FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phablet + Bluetooth & WLAN DTS/UNII a/b/g/n + ANT+ and NFC

MODEL NUMBER: SM-T365

FCC ID: A3LSMT365

REPORT NUMBER: 14U18519-E4

ISSUE DATE: AUGUST 19, 2014

Prepared for

SAMSUNG ELECTRONICS CO., LTD.
416, MAETAN 3-DONG, 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
--	8/19/14	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 14
9.1.2. 802.11g MODE IN THE 2.4 GHz BAND 14
9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 15
9.1.4. 6 dB BANDWIDTH MID CH PLOTS 16

9.2. 99% BANDWIDTH 17

9.2.1. 802.11b MODE IN THE 2.4 GHz BAND 17
9.2.2. 802.11g MODE IN THE 2.4 GHz BAND 17
9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 17
9.2.4. 99% BANDWIDTH MID CH PLOTS 18

9.3. OUTPUT POWER 19

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND 20
9.3.2. 802.11g MODE IN THE 2.4 GHz BAND 21
9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 22

9.4. PSD 23

9.4.1. 802.11b MODE IN THE 2.4 GHz BAND 23
9.4.2. 802.11g MODE IN THE 2.4 GHz BAND 24
9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 24
9.4.4. PSD Chain 0 MID CH PLOTS 25

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

9.5. OUT-OF-BAND EMISSIONS 26
9.5.1. 802.11b MODE IN THE 2.4 GHz BAND 27
9.5.2. 802.11g MODE IN THE 2.4 GHz BAND 33
9.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 39

10. RADIATED TEST RESULTS 45

10.1. LIMITS AND PROCEDURE 45

10.2. TRANSMITTER ABOVE 1 GHz 46
10.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND 46
10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND 59
10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND 72

10.3. WORST-CASE BELOW 1 GHz 85

11. AC POWER LINE CONDUCTED EMISSIONS 88

12. SETUP PHOTOS 91

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 Phablet + Bluetooth & WLAN DTS/UNII a/b/g/n + ANT+ and NFC

MODEL: SM-T365

SERIAL NUMBER: 1934661 (Radiated) and 1934663(Conducted)

DATE TESTED: AUGUST 8-19, 2014

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 LEADER
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
	☒ Chamber G

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 Phablet + Bluetooth & WLAN DTS/UNII a/b/g/n + ANT+ and NFC

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	13	19.95
2412 - 2462	802.11g	12.5	17.78
2412 - 2462	802.11n HT20	11.2	13.18

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -0.81 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.

Both standalone and with back cover configuration investigated through preliminary scanning and final measurement based on worst case configuration with EUT standalone with.

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

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.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	SAMSUNG	EP-TA10EWE	N/A	N/A
Earphone	SAMSUNG	N/A	N/A	N/A
Back cover with touch pen	SAMSUNG	N/A	N/A	N/A

I/O CABLES

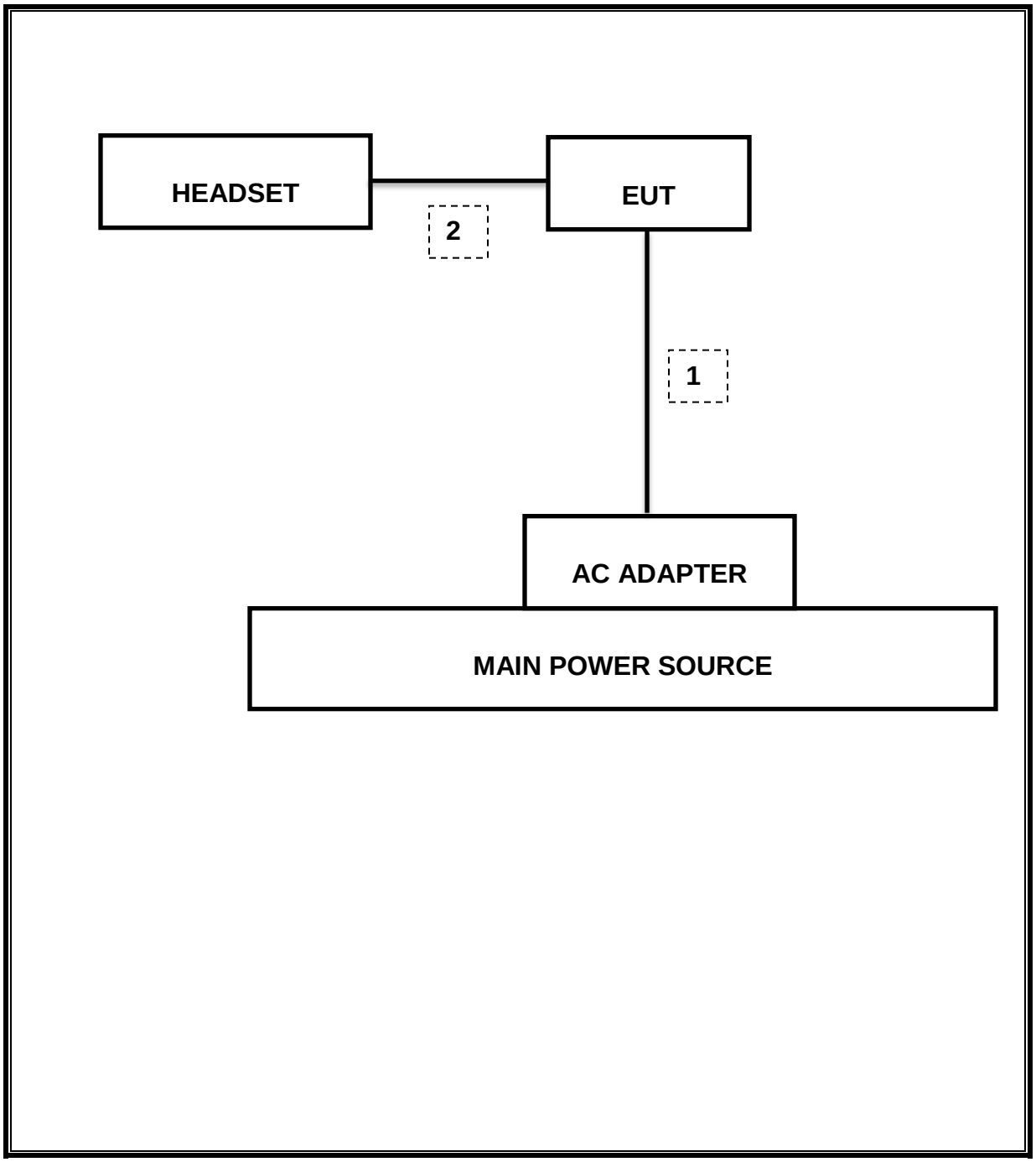
I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	1m	N/A

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	12/20/14
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	08/18/14
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/14
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/14
Antenna, Horn, 1-18 GHz	ETS	3117	C01022	02/21/15
Antenna, Horn,18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/14
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	08/20/14
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

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 AVGPM-G is used for power and AVGPSD-3 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	8.14MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-32.67dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	13.0dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-17.03dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	44.76dBuV(AV)
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	52.19dBuV/m

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)

IC RSS-210 A8.2 (a)

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

9.1.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	8.14	0.5
Mid	2437	8.45	0.5
High	2462	8.58	0.5
Worst		8.14	

9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.50	0.5
Mid	2437	16.50	0.5
High	2462	16.43	0.5
Worst		16.43	

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

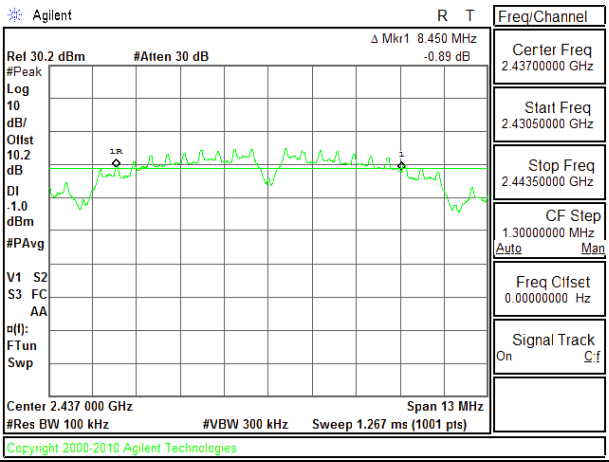
9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	17.70	0.5
Mid	2437	17.73	0.5
High	2462	17.65	0.5
Worst		17.65	

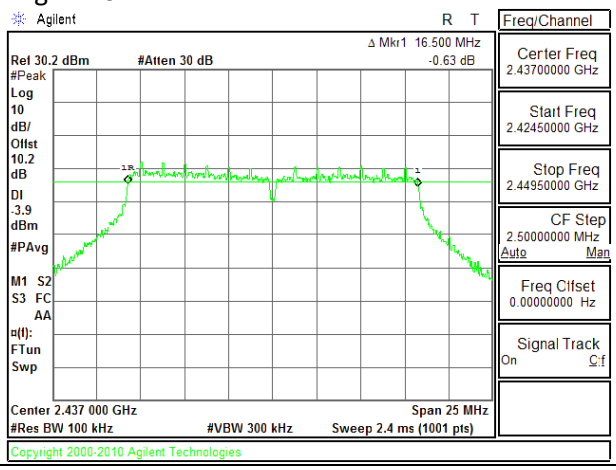
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.1.4. 6 dB BANDWIDTH MID CH PLOTS

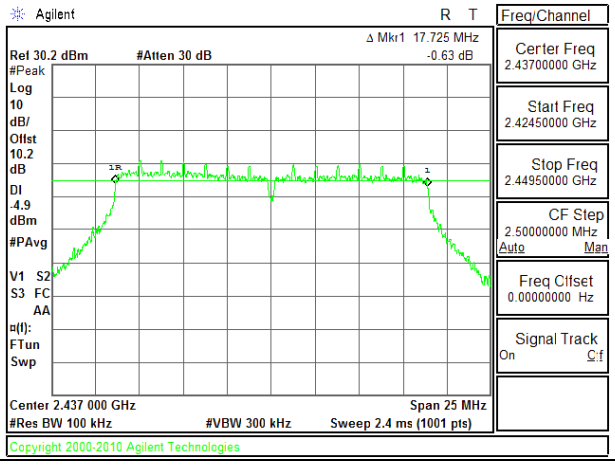
11b HT20 2.4



11g HT20 2.4



11n HT20 2.4



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	13.34
Mid	2437	13.29
High	2462	13.07
Worst		13.34

9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.42
Mid	2437	16.41
High	2462	16.37
Worst		16.42

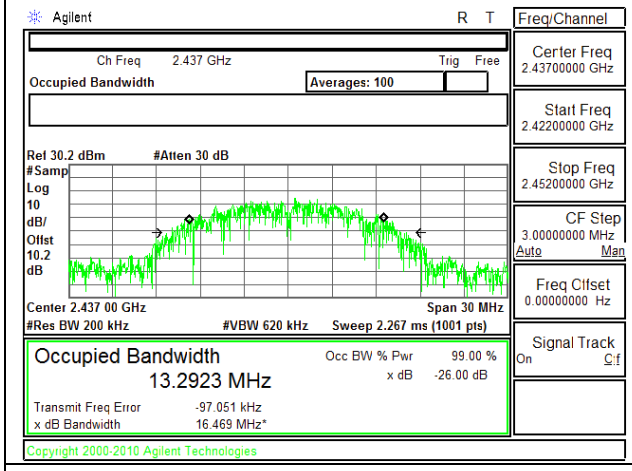
9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.60
Mid	2437	17.57
High	2462	17.57
Worst		17.60

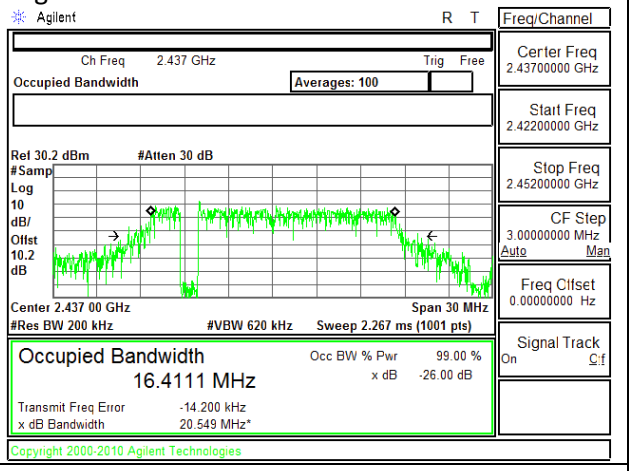
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.4. 99% BANDWIDTH MID CH PLOTS

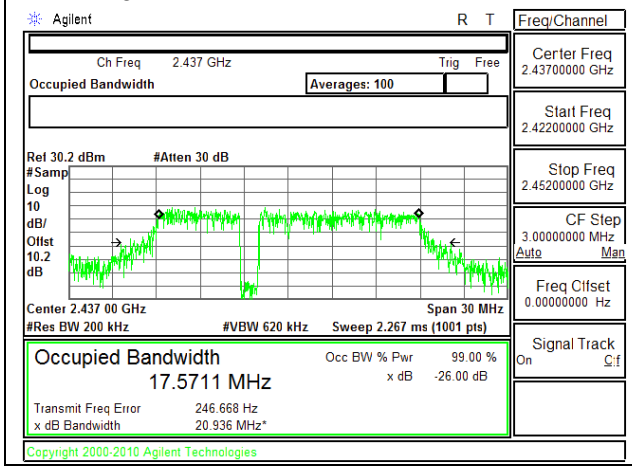
11b HT20 2.4



11g HT20 2.4



11n HT20 2.4



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.

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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

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

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	-0.81	30.00	30	36	30.00
Mid	2437	-0.81	30.00	30	36	30.00
High	2462	-0.81	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	13.00	13.00	30.00	-17.00
Mid	2437	12.60	12.60	30.00	-17.40
High	2462	13.00	13.00	30.00	-17.00
Worst			13.00		

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.

9.3.2. 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	-0.81	30.00	30	36	30.00
Mid	2437	-0.81	30.00	30	36	30.00
High	2462	-0.81	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	12.10	12.10	30.00	-17.90
Mid	2437	11.70	11.70	30.00	-18.30
High	2462	12.50	12.50	30.00	-17.50
Worst			12.50		

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.

9.3.3. 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	-0.81	30.00	30	36	30.00
Mid	2437	-0.81	30.00	30	36	30.00
High	2462	-0.81	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	11.20	11.20	30.00	-18.80
Mid	2437	10.80	10.80	30.00	-19.20
High	2462	10.60	10.60	30.00	-19.40
Worst			11.20		

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

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

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	-17.36	8.0	-25.4
Mid	2437	-18.28	8.0	-26.3
High	2462	-17.03	8.0	-25.0

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.

9.4.2. 802.11g MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-21.89	8.0	-29.9
Mid	2437	-22.37	8.0	-30.4
High	2462	-21.81	8.0	-29.8

9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

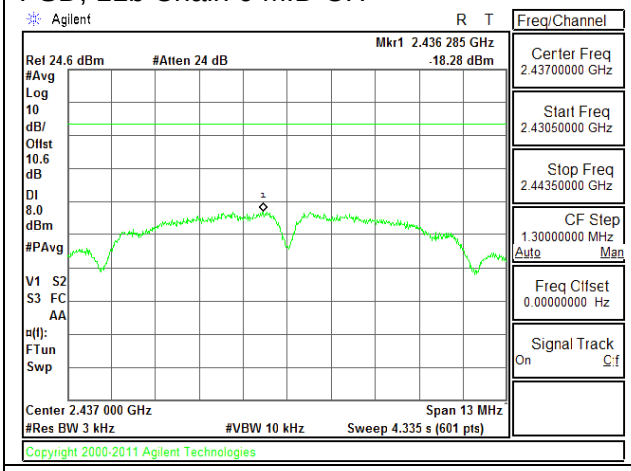
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-22.92	8.0	-30.9
Mid	2437	-23.61	8.0	-31.6
High	2462	-23.77	8.0	-31.8

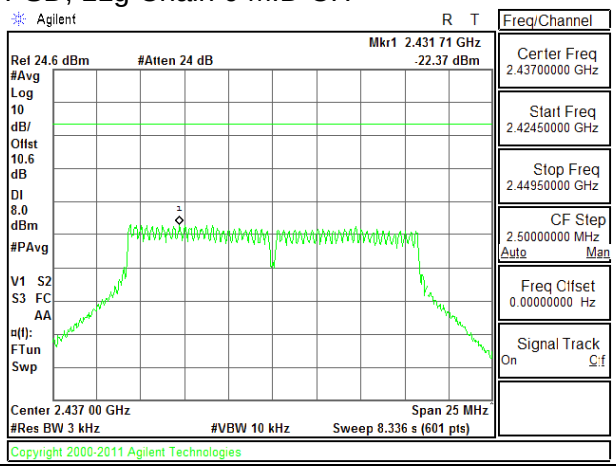
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.4.4. PSD Chain 0 MID CH PLOTS

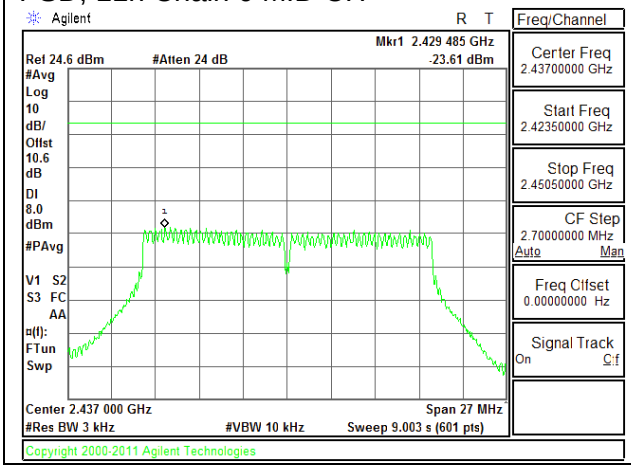
PSD, 11b Chain 0 MID CH



PSD, 11g Chain 0 MID CH



PSD, 11n Chain 0 MID CH



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)

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.

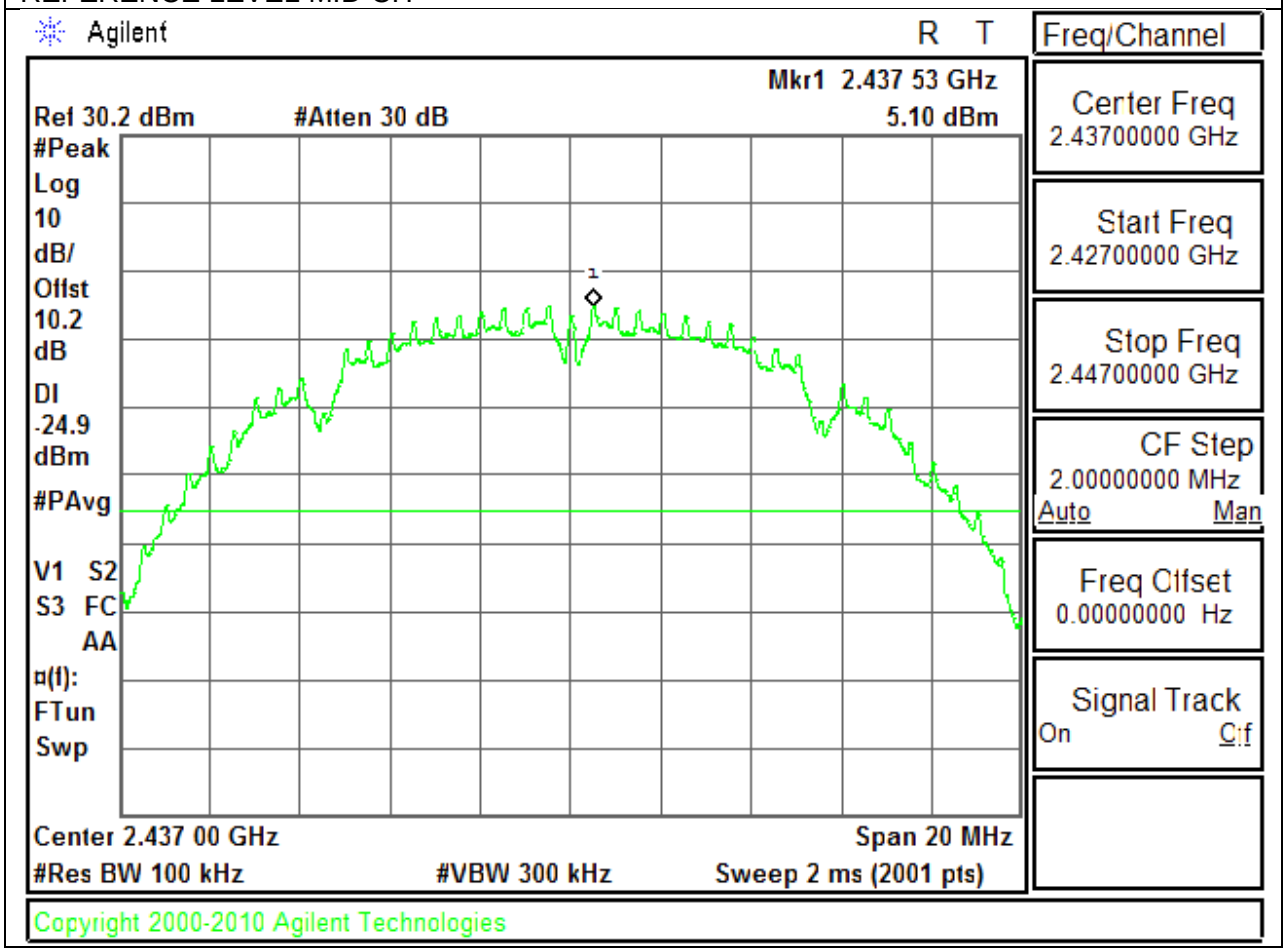
RESULTS

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.

9.5.1. 802.11b MODE IN THE 2.4 GHz BAND

IN-BAND REFERENCE LEVEL

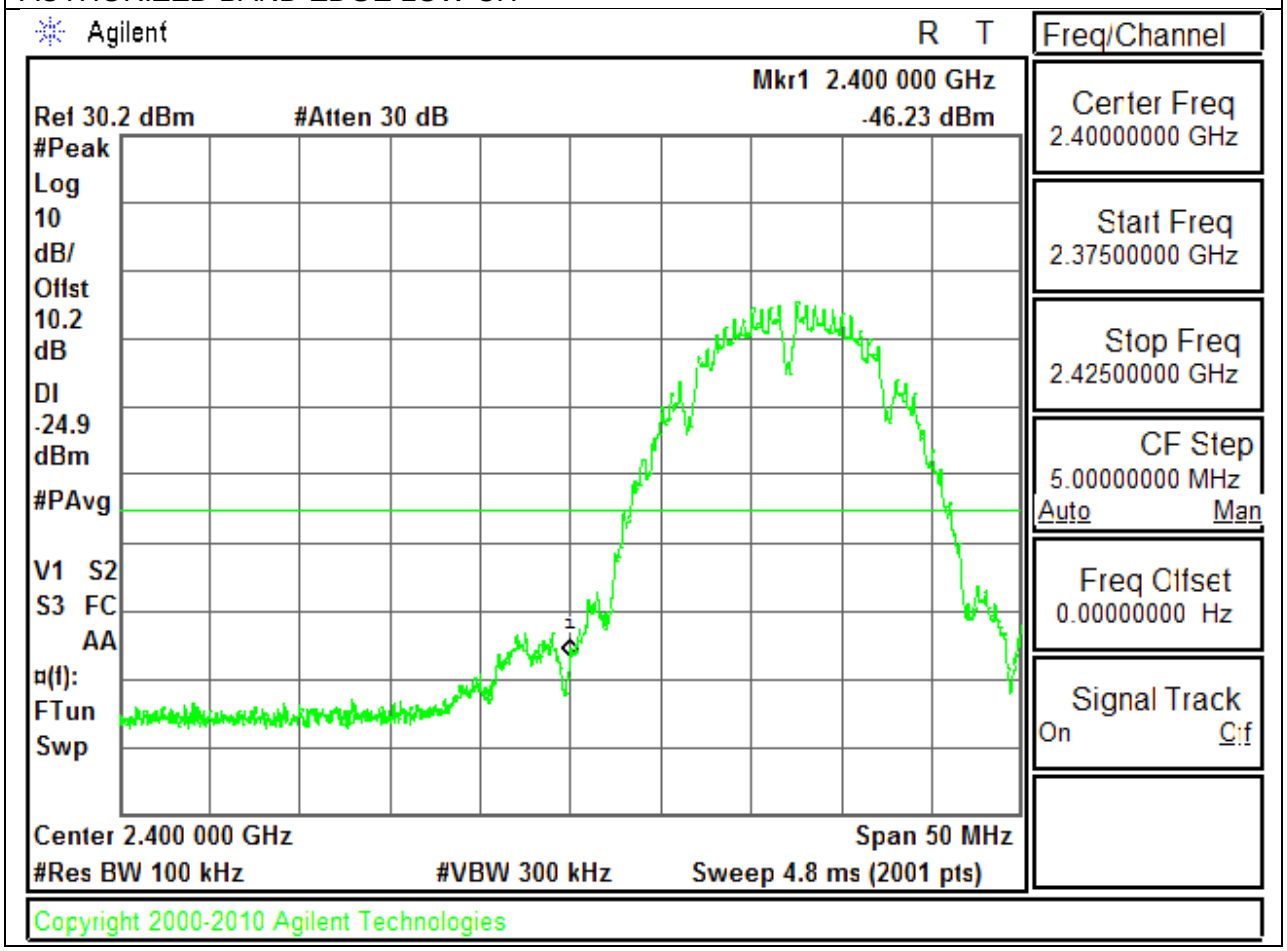
REFERENCE LEVEL MID CH



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

LOW CHANNEL BANDEDGE

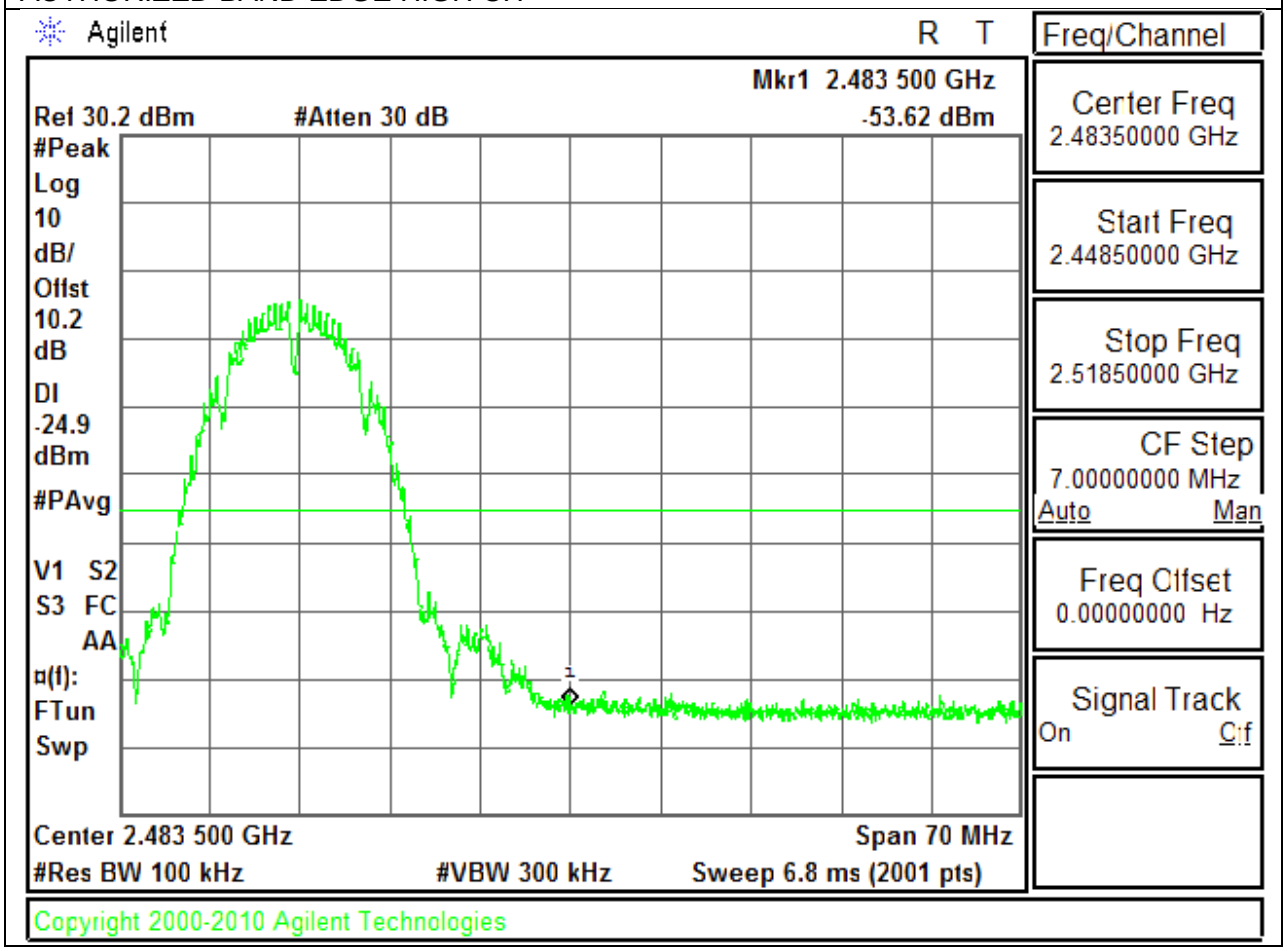
AUTHORIZED BAND EDGE LOW CH



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

HIGH CHANNEL BANDEDGE

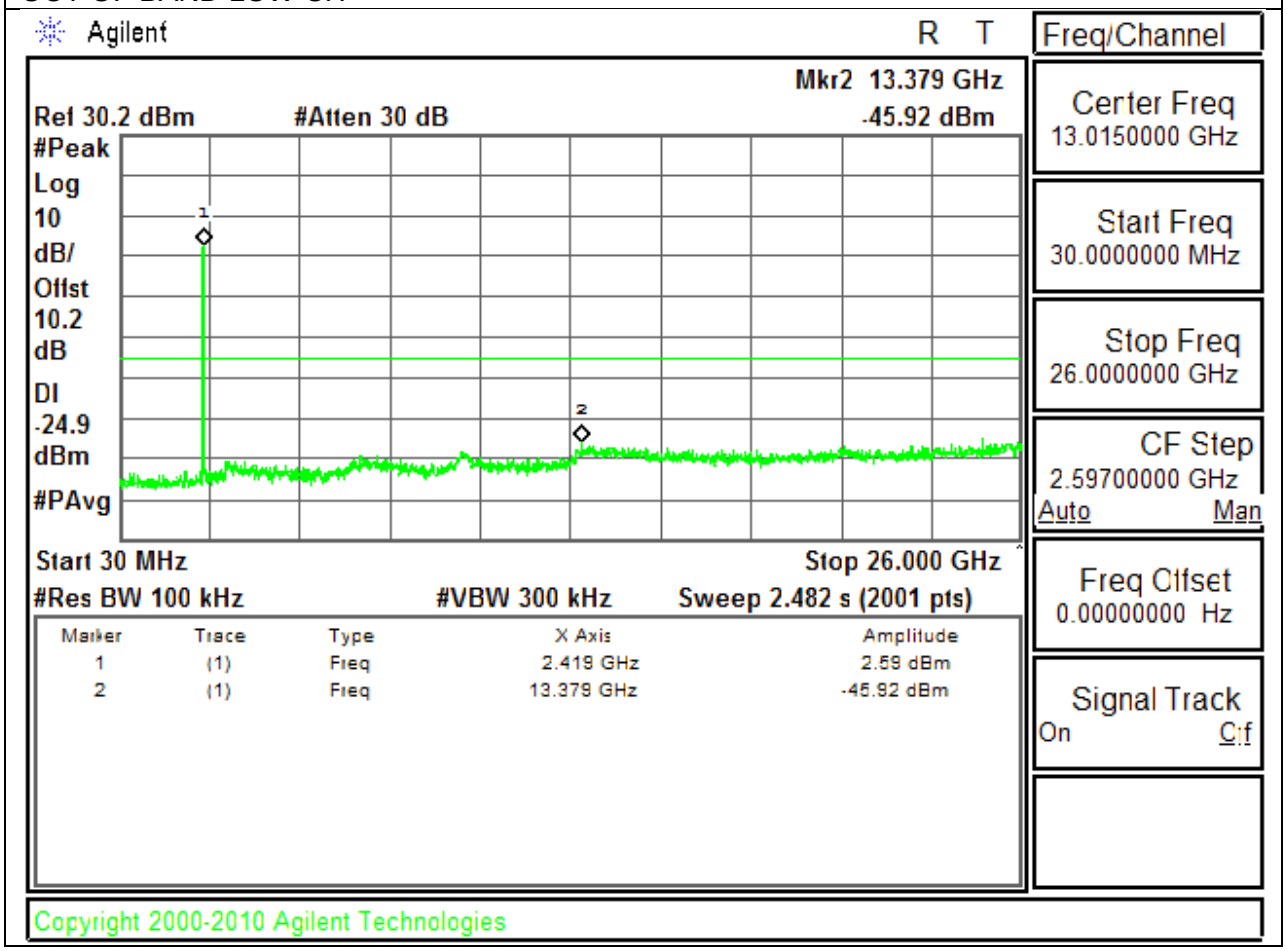
AUTHORIZED BAND EDGE HIGH CH



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

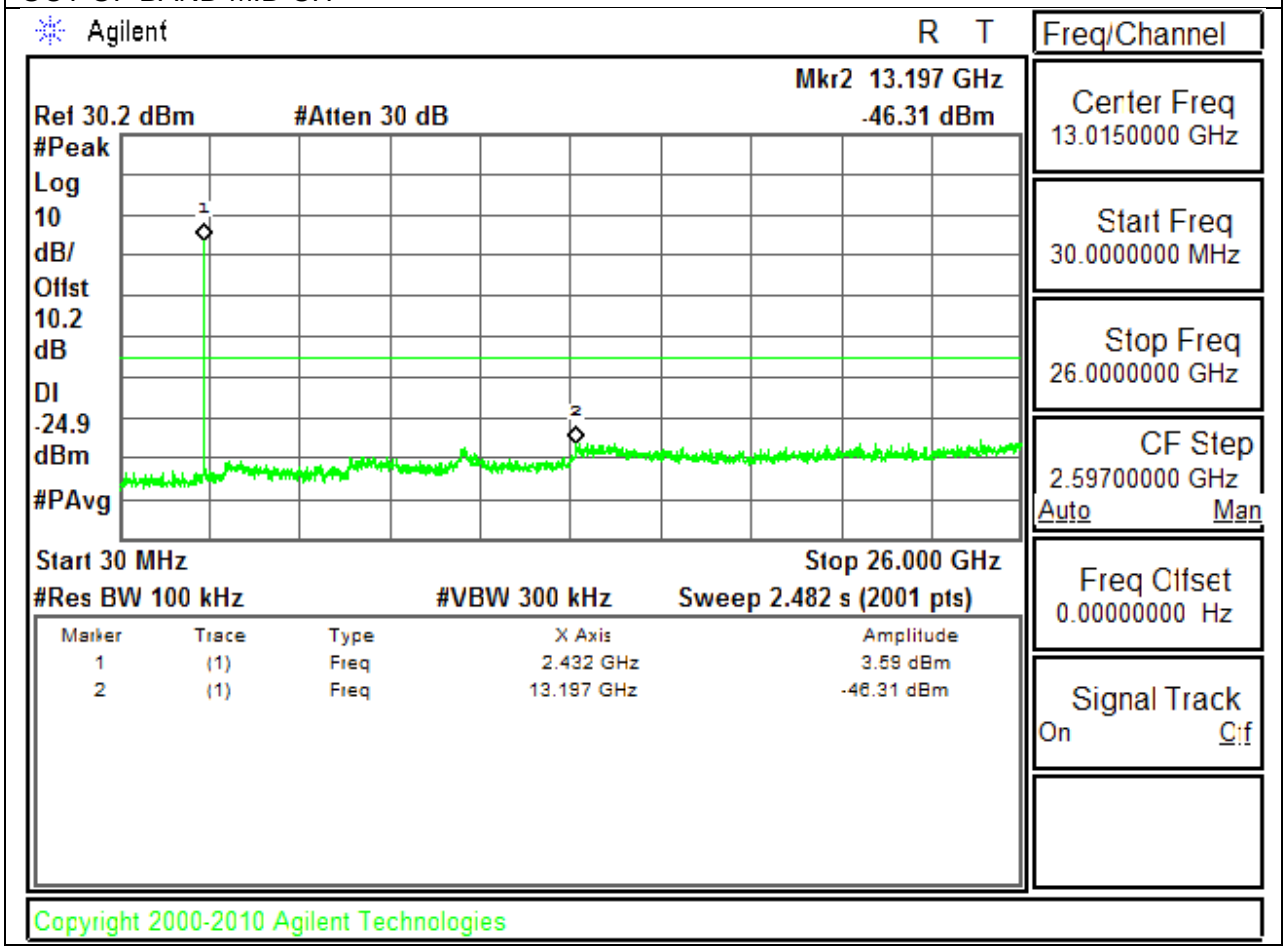
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



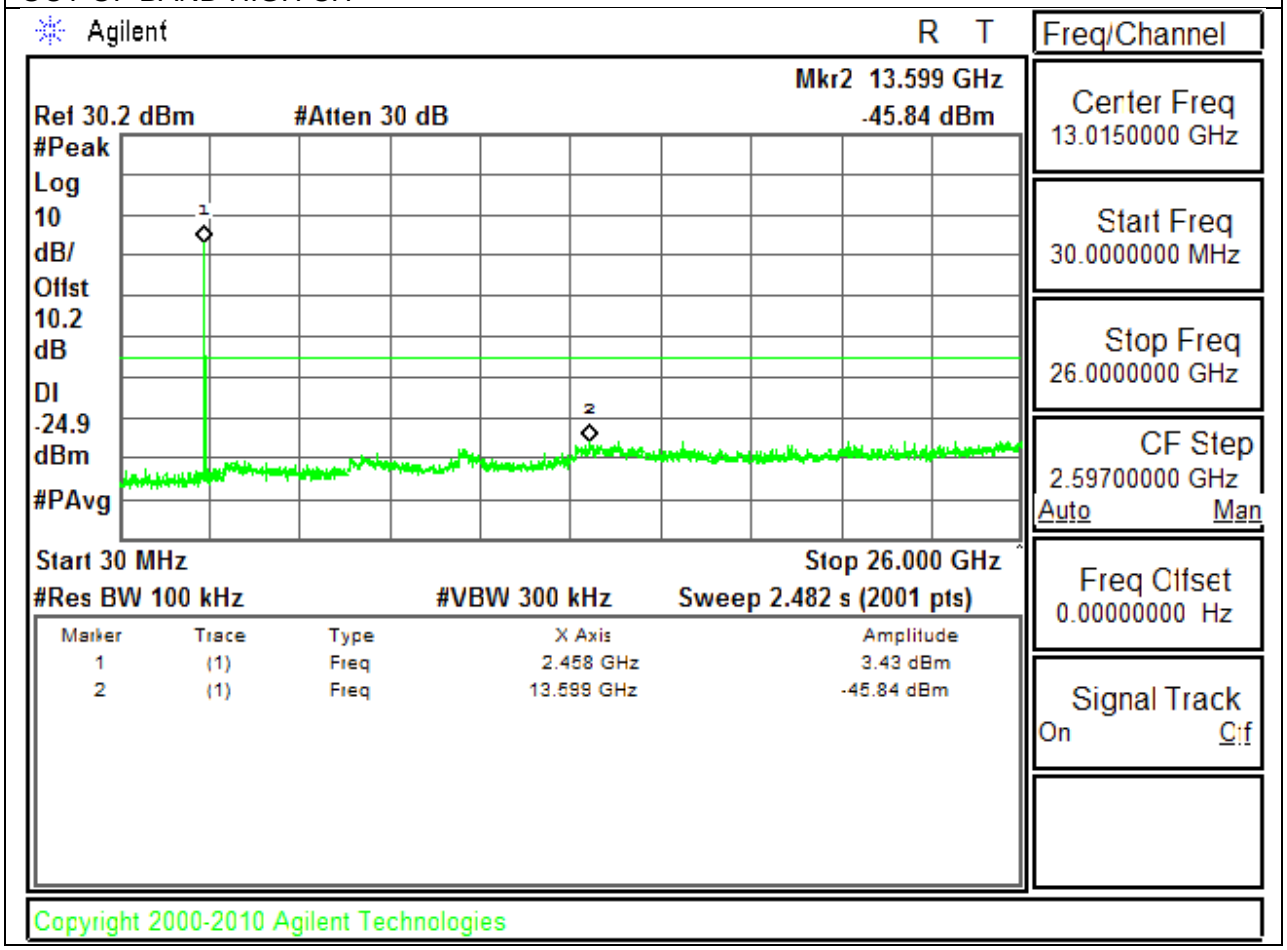
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

OUT OF BAND MID CH



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

OUT OF BAND HIGH CH

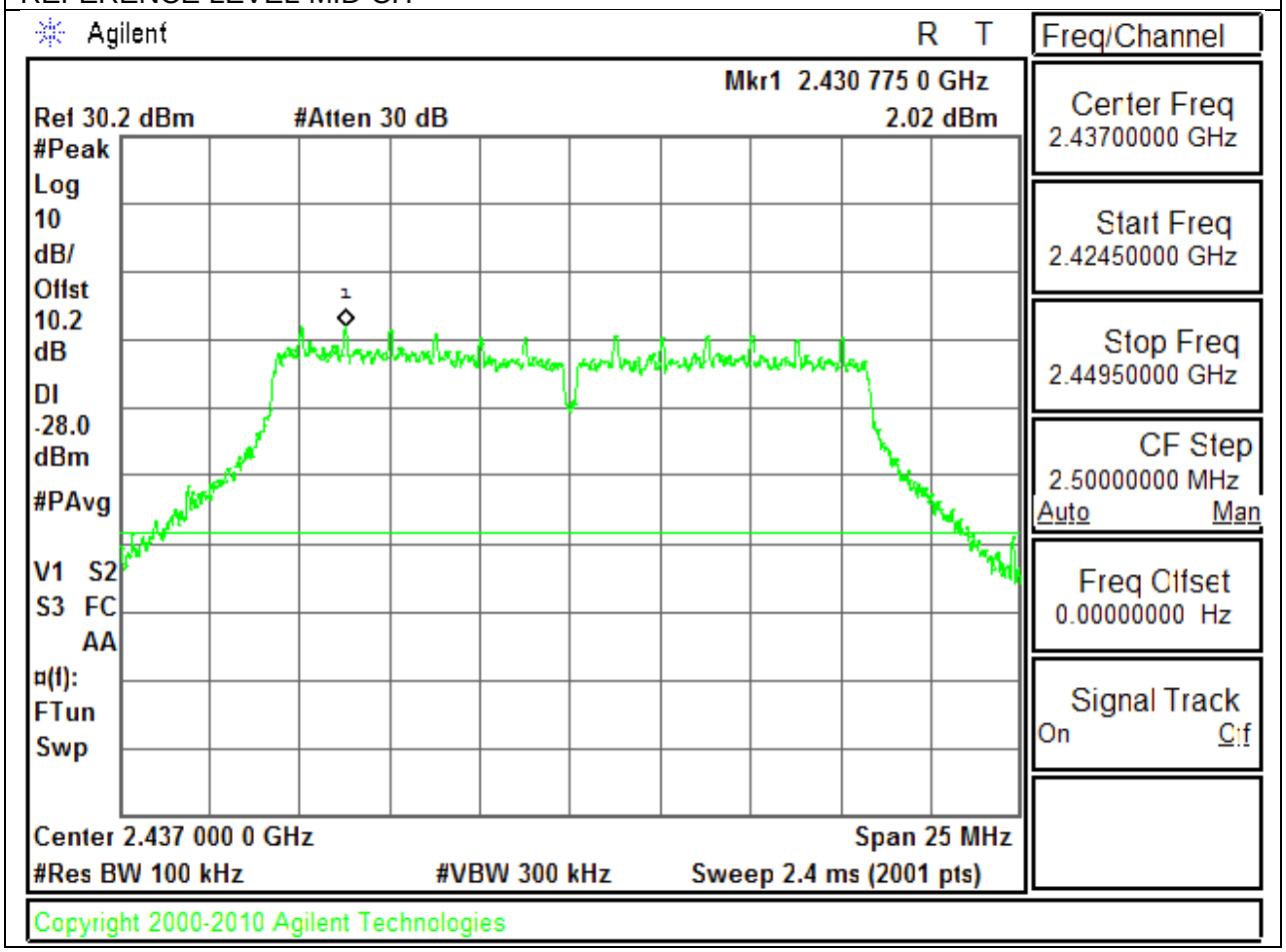


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.5.2. 802.11g MODE IN THE 2.4 GHz BAND

IN-BAND REFERENCE LEVEL

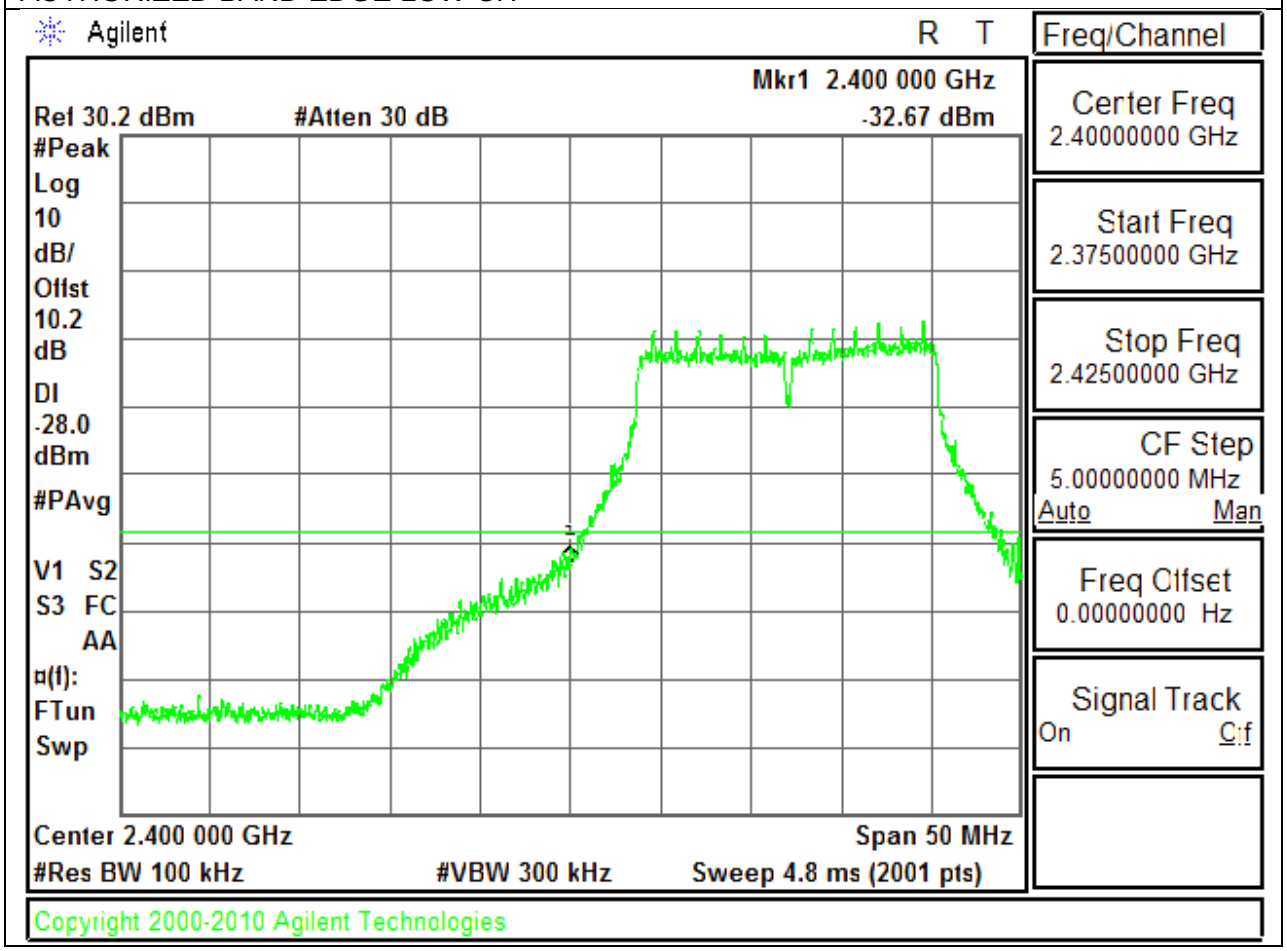
REFERENCE LEVEL MID CH



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

LOW CHANNEL BANDEDGE

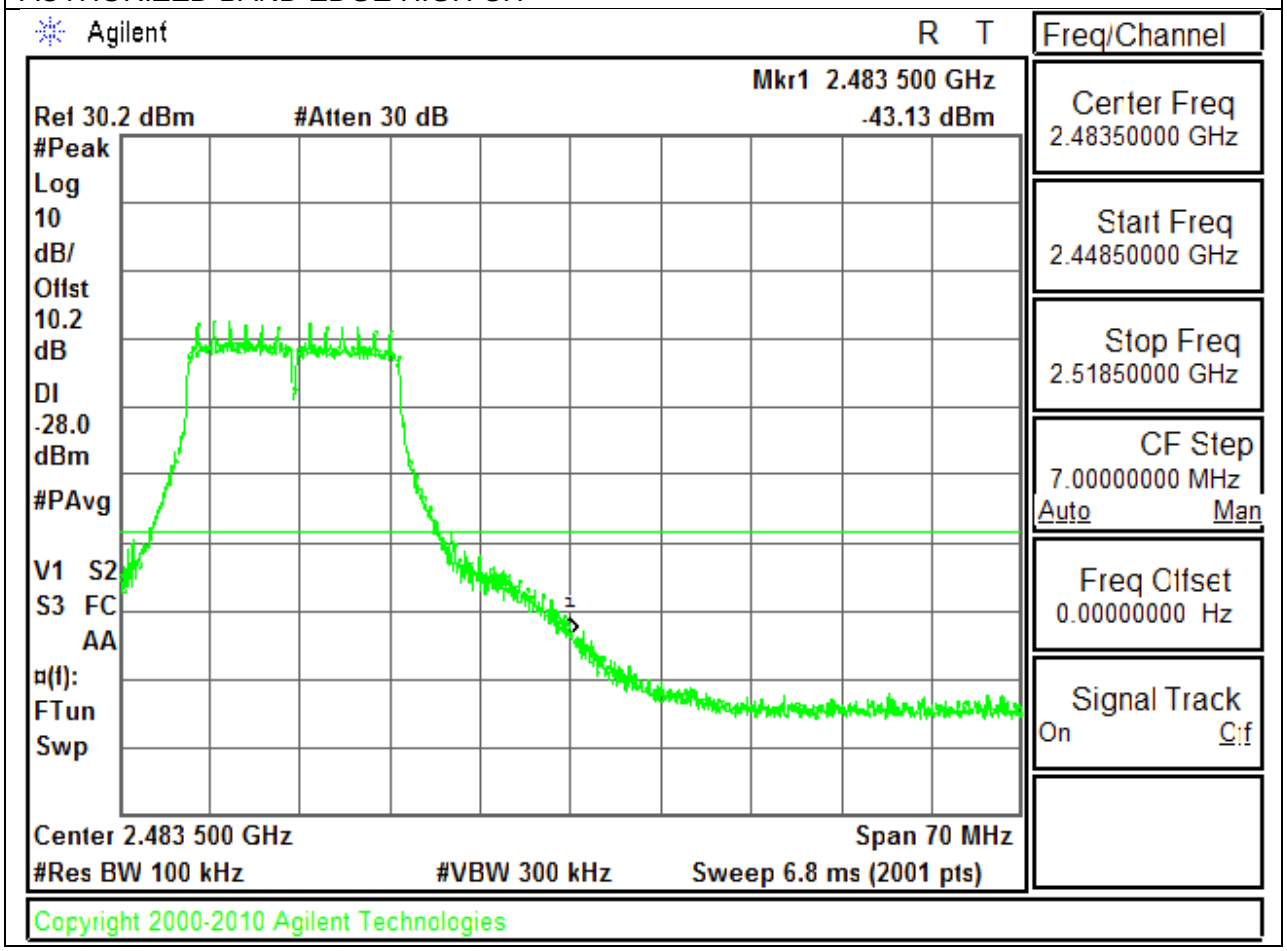
AUTHORIZED BAND EDGE LOW CH



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

HIGH CHANNEL BANDEDGE

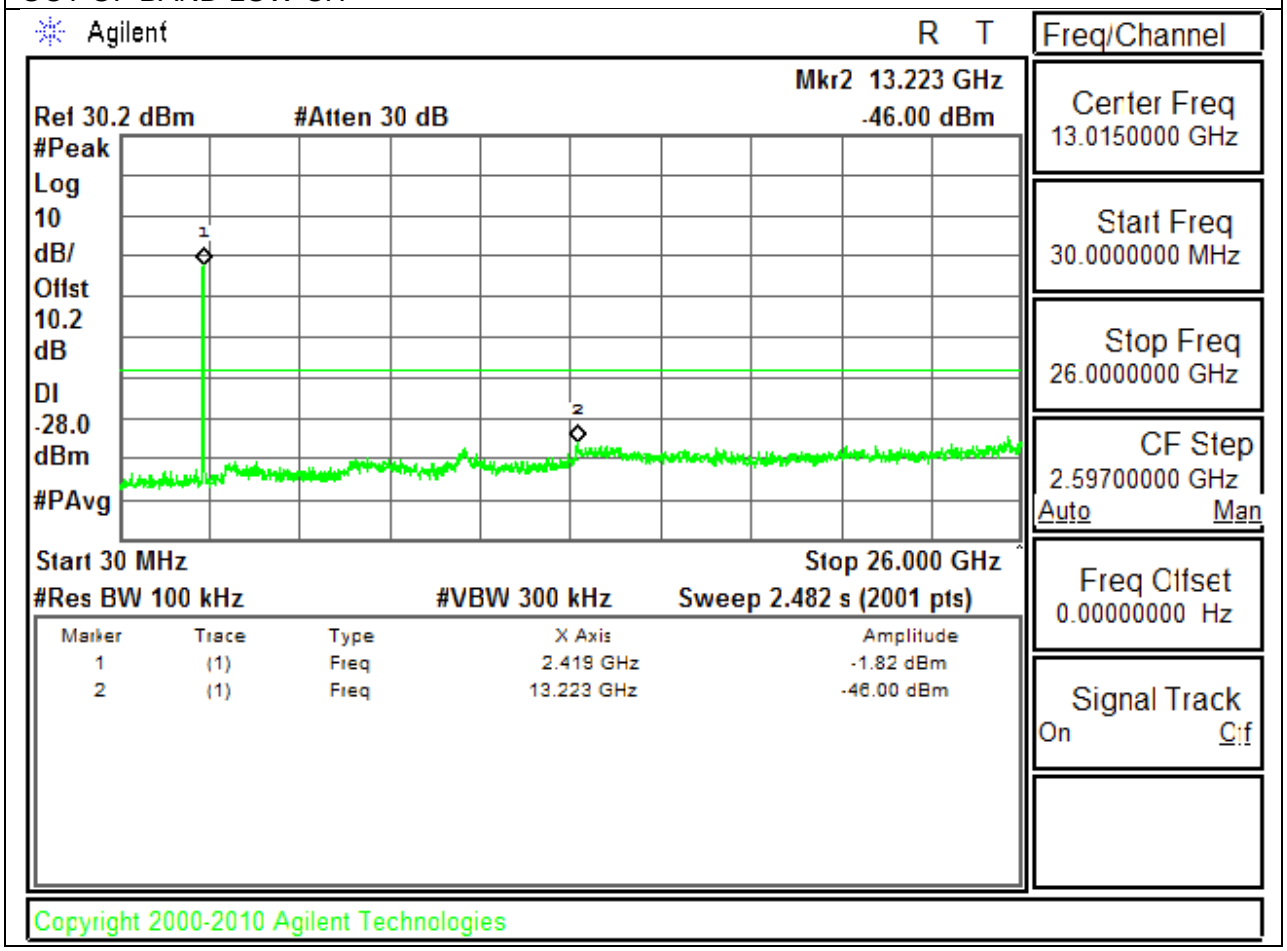
AUTHORIZED BAND EDGE HIGH CH



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

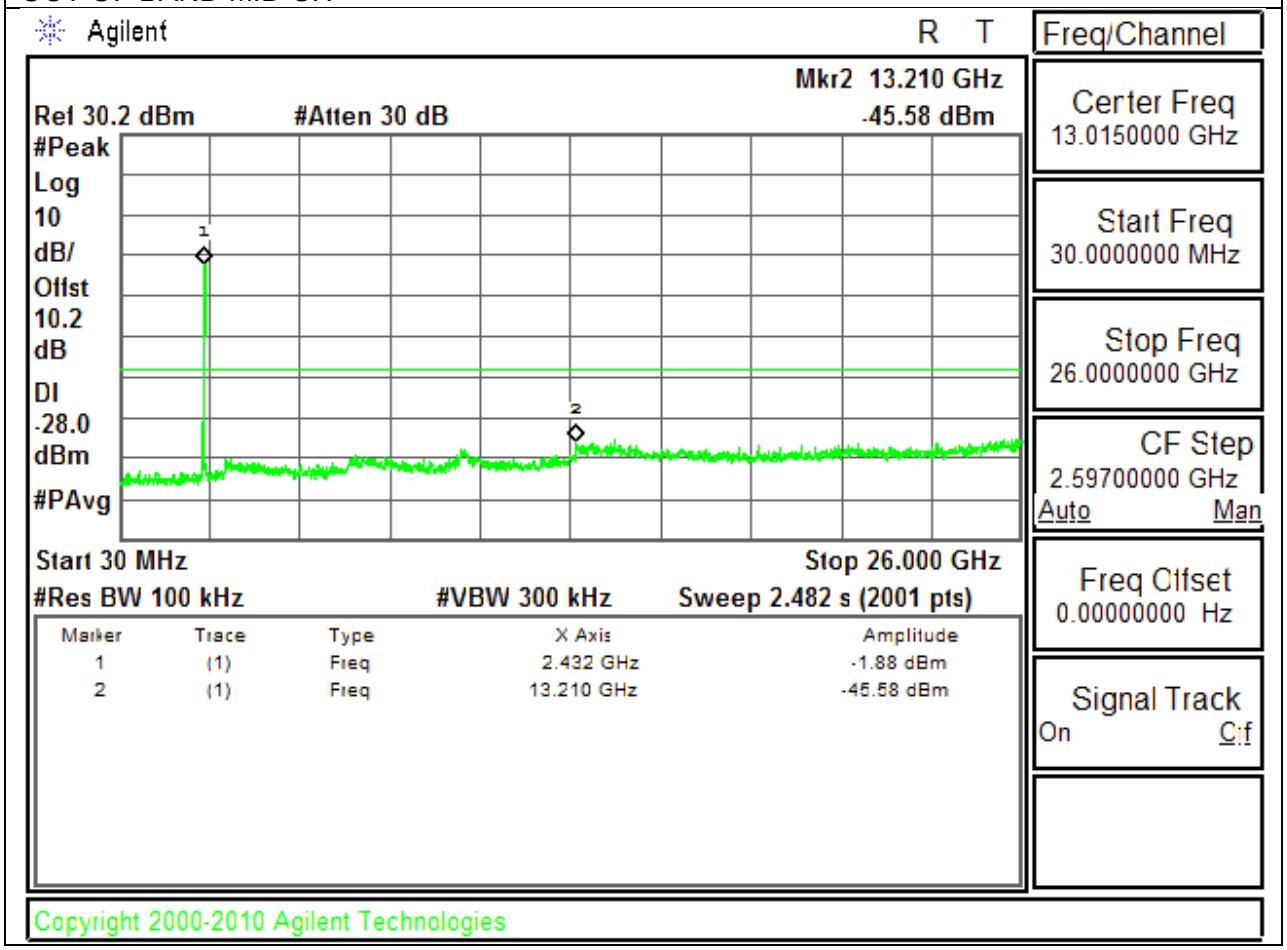
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



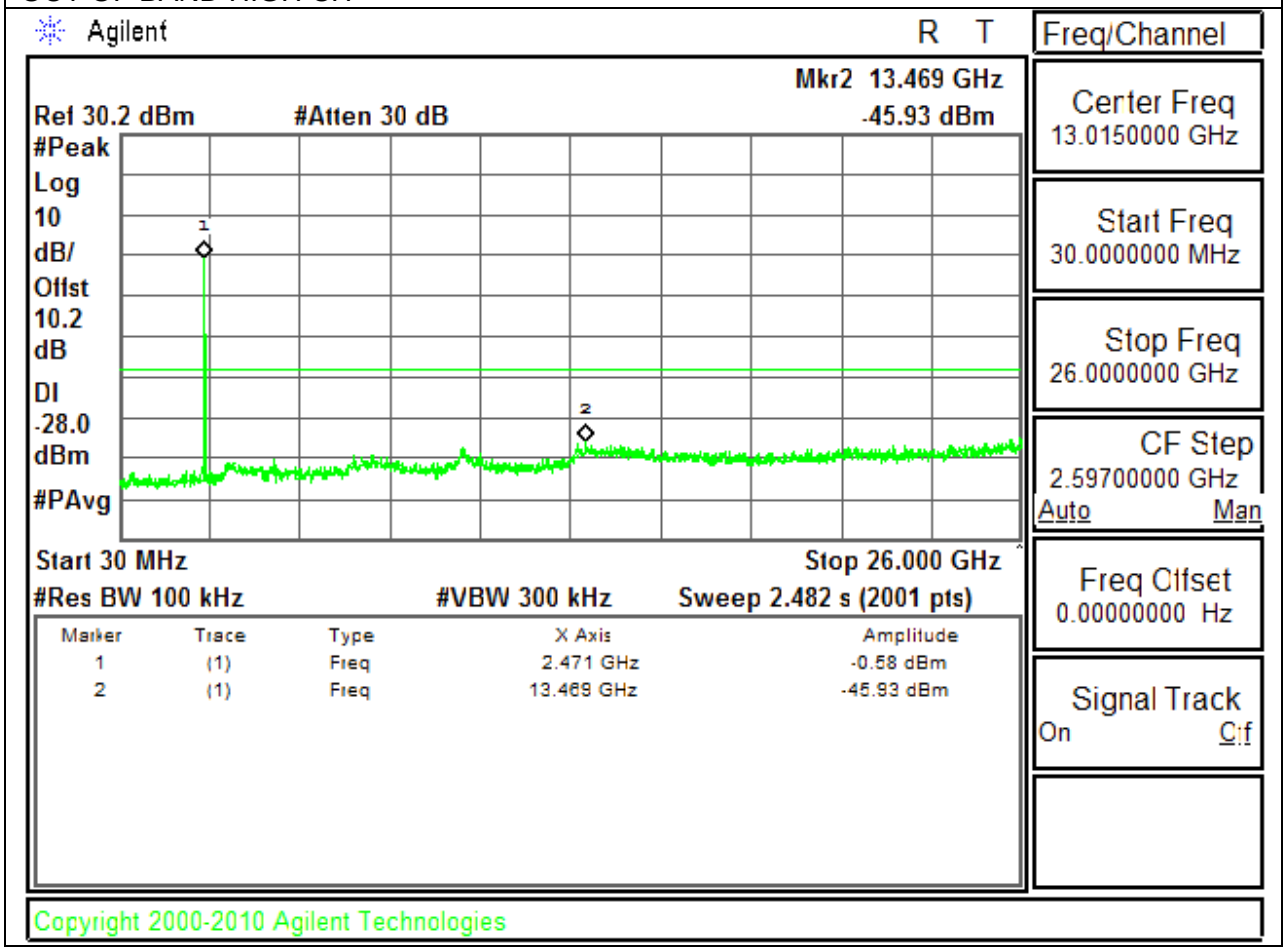
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

OUT OF BAND MID CH



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

OUT OF BAND HIGH CH

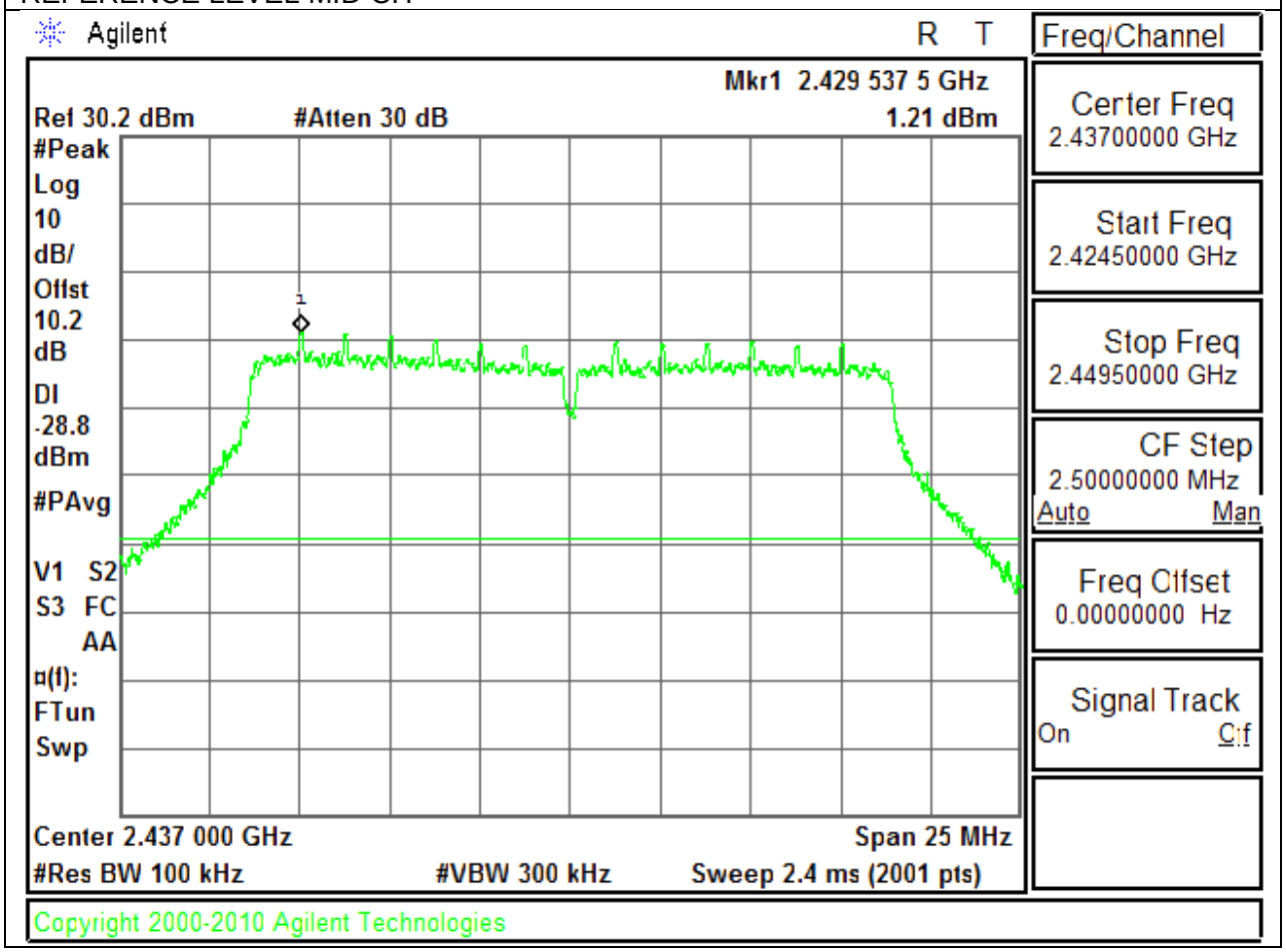


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

IN-BAND REFERENCE LEVEL

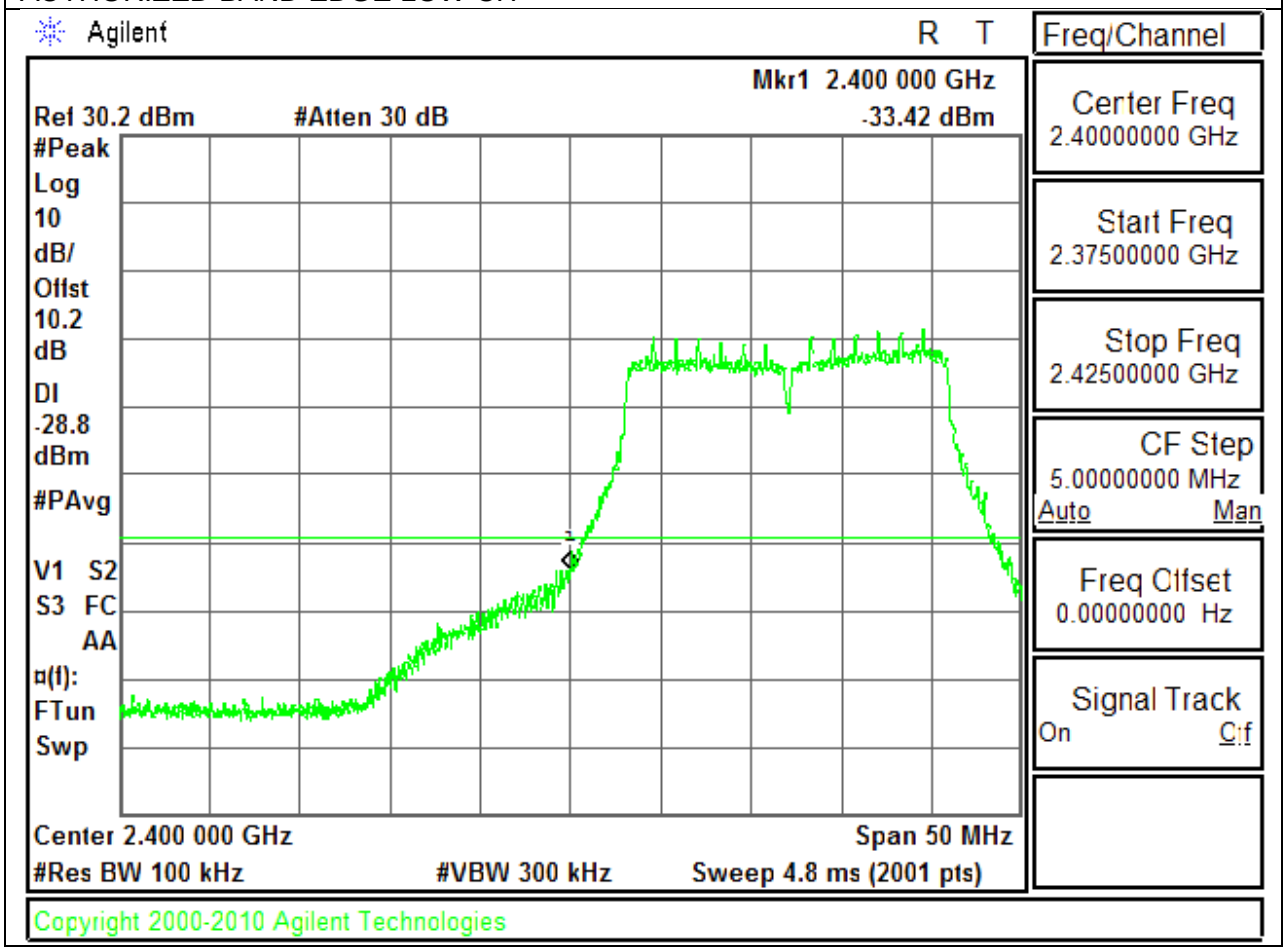
REFERENCE LEVEL MID CH



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

LOW CHANNEL BANDEDGE

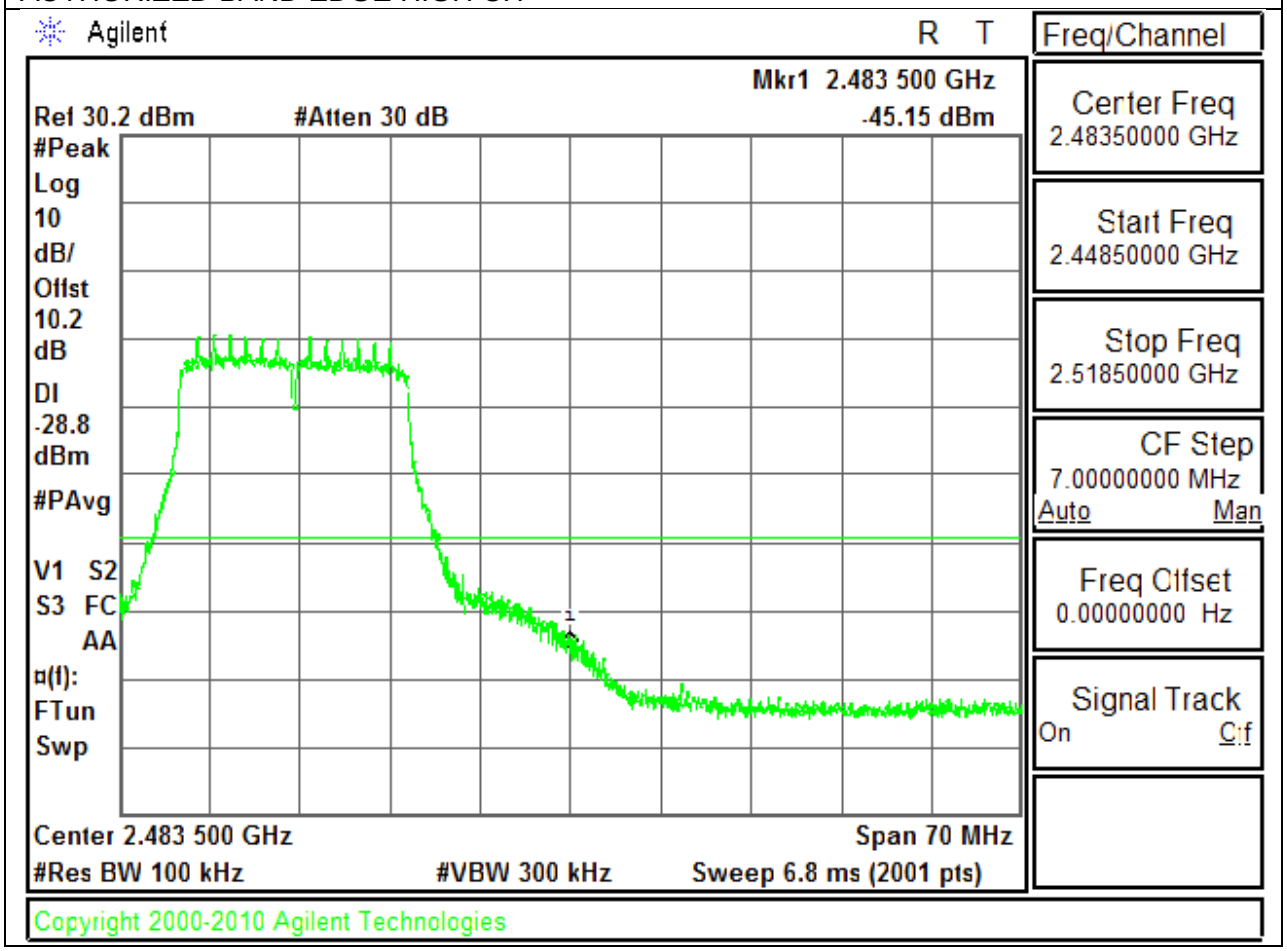
AUTHORIZED BAND EDGE LOW CH



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

HIGH CHANNEL BANDEDGE

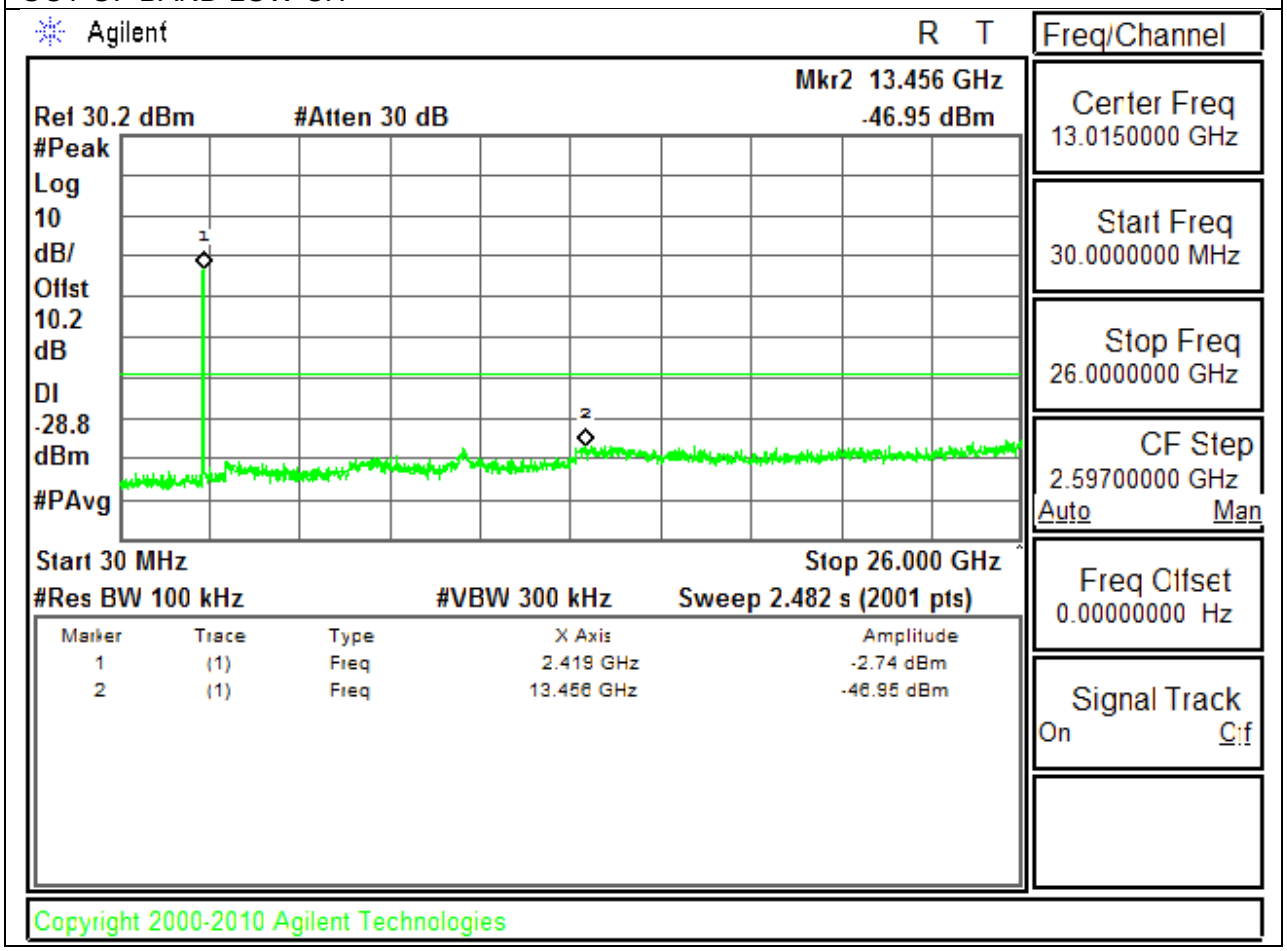
AUTHORIZED BAND EDGE HIGH CH



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

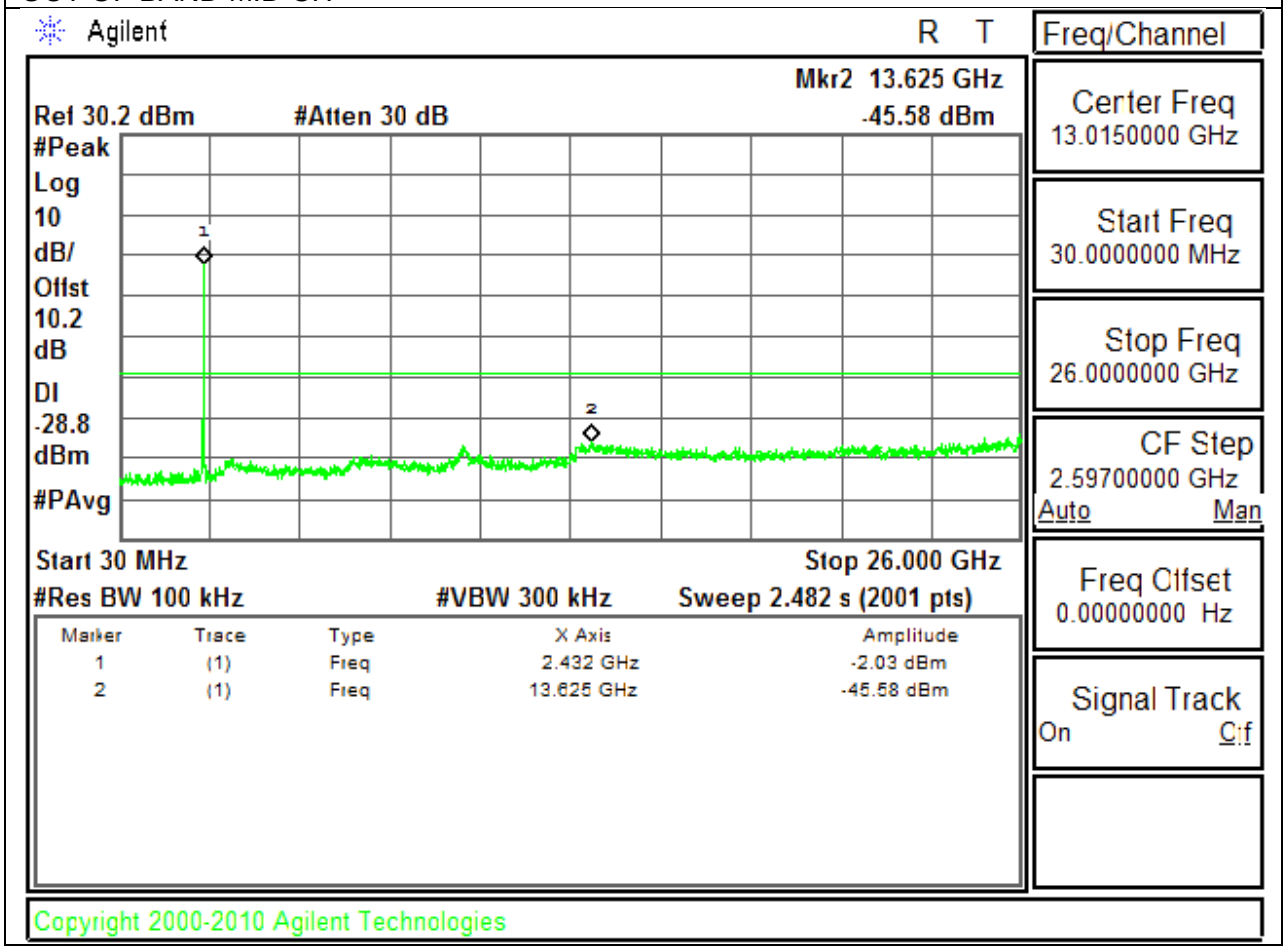
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



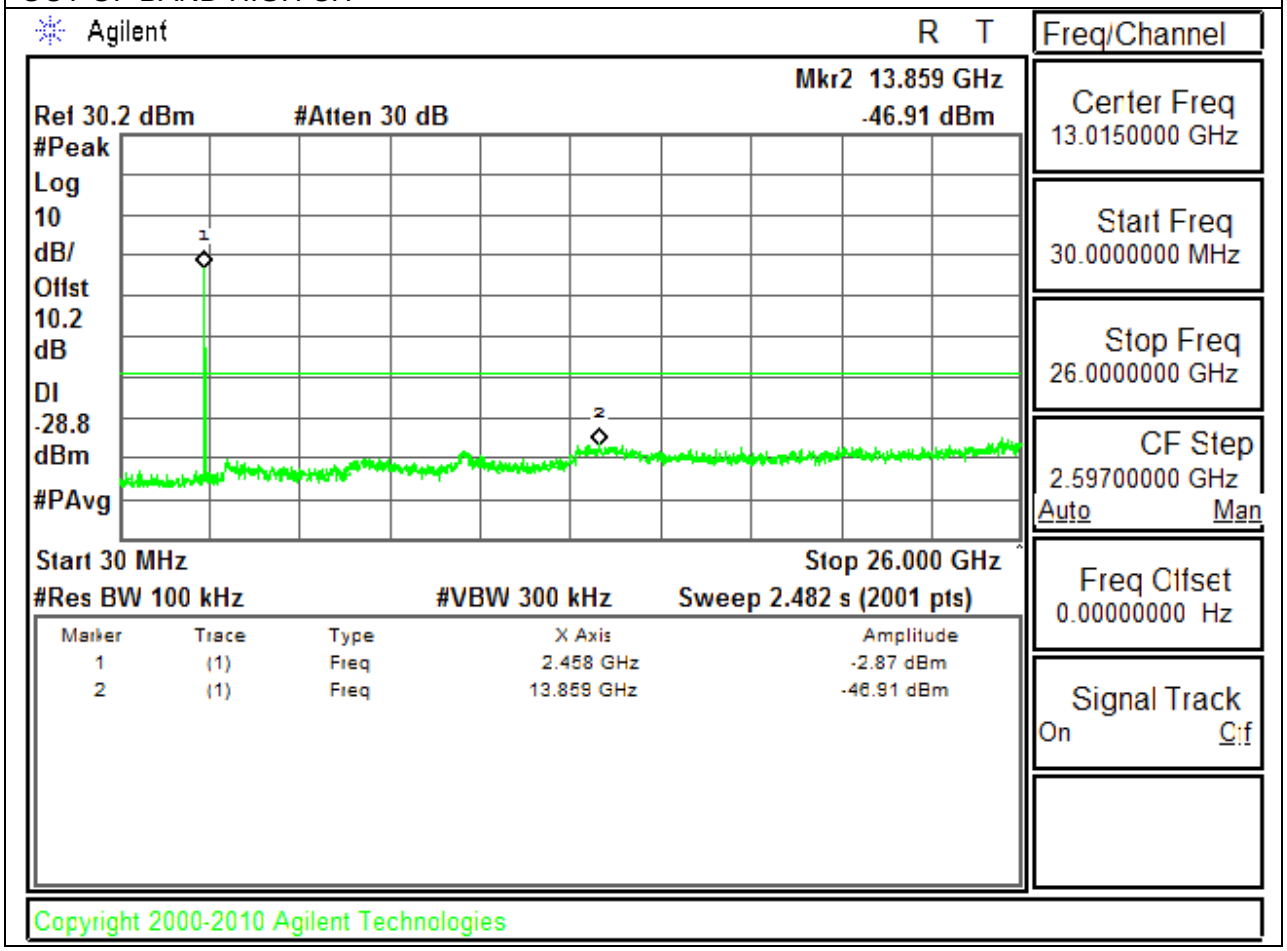
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

OUT OF BAND MID CH



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.

10. RADIATED TEST RESULTS

10.1. 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 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 = 0.3dB; 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.

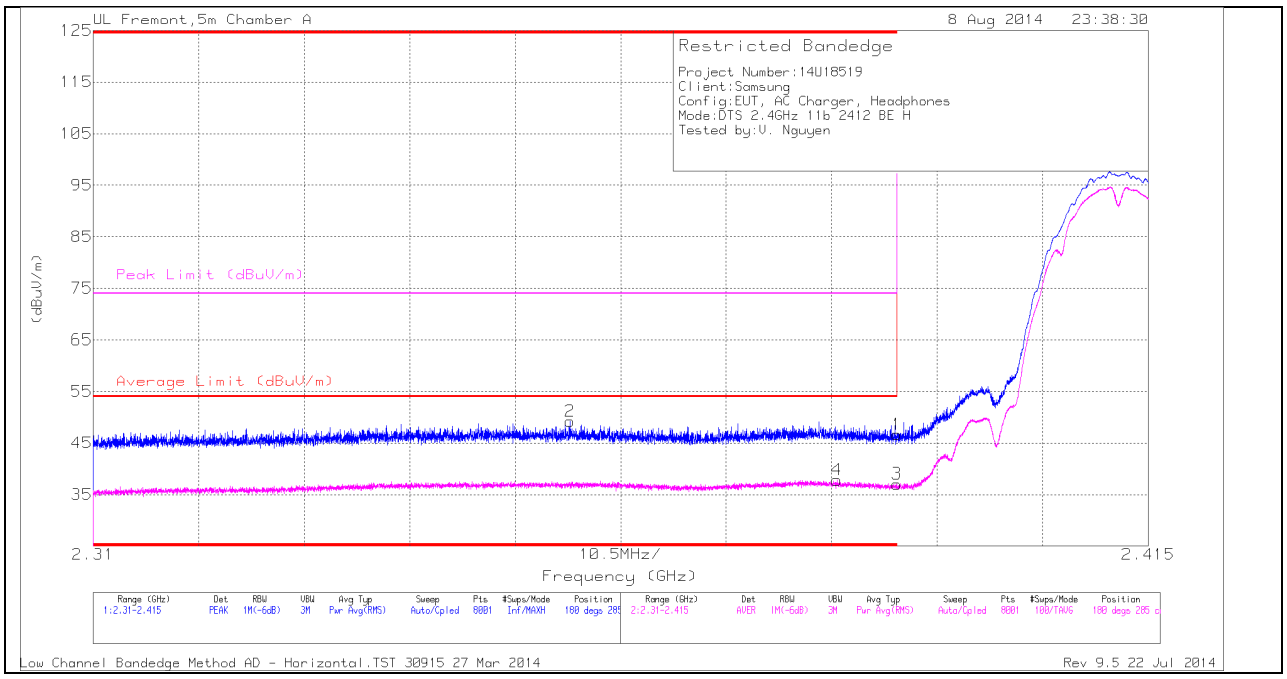
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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
2	* 2.357	41.03	PK	32	-23.8	0	49.23	-	-	74	-24.77	180	285	H
4	* 2.384	29.42	RMS	32.2	-23.8	0	37.82	54	-16.18	-	-	180	285	H
1	* 2.39	38.85	PK	32.2	-24.4	0	46.65	-	-	74	-27.35	180	285	H
3	* 2.39	29.26	RMS	32.2	-24.4	0	37.06	54	-16.94	-	-	180	285	H

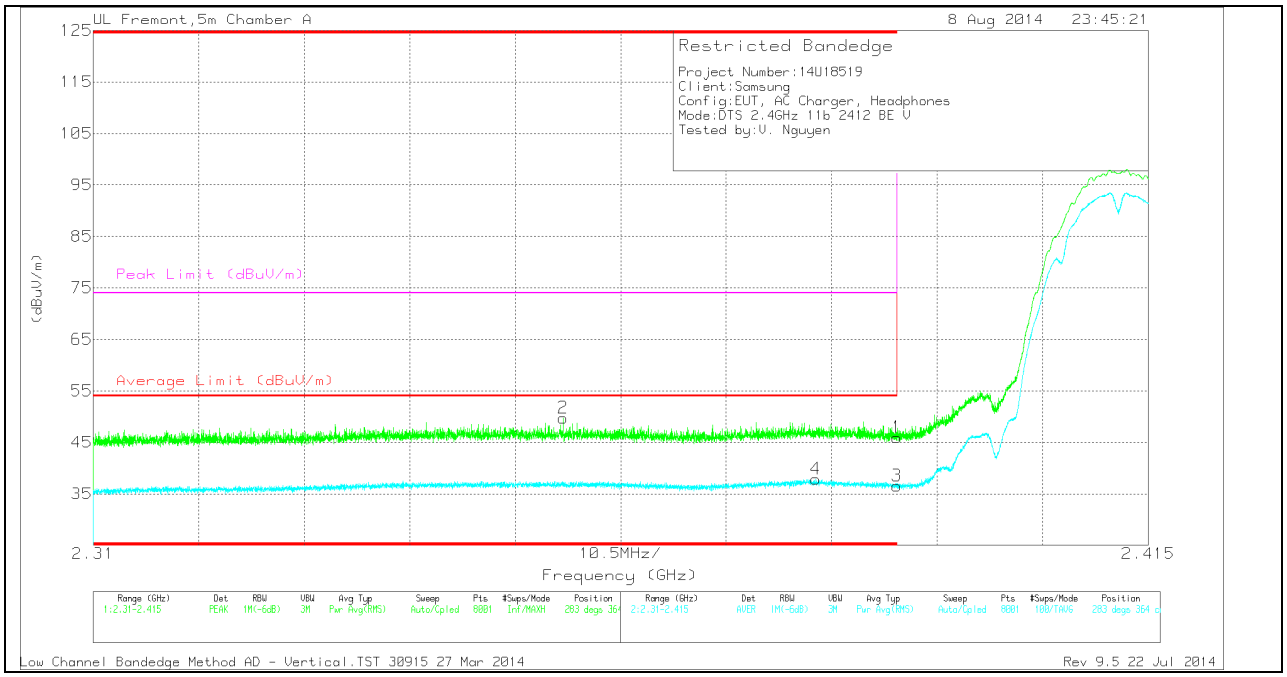
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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
2	* 2.357	41.56	PK	32	-23.8	49.76	-	-	74	-24.24	283	364	V
4	* 2.382	29.28	RMS	32.2	-23.6	37.88	54	-16.12	-	-	283	364	V
1	* 2.39	38.18	PK	32.2	-24.4	45.98	-	-	74	-28.02	283	364	V
3	* 2.39	28.77	RMS	32.2	-24.4	36.57	54	-17.43	-	-	283	364	V

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

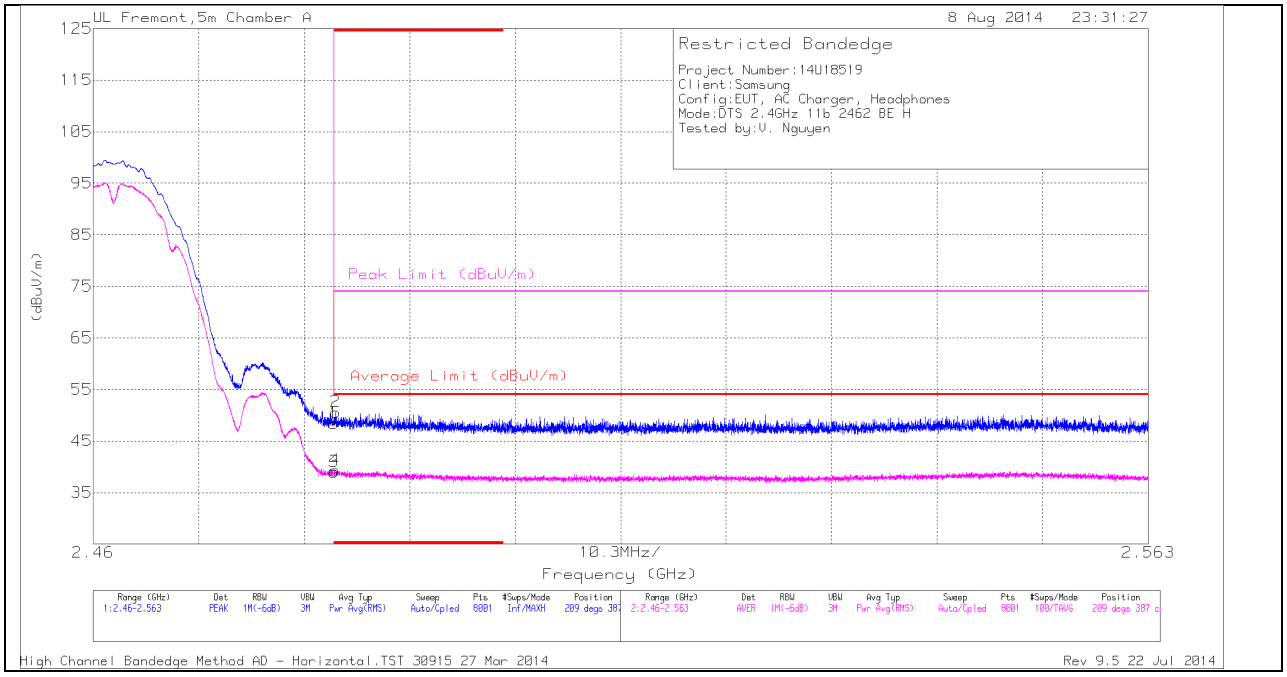
PK - Peak detector

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)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	39.21	PK	32.7	-23.5	0	48.41	-	-	74	-25.59	209	387	H
2	* 2.484	41.43	PK	32.7	-23.5	0	50.63	-	-	74	-23.37	209	387	H
3	* 2.484	29.85	RMS	32.7	-23.5	0	39.05	54	-14.95	-	-	209	387	H
4	* 2.484	30.08	RMS	32.7	-23.5	0	39.28	54	-14.72	-	-	209	387	H

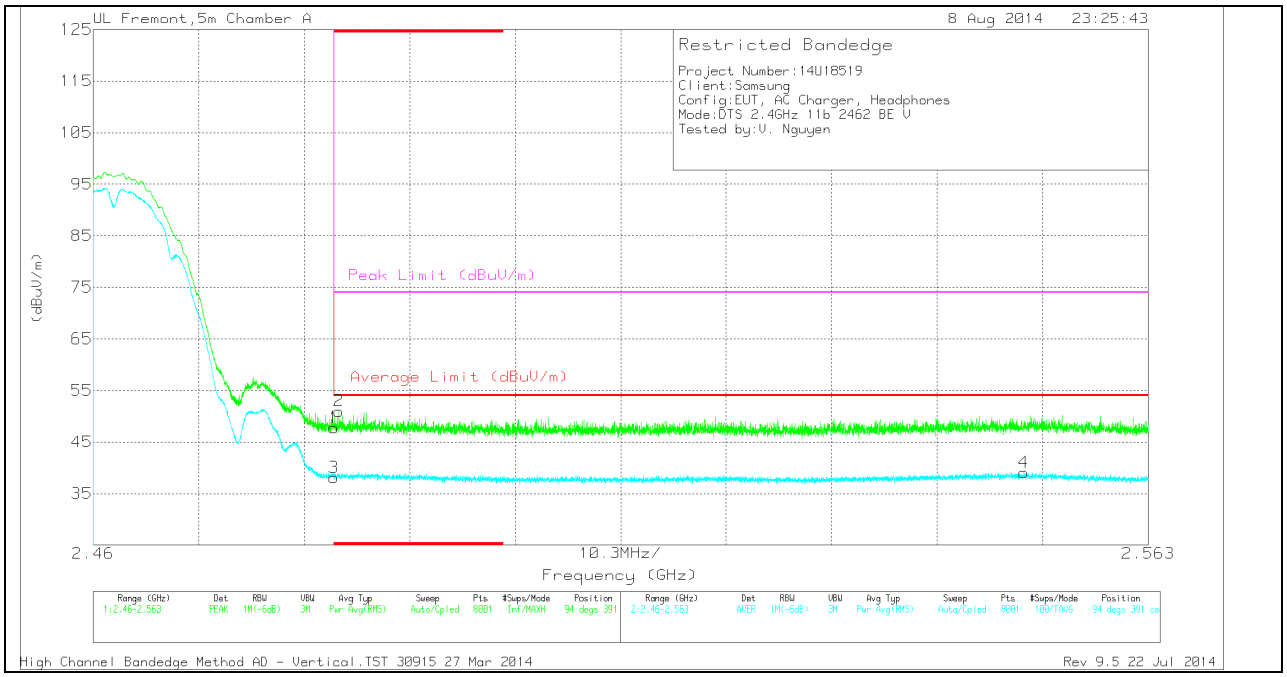
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	38.58	PK	32.7	-23.5	0	47.78	-	-	74	-26.22	94	391	V
2	* 2.484	41.8	PK	32.7	-23.5	0	51	-	-	74	-23	94	391	V
3	* 2.484	28.89	RMS	32.7	-23.5	0	38.09	54	-15.91	-	-	94	391	V
4	2.551	29.29	RMS	32.9	-23.1	0	39.09	54	-14.91	-	-	94	391	V

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

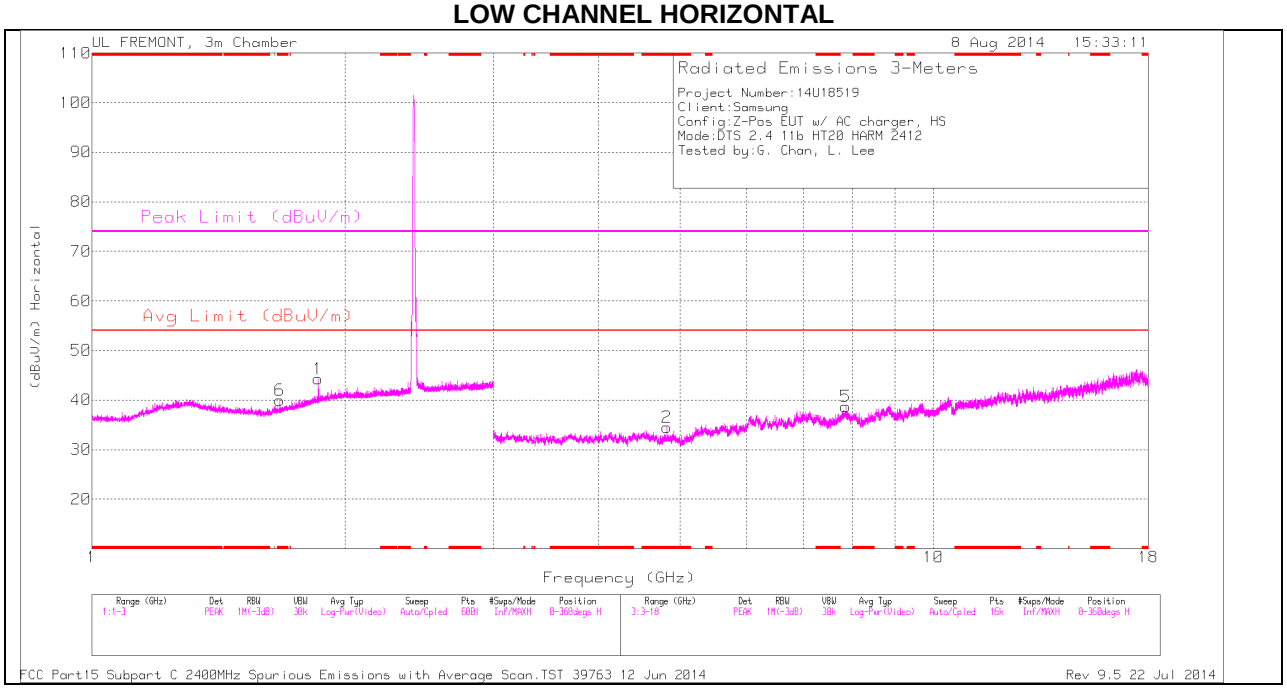
PK - Peak detector

RMS - RMS detection

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

HARMONICS AND SPURIOUS EMISSIONS

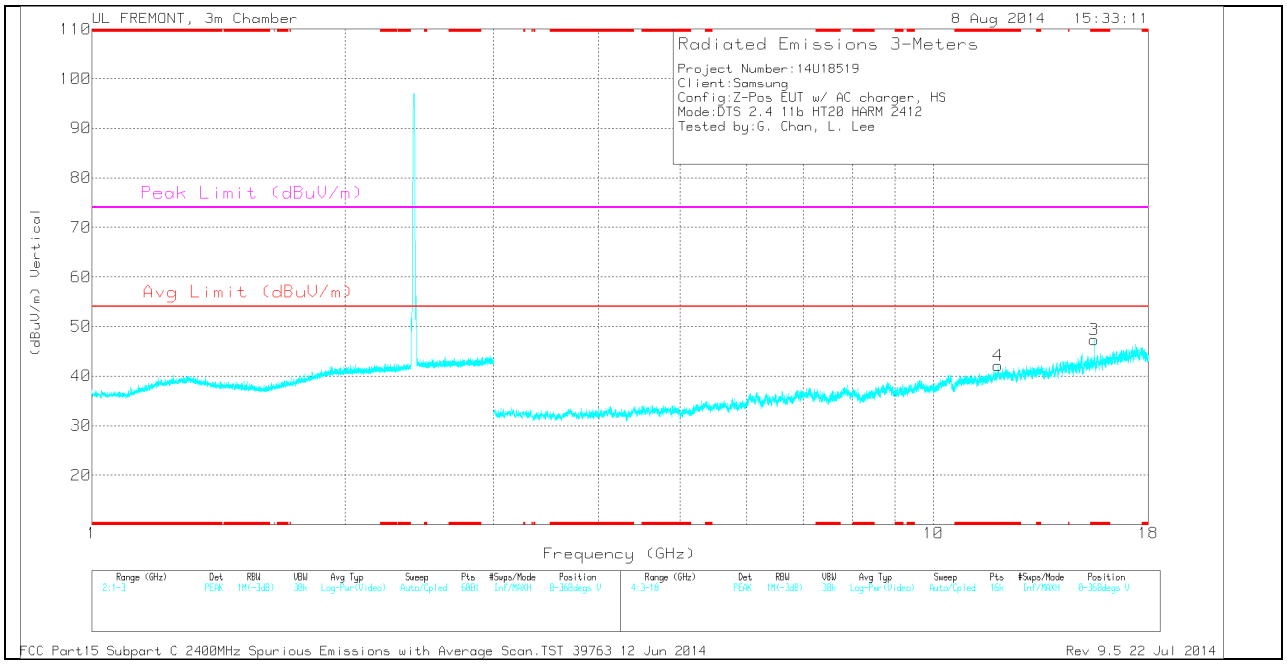
LOW CHANNEL HORIZONTAL



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

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 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 T119 (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
6	* 1.673	34.6	PK	28.8	-23.4	0	40	-	-	74	-34	0-360	100	H
2	* 4.824	30.68	PK	34	-30.2	0	34.48	-	-	74	-39.52	0-360	100	H
3	* 15.528	33.87	PK	40.3	-26.8	0	47.37	-	-	74	-26.63	0-360	100	V
4	* 11.932	29.24	PK	39	-26.1	0	42.14	-	-	74	-31.86	0-360	200	V
1	1.857	36.79	PK	30.8	-23.3	0	44.29	-	-	-	-	0-360	200	H
5	7.863	30.02	PK	35.8	-27.1	0	38.72	-	-	-	-	0-360	200	H

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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
* 1.671	43.18	PK2	28.8	-23.4	0	48.58	-	-	74	-25.42	242	100	H
* 1.673	31.16	MAv1	28.8	-23.4	0	36.56	54	-17.44	-	-	242	100	H
* 15.526	39.7	PK2	40.3	-26.8	0	53.2	-	-	74	-20.8	242	100	V
* 15.528	27.87	MAv1	40.3	-26.7	0	41.47	54	-12.53	-	-	242	100	V
1.856	42.78	PK2	30.8	-23.3	0	50.28	-	-	-	-	310	124	H
1.857	30.7	MAv1	30.8	-23.3	0	38.2	-	-	-	-	310	124	H

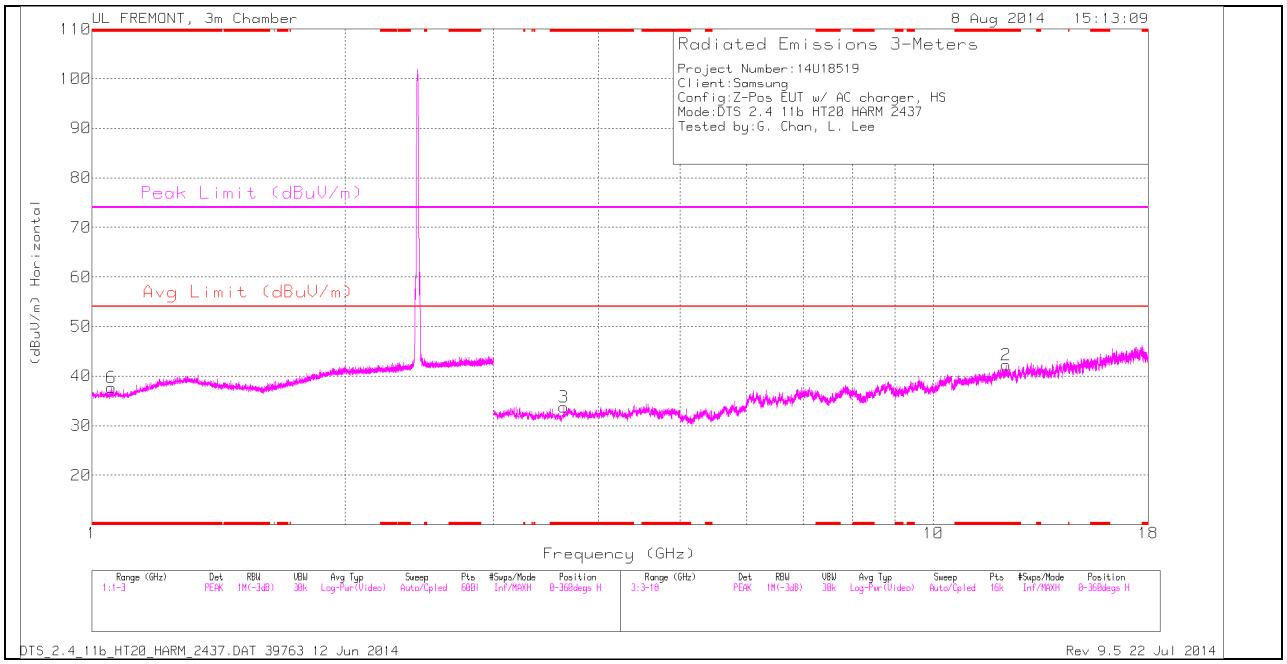
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

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.

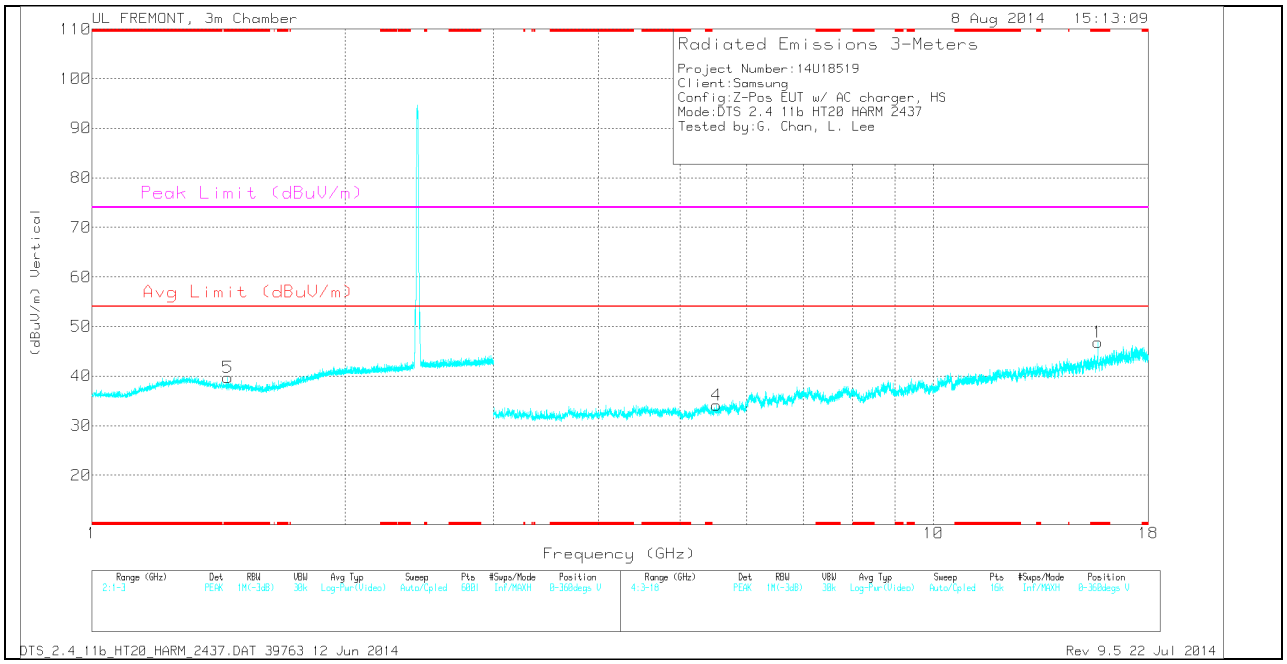
MID CHANNEL HORIZONTAL



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

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

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

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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
6	* 1.055	34.4	PK	27.2	-23.9	0	37.7	-	-	74	-36.3	0-360	100	H
5	* 1.451	34.51	PK	28.8	-23.6	0	39.71	-	-	74	-34.29	0-360	100	V
2	* 12.203	29.59	PK	39.1	-26.4	0	42.29	-	-	74	-31.71	0-360	200	H
3	* 3.635	32.2	PK	33.1	-31.5	0	33.8	-	-	74	-40.2	0-360	200	H
1	* 15.679	32.97	PK	40.4	-26.6	0	46.77	-	-	74	-27.23	0-360	200	V
4	5.524	29.62	PK	34.8	-30.3	0	34.12	-	-	-	-	0-360	100	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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
* 1.671	43.18	PK2	28.8	-23.4	0	48.58	-	-	74	-25.42	242	100	H
* 1.673	31.16	MAv1	28.8	-23.4	0	36.56	54	-17.44	-	-	242	100	H
* 15.679	39.4	PK2	40.4	-26.6	0	53.2	-	-	74	-20.8	46	103	V
* 15.68	27.82	MAv1	40.4	-26.6	0	41.62	54	-12.38	-	-	46	103	V
* 15.526	39.7	PK2	40.3	-26.8	0	53.2	-	-	74	-20.8	242	100	V
* 15.528	27.87	MAv1	40.3	-26.7	0	41.47	54	-12.53	-	-	242	100	V

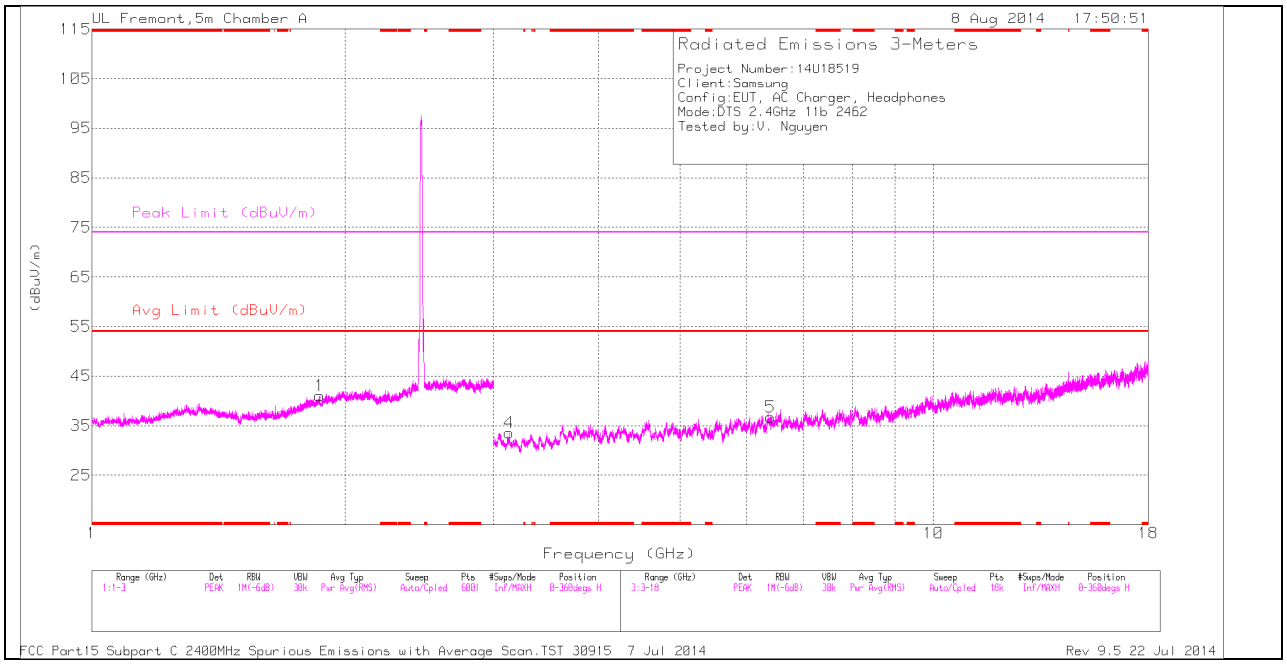
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

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.

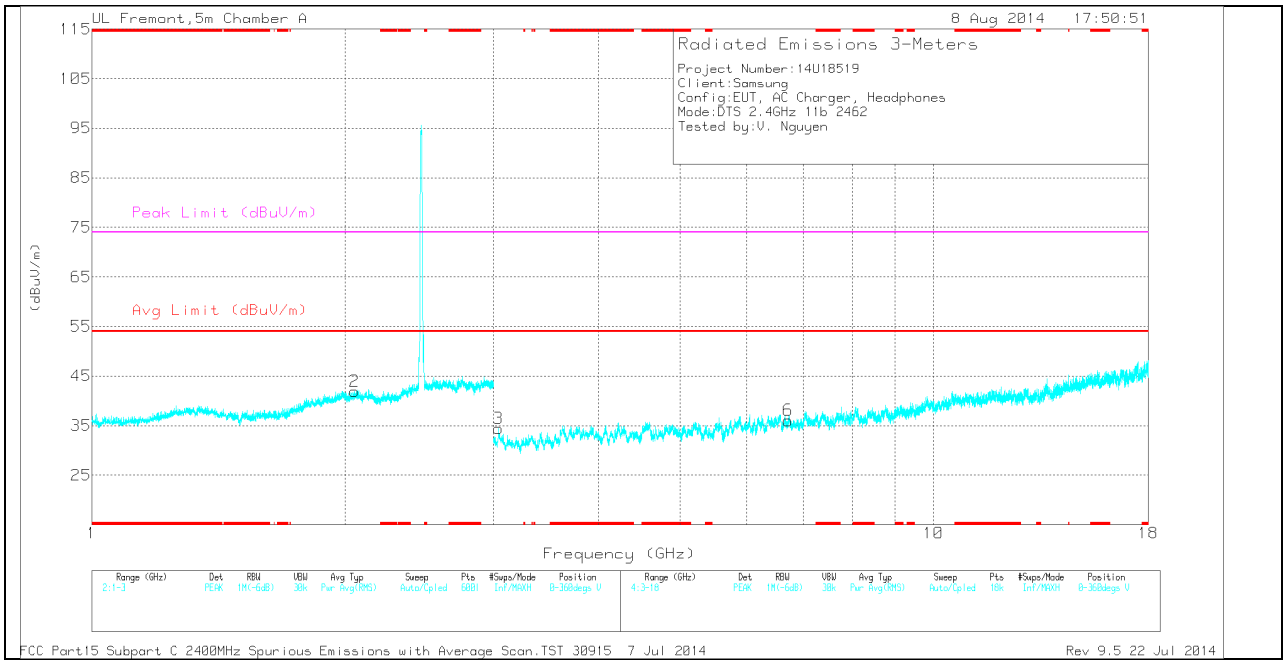
HIGH CHANNEL HORIZONTAL



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

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 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

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	1.865	35.16	PK	31.3	-25.4	0	41.06	-	-	-	-	0-360	100	H
2	2.052	34.4	PK	31.9	-24.4	0	41.9	-	-	-	-	0-360	100	V
3	3.043	32.23	PK	32.8	-30.6	0	34.43	-	-	-	-	0-360	100	V
4	3.133	32.09	PK	32.7	-31.3	0	33.49	-	-	-	-	0-360	201	H
5	6.398	29.43	PK	35.5	-28.2	0	36.73	-	-	-	-	0-360	100	H
6	6.718	27.62	PK	35.4	-27	0	36.02	-	-	-	-	0-360	201	V

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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
2.05	42.77	PK2	31.9	-24.5	0	50.17	-	-	-	-	205	356	V
2.05	30.43	MAv1	31.9	-24.5	0	37.83	-	-	-	-	205	356	V

PK2 - KDB558074 Method: Maximum Peak

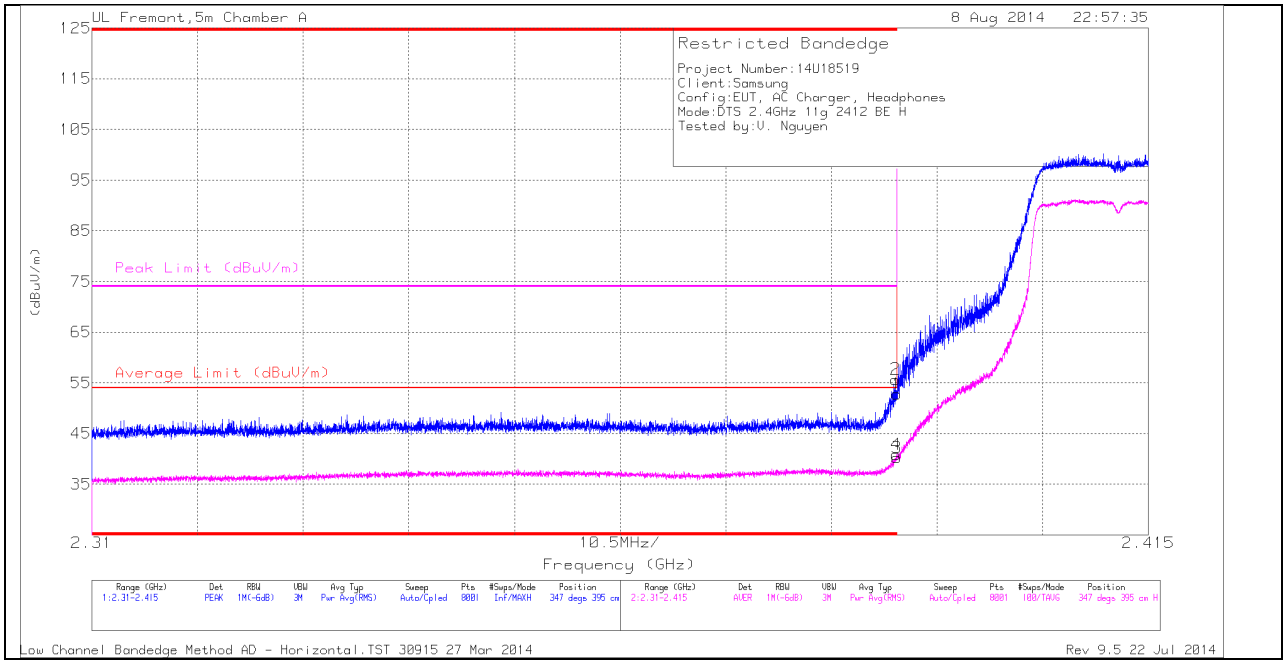
MAv1 - KDB558074 Option 1 Maximum RMS Average

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

10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	44.93	PK	32.2	-24.4	0	52.73	-	-	74	-21.27	347	395	H
2	* 2.39	47.89	PK	32.2	-24.4	0	55.69	-	-	74	-18.31	347	395	H
3	* 2.39	32.15	RMS	32.2	-24.4	.3	40.25	54	-13.75	-	-	347	395	H
4	* 2.39	32.81	RMS	32.2	-24.4	.3	40.91	54	-13.09	-	-	347	395	H

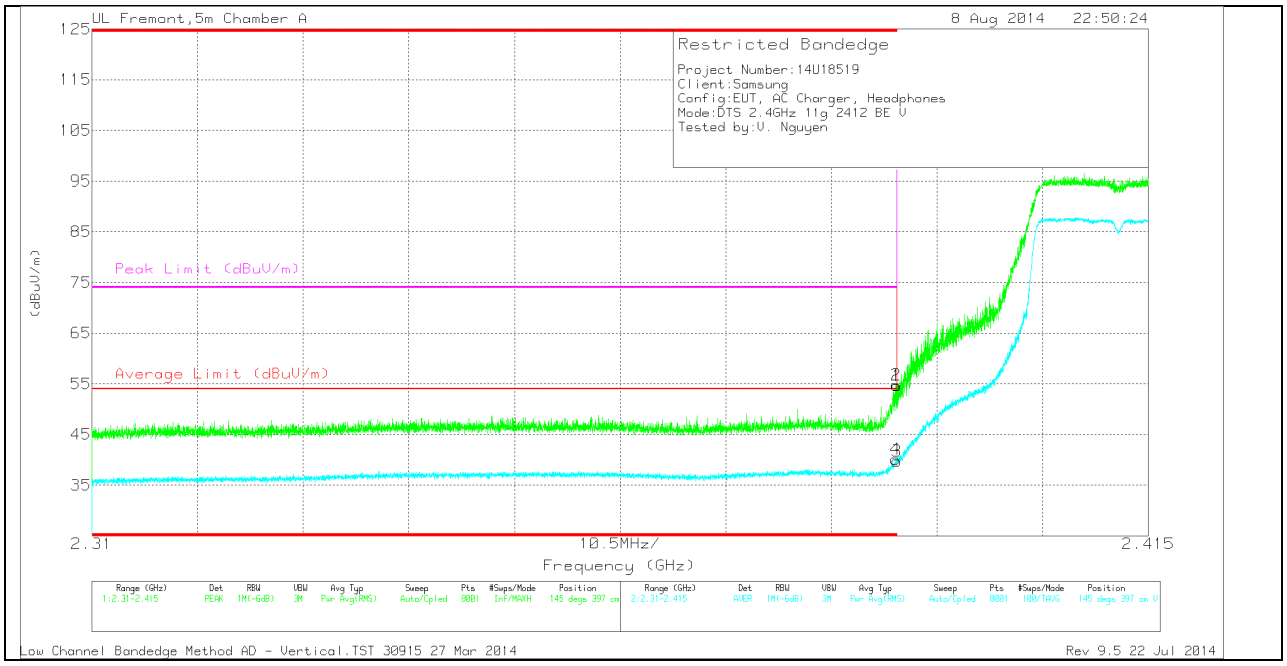
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	46.82	PK	32.2	-24.4	0	54.62	-	-	74	-19.38	145	397	V
2	* 2.39	47.01	PK	32.2	-24.4	0	54.81	-	-	74	-19.19	145	397	V
3	* 2.39	31.6	RMS	32.2	-24.4	.3	39.7	54	-14.3	-	-	145	397	V
4	* 2.39	31.99	RMS	32.2	-24.4	.3	40.09	54	-13.91	-	-	145	397	V

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

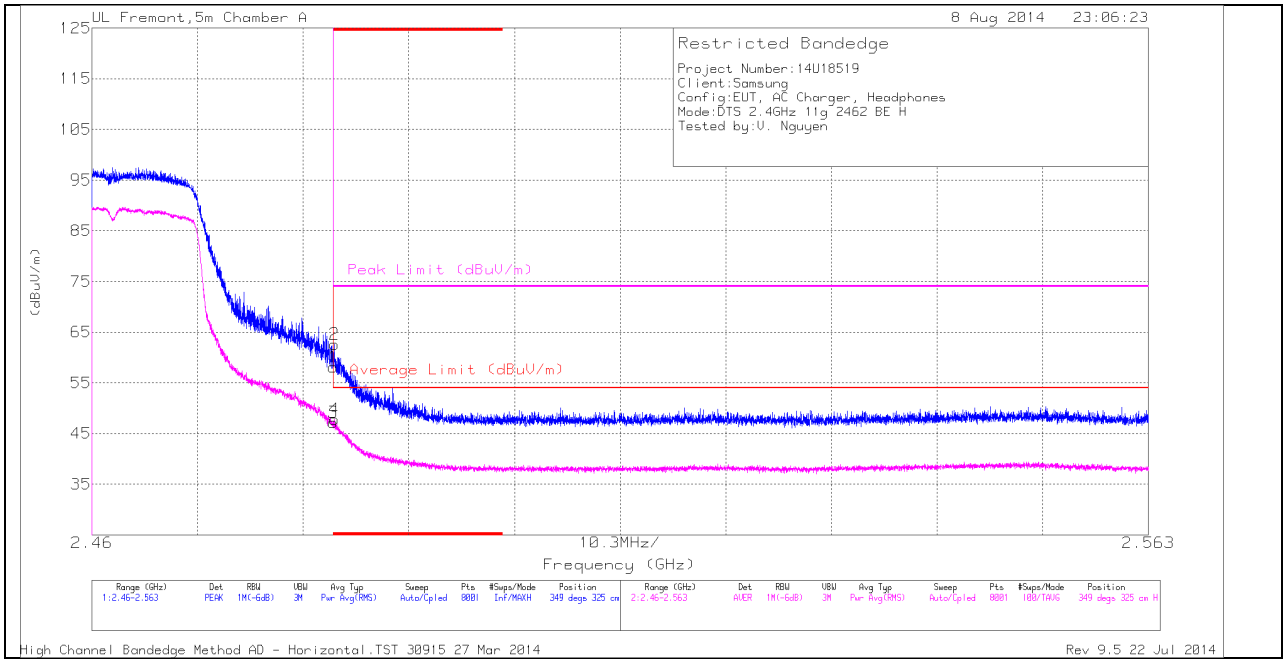
PK - Peak detector

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)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	* 2.484	48.94	PK	32.7	-23.5	0	58.14	-	-	74	-15.86	349	325	H
2	* 2.484	53.44	PK	32.7	-23.5	0	62.64	-	-	74	-11.36	349	325	H
3	* 2.484	37.67	RMS	32.7	-23.5	.3	47.17	54	-6.83	-	-	349	325	H
4	* 2.484	38.26	RMS	32.7	-23.5	.3	47.76	54	-6.24	-	-	349	325	H

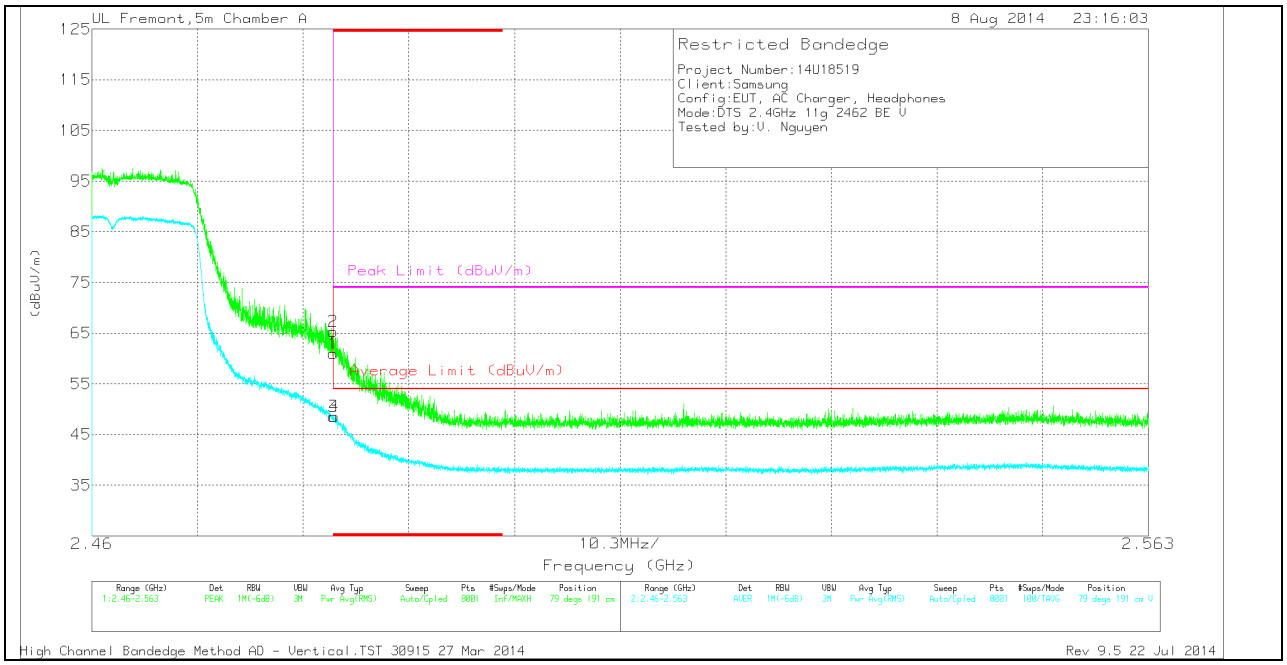
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	* 2.484	51.72	PK	32.7	-23.5	0	60.92	-	-	74	-13.08	79	191	V
2	* 2.484	56.14	PK	32.7	-23.5	0	65.34	-	-	74	-8.66	79	191	V
3	* 2.484	39.07	RMS	32.7	-23.5	.3	48.57	54	-5.43	-	-	79	191	V
4	* 2.484	39.09	RMS	32.7	-23.5	.3	48.59	54	-5.41	-	-	79	191	V

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

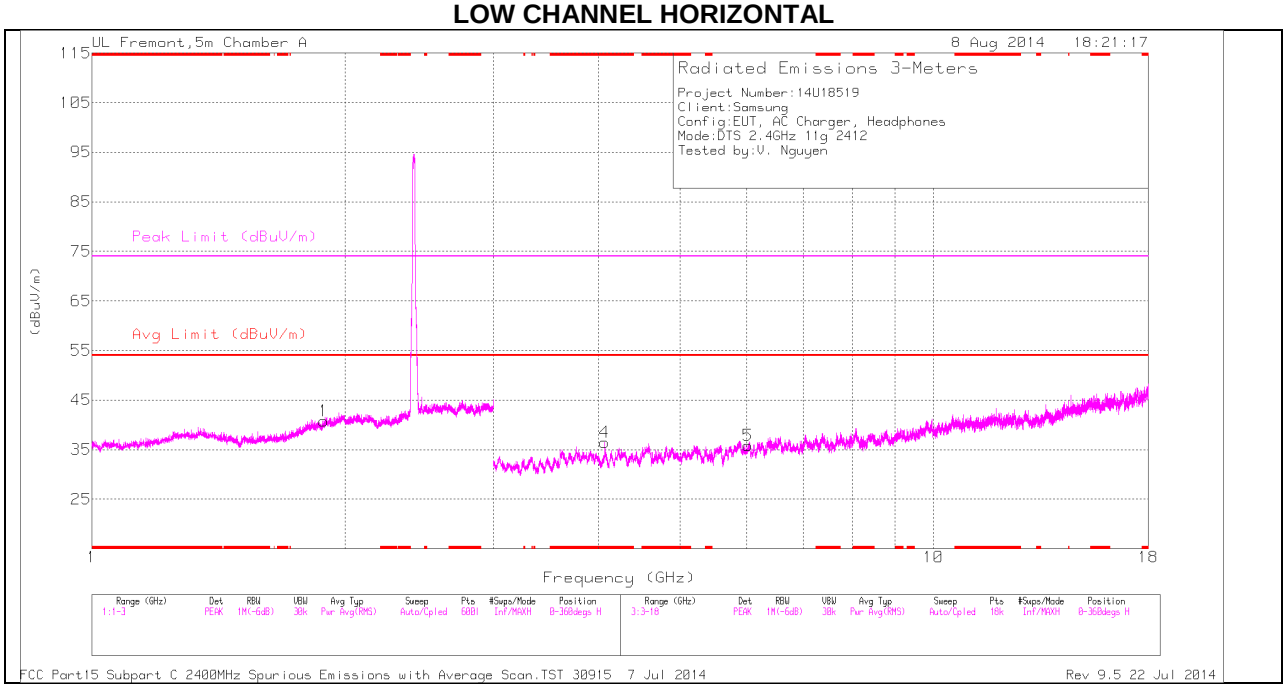
PK - Peak detector

RMS - RMS detection

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

HARMONICS AND SPURIOUS EMISSIONS

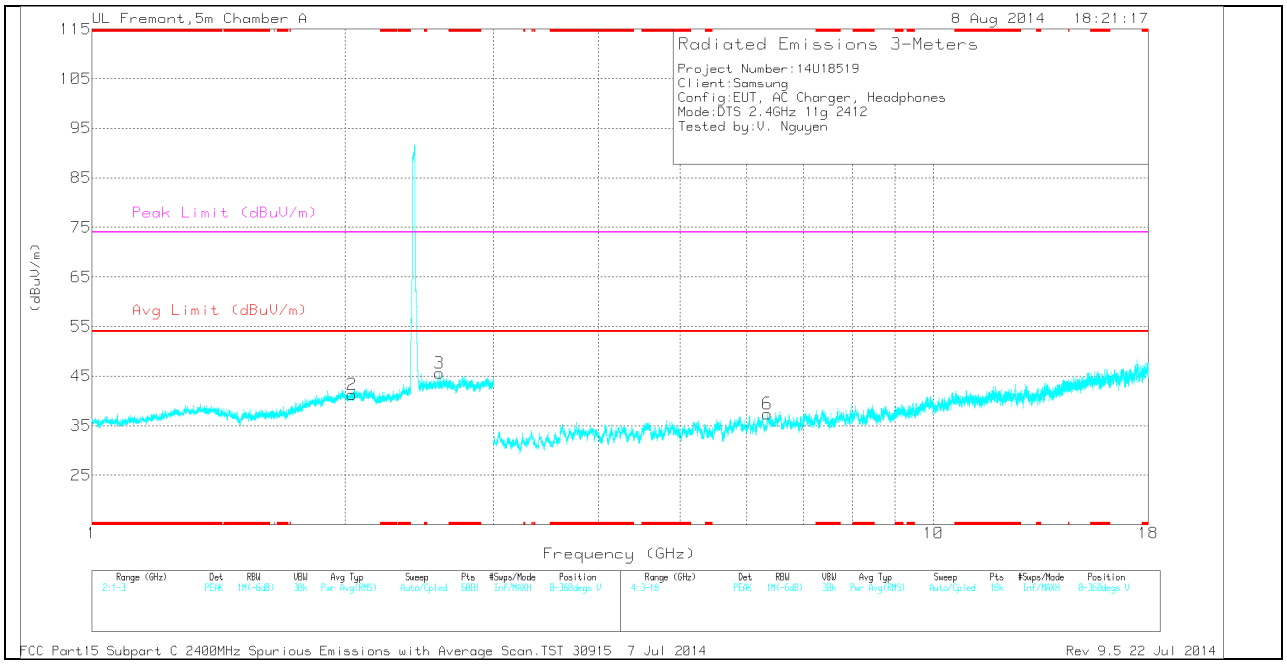
LOW CHANNEL HORIZONTAL



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

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

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

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	* 4.07	32.86	PK	33.8	-30.2	0	36.46	-	-	74	-37.54	0-360	201	H
1	1.885	34.57	PK	31.5	-25.3	0	40.77	-	-	-	-	0-360	201	H
2	2.039	34.35	PK	32	-25.1	0	41.25	-	-	-	-	0-360	100	V
3	2.587	36.15	PK	33	-23.6	0	45.55	-	-	-	-	0-360	100	V
5	6.016	29.14	PK	35.3	-28.6	0	35.84	-	-	-	-	0-360	201	H
6	6.348	30.11	PK	35.5	-28.2	0	37.41	-	-	-	-	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 T136 (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
* 4.068	39.77	PK2	33.8	-30.3	0	43.27	-	-	74	-30.73	293	159	H
* 4.069	27.38	MAv1	33.8	-30.3	.3	31.18	54	-22.82	-	-	293	159	H

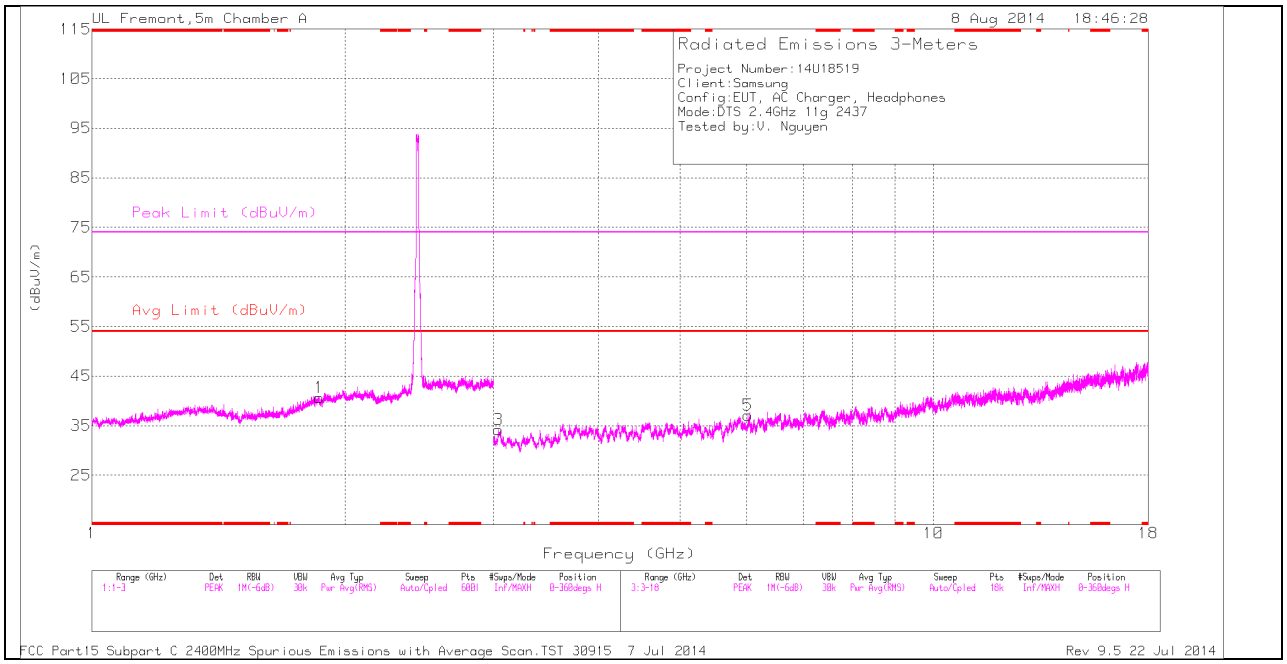
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

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.

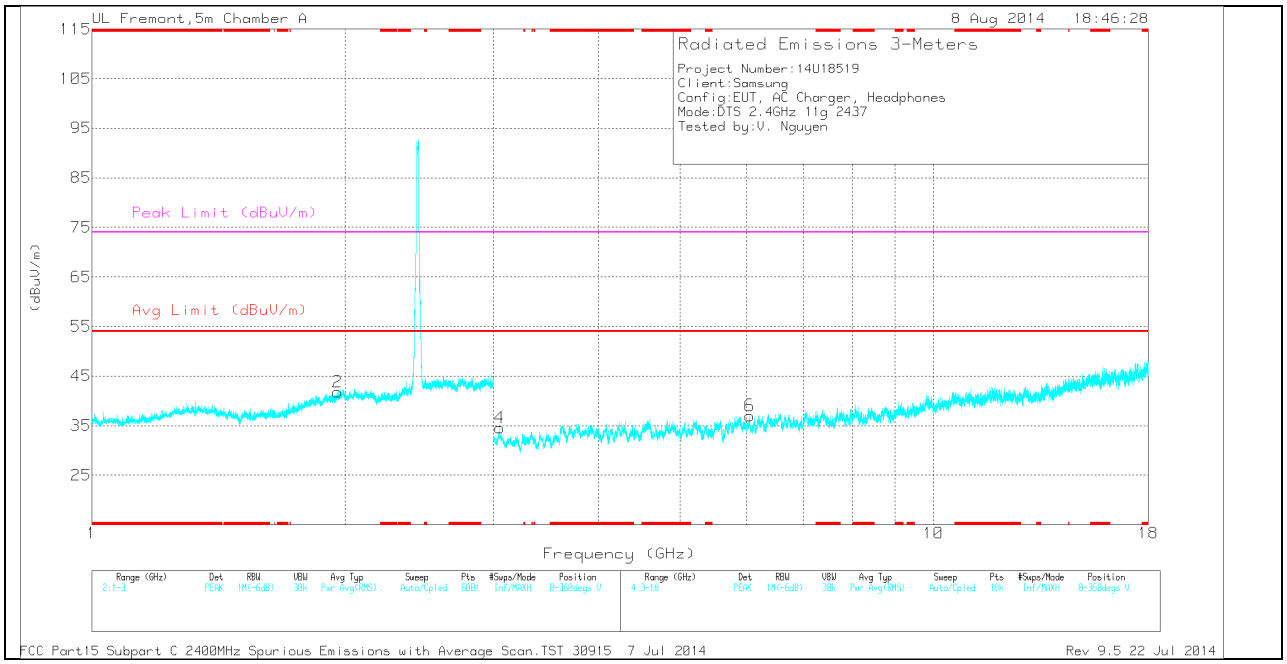
MID CHANNEL HORIZONTAL



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

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

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.

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 DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	1.862	34.69	PK	31.2	-25.2	0	40.69	-	-	-	-	0-360	100	H
2	1.959	34.94	PK	31.9	-25	0	41.84	-	-	-	-	0-360	201	V
3	3.042	31.96	PK	32.8	-30.6	0	34.16	-	-	-	-	0-360	201	H
4	3.05	32.43	PK	32.8	-30.7	0	34.53	-	-	-	-	0-360	100	V
5	6.015	30.38	PK	35.3	-28.6	0	37.08	-	-	-	-	0-360	100	H
6	6.047	29.63	PK	35.4	-28	0	37.03	-	-	-	-	0-360	201	V

PK - Peak detector

Radiated Emissions

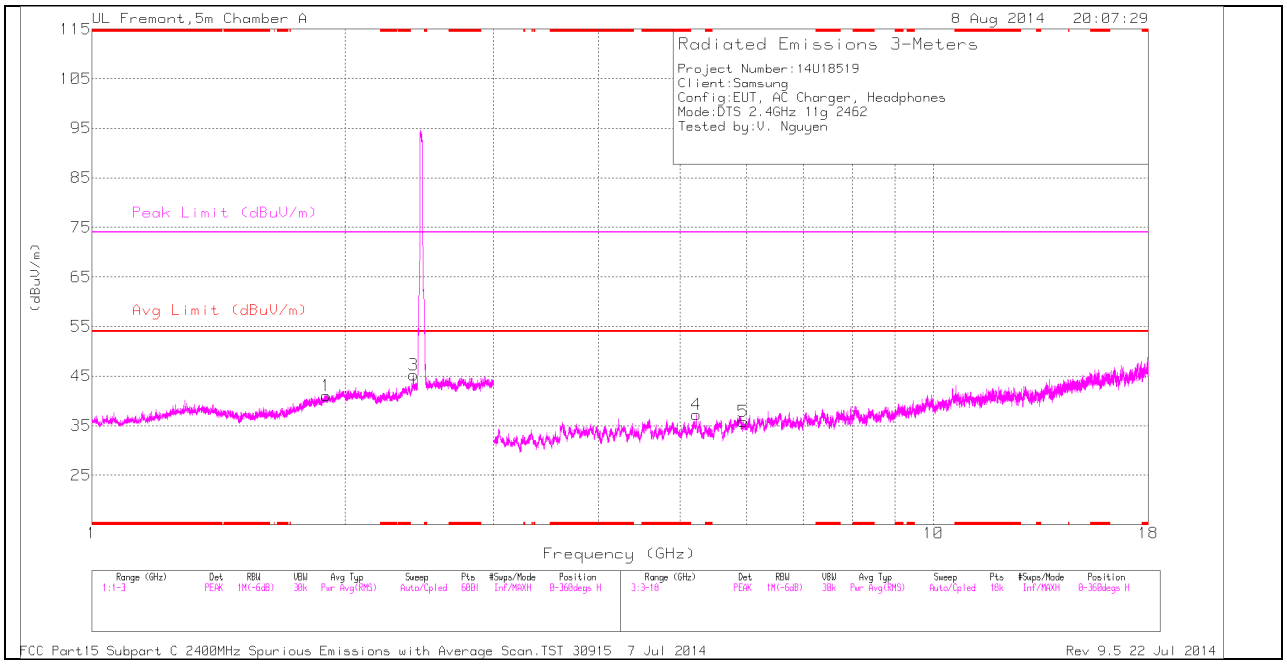
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.957	42.95	PK2	31.9	-25	0	49.85	-	-	-	-	119	249	V
1.958	30.56	MAv1	31.9	-25	.3	37.76	-	-	-	-	119	249	V

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.

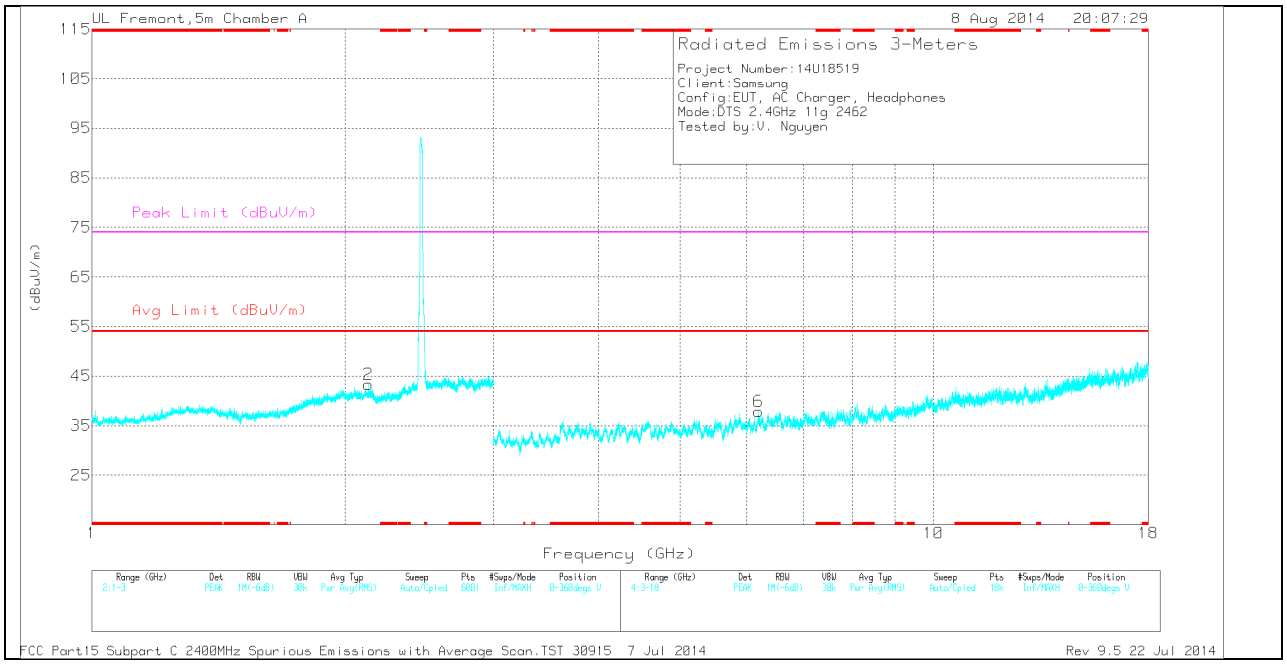
HIGH CHANNEL HORIZONTAL



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

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 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

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	1.899	34.56	PK	31.6	-25.1	0	41.06	-	-	-	-	0-360	201	H
2	2.13	36.16	PK	31.6	-24.4	0	43.36	-	-	-	-	0-360	201	V
3	2.41	36.54	PK	32.4	-23.7	0	45.24	-	-	-	-	0-360	201	H
4	5.223	30.88	PK	34.2	-27.9	0	37.18	-	-	-	-	0-360	201	H
5	5.942	29.07	PK	35.1	-28.3	0	35.87	-	-	-	-	0-360	100	H
6	6.192	30.43	PK	35.4	-28	0	37.83	-	-	-	-	0-360	201	V

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	44.6	PK2	32.4	-23.7	0	53.3	-	-	-	-	233	127	H
2.41	33.05	MAv1	32.4	-23.7	.3	42.05	-	-	-	-	233	127	H

PK2 - KDB558074 Method: Maximum Peak

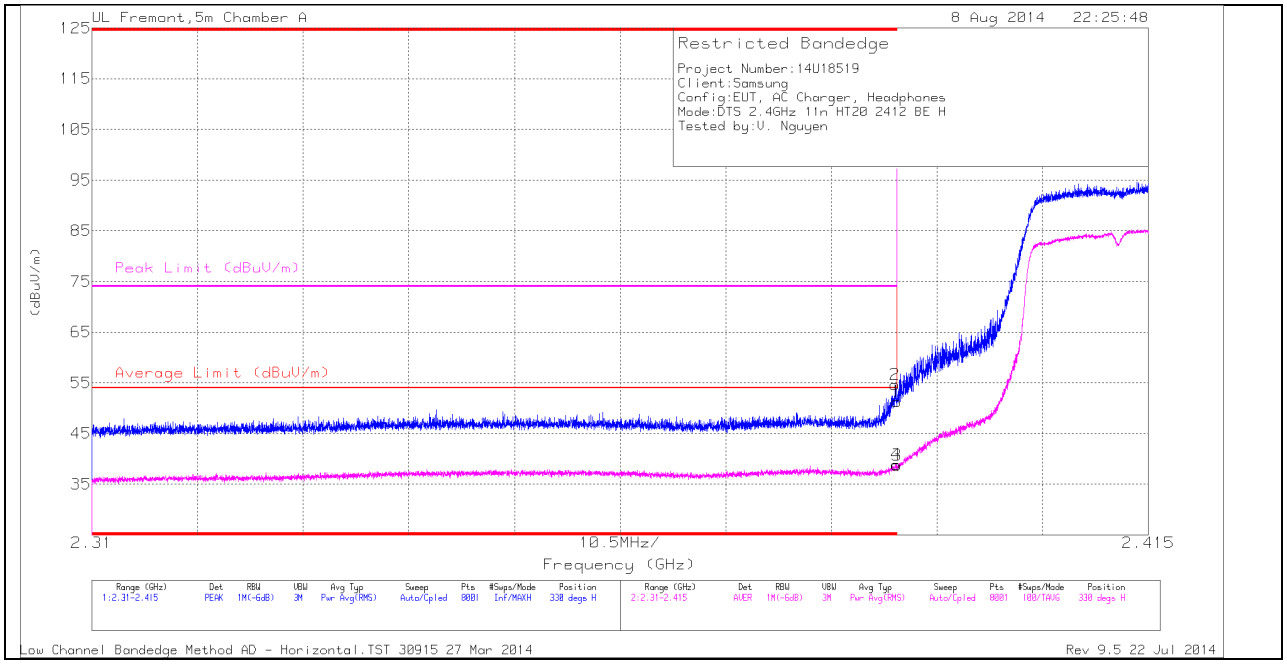
MAv1 - KDB558074 Option 1 Maximum RMS Average

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.

10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	43.47	PK	32.2	-24.4	0	51.27	-	-	74	-22.73	330	158	H
2	* 2.39	46.82	PK	32.2	-24.4	0	54.62	-	-	74	-19.38	330	158	H
3	* 2.39	30.62	RMS	32.2	-24.4	.32	38.74	54	-15.26	-	-	330	158	H
4	* 2.39	30.73	RMS	32.2	-24.4	.32	38.85	54	-15.15	-	-	330	158	H

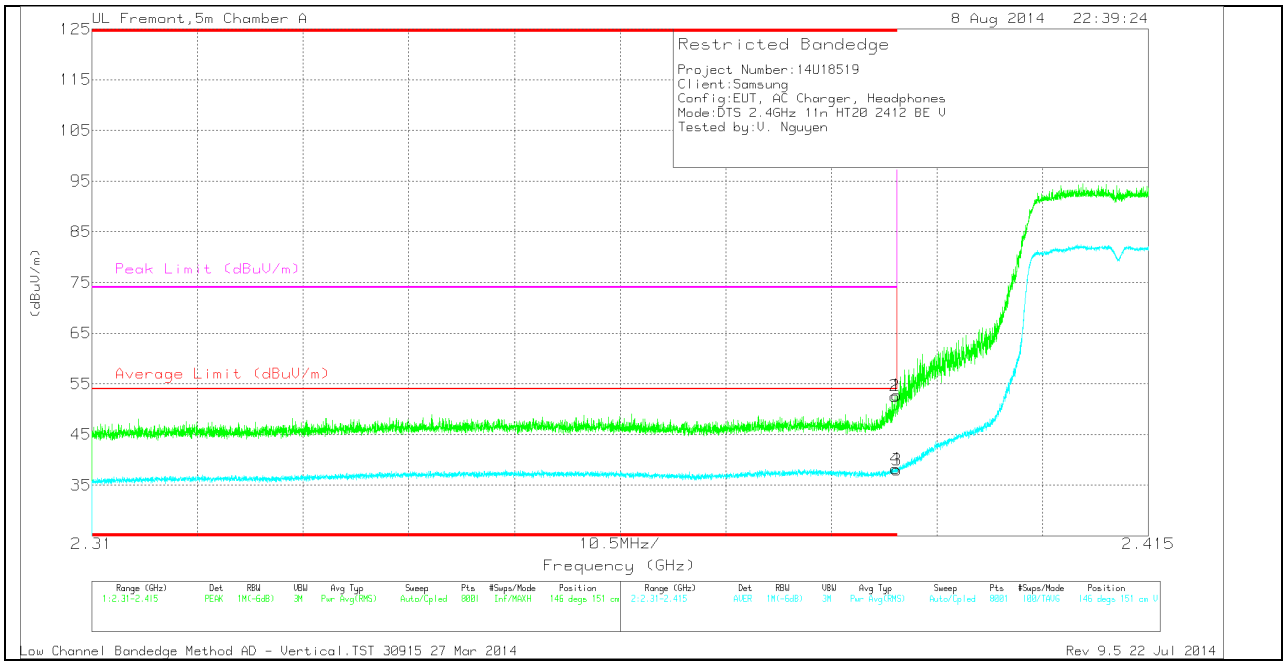
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	44.93	PK	32.2	-24.4	0	52.73	-	-	74	-21.27	146	151	V
2	* 2.39	44.79	PK	32.2	-24.4	0	52.59	-	-	74	-21.41	146	151	V
3	* 2.39	30.15	RMS	32.2	-24.4	.32	38.27	54	-15.73	-	-	146	151	V
4	* 2.39	30.43	RMS	32.2	-24.4	.32	38.55	54	-15.45	-	-	146	151	V

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

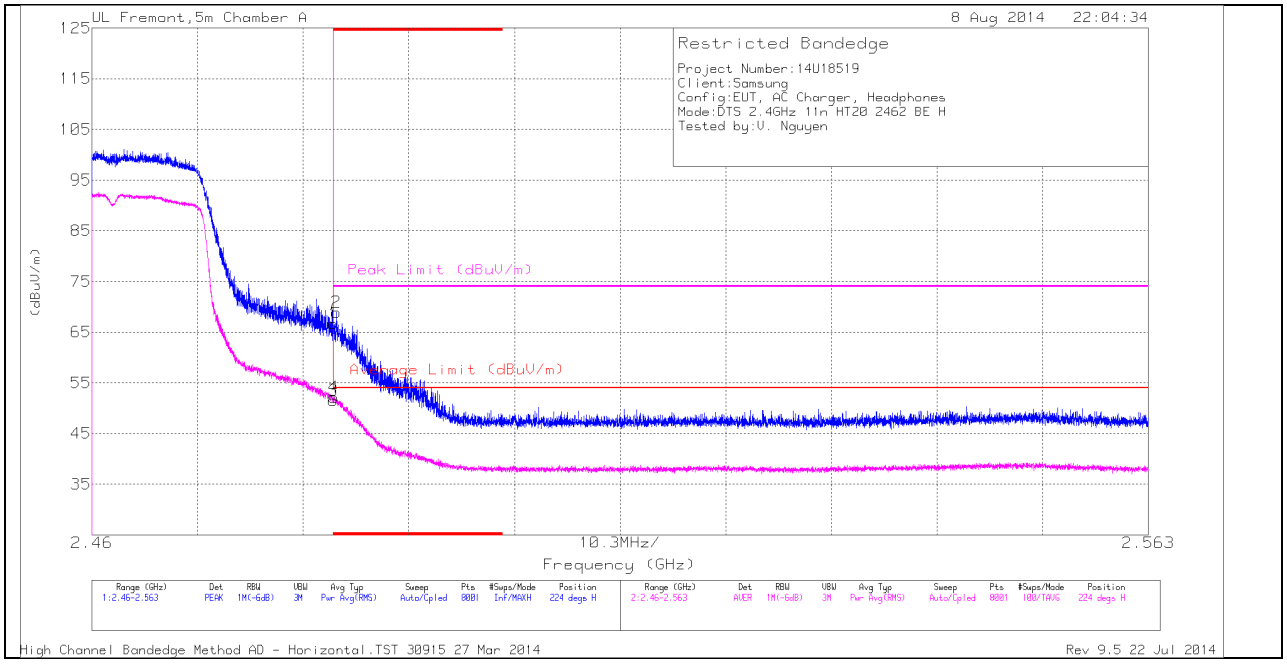
PK - Peak detector

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)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	* 2.484	57.47	PK	32.7	-23.5	0	66.67	-	-	74	-7.33	224	128	H
2	* 2.484	59.72	PK	32.7	-23.5	0	68.92	-	-	74	-5.08	224	128	H
3	* 2.484	42.01	RMS	32.7	-23.5	.32	51.53	54	-2.47	-	-	224	128	H
4	* 2.484	42.67	RMS	32.7	-23.5	.32	52.19	54	-1.81	-	-	224	128	H

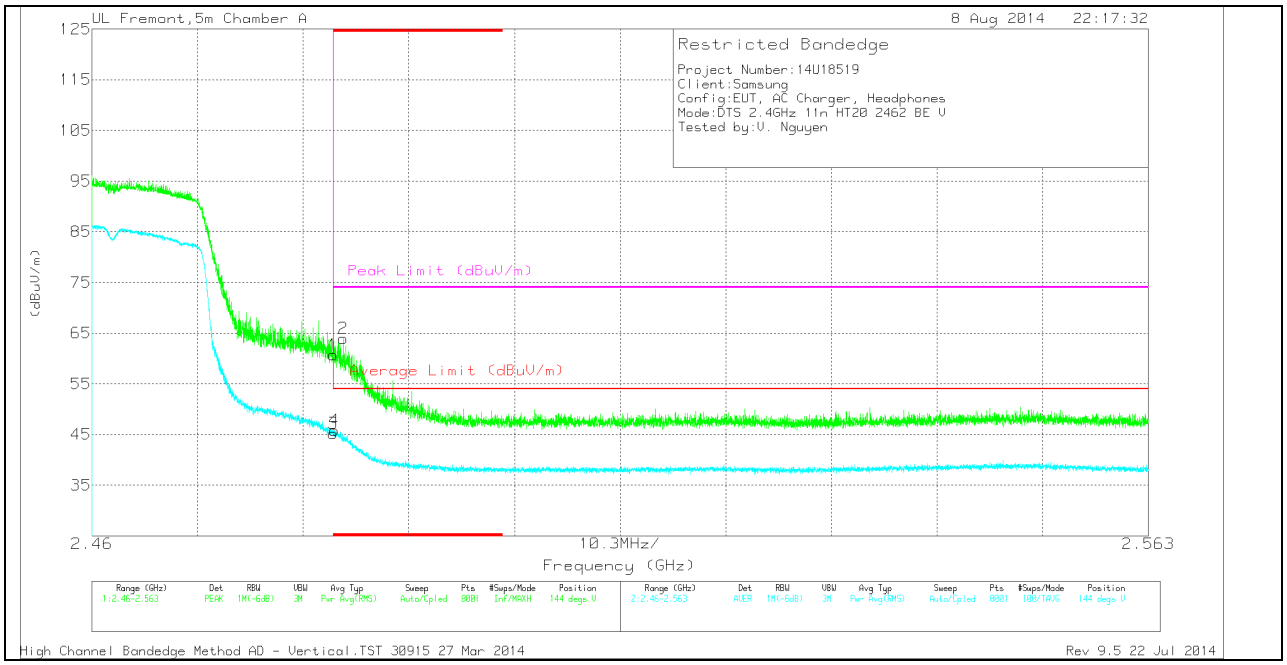
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	* 2.484	51.53	PK	32.7	-23.5	0	60.73	-	-	74	-13.27	144	163	V
2	* 2.484	54.76	PK	32.7	-23.5	0	63.96	-	-	74	-10.04	144	163	V
3	* 2.484	35.71	RMS	32.7	-23.5	.32	45.23	54	-8.77	-	-	144	163	V
4	* 2.484	36.3	RMS	32.7	-23.5	.32	45.82	54	-8.18	-	-	144	163	V

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

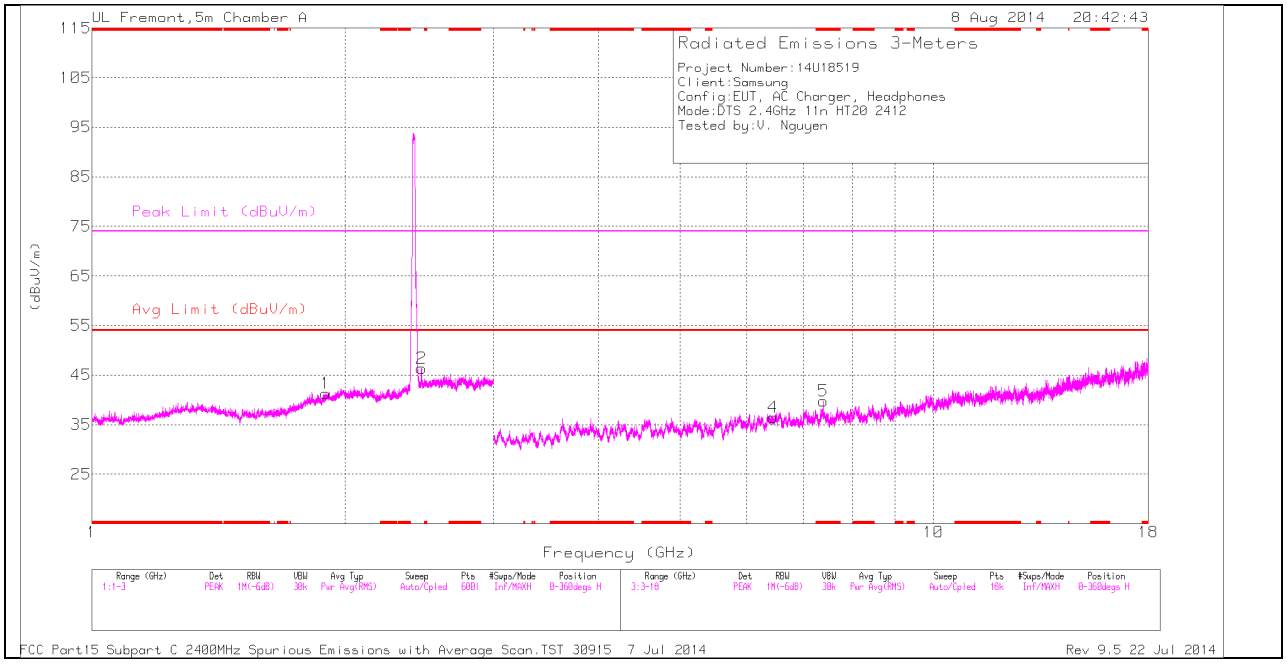
PK - Peak detector

RMS - RMS detection

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

HARMONICS AND SPURIOUS EMISSIONS

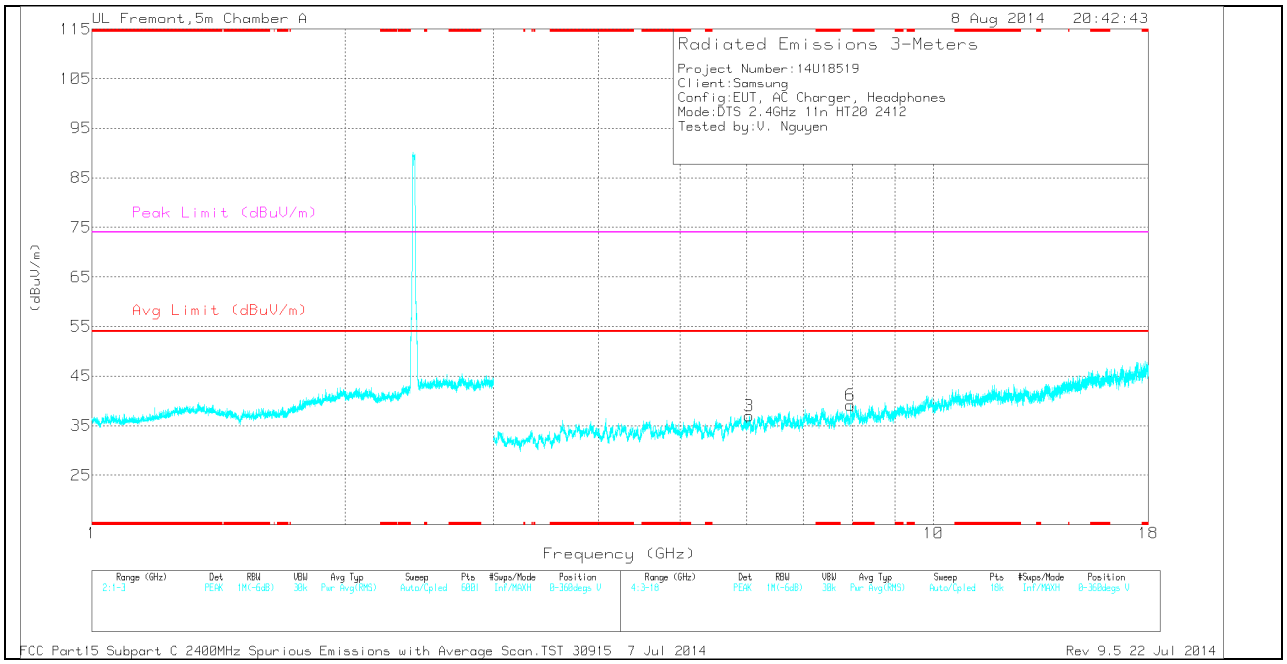
LOW CHANNEL HORIZONTAL



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

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

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

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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
5	* 7.401	29.43	PK	35.3	-25	0	39.73	-	-	74	-34.27	0-360	201	H
1	1.896	34.72	PK	31.6	-25	0	41.32	-	-	-	-	0-360	100	H
2	2.464	37.42	PK	32.6	-23.7	0	46.32	-	-	-	-	0-360	100	H
3	6.044	29.82	PK	35.3	-28.2	0	36.92	-	-	-	-	0-360	100	V
4	6.447	29.94	PK	35.5	-29	0	36.44	-	-	-	-	0-360	201	H
6	7.971	29.27	PK	35.5	-25.6	0	39.17	-	-	-	-	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 T136 (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
* 7.401	35.14	PK2	35.3	-25	0	45.44	-	-	74	-28.56	214	330	H
* 7.4	23.56	MAv1	35.3	-25	.32	34.18	54	-19.82	-	-	214	330	H

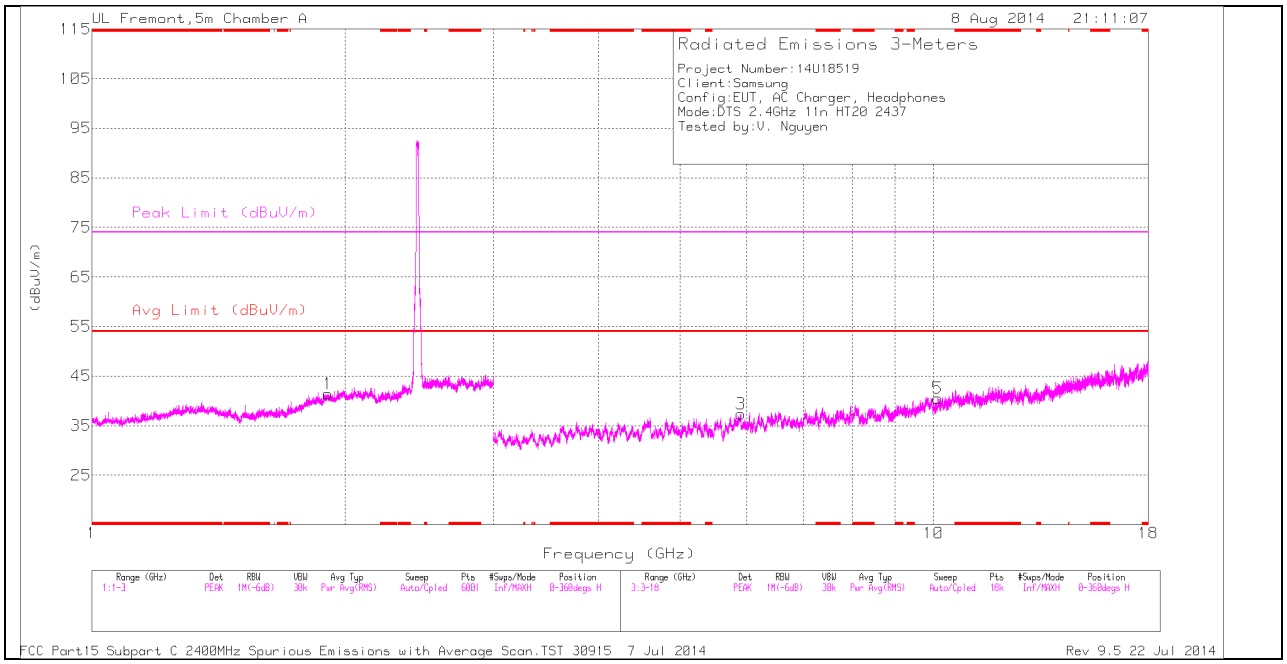
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

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.

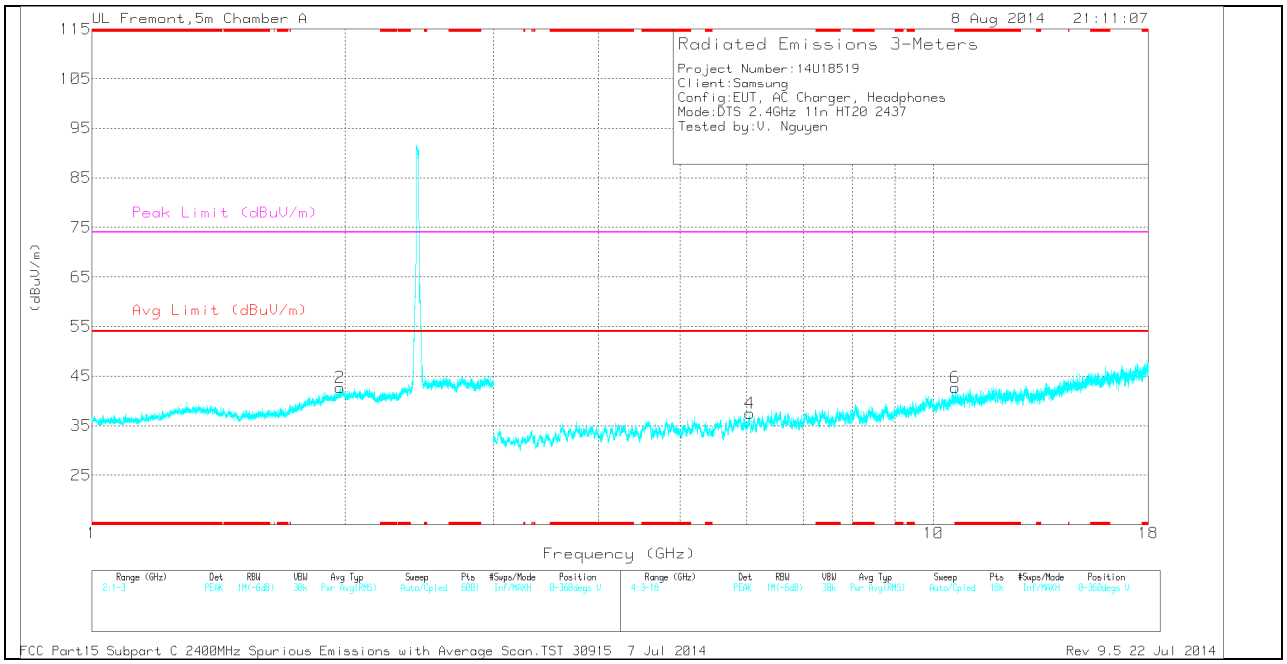
MID CHANNEL HORIZONTAL



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

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

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.

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 DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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
6	* 10.623	26.3	PK	37.7	-21.3	0	42.7	-	-	74	-31.3	0-360	201	V
1	1.91	34.88	PK	31.7	-25.2	0	41.38	-	-	-	-	0-360	201	H
2	1.971	35.58	PK	32	-24.9	0	42.68	-	-	-	-	0-360	100	V
3	5.905	30.51	PK	35	-28.2	0	37.31	-	-	-	-	0-360	201	H
4	6.046	30.24	PK	35.3	-28.1	0	37.44	-	-	-	-	0-360	100	V
5	10.113	26.69	PK	37.1	-23.3	0	40.49	-	-	-	-	0-360	100	H

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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
* 10.625	33.27	PK2	37.7	-21.1	0	49.87	-	-	74	-24.13	27	377	V
* 10.625	21.58	MAv1	37.7	-21	.32	38.6	54	-15.4	-	-	27	377	V

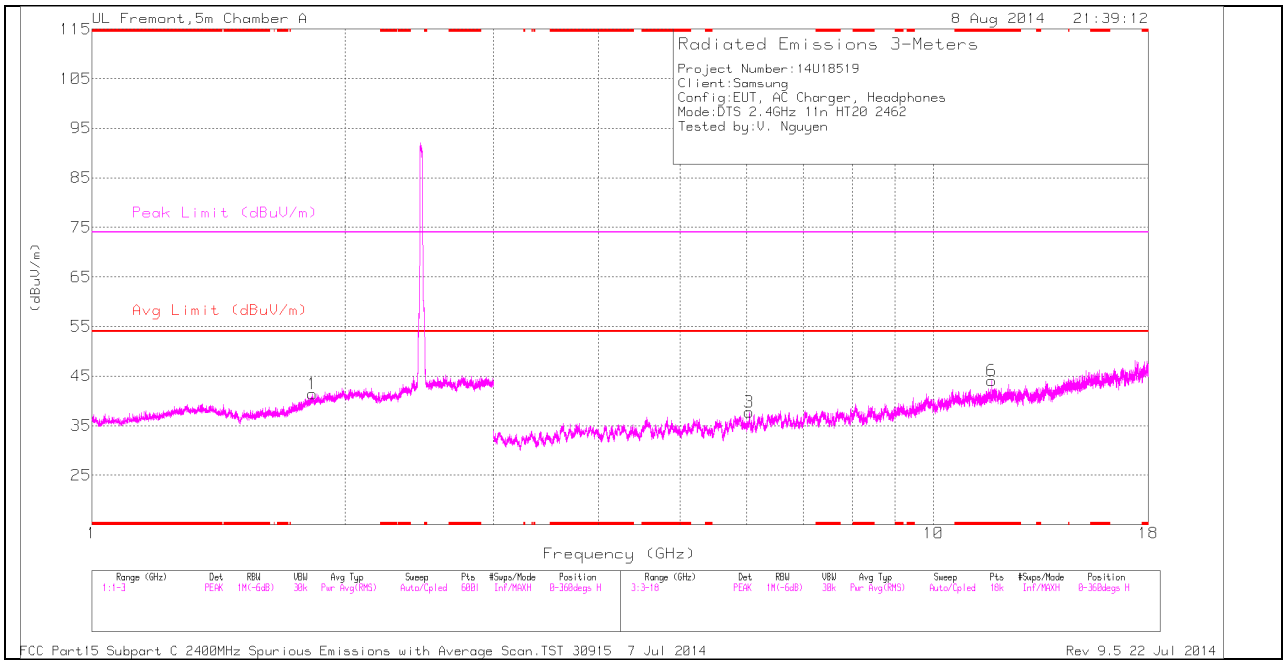
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

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

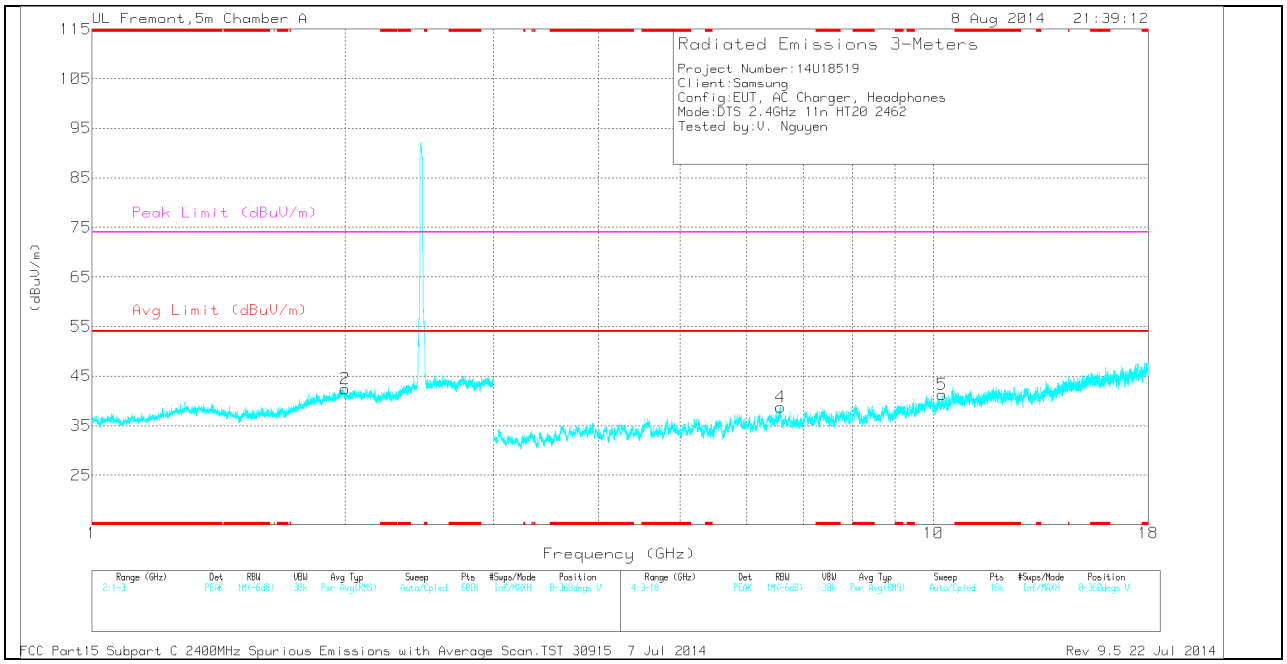


Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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 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

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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
6	* 11.731	26.64	PK	38.7	-21.3	0	44.04	-	-	74	-29.96	0-360	100	H
1	1.829	35.44	PK	30.9	-24.9	0	41.44	-	-	-	-	0-360	100	H
2	2	35.39	PK	32.1	-25.1	0	42.39	-	-	-	-	0-360	201	V
3	6.044	30.63	PK	35.3	-28.2	0	37.73	-	-	-	-	0-360	100	H
4	6.582	30.1	PK	35.5	-26.8	0	38.8	-	-	-	-	0-360	201	V
5	10.244	26.7	PK	37.2	-22.6	0	41.3	-	-	-	-	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 T136 (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
* 11.733	32.78	PK2	38.7	-21.4	0	50.08	-	-	74	-23.92	284	316	H
* 11.729	21.58	MAv1	38.7	-21.6	.32	39	54	-15	-	-	284	316	H

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

PK2 - KDB558074 Method: Maximum Peak

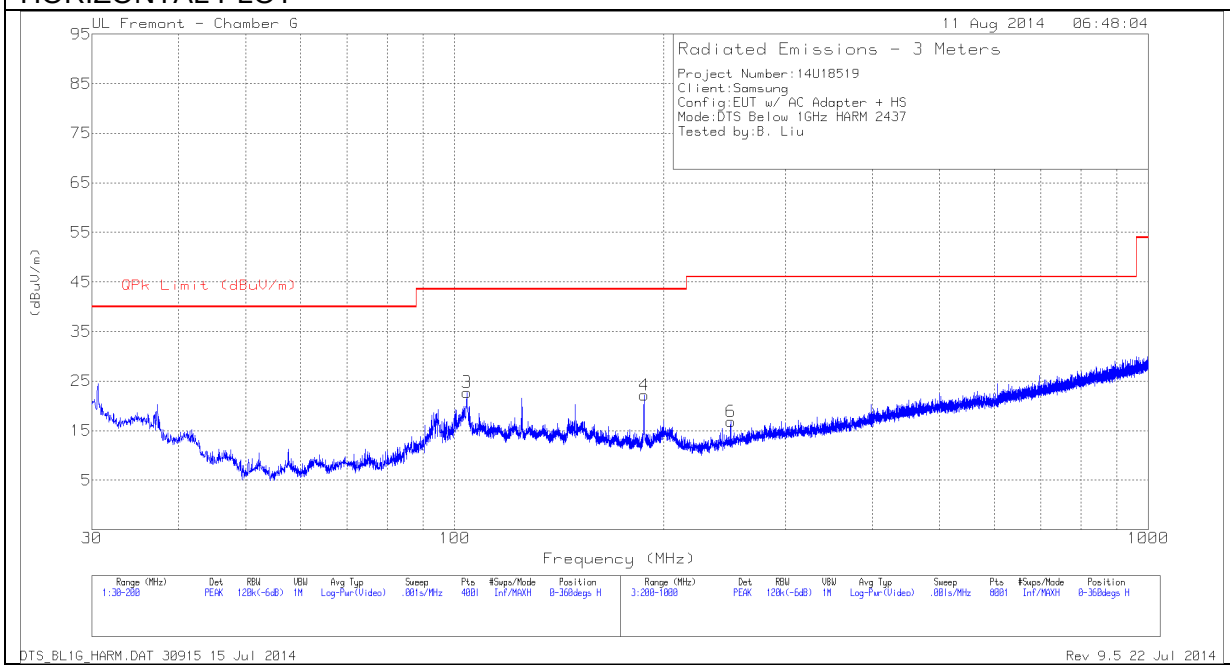
MAv1 - KDB558074 Option 1 Maximum RMS Average

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.

10.3. WORST-CASE BELOW 1 GHz

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

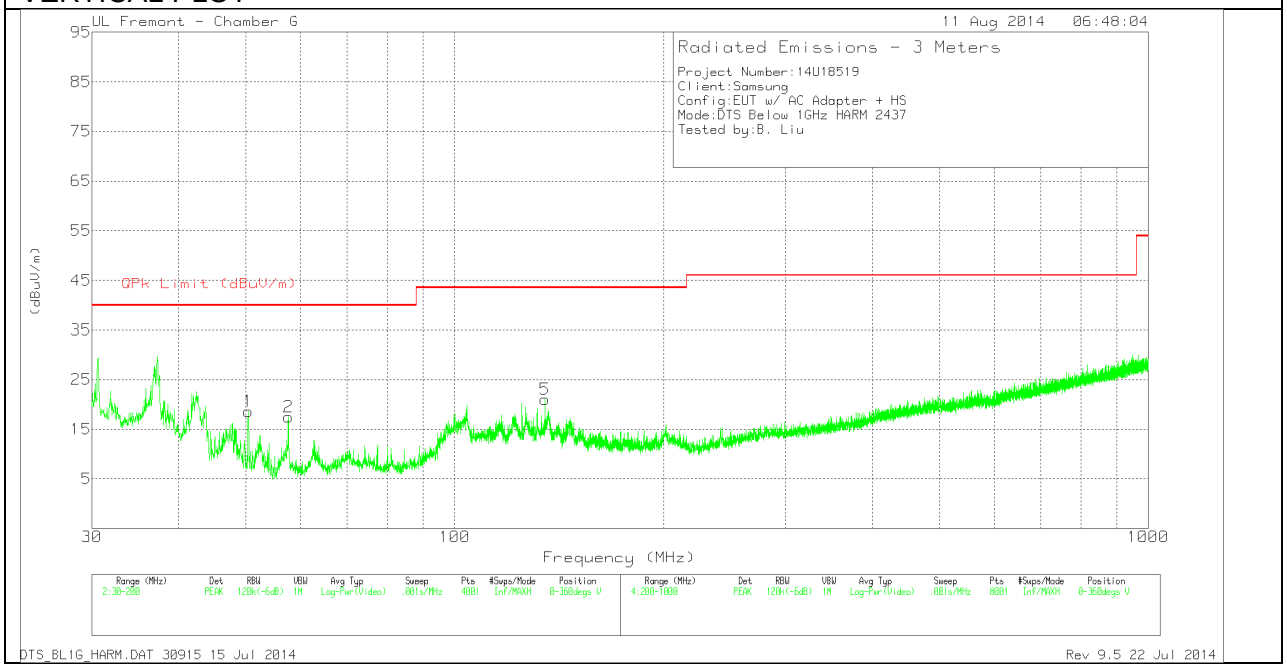
HORIZONTAL PLOT



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

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	Hybrid	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* 135.0175	34.27	PK	16.6	-29.8	21.07	43.52	-22.45	0-360	101	V
6	* 250	30.81	PK	14.9	-28.9	16.81	46.02	-29.21	0-360	101	H
1	50.4	38.72	PK	10.6	-30.7	18.62	40	-21.38	0-360	101	V
2	57.5825	37.65	PK	10.4	-30.6	17.45	40	-22.55	0-360	101	V
3	104.1625	38.64	PK	14.2	-30.1	22.74	43.52	-20.78	0-360	301	H
4	187.4625	37.22	PK	14.3	-29.3	22.22	43.52	-21.3	0-360	201	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)

RSS-Gen 7.2.2

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4 2009.

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

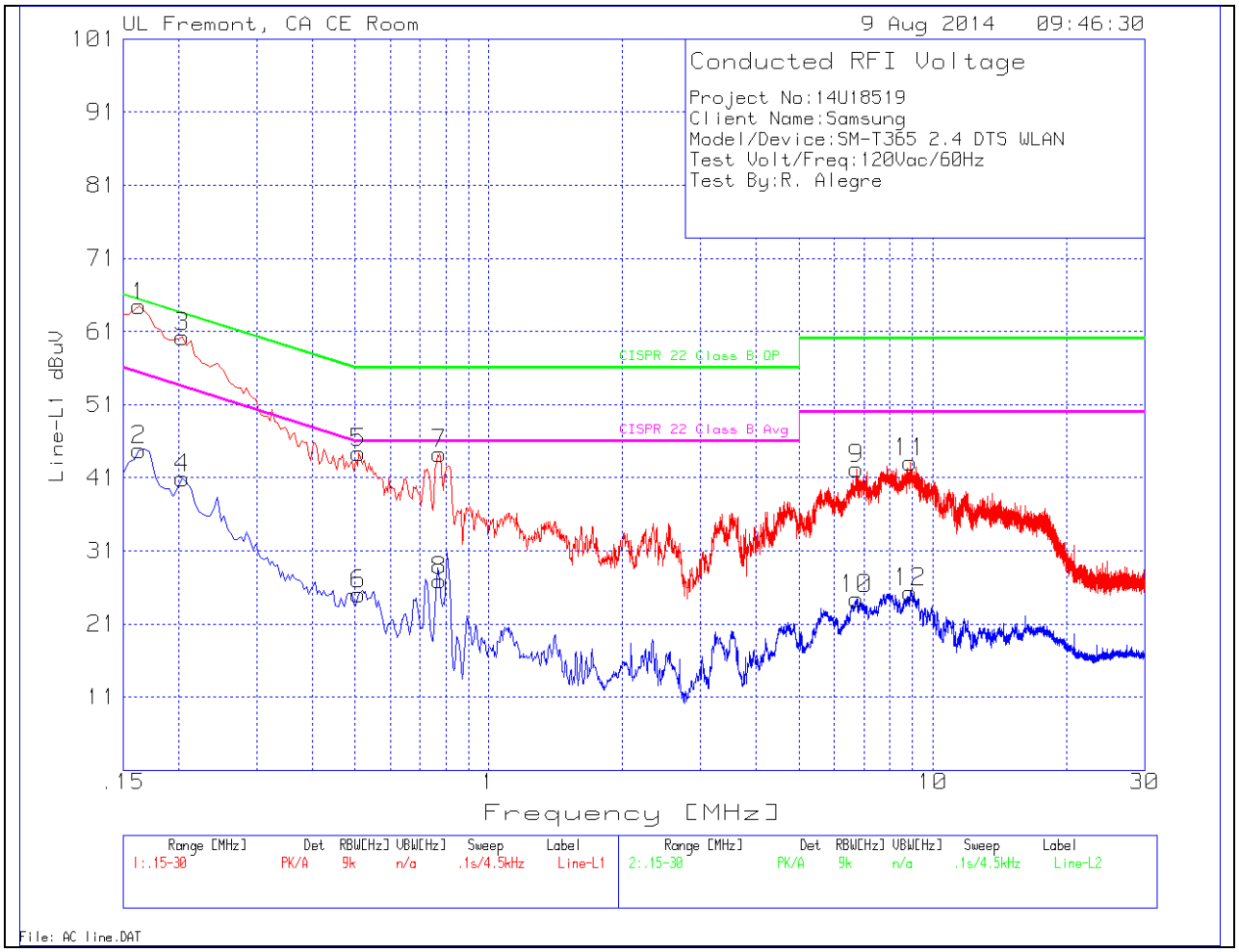
Line conducted data is recorded for both NEUTRAL and HOT lines.

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

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT



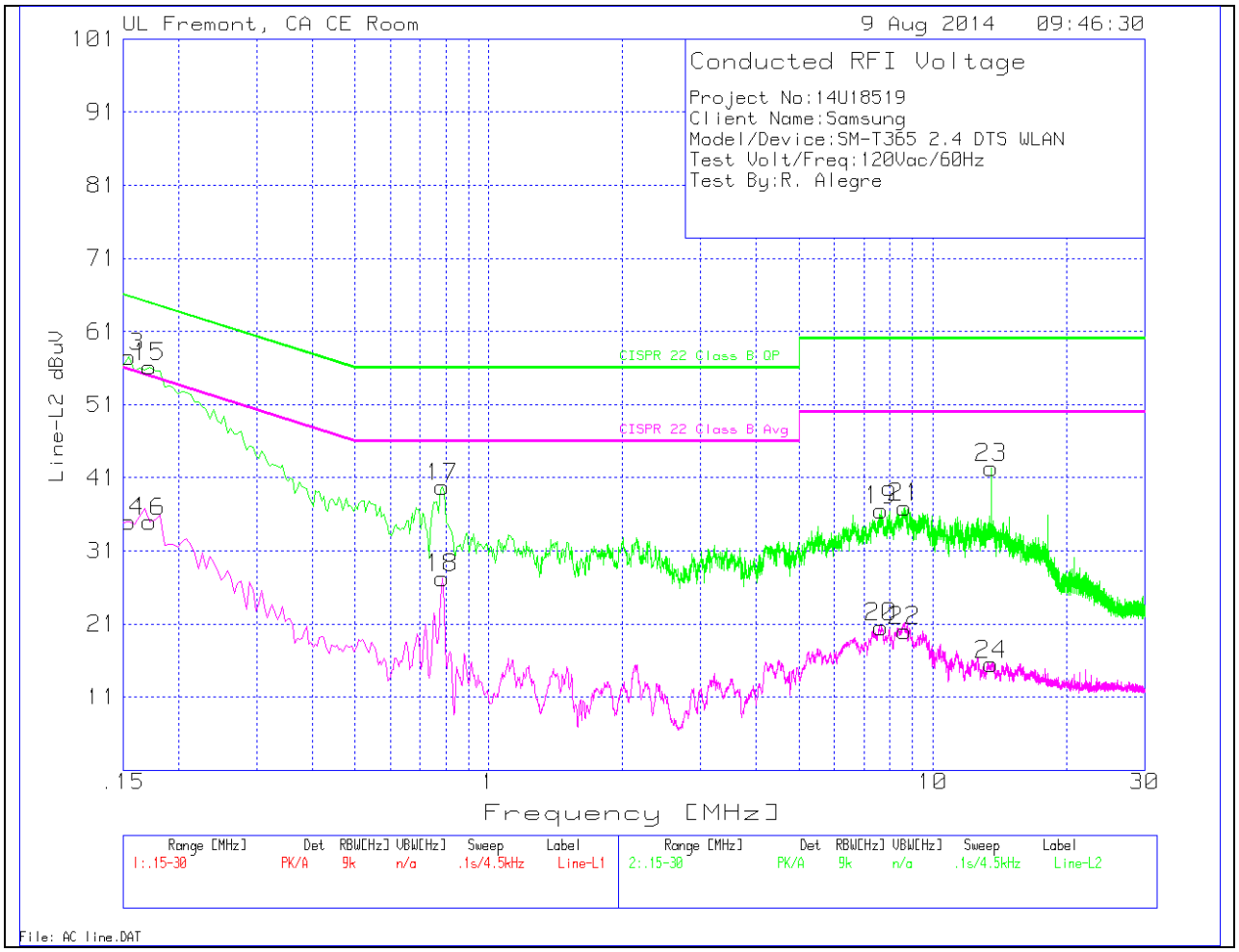
LINE 1 RESULTS

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	.1635	63.25	PK	1.2	0	64.45	65.3	-.85	-	-
2	.1635	43.56	Av	1.2	0	44.76	-	-	55.3	-10.54
3	.204	59.38	PK	.9	0	60.28	63.4	-3.12	-	-
4	.204	40.05	Av	.9	0	40.95	-	-	53.4	-12.45
5	.51	44.15	PK	.3	0	44.45	56	-11.55	-	-
6	.51	24.75	Av	.3	0	25.05	-	-	46	-20.95
7	.7755	43.93	PK	.3	0	44.23	56	-11.77	-	-
8	.7755	26.63	Av	.3	0	26.93	-	-	46	-19.07
9	6.7515	41.93	PK	.2	.1	42.23	60	-17.77	-	-
10	6.7515	24.1	Av	.2	.1	24.4	-	-	50	-25.6
11	8.9115	42.83	PK	.2	.1	43.13	60	-16.87	-	-
12	8.9115	25.02	Av	.2	.1	25.32	-	-	50	-24.68

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.

LINE 2 PLOT



LINE 2 RESULTS

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)
13	.1545	56.09	PK	1.4	0	57.49	65.8	-8.31	-	-
14	.1545	33.57	Av	1.4	0	34.97	-	-	55.8	-20.83
15	.1725	54.99	PK	1.2	0	56.19	64.8	-8.61	-	-
16	.1725	33.73	Av	1.2	0	34.93	-	-	54.8	-19.87
17	.7845	39.4	PK	.3	0	39.7	56	-16.3	-	-
18	.7845	26.97	Av	.3	0	27.27	-	-	46	-18.73
19	7.656	36.25	PK	.2	.1	36.55	60	-23.45	-	-
20	7.656	20.25	Av	.2	.1	20.55	-	-	50	-29.45
21	8.6505	36.65	PK	.2	.1	36.95	60	-23.05	-	-
22	8.6505	19.7	Av	.2	.1	20	-	-	50	-30
23	13.56	41.89	PK	.3	.2	42.39	60	-17.61	-	-
24	13.56	14.96	Av	.3	.2	15.46	-	-	50	-34.54

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