FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8

BLUETOOTH LOW ENERGY CERTIFICATION TEST REPORT

FOR

BLUETOOTH WATCH

MODEL NUMBER: GB-6900B/GB-X6900B/GB-5600B

FCC ID: BBQW001
IC: 2388B-W001

REPORT NUMBER: 13J15120-1, Revision B

ISSUE DATE: June 21, 2013

Prepared for
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2-1 SAKAECHO 3-CHOME,
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	06/06/2013	Initial Issue	G. QUIZON
A	06/14/2013	Radiated Spurious and Harmonic Emissions - Include average detector measurements.	G. QUIZON
B	06/21/2013	Removed MPE and updated Clause 5.3 Peak Output power	G. QUIZON

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: CASIO COMPUTER CO., LTD.
2-1 SAKAECHO 3-CHOME,
HAMURA-SHI, TOKYO 205-8555, JAPAN

EUT DESCRIPTION: BLUETOOTH WATCH

MODEL: GB-X6900B / GB-6900B / GB-5600B

SERIAL NUMBER: N/A

DATE TESTED: JUNE 06, 2013

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 8	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

UL Verification Services Inc. 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 Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. 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.

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UL Verification Services Inc. By:

George Quizon
WiSE PROJECT LEAD
UL VERIFICATION SERVICES INC.

Tested By:

Charles Vergonio
EMC ENGINEER
UL VERIFICATION SERVICES INC.

2. 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.

3. FACILITIES AND ACCREDITATION

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

UL Verification Services Inc. 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. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. 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%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is Bluetooth watch.

5.2. DESCRIPTION OF MODELS DIFFERENCES

There are 3 family models, GB-X6900B, GB-6900B and GB-5600B. The EUT model GB-5600B was chosen as a representative of these 3 models for testing since it represents the worst-case scenario. All 3 models contain an identical Bluetooth 4.0 Low Energy radio and are identical in all other regards, with the exception of minor LCD and button differences

5.3. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	BT LE	1.43	1.39

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes chip antenna, with a maximum gain of -1 dBi.

5.5. SOFTWARE AND FIRMWARE

The test utility software used during testing was Engineering Sample Software Ver0.9.

5.6. 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, and Z for the three available models covered in this report. It was determined that Model GB-5600B in Y-orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y orientation.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
DC Power Supply	Sorensen	XT15-4	1319A02780	

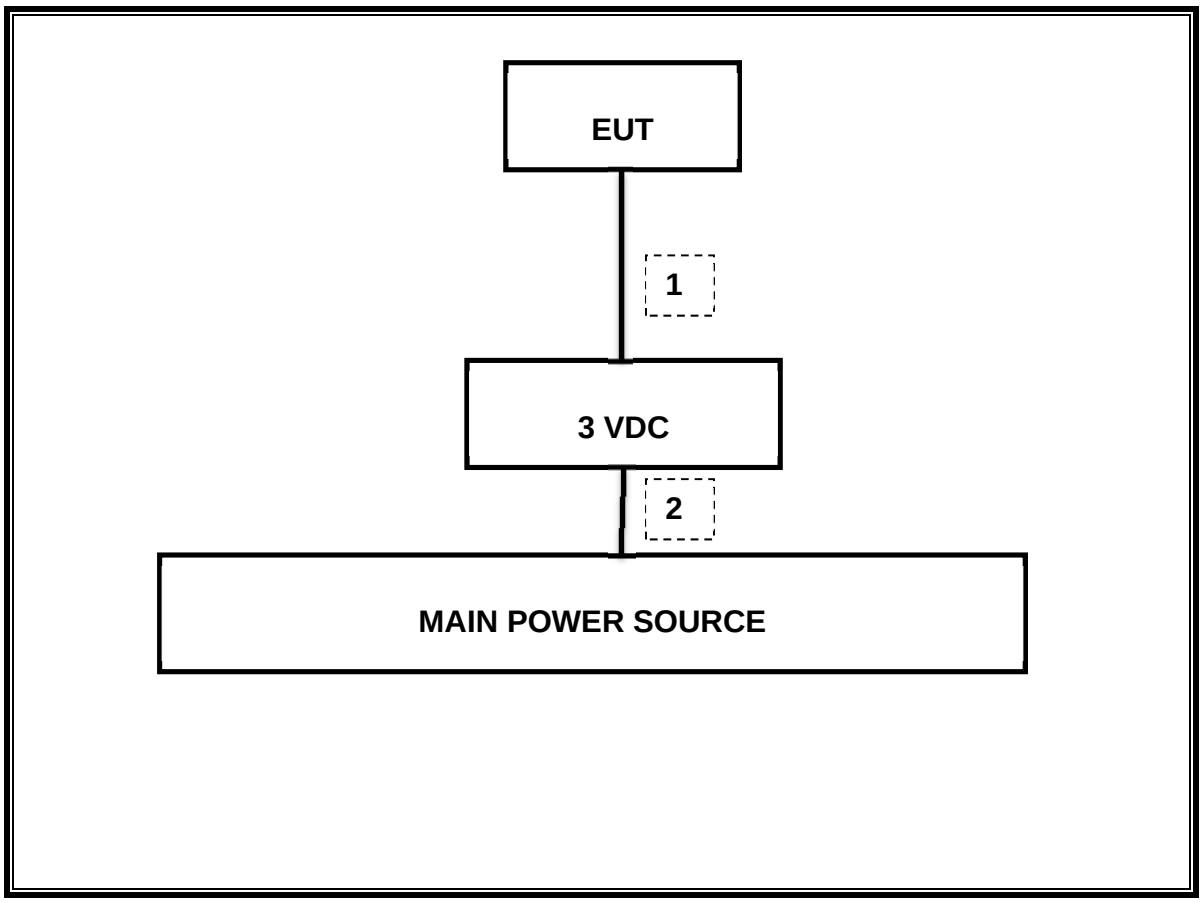
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	N/A - bare wire	Unshielded	0.6	
2	AC	1	3-prong	Unshielded	1.7	

TEST SETUP

The EUT is a stand-alone unit that was tested in the worst case orientation and configuration, where applicable, during the tests. Test software exercised the Bluetooth.

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**	**Asset**	**Cal Date**	**Cal Due**
Antenna, Biconolog, 30MHz-1 GH	Sunol Sciences	JB1	C01011	03/23/12	03/28/14
Antenna, Horn, 18 GHz	ETS	3117	C01006	12/11/12	12/11/13
Antenna, Horn, 25.5 GHz	ARA	MWH-1826/B	C00980	11/14/12	11/14/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	01/28/13	01/28/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/12	10/22/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	10/21/12	10/21/13
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/12	12/13/13
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	N02684	CNR	CNR

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.1. ON TIME AND DUTY CYCLE RESULTS

Mode 2.4GHz	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
BLE	0.45	1	0.727	72.7%	1.38	2.211

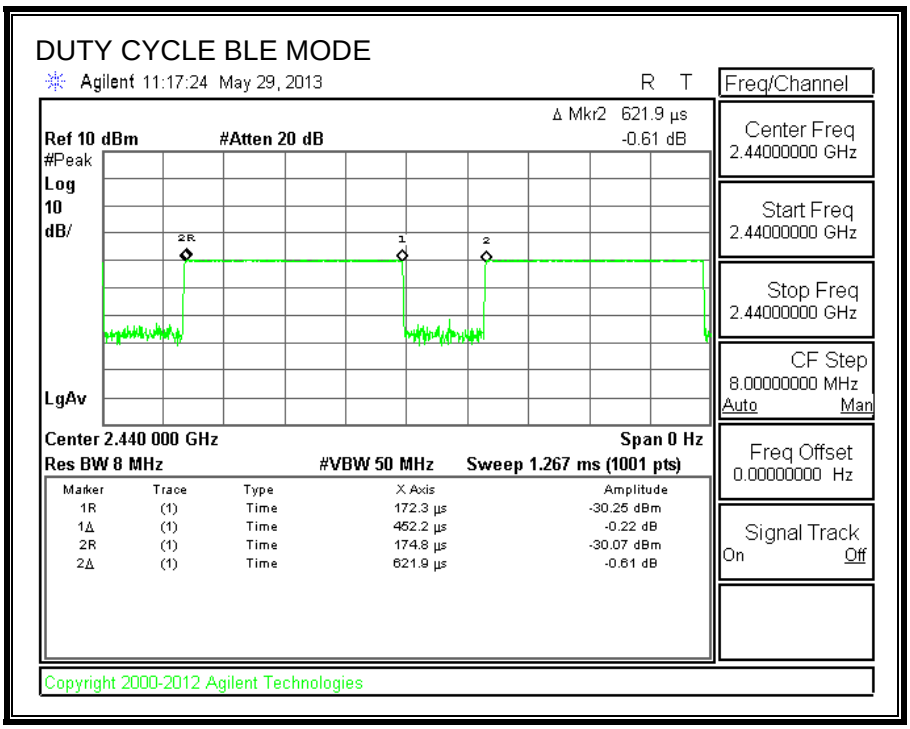
7.2. MEASUREMENT METHOD FOR POWER AND PPSD

The Duty Cycle is less than 98% and consistent therefore KDB 789033 Method SA-2 is used.

7.3. MEASUREMENT METHOD FOR AVE SPURIOUS EMISSIONS ABOVE 1 GHz

The Duty Cycle is less than 98% and consistent, KDB 789033 Method AD with Power RMS Averaging and duty cycle correction is used.

7.4. DUTY CYCLE PLOTS



8. ANTENNA PORT TEST RESULTS – LE (LOW ENERGY) MODULATION

8.1. 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.

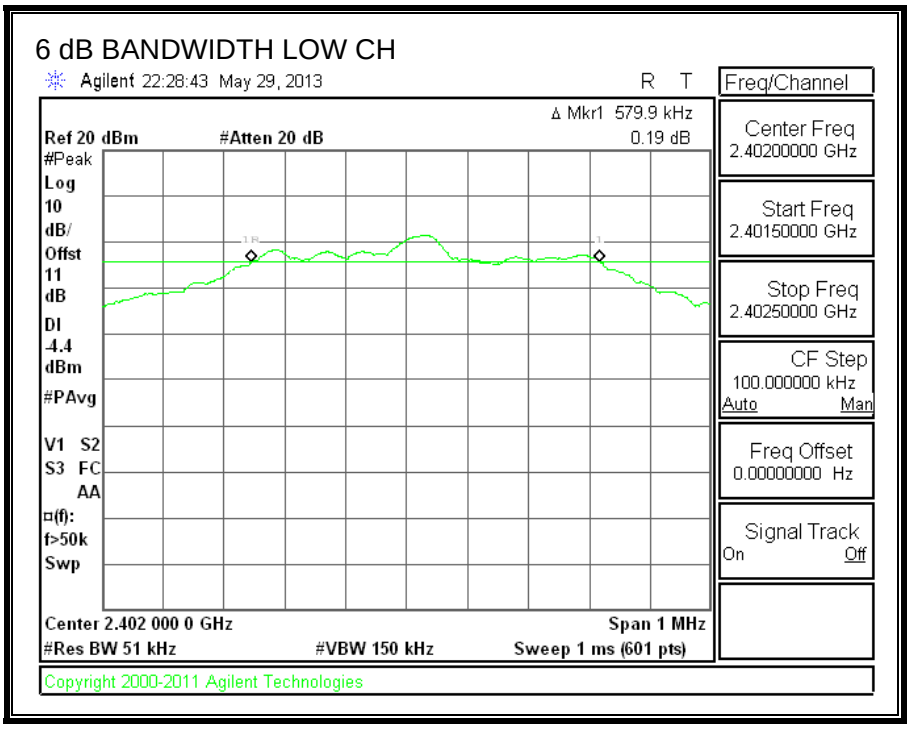
TEST PROCEDURE

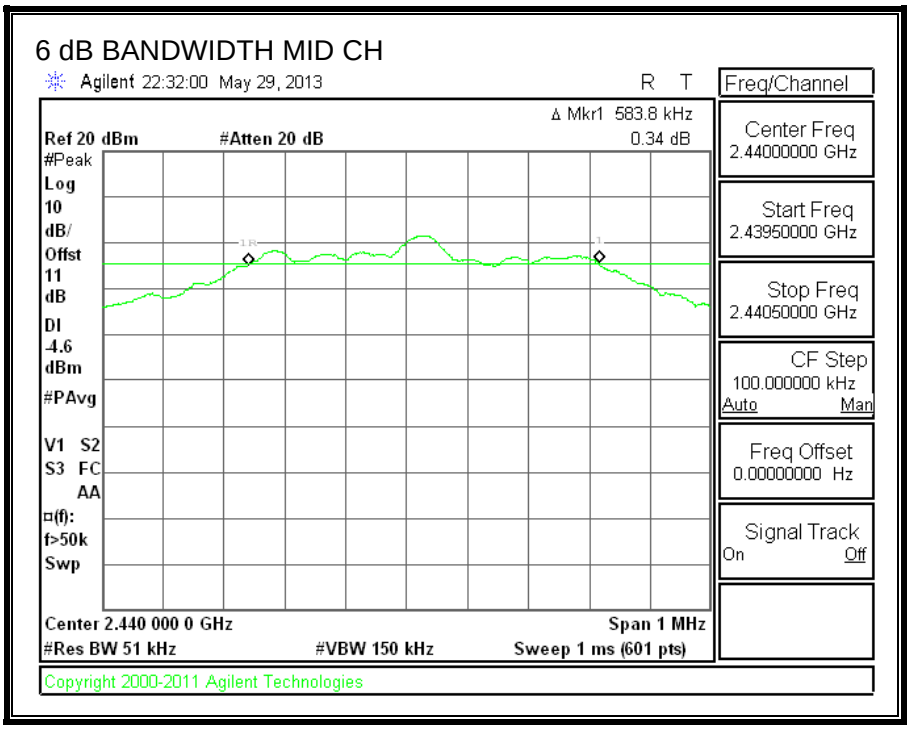
The transmitter output is connected to a spectrum analyzer with the RBW set between 1% and 5% of the EBW, the VBW >= 3 x RBW, peak detector and max hold.

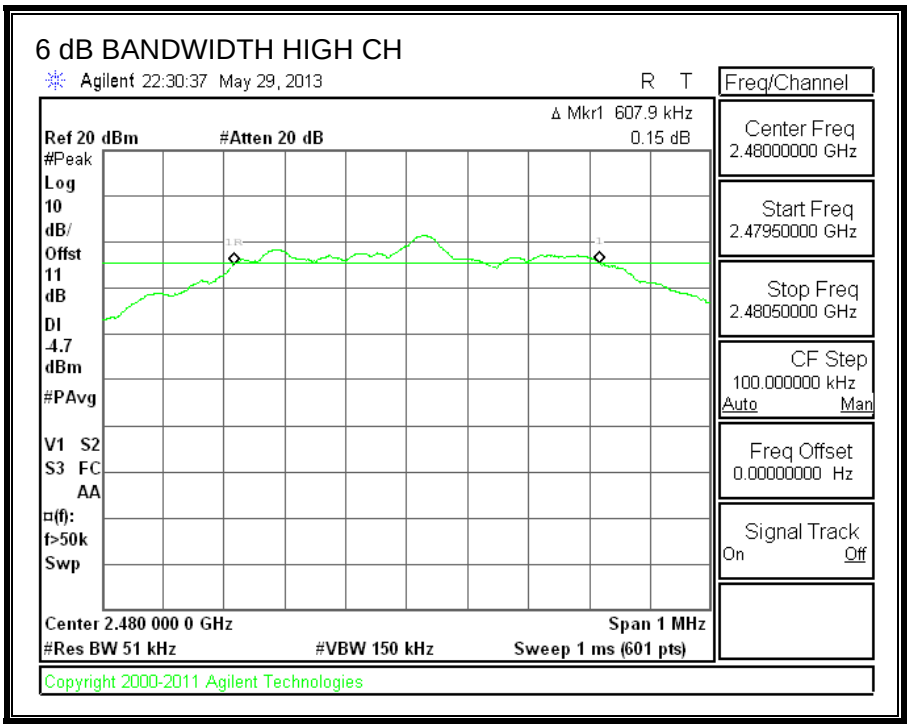
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.5799	0.5
Mid	2440	0.5838	0.5
High	2480	0.6079	0.5

6 dB BANDWIDTH







8.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

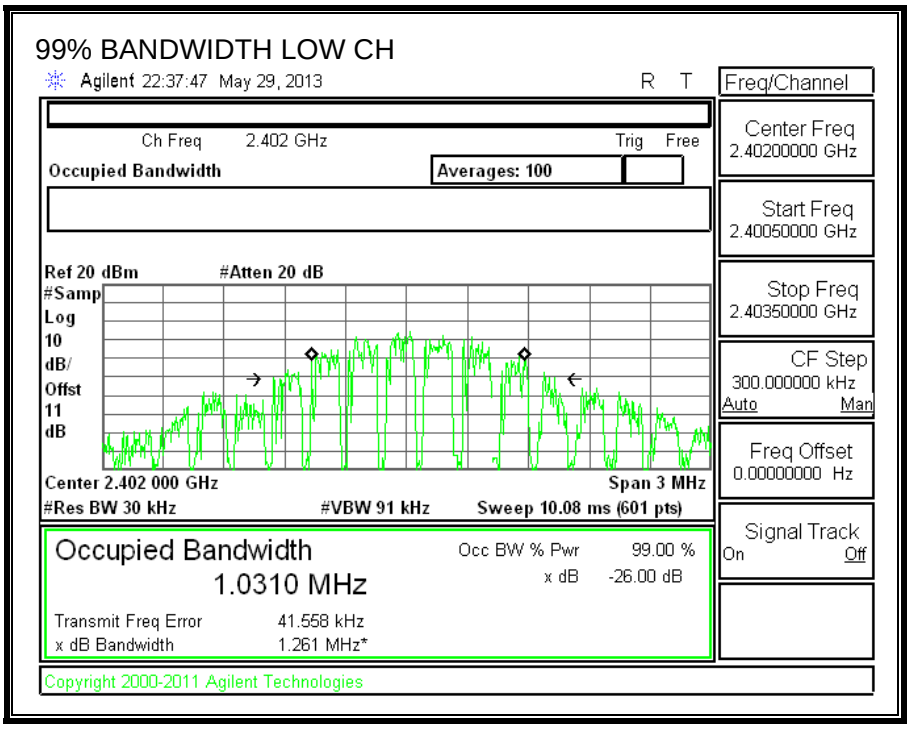
TEST PROCEDURE

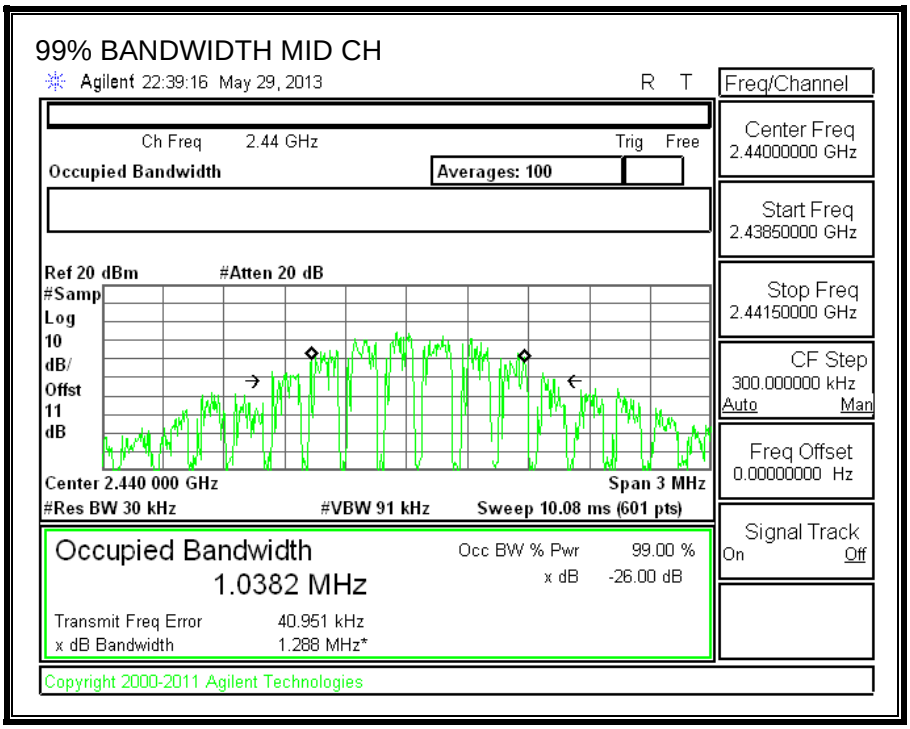
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

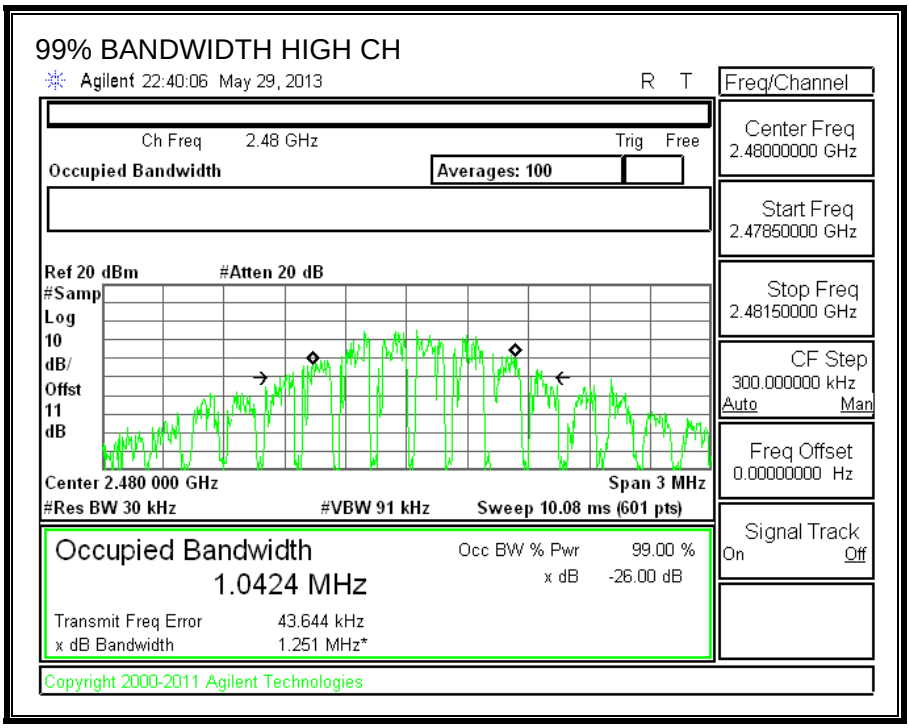
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0310
Middle	2440	1.0382
High	2480	1.0424

99% BANDWIDTH







8.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	0.02
Middle	2440	0.02
High	2480	0.02

8.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

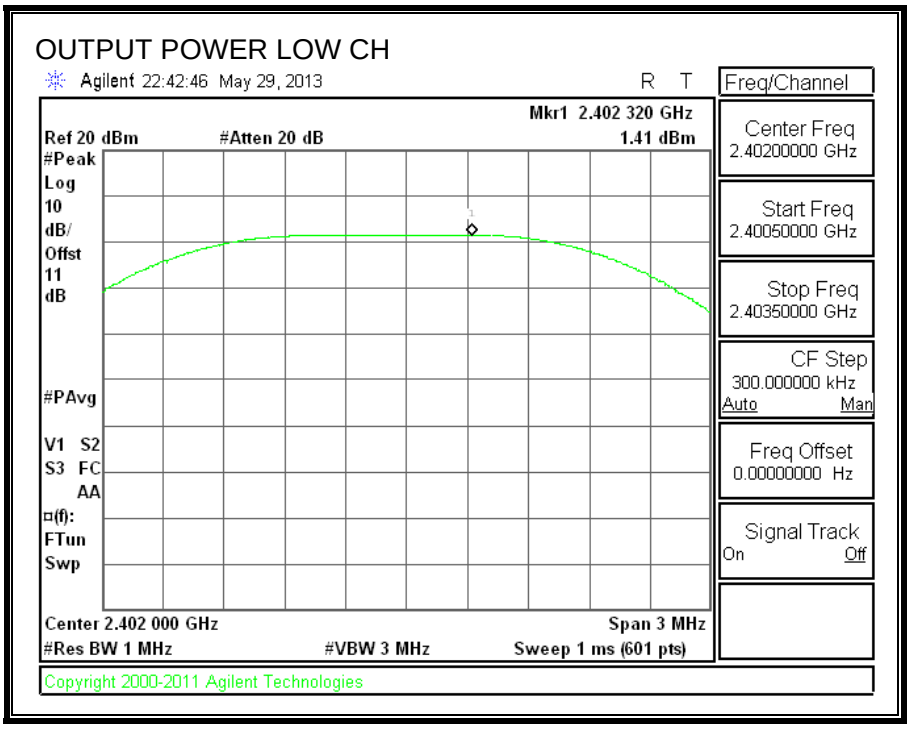
DIRECTIONAL ANTENNA GAIN

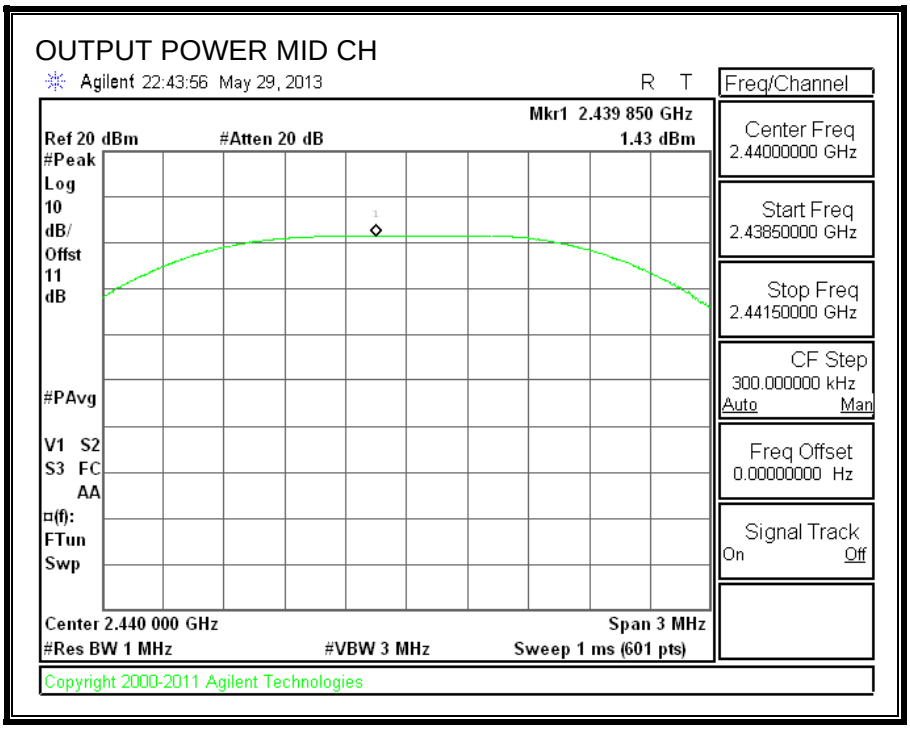
There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

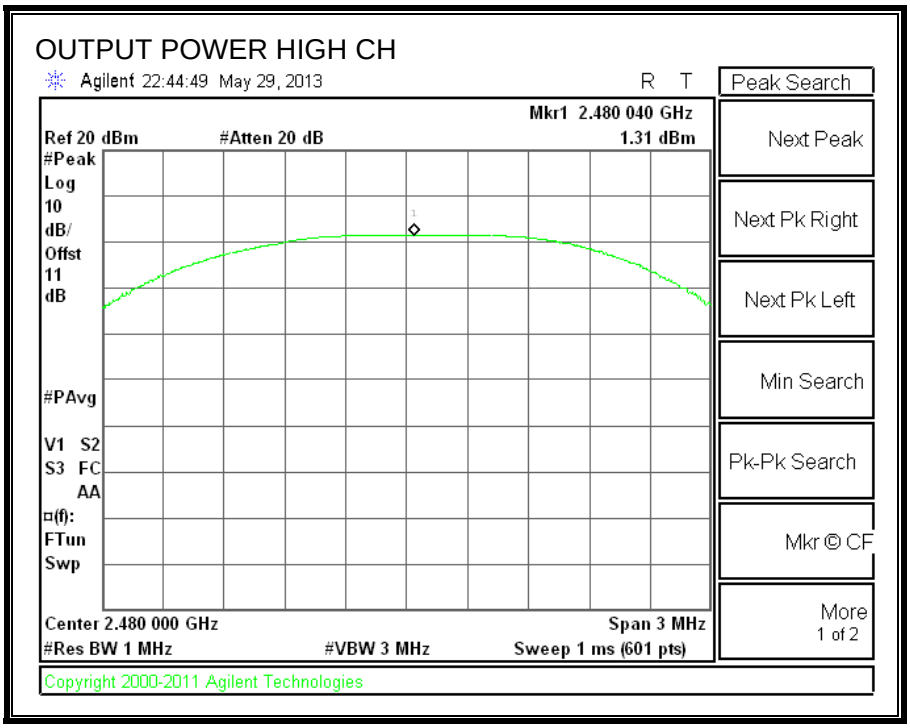
Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	1.410	30	-28.590
Middle	2440	1.430	30	-28.570
High	2480	1.310	30	-28.690

OUTPUT POWER





OUTPUT POWER HIGH CH



8.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-210 A8.2

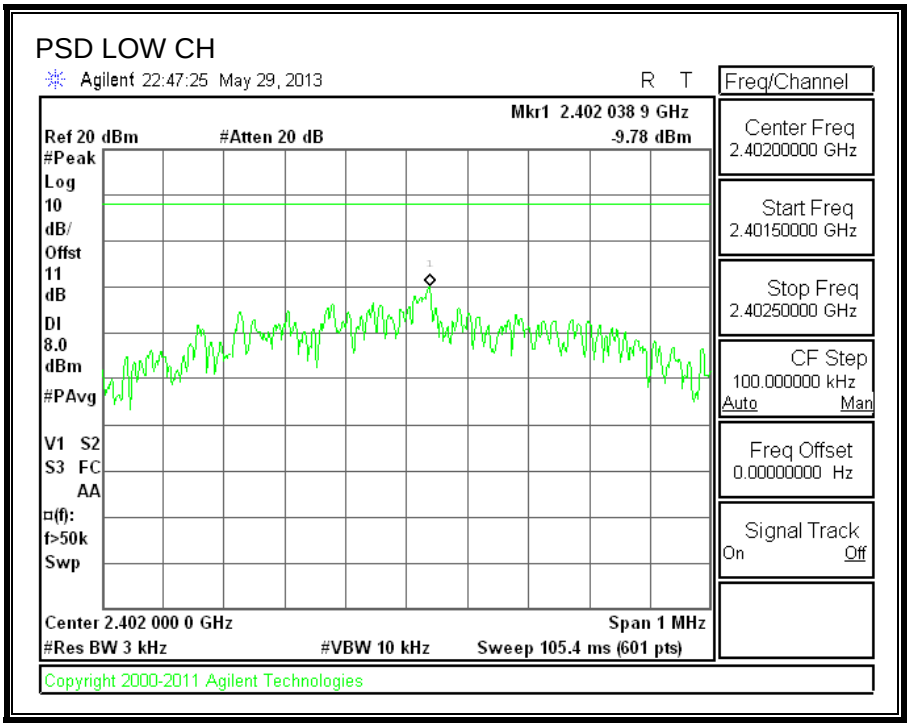
The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

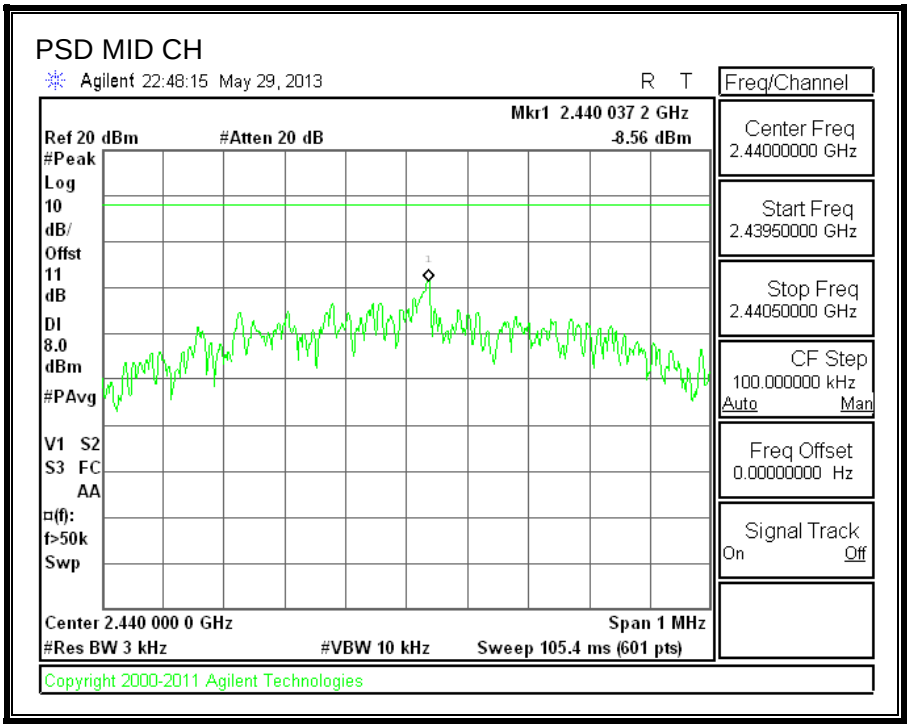
Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-9.78	8	-17.78
Middle	2440	-8.56	8	-16.56
High	2480	-8.40	8	-16.40

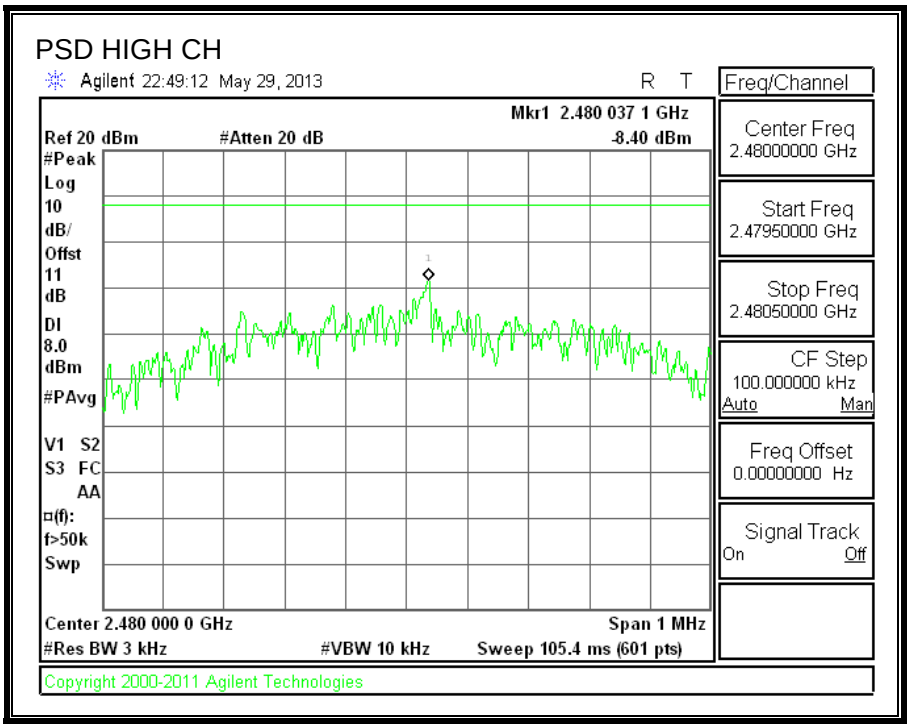
POWER SPECTRAL DENSITY

PSD LOW CH



PSD MID CH





8.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

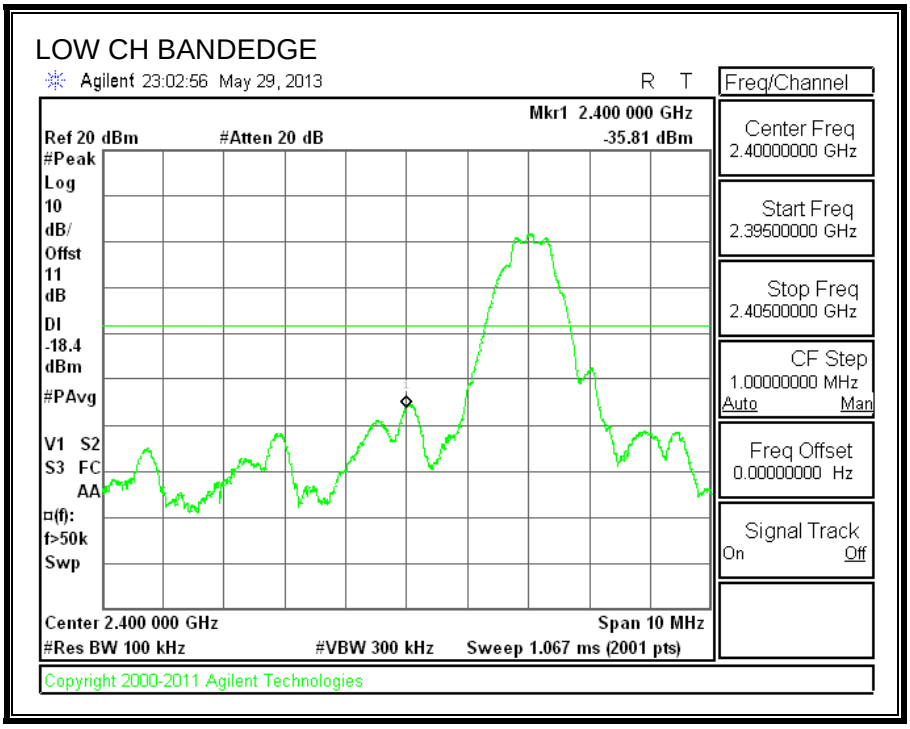
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. 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 in §15.209(a) is not required.

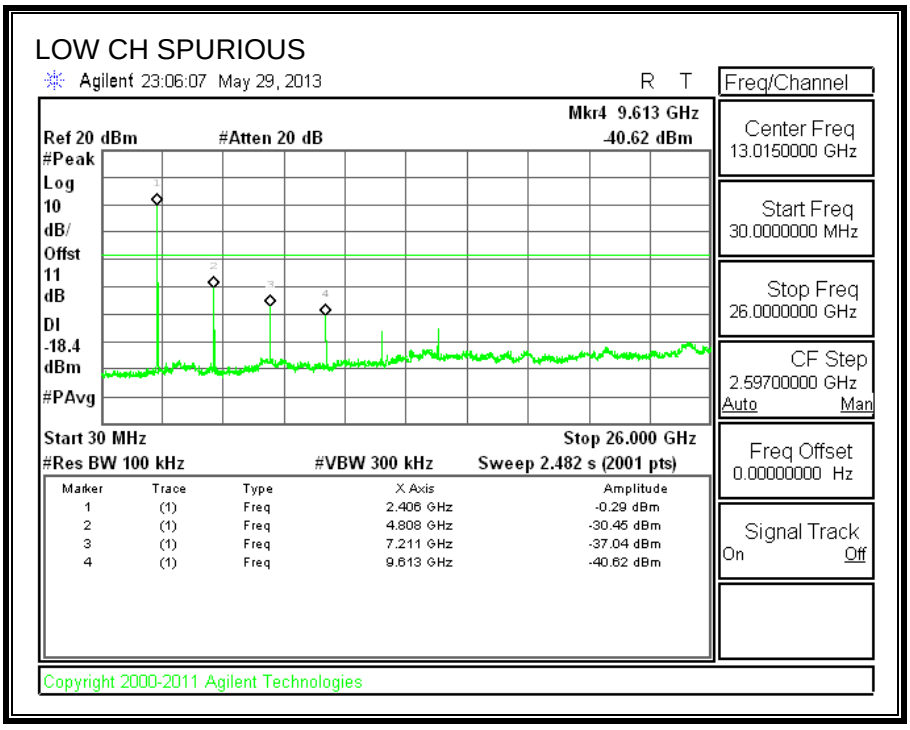
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

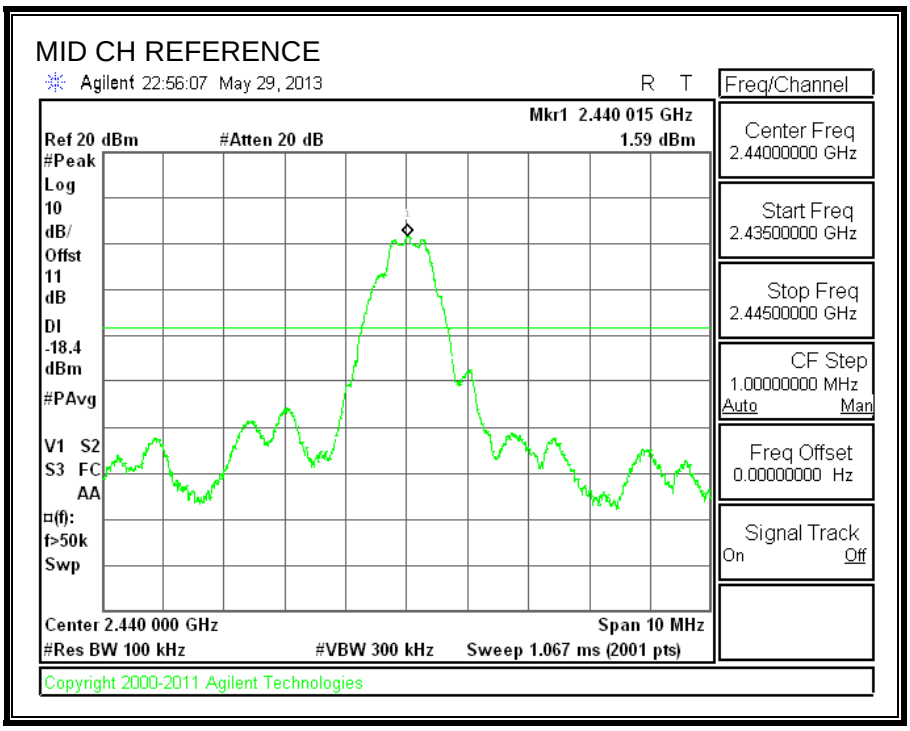
RESULTS

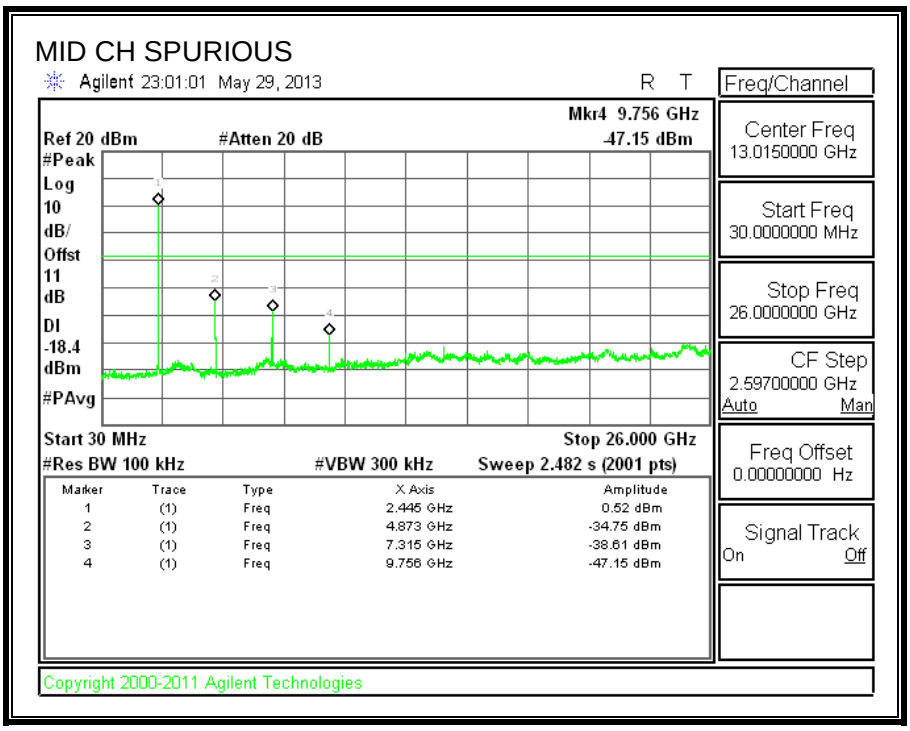
SPURIOUS EMISSIONS, LOW CHANNEL



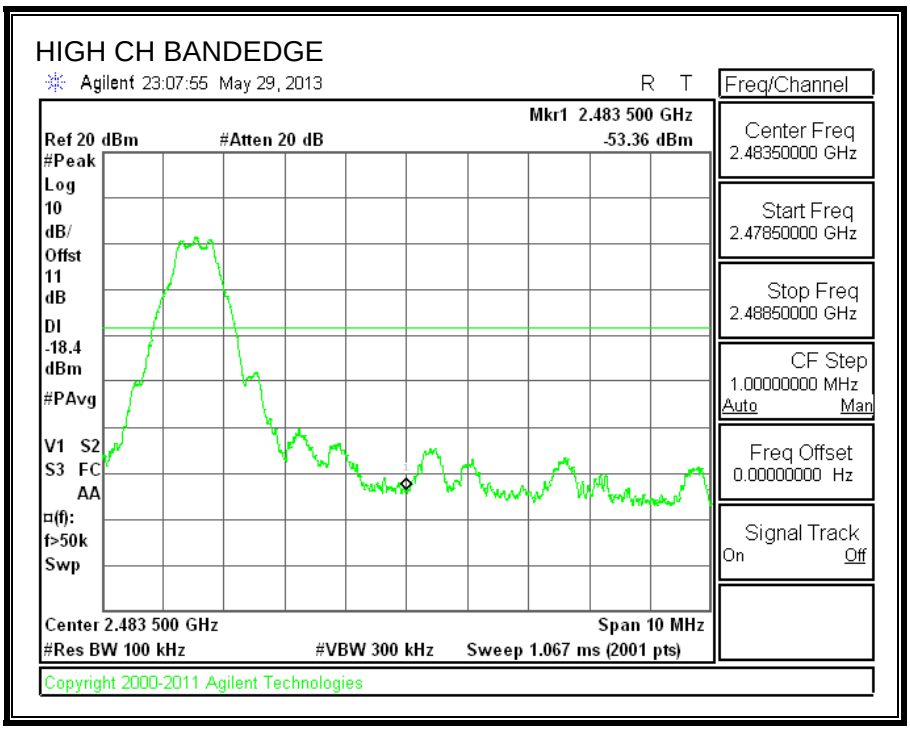


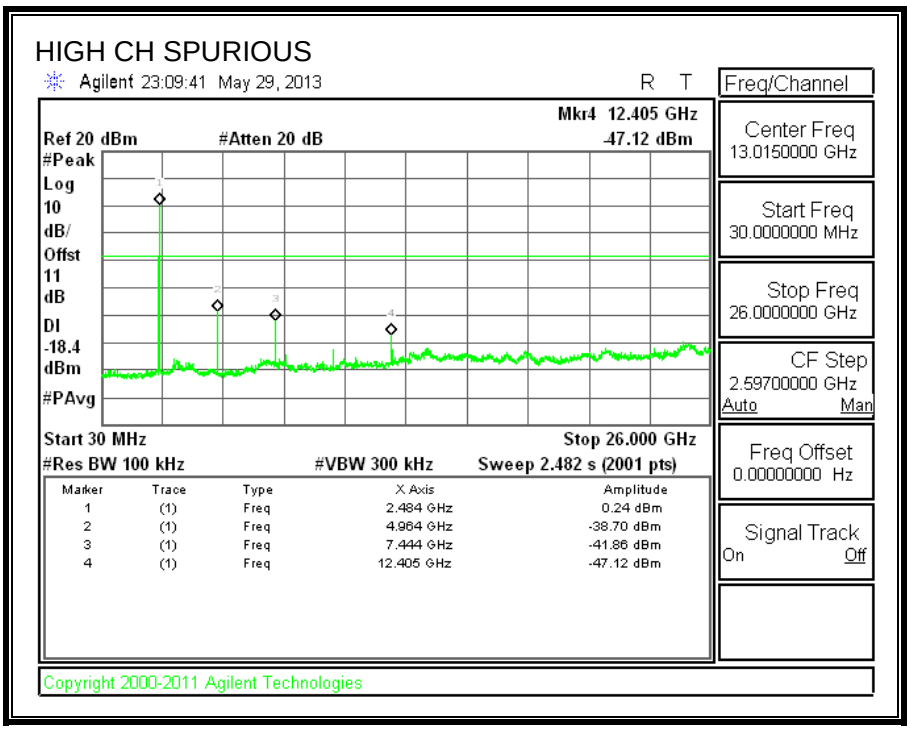
SPURIOUS EMISSIONS, MID CHANNEL





SPURIOUS EMISSIONS, HIGH CHANNEL





9. RADIATED TEST RESULTS

9.1. 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.

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.

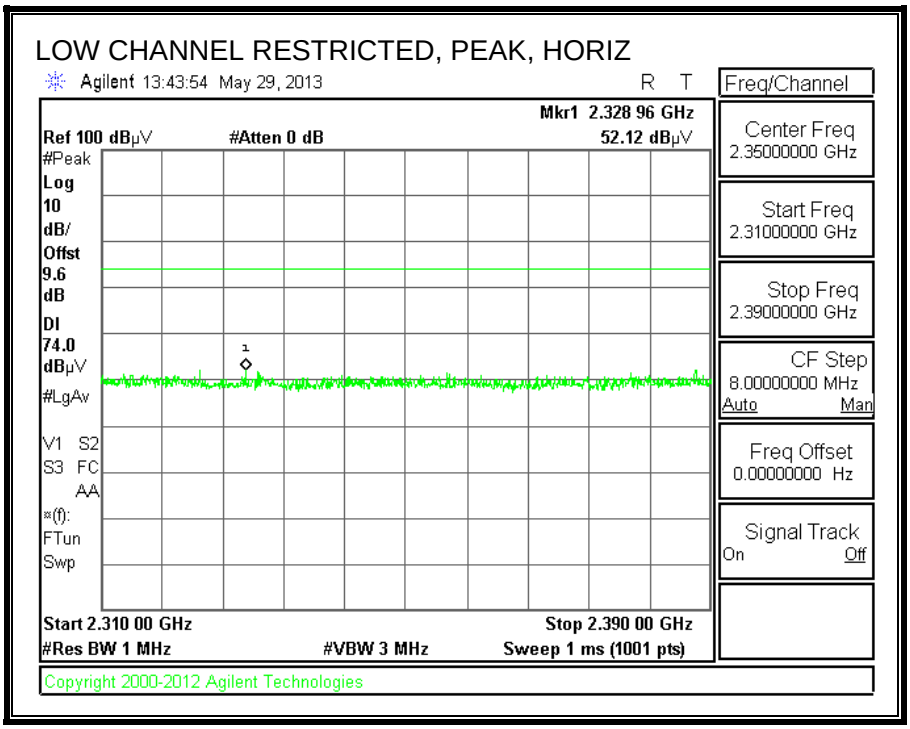
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 1 MHz for peak measurements and as applicable for average measurements.

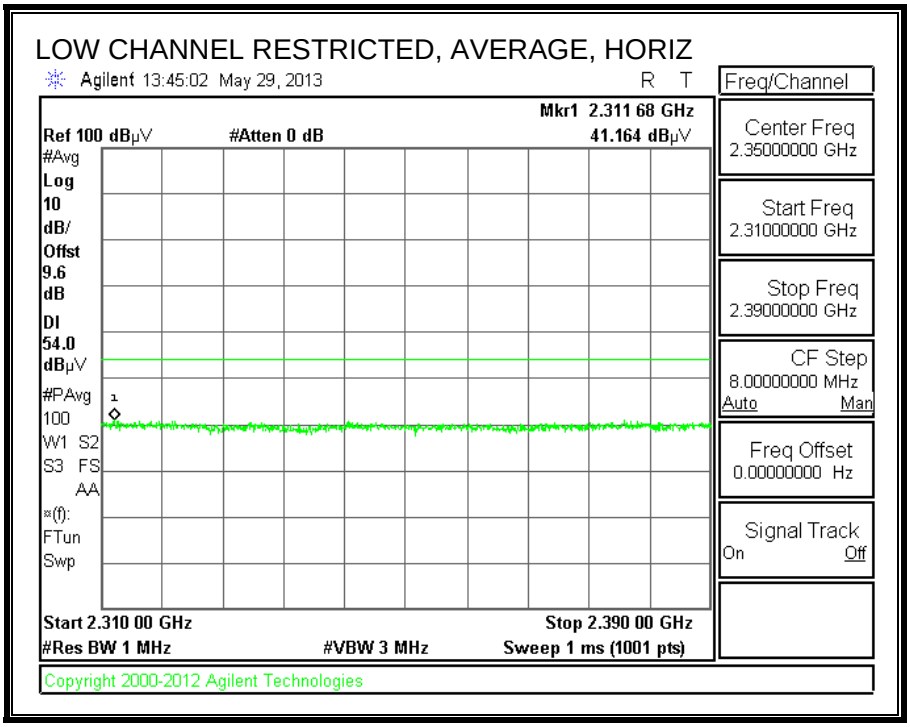
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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.

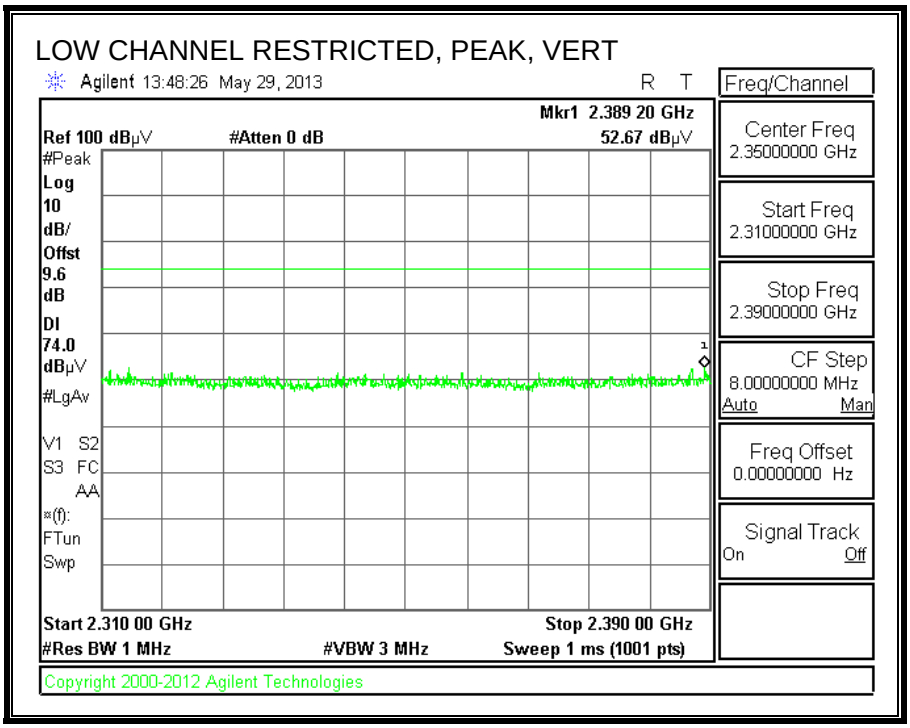
9.2. TX ABOVE 1 GHz FOR BLUETOOTH LOW ENERGY MODE IN THE 2.4 GHz BAND

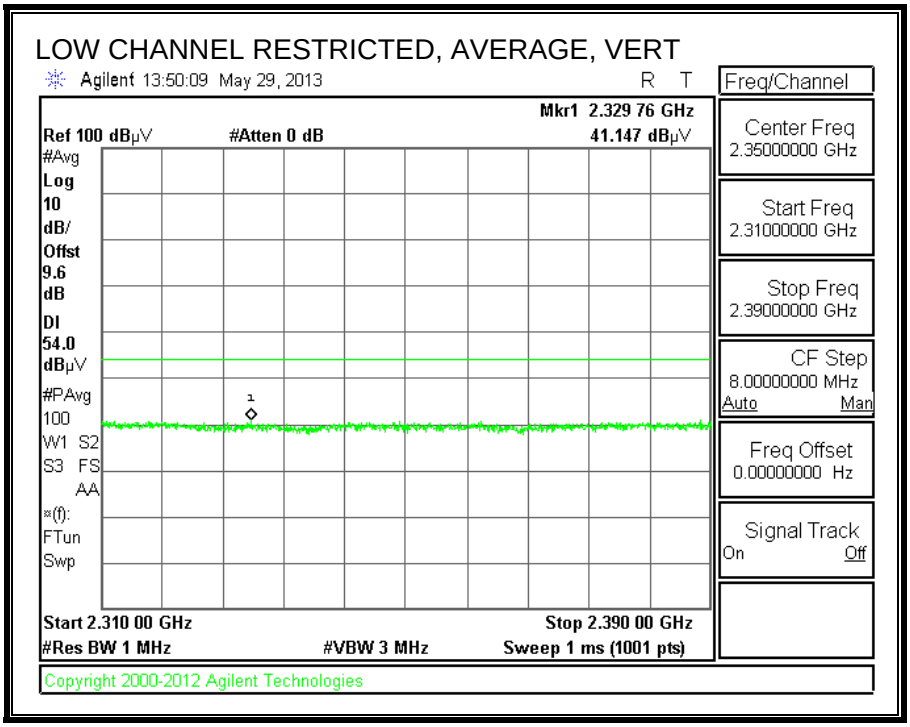
RESTRICTED BANDEDGE (LOW CHANNEL)





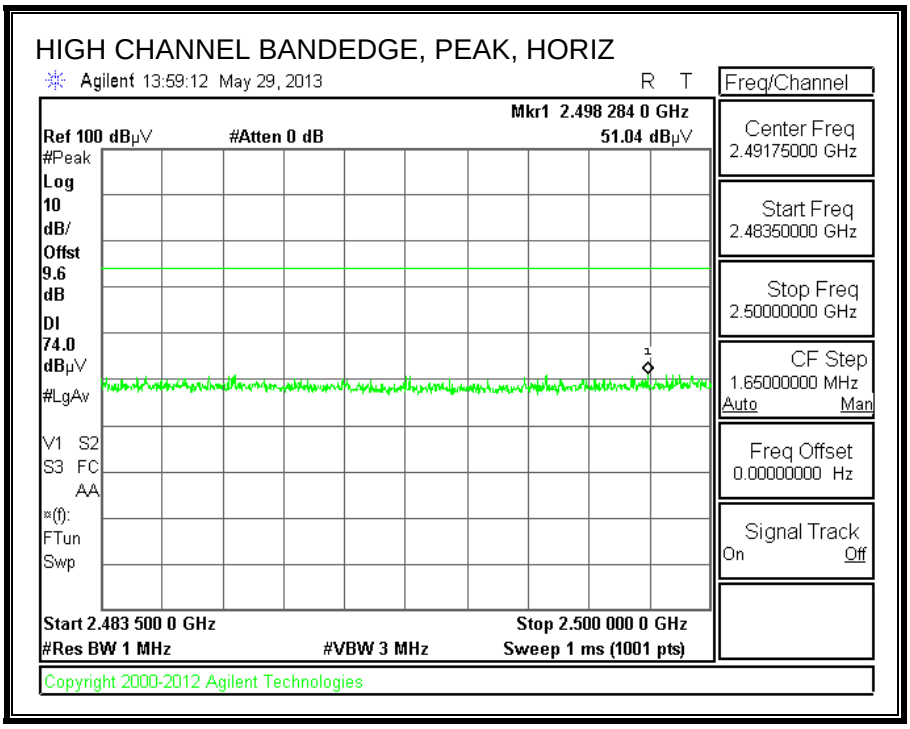
Actual Average = Measured Average + Correction Factor
= 41.164 dBuV + 1.38
= 42.544 dBuV

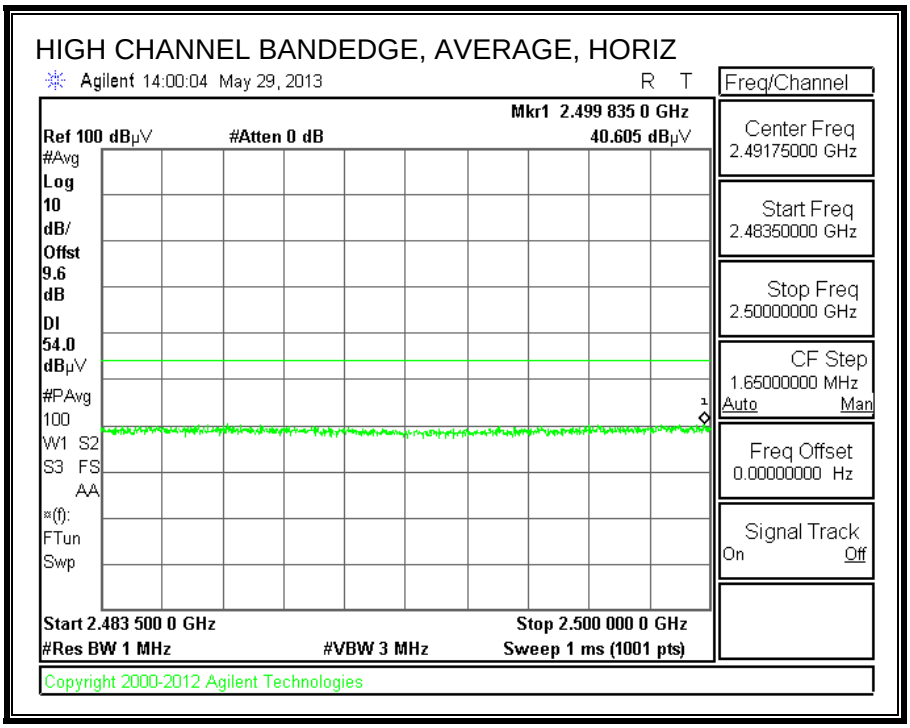




Actual Average = Measured Average + Correction Factor
= 41.147 dBuV + 1.38
= 42.527 dBuV

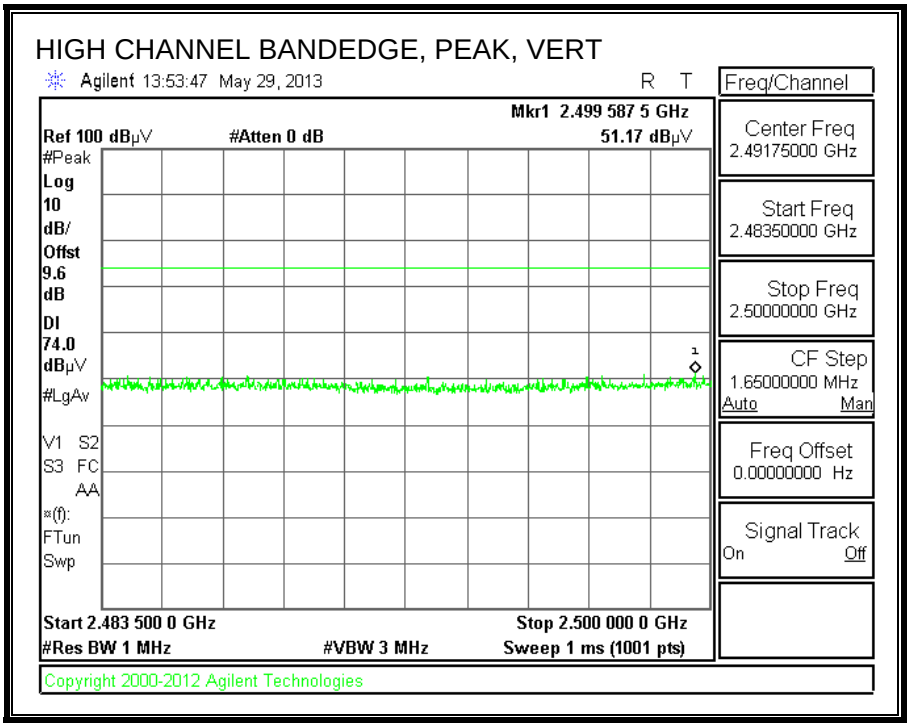
RESTRICTED BANDEDGE (HIGH CHANNEL)

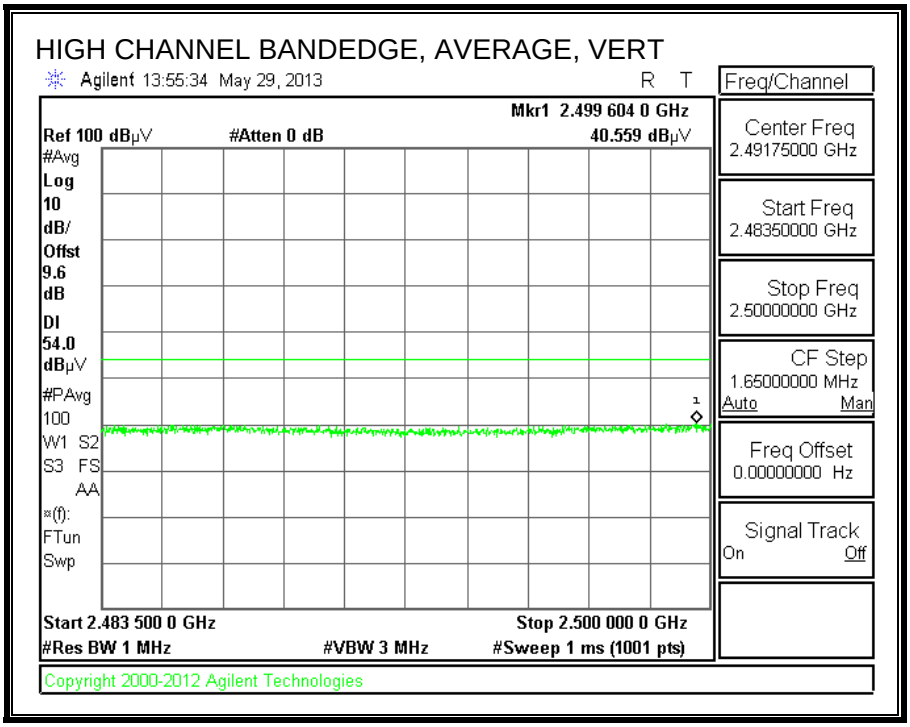




Actual Average = Measured Average + Correction Factor
= 40.605 dBuV + 1.38
= 41.985 dBuV

HIGH CHANNEL BANDEDGE, PEAK, VERT

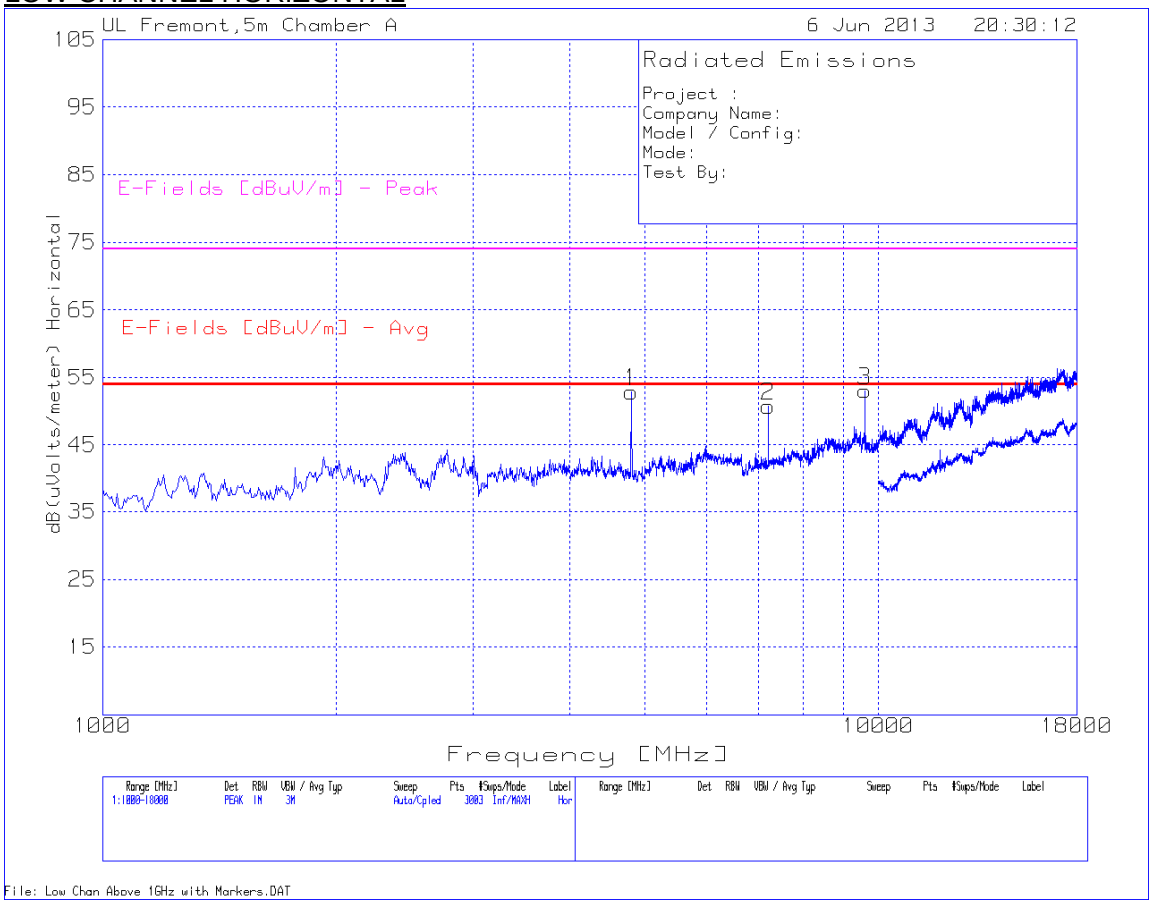




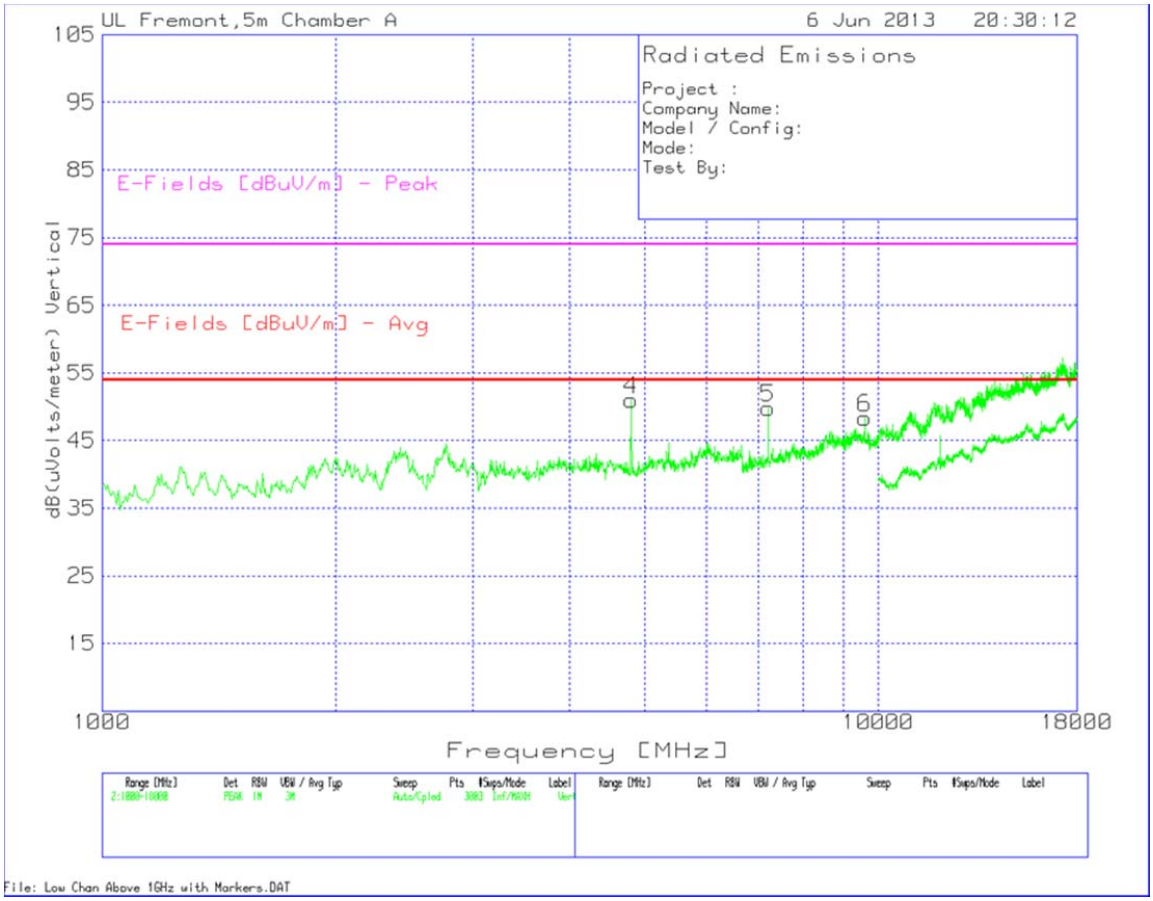
Actual Average = Measured Average + Correction Factor
= 40.559 dBuV + 1.38
= 41.939 dBuV

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



LOW CHANNEL WORST EMISSIONS

Project : 13J15120
Company Name: CASIO Computer Co., Ltd.
Model / Config: Tx-lo
Mode: GB-5600B
Test By: Charles Vergonio

Horizontal 1000 - 18000MHz

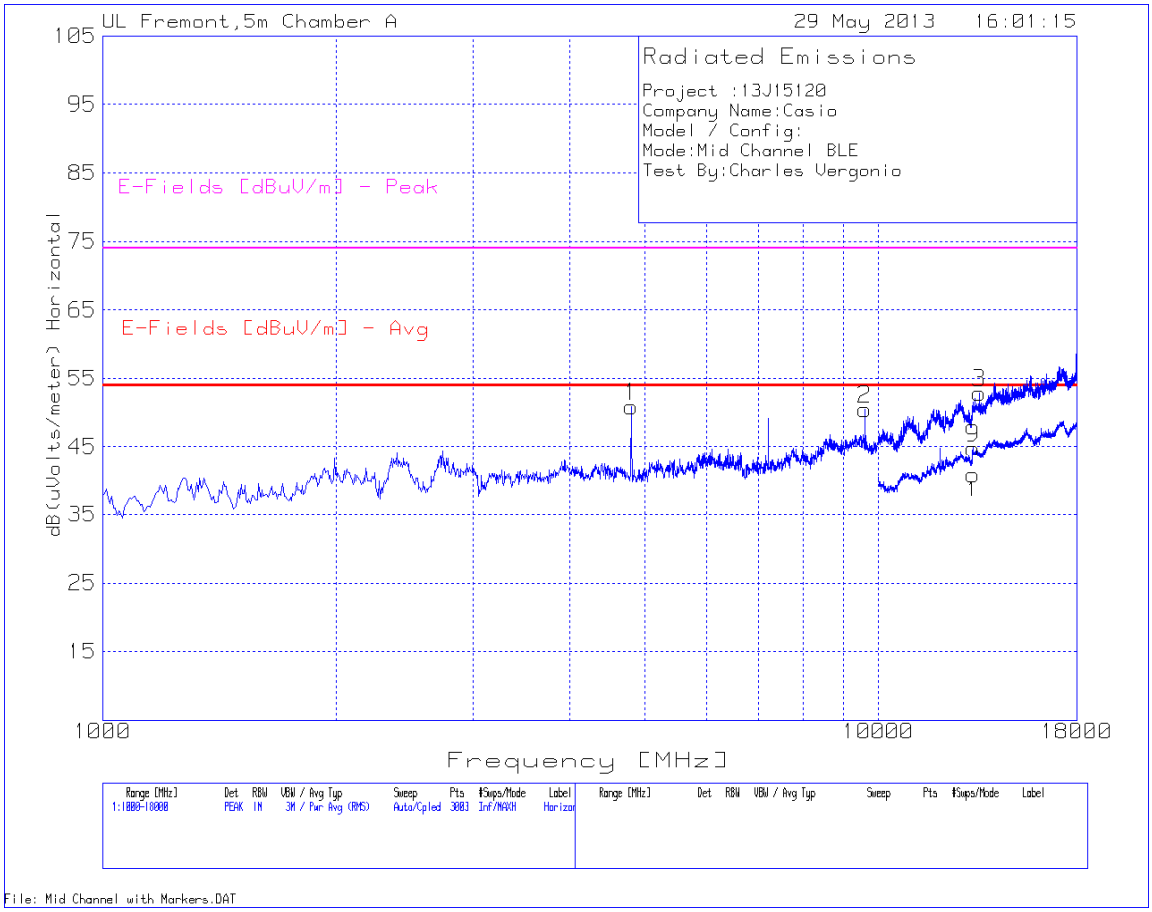
Marker No.	Test Frequency (MHz)	Meter Reading(dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]
1	4799.8	47.74	PK	33.9	-35.7	6.7	0.2	52.84	53.97	-1.13	74	-21.16	200
1	4803	48.4	RMS	33.9	-35.7	6.7	0.2	53.5	53.97	-0.47	74	-20.5	145
2	7206.529	42.29	PK	35.4	-35.8	8.6	0.3	50.79	53.97	-3.18	74	-23.21	102
2	7205.68	40.87	RMS	35.4	-35.8	8.6	0.3	49.37	53.97	-4.6	74	-24.63	149.8
3	9607.595	41.95	PK	36.7	-36.3	10.2	0.5	53.05	53.97	-0.92	74	-20.95	102
3	9607.38	35.18	RMS	36.7	-36.3	10.2	0.5	46.28	53.97	-7.69	74	-27.72	158

Vertical 1000 - 18000MHz

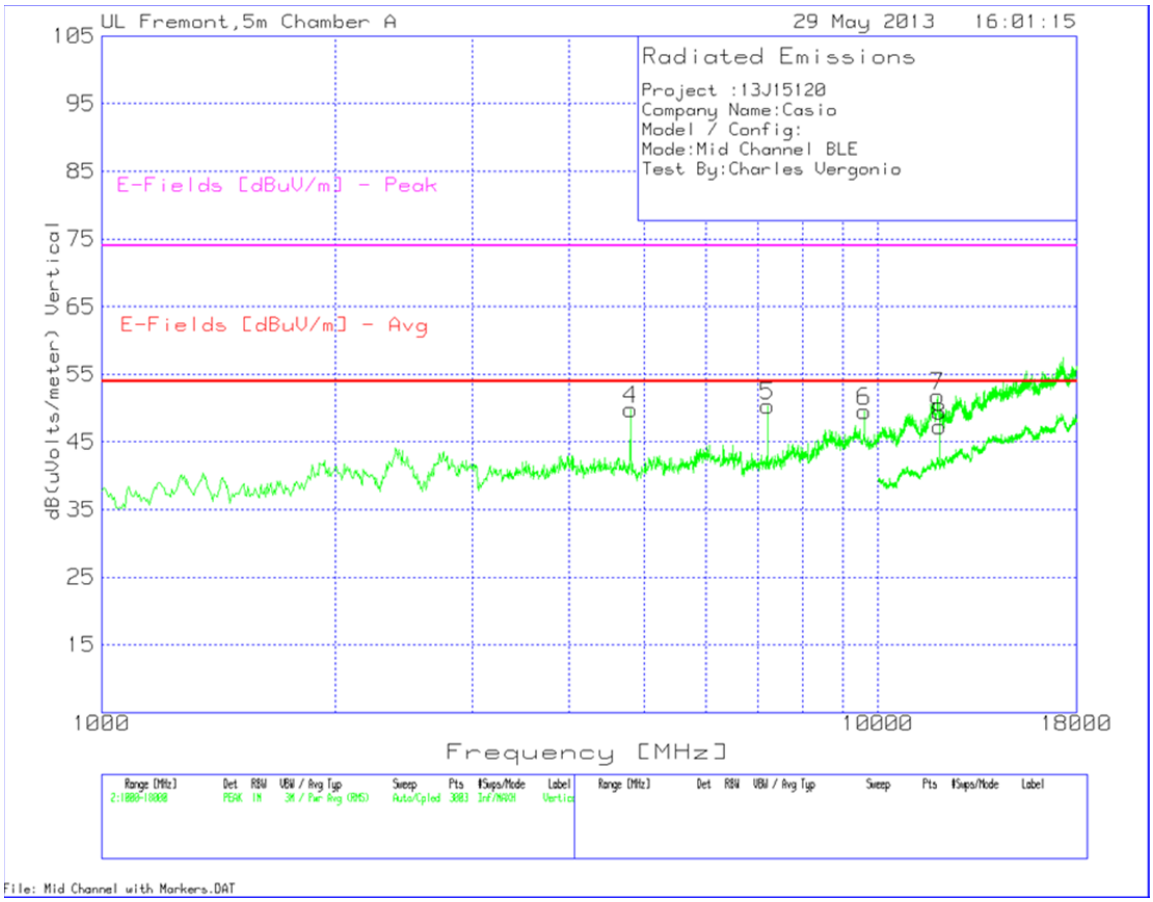
Marker No.	Test Frequency	Meter Reading(dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	Corrected Reading dB(uVolts/meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]
4	4799.8	45.96	PK	33.9	-35.7	6.7	0.2	51.06	53.97	-2.91	74	-22.94	100
4	4803.9	41.46	RMS	33.9	-35.7	6.7	0.2	46.56	53.97	-7.41	74	-27.44	126
5	7206.529	41.31	PK	35.4	-35.8	8.6	0.3	49.81	53.97	-4.16	74	-24.19	100
5	7205.72	41.08	PK	35.4	-35.8	8.6	0.3	49.58	53.97	-4.39	74	-24.42	132
6	9607.595	37.22	PK	36.7	-36.3	10.2	0.5	48.32	53.97	-5.65	74	-25.68	200
6	9607.36	27.58	RMS	36.7	-36.3	10.2	0.5	38.68	53.97	-15.29	74	-25.68	127.1

PK - Peak detector
Avg - Average detector

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



MID CHANNEL WORST CASE EMISSIONS

Project :13J15120
Company Name:Casio
Model / Config: GB-5600B
Mode:Mid Channel BLE
Test By:Charles Vergonio

Horizontal 1000 - 18000MHz

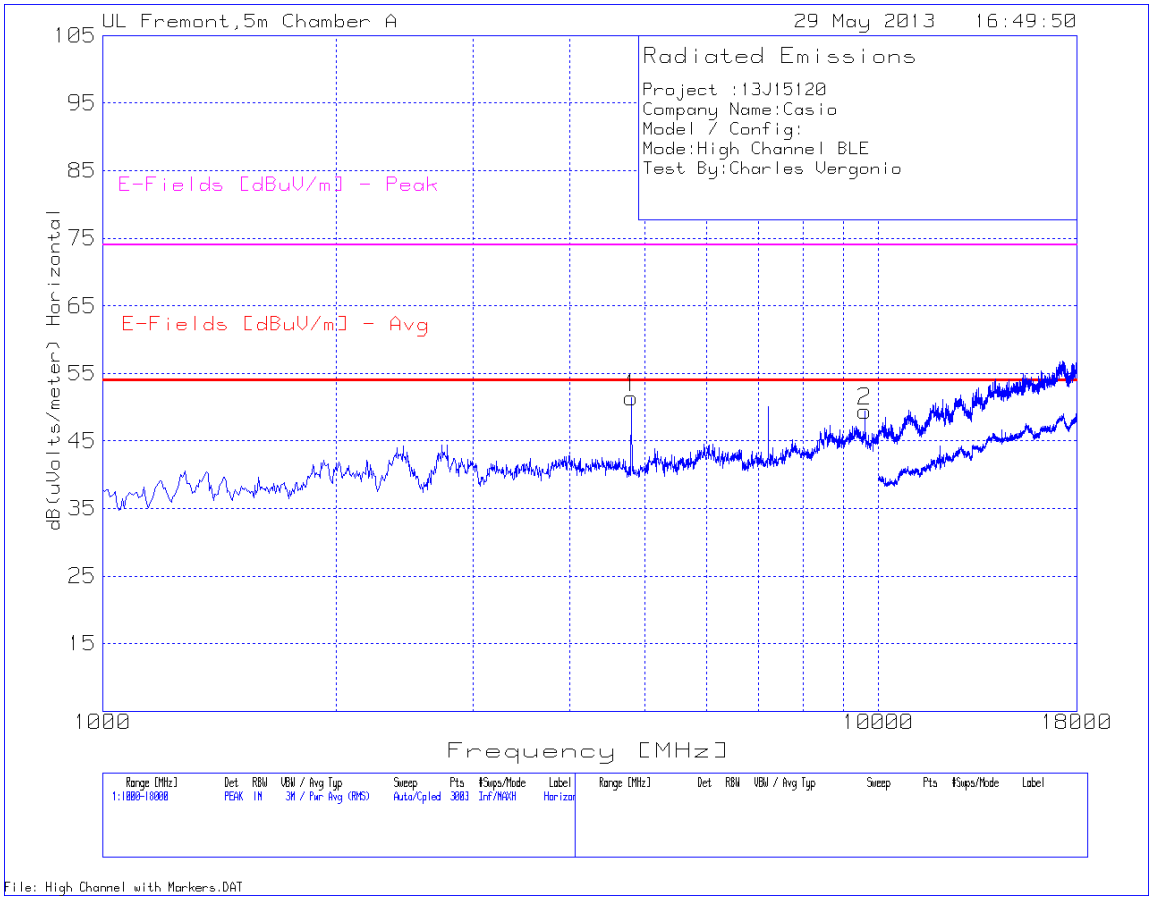
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]
1	4879.8	44.3	PK	33.9	-35.7	6.7	0.2	49.4	53.97	-4.57	74	-24.6	200
1	4880.01	46.44	RMS	33.9	-35.7	6.7	0.2	51.54	53.97	-2.43	74	-22.46	137
2	9761.08	44.72	PK	36.7	-36.3	10.2	0.5	55.82	53.97	1.85	74	-18.18	118
2	9759.41	38.29	RMS	36.7	-36.3	10.2	0.5	49.39	53.97	-4.58	74	-24.61	127.1

Vertical 1000 - 18000MHz

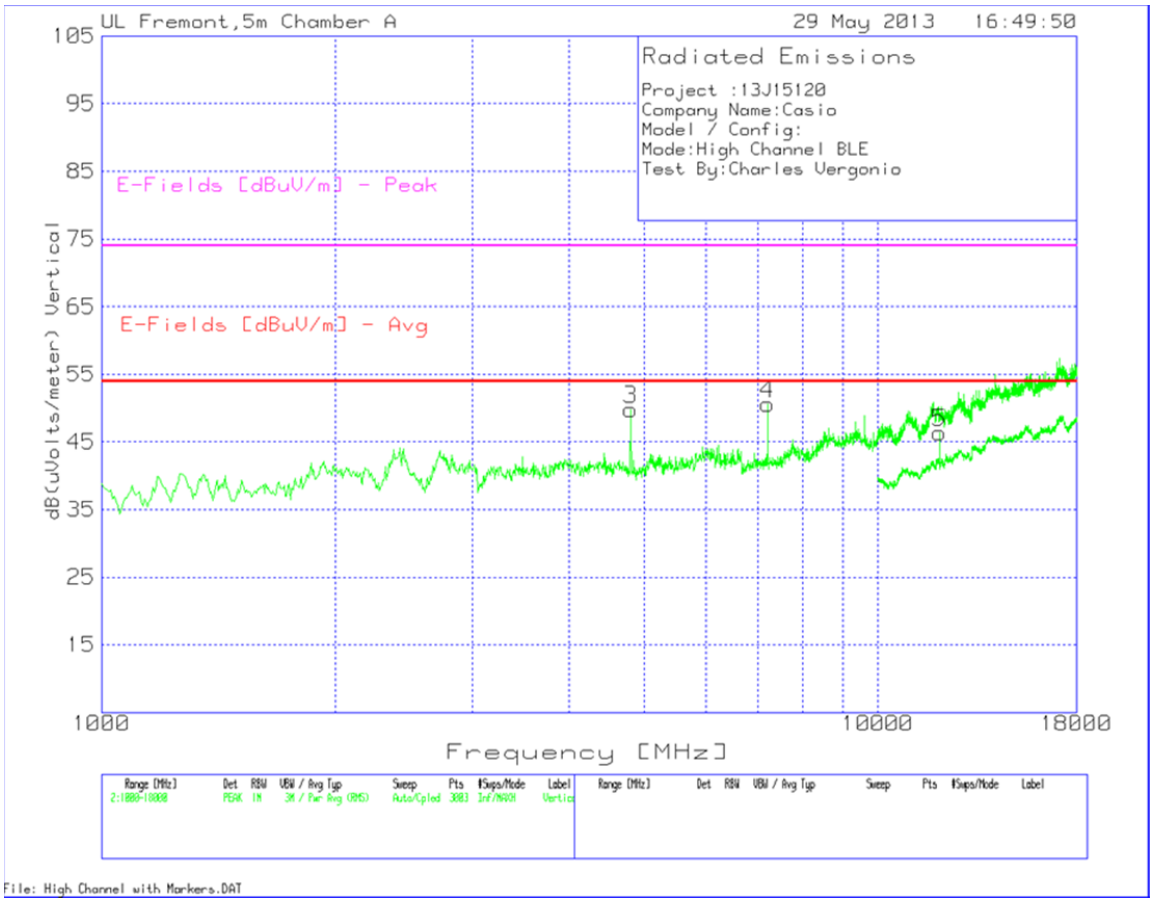
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]
4	4879.97	50.95	PK	33.9	-35.7	6.7	0.2	56.05	53.97	2.08	74	-17.95	200
4	4879.97	46.56	RMS	33.9	-35.7	6.7	0.2	51.66	53.97	-2.31	74	-22.34	156
5	7320.66	48.16	PK	35.4	-35.8	8.6	0.3	56.66	53.97	2.69	74	-17.34	200
5	7319.74	42.18	RMS	35.4	-35.8	8.6	0.3	50.68	53.97	-3.29	74	-23.32	143
6	9760.62	37.99	PK	36.7	-36.3	10.2	0.5	49.09	53.97	-4.88	74	-24.91	100
6	9759.51	28.26	RMS	36.7	-36.3	10.2	0.5	39.36	53.97	-14.61	74	-34.64	125

PK - Peak detector
Av - Average detector

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



HIGH CHANNEL WORST CASE EMISSIONS

Project :13J15120
Company Name:Casio
Model / Config: GB-5600B
Mode:High Channel BLE
Test By:Charles Vergonio

Horizontal 1000 - 18000MHz

Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]
1	4959.6	47.82	PK	33.9	-35.7	6.7	0.2	52.92	53.97	-1.05	74	-21.08	200
1	4959.93	43.96	RMS	33.9	-35.7	6.7	0.2	49.06	53.97	-4.91	74	-24.94	146
2	9920.3	37.11	PK	36.7	-36.3	10.2	0.5	48.21	53.97	-5.76	74	-25.79	124
2	9919.47	29.95	RMS	36.7	-36.3	10.2	0.5	41.05	53.97	-12.92	74	-32.95	146

Vertical 1000 - 18000MHz

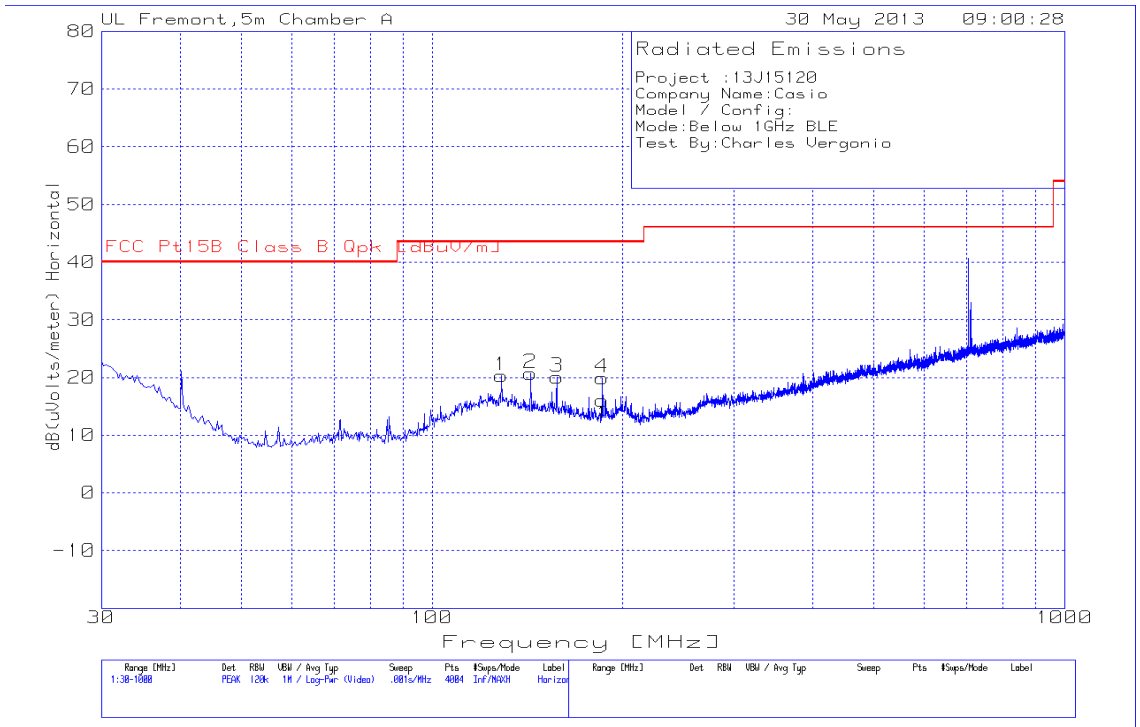
Marker No.	Test Frequency (MHz)	Meter Reading (dBuV)	Detector	T136 Ant Factor [dB/m]	T144 Preamp Gain [dB]	Cable Factor [dB]	T160 BRF [dB]	dB(uVolts/ meter)	E-Fields [dBuV/m] - Avg	Margin (dB)	E-Fields [dBuV/m] - Peak	Margin (dB)	Height [cm]
3	4959.8	44.69	PK	33.9	-35.7	6.7	0.2	49.79	53.97	-4.18	74	-24.21	200
3	4959.83	39.41	RMS	33.9	-35.7	6.7	0.2	44.51	53.97	-9.46	74	-29.49	146.4
4	7440	44.55	PK	35.4	-35.8	8.6	0.3	53.05	53.97	**-0.92**	74	-20.95	200
4	7439.71	42.02	RMS	35.4	-35.8	8.6	0.3	50.52	53.97	-3.45	74	-23.48	154.3

PK - Peak detector
QP - Quasi-Peak detector

9.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



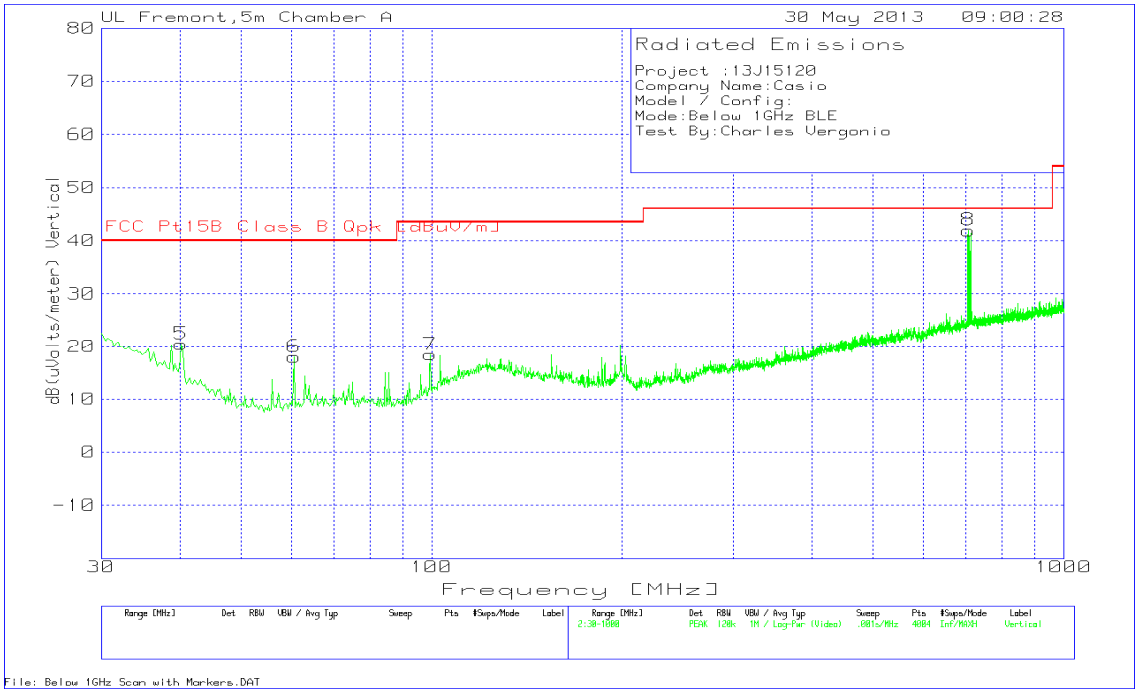
File: Below 1GHz Scan with Markers.DAT

Horizontal 30 - 1000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T185 Antenna Factor dB/m	T64 preamp/cable loss [dB]	dB(uVolts/ meter)	FCC Pt15B Class B Qpk [dBuV/m]	Margin (dB)	Height [cm]	Polarity
1	128.8659	32.97	PK	14.1	-26.8	20.27	43.52	-23.25	200	Horz
2	143.1626	34.64	PK	12.8	-26.7	20.74	43.52	-22.78	200	Horz
3	157.4594	34.52	PK	12.2	-26.6	20.12	43.52	-23.4	100	Horz
4	186.053	35.37	PK	10.9	-26.3	19.97	43.52	-23.55	400	Horz

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

VERTICAL PLOT



Vertical 30 - 1000MHz

Marker No.	Test Frequency	Meter Reading	Detector	T185 Antenna Factor dB/m	T64 preamp/cable loss [dB]	dB(uVolts/ meter)	FCC Pt15B Class B Qpk [dBuV/m]	Margin (dB)	Height [cm]	Polarity
5	40.1774	34.5	PK	13.5	-27.5	20.5	40	-19.5	100	Vert
6	60.5321	38.1	PK	7.2	-27.3	18	40	-22	100	Vert
7	99.5453	35.65	PK	9.9	-27.1	18.45	43.52	-25.07	100	Vert
8	706.7949	44.81	PK	20.2	-23.1	41.91	46.02	-4.11	200	Vert