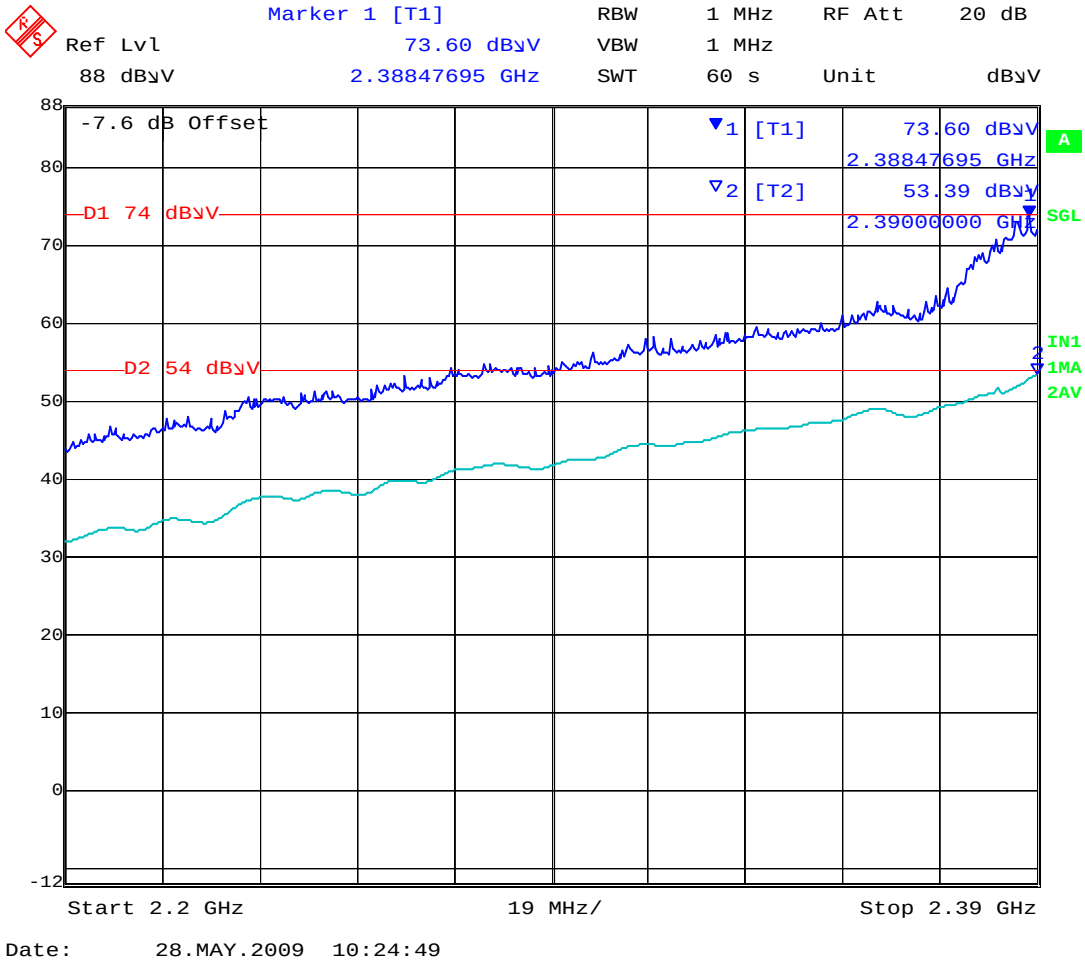
Date	26th May, 2009
Engineer	CSB
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2422
Antenna Model	J9169A Antenna / Gain = 8 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11 HT-40 13.5 MCS MSM410 DNMA-83 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2410.799	71.61	12.96	32.35	116.9	Peak [Scan]	V						
1057.833	47.56	2.01	-15.65	33.92	Average Max	H	143	136	54	-20.08	Pass	RB
1057.833	67.03	2.01	-15.65	53.39	Peak Max	H	143	136	74	-20.61	Pass	RB
1412.264	42.23	2.31	-15.03	29.51	Average Max	H	101	244	54	-24.49	Pass	RB
1412.264	61.53	2.31	-15.03	48.8	Peak Max	H	101	244	74	-25.2	Pass	RB
3229.346	58.31	3.49	-11.13	50.66	Peak [Scan]	H	100	0	54	-3.34	Pass	NRB
2308.938	59.76	2.91	-10.52	52.15	Peak [Scan]	H	100	0	54	-1.85	Pass	NRB-BE
2390.0000	Power Setting = 14			73.60	Peak Max	V	--	--	74	-0.40	Pass	Band Edge
2390.0000				53.39	Average Max	V	--	--	54	-0.61	Pass	Band Edge

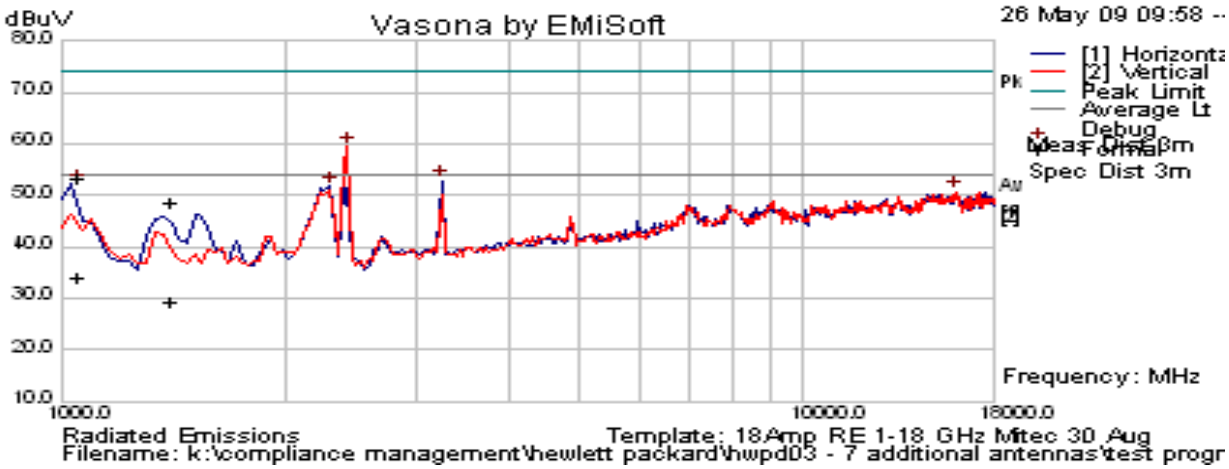
Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



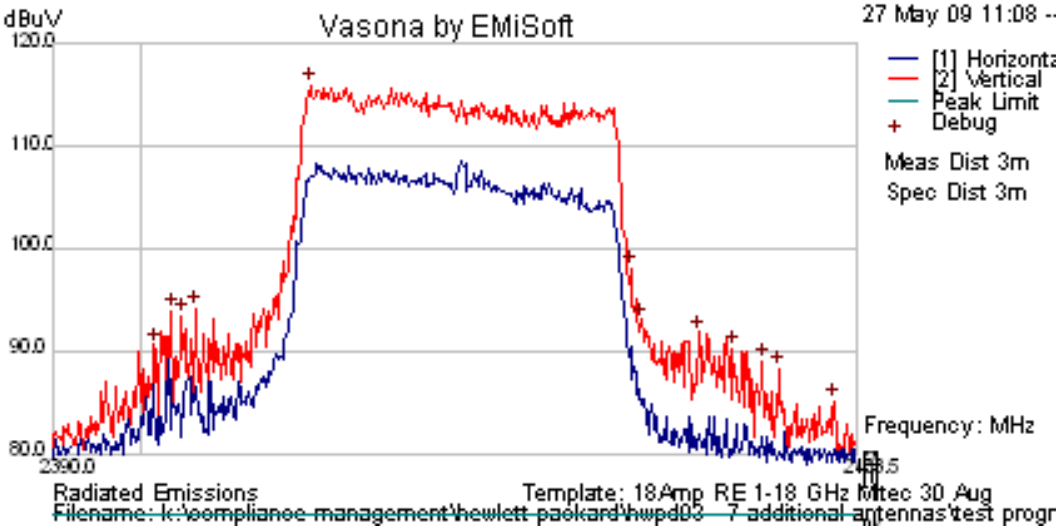


Date: 28.MAY.2009 10:24:49

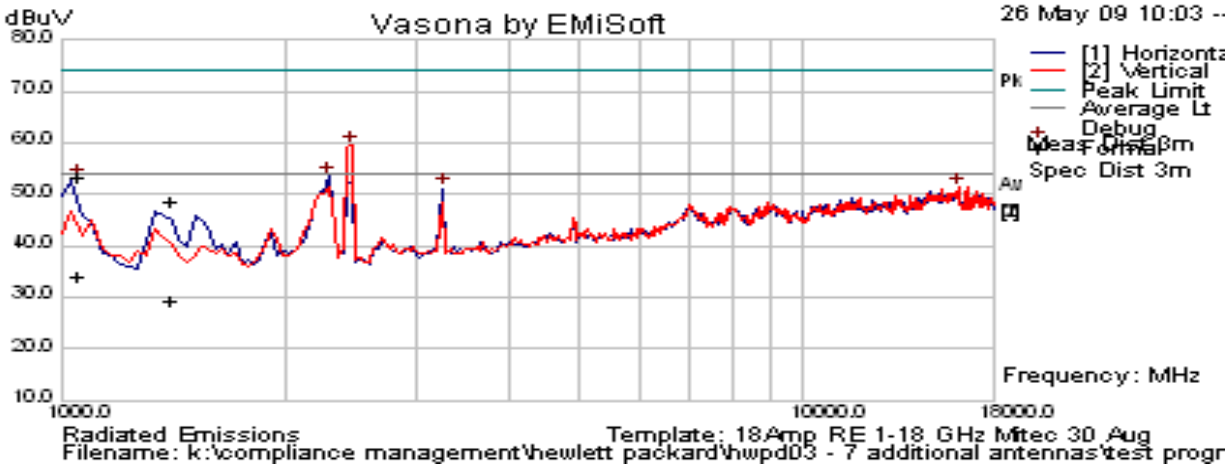
Date	26th May, 2009
Engineer	CSB Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions >
Test Case	1GHz
Frequency	2437
Antenna Model	J9169A Antenna / Gain = 8 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11 HT-40 13.5 MCS MSM410 DNMA-83 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2419.605	70.69	12.96	32.36	116	Peak [Scan]	V						
3249.335	60.38	3.49	-11.14	52.74	Peak [Scan]	H	100	0	54	-1.26	Pass	NRB
2310.22	59.41	2.91	-10.52	51.8	Peak [Scan]	H	100	0	54	-2.2	Pass	RB-BE
1058.808	66.15	2.01	-15.65	52.51	Peak Max	H	154	129	74	-21.49	Pass	RB
1058.808	47.69	2.01	-15.65	34.05	Average Max	H	154	129	54	-19.95	Pass	RB

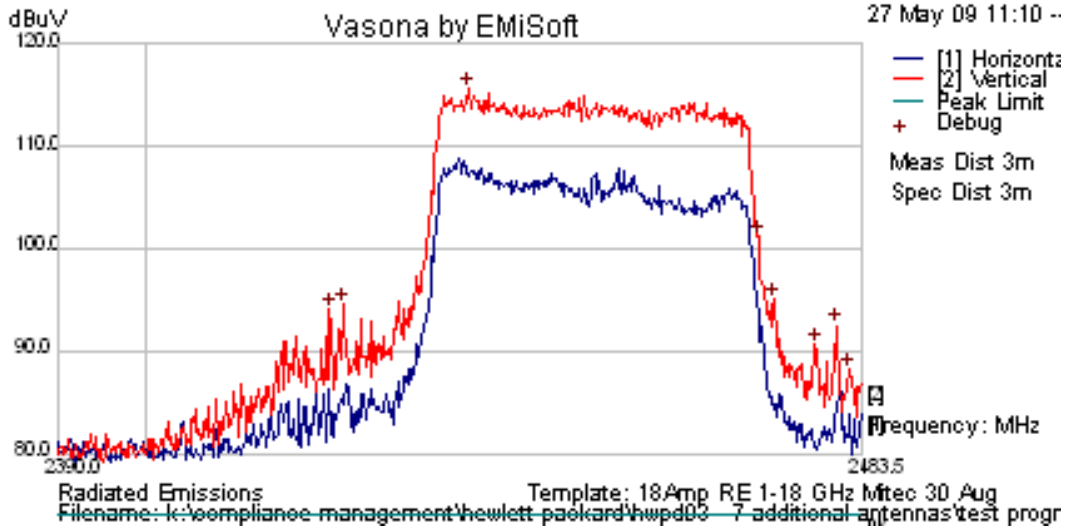

dBuV
Vasona by EMiSoft
27 May 09 11:08
120.0
110.0
100.0
90.0
80.0
2390.0
[1] Horizonta
[2] Vertical
Peak Limit
Debug
Meas Dist 3m
Spec Dist 3m
Frequency: MHz
Radiated Emissions
Template: 18Amp RE 1-18 GHz Mitec 30 Aug
Filename: k:\compliance management\hewlett packard\hwpd03 7 additional antennas\test progr

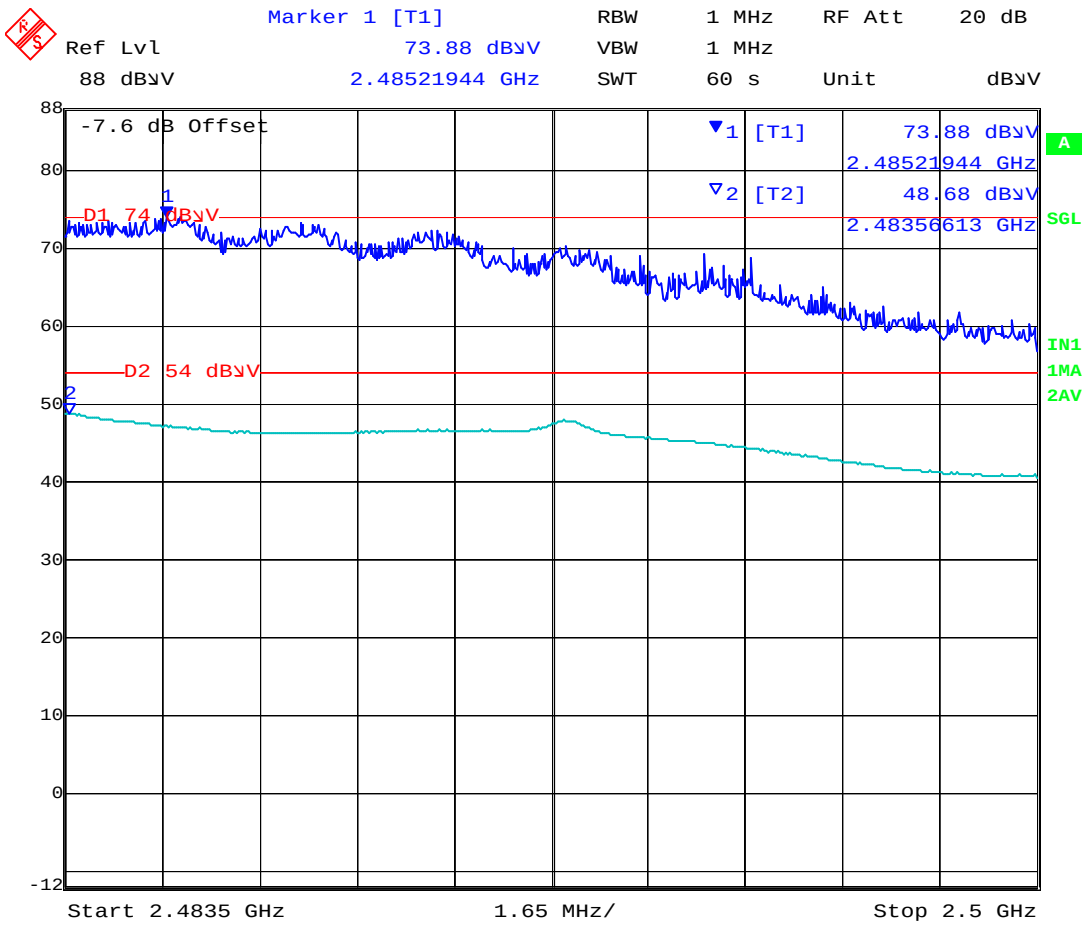
Date	26th May, 2009
Engineer	CSB
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2452
Antenna Model	J9169A Antenna / Gain = 8 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11 HT-40 13.5 MCS MSM410 DNMA-83 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2437.406	70.31	12.97	32.37	115.7	Peak [Scan]	V						
1058.808	66.15	2.01	-15.65	52.51	Peak Max	H	154	129	74	-21.49	Pass	RB
1058.808	47.69	2.01	-15.65	34.05	Average Max	H	154	129	54	-19.95	Pass	RB
3269.366	58.63	3.5	-11.1	51.03	Peak [Scan]	H	100	0	54	-2.97	Pass	NRB
2283.928	61.08	2.9	-10.56	53.42	Peak [Scan]	H	100	0	54	-0.58	Pass	RB-BE
2483.5992	Power Setting = 14			73.88	Peak Max	V	--	--	74	-0.12	Pass	Band Edge
2483.5000				48.68	Average Max	V	--	--	54	-5.32	Pass	Band Edge

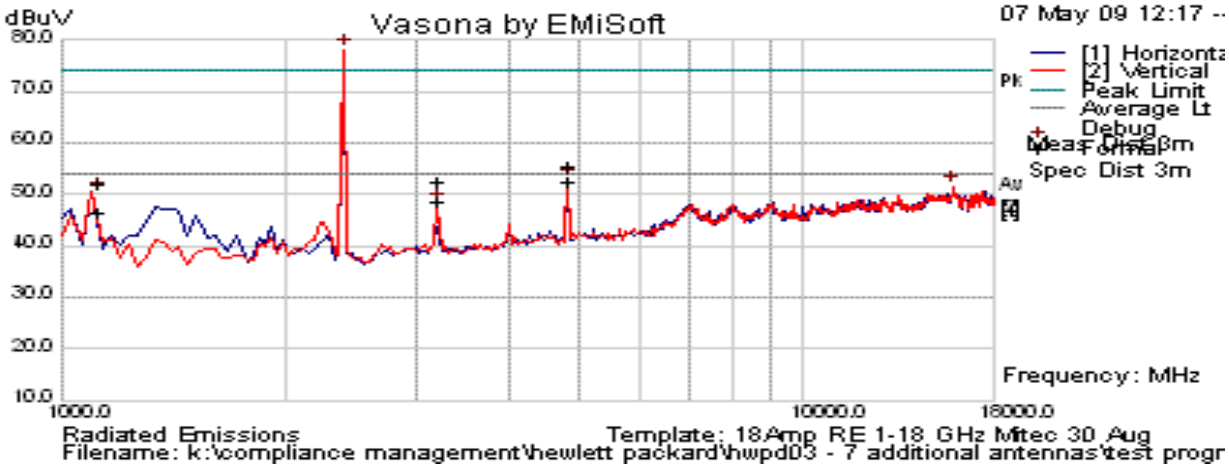
Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band





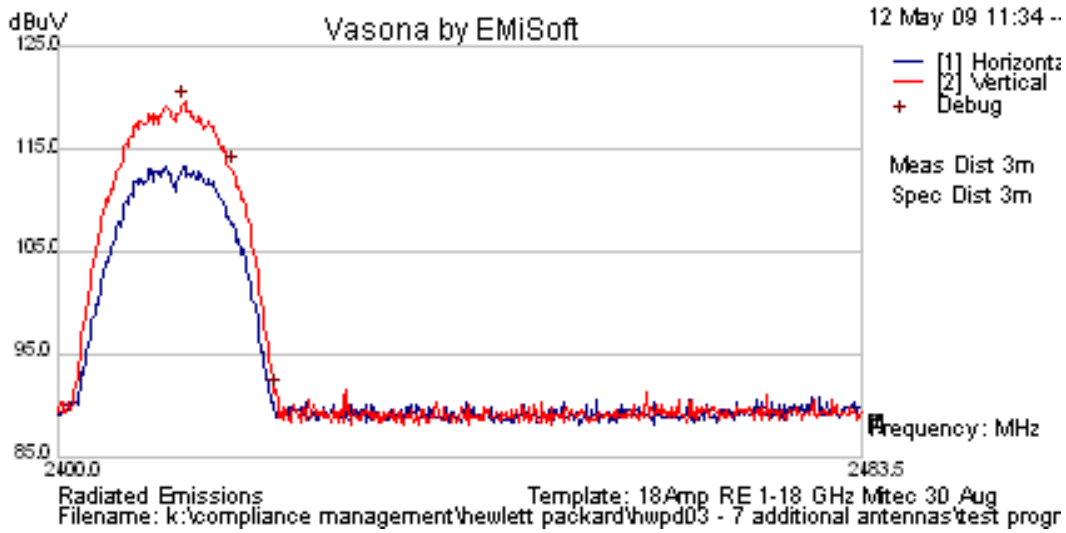
ANTENNA J9170A Radiated Emissions in the 2,400 – 2,483.5 MHz Band

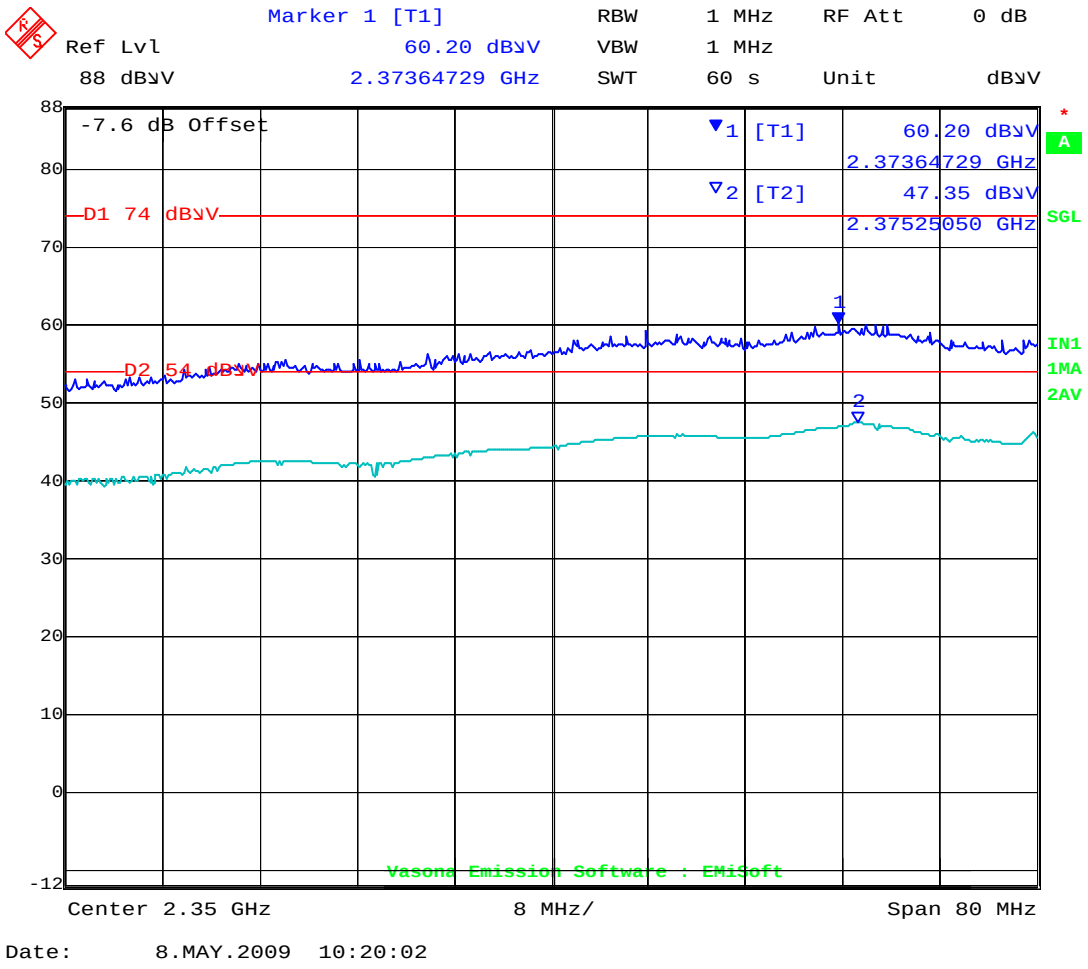
Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2412
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	17.5 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11b 1 Mb/s; CH1 MSM410 Platform Radio 1



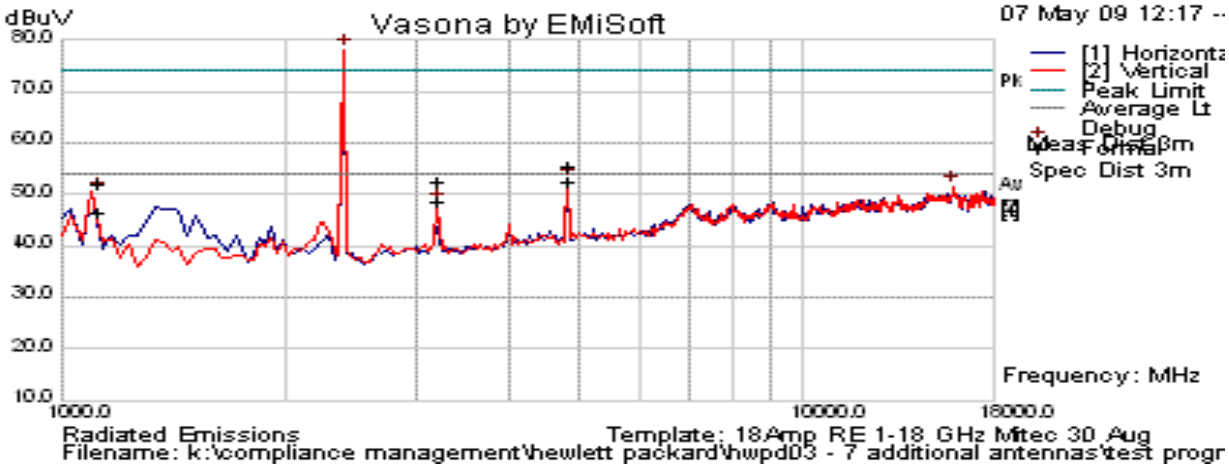
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2412.922	74.27	12.96	32.35	119.6	Peak [Scan]	V						
1125.05	59.86	2.07	-15.52	46.42	Average Max	V	107	77	54	-7.58	Pass	RB
1125.05	65.51	2.07	-15.52	52.07	Peak Max	V	107	77	74	-21.93	Pass	RB
3216.038	56.39	3.48	-11.08	48.79	Average Max	V	98	353	54	-5.21	Pass	NRB
3216.038	60.28	3.48	-11.08	52.68	Peak Max	V	98	353	74	-21.32	Pass	NRB
4824.011	56.9	4.47	-8.75	52.62	Average Max	V	105	0	54	-1.38	Pass	RB
4824.011	59.63	4.47	-8.75	55.36	Peak Max	V	105	0	74	-18.64	Pass	RB
2390.0000	Power Setting = 17.5			60.20	Peak Max	V	--	--	74	-13.80	Pass	Band Edge
2390.0000				47.35	Average Max	V	--	--	54	-6.65	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



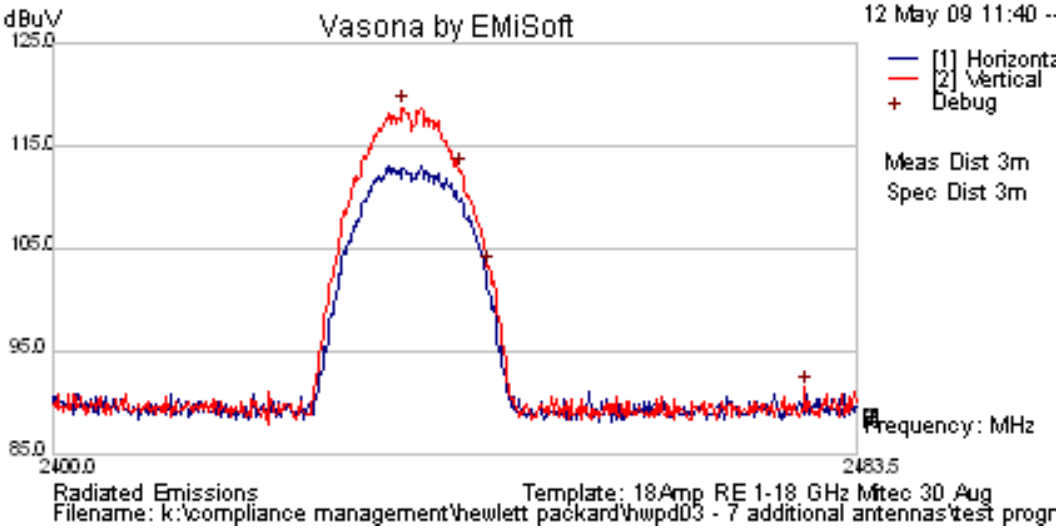


Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2437
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	17 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11b 1 Mb/s; CH6 MSM410 Platform Radio 1

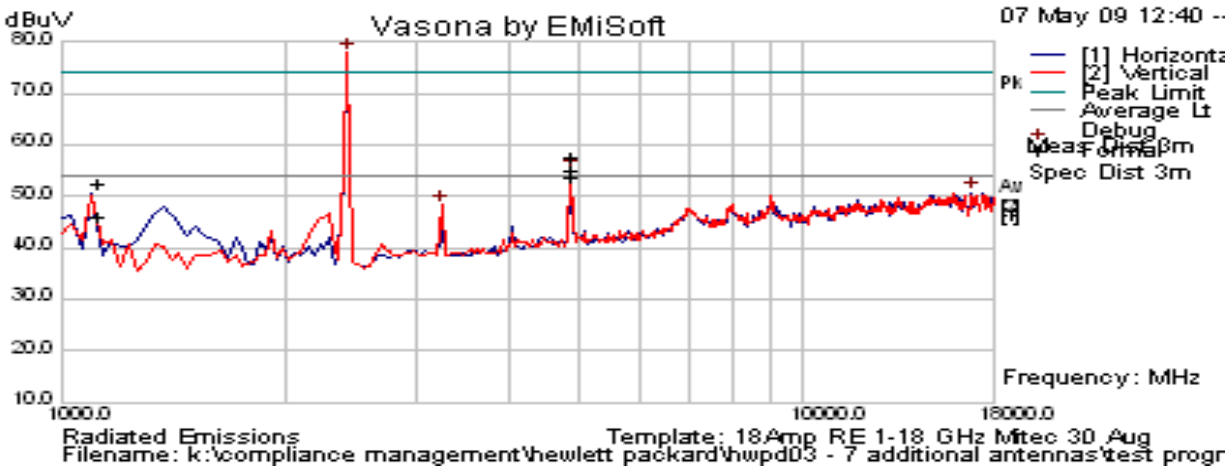


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2436.101	73.47	12.97	32.37	118.8	Peak [Scan]	V						
1124.9888	59.31	2.07	-15.52	45.87	Average Max	V	98	12	54	-8.13	Pass	RB
1124.9888	66.03	2.07	-15.52	52.58	Peak Max	V	98	12	74	-21.42	Pass	RB
4874.005	61.94	4.51	-8.75	57.7	Peak Max	V	98	6	74	-16.3	Pass	RB
4874.0601	58.05	4.51	-8.75	53.81	Average	V	101	6	54	-0.19	Pass	RB
3249.4	55.88	3.49	-11.14	48.24	Peak [Scan]	V	100	0	54	-5.76	Pass	NRB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

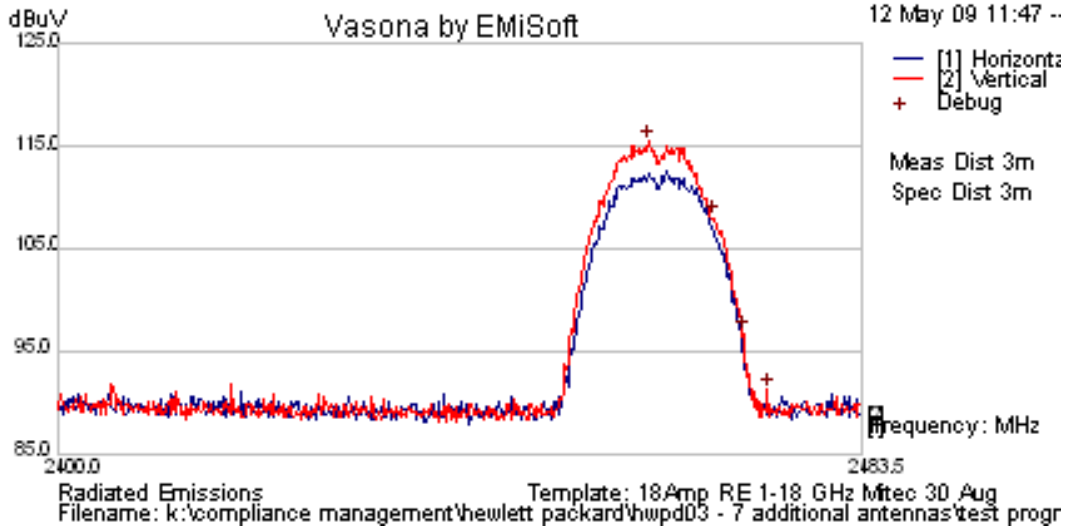


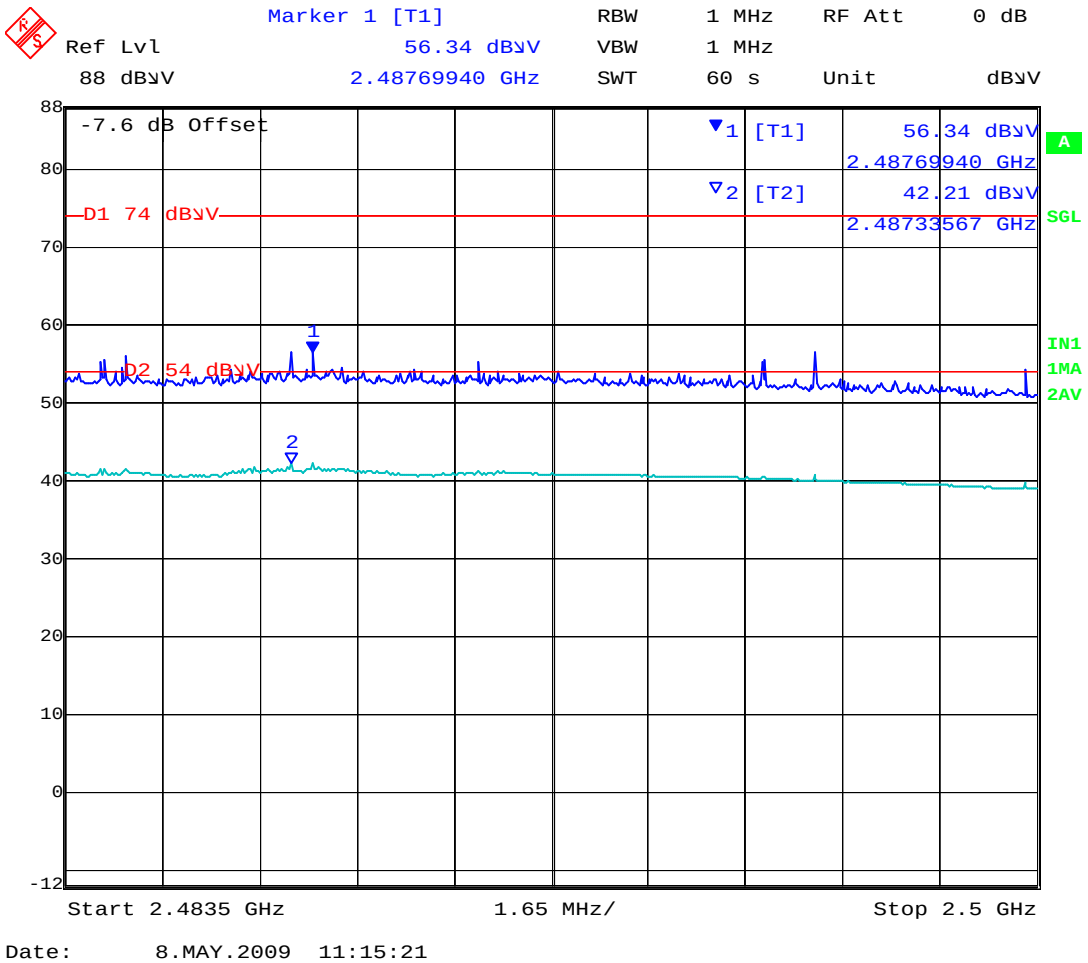
Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2462
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	15 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11b 1 Mb/s; CH11 MSM410 Platform Radio 1



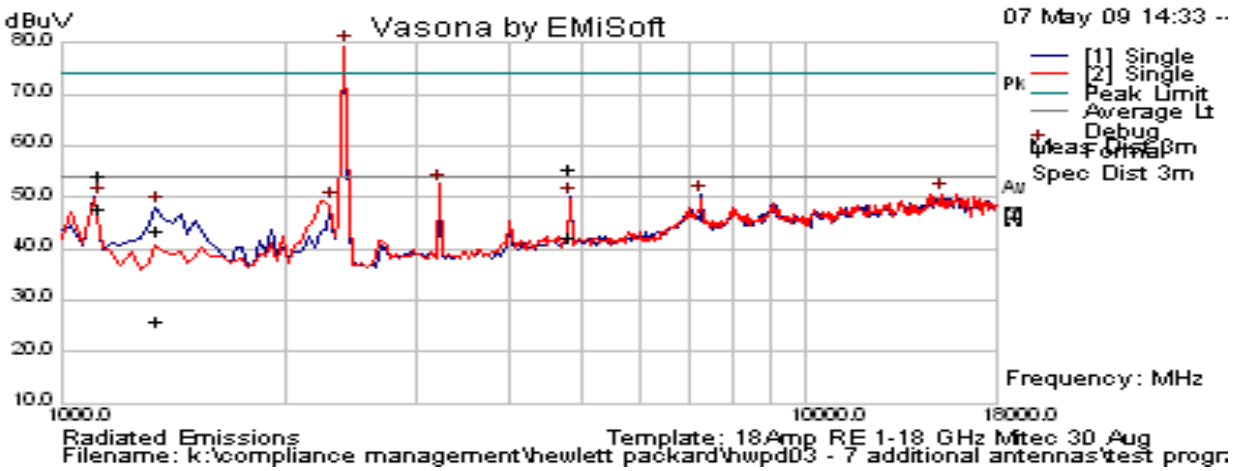
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2462.991	70.08	12.98	32.38	115.4	Peak [Scan]	V						
1124.9888	59.31	2.07	-15.52	45.87	Average Max	V	98	12	54	-8.13	Pass	RB
1124.9888	66.03	2.07	-15.52	52.58	Peak Max	V	98	12	74	-21.42	Pass	RB
4924.0211	64.61	4.55	-8.76	60.41	Peak Max	V	101	3	74	-13.59	Pass	RB
4924.021	58.08	4.55	-8.76	53.88	Average	V	101	3	54	-0.12	Pass	RB
3282.729	56.6	3.51	-11.08	49.02	Peak [Scan]	V	100	0	54	-4.98	Pass	NRB
2490.97295	Power Setting = 18			56.34	Peak Max	V	--	--	74	-17.66	Pass	Band Edge
2491.23747				42.21	Average Max	V	--	--	54	-11.79	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



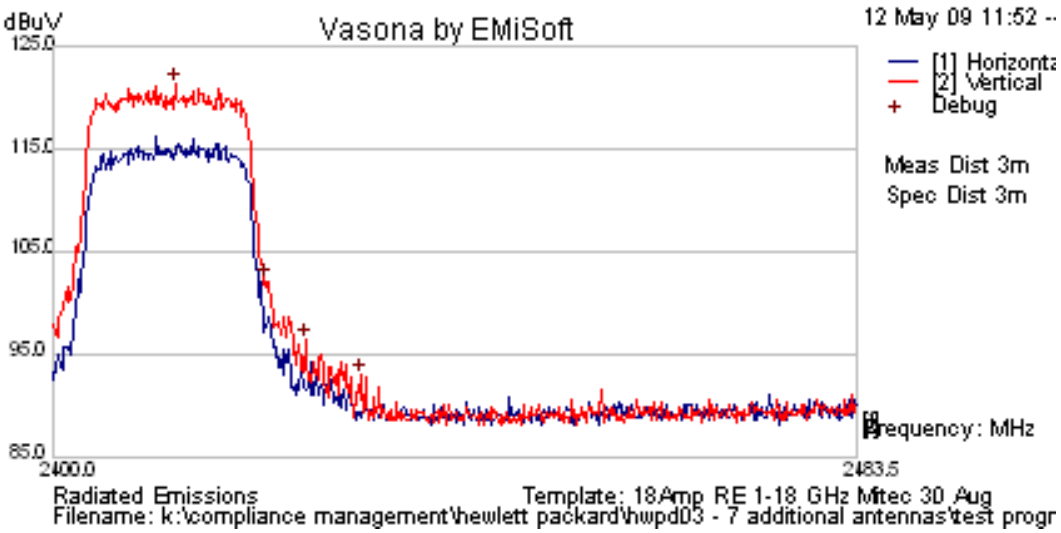


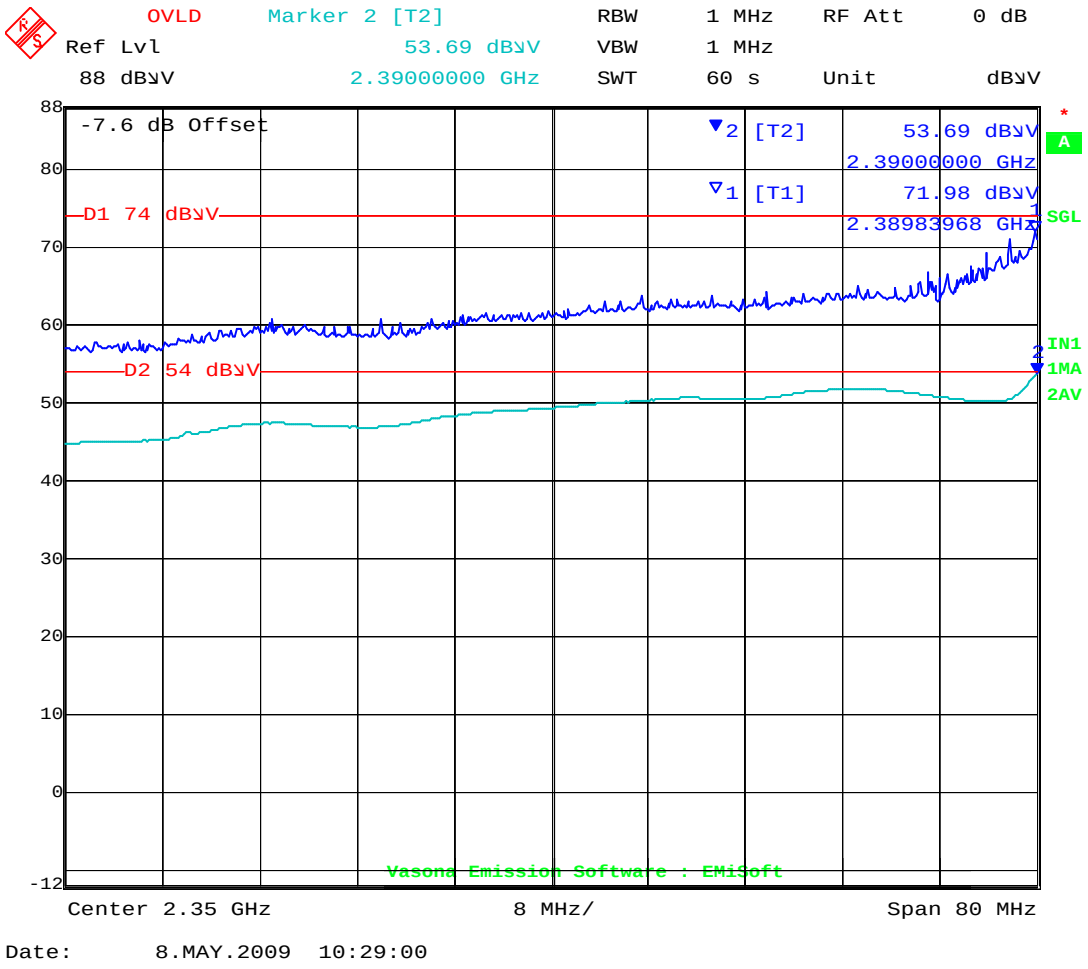
Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2412
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	18 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11g 6 Mb/s; CH1 MSM410 Platform Radio 1



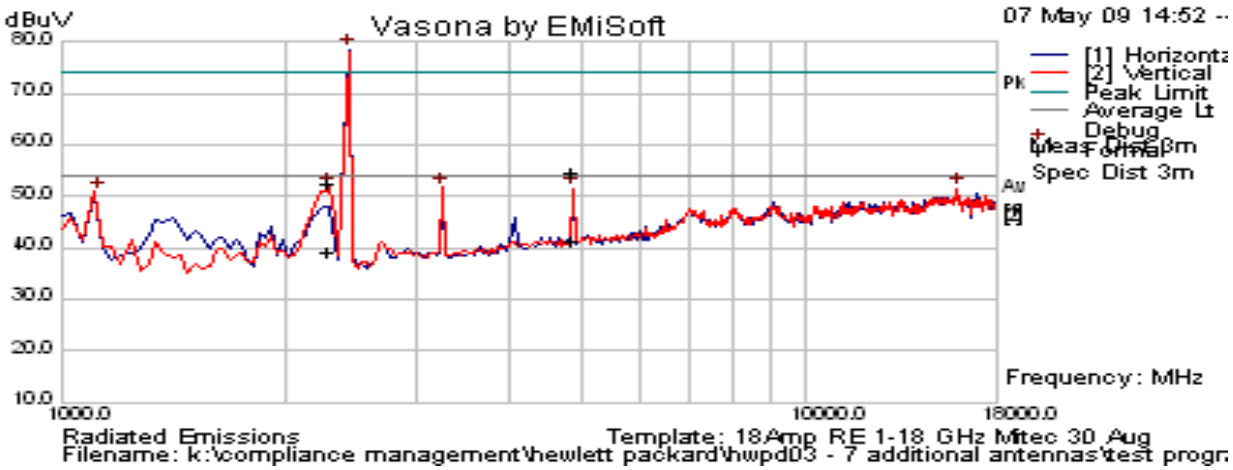
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2412.861	76.04	13	32.35	121.4	Peak [Scan]	V						
1125.043	67.77	2.07	-15.52	54.33	Peak Max	V	98	102	74	-19.67	Pass	RB
4823.599	59.75	4.47	-8.74	55.48	Peak Max	H	98	105	74	-18.52	Pass	RB
1348.881	56.41	2.26	-15.13	43.54	Peak Max	H	114	73	74	-30.46	Pass	RB
1125.043	61.37	2.07	-15.52	47.93	Average Max	V	98	102	54	-6.07	Pass	RB
4823.599	46.5	4.47	-8.74	42.23	Average Max	H	98	105	54	-11.77	Pass	RB
1348.881	38.8	2.26	-15.13	25.92	Average Max	H	114	73	54	-28.08	Pass	RB
3215.997	60.13	3.48	-11.08	52.53	Peak [Scan]	V	100	0	54	-1.47	Pass	NRB
7234.469	47.37	5.43	-2.46	50.35	Peak [Scan]	H	100	0	54	-3.65	Pass	NRB
2305.651	56.77	2.91	-10.53	49.15	Peak [Scan]	V	100	0	54	-4.85	Pass	NRB
2390.0000	Power Setting = 15			71.98	Peak Max	V	--	--	74	-2.02	Pass	Band Edge
2390.0000				53.69	Average Max	V	--	--	54	-0.31	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



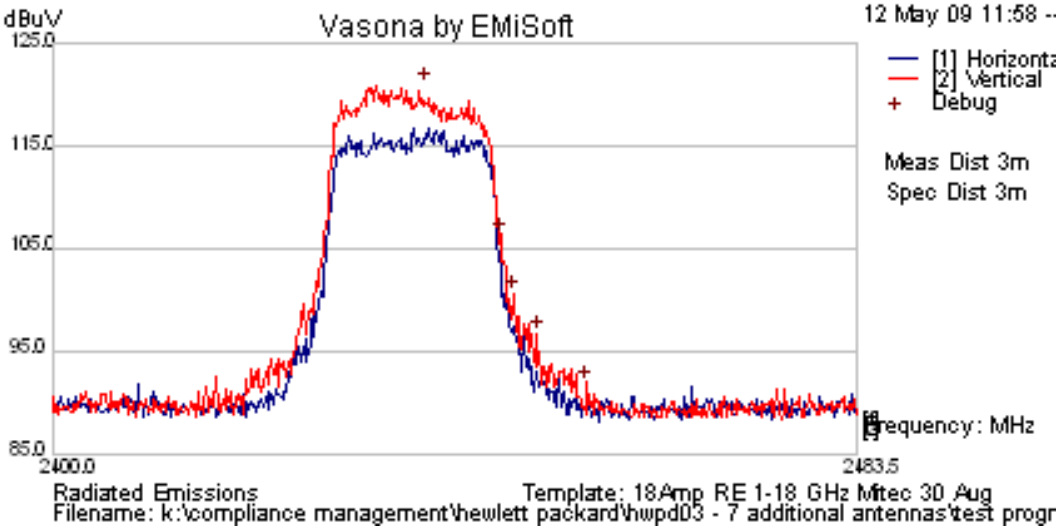


Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2437
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	18 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11g 6 Mb/s; CH6 MSM410 Platform Radio 1

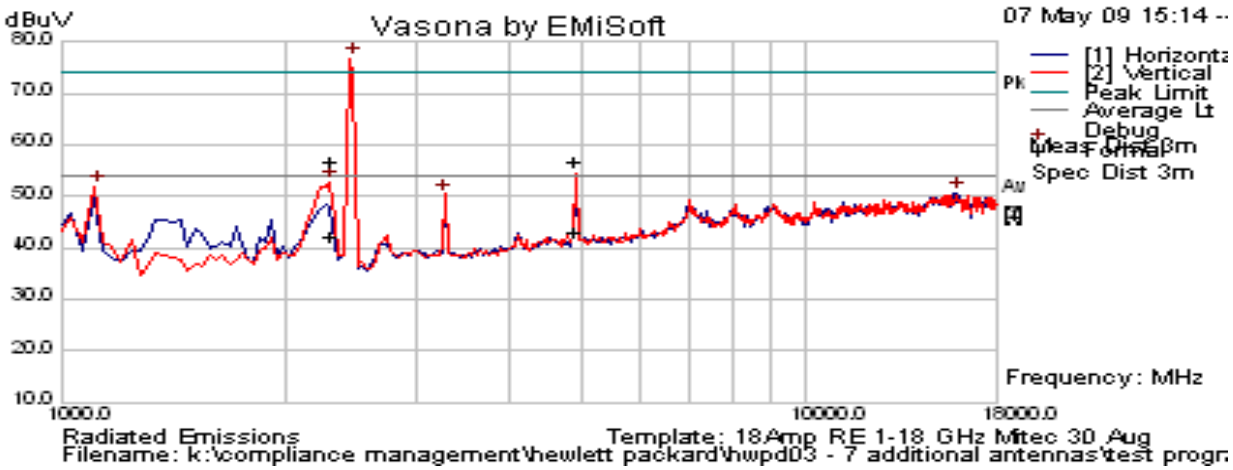


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2438.45	75.65	13	32.37	121	Peak [Scan]	V						
2294.14	60.28	2.9	-10.55	52.63	Peak Max	V	133	103	74	-21.37	Pass	RB
4877.034	58.76	4.51	-8.75	54.53	Peak Max	V	98	105	74	-19.47	Pass	RB
2294.14	46.88	2.9	-10.55	39.23	Average Max	V	133	103	54	-14.77	Pass	RB
4877.034	45.5	4.51	-8.75	41.27	Average Max	V	98	105	54	-12.73	Pass	RB
1125.043	67.77	2.07	-15.52	54.33	Peak Max	V	98	102	74	-19.67	Pass	RB
1125.043	61.37	2.07	-15.52	47.93	Average Max	V	98	102	54	-6.07	Pass	RB
3249.329	59.51	3.49	-11.14	51.87	Peak [Scan]	V	100	0	54	-2.13	Pass	NRB

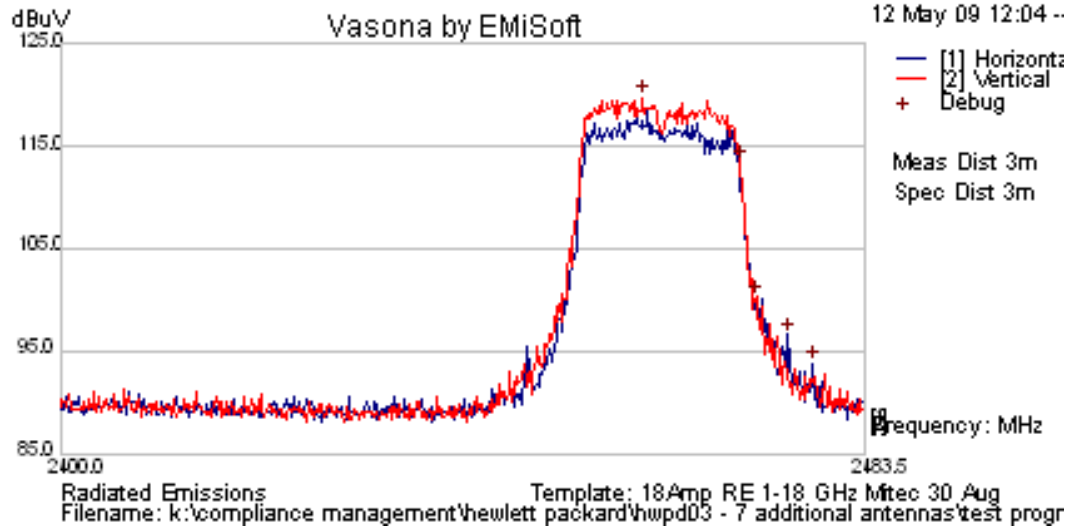
Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

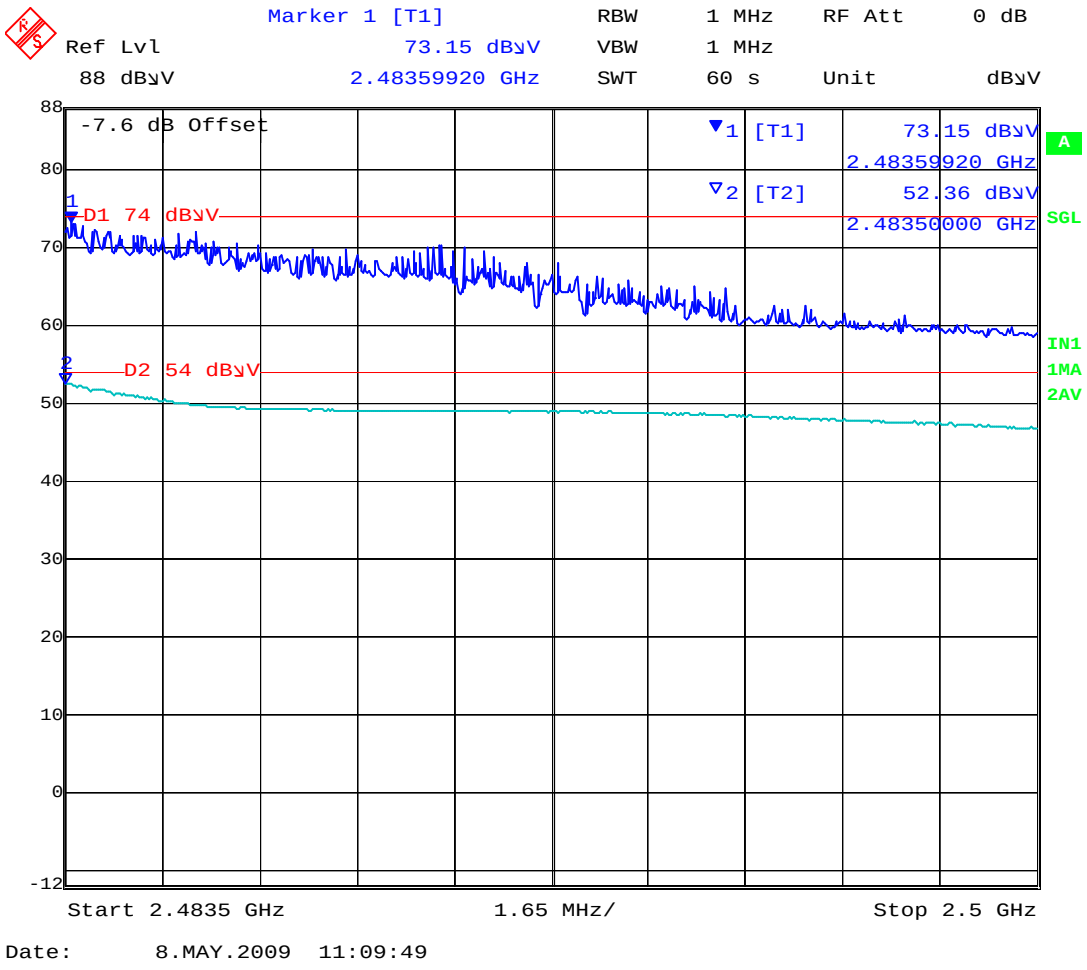


Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2462
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	18 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11g 6 Mb/s; CH11 MSM410 Platform Radio 11



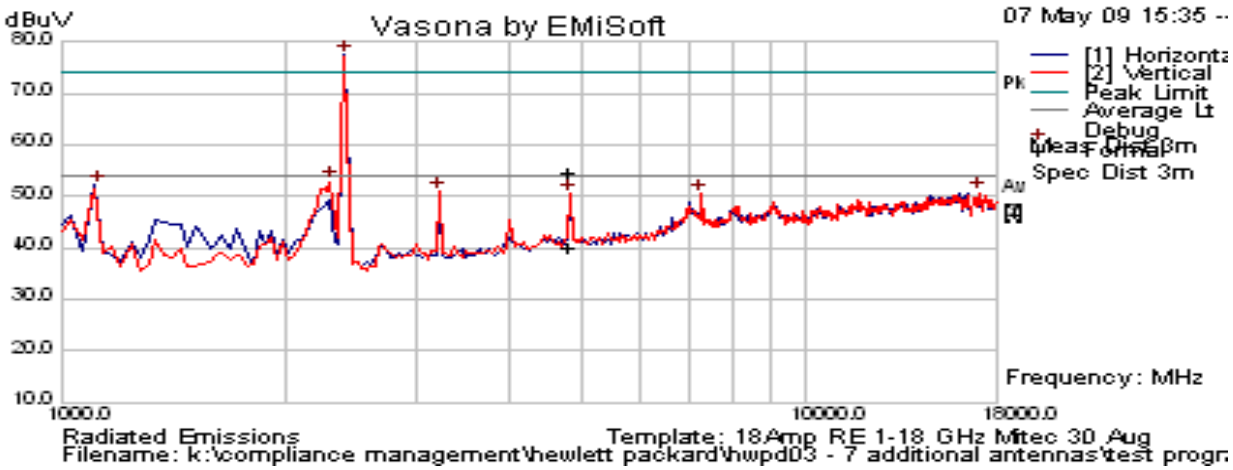
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2460.922	74.37	13	32.38	119.7	Peak [Scan]	V						
4922.389	60.98	4.55	-8.75	56.78	Peak Max	V	107	99	74	-17.22	Pass	RB
2306.926	64.36	2.91	-10.52	56.75	Peak Max	V	98	89	74	-17.25	Pass	RB
4922.389	47.35	4.55	-8.75	43.15	Average Max	V	107	99	54	-10.85	Pass	RB
2306.926	49.72	2.91	-10.52	42.11	Average Max	V	98	89	54	-11.89	Pass	RB
1125.043	67.77	2.07	-15.52	54.33	Peak Max	V	98	102	74	-19.67	Pass	RB
1125.043	61.37	2.07	-15.52	47.93	Average Max	V	98	102	54	-6.07	Pass	RB
3282.713	58.06	3.51	-11.08	50.48	Peak [Scan]	V	100	0	54	-3.52	Pass	NRB
2483.5992	Power Setting = 14.5			73.15	Peak Max	V	--	--	74	-0.85	Pass	Band Edge
2483.5000				52.36	Average Max	V	--	--	54	-1.64	Pass	Band Edge





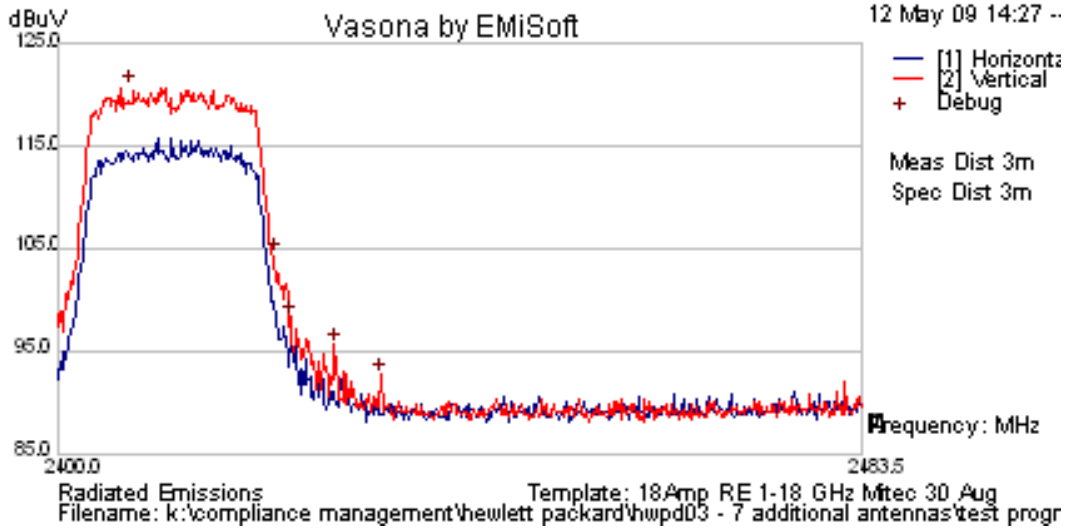
Date: 8.MAY.2009 11:09:49

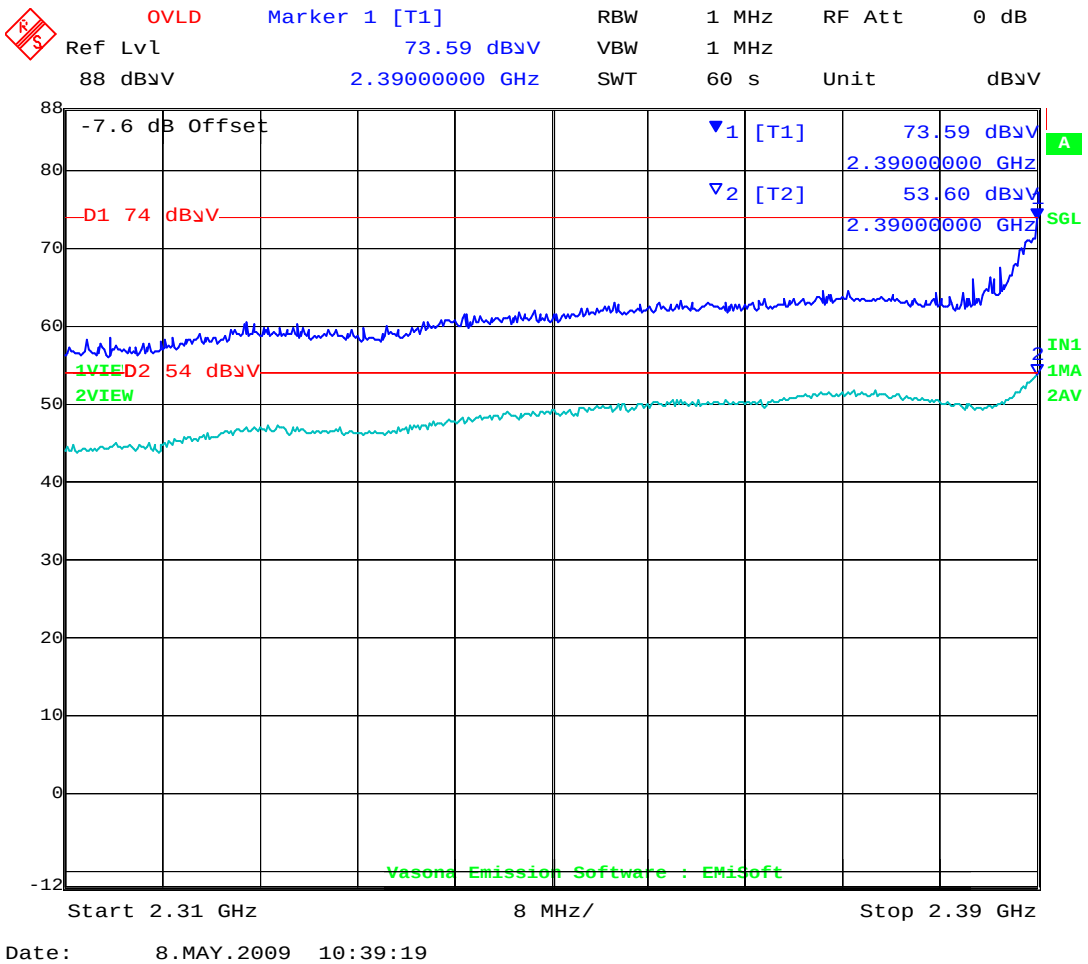
Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2412
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	18 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11 HT-20 6.5 MCS MSM410 Platform Radio 1



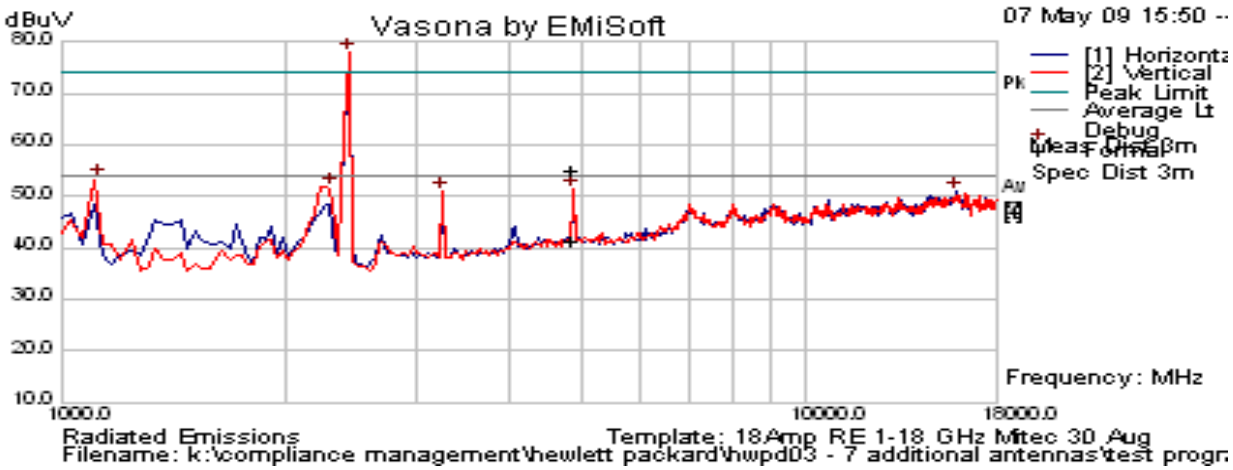
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2407.376	75.48	12.96	32.35	120.8	Peak [Scan]	V						
4821.723	58.76	4.46	-8.74	54.49	Peak Max	V	110	101	74	-19.51	Pass	RB
4821.723	44.5	4.46	-8.74	40.23	Average Max	V	110	101	54	-13.77	Pass	RB
1125.043	67.77	2.07	-15.52	54.33	Peak Max	V	98	102	74	-19.67	Pass	RB
1125.043	61.37	2.07	-15.52	47.93	Average Max	V	98	102	54	-6.07	Pass	RB
2390.0000	Power Setting = 14.0			73.59	Peak Max	V	--	--	74	-0.41	Pass	Band Edge
2390.0000				53.60	Average Max	V	--	--	54	-0.40	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



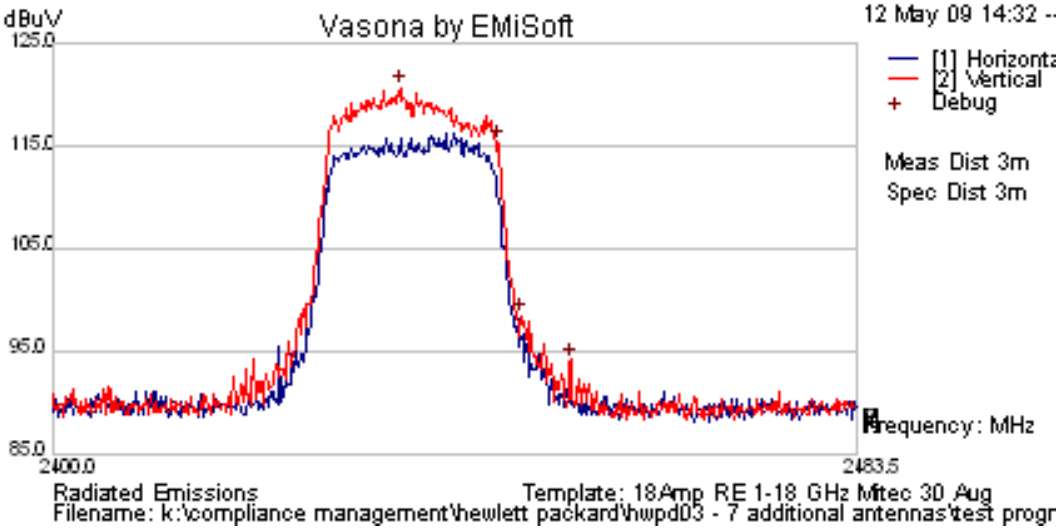


Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2437
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	18 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11 HT-20 6.5 MCS MSM410 Platform Radio 1

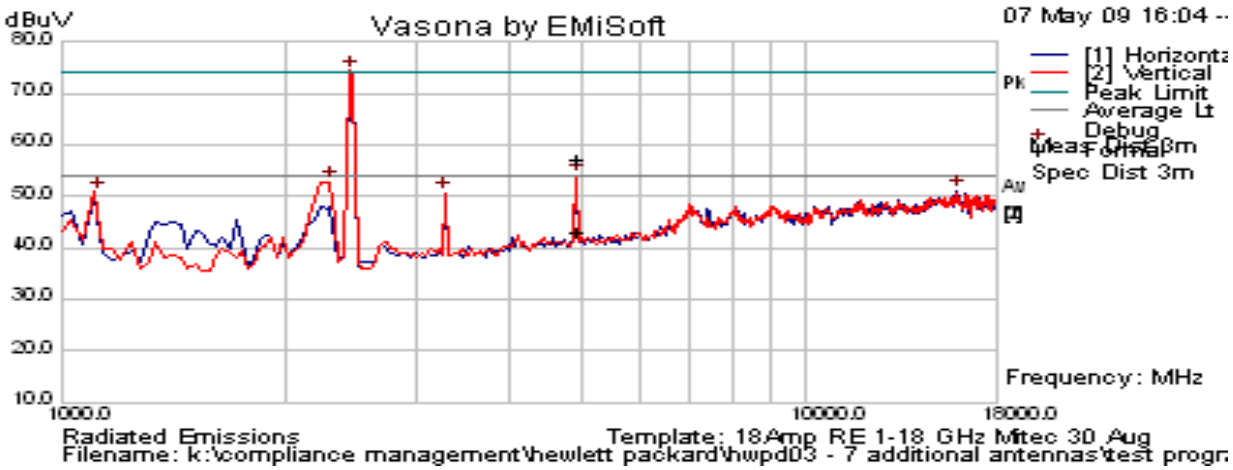


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2441.681	75.43	12.97	32.37	120.8	Peak [Scan]	V						
4875.351	59.27	4.51	-8.75	55.03	Peak Max	V	108	100	74	-18.97	Pass	RB
4875.351	45.76	4.51	-8.75	41.52	Average Max	V	108	100	54	-12.48	Pass	RB
1125.043	67.77	2.07	-15.52	54.33	Peak Max	V	98	102	74	-19.67	Pass	RB
1125.043	61.37	2.07	-15.52	47.93	Average Max	V	98	102	54	-6.07	Pass	RB
2307.575	59.47	2.91	-10.52	51.86	Peak [Scan]	V	100	0	54	-2.14	Pass	NRB
3249.389	58.63	3.49	-11.14	50.99	Peak [Scan]	V	100	0	54	-3.01	Pass	NRB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

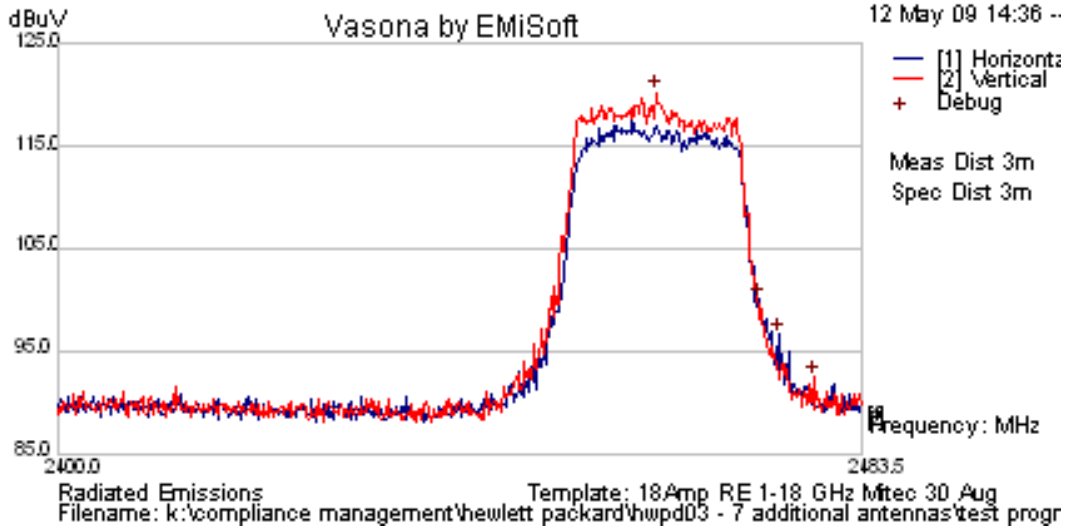


Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2462
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	18 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11 HT-20 6.5 MCS MSM410 Platform Radio 1

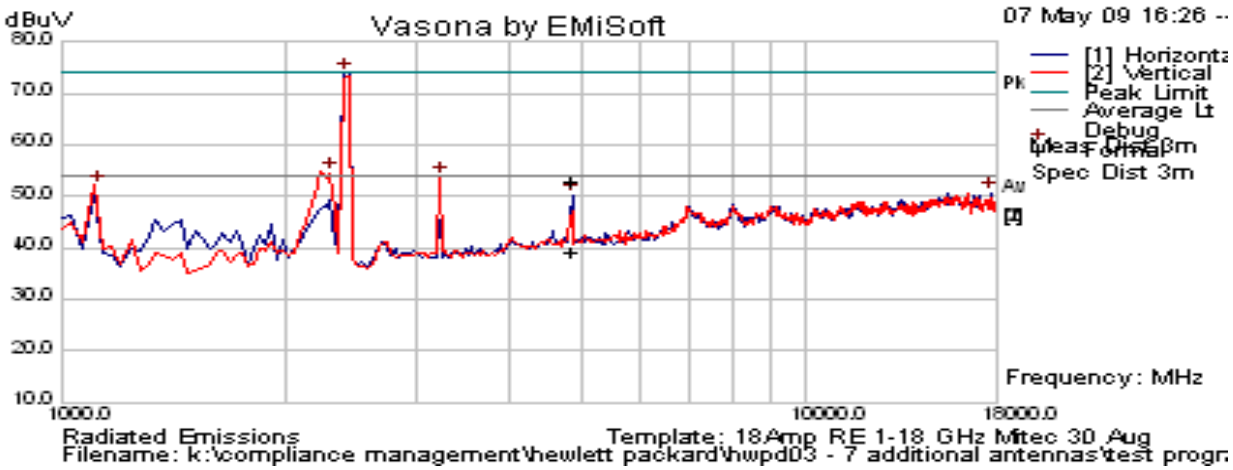


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2461.914	74.92	12.98	32.38	120.3	Peak [Scan]	V						
4927.305	61.39	4.56	-8.76	57.19	Peak Max	V	106	90	74	-16.81	Pass	RB
4927.305	47.3	4.56	-8.76	43.09	Average Max	V	106	90	54	-10.91	Pass	RB
1125.043	67.77	2.07	-15.52	54.33	Peak Max	V	98	102	74	-19.67	Pass	RB
1125.043	61.37	2.07	-15.52	47.93	Average Max	V	98	102	54	-6.07	Pass	RB
2483.83066	Power Setting = 14.5			73.72	Peak Max	V	--	--	74	-0.28	Pass	Band Edge
2483.56613				53.60	Average Max	V	--	--	54	-0.40	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

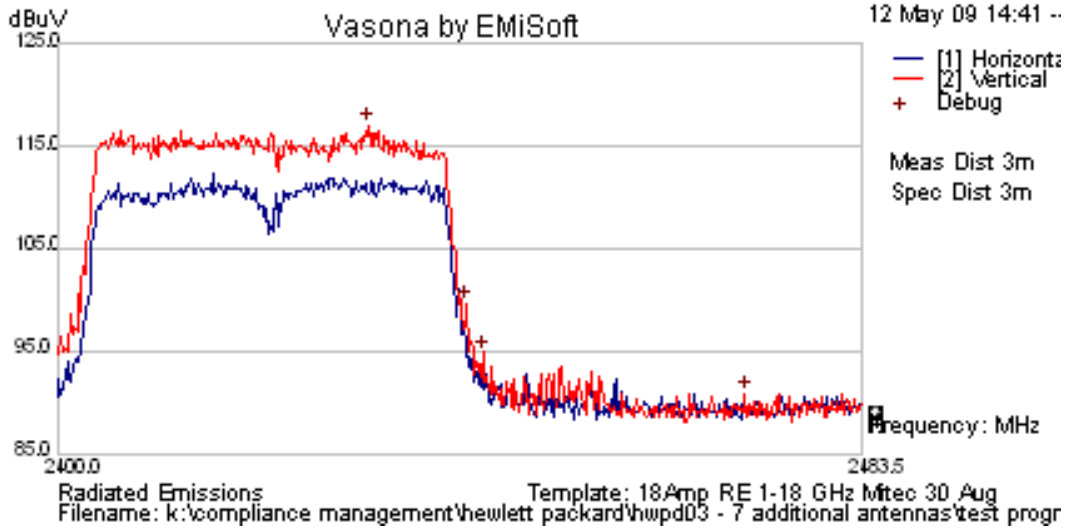


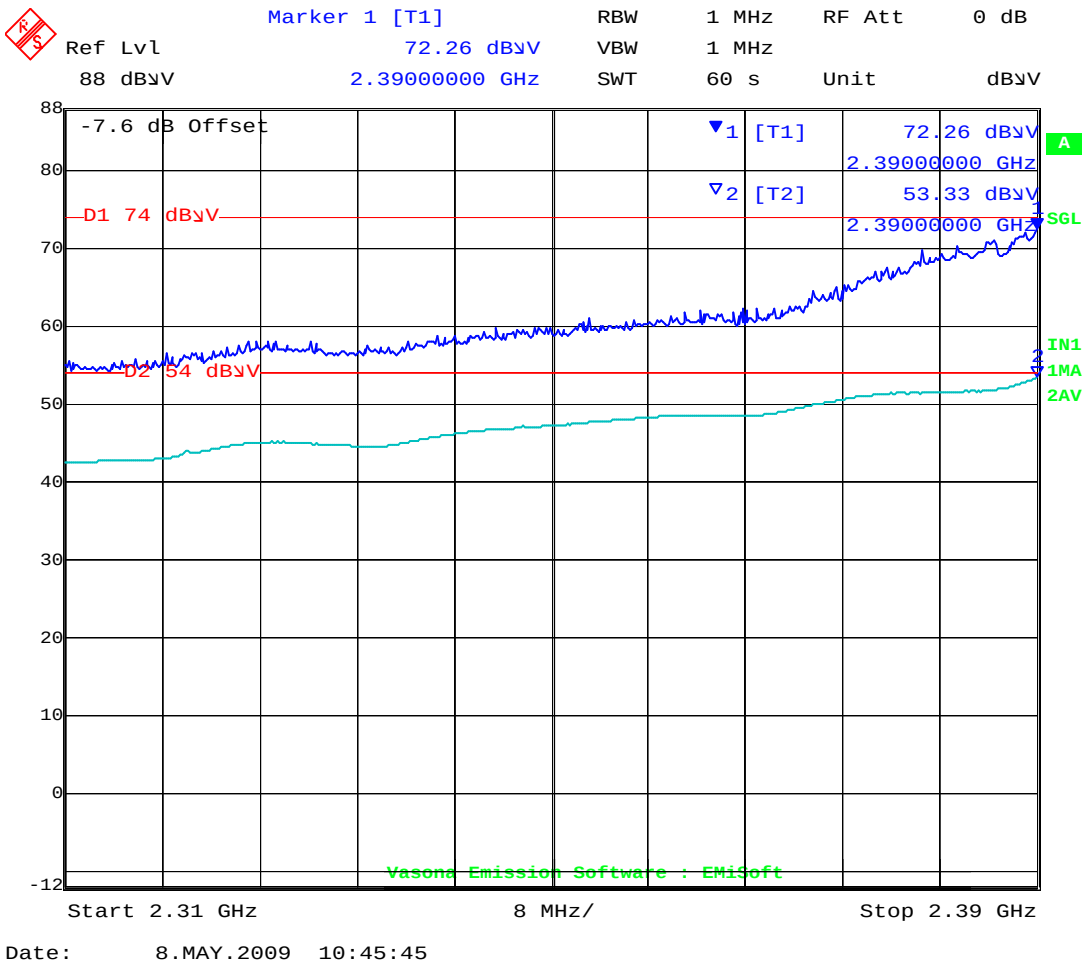
Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2422
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	17 dBm in ART Test Utility [Version 0_5 Build 26]; 17 dB is Target Power in Art
Test Conditions	DNMA-83 Radio - 802.11 HT-40 13.5 MCS MSM410 Platform Radio 1



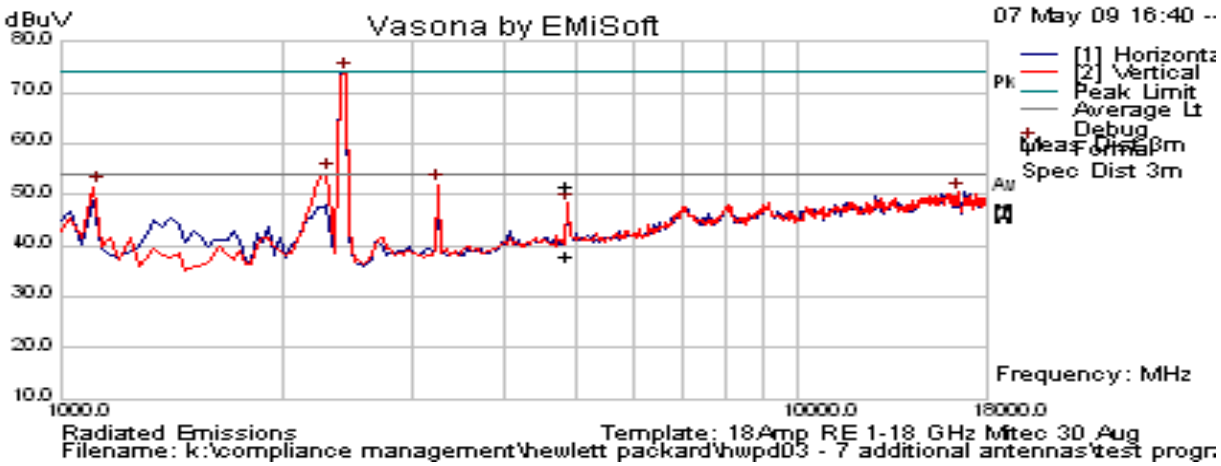
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2431.961	71.77	12.97	32.36	117.1	Peak [Scan]	V						
4848.585	57.31	4.49	-8.78	53.02	Peak Max	H	109	104	74	-20.98	Pass	RB
4848.585	43.55	4.49	-8.78	39.26	Average Max	H	109	104	54	-14.74	Pass	RB
1125.043	67.77	2.07	-15.52	54.33	Peak Max	V	98	102	74	-19.67	Pass	RB
1125.043	61.37	2.07	-15.52	47.93	Average Max	V	98	102	54	-6.07	Pass	RB
2308.216	62.28	2.91	-10.52	54.67	Peak [Scan]	V	100	0	54	0.67	Pass	NRB
3229.276	61.55	3.49	-11.13	53.9	Peak [Scan]	V	100	0	54	-0.1	Pass	NRB
2390.0000	Power Setting = 10.5			72.26	Peak Max	V	--	--	74	-0.74	Pass	Band Edge
2390.0000				53.33	Average Max	V	--	--	54	-0.67	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



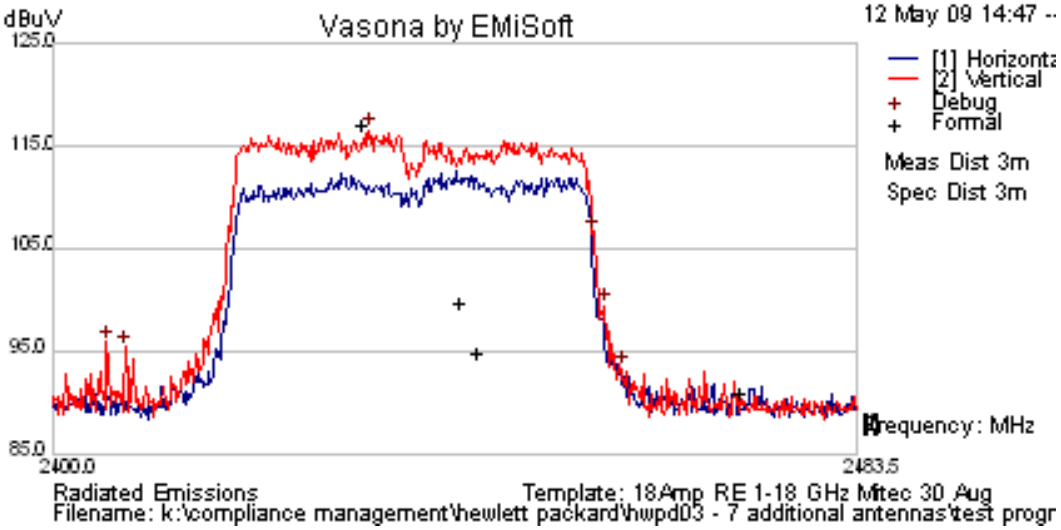


Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2437
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	17 dBm in ART Test Utility [Version 0_5 Build 26]; 17 dB is Target Power in Art
Test Conditions	DNMA-83 Radio - 802.11 HT-40 13.5 MCS MSM410 Platform Radio 1

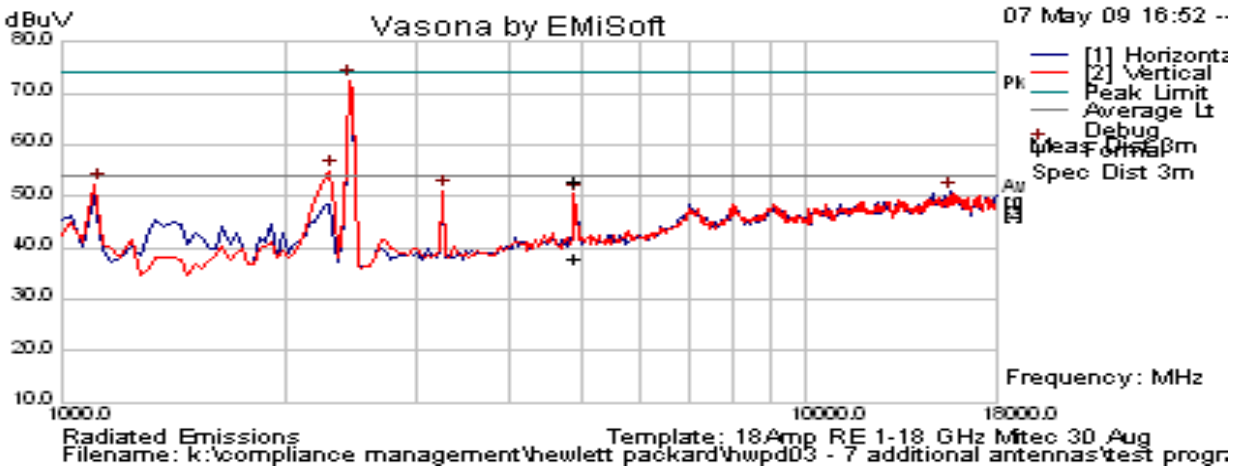


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2432.63	71.28	12.97	32.36	116.6	Peak [Scan]	V						
4879.439	56.04	4.52	-8.74	51.81	Peak Max	V	124	88	74	-22.19	Pass	RB
4879.439	42.12	4.52	-8.74	37.89	Average Max	V	124	88	54	-16.11	Pass	RB
1125.043	67.77	2.07	-15.52	54.33	Peak Max	V	98	102	74	-19.67	Pass	RB
1125.043	61.37	2.07	-15.52	47.93	Average Max	V	98	102	54	-6.07	Pass	RB
2304.369	61.79	2.91	-10.53	54.17	Peak [Scan]	V	100	0	54	0.17	Pass	NRB
3249.381	59.58	3.49	-11.14	51.94	Peak [Scan]	V	100	0	54	-2.06	Pass	NRB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

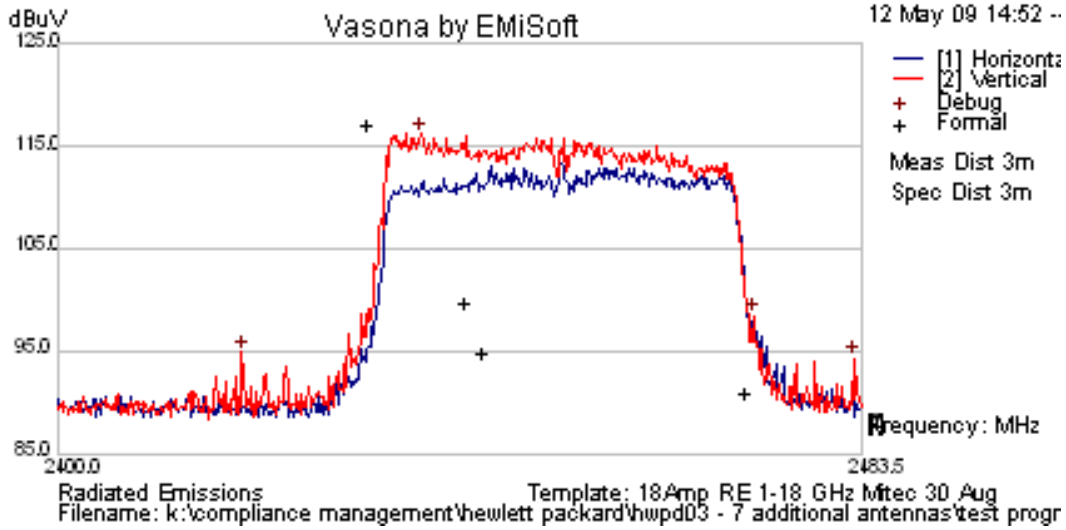


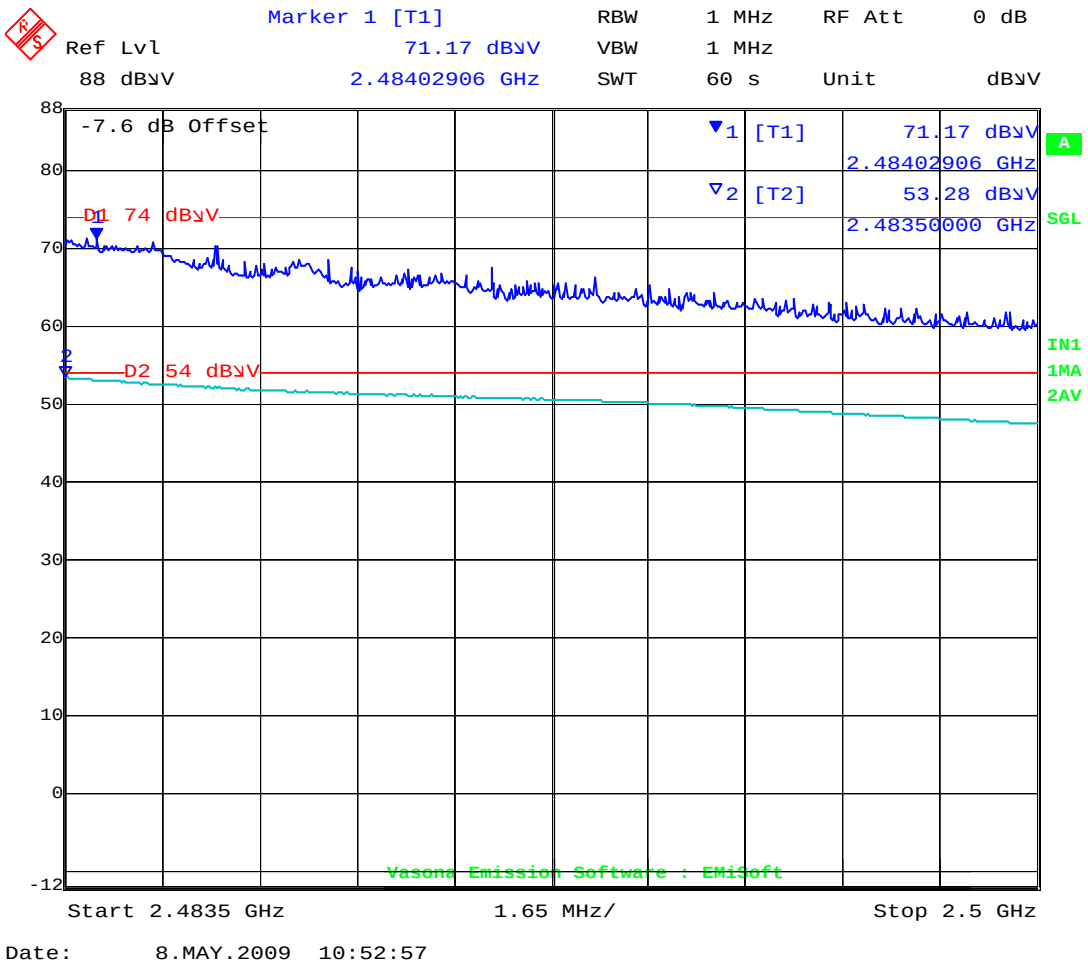
Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2452
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	17 dBm in ART Test Utility [Version 0_5 Build 26]; 17 dB is Target Power in Art
Test Conditions	DNMA-83 Radio - 802.11 HT-40 13.5 MCS MSM410 Platform Radio 1



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2437.483	70.89	12.97	32.37	116.2	Peak [Scan]	V						
4883.768	57.18	4.52	-8.74	52.96	Peak Max	V	109	98	74	-21.04	Pass	RB
4883.768	42.03	4.52	-8.74	37.81	Average Max	V	109	98	54	-16.19	Pass	RB
1125.043	67.77	2.07	-15.52	54.33	Peak Max	V	98	102	74	-19.67	Pass	RB
1125.043	61.37	2.07	-15.52	47.93	Average Max	V	98	102	54	-6.07	Pass	RB
2306.613	62.55	2.91	-10.53	54.93	Peak [Scan]	V	100	0	54	0.93	Pass	NRB
3269.364	58.63	3.5	-11.1	51.03	Peak [Scan]	V	100	0	54	-2.97	Pass	NRB
2484.02906	Power Setting = 11.5			71.17	Peak Max	V	--	--	74	-2.83	Pass	Band Edge
2483.5000				53.28	Average Max	V	--	--	54	-0.72	Pass	Band Edge

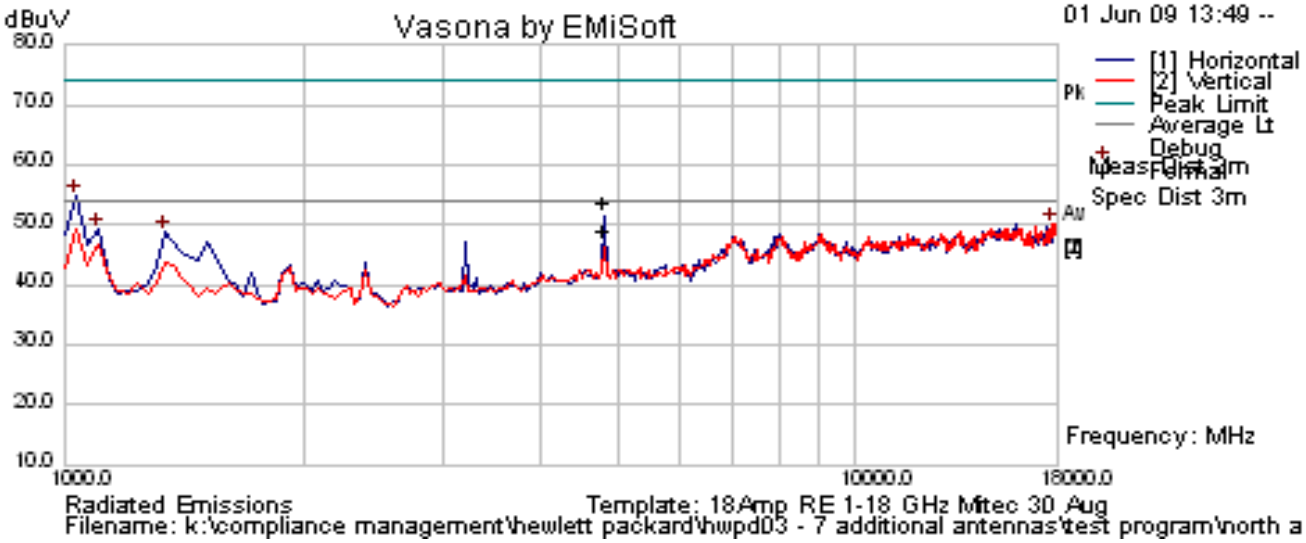
Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band





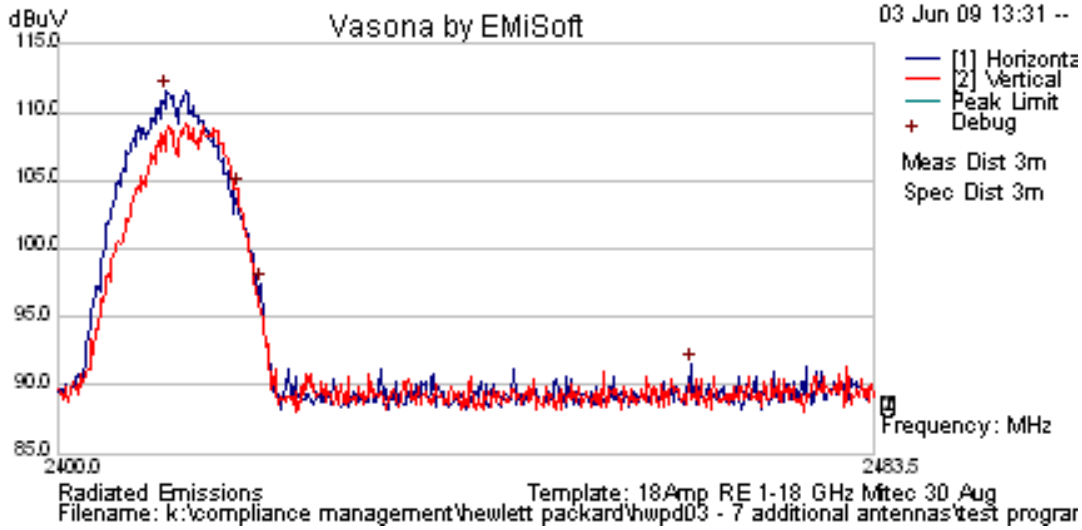
ANTENNA J9171A Radiated Emissions in the 2,400 – 2,483.5 MHz Band

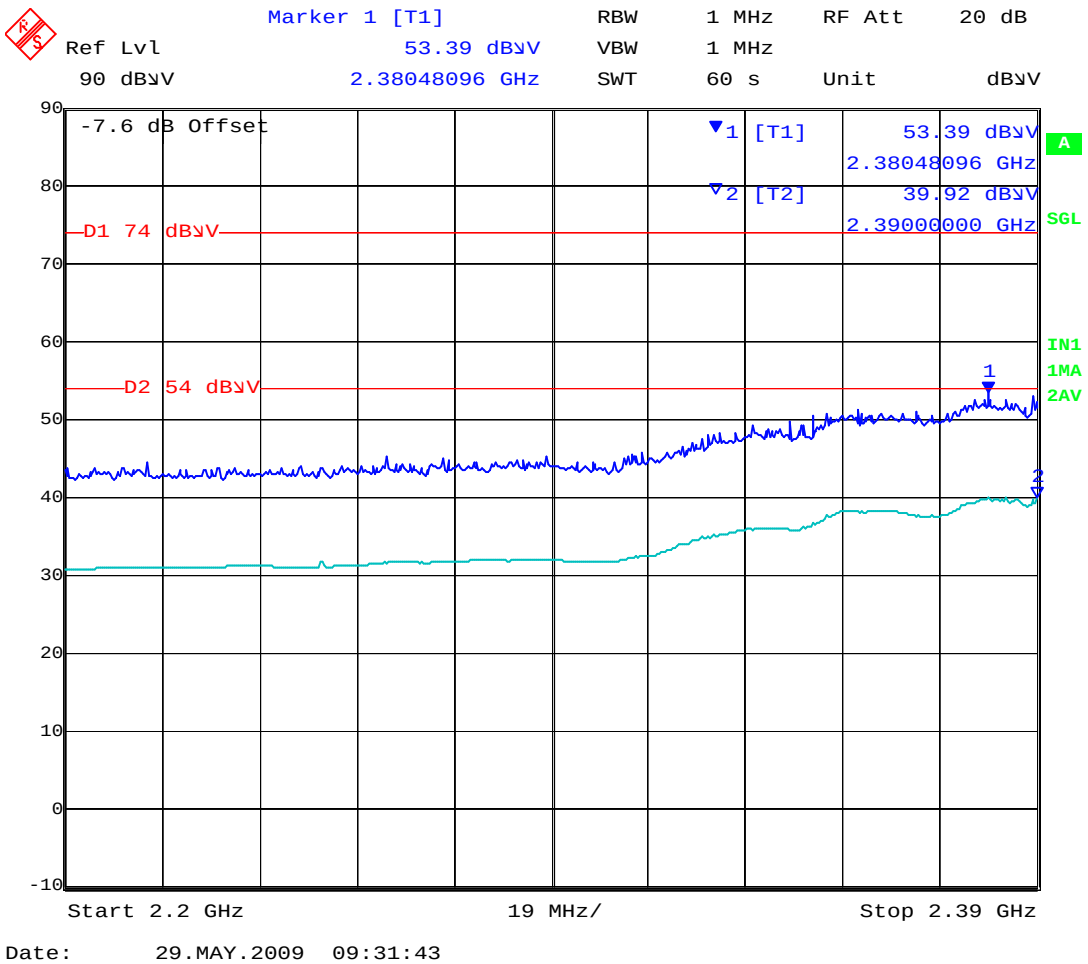
Date	6/1/2009
Engineer	GMH
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2412
Antenna Model	J9171A Antenna / Gain = 3 dBi
Power setting	17.5 in ART Test Utility
Test Conditions	802.11b 1 Mb/s; MSM-410 Platform Radio



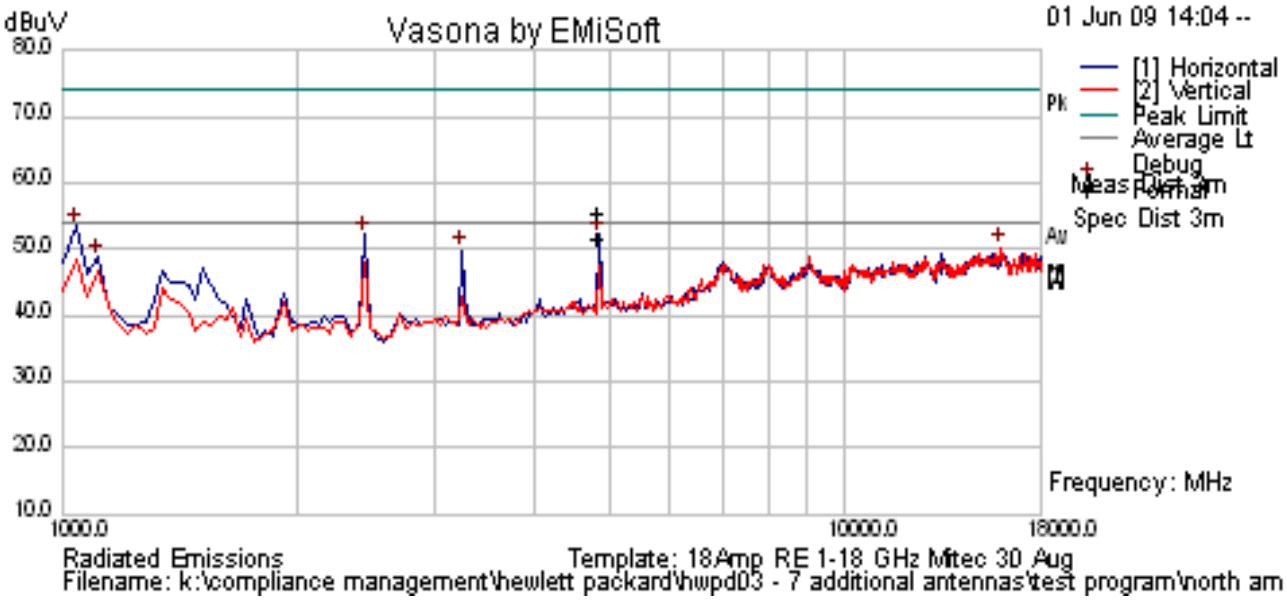
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2410.877	66.23	12.96	32.35	111.5	Peak [Scan]	H						
4824.089	57.84	4.47	-8.75	53.56	Peak Max	H	114	80	74	-20.44	Pass	RB
4824.089	53.37	4.47	-8.75	49.09	Average Max	H	114	80	54	-4.91	Pass	RB
1437.635	62.92	2.33	-14.98	50.27	Peak Max	H	101	229	74	-23.73	Pass	RB
1437.635	40.39	2.33	-14.98	27.74	Average Max	H	101	229	54	-26.26	Pass	RB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB
2380.4809	Power Setting = 17.5			53.39	Peak Max	V	--	--	74	-20.61	Pass	Band Edge
2390.0000				39.92	Average Max	V	--	--	54	-24.08	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

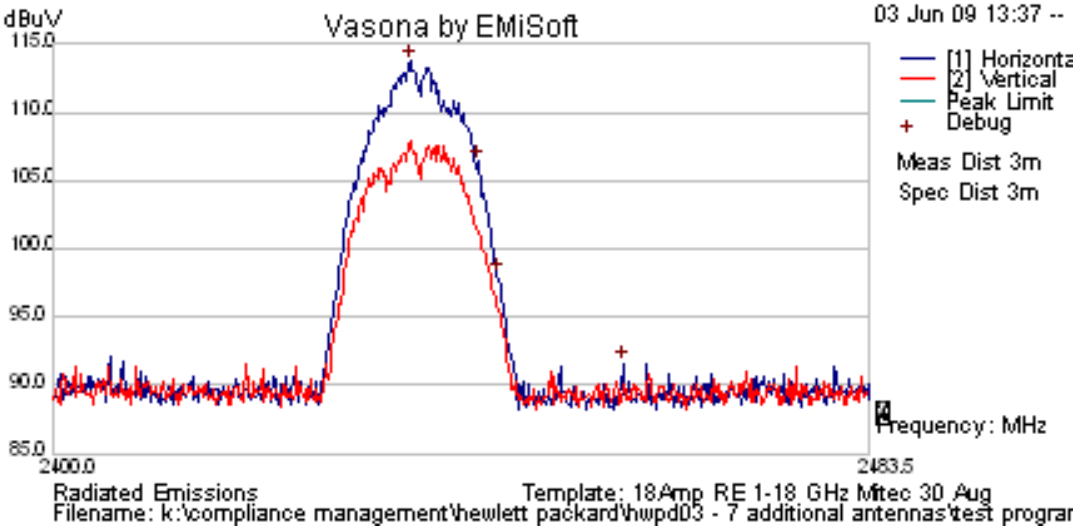




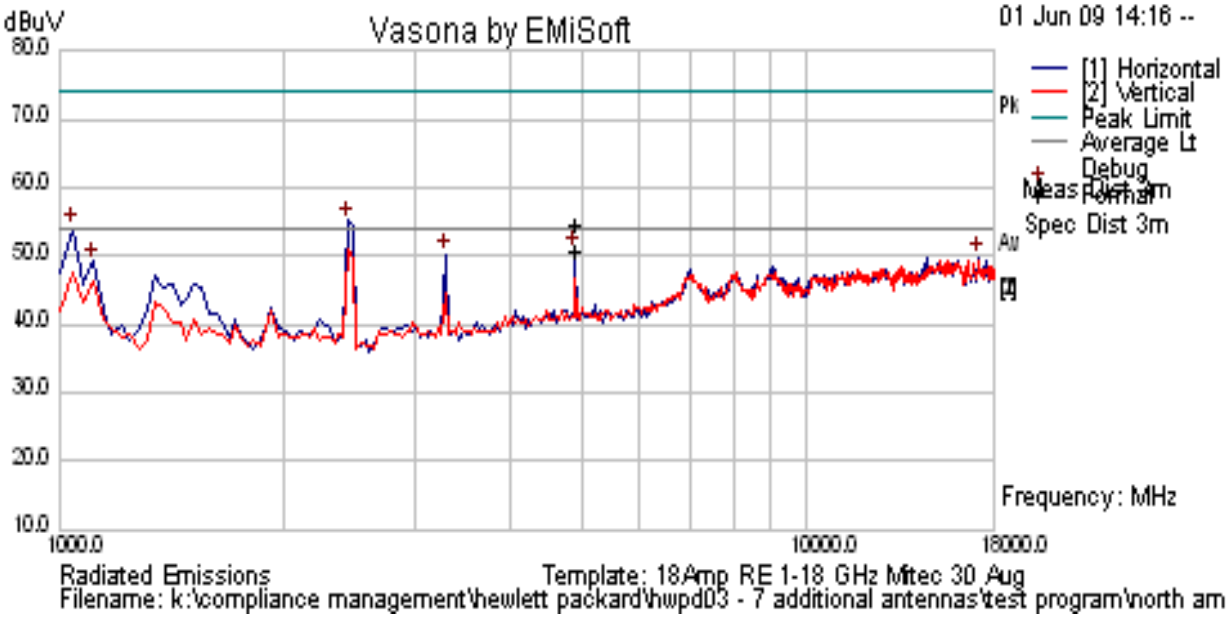
Date	6/1/2009
Engineer	GMH
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2437
Antenna Model	J9171A Antenna / Gain = 3 dBi
Power setting	18 in ART Test Utility
Test Conditions	802.11b 1 Mb/s; MSM-410 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2436.144	68.35	12.97	32.37	113.7	Peak [Scan]	H						
4874.074	59.88	4.51	-8.75	55.64	Peak Max	H	98	83	74	-18.36	Pass	RB
4874.074	56.01	4.51	-8.75	51.77	Average Max	H	98	83	54	-2.23	Pass	RB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB
3248.497	57.52	3.49	-11.14	49.88	Peak [Scan]	H	100	0	54	-4.12	Pass	NRB

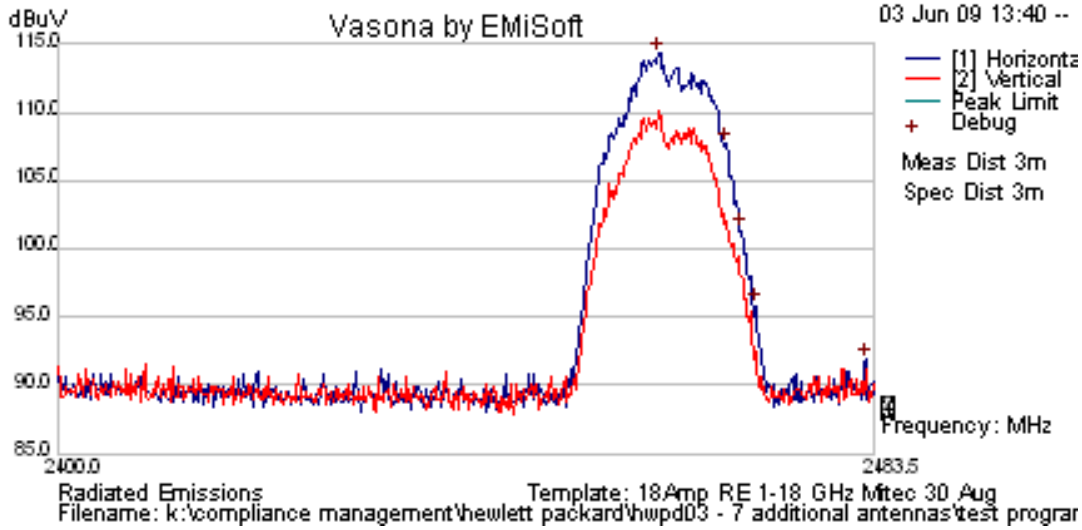


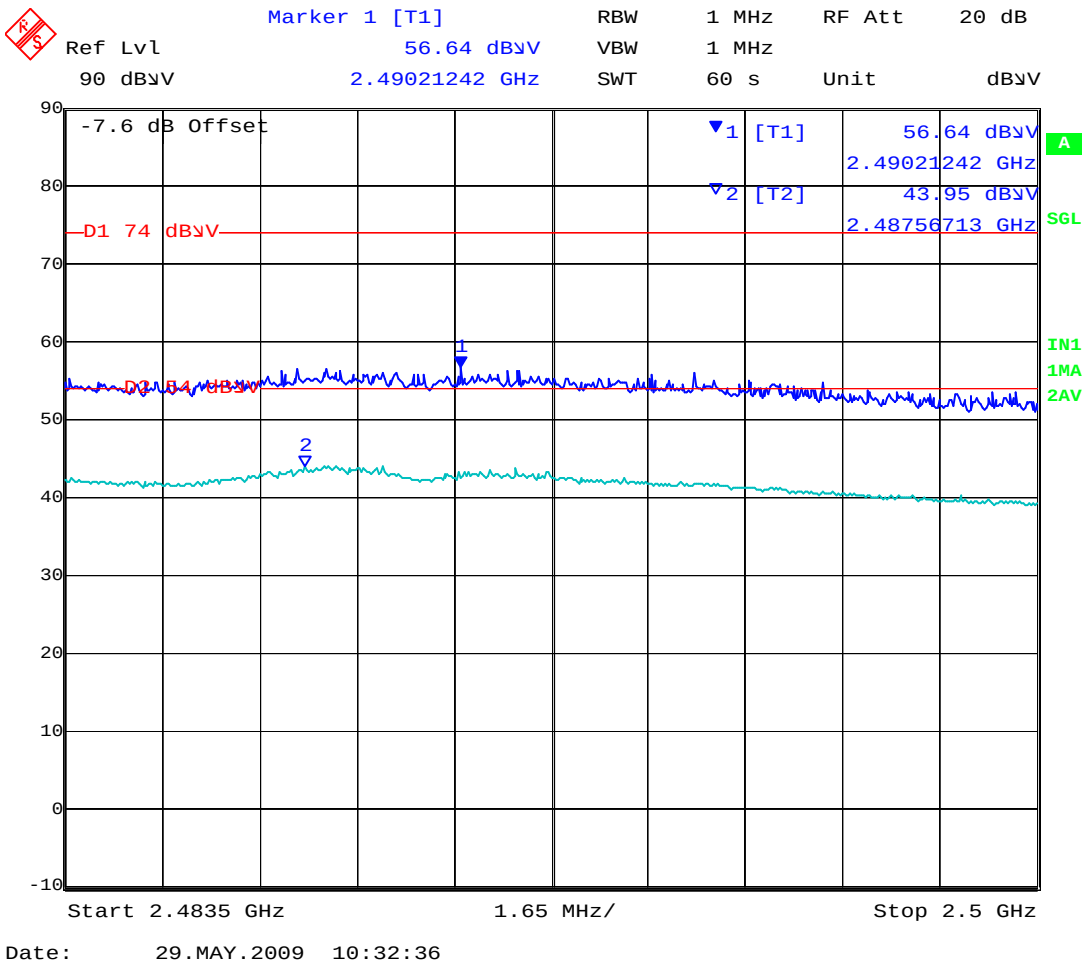
Date	6/1/2009
Engineer	GMH
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2462
Antenna Model	J9171A Antenna / Gain = 3 dBi
Power setting	18 in ART Test Utility
Test Conditions	802.11b 1 Mb/s; MSM-410 Platform Radio



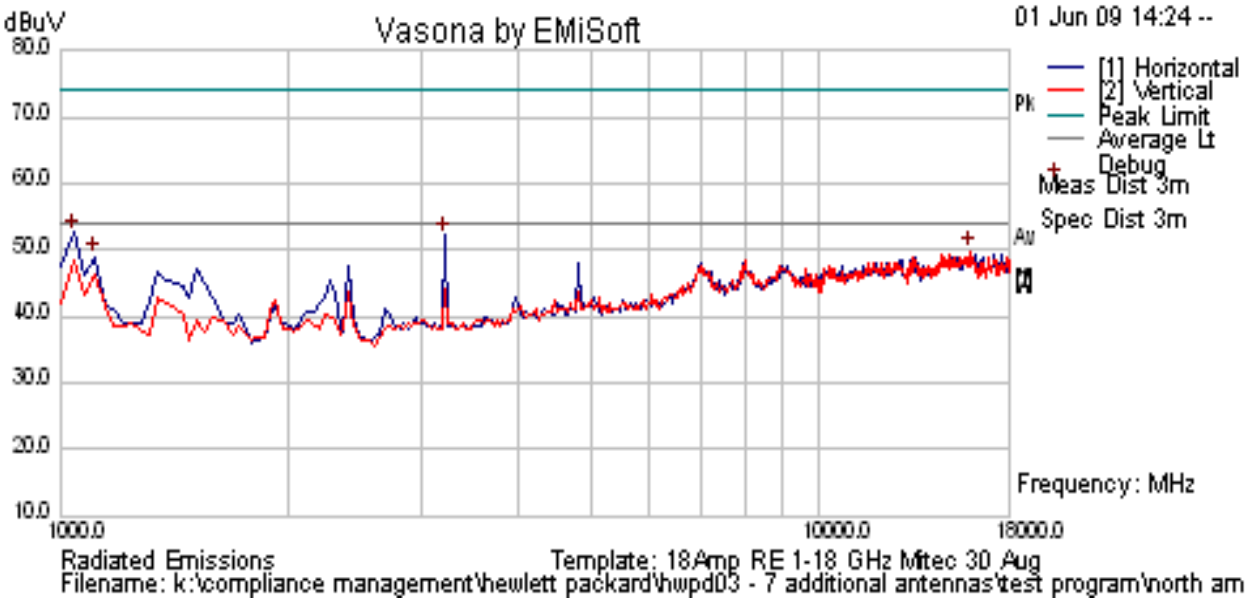
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2461.077	68.92	12.98	32.38	114.3	Peak [Scan]	H						
4924.057	58.9	4.55	-8.76	54.69	Peak Max	H	98	91	74	-19.31	Pass	RB
4924.057	54.96	4.55	-8.76	50.76	Average Max	H	98	91	54	-3.24	Pass	RB
3282.565	57.87	3.51	-11.08	50.3	Peak	H	100	0	54	-3.7	Pass	NRB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB
2490.21242	Power Setting = 18			56.64	Peak Max	V	--	--	74	-17.36	Pass	Band Edge
2487.56713				43.95	Average Max	V	--	--	54	-10.05	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



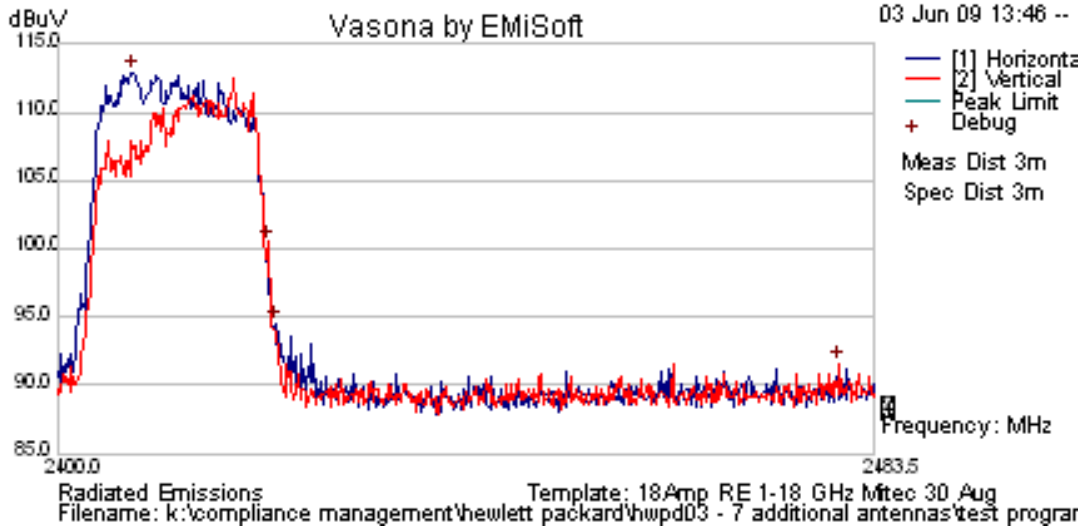


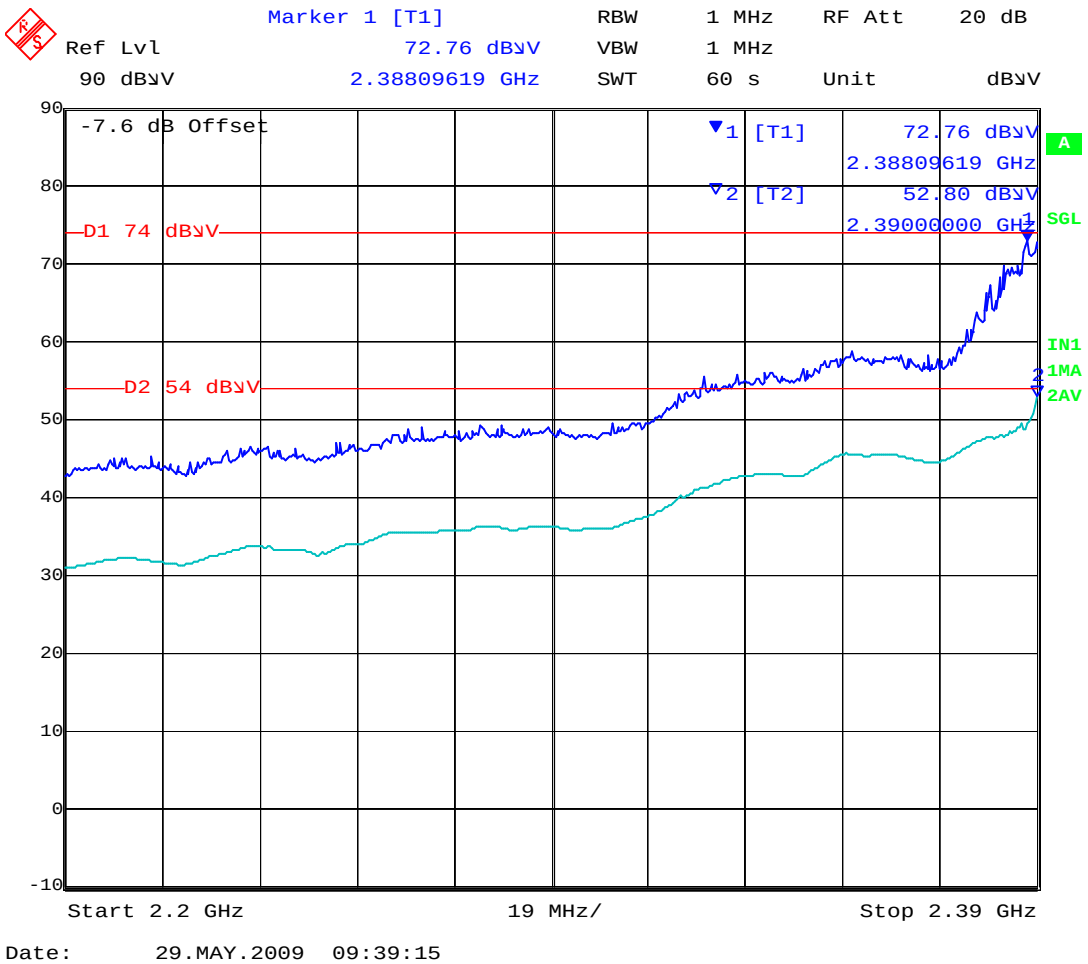
Date	6/1/2009
Engineer	GMH
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2412
Antenna Model	J9171A Antenna / Gain = 3 dBi
Power setting	18 in ART Test Utility
Test Conditions	802.11g 6 Mb/s; MSM-410 Platform Radio



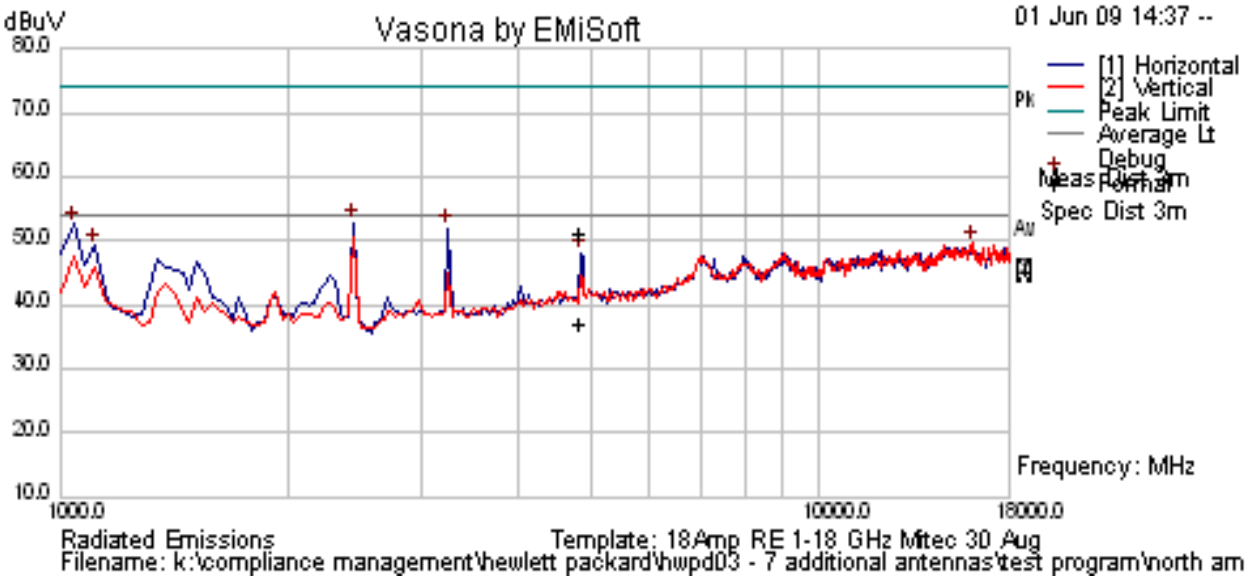
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2407.53	67.64	12.96	32.35	112.9	Peak [Scan]	H						
3214.429	59.81	3.48	-11.07	52.21	Peak	H	100	0	54	-1.79	Pass	NRB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB
2388.09619	Power Setting = 17			72.76	Peak Max	V	--	--	74	-1.24	Pass	Band Edge
2390.0000				52.80	Average Max	V	--	--	54	-1.20	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



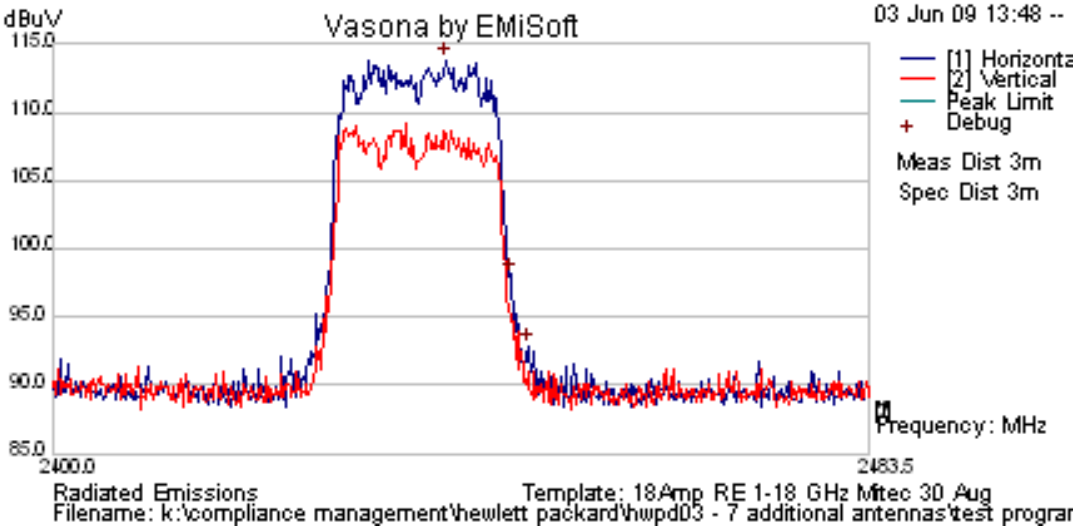


Date	6/1/2009
Engineer	GMH
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2437
Antenna Model	J9171A Antenna / Gain = 3 dBi
Power setting	18 in ART Test Utility
Test Conditions	802.11g 6 Mb/s; MSM-410 Platform Radio

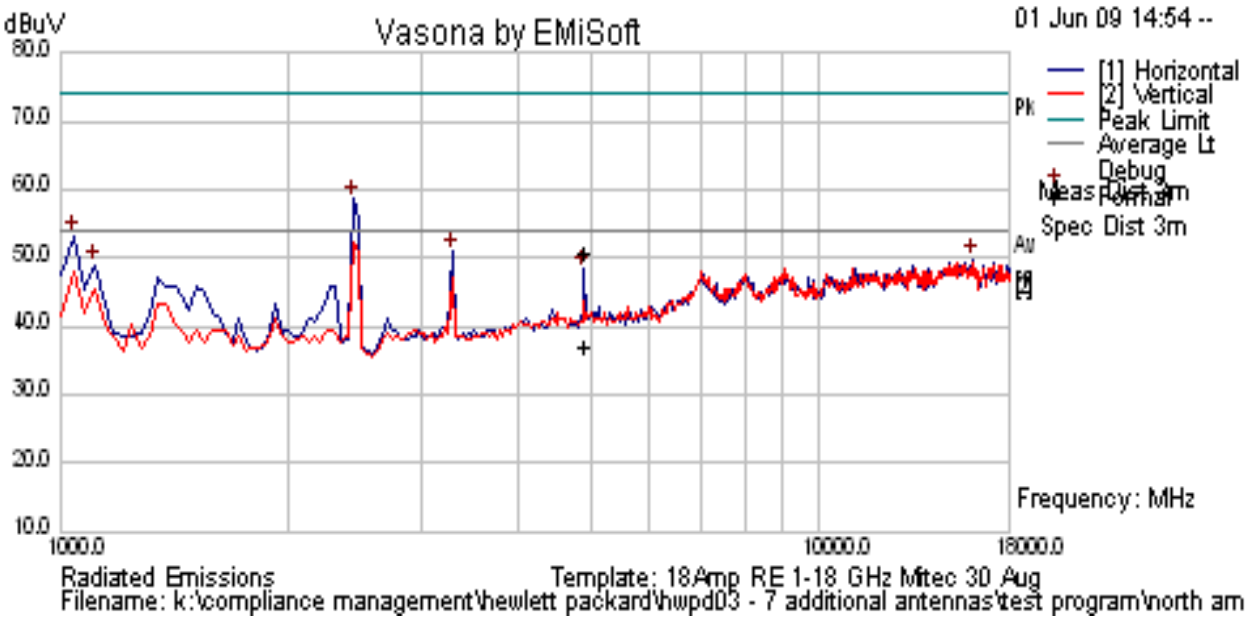


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2439.826	68.47	12.97	32.37	113.8	Peak [Scan]	H						
4876.623	55.54	4.51	-8.75	51.3	Peak Max	H	98	45	74	-22.7	Pass	RB
4876.623	41.16	4.51	-8.75	36.93	Average Max	H	98	45	54	-17.07	Pass	RB
3248.497	59.67	3.49	-11.14	52.03	Peak	H	100	0	54	-1.97	Pass	NRB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

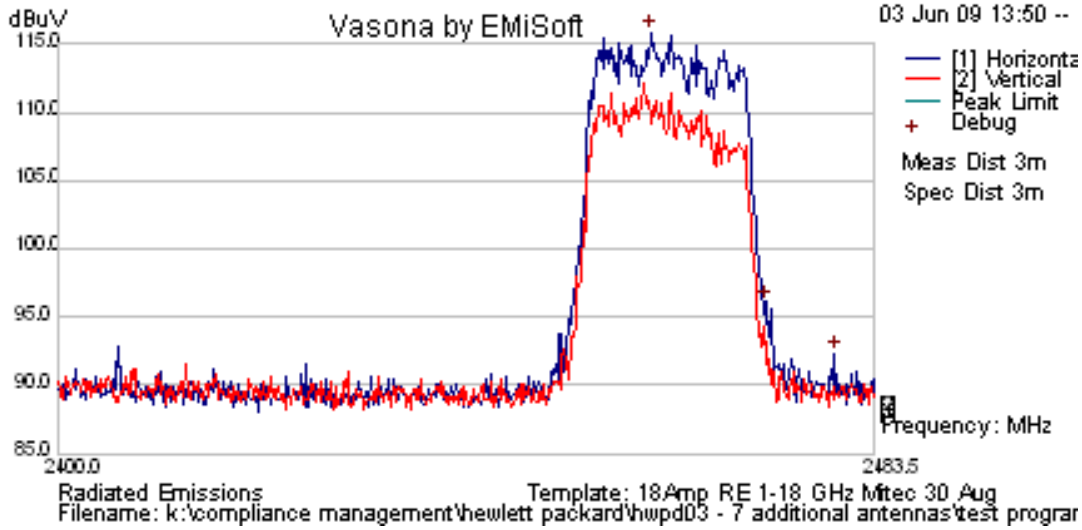


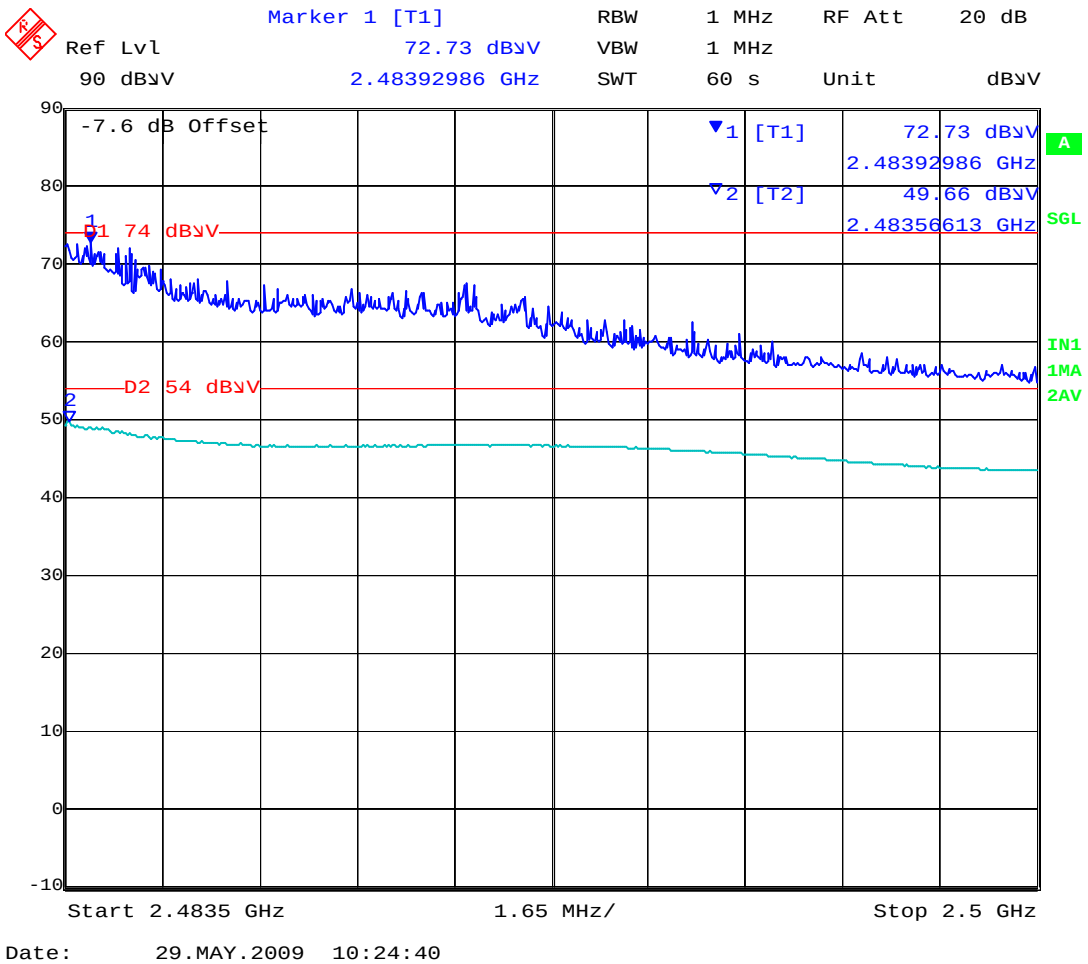
Date	6/1/2009
Engineer	GMH
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2462
Antenna Model	J9171A Antenna / Gain = 3 dBi
Power setting	18 in ART Test Utility
Test Conditions	802.11g 6 Mb/s; MSM-410 Platform Radio



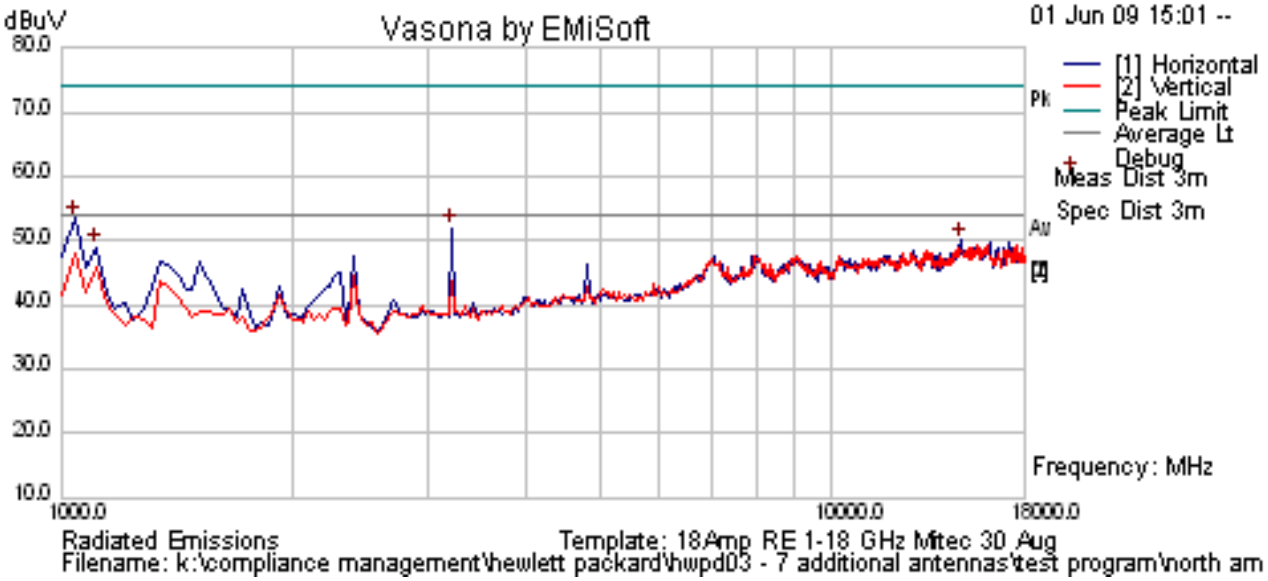
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2460.408	70.47	12.98	32.38	115.8	Peak [Scan]	H						
4924.38	55.16	4.55	-8.76	50.96	Peak Max	H	98	93	74	-23.04	Pass	RB
4924.38	41.34	4.55	-8.76	37.14	Average Max	H	98	93	54	-16.86	Pass	RB
3282.565	58.56	3.51	-11.08	50.98	Peak	H	100	0	54	-3.02	Pass	NRB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB
2483.92986	Power Setting = 15.5			72.73	Peak Max	V	--	--	74	-1.27	Pass	Band Edge
2483.56613				49.66	Average Max	V	--	--	54	-4.34	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



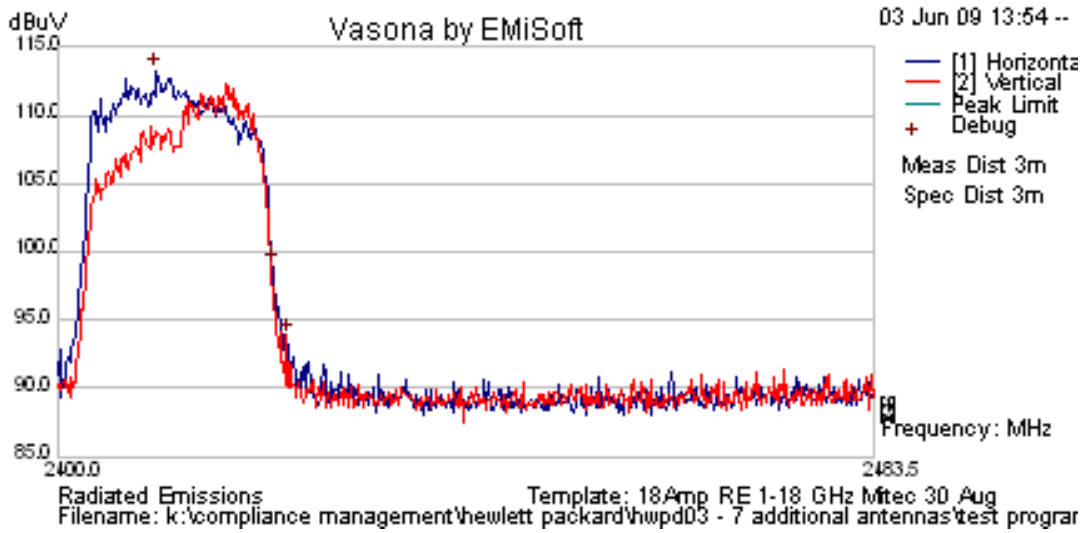


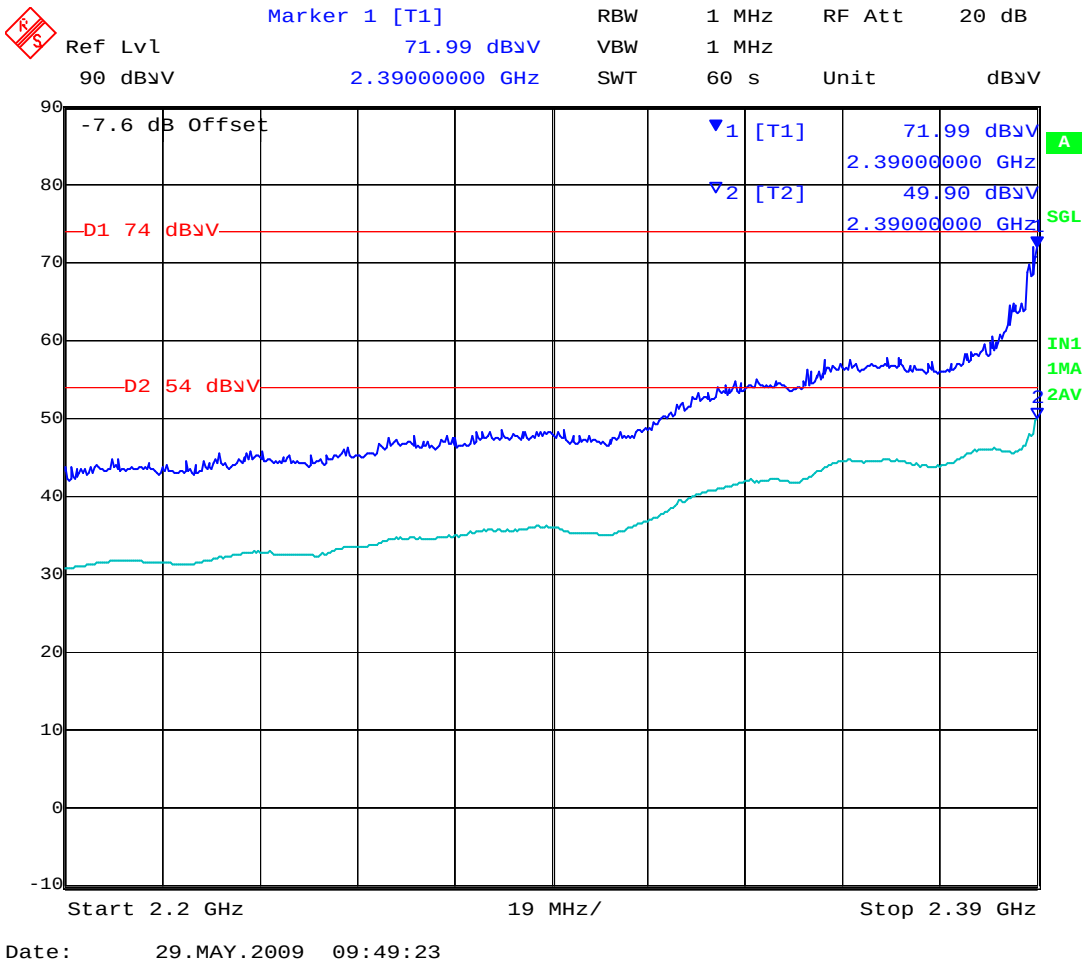
Date	6/1/2009
Engineer	GMH
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2412
Antenna Model	J9171A Antenna / Gain = 3 dBi
Power setting	18 in ART Test Utility
Test Conditions	802.11n HT-20 6.5 MCS; MSM-410 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2409.873	67.96	12.96	32.35	113.3	Peak [Scan]	H						
3214.429	59.81	3.48	-11.07	52.21	Peak	H	100	0	54	-1.79	Pass	NRB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB
2390.0000	Power Setting = 15.5			71.99	Peak Max	V	--	--	74	-2.01	Pass	Band Edge
2390.0000				49.90	Average Max	V	--	--	54	-4.10	Pass	Band Edge

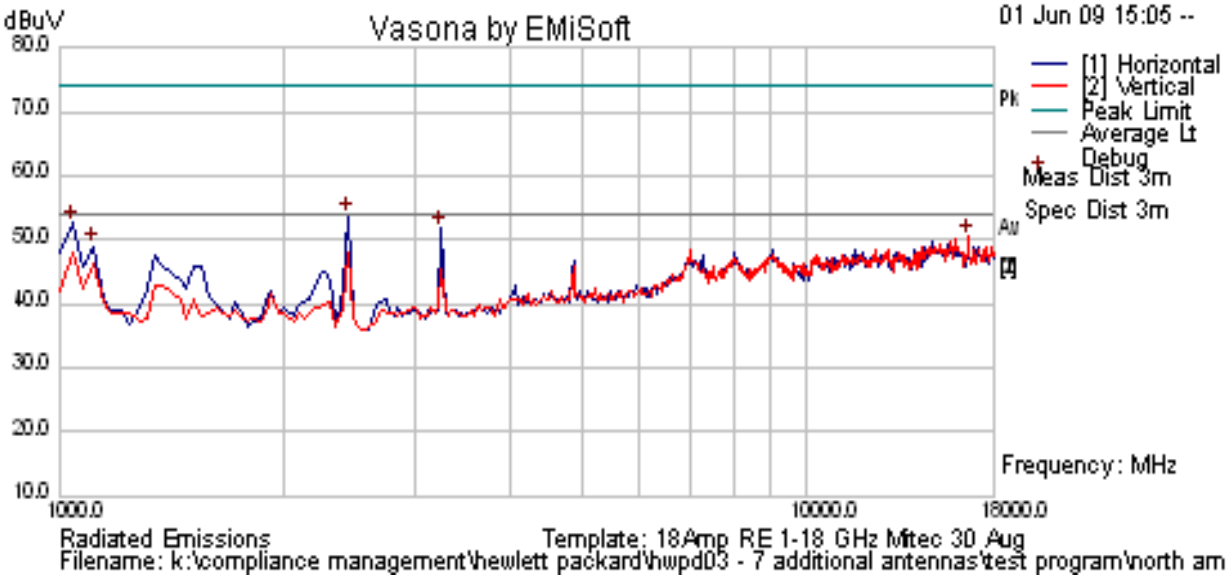
Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band





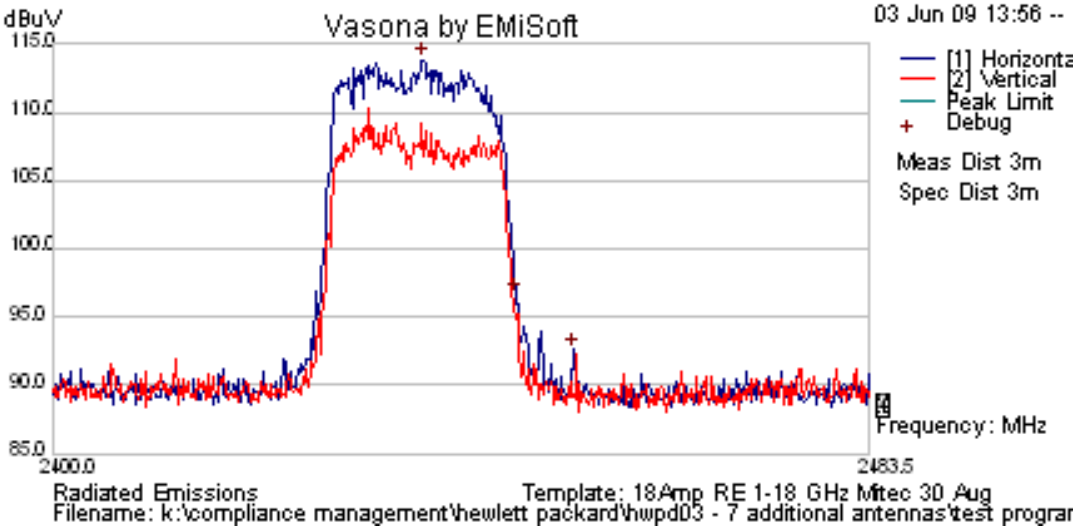
Date: 29.MAY.2009 09:49:23

Date	6/1/2009
Engineer	GMH
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2437
Antenna Model	J9171A Antenna / Gain = 3 dBi
Power setting	18 in ART Test Utility
Test Conditions	802.11n HT-20 6.5 MCS; MSM-410 Platform Radio

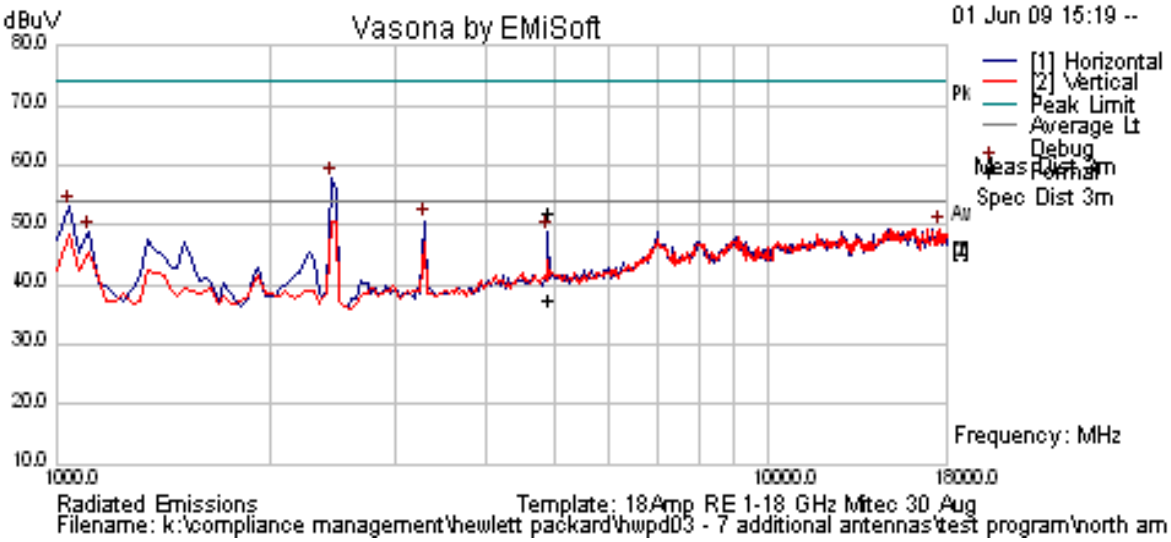


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2437.483	68.46	12.97	32.37	113.8	Peak [Scan]	H						
3248.497	59.67	3.49	-11.14	52.03	Peak	H	100	0	54	-1.97	Pass	NRB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

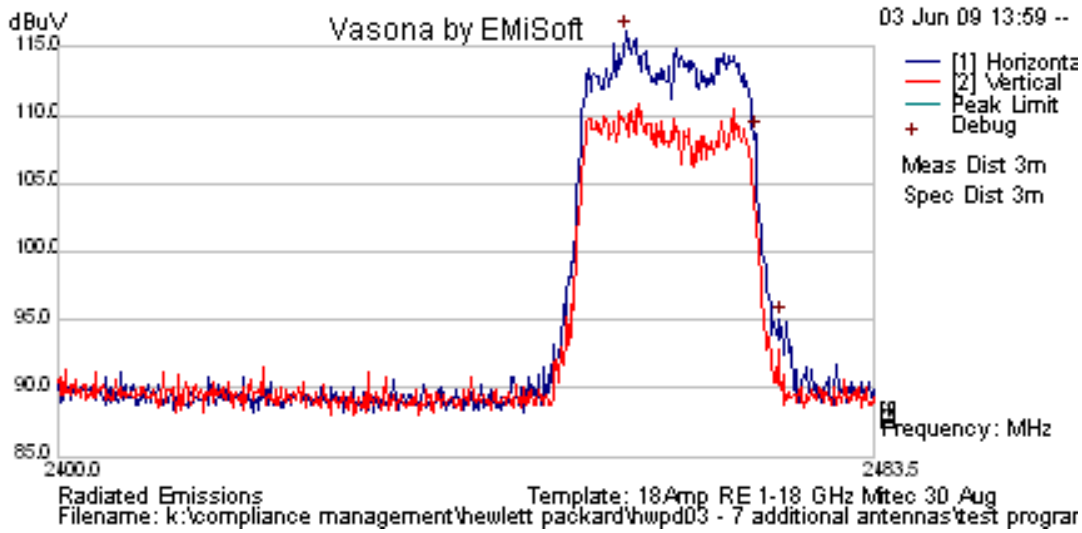


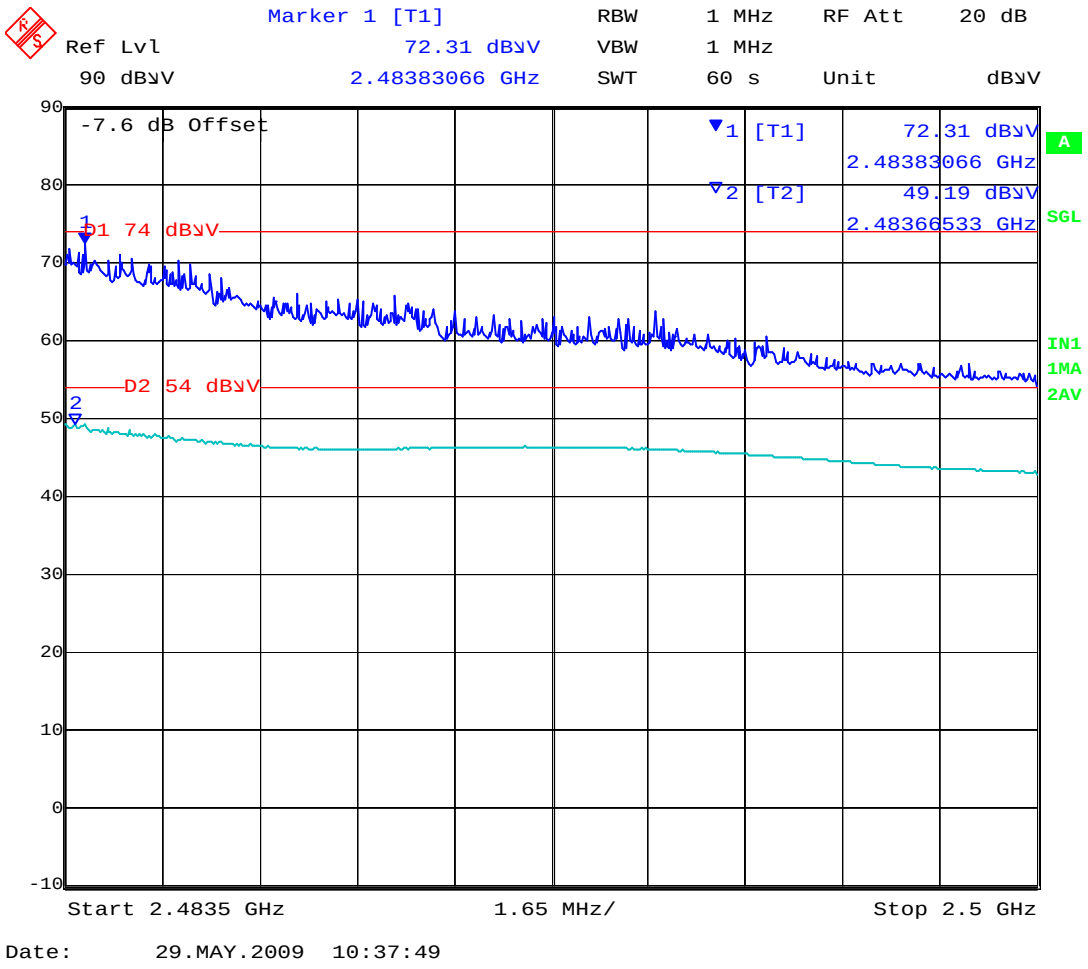
Date	6/1/2009
Engineer	GMH
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2462
Antenna Model	J9171A Antenna / Gain = 3 dBi
Power setting	18 in ART Test Utility
Test Conditions	802.11n HT-20 6.5 MCS; MSM-410 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2457.73	70.79	12.98	32.38	116.1	Peak [Scan]	H						
4929.569	56.41	4.56	-8.76	52.21	Peak Max	H	128	50	74	-21.79	Pass	RB
4929.569	41.62	4.56	-8.76	37.42	Average Max	H	128	50	54	-16.58	Pass	RB
3282.565	58.23	3.51	-11.08	50.66	Peak	H	100	0	54	-3.34	Pass	NRB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB
2483.83066	Power Setting = 15.0			72.31	Peak Max	V	--	--	74	-1.69	Pass	Band Edge
2483.66533				49.19	Average Max	V	--	--	54	-4.81	Pass	Band Edge

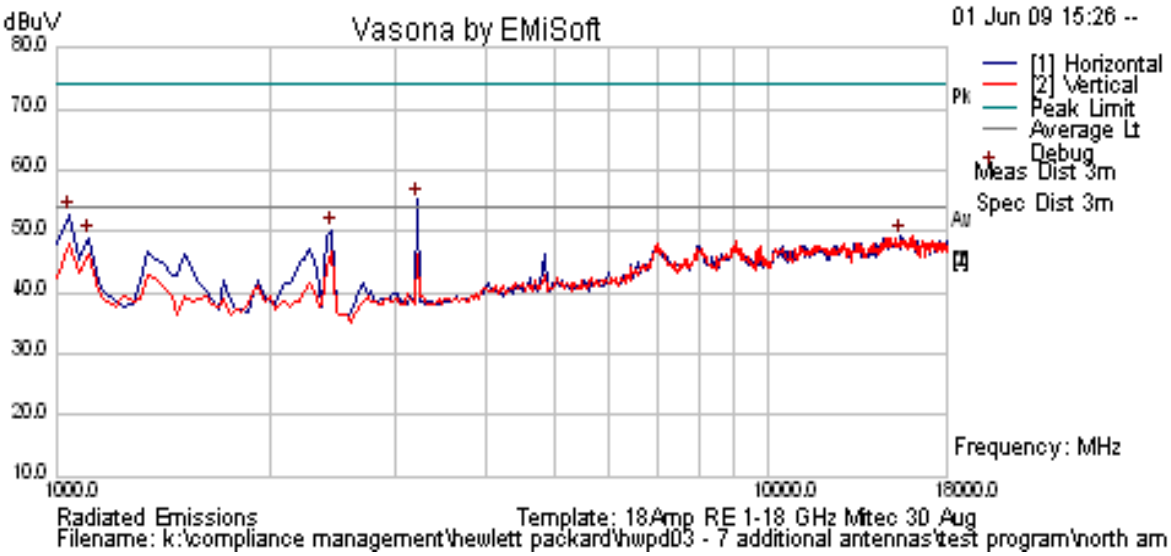
Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band





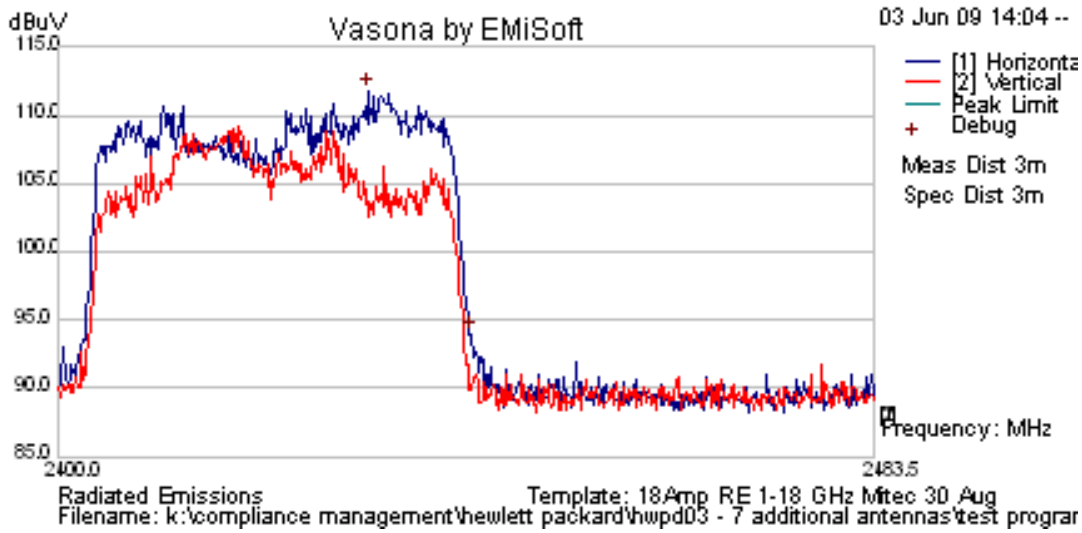
Date: 29.MAY.2009 10:37:49

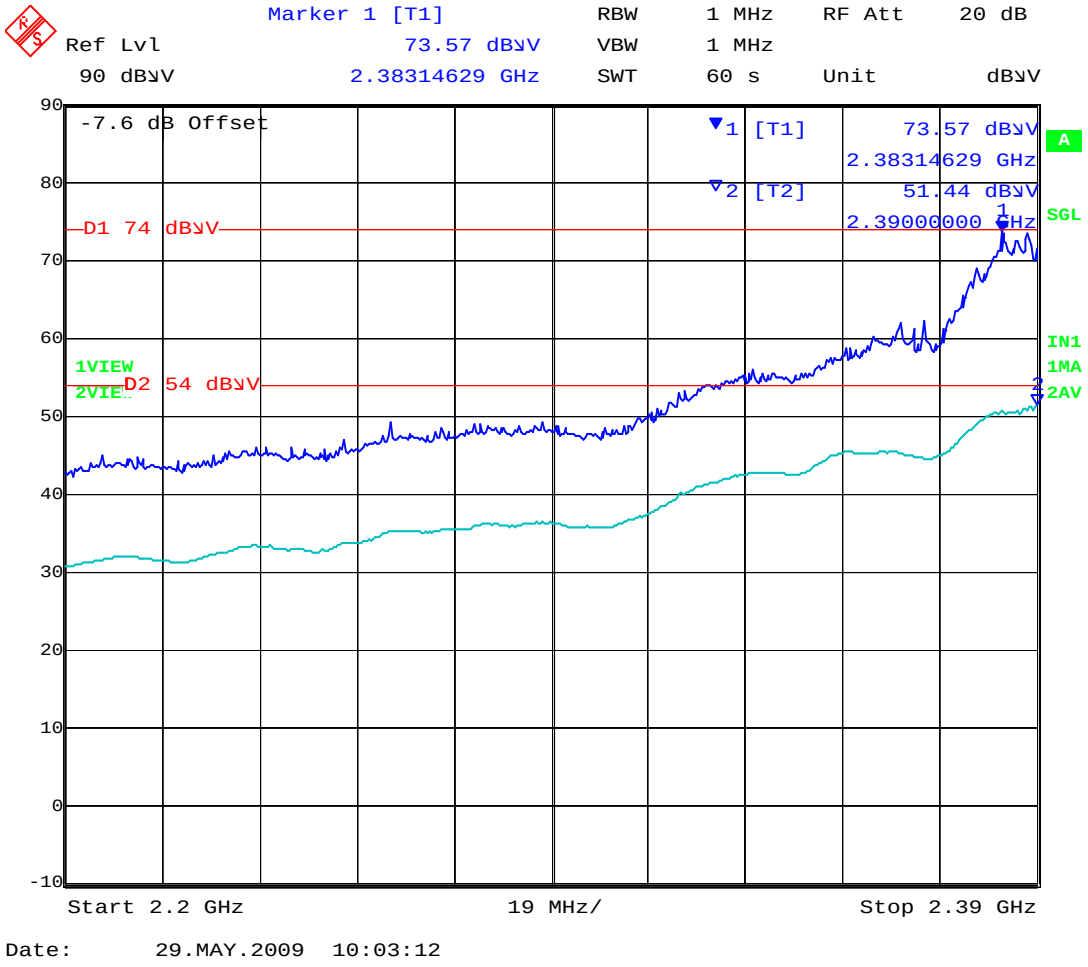
Date	6/1/2009
Engineer	GMH Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions >
Test Case	1GHz
Frequency	2422
Antenna Model	J9171A Antenna / Gain = 3 dBi
Power setting	18 in ART Test Utility
Test Conditions	802.11n HT-40 13.5 MCS; MSM-410 Platform Radio



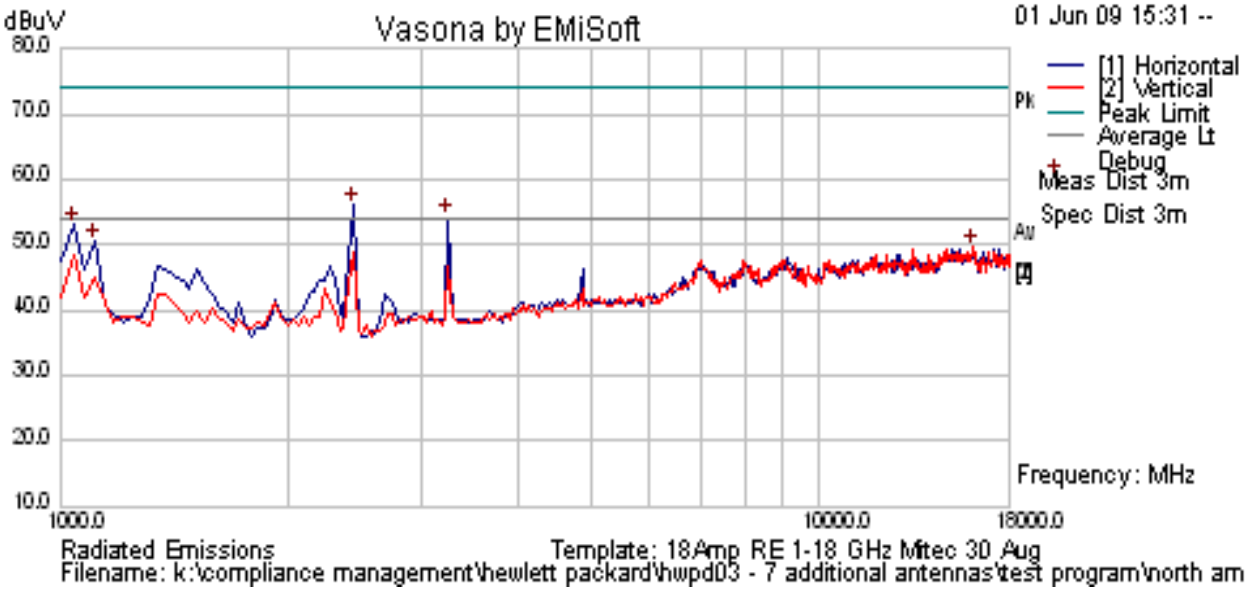
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2431.292	66.47	12.97	32.36	111.8	Peak [Scan]	H						
3214.429	62.67	3.48	-11.07	55.08	Peak	H	100	0	54	1.08	Fail	NRB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB
2383.14629	Power Setting = 13.0			73.57	Peak Max	V	--	--	74	-0.43	Pass	Band Edge
2390.0000				51.44	Average Max	V	--	--	54	-2.56	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



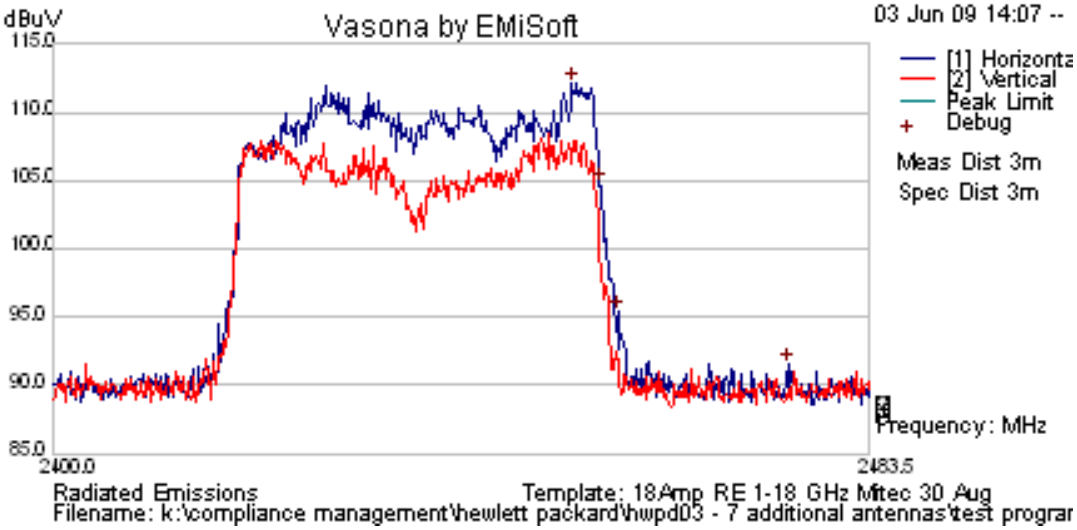


Date	6/1/2009
Engineer	GMH Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions >
Test Case	1GHz
Frequency	2437
Antenna Model	J9171A Antenna / Gain = 3 dBi
Power setting	18 in ART Test Utility
Test Conditions	802.11n HT-40 13.5 MCS; MSM-410 Platform Radio

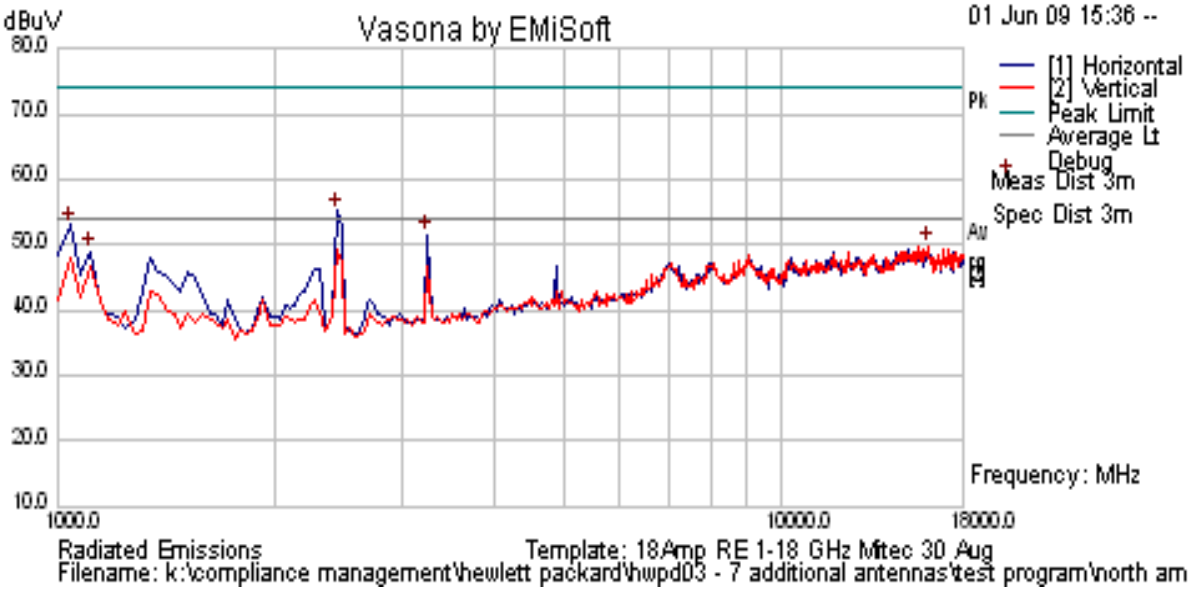


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2452.71	66.76	12.98	32.37	112.1	Peak [Scan]	H						
3248.497	61.72	3.49	-11.14	54.08	Peak	H	100	0	54	0.08	Fail	NRB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

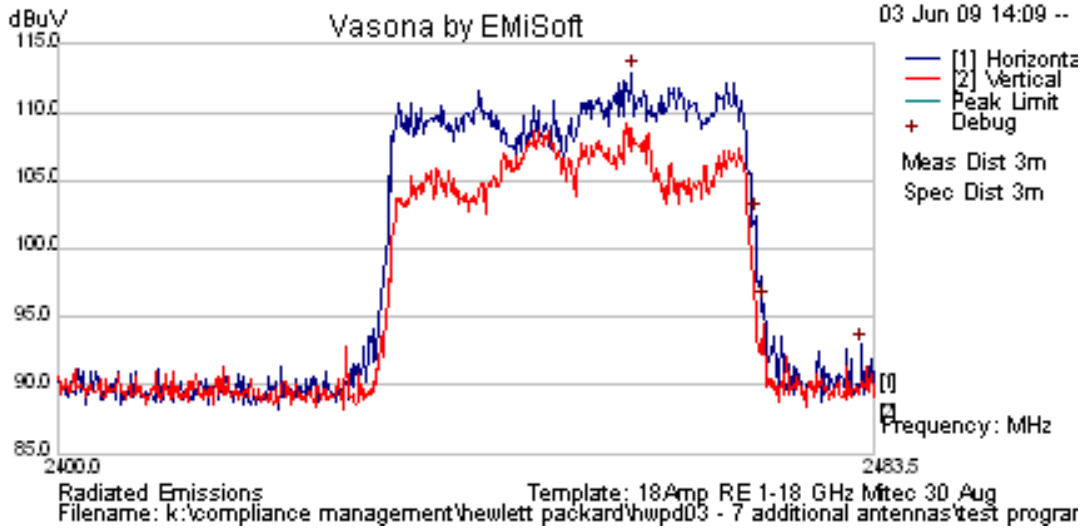


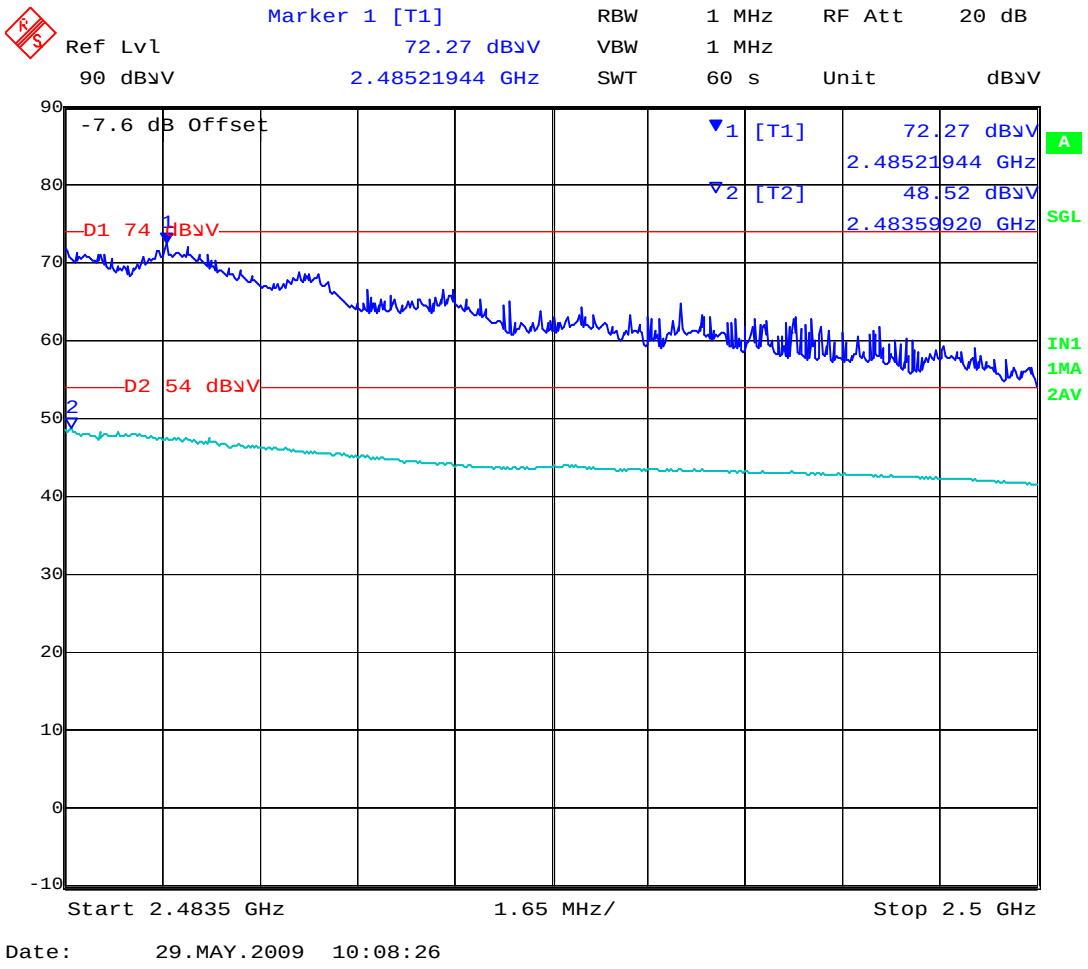
Date	6/1/2009
Engineer	GMH
Test Case	Project Number - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	2452
Antenna Model	J9171A Antenna / Gain = 3 dBi
Power setting	18 in ART Test Utility
Test Conditions	802.11n HT-40 13.5 MCS; MSM-410 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
2458.4	67.55	12.98	32.38	112.9	Peak [Scan]	H						
3248.497	59.18	3.49	-11.14	51.54	Peak	H	100	0	54	-2.46	Pass	NRB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB
2485.21944	Power Setting = 12.5			72.27	Peak Max	V	--	--	74	-1.73	Pass	Band Edge
2483.59920				48.52	Average Max	V	--	--	54	-5.48	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

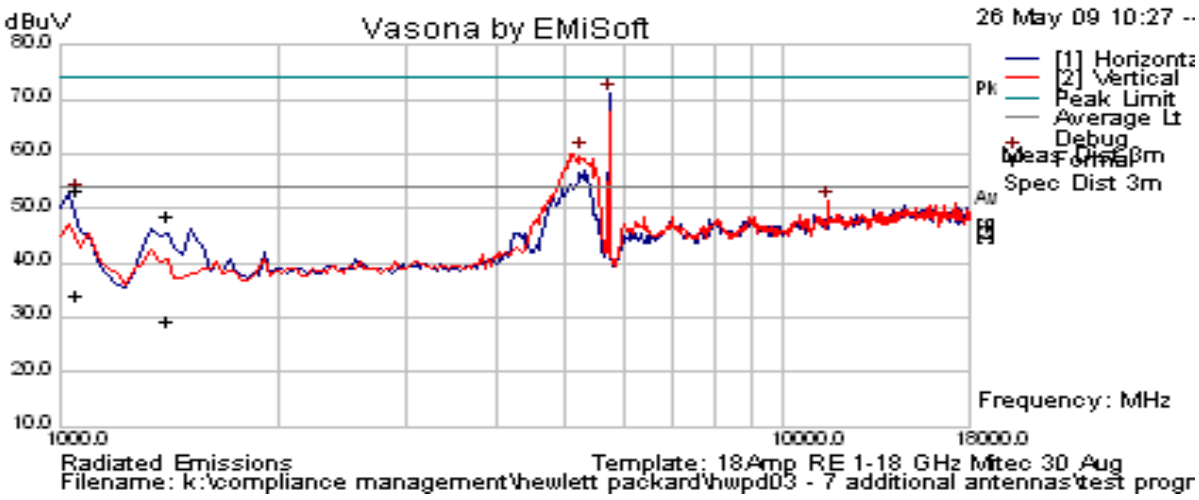




Date: 29.MAY.2009 10:08:26

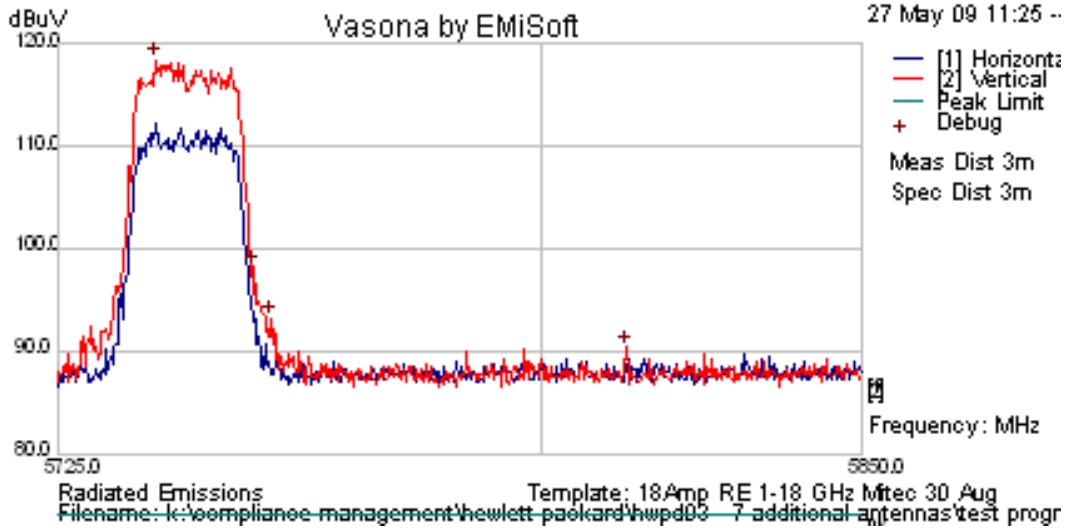
ANTENNA J9169A Radiated Emissions in the 5,725 – 5,850 MHz Band

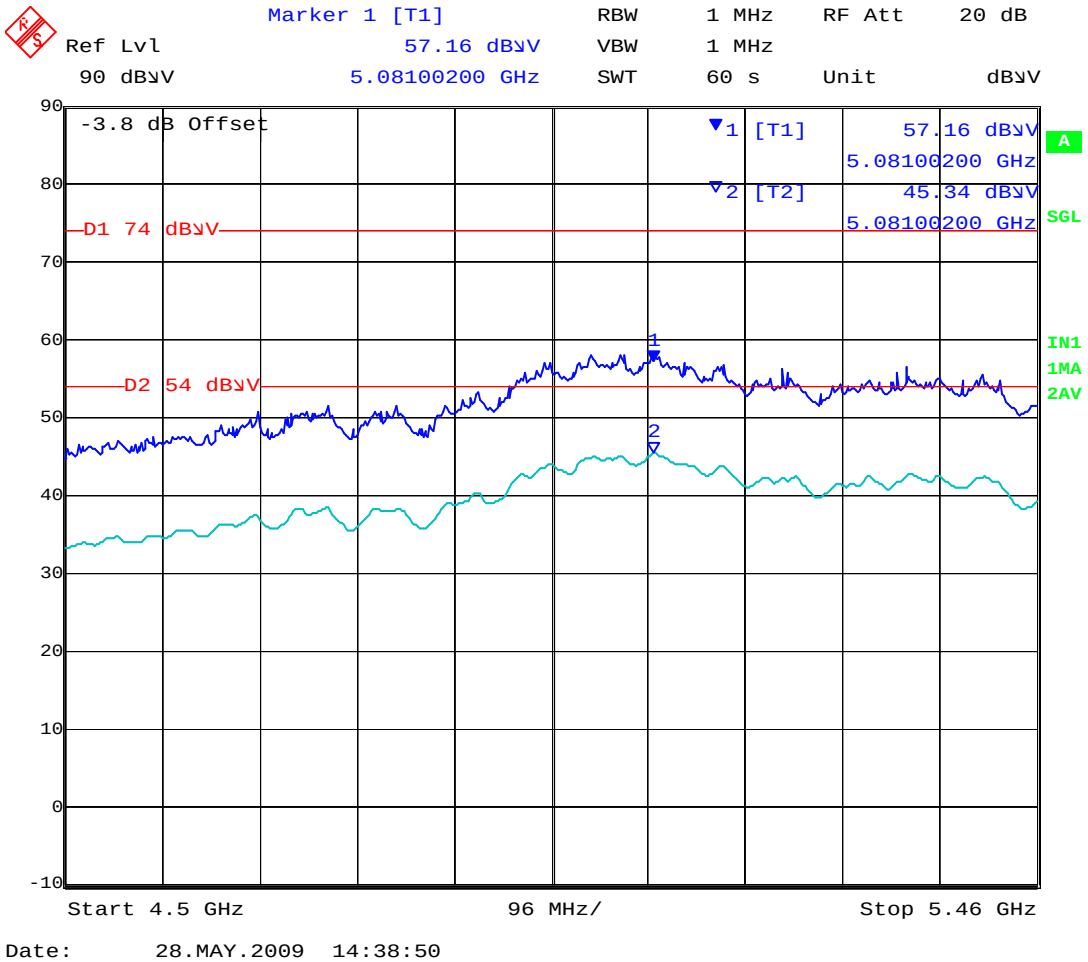
Date	26th May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5745
Antenna Model	J9169A Antenna / Gain = 10.7 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11a 6.5 Mb/s; MSM410 DNMA-83 Platform Radio



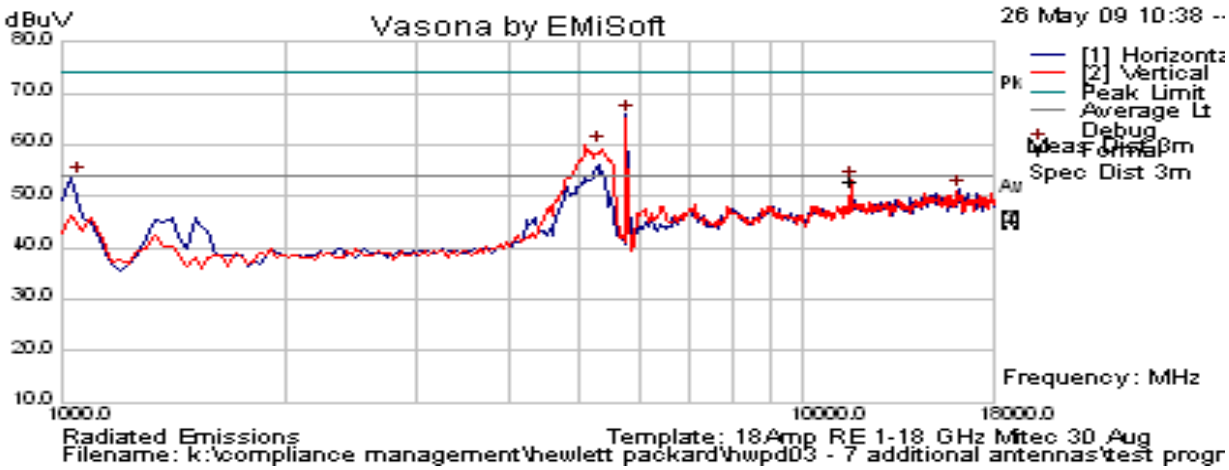
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5740.03	68.62	14.75	35.1	118.5	Peak [Scan]	V						
1057.833	47.56	2.01	-15.65	33.92	Average Max	H	143	136	54	-20.08	Pass	RB
1057.833	67.03	2.01	-15.65	53.39	Peak Max	H	143	136	74	-20.61	Pass	RB
11492.99	45.95	6.79	-1.37	51.37	Peak [Scan]	V	100	0	54	-2.63	Pass	RB
11492.99	45.95	6.79	-1.37	51.37	Peak [Scan]	V	100	0	54	-2.63	Pass	RB
5081.0020	Power Setting = 18			57.16	Peak Max	V	--	--	74	-16.84	Pass	Band Edge
5081.0020				45.34	Average Max	V	--	--	54	-8.66	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



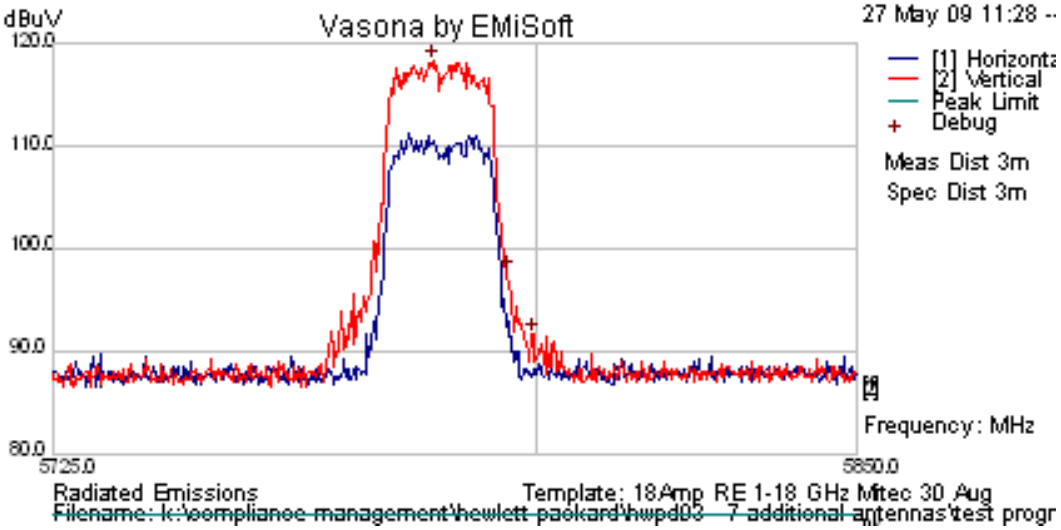


Date	26th May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5785
Antenna Model	J9169A Antenna / Gain = 10.7 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11a 6.5 Mb/s; MSM410 DNMA-83 Platform Radio

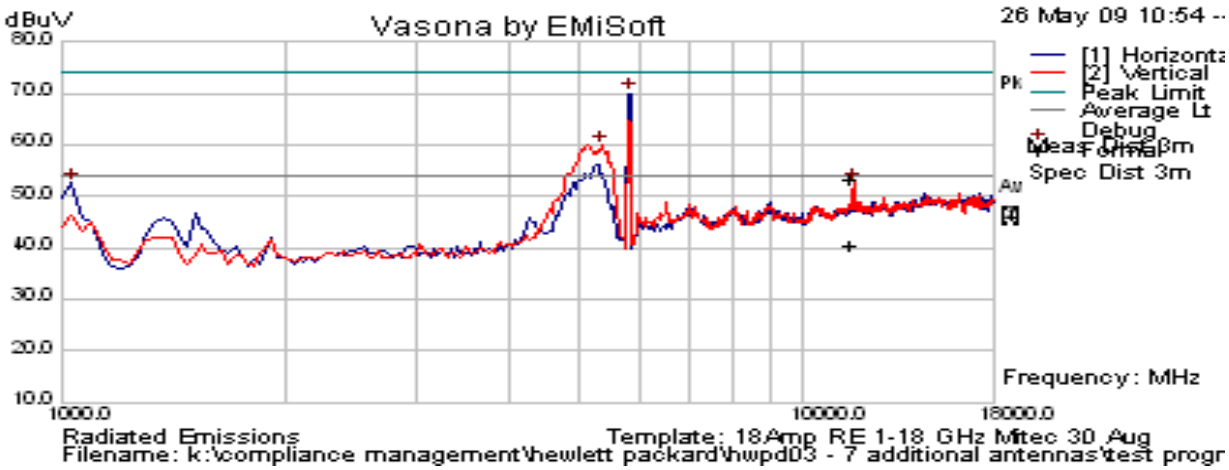


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5783.868	68.44	14.78	35.13	118.4	Peak [Scan]	V						
11572.43	47.7	6.81	-1.1	53.4	Peak Max	V	151	219	74	-20.6	Pass	RB
11572.43	34.76	6.81	-1.1	40.47	Average Max	V	151	219	54	-13.53	Pass	RB
1057.833	47.56	2.01	-15.65	33.92	Average Max	H	143	136	54	-20.08	Pass	RB
1057.833	67.03	2.01	-15.65	53.39	Peak Max	H	143	136	74	-20.61	Pass	RB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

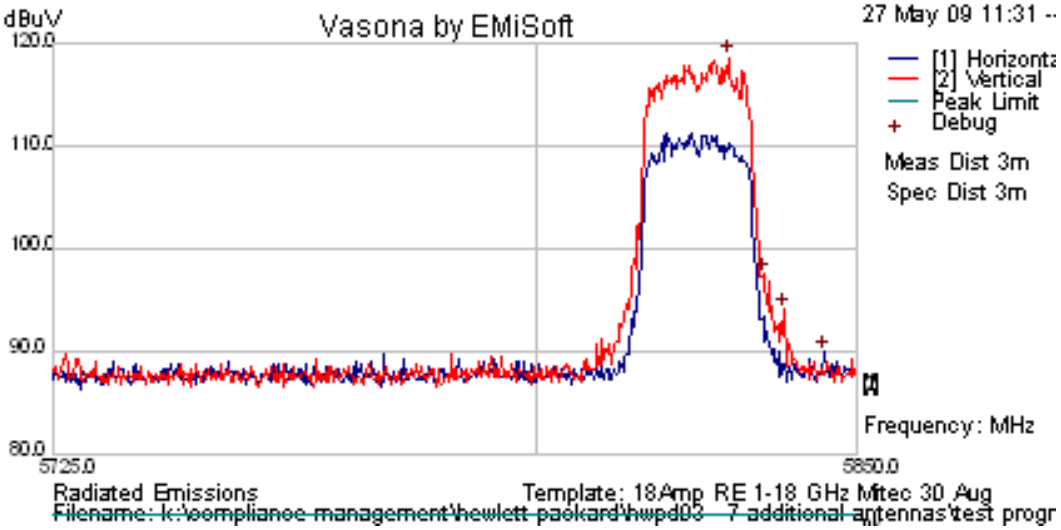


Date	26th May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5825
Antenna Model	J9169A Antenna / Gain = 10.7 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11a 6.5 Mb/s; MSM410 DNMA-83 Platform Radio

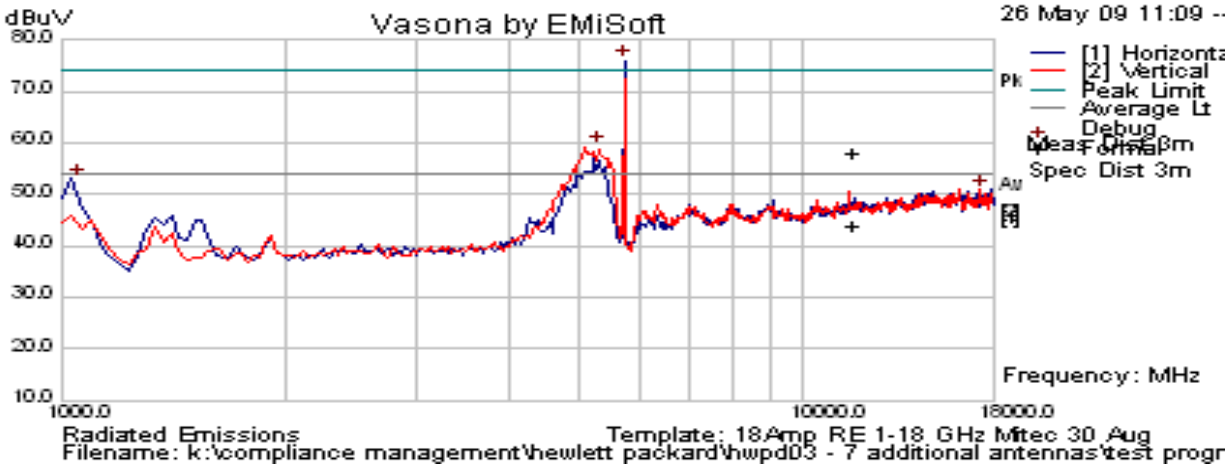


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5829.96	68.67	14.8	35.17	118.6	Peak [Scan]	V						
11646.4	52.18	6.83	-1.01	58	Peak Max	V	142	238	74	-16	Pass	RB
11646.4	38.21	6.83	-1.01	44.03	Average Max	V	142	238	54	-9.97	Pass	RB
1057.833	47.56	2.01	-15.65	33.92	Average Max	H	143	136	54	-20.08	Pass	RB
1057.833	67.03	2.01	-15.65	53.39	Peak Max	H	143	136	74	-20.61	Pass	RB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

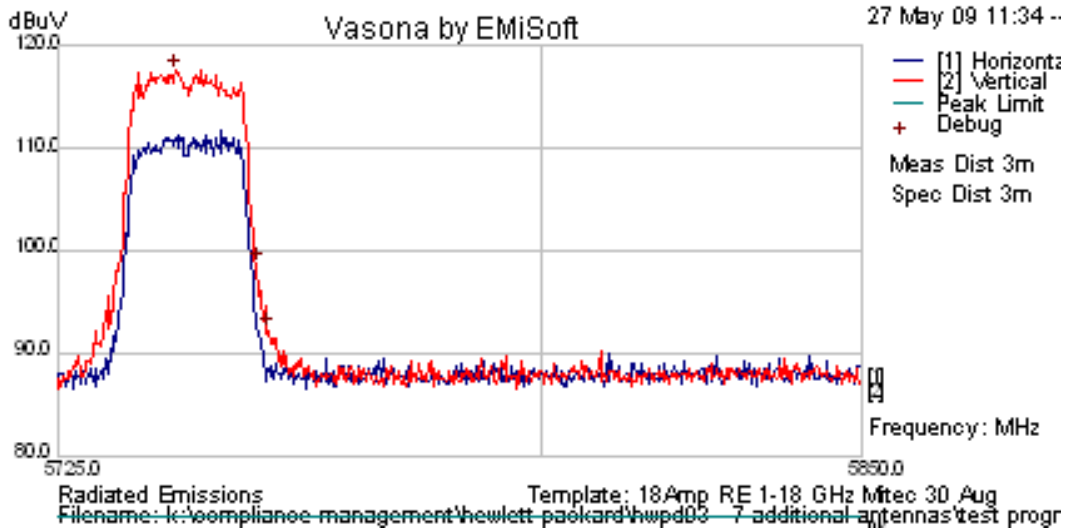


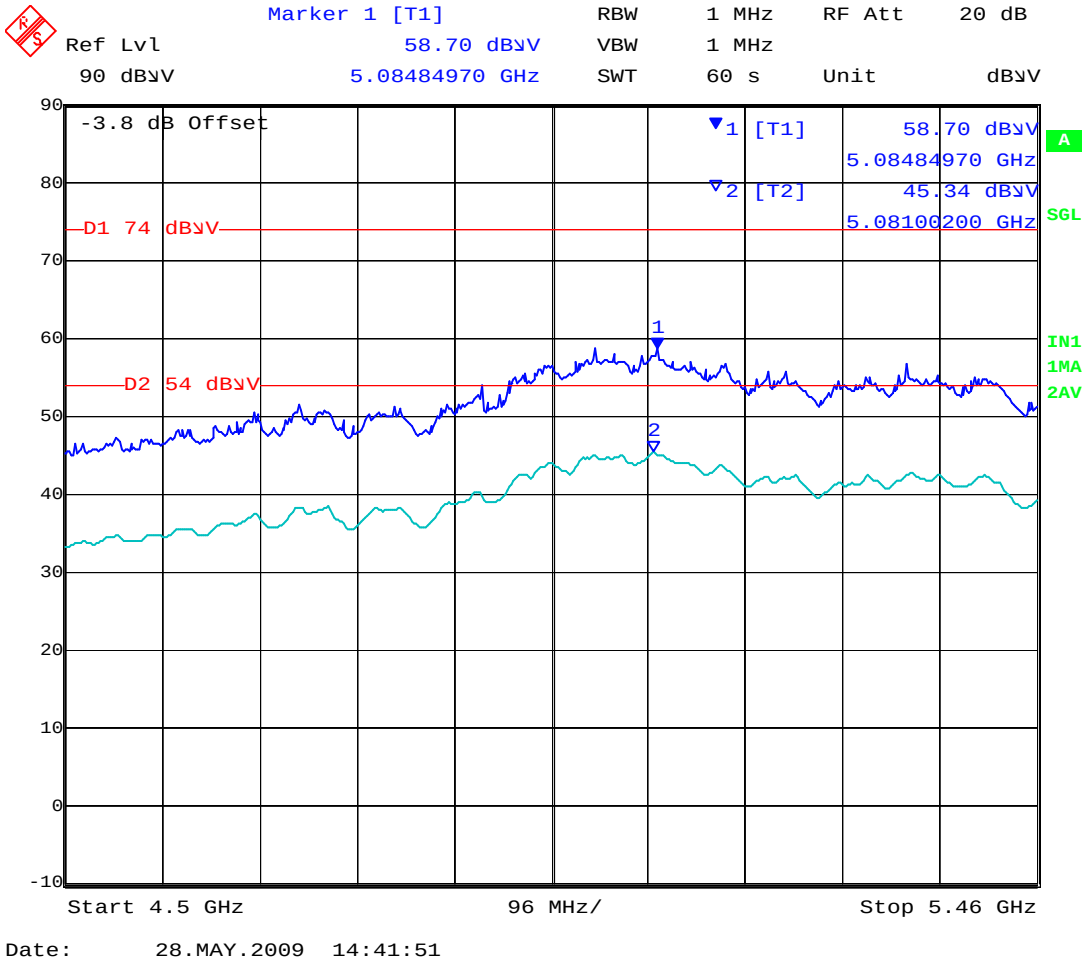
Date	26th May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5745
Antenna Model	J9169A Antenna / Gain = 10.7 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11 HT-20 6.5 MCS MSM410 DNMA-83 Platform Radio



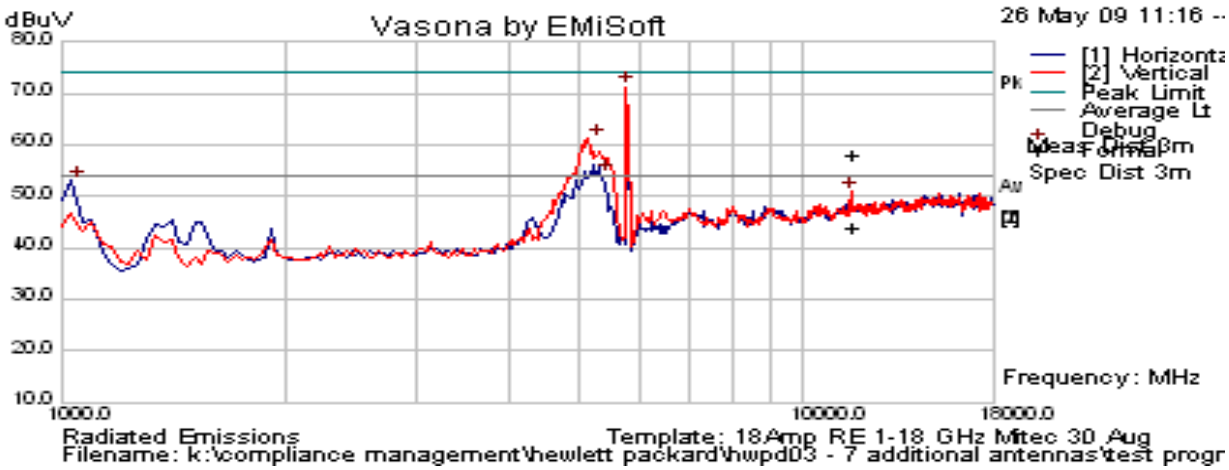
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5743.287	67.76	14.75	35.1	117.6	Peak [Scan]	V						
1057.833	47.56	2.01	-15.65	33.92	Average Max	H	143	136	54	-20.08	Pass	RB
1057.833	67.03	2.01	-15.65	53.39	Peak Max	H	143	136	74	-20.61	Pass	RB
5084.84970	Power Setting = 18			58.70	Peak Max	V	--	--	74	-15.30	Pass	Band Edge
5081.00200				45.34	Average Max	V	--	--	54	-8.66	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



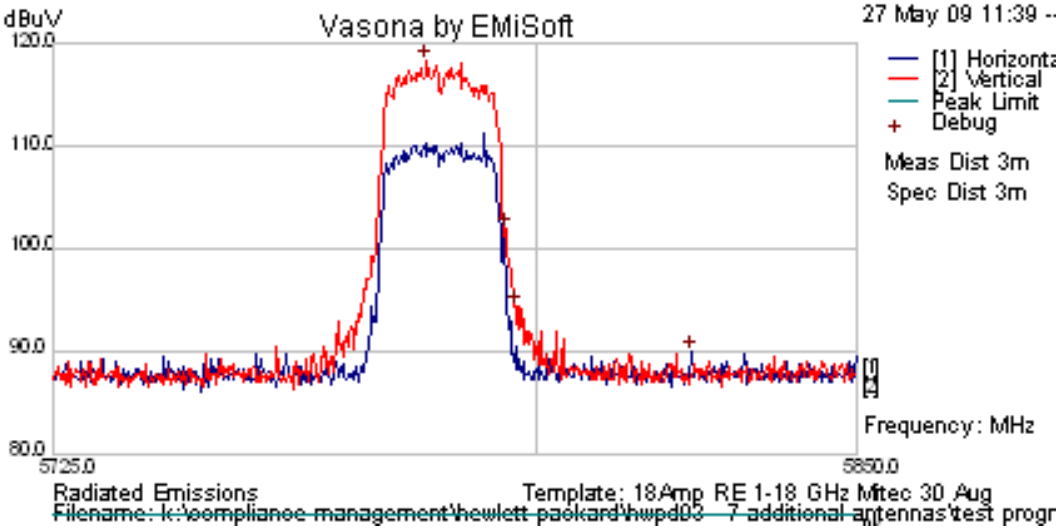


Date	26th May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5785
Antenna Model	J9169A Antenna / Gain = 10.7 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11 HT-20 6.5 MCS MSM410 DNMA-83 Platform Radio

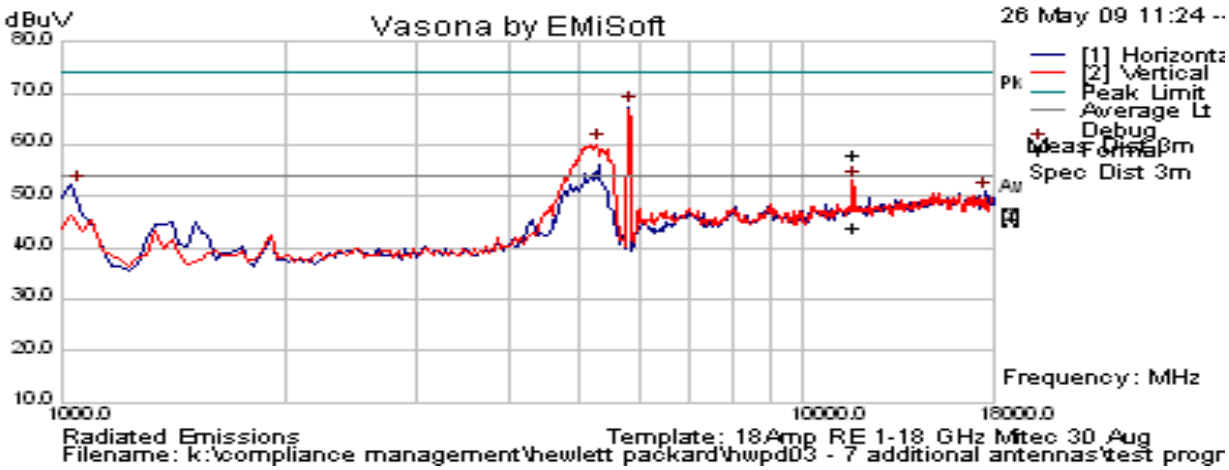


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5782.866	68.46	14.78	35.13	118.4	Peak [Scan]	V						
1057.833	47.56	2.01	-15.65	33.92	Average Max	H	143	136	54	-20.08	Pass	RB
1057.833	67.03	2.01	-15.65	53.39	Peak Max	H	143	136	74	-20.61	Pass	RB
11572.43	47.7	6.81	-1.1	53.4	Peak Max	V	151	219	74	-20.6	Pass	RB
11572.43	34.76	6.81	-1.1	40.47	Average Max	V	151	219	54	-13.53	Pass	RB

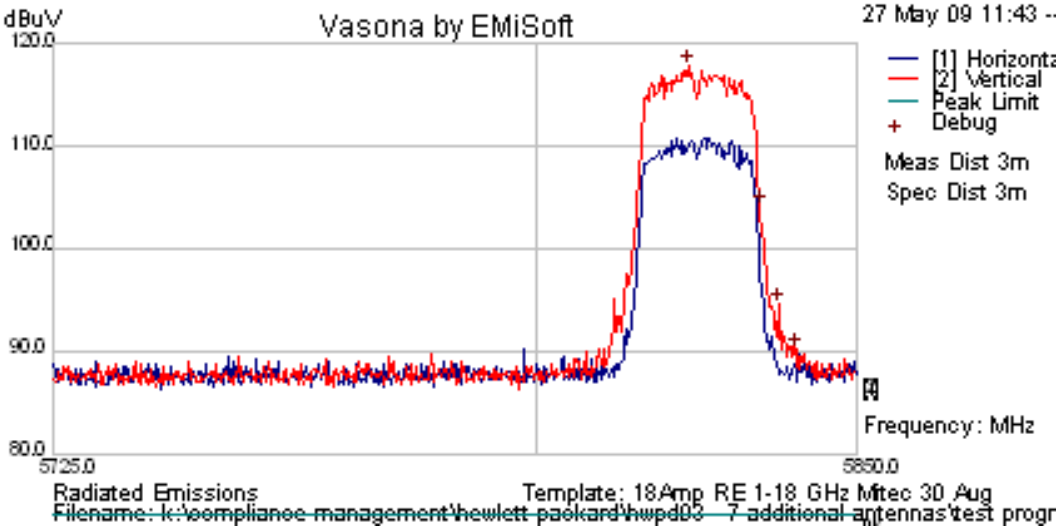
Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band


dBuV
Vasona by EMiSoft
27 May 09 11:39
120.0
110.0
100.0
90.0
80.0
5725.0
5850.0
[1] Horizonta
[2] Vertical
Peak Limit
Debug
Meas Dist 3m
Spec Dist 3m
Frequency: MHz
Radiated Emissions
Template: 18Amp RE 1-18 GHz Mitec 30 Aug
Filename: k:\compliance management\hewlett packard\hwpd03 7 additional antennas\test progr

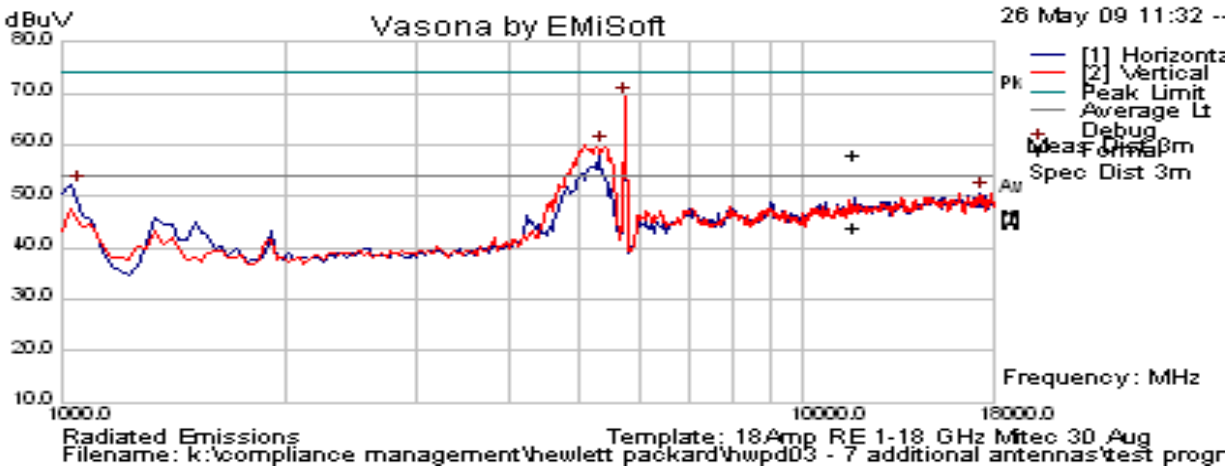
Date	26th May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5825
Antenna Model	J9169A Antenna / Gain = 10.7 dBi
Power setting	18 dBm in ART Test Utility
Test Conditions	802.11 HT-20 6.5 MCS MSM410 DNMA-83 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5823.697	67.87	14.8	35.16	117.8	Peak [Scan]	V						
1057.833	47.56	2.01	-15.65	33.92	Average Max	H	143	136	54	-20.08	Pass	RB
1057.833	67.03	2.01	-15.65	53.39	Peak Max	H	143	136	74	-20.61	Pass	RB
11646.4	52.18	6.83	-1.01	58	Peak Max	V	142	238	74	-16	Pass	RB
11646.4	38.21	6.83	-1.01	44.03	Average Max	V	142	238	54	-9.97	Pass	RB

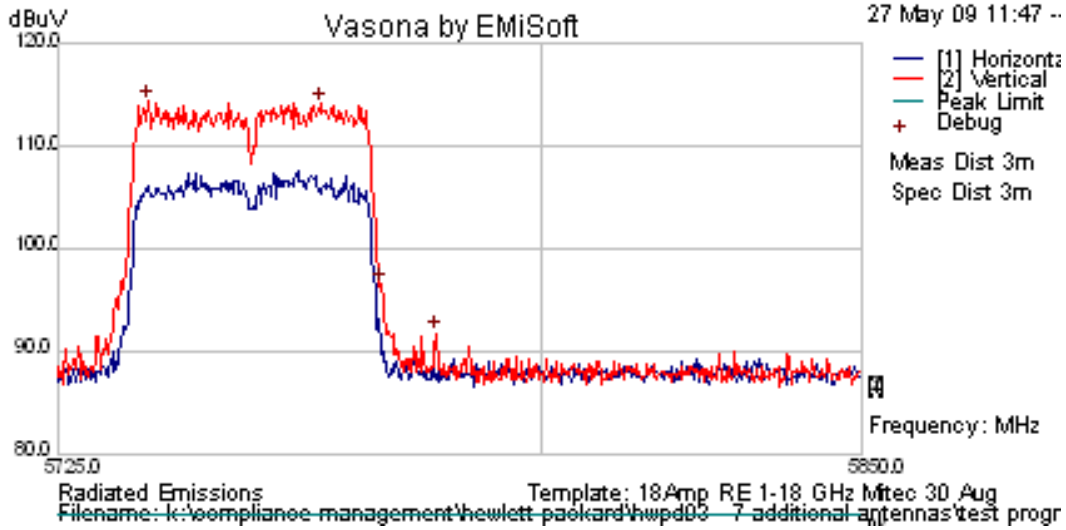

dBuV
Vasona by EMiSoft
27 May 09 11:43
120.0
110.0
100.0
90.0
80.0
[1] Horizonta
[2] Vertical
Peak Limit
Debug
Meas Dist 3m
Spec Dist 3m
Frequency: MHz
5725.0
5850.0
Radiated Emissions
Template: 18Amp RE 1-18 GHz Mitec 30 Aug
Filename: k:\compliance management\hewlett packard\hwpd03 7 additional antennas\test progr

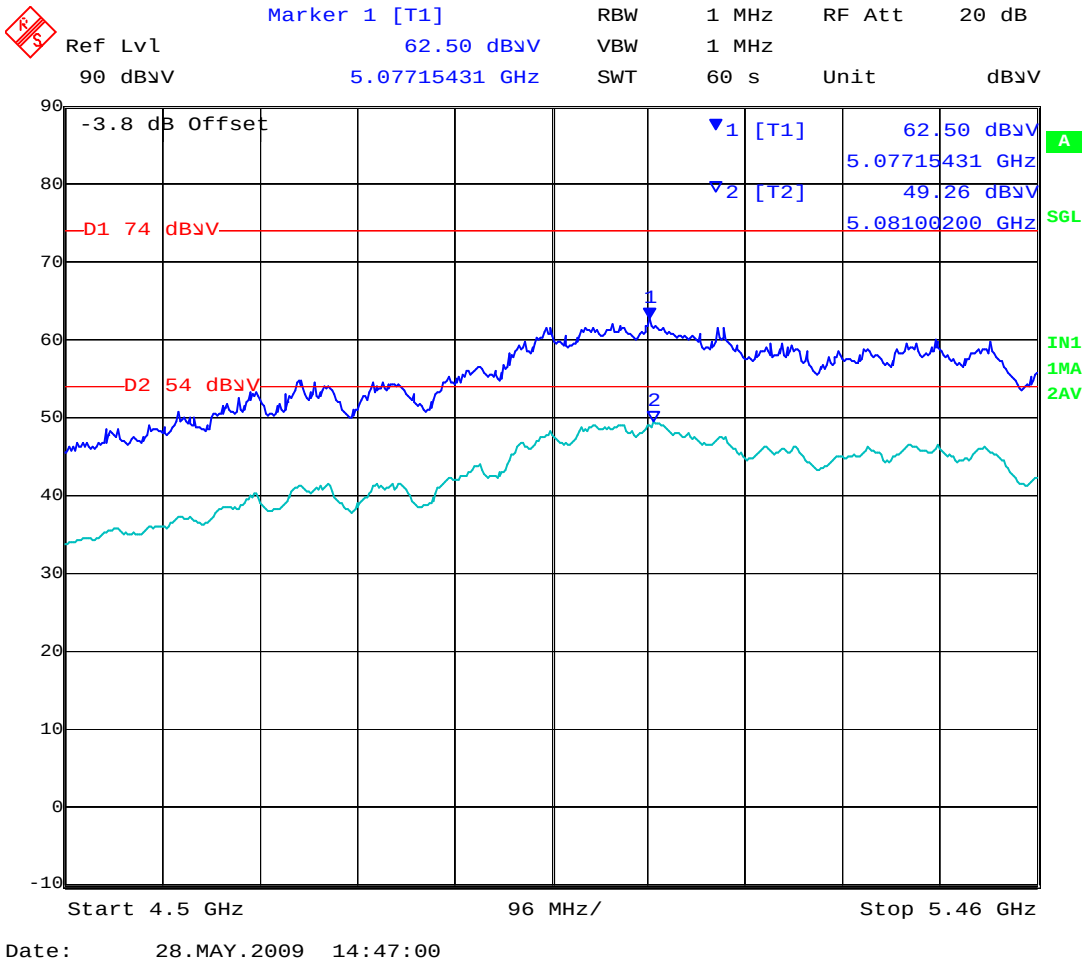
Date	26th May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5755
Antenna Model	J9169A Antenna / Gain = 10.7 dBi
Power setting	17 dBm in ART Test Utility
Test Conditions	802.11 HT-40 13.5 MCS MSM410 DNMA-83 Platform Radio



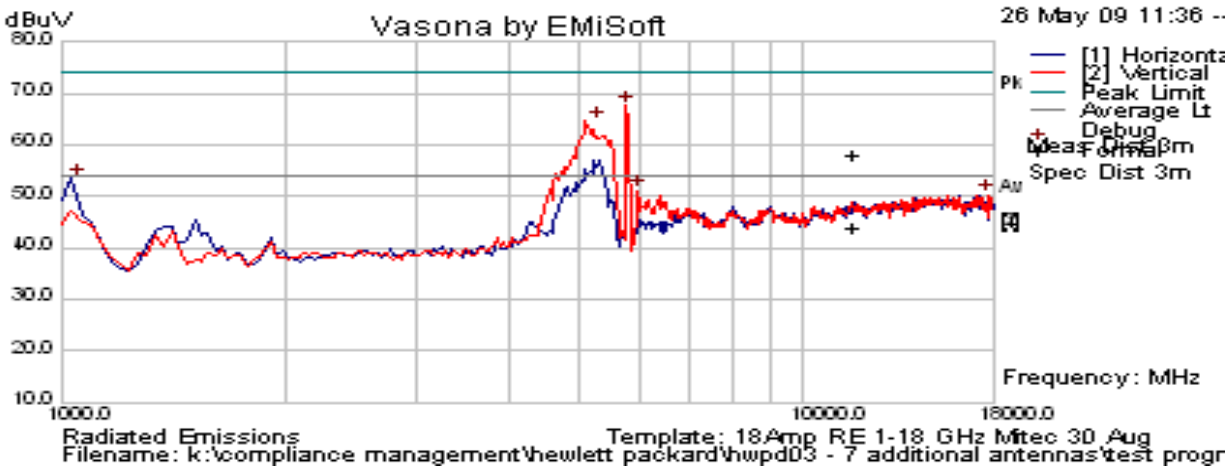
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5739.028	64.56	14.75	35.1	114.4	Peak [Scan]	V						
1057.833	47.56	2.01	-15.65	33.92	Average Max	H	143	136	54	-20.08	Pass	RB
1057.833	67.03	2.01	-15.65	53.39	Peak Max	H	143	136	74	-20.61	Pass	RB
5077.15431	Power Setting = 16.5			62.50	Peak Max	V	--	--	74	-11.50	Pass	Band Edge
5081.00200				49.26	Average Max	V	--	--	54	-4.74	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



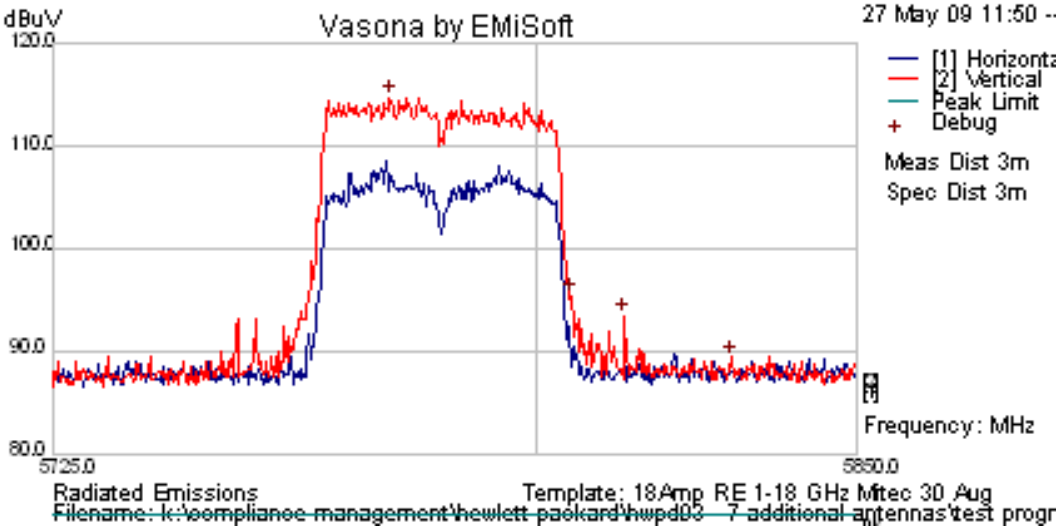


Date	26th May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5785
Antenna Model	J9169A Antenna / Gain = 10.7 dBi
Power setting	17 dBm in ART Test Utility
Test Conditions	802.11 HT-40 13.5 MCS MSM410 DNMA-83 Platform Radio

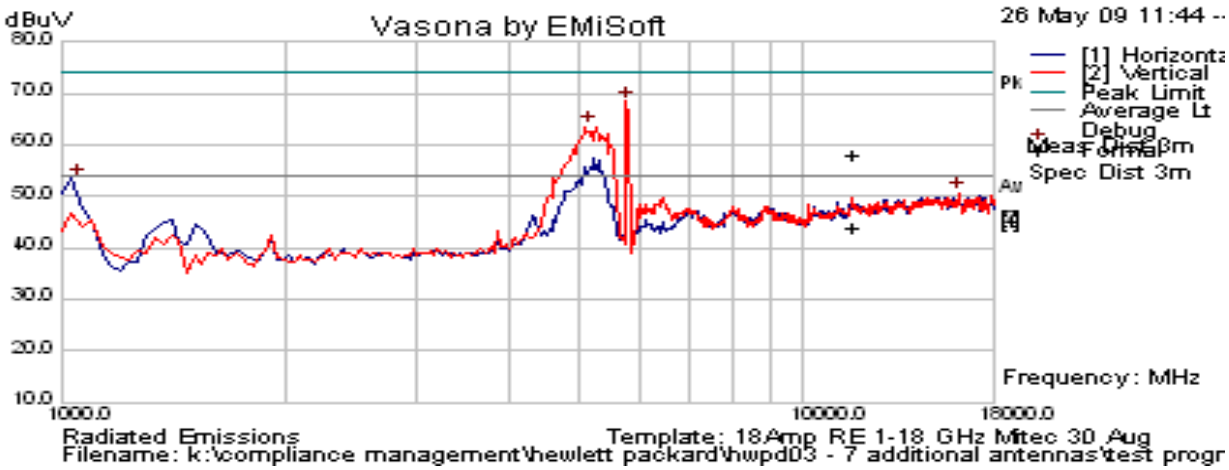


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5777.104	64.86	14.77	35.13	114.8	Peak [Scan]	V						
1057.833	47.56	2.01	-15.65	33.92	Average Max	H	143	136	54	-20.08	Pass	RB
1057.833	67.03	2.01	-15.65	53.39	Peak Max	H	143	136	74	-20.61	Pass	RB
5983.246	53.66	4.88	-7.45	51.09	Peak [Scan]	V	100	0	54	-2.91	Pass	NRB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

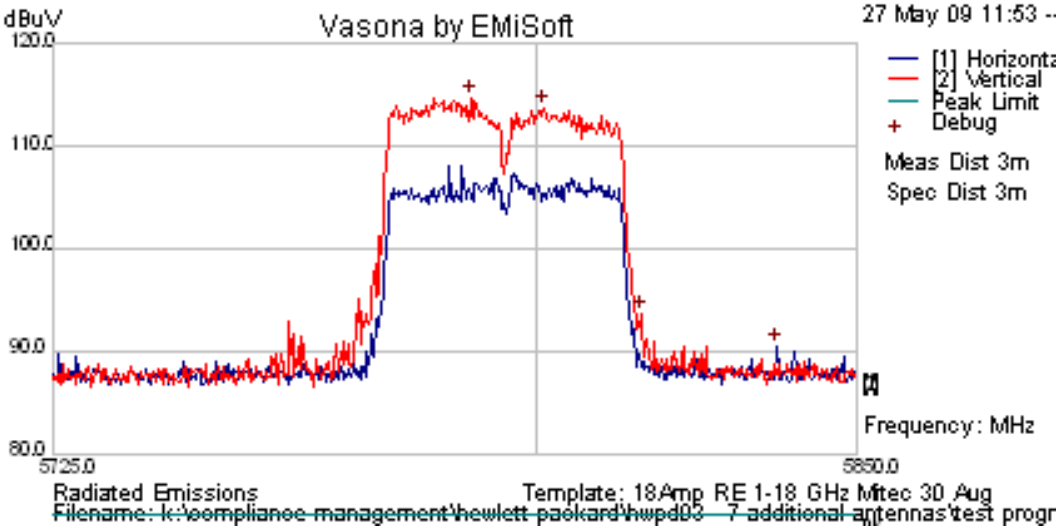

dBuV
Vasona by EMiSoft
27 May 09 11:50 --
120.0
110.0
100.0
90.0
80.0
5725.0
5850.0
[1] Horizonta
[2] Vertical
Peak Limit
Debug
Meas Dist 3m
Spec Dist 3m
Frequency: MHz
Radiated Emissions
Template: 18Amp RE 1-18 GHz Mitec 30 Aug
Filename: k:\compliance management\hewlett packard\hwpd03 7 additional antennas\test progr

Date	26th May, 2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5795
Antenna Model	J9169A Antenna / Gain = 10.7 dBi
Power setting	17 dBm in ART Test Utility
Test Conditions	802.11 HT-40 13.5 MCS MSM410 DNMA-83 Platform Radio



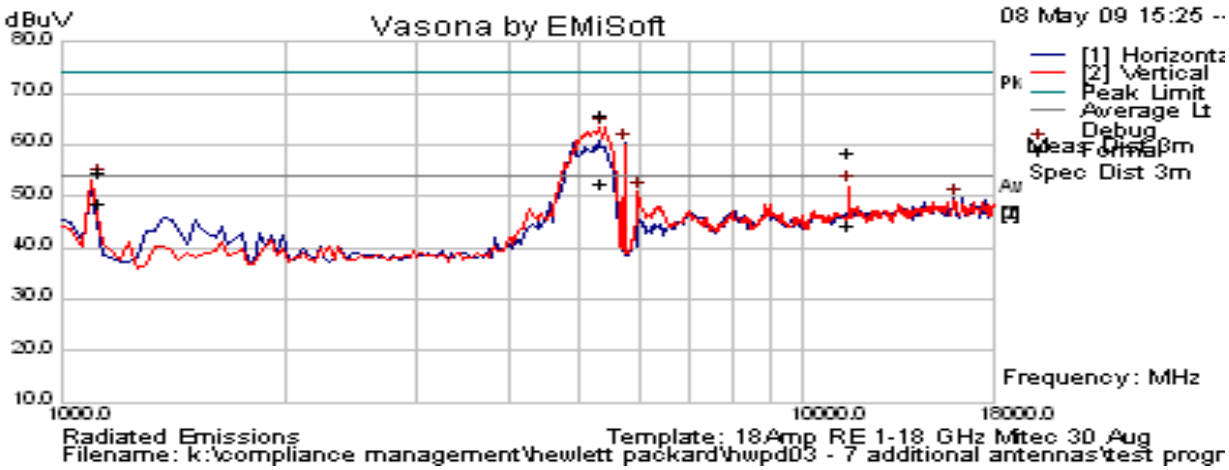
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5789.629	64.8	14.78	35.14	114.7	Peak [Scan]	V						
1057.833	47.56	2.01	-15.65	33.92	Average Max	H	143	136	54	-20.08	Pass	RB
1057.833	67.03	2.01	-15.65	53.39	Peak Max	H	143	136	74	-20.61	Pass	RB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band


dBuV
Vasona by EMiSoft
27 May 09 11:53 --
120.0
110.0
100.0
90.0
80.0
5725.0
5850.0
[1] Horizonta
[2] Vertical
Peak Limit
Debug
Meas Dist 3m
Spec Dist 3m
Frequency: MHz
Radiated Emissions
Template: 18Amp RE 1-18 GHz Mitec 30 Aug
Filename: k:\compliance management\hewlett packard\hwpd03 7 additional antennas\test progr

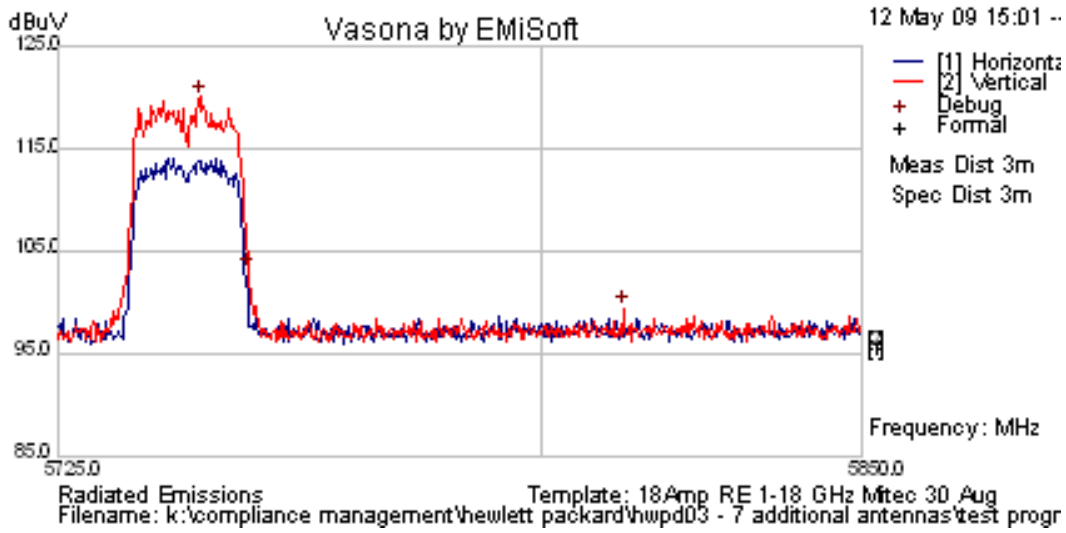
ANTENNA J9170A Radiated Emissions in the 5,725 – 5,850 MHz Band

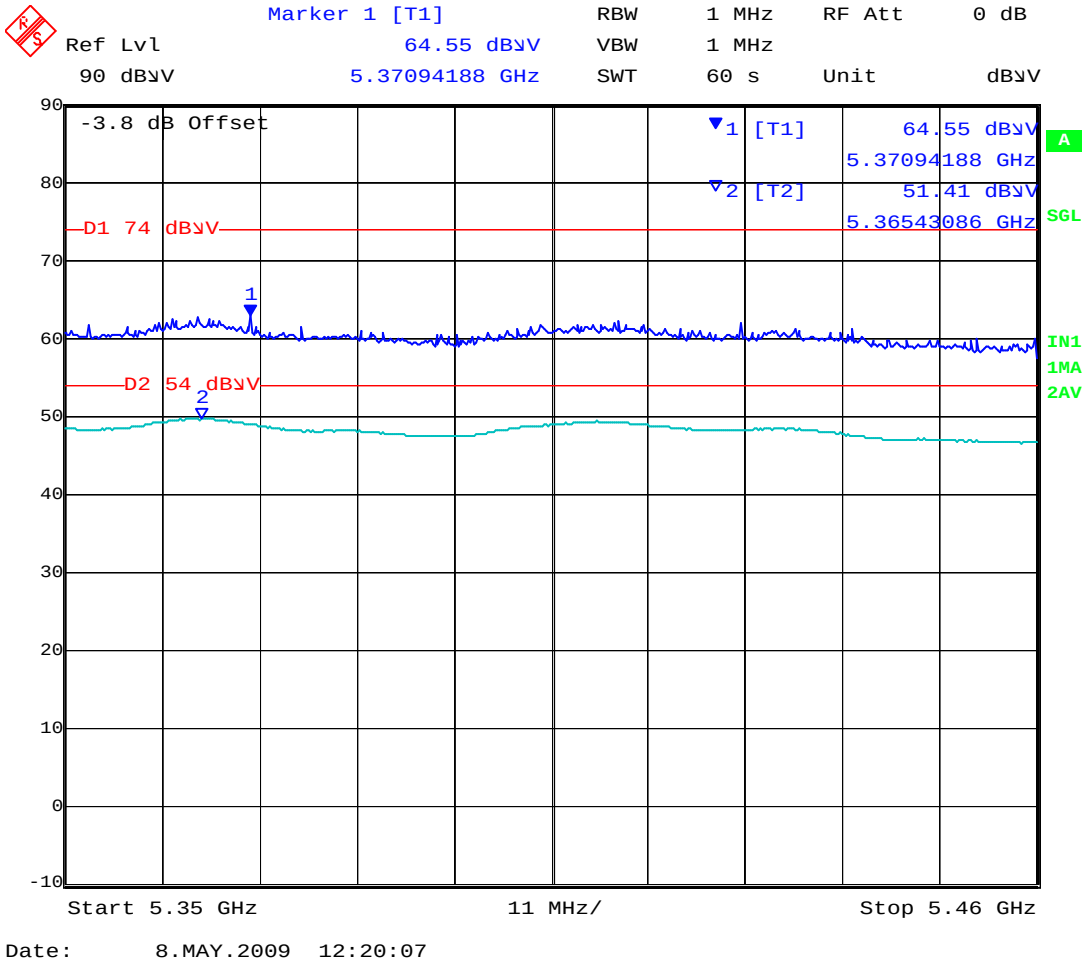
Date	5/8/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	5745
Antenna Model	J9170A Antenna / Gain = 13.5 dBi
Power setting	16.5 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11a 6 Mb/s; CH1 MSM410 Platform Radio 1



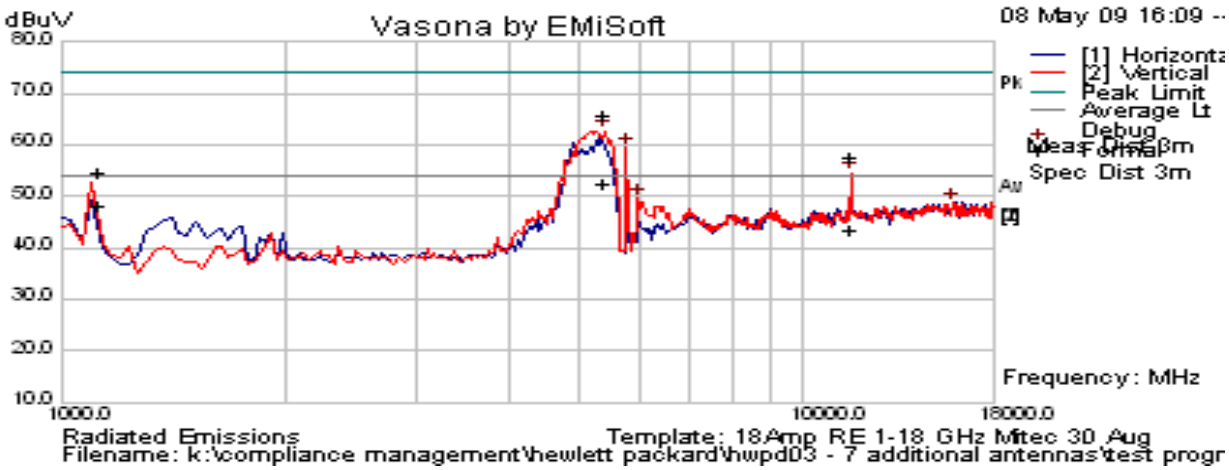
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Pass	Comments
5747.044	70.33	14.76	35.1	120.2	Peak [Scan]	V						
1125.048	68.02	2.07	-15.52	54.58	Peak Max	V	99	114	74	-19.42	Pass	RB
1125.048	62.19	2.07	-15.52	48.74	Average Max	V	99	114	54	-5.26	Pass	RB
5358.818	69.71	4.62	-8.44	65.89	Peak Max	V	98	97	74	-8.11	Pass	RB
5358.818	56.45	4.62	-8.44	52.63	Average Max	V	98	97	54	-1.37	Pass	RB
11486.31	52.99	6.79	-1.37	58.41	Peak Max	V	119	345	74	-15.59	Pass	RB
11486.31	39.03	6.79	-1.37	44.46	Average Max	V	119	345	54	-9.54	Pass	RB
5984.289	53.58	4.88	-7.45	51.01	Peak [Scan]	V	100	0	54	-2.99	Pass	NRB
5370.94188	Power Setting = 16.5			64.55	Peak Max	V	--	--	74	-9.45	Pass	Band Edge
5365.43086				51.41	Average Max	V	--	--	54	-2.59	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



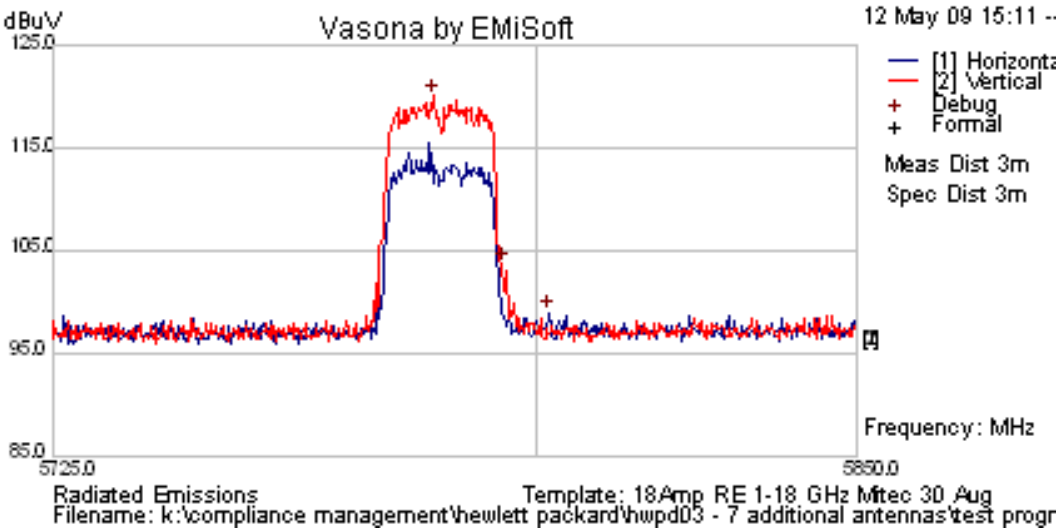


Date	5/8/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	5785
Antenna Model	J9170A Antenna / Gain = 13.5 dBi
Power setting	17.5 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11a 6 Mb/s; CH6 MSM410 Platform Radio 1

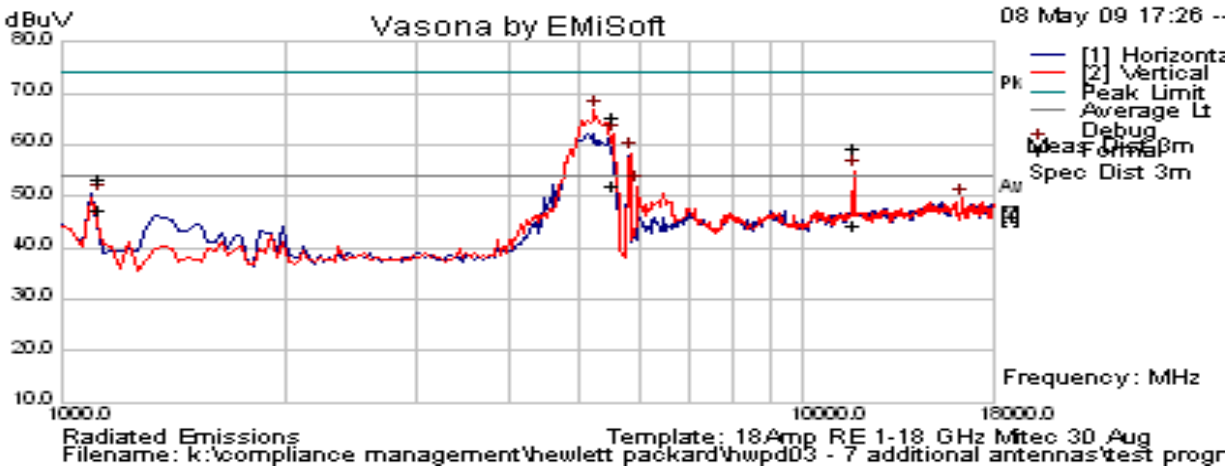


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Pass	Comments
5783.868	70.24	14.78	35.13	120.2	Peak [Scan]	V						
1125.115	67.9	2.07	-15.52	54.45	Peak Max	V	98	117	74	-19.55	Pass	RB
1125.115	61.78	2.07	-15.52	48.34	Average Max	V	98	117	54	-5.66	Pass	RB
5407.455	69.71	4.62	-8.42	65.91	Peak Max	V	122	101	74	-8.09	Pass	RB
5407.455	56.06	4.62	-8.42	52.26	Average Max	V	122	101	54	-1.74	Pass	RB
11567.62	52.04	6.81	-1.11	57.74	Peak Max	V	128	348	74	-16.26	Pass	RB
11567.62	37.66	6.81	-1.11	43.35	Average Max	V	128	348	54	-10.65	Pass	RB
5991.182	52.22	4.89	-7.45	49.65	Peak [Scan]	V	100	0	54	-4.35	Pass	NRB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

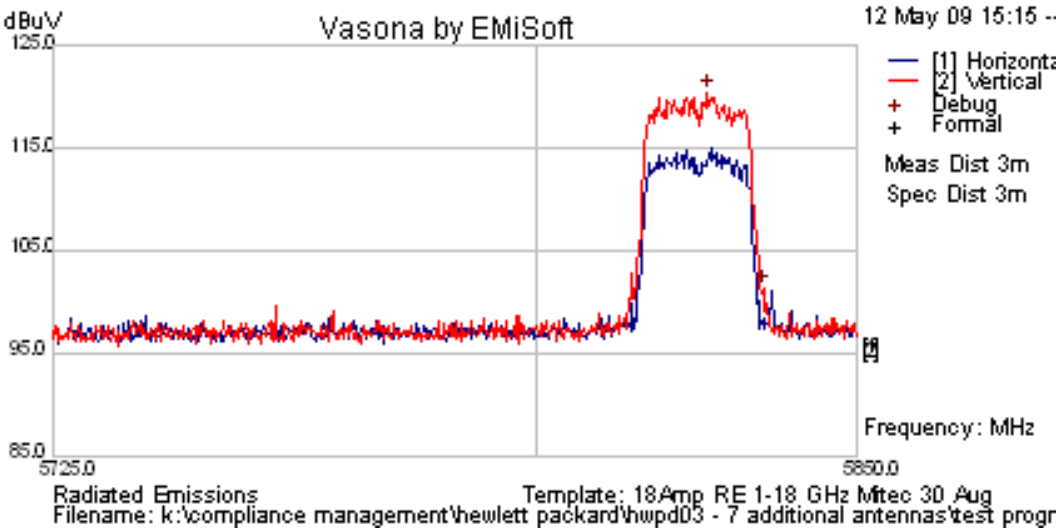

dBuV
Vasona by EMiSoft
12 May 09 15:11 --
125.0
115.0
105.0
95.0
85.0
5725.0
5850.0
[1] Horizonta
[2] Vertical
Debug
Formal
Meas Dist 3m
Spec Dist 3m
Frequency: MHz
Radiated Emissions
Template: 18Amp RE 1-18 GHz Mitec 30 Aug
Filename: k:\compliance management\hewlett packard\hwpd03 - 7 additional antennas\test progr

Date	5/8/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	5825
Antenna Model	J9170A Antenna / Gain = 13.5 dBi
Power setting	16.5 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11a 6 Mb/s; CH11 MSM410 Platform Radio 1

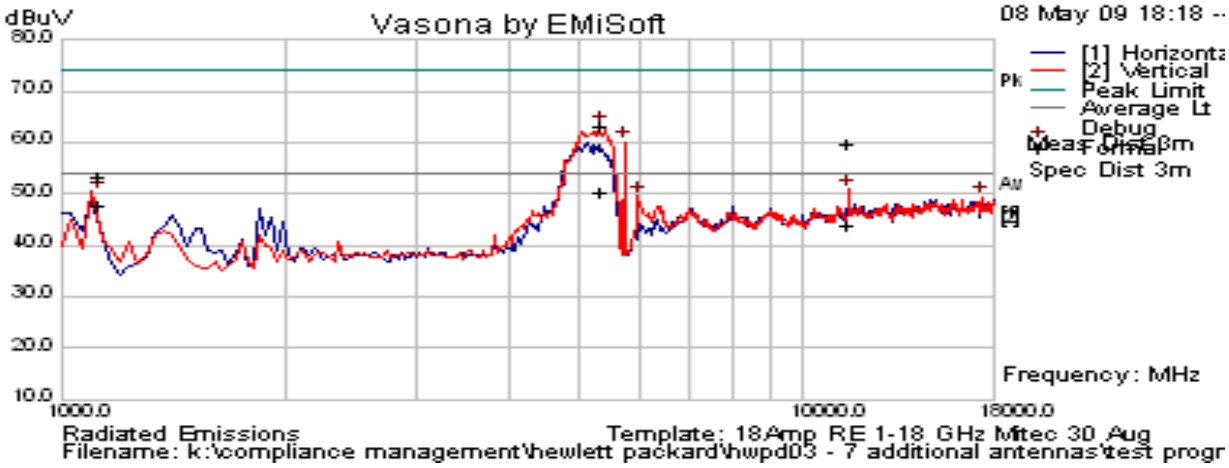


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Pass	Comments
5826.703	70.5	14.8	35.17	120.5	Peak [Scan]	V						
1124.97	66.78	2.07	-15.52	53.33	Peak Max	V	98	117	74	-20.67	Pass	RB
1124.97	60.99	2.07	-15.52	47.54	Average Max	V	98	117	54	-6.46	Pass	RB
5531.062	68.9	4.64	-8.26	65.28	Peak Max	V	99	96	74	-8.72	Pass	RB
5531.062	55.84	4.64	-8.26	52.22	Average Max	V	99	96	54	-1.78	Pass	RB
11656.19	53.37	6.83	-1	59.2	Peak Max	V	100	342	74	-14.8	Pass	RB
11656.19	38.43	6.83	-1	44.26	Average Max	V	100	342	54	-9.74	Pass	RB
5224.449	70.47	4.62	-8.44	66.65	Peak [Scan]	V	100	0	54	12.65	Pass	NRB
5973.948	54.47	4.88	-7.44	51.91	Peak [Scan]	V	100	0	54	-2.09	Pass	NRB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

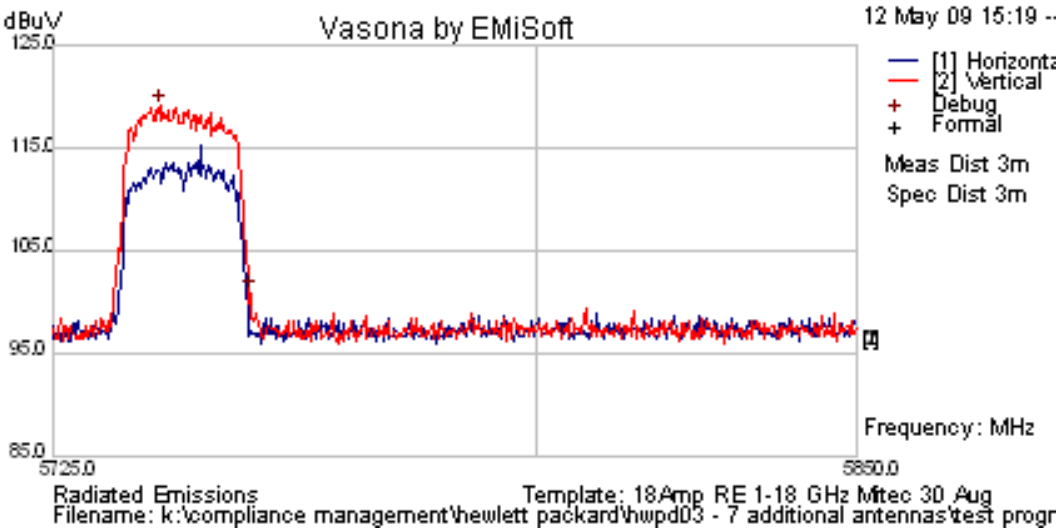


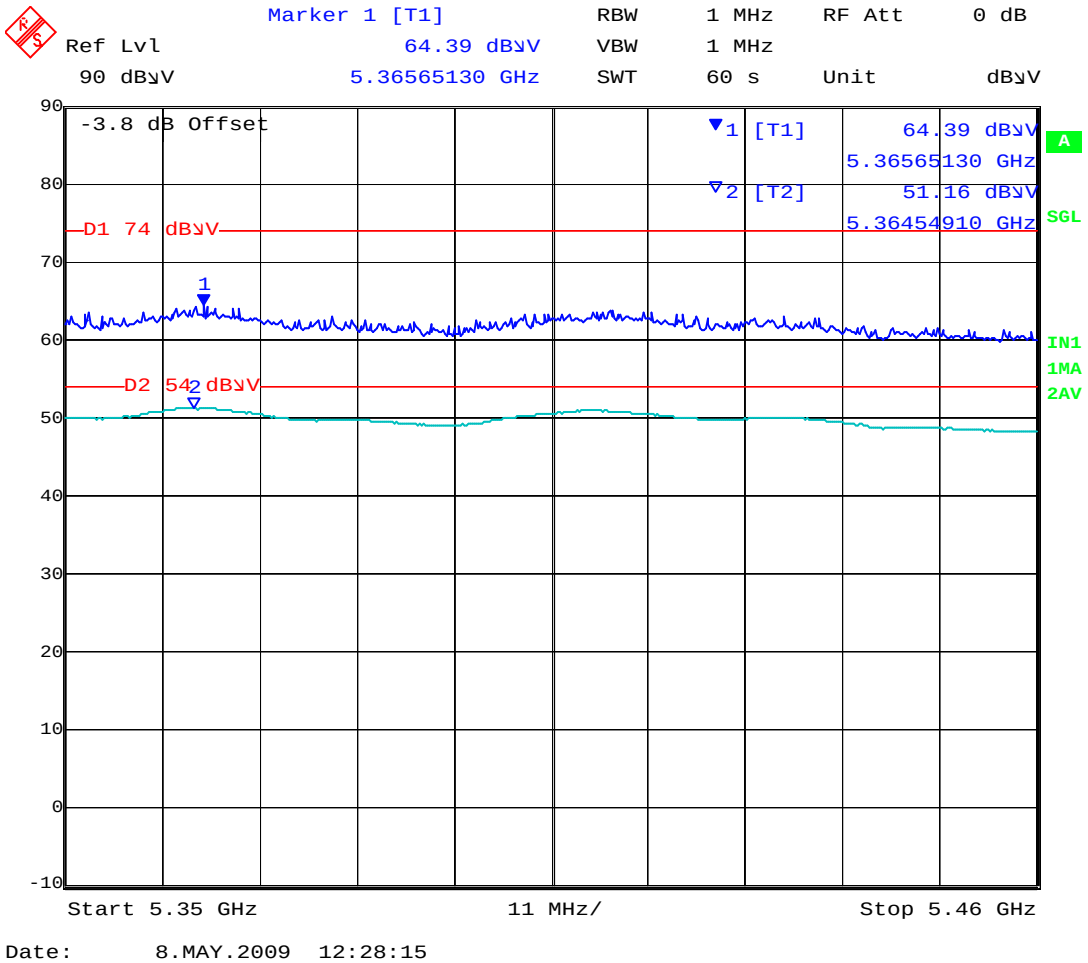
Date	5/8/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	5745
Antenna Model	J9170A Antenna / Gain = 13.5 dBi
Power setting	16.5 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11 HT-20 6.5 MCS MSM410 Platform Radio 1



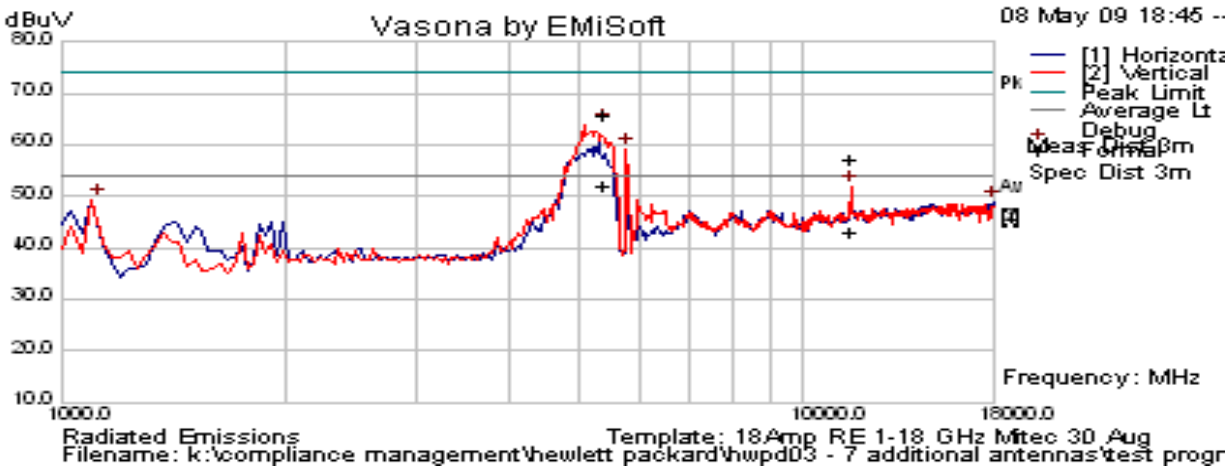
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Pass	Comments
5741.784	69.35	14.75	35.1	119.2	Peak [Scan]	V						
5351.379	67.15	4.62	-8.45	63.32	Peak Max	V	100	2	74	-10.68	Pass	RB
11482.41	54.53	6.8	-1.37	59.96	Peak Max	V	113	260	74	-14.04	Pass	RB
1125.065	66.78	2.07	-15.52	53.33	Peak Max	H	143	287	74	-20.67	Pass	RB
5351.379	54.34	4.62	-8.45	50.51	Average Max	V	100	2	54	-3.49	Pass	RB
11482.41	38.6	6.8	-1.37	44.03	Average Max	V	113	260	54	-9.97	Pass	RB
1125.065	61.29	2.07	-15.52	47.84	Average Max	H	143	287	54	-6.16	Pass	RB
5989.659	52.14	4.88	-7.45	49.57	Peak [Scan]	V	100	0	54	-4.43	Pass	NRB
5365.65130	Power Setting = 16.5			64.39	Peak Max	V	--	--	74	-9.61	Pass	Band Edge
5364.54910				51.16	Average Max	V	--	--	54	-2.84	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



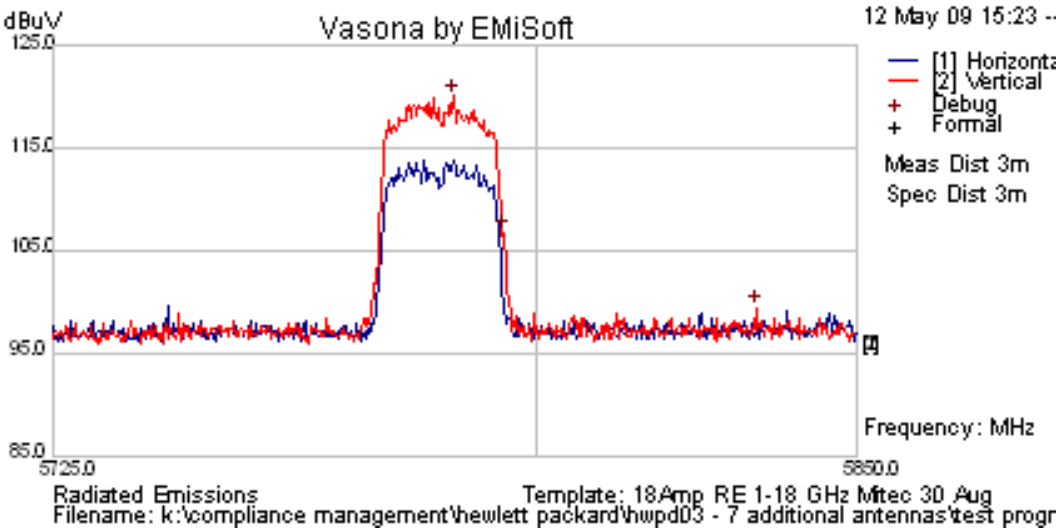


Date	5/8/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	5745
Antenna Model	J9170A Antenna / Gain = 13.5 dBi
Power setting	16.5 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11 HT-20 6.5 MCS MSM410 Platform Radio 1

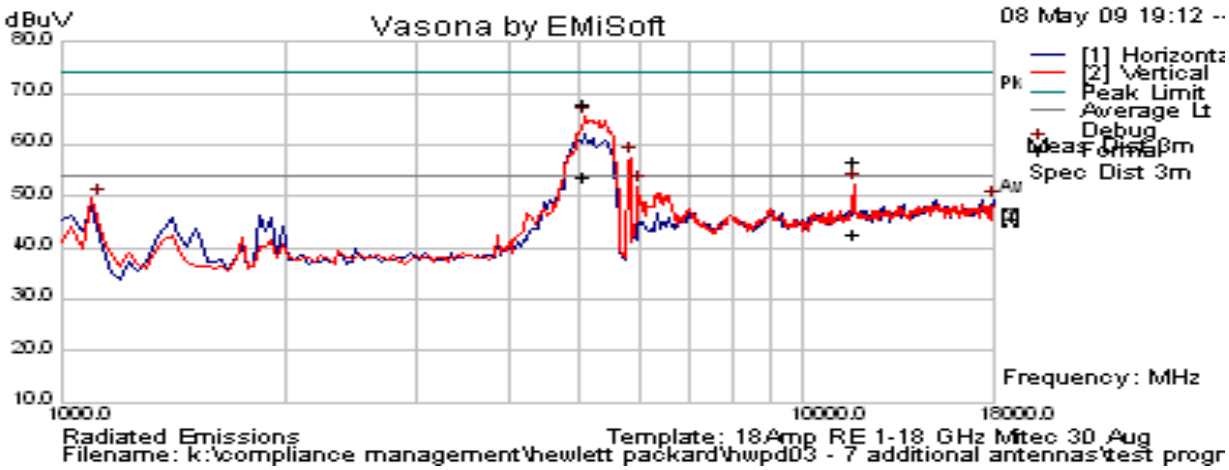


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Pass	Comments
5787.124	70.18	14.78	35.13	120.1	Peak [Scan]	V						
5369.9	69.44	4.62	-8.42	65.64	Peak Max	V	102	7	74	-8.36	Pass	RB
11569	51.54	6.81	-1.11	57.24	Peak Max	V	101	190	74	-16.76	Pass	RB
5369.9	55.94	4.62	-8.42	52.14	Average Max	V	102	7	54	-1.86	Pass	RB
11569	37.24	6.81	-1.11	42.94	Average Max	H	126	201	54	-11.06	Pass	RB
1125.065	66.78	2.07	-15.52	53.33	Peak Max	H	143	287	74	-20.67	Pass	RB
1125.065	61.29	2.07	-15.52	47.84	Average Max	H	143	287	54	-6.16	Pass	RB
5782.525	62.32	4.78	-7.83	59.27	Peak [Scan]	V	100	0	54	5.27	Pass	NRB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

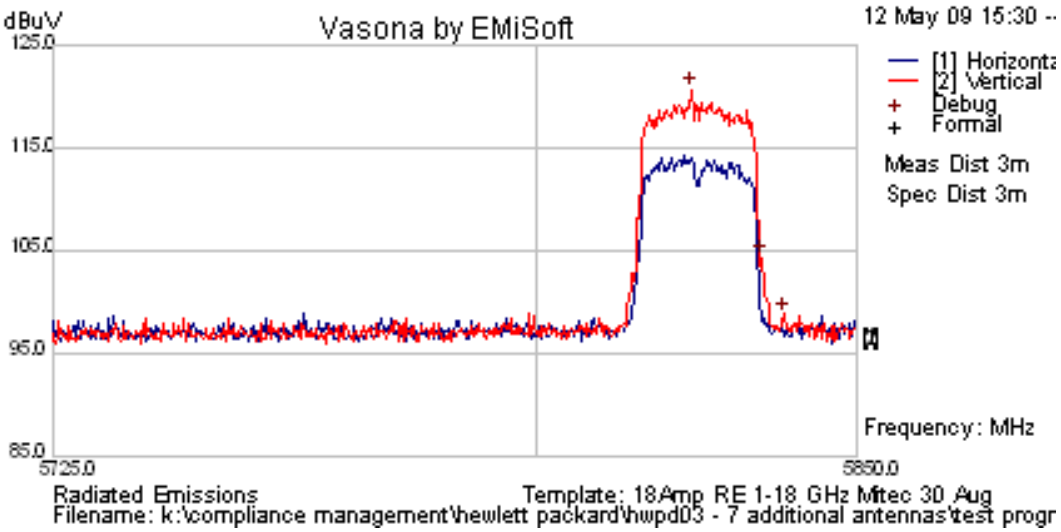


Date	5/8/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	5825
Antenna Model	J9170A Antenna / Gain = 13.5 dBi
Power setting	16.5 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11 HT-20 6.5 MCS MSM410 Platform Radio 1

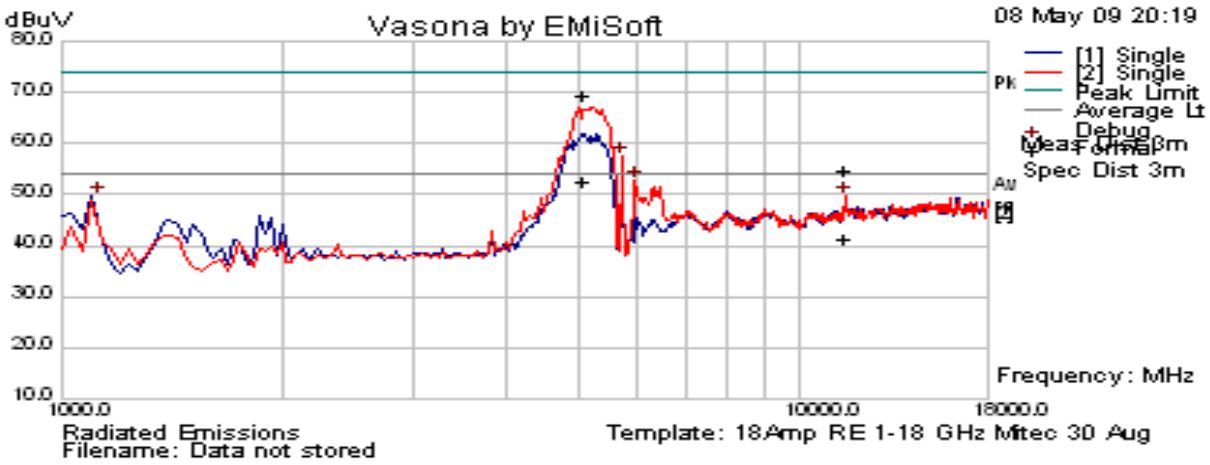


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Pass	Comments
5824.198	70.78	14.8	35.16	120.7	Peak [Scan]	V						
5067.022	71.73	4.62	-8.58	67.77	Peak Max	V	101	361	74	-6.23	Pass	RB
11650.78	51.04	6.83	-1.01	56.86	Peak Max	V	98	191	74	-17.14	Pass	RB
5067.022	57.61	4.62	-8.58	53.65	Average Max	V	101	361	54	-0.35	Pass	RB
11650.78	36.78	6.83	-1.01	42.6	Average Max	V	98	191	54	-11.4	Pass	RB
1125.065	66.78	2.07	-15.52	53.33	Peak Max	H	143	287	74	-20.67	Pass	RB
1125.065	61.29	2.07	-15.52	47.84	Average Max	H	143	287	54	-6.16	Pass	RB
5993.667	54.6	4.89	-7.46	52.03	Peak [Scan]	V	100	0	54	-1.97	Pass	NRB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

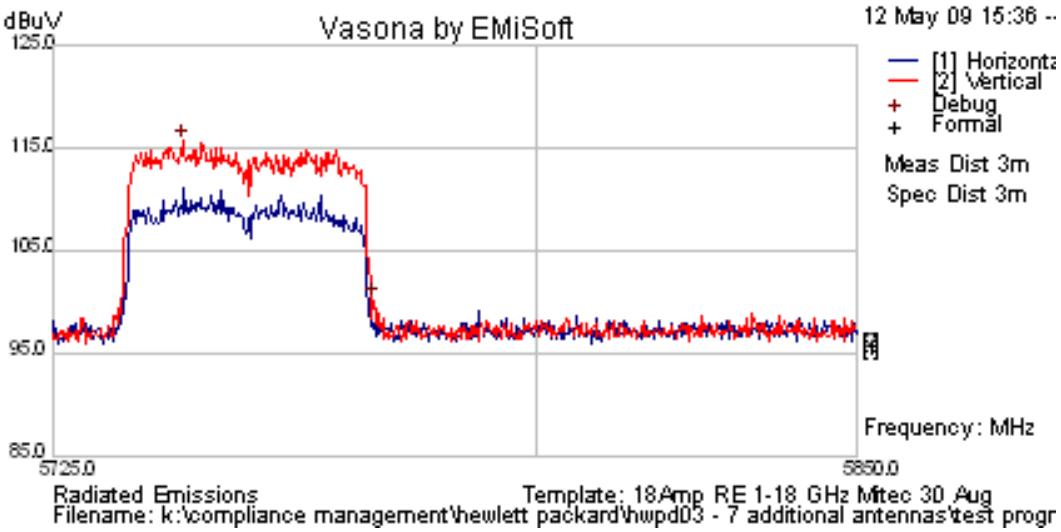


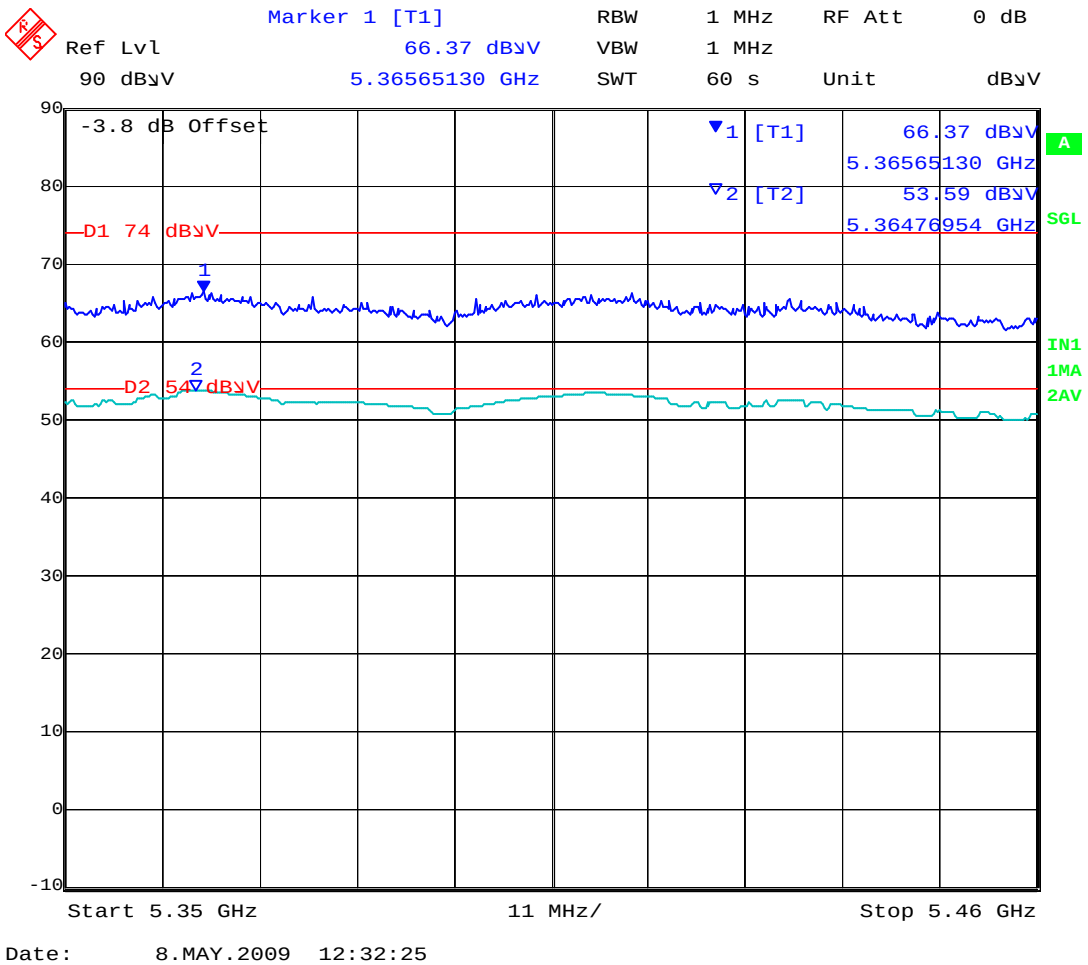
Date	5/8/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	5755
Antenna Model	J9170A Antenna / Gain = 13.5 dBi
Power setting	15.5 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11 HT-40 13.5 MCS MSM410 Platform Radio 1



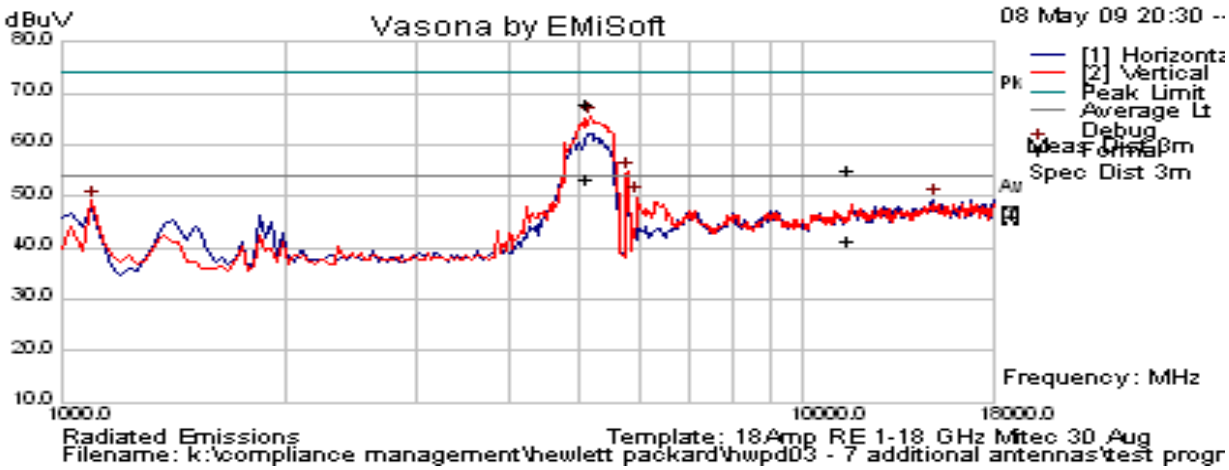
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Pass	Comments
5741.784	69.35	14.75	35.1	119.2	Peak [Scan]	V						
5089.279	73.4	4.62	-8.55	69.48	Peak Max	V	125	13	74	-4.52	Pass	RB
11507.59	49.39	6.79	-1.3	54.88	Peak Max	H	122	204	74	-19.12	Pass	RB
5092.129	56.38	4.62	-8.54	52.46	Average	V	109	13	54	-1.54	Pass	RB
11507.59	35.74	6.79	-1.3	41.23	Average Max	H	122	204	54	-12.77	Pass	RB
1125.043	67.77	2.07	-15.52	54.33	Peak Max	V	98	102	74	-19.67	Pass	RB
1125.043	61.37	2.07	-15.52	47.93	Average Max	V	98	102	54	-6.07	Pass	RB
5987.816	55.19	4.88	-7.45	52.62	Peak [Scan]	V	100	0	54	-1.38	Pass	NRB
5365.65130	Power Setting = 16.5			66.37	Peak Max	V	--	--	74	-7.63	Pass	Band Edge
5364.76954				53.59	Average Max	V	--	--	54	--0.41	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

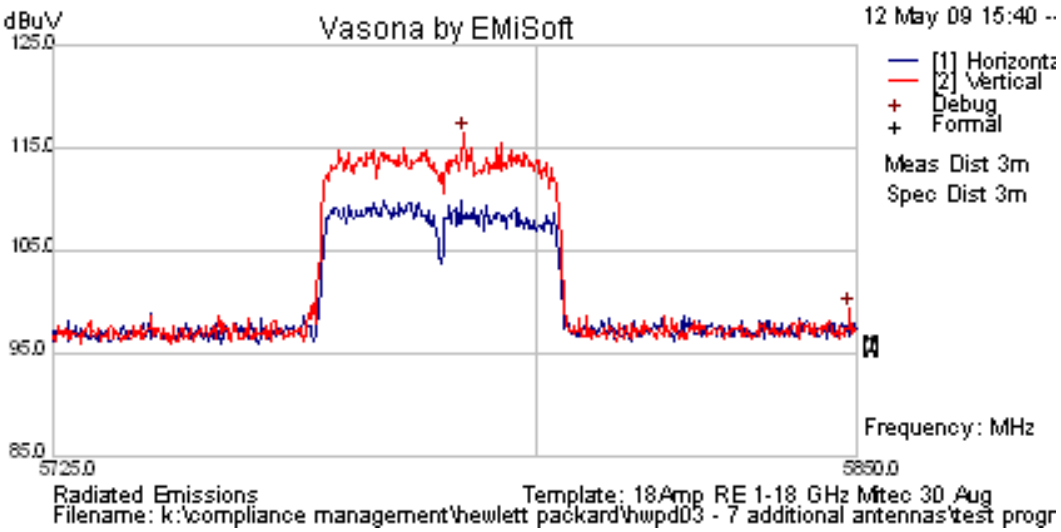




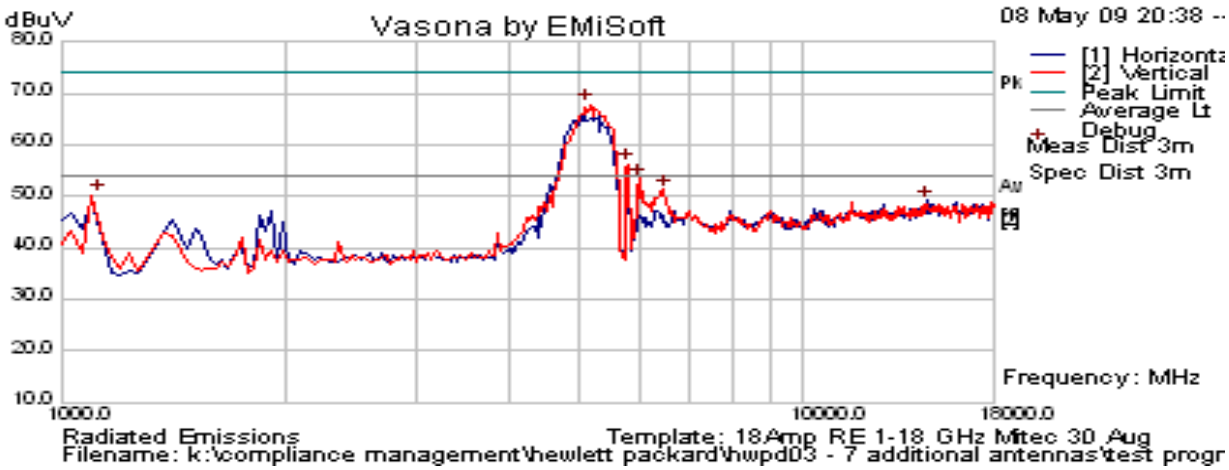
Date	5/8/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	5785
Antenna Model	J9170A Antenna / Gain = 13.5 dBi
Power setting	15.5 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11 HT-40 13.5 MCS MSM410 Platform Radio 1



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Pass	Comments
5787.124	70.18	14.78	35.13	120.1	Peak [Scan]	V						
5091.05	57.33	4.62	-8.54	53.4	Average	V	109	13	54	-0.6	Pass	RB
5089.956	71.86	4.62	-8.55	67.93	Peak	V	109	13	74	-6.07	Pass	RB
1125.043	67.77	2.07	-15.52	54.33	Peak Max	V	98	102	74	-19.67	Pass	RB
1125.043	61.37	2.07	-15.52	47.93	Average Max	V	98	102	54	-6.07	Pass	RB

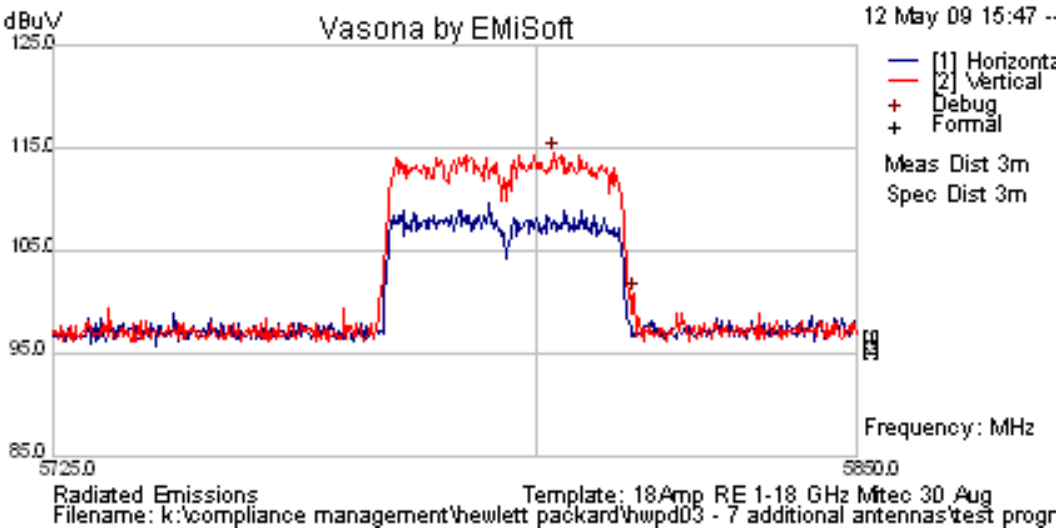


Date	5/8/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	5795
Antenna Model	J9170A Antenna / Gain = 13.5 dBi
Power setting	15.0 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11 HT-40 13.5 MCS MSM410 Platform Radio 1



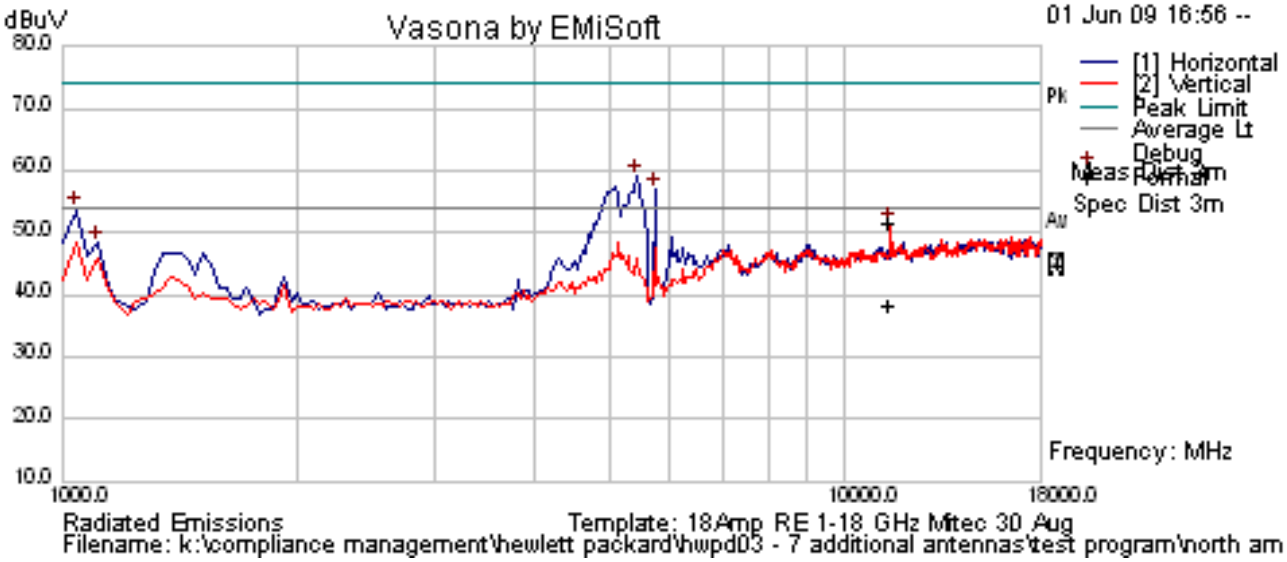
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Pass	Comments
5824.198	70.78	14.8	35.16	120.7	Peak [Scan]	V						
5094.677	73.4	4.62	-8.54	69.49	Peak Max	V	98	4	74	-4.51	Pass	RB
5096.697	56.94	4.62	-8.54	53.02	Average	V	98	4	54	-0.98	Pass	RB
1125.043	67.77	2.07	-15.52	54.33	Peak Max	V	98	102	74	-19.67	Pass	RB
1125.043	61.37	2.07	-15.52	47.93	Average Max	V	98	102	54	-6.07	Pass	RB
5976.012	55.92	4.88	-7.44	53.36	Peak [Scan]	V	100	0	54	-0.64	Pass	NRB
6485.19	52.07	5.12	-5.97	51.22	Peak [Scan]	V	100	0	54	-2.78	Pass	NRB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



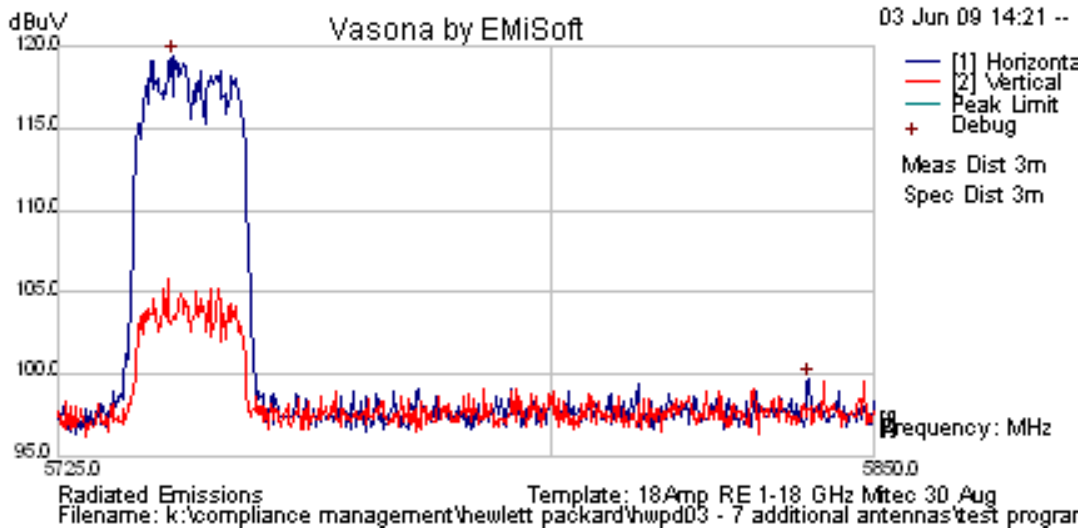
ANTENNA J9171A Radiated Emissions in the 5,725 – 5,850 MHz Band

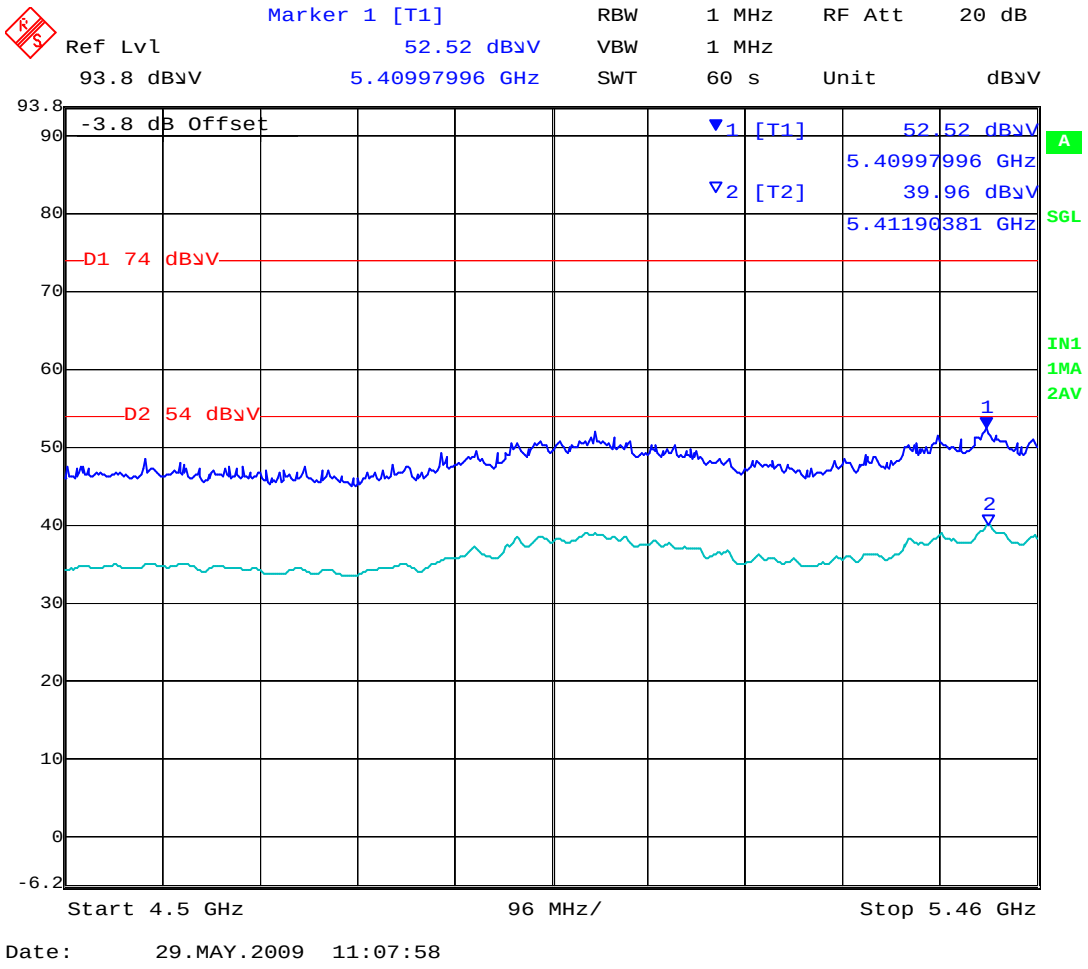
Date	6/1/2009
Engineer	GMH
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5745
Antenna Model	J9171A Antenna / Gain = 4 dBi
Power setting	18.0 in ART Test Utility
Test Conditions	802.11a 6 Mb/s; MSM-410 Platform Radio



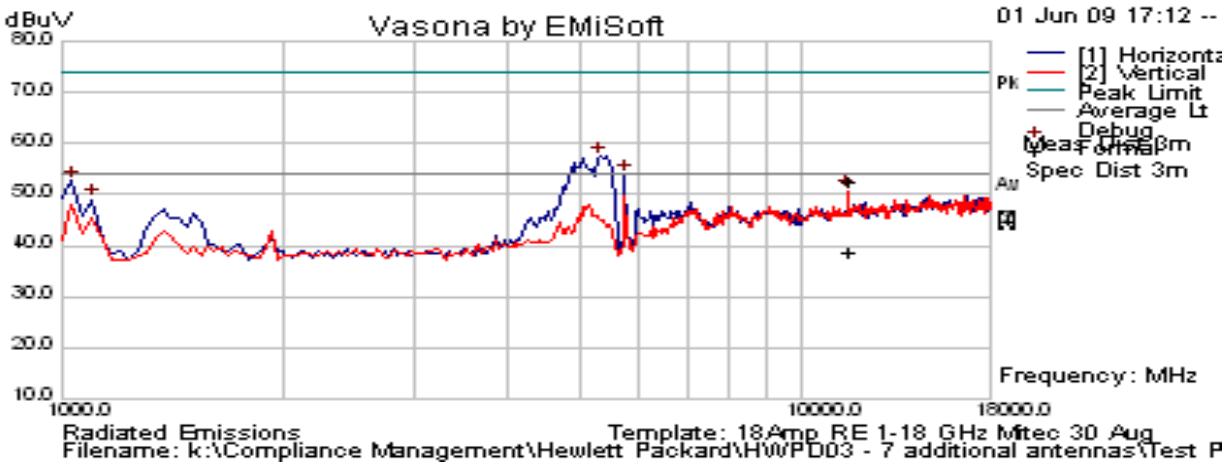
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5742.535	69.53	14.75	35.1	119.4	Peak [Scan]	H	100					
11489.49	46.17	6.79	-1.37	51.59	Peak Max	H	100	298	74	-22.41	Pass	RB
11489.49	32.96	6.79	-1.37	38.39	Average Max	H	100	298	54	-15.61	Pass	RB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB
5409.97996	Power Setting = 18.0			52.52	Peak Max	V	--	--	74	-1.48	Pass	Band Edge
5411.90381				39.96	Average Max	V	--	--	54	-14.04	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

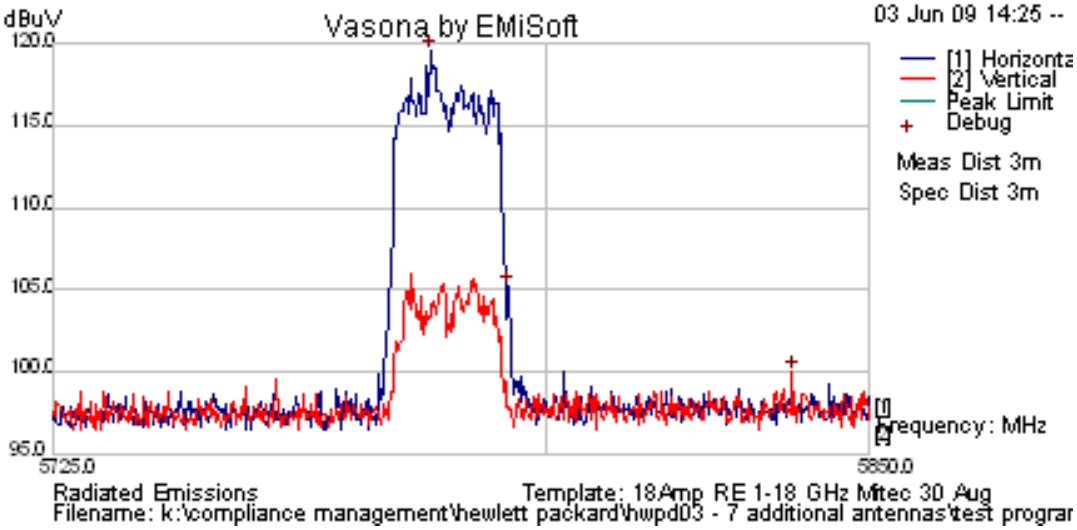




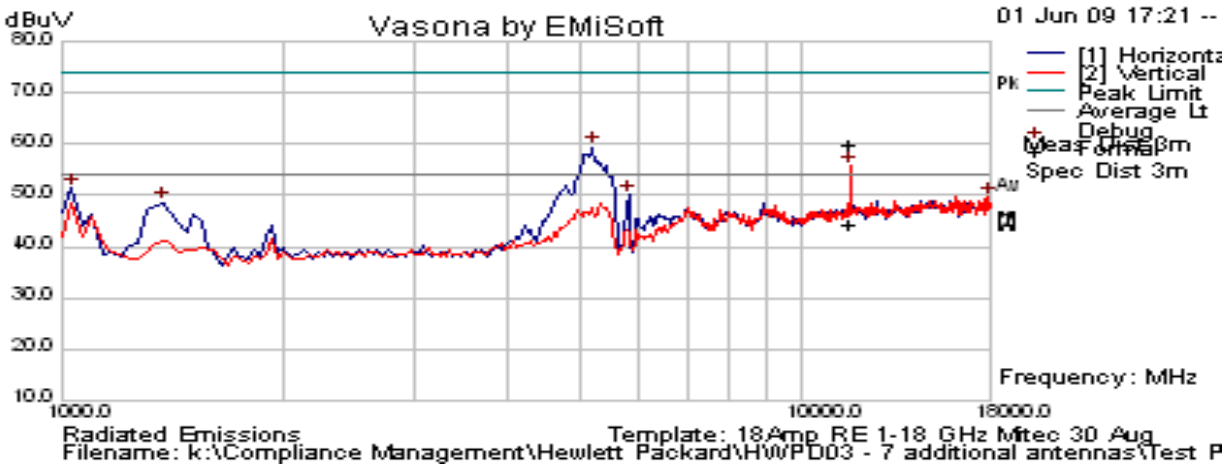
Date	6/1/2009
Engineer	GMH
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5785
Antenna Model	J9171A Antenna / Gain = 4 dBi
Power setting	18.0 in ART Test Utility
Test Conditions	802.11a 6 Mb/s; MSM-410 Platform Radio



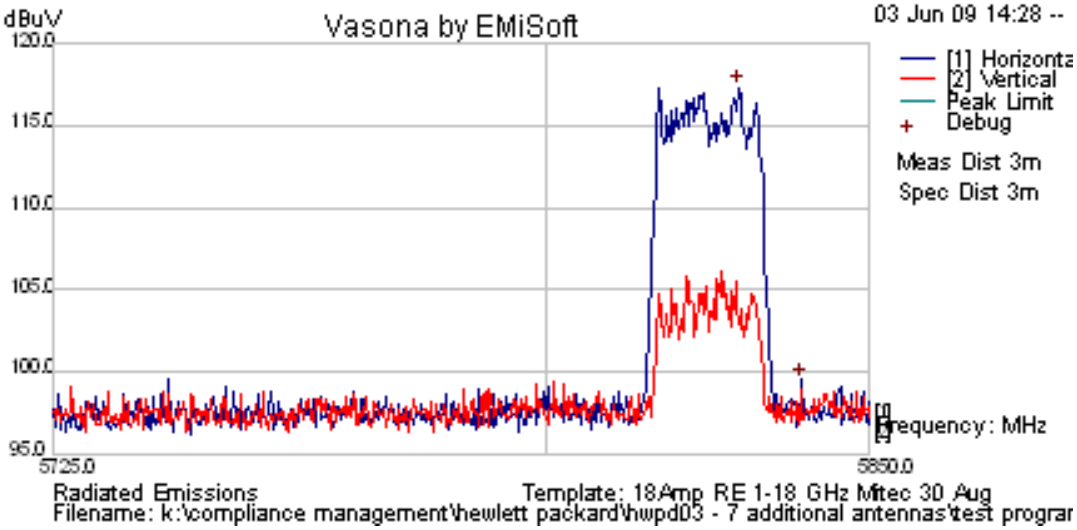
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5782.365	69.62	14.78	35.13	119.5	Peak [Scan]	H						
11567.5	46.8	6.81	-1.11	52.5	Peak Max	H	120	305	74	-21.5	Pass	RB
11567.5	33.23	6.81	-1.11	38.93	Average Max	H	120	305	54	-15.07	Pass	RB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1057.635	67.77	2.01	-15.65	54.13	Peak Max	H	99	115	74	-19.87	Pass	RB
1057.635	48.49	2.01	-15.65	34.85	Average Max	H	99	115	54	-19.15	Pass	RB


dBuV
Vasona by EMiSoft
03 Jun 09 14:25 --
120.0
115.0
110.0
105.0
100.0
95.0
[1] Horizonta
[2] Vertical
Peak Limit
Debug
Meas Dist 3m
Spec Dist 3m
Frequency: MHz
5725.0
5850.0
Radiated Emissions
Template: 18Amp RE 1-18 GHz Mitec 30 Aug
Filename: k:\compliance management\hewlett packard\hwpd03 - 7 additional antennas\test prograr

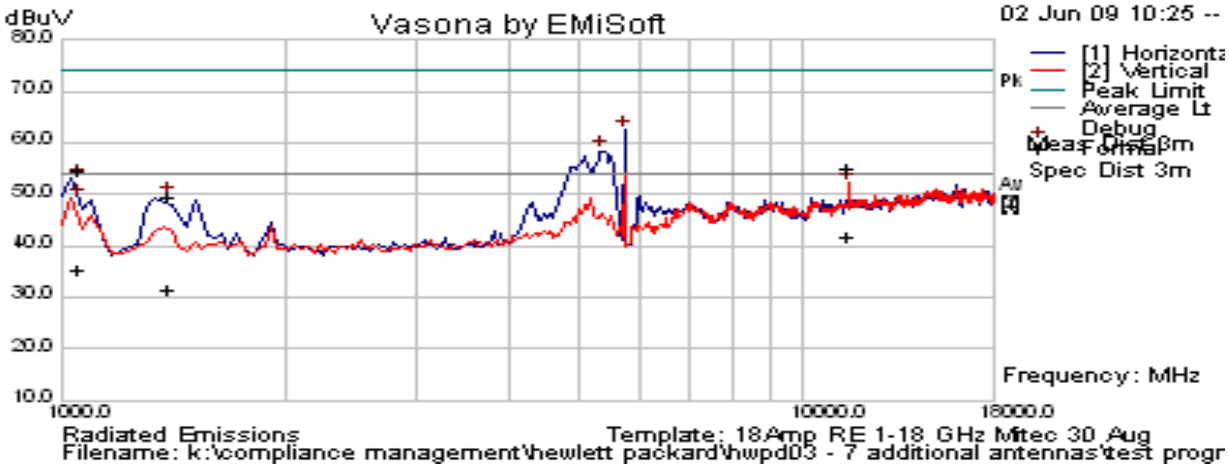
Date	6/1/2009
Engineer	GMH
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5825
Antenna Model	J9171A Antenna / Gain = 4 dBi
Power setting	18.0 in ART Test Utility
Test Conditions	802.11a 6 Mb/s; MSM-410 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5829.709	67.34	14.8	35.17	117.3	Peak [Scan]	H						
11650.54	53.89	6.83	-1.01	59.71	Peak Max	V	111	136	74	-14.29	Pass	RB
11650.54	38.71	6.83	-1.01	44.53	Average Max	V	111	136	54	-9.47	Pass	RB
1040.251	65.9	1.99	-15.67	52.22	Peak Max	H	99	121	74	-21.78	Pass	RB
1040.251	44.35	1.99	-15.67	30.67	Average Max	H	99	121	54	-23.33	Pass	RB
1398.229	44.12	2.3	-15.06	31.35	Average Max	H	103	209	54	-22.65	Pass	RB
1398.229	62.08	2.3	-15.06	49.31	Peak Max	H	103	209	74	-24.69	Pass	RB

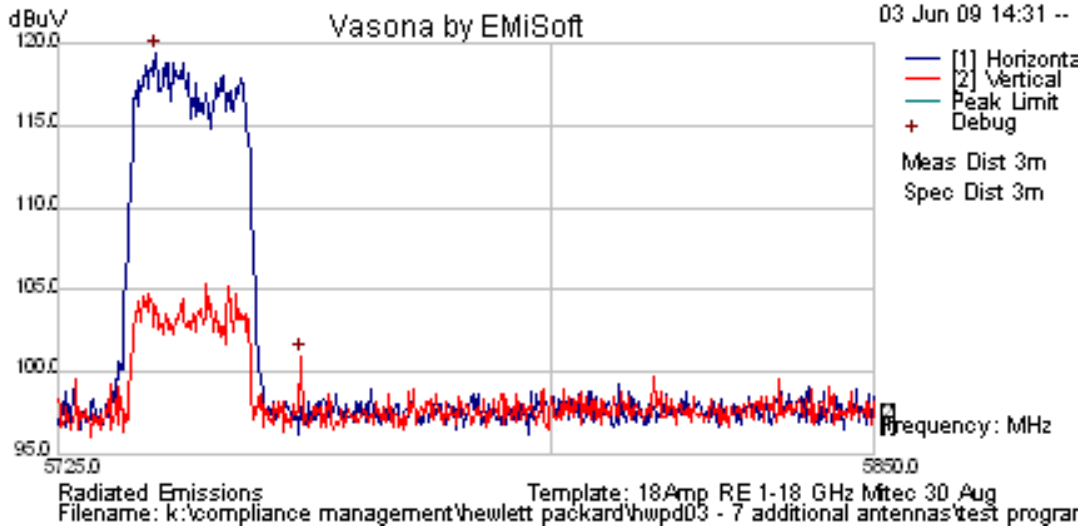


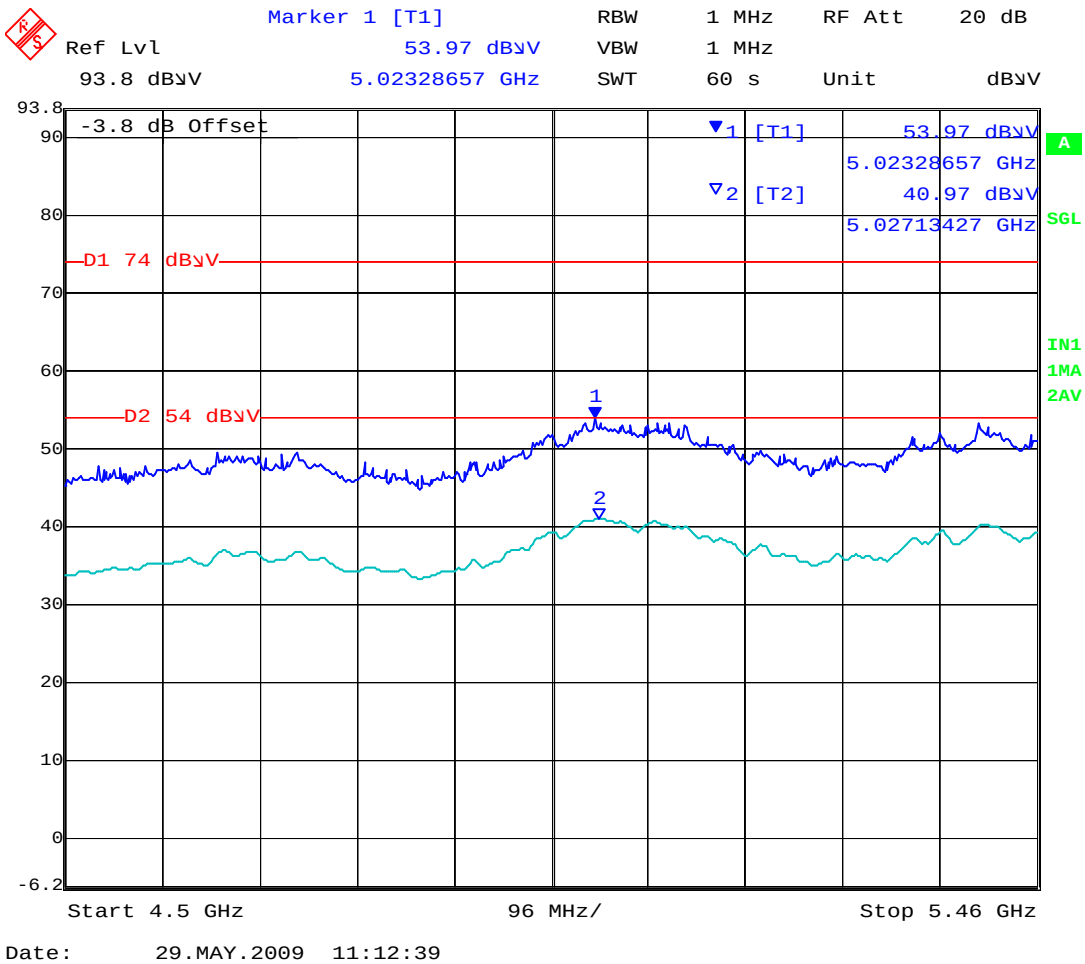
Date	6/2/2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5745
Antenna Model	J9171A Antenna / Gain = 4 dBi
Power setting	18.0 in ART Test Utility
Test Conditions	802.11 HT-20 6.5 MCS MSM-410 Platform Radio



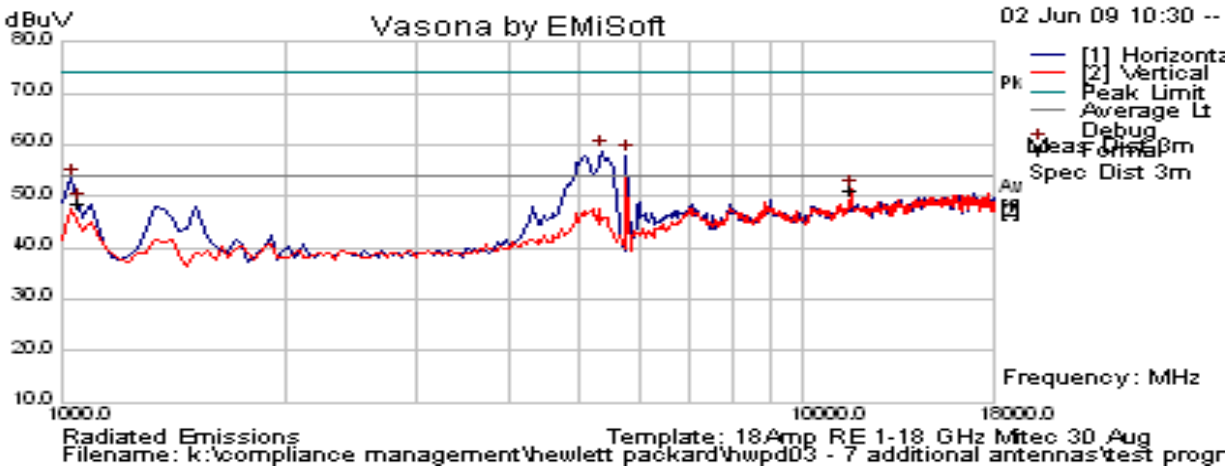
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5739.78	69.66	14.75	35.1	119.5	Peak [Scan]	H						
1057.916	68.28	2.01	-15.65	54.63	Peak Max	H	98	114	74	-19.37	Pass	RB
1057.916	48.91	2.01	-15.65	35.26	Average Max	H	98	114	54	-18.74	Pass	RB
1398.229	44.12	2.3	-15.06	31.35	Average Max	H	103	209	54	-22.65	Pass	RB
1398.229	62.08	2.3	-15.06	49.31	Peak Max	H	103	209	74	-24.69	Pass	RB
11489.9	36.35	6.79	-1.37	41.77	Average Max	V	99	172	54	-12.23	Pass	RB
11489.9	49.54	6.79	-1.37	54.96	Peak Max	V	99	172	74	-19.04	Pass	RB
5023.28657	Power Setting = 18.0			53.97	Peak Max	V	--	--	74	-0.03	Pass	Band Edge
5027.13427				40.97	Average Max	V	--	--	54	-13.03	Pass	Band Edge

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

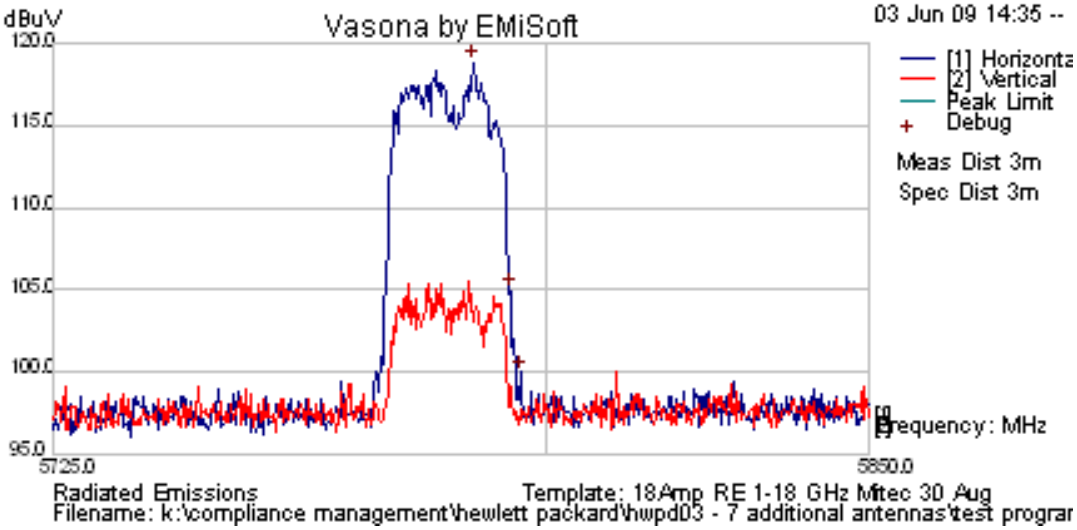




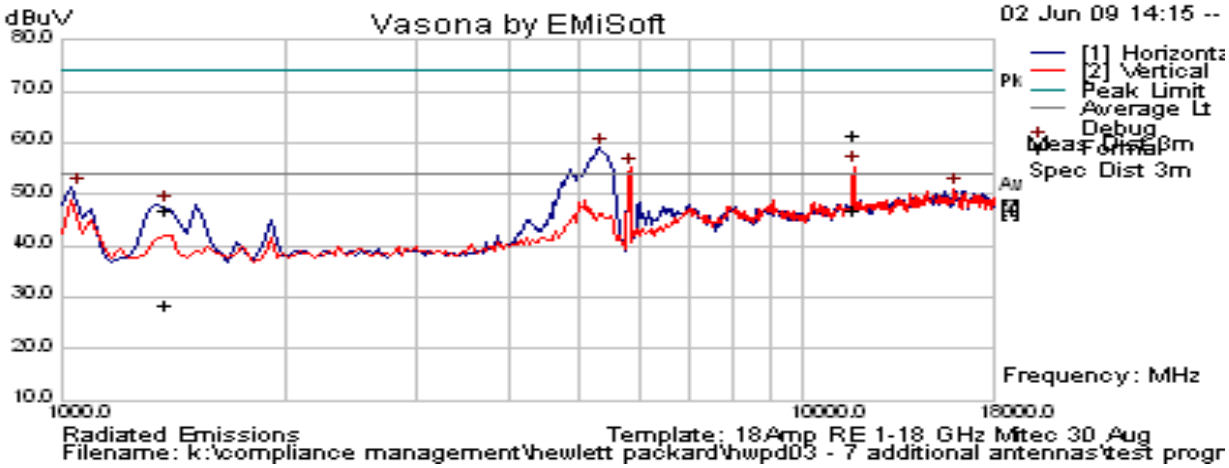
Date	6/2/2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5785
Antenna Model	J9171A Antenna / Gain = 4 dBi
Power setting	18.0 in ART Test Utility
Test Conditions	802.11 HT-20 6.5 MCS MSM-410 Platform Radio



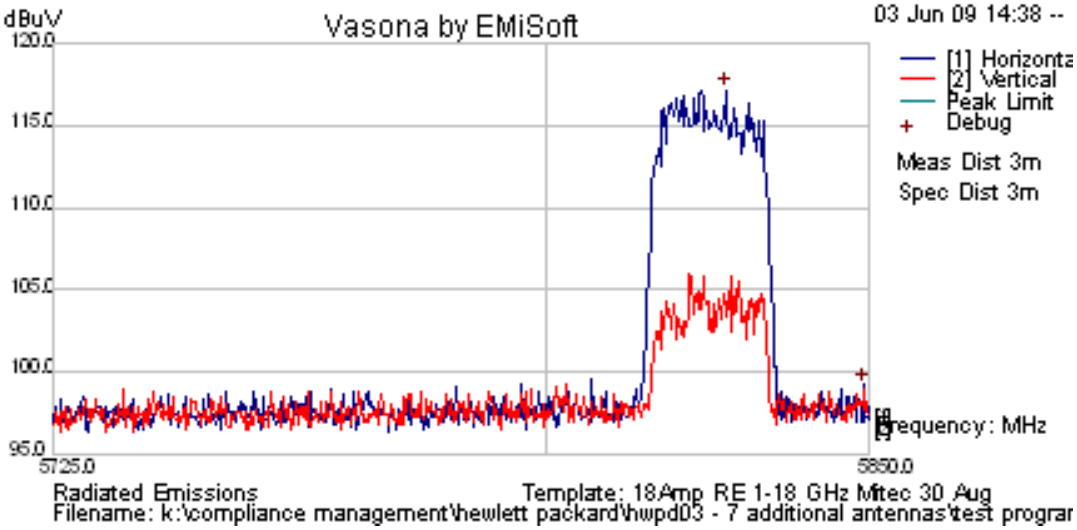
Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5788.878	68.93	14.78	35.14	118.8	Peak [Scan]	H						
1057.836	67.9	2.01	-15.65	54.26	Peak Max	H	101	112	74	-19.74	Pass	RB
1057.836	48.6	2.01	-15.65	34.95	Average Max	H	101	112	54	-19.05	Pass	RB
11566.45	36.99	6.81	-1.11	42.69	Average Max	V	121	316	54	-11.31	Pass	RB
11566.45	50.77	6.81	-1.11	56.47	Peak Max	V	121	316	74	-17.53	Pass	RB


dBuV
Vasona by EMiSoft
03 Jun 09 14:35 --
120.0
115.0
110.0
105.0
100.0
95.0
5725.0
5850.0
[1] Horizonta
[2] Vertical
Peak Limit
Debug
Meas Dist 3m
Spec Dist 3m
Frequency: MHz
Radiated Emissions
Template: 18Amp RE 1-18 GHz Mitec 30 Aug
Filename: k:\compliance management\hewlett packard\hwpd03 - 7 additional antennas\test prograr

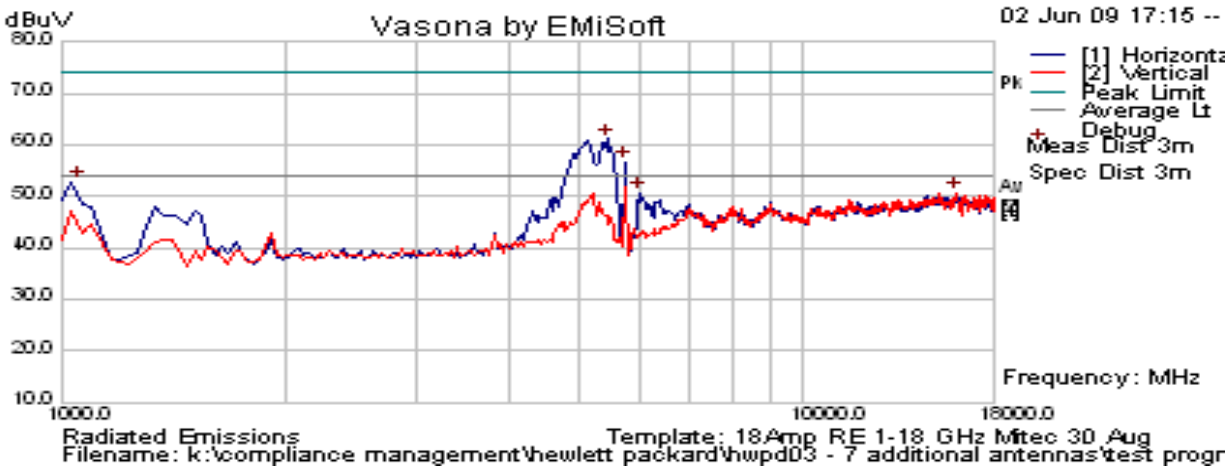
Date	6/2/2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5825
Antenna Model	J9171A Antenna / Gain = 4 dBi
Power setting	18.0 in ART Test Utility
Test Conditions	802.11 HT-20 6.5 MCS MSM-410 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5827.705	67.23	14.8	35.17	117.2	Peak [Scan]	H						
1379.84	59.75	2.28	-15.09	46.95	Peak Max	H	98	213	74	-27.05	Pass	RB
1379.84	41.21	2.28	-15.09	28.4	Average Max	H	98	213	54	-25.6	Pass	RB
11643.29	40.9	6.82	-1.01	46.71	Average Max	V	125	256	54	-7.29	Pass	RB
11643.29	55.66	6.82	-1.01	61.48	Peak Max	V	125	256	74	-12.52	Pass	RB
1057.836	67.9	2.01	-15.65	54.26	Peak Max	H	101	112	74	-19.74	Pass	RB
1057.836	48.6	2.01	-15.65	34.95	Average Max	H	101	112	54	-19.05	Pass	RB

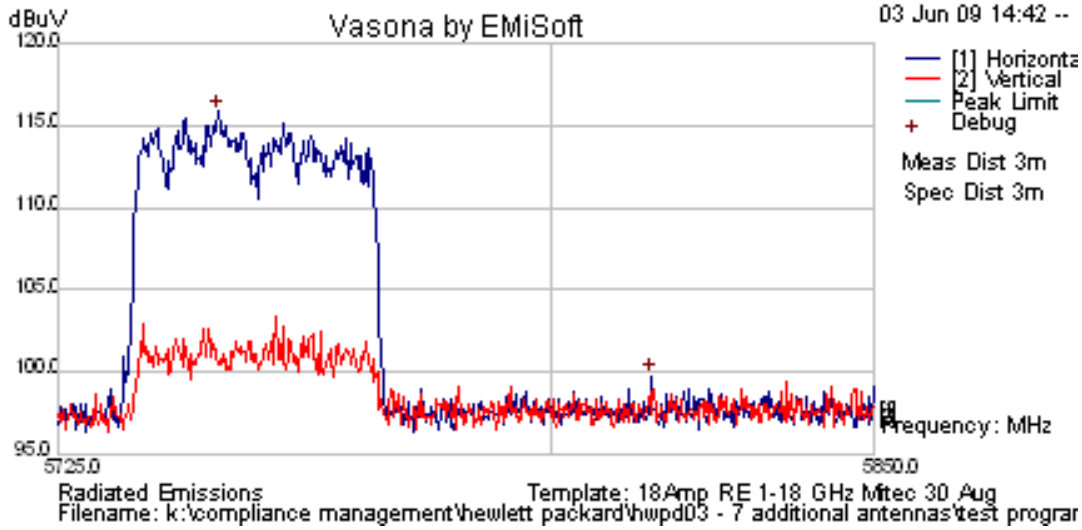


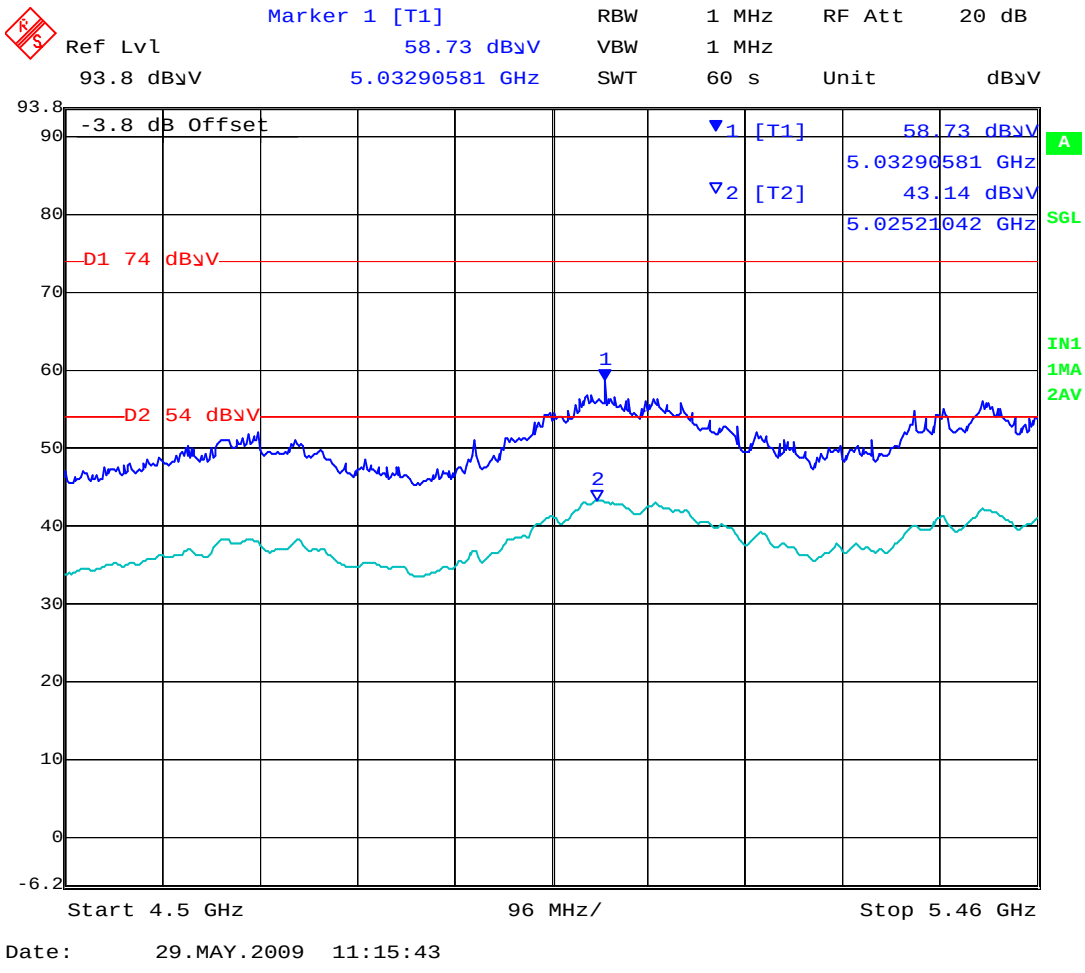
Date	6/2/2009
Engineer	CSB
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5755
Antenna Model	J9171A Antenna / Gain = 4 dBi
Power setting	17 in ART Test Utility
Test Conditions	802.11n HT-40 13.5 MCS MSM-410 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5749.299	66.06	14.76	35.1	115.9	Peak [Scan]	H						
1057.916	68.28	2.01	-15.65	54.63	Peak Max	H	98	114	74	-19.37	Pass	RB
1057.916	48.91	2.01	-15.65	35.26	Average Max	H	98	114	54	-18.74	Pass	RB
6008.016	53.18	4.89	-7.46	50.61	Peak [Scan]	H	100	0	54	-3.39	Pass	NRB
5032.90581	Power Setting = 17.0			58.73	Peak Max	V	--	--	74	-15.27	Pass	Band Edge
5025.21042				43.14	Average Max	V	--	--	54	-10.86	Pass	Band Edge

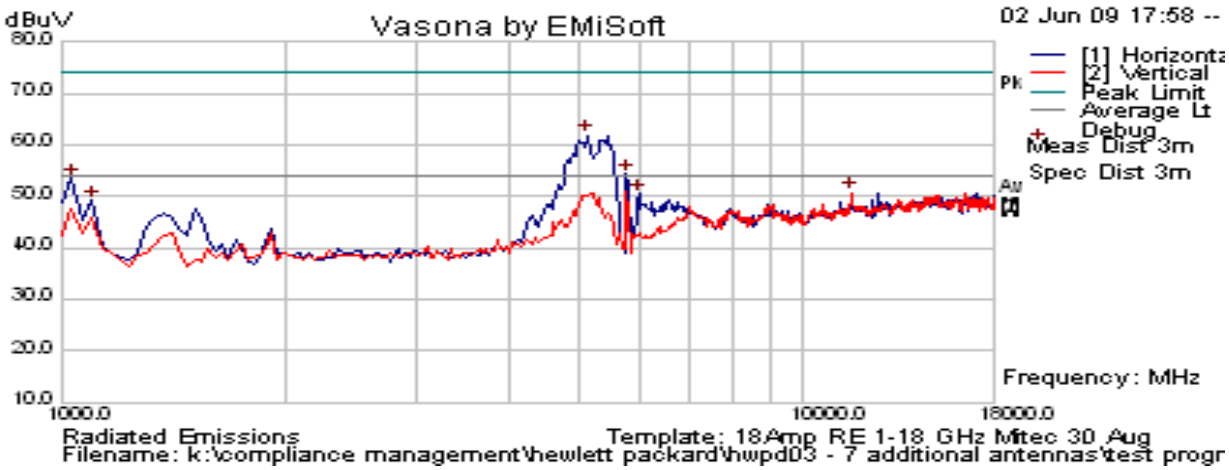
Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band





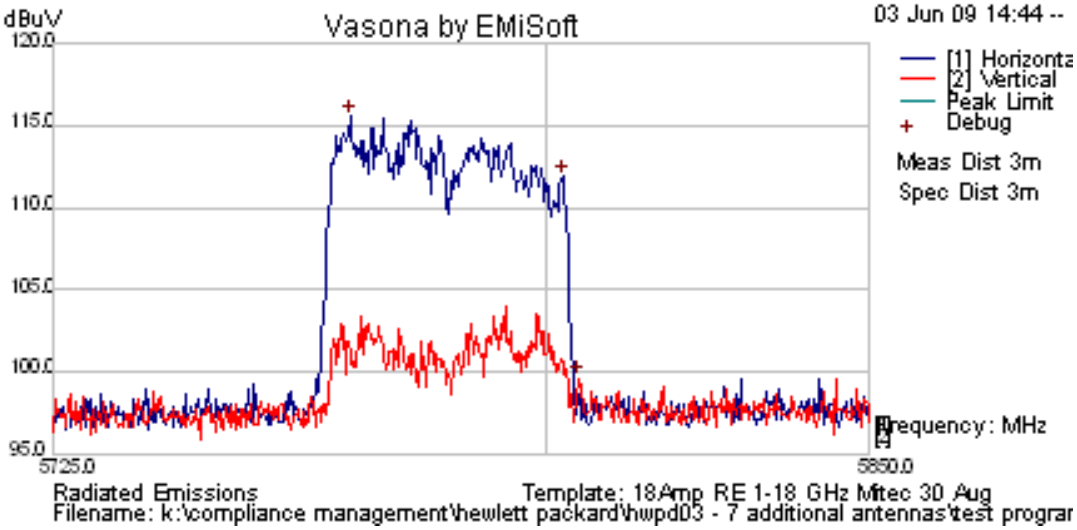
Date: 29.MAY.2009 11:15:43

Date	Date
Engineer	CSB/GMH
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5785
Antenna Model	J9171A Antenna / Gain = 4 dBi
Power setting	17 in ART Test Utility
Test Conditions	802.11n HT-40 13.5 MCS MSM-410 Platform Radio

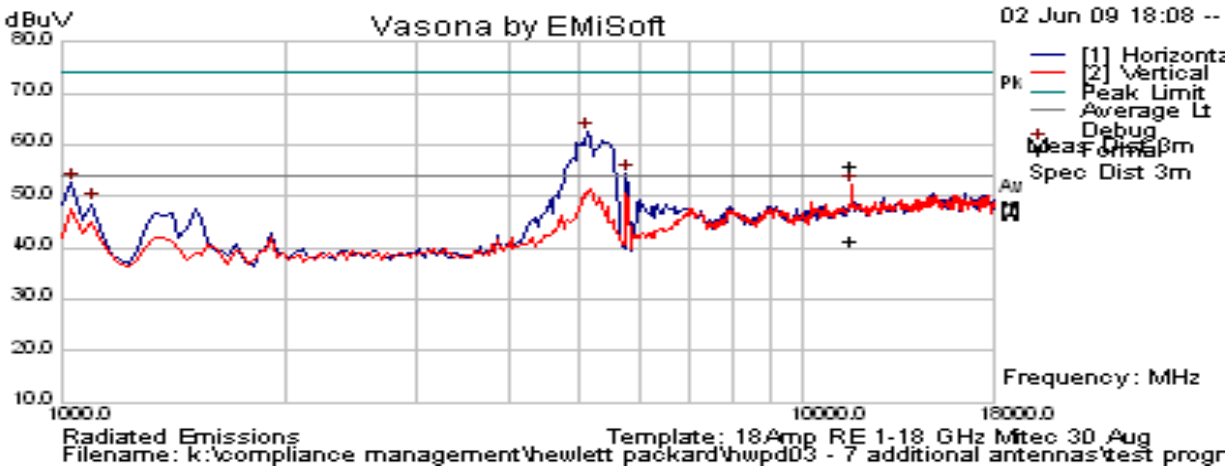


Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5770.09	65.65	14.77	35.12	115.5	Peak [Scan]	H						
1057.916	68.28	2.01	-15.65	54.63	Peak Max	H	98	114	74	-19.37	Pass	RB
1057.916	48.91	2.01	-15.65	35.26	Average Max	H	98	114	54	-18.74	Pass	RB
6008.016	53.07	4.89	-7.46	50.5	Peak [Scan]	H	100	0	54	-3.5	Pass	NRB

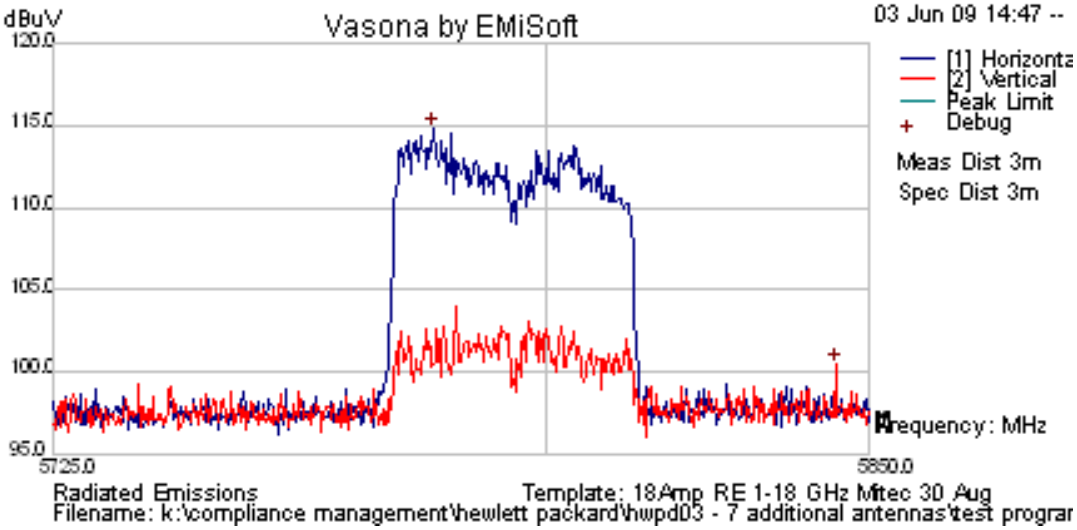
Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band



Date	Date
Engineer	GMH
Test Case	HWPD03 - FCC 15.247 [Country = US/CAN] Spurious Emissions > 1GHz
Frequency	5795
Antenna Model	J9171A Antenna / Gain = 4 dBi
Power setting	17 in ART Test Utility
Test Conditions	802.11n HT-40 13.5 MCS MSM-410 Platform Radio



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
5782.866	64.86	14.78	35.13	114.8	Peak [Scan]	H						
11586.67	49.97	6.81	-1.09	55.69	Peak Max	V	117	165	74	-18.31	Pass	RB
11586.67	35.6	6.81	-1.09	41.32	Average Max	V	117	165	54	-12.68	Pass	RB
1057.916	68.28	2.01	-15.65	54.63	Peak Max	H	98	114	74	-19.37	Pass	RB
1057.916	48.91	2.01	-15.65	35.26	Average Max	H	98	114	54	-18.74	Pass	RB



Specification Limits

FCC §15.247(d) and RSS-210 §A8.5 In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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 radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

FCC §15.247(d)
If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified §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(a)).

IC RSS-210 §A8.5 If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under section A8.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Tables 2 and 3 is not required. In addition, radiated emissions which fall in the restricted bands of Table 1 must also comply with the radiated emission limits specified in Tables 2 and 3.

IC RSS-Gen §4.7
The search for unwanted emissions shall be from the lowest frequency internally generated or used in the device (local oscillator, intermediate of carrier frequency), or from 30 MHz , whichever is the lowest frequency, to the 5^{th} harmonic of the highest frequency generated without exceeding 40 GHz.

FCC §15.205 (a) Except as shown in paragraph (d) of 15.205 (a), only spurious emissions are permitted in any of the frequency bands listed.

FCC §15.205 (a) Except as shown in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

FCC §15.209 (a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table.

§15.209 (a) Limit Matrix

Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance (meters)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Laboratory Measurement Uncertainty for Radiated Emissions

Measurement uncertainty	+5.6/ -4.5 dB

Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-03 'Measurement of Radiated Emissions'	0088, 0158, 0134, 0304, 0311, 0315, 0310, 0312

5.1.1.2. Receiver Radiated Spurious Emissions (above 1 GHz)

Industry Canada RSS-Gen §4.8, §6

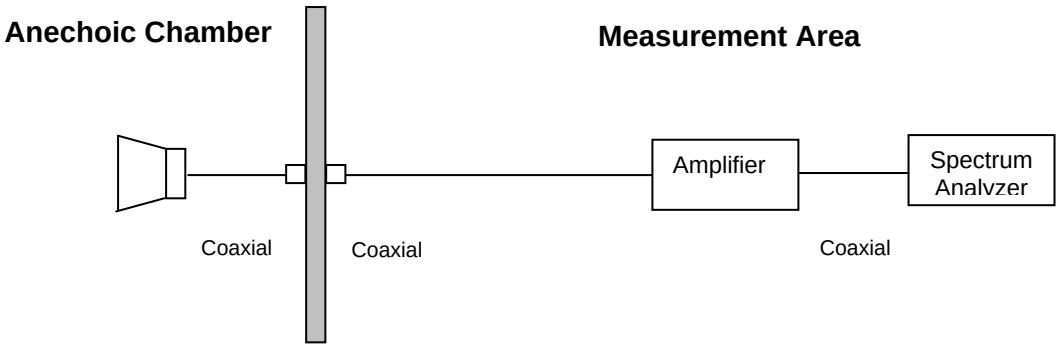
Test Procedure

Radiated emissions above 1 GHz are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in peak hold mode. Depending on the frequency band spanned a notch filter and waveguide filter was used to remove the fundamental frequency. The highest emissions relative to the limit are listed for each frequency spanned.

All measurements on any frequency or frequencies over 1 MHz are based on the use of measurement instrumentation employing an average detector function. All measurements above 1 GHz were performed using a minimum resolution bandwidth of 1 MHz.

All Sectors of the EUT were tested simulatneously

Test Measurement Set up



Measurement set up for Radiated Emission Test

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

FS = R + AF + CORR - FO

where: FS = Field Strength
R = Measured Spectrum analyzer Input Amplitude
AF = Antenna Factor
CORR = Correction Factor = CL – AG + NFL
CL = Cable Loss
AG = Amplifier Gain
FO = Distance Falloff Factor
NFL = Notch Filter Loss or Waveguide Loss

For example:
Given receiver input reading of 51.5 dBμV; Antenna Factor of 8.5 dB; Cable Loss of 1.3 dB; Falloff Factor of 0 dB, an Amplifier Gain of 26 dB and Notch Filter Loss of 1 dB. The Field Strength of the measured emission is:

FS = 51.5 + 8.5 + 1.3 - 26.0 +1 = 36.3 dBμV/m

Conversion between dBμV/m (or dBμV) and μV/m (or μV) are done as:

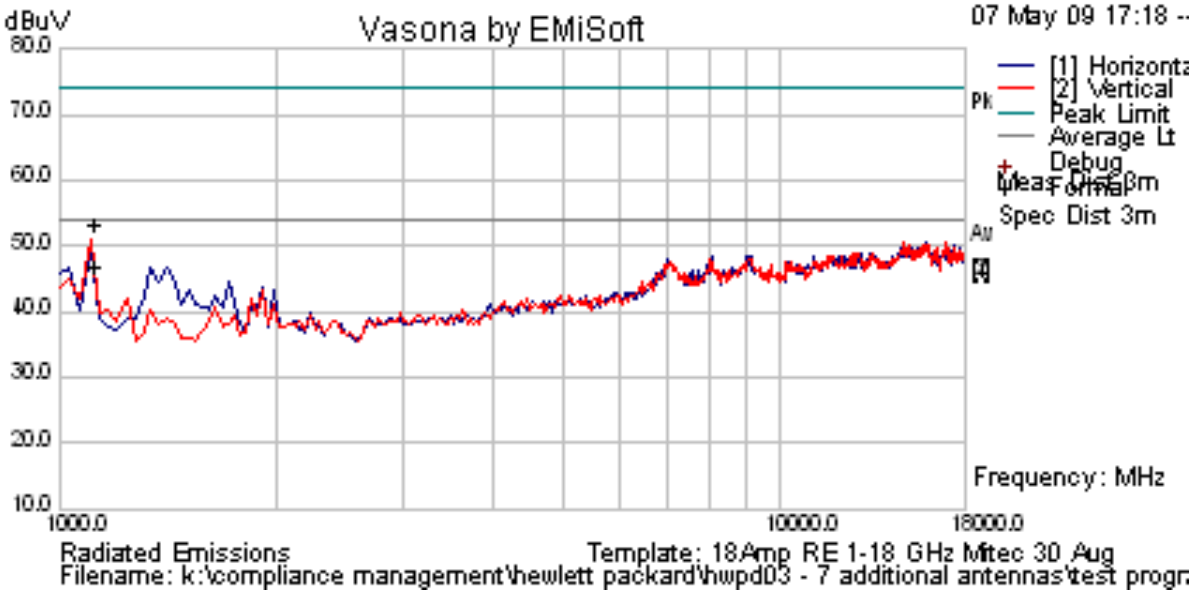
Level (dBμV/m) = 20 * Log (level (μV/m))

40 dBμV/m = 100 μV/m
48 dBμV/m = 250 μV/m

Receiver Radiated Spurious Emissions above 1 GHz

Channel 2437

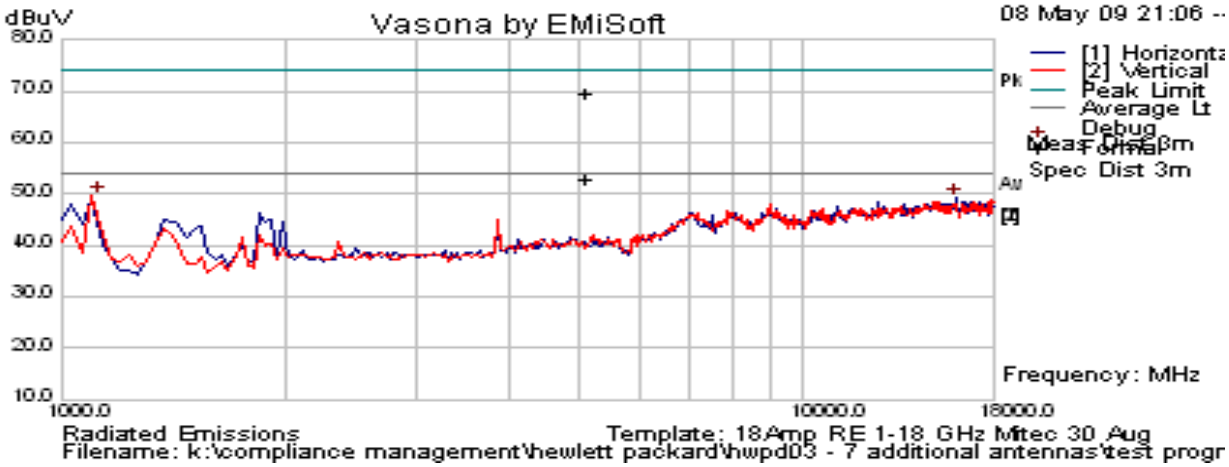
Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	2437
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	17 dBm in ART Test Utility [Version 0_5 Build 26]
Test Conditions	DNMA-83 Radio - 802.11b/g/ht20; CH6; Receive Mode MSM410 Platform Radio 1



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Fail	Comments
1124.941	66.9	2.07	-15.52	53.46	Peak Max	V	100	107	74	-20.54	Pass	RB
1124.941	60.41	2.07	-15.52	46.96	Average Max	H	98	168	54	-7.04	Pass	RB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

Date	5/7/2009
Engineer	CSB
Test Case	HWPD03 - FCC [Country = United States] Spurious Emissions > 1GHz
Frequency	5785
Antenna Model	J9170A Antenna / Gain = 10.9 dBi
Power setting	
Test Conditions	DNMA-83 Radio - 802.11b/g/ht20; CH6; Receive Mode MSM410 Platform Radio 1



Frequency MHz	Raw dBuV	Cable Loss	AF dB	Level dBuV	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBuV	Margin dB	Pass /Pass	Comments
1125.075	67.28	2.07	-15.52	53.83	Peak Max	V	102	101	74	-20.17	Pass	RB
1125.075	60.12	2.07	-15.52	46.67	Average Max	V	102	101	54	-7.33	Pass	RB

Band-edge – Restricted Bands
RB – Restricted Band
NRB – Non-Restricted Band

Specification

Receiver Radiated Spurious Emissions

Industry Canada RSS-Gen §4.8,
The search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is the higher, to at least 3 times the highest tunable or local oscillator frequency, whichever is the higher, without exceeding 40 GHz.

RSS-Gen §6
The following receiver spurious emission limits shall be complied with;
(a) If a radiated measurement is made, all spurious emissions hall comply with the limits of Table 1.

Frequency (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance (meters)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Laboratory Measurement Uncertainty for Radiated Emissions

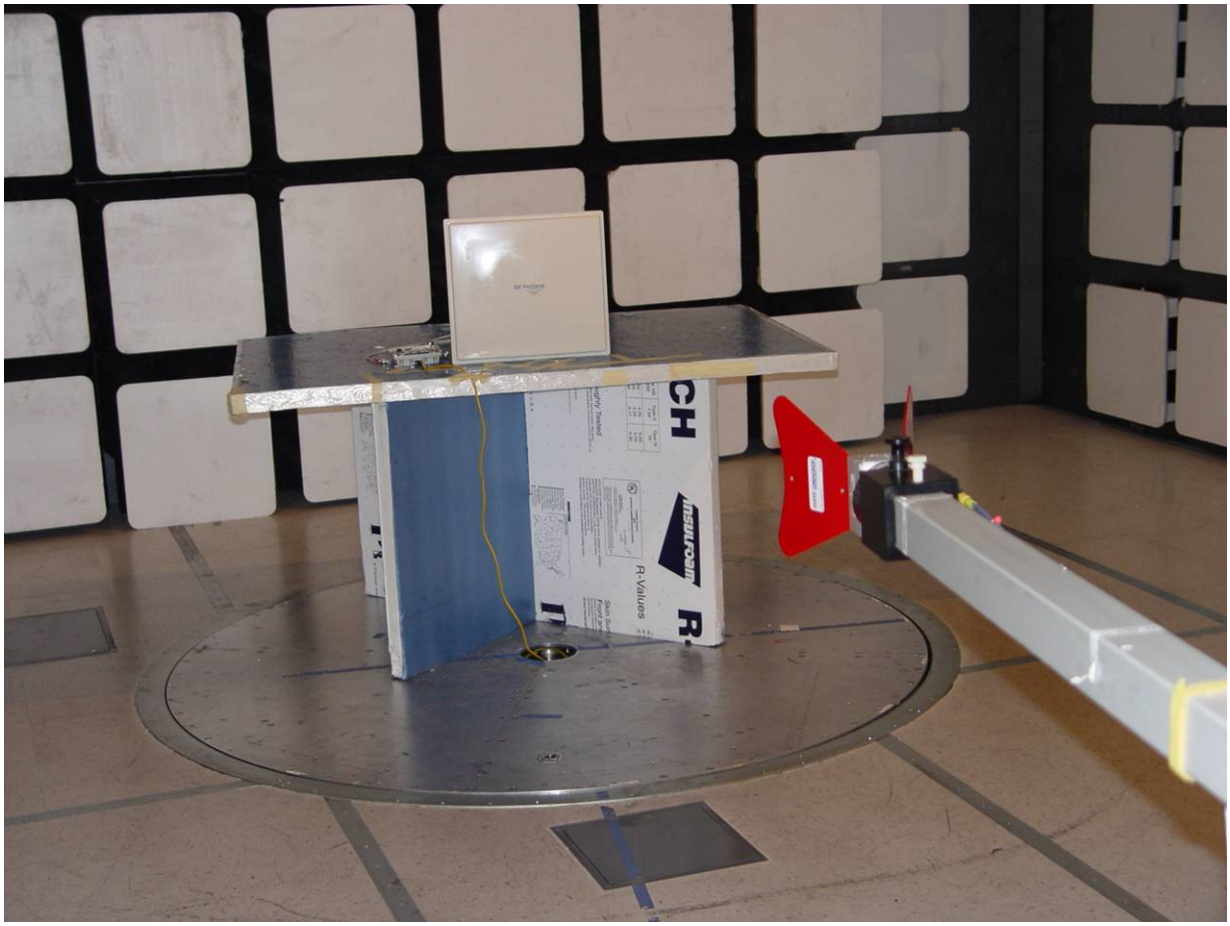
Measurement uncertainty	+5.6/ -4.5 dB

Traceability

Method	Test Equipment Used
Measurements were made per work instruction WI-03 'Measurement of Radiated Emissions'	0088, 0158, 0134, 0304, 0311, 0315, 0310, 0312

6. PHOTOGRAPHS

6.1. Radiated Emissions > 1GHz



7. TEST EQUIPMENT DETAILS

Asset #	Instrument	Manufacturer	Part #	Serial #
0088	Spectrum Analyzer	Hewlett Packard	8564E	3410A00141
0134	Amplifier	Com Power	PA 122	181910
0158	Barometer /Thermometer	Control Co.	4196	E2846
0193	EMI Receiver	Rhode & Schwartz	ESI 7	838496/007
0252	SMA Cable	Megaphase	Sucoflex 104	None
0310	2m SMA Cable	Micro-Coax	UFA210A-0-0787-3G03G0	209089-001
0312	3m SMA Cable	Micro-Coax	UFA210A-1-1181-3G0300	209092-001
0313	Coupler	Hewlett Packard	86205A	3140A01285
0314	30dB N-Type Attenuator	ARRA	N9444-30	1623
0070	Power Meter	Hewlett Packard	437B	3125U11552
0116	Power Sensor	Hewlett Packard	8485A	3318A19694
0117	Power Sensor	Hewlett Packard	8487D	3318A00371
0184	Pulse Limiter	Rhode & Schwartz	ESH3Z2	357.8810.52
0190	LISN	Rhode & Schwartz	ESH3Z5	836679/006
0293	BNC Cable	Megaphase	1689 1GVT4	15F50B001
0301	5.6 GHz Notch Filter	Micro-Tronics	RBC50704	001
0302	5.25 GHz Notch Filter	Micro-Tronics	BRC50703	002
0303	5.8 GHz Notch Filter	Micro-Tronics	BRC50705	003
0304	2.4GHzHz Notch Filter	Micro-Tronics	--	001
0307	BNC Cable	Megaphase	1689 1GVT4	15F50B002
0335	1-18GHz Horn Antenna	ETS- Lindgren	3117	00066580
0337	Amplifier	MiCOM Labs	--	--
0338	Antenna	Sunol Sciences	JB-3	A052907

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