FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE TABLET + Bluetooth + DTS/UNII a/b/g/n and ANT+

MODEL NUMBER: SM-P355M

FCC ID: A3LSMP355M

REPORT NUMBER: 15I20033-E4

ISSUE DATE: MARCH 9, 2015

Prepared for
SAMSUNG ELECTRONICS CO., LTD.
129 SAMSUNG-RO, YEONGTONG-GU
SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA

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

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	3/9/15	Initial Issue	P. Zhang

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 5

2. TEST METHODOLOGY 6

3. FACILITIES AND ACCREDITATION 6

4. CALIBRATION AND UNCERTAINTY 6

4.1. MEASURING INSTRUMENT CALIBRATION 6

4.2. SAMPLE CALCULATION 6

4.3. MEASUREMENT UNCERTAINTY 6

5. EQUIPMENT UNDER TEST 7

5.1. DESCRIPTION OF EUT 7

5.2. MAXIMUM OUTPUT POWER 7

5.3. DESCRIPTION OF AVAILABLE ANTENNAS 7

5.4. WORST-CASE CONFIGURATION AND MODE 8

5.5. DESCRIPTION OF TEST SETUP 9

6. TEST AND MEASUREMENT EQUIPMENT 11

7. MEASUREMENT METHODS 12

8. SUMMARY TABLE 13

9. ANTENNA PORT TEST RESULTS 14

9.1. 6 dB BANDWIDTH 14

9.1.1. 802.11b MODE IN THE 2.4 GHz BAND 15

9.1.2. 802.11g MODE IN THE 2.4 GHz BAND 15

9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 15

9.2. 99% BANDWIDTH 19

9.2.1. 802.11b MODE IN THE 2.4 GHz BAND 19

9.2.2. 802.11g MODE IN THE 2.4 GHz BAND 19

9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 19

9.3. OUTPUT POWER 23

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND 24

9.3.2. 802.11g MODE IN THE 2.4 GHz BAND 24

9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 25

9.4. PSD 26

9.4.1. 802.11b MODE IN THE 2.4 GHz BAND 26

9.4.2. 802.11g MODE IN THE 2.4 GHz BAND 26

9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 26

9.5. OUT-OF-BAND EMISSIONS 27

9.5.1. 802.11b MODE IN THE 2.4 GHz BAND 28

9.5.2. 802.11g MODE IN THE 2.4 GHz BAND 34

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.5.3. 802.11n MODE IN THE 2.4 GHz BAND 40

10. RADIATED TEST RESULTS 46

10.1. LIMITS AND PROCEDURE 46

10.2. TRANSMITTER ABOVE 1 GHz 47

10.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND 47
10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND 57
10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND 67

10.3. WORST-CASE BELOW 1 GHz 77

11. AC POWER LINE CONDUCTED EMISSIONS 79

12. SETUP PHOTOS 82

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: GSM/WCDMA/LTE Tablet + Bluetooth, DTS/UNII a/b/g/n and ANT+

MODEL: SM-P355M

SERIAL NUMBER: R32G102MK2R (Radiated), R32G102MKSF (Conducted)

DATE TESTED: FEBRUARY 5-18, 2015

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	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.

Approved & Released
For UL Verification Services Inc. By:

PENG ZHANG
CONSUMER TECHNOLOGY DIVISION
PROJECT LEAD
UL Verification Services Inc.

Tested By:

CHARLES VERGONIO
CONSUMER TECHNOLOGY DIVISION
LAB ENGINEER
UL Verification Services Inc.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.4-2009.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☐ Chamber A	☐ Chamber D
☐ Chamber B	☐ Chamber E
☒ Chamber C	☒ Chamber F

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2000650.htm.

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 18000 MHz	4.94 dB

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Tablet + Bluetooth, DTS/UNII a/b/g/n and ANT+.

The model FCC ID: A3LSMP355M shares the same enclosure and circuit board as mode FCC ID: A3LSMP355. The WLAN/Bluetooth/ANT+ circuitry and layout, including antenna, are almost identical between the two units. The WLAN/Bluetooth/ANT+ antenna and surrounding circuitry is the same between these two units.
Only Difference is WWAN support more bands and RF parts are changed.
After confirming through preliminary radiated emissions that the performance of the A3LSMP355 WLAN/Bluetooth/ANT+ data remains representative of this model (FCC ID: A3LSMP355M). Test data for FCC ID: A3LSMP355 is being submitted for this application.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	15.6	36.31
2412 - 2462	802.11g	13.3	21.38
2412 - 2462	802.11n HT20	12.3	16.98

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -0.5 dBi.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

5.4. 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.

Based on the baseline scan, the worst-case data rates were:

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20mode: MCS0

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	SAMSUNG	ETA0U83EWE	N/A	N/A
Earphone	SAMSUNG	N/A	N/A	N/A

I/O CABLES

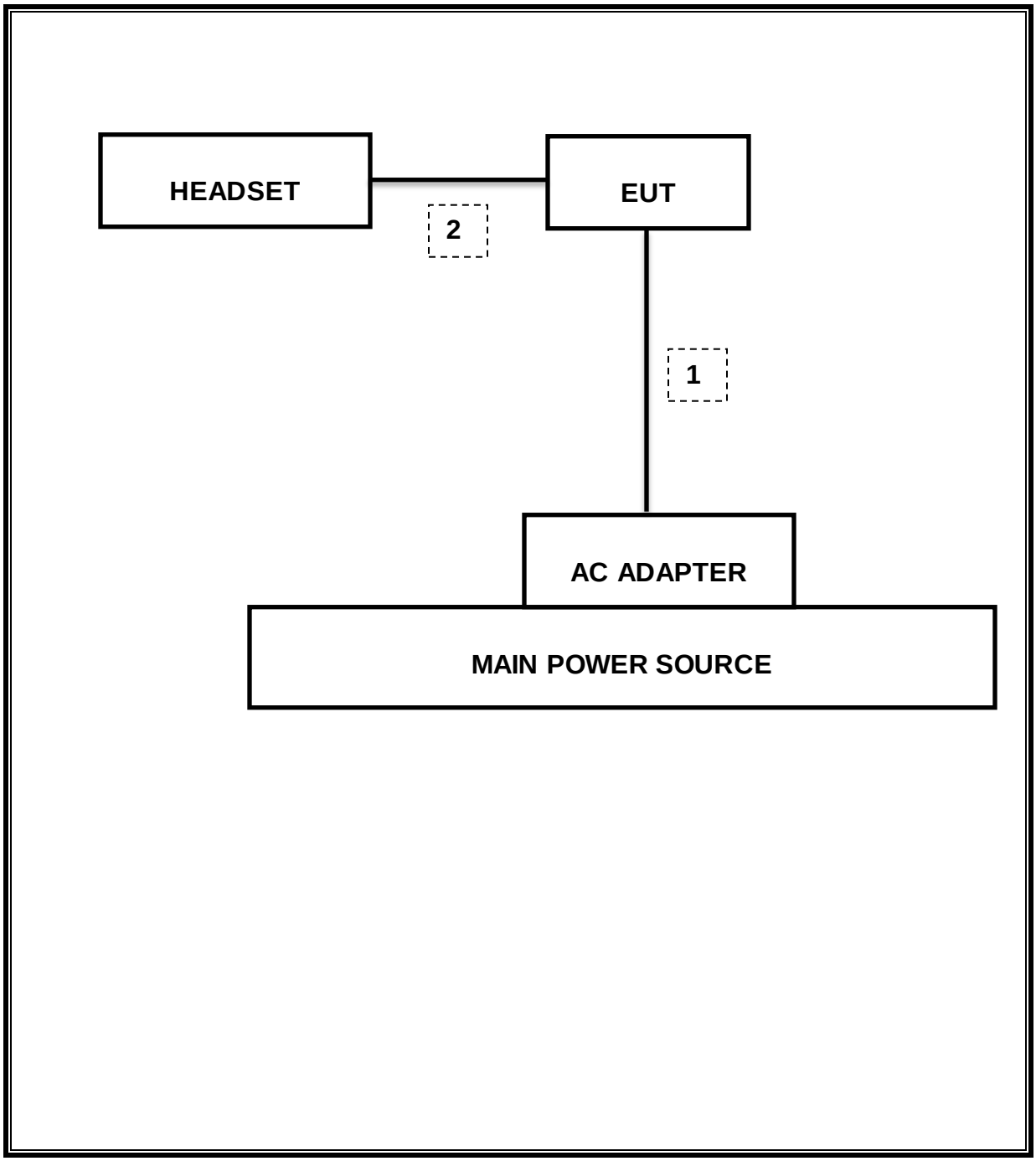
I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	1m	N/A

TEST SETUP

The EUT is a stand-alone unit during the tests. Test software exercised the radio card.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

SETUP DIAGRAM FOR TESTS



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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 Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
Spectrum Analyzer,9KHz-40GHz	HP	8564E	C00986	04/01/15
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	08/13/15
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/18/15
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/15
Antenna, Horn, 1-18 GHz	ETS	3117	C01022	02/21/15
Antenna, Horn,18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/15
Antenna, Horn, 26-40 GHz	ARA	MWH-2640	C00891	06/28/15
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	03/06/15
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/15
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/15
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	F00351	06/27/15
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR
RF Preamplifier, 1GHz - 40GHz	Miteq	NSP4000-SP2	C00990	08/20/15
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/15
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/15
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/15

Test Equipment List			
Description	**Manufacturer**	**Model**	**Version**
Radiated Software	UL	UL EMC	Version 9.5, 07/22/14
Conducted Software	UL	UL EMC	Version 9.5, 05/17/14
CLT Software	UL	UL RF	Version 1.0, 02/02/15
Antenna Port Software	UL	UL RF	Version 2.1.1.1, 1/20/15

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r02:Measurement Procedure PK2 is used for power and PKPSD is used for power spectral density.

Unwanted emissions within Restricted Bands are measured using traditional radiated procedures.

Band edge emissions within Restricted Bands are measured using RMS with duty cycle factor offset method.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-210 A8.2(a)	Occupied Band width (6dB)	>500KHz	Conducted	Pass	8.08 Mhz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-29.2dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	15.6 dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-15.60dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	45.04dBuV (PK)
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	49.89dBuV/m

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9. ANTENNA PORT TEST RESULTS

9.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

TEST PROCEDURE

Reference to KDB 558074 D01 DTS Meas Guidance v03r02: The transmitter output is connected to a spectrum analyzer with the RBW set to100KHz, the VBW >= 3 x RBW, peak detector and max hold.

RESULTS

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.1.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	8.08	0.5
Mid	2437	8.57	0.5
High	2462	8.50	0.5
Worst		8.08	

9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.41	0.5
Mid	2437	16.38	0.5
High	2462	16.35	0.5
Worst		16.35	

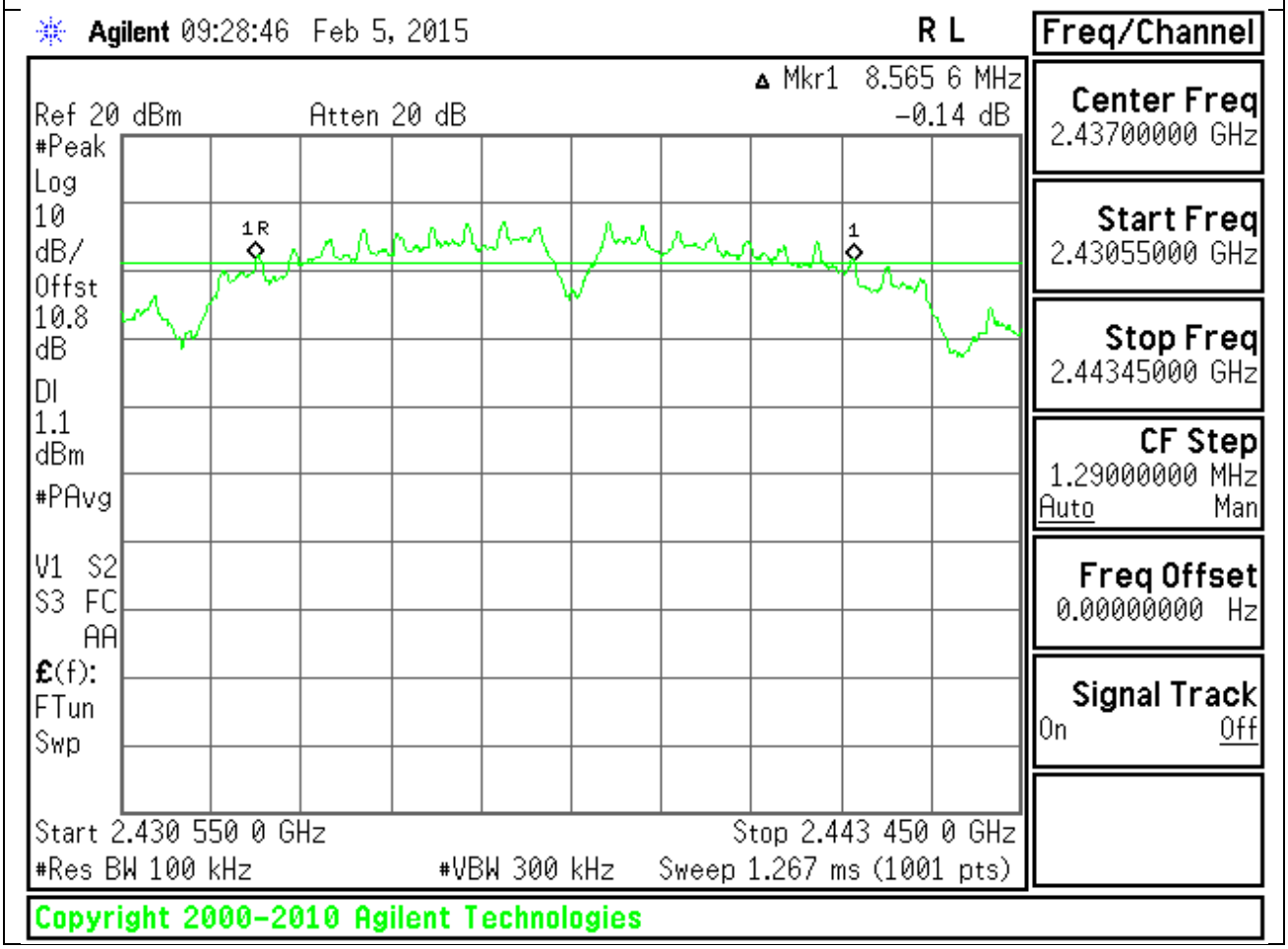
9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	17.33	0.5
Mid	2437	17.23	0.5
High	2462	17.37	0.5
Worst		17.23	

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

802.11b 6 dB BANDWIDTH

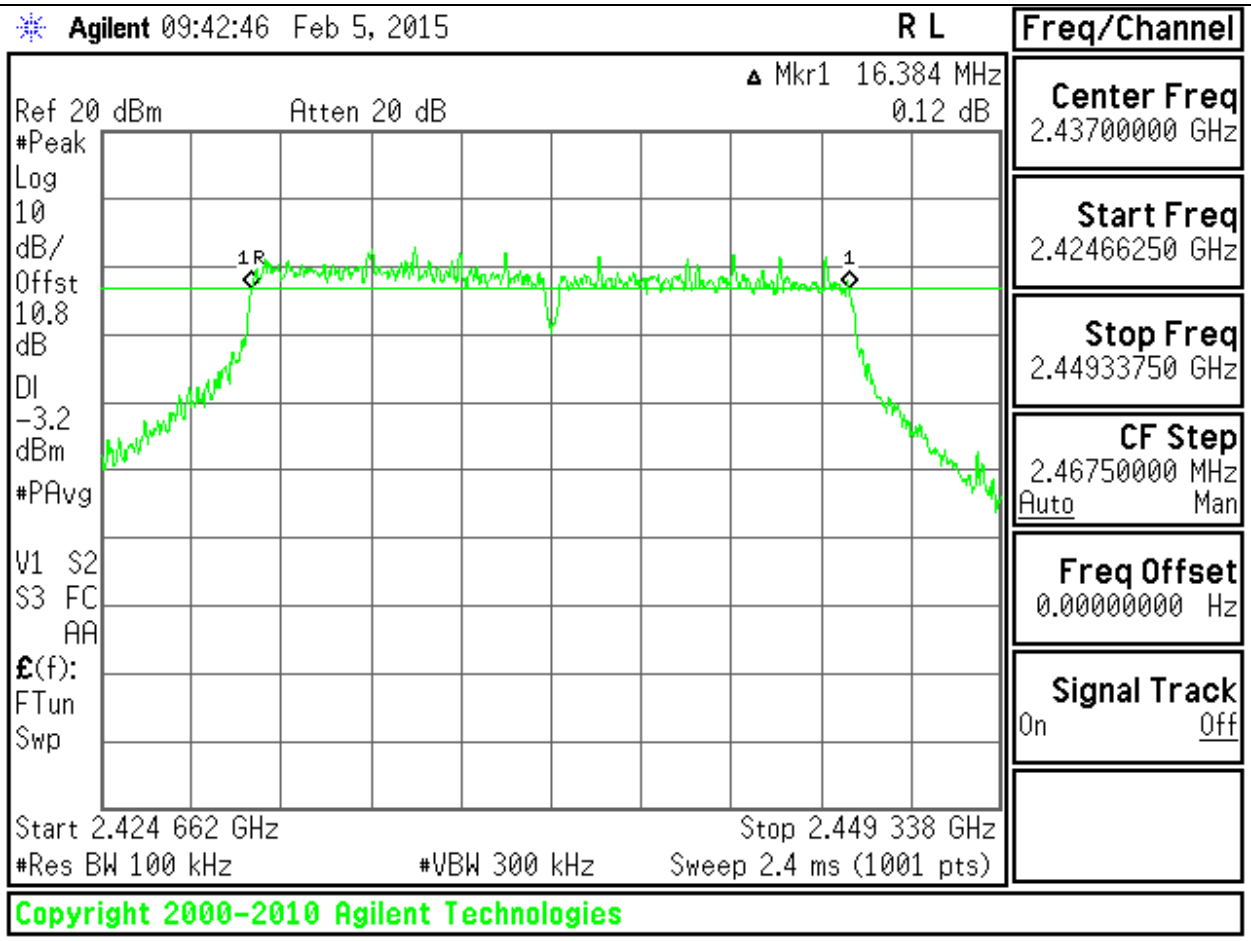
6 dB BANDWIDTH MID CH



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

802.11g 6 dB BANDWIDTH

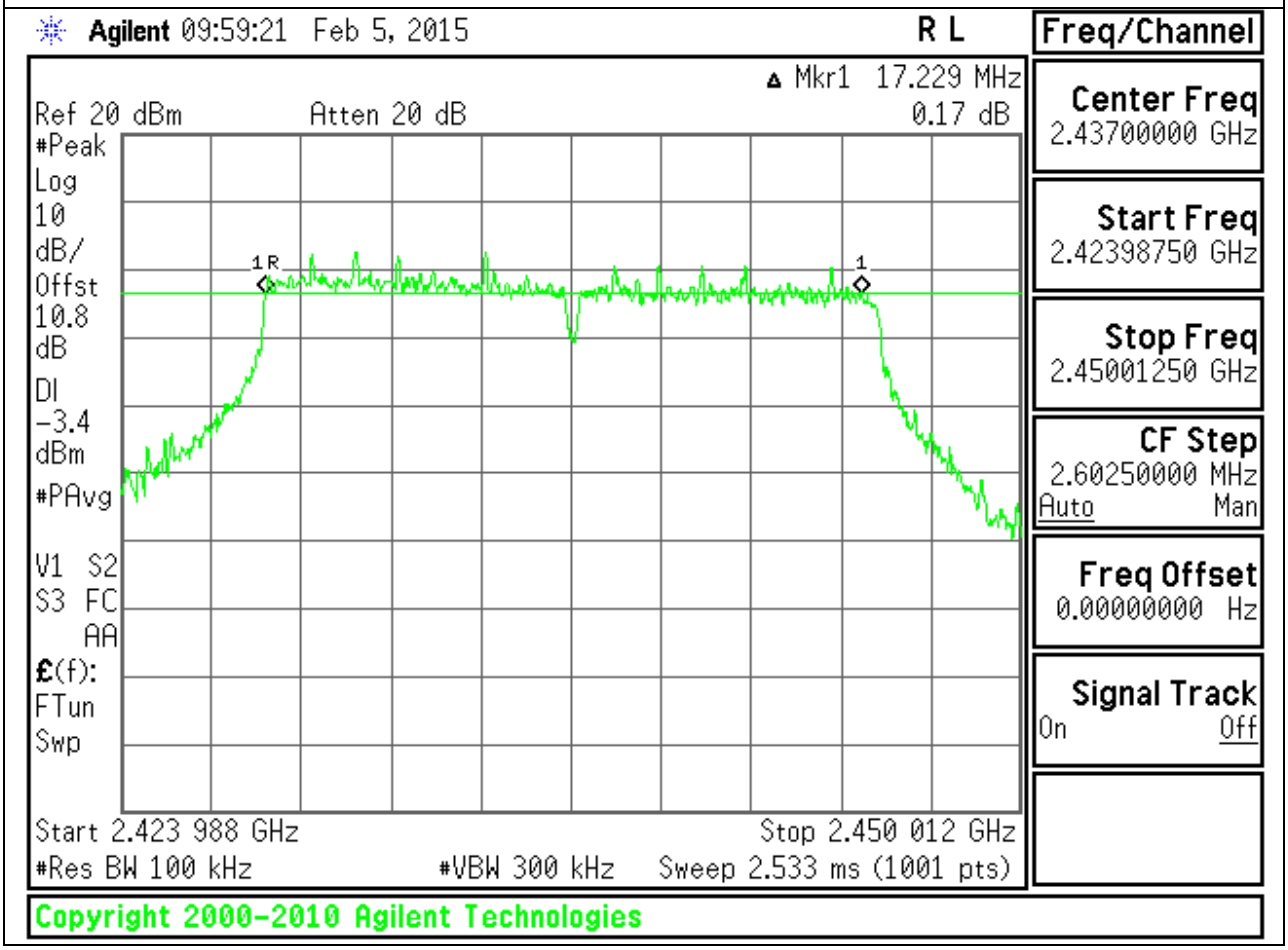
6 dB BANDWIDTH MID CH



UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

802.11n 6 dB BANDWIDTH

6 dB BANDWIDTH MID CH



UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

9.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	13.41
Mid	2437	13.26
High	2462	13.25
Worst		13.41

9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.48
Mid	2437	17.54
High	2462	17.22
Worst		17.54

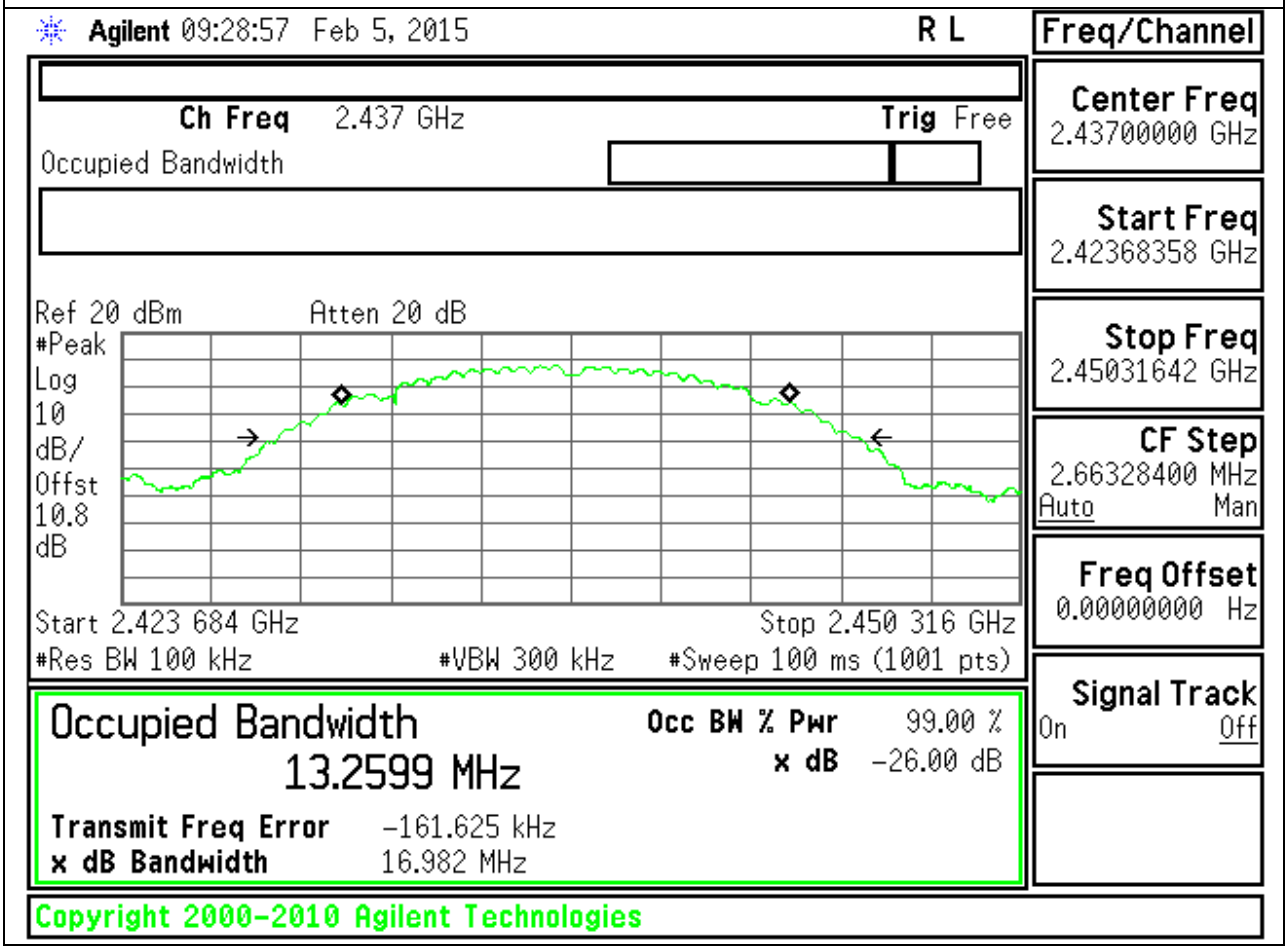
9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	18.26
Mid	2437	18.32
High	2462	18.07
Worst		18.32

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

802.11b 99% BANDWIDTH

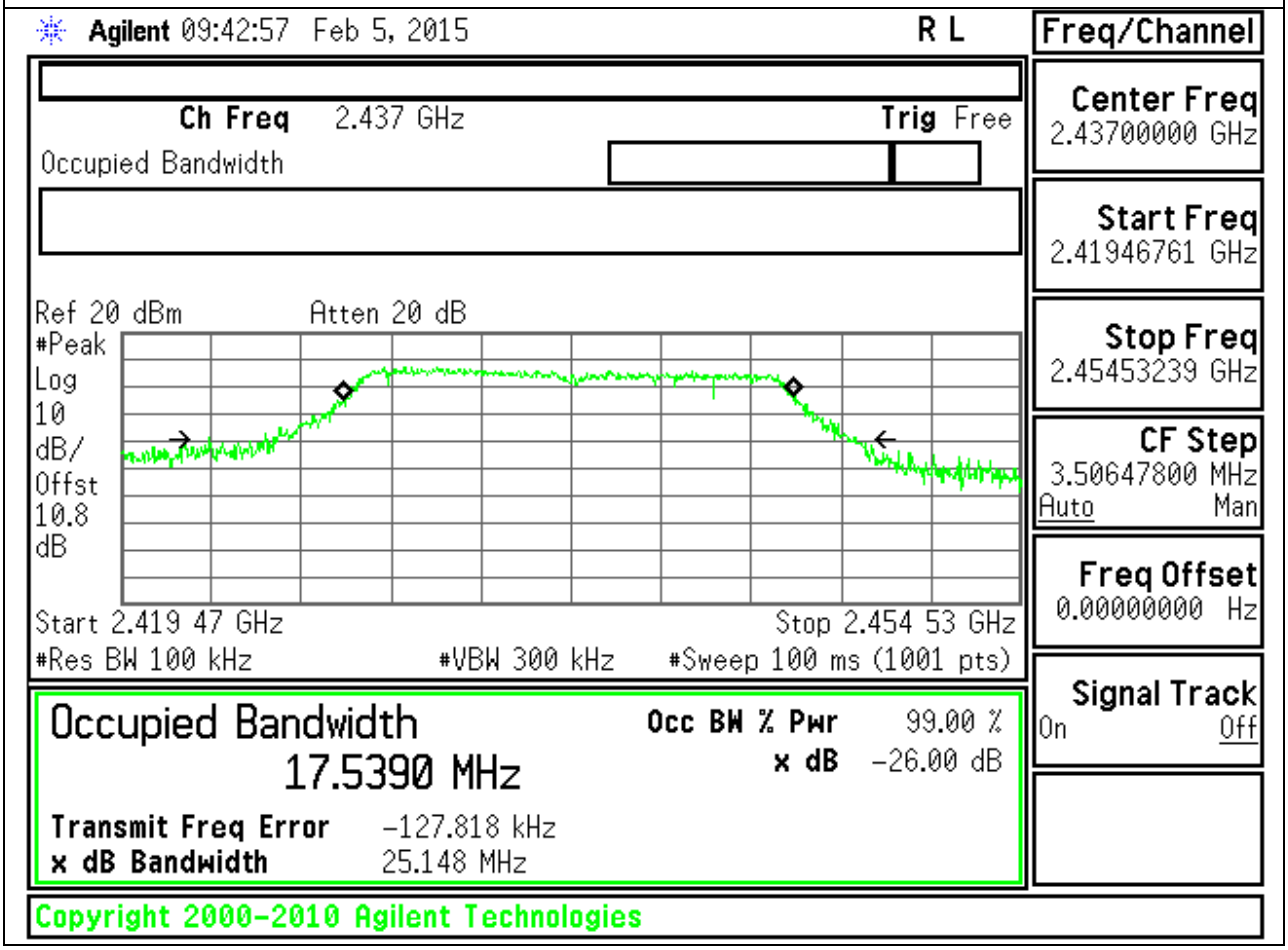
99% BANDWIDTH MID CH



UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

802.11g 99% BANDWIDTH

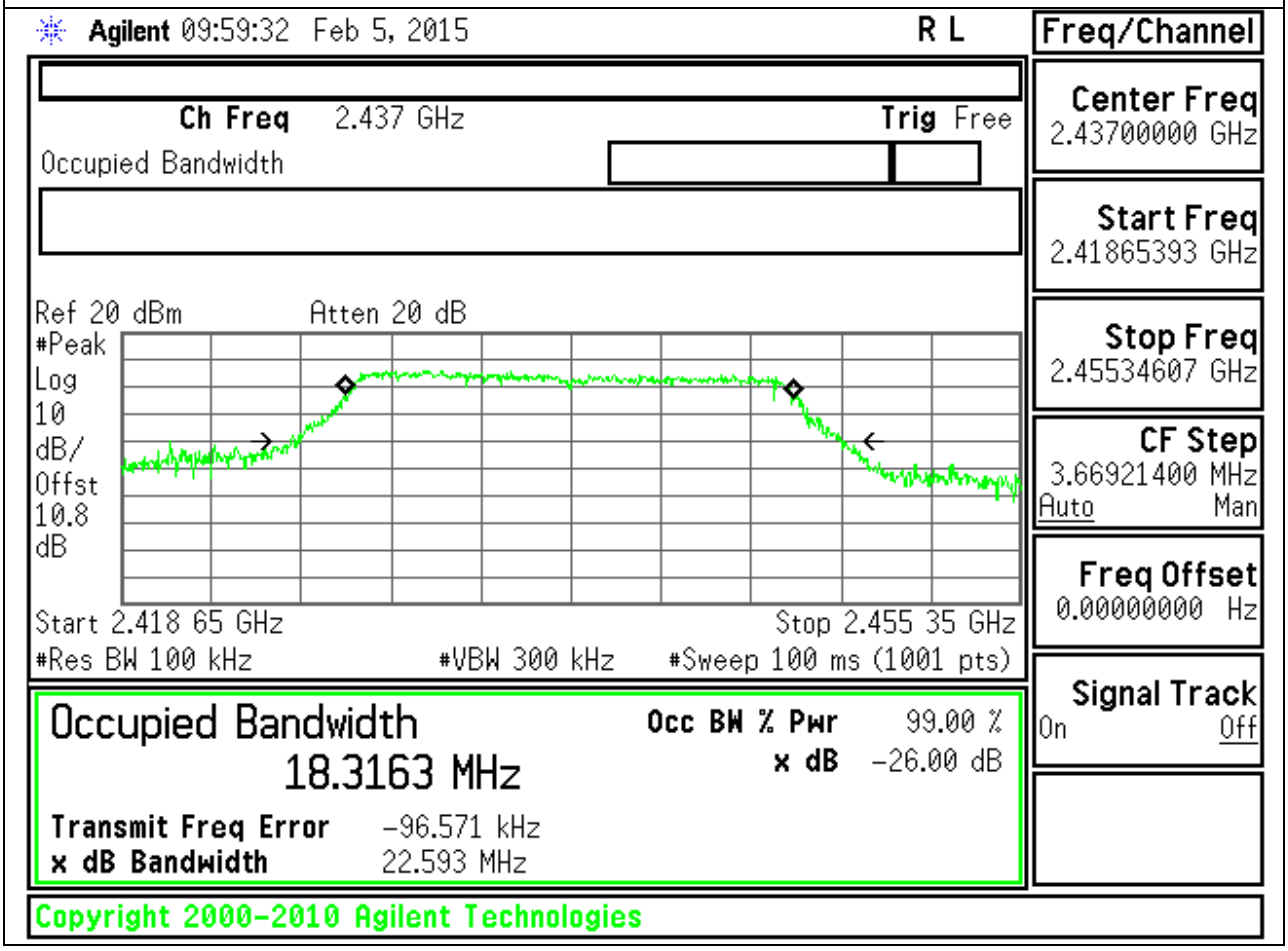
99% BANDWIDTH MID CH



UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

802.11n 99% BANDWIDTH

99% BANDWIDTH MID CH



UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3. OUTPUT POWER

LIMITS

FCC §15.247

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.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.2 dB (including 10 dB pad and 0.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RESULTS

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-0.50	30.00	30	36	30.00
Mid	2437	-0.50	30.00	30	36	30.00
High	2462	-0.50	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	15.60	15.60	30.00	-14.40
Mid	2437	15.50	15.50	30.00	-14.50
High	2462	15.50	15.50	30.00	-14.50
Worst			15.60		

9.3.2. 802.11g MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-0.50	30.00	30	36	30.00
Mid	2437	-0.50	30.00	30	36	30.00
High	2462	-0.50	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	13.30	13.30	30.00	-16.70
Mid	2437	13.30	13.30	30.00	-16.70
High	2462	13.30	13.30	30.00	-16.70
Worst			13.30		

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-0.50	30.00	30	36	30.00
Mid	2437	-0.50	30.00	30	36	30.00
High	2462	-0.50	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	12.30	12.30	30.00	-17.70
Mid	2437	12.20	12.20	30.00	-17.80
High	2462	12.30	12.30	30.00	-17.70
Worst			12.30		

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4. PSD

LIMITS

FCC §15.247

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

9.4.1. 802.11b MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-15.73	8.0	-23.7
Mid	2437	-15.60	8.0	-23.6
High	2462	-15.73	8.0	-23.7

9.4.2. 802.11g MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-20.66	8.0	-28.7
Mid	2437	-20.30	8.0	-28.3
High	2462	-20.71	8.0	-28.7

9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-21.87	8.0	-29.9
Mid	2437	-21.65	8.0	-29.7
High	2462	-22.09	8.0	-30.1

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.5. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

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.

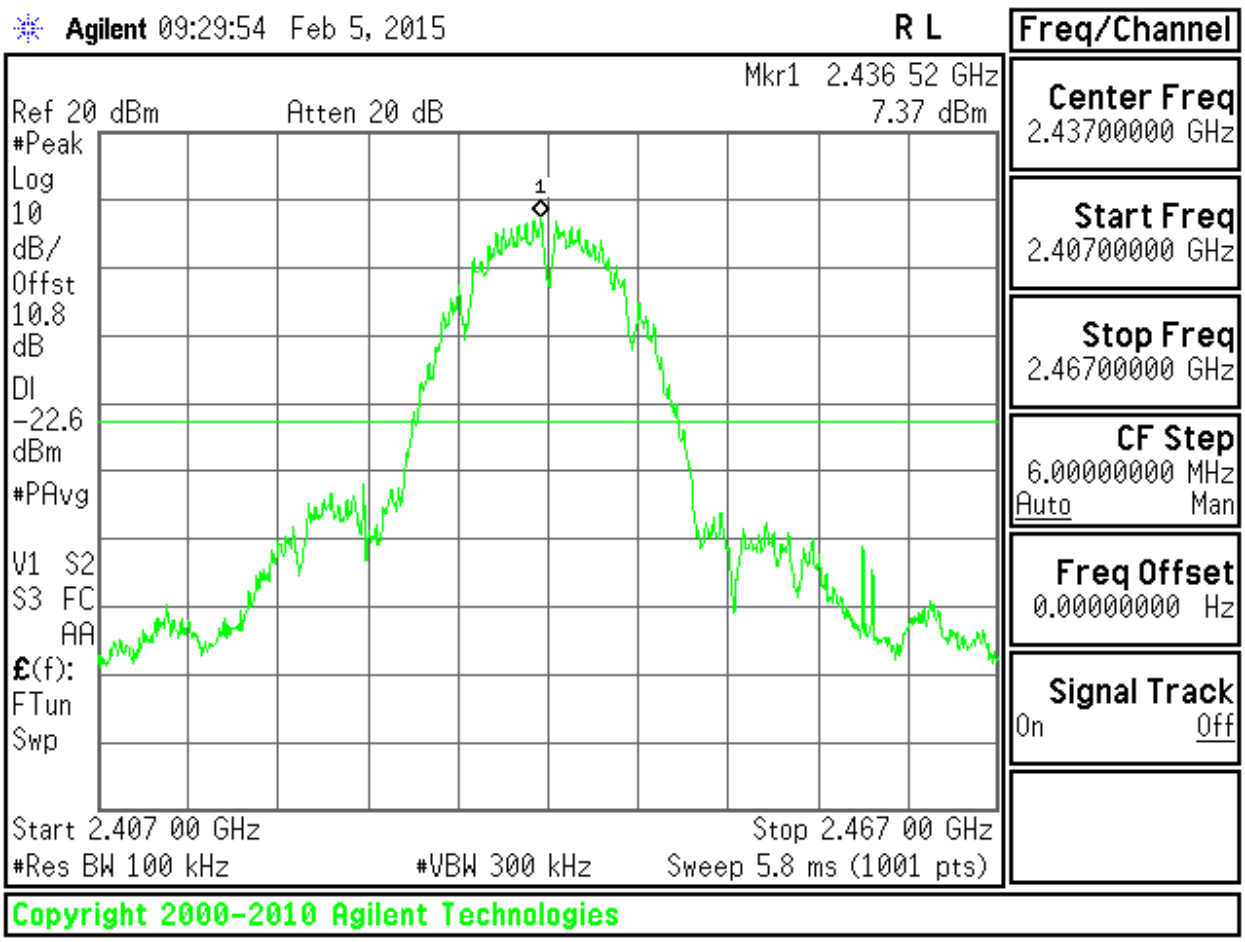
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RESULTS

9.5.1. 802.11b MODE IN THE 2.4 GHz BAND

IN-BAND REFERENCE LEVEL

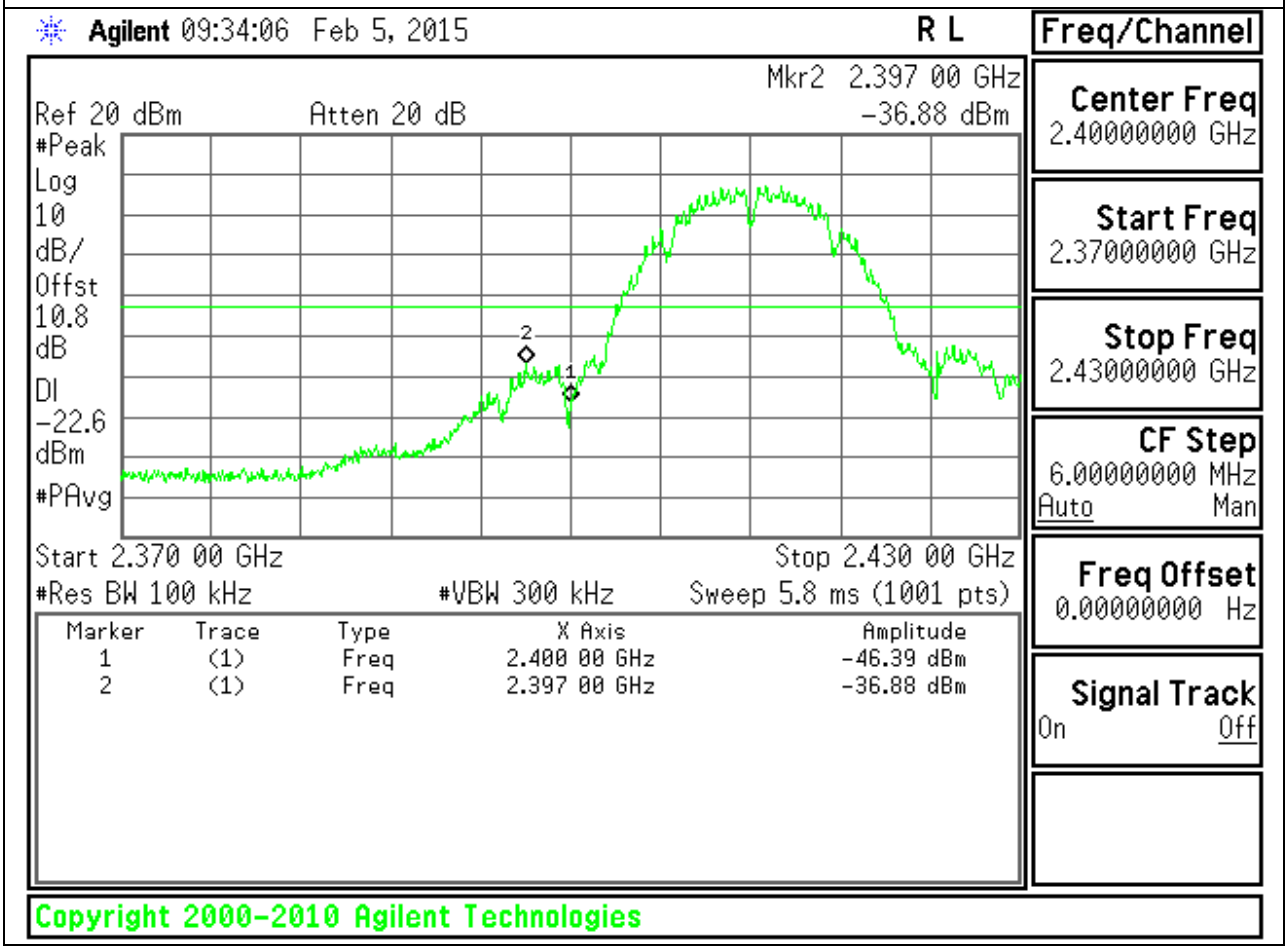
REFERENCE LEVEL MID CH



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LOW CHANNEL BANDEDGE

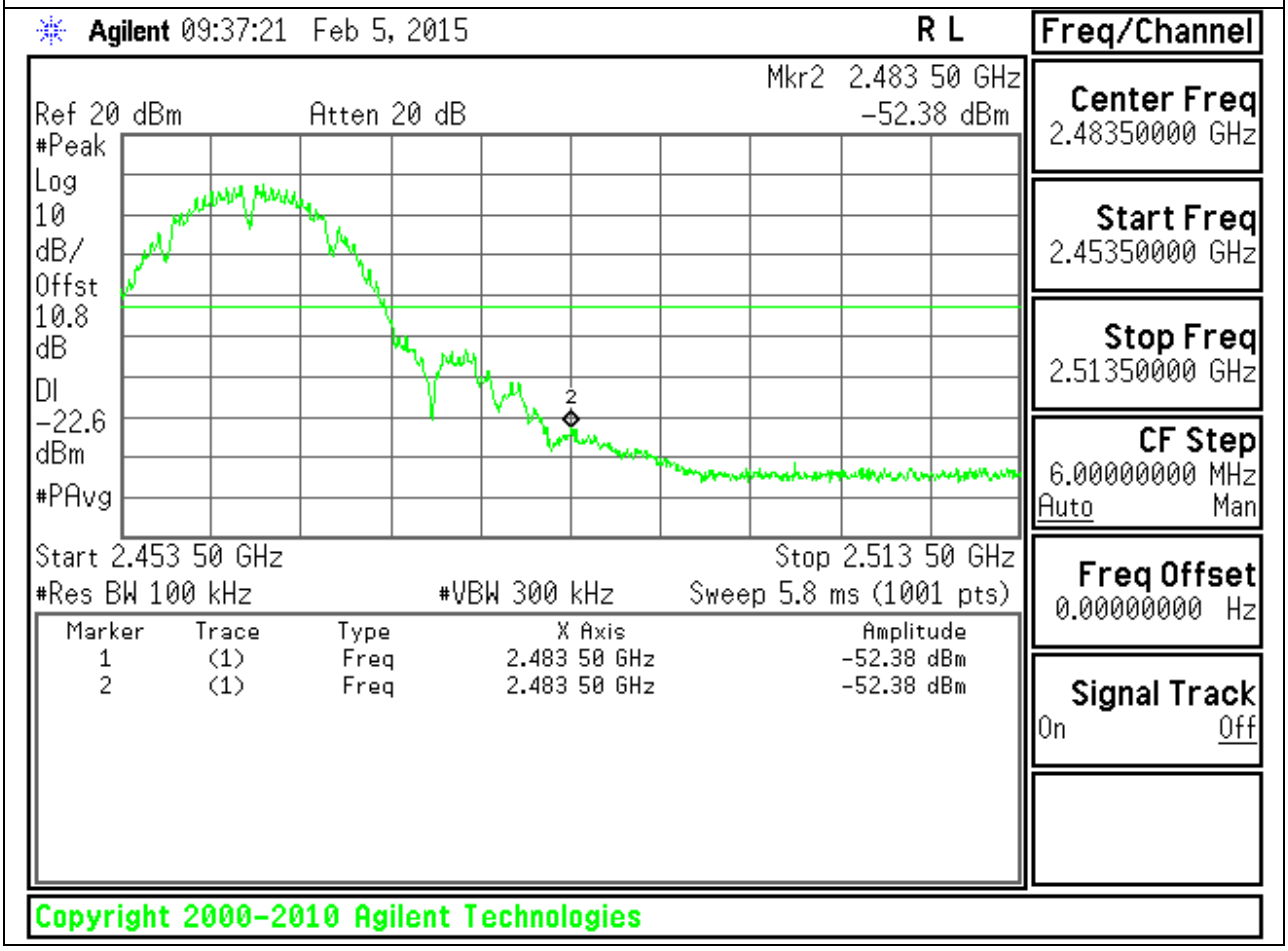
AUTHORIZED BAND EDGE LOW CH



UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL BANDEDGE

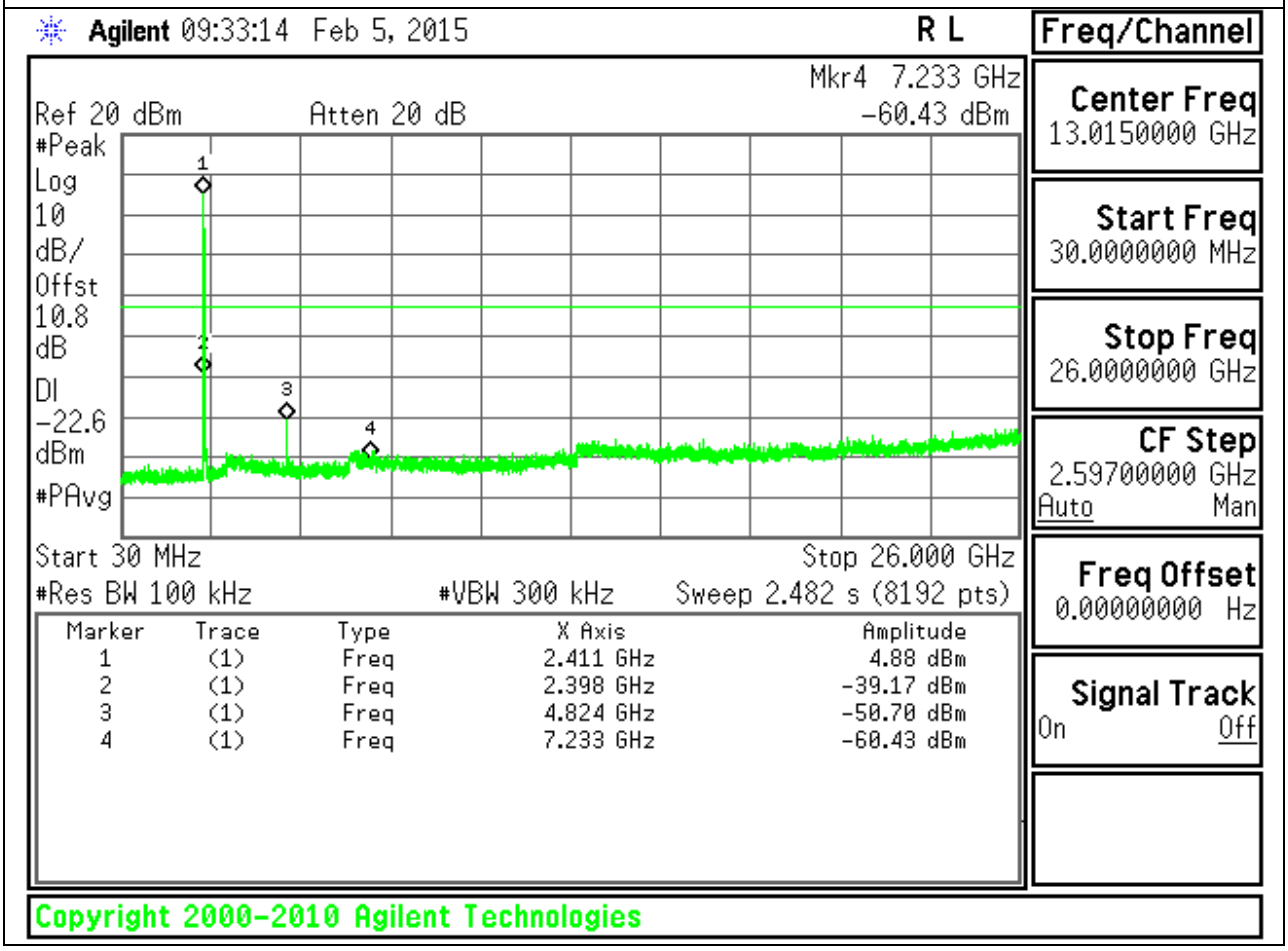
AUTHORIZED BAND EDGE HIGH CH



UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

OUT-OF-BAND EMISSIONS

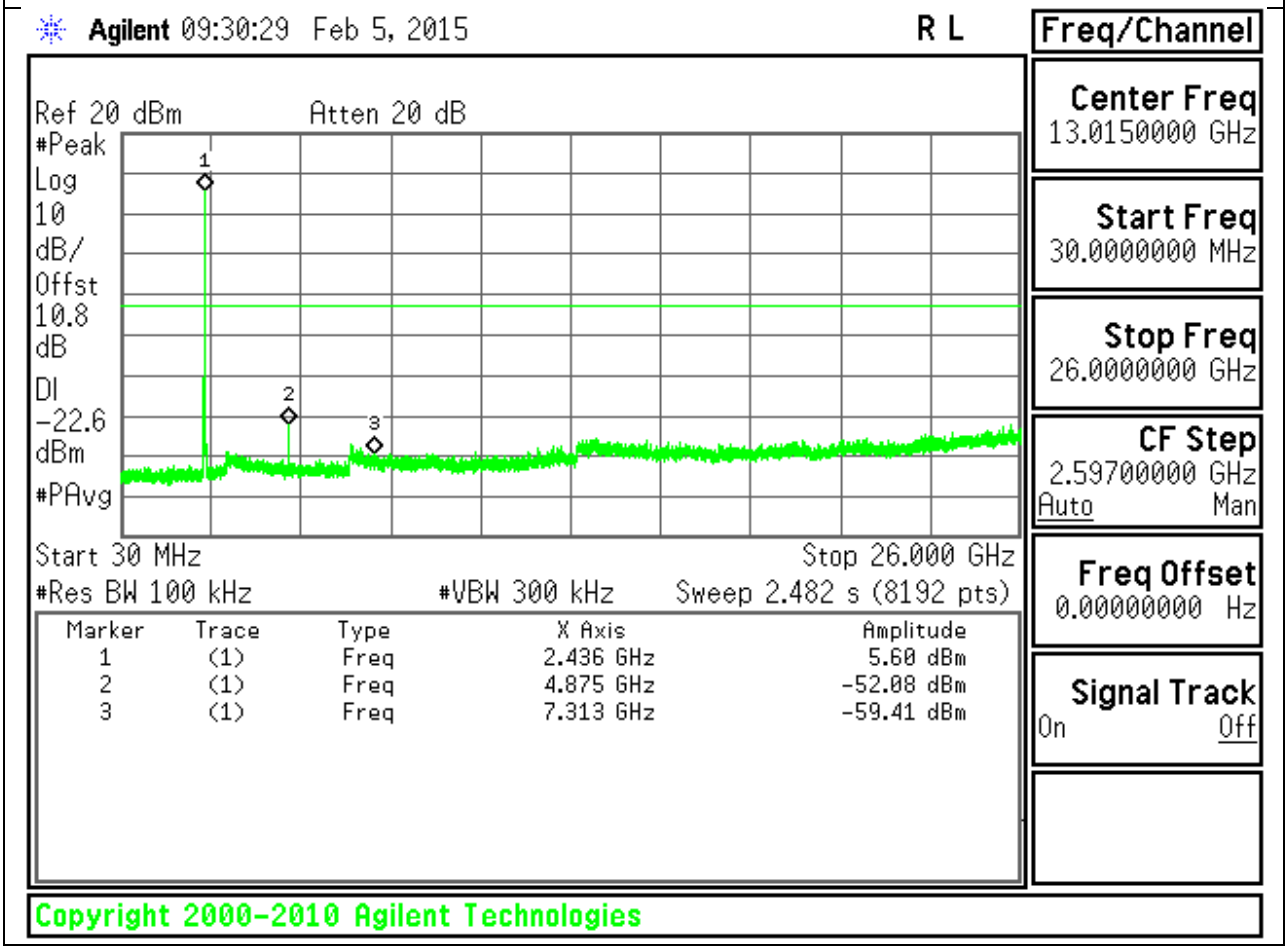
OUT OF BAND LOW CH



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.411 GHz	4.88 dBm
2	(1)	Freq	2.398 GHz	-39.17 dBm
3	(1)	Freq	4.824 GHz	-50.70 dBm
4	(1)	Freq	7.233 GHz	-60.43 dBm

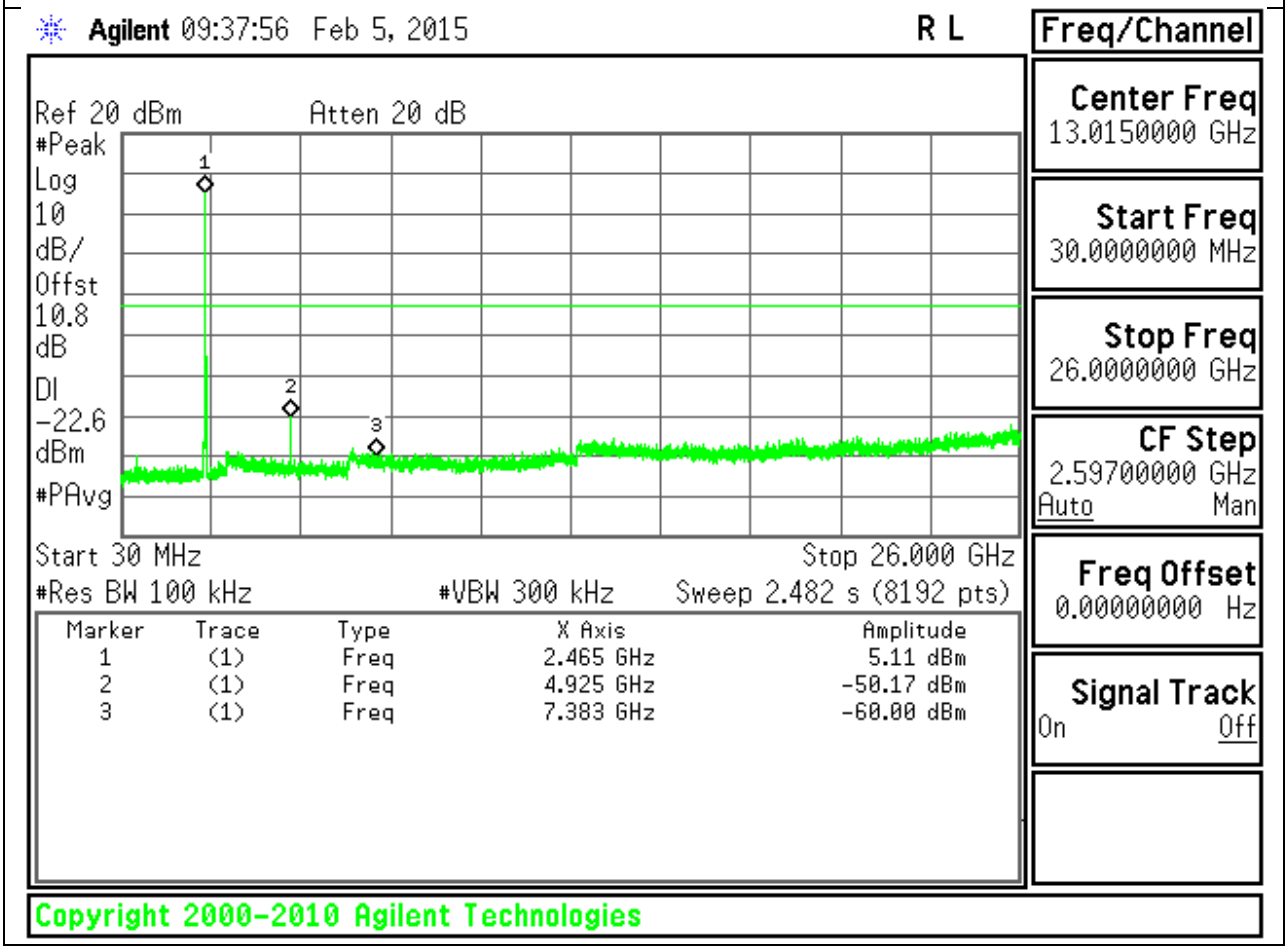
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

OUT OF BAND MID CH



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

OUT OF BAND HIGH CH

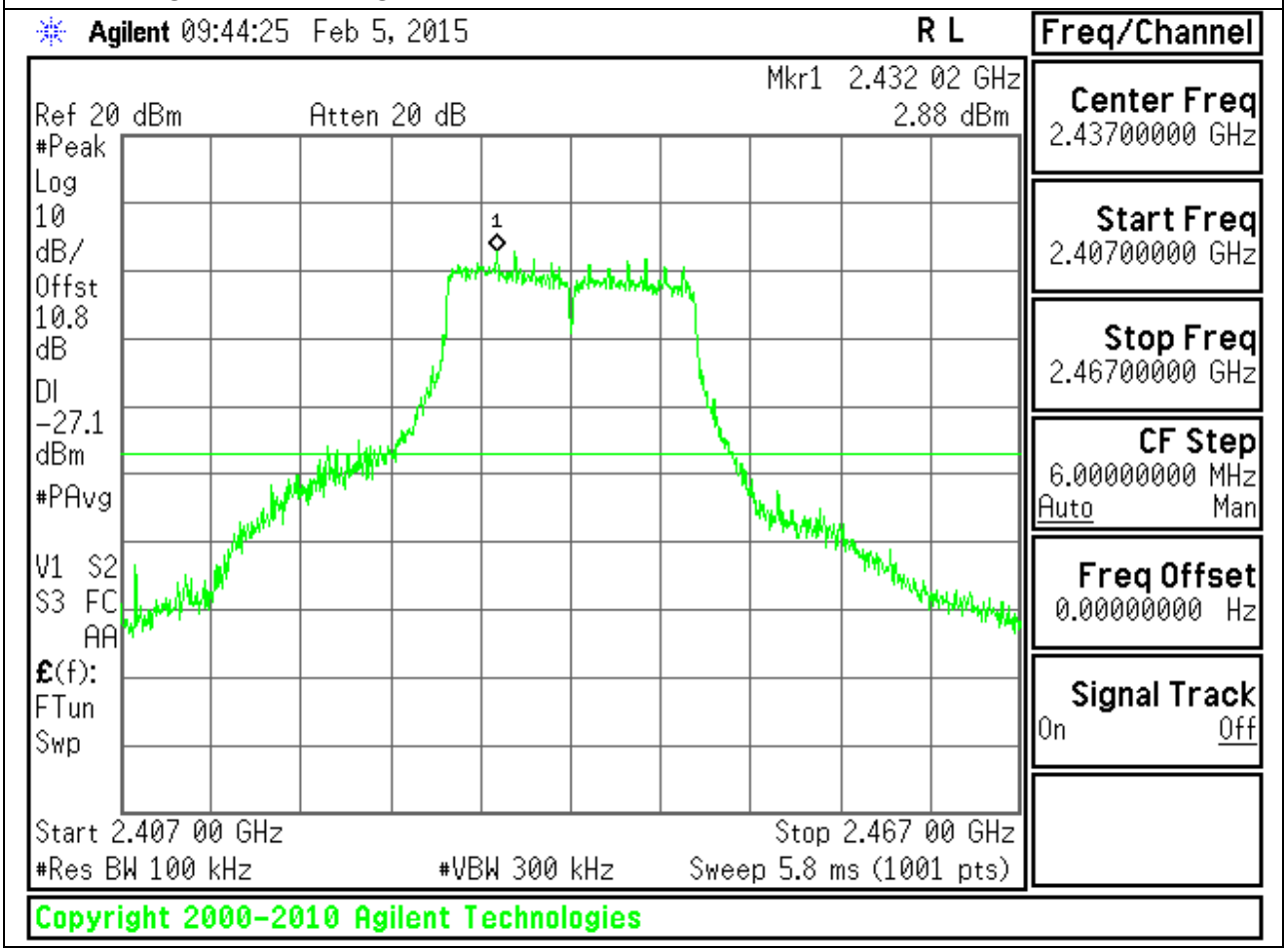


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.5.2. 802.11g MODE IN THE 2.4 GHz BAND

IN-BAND REFERENCE LEVEL

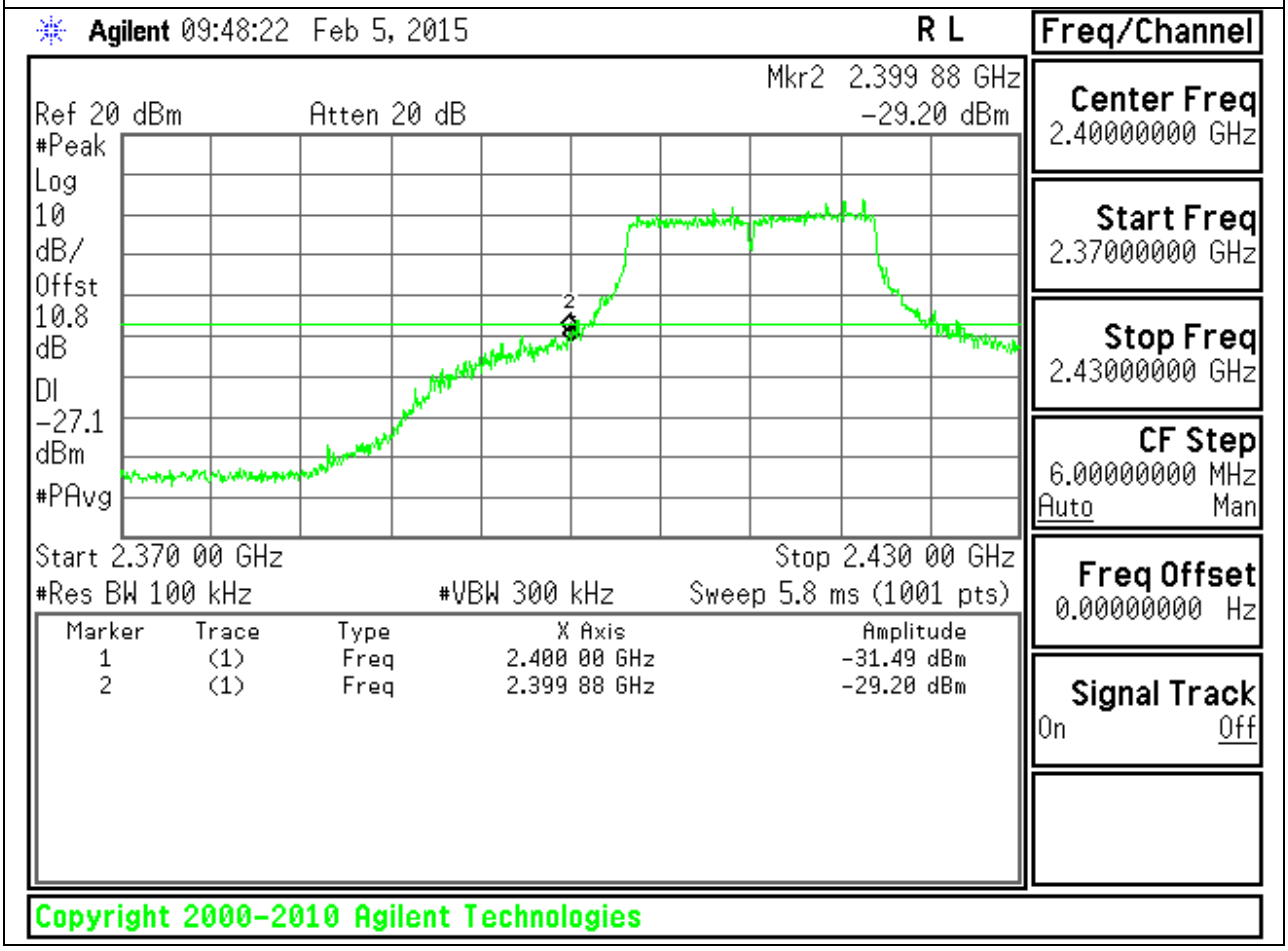
REFERENCE LEVEL MID CH



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LOW CHANNEL BANDEDGE

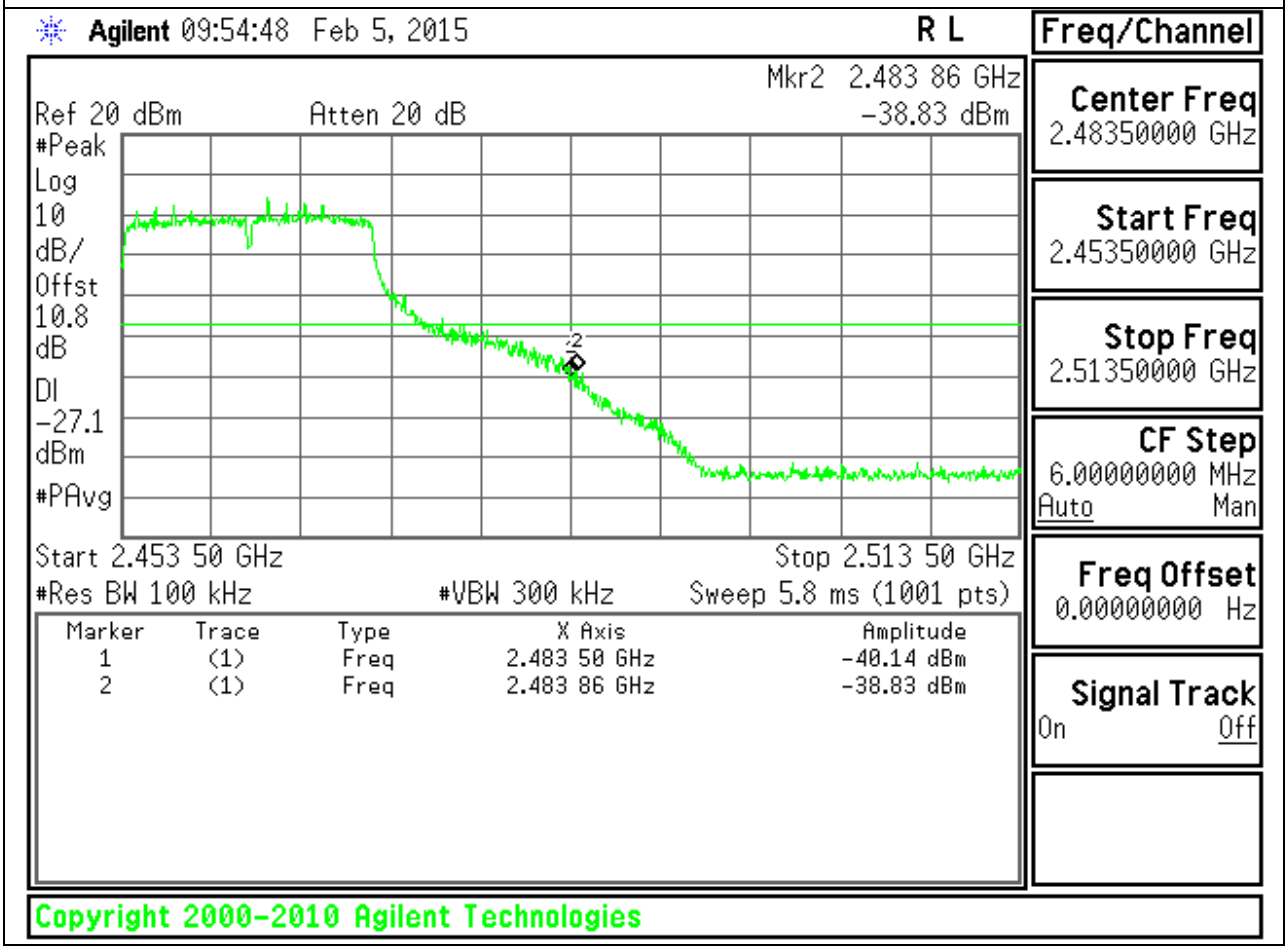
AUTHORIZED BAND EDGE LOW CH



UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL BANDEDGE

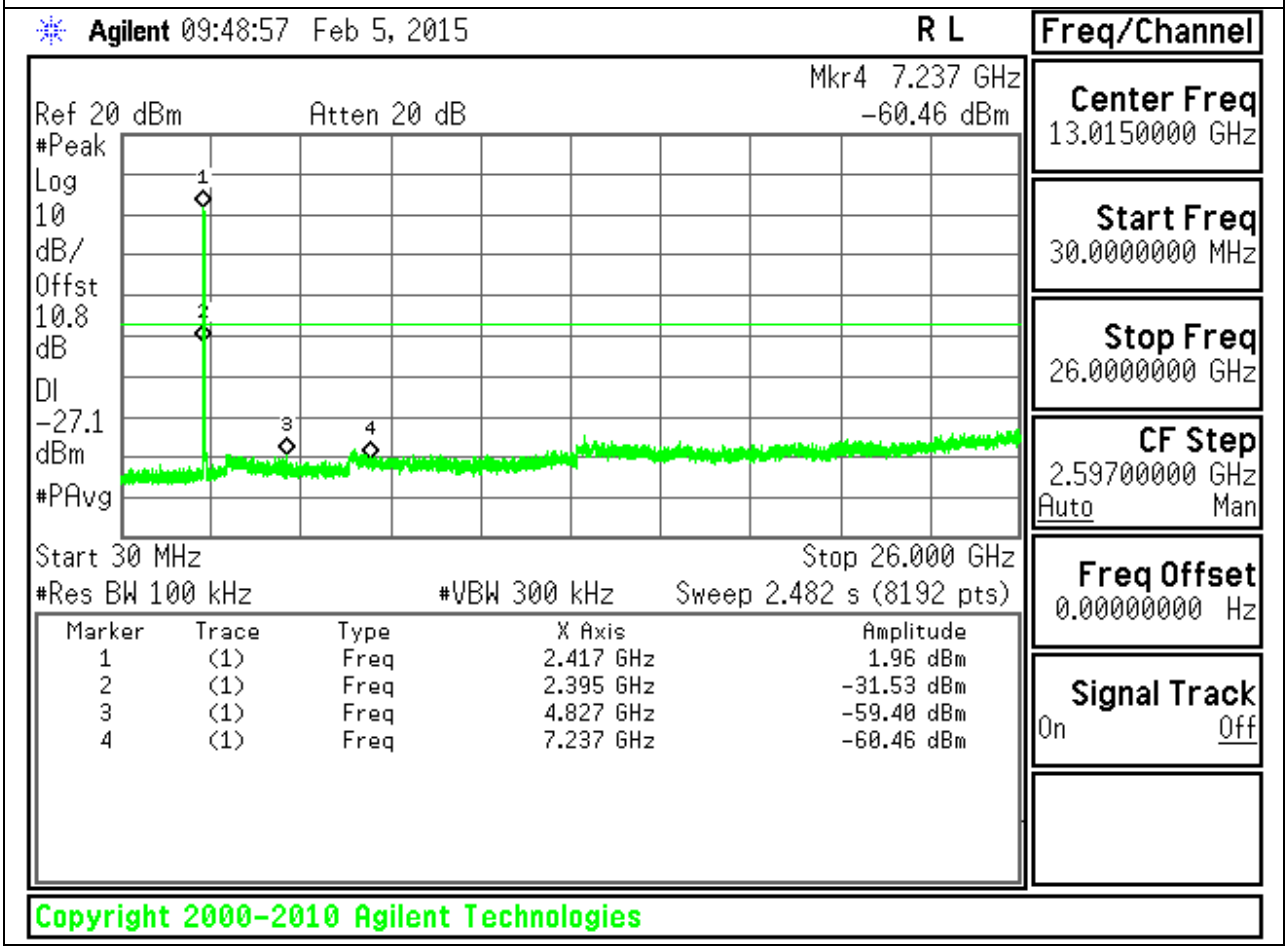
AUTHORIZED BAND EDGE HIGH CH



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

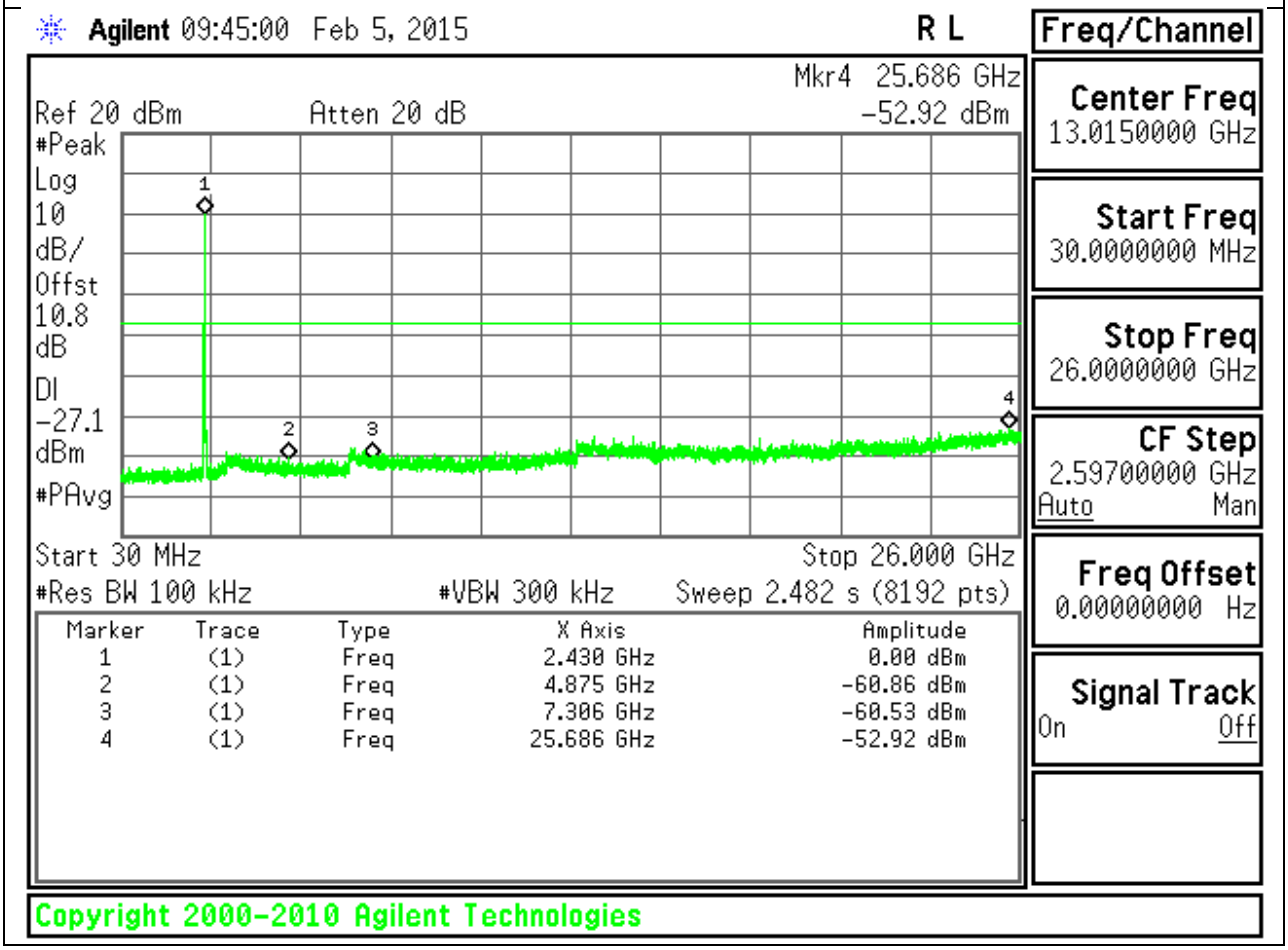
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

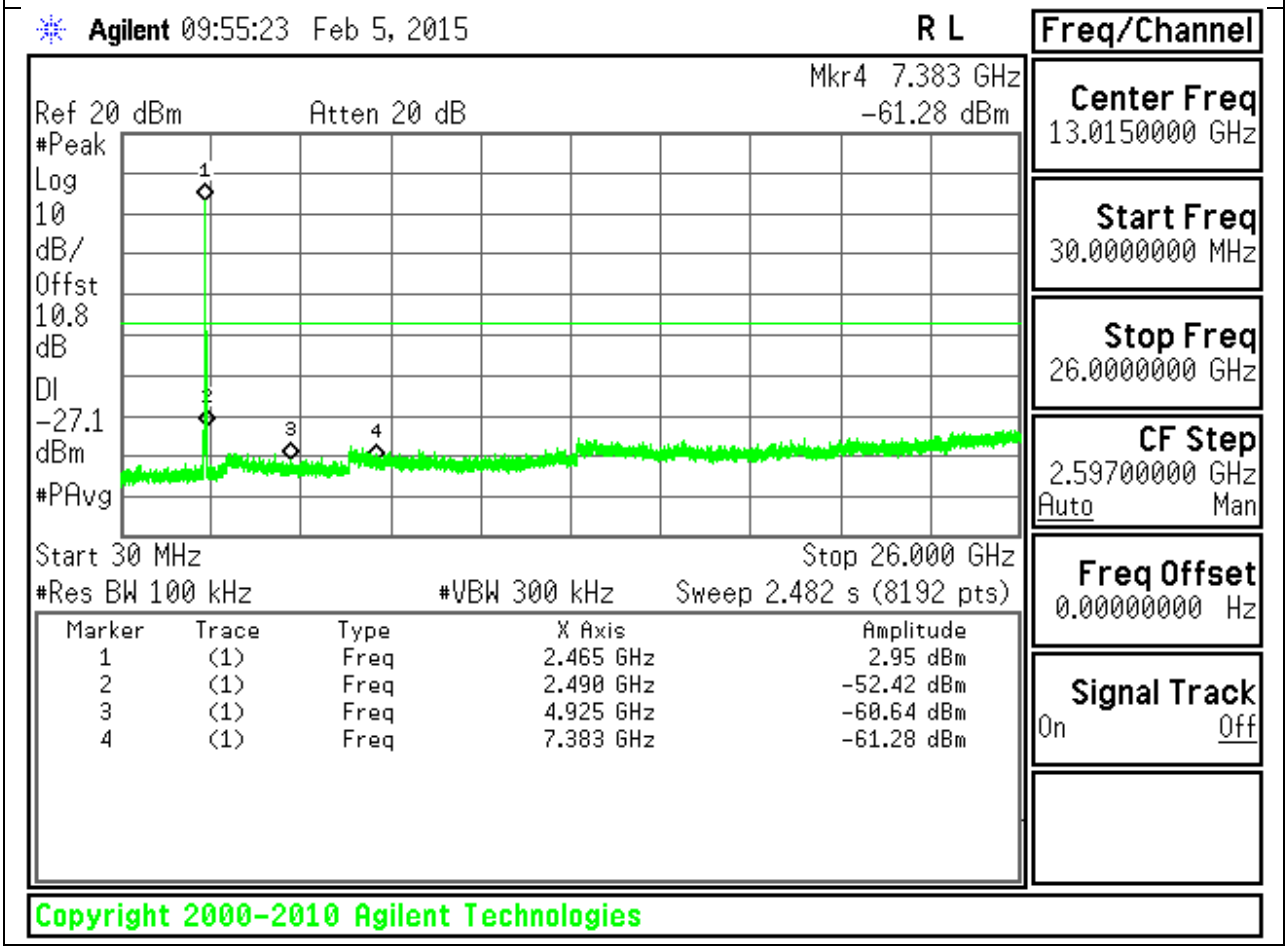
OUT OF BAND MID CH



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.430 GHz	0.00 dBm
2	(1)	Freq	4.875 GHz	-60.86 dBm
3	(1)	Freq	7.306 GHz	-60.53 dBm
4	(1)	Freq	25.686 GHz	-52.92 dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

OUT OF BAND HIGH CH



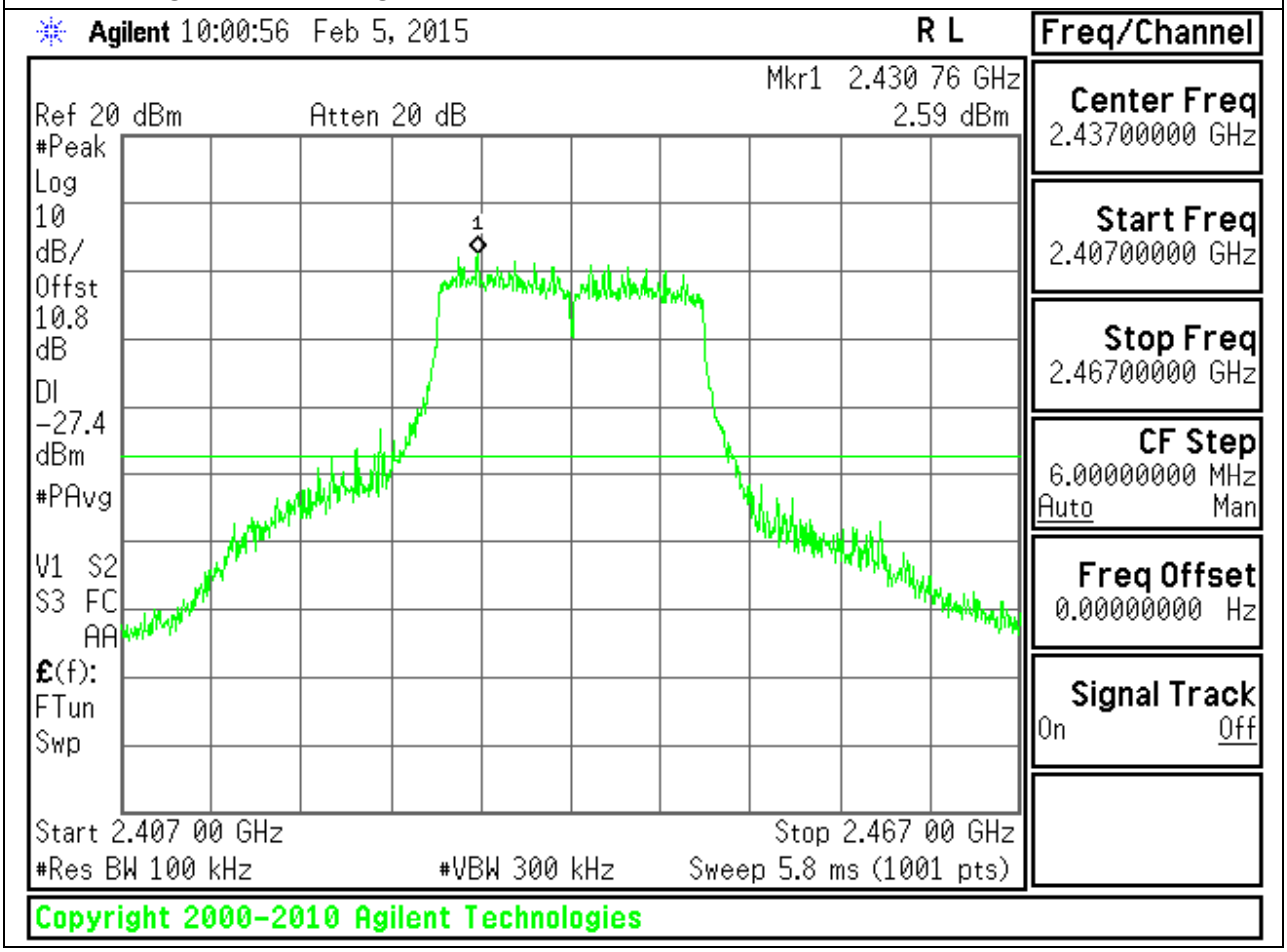
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.465 GHz	2.95 dBm
2	(1)	Freq	2.490 GHz	-52.42 dBm
3	(1)	Freq	4.925 GHz	-60.64 dBm
4	(1)	Freq	7.383 GHz	-61.28 dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.5.3. 802.11n MODE IN THE 2.4 GHz BAND

IN-BAND REFERENCE LEVEL

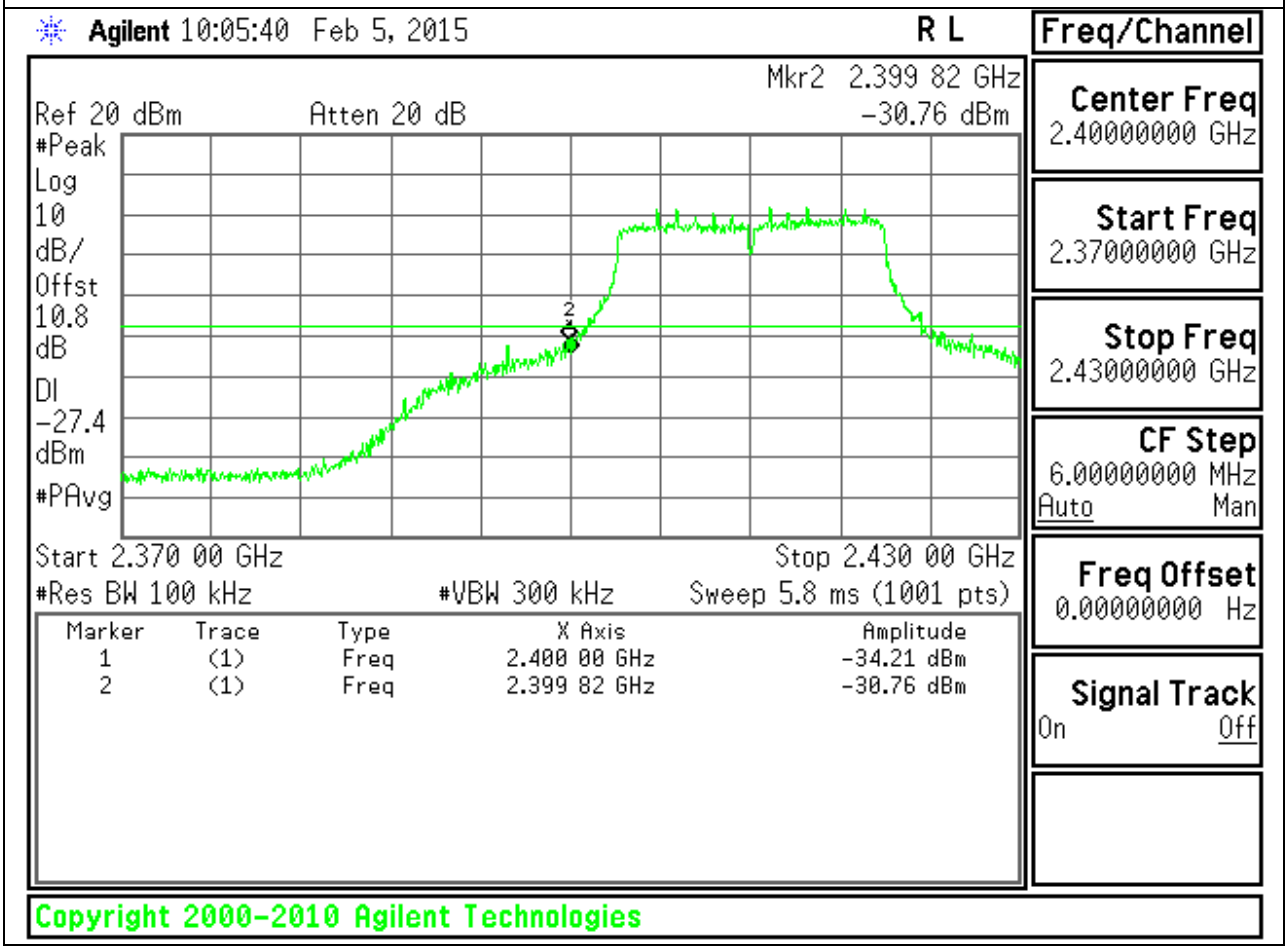
REFERENCE LEVEL MID CH



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LOW CHANNEL BANDEDGE

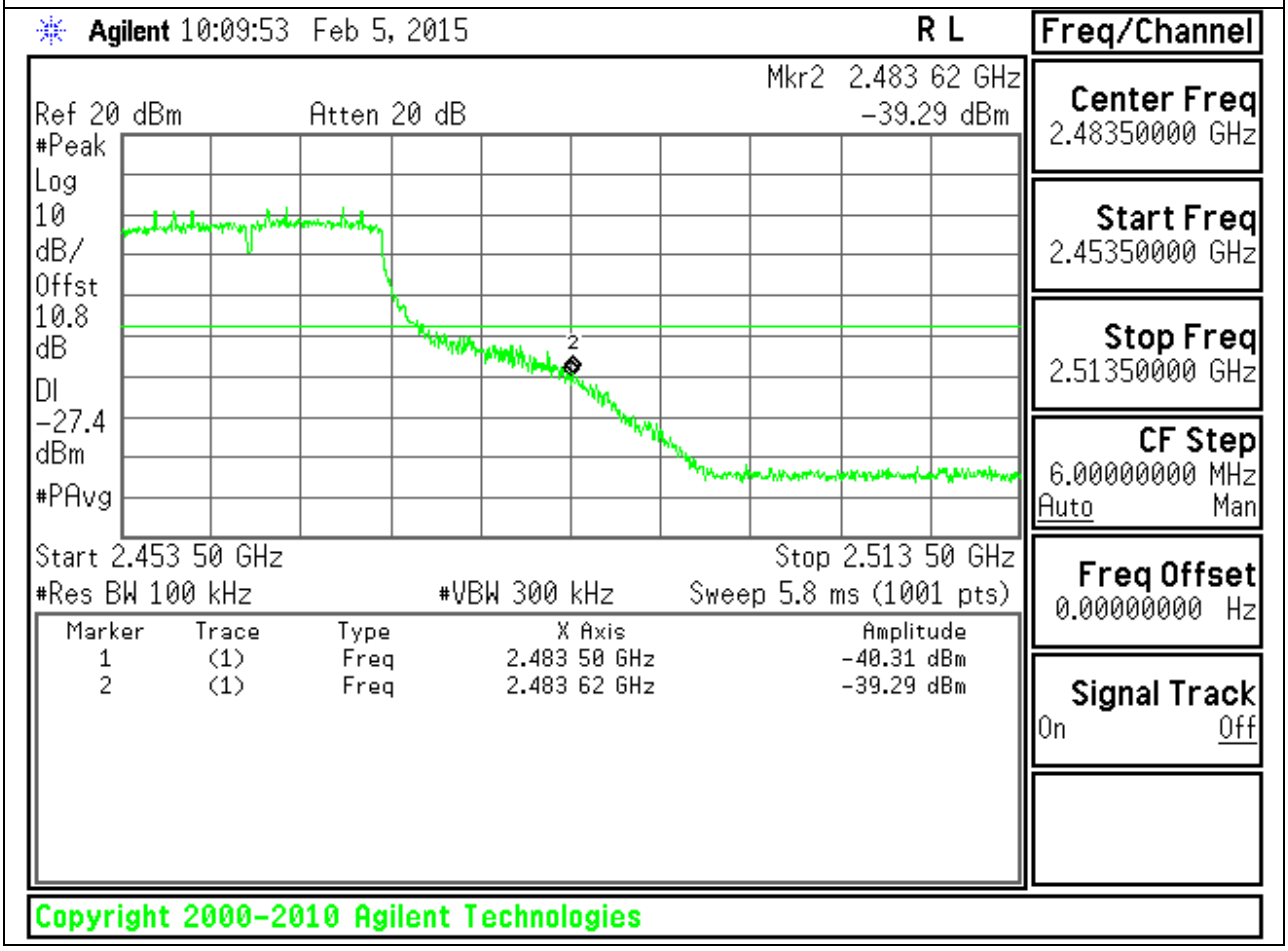
AUTHORIZED BAND EDGE LOW CH



UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL BANDEDGE

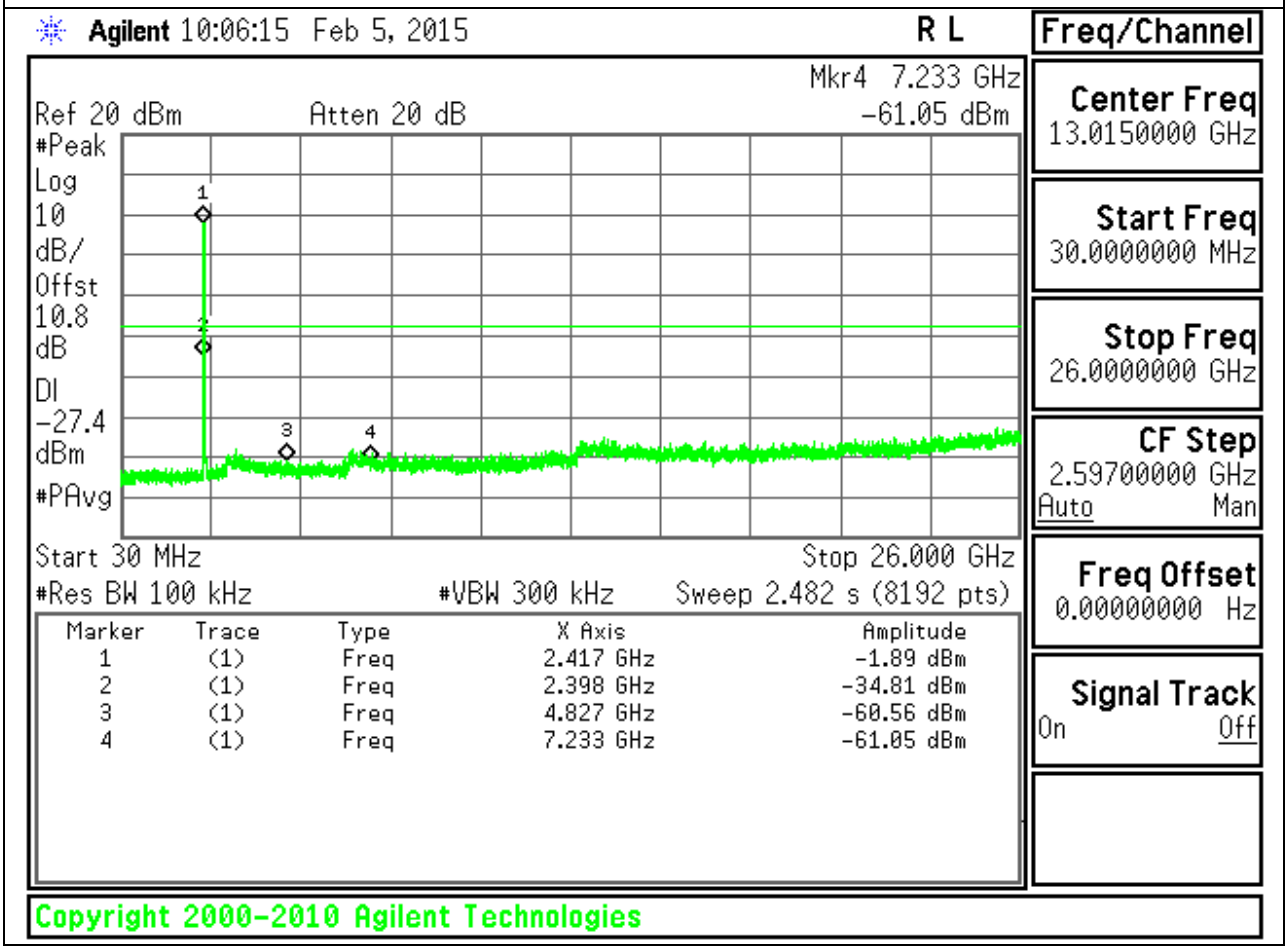
AUTHORIZED BAND EDGE HIGH CH



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

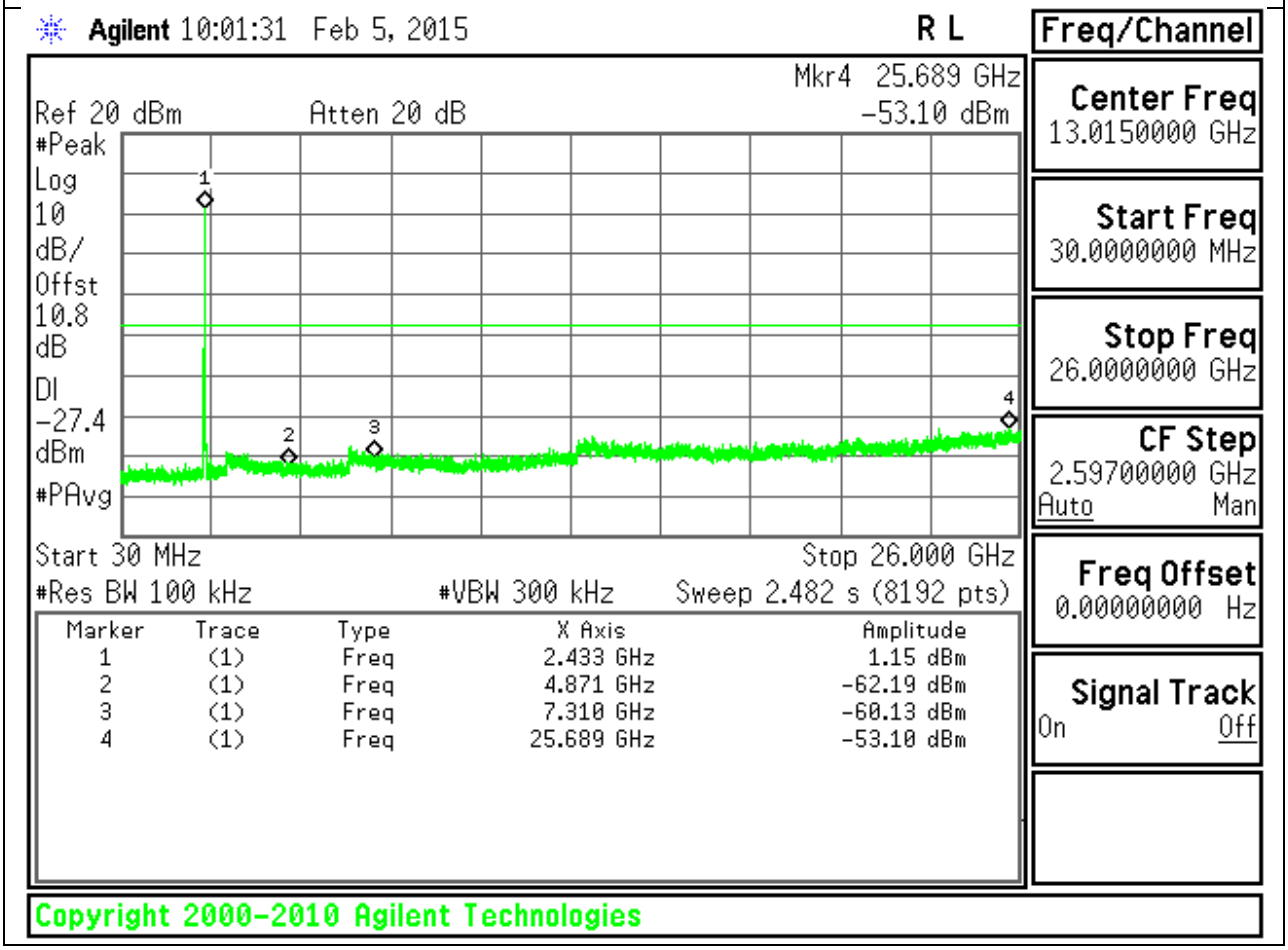
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



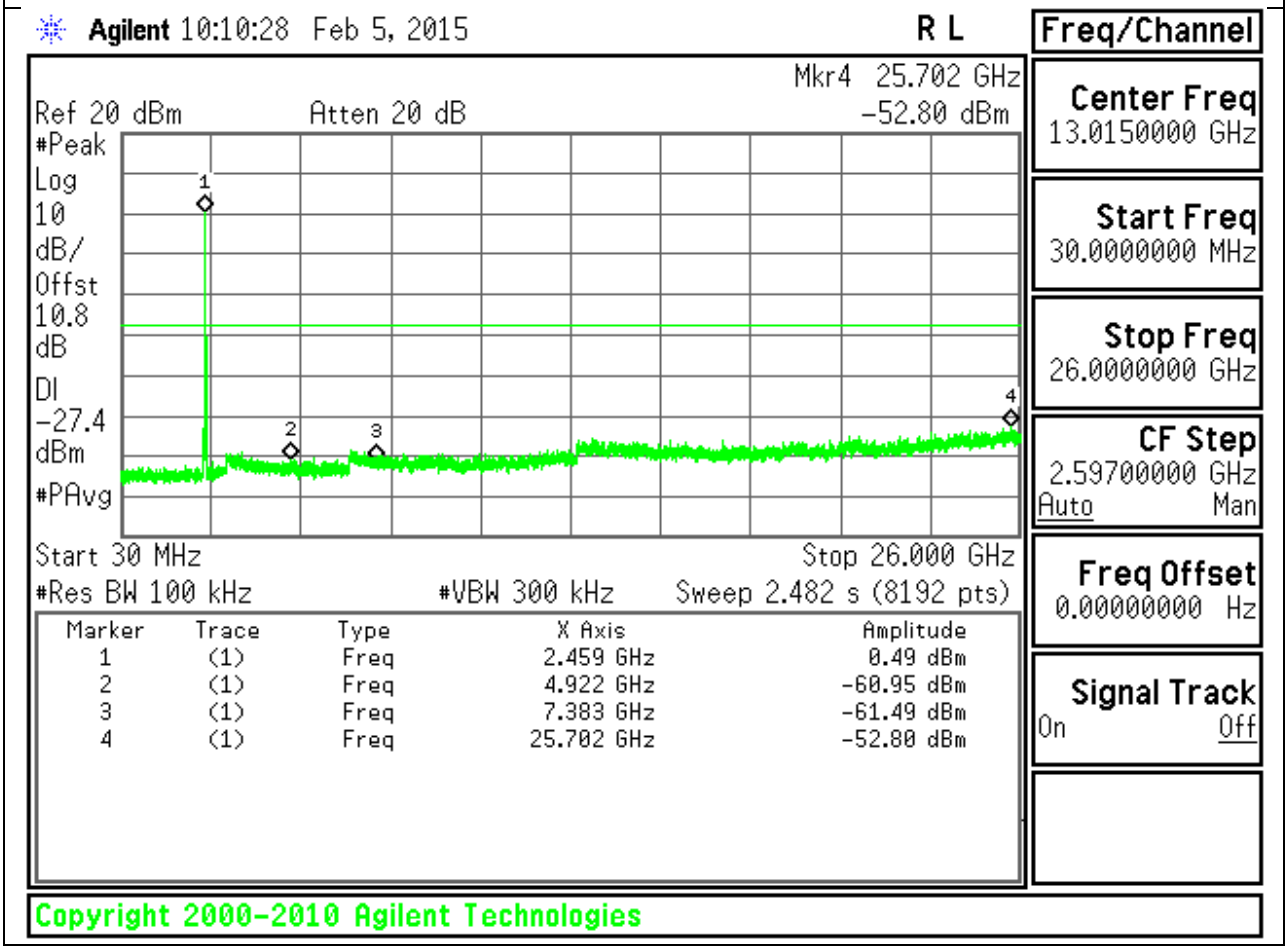
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

OUT OF BAND MID CH



UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

OUT OF BAND HIGH CH



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.459 GHz	0.49 dBm
2	(1)	Freq	4.922 GHz	-60.95 dBm
3	(1)	Freq	7.383 GHz	-61.49 dBm
4	(1)	Freq	25.702 GHz	-52.80 dBm

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

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 3 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor= 10log (1/x) For this sample B mode = 0dB (duty cycle >98%); G mode = 0.31dB; N mode = 0.32dB.

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.

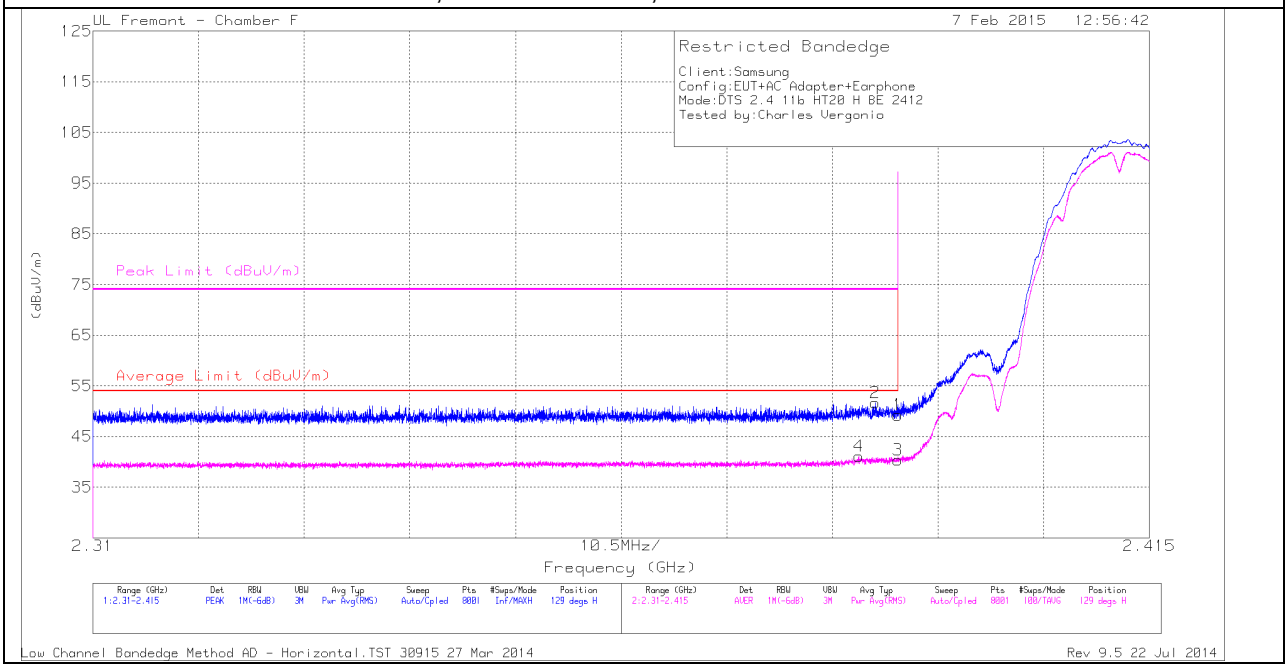
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, PEAK and AVG, HORIZ

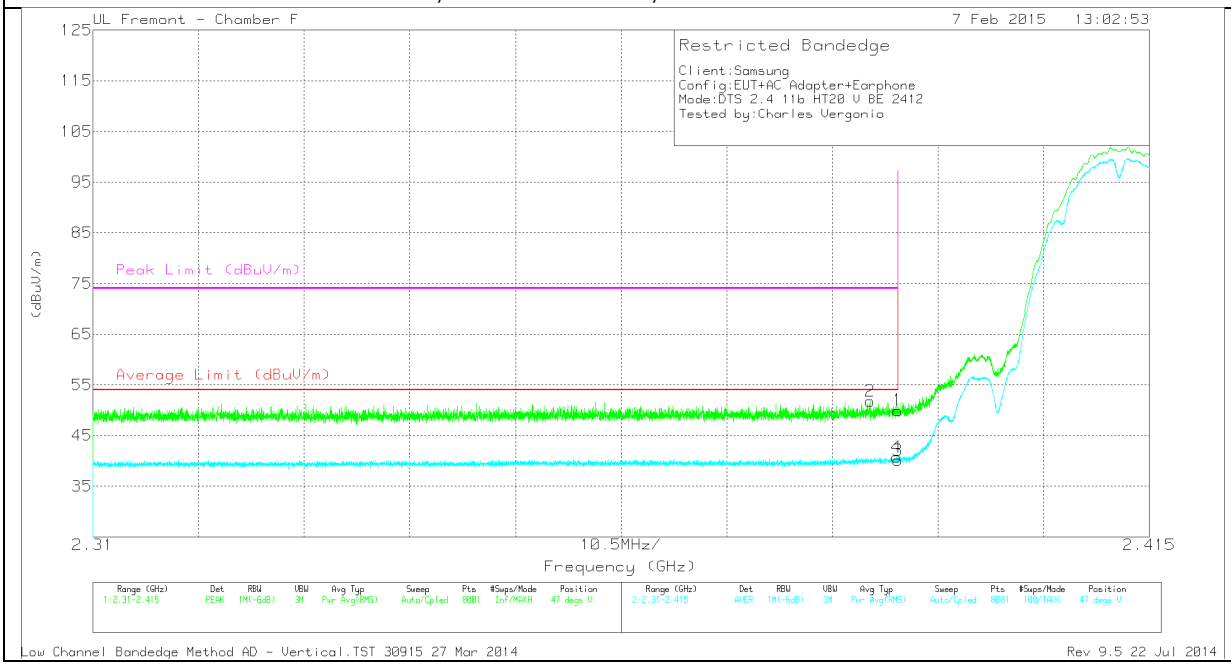


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	37.94	PK	32.2	-20.9	49.24	-	-	74	-24.76	129	221	H
2	* 2.388	40.4	PK	32.2	-20.9	51.7	-	-	74	-22.3	129	221	H
3	* 2.39	29.09	RMS	32.2	-20.9	40.39	54	-13.61	-	-	129	221	H
4	* 2.386	29.87	RMS	32.1	-20.9	41.07	54	-12.93	-	-	129	221	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
RMS - RMS detection

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LOW CHANNEL RESTRICTED, PEAK and AVG, VERT



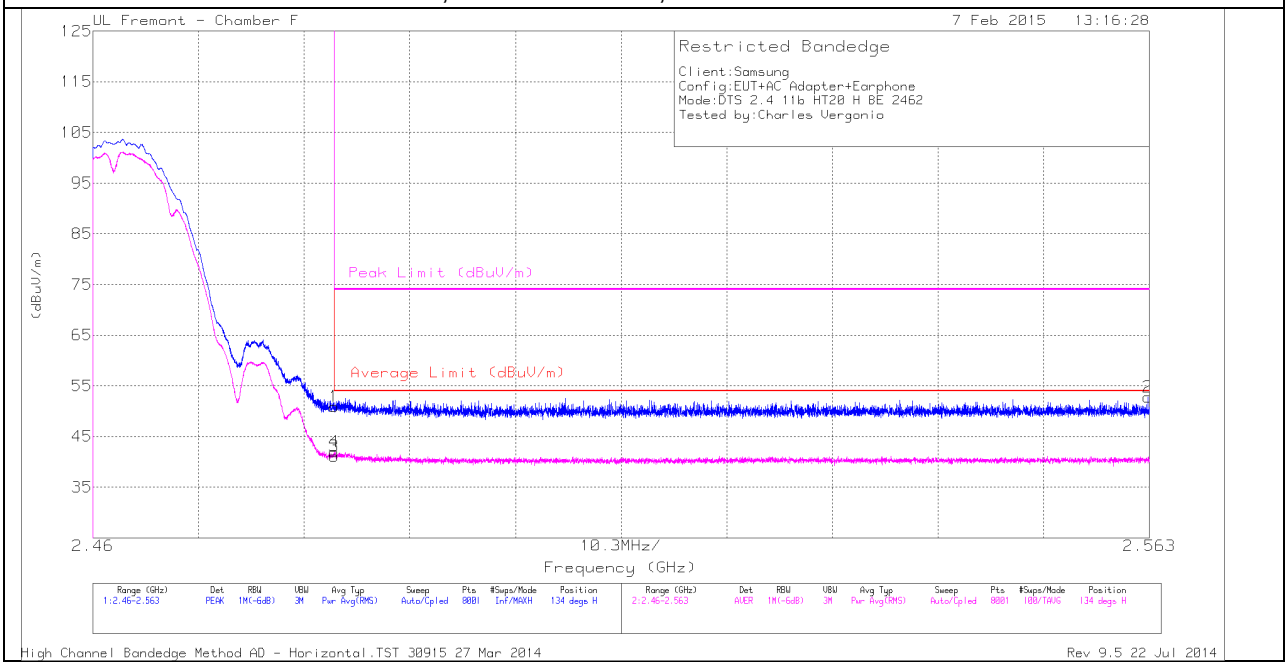
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.68	PK	32.2	-20.9	49.98	-	-	74	-24.02	47	274	V
2	* 2.387	40.46	PK	32.2	-20.9	51.76	-	-	74	-22.24	47	274	V
3	* 2.39	28.81	RMS	32.2	-20.9	40.11	54	-13.89	-	-	47	274	V
4	* 2.39	29.41	RMS	32.2	-20.9	40.71	54	-13.29	-	-	47	274	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
RMS - RMS detection

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK and AVG, HORIZ

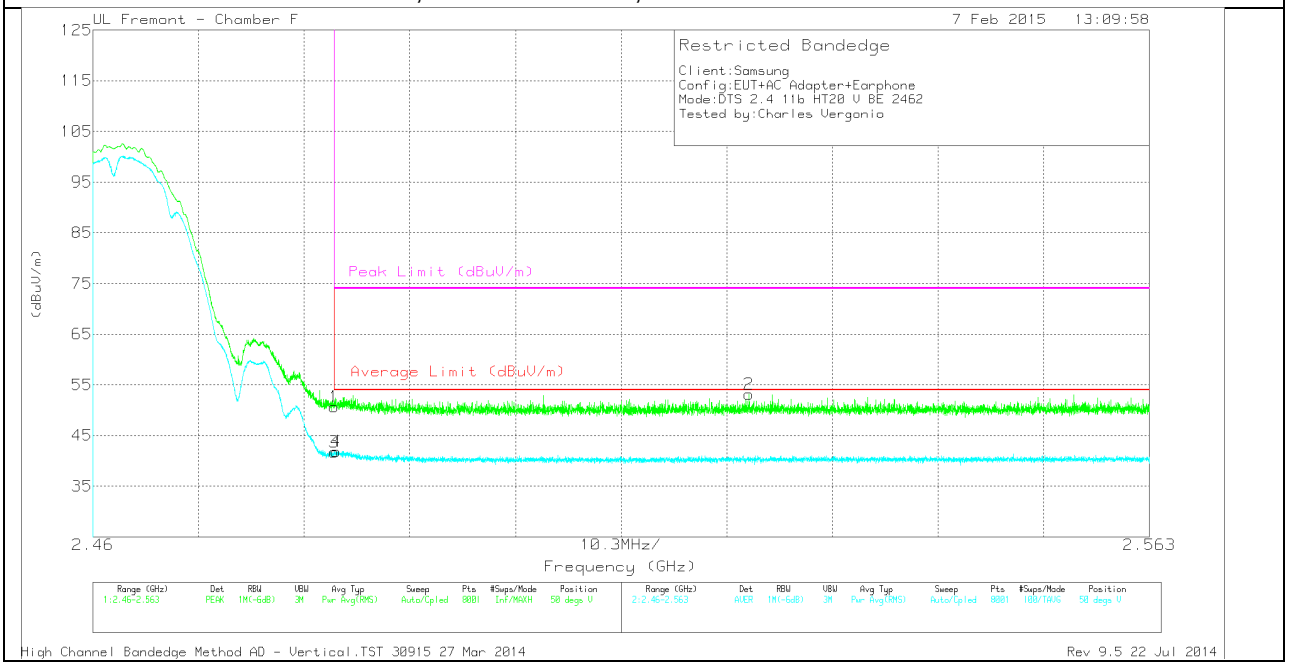


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.19	PK	32.6	-20.9	50.89	-	-	74	-23.11	134	265	H
2	2.563	40.89	PK	32.7	-20.8	52.79	-	-	74	-21.21	134	265	H
3	* 2.484	29.43	RMS	32.6	-20.9	41.13	54	-12.87	-	-	134	265	H
4	* 2.484	30.24	RMS	32.6	-20.9	41.94	54	-12.06	-	-	134	265	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
RMS - RMS detection

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL BANDEDGE, PEAK and AVG, VERT



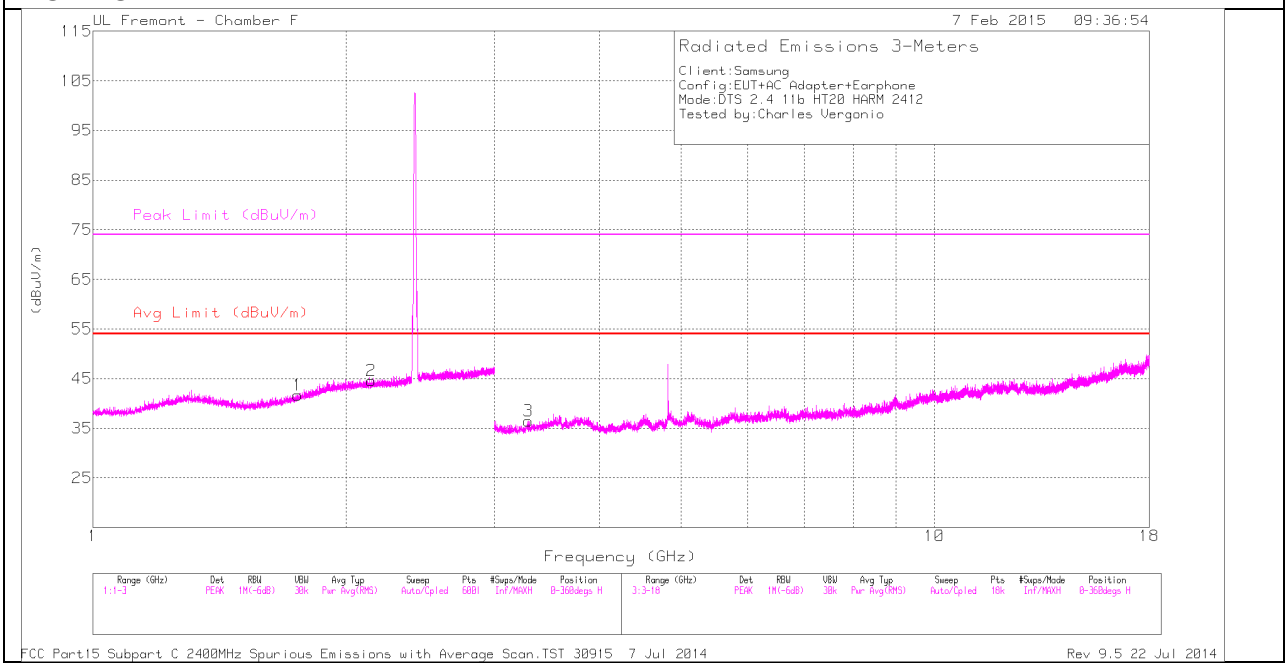
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.94	PK	32.6	-20.9	50.64	-	-	74	-23.36	50	269	V
2	2.524	41.3	PK	32.7	-20.9	53.1	-	-	74	-20.9	50	269	V
3	* 2.484	30.08	RMS	32.6	-20.9	41.78	54	-12.22	-	-	50	269	V
4	* 2.484	30.2	RMS	32.6	-20.9	41.9	54	-12.1	-	-	50	269	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

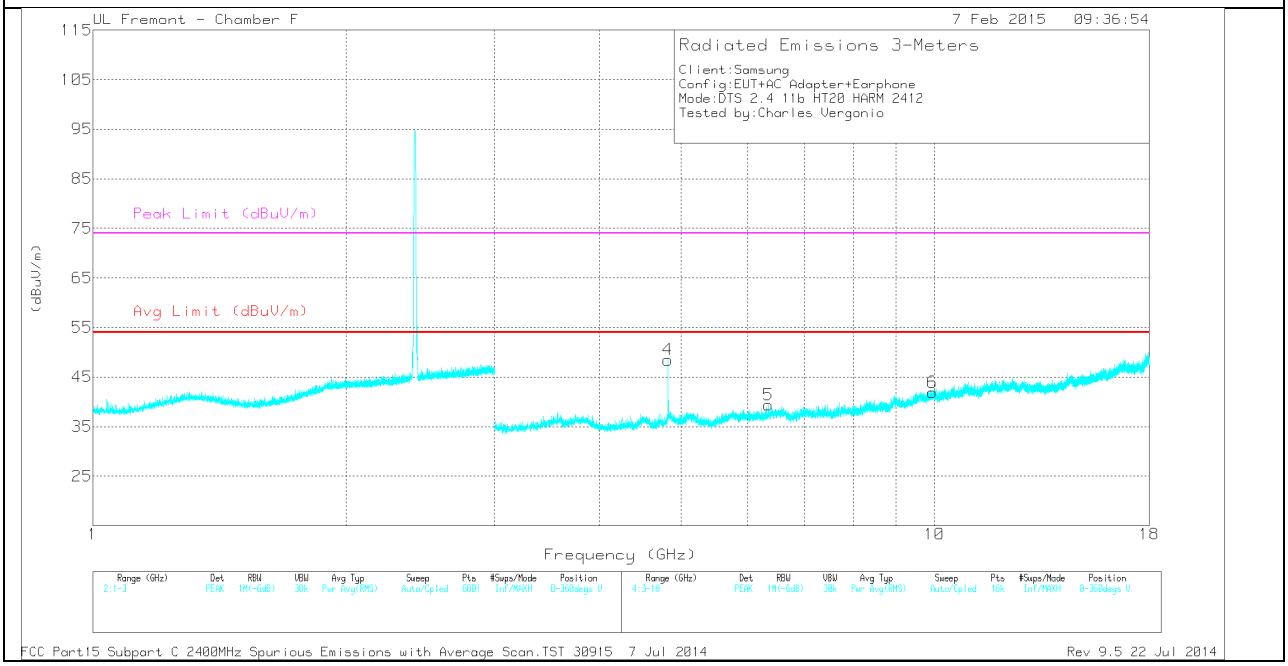
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.753	33.46	PK	29.8	-21.6	41.66	-	-	-	-	0-360	100	H
2	2.142	34.03	PK	31.8	-21.2	44.63	-	-	-	-	0-360	100	H
3	3.294	31.64	PK	33.7	-28.9	36.44	-	-	-	-	0-360	100	H
4	* 4.824	41.96	PK	34.1	-27.6	48.46	-	-	74	-25.54	0-360	201	V
5	6.353	30.72	PK	35.6	-26.9	39.42	-	-	-	-	0-360	101	V
6	9.942	26.77	PK	37.2	-22	41.97	-	-	-	-	0-360	101	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

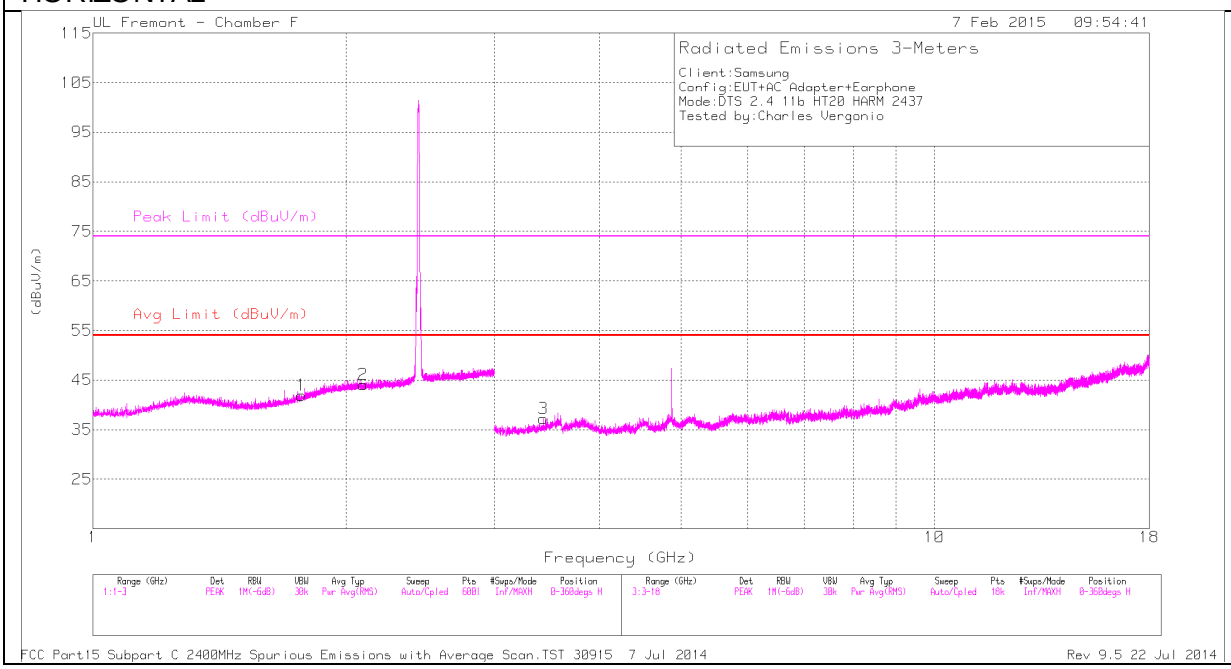
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (db)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.824	47.79	PK2	34.1	-27.6	54.29	-	-	74	-19.71	337	253	V
* 4.824	43.37	MAv1	34.1	-27.6	49.87	54	-4.13	-	-	337	253	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

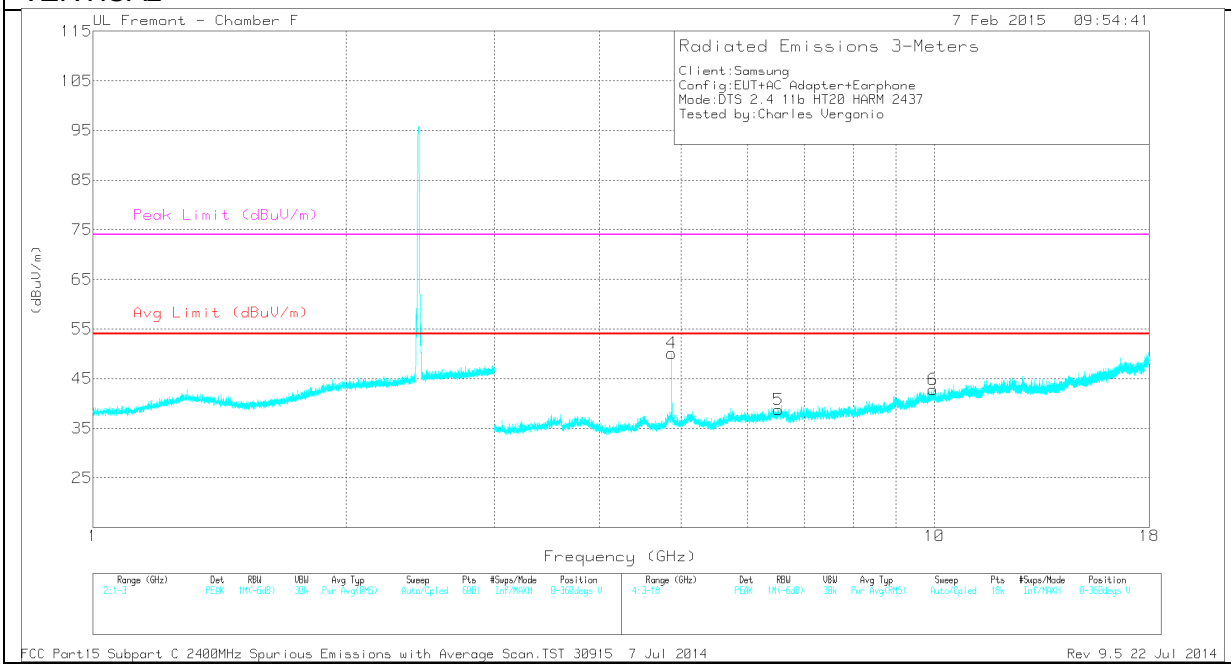
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.768	33.62	PK	29.9	-21.6	41.92	-	-	-	-	0-360	201	H
2	2.093	33.6	PK	31.8	-21.3	44.1	-	-	-	-	0-360	201	H
3	3.43	32.12	PK	34.1	-29	37.22	-	-	-	-	0-360	201	H
4	* 4.874	43.71	PK	34.2	-27.8	50.11	-	-	74	-23.89	0-360	201	V
5	6.521	29.96	PK	35.6	-26.8	38.76	-	-	-	-	0-360	101	V
6	9.962	27.06	PK	37.2	-21.5	42.76	-	-	-	-	0-360	201	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

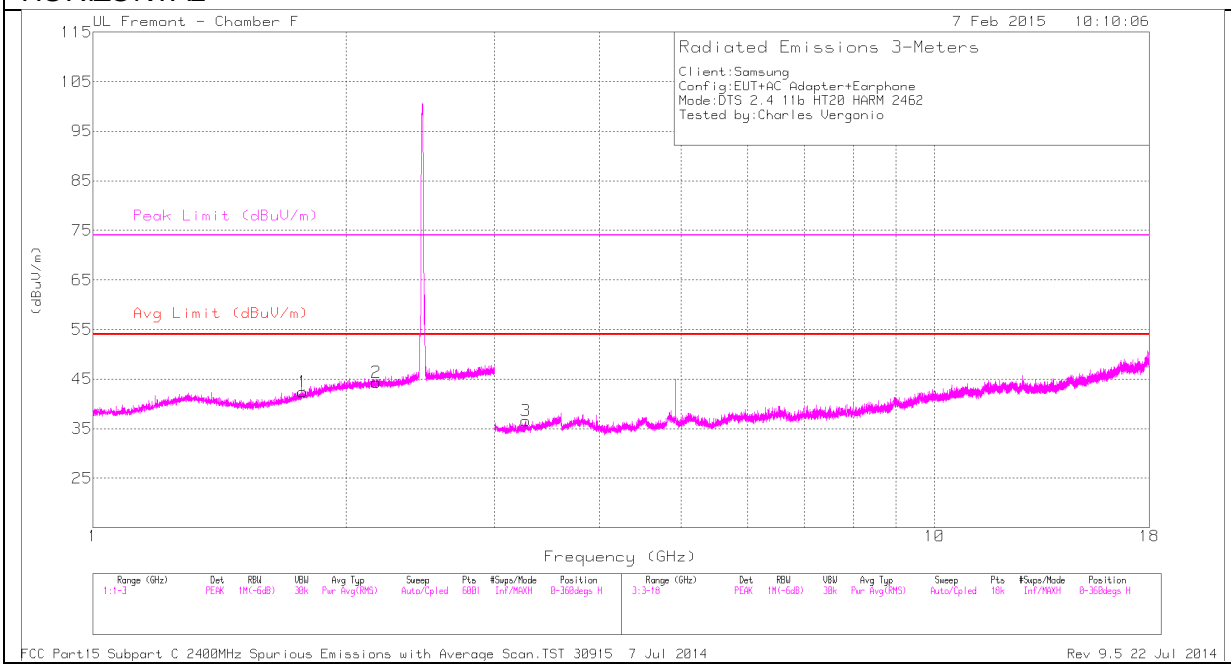
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (db)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.874	46.95	PK2	34.2	-27.8	53.35	-	-	74	-20.65	35	278	V
* 4.874	43.49	MAv1	34.2	-27.8	49.89	54	-4.11	-	-	35	278	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

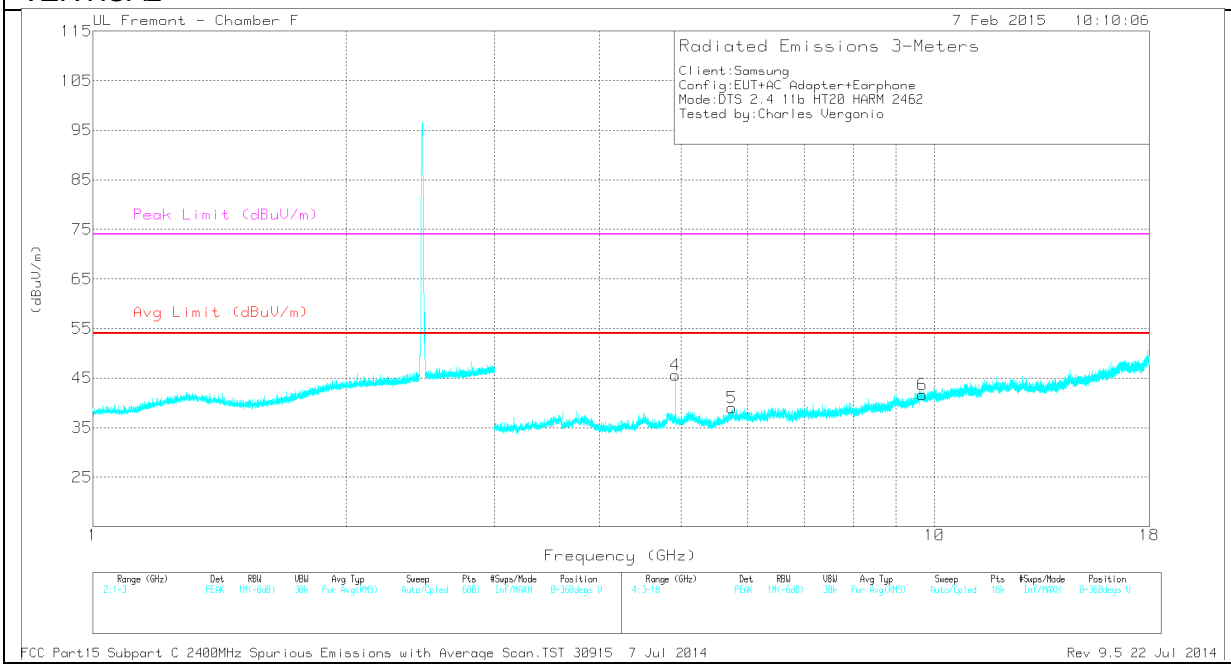
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.774	34.03	PK	30	-21.6	42.43	-	-	-	-	0-360	201	H
2	2.169	33.78	PK	31.8	-21.2	44.38	-	-	-	-	0-360	101	H
3	3.271	31.94	PK	33.6	-29	36.54	-	-	-	-	0-360	101	H
4	* 4.924	40.01	PK	34.2	-28.6	45.61	-	-	74	-28.39	0-360	201	V
5	5.744	30.45	PK	34.9	-26.4	38.95	-	-	-	-	0-360	101	V
6	9.68	26.71	PK	37.1	-22.2	41.61	-	-	-	-	0-360	101	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

Radiated Emissions

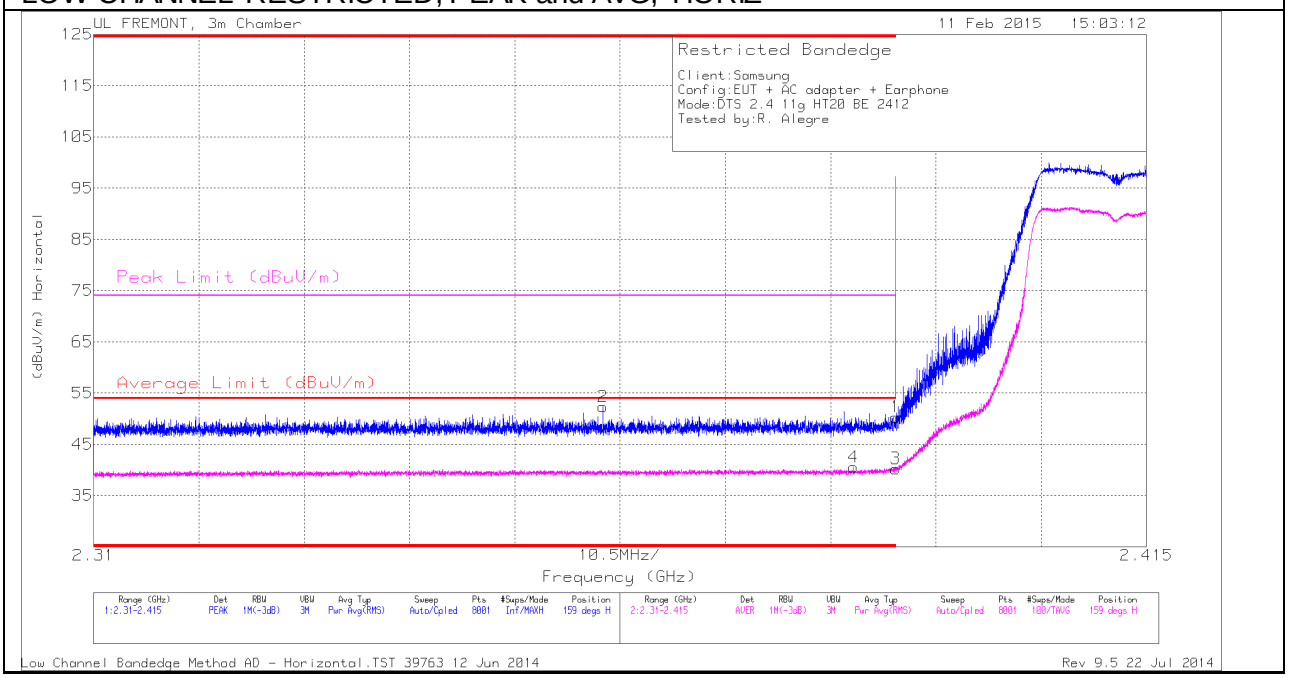
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (db)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.924	45.09	PK2	34.2	-28.6	50.69	-	-	74	-23.31	90	183	V
* 4.924	40.13	MAv1	34.2	-28.6	45.73	54	-8.27	-	-	90	183	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, PEAK and AVG, HORIZ



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	41.42	PK	32	-23.1	0	50.32	-	-	74	-23.68	159	242	H
2	* 2.361	43.55	PK	31.9	-23.1	0	52.35	-	-	74	-21.65	159	242	H
3	* 2.39	31.05	RMS	32	-23.1	.3	40.25	54	-13.75	-	-	159	242	H
4	* 2.386	31.35	RMS	32	-23.1	.3	40.55	54	-13.45	-	-	159	242	H

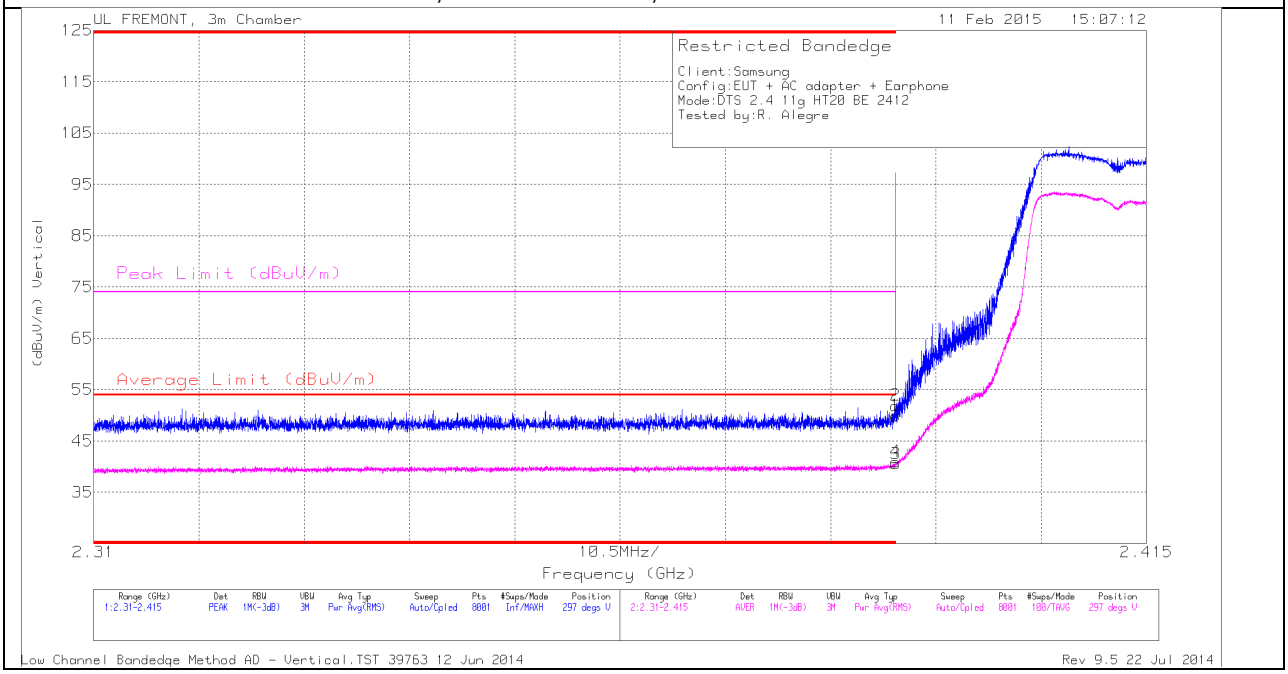
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LOW CHANNEL RESTRICTED, PEAK and AVG, VERT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	41.04	PK	32	-23.1	0	49.94	-	-	74	-24.06	297	303	V
2	* 2.39	43.01	PK	32	-23.1	0	51.91	-	-	74	-22.09	297	303	V
3	* 2.39	31.39	RMS	32	-23.1	.3	40.59	54	-13.41	-	-	297	303	V
4	* 2.39	31.77	RMS	32	-23.1	.3	40.97	54	-13.03	-	-	297	303	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

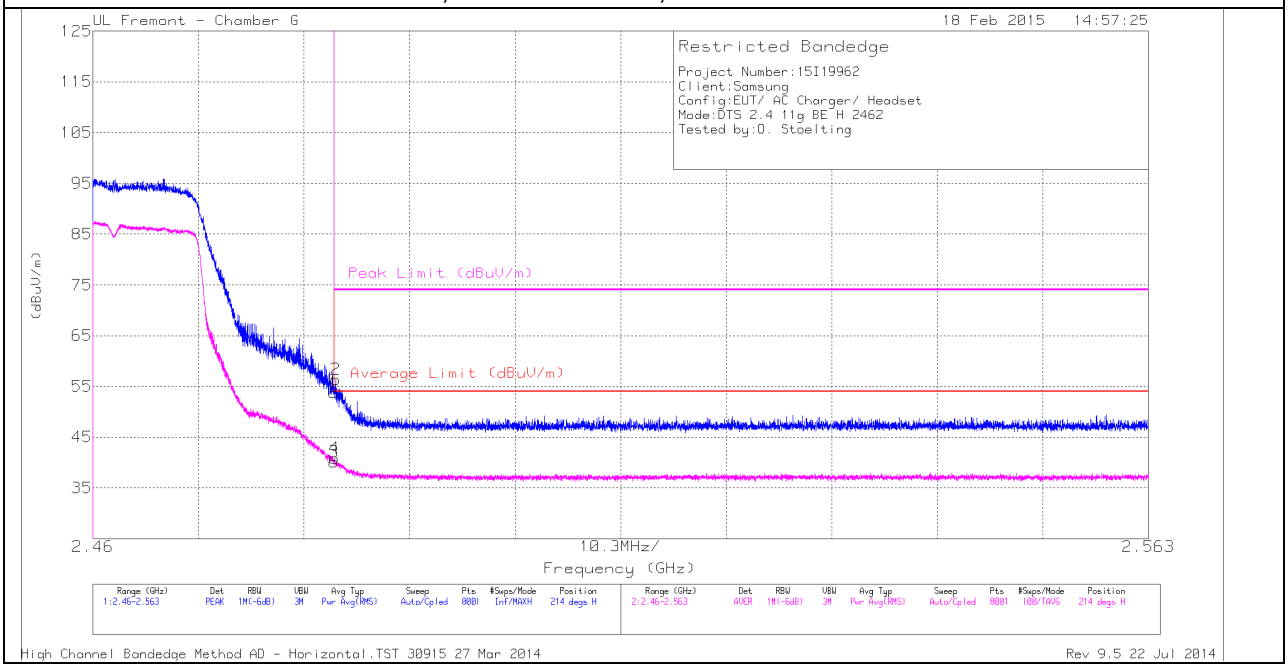
PK - Peak detector

RMS - RMS detection

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK and AVG, HORIZ



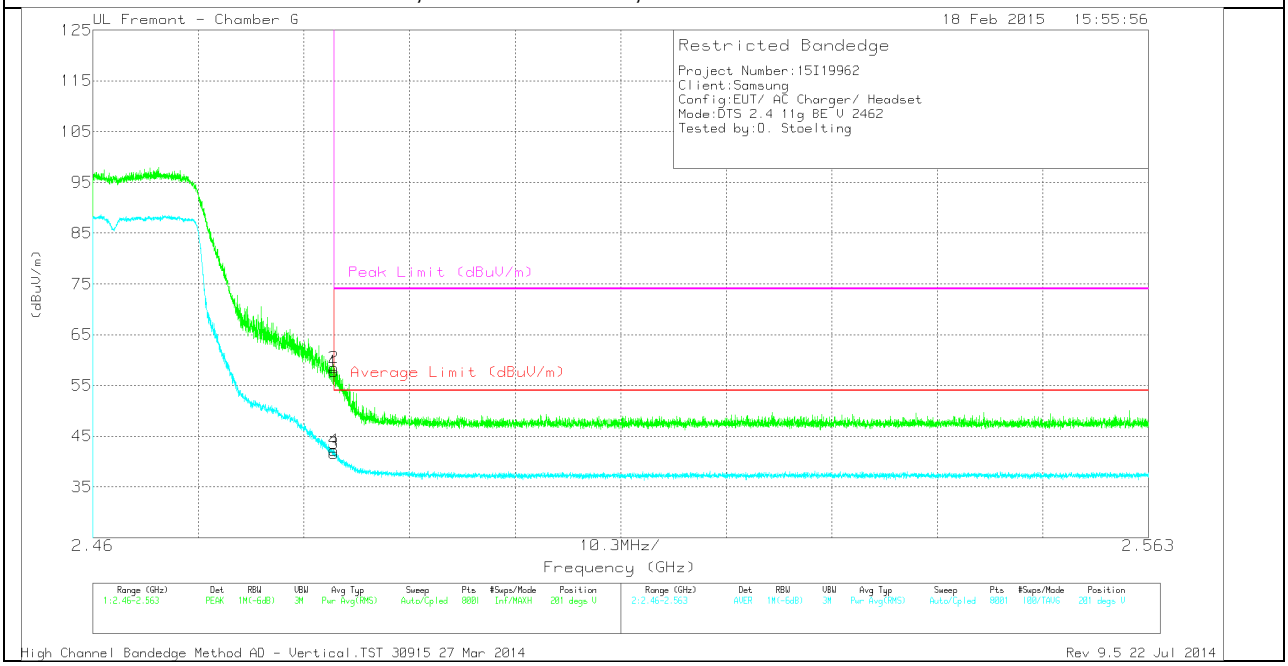
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	46.72	PK	32	-24.9	0	53.82	-	-	74	-20.18	214	361	H
2	* 2.484	49.24	PK	32	-24.9	0	56.34	-	-	74	-17.66	214	361	H
3	* 2.484	32.74	RMS	32	-24.9	.31	40.15	54	-13.85	-	-	214	361	H
4	* 2.484	33.43	RMS	32	-24.9	.31	40.84	54	-13.16	-	-	214	361	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL BANDEDGE, PEAK and AVG, VERT



Trace Markers

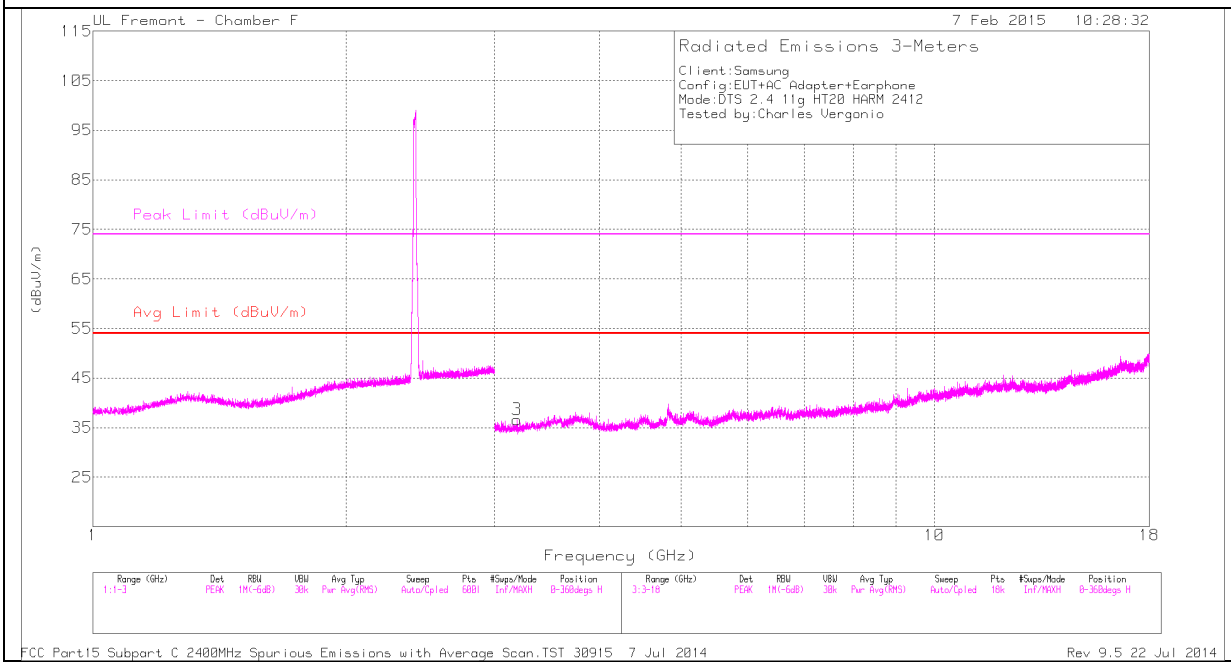
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	50.61	PK	32	-24.9	0	57.71	-	-	74	-16.29	201	232	V
2	* 2.484	51.38	PK	32	-24.9	0	58.48	-	-	74	-15.52	201	232	V
3	* 2.484	34.15	RMS	32	-24.9	.31	41.56	54	-12.44	-	-	201	232	V
4	* 2.484	34.85	RMS	32	-24.9	.31	42.26	54	-11.74	-	-	201	232	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

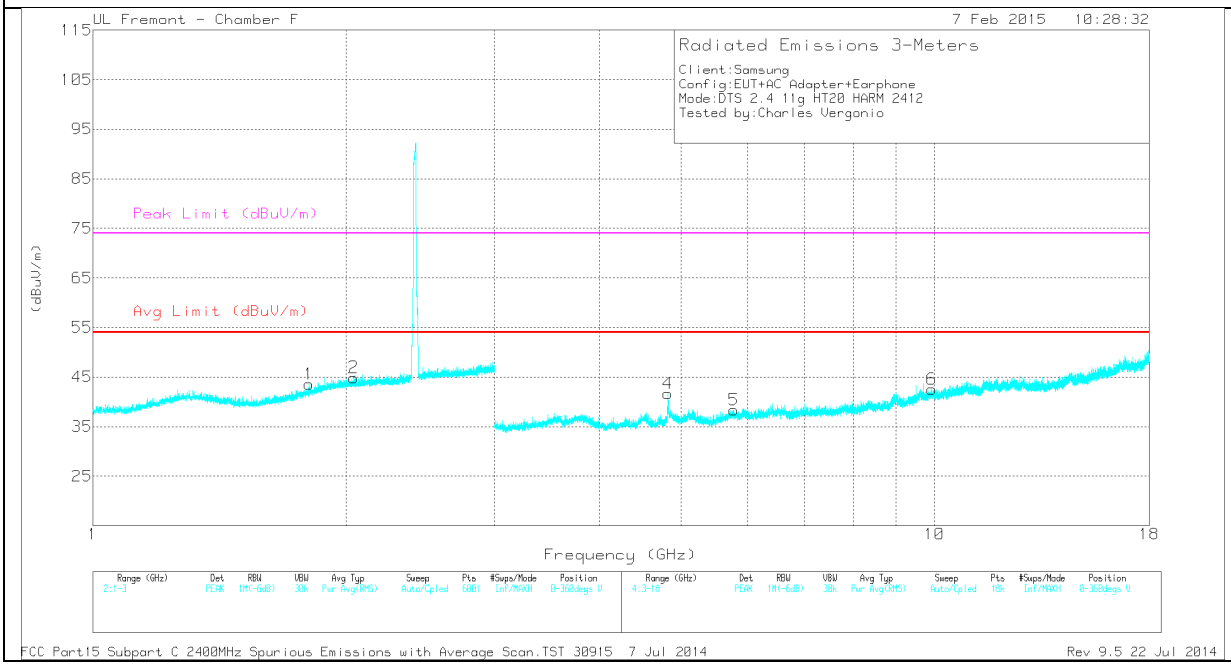
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

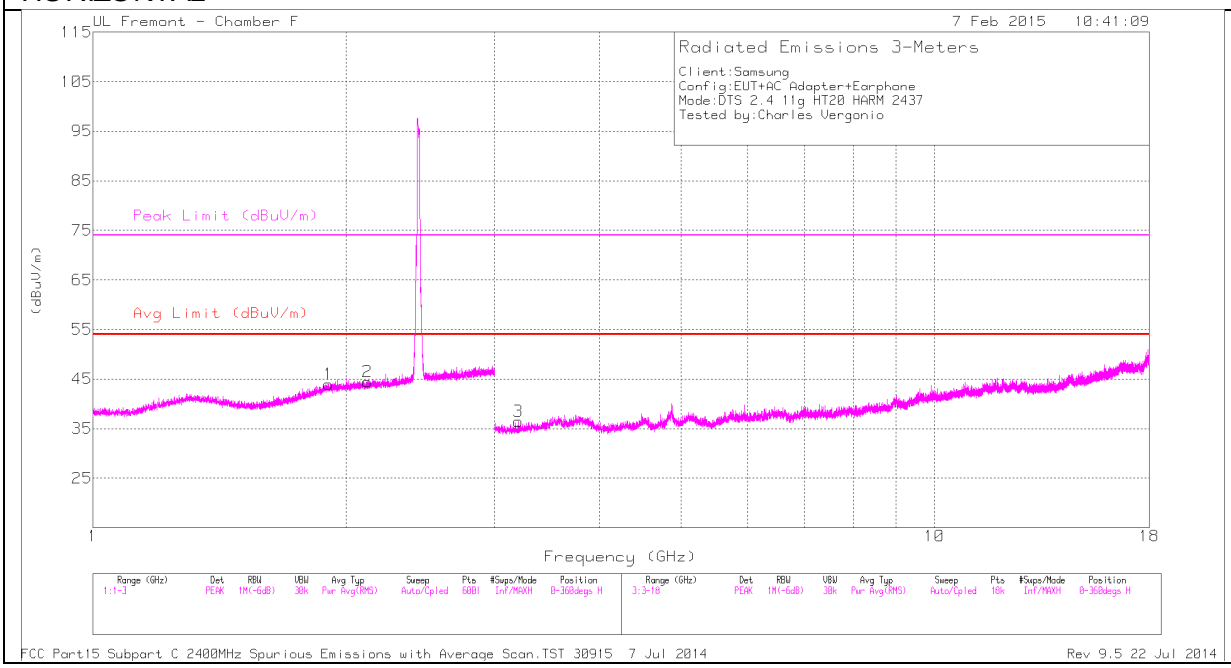
LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.805	34.77	PK	30.3	-21.5	0	43.57	-	-	-	-	0-360	201	V
2	2.042	34.4	PK	31.8	-21.3	0	44.9	-	-	-	-	0-360	101	V
3	3.192	32.25	PK	33.3	-28.9	0	36.65	-	-	-	-	0-360	100	H
4	* 4.822	35.22	PK	34.1	-27.6	0	41.72	-	-	74	-32.28	0-360	201	V
5	5.771	30.22	PK	34.9	-26.7	0	38.42	-	-	-	-	0-360	101	V
6	9.922	27.01	PK	37.2	-21.7	0	42.51	-	-	-	-	0-360	201	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

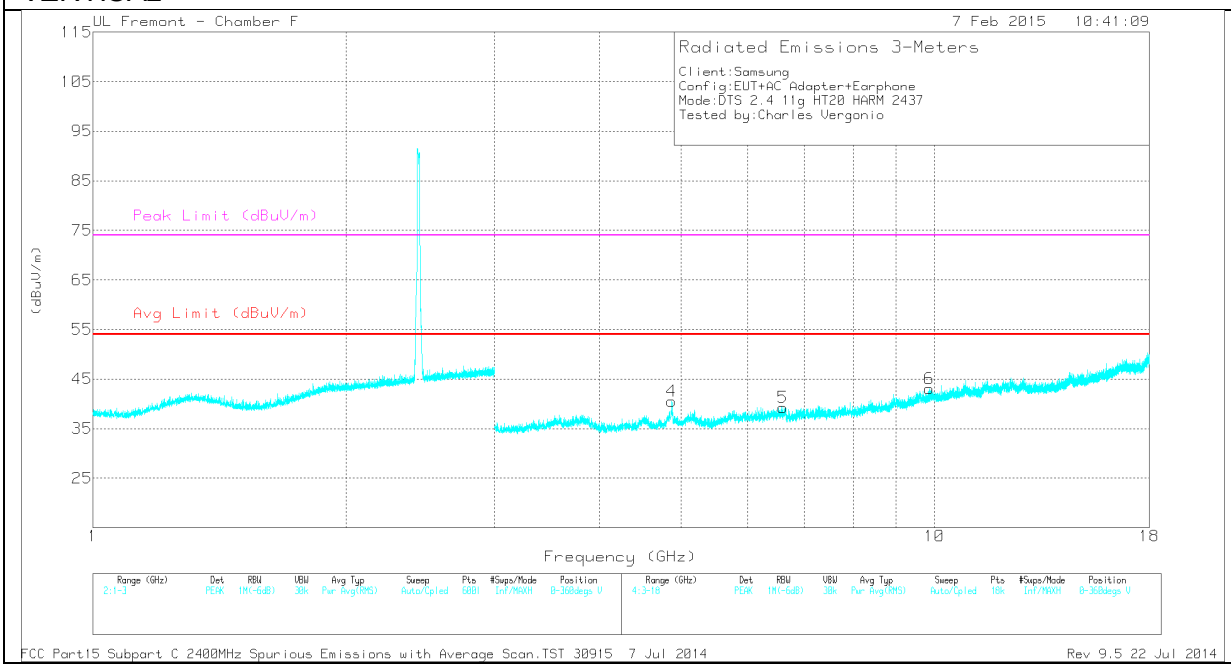
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

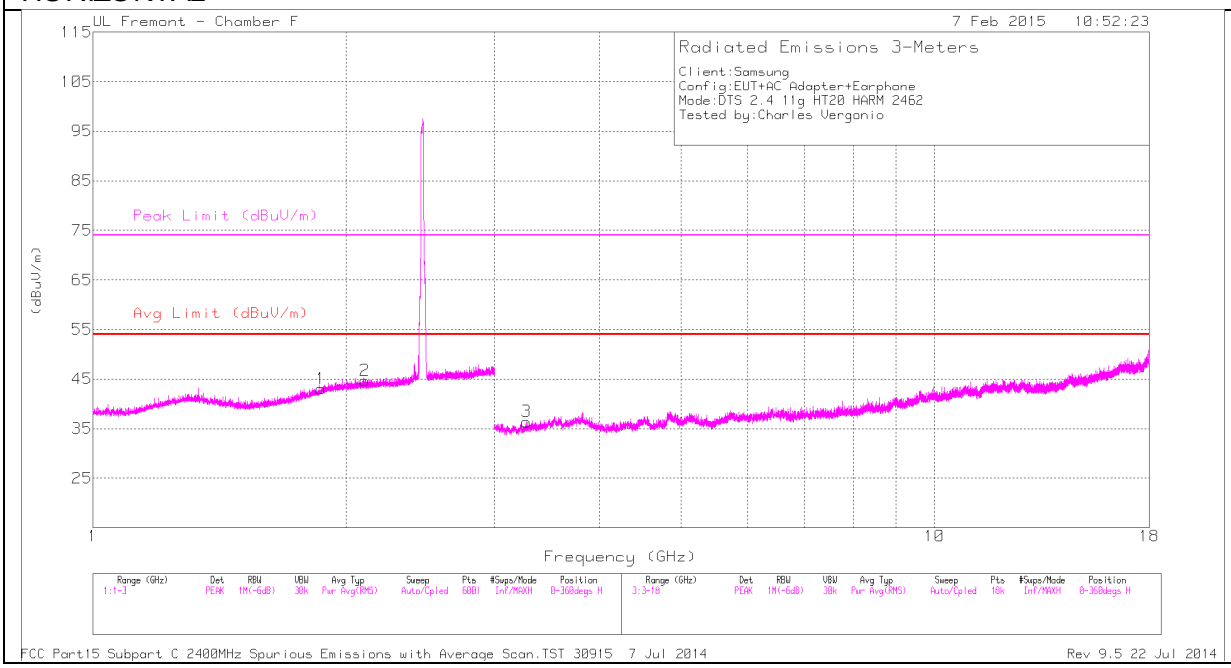
MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.907	34.08	PK	31.4	-21.5	0	43.98	-	-	-	-	0-360	201	H
2	2.118	33.87	PK	31.8	-21.2	0	44.47	-	-	-	-	0-360	100	H
3	3.2	32.07	PK	33.3	-28.9	0	36.47	-	-	-	-	0-360	201	H
4	* 4.875	34.12	PK	34.2	-27.8	0	40.52	-	-	74	-33.48	0-360	201	V
5	6.607	30.25	PK	35.7	-26.7	0	39.25	-	-	-	-	0-360	201	V
6	9.865	27.98	PK	37.2	-22.1	0	43.08	-	-	-	-	0-360	101	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

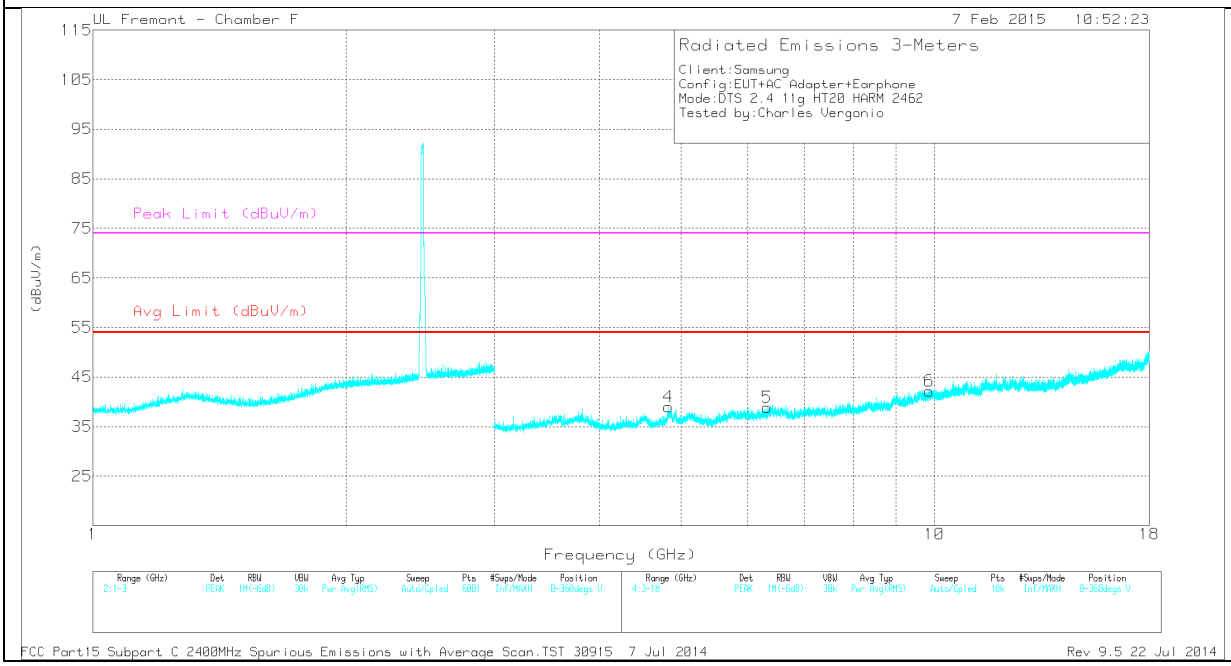
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL DATA

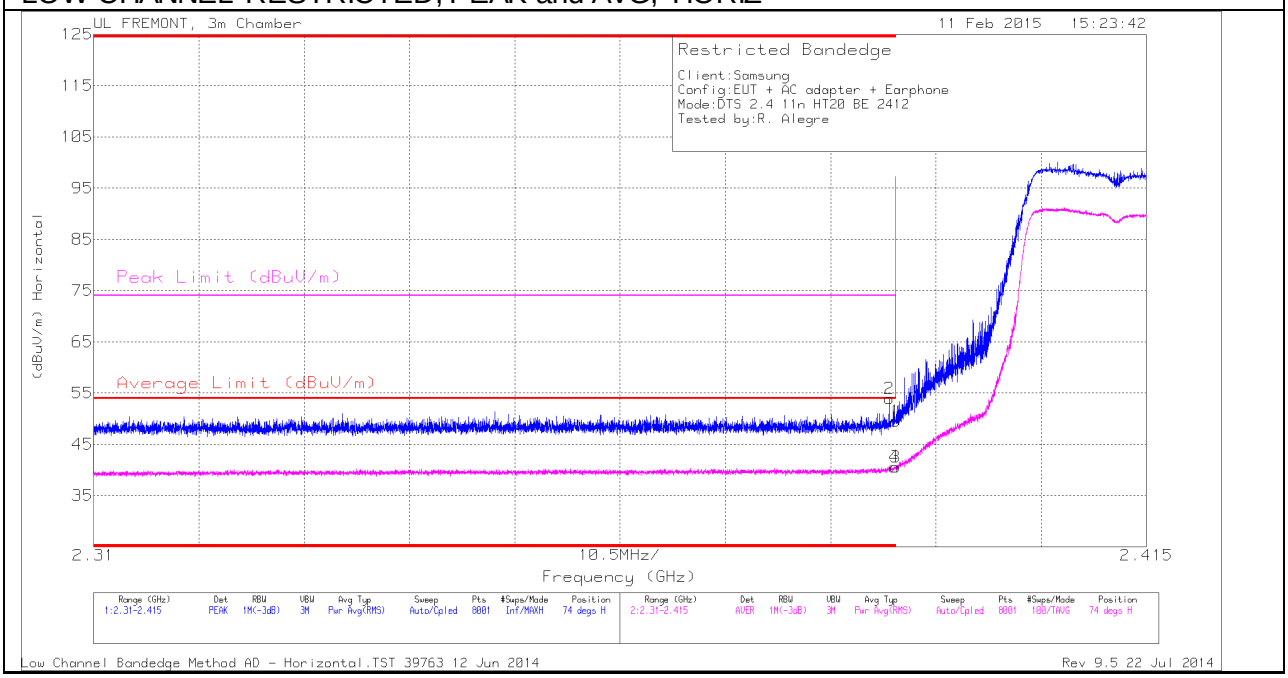
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.867	33.63	PK	31	-21.6	0	43.03	-	-	-	-	0-360	201	H
2	2.103	34.17	PK	31.8	-21.3	0	44.67	-	-	-	-	0-360	201	H
3	3.273	31.8	PK	33.6	-29	0	36.4	-	-	-	-	0-360	101	H
4	* 4.829	32.62	PK	34.1	-27.7	0	39.02	-	-	74	-34.98	0-360	101	V
5	6.321	30.43	PK	35.5	-27.1	0	38.83	-	-	-	-	0-360	101	V
6	9.86	27.02	PK	37.2	-22	0	42.22	-	-	-	-	0-360	201	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, PEAK and AVG, HORIZ



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.64	PK	32	-23.1	0	49.54	-	-	74	-24.46	74	291	H
2	* 2.389	45.05	PK	32	-23.1	0	53.95	-	-	74	-20.05	74	291	H
3	* 2.39	31.31	RMS	32	-23.1	.32	40.53	54	-13.47	-	-	74	291	H
4	* 2.39	31.38	RMS	32	-23.1	.32	40.6	54	-13.4	-	-	74	291	H

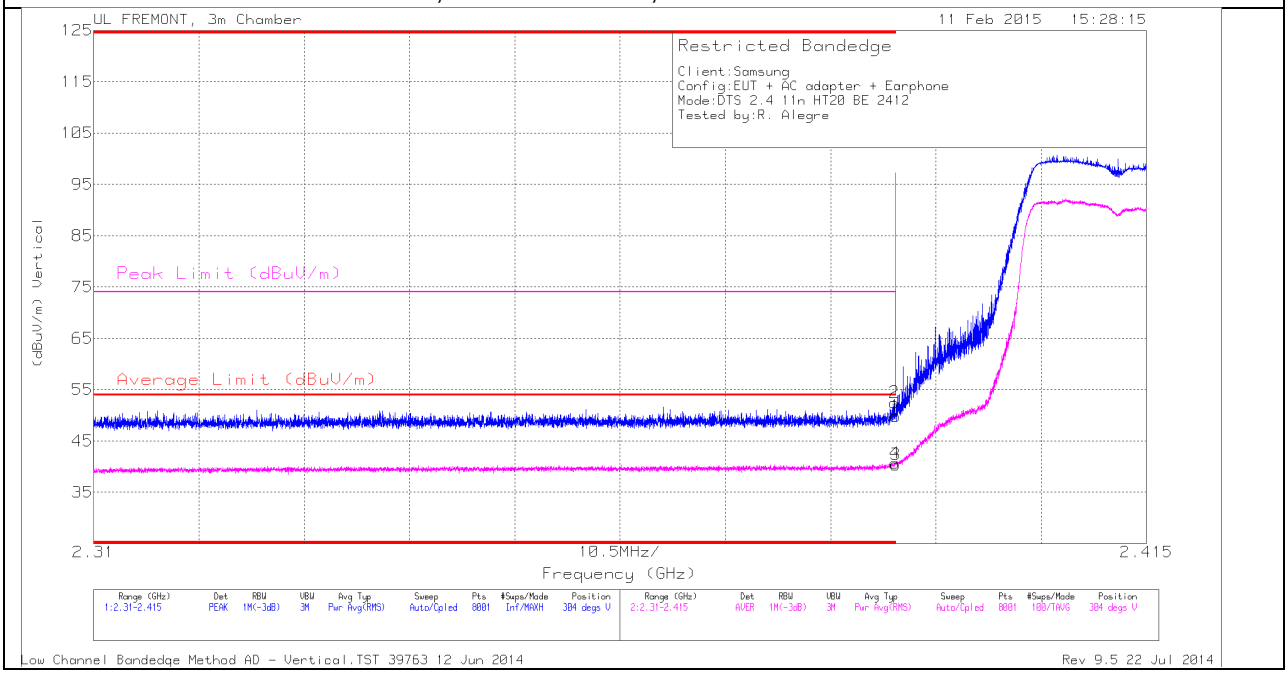
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LOW CHANNEL RESTRICTED, PEAK and AVG, VERT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.94	PK	32	-23.1	0	49.84	-	-	74	-24.16	304	305	V
2	* 2.39	43.59	PK	32	-23.1	0	52.49	-	-	74	-21.51	304	305	V
3	* 2.39	31.18	RMS	32	-23.1	.32	40.4	54	-13.6	-	-	304	305	V
4	* 2.39	31.48	RMS	32	-23.1	.32	40.7	54	-13.3	-	-	304	305	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

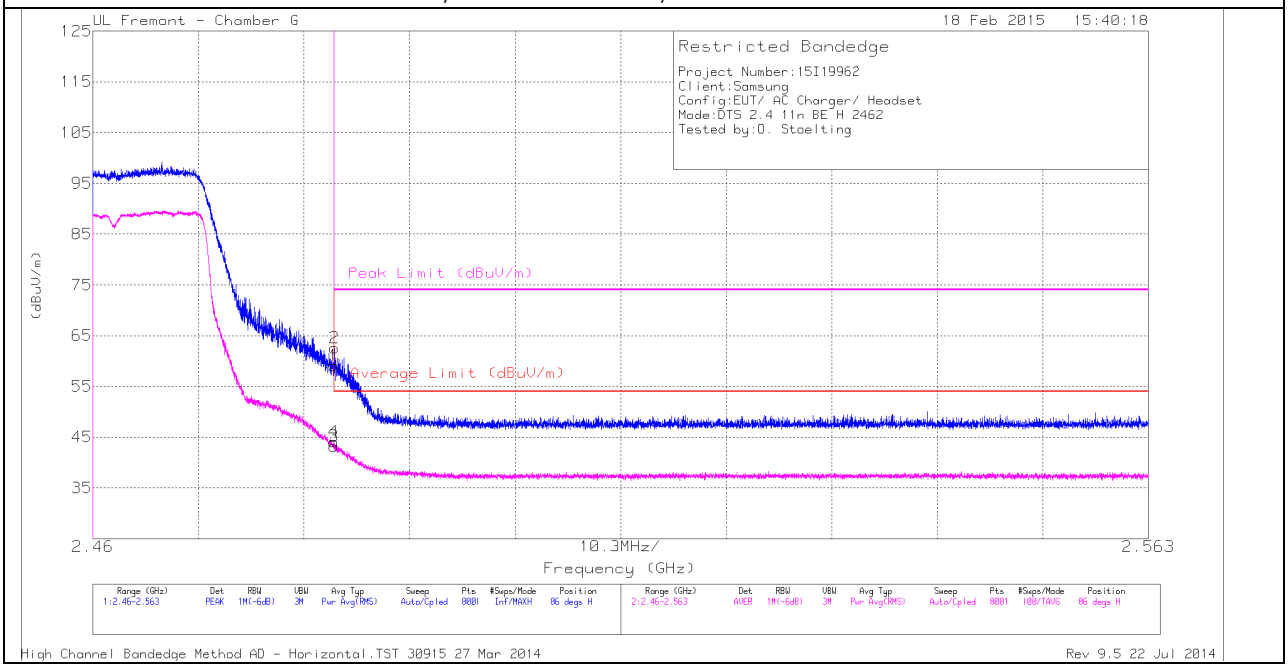
PK - Peak detector

RMS - RMS detection

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL RESTRICTED, PEAK and AVG, HORIZ



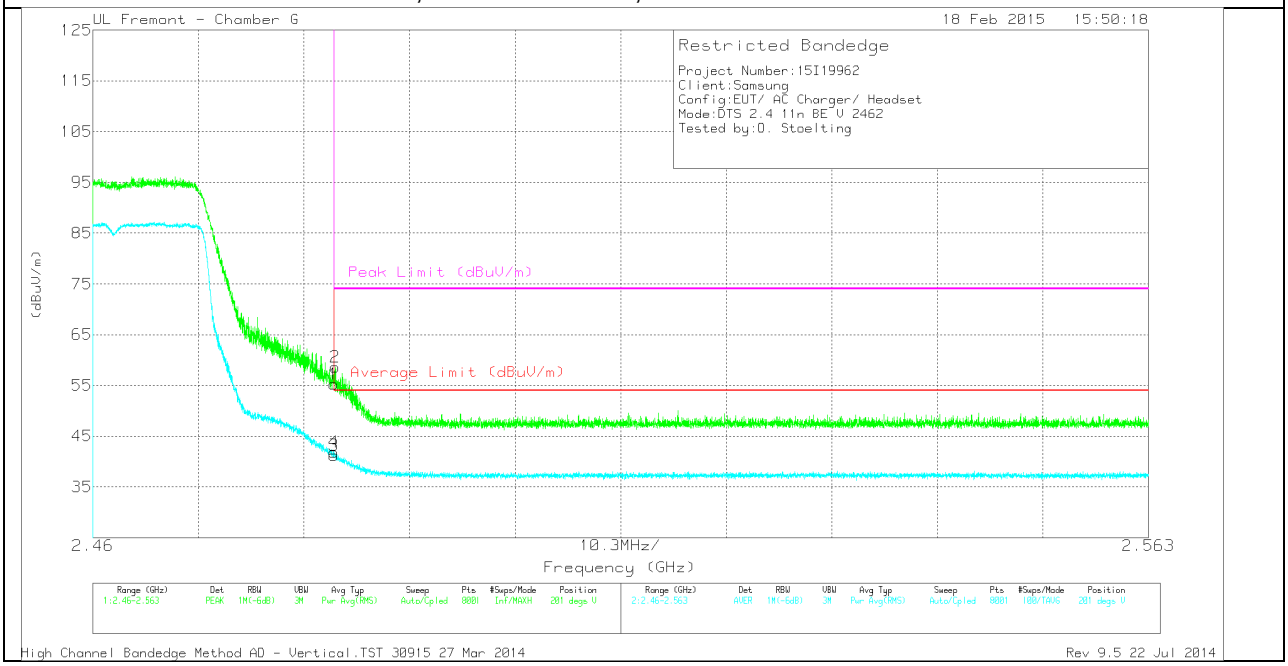
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	51.98	PK	32	-24.9	0	59.08	-	-	74	-14.92	86	218	H
2	* 2.484	55.53	PK	32	-24.9	0	62.63	-	-	74	-11.37	86	218	H
3	* 2.484	35.81	RMS	32	-24.9	.33	43.24	54	-10.76	-	-	86	218	H
4	* 2.484	36.66	RMS	32	-24.9	.33	44.09	54	-9.91	-	-	86	218	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
RMS - RMS detection

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL BANDEDGE, PEAK and AVG, VERT



Trace Markers

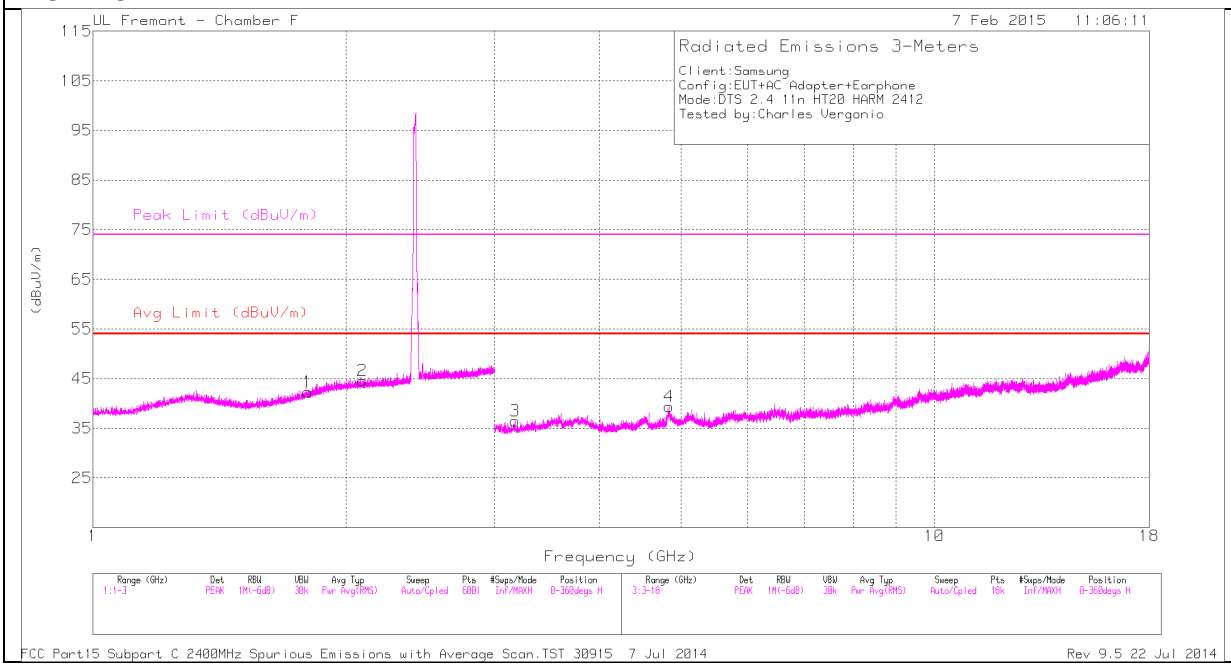
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	48.21	PK	32	-24.9	0	55.31	-	-	74	-18.69	201	232	V
2	* 2.484	51.56	PK	32	-24.9	0	58.66	-	-	74	-15.34	201	232	V
3	* 2.484	33.76	RMS	32	-24.9	.33	41.19	54	-12.81	-	-	201	232	V
4	* 2.484	34.47	RMS	32	-24.9	.33	41.9	54	-12.1	-	-	201	232	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
RMS - RMS detection

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

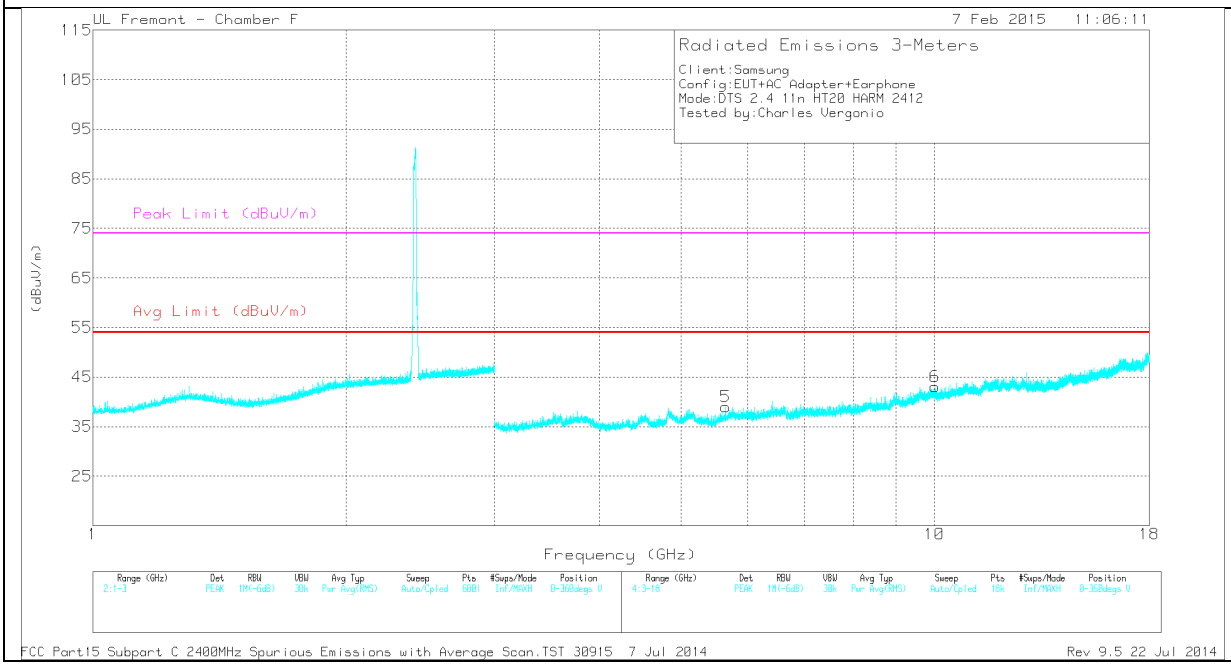
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.801	33.54	PK	30.3	-21.5	0	42.34	-	-	-	-	0-360	201	H
2	2.09	34.05	PK	31.8	-21.3	0	44.55	-	-	-	-	0-360	201	H
3	3.173	32.39	PK	33.3	-29.2	0	36.49	-	-	-	-	0-360	201	H
4	* 4.837	33.02	PK	34.1	-27.7	0	39.42	-	-	74	-34.58	0-360	201	H
5	5.651	32.02	PK	34.7	-27.7	0	39.02	-	-	-	-	0-360	201	V
6	10.006	27.62	PK	37.2	-21.7	0	43.12	-	-	-	-	0-360	201	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

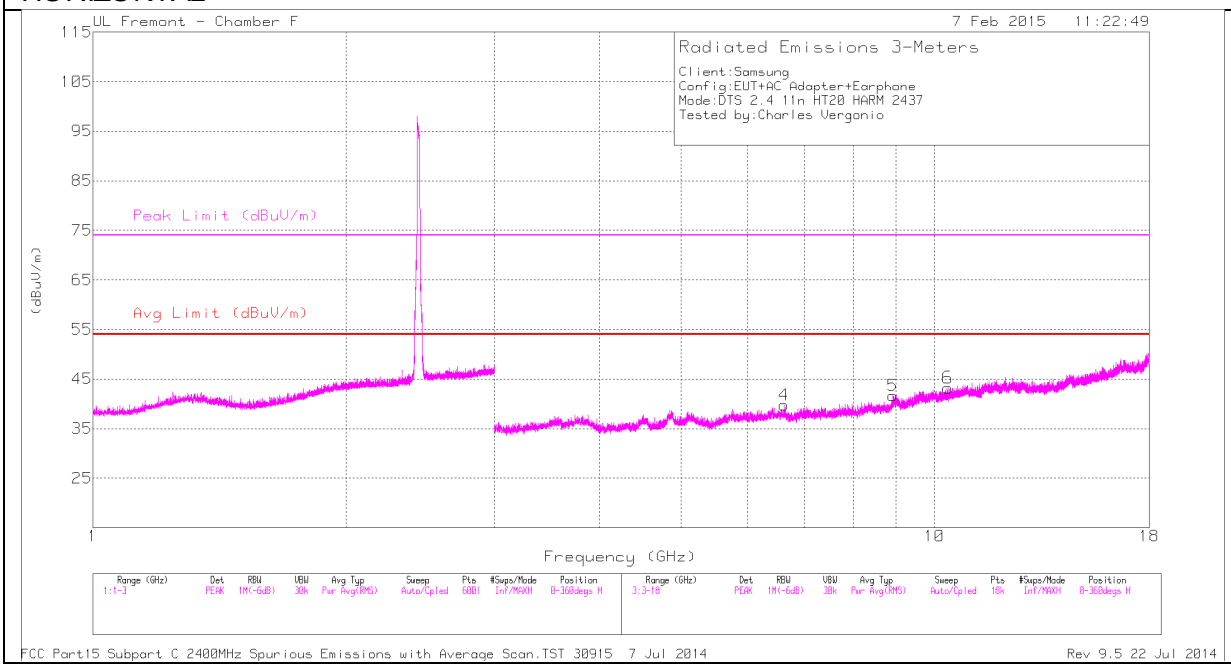
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (db)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.837	39.51	PK2	34.1	-27.7	0	45.91	-	-	74	-28.09	27	109	H
* 4.837	28.23	MAv1	34.1	-27.7	0.32	34.95	54	-19.05	-	-	27	109	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

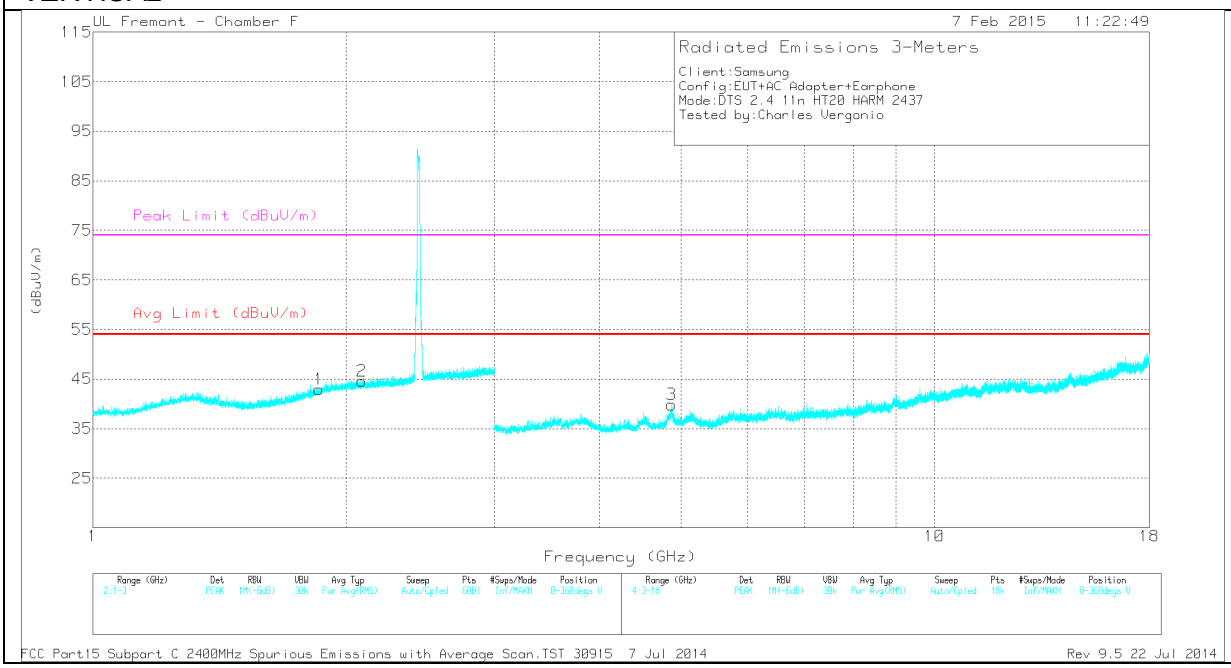
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.858	33.62	PK	30.9	-21.6	0	42.92	-	-	-	-	0-360	101	V
2	2.087	34.13	PK	31.8	-21.3	0	44.63	-	-	-	-	0-360	101	V
4	6.629	30.47	PK	35.7	-26.4	0	39.77	-	-	-	-	0-360	101	H
5	8.929	28.29	PK	36.1	-22.7	0	41.69	-	-	-	-	0-360	201	H
6	10.371	28.25	PK	37.3	-22.3	0	43.25	-	-	-	-	0-360	201	H
3	* 4.873	33.43	PK	34.2	-27.8	0	39.83	-	-	74	-34.17	0-360	201	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

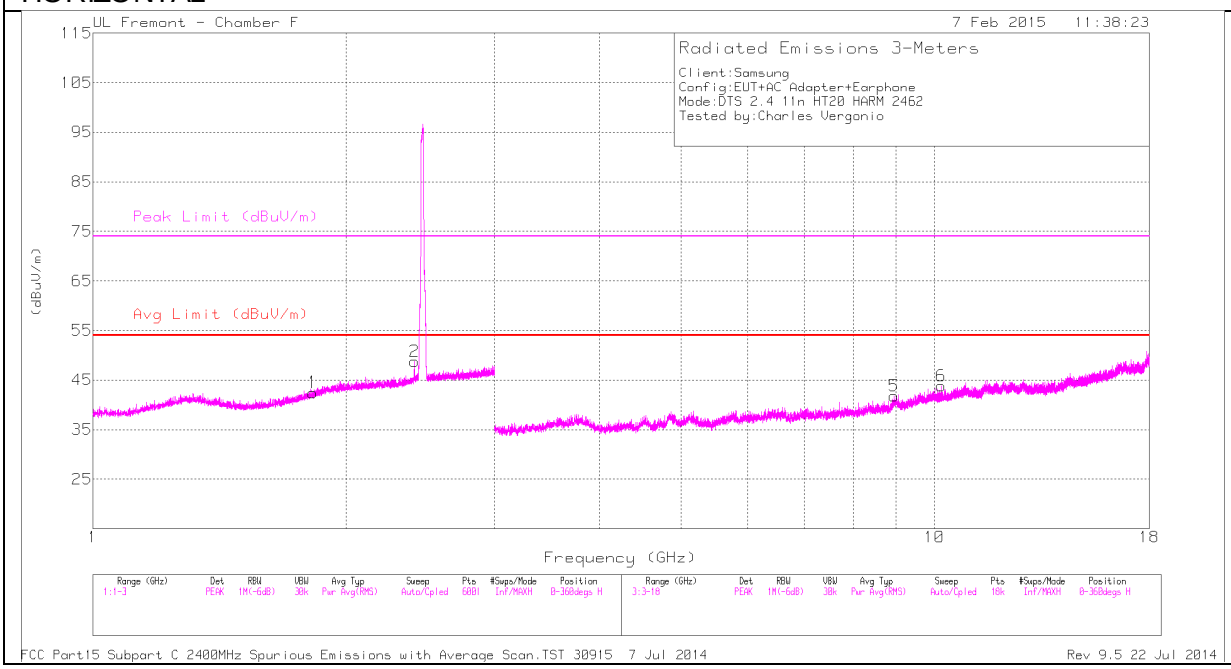
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (db)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.875	43	PK2	34.2	-27.8	0	49.4	-	-	74	-24.6	30	281	V
* 4.875	30.41	MAV1	34.2	-27.8	0.32	37.13	54	-16.87	-	-	30	281	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

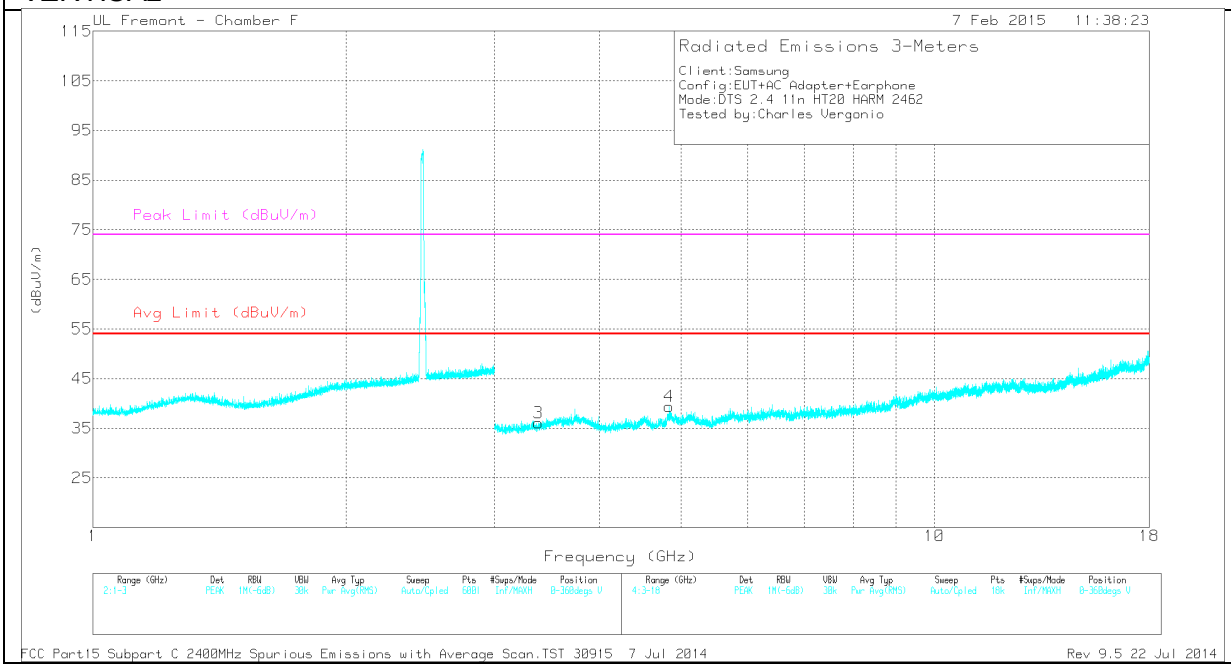
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL
HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL
VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL DATA

1	1.825	33.59	PK	30.5	-21.6	0	42.49	-	-	-	-	0-360	201	H
2	2.41	37.45	PK	32.3	-21	0	48.75	-	-	-	-	0-360	100	H
5	8.952	27.91	PK	36.1	-22.2	0	41.81	-	-	-	-	0-360	100	H
6	10.194	28.84	PK	37.1	-22.1	0	43.84	-	-	-	-	0-360	100	H
3	3.385	31.57	PK	34	-29.5	0	36.07	-	-	-	-	0-360	201	V
4	* 4.836	32.94	PK	34.1	-27.7	0	39.34	-	-	74	-34.66	0-360	101	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2.41	46.04	PK2	32.2	-21	0	57.24	-	-	-	-	139	178	H
2.41	35.7	MAv1	32.3	-21	0.32	47.32	-	-	-	-	139	178	H
* 4.834	39.74	PK2	34.1	-27.7	0	46.14	-	-	74	-27.86	119	276	V
* 4.835	28.12	MAV1	34.1	-27.7	0.32	34.84	54	-19.16	-	-	119	276	V

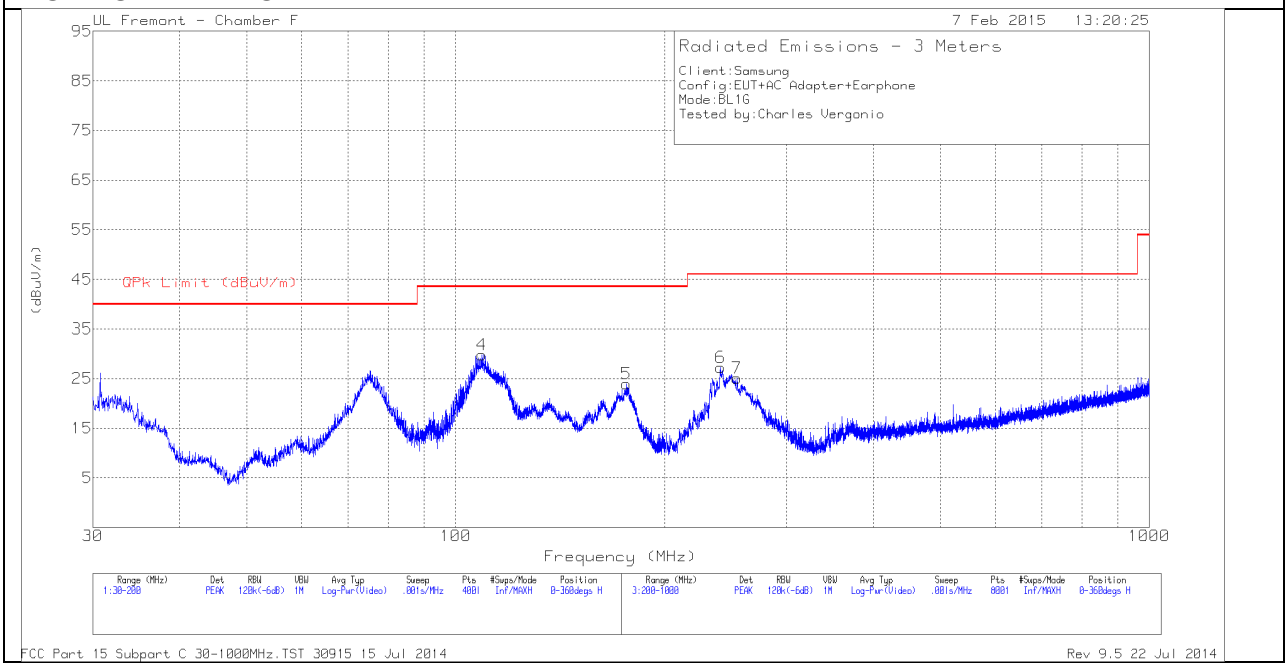
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.3. WORST-CASE BELOW 1 GHz

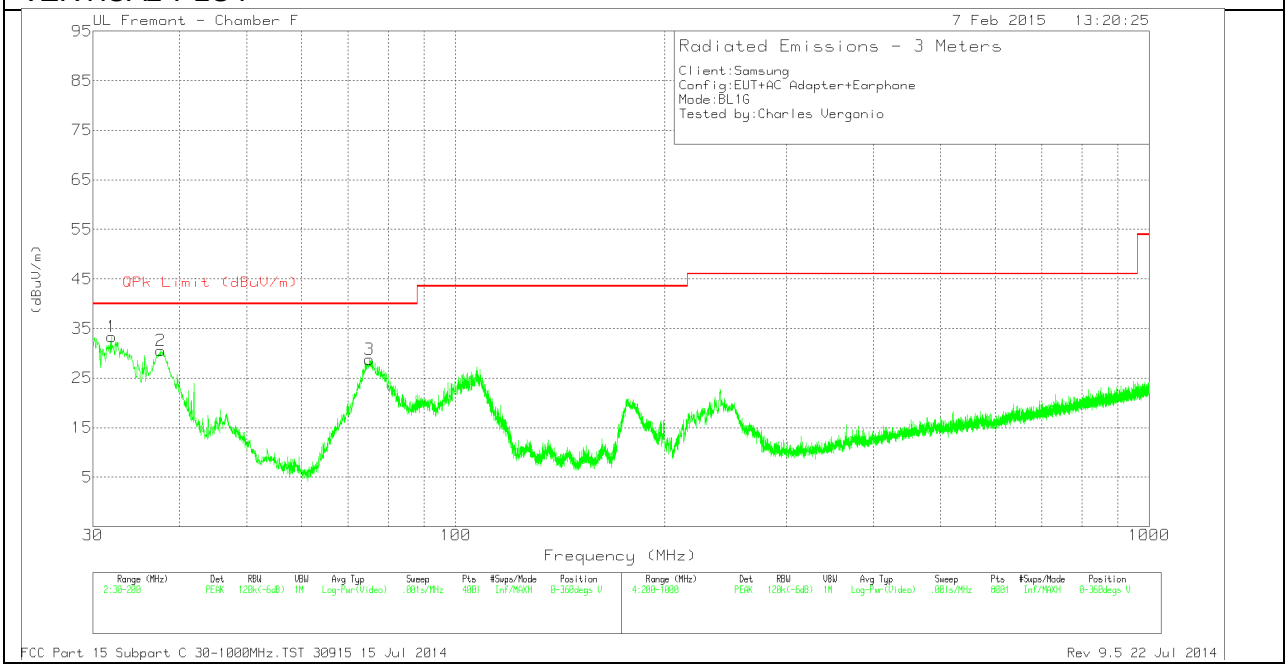
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)

HORIZONTAL PLOT



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

VERTICAL PLOT



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Below 1G Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 109.1775	48.79	PK	12.4	-31.4	29.79	43.52	-13.73	0-360	301	H
5	176.2425	43.6	PK	11.4	-31.1	23.9	43.52	-19.62	0-360	201	H
1	31.9125	45.3	PK	20	-32	33.3	40	-6.7	0-360	100	V
2	* 37.6075	46.81	PK	15.6	-31.9	30.51	40	-9.49	0-360	100	V
3	* 75.135	52.32	PK	8.1	-31.6	28.82	40	-11.18	0-360	100	V
6	* 240.8	46.55	PK	11.6	-30.9	27.25	46.02	-18.77	0-360	100	H
7	* 254.5	44.49	PK	11.5	-30.9	25.09	46.02	-20.93	0-360	100	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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 2009.

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

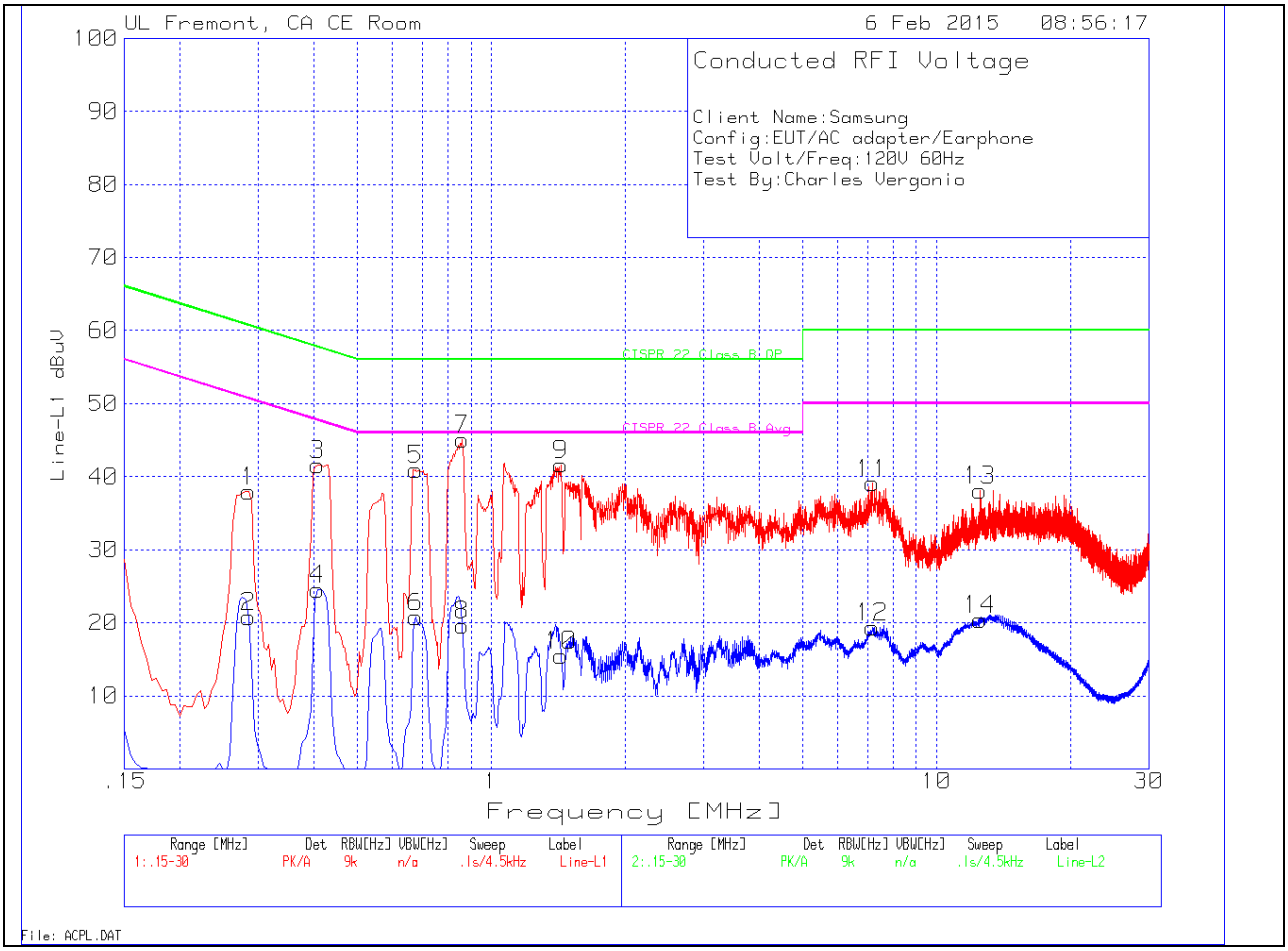
Line conducted data is recorded for both NEUTRAL and HOT lines.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

RESULTS

6 WORST EMISSIONS

LINE 1 RESULTS



LINE 1 DATA

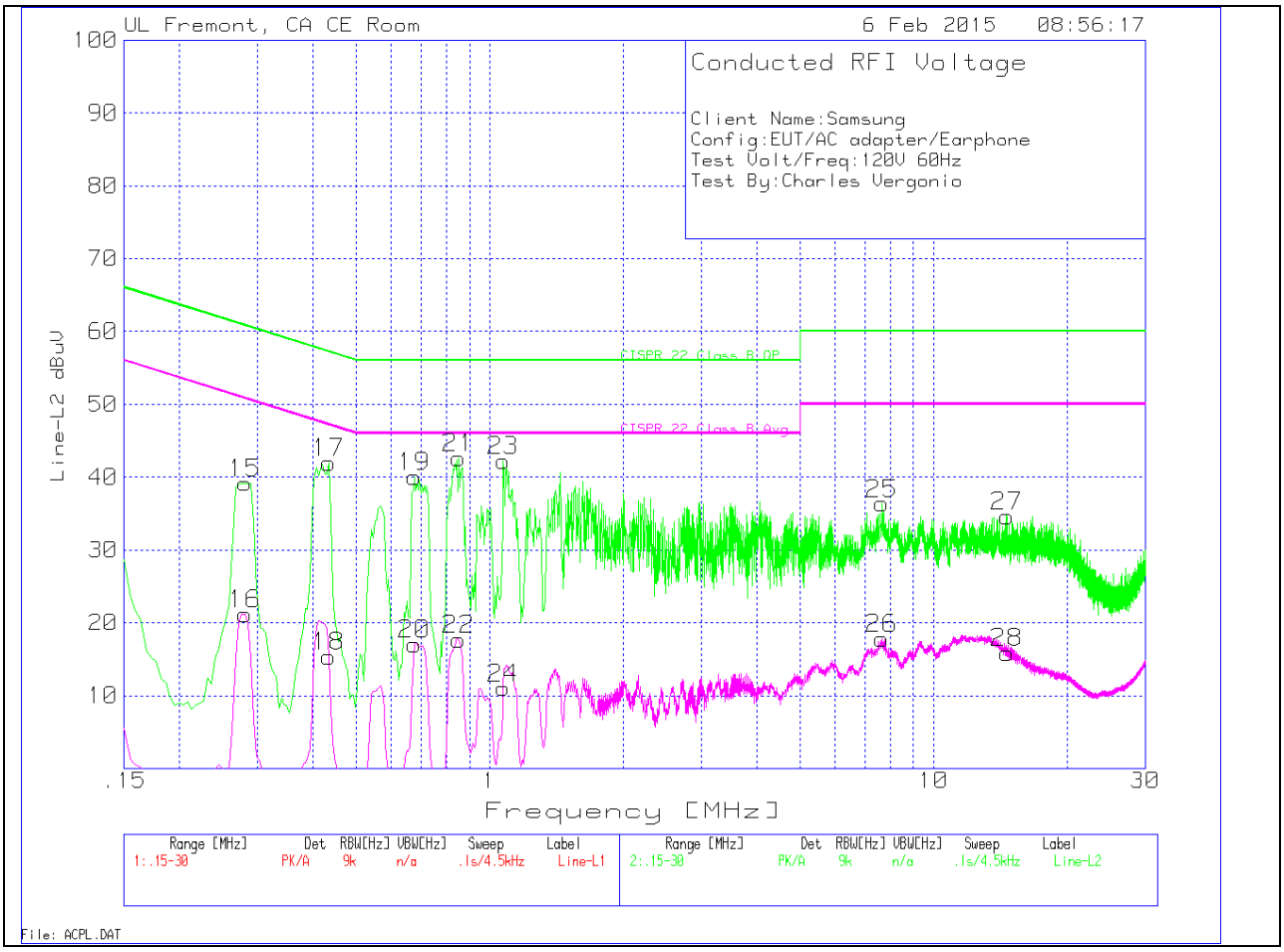
Line-L1 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.285	37.4	PK	.6	0	38	60.7	-22.7	-	-
2	.285	20.17	Av	.6	0	20.77	-	-	50.7	-29.93
3	.4065	41.24	PK	.4	0	41.64	57.7	-16.06	-	-
4	.4065	24.18	Av	.4	0	24.58	-	-	47.7	-23.12
5	.6765	40.69	PK	.3	0	40.99	56	-15.01	-	-
6	.6765	20.44	Av	.3	0	20.74	-	-	46	-25.26
7	.861	44.74	PK	.3	0	45.04	56	-10.96	-	-
8	.861	19.34	Av	.3	0	19.64	-	-	46	-26.36
9	1.437	41.35	PK	.2	.1	41.65	56	-14.35	-	-
10	1.437	15.16	Av	.2	.1	15.46	-	-	46	-30.54
11	7.17	38.78	PK	.2	.1	39.08	60	-20.92	-	-
12	7.17	19.05	Av	.2	.1	19.35	-	-	50	-30.65
13	12.543	37.73	PK	.2	.2	38.13	60	-21.87	-	-
14	12.543	20	Av	.2	.2	20.4	-	-	50	-29.6

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LINE 2 RESULTS



LINE 2 DATA

Line-L2 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
15	.2805	38.6	PK	.6	0	39.2	60.8	-21.6	-	-
16	.2805	20.55	Av	.6	0	21.15	-	-	50.8	-29.65
17	.4335	41.58	PK	.4	0	41.98	57.2	-15.22	-	-
18	.4335	14.94	Av	.4	0	15.34	-	-	47.2	-31.86
19	.6765	39.76	PK	.3	0	40.06	56	-15.94	-	-
20	.6765	16.72	Av	.3	0	17.02	-	-	46	-28.98
21	.852	42.38	PK	.3	0	42.68	56	-13.32	-	-
22	.852	17.37	Av	.3	0	17.67	-	-	46	-28.33
23	1.0725	41.85	PK	.3	.1	42.25	56	-13.75	-	-
24	1.0725	10.64	Av	.3	.1	11.04	-	-	46	-34.96
25	7.638	36.06	PK	.2	.1	36.36	60	-23.64	-	-
26	7.638	17.57	Av	.2	.1	17.87	-	-	50	-32.13
27	14.649	34.17	PK	.2	.2	34.57	60	-25.43	-	-
28	14.649	15.53	Av	.2	.2	15.93	-	-	50	-34.07

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.