



FCC 47 CFR PART 15 SUBPART E

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA Phone + Bluetooth, DTS/UNII a/b/g/n & ANT+

MODEL NUMBER: SM-A500H/DS, SM-A500H

FCC ID: A3LSMA500H

REPORT NUMBER: 14U18541-E5

ISSUE DATE: SEPTEMBER 13, 2014

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NVLAP LAB CODE 200065-0

Revision History

Issue			
Rev.	Date	Revisions	Revised By
--	09/13/14	Initial Issue	P. Zhang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: GSM/WCDMA Phone + Bluetooth, DTS/UNII a/b/g/n & ANT+
MODEL: SM-A500H/DS; SM-A500H
SERIAL NUMBER: 1959554 (CONDUCTED); 1948914 (RADIATED)
DATE TESTED: SEPTEMBER 3-11, 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.

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2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

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

47173 Benicia Street	47266 Benicia Street
☐ Chamber A(IC: 2324B-1)	☐ Chamber D(IC: 2324B-4)
☐ Chamber B(IC: 2324B-2)	☐ Chamber E(IC: 2324B-5)
☒ Chamber C(IC: 2324B-3)	☐ Chamber F(IC: 2324B-6)
	☐ Chamber G(IC: 2324B-7)
	☒ Chamber H(IC: 2324B-8)

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable
Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 40000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA Phone + Bluetooth, DTS & UNII a/b/g/n & ANT+.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5180-5240	802.11a	12.49	17.74
5180-5240	802.11n HT20	11.04	12.71
5190-5230	802.11n HT40	10.61	11.51
5260-5320	802.11a	12.1	16.22
5260-5320	802.11n HT20	11.87	15.38
5270-5310	802.11n HT40	10.94	12.42
5500-5700	802.11a	12.41	17.42
5500-5700	802.11n HT20	11.49	14.09
5510-5670	802.11n HT40	11.41	13.84

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -6.85 dBi.

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.

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

802.11a mode: 6 Mbps

802.11n HT20mode: MCS0

802.11n HT40mode: MCS0

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	SAMSUNG	EP-TA50EWE	N/A	N/A
Earphone	SAMSUNG	EHS64AVFWE	N/A	N/A

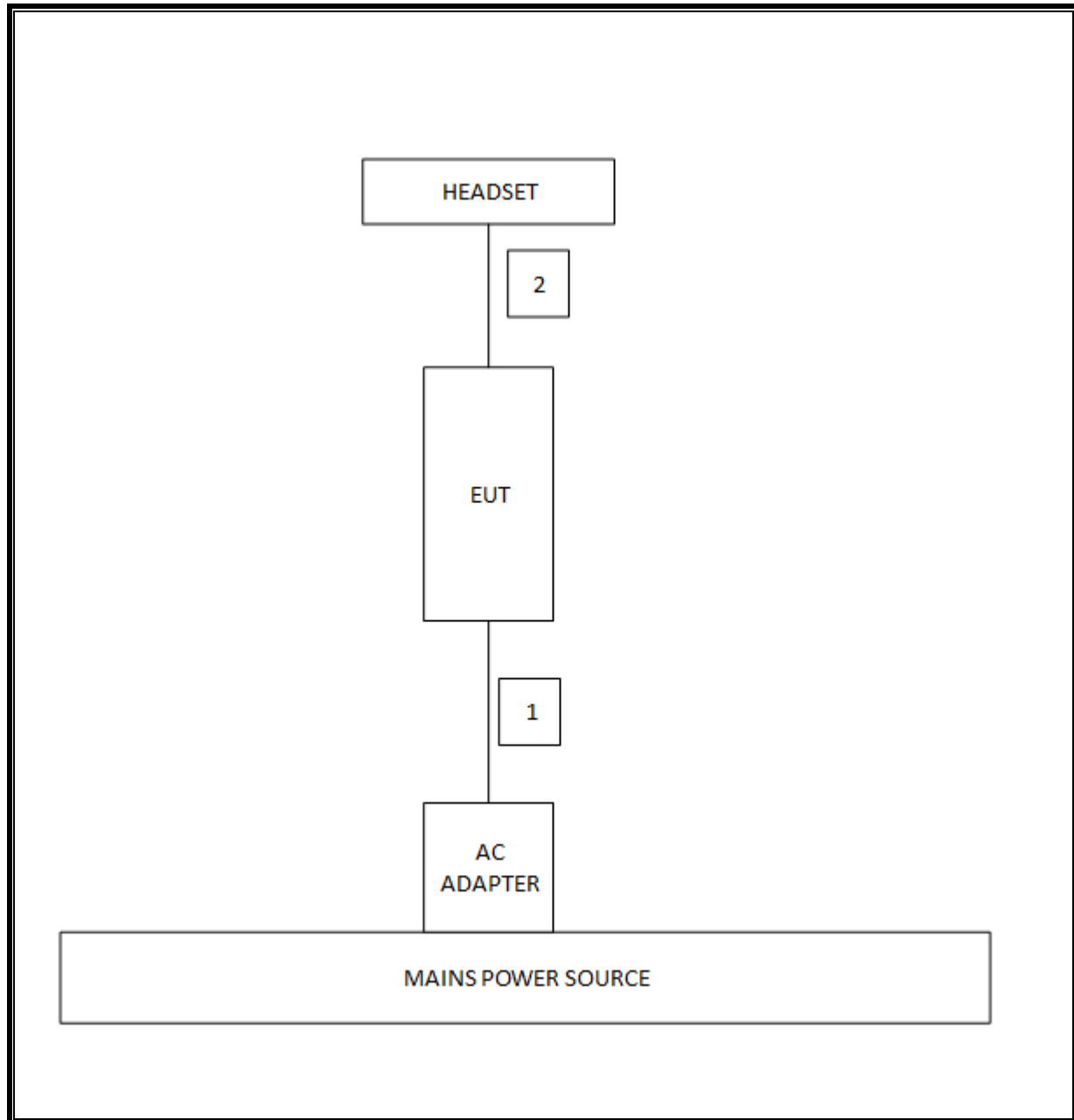
I/O CABLES

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.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	Manufacturer	Model	Asset	Cal 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	08/18/15
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	08/20/15
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/15
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/15
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/15

7. SUMMARY TABLE

The model FCC ID: A3LSMA500H shares the same enclosure and circuit board as model FCC ID: A3LSMA500F. The WLAN/Bluetooth circuitry and layout, including antenna, are almost identical between the two units. The WLAN/Bluetooth antenna and surrounding circuitry is the same between these two units.

After confirming through preliminary radiated emissions that the performance of the A3LSMA500F WLAN remains representative of this model (FCC ID A3LSMA500H) test data for FCC ID: A3LSMA500F is being submitted for this application.

Radiated emissions were fully re-evaluated against 15B requirements for digital devices and results indicated no significant differences between the two versions. Other differences between the two FCC IDs are in the WWAN PCB Layout, removal of LTE block and WWAN SAR and EMC has been fully retested for FCC ID: A3LSMA500H.

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)	Occupied Band width (26dB)	N/A	Conducted	Pass	67.1MHz
15.407 (a)(1)	TX Cond. Power 5.15-2.25	<17dBm or 4+10Log(OBW)		Pass	12.49dBm
15.407 (a)(2)	TX Cond. Power 5.25-5.35 & 5.47-5.725	<24dBm or 11+10Log(OBW)		Pass	12.41dBm
15.407 (a)(5)	PSD	<4dBm for 5.2 and <11dBm for 5.3, 5.5		Pass	1.33dBm
15.407 (a)(6)	Peak Excursion Ratio	13dB		Pass	11.71dB
15.207 (a)	AC Power Line conducted emissions	Section 10	Radiated	Pass	29.9dBuV(AV)
15.407 (b) & 15.209	Radiated Spurious Emission	< 54dBuV/m		Pass	52.71dBuV/m
15.407 (h)(2)	Dynamic Frequency Selection	N/A	Radiated / Conducted	Pass	N/A

8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

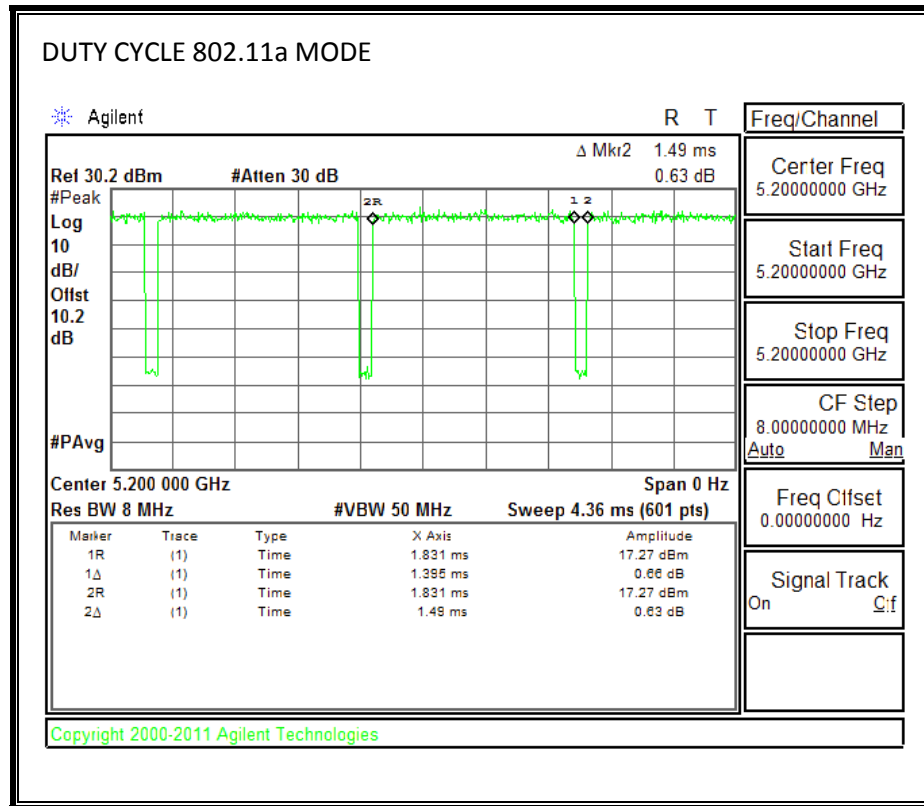
PROCEDURE

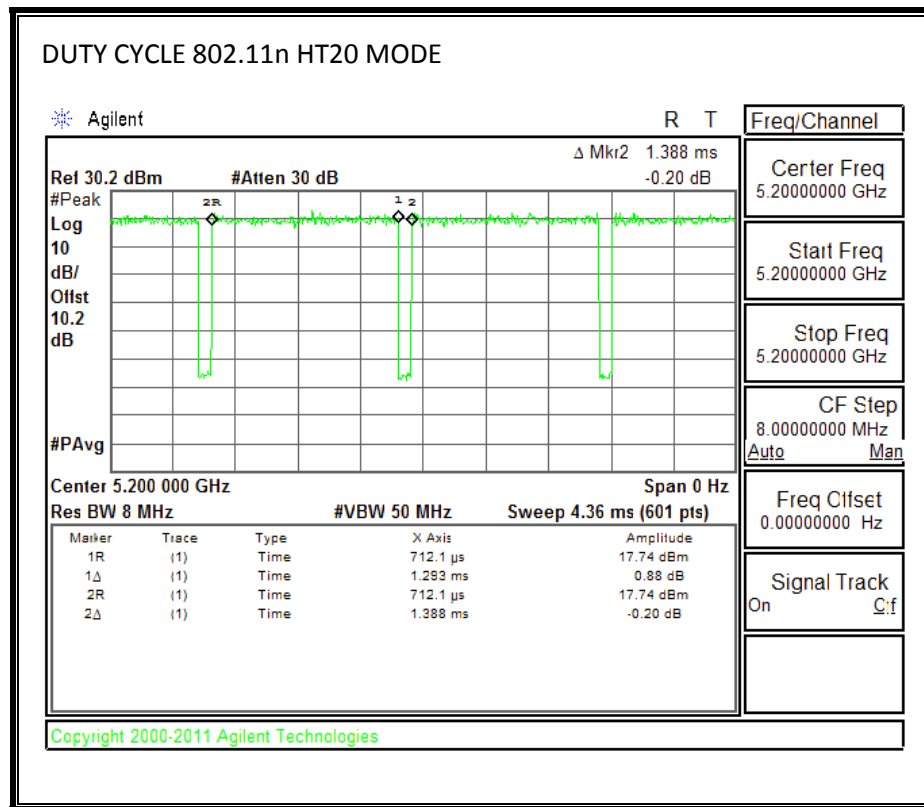
KDB 789033 Zero-Span Spectrum Analyzer Method.

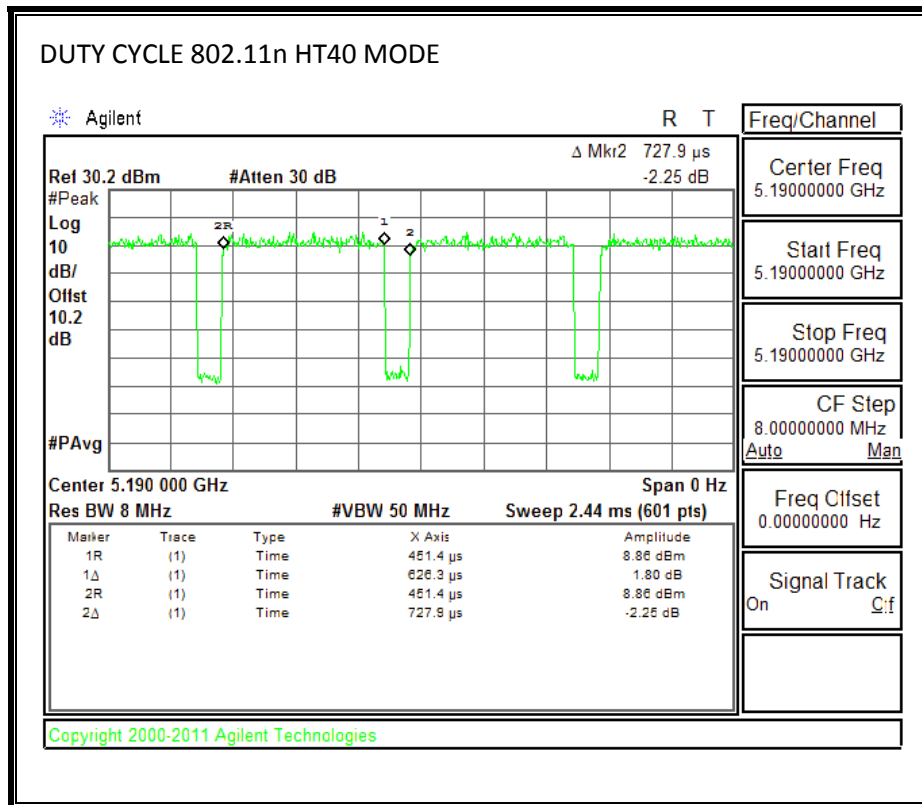
8.1. ON TIME AND DUTY CYCLE RESULTS

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	1.40	1.49	0.936	93.6%	0.29	0.717
802.11n HT20	1.29	1	0.932	93.2%	0.31	0.773
802.11n HT40	0.63	1	0.861	86.1%	0.65	1.597

8.2. DUTY CYCLE PLOTS







9. MEASUREMENT METHOD

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.

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	34.20
Mid	5200	35.40
High	5240	37.70
Worst		37.70

10.1.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	49.08
Mid	5200	38.58
High	5240	34.60
Worst		49.08

10.1.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26dB Bandwidth (MHz)
Low	5190	45.660
Mid	5230	47.100
Worst		47.100

10.1.4. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	36.00
Mid	5300	36.65
High	5320	38.05
Worst		38.05

10.1.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	26.58
Mid	5300	27.54
High	5320	28.74
Worst		28.74

10.1.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5270	45.960
High	5310	48.300
Worst		48.300

10.1.7. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	36.450
Mid	5580	38.700
High	5700	41.100
Worst		41.100

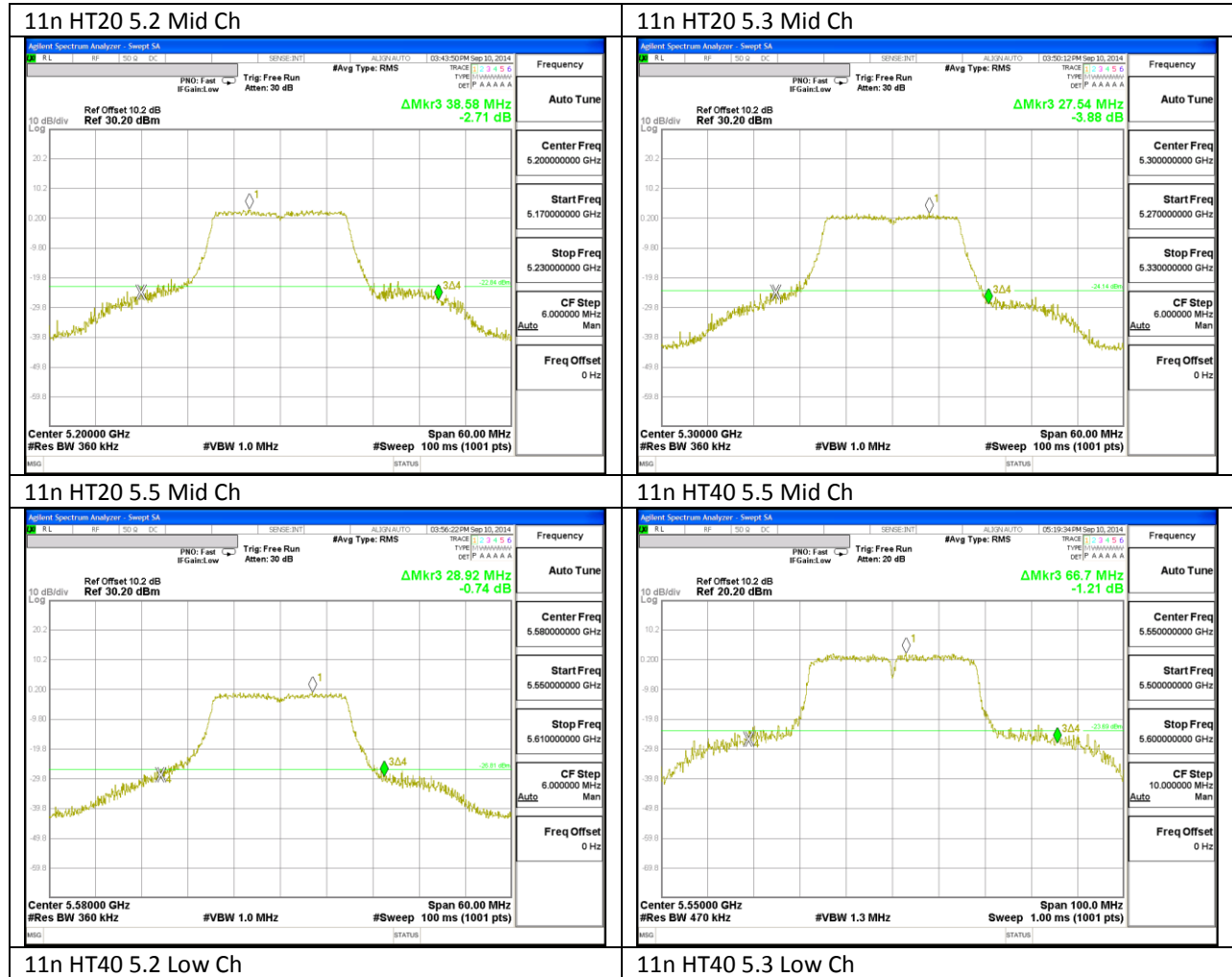
10.1.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND

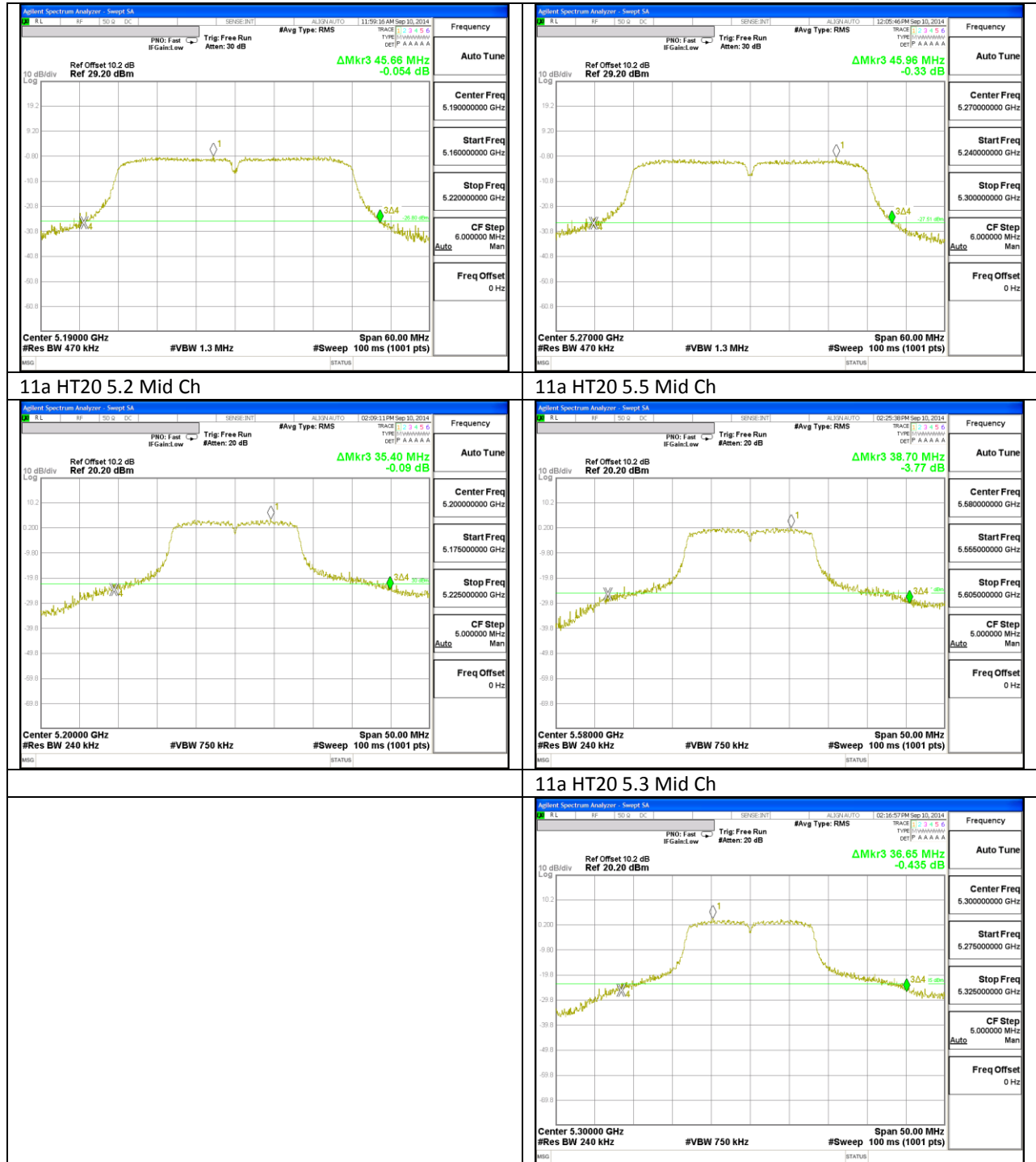
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	47.880
Mid	5580	28.920
High	5700	40.860
Worst		47.880

10.1.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	48.500
Mid	5550	66.700
High	5670	67.100
Worst		67.100

10.1.10. 26 dB BANDWIDTH PLOTS





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	16.64
Mid	5200	16.67
High	5240	16.56
Worst		16.67

10.2.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	17.97
Mid	5200	17.83
High	5240	17.95
Worst		17.97

10.2.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.320
Mid	5230	36.190
Worst		36.320

10.2.4. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	16.71
Mid	5300	16.79
High	5320	16.79
Worst		16.79

10.2.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.96
Mid	5300	17.96
High	5320	18.00
Worst		18.00

10.2.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	36.14
High	5310	36.16
Worst		36.16

10.2.7. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.460
Mid	5580	16.590
High	5700	16.880
Worst		16.880

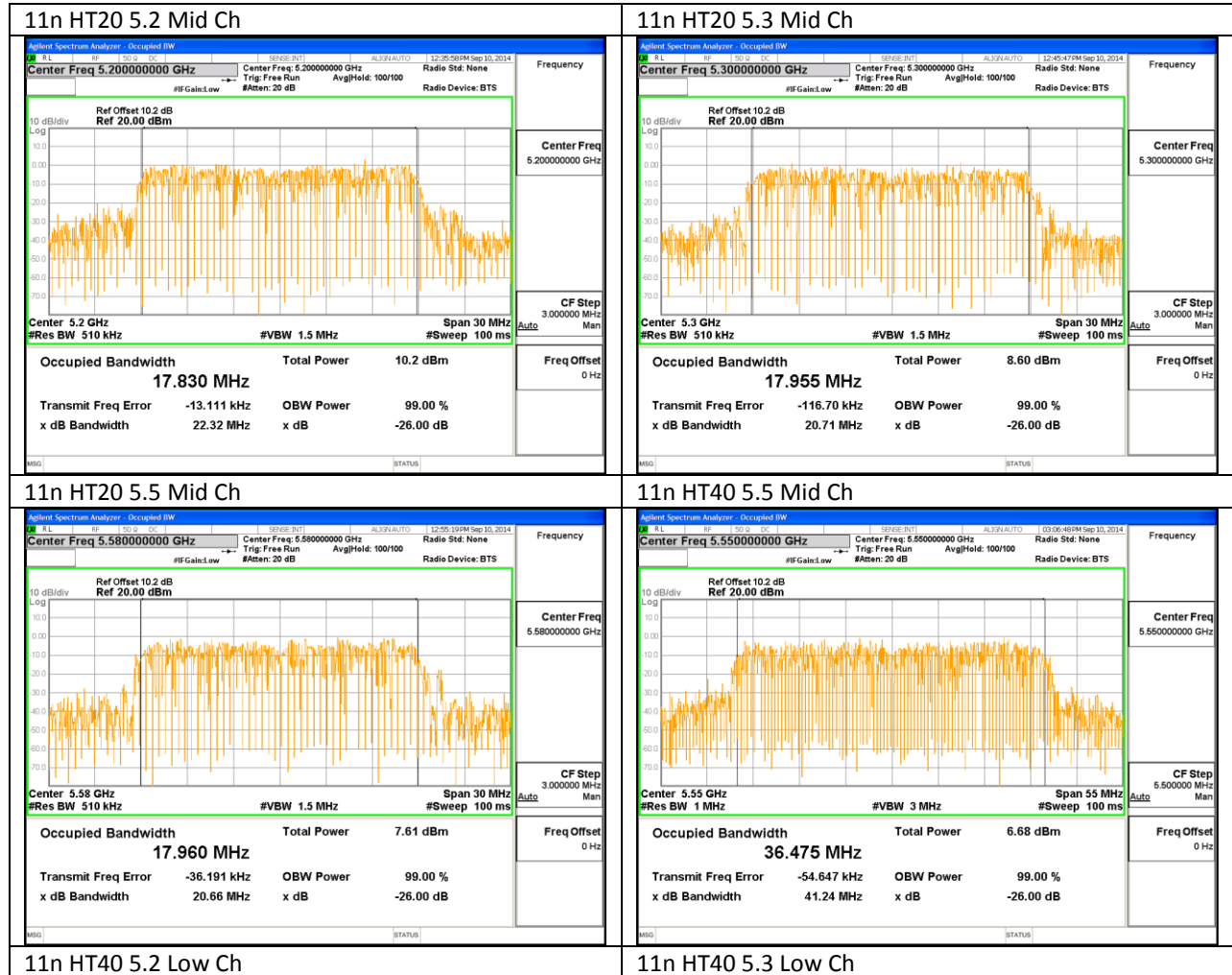
10.2.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND

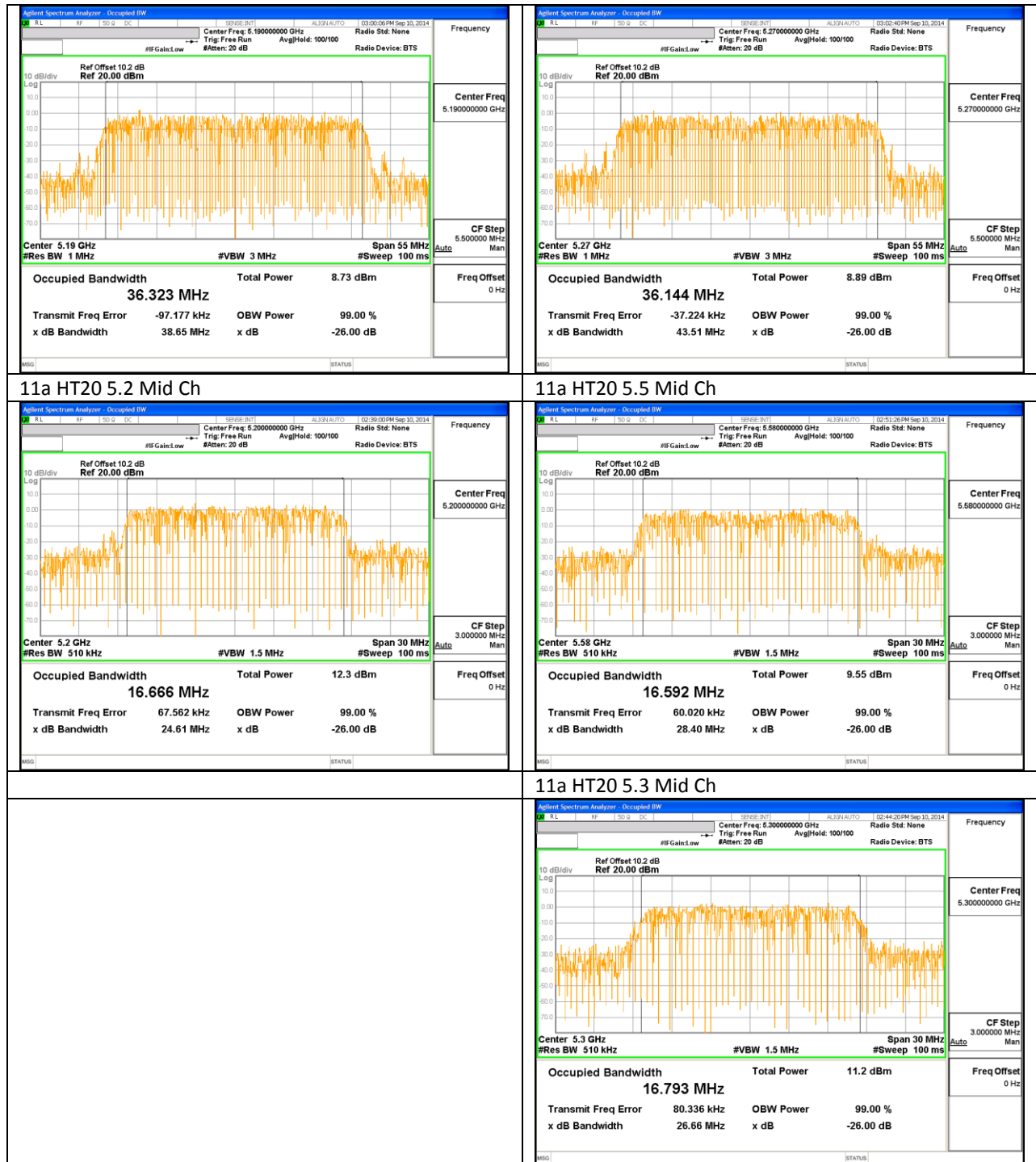
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.730
Mid	5580	17.960
High	5700	18.090
Worst		18.090

10.2.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.16
Mid	5550	36.48
High	5670	36.30
Worst		36.48

10.2.10. 99% BANDWIDTH PLOTS





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	13.50
Mid	5200	13.50
High	5240	13.50
Worst		13.50

10.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5180	12.10
Mid	5200	12.10
High	5240	12.30
Worst		12.30

10.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5190	11.0
Mid	5230	11.3
Worst		11.3

10.3.4. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5260	13.50
Mid	5300	13.50
High	5320	13.50
Worst		13.50

10.3.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5260	12.00
Mid	5300	12.00
High	5320	12.10
Worst		12.10

10.3.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5270	11.5
High	5310	11.5
Worst		11.5

10.3.7. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5500	13.5
Mid	5580	13.5
High	5700	13.5
Worst		13.5

10.3.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5500	12.5
Mid	5580	12.3
High	5700	12.5
Worst		12.5

10.3.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5510	11.5
Mid	5550	11.5
High	5670	11.5
Worst		11.5

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 50 mW or $4 \text{ dBm} + 10 \log B$, 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.

IC RSS-210 A9.2 (1)

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, 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

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	34.200	16.640	-6.85
Mid	5200	35.400	16.670	-6.85
High	5240	37.700	16.560	-6.85

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	22.21	29.06	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.22	29.07	17.00	4.00	10.00	4.00
High	5240	17.00	22.19	29.04	17.00	4.00	10.00	4.00

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

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	11.861	12.15	17.00	-4.85
Mid	5200	12.197	12.49	17.00	-4.51
High	5240	11.963	12.25	17.00	-4.75

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	0.870	1.16	4.00	-2.84
Mid	5200	1.040	1.33	4.00	-2.67
High	5240	0.880	1.17	4.00	-2.83

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	49.080	17.960	-6.85
Mid	5200	38.580	17.830	-6.85
High	5240	34.680	17.940	-6.85

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	22.54	29.39	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.51	29.36	17.00	4.00	10.00	4.00
High	5240	17.00	22.54	29.39	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.31	Included in Calculations of Corr'd Power & PPSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	10.732	11.04	17.00	-5.96
Mid	5200	10.338	10.65	17.00	-6.35
High	5240	10.661	10.97	17.00	-6.03

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	-0.780	-0.47	4.00	-4.47
Mid	5200	-1.230	-0.92	4.00	-4.92
High	5240	-0.910	-0.60	4.00	-4.60

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	45.66	36.320	-6.85
Mid	5230	47.1	36.190	-6.85

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	29.85	17.00	4.00	10.00	4.00
Mid	5230	17.00	23.00	29.85	17.00	4.00	10.00	4.00
Duty Cycle CF (dB)		0.65	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	9.688	10.34	17.00	-6.66
Mid	5230	9.963	10.61	17.00	-6.39

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-4.720	-4.07	4.00	-8.07
Mid	5230	-4.140	-3.49	4.00	-7.49

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	36.00	16.710	-6.85
Mid	5300	36.65	16.790	-6.85
High	5320	38.05	16.790	-6.85

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	23.23	29.23	23.23	11.00	11.00	11.00
Mid	5300	24.00	23.25	29.25	23.25	11.00	11.00	11.00
High	5320	24.00	23.25	29.25	23.25	11.00	11.00	11.00

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

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	11.805	12.10	23.23	-11.13
Mid	5300	11.734	12.02	23.25	-11.23
High	5320	11.423	11.71	23.25	-11.54

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	0.170	0.46	11.00	-10.54
Mid	5300	0.500	0.79	11.00	-10.21
High	5320	0.180	0.47	11.00	-10.53

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	26.58	17.960	-6.85
Mid	5300	27.54	17.960	-6.85
High	5320	28.74	18.000	-6.85

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	23.54	29.54	23.54	11.00	11.00	11.00
Mid	5300	24.00	23.54	29.54	23.54	11.00	11.00	11.00
High	5320	24.00	23.55	29.55	23.55	11.00	11.00	11.00

Duty Cycle CF (dB)	0.31	Included in Calculations of Corr'd Power & PPSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	11.026	11.34	23.54	-12.21
Mid	5300	11.201	11.51	23.54	-12.03
High	5320	11.563	11.87	23.55	-11.68

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	-0.650	-0.34	11.00	-11.34
Mid	5300	-0.600	-0.29	11.00	-11.29
High	5320	-0.090	0.22	11.00	-10.78

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	46.0	36.1	-6.85
High	5310	48.3	36.2	-6.85

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)	0.65	Included in Calculations of Corr'd Power & PPSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	10.29	10.94	24.00	-13.07
High	5310	10.29	10.94	24.00	-13.06

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	-4.32	-3.67	11.00	-14.67
High	5310	-4.39	-3.74	11.00	-14.74

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	36.45	16.460	-6.85
Mid	5580	38.70	16.590	-6.85
High	5700	41.10	16.880	-6.85

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	23.16	29.16	23.16	11.00	11.00	11.00
Mid	5580	24.00	23.20	29.20	23.20	11.00	11.00	11.00
High	5700	24.00	23.27	29.27	23.27	11.00	11.00	11.00

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

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	12.120	12.41	23.16	-10.75
Mid	5580	12.049	12.34	23.20	-10.86
High	5700	12.096	12.39	23.27	-10.89

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	0.880	1.17	11.00	-9.83
Mid	5580	1.020	1.31	11.00	-9.69
High	5700	0.990	1.28	11.00	-9.72

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	47.88	17.730	-6.85
Mid	5580	28.92	17.960	-6.85
High	5700	40.86	18.090	-6.85

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	23.49	29.49	23.49	11.00	11.00	11.00
Mid	5580	24.00	23.54	29.54	23.54	11.00	11.00	11.00
High	5700	24.00	23.57	29.57	23.57	11.00	11.00	11.00

Duty Cycle CF (dB)	0.31	Included in Calculations of Corr'd Power & PPSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	10.838	11.15	23.49	-12.34
Mid	5580	10.966	11.28	23.54	-12.27
High	5700	11.182	11.49	23.57	-12.08

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	-0.870	-0.56	11.00	-11.56
Mid	5580	-0.560	-0.25	11.00	-11.25
High	5700	-0.600	-0.29	11.00	-11.29

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	48.50	36.160	-6.85
Mid	5550	66.70	36.470	-6.85
High	5670	67.10	36.290	-6.85

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)	0.65	Included in Calculations of Corr'd Power & PSD
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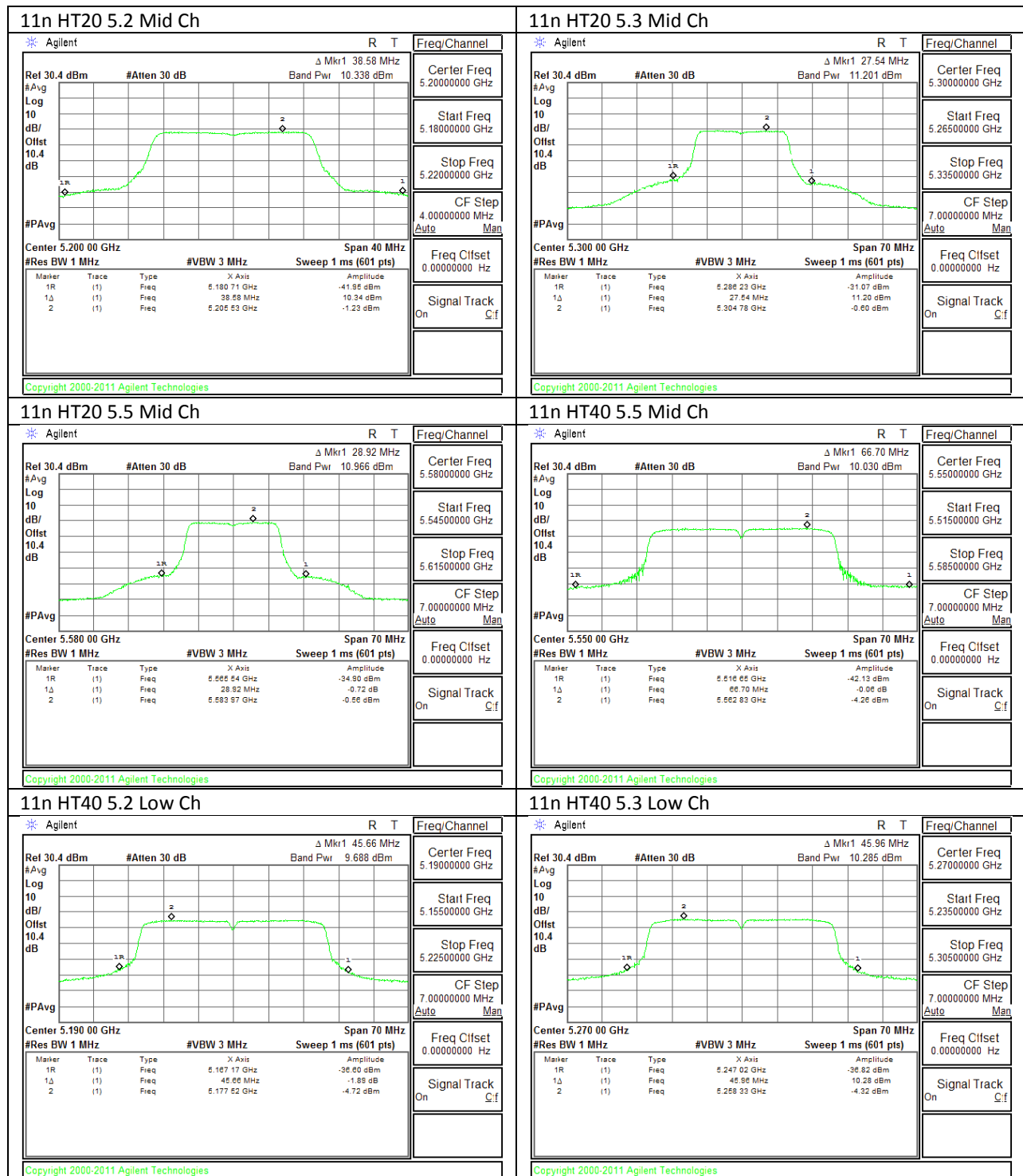
Output Power Results

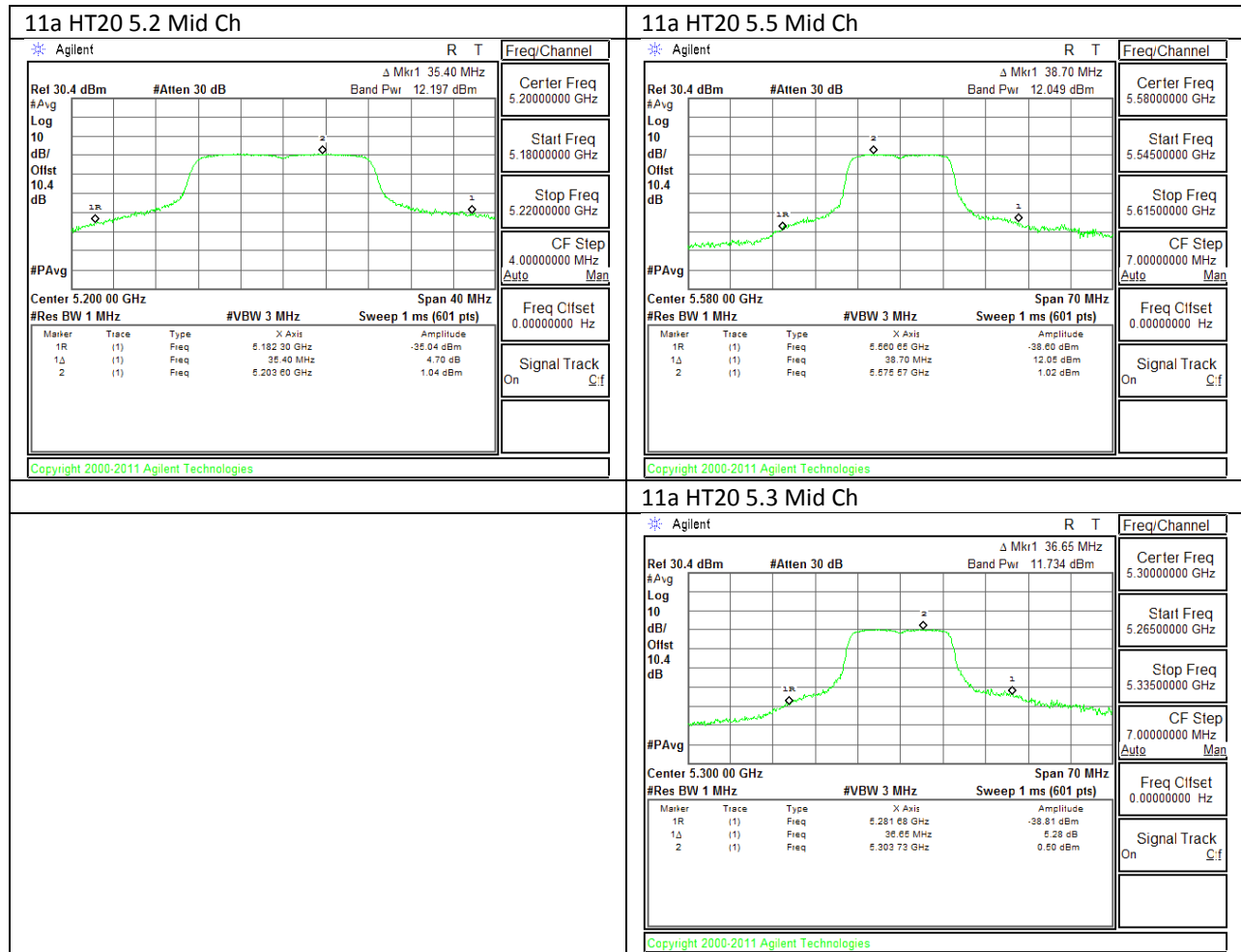
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	9.745	10.40	24.00	-13.61
Mid	5550	10.030	10.68	24.00	-13.32
High	5670	10.757	11.41	24.00	-12.59

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	-4.760	-4.11	11.00	-15.11
Mid	5550	-4.260	-3.61	11.00	-14.61
High	5670	-3.640	-2.99	11.00	-13.99

10.4.10. OUTPUT POWER AND PPSD PLOTS, Chain 0





10.5. PEAK EXCURSION

LIMITS

FCC §15.407 (a) (6)

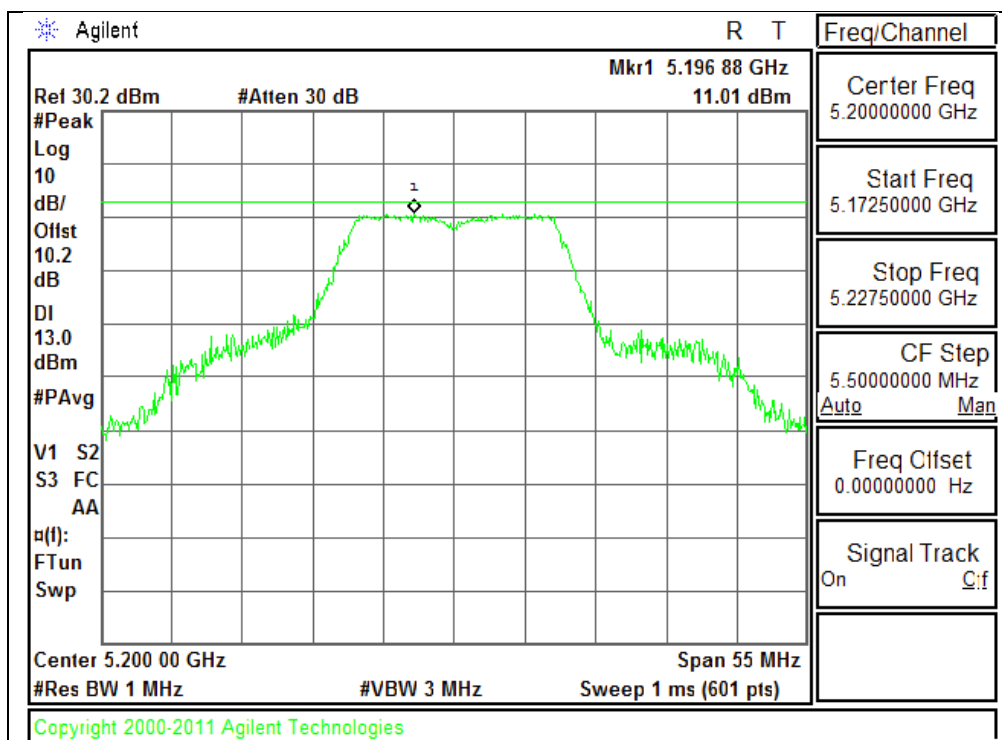
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

RESULTS

10.5.1. 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	11.100	1.33	0.29	9.48	13	-3.52

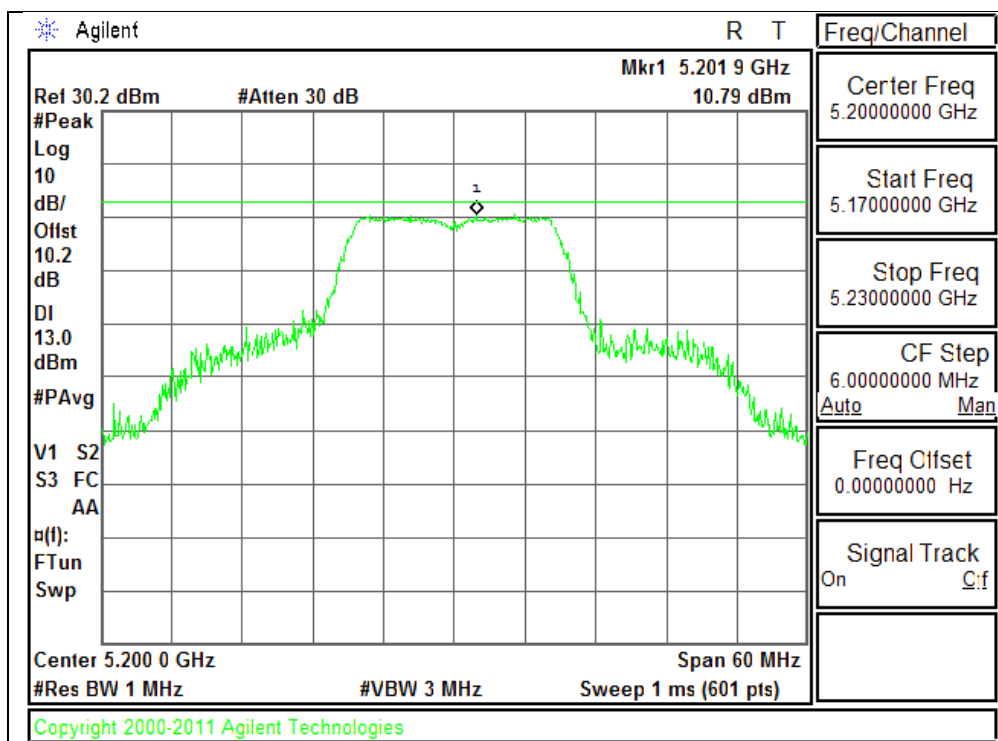
PEAK EXCURSION



10.5.2. 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	10.790	-1.23	0.31	11.71	13	-1.29

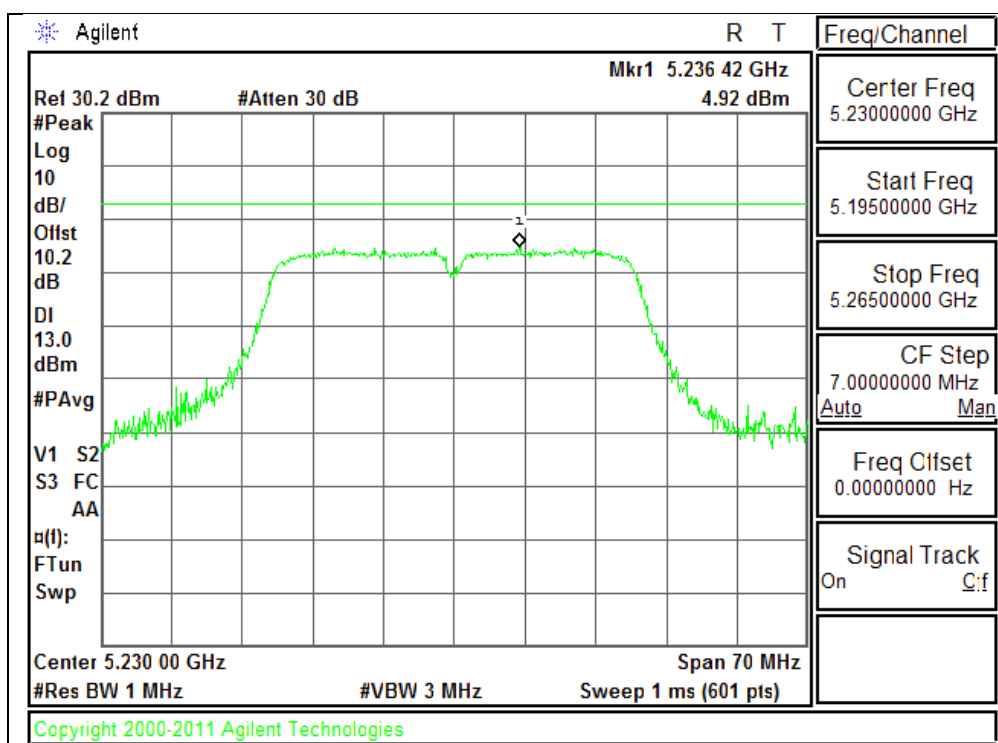
PEAK EXCURSION



10.5.3. 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	5230	4.920	-3.49	0.65	7.76	13	-5.24

PEAK EXCURSION



11. TRANSMITTER ABOVE 1 GHz

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit ($\mu\text{V}/\text{m}$) at 3 m	Field Strength Limit (dB $\mu\text{V}/\text{m}$) 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.

Reference to KDB 789033 UNII part H) 6) d):

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.

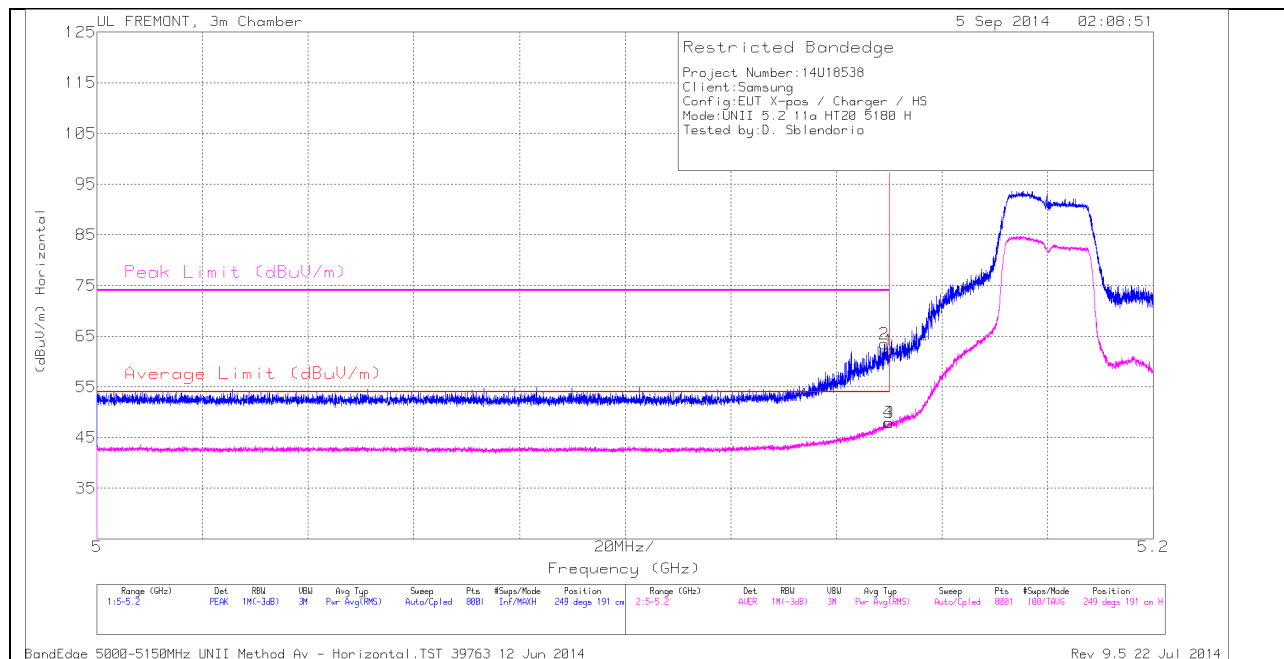
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

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)

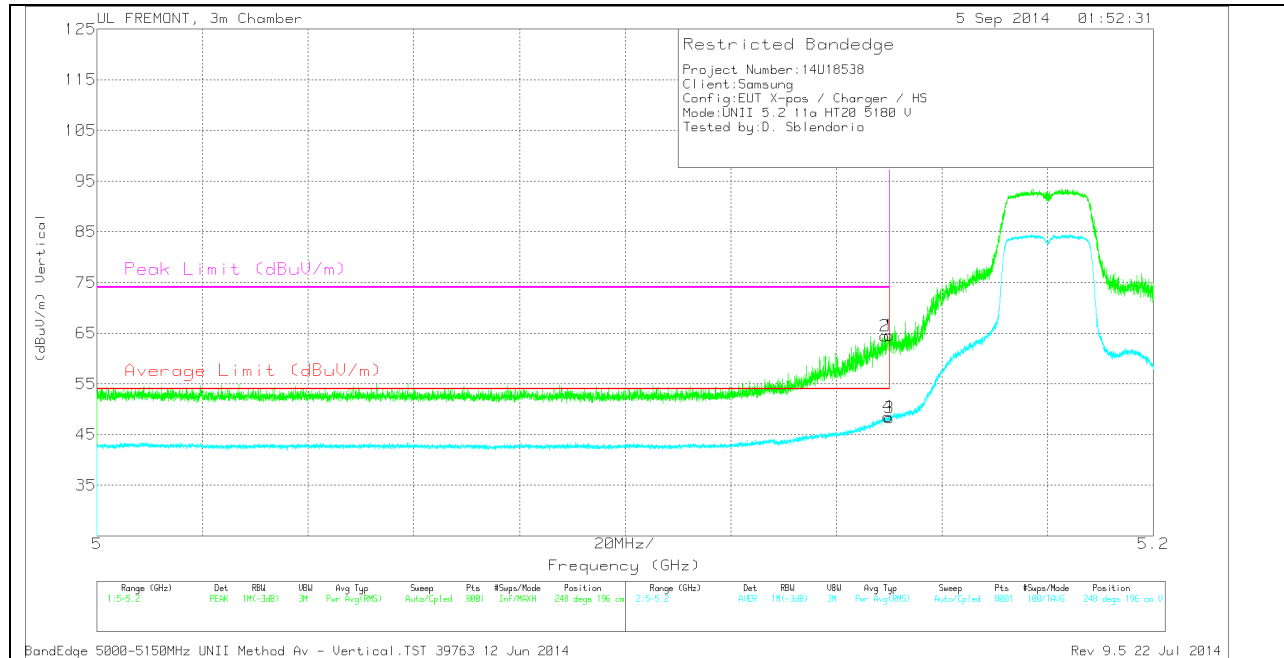
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit 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	5.149	50.81	PK	34.2	-21.6	0	63.41	-	-	74	-10.59	249	191	H
1	5.15	49.62	PK	34.2	-21.6	0	62.22	-	-	74	-11.78	249	191	H
3	5.15	34.99	RMS	34.2	-21.6	.29	47.7	54	-6.12	-	-	249	191	H
4	5.15	35.04	RMS	34.2	-21.6	.29	47.93	54	-6.07	-	-	249	191	H

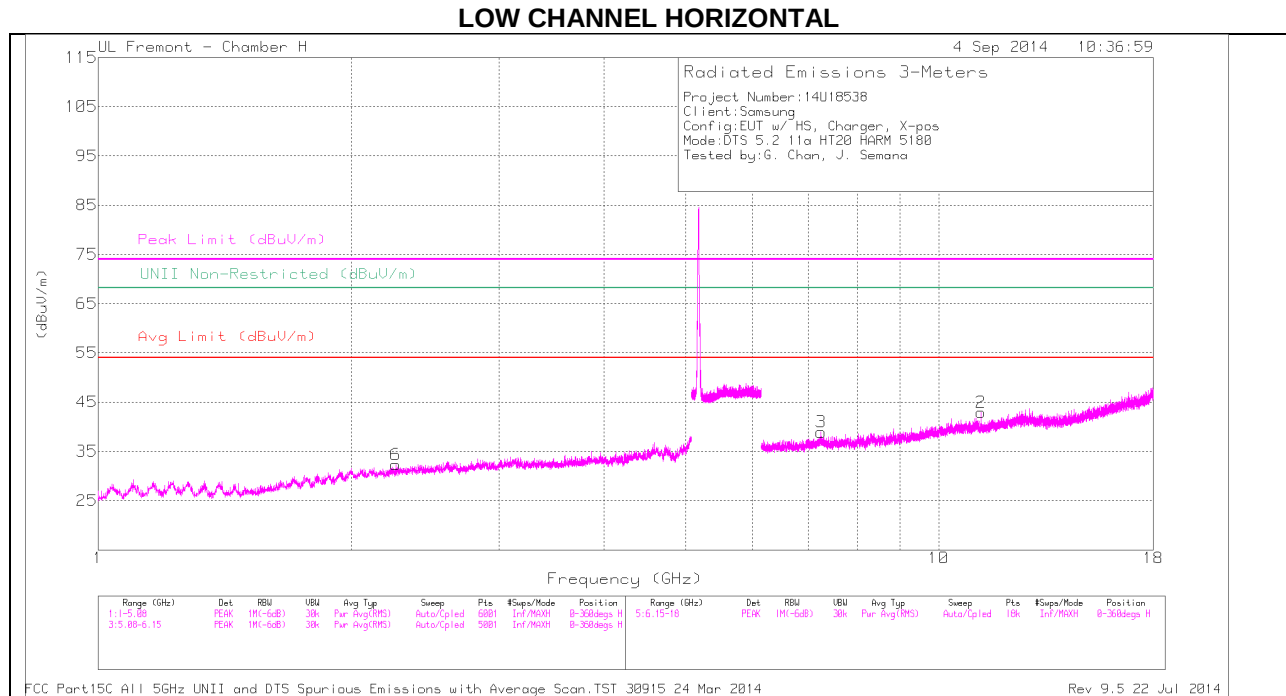
VERTICAL PEAK AND AVERAGE PLOT



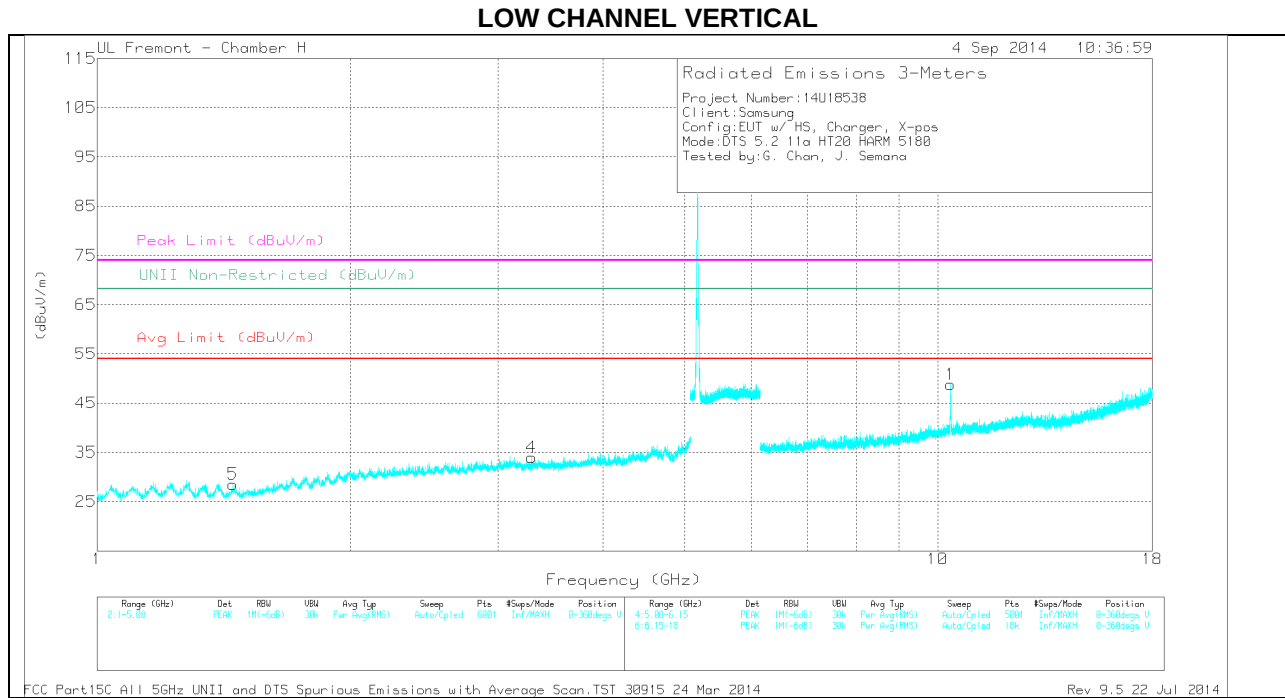
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filt 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	5.149	51.79	PK	34.2	-21.6	0	64.39	-	-	74	-9.61	248	196	V
1	5.15	51.99	PK	34.2	-21.6	0	64.59	-	-	74	-9.41	248	196	V
3	5.15	35.39	RMS	34.2	-21.6	.29	48.28	54	-5.9	-	-	248	196	V
4	5.15	35.62	RMS	34.2	-21.6	.29	48.51	54	-5.49	-	-	248	196	V

HARMONICS AND SPURIOUS EMISSIONS



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



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

LOW CHANNEL DATA**TRACE MARKERS**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Ftr/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	* 1.451	35.43	PK	28	-34.9	0	28.53	-	-	74	-45.47	-	-	0-360	201	V
2	* 11.233	30.79	PK	37.9	-25.8	0	42.89	-	-	74	-31.11	-	-	0-360	100	H
6	* 2.26	35.01	PK	31.7	-34.4	0	32.31	-	-	74	-41.69	-	-	0-360	201	H
1	10.36	37.18	PK	37.5	-25.9	0	48.78	-	-	-	-	68.2	-19.42	0-360	201	V
4	3.288	34.48	PK	32.9	-33.4	0	33.98	-	-	-	-	68.2	-34.22	0-360	100	V
3	7.246	31.61	PK	36.2	-28.9	0	38.91	-	-	-	-	68.2	-29.29	0-360	201	H

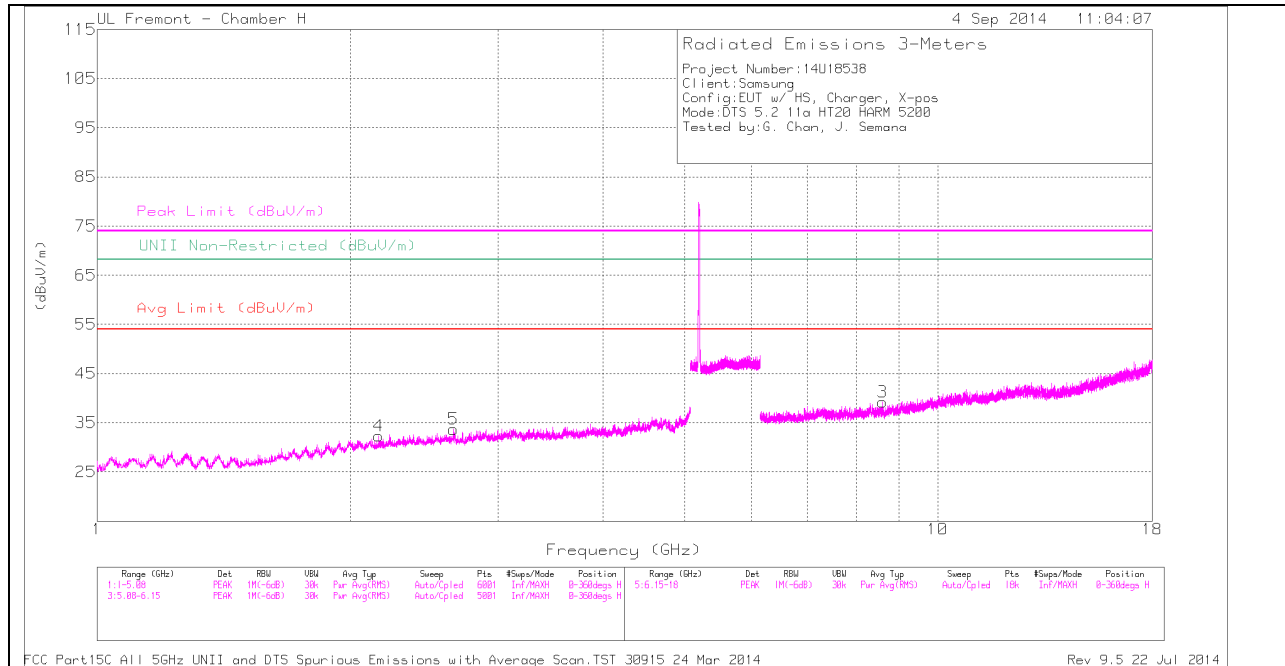
PK - Peak detector

RADIATED EMISSIONS

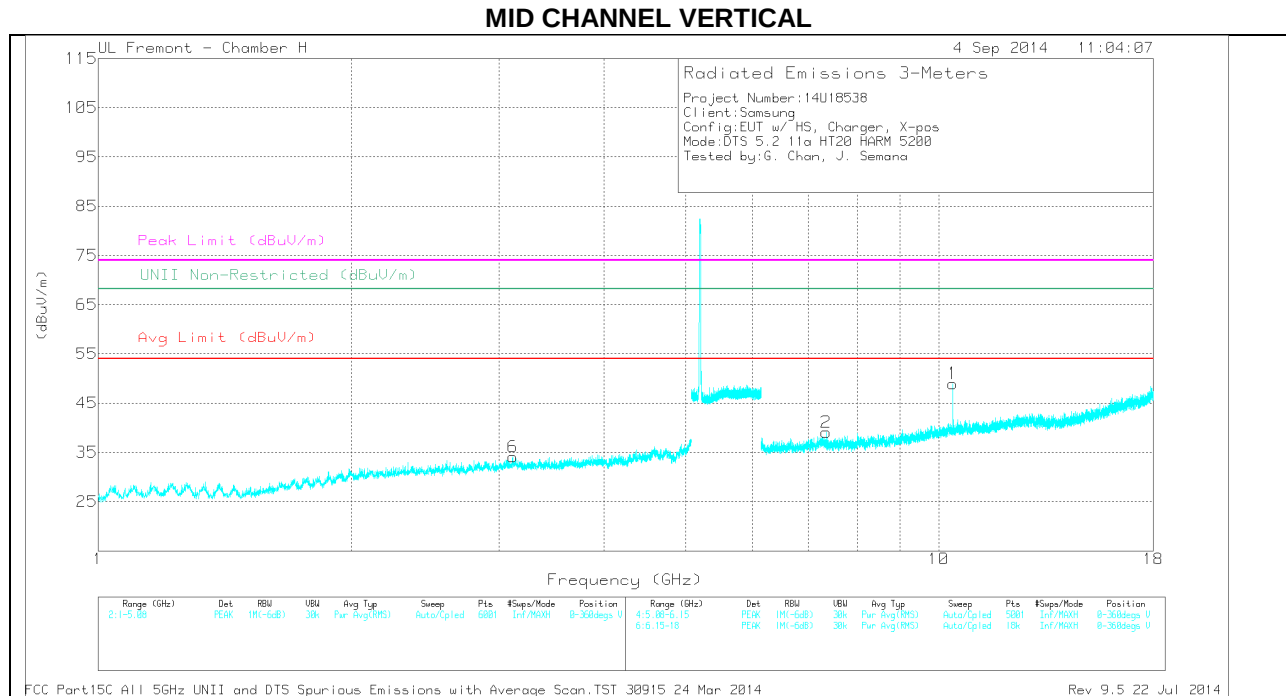
Frequency (GHz)	Meter Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10.36	41.76	PK1	37.5	-25.9	0	53.36	-	-	-	-	68.2	-14.84	212	203	V
10.36	37.05	AD1	37.5	-25.9	.29	48.94	-	-	-	-	-	-	212	203	V

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

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.



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MID CHANNEL DATA

TRACE MARKERS

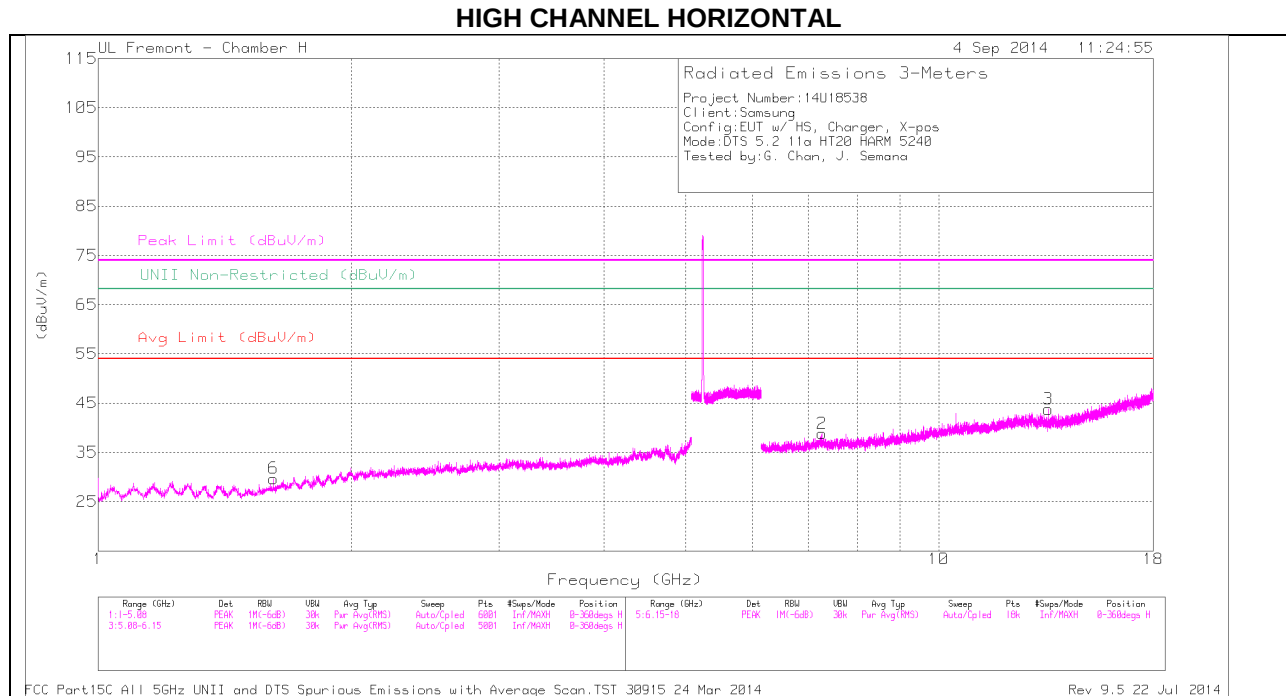
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 7.347	32.77	PK	36.2	-29.9	0	39.07	-	-	74	-34.93	-	-	0-360	201	V
4	2.161	35.31	PK	31.6	-34.6	0	32.31	-	-	-	-	68.2	-35.89	0-360	100	H
5	2.653	35.07	PK	32.3	-33.7	0	33.67	-	-	-	-	68.2	-34.53	0-360	100	H
6	3.113	33.8	PK	32.8	-32.5	0	34.1	-	-	-	-	68.2	-34.1	0-360	201	V
3	8.598	30.62	PK	36.1	-27.5	0	39.22	-	-	-	-	68.2	-28.98	0-360	201	H
1	10.4	37.26	PK	37.5	-25.8	0	48.96	-	-	-	-	68.2	-19.24	0-360	201	V

PK - Peak detector

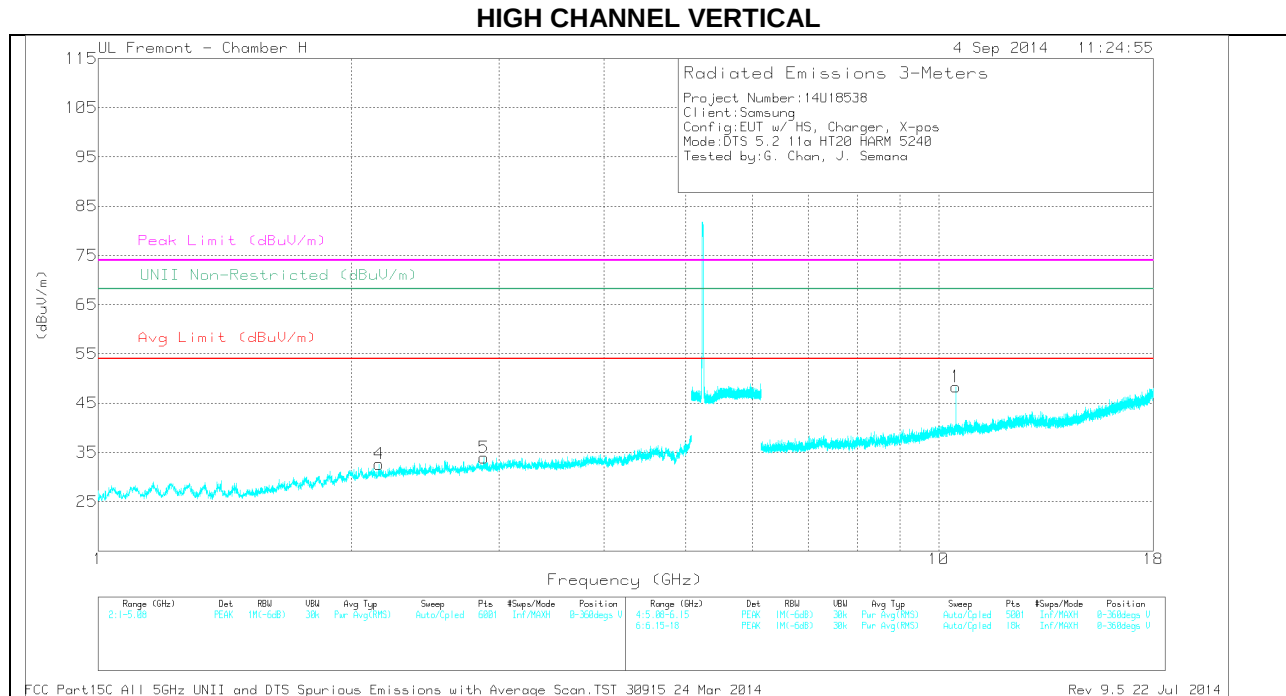
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/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
10.4	41.77	PK1	37.5	-25.8	0	53.47	-	-	-	-	68.2	-14.73	209	303	V
10.4	37.16	AD1	37.5	-25.8	.29	49.15	-	-	-	-	-	-	209	303	V

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



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



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HIGH CHANNEL DATA**TRACE MARKERS**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Ftr/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
6	* 1.617	35.89	PK	28.6	-34.8	0	29.69	-	-	74	-44.31	-	-	0-360	201	H
5	* 2.876	34.33	PK	32.6	-33	0	33.93	-	-	74	-40.07	-	-	0-360	201	V
2	* 7.268	31.74	PK	36.2	-29.1	0	38.84	-	-	74	-35.16	-	-	0-360	100	H
4	2.159	35.64	PK	31.6	-34.6	0	32.64	-	-	-	-	68.2	-35.56	0-360	100	V
1	10.48	36.53	PK	37.6	-25.8	0	48.33	-	-	-	-	68.2	-19.87	0-360	201	V
3	13.508	30.36	PK	39.1	-25.7	0	43.76	-	-	-	-	68.2	-24.44	0-360	201	H

PK - Peak detector

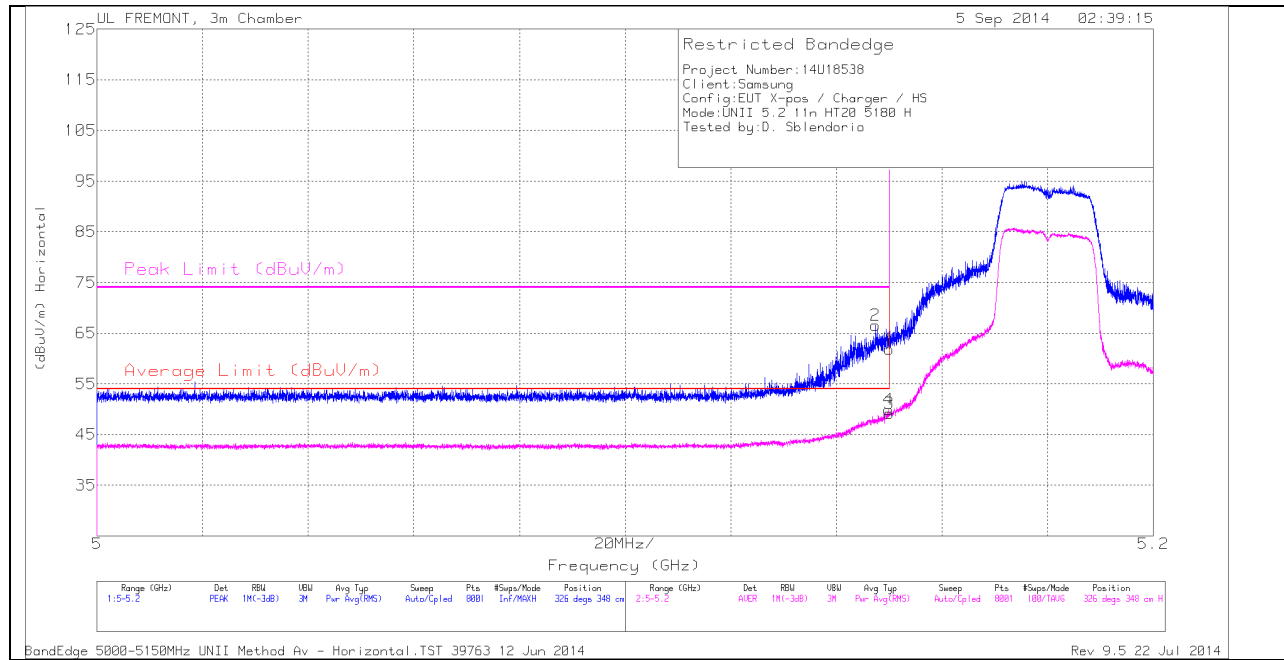
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Ftr/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
10.48	43.35	PK1	37.6	-25.8	0	55.15	-	-	-	-	68.2	-13.05	213	301	V
10.48	39.63	AD1	37.6	-25.8	.29	51.72	-	-	-	-	-	-	213	301	V

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

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

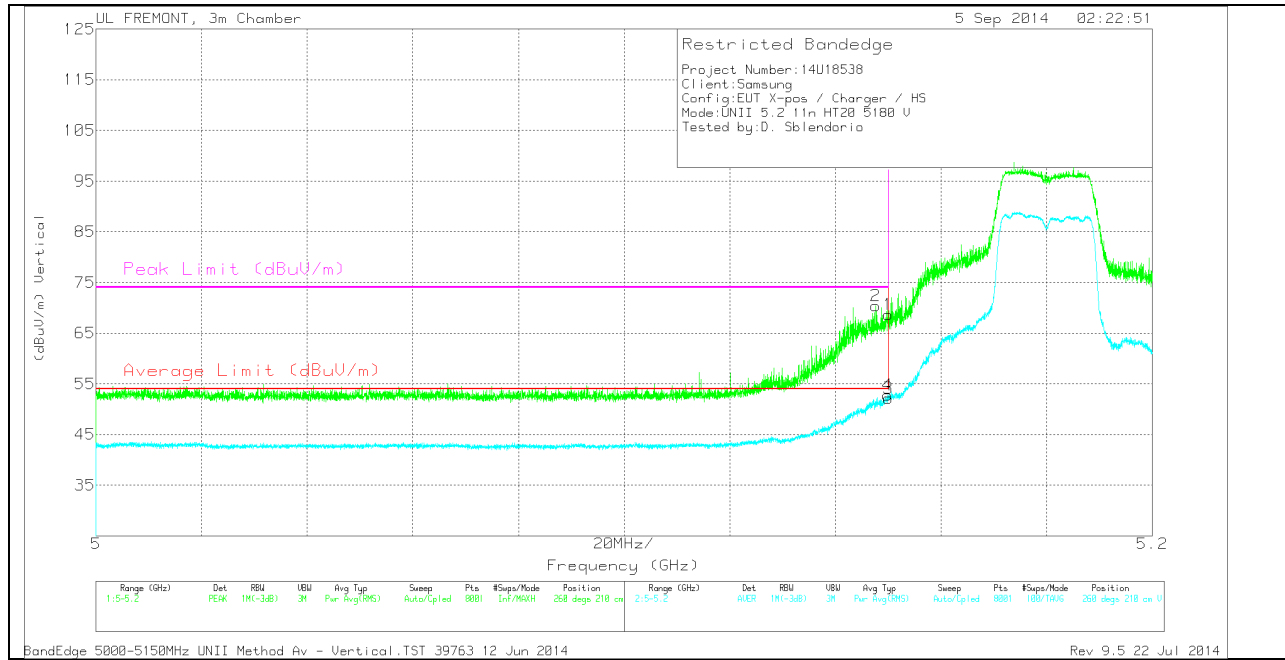
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/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	5.147	53.97	PK	34.2	-21.6	0	66.57	-	-	74	-7.43	326	348	H
1	5.15	49.26	PK	34.2	-21.6	0	61.86	-	-	74	-12.14	326	348	H
3	5.15	36.27	RMS	34.2	-21.6	.31	49.18	54	-4.82	-	-	326	348	H
4	5.15	37	RMS	34.2	-21.6	.31	49.91	54	-4.09	-	-	326	348	H

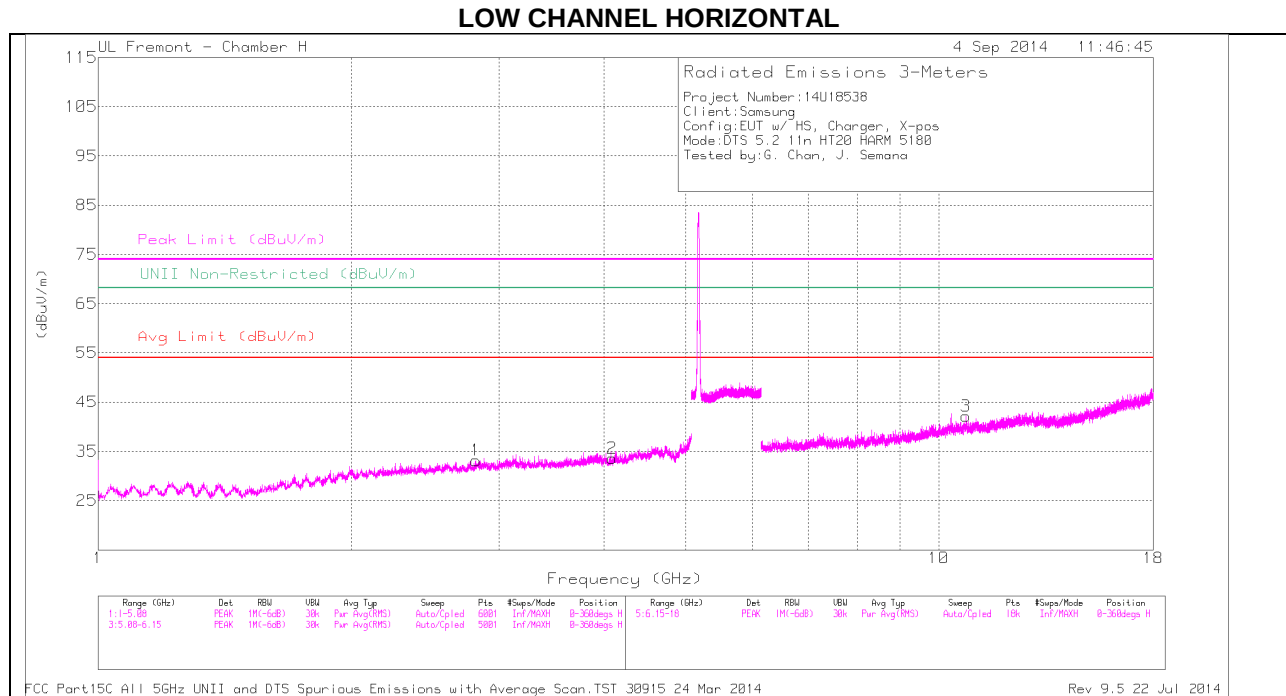
VERTICAL PEAK AND AVERAGE PLOT



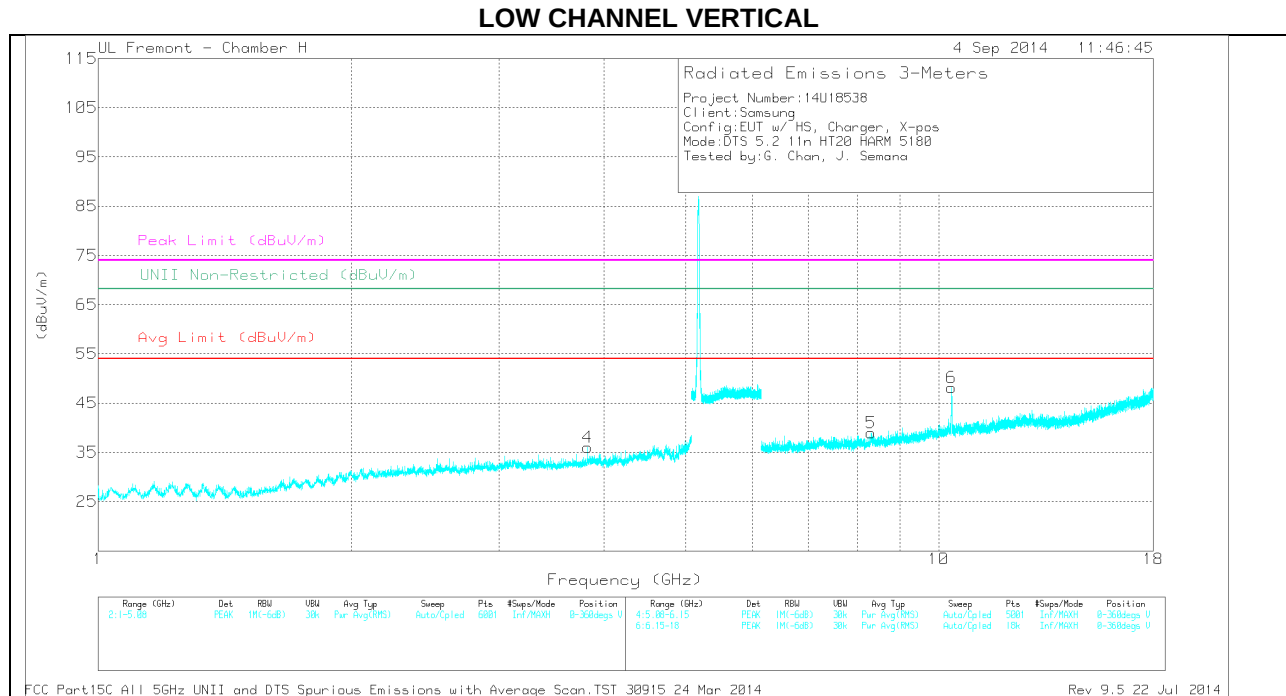
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filt 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	5.148	57.77	PK	34.2	-21.6	0	70.37	-	-	74	-3.63	260	210	V
1	5.15	56.05	PK	34.2	-21.6	0	68.65	-	-	74	-5.35	260	210	V
3	5.15	39.21	RMS	34.2	-21.6	.31	52.13	54	-1.87	-	-	260	210	V
4	5.15	39.79	RMS	34.2	-21.6	.31	52.71	54	-1.29	-	-	260	210	V

HARMONICS AND SPURIOUS EMISSIONS



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



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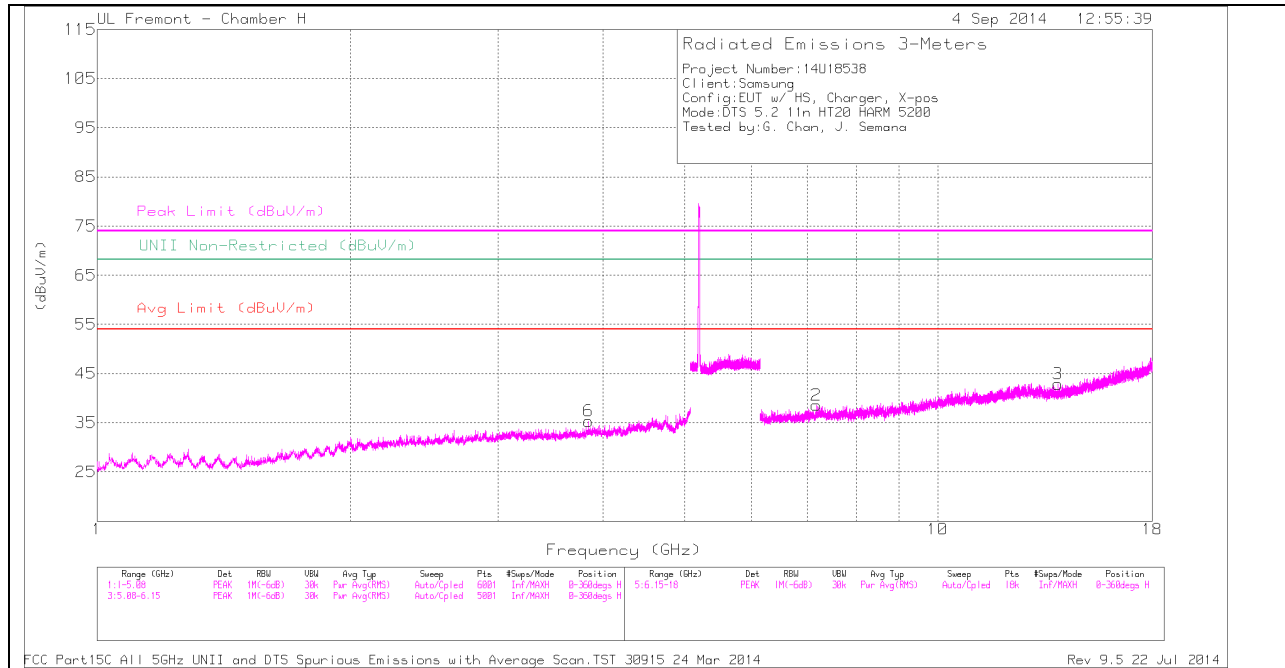
LOW CHANNEL DATA

TRACE MARKERS

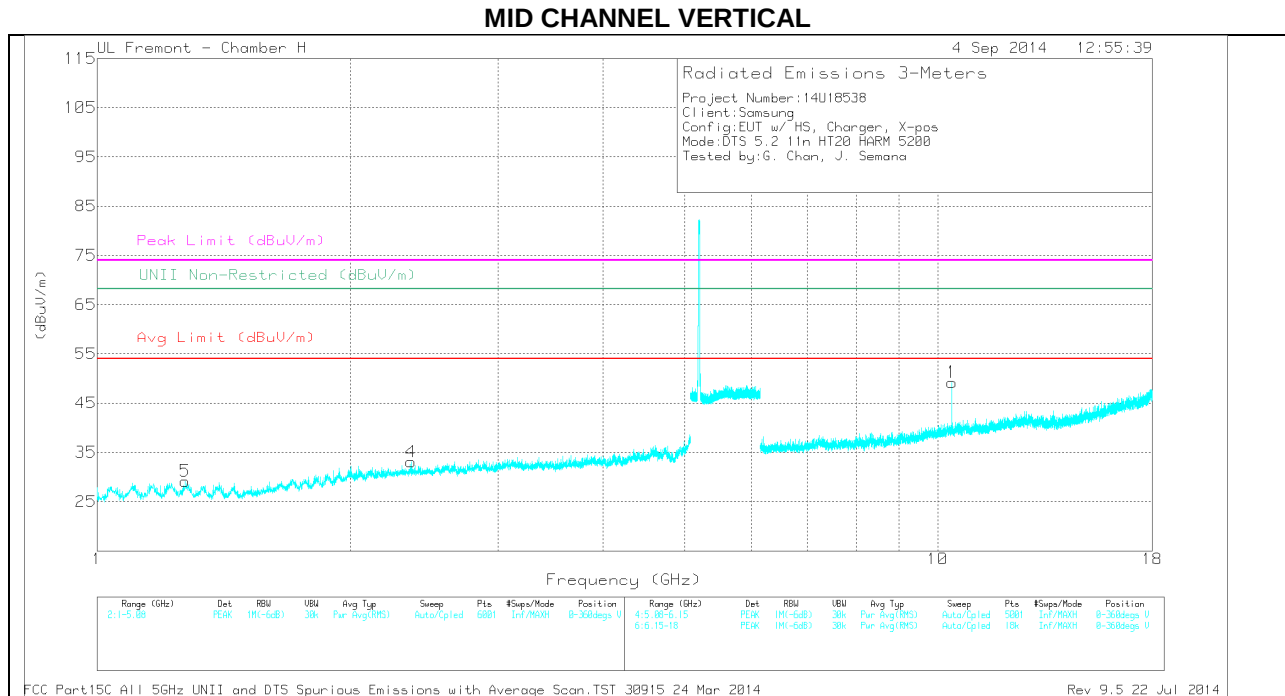
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.816	33.85	PK	32.4	-33.1	0	33.15	-	-	74	-40.85	-	-	0-360	100	H
2	* 4.087	32.47	PK	33.5	-32.4	0	33.57	-	-	74	-40.43	-	-	0-360	100	H
4	* 3.821	35.42	PK	33.3	-32.7	0	36.02	-	-	74	-37.98	-	-	0-360	100	V
3	* 10.777	29.16	PK	37.6	-24.6	0	42.16	-	-	74	-31.84	-	-	0-360	201	H
5	* 8.307	30.06	PK	36.1	-27.2	0	38.96	-	-	74	-35.04	-	-	0-360	201	V
6	10.36	36.55	PK	37.5	-25.9	0	48.15	-	-	-	-	68.2	-20.05	0-360	201	V

PK - Peak detector

MID CHANNEL HORIZONTAL



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MID CHANNEL DATA

TRACE MARKERS

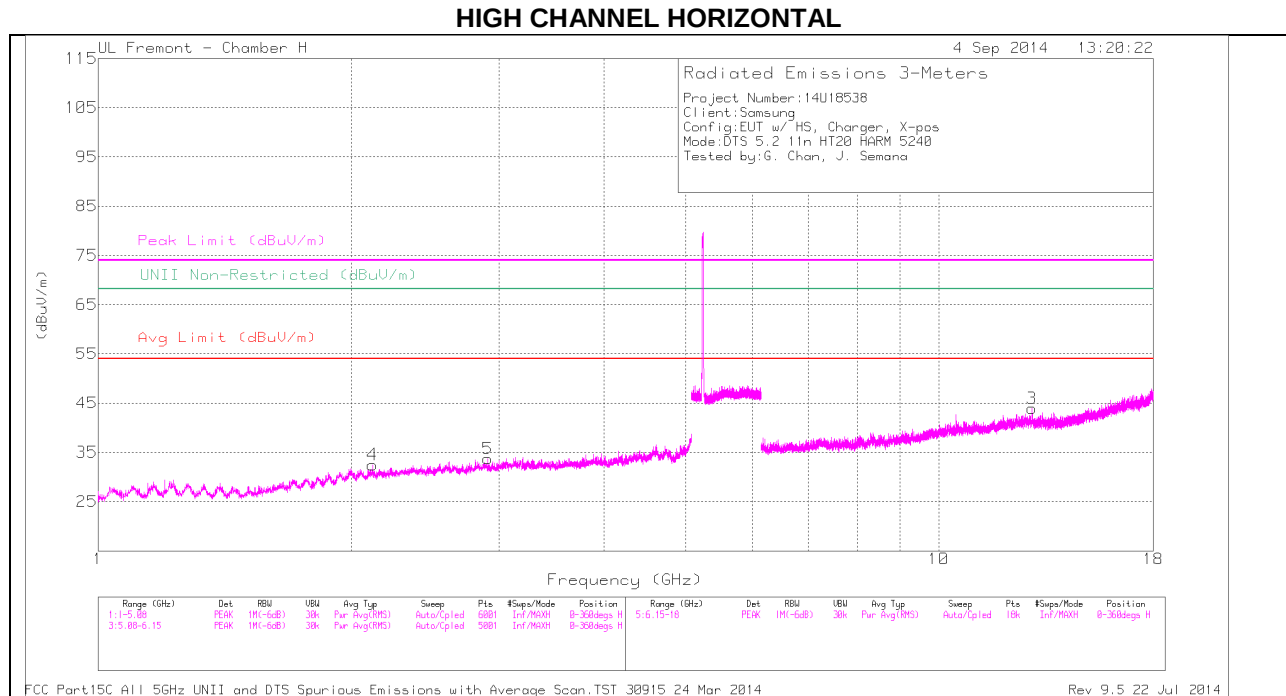
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* 1.273	35.86	PK	28.9	-35.6	0	29.16	-	-	74	-44.84	-	-	0-360	201	V
4	* 2.363	35.09	PK	31.9	-33.9	0	33.09	-	-	74	-40.91	-	-	0-360	201	V
6	* 3.844	34.82	PK	33.3	-32.8	0	35.32	-	-	74	-38.68	-	-	0-360	201	H
1	10.4	37.52	PK	37.5	-25.8	0	49.22	-	-	-	-	68.2	-18.98	0-360	201	V
3	13.896	30.27	PK	39.2	-26.6	0	42.87	-	-	-	-	68.2	-25.33	0-360	100	H
2	7.172	32.85	PK	36.1	-30.4	0	38.55	-	-	-	-	68.2	-29.65	0-360	100	H

PK - Peak detector

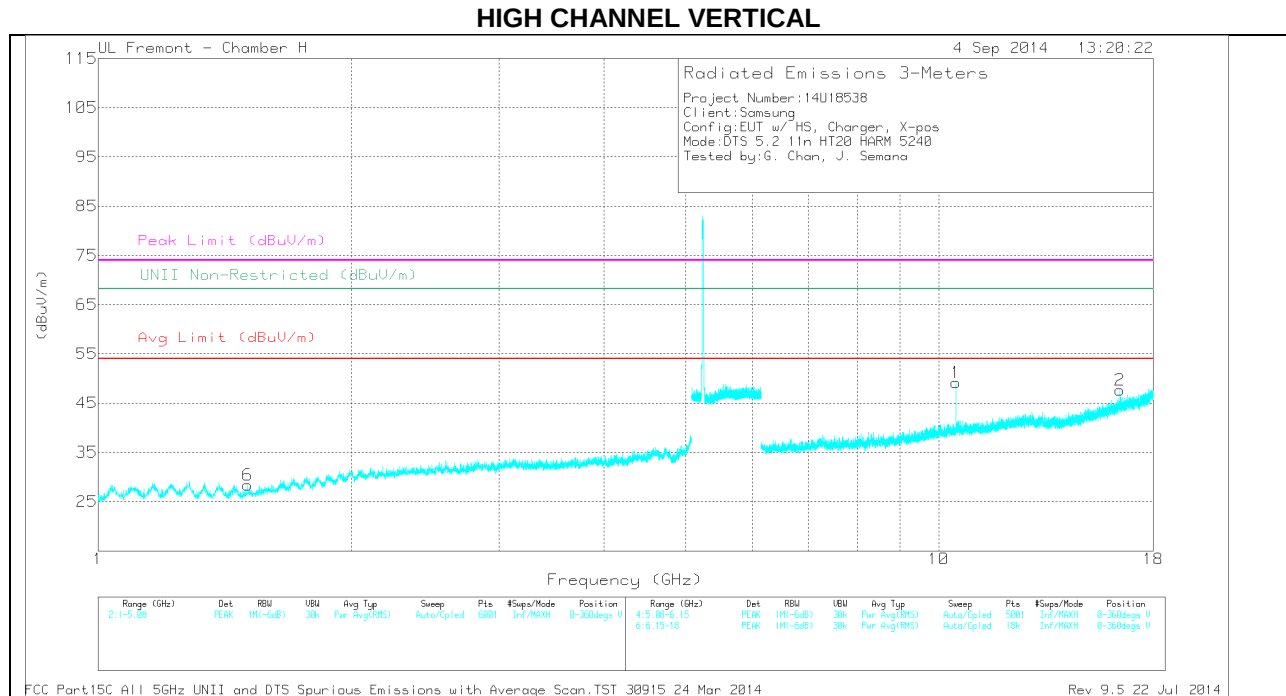
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/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
10.4	41.92	PK1	37.5	-25.8	0	53.62	-	-	-	-	68.2	-14.58	221	213	V
10.4	37.4	AD1	37.5	-25.8	.31	49.41	-	-	-	-	-	-	221	213	V

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



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HIGH CHANNEL DATA**TRACE MARKERS**

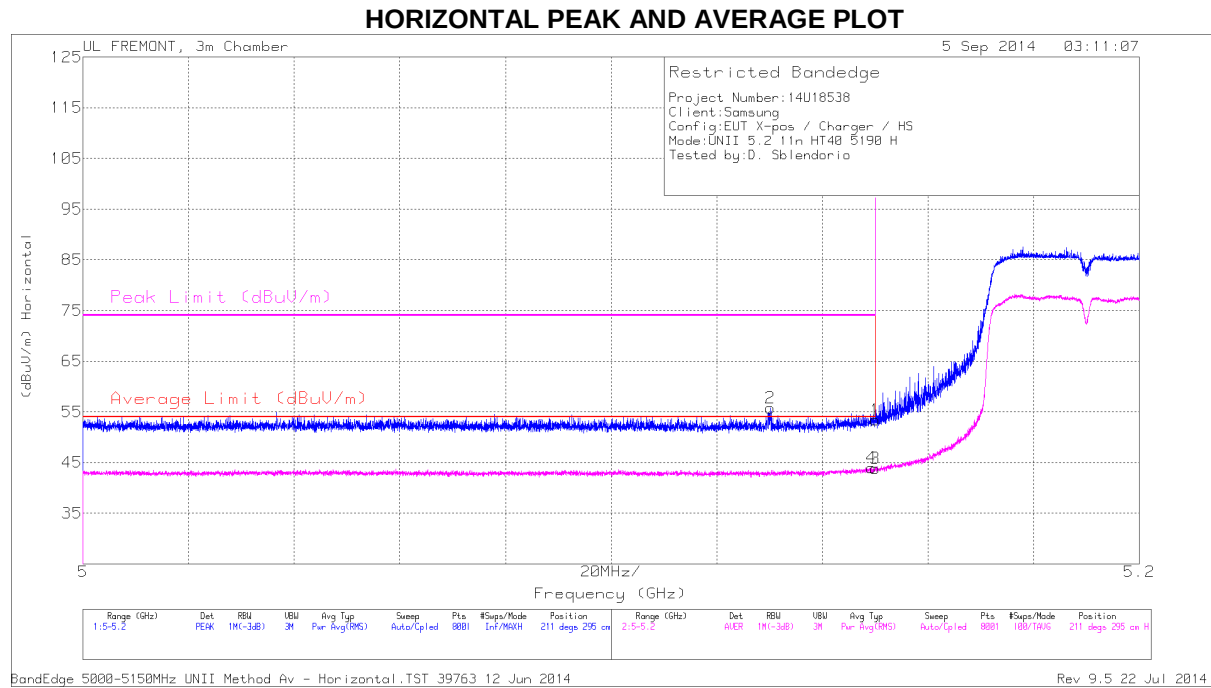
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 1.507	35.63	PK	27.8	-35.1	0	28.33	-	-	74	-45.67	-	-	0-360	201	V
4	2.121	35.36	PK	31.5	-34.4	0	32.46	-	-	-	-	68.2	-35.74	0-360	201	H
5	2.908	34.71	PK	32.6	-33.6	0	33.71	-	-	-	-	68.2	-34.49	0-360	201	H
1	10.48	37.38	PK	37.6	-25.8	0	49.18	-	-	-	-	68.2	-19.02	0-360	201	V
3	12.916	29.44	PK	39.2	-24.7	0	43.94	-	-	-	-	68.2	-24.26	0-360	201	H
2	16.432	29.74	PK	41.7	-23.8	0	47.64	-	-	-	-	68.2	-20.56	0-360	100	V

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Ftr/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
10.48	43.15	PK1	37.6	-25.8	0	54.95	-	-	-	-	68.2	-13.25	220	286	V
10.48	38.98	AD1	37.6	-25.8	.31	51.09	-	-	-	-	-	-	220	286	V

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

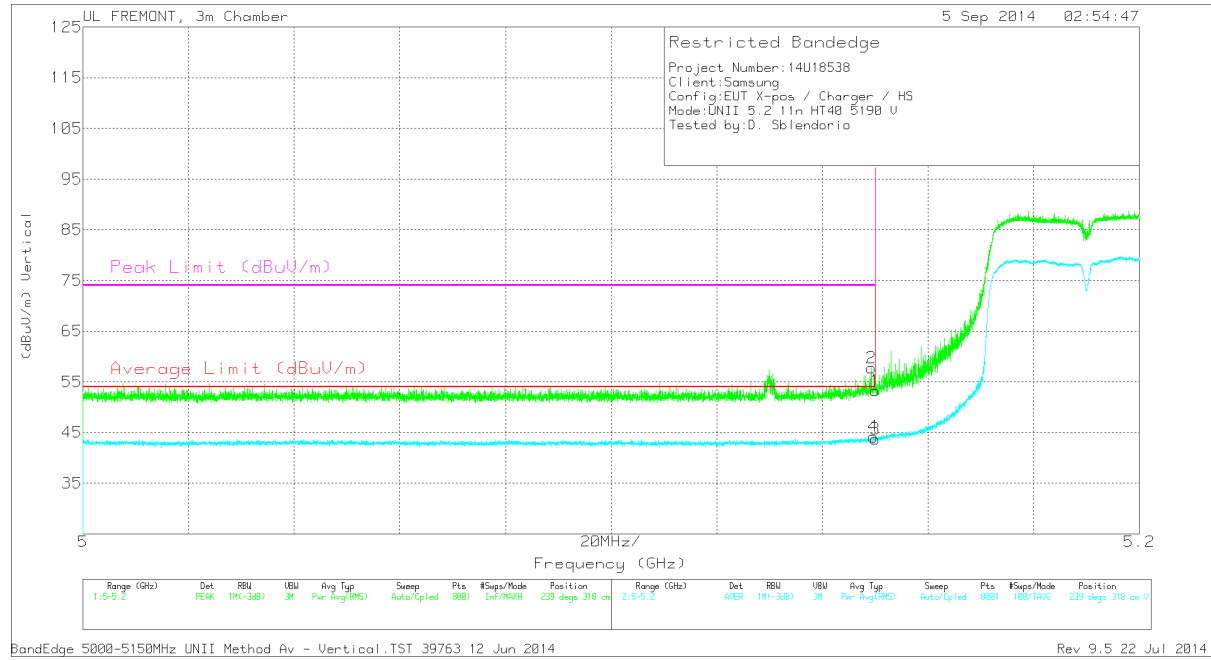


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.13	43.03	PK	34.2	-21.5	0	55.73	-	-	74	-18.27	211	295	H
4	5.149	30.7	RMS	34.2	-21.6	.65	43.95	54	-10.05	-	-	211	295	H
1	5.15	40.83	PK	34.2	-21.6	0	53.43	-	-	74	-20.57	211	295	H
3	5.15	30.58	RMS	34.2	-21.6	.65	43.83	54	-10.17	-	-	211	295	H

PK - Peak detector

RMS - RMS detection

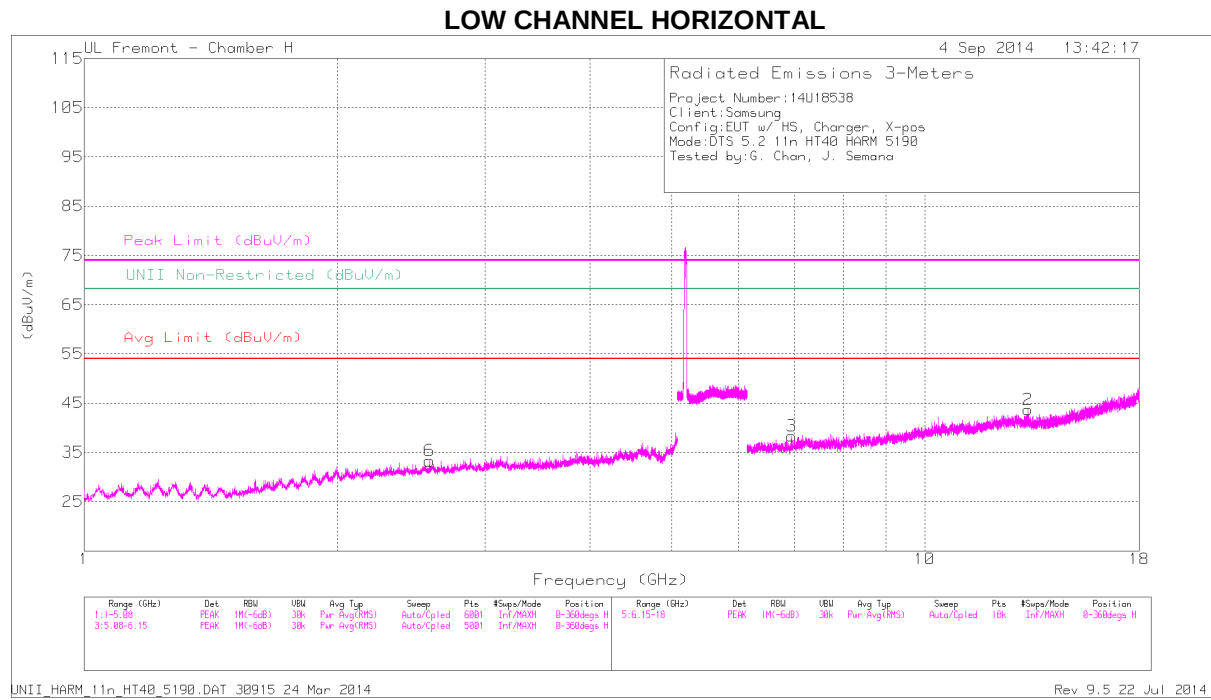
VERTICAL PEAK AND AVERAGE PLOT



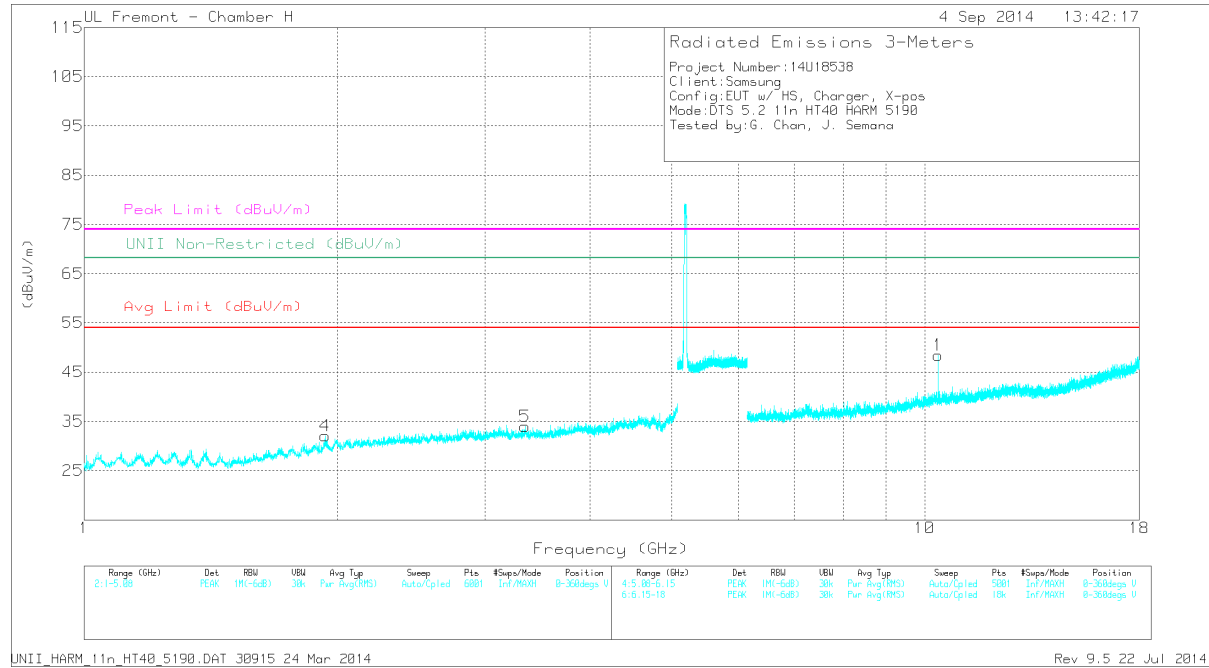
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.149	45.1	PK	34.2	-21.6	0	57.7	-	-	74	-16.3	239	318	V
1	5.15	40.65	PK	34.2	-21.6	0	53.25	-	-	74	-20.75	239	318	V
3	5.15	30.48	RMS	34.2	-21.6	.65	43.73	54	-10.27	-	-	239	318	V
4	5.15	30.89	RMS	34.2	-21.6	.65	44.14	54	-9.86	-	-	239	318	V

PK - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL VERTICAL



LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/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	* 3.346	33.78	PK	32.9	-32.7	0	33.98	-	-	74	-40.02	-	-	0-360	201	V
2	* 13.279	29.76	PK	39.1	-25.2	0	43.66	-	-	74	-30.34	-	-	0-360	100	H
4	1.936	35.73	PK	30.9	-34.6	0	32.03	-	-	-	-	68.2	-36.17	0-360	201	V
6	2.576	34.49	PK	32.2	-33.4	0	33.29	-	-	-	-	68.2	-34.91	0-360	100	H
3	6.948	33.08	PK	35.8	-30.6	0	38.28	-	-	-	-	68.2	-29.92	0-360	100	H
1	10.38	36.63	PK	37.5	-25.7	0	48.43	-	-	-	-	68.2	-19.77	0-360	201	V

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

PK - Peak detector

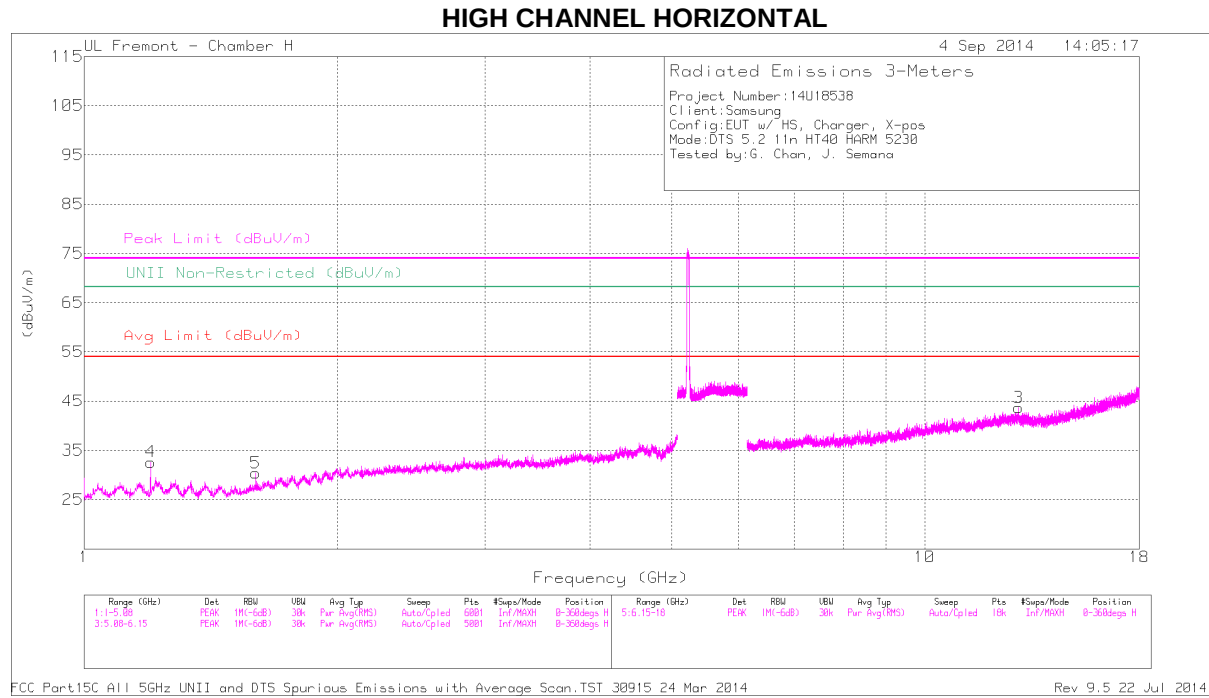
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/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
10.38	41.75	PK1	37.5	-25.6	0	53.65	-	-	-	-	68.2	-14.55	213	173	V
10.38	37.38	AD1	37.5	-25.6	.65	49.83	-	-	-	-	-	-	213	173	V

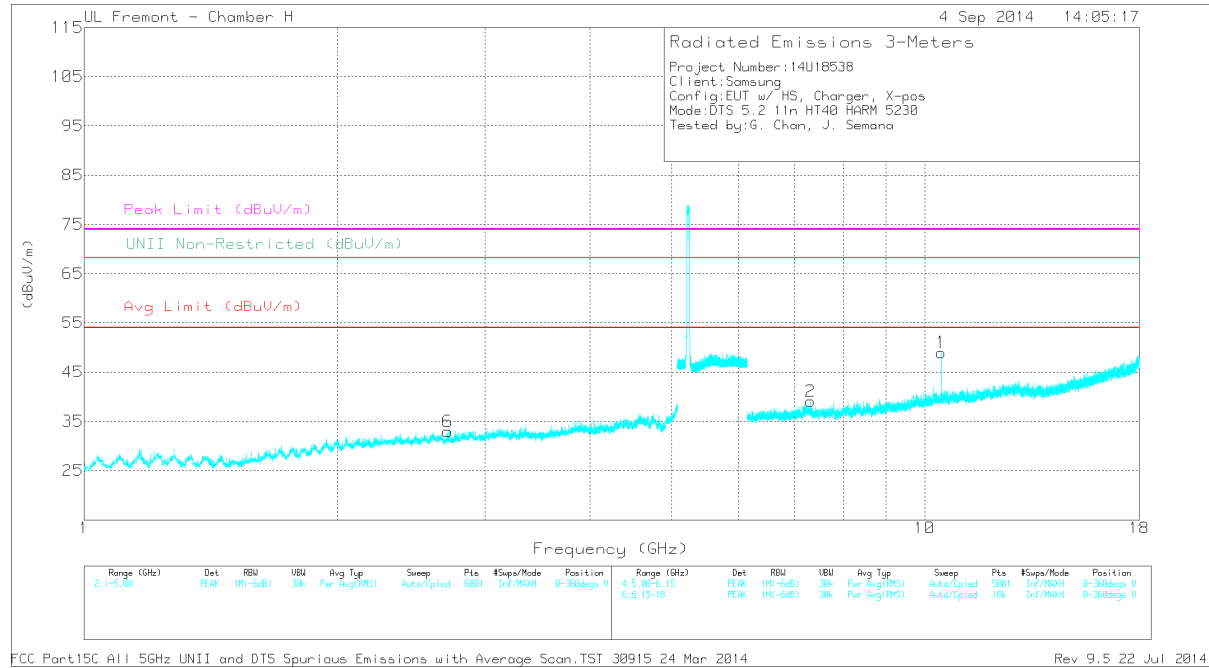
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average



HIGH CHANNEL VERTICAL



HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fitr/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	* 1.2	39.53	PK	28.7	-35.6	0	32.63	-	-	74	-41.37	-	-	0-360	201	H
5	* 1.601	36.87	PK	28.5	-35	0	30.37	-	-	74	-43.63	-	-	0-360	201	H
6	* 2.707	34.93	PK	32.3	-34.3	0	32.93	-	-	74	-41.07	-	-	0-360	201	V
2	* 7.312	32.68	PK	36.2	-29.8	0	39.08	-	-	74	-34.92	-	-	0-360	201	V
1	10.46	37.46	PK	37.6	-26.1	0	48.96	-	-	-	-	68.2	-19.24	0-360	201	V
3	12.932	29.38	PK	39.2	-24.9	0	43.68	-	-	-	-	68.2	-24.52	0-360	201	H

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fitr/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
10.46	42.8	PK1	37.6	-26.1	0	54.3	-	-	-	-	68.2	-13.9	211	303	V
10.46	38.8	AD1	37.6	-26.1	.65	50.95	-	-	-	-	-	-	211	303	V

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

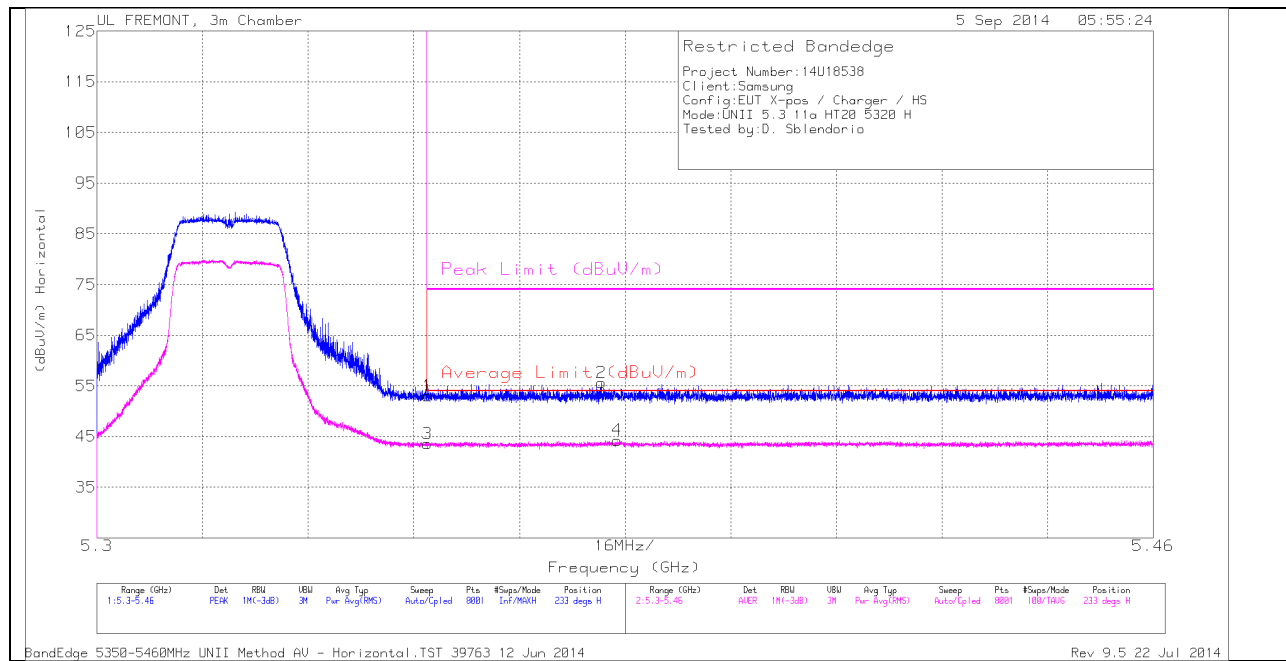
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

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)

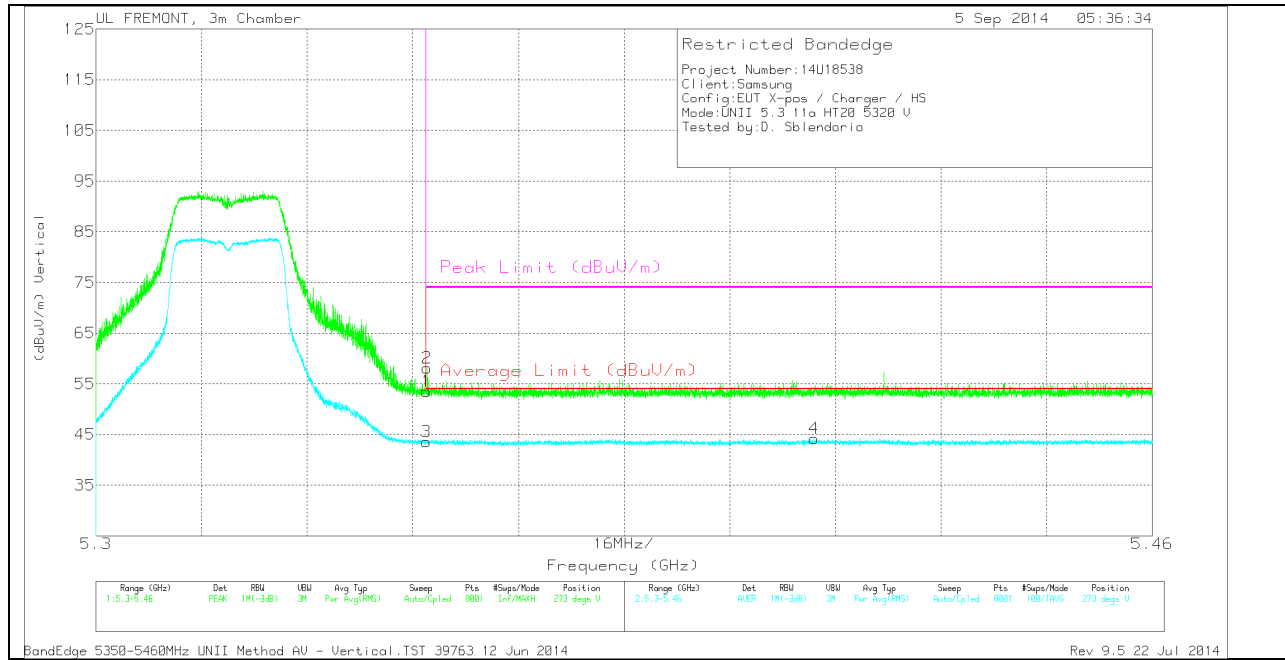
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/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	39.96	PK	34.5	-21.4	0	53.06	-	-	74	-20.94	233	220	H
3	5.35	30.23	RMS	34.5	-21.4	.29	43.62	54	-10.38	-	-	233	220	H
2	5.376	42.33	PK	34.6	-21.3	0	55.63	-	-	74	-18.37	233	220	H
4	5.379	30.66	RMS	34.6	-21.3	.29	44.25	54	-9.75	-	-	233	220	H

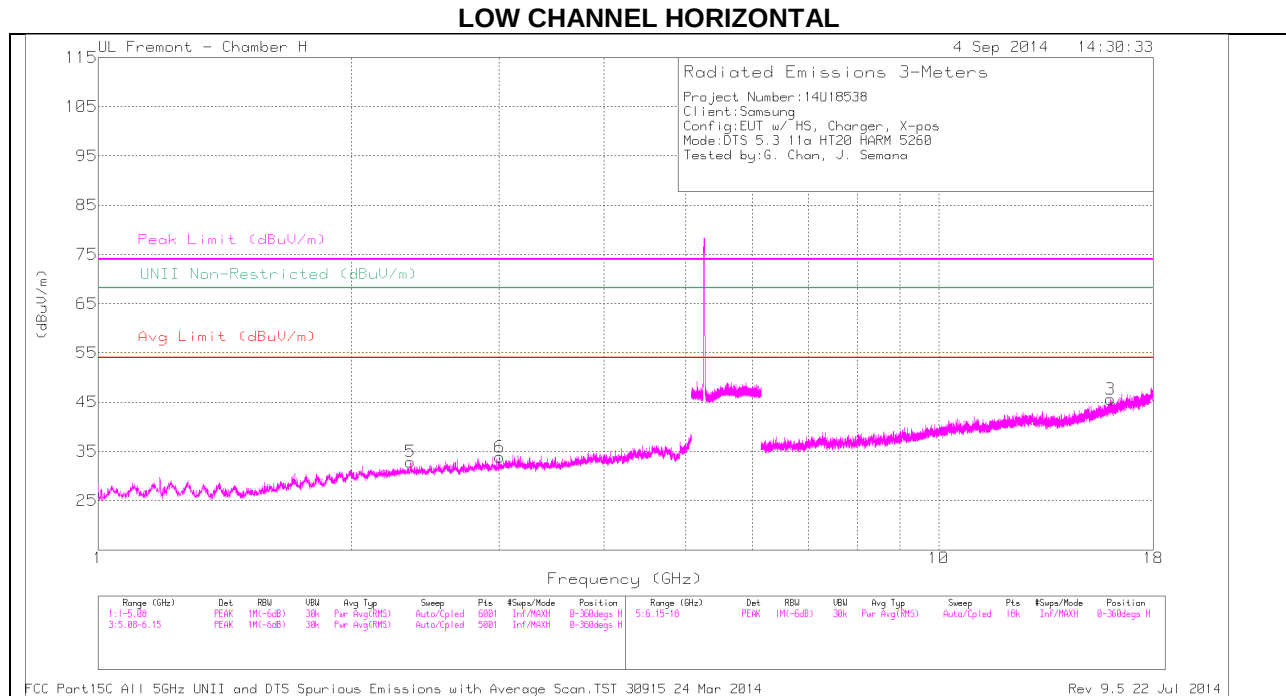
VERTICAL PEAK AND AVERAGE PLOT



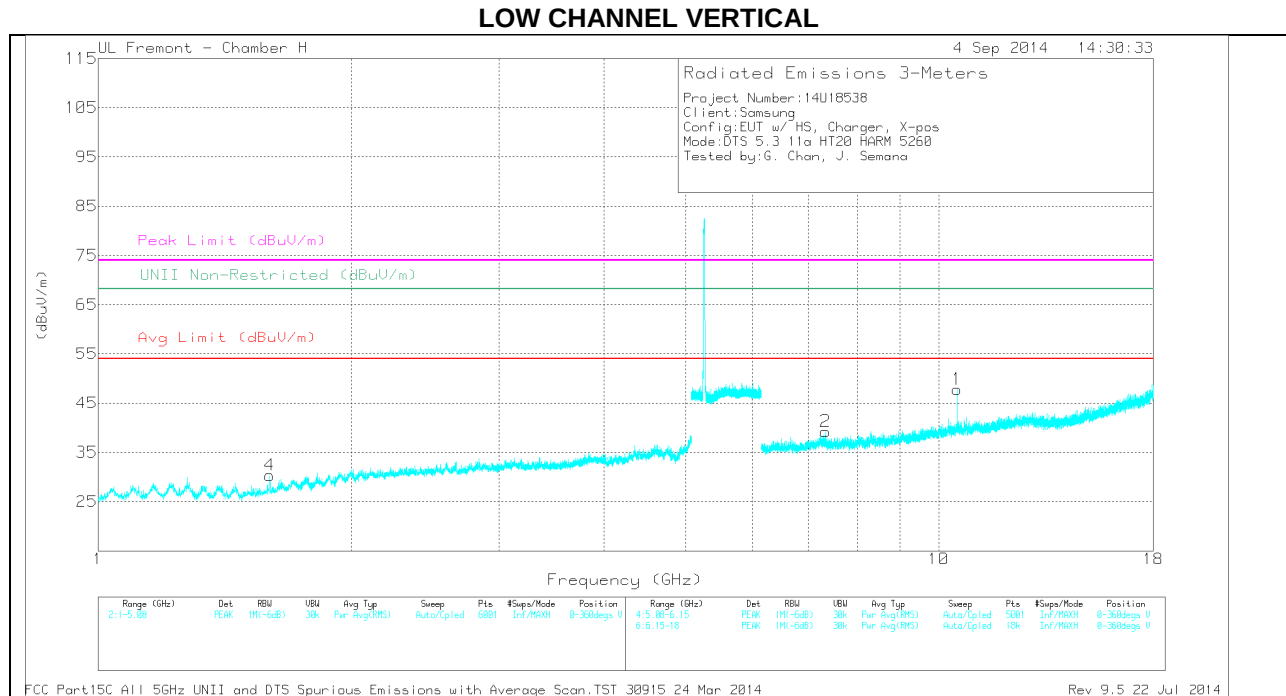
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit 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	40.38	PK	34.5	-21.4	0	53.48	-	-	74	-20.52	273	225	V
2	5.35	45.04	PK	34.5	-21.4	0	58.14	-	-	74	-15.86	273	225	V
3	5.35	30.17	RMS	34.5	-21.4	.29	43.56	54	-10.44	-	-	273	225	V
4	5.409	30.62	RMS	34.7	-21.4	.29	44.21	54	-9.79	-	-	273	225	V

HARMONICS AND SPURIOUS EMISSIONS



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



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

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fitr/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	* 2.354	34.79	PK	31.9	-33.8	0	32.89	-	-	74	-41.11	-	-	0-360	201	H
4	* 1.6	36.84	PK	28.5	-35	0	30.34	-	-	74	-43.66	-	-	0-360	100	V
3	* 16	29.08	PK	41.2	-24.7	0	45.58	-	-	74	-28.42	-	-	0-360	100	H
2	* 7.334	32.93	PK	36.2	-29.9	0	39.23	-	-	74	-34.77	-	-	0-360	201	V
6	3.003	34.93	PK	32.8	-33.9	0	33.83	-	-	-	-	68.2	-34.37	0-360	201	H
1	10.52	35.8	PK	37.6	-25.6	0	47.8	-	-	-	-	68.2	-20.4	0-360	201	V

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

PK - Peak detector

Radiated Emissions

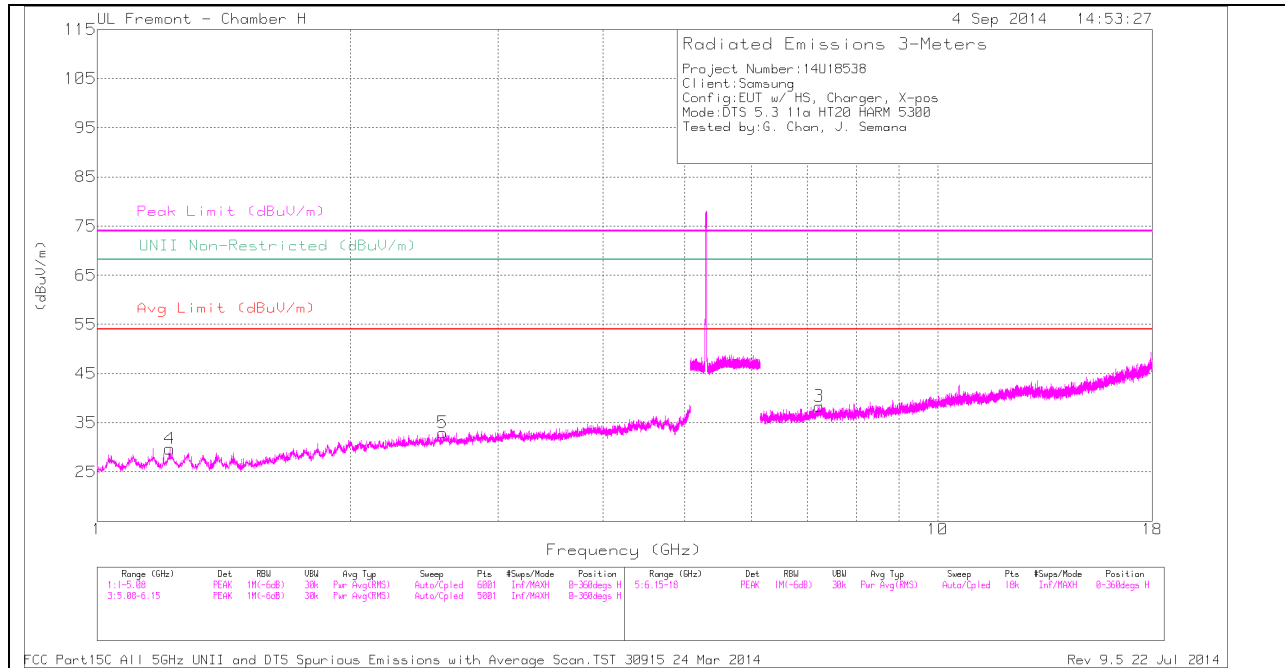
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10.52	40.98	PK1	37.6	-25.6	0	52.98	-	-	-	-	68.2	-15.22	353	163	V
10.52	35.34	AD1	37.6	-25.6	.29	47.63	-	-	-	-	-	-	353	163	V

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

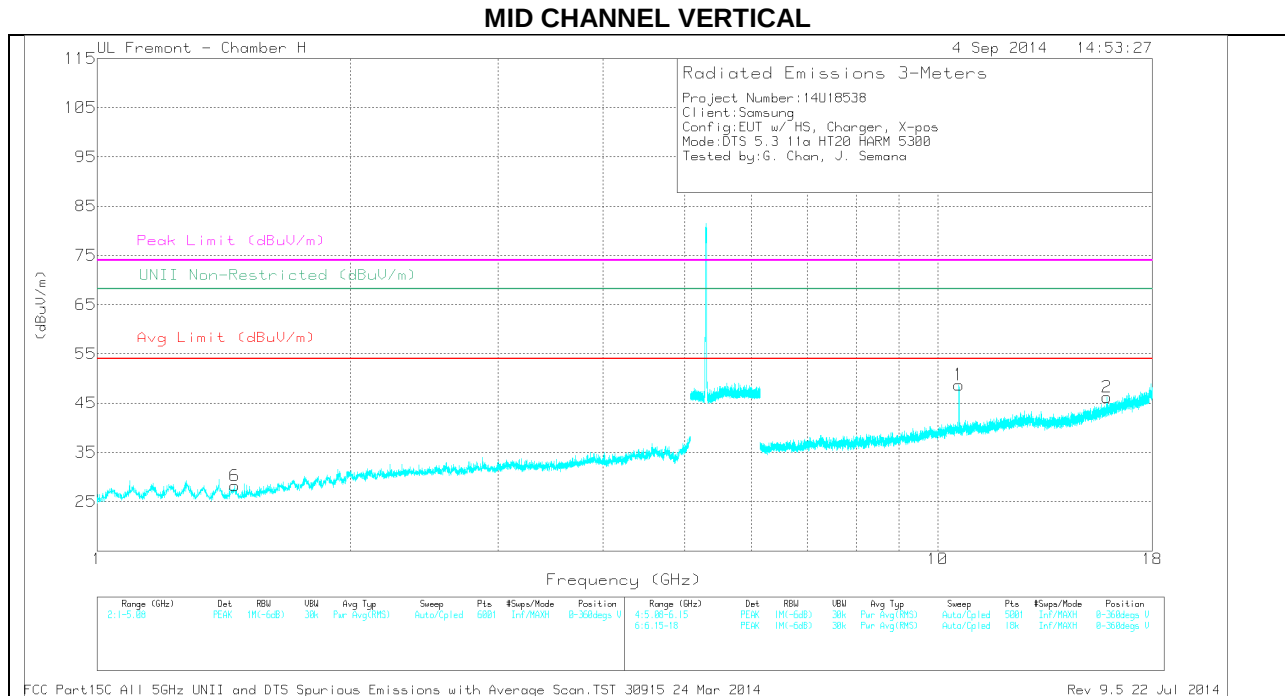
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

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.



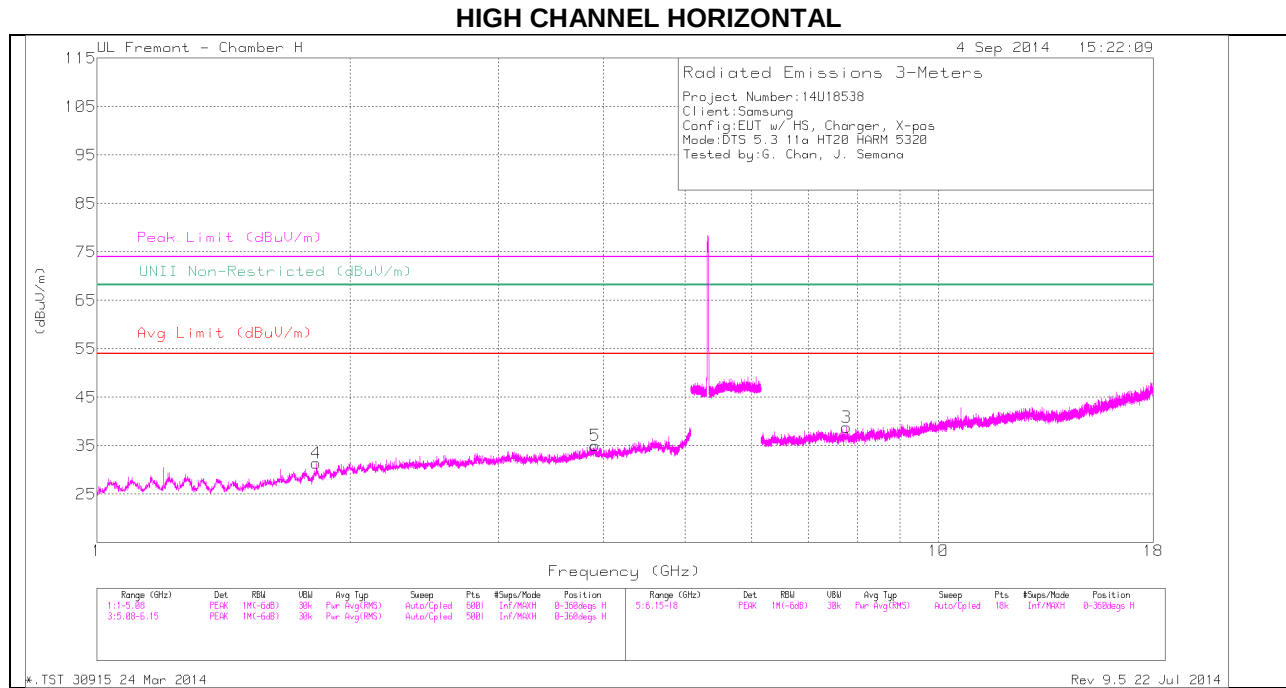
Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

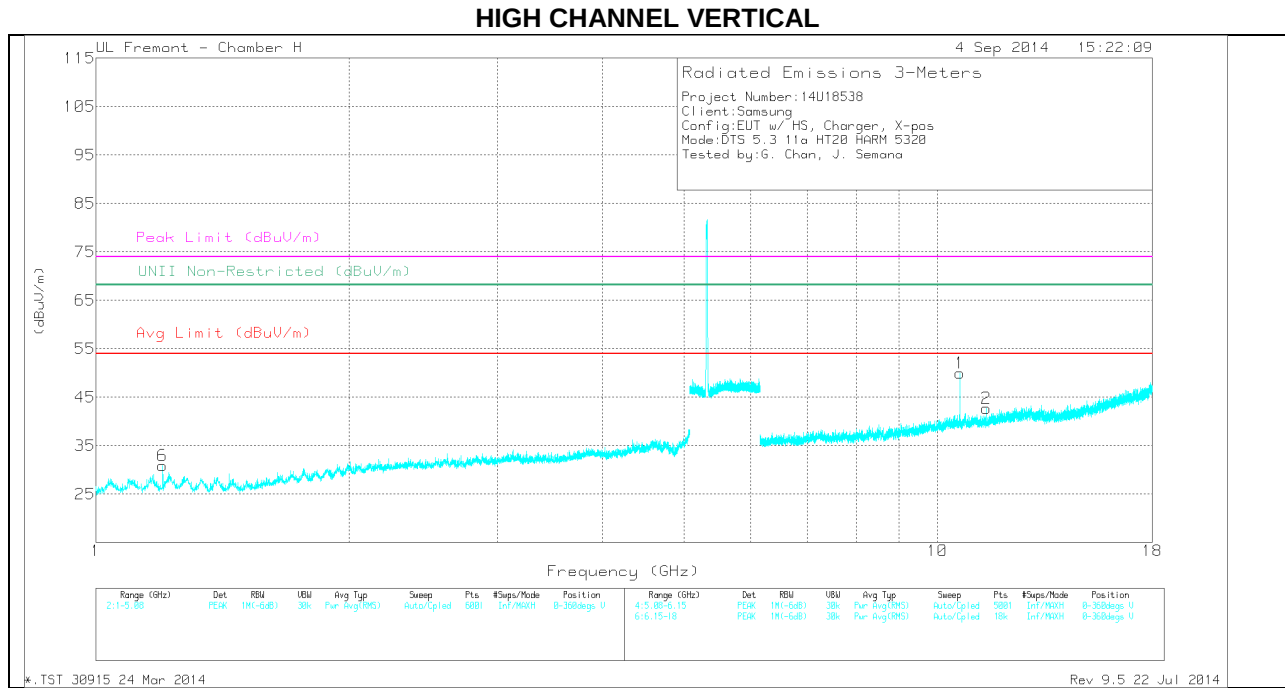
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/ Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 1.22	36.51	PK	28.8	-35.6	0	29.71	-	-	74	-44.29	-	-	0-360	100	H
6	* 1.459	35.2	PK	27.9	-34.9	0	28.2	-	-	74	-45.8	-	-	0-360	100	V
2	* 15.894	30.2	PK	41.1	-25.1	0	46.2	-	-	74	-27.8	-	-	0-360	100	V
5	2.578	34.28	PK	32.2	-33.5	0	32.98	-	-	-	-	68.2	-35.22	0-360	201	H
3	7.226	31.15	PK	36.2	-29	0	38.35	-	-	-	-	68.2	-29.85	0-360	100	H
1	10.599	36.59	PK	37.6	-25.5	0	48.69	-	-	-	-	68.2	-19.51	0-360	201	V

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

PK - Peak detector



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



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

HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/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	* 3.907	34.64	PK	33.4	-33	0	35.04	-	-	74	-38.96	-	-	0-360	201	H
6	* 1.201	37.78	PK	28.7	-35.6	0	30.88	-	-	74	-43.12	-	-	0-360	100	V
1	* 10.64	38.09	PK	37.6	-25.7	0	49.99	-	-	74	-24.01	-	-	0-360	201	V
2	* 11.425	30.24	PK	38	-25.5	0	42.74	-	-	74	-31.26	-	-	0-360	201	V
4	1.823	36.16	PK	30.2	-35	0	31.36	-	-	-	-	68.2	-36.84	0-360	100	H
3	7.776	31.87	PK	36.1	-29.2	0	38.77	-	-	-	-	68.2	-29.43	0-360	201	H

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/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
* 10.64	41.8	PK1	37.6	-25.7	0	53.7	-	-	74	-20.3	-	-	216	279	V
* 10.64	41.44	PK1	37.6	-25.7	0	53.34	-	-	74	-20.66	-	-	218	253	V
* 10.64	36.59	AD1	37.6	-25.7	.29	48.78	54	-5.22	-	-	-	-	218	253	V

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

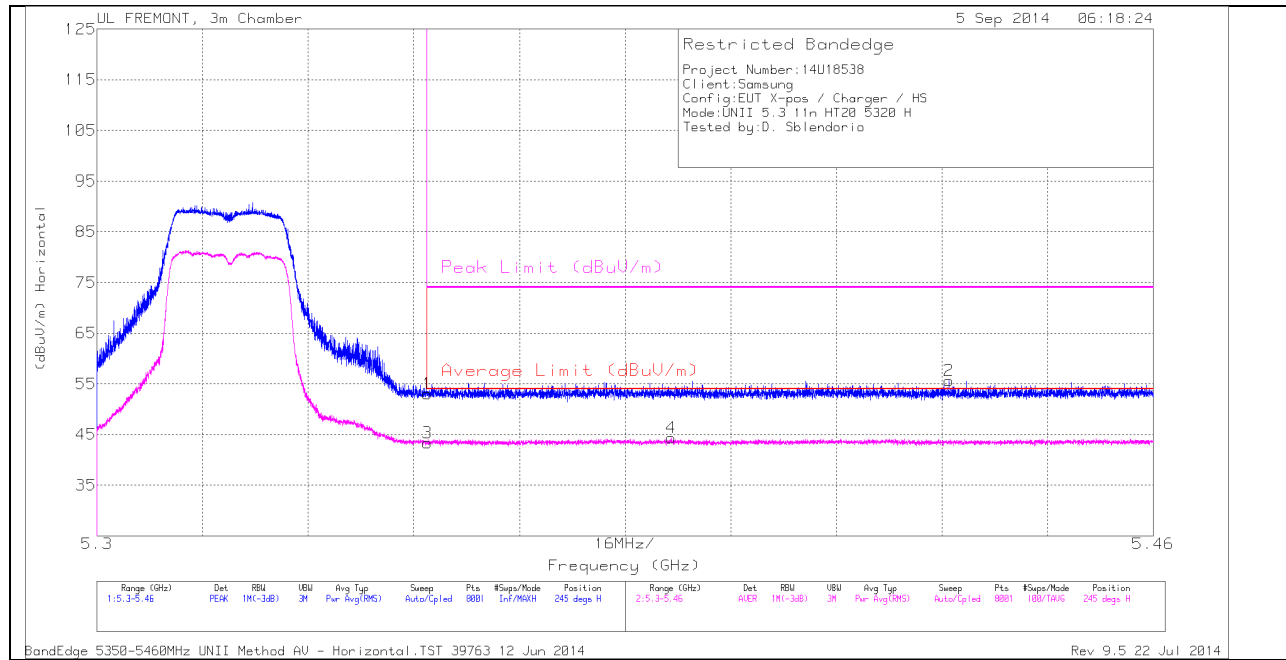
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

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

AUTHORIZED BANDEDGE (HIGH CHANNEL)

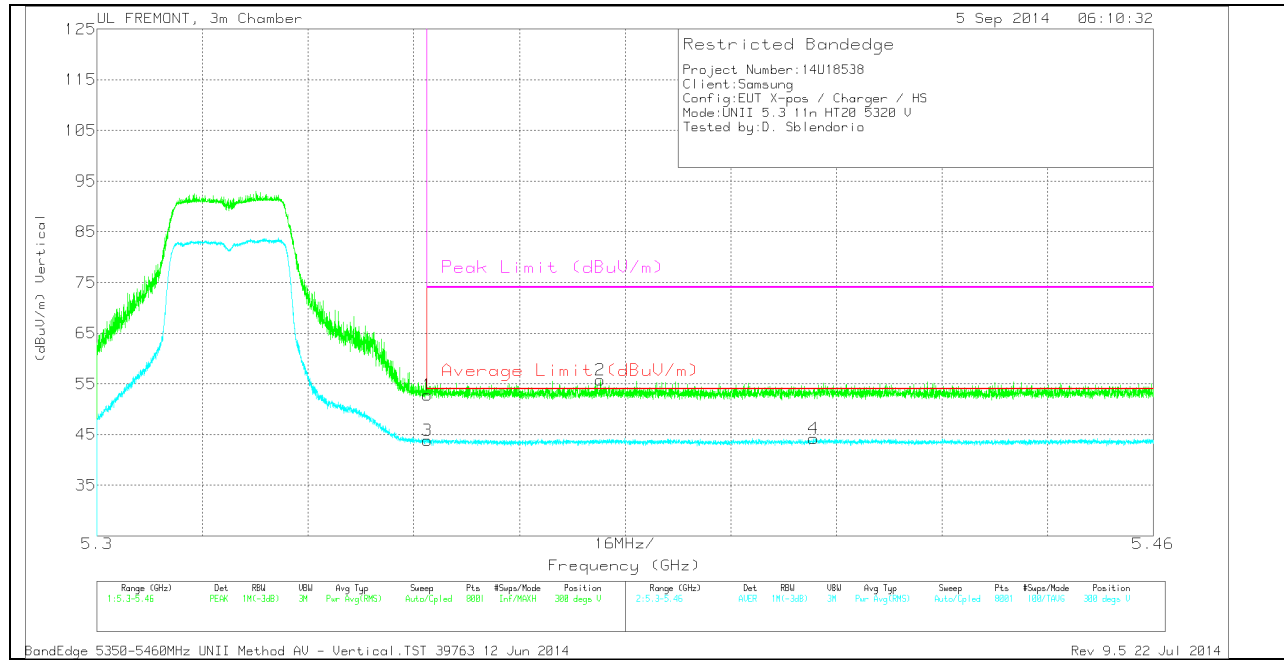
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filt 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	39.87	PK	34.5	-21.4	0	52.97	-	-	74	-21.03	245	286	H
3	5.35	29.93	RMS	34.5	-21.4	.31	43.34	54	-10.66	-	-	245	286	H
4	5.387	30.76	RMS	34.6	-21.4	.31	44.27	54	-9.73	-	-	245	286	H
2	5.429	42.38	PK	34.7	-21.5	0	55.58	-	-	74	-18.42	245	286	H

VERTICAL PEAK AND AVERAGE PLOT

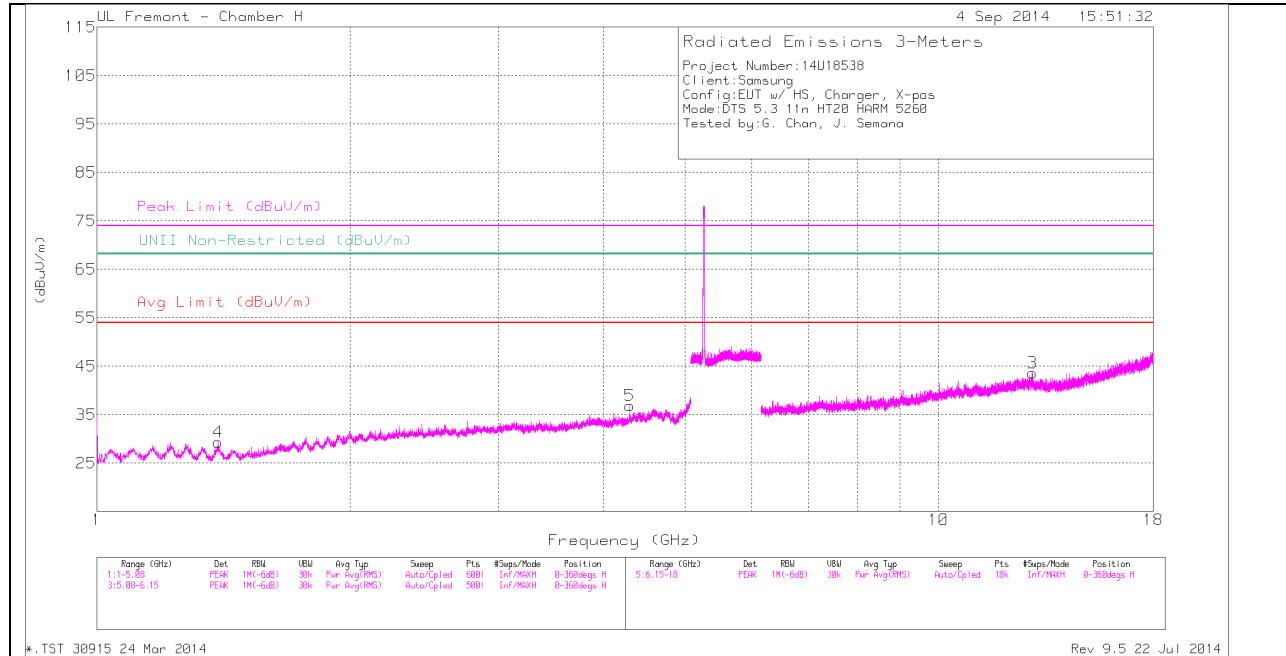


VERTICAL DATA

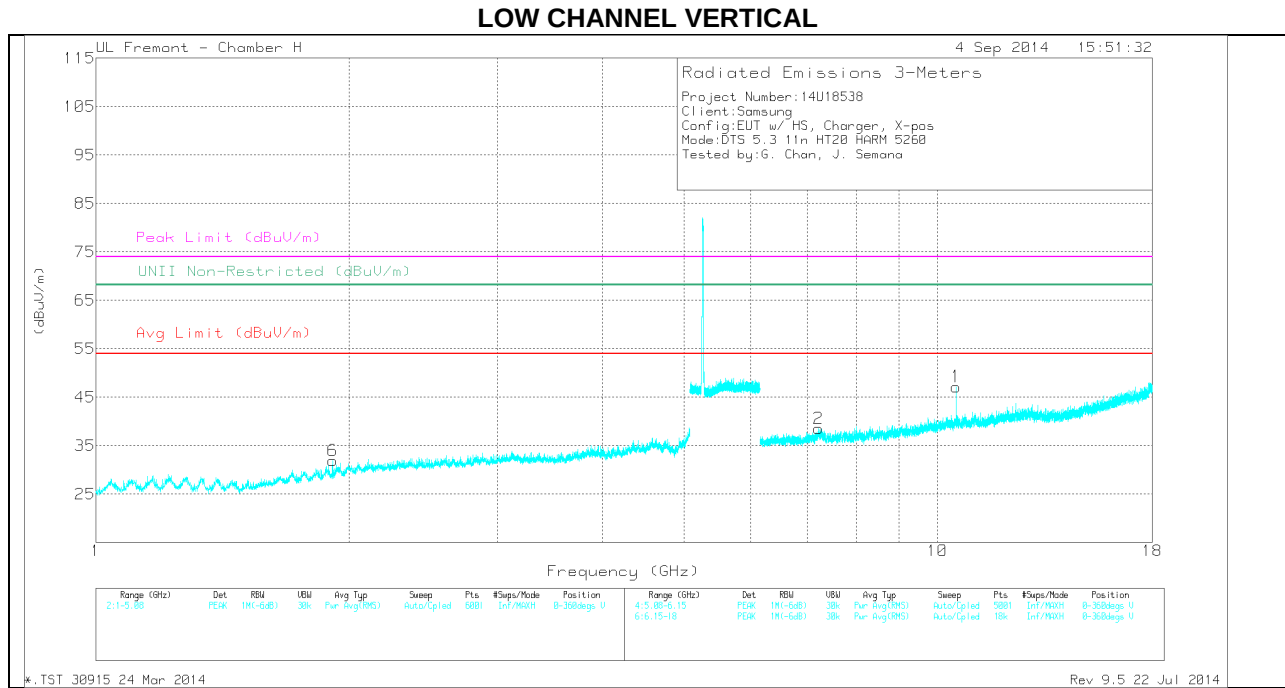
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.35	39.63	PK	34.5	-21.4	0	52.73	-	-	74	-21.27	300	381	V
3	5.35	30.33	RMS	34.5	-21.4	.31	43.74	54	-10.26	-	-	300	381	V
2	5.376	42.42	PK	34.6	-21.3	0	55.72	-	-	74	-18.28	300	381	V
4	5.409	30.54	RMS	34.7	-21.4	.31	44.15	54	-9.85	-	-	300	381	V

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.



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

LOW CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Ftr/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	* 2.354	34.79	PK	31.9	-33.8	0	32.89	-	-	74	-41.11	-	-	0-360	201	H
4	* 1.6	36.84	PK	28.5	-35	0	30.34	-	-	74	-43.66	-	-	0-360	100	V
3	* 16	29.08	PK	41.2	-24.7	0	45.58	-	-	74	-28.42	-	-	0-360	100	H
2	* 7.334	32.93	PK	36.2	-29.9	0	39.23	-	-	74	-34.77	-	-	0-360	201	V
6	3.003	34.93	PK	32.8	-33.9	0	33.83	-	-	-	-	68.2	-34.37	0-360	201	H
1	10.52	35.8	PK	37.6	-25.6	0	47.8	-	-	-	-	68.2	-20.4	0-360	201	V

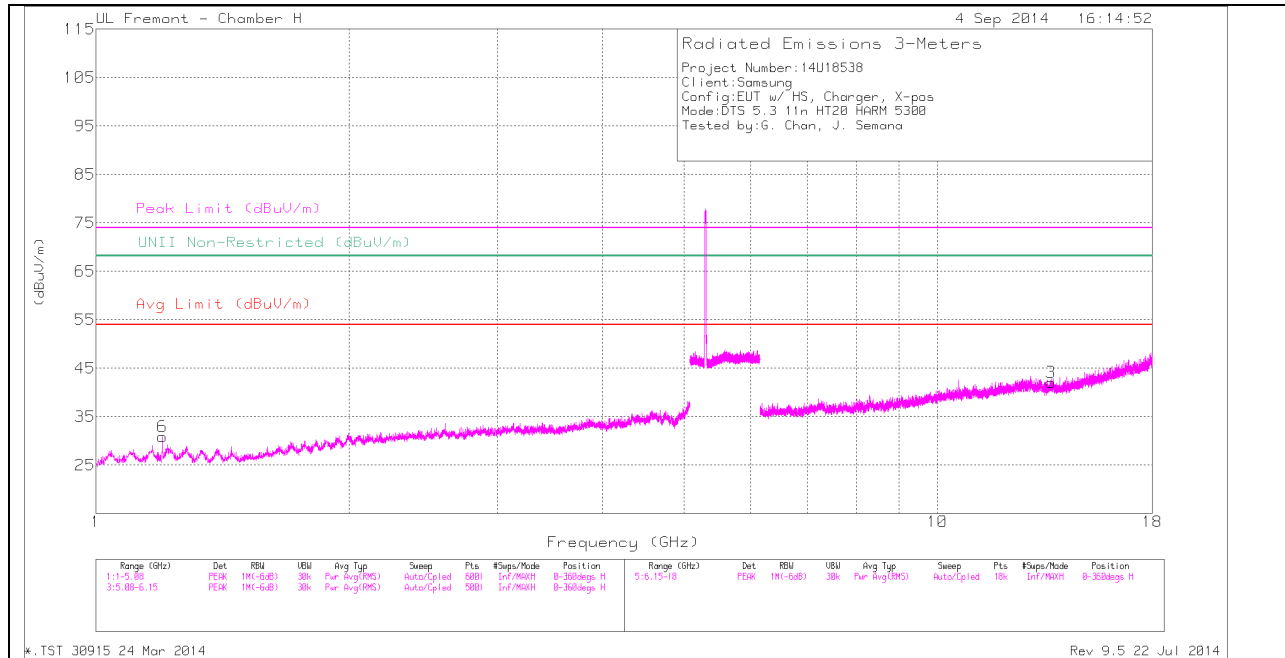
PK - Peak detector

RADIATED EMISSIONS

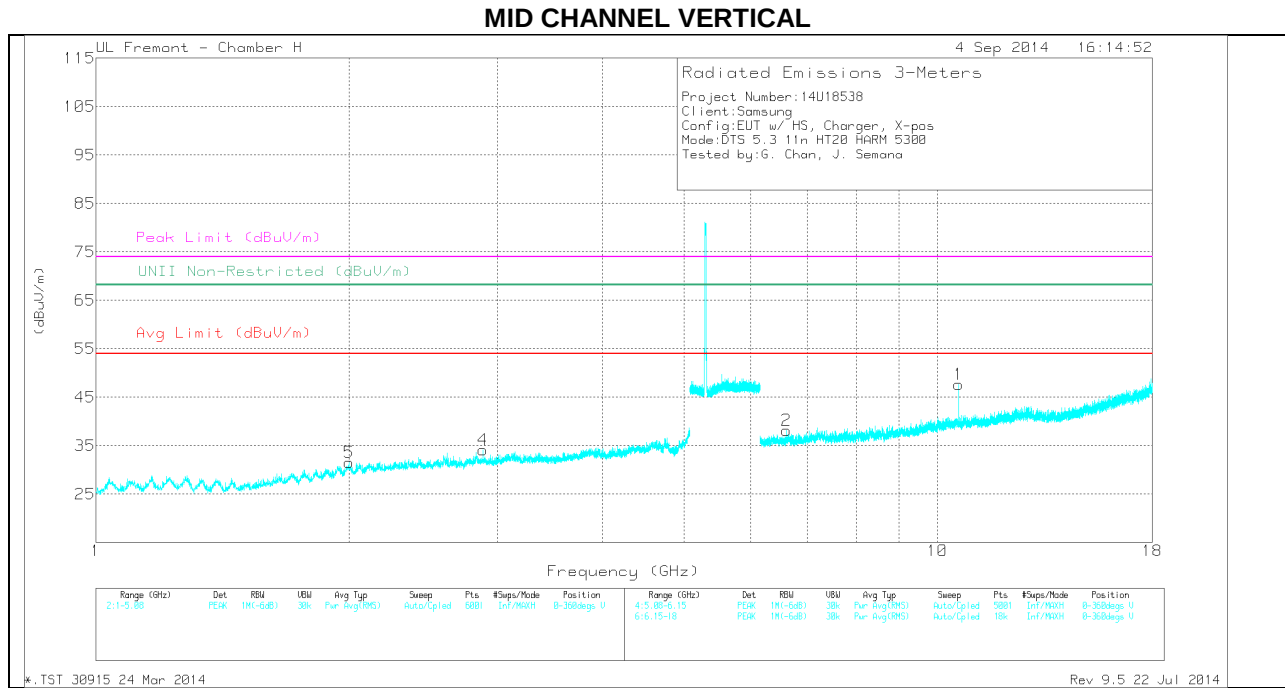
Frequency (GHz)	Meter Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10.52	40.98	PK1	37.6	-25.6	0	52.98	-	-	-	-	68.2	-15.22	353	163	V
10.52	35.34	AD1	37.6	-25.6	.31	47.65	-	-	-	-	-	-	353	163	V

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

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.



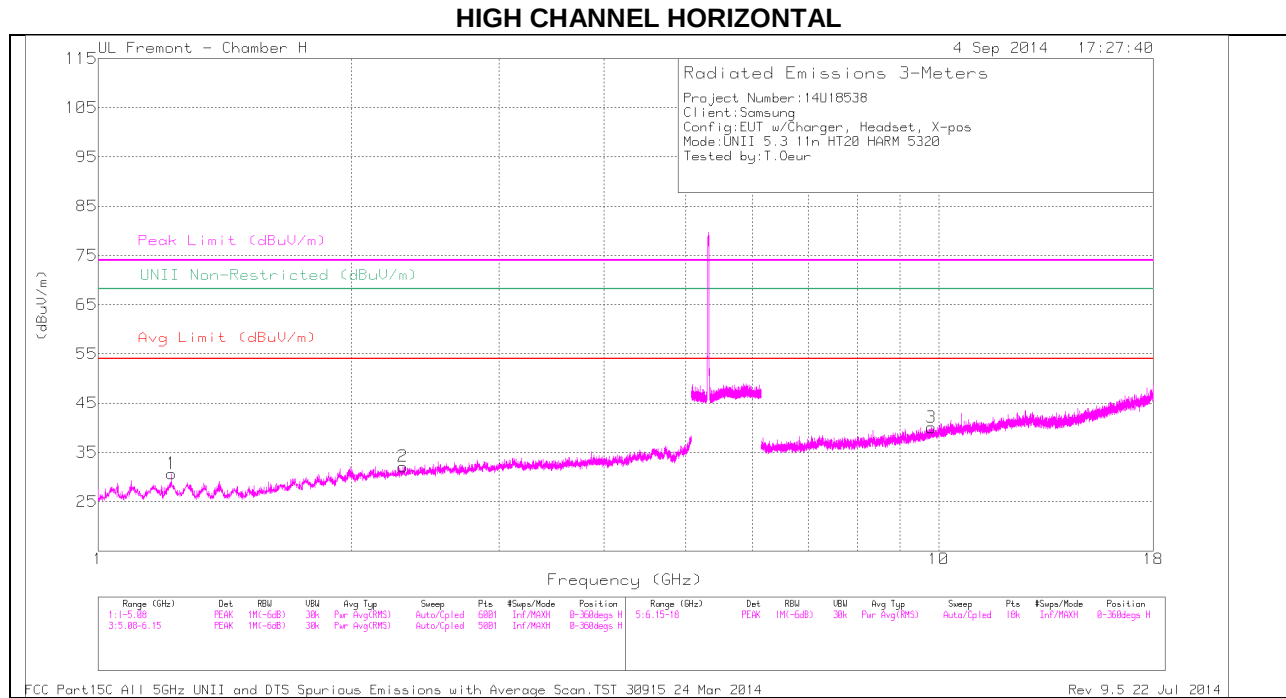
Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA*TRACE MARKERS*

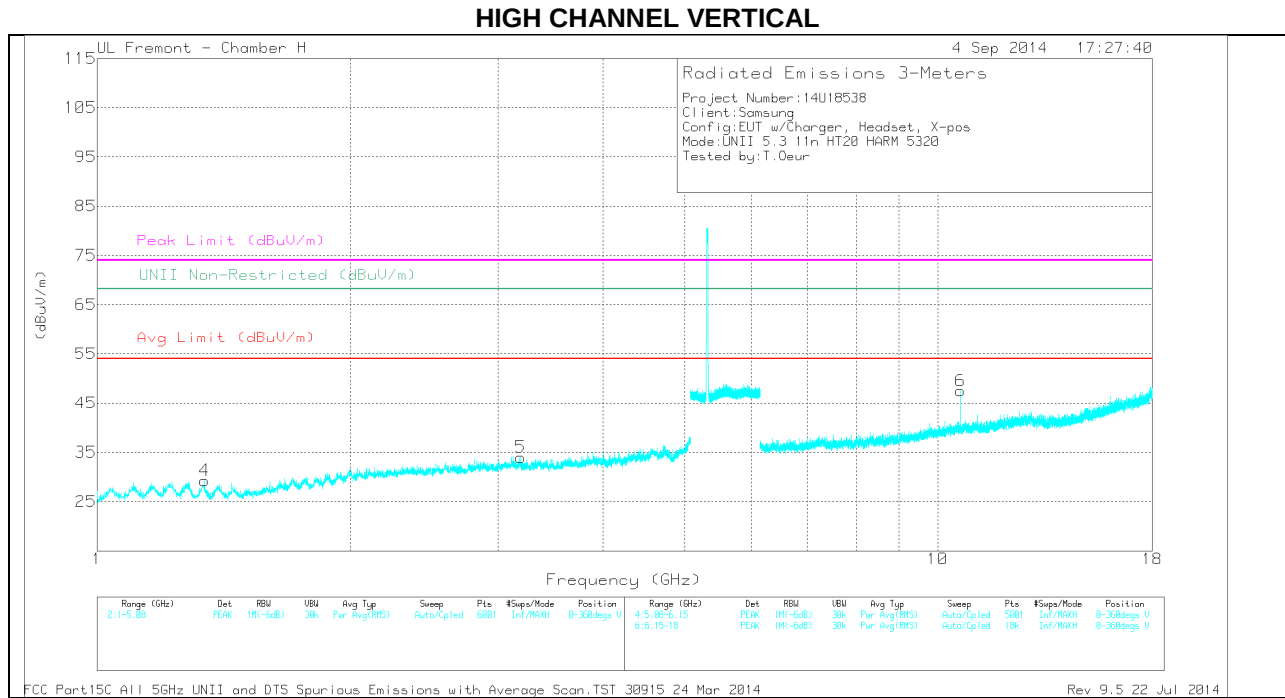
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/ Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 1.2	37.79	PK	28.7	-35.6	0	30.89	-	-	74	-43.11	-	-	0-360	201	H
4	* 2.882	34.72	PK	32.6	-33.2	0	34.12	-	-	74	-39.88	-	-	0-360	100	V
5	1.998	34.73	PK	31.3	-34.5	0	31.53	-	-	-	-	68.2	-36.67	0-360	201	V
2	6.616	32.99	PK	35.7	-30.5	0	38.19	-	-	-	-	68.2	-30.01	0-360	201	V
1	10.599	35.6	PK	37.6	-25.5	0	47.7	-	-	-	-	68.2	-20.5	0-360	201	V
3	13.643	29.06	PK	39.1	-26.1	0	42.06	-	-	-	-	68.2	-26.14	0-360	201	H

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

PK - Peak detector



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



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

HIGH CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/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	* 1.223	37.28	PK	28.9	-35.5	0	30.68	-	-	74	-43.32	-	-	0-360	201	H
4	* 1.342	36.28	PK	28.5	-35.5	0	29.28	-	-	74	-44.72	-	-	0-360	201	V
6	* 10.64	35.58	PK	37.6	-25.7	0	47.48	-	-	74	-26.52	-	-	0-360	201	V
2	2.306	34.22	PK	31.8	-33.9	0	32.12	-	-	-	-	68.2	-36.08	0-360	201	H
5	3.19	34.42	PK	32.9	-33.3	0	34.02	-	-	-	-	68.2	-34.18	0-360	201	V
3	9.8	28.96	PK	37	-25.9	0	40.06	-	-	-	-	68.2	-28.14	0-360	201	H

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/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
* 1.224	44.23	PK1	28.9	-35.5	0	37.63	-	-	74	-36.37	-	-	58	250	H
* 1.222	32	AD1	28.9	-35.6	.31	25.61	54	-28.39	-	-	-	-	58	250	H
* 10.64	40.62	PK1	37.6	-25.7	0	52.52	-	-	74	-21.48	-	-	352	163	V
* 10.64	35.07	AD1	37.6	-25.7	.31	47.28	54	-6.72	-	-	-	-	352	163	V

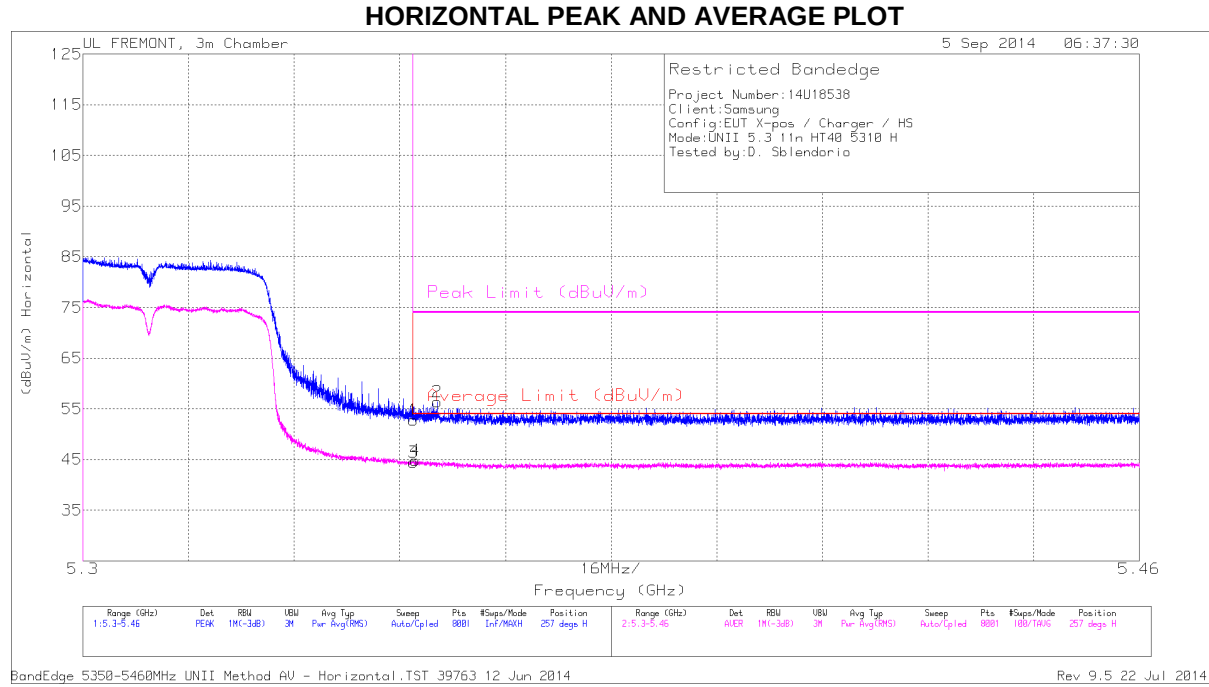
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

11.2.1. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.3 GHz BAND

AUTHORIZED BANDEDGE (HIGH CHANNEL)

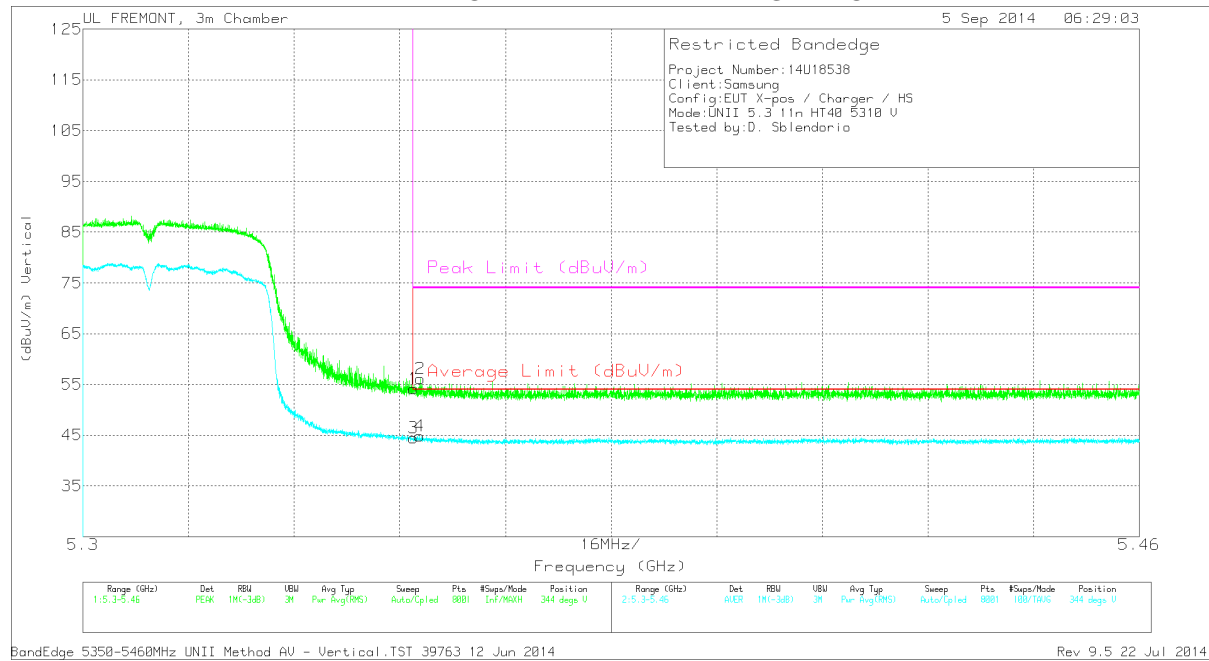


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.35	39.72	PK	34.5	-21.4	0	52.82	-	-	74	-21.18	257	283	H
3	5.35	30.68	RMS	34.5	-21.4	.65	44.43	54	-9.57	-	-	257	283	H
4	5.35	31.08	RMS	34.5	-21.4	.65	44.83	54	-9.17	-	-	257	283	H
2	5.354	43.25	PK	34.5	-21.4	0	56.35	-	-	74	-17.65	257	283	H

PK - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT

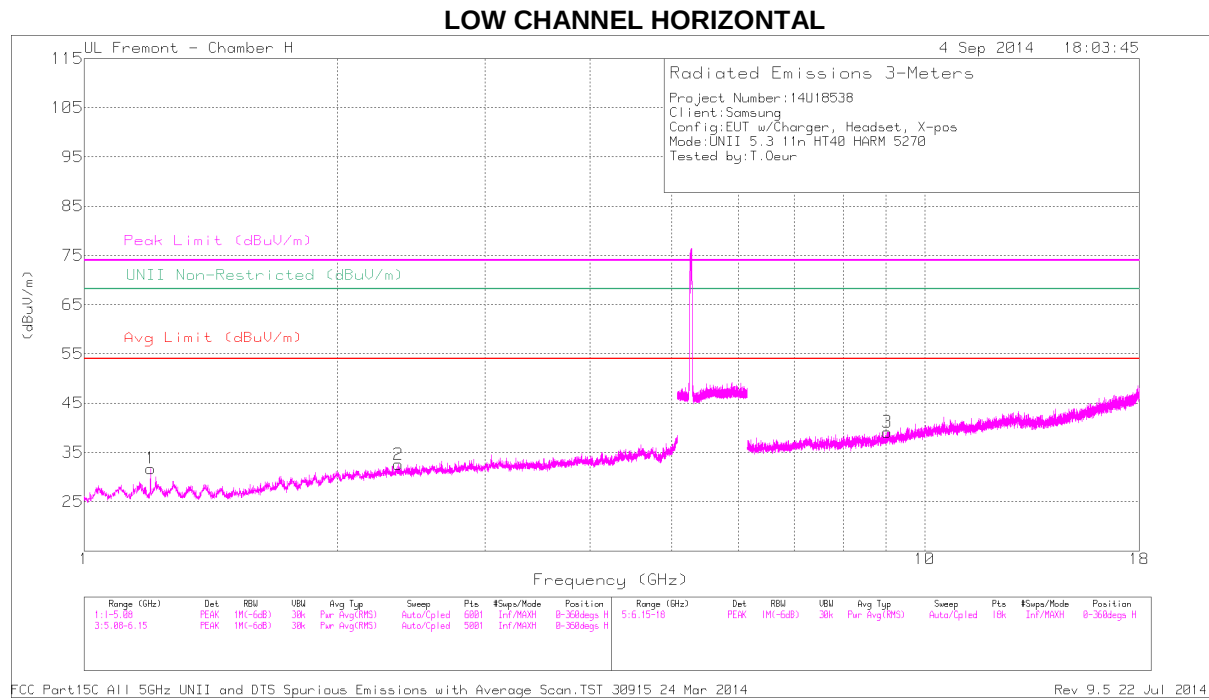


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.35	41.01	PK	34.5	-21.4	0	54.11	-	-	74	-19.89	344	233	V
3	5.35	30.72	RMS	34.5	-21.4	.65	44.47	54	-9.53	-	-	344	233	V
2	5.351	42.97	PK	34.5	-21.4	0	56.07	-	-	74	-17.93	344	233	V
4	5.351	31.02	RMS	34.5	-21.4	.65	44.77	54	-9.23	-	-	344	233	V

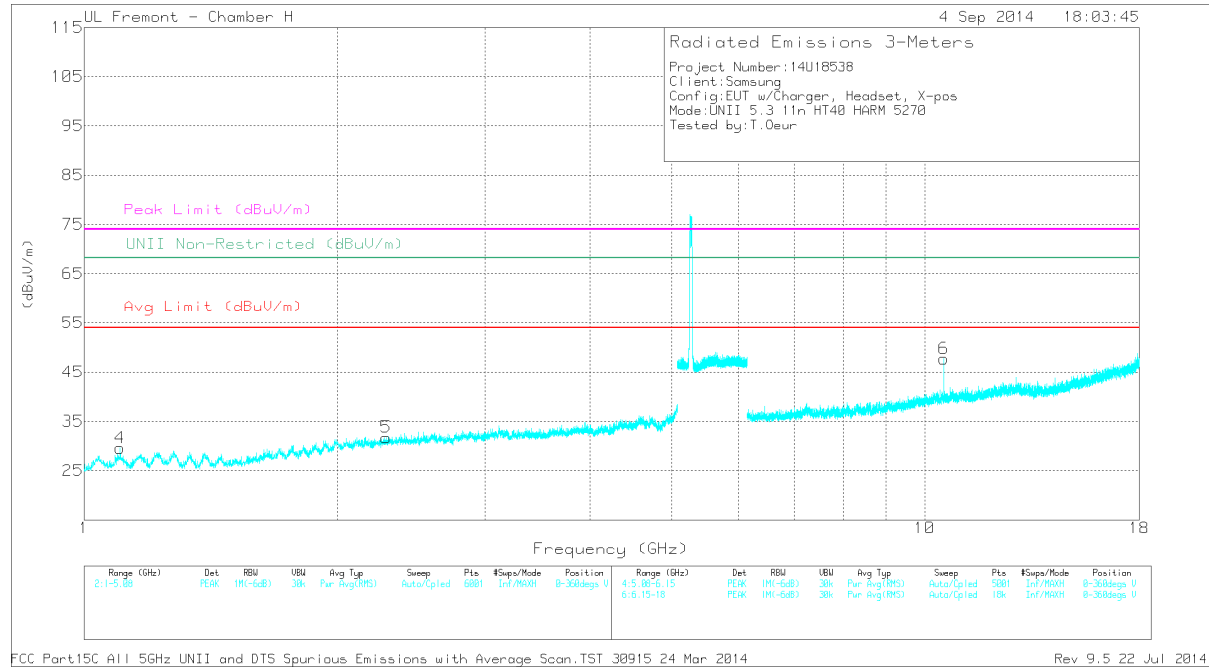
PK - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS



LOW CHANNEL VERTICAL



LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/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	* 1.104	36.89	PK	28.2	-35.5	0	29.59	-	-	74	-44.41	-	-	0-360	201	V
1	* 1.2	38.64	PK	28.7	-35.6	0	31.74	-	-	74	-42.26	-	-	0-360	201	H
5	* 2.287	33.94	PK	31.8	-34	0	31.74	-	-	74	-42.26	-	-	0-360	201	V
2	* 2.365	34.57	PK	31.9	-33.9	0	32.57	-	-	74	-41.43	-	-	0-360	100	H
3	* 9.027	30.53	PK	36.4	-27.8	0	39.13	-	-	74	-34.87	-	-	0-360	100	H
6	10.54	35.43	PK	37.6	-25.3	0	47.73	-	-	-	-	68.2	-20.47	0-360	100	V

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

PK - Peak detector

Radiated Emissions

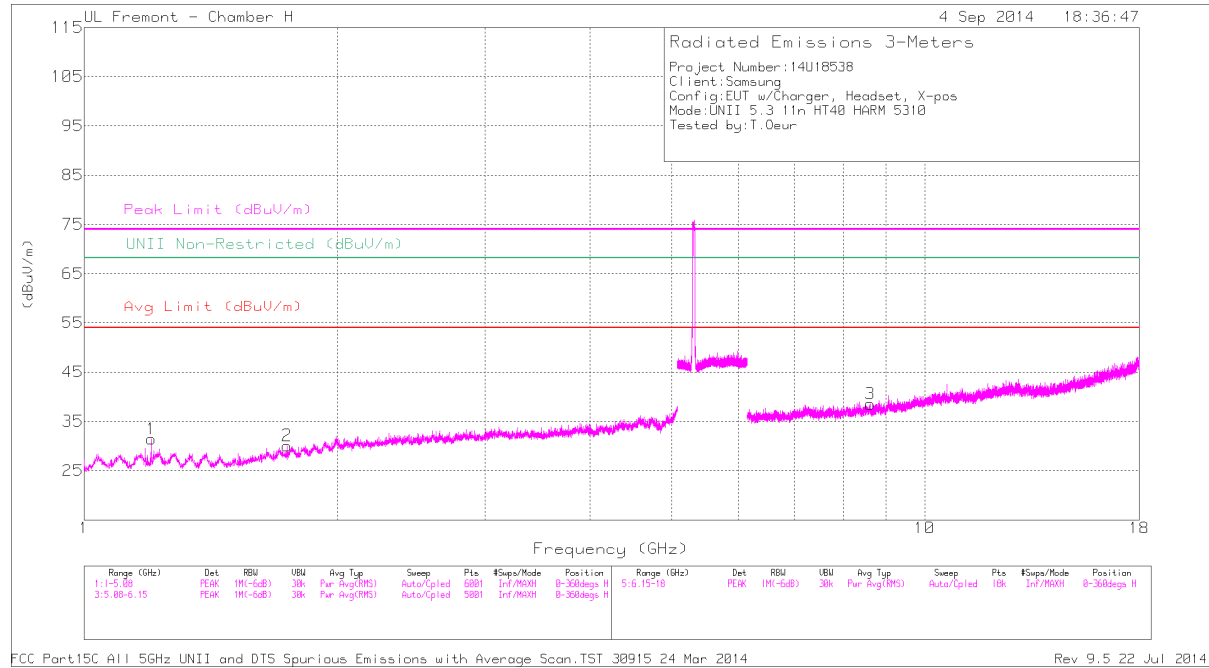
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.2	45.48	PK1	28.7	-35.6	0	38.58	-	-	74	-35.42	-	-	240	128	H
* 1.2	30.71	AD1	28.7	-35.6	.65	24.46	54	-29.54	-	-	-	-	240	128	H
10.54	40.41	PK1	37.6	-25.2	0	52.81	-	-	-	-	68.2	-15.39	16	167	V
10.54	34.46	AD1	37.6	-25.2	.65	47.51	-	-	-	-	-	-	16	167	V

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

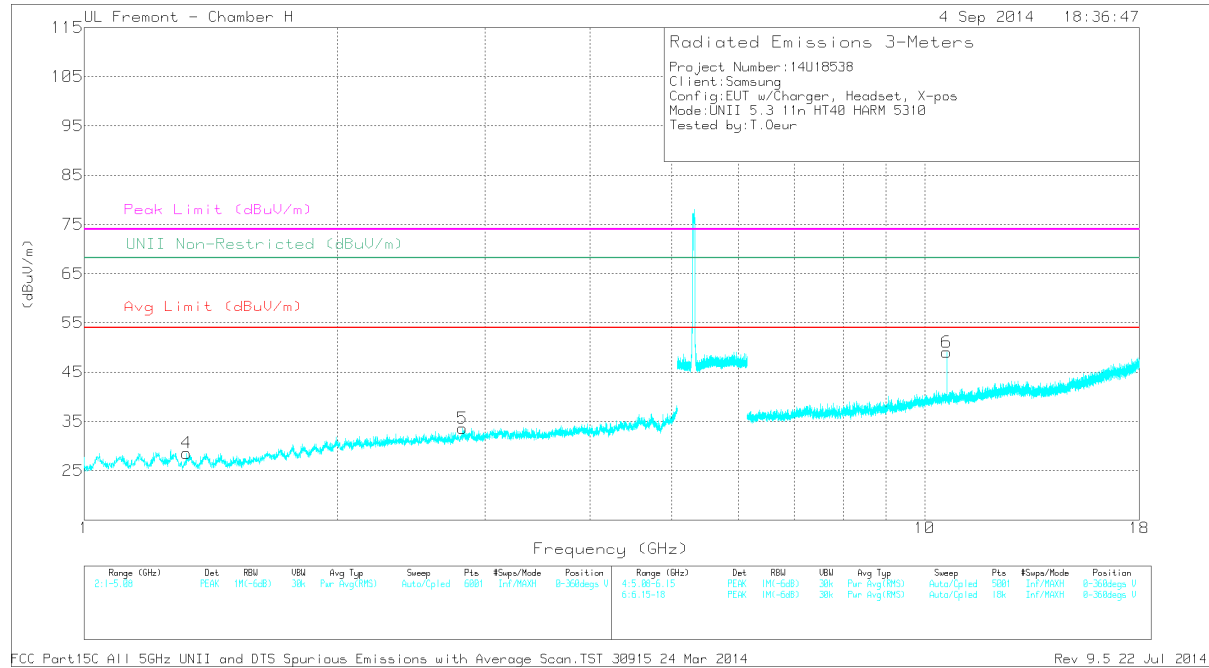
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/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	* 1.202	38.2	PK	28.8	-35.6	0	31.4	-	-	74	-42.6	-	-	0-360	201	H
4	* 1.325	35.65	PK	28.6	-35.7	0	28.55	-	-	74	-45.45	-	-	0-360	201	V
6	* 10.62	36.75	PK	37.6	-25.3	0	49.05	-	-	74	-24.95	-	-	0-360	201	V
5	* 2.82	34.29	PK	32.4	-33.1	0	33.59	-	-	74	-40.41	-	-	0-360	201	V
2	1.745	34.95	PK	29.7	-34.6	0	30.05	-	-	-	-	68.2	-38.15	0-360	201	H
3	8.612	30.03	PK	36.1	-27.6	0	38.53	-	-	-	-	68.2	-29.67	0-360	201	H

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/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
* 1.204	42.99	PK1	28.8	-35.6	0	36.19	-	-	74	-37.81	-	-	13	197	H
* 1.204	30.64	AD1	28.8	-35.6	.65	24.49	54	-29.51	-	-	-	-	13	197	H
* 10.62	41.85	PK1	37.6	-25.3	0	54.15	-	-	74	-19.85	-	-	213	248	V
* 10.62	37.76	AD1	37.6	-25.3	.265	50.71	54	-3.29	-	-	-	-	213	248	V

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

PK1 - KDB789033 Method: Peak

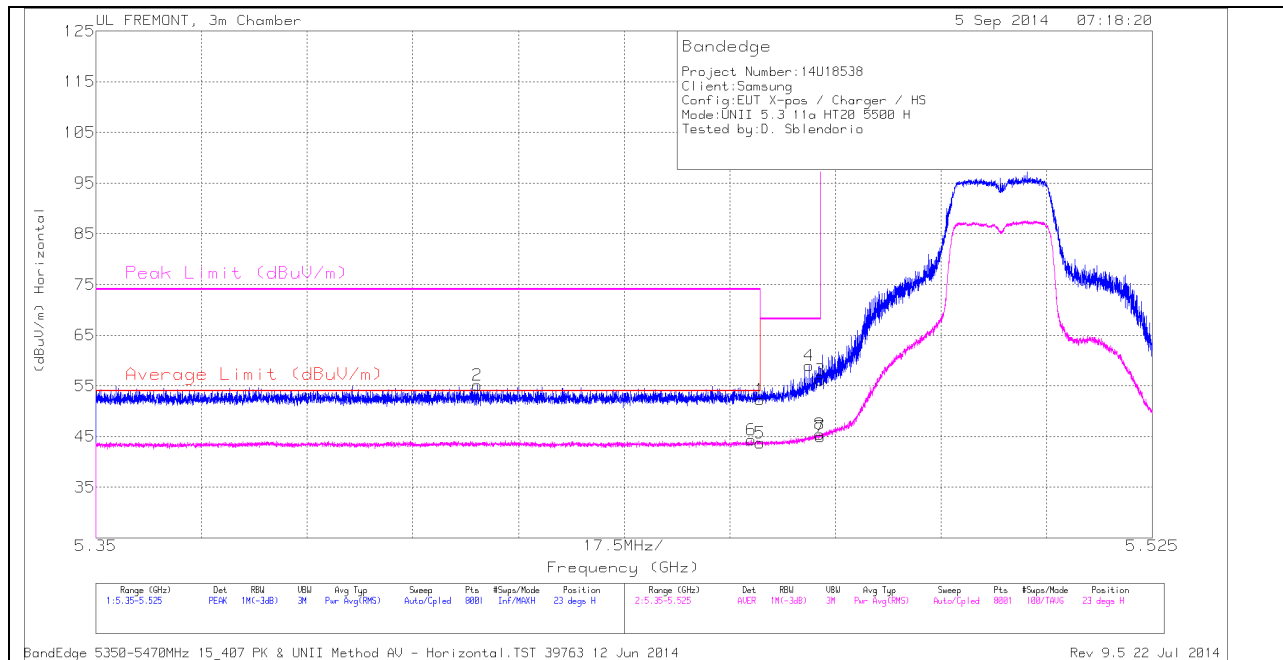
AD1 - KDB789033 Method: AD Primary Power Average

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)

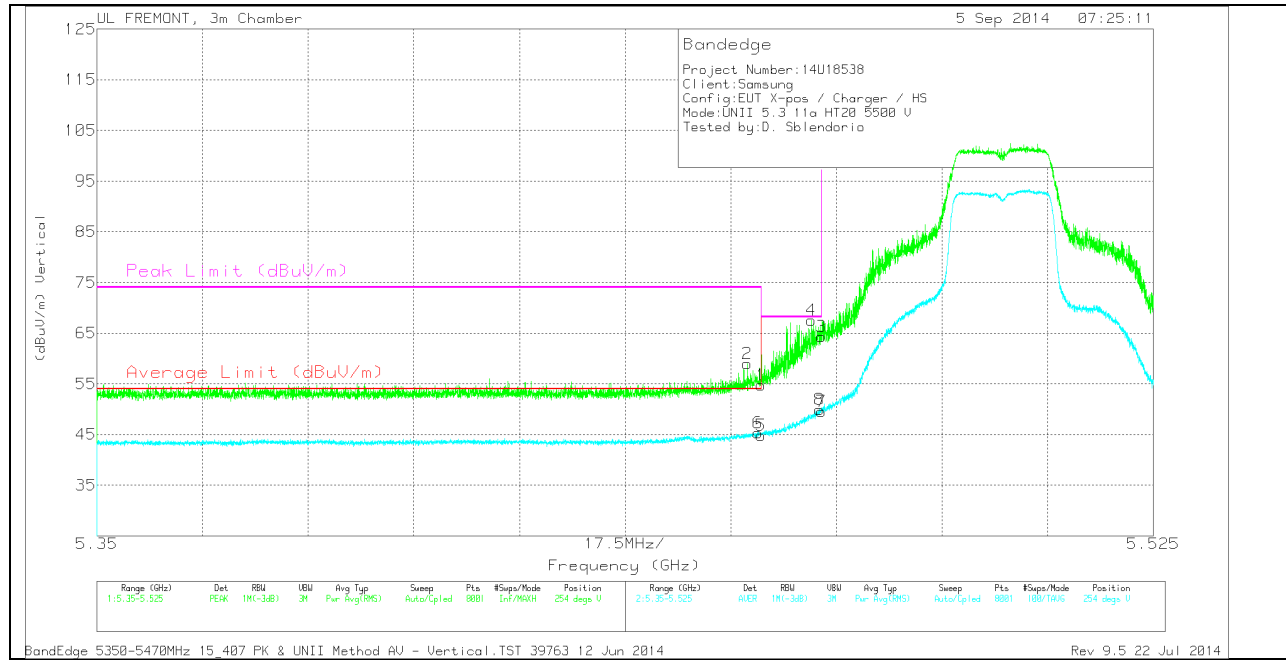
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/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	5.413	41.84	PK	34.7	-21.4	0	55.14	-	-	74	-18.86	23	237	H
6	5.459	30.64	RMS	34.8	-21.4	.29	44.33	54	-9.67	-	-	23	237	H
1	5.46	38.91	PK	34.8	-21.4	0	52.31	-	-	74	-21.69	23	237	H
5	5.46	29.98	RMS	34.8	-21.4	.29	43.67	54	-10.29	-	-	23	237	H
4	5.468	45.5	PK	34.8	-21.3	0	59	-	-	68.2	-9.2	23	237	H
3	5.47	42.59	PK	34.8	-21.3	0	56.09	-	-	68.2	-12.11	23	237	H
7	5.47	31.17	RMS	34.8	-21.3	.29	44.96	-	-	-	-	23	237	H
8	5.47	31.63	RMS	34.8	-21.3	.29	45.42	-	-	-	-	23	237	H

VERTICAL PEAK AND AVERAGE PLOT

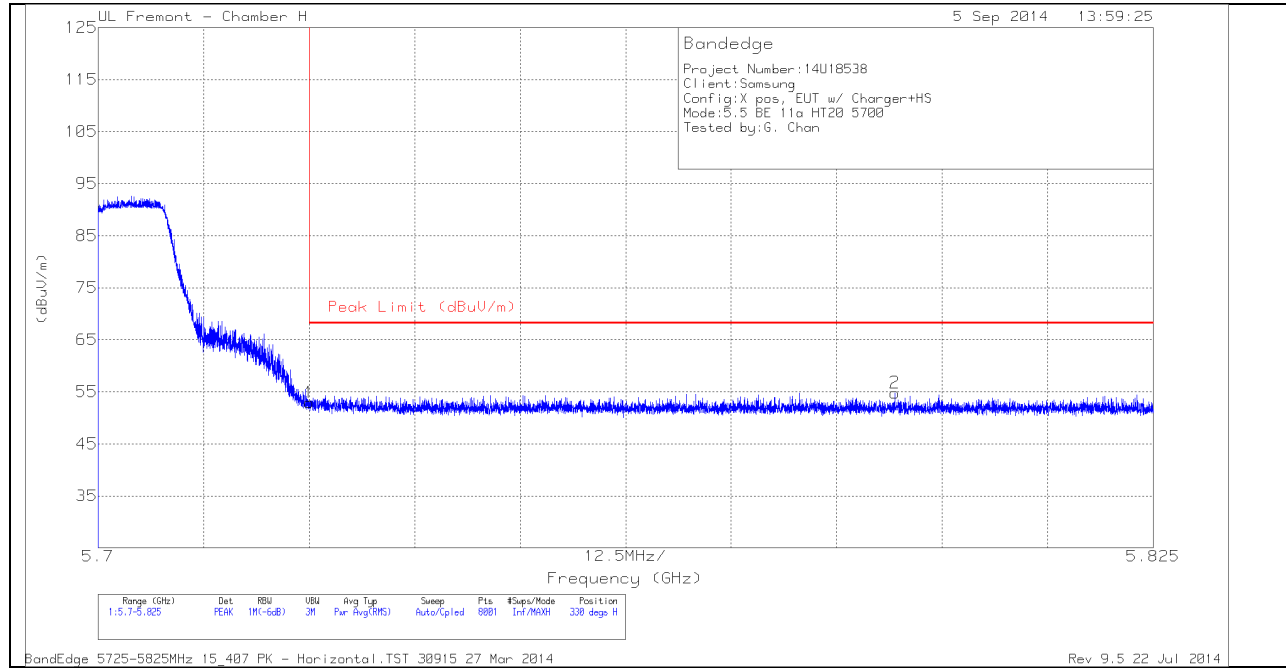


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filt 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	5.458	45.63	PK	34.8	-21.4	0	59.03	-	-	74	-14.97	254	258	V
1	5.46	41.33	PK	34.8	-21.4	0	54.73	-	-	74	-19.27	254	258	V
5	5.46	31.39	RMS	34.8	-21.4	.29	45.08	54	-8.92	-	-	254	258	V
6	5.46	31.96	RMS	34.8	-21.4	.29	45.65	54	-8.35	-	-	254	258	V
4	5.468	54.07	PK	34.8	-21.3	0	67.57	-	-	68.2	-63	254	258	V
3	5.47	50.86	PK	34.8	-21.3	0	64.36	-	-	68.2	-3.84	254	258	V
7	5.47	36.03	RMS	34.8	-21.3	.29	49.81	-	-	-	-	254	258	V
8	5.47	36.4	RMS	34.8	-21.3	.29	50.19	-	-	-	-	254	258	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

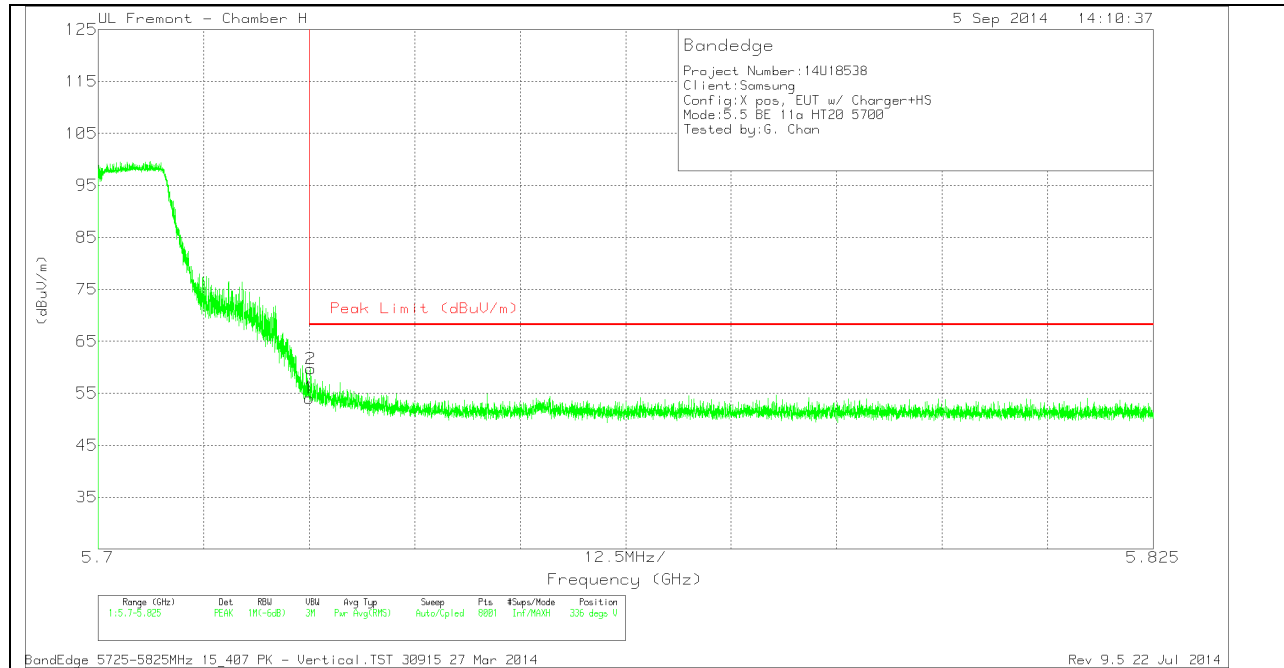
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	40.33	PK	35	-22.4	0	52.93	68.2	-15.27	330	124	H
2	5.794	42.11	PK	35	-22.3	0	54.81	68.2	-13.39	330	124	H

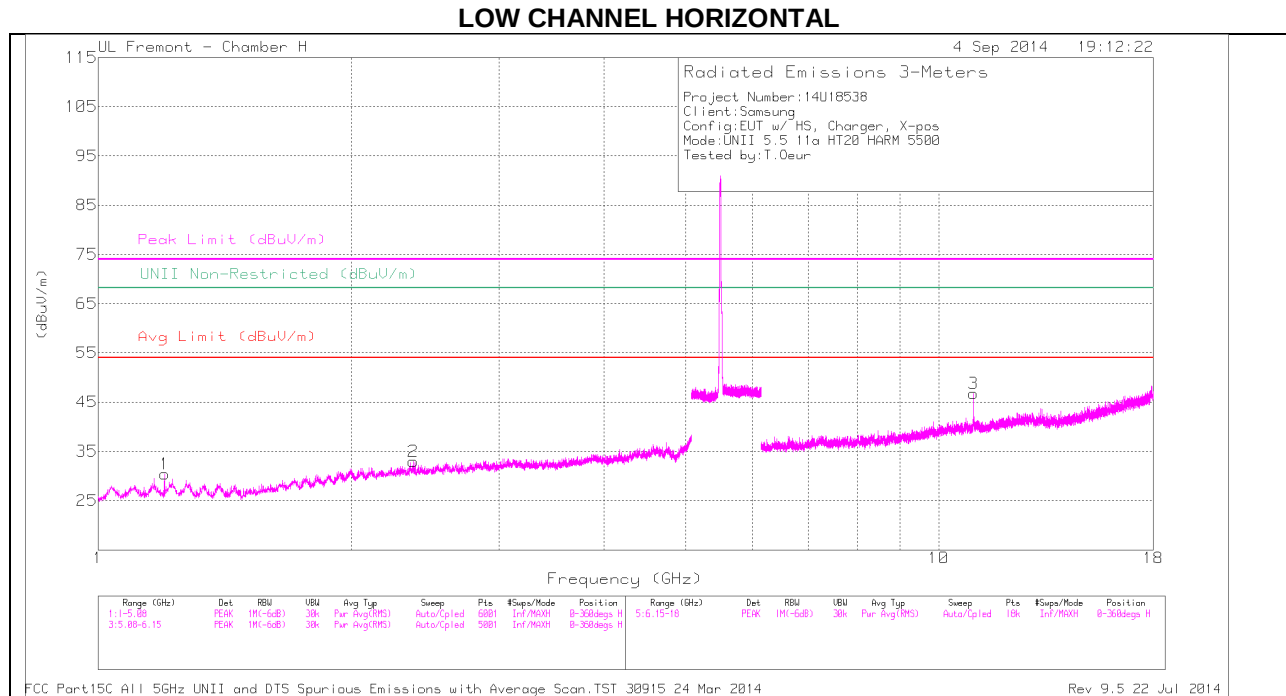
VERTICAL PEAK AND AVERAGE PLOT



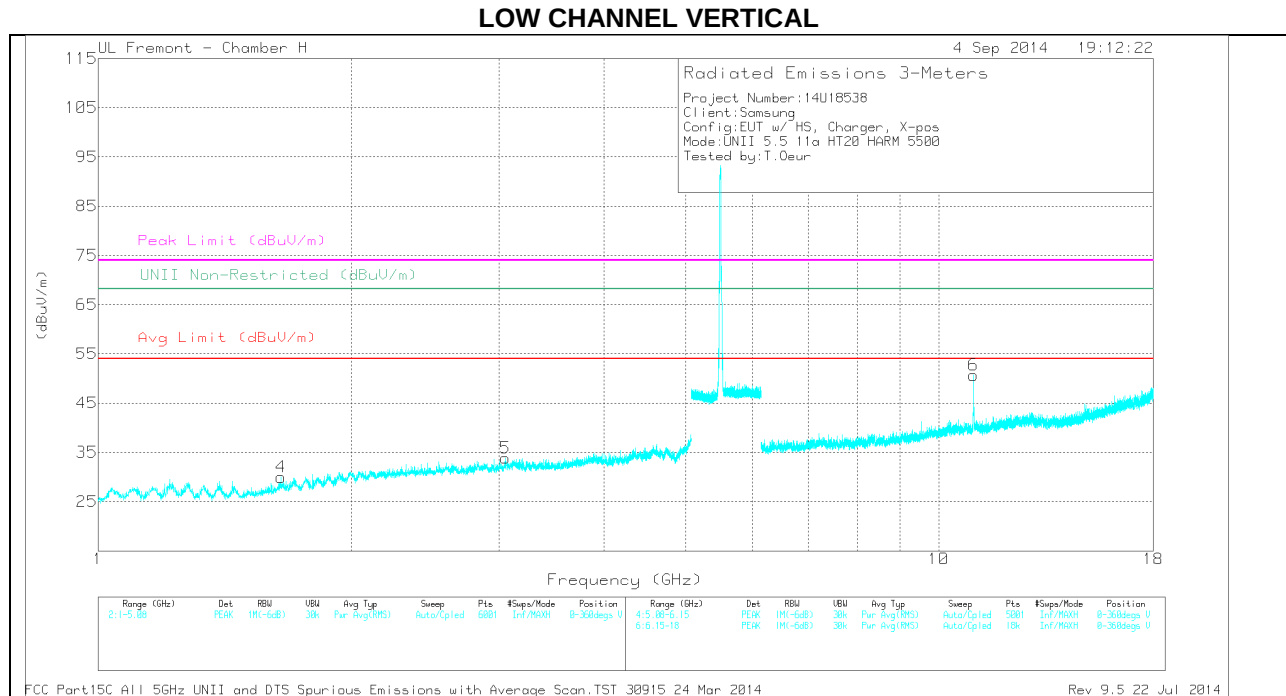
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	41.46	PK	35	-22.4	0	54.06	68.2	-14.14	336	201	V
2	5.725	47.11	PK	35	-22.4	0	59.71	68.2	-8.49	336	201	V

HARMONICS AND SPURIOUS EMISSIONS



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



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

LOW CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Ftr/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	* 1.2	37.27	PK	28.7	-35.6	0	30.37	-	-	74	-43.63	-	-	0-360	201	H
3	* 11	34.66	PK	37.8	-25.7	0	46.76	-	-	74	-27.24	-	-	0-360	201	H
6	* 11	38.57	PK	37.8	-25.7	0	50.67	-	-	74	-23.33	-	-	0-360	100	V
2	* 2.372	35.06	PK	31.9	-34	0	32.96	-	-	74	-41.04	-	-	0-360	201	H
4	1.65	35.57	PK	28.9	-34.5	0	29.97	-	-	-	-	68.2	-38.23	0-360	100	V
5	3.053	34.25	PK	32.8	-33.2	0	33.85	-	-	-	-	68.2	-34.35	0-360	100	V

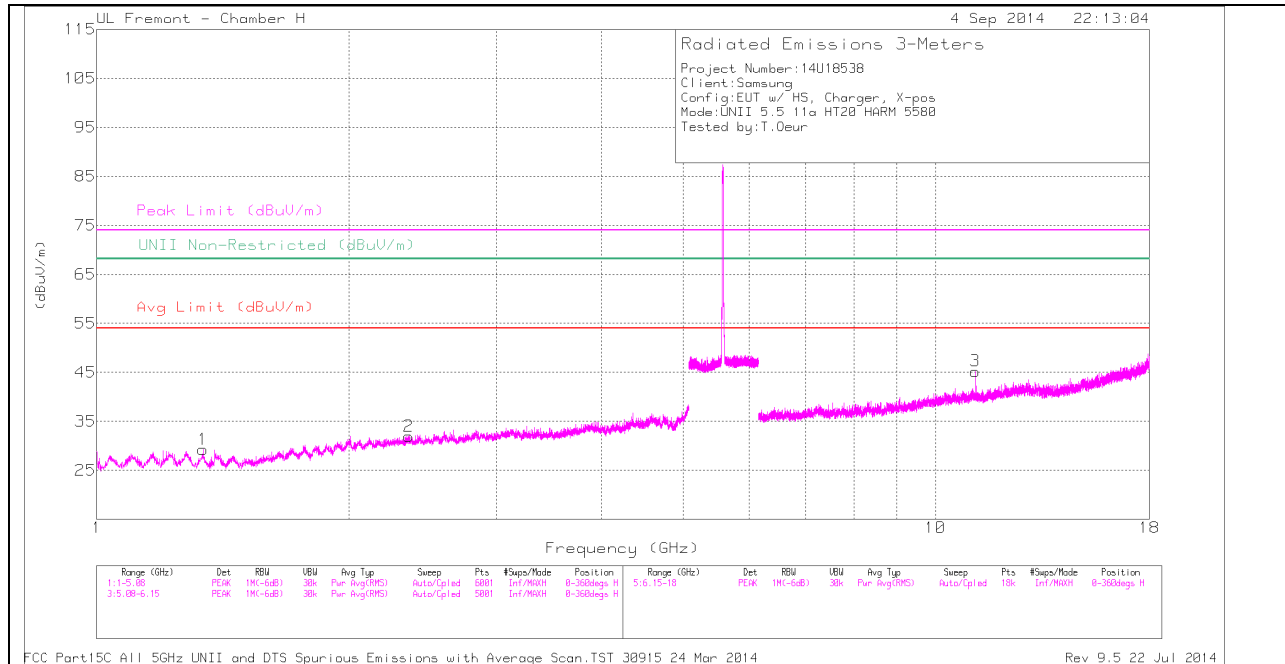
PK - Peak detector

RADIATED EMISSIONS

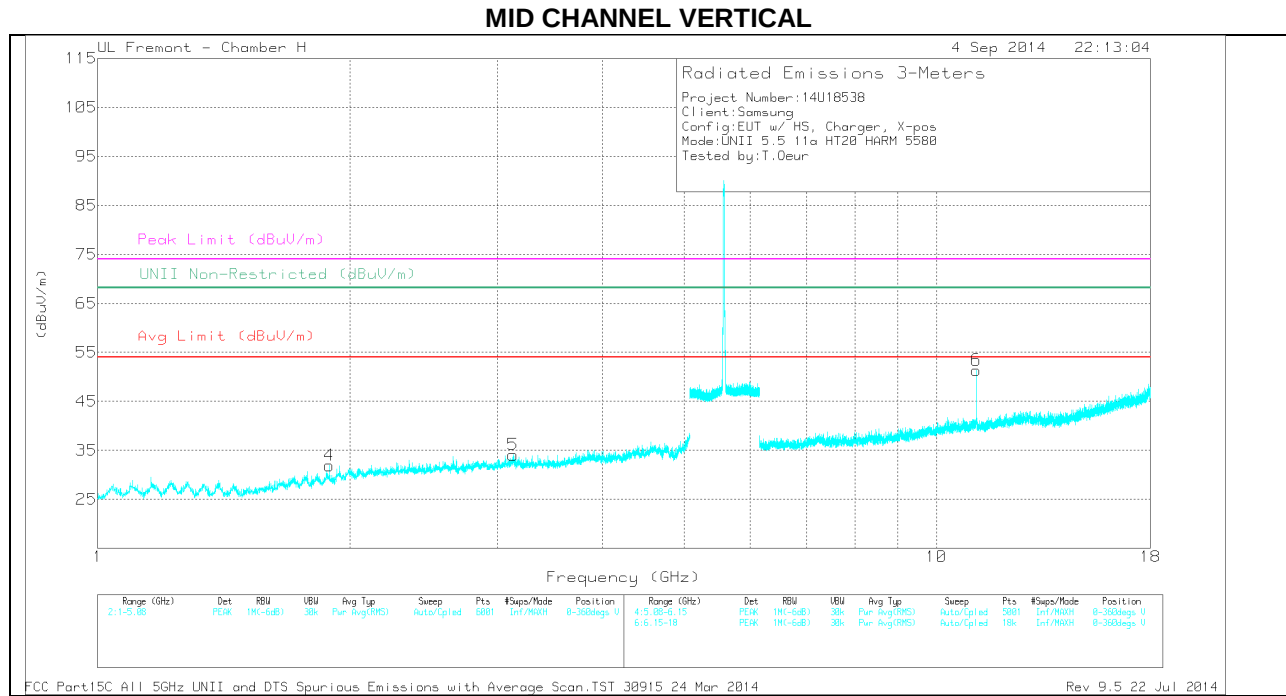
Frequency (GHz)	Meter Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 11	42.61	PK1	37.8	-25.7	0	54.71	-	-	74	-19.29	-	-	247	166	H
* 11	34.74	AD1	37.8	-25.7	.29	47.11	54	-6.89	-	-	-	-	247	166	H
* 11	45.27	PK1	37.8	-25.7	0	57.37	-	-	74	-16.63	-	-	337	178	V
* 11	38.57	AD1	37.8	-25.7	.29	50.94	54	-3.06	-	-	-	-	337	178	V

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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.



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

MID CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/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	* 1.339	36.27	PK	28.5	-35.5	0	29.27	-	-	74	-44.73	-	-	0-360	100	H
3	* 11.16	33.04	PK	37.9	-25.7	0	45.24	-	-	74	-28.76	-	-	0-360	201	H
6	* 11.16	39.18	PK	37.9	-25.7	0	51.38	-	-	74	-22.62	-	-	0-360	201	V
2	* 2.355	33.86	PK	31.9	-33.8	0	31.96	-	-	74	-42.04	-	-	0-360	201	H
4	1.889	36.11	PK	30.6	-34.8	0	31.91	-	-	-	-	68.2	-36.29	0-360	201	V
5	3.127	33.89	PK	32.9	-32.7	0	34.09	-	-	-	-	68.2	-34.11	0-360	201	V

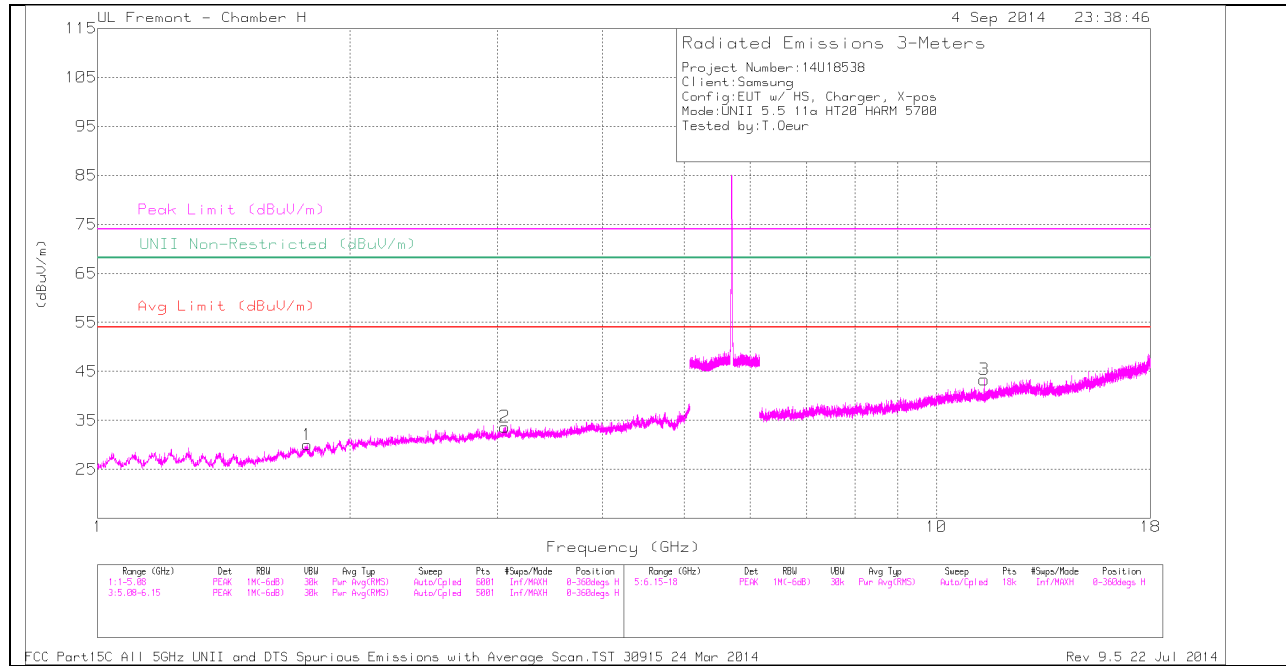
PK - Peak detector

RADIATED EMISSIONS

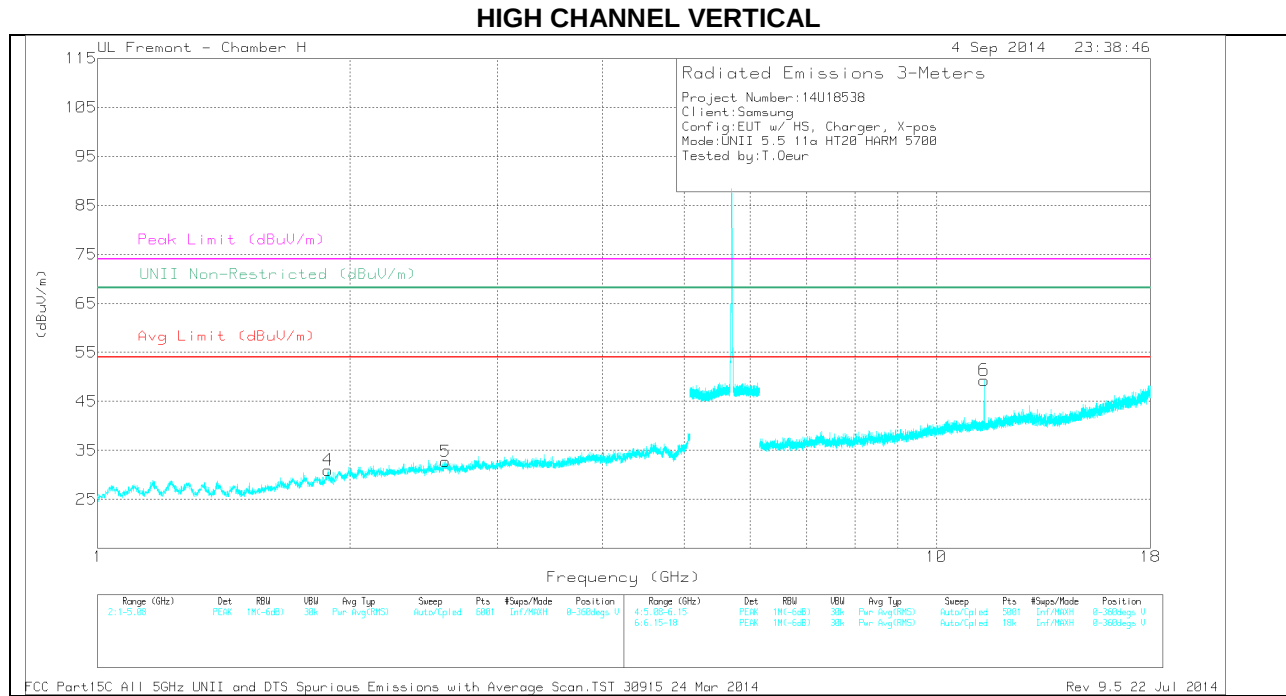
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 11.16	40.62	PK1	37.9	-25.7	0	52.82	-	-	74	-21.18	-	-	250	237	H
* 11.16	35.29	AD1	37.9	-25.7	.29	47.78	54	-6.22	-	-	-	-	250	237	H
* 11.16	43.67	PK1	37.9	-25.7	0	55.87	-	-	74	-18.13	-	-	341	164	V
* 11.16	39.63	AD1	37.9	-25.7	.29	52.12	54	-1.88	-	-	-	-	341	164	V

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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.



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

HIGH CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Ftr/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	* 11.4	30.93	PK	38	-25.6	0	43.33	-	-	74	-30.67	-	-	0-360	201	H
6	* 11.4	36.93	PK	38	-25.6	0	49.33	-	-	74	-24.67	-	-	0-360	201	V
1	1.779	34.95	PK	29.9	-34.8	0	30.05	-	-	-	-	68.2	-38.15	0-360	100	H
4	1.883	35.29	PK	30.5	-34.8	0	30.99	-	-	-	-	68.2	-37.21	0-360	100	V
5	2.597	33.83	PK	32.2	-33.3	0	32.73	-	-	-	-	68.2	-35.47	0-360	201	V
2	3.058	34.06	PK	32.8	-33.2	0	33.66	-	-	-	-	68.2	-34.54	0-360	201	H

PK - Peak detector

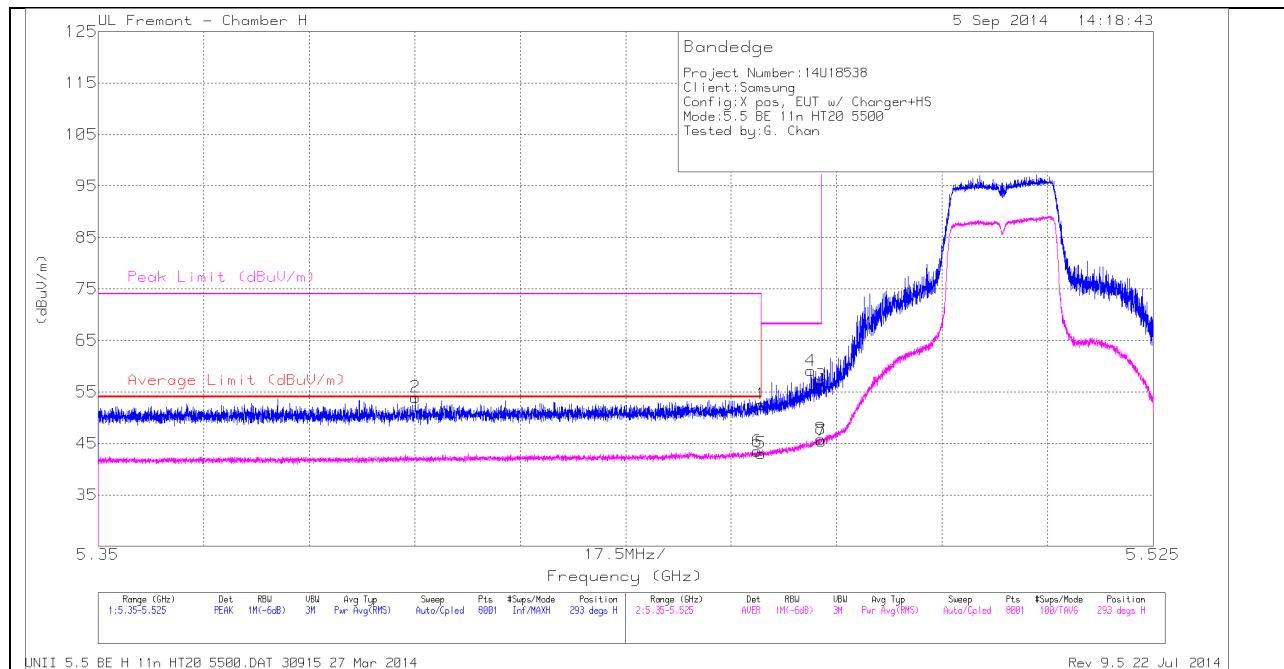
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 1863 (dB/m)	Amp/Cbl/Ftr/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
* 11.4	39.27	PK1	38	-25.6	0	51.67	-	-	74	-22.33	-	-	201	345	H
* 11.4	33.76	AD1	38	-25.6	.29	46.45	54	-7.55	-	-	-	-	201	345	H
* 11.4	42.03	PK1	38	-25.6	0	54.43	-	-	74	-19.57	-	-	345	178	V
* 11.4	37.27	AD1	38	-25.6	.29	49.96	54	-4.04	-	-	-	-	345	178	V

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

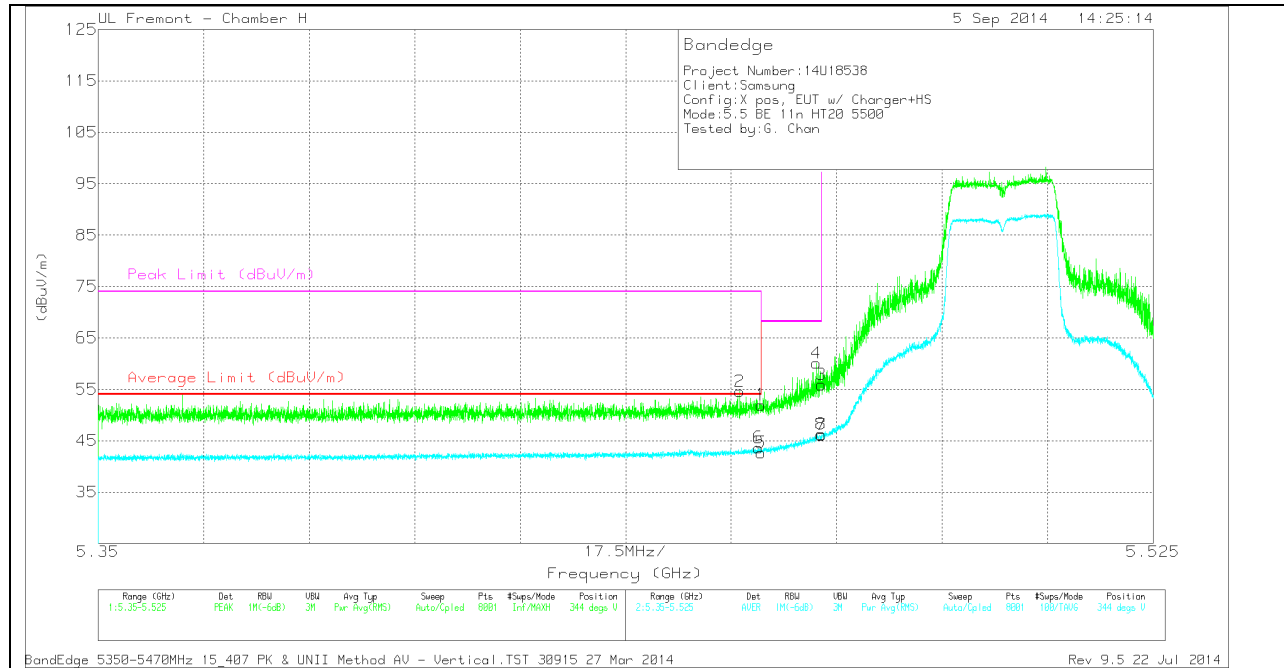
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fit 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	* 5.46	40.09	PK	35	-22.5	0	52.59	-	-	74	-21.41	293	272	H
2	* 5.403	41.53	PK	34.9	-22.5	0	53.93	-	-	74	-20.07	293	272	H
5	* 5.46	30.31	RMS	35	-22.5	.31	43.12	54	-10.88	-	-	293	272	H
6	* 5.459	30.75	RMS	35	-22.5	.31	43.56	54	-10.44	-	-	293	272	H
4	5.468	46.5	PK	35	-22.4	0	59.1	-	-	68.2	-9.1	293	272	H
3	5.47	43.57	PK	35.1	-22.4	0	56.27	-	-	68.2	-11.93	293	272	H
7	5.47	32.5	RMS	35.1	-22.4	.31	45.51	-	-	-	-	293	272	H
8	5.47	32.91	RMS	35.1	-22.4	.31	45.92	-	-	-	-	293	272	H

VERTICAL PEAK AND AVERAGE PLOT

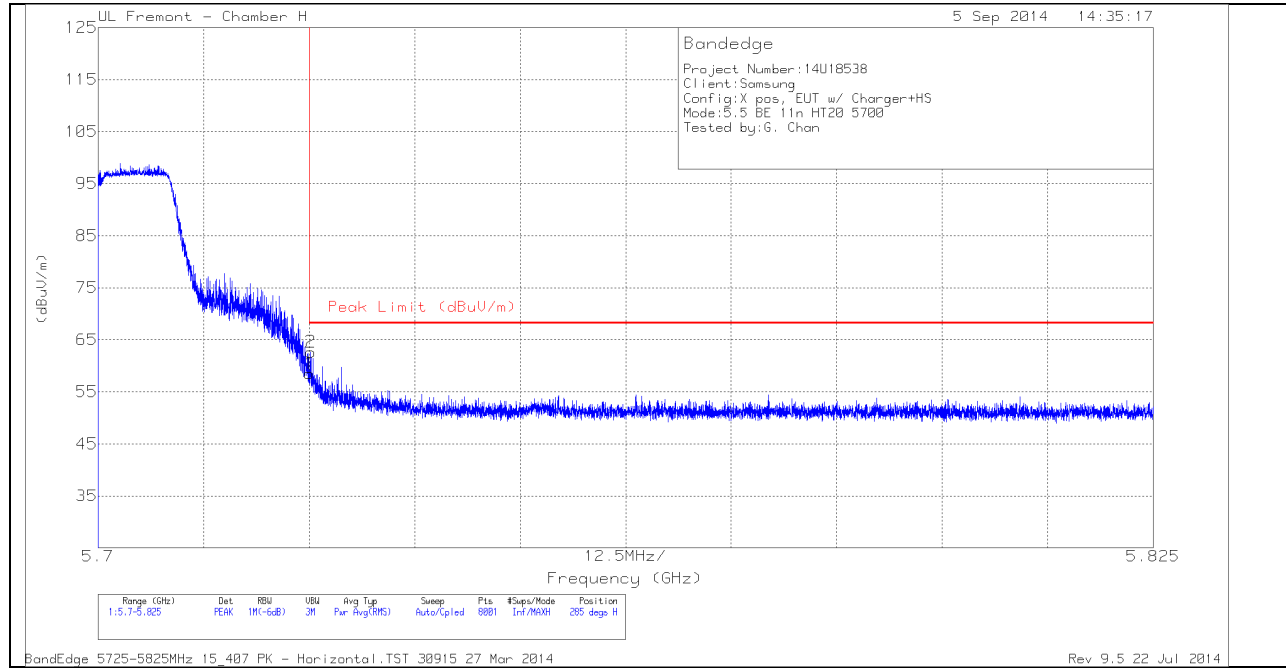


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filter/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	* 5.46	39.45	PK	35	-22.5	0	51.95	-	-	74	-22.05	344	231	V
2	* 5.456	42.07	PK	35	-22.5	0	54.57	-	-	74	-19.43	344	231	V
5	* 5.46	29.94	RMS	35	-22.5	.31	42.75	54	-11.25	-	-	344	231	V
6	* 5.46	30.9	RMS	35	-22.5	.31	43.71	54	-10.29	-	-	344	231	V
4	5.469	47.41	PK	35.1	-22.4	0	60.11	-	-	68.2	-8.09	344	231	V
3	5.47	43.2	PK	35.1	-22.4	0	55.9	-	-	68.2	-12.3	344	231	V
7	5.47	33.19	RMS	35.1	-22.4	.31	46.20	-	-	-	-	344	231	V
8	5.47	33.3	RMS	35.1	-22.4	.31	46.31	-	-	-	-	344	231	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

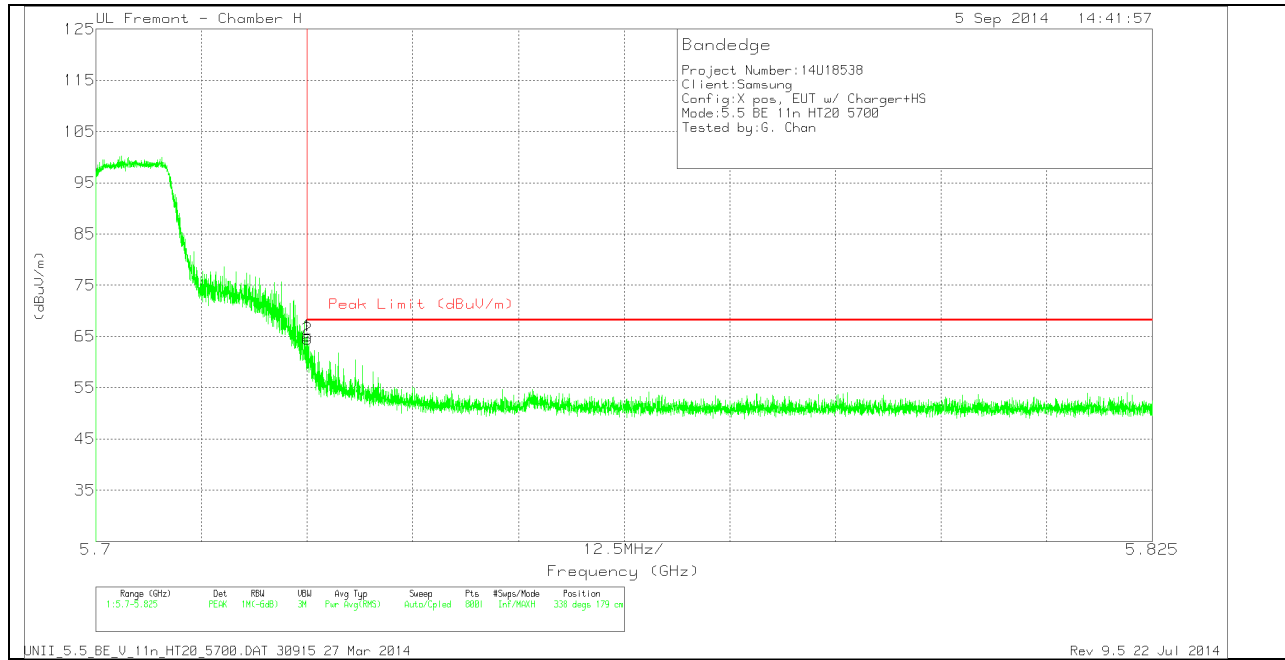
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	45.95	PK	35	-22.4	0	58.55	68.2	-9.65	285	310	H
2	5.725	50.06	PK	35	-22.4	0	62.66	68.2	-5.54	285	310	H

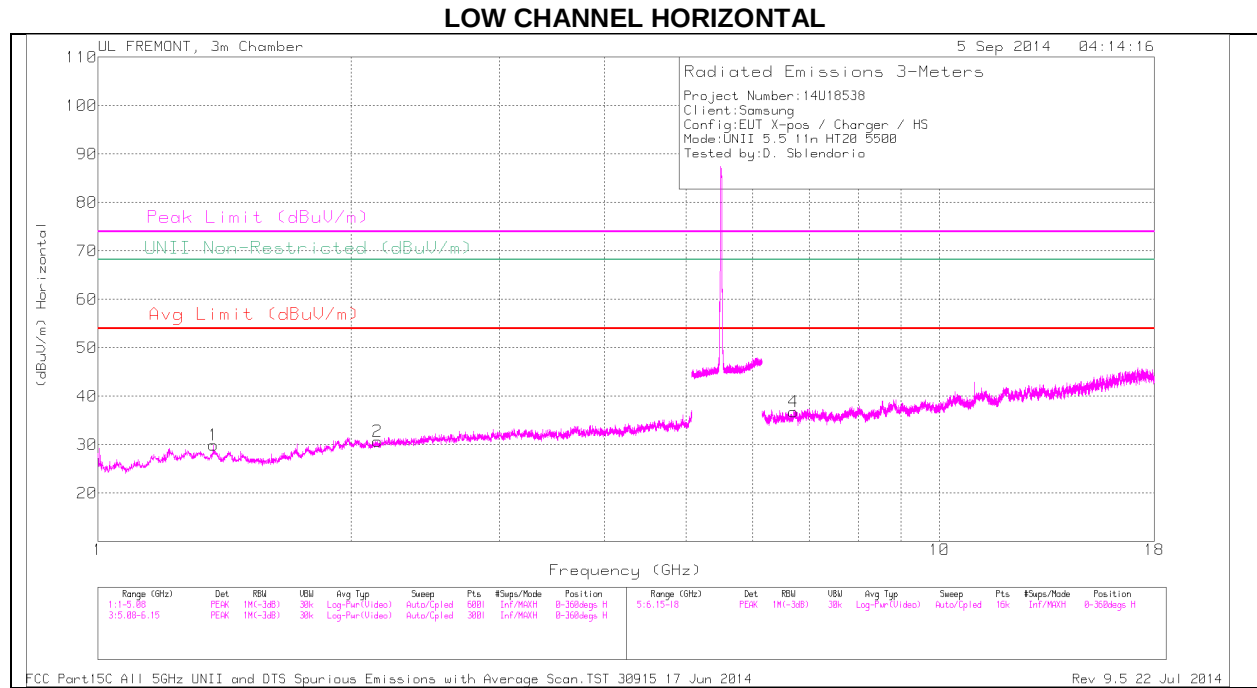
VERTICAL PEAK AND AVERAGE PLOT



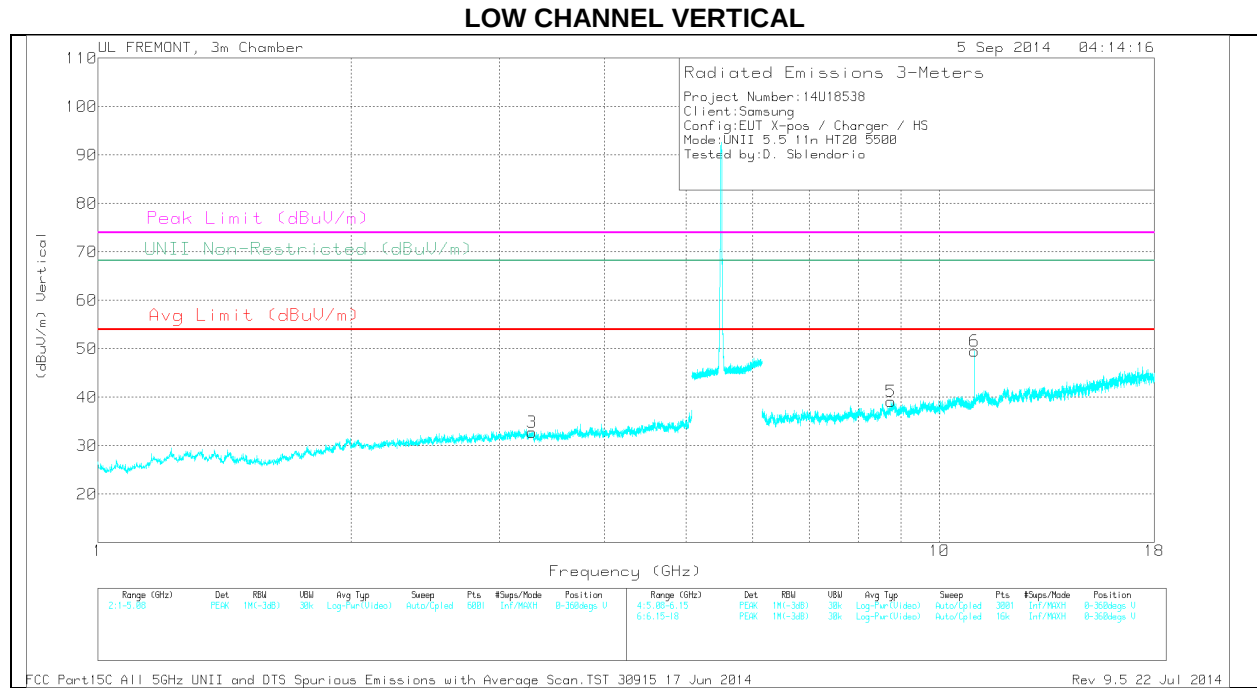
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	52.51	PK	35	-22.4	0	65.11	68.2	-3.09	338	179	V
2	5.725	51.94	PK	35	-22.4	0	64.54	68.2	-3.66	338	179	V

HARMONICS AND SPURIOUS EMISSIONS



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



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

LOW CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/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	1.371	33.64	PK	29.4	-33.1	0	29.94	-	-	74	-44.06	-	-	0-360	200	H
2	2.15	31.91	PK	31.6	-32.8	0	30.71	-	-	-	-	68.2	-37.49	0-360	200	H
3	3.279	31.94	PK	32.9	-32.1	0	32.74	-	-	-	-	68.2	-35.46	0-360	200	V
4	6.711	30.42	PK	35.6	-29.2	0	36.82	-	-	-	-	68.2	-31.38	0-360	200	H
5	8.755	29.62	PK	35.9	-26.4	0	39.12	-	-	-	-	68.2	-29.08	0-360	200	V
6	10.999	37.18	PK	37.9	-25.5	0	49.58	-	-	74	-24.42	-	-	0-360	200	V

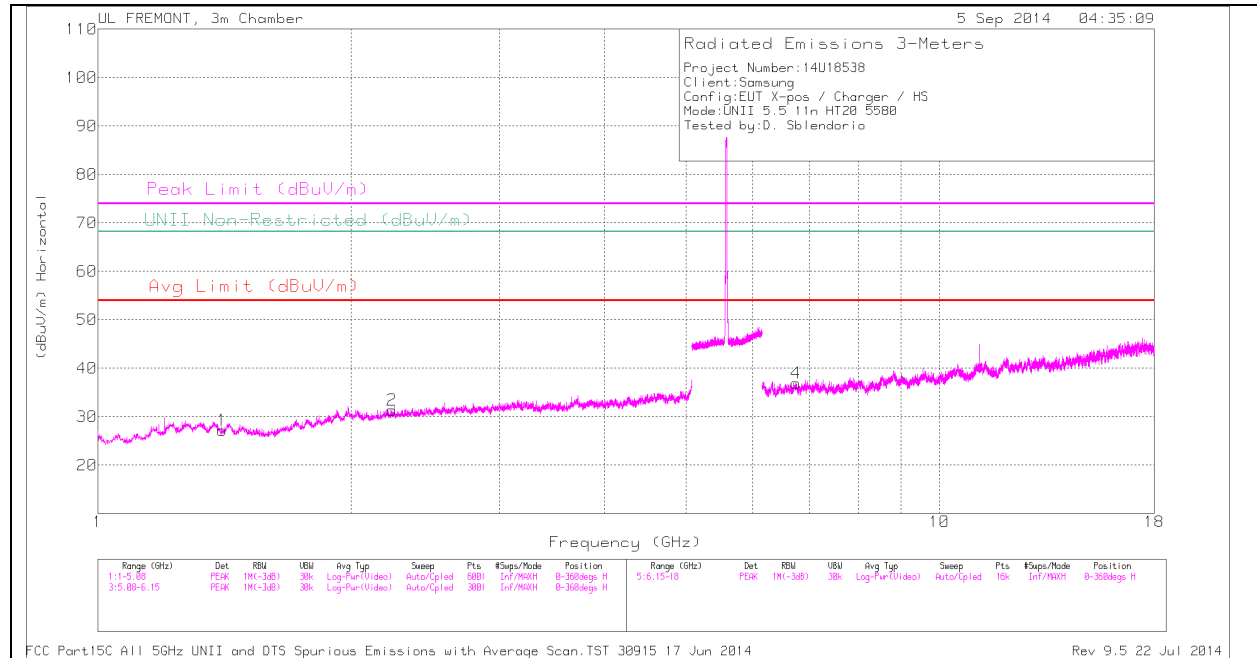
PK - Peak detector

RADIATED EMISSIONS

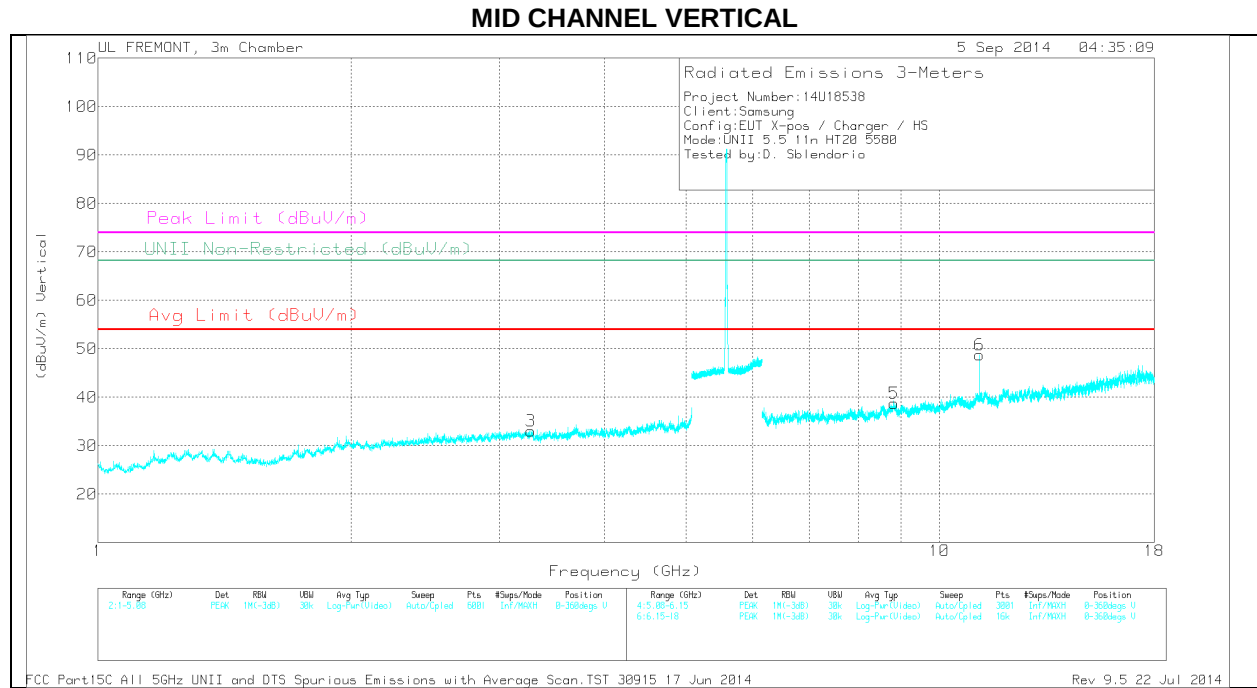
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
11	42.26	PK1	37.9	-25.4	0	54.76	-	-	74	-19.24	-	-	50	198	V
11	36.8	AD1	37.9	-25.4	.31	49.61	54	-4.39	-	-	-	-	50	198	V

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

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.



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MID CHANNEL DATA*TRACE MARKERS*

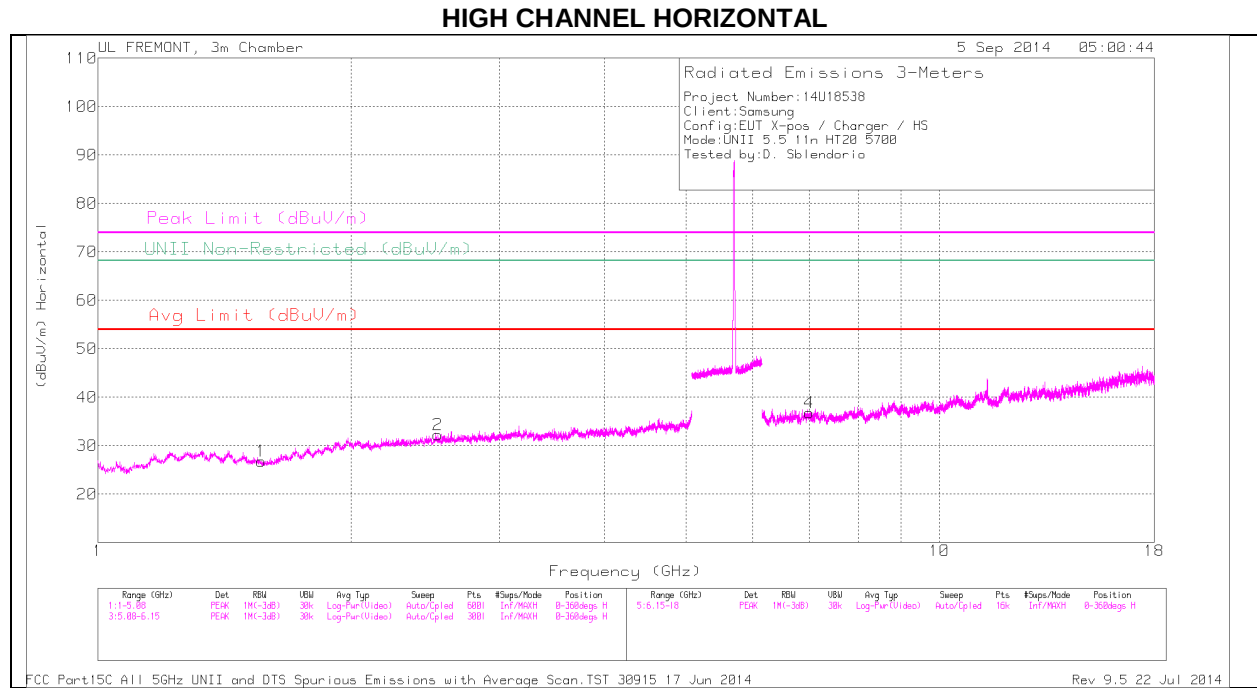
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.405	31.05	PK	29.1	-32.9	0	27.25	-	-	74	-46.75	-	-	0-360	100	H
2	2.237	32.09	PK	31.7	-32.4	0	31.39	-	-	74	-42.61	-	-	0-360	100	H
3	3.271	32.18	PK	32.9	-32	0	33.08	-	-	-	-	68.2	-35.12	0-360	200	V
4	6.754	30.89	PK	35.6	-29.6	0	36.89	-	-	-	-	68.2	-31.31	0-360	200	H
5	8.824	28.57	PK	36	-25.8	0	38.77	-	-	-	-	68.2	-29.43	0-360	200	V
6	11.16	36.61	PK	37.9	-25.8	0	48.71	-	-	74	-25.29	-	-	0-360	200	V

PK - Peak detector

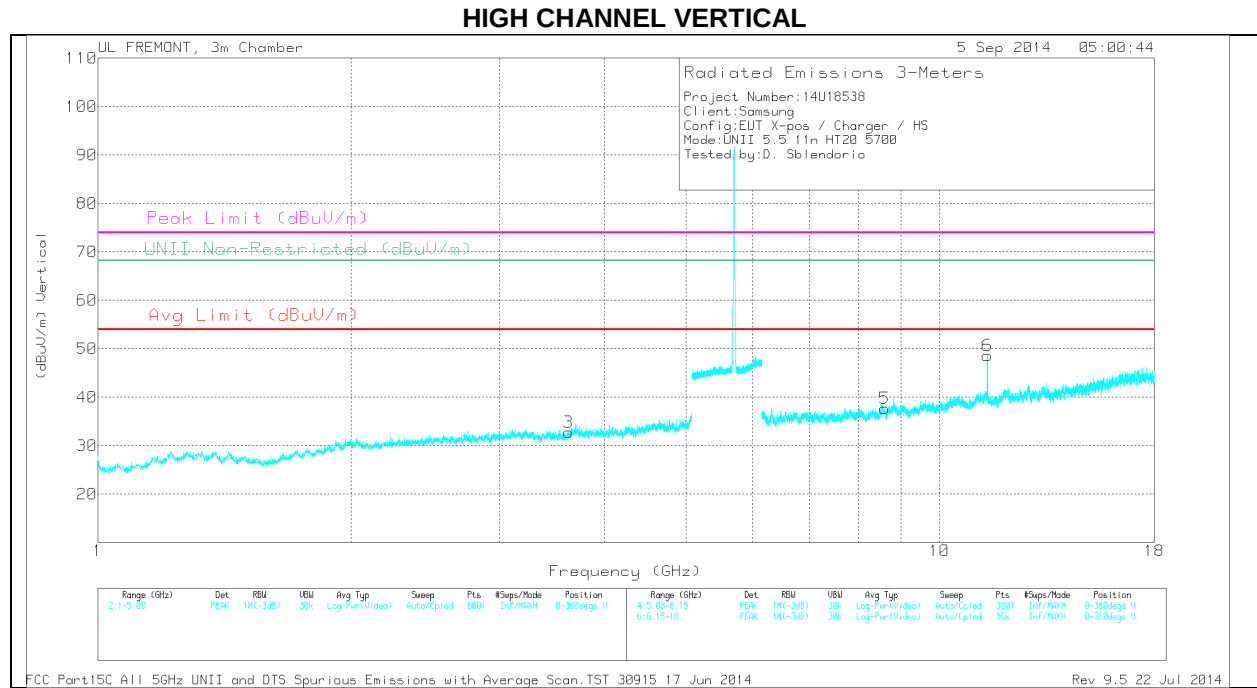
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/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
11.16	41.67	PK1	37.9	-25.8	0	53.77	-	-	74	-20.23	-	-	44	203	V
11.16	36.24	AD1	37.9	-25.8	.31	48.65	54	-5.35	-	-	-	-	44	203	V

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



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



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

HIGH CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/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	1.564	31.96	PK	28.2	-33.4	0	26.76	-	-	74	-47.24	-	-	0-360	100	H
2	2.533	31.99	PK	32.4	-32.1	0	32.29	-	-	-	-	68.2	-35.91	0-360	200	H
3	3.623	30.95	PK	33.1	-31.3	0	32.75	-	-	74	-41.25	-	-	0-360	100	V
4	7.002	29.91	PK	35.6	-28.7	0	36.81	-	-	-	-	68.2	-31.39	0-360	100	H
5	8.6	28.27	PK	35.8	-26.4	0	37.67	-	-	-	-	68.2	-30.53	0-360	100	V
6	11.4	36.55	PK	38.1	-26	0	48.65	-	-	74	-25.35	-	-	0-360	200	V

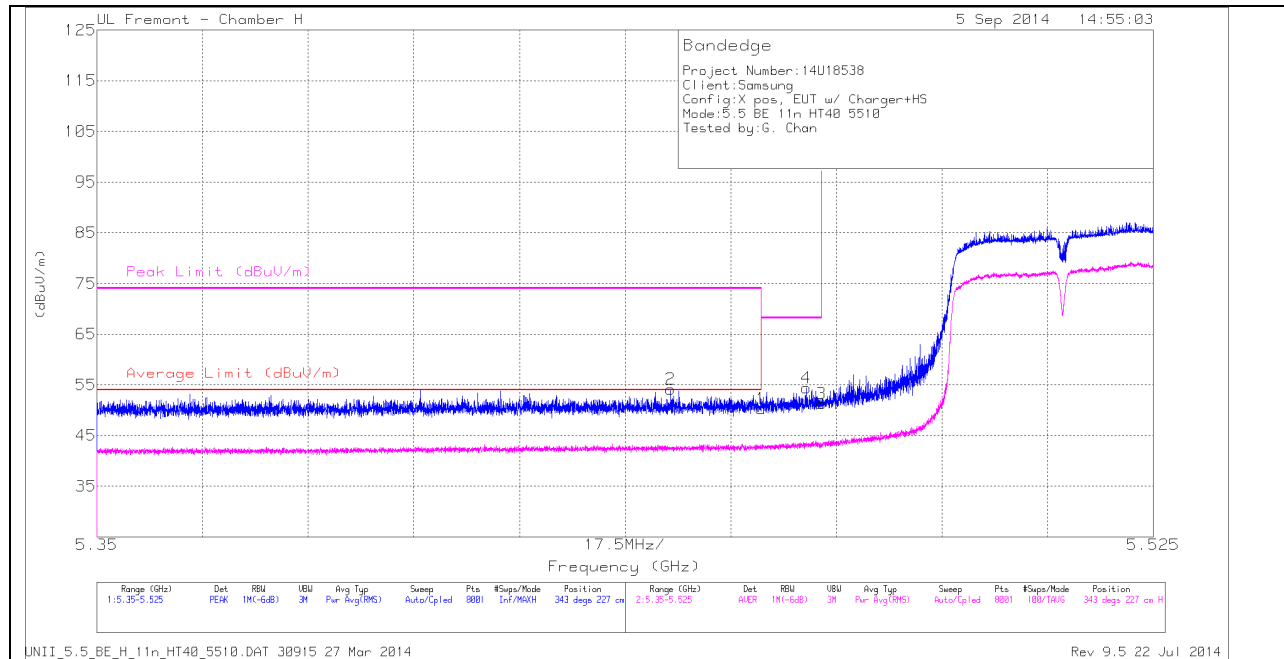
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/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
11.4	41.83	PK1	38.1	-26	0	53.93	-	-	74	-20.07	-	-	61	229	V
11.4	35.33	AD1	38.1	-26	.31	47.74	54	-6.26	-	-	-	-	61	229	V

11.3.1. 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

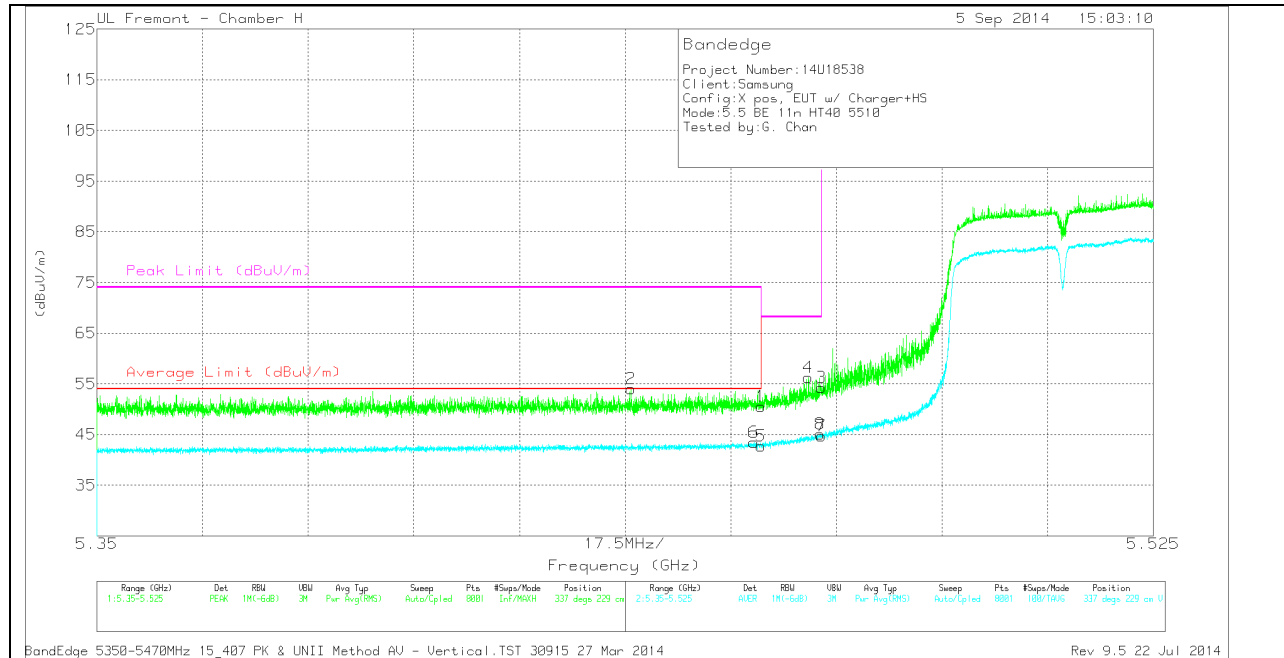
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.445	41.59	PK	35	-22.5	0	54.09	-	-	74	-19.91	343	227	H
6	* 5.457	30.38	RMS	35	-22.5	.65	43.53	54	-10.47	-	-	343	227	H
1	* 5.46	37.8	PK	35	-22.5	0	50.3	-	-	74	-23.7	343	227	H
5	* 5.46	29.39	RMS	35	-22.5	.65	42.54	54	-11.46	-	-	343	227	H
4	5.467	41.78	PK	35	-22.4	0	54.38	-	-	68.2	-13.82	343	227	H
8	5.469	30.74	RMS	35.1	-22.4	.65	44.09	-	-	-	-	343	227	H
3	5.47	38.62	PK	35.1	-22.4	0	51.32	-	-	68.2	-16.88	343	227	H
7	5.47	29.47	RMS	35.1	-22.4	.65	42.82	-	-	-	-	343	227	H

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

PK - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filt 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	41.52	PK	35	-22.5	0	54.02	-	-	74	-19.98	337	229	V
6	* 5.459	30.43	RMS	35	-22.5	.65	43.58	54	-10.42	-	-	337	229	V
1	* 5.46	38.09	PK	35	-22.5	0	50.59	-	-	74	-23.41	337	229	V
5	* 5.46	29.73	RMS	35	-22.5	.65	42.88	54	-11.12	-	-	337	229	V
4	5.468	43.61	PK	35	-22.4	0	56.21	-	-	68.2	-11.99	337	229	V
3	5.47	41.54	PK	35.1	-22.4	0	54.24	-	-	68.2	-13.96	337	229	V
7	5.47	31.57	RMS	35.1	-22.4	.65	44.92	-	-	-	-	337	229	V
8	5.47	31.91	RMS	35.1	-22.4	.65	45.26	-	-	-	-	337	229	V

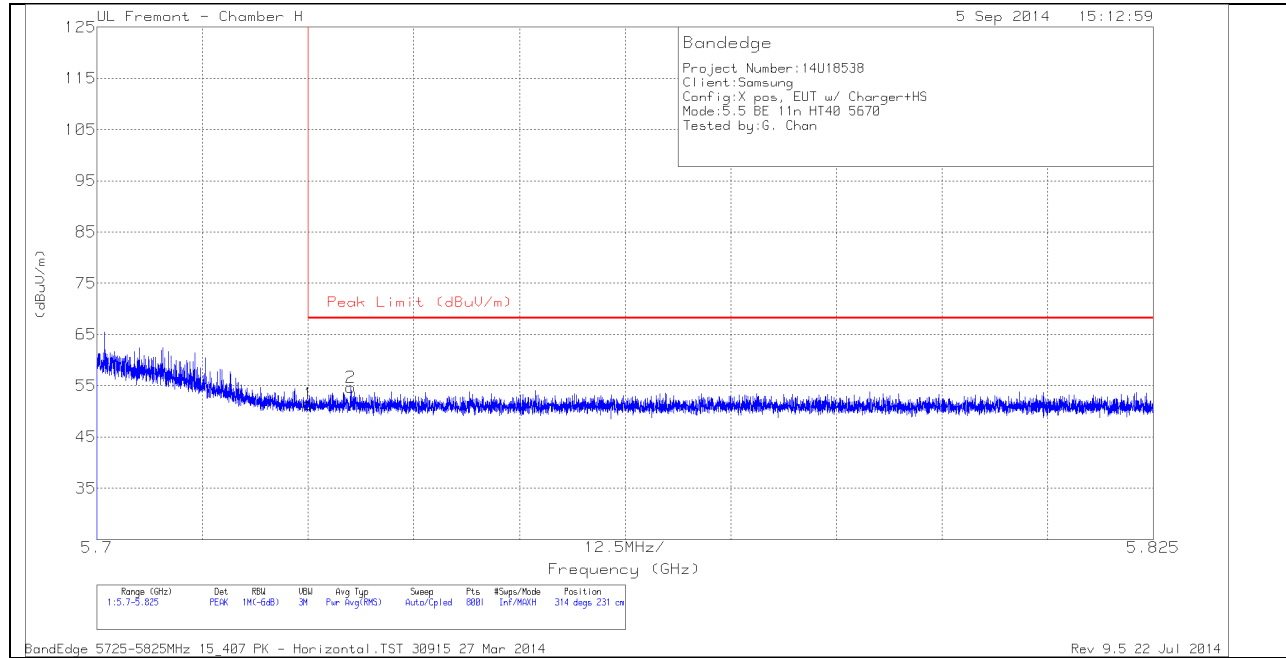
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK PLOT

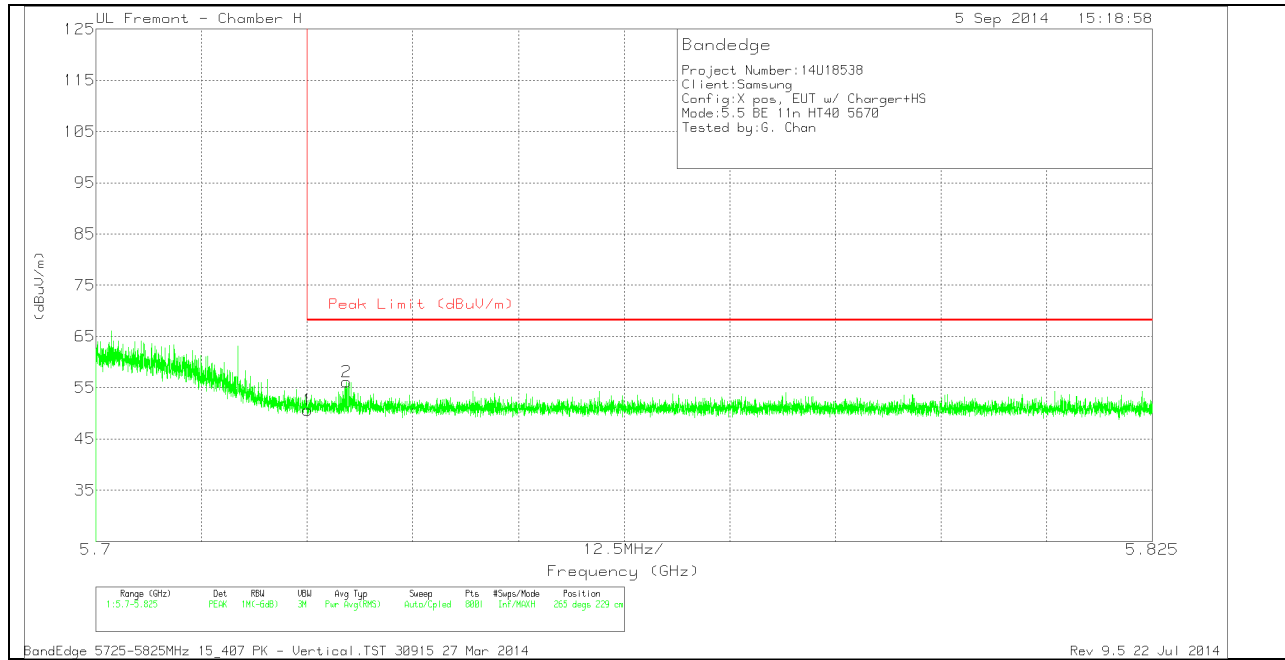


HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	38.81	PK	35	-22.4	0	51.41	68.2	-16.79	314	231	H
2	5.73	42.01	PK	35	-22.4	0	54.61	68.2	-13.59	314	231	H

PK - Peak detector

VERTICAL PEAK PLOT



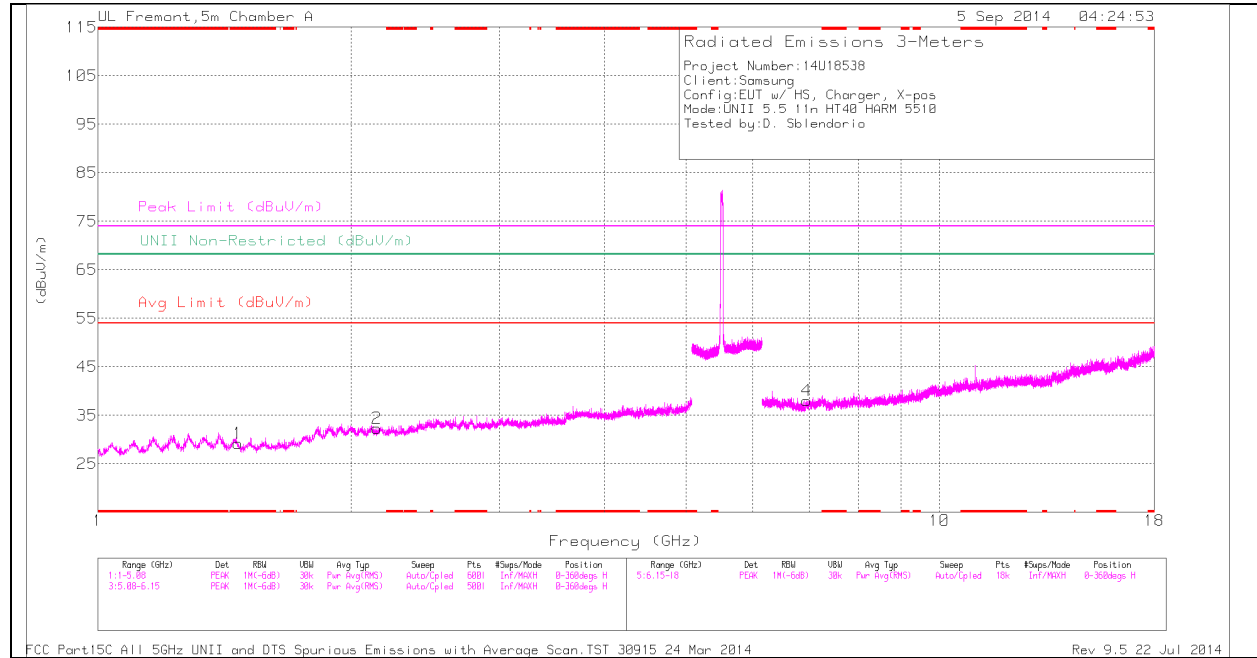
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/F ltr/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	PK	35	-22.4	0	50.6	68.2	-17.6	265	229	V
2	5.73	43.56	PK	35	-22.4	0	56.16	68.2	-12.04	265	229	V

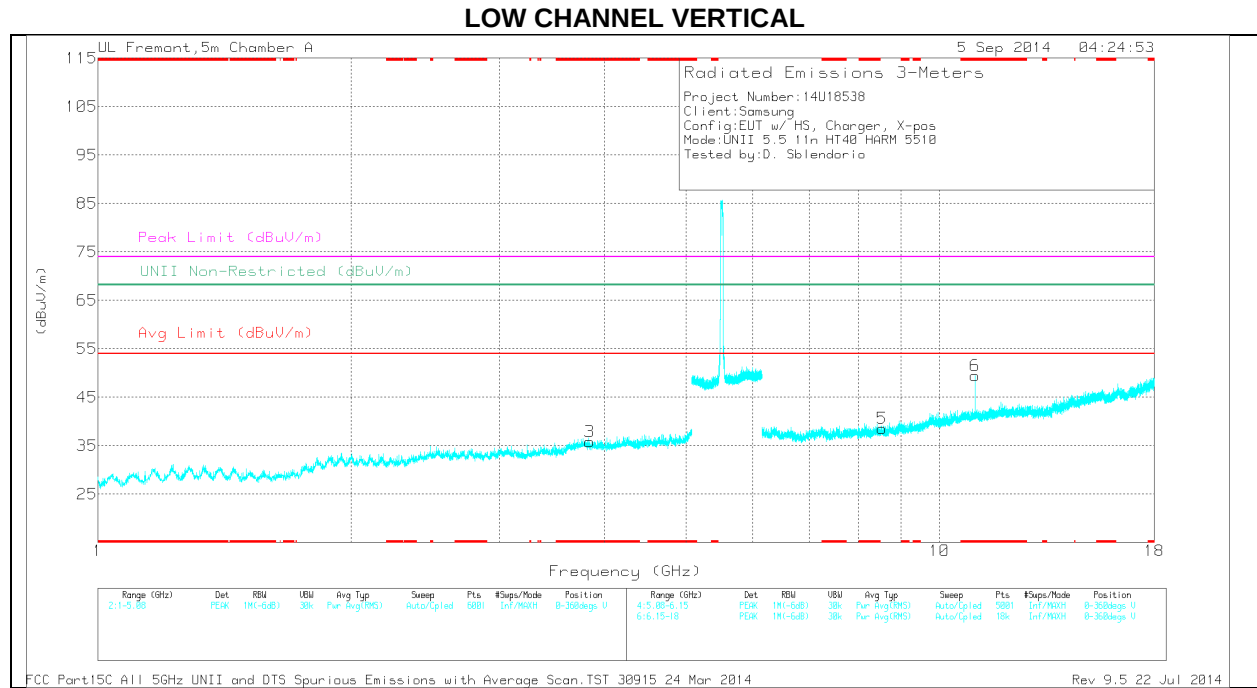
PK - Peak detector

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.



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LOW CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Ftr/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	* 1.467	34.11	PK	29.1	-34	0	29.21	-	-	74	-44.79	-	-	0-360	99	H
3	* 3.839	32.97	PK	33.7	-30.8	0	35.87	-	-	74	-38.13	-	-	0-360	201	V
6	* 11.02	33.85	PK	37.7	-22.1	0	49.45	-	-	74	-24.55	-	-	0-360	99	V
2	2.144	33.4	PK	31.5	-32.6	0	32.3	-	-	-	-	68.2	-35.9	0-360	99	H
4	6.949	29.49	PK	35.3	-26.8	0	37.99	-	-	-	-	68.2	-30.21	0-360	99	H
5	8.554	28.6	PK	35.7	-25.7	0	38.6	-	-	-	-	68.2	-29.6	0-360	201	V

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

PK - Peak detector

Radiated Emissions

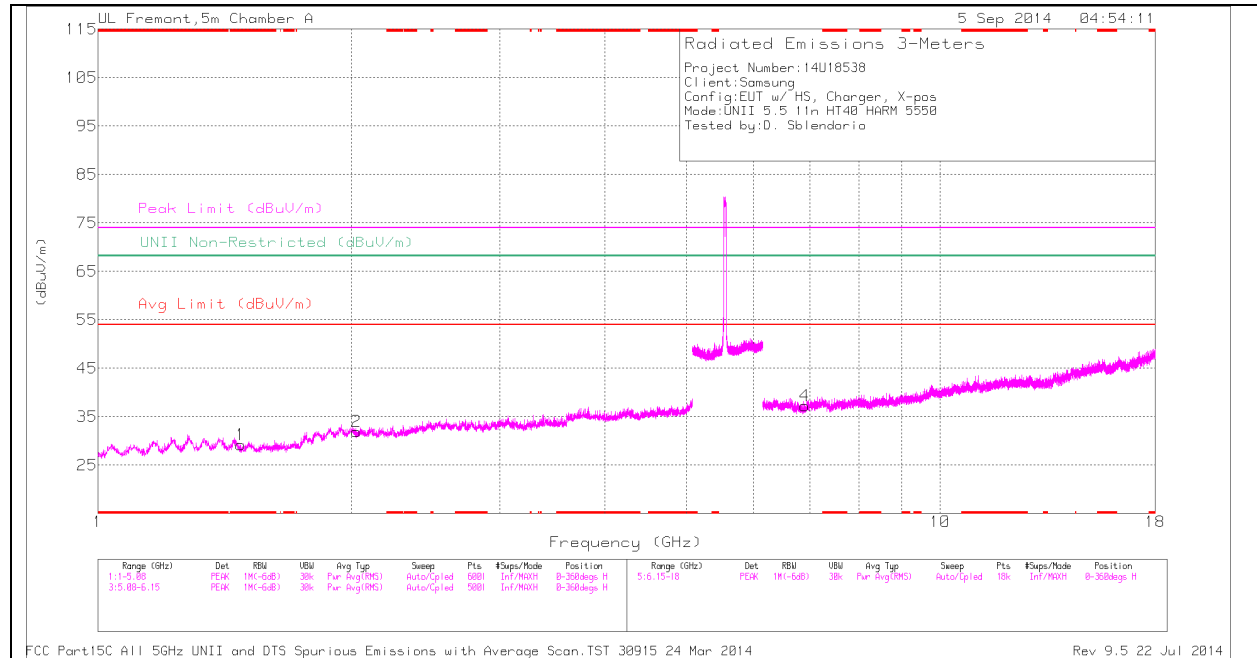
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 11.02	39.57	PK1	37.7	-22.1	0	55.17	-	-	74	-18.83	-	-	246	149	V
* 11.02	35.11	AD1	37.7	-22.1	.65	51.36	54	-2.64	-	-	-	-	246	149	V

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

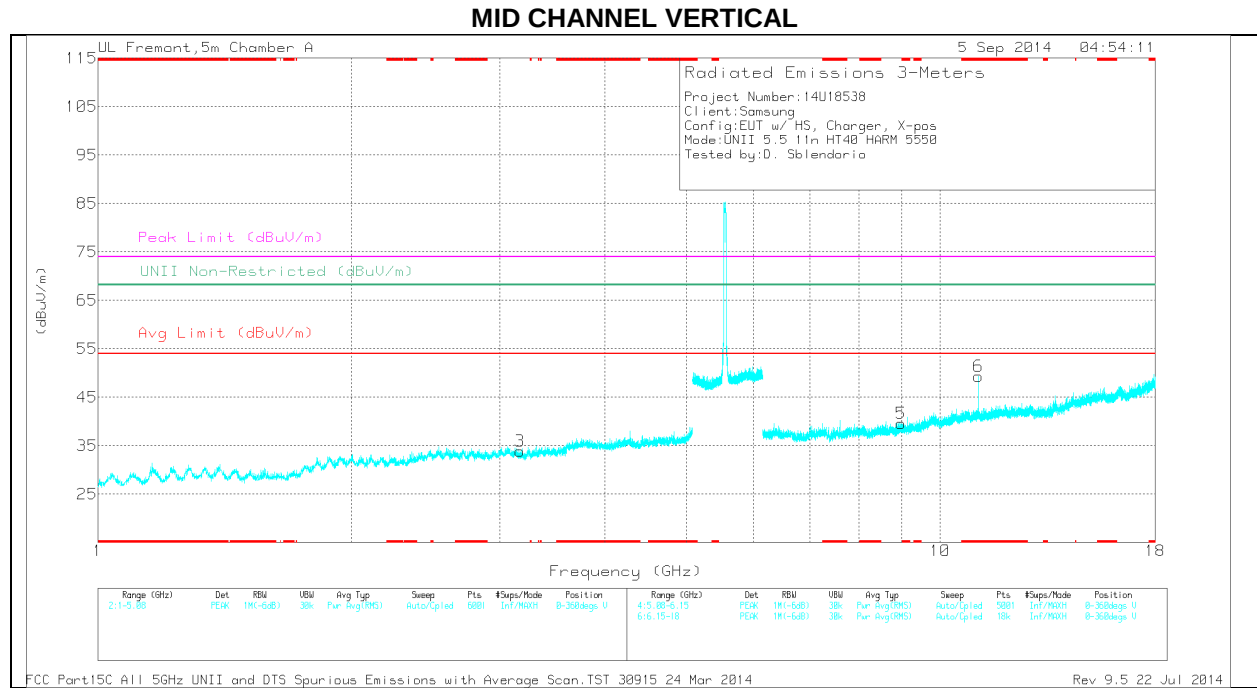
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

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.



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

MID CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Ftr/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	* 1.477	34.17	PK	29	-34	0	29.17	-	-	74	-44.83	-	-	0-360	201	H
6	* 11.1	33.62	PK	37.7	-22	0	49.32	-	-	74	-24.68	-	-	0-360	99	V
2	2.025	33.65	PK	32	-33.7	0	31.95	-	-	-	-	68.2	-36.25	0-360	99	H
3	3.168	33.34	PK	32.7	-32.1	0	33.94	-	-	-	-	68.2	-34.26	0-360	99	V
4	6.912	29.41	PK	35.3	-27.5	0	37.21	-	-	-	-	68.2	-30.99	0-360	201	H
5	8.979	28.33	PK	35.9	-24.6	0	39.63	-	-	-	-	68.2	-28.57	0-360	99	V

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

PK - Peak detector

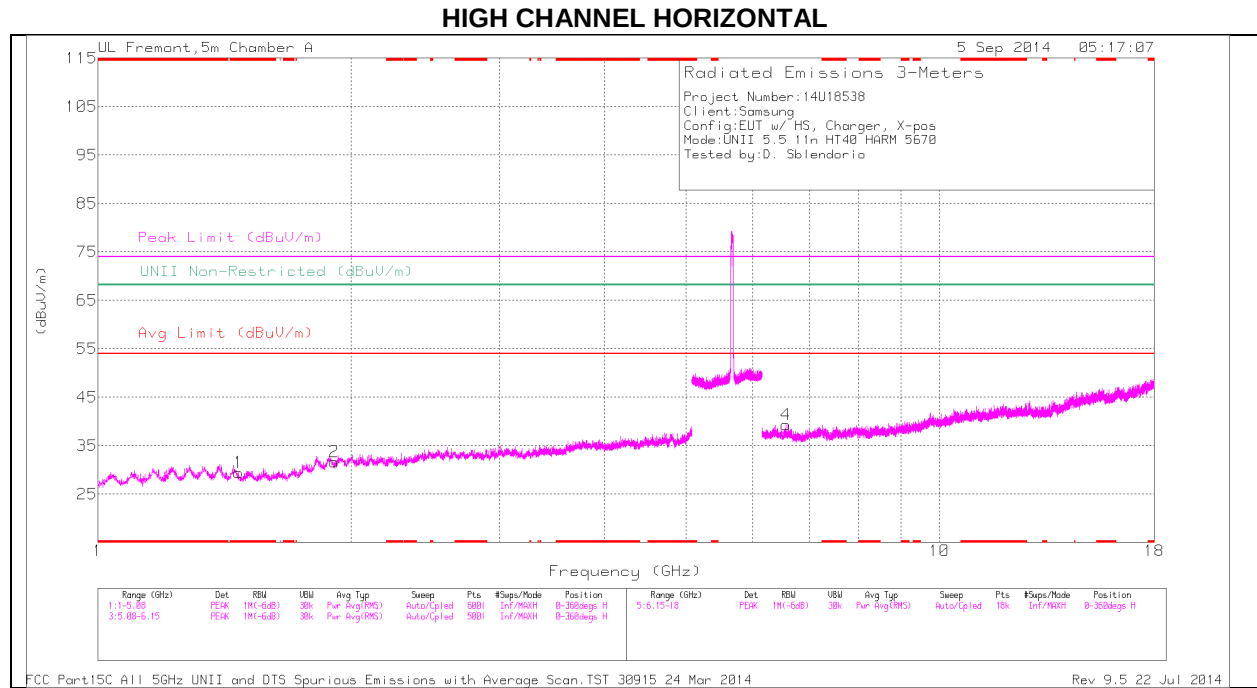
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Ftr/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
* 11.1	38.42	PK1	37.7	-22	0	54.12	-	-	74	-19.88	-	-	124	100	V
* 11.1	33.25	AD1	37.7	-22	.65	49.60	54	-4.40	-	-	-	-	124	100	V

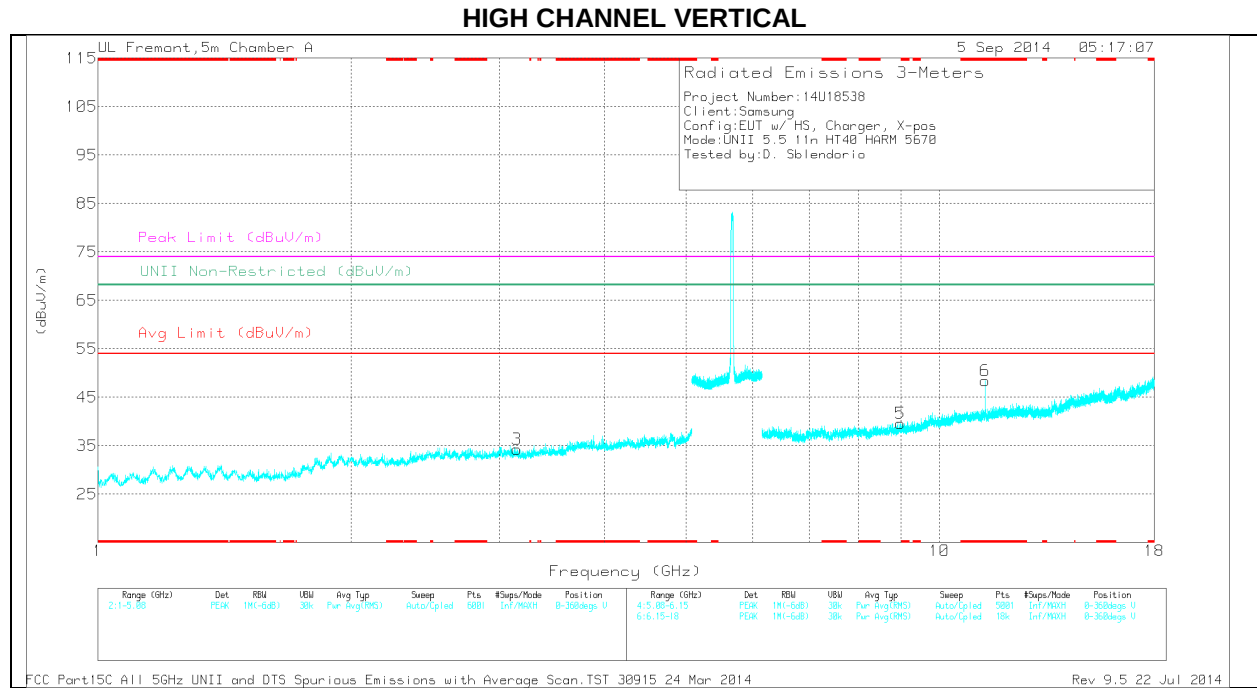
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average



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



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

HIGH CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Ftr/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	* 1.47	34.38	PK	29	-33.9	0	29.48	-	-	74	-44.52	-	-	0-360	99	H
6	* 11.339	32.28	PK	38	-21.9	0	48.38	-	-	74	-25.62	-	-	0-360	99	V
2	1.908	33.03	PK	31.7	-33.1	0	31.63	-	-	-	-	68.2	-36.57	0-360	201	H
3	3.15	33.32	PK	32.7	-31.8	0	34.22	-	-	-	-	68.2	-33.98	0-360	201	V
4	6.569	30.63	PK	35.5	-26.8	0	39.33	-	-	-	-	68.2	-28.87	0-360	201	H
5	8.991	28.49	PK	35.9	-24.8	0	39.59	-	-	-	-	68.2	-28.61	0-360	99	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Ftr/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
* 11.34	38.29	PK1	38	-21.9	0	54.39	-	-	74	-19.61	-	-	250	128	V
* 11.34	32.54	AD1	38	-21.9	.65	49.29	54	-4.71	-	-	-	-	250	128	V

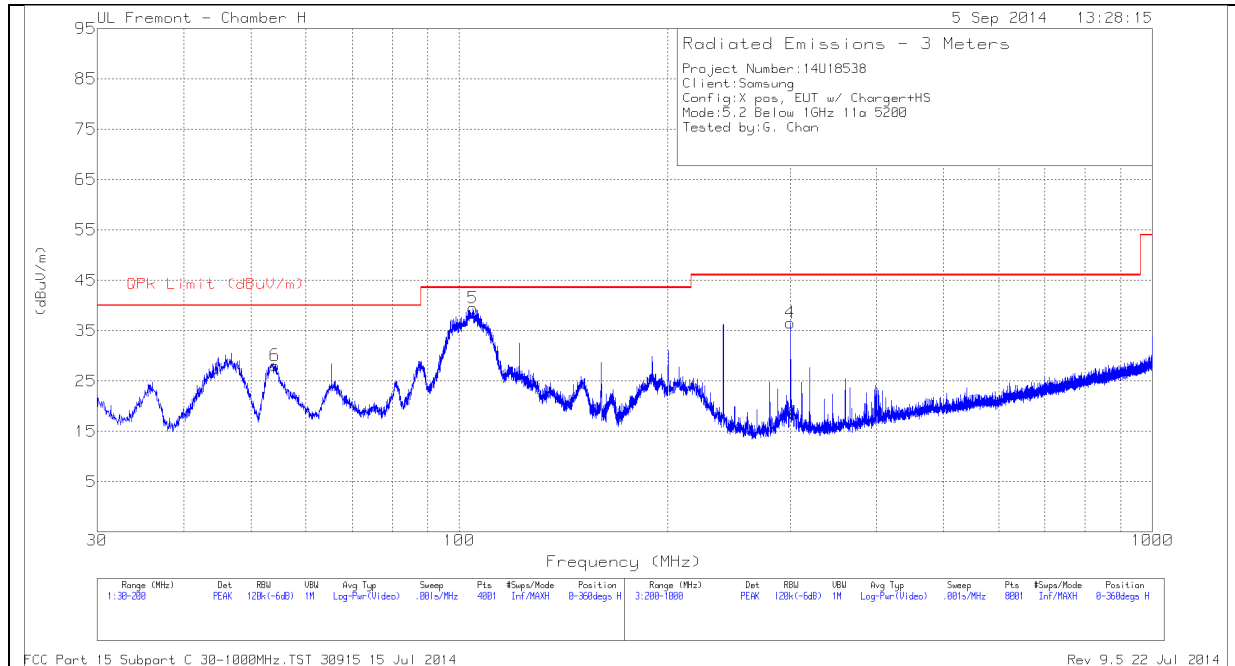
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

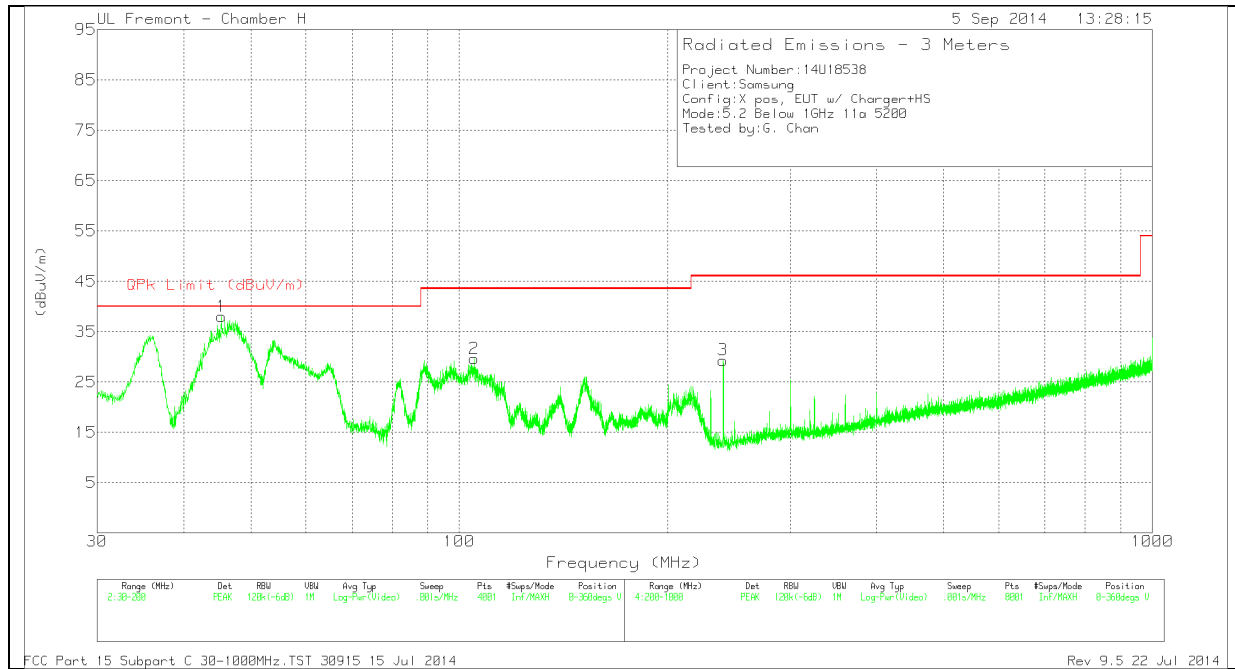
AD1 - KDB789033 Method: AD Primary Power Average

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

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



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



Below 1G Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	SS J83 SN A051314-1	Amp/Cbl (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 240.3	43.93	PK	14.4	-29	0	29.33	46.02	-16.69	0-360	100	V
1	45.3425	55.59	PK	13.2	-30.8	0	37.99	40	-2.01	0-360	100	V
6	54.225	48.57	PK	10.1	-30.6	0	28.07	40	-11.93	0-360	401	H
5	104.6725	55.26	PK	14.2	-30	0	39.46	43.52	-4.06	0-360	301	H
2	105.0975	45.33	PK	14.3	-30	0	29.63	43.52	-13.89	0-360	100	V
4	300.4	48.66	PK	16.5	-28.6	0	36.56	46.02	-9.46	0-360	100	H

13. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

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

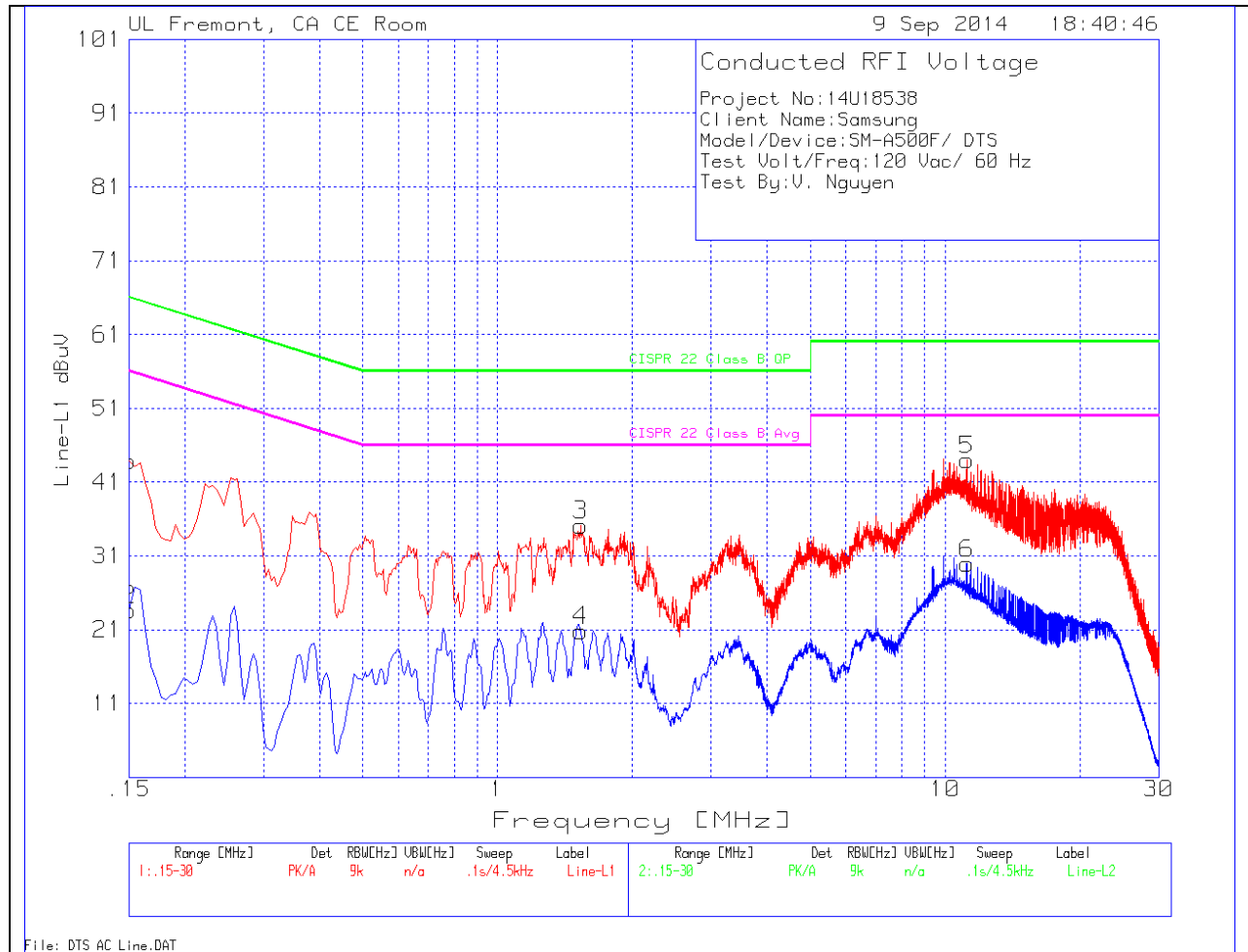
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT

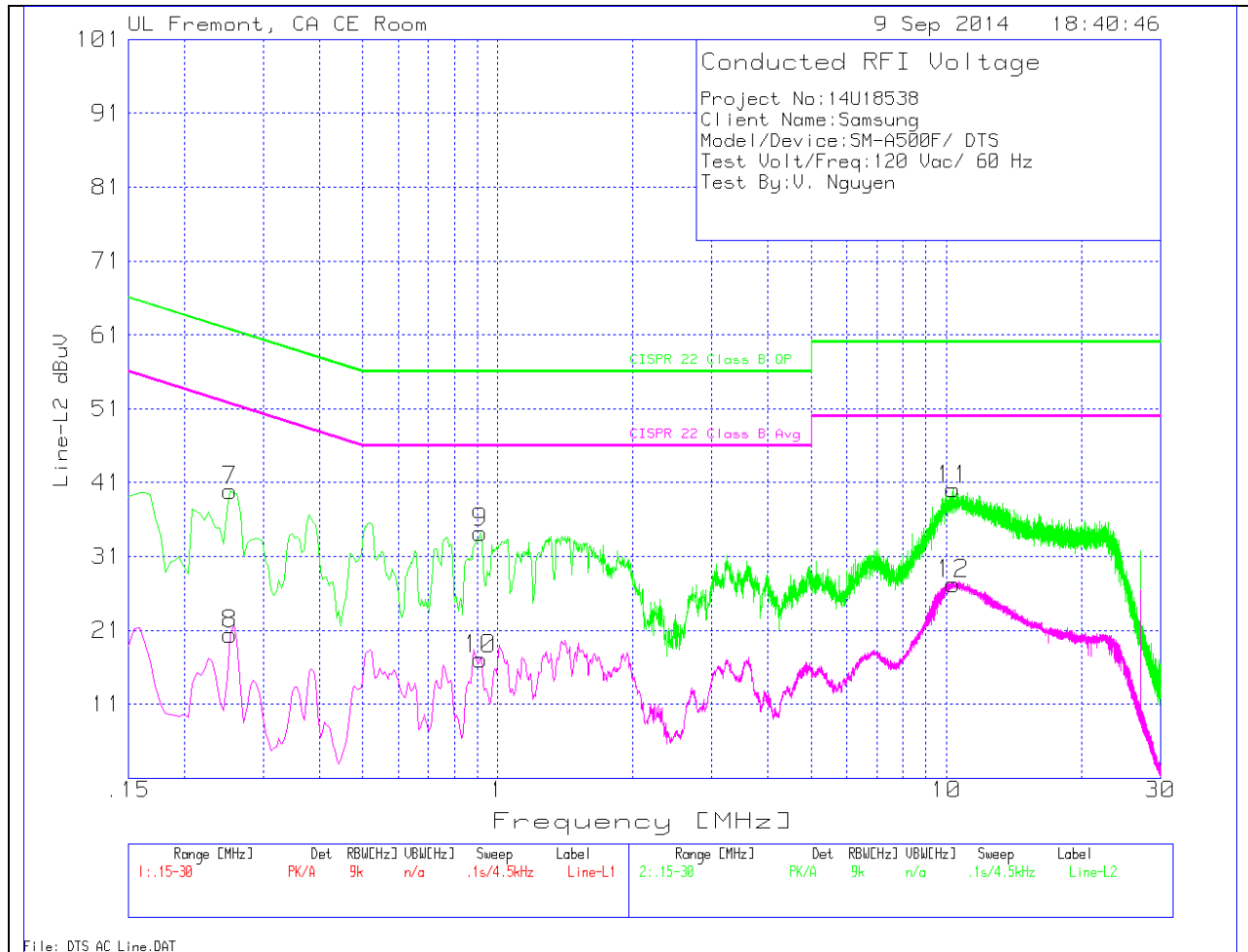


LINE 1 RESULTS

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.15	42.51	PK	1.4	0	43.91	66	-22.09	-	-
2	.15	22.29	Av	1.4	0	23.69	-	-	56	-32.31
3	1.5315	34.82	PK	.2	.1	35.12	56	-20.88	-	-
4	1.5315	20.54	Av	.2	.1	20.84	-	-	46	-25.16
5	11.2155	43.55	PK	.2	.2	43.95	60	-16.05	-	-
6	11.2155	29.5	Av	.2	.2	29.9	-	-	50	-20.1

LINE 2 PLOT



LINE 2 RESULTS**Trace Markers**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
7	.2535	39.15	PK	.7	0	39.85	61.6	-21.75	-	-
8	.2535	19.7	Av	.7	0	20.4	-	-	51.6	-31.2
9	.915	33.93	PK	.3	0	34.23	56	-21.77	-	-
10	.915	16.79	Av	.3	0	17.09	-	-	46	-28.91
11	10.356	39.68	PK	.2	.2	40.08	60	-19.92	-	-
12	10.356	26.87	Av	.2	.2	27.27	-	-	50	-22.73

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".

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 notes)
E.I.R.P. $\geq$ 200 milliwatt	-64 dBm
E.I.R.P. < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm

E.I.R.P. < 200 milliwatt that do not meet power spectral density requirement	-64 dBm
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. Note 3: E.I.R.P. is based on the highest antenna gain. For MIMO devices refer to KDB publication 662911 D01.	

Table 4: DFS Response requirement values

Parameter	Value
<i>Non-occupancy period</i>	30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds
<i>Channel Closing Transmission Time</i>	200 milliseconds + approx. 60 milliseconds over remaining 10 second period
The instant that the <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> begins is as follows: For the Short pulse radar Test Signals this instant is the end of the <i>Burst</i>. 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
Aggregate (Radar Types 1-4)				80%	120

Table 6 – Long Pulse Radar Test Signal

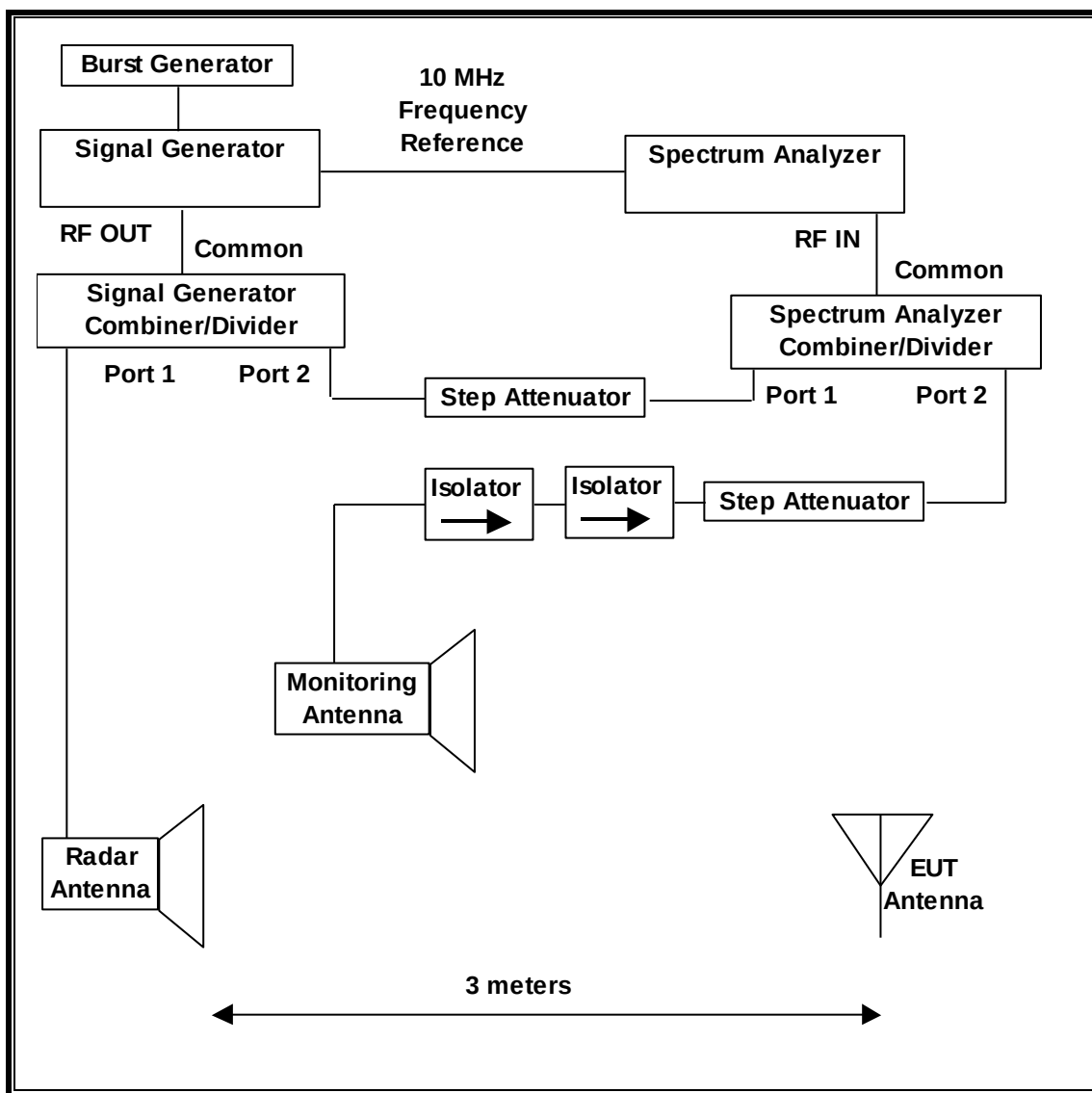
Radar Waveform	Bursts	Pulses per Burst	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Minimum Percentage of Successful Detection	Minimum Trials
5	8-20	1-3	50-100	5-20	1000-2000	80%	30

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

14.1.2. TEST AND MEASUREMENT SYSTEM

RADIATED METHOD SYSTEM BLOCK DIAGRAM



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 KDB 905462 D02. 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.

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.

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.

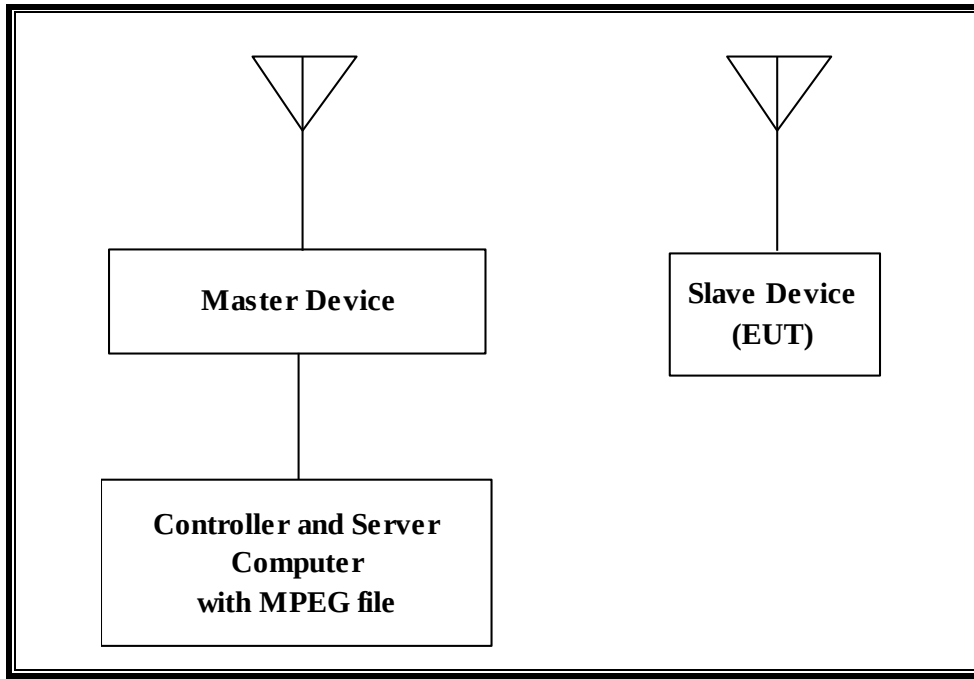
TEST AND MEASUREMENT EQUIPMENT

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, 3Hz to 44 GHz	Agilent / HP	E444A	C01012	10/21/13
Vector Signal Generator, 20GHz	Agilent / HP	E4438C	C01197	01/17/14

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:

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

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 12.1 dBm EIRP in the 5250-5350 MHz band and 12.41 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.

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 MP4 Player version 1.7.21 media play.

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 12.4(25d)JA1.

UNIFORM CHANNEL SPREADING

This requirement is not applicable to Slave radio devices.

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 $> 23\text{dBm}$ (EIRP). Therefore the required interference threshold level is -64 dBm . After correction for procedural adjustments, the required radiated threshold at the antenna port is $-64 + 1 = -63\text{ dBm}$.

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.

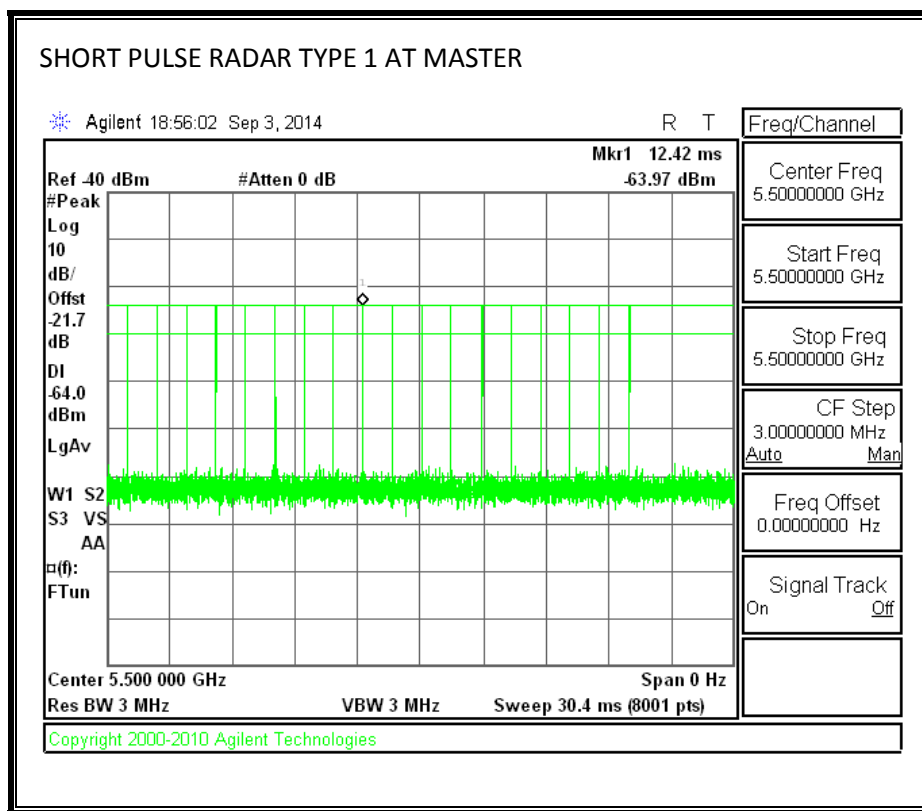
14.2. RESULTS FOR 20 MHz BANDWIDTH

14.2.1. TEST CHANNEL

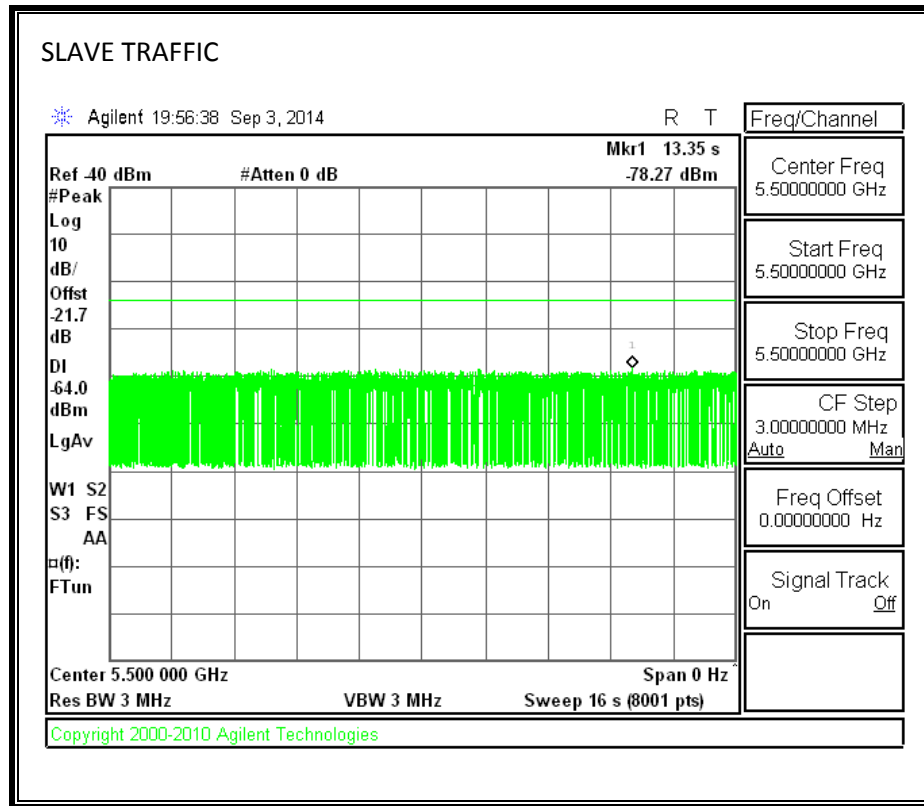
All tests were performed at a channel center frequency of 5500 MHz.

14.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



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)

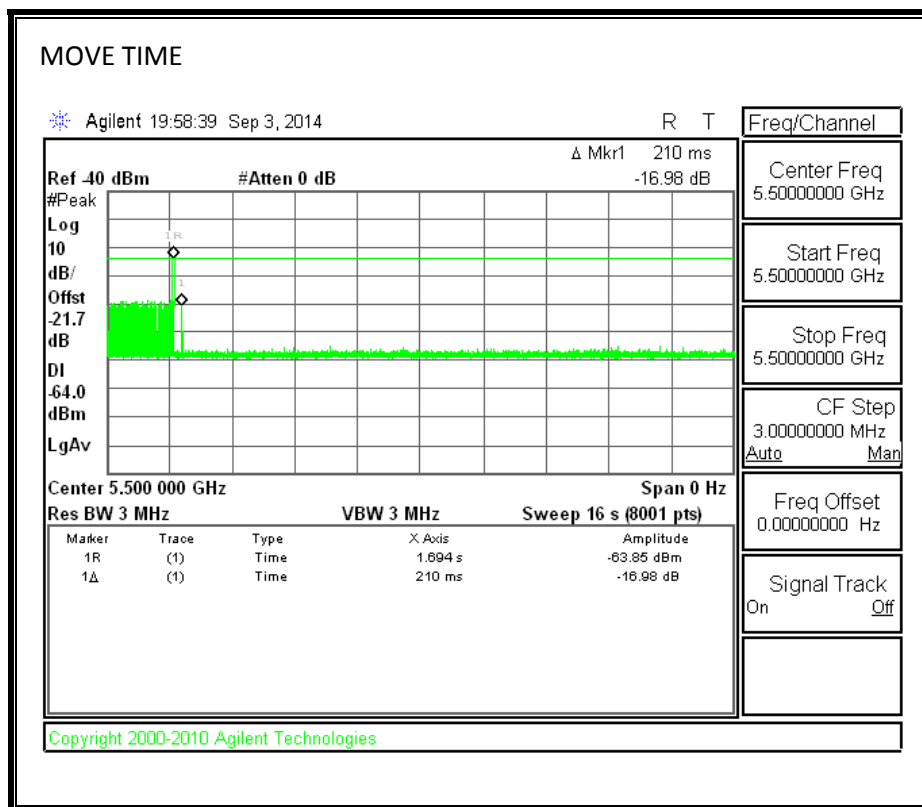
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

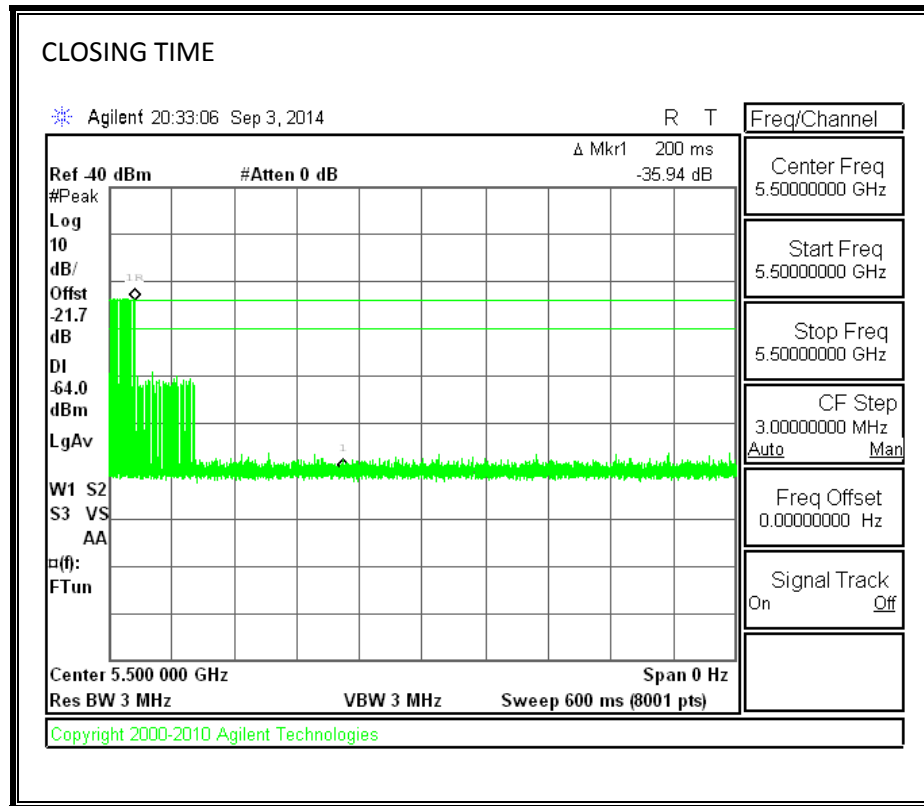
Channel Move Time (sec)	Limit (sec)
0.210	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
2.0	60

MOVE TIME

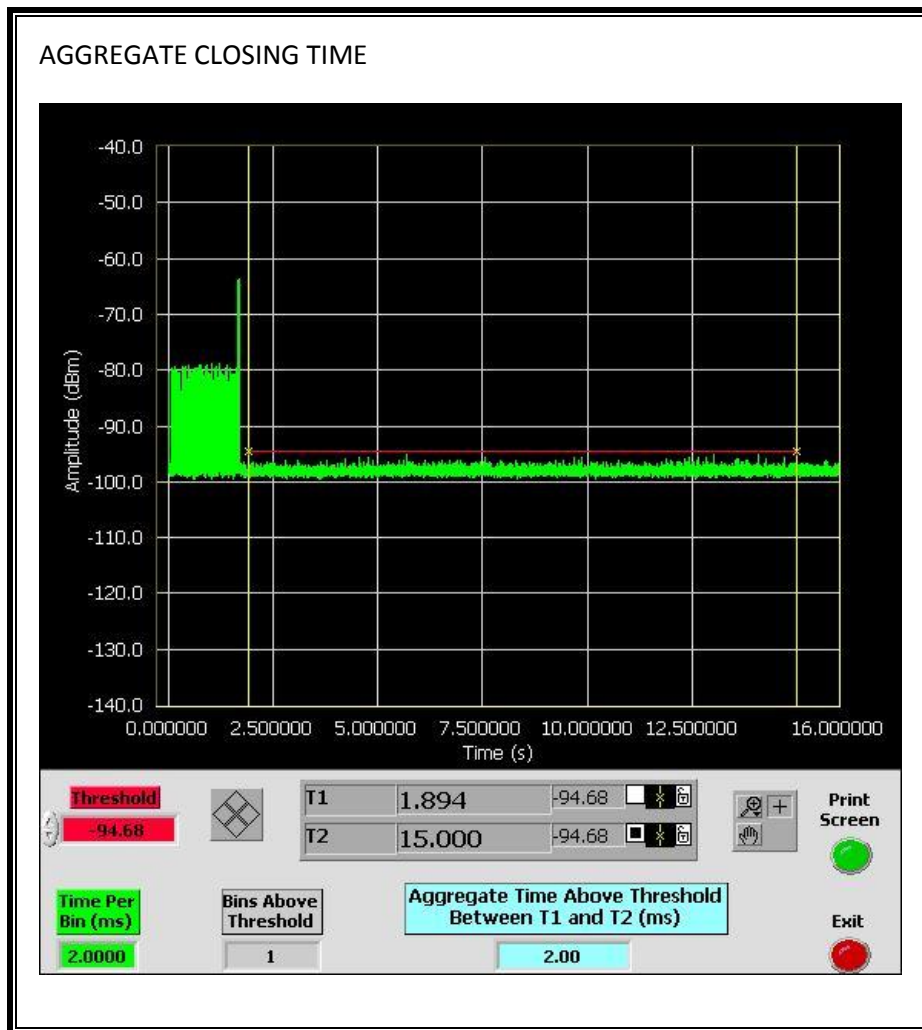


CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the aggregate monitoring period.



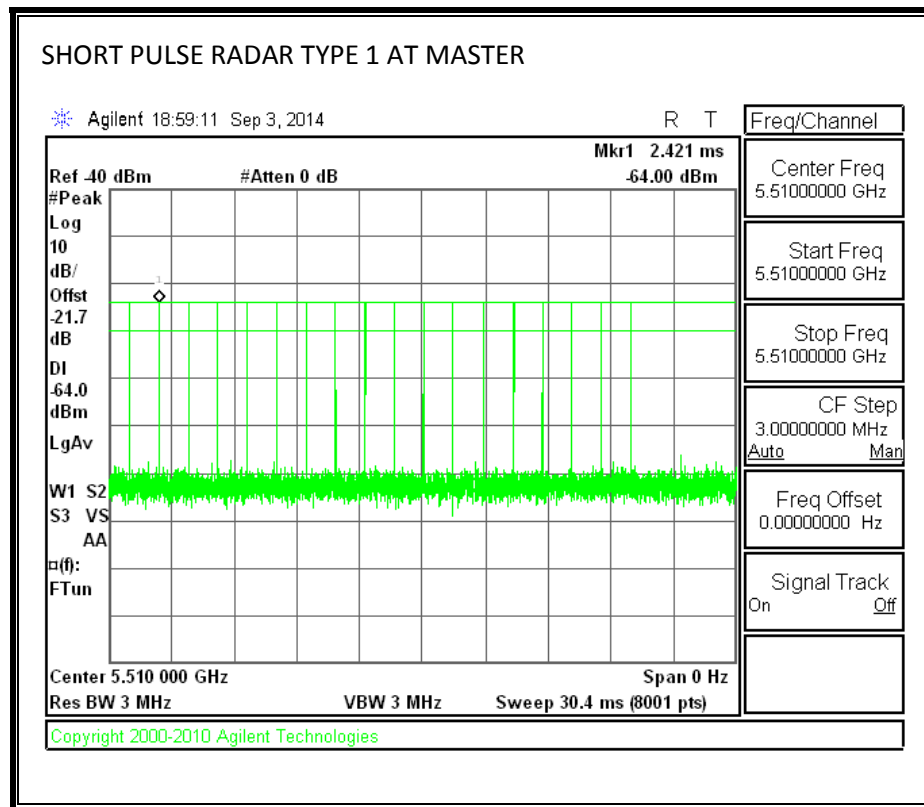
14.3. RESULTS FOR 40 MHz BANDWIDTH

14.3.1. TEST CHANNEL

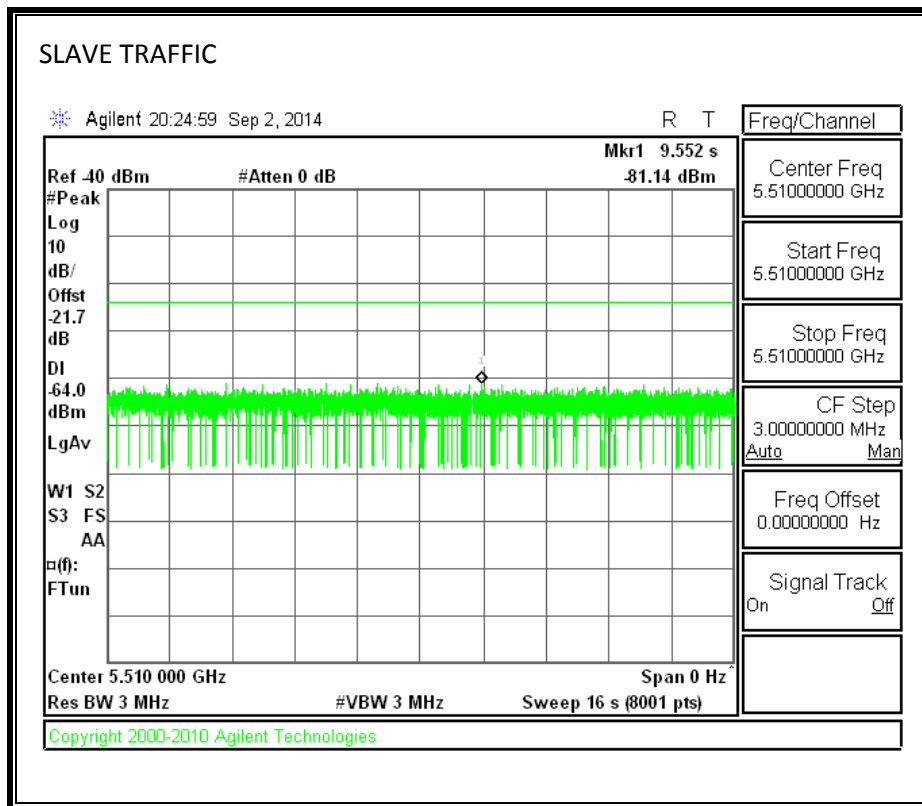
All tests were performed at a channel center frequency of 5510 MHz.

14.3.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



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)

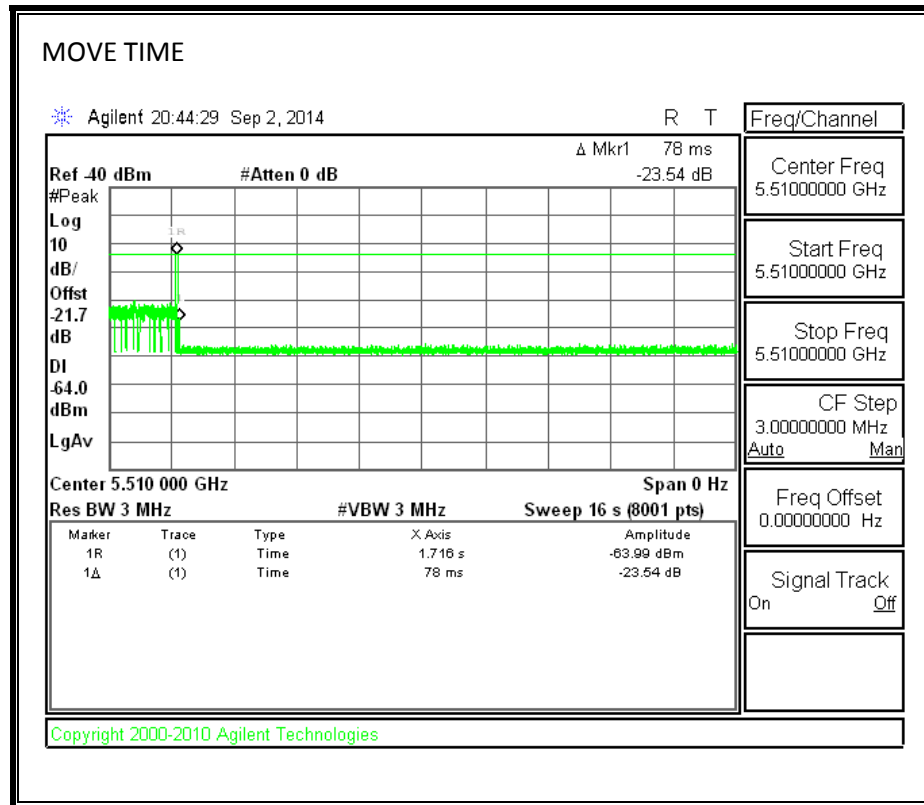
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

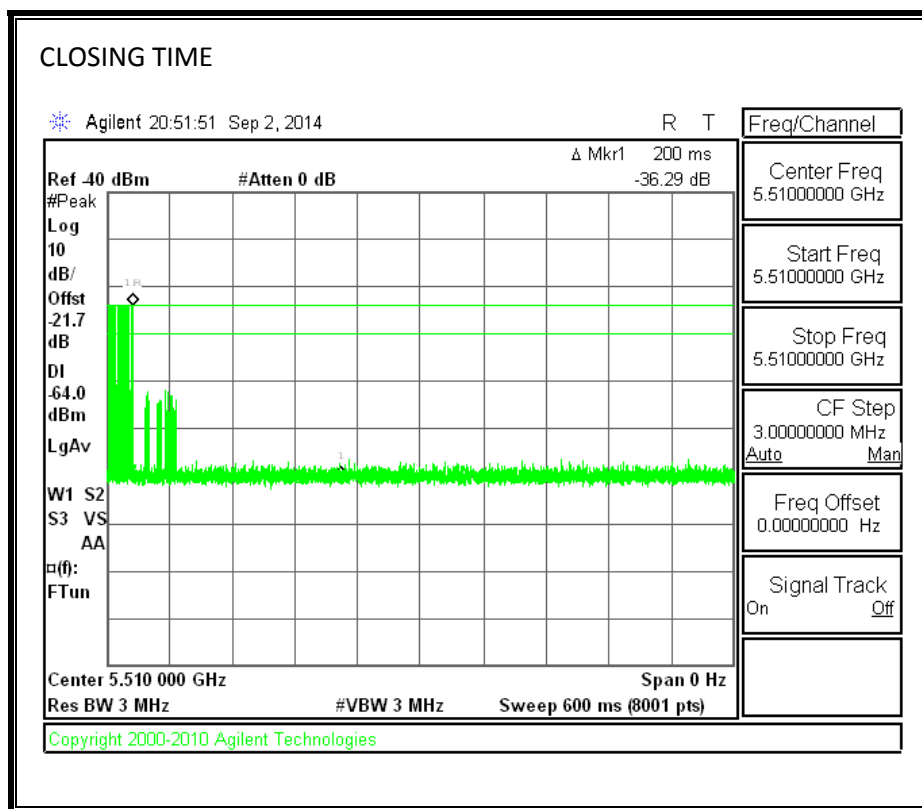
Channel Move Time (sec)	Limit (sec)
4.452	10

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

MOVE TIME

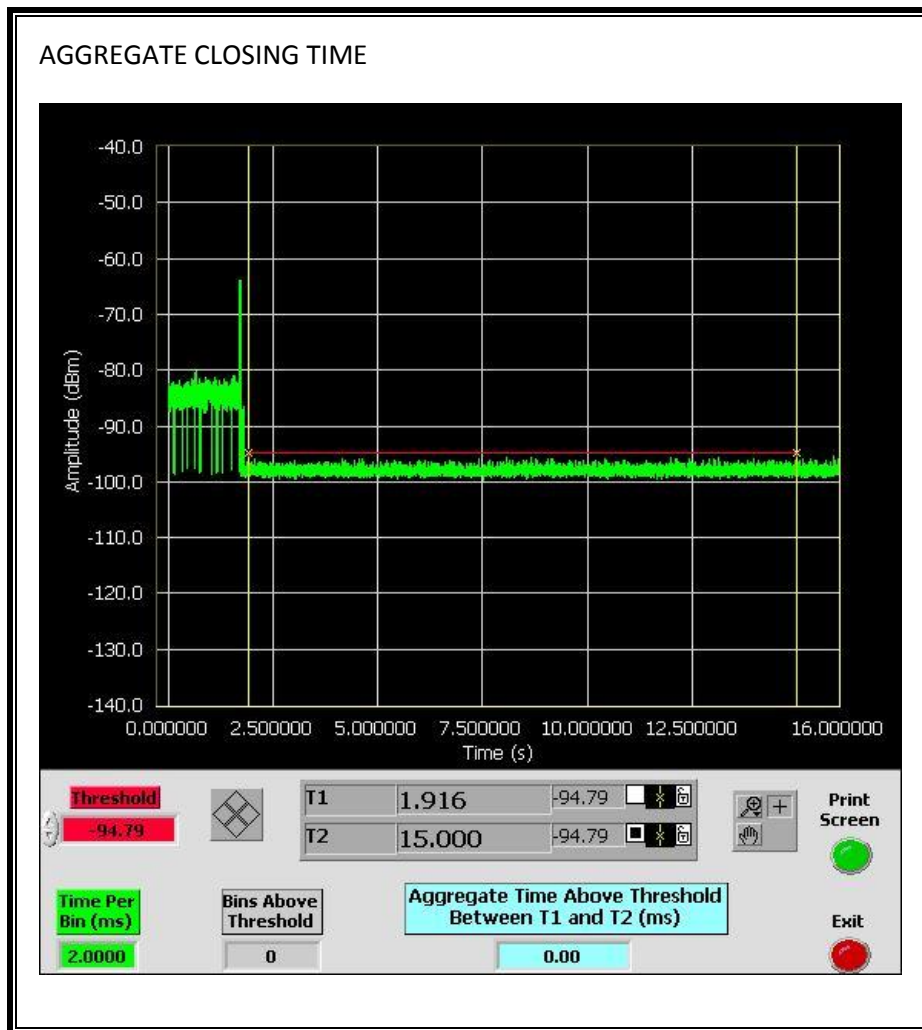


CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



14.3.5. NON-OCCUPANCY PERIOD

RESULTS

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

