FCC 47 CFR PART 15 SUBPART E

CERTIFICATION TEST REPORT

FOR

GSM/CDMA/WCDMA/LTE PHONE + BLUETOOTH, with DTS/UNII a/b/g/n/ac & NFC

MODEL NUMBER: LG-LS991, LS991, LGLS991

FCC ID: ZNFLS991

REPORT NUMBER: 15I20286-E5

ISSUE DATE: APRIL 20, 2015

Prepared for

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Revision History

Rev.	Issue Date	Revisions	Revised By
	04/20/15	Initial Issue	D. Coronia

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC
EUT DESCRIPTION: GSM/CDMA/WCDMA/LTE PHONE + BLUETOOTH, with DTS/UNII a/b/g/n/ac & NFC
MODEL: LG-LS991, LS991, LGLS991
SERIAL NUMBER: 1TLT3 (Conducted) and 1TLT7 (Radiated)
DATE TESTED: MARCH 10- APRIL 10, 2015

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, and ANSI C63.4-2009, 789033 D02 General UNII Test Procedures New Rules v01.

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 18000 MHz	4.94 dB

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

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is a GSM/CDMA/WCDMA/LTE PHONE + BLUETOOTH, with DTS/UNII a/b/g/n/ac & NFC

6.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Total Output Power (dBm)	Total Output Power (mW)
5180 - 5240	802.11n HT20	13.05	20.18
5260 - 5320	802.11n HT20	14.28	26.79
5500 - 5700	802.11n HT20	14.15	26.00
5745 - 5825	802.11n HT20	14.17	26.12
5190 - 5230	802.11n HT40	11.81	15.17
5270 - 5310	802.11n HT40	12.30	16.98
5510 - 5670	802.11n HT40	13.22	20.99
5755 - 5795	802.11n HT40	12.90	19.50
5180 - 5240	802.11a	13.37	21.73
5260 - 5320	802.11a	14.41	27.61
5500 - 5700	802.11a	14.15	26.00
5745 - 5825	802.11a	14.24	26.55
5210 - 5210	802.11ac HT80	11.95	15.67
5290 - 5290	802.11ac HT80	13.38	21.78
5530 - 5690	802.11ac HT80	12.32	17.06
5775 - 5775	802.11ac HT80	12.57	18.07

The transmitter has average conducted output power (measured by power meter) as follows:

Band (GHz)	Mode	Mode	Ch #	Freq. (MHz)	Avg Pwr (dBm)
5.2 (UNII-1)	802.11a	6 Mbps	36	5180	13.1
			40	5200	13.1
			44	5220	13.0
			48	5240	13.0
	802.11n (HT20)	MSCO	36	5180	13.1
			40	5200	13.2
			48	5240	13.2
	802.11n (HT40)	MSCO	38	5190	12.0
			46	5230	11.9
	802.11ac (HT20)	MSCO	36	5180	12.1
			40	5200	13.2
			48	5240	13.0
	802.11ac (HT40)	MSCO	38	5190	12.0
			46	5230	11.9
	802.11ac (VHT80)		42	5210	11.9
5.3 (UNII-2A)	802.11a	6 Mbps	52	5260	13.9
			56	5280	13.9
			60	5300	13.7
			64	5320	13.8
	802.11n (HT20)	MSCO	52	5260	13.8
			60	5300	13.5
			64	5320	13.8
	802.11n (HT40)	MSCO	54	5270	11.8
			62	5310	11.7
	802.11ac (HT20)	MSCO	52	5260	12.7
			60	5300	12.6
			64	5320	12.8
	802.11ac (HT40)	MSCO	54	5270	11.6
			62	5310	11.6
	802.11ac (VHT80)		58	5290	12.0

Band (GHz)	Mode	Mode	Ch #	Freq. (MHz)	Avg Pwr (dBm)
5.5 (UNII-2C)	802.11a	6 Mbps	100	5500	13.2
			116	5580	13.5
			140	5700	13.7
	802.11n (HT20)	MSCO	100	5500	13.5
			116	5580	13.7
			140	5700	13.8
	802.11n (HT40)	MSCO	102	5510	11.3
			110	5550	11.5
			134	5670	11.5
	802.11ac (HT20))	MSCO	100	5500	12.6
			116	5580	12.6
			140	5700	12.8
	802.11ac (HT40)	MSCO	102	5510	11.3
			110	5550	11.3
			134	5670	11.4
	802.11ac (VHT80)		106	5530	12.0
			138	5690	11.4
5.8 (UNII-3)	802.11a	6 Mbps	149	5745	13.5
			153	5765	13.7
			157	5785	13.7
			161	5805	13.5
			165	5825	13.4
	802.11n (HT20)	MCS0	149	5745	13.7
			157	5785	13.7
			161	5805	13.7
			165	5825	13.4
	802.11n (HT40)	MSCO	151	5755	11.3
			159	5795	11.2
	802.11ac (HT20))	MCS0	149	5745	12.6
			157	5785	12.7
			161	5805	12.5
			165	5825	12.2
	802.11ac (HT40)	MSCO	151	5755	11.1
			159	5795	11.1
	802.11ac (VHT80)		155	5775	11.9

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -2.54dBi.

6.4. 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
802.11AC HT80mode: MCS0

6.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	LG	MCS-04WD2	EAY62991904	N/A
Smart Case Cover	LG	LG-P1	DK0227	N/A
Wireless Charger	LG	WCD-110	LF1212625283010049	N/A
Earphone	LG	N/A	N/A	N/A

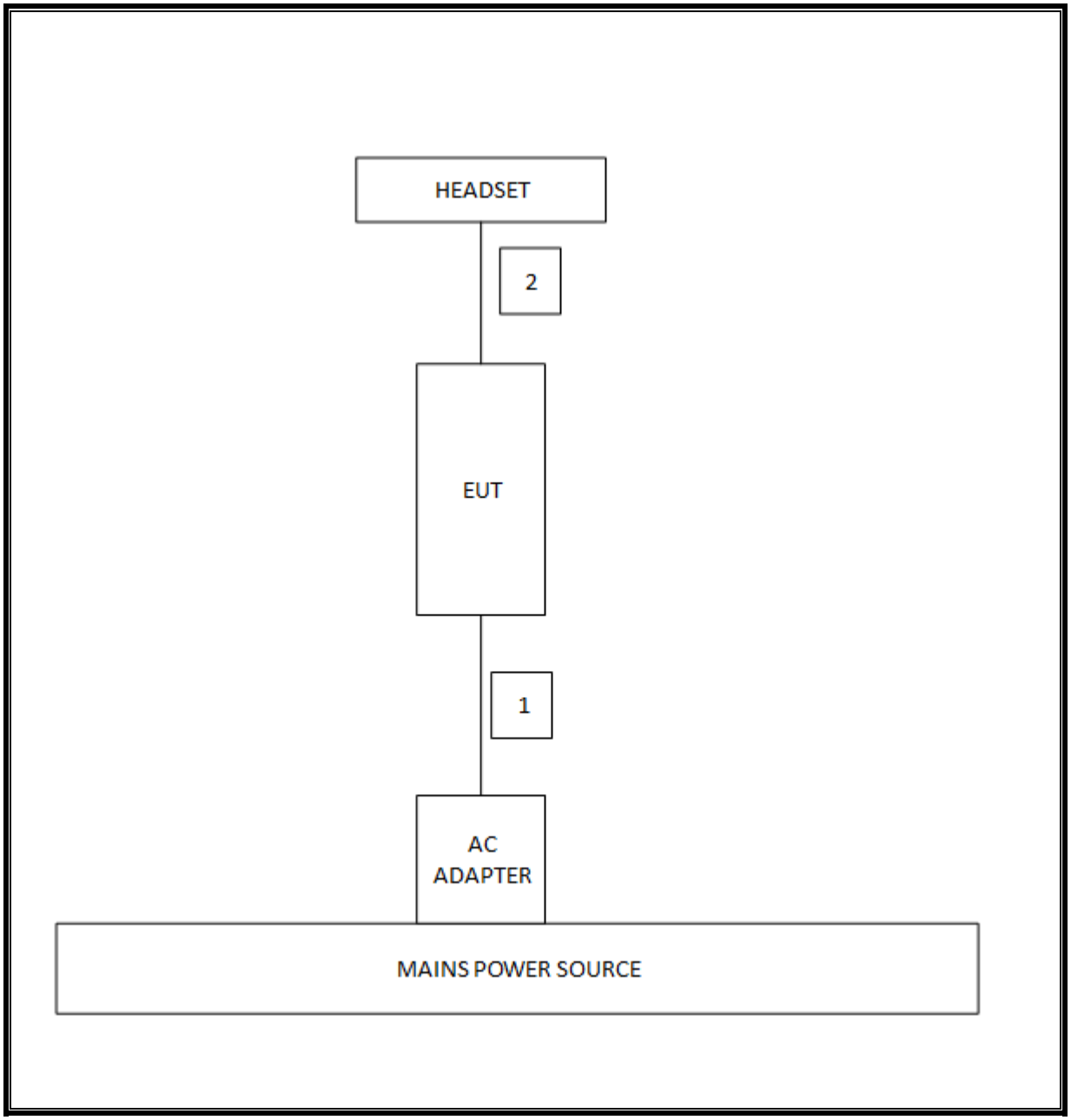
I/O CABLES

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

TEST SETUP

The EUT is setup as a stand-alone device.

SETUP DIAGRAM FOR TESTS



7. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	100773	08/15/15
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/15
Antenna, Horn, 18GHz	EMCO	3115	C00783	10/25/15
Antenna, Horn,18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/15
Antenna, Horn, 26-40 GHz	ARA	MWH-2640	C00891	06/28/15
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	12/08/15
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/15
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 - 18GHz	Miteq	AFS42-00101800-25-S-42	1818466	05/09/15
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/15
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/15
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/15

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

8. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.407 (a)	Occupied Band width (26dB)	N/A	Conducted	Pass	82.16 MHz
15.407	6dB Band width (5.8Ghz)	500KHz		Pass	16.38 MHz
15.407 (a)(2)	TX Cond. Power5.15-2.25, 5.25-5.35 & 5.47-5.725	<24dBm or 11+10Log(OBW)		Pass	14.41 dBm
15.407 (a)(3)	TX Cond. Power 5.725-5.825	< 30dBm or 17+10Log(OBW)		Pass	14.24 dBm
15.407 (a)(5)	PSD (5.2,5.3,5.5GHz)	<11dBm		Pass	3.03 dBm
15.407 (a)(5)	PSD (5.8GHz)	30dBm per 500kHz			2.99 dBm
15.207 (a)	AC Power Line conducted emissions	Section 10	Radiated	Pass	45.55 dBuV (AV)
15.407 (b) & 15.209	Radiated Spurious Emission	< 54dBuV/m		Pass	43.86 dBuV/m
15.407 (h)(2)	Dynamic Frequency Selection	N/A	Radiated / Conducted	Pass	N/A

9. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

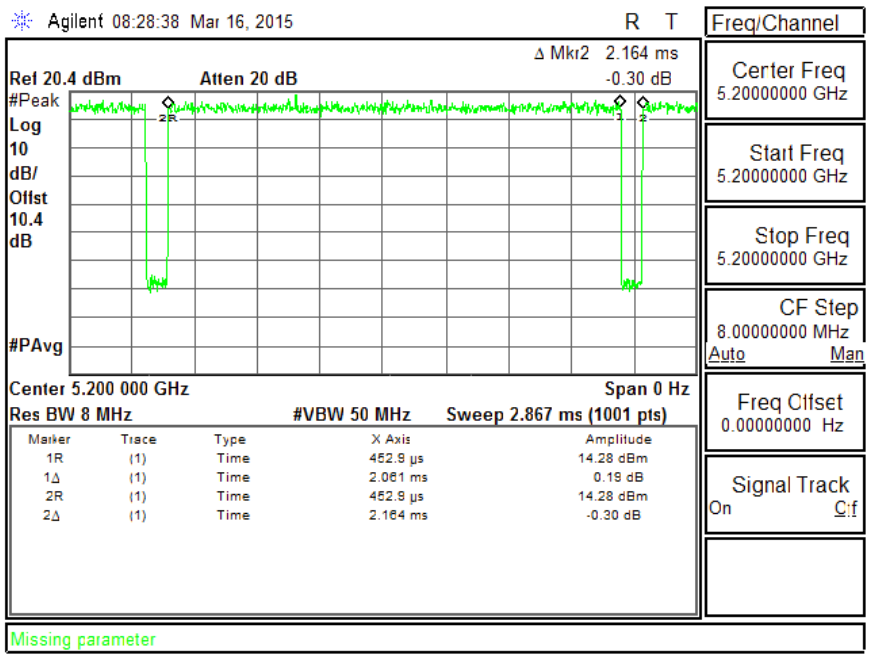
KDB 789033 Zero-Span Spectrum Analyzer Method.

9.1. ON TIME AND DUTY CYCLE RESULTS

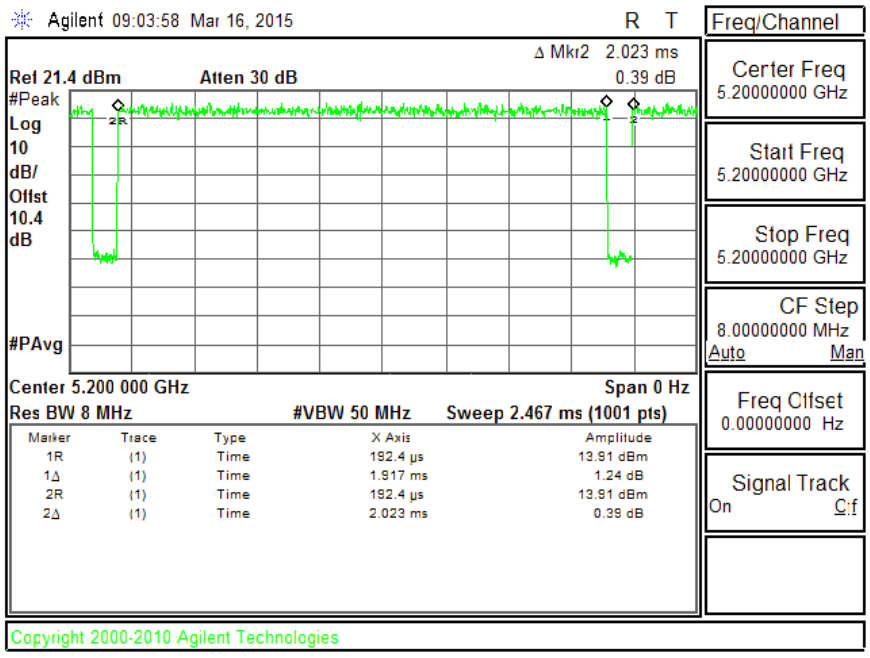
Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
802.11a	2.061	2.164	0.952	95.2%	0.21	0.485
802.11ac HT80	1.156	1.278	0.905	90.5%	0.44	0.865
802.11n HT20	1.917	2.023	0.948	94.8%	0.23	0.522
802.11n HT40	0.940	1.046	0.899	89.9%	0.46	1.064

9.2. DUTY CYCLE PLOTS

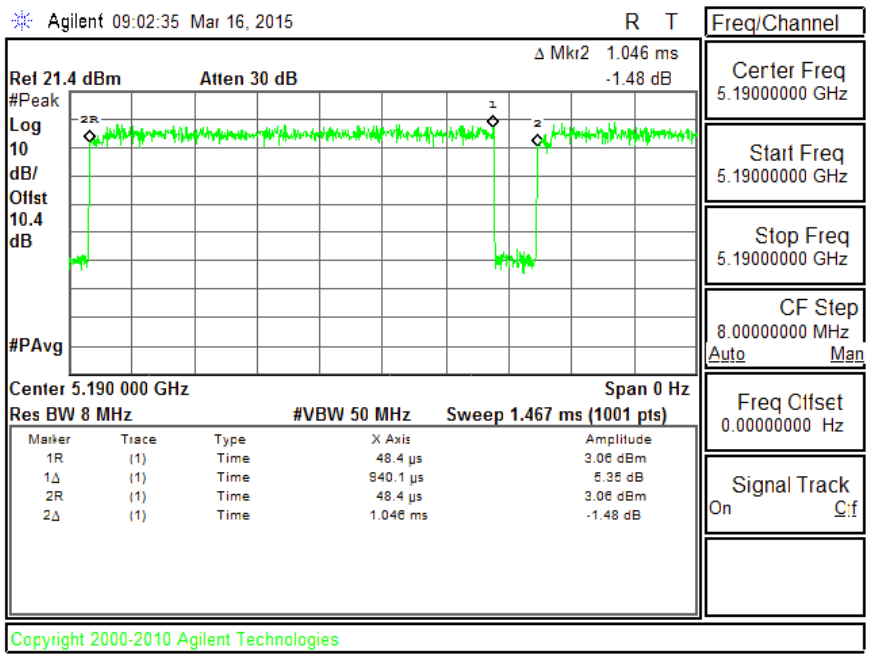
DUTY CYCLE 802.11a MODE



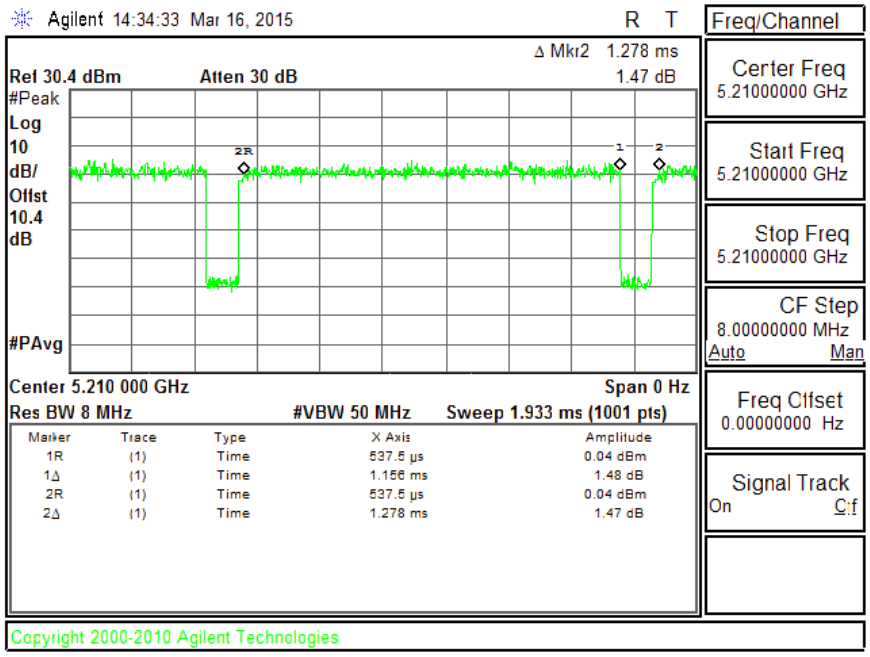
DUTY CYCLE 802.11n HT20 MODE



DUTY CYCLE 802.11n HT40 MODE



DUTY CYCLE 802.11ac HT80 MODE



10. MEASUREMENT METHOD

789033 D02 General UNII Test Procedures New Rules v01

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.

11. ANTENNA PORT TEST RESULTS

11.1. 6 dB BANDWIDTH

LIMITS

FCC §15.407

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

TEST PROCEDURE

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW set to100KHz, the VBW >= 3 x RBW, peak detector and max hold.

RESULTS

11.1.1. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.375	0.5
Mid	5785	16.375	0.5
High	5825	16.375	0.5
Worst		16.375	

11.1.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	17.650	0.5
Mid	5785	17.625	0.5
High	5825	17.600	0.5
Worst		17.650	

11.1.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	36.215	0.5
High	5795	36.305	0.5
Worst		36.305	

11.1.4. 802.11ac HT80 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5775	76.280	0.5
Worst		76.280	

11.1.5. 802.11a MODE THE CHANNEL 144

Channel	Frequency	6 dB Bandwidth CHAIN 0	Minimum Limit
	(MHz)	(MHz)	(MHz)
144	5720	3.19	0.5

Note: the 6dB minimum bandwidth for the portion falling in the UNII-3 band.

11.1.6. 802.11n HT20 MODE THE CHANNEL 144

Channel	Frequency	6 dB Bandwidth CHAIN 0	Minimum Limit
	(MHz)	(MHz)	(MHz)
144	5720	3.84	0.5

Note: the 6dB minimum bandwidth for the portion falling in the UNII-3 band.

11.1.7. 802.11n HT40 MODE THE CHANNEL 142

Channel	Frequency	6 dB Bandwidth CHAIN 0	Minimum Limit
	(MHz)	(MHz)	(MHz)
142	5710	3.23	0.5

Note: the 6dB minimum bandwidth for the portion falling in the UNII-3 band.

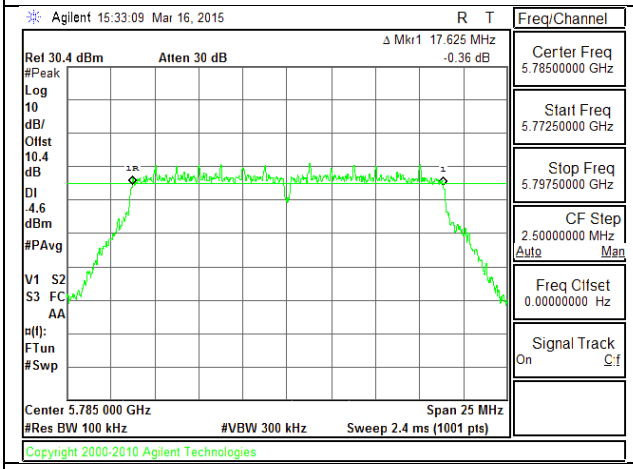
11.1.8. 802.11ac HT80 MODE IN THE 5.8 GHz BAND

Channel	Frequency	6 dB Bandwidth CHAIN 0	Minimum Limit
	(MHz)	(MHz)	(MHz)
138	5690	3.00	0.5

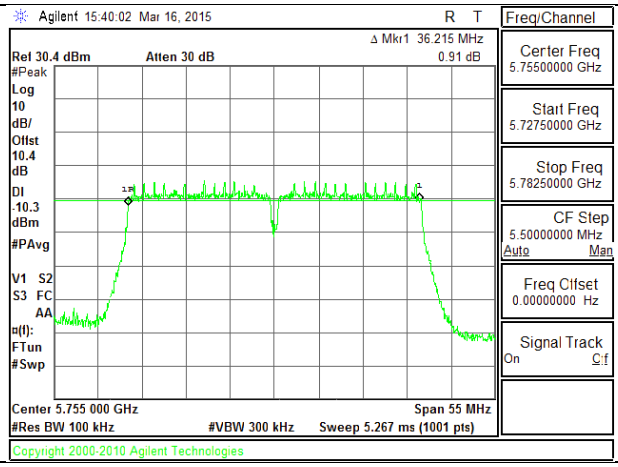
Note: the 6dB minimum bandwidth for the portion falling in the UNII-3 band.

11.1.9. 6 dB BANDWIDTH MID CH PLOTS

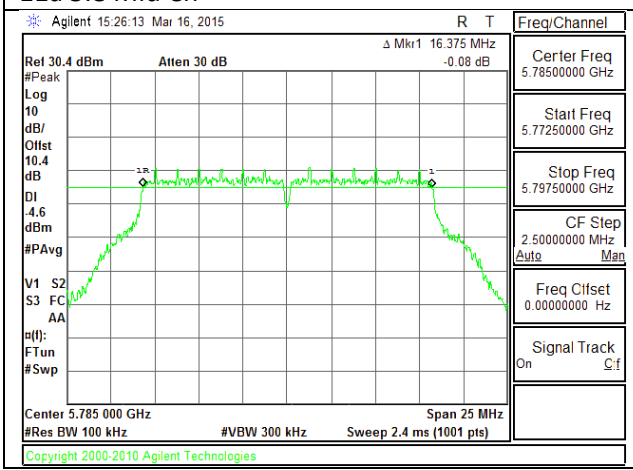
11n HT20 5.8 Mid Ch



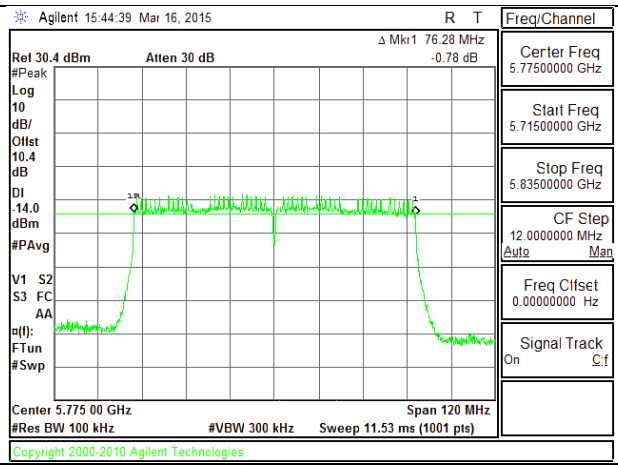
11n HT40 5.8 Low Ch



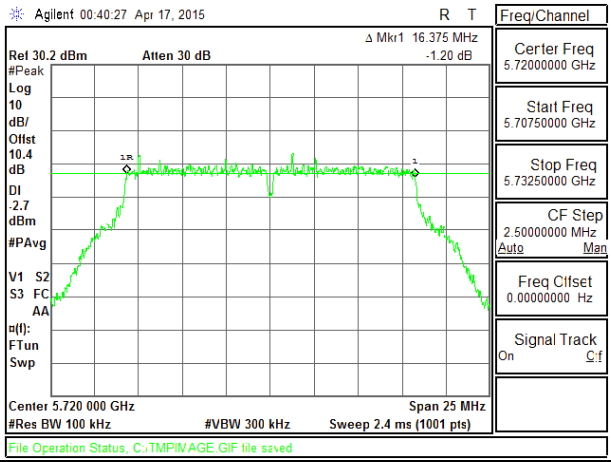
11a 5.8 Mid Ch



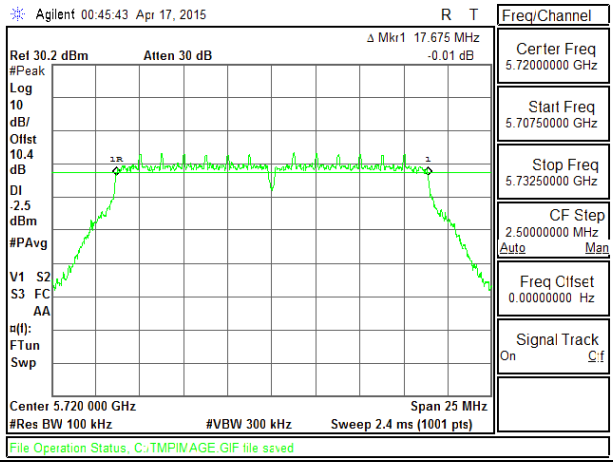
1ac HT80 5.8 Low Ch



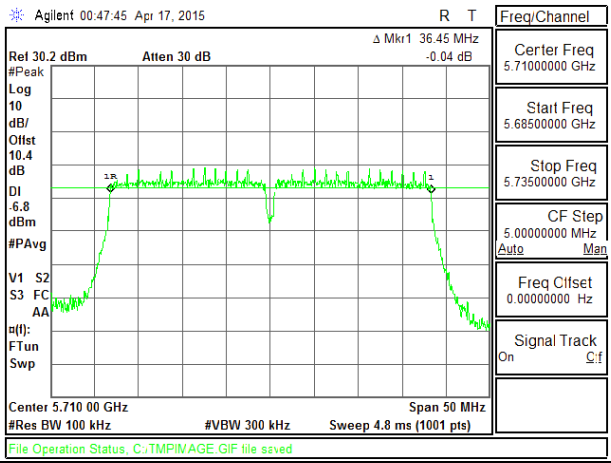
11a 6dB Bandwidth Channel 144.



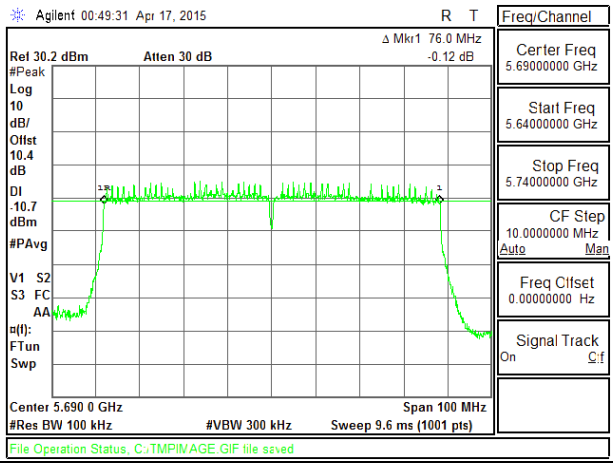
11n HT20 6dB Bandwidth Channel 144.



11n HT40 6dB Bandwidth Channel 142



11ac HT80 6dB Bandwidth Channel 138



11.2. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

11.2.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	21.79
Mid	5200	21.78
High	5240	21.85
Worst		21.85

11.2.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	22.06
Mid	5200	22.12
High	5240	21.97
Worst		22.12

11.2.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26dB Bandwidth (MHz)
Low	5190	39.55
Mid	5230	40.00
Worst		40.00

11.2.4. 802.11ac HT80 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5210	80.48

11.2.1. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	21.83
Mid	5300	21.79
High	5320	21.83
Worst		21.83

11.2.1. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	22.04
Mid	5300	22.00
High	5320	22.11
Worst		22.11

11.2.2. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5270	40.39
High	5310	40.22
Worst		40.39

11.2.3. 802.11ac HT80 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5290	81.20

11.2.4. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	21.86
Mid	5580	21.79
High	5700	21.79
144	5720	21.71
Worst		21.86

11.2.5. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	22.00
Mid	5580	22.11
High	5700	22.11
144	5720	21.97
Worst		22.11

11.2.6. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	39.61
Mid	5550	40.16
High	5670	40.44
142	5710	40.30
Worst		40.44

11.2.7. 802.11ac HT80 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5530	80.84
138	5690	82.01
Worst		82.01

11.2.8. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5745	21.83
Mid	5785	21.83
High	5825	21.86
Worst		21.86

11.2.9. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5745	22.07
Mid	5785	22.04
High	5825	22.00
Worst		22.07

11.2.10. 802.11n HT40 MODE IN THE 5.8 GHz BAND

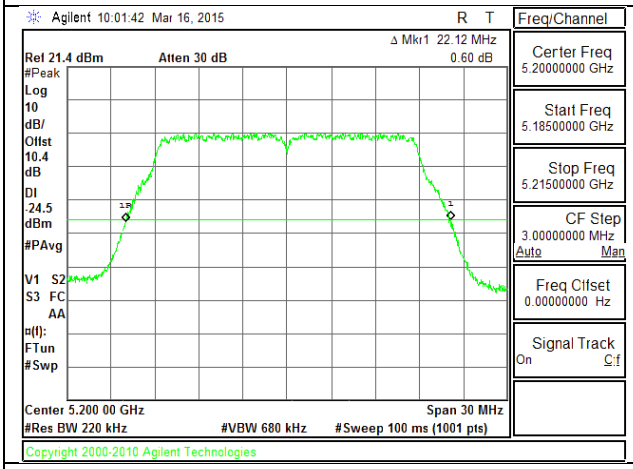
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5755	40.33
High	5795	40.33
Worst		40.33

11.2.11. 802.11ac HT80 MODE IN THE 5.8 GHz BAND

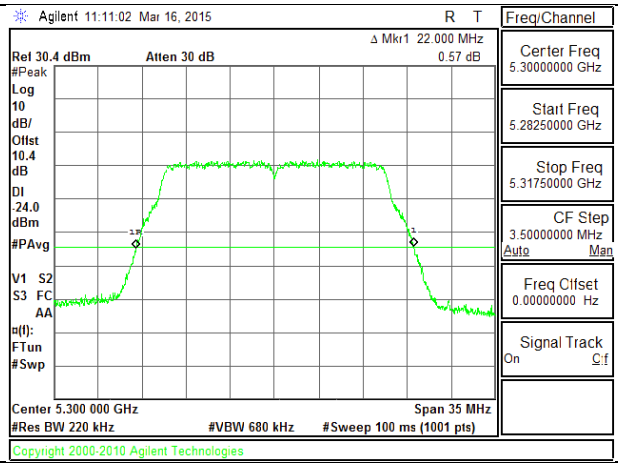
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5775	82.16

11.2.1. 26 dB BANDWIDTH PLOTS

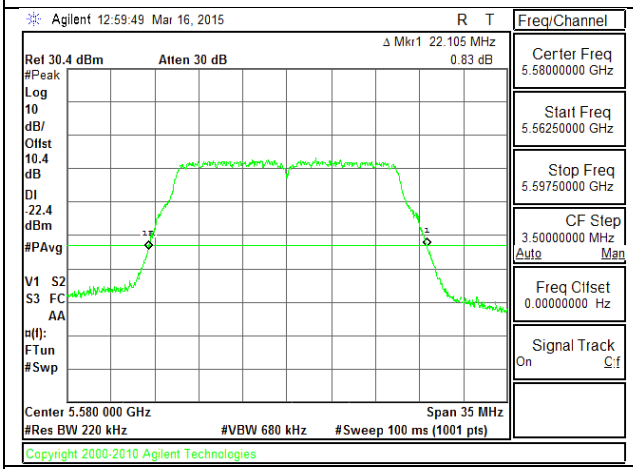
11n HT20 5.2 Mid Ch



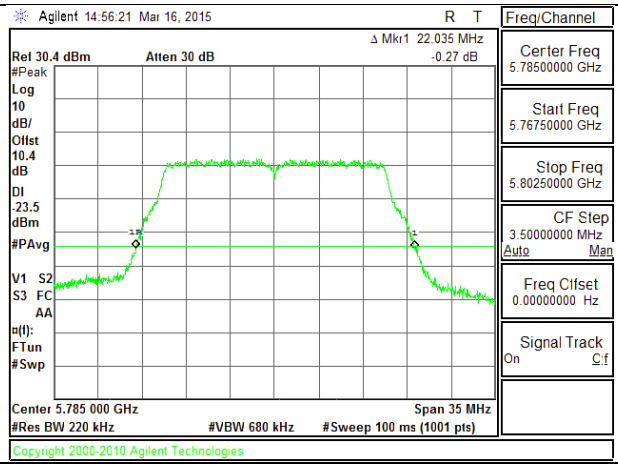
11n HT20 5.3 Mid Ch



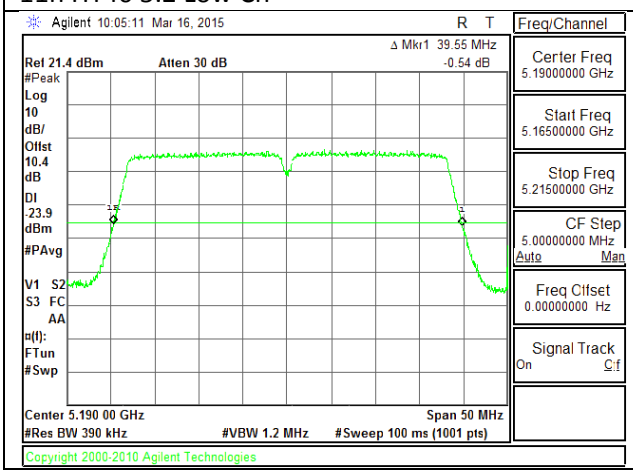
11n HT20 5.5 Mid Ch



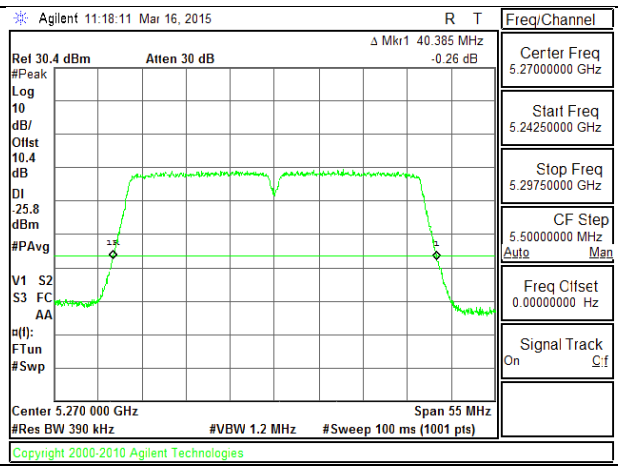
11n HT20 5.8 Mid Ch



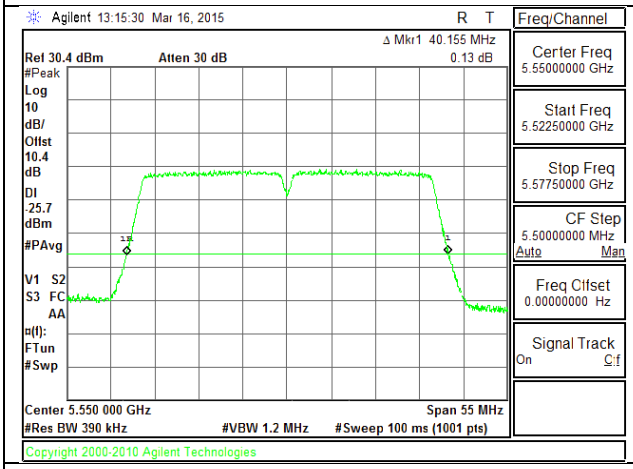
11n HT40 5.2 Low Ch



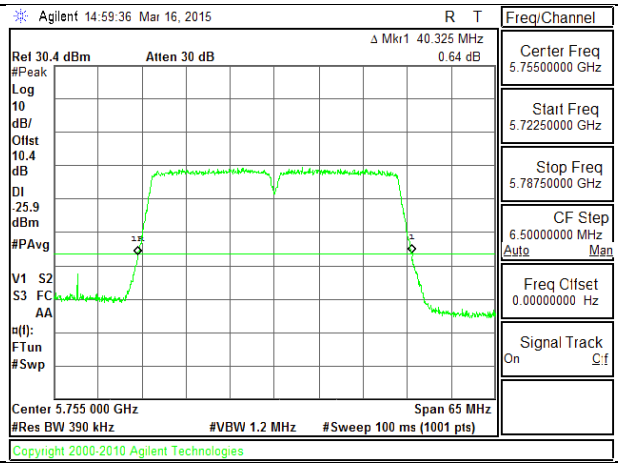
11n HT40 5.3 Low Ch



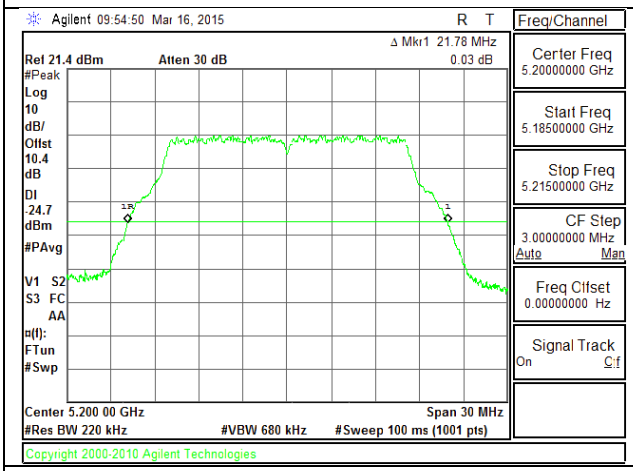
11n HT40 5.5 Mid Ch



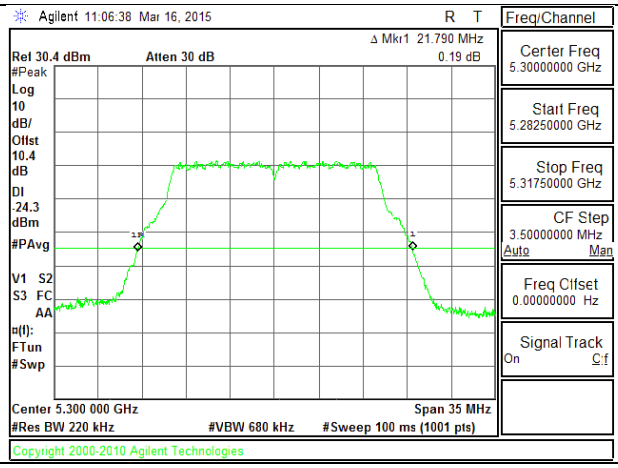
11n HT40 5.8 Low Ch



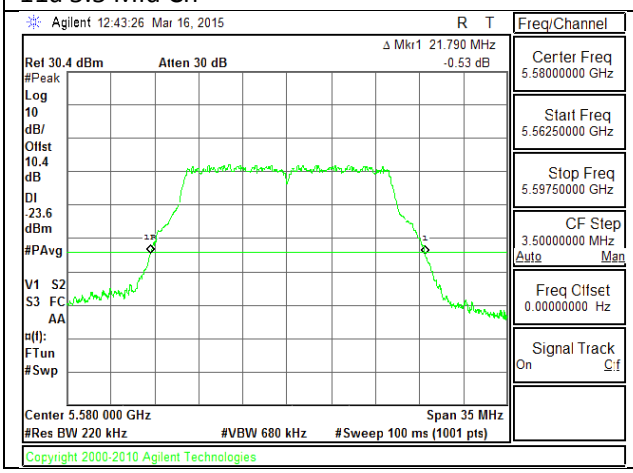
11a 5.2 Mid Ch



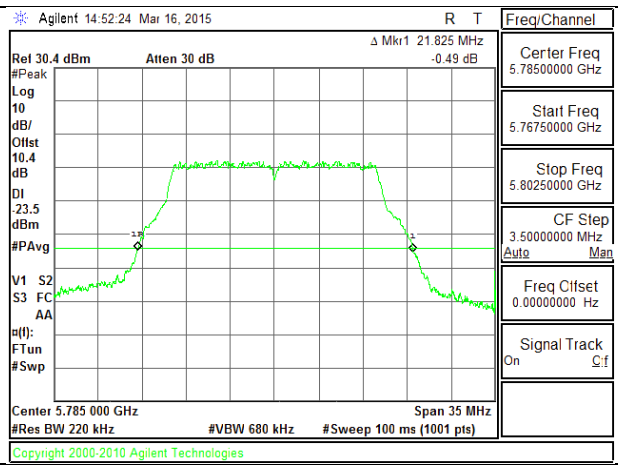
11a 5.3 Mid Ch



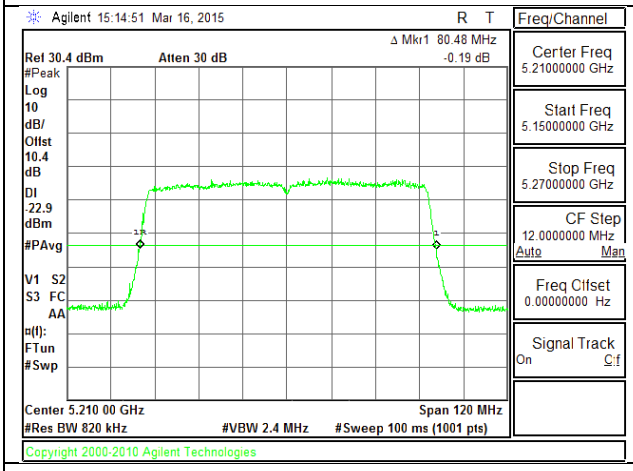
11a 5.5 Mid Ch



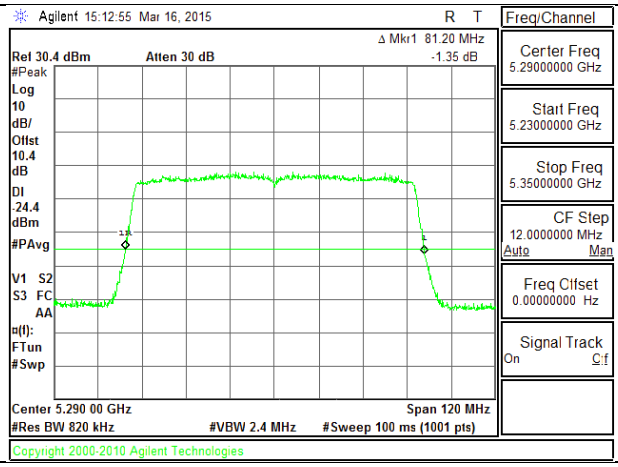
11a 5.8 Mid Ch



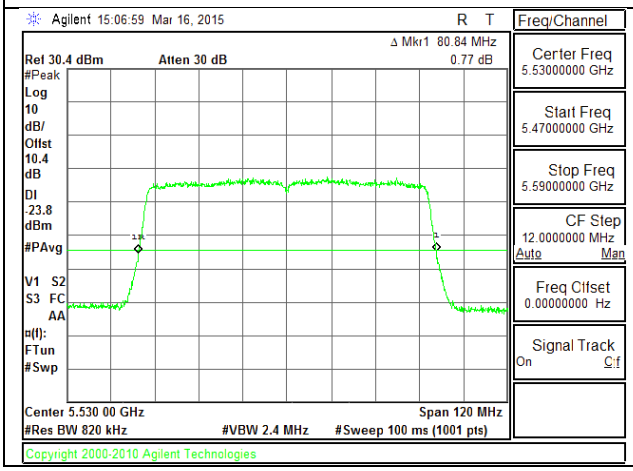
11ac HT80 5.2 Low Ch



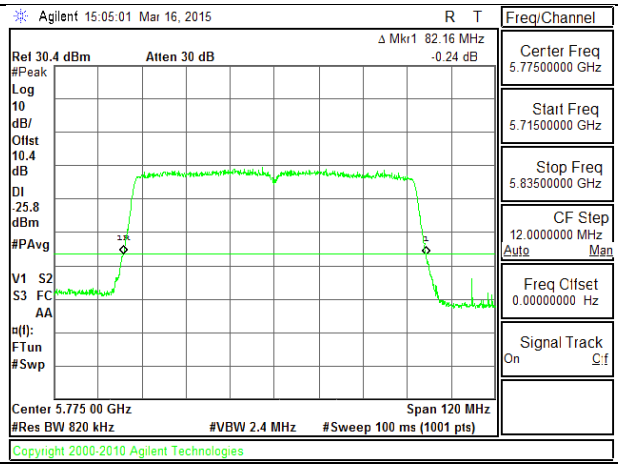
11ac HT80 5.3 Low Ch



11ac HT80 5.5 Low Ch

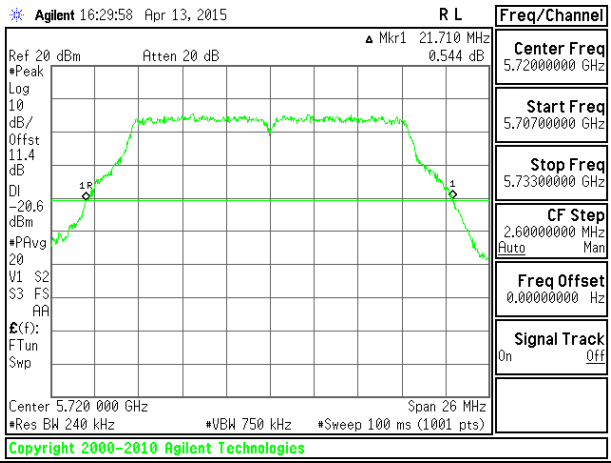


11ac HT80 5.8 Low Ch

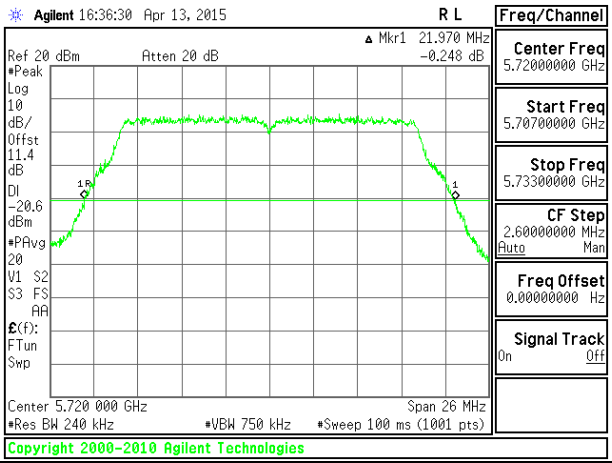


UNII Straddling Channels

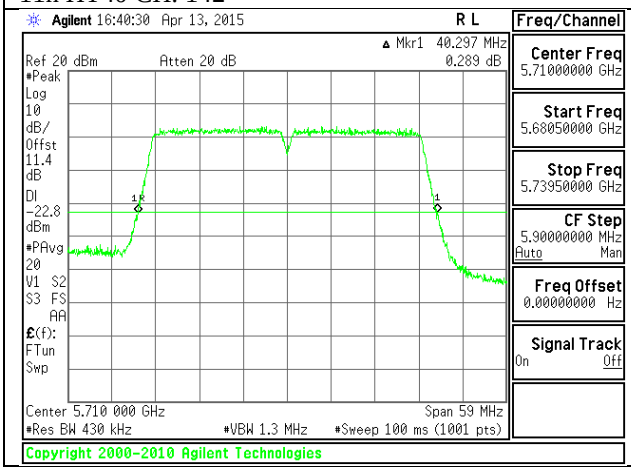
11a CH. 144



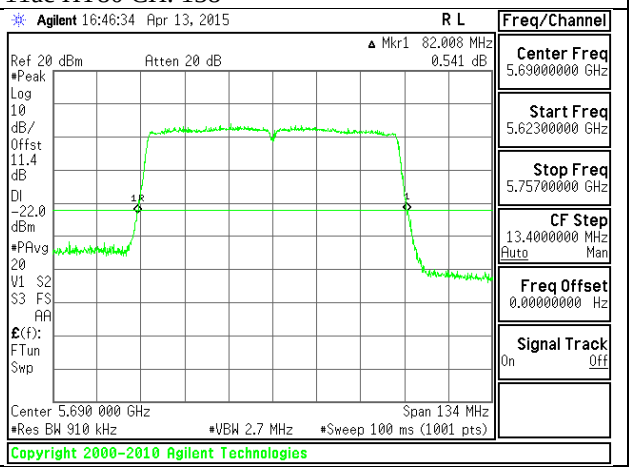
11n HT20 CH. 144



11n HT40 CH. 142



11ac HT80 CH. 138



11.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

11.3.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.39
Mid	5200	16.50
High	5240	16.42
Worst		16.50

11.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	17.62
Mid	5200	17.70
High	5240	17.63
Worst		17.70

11.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.04
Mid	5230	36.19
Worst		36.19

11.3.4. 802.11ac HT80 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5210	75.67

11.3.5. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	16.50
Mid	5300	16.42
High	5320	16.40
Worst		16.50

11.3.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.70
Mid	5300	17.62
High	5320	17.64
Worst		17.70

11.3.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	36.07
High	5310	36.23
Worst		36.23

11.3.8. 802.11ac HT80 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5290	75.61

11.3.9. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.51
Mid	5580	16.51
High	5700	16.46
144	5720	17.21
Worst		17.21

11.3.10. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.72
Mid	5580	17.59
High	5700	17.71
144	5720	18.32
Worst		18.32

11.3.11. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.17
Mid	5550	36.21
High	5670	36.22
142	5710	36.62
Worst		36.62

11.3.12. 802.11ac HT80 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5530	75.60
138	5690	75.79
Worst		75.79

11.3.13. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	16.52
Mid	5785	16.51
High	5825	16.42
Worst		16.52

11.3.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.65
Mid	5785	17.72
High	5825	17.69
Worst		17.72

11.3.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

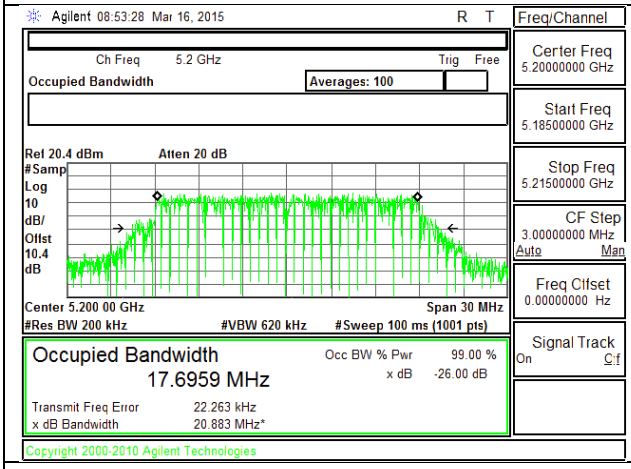
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	36.25
High	5795	36.20
Worst		36.25

11.3.16. 802.11ac HT80 MODE IN THE 5.8 GHz BAND

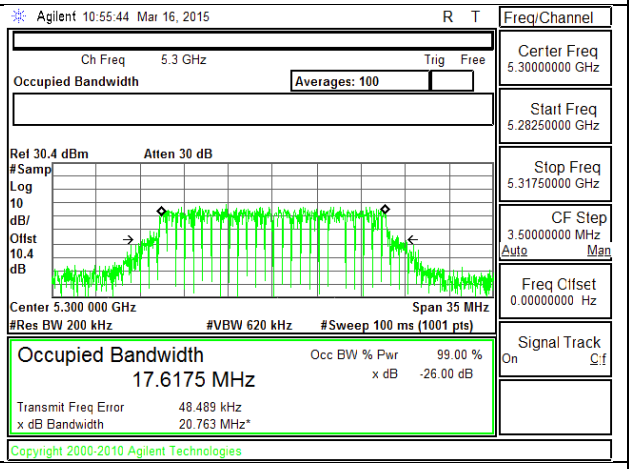
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5775	75.60

11.3.1. 99% BANDWIDTH PLOTS

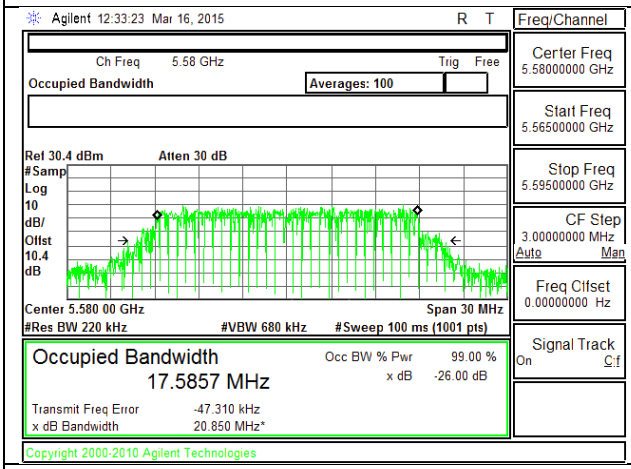
11n HT20 5.2 Mid Ch



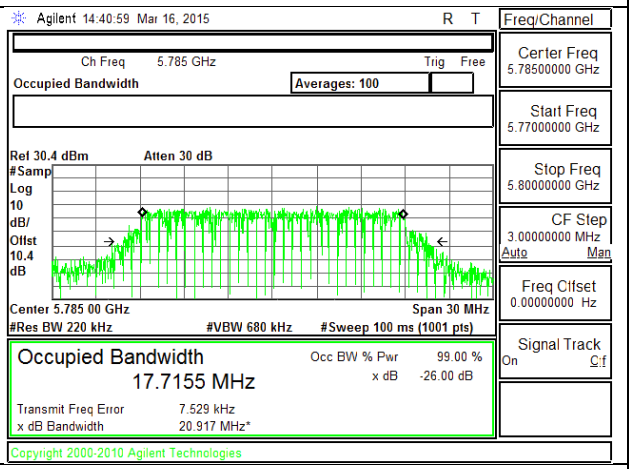
11n HT20 5.3 Mid Ch



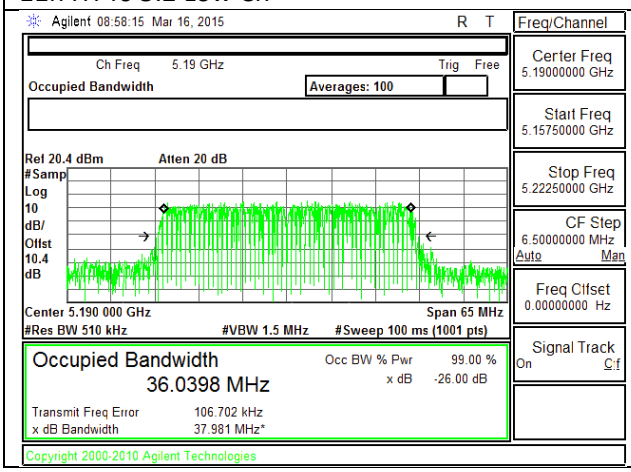
11n HT20 5.5 Mid Ch



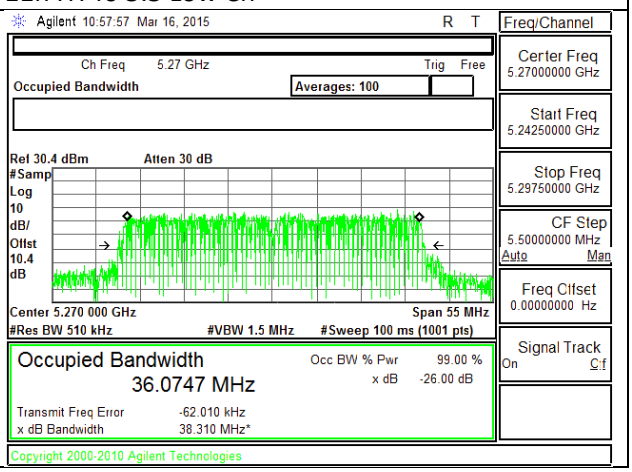
11n HT20 5.8 Mid Ch



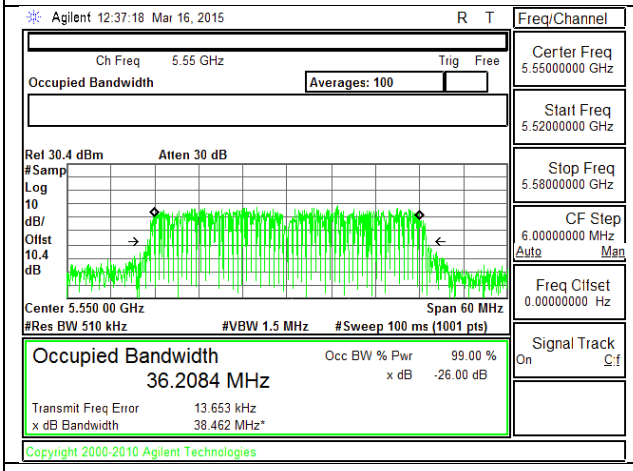
11n HT40 5.2 Low Ch



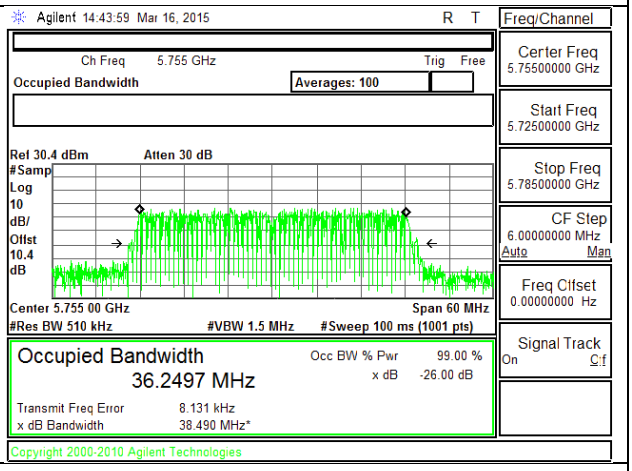
11n HT40 5.3 Low Ch



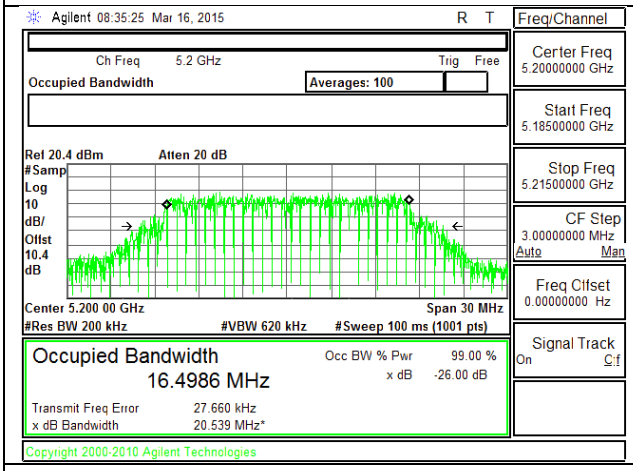
11n HT40 5.5 Mid Ch



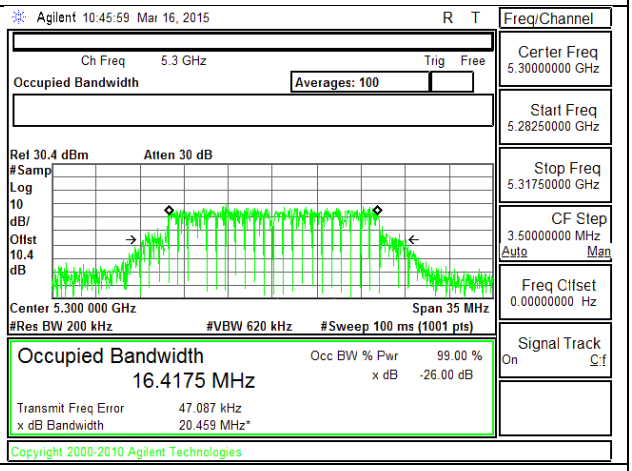
11n HT40 5.8 Low Ch



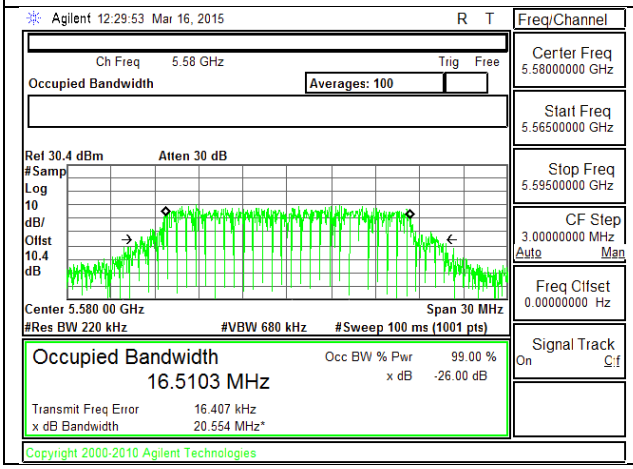
11a 5.2 Mid Ch



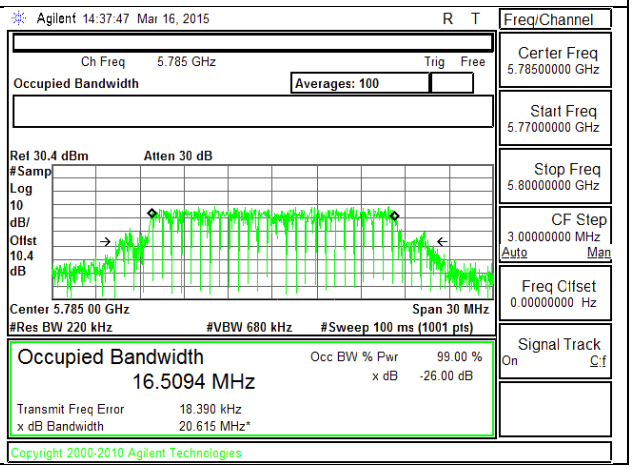
11a 5.3 Mid Ch



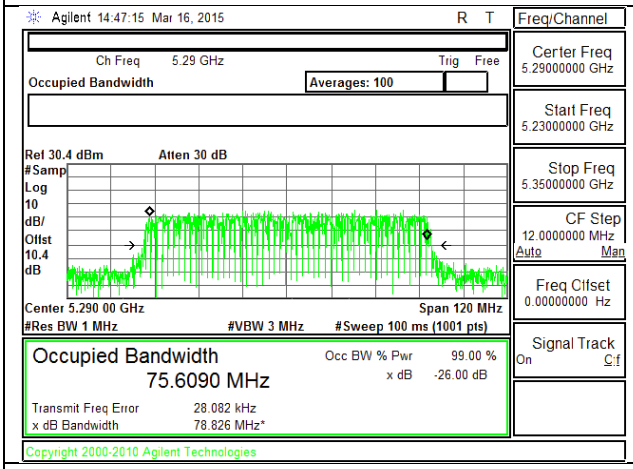
11a 5.5 Mid Ch



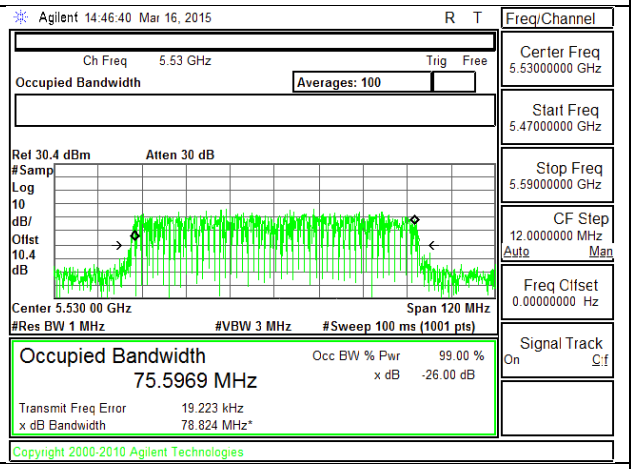
11a 5.8 Mid Ch



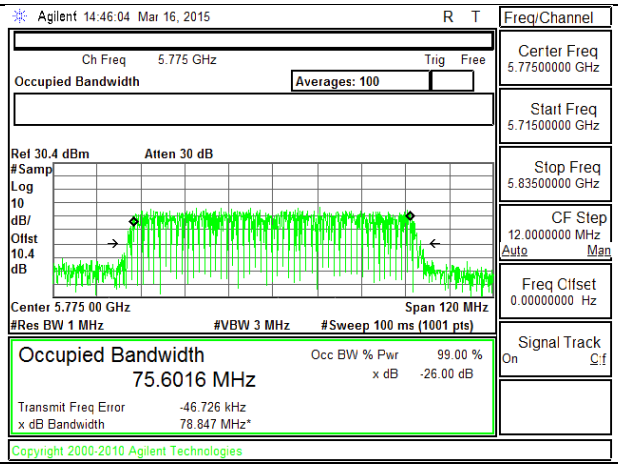
11ac HT80 5.3 Low Ch



11ac HT80 5.5 Low Ch

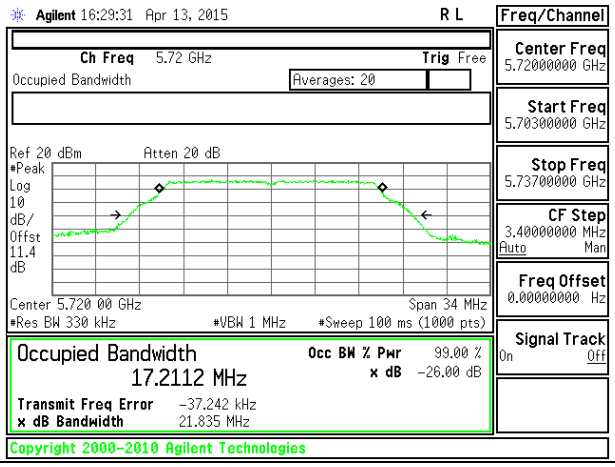


11ac HT80 5.8 Low Ch

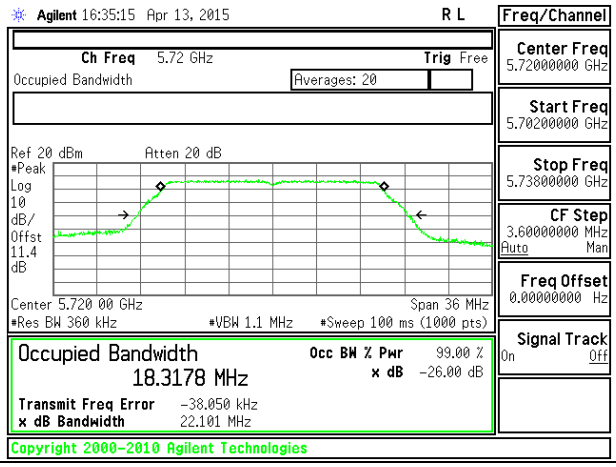


UNII Straddling Channels

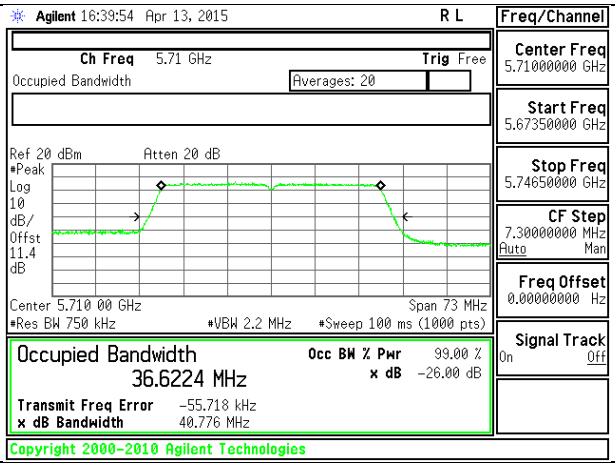
11a CH. 144



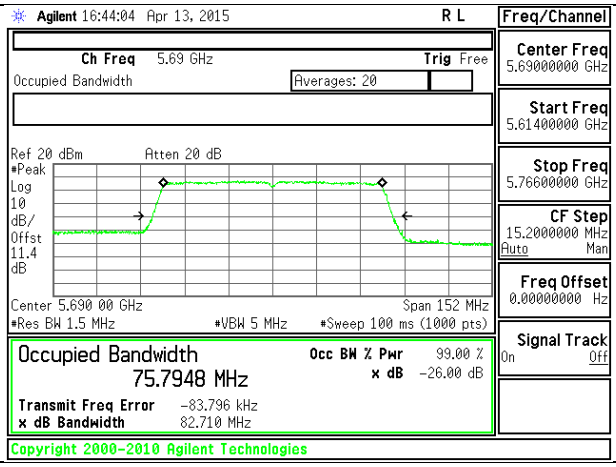
11n HT20 CH. 144



11n HT40 CH. 142



11ac HT80 CH. 138



11.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1) (2) (3)

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

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

11.4.1. 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	21.79	16.39	-2.54
Mid	5200	21.78	16.50	-2.54
High	5240	21.85	16.42	-2.54

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	24.00	22.15	24.69	24.00	11.00	10.00	10.00
Mid	5200	24.00	22.17	24.71	24.00	11.00	10.00	10.00
High	5240	24.00	22.15	24.69	24.00	11.00	10.00	10.00

Duty Cycle CF (dB)	0.21	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	13.164	13.37	24.00	-10.63
Mid	5200	12.881	13.09	24.00	-10.91
High	5240	13.157	13.37	24.00	-10.63

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	1.880	2.09	11.00	-8.91
Mid	5200	1.520	1.73	11.00	-9.27
High	5240	1.750	1.96	11.00	-9.04

11.4.2. 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	22.06	17.62	-2.54
Mid	5200	22.12	17.70	-2.54
High	5240	21.97	17.63	-2.54

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	24.00	22.46	25.00	24.00	11.00	10.00	10.00
Mid	5200	24.00	22.48	25.02	24.00	11.00	10.00	10.00
High	5240	24.00	22.46	25.00	24.00	11.00	10.00	10.00

Duty Cycle CF (dB)	0.23	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	11.829	12.06	24.00	-11.94
Mid	5200	12.737	12.97	24.00	-11.03
High	5240	12.815	13.05	24.00	-10.96

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	0.220	0.45	11.00	-10.55
Mid	5200	1.120	1.35	11.00	-9.65
High	5240	1.260	1.49	11.00	-9.51

11.4.3. 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	39.55	36.04	-2.54
Mid	5230	40.00	36.19	-2.54

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	24.00	23.00	23.00	23.00	11.00	10.00	10.00
Mid	5230	24.00	23.00	25.54	24.00	11.00	10.00	10.00
Duty Cycle CF (dB)		0.46	Included in Calculations of Corr'd Power & PPSD					

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	10.264	10.72	23.00	-12.28
Mid	5230	11.353	11.81	24.00	-12.19

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-3.940	-3.48	11.00	-14.48
Mid	5230	-3.120	-2.66	11.00	-13.66

11.4.4. 802.11ac HT80 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	5210	80.48	75.67	-2.54

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	5210	24.00	23.00	25.54	24.00	11.00	10.00	11.00
Duty Cycle CF (dB)		0.44	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	5210	11.513	11.95	24.00	-12.05

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5210	-6.120	-5.68	11.00	-16.68

11.4.5. 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	21.83	16.50	-2.54
Mid	5300	21.79	16.42	-2.54
High	5320	21.83	16.40	-2.54

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	23.17	29.17	23.17	11.00	11.00	11.00
Mid	5300	24.00	23.15	29.15	23.15	11.00	11.00	11.00
High	5320	24.00	23.15	29.15	23.15	11.00	11.00	11.00

Duty Cycle CF (dB)	0.21	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	14.021	14.23	23.17	-8.94
Mid	5300	14.202	14.41	23.15	-8.74
High	5320	13.999	14.21	23.15	-8.94

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	2.820	3.03	11.00	-7.97
Mid	5300	2.820	3.03	11.00	-7.97
High	5320	2.560	2.77	11.00	-8.23

11.4.6. 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	22.04	17.70	-2.54
Mid	5300	22.00	17.62	-2.54
High	5320	22.11	17.64	-2.54

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.48	29.48	23.48	11.00	11.00	11.00
Mid	5300	24.00	23.46	29.46	23.46	11.00	11.00	11.00
High	5320	24.00	23.47	29.47	23.47	11.00	11.00	11.00

Duty Cycle CF (dB)	0.23	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	14.001	14.23	23.48	-9.25
Mid	5300	14.050	14.28	23.46	-9.18
High	5320	13.827	14.06	23.47	-9.41

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	2.370	2.60	11.00	-8.40
Mid	5300	2.630	2.86	11.00	-8.14
High	5320	2.240	2.47	11.00	-8.53

11.4.7. 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	40.39	36.07	-2.54
High	5310	40.22	36.23	-2.54

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)	0.46	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	11.73	12.19	24.00	-11.81
High	5310	11.84	12.30	24.00	-11.70

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	-2.80	-2.34	11.00	-13.34
High	5310	-2.71	-2.25	11.00	-13.25

11.4.8. 802.11ac HT80 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	5290	81.2	75.6	-2.54

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	5290	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.44	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	5290	12.94	13.38	24.00	-10.62

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5290	-4.59	-4.15	11.00	-15.15

11.4.9. 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	21.86	16.51	-2.54
Mid	5580	21.79	16.51	-2.54
High	5700	21.79	16.46	-2.54

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	23.18	29.18	23.18	11.00	11.00	11.00
Mid	5580	24.00	23.18	29.18	23.18	11.00	11.00	11.00
High	5700	24.00	23.16	29.16	23.16	11.00	11.00	11.00

Duty Cycle CF (dB)	0.21	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	13.186	13.40	23.18	-9.78
Mid	5580	13.433	13.64	23.18	-9.53
High	5700	13.942	14.15	23.16	-9.01

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	1.890	2.10	11.00	-8.90
Mid	5580	2.200	2.41	11.00	-8.59
High	5700	2.580	2.79	11.00	-8.21

11.4.10. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	22.00	17.72	-2.54
Mid	5580	22.11	17.59	-2.54
High	5700	22.11	17.71	-2.54

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.48	29.48	23.48	11.00	11.00	11.00
Mid	5580	24.00	23.45	29.45	23.45	11.00	11.00	11.00
High	5700	24.00	23.48	29.48	23.48	11.00	11.00	11.00

Duty Cycle CF (dB)	0.23	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	12.060	12.29	23.48	-11.19
Mid	5580	13.542	13.77	23.45	-9.68
High	5700	13.921	14.15	23.48	-9.33

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	0.370	0.60	11.00	-10.40
Mid	5580	1.900	2.13	11.00	-8.87
High	5700	2.230	2.46	11.00	-8.54

11.4.11. 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	39.61	36.17	-2.54
Mid	5550	40.16	36.21	-2.54
High	5670	40.44	36.22	-2.54

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)	0.46	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	10.747	11.21	24.00	-12.79
Mid	5550	12.055	12.52	24.00	-11.49
High	5670	12.761	13.22	24.00	-10.78

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	-3.930	-3.47	11.00	-14.47
Mid	5550	-2.560	-2.10	11.00	-13.10
High	5670	-1.800	-1.34	11.00	-12.34

11.4.12. 802.11ac HT80 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	5530	80.84	75.60	-2.54

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	5530	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.44	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	5530	11.882	12.32	24.00	-11.68

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5530	-5.840	-5.40	11.00	-16.40

11.4.1. 802.11a MODE STRADDLE CHANNEL 144

UNII-2C BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
144	5720	15.86	13.61	-2.54

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)
144	5720	23.00	22.34	28.34	22.34	11.00	11.00	11.00

Duty Cycle CF (dB)	0.21	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)
144	5720	13.970	14.18	22.34	-8.16

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
144	5720	3.328	3.54	11.00	-7.46

UNII-3 BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
144	5720	5.85	3.61	-2.54

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)
144	5720	18.67	16.57	22.57	16.57	11.00	11.00	11.00

Duty Cycle CF (dB)	0.21	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)
144	5720	7.710	7.92	16.57	-8.65

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
144	5720	0.250	0.46	11.00	-10.54

AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

Results

Frequency	Power, Chain 0 (dBm)	Output Power (mW)
5.6 GHz band, 2TX (Channels overlapping UNII-2 and UNII-3 bands)		
5720 (UNII-2 portion)	13.97	24.95
5720 (UNII-3 portion)	7.71	5.90
5720 (Whole signal)	14.89	30.85

11.4.2. 802.11n HT20 MODE STRADDLE CHANNEL 144

UNII-2C BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
144	5720	15.99	14.16	-2.54

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)
144	5720	23.04	22.51	28.51	22.51	11.00	11.00	11.00

Duty Cycle CF (dB)	0.23	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)
144	5720	13.610	13.84	22.51	-8.67

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
144	5720	2.780	3.01	11.00	-7.99

UNII-3 BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
144	5720	5.99	4.16	-2.54

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)
144	5720	18.77	17.19	23.19	17.19	11.00	11.00	11.00

Duty Cycle CF (dB)	0.23	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)
144	5720	7.920	8.15	17.19	-9.04

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
144	5720	-0.300	-0.07	11.00	-11.07

AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

Results

Frequency	Power, Chain 0 (dBm)	Output Power (mW)
5.6 GHz band, 2TX (Channels overlapping UNII-2 and UNII-3 bands)		
5720 (UNII-2 portion)	13.61	22.96
5720 (UNII-3 portion)	7.92	6.19
5720 (Whole signal)	14.65	29.16

11.4.3. 802.11n HT40 MODE STRADDLE CHANNEL 142

UNII-2C BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
142	5710	35.15	33.31	-2.54

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)
142	5710	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.46	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)
142	5710	12.380	12.84	24.00	-11.16

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
142	5710	-1.880	-1.42	11.00	-12.42

UNII-3 BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
142	5710	5.15	3.31	-2.54

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)
142	5710	18.12	16.20	22.20	16.20	11.00	11.00	11.00

Duty Cycle CF (dB)	0.46	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)
142	5710	1.890	2.35	16.20	-13.85

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
142	5710	-5.490	-5.03	11.00	-16.03

AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

Results

Frequency	Power, Chain 0 (dBm)	Output Power (mW)
5.6 GHz band, 2TX (Channels overlapping UNII-2 and UNII-3 bands)		
5710 (UNII-2 portion)	12.38	17.30
5710 (UNII-3 portion)	1.89	1.55
5710 (Whole signal)	12.75	18.84

11.4.4. 802.11ac HT80 MODE STRADDLE CHANNEL 138

UNII-2C BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
138	5690	76.00	72.90	-2.54

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)
138	5690	24.00	24.00	30.00	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.44	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)
138	5690	12.340	12.78	24.00	-11.22

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
138	5690	-5.150	-4.71	11.00	-15.71

UNII-3 BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
138	5690	6.00	2.90	-2.54

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)
138	5690	18.78	15.62	21.62	15.62	11.00	11.00	11.00

Duty Cycle CF (dB)	0.44	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)
138	5690	-2.196	-1.76	15.62	-17.38

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
138	5690	-9.590	-9.15	11.00	-20.15

AVERAGE OUTPUT POWER (WHOLE FUNDAMENTAL)

Results

Frequency	Power, Chain 0 (dBm)	Output Power (mW)
5.6 GHz band, 2TX (Channels overlapping UNII-2 and UNII-3 bands)		
5690 (UNII-2 portion)	12.34	17.14
5690 (UNII-3 portion)	-2.20	0.60
5690 (Whole signal)	12.49	17.74

11.4.5. 802.11a MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5745	21.83	16.52	-2.54
Mid	5785	21.83	16.51	-2.54
High	5825	21.86	16.42	-2.54

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5745	30.00	29.18	35.18	29.18	30.00	17.00	17.00
Mid	5785	30.00	29.18	35.18	29.18	30.00	17.00	17.00
High	5825	30.00	29.15	35.15	29.15	30.00	17.00	17.00

Duty Cycle CF (dB)	0.21	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	14.03	14.24	29.18	-14.95
Mid	5785	13.88	14.09	29.18	-15.09
High	5825	13.77	13.98	29.15	-15.18

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5745	2.78	2.99	17.00	-14.01
Mid	5785	2.70	2.91	17.00	-14.09
High	5825	2.34	2.55	17.00	-14.45

11.4.6. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5745	22.07	17.65	-2.54
Mid	5785	22.04	17.72	-2.54
High	5825	22.00	17.69	-2.54

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5745	30.00	29.47	35.47	29.47	30.00	17.00	17.00
Mid	5785	30.00	29.48	35.48	29.48	30.00	17.00	17.00
High	5825	30.00	29.48	35.48	29.48	30.00	17.00	17.00

Duty Cycle CF (dB)	0.23	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	13.94	14.17	29.47	-15.29
Mid	5785	13.79	14.02	29.48	-15.47
High	5825	13.65	13.88	29.48	-15.59

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5745	2.33	2.56	17.00	-14.44
Mid	5785	2.40	2.63	17.00	-14.37
High	5825	1.93	2.16	17.00	-14.84

11.4.7. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5755	40.33	36.25	-2.54
High	5795	40.33	36.20	-2.54

Limits

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

Duty Cycle CF (dB)	0.46	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	12.44	12.90	30.00	-17.10
High	5795	12.40	12.86	30.00	-17.14

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5755	-2.39	-1.93	17.00	-18.93
High	5795	-2.17	-1.71	17.00	-18.71

11.4.8. 802.11ac HT80 MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5775	82.2	75.6	-2.54

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	5775	30.00	30.00	36.00	30.00	30.00	17.00	17.00

Duty Cycle CF (dB)	0.44	Included in Calculations of Corr'd Power & PPSD

Output Power Results

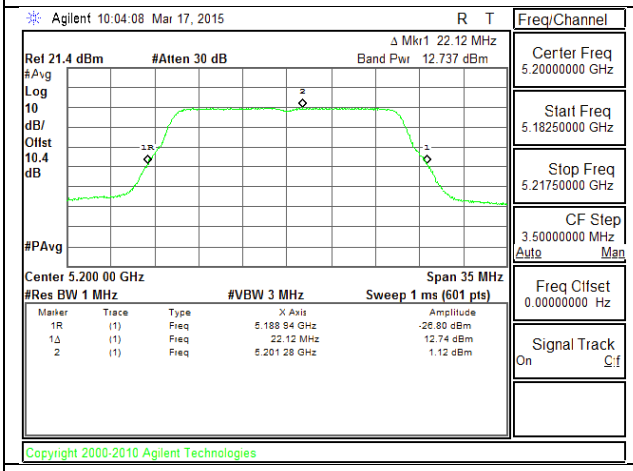
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5775	12.13	12.57	30.00	-17.43

PPSD Results

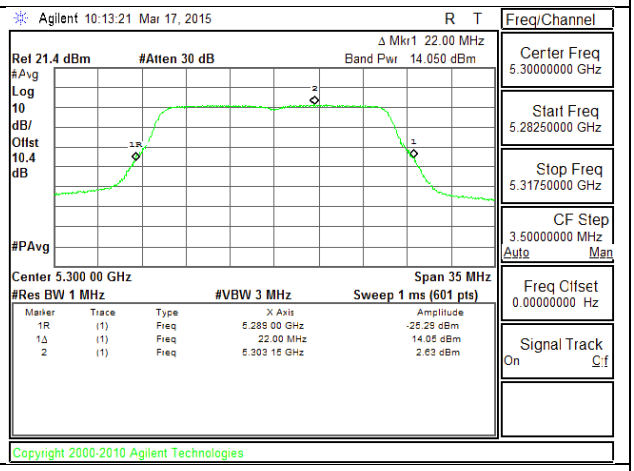
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5775	-5.46	-5.02	17.00	-22.02

11.4.1. OUTPUT POWER AND PPSD PLOTS, Chain 0

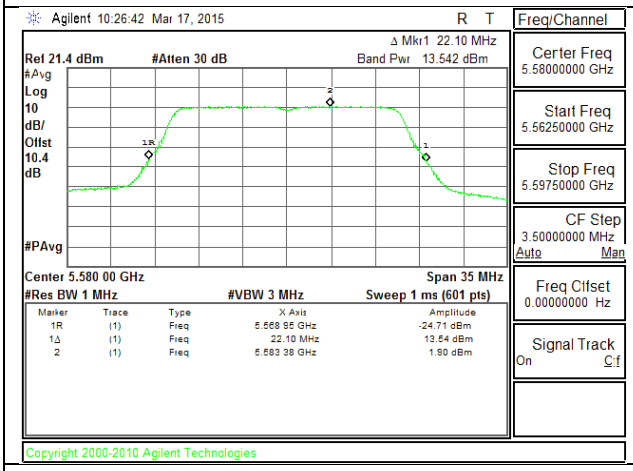
11n HT20 5.2 Mid Ch



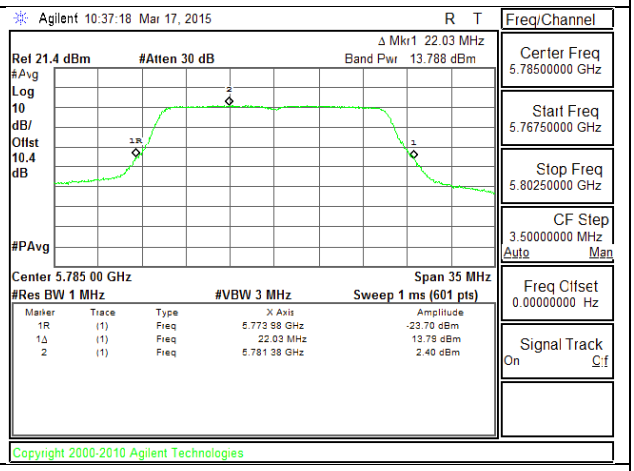
11n HT20 5.3 Mid Ch



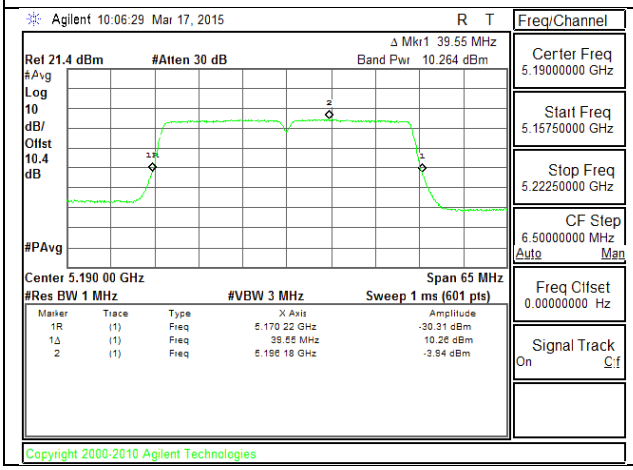
11n HT20 5.5 Mid Ch



11n HT20 5.8 Mid Ch



11n HT40 5.2 Low Ch



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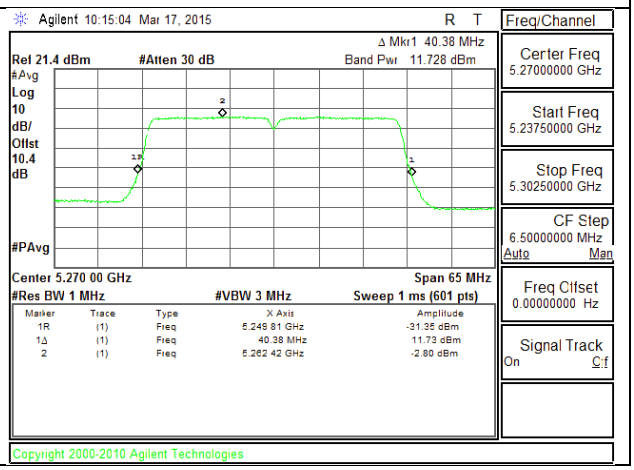

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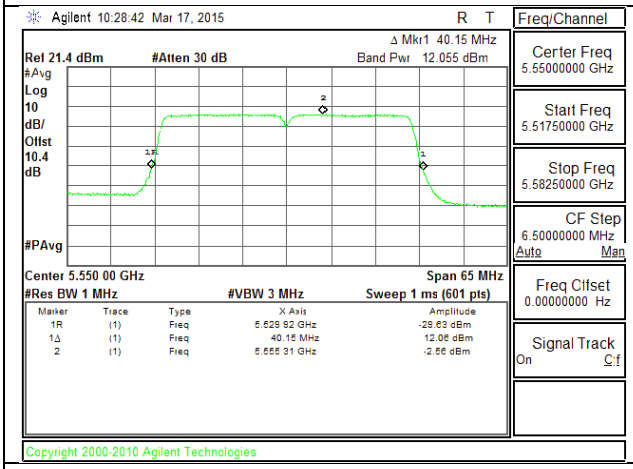
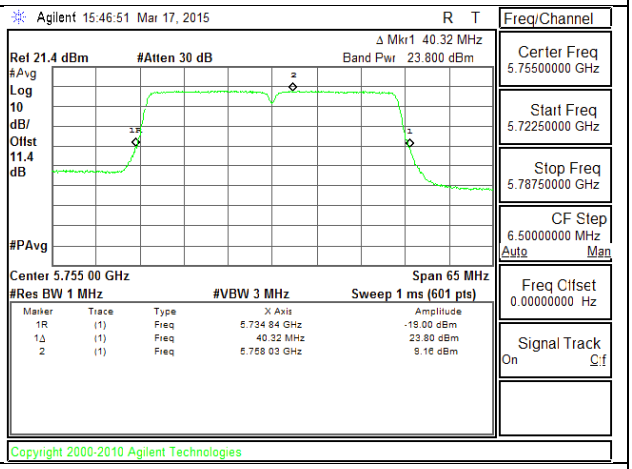
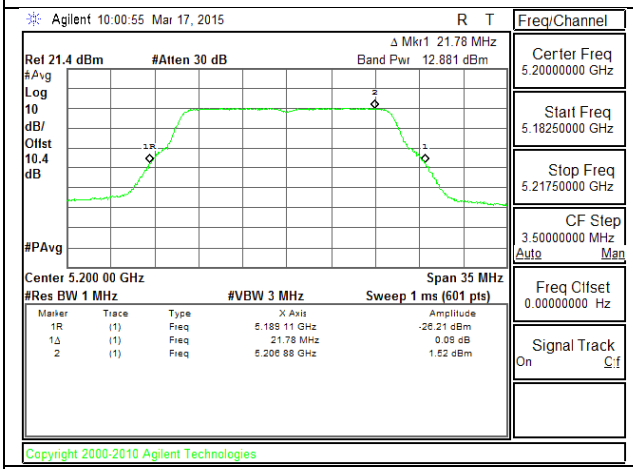


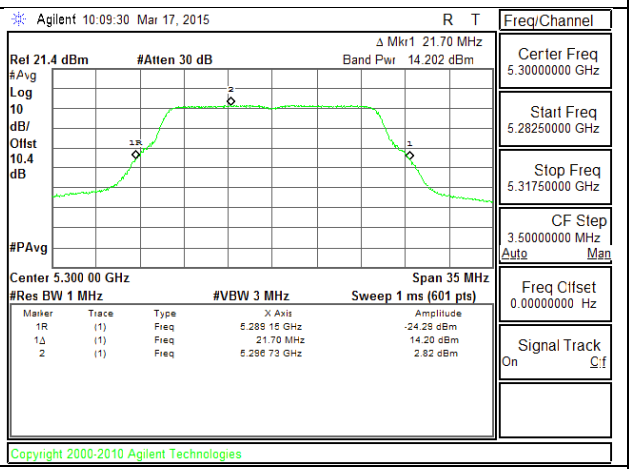
11n HT40 5.8 Low Ch



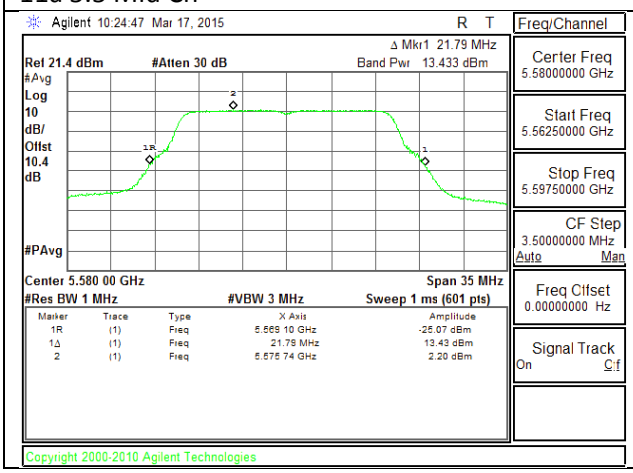
11a 5.2 Mid Ch



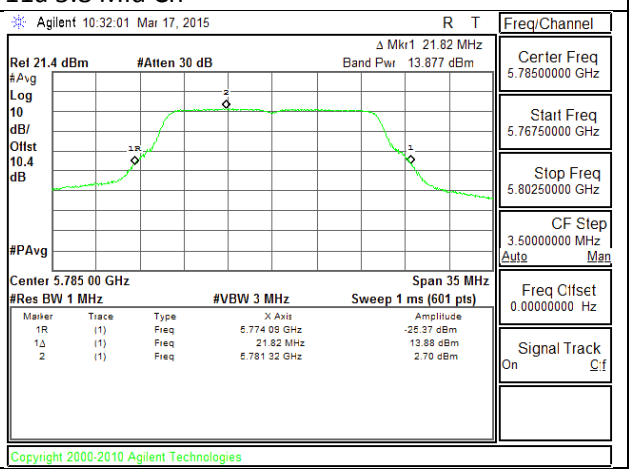
11a 5.3 Mid Ch



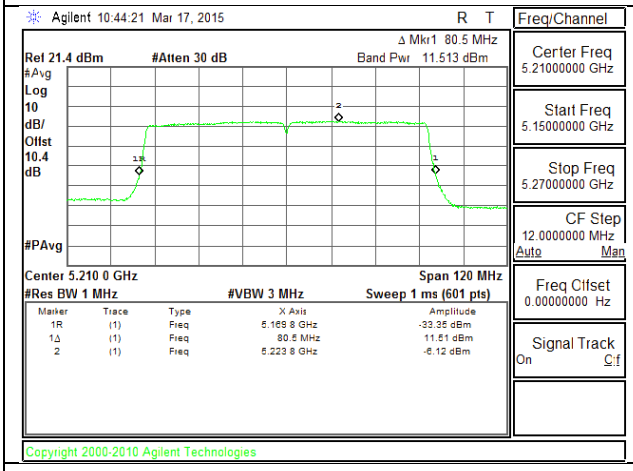
11a 5.5 Mid Ch



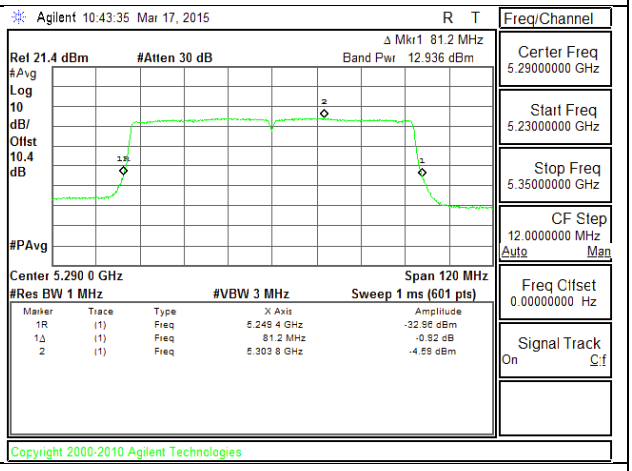
11a 5.8 Mid Ch



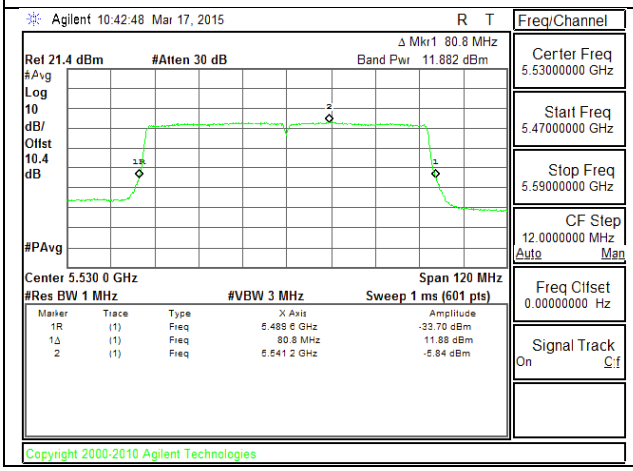
11ac HT80 5.2 Low Ch



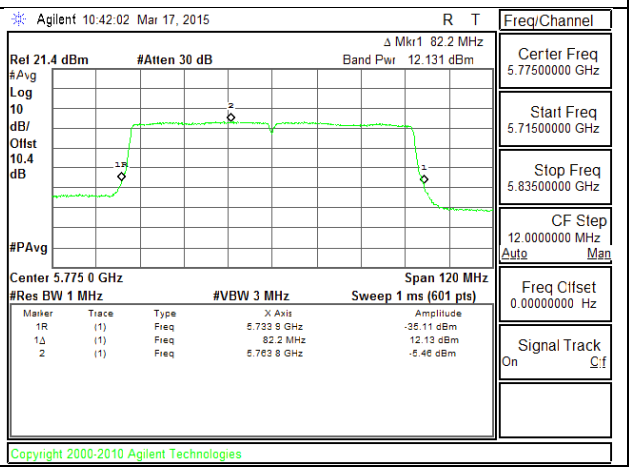
11ac HT80 5.3 Low Ch



11ac HT80 5.5 Low Ch



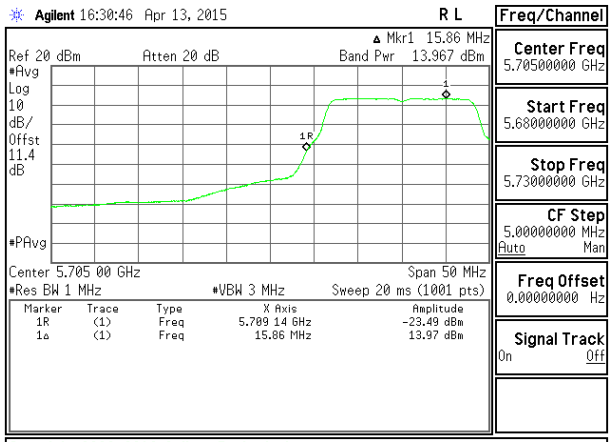
11ac HT80 5.8 Low Ch



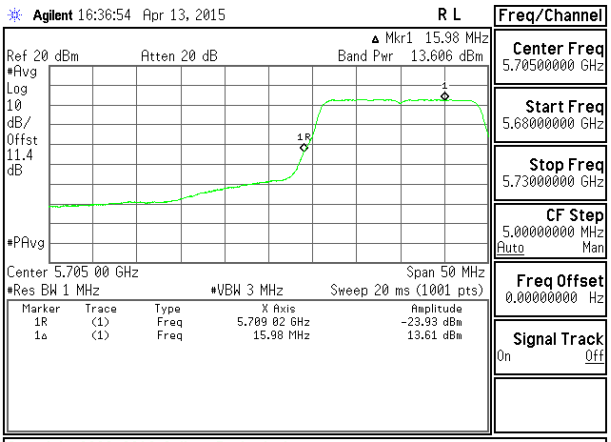
UNII Straddling Channels

UNII-2C BAND

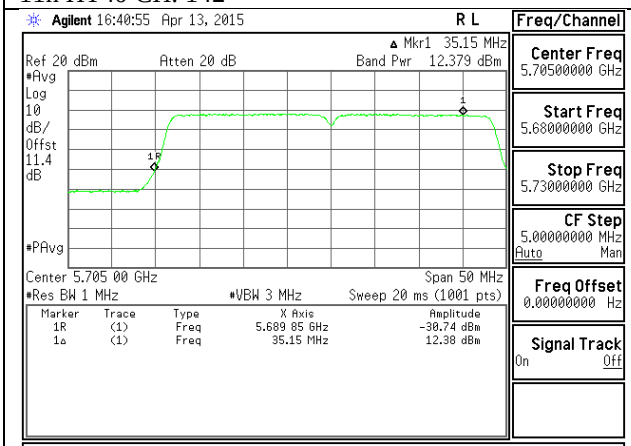
11a CH. 144



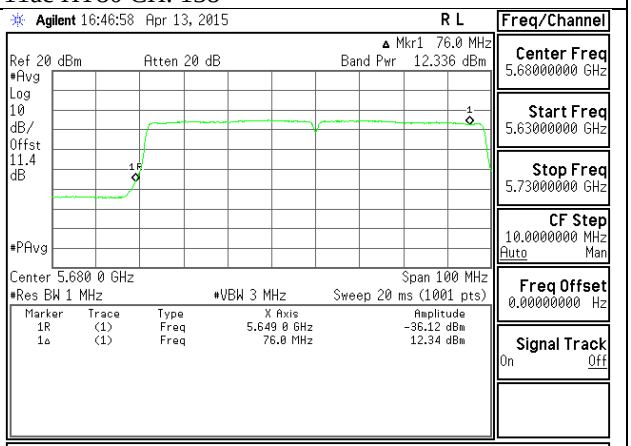
11n HT20 CH. 144



11n HT40 CH. 142

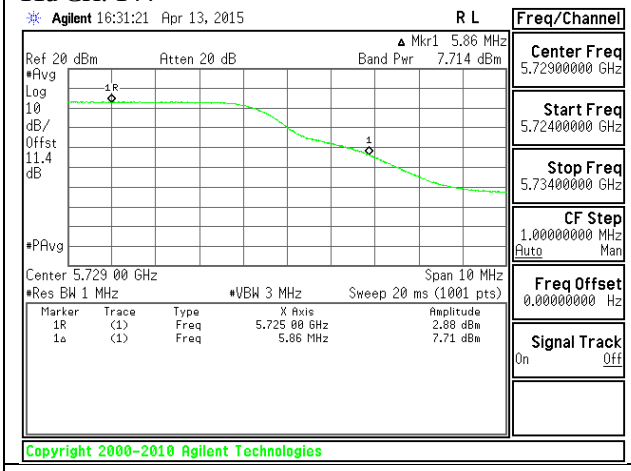


11ac HT80 CH. 138

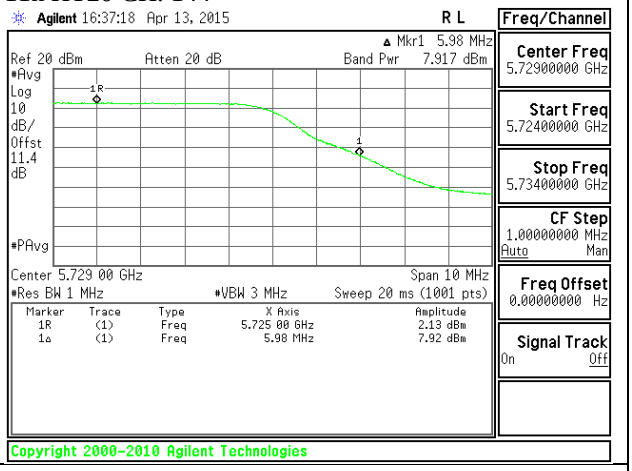


UNII-3 BAND

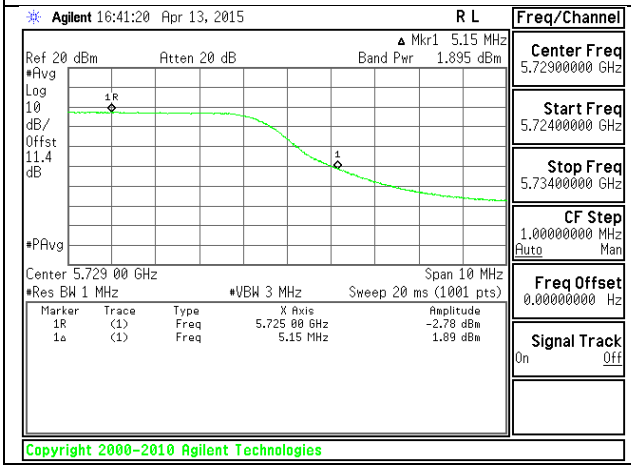
11a CH. 144



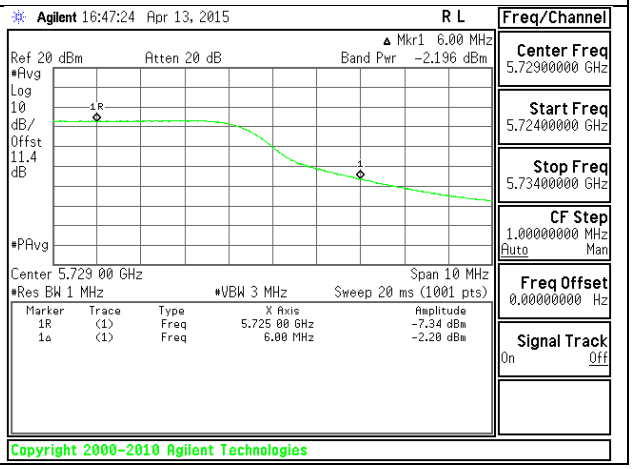
11n HT20 CH. 144



11n HT40 CH. 142

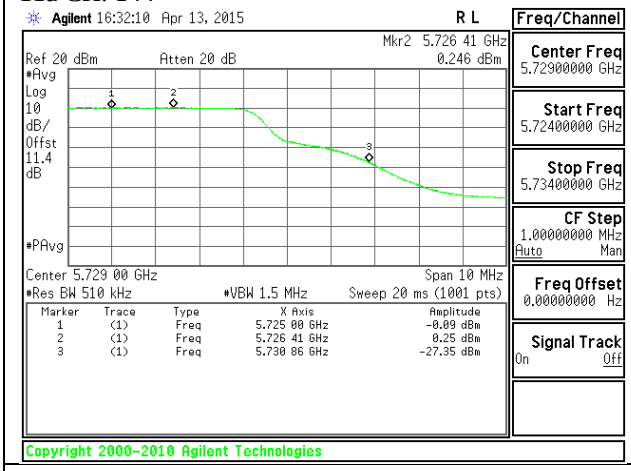


11ac HT80 CH. 138



UNII-3 BAND PSD

11a CH. 144



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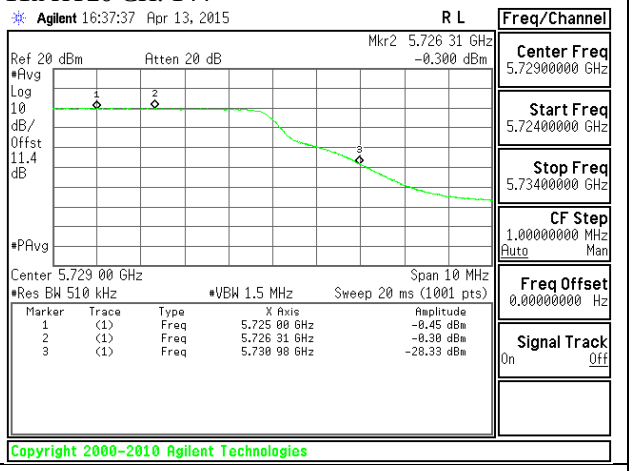

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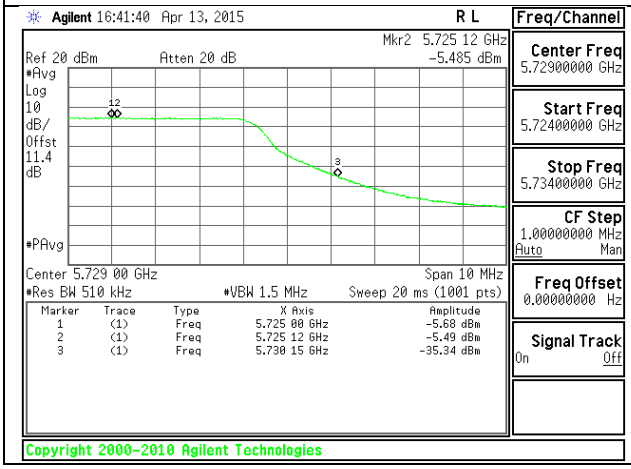
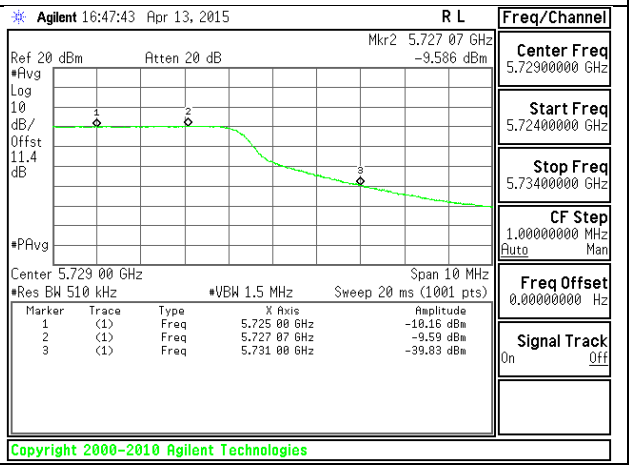


11ac HT80 CH. 138



12. TRANSMITTER ABOVE 1 GHz

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Reference to KDB 789033 UNII part G) 6) d) Method AD:
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.

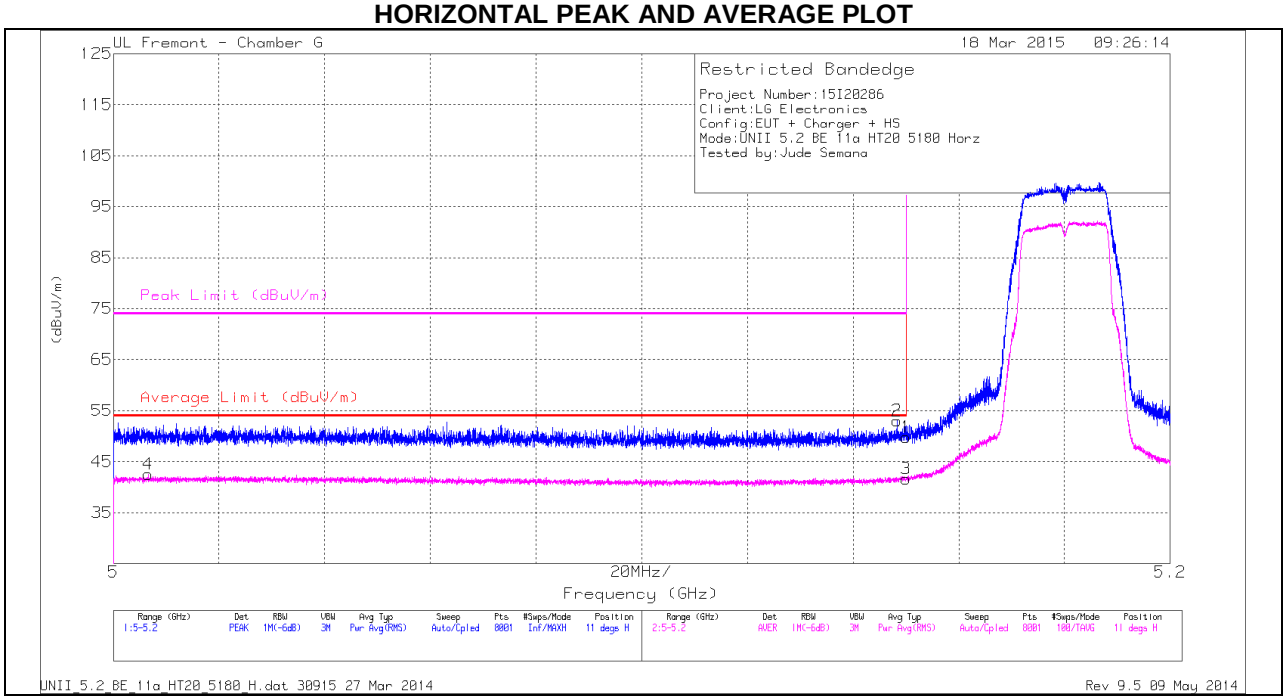
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

12.1. 5.2 GHz

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

RESTRICTED BANDEDGE (LOW CHANNEL)

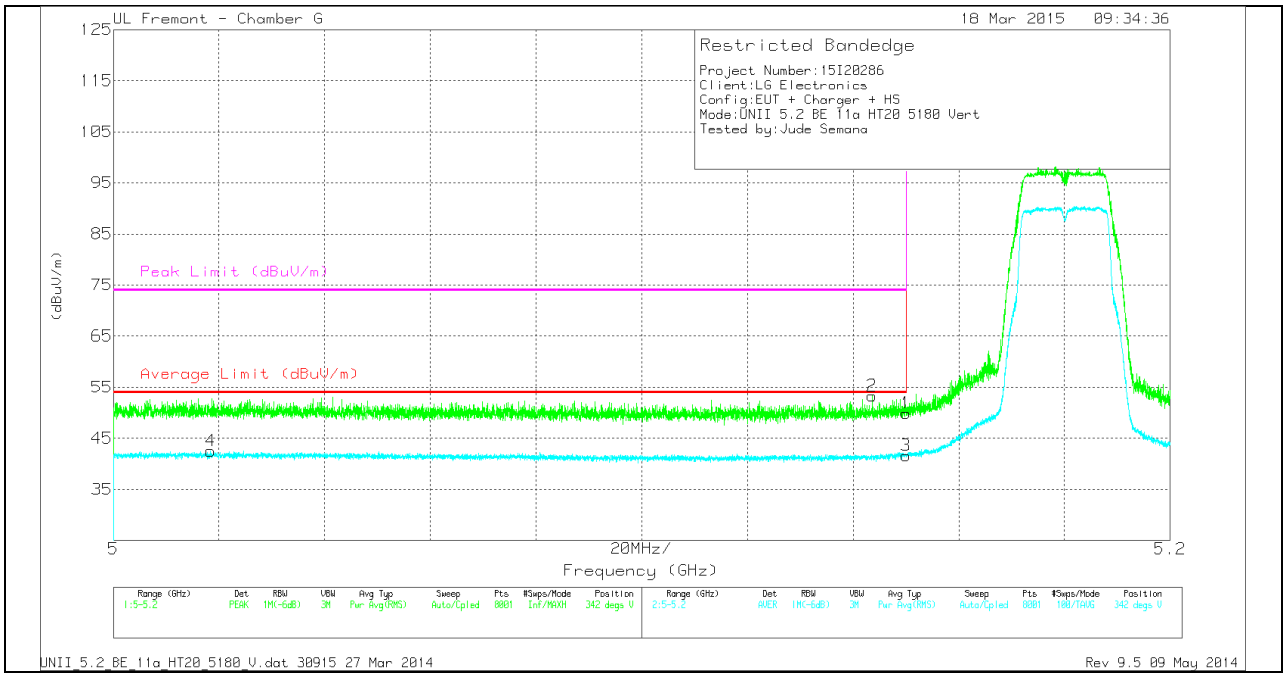
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	39.12	PK	34.3	-23.6	0	49.82	-	-	74	-24.18	11	358	H
2	* 5.148	42.31	PK	34.3	-23.6	0	53.01	-	-	74	-20.99	11	358	H
3	* 5.15	30.74	RMS	34.3	-23.6	.2	41.64	54	-12.36	-	-	11	358	H
4	* 5.007	31.94	RMS	34.1	-23.7	.2	42.54	54	-11.46	-	-	11	358	H

VERTICAL PEAK AND AVERAGE PLOT

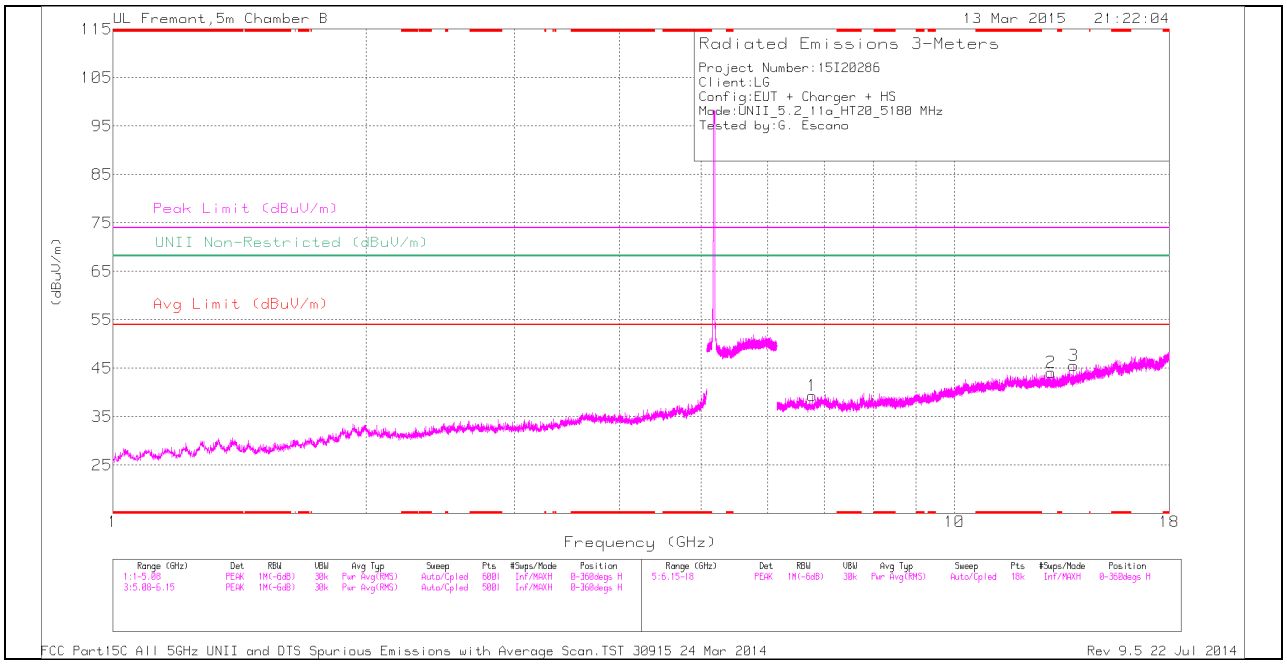


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	39.21	PK	34.3	-23.6	0	49.91	-	-	74	-24.09	342	399	V
2	* 5.144	42.71	PK	34.3	-23.7	0	53.31	-	-	74	-20.69	342	399	V
3	* 5.15	30.7	RMS	34.3	-23.6	.2	41.6	54	-12.4	-	-	342	399	V
4	* 5.018	31.91	RMS	34.1	-23.7	.2	42.51	54	-11.49	-	-	342	399	V

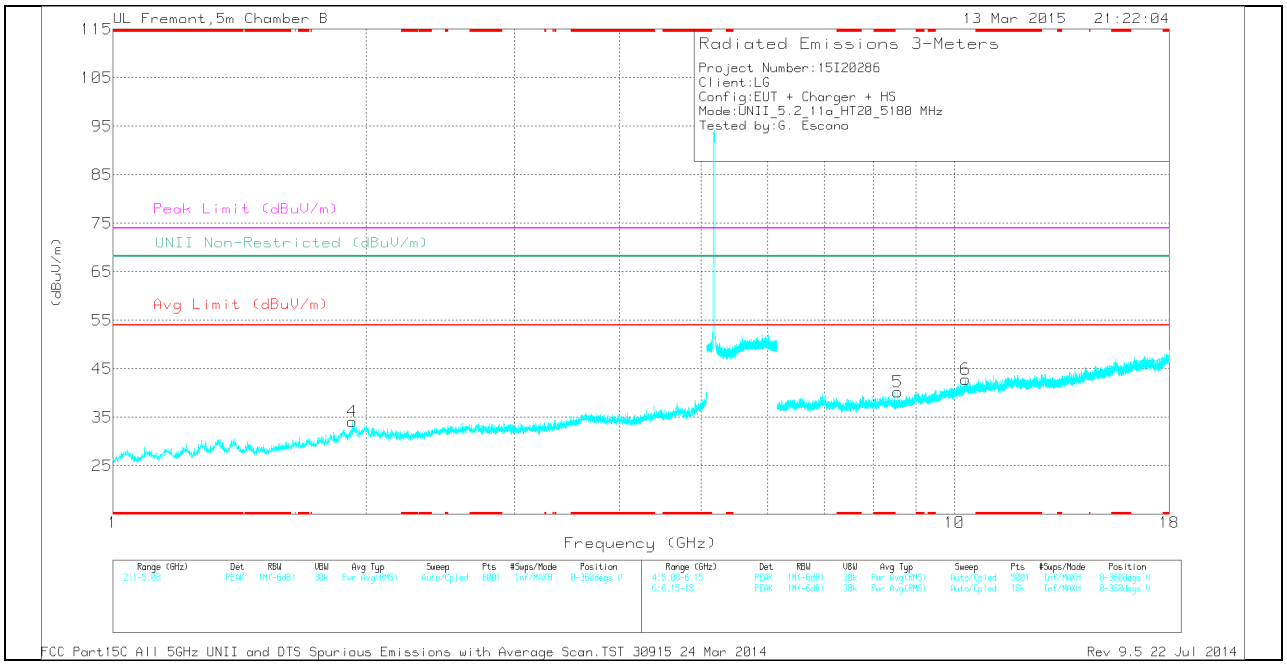
HARMONICS AND SPURIOUS EMISSIONS

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.

LOW CHANNEL VERTICAL



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

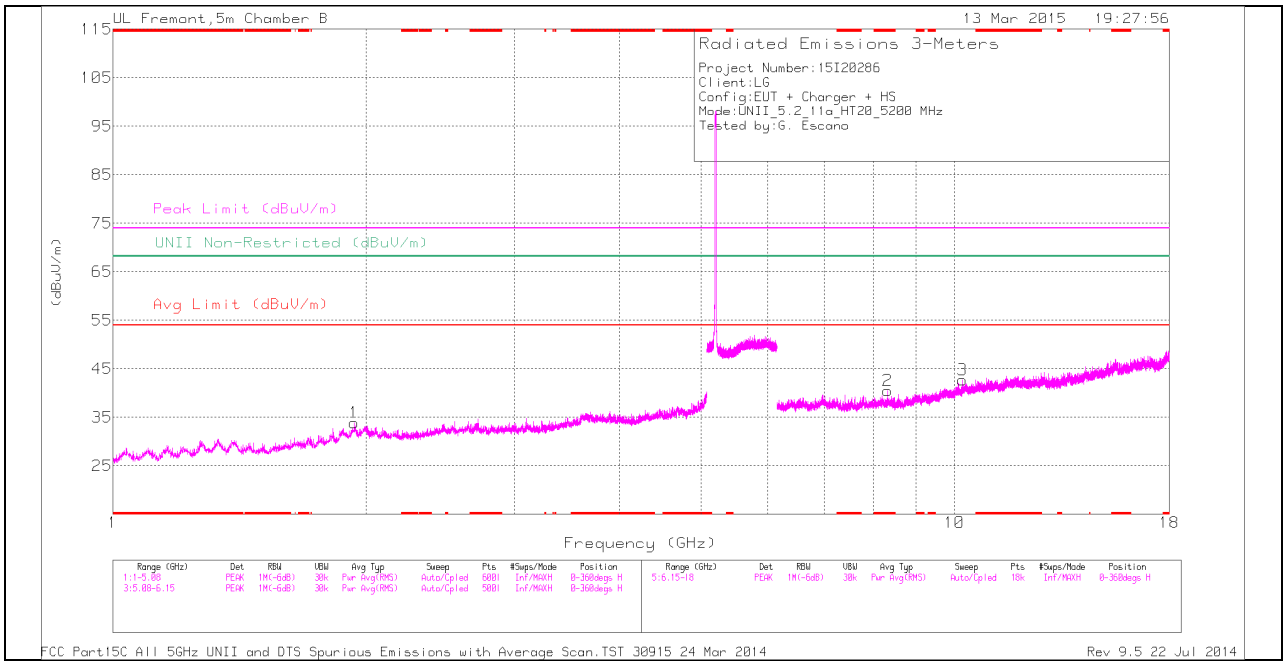
LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1.926	34.68	PK	31.9	-32.4	0	34.18	-	-	-	-	68.2	-34.02	0-360	101	V
1	6.775	31.76	PK	35.9	-28.3	0	39.36	-	-	-	-	68.2	-28.84	0-360	199	H
5	8.563	30.64	PK	35.7	-26.1	0	40.24	-	-	-	-	68.2	-27.96	0-360	199	V
6	10.309	28.44	PK	37.4	-23	0	42.84	-	-	-	-	68.2	-25.36	0-360	199	V
2	13.028	27.48	PK	38.8	-22.1	0	44.18	-	-	-	-	68.2	-24.02	0-360	199	H
3	13.855	28.82	PK	38.9	-22.1	0	45.62	-	-	-	-	68.2	-22.58	0-360	199	H

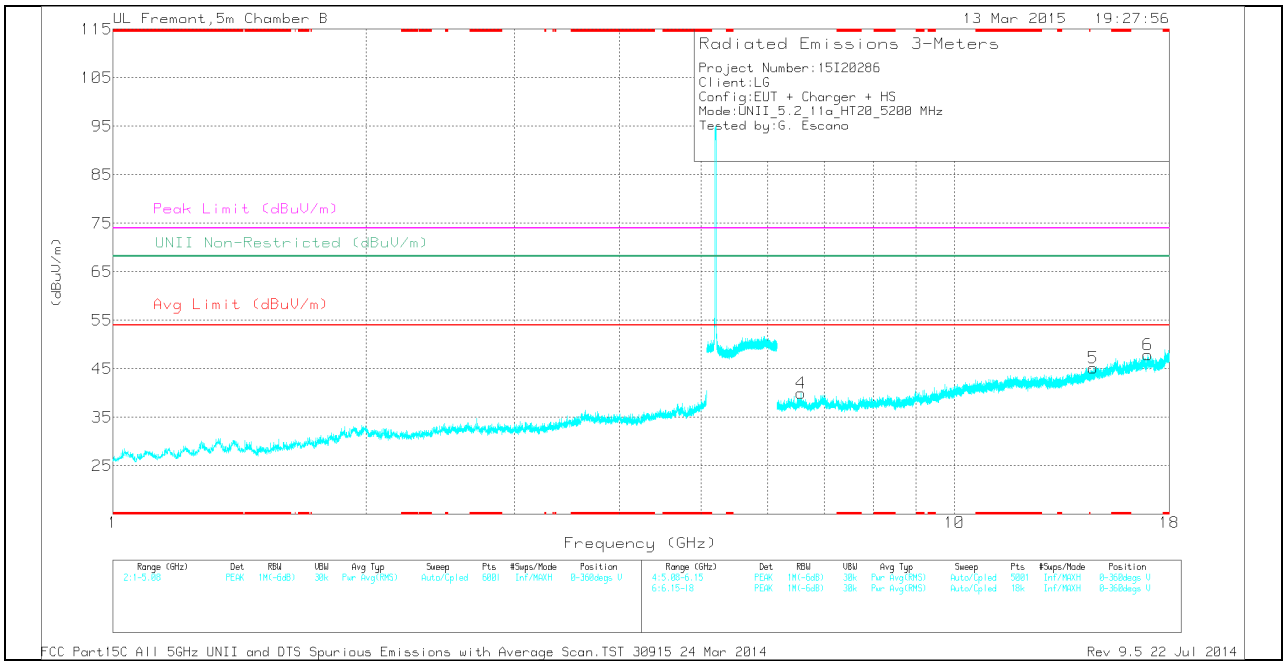
PK - Peak detector

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.

MID CHANNEL VERTICAL



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

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 8.33	31.08	PK	35.7	-26.3	0	40.48	-	-	74	-33.52	-	-	0-360	199	H
1	1.936	34.3	PK	32	-32.4	0	33.9	-	-	-	-	68.2	-34.3	0-360	200	H
4	6.572	31.94	PK	35.9	-27.8	0	40.04	-	-	-	-	68.2	-28.16	0-360	101	V
3	10.224	29.16	PK	37.3	-23.8	0	42.66	-	-	-	-	68.2	-25.54	0-360	199	H
5	14.614	26.95	PK	39.8	-21.6	0	45.15	-	-	-	-	68.2	-23.05	0-360	199	V
6	16.975	26.56	PK	41.6	-20.2	0	47.96	-	-	-	-	68.2	-20.24	0-360	199	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

RADIATED EMISSIONS

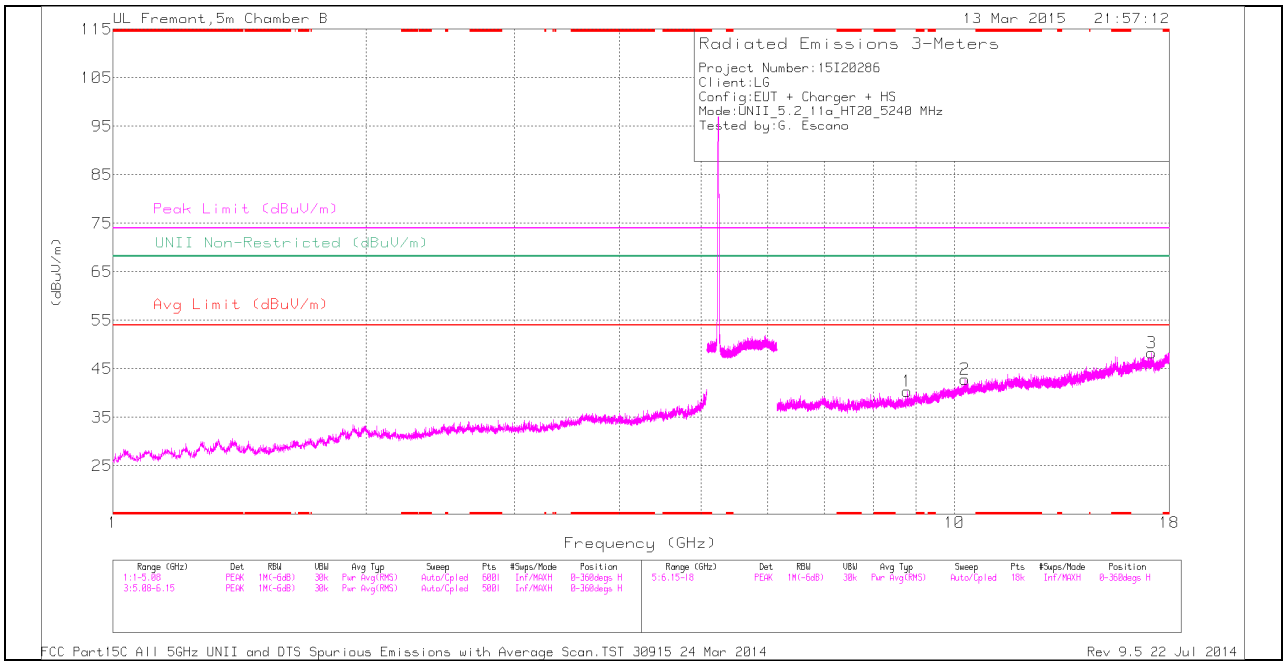
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 8.331	37.21	PK1	35.7	-26.3	0	46.61	-	-	74	-27.39	-	-	17	346	H
* 8.33	26.04	AD1	35.7	-26.3	.21	35.65	54	-18.35	-	-	-	-	17	346	H

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

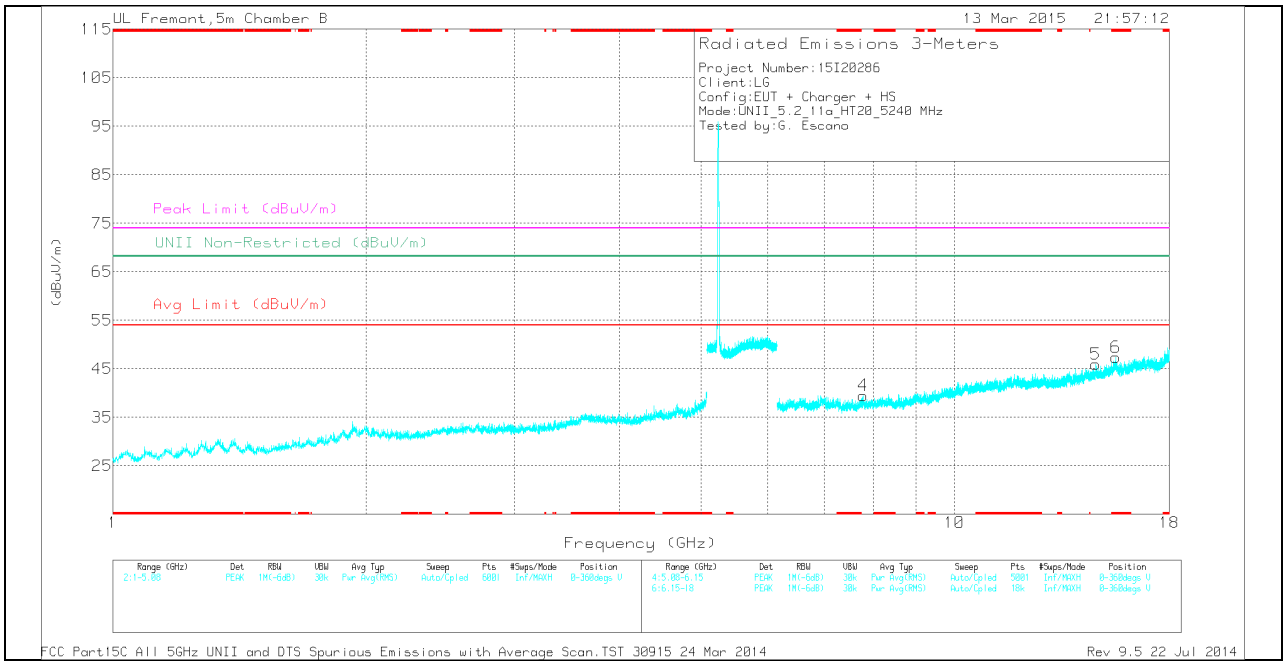
AD1 - KDB789033 Method: AD Primary Power Average

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.

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 15.546	26.74	PK	40.8	-20.1	0	47.44	-	-	74	-26.56	-	-	0-360	199	V
4	7.785	30.43	PK	35.5	-26.4	0	39.53	-	-	-	-	68.2	-28.67	0-360	199	V
1	8.787	29.94	PK	35.9	-25.5	0	40.34	-	-	-	-	68.2	-27.86	0-360	101	H
2	10.298	28.58	PK	37.4	-23.1	0	42.88	-	-	-	-	68.2	-25.32	0-360	199	H
5	14.726	26.8	PK	39.8	-20.6	0	46	-	-	-	-	68.2	-22.2	0-360	101	V
3	17.146	27.09	PK	41.4	-20.2	0	48.29	-	-	-	-	68.2	-19.91	0-360	101	H

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 15.548	34.39	PK1	40.8	-20.1	0	55.09	-	-	74	-18.91	-	-	360	126	V
* 15.545	22.16	AD1	40.8	-20.1	.21	43.07	54	-10.93	-	-	-	-	360	126	V

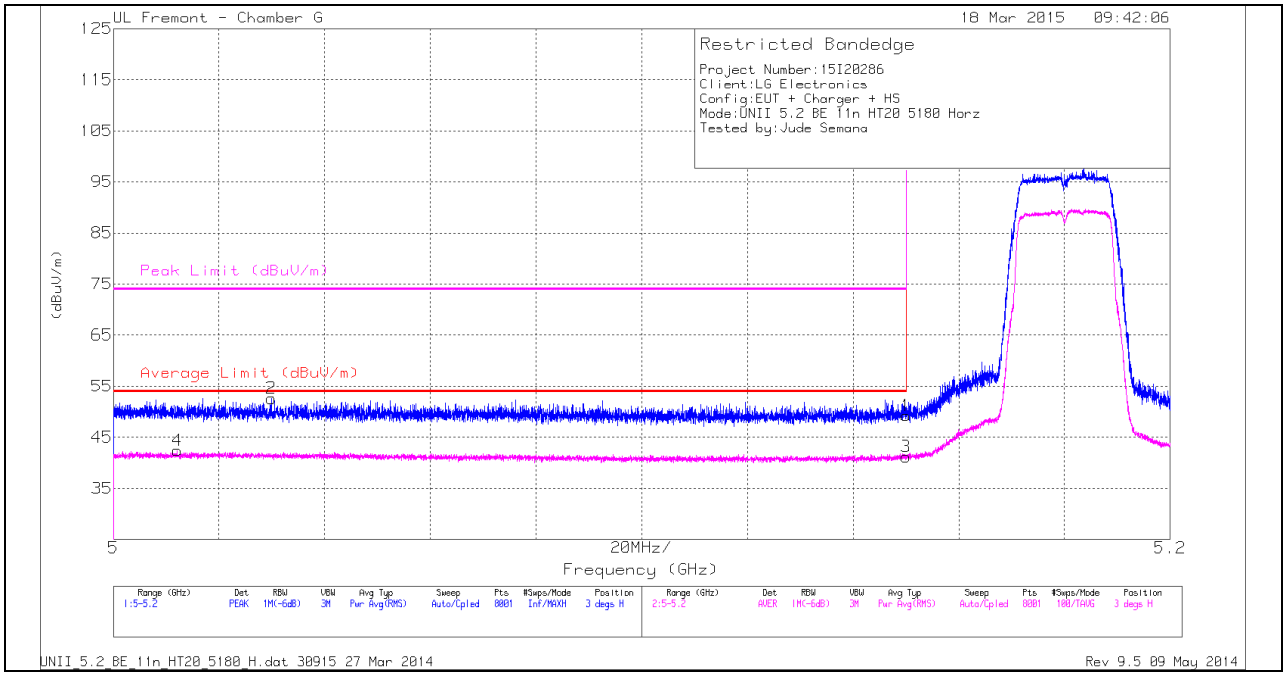
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

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

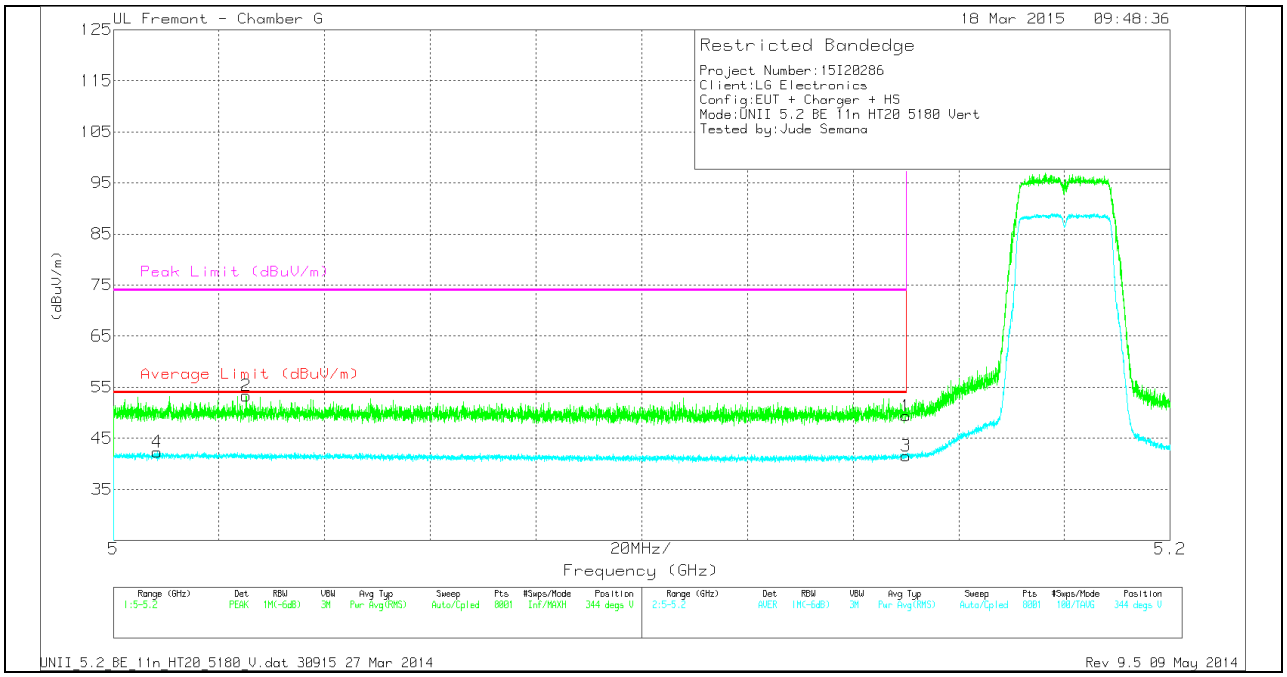
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	38.56	PK	34.3	-23.6	0	49.26	-	-	74	-24.74	3	397	H
2	* 5.03	42.25	PK	34.1	-23.7	0	52.65	-	-	74	-21.35	3	397	H
3	* 5.15	30.24	RMS	34.3	-23.6	.2	41.14	54	-12.86	-	-	3	397	H
4	* 5.012	31.81	RMS	34.1	-23.7	.2	42.41	54	-11.59	-	-	3	397	H

VERTICAL PEAK AND AVERAGE PLOT

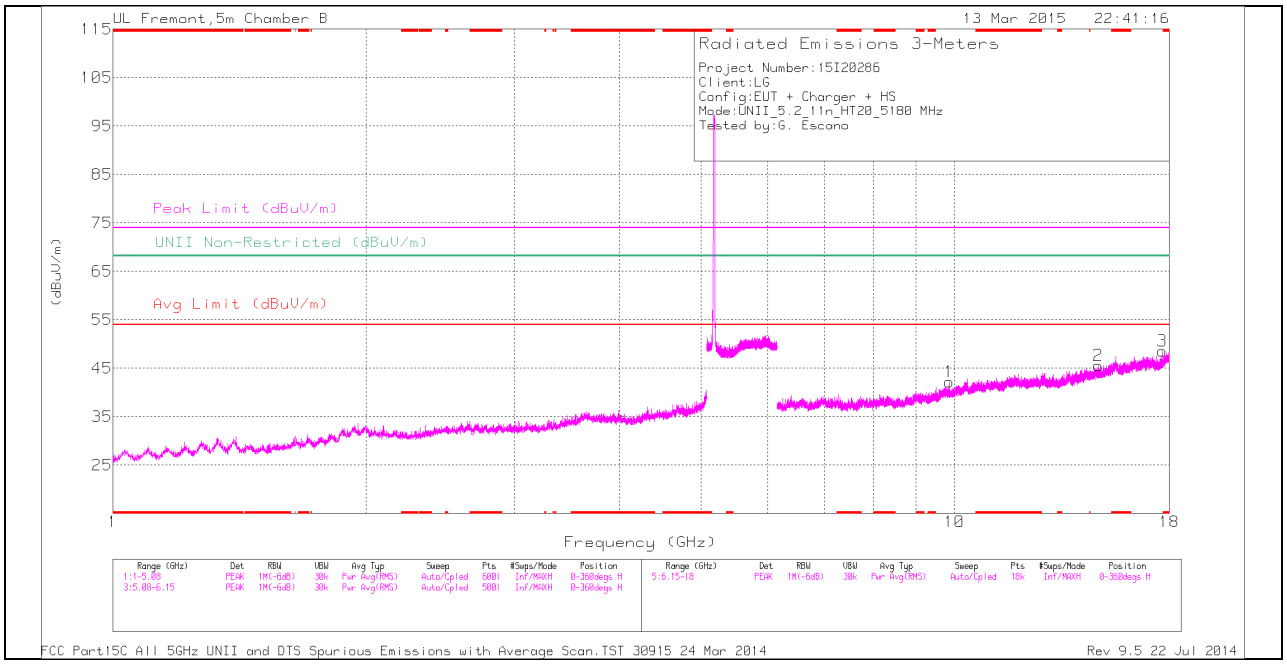


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	38.71	PK	34.3	-23.6	0	49.41	-	-	74	-24.59	344	398	V
2	* 5.025	42.93	PK	34.1	-23.7	0	53.33	-	-	74	-20.67	344	398	V
3	* 5.15	30.62	RMS	34.3	-23.6	.2	41.52	54	-12.48	-	-	344	398	V
4	* 5.008	31.69	RMS	34.1	-23.7	.2	42.29	54	-11.71	-	-	344	398	V

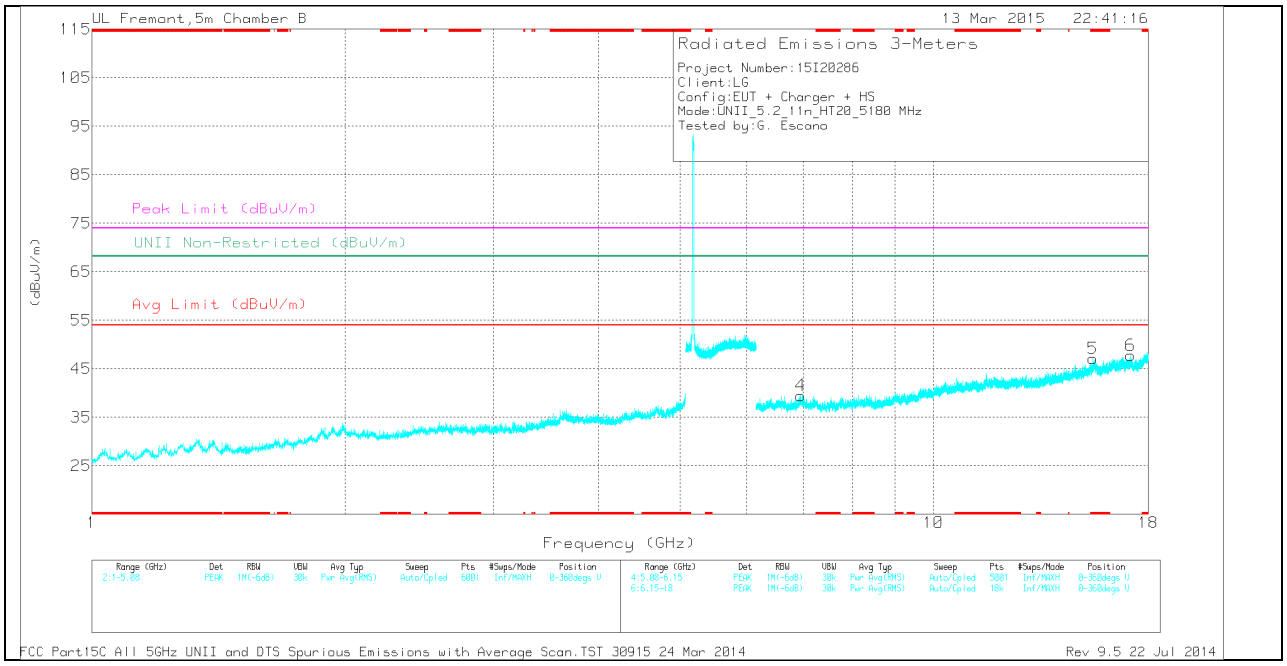
HARMONICS AND SPURIOUS EMISSIONS

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.

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	* 15.457	27.56	PK	40.8	-21.2	0	47.16	-	-	74	-26.84	-	-	0-360	101	V
4	6.956	30.73	PK	36.1	-27.3	0	39.53	-	-	-	-	68.2	-28.67	0-360	101	V
1	9.858	29.29	PK	37	-24.1	0	42.19	-	-	-	-	68.2	-26.01	0-360	101	H
2	14.822	27.58	PK	39.8	-21.8	0	45.58	-	-	-	-	68.2	-22.62	0-360	101	H
6	17.154	26.64	PK	41.4	-20.3	0	47.74	-	-	-	-	68.2	-20.46	0-360	199	V
3	17.648	27.11	PK	41	-19.6	0	48.51	-	-	-	-	68.2	-19.69	0-360	200	H

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 15.457	34.61	PK1	40.8	-21.2	0	54.21	-	-	74	-19.79	-	-	168	123	V
* 15.457	22.49	AD1	40.8	-21.2	.23	42.32	54	-11.68	-	-	-	-	168	123	V

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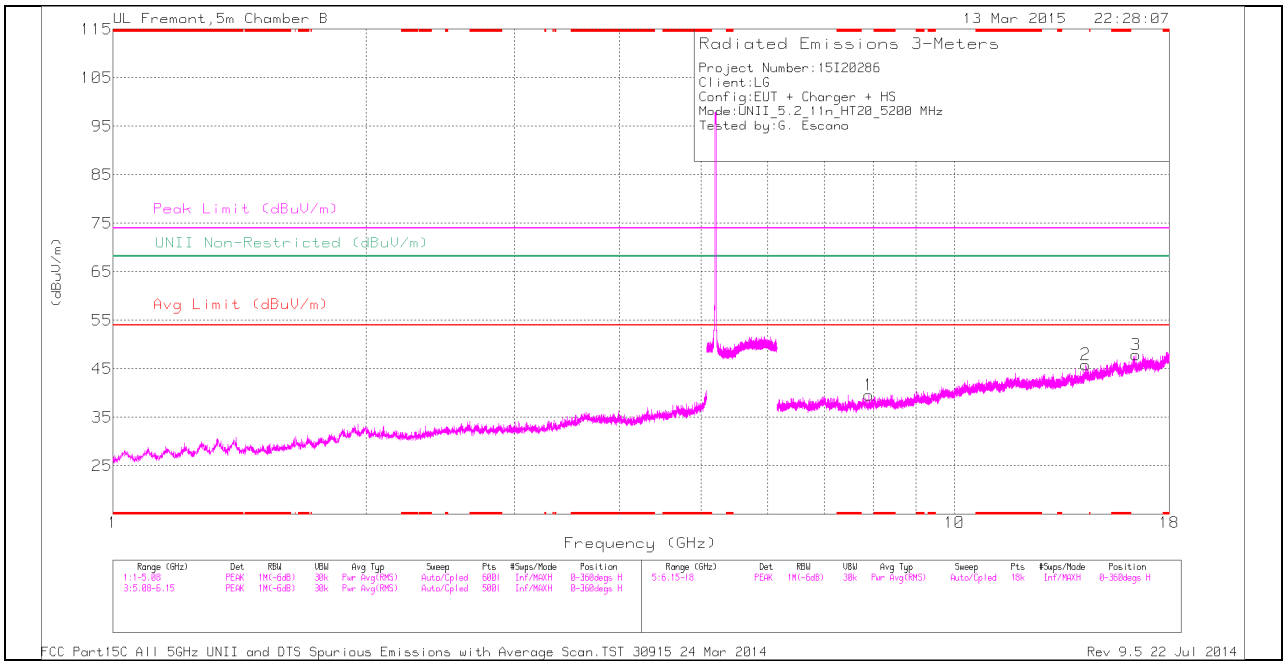
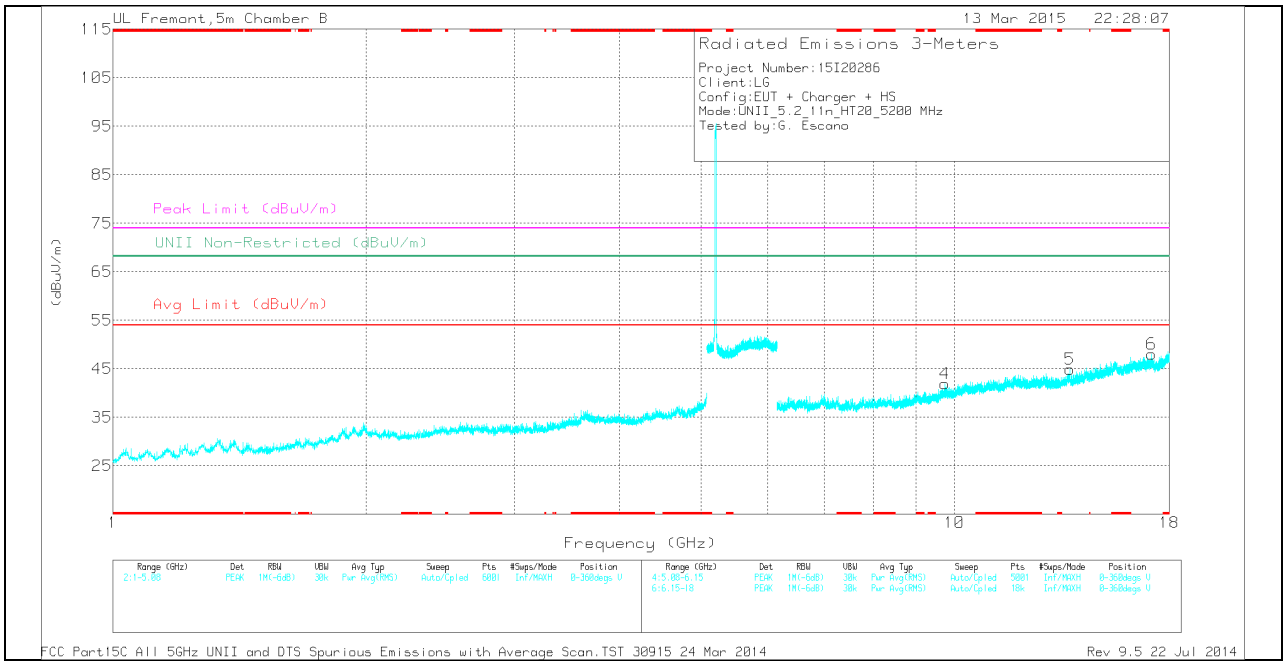
MID CHANNEL HORIZONTAL



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

MID CHANNEL VERTICAL



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

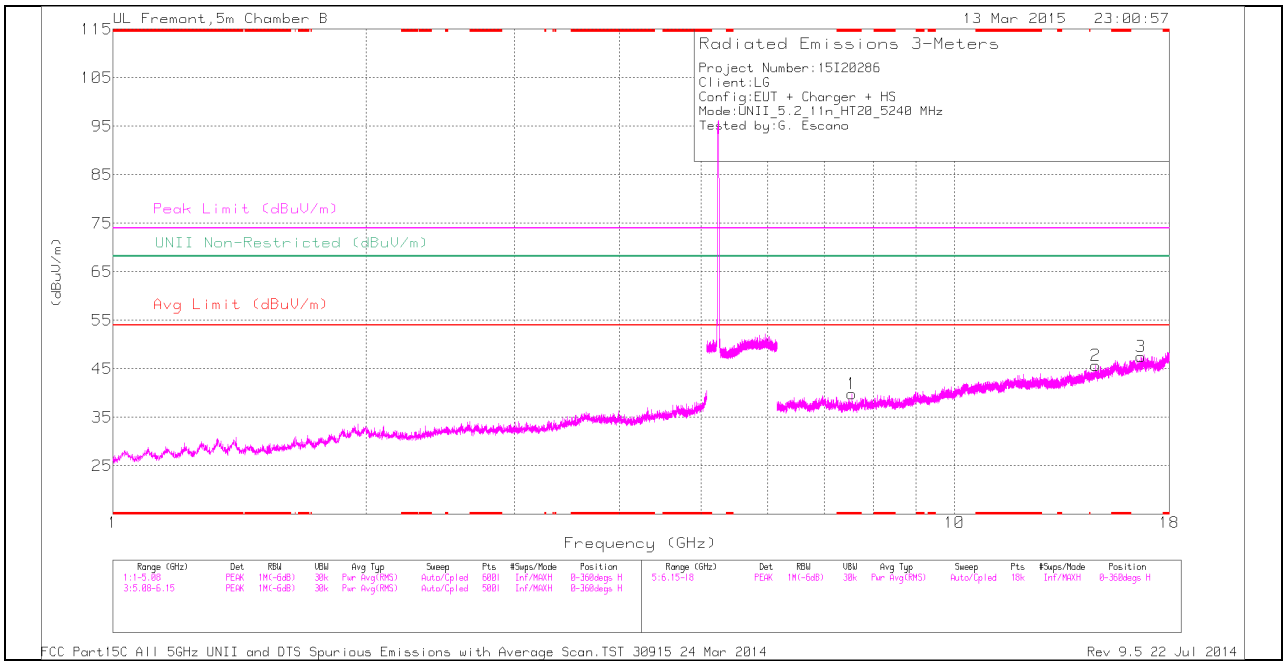
MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	7.912	31.16	PK	35.6	-27.2	0	39.56	-	-	-	-	68.2	-28.64	0-360	101	H
4	9.738	29.11	PK	36.9	-24.1	0	41.91	-	-	-	-	68.2	-26.29	0-360	200	V
5	13.713	28.27	PK	38.8	-22.1	0	44.97	-	-	-	-	68.2	-23.23	0-360	101	V
2	14.319	27.59	PK	39.5	-21.2	0	45.89	-	-	-	-	68.2	-22.31	0-360	200	H
3	16.419	27.36	PK	41.2	-20.6	0	47.96	-	-	-	-	68.2	-20.24	0-360	200	H
6	17.151	26.88	PK	41.4	-20.3	0	47.98	-	-	-	-	68.2	-20.22	0-360	200	V

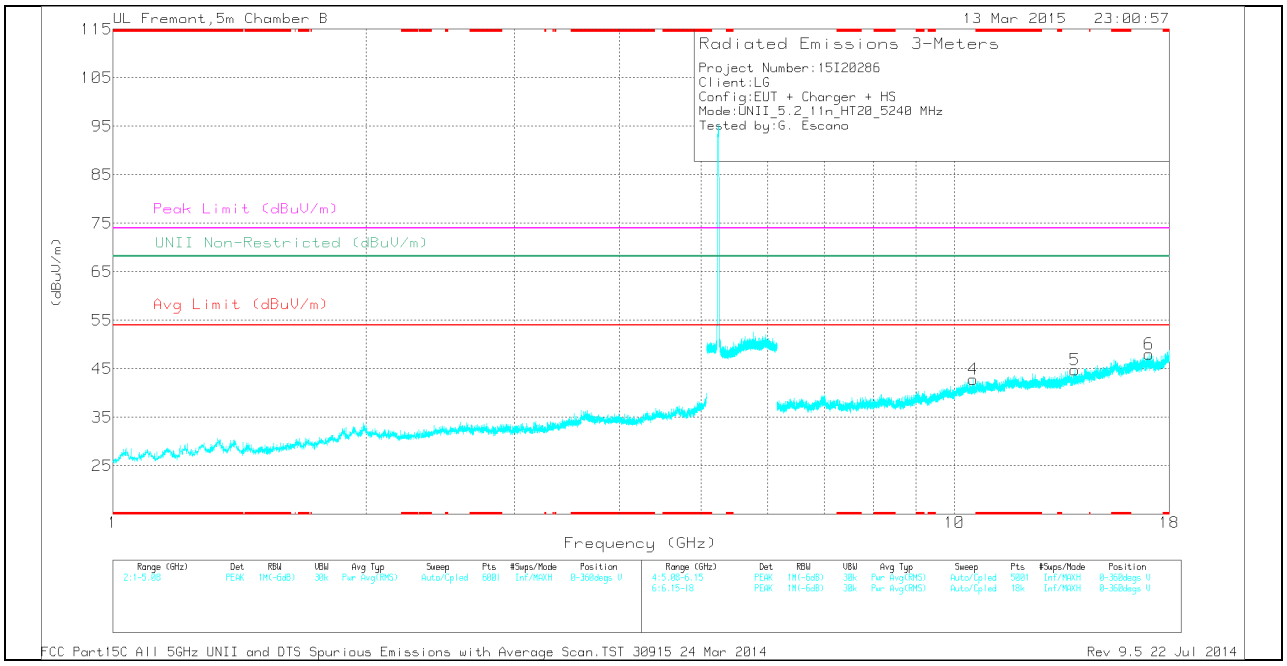
PK - Peak detector

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.

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 7.55	30.78	PK	35.4	-26.3	0	39.88	-	-	74	-34.12	-	-	0-360	101	H
4	10.52	28.6	PK	37.5	-23.2	0	42.9	-	-	-	-	68.2	-25.3	0-360	101	V
5	13.905	27.82	PK	38.9	-21.9	0	44.82	-	-	-	-	68.2	-23.38	0-360	199	V
2	14.718	26.56	PK	39.8	-20.7	0	45.66	-	-	-	-	68.2	-22.54	0-360	101	H
3	16.647	26.5	PK	41.4	-20.4	0	47.5	-	-	-	-	68.2	-20.7	0-360	101	H
6	17.035	26.76	PK	41.6	-20.3	0	48.06	-	-	-	-	68.2	-20.14	0-360	199	V

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 7.549	37.61	PK1	35.4	-26.3	0	46.71	-	-	74	-27.29	-	-	105	255	H
* 7.55	25.75	AD1	35.4	-26.3	.23	35.08	54	-18.92	-	-	-	-	105	255	H

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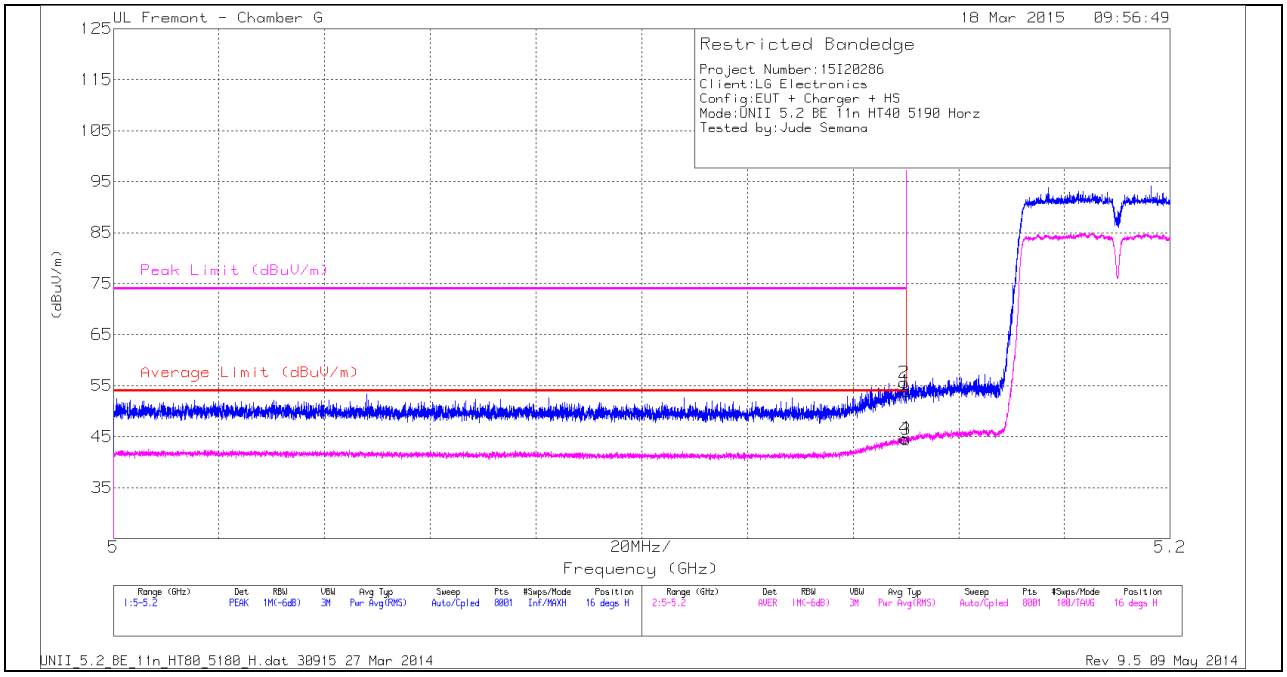
12.1.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

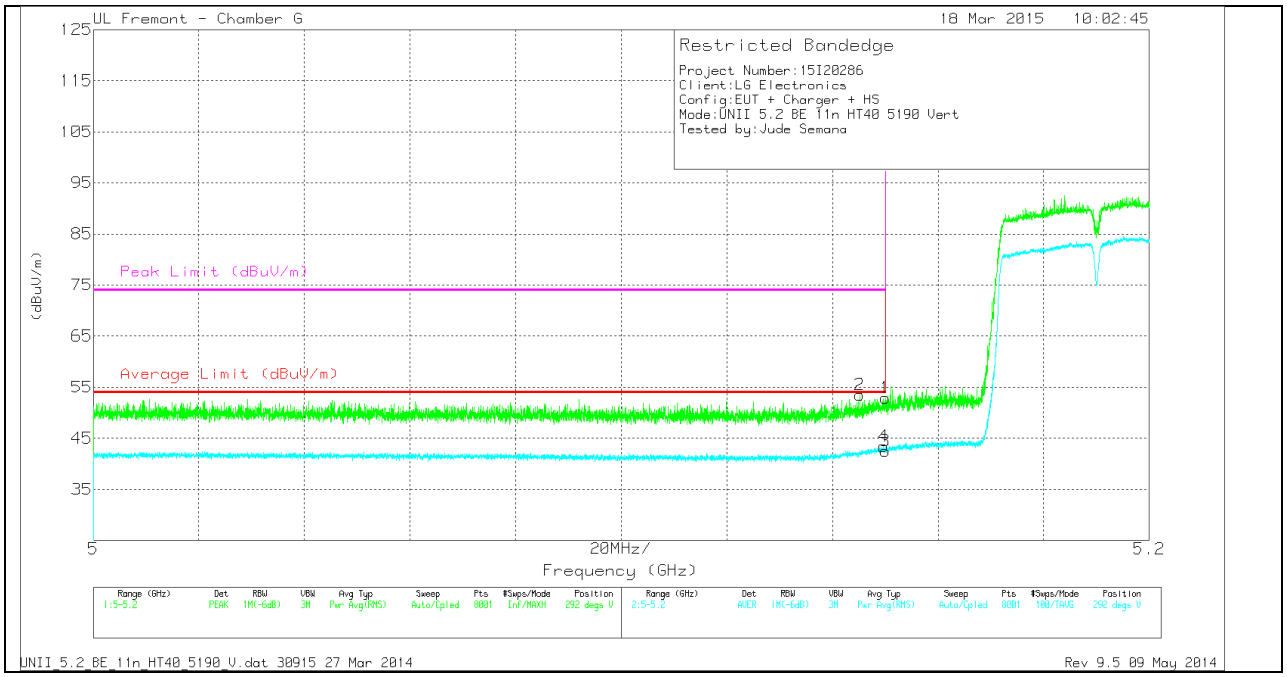
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	43.25	PK	34.3	-23.6	0	53.95	-	-	74	-20.05	16	399	H
2	* 5.15	44.94	PK	34.3	-23.6	0	55.64	-	-	74	-18.36	16	399	H
3	* 5.15	33.33	RMS	34.3	-23.6	.5	44.53	54	-9.47	-	-	16	399	H
4	* 5.15	33.53	RMS	34.3	-23.6	.5	44.73	54	-9.27	-	-	16	399	H

VERTICAL PEAK AND AVERAGE PLOT

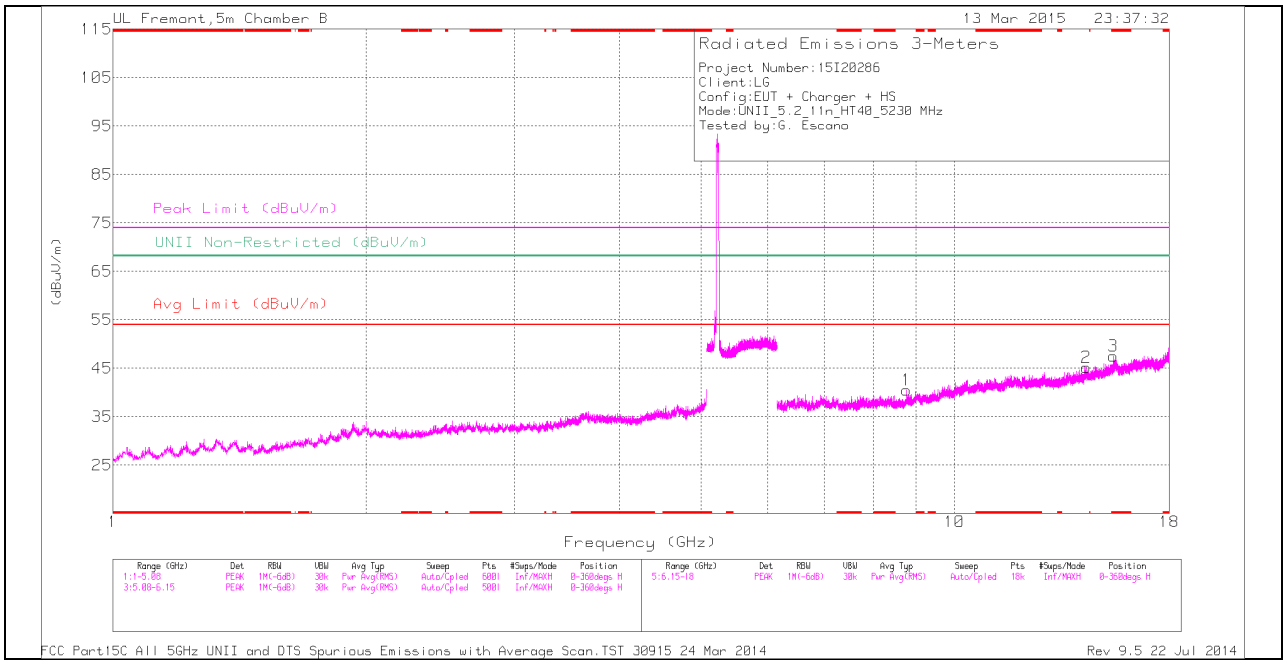


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	42.2	PK	34.3	-23.6	0	52.9	-	-	74	-21.1	292	327	V
2	* 5.145	42.79	PK	34.3	-23.6	0	53.49	-	-	74	-20.51	292	327	V
3	* 5.15	31.37	RMS	34.3	-23.6	.5	42.57	54	-11.43	-	-	292	327	V
4	* 5.15	32.25	RMS	34.3	-23.6	.5	43.45	54	-10.55	-	-	292	327	V

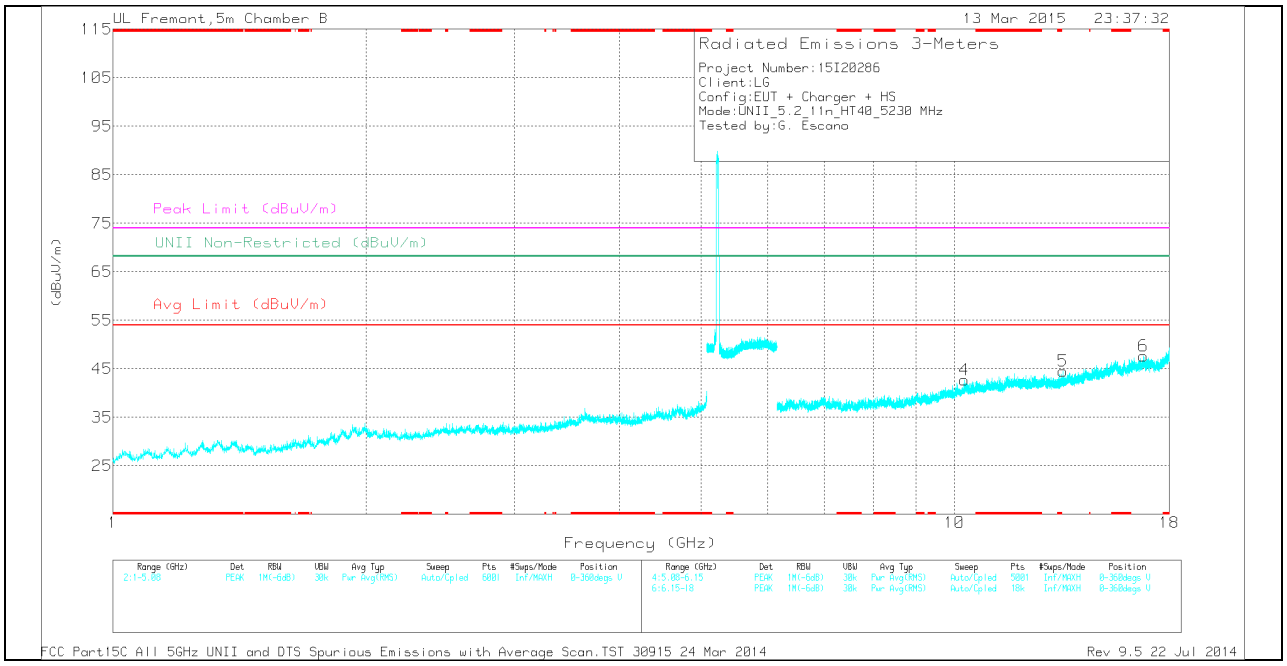
HARMONICS AND SPURIOUS EMISSIONS

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.

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 15.454	27.97	PK	40.8	-21.2	0	47.57	-	-	74	-26.43	-	-	0-360	101	H
1	8.77	30.35	PK	35.8	-25.7	0	40.45	-	-	-	-	68.2	-27.75	0-360	101	H
4	10.279	28.47	PK	37.4	-23.1	0	42.77	-	-	-	-	68.2	-25.43	0-360	101	V
5	13.451	27.33	PK	38.9	-21.7	0	44.53	-	-	-	-	68.2	-23.67	0-360	199	V
2	14.335	27.04	PK	39.5	-21.3	0	45.24	-	-	-	-	68.2	-22.96	0-360	101	H
6	16.766	25.95	PK	41.8	-20.1	0	47.65	-	-	-	-	68.2	-20.55	0-360	199	V

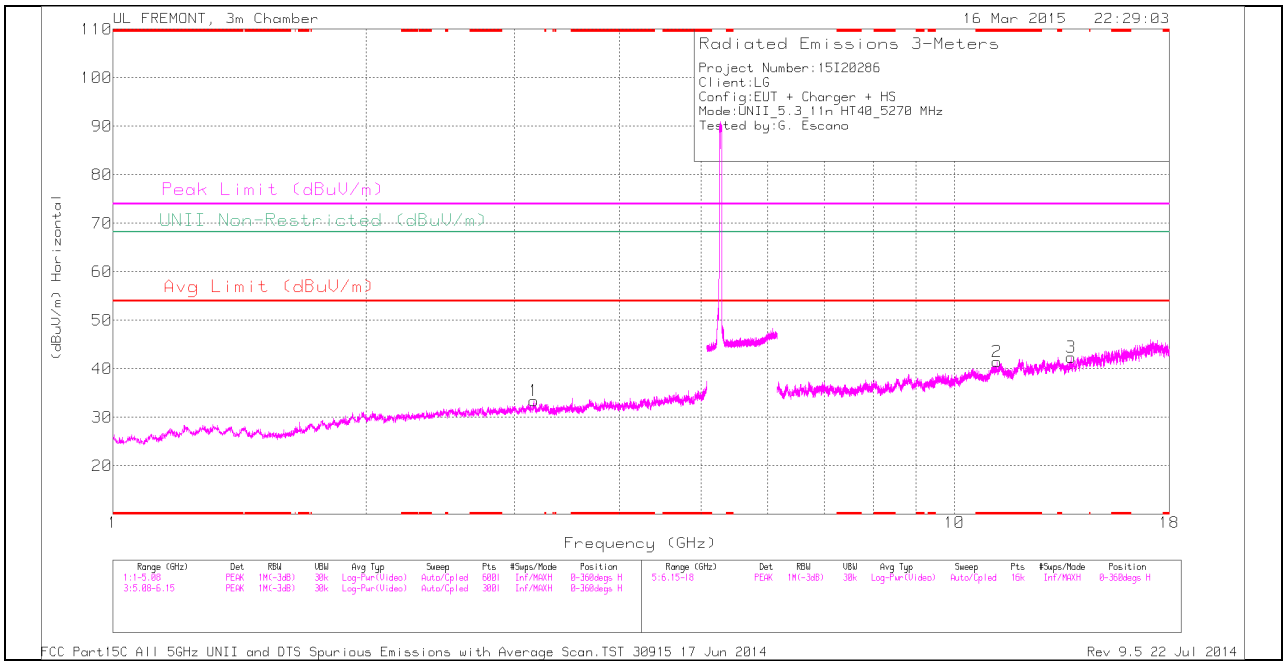
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 15.455	34.45	PK1	40.8	-21.2	0	54.05	-	-	74	-19.95	-	-	5	156	H
* 15.455	22.49	AD1	40.8	-21.2	.45	42.54	54	-11.46	-	-	-	-	5	156	H

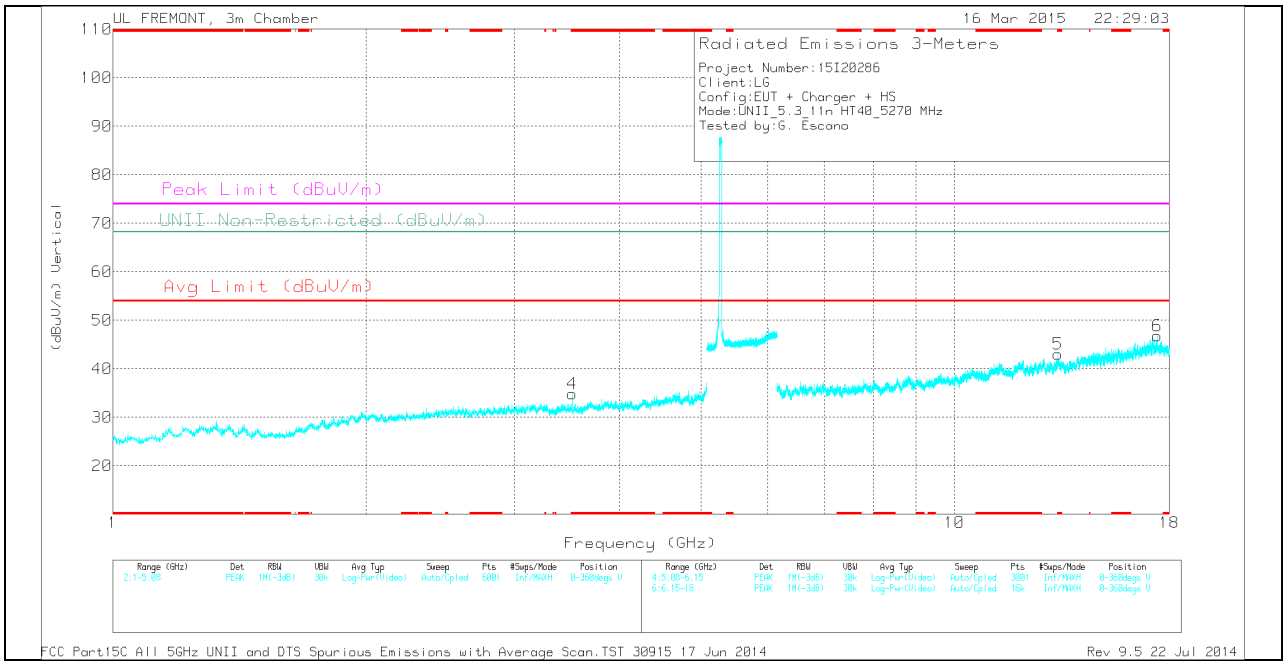
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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.

MID CHANNEL VERTICAL



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

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 3.513	33.82	PK	32.8	-31.8	0	34.82	-	-	74	-39.18	-	-	0-360	200	V
2	* 11.237	29.41	PK	38	-25.9	0	41.51	-	-	74	-32.49	-	-	0-360	100	H
5	* 13.277	30.12	PK	39	-26.1	0	43.02	-	-	74	-30.98	-	-	0-360	100	V
1	3.162	32.19	PK	32.7	-31.5	0	33.39	-	-	-	-	68.2	-34.81	0-360	100	H
3	13.759	30.33	PK	38.6	-26.5	0	42.43	-	-	-	-	68.2	-25.77	0-360	200	H
6	17.413	27.81	PK	41.4	-22.4	0	46.81	-	-	-	-	68.2	-21.39	0-360	200	V

PK - Peak detector

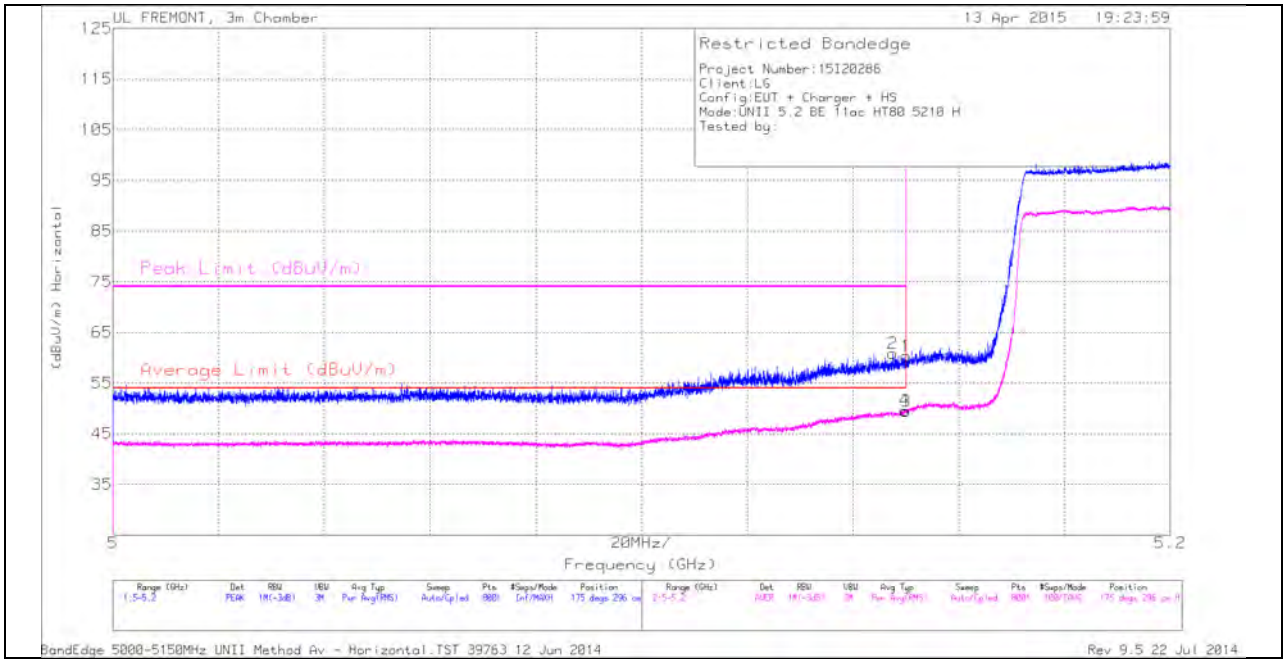
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.513	42.01	PK1	32.8	-31.8	0	43.01	-	-	74	-30.99	-	-	183	174	V
* 3.513	32.8	AD1	32.8	-31.8	.46	34.26	54	-19.74	-	-	-	-	183	174	V
* 11.236	37.3	PK1	38	-25.8	0	49.5	-	-	74	-24.5	-	-	335	239	H
* 11.239	25.14	AD1	38	-25.9	.46	37.7	54	-16.3	-	-	-	-	335	239	H
* 13.277	39.13	PK1	39	-26.1	0	52.03	-	-	74	-21.97	-	-	312	357	V
* 13.278	26.91	AD1	39	-26.1	.46	40.27	54	-13.73	-	-	-	-	312	357	V

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

12.1.4. TX ABOVE 1 GHz 802.11ac HT80 MODE IN THE 5.2 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



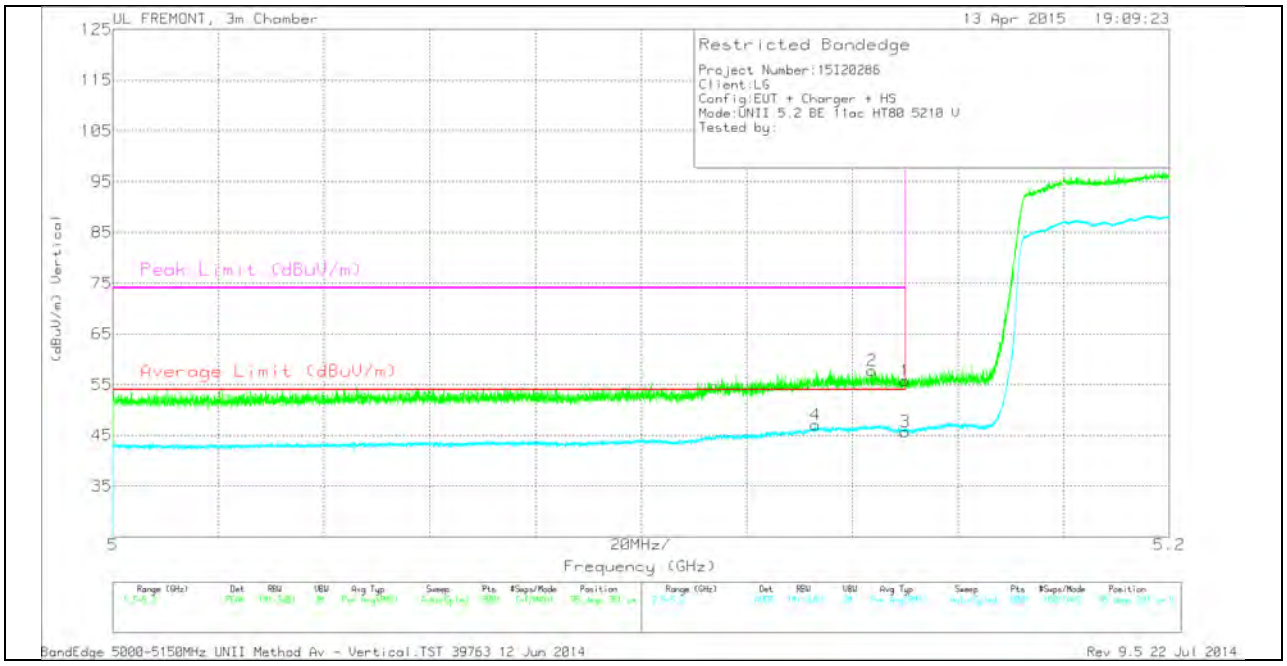
HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.148	48.22	PK	34.2	-21.6	0	60.82	-	-	74	-13.18	175	296	H
1	5.15	47.69	PK	34.2	-21.6	0	60.29	-	-	74	-13.71	175	296	H
3	5.15	36.42	RMS	34.2	-21.6	.44	49.46	54	-4.54	-	-	175	296	H
4	5.15	36.55	RMS	34.2	-21.6	.44	49.59	54	-4.41	-	-	175	296	H

PK - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

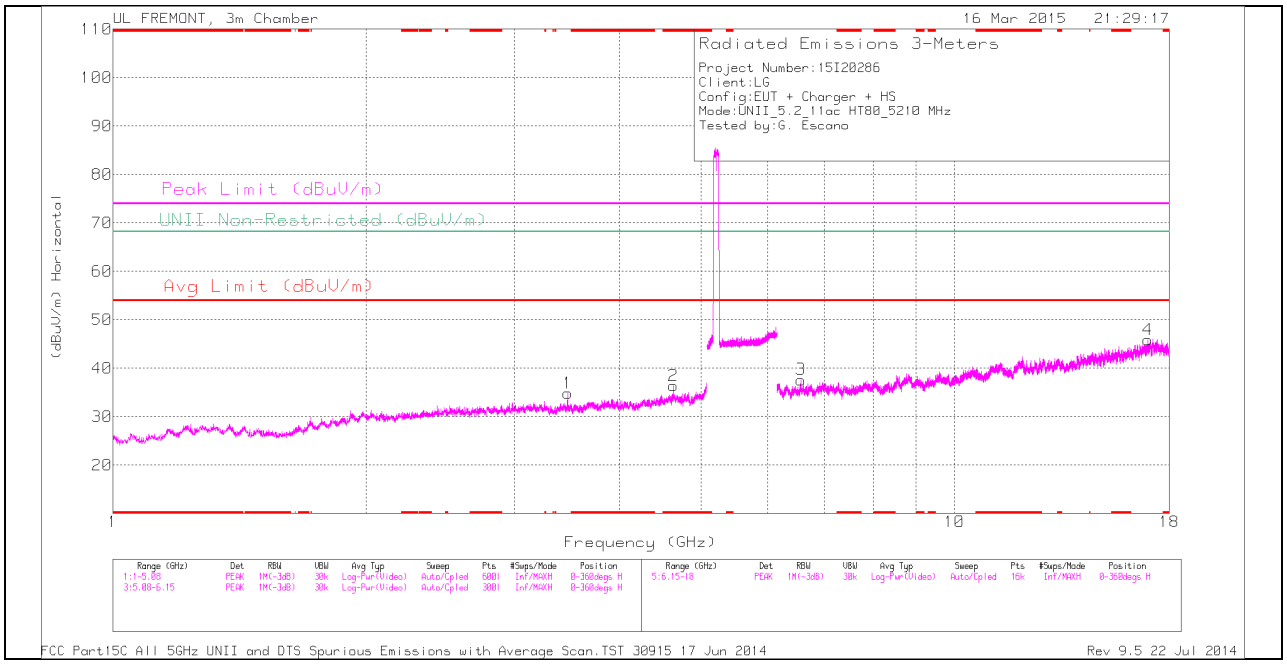
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	5.133	33.9	RMS	34.2	-21.5	.44	47.04	54	-6.96	-	-	95	381	V
2	5.144	45.14	PK	34.2	-21.6	0	57.74	-	-	74	-16.26	95	381	V
1	5.15	43.14	PK	34.2	-21.6	0	55.74	-	-	74	-18.26	95	381	V
3	5.15	32.65	RMS	34.2	-21.6	.44	45.69	54	-8.31	-	-	95	381	V

PK - Peak detector

RMS - RMS detection

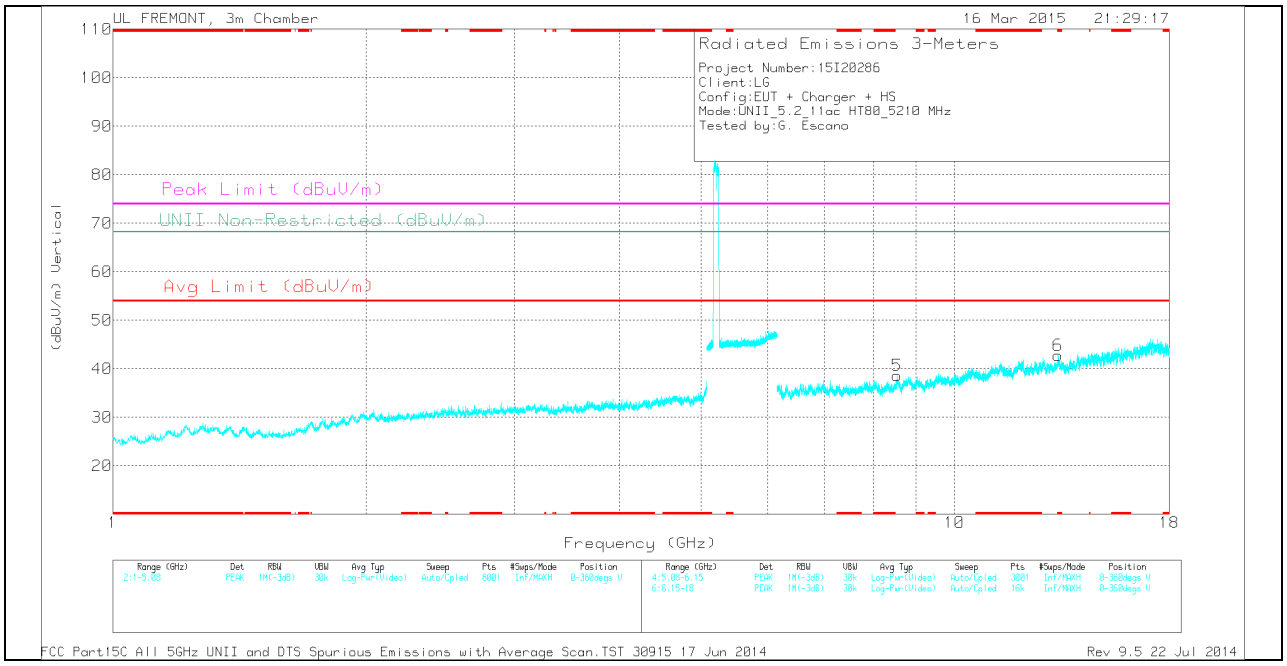
HARMONICS AND SPURIOUS EMISSIONS

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.

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.631	32.59	PK	33.9	-30.1	0	36.39	-	-	74	-37.61	-	-	0-360	200	H
6	* 13.278	29.86	PK	39	-26.1	0	42.76	-	-	74	-31.24	-	-	0-360	200	V
1	3.473	33.48	PK	32.8	-31.4	0	34.88	-	-	-	-	68.2	-33.32	0-360	200	H
3	6.568	31.55	PK	35.6	-29.5	0	37.65	-	-	-	-	68.2	-30.55	0-360	100	H
5	8.543	28.98	PK	35.8	-26.1	0	38.68	-	-	-	-	68.2	-29.52	0-360	100	V
4	16.985	28.31	PK	41.3	-23.7	0	45.91	-	-	-	-	68.2	-22.29	0-360	200	H

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.631	40.96	PK1	33.9	-30.1	0	44.76	-	-	74	-29.24	-	-	106	241	H
* 4.631	31.27	AD1	33.9	-30.1	.44	35.51	54	-18.49	-	-	-	-	106	241	H
* 13.279	38.57	PK1	39	-26.1	0	51.47	-	-	74	-22.53	-	-	313	396	V
* 13.279	27.02	AD1	39	-26.1	.44	40.36	54	-13.64	-	-	-	-	313	396	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

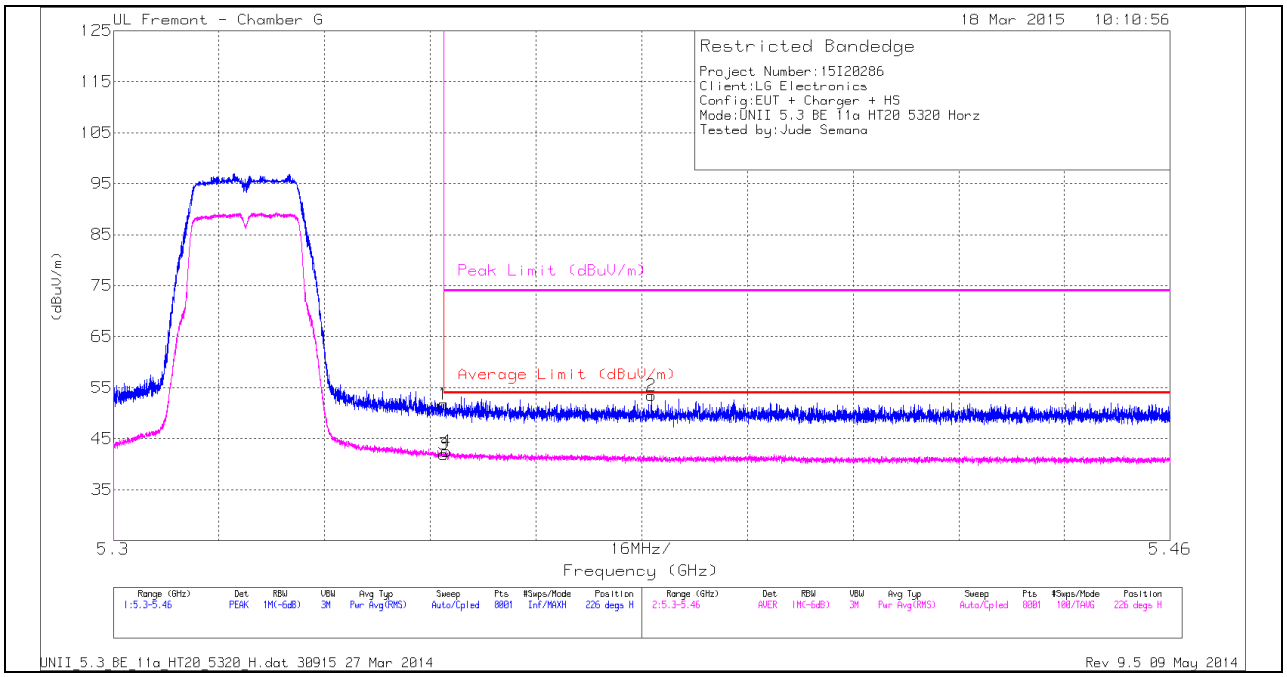
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

12.2. 5.3 GHz

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

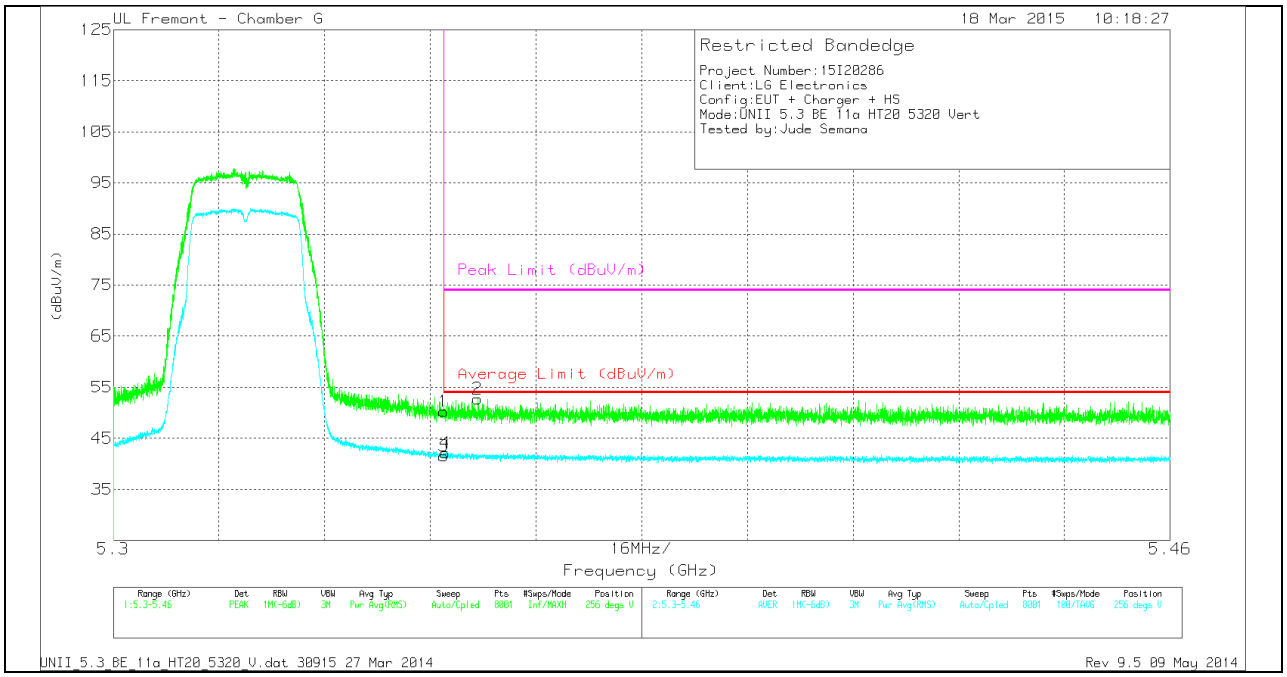
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	40.81	PK	34.6	-23.7	0	51.71	-	-	74	-22.29	226	294	H
2	* 5.381	42.45	PK	34.6	-23.6	0	53.45	-	-	74	-20.55	226	294	H
3	* 5.35	30.84	RMS	34.6	-23.7	.2	41.94	54	-12.06	-	-	226	294	H
4	* 5.35	31.43	RMS	34.6	-23.7	.2	42.53	54	-11.47	-	-	226	294	H

VERTICAL PEAK AND AVERAGE PLOT

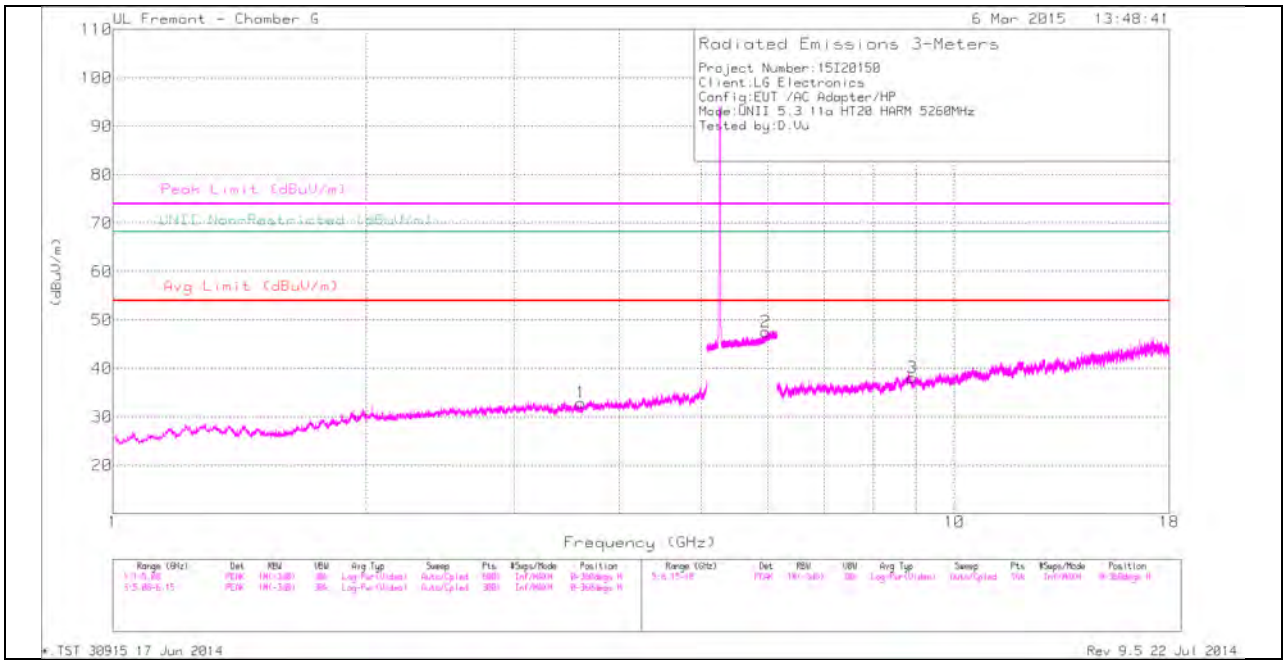


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	39.4	PK	34.6	-23.7	0	50.3	-	-	74	-23.7	256	388	V
2	* 5.355	41.81	PK	34.6	-23.7	0	52.71	-	-	74	-21.29	256	388	V
3	* 5.35	30.44	RMS	34.6	-23.7	.2	41.54	54	-12.46	-	-	256	388	V
4	* 5.35	31.01	RMS	34.6	-23.7	.2	42.11	54	-11.89	-	-	256	388	V

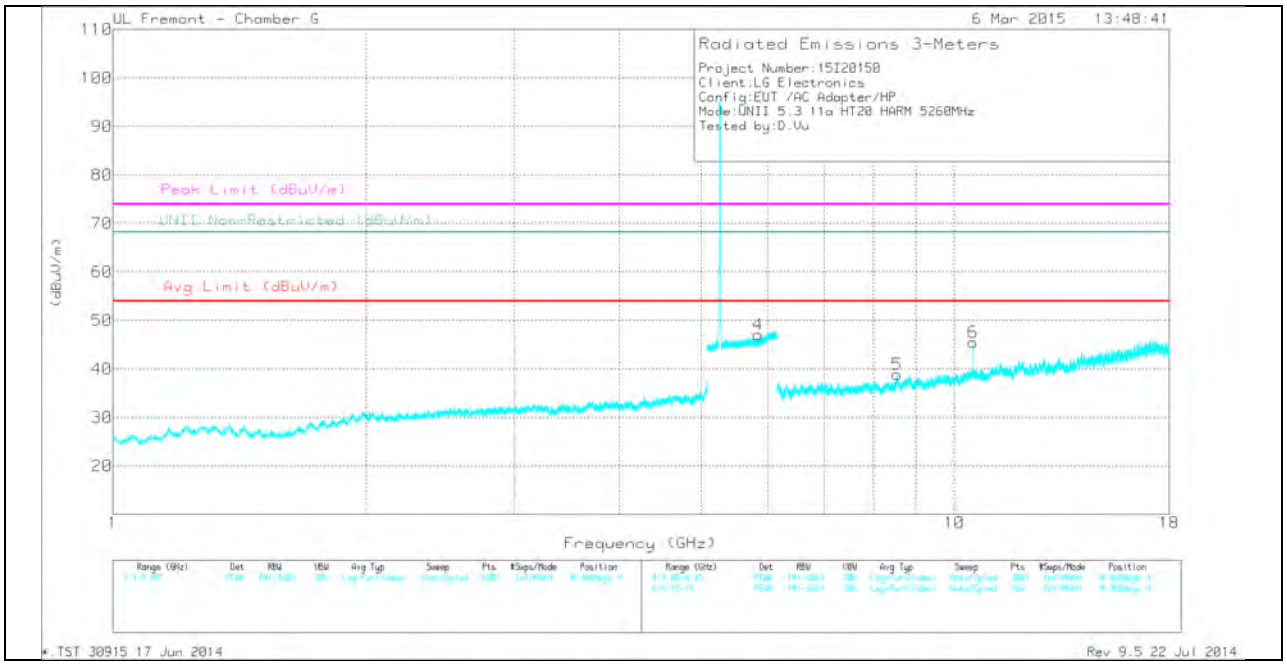
HARMONICS AND SPURIOUS EMISSIONS

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.

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.6	31.95	PK	32.8	-31.8	0	32.95	-	-	74	-41.05	-	-	0-360	100	H
4	5.844	33.51	PK	34.9	-21.3	0	47.11	-	-	-	-	68.2	-21.09	0-360	100	V
2	5.97	33.39	PK	35.1	-20.9	0	47.59	-	-	-	-	68.2	-20.61	0-360	200	H
5	8.554	29.16	PK	35.8	-26.1	0	38.86	-	-	-	-	68.2	-29.34	0-360	100	V
3	8.902	29.46	PK	35.9	-27.2	0	38.16	-	-	-	-	68.2	-30.04	0-360	100	H
6	10.52	32.96	PK	37.5	-25	0	45.46	-	-	-	-	68.2	-22.74	0-360	200	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

Radiated Emissions

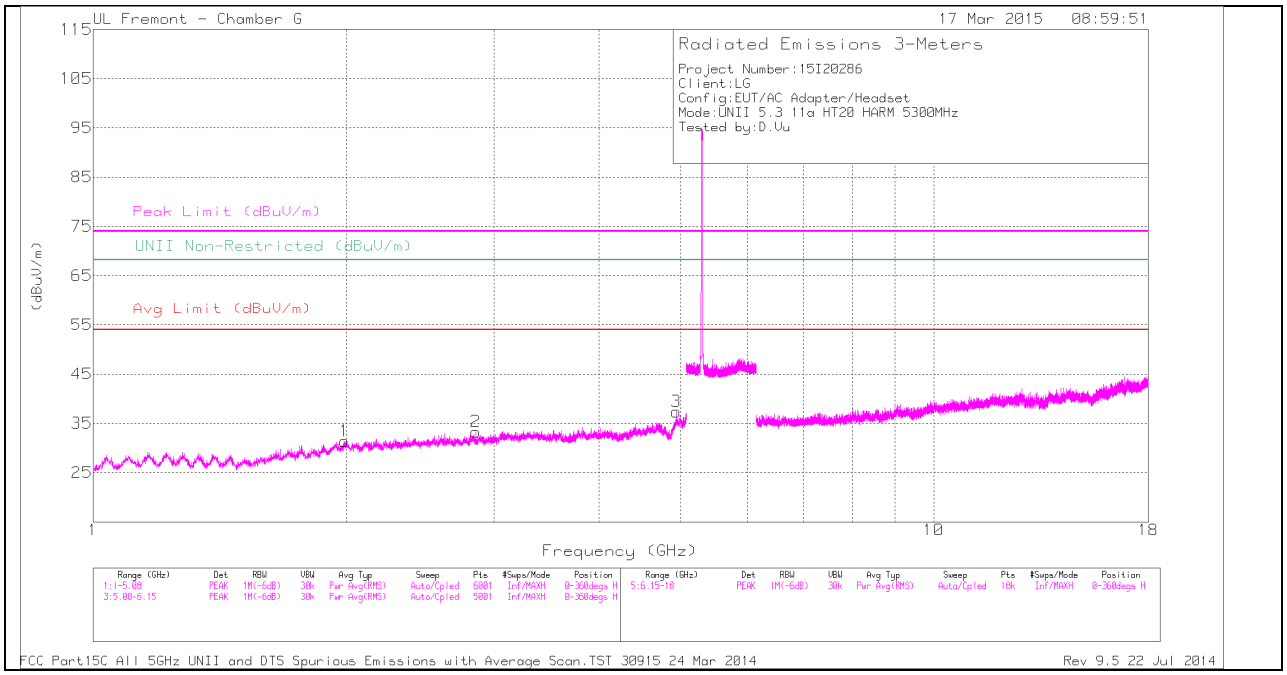
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5.844	43.87	PK1	34.9	-21.3	0	57.47	-	-	-	-	68.2	-10.73	264	160	V
5.844	32.63	AD1	34.9	-21.3	.2	46.43	-	-	-	-	-	-	264	101	H
5.969	44.14	PK1	35.1	-20.9	0	58.34	-	-	-	-	68.2	-9.86	208	168	H
5.97	32.17	AD1	35.1	-20.9	.2	46.57	-	-	-	-	-	-	208	168	H
10.52	38.57	PK1	37.5	-25	0	51.07	-	-	-	-	68.2	-17.13	300	200	V
10.52	31.2	AD1	37.5	-25	.2	43.9	-	-	-	-	-	-	300	200	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

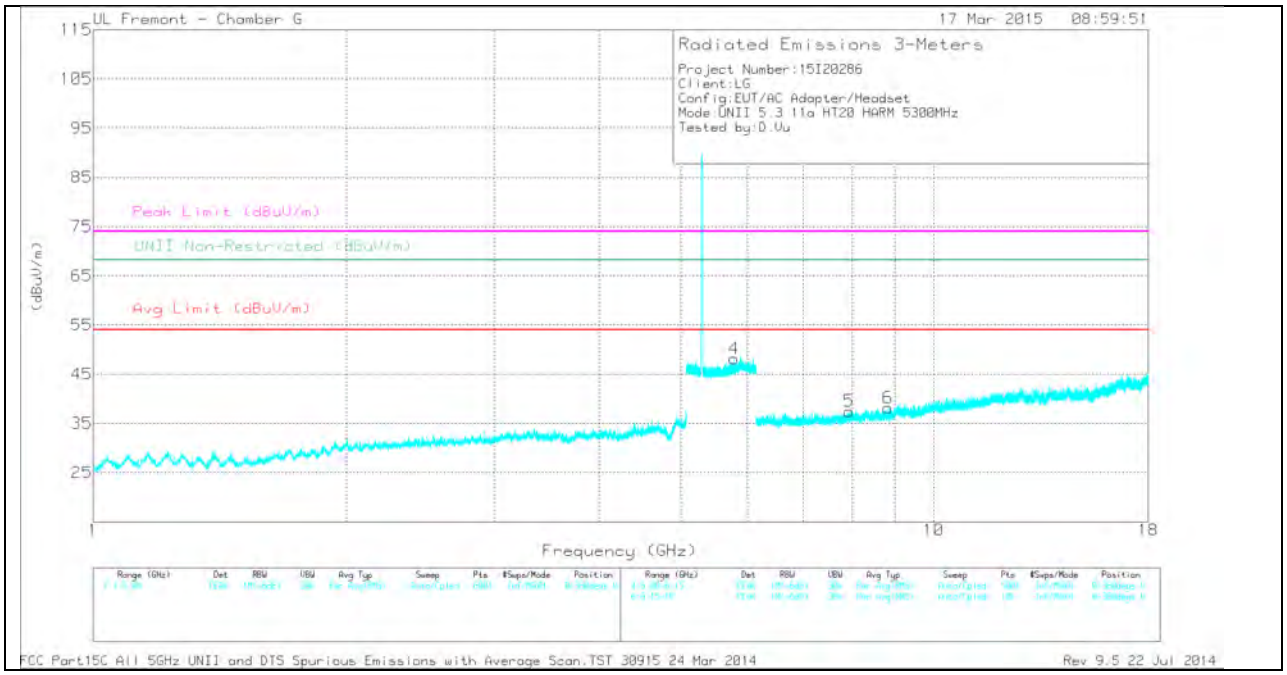
AD1 - KDB789033 Method: AD Primary Power Average

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.

MID CHANNEL VERTICAL



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

MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.852	34.79	PK	32.3	-33.8	0	33.29	-	-	74	-40.71	-	-	0-360	201	H
3	* 4.942	34.98	PK	34.1	-31.7	0	37.38	-	-	74	-36.62	-	-	0-360	201	H
1	1.991	34.76	PK	31.2	-34.6	0	31.36	-	-	-	-	68.2	-36.84	0-360	201	H
4	5.786	36.72	PK	34.9	-23.5	0	48.12	-	-	-	-	68.2	-20.08	0-360	101	V
5	7.932	32.47	PK	35.8	-30.8	0	37.47	-	-	-	-	68.2	-30.73	0-360	101	V
6	8.825	30.69	PK	36.1	-28.6	0	38.19	-	-	-	-	68.2	-30.01	0-360	101	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

Radiated Emissions

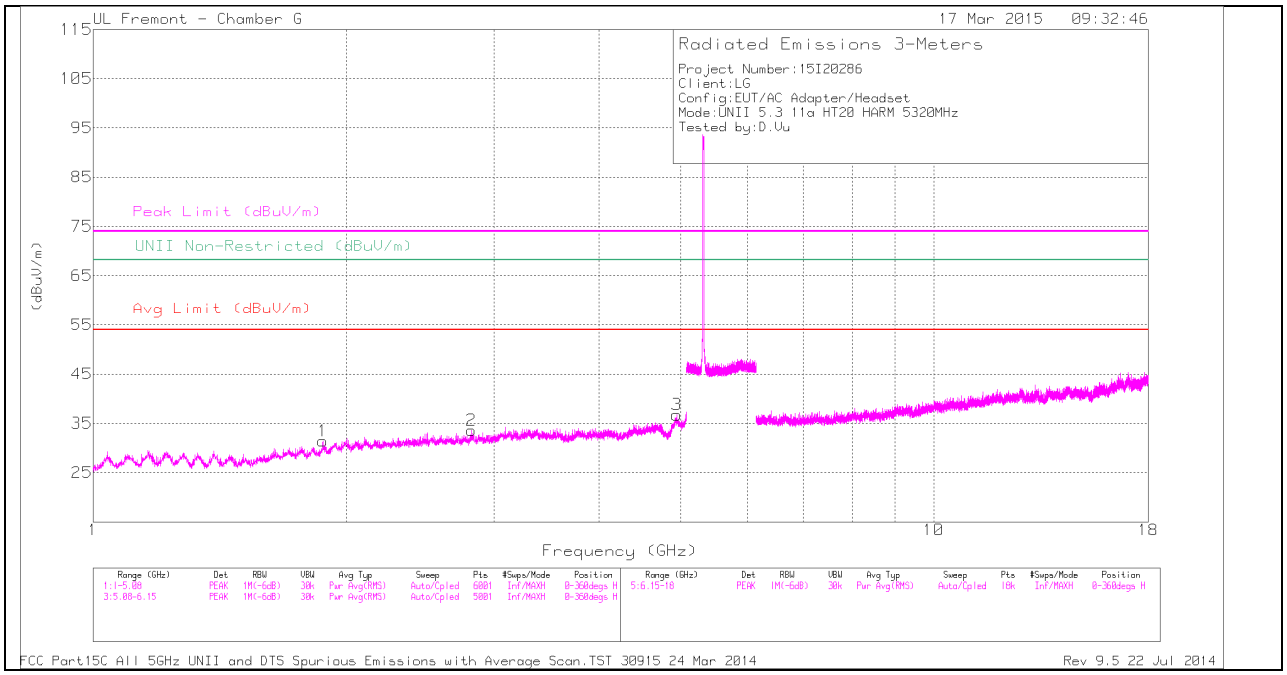
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.94	41.86	PK1	34.1	-31.7	0	44.26	-	-	74	-29.74	-	-	0	101	H
* 4.942	30.55	AD1	34.1	-31.7	.22	33.17	54	-20.83	-	-	-	-	0	101	H

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

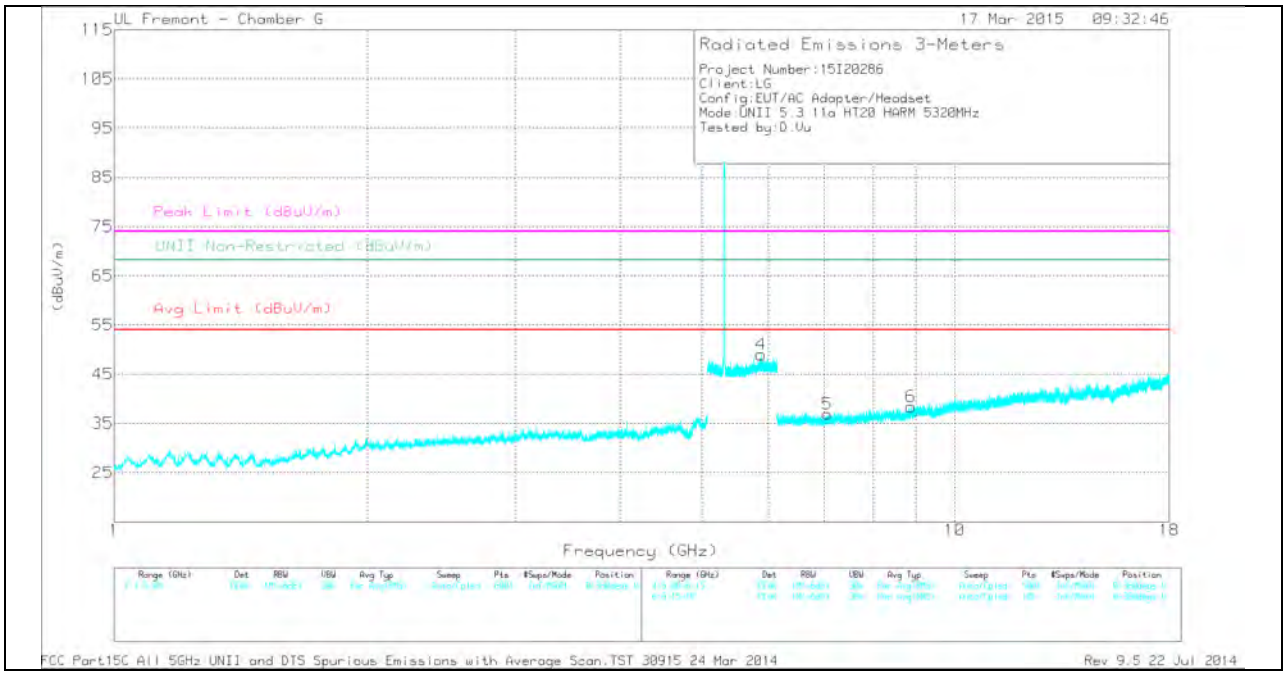
AD1 - KDB789033 Method: AD Primary Power Average

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.

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.817	35.08	PK	32.3	-33.8	0	33.58	-	-	74	-40.42	-	-	0-360	201	H
3	* 4.946	34.44	PK	34.1	-31.8	0	36.74	-	-	74	-37.26	-	-	0-360	201	H
1	1.877	35.91	PK	30.5	-35	0	31.41	-	-	-	-	68.2	-36.79	0-360	101	H
4	5.884	37.61	PK	35	-23.6	0	49.01	-	-	-	-	68.2	-19.19	0-360	201	V
5	7.054	33.1	PK	35.6	-31.8	0	36.9	-	-	-	-	68.2	-31.3	0-360	201	V
6	8.867	31.19	PK	36.2	-29	0	38.39	-	-	-	-	68.2	-29.81	0-360	201	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.816	42.55	PK1	32.3	-33.8	0	41.05	-	-	74	-32.95	-	-	145	152	H
* 2.818	30.59	AD1	32.3	-33.8	.22	29.31	54	-24.69	-	-	-	-	145	152	H
* 4.945	41.61	PK1	34.1	-31.8	0	43.91	-	-	74	-30.09	-	-	150	203	H
* 4.944	30.2	AD1	34.1	-31.7	.22	32.82	54	-21.18	-	-	-	-	150	203	H

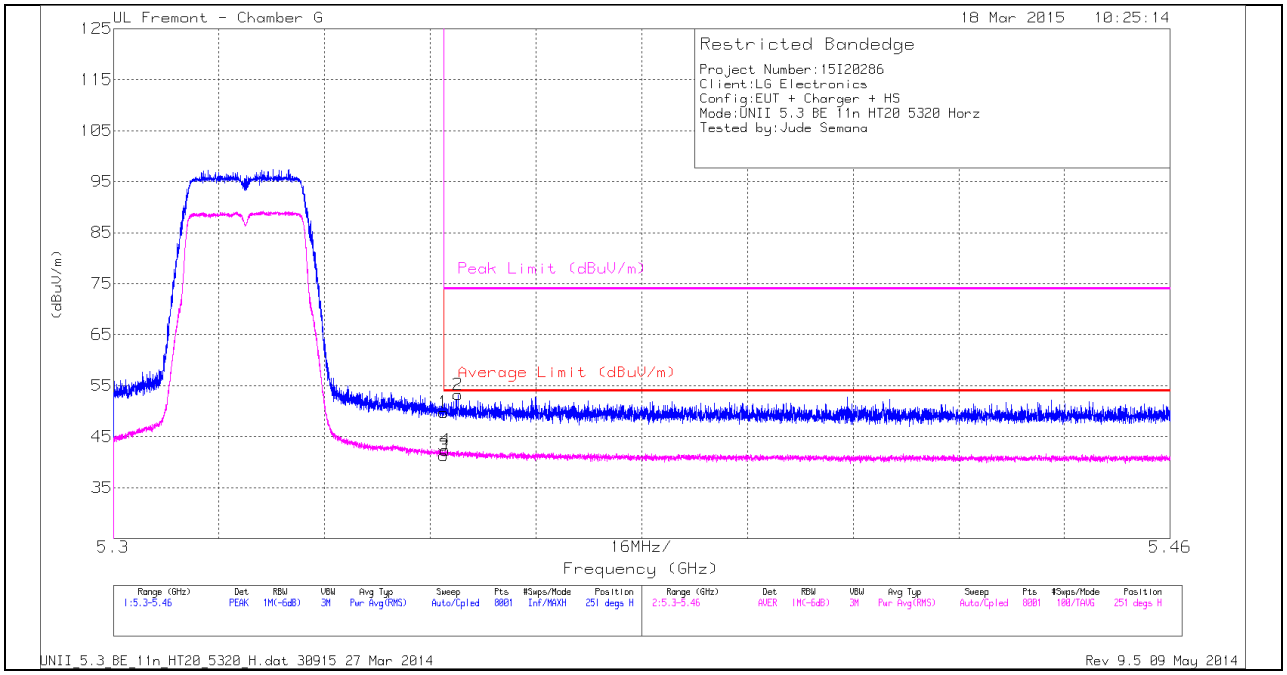
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

12.2.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND AUTHORIZED BANDEDGE (HIGH CHANNEL)

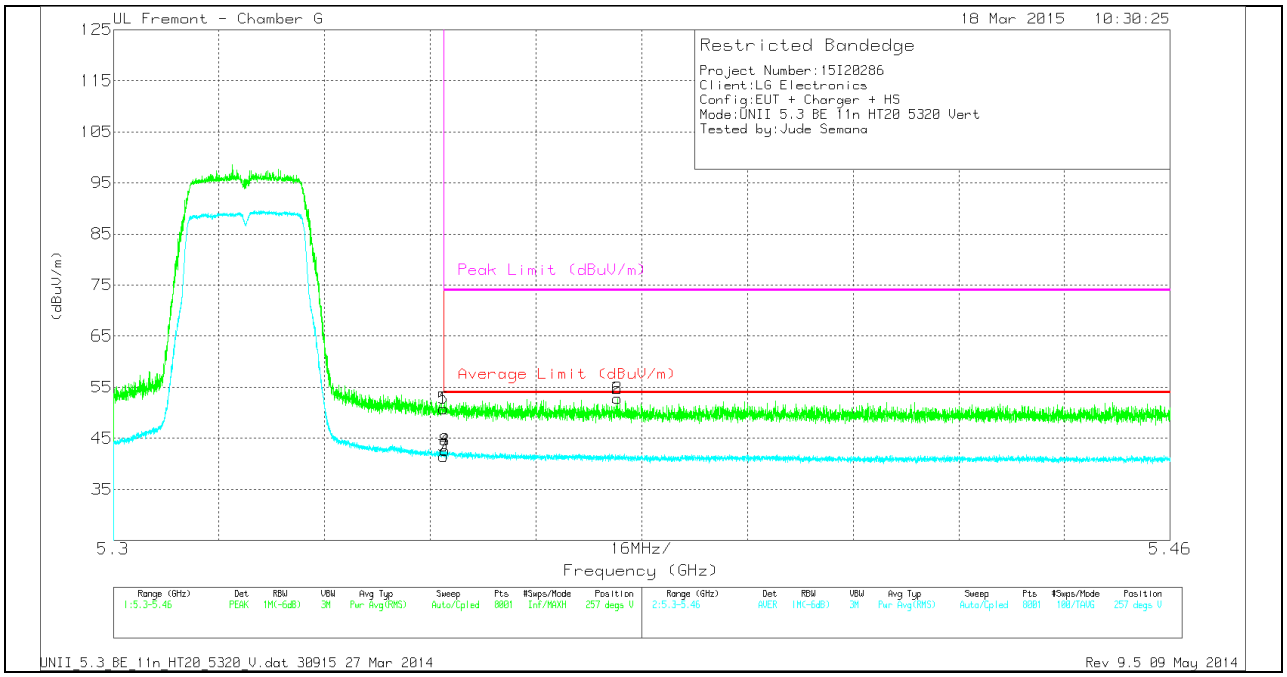
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	38.85	PK	34.6	-23.7	0	49.75	-	-	74	-24.25	251	289	H
2	* 5.352	42.37	PK	34.6	-23.7	0	53.27	-	-	74	-20.73	251	289	H
3	* 5.35	30.25	RMS	34.6	-23.7	.2	41.35	54	-12.65	-	-	251	289	H
4	* 5.35	31.27	RMS	34.6	-23.7	.2	42.37	54	-11.63	-	-	251	289	H

VERTICAL PEAK AND AVERAGE PLOT

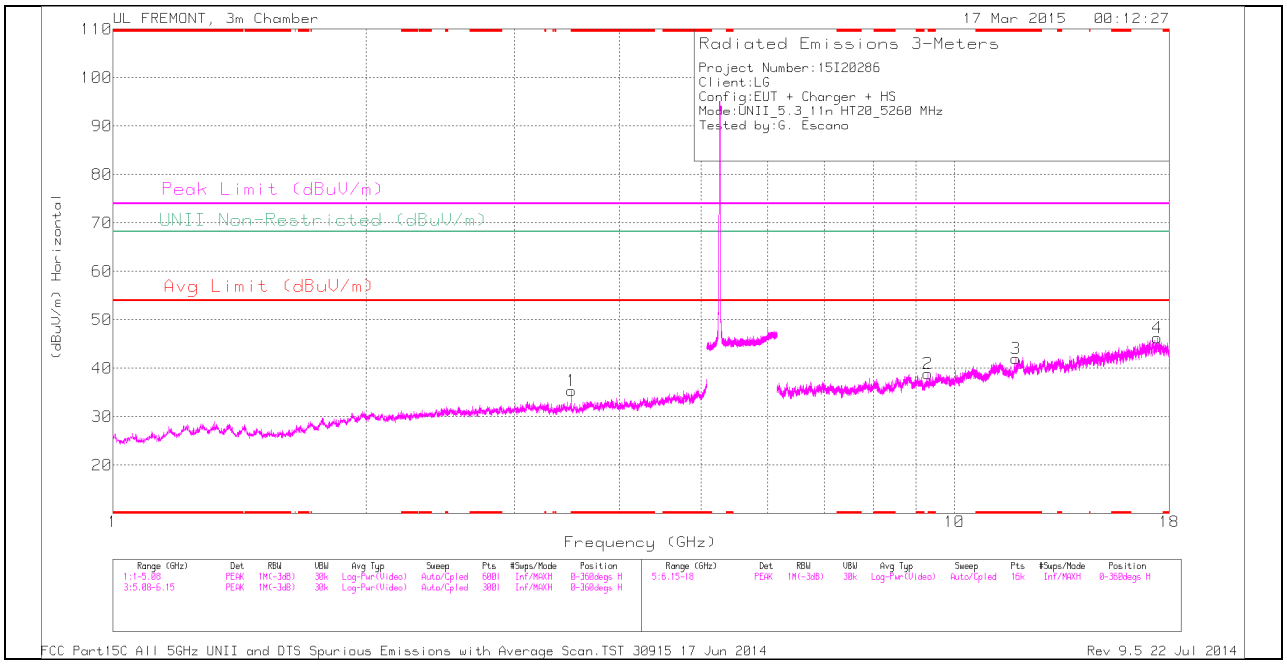


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	39.9	PK	34.6	-23.7	0	50.8	-	-	74	-23.2	257	289	V
2	* 5.376	41.82	PK	34.6	-23.6	0	52.82	-	-	74	-21.18	257	289	V
5	* 5.35	39.9	PK	34.6	-23.7	0	50.8	-	-	74	-23.2	257	289	V
6	* 5.376	41.82	PK	34.6	-23.6	0	52.82	-	-	74	-21.18	257	289	V
3	* 5.35	30.39	RMS	34.6	-23.7	.2	41.49	54	-12.51	-	-	257	289	V
4	* 5.35	31.53	RMS	34.6	-23.7	.2	42.63	54	-11.37	-	-	257	289	V
7	* 5.35	30.39	RMS	34.6	-23.7	.2	41.49	54	-12.51	-	-	257	289	V
8	* 5.35	31.53	RMS	34.6	-23.7	.2	42.63	54	-11.37	-	-	257	289	V

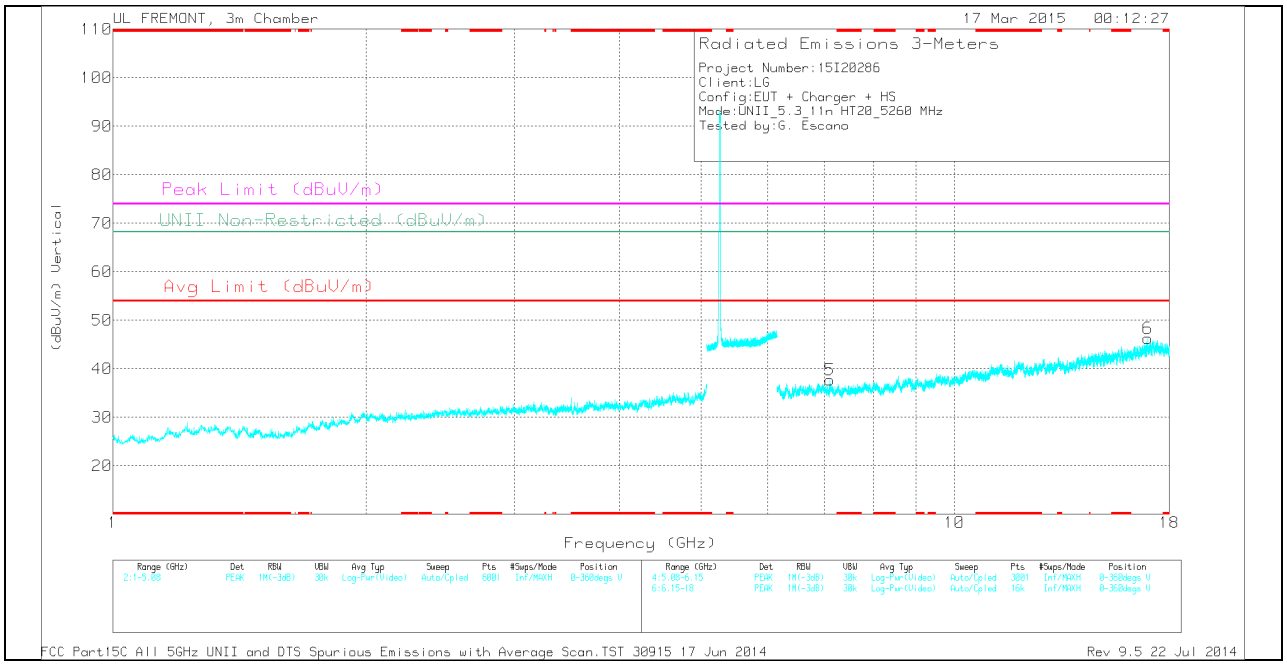
HARMONICS AND SPURIOUS EMISSIONS

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.

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	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	* 2.852	34.79	PK	32.3	-33.8	0	33.29	-	-	74	-40.71	-	-	0-360	201	H
3	* 4.942	34.98	PK	34.1	-31.7	0	37.38	-	-	74	-36.62	-	-	0-360	201	H
1	1.991	34.76	PK	31.2	-34.6	0	31.36	-	-	-	-	68.2	-36.84	0-360	201	H
4	5.786	36.72	PK	34.9	-23.5	0	48.12	-	-	-	-	68.2	-20.08	0-360	101	V
5	7.932	32.47	PK	35.8	-30.8	0	37.47	-	-	-	-	68.2	-30.73	0-360	101	V
6	8.825	30.69	PK	36.1	-28.6	0	38.19	-	-	-	-	68.2	-30.01	0-360	101	V

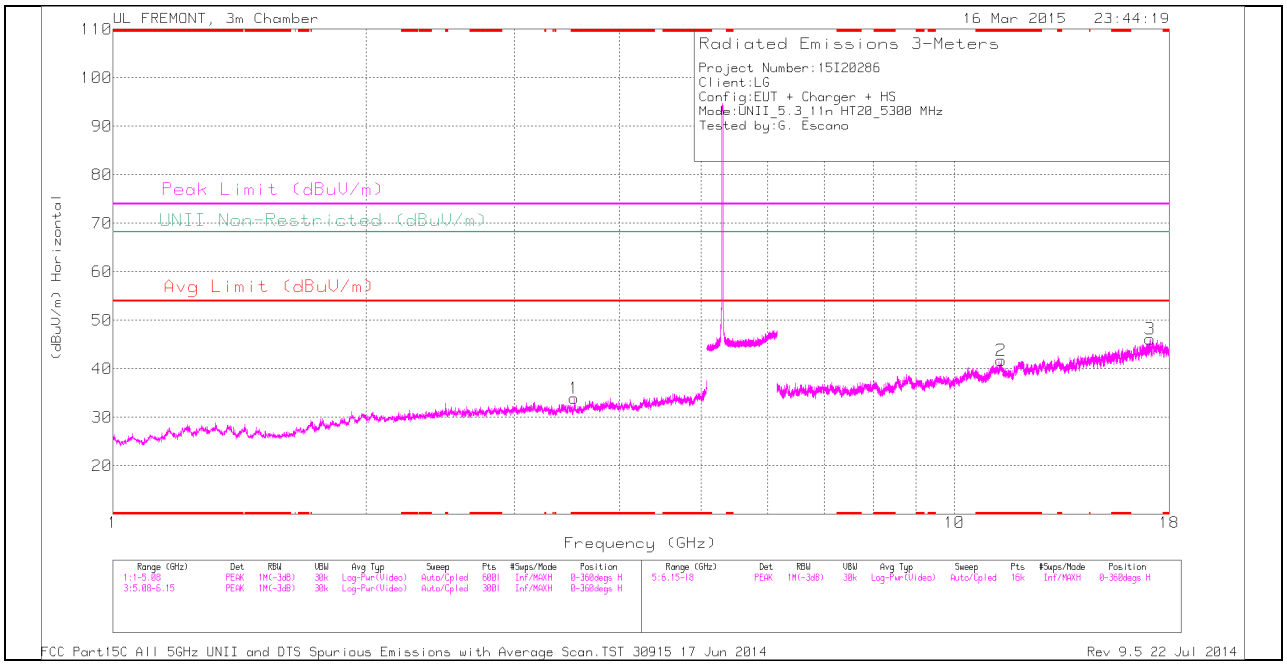
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.94	41.86	PK1	34.1	-31.7	0	44.26	-	-	74	-29.74	-	-	0	101	H
* 4.942	30.55	AD1	34.1	-31.7	.22	33.17	54	-20.83	-	-	-	-	0	101	H

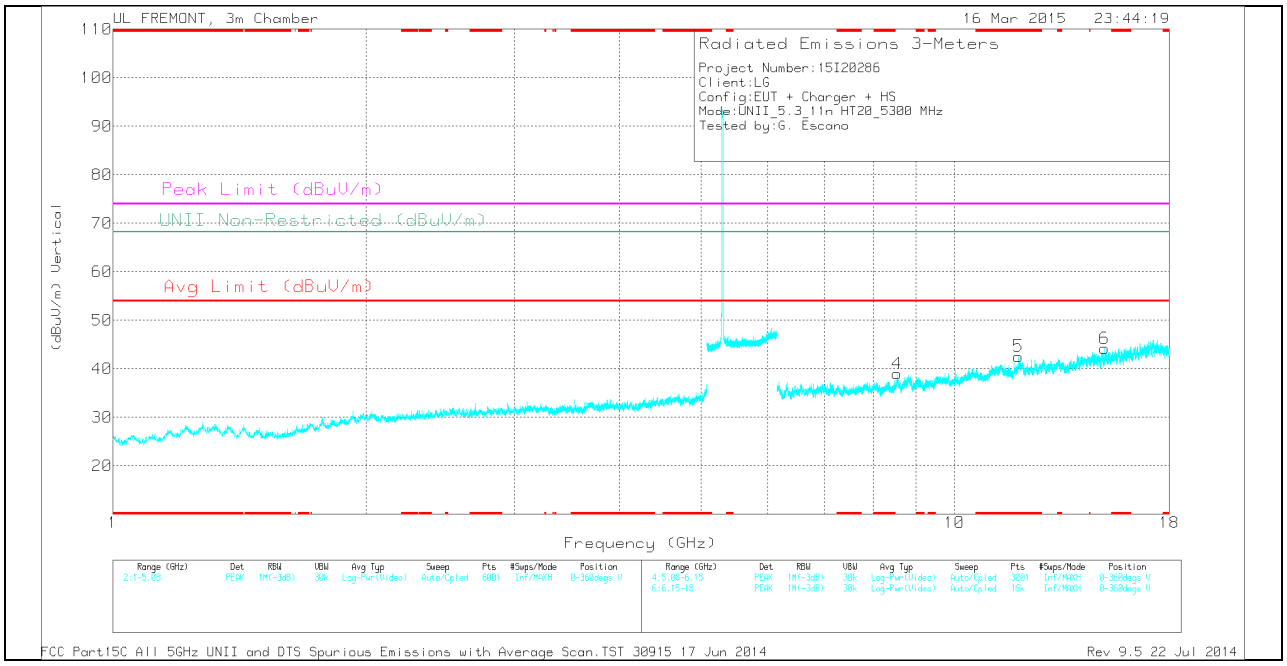
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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.

MID CHANNEL VERTICAL



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

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.533	32.97	PK	32.8	-31.8	0	33.97	-	-	74	-40.03	-	-	0-360	200	H
2	* 11.361	29.48	PK	38.1	-25.8	0	41.78	-	-	74	-32.22	-	-	0-360	100	H
5	* 11.92	29.68	PK	39.1	-26.2	0	42.58	-	-	74	-31.42	-	-	0-360	100	V
4	8.552	29.31	PK	35.8	-26.1	0	39.01	-	-	-	-	68.2	-29.19	0-360	200	V
6	15.078	31.07	PK	39.8	-26.7	0	44.17	-	-	-	-	68.2	-24.03	0-360	100	V
3	17.076	28.56	PK	41.4	-23.8	0	46.16	-	-	-	-	68.2	-22.04	0-360	200	H

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

RADIATED EMISSIONS

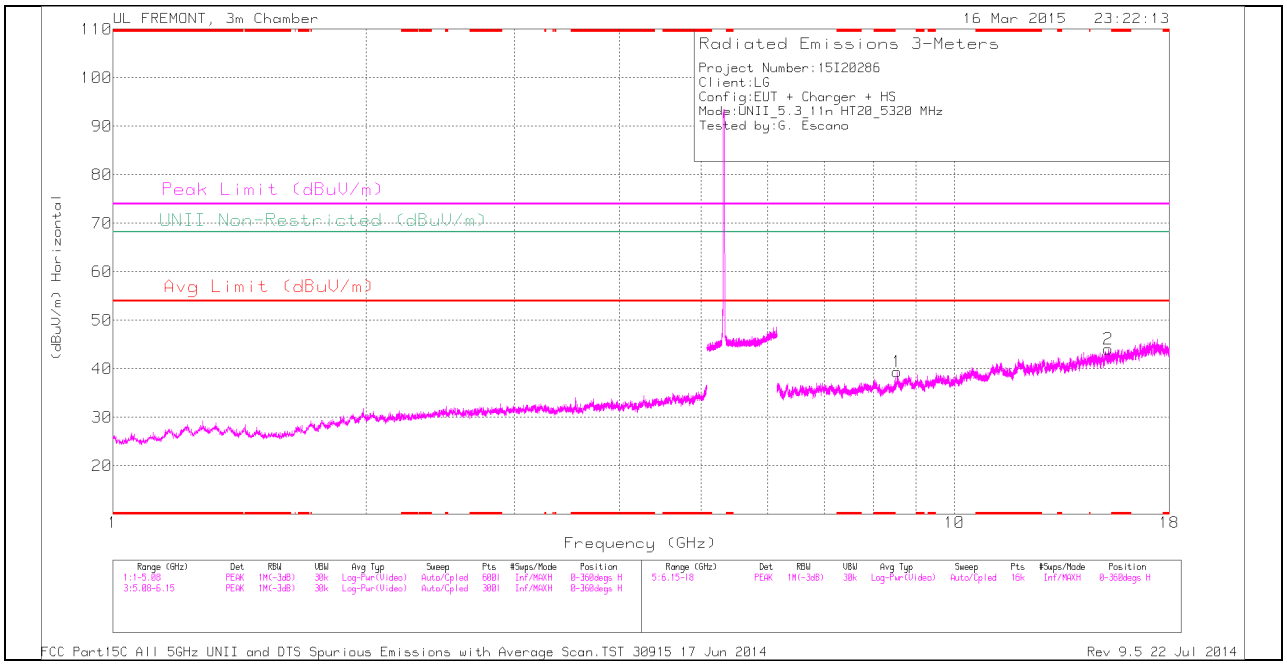
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.533	41.88	PK1	32.8	-31.8	0	42.88	-	-	74	-31.12	-	-	69	320	H
* 3.533	31.65	AD1	32.8	-31.8	.23	32.88	54	-21.12	-	-	-	-	69	320	H
* 11.363	37.11	PK1	38.1	-25.8	0	49.41	-	-	74	-24.59	-	-	309	189	H
* 11.363	25.58	AD1	38.1	-25.8	.23	38.11	54	-15.89	-	-	-	-	309	189	H
* 11.921	38.11	PK1	39.1	-26.2	0	51.01	-	-	74	-22.99	-	-	245	381	V
* 11.921	25.86	AD1	39.1	-26.2	.23	38.99	54	-15.01	-	-	-	-	245	381	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

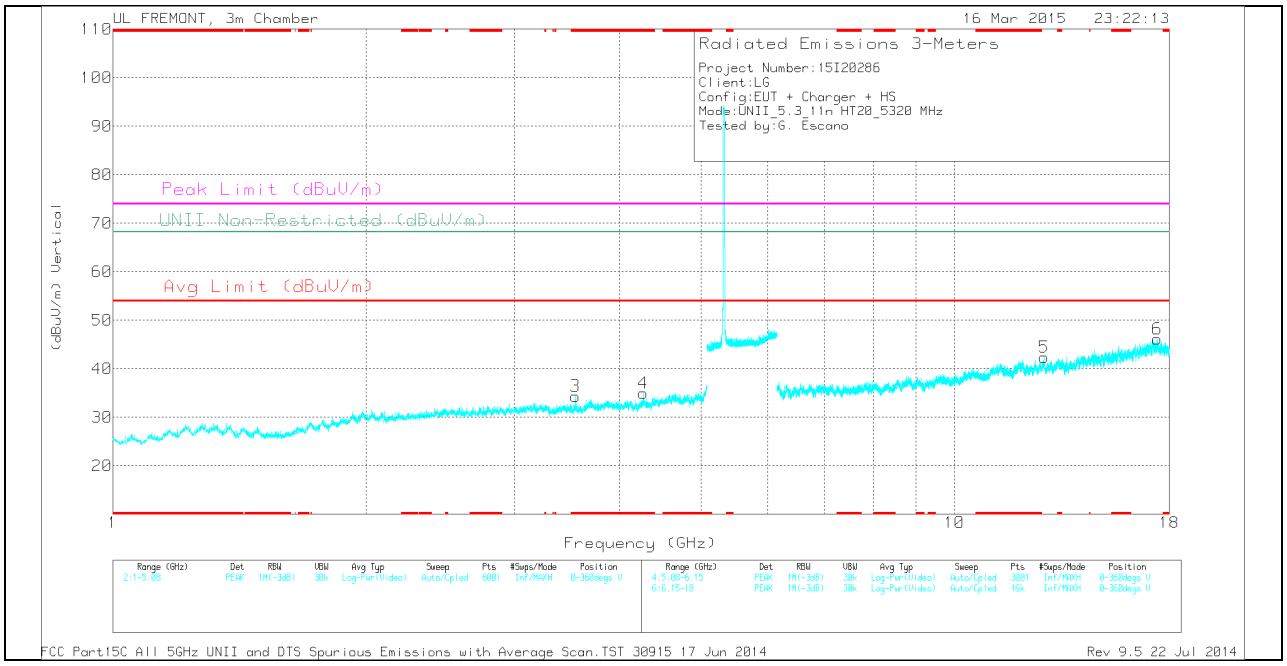
AD1 - KDB789033 Method: AD Primary Power Average

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.

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 3.547	33.5	PK	32.8	-31.9	0	34.4	-	-	74	-39.6	-	-	0-360	200	V
4	* 4.269	31.86	PK	33.4	-30.3	0	34.96	-	-	74	-39.04	-	-	0-360	100	V
1	8.548	29.56	PK	35.8	-26	0	39.36	-	-	-	-	68.2	-28.84	0-360	100	H
5	12.786	29.13	PK	39.1	-25.9	0	42.33	-	-	-	-	68.2	-25.87	0-360	200	V
2	15.24	30.96	PK	39.9	-26.8	0	44.06	-	-	-	-	68.2	-24.14	0-360	200	H
6	17.403	27.76	PK	41.4	-23	0	46.16	-	-	-	-	68.2	-22.04	0-360	100	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.547	42.01	PK1	32.8	-31.9	0	42.91	-	-	74	-31.09	-	-	183	316	V
* 3.547	32.59	AD1	32.8	-31.9	.23	33.72	54	-20.28	-	-	-	-	183	316	V
* 4.269	40.57	PK1	33.4	-30.3	0	43.67	-	-	74	-30.33	-	-	96	219	V
* 4.271	28.18	AD1	33.4	-30.3	.23	31.51	54	-22.49	-	-	-	-	96	219	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average