FCC 47 CFR PART 15 SUBPART E

CERTIFICATION TEST REPORT

FOR

WIRELESS INPUT DEVICE

MODEL NUMBER: 1697

FCC ID: C3K1697

REPORT NUMBER: 15U20293-E1 Revision B

ISSUE DATE: MAY 14, 2015

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	3/24/15	Initial Issue	F. de Anda
A	4/25/15	KDB Reference updated to Method SA-2. Section 5.3 updated. All output power and PSD tables updated to reflect change in antenna gain. Procedure added to section 9. Updated section 10.1.4	J. Gomez
B	5/14/15	Updated EUT name	F. de Anda

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: MICROSOFT CORPORATION
ONE MICROSOFT WAY
REDMOND, WA 98052, U.S.A.

EUT DESCRIPTION: WIRELESS INPUT DEVICE

MODEL: 1697

SERIAL NUMBER: DV2-A-115 (CONDUCTED), DV2-A-085 (RADIATED)

DATE TESTED: DECEMBER 11 to MARCH 21, 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.

Approved & Released For
UL Verification Services Inc. By:

FRANCISCO DE ANDA
PROJECT LEAD/ PROGRAM MANAGER
UL Verification Services Inc.

Tested By:

TRI PHAM
EMC ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, FCC KDB 789033, ANSI C63.10-2009.

3. FACILITIES AND ACCREDITATION

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

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

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.
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 1000 MHz	± 4.94 dB
Radiated Disturbance, 1 to 6 GHz	± 3.86 dB
Radiated Disturbance, 6 to 18 GHz	± 4.23 dB
Radiated Disturbance, 18 to 26 GHz	± 5.30 dB
Radiated Disturbance, 26 to 40 GHz	± 5.23 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11a/g/n transceiver, Model 1697.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum average conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5180 - 5240	802.11a	4.21	2.64
5180 - 5240	802.11n HT20	4.43	2.77
5260 - 5320	802.11a	5.04	3.19
5260 - 5320	802.11n HT20	4.94	3.12
5500 - 5700	802.11a	5.29	3.38
5500 - 5700	802.11n HT20	5.22	3.33
5745 - 5825	802.11a	5.43	3.49
5745 - 5825	802.11n HT20	5.42	3.48

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an integral antenna, with gain as follows:

Band (GHz)	5.2	5.3	5.6	5.8
Gain (dBi)	1.77	1.6	0.5	1.62

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was R73.

The test utility software used during testing was Atheros ART2 ver 2.3.

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

Worst-case data rates as provided by the client were:
Based on the baseline scan, the worst-case data rates were:

802.11a mode: 6 Mbps
802.11n HT20mode: MCS0

Radiated emissions for EUT with antenna was performed and passed; therefore, antenna port spurious was not performed.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Dell	D830	HY469A01	CXSMM01BRD02D330
AC/DC Adapter	Dell	DA90PS1-00	CN0MM5454866188JHZ9R	N/A

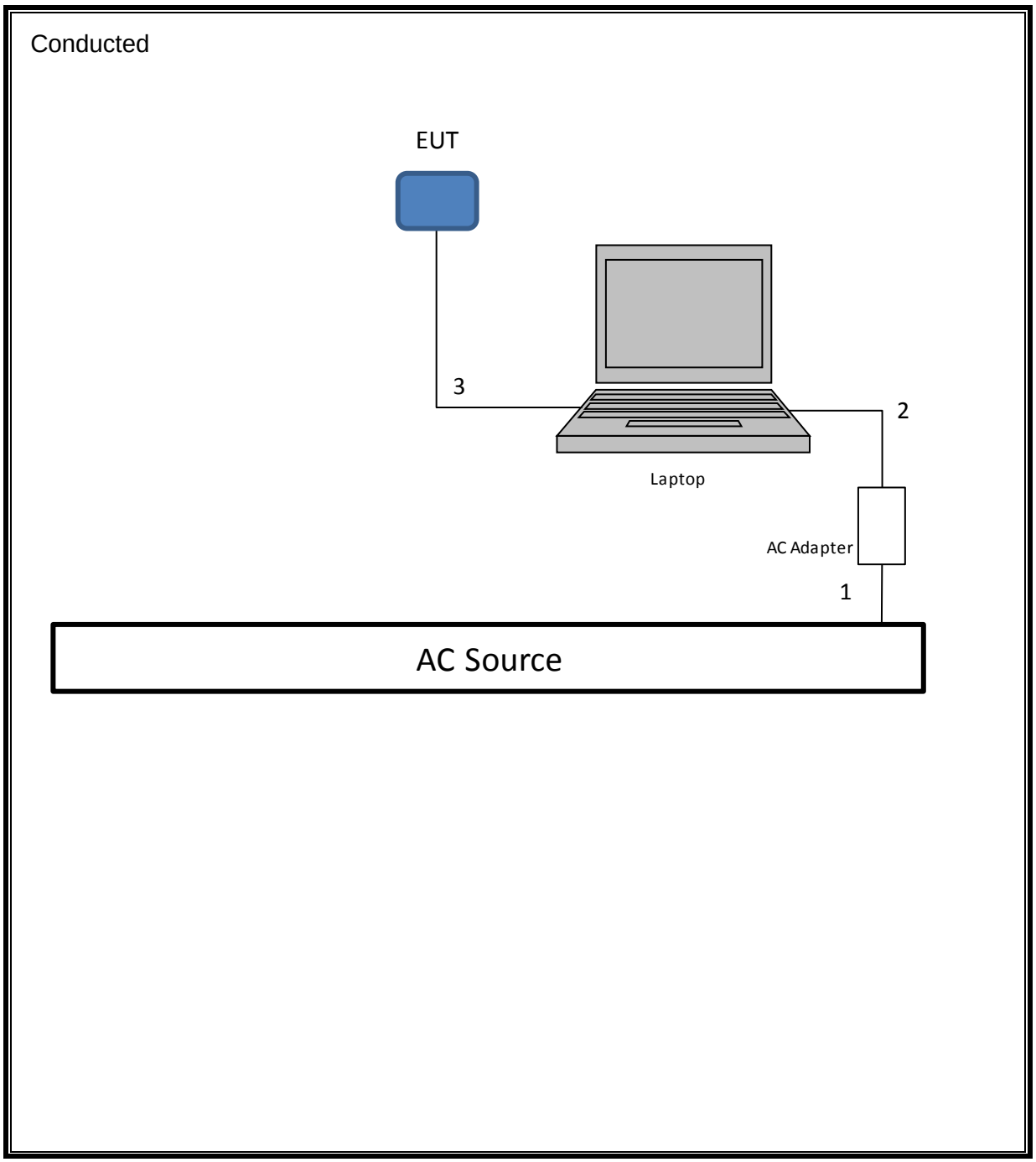
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	3-Prong	Unshielded	0.8	
2	DC	1	Barrel	Shielded	1.5	
3	USB	1	USB	Shielded	0.6	

TEST SETUP

The EUT is connected to a host laptop computer during conducted tests and standalone, battery powered, for radiated tests. Test software exercised the EUT.

SETUP DIAGRAM FOR TESTS



Radiated

AC Source

6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List					
Description	**Manufacturer**	**Model**	**T No.**	**Cal Date**	**Cal Due**
Chamber H					
Antenna, Horn 18 GHz	ETS Lindgren	3117	863	04/14/14	04/14/15
Antenna, Biconolog, 30MHz-1GHz	Sunol Sciences	JB3	900	05/14/14	04/27/15
High Pass Filter, fc: 3.0GHz, 50 Ohms	Micro-Tronics	HPM17543	897	05/14/14	05/13/15
Low Pass Filter, fc: 5GHz, 50 Ohms	Micro-Tronics	LPS17541	891	05/13/14	05/13/15
High Pass Filter, fc: 6GHz, 50 Ohms	Micro-Tronics	HPS17542	894	05/13/14	05/13/15
RF PreAmplifier, 1-18GHz	Miteq	AFS42-00101800-25-S-42	495	06/05/14	06/05/15
Preamp, 1000MHz	Sonoma	310N	835	06/05/14	06/05/15
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	906	05/07/14	05/07/15
Antenna, Horn 18 to 26.5GHz	ARA	SWH-28	T125	05/09/14	05/09/15
Amp. 26GHz	Agilent	8449B	T404	03/25/14	03/25/15
Antenna, Horn 26 to 40GHz	ARA	MWh-2640	T90	07/15/14	07/15/15
Amp. 26 to 40GHz	Miteq	NSP4000-SP2	T88	09/03/14	09/03/15
Spectrum Analyzer, 40 GHz	HP	8564E	T106	08/06/14	08/06/15
Conducted					
Spectrum Anaylyzer	Agilent	E4440A	189	05/09/14	05/09/15
Power Meter, P-series single channel	Agilent	N1911A	382	04/09/14	04/09/15
Power Sensor, Peak and average, 50 MHz to 6 GHz, 5 MHz BW	Agilent	E9323A	400	05/02/14	05/02/15
Power Meter, P-series single channel	Agilent	N1911A	385	04/30/14	04/30/15
Power Sensor, Peak and average, 50 MHz to 18 GHz, 5 MHz BW	Agilent	E9327A	117	05/15/14	05/15/15

7. MEASUREMENT METHODS

26 dB Emission BW: KDB 789033 D02 v01, Section C.

99% Occupied BW: KDB 789033 D02 v01, Section D.

Conducted Output Power: KDB 789033 D02 v01, Section E.2.d (Method SA-2).

Power Spectral Density: KDB 789033 D02 v01, Section F.

Unwanted emissions in restricted bands: KDB 789033 D02 v01, Sections G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v01, Sections G.3, G.4, and G.5.

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

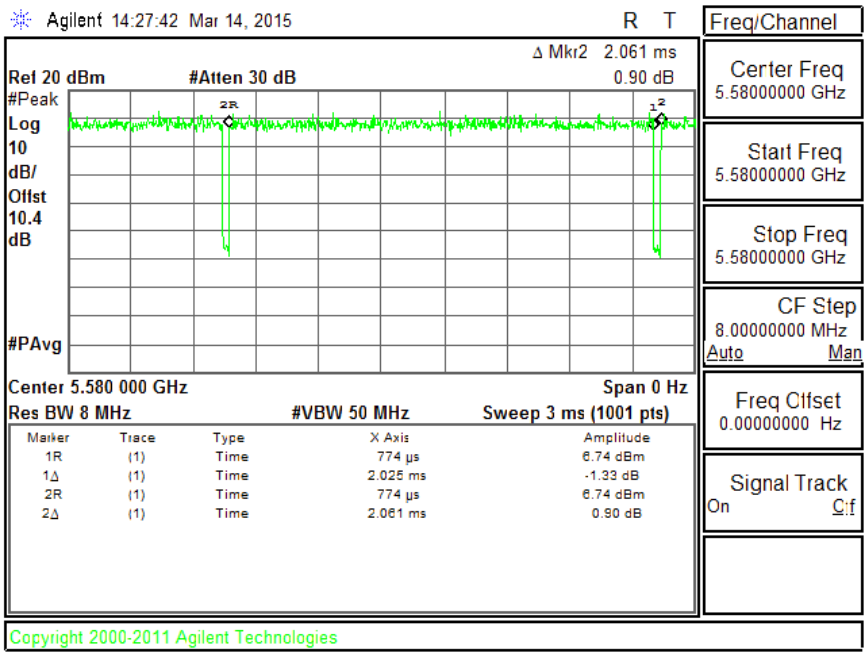
KDB 789033 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

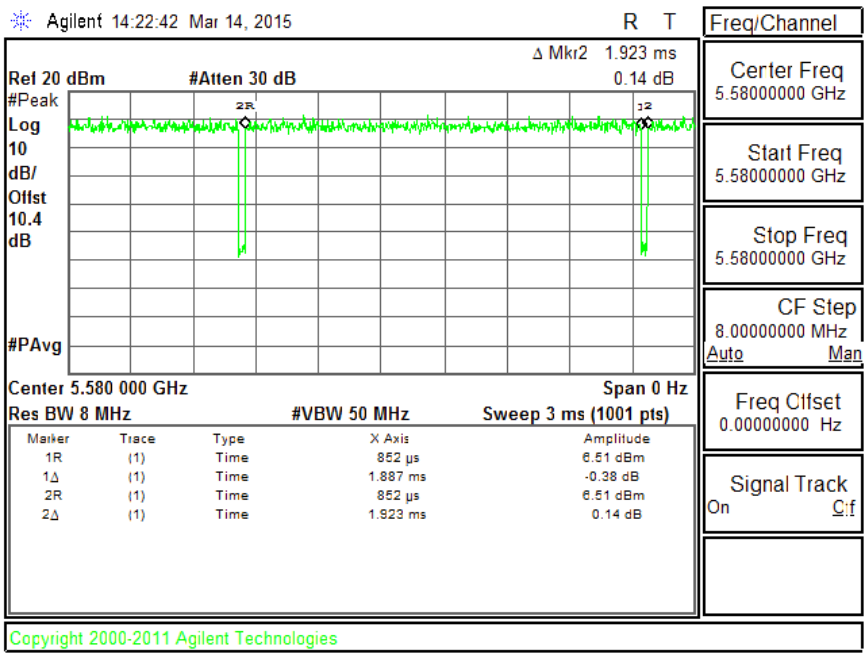
Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11a 1TX	2.025	2.061	0.983	98.25%	0.00	0.010
802.11n HT20 1TX	1.887	1.923	0.981	98.13%	0.00	0.010

DUTY CYCLE PLOTS

DUTY CYCLE 802.11a 1TX MODE



DUTY CYCLE 802.11n HT20 1TX MODE



8.2. 802.11a MODE IN THE 5.2 GHz BAND

8.2.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

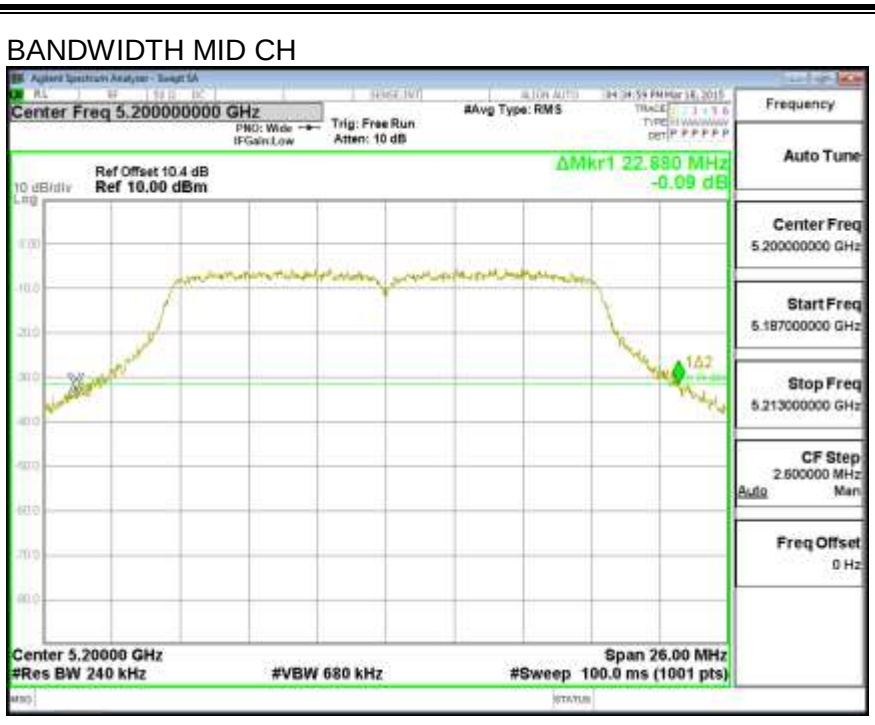
RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	23.166
Mid	5200	22.880
High	5240	22.386

26 dB BANDWIDTH

BANDWIDTH LOW CH

BANDWIDTH MID CH



BANDWIDTH HIGH CH

8.2.2. 99% BANDWIDTH

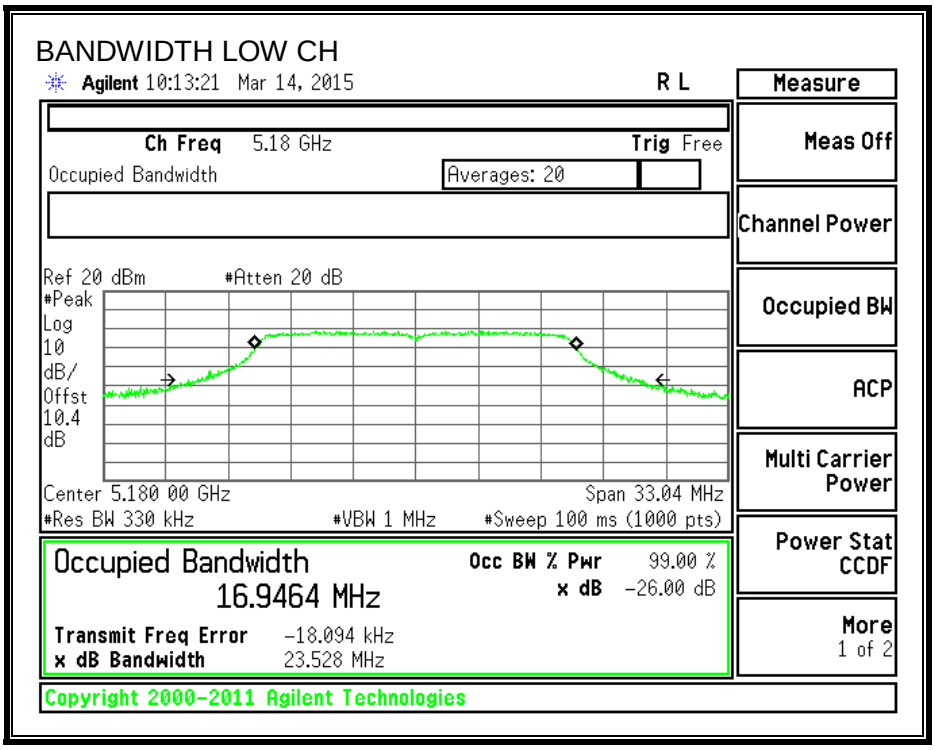
LIMITS

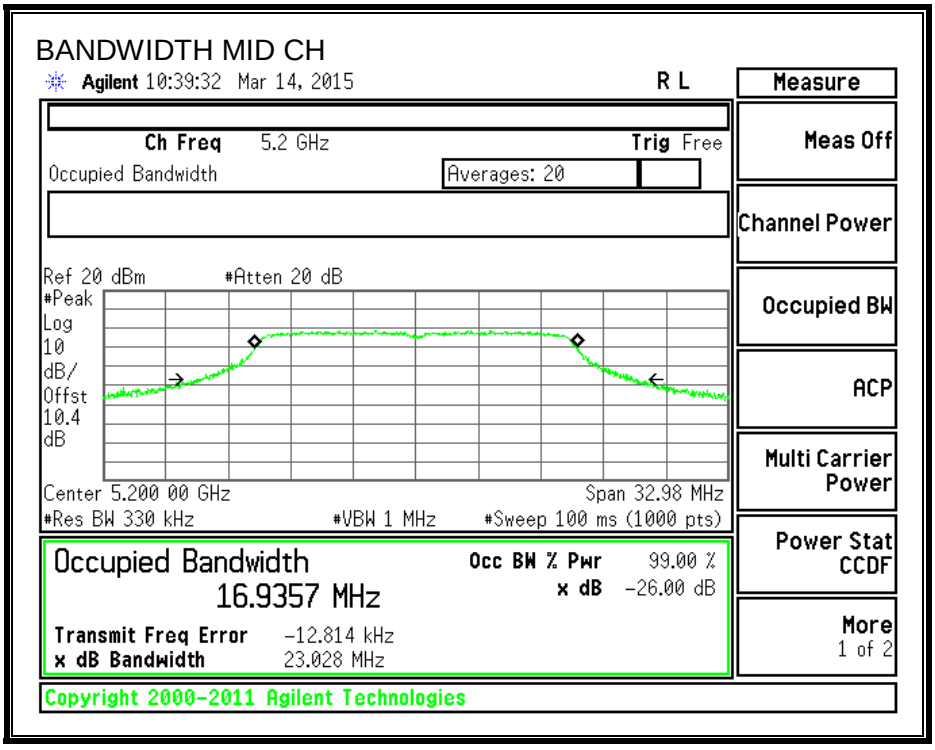
None; for reporting purposes only.

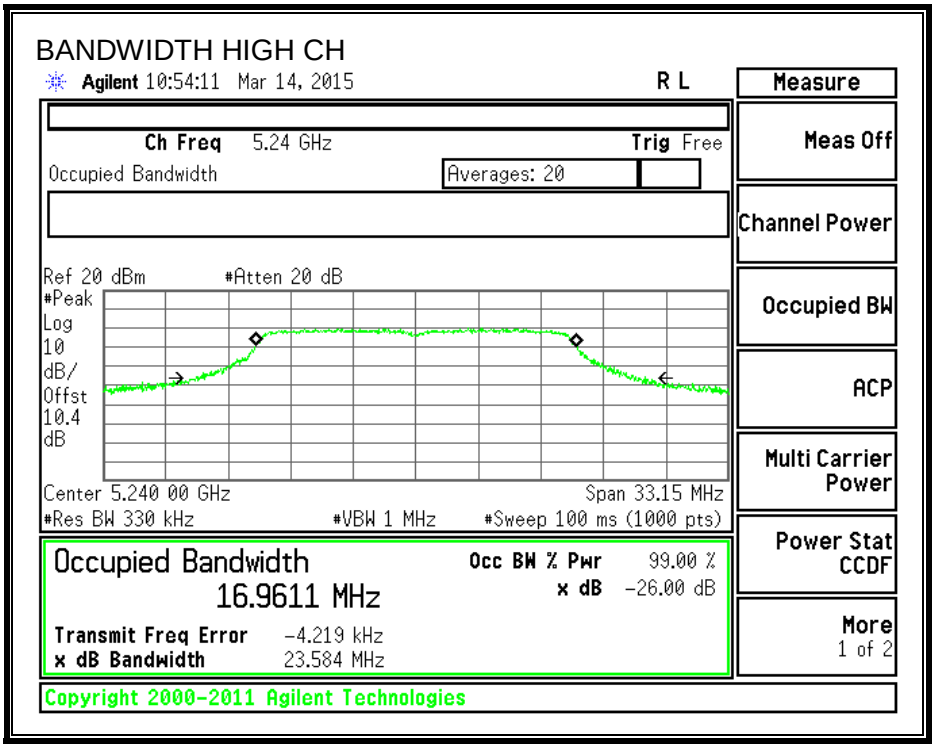
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.946
Mid	5200	16.936
High	5240	16.961

99% BANDWIDTH







8.2.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5180	1.77	1.77	24.00	11.00
Mid	5200	1.77	1.77	24.00	11.00
High	5240	1.77	1.77	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD

Output Power Results

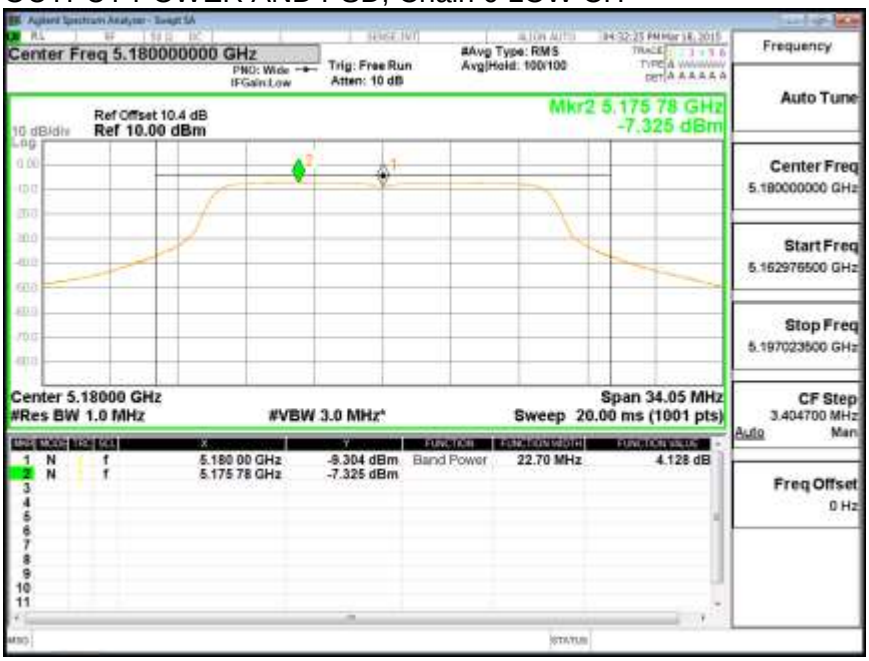
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	4.128	4.13	24.00	-19.87
Mid	5200	3.858	3.86	24.00	-20.14
High	5240	4.214	4.21	24.00	-19.79

PSD Results

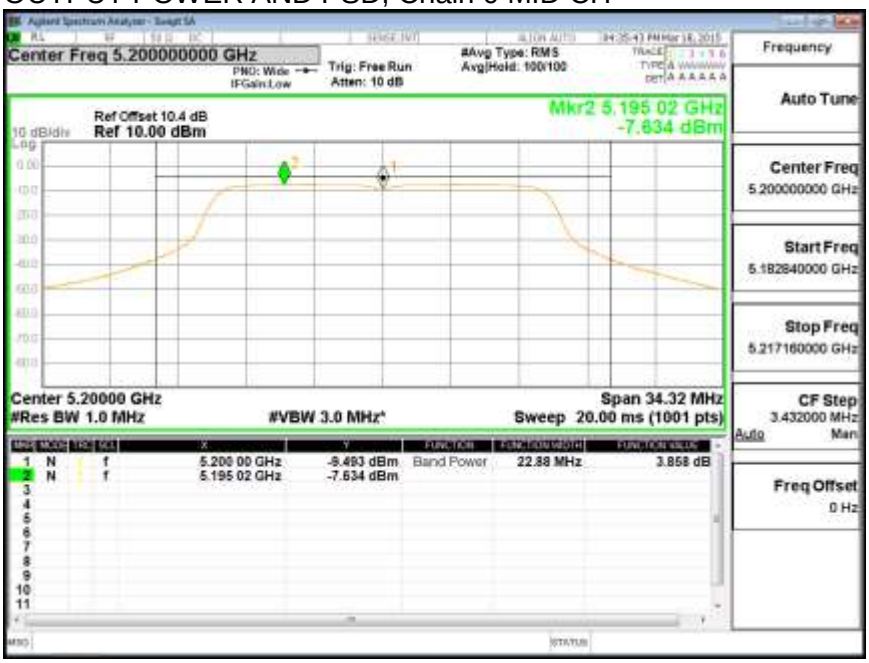
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	-7.325	-7.33	11.00	-18.33
Mid	5200	-7.634	-7.63	11.00	-18.63
High	5240	-7.260	-7.26	11.00	-18.26

OUTPUT POWER AND PSD, Chain 0

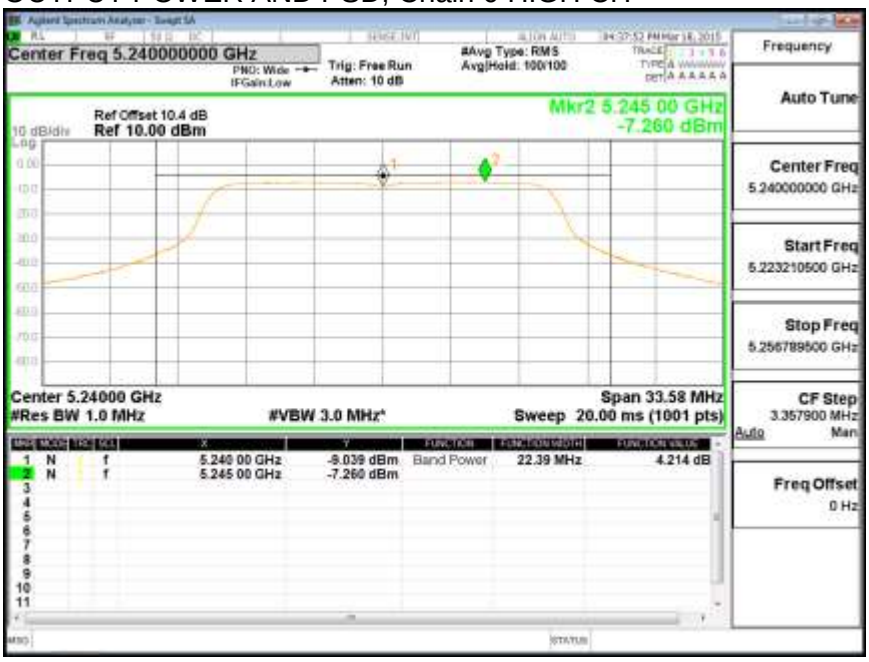
OUTPUT POWER AND PSD, Chain 0 LOW CH



OUTPUT POWER AND PSD, Chain 0 MID CH



OUTPUT POWER AND PSD, Chain 0 HIGH CH



8.3. 802.11n HT20 MODE IN THE 5.2 GHz BAND

8.3.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

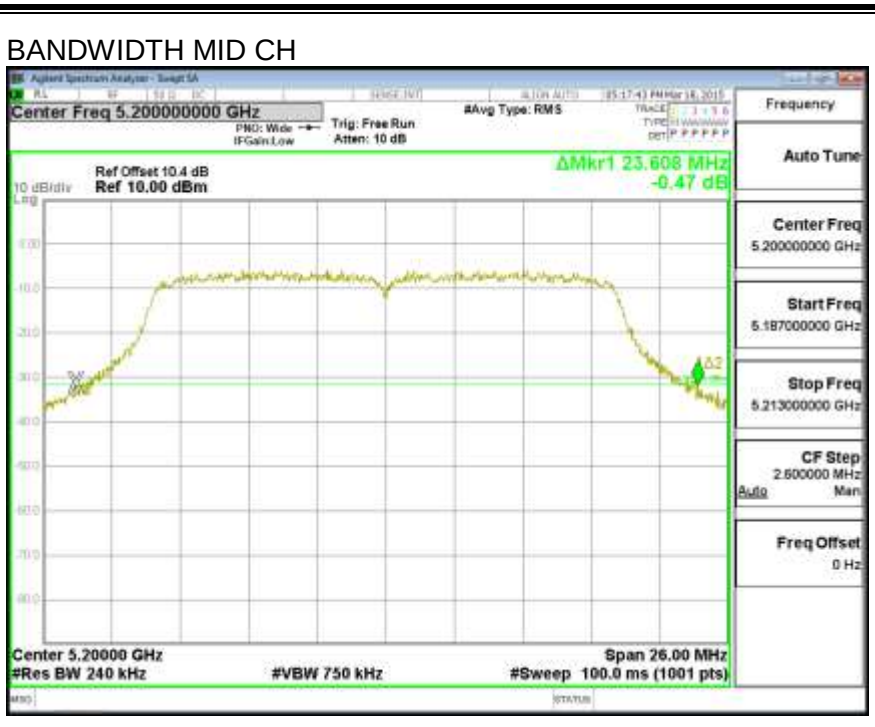
RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	23.816
Mid	5200	23.608
High	5240	23.712

26 dB BANDWIDTH

BANDWIDTH LOW CH

BANDWIDTH MID CH



BANDWIDTH HIGH CH

8.3.2. 99% BANDWIDTH

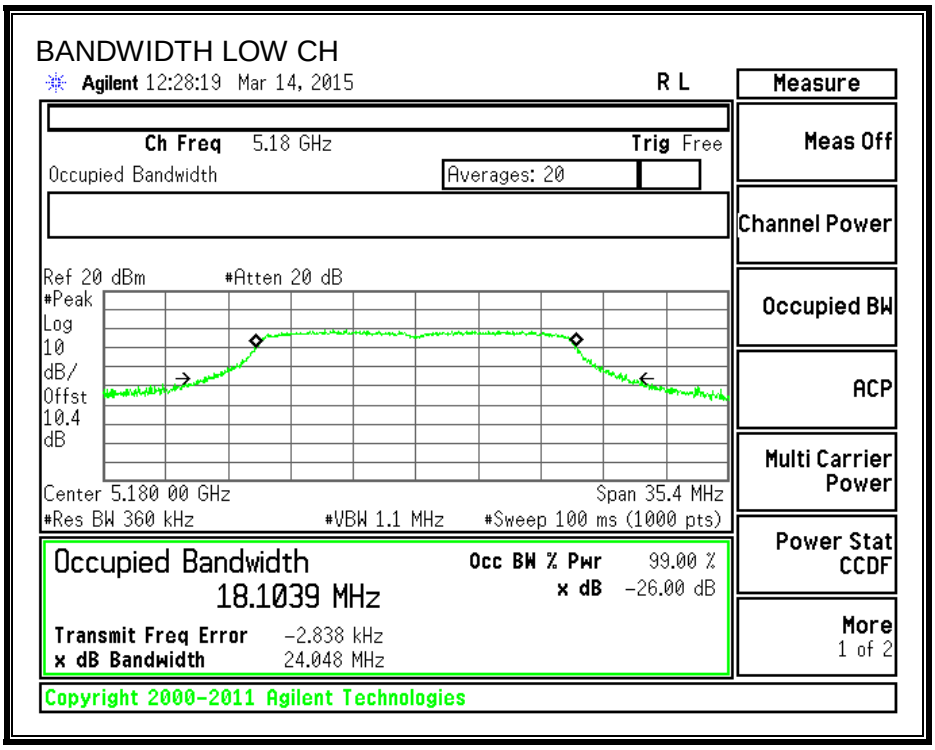
LIMITS

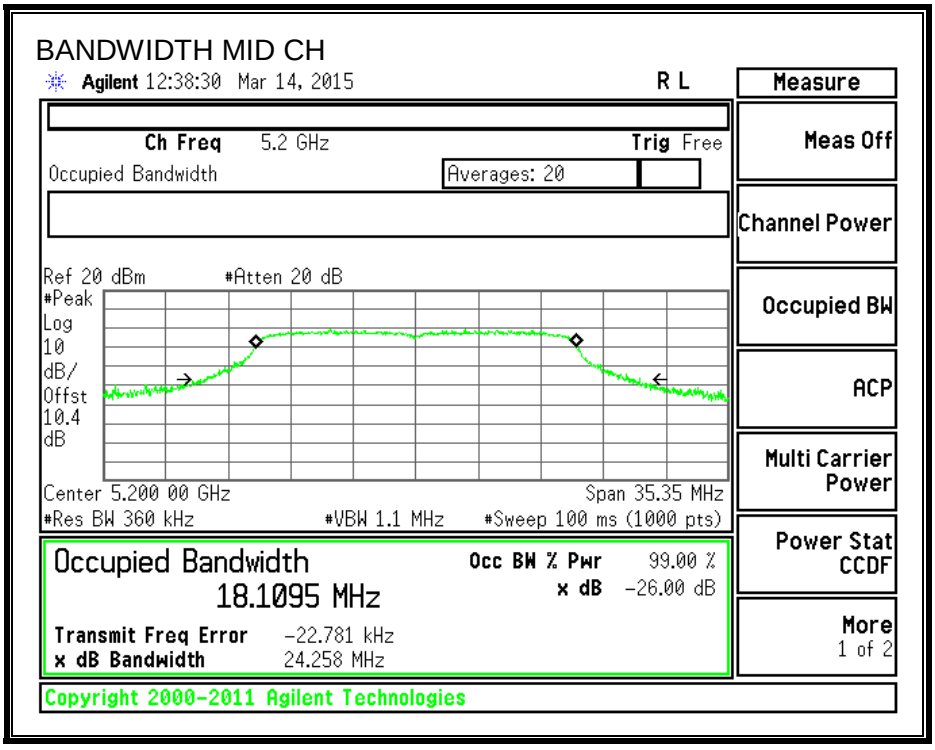
None; for reporting purposes only.

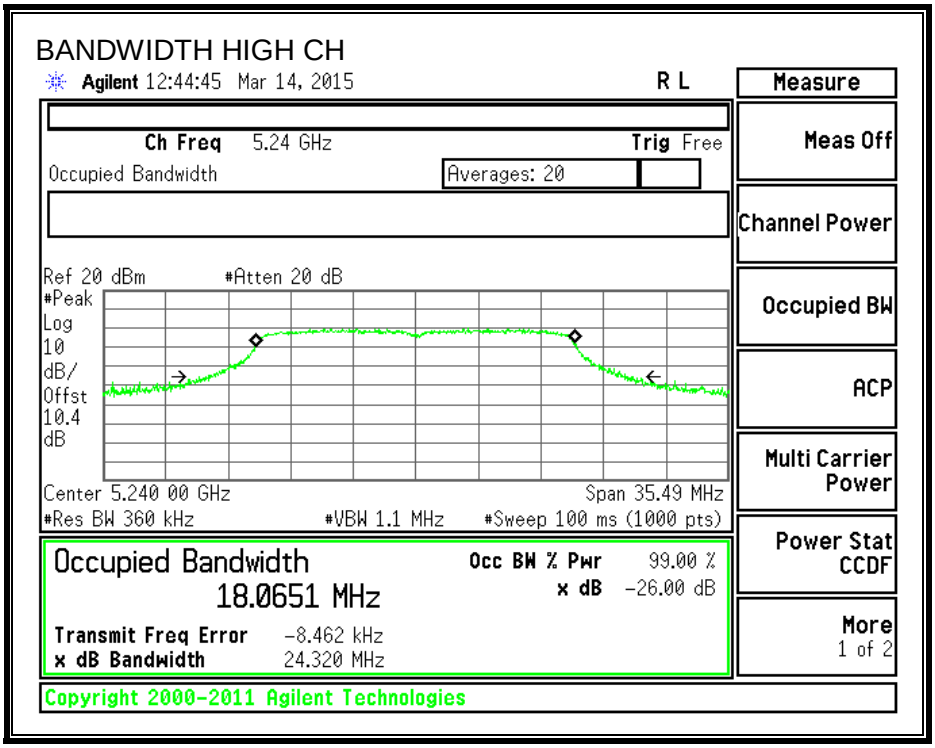
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	18.104
Mid	5200	18.110
High	5240	18.065

99% BANDWIDTH







8.3.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5180	1.77	1.77	24.00	11.00
Mid	5200	1.77	1.77	24.00	11.00
High	5240	1.77	1.77	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD

Output Power Results

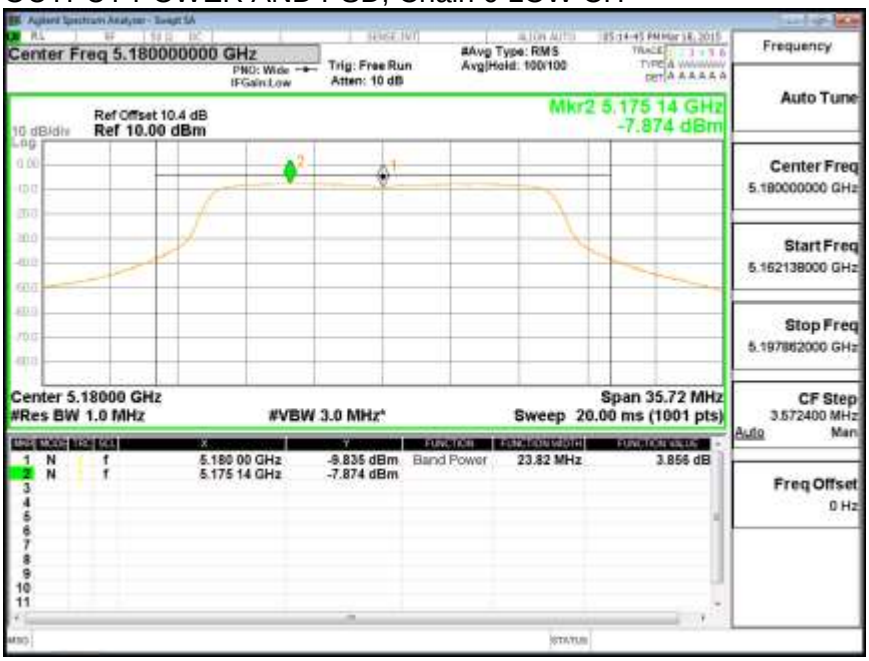
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	3.856	3.86	24.00	-20.14
Mid	5200	3.699	3.70	24.00	-20.30
High	5240	4.428	4.43	24.00	-19.57

PSD Results

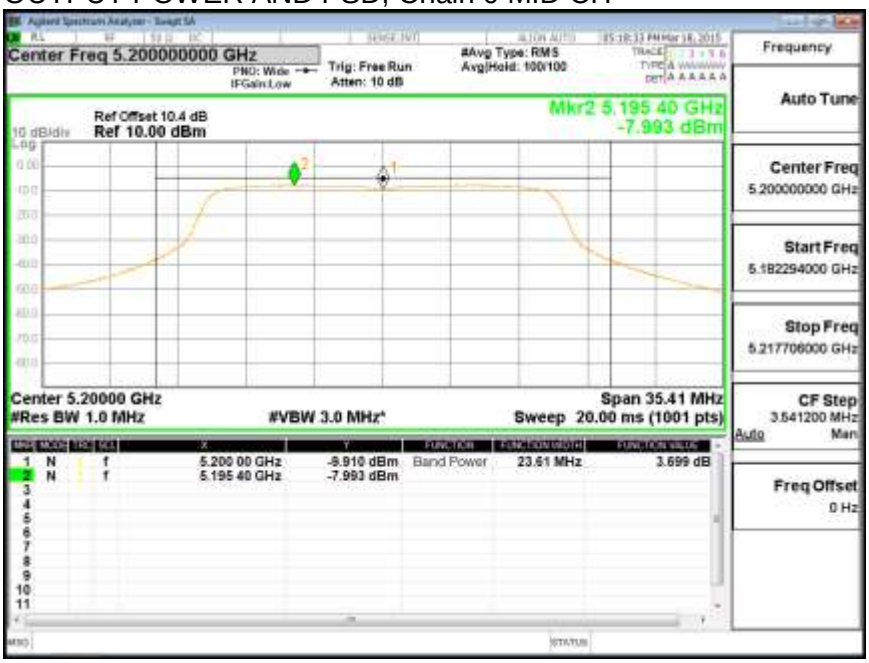
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5180	-7.874	-7.87	11.00	-18.87
Mid	5200	-7.993	-7.99	11.00	-18.99
High	5240	-7.308	-7.31	11.00	-18.31

OUTPUT POWER AND PSD, Chain 0

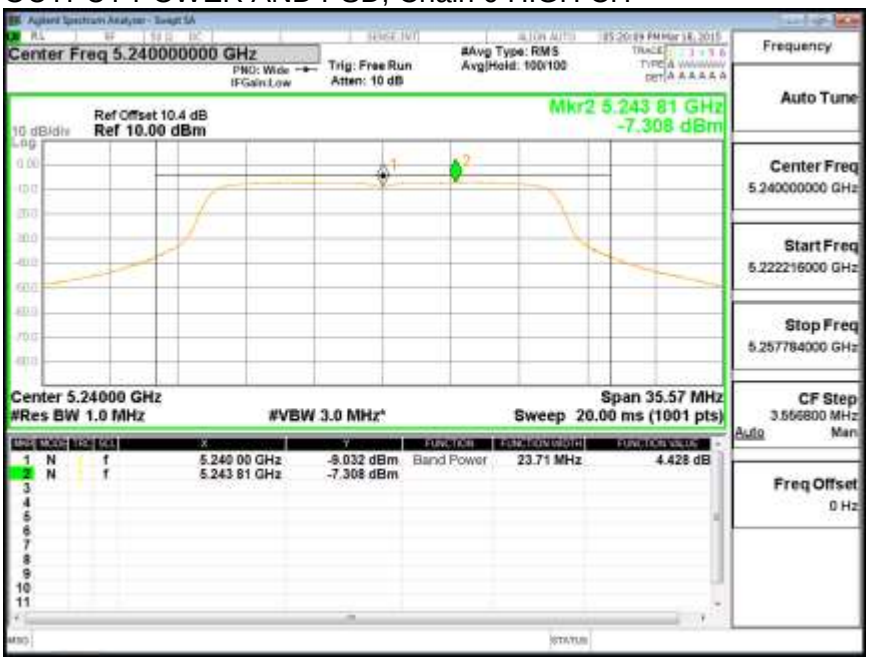
OUTPUT POWER AND PSD, Chain 0 LOW CH



OUTPUT POWER AND PSD, Chain 0 MID CH



OUTPUT POWER AND PSD, Chain 0 HIGH CH



8.4. 802.11a MODE IN THE 5.3 GHz BAND

8.4.1. 26 dB BANDWIDTH

LIMITS

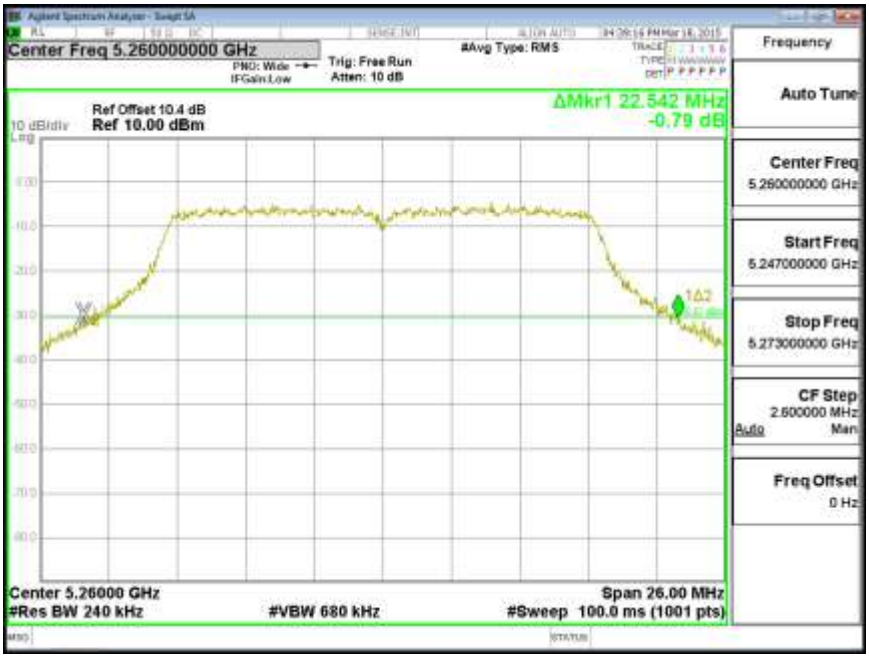
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	22.542
Mid	5300	23.140
High	5320	23.764

26 dB BANDWIDTH

BANDWIDTH LOW CH



BANDWIDTH MID CH

BANDWIDTH HIGH CH

8.4.2. 99% BANDWIDTH

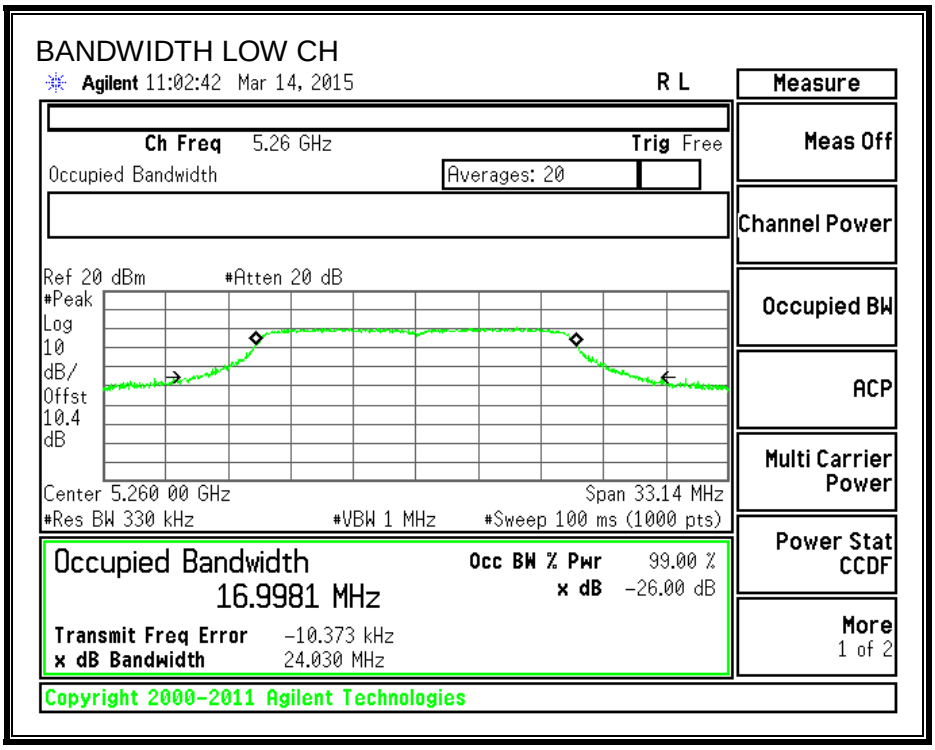
LIMITS

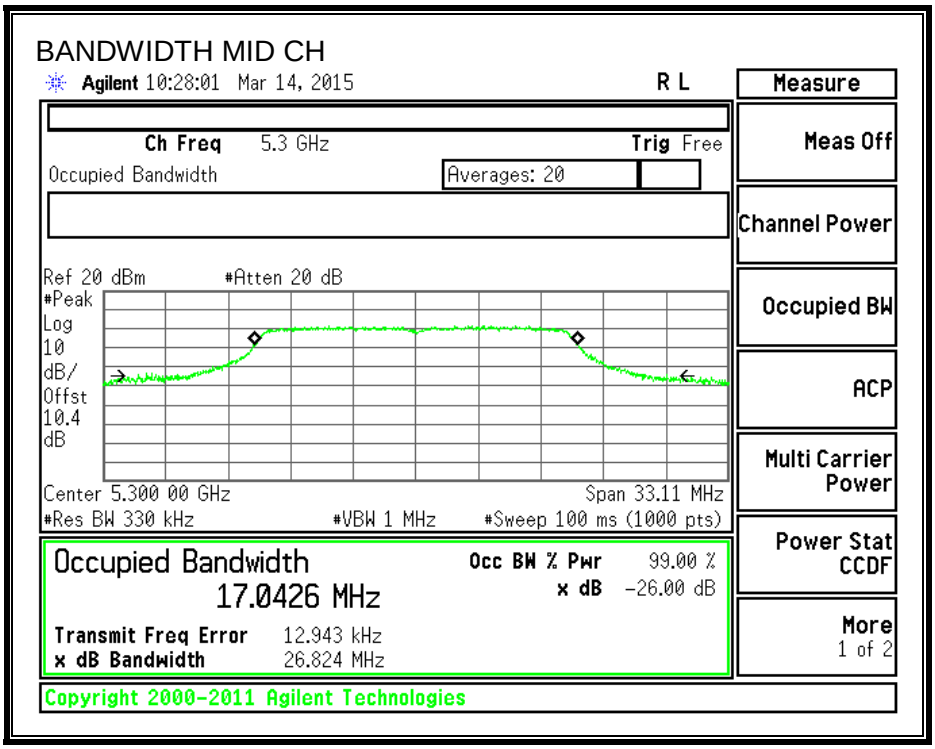
None; for reporting purposes only.

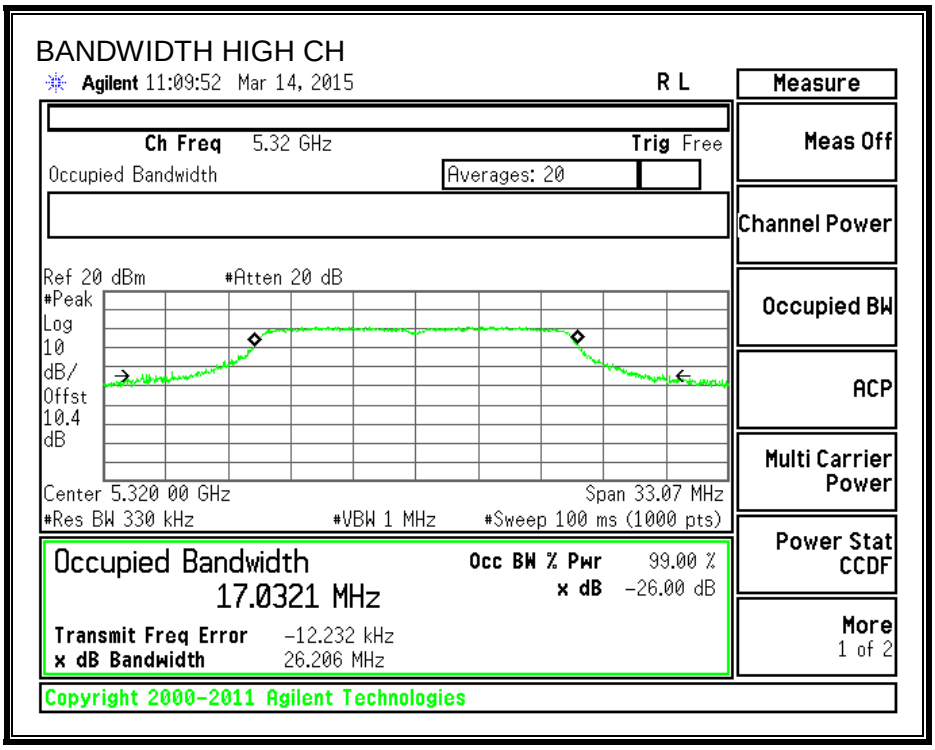
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	16.998
Mid	5300	17.043
High	5320	17.032

99% BANDWIDTH







8.4.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 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 maximum power spectral density shall not exceed 11 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5260	22.38	1.60	24.00	11.00
Mid	5300	22.62	1.60	24.00	11.00
High	5320	22.26	1.60	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD

Output Power Results

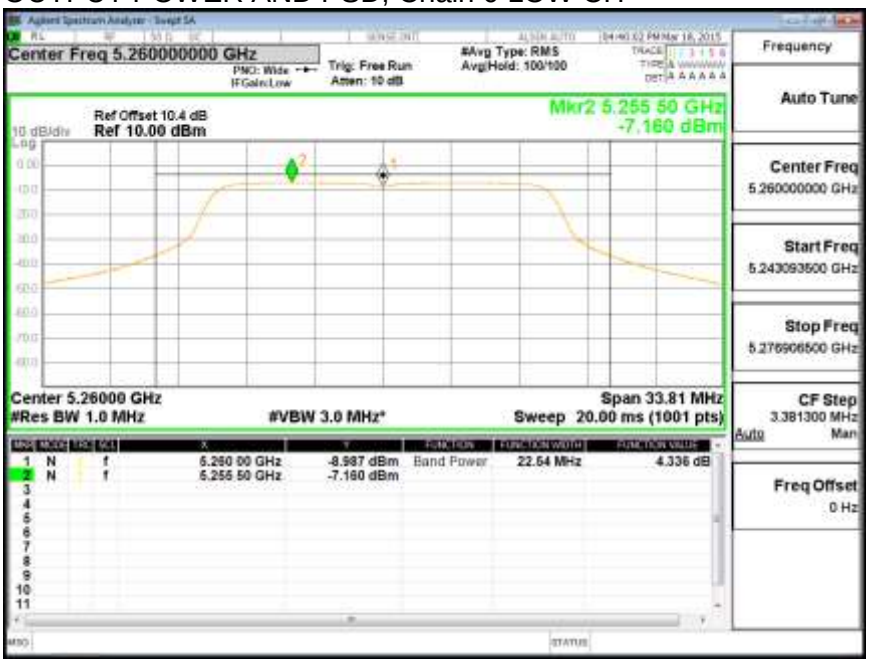
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	4.336	4.34	24.00	-19.66
Mid	5300	4.884	4.88	24.00	-19.12
High	5320	5.036	5.04	24.00	-18.96

PSD Results

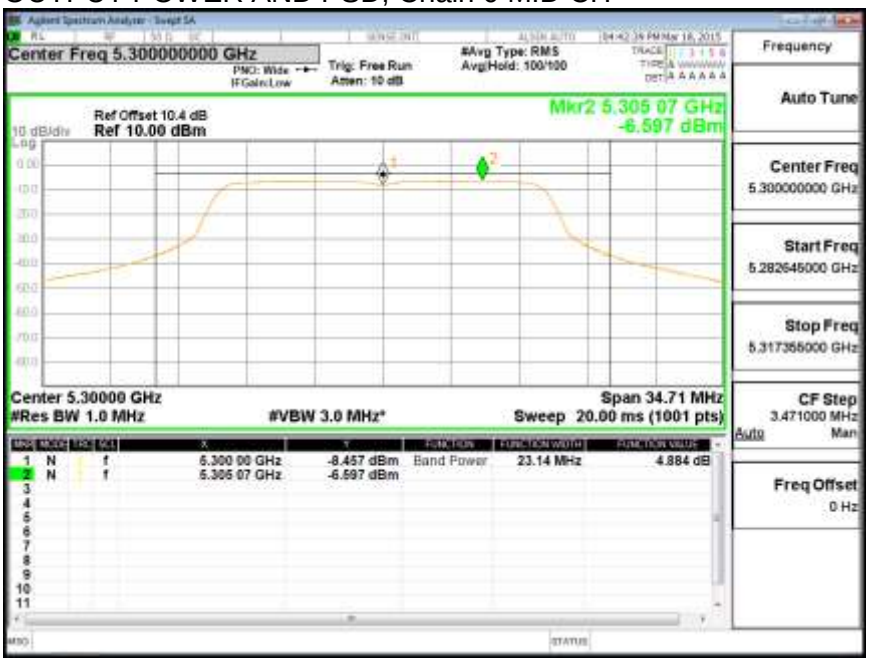
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5260	-7.160	-7.16	11.00	-18.16
Mid	5300	-6.597	-6.60	11.00	-17.60
High	5320	-6.388	-6.39	11.00	-17.39

OUTPUT POWER AND PSD, Chain 0

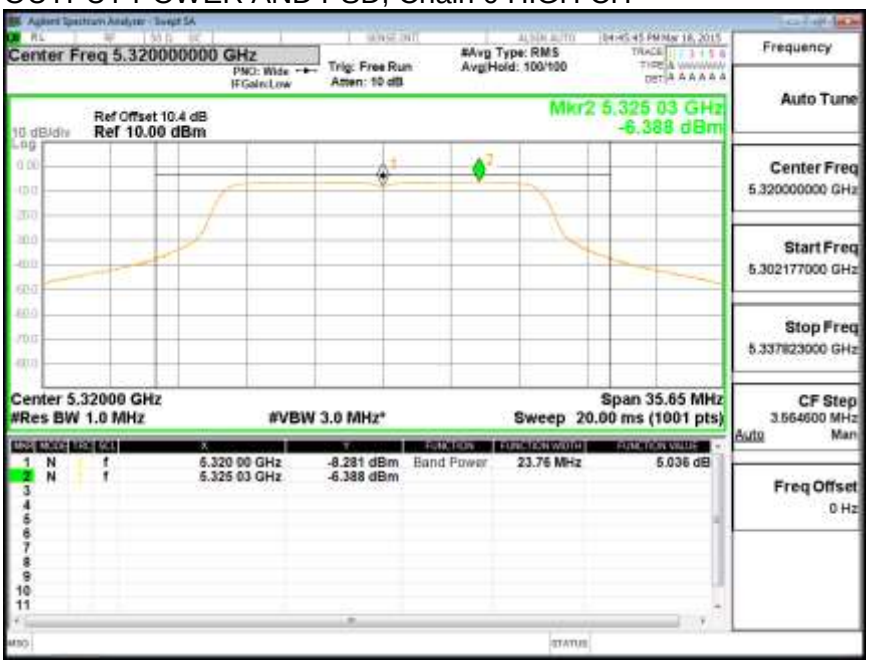
OUTPUT POWER AND PSD, Chain 0 LOW CH



OUTPUT POWER AND PSD, Chain 0 MID CH



OUTPUT POWER AND PSD, Chain 0 HIGH CH



8.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

8.5.1. 26 dB BANDWIDTH

LIMITS

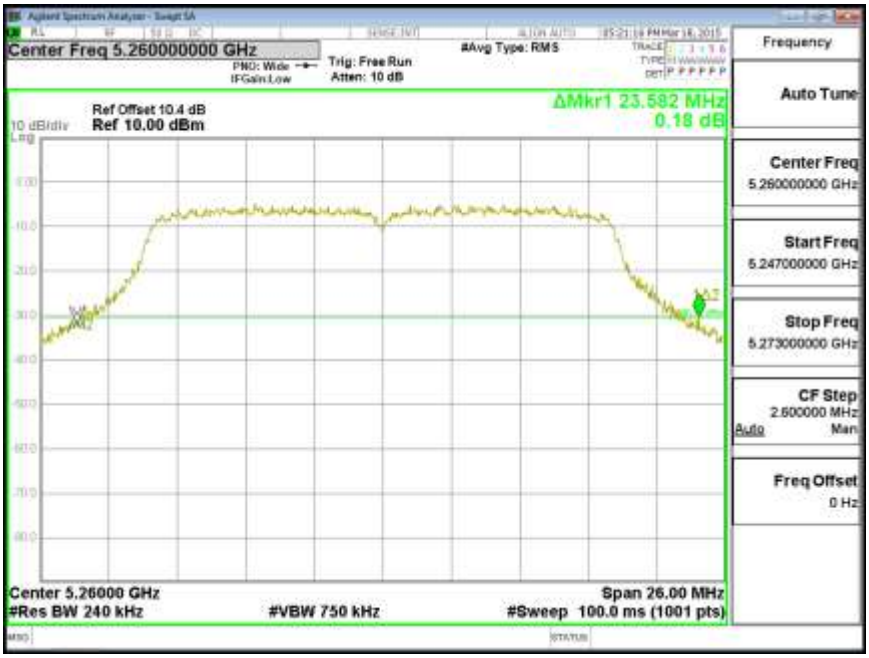
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	23.582
Mid	5300	23.556
High	5320	23.205

26 dB BANDWIDTH

BANDWIDTH LOW CH



BANDWIDTH MID CH

BANDWIDTH HIGH CH

8.5.2. 99% BANDWIDTH

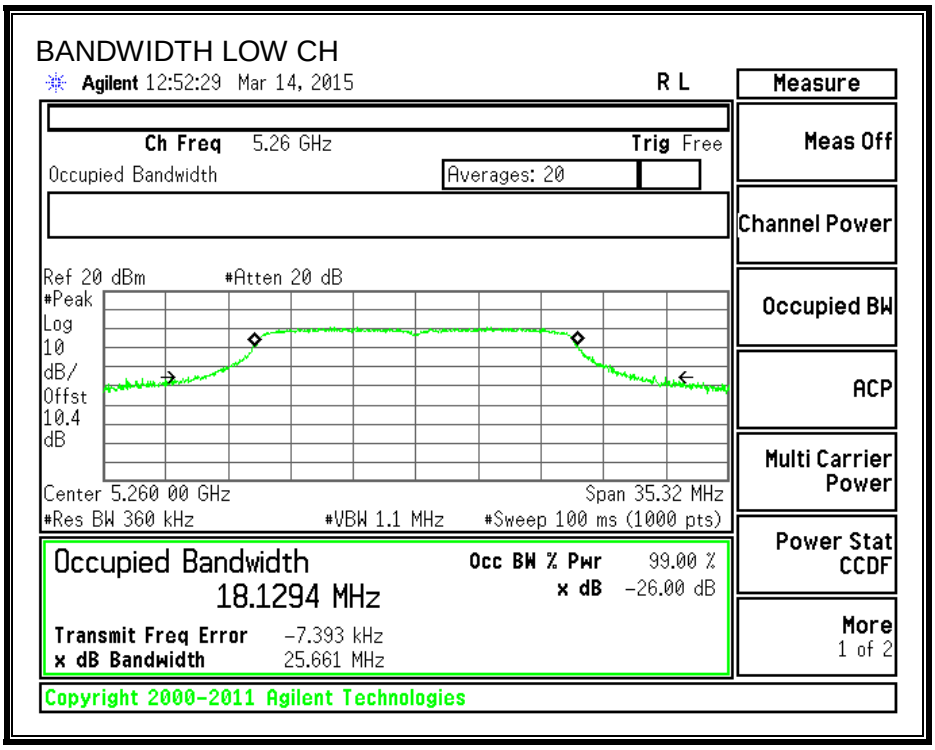
LIMITS

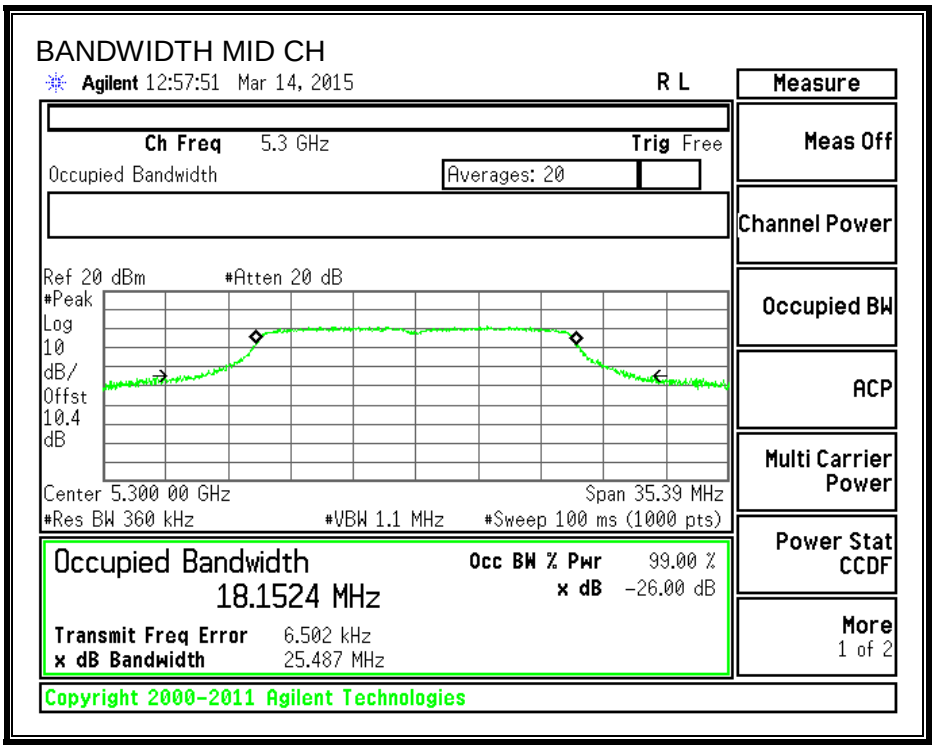
None; for reporting purposes only.

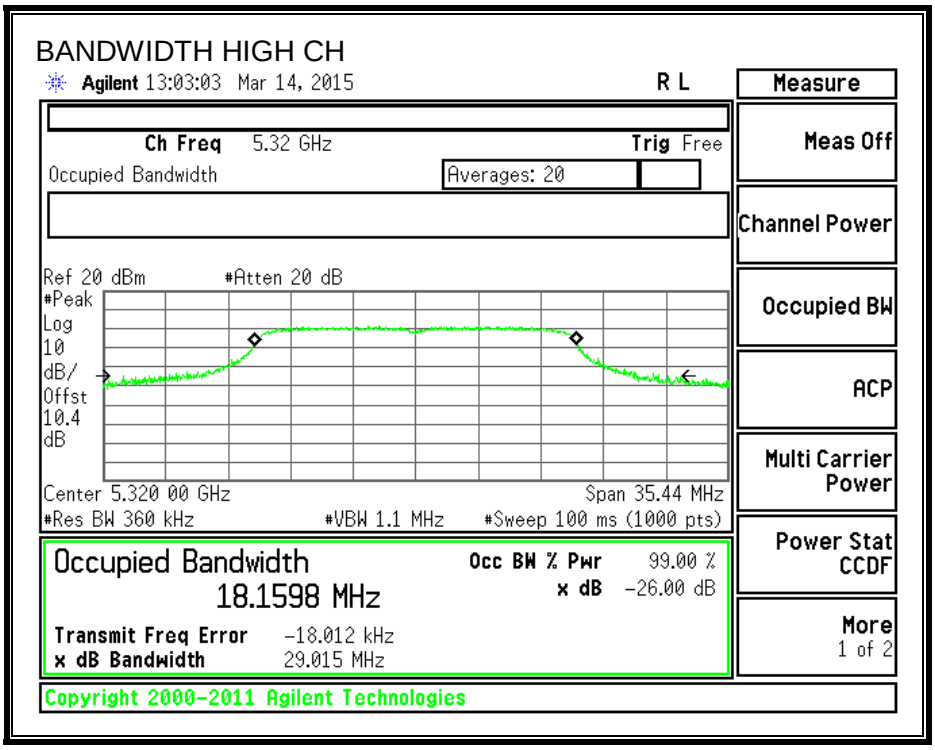
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	18.129
Mid	5300	18.152
High	5320	18.160

99% BANDWIDTH







8.5.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.25–5.35 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 maximum power spectral density shall not exceed 11 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5260	23.37	1.60	24.00	11.00
Mid	5300	23.25	1.60	24.00	11.00
High	5320	23.07	1.60	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD

Output Power Results

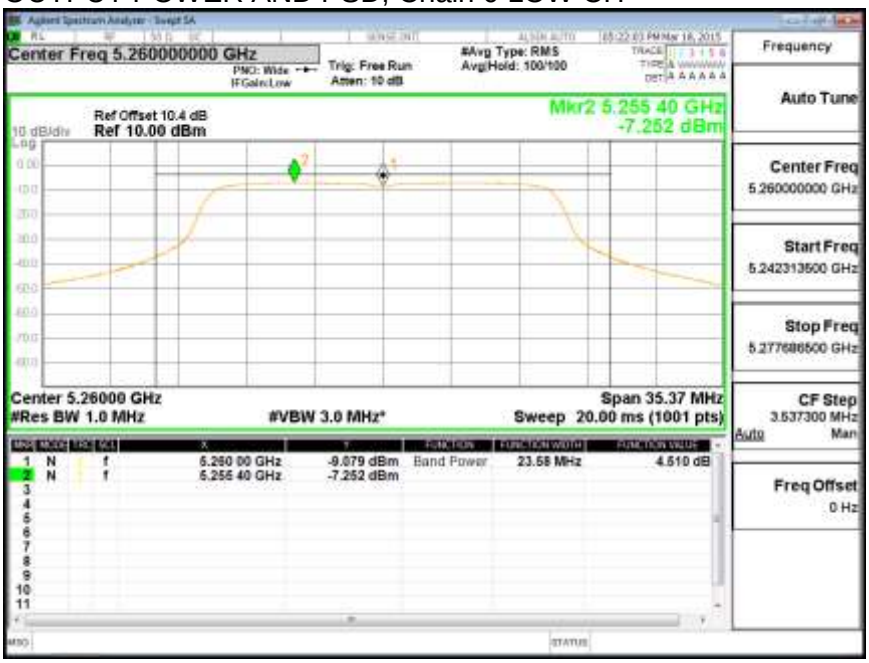
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	4.510	4.51	24.00	-19.49
Mid	5300	4.734	4.73	24.00	-19.27
High	5320	4.941	4.94	24.00	-19.06

PSD Results

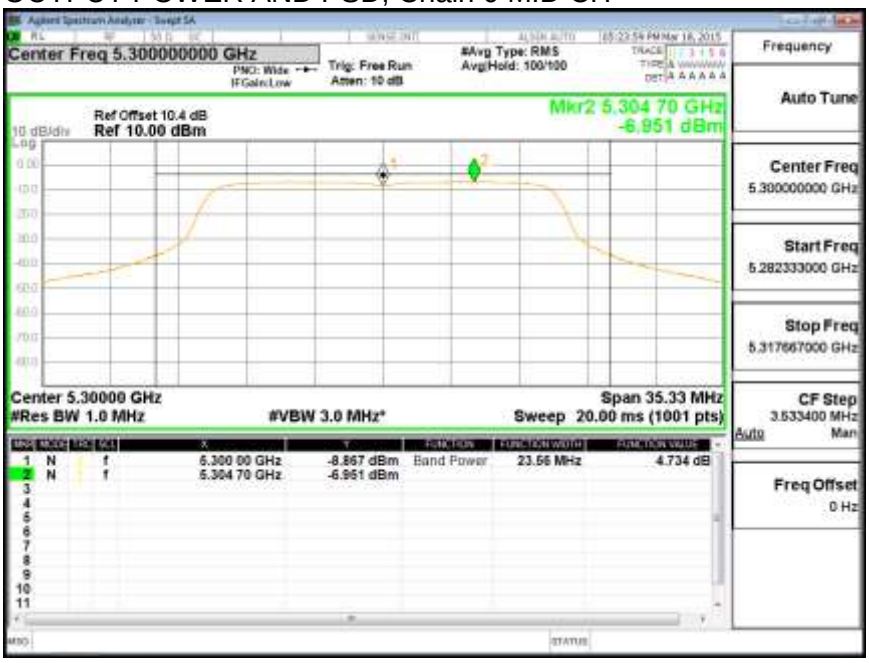
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5260	-7.252	-7.25	11.00	-18.25
Mid	5300	-6.951	-6.95	11.00	-17.95
High	5320	-6.796	-6.80	11.00	-17.80

OUTPUT POWER AND PSD, Chain 0

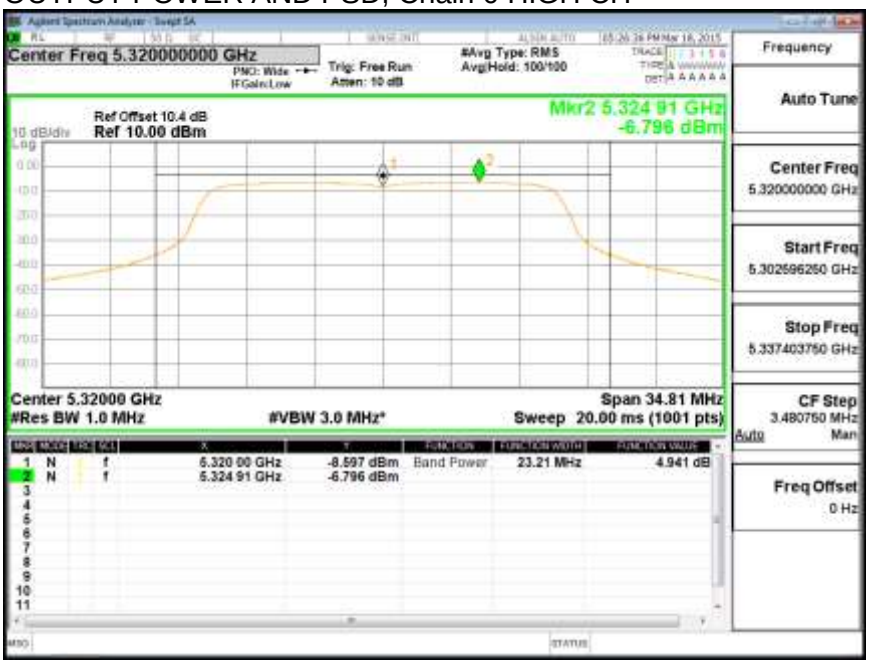
OUTPUT POWER AND PSD, Chain 0 LOW CH



OUTPUT POWER AND PSD, Chain 0 MID CH



OUTPUT POWER AND PSD, Chain 0 HIGH CH



8.6. 802.11a MODE IN THE 5.6 GHz BAND

8.6.1. 26 dB BANDWIDTH

LIMITS

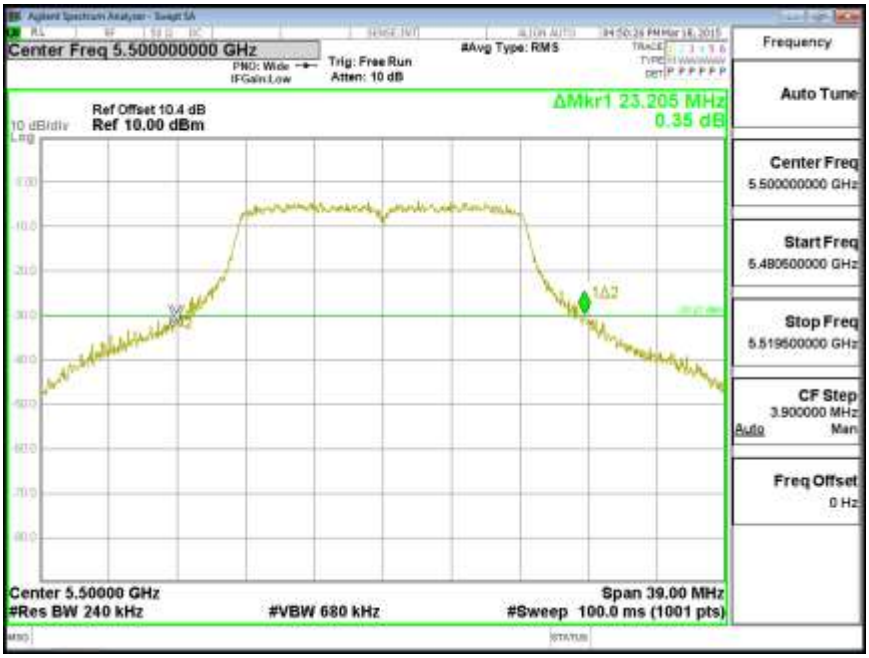
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	23.205
Mid	5580	23.790
High	5700	23.582

26 dB BANDWIDTH

BANDWIDTH LOW CH



BANDWIDTH MID CH

BANDWIDTH HIGH CH

8.6.2. 99% BANDWIDTH

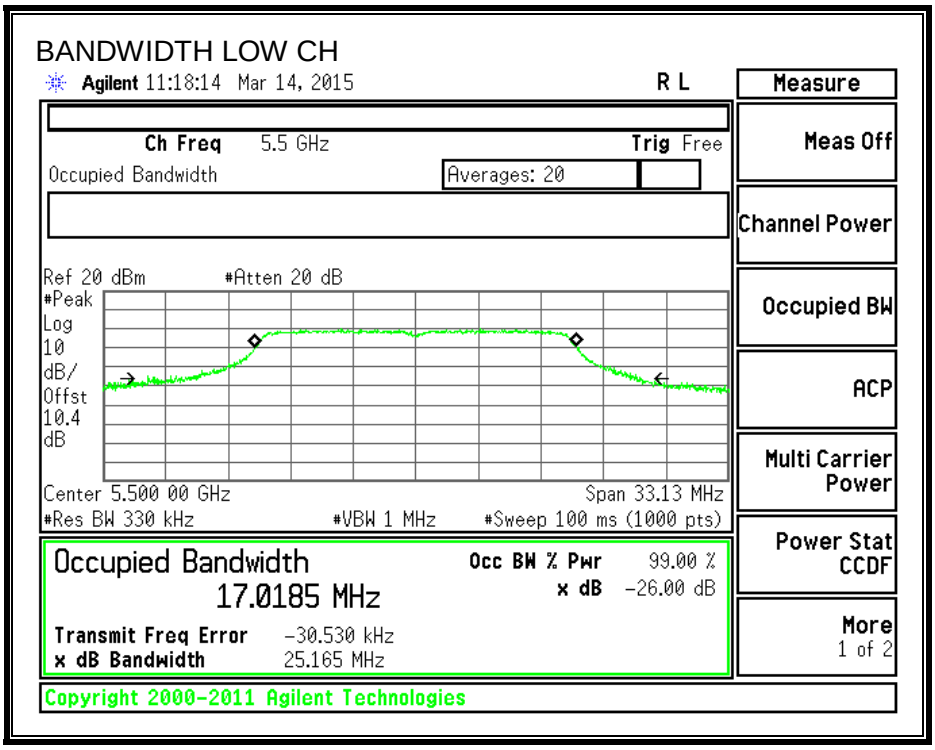
LIMITS

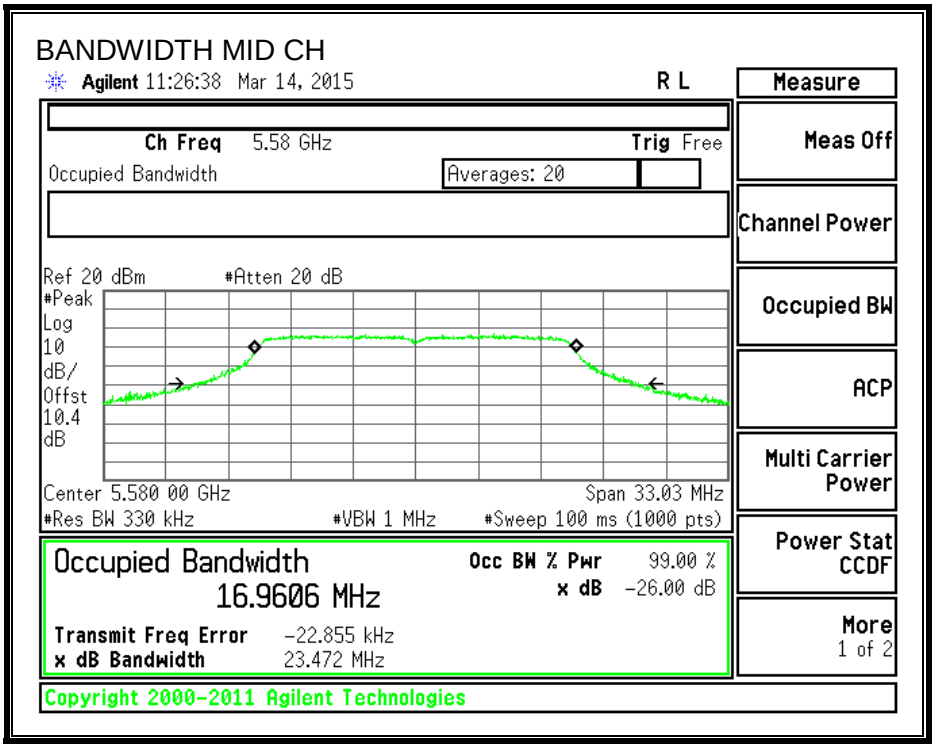
None; for reporting purposes only.

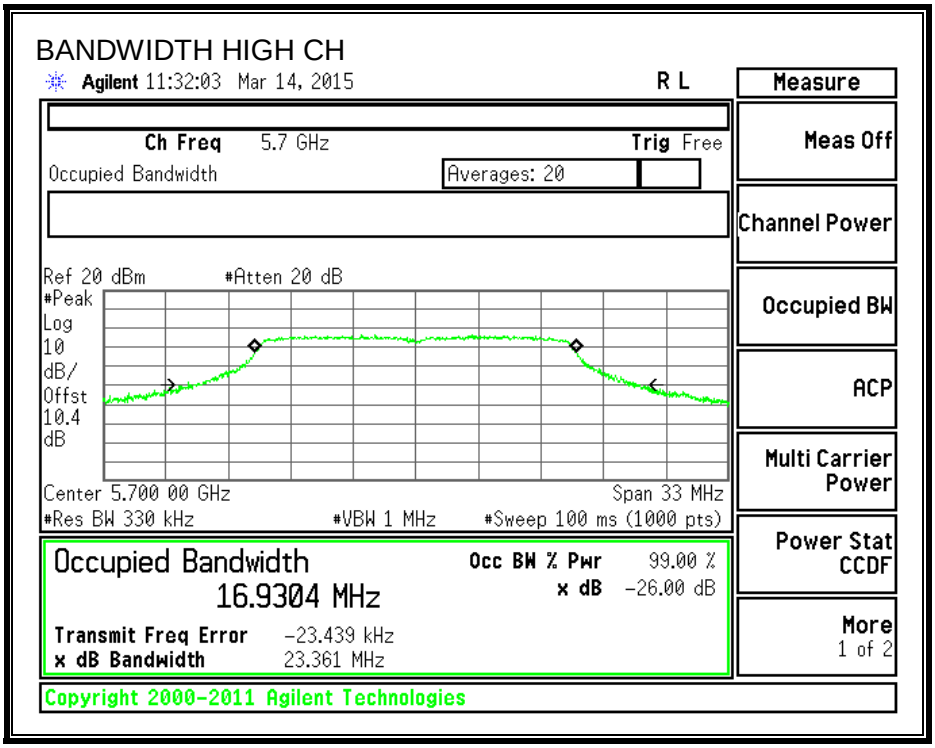
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.019
Mid	5580	16.961
High	5700	16.930

99% BANDWIDTH







8.6.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 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 maximum power spectral density shall not exceed 11 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5500	22.83	0.50	24.00	11.00
Mid	5580	22.50	0.50	24.00	11.00
High	5700	22.68	0.50	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD

Output Power Results

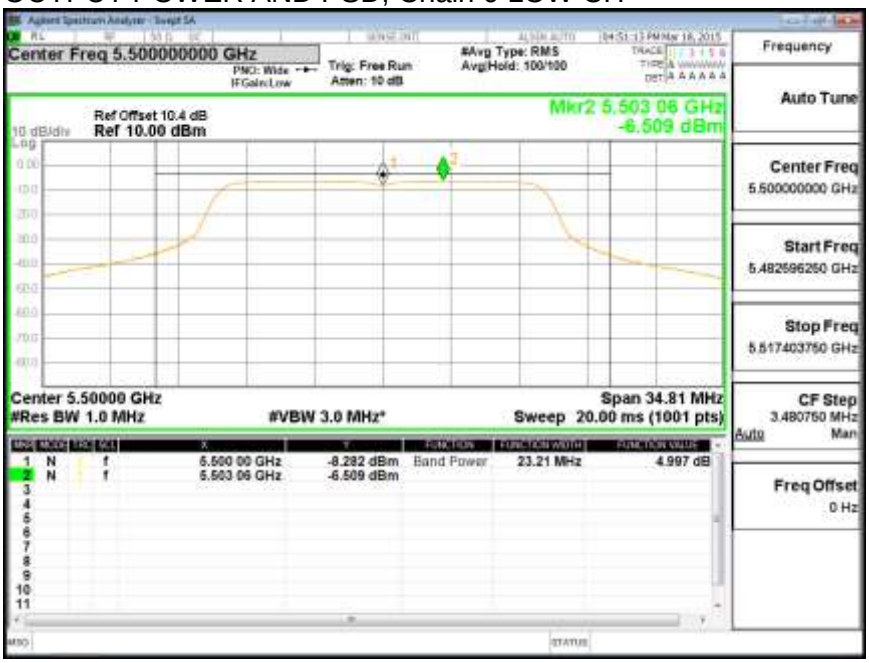
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	4.997	5.00	24.00	-19.00
Mid	5580	3.417	3.42	24.00	-20.58
High	5700	5.290	5.29	24.00	-18.71

PSD Results

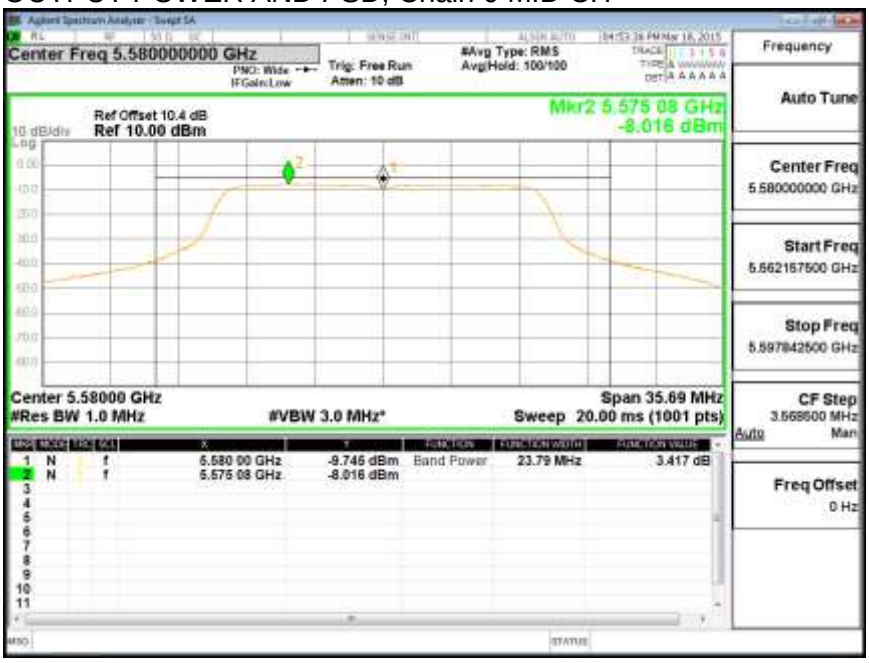
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5500	-6.509	-6.51	11.00	-17.51
Mid	5580	-8.016	-8.02	11.00	-19.02
High	5700	-6.120	-6.12	11.00	-17.12

OUTPUT POWER AND PSD, Chain 0

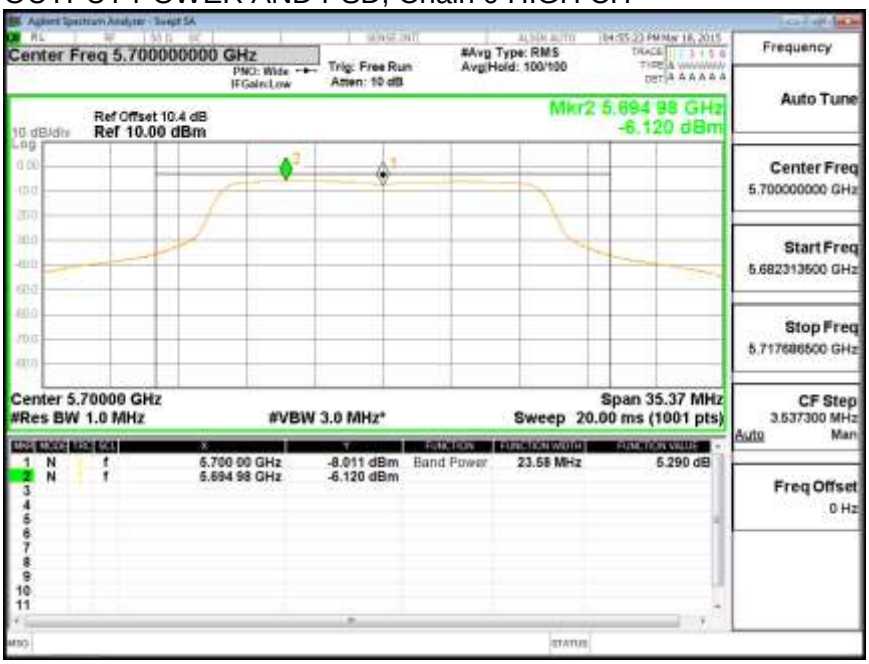
OUTPUT POWER AND PSD, Chain 0 LOW CH



OUTPUT POWER AND PSD, Chain 0 MID CH



OUTPUT POWER AND PSD, Chain 0 HIGH CH



8.7. 802.11n HT20 MODE IN THE 5.6 GHz BAND

8.7.1. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

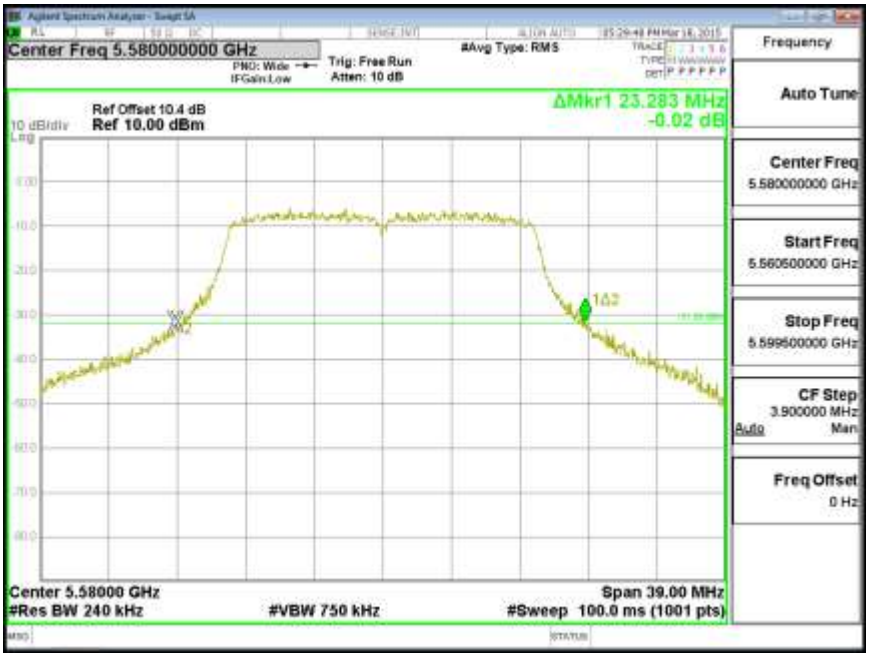
RESULTS

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	23.920
Mid	5580	23.383
High	5700	23.608

26 dB BANDWIDTH

BANDWIDTH LOW CH

BANDWIDTH MID CH



BANDWIDTH HIGH CH

8.7.2. 99% BANDWIDTH

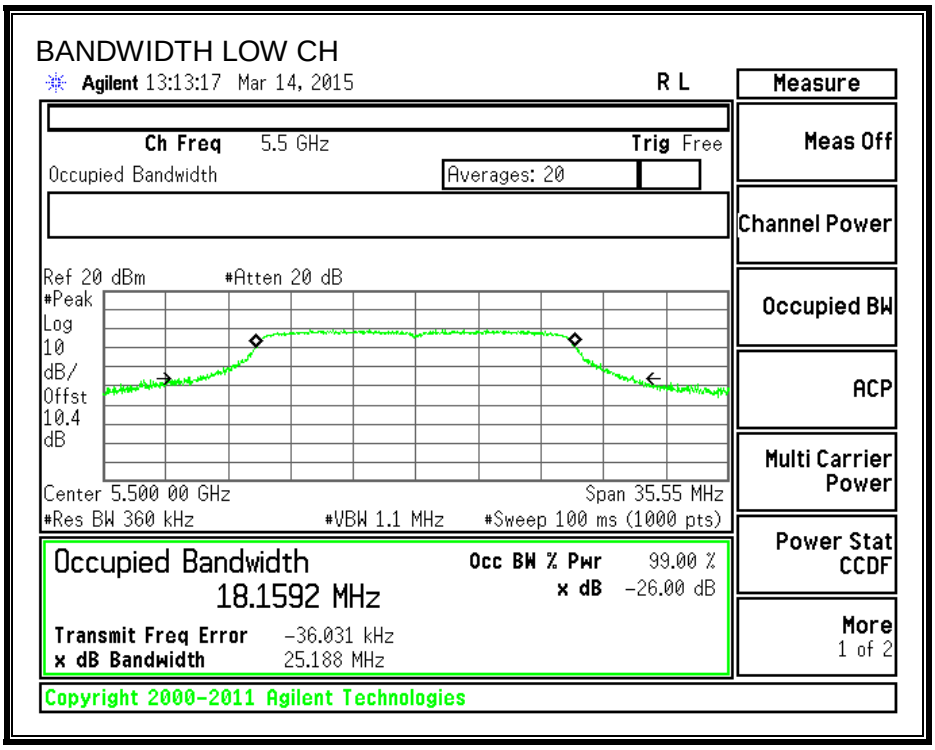
LIMITS

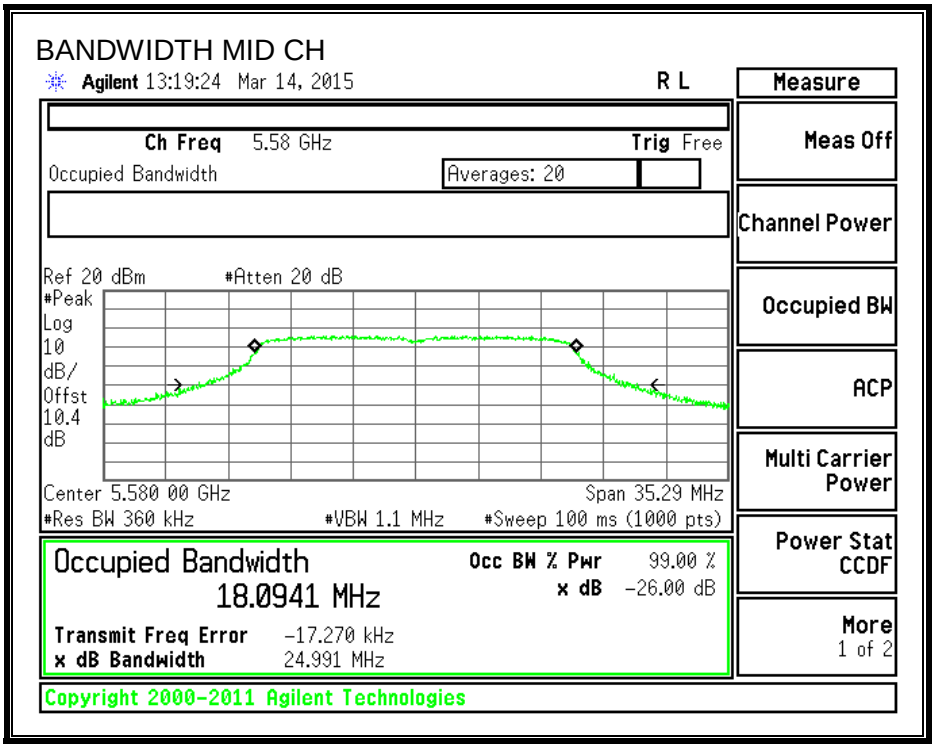
None; for reporting purposes only.

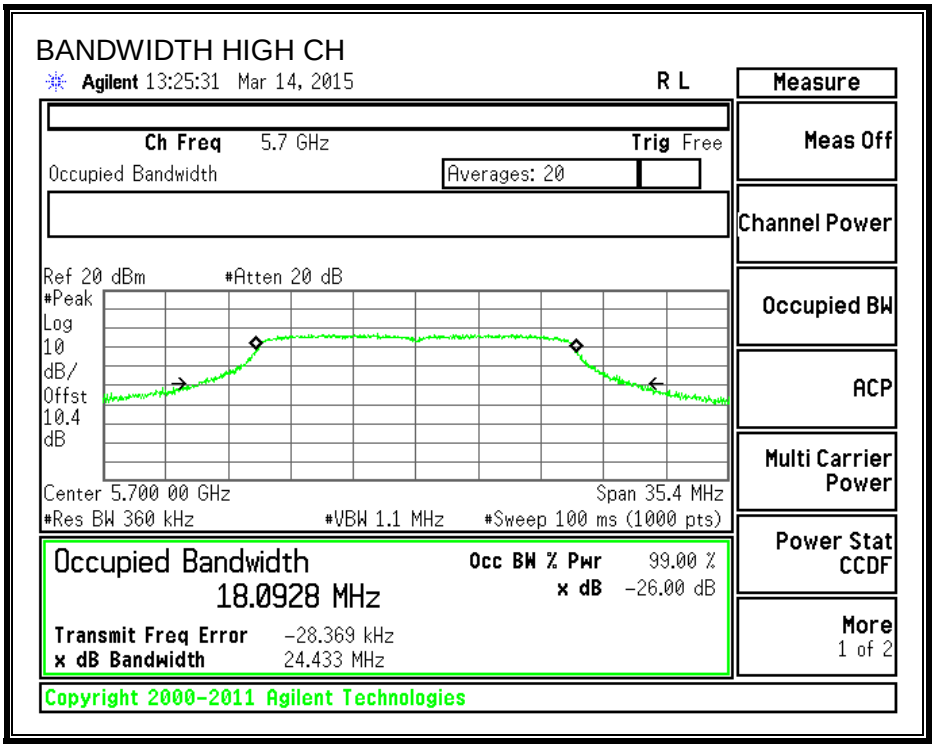
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	18.159
Mid	5580	18.094
High	5700	18.093

99% BANDWIDTH







8.7.3. OUTPUT POWER AND PSD

LIMITS

FCC §15.407 (a) (2)

For the band 5.47–5.725 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 maximum power spectral density shall not exceed 11 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Bandwidth, Antenna Gain, and Limits

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Directional Gain (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5500	23.16	0.50	24.00	11.00
Mid	5580	23.19	0.50	24.00	11.00
High	5700	23.49	0.50	24.00	11.00

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power & PSD

Output Power Results

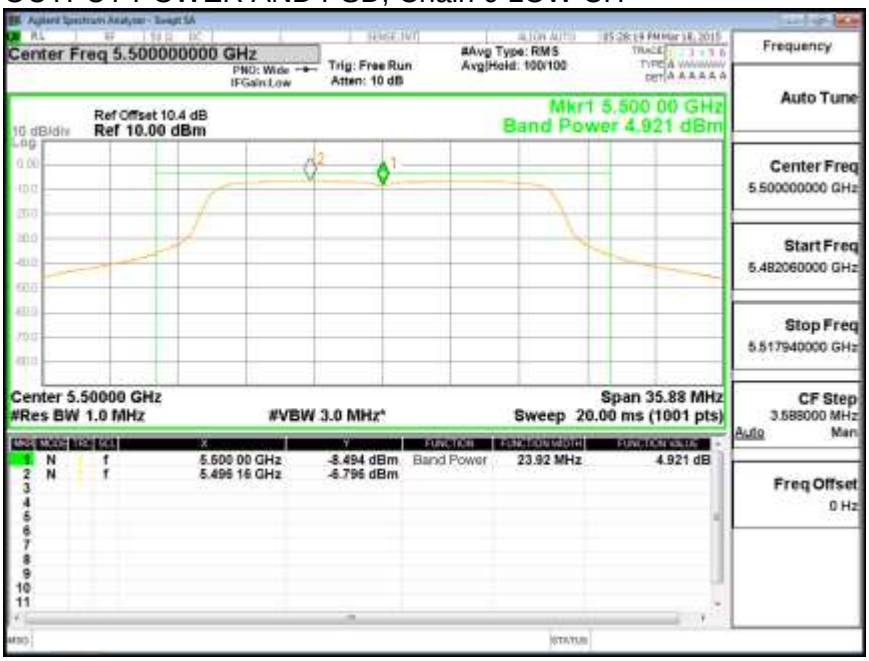
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	4.92	4.92	24.00	-19.08
Mid	5580	3.36	3.36	24.00	-20.64
High	5700	5.22	5.22	24.00	-18.78

PSD Results

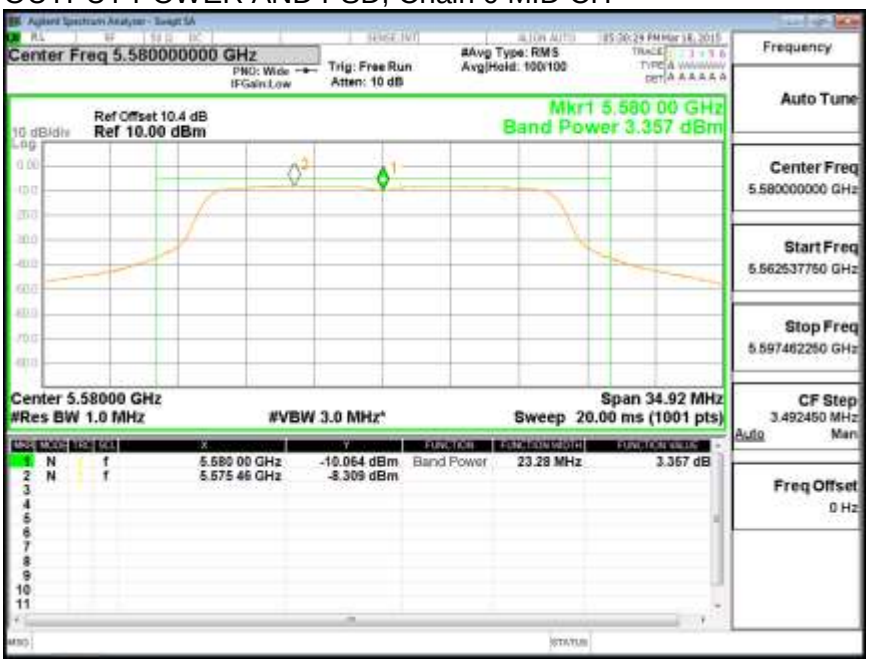
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5500	-6.80	-6.80	11.00	-17.80
Mid	5580	-8.31	-8.31	11.00	-19.31
High	5700	-6.49	-6.49	11.00	-17.49

OUTPUT POWER AND PSD, Chain 0

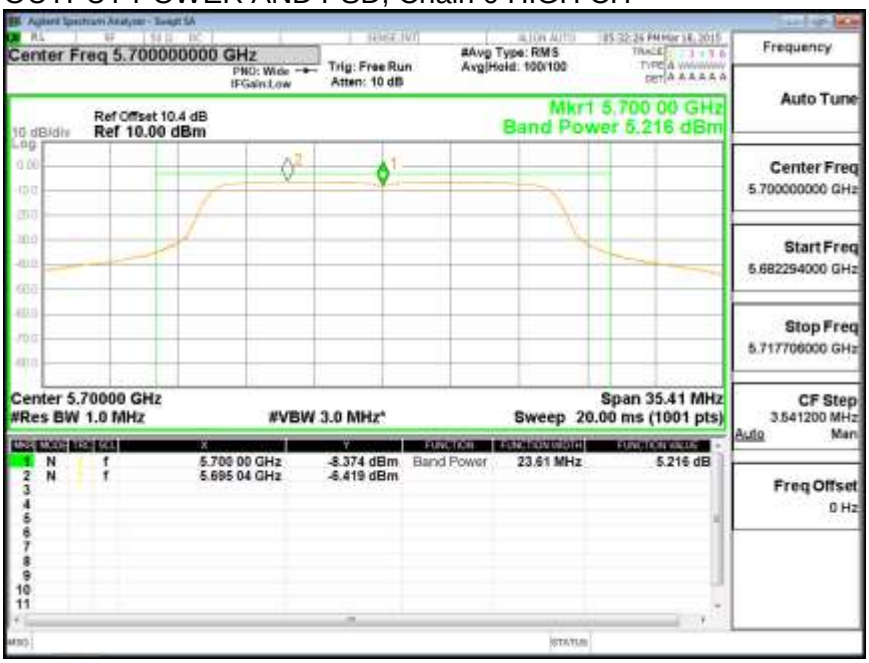
OUTPUT POWER AND PSD, Chain 0 LOW CH



OUTPUT POWER AND PSD, Chain 0 MID CH



OUTPUT POWER AND PSD, Chain 0 HIGH CH



8.8. 802.11a MODE IN THE 5.8 GHz BAND

8.8.1. 6 dB BANDWIDTH

LIMITS

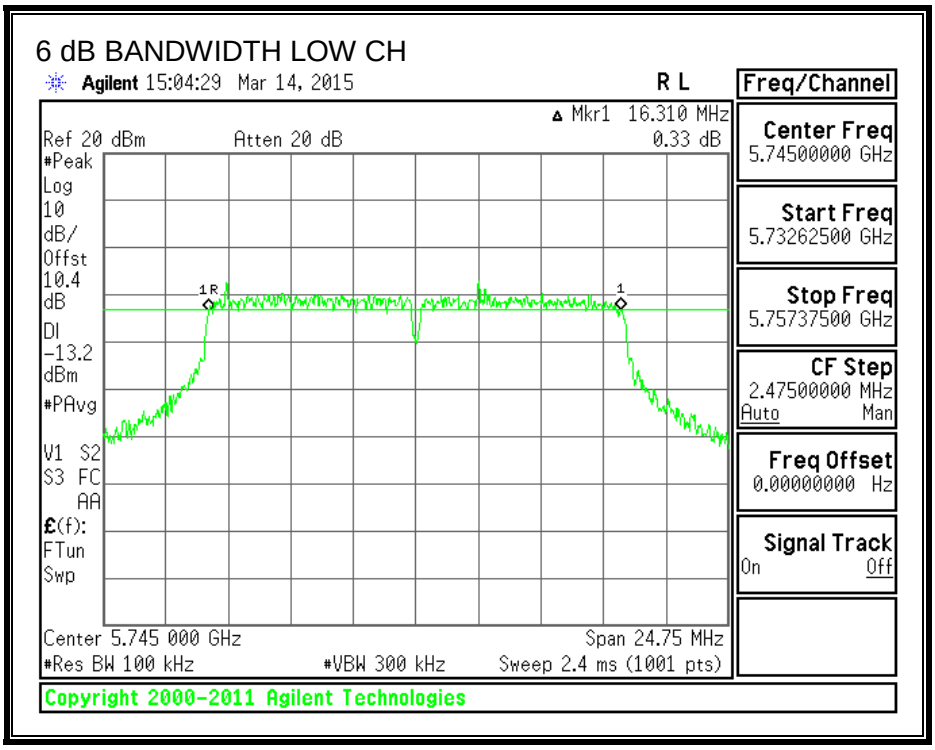
FCC §15.407 (e)

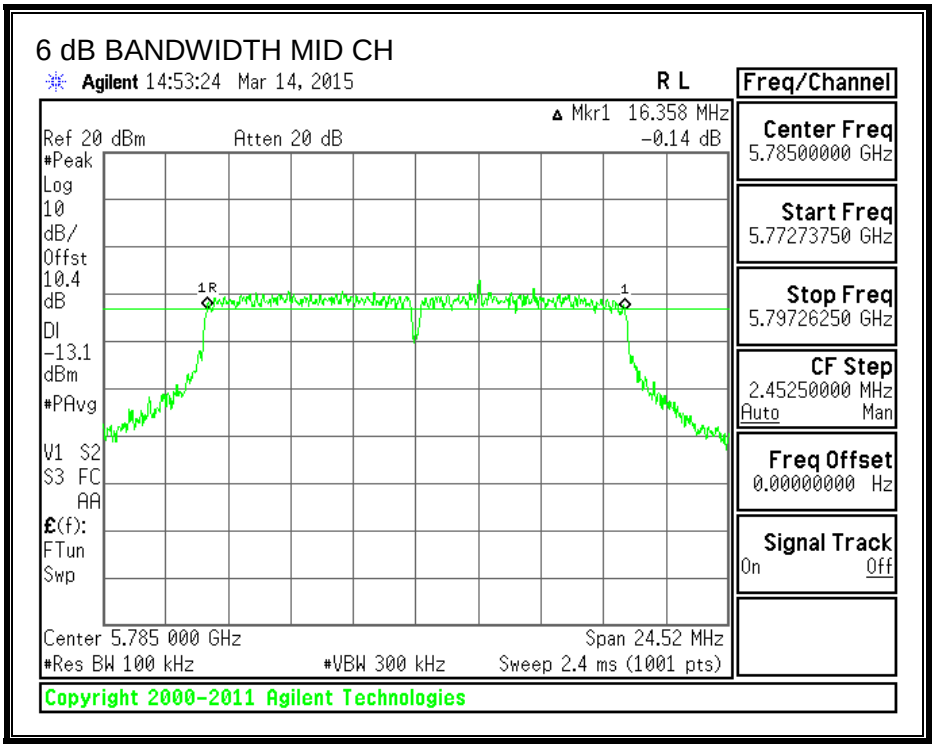
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

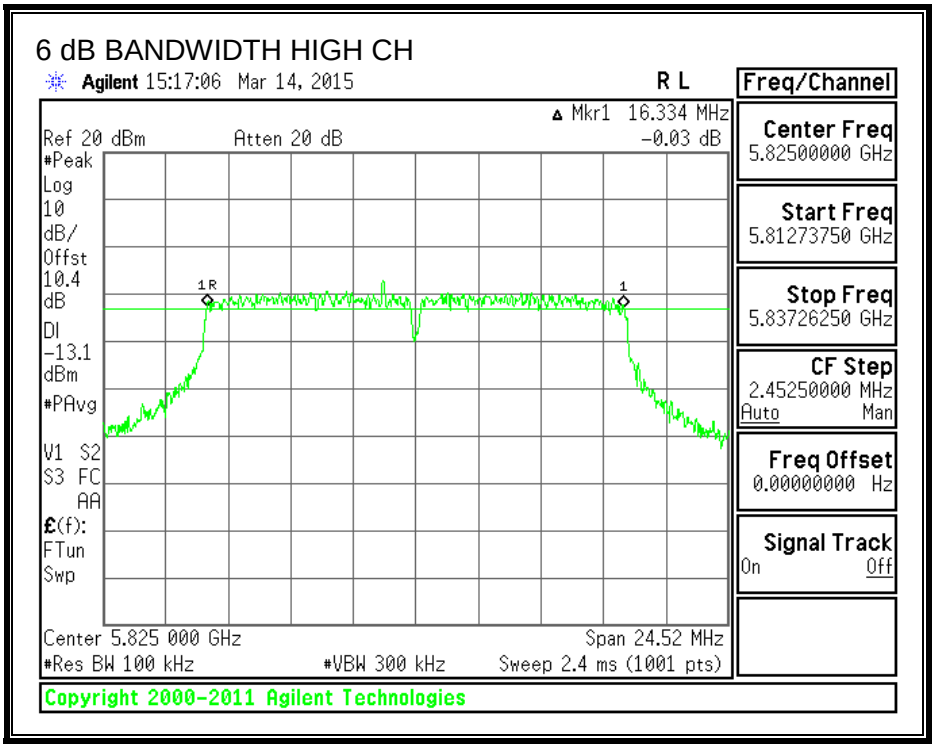
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.31	0.5
Mid	5785	16.36	0.5
High	5825	16.33	0.5

6 dB BANDWIDTH





6 dB BANDWIDTH HIGH CH



8.8.2. 26 dB BANDWIDTH

LIMITS

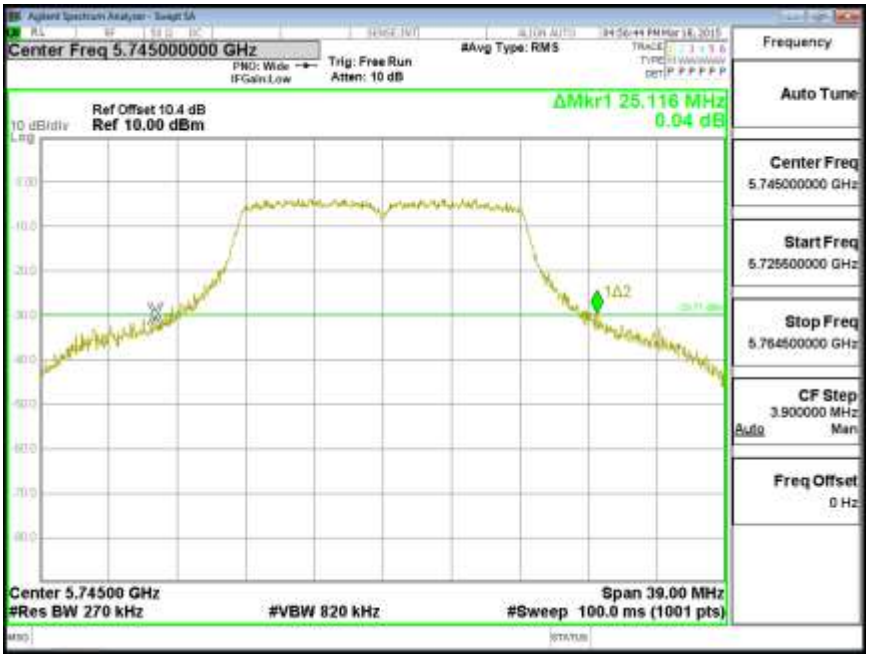
None; for reporting purposes only.

RESULTS

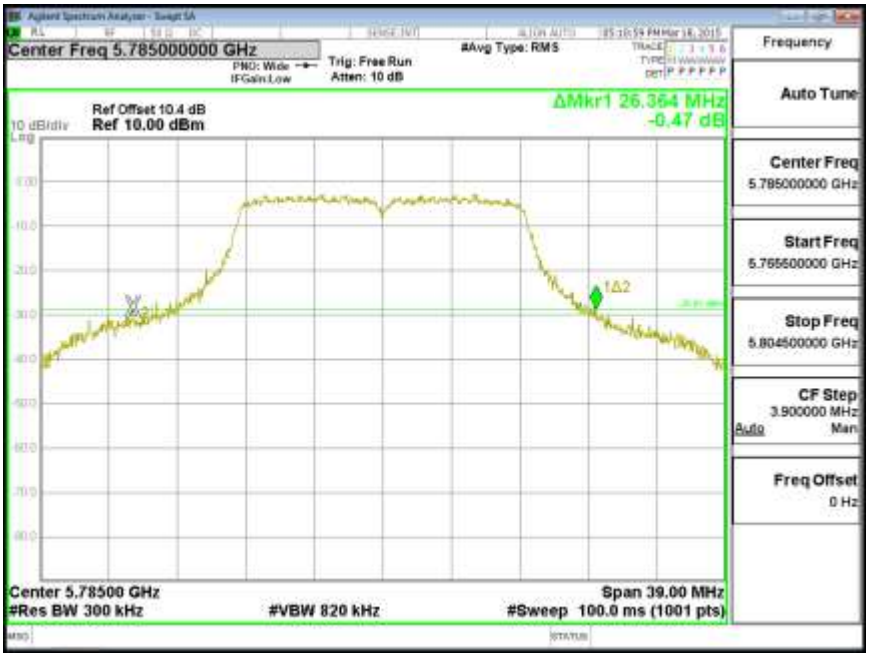
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5745	25.116
Mid	5785	26.364
High	5825	24.063

26 dB BANDWIDTH

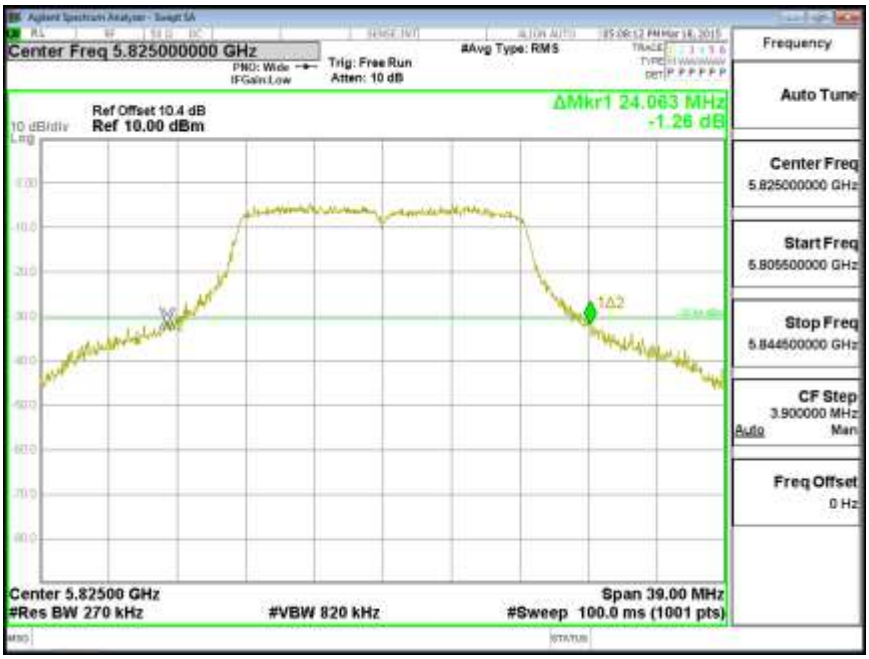
BANDWIDTH LOW CH



BANDWIDTH MID CH



BANDWIDTH HIGH CH



8.8.3. 99% BANDWIDTH

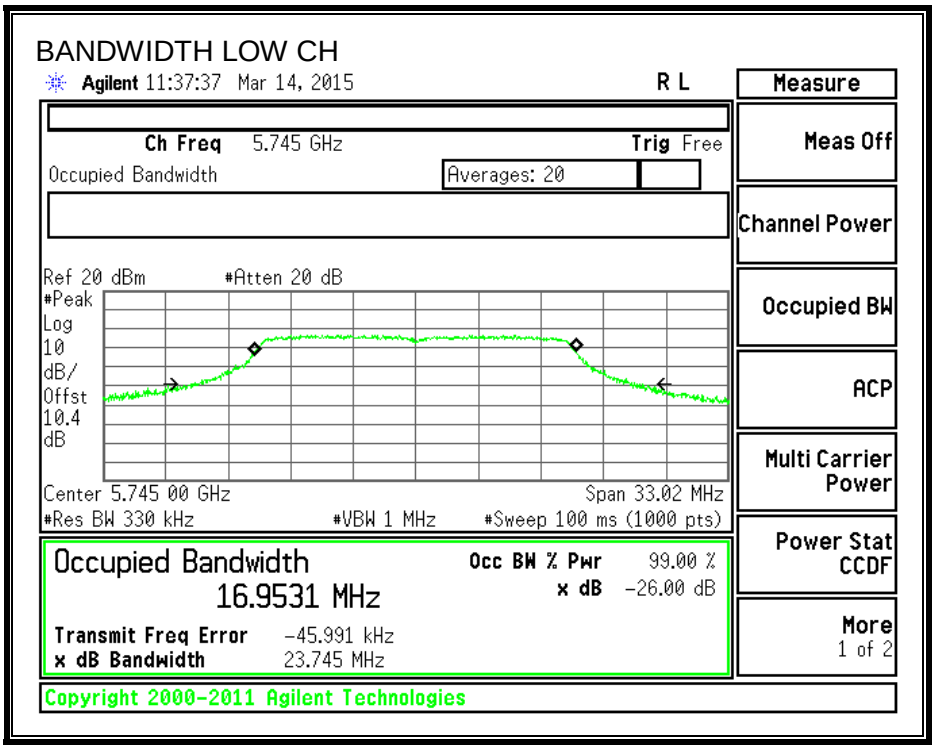
LIMITS

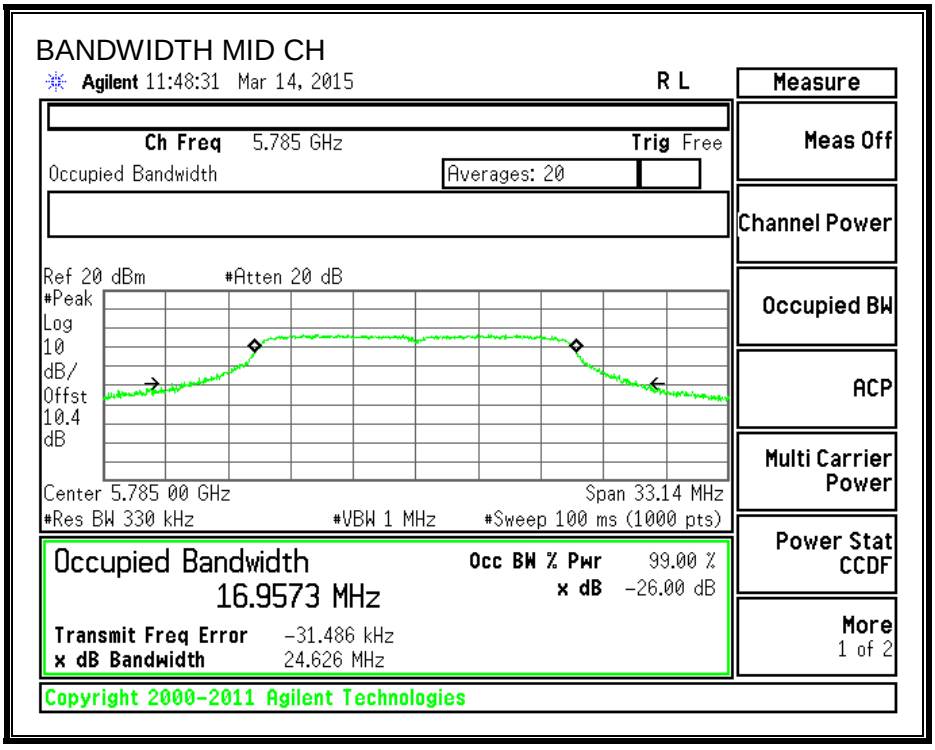
None; for reporting purposes only.

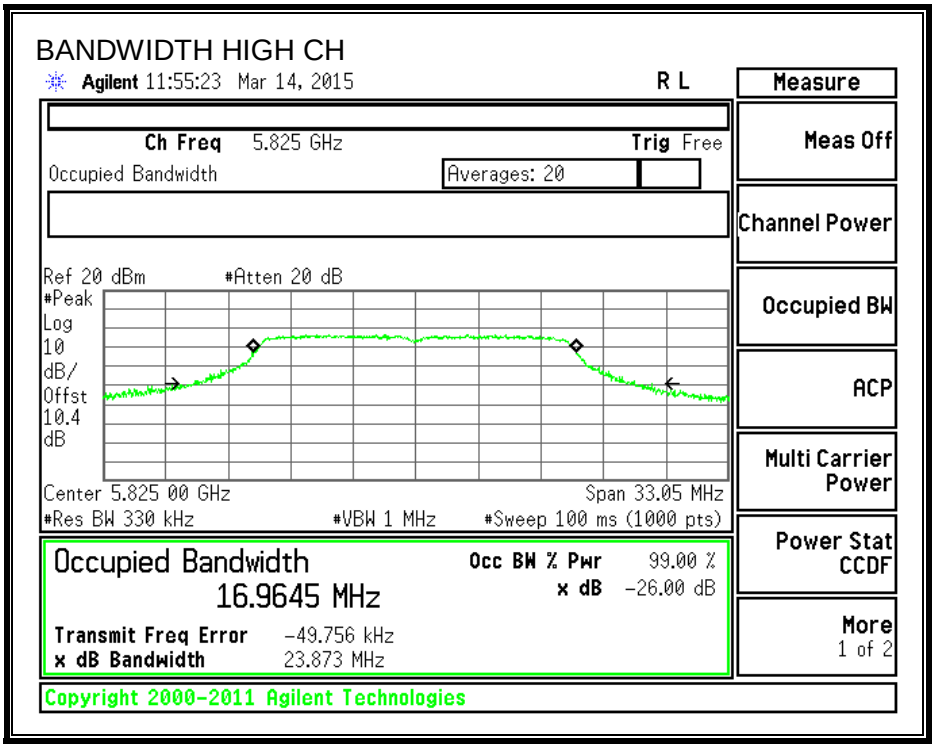
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	16.953
Mid	5785	16.957
High	5825	16.965

99% BANDWIDTH







8.8.4. OUTPUT POWER

LIMITS

FCC §15.407 (a) (3)

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. 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Power Limit (dBm)
Low	5745	1.62	30.00
Mid	5785	1.62	30.00
High	5825	1.62	30.00

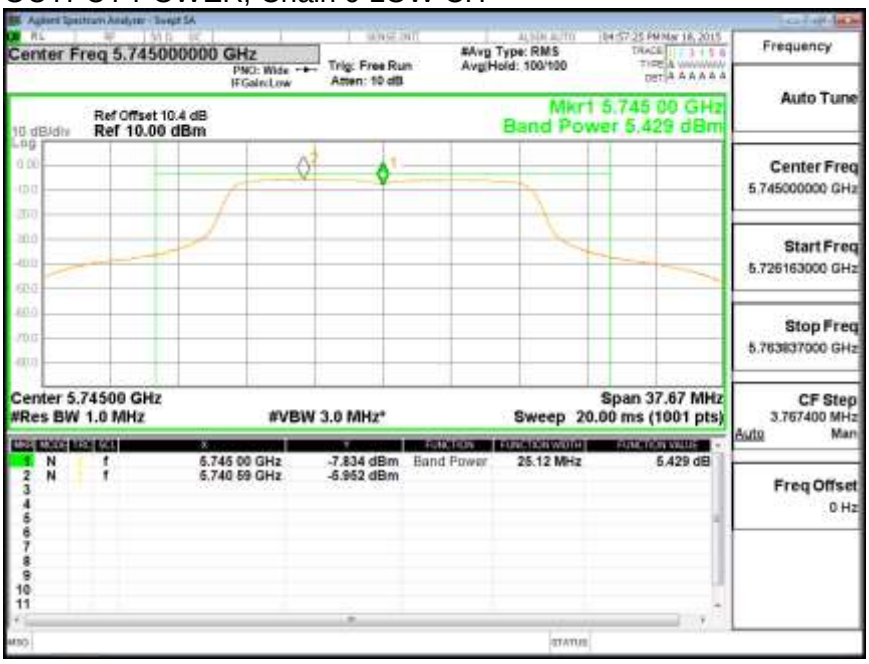
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd Power**

Output Power Results

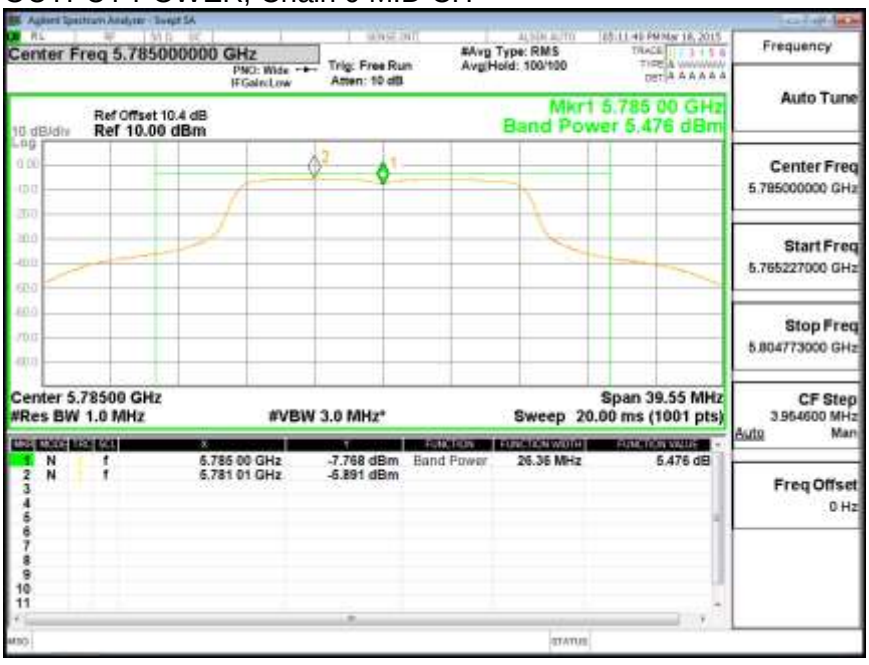
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	5.429	5.43	30.00	-24.57
Mid	5785	5.476	5.48	30.00	-24.52
High	5825	3.851	3.85	30.00	-26.15

OUTPUT POWER, Chain 0

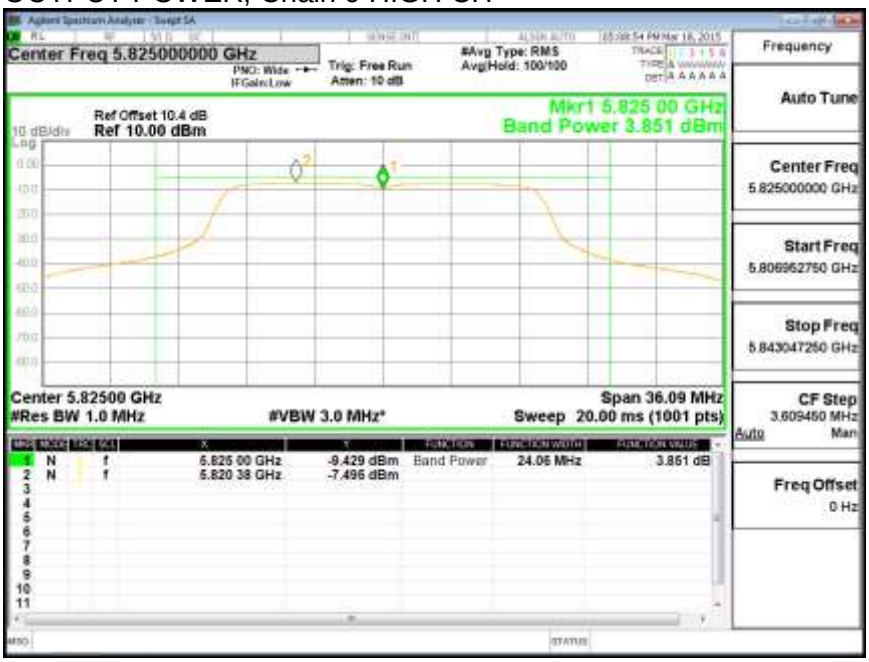
OUTPUT POWER, Chain 0 LOW CH



OUTPUT POWER, Chain 0 MID CH



OUTPUT POWER, Chain 0 HIGH CH



8.8.5. POWER SPECTRAL DENSITY (PSD)

LIMITS

FCC §15.407 (a) (3)

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. 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	PSD Limit (dBm)
Low	5745	1.62	30.00
Mid	5785	1.62	30.00
High	5825	1.62	30.00

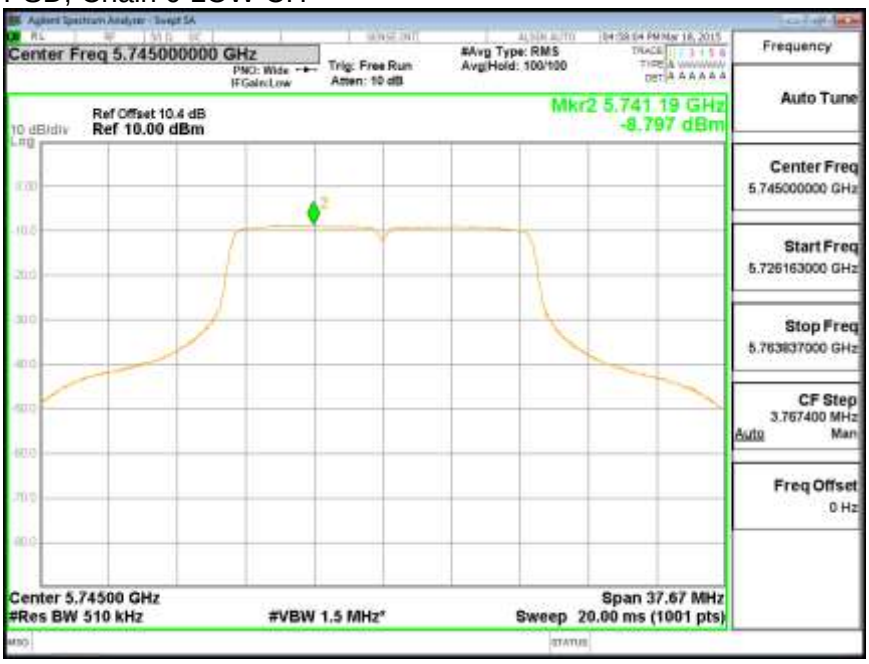
Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

PSD Results

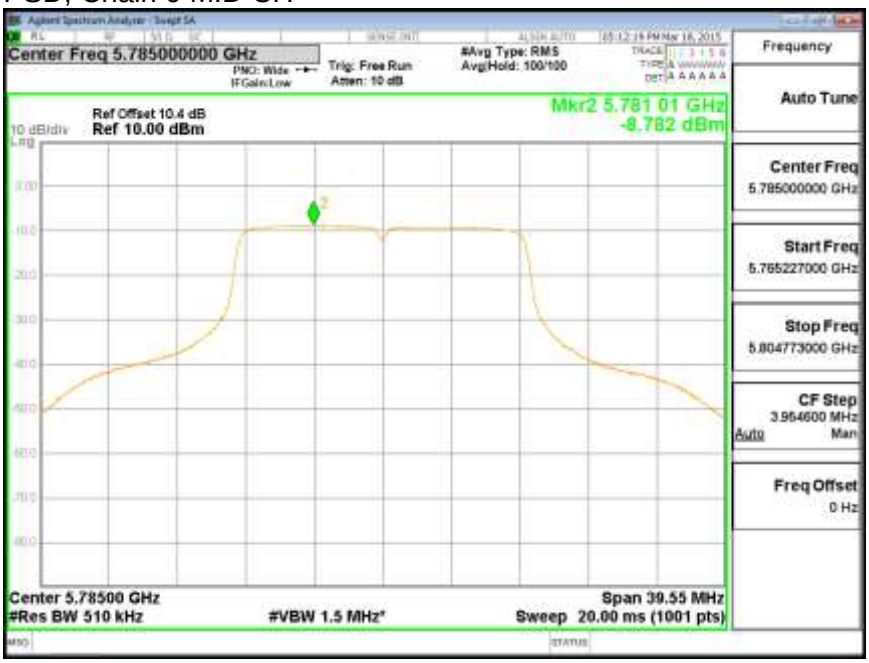
Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	-8.797	-8.80	30.00	-38.80
Mid	5785	-8.782	-8.78	30.00	-38.78
High	5825	-10.410	-10.41	30.00	-40.41

PSD, Chain 0

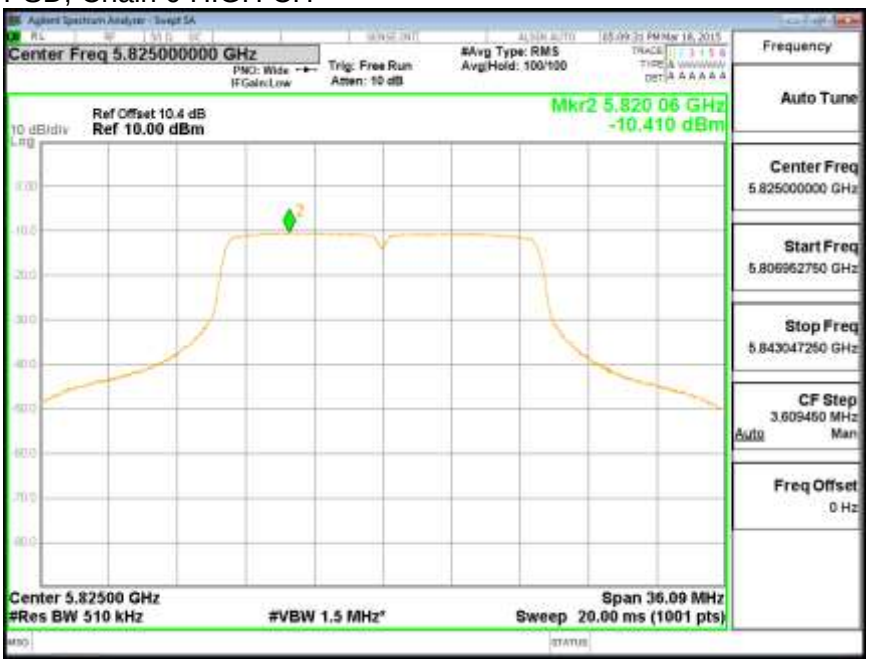
PSD, Chain 0 LOW CH



PSD, Chain 0 MID CH



PSD, Chain 0 HIGH CH



8.9. 802.11n HT20 MODE IN THE 5.8 GHz BAND

8.9.1. 6 dB BANDWIDTH

LIMITS

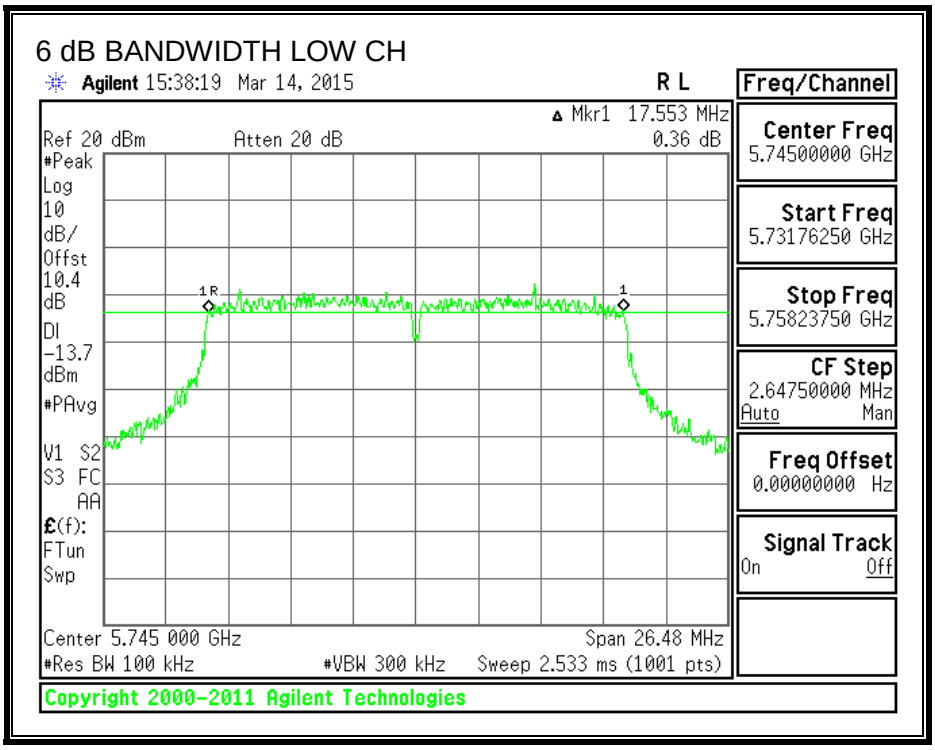
FCC §15.407 (e)

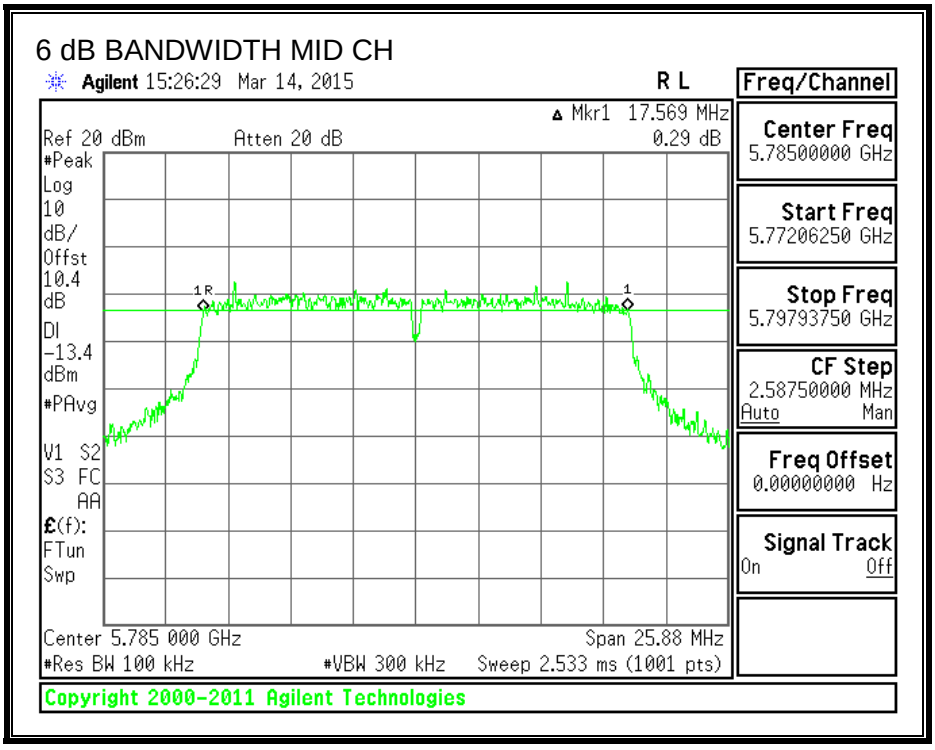
The minimum 6 dB bandwidth shall be at least 500 kHz.

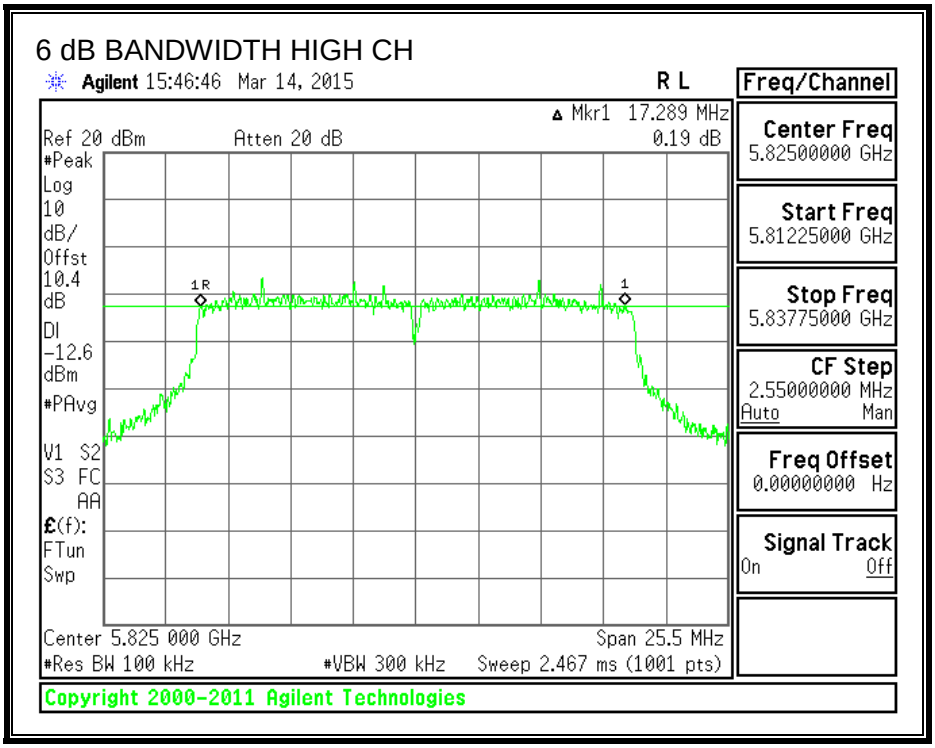
RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	17.55	0.5
Mid	5785	17.57	0.5
High	5825	17.29	0.5

6 dB BANDWIDTH







8.9.2. 26 dB BANDWIDTH

LIMITS

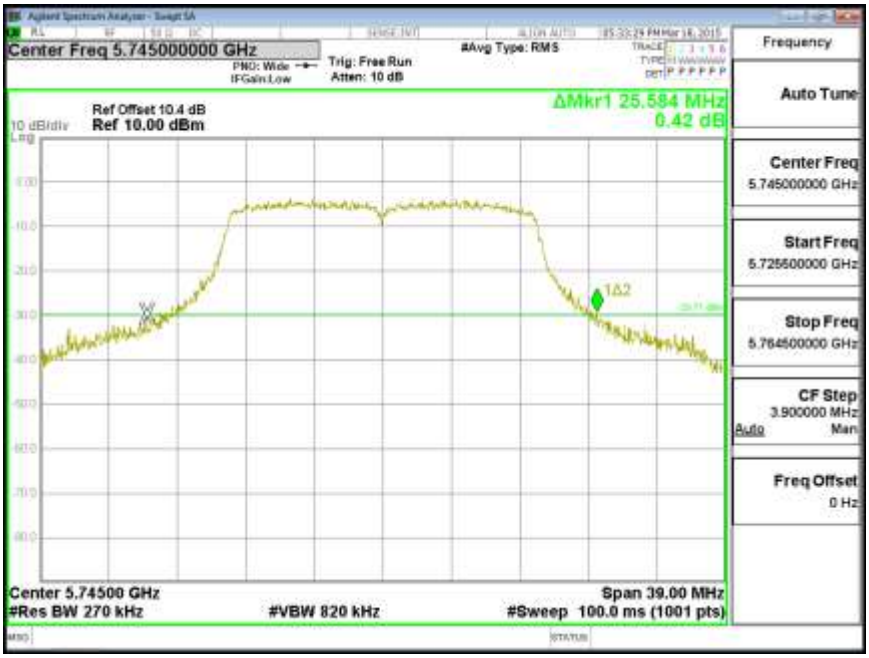
None; for reporting purposes only.

RESULTS

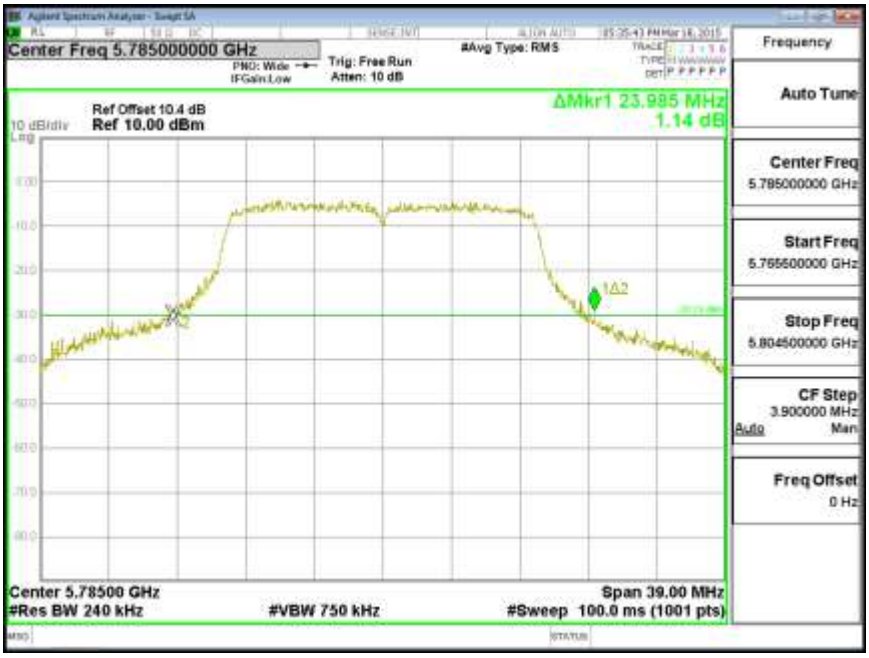
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5745	25.584
Mid	5785	23.985
High	5825	24.141

26 dB BANDWIDTH

BANDWIDTH LOW CH



BANDWIDTH MID CH



BANDWIDTH HIGH CH

8.9.3. 99% BANDWIDTH

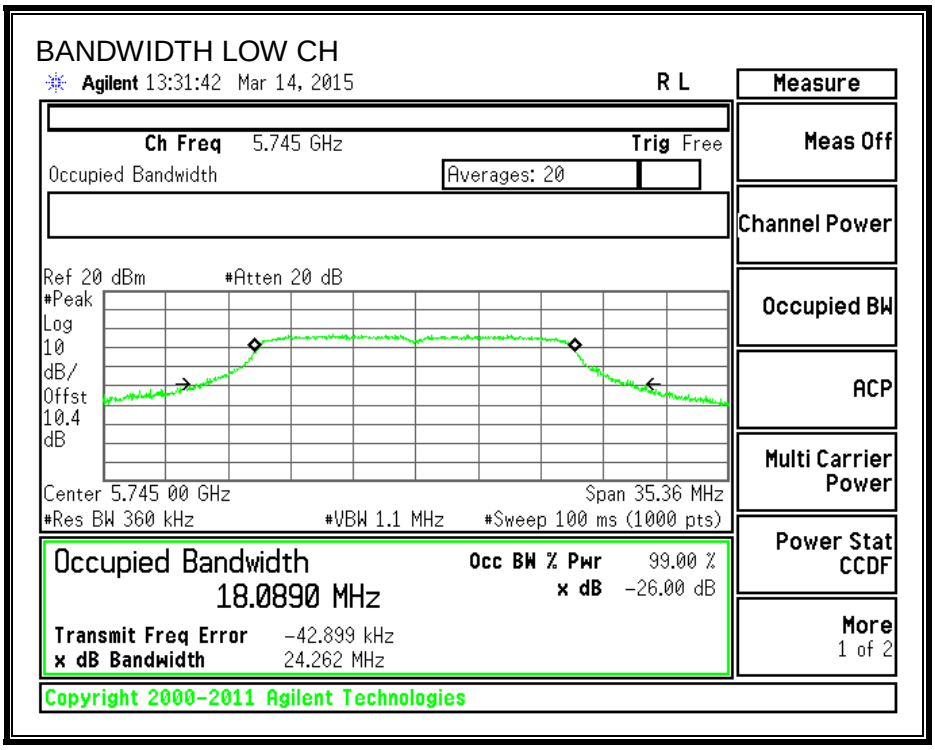
LIMITS

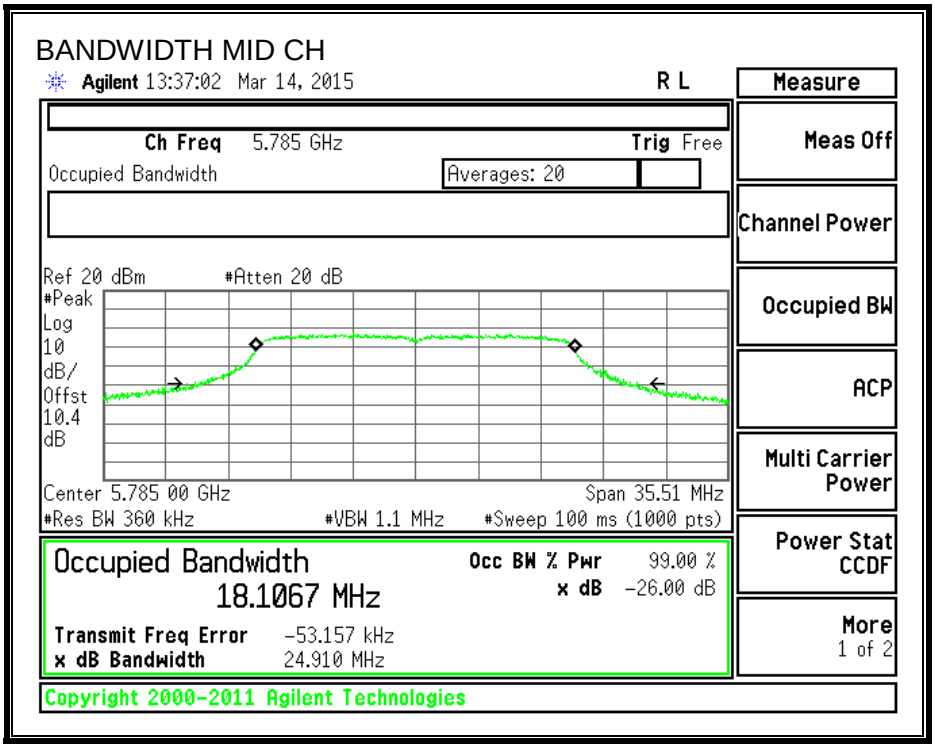
None; for reporting purposes only.

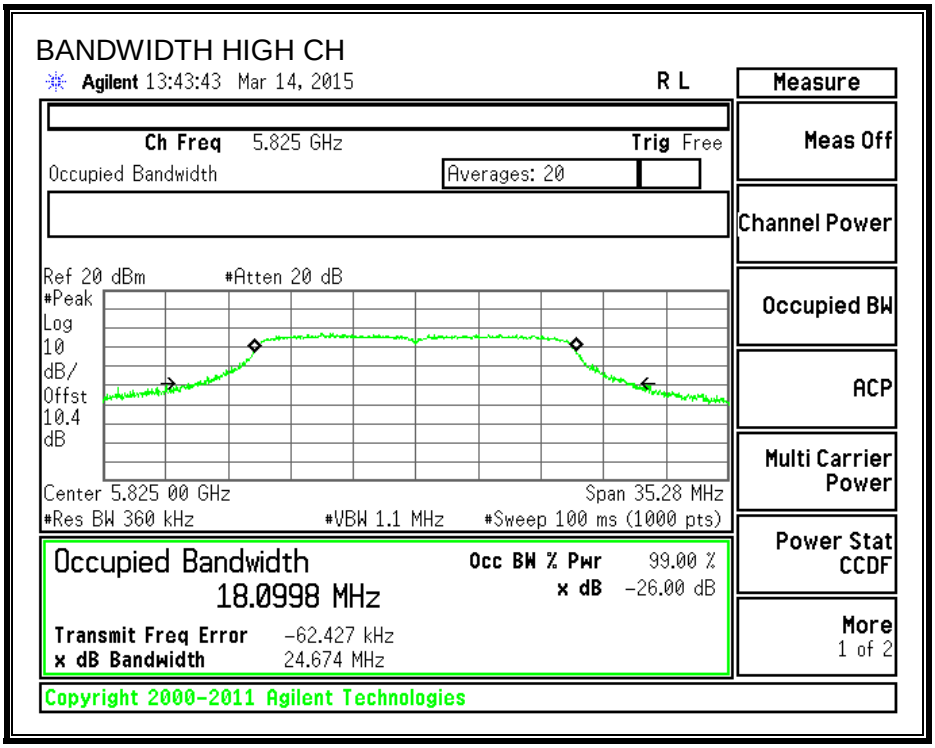
RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	18.089
Mid	5785	18.107
High	5825	18.100

99% BANDWIDTH







8.9.4. OUTPUT POWER

LIMITS

FCC §15.407 (a) (3)

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. 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Power Limit (dBm)
Low	5745	1.62	30.00
Mid	5785	1.62	30.00
High	5825	1.62	30.00

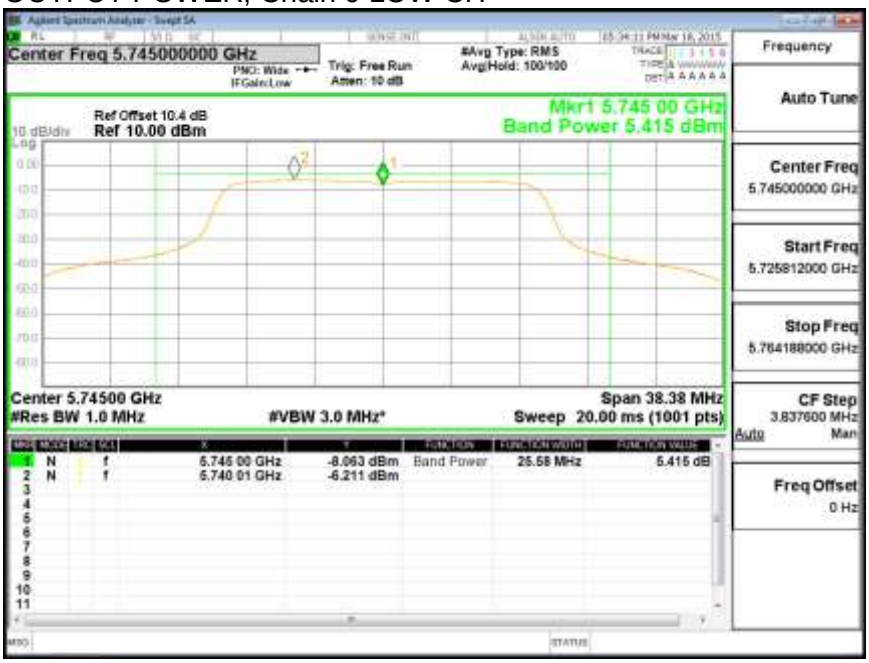
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd Power

Output Power Results

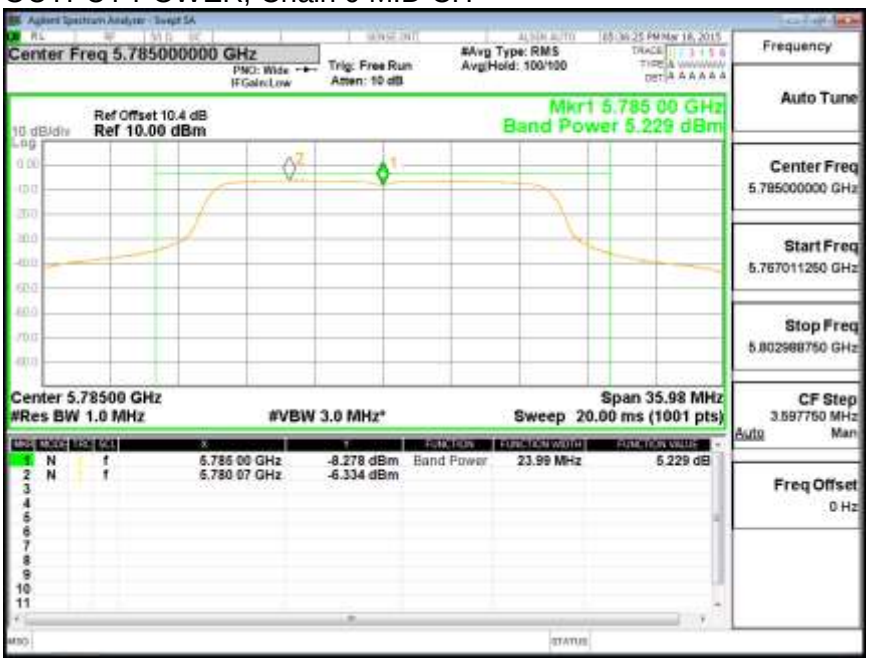
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	5.42	5.42	30.00	-24.59
Mid	5785	5.23	5.23	30.00	-24.77
High	5825	3.72	3.72	30.00	-26.28

OUTPUT POWER, Chain 0

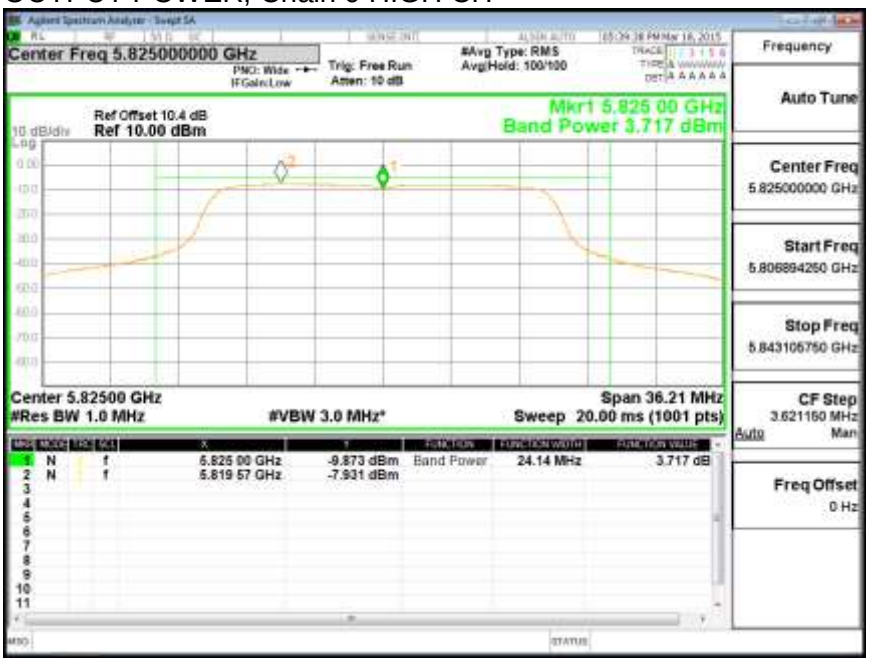
OUTPUT POWER, Chain 0 LOW CH



OUTPUT POWER, Chain 0 MID CH



OUTPUT POWER, Chain 0 HIGH CH



8.9.5. POWER SPECTRAL DENSITY (PSD)

LIMITS

FCC §15.407 (a) (3)

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. 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.

DIRECTIONAL ANTENNA GAIN

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

RESULTS

Antenna Gain and Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	PSD Limit (dBm)
Low	5745	1.62	30.00
Mid	5785	1.62	30.00
High	5825	1.62	30.00

Duty Cycle CF (dB)	0.00	**Included in Calculations of Corr'd PSD**

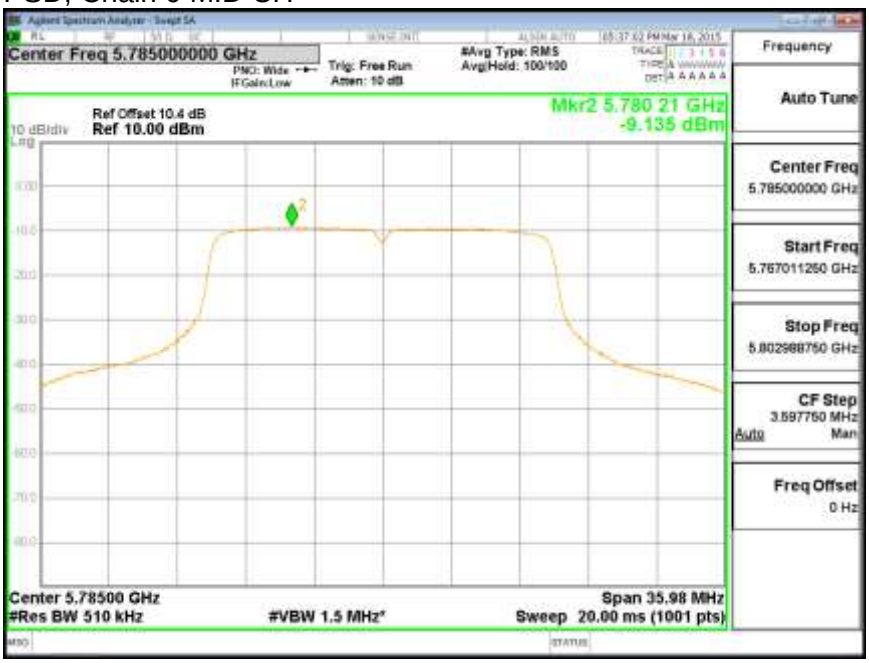
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	-8.937	-8.94	30.00	-38.94
Mid	5785	-9.135	-9.14	30.00	-39.14
High	5825	-10.781	-10.78	30.00	-40.78

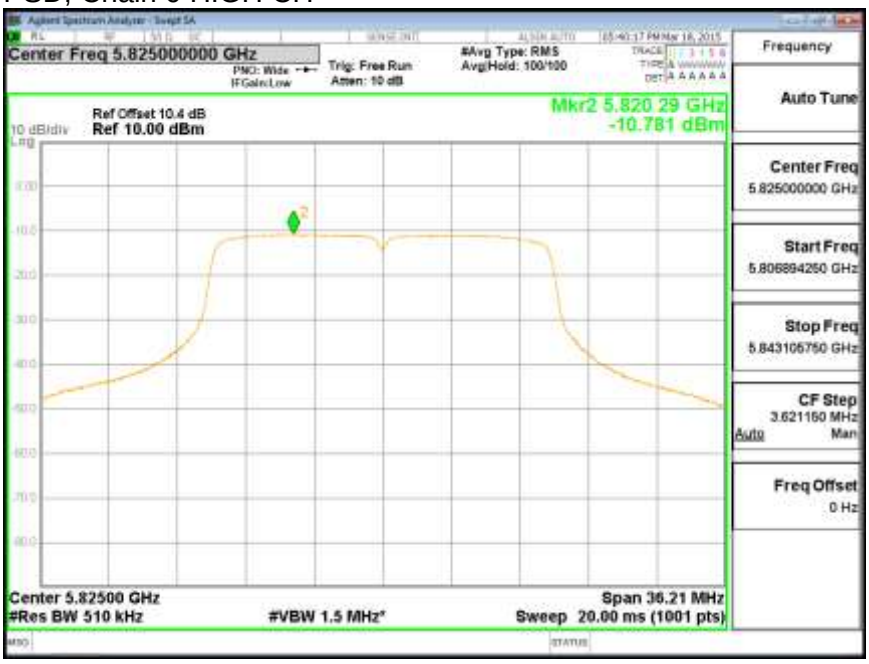
PSD, Chain 0

PSD, Chain 0 LOW CH

PSD, Chain 0 MID CH



PSD, Chain 0 HIGH CH



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

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

TEST PROCEDURE

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

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

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 1 MHz for peak measurements and as applicable for average measurements.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

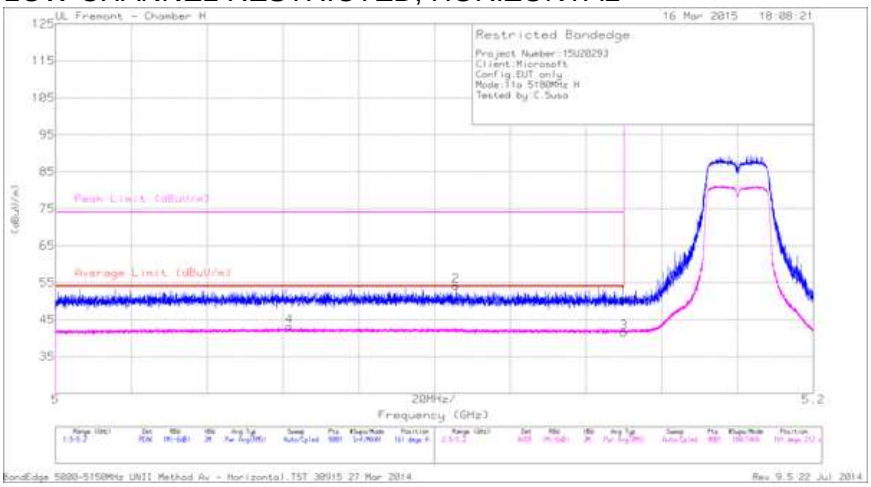
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

9.2. TRANSMITTER ABOVE 1 GHz

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

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, HORIZONTAL



DATA

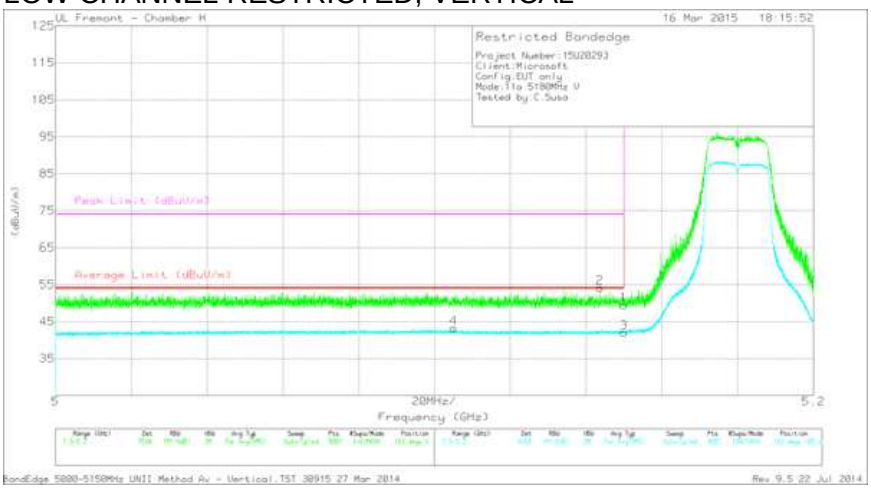
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 5.062	31.59	RMS	34.4	-22.9	43.09	54	-10.91	-	-	161	212	H
2	* 5.106	42.51	PK	34.5	-22.9	54.11	-	-	74	-19.89	161	212	H
1	* 5.15	39.08	PK	34.5	-22.8	50.78	-	-	74	-23.22	161	212	H
3	* 5.15	29.89	RMS	34.5	-22.8	41.59	54	-12.41	-	-	161	212	H

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

PK - Peak detector

RMS - RMS detection

LOW CHANNEL RESTRICTED, VERTICAL



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 5.105	31.62	RMS	34.5	-22.9	43.22	54	-10.78	-	-	103	105	V
2	* 5.144	42.35	PK	34.5	-22.7	54.15	-	-	74	-19.85	103	105	V
1	* 5.15	37.8	PK	34.5	-22.8	49.5	-	-	74	-24.5	103	105	V
3	* 5.15	30.32	RMS	34.5	-22.8	42.02	54	-11.98	-	-	103	105	V

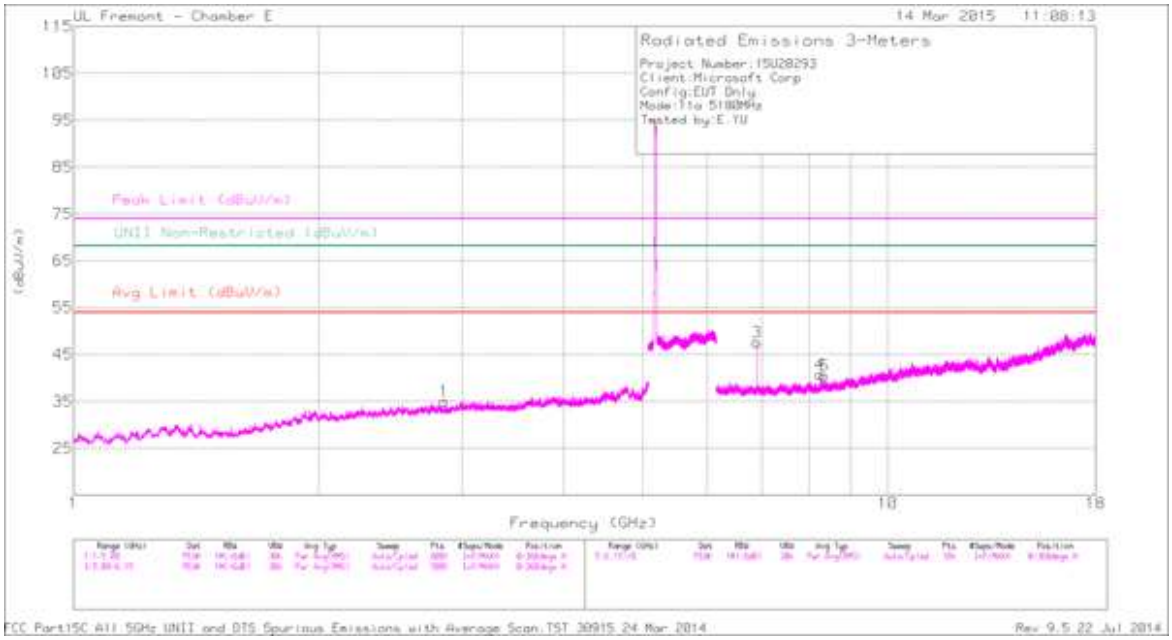
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

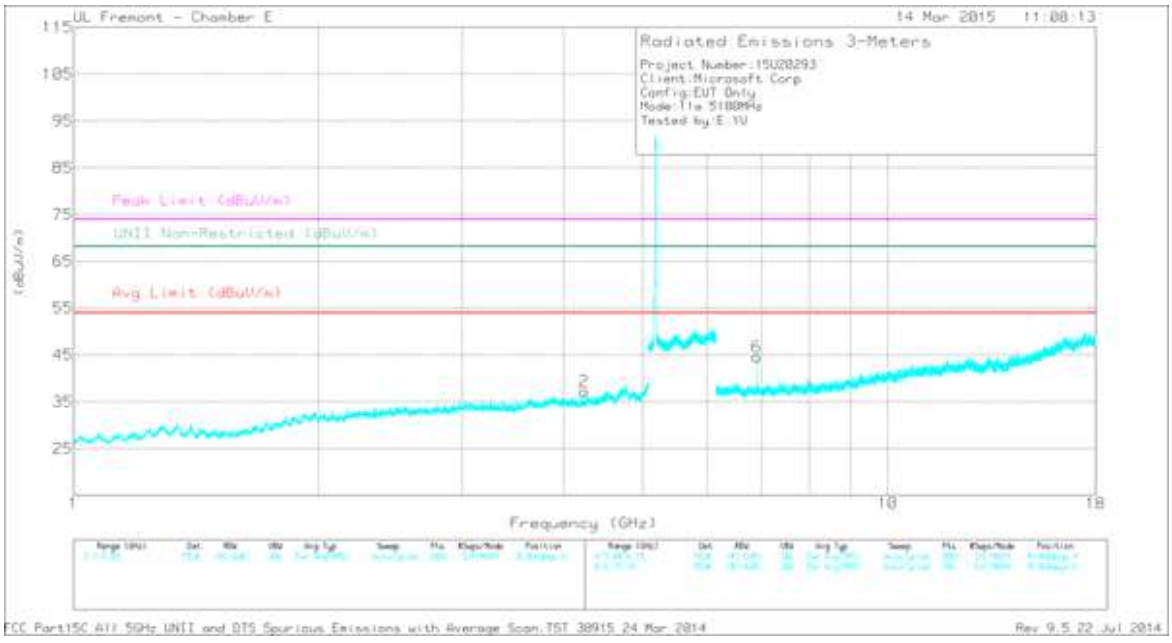
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

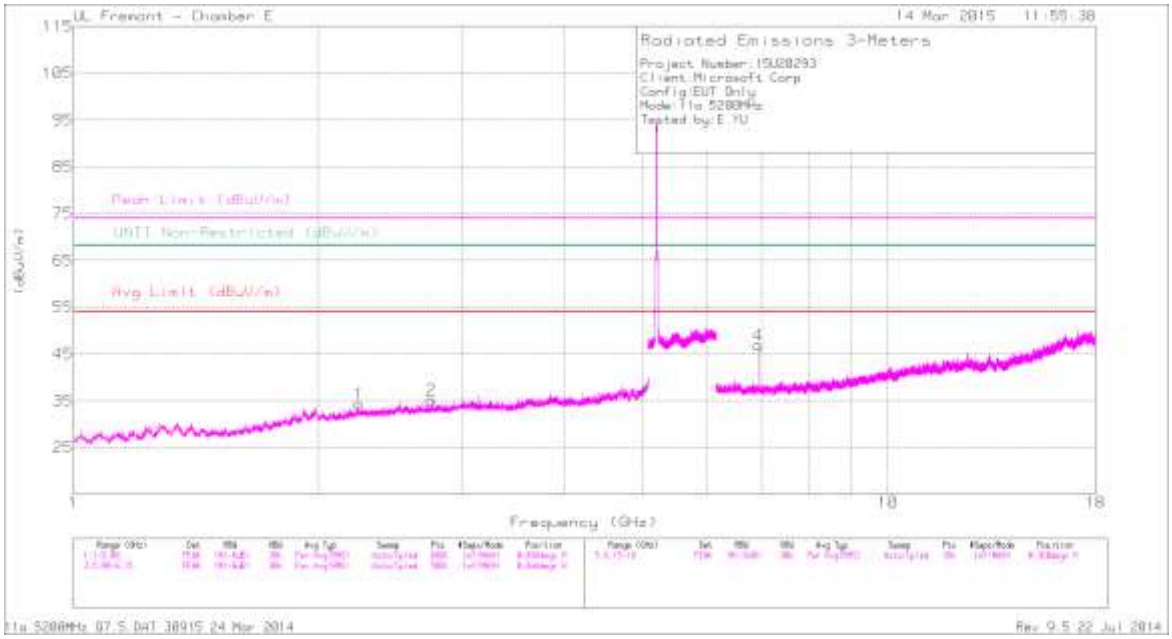
	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.854	42.61	PK1	32.4	-32.7	42.31	-	-	74	-31.69	-	-	26	101	H
	* 2.853	30.56	AD1	32.4	-32.7	30.26	54	-23.74	-	-	-	-	26	101	H
2	* 4.239	41.12	PK1	33.5	-31.1	43.52	-	-	74	-30.48	-	-	166	153	V
	* 4.241	30.26	AD1	33.5	-31.1	32.66	54	-21.34	-	-	-	-	166	153	V
4	* 8.258	38.03	PK1	35.7	-27.3	46.43	-	-	74	-27.57	-	-	158	102	H
	* 8.261	26.68	AD1	35.7	-27.3	35.08	54	-18.92	-	-	-	-	158	102	H
5	* 8.35	38.7	PK1	35.7	-27.3	47.1	-	-	74	-26.9	-	-	83	116	H
	* 8.35	27.64	AD1	35.7	-27.3	36.04	54	-17.96	-	-	-	-	83	116	H
3	6.907	45.89	PK1	35.6	-28.8	52.69	-	-	-	-	68.2	-15.51	168	209	H
6	6.907	44.13	PK1	35.6	-28.8	50.93	-	-	-	-	68.2	-17.27	170	126	V

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

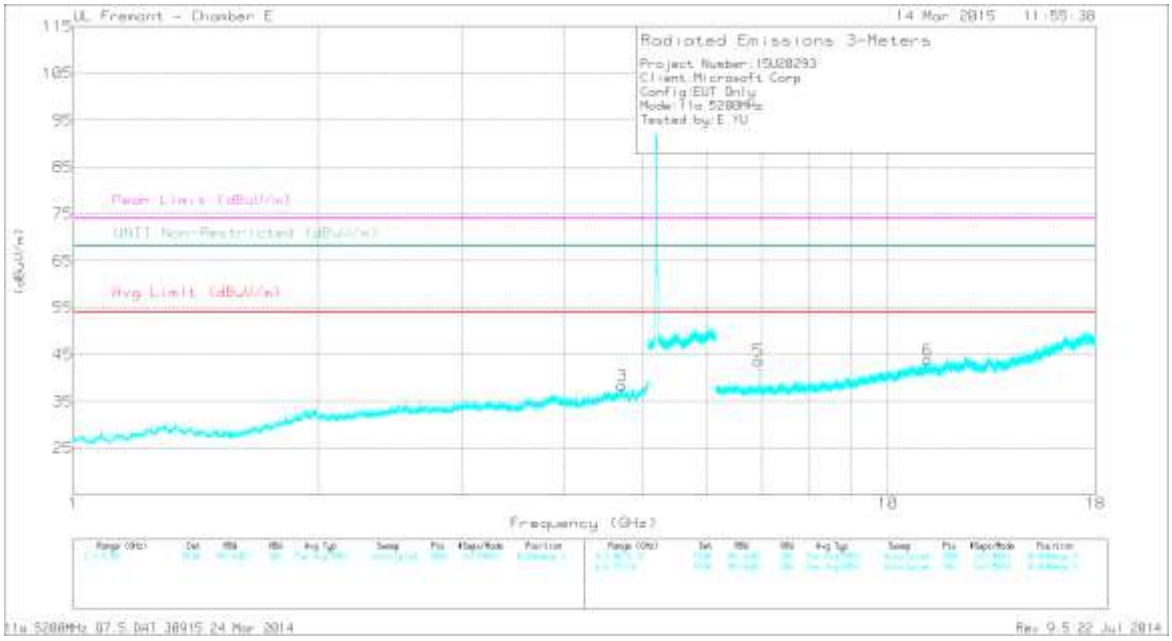
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

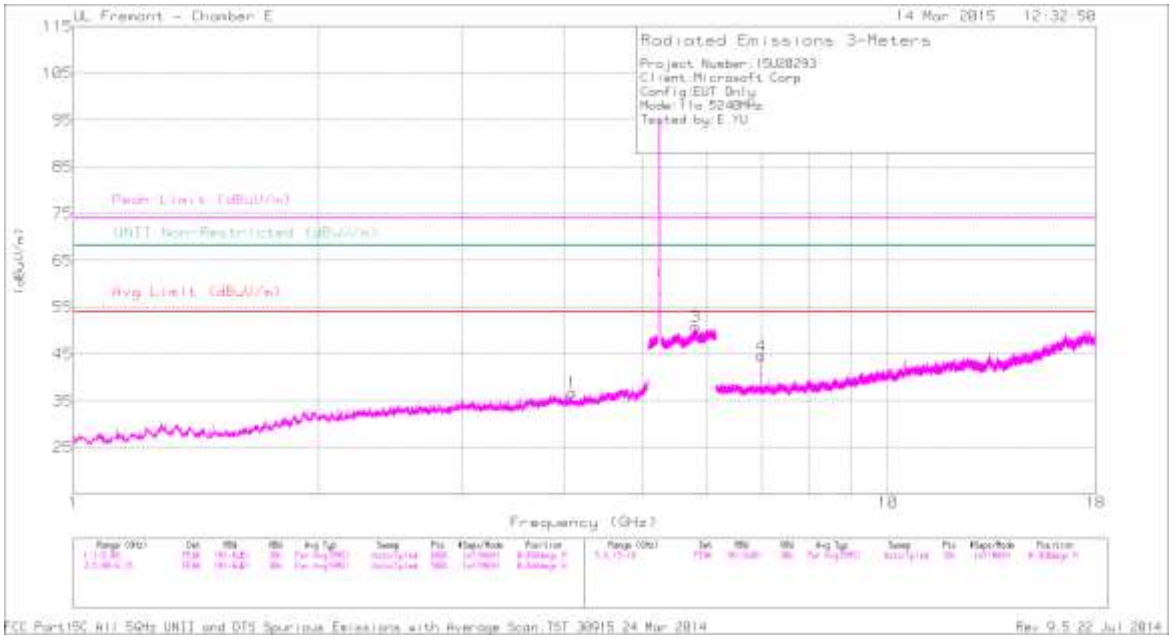
	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.239	42.15	PK1	31.5	-32.2	41.45	-	-	74	-32.55	-	-	329	226	H
	* 2.239	30.32	AD1	31.5	-32.2	29.62	54	-24.38	-	-	-	-	329	326	H
2	* 2.753	42.3	PK1	32.4	-32.2	42.5	-	-	74	-31.5	-	-	231	101	H
	* 2.754	30.78	AD1	32.4	-32.2	30.98	54	-23.02	-	-	-	-	231	101	H
3	* 4.711	41.64	PK1	34.2	-30.3	45.54	-	-	74	-28.46	-	-	192	200	V
	* 4.711	31.05	AD1	34.2	-30.3	34.95	54	-19.05	-	-	-	-	192	200	V
6	* 11.188	36.36	PK1	37.8	-23.3	50.86	-	-	74	-23.14	-	-	202	193	V
	* 11.188	25.64	AD1	37.8	-23.3	40.14	54	-13.86	-	-	-	-	202	193	V
4	6.933	44.36	PK1	35.6	-28.4	51.56	-	-	-	-	68.2	-16.64	181	138	H
5	6.934	43.59	PK1	35.6	-28.4	50.79	-	-	-	-	68.2	-17.41	180	341	V

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

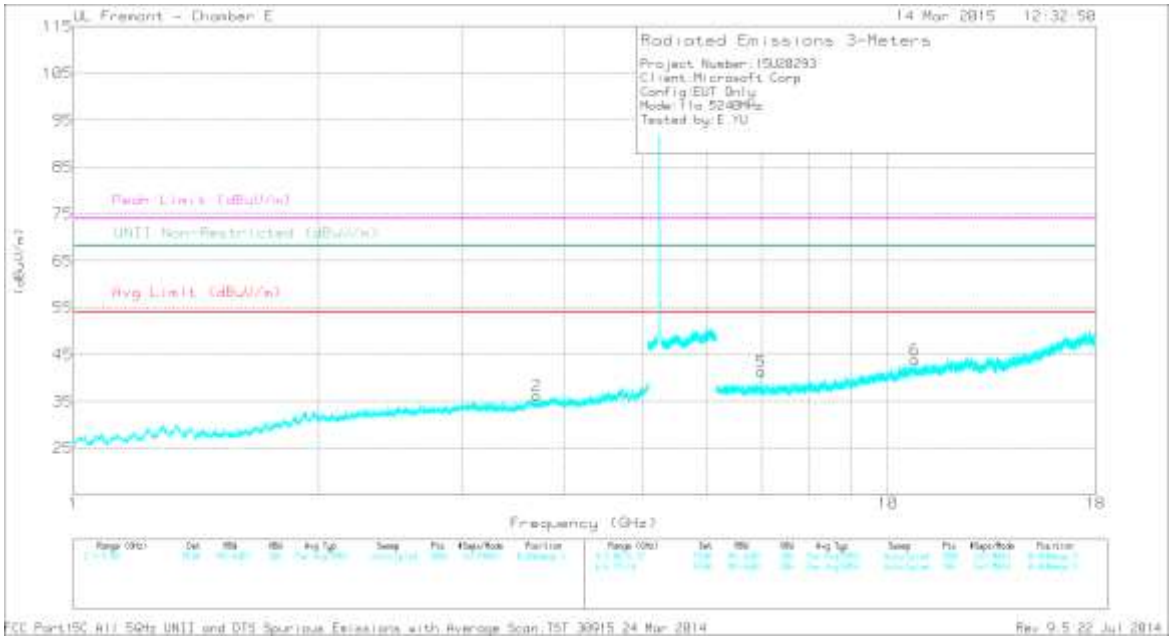
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.096	41.61	PK1	33.4	-31.2	43.81	-	-	74	-30.19	-	-	108	101	H
	* 4.095	30.44	AD1	33.4	-31.2	32.64	54	-21.36	-	-	-	-	108	101	H
2	* 3.706	41.63	PK1	33.2	-31.7	43.13	-	-	74	-30.87	-	-	2	118	V
	* 3.705	30.49	AD1	33.2	-31.7	31.99	54	-22.01	-	-	-	-	2	118	V
6	* 10.793	36.26	PK1	37.9	-24.4	49.76	-	-	74	-24.24	-	-	186	183	V
	* 10.792	25.64	AD1	37.9	-24.5	39.04	54	-14.96	-	-	-	-	186	183	V
3	5.808	43.62	PK1	34.9	-20.4	58.12	-	-	-	-	68.2	-10.08	202	102	H
4	6.986	42.99	PK1	35.6	-28.3	50.29	-	-	-	-	68.2	-17.91	202	310	V
5	6.987	43.19	PK1	35.6	-28.3	50.49	-	-	-	-	68.2	-17.71	173	123	H

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

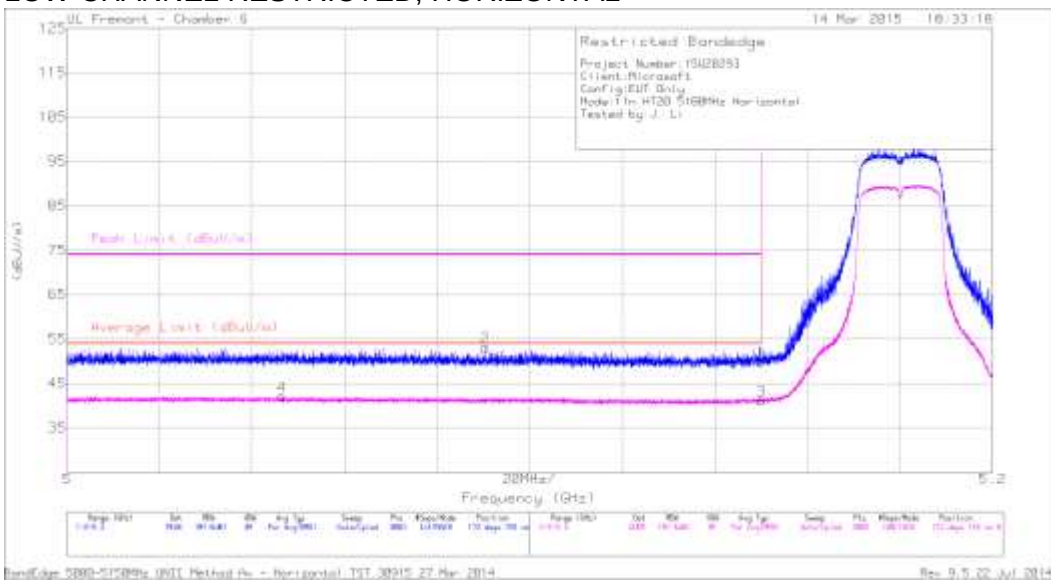
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

9.2.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, HORIZONTAL



DATA

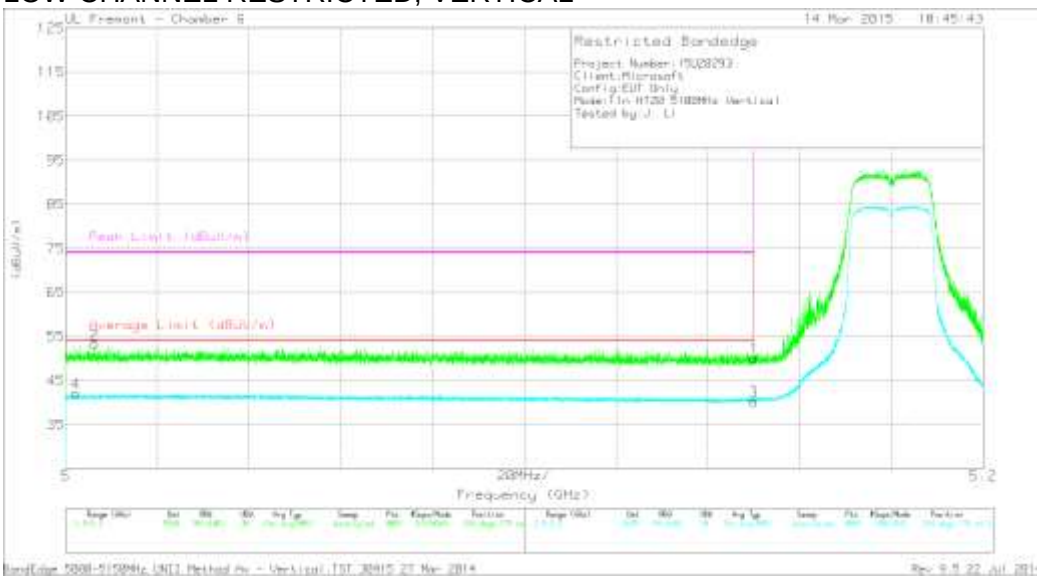
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	39.28	PK	34.3	-23.6	49.98	-	-	74	-24.02	172	155	H
2	* 5.09	42.68	PK	34.2	-23.7	53.18	-	-	74	-20.82	172	155	H
3	* 5.15	30.37	RMS	34.3	-23.6	41.07	54	-12.93	-	-	172	155	H
4	* 5.046	31.65	RMS	34.2	-23.7	42.15	54	-11.85	-	-	172	155	H

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

PK - Peak detector

RMS - RMS detection

LOW CHANNEL RESTRICTED, VERTICAL



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	39.6	PK	34.3	-23.6	50.3	-	-	74	-23.7	244	175	V
2	* 5.006	42.95	PK	34.1	-23.7	53.35	-	-	74	-20.65	244	175	V
3	* 5.15	29.71	RMS	34.3	-23.6	40.41	54	-13.59	-	-	244	175	V
4	* 5.002	31.83	RMS	34.1	-23.7	42.23	54	-11.77	-	-	244	175	V

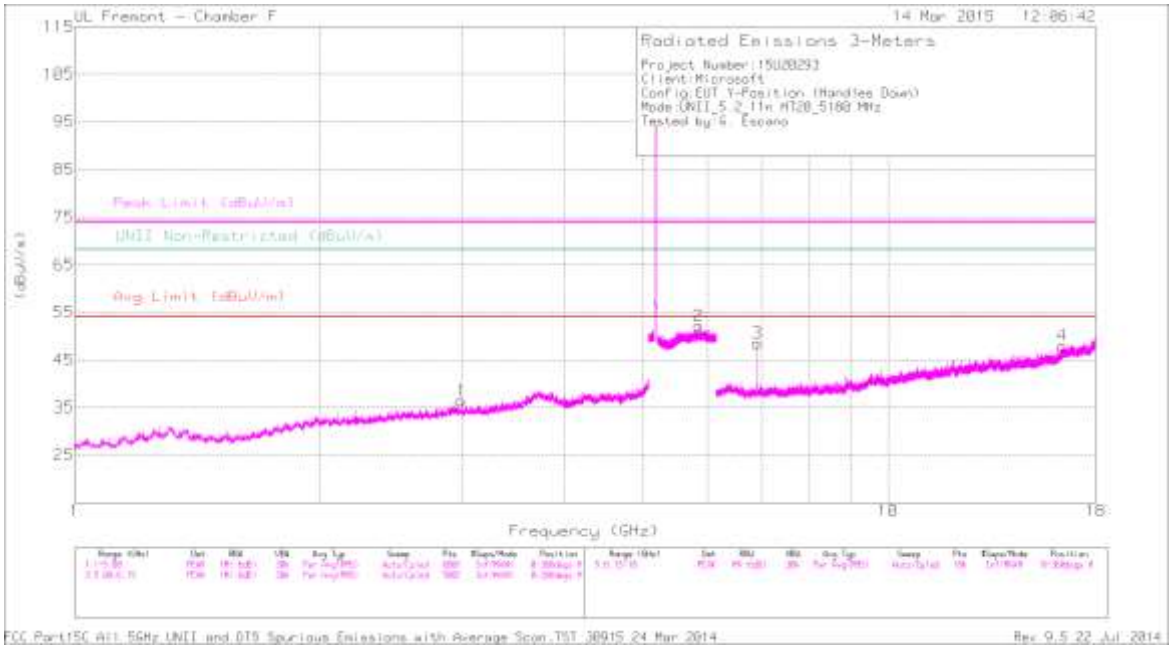
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

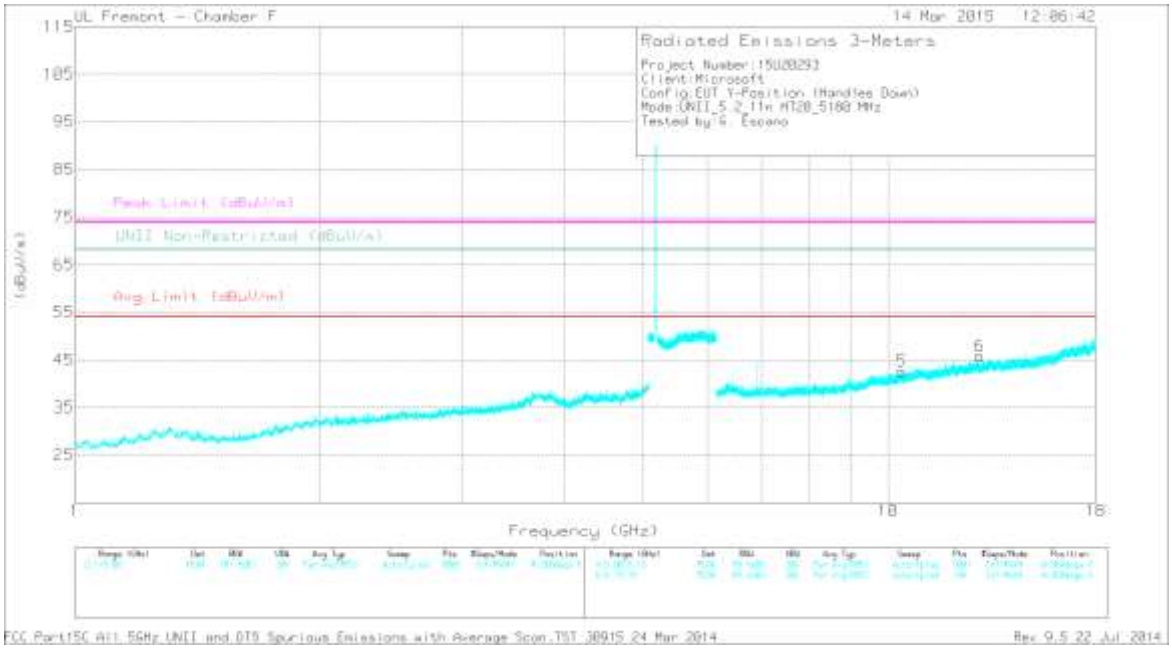
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



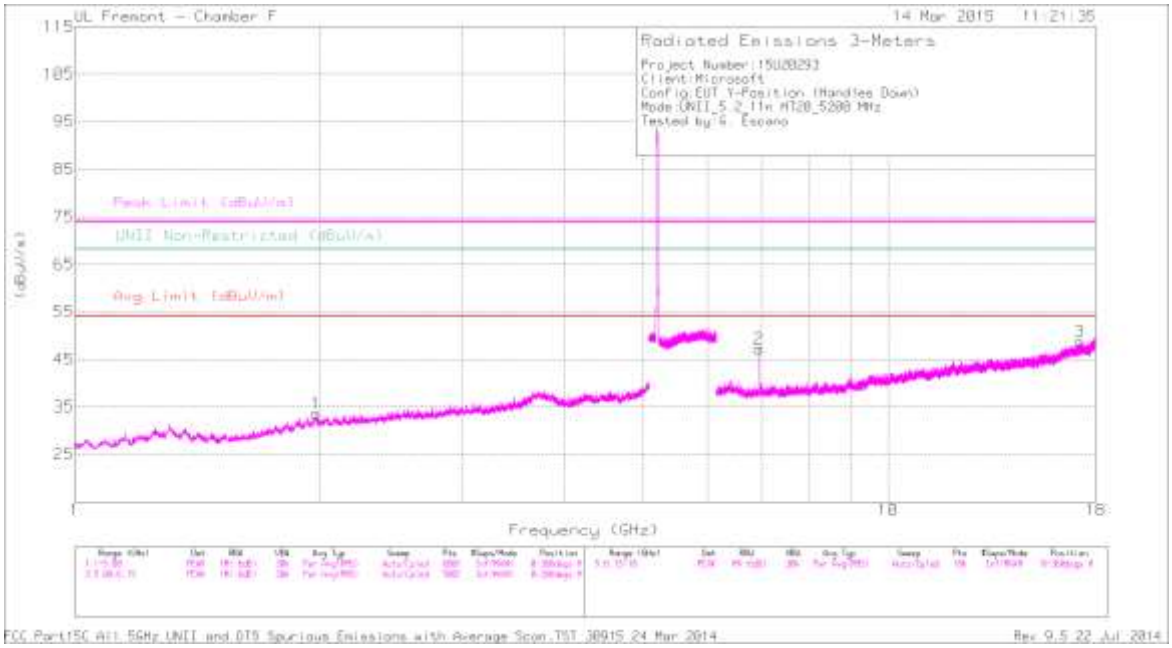
DATA

Radiated Emissions

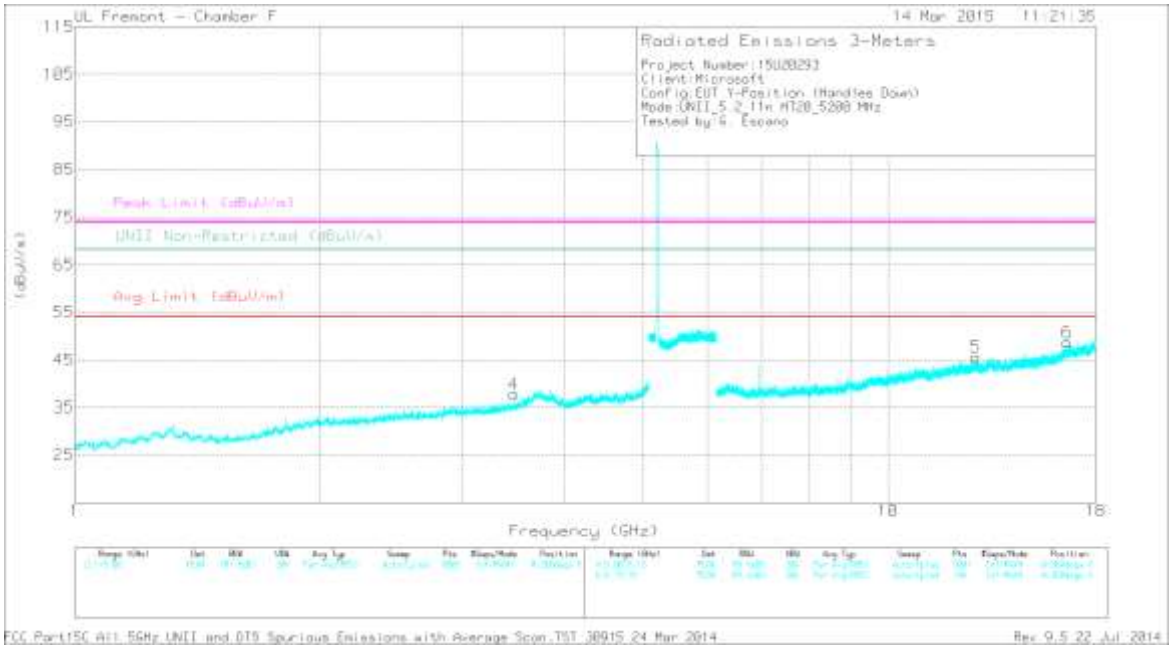
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.988	39.86	PK1	33.3	-30.1	0	43.06	-	-	-	-	68.2	-25.14	12	143	H
2	5.851	41.68	PK1	35	-18.3	0	58.38	-	-	-	-	68.2	-9.82	54	142	H
3	6.907	43.25	PK1	35.5	-26.3	0	52.45	-	-	-	-	68.2	-15.75	49	124	H
4	16.367	35	PK1	40.8	-21.4	0	54.4	-	-	-	-	68.2	-13.8	202	234	H
5	10.395	33.63	PK1	37.3	-21.7	0	49.23	-	-	-	-	68.2	-18.97	134	184	V
6	12.951	35.11	PK1	39.1	-22.5	0	51.71	-	-	-	-	68.2	-16.49	281	381	V

PK1 - KDB789033 Method: Peak

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



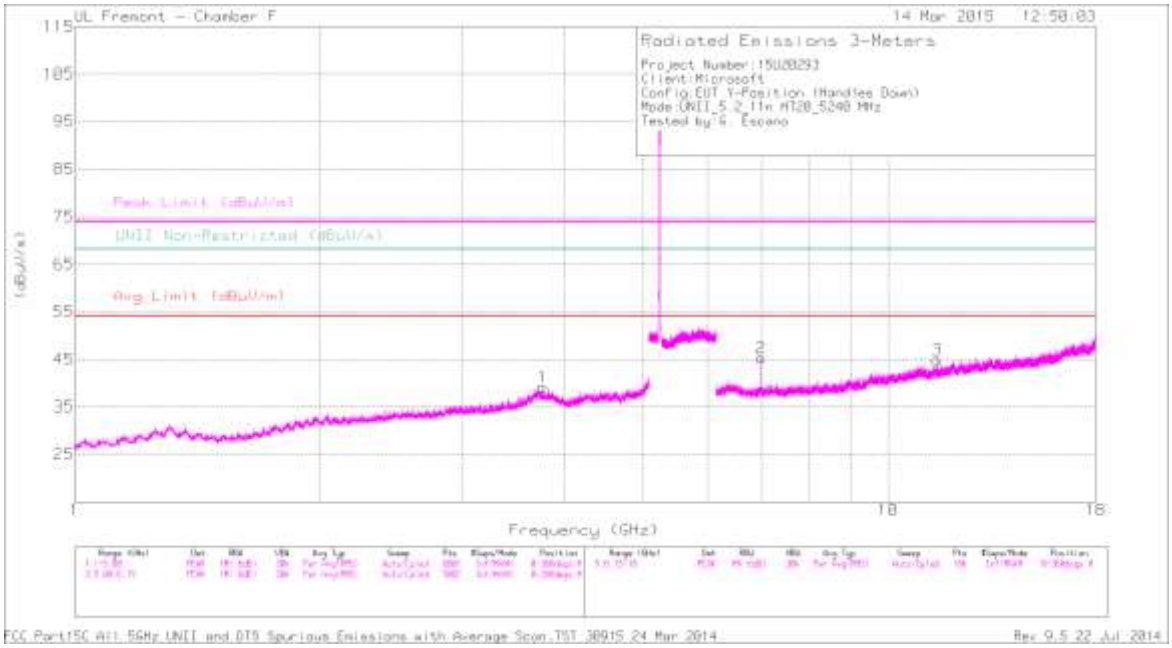
DATA

Radiated Emissions

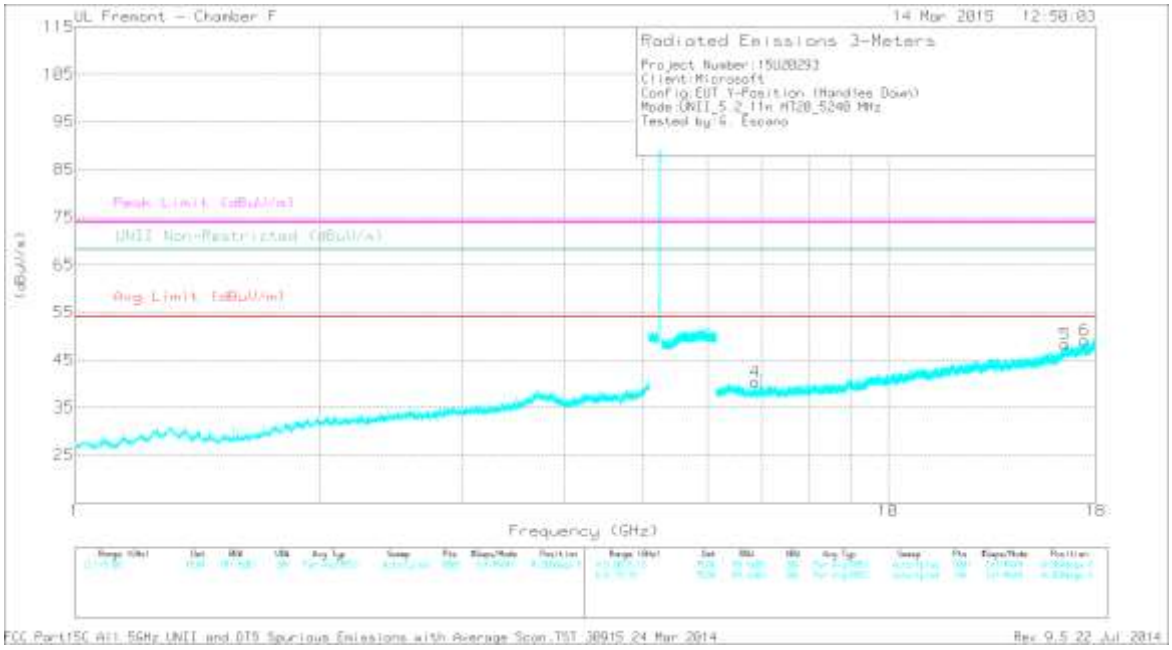
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.98	40.73	PK1	31.6	-30.8	0	41.53	-	-	-	-	68.2	-26.67	198	205	H
4	3.467	40.89	PK1	34.2	-29.3	0	45.79	-	-	-	-	68.2	-22.41	65	204	V
2	6.933	42.79	PK1	35.5	-26.3	0	51.99	-	-	-	-	68.2	-16.21	56	129	H
3	17.217	35.37	PK1	41	-20.8	0	55.57	-	-	-	-	68.2	-12.63	181	220	H
5	12.822	35.02	PK1	39.1	-22.3	0	51.82	-	-	-	-	68.2	-16.38	188	237	V
6	16.612	34.88	PK1	41.3	-21.3	0	54.88	-	-	-	-	68.2	-13.32	14	354	V

PK1 - KDB789033 Method: Peak

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.762	39.67	PK1	34.6	-29.4	44.87	-	-	74	-29.13	-	-	288	201	H
	* 3.761	27.43	AD1	34.6	-29.4	32.63	54	-21.37	-	-	-	-	288	201	H
2	6.987	41.07	PK1	35.5	-25.7	50.87	-	-	-	-	68.2	-17.33	62	115	H
3	* 11.486	34.62	PK1	38.4	-22.1	50.92	-	-	74	-23.08	-	-	195	106	H
	* 11.486	22.62	AD1	38.4	-22.1	38.92	54	-15.08	-	-	-	-	195	106	H
4	6.861	37.66	PK1	35.5	-26.3	46.86	-	-	-	-	68.2	-21.34	102	336	V
5	16.525	35.03	PK1	41.3	-21.1	55.23	-	-	-	-	68.2	-12.97	194	250	V
6	17.44	34.58	PK1	40.8	-19.9	55.48	-	-	-	-	68.2	-12.72	4	256	V

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

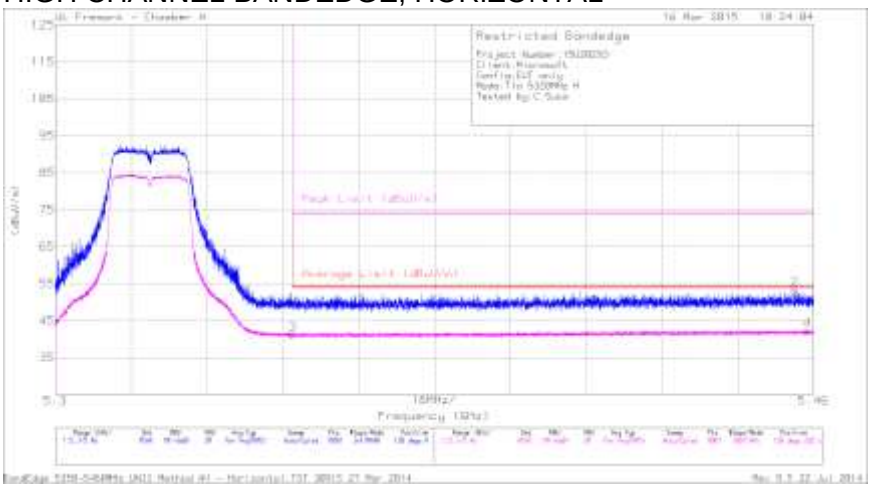
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

9.2.3. TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, HORIZONTAL



DATA

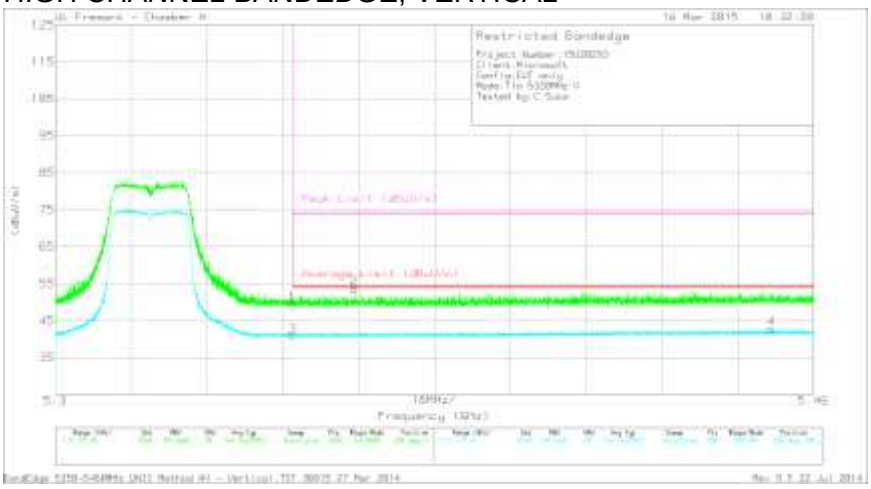
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	37.04	PK	34.9	-22.7	49.24	-	-	74	-24.76	120	265	H
3	* 5.35	29.08	RMS	34.9	-22.7	41.28	54	-12.72	-	-	120	265	H
2	* 5.456	40.74	PK	35	-22.5	53.24	-	-	74	-20.76	120	265	H
4	* 5.459	29.94	RMS	35	-22.5	42.44	54	-11.56	-	-	120	265	H

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

PK - Peak detector

RMS - RMS detection

HIGH CHANNEL BANDEDGE, VERTICAL



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	37.29	PK	34.9	-22.7	49.49	-	-	74	-24.51	209	304	V
3	* 5.35	28.74	RMS	34.9	-22.7	40.94	54	-13.06	-	-	209	304	V
2	* 5.363	41.37	PK	34.9	-22.7	53.57	-	-	74	-20.43	209	304	V
4	* 5.451	30.21	RMS	35	-22.5	42.71	54	-11.29	-	-	209	304	V

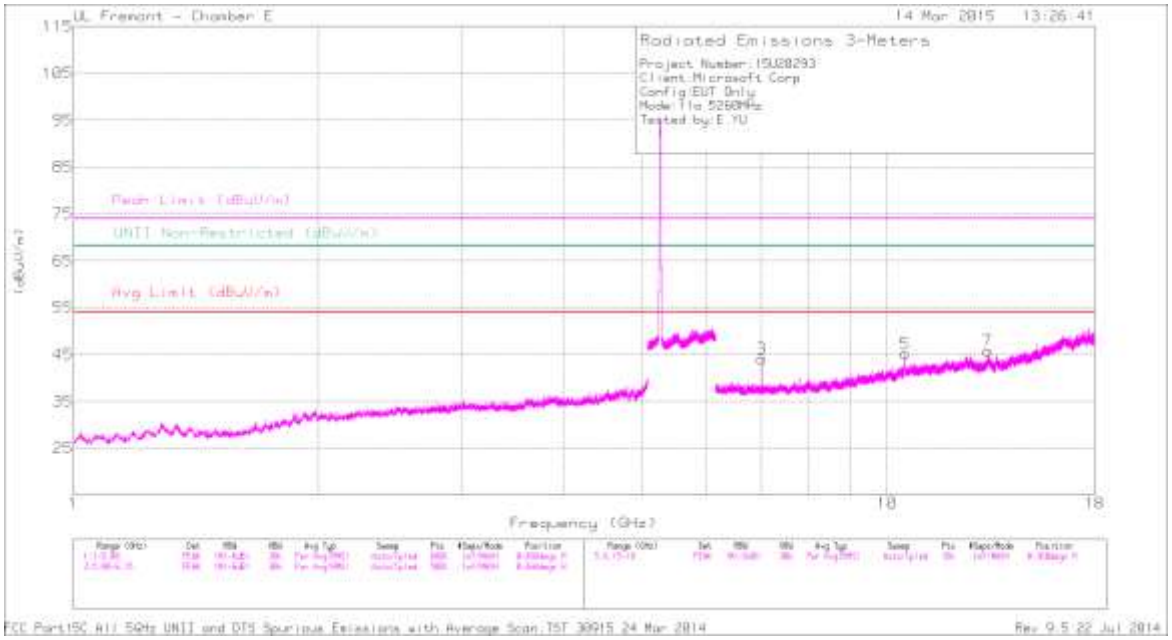
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

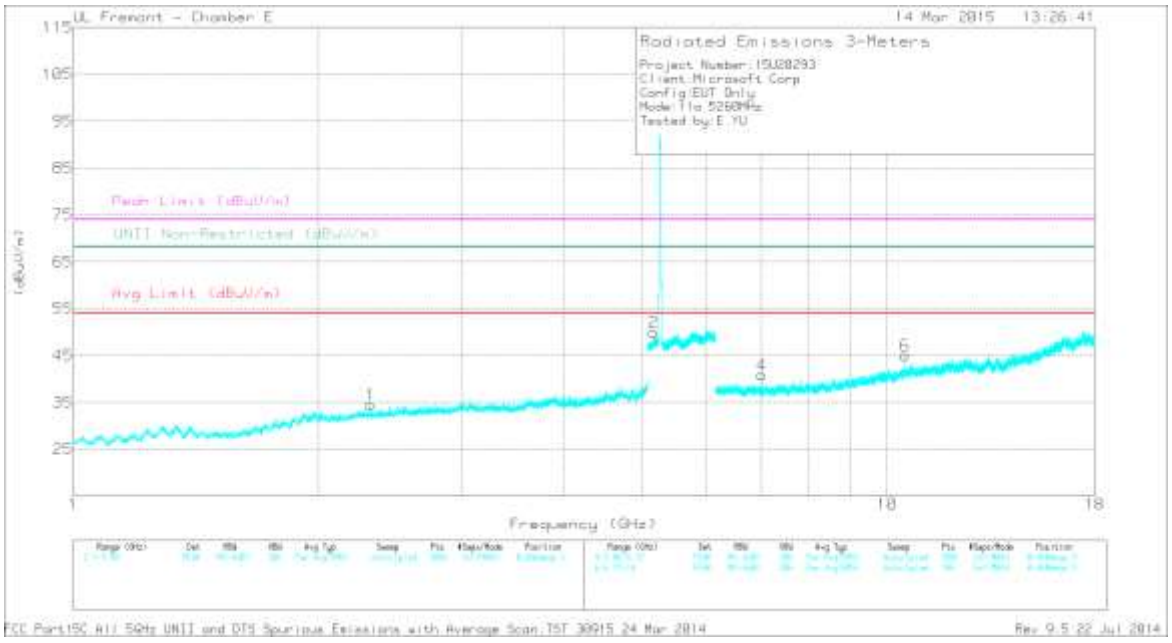
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

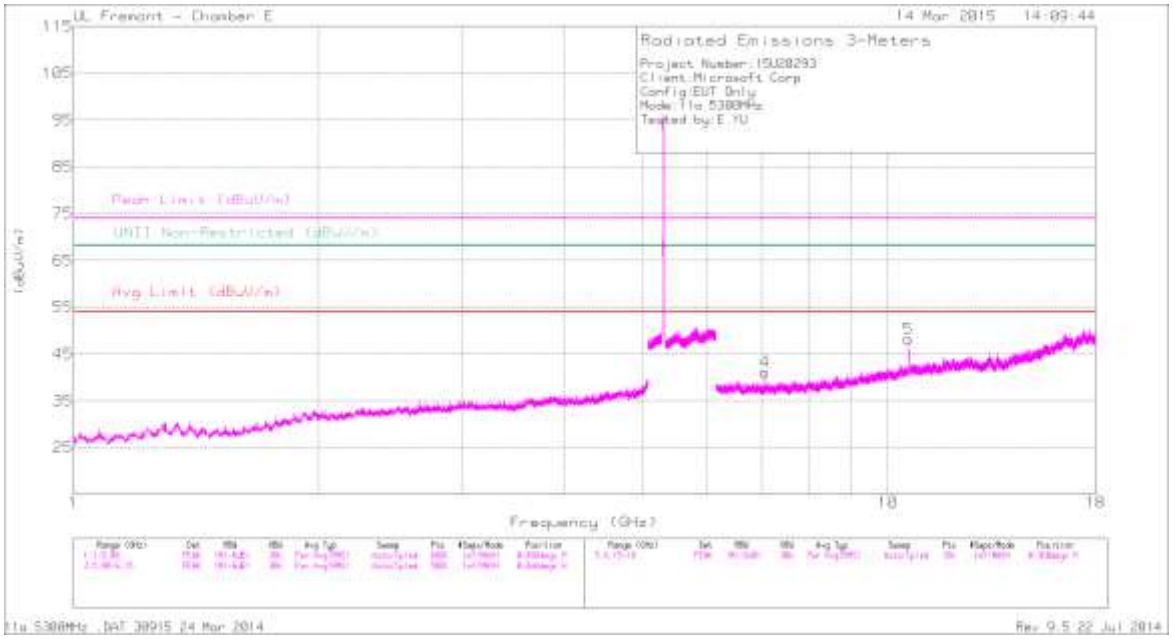
	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.316	42.7	PK1	31.9	-33.3	41.3	-	-	74	-32.7	-	-	156	200	V
	* 2.316	31.47	AD1	31.9	-33.3	30.07	54	-23.93	-	-	-	-	156	200	V
7	* 13.295	36.77	PK1	39	-23.9	51.87	-	-	74	-22.13	-	-	302	163	H
	* 13.293	26.55	AD1	39	-23.9	41.65	54	-12.35	-	-	-	-	302	163	H
2	5.165	43.67	PK1	34.3	-21.5	56.47	-	-	-	-	68.2	-11.73	166	102	V
3	7.013	42.96	PK1	35.6	-28.6	49.96	-	-	-	-	68.2	-18.24	166	168	H
4	7.013	42.28	PK1	35.6	-28.6	49.28	-	-	-	-	68.2	-18.92	192	384	V
6	10.517	37.92	PK1	37.6	-24.1	51.42	-	-	-	-	68.2	-16.78	192	101	V
5	10.521	41.97	PK1	37.6	-24	55.57	-	-	-	-	68.2	-12.63	263	109	H

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

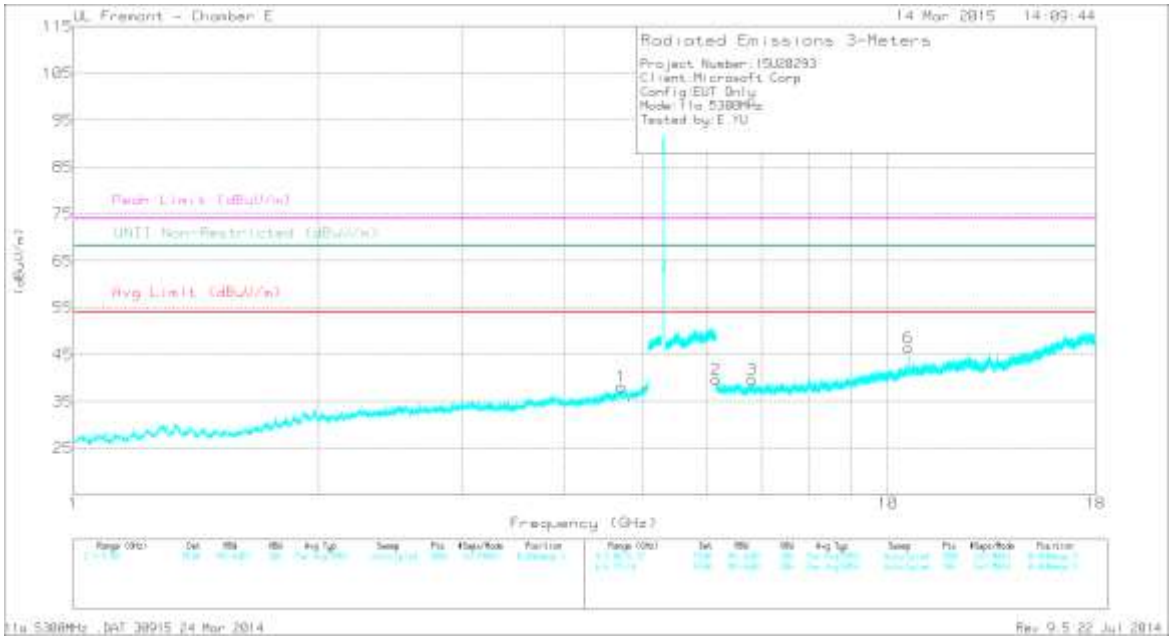
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

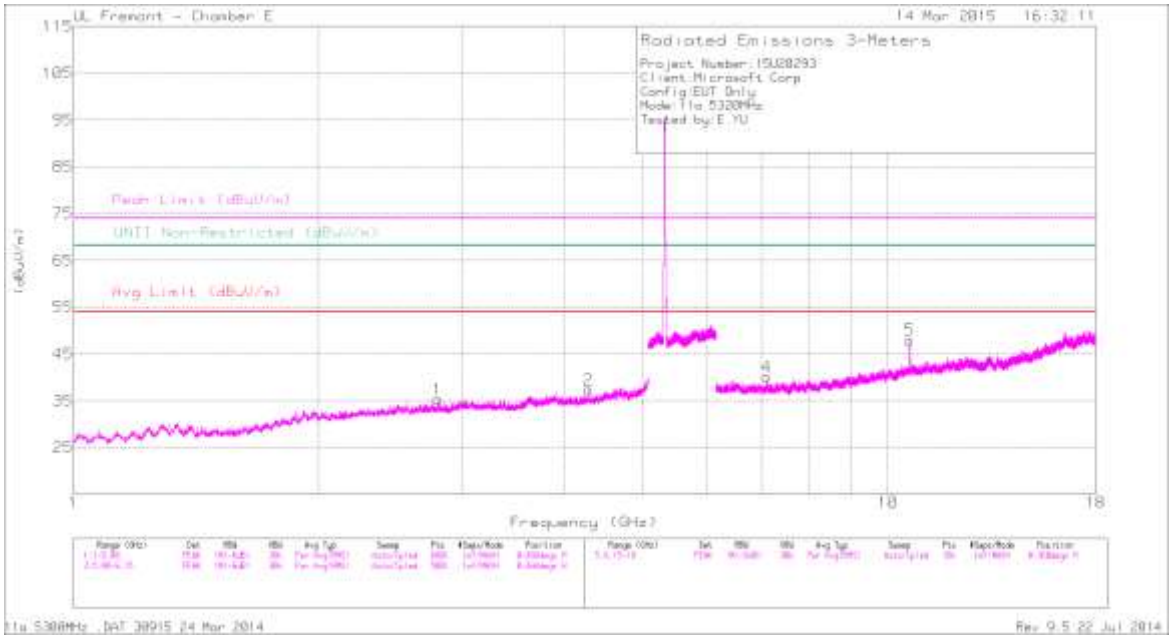
	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.706	41.39	PK1	34.2	-30.1	45.49	-	-	74	-28.51	-	-	130	101	V
	* 4.708	30.91	AD1	34.2	-30.1	35.01	54	-18.99	-	-	-	-	130	101	V
5	* 10.601	46.35	PK1	37.7	-24.9	59.15	-	-	74	-14.85	-	-	290	107	H
	* 10.601	32.95	AD1	37.7	-24.9	45.75	54	-8.25	-	-	-	-	290	107	H
2	6.153	40.44	PK1	35.3	-29.6	46.14	-	-	-	-	68.2	-22.06	178	183	V
3	6.811	39.54	PK1	35.6	-28.4	46.74	-	-	-	-	68.2	-21.46	162	139	V
4	7.067	42.11	PK1	35.6	-28.2	49.51	-	-	-	-	68.2	-18.69	30	133	H
6	10.597	42.82	PK1	37.7	-24.8	55.72	-	-	-	-	68.2	-12.48	130	113	V

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

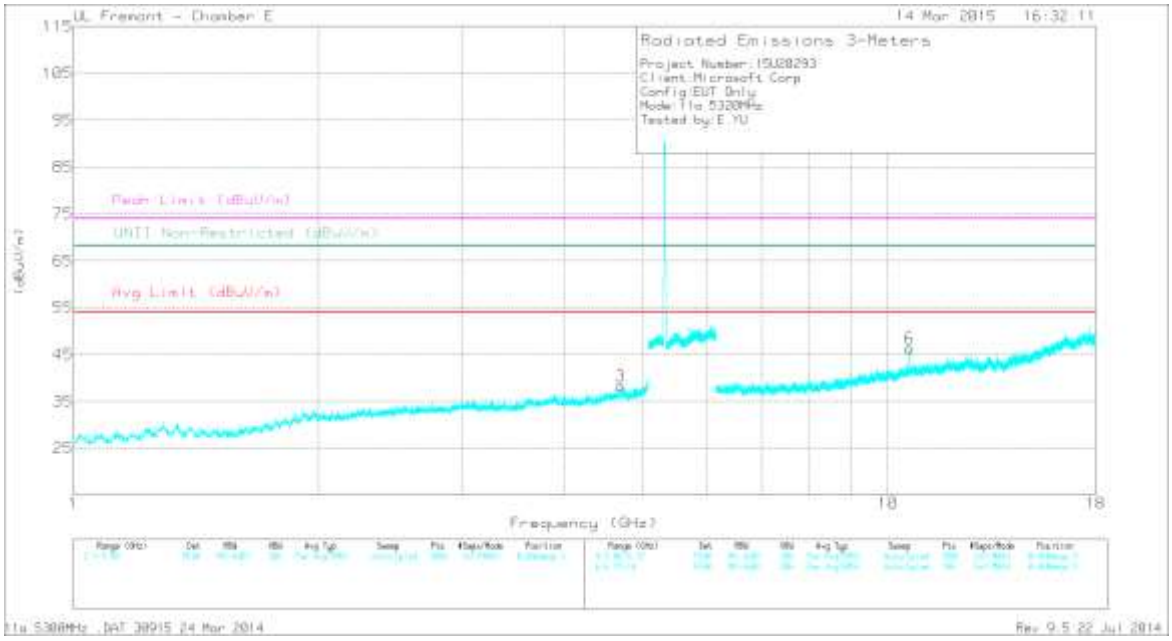
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.8	41.7	PK1	32.4	-32	42.1	-	-	74	-31.9	-	-	103	108	H
	* 2.8	30.4	AD1	32.4	-32.1	30.7	54	-23.3	-	-	-	-	103	108	H
2	* 4.29	42.2	PK1	33.5	-30.6	45.1	-	-	74	-28.9	-	-	156	135	H
	* 4.291	30.05	AD1	33.5	-30.6	32.95	54	-21.05	-	-	-	-	156	135	H
3	* 4.7	41.68	PK1	34.2	-29.9	45.98	-	-	74	-28.02	-	-	84	113	V
	* 4.701	30.4	AD1	34.2	-30	34.6	54	-19.4	-	-	-	-	84	113	V
5	* 10.645	43.86	PK1	37.8	-24.4	57.26	-	-	74	-16.74	-	-	111	101	H
	* 10.64	31.8	AD1	37.8	-24.5	45.1	54	-8.9	-	-	-	-	111	101	H
6	* 10.648	42.89	PK1	37.8	-24.4	56.29	-	-	74	-17.71	-	-	133	101	V
	* 10.641	30.71	AD1	37.8	-24.5	44.01	54	-9.99	-	-	-	-	133	101	V
4	7.093	40.08	PK1	35.6	-28.3	47.38	-	-	-	-	68.2	-20.82	36	109	H

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

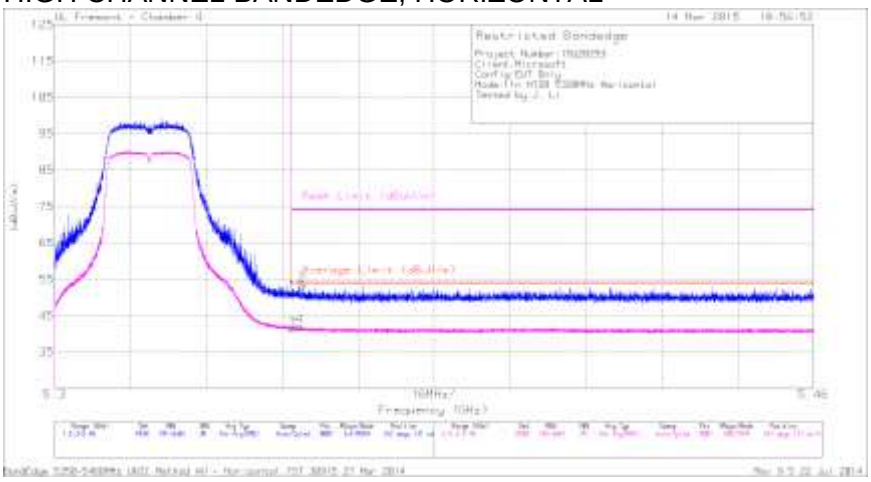
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

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

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, HORIZONTAL



DATA

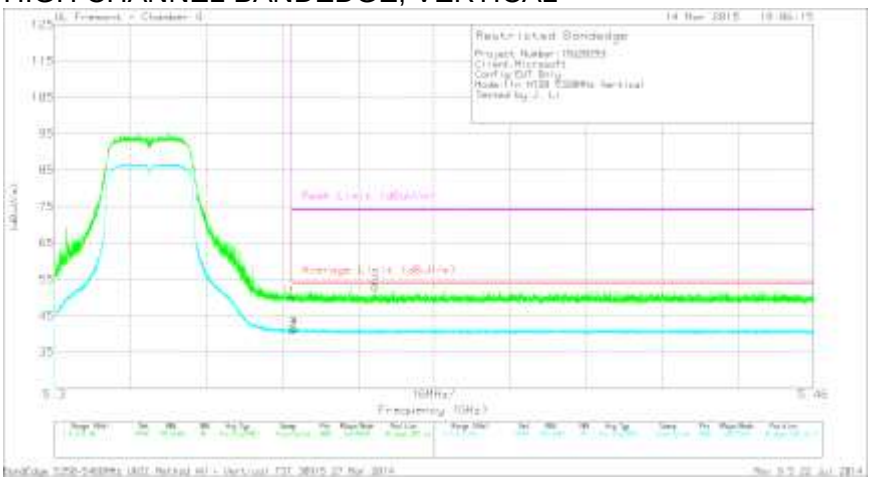
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	40.51	PK	34.6	-23.7	51.41	-	-	74	-22.59	167	131	H
2	* 5.352	42.4	PK	34.6	-23.7	53.3	-	-	74	-20.7	167	131	H
3	* 5.35	30.58	RMS	34.6	-23.7	41.48	54	-12.52	-	-	167	131	H
4	* 5.352	31.19	RMS	34.6	-23.7	42.09	54	-11.91	-	-	167	131	H

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

PK - Peak detector

RMS - RMS detection

HIGH CHANNEL BANDEDGE, VERTICAL



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	38.84	PK	34.6	-23.7	49.74	-	-	74	-24.26	39	295	V
2	* 5.368	41.95	PK	34.6	-23.7	52.85	-	-	74	-21.15	39	295	V
3	* 5.35	30.27	RMS	34.6	-23.7	41.17	54	-12.83	-	-	39	295	V
4	* 5.351	30.57	RMS	34.6	-23.7	41.47	54	-12.53	-	-	39	295	V

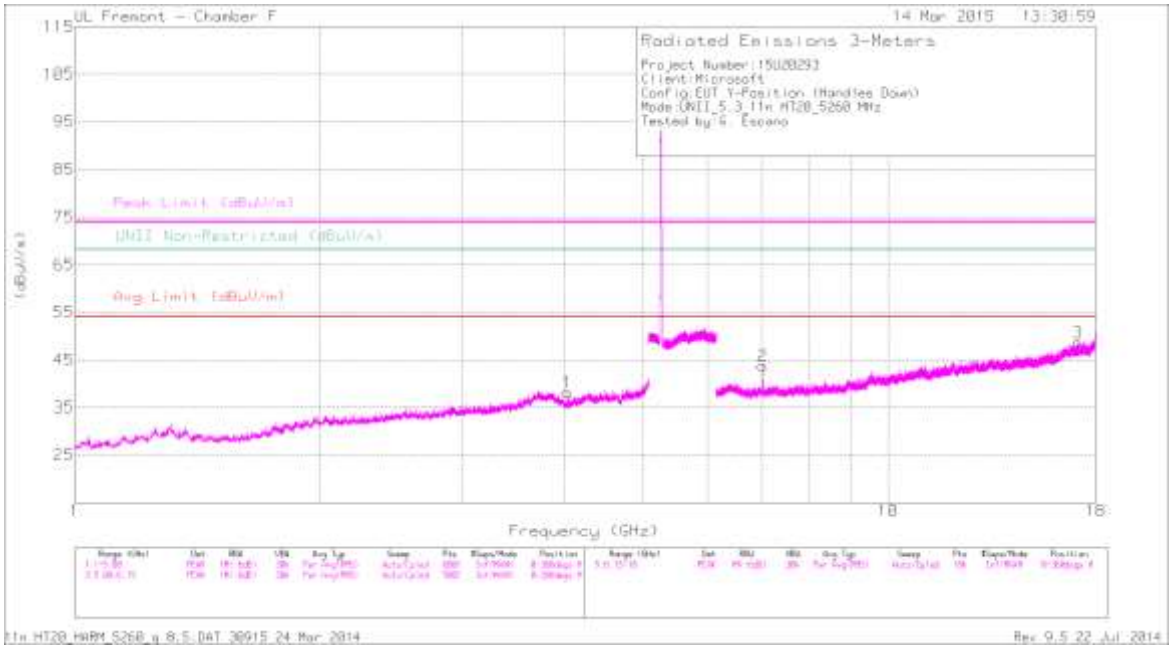
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

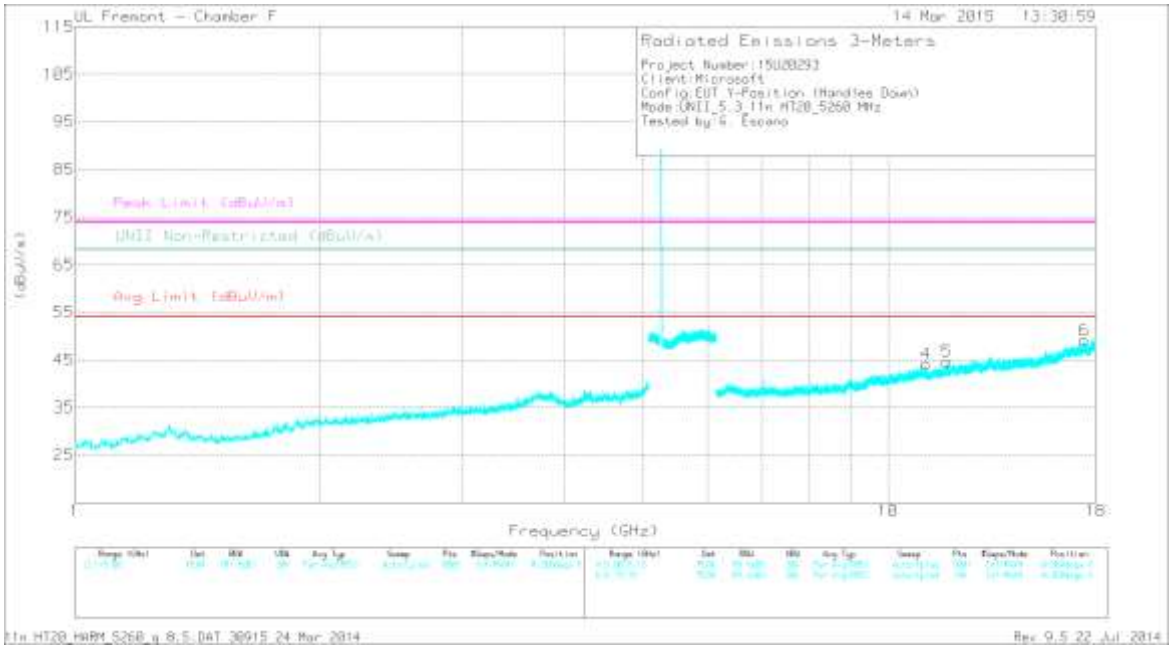
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



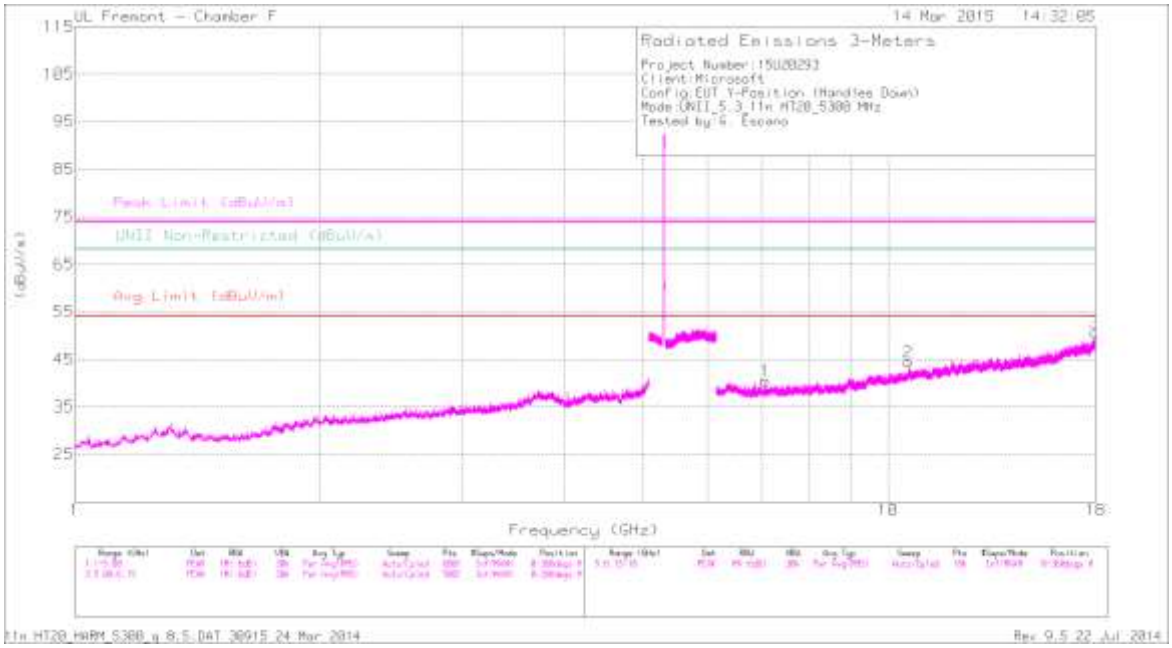
DATA

Radiated Emissions

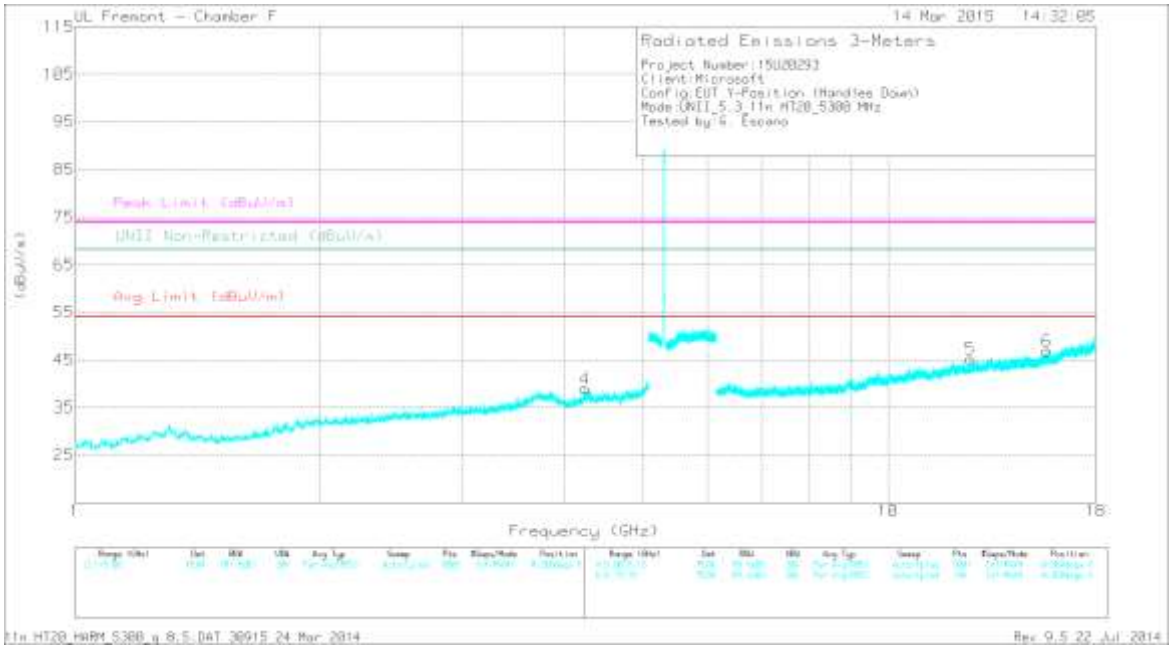
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.507	43.79	PK1	32.8	-33.5	43.09	-	-	74	-30.91	-	-	219	246	H
* 3.507	34.89	AD1	32.8	-33.5	34.19	54	-19.81	-	-	-	-	219	246	H
* 3.891	41.98	PK1	33.4	-32.8	42.58	-	-	74	-31.42	-	-	219	246	H
* 3.891	30.49	AD1	33.4	-32.8	31.09	54	-22.91	-	-	-	-	219	246	H
* 4.589	42.06	PK1	34.1	-31.9	44.26	-	-	74	-29.74	-	-	219	246	V
* 4.588	30.30	AD1	34.1	-31.9	32.50	54	-21.50	-	-	-	-	219	246	V
* 4.731	41.00	PK1	34.3	-31.5	43.8	-	-	74	-30.20	-	-	219	246	V
* 4.731	29.61	AD1	34.3	-31.5	32.41	54	-21.59	-	-	-	-	219	246	V
7.013	41.95	PK1	35.8	-29.6	48.15	-	-	-	-	68.2	-20.05	136	241	H
7.013	42.19	PK1	35.8	-29.6	48.39	-	-	-	-	68.2	-19.81	51	265	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



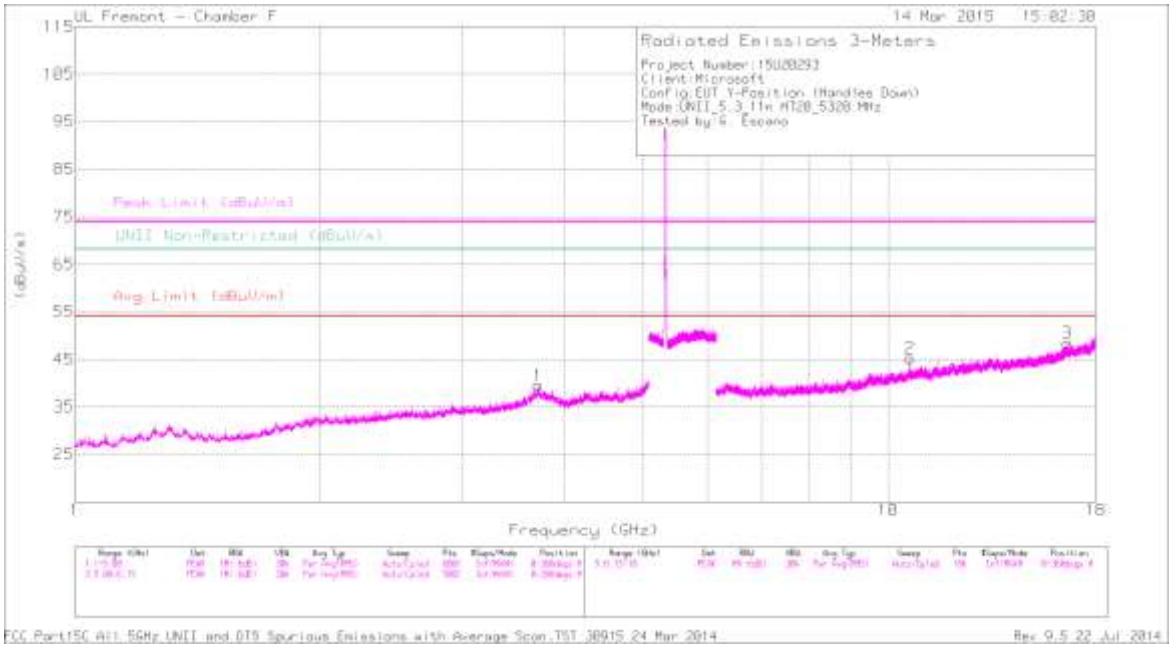
DATA

Radiated Emissions

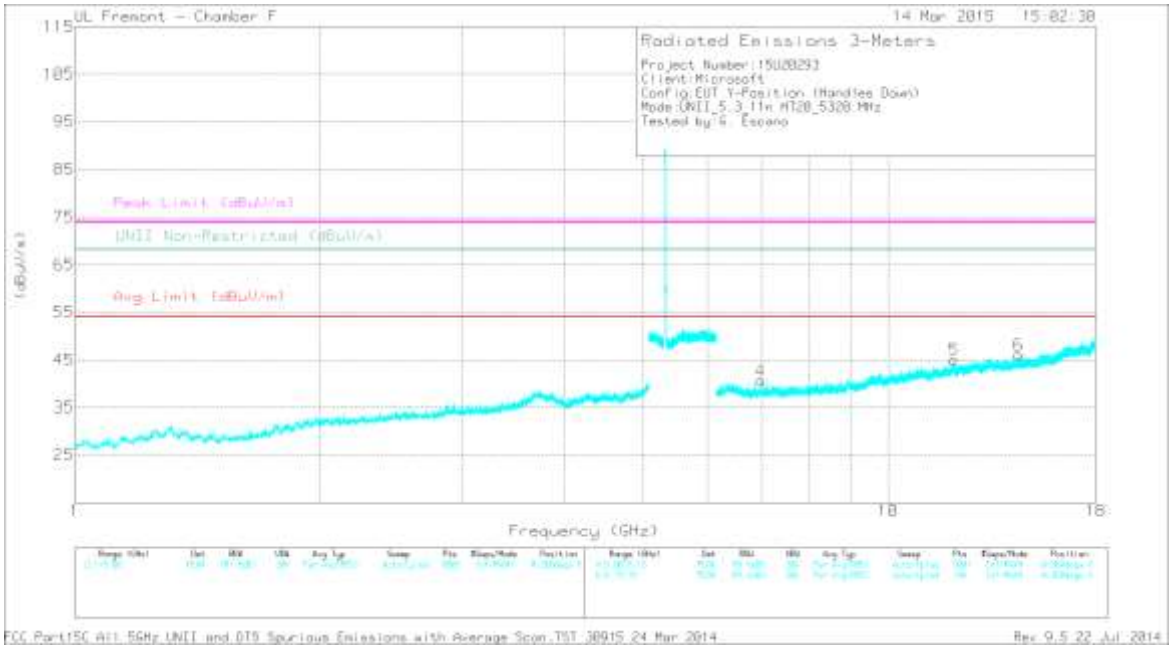
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.242	37.87	PK1	33.7	-26.8	44.77	-	-	74	-29.23	-	-	12	191	V
	* 4.242	25.96	AD1	33.7	-26.8	32.95	54	-21.05	-	-	-	-	12	191	V
1	7.067	39.17	PK1	35.5	-26.2	48.47	-	-	-	-	68.2	-19.73	64	121	H
2	10.598	37.05	PK1	37.8	-21.7	53.15	-	-	-	-	68.2	-15.05	174	159	H
3	* 17.981	34.65	PK1	42.2	-19.4	57.45	-	-	74	-16.55	-	-	115	349	H
	* 17.981	23.18	AD1	42.2	-19.4	46.07	54	-7.93	-	-	-	-	115	349	H
5	* 12.629	36.34	PK1	39.1	-22.7	52.74	-	-	74	-21.26	-	-	112	110	V
	* 12.63	23.67	AD1	39.1	-22.7	40.16	54	-13.84	-	-	-	-	112	110	V
6	* 15.678	35.97	PK1	40.4	-22.6	53.77	-	-	74	-20.23	-	-	258	320	V
	* 15.678	24	AD1	40.4	-22.6	41.8	54	-12.2	-	-	-	-	258	320	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

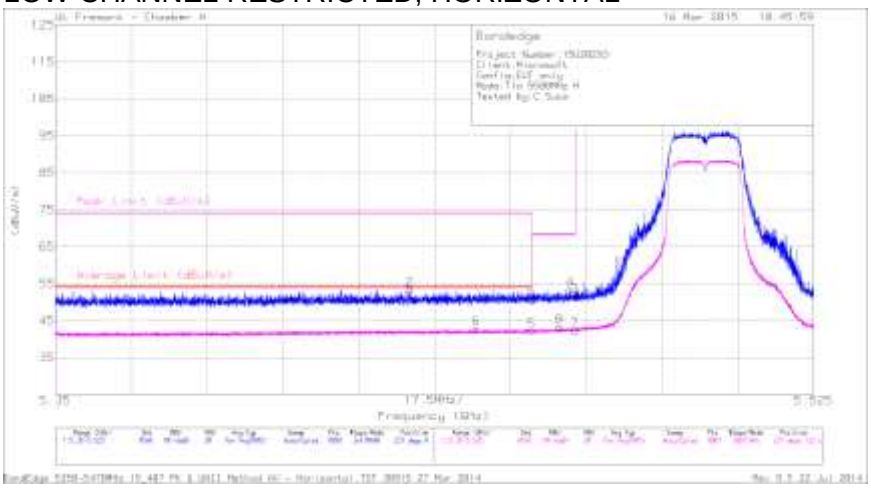
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.712	39.85	PK1	34.8	-28.9	45.75	-	-	74	-28.25	-	-	54	351	H
	* 3.713	27.25	AD1	34.8	-28.9	33.24	54	-20.76	-	-	-	-	54	351	H
2	* 10.64	40.85	PK1	37.9	-21.8	56.95	-	-	74	-17.05	-	-	162	153	H
	* 10.64	25.6	AD1	37.9	-21.8	41.7	54	-12.3	-	-	-	-	162	153	H
3	16.613	35.25	PK1	41.3	-21.3	55.25	-	-	-	-	68.2	-12.95	141	391	H
4	6.969	37.23	PK1	35.5	-25.5	47.23	-	-	-	-	68.2	-20.97	322	251	V
5	* 12.047	35.16	PK1	39	-21.6	52.56	-	-	74	-21.44	-	-	144	344	V
	* 12.047	23.09	AD1	39	-21.6	40.58	54	-13.42	-	-	-	-	144	344	V
6	* 14.473	37.16	PK1	39.8	-23.5	53.46	-	-	74	-20.54	-	-	313	288	V
	* 14.472	24.95	AD1	39.8	-23.5	41.34	54	-12.66	-	-	-	-	313	288	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

9.2.5. TX ABOVE 1 GHz 802.11a MODE IN THE 5.6 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, HORIZONTAL

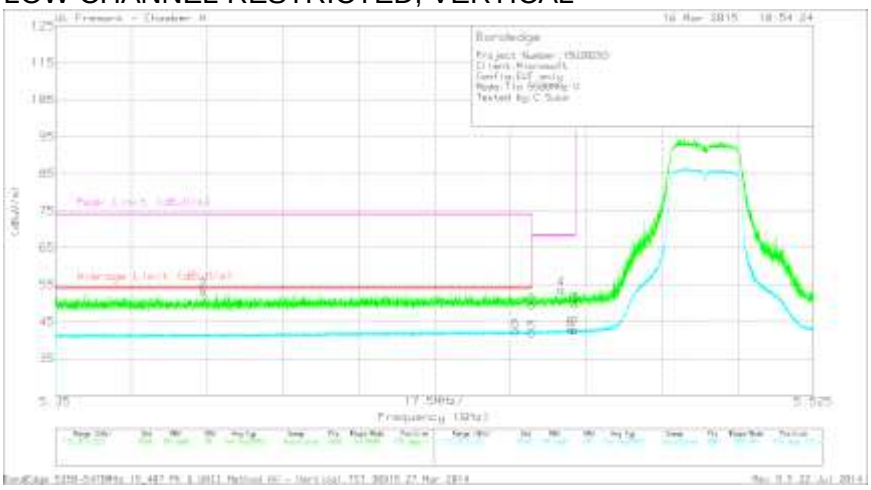


DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.432	40.91	PK	35	-22.5	53.41	-	-	74	-20.59	237	133	H
6	* 5.447	30.36	RMS	35	-22.5	42.86	54	-11.14	-	-	237	133	H
1	* 5.46	38.06	PK	35	-22.5	50.56	-	-	74	-23.44	237	133	H
5	* 5.46	29.67	RMS	35	-22.5	42.17	54	-11.83	-	-	237	133	H
8	5.466	30.68	RMS	35	-22.4	43.28	-	-	-	-	237	133	H
4	5.469	40.66	PK	35.1	-22.4	53.36	-	-	68.2	-14.84	237	133	H
3	5.47	38.78	PK	35.1	-22.4	51.48	-	-	68.2	-16.72	237	133	H
7	5.47	29.64	RMS	35.1	-22.4	42.34	-	-	-	-	237	133	H

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

LOW CHANNEL RESTRICTED, VERTICAL



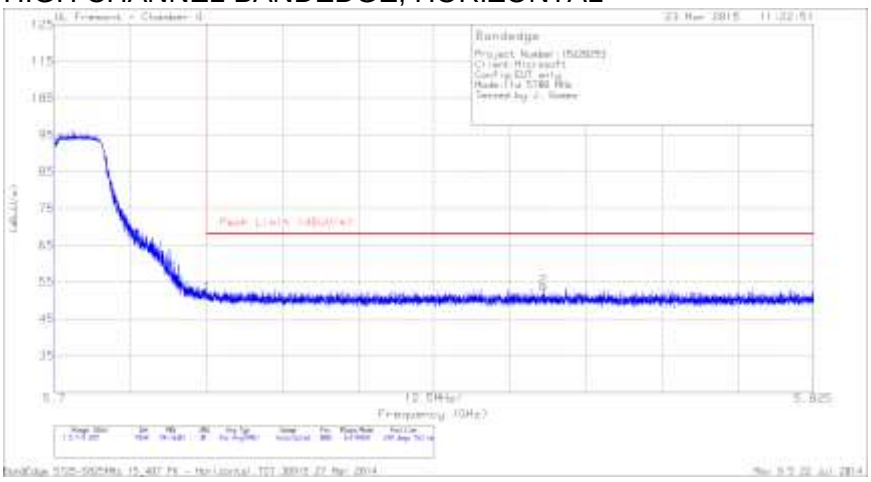
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.384	40.97	PK	34.9	-22.6	53.27	-	-	74	-20.73	107	127	V
6	* 5.456	30.07	RMS	35	-22.5	42.57	54	-11.43	-	-	107	127	V
1	* 5.46	37.03	PK	35	-22.5	49.53	-	-	74	-24.47	107	127	V
5	* 5.46	29.42	RMS	35	-22.5	41.92	54	-12.08	-	-	107	127	V
4	5.467	41.17	PK	35	-22.4	53.77	-	-	68.2	-14.43	107	127	V
8	5.469	30.12	RMS	35.1	-22.4	42.82	-	-	-	-	107	127	V
3	5.47	36.95	PK	35.1	-22.4	49.65	-	-	68.2	-18.55	107	127	V
7	5.47	30.01	RMS	35.1	-22.4	42.71	-	-	-	-	107	127	V

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

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, HORIZONTAL

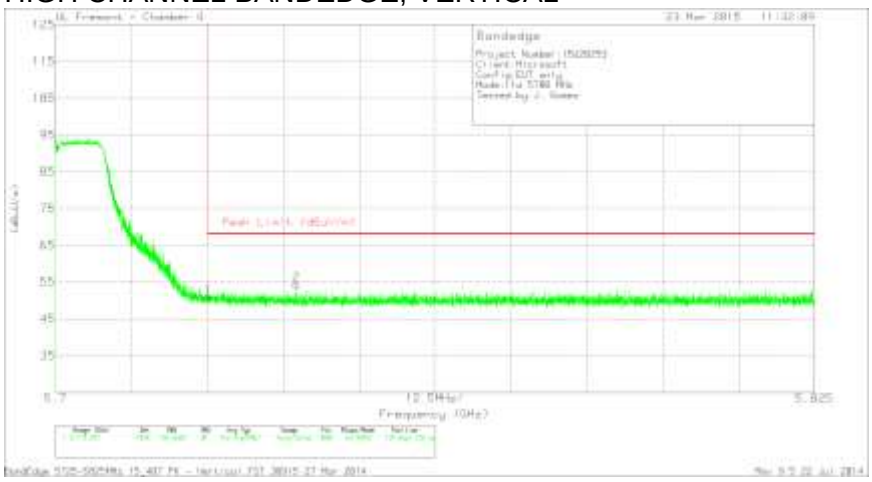


DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	40.43	PK	34.8	-23.5	51.73	68.2	-16.47	248	163	H
2	5.78	42.53	PK	34.8	-23.5	53.83	68.2	-14.37	248	163	H

PK - Peak detector

HIGH CHANNEL BANDEDGE, VERTICAL



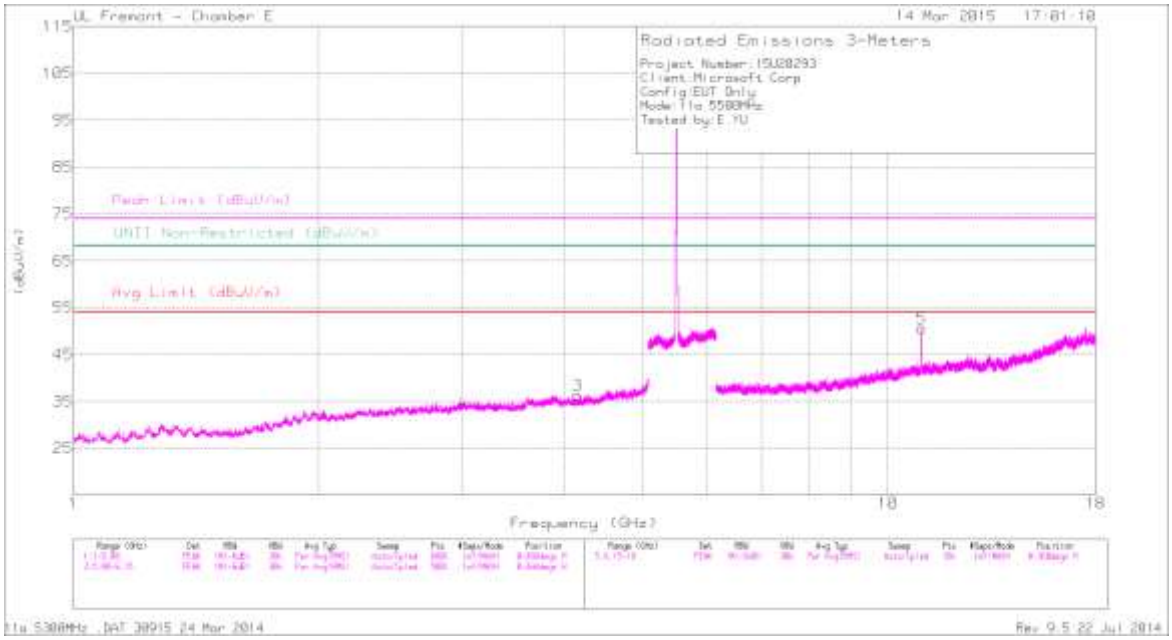
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	39.69	PK	34.8	-23.5	50.99	68.2	-17.21	138	128	V
2	5.74	43.12	PK	34.8	-23.5	54.42	68.2	-13.78	138	128	V

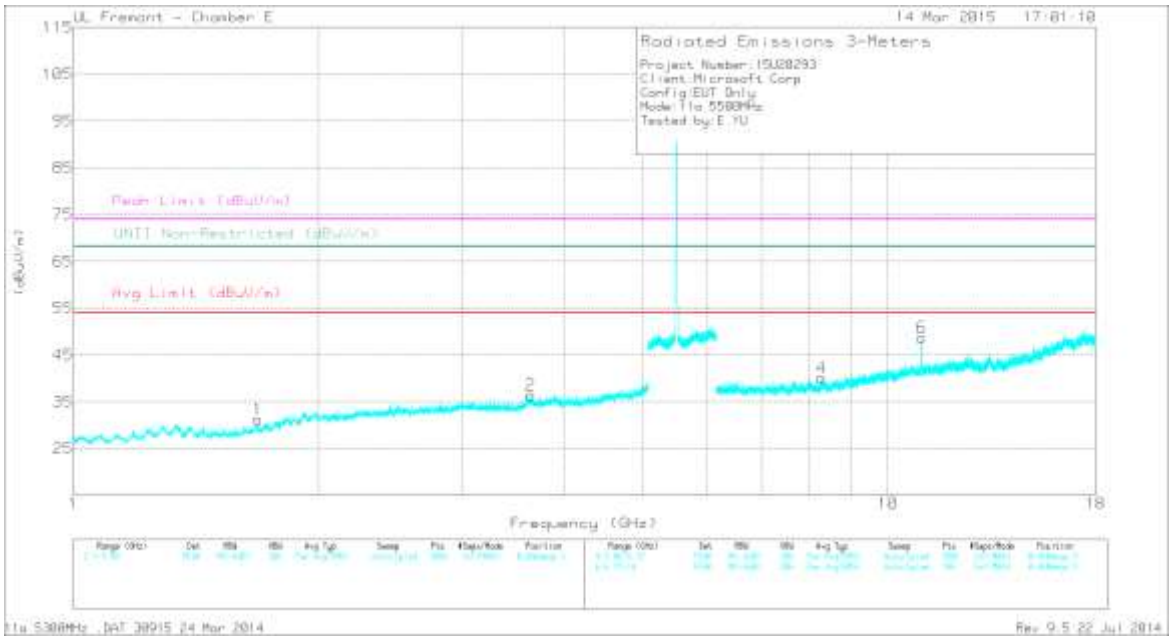
PK - Peak detector

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



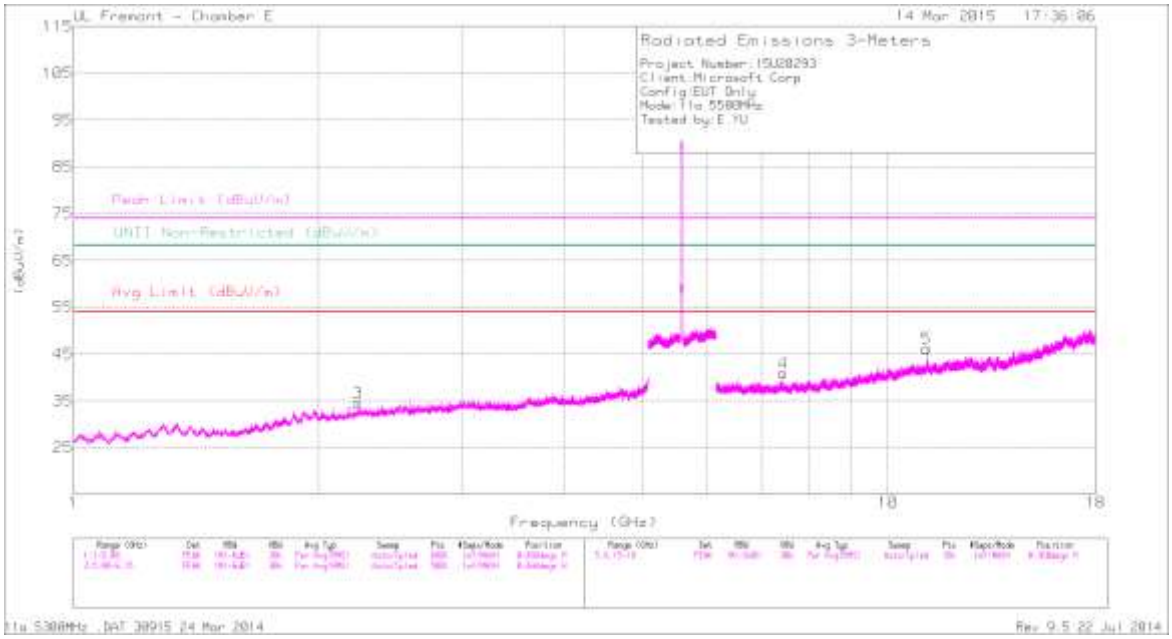
DATA

Radiated Emissions

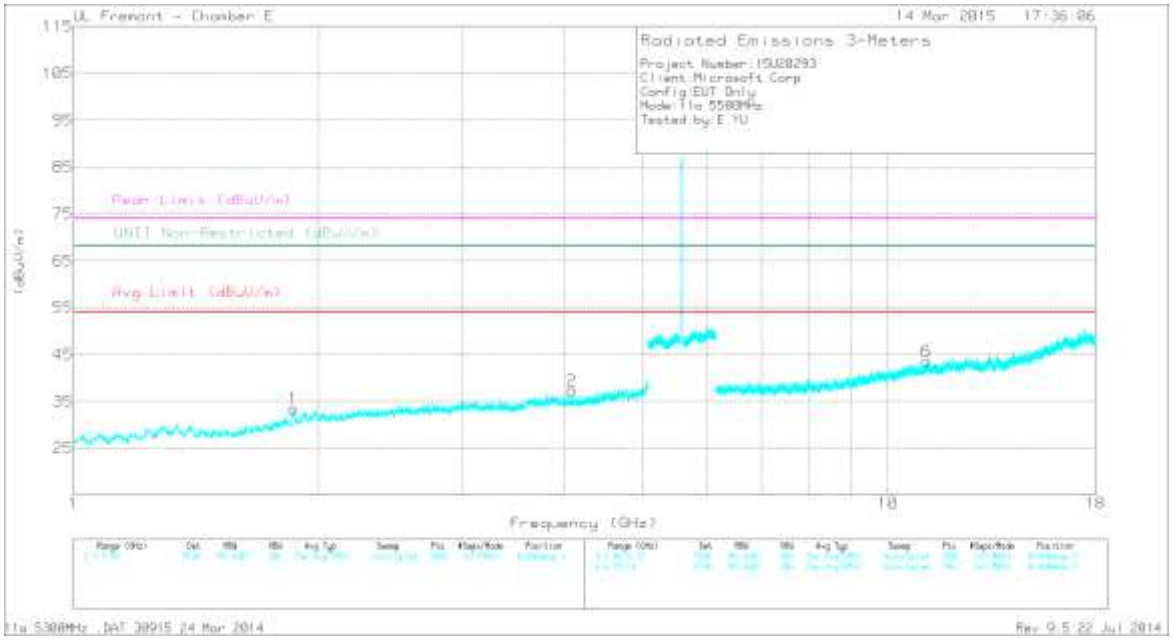
	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.156	41.55	PK1	33.4	-31.3	43.65	-	-	74	-30.35	-	-	107	106	H
	* 4.156	30.13	AD1	33.4	-31.3	32.23	54	-21.77	-	-	-	-	107	106	H
1	* 1.683	43.66	PK1	28.7	-33.3	39.06	-	-	74	-34.94	-	-	134	213	V
	* 1.681	31.47	AD1	28.7	-33.3	26.87	54	-27.13	-	-	-	-	134	213	V
2	* 3.642	41.51	PK1	33.1	-30.9	43.71	-	-	74	-30.29	-	-	127	200	V
	* 3.642	30.17	AD1	33.1	-30.9	32.37	54	-21.63	-	-	-	-	127	200	V
5	* 10.999	46.78	PK1	37.9	-24.4	60.28	-	-	74	-13.72	-	-	107	107	H
	* 11	34.47	AD1	37.9	-24.4	47.97	54	-6.03	-	-	-	-	107	107	H
4	* 8.282	39.68	PK1	35.7	-27	48.38	-	-	74	-25.62	-	-	115	102	V
	* 8.283	27.47	AD1	35.7	-27	36.17	54	-17.83	-	-	-	-	115	102	V
6	* 11.006	36.11	PK1	37.9	-24.3	49.71	-	-	74	-24.29	-	-	309	256	V
	* 11.007	25.07	AD1	37.9	-24.6	38.37	54	-15.63	-	-	-	-	309	256	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



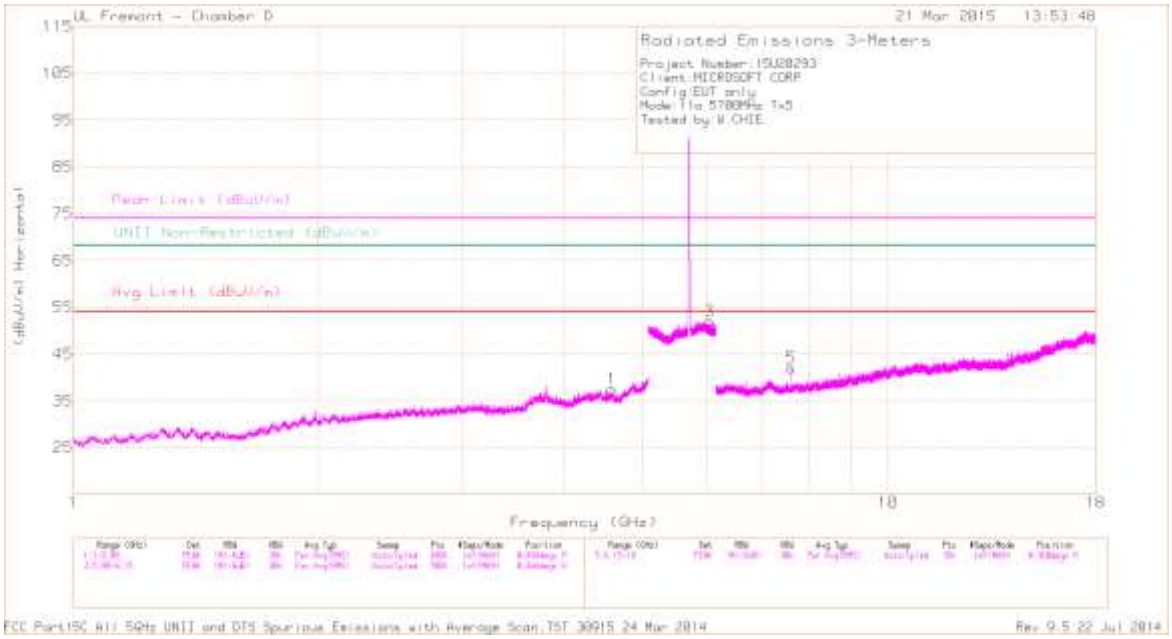
DATA

Radiated Emissions

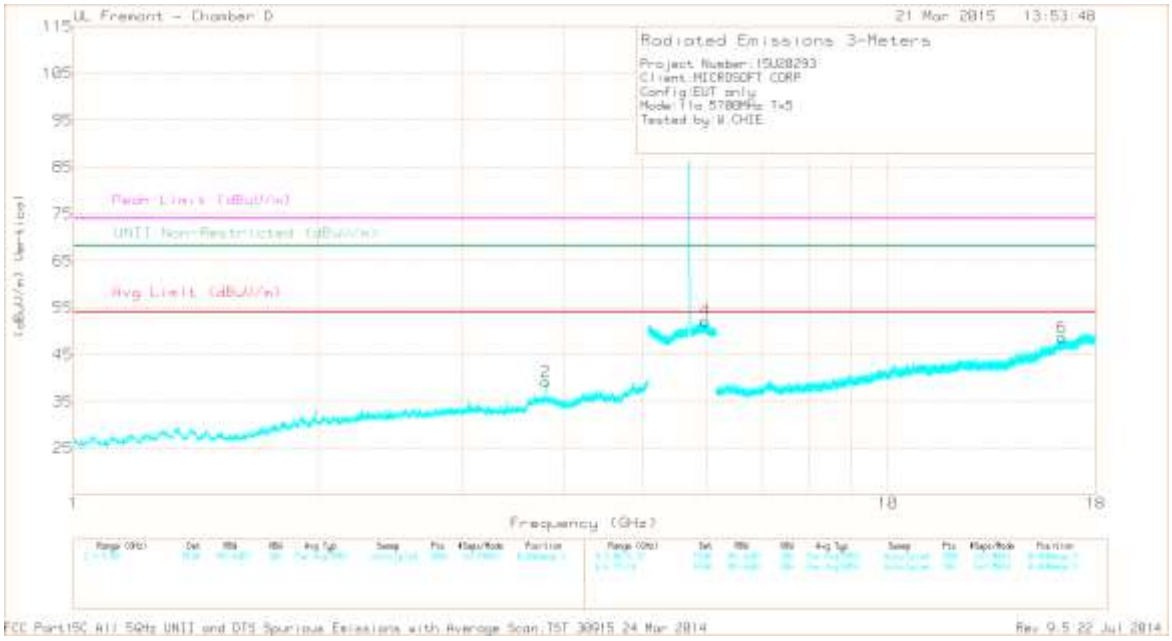
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 2.237	42.98	PK1	31.5	-32.2	42.28	-	-	74	-31.72	-	-	126	101	H
	* 2.237	30.81	AD1	31.5	-32.2	30.11	54	-23.89	-	-	-	-	126	101	H
2	* 4.096	41.71	PK1	33.4	-31.2	43.91	-	-	74	-30.09	-	-	152	128	V
	* 4.096	30.4	AD1	33.4	-31.2	32.6	54	-21.4	-	-	-	-	152	128	V
4	* 7.44	41.51	PK1	35.6	-28.5	48.61	-	-	74	-25.39	-	-	5	123	H
	* 7.44	32.34	AD1	35.6	-28.5	39.44	54	-14.56	-	-	-	-	5	123	H
5	* 11.162	42.22	PK1	37.8	-23.9	56.12	-	-	74	-17.88	-	-	118	103	H
	* 11.16	29.63	AD1	37.8	-23.9	43.53	54	-10.47	-	-	-	-	118	103	H
6	* 11.162	37.17	PK1	37.8	-23.9	51.07	-	-	74	-22.93	-	-	118	200	V
	* 11.162	26.25	AD1	37.8	-23.9	40.15	54	-13.85	-	-	-	-	118	200	V
1	1.866	44.51	PK1	30.7	-33.6	41.61	-	-	-	-	68.2	-26.59	205	161	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

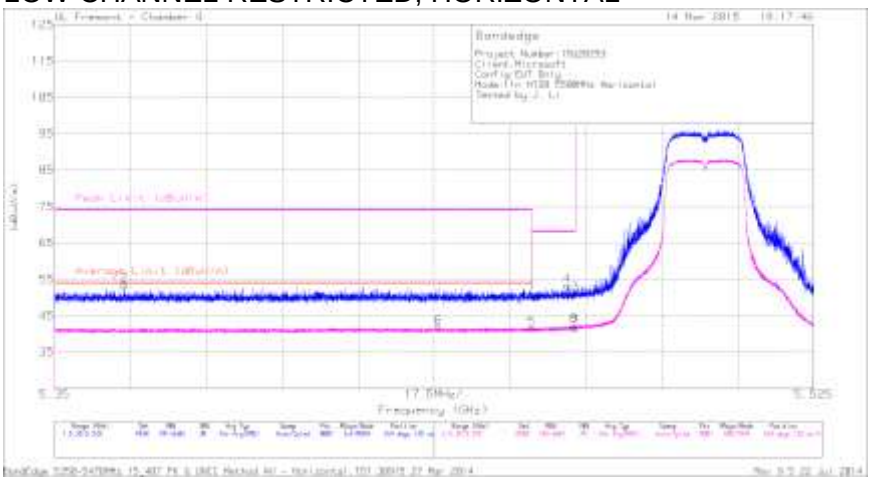
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.579	38.06	PK1	34.1	-27.3	44.86	-	-	74	-29.14	-	-	15	254	H
	* 4.577	26.59	AD1	34.1	-27.3	33.39	54	-20.61	-	-	-	-	15	254	H
2	* 3.8	41.49	PK1	33.3	-28.7	46.09	-	-	74	-27.91	-	-	124	146	V
	* 3.8	32.83	AD1	33.3	-28.7	37.43	54	-16.57	-	-	-	-	124	146	V
5	* 7.6	39.03	PK1	35.6	-25.7	48.93	-	-	74	-25.07	-	-	243	119	H
	* 7.6	32	AD1	35.6	-25.7	41.9	54	-12.1	-	-	-	-	243	119	H
4	5.965	41.07	PK1	35.3	-17.5	58.87	-	-	-	-	68.2	-9.33	208	145	V
3	6.041	41.4	PK1	35.5	-17.7	59.2	-	-	-	-	68.2	-9	284	336	H
6	16.36	34.07	PK1	41.6	-19.7	55.97	-	-	-	-	68.2	-12.23	76	357	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

9.2.6. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.6 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, HORIZONTAL

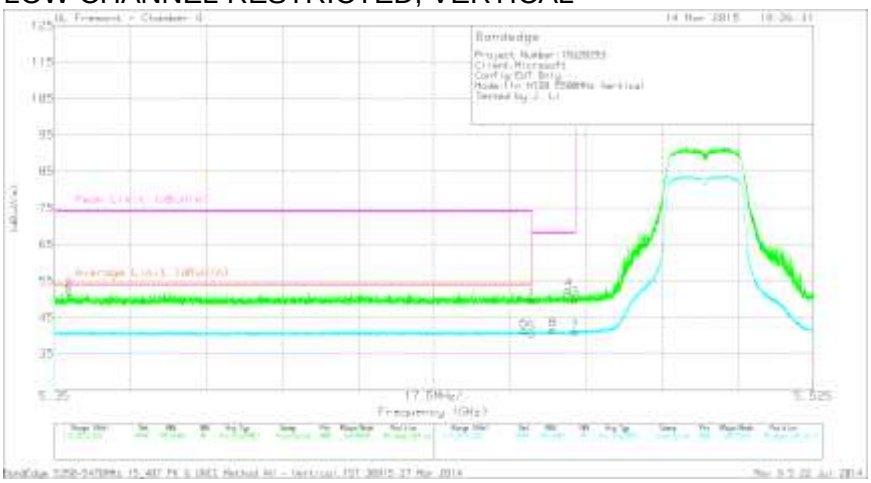


DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.46	39.98	PK	34.7	-23.6	51.08	-	-	74	-22.92	164	135	H
2	* 5.366	42.49	PK	34.6	-23.7	53.39	-	-	74	-20.61	164	135	H
5	* 5.46	30.33	RMS	34.7	-23.6	41.43	54	-12.57	-	-	164	135	H
6	* 5.439	30.74	RMS	34.7	-23.6	41.84	54	-12.16	-	-	164	135	H
4	5.468	42.13	PK	34.7	-23.6	53.23	-	-	68.2	-14.97	164	135	H
3	5.47	39.77	PK	34.7	-23.6	50.87	-	-	68.2	-17.33	164	135	H
7	5.47	30.51	RMS	34.7	-23.6	41.61	-	-	-	-	164	135	H
8	5.47	31.09	RMS	34.7	-23.6	42.19	-	-	-	-	164	135	H

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

LOW CHANNEL RESTRICTED, VERTICAL



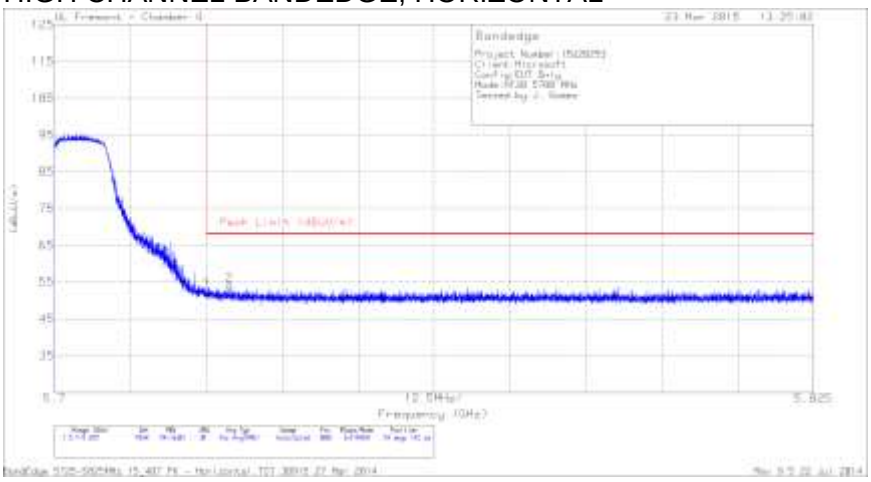
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.46	38.85	PK	34.7	-23.6	49.95	-	-	74	-24.05	45	334	V
2	* 5.353	41.39	PK	34.6	-23.7	52.29	-	-	74	-21.71	45	334	V
5	* 5.46	29.54	RMS	34.7	-23.6	40.64	54	-13.36	-	-	45	334	V
6	* 5.458	30.34	RMS	34.7	-23.6	41.44	54	-12.56	-	-	45	334	V
8	5.465	30.51	RMS	34.7	-23.6	41.61	-	-	-	-	45	334	V
4	5.468	41.47	PK	34.7	-23.6	52.57	-	-	68.2	-15.63	45	334	V
3	5.47	39	PK	34.7	-23.6	50.1	-	-	68.2	-18.1	45	334	V
7	5.47	29.9	RMS	34.7	-23.6	41	-	-	-	-	45	334	V

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

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, HORIZONTAL

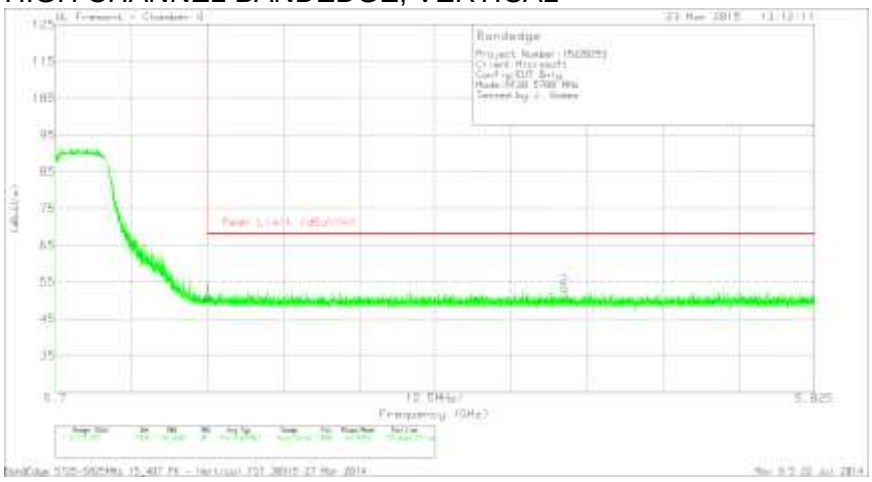


DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	41.64	PK	34.8	-23.5	52.94	68.2	-15.26	54	142	H
2	5.729	43.01	PK	34.8	-23.6	54.21	68.2	-13.99	54	142	H

PK - Peak detector

HIGH CHANNEL BANDEDGE, VERTICAL



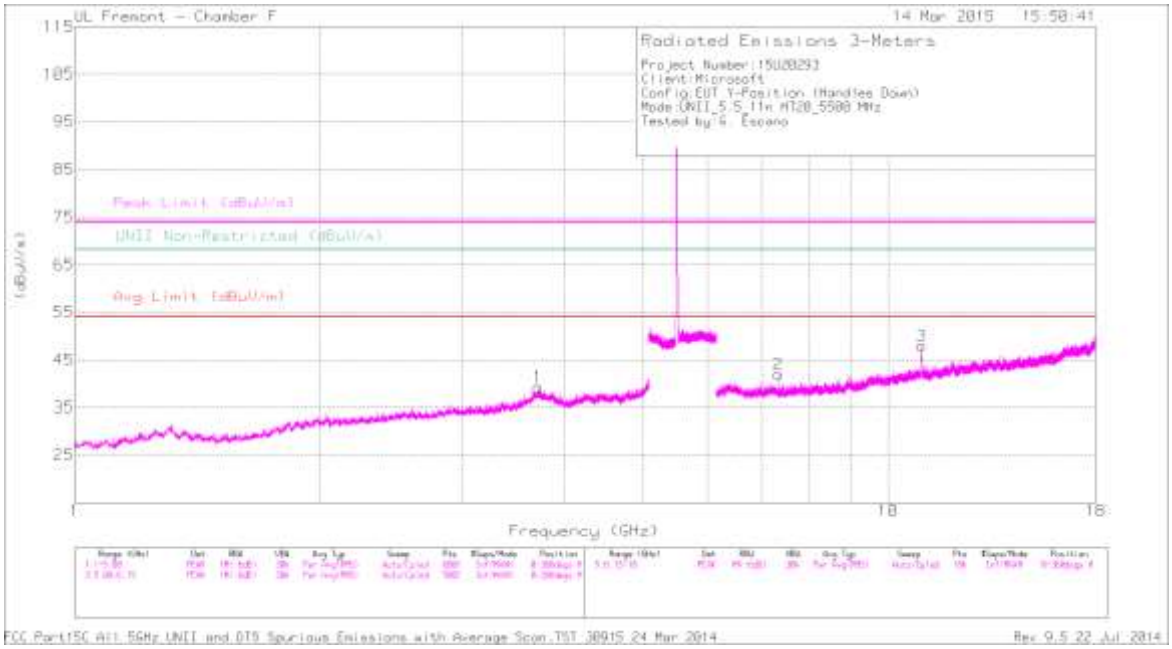
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	39.63	PK	34.8	-23.5	50.93	68.2	-17.27	155	277	V
2	5.784	42.2	PK	34.9	-23.5	53.6	68.2	-14.6	155	277	V

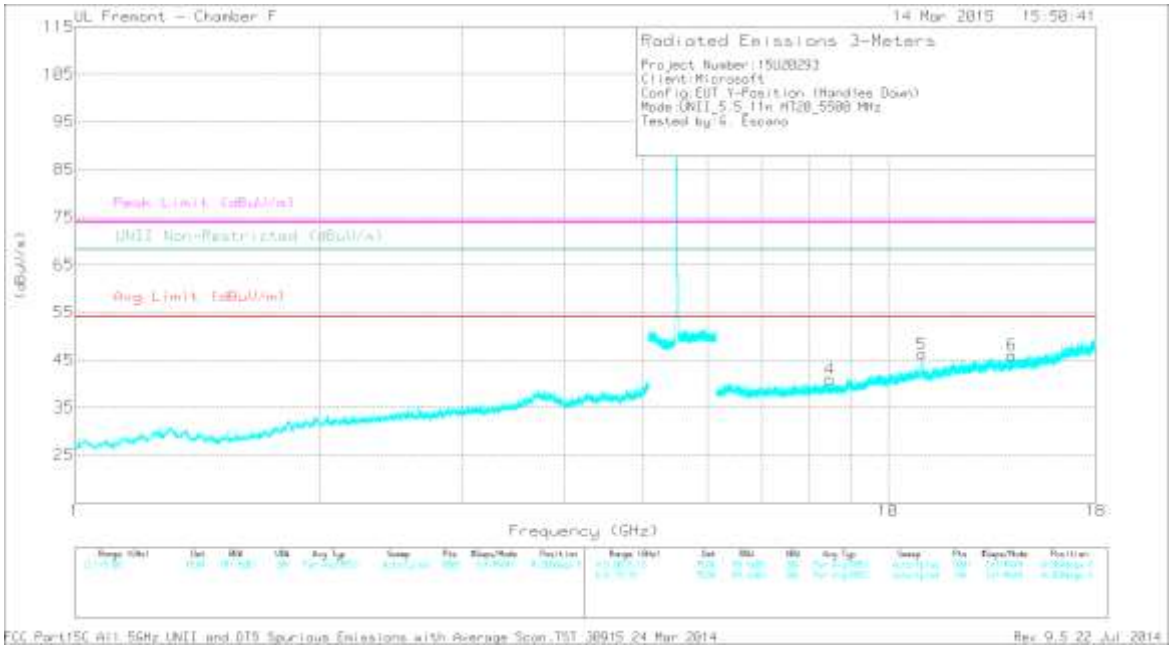
PK - Peak detector

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



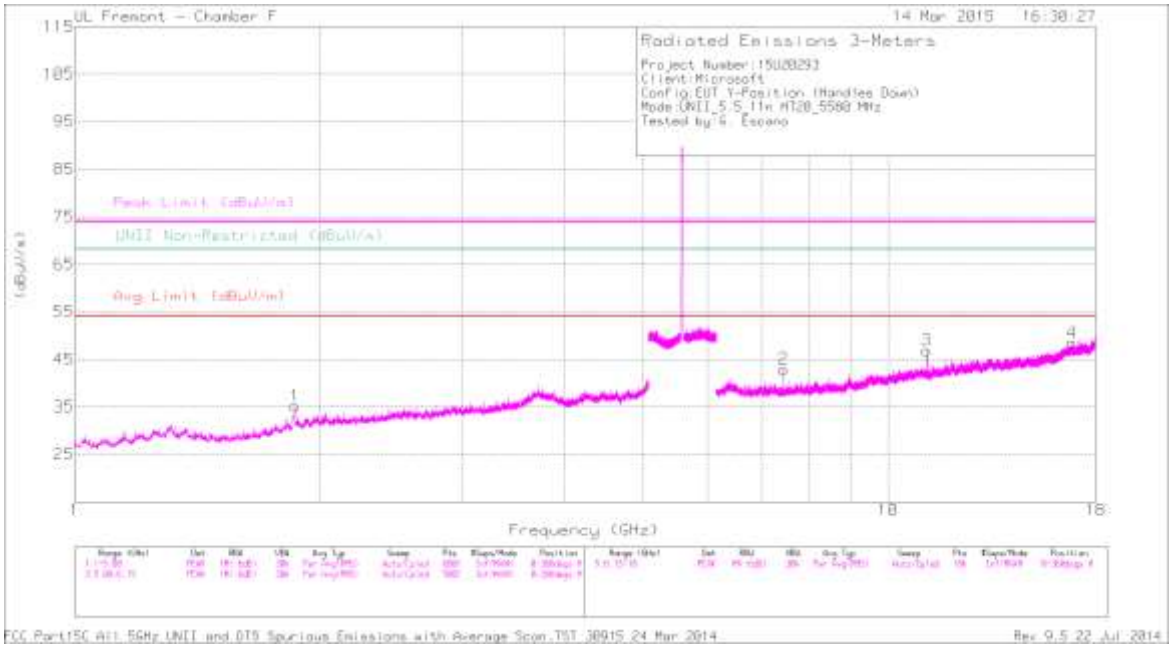
DATA

Radiated Emissions

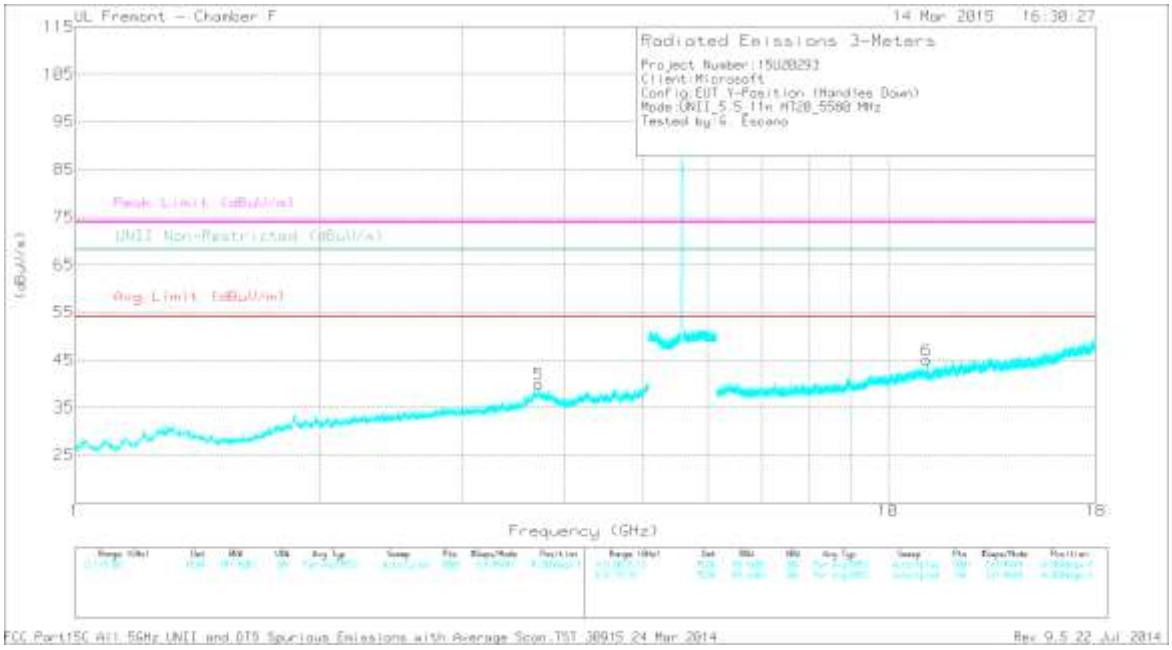
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.714	38.81	PK1	34.8	-28.9	44.71	-	-	74	-29.29	-	-	156	323	H
	* 3.713	27.27	AD1	34.8	-28.9	33.17	54	-20.83	-	-	-	-	156	323	H
2	* 7.333	39.79	PK1	35.6	-25.8	49.59	-	-	74	-24.41	-	-	70	110	H
	* 7.333	30.49	AD1	35.6	-25.8	40.29	54	-13.71	-	-	-	-	70	110	H
3	* 10.999	42.31	PK1	38.1	-21.9	58.51	-	-	74	-15.49	-	-	174	101	H
	* 11	29.08	AD1	38.1	-22	45.18	54	-8.82	-	-	-	-	174	101	H
4	* 8.476	36.14	PK1	35.8	-24.4	47.54	-	-	74	-26.46	-	-	276	217	V
	* 8.476	24.26	AD1	35.8	-24.4	35.66	54	-18.34	-	-	-	-	276	217	V
5	* 11	39.71	PK1	38.1	-21.9	55.91	-	-	74	-18.09	-	-	126	211	V
	* 10.999	26.74	AD1	38.1	-21.9	42.94	54	-11.06	-	-	-	-	126	211	V
6	14.188	36.49	PK1	39.2	-23.2	52.49	-	-	-	-	68.2	-15.71	79	239	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



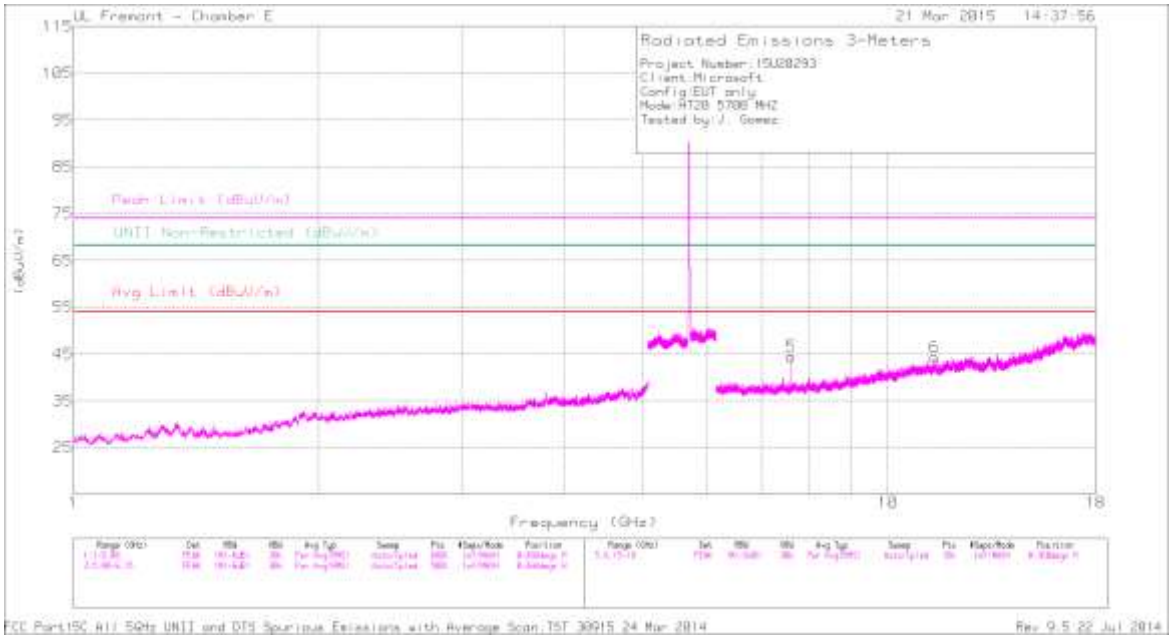
DATA

Radiated Emissions

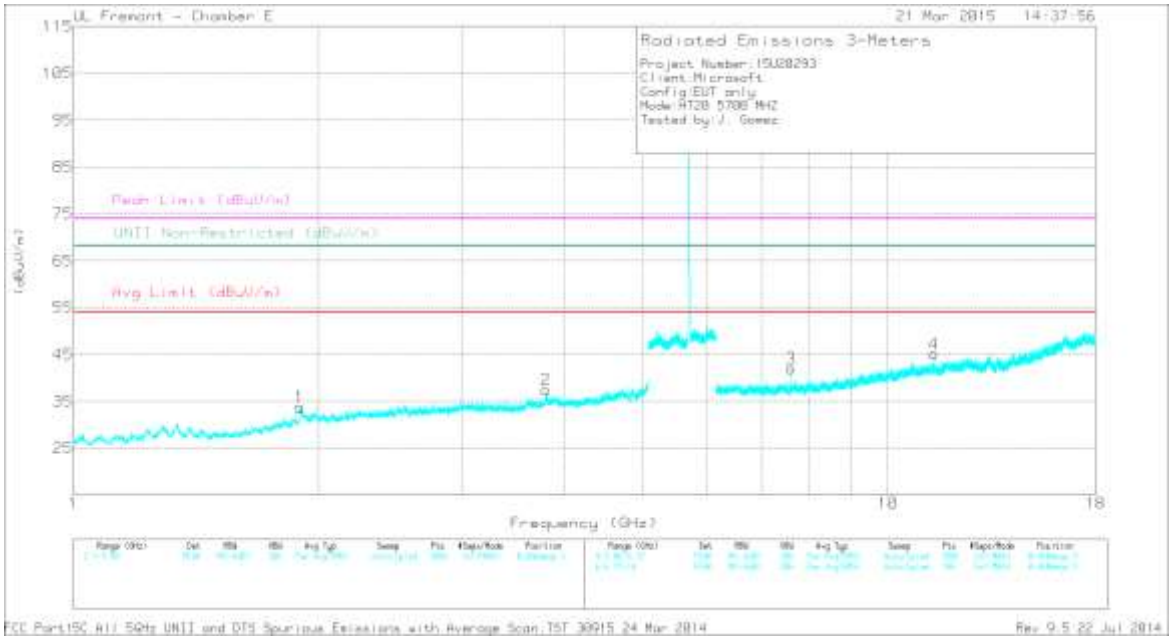
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.866	44.35	PK1	31	-31.2	44.15	-	-	-	-	68.2	-24.05	6	195	H
5	* 3.72	40.3	PK1	34.8	-29	46.1	-	-	74	-27.9	-	-	206	206	V
	* 3.72	30.21	AD1	34.8	-29	36.01	54	-17.99	-	-	-	-	206	206	V
2	* 7.44	40.18	PK1	35.6	-26	49.78	-	-	74	-24.22	-	-	48	193	H
	* 7.44	32.13	AD1	35.6	-26	41.73	54	-12.27	-	-	-	-	48	193	H
3	* 11.16	33.76	PK1	38.1	-22	49.86	-	-	74	-24.14	-	-	2	210	H
	* 11.16	22.68	AD1	38.1	-22	38.78	54	-15.22	-	-	-	-	2	210	H
4	16.837	34.27	PK1	41.5	-20.8	54.97	-	-	-	-	68.2	-13.23	33	152	H
6	* 11.16	34.96	PK1	38.1	-22	51.06	-	-	74	-22.94	-	-	343	124	V
	* 11.16	22.73	AD1	38.1	-22	38.83	54	-15.17	-	-	-	-	343	124	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

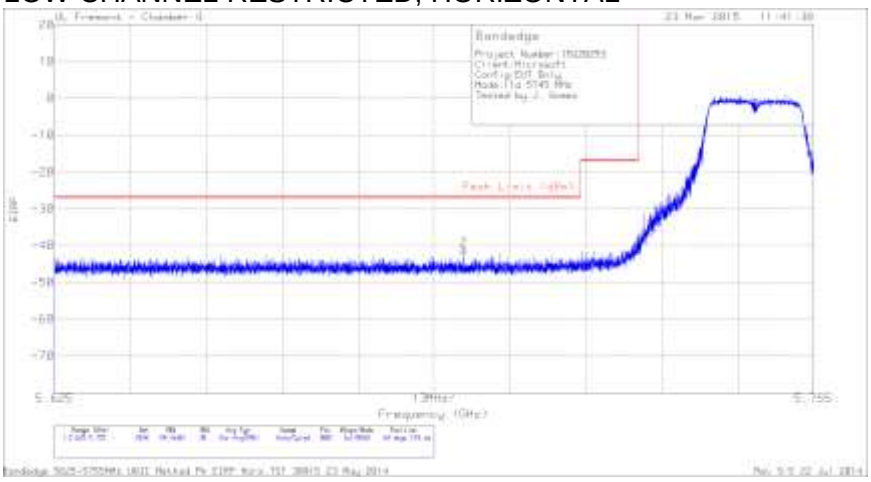
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.8	44.2	PK1	33.5	-32	45.7	-	-	74	-28.3	-	-	43	224	V
	* 3.8	33.83	AD1	33.5	-32	35.33	54	-18.67	-	-	-	-	43	224	V
5	* 7.6	43.22	PK1	35.7	-28.2	50.72	-	-	74	-23.28	-	-	157	165	H
	* 7.6	36.79	AD1	35.7	-28.2	44.29	54	-9.71	-	-	-	-	157	165	H
6	* 11.4	40.83	PK1	38	-23.8	55.03	-	-	74	-18.97	-	-	226	232	H
	* 11.4	27.06	AD1	38	-23.8	41.26	54	-12.74	-	-	-	-	226	232	H
3	* 7.6	42.1	PK1	35.7	-28.2	49.6	-	-	74	-24.4	-	-	13	234	V
	* 7.6	34.16	AD1	35.7	-28.2	41.66	54	-12.34	-	-	-	-	13	234	V
4	* 11.397	41.38	PK1	38	-23.8	55.58	-	-	74	-18.42	-	-	340	108	V
	* 11.398	28.3	AD1	38	-23.8	42.5	54	-11.5	-	-	-	-	340	108	V
1	1.895	46.77	PK1	30.8	-33.2	44.37	-	-	-	-	68.2	-23.83	315	139	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

9.2.7. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, HORIZONTAL

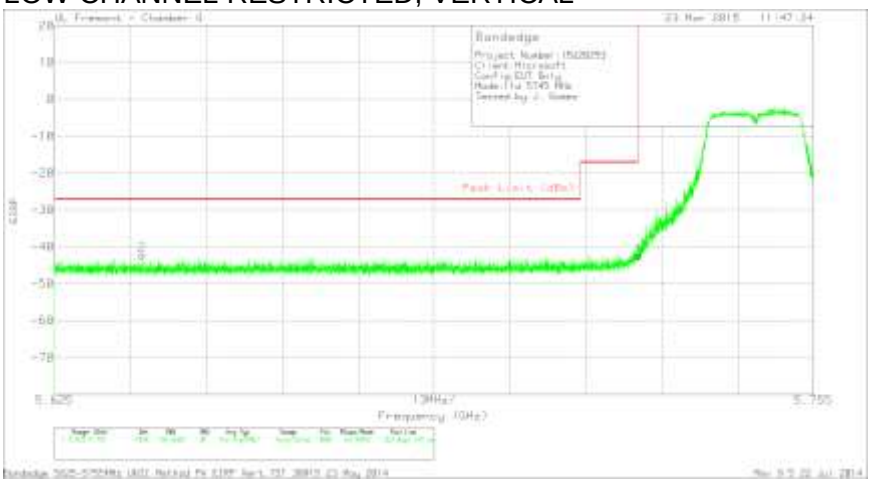


DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.695	-64.31	PK	34.8	-23.5	11.8	-41.21	-27	-14.21	64	159	H
1	5.725	-63.97	PK	34.8	-23.5	11.8	-40.87	-17	-23.87	64	159	H

PK - Peak detector

LOW CHANNEL RESTRICTED, VERTICAL



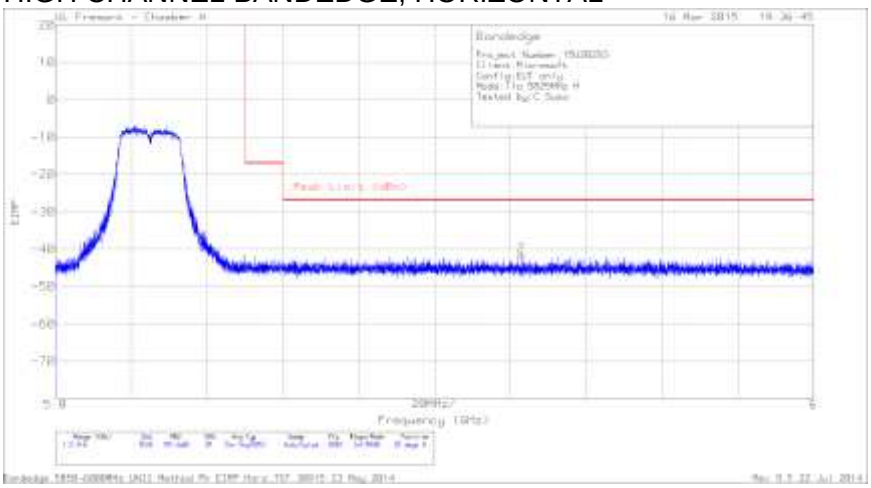
DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.64	-65.28	PK	34.8	-23.6	11.8	-42.28	-27	-15.28	263	135	V
1	5.725	-65.62	PK	34.8	-23.5	11.8	-42.52	-17	-25.52	263	135	V

PK - Peak detector

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, HORIZONTAL

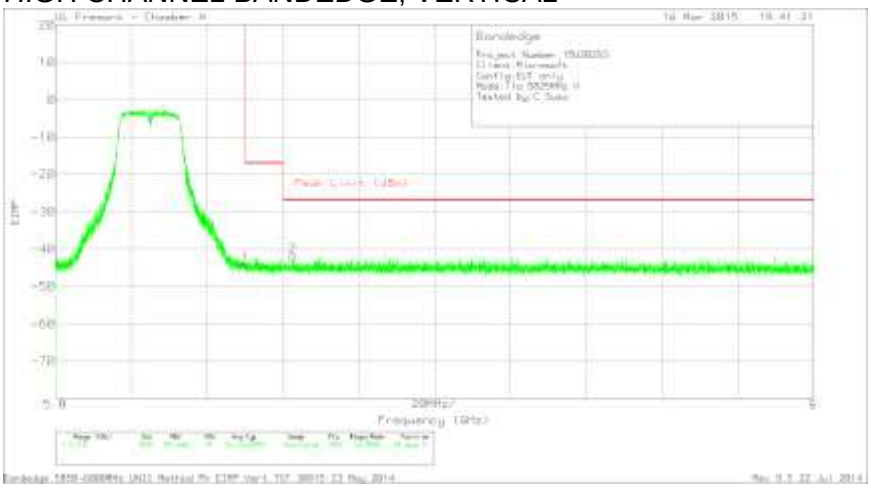


DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-69.57	PK	35.1	-22.2	11.8	-44.87	-17	-27.87	55	230	H
2	5.923	-66.29	PK	35.1	-22.2	11.8	-41.59	-27	-14.59	55	230	H

PK - Peak detector

HIGH CHANNEL BANDEDGE, VERTICAL



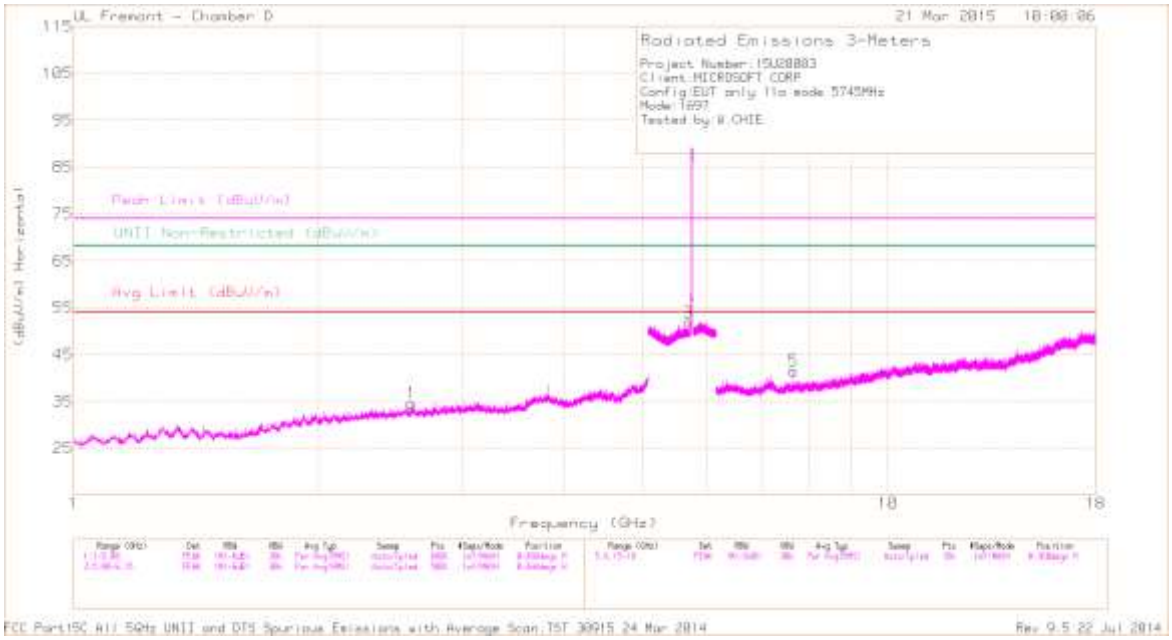
DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-68.83	PK	35.1	-22.2	11.8	-44.13	-17	-27.13	64	273	V
2	5.863	-66.47	PK	35.1	-22.2	11.8	-41.77	-27	-14.77	64	273	V

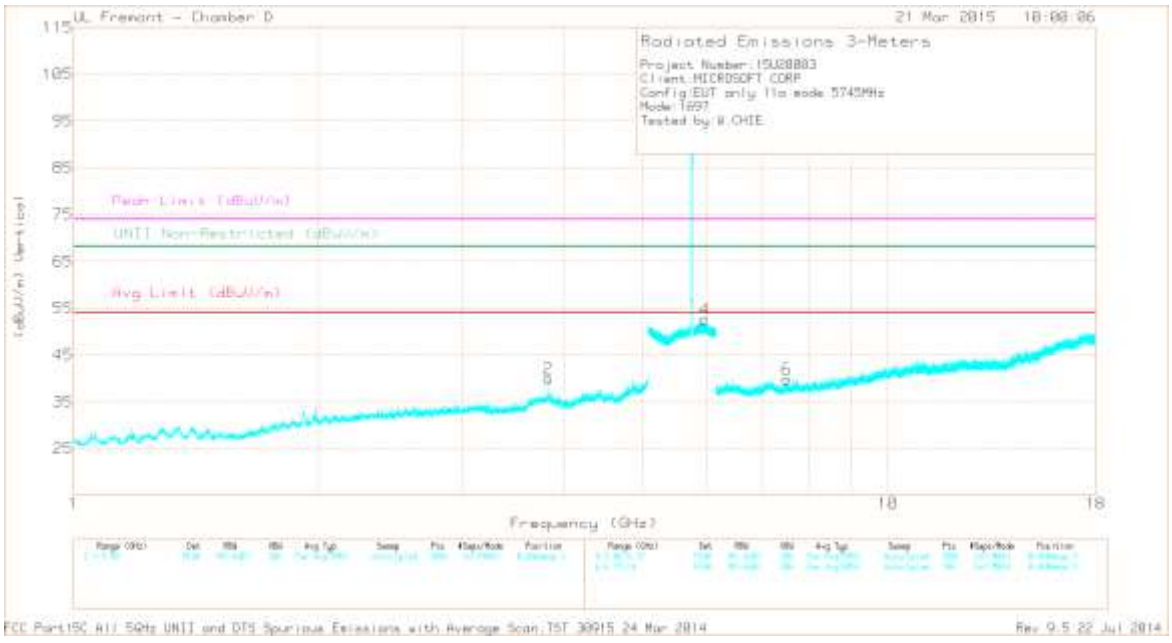
PK - Peak detector

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



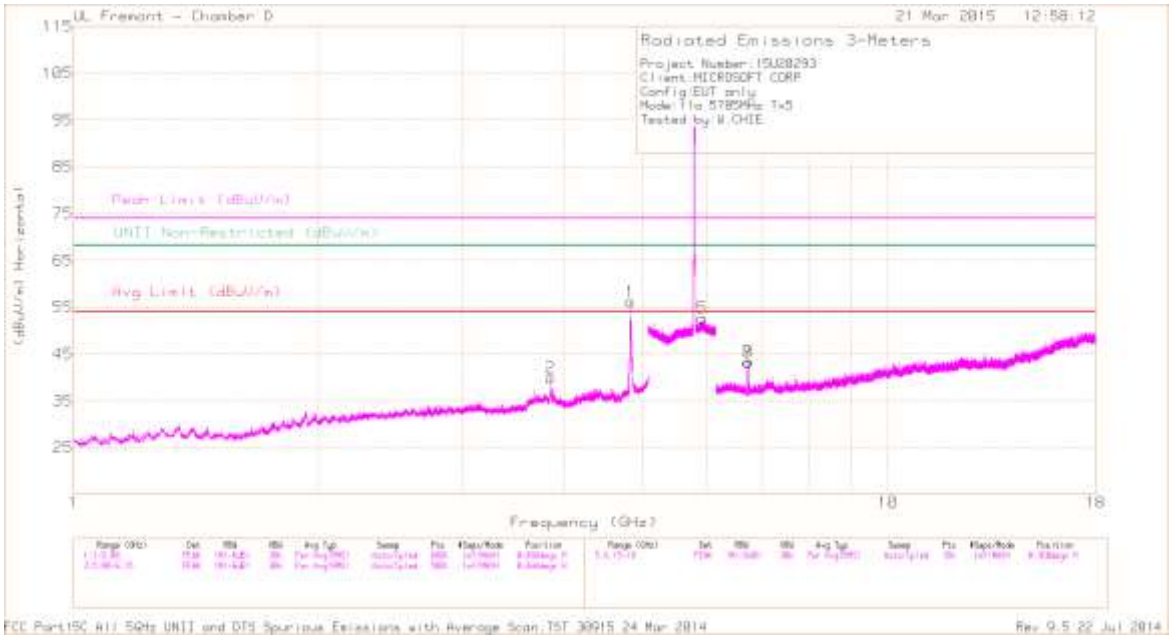
DATA

Radiated Emissions

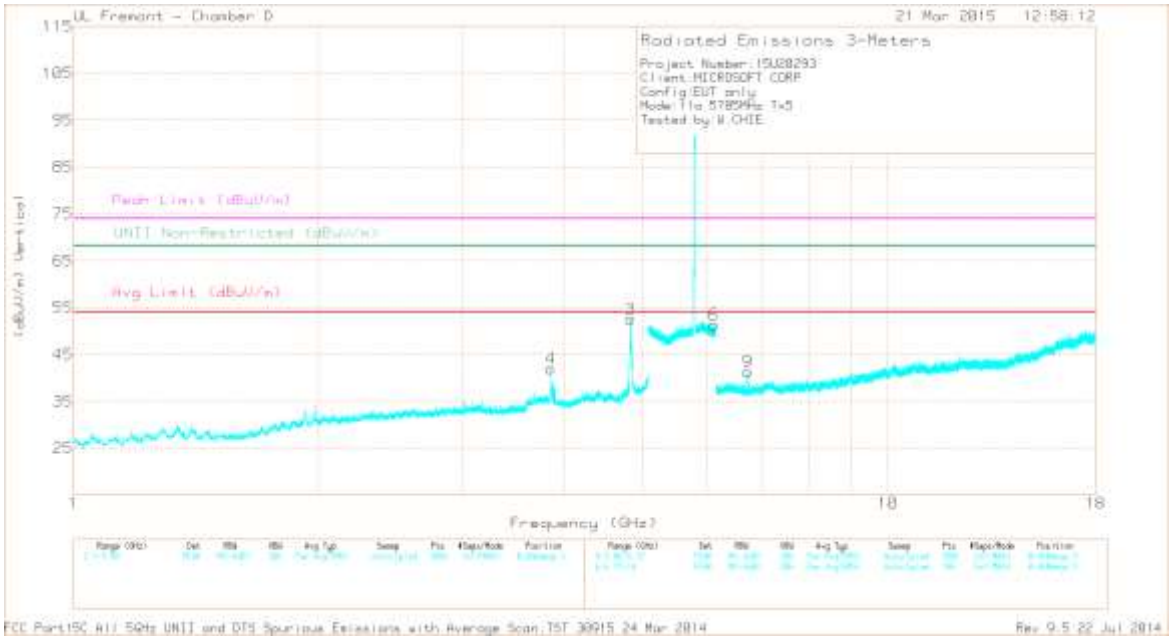
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.83	42.03	PK1	33.4	-28.8	46.63	-	-	74	-27.37	-	-	124	178	V
	* 3.83	33.24	AD1	33.4	-28.8	37.84	54	-16.16	-	-	-	-	124	178	V
5	* 7.66	37.99	PK1	35.6	-25.3	48.29	-	-	74	-25.71	-	-	232	129	H
	* 7.66	29.97	AD1	35.6	-25.3	40.27	54	-13.73	-	-	-	-	232	129	H
6	* 7.519	35.07	PK1	35.5	-24.6	45.97	-	-	74	-28.03	-	-	25	395	V
	* 7.519	24.1	AD1	35.5	-24.7	34.9	54	-19.1	-	-	-	-	25	395	V
1	2.6	39.5	PK1	32.4	-29.9	42	-	-	-	-	68.2	-26.2	77	319	H
	2.601	39.56	PK2	32.4	-29.9	42.06	-	-	-	-	68.2	-26.14	77	319	H
3	5.7	29.73	AD1	34.5	-17.4	46.83	-	-	-	-	-	-	46	328	H
	5.702	41.22	PK1	34.5	-17.5	58.22	-	-	-	-	68.2	-9.98	46	328	H
4	5.951	41.2	PK1	35.3	-17.3	59.2	-	-	-	-	68.2	-9	2	383	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



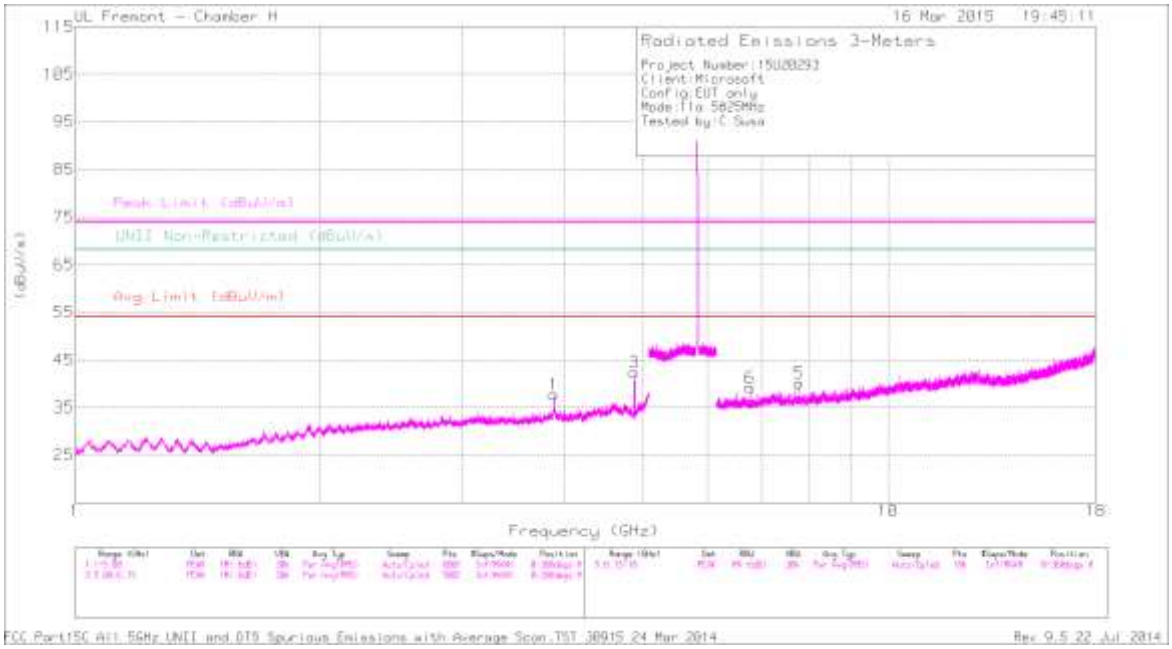
DATA

Radiated Emissions

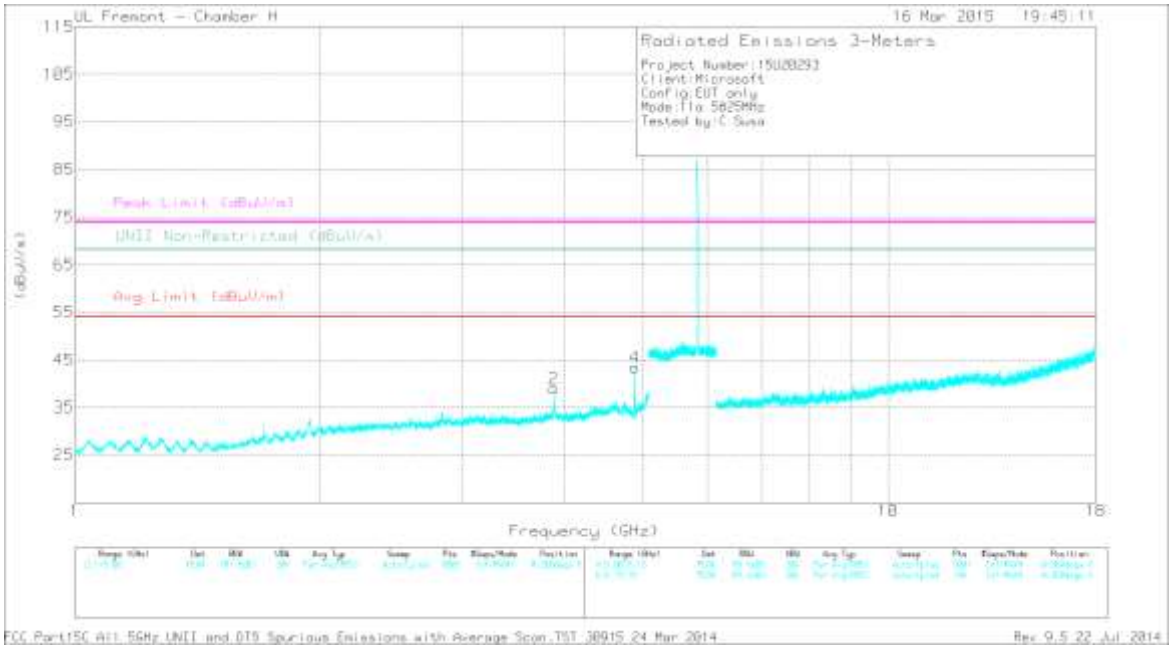
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.828	63.19	PK1	34.1	-26.9	70.39	-	-	74	-3.61	-	-	281	136	H
	* 4.831	33.65	AD1	34.1	-26.8	40.95	54	-13.05	-	-	-	-	281	136	H
2	* 3.857	43.54	PK1	33.4	-29	47.94	-	-	74	-26.06	-	-	168	152	H
	* 3.857	33.75	AD1	33.4	-29	38.15	54	-15.85	-	-	-	-	168	152	H
3	* 4.832	61.29	PK1	34.1	-26.7	68.69	-	-	74	-5.31	-	-	305	156	V
	* 4.832	30.96	AD1	34.1	-26.7	38.36	54	-15.64	-	-	-	-	305	156	V
4	* 3.857	45.28	PK1	33.4	-29	49.68	-	-	74	-24.32	-	-	132	147	V
	* 3.857	36.1	AD1	33.4	-29	40.5	54	-13.5	-	-	-	-	132	147	V
5	5.919	41.79	PK1	35.1	-17.3	59.59	-	-	-	-	68.2	-8.61	324	307	H
6	6.116	40.66	PK1	35.6	-17.7	58.56	-	-	-	-	68.2	-9.64	276	259	V
7	6.727	46.31	PK1	35.5	-26.6	55.21	-	-	-	-	68.2	-12.99	223	378	H
8	6.73	45.68	PK1	35.5	-26.6	54.58	-	-	-	-	68.2	-13.62	226	400	V
9	6.74	51.58	PK1	35.5	-26.5	60.58	-	-	-	-	68.2	-7.62	232	107	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Radiated Emissions

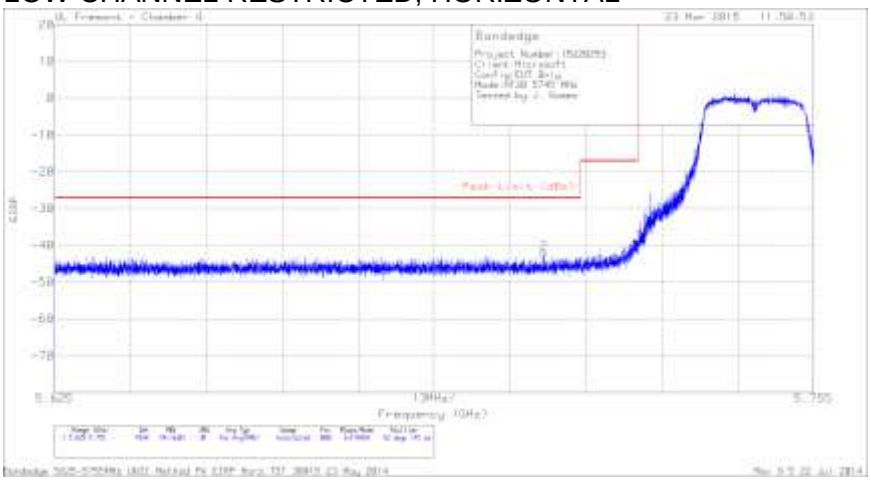
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.884	46.29	PK1	33.4	-32.8	46.89	-	-	74	-27.11	-	-	292	296	H
	* 3.883	36.88	AD1	33.4	-32.8	37.48	54	-16.52	-	-	-	-	292	296	H
2	* 3.884	45.98	PK1	33.4	-32.8	46.58	-	-	74	-27.42	-	-	118	153	V
	* 3.883	36.99	AD1	33.4	-32.8	37.59	54	-16.41	-	-	-	-	118	153	V
3	* 4.874	56.31	PK1	34.3	-31	59.61	-	-	74	-14.39	-	-	177	211	H
	* 4.876	28.77	AD1	34.3	-31	32.07	54	-21.93	-	-	-	-	177	211	H
4	* 4.883	52.91	PK1	34.3	-31	56.21	-	-	74	-17.79	-	-	284	176	V
	* 4.884	28.37	AD1	34.3	-31	31.67	54	-22.33	-	-	-	-	284	176	V
6	6.767	47.93	PK1	35.8	-30.5	53.23	-	-	-	-	68.2	-14.97	210	118	H
5	7.767	41.68	PK1	36.1	-29.4	48.38	-	-	-	-	68.2	-19.82	225	120	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

9.2.8. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, HORIZONTAL

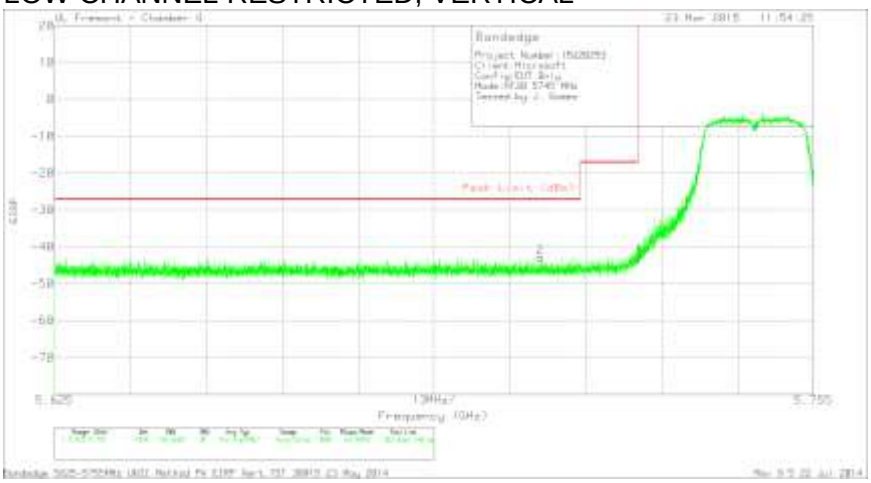


DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.709	-65.16	PK	34.8	-23.5	11.8	-42.06	-27	-15.06	62	145	H
1	5.725	-62.14	PK	34.8	-23.5	11.8	-39.04	-17	-22.04	62	145	H

PK - Peak detector

LOW CHANNEL RESTRICTED, VERTICAL



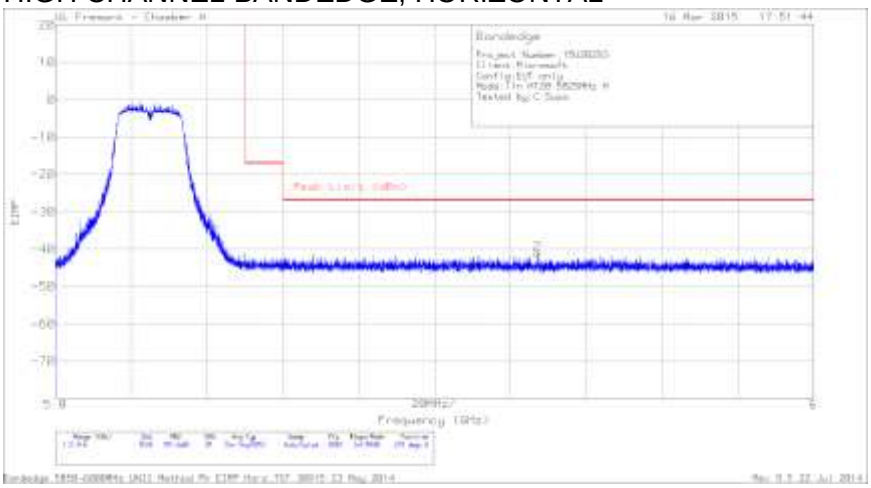
DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.708	-65.94	PK	34.8	-23.5	11.8	-42.84	-27	-15.84	303	140	V
1	5.725	-65.75	PK	34.8	-23.5	11.8	-42.65	-17	-25.65	303	140	V

PK - Peak detector

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, HORIZONTAL

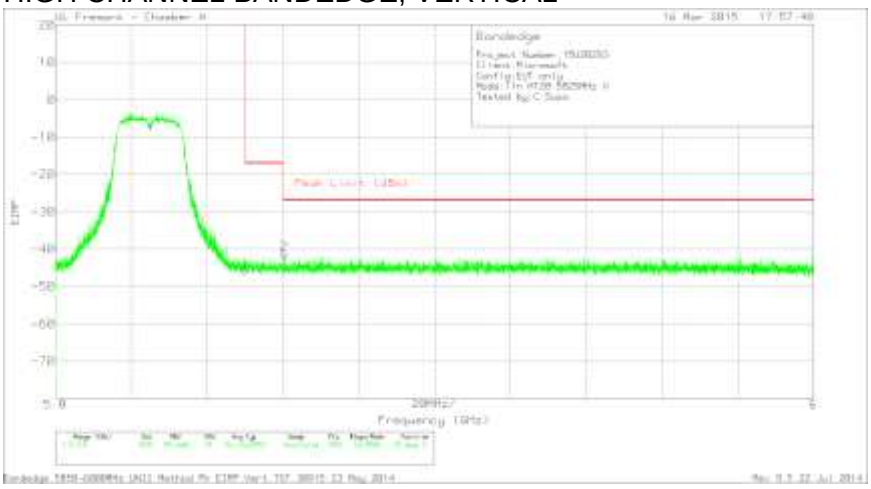


DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-69.24	PK	35.1	-22.2	11.8	-44.54	-17	-27.54	218	262	H
2	5.927	-65.86	PK	35.1	-22.2	11.8	-41.16	-27	-14.16	218	262	H

PK - Peak detector

HIGH CHANNEL BANDEDGE, VERTICAL



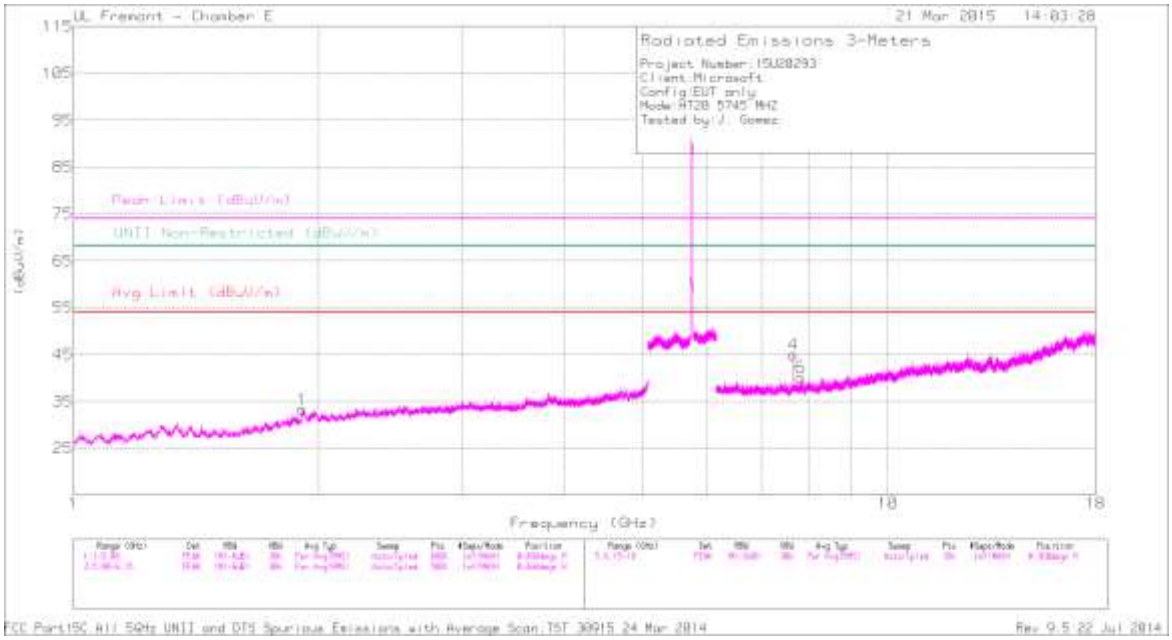
DATA

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-70.45	PK	35.1	-22.2	11.8	-45.75	-17	-28.75	59	300	V
2	5.86	-65.97	PK	35.1	-22.2	11.8	-41.27	-27	-14.27	59	300	V

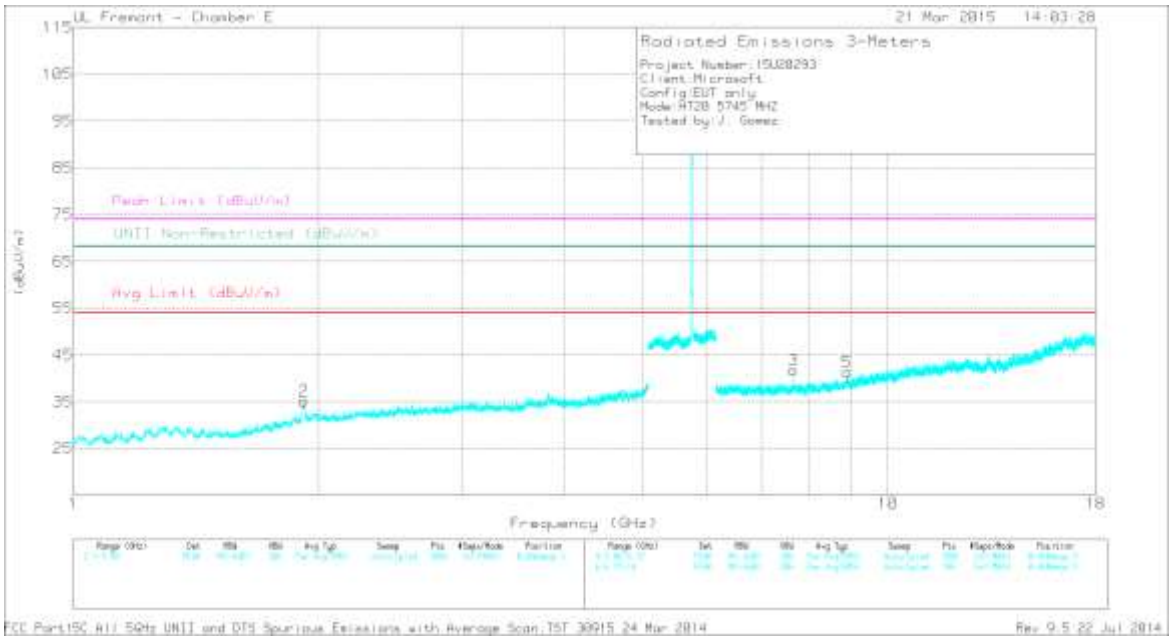
PK - Peak detector

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



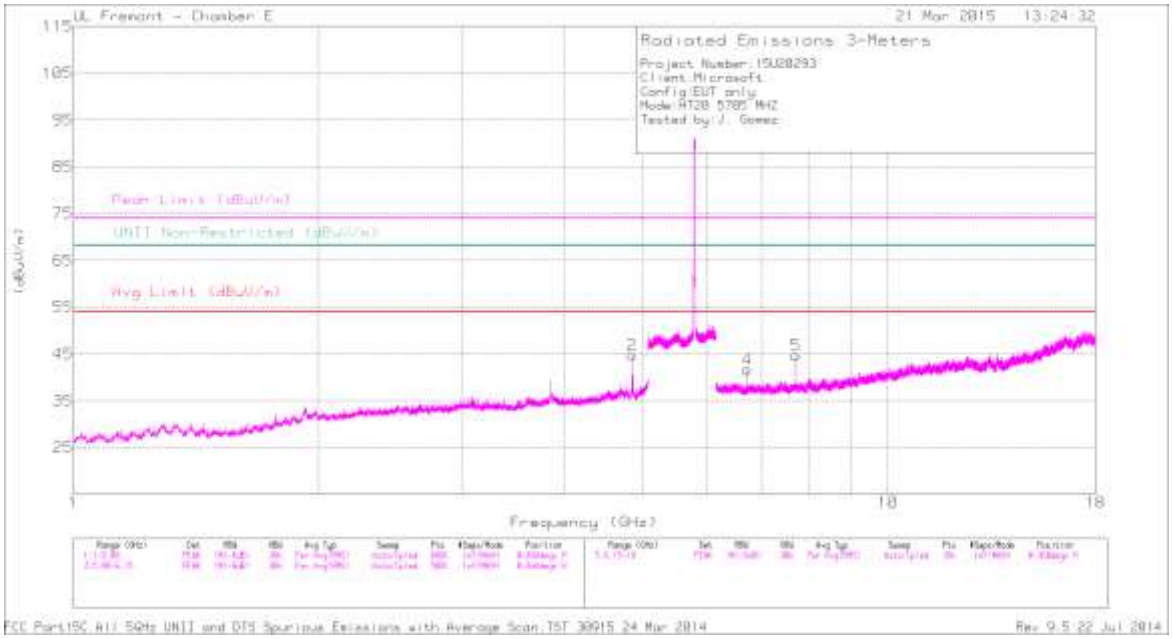
DATA

Radiated Emissions

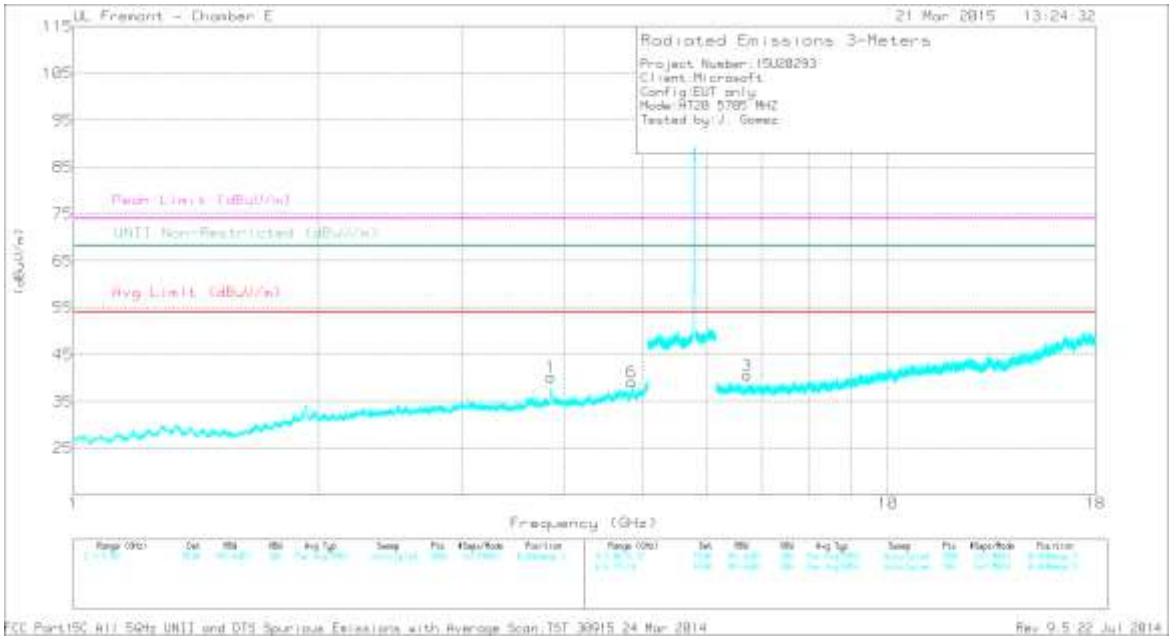
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 7.66	42.56	PK1	35.8	-27.3	51.06	-	-	74	-22.94	-	-	341	193	H
	* 7.66	35.8	AD1	35.8	-27.3	44.3	54	-9.7	-	-	-	-	341	193	H
3	* 7.66	40.71	PK1	35.8	-27.3	49.21	-	-	74	-24.79	-	-	127	144	V
	1.918	45.52	PK1	30.9	-32.7	43.72	-	-	-	-	68.2	-24.48	149	103	V
1	1.919	44.33	PK1	30.9	-32.7	42.53	-	-	-	-	68.2	-25.67	287	391	H
2	7.813	38.84	PK1	35.8	-27.7	46.94	-	-	-	-	68.2	-21.26	115	178	H
6	* 7.66	42.56	PK1	35.8	-27.3	51.06	-	-	74	-22.94	-	-	341	193	H
5	* 7.66	35.8	AD1	35.8	-27.3	44.3	54	-9.7	-	-	-	-	341	193	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



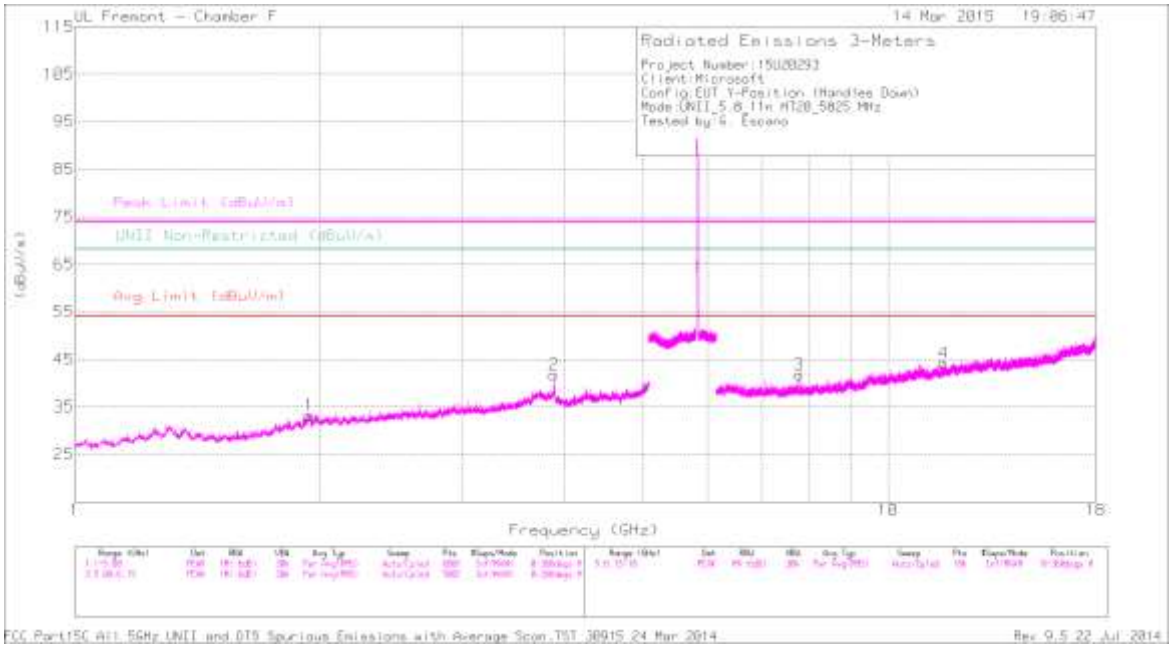
DATA

Radiated Emissions

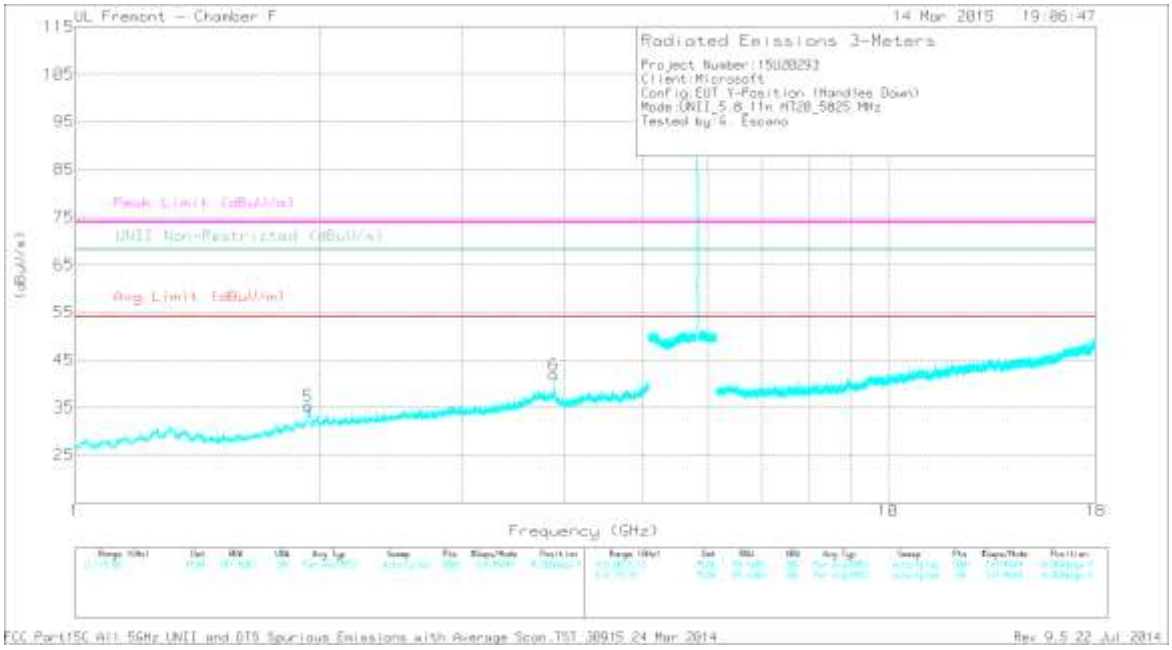
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.854	55.84	PK1	34.1	-30.5	59.44	-	-	74	-14.56	-	-	39	120	H
	* 4.853	29.95	AD1	34.1	-30.4	33.65	54	-20.35	-	-	-	-	39	120	H
1	* 3.857	46.91	PK1	33.5	-31	49.41	-	-	74	-24.59	-	-	243	164	V
	* 3.857	36.26	AD1	33.5	-31	38.76	54	-15.24	-	-	-	-	243	164	V
6	* 4.847	54.1	PK1	34.1	-30.4	57.8	-	-	74	-16.2	-	-	70	171	V
	* 4.845	29.73	AD1	34.1	-30.4	33.43	54	-20.57	-	-	-	-	70	171	V
5	* 7.713	42.12	PK1	35.8	-27.6	50.32	-	-	74	-23.68	-	-	360	134	H
	* 7.713	35.17	AD1	35.8	-27.6	43.37	54	-10.63	-	-	-	-	360	134	H
3	6.714	47.84	PK1	35.6	-29.2	54.24	-	-	-	-	68.2	-13.96	42	243	V
4	6.717	46.55	PK1	35.6	-29.3	52.85	-	-	-	-	68.2	-15.35	215	100	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

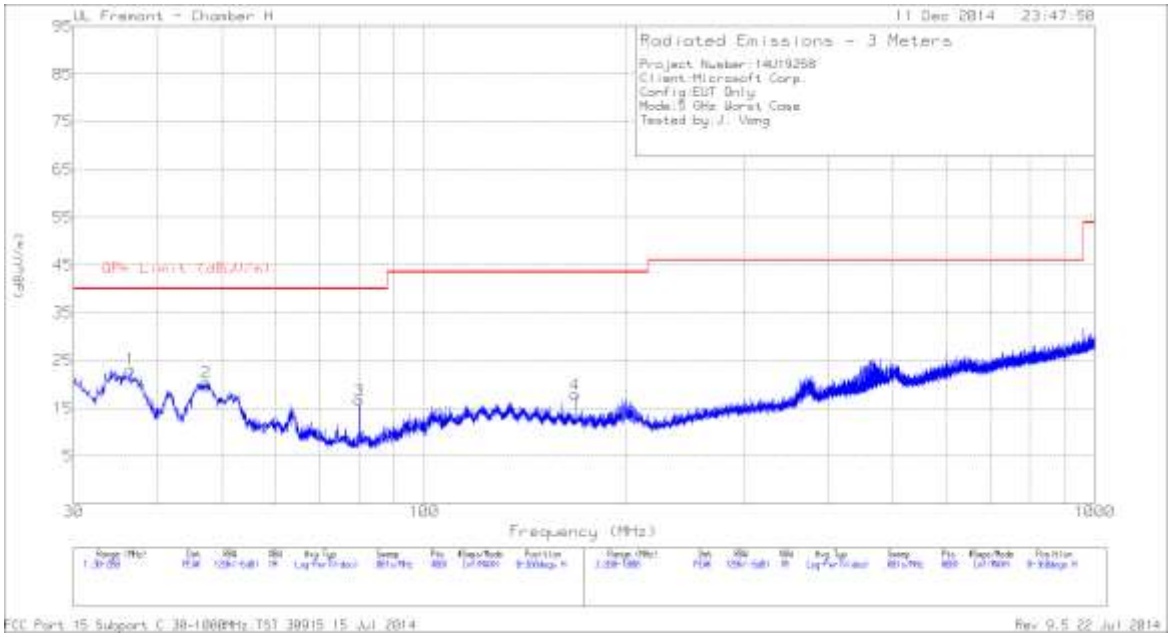
Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.941	42.12	PK1	31.5	-31.2	42.42	-	-	-	-	68.2	-25.78	7	245	H
2	* 3.883	44.92	PK1	34.1	-29	50.02	-	-	74	-23.98	-	-	337	200	H
	* 3.883	34.4	AD1	34.1	-29	39.5	54	-14.5	-	-	-	-	337	200	H
5	1.938	40.54	PK1	31.5	-31.2	40.84	-	-	-	-	68.2	-27.36	342	217	V
6	* 3.883	44.5	PK1	34.1	-29	49.6	-	-	74	-24.4	-	-	298	109	V
	* 3.883	33.73	AD1	34.1	-29	38.83	54	-15.17	-	-	-	-	298	109	V
3	7.766	37.92	PK1	35.7	-25.4	48.22	-	-	-	-	68.2	-19.98	60	124	H
4	* 11.702	35.27	PK1	38.6	-22.6	51.27	-	-	74	-22.73	-	-	289	166	H
	* 11.702	23.6	AD1	38.6	-22.6	39.6	54	-14.4	-	-	-	-	289	166	H

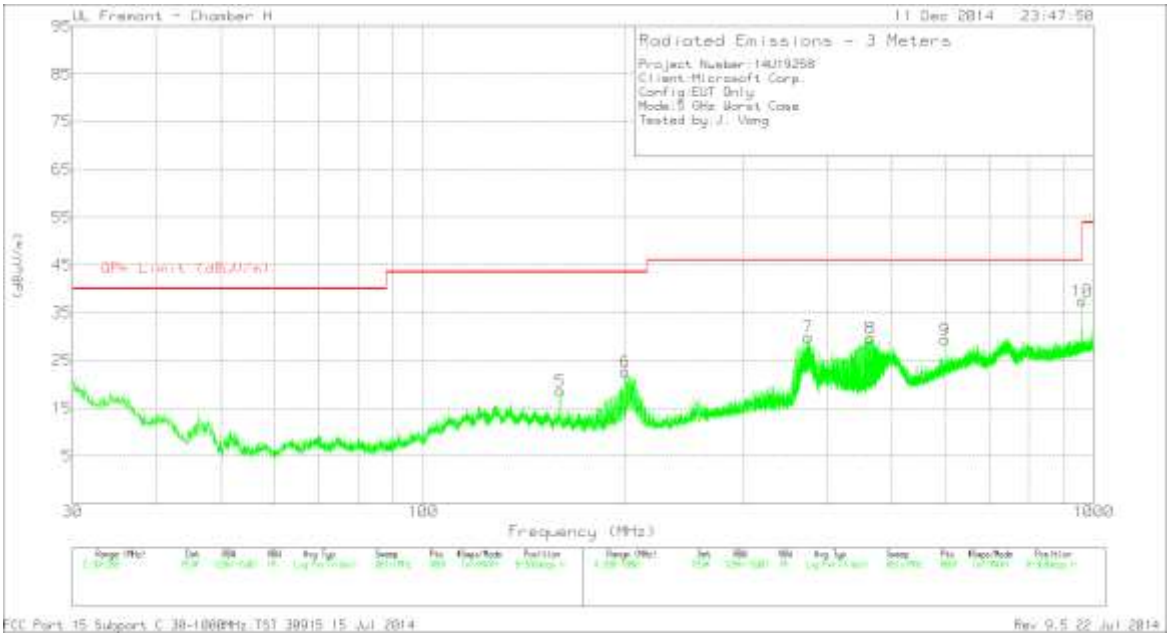
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK1 - KDB789033 Method: Peak
AD1 - KDB789033 Method: AD Primary Power Average

9.3. WORST-CASE BELOW 1 GHz

HORIZONTAL PLOT



VERTICAL PLOT



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	SS JB3 SN A051314-1	Amp/Cbl (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	36.46	34.42	PK	19.7	-30.9	0	23.22	40	-16.78	0-360	99	H
2	47.3825	38.97	PK	12.1	-30.7	0	20.37	40	-19.63	0-360	99	H
3	80.0225	36.61	PK	10.4	-30.3	0	16.71	40	-23.29	0-360	99	H
4	* 167.9975	32.44	PK	14.9	-29.5	0	17.84	43.52	-25.68	0-360	99	H
5	160.0075	32.98	PK	15.2	-29.6	0	18.58	43.52	-24.94	0-360	100	V
6	200	36.15	PK	15.7	-29.2	0	22.65	43.52	-20.87	0-360	100	V
7	375	40.2	PK	17.9	-28.2	0	29.9	46.02	-16.12	0-360	100	V
8	463.7	37.33	PK	20.1	-27.6	0	29.83	46.02	-16.19	0-360	201	V
9	600	35.11	PK	21.4	-27.1	0	29.41	46.02	-16.61	0-360	301	V
10	* 960	36.39	PK	25.8	-24.6	0	37.59	46.02	-8.43	0-360	100	V

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

9.4. WORST-CASE ABOVE 18 to 26GHz

SPURIOUS EMISSIONS 18 TO 26 GHz (WORST-CASE CONFIGURATION, HORIZONTAL & VERTICAL)

DATA

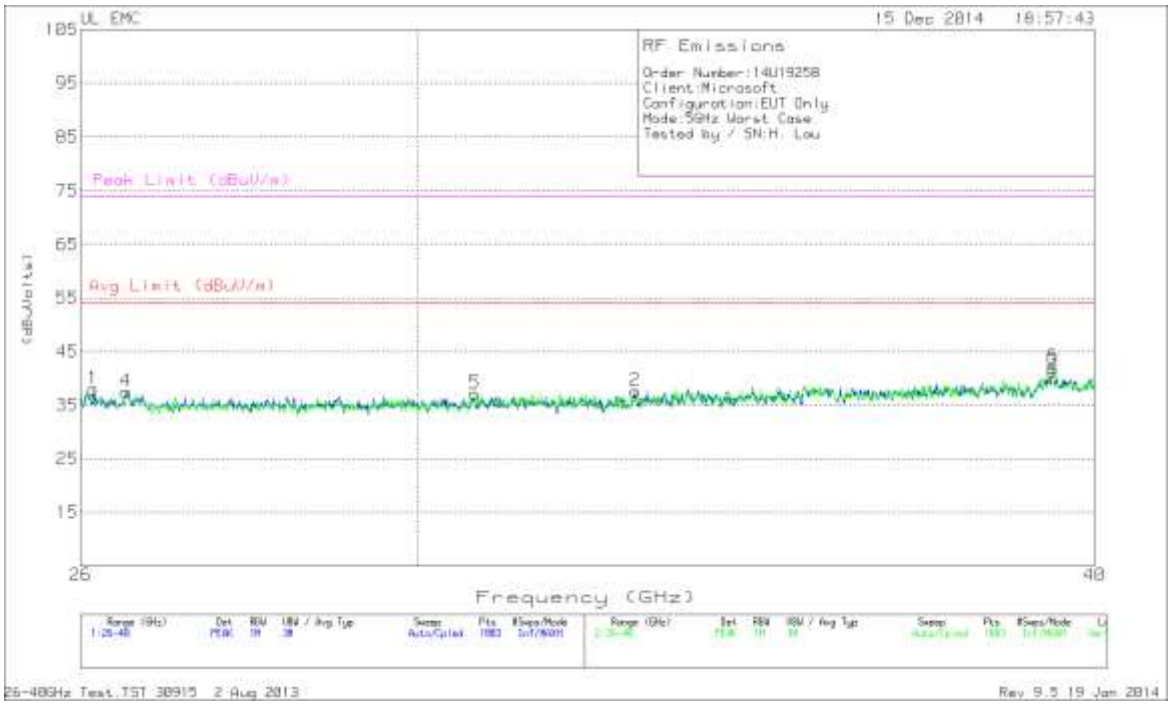
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T125 (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	19.585	41.37	PK	32.8	-24	-9.5	40.667	54	-13.333	74	-33.333
2	21.404	42.37	PK	33.1	-23.8	-9.5	42.167	54	-11.833	74	-31.833
3	22.716	41.9	PK	33.4	-23.3	-9.5	42.5	54	-11.5	74	-31.5
4	18.4	41.57	PK	32.4	-24.8	-9.5	39.667	54	-14.333	74	-34.333
5	23.009	42.3	PK	33.5	-23.3	-9.5	43	54	-11	74	-31
6	25.44	44.9	PK	34.1	-23	-9.5	46.5	54	-7.5	74	-27.5

PK - Peak detector

9.5. WORST-CASE 26 to 40 GHz

SPURIOUS EMISSIONS 26 TO 40 GHz (WORST-CASE CONFIGURATION, HORIZONTAL & VERTICAL)

HORIZONTAL & VERTICAL PLOT



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T90 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	26.14	46	PK	35.6	-34.1	-9.5	38	54	-16	74	-36
2	32.907	47.77	PK	36.6	-37.2	-9.5	37.667	54	-16.333	74	-36.333
3	39.293	48.23	PK	38.4	-35.8	-9.5	41.333	54	-12.667	74	-32.667
4	26.505	45	PK	35.5	-33.5	-9.5	37.5	54	-16.5	74	-36.5
5	30.739	47.37	PK	36.1	-36.8	-9.5	37.167	54	-16.833	74	-36.833
6	39.293	48.9	PK	38.4	-35.8	-9.5	42	54	-12	74	-32

PK - Peak detector

10. DYNAMIC FREQUENCY SELECTION

10.1. OVERVIEW

10.1.1. LIMITS

INDUSTRY CANADA

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

RSS-210 Issue 8 A9.3

Note: For the band 5600–5650 MHz, no operation is permitted.

Until further notice, devices subject to this annex shall not be capable of transmitting in the band 5600–5650 MHz. This restriction is for the protection of Environment Canada weather radars operating in this band.

FCC

§15.407 (h), FCC KDB 905462 D02 “COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION” and KDB 905462 D03 “U-NII CLIENT DEVICES WITHOUT RADAR DETECTION CAPABILITY”.

Table 1: Applicability of DFS requirements prior to use of a channel

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

Table 2: Applicability of DFS requirements during normal operation

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

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar DFS	Client (without DFS)
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in all 20 MHz channel blocks and a null frequency between the bonded 20 MHz channel blocks.		

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

Maximum Transmit Power	Value (see notes)
E.I.R.P. ≥ 200 mill watt	-64 dBm
E.I.R.P. < 200 mill watt and power spectral density < 10 dBm/MHz	-62 dBm
E.I.R.P. < 200 mill watt that do not meet power spectral density requirement	-64 dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.
Note 3: E.I.R.P. is based on the highest antenna gain. For MIMO devices refer to KDB publication 662911 D01.

Table 4: DFS Response requirement values

Parameter	Value
Non-occupancy period	30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds (See Note 1)
Channel Closing Transmission Time	200 milliseconds + approx. 60 milliseconds over remaining 10 second period. (See Notes 1 and 2)
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. (See Note 3)

Note 1: *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.
Note 2: The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.
Note 3: During the *U-NII Detection Bandwidth* detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (usec)	PRI (usec)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in table 5a	Roundup: {(1/360) x (19 x 10^6 PRI_{usec})}	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 usec. With a minimum increment of 1 usec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Note 1: Short Pulse Radar Type 0 should be used for the *Detection Bandwidth* test, *Channel Move Time*, and *Channel Closing Time* tests.

Table 6 – Long Pulse Radar Test Signal

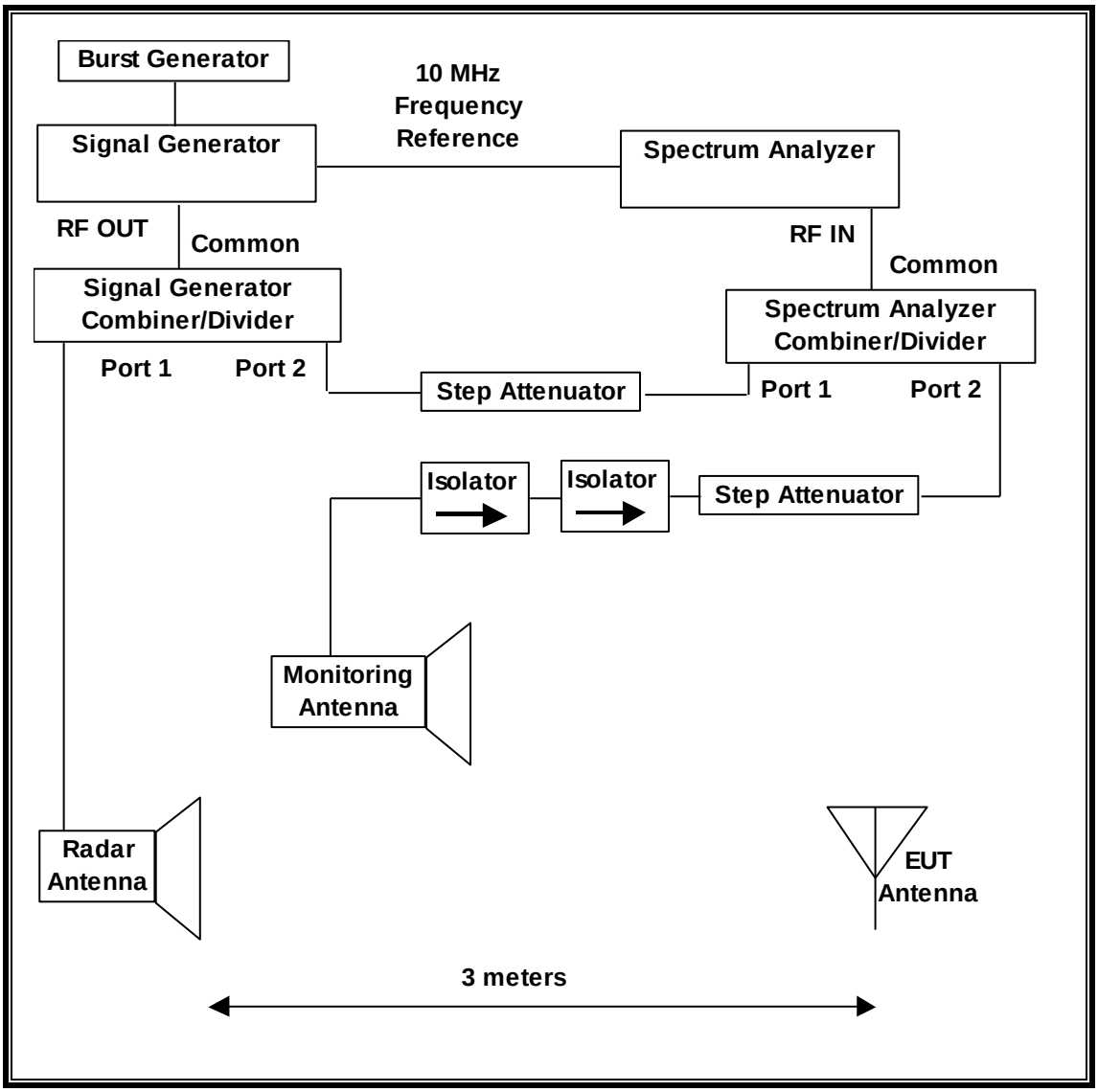
Radar Waveform Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	0.333	300	70%	30

10.1.2. TEST AND MEASUREMENT SYSTEM

RADIATED METHOD SYSTEM BLOCK DIAGRAM



SYSTEM OVERVIEW

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

The short pulse types 1, 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of KDB 905462 D02. The frequency of the signal generator is incremented in 1 MHz steps from F_L to F_H for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

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

SYSTEM CALIBRATION

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

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

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

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

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

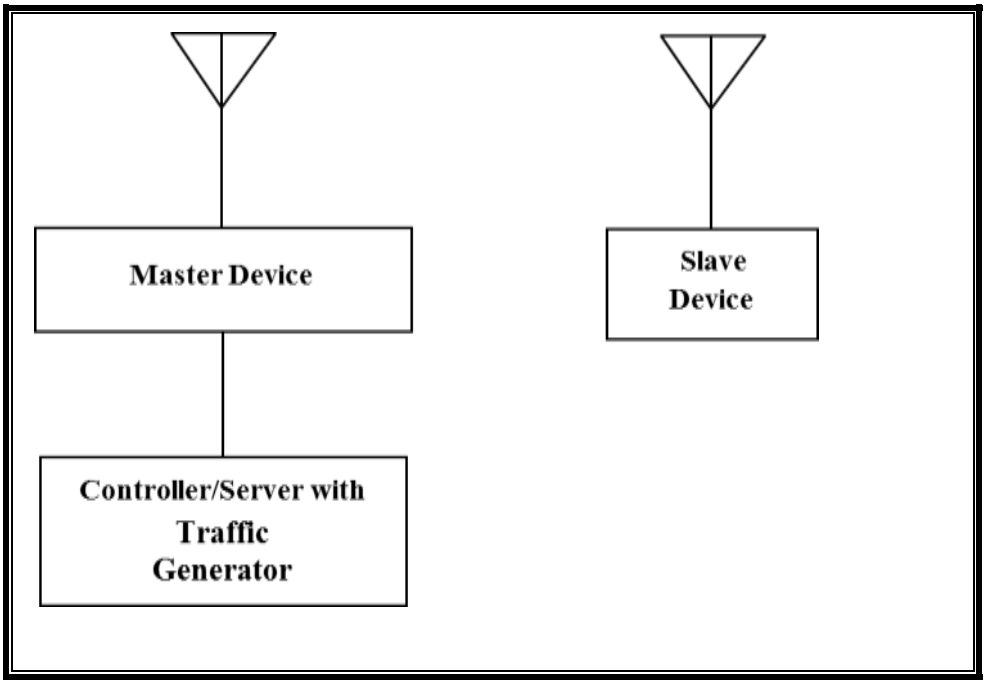
TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset Number**	**Cal Due**
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	09/05/15
Vector Signal Generator, 20GHz	Agilent / HP	E8267C	C01066	09/03/15

10.1.3. SETUP OF EUT

RADIATED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

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

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Notebook PC (Host/Controller PC)	Dell	PP38L	G3X38M1	DoC
AC Adapter (Host/Controller PC)	Delta Electronics	DA90PS1-00	CN-0MM545-48661-77L-2GF0	DoC
Headset	Microsoft	Hilo PV4.09	NO	DoC
Xbox One Game Console (Companion Device)	Microsoft	1540	76803444448	C3K1525
AC Adapter (Game Console)	Microsoft	PB-221-02MX	1D21J339086439	DoC
LCD Monitor	Dynex	DX-15E220A12	1156D8059579	DoC

10.1.4. DESCRIPTION OF EUT

The EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges, excluding operation in the band 5600 to 5650 MHz.

For FCC the EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

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

The EUT is a Slave Device without Radar Detection.

The highest power level within these bands is 4.8 dBm EIRP in the 5250-5350 MHz band and 5.7 dBm EIRP in the 5470-5725 MHz band.

The only antenna assembly utilized with the EUT has a gain. as follows:

Band (GHz)	5.2	5.3	5.6	5.8
Gain (dBi)	1.77	1.77	0.5	1.62

The calibrated radiated DFS Detection Threshold level is set to –64 dBm.

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

WLAN traffic is generated by streaming the 5_GHz_Audio_Test_file.WAV over a wireless connection at a data rate of 9 Mbps from the Master to the Slave using an embedded application resident on the Master Device.

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

The EUT utilizes the 802.11a/n architecture. One nominal channel bandwidth, 20 MHz, is implemented.

The software installed in the master device point is revision 11766.0.AMD64_FRE.XB_REL_1411.

UNIFORM CHANNEL SPREADING

This is not applicable to Slave devices.

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

The Master Device is a Microsoft XBOX 360 game console, FCC ID: C3K1525. The minimum antenna gain for the Master Device is 3.14 dBi.

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

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

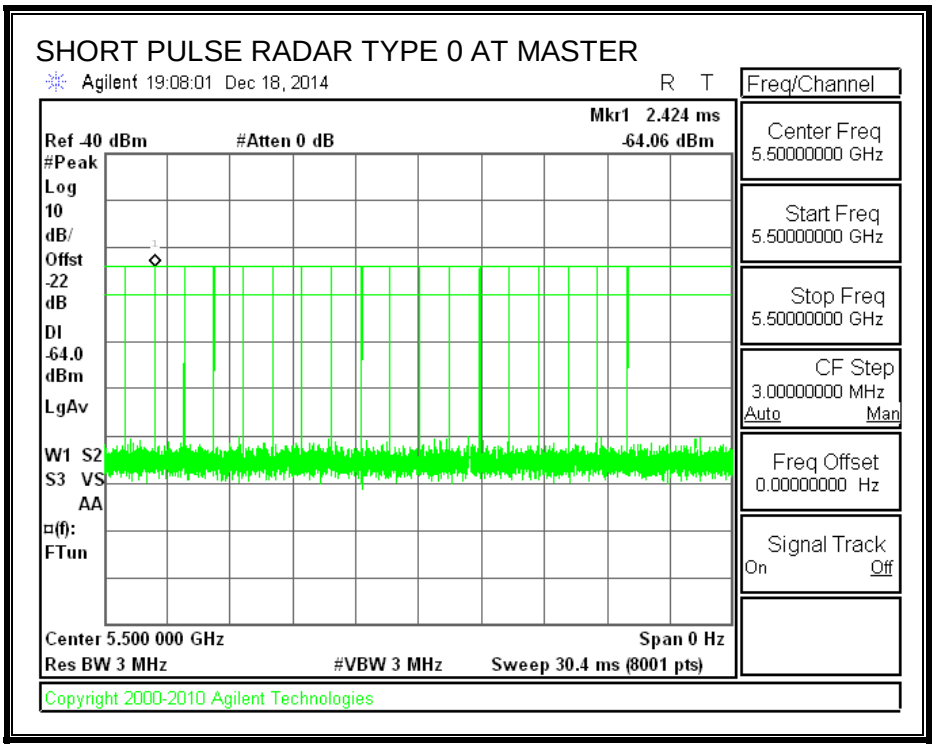
10.2. RESULTS FOR 20 MHz BANDWIDTH

10.2.1. TEST CHANNEL

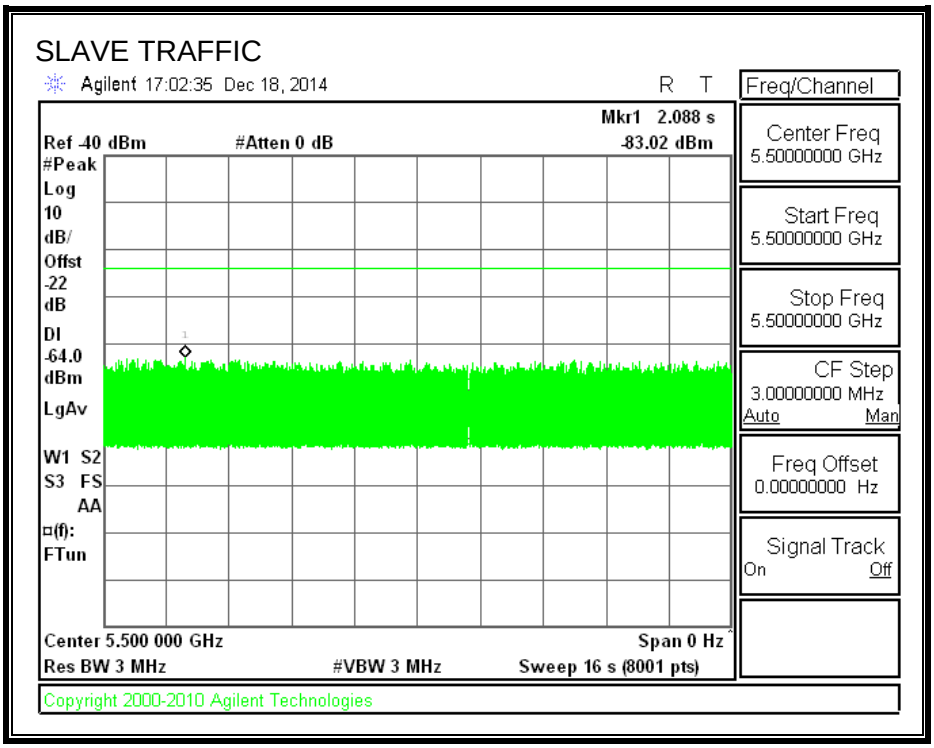
All tests were performed at a channel center frequency of 5500 MHz.

10.2.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM



TRAFFIC



10.2.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

10.2.4. MOVE AND CLOSING TIME

REPORTING NOTES

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

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

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

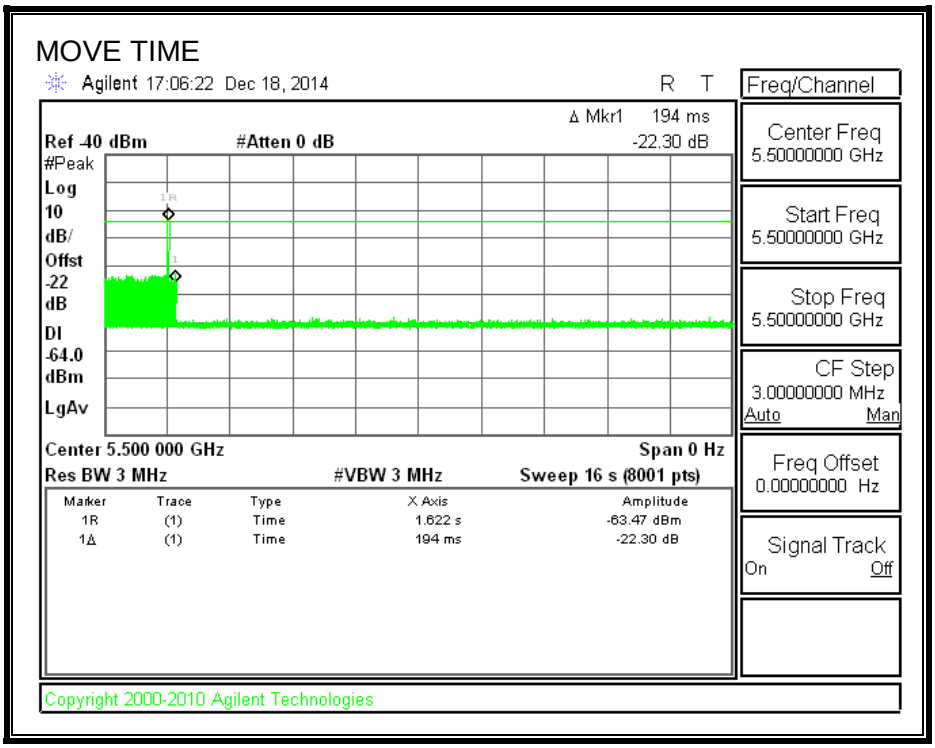
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

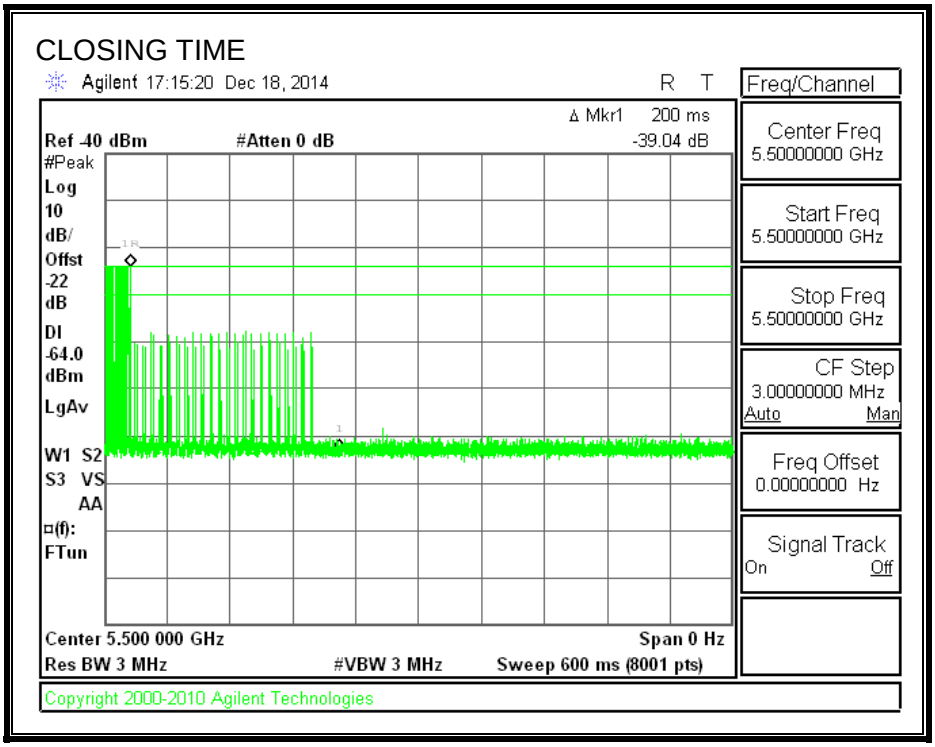
Channel Move Time (sec)	Limit (sec)
0.194	10

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

MOVE TIME



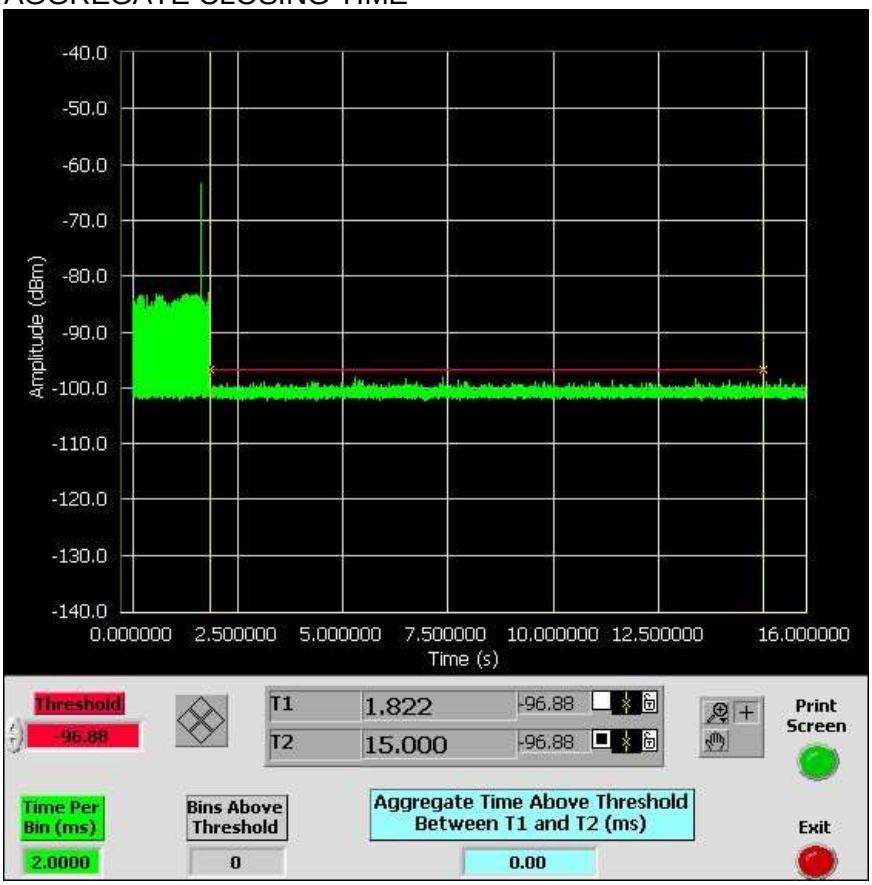
CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.

AGGREGATE CLOSING TIME



10.2.5. 10-MINUTE BEACON MONITORING PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 10-minute observation time.