FCC 47 CFR PART 15 SUBPART E

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-E5, REVISION A
ISSUE DATE: AUGUST 29, 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
	08/22/13	Initial Issue	P. Zhang
A	8/29/14	Updated page 14, 20 ,24, 29; and statement in section 2	P. Zhang

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 6

2. TEST METHODOLOGY 7

3. FACILITIES AND ACCREDITATION 7

4. CALIBRATION AND UNCERTAINTY 7

4.1. MEASURING INSTRUMENT CALIBRATION 7

4.2. SAMPLE CALCULATION 8

4.3. MEASUREMENT UNCERTAINTY 8

5. EQUIPMENT UNDER TEST 9

5.1. DESCRIPTION OF EUT 9

5.2. MAXIMUM OUTPUT POWER 9

5.3. DESCRIPTION OF AVAILABLE ANTENNAS 10

5.4. WORST-CASE CONFIGURATION AND MODE 11

5.5. DESCRIPTION OF TEST SETUP 12

6. TEST AND MEASUREMENT EQUIPMENT 14

7. SUMMARY TABLE 15

8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS 16

8.1. ON TIME AND DUTY CYCLE RESULTS 16

8.2. DUTY CYCLE PLOTS 17

9. MEASUREMENT METHOD 20

10. ANTENNA PORT TEST RESULTS 21

10.1. 26 dB BANDWIDTH 21

10.1.1. 802.11a MODE IN THE 5.2 GHz BAND 21
10.1.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND 21
10.1.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND 21
10.1.1. 802.11a MODE IN THE 5.3 GHz BAND 22
10.1.1. 802.11n HT20 MODE IN THE 5.3 GHz BAND 22
10.1.2. 802.11n HT40 MODE IN THE 5.3 GHz BAND 22
10.1.3. 802.11a MODE IN THE 5.5 GHz BAND 22
10.1.4. 802.11n HT20 MODE IN THE 5.5 GHz BAND 23
10.1.5. 802.11n HT40 MODE IN THE 5.5 GHz BAND 23
10.1.6. 802.11a MODE IN THE 5.8 GHz BAND 23
10.1.7. 802.11n HT20 MODE IN THE 5.8 GHz BAND 23
10.1.8. 802.11n HT40 MODE IN THE 5.8 GHz BAND 24

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.1.1. 26 dB BANDWIDTH PLOTS 25

10.2. 99% BANDWIDTH 27
10.2.1. 802.11a MODE IN THE 5.2 GHz BAND 27
10.2.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND 27
10.2.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND 27
10.2.4. 802.11a MODE IN THE 5.3 GHz BAND 28
10.2.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND 28
10.2.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND 28
10.2.7. 802.11a MODE IN THE 5.5 GHz BAND 28
10.2.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND 29
10.2.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND 29
10.2.10. 802.11a MODE IN THE 5.8 GHz BAND 29
10.2.11. 802.11n HT20 MODE IN THE 5.8 GHz BAND 29
10.2.12. 802.11n HT40 MODE IN THE 5.8 GHz BAND 30
10.2.1. 99% BANDWIDTH PLOTS 31

10.3. AVERAGE POWER 33
10.3.1. 802.11a MODE IN THE 5.2 GHz BAND 33
10.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND 33
10.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND 34
10.3.4. 802.11a MODE IN THE 5.3 GHz BAND 34
10.3.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND 34
10.3.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND 34
10.3.7. 802.11a MODE IN THE 5.5 GHz BAND 35
10.3.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND 35
10.3.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND 35
10.3.10. 802.11a MODE IN THE 5.8 GHz BAND 35
10.3.11. 802.11n HT20 MODE IN THE 5.8 GHz BAND 36
10.3.12. 802.11n HT40 MODE IN THE 5.8 GHz BAND 36

10.4. OUTPUT POWER AND PPSD 37
10.4.1. 802.11a MODE IN THE 5.2 GHz BAND 38
10.4.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND 39
10.4.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND 40
10.4.4. 802.11a MODE IN THE 5.3 GHz BAND 41
10.4.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND 42
10.4.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND 43
10.4.7. 802.11a MODE IN THE 5.5 GHz BAND 44
10.4.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND 45
10.4.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND 46
10.4.10. 802.11a MODE IN THE 5.8 GHz BAND 47
10.4.11. 802.11n HT20 MODE IN THE 5.8 GHz BAND 48
10.4.12. 802.11n HT40 MODE IN THE 5.8 GHz BAND 49
10.4.1. OUTPUT POWER AND PPSD PLOTS, Chain 0 50

10.1. PEAK EXCURSION 52
10.1.1. 802.11a MODE IN THE 5.2 GHz BAND 53
10.1.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND 54
10.1.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND 55

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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. TRANSMITTER ABOVE 1 GHz 56

11.1. 5.2 GHz 57
11.1.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND 57
11.1.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND 68
11.1.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND 79

11.2. 5.3 GHz 87
11.2.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND 87
11.2.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND 98
11.2.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.3 GHz BAND 109

11.3. 5.5-5.6 GHz 117
11.3.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.5 GHz BAND 117
11.3.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.5 GHz BAND 130
11.3.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.5 GHz BAND 143

11.4. 5.8 GHz 156
11.4.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND 156
11.4.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND 169
11.4.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND 182

12. WORST-CASE BELOW 1 GHz (in the 5.3 GHz Band) 192

13. AC POWER LINE CONDUCTED EMISSIONS 195

14. DYNAMIC FREQUENCY SELECTION 200

14.1. OVERVIEW 200
14.1.1. LIMITS 200
14.1.2. TEST AND MEASUREMENT SYSTEM 205
14.1.3. SETUP OF EUT 209
14.1.4. DESCRIPTION OF EUT 211

14.2. RESULTS FOR 20 MHz BANDWIDTH 214
14.2.1. TEST CHANNEL 214
14.2.2. RADAR WAVEFORM AND TRAFFIC 214
14.2.3. OVERLAPPING CHANNEL TESTS 216
14.2.4. MOVE AND CLOSING TIME 216

14.3. RESULTS FOR 40 MHz BANDWIDTH 221
14.3.1. TEST CHANNEL 221
14.3.2. RADAR WAVEFORM AND TRAFFIC 221
14.3.3. OVERLAPPING CHANNEL TESTS 224
14.3.4. MOVE AND CLOSING TIME 224
14.3.5. NON-OCCUPANCY PERIOD 229

15. SETUP PHOTOS 230

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 8-22, 2014

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	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:

STEVEN TRAN
CONSUMER TECHNOLOGY DIVISION
TEST 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, and ANSI C63.4-2009, FCC 06-96, FCC KDB 789033.

U-NII procedures and limits were applied for operations in the frequency band from 5.725-5.850 GHz in accordance with FCC KDB publication 644545 D02 to demonstrate compliance with 15.247 requirements in that band.

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.

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

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 40000 MHz	4.94 dB

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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. 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	Total Output Power (dBm)	Total Output Power (mW)
5180 - 5240	802.11a	11.14	13.00
5180 - 5240	802.11n HT20	11.11	12.91
5190 - 5230	802.11n HT40	10.68	11.69
5260 - 5320	802.11a	10.96	12.47
5260 - 5320	802.11n HT20	10.97	12.50
5270 - 5310	802.11n HT40	10.62	11.53
5500 - 5700	802.11a	10.60	11.48
5500 - 5700	802.11n HT20	10.64	11.59
5510 - 5670	802.11n HT40	11.16	13.06
5745 - 5825	802.11a	11.12	12.94
5745 - 5825	802.11n HT20	11.11	12.91
5755 - 5795	802.11n HT40	11.23	13.27

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

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of 1.04dBi.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

5.4. 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 the X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in the 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:

802.11a mode: 6 Mbps

802.11n HT20mode: MCS0

802.11n HT40mode: MCS0

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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

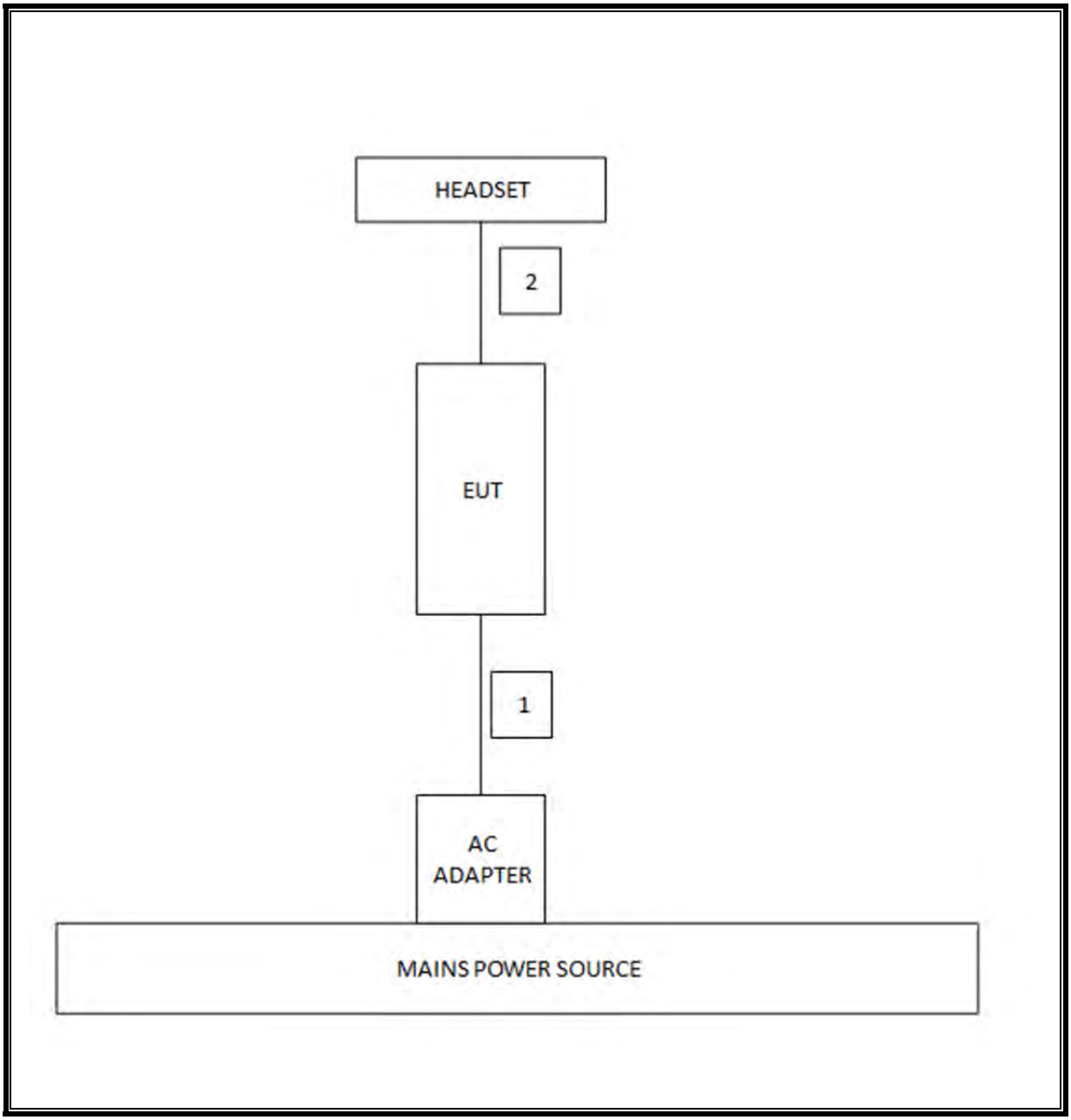
I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	1.0m	N/A

TEST SETUP

The EUT is setup as a stand-alone device.

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

SETUP DIAGRAM FOR TESTS



UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

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. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.407 (a)	Occupied Band width (26dB)	N/A	Conducted	Pass	54.64 MHz
15.407 (a)(1)	TX Cond. Power5.15-5.25	<17dBm or 4+10Log(OBW)		Pass	11.14dBm
15.407 (a)(2)	TX Cond. Power5.25-5.35 & 5.47-5.725	<24dBm or 11+10Log(OBW)		Pass	11.16 dBm
15.407 (a)(3)	TX Cond. Power 5.725-5.825	< 30dBm or 17+10Log(OBW)		Pass	11.23 dBm
15.407 (a)(5)	PSD (5.2<4dBm,5.3,5.5,5.8GHz<11dBm)	<11dBm		Pass	0.22 dBm
FCC §15.407 (a) (6)	Peak Excursion	13 dBm		Pass	8.04 dBm
15.207 (a)	AC Power Line conducted emissions	Section 10	Radiated	Pass	56.9 dBuV (AV)
15.407 (b) & 15.209	Radiated Spurious Emission	< 54dBuV/m		Pass	27.24 dBuV/m
15.407 (h)(2)	Dynamic Frequency Selection	N/A	Radiated / Conducted	Pass	N/A

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

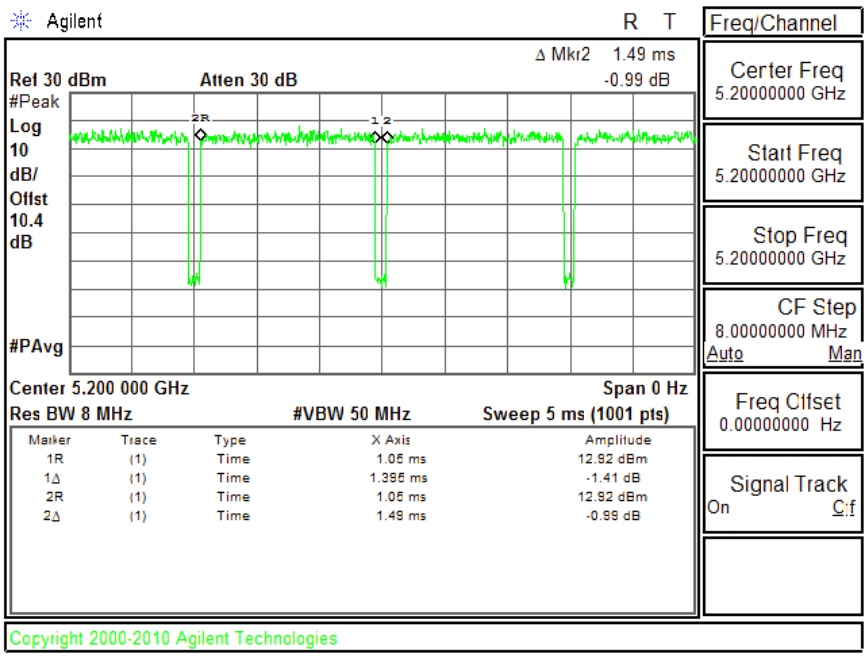
8.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
802.11a	1.395	1.490	0.936	93.6%	0.29	0.717
802.11n HT20	1.295	1.395	0.928	92.8%	0.32	0.772
802.11n HT40	0.636	0.736	0.864	86.4%	0.63	1.572

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

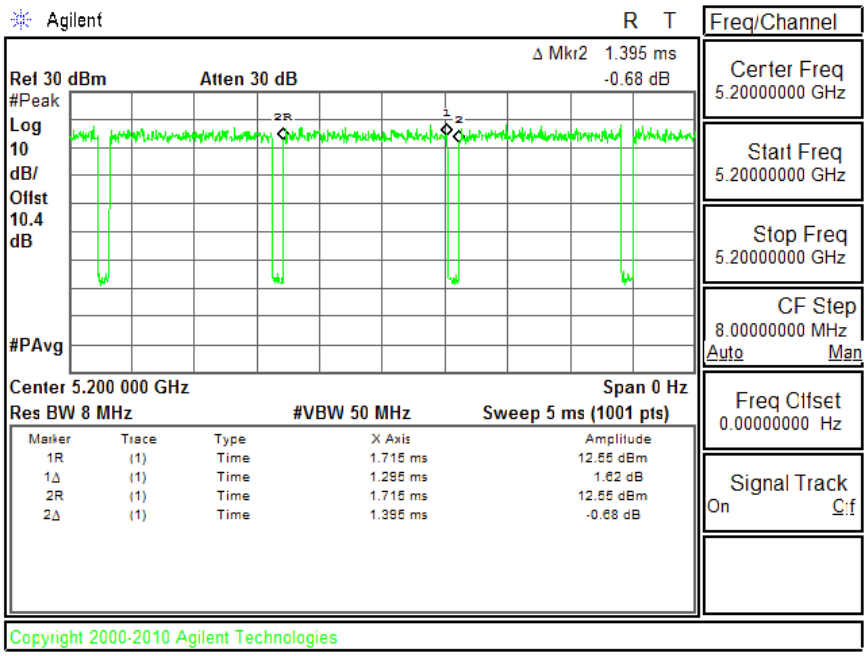
8.2. DUTY CYCLE PLOTS

DUTY CYCLE 802.11a MODE



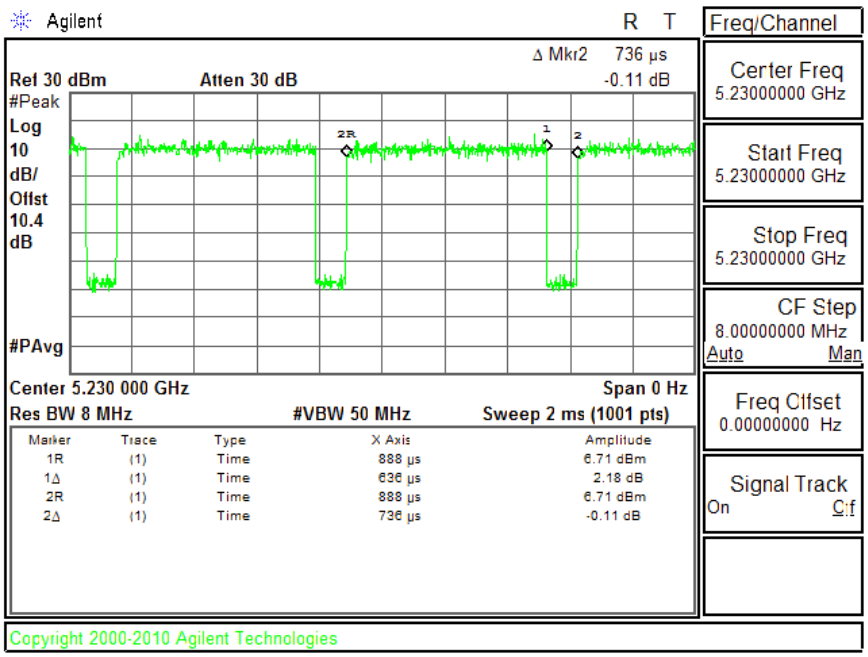
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

DUTY CYCLE 802.11n HT20 MODE



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

DUTY CYCLE 802.11n HT40 MODE



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

9. MEASUREMENT METHOD

789033 D01 General UNII Test Procedures v01r03

644545 D02 Alternative Guidance for 802.11ac v01

644545 D01 Guidance for IEEE 802.11ac v01r01 1

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

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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. ANTENNA PORT TEST RESULTS

10.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

10.1.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	28.20
Mid	5200	29.04
High	5240	26.32
Worst		29.04

10.1.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	28.36
Mid	5200	27.76
High	5240	26.32
Worst		28.36

10.1.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26dB Bandwidth (MHz)
Low	5190	51.600
Mid	5230	53.680
Worst		53.680

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

10.1.1. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	26.40
Mid	5300	26.40
High	5320	27.48
Worst		27.48

10.1.1. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	29.28
Mid	5300	26.12
High	5320	27.76
Worst		29.28

10.1.2. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5270	54.64
High	5310	53.28
Worst		54.64

10.1.3. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	22.24
Mid	5580	22.72
High	5700	22.48
Worst		22.72

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

10.1.4. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	22.92
Mid	5580	22.92
High	5700	23.24
Worst		23.24

10.1.5. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	44.40
Mid	5550	44.00
High	5670	44.24
Worst		44.4

10.1.6. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5745	22.52
Mid	5785	22.56
High	5825	22.40
Worst		22.56

10.1.7. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5745	22.84
Mid	5785	22.84
High	5825	23.04
Worst		23.04

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

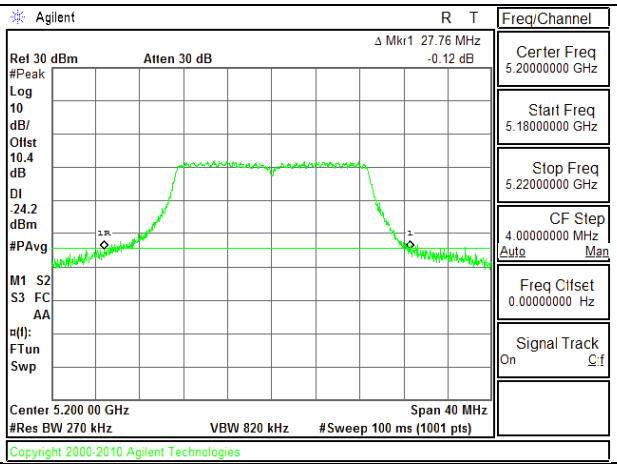
10.1.8. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5755	44.08
High	5795	43.92
Worst		44.08

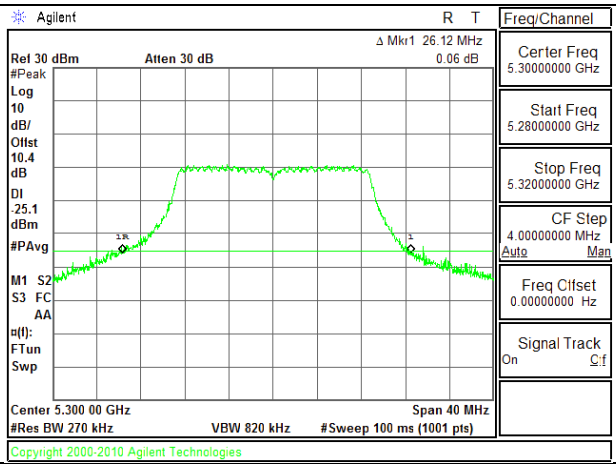
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.1. 26 dB BANDWIDTH PLOTS

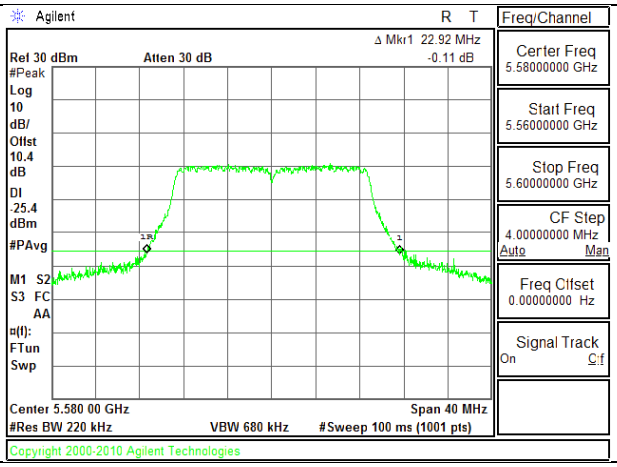
11n HT20 5.2 Mid Ch



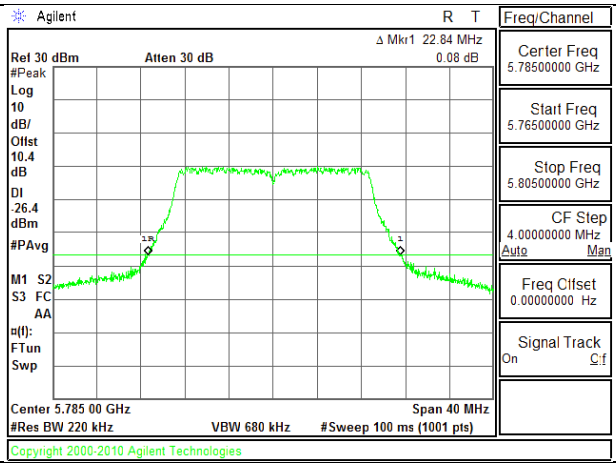
11n HT20 5.3 Mid Ch



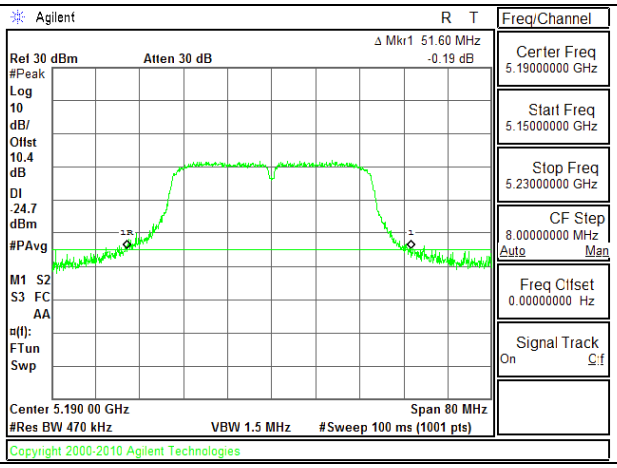
11n HT20 5.5 Mid Ch



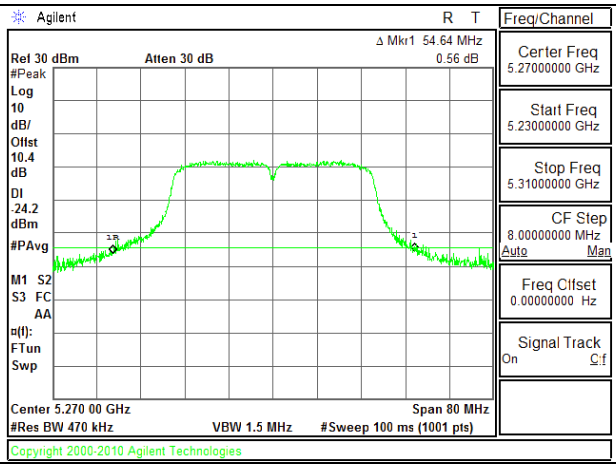
11n HT20 5.8 Mid Ch



11n HT40 5.2 Low Ch



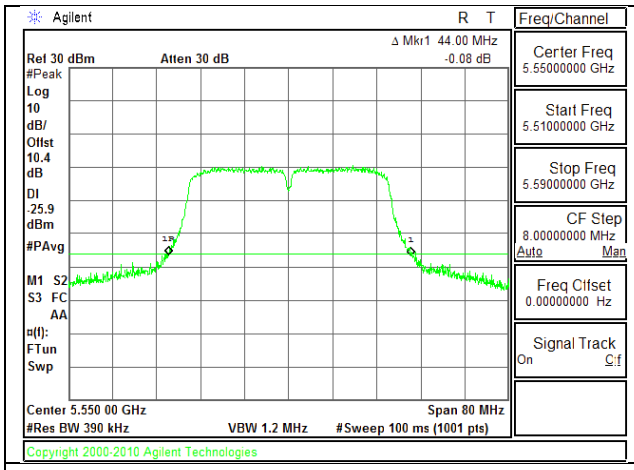
11n HT40 5.3 Low Ch



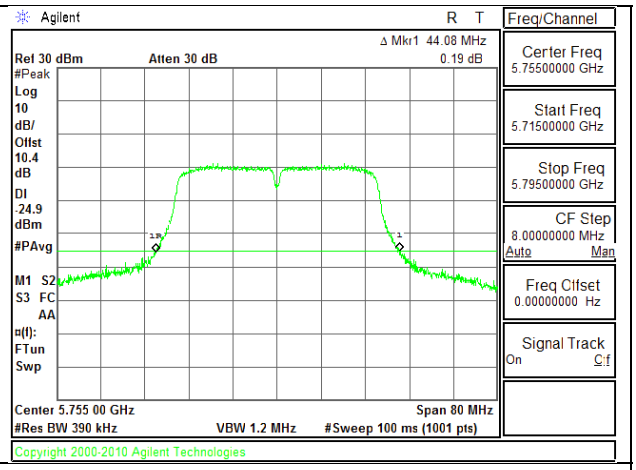
11n HT40 5.5 Mid Ch

11n HT40 5.8 Low Ch

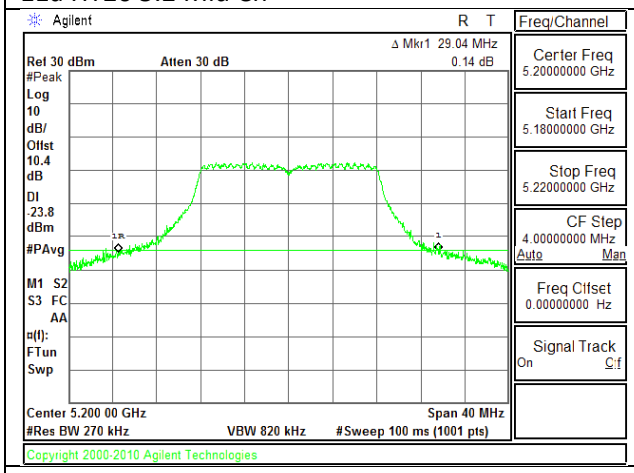
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.



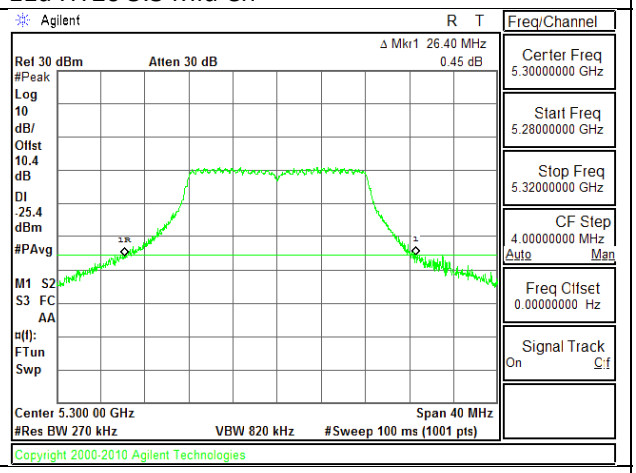
11a HT20 5.2 Mid Ch



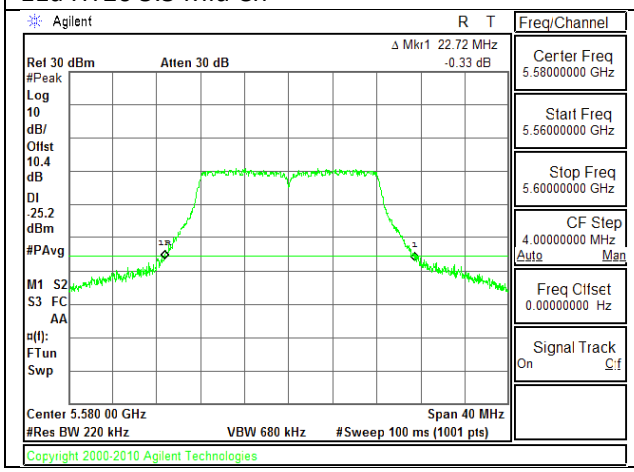
11a HT20 5.3 Mid Ch



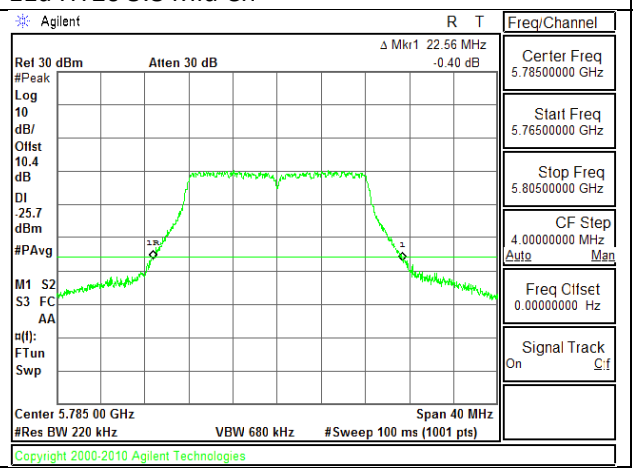
11a HT20 5.2 Mid Ch



11a HT20 5.3 Mid Ch



11a HT20 5.5 Mid Ch



11a HT20 5.8 Mid Ch

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

10.2.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.54
Mid	5200	16.53
High	5240	16.52
Worst		16.54

10.2.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	17.72
Mid	5200	17.72
High	5240	17.71
Worst		17.72

10.2.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.047
Mid	5230	36.068
Worst		36.068

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

10.2.4. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	16.54
Mid	5300	16.52
High	5320	16.54
Worst		16.54

10.2.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.71
Mid	5300	17.70
High	5320	17.72
Worst		17.72

10.2.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	36.05
High	5310	36.07
Worst		36.07

10.2.7. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.492
Mid	5580	16.495
High	5700	16.489
Worst		16.495

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

10.2.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.682
Mid	5580	17.677
High	5700	17.685
Worst		17.685

10.2.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	35.98
Mid	5550	35.99
High	5670	35.99
Worst		35.99

10.2.10. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	16.492
Mid	5785	16.496
High	5825	16.496
Worst		16.496

10.2.11. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.685
Mid	5785	17.687
High	5825	17.693
Worst		17.693

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

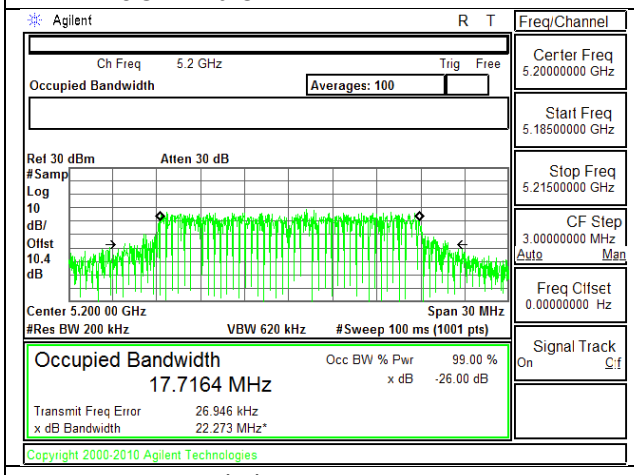
10.2.12. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	35.99
High	5795	35.99
Worst		35.99

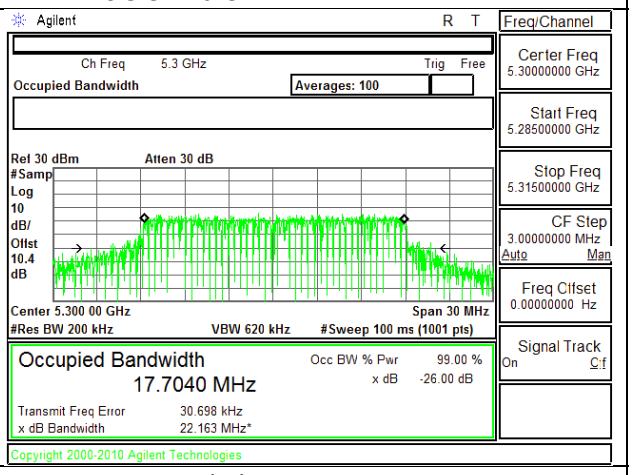
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.2.1. 99% BANDWIDTH PLOTS

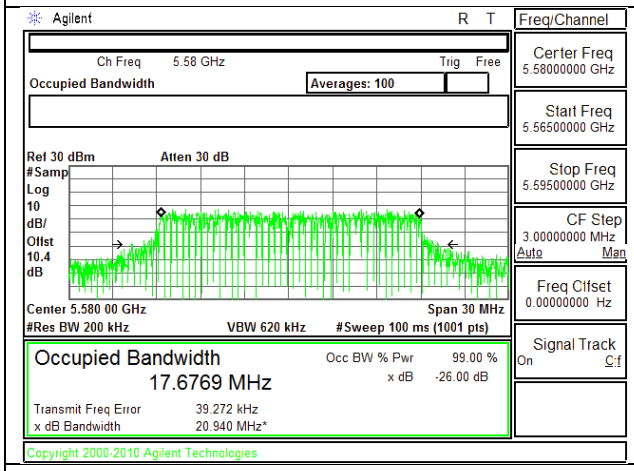
11n HT20 5.2 Mid Ch



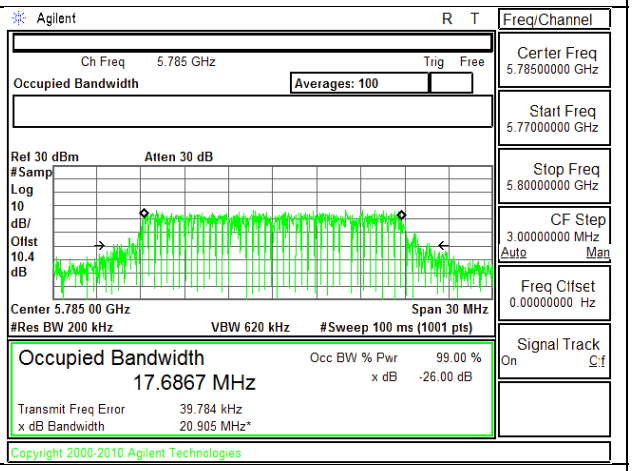
11n HT20 5.3 Mid Ch



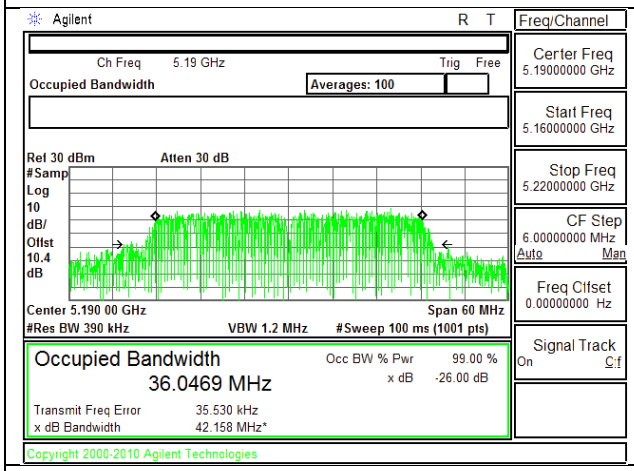
11n HT20 5.5 Mid Ch



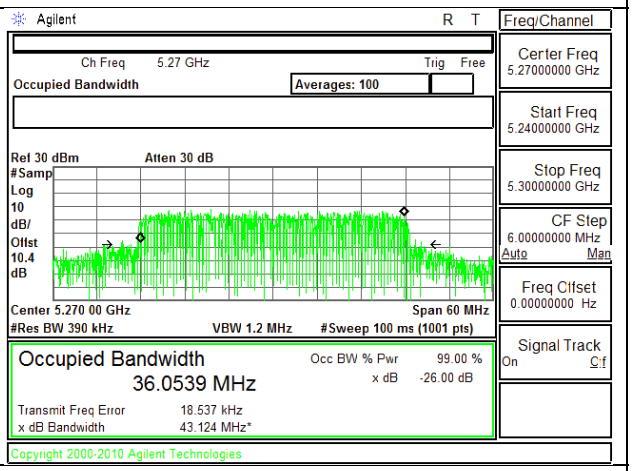
11n HT20 5.8 Mid Ch



11n HT40 5.2 Low Ch



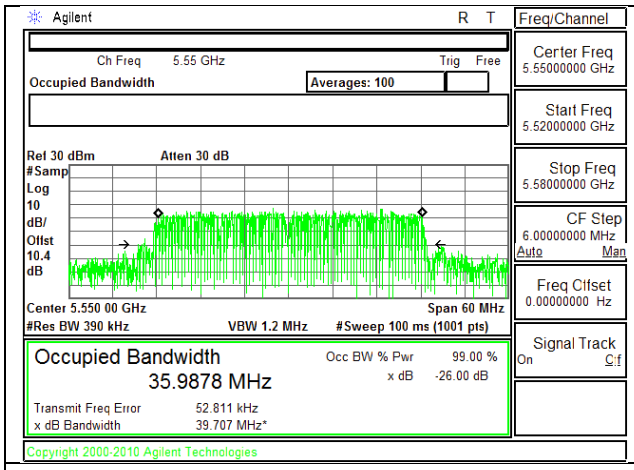
11n HT40 5.3 Low Ch



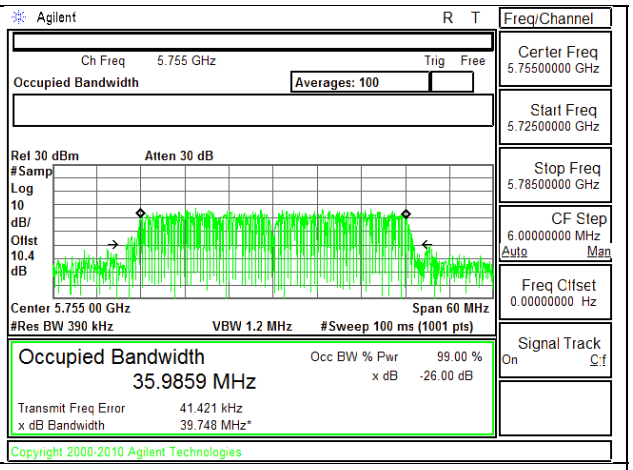
11n HT40 5.5 Mid Ch

11n HT40 5.8 Low Ch

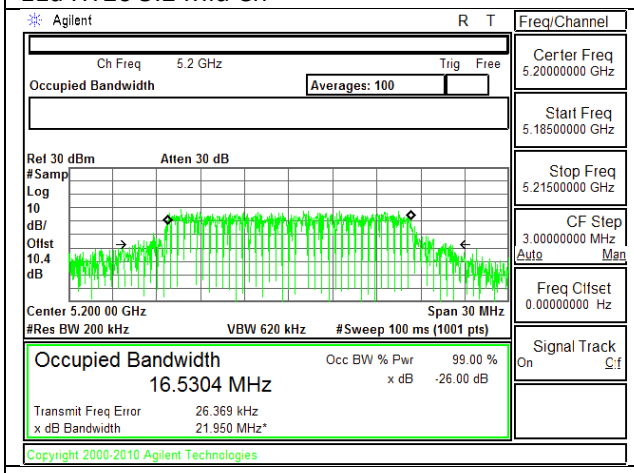
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.



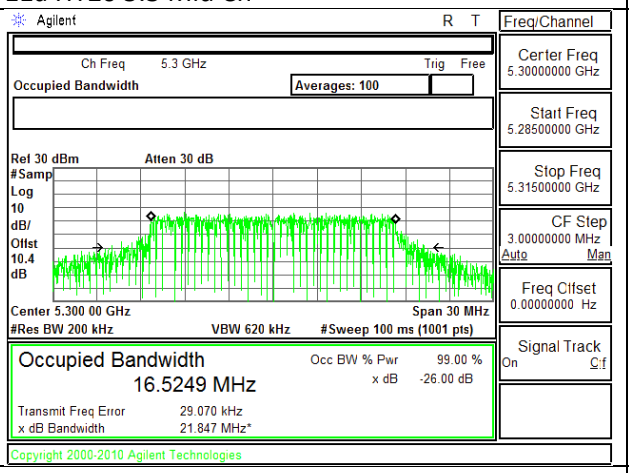
11a HT20 5.2 Mid Ch



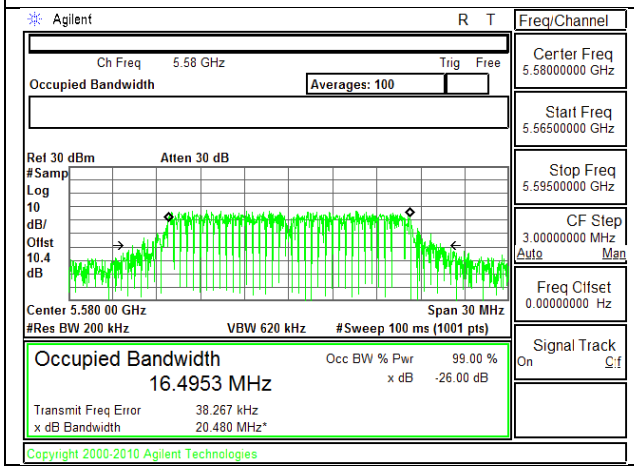
11a HT20 5.3 Mid Ch



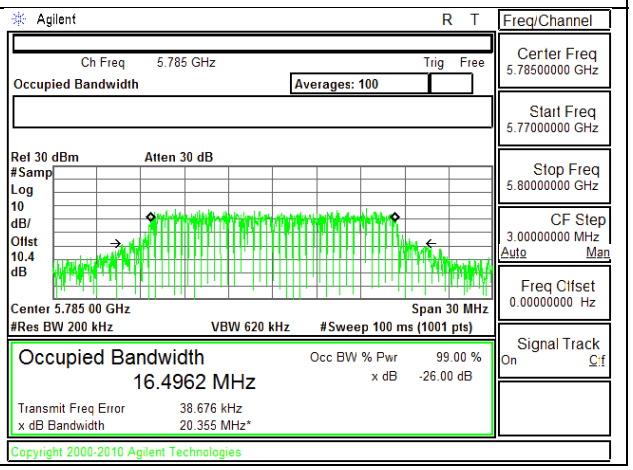
11a HT20 5.5 Mid Ch



11a HT20 5.8 Mid Ch



11a HT20 5.5 Mid Ch



11a HT20 5.8 Mid Ch

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

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

RESULTS

10.3.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5180	10.50
Mid	5200	9.80
High	5240	9.70
Worst		10.50

10.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5180	10.40
Mid	5200	9.90
High	5240	9.80
Worst		10.40

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

10.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5190	9.800
Mid	5230	10.500
Worst		10.500

10.3.4. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5260	10.50
Mid	5300	10.00
High	5320	10.40
Worst		10.50

10.3.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5260	10.50
Mid	5300	10.00
High	5320	10.50
Worst		10.50

10.3.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5270	10.5
High	5310	10.5
Worst		10.5

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.3.7. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5500	9.700
Mid	5580	10.300
High	5700	10.400
Worst		10.400

10.3.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5500	9.800
Mid	5580	10.300
High	5700	10.500
Worst		10.500

10.3.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5510	10.5
Mid	5550	10.0
High	5670	10.0
Worst		10.5

10.3.10. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5745	10.000
Mid	5785	10.000
High	5825	10.500
Worst		10.500

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

10.3.11. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5745	10.000
Mid	5785	10.000
High	5825	10.000
Worst		10.000

10.3.12. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5755	10.4
High	5795	10.4
Worst		10.4

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

10.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10 B, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

DIRECTIONAL ANTENNA GAIN

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

Test Methodology

RESULTS

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.4.1. 802.11a MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	28.20	16.54	1.04
Mid	5200	29.04	16.53	1.04
High	5240	27.04	16.52	1.04

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	17.00	22.18	21.14	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.18	21.14	17.00	4.00	10.00	4.00
High	5240	17.00	22.18	21.14	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	10.854	11.14	17.00	-5.86
Mid	5200	10.313	10.60	17.00	-6.40
High	5240	10.220	10.51	17.00	-6.49

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	-0.340	-0.05	4.00	-4.05
Mid	5200	-0.390	-0.10	4.00	-4.10
High	5240	-0.590	-0.30	4.00	-4.30

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.4.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	28.36	17.72	1.04
Mid	5200	27.76	17.72	1.04
High	5240	26.32	17.71	1.04

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	17.00	22.48	21.44	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.48	21.44	17.00	4.00	10.00	4.00
High	5240	17.00	22.48	21.44	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.32	**Included in Calculations of Corr'd Power & PPSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	10.789	11.11	17.00	-5.89
Mid	5200	10.352	10.67	17.00	-6.33
High	5240	10.251	10.57	17.00	-6.43

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	-0.190	0.13	4.00	-3.87
Mid	5200	-0.540	-0.22	4.00	-4.22
High	5240	-0.790	-0.47	4.00	-4.47

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.4.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5190	51.6	36.047	1.04
Mid	5230	53.68	36.068	1.04

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5190	17.00	23.00	21.96	17.00	4.00	10.00	4.00
Mid	5230	17.00	23.00	21.96	17.00	4.00	11.00	4.00
Duty Cycle CF (dB)		0.63	Included in Calculations of Corr'd Power & PPSD					

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	10.048	10.68	17.00	-6.32
Mid	5230	9.894	10.52	17.00	-6.48

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-3.970	-3.34	4.00	-7.34
Mid	5230	-4.040	-3.41	4.00	-7.41

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.4.4. 802.11a MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	26.4	16.5	1.04
Mid	5300	26.4	16.5	1.04
High	5320	27.5	16.5	1.04

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.19	29.19	23.19	11.00	11.00	11.00
Mid	5300	24.00	23.18	29.18	23.18	11.00	11.00	11.00
High	5320	24.00	23.18	29.18	23.18	11.00	11.00	11.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	10.250	10.54	23.19	-12.65
Mid	5300	10.261	10.55	23.18	-12.63
High	5320	10.670	10.96	23.18	-12.22

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	-0.560	-0.27	11.00	-11.27
Mid	5300	-1.650	-1.36	11.00	-12.36
High	5320	-1.340	-1.05	11.00	-12.05

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.4.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	29.28	17.715	1.04
Mid	5300	26.12	17.704	1.04
High	5320	27.76	17.720	1.04

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.48	29.48	23.48	11.00	11.00	11.00
Mid	5300	24.00	23.48	29.48	23.48	11.00	11.00	11.00
High	5320	24.00	23.48	29.48	23.48	11.00	11.00	11.00

Duty Cycle CF (dB)	0.32	**Included in Calculations of Corr'd Power & PPSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	10.311	10.63	23.48	-12.85
Mid	5300	10.178	10.50	23.48	-12.98
High	5320	10.652	10.97	23.48	-12.51

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	-0.850	-0.53	11.00	-11.53
Mid	5300	-2.060	-1.74	11.00	-12.74
High	5320	-1.740	-1.42	11.00	-12.42

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

10.4.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5270	54.6	36.1	1.04
High	5310	53.3	36.1	1.04

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5270	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5310	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.63	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	9.99	10.62	24.00	-13.38
High	5310	9.83	10.46	24.00	-13.54

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	-3.89	-3.26	11.00	-14.26
High	5310	-4.16	-3.53	11.00	-14.53

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.4.7. 802.11a MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	22.24	16.492	1.04
Mid	5580	22.72	16.495	1.04
High	5700	22.48	16.489	1.04

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.17	29.17	23.17	11.00	11.00	11.00
Mid	5580	24.00	23.17	29.17	23.17	11.00	11.00	11.00
High	5700	24.00	23.17	29.17	23.17	11.00	11.00	11.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	10.308	10.60	23.17	-12.57
Mid	5580	10.023	10.31	23.17	-12.86
High	5700	9.935	10.23	23.17	-12.95

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	-1.540	-1.25	11.00	-12.25
Mid	5580	-0.840	-0.55	11.00	-11.55
High	5700	-0.870	-0.58	11.00	-11.58

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.4.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	22.92	17.682	1.04
Mid	5580	22.92	17.677	1.04
High	5700	23.24	17.685	1.04

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.48	29.48	23.48	11.00	11.00	11.00
Mid	5580	24.00	23.47	29.47	23.47	11.00	11.00	11.00
High	5700	24.00	23.48	29.48	23.48	11.00	11.00	11.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	10.322	10.64	23.48	-12.83
Mid	5580	10.118	10.44	23.47	-13.04
High	5700	10.134	10.45	23.48	-13.02

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	-1.780	-1.46	11.00	-12.46
Mid	5580	-1.070	-0.75	11.00	-11.75
High	5700	-0.820	-0.50	11.00	-11.50

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.4.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5510	44.4	35.983	1.04
Mid	5550	44.0	35.988	1.04
High	5670	44.2	35.990	1.04

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5510	24.00	24.00	30.00	24.00	11.00	11.00	11.00
Mid	5550	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.63	**Included in Calculations of Corr'd Power & PPSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	10.526	11.16	24.00	-12.84
Mid	5550	9.427	10.06	24.00	-13.94
High	5670	10.496	11.13	24.00	-12.87

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	-3.960	-3.33	11.00	-14.33
Mid	5550	-4.500	-3.87	11.00	-14.87
High	5670	-4.570	-3.94	11.00	-14.94

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.4.10. 802.11a MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5745	22.5	16.5	1.04
Mid	5785	22.6	16.5	1.04
High	5825	22.4	16.5	1.04

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5745	30.00	29.17	35.17	29.17	30.00	17.00	17.00
Mid	5785	30.00	29.17	35.17	29.17	30.00	17.00	17.00
High	5825	30.00	29.17	35.17	29.17	30.00	17.00	17.00

Duty Cycle CF (dB)	0.29	**Included in Calculations of Corr'd Power & PPSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	9.72	10.01	29.17	-19.16
Mid	5785	10.32	10.61	29.17	-18.57
High	5825	10.83	11.12	29.17	-18.05

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5745	-1.25	-0.96	17.00	-17.96
Mid	5785	-1.33	-1.04	17.00	-18.04
High	5825	0.22	0.51	17.00	-16.49

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.4.11. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5745	22.8	17.7	1.04
Mid	5785	22.8	17.7	1.04
High	5825	23.0	17.7	1.04

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5745	30.00	29.48	35.48	29.48	30.00	17.00	17.00
Mid	5785	30.00	29.48	35.48	29.48	30.00	17.00	17.00
High	5825	30.00	29.48	35.48	29.48	30.00	17.00	17.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	9.78	10.10	29.48	-19.37
Mid	5785	10.57	10.89	29.48	-18.59
High	5825	10.79	11.11	29.48	-18.37

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5745	-1.29	-0.97	17.00	-17.97
Mid	5785	-1.60	-1.28	17.00	-18.28
High	5825	-0.28	0.04	17.00	-16.96

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

10.4.12. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5755	44.1	36.0	1.04
High	5795	43.9	36.0	1.04

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5755	30.00	30.00	36.00	30.00	30.00	17.00	17.00
High	5795	30.00	30.00	36.00	30.00	30.00	17.00	17.00

Duty Cycle CF (dB)	0.63	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	9.76	10.39	30.00	-19.62
High	5795	10.60	11.23	30.00	-18.77

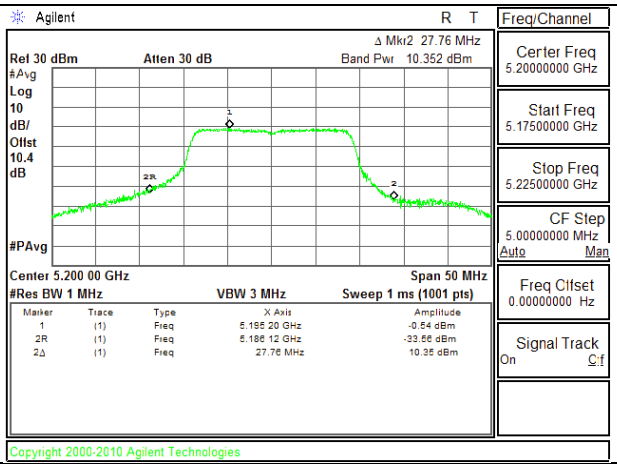
PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5755	-3.94	-3.31	17.00	-20.31
High	5795	-4.47	-3.84	17.00	-20.84

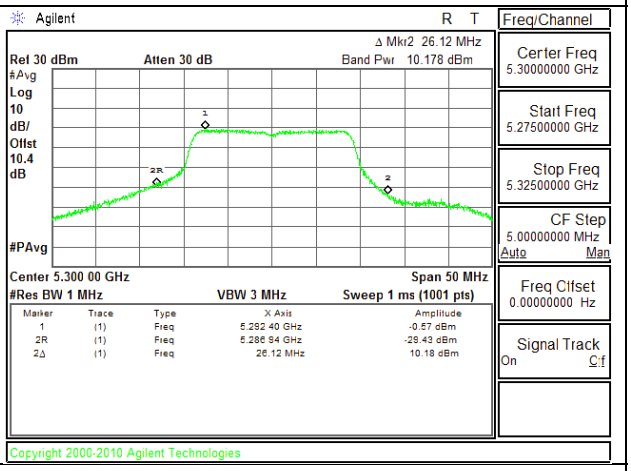
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.4.1. OUTPUT POWER AND PPSD PLOTS, Chain 0

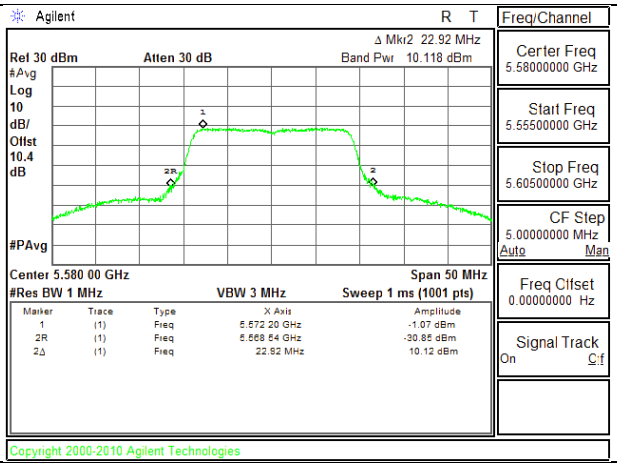
11n HT20 5.2 Mid Ch



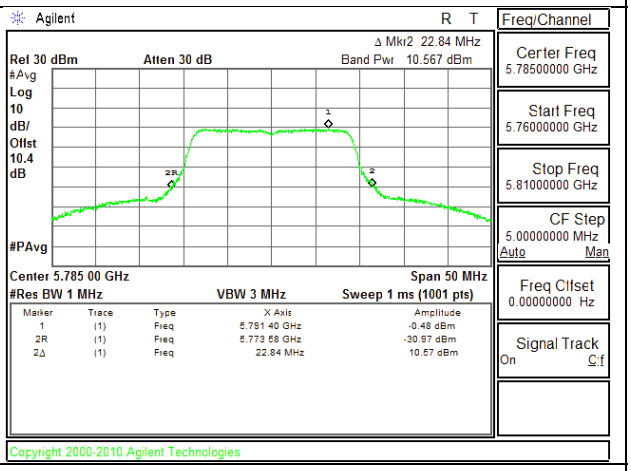
11n HT20 5.3 Mid Ch



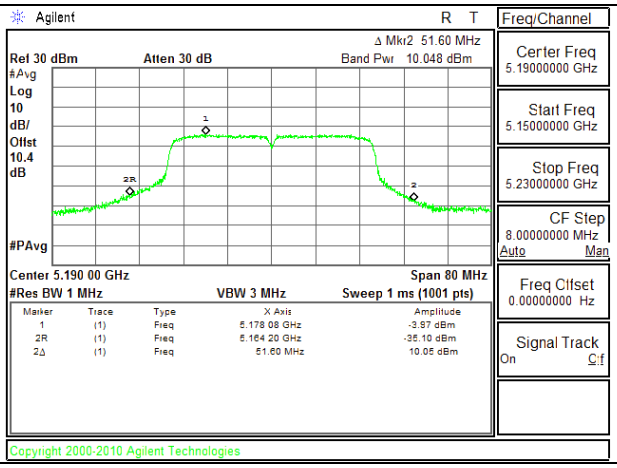
11n HT20 5.5 Mid Ch



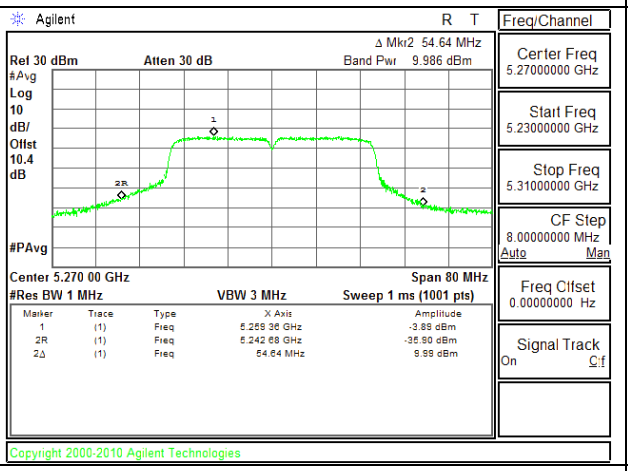
11n HT20 5.8 Mid Ch



11n HT40 5.2 Low Ch



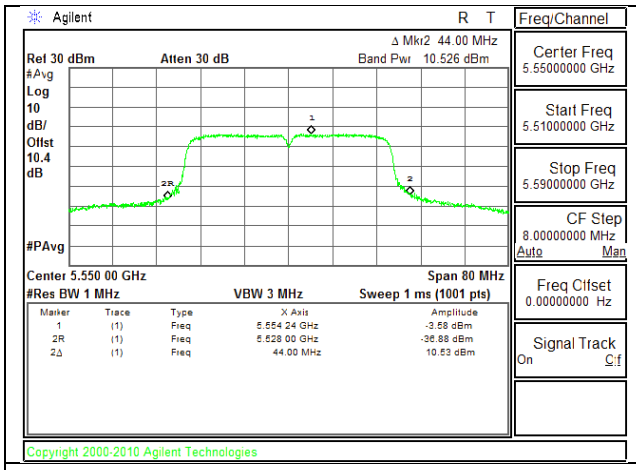
11n HT40 5.3 Low Ch



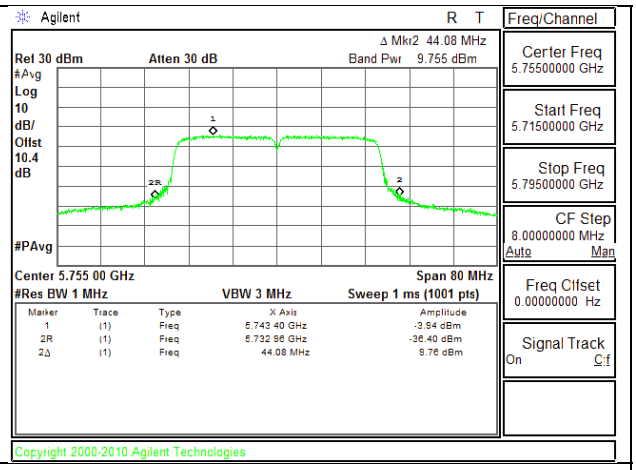
11n HT40 5.5 Mid Ch

11n HT40 5.8 Low Ch

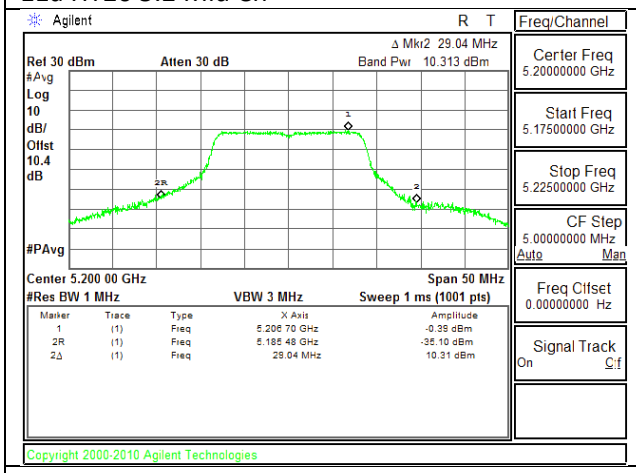
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.



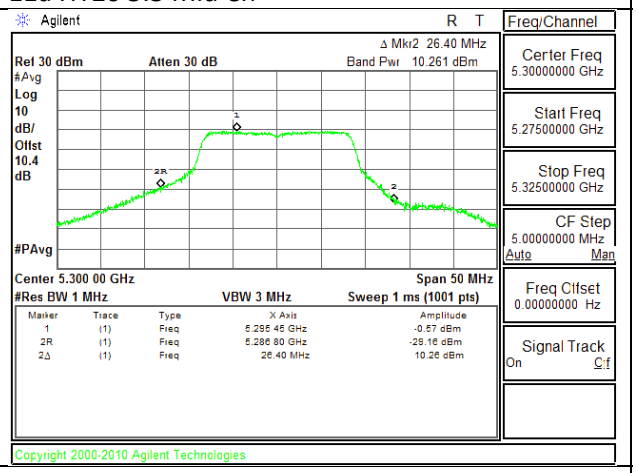
11a HT20 5.2 Mid Ch



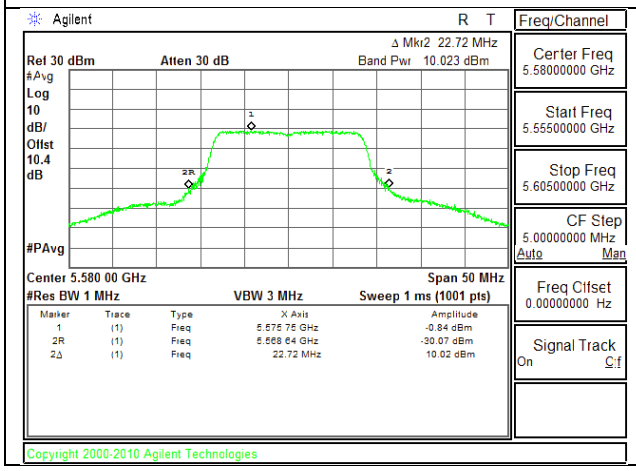
11a HT20 5.3 Mid Ch

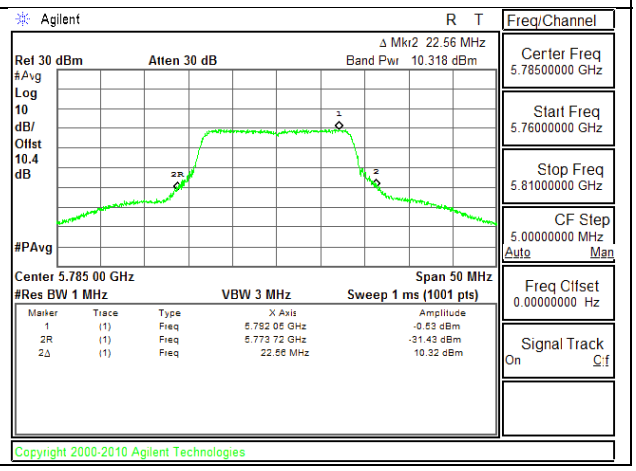


11a HT20 5.5 Mid Ch



11a HT20 5.8 Mid Ch





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

10.1. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

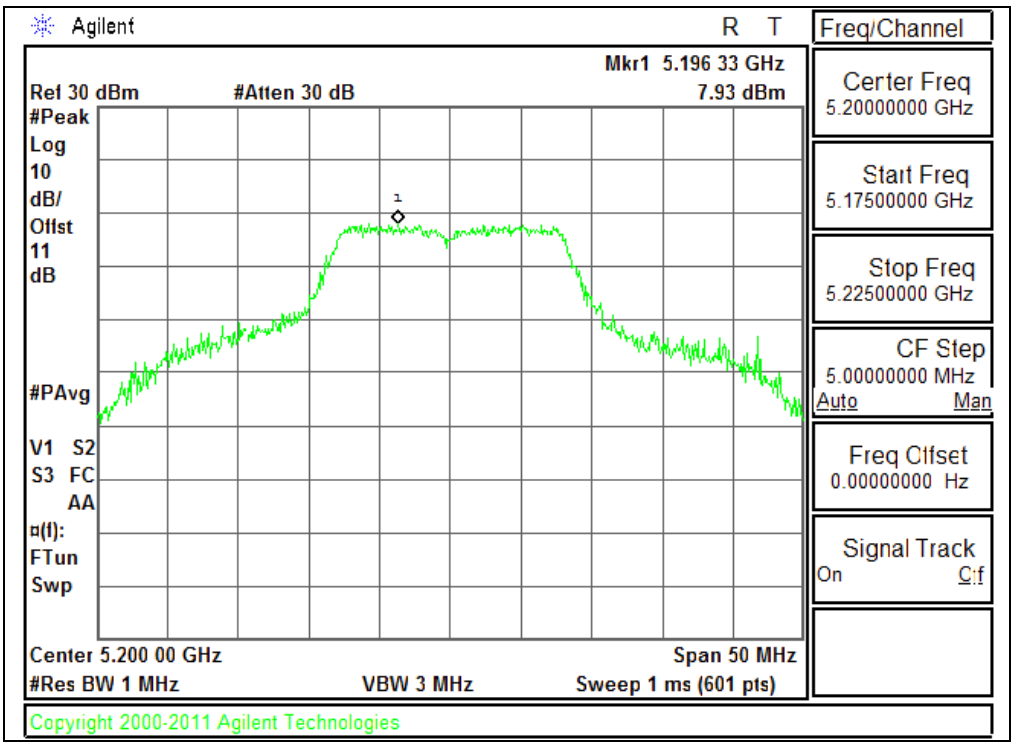
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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

10.1.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5200	7.93	-0.39	0.29	8.03	13	-4.97

PEAK EXCURSION

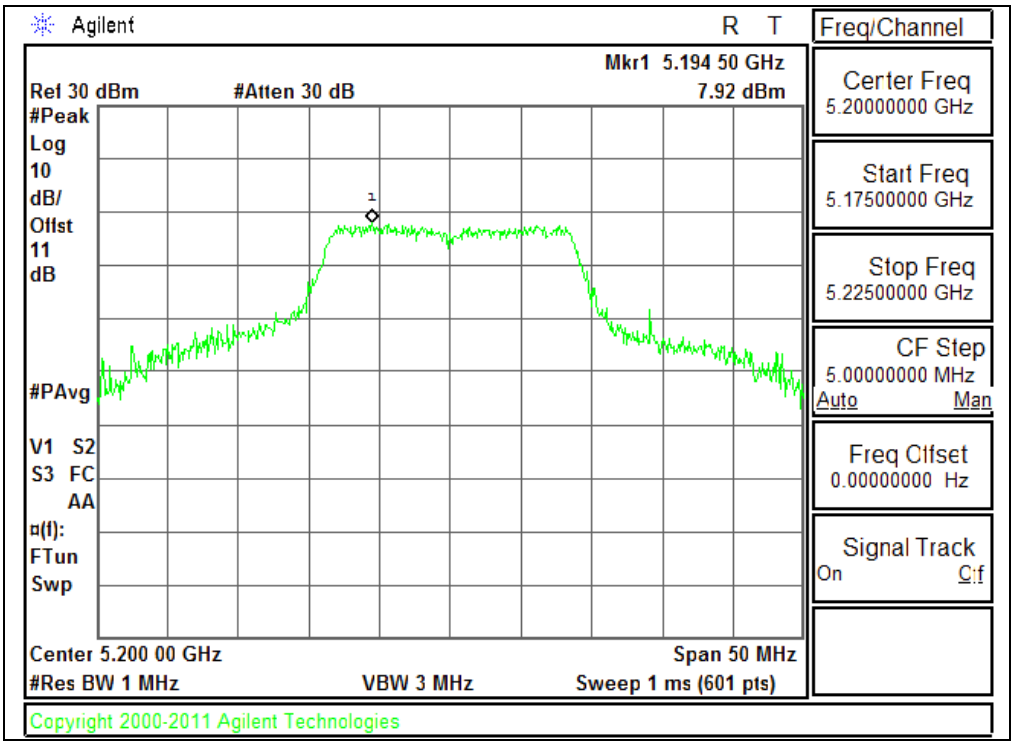


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5200	7.92	-0.54	0.32	8.14	13	-4.86

PEAK EXCURSION

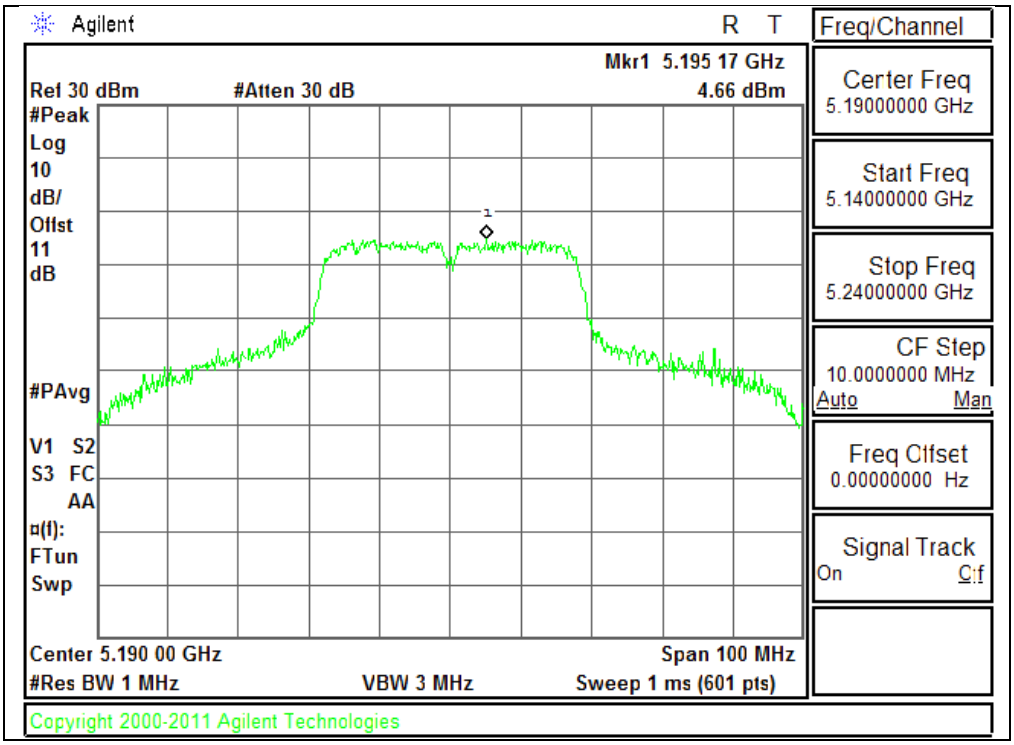


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

10.1.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	PK Level (dBm)	PSD (dBm)	DCCF (dB)	Peak Excursion (dB)	Limit (dB)	Margin (dB)
Mid	5190	4.660	-3.97	0.63	8.00	13	-5.00

PEAK EXCURSION



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

11. TRANSMITTER ABOVE 1 GHz

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 to the reading offset for average measurements.

The spectrum from 1GHz 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.

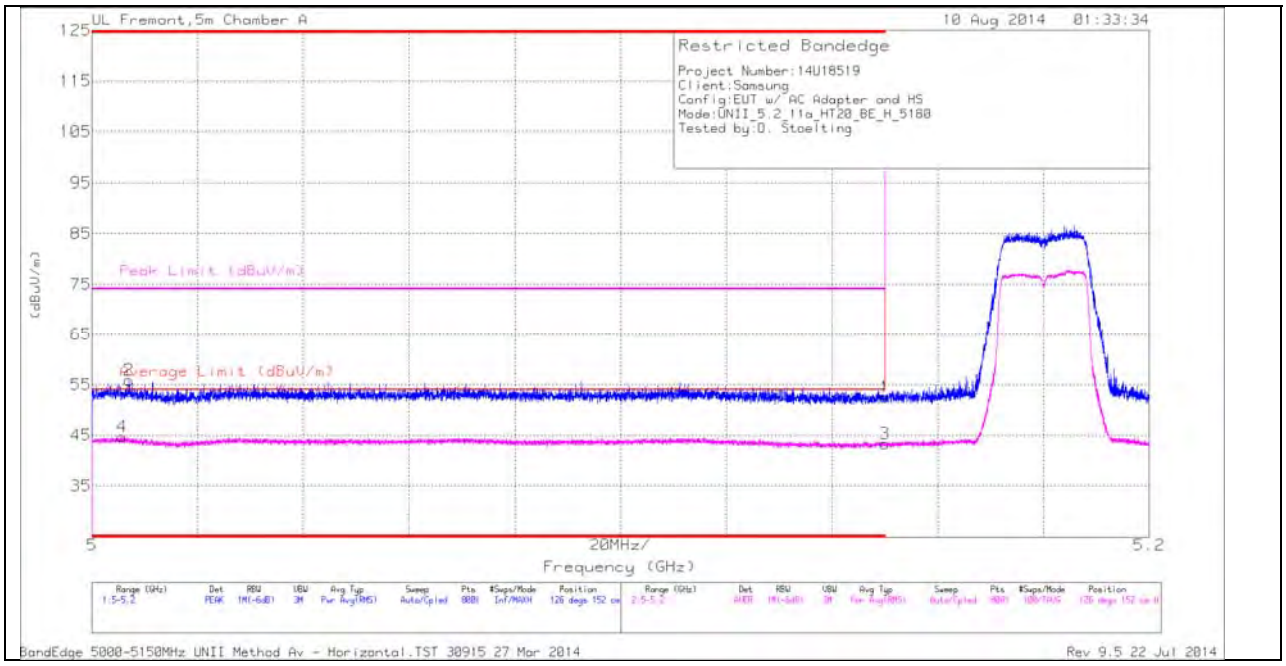
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

11.1. 5.2 GHz

11.1.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

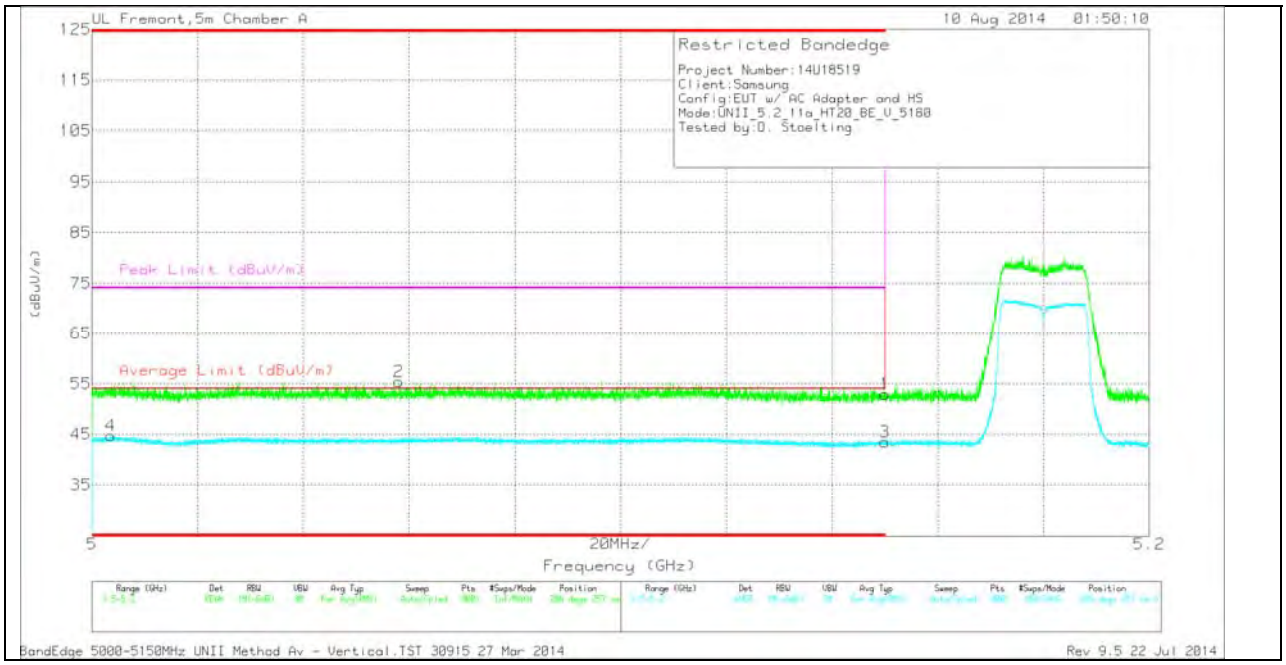


HORIZONTAL DATA

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	* 5.15	38.98	PK	34	-20.5	0	52.48	-	-	74	-21.52	126	152	H
2	* 5.007	41.83	PK	33.9	-19.8	0	55.93	-	-	74	-18.07	126	152	H
3	* 5.15	29.54	RMS	34	-20.5	.29	43.36	54	-10.64	-	-	126	152	H
4	* 5.006	30.06	RMS	33.9	-19.6	.29	44.68	54	-9.32	-	-	126	152	H

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

VERTICAL PEAK AND AVERAGE PLOT



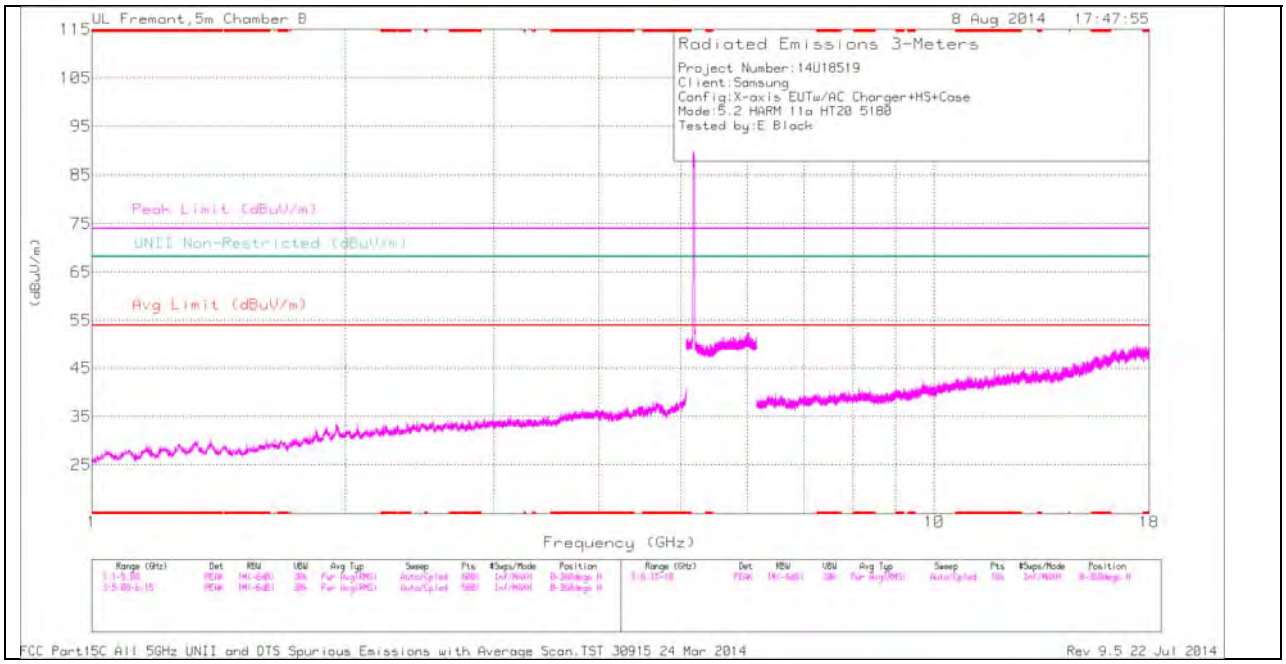
VERTICAL DATA

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	* 5.15	39.37	PK	34	-20.5	0	52.87	-	-	74	-21.13	286	257	V
2	* 5.058	41.92	PK	33.8	-20.3	0	55.42	-	-	74	-18.58	286	257	V
3	* 5.15	29.64	RMS	34	-20.5	.29	43.46	54	-10.54	-	-	286	257	V
4	* 5.004	30.19	RMS	33.9	-19.7	.29	44.71	54	-9.29	-	-	286	257	V

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

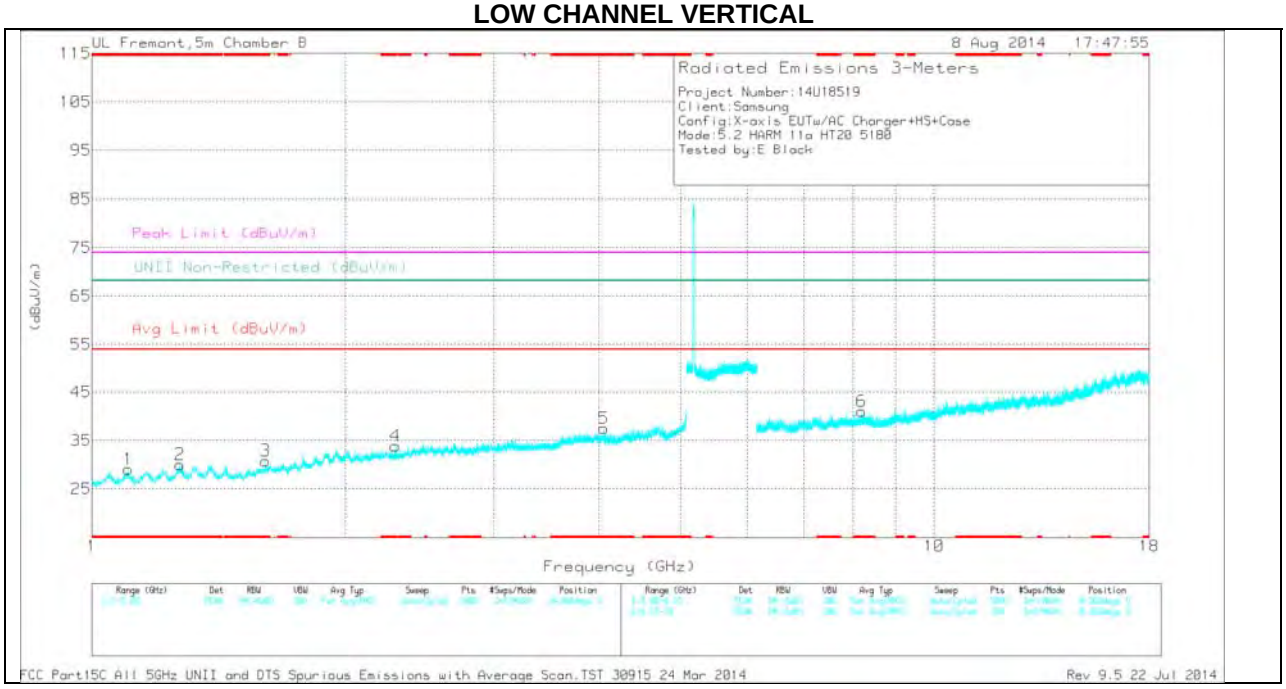


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.105	35.74	PK	27.4	-34	29.14	-	-	74	-44.86	-	-	0-360	101	V
2	* 1.271	35.45	PK	28.7	-34.1	30.05	-	-	74	-43.95	-	-	0-360	101	V
3	* 1.608	35.03	PK	28.5	-32.7	30.83	-	-	74	-43.17	-	-	0-360	101	V
4	* 2.292	34.94	PK	31.6	-32.7	33.84	-	-	74	-40.16	-	-	0-360	101	V
5	* 4.05	33.18	PK	33.6	-29.2	37.58	-	-	74	-36.42	-	-	0-360	101	V
6	* 8.206	30.5	PK	35.7	-25.2	41	-	-	74	-33	-	-	0-360	200	V

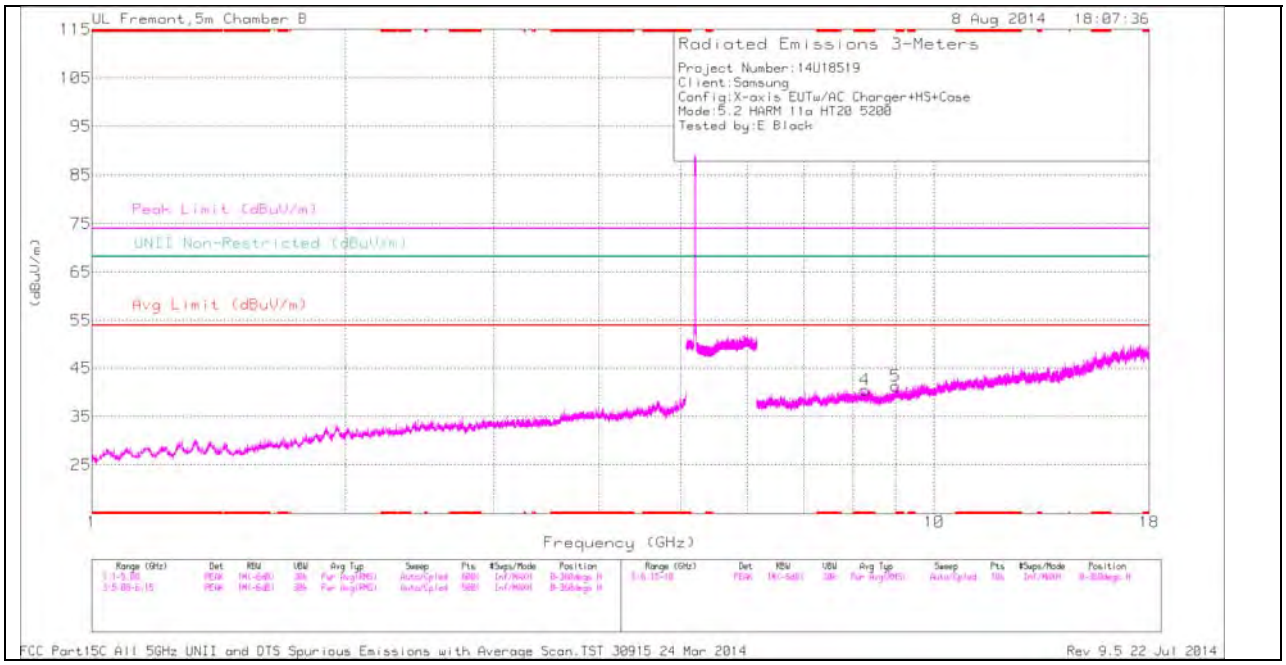
PK - Peak detector

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

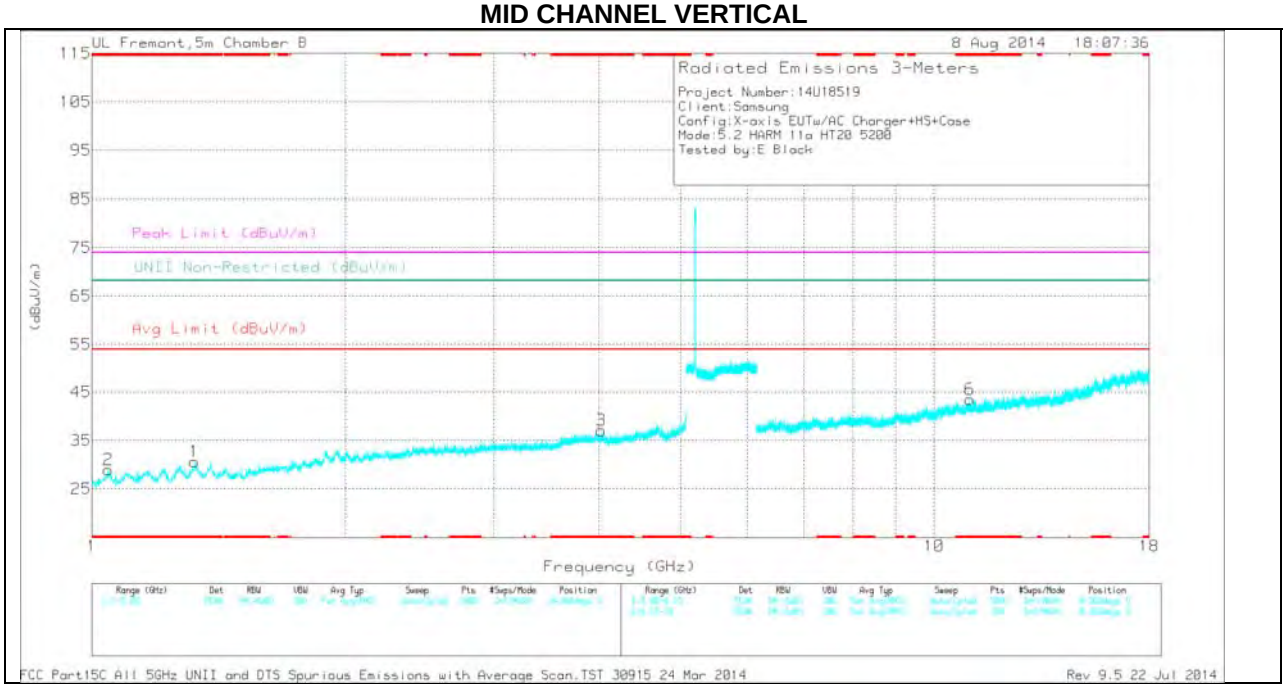
MID CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.323	35.54	PK	28.8	-33.7	30.64	-	-	74	-43.36	-	-	0-360	199	V
2	* 1.046	35.81	PK	27.2	-34.1	28.91	-	-	74	-45.09	-	-	0-360	199	V
3	* 4.027	32.47	PK	33.6	-29	37.07	-	-	74	-36.93	-	-	0-360	101	V
4	* 8.277	30.6	PK	35.7	-25.8	40.5	-	-	74	-33.5	-	-	0-360	200	H
5	* 9.004	29.74	PK	36.2	-24.7	41.24	-	-	74	-32.76	-	-	0-360	101	H
6	* 11.032	27.85	PK	37.8	-22.1	43.55	-	-	74	-30.45	-	-	0-360	101	V

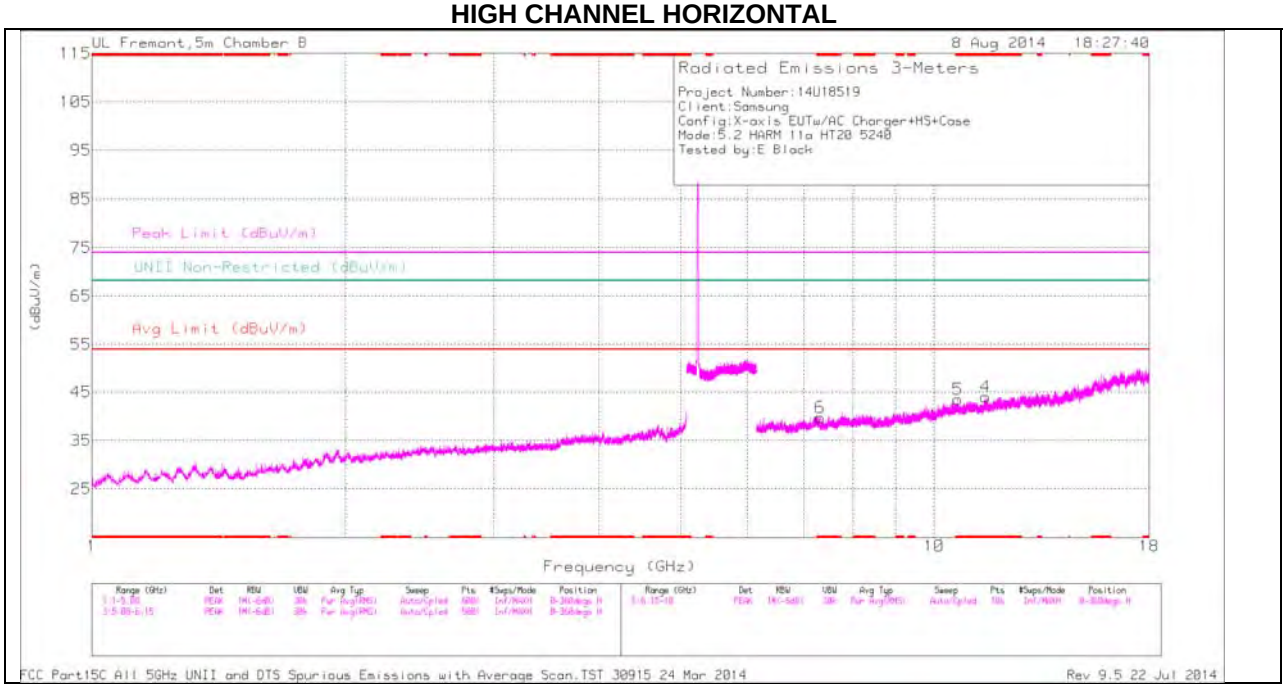
PK - Peak detector

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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

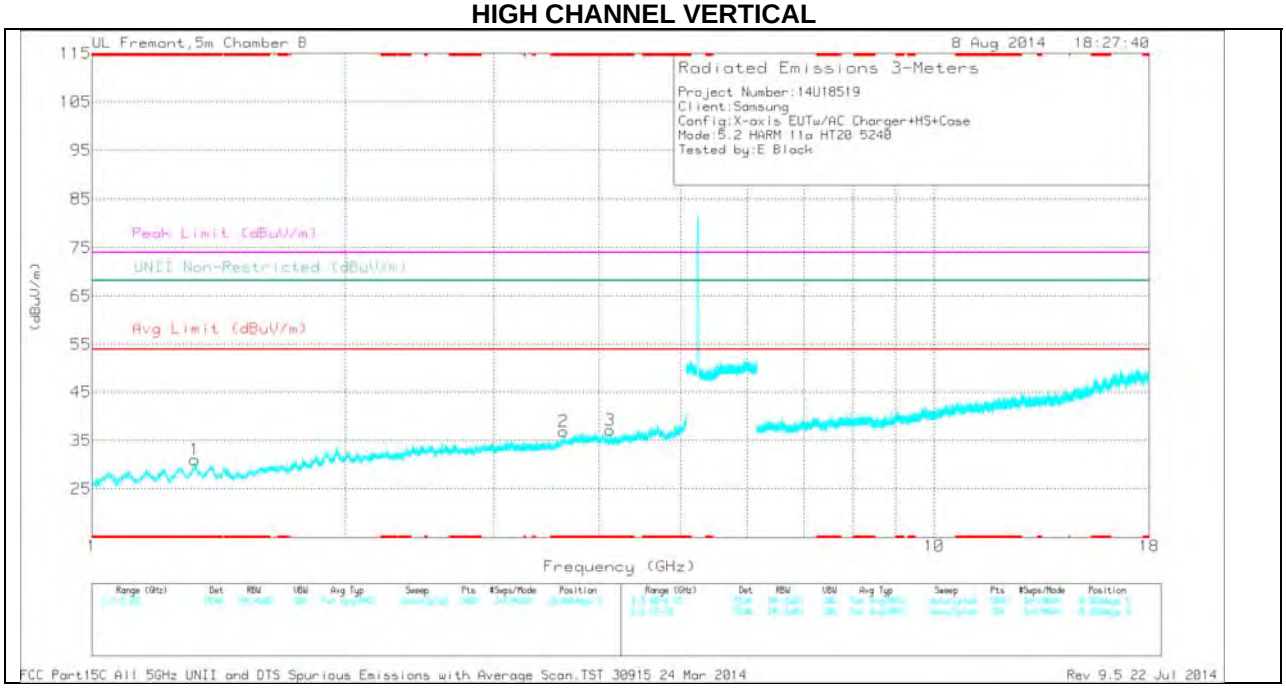


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 40GHz; 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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.324	35.88	PK	28.8	-33.7	30.98	-	-	74	-43.02	-	-	0-360	200	V
5	* 10.666	27.48	PK	37.7	-21.7	43.48	-	-	74	-30.52	-	-	0-360	101	H
4	* 11.505	27.36	PK	38.1	-21.5	43.96	-	-	74	-30.04	-	-	0-360	199	H
2	* 3.63	34.33	PK	33.2	-30.7	36.83	-	-	74	-37.17	-	-	0-360	200	V
3	* 4.123	34.11	PK	33.6	-30.6	37.11	-	-	74	-36.89	-	-	0-360	101	V
6	* 7.317	31.49	PK	35.6	-27.4	39.69	-	-	74	-34.31	-	-	0-360	199	H

PK - Peak detector

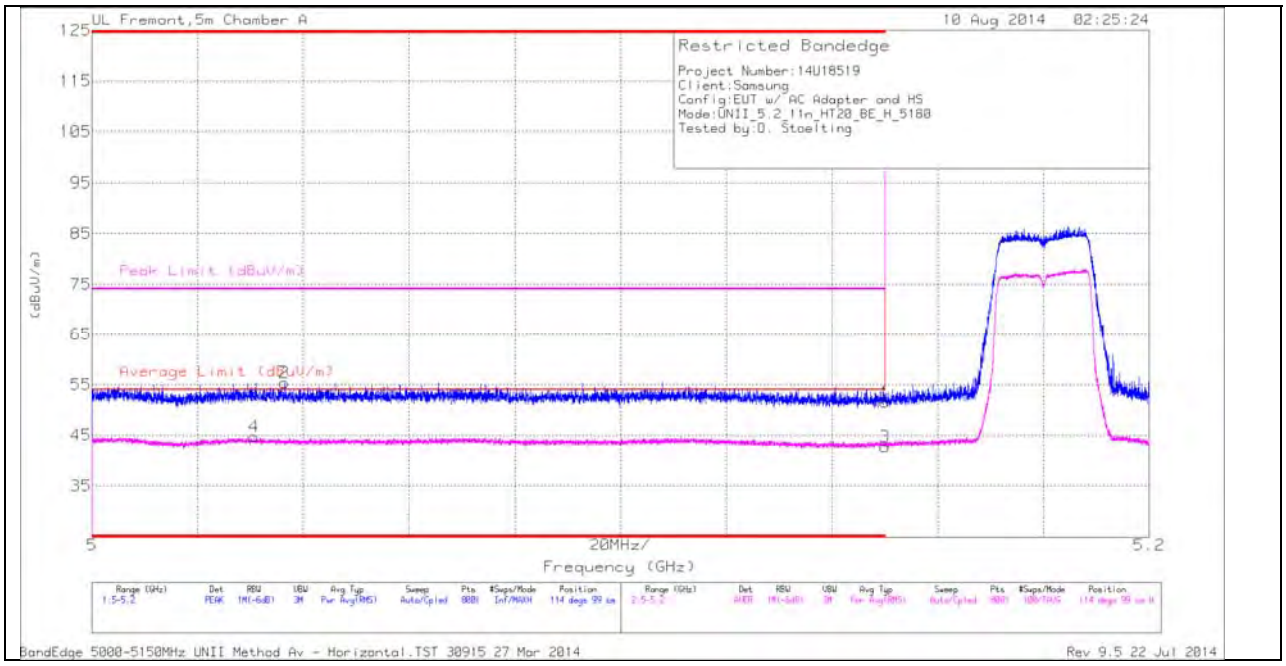
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

11.1.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

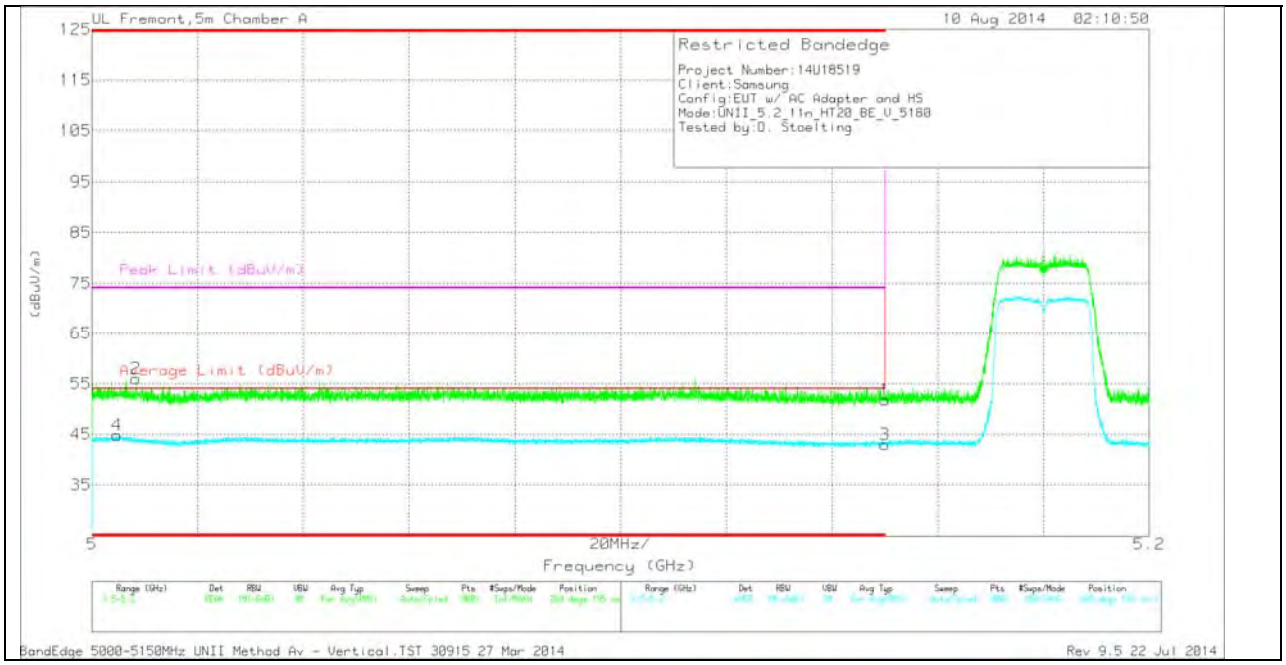


HORIZONTAL DATA

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	* 5.15	37.99	PK	34	-20.5	0	51.49	-	-	74	-22.51	114	99	H
2	* 5.036	41.82	PK	33.8	-20.2	0	55.42	-	-	74	-18.58	114	99	H
3	* 5.15	28.85	RMS	34	-20.5	.32	42.7	54	-11.3	-	-	114	99	H
4	* 5.031	30.65	RMS	33.8	-20.1	.32	44.7	54	-9.3	-	-	114	99	H

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

VERTICAL PEAK AND AVERAGE PLOT



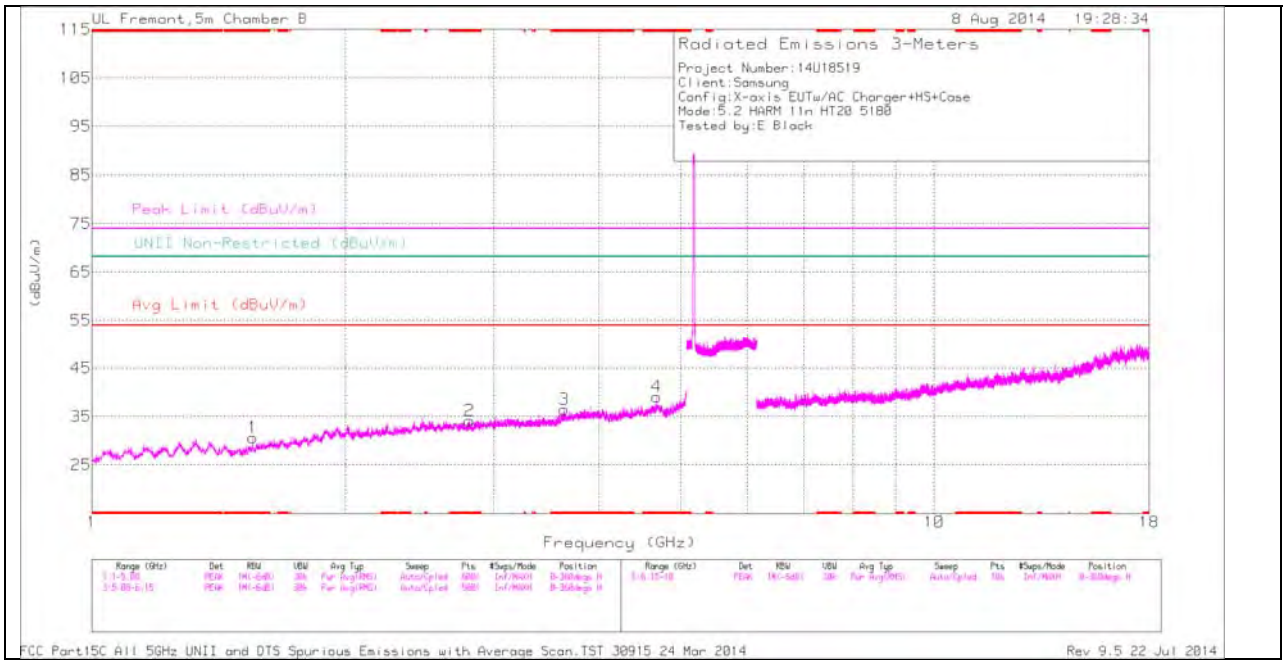
VERTICAL DATA

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	* 5.15	38.33	PK	34	-20.5	0	51.83	-	-	74	-22.17	268	195	V
2	* 5.008	42.02	PK	33.9	-19.9	0	56.02	-	-	74	-17.98	268	195	V
3	* 5.15	29.1	RMS	34	-20.5	.32	42.95	54	-11.05	-	-	268	195	V
4	* 5.005	30.3	RMS	33.9	-19.7	.32	44.85	54	-9.15	-	-	268	195	V

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

HARMONICS AND SPURIOUS EMISSIONS

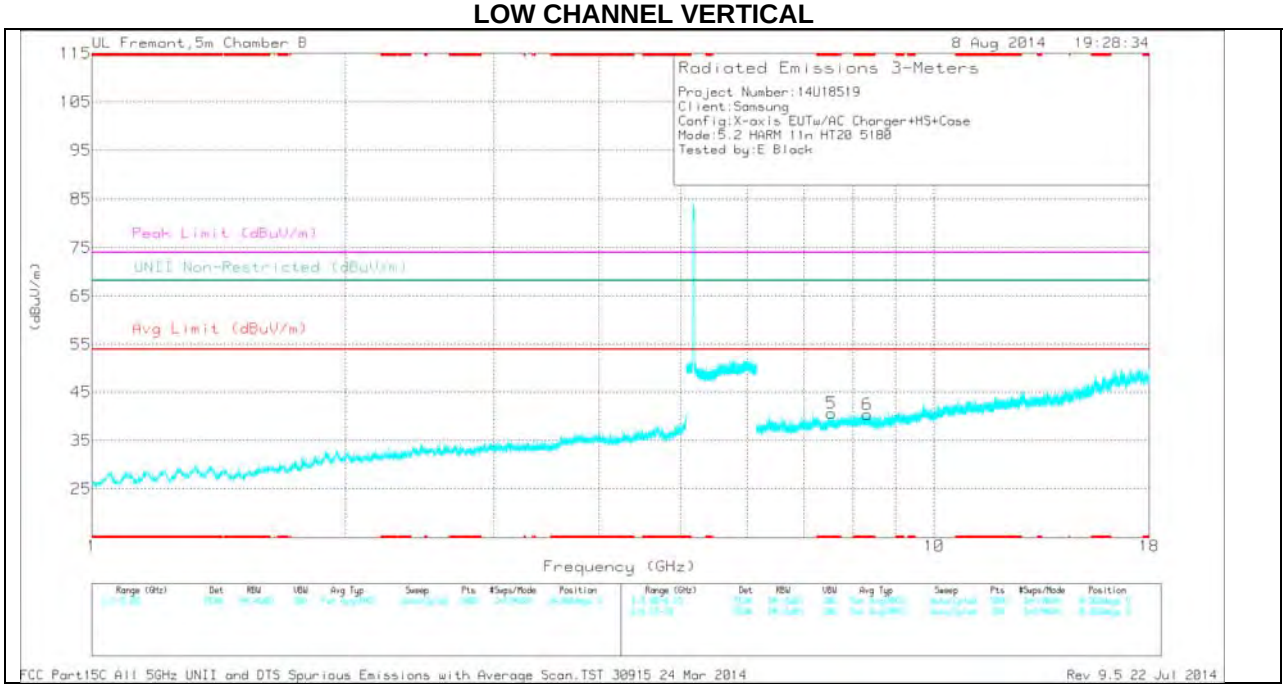
LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.553	36.01	PK	28.2	-33.6	30.61	-	-	74	-43.39	-	-	0-360	199	H
2	* 2.807	33.97	PK	32.3	-32.1	34.17	-	-	74	-39.83	-	-	0-360	100	H
3	* 3.638	34.2	PK	33.2	-30.9	36.5	-	-	74	-37.5	-	-	0-360	199	H
4	* 4.681	34.35	PK	34.2	-29.5	39.05	-	-	74	-34.95	-	-	0-360	199	H
5	* 7.554	30.56	PK	35.6	-25.5	40.66	-	-	74	-33.34	-	-	0-360	199	V
6	* 8.326	29.83	PK	35.7	-25.2	40.33	-	-	74	-33.67	-	-	0-360	101	V

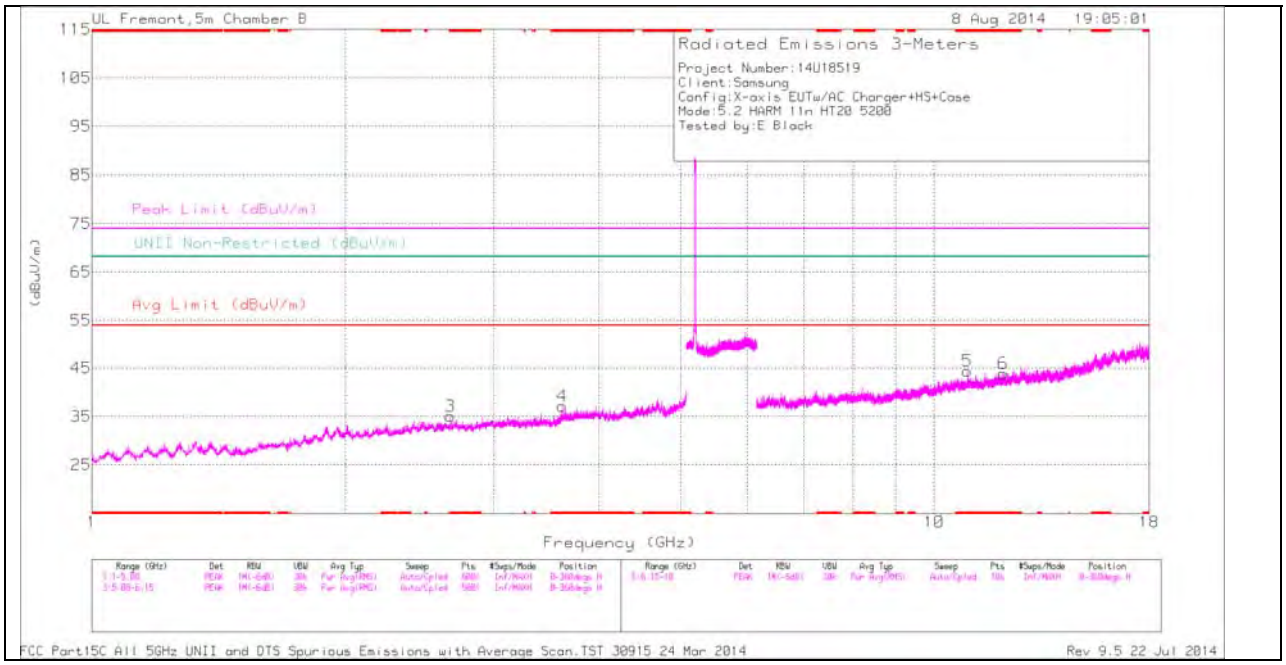
PK - Peak detector

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

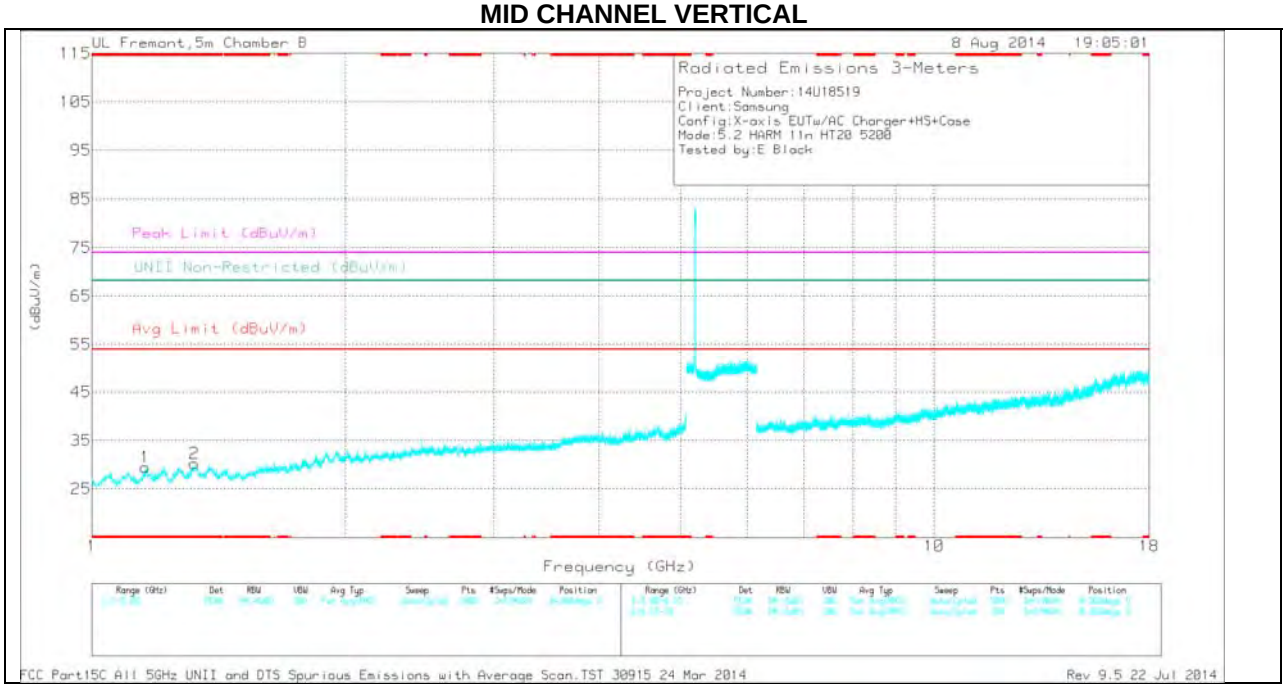
MID CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.156	35.92	PK	27.8	-34.2	29.52	-	-	74	-44.48	-	-	0-360	101	V
2	* 1.322	35.09	PK	28.8	-33.7	30.19	-	-	74	-43.81	-	-	0-360	101	V
5	* 10.948	28.75	PK	37.8	-22.2	44.35	-	-	74	-29.65	-	-	0-360	199	H
6	* 12.076	26.91	PK	38.8	-21.8	43.91	-	-	74	-30.09	-	-	0-360	101	H
3	* 2.663	34.57	PK	32.3	-31.8	35.07	-	-	74	-38.93	-	-	0-360	199	H
4	* 3.62	34.62	PK	33.2	-30.7	37.12	-	-	74	-36.88	-	-	0-360	100	H

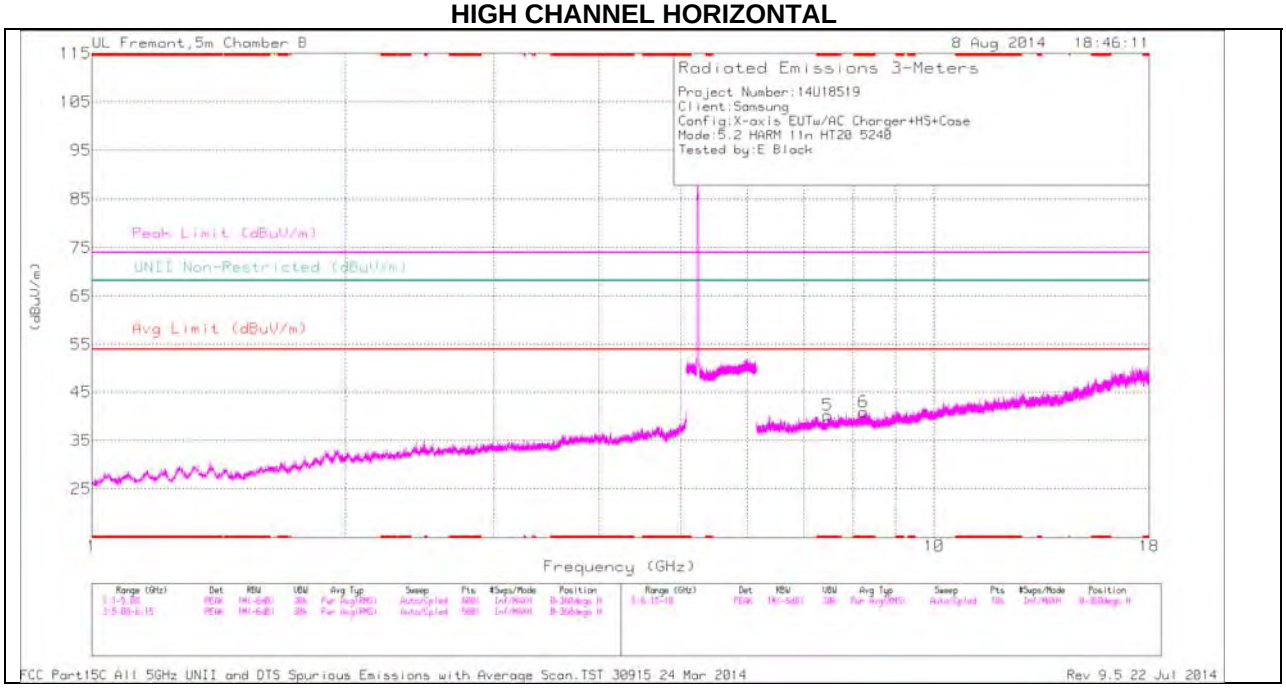
PK - Peak detector

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

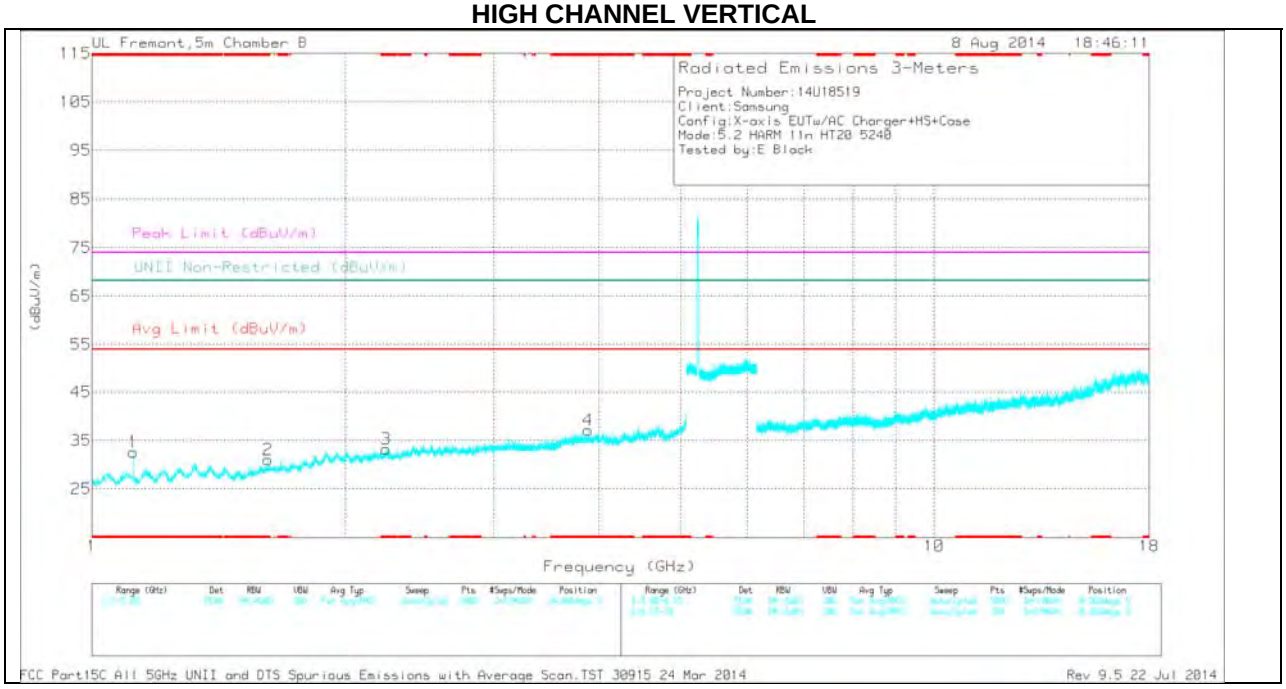
HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.12	39.23	PK	27.5	-34.2	32.53	-	-	74	-41.47	-	-	0-360	101	V
2	* 1.618	35.08	PK	28.6	-32.6	31.08	-	-	74	-42.92	-	-	0-360	200	V
3	* 2.236	33.64	PK	31.4	-31.8	33.24	-	-	74	-40.76	-	-	0-360	200	V
4	* 3.879	34.48	PK	33.8	-31.2	37.08	-	-	74	-36.92	-	-	0-360	200	V
5	* 7.473	31.08	PK	35.6	-26.4	40.28	-	-	74	-33.72	-	-	0-360	200	H
6	* 8.243	30.83	PK	35.7	-25.6	40.93	-	-	74	-33.07	-	-	0-360	200	H

PK - Peak detector

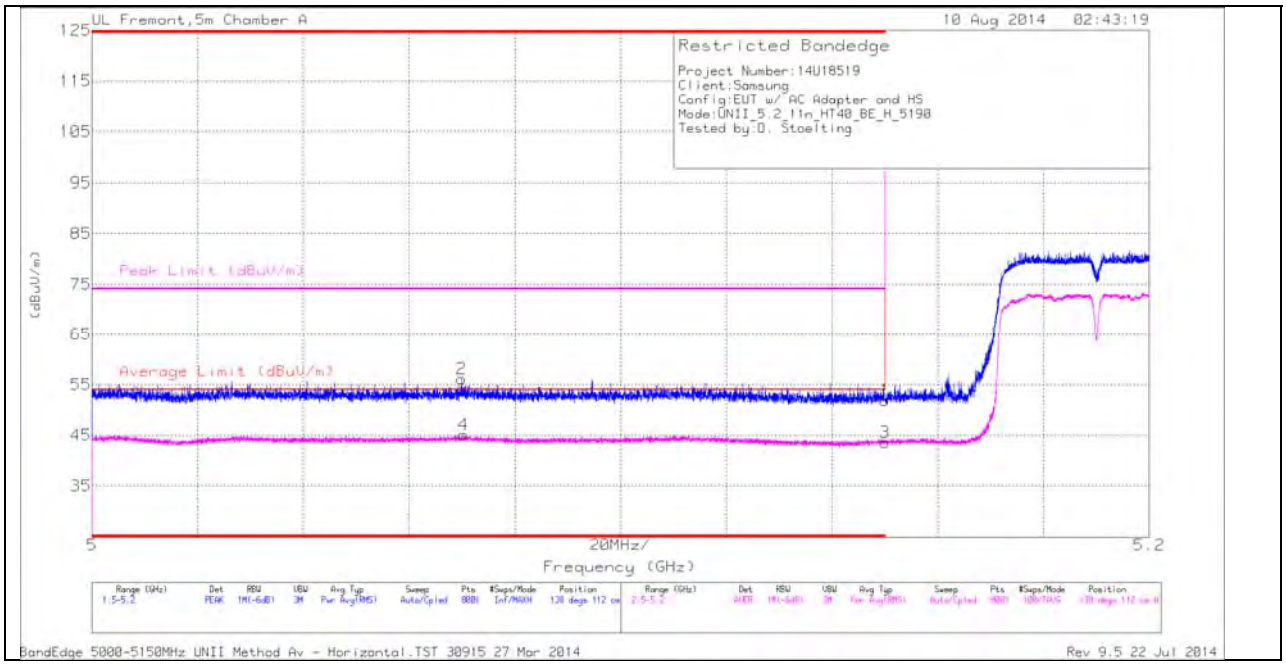
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

11.1.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

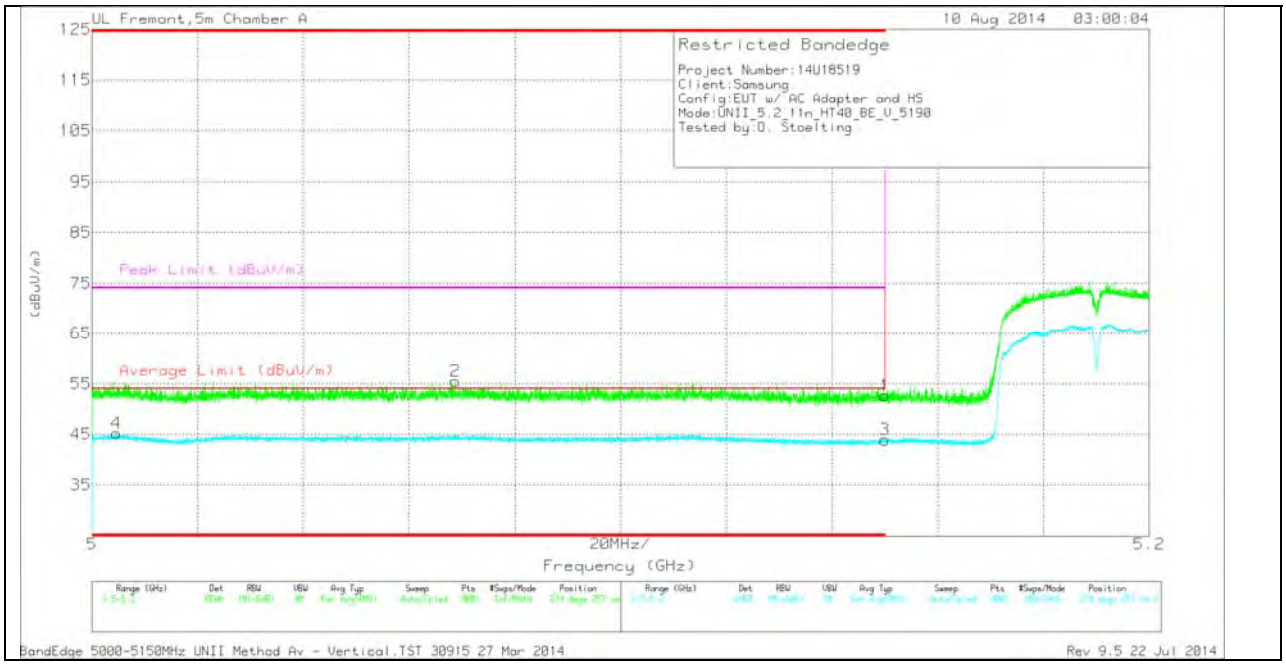


HORIZONTAL DATA

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	* 5.15	38.42	PK	34	-20.5	0	51.92	-	-	74	-22.08	138	112	H
2	* 5.07	42.31	PK	33.8	-20	0	56.11	-	-	74	-17.89	138	112	H
3	* 5.15	29.45	RMS	34	-20.5	.63	43.64	54	-10.36	-	-	138	112	H
4	* 5.07	30.59	RMS	33.8	-20	.63	45.08	54	-8.92	-	-	138	112	H

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

VERTICAL PEAK AND AVERAGE PLOT



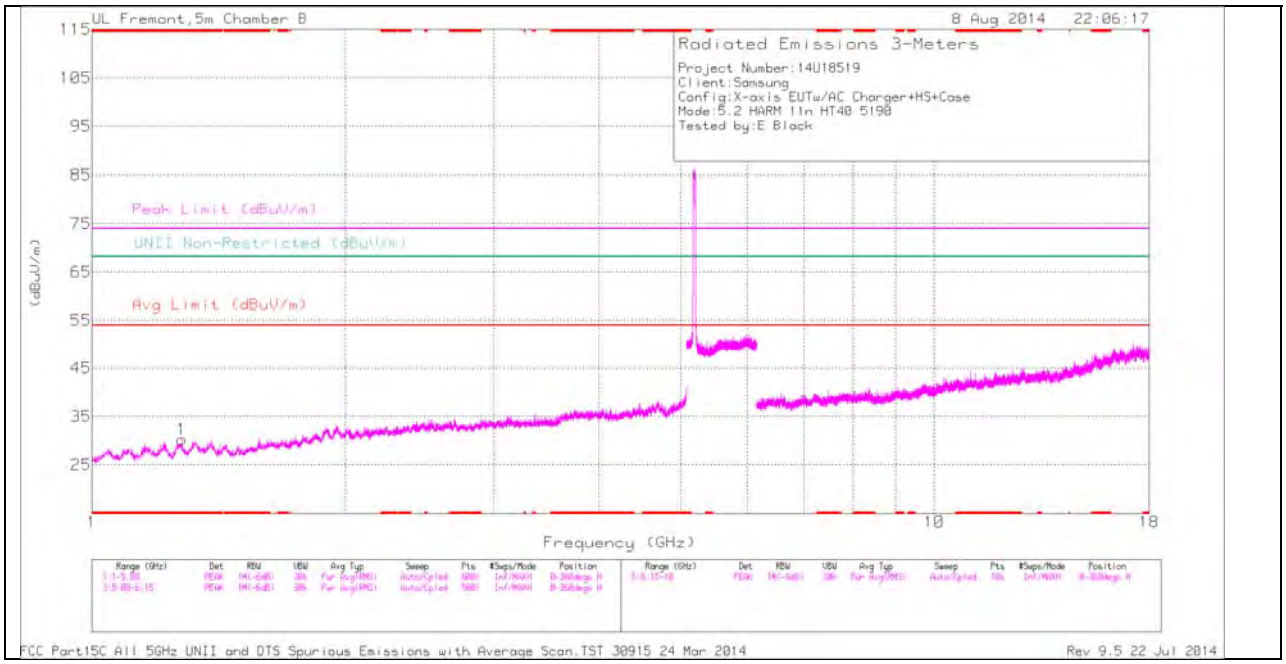
VERTICAL DATA

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	* 5.15	39.1	PK	34	-20.5	0	52.6	-	-	74	-21.4	274	257	V
2	* 5.069	41.65	PK	33.8	-20	0	55.45	-	-	74	-18.55	274	257	V
3	* 5.15	29.71	RMS	34	-20.5	.63	43.9	54	-10.1	-	-	274	257	V
4	* 5.005	30.29	RMS	33.9	-19.7	.63	45.18	54	-8.82	-	-	274	257	V

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

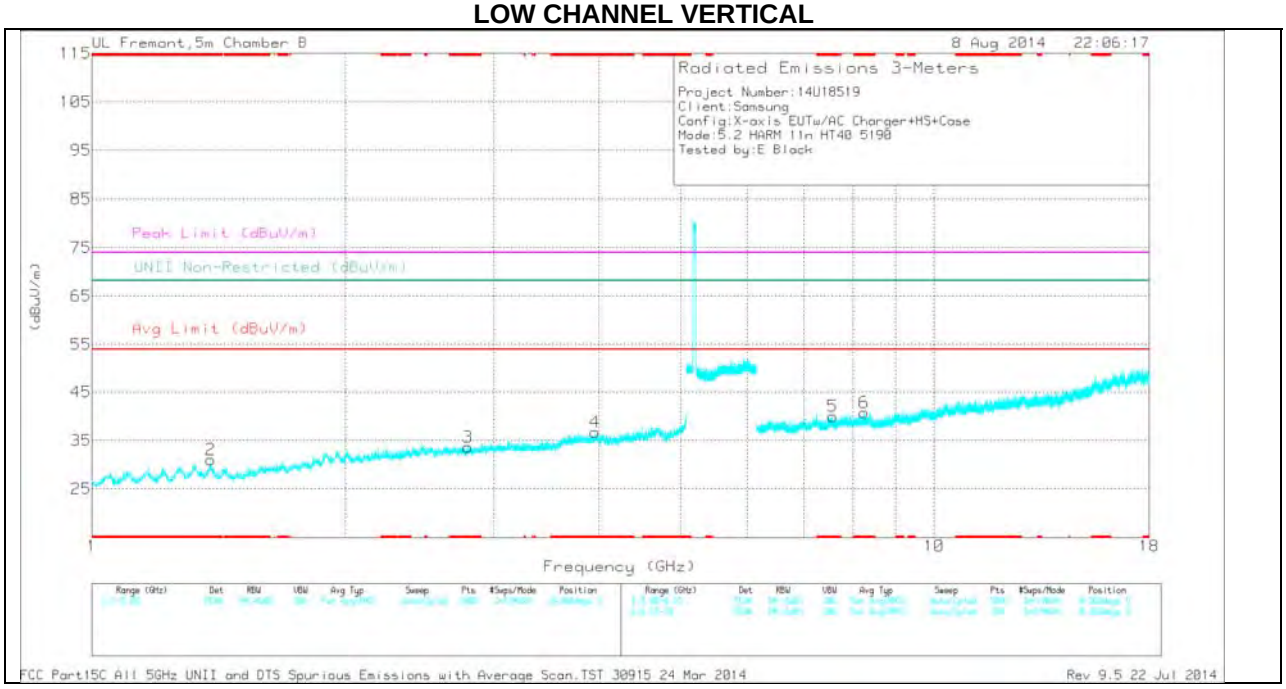


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 40GHz; 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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.277	35.62	PK	28.7	-34.1	30.22	-	-	74	-43.78	-	-	0-360	100	H
2	* 1.384	35.87	PK	28.6	-33.5	30.97	-	-	74	-43.03	-	-	0-360	200	V
3	* 2.796	33.67	PK	32.3	-32.3	33.67	-	-	74	-40.33	-	-	0-360	200	V
4	* 3.957	33.19	PK	33.7	-30.2	36.69	-	-	74	-37.31	-	-	0-360	200	V
5	* 7.573	29.86	PK	35.6	-25.5	39.96	-	-	74	-34.04	-	-	0-360	200	V
6	* 8.262	30.57	PK	35.7	-25.5	40.77	-	-	74	-33.23	-	-	0-360	200	V

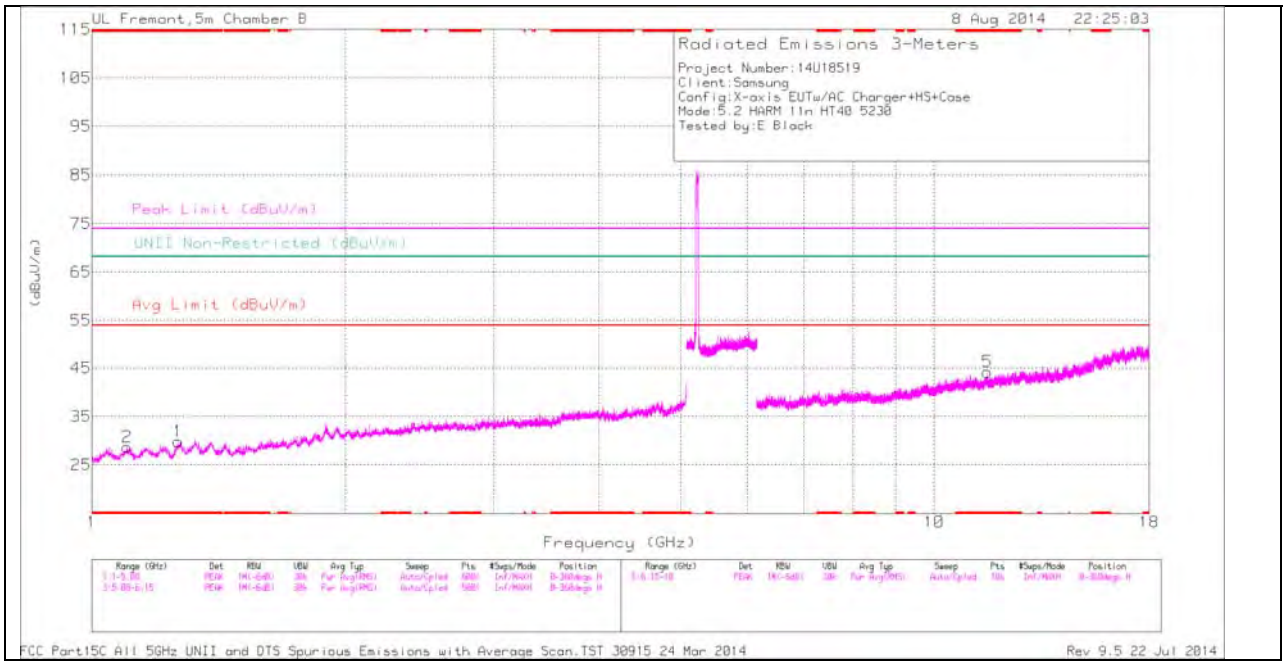
PK - Peak detector

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

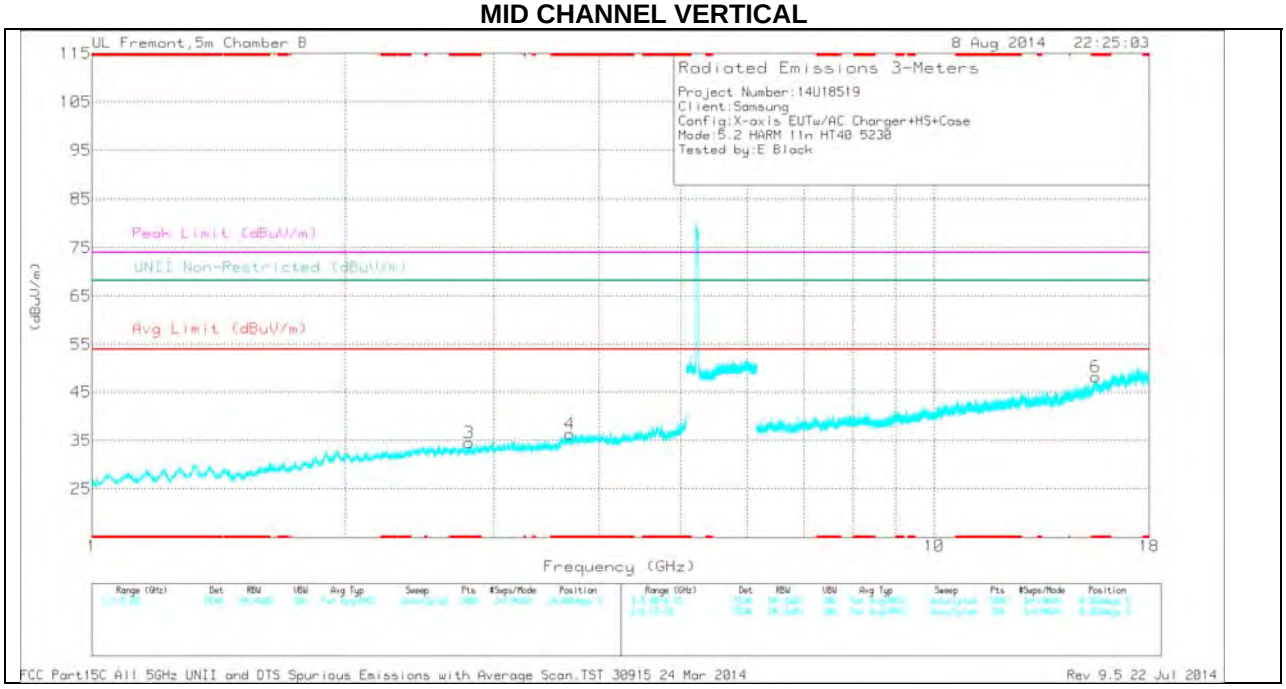
MID CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.265	35.41	PK	28.6	-34.2	29.81	-	-	74	-44.19	-	-	0-360	200	H
2	* 1.101	35.43	PK	27.4	-34.1	28.73	-	-	74	-45.27	-	-	0-360	101	H
3	* 2.803	34.42	PK	32.3	-32.2	34.52	-	-	74	-39.48	-	-	0-360	101	V
4	* 3.691	34.24	PK	33.3	-31.2	36.34	-	-	74	-37.66	-	-	0-360	101	V
5	* 11.561	27.81	PK	38.1	-21.7	44.21	-	-	74	-29.79	-	-	0-360	101	H
6	* 15.543	25.98	PK	40.5	-18.3	48.18	-	-	74	-25.82	-	-	0-360	101	V

PK - Peak detector

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

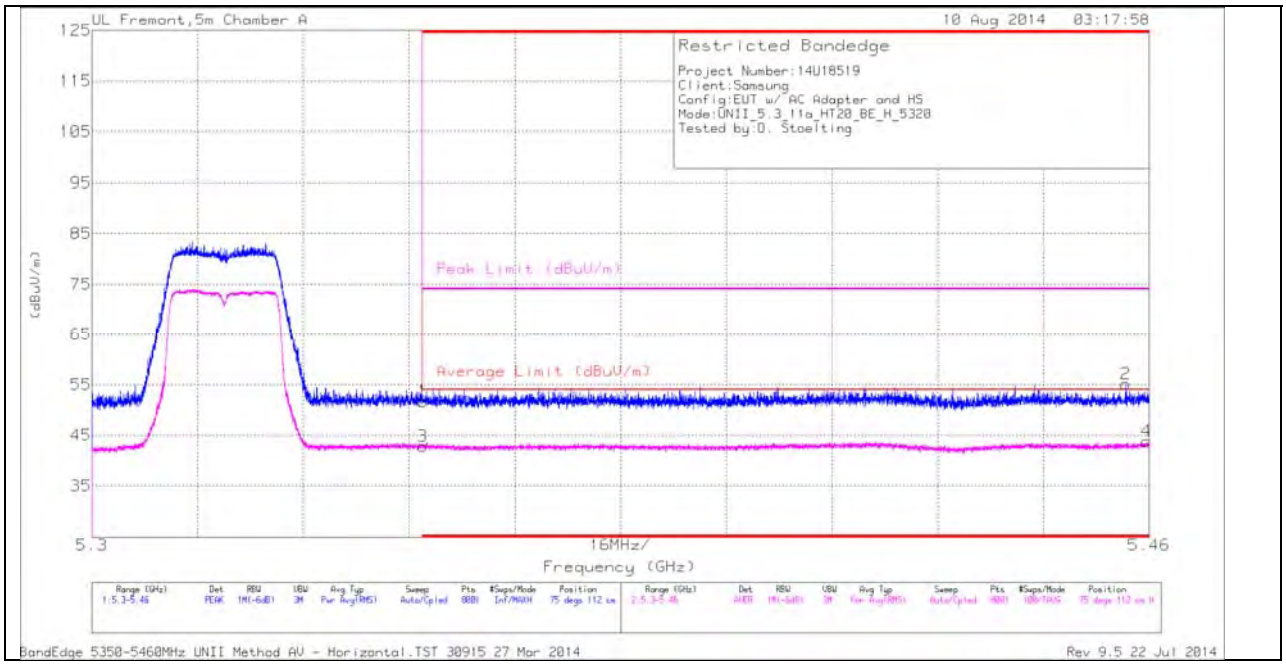
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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

11.2. 5.3 GHz

11.2.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

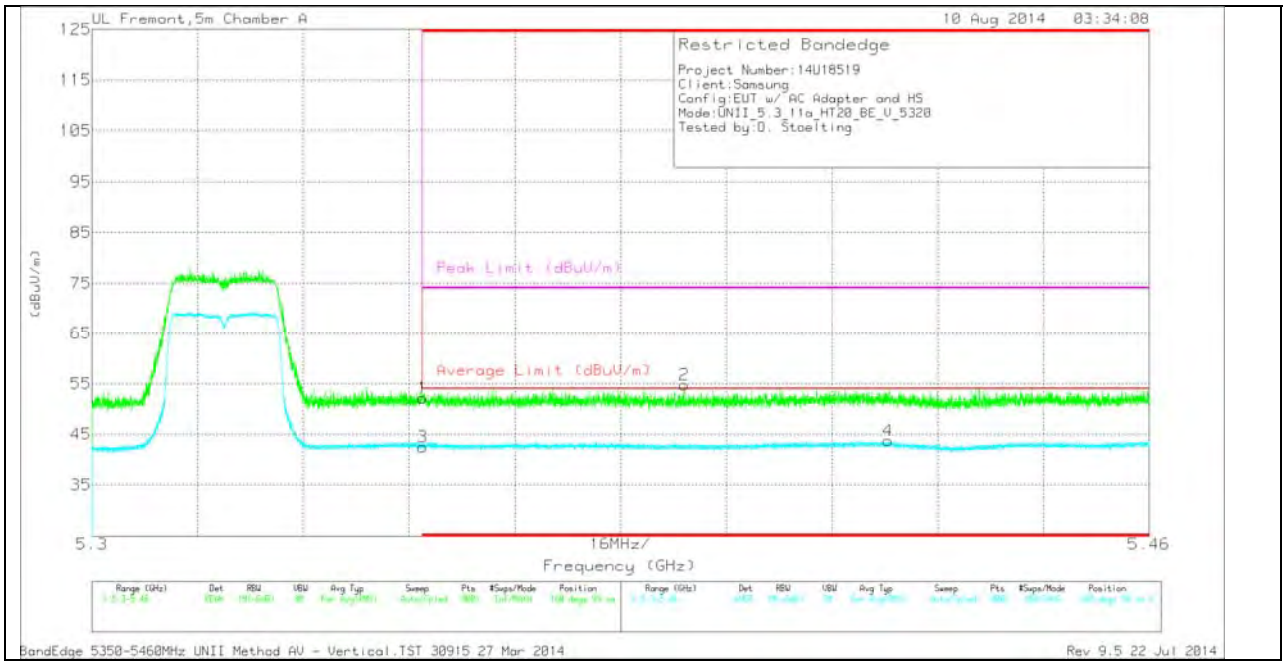


HORIZONTAL DATA

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	* 5.35	36.92	PK	34.3	-19.6	0	51.62	-	-	74	-22.38	75	112	H
2	* 5.456	40.6	PK	34.4	-19.9	0	55.1	-	-	74	-18.9	75	112	H
3	* 5.35	27.81	RMS	34.3	-19.6	.29	42.83	54	-11.17	-	-	75	112	H
4	* 5.46	28.95	RMS	34.4	-19.8	.29	43.87	54	-10.13	-	-	75	112	H

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

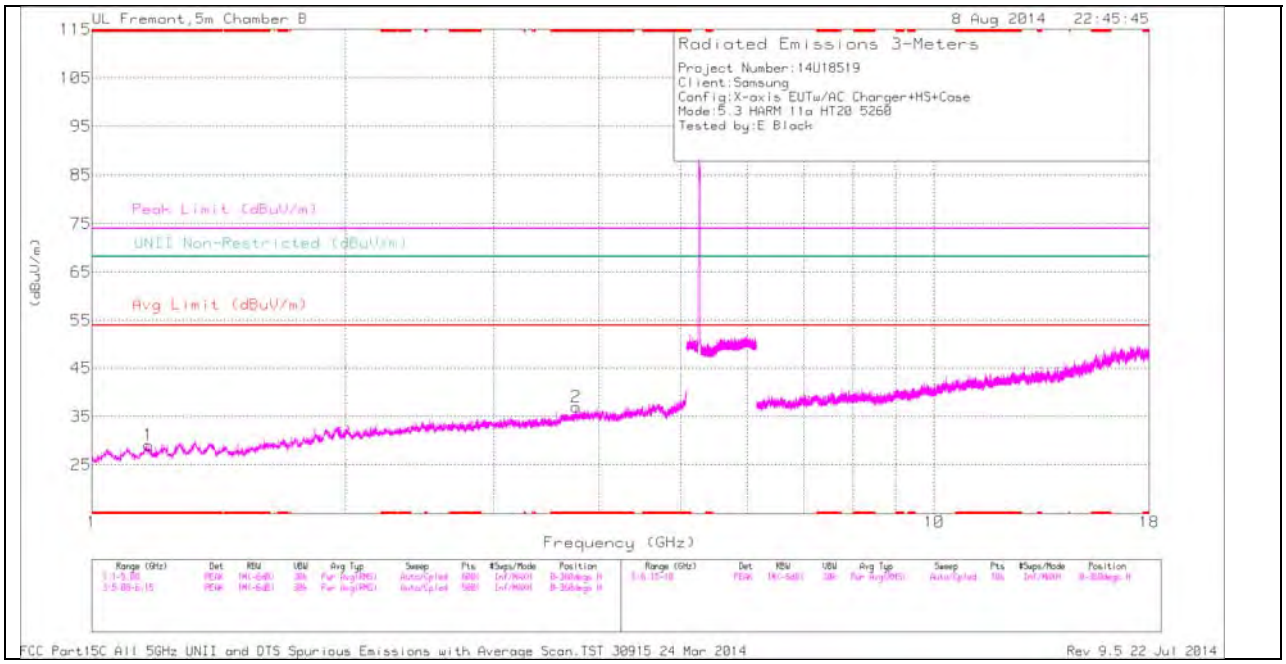
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	37.45	PK	34.3	-19.6	0	52.15	-	-	74	-21.85	160	99	V
2	* 5.39	40.36	PK	34.3	-19.9	0	54.76	-	-	74	-19.24	160	99	V
3	* 5.35	27.45	RMS	34.3	-19.6	.29	42.47	54	-11.53	-	-	160	99	V
4	* 5.42	28.62	RMS	34.4	-19.6	.29	43.74	54	-10.26	-	-	160	99	V

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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

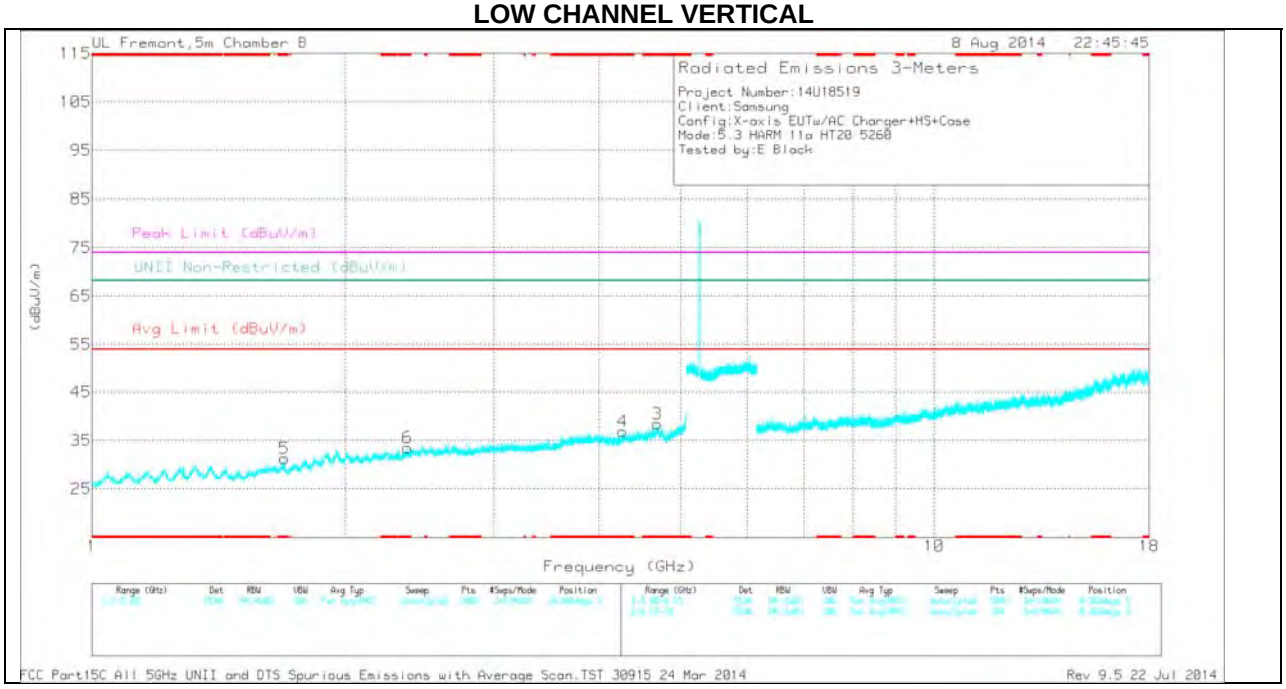


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 40GHz; 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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.167	35.54	PK	27.9	-34.3	29.14	-	-	74	-44.86	-	-	0-360	200	H
2	* 3.757	34.16	PK	33.5	-30.7	36.96	-	-	74	-37.04	-	-	0-360	200	H
3	* 4.69	33.88	PK	34.2	-29.7	38.38	-	-	74	-35.62	-	-	0-360	200	V
4	* 4.266	32.85	PK	33.6	-29.6	36.85	-	-	74	-37.15	-	-	0-360	200	V
5	* 1.693	35.23	PK	29	-33	31.23	-	-	74	-42.77	-	-	0-360	200	V
6	* 2.37	34.05	PK	32	-32.5	33.55	-	-	74	-40.45	-	-	0-360	200	V

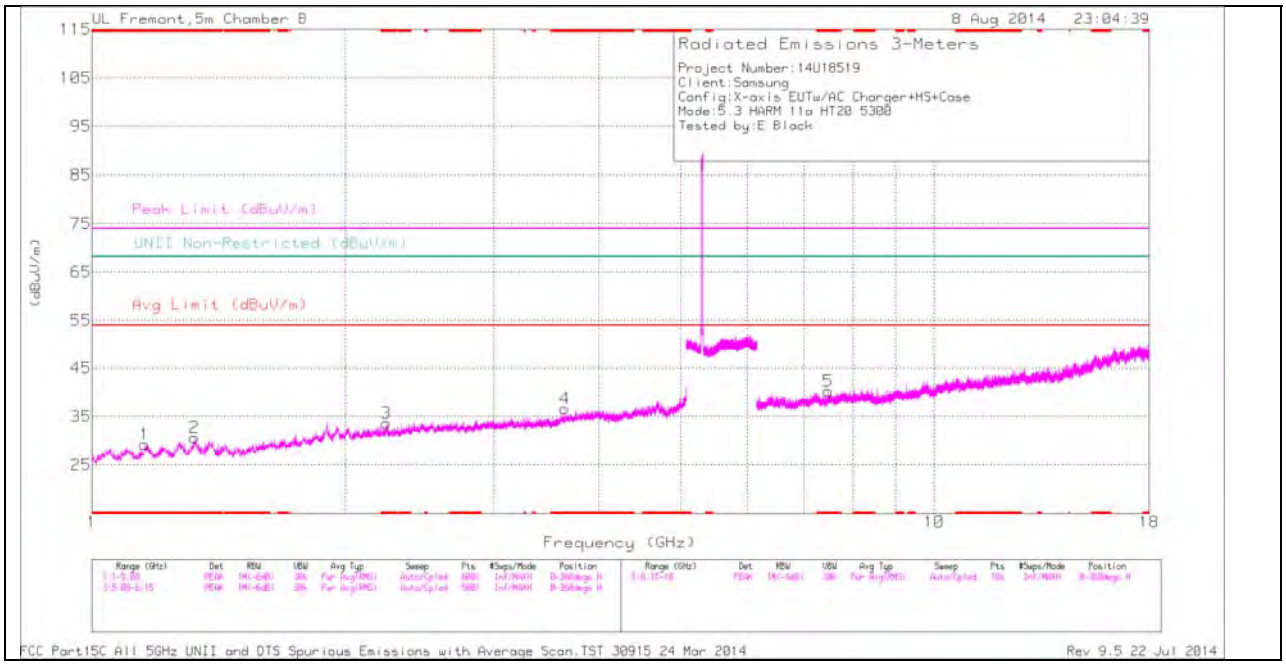
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

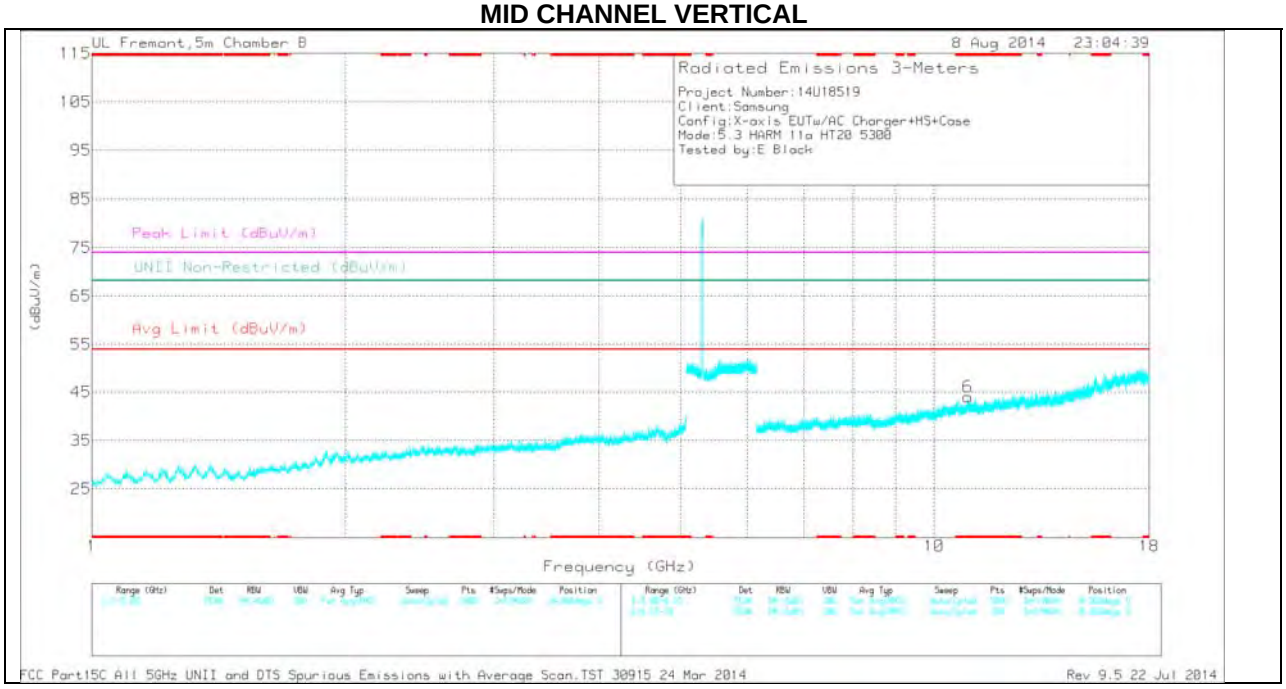
MID CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.155	35.67	PK	27.8	-34.2	29.27	-	-	74	-44.73	-	-	0-360	100	H
2	* 1.322	35.56	PK	28.8	-33.7	30.66	-	-	74	-43.34	-	-	0-360	100	H
3	* 2.237	33.99	PK	31.4	-31.8	33.59	-	-	74	-40.41	-	-	0-360	100	H
4	* 3.641	34.19	PK	33.2	-30.8	36.59	-	-	74	-37.41	-	-	0-360	100	H
5	* 7.488	30.44	PK	35.6	-25.8	40.24	-	-	74	-33.76	-	-	0-360	200	H
6	* 10.965	28.16	PK	37.8	-22	43.96	-	-	74	-30.04	-	-	0-360	101	V

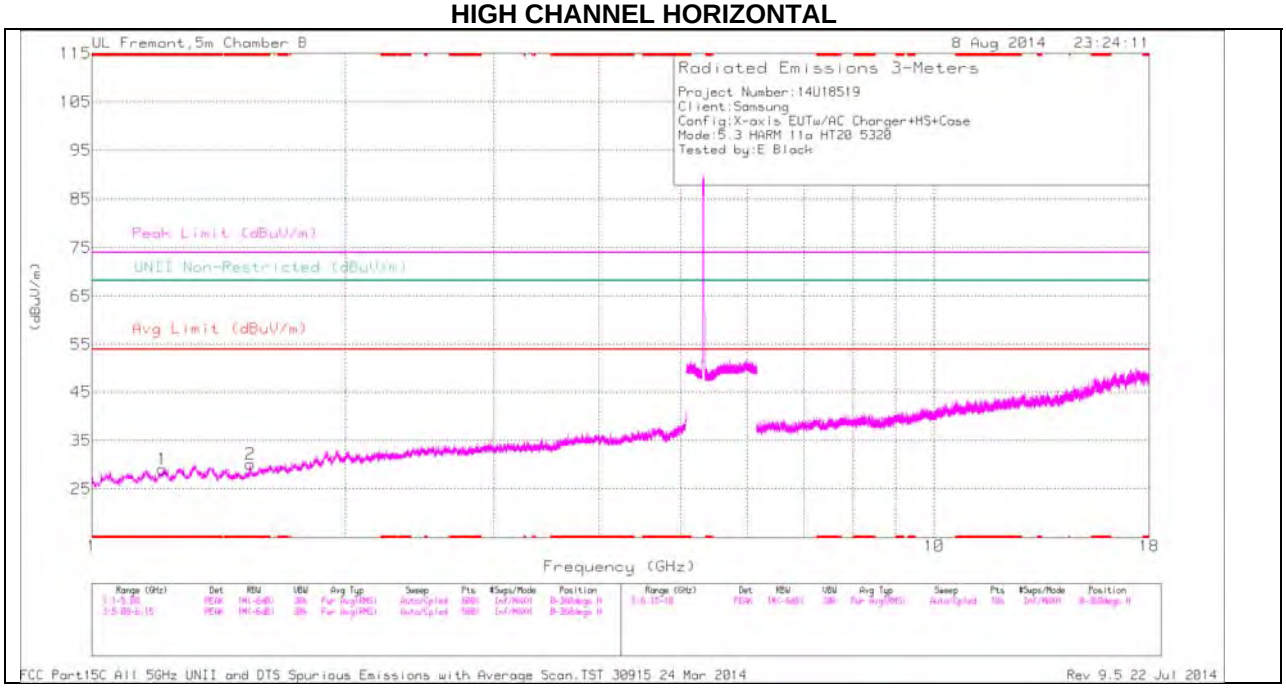
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

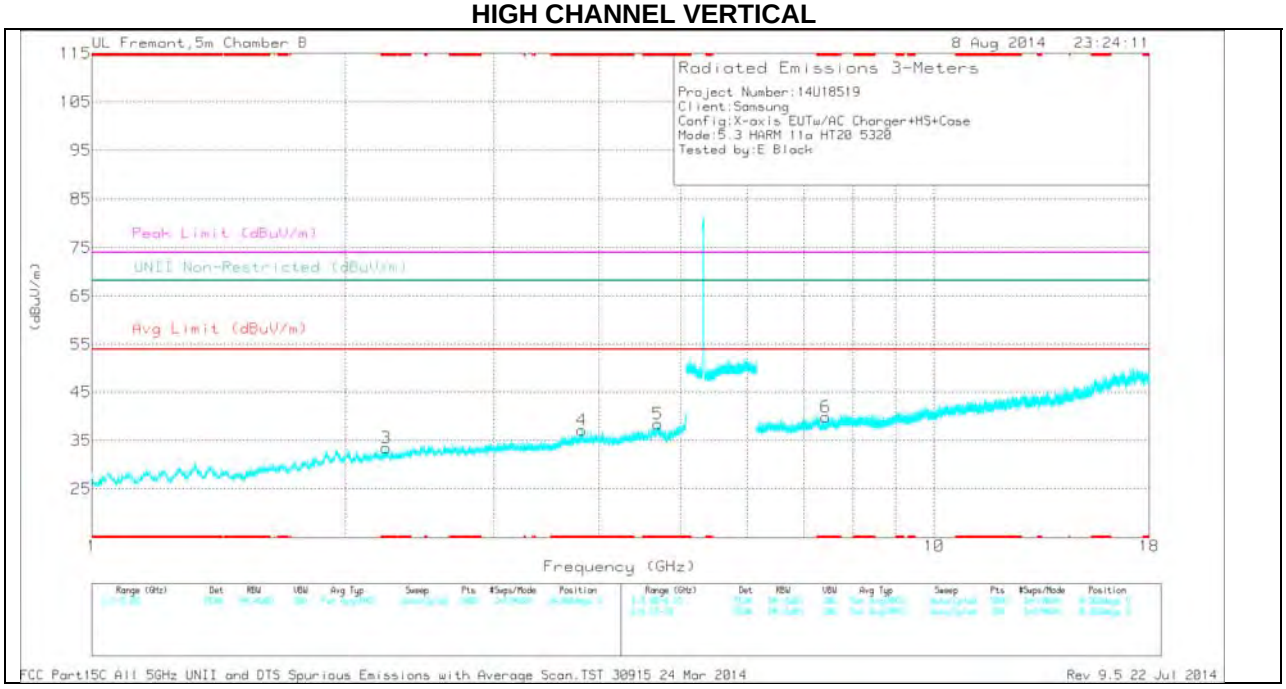
HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 VERTICAL



Note: Emission was scanned up to 40GHz; 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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.212	35.13	PK	28.3	-34.4	29.03	-	-	74	-44.97	-	-	0-360	101	H
2	* 1.543	35.6	PK	28.2	-33.7	30.1	-	-	74	-43.9	-	-	0-360	200	H
3	* 2.235	33.93	PK	31.4	-31.8	33.53	-	-	74	-40.47	-	-	0-360	101	V
4	* 3.817	34.27	PK	33.7	-30.8	37.17	-	-	74	-36.83	-	-	0-360	101	V
5	* 4.701	33.84	PK	34.2	-29.6	38.44	-	-	74	-35.56	-	-	0-360	101	V
6	* 7.436	30.61	PK	35.6	-26.4	39.81	-	-	74	-34.19	-	-	0-360	199	V

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

PK - Peak detector

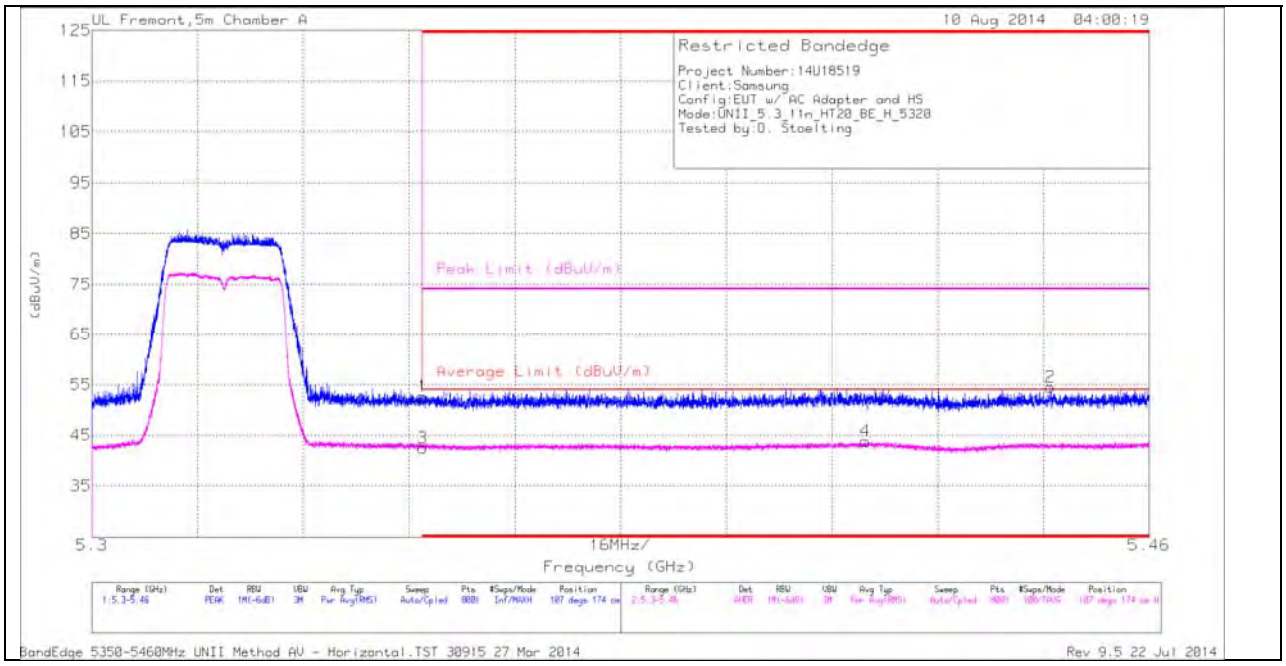
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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

11.2.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

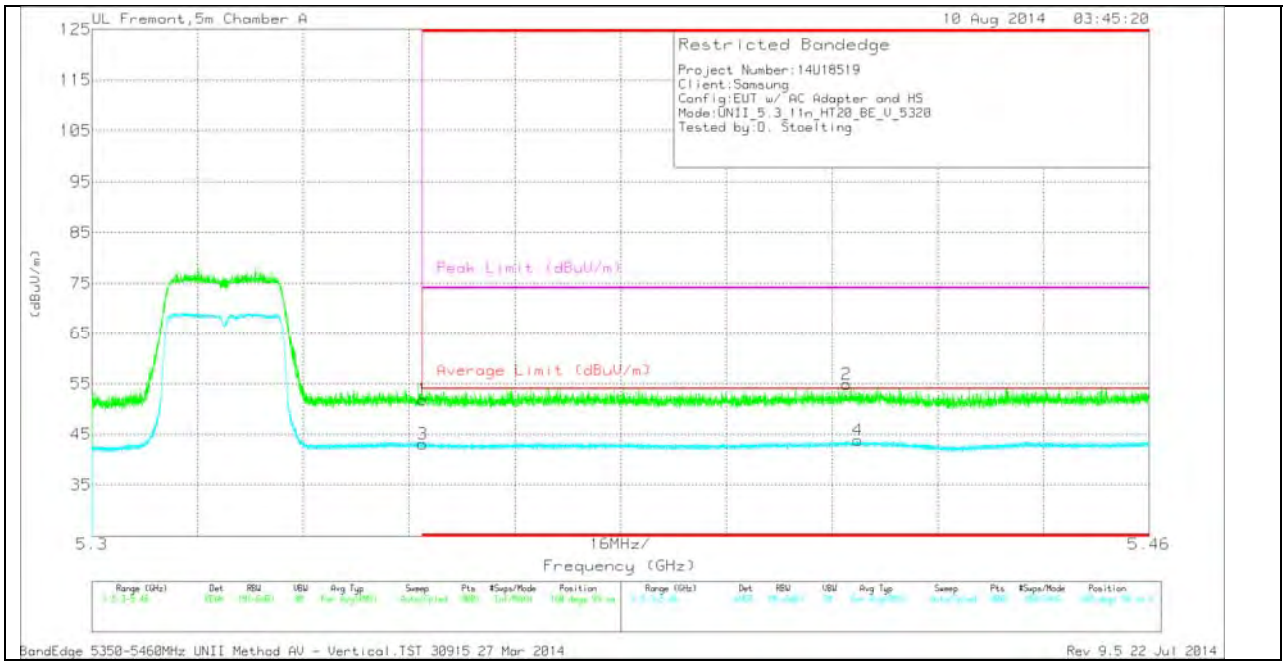


HORIZONTAL DATA

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	* 5.35	37.98	PK	34.3	-19.6	0	52.68	-	-	74	-21.32	107	174	H
3	* 5.35	27.46	RMS	34.3	-19.6	.32	42.51	54	-11.49	-	-	107	174	H
4	* 5.417	28.64	RMS	34.4	-19.6	.32	43.79	54	-10.21	-	-	107	174	H
2	* 5.445	39.98	PK	34.4	-19.9	0	54.48	-	-	74	-19.52	107	174	H

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

VERTICAL PEAK AND AVERAGE PLOT



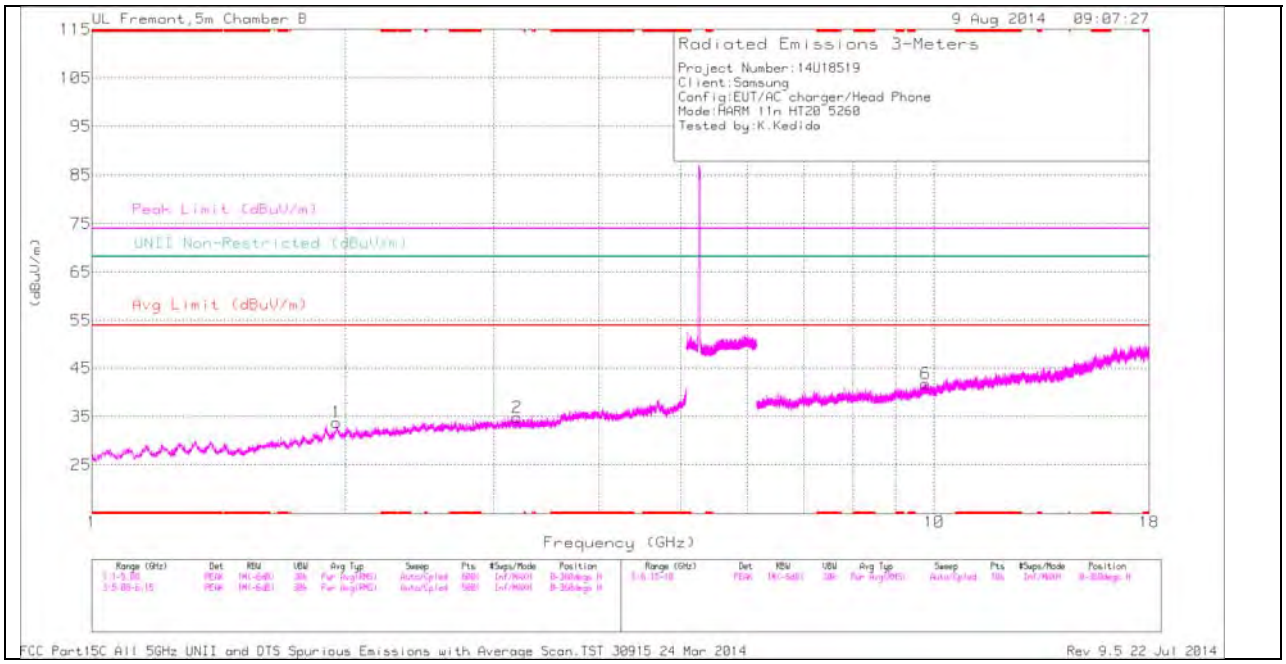
VERTICAL DATA

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	* 5.35	37.14	PK	34.3	-19.6	0	51.84	-	-	74	-22.16	160	99	V
3	* 5.35	28	RMS	34.3	-19.6	.32	43.05	54	-10.95	-	-	160	99	V
2	* 5.414	40.09	PK	34.4	-19.6	0	54.89	-	-	74	-19.11	160	99	V
4	* 5.416	28.72	RMS	34.4	-19.6	.32	43.87	54	-10.13	-	-	160	99	V

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

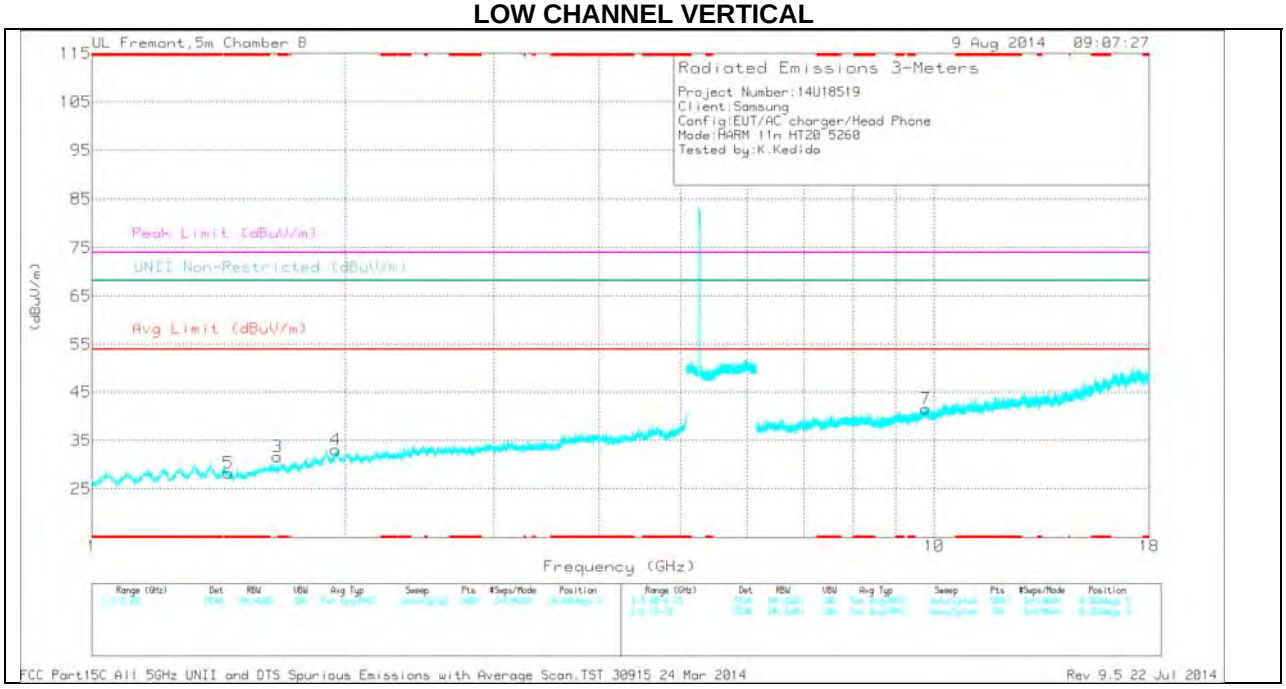


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 40GHz; 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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.167	35.54	PK	27.9	-34.3	29.14	-	-	74	-44.86	-	-	0-360	200	H
2	* 3.757	34.16	PK	33.5	-30.7	36.96	-	-	74	-37.04	-	-	0-360	200	H
3	* 4.69	33.88	PK	34.2	-29.7	38.38	-	-	74	-35.62	-	-	0-360	200	V
4	* 4.266	32.85	PK	33.6	-29.6	36.85	-	-	74	-37.15	-	-	0-360	200	V
5	* 1.693	35.23	PK	29	-33	31.23	-	-	74	-42.77	-	-	0-360	200	V
6	* 2.37	34.05	PK	32	-32.5	33.55	-	-	74	-40.45	-	-	0-360	200	V

PK - Peak detector

RADIATED EMISSIONS

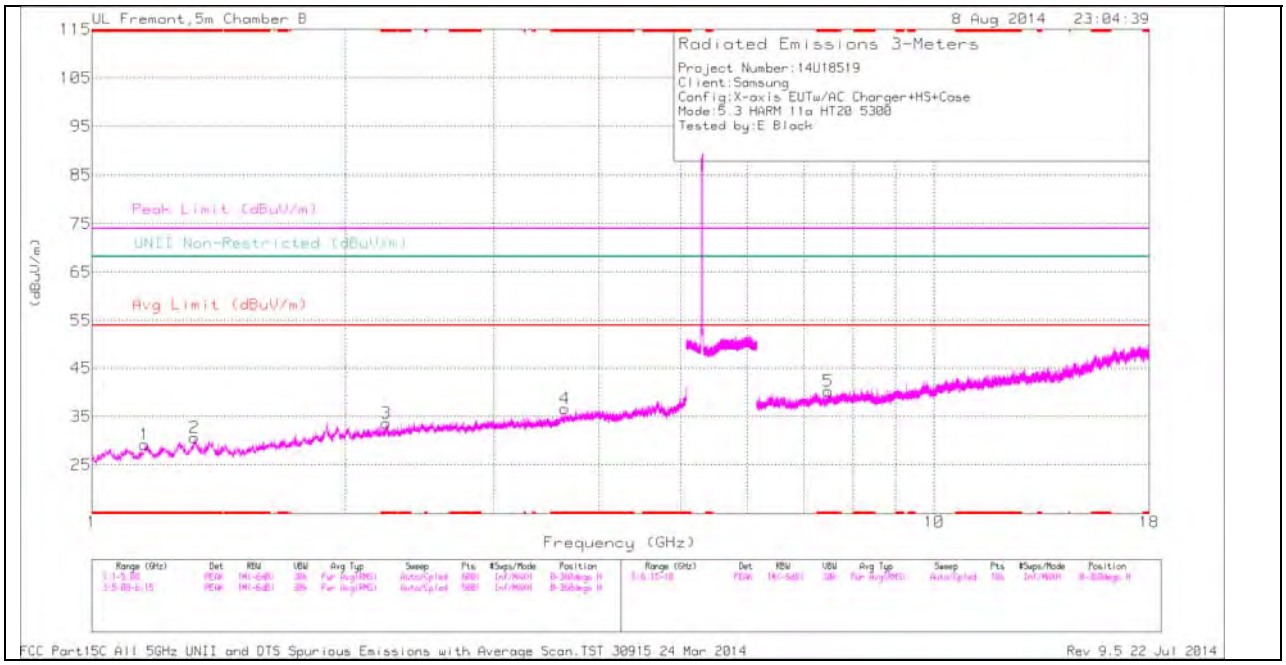
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.662	25.84	PK1	28.8	-32.7	21.94	54	-32.06	-	-	-	-	360	200	V
* 1.662	27.61	PK1	28.8	-32.7	23.71	54	-30.29	-	-	-	-	360	102	V
9.769	20.14	PK1	36.9	-23	34.04	-	-	-	-	-	-	360	198	H
9.769	18.76	PK1	36.9	-23	32.66	-	-	-	-	-	-	360	103	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

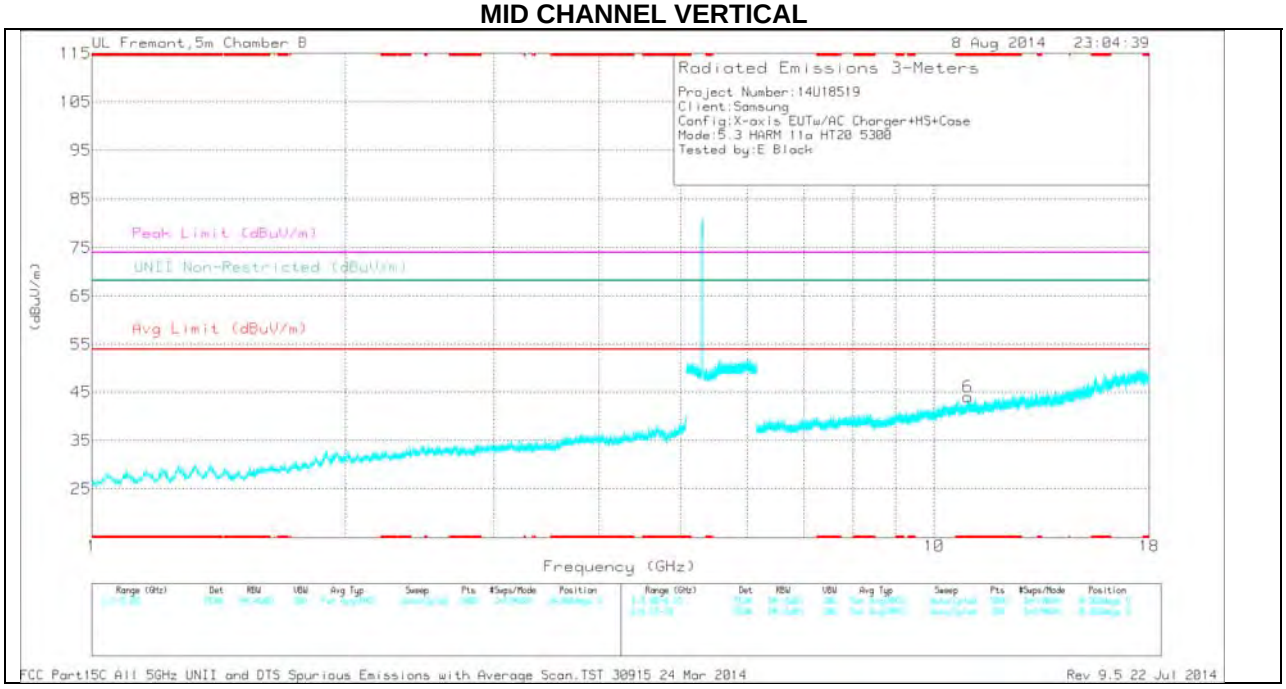
MID CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.155	35.67	PK	27.8	-34.2	29.27	-	-	74	-44.73	-	-	0-360	100	H
2	* 1.322	35.56	PK	28.8	-33.7	30.66	-	-	74	-43.34	-	-	0-360	100	H
3	* 2.237	33.99	PK	31.4	-31.8	33.59	-	-	74	-40.41	-	-	0-360	100	H
4	* 3.641	34.19	PK	33.2	-30.8	36.59	-	-	74	-37.41	-	-	0-360	100	H
5	* 7.488	30.44	PK	35.6	-25.8	40.24	-	-	74	-33.76	-	-	0-360	200	H
6	* 10.965	28.16	PK	37.8	-22	43.96	-	-	74	-30.04	-	-	0-360	101	V

PK - Peak detector

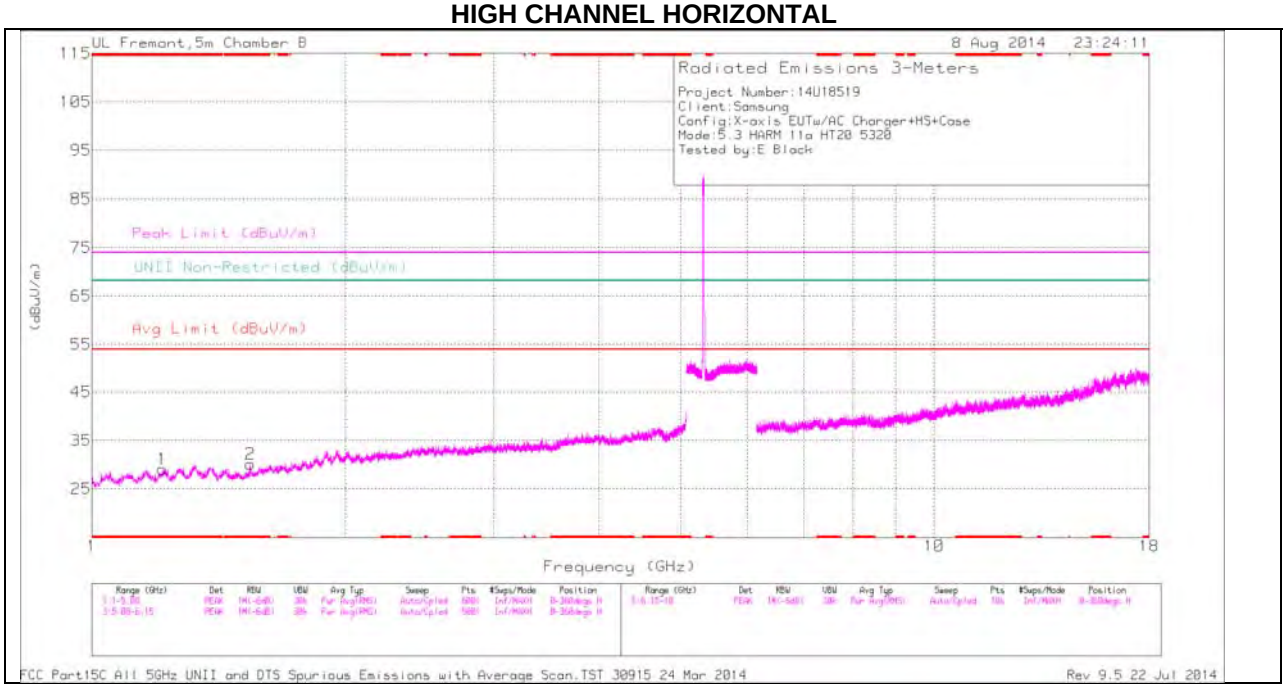
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.815	40.76	PK1	33.7	-30.8	0	43.66	-	-	74	-30.34	-	-	359	200	H
* 4.318	40.02	PK1	33.7	-29.7	0	44.02	-	-	74	-29.98	-	-	359	200	V
9.759	35.87	PK1	36.9	-23.2	0	49.57	-	-	-	-	68.2	-18.63	359	200	V
9.765	35.71	PK1	36.9	-23.1	0	49.51	-	-	-	-	68.2	-18.69	359	200	H

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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

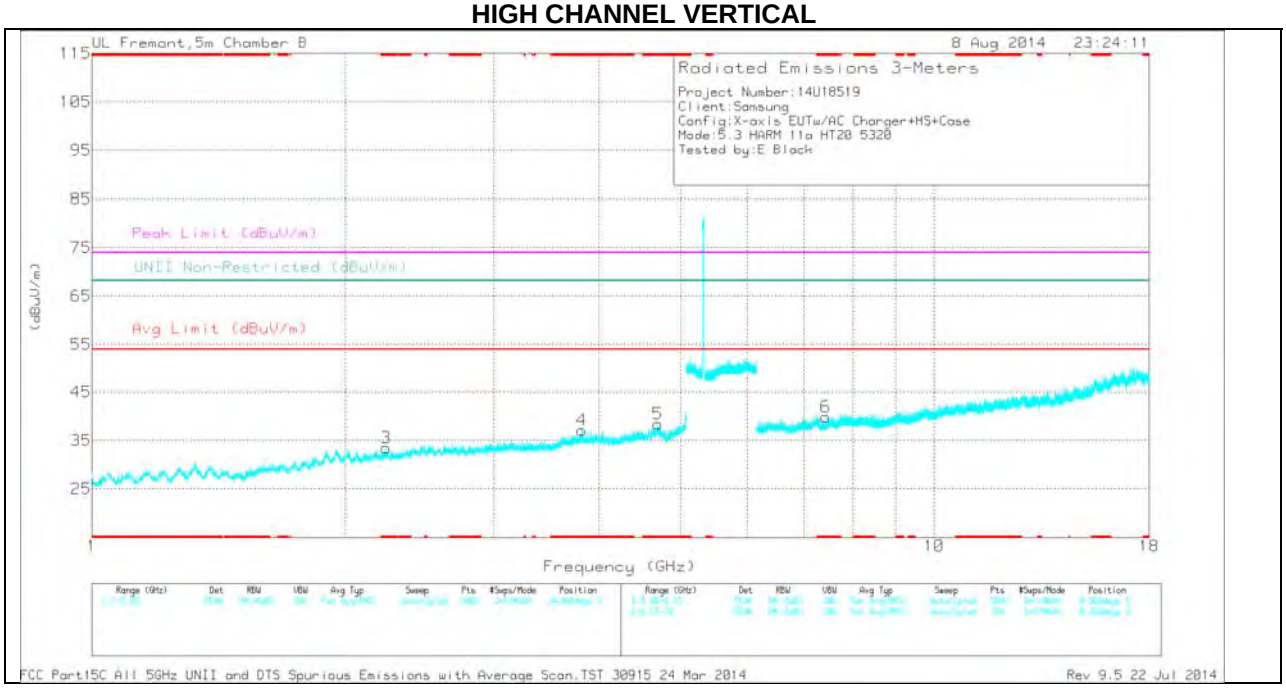
HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 VERTICAL



Note: Emission was scanned up to 40GHz; 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 T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.212	35.13	PK	28.3	-34.4	29.03	-	-	74	-44.97	-	-	0-360	101	H
2	* 1.543	35.6	PK	28.2	-33.7	30.1	-	-	74	-43.9	-	-	0-360	200	H
3	* 2.235	33.93	PK	31.4	-31.8	33.53	-	-	74	-40.47	-	-	0-360	101	V
4	* 3.817	34.27	PK	33.7	-30.8	37.17	-	-	74	-36.83	-	-	0-360	101	V
5	* 4.701	33.84	PK	34.2	-29.6	38.44	-	-	74	-35.56	-	-	0-360	101	V
6	* 7.436	30.61	PK	35.6	-26.4	39.81	-	-	74	-34.19	-	-	0-360	199	V

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.697	41.2	PK1	32.2	-31.3	0	42.1	-	-	74	-31.9	-	-	360	199	H
* 3.725	40.61	PK1	33.4	-31	0	43.01	-	-	74	-30.99	-	-	360	107	V
9.766	35.67	PK1	36.9	-23.1	0	49.47	-	-	-	-	68.2	-18.73	360	199	V
9.775	35.7	PK1	36.9	-23.1	0	49.5	-	-	-	-	68.2	-18.7	360	199	H

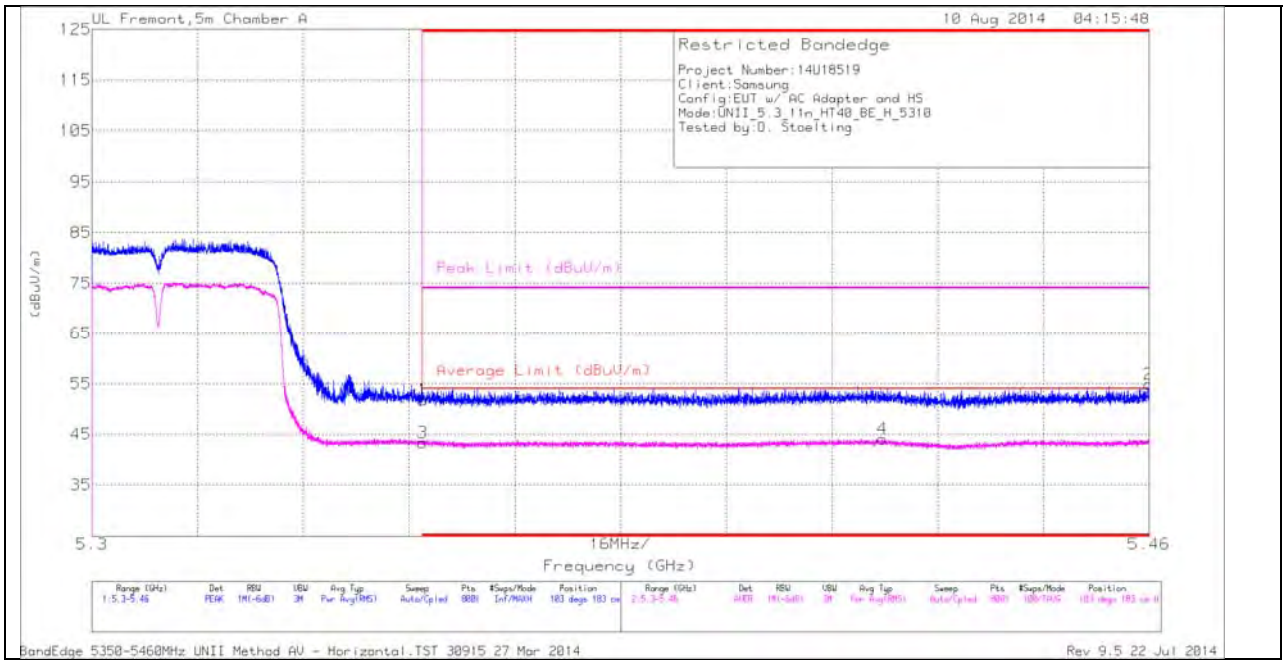
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

11.2.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.3 GHz BAND AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

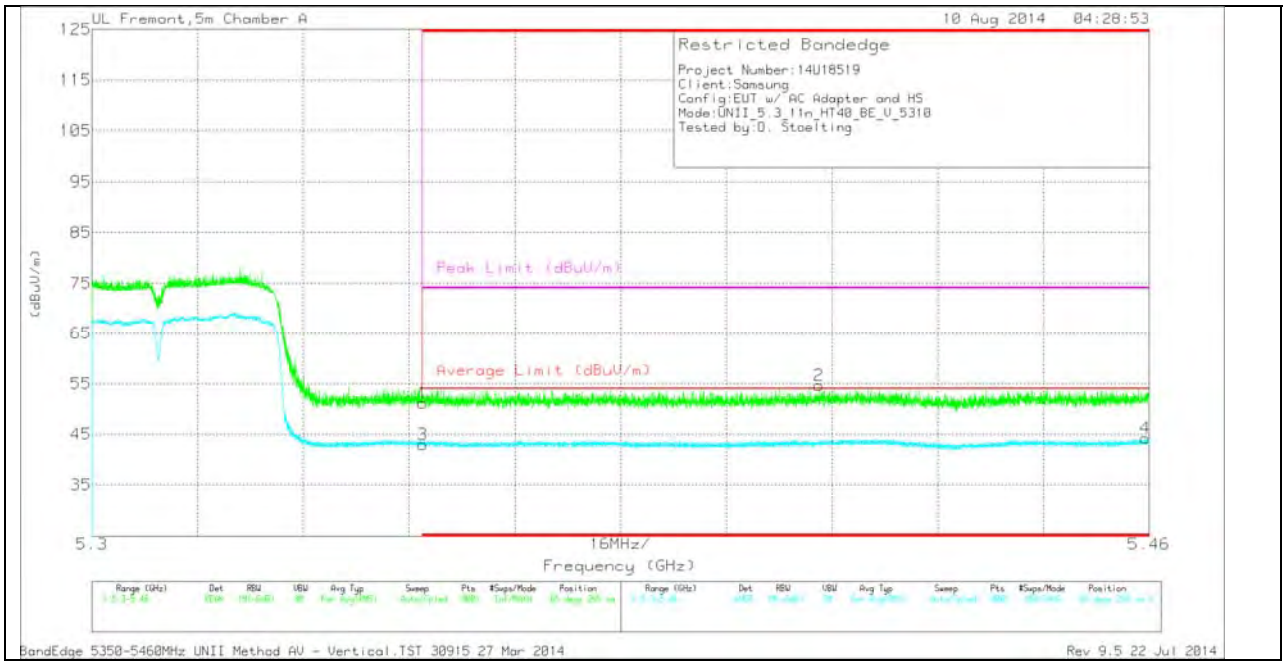


HORIZONTAL DATA

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	* 5.35	37.09	PK	34.3	-19.6	0	51.79	-	-	74	-22.21	103	183	H
3	* 5.35	28	RMS	34.3	-19.6	.63	43.39	54	-10.61	-	-	103	183	H
4	* 5.42	28.54	RMS	34.4	-19.5	.63	44.13	54	-9.87	-	-	103	183	H
2	* 5.46	40.26	PK	34.4	-19.8	0	54.86	-	-	74	-19.14	103	183	H

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

VERTICAL PEAK AND AVERAGE PLOT



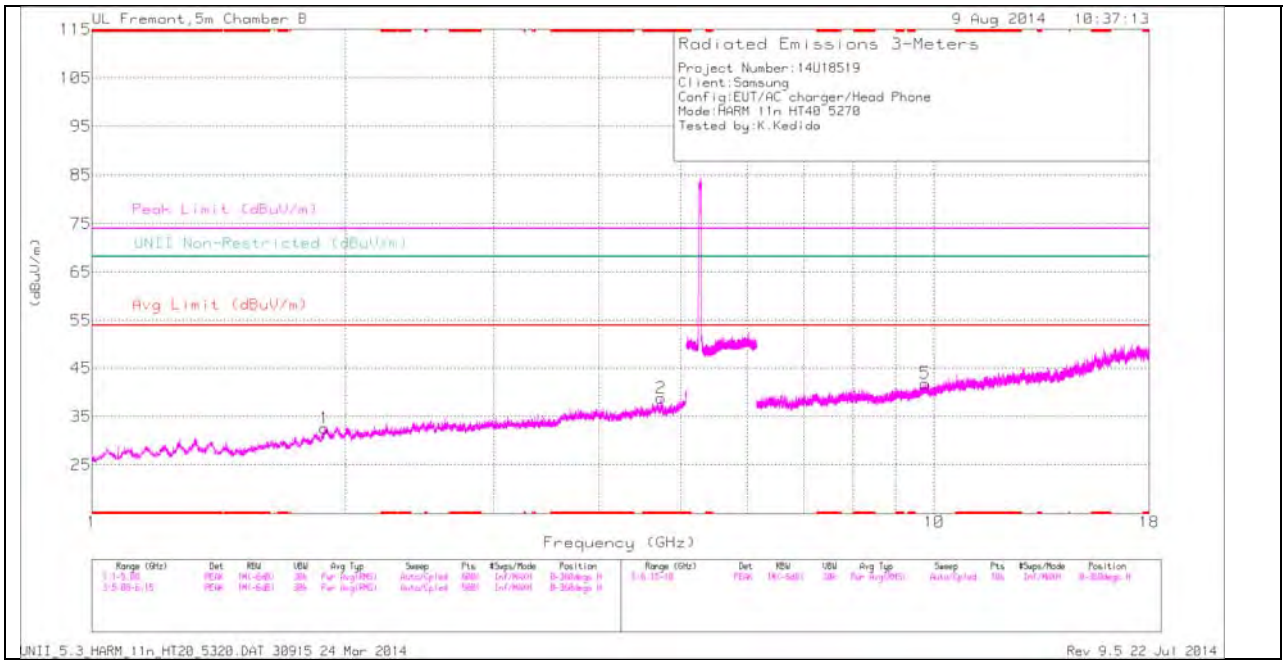
VERTICAL DATA

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	* 5.35	36.49	PK	34.3	-19.6	0	51.19	-	-	74	-22.81	65	265	V
3	* 5.35	27.52	RMS	34.3	-19.6	.63	42.91	54	-11.09	-	-	65	265	V
2	* 5.41	39.89	PK	34.4	-19.6	0	54.69	-	-	74	-19.31	65	265	V
4	* 5.459	28.94	RMS	34.4	-19.8	.63	44.23	54	-9.77	-	-	65	265	V

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

HARMONICS AND SPURIOUS EMISSIONS

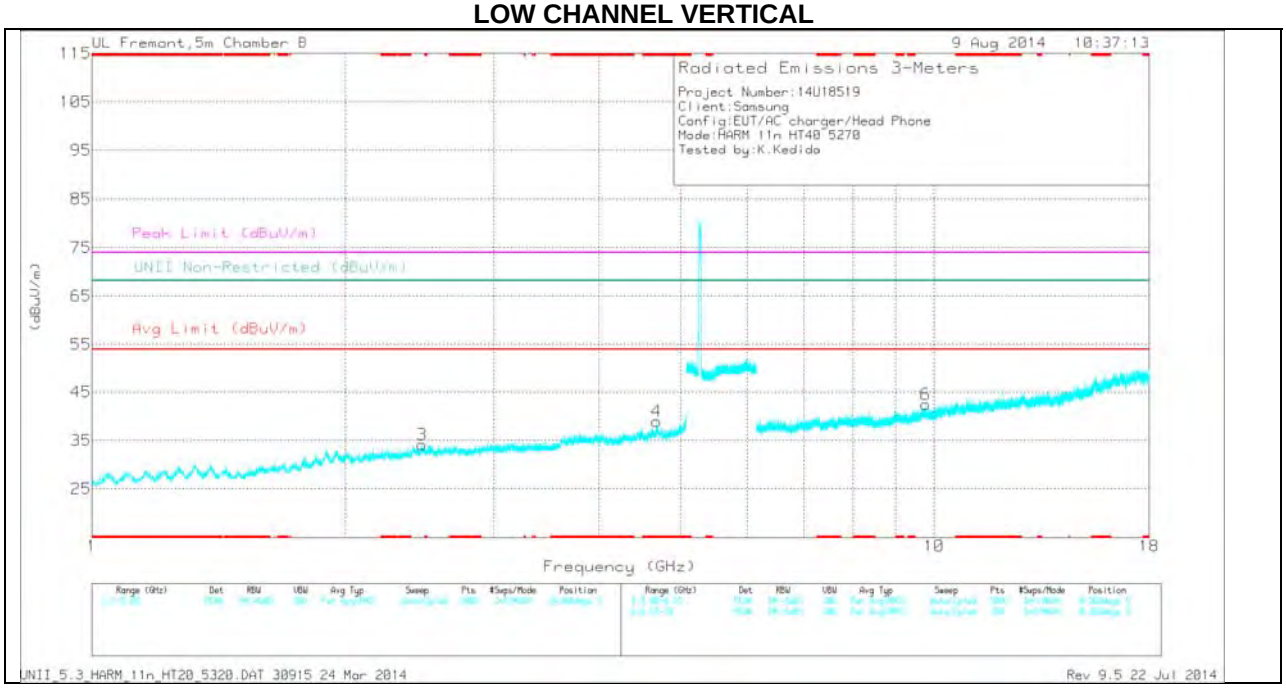
LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.74	34	PK	34.2	-29.4	0	38.8	-	-	74	-35.2	-	-	0-360	101	H
4	* 4.679	34.29	PK	34.2	-29.5	0	38.99	-	-	74	-35.01	-	-	0-360	200	V
1	1.889	34.08	PK	31	-32.5	0	32.58	-	-	-	-	68.2	-35.62	0-360	101	H
3	2.466	33.8	PK	32.3	-31.9	0	34.2	-	-	-	-	68.2	-34	0-360	101	V
5	9.763	28.07	PK	36.9	-23.1	0	41.87	-	-	-	-	68.2	-26.33	0-360	199	H
6	9.775	28.63	PK	36.9	-23.1	0	42.43	-	-	-	-	68.2	-25.77	0-360	199	V

PK - Peak detector

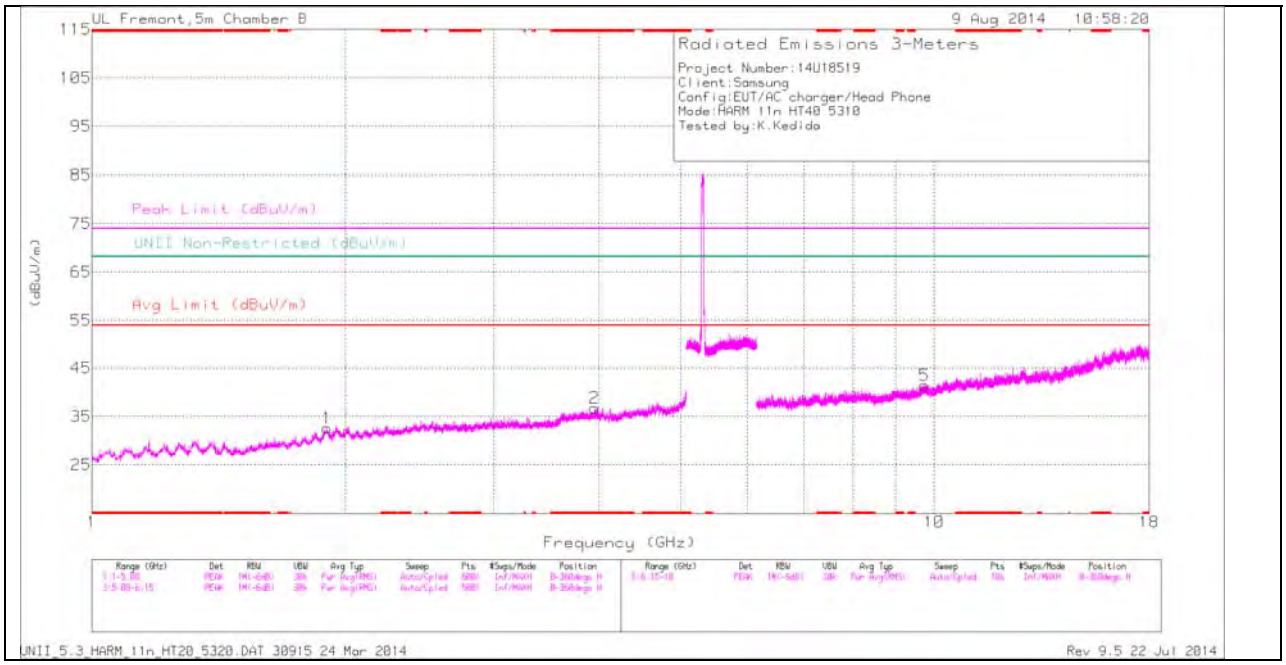
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.74	40.78	PK1	34.2	-29.5	0	45.48	-	-	74	-28.52	-	-	359	101	H
* 4.681	41.33	PK1	34.2	-29.5	0	46.03	-	-	74	-27.97	-	-	359	200	V
9.763	35.39	PK1	36.9	-23.1	0	49.19	-	-	-	-	68.2	-19.01	359	200	H
9.775	36.1	PK1	36.9	-23.1	0	49.9	-	-	-	-	68.2	-18.3	359	200	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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

HIGH CHANNEL HORIZONTAL

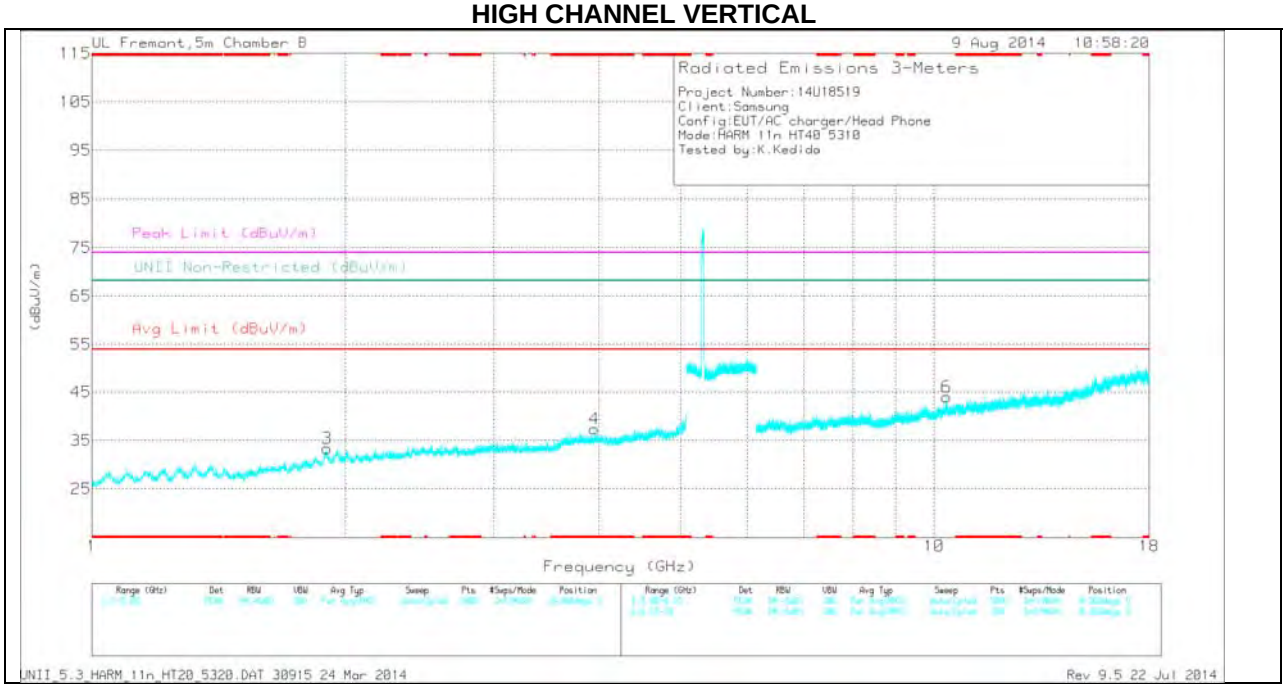


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.948	33.22	PK	33.7	-30.2	0	36.72	-	-	74	-37.28	-	-	0-360	200	H
4	* 3.948	33.9	PK	33.7	-30.2	0	37.4	-	-	74	-36.6	-	-	0-360	200	V
3	1.901	34.92	PK	31.1	-32.6	0	33.42	-	-	-	-	68.2	-34.78	0-360	200	V
1	1.903	34.04	PK	31.1	-32.6	0	32.54	-	-	-	-	68.2	-35.66	0-360	101	H
5	9.733	28	PK	36.9	-23.5	0	41.4	-	-	-	-	68.2	-26.8	0-360	199	H
6	10.348	29.41	PK	37.2	-22.6	0	44.01	-	-	-	-	68.2	-24.19	0-360	199	V

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.946	40.72	PK1	33.7	-30.3	0	44.12	-	-	74	-29.88	-	-	360	200	H
* 3.948	40.97	PK1	33.7	-30.2	0	44.47	-	-	74	-29.53	-	-	360	200	V
* 3.948	33.31	PK1	33.7	-30.2	0	36.81	-	-	74	-37.19	-	-	360	200	V
9.735	35.61	PK1	36.9	-23.5	0	49.01	-	-	-	-	68.2	-19.19	360	200	H
10.347	35.18	PK1	37.2	-22.6	0	49.78	-	-	-	-	68.2	-18.42	360	200	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

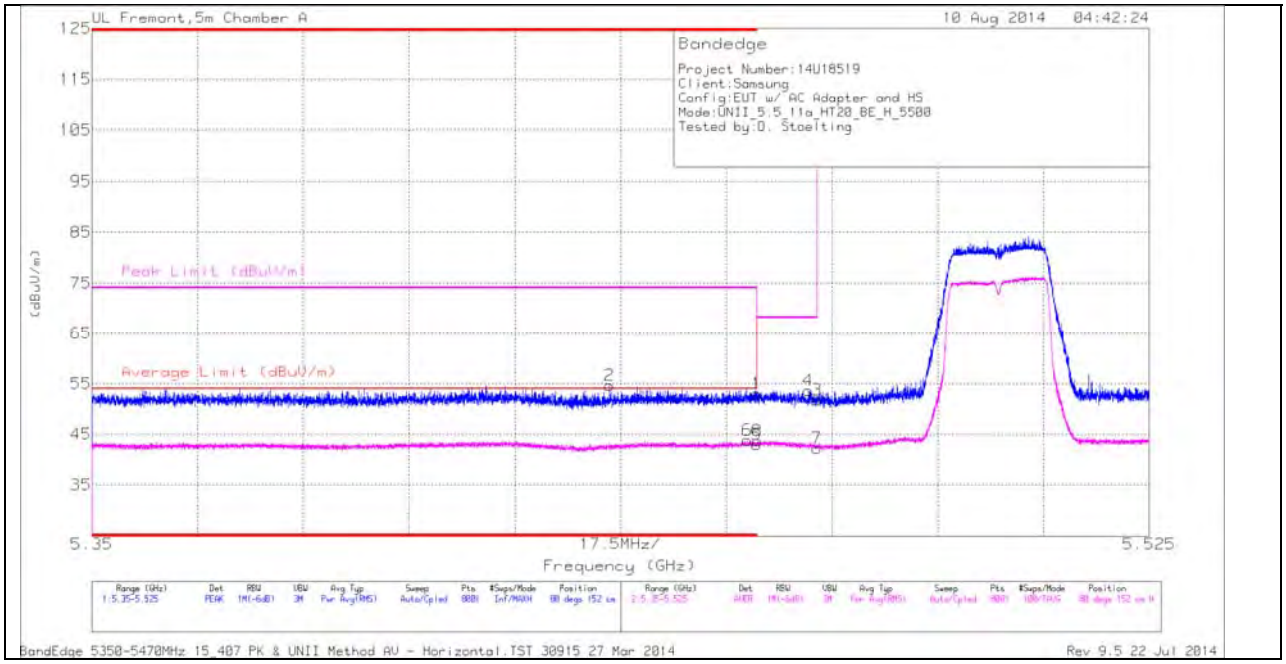
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

11.3. 5.5-5.6 GHz

11.3.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.5 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

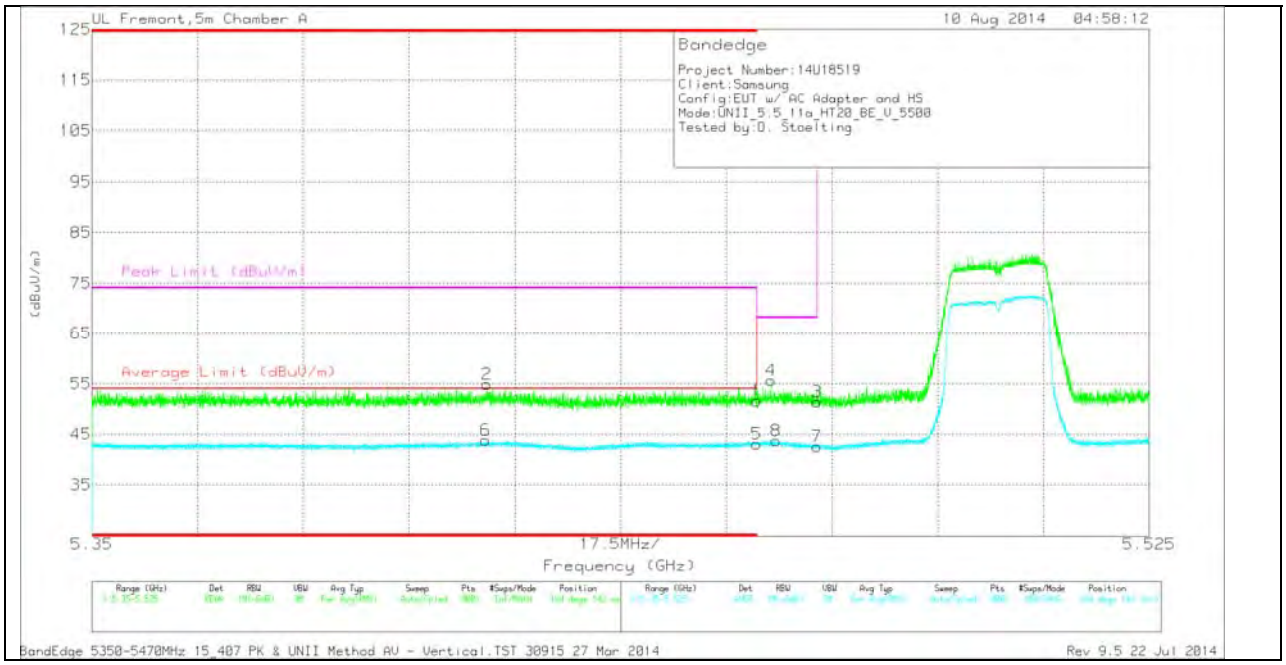


HORIZONTAL DATA

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	* 5.436	40.44	PK	34.4	-20.2	0	54.64	-	-	74	-19.36	80	152	H
6	* 5.459	28.87	RMS	34.4	-19.8	.29	43.79	54	-10.21	-	-	80	152	H
1	* 5.46	38.42	PK	34.4	-19.8	0	53.02	-	-	74	-20.98	80	152	H
5	* 5.46	28.01	RMS	34.4	-19.8	.29	42.93	54	-11.07	-	-	80	152	H
8	5.46	28.8	RMS	34.4	-19.8	.29	43.72	-	-	-	-	80	152	H
4	5.469	39.49	PK	34.4	-20.2	0	53.69	-	-	68.2	-14.51	80	152	H
3	5.47	37.72	PK	34.4	-20.3	0	51.82	-	-	68.2	-16.38	80	152	H
7	5.47	27.8	RMS	34.4	-20.3	.29	42.22	-	-	-	-	80	152	H

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

VERTICAL PEAK AND AVERAGE PLOT



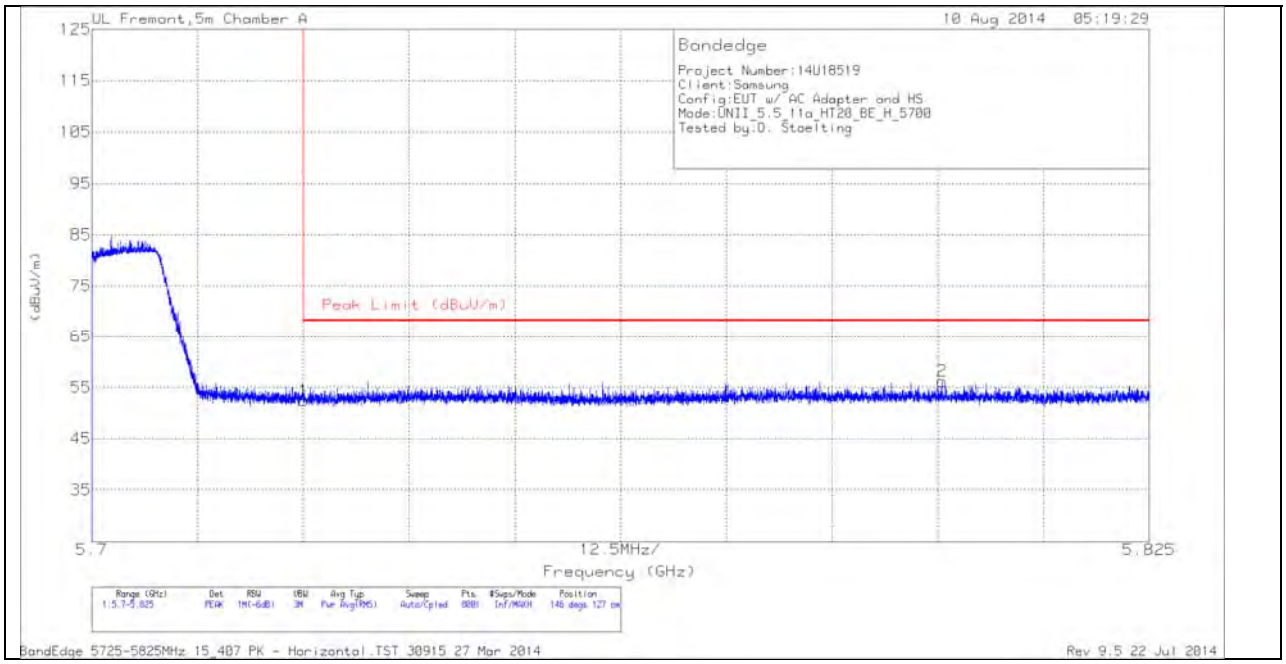
VERTICAL DATA

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
2	* 5.415	40.12	PK	34.4	-19.6	0	54.92	-	-	74	-19.08	164	142	V
6	* 5.415	28.69	RMS	34.4	-19.6	.29	43.81	54	-10.19	-	-	164	142	V
1	* 5.46	37	PK	34.4	-19.8	0	51.6	-	-	74	-22.4	164	142	V
5	* 5.46	28.14	RMS	34.4	-19.8	.29	43.06	54	-10.94	-	-	164	142	V
4	5.462	40.94	PK	34.4	-19.7	0	55.64	-	-	68.2	-12.56	164	142	V
8	5.463	28.73	RMS	34.4	-19.7	.29	43.75	-	-	-	-	164	142	V
3	5.47	37.27	PK	34.4	-20.3	0	51.37	-	-	68.2	-16.83	164	142	V
7	5.47	28.23	RMS	34.4	-20.3	.29	42.65	-	-	-	-	164	142	V

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



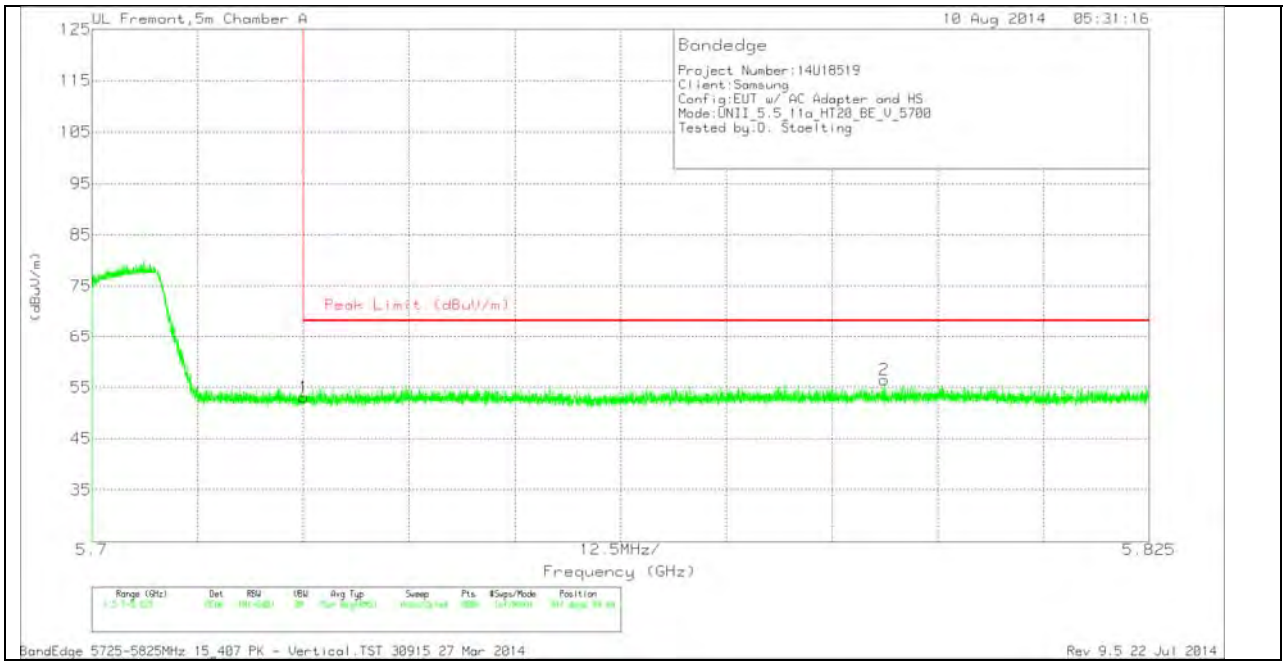
HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	37.44	PK	34.6	-19.6	0	52.44	68.2	-15.76	146	127	H
2	5.801	40.7	PK	34.8	-19.3	0	56.2	68.2	-12	146	127	H

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

VERTICAL PEAK AND AVERAGE PLOT



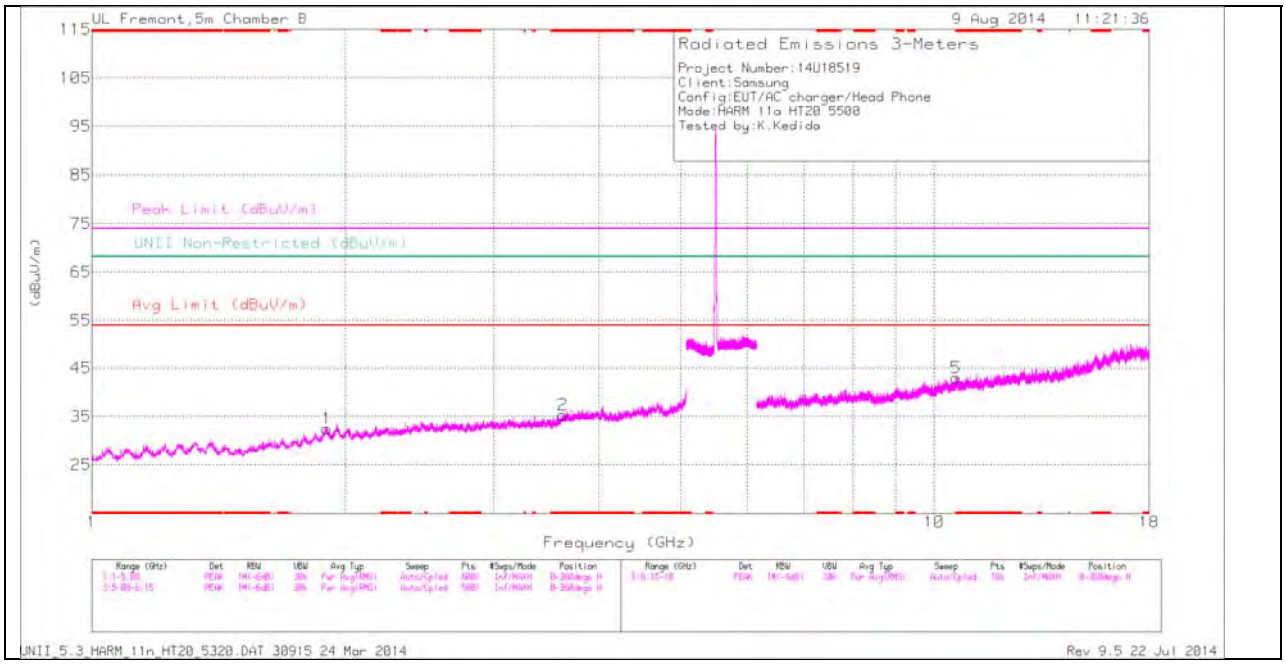
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	38.09	PK	34.6	-19.6	0	53.09	68.2	-15.11	347	99	V
2	5.794	41.08	PK	34.7	-19.3	0	56.48	68.2	-11.72	347	99	V

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

HARMONICS AND SPURIOUS EMISSIONS

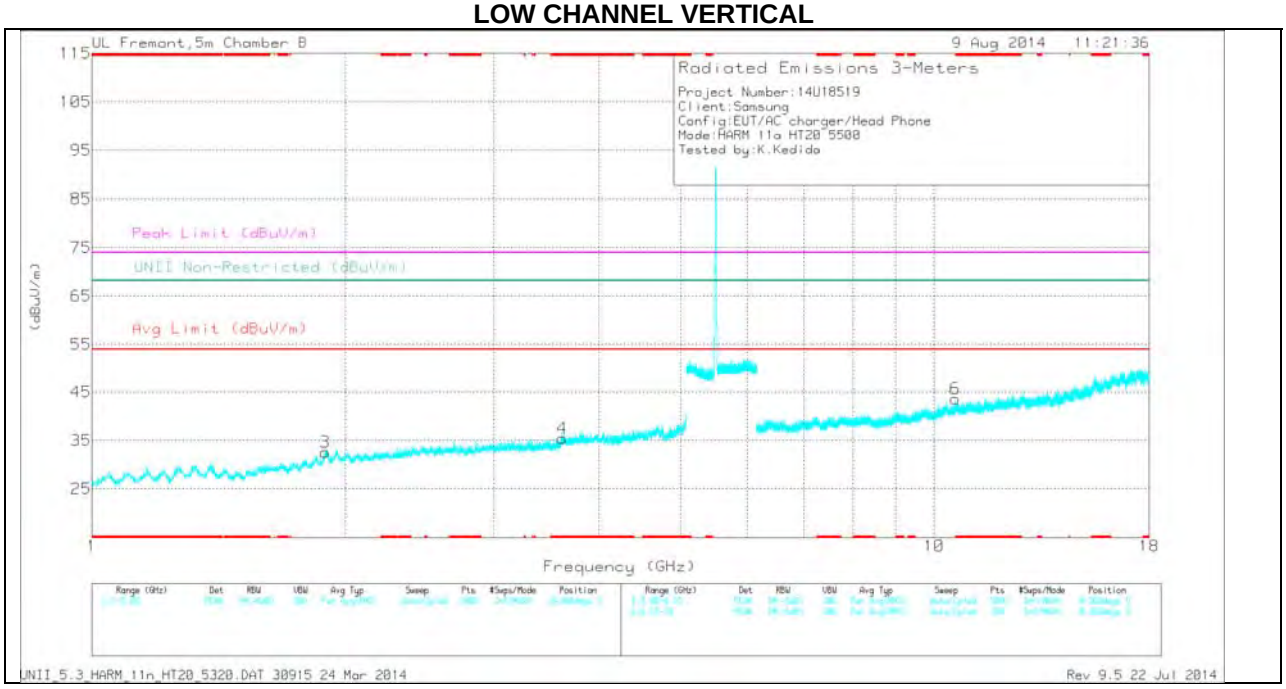
LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.624	32.85	PK	33.2	-30.7	0	35.35	-	-	74	-38.65	-	-	0-360	101	H
4	* 3.621	32.96	PK	33.2	-30.7	0	35.46	-	-	74	-38.54	-	-	0-360	200	V
5	* 10.61	27.33	PK	37.7	-22	0	43.03	-	-	74	-30.97	-	-	0-360	101	H
6	* 10.603	28.16	PK	37.7	-22.2	0	43.66	-	-	74	-30.34	-	-	0-360	200	V
3	1.893	34.19	PK	31	-32.6	0	32.59	-	-	-	-	68.2	-35.61	0-360	101	V
1	1.9	34.01	PK	31.1	-32.6	0	32.51	-	-	-	-	68.2	-35.69	0-360	200	H

PK - Peak detector

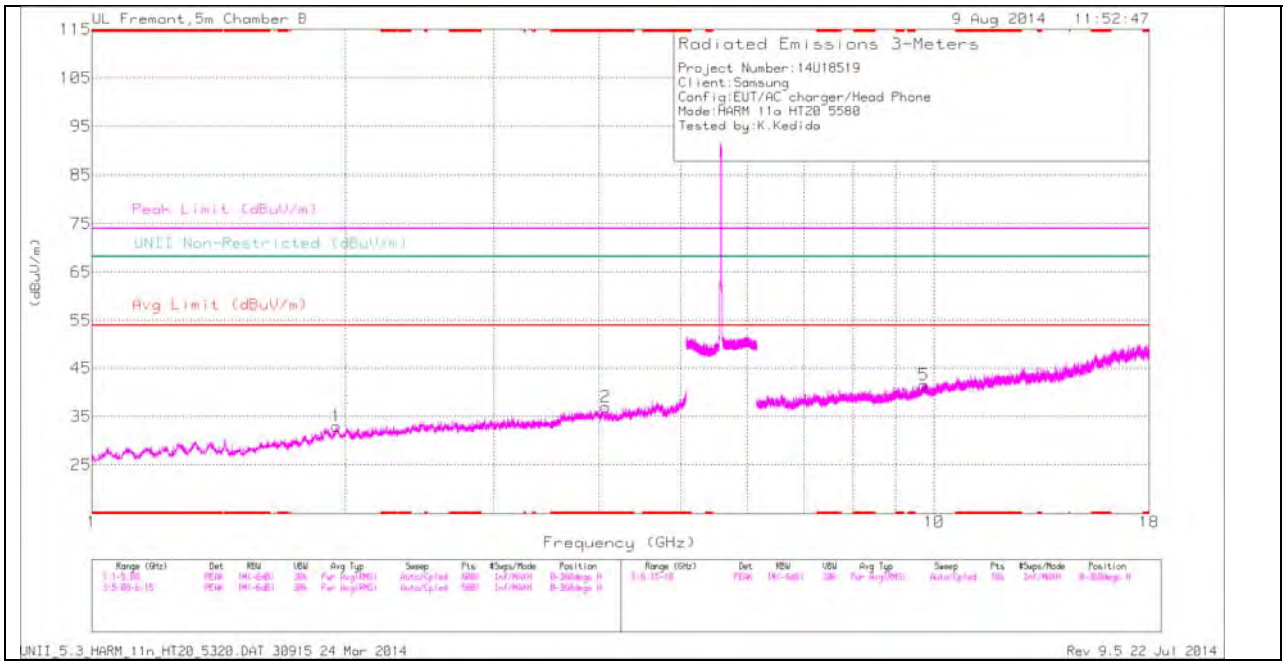
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.623	40.03	PK1	33.2	-30.7	0	42.53	-	-	74	-31.47	-	-	359	101	H
* 3.62	40.68	PK1	33.2	-30.7	0	43.18	-	-	74	-30.82	-	-	359	200	V
* 10.608	34.32	PK1	37.7	-22.1	0	49.92	-	-	74	-24.08	-	-	359	102	H
* 10.608	23.33	PK1	37.7	-22.1	0	38.93	-	-	74	-35.07	-	-	359	102	H
* 10.605	34.59	PK1	37.7	-22.2	0	50.09	-	-	74	-23.91	-	-	359	199	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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

MID CHANNEL HORIZONTAL

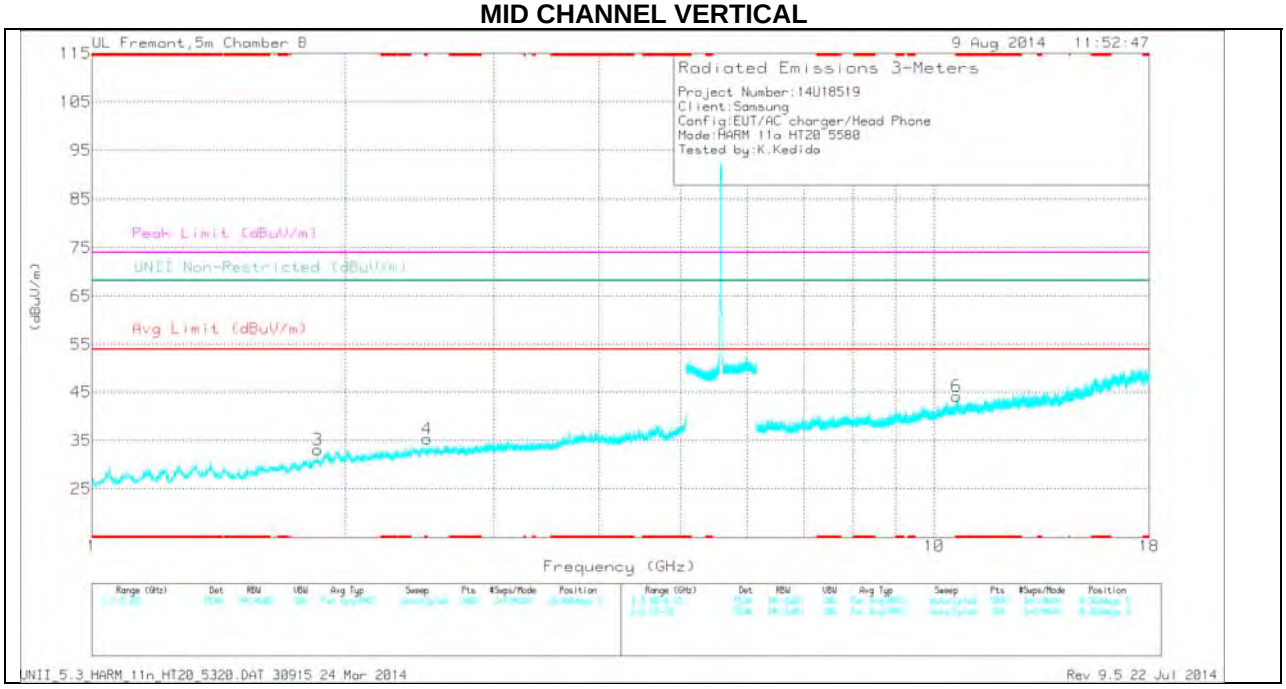


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 VERTICAL



Note: Emission was scanned up to 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.071	33.24	PK	33.6	-29.9	0	36.94	-	-	74	-37.06	-	-	0-360	101	H
6	* 10.634	28.4	PK	37.7	-21.9	0	44.2	-	-	74	-29.8	-	-	0-360	101	V
3	1.853	35.65	PK	30.6	-33.2	0	33.05	-	-	-	-	68.2	-35.15	0-360	101	V
1	1.953	34.03	PK	31.2	-32.3	0	32.93	-	-	-	-	68.2	-35.27	0-360	101	H
4	2.5	35.12	PK	32.4	-32.2	0	35.32	-	-	-	-	68.2	-32.88	0-360	101	V
5	9.727	28.11	PK	36.9	-23.5	0	41.51	-	-	-	-	68.2	-26.69	0-360	200	H

PK - Peak detector

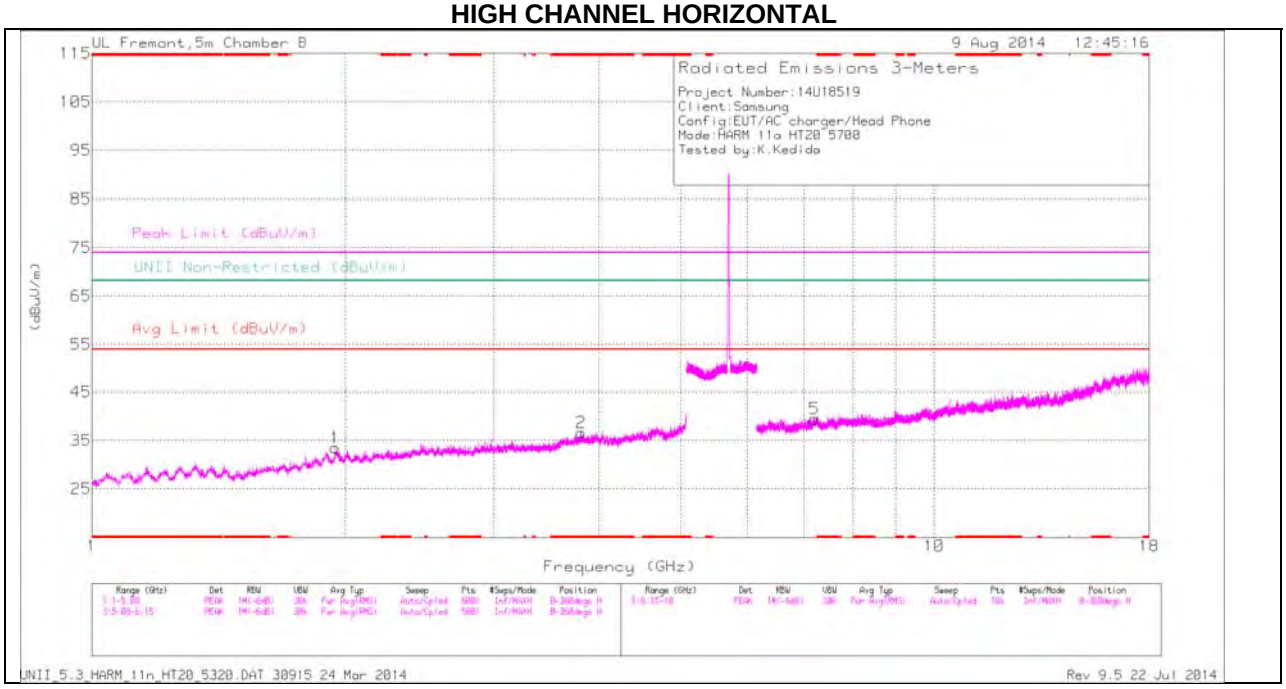
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.072	40.26	PK1	33.6	-29.9	0	43.96	-	-	74	-30.04	-	-	359	101	H
* 10.633	34.26	PK1	37.7	-21.9	0	50.06	-	-	74	-23.94	-	-	359	102	V
2.503	33.48	PK1	32.4	-32.1	0	33.78	-	-	-	-	68.2	-34.42	359	101	V
9.726	35.38	PK1	36.9	-23.5	0	48.78	-	-	-	-	68.2	-19.42	359	200	H
9.726	21.01	Avg	36.9	-23.5	.29	34.70	-	-	-	-	-	-	359	102	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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

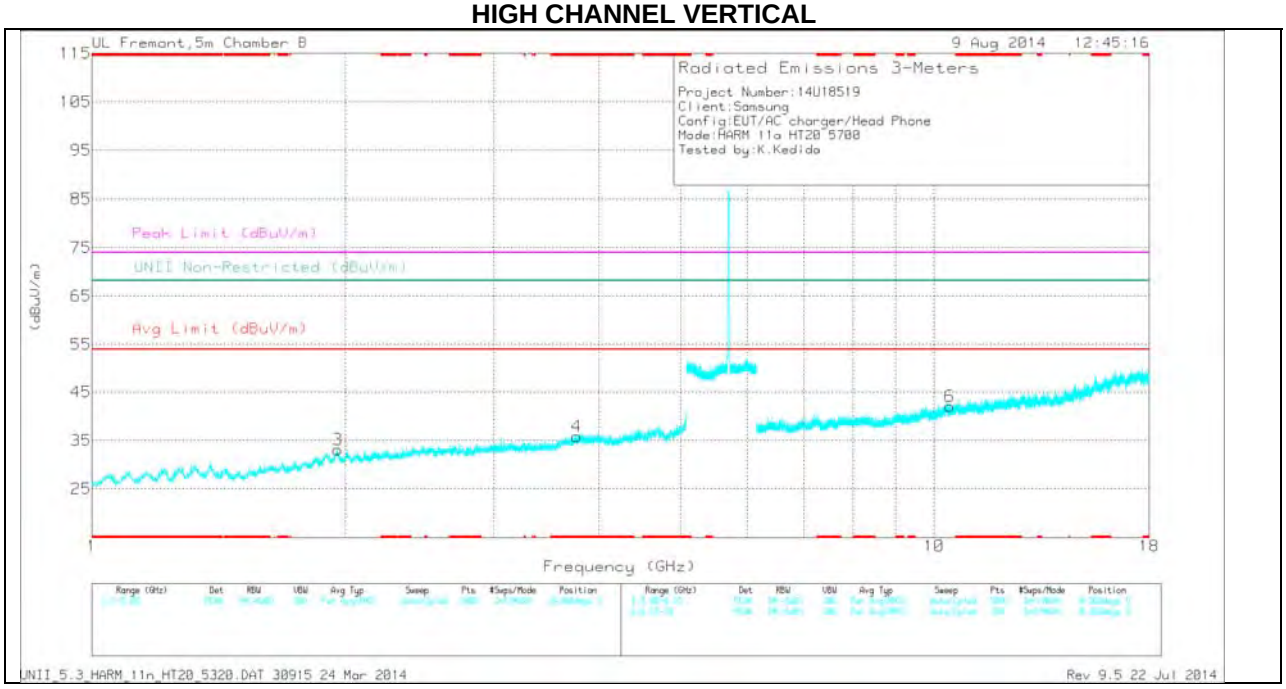
HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 VERTICAL



Note: Emission was scanned up to 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.809	33.56	PK	33.7	-30.7	0	36.56	-	-	74	-37.44	-	-	0-360	199	H
4	* 3.761	32.91	PK	33.5	-30.6	0	35.81	-	-	74	-38.19	-	-	0-360	199	V
1	1.946	34.56	PK	31.2	-32.3	0	33.46	-	-	-	-	68.2	-34.74	0-360	102	H
3	1.958	34.35	PK	31.2	-32.4	0	33.15	-	-	-	-	68.2	-35.05	0-360	101	V
5	7.214	29.26	PK	35.5	-25.3	0	39.46	-	-	-	-	68.2	-28.74	0-360	200	H
6	10.438	27.8	PK	37.4	-23.1	0	42.1	-	-	-	-	68.2	-26.1	0-360	101	V

PK - Peak detector

RADIATED EMISSIONS

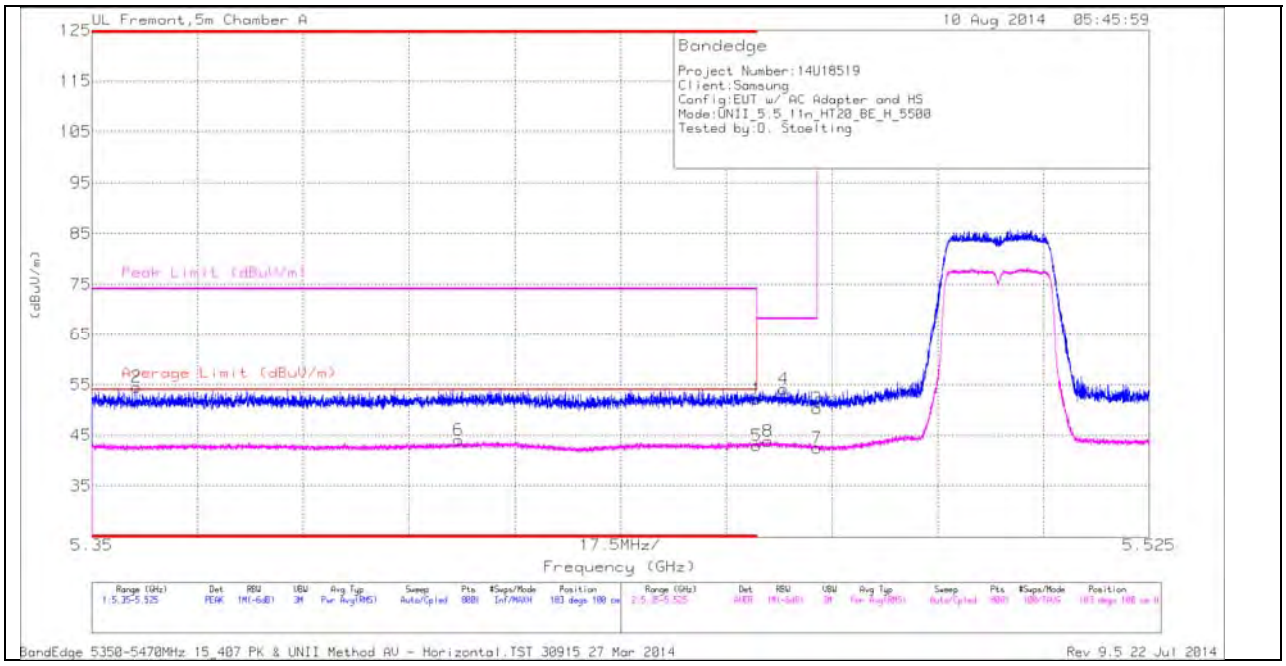
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.809	40.52	PK1	33.7	-30.7	0	43.52	-	-	74	-30.48	-	-	360	199	H
* 3.81	40.95	PK1	33.7	-30.7	0	43.95	-	-	74	-30.05	-	-	360	198	H
* 3.761	40.77	PK1	33.5	-30.6	0	43.67	-	-	74	-30.33	-	-	360	198	V
7.213	36.73	PK1	35.5	-25.3	0	46.93	-	-	-	-	68.2	-21.27	360	199	H
10.438	35.08	PK1	37.4	-23.1	0	49.38	-	-	-	-	68.2	-18.82	360	102	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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

11.3.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.5 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

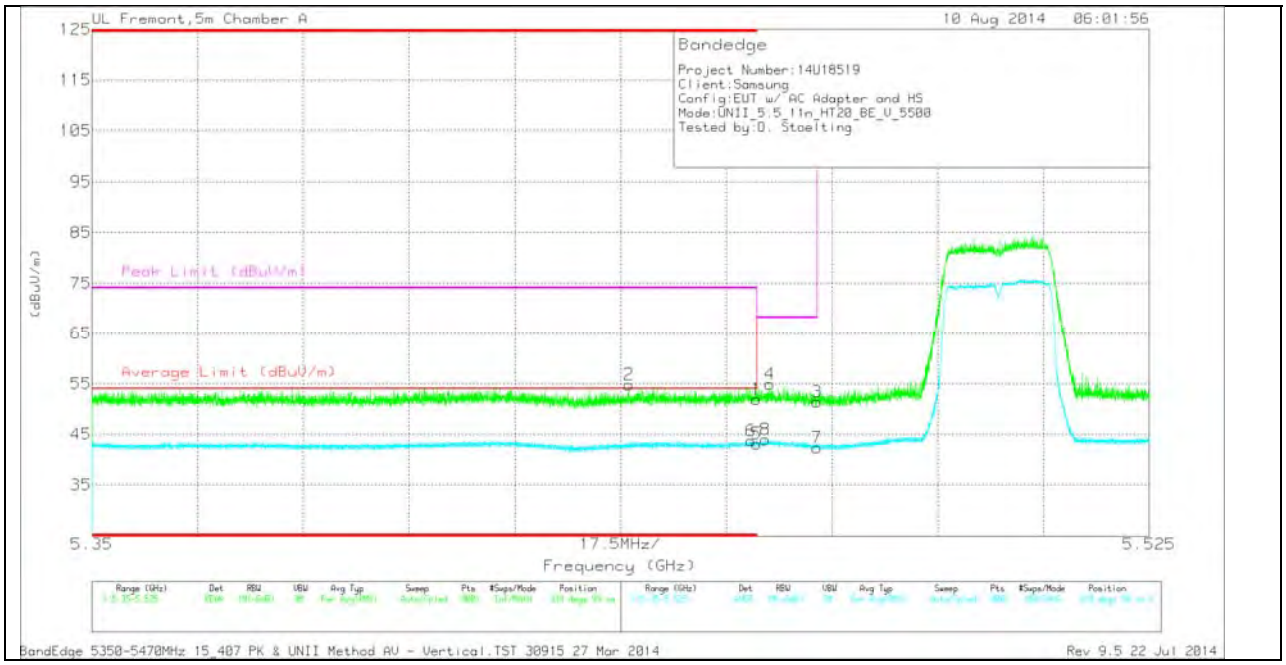


HORIZONTAL DATA

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	* 5.357	40.07	PK	34.3	-19.8	0	54.57	-	-	74	-19.43	183	100	H
6	* 5.411	28.9	RMS	34.4	-19.6	.32	44.05	54	-9.95	-	-	183	100	H
1	* 5.46	37.58	PK	34.4	-19.8	0	52.18	-	-	74	-21.82	183	100	H
5	* 5.46	28.05	RMS	34.4	-19.8	.32	43	54	-11	-	-	183	100	H
8	5.462	28.78	RMS	34.4	-19.7	.32	43.83	-	-	-	-	183	100	H
4	5.465	39.69	PK	34.4	-19.9	0	54.19	-	-	68.2	-14.01	183	100	H
3	5.47	36.24	PK	34.4	-20.3	0	50.34	-	-	68.2	-17.86	183	100	H
7	5.47	28.02	RMS	34.4	-20.3	.32	42.47	-	-	-	-	183	100	H

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

VERTICAL PEAK AND AVERAGE PLOT



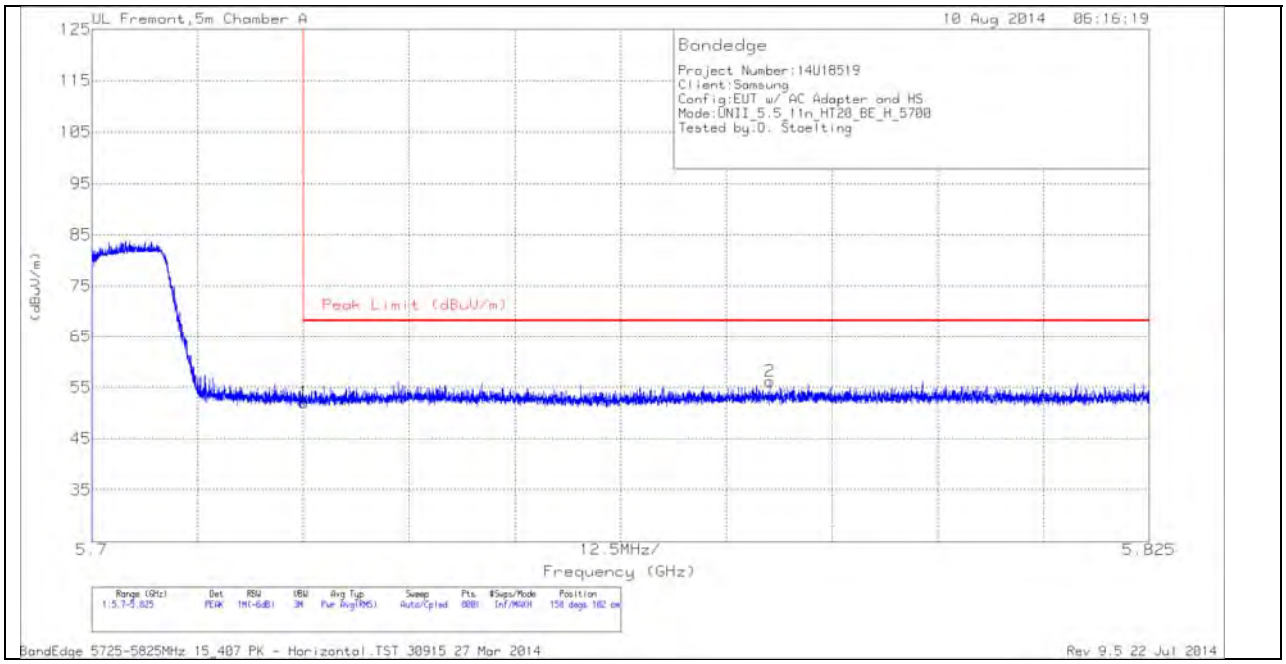
VERTICAL DATA

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
2	* 5.439	40.42	PK	34.4	-20	0	54.82	-	-	74	-19.18	318	99	V
6	* 5.459	28.79	RMS	34.4	-19.8	.32	43.74	54	-10.26	-	-	318	99	V
1	* 5.46	37.3	PK	34.4	-19.8	0	51.9	-	-	74	-22.1	318	99	V
5	* 5.46	28.2	RMS	34.4	-19.8	.32	43.15	54	-10.85	-	-	318	99	V
8	5.461	28.92	RMS	34.4	-19.7	.32	43.97	-	-	-	-	318	99	V
4	5.462	40.21	PK	34.4	-19.7	0	54.91	-	-	68.2	-13.29	318	99	V
3	5.47	37.26	PK	34.4	-20.3	0	51.36	-	-	68.2	-16.84	318	99	V
7	5.47	27.95	RMS	34.4	-20.3	.32	42.4	-	-	-	-	318	99	V

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



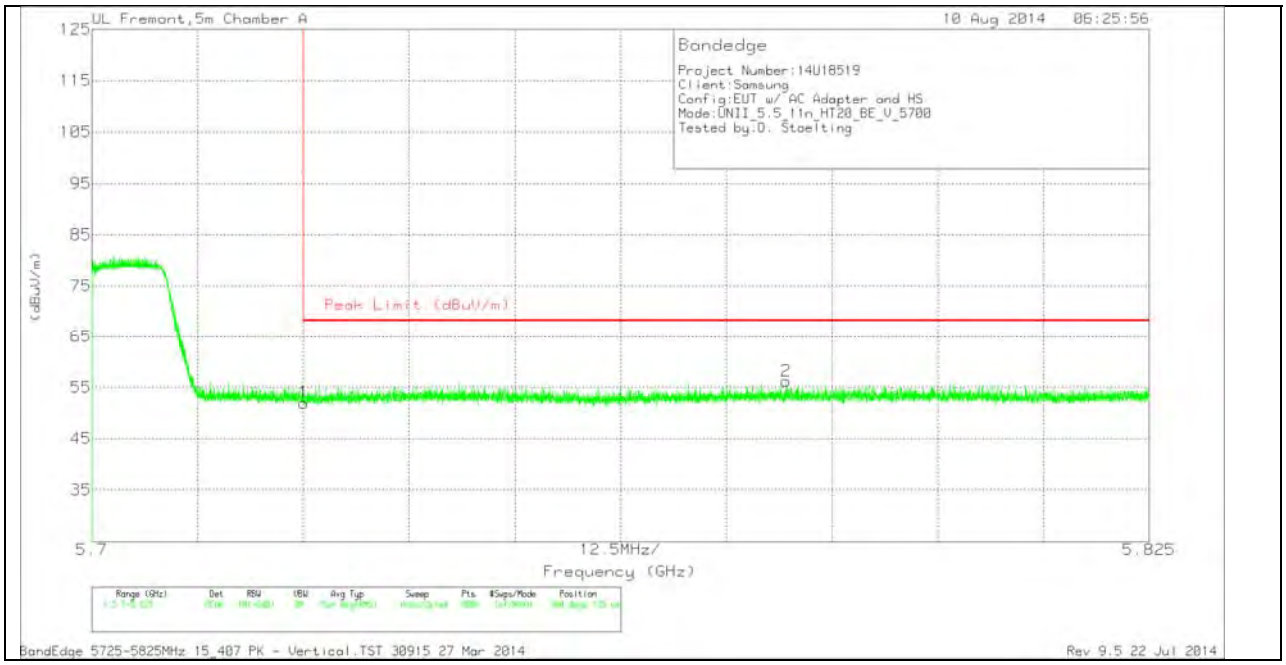
HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	37.1	PK	34.6	-19.6	0	52.1	68.2	-16.1	158	102	H
2	5.78	40.86	PK	34.7	-19.3	0	56.26	68.2	-11.94	158	102	H

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

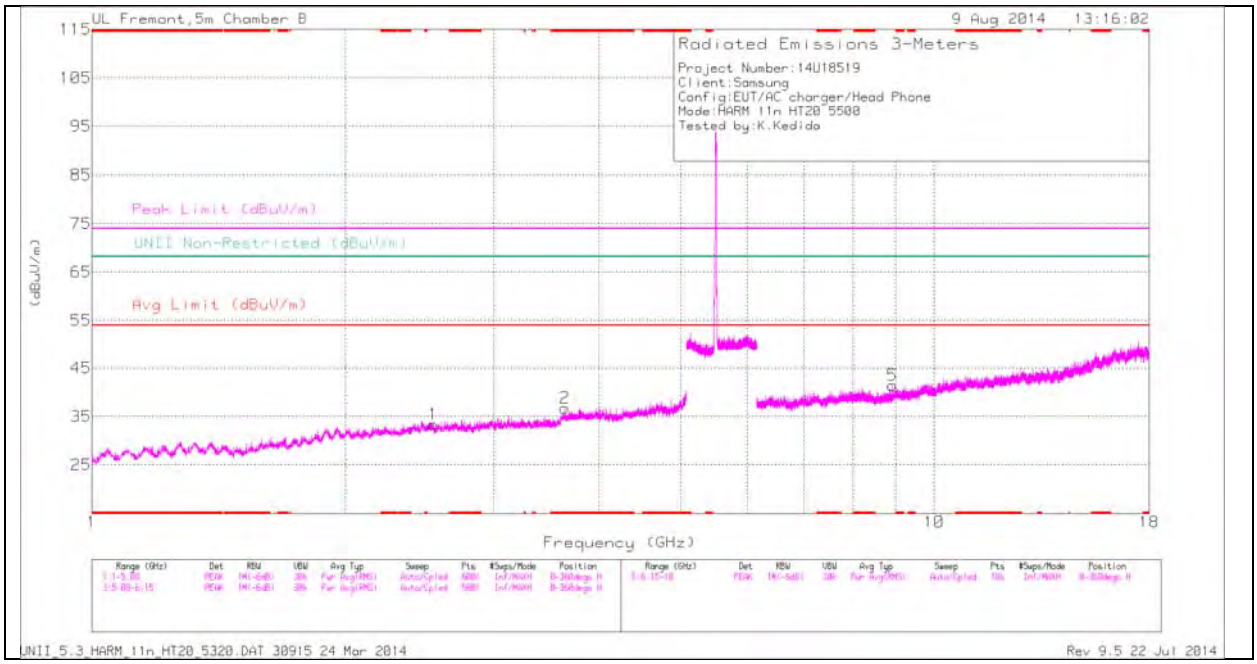
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	37.02	PK	34.6	-19.6	0	52.02	68.2	-16.18	340	135	V
2	5.782	40.87	PK	34.7	-19.3	0	56.27	68.2	-11.93	340	135	V

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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

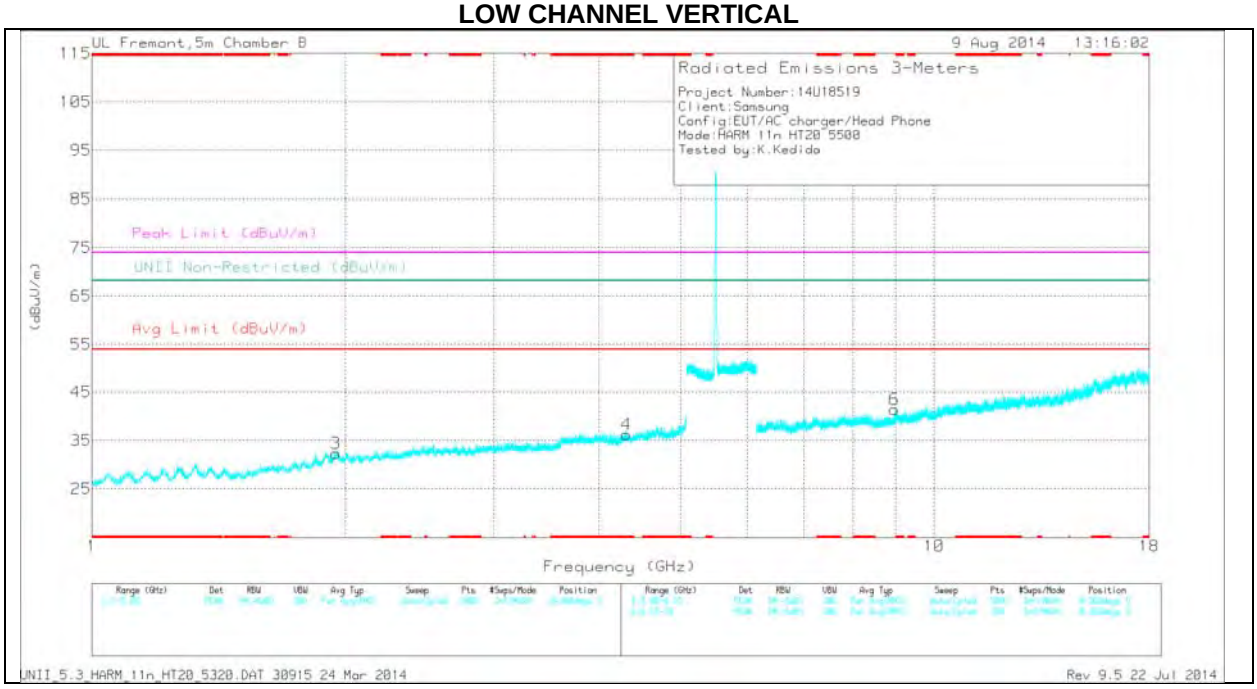
LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.645	34.49	PK	33.2	-30.9	0	36.79	-	-	74	-37.21	-	-	0-360	101	H
4	* 4.308	32.07	PK	33.7	-29.5	0	36.27	-	-	74	-37.73	-	-	0-360	101	V
3	1.948	33.43	PK	31.2	-32.3	0	32.33	-	-	-	-	68.2	-35.87	0-360	199	V
1	2.543	33.03	PK	32.5	-32.2	0	33.33	-	-	-	-	68.2	-34.87	0-360	199	H
5	8.92	30.27	PK	36.1	-24.9	0	41.47	-	-	-	-	68.2	-26.73	0-360	200	H
6	8.974	29.85	PK	36.2	-24.6	0	41.45	-	-	-	-	68.2	-26.75	0-360	101	V

PK - Peak detector

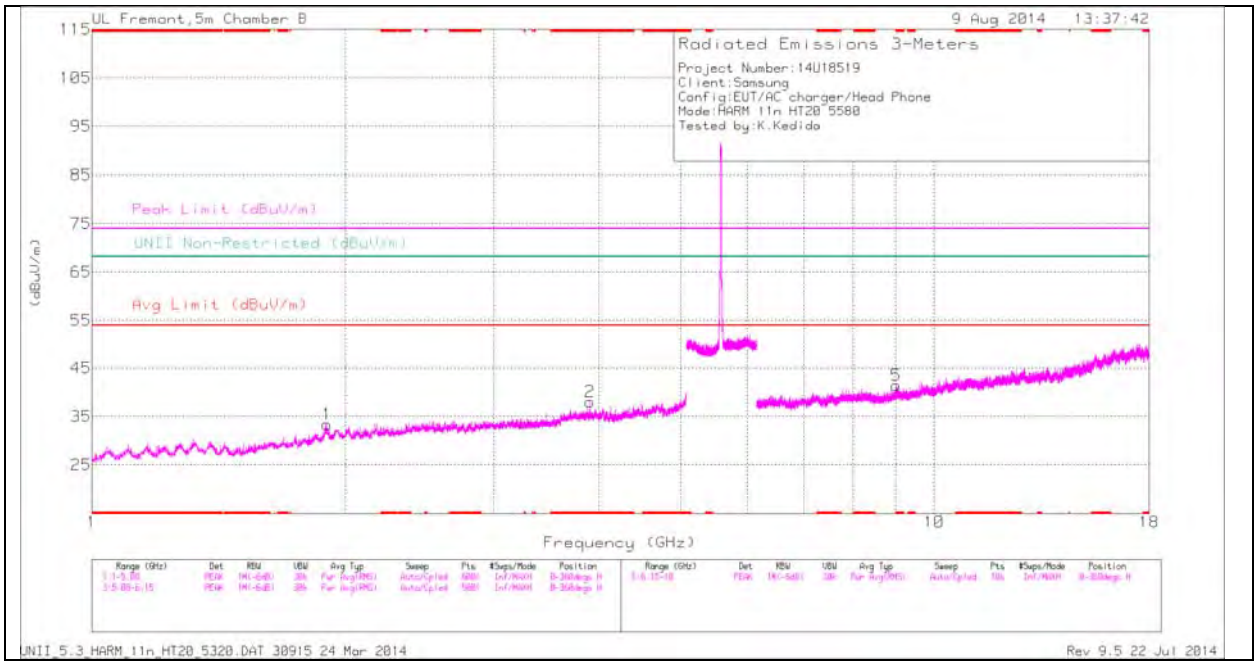
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.644	41.75	PK1	33.2	-30.9	0	44.05	-	-	74	-29.95	-	-	360	101	H
* 4.308	39.73	PK1	33.7	-29.5	0	43.93	-	-	74	-30.07	-	-	360	101	V
8.921	36.36	PK1	36.1	-25	0	47.46	-	-	-	-	68.2	-20.74	360	200	H
8.976	36.76	PK1	36.2	-24.7	0	48.26	-	-	-	-	68.2	-19.94	360	102	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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

MID CHANNEL HORIZONTAL

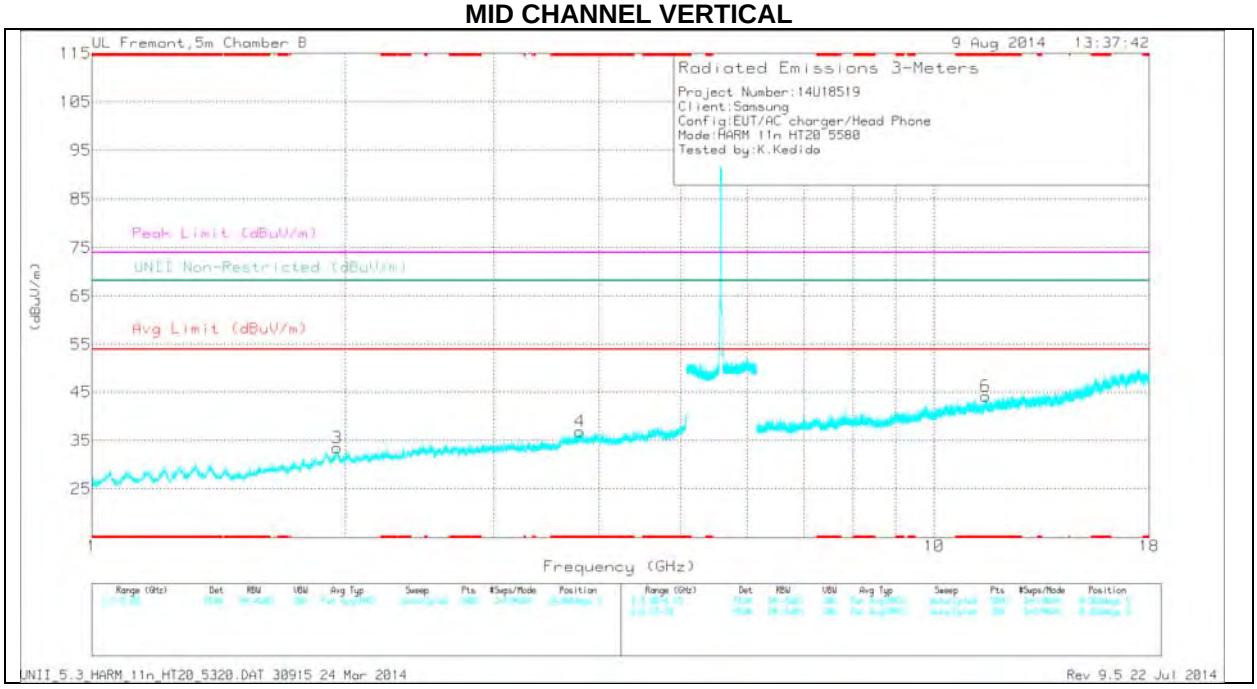


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 VERTICAL



Note: Emission was scanned up to 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.9	35.29	PK	33.8	-31.1	0	37.99	-	-	74	-36.01	-	-	0-360	102	H
4	* 3.798	34.01	PK	33.6	-30.7	0	36.91	-	-	74	-37.09	-	-	0-360	200	V
5	* 9.021	29.79	PK	36.2	-24.6	0	41.39	-	-	74	-32.61	-	-	0-360	101	H
6	* 11.508	27.46	PK	38.1	-21.4	0	44.16	-	-	74	-29.84	-	-	0-360	199	V
1	1.902	34.9	PK	31.1	-32.6	0	33.4	-	-	-	-	68.2	-34.8	0-360	200	H
3	1.955	34.56	PK	31.2	-32.3	0	33.46	-	-	-	-	68.2	-34.74	0-360	101	V

PK - Peak detector

RADIATED EMISSIONS

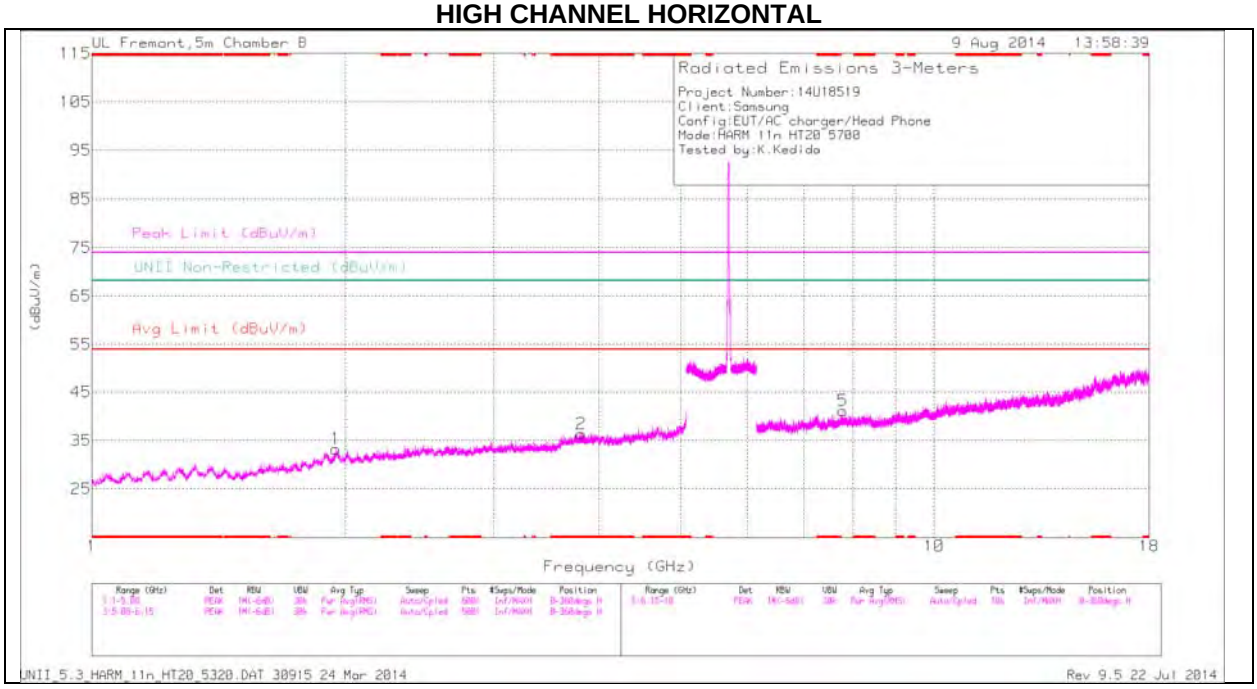
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.901	41.9	PK1	33.8	-31.1	0	44.6	-	-	74	-29.4	-	-	359	101	H
* 3.798	41.36	PK1	33.6	-30.7	0	44.26	-	-	74	-29.74	-	-	359	199	V
* 9.02	37.45	PK1	36.2	-24.6	0	49.05	-	-	74	-24.95	-	-	359	102	H
* 11.506	34.53	PK1	38.1	-21.5	0	51.13	-	-	74	-22.87	-	-	359	198	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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

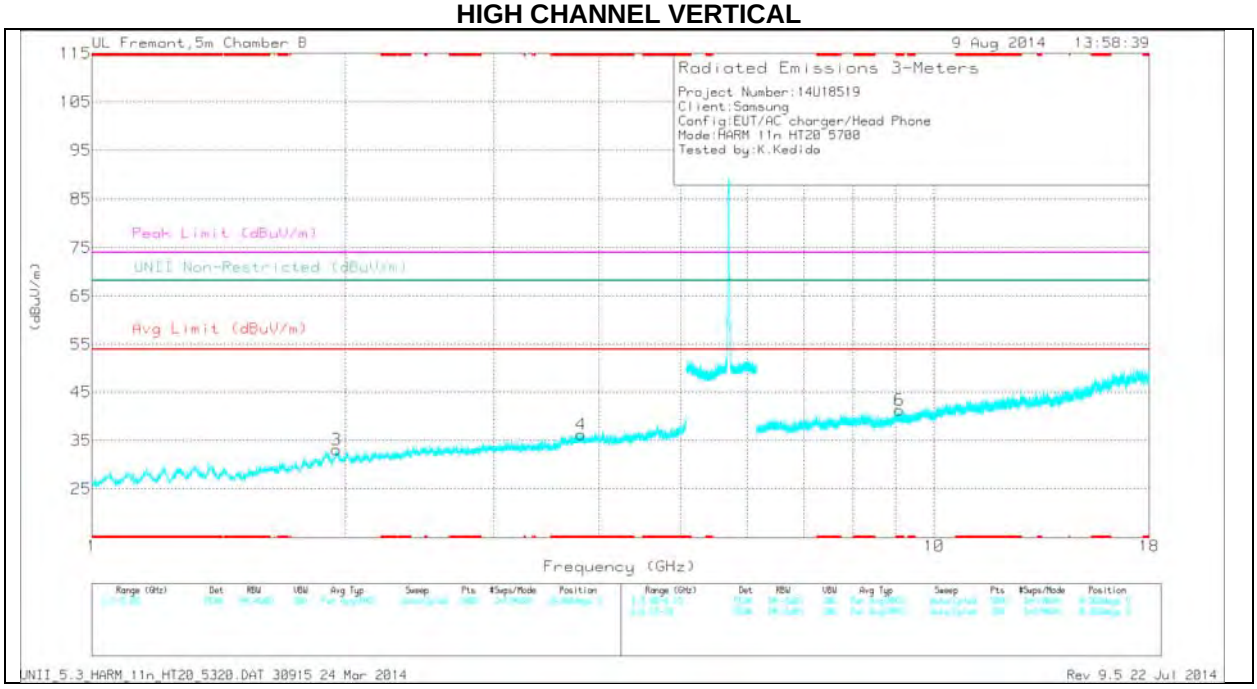


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.808	33.31	PK	33.7	-30.7	0	36.31	-	-	74	-37.69	-	-	0-360	101	H
4	* 3.808	33.21	PK	33.7	-30.7	0	36.21	-	-	74	-37.79	-	-	0-360	200	V
6	* 9.093	29.25	PK	36.3	-24.3	0	41.25	-	-	74	-32.75	-	-	0-360	199	V
1	1.949	34.4	PK	31.2	-32.3	0	33.3	-	-	-	-	68.2	-34.9	0-360	200	H
3	1.951	34.16	PK	31.2	-32.3	0	33.06	-	-	-	-	68.2	-35.14	0-360	101	V
5	7.792	30.8	PK	35.7	-25.4	0	41.1	-	-	-	-	68.2	-27.1	0-360	199	H

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.81	40.6	PK1	33.7	-30.7	0	43.6	-	-	74	-30.4	-	-	359	101	H
* 3.807	40.95	PK1	33.7	-30.7	0	43.95	-	-	74	-30.05	-	-	359	199	V
* 9.091	36.41	PK1	36.3	-24.3	0	48.41	-	-	74	-25.59	-	-	359	199	V

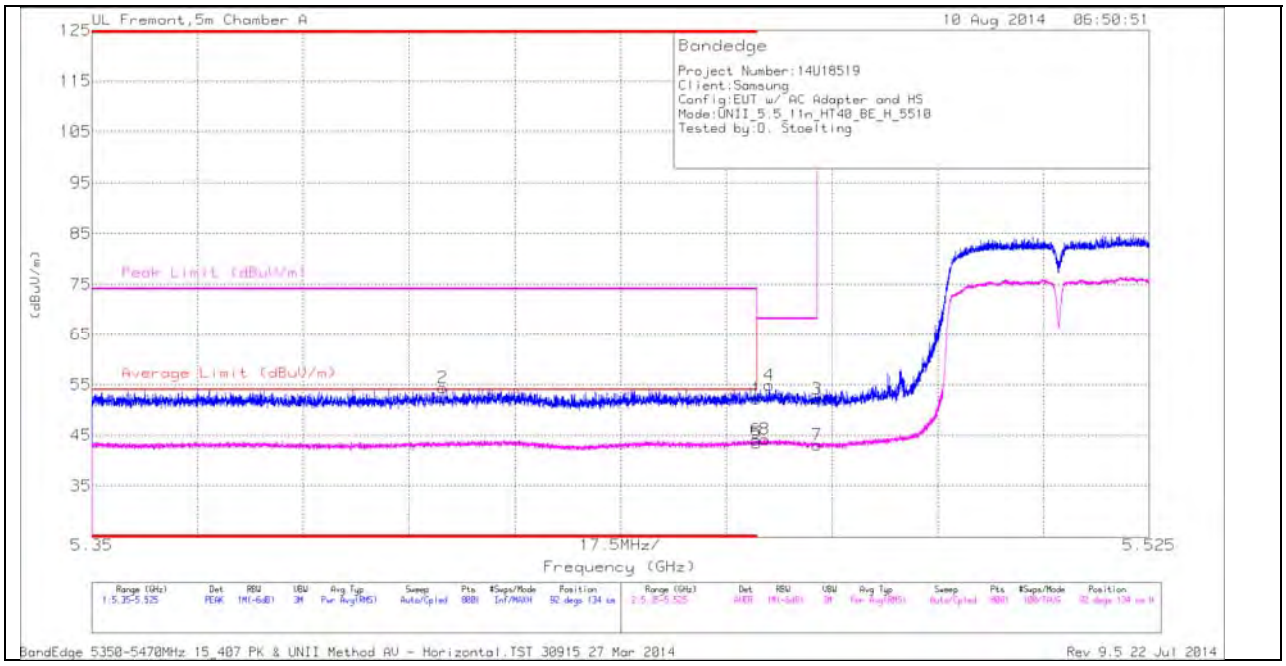
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

11.3.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.5 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

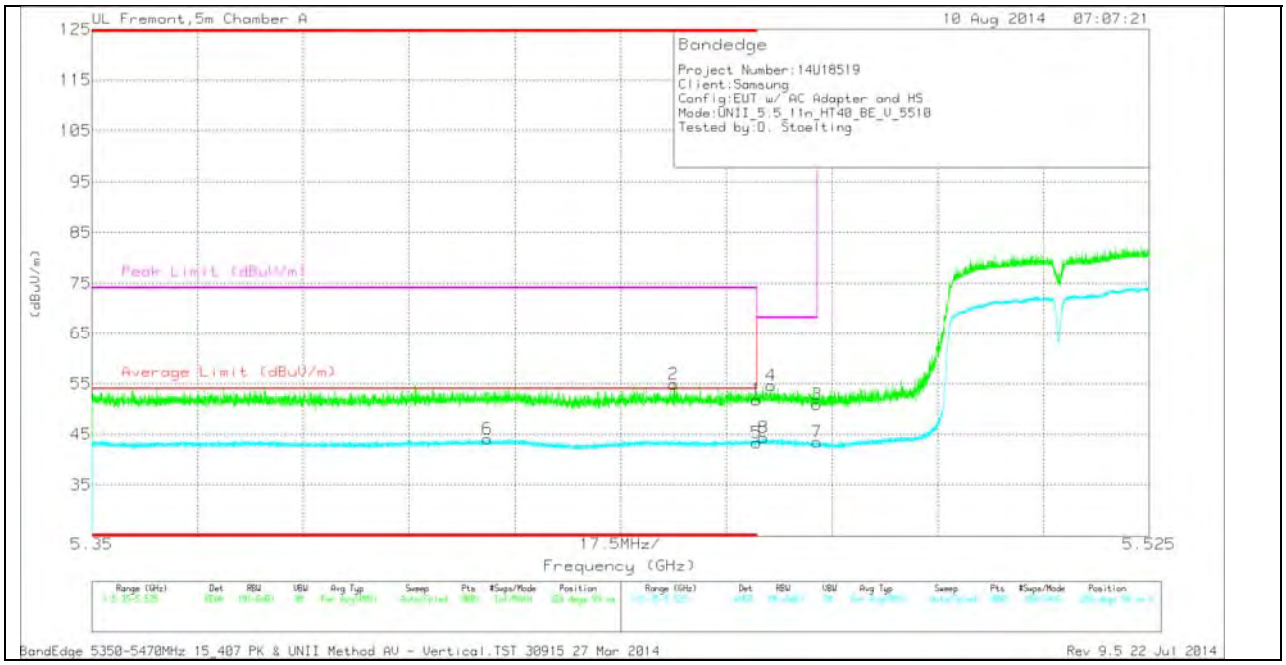


HORIZONTAL DATA

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	* 5.408	39.64	PK	34.4	-19.6	0	54.44	-	-	74	-19.56	92	134	H
1	* 5.46	37.56	PK	34.4	-19.8	0	52.16	-	-	74	-21.84	92	134	H
5	* 5.46	28.15	RMS	34.4	-19.8	.63	43.44	54	-10.56	-	-	92	134	H
6	* 5.46	28.74	RMS	34.4	-19.8	.63	44.03	54	-9.97	-	-	92	134	H
8	5.461	28.79	RMS	34.4	-19.7	.63	44.18	-	-	-	-	92	134	H
4	5.462	40.17	PK	34.4	-19.7	0	54.87	-	-	68.2	-13.33	92	134	H
3	5.47	38	PK	34.4	-20.3	0	52.1	-	-	68.2	-16.1	92	134	H
7	5.47	28.31	RMS	34.4	-20.3	.63	43.1	-	-	-	-	92	134	H

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

VERTICAL PEAK AND AVERAGE PLOT



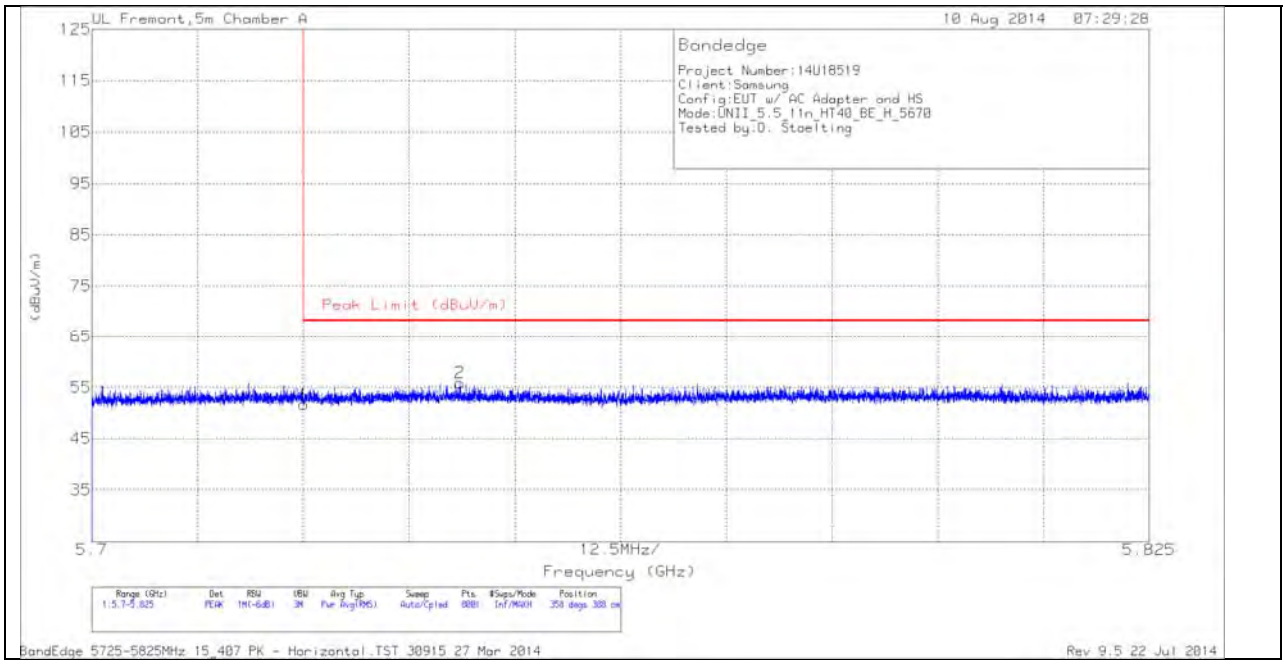
VERTICAL DATA

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
6	* 5.415	28.57	RMS	34.4	-19.6	.63	44.06	54	-9.94	-	-	326	99	V
2	* 5.446	40.44	PK	34.4	-20	0	54.84	-	-	74	-19.16	326	99	V
1	* 5.46	37.14	PK	34.4	-19.8	0	51.74	-	-	74	-22.26	326	99	V
5	* 5.46	28.05	RMS	34.4	-19.8	.63	43.34	54	-10.66	-	-	326	99	V
8	5.461	28.95	RMS	34.4	-19.7	.63	44.34	-	-	-	-	326	99	V
4	5.462	39.95	PK	34.4	-19.7	0	54.65	-	-	68.2	-13.55	326	99	V
3	5.47	36.78	PK	34.4	-20.3	0	50.88	-	-	68.2	-17.32	326	99	V
7	5.47	28.67	RMS	34.4	-20.3	.63	43.46	-	-	-	-	326	99	V

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



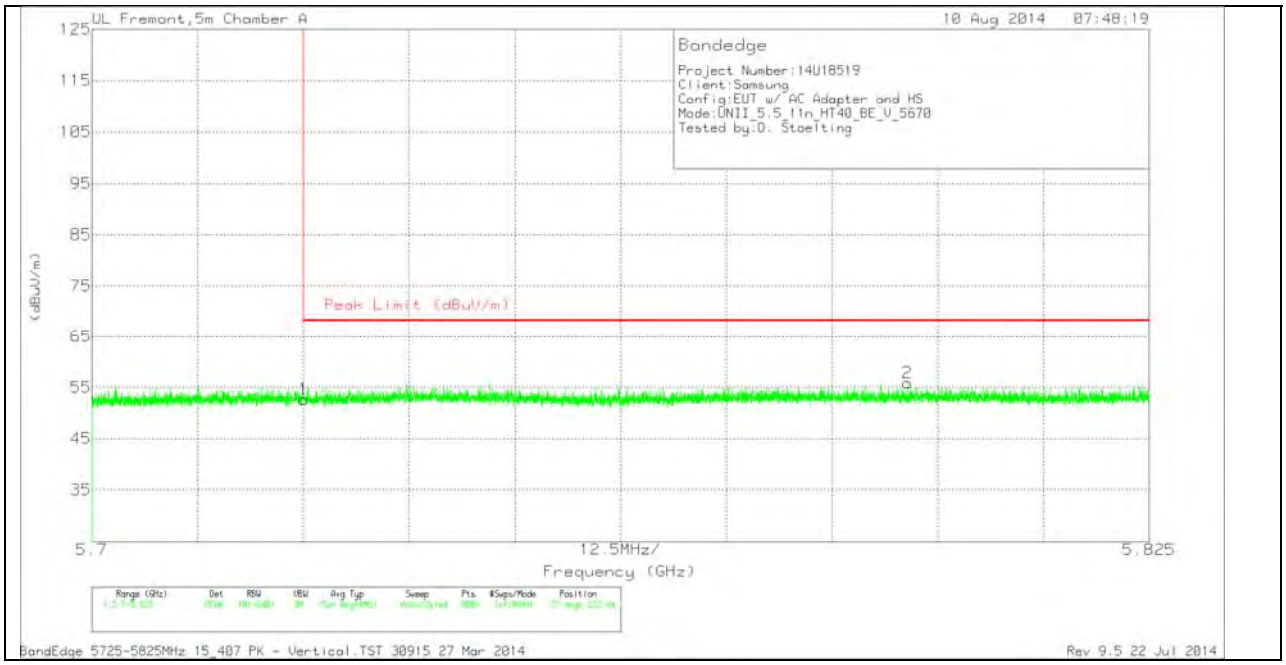
HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	36.69	PK	34.6	-19.6	0	51.69	68.2	-16.51	358	388	H
2	5.744	40.72	PK	34.6	-19.4	0	55.92	68.2	-12.28	358	388	H

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

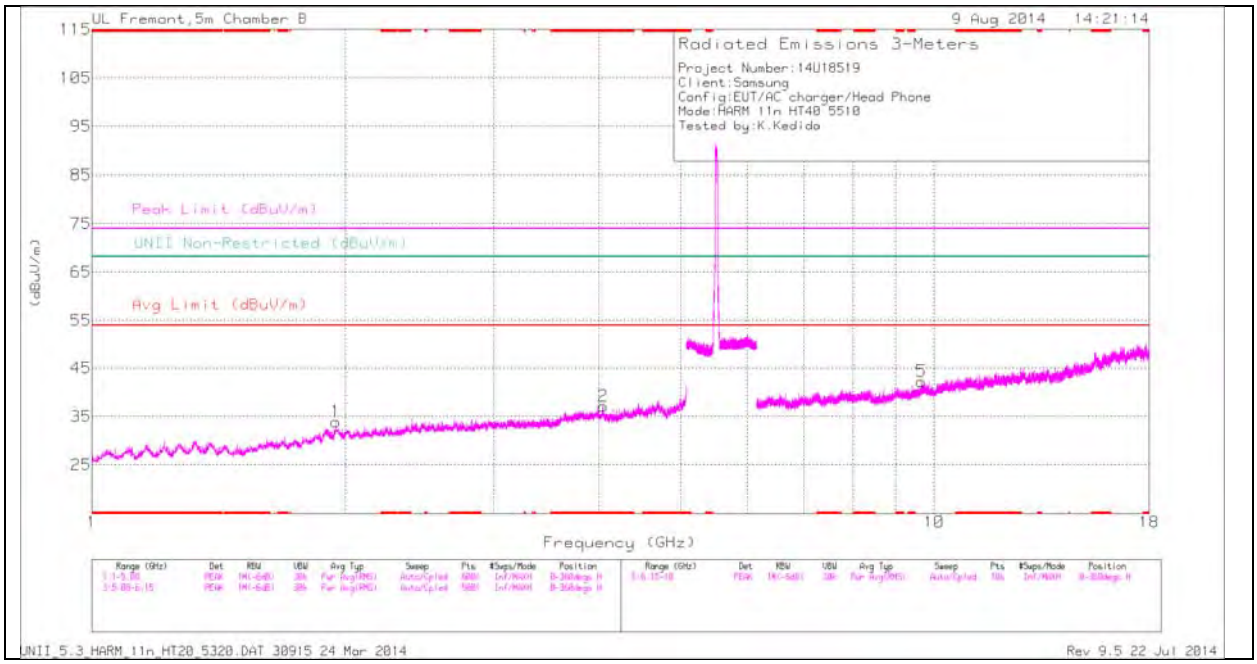
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	37.69	PK	34.6	-19.6	0	52.69	68.2	-15.51	27	222	V
2	5.796	40.49	PK	34.7	-19.3	0	55.89	68.2	-12.31	27	222	V

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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

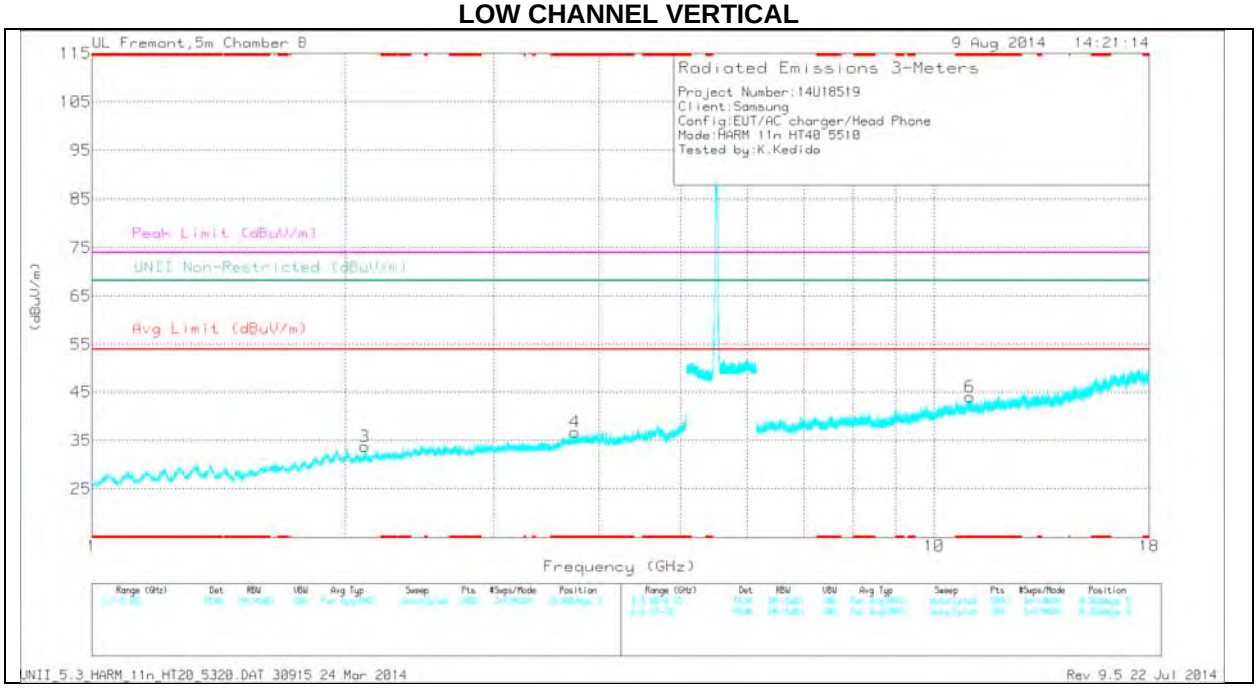
LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.044	32.51	PK	33.6	-29	0	37.11	-	-	74	-36.89	-	-	0-360	199	H
4	* 3.745	34.02	PK	33.5	-30.8	0	36.72	-	-	74	-37.28	-	-	0-360	101	V
6	* 11.019	28.59	PK	37.8	-22.4	0	43.99	-	-	74	-30.01	-	-	0-360	101	V
1	1.949	35.05	PK	31.2	-32.3	0	33.95	-	-	-	-	68.2	-34.25	0-360	199	H
3	2.11	35.56	PK	31.3	-33.1	0	33.76	-	-	-	-	68.2	-34.44	0-360	199	V
5	9.656	29.16	PK	36.8	-23.7	0	42.26	-	-	-	-	68.2	-25.94	0-360	199	H

PK - Peak detector

RADIATED EMISSIONS

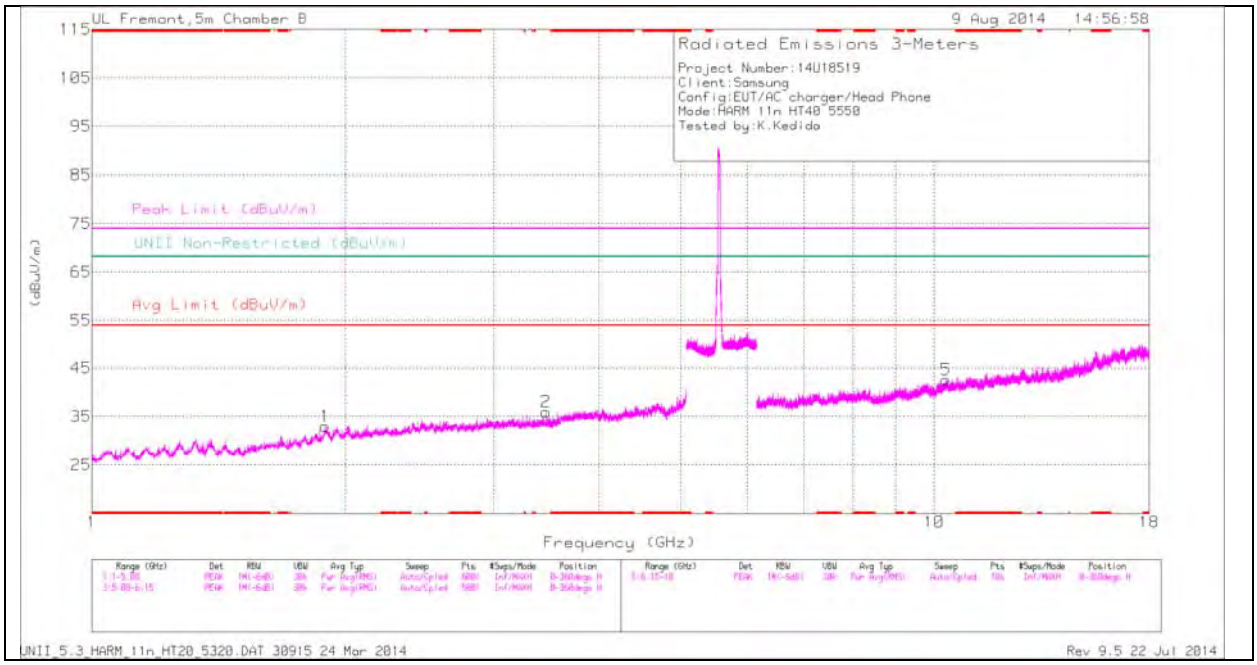
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.042	40	PK1	33.6	-29	0	44.6	-	-	74	-29.4	-	-	359	199	H
* 3.744	40.99	PK1	33.5	-30.7	0	43.79	-	-	74	-30.21	-	-	359	102	V
* 11.02	34.62	PK1	37.8	-22.4	0	50.02	-	-	74	-23.98	-	-	359	102	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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

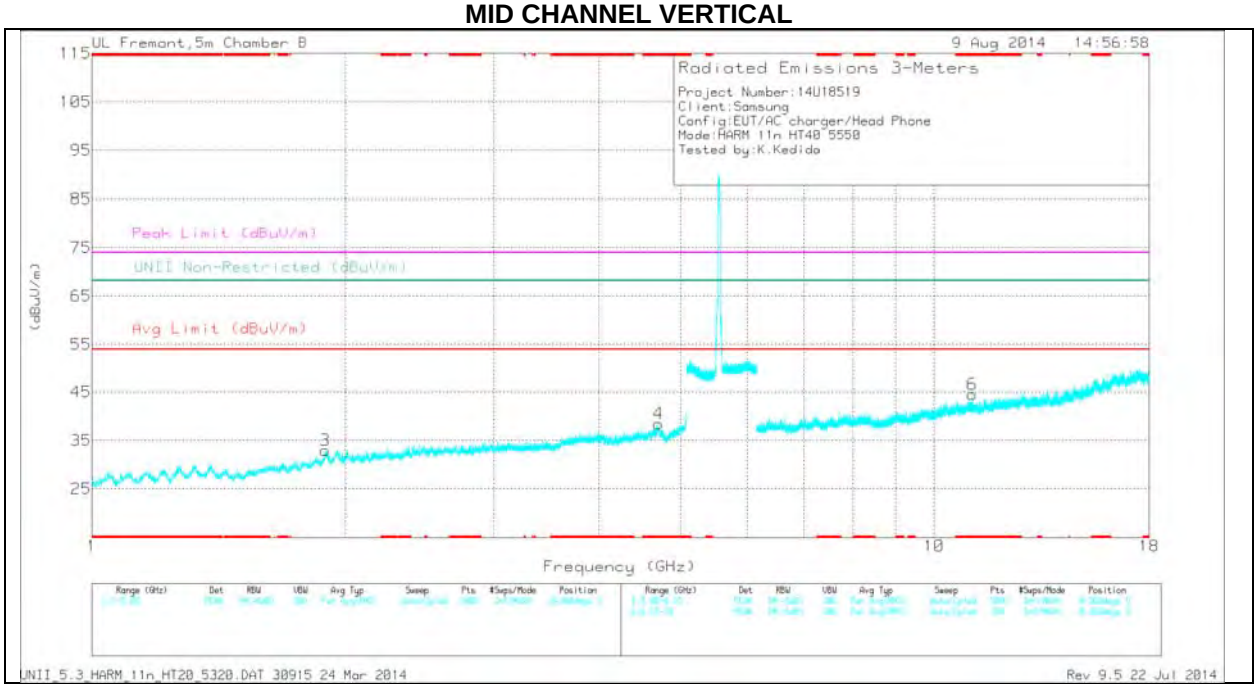


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 VERTICAL



Note: Emission was scanned up to 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.707	33.79	PK	34.2	-29.5	0	38.49	-	-	74	-35.51	-	-	0-360	200	V
6	* 11.1	29.52	PK	37.8	-22.8	0	44.52	-	-	74	-29.48	-	-	0-360	199	V
1	1.891	34.43	PK	31	-32.5	0	32.93	-	-	-	-	68.2	-35.27	0-360	200	H
3	1.891	34.49	PK	31	-32.5	0	32.99	-	-	-	-	68.2	-35.21	0-360	200	V
2	3.46	33.83	PK	32.8	-30.7	0	35.93	-	-	-	-	68.2	-32.27	0-360	102	H
5	10.321	27.58	PK	37.2	-22.2	0	42.58	-	-	-	-	68.2	-25.62	0-360	199	H

PK - Peak detector

RADIATED EMISSIONS

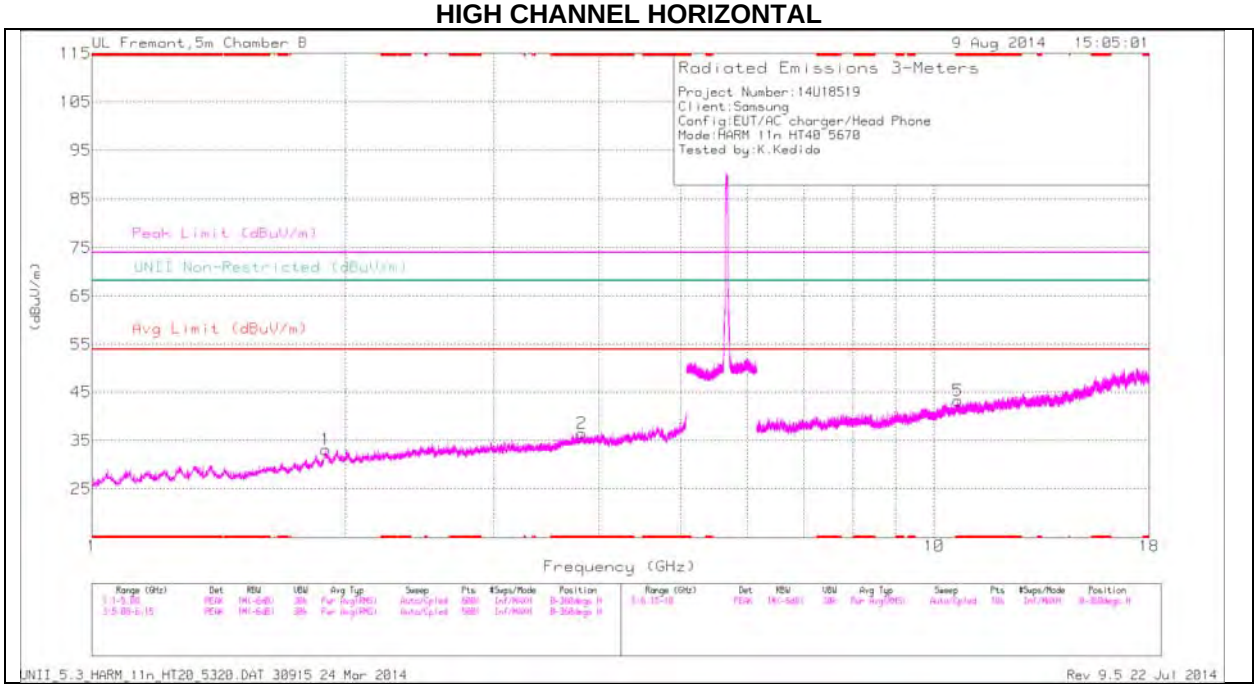
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.709	40.81	PK1	34.2	-29.4	0	45.61	-	-	74	-28.39	-	-	359	200	V
* 11.102	36.05	PK1	37.8	-22.8	0	51.05	-	-	74	-22.95	-	-	359	200	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

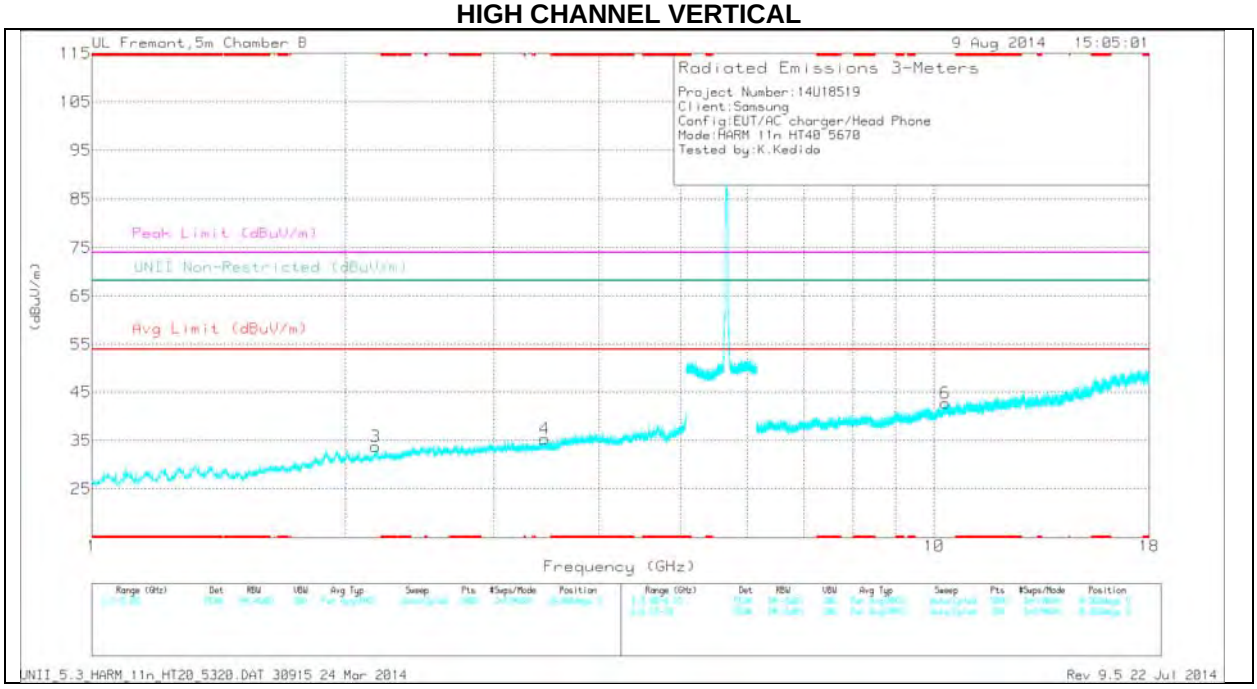
HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 VERTICAL



Note: Emission was scanned up to 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.814	33.61	PK	33.7	-30.8	0	36.51	-	-	74	-37.49	-	-	0-360	101	H
5	* 10.677	27.08	PK	37.7	-21.5	0	43.28	-	-	74	-30.72	-	-	0-360	199	H
1	1.896	34.55	PK	31	-32.5	0	33.05	-	-	-	-	68.2	-35.15	0-360	200	H
3	2.172	34.59	PK	31.3	-32.1	0	33.79	-	-	-	-	68.2	-34.41	0-360	200	V
4	3.449	33.06	PK	32.8	-30.6	0	35.26	-	-	-	-	68.2	-32.94	0-360	101	V
6	10.31	27.81	PK	37.2	-22.3	0	42.71	-	-	-	-	68.2	-25.49	0-360	101	V

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.813	40.7	PK1	33.7	-30.7	0	43.7	-	-	74	-30.3	-	-	360	102	H
* 10.675	34.06	PK1	37.7	-21.5	0	50.26	-	-	74	-23.74	-	-	360	198	H

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

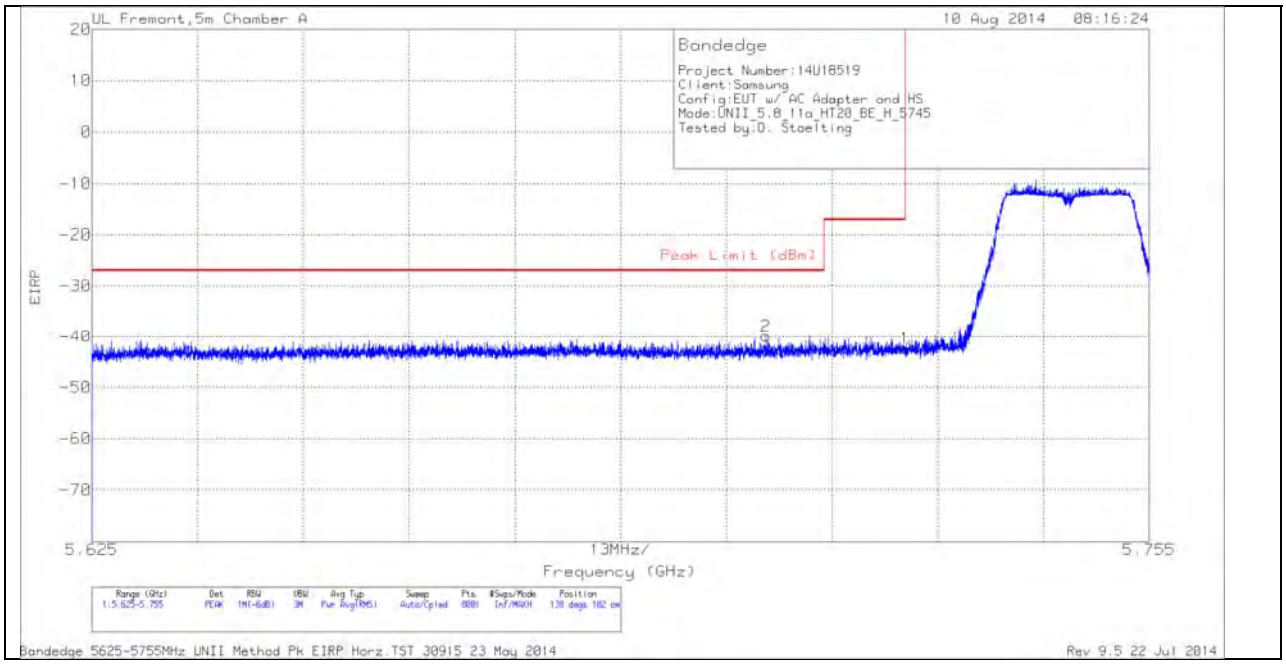
UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

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

11.4. 5.8 GHz

11.4.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



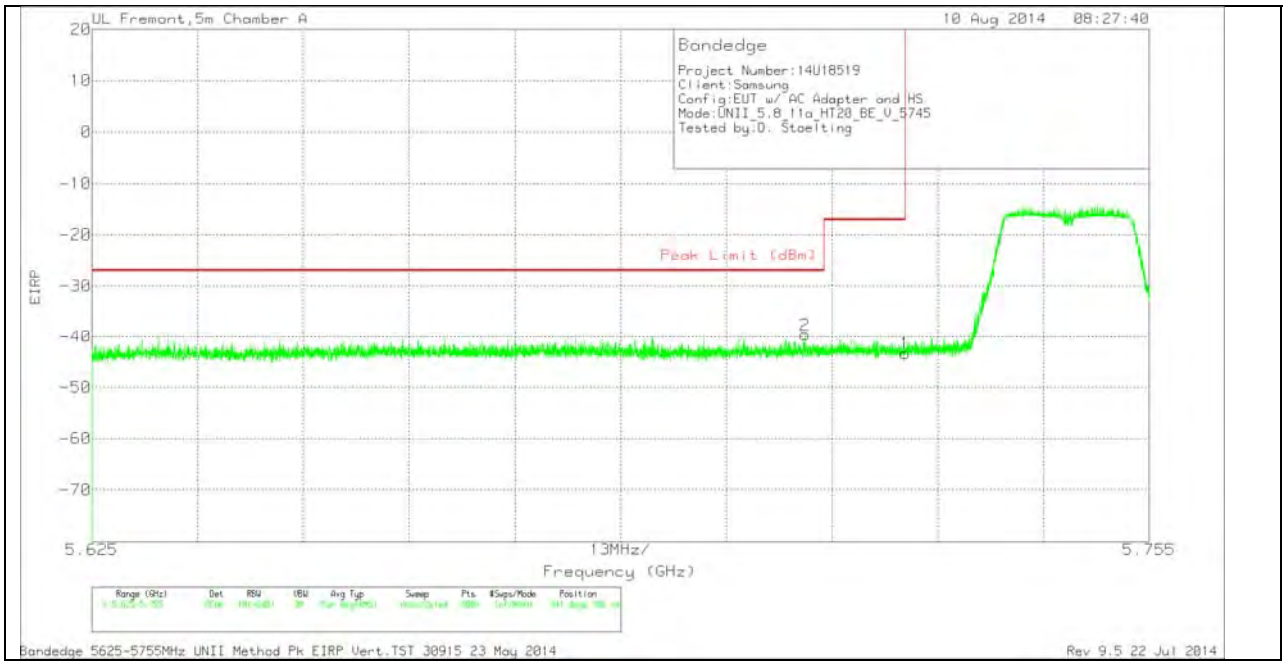
HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.708	-66.35	PK	34.5	-19.8	11.8	0	-39.85	-27	-12.85	138	102	H
1	5.725	-69.16	PK	34.6	-19.6	11.8	0	-42.36	-17	-25.36	138	102	H

PK - Peak detector

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

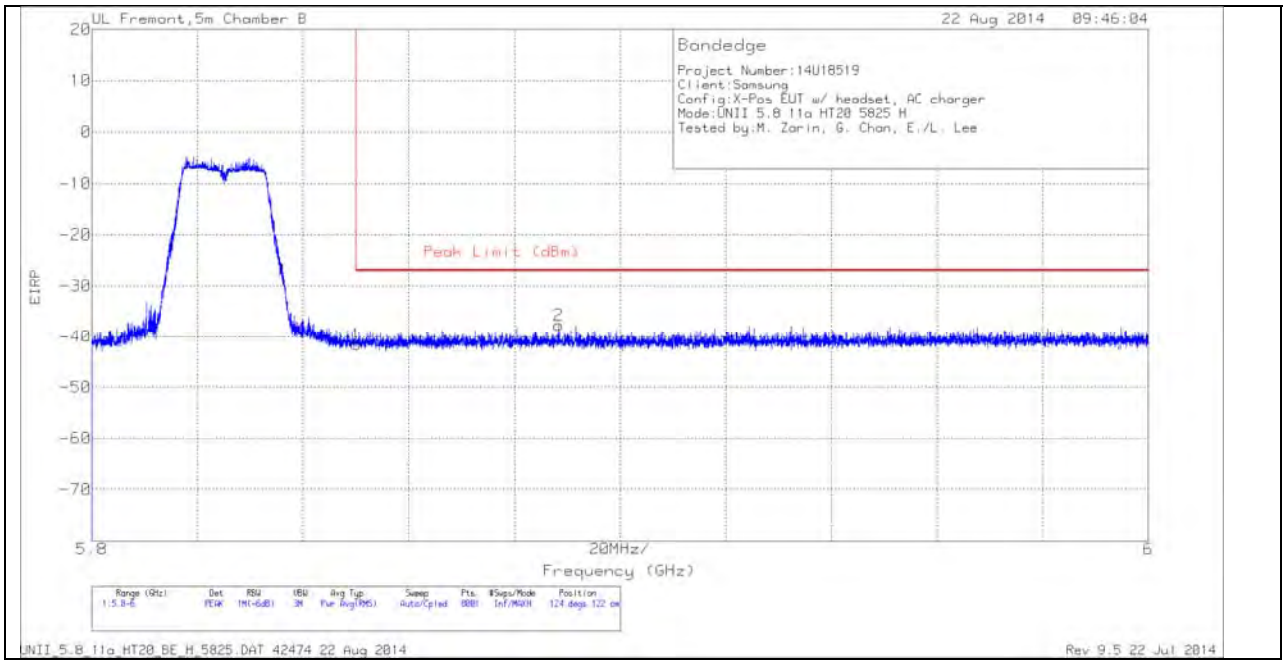
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.713	-66.37	PK	34.5	-19.6	11.8	0	-39.67	-27	-12.67	341	186	V
1	5.725	-70.09	PK	34.6	-19.6	11.8	0	-43.29	-17	-26.29	341	186	V

PK - Peak detector

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

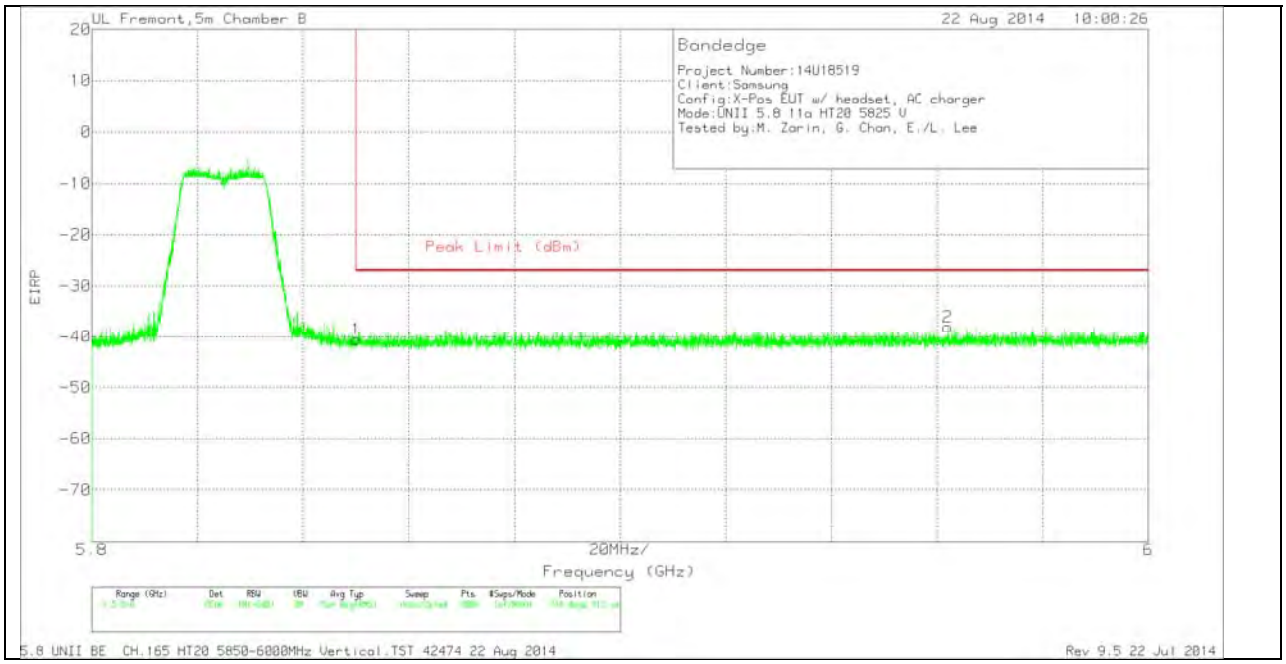
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-68.85	PK	34.8	-19.4	11.8	-41.65	-27	-14.65	124	122	H
2	5.888	-65.09	PK	34.9	-19.3	11.8	-37.69	-27	-10.69	124	122	H

PK - Peak detector

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

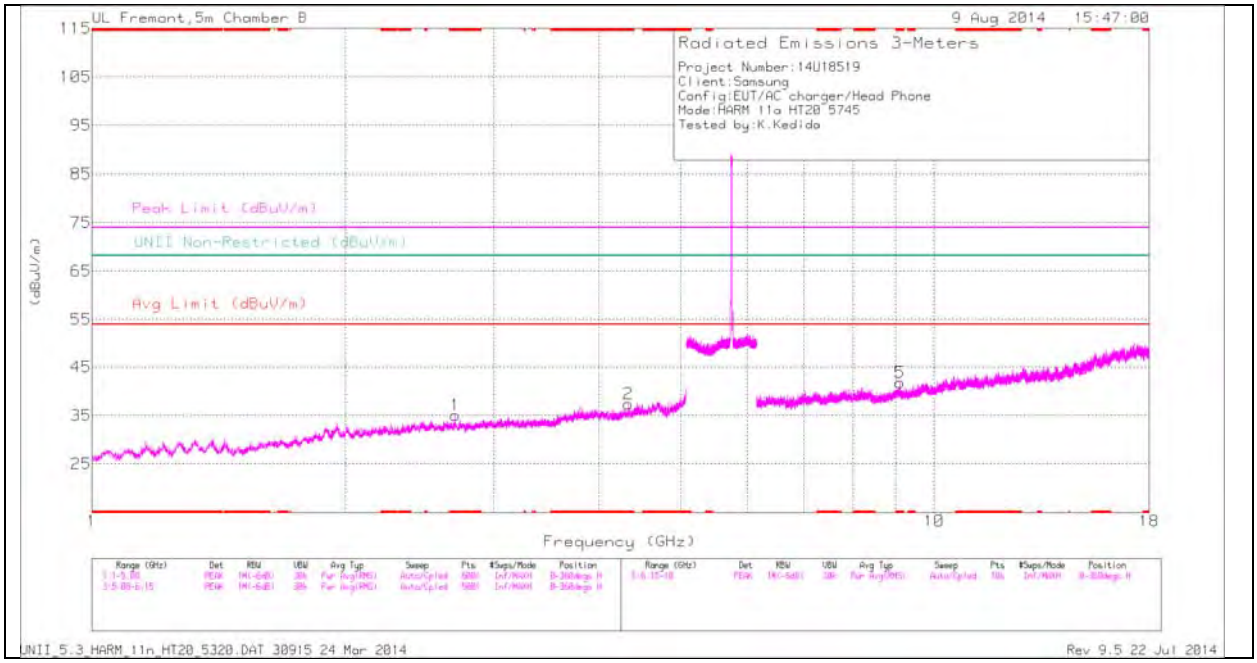
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-67.68	PK	34.8	-19.4	11.8	-40.48	-27	-13.48	218	112	V
2	5.962	-65.83	PK	35.1	-19.1	11.8	-38.03	-27	-11.03	218	112	V

PK - Peak detector

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

HARMONICS AND SPURIOUS EMISSIONS

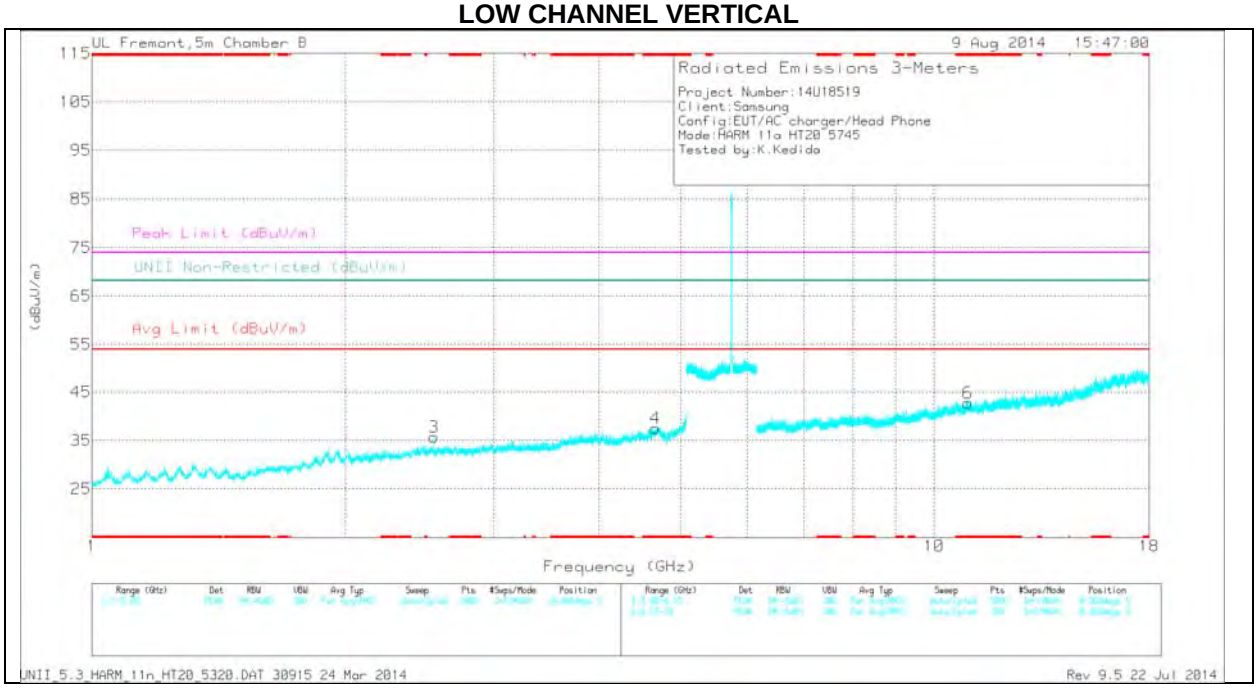
LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.699	34.1	PK	32.2	-31.2	0	35.1	-	-	74	-38.9	-	-	0-360	200	H
2	* 4.331	33.92	PK	33.7	-30.2	0	37.42	-	-	74	-36.58	-	-	0-360	200	H
4	* 4.668	32.53	PK	34.2	-29.2	0	37.53	-	-	74	-36.47	-	-	0-360	200	V
5	* 9.103	29.98	PK	36.3	-24.5	0	41.78	-	-	74	-32.22	-	-	0-360	101	H
6	* 10.975	27.05	PK	37.8	-22.1	0	42.75	-	-	74	-31.25	-	-	0-360	200	V
3	2.546	35.35	PK	32.5	-32.2	0	35.65	-	-	-	-	68.2	-32.55	0-360	101	V

PK - Peak detector

RADIATED EMISSIONS

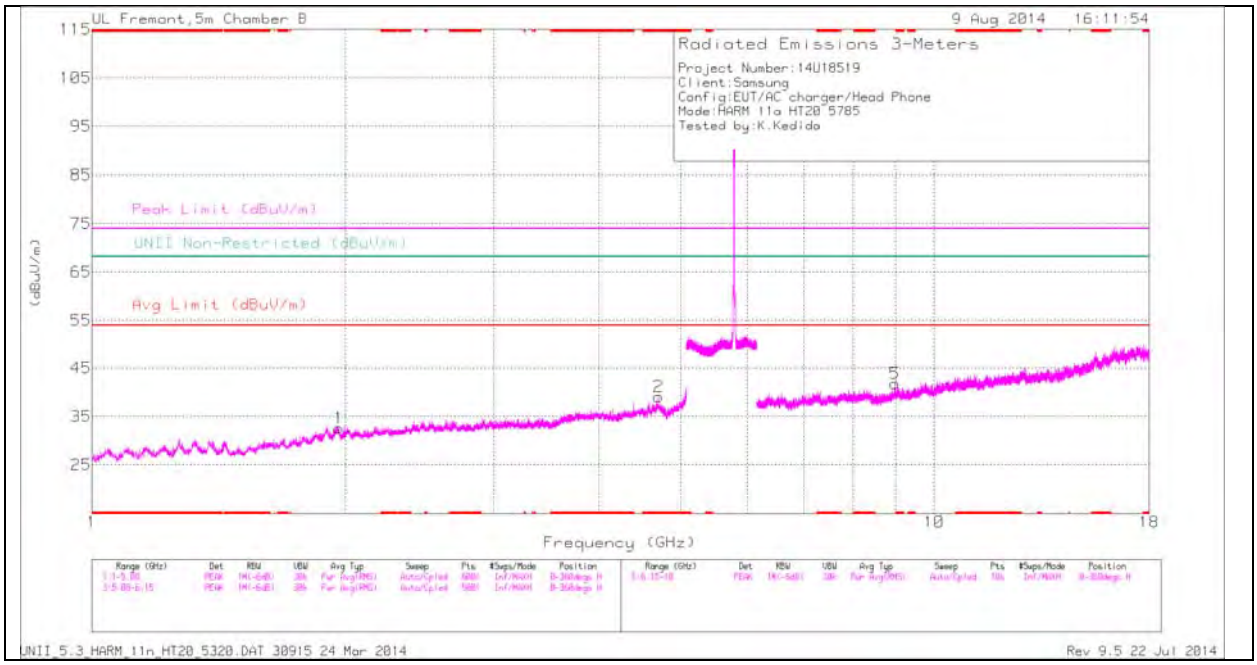
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.698	41.46	PK1	32.2	-31.2	0	42.46	-	-	74	-31.54	-	-	359	200	H
* 2.698	25.95	Avg	32.2	-31.2	.29	27.24	54	-26.76	-	-	-	-	359	200	H
* 4.332	40.48	PK1	33.7	-30.3	0	43.88	-	-	74	-30.12	-	-	359	200	H
* 4.67	40.33	PK1	34.2	-29.2	0	45.33	-	-	74	-28.67	-	-	359	200	V
* 9.101	36.32	PK1	36.3	-24.5	0	48.12	-	-	74	-25.88	-	-	359	102	H

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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

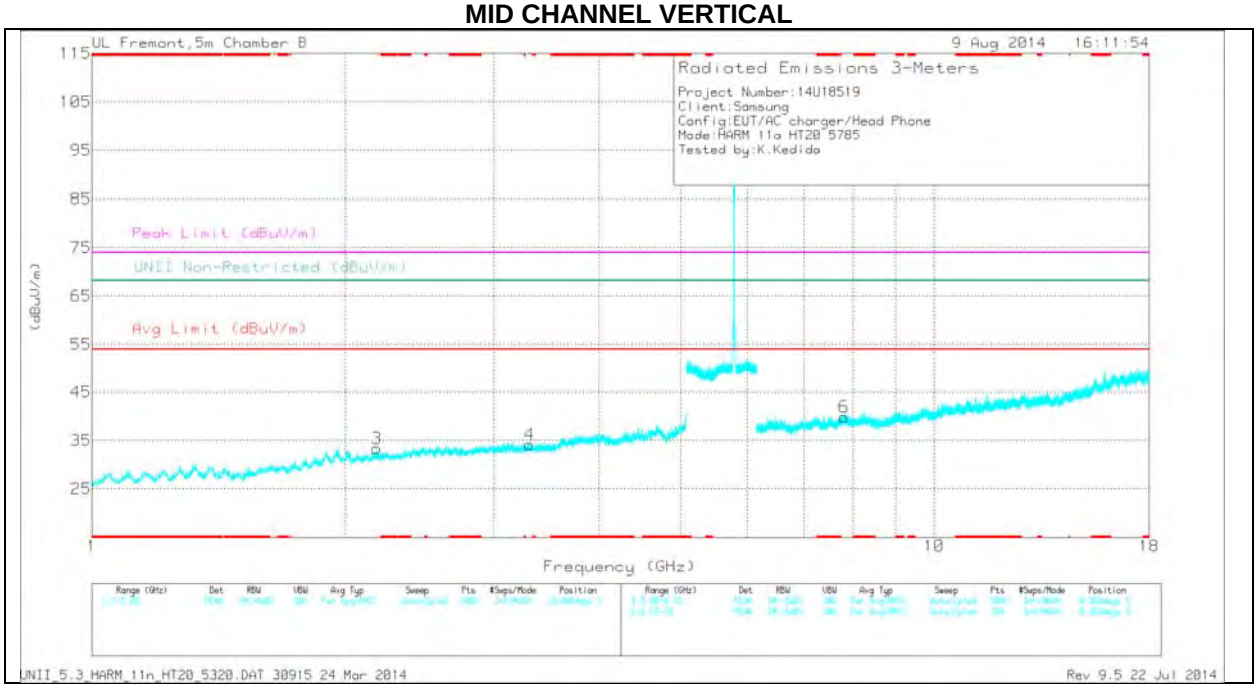


Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 VERTICAL



Note: Emission was scanned up to 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.703	34.42	PK	34.2	-29.6	0	39.02	-	-	74	-34.98	-	-	0-360	199	H
1	1.964	33.79	PK	31.2	-32.4	0	32.59	-	-	-	-	68.2	-35.61	0-360	100	H
3	2.177	34.11	PK	31.3	-32.1	0	33.31	-	-	-	-	68.2	-34.89	0-360	200	V
4	3.307	32.77	PK	32.8	-31.4	0	34.17	-	-	-	-	68.2	-34.03	0-360	101	V
6	7.812	29.81	PK	35.7	-25.7	0	39.81	-	-	-	-	68.2	-28.39	0-360	101	V
5	8.99	30.6	PK	36.2	-25	0	41.8	-	-	-	-	68.2	-26.4	0-360	199	H

PK - Peak detector

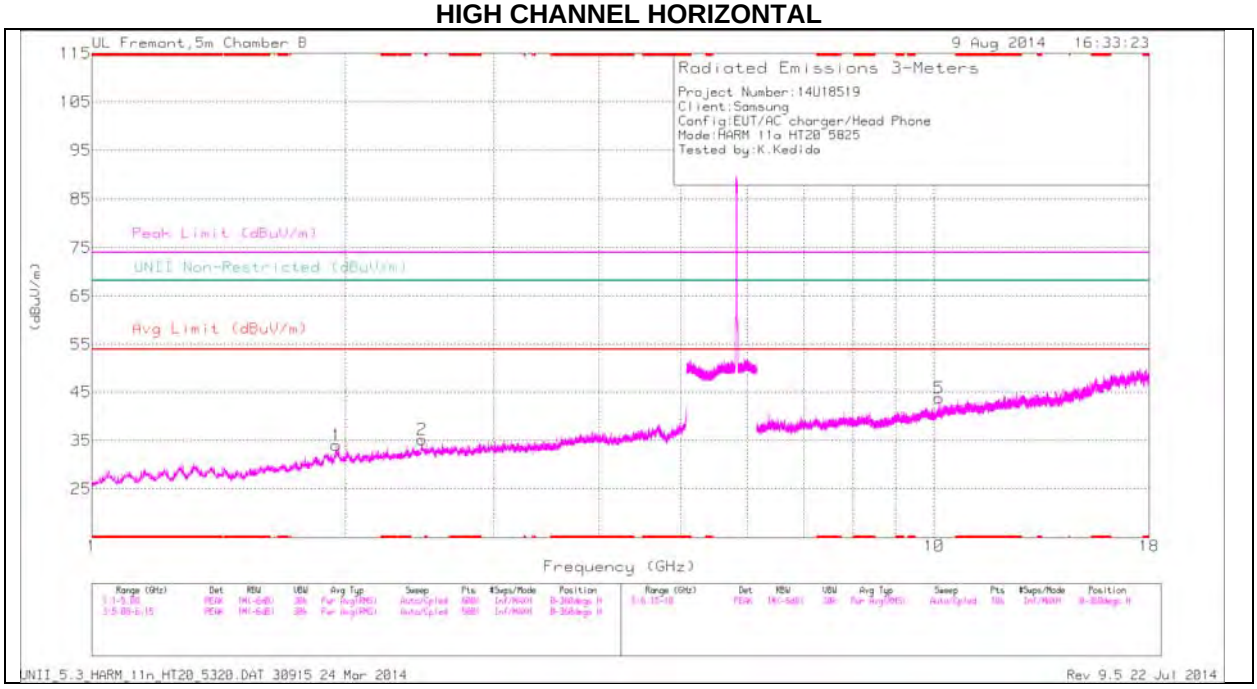
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.705	40.94	PK1	34.2	-29.5	0	45.64	-	-	74	-28.36	-	-	360	199	H
8.99	36.62	PK1	36.2	-24.9	0	47.92	-	-	-	-	68.2	-20.28	360	199	H

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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

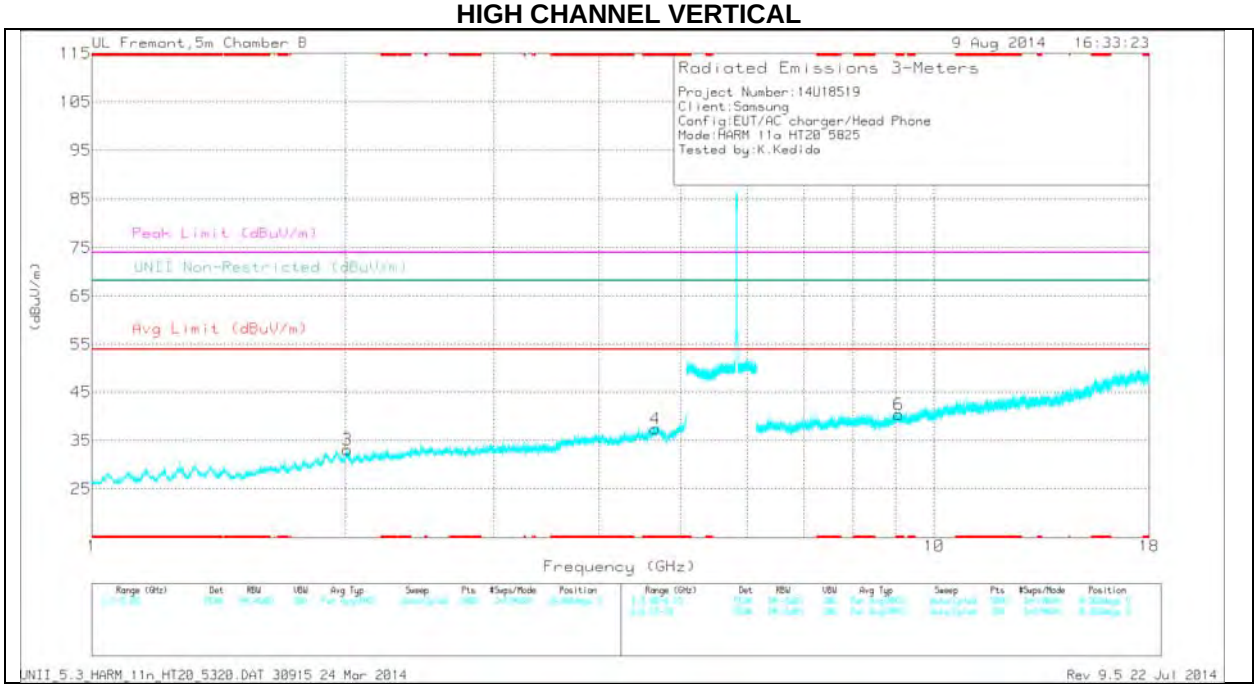
HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 VERTICAL



Note: Emission was scanned up to 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.663	32.29	PK	34.2	-29.1	0	37.39	-	-	74	-36.61	-	-	0-360	199	V
6	* 9.079	28.54	PK	36.3	-24.5	0	40.34	-	-	74	-33.66	-	-	0-360	101	V
1	1.95	35.09	PK	31.2	-32.3	0	33.99	-	-	-	-	68.2	-34.21	0-360	101	H
3	2.009	34.71	PK	31.3	-32.9	0	33.11	-	-	-	-	68.2	-35.09	0-360	199	V
2	2.464	34.75	PK	32.3	-31.9	0	35.15	-	-	-	-	68.2	-33.05	0-360	101	H
5	10.137	29.5	PK	37.1	-22.8	0	43.8	-	-	-	-	68.2	-24.4	0-360	200	H

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.664	39.59	PK1	34.2	-29.1	0	44.69	-	-	74	-29.31	-	-	360	200	V
* 9.081	36.47	PK1	36.3	-24.4	0	48.37	-	-	74	-25.63	-	-	360	102	V

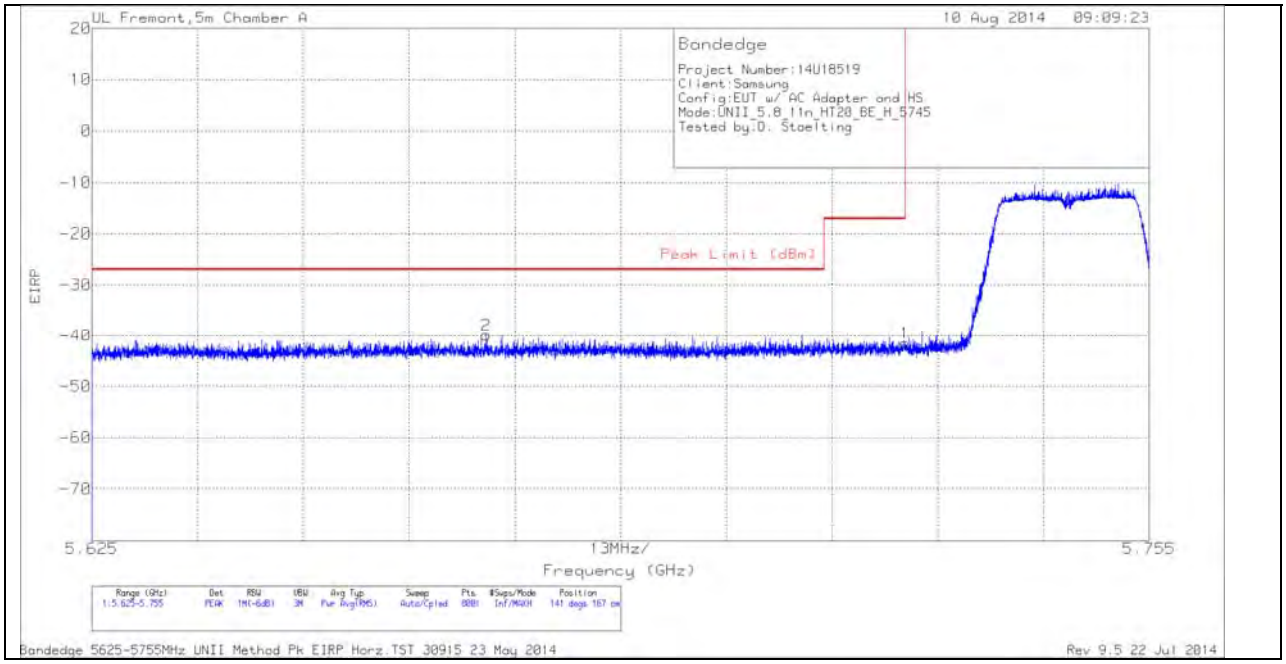
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

11.4.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PEAK AND AVERAGE PLOT



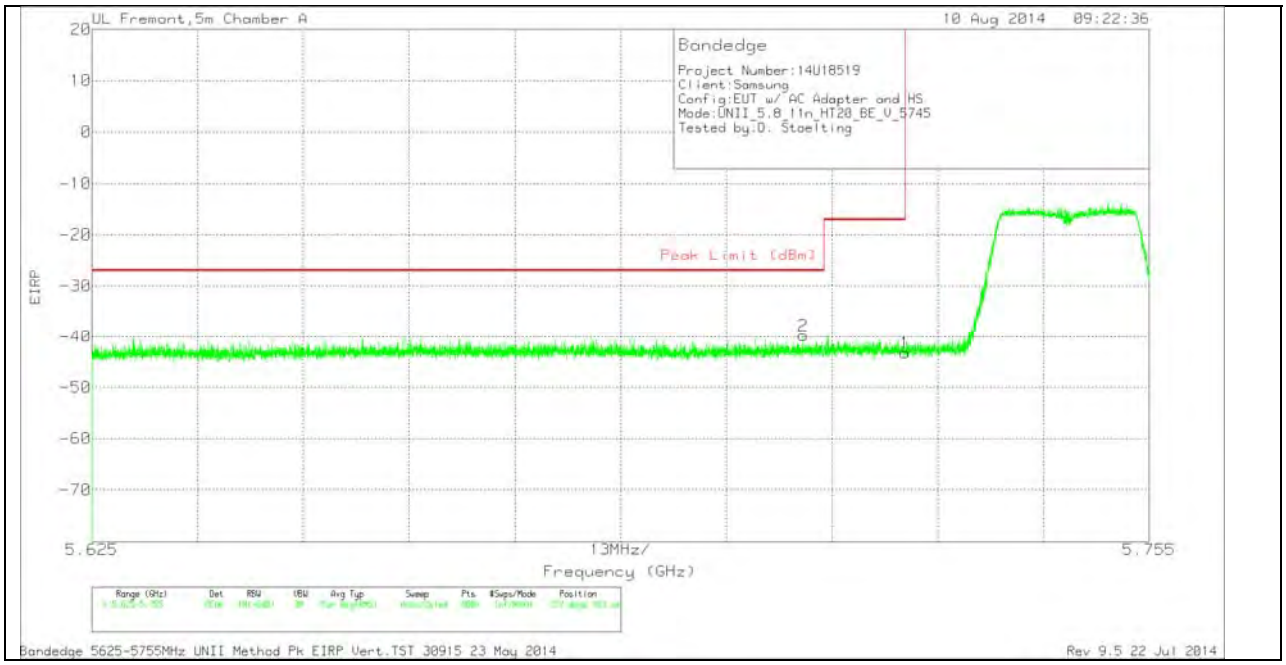
HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.673	-66.33	PK	34.5	-19.9	11.8	0	-39.93	-27	-12.93	141	167	H
1	5.725	-68.34	PK	34.6	-19.6	11.8	0	-41.54	-17	-24.54	141	167	H

PK - Peak detector

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

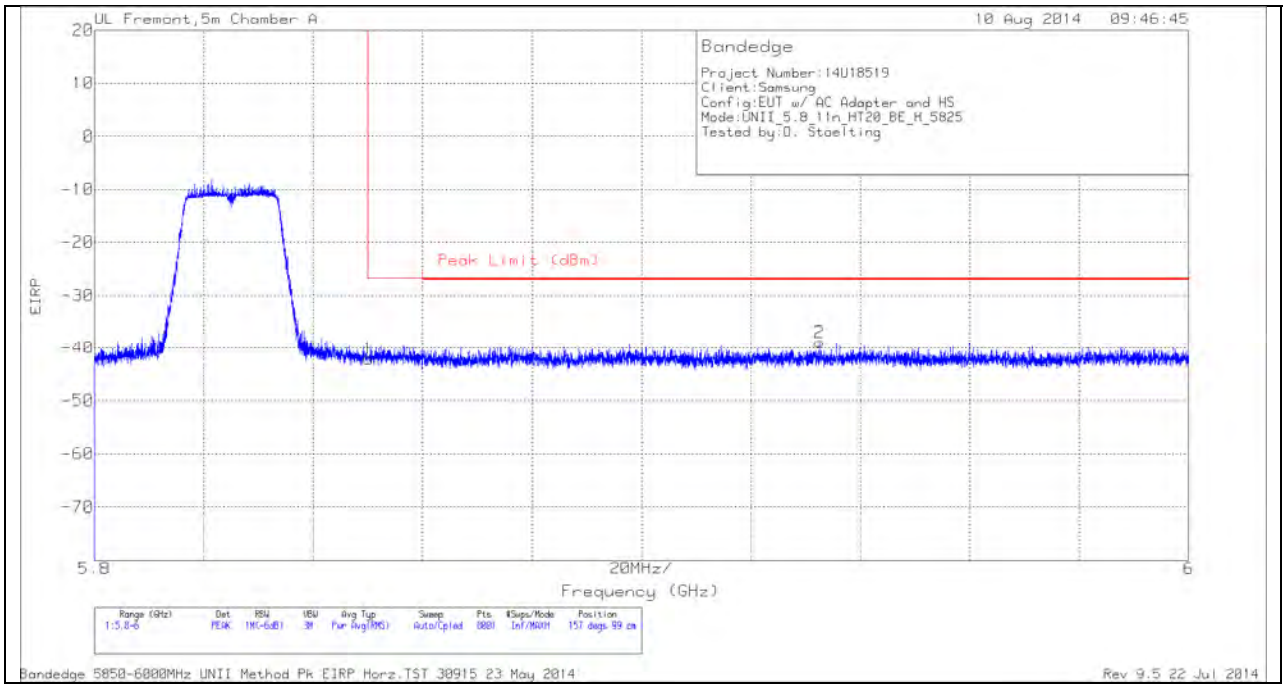
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.712	-66.52	PK	34.5	-19.6	11.8	0	-39.82	-27	-12.82	272	183	V
1	5.725	-69.96	PK	34.6	-19.6	11.8	0	-43.16	-17	-26.16	272	183	V

PK - Peak detector

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



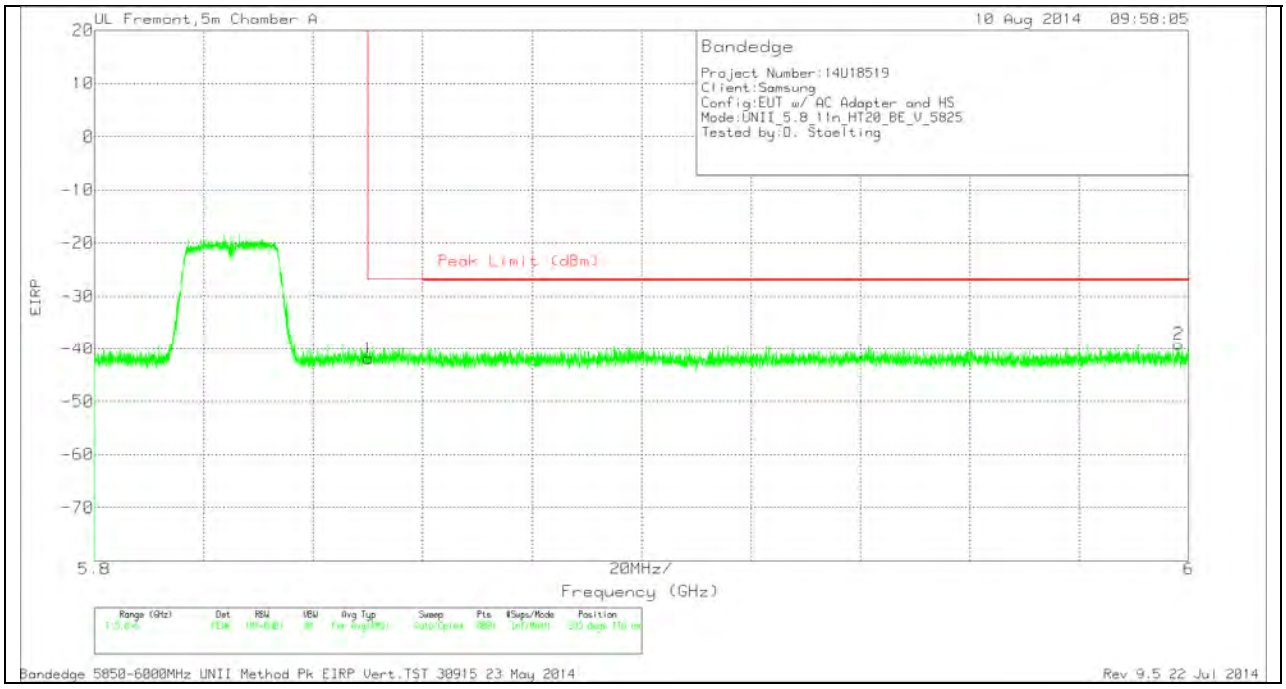
HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-69.55	PK	34.9	-19.2	11.8	0	-42.05	-27	-15.05	157	99	H
2	5.932	-66.44	PK	35.1	-19.4	11.8	0	-38.94	-27	-11.94	157	99	H

PK - Peak detector

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

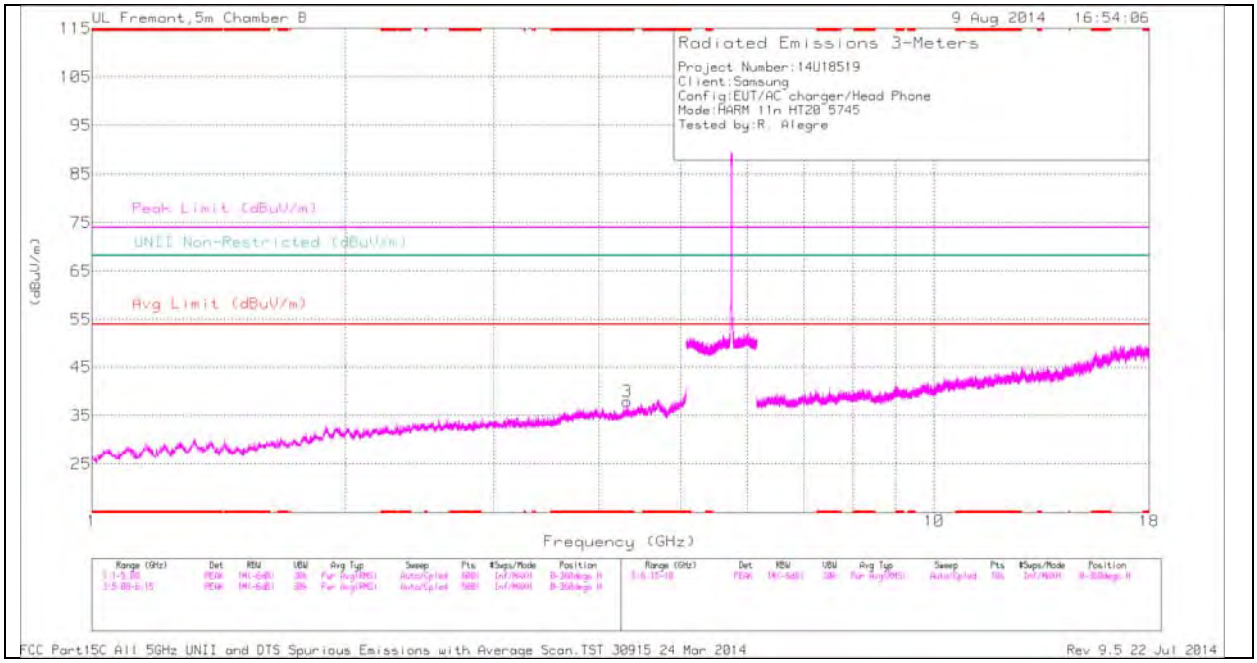
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-69.36	PK	34.9	-19.2	11.8	0	-41.86	-27	-14.86	335	116	V
2	5.998	-67.1	PK	35.3	-19.1	11.8	0	-39.1	-27	-12.1	335	116	V

PK - Peak detector

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

HARMONICS AND SPURIOUS EMISSIONS

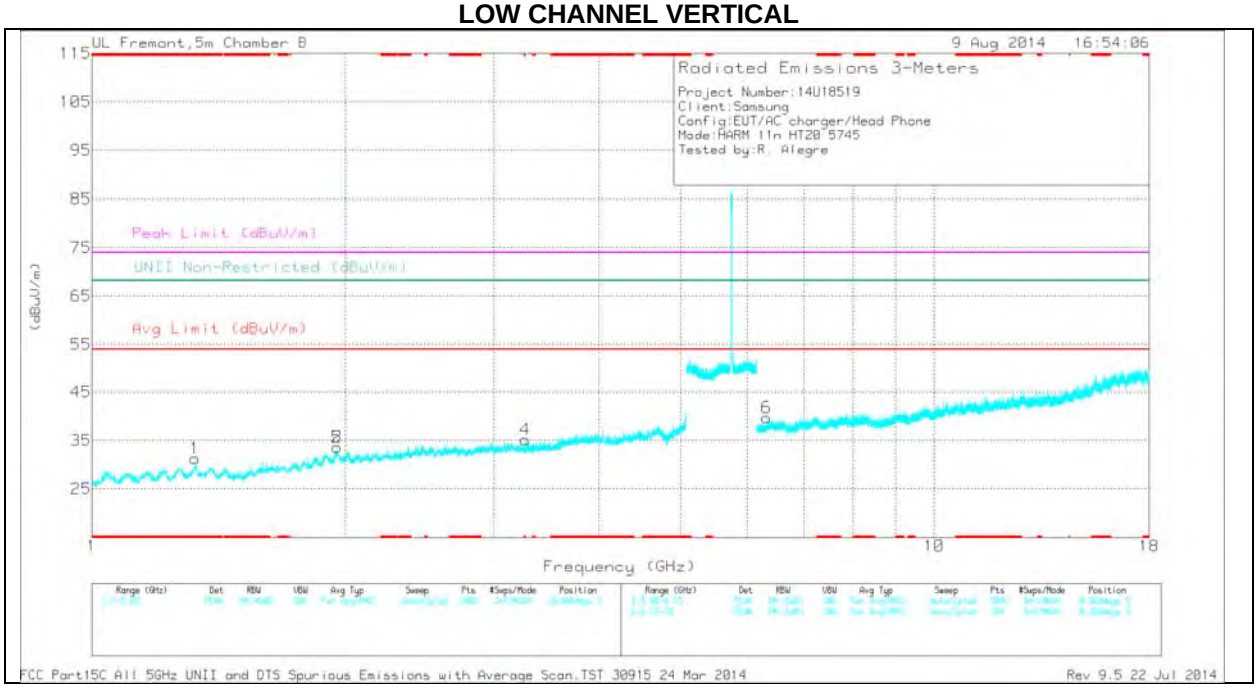
LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.318	33.87	PK	33.7	-29.7	0	37.87	-	-	74	-36.13	-	-	0-360	200	H
1	* 1.325	36.18	PK	28.8	-33.7	0	31.28	-	-	74	-42.72	-	-	0-360	200	V
2	1.954	34.75	PK	31.2	-32.3	0	33.65	-	-	-	-	68.2	-34.55	0-360	101	V
5	1.954	34.75	PK	31.2	-32.3	0	33.65	-	-	-	-	68.2	-34.55	0-360	101	V
4	3.267	33.83	PK	32.8	-31.5	0	35.13	-	-	-	-	68.2	-33.07	0-360	200	V
6	6.324	32.2	PK	35.5	-28	0	39.7	-	-	-	-	68.2	-28.5	0-360	101	V

PK - Peak detector

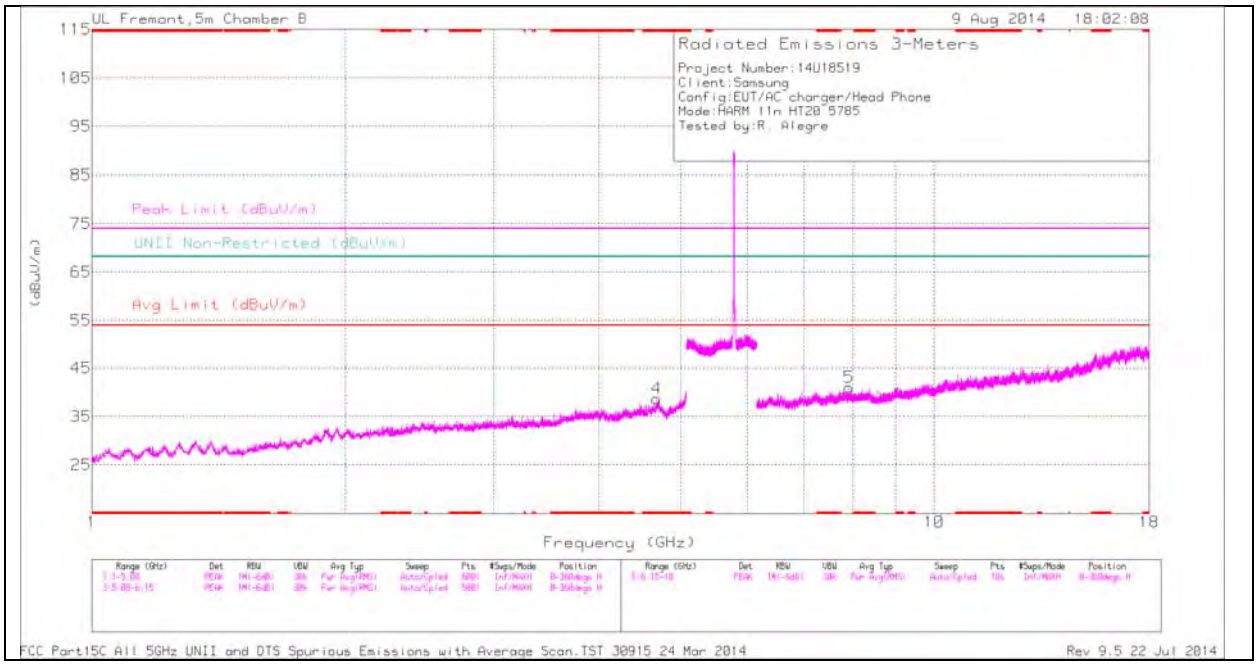
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.319	40.84	PK1	33.7	-29.7	0	44.84	-	-	74	-29.16	-	-	359	200	H
* 1.326	44.13	PK1	28.8	-33.7	0	39.23	-	-	74	-34.77	-	-	359	200	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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

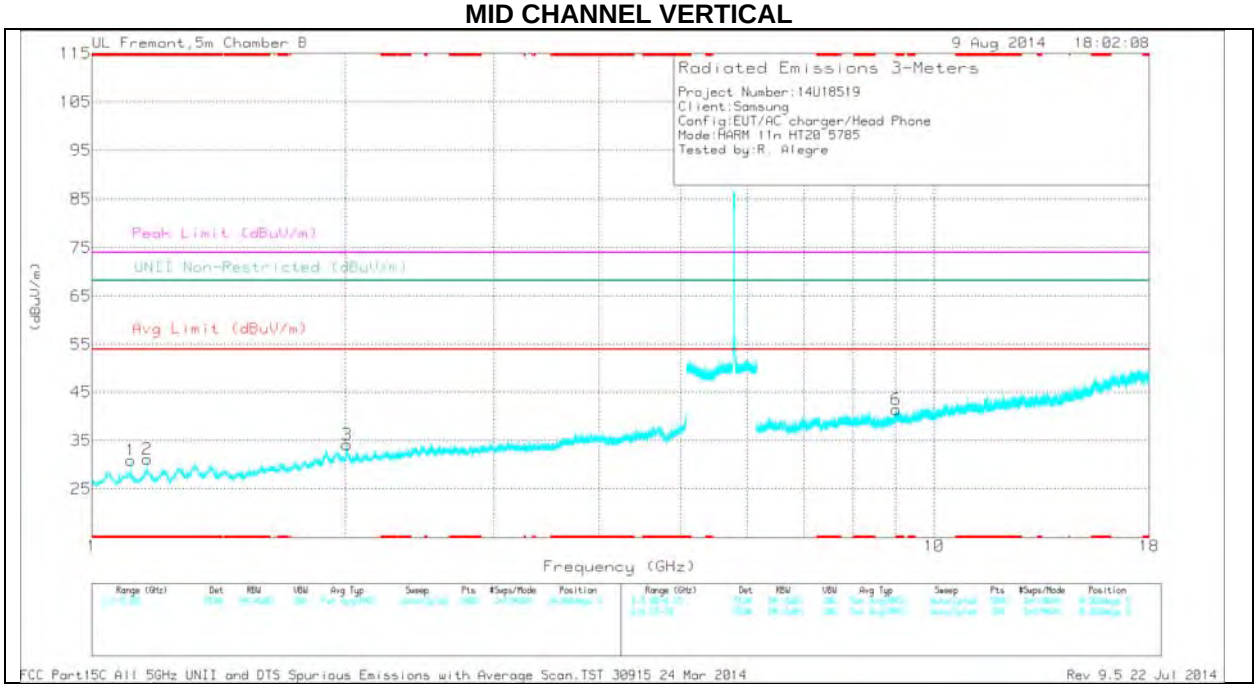
MID CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.681	34.04	PK	34.2	-29.5	0	38.74	-	-	74	-35.26	-	-	0-360	101	H
1	* 1.112	37.65	PK	27.5	-34.2	0	30.95	-	-	74	-43.05	-	-	0-360	199	V
2	* 1.163	37.51	PK	27.9	-34.3	0	31.11	-	-	74	-42.89	-	-	0-360	199	V
6	* 9.009	29.95	PK	36.2	-24.7	0	41.45	-	-	74	-32.55	-	-	0-360	199	V
3	2.008	35.75	PK	31.3	-32.9	0	34.15	-	-	-	-	68.2	-34.05	0-360	101	V
5	7.927	31.53	PK	35.7	-26.2	0	41.03	-	-	-	-	68.2	-27.17	0-360	199	H

PK - Peak detector

RADIATED EMISSIONS

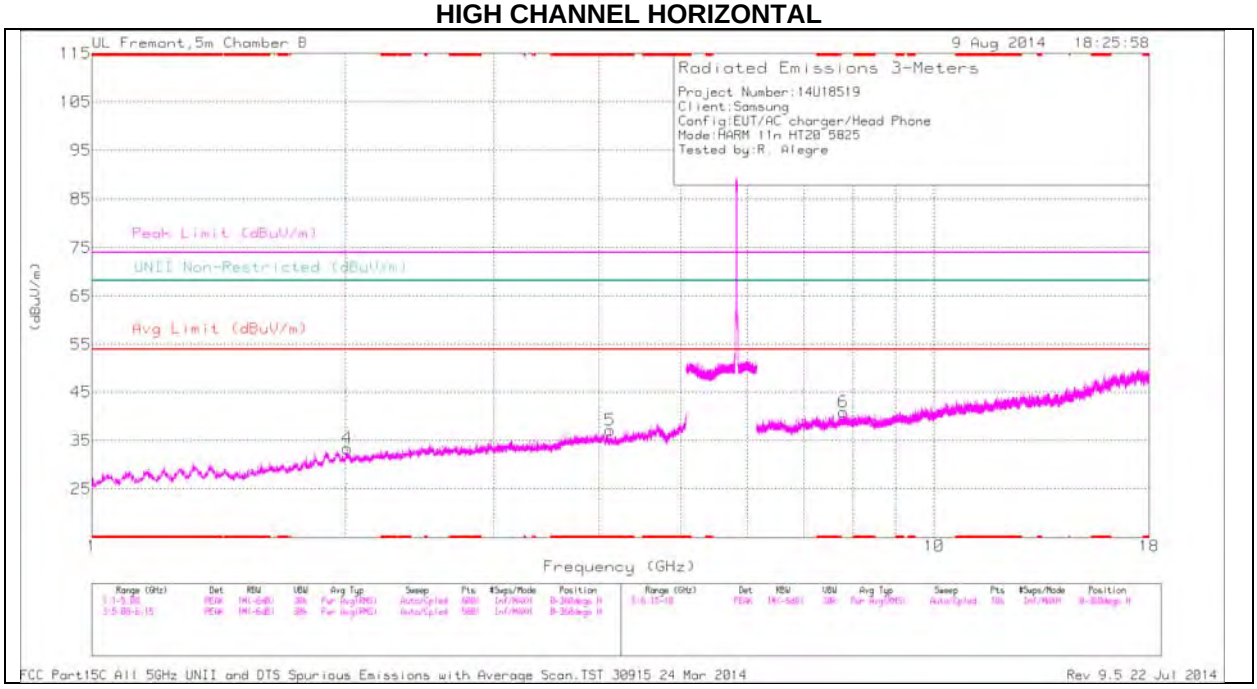
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.682	41.29	PK1	34.2	-29.5	0	45.99	-	-	74	-28.01	-	-	360	101	H
* 1.11	43.42	PK1	27.5	-34.2	0	36.72	-	-	74	-37.28	-	-	360	199	V
* 1.164	43.92	PK1	27.9	-34.3	0	37.52	-	-	74	-36.48	-	-	360	199	V
* 9.01	36.07	PK1	36.2	-24.6	0	47.67	-	-	74	-26.33	-	-	360	199	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

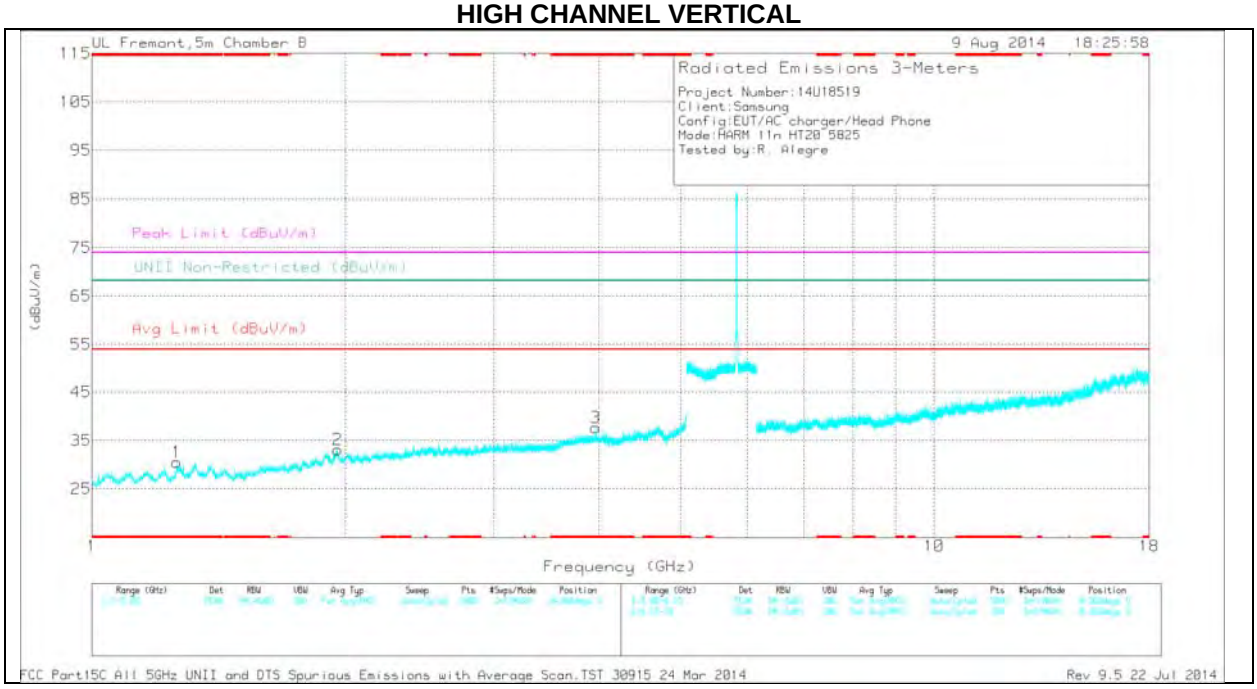
HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 VERTICAL



Note: Emission was scanned up to 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* 4.122	34.18	PK	33.6	-30.7	0	37.08	-	-	74	-36.92	-	-	0-360	101	H
1	* 1.26	36.06	PK	28.6	-34.2	0	30.46	-	-	74	-43.54	-	-	0-360	199	V
3	* 3.965	34.01	PK	33.7	-30.1	0	37.61	-	-	74	-36.39	-	-	0-360	101	V
2	1.957	34.19	PK	31.2	-32.3	0	33.09	-	-	-	-	68.2	-35.11	0-360	101	V
4	2.01	35.03	PK	31.3	-32.9	0	33.43	-	-	-	-	68.2	-34.77	0-360	199	H
6	7.806	30.8	PK	35.7	-25.6	0	40.9	-	-	-	-	68.2	-27.3	0-360	101	H

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.121	40.66	PK1	33.6	-30.7	0	43.56	-	-	74	-30.44	-	-	359	100	H
* 1.26	42.92	PK1	28.6	-34.2	0	37.32	-	-	74	-36.68	-	-	359	199	V
* 3.965	40.75	PK1	33.7	-30.1	0	44.35	-	-	74	-29.65	-	-	359	102	V

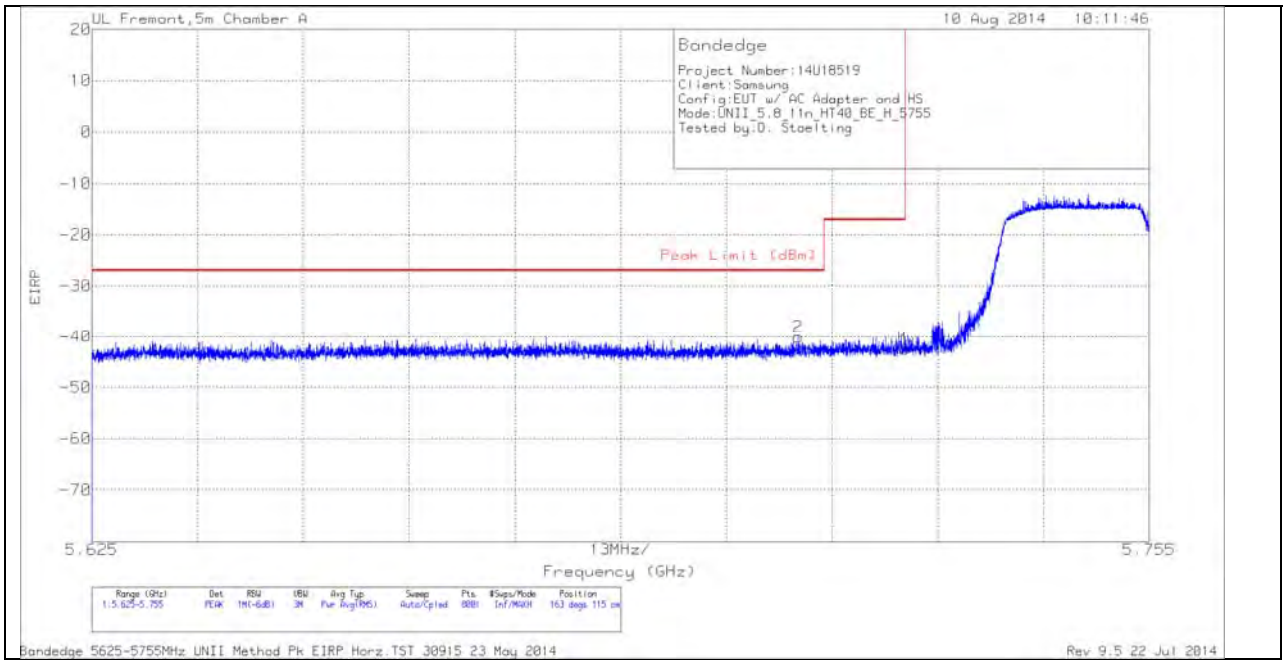
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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

11.4.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PEAK AND AVERAGE PLOT



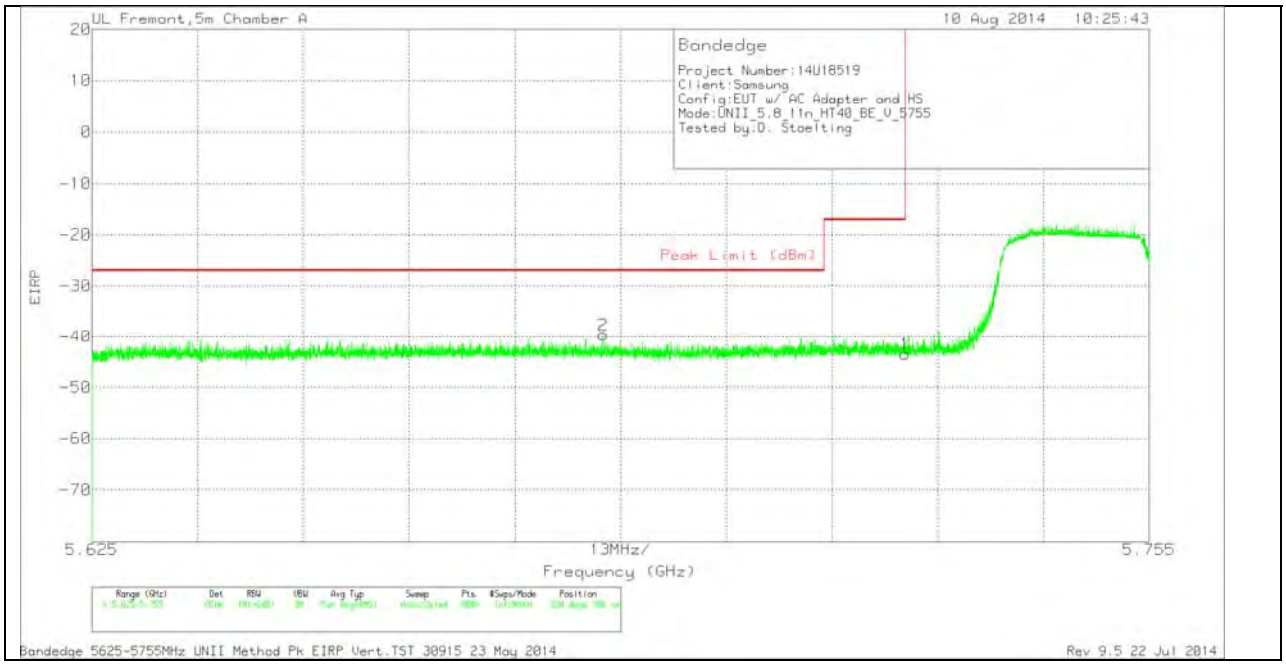
HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.712	-66.68	PK	34.5	-19.7	11.8	0	-40.08	-27	-13.08	163	115	H
1	5.725	-69.25	PK	34.6	-19.6	11.8	0	-42.45	-17	-25.45	163	115	H

PK - Peak detector

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

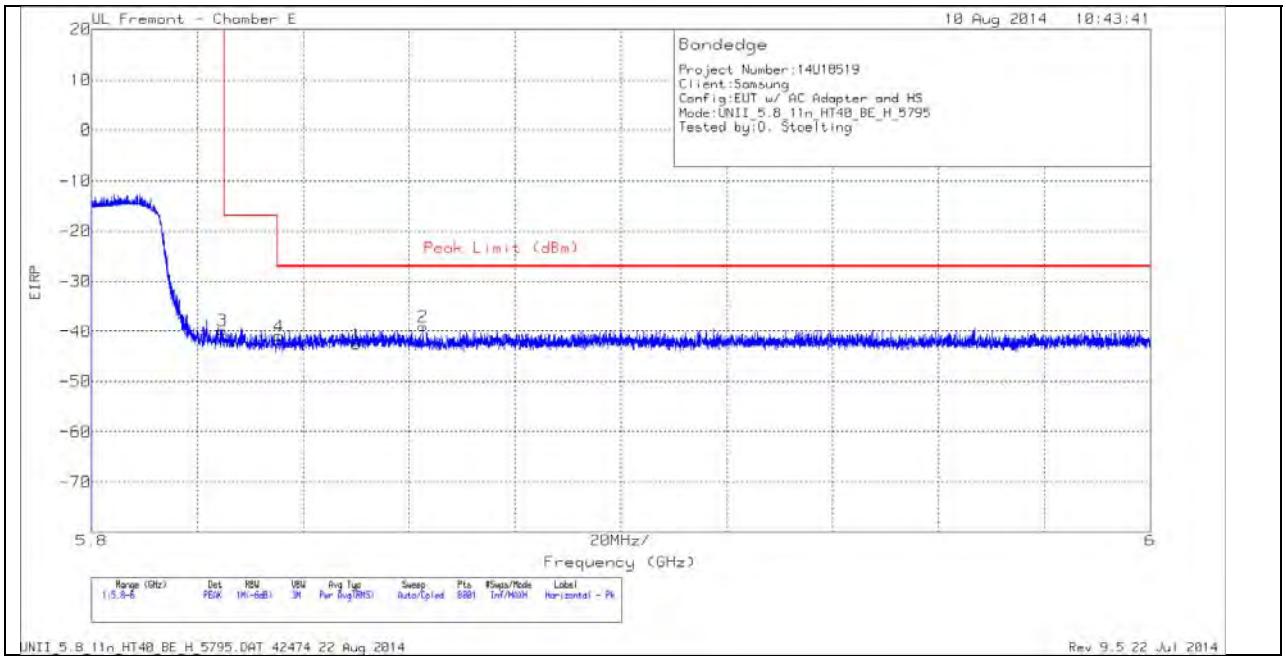
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.688	-66.27	PK	34.5	-19.7	11.8	0	-39.67	-27	-12.67	339	186	V
1	5.725	-70.21	PK	34.6	-19.6	11.8	0	-43.41	-17	-26.41	339	186	V

PK - Peak detector

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



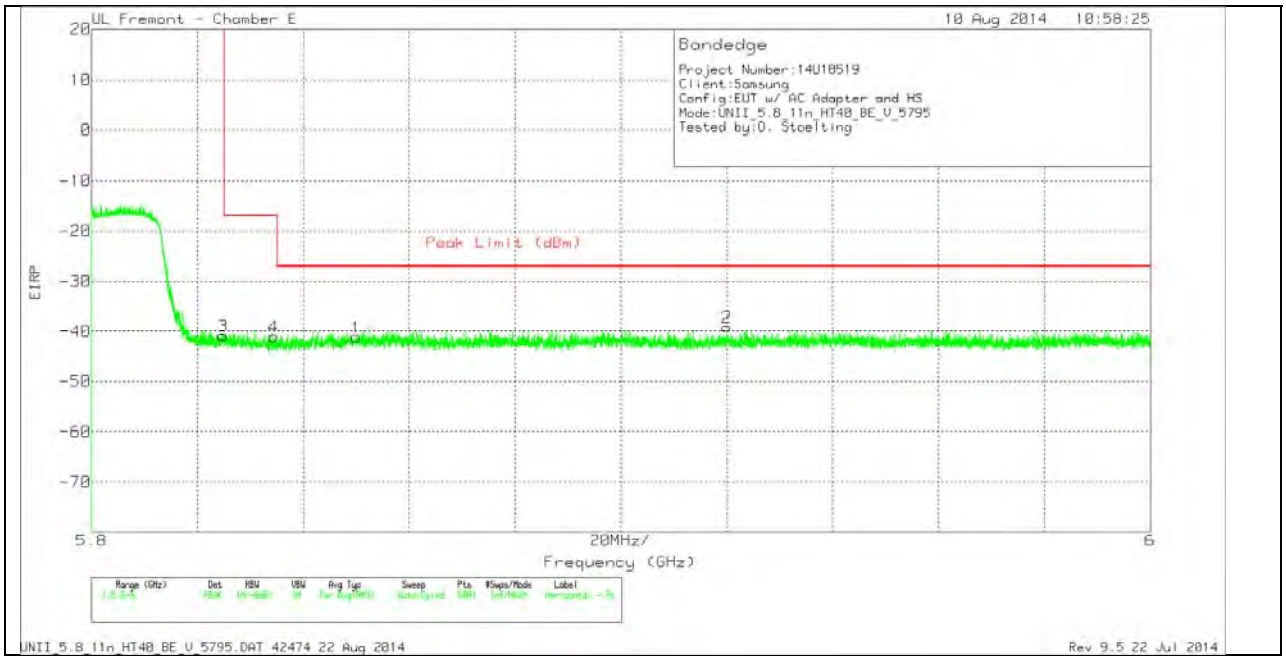
HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-70.12	PK	34.9	-19.2	11.8	0	-42.62	-27	-15.62	166	165	H
2	5.863	-66.11	PK	34.9	-19.6	11.8	0	-39.01	-27	-12.01	166	165	H
3	5.825	-66.79	PK	34.8	-19.5	11.8	0	-39.69	-	-	166	165	H
4	5.835	-67.54	PK	34.8	-20	11.8	0	-40.94	-27	-13.94	166	165	H

PK - Peak detector

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

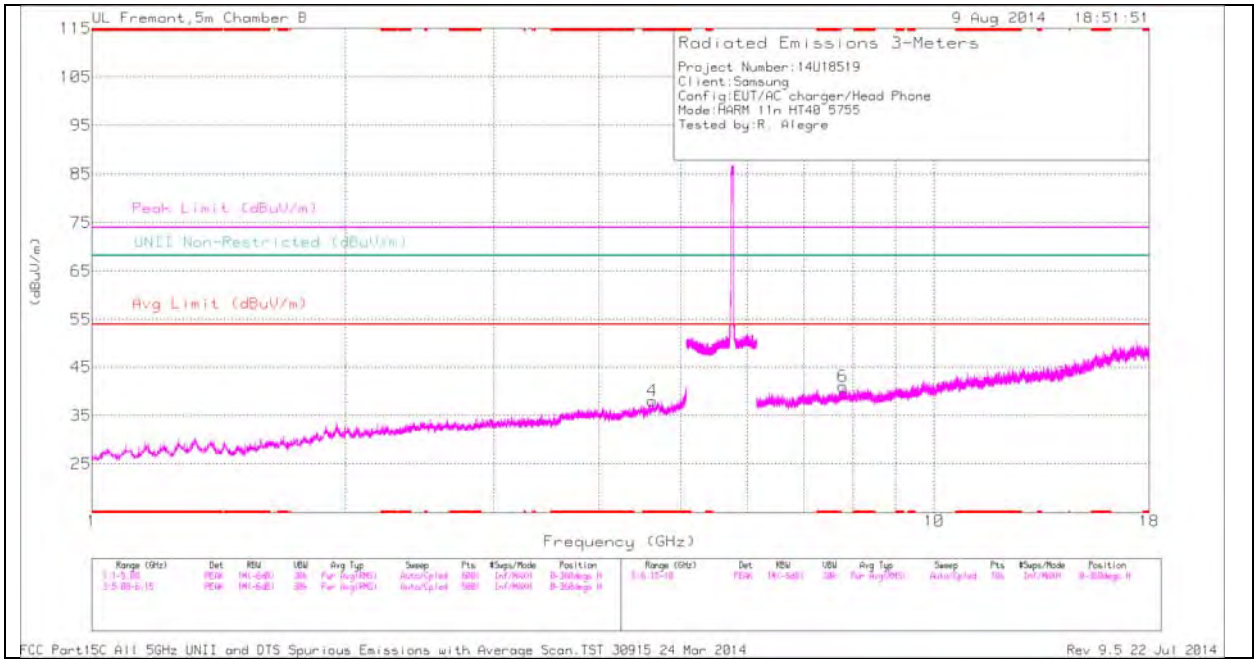
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-68.68	PK	34.9	-19.2	11.8	0	-41.18	-27	-14.18	273	201	V
2	5.92	-66.45	PK	35.1	-19.6	11.8	0	-39.15	-27	-12.15	273	201	V
3	5.825	-68	PK	34.8	-19.5	11.8	0	-40.9	-	-	273	201	V
4	5.834	-67.64	PK	34.8	-20	11.8	0	-41.04	-17	-24.04	273	201	V

PK - Peak detector

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

HARMONICS AND SPURIOUS EMISSIONS

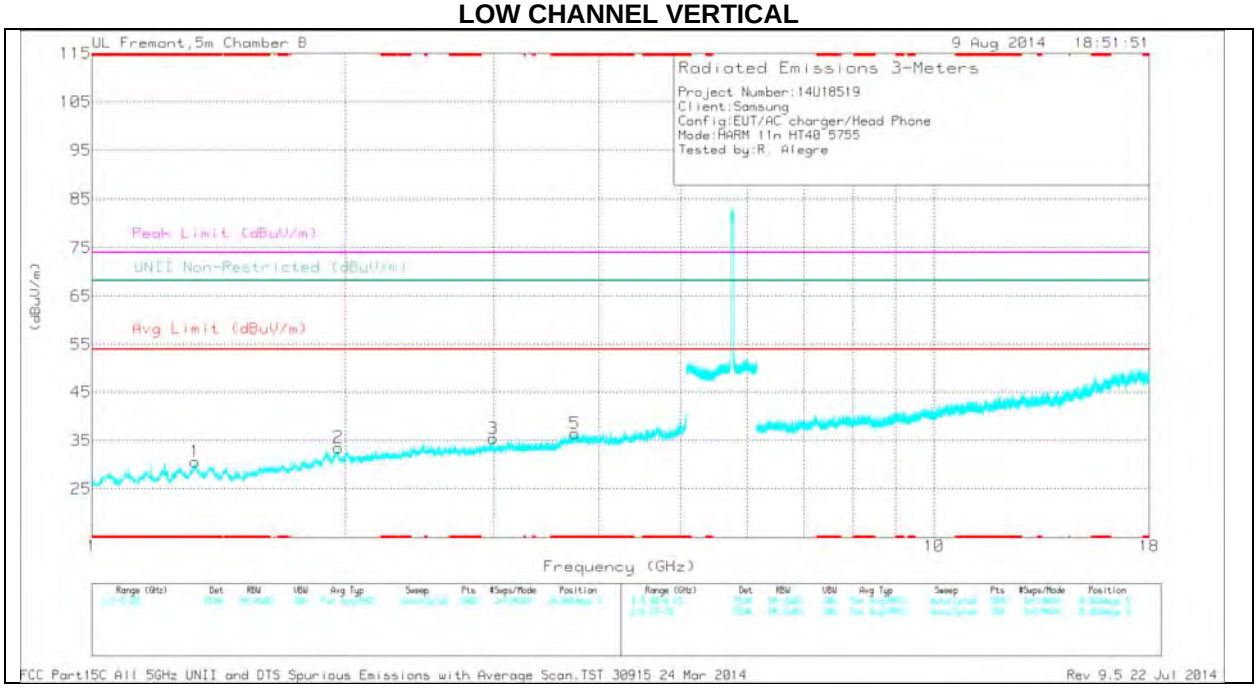
LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.627	32.79	PK	34.2	-29	0	37.99	-	-	74	-36.01	-	-	0-360	199	H
1	* 1.326	35.57	PK	28.8	-33.7	0	30.67	-	-	74	-43.33	-	-	0-360	199	V
5	* 3.743	33.74	PK	33.5	-30.7	0	36.54	-	-	74	-37.46	-	-	0-360	101	V
2	1.962	34.76	PK	31.2	-32.4	0	33.56	-	-	-	-	68.2	-34.64	0-360	199	V
3	2.993	34.09	PK	32.8	-31.4	0	35.49	-	-	-	-	68.2	-32.71	0-360	199	V
6	7.784	30.98	PK	35.7	-25.6	0	41.08	-	-	-	-	68.2	-27.12	0-360	199	H

PK - Peak detector

RADIATED EMISSIONS

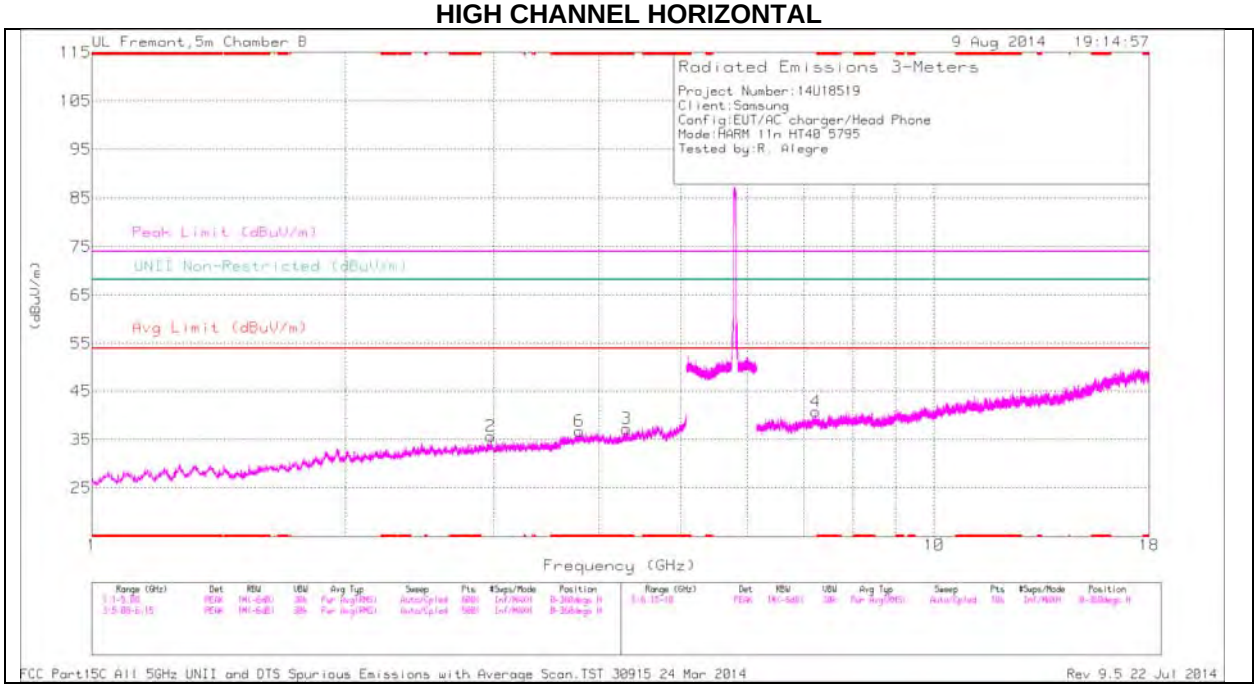
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.626	39.88	PK1	34.2	-28.9	0	45.18	-	-	74	-28.82	-	-	360	199	H
* 1.324	42.73	PK1	28.8	-33.7	0	37.83	-	-	74	-36.17	-	-	360	199	V
* 3.743	41.04	PK1	33.5	-30.7	0	43.84	-	-	74	-30.16	-	-	360	102	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

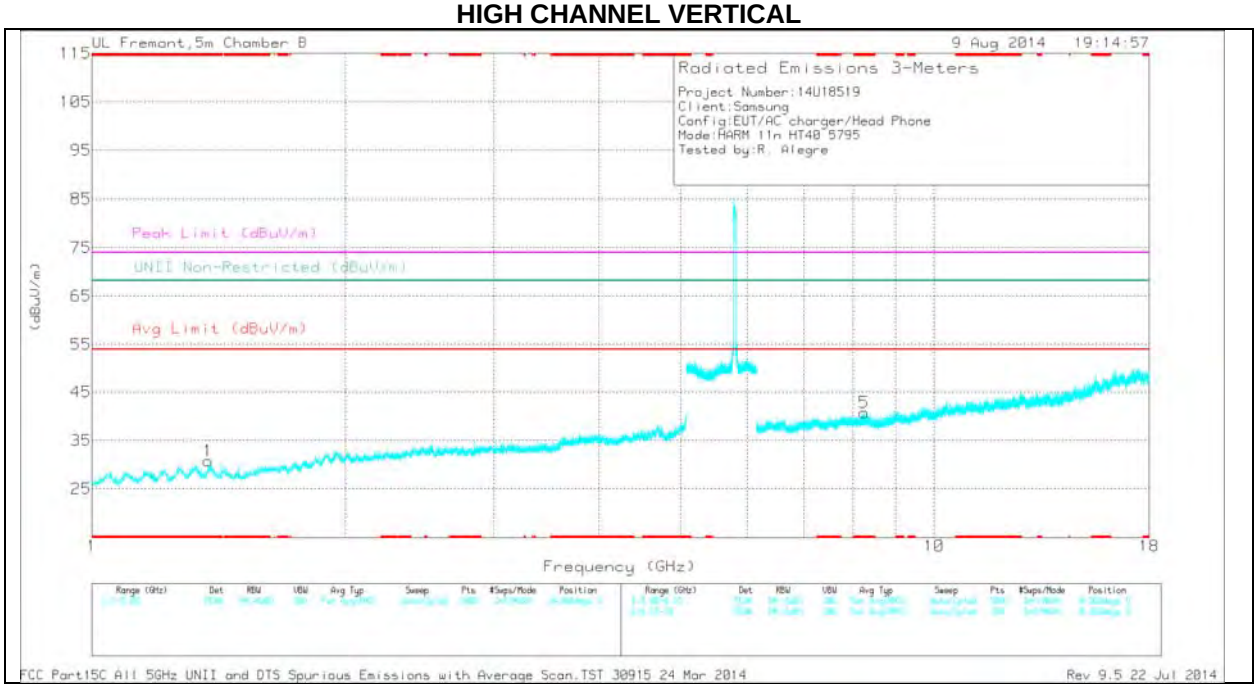
HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 VERTICAL



Note: Emission was scanned up to 40GHz; 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 T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.313	33	PK	33.7	-29.5	0	37.2	-	-	74	-36.8	-	-	0-360	102	H
6	* 3.791	33.87	PK	33.6	-30.7	0	36.77	-	-	74	-37.23	-	-	0-360	200	H
1	* 1.375	35.79	PK	28.6	-33.6	0	30.79	-	-	74	-43.21	-	-	0-360	101	V
5	* 8.262	30.55	PK	35.7	-25.5	0	40.75	-	-	74	-33.25	-	-	0-360	199	V
2	2.973	34.5	PK	32.7	-31.5	0	35.7	-	-	-	-	68.2	-32.5	0-360	102	H
4	7.239	31.02	PK	35.6	-25.8	0	40.82	-	-	-	-	68.2	-27.38	0-360	199	H

PK - Peak detector

RADIATED EMISSIONS

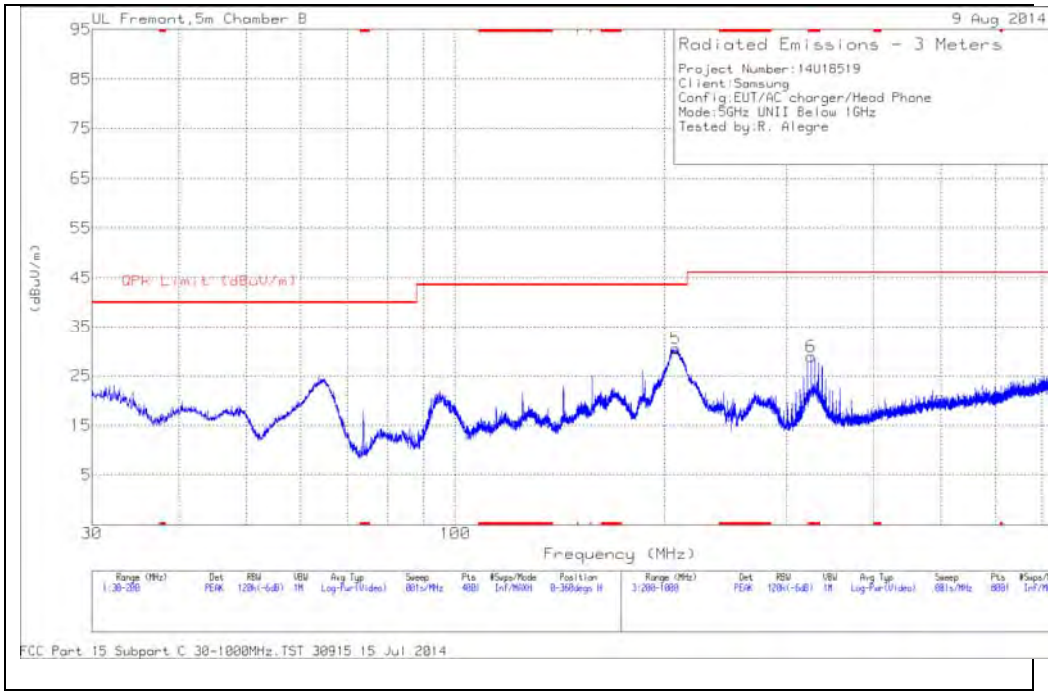
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.311	39.8	PK1	33.7	-29.5	0	44	-	-	74	-30	-	-	359	101	H
* 3.79	40.83	PK1	33.6	-30.7	0	43.73	-	-	74	-30.27	-	-	359	199	H
* 1.376	43.17	PK1	28.6	-33.6	0	38.17	-	-	74	-35.83	-	-	359	102	V
* 8.263	38.02	PK1	35.7	-25.5	0	48.22	-	-	74	-25.78	-	-	359	199	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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

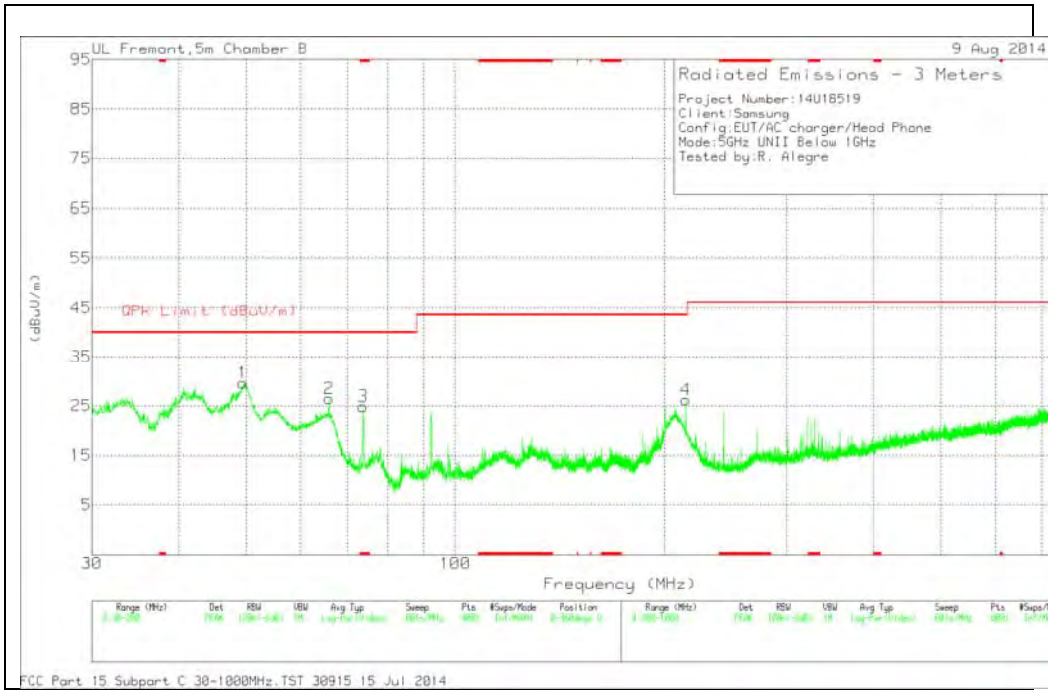
12. WORST-CASE BELOW 1 GHz (in the 5.3 GHz Band)

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



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)



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

Below 1G Data

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 73.7325	45.1	PK	8.1	-28.3	24.9	40	-15.1	0-360	101	V
6	* 325.5	40.76	PK	13.9	-25.8	28.86	46.02	-17.16	0-360	101	H
1	49.5075	50.07	PK	8.2	-28.6	29.67	40	-10.33	0-360	101	V
2	65.785	47.01	PK	7.9	-28.4	26.51	40	-13.49	0-360	101	V
5	207.9	46.79	PK	10.6	-26.8	30.59	43.52	-12.93	0-360	101	H
4	214.8	42.48	PK	10.6	-26.8	26.28	43.52	-17.24	0-360	200	V

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

PK - Peak detector

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

13. 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.

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

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

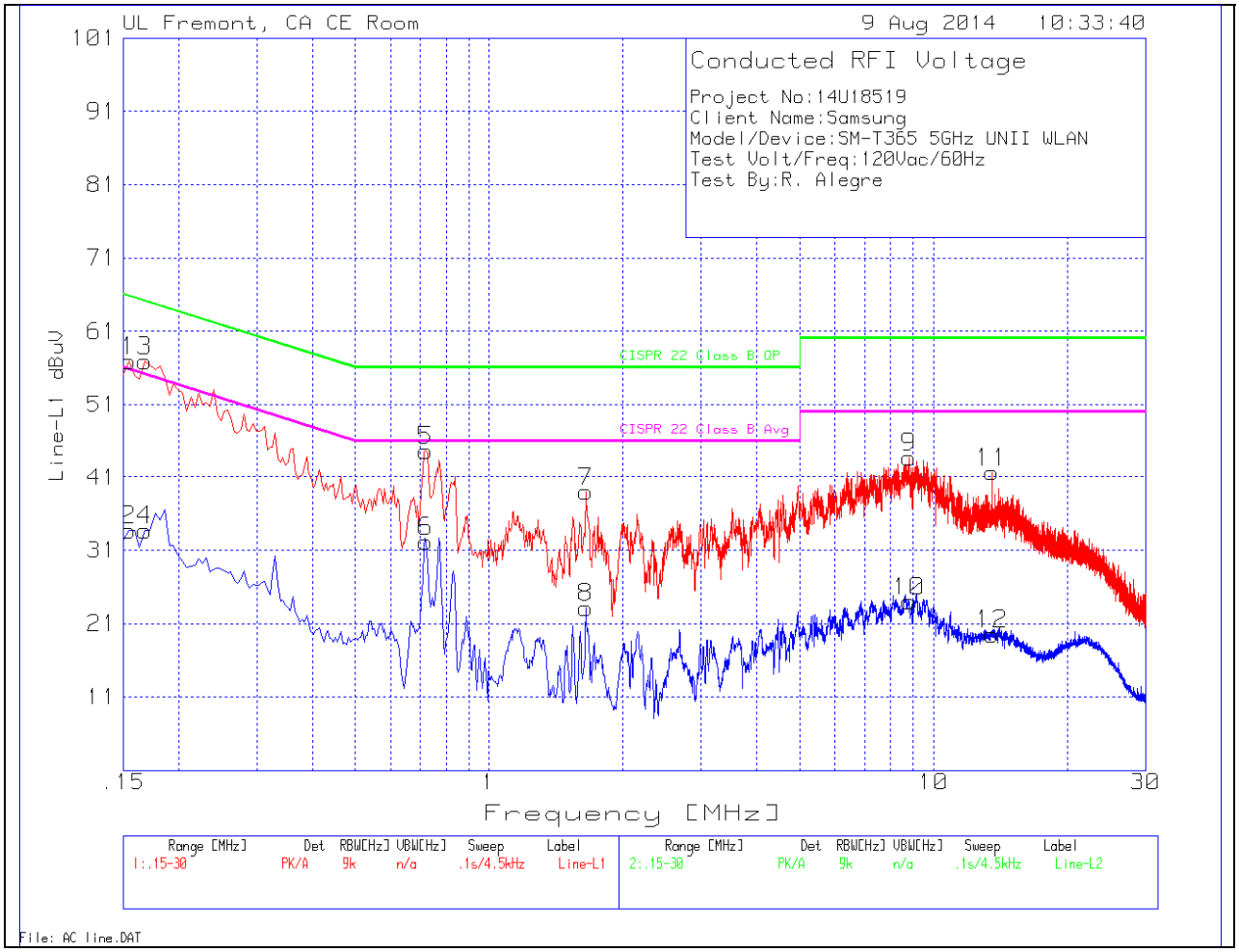
RESULTS

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

6 WORST EMISSIONS

LINE 1 PLOT



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

LINE 1 RESULTS

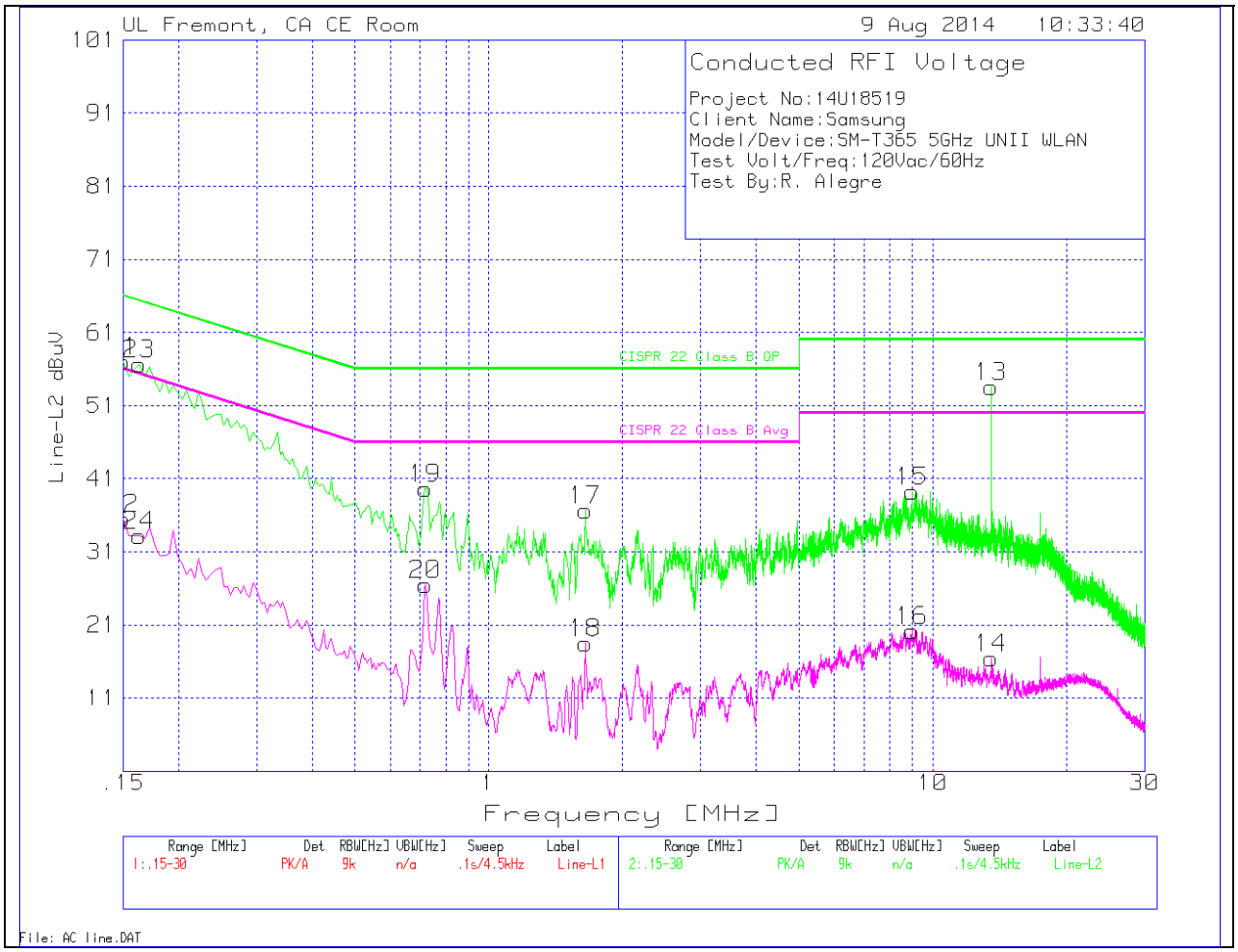
Line-L1 .15 - 30MHz

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	.1545	55.62	PK	1.3	0	56.92	65.8	-8.88	-	-
2	.1545	32.39	Av	1.3	0	33.69	-	-	55.8	-22.11
3	.168	55.65	PK	1.2	0	56.85	65.1	-8.25	-	-
4	.168	32.55	Av	1.2	0	33.75	-	-	55.1	-21.35
5	.7215	44.41	PK	.3	0	44.71	56	-11.29	-	-
6	.7215	31.89	Av	.3	0	32.19	-	-	46	-13.81
7	1.6485	38.63	PK	.2	.1	38.93	56	-17.07	-	-
8	1.6485	22.89	Av	.2	.1	23.19	-	-	46	-22.81
9	8.7945	43.42	PK	.2	.1	43.72	60	-16.28	-	-
10	8.7945	23.67	Av	.2	.1	23.97	-	-	50	-26.03
11	13.551	41.35	PK	.2	.2	41.75	60	-18.25	-	-
12	13.551	19.11	Av	.2	.2	19.51	-	-	50	-30.49

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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



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

LINE 2 RESULTS

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	8.9925	38.94	PK	.2	.1	39.24	60	-20.76	-	-
16	8.9925	19.88	Av	.2	.1	20.18	-	-	50	-29.82
17	1.6485	36.4	PK	.2	.1	36.7	56	-19.3	-	-
18	1.6485	18.18	Av	.2	.1	18.48	-	-	46	-27.52
19	.7215	39.36	PK	.3	0	39.66	56	-16.34	-	-
20	.7215	26.23	Av	.3	0	26.53	-	-	46	-19.47
21	.15	55.54	PK	1.5	0	57.04	66	-8.96	-	-
22	.15	34.06	Av	1.5	0	35.56	-	-	56	-20.44
23	.1635	55.38	PK	1.3	0	56.68	65.3	-8.62	-	-
24	.1635	31.83	Av	1.3	0	33.13	-	-	55.3	-22.17
13	13.56	53.02	PK	.3	.2	53.52	60	-6.48	-	-
14	13.56	15.94	Av	.3	.2	16.44	-	-	50	-33.56

PK - Peak detector

Av - average detection

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

14. DYNAMIC FREQUENCY SELECTION

14.1. OVERVIEW

14.1.1. LIMITS

INDUSTRY CANADA

IC RSS-210 is closely harmonized with FCC Part 15 DFS rules. The deviations are as follows:

RSS-210 Issue 7 A9.4 (b) (ii) **Channel Availability Check Time:** …

Additional requirements for the band 5600-5650 MHz: Until further notice, devices subject to this Section shall not be capable of transmitting in the band 5600-5650 MHz, so that Environment Canada weather radars operating in this band are protected.

FCC

§15.407 (h) and FCC 06-96 APPENDIX "COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVCIES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION".

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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 1: Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client (with radar detection)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
Uniform Spreading	Yes	Not required	Not required

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client **(without DFS)**	Client **(with DFS)**
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes

Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value (see note)
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 dBm

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

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna

Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

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

Table 4: DFS Response requirement values

Parameter	Value
Non-occupancy period	30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds
Channel Closing Transmission Time	200 milliseconds + approx. 60 milliseconds over remaining 10 second period

The instant that the *Channel Move Time* and the *Channel Closing Transmission Time* begins is as follows:

For the Short pulse radar Test Signals this instant is the end of the *Burst*.

For the Frequency Hopping radar Test Signal, this instant is the end of the last radar burst generated.

For the Long Pulse radar Test Signal this instant is the end of the 12-second period defining the radar transmission.

The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate channel changes (an aggregate of approximately 60 milliseconds) during the remainder of the 10-second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (Microseconds)	PRI (Microseconds)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
1	1	1428	18	60%	30
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30

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

Aggregate (Radar Types 1-4)	80%	120

Table 6 – Long Pulse Radar Test Signal

Radar Waveform	Bursts	Pulses per Burst	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Minimum Percentage of Successful Detection	Minimum Trials
5	8-20	1-3	50-100	5-20	1000-2000	80%	30

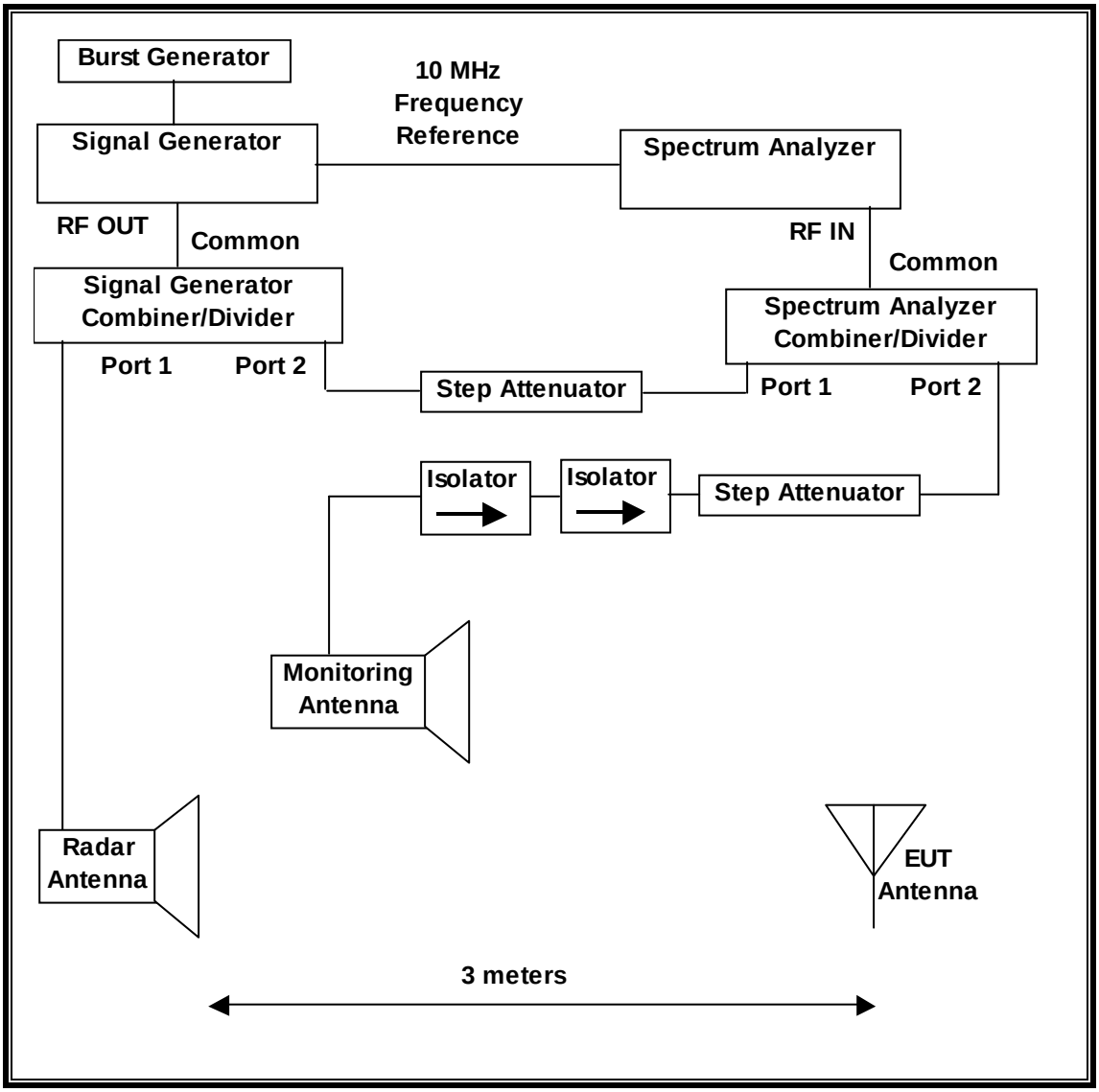
Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform	Pulse Width (µsec)	PRI (µsec)	Burst Length (ms)	Pulses per Hop	Hopping Rate (kHz)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	300	9	.333	70%	30

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

14.1.2. TEST AND MEASUREMENT SYSTEM

RADIATED METHOD SYSTEM BLOCK DIAGRAM



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

SYSTEM OVERVIEW

The short pulse and long pulse signal generating system utilizes the NTIA software. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

The short pulse types 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of FCC 06-96 APPENDIX. The frequency of the signal generator is incremented in 1 MHz steps from F_L to F_H for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold.

SYSTEM CALIBRATION

A 50-ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to a horn antenna via a coaxial cable, with the reference level offset set to (horn antenna gain – coaxial cable loss). The signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of –64 dBm as measured on the spectrum analyzer.

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

Without changing any of the instrument settings, the spectrum analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. The Reference Level Offset of the spectrum analyzer is adjusted so that the displayed amplitude of the signal is –64 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of –64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

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

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

A link is established between the Master and Slave and the distance between the units is adjusted as needed to provide a suitable received level at the Master and Slave devices. The video test file is streamed to generate WLAN traffic. The monitoring antenna is adjusted so that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold.

TEST AND MEASUREMENT EQUIPMENT

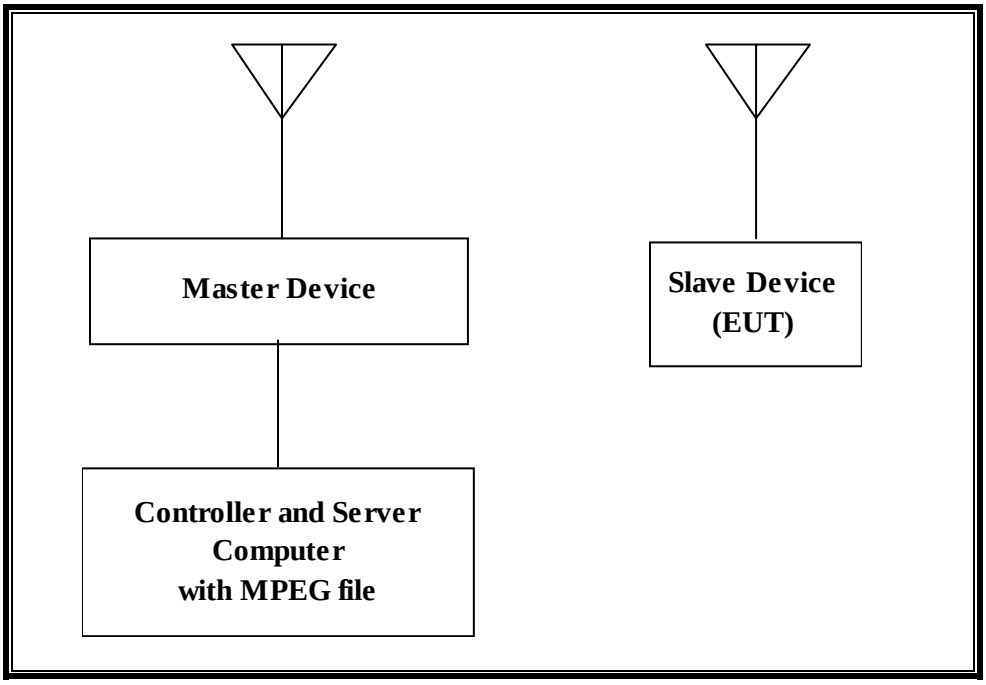
The following test and measurement equipment was utilized for the DFS tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset Number**	**Cal Due**
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	09/10/14
Vector Signal Generator, 20GHz	Agilent / HP	E8267C	C01066	09/12/14

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

14.1.3. SETUP OF EUT

RADIATED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

The following support equipment was utilized for the DFS tests documented in this report:

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

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Wireless Access Point	Cisco	AIR-AP1252AG-A-K9	FTX120690N2	LDK102061
AC Adapter (AP)	Delta Electronics	EADP-45BB B	DTH112490BD	DoC
Notebook PC (Controller/Server)	Dell	PP18L	10657517725	DoC
AC Adapter (Controller/Server PC)	Dell	LA65SN0-00	CN-ODF263-71615-6AU-1019	DoC

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

14.1.4. DESCRIPTION OF EUT

The EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges excluding the 5600-5650 MHz range.

The EUT is a Slave Device without Radar Detection.

The highest power level within these bands is 10.96 dBm EIRP in the 5250-5350 MHz band and 11.16 dBm EIRP in the 5470-5725 MHz band.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is –64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is –64 + 1 = -63 dBm.

The calibrated radiated DFS Detection Threshold level is set to –64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

The EUT uses one transmitter/receiver chain connected to an antenna to perform radiated tests.

The Slave device associated with the EUT during these tests does not have radar detection capability.

WLAN traffic is generated by streaming the video file TestFile.mp2 “6 ½ Magic Hours” from the Master to the Slave in full motion video mode using the media player with the V2.61 Codec package.

TPC is not required since the maximum EIRP is less than 500 mW (27 dBm).

The EUT utilizes the 802.11a/n architecture. Two nominal channel bandwidths are implemented: 20 MHz and 40 MHz.

The software installed in the access point is xxxx revision yyyy.

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

UNIFORM CHANNEL SPREADING

This requirement is not applicable to Slave radio devices.

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

OVERVIEW OF MASTER DEVICE WITH RESPECT TO §15.407 (h) REQUIREMENTS

The Master Device is a Cisco Access Point, FCC ID: LDK102061. The minimum antenna gain for the Master Device is 3.5 dBi.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is –64 dBm. After correction for procedural adjustments, the required radiated threshold at the antenna port is –64 + 1 = -63 dBm.

The calibrated radiated DFS Detection Threshold level is set to –64 dBm. The tested level is lower than the required level hence it provides a margin to the limit.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

14.2. RESULTS FOR 20 MHz BANDWIDTH

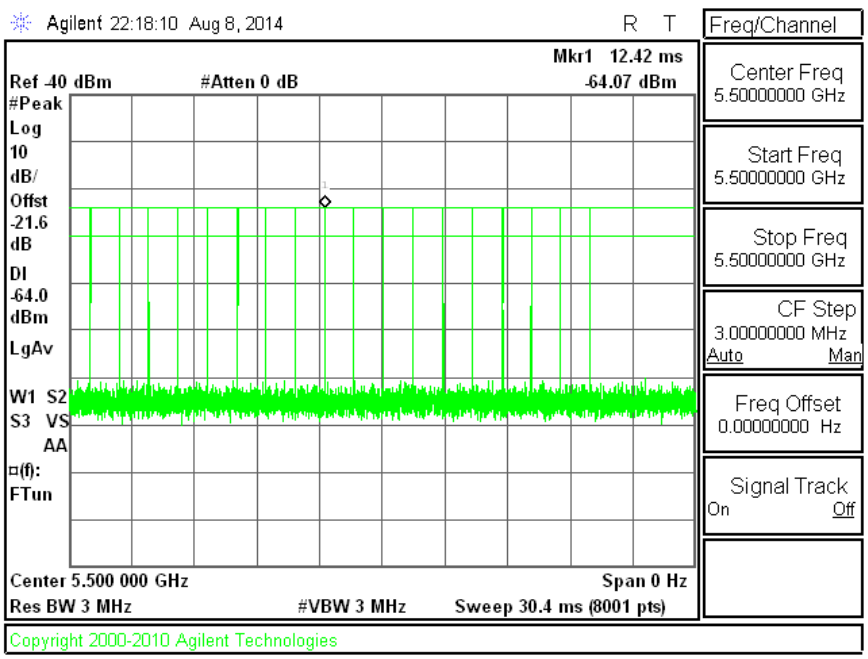
14.2.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5500 MHz.

14.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM

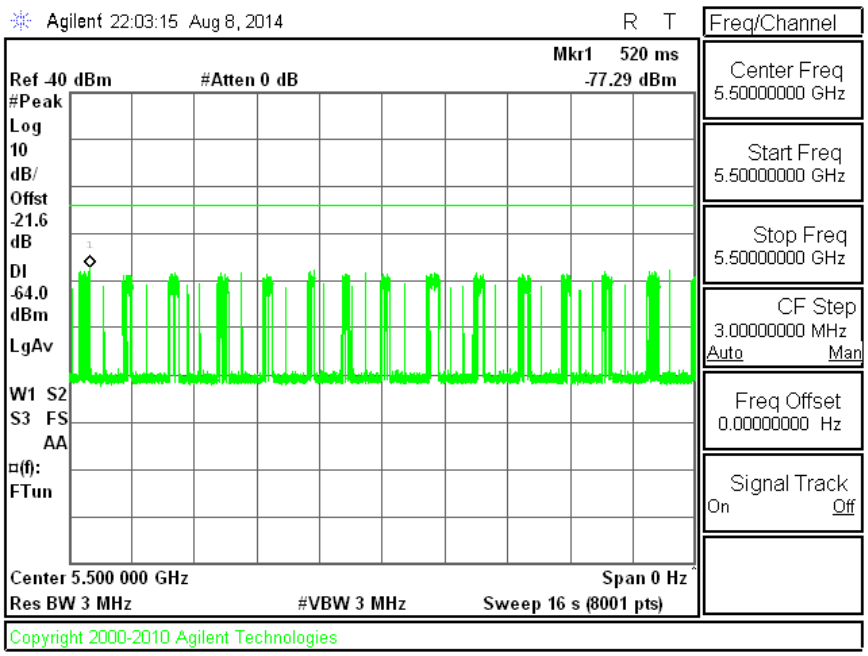
SHORT PULSE RADAR TYPE 1 AT MASTER



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

TRAFFIC

SLAVE TRAFFIC



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

14.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.2.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =

(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

Channel Move Time (sec)	Limit (sec)
0.000	10

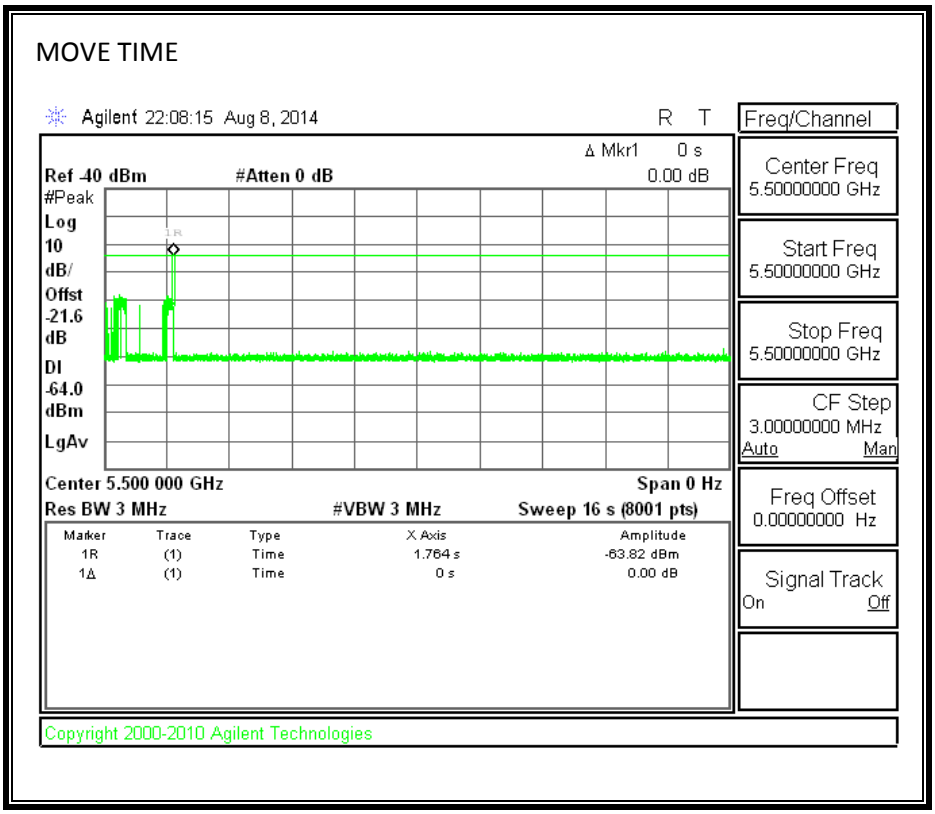
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0.0	60

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

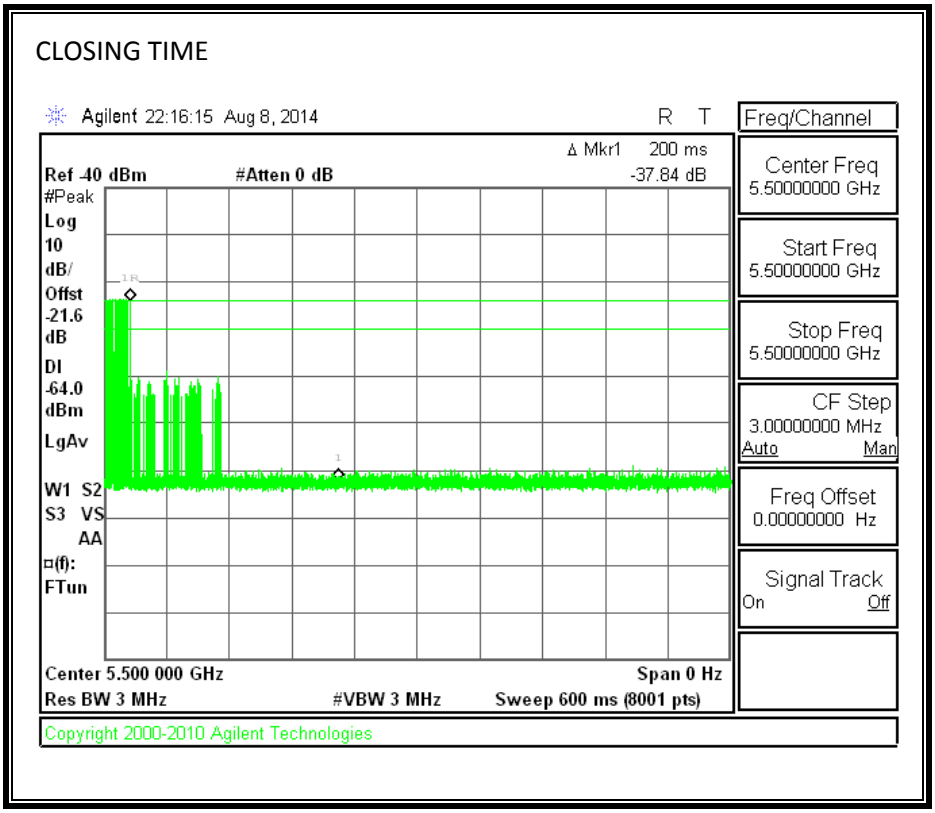
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MOVE TIME



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

CHANNEL CLOSING TIME

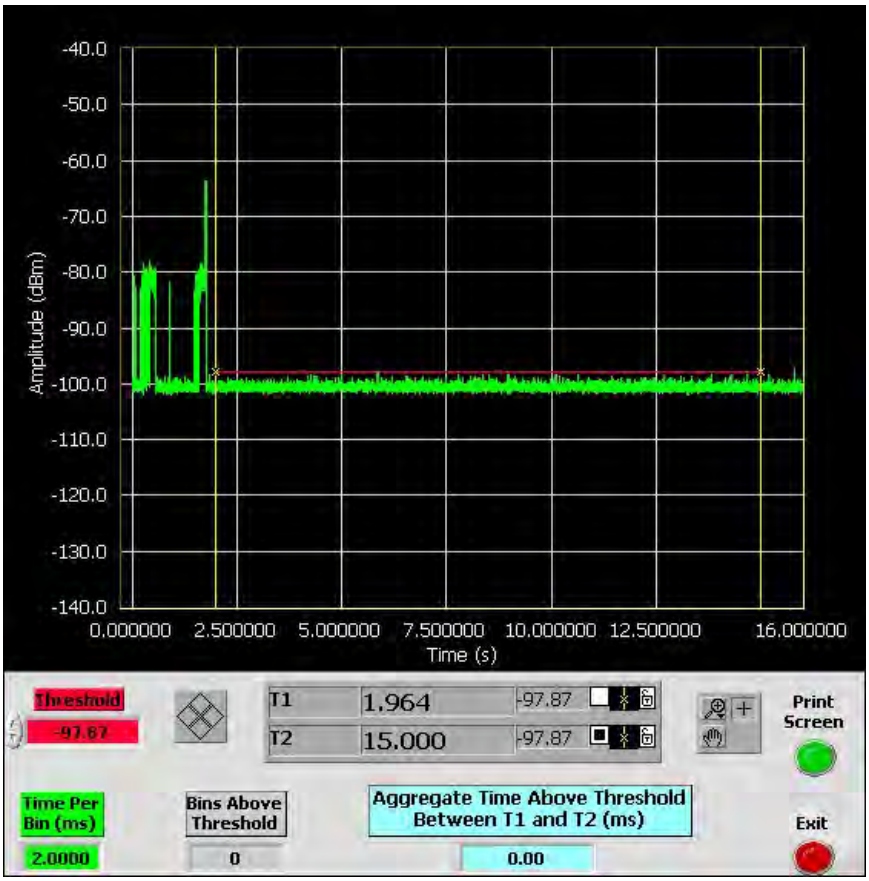


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.

AGGREGATE CLOSING TIME



UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

14.3. RESULTS FOR 40 MHz BANDWIDTH

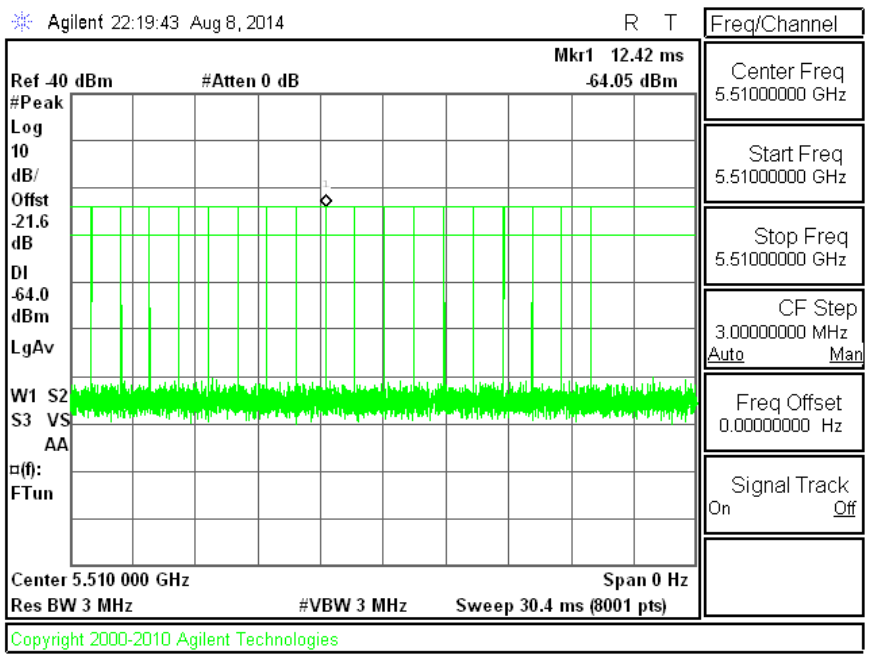
14.3.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5510 MHz.

14.3.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM

SHORT PULSE RADAR TYPE 1 AT MASTER



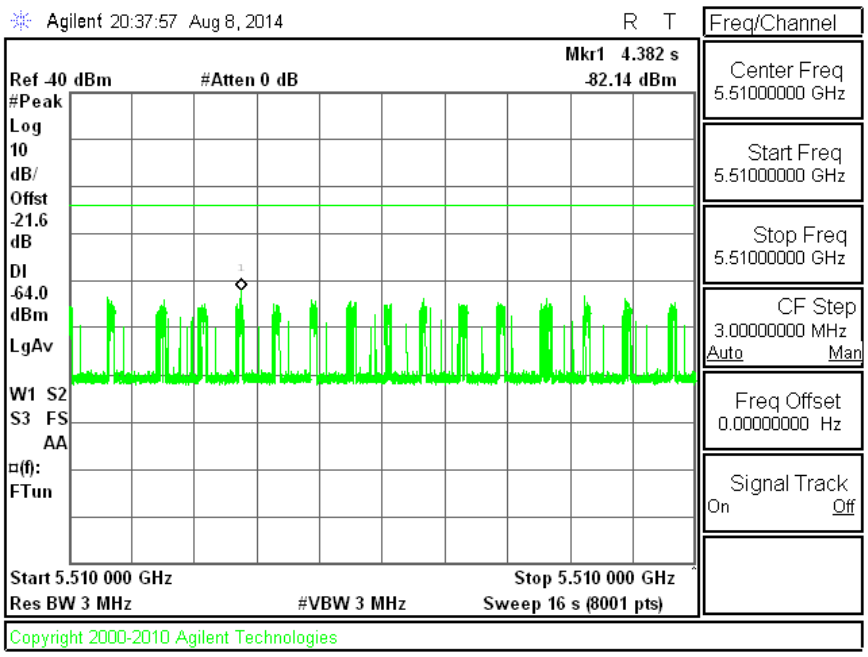
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
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.

TRAFFIC

SLAVE TRAFFIC



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

14.3.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

14.3.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =

(Number of analyzer bins showing transmission) * (dwell time per bin)

The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

Channel Move Time (sec)	Limit (sec)
0.560	10

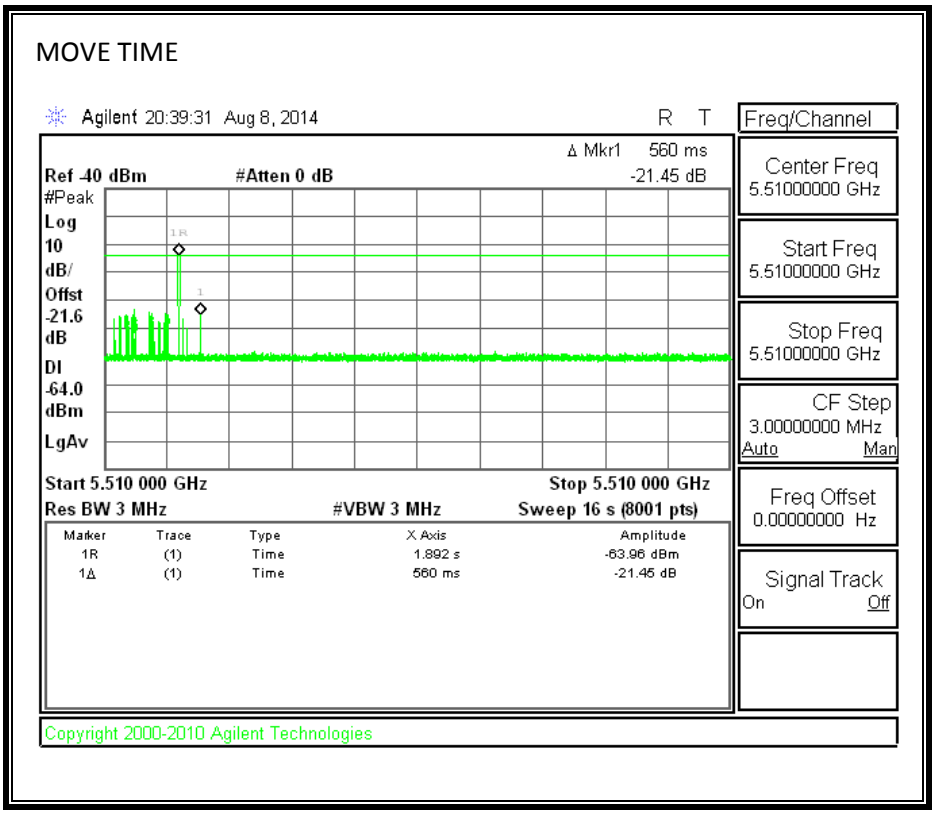
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
4.0	60

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

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701I
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

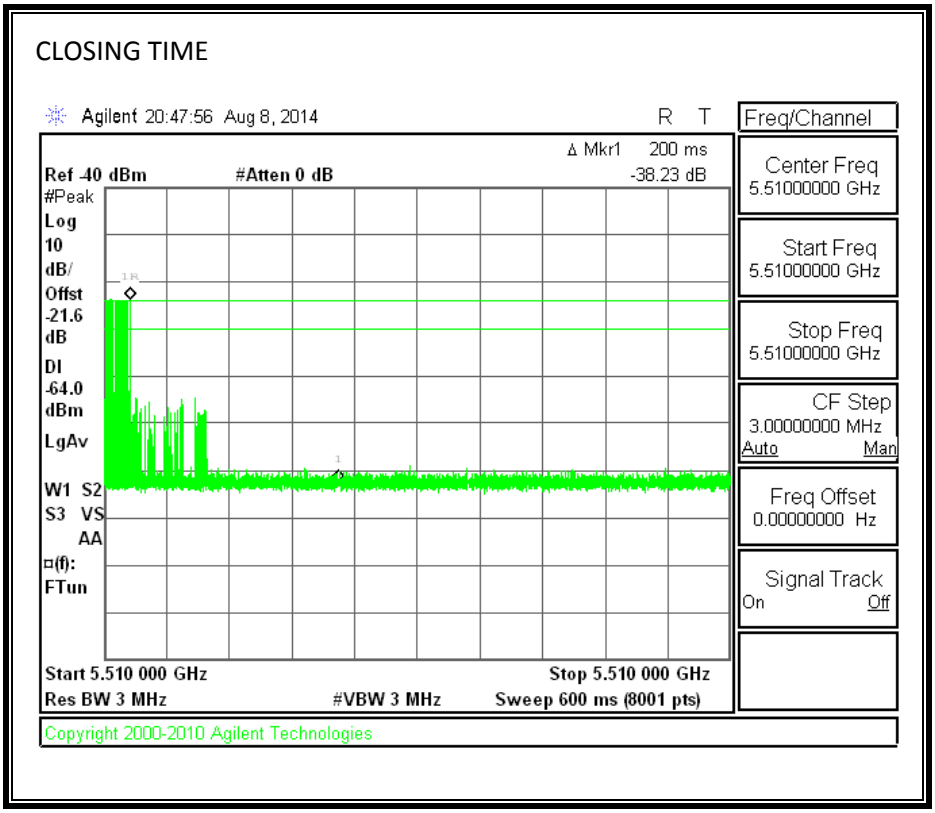
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MOVE TIME



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

CHANNEL CLOSING TIME

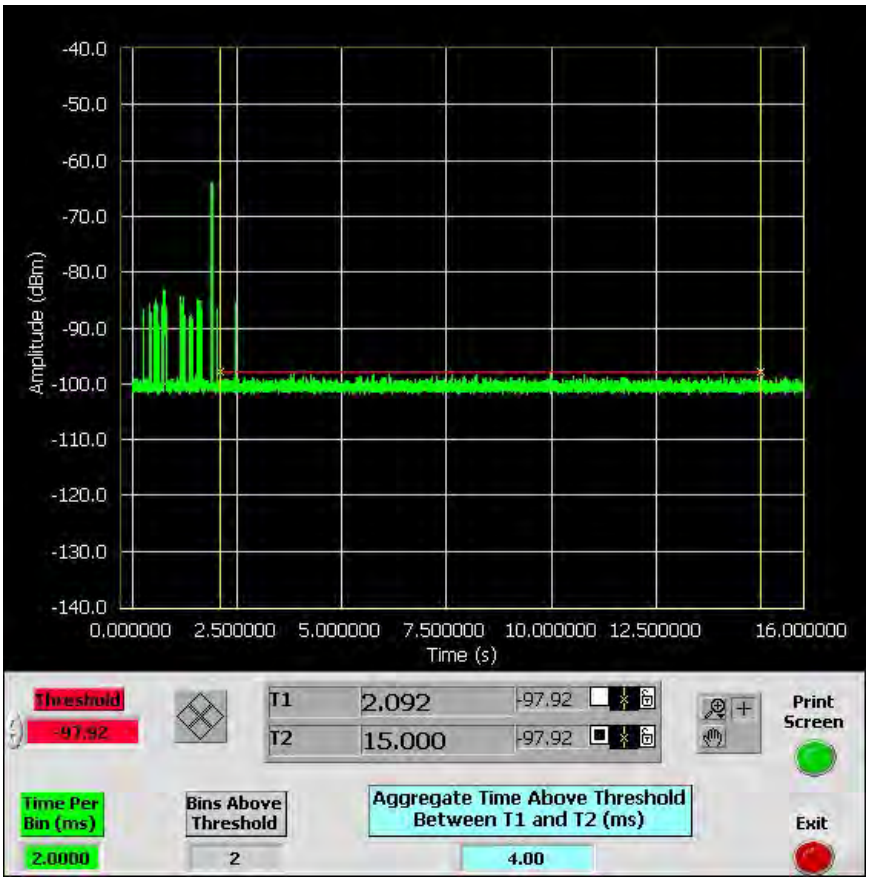


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the aggregate monitoring period.

AGGREGATE CLOSING TIME



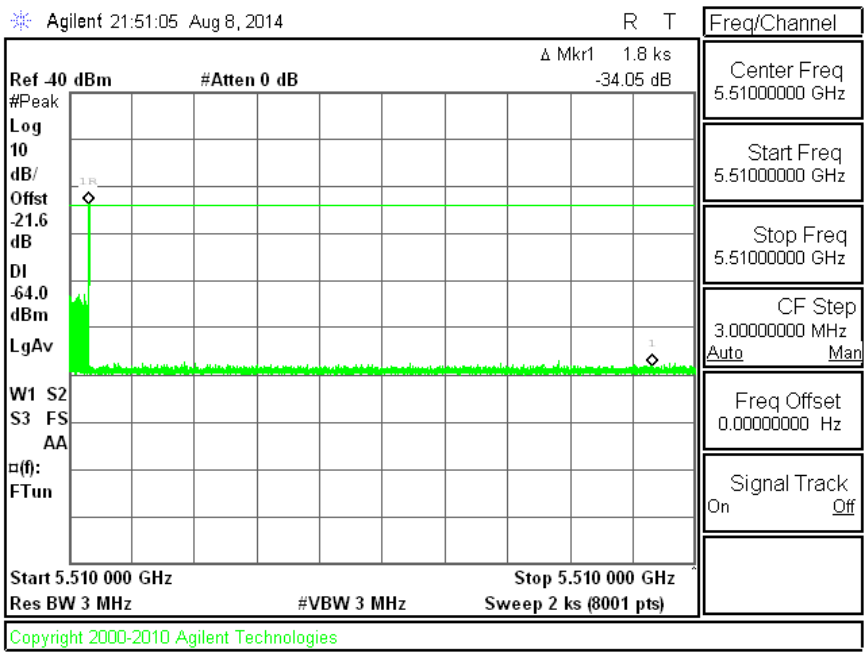
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

14.3.5. NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.

NON-OCCUPANCY PERIOD



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