



**FCC CFR47 PART 15 SUBPART C
CERTIFICATION**

TEST REPORT

**FOR BLUETOOTH PORTION OF
PDA WITH 802.11B WLAN AND BLUETOOTH**

MODEL NUMBER: HSTNH-L05C-WL

FCC ID: BEJPDA-L05C-WL

REPORT NUMBER: 04I2826-2

ISSUE DATE: JULY 21, 2004

Prepared for
**LG ELECTRONICS INC.
19-1, CHEONGHORI
JINWUJMYUN, KYUNGGIDO
REPUBLIC OF KOREA**

Prepared by
**COMPLIANCE CERTIFICATION SERVICES
561F MONTEREY ROAD,
MORGAN HILL, CA 95037, USA
TEL: (408) 463-0885
FAX: (408) 463-0888**



TABLE OF CONTENTS

1. TEST RESULT CERTIFICATION.....	3
2. EUT DESCRIPTION.....	4
3. TEST METHODOLOGY	5
4. FACILITIES AND ACCREDITATION	5
5. CALIBRATION AND UNCERTAINTY.....	6
5.1. MEASURING INSTRUMENT CALIBRATION.....	6
5.2. MEASUREMENT UNCERTAINTY.....	6
5.3. TEST AND MEASUREMENT EQUIPMENT.....	7
6. SETUP OF EQUIPMENT UNDER TEST.....	8
7. APPLICABLE LIMITS AND TEST RESULTS	12
7.1. 20 dB BANDWIDTH.....	12
7.2. PEAK OUTPUT POWER.....	16
7.3. AVERAGE POWER.....	20
7.4. PEAK POWER SPECTRAL DENSITY	21
7.5. CONDUCTED SPURIOUS EMISSIONS.....	25
7.6. RADIATED EMISSIONS.....	34
7.6.1. TRANSMITTER RADIATED SPURIOUS EMISSIONS	34
7.6.2. TRANSMITTER RADIATED EMISSIONS ABOVE 1 GHz.....	37
7.6.3. CO-LOCATED TRANSMITTER RADIATED EMISSIONS.....	46
7.6.4. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz.....	55
7.7. POWERLINE CONDUCTED EMISSIONS.....	63
8. SETUP PHOTOS.....	69

1. TEST RESULT CERTIFICATION

COMPANY NAME: LG ELECTRONICS INC.
19-1 CHEONGHORI
JINWUAMYUN, KYUNGGIDO, REPUBLIC OF KOREA

EUT DESCRIPTION: PDA WITH 802.11b WLAN AND BLUETOOTH

MODEL: HSTNH-L05C-WL

DATE TESTED: JULY 12 - 21, 2004

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: This document reports conditions under which testing was conducted and results of tests performed. 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.

Approved & Released For CCS By:

Tested By:



MICHAEL HECKROTTE
ENGINEERING MANAGER
COMPLIANCE CERTIFICATION SERVICES

DAVID GARCIA
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. EUT DESCRIPTION

The EUT is a PDA with 802.11b WLAN and Bluetooth transceivers. This report documents the performance of the Bluetooth radio.

The Bluetooth transmitter has a maximum peak conducted output power as follows:

Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)
2402 - 2480	1.83	1.52

The radio utilizes an internal antenna with a maximum gain of -3.25 dBi.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4/2001, FCC CFR 47 Part 2 and FCC CFR 47 Part 15.

4. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, 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>.



No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government.

5. CALIBRATION AND UNCERTAINTY

5.1. 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.

5.2. 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
Power Line Conducted Emission	+/- 2.9 dB

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

5.3. 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	Serial Number	Cal Due
Spectrum Analyzer	HP	E4446A	US42510266	7/23/2004
EMI Test Receiver	R & S	ESIB40	100192	11/21/2004
EMI Test Receiver	R & S	ESHS 20	827129/006	7/17/2004
LISN, 10 kHz ~ 30 MHz	Solar	8012-50-R-24-BNC	8379443	10/13/2004
Site A Line Stabilizer / Conditioner	Tripplite	LC-1800a	A0051681	CNR
LISN, 10 kHz ~ 30 MHz	FCC	50/250-25-2	114	10/13/2004
Antenna, Horn 1 ~ 18 GHz	EMCO	3117	29301	12/26/2004
High Pass Filter	Micro-Tronics	HPM13351	3	CNR
Peak Power Meter	Agilent	E4416A	GB41291160	11/7/2004
Peak / Average Power Sensor	Agilent	E9327A	US40440755	11/7/2004
Antenna, Horn, 18 ~ 26 GHz	ARA	MWH-1826/B	1013	2/4/2005
Antenna, Horn 1 ~ 18 GHz	EMCO	3117	29310	12/26/2004
Preamplifier, 1 ~ 26 GHz	Miteq	NSP10023988	646456	4/25/2005
30MHz---- 2Ghz	Sunol Sciences	JB1 Antenna	A121003	12/22/2004
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	11/21/2004
RF Filter Section	HP	85420E	3705A00256	11/21/2004

6. SETUP OF EQUIPMENT UNDER TEST

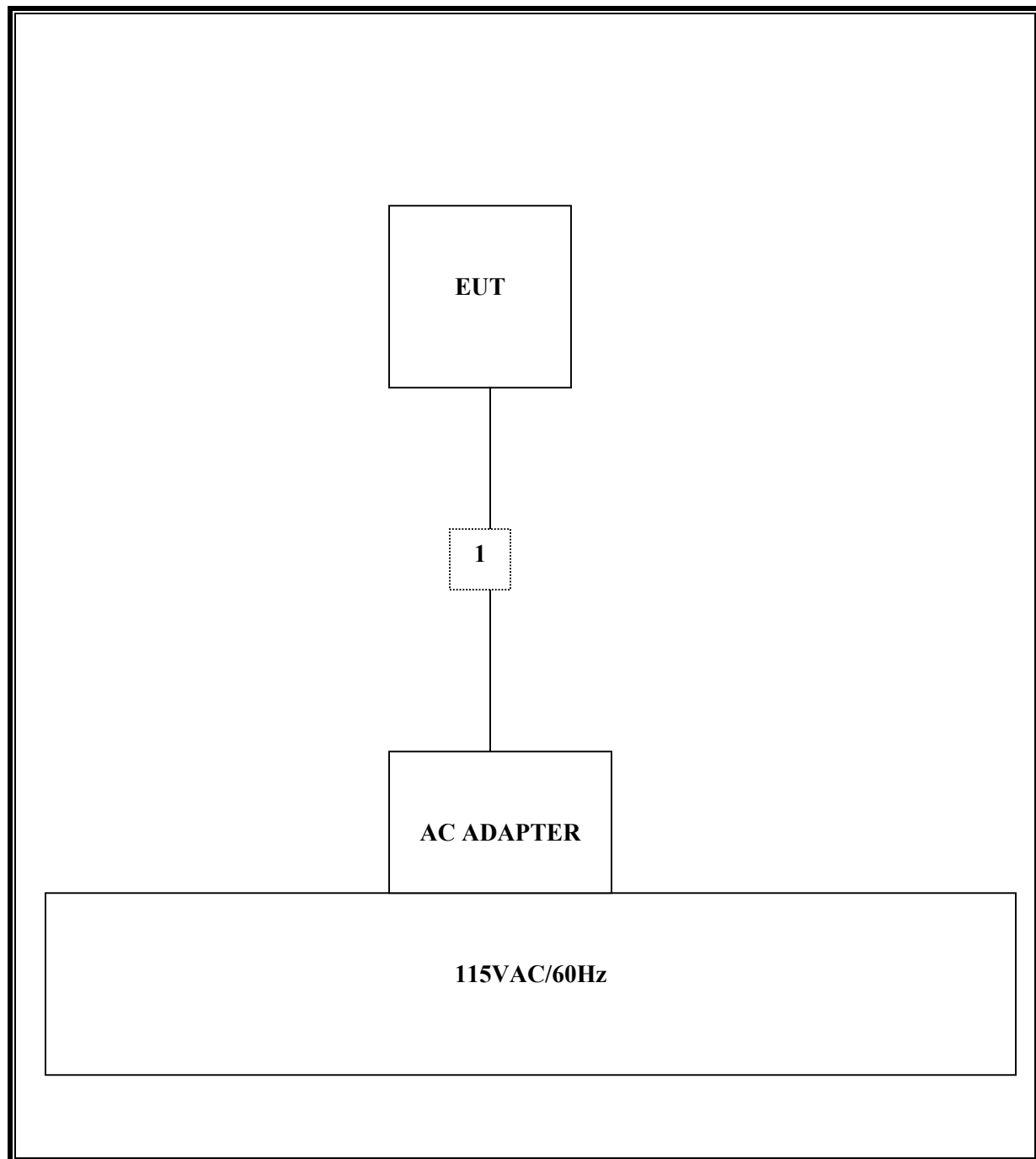
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	DC	UNSHIELDED	1.80M	N/A

TEST SETUP

The EUT was set in continuous transmit mode. Cradle, X, Y and Z positions were tested and “Cradle” position was found to be worst case in WLAN operation and “Cradle” position was found to be worst case in the Bluetooth operation. A laptop PC was used to configure the EUT for each bluetooth channel of operation.

SETUP DIAGRAM FOR TESTS



SETUP FOR DIGITAL DEVICE TESTS

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
MODEM	ACEEX	1414	9013537	IFAXDM1414
PRINTER	HP	2225C	2541S41679	BS46XU2225C
MOUSE	LOGITECH	M-S34	LZA74812655	DZL211029
LAPTOP PC	COMPAQ	CM2030	359802-293	DOC
HEADPHONES	AIWA	N/A	N/A	N/A
CRADLE	HP	HSTNH-F02X	367192-001	N/A
AC ADAPTER	DIGITAL	FR-PCP8E-BW	N/A	N/A
AC ADAPTER	HIPRO	HP-AC010L63	N/A	N/A
AC ADAPTER	DELTA	AP-10SB	N/A	N/A

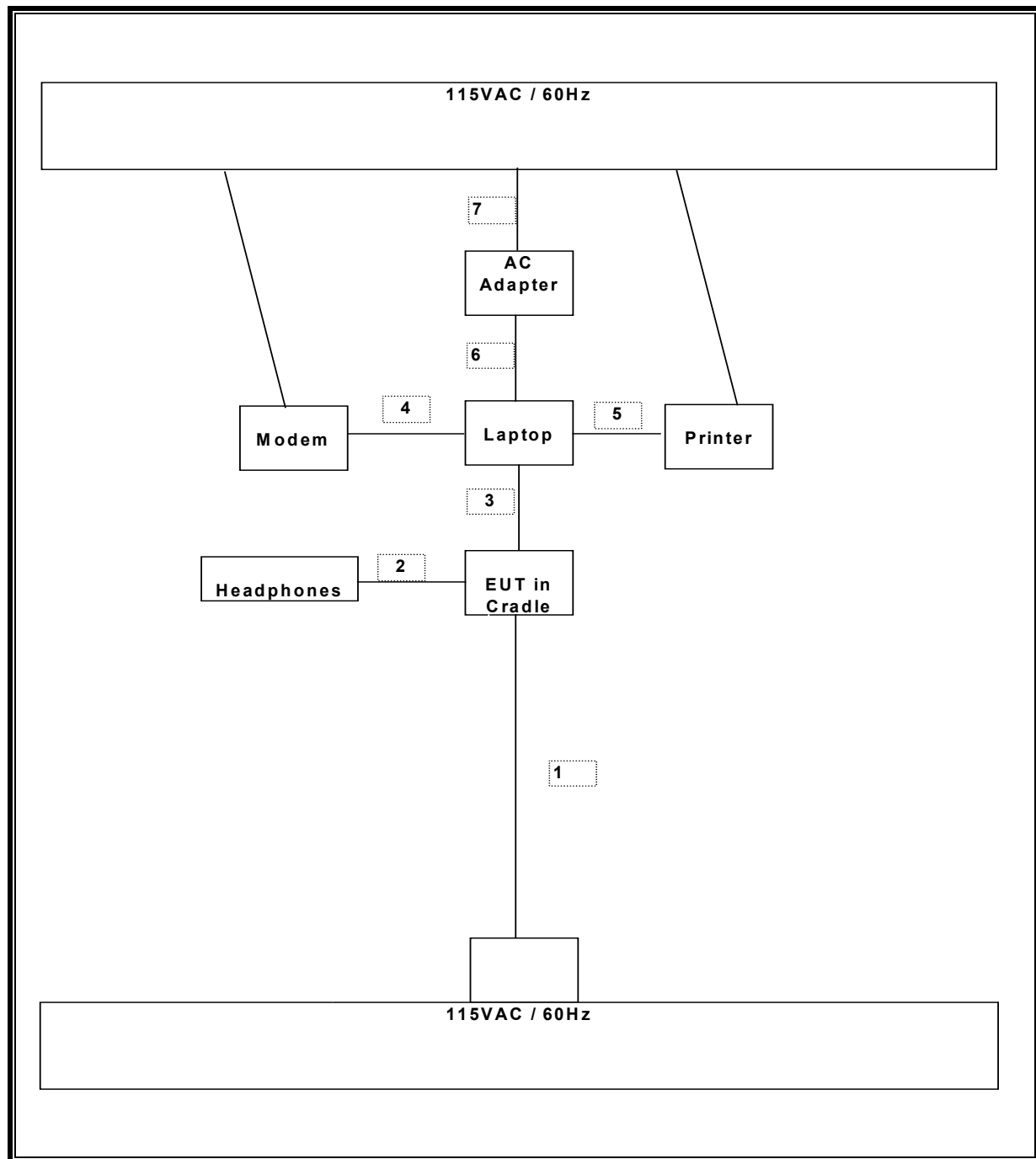
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	DC	UNSHIELDED	1.8M	N/A
2	AUDIO	1	1/8" STEREO	UNSHIELDED	1M	N/A
3	USB	1	USB	SHIELDED	.9M	N/A
4	SERIAL	1	DB-9	SHIELDED	1.8M	N/A
5	PARALLEL	1	DB-25	SHIELDED	1.8M	N/A
6	DC	1	DC	UNSHIELDED	1.8M	N/A
7	AC	1	AC	UNSHIELDED	1.8M	N/A

TEST SETUP

EUT was mounted inside the cradle. During the testing process the EUT was connected to the laptop via its USB cable and was sending "H's" to the screen and sending "H's" to the laptop.

SETUP DIAGRAM FOR DIGITAL DEVICE TESTS



7. APPLICABLE LIMITS AND TEST RESULTS

7.1. 20 dB BANDWIDTH

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

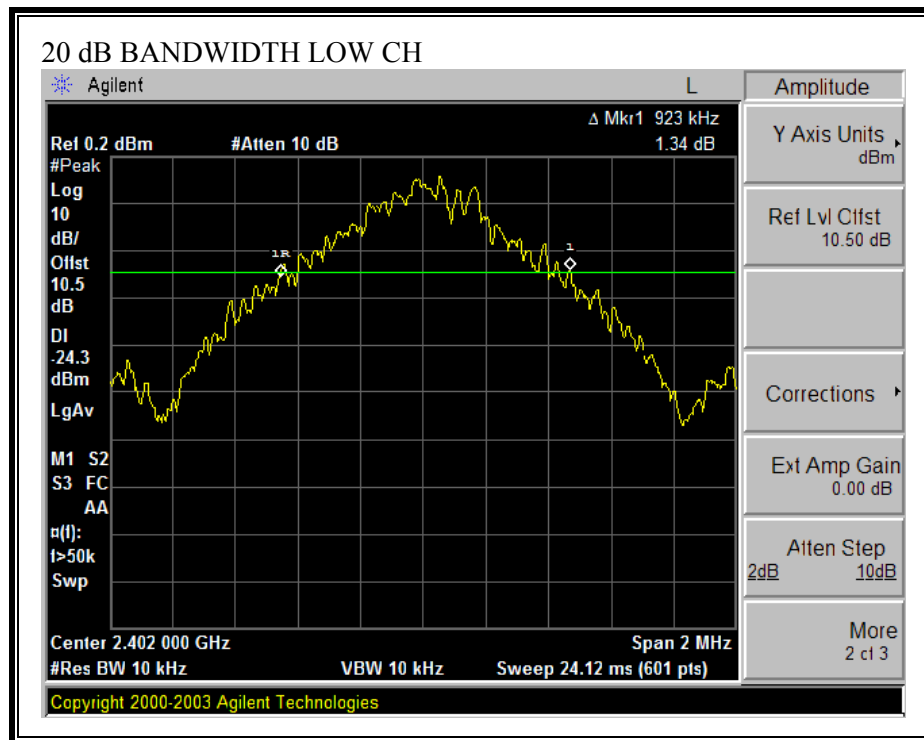
The transmitter output is connected to a spectrum analyzer. The RBW is set to 1% to 3% of the 20 dB bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled.

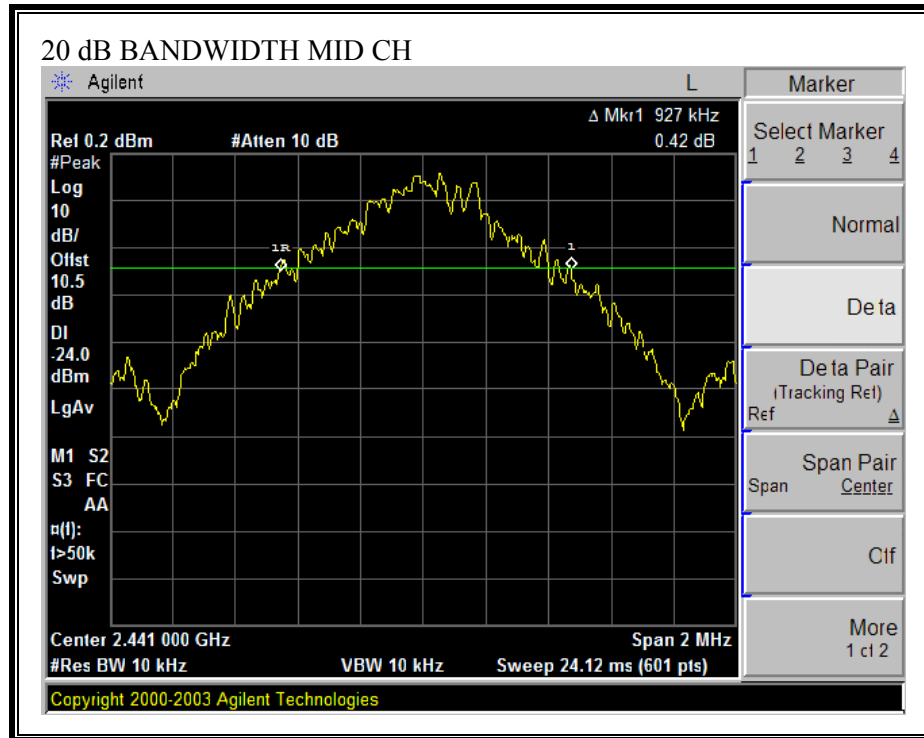
RESULTS

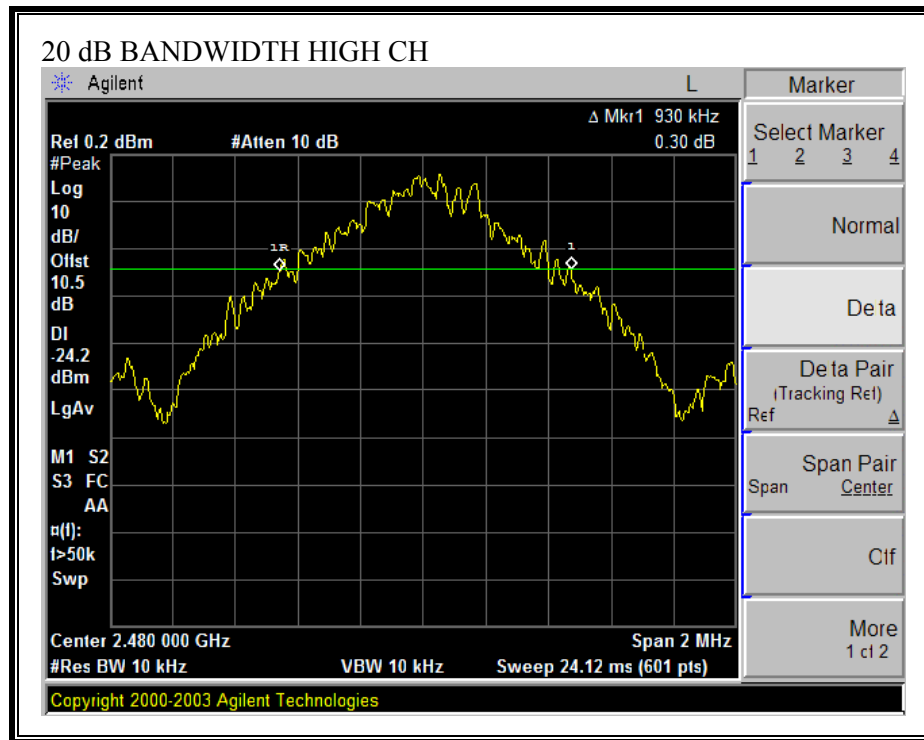
No non-compliance noted:

Channel	Frequency (MHz)	20 dB Bandwidth (kHz)
Low	2402	923
Middle	2441	927
High	2480	930

20 dB BANDWIDTH







7.2. PEAK OUTPUT POWER

PEAK POWER LIMIT

§15.247 (b) The maximum peak output power of the intentional radiator shall not exceed the following:

§15.247 (b) (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 hopping channels: 1 watt.

§15.247 (b) (4) Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is -3.25 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

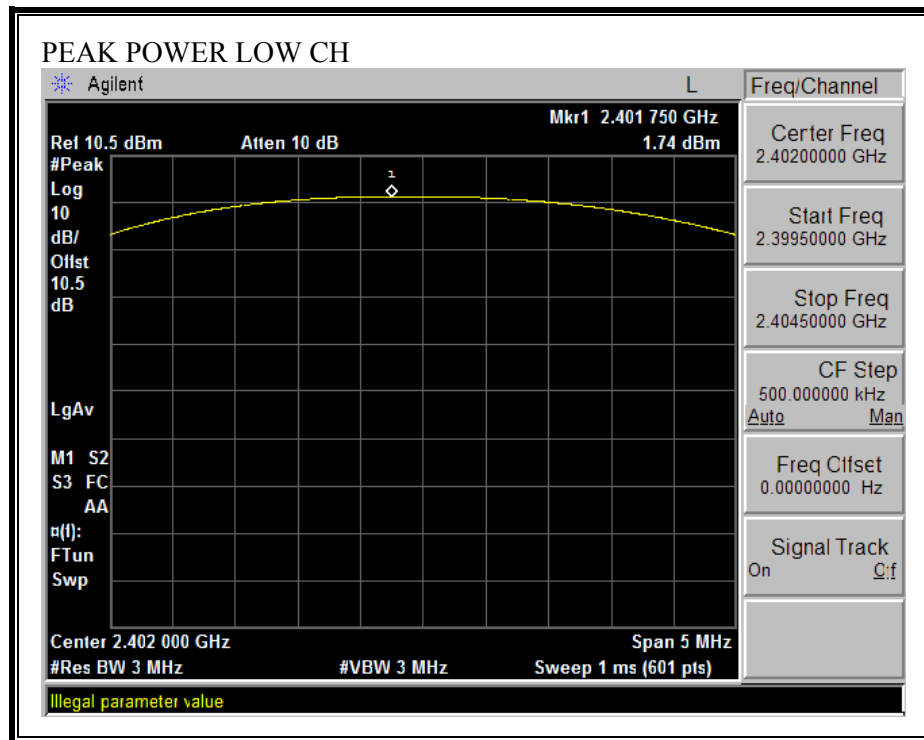
The transmitter output is connected to a spectrum analyzer and the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

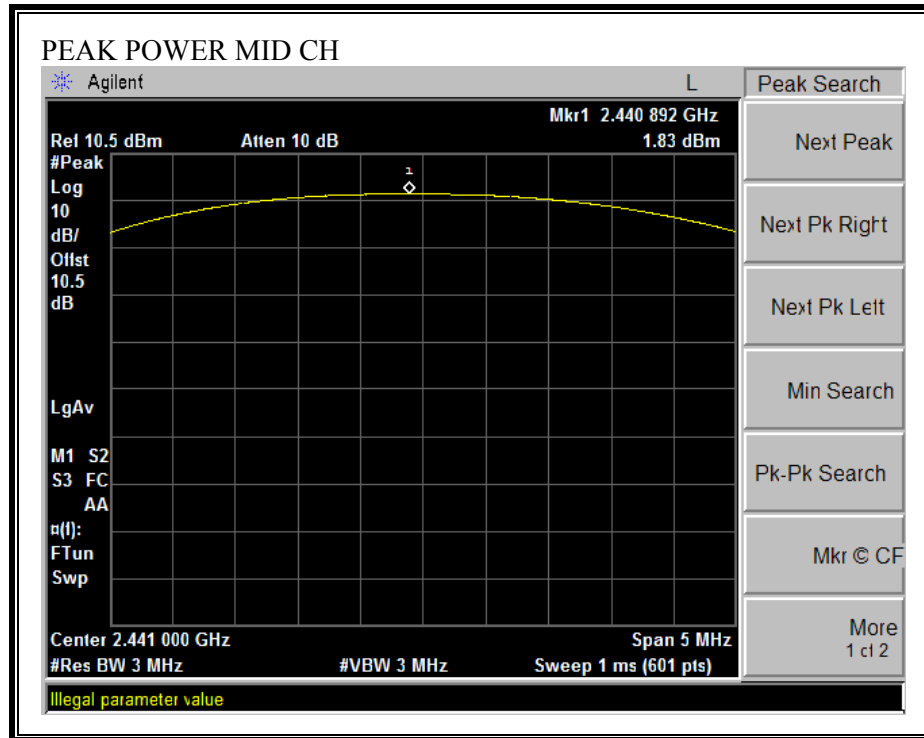
RESULTS

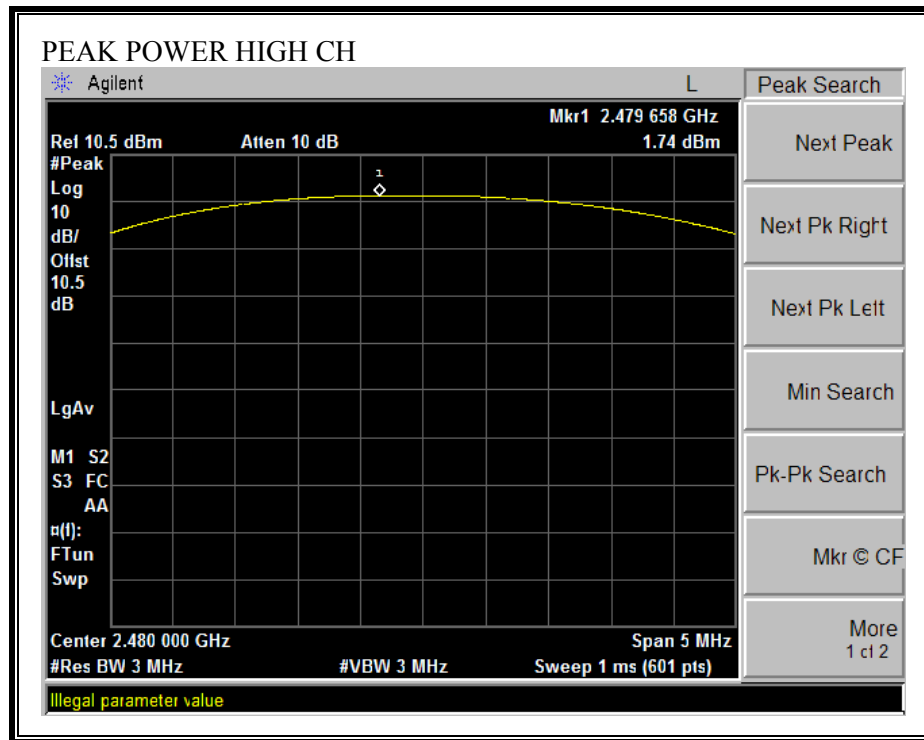
No non-compliance noted:

Channel	Frequency (MHz)	Peak Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	1.74	30	-28.26
Middle	2441	1.83	30	-28.17
High	2480	1.74	30	-28.26

OUTPUT POWER







7.3. AVERAGE POWER

AVERAGE POWER LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

No non-compliance noted:

The cable assembly insertion loss of 10.5 dB (including 10 dB pad and .5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	-3.60
Middle	2441	-3.30
High	2480	-3.50

7.4. PEAK POWER SPECTRAL DENSITY

LIMIT

§15.247 (d) For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

§15.247 (f) The digital modulation operation of the hybrid system, with the frequency hopping turned off, shall comply with the power density requirements of paragraph (d) of this section.

TEST PROCEDURE

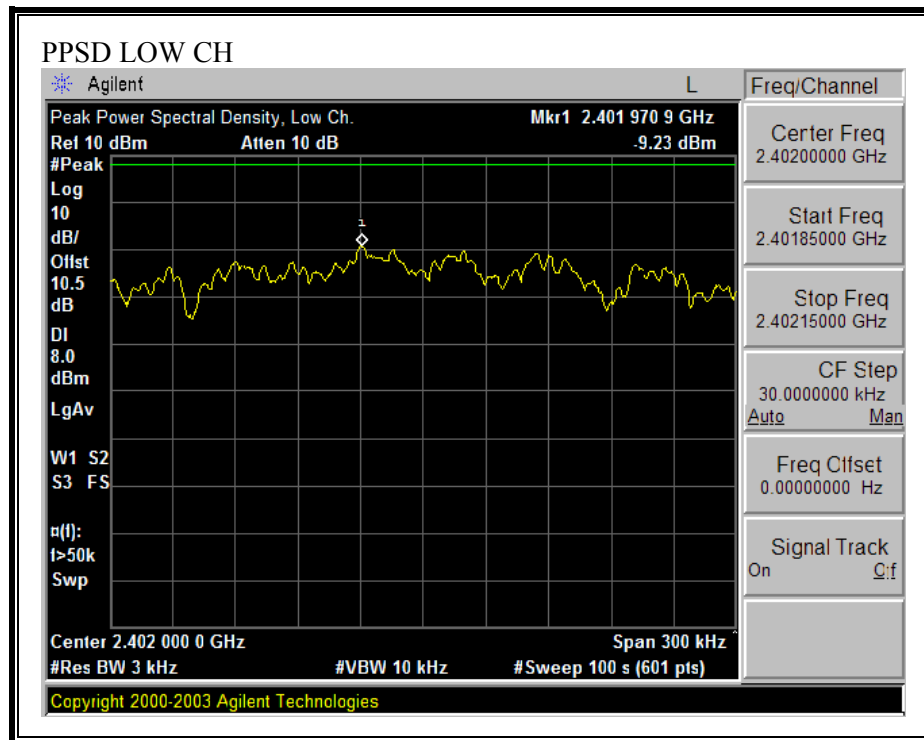
The transmitter output is connected to a spectrum analyzer, the maximum level in a 3 kHz bandwidth is measured with the spectrum analyzer using RBW = 3 kHz and VBW > 3 kHz, sweep time = span / 3 kHz, and video averaging is turned off. The PPSD is the highest level found across the emission in any 3 kHz band.

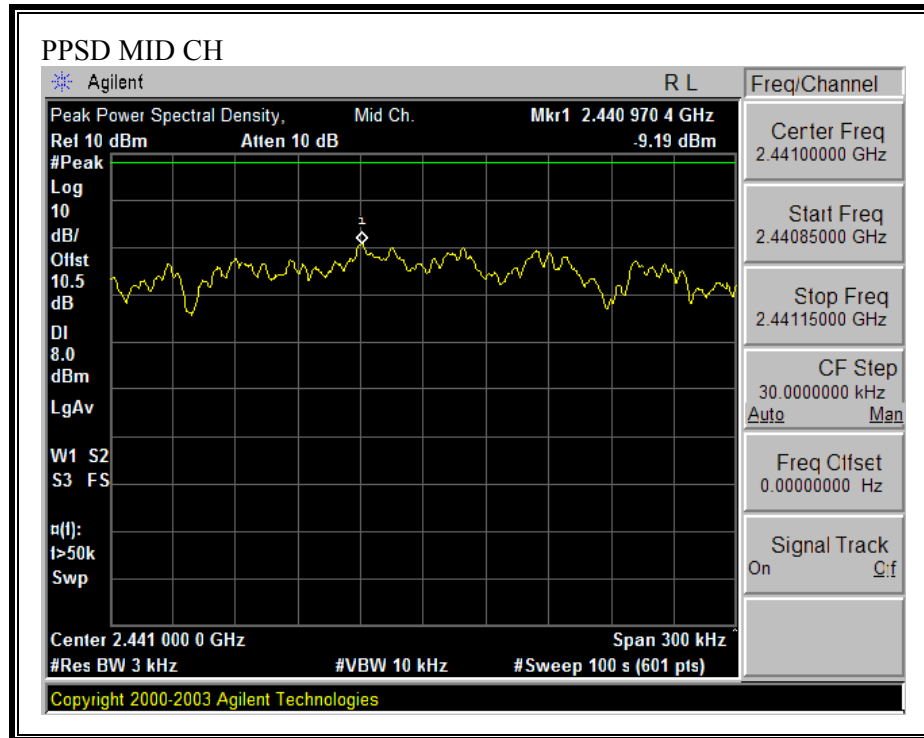
RESULTS

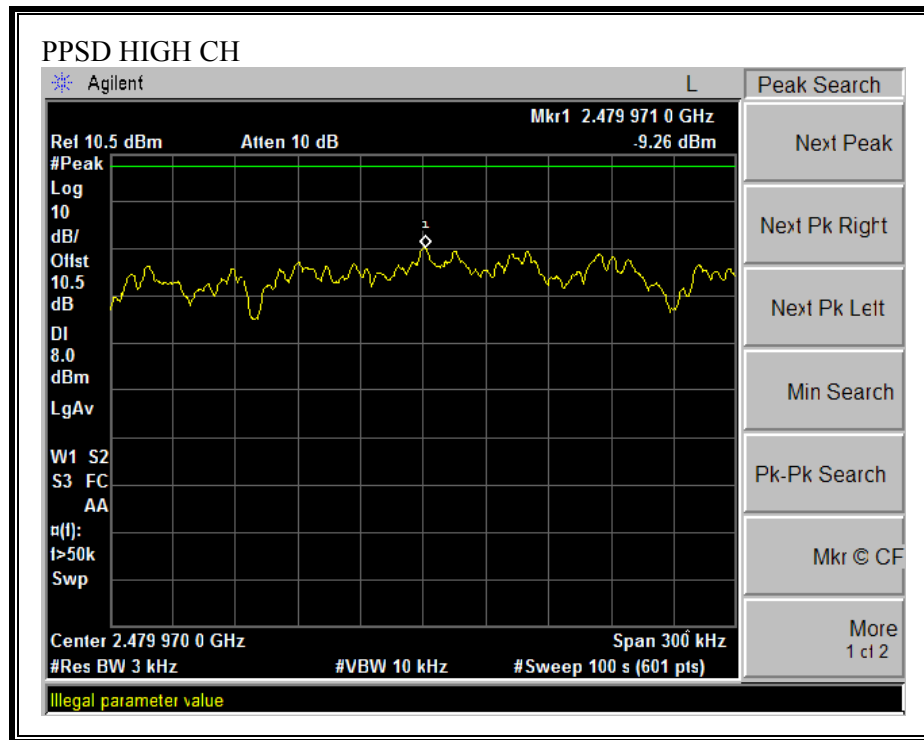
No non-compliance noted:

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-9.23	8	-17.23
Middle	2441	-9.19	8	-17.19
High	2480	-9.26	8	-17.26

PEAK POWER SPECTRAL DENSITY







7.5. CONDUCTED SPURIOUS EMISSIONS

LIMITS

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

TEST PROCEDURE

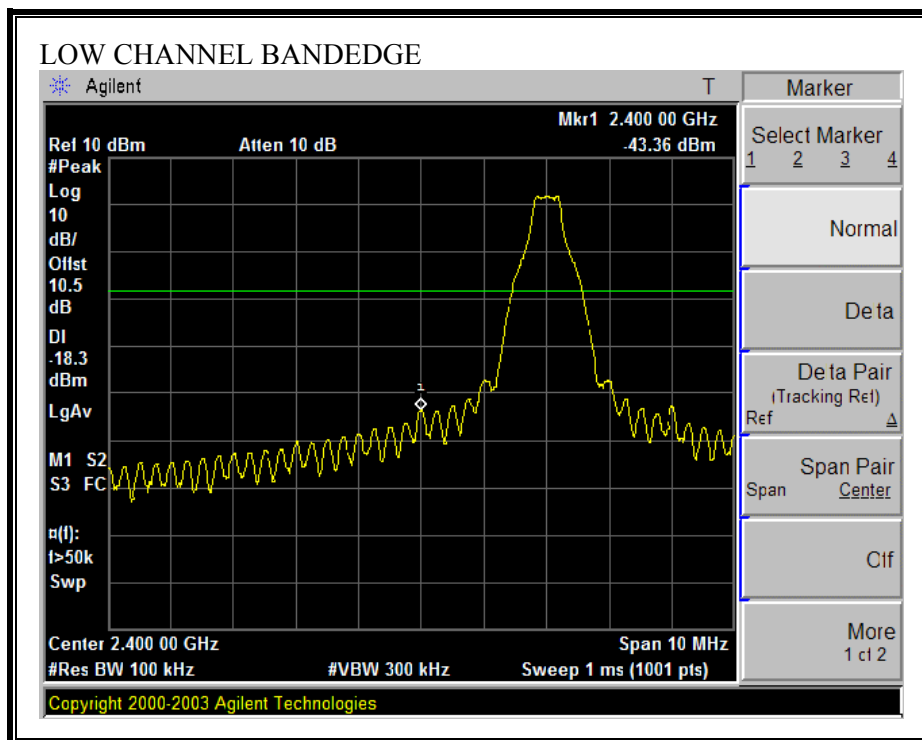
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

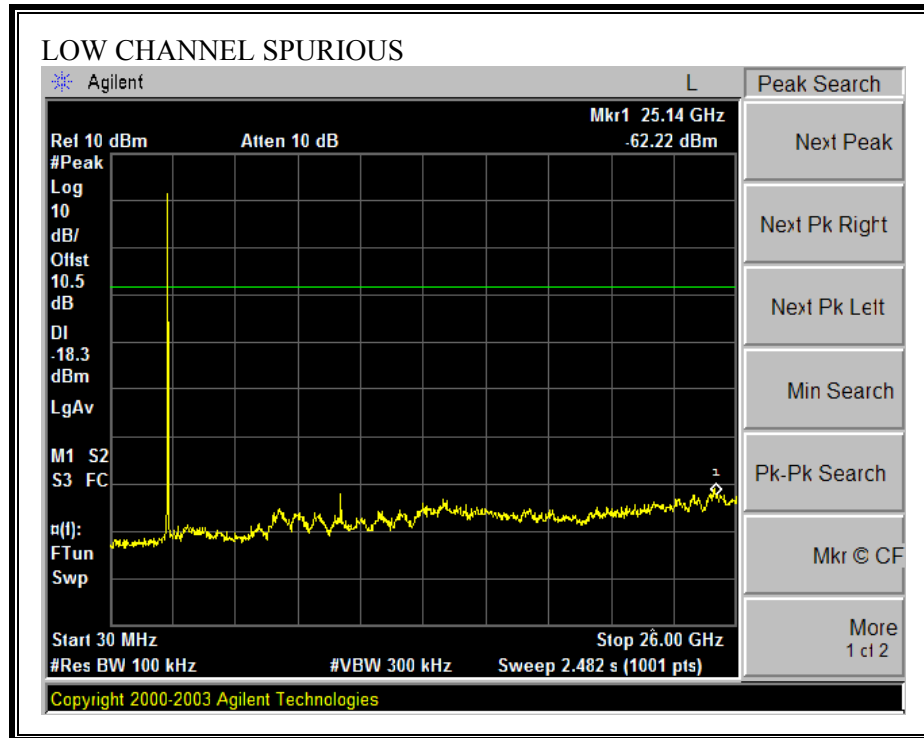
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

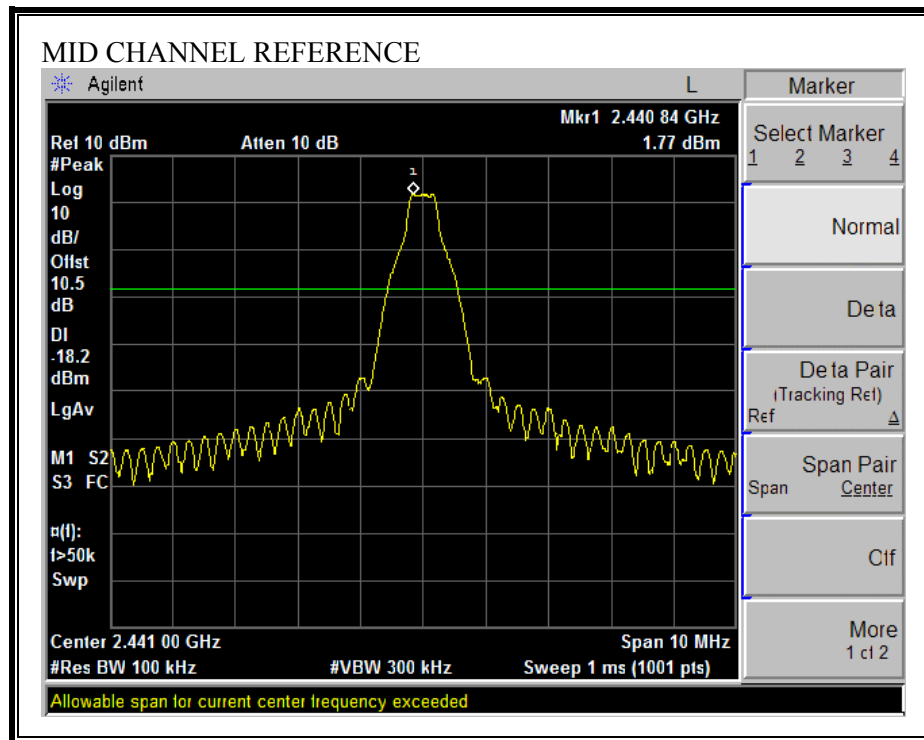
No non-compliance noted:

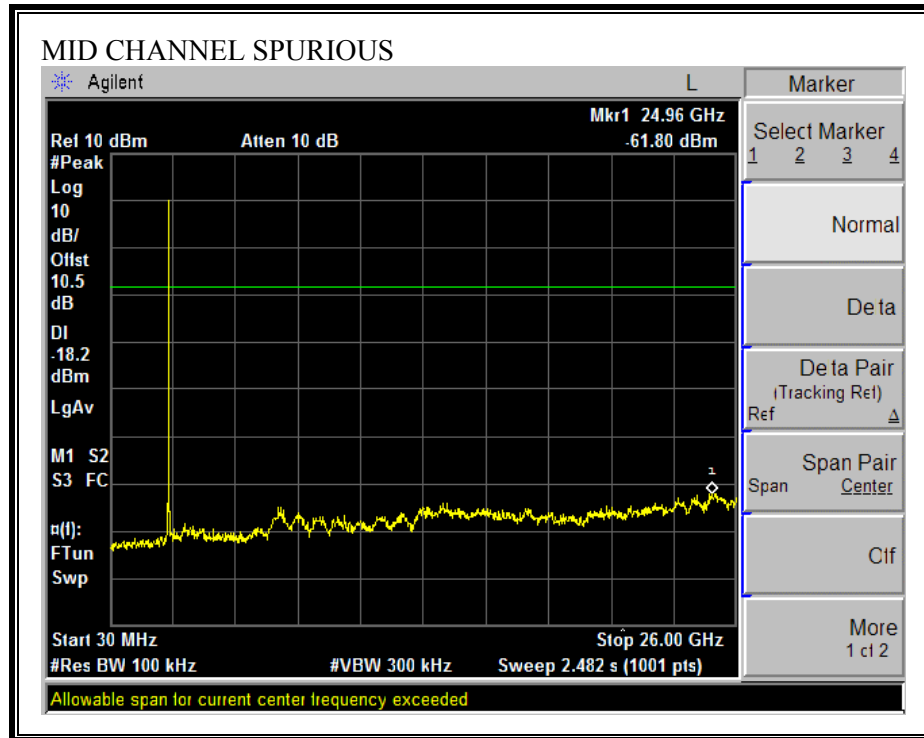
SPURIOUS EMISSIONS, LOW CHANNEL



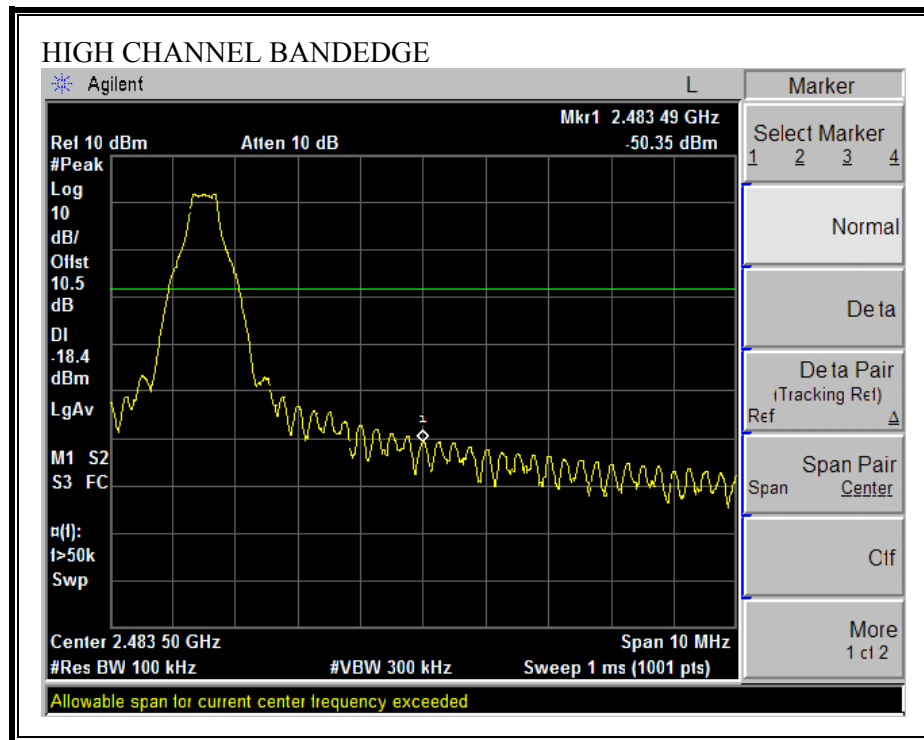


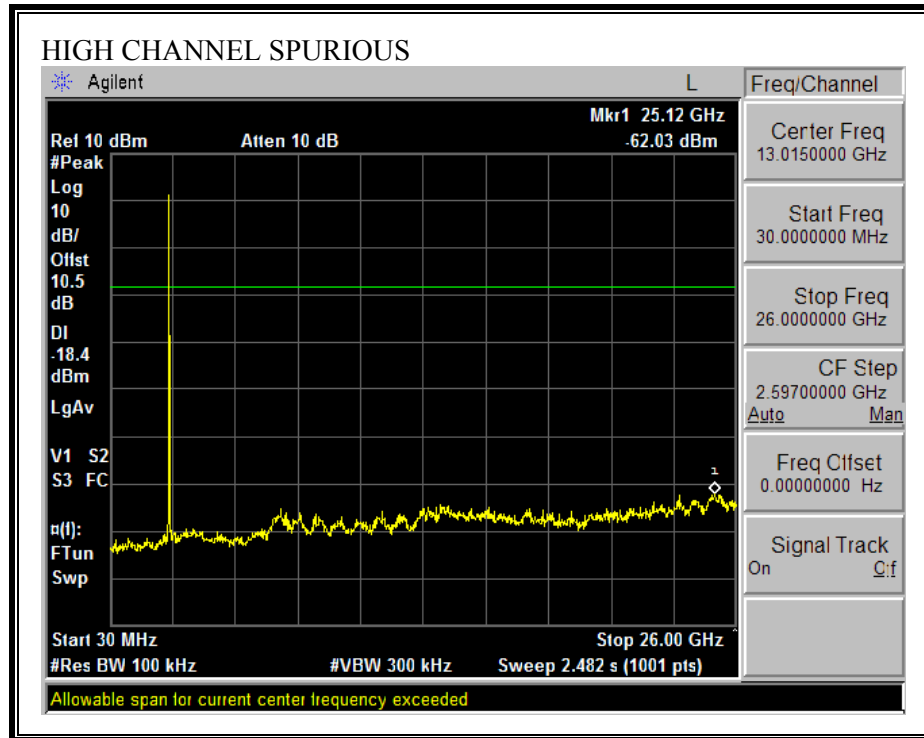
SPURIOUS EMISSIONS, MID CHANNEL



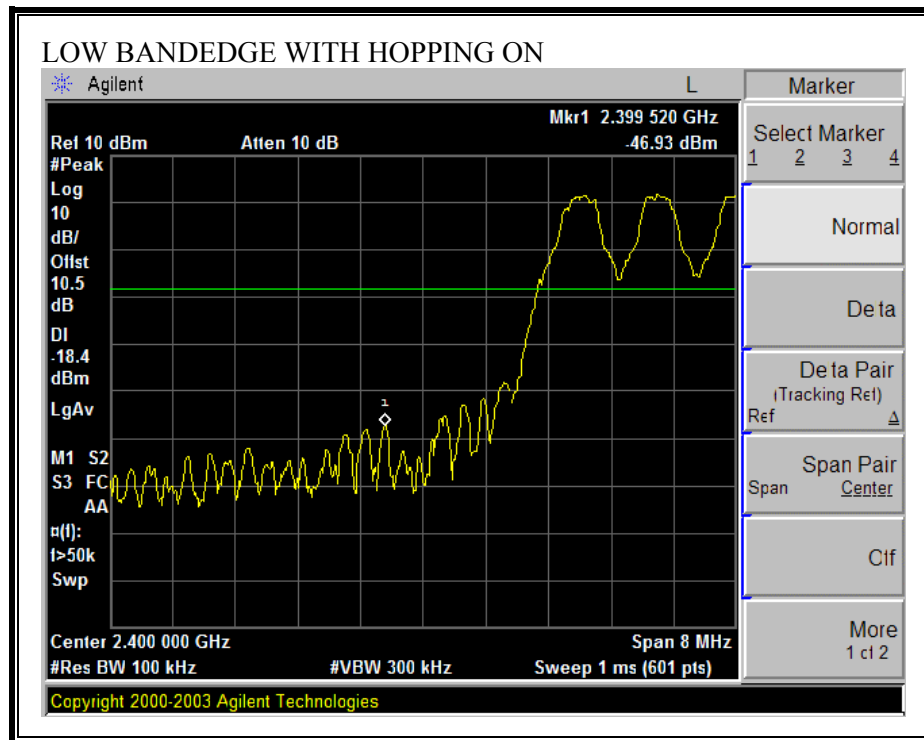


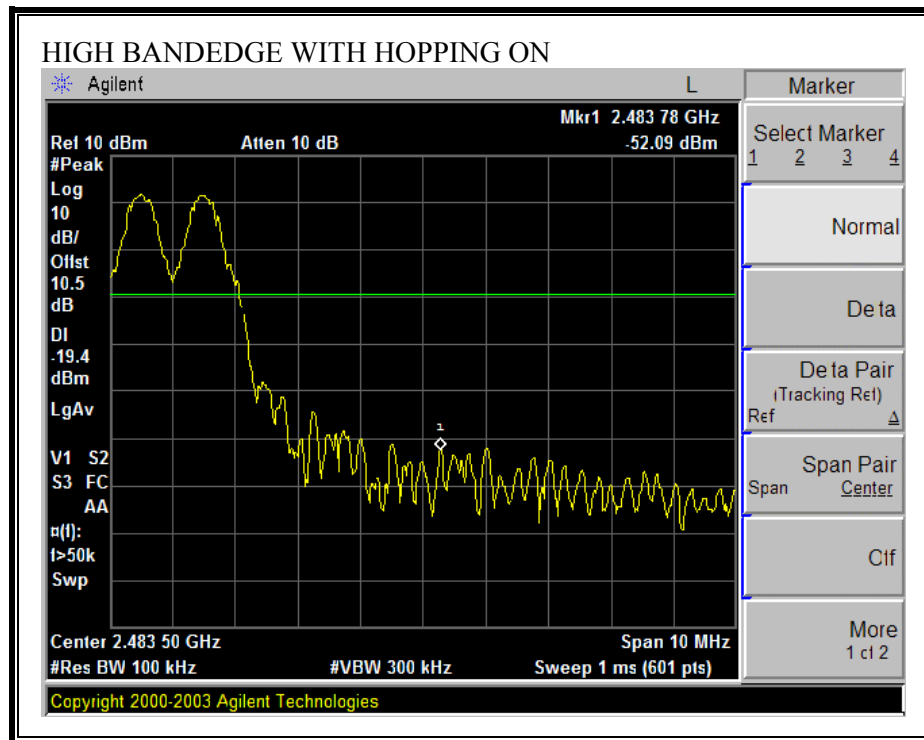
SPURIOUS EMISSIONS, HIGH CHANNEL





SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON





7.6. RADIATED EMISSIONS

7.6.1. 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
¹ 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	(²)
13.36 - 13.41			

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

² 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.

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.

Preliminary measurements are made in three orthogonal orientations (X, Y, Z) and with the EUT mounted in a cradle. Results in the worst-case orientation are reported.

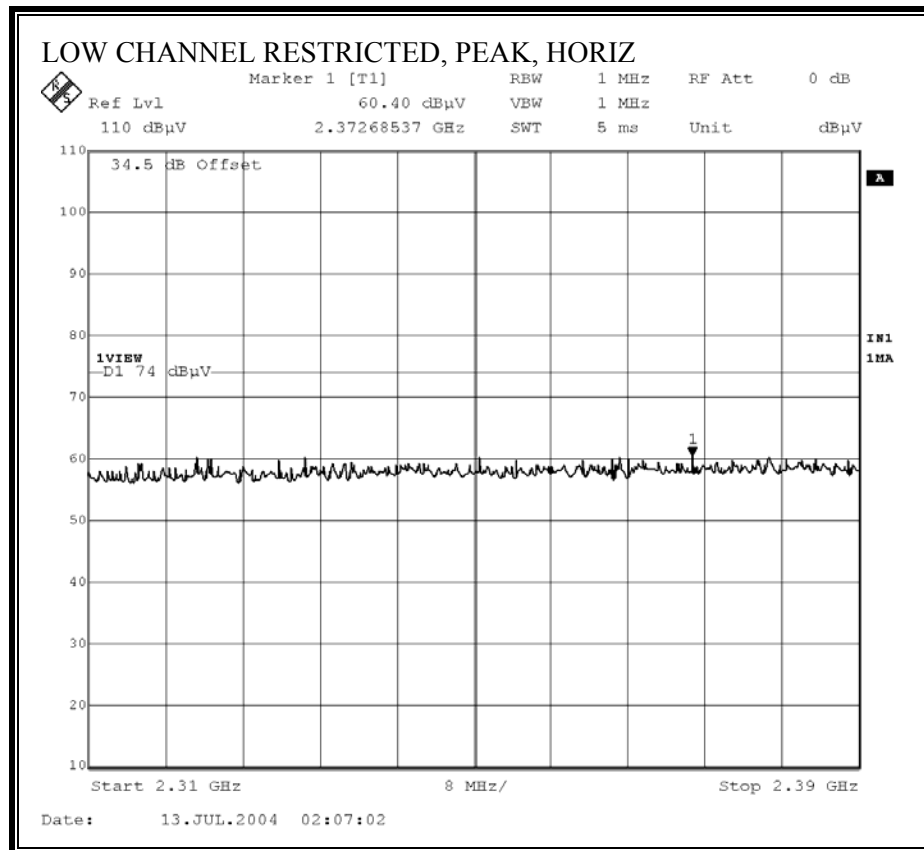
RESULTS

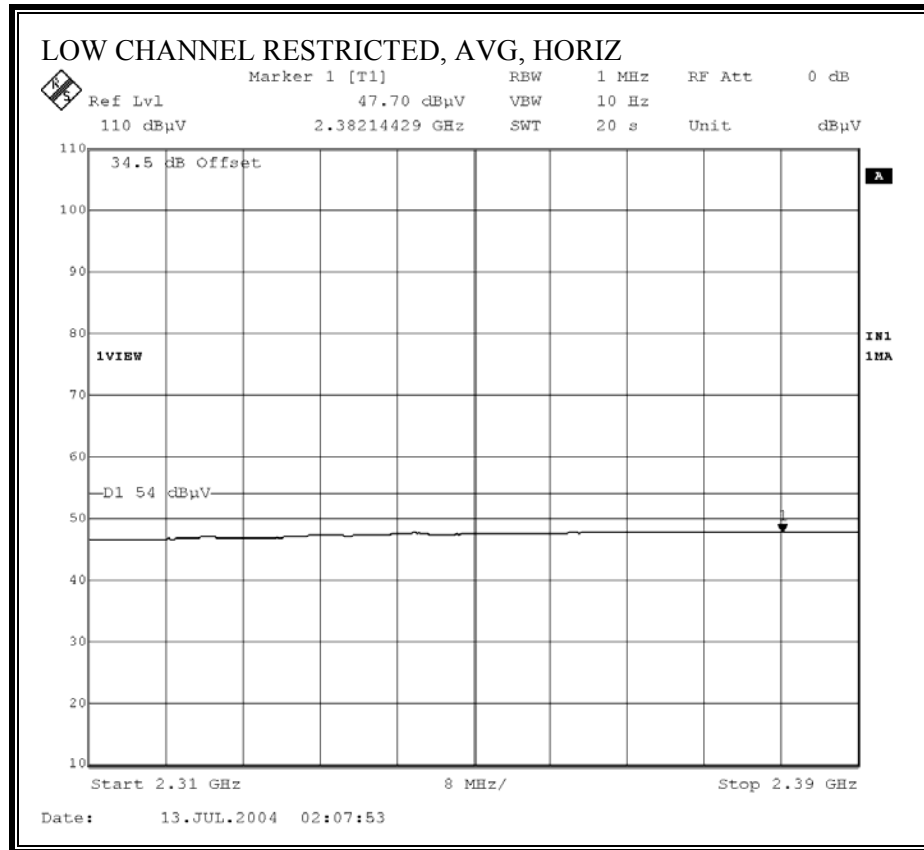
No non-compliance noted:

THE CRADLE CONFIGURATION IS WORST CASE.

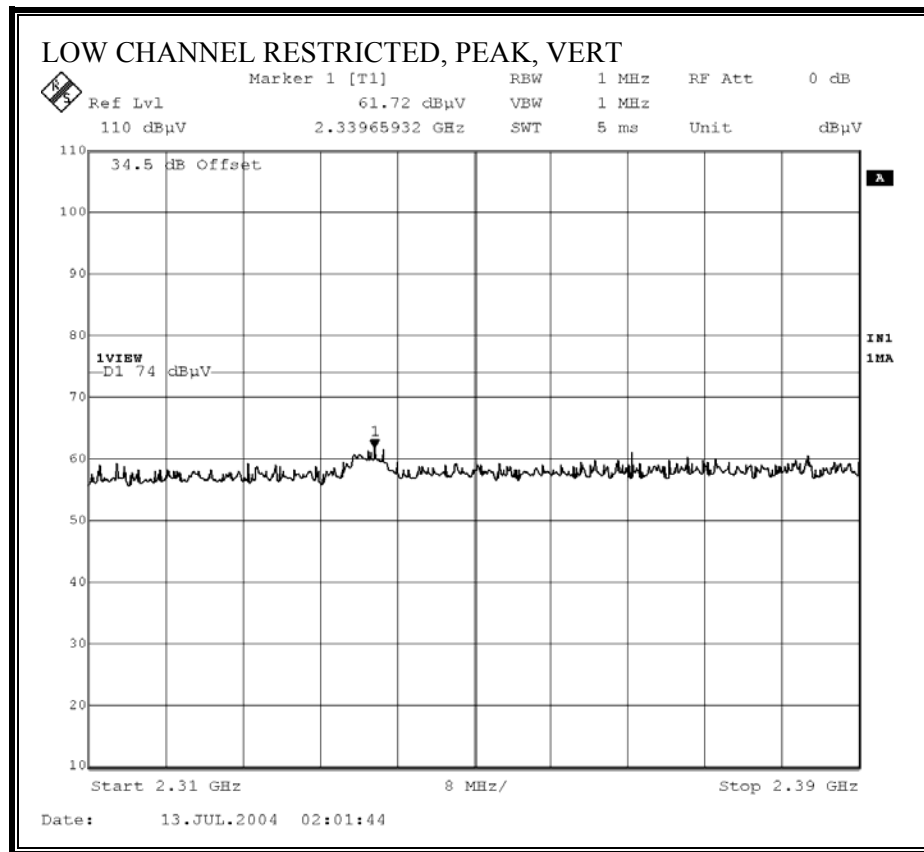
7.6.2. TRANSMITTER RADIATED EMISSIONS ABOVE 1 GHz

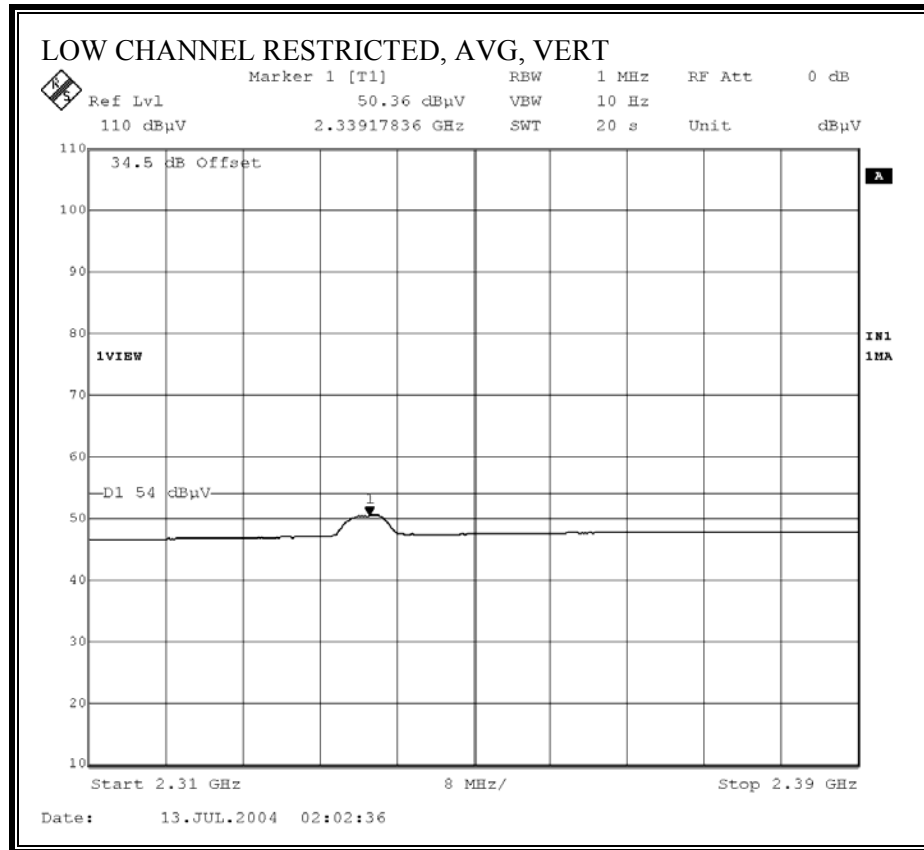
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)

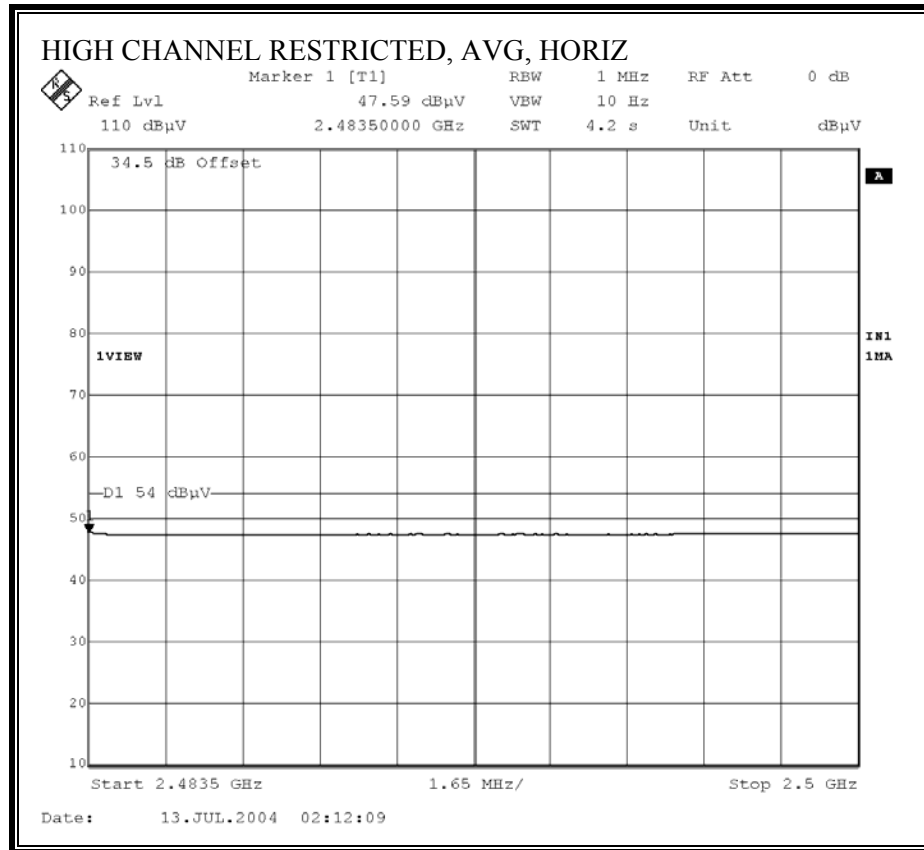




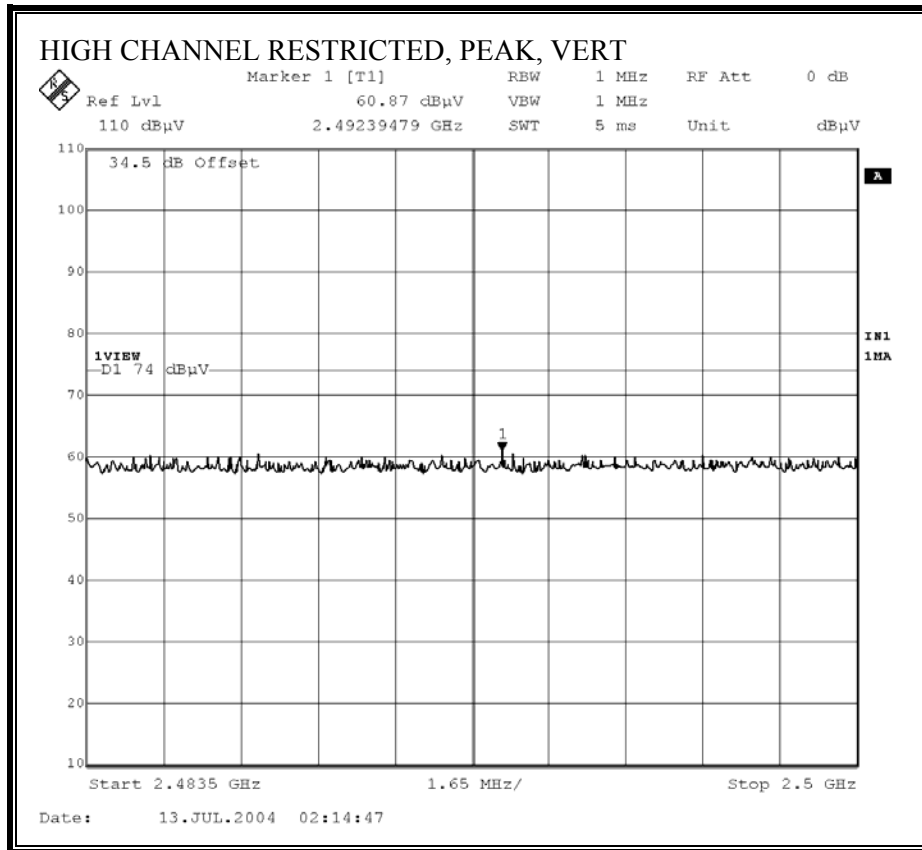
RESTRICTED BANDEGE (LOW CHANNEL, VERTICAL)

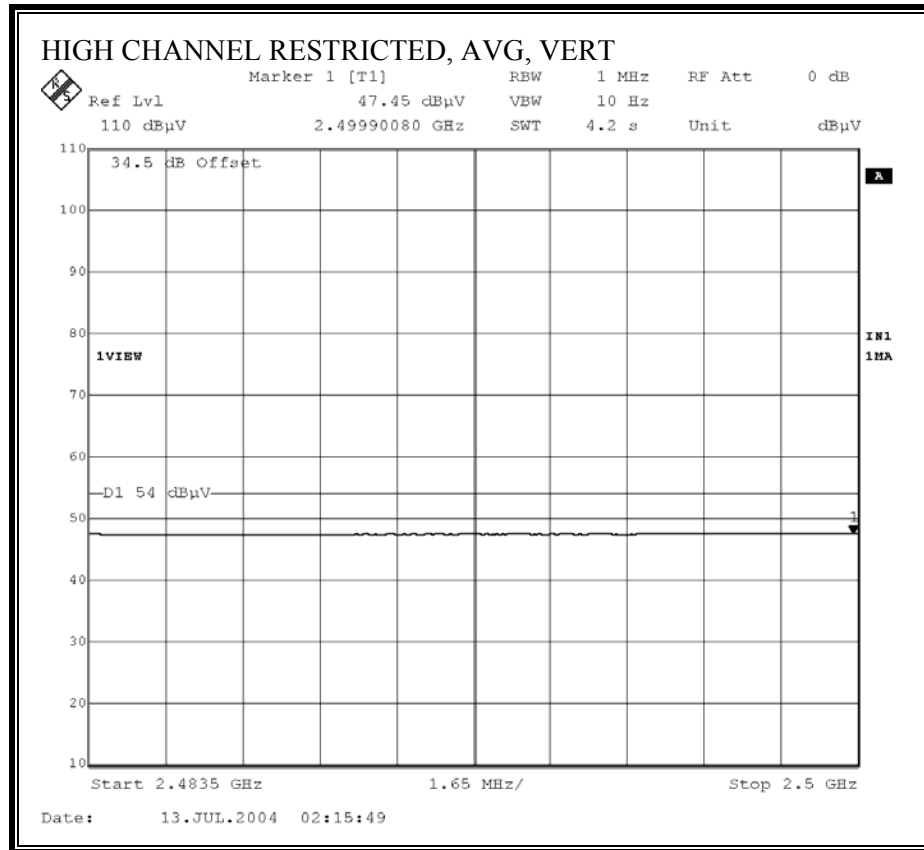






RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

07/13/04 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site																			
Test Engr:		David Garcia																	
Project #:		04I2826-1																	
Company:		LG Electronics																	
EUT Descrip.:		Wireless Pocket PC with 802.11b WLAN and Bluetooth																	
EUT M/N:		HSTNH-L05-WL																	
Test Target:		FCC 15.247																	
Mode Oper:		Bluetooth, Cradle position																	
Test Equipment:																			
EMCO Horn 1-18GHz TI19; S/N: 29301 @3m				Spectrum Analyzer Agilent E4446A Analyzer				Pre-amplifier 1-26GHz T86 Miteq 924341				Pre-amplifier 26-40GHz				Horn > 18GHz			
Hi Frequency Cables ☒ (2 ft) ☐ (2.0 ft) ☐ (3 ft) ☒ (12 ft)																			
Peak Measurements: 1 MHz Resolution Bandwidth 1MHz Video Bandwidth																			
Average Measurements: 1 MHz Resolution Bandwidth 10Hz Video Bandwidth																			
f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes				
2402 Channel																			
4.804	9.8	53.5	42.3	34.9	2.9	-45.0	0.0	1.0	47.3	36.1	74.0	54.0	-26.7	-17.9	V				
4.804	9.8	53.0	40.1	34.9	2.9	-45.0	0.0	1.0	46.8	33.9	74.0	54.0	-27.2	-20.1	H				
2441 Channel																			
4.882	9.8	53.6	41.7	35.0	2.9	-45.1	0.0	1.0	47.4	35.5	74.0	54.0	-26.6	-18.5	V				
4.882	9.8	53.0	40.0	35.0	2.9	-45.1	0.0	1.0	46.8	33.8	74.0	54.0	-27.2	-20.2	H				
2480 Channel																			
4.960	9.8	53.2	42.3	35.1	2.9	-45.2	0.0	1.0	47.0	36.1	74.0	54.0	-27.0	-17.9	V				
4.960	9.8	53.1	40.3	35.1	2.9	-45.2	0.0	1.0	46.9	34.1	74.0	54.0	-27.1	-19.9	H				
f Measurement Frequency Dist Distance to Antenna Read Analyzer Reading AF Antenna Factor CL Cable Loss Amp Preamp Gain D Corr Distance Correct to 3 meters Avg Average Field Strength @ 3 m Peak Calculated Peak Field Strength HPF High Pass Filter Avg Lim Average Field Strength Limit Pk Lim Peak Field Strength Limit Avg Mar Margin vs. Average Limit Pk Mar Margin vs. Peak Limit																			

Note: No further emissions were detected.

7.6.3. CO-LOCATED TRANSMITTER RADIATED EMISSIONS

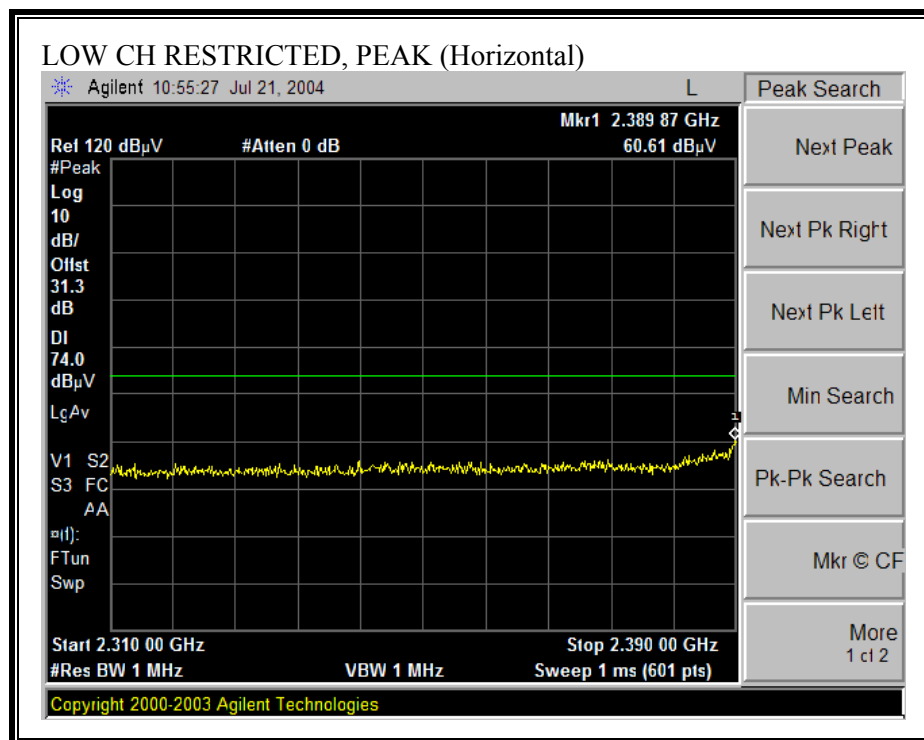
SUPPLEMENTAL TEST PROCEDURE

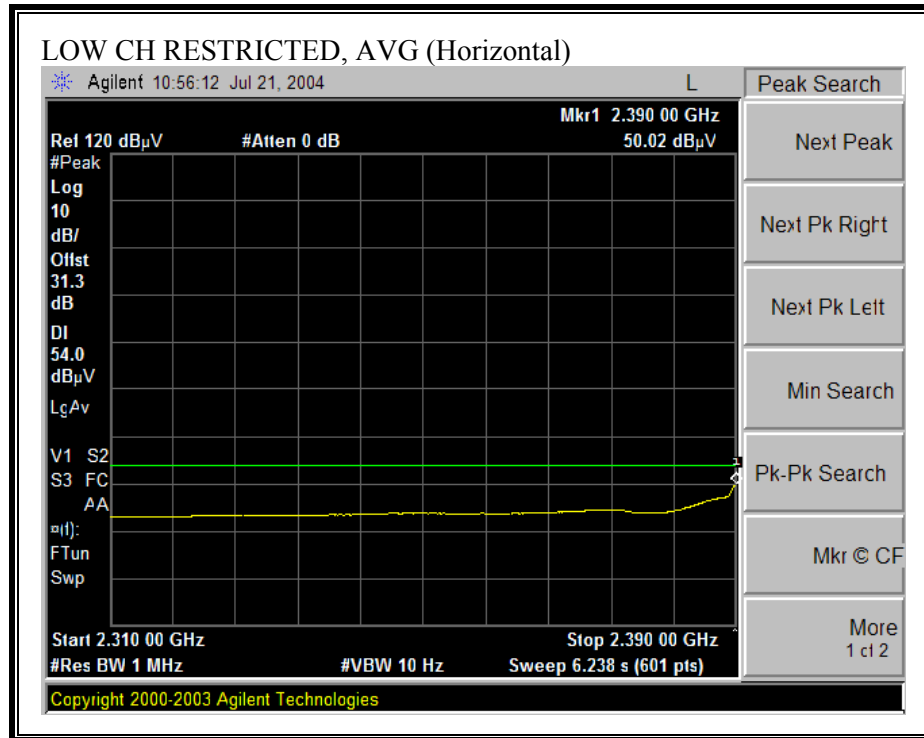
The EUT is placed on a non-conducting table 80 cm above the ground plane. The dominant transmitter is set to the worst case channel. The spurious emissions performance of the dominant transmitter is investigated as the settings of the non-dominant transmitter are varied. Worst case results are reported.

RESULTS

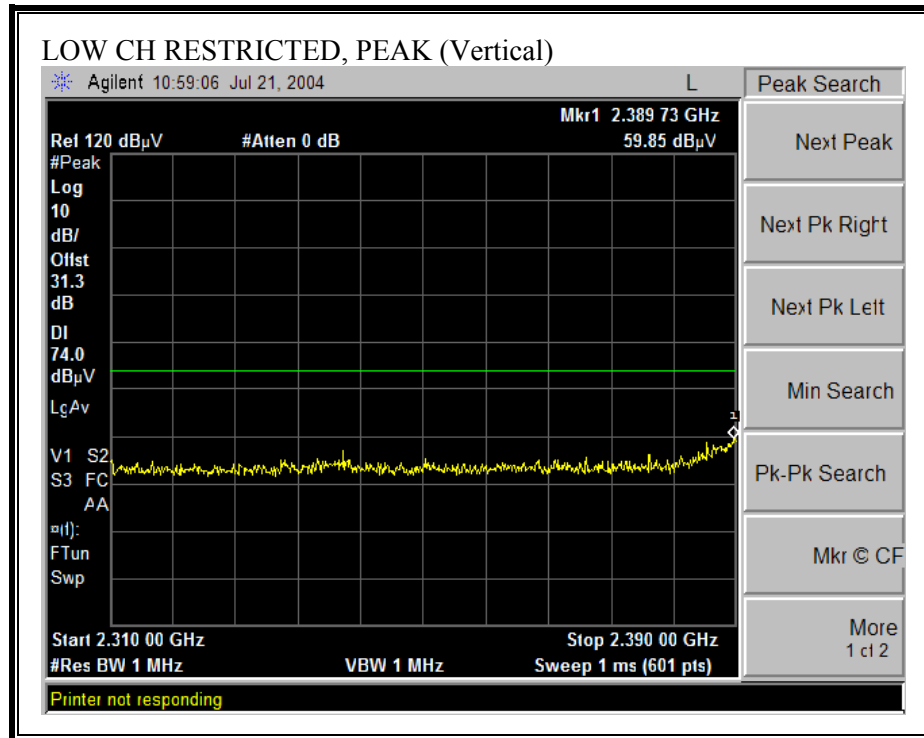
No non-compliance noted:

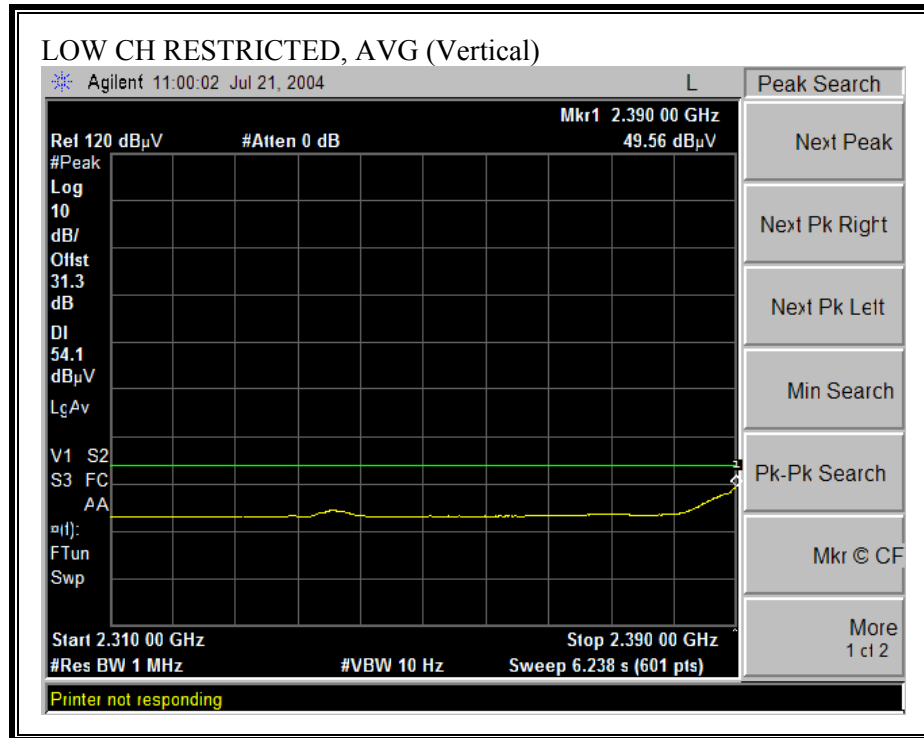
WORST-CASE RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



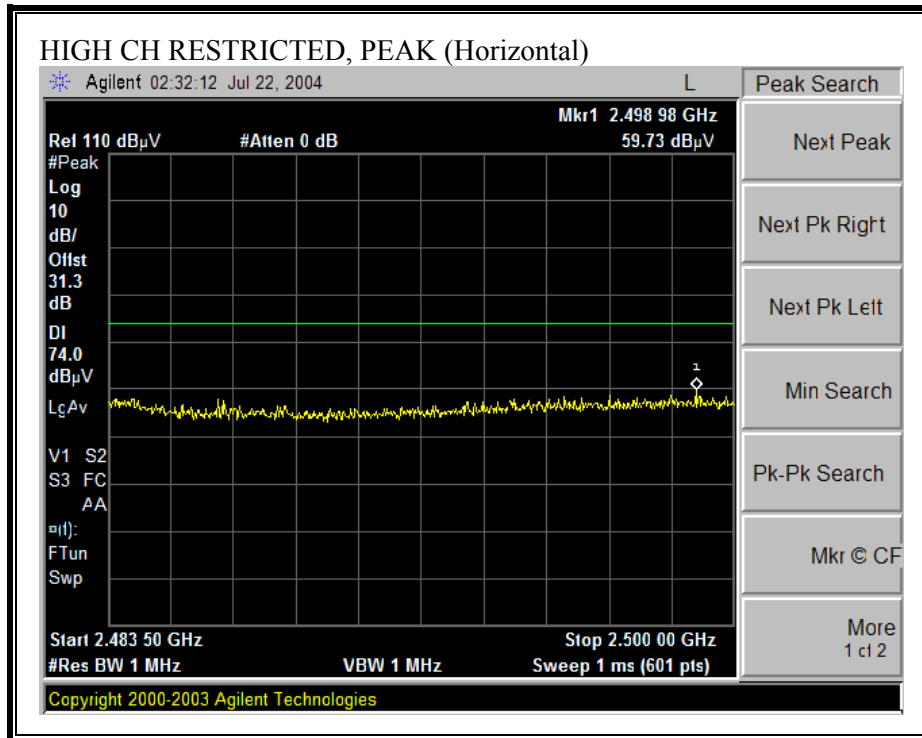


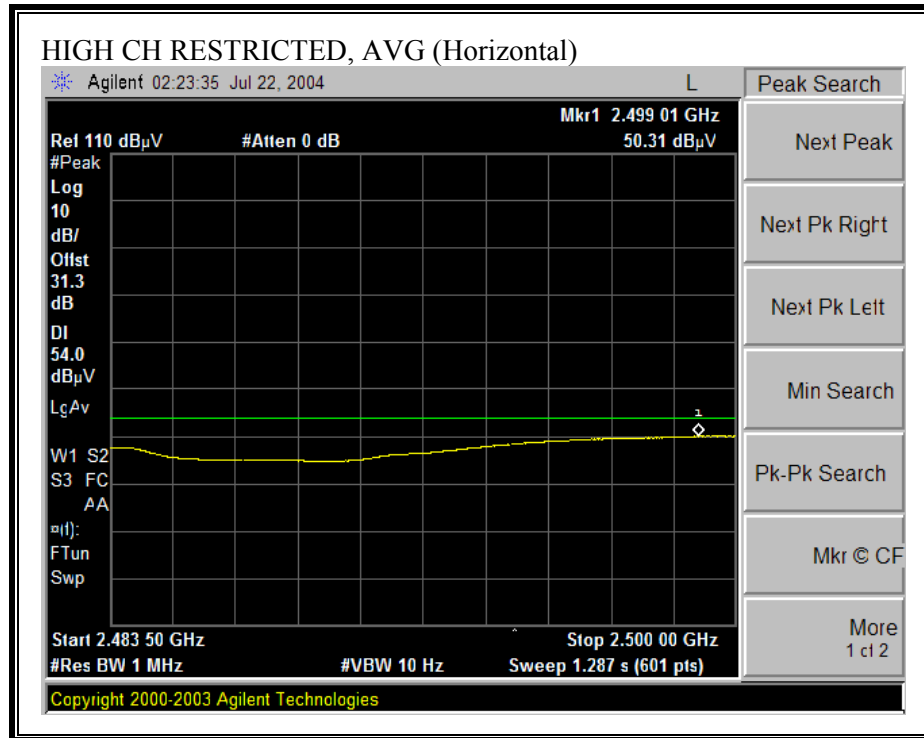
WORST-CASE RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



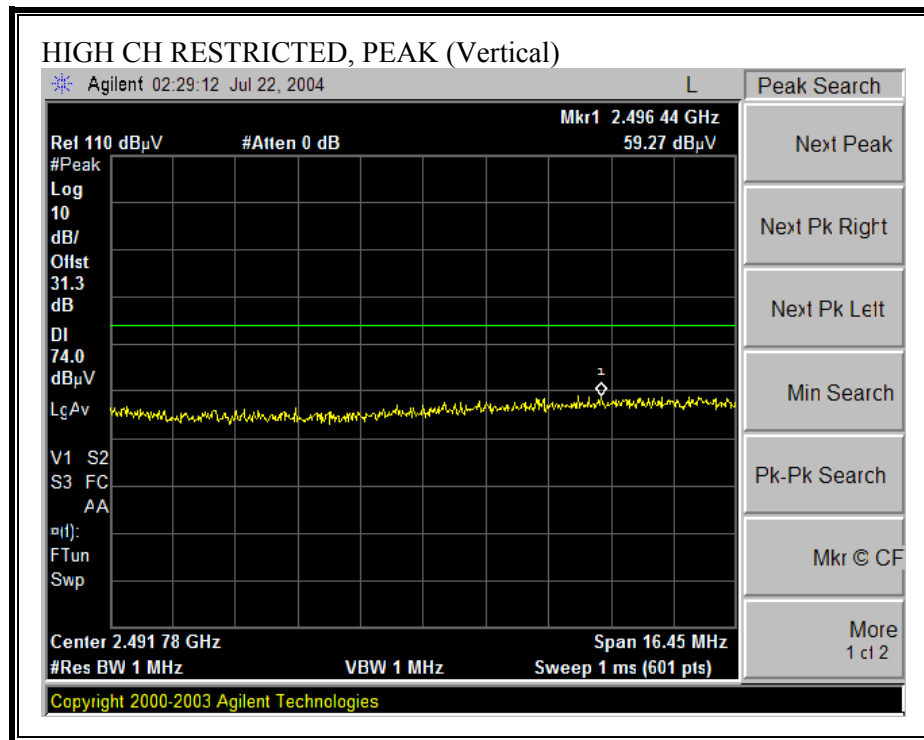


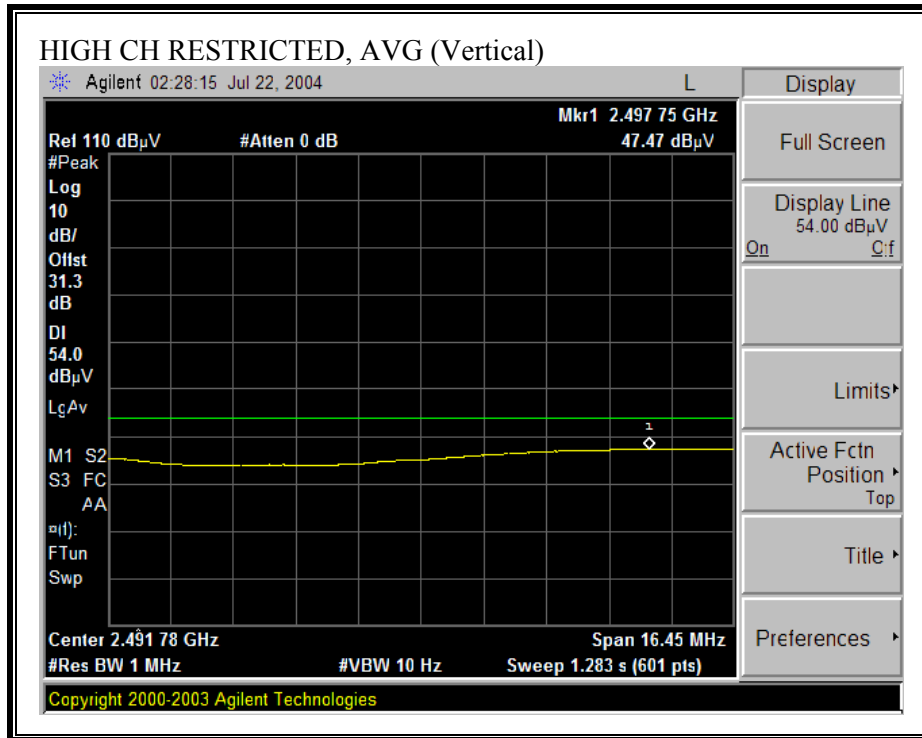
WORST-CASE RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





WORST-CASE RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





WORST-CASE HARMONICS AND SPURIOUS EMISSIONS

16/04 High Frequency Measurement Compliance Certification Services, Morgan Hill Open Field Site															
Test Engr:		David Garcia													
Project #:		04I2826-1													
Company:		LG Electronics													
EUT Descrip.:		Wireless Pocket PC with 802.11b WLAN and Bluetooth													
EUT M/N:		HSTNH-L05-WL													
Test Target:		FCC 15.247													
Mode Oper:		Co-location, WLAN High channel, Bluetooth High channel (both are worst case) Cradle position (worst case)													
Test Equipment:															
EMCO Horn 1-18GHz		Spectrum Analyzer				Pre-amplifier 1-26GHz				Pre-amplifier 26-40GHz				Horn > 18GHz	
T120; S/N: 29310 @1m						T63 Miteq 646456									
Hi Frequency Cables															
☒ (2 ft) ☐ (2.0 ft) ☐ (3 ft) ☒ (12 ft)															
Peak Measurements: 1 MHz Resolution Bandwidth 1MHz Video Bandwidth															
Average Measurements: 1 MHz Resolution Bandwidth 10Hz Video Bandwidth															
f GHz	Dist feet	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	HPF	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes
2462 Channel															
4.924	9.8	55.5	41.5	34.6	2.9	-35.3	0.0	1.0	58.7	44.7	74.0	54.0	-15.3	-9.3	V
4.924	9.8	57.2	42.9	34.6	2.9	-35.3	0.0	1.0	60.4	46.1	74.0	54.0	-13.6	-7.9	H
NOTE: No further emissions were detected.															
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								

7.6.4. WORST-CASE RADIATED EMISSIONS BELOW 1 GHz

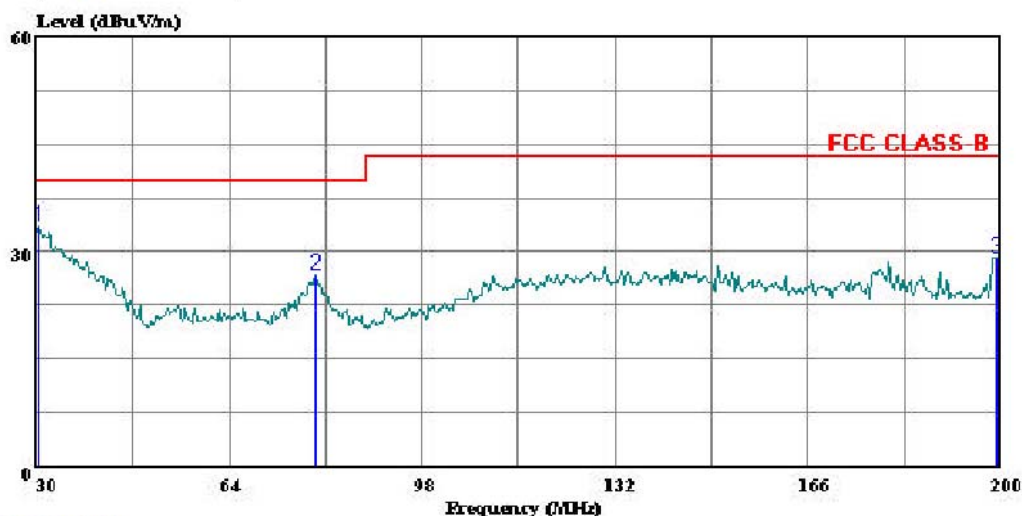
SPURIOUS EMISSIONS 30 TO 200 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



561F Monterey Road
San Jose, CA 95131
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 22 File#: 04i2826.emi Date: 07-14-2004 Time: 12:27:01



(Auxiliary ATC)

Trace: 21

Ref Trace:

Condition: FCC CLASS-B SUNOL BILOG 12/22/04 HORIZONTAL
Test Operator: : David Garcia
Project #: : 04I2826-xx
Company: : LG Electronics Inc.
EUT: : PDA with Bluetooth and LAN
Model No: : HSTNH-L05C-WL
Configuration: : EUT, Laptop, printer, modem mouse
Target of Test: : FCC Class B
Mode of Operation: WLAN TX, Printing H's, Audio

Page: 1

HORIZONTAL DATA

	Freq	Remark	Read Level	Factor	Level	Limit Line	Over Limit
	MHz		dBuV	dB	dBuV/m	dBuV/m	dB
1	30.340	Peak	10.65	22.75	33.40	40.00	-6.60
2	79.130	Peak	17.49	9.33	26.82	40.00	-13.18
3	199.150	Peak	15.47	13.70	29.17	43.50	-14.33

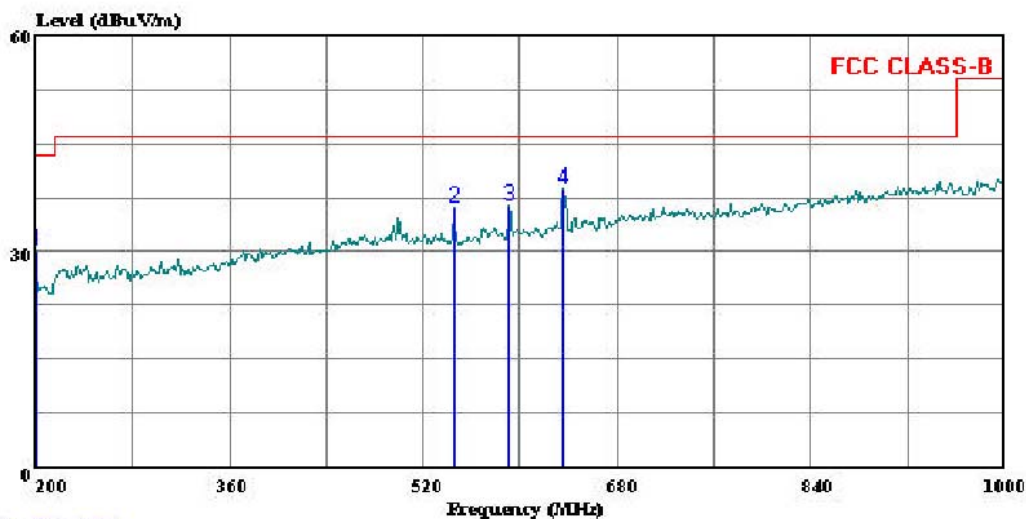
SPURIOUS EMISSIONS 200 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



561F Monterey Road
San Jose, CA 95131
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 20 File#: 04i2826.emi Date: 07-14-2004 Time: 12:24:17



(Auxiliary ATC)

Trace: 19

Ref Trace:

Condition: FCC CLASS-B SUNOL BILOG 12/22/04 HORIZONTAL
Test Operator: : David Garcia
Project #: : 04I2826-xx
Company: : LG Electronics Inc.
EUT: : PDA with Bluetooth and LAN
Model No: : HSTNH-L05C-WL
Configuration: : EUT, Laptop, printer, modem mouse
Target of Test: : FCC Class B
Mode of Operation: WLAN TX, Printing H's, Audio

Page: 1

HORIZONTAL DATA

	Freq	Remark	Read Level	Factor	Level	Limit Line	Over Limit
	MHz		dBuV	dB	dBuV/m	dBuV/m	dB
1	200.000	Peak	16.38	13.78	30.16	43.50	-13.34
2	545.600	Peak	15.25	20.93	36.18	46.00	-9.82
3	591.200	Peak	14.51	21.87	36.38	46.00	-9.62
4	635.200	Peak	16.22	22.53	38.75	46.00	-7.25

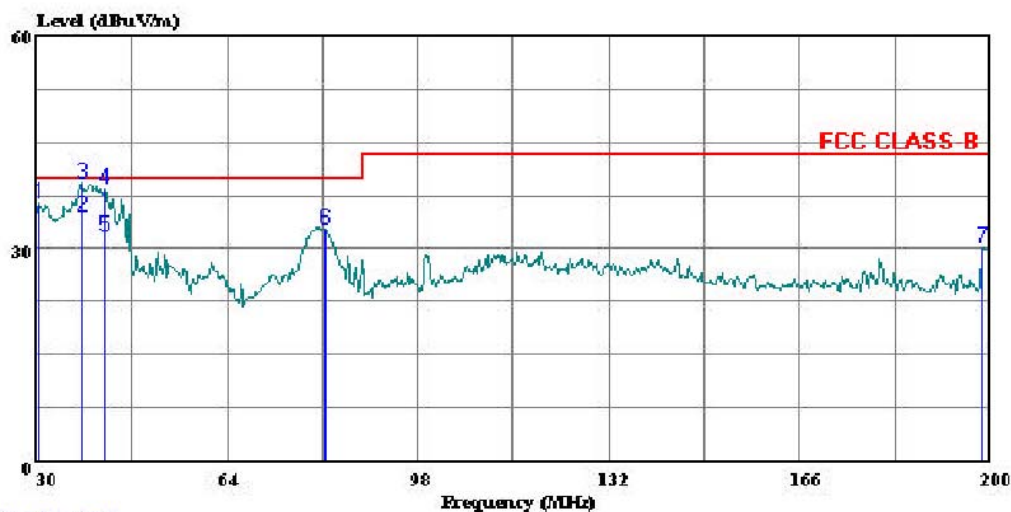
SPURIOUS EMISSIONS 30 TO 200 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



561F Monterey Road
San Jose, CA 95131
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 16 File#: 04i2826.emi Date: 07-14-2004 Time: 12:13:14



(Auxiliary ATC)

Trace: 13

Ref Trace:

Condition: FCC CLASS-B SUNOL BILOG 12/22/04 VERTICAL
Test Operator: : David Garcia
Project #: : 04I2826-xx
Company: : LG Electronics Inc.
EUT: : PDA with Bluetooth and LAN
Model No: : HSTNH-L05C-WL
Configuration: : EUT, Laptop, printer, modem mouse
Target of Test: : FCC Class B
Mode of Operation: WLAN TX, Printing H's, Audio

Page: 1

VERTICAL DATA

	Freq	Remark	Read Level	Factor	Level	Limit Line	Over Limit
	MHz		dBuV	dB	dBuV/m	dBuV/m	dB
1	30.340	Peak	13.57	22.75	36.32	40.00	-3.68
2	37.990	QP	17.53	17.05	34.58	40.00	-5.42
3	37.990	Peak	22.14	17.09	39.23	40.00	-0.77
4	42.240	Peak	24.39	14.10	38.48	40.00	-1.52
5	42.240	QP	17.69	14.03	31.72	40.00	-8.28
6	81.340	Peak	23.43	9.25	32.68	40.00	-7.32
7	198.640	Peak	16.57	13.63	30.20	43.50	-13.30

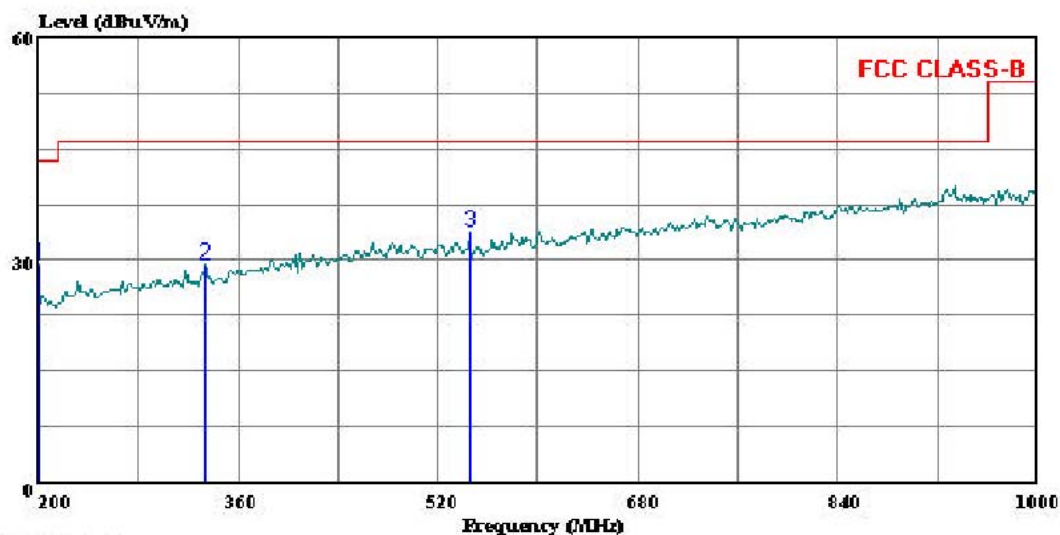
SPURIOUS EMISSIONS 200 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



561F Monterey Road
San Jose, CA 95131
Tel: (408) 463-0888
Fax: (408) 463-0885

Data#: 18 File#: 04i2826.emi Date: 07-14-2004 Time: 12:20:54



(Auxiliary ATC)

Trace: 17

Ref Trace:

Condition: FCC CLASS-B SUNOL BILOG 12/22/04 VERTICAL
Test Operator: : David Garcia
Project #: : 04I2826-xx
Company: : LG Electronics Inc.
EUT: : PDA with Bluetooth and LAN
Model No: : HSTNH-L05C-WL
Configuration: : EUT, Laptop, printer, modem mouse
Target of Test: : FCC Class B
Mode of Operation: WLAN TX, Printing H's, Audio

Page: 1

VERTICAL DATA

	Freq	Remark	Read Level	Factor	Level	Limit Line	Over Limit
	MHz		dBuV	dB	dBuV/m	dBuV/m	dB
1	200.000	Peak	15.57	13.78	29.35	43.50	-14.15
2	333.600	Peak	12.68	16.55	29.23	46.00	-16.77
3	545.600	Peak	12.79	20.93	33.72	46.00	-12.28

7.7. 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 μ 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 *	56 to 46 *
0.5-5	56	46
5-30	60	50

* 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

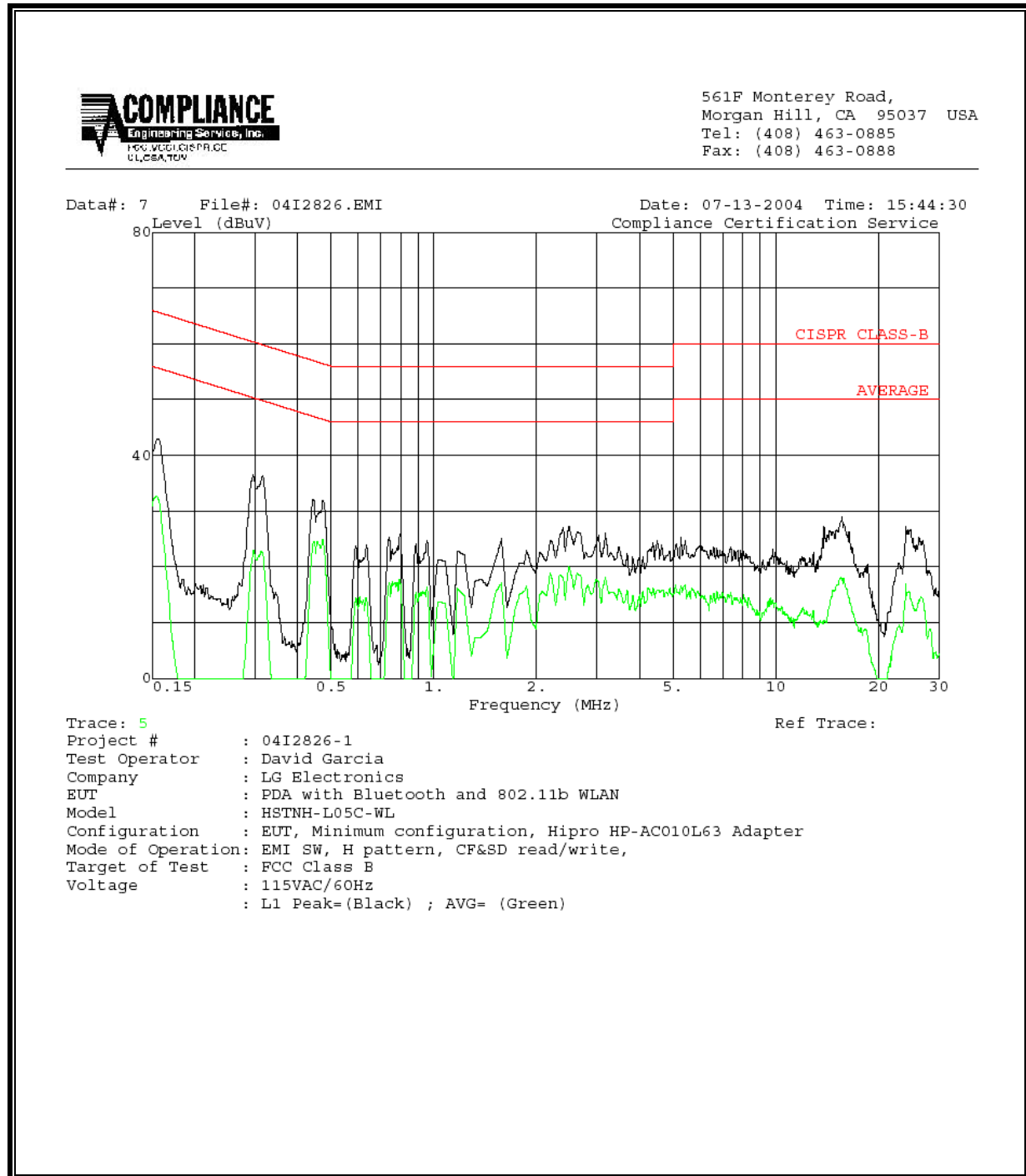
HIPRO HP-AC010L63 AC ADAPTER

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.16	42.94	--	--	0.00	65.80	55.80	-22.86	-12.86	L1
0.32	36.32	--	--	0.00	61.23	51.23	-24.91	-14.91	L1
0.44	32.06	--	--	0.00	57.60	47.60	-25.54	-15.54	L1
0.16	44.24	--	--	0.00	65.80	55.80	-21.56	-11.56	L2
0.30	37.46	--	--	0.00	61.80	51.80	-24.34	-14.34	L2
0.47	32.57	--	--	0.00	56.74	46.74	-24.17	-14.17	L2
6 Worst Data									

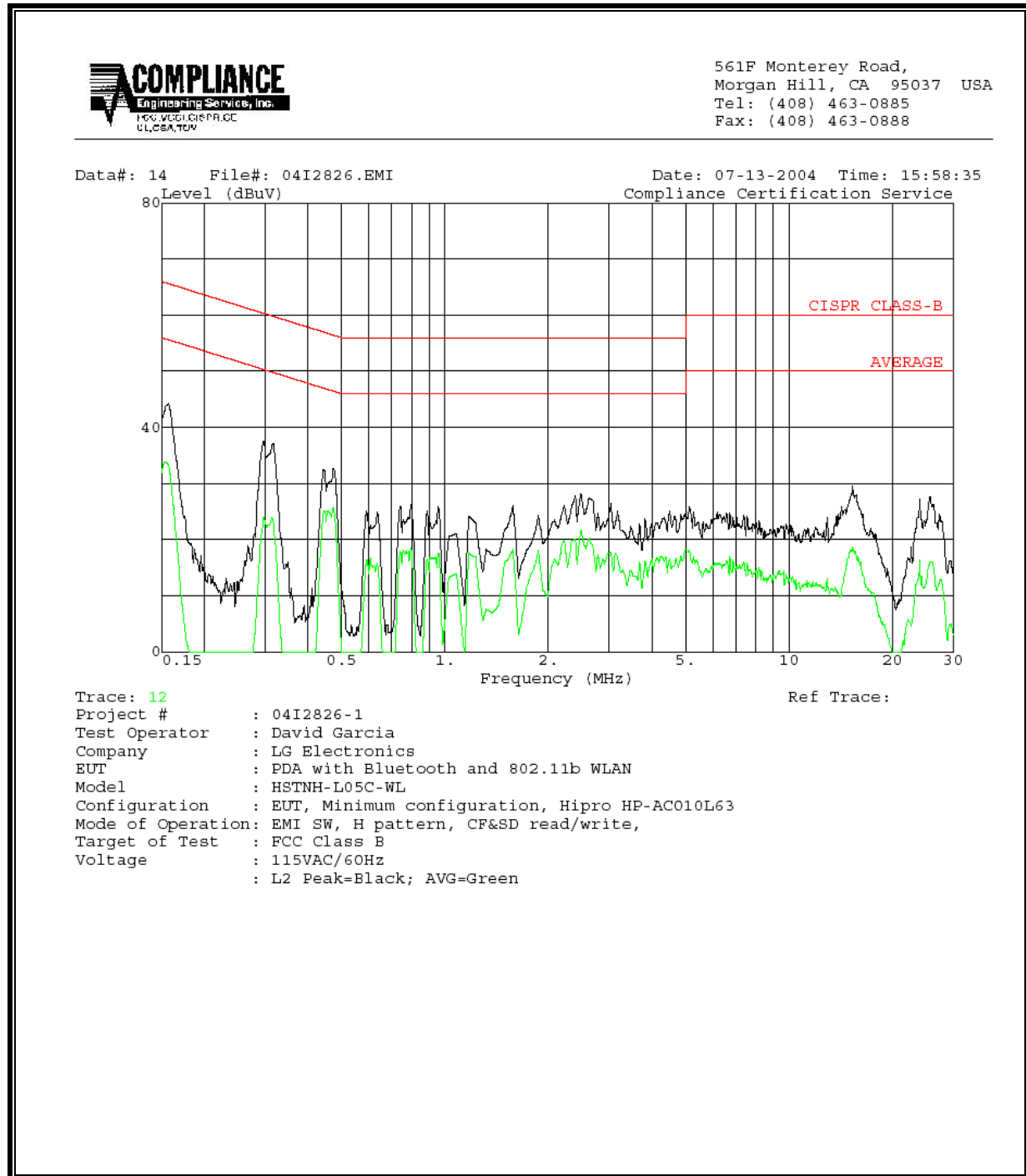
DELTA ADP-10SB AC ADAPTER

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.17	52.78	--	32.75	0.00	65.31	55.31	-12.53	-22.56	L1
0.20	51.44	--	38.92	0.00	64.71	54.71	-13.27	-15.79	L1
14.06	40.98	--	--	0.00	60.00	50.00	-19.02	-9.02	L1
0.20	49.42	--	37.60	0.00	64.71	54.71	-15.29	-17.11	L2
1.87	38.00	--	--	0.00	56.00	46.00	-18.00	-8.00	L2
13.99	43.60	--	--	0.00	60.00	50.00	-16.40	-6.40	L2
6 Worst Data									

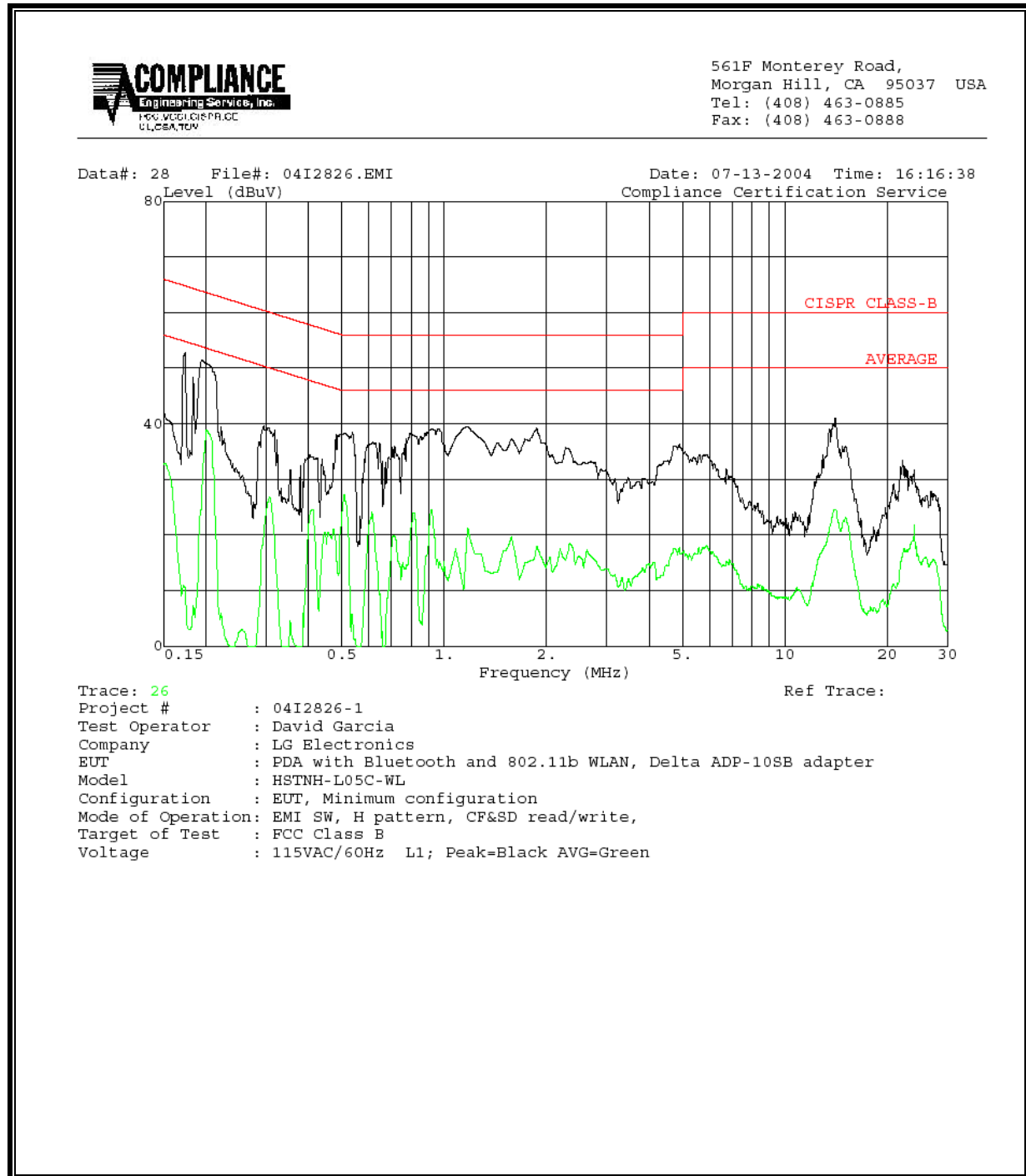
LINE 1 RESULTS (HIPRO HP-AC010L63 AC ADAPTER)



LINE 2 RESULTS (HIPRO HP-AC010L63 AC ADAPTER)



LINE 1 RESULTS (DELTA ADP-10SB AC ADAPTER)



LINE 2 RESULTS (DELTA ADP-10SB AC ADAPTER)

