



**FCC CFR47 PART 15 SUBPART C  
CLASS II PERMISSIVE CHANGE  
CERTIFICATION TEST REPORT**

**FOR**

**WIRELESS USB ADAPTER**

**MODEL NUMBER: CUSTOM DWL-AG132**

**FCC ID: STJ80411396001**

**REPORT NUMBER: 07U11022-1**

**ISSUE DATE: JUNE 5, 2007**

*Prepared for*  
**HOSPIRA, INC.**  
**755 JARVIS DRIVE**  
**MORGAN HILL, CA 95037, U.S.A.**

*Prepared by*  
**COMPLIANCE CERTIFICATION SERVICES**  
**47173 BENICIA STREET**  
**FREMONT, CA 94538, U.S.A.**  
**TEL: (510) 771-1000**  
**FAX: (510) 661-0888**

**NVLAP**<sup>®</sup>

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	06/05/07	Initial Issue	T. Chan

## TABLE OF CONTENTS

<b>1. ATTESTATION OF TEST RESULTS.....</b>	<b>4</b>
<b>2. TEST METHODOLOGY .....</b>	<b>5</b>
<b>3. FACILITIES AND ACCREDITATION .....</b>	<b>5</b>
<b>4. CALIBRATION AND UNCERTAINTY.....</b>	<b>5</b>
4.1. <i>MEASURING INSTRUMENT CALIBRATION.....</i>	<i>5</i>
4.2. <i>MEASUREMENT UNCERTAINTY.....</i>	<i>5</i>
<b>5. EQUIPMENT UNDER TEST.....</b>	<b>6</b>
5.1. <i>DESCRIPTION OF EUT .....</i>	<i>6</i>
5.2. <i>DESCRIPTION OF CLASS II CHANGE .....</i>	<i>6</i>
5.3. <i>DESCRIPTION OF AVAILABLE ANTENNAS.....</i>	<i>6</i>
5.4. <i>SOFTWARE AND FIRMWARE .....</i>	<i>6</i>
5.5. <i>WORST-CASE CONFIGURATION AND MODE.....</i>	<i>6</i>
5.6. <i>DESCRIPTION OF TEST SETUP .....</i>	<i>7</i>
<b>6. TEST AND MEASUREMENT EQUIPMENT .....</b>	<b>9</b>
<b>7. LIMITS AND RESULTS .....</b>	<b>10</b>
7.1. <i>RADIATED EMISSIONS.....</i>	<i>10</i>
7.1.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS .....	10
7.1.2. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND .....	12
7.1.3. TRANSMITTER ABOVE 1 GHz FOR 5725 TO 5850 MHz BAND .....	30
7.1.4. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz .....	31
7.2. <i>POWERLINE CONDUCTED EMISSIONS .....</i>	<i>35</i>
<b>8. SETUP PHOTOS .....</b>	<b>39</b>

## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** HOSPIRA, INC.  
755 JARVIS DRIVE  
MORGAN HILL, CA 95037, U.S.A.

**EUT DESCRIPTION:** Wireless USB Adapter

**MODEL:** CUSTOM DWL-AG132

**SERIAL NUMBER:** 15896261

**DATE TESTED:** APRIL 24-27, 2007

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:



---

THU CHAN  
EMC SUPERVISOR  
COMPLIANCE CERTIFICATION SERVICES



---

WILLIAM ZHUANG  
EMC ENGINEER  
COMPLIANCE CERTIFICATION SERVICES

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Radiated Emission, Above 2000 MHz	+/- 4.3 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is an 802.11 a/b/g wireless upgrade module for Hospira Patient Care Analgesic Pump.

### 5.2. DESCRIPTION OF CLASS II CHANGE

The change filed under this application is adding host device Patient Care Analgesic PCA3 Infusion pump List Number 20709-04-77/78.

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna type is Surface mount PIFA omni-directional antenna with a maximum azimuth gain of +1.73dBi.

### 5.4. SOFTWARE AND FIRMWARE

The EUT driver software installed in the host support equipment during testing was AR5523, Version 1.0.1.0.

The test utility software used during testing was Art Software Revision 5.3, Build #24

### 5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power. The highest measured output power was at 5745 MHz.

The worst-case data rate for this channel is determined to be 1 Mb/s for b mode and 6 M/bs for g and a mode based on previous experience with 2.4 and 5GHz WLAN product design architectures.

Thus all emissions for 30-1000 MHz tests were made in the 802.11a mode, 5745 MHz, 6 Mb/s.

## 5.6. DESCRIPTION OF TEST SETUP

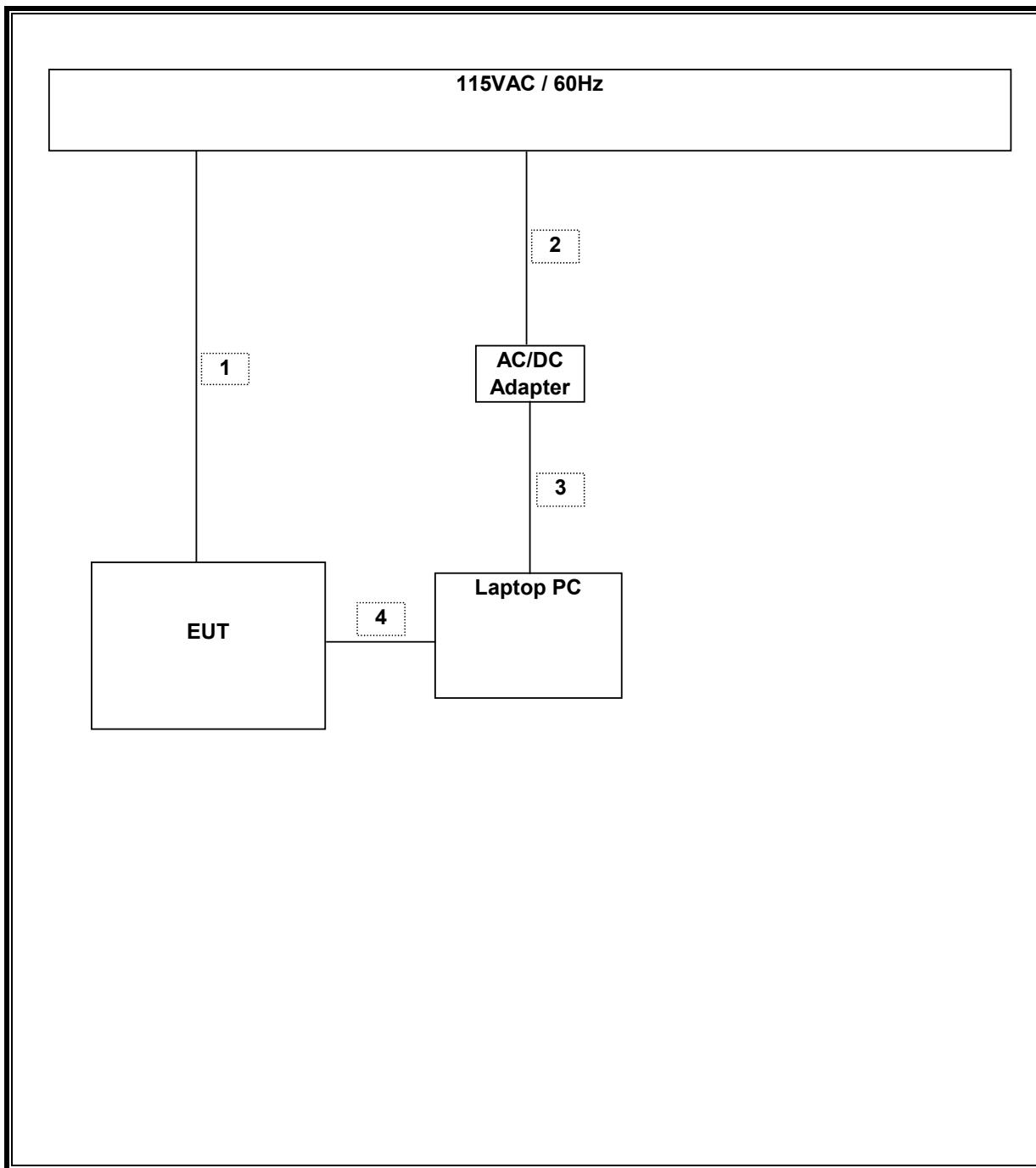
### SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop PC	Dell	PP05L	CN-0T9369-48643-52P-4582	DoC
AC/DC Adapter	Dell	AA22850	CN-0T2357-16291-4AF-04LC	N/A

### I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	AC	Unshielded	3m	N/A
2	AC	1	AC	Unshielded	0.9m	N/A
3	DC	1	DC	Unshielded	1.8m	N/A
4	USB	1	USB	Unshielded	1.7m	N/A

**SETUP DIAGRAM FOR TESTS**



## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	S/N	Cal Due
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	9001-3245	04/22/08
Antenna, Horn 1 ~ 18 GHz	ETS	3117	29301	04/22/08
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00561	10/03/07
Preamplifier, 26 ~ 40 GHz	Miteq	NSP4000-SP2	924343	08/18/07
Antenna, Horn 18 ~ 26 GHz	ARA	MWH-1826/B	1049	09/12/07
Antenna, Horn 26 ~ 40 GHz	ARA	MWH-2640/B	1029	04/13/08
EMI Test Receiver	R & S	ESHS 20	827129/006	06/03/07
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	08/30/07
Bilog Antenna 30 MHz ~ 2 GHz	Sunol Sciences	JB1	A121003	09/03/07
Preamplifier, 1300 MHz	Agilent / HP	8447D	1937A02062	01/23/08
SA RF Section, 1.5 GHz	Agilent / HP	85680B	2814A04227	01/07/08
Quasi-Peak Adaptor	Agilent / HP	85650A	3145A01654	01/21/08
SA Display Section 2	Agilent / HP	85662A	2816A16696	04/07/08
Peak Power Meter	Agilent / HP	E4416A	GB41291160	12/02/07
Peak / Average Power Sensor	Agilent	E9327A	US40440755	12/02/07
Spectrum Analyzer	Agilent / HP	E4446A	MY43360112	05/03/08
7.6GHz HPF	MicroTronic	HPM13195	1	CNR
4.0 GHz Highpass Filter	Micro-Tronics	HPM13351	2	CNR

## 7. LIMITS AND RESULTS

### 7.1. RADIATED EMISSIONS

#### 7.1.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS

##### LIMITS

§15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

§15.205 (b) Except as provided in paragraphs (d) and (e), 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.

§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:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

\*\* Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

### **TEST PROCEDURE**

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

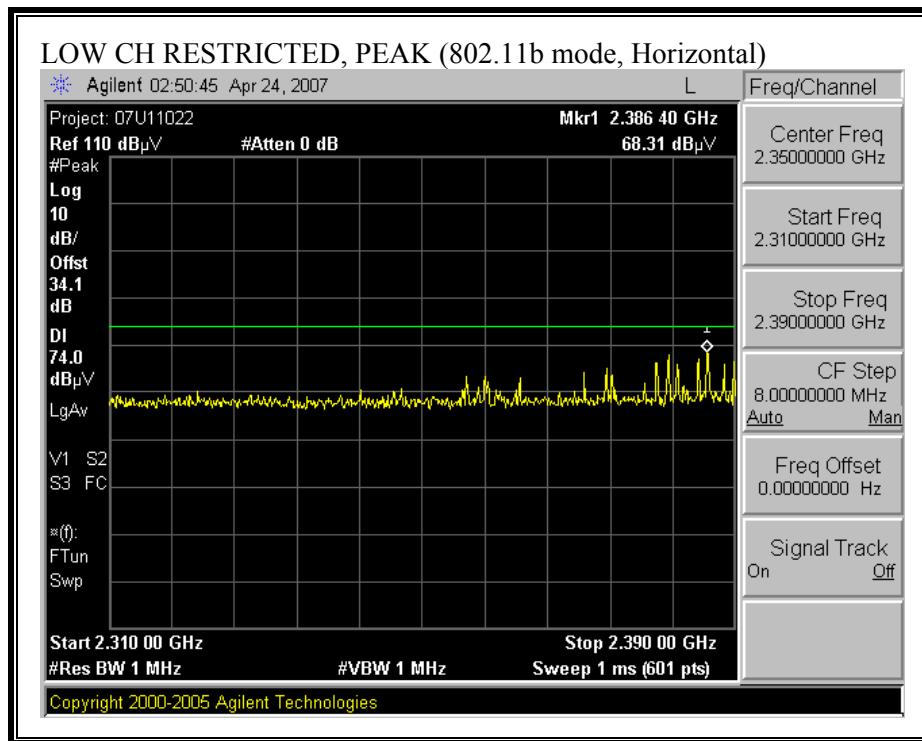
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

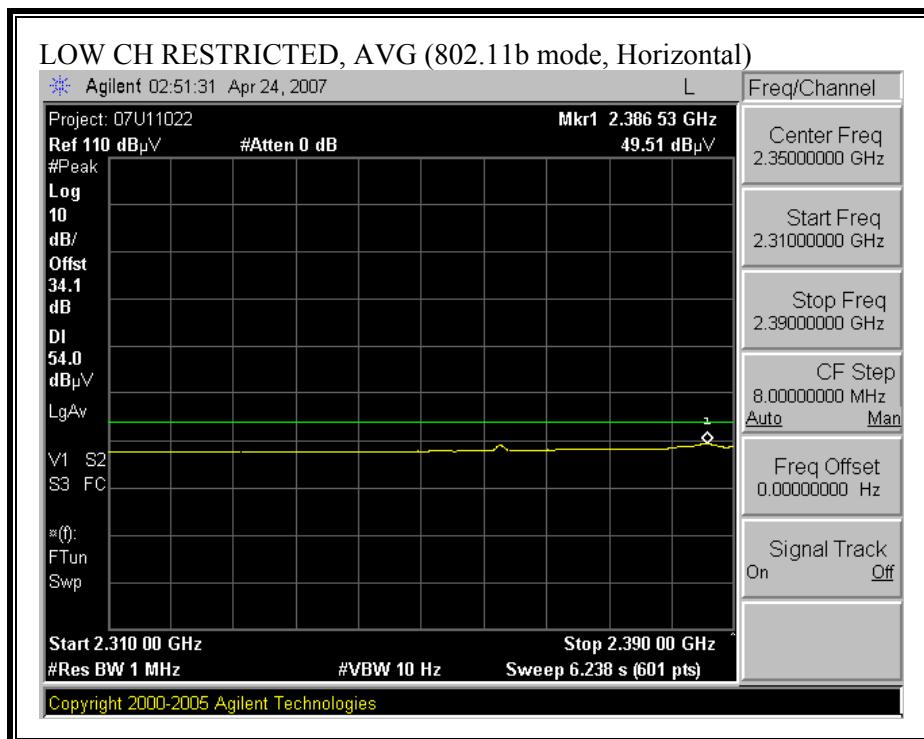
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each 5 GHz band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

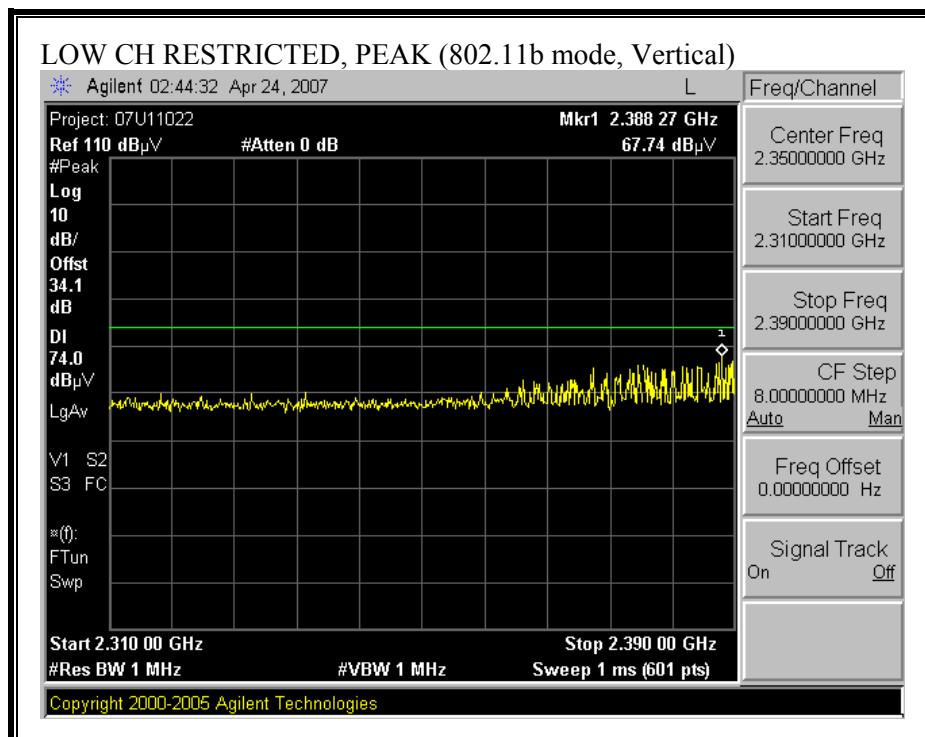
### 7.1.2. TRANSMITTER ABOVE 1 GHz FOR 2400 TO 2483.5 MHz BAND

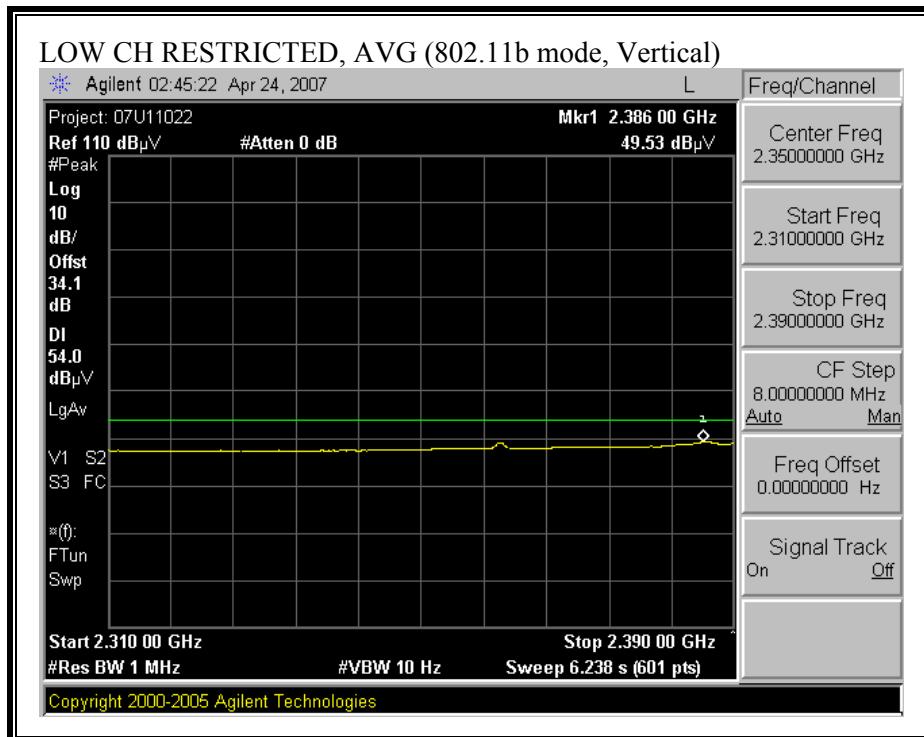
#### RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, HORIZONTAL)



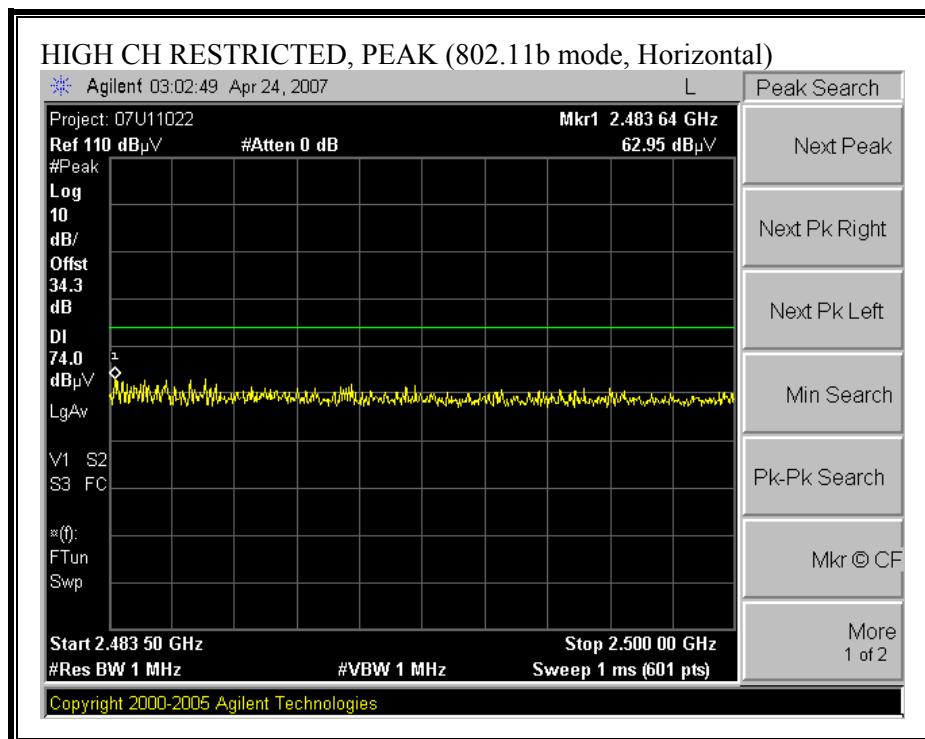


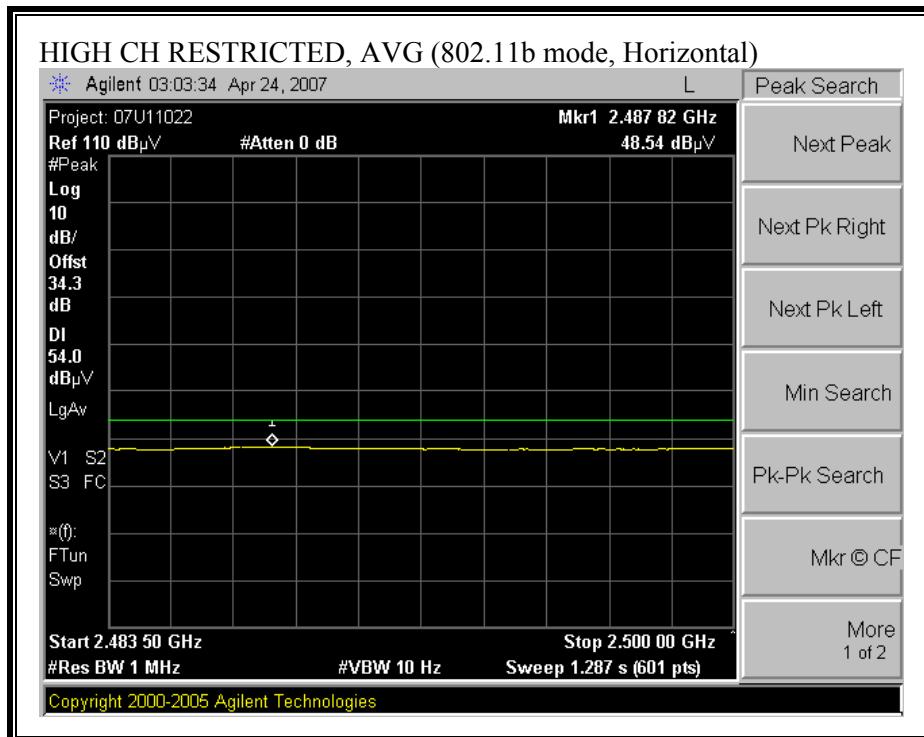
**RESTRICTED BANDEDGE (b MODE, LOW CHANNEL, VERTICAL)**



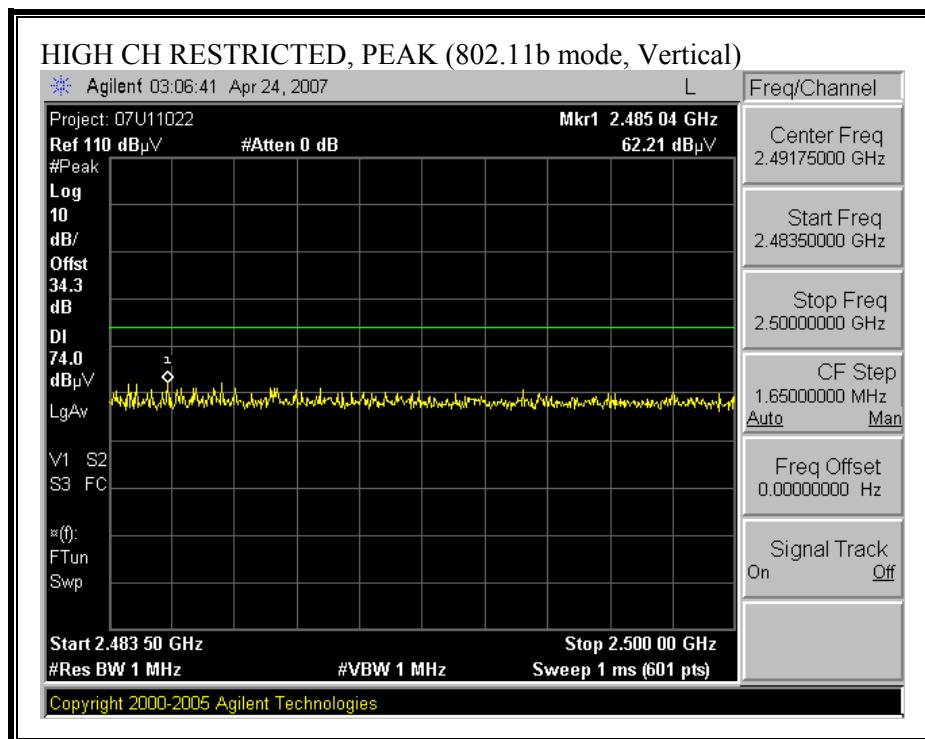


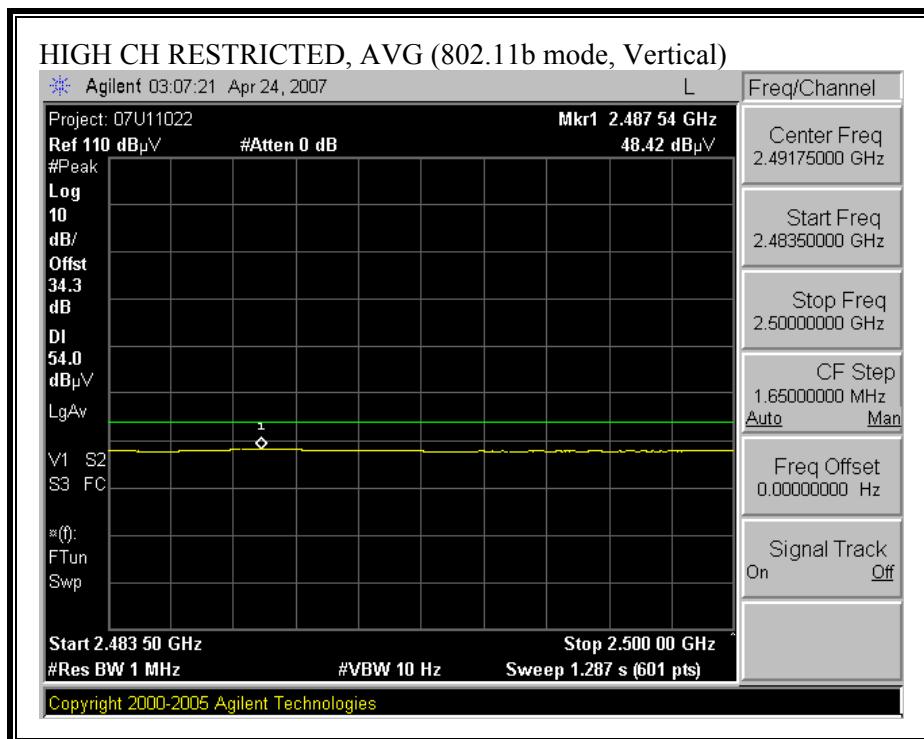
**RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, HORIZONTAL)**





**RESTRICTED BANDEDGE (b MODE, HIGH CHANNEL, VERTICAL)**





**HARMONICS AND SPURIOUS EMISSIONS (b MODE)**

04/24/07 High Frequency Measurement  
Compliance Certification Services, Morgan Hill Open Field Site

Test Engr: William Zhuang

Project #: 07U11022

Company: Hospira

EUT Descrip.: (1) Patient Care Analgesic Pump, Class II Permissive Change for specific Host

EUT M/N: PCA3

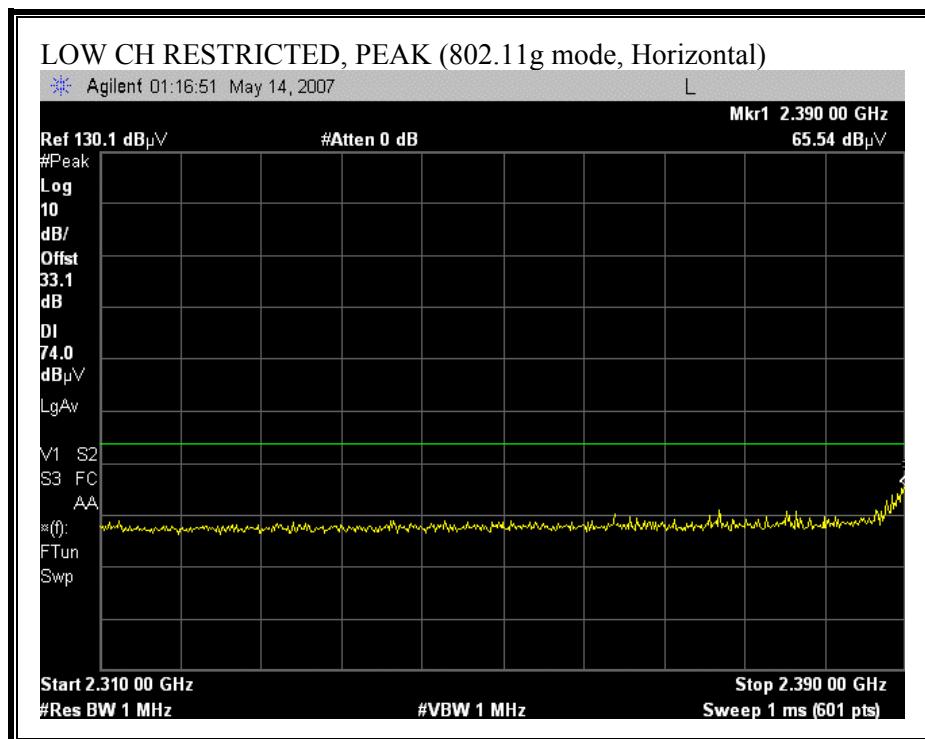
Test Target: FCC Part 15.247

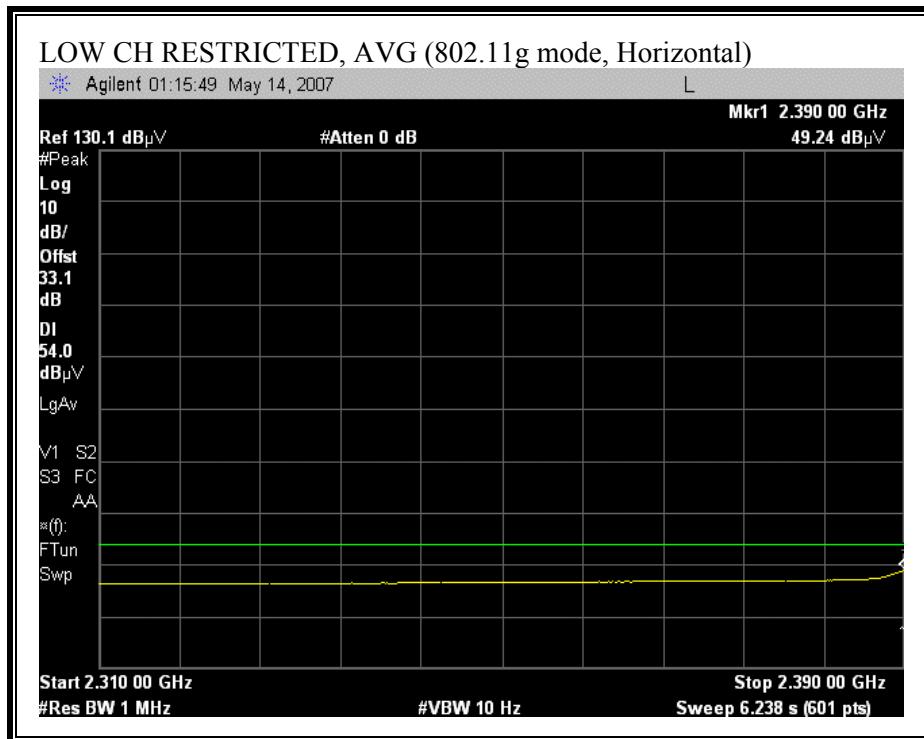
Mode Oper: Normal, b Mode

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

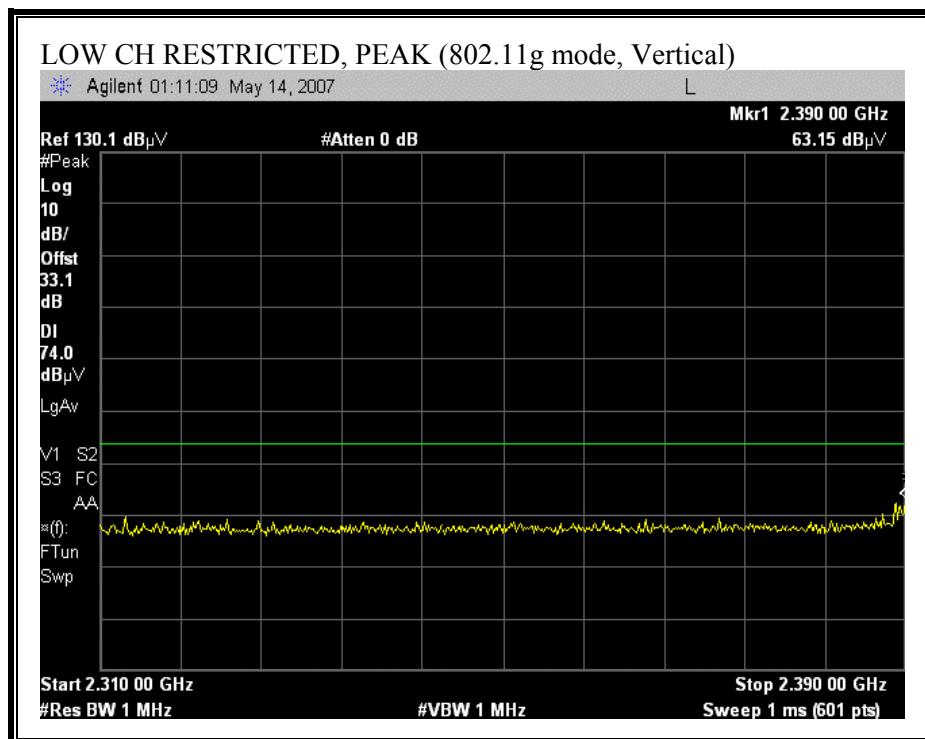
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
<b>Low Ch. 2412 MHz, art=17.5</b>															
4.824	3.0	39.7	34.3	33.0	7.7	-34.8	0.0	0.6	46.2	40.7	74.0	54.0	-27.8	-13.3	V
7.236	3.0	38.3	25.6	35.4	9.3	-34.7	0.0	0.6	48.9	36.2	74.0	54.0	-25.1	-17.8	V
4.824	3.0	38.7	29.2	33.0	7.7	-34.8	0.0	0.6	45.2	35.7	74.0	54.0	-28.8	-18.3	H
7.236	3.0	37.7	25.3	35.4	9.3	-34.7	0.0	0.6	48.3	36.0	74.0	54.0	-25.7	-18.1	H
<b>Mid Ch. 2437 MHz, art=17.5</b>															
4.874	3.0	41.6	35.7	33.1	7.7	-34.9	0.0	0.6	48.1	42.2	74.0	54.0	-25.9	-11.8	V
7.311	3.0	36.5	24.8	35.5	9.3	-34.7	0.0	0.6	47.2	35.5	74.0	54.0	-26.8	-18.5	V
4.874	3.0	39.5	31.1	33.1	7.7	-34.9	0.0	0.6	46.1	37.7	74.0	54.0	-27.9	-16.3	H
7.311	3.0	36.5	24.8	35.5	9.3	-34.7	0.0	0.6	47.3	35.6	74.0	54.0	-26.7	-18.4	H
<b>High Ch. 2462 MHz, art=17.5</b>															
4.924	3.0	42.1	36.7	33.1	7.8	-34.9	0.0	0.6	48.7	43.3	74.0	54.0	-25.3	-10.7	V
7.386	3.0	37.2	25.0	35.6	9.3	-34.6	0.0	0.6	48.1	35.9	74.0	54.0	-25.9	-18.1	V
4.924	3.0	40.9	33.7	33.1	7.8	-34.9	0.0	0.6	47.6	40.3	74.0	54.0	-26.4	-13.7	H
7.386	3.0	37.0	25.0	35.6	9.3	-34.6	0.0	0.6	47.9	35.9	74.0	54.0	-26.1	-18.1	H
No more signal found above noise floor															

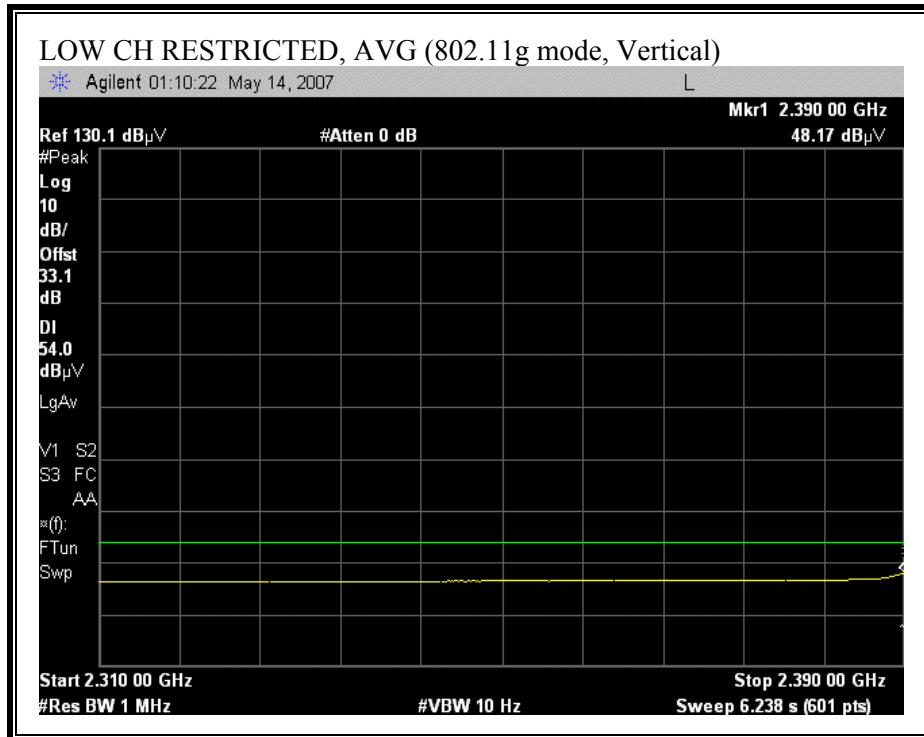
**RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, HORIZONTAL)**



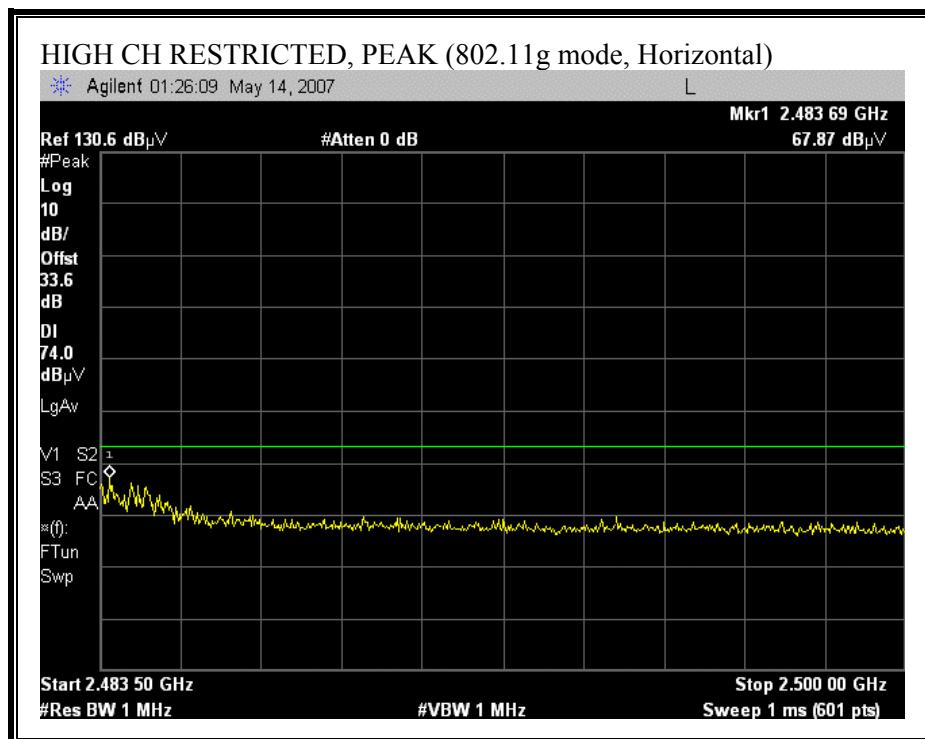


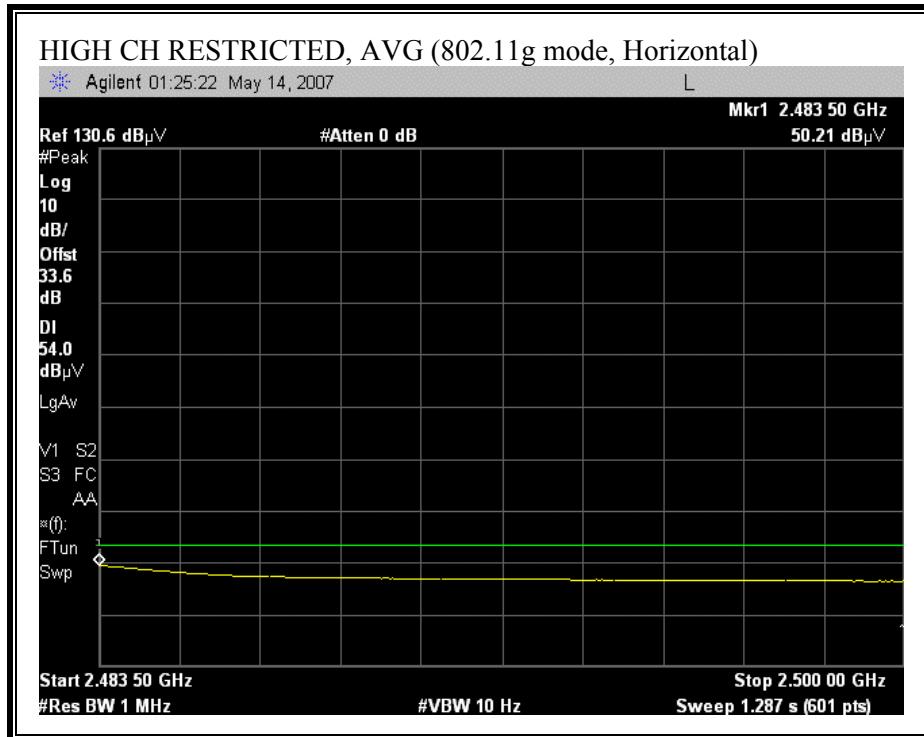
**RESTRICTED BANDEDGE (g MODE, LOW CHANNEL, VERTICAL)**



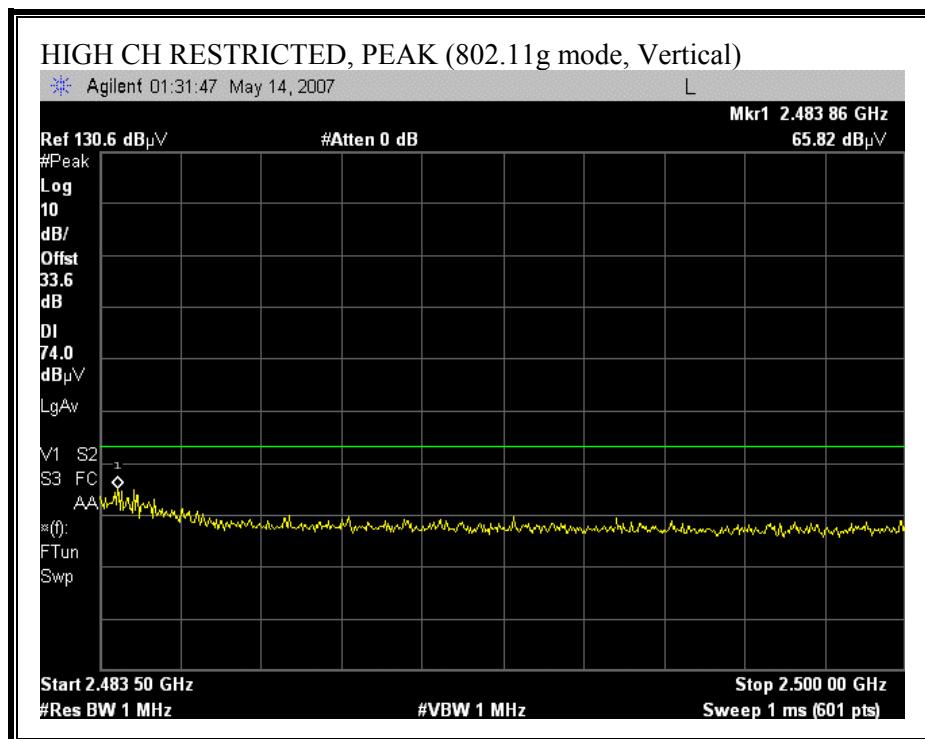


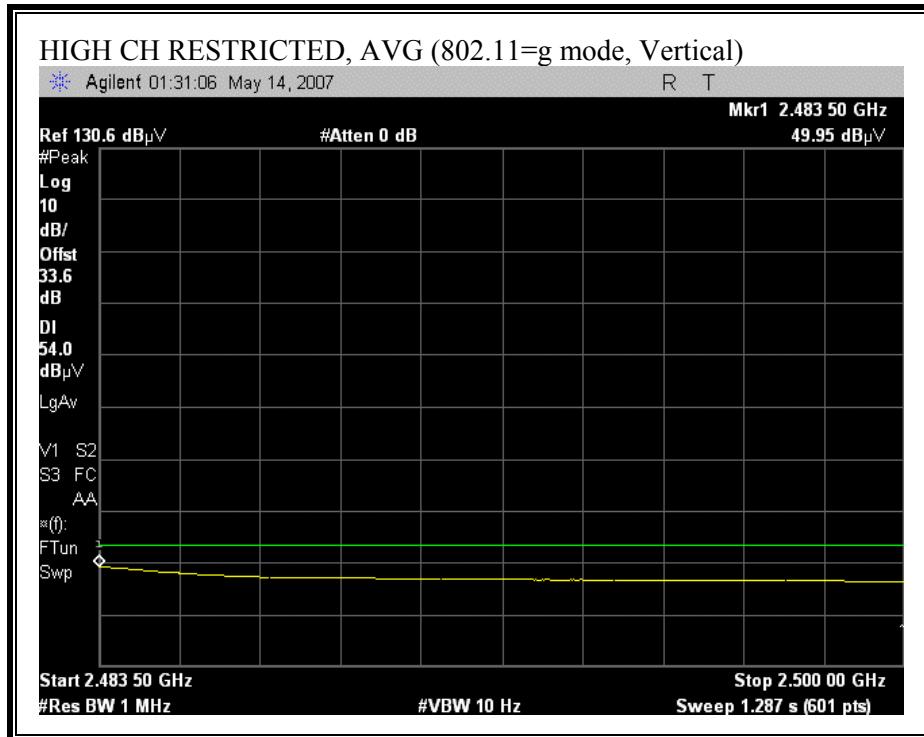
**RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, HORIZONTAL)**





**RESTRICTED BANDEDGE (g MODE, HIGH CHANNEL, VERTICAL)**





**HARMONICS AND SPURIOUS EMISSIONS (g MODE)**

High Frequency Measurement Compliance Certification Services, Fremont 5m Chamber																																												
Company:	Hospira																																											
Project #:	07U11022																																											
Date:	05/14/07																																											
Test Engineer:	Frank Drahm																																											
Configuration:	(1) Patient Care Analgesic Pump, Class II Permissive Change for specific Host, model: PCA3																																											
Target:	FCC Part 15.247																																											
Mode:	Normal, g Mode, ART=17.5, 6Mbps																																											
Test Equipment:																																												
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit																																
T59; S/N: 3245 @3m			T144 Miteq 3008A00931						T89; ARA 18-26GHz; S/N:1049			FCC 15.205																																
Hi Frequency Cables																																												
2 foot cable			3 foot cable			12 foot cable			HPF			Reject Filter																																
						A.5m Chamber						R_001																																
<table border="1"> <thead> <tr> <th colspan="2">Peak Measurements</th> </tr> <tr> <td colspan="2">RBW=VBW=1MHz</td> </tr> </thead> <tbody> <tr> <td colspan="2">Average Measurements</td> </tr> <tr> <td colspan="2">RBW=1MHz; VBW=10Hz</td> </tr> </tbody> </table>															Peak Measurements		RBW=VBW=1MHz		Average Measurements		RBW=1MHz; VBW=10Hz																							
Peak Measurements																																												
RBW=VBW=1MHz																																												
Average Measurements																																												
RBW=1MHz; VBW=10Hz																																												
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Fltr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)																													
<b>Low Channel (2412 MHz)</b>																																												
1.060	3.0	58.85	35.92	24.2	3.1	-39.4	0.0	0.0	46.70	23.77	74	54	-27.30	-30.23	V																													
1.400	3.0	53.84	36.37	25.5	3.5	-38.9	0.0	0.0	43.94	26.47	74	54	-30.06	-27.53	V																													
4.824	3.0	42.49	30.12	33.2	6.9	-36.5	0.0	0.0	46.06	33.69	74	54	-27.94	-20.31	V																													
12.060	3.0	41.78	29.60	37.6	12.2	-35.4	0.0	0.0	56.17	43.99	74	54	-17.83	-10.01	V																													
4.824	3.0	41.05	29.16	33.2	6.9	-36.5	0.0	0.0	44.62	32.73	74	54	-29.38	-21.27	H																													
12.060	3.0	41.79	29.56	37.6	12.2	-35.4	0.0	0.0	56.18	43.95	74	54	-17.82	-10.05	H																													
<b>Mid Channel (2437 MHz)</b>																																												
4.874	3.0	41.89	29.13	33.2	6.9	-36.5	0.0	0.0	45.55	32.79	74	54	-28.45	-21.21	V																													
7.311	3.0	42.02	29.47	35.2	8.4	-36.2	0.0	0.0	49.45	36.90	74	54	-24.55	-17.10	V																													
4.874	3.0	41.39	28.59	33.2	6.9	-36.5	0.0	0.0	45.05	32.25	74	54	-28.95	-21.75	H																													
7.311	3.0	41.85	29.13	35.2	8.4	-36.2	0.0	0.0	49.28	36.56	74	54	-24.72	-17.44	H																													
<b>High Channel (2462 MHz)</b>																																												
4.924	3.0	41.05	28.63	33.2	7.0	-36.5	0.0	0.0	44.81	32.39	74	54	-29.19	-21.61	V																													
7.386	3.0	41.82	28.26	35.3	8.4	-36.2	0.0	0.0	49.25	35.79	74	54	-24.65	-18.21	V																													
4.924	3.0	41.02	27.99	33.2	7.0	-36.5	0.0	0.0	44.78	31.75	74	54	-29.22	-22.25	H																													
7.386	3.0	42.75	29.57	35.3	8.4	-36.2	0.0	0.0	50.28	37.10	74	54	-23.72	-16.90	H																													
<table border="1"> <tr> <td>f</td> <td>Measurement Frequency</td> <td>Amp</td> <td>Preamp Gain</td> <td>Avg Lim</td> <td>Average Field Strength Limit</td> </tr> <tr> <td>Dist</td> <td>Distance to Antenna</td> <td>D Corr</td> <td>Distance Correct to 3 meters</td> <td>Pk Lim</td> <td>Peak Field Strength Limit</td> </tr> <tr> <td>Read</td> <td>Analyzer Reading</td> <td>Avg</td> <td>Average Field Strength @ 3 m</td> <td>Avg Mar</td> <td>Margin vs. Average Limit</td> </tr> <tr> <td>AF</td> <td>Antenna Factor</td> <td>Peak</td> <td>Calculated Peak Field Strength</td> <td>Pk Mar</td> <td>Margin vs. Peak Limit</td> </tr> <tr> <td>CL</td> <td>Cable Loss</td> <td>HPF</td> <td>High Pass Filter</td> <td></td> <td></td> </tr> </table>															f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit	Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit	Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit	AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit	CL	Cable Loss	HPF	High Pass Filter		
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit																																							
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit																																							
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit																																							
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit																																							
CL	Cable Loss	HPF	High Pass Filter																																									
Note: EUT was scanned from 1 GHz to 25 GHz, no emissions from EUT were detected above the system noise floor.																																												

### 7.1.3. TRANSMITTER ABOVE 1 GHz FOR 5725 TO 5850 MHz BAND

#### HARMONICS AND SPURIOUS EMISSIONS (802.11a MODE)

04/25/07 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site																
f	Measurement Frequency	Amp	Preamp Gain	Avg Lim Average Field Strength Limit Pk Lim Peak Field Strength Limit Avg Mar Margin vs. Average Limit Pk Mar Margin vs. Peak Limit												
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters													
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m													
AF	Antenna Factor	Peak	Calculated Peak Field Strength													
CL	Cable Loss	HPF	High Pass Filter													
<b>Low Ch. 5745 MHz, art=19</b>																
11.490	3.0	33.4	22.4	37.4	11.9	-32.4	0.0	0.7	51.0	39.9	74.0	54.0	-23.0	-14.1	V	
17.235	3.0	33.4	21.7	41.7	14.4	-32.0	0.0	0.6	58.2	46.4	74.0	54.0	-15.8	-7.6	V	
11.490	3.0	34.5	22.2	37.4	11.9	-32.4	0.0	0.7	52.1	39.7	74.0	54.0	-21.9	-14.3	H	
17.235	3.0	33.3	21.6	41.7	14.4	-32.0	0.0	0.6	58.1	46.3	74.0	54.0	-15.9	-7.7	H	
<b>Mid Ch. 5785 MHz, art=18.5</b>																
11.570	3.0	34.7	23.1	37.4	11.9	-32.4	0.0	0.7	52.3	40.8	74.0	54.0	-21.7	-13.2	V	
17.355	3.0	33.3	22.0	42.1	14.5	-32.0	0.0	0.6	58.5	47.2	74.0	54.0	-15.5	-6.8	V	
11.570	3.0	35.2	22.7	37.4	11.9	-32.4	0.0	0.7	52.8	40.3	74.0	54.0	-21.2	-13.7	H	
17.355	3.0	33.1	21.2	42.1	14.5	-32.0	0.0	0.6	58.4	46.5	74.0	54.0	-15.6	-7.5	H	
<b>High Ch. 5825 MHz, art=18.5</b>																
11.650	3.0	35.4	23.3	37.4	12.0	-32.4	0.0	0.7	53.1	41.0	74.0	54.0	-20.9	-13.0	V	
17.475	3.0	32.7	21.4	42.6	14.5	-32.0	0.0	0.6	58.4	47.1	74.0	54.0	-15.6	-6.9	V	
11.650	3.0	34.7	23.2	37.4	12.0	-32.4	0.0	0.7	52.4	40.9	74.0	54.0	-21.6	-13.1	H	
17.475	3.0	32.8	20.9	42.6	14.5	-32.0	0.0	0.6	58.5	46.6	74.0	54.0	-15.5	-7.4	H	
No more signal found above noise floor																

### 7.1.4. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

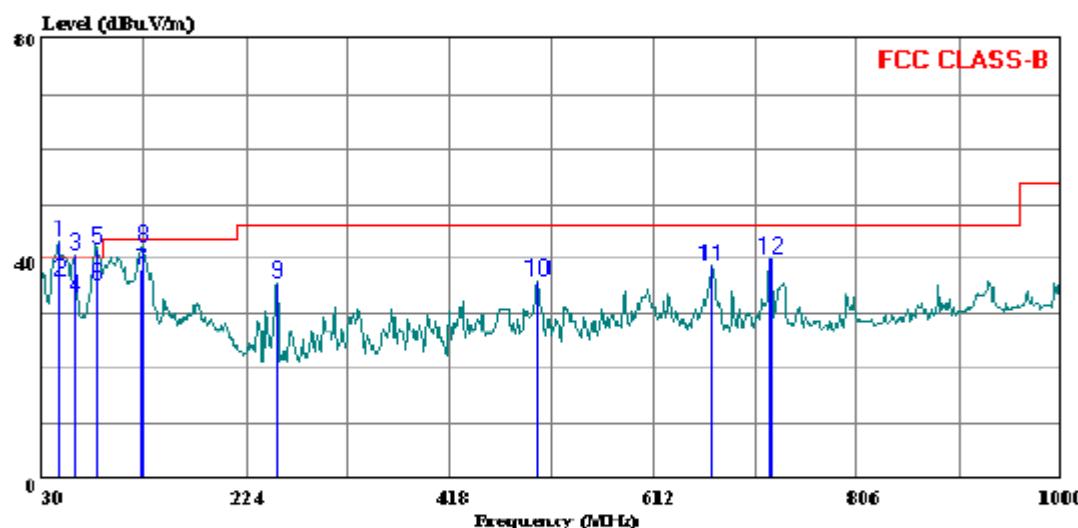
#### SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

##### HORIZONTAL PLOT



Compliance Certification Services  
47173 Benicia Street  
Fremont, CA 94538  
Tel: (510) 771-1000  
Fax: (510) 661-0888

Data#: 12 File#: EMI 07U11022.EMI Date: 04-26-2007 Time: 15:50:34



Trace: 9

Ref Trace:

Condition: FCC CLASS-B 3m B-5M CHAMBER 012007 HORIZONTAL  
Test Operator: : Anoop Singh  
Project #: : 07U11022  
Company: : Hospira  
Configuration : EUT/NOTEBOOK  
Mode of Operation: : TX, 5GHz ( Worst Case )  
Power Source: : 120 VAC, 60Hz  
Target : FCC Class B

HORIZONTAL DATA

Freq	Read		Limit	Over	Limit	Remark
	Level	Factor				
MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1 *	46.490	62.96	-19.65	43.31	40.00	3.31 Peak
2	46.490	56.40	<b>-19.65</b>	36.75	40.00	-3.25 QP
3 *	61.040	64.14	-23.14	41.00	40.00	1.00 Peak
4	61.040	56.50	-23.14	33.36	40.00	-6.64 QP
5 *	81.410	64.86	-22.83	42.03	40.00	2.03 Peak
6	81.410	58.10	-22.83	35.27	40.00	-4.73 QP
7	124.000	54.60	-16.56	38.04	43.50	-5.46 QP
8	126.030	58.79	-16.42	42.37	43.50	-1.13 Peak
9	255.040	53.30	-17.54	35.76	46.00	-10.24 Peak
10	501.420	47.18	-11.31	35.88	46.00	-10.12 Peak
11	667.290	47.53	-8.87	38.66	46.00	-7.34 Peak
12	722.580	48.20	-8.11	40.09	46.00	-5.91 Peak

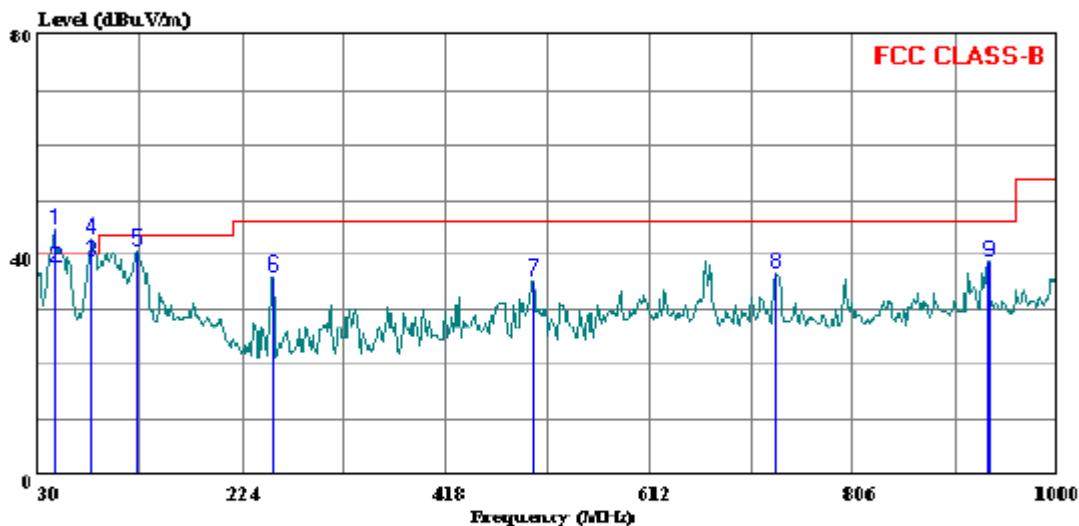
**SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)**

VERTICAL PLOT



Compliance Certification Services  
47173 Benicia Street  
Fremont, CA 94538  
Tel: (510) 771-1000  
Fax: (510) 661-0888

Data#: 16 File#: EMI 07U11022.EMI Date: 04-26-2007 Time: 16:22:10



Trace: 13

Ref Trace:

Condition: FCC CLASS-B 3m B-5M CHAMBER 012007 VERTICAL  
Test Operator: : Anoop Singh  
Project #: : 07U11022  
Company: : Hospira  
Configuration : EUT/NOTEBOOK  
Mode of Operation: : TX, 5GHz ( Worst Case)  
Power Source: : 120V, 60Hz  
Target : FCC Class B

VERTICAL DATA

	Freq	Read Level	Read Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV		dB	dBuV/m	dBuV/m	
1 *	46.490	64.21	-19.65	44.56	40.00	4.56	Peak
2	46.490	58.10	<b>-19.65</b>	<b>38.45</b>	40.00	<b>-1.55</b>	QP
3	80.440	61.50	-22.83	38.67	40.00	-1.33	QP
4 *	80.440	65.70	-22.83	42.87	40.00	2.87	Peak
5	124.090	57.49	-16.52	40.97	43.50	-2.53	Peak
6	255.040	53.46	-17.54	35.92	46.00	-10.08	Peak
7	500.450	46.61	-11.31	35.30	46.00	-10.70	Peak
8	732.280	44.70	-7.91	36.79	46.00	-9.21	Peak
9	934.040	43.08	-4.31	38.77	46.00	-7.23	Peak

## 7.2. POWERLINE CONDUCTED EMISSIONS

### LIMIT

§15.207 (a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal.

The lower limit applies at the boundary between the frequency ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 <sup>*</sup>	56 to 46 <sup>*</sup>
0.5-5	56	46
5-30	60	50

<sup>\*</sup> Decreases with the logarithm of the frequency.

### TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4.

The resolution bandwidth is set to 9 kHz for both peak detection and quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Line conducted data is recorded for both NEUTRAL and HOT lines.

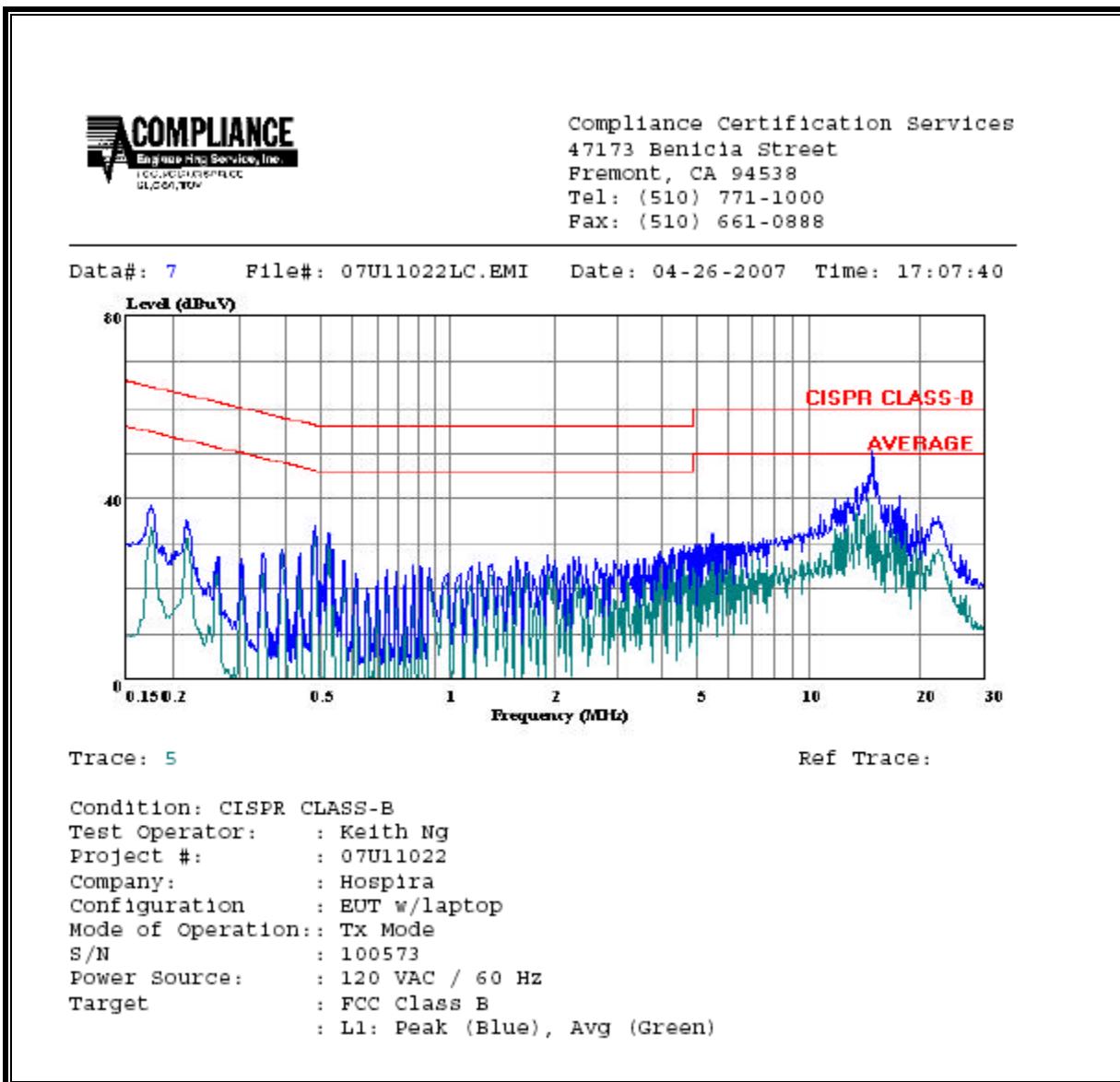
### RESULTS

No non-compliance noted:

**6 WORST EMISSIONS**

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Closs (dB)	Limit QP	EN_B AV	Margin		Remark L1 / L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)				QP (dB)	AV (dB)	
0.17	38.57	--	33.65	0.00	64.77	54.77	-26.20	-21.12	L1
14.99	50.55	--	38.53	0.00	60.00	50.00	-9.45	-11.47	L1
17.75	40.35	--	34.78	0.00	60.00	50.00	-19.65	-15.22	L1
0.20	47.33	--	44.93	0.00	63.49	53.49	-16.16	-8.56	L2
0.48	34.59	--	33.89	0.00	56.32	46.32	-21.73	-12.43	L2
14.99	50.47	--	39.26	0.00	60.00	50.00	-9.53	-10.74	L2
6 Worst Data									

**LINE 1 RESULTS**



**LINE 2 RESULTS**

