



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

BLUETOOTH MODULE

MODEL NUMBER: BT12A

FCC ID: ACJ9TGBT12A

REPORT NUMBER: 12J14382-1

ISSUE DATE: May 23, 2012

Prepared for

**PANASONIC CORPORATION OF NORTH AMERICA
ONE PANASONIC WAY, 4B-8
SECAUCUS, NEW JERSEY, 07094, USA**

Prepared by

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



NVLAP LAB CODE 200065-0

Revision History

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--	05/23/12	Initial Issue	T. LEE

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ATTESTATION OF TEST RESULTS

COMPANY NAME: PANASONIC CORPORATION OF NORTH AMERICA
ONE PANASONIC WAY, 4B-8
SECAUCUS, NEW JERSEY, 07094, USA

EUT DESCRIPTION: Bluetooth Module

MODEL: BT12A

SERIAL NUMBER: Conducted (000704b4506e), Radiated (000704b4505b)

DATE TESTED: April 28 to May 3, 2012

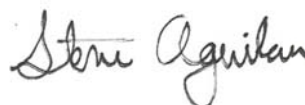
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

Compliance Certification Services (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. 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 UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By:

Tested By:



TIMOTHY K. LEE
STAFF ENGINEER
UL CCS

STEVE AGUILAR
EMC TECHNICIAN
UL CCS

1. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

2. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

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

3. CALIBRATION AND UNCERTAINTY

3.1. 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.

3.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

3.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

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

4. EQUIPMENT UNDER TEST

4.1. DESCRIPTION OF EUT

The EUT is a Bluetooth transceiver Model BT12A

The radio module is manufactured by Panasonic.

4.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	BLE	7.48	5.60

4.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a Micro strip antenna, with a maximum gain of 2.01dBi.

4.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was A06.

The EUT driver software installed with the laptop as support equipment during testing was Toshiba Bluetooth Stack 9.x.

The test utility software used during testing was Blue suite , rev. 2.4 (BtCLI).

4.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

4.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Panasonic	CF-53	FM111MK2D1S2	--
Power Supply	Panasonic	CF-AA5713AM1	5713AM112105301A	D of C
Laptop	Panasonic	CF-53	FM111MK2D1T	--
Power Supply	Panasonic	CF-AA5713AM1	5713AM112105320A	D of C

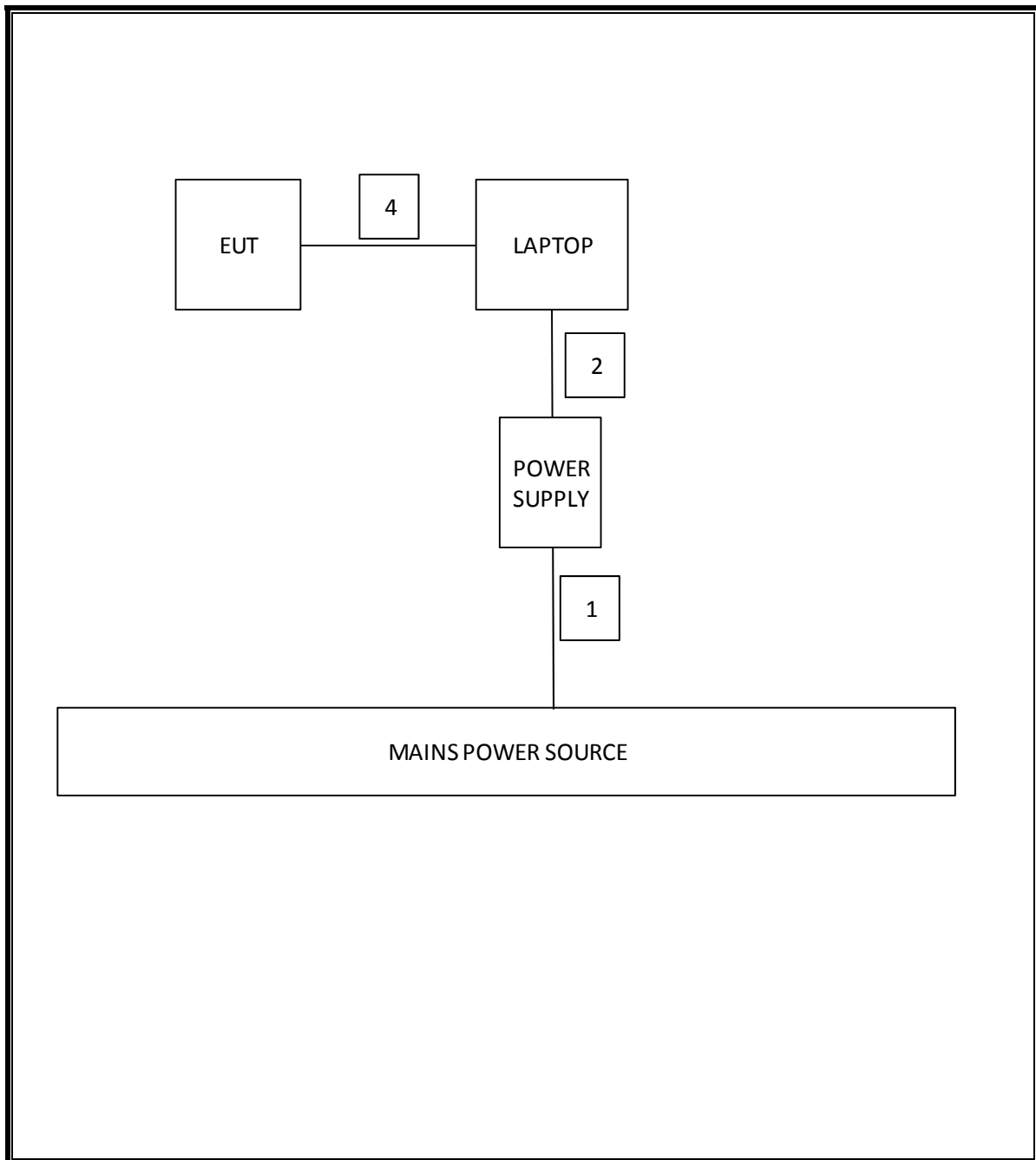
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Unshielded	1.7m	--
2	DC	1	DC	Shielded	1.7m	Ferrite on DC connector
4	I/O	1	I/O	Unshielded	16cm	Ribbon cable and 24 gauge wire

TEST SETUP

The EUT is mounted externally via 22 gauge wire and a ribbon cable for testing. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



5. 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	Asset	Cal Date	Cal Due
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/2011	12/13/2012
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/2011	12/13/2012
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00996	5/4/2011	5/4/2012
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/15/2011	12/15/2012
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	7/12/2011	7/12/2012
Antenna, Horn, 18 GHz	EMCO	3115	C01218	9/1/2011	9/1/2012
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	7/28/2011	7/28/2012
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	8/19/2011	8/19/2013
LISN, 30 MHz	FCC	50/250-25-2	C00626	12/13/2011	12/13/2012

6. ANTENNA PORT TEST RESULTS

6.1. BASIC DATA RATE GFSK MODULATION - LE

7.1.1 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

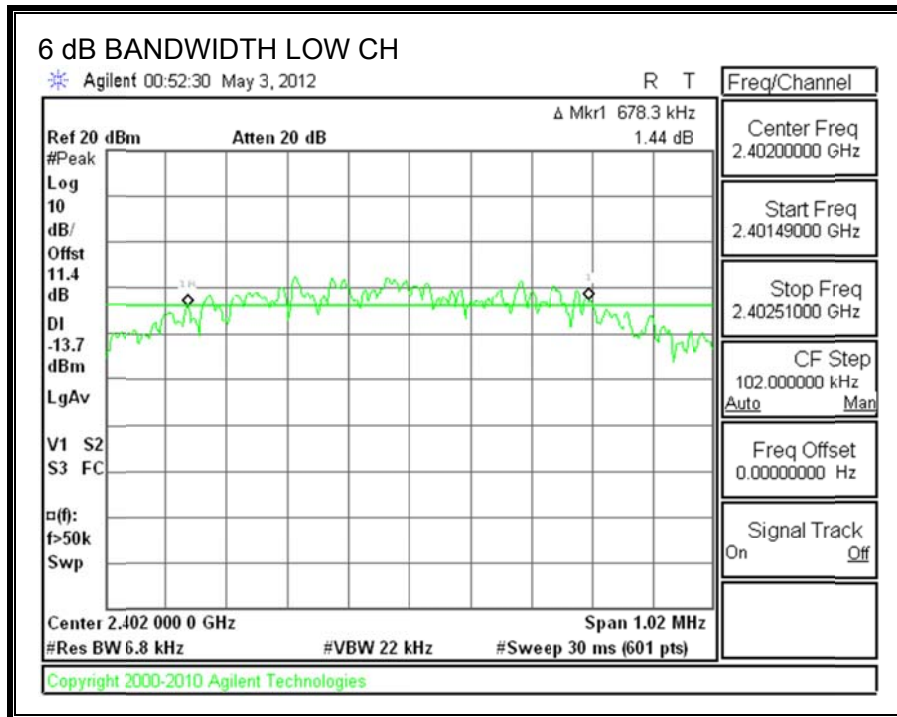
TEST PROCEDURE

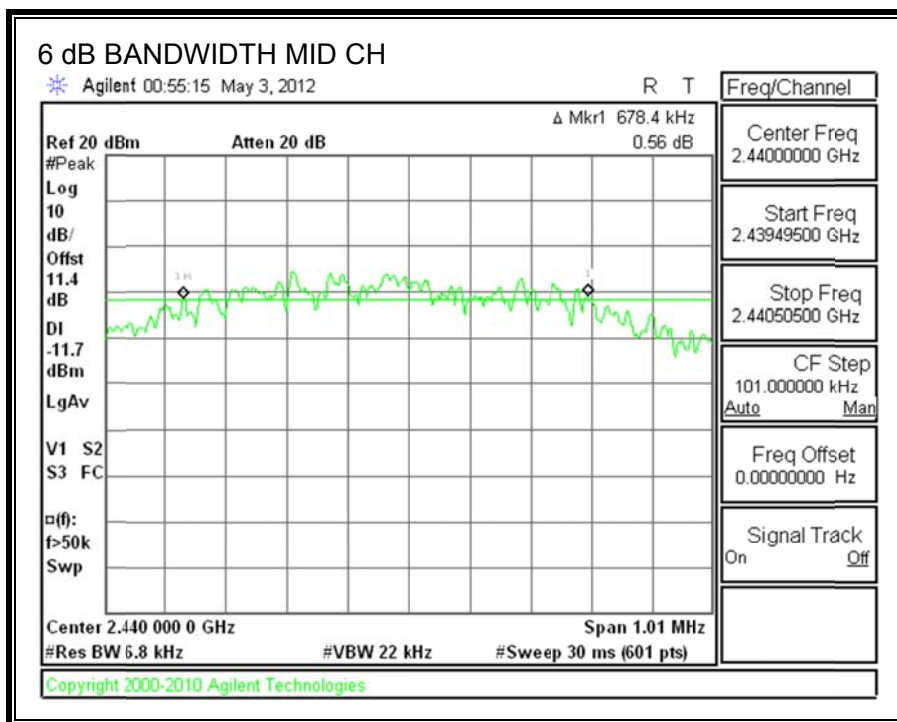
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

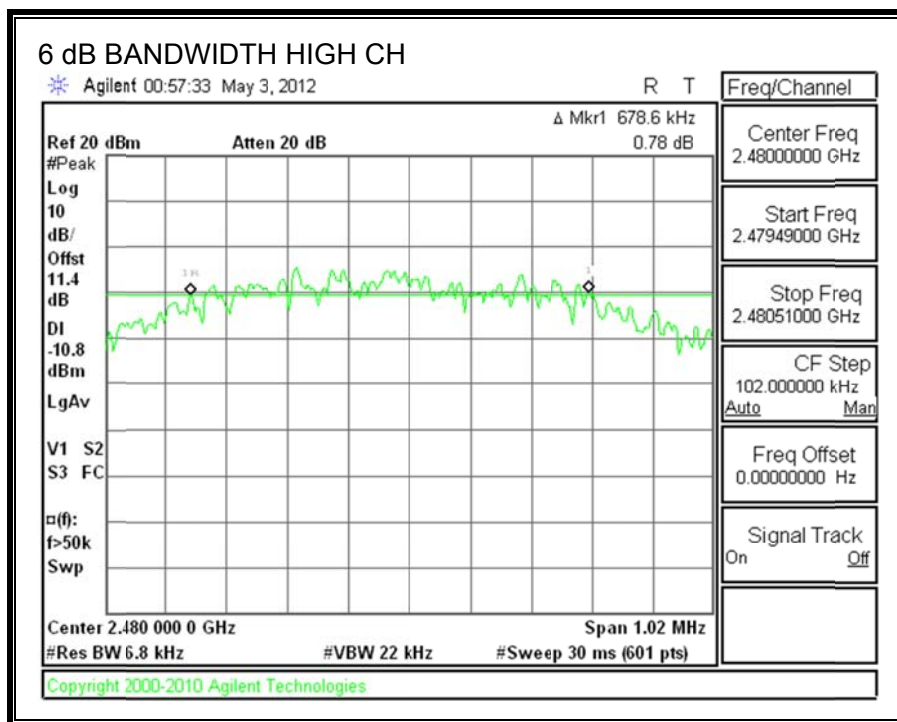
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	0.6783	0.5
Middle	2437	0.6784	0.5
High	2462	0.6786	0.5

6 dB BANDWIDTH







7.1.2 99% BANDWIDTH

LIMIT

None; for reporting purposes only.

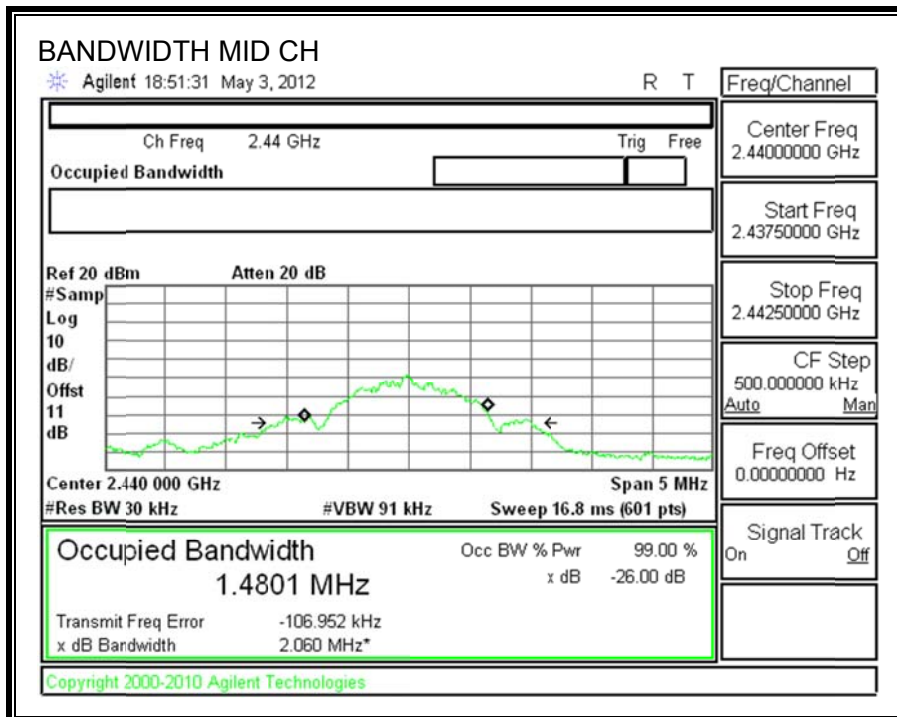
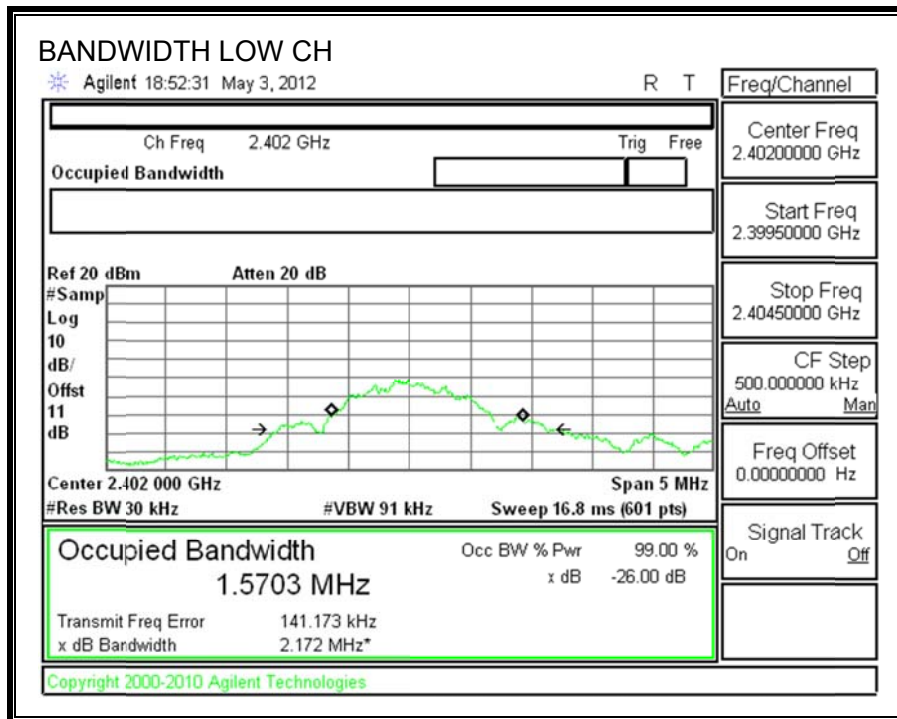
TEST PROCEDURE

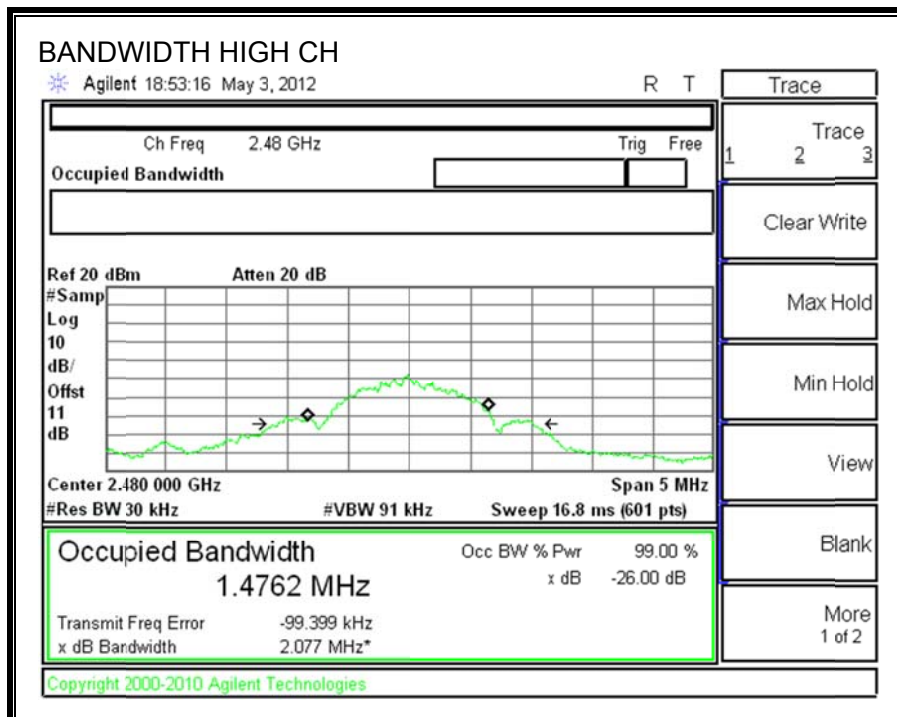
The transmitter output is connected to a spectrum analyzer. The RBW is set to $\geq 1\%$ of the 99% bandwidth. The VBW is set to 3X RBW. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.5703
Middle	2440	1.4801
High	2480	1.4762

99% BANDWIDTH





6.1.1. OUTPUT POWER

LIMIT

§15.247 (b) (1)

RSS-210 Issue 7 Clause A8.4

The maximum antenna gain is less than 6 dBi, therefore the limit is 30 dBm.

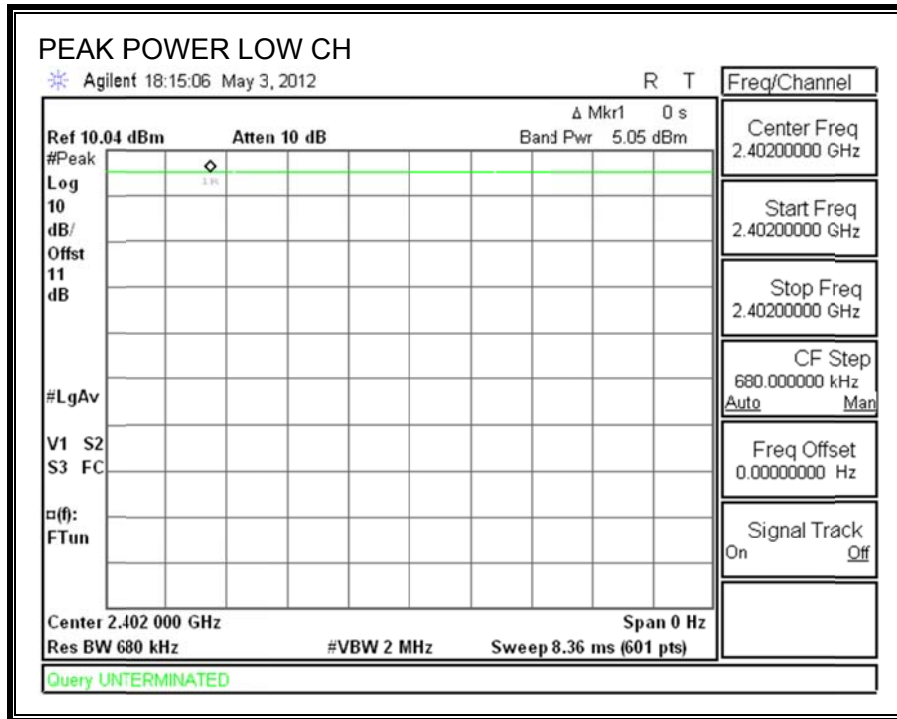
TEST PROCEDURE

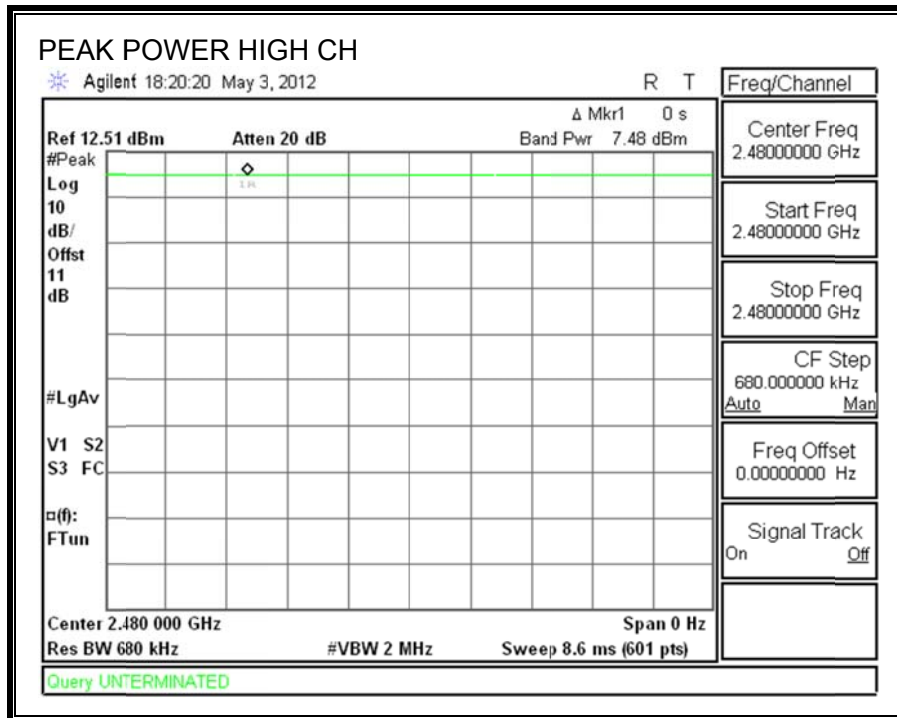
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	5.05	30	-24.95
Middle	2441	6.67	30	-23.33
High	2480	7.48	30	-22.52

OUTPUT POWER





6.1.2. AVERAGE POWER

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 10dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

BT LE Mode

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	4.45
Middle	2441	6.11
High	2480	7.04

7.1.4 POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

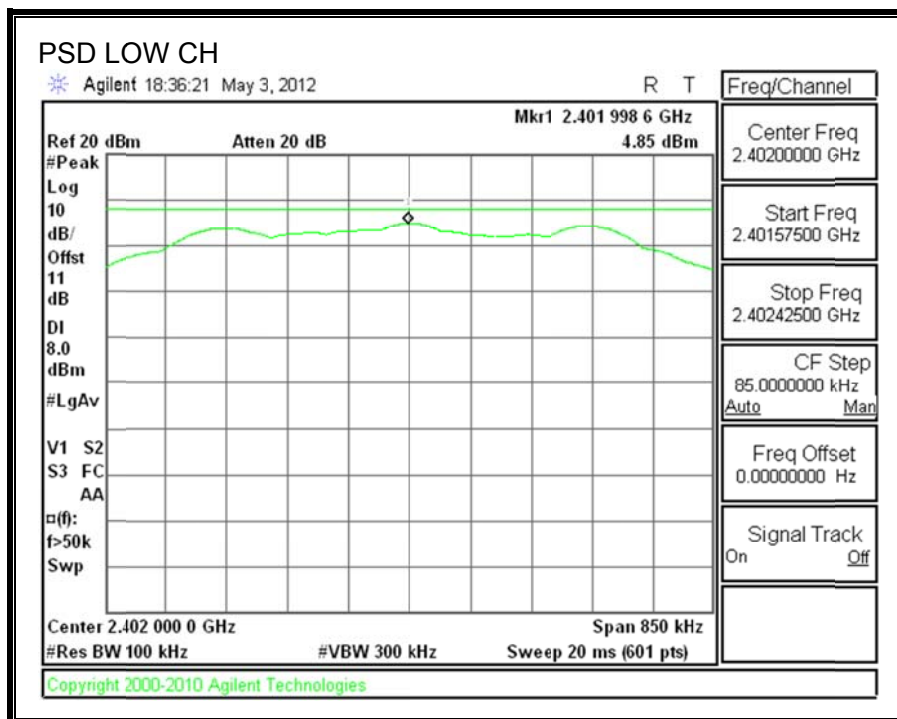
TEST PROCEDURE

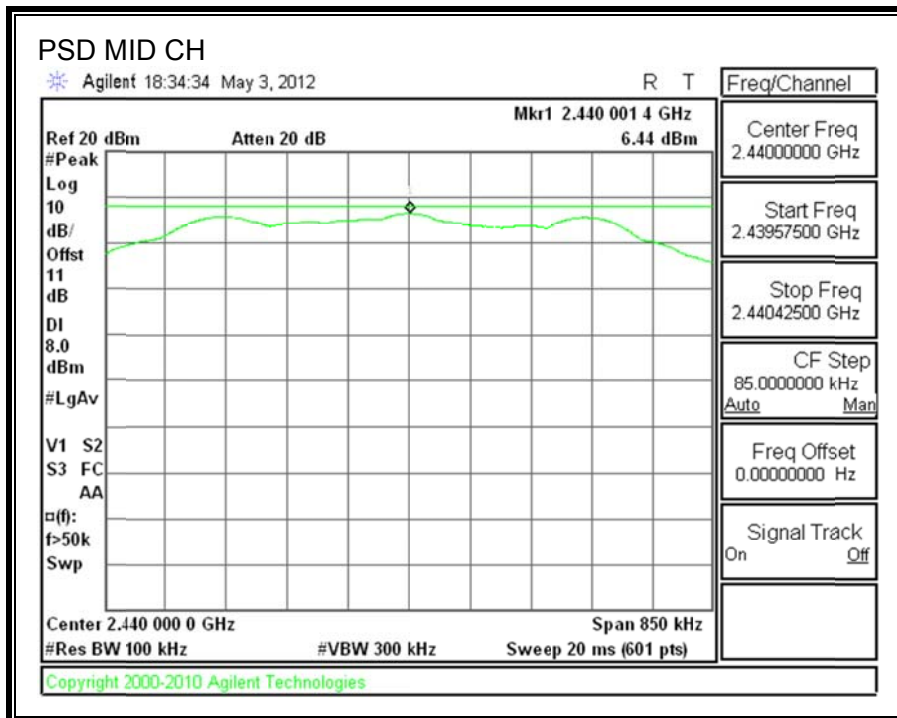
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

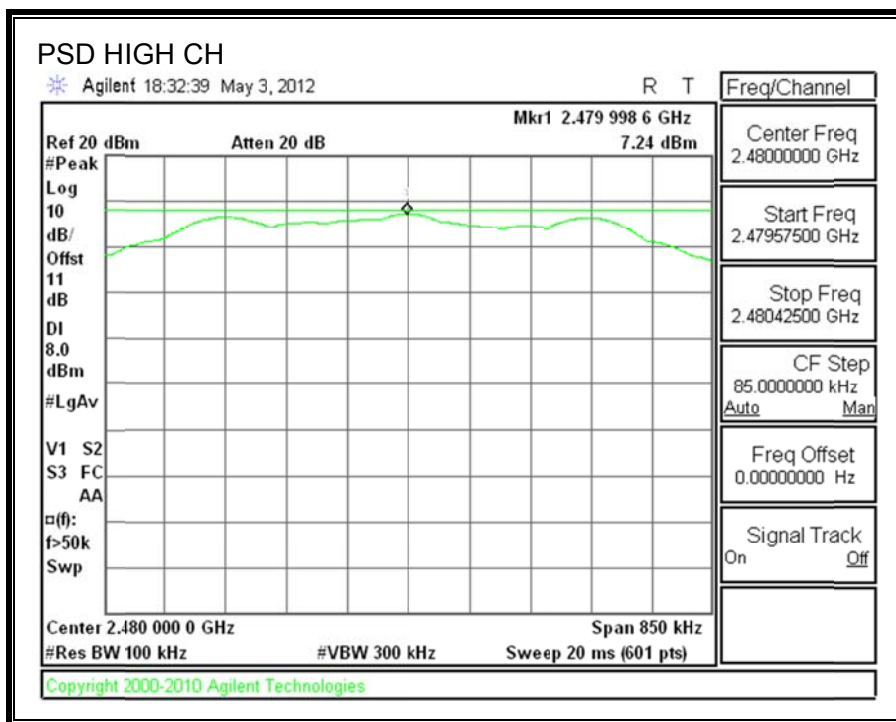
RESULTS

Channel	Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	4.85	8	-3.15
Middle	2440	6.44	8	-1.56
High	2480	7.24	8	-0.76

POWER SPECTRAL DENSITY







7.1.5 CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Limit = -20 dBc

TEST PROCEDURE

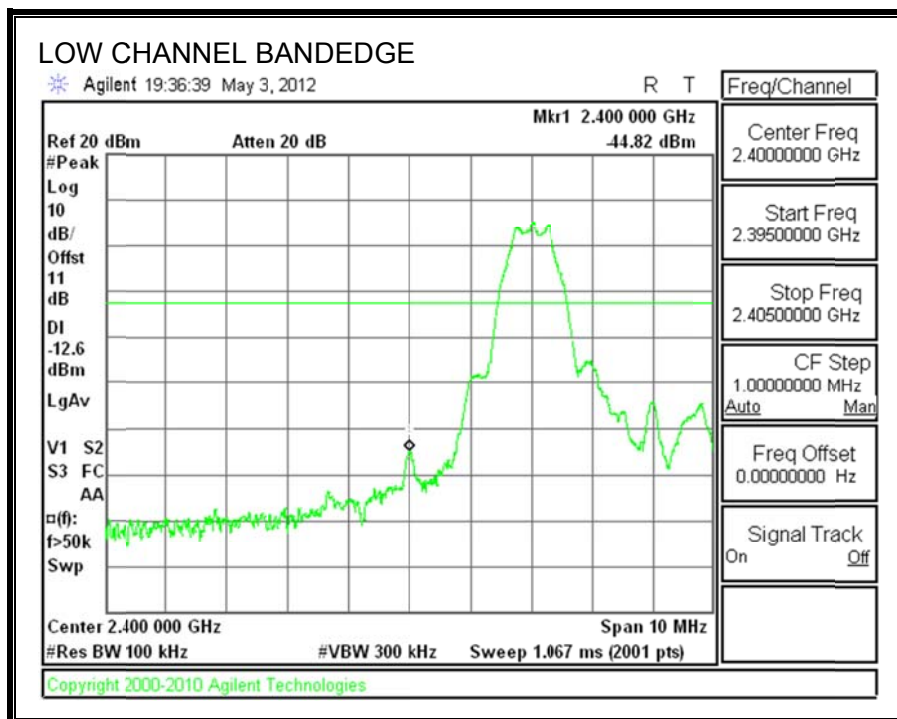
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

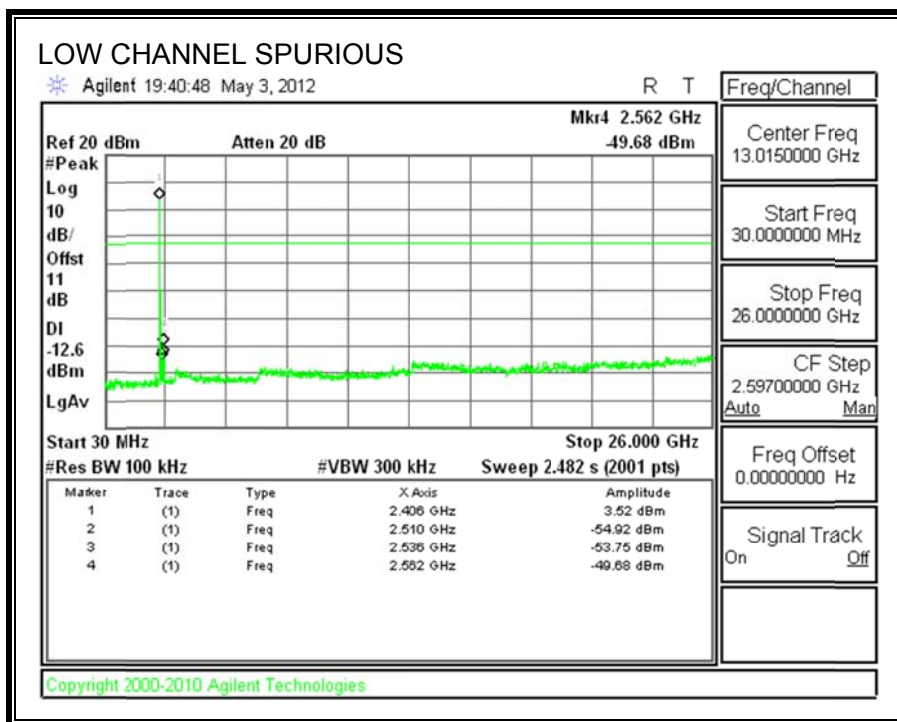
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

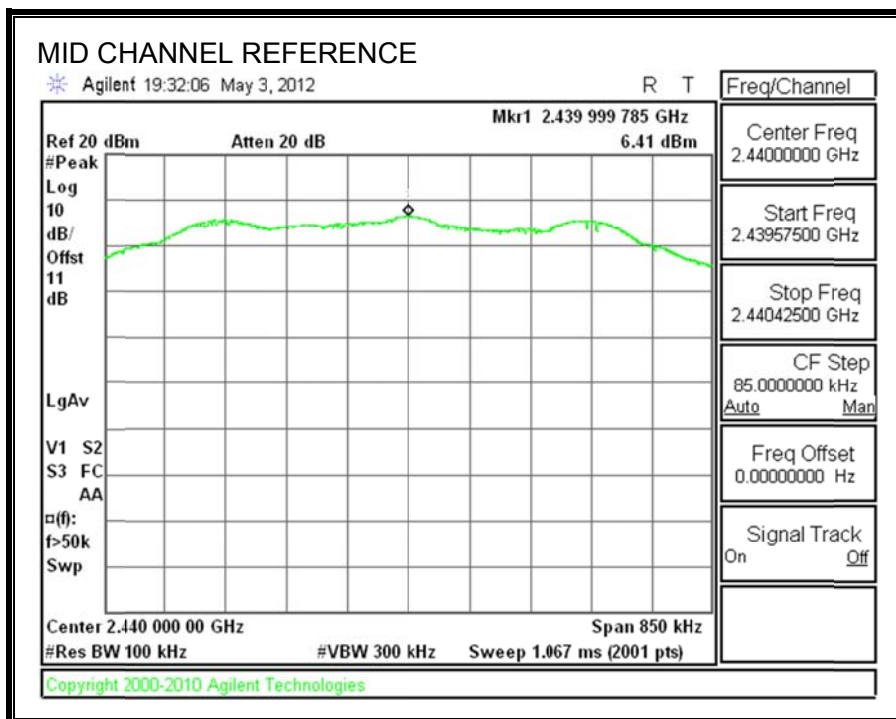
RESULTS

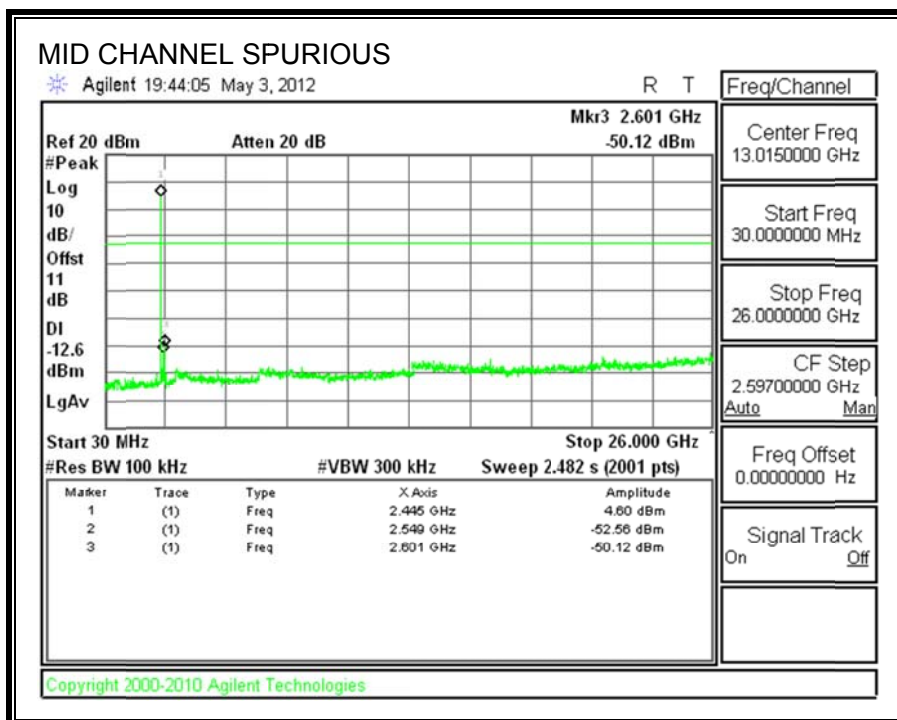
SPURIOUS EMISSIONS, LOW CHANNEL



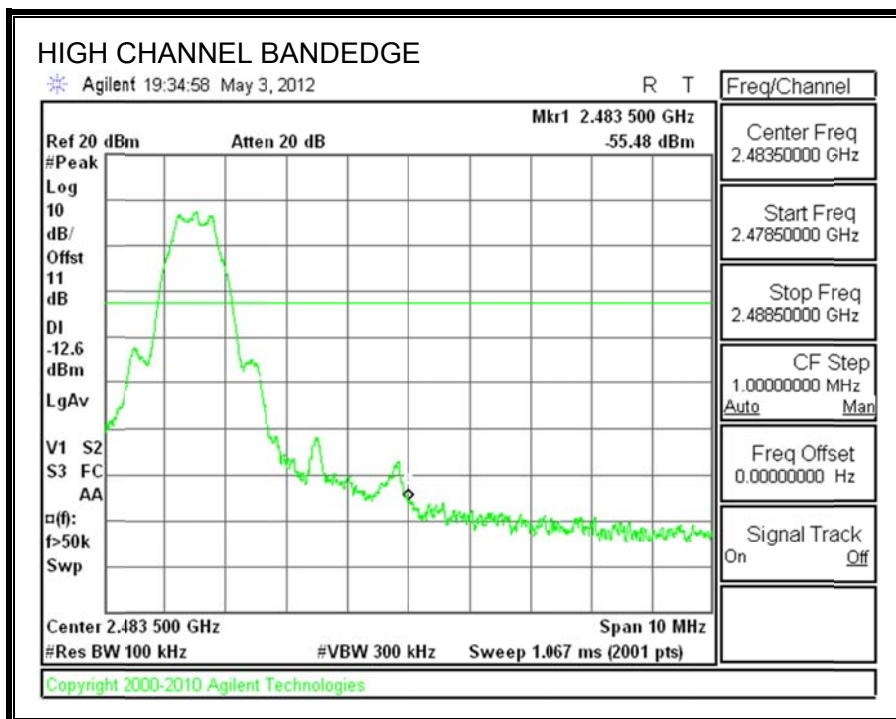


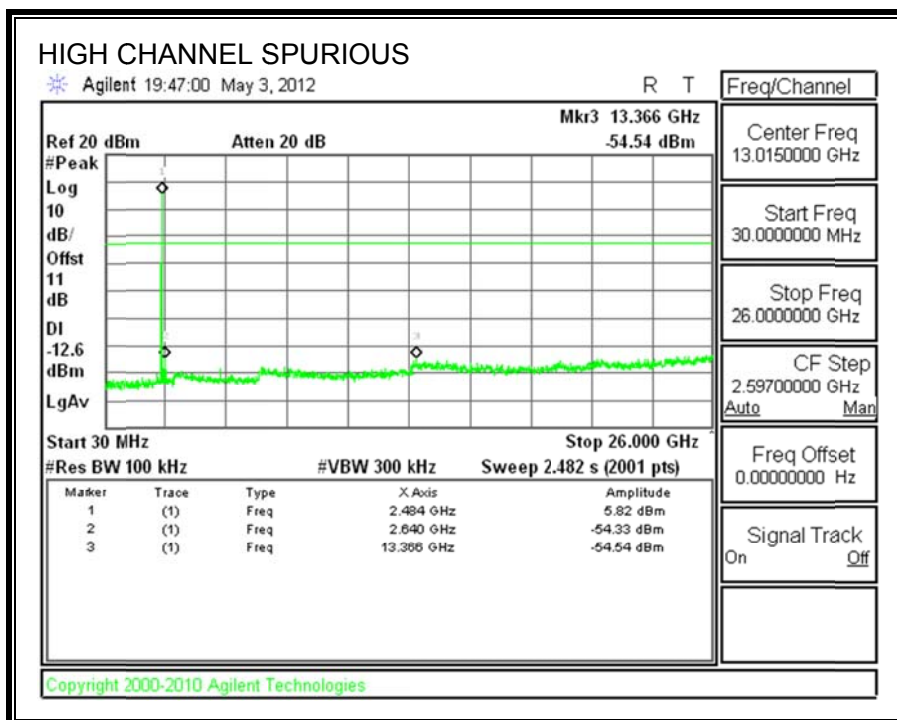
SPURIOUS EMISSIONS, MID CHANNEL





SPURIOUS EMISSIONS, HIGH CHANNEL





8 RADIATED TEST RESULTS

8.1 LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

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.

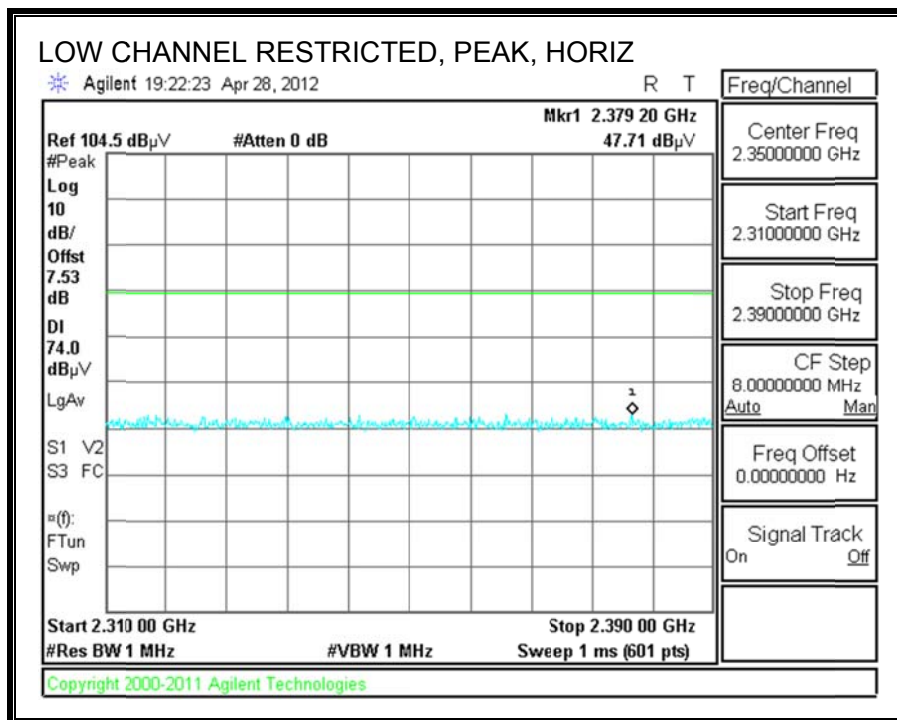
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

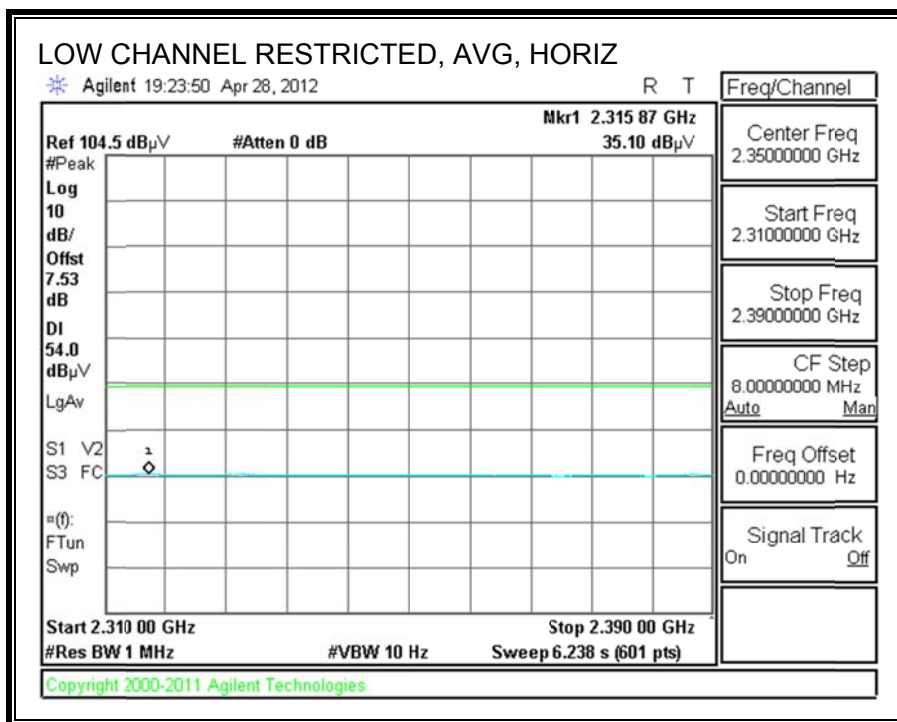
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The 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.

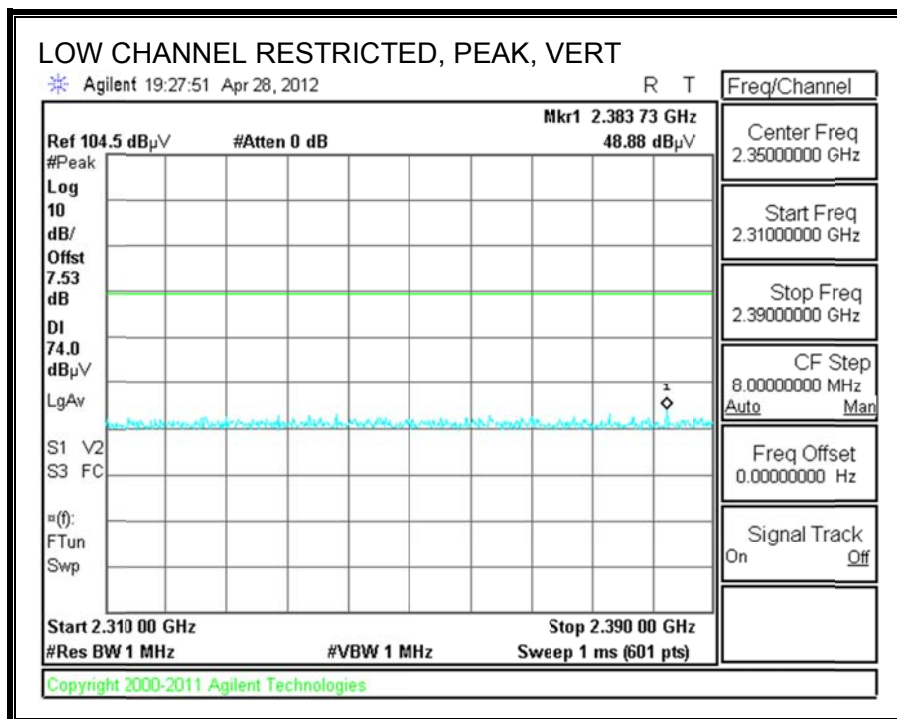
8.2 TRANSMITTER ABOVE 1 GHz

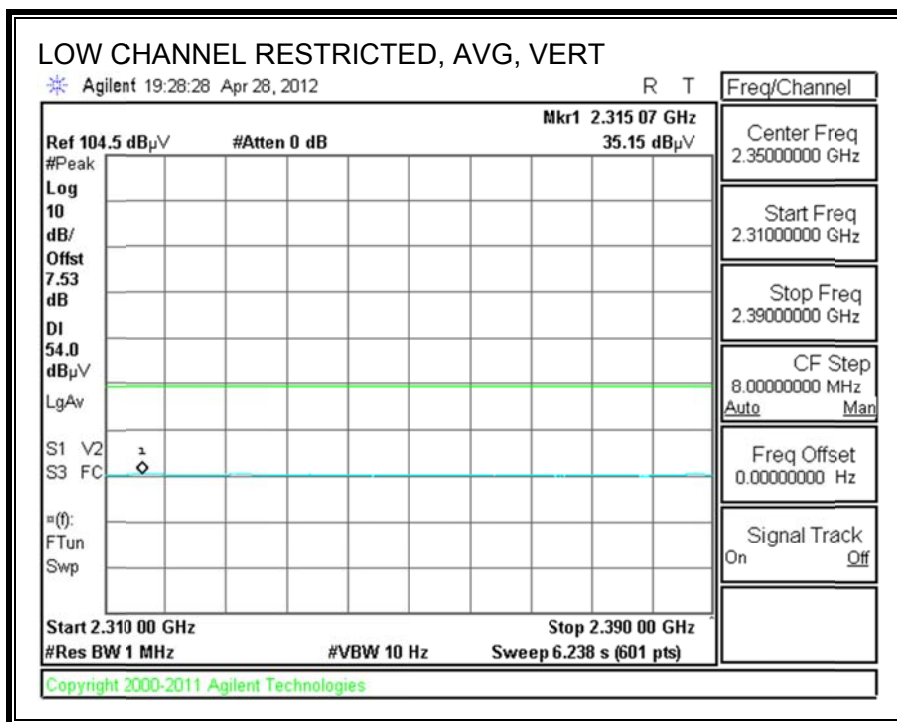
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



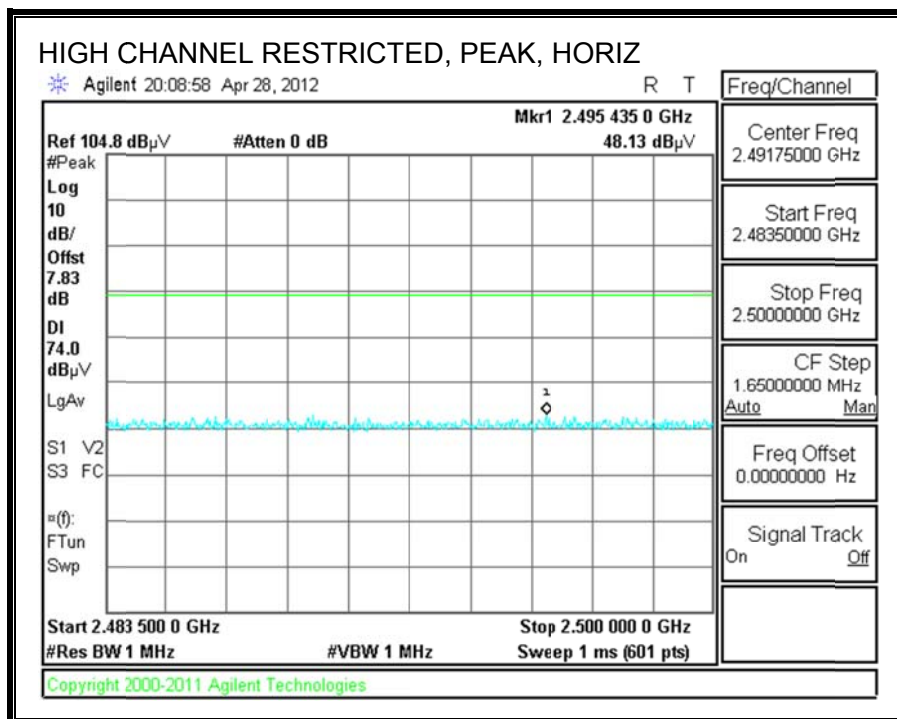


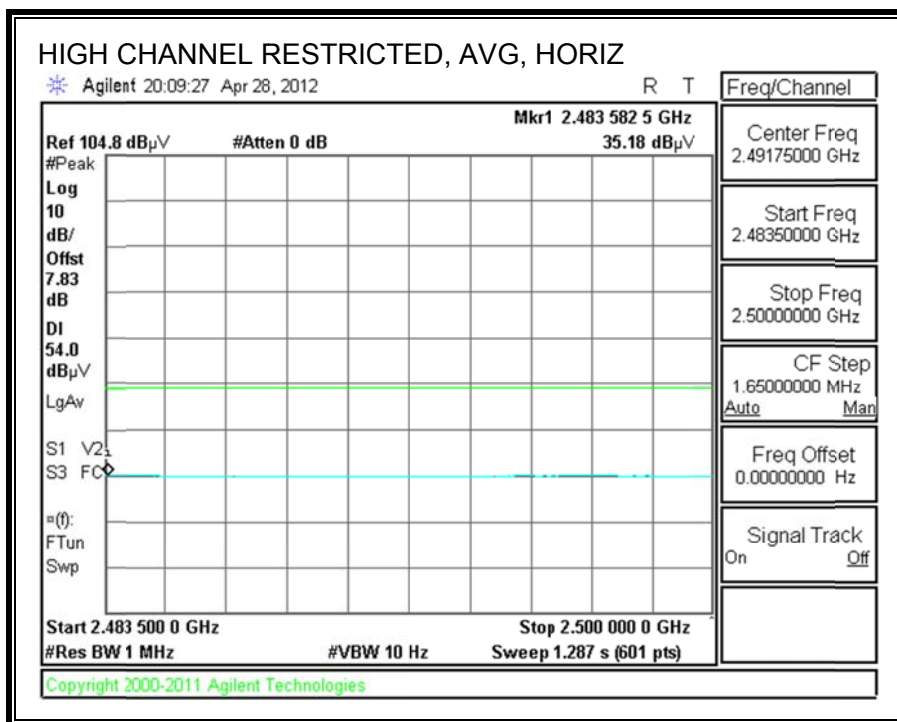
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



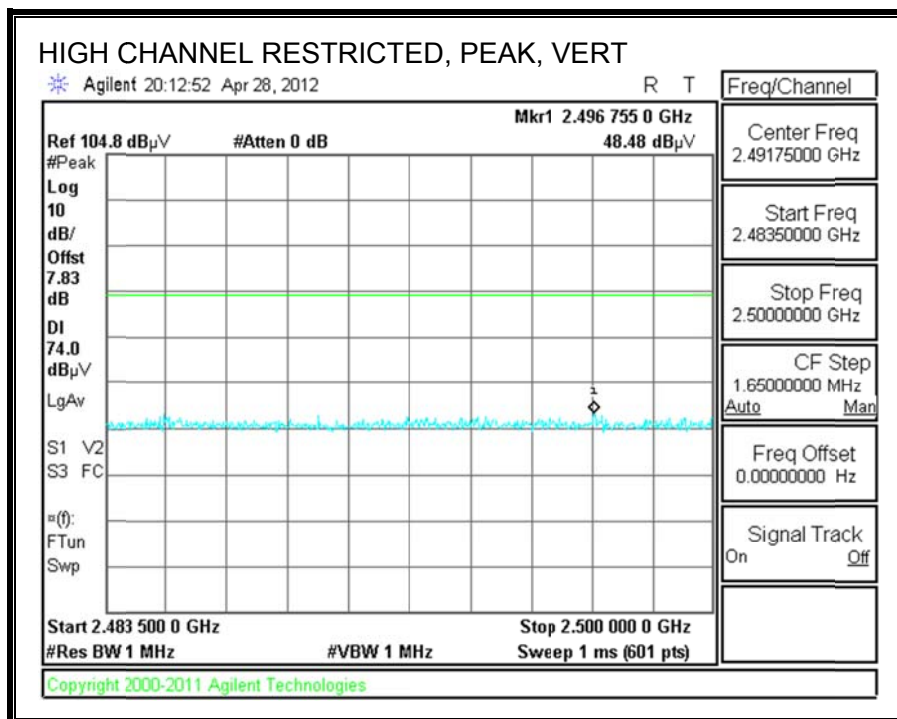


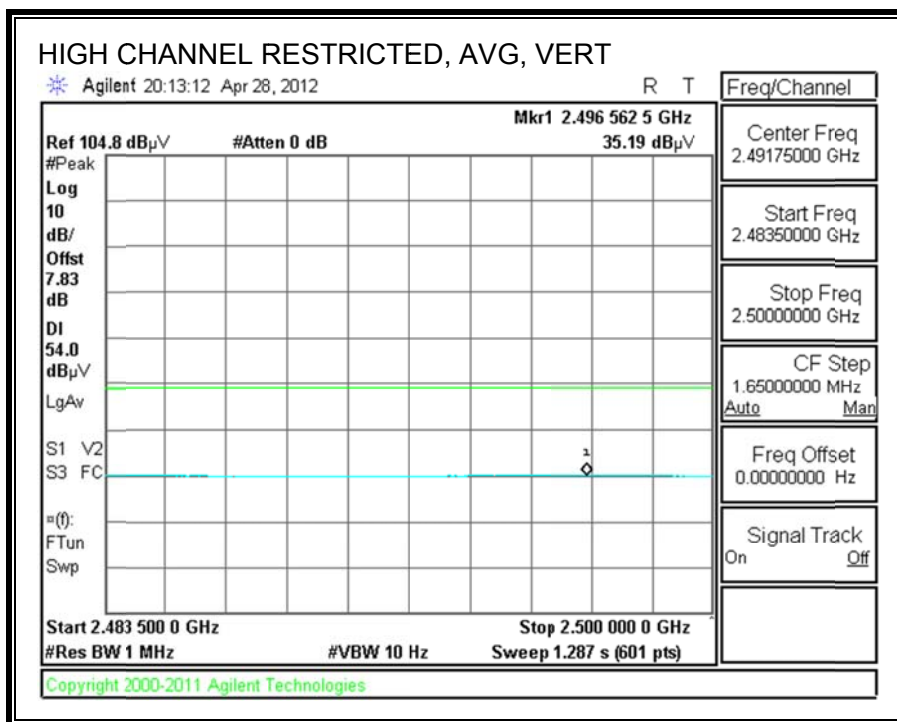
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber-B

Company: Panasonic
Project #: 12J14382
Date: 4/28/2012
Test Engineer: S. Aguilar
Configuration: EUT + BT module
Mode: BT LE, TX mode, worst case

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A005E		T89; ARA 18-26GHz; S/N:1049	FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500		R_001	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)
Low Channel (2402 MHz)															
4.804	3.0	41.0	29.4	33.1	6.3	-34.8	0.0	0.0	45.6	34.0	74	54	-28.4	-20.0	H
4.804	3.0	37.9	26.0	33.1	6.3	-34.8	0.0	0.0	42.5	30.6	74	54	-31.5	-23.4	V
Mid Channel (2440 MHz)															
4.882	3.0	42.5	31.4	33.2	6.3	-34.8	0.0	0.0	47.3	36.1	74	54	-26.7	-17.9	H
4.882	3.0	37.8	27.2	33.2	6.3	-34.8	0.0	0.0	42.6	31.9	74	54	-31.4	-22.1	V
7.323	3.0	35.6	23.8	36.2	8.5	-34.9	0.0	0.0	45.3	33.6	74	54	-28.7	-20.4	H
7.323	3.0	36.4	23.8	36.2	8.5	-34.9	0.0	0.0	46.1	33.6	74	54	-27.9	-20.4	V
High Channel (2480 MHz)															
4.960	3.0	45.9	35.0	33.3	6.4	-34.8	0.0	0.0	50.8	39.9	74	54	-23.2	-14.1	H
4.960	3.0	40.9	29.5	33.3	6.4	-34.8	0.0	0.0	45.8	34.4	74	54	-28.2	-19.6	V
7.440	3.0	37.3	24.1	36.4	8.5	-34.9	0.0	0.0	47.2	34.0	74	54	-26.8	-20.0	H
7.440	3.0	36.9	24.1	36.4	8.5	-34.9	0.0	0.0	46.9	34.0	74	54	-27.1	-20.0	V

Rev. 07.08.11

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		

8.3 RECEIVER ABOVE 1 GHz

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber-B

Company: Panasonic
Project #: 12J14382
Date: 5/3/2012
Test Engineer: S. Aguilar
Configuration: EUT + BT module
Mode: BT LE, FX mode, worst case

Test Equipment:

Horn 1-18GHz	Pre-amplifier 1-26GHz	Pre-amplifier 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A005E			RX RSS 210

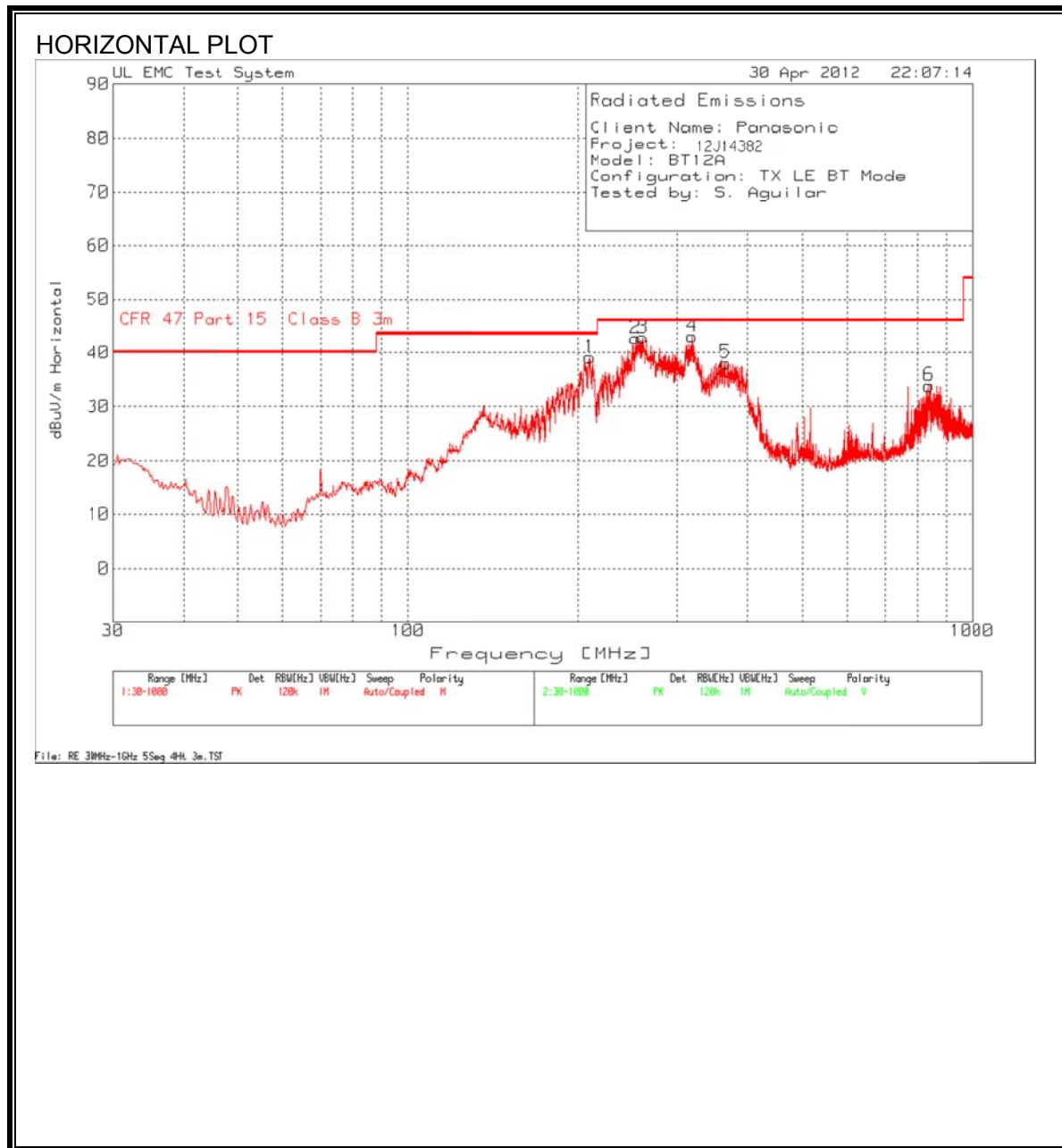
Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements RBW=VBW=1MHz
3' cable 22807700	12' cable 22807600	20' cable 22807500			Average Measurements RBW=300Khz; VBW=1MHz

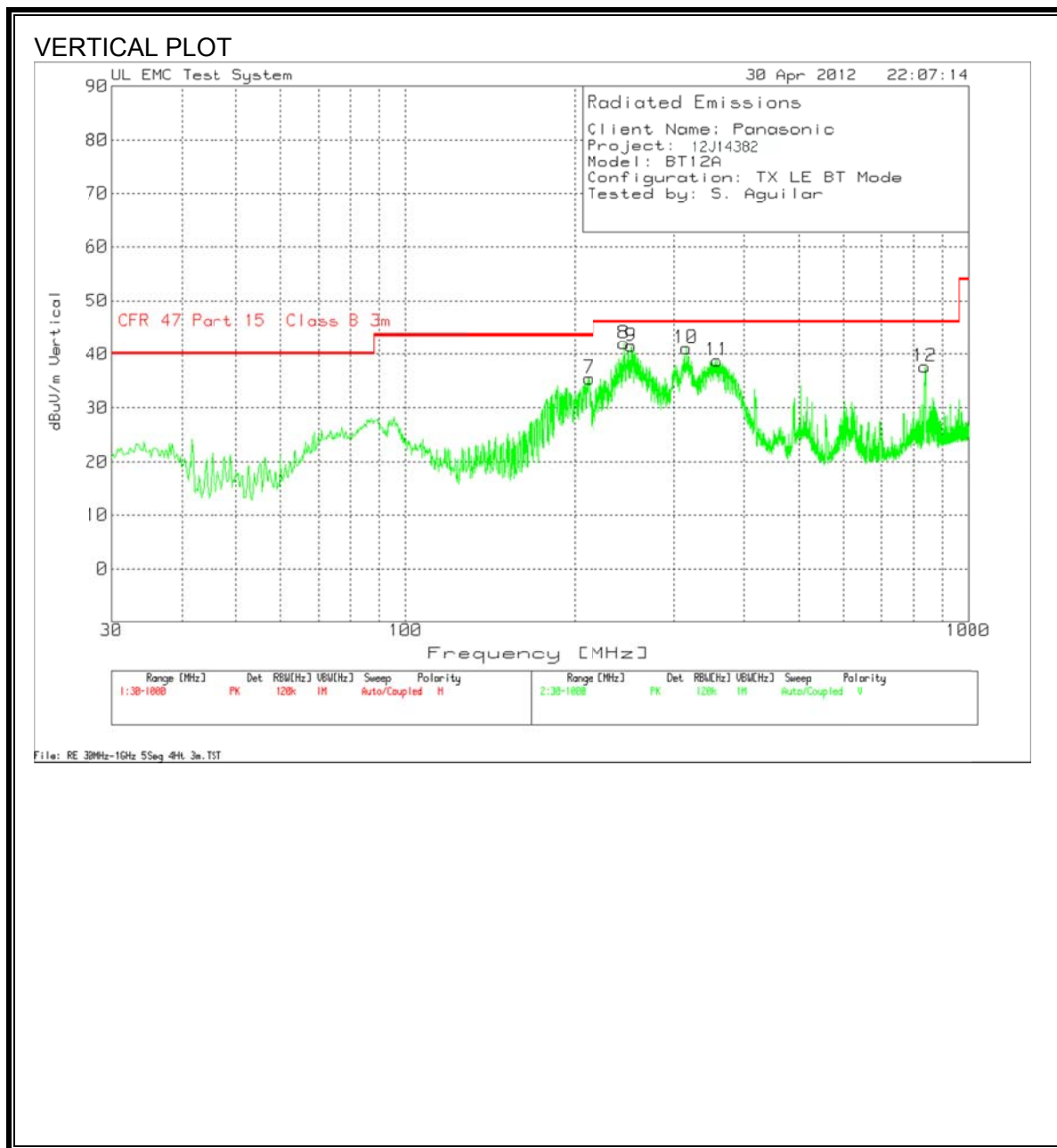
f GHz	Dist (m)	Read Pk dBuV	Read Avg. dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)
High Channel Worst Case															
1.502	3.0	38.9	38.0	26.1	3.2	-35.7	0.0	10.0	42.5	41.6	74	54	-31.5	-12.4	H
1.315	3.0	42.2	34.9	25.3	3.0	-35.8	0.0	10.0	44.7	37.4	74	54	-29.3	-16.6	V
Rev. 07.08.11															
NOTE: No other emissions were detected above the system noise floor															
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												

8.4 WORST-CASE BELOW 1 GHz - TX

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



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



HORIZONTAL AND VERTICAL DATA

Project:	12J14382								
Client Name:	Panasoinic								
Model/Device	BT12A								
Configuraiton:	BT LE TX Mode - Worst case								
Date:	4/30/2012								
Tested by:	S.Aguilar								

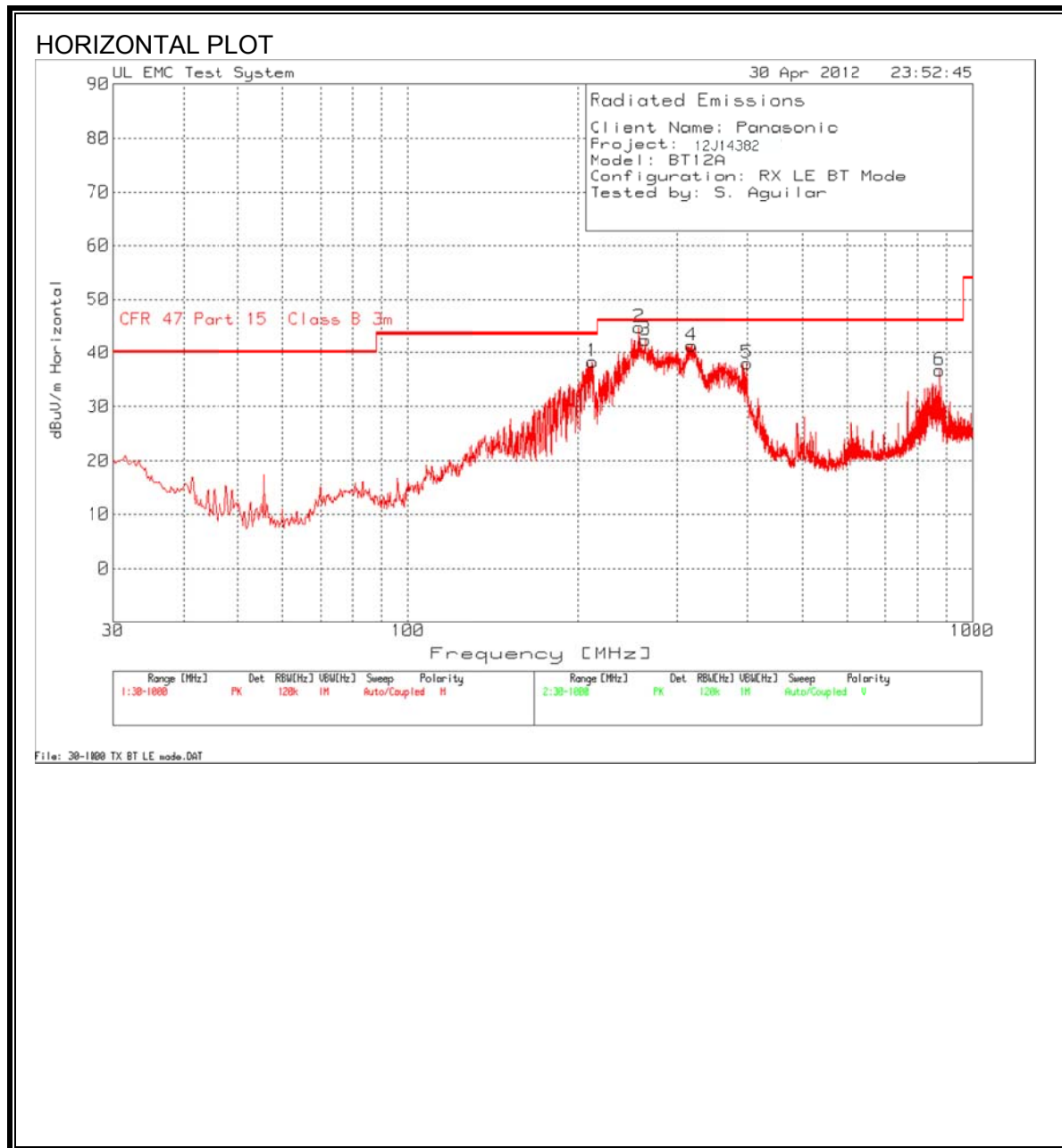
Test Frequency [MHz]	Meter Reading [dB(μV)]	Detector	Pre Amp Factor [dB]	Antenna Factor [dB/m]	Corrected [dB(μV/m)]	Class B PK limit [dB(μV/m)]	Margin [dB]	Height [cm]	Polarity
Range 1 30 - 1000MHz (Horizontal)									
209.3066	54.63	PK	-27.5	12	39.13	43.5	-4.37	100	Horz
253.8909	57.89	PK	-27.1	11.9	42.69	46	-3.31	100	Horz
261.257	57.8	PK	-27.1	12.1	42.8	46	-3.2	100	Horz
319.2166	56.22	PK	-26.8	13.6	43.02	46	-2.98	100	Horz
365.7394	50.49	PK	-26.8	14.4	38.09	46	-7.91	100	Horz
837.7518	37.88	PK	-25.2	21.2	33.88	46	-12.12	200	Horz
Range 2 30 - 1000MHz (Vertical)									
211.6327	50.98	PK	-27.5	12	35.48	43.5	-8.02	200	Vert
244.974	57.42	PK	-27.2	11.8	42.02	46	-3.98	200	Vert
252.3401	56.85	PK	-27.2	11.9	41.55	46	-4.45	200	Vert
315.5336	54.34	PK	-26.8	13.6	41.14	46	-4.86	200	Vert
358.3733	51.29	PK	-26.8	14.3	38.79	46	-7.21	200	Vert
836.5887	41.68	PK	-25.2	21.2	37.68	46	-8.32	200	Vert

PK - Peak detector

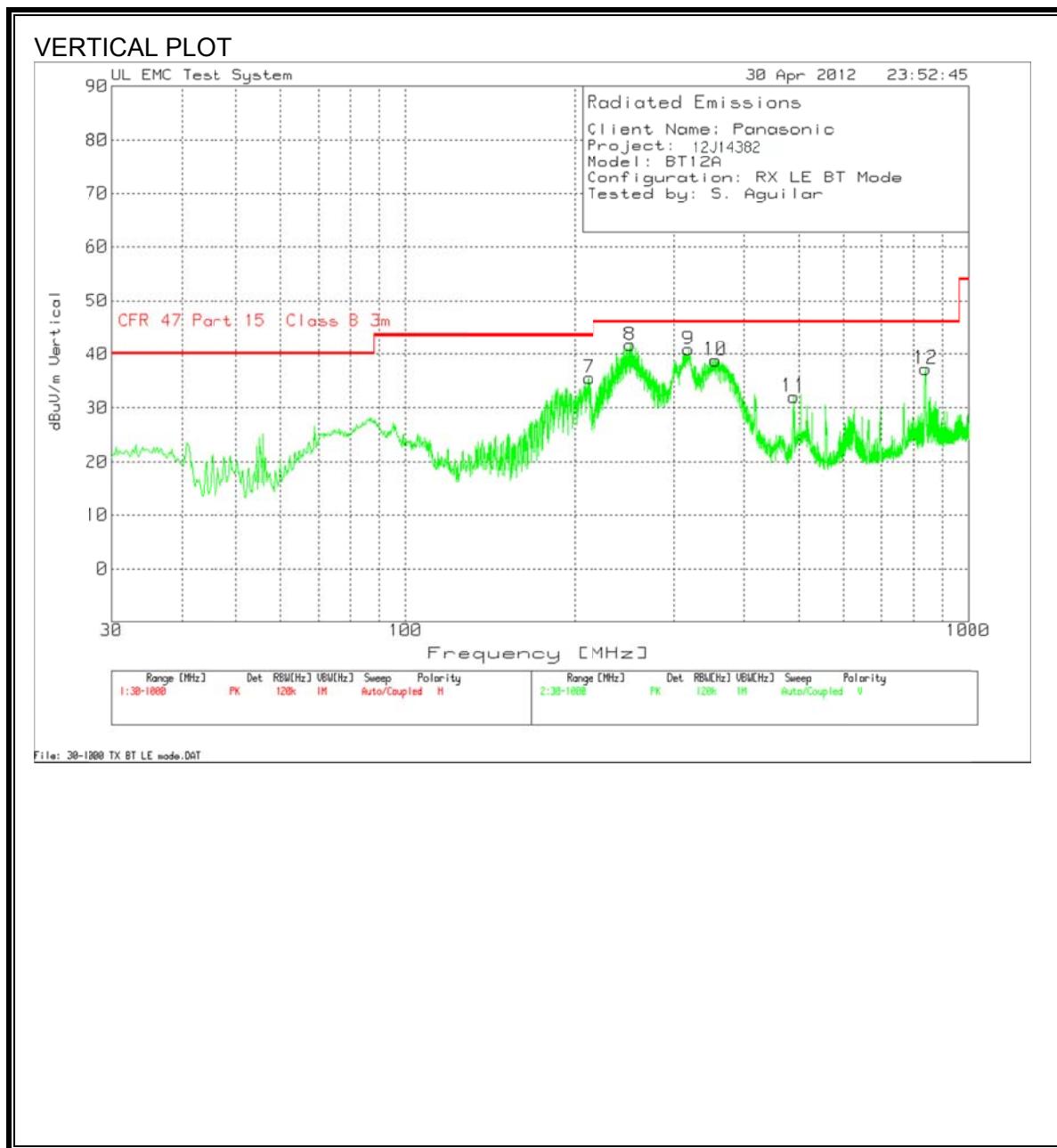
QP - Quasi-peak detector

8.5 WORST-CASE BELOW 1 GHz - RX

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



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



HORIZONTAL AND VERTICAL DATA

Project:	12J14382								
Client Name:	Panasoinic								
Model/Device	BT12A								
Configuraiton:	BT LE RX Mode - Worst Case								
Date:									
Tested by:	S.Aguilar								

Test Frequency [MHz]	Meter Reading [dB(μV)]	Detector	Pre Amp Factor [dB]	Antenna Factor [dB/m]	Corrected [dB(μV/m)]	Class B PK limit [dB(μV/m)]	Margin [dB]	Height [cm]	Polarity
Range 1 30 - 1000MHz (Horizontal)									
211.6327	53.83	PK	-27.5	12	38.33	43.5	-5.17	100	Horz
256.8659	53.93	QP	-27.1	12	38.83	46	-7.17	39	Horz
257.1863	59.89	PK	-27.1	12	44.79	46	-1.21	100	Horz
264.1647	57.22	PK	-27	12.2	42.42	46	-3.58	100	Horz
318.6351	54.49	PK	-26.8	13.6	41.29	46	-4.71	100	Horz
399.4684	50.03	PK	-27	15	38.03	46	-7.97	100	Horz
874.5823	40.3	PK	-25	21.4	36.7	46	-9.3	100	Horz
Range 2 30 - 1000MHz (Vertical)									
211.6327	51.08	PK	-27.5	12	35.58	43.5	-7.92	200	Vert
251.3709	57.15	PK	-27.2	11.8	41.75	46	-4.25	200	Vert
318.6351	54.11	PK	-26.8	13.6	40.91	46	-5.09	200	Vert
355.6595	51.4	PK	-26.8	14.3	38.9	46	-7.1	200	Vert
489.994	42.47	PK	-27	16.6	32.07	46	-13.93	100	Vert
839.8841	41.27	PK	-25.2	21.2	37.27	46	-8.73	200	Vert

PK - Peak detector

QP - Quasi-peak detector

9 AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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 receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

Company Name:	Panasonic								
Project:	12J14382								
Date:	4/28/2012								
Configuraiton:	EUT + Laptop								
Mode:	TX Mode BT LE, Worst case								
Tested by:	S. Aguilar								

Line-L1 .15 - 30MHz

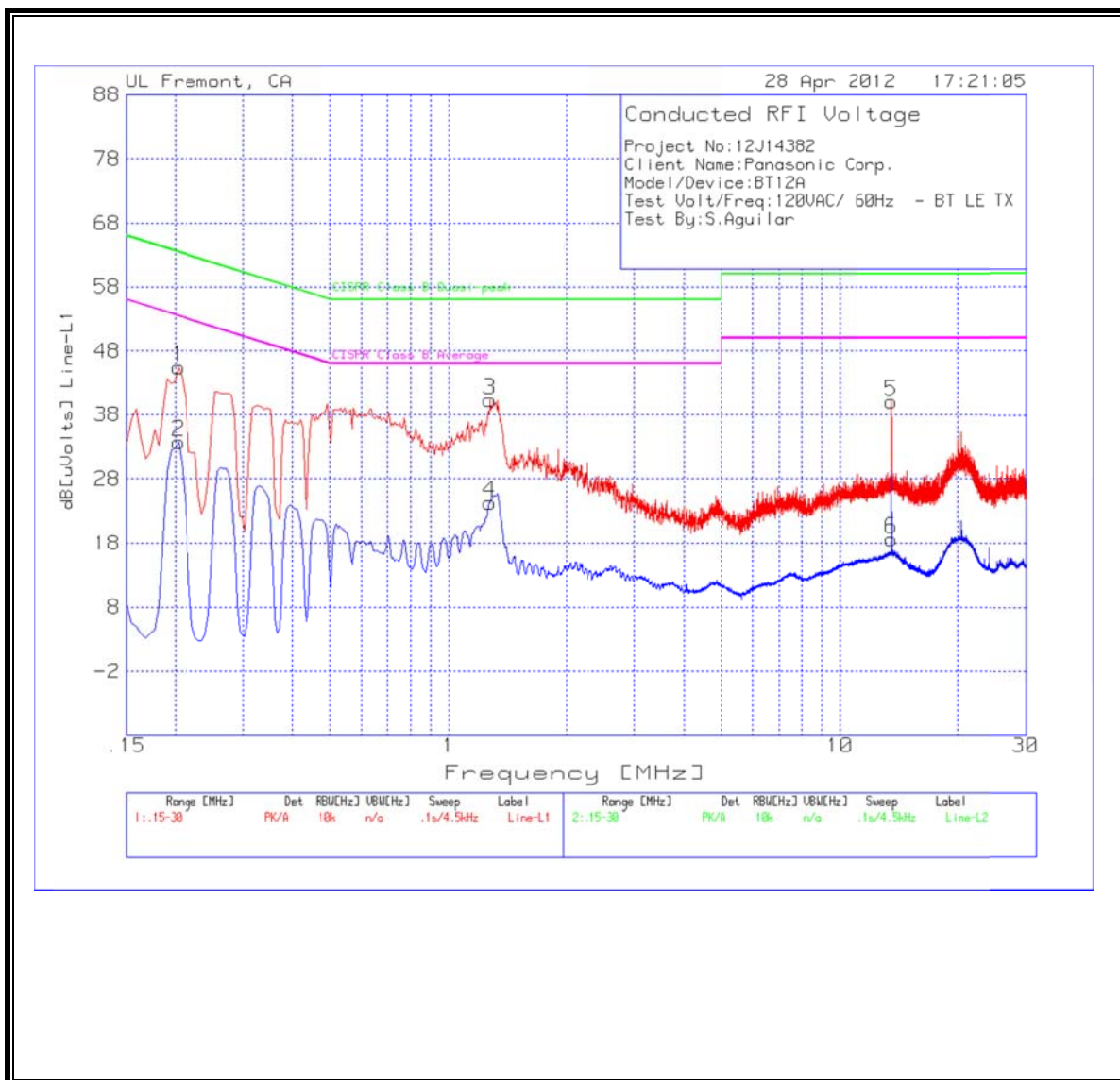
Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	LISN [dB]	Cables [dB]	Corrected [dB(uV)]	Class B QP Limit	QP Margin	Class B Av Limit [dB(uV)]	Av Margin [dB]
0.204	45.32	PK	0.1	0	45.42	63.4	-17.98	-	-
0.204	33.57	Av	0.1	0	33.67	-	-	53.4	-19.73
1.2795	40.12	PK	0.1	0.1	40.32	56	-15.68	-	-
1.2795	24.15	Av	0.1	0.1	24.35	-	-	46	-21.65
13.56	39.67	PK	0.2	0.2	40.07	60	-19.93	-	-
13.56	18.2	Av	0.2	0.2	18.6	-	-	50	-31.4

Line-L2 .15 - 30MHz

Test Frequency [MHz]	Meter Reading [dBuV]	Detector Type	LISN [dB]	Cables [dB]	Corrected [dB(uV)]	Class B QP Limit	QP Margin	Class B Av Limit [dB(uV)]	Av Margin [dB]
0.159	42.22	PK	0.1	0	42.32	65.5	-23.18	-	-
0.159	2.18	Av	0.1	0	2.28	-	-	55.5	-53.22
1.2975	30.45	PK	0.1	0.1	30.65	56	-25.35	-	-
1.2975	14.72	Av	0.1	0.1	14.92	-	-	46	-31.08
13.56	40.05	PK	0.2	0.2	40.45	60	-19.55	-	-
13.56	30.2	Av	0.2	0.2	30.6	-	-	50	-19.4

PK - Peak detector
 QP - Quasi-Peak detector
 Av - Average detector

LINE 1 RESULTS



LINE 2 RESULTS

