FCC 47 CFR PART 15 SUBPART E
INDUSTRY CANADA RSS-247 ISSUE 1

CERTIFICATION TEST REPORT

FOR

WLAN 2X2 MIMO 802.11a/b/g/n/ac with BLUETOOTH

MODEL NUMBER: P2180

FCC ID: VOB-P2180
IC: 7361A-P2180

REPORT NUMBER: 15U21878-E4V2

ISSUE DATE: NOVEMBER 3, 2015

Prepared for
NVIDIA CORP.
2701 SAN TOMAS EXPY
SANTA CLARA, CA 95050

Prepared by
UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	10/23/15	Initial Issue	
V2	11/03/15	Updated Section 10.1	J. Wu

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

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 6

2. TEST METHODOLOGY 7

3. FACILITIES AND ACCREDITATION 7

4. CALIBRATION AND UNCERTAINTY 7

4.1. MEASURING INSTRUMENT CALIBRATION 7

4.2. SAMPLE CALCULATION 7

4.3. MEASUREMENT UNCERTAINTY 8

5. EQUIPMENT UNDER TEST 9

5.1. DESCRIPTION OF EUT 9

5.2. MAXIMUM OUTPUT POWER 9

5.3. DESCRIPTION OF AVAILABLE ANTENNAS 10

5.4. SOFTWARE AND FIRMWARE 11

5.5. WORST-CASE CONFIGURATION AND MODE 12

5.6. DESCRIPTION OF TEST SETUP 13

6. TEST AND MEASUREMENT EQUIPMENT 15

7. MEASUREMENT METHODS 16

8. SUMMARY TABLE 17

9. ANTENNA PORT TEST RESULTS 18

9.1. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS 18

9.1.1. ON TIME AND DUTY CYCLE RESULTS 18

9.1.2. DUTY CYCLE PLOTS 19

9.2. 6 dB BANDWIDTH 21

9.2.1. 802.11a MODE IN THE 5.8 GHz BAND 22

9.2.1. 802.11n HT20 MODE IN THE 5.8 GHz BAND 22

9.2.2. 802.11n HT40 MODE IN THE 5.8 GHz BAND 22

9.2.3. 802.11ac HT80 MODE IN THE 5.8 GHz BAND 22

9.2.4. 6 dB BANDWIDTH PLOTS 23

9.3. 26 dB BANDWIDTH 25

9.3.1. 802.11a MODE IN THE 5.2 GHz BAND 25

9.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND 25

9.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND 25

9.3.4. 802.11ac HT80 MODE IN THE 5.2 GHz BAND 25

9.3.5. 802.11a MODE IN THE 5.3 GHz BAND 26

9.3.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND 26

9.3.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND 26

9.3.8. 802.11ac HT80 MODE IN THE 5.3 GHz BAND 26

9.3.9. 802.11a MODE IN THE 5.5 GHz BAND 27

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

9.3.10. 802.11n HT20 MODE IN THE 5.5 GHz BAND 27
9.3.11. 802.11n HT40 MODE IN THE 5.5 GHz BAND 27
9.3.12. 802.11ac HT80 MODE IN THE 5.5 GHz BAND 27
9.3.13. 802.11a MODE IN THE 5.8 GHz BAND 28
9.3.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND 28
9.3.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND 28
9.3.16. 802.11ac HT80 MODE IN THE 5.8 GHz BAND 28
9.3.17. 26 dB BANDWIDTH PLOTS 29

9.4. 99% BANDWIDTH 37
9.4.1. 802.11a MODE IN THE 5.2 GHz BAND 38
9.4.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND 38
9.4.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND 38
9.4.4. 802.11ac HT80 MODE IN THE 5.2 GHz BAND 38
9.4.5. 802.11a MODE IN THE 5.3 GHz BAND 39
9.4.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND 39
9.4.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND 39
9.4.8. 802.11ac HT80 MODE IN THE 5.3 GHz BAND 39
9.4.9. 802.11a MODE IN THE 5.5 GHz BAND 40
9.4.10. 802.11n HT20 MODE IN THE 5.5 GHz BAND 40
9.4.11. 802.11n HT40 MODE IN THE 5.5 GHz BAND 40
9.4.12. 802.11ac HT80 MODE IN THE 5.5 GHz BAND 40
9.4.13. 802.11a MODE IN THE 5.8 GHz BAND 41
9.4.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND 41
9.4.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND 41
9.4.16. 802.11ac HT80 MODE IN THE 5.8 GHz BAND 41
9.4.17. 26 dB BANDWIDTH PLOTS 42

9.5. OUTPUT POWER AND PPSD 50
9.5.1. 802.11a SISO MODE IN THE 5.2 GHz BAND (Chain 0) 52
9.5.2. 802.11a SISO MODE IN THE 5.2 GHz BAND (Chain 1) 53
9.5.3. 802.11n HT20 MODE IN THE 5.2 GHz BAND 54
9.5.4. 802.11n HT40 MODE IN THE 5.2 GHz BAND 55
9.5.5. 802.11ac HT80 MODE IN THE 5.2 GHz BAND 56
9.5.6. 802.11a SISO MODE IN THE 5.3 GHz BAND (Chain 0) 57
9.5.8. 802.11a SISO MODE IN THE 5.3 GHz BAND (Chain 1) 58
9.5.9. 802.11n HT20 MODE IN THE 5.3 GHz BAND 59
9.5.10. 802.11n HT40 MODE IN THE 5.3 GHz BAND 60
9.5.11. 802.11ac HT80 MODE IN THE 5.3 GHz BAND 61
9.5.12. 802.11a SISO MODE IN THE 5.5 GHz BAND (Chain 0) 62
9.5.13. 802.11a SISO MODE IN THE 5.5 GHz BAND (Chain 1) 63
9.5.14. 802.11n HT20 MODE IN THE 5.5 GHz BAND 64
9.5.15. 802.11n HT40 MODE IN THE 5.5 GHz BAND 65
9.5.16. 802.11ac HT80 MODE IN THE 5.5 GHz BAND 66
9.5.17. 802.11a SISO MODE IN THE 5.8 GHz BAND (Chain 0) 67
9.5.1. 802.11a SISO MODE IN THE 5.8 GHz BAND (Chain 1) 68
9.5.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND 69
9.5.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND 70
9.5.4. 802.11ac HT80 MODE IN THE 5.8 GHz BAND 71
9.5.5. OUTPUT POWER AND PPSD PLOTS 72

10. TRANSMITTER ABOVE 1 GHz 80

10.1. 5.2 GHz 81

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

10.1.1. TX ABOVE 1 GHz 802.11a SISO MODE IN THE 5.2 GHz BAND 81
(Chain 0).....81
10.1.2. TX ABOVE 1 GHz 802.11a SISO MODE IN THE 5.2 GHz BAND 92
(Chain 1).....92
10.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND 103
10.1.4. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND 114
10.1.5. TX ABOVE 1 GHz 802.11ac HT80 MODE IN THE 5.2 GHz BAND 122

10.2. 5.3 GHz.....127
10.2.1. TX ABOVE 1 GHz 802.11a SISO MODE IN THE 5.3 GHz BAND 127
(Chain 0).....127
10.2.2. TX ABOVE 1 GHz 802.11a SISO MODE IN THE 5.3 GHz BAND 138
(Chain 1).....138
10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND 149
10.2.4. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.3 GHz BAND 160
10.2.5. TX ABOVE 1 GHz 802.11ac HT80 MODE IN THE 5.3 GHz BAND 168

10.3. 5.5-5.6 GHz.....173
10.3.1. TX ABOVE 1 GHz 802.11a SISO MODE IN THE 5.5 GHz BAND 173
(Chain 0).....173
10.3.2. TX ABOVE 1 GHz 802.11a SISO MODE IN THE 5.5 GHz BAND 186
(Chain 1).....186
10.3.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.5 GHz BAND 199
10.3.4. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.5 GHz BAND 212
10.3.5. TX ABOVE 1 GHz 802.11ac HT80 MODE IN THE 5.5 GHz BAND 225

10.4. 5.8 GHz.....230
10.4.1. TX ABOVE 1 GHz 802.11a SISO MODE IN THE 5.8 GHz BAND 230
(Chain 0).....230
10.4.2. TX ABOVE 1 GHz 802.11a SISO MODE IN THE 5.8 GHz BAND 243
(Chain 1).....243
10.4.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND 256
10.4.4. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND 269
10.4.5. TX ABOVE 1 GHz 802.11ac HT80 MODE IN THE 5.8 GHz BAND 279

10.5. WORST-CASE BELOW 1 GHz (in the 5.2GHz Band) 286

11. AC POWER LINE CONDUCTED EMISSIONS 288

12. SETUP PHOTOS 291

13. EUT PHOTOS 293

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

1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	NVIDIA CORP.
EUT DESCRIPTION:	WLAN 2x2 MIMO 802.11a/b/g/n/ac with Bluetooth
MODEL:	P2180
SERIAL NUMBER:	333715030009, 333615050430, 333715030024, 333815010589
DATE TESTED:	OCTOBER 9-OCTOBER 19, 2015

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	Pass
INDUSTRY CANADA RSS-247 Issue 1	Pass
INDUSTRY CANADA RSS-GEN Issue 4	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:

DAN CORONIA
CONSUMER TECHNOLOGY DIVISION
WiSE PROJECT LEAD
UL VERIFICATION SERVICES INC

Tested By:

JEFFREY WU
CONSUMER TECHNOLOGY DIVISION
WiSE ENGINEER
UL VERIFICATION SERVICES INC

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

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 4, and RSS-247 Issue 1.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

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

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

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

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%.

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

WLAN 2X2 MIMO 802.11a/b/g/n/ac with BLUETOOTH

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
5180 - 5240	802.11a	14.20	26.30
5180 - 5240	802.11n HT20 CDD	11.64	14.59
5190 - 5230	802.11n HT40 CDD	14.04	25.35
5210	801.11ac HT80 CDD	14.58	28.71
5260 - 5320	802.11a	17.00	50.12
5260 - 5320	802.11n HT20 CDD	19.29	84.92
5270 - 5310	802.11n HT40 CDD	18.81	76.03
5290	801.11ac HT80 CDD	15.92	39.08
5500 - 5700	802.11a	17.32	53.95
5500 - 5700	802.11n HT20 CDD	18.65	73.28
5510 - 5670	802.11n HT40 CDD	18.55	71.61
5530	801.11ac HT80 CDD	14.29	26.85
5745-5825	802.11a	17.30	53.70
5745-5825	802.11n HT20 CDD	19.14	82.04
5755-5795	802.11n HT40 CDD	18.84	76.56
5775	801.11ac HT80 CDD	14.63	29.04

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

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a dual band dipole antenna.

Frequency (GHz)	5.2	5.3	5.5	5.6	5.8
Gain(dBi)	5.49	5.57	4.81	4.84	1.99

List of test reduction and modes covering other modes:

Antenna port & Radiated Testing	
Mode	**Covered by**
802.11a legacy 1TX	802.11a 2TX CDD
802.11HT20 1TX	802.11n HT20 2TX CDD
802.11HT20 2TX STBC	802.11n HT20 2TX CDD
802.11ac VHT20 1TX	802.11n HT20 2TX CDD
802.11ac VHT20 2TX STBC	802.11n HT20 2TX CDD
802.11ac VHT20 2TX CDD/BF	802.11n HT20 2TX CDD
802.11n HT40 1TX	802.11n HT40 2TX CDD
802.11n HT40 2TX STBC	802.11n HT40 2TX CDD
802.11ac VHT40 1TX	802.11n HT40 2TX CDD
802.11ac VHT40 2TX STBC	802.11n HT40 2TX CDD
802.11ac VHT40 2TX CDD/BF	802.11n HT40 2TX CDD
802.11ac VHT80 1TX	802.11ac VHT80 2TX CDD
802.11ac VHT80 2TX STBC/BF	802.11ac VHT80 2TX CDD

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

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Nvidia Rev. 7.10.RC 0.0

The EUT driver software installed during testing Nvidia Rev 7.35 2200 <r532988 wltest>

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

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 transmitting antenna degrees: 0, 45, and 90. It was determined that 90 degrees was the worst case antenna position; therefore all final radiated testing was performed with the antenna position at 90 degrees.

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

802.11a mode: 6 Mbps
802.11n HT20mode: MCS0
802.11n HT40mode: MCS0
802.11ac VHT80mode: MCS0

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

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Base board	NVIDIA	P2597	333715040297	DoC
AC Adapter	Mean Well	GST90A19	EB58E32121	N/A
Laptop	Lenovo	T430	PFB1R5R	N/A

I/O CABLES

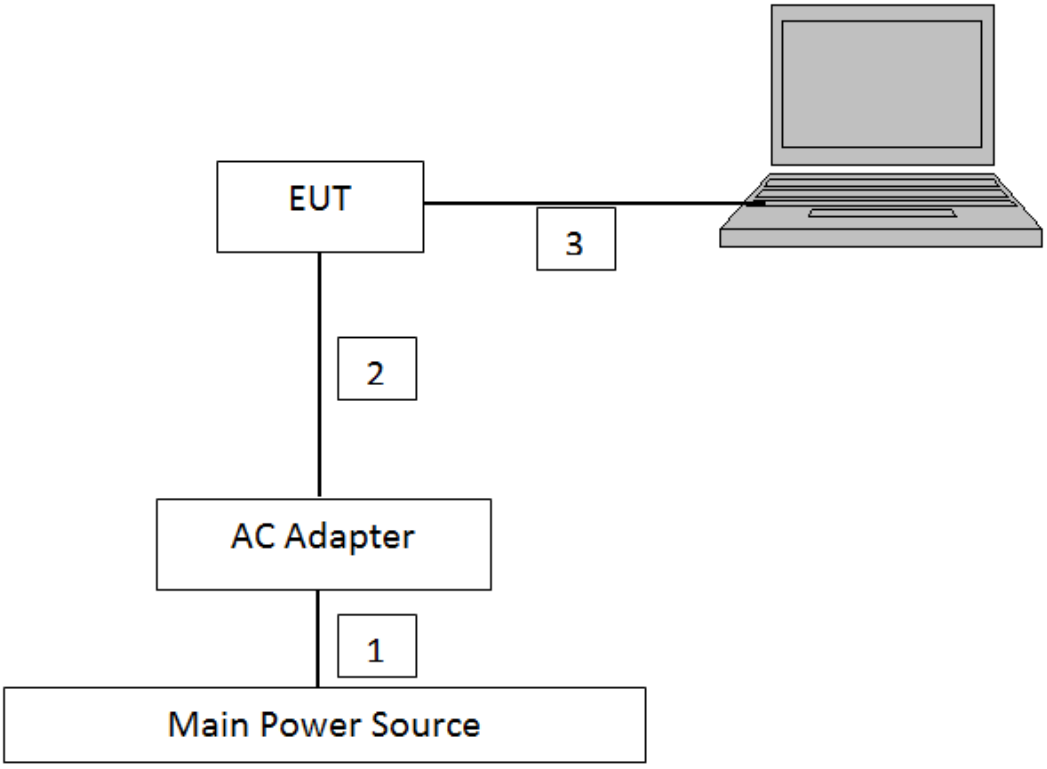
I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	1	US115V	Unshielded	0.5	
2	DC	1	19 Vdc	Unshielded	1	Ferrite Attached
3	USB	1	USB	Shielded	1.5	

TEST SETUP

The EUT is installed in a host laptop computer during the tests. Test software exercised the radio card.

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

SETUP DIAGRAM FOR TESTS



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

6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
Spectrum Analyzer,9KHz-40GHz	HP	8564E	C00986	04/01/16
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	08/13/16
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/18/16
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/15
Antenna, Horn, 1-18 GHz	ETS	3117	T345	03/03/16
Antenna, Horn, 1-18 GHz	ETS	3117	T119	01/15/16
Antenna, Horn, 1-18 GHz	ETS	3117	T136	03/03/16
Antenna, Horn,18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/15
Antenna, Horn, 26-40 GHz	ARA	MWH-2640	C00891	06/28/16
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T185	02/18/16
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/16
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	T404	06/29/16
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR
RF Preamplifier, 1GHz - 40GHz	Miteq	NSP4000-SP2	C00990	08/20/16
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/16
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/16
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/16

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

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

7. MEASUREMENT METHODS

On Time and Duty Cycle: KDB 789033 D02 v01, Section B

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.3.b (Method PM-G), and KDB 662911 D01 v02r01.

Power Spectral Density: KDB 789033 D02 v01, Section F, and KDB 662911 D01 v02r01.

Unwanted emissions in restricted bands: KDB 789033 D02 v01, Sections G.2, G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v01, Sections G.2, G.3, G.4, and G.5

AC Power Line Conducted Emissions: ANSI C63.10-2009, Section 6.2.

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

8. SUMMARY TABLE

FCC Part Section	RSS Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.407 (a)	RSS-247	Occupied Band width (26dB)	N/A	Conducted	Pass	81.840 MHz
15.407	RSS-247 6.2.4	6dB Band width (5.8Ghz)	500KHz		Pass	76.13 MHz
15.407 (a)(1)	RSS-247 6.2	TX Cond. Powe, 5.15-5.25	<24dBm (FCC)/ <23dBm or 10+10Log(OBW) (IC)		Pass	14.58 dBm
15.407 (a)(2)	RSS-247 6.2	TX Cond. Powe, 5.25-5.35 & 5.47-5.725	<24dBm or 11+10Log(OBW)		Pass	19.29 dBm
15.407 (a)(3)	RSS-247 6.2.4	TX Cond. Power 5.725-5.825	< 30dBm		Pass	19.14 dBm
15.407 (a)(1)	RSS-247 6.2	PSD (5.2GHz)	<11dBm (FCC)/ <10dBm(IC)		Pass	4.04 dBm
15.407 (a)(5)	RSS-247 6.2	PSD (5.3,5.5GHz)	<11dBm		Pass	7.75 dBm
15.407 (a)(5)	RSS-247 6.2.4	PSD (5.8GHz)	30dBm per 500kHz		Pass	8.40 dBm
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass	59.12 dBuV
15.407 (b) & 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m (Avg) <68.2 or 74 dBuV/m (Peak)		Pass	67.84 dBuV
15.407 (h)(2)	RSS-247 6.3	Dynamic Frequency Selection	N/A	Radiated / Conducted	Pass	refer to DFS report

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

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

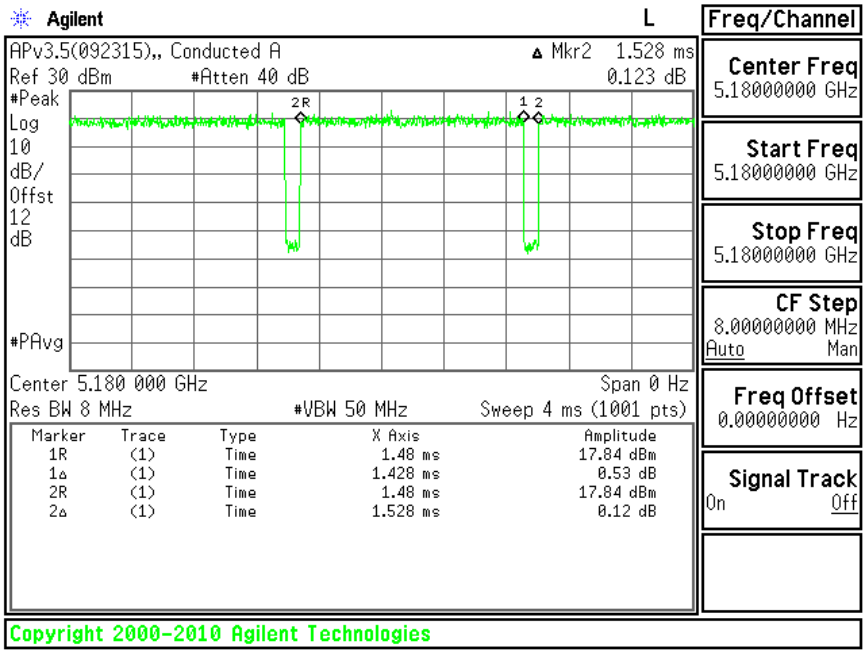
9.1.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11a CDD	1.428	1.528	0.935	93.46%	0.29	0.700
802.11n HT20 CDD	0.692	0.794	0.872	87.15%	0.60	1.445
802.11n HT40 CDD	0.3560	0.4550	0.782	78.24%	1.07	2.809
802.11ac VHT80 CDD	0.1920	0.2920	0.658	65.75%	1.82	5.208

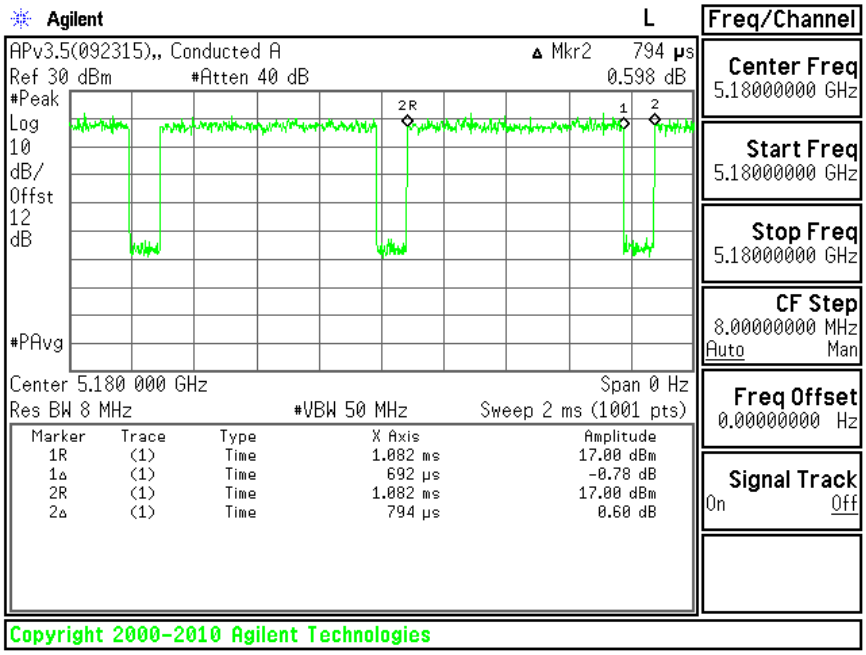
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

9.1.2. DUTY CYCLE PLOTS

DUTY CYCLE 802.11a CDD MODE

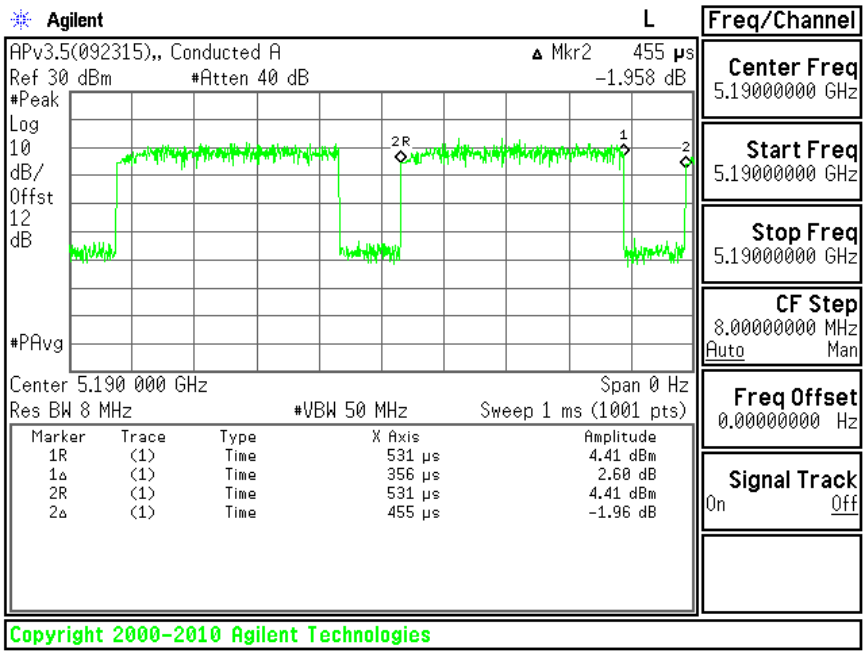


DUTY CYCLE 802.11n HT20 CDD MODE

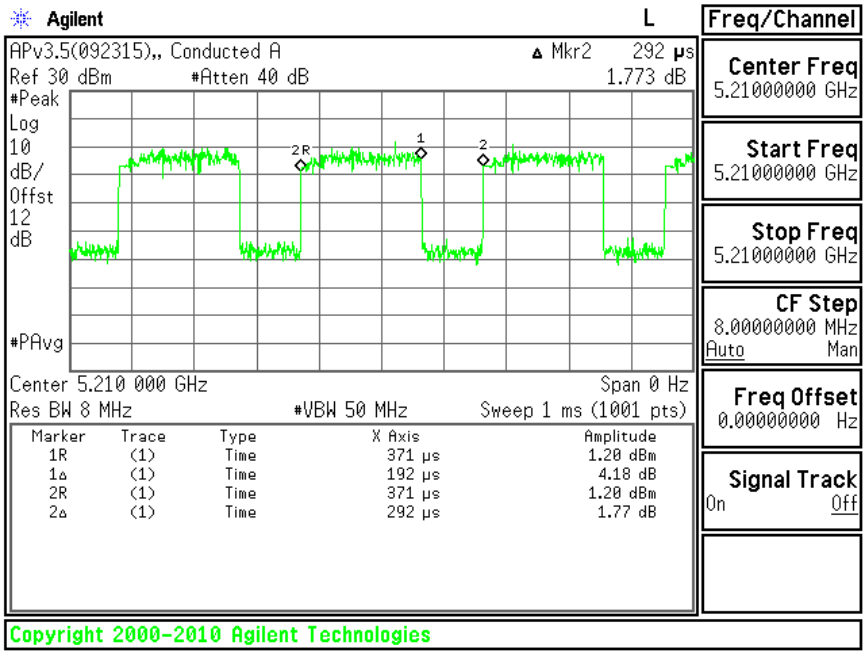


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

DUTY CYCLE 802.11n HT40 CDD MODE



DUTY CYCLE 802.11ac HT80 CDD MODE



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

9.2. 6 dB BANDWIDTH

LIMITS

FCC §15.407

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

TEST PROCEDURE

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

KDB Reference
662911 D01 Multiple Transmitter Output v02r01

RESULTS

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

9.2.1. 802.11a MODE IN THE 5.8 GHz BAND

Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
5745	16.425	16.350	0.5
5785	16.375	16.475	0.5
5825	16.200	16.350	0.5

9.2.1. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
5745	17.577	17.604	0.5
5785	17.577	17.604	0.5
5825	17.550	17.604	0.5

9.2.2. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
5755	36.080	36.355	0.5
5795	36.355	36.300	0.5

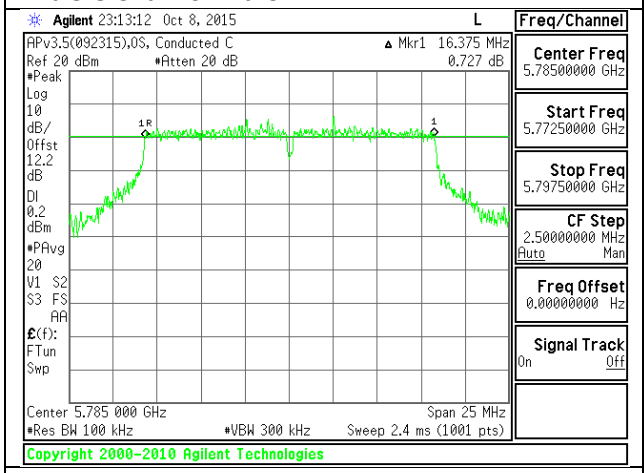
9.2.3. 802.11ac HT80 MODE IN THE 5.8 GHz BAND

Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
5775	75.58	76.13	0.5

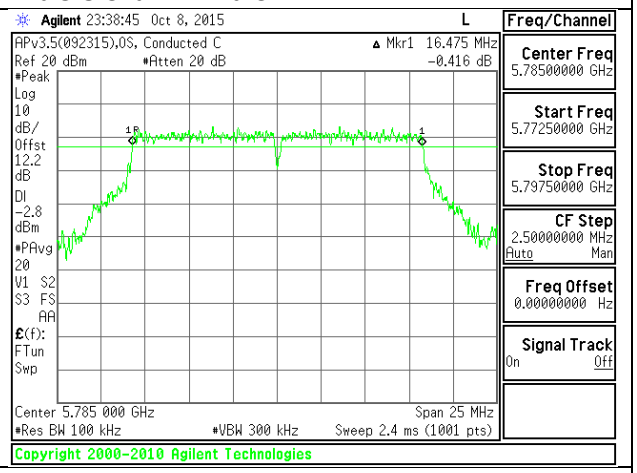
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

9.2.4. 6 dB BANDWIDTH PLOTS

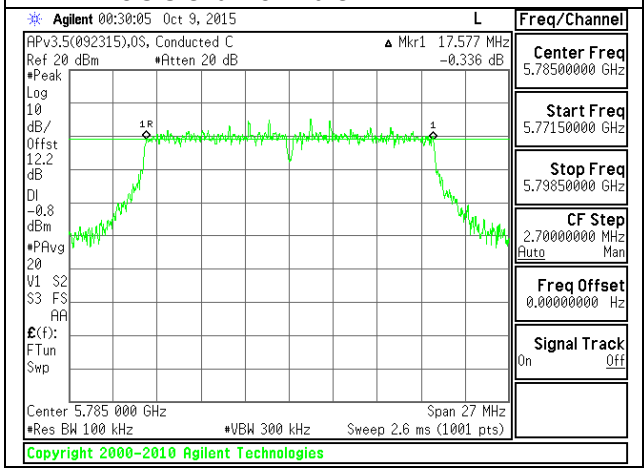
11a 5.8 Chain 0 Mid Ch



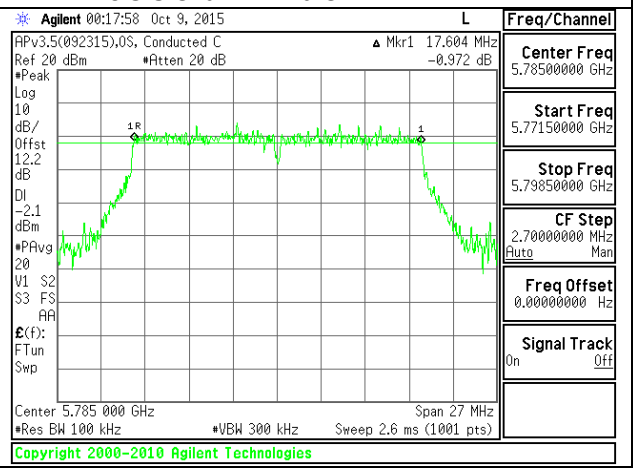
11a 5.8 Chain 1 Mid Ch



11n HT20 5.8 Chain 0 Mid Ch

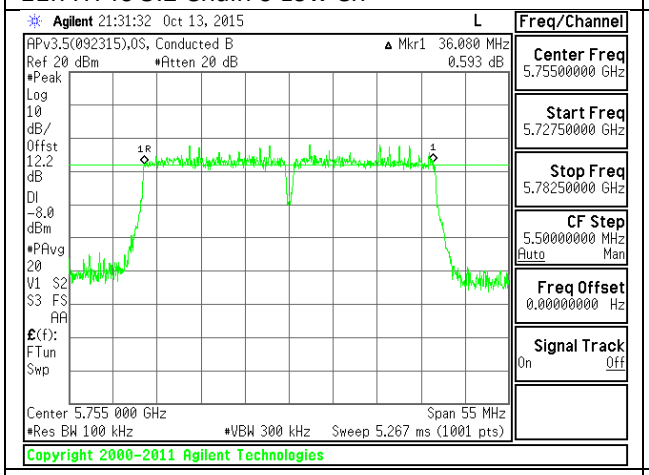


11n HT20 5.8 Chain 1 Mid Ch

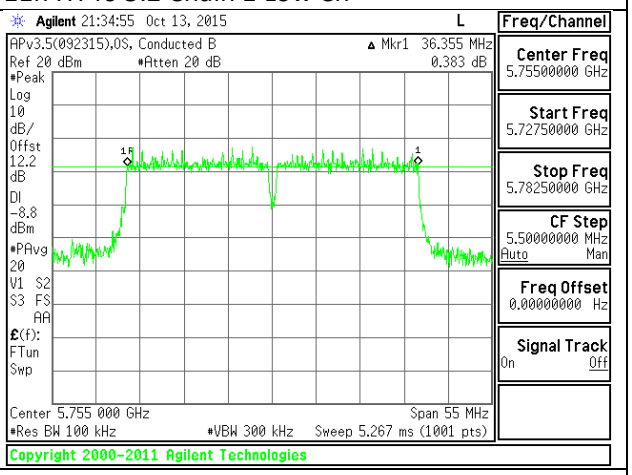


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

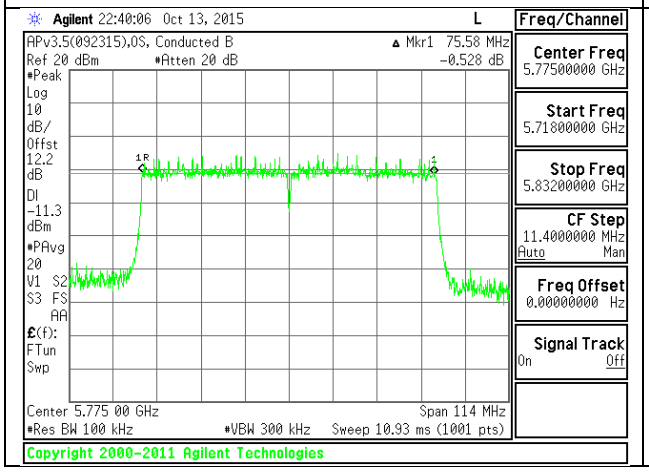
11n HT40 5.2 Chain 0 Low Ch



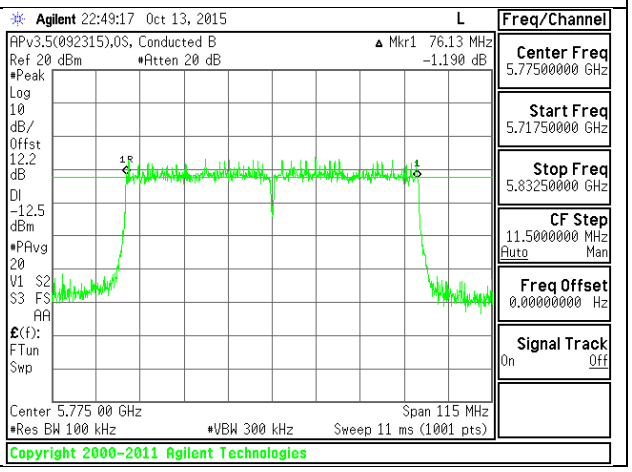
11n HT40 5.2 Chain 1 Low Ch



11ac HT80 5.2 Chain 0 Low Ch



11ac HT80 5.2 Chain 1 Low Ch



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

9.3. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

9.3.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5180	21.280	21.216
Mid	5200	21.088	21.648
High	5240	21.960	21.312

9.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5180	21.540	21.248
Mid	5200	24.300	21.184
High	5240	21.210	20.992

9.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5190	39.900	39.060
High	5230	39.360	38.700

9.3.4. 802.11ac HT80 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5210	81.840	80.344

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

9.3.5. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5260	20.832	21.184
Mid	5300	21.344	21.024
High	5320	21.344	21.408

9.3.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5260	21.152	20.896
Mid	5300	21.568	21.312
High	5320	21.408	21.120

9.3.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5270	39.360	39.180
High	5310	39.840	39.360

9.3.8. 802.11ac HT80 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5290	80.886	81.618

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

9.3.9. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5500	21.582	21.450
Mid	5580	20.553	21.024
High	5700	21.219	21.056

9.3.10. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5500	21.681	20.960
Mid	5580	21.216	21.152
High	5700	21.120	21.483

9.3.11. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5510	39.840	39.235
Mid	5550	39.900	38.940
High	5670	39.720	39.360

9.3.12. 802.11ac HT80 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5530	81.672	80.465

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

9.3.13. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5745	21.450	20.992
Mid	5785	21.384	21.184
High	5825	21.648	21.216

9.3.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5745	20.960	21.184
Mid	5785	21.312	20.896
High	5825	21.912	21.312

9.3.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5755	39.840	39.480
High	5795	39.960	39.235

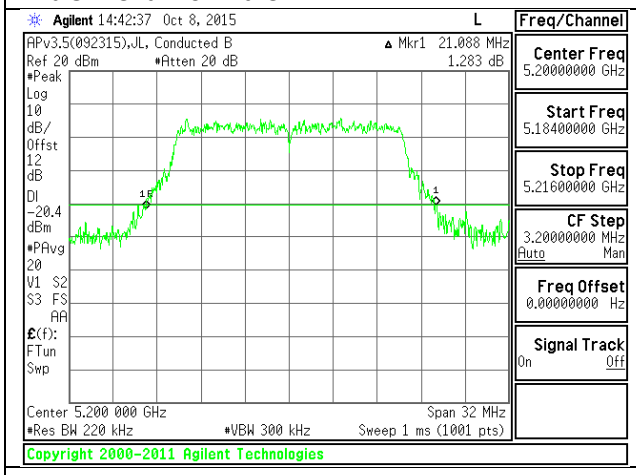
9.3.16. 802.11ac HT80 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	26 dB BW Chain 0 (MHz)	26 dB BW Chain 1 (MHz)
Low	5775	81.008	81.130

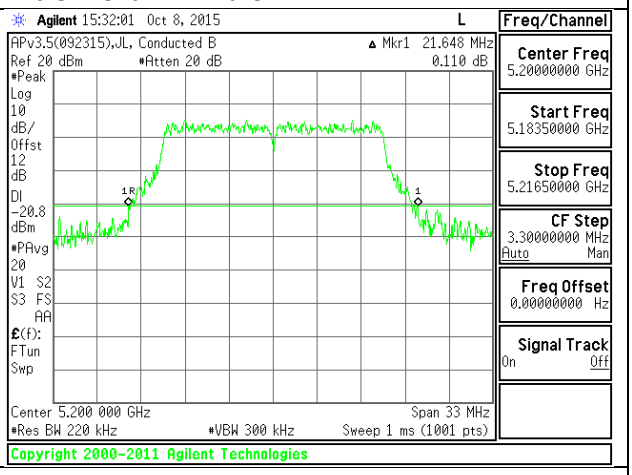
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

9.3.17. 26 dB BANDWIDTH PLOTS

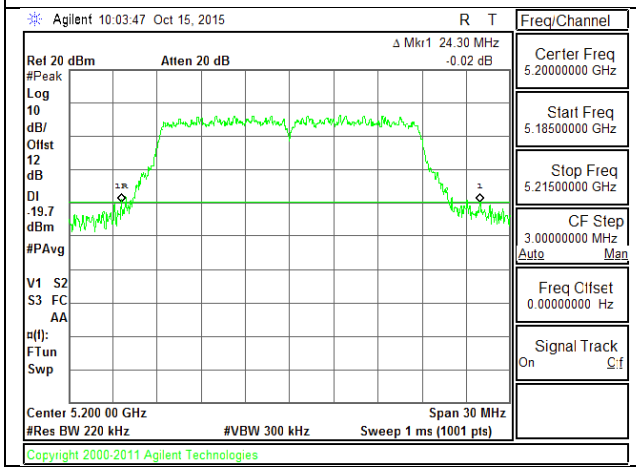
11a 5.2 Chain 0 Mid Ch



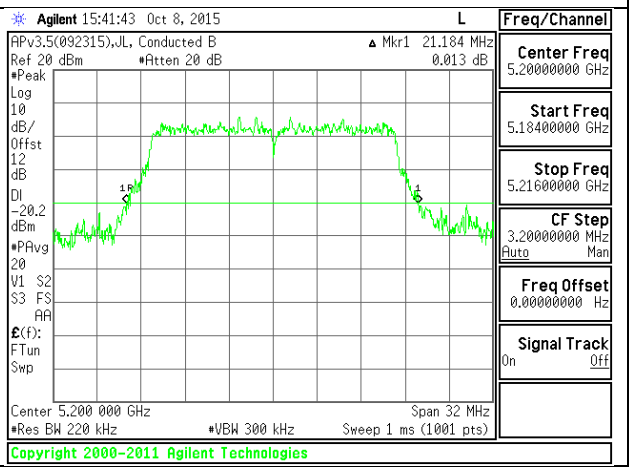
11a 5.2 Chain 1 Mid Ch



11n HT20 5.2 Chain 0 Mid Ch

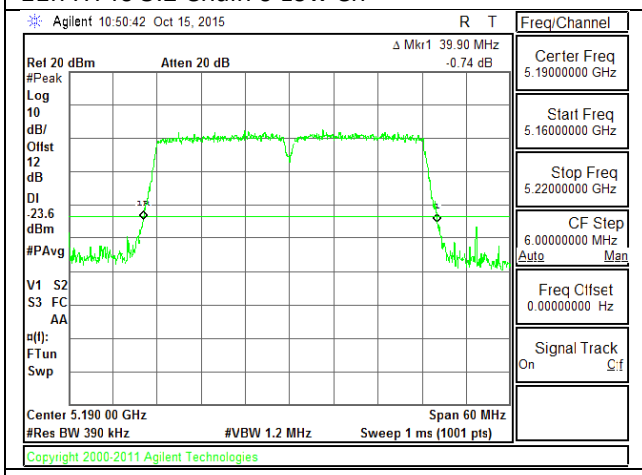


11n HT20 5.2 Chain 1 Mid Ch

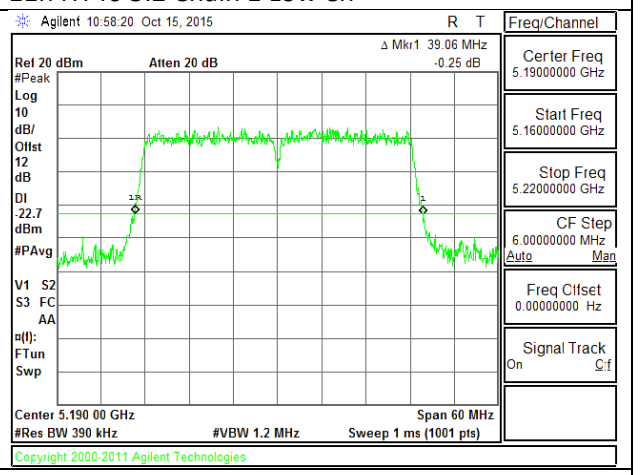


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

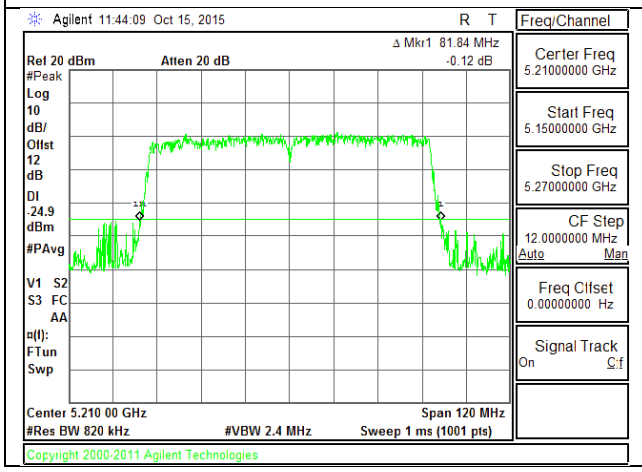
11n HT40 5.2 Chain 0 Low Ch



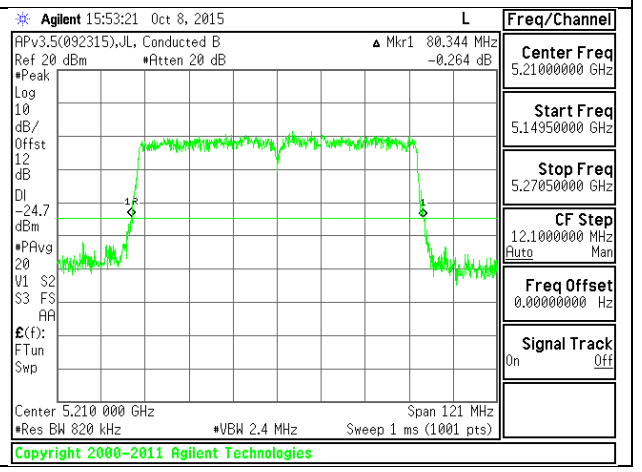
11n HT40 5.2 Chain 1 Low Ch



11ac HT80 5.2 Chain 0 Low Ch

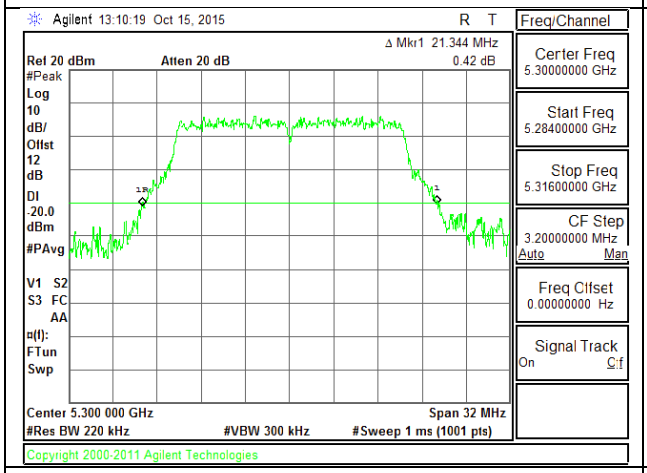


11ac HT80 5.2 Chain 1 Low Ch

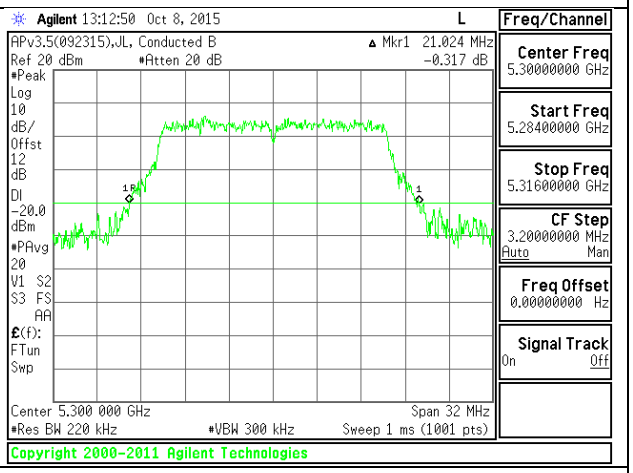


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

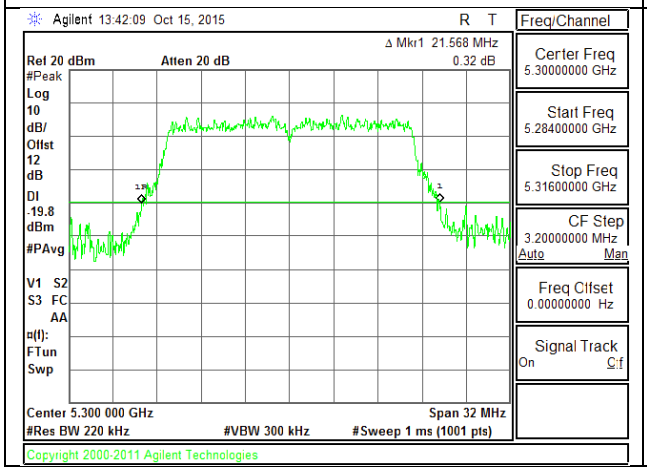
11a 5.3 Chain 0 Mid Ch



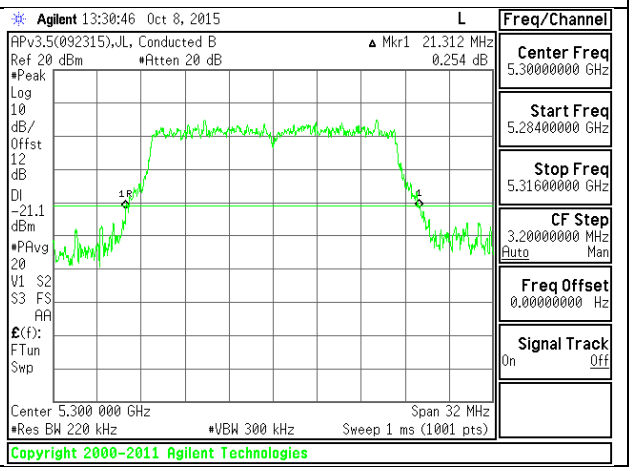
11a 5.3 Chain 1 Mid Ch



11n HT20 5.3 Chain 0 Mid Ch

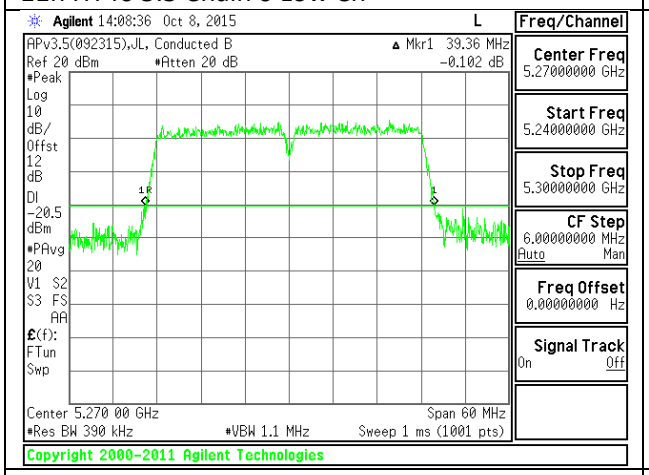


11n HT20 5.3 Chain 1 Mid Ch

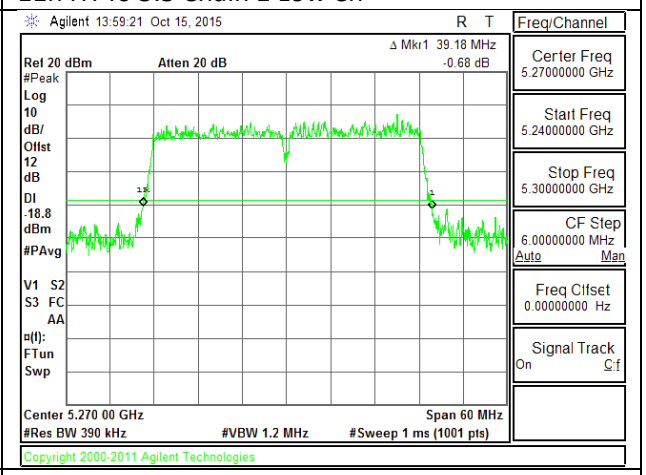


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

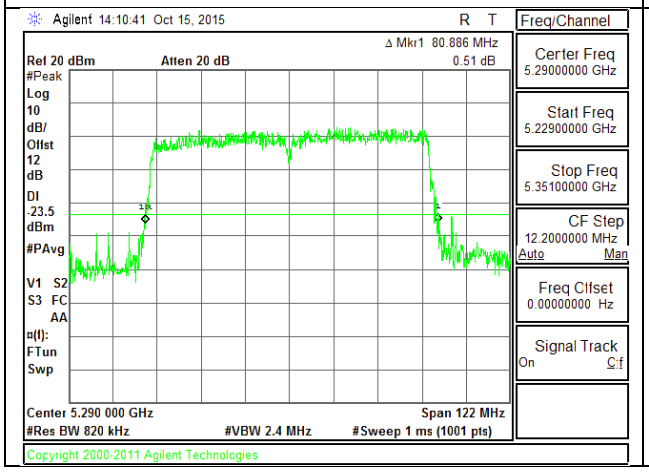
11n HT40 5.3 Chain 0 Low Ch



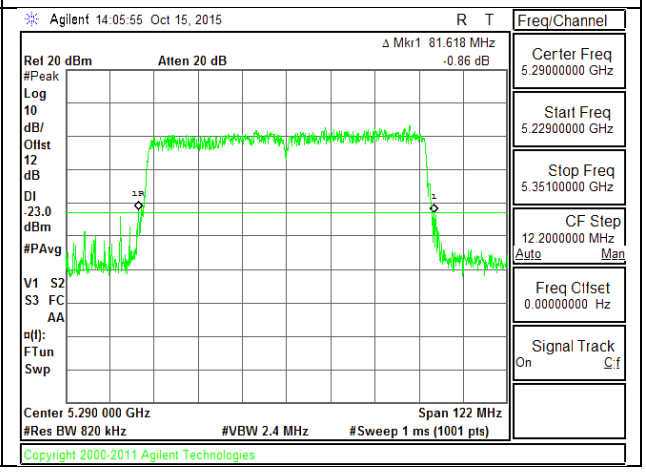
11n HT40 5.3 Chain 1 Low Ch



11ac HT80 5.3 Chain 0 Low Ch

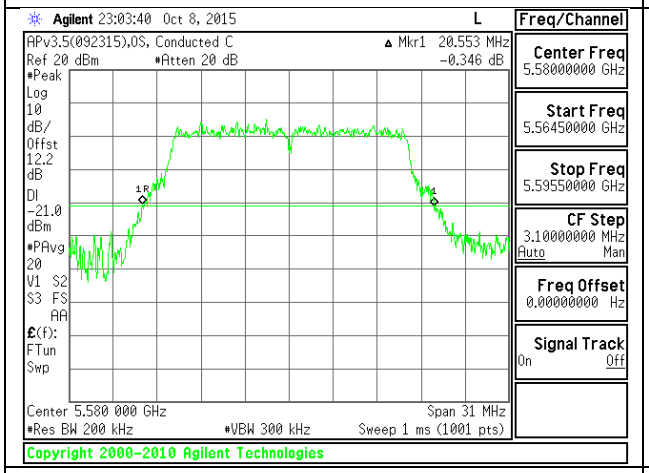


11ac HT80 5.3 Chain 1 Low Ch

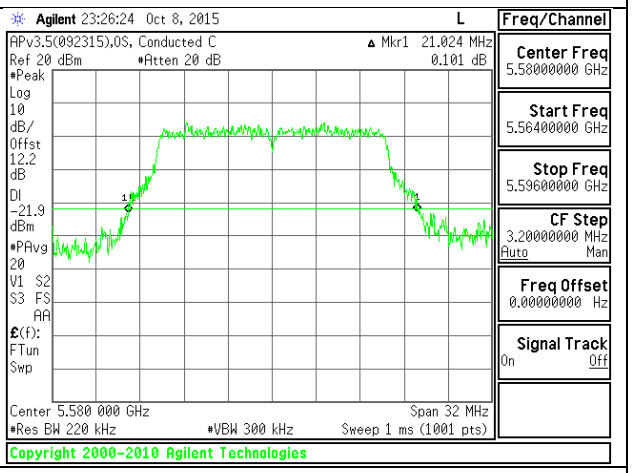


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

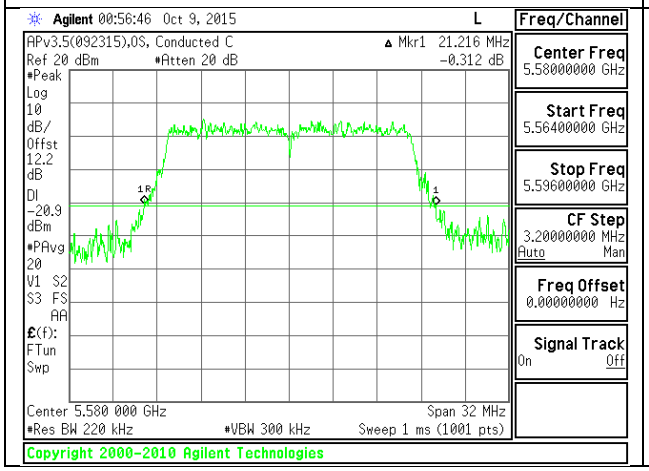
11a 5.5 Chain 0 Mid Ch



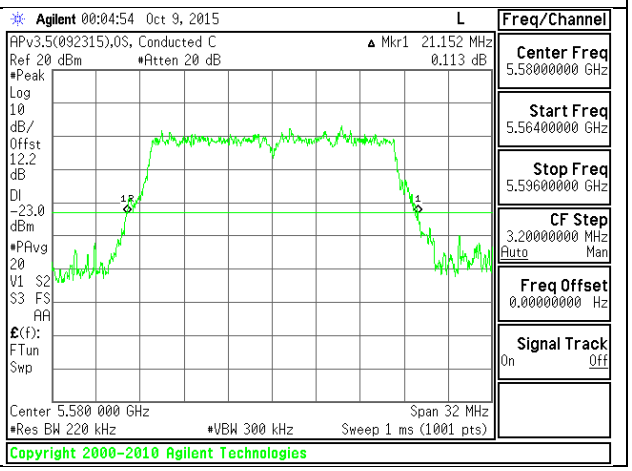
11a 5.5 Chain 1 Mid Ch



11n HT20 5.5 Chain 0 Mid Ch

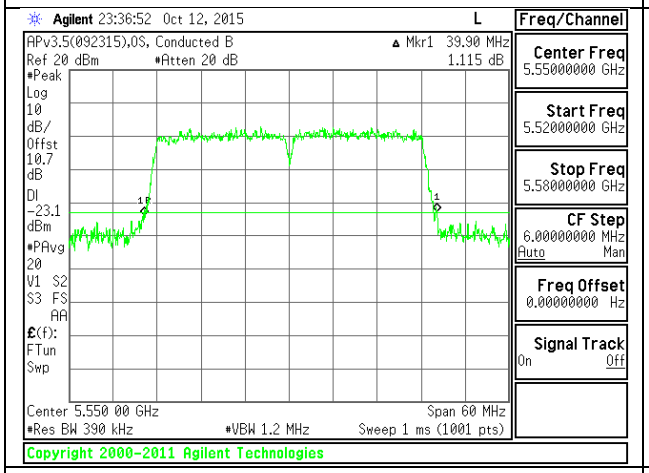


11n HT20 5.5 Chain 1 Mid Ch

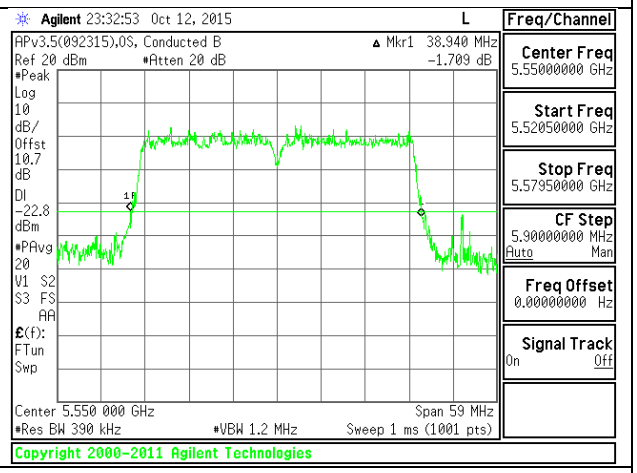


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

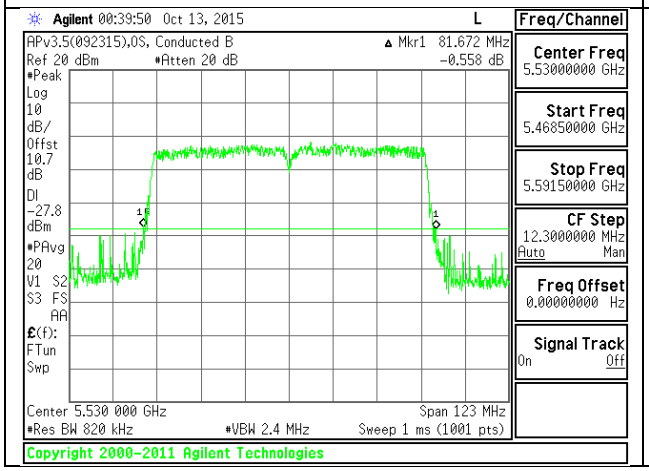
11n HT40 5.5 Chain 0 Mid Ch



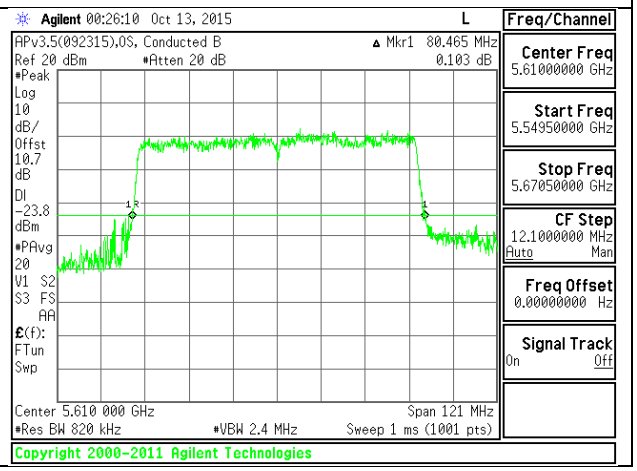
11n HT40 5.5 Chain 1 Mid Ch



11ac HT80 5.5 Chain 0 Low Ch

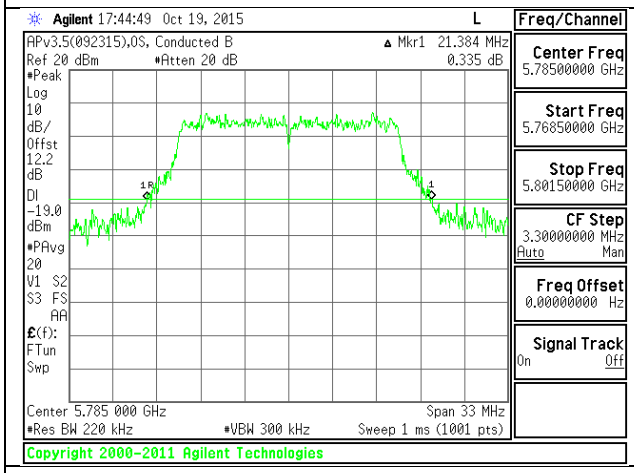


11ac HT80 5.5 Chain 1 Low Ch

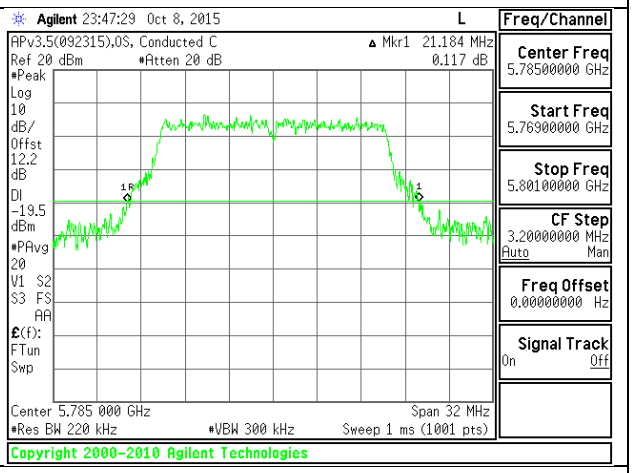


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

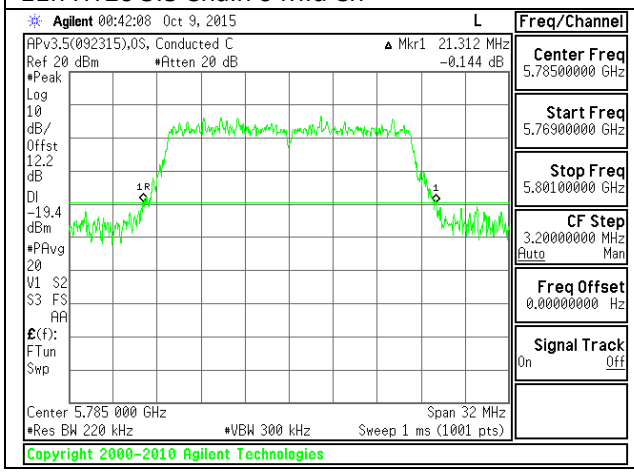
11a 5.8 Chain 0 Mid Ch



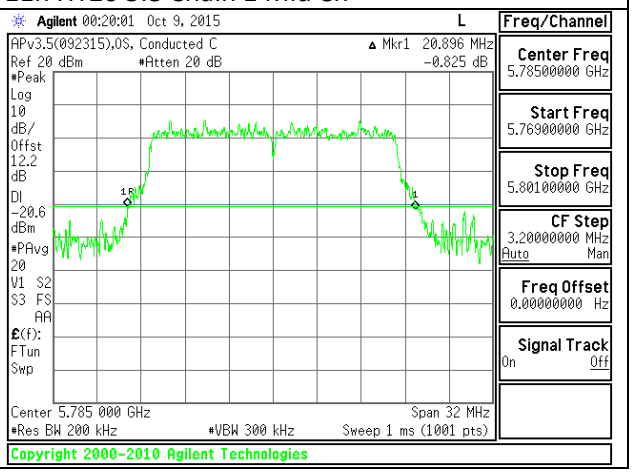
11a 5.8 Chain 1 Mid Ch



11n HT20 5.8 Chain 0 Mid Ch

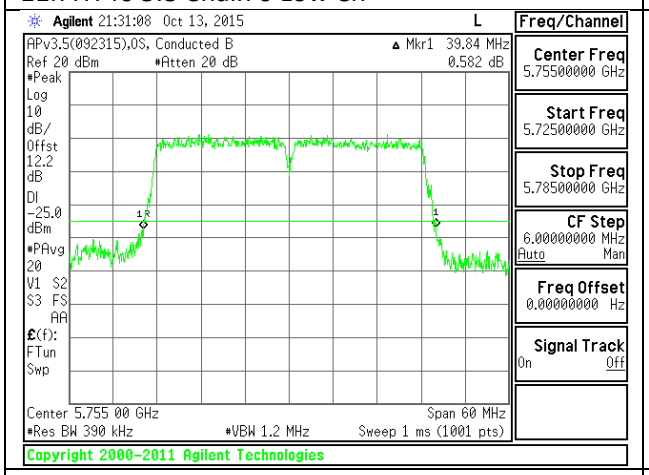


11n HT20 5.8 Chain 1 Mid Ch

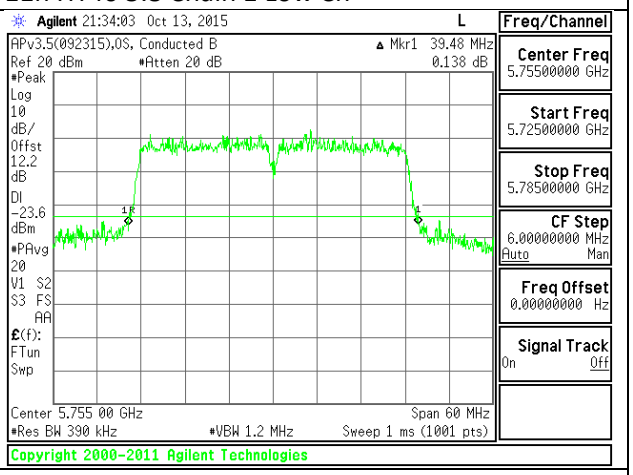


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

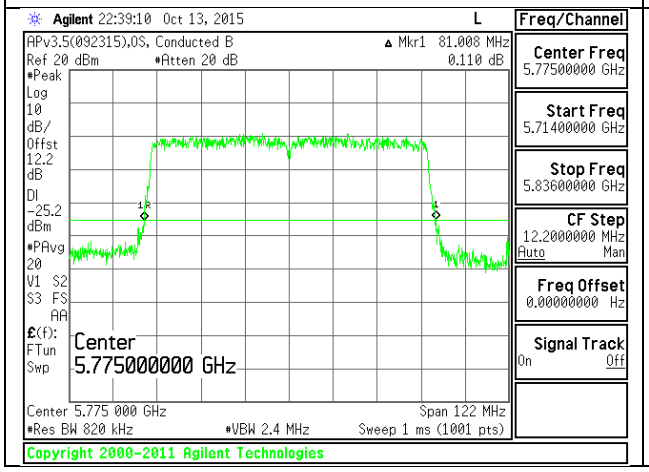
11n HT40 5.8 Chain 0 Low Ch



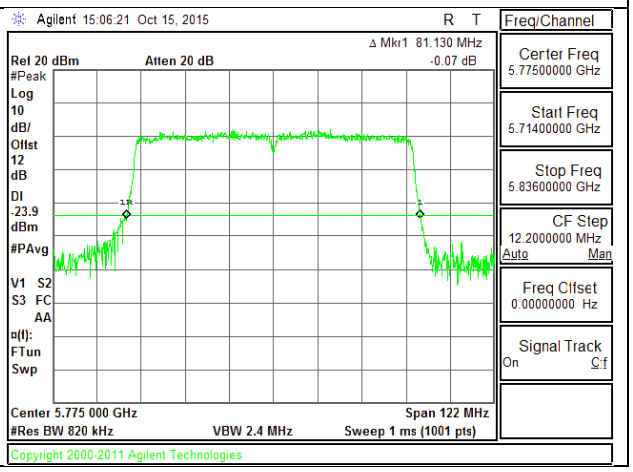
11n HT40 5.8 Chain 1 Low Ch



11ac HT80 5.8 Chain 0 Low Ch



11ac HT80 5.8 Chain 1 Low Ch



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

9.4. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

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

9.4.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5180	17.1276	16.9271
Mid	5200	17.1197	17.0540
High	5240	17.0817	17.1644

9.4.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5180	18.1809	17.9692
Mid	5200	18.2278	18.0491
High	5240	18.2950	18.0875

9.4.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5190	36.2645	36.3032
High	5230	36.4429	36.5460

9.4.4. 802.11ac HT80 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5210	75.7907	75.8500

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

9.4.5. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5260	17.0966	17.1076
Mid	5300	17.0474	17.1561
High	5320	17.1421	17.3395

9.4.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5260	18.0512	18.1161
Mid	5300	18.1413	18.0614
High	5320	18.0905	18.0425

9.4.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5270	36.3971	36.4670
High	5310	36.3307	36.5200

9.4.8. 802.11ac HT80 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5290	75.8437	75.8387

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

9.4.9. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5500	16.5813	16.9014
Mid	5580	16.7922	16.8107
High	5700	16.8408	16.7360

9.4.10. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5500	17.9366	17.8380
Mid	5580	17.8089	17.7798
High	5700	18.1656	17.7684

9.4.11. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5510	36.2842	36.3641
Mid	5550	36.3829	36.3305
High	5670	36.3914	36.3754

9.4.12. 802.11ac HT80 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5530	75.9635	75.8669

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

9.4.13. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% Chain 1 (MHz)
Low	5745	16.8094	16.9777
Mid	5785	16.6619	16.7283
High	5825	16.9096	16.7513

9.4.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5745	17.8198	18.0476
Mid	5785	17.9141	18.0644
High	5825	17.8968	17.8383

9.4.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5755	36.4063	36.3985
High	5795	36.4938	36.3541

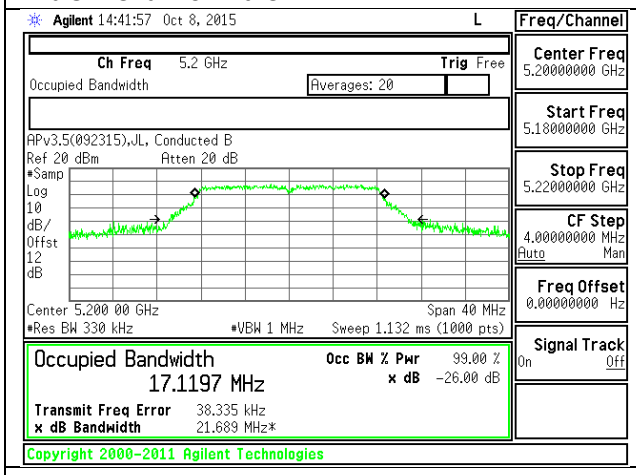
9.4.16. 802.11ac HT80 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)
Low	5775	75.2094	75.1104

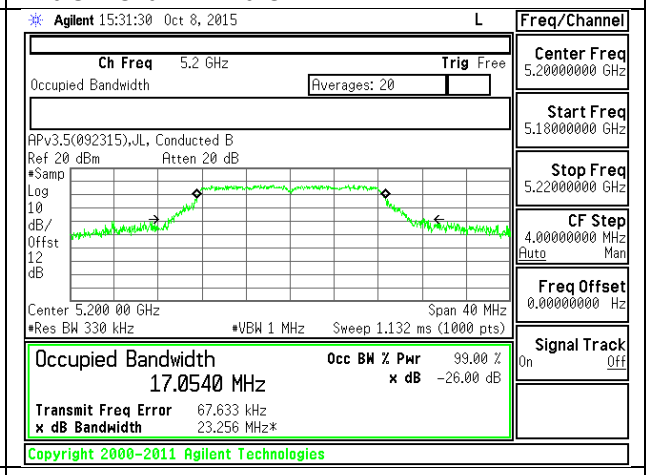
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

9.4.17. 26 dB BANDWIDTH PLOTS

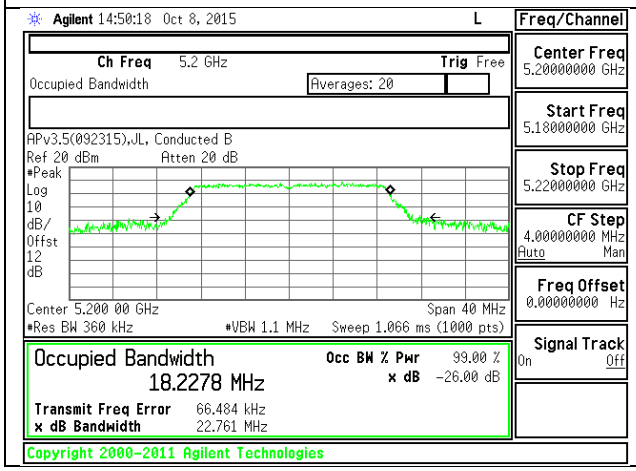
11a 5.2 Chain 0 Mid Ch



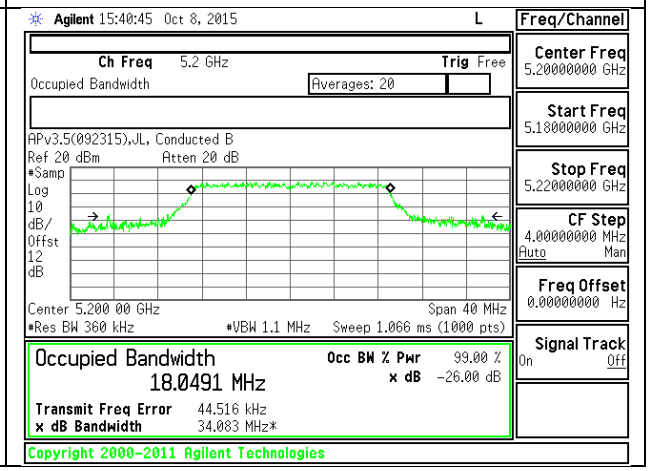
11a 5.2 Chain 1 Mid Ch



11n HT20 5.2 Chain 0 Mid Ch

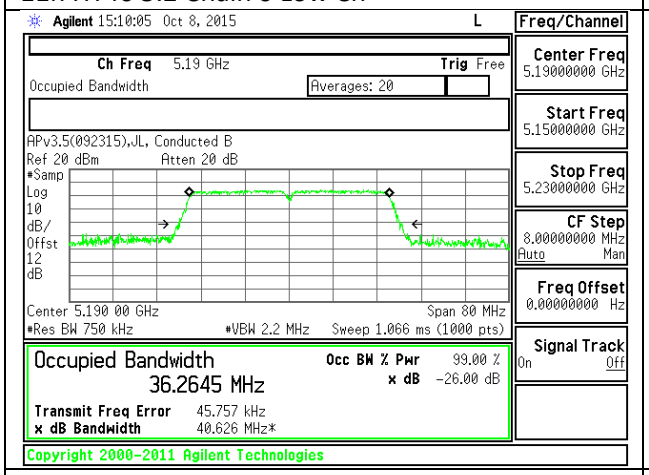


11n HT20 5.2 Chain 1 Mid Ch

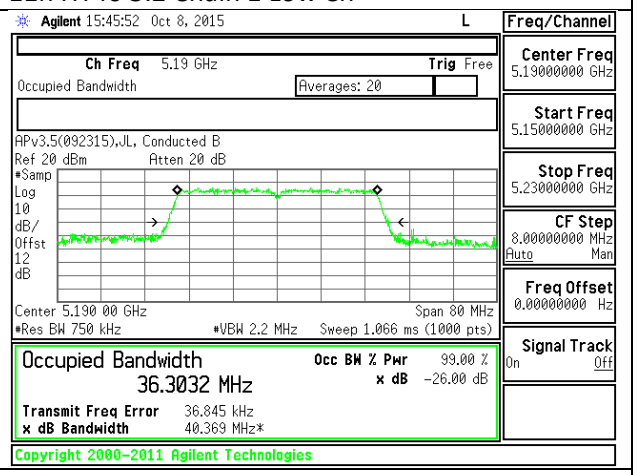


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

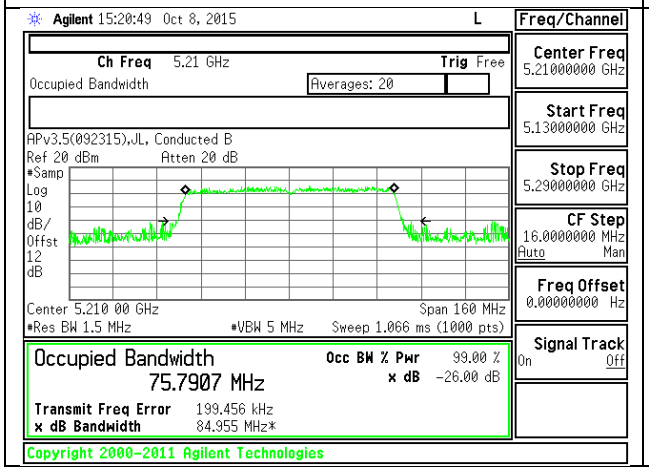
11n HT40 5.2 Chain 0 Low Ch



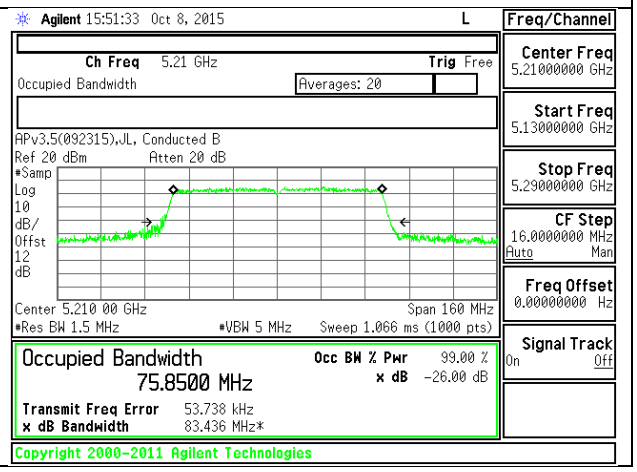
11n HT40 5.2 Chain 1 Low Ch



11ac HT80 5.2 Chain 0 Low Ch

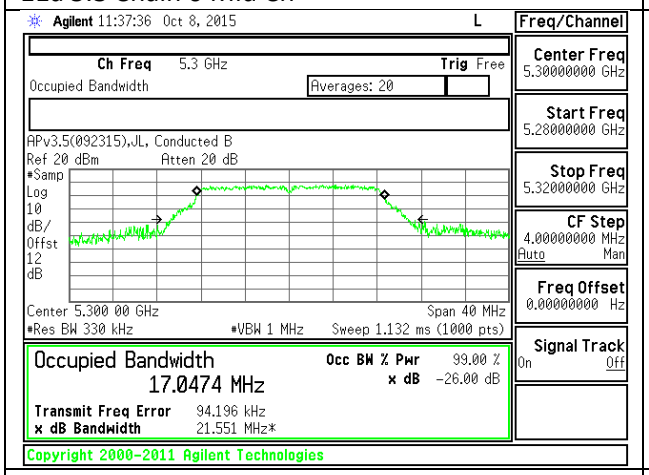


11ac HT80 5.2 Chain 1 Low Ch

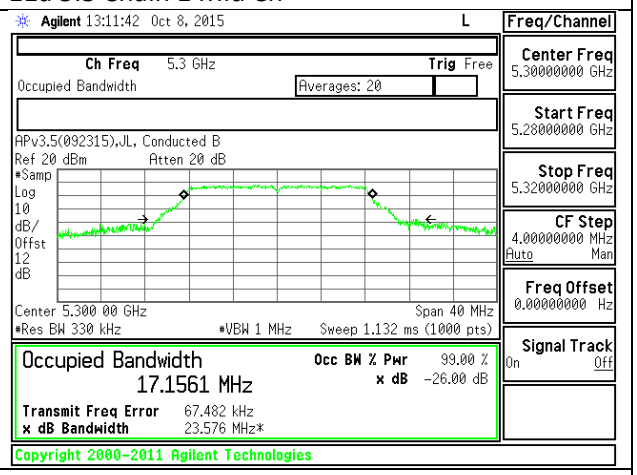


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

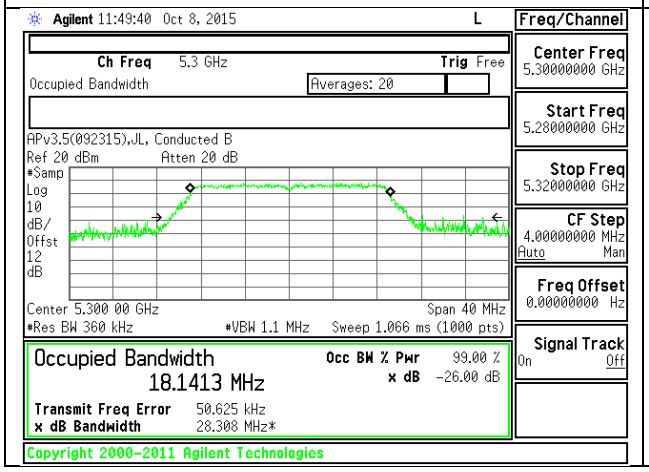
11a 5.3 Chain 0 Mid Ch



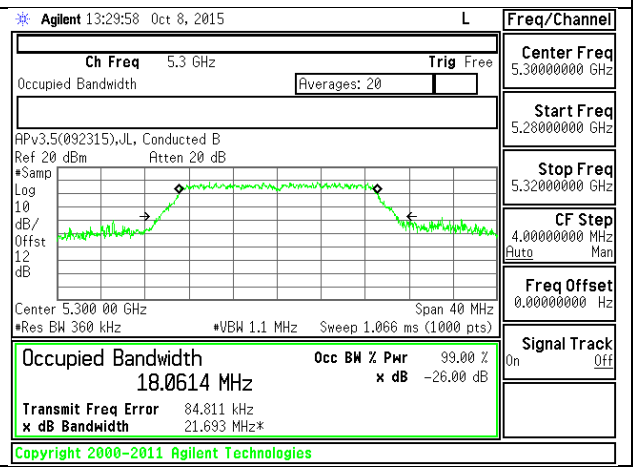
11a 5.3 Chain 1 Mid Ch



11n HT20 5.3 Chain 0 Mid Ch

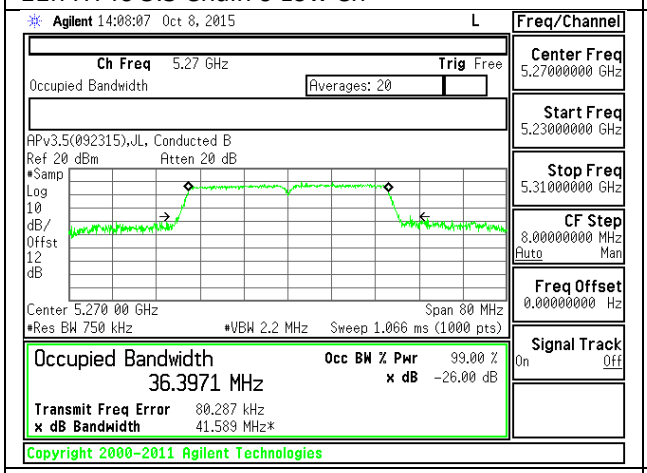


11n HT20 5.3 Chain 1 Mid Ch

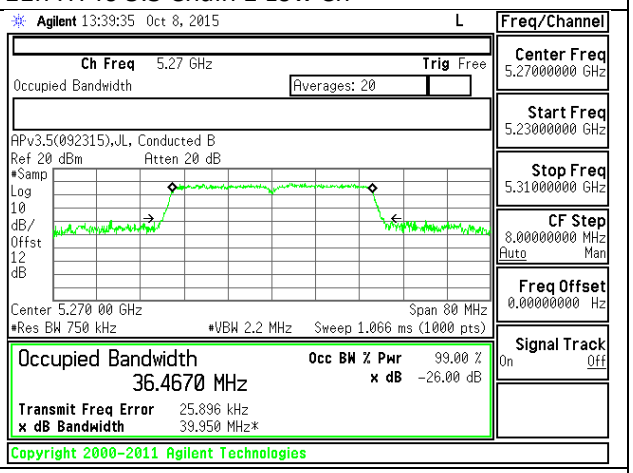


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

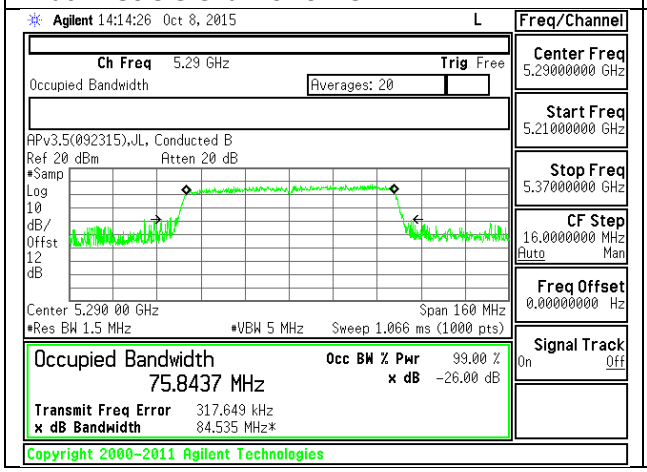
11n HT40 5.3 Chain 0 Low Ch



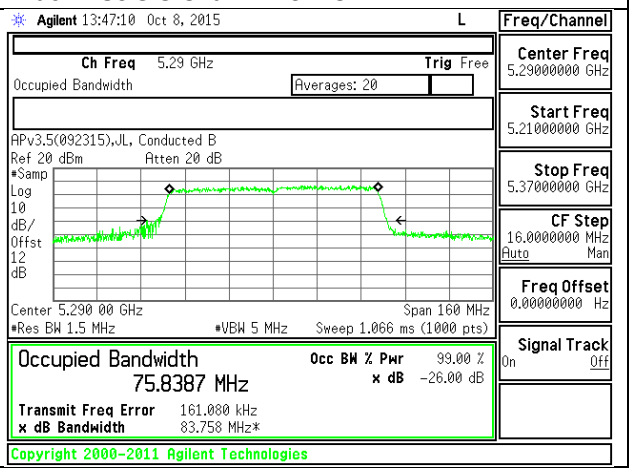
11n HT40 5.3 Chain 1 Low Ch



11ac HT80 5.3 Chain 0 Low Ch

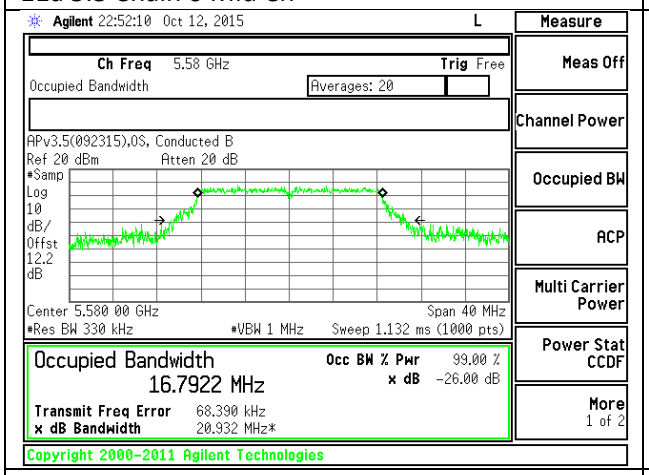


11ac HT80 5.3 Chain 1 Low Ch

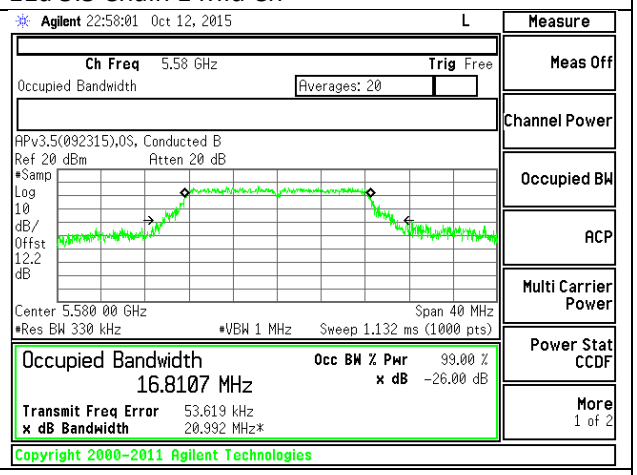


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

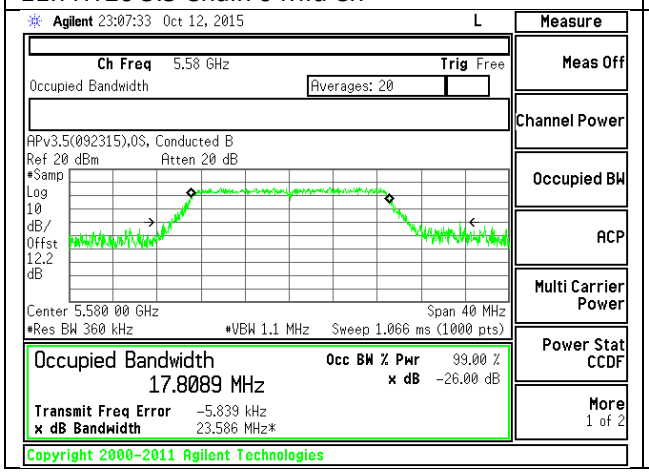
11a 5.5 Chain 0 Mid Ch



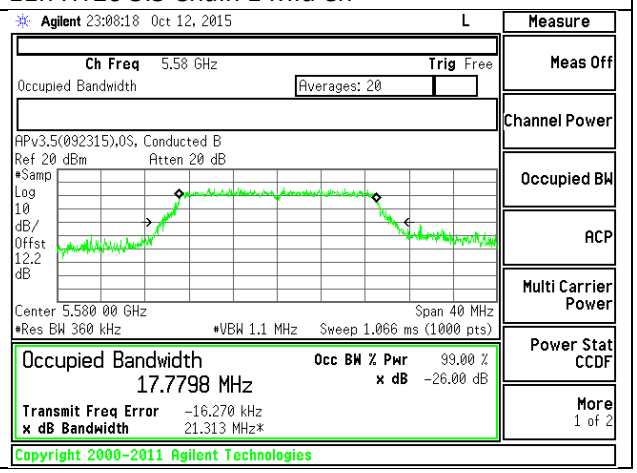
11a 5.5 Chain 1 Mid Ch



11n HT20 5.5 Chain 0 Mid Ch

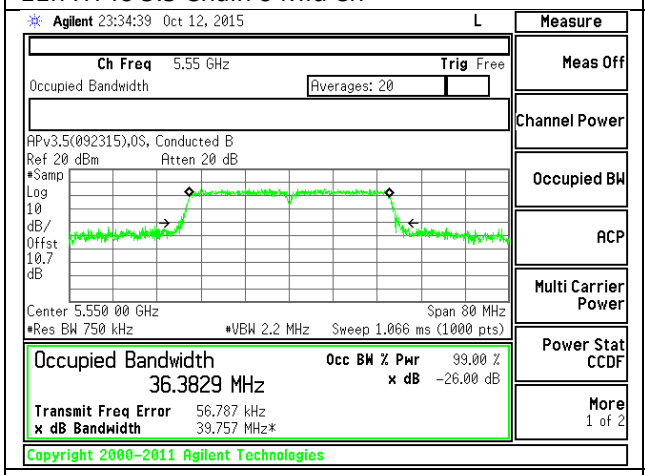


11n HT20 5.5 Chain 1 Mid Ch

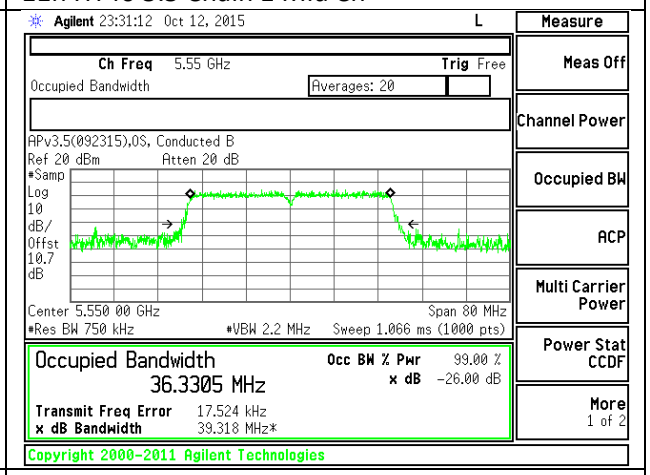


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

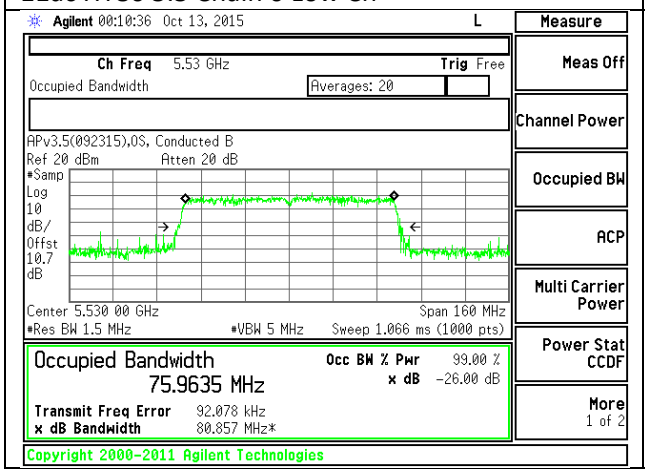
11n HT40 5.5 Chain 0 Mid Ch



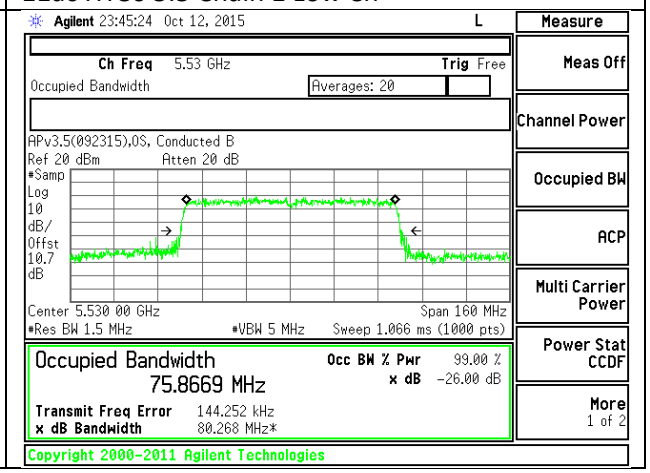
11n HT40 5.5 Chain 1 Mid Ch



11ac HT80 5.5 Chain 0 Low Ch

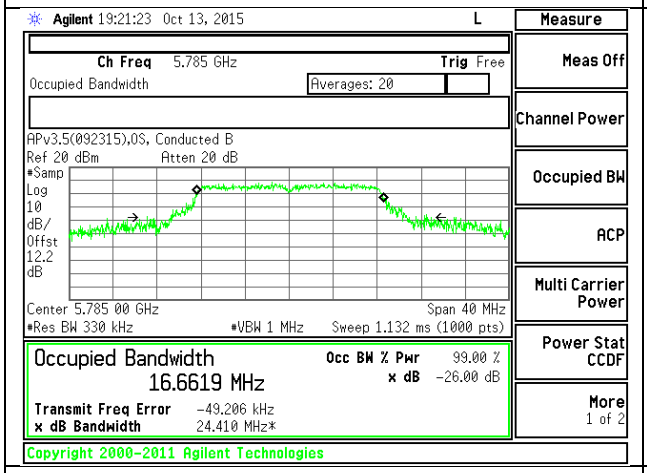


11ac HT80 5.5 Chain 1 Low Ch

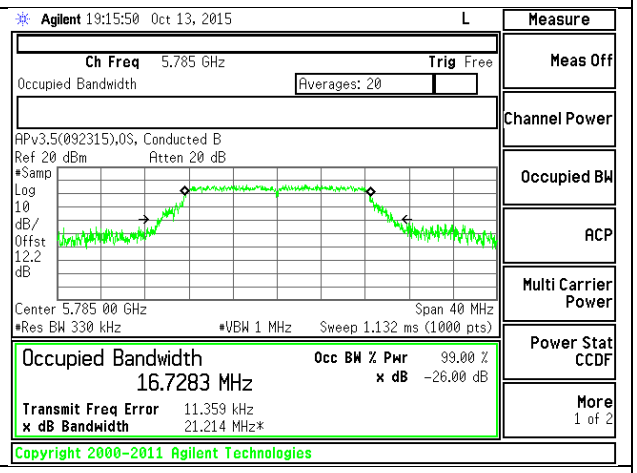


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

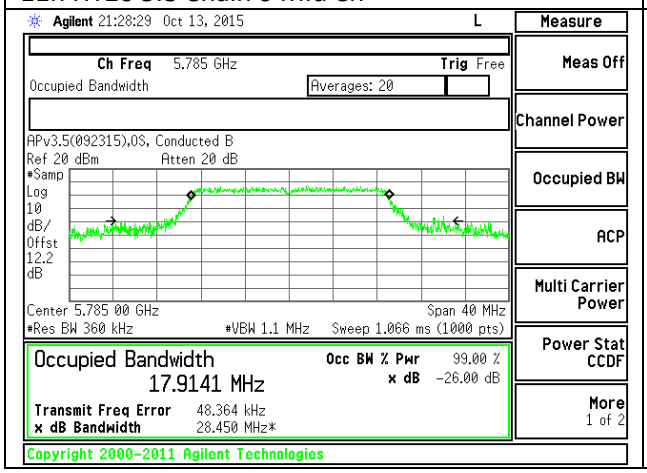
11a 5.8 Chain 0 Mid Ch



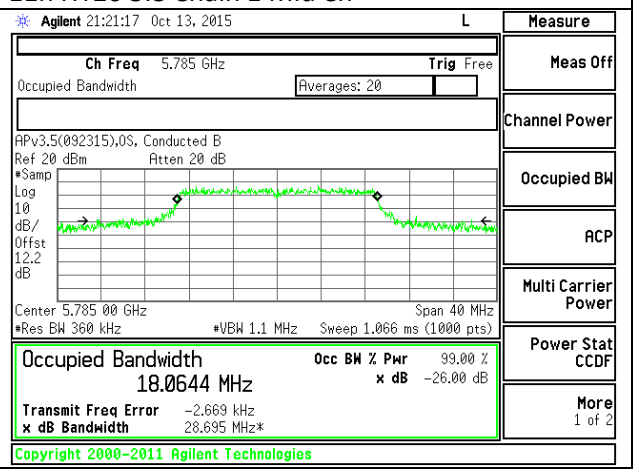
11a 5.8 Chain 1 Mid Ch



11n HT20 5.8 Chain 0 Mid Ch

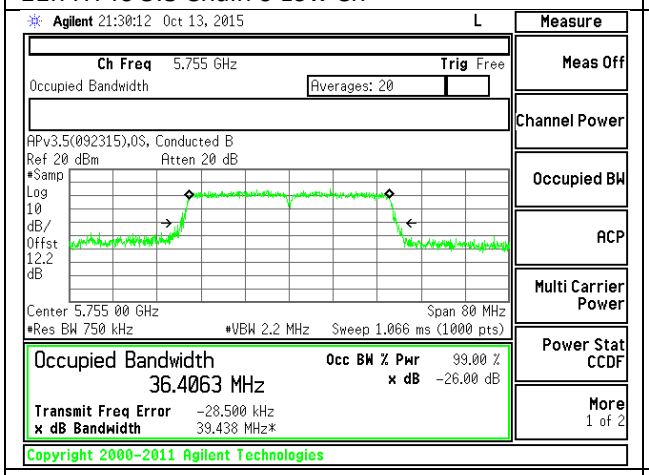


11n HT20 5.8 Chain 1 Mid Ch

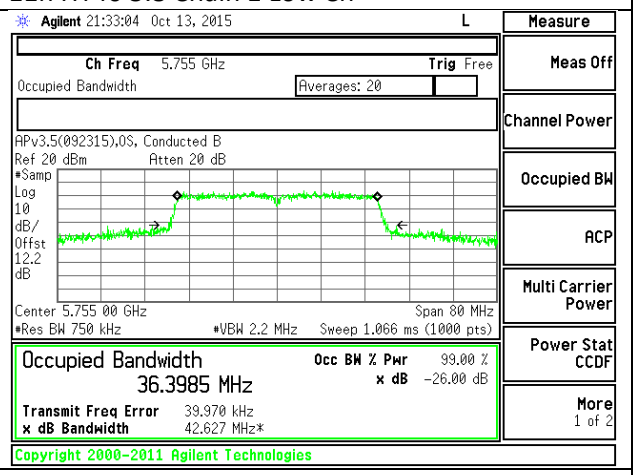


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

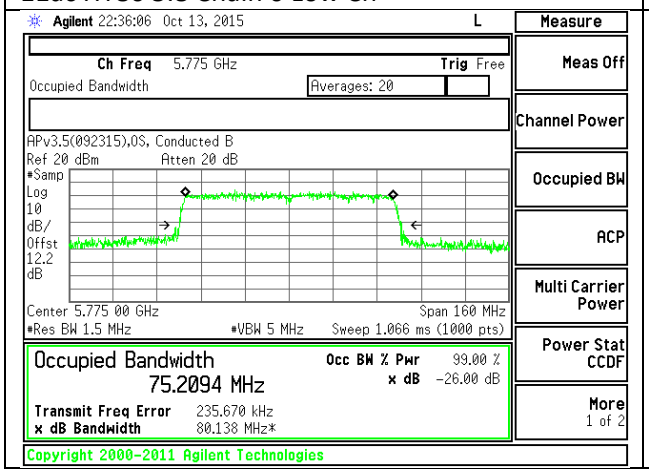
11n HT40 5.8 Chain 0 Low Ch



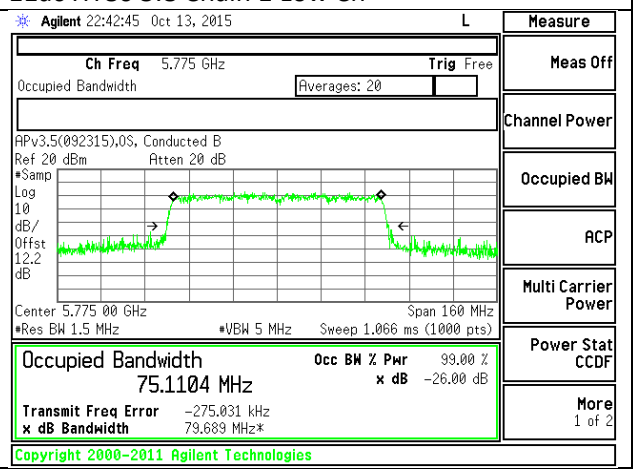
11n HT40 5.8 Chain 1 Low Ch



11ac HT80 5.8 Chain 0 Low Ch



11ac HT80 5.8 Chain 1 Low Ch



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

9.5. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

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.

RSS-247

Band 5150-5250 MHz:
The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Band 5250-5350 MHz:
The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Bands 5470-5600 MHz and 5650-5725 MHz:
The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Band 5725-5850 MHz:
The maximum conducted output power shall not exceed 1 W. The 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 power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

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

DIRECTIONAL ANTENNA GAIN

For Power and PSD, the TX chains are correlated and the antenna gain is the same for each chain. The directional gain is:

5150-5250 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.49	3.01	8.50

5250-5350 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
5.57	3.01	8.58

5470-5725 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
4.84	3.01	7.85

5725-5850 MHz

Antenna Gain (dBi)	10 * Log (2 chains) (dB)	Correlated Chains Directional Gain (dBi)
1.99	3.01	5.00

RESULTS

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

9.5.1. 802.11a SISO MODE IN THE 5.2 GHz BAND (Chain 0)

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	21.280	17.1276	5.49
Mid	5200	21.088	17.1197	5.49
High	5240	21.960	17.0817	5.49

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	24.00	22.34	16.85	16.85	11.00	10.00	4.51
Mid	5200	24.00	22.33	16.84	16.84	11.00	10.00	4.51
High	5240	24.00	22.33	16.84	16.84	11.00	10.00	4.51

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

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	14.00	14.00	16.85	-2.85
Mid	5200	14.10	14.10	16.84	-2.74
High	5240	14.20	14.20	16.84	-2.64

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	3.164	3.45	4.51	-1.06
Mid	5200	3.242	3.53	4.51	-0.98
High	5240	3.747	4.04	4.51	-0.47

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.2. 802.11a SISO MODE IN THE 5.2 GHz BAND (Chain 1)

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	21.2160	16.9271	5.49
Mid	5200	21.6480	17.0540	5.49
High	5240	21.3120	17.1644	5.49

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	24.00	22.29	16.80	16.80	11.00	10.00	4.51
Mid	5200	24.00	22.32	16.83	16.83	11.00	10.00	4.51
High	5240	24.00	22.35	16.86	16.86	11.00	10.00	4.51

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

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	14.20	14.20	16.80	-2.60
Mid	5200	13.90	13.90	16.83	-2.93
High	5240	13.90	13.90	16.86	-2.96

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	3.209	3.50	4.51	-1.01
Mid	5200	2.843	3.13	4.51	-1.38
High	5240	2.943	3.23	4.51	-1.28

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.3. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5180	21.2480	17.9692	8.50	8.50
Mid	5200	21.1840	18.0491	8.50	8.50
High	5240	20.9920	18.0875	8.50	8.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	24.00	22.55	14.05	14.05	8.50	10.00	1.50
Mid	5200	24.00	22.56	14.06	14.06	8.50	10.00	1.50
High	5240	24.00	22.57	14.07	14.07	8.50	10.00	1.50

Duty Cycle CF (dB)	0.60	**Included in Calculations of Corr'd PPSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	8.80	8.20	11.52	14.05	-2.52
Mid	5200	9.10	8.10	11.64	14.06	-2.43
High	5240	8.70	7.90	11.33	14.07	-2.75

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	-2.613	-3.080	0.77	1.50	-0.73
Mid	5200	-2.358	-3.148	0.88	1.50	-0.62
High	5240	-2.491	-3.644	0.58	1.50	-0.92

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.4. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5190	39.0600	32.2645	8.50	8.50
High	5230	38.7000	36.4429	8.50	8.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5190	24.00	23.00	14.50	14.50	8.50	10.00	1.50
High	5230	24.00	23.00	14.50	14.50	8.50	10.00	1.50

Duty Cycle CF (dB)	1.07	Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	10.90	10.80	13.86	14.50	-0.64
High	5230	11.50	10.50	14.04	14.50	-0.46

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-3.407	-3.664	0.55	1.50	-0.95
High	5230	-2.598	-3.584	1.02	1.50	-0.48

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.5. 802.11ac HT80 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5210	80.3440	75.7907	8.50	8.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5210	24.00	23.00	14.50	14.50	8.50	10.00	1.50

Duty Cycle CF (dB)	1.82	Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5210	11.50	10.90	14.22	14.50	-0.28

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5210	-7.377	-7.839	-2.77	1.50	-4.27

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.6. 802.11a SISO MODE IN THE 5.3 GHz BAND (Chain 0)

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	20.8320	17.0966	5.57
Mid	5300	21.3440	17.0474	5.57
High	5320	21.3440	17.1421	5.57

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.33	29.33	23.33	11.00	11.00	11.00
Mid	5300	24.00	23.32	29.32	23.32	11.00	11.00	11.00
High	5320	24.00	23.34	29.34	23.34	11.00	11.00	11.00

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

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	17.00	17.00	23.33	-6.33
Mid	5300	16.72	16.72	23.32	-6.60
High	5320	16.50	16.50	23.34	-6.84

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	5.207	5.50	11.00	-5.50
Mid	5300	5.144	5.43	11.00	-5.57
High	5320	5.049	5.34	11.00	-5.66

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.8. 802.11a SISO MODE IN THE 5.3 GHz BAND (Chain 1)

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	21.184	17.1076	5.57
Mid	5300	21.024	17.1561	5.57
High	5320	21.408	17.3395	5.57

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.33	29.33	23.33	11.00	11.00	11.00
Mid	5300	24.00	23.34	29.34	23.34	11.00	11.00	11.00
High	5320	24.00	23.39	29.39	23.39	11.00	11.00	11.00

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

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	13.48	13.48	23.33	-9.85
Mid	5300	16.08	16.08	23.34	-7.26
High	5320	16.18	16.18	23.39	-7.21

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	5.344	5.63	11.00	-5.37
Mid	5300	5.044	5.33	11.00	-5.67
High	5320	5.110	5.40	11.00	-5.60

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.9. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5260	20.8960	18.0512	8.58	8.58
Mid	5300	21.3120	18.0614	8.58	8.58
High	5320	21.1200	18.0425	8.58	8.58

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	21.42	23.57	29.57	20.99	8.42	11.00	8.42
Mid	5300	21.42	23.57	29.57	20.99	8.42	11.00	8.42
High	5320	21.42	23.56	29.56	20.98	8.42	11.00	8.42

Duty Cycle CF (dB)	0.60	Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	16.94	15.50	19.29	20.99	-1.70
Mid	5300	16.71	15.52	19.17	20.99	-1.82
High	5320	16.40	15.60	19.03	20.98	-1.95

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	4.604	3.485	7.69	8.42	-0.73
Mid	5300	4.281	3.600	7.56	8.42	-0.86
High	5320	4.508	3.746	7.75	8.42	-0.67

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.10. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5270	39.18	36.3971	8.58	8.58
High	5310	39.36	36.3307	8.58	8.58

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5270	21.42	24.00	30.00	21.42	8.42	11.00	8.42
High	5310	21.42	24.00	30.00	21.42	8.42	11.00	8.42

Duty Cycle CF (dB)	1.07	**Included in Calculations of Corr'd PPSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	16.40	15.10	18.81	21.42	-2.61
High	5310	14.40	13.80	17.12	21.42	-4.30

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	1.016	-0.148	4.55	8.42	-3.87
High	5310	-0.588	-1.565	3.03	8.42	-5.39

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.11. 802.11ac HT80 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5290	80.89	75.8387	8.58	8.58

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5290	21.42	24.00	30.00	21.42	8.42	11.00	8.42

Duty Cycle CF (dB)	1.82	Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5290	13.20	12.60	15.92	21.42	-5.50

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5290	-5.417	-6.327	-1.02	8.42	-9.44

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.12. 802.11a SISO MODE IN THE 5.5 GHz BAND (Chain 0)

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	21.582	16.5813	4.84
Mid	5580	20.553	16.7922	4.84
High	5700	21.219	16.8408	4.84

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.20	29.20	23.20	11.00	11.00	11.00
Mid	5580	24.00	23.25	29.25	23.25	11.00	11.00	11.00
High	5700	24.00	23.26	29.26	23.26	11.00	11.00	11.00

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

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	17.32	17.32	23.20	-5.88
Mid	5580	16.16	16.16	23.25	-7.09
High	5700	16.16	16.16	23.26	-7.10

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	7.000	7.29	11.00	-3.71
Mid	5580	6.479	6.77	11.00	-4.23
High	5700	6.458	6.75	11.00	-4.25

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.13. 802.11a SISO MODE IN THE 5.5 GHz BAND (Chain 1)

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	21.450	16.9014	4.84
Mid	5580	21.024	16.8107	4.84
High	5700	21.056	16.7360	4.84

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.28	29.28	23.28	11.00	11.00	11.00
Mid	5580	24.00	23.26	29.26	23.26	11.00	11.00	11.00
High	5700	24.00	23.24	29.24	23.24	11.00	11.00	11.00

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

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	16.79	16.79	23.28	-6.49
Mid	5580	15.94	15.94	23.26	-7.32
High	5700	12.20	12.20	23.24	-11.04

PPSD Results

Channel	Frequency (MHz)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	6.704	6.99	11.00	-4.01
Mid	5580	5.805	6.10	11.00	-4.91
High	5700	1.850	2.14	11.00	-8.86

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.14. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5500	17.8380	20.9600	7.85	7.85
Mid	5580	17.7798	21.1520	7.85	7.85
High	5700	17.7684	21.1200	7.85	7.85

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	21.66	24.00	30.00	21.66	9.15	11.00	9.15
Mid	5580	21.65	24.00	30.00	21.65	9.15	11.00	9.15
High	5700	21.65	24.00	30.00	21.65	9.15	11.00	9.15

Duty Cycle CF (dB)	0.60	Included in Calculations of Corr'd PPSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	16.20	15.00	18.65	21.66	-3.01
Mid	5580	16.43	14.10	18.43	21.65	-3.22
High	5700	11.80	10.34	14.14	21.65	-7.51

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	5.249	3.498	7.47	9.15	-1.68
Mid	5580	5.056	3.474	7.35	9.15	-1.80
High	5700	0.533	-0.852	2.91	9.15	-6.24

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.15. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5510	39.2350	36.3842	7.85	7.85
Mid	5550	38.9400	36.3305	7.85	7.85
High	5670	39.3600	36.3754	7.85	7.85

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5510	22.15	24.00	30.00	22.15	9.15	11.00	9.15
Mid	5550	22.15	24.00	30.00	22.15	9.15	11.00	9.15
High	5670	22.15	24.00	30.00	22.15	9.15	11.00	9.15

Duty Cycle CF (dB)	1.07	**Included in Calculations of Corr'd PPSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	13.00	11.05	15.14	22.15	-7.01
Mid	5550	16.61	14.13	18.55	22.15	-3.60
High	5670	14.90	13.50	17.27	22.15	-4.88

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	-1.356	-3.111	1.93	9.15	-7.22
Mid	5550	2.148	0.203	5.36	9.15	-3.79
High	5670	0.597	-0.577	4.13	9.15	-5.02

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.16. 802.11ac HT80 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain for Power (dBi)	Directional Gain for PPSD (dBi)
Low	5530	80.3440	75.8669	7.85	7.85

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5530	22.15	24.00	30.00	22.15	9.15	11.00	9.15

Duty Cycle CF (dB)	1.82	**Included in Calculations of Corr'd PPSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	12.20	10.10	14.29	22.15	-7.86

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Chain 1 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5530	-6.868	-7.859	-2.50	9.15	-11.65

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.17. 802.11a SISO MODE IN THE 5.8 GHz BAND (Chain 0)

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5745	1.99	1.99	30.00	30.00
Mid	5785	1.99	1.99	30.00	30.00
High	5825	1.99	1.99	30.00	30.00

Duty Cycle CF (dB)	0.29	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	17.30	17.30	30.00	-12.70
Mid	5785	16.92	16.92	30.00	-13.08
High	5825	16.80	16.80	30.00	-13.20

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	6.755	7.05	30.00	-22.96
Mid	5785	6.760	7.05	30.00	-22.95
High	5825	7.085	7.38	30.00	-22.63

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.1. 802.11a SISO MODE IN THE 5.8 GHz BAND (Chain 1)

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Low	5745	1.99	1.99	30.00	30.00
Mid	5785	1.99	1.99	30.00	30.00
High	5825	1.99	1.99	30.00	30.00

Duty Cycle CF (dB)	0.29	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	16.14	16.14	30.00	-13.86
Mid	5785	16.66	16.66	30.00	-13.34
High	5825	16.67	16.67	30.00	-13.33

PSD Results

Channel	Frequency (MHz)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	5.425	5.72	30.00	-24.29
Mid	5785	5.626	5.92	30.00	-24.08
High	5825	5.873	6.16	30.00	-23.84

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Directional Gain for PSD (dBi)	Power Limit (dBm)	Power Limit (dBm)
Low	5745	5.00	5.00	30.00	30.00
Mid	5785	5.00	5.00	30.00	30.00
High	5825	5.00	5.00	30.00	30.00

Duty Cycle CF (dB)	0.60	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	14.88	13.17	17.12	30.00	-12.88
Mid	5785	16.68	15.51	19.14	30.00	-10.86
High	5825	16.28	14.67	18.56	30.00	-11.44

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	3.575	2.583	6.72	30.00	-23.28
Mid	5785	5.190	4.356	8.40	30.00	-21.60
High	5825	4.899	3.936	8.05	30.00	-21.95

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain For Power (dBi)	Directional Gain For PSD (dBi)	Power Limit (dBm)	Power Limit (dBm)
Low	5755	5.00	5.00	30.00	30.00
High	5795	5.00	5.00	30.00	30.00

Duty Cycle CF (dB)	1.07	**Included in Calculations of Corr'd PSD**

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	12.89	11.64	15.32	30.00	-14.68
High	5795	16.52	15.00	18.84	30.00	-11.16

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas PSD (dBm)	Chain 1 Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5755	-1.398	-2.609	2.12	30.00	-27.88
High	5795	2.028	0.708	5.50	30.00	-24.50

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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

9.5.4. 802.11ac HT80 MODE IN THE 5.8 GHz BAND

Antenna Gain and Limit

Channel	Frequency (MHz)	Directional Gain for Power (dBi)	Power Limit for PSD (dBi)	Power Limit (dBm)	PSD Limit (dBm)
Mid	5775	1.99	5.00	30.00	30.00

Duty Cycle CF (dB)	1.82	Included in Calculations of Corr'd PSD

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5775	12.17	10.98	14.63	30.00	-15.37

PSD Results

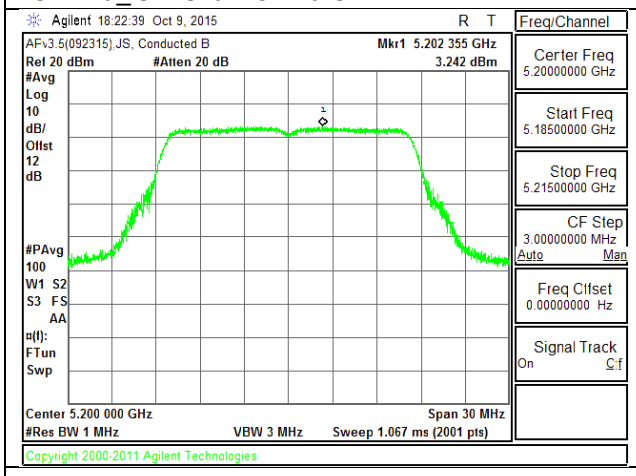
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5775	-6.141	-7.069	-1.75	30.00	-31.75

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

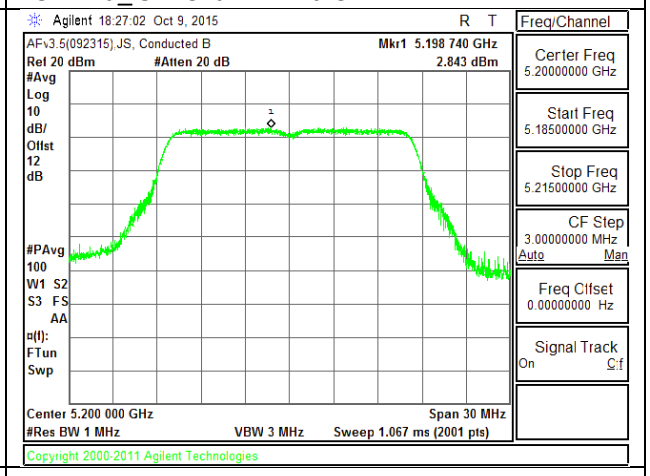
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

9.5.5. OUTPUT POWER AND PPSD PLOTS

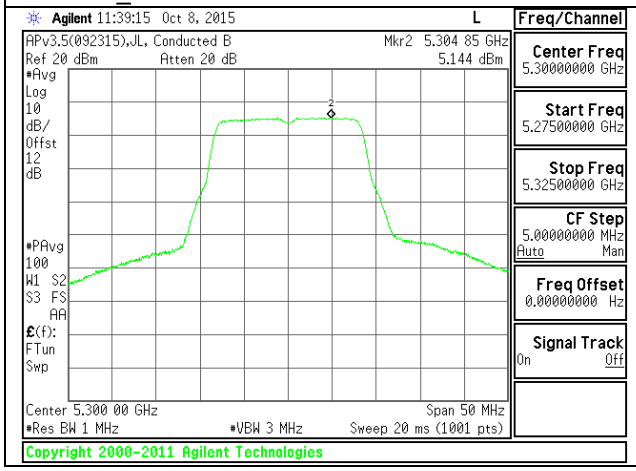
PSD 11a_ 5.2 Chain 0 Mid Ch



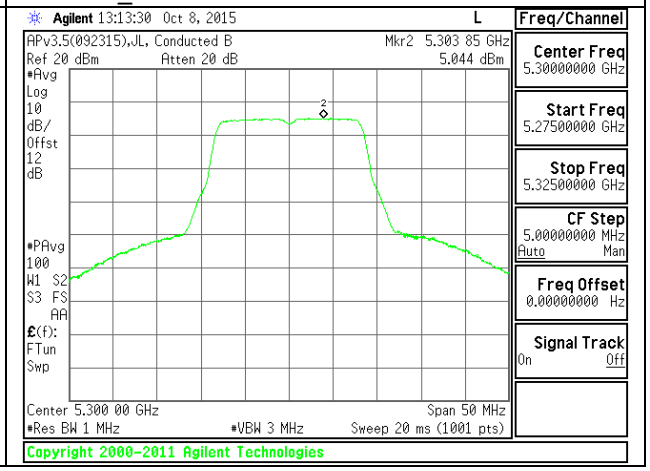
PSD 11a_ 5.2 Chain 1 Mid Ch



PSD 11a_ 5.3 Chain 0 Mid Ch

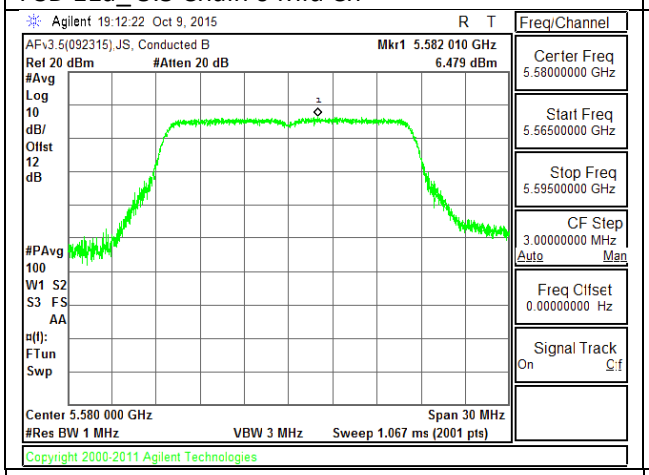


PSD 11a_ 5.3 Chain 1 Mid Ch

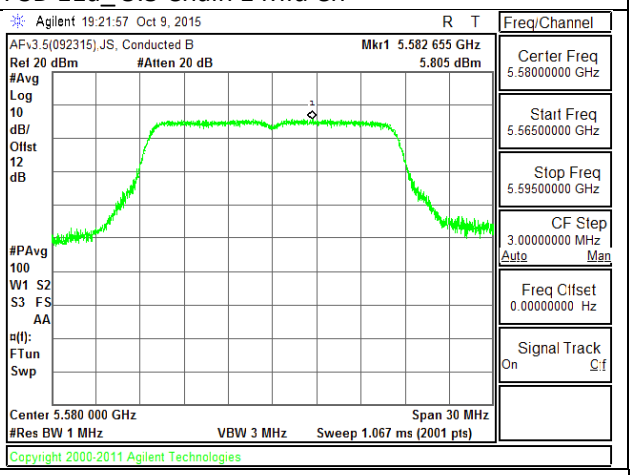


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

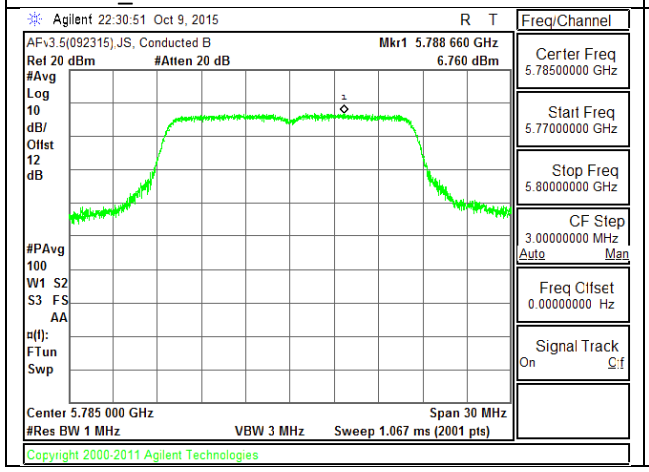
PSD 11a_ 5.5 Chain 0 Mid Ch



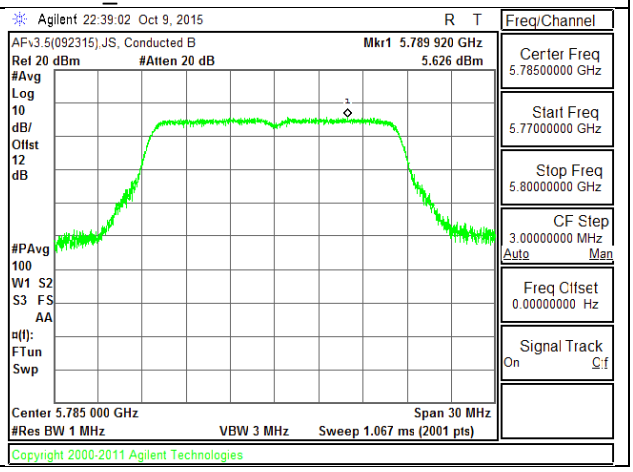
PSD 11a_ 5.5 Chain 1 Mid Ch



PSD 11a_ 5.8 Chain 0 Mid Ch

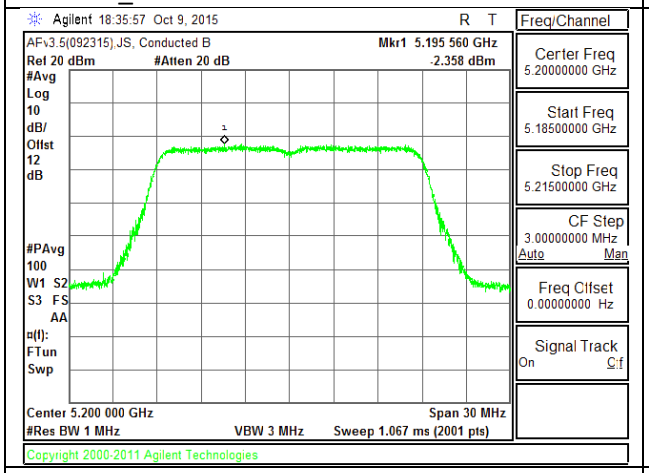


PSD 11a_ 5.8 Chain 1 Mid Ch

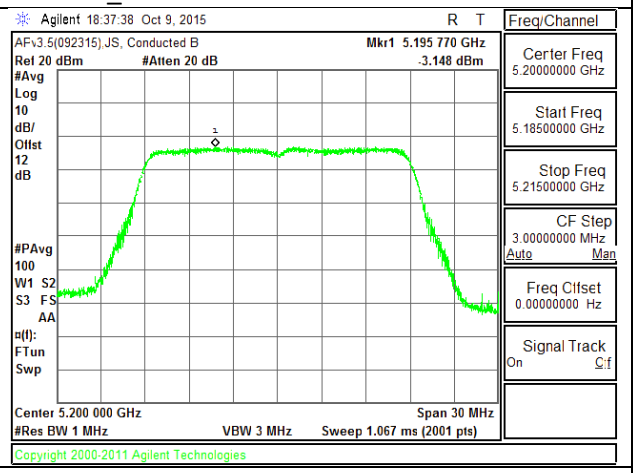


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

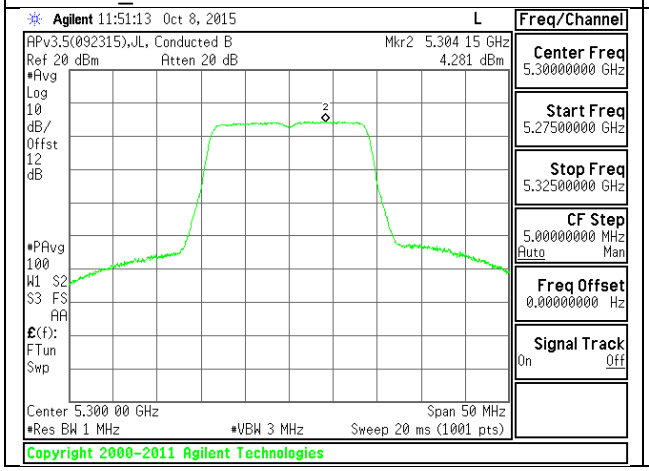
PSD 11n_HT20 5.2 Chain 0 Mid Ch



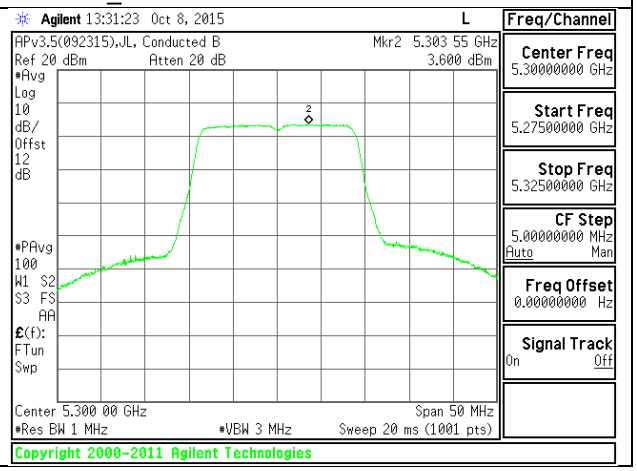
PSD 11n_HT20 5.2 Chain 1 Mid Ch



PSD 11n_HT20 5.3 Chain 0 Mid Ch

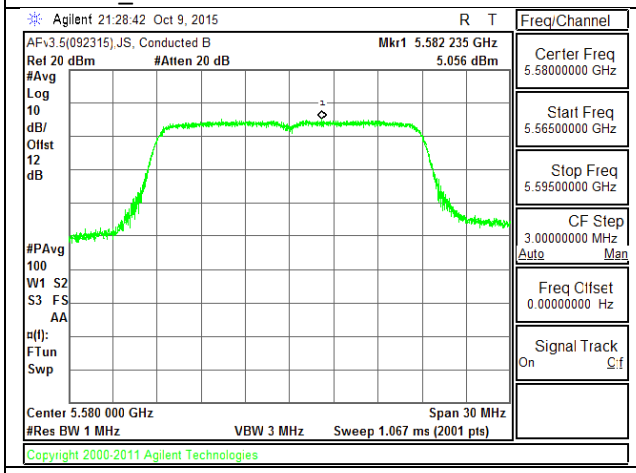


PSD 11n_HT20 5.3 Chain 1 Mid Ch

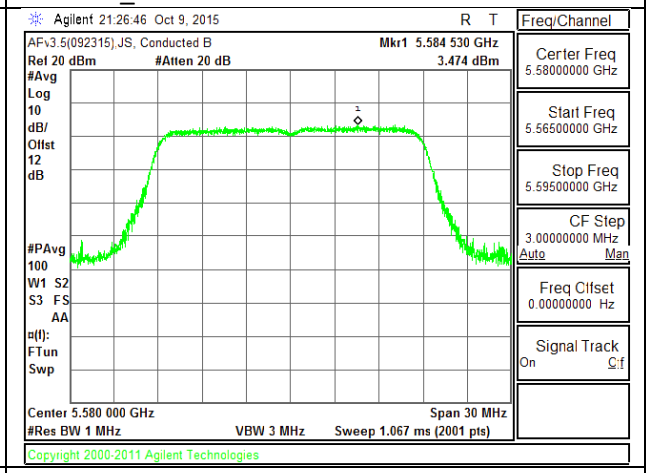


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

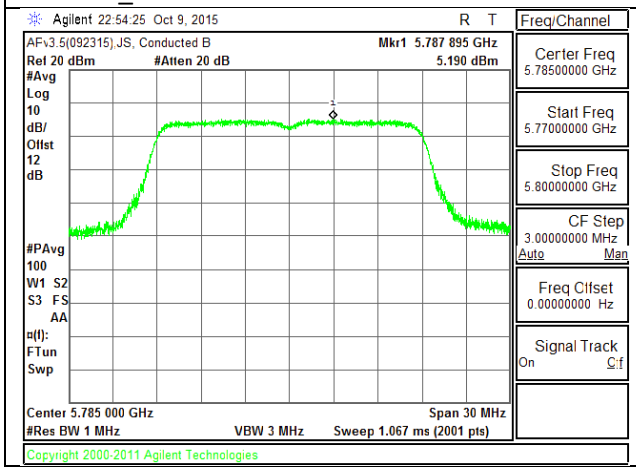
PSD 11n_HT20 5.5 Chain 0 Mid Ch



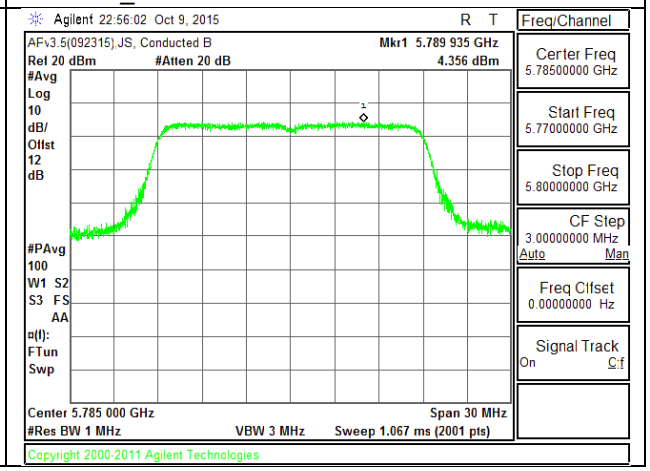
PSD 11n_HT20 5.5 Chain 1 Mid Ch



PSD 11n_ HT20 5.8 Chain 0 Mid Ch

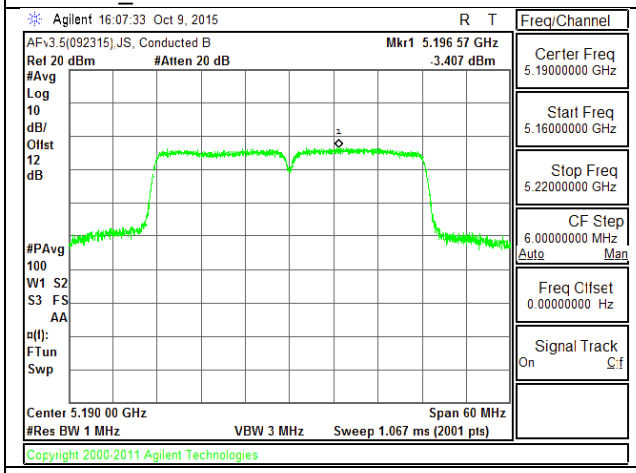


PSD 11n_HT20 5.8 Chain 1 Mid Ch

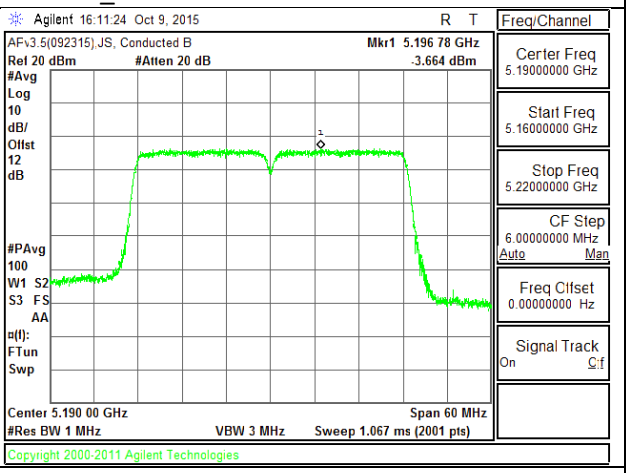


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

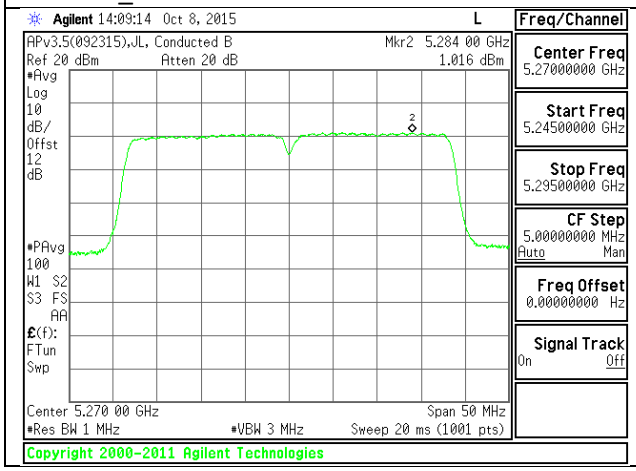
PSD 11n_HT40 5.2 Chain 0 Low Ch



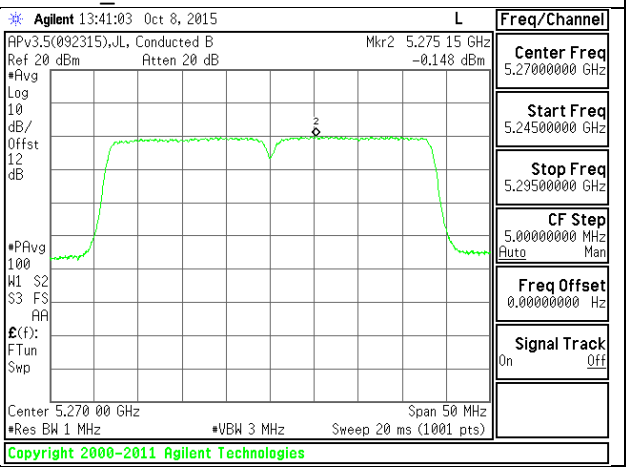
PSD 11n_HT40 5.2 Chain 1 Low Ch



PSD 11n_HT40 5.3 Chain 0 Low Ch

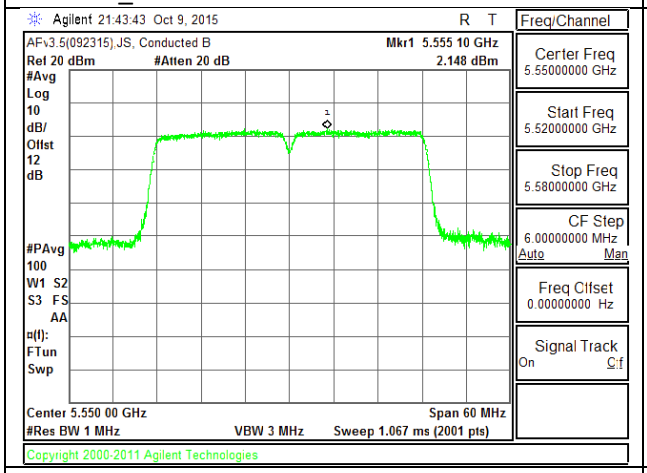


PSD 11n_HT40 5.3 Chain 1 Low Ch

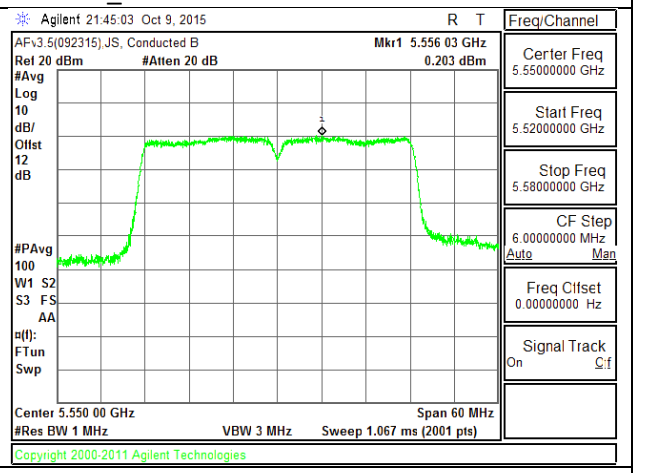


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

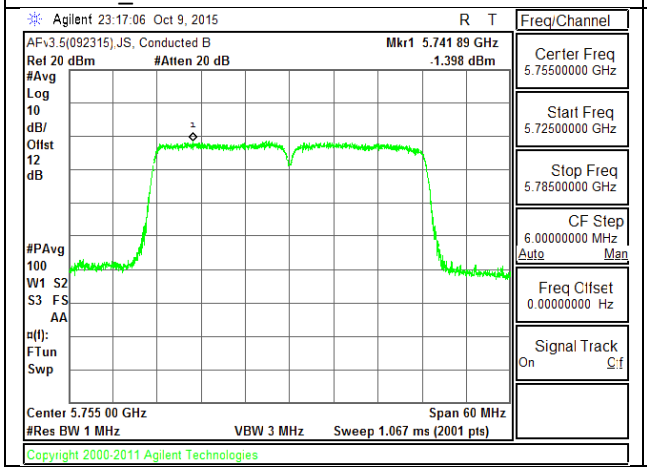
PSD 11n_HT40 5.5 Chain 0 Mid Ch



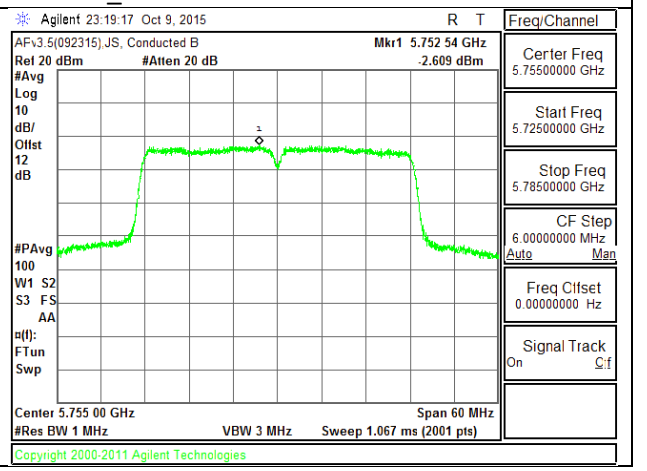
PSD 11n_HT40 5.5 Chain 1 Mid Ch



PSD 11n_HT40 5.8 Chain 0 Low Ch

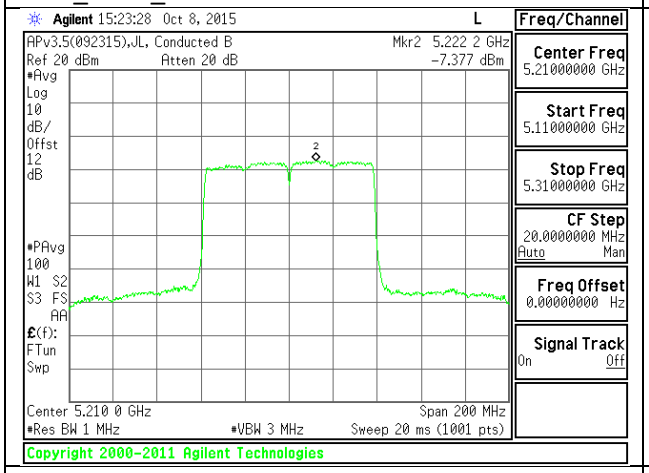


PSD 11n_HT40 5.8 Chain 1 Low Ch

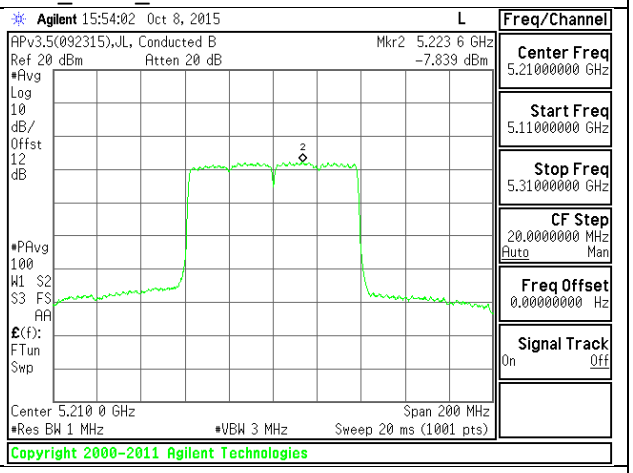


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

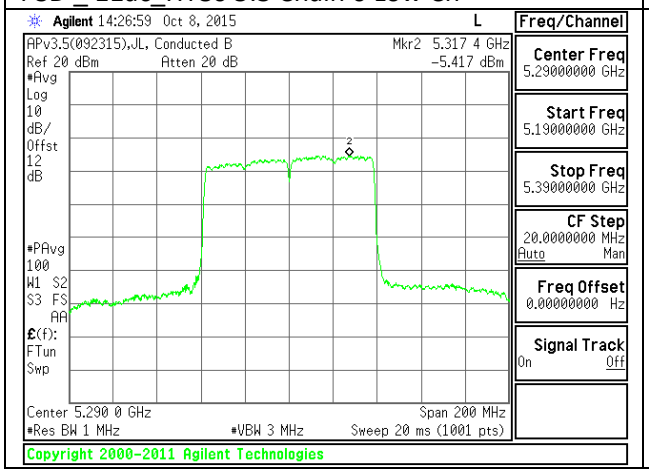
PSD _ 11ac_HT80 5.2 Chain 0 Low Ch



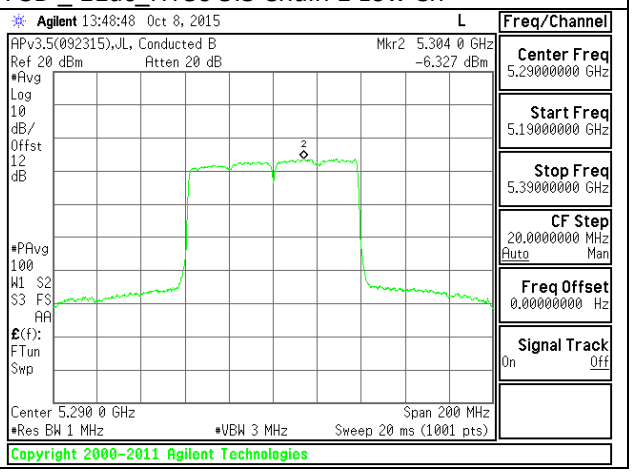
PSD _ 11ac_HT80 5.2 Chain 1 Low Ch



PSD _ 11ac_HT80 5.3 Chain 0 Low Ch

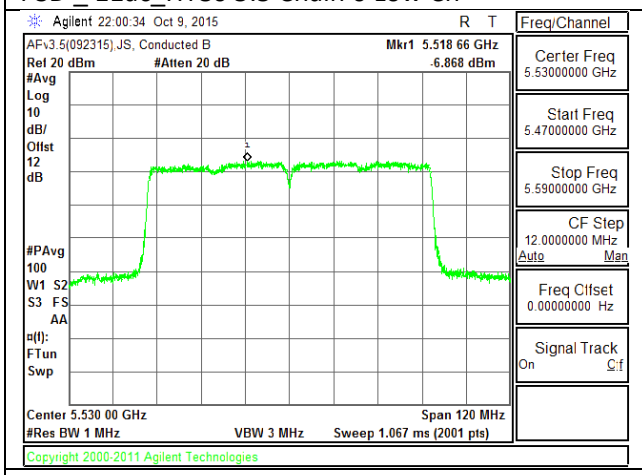


PSD _ 11ac_HT80 5.3 Chain 1 Low Ch

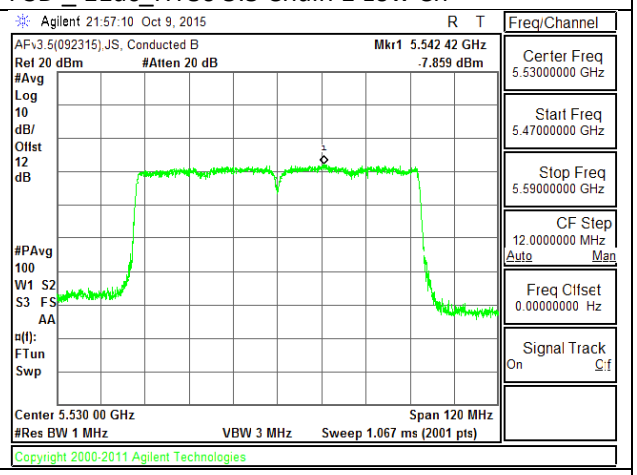


This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

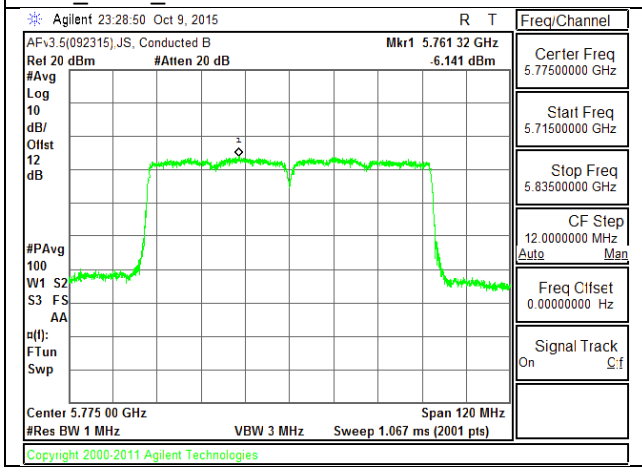
PSD _ 11ac_HT80 5.5 Chain 0 Low Ch



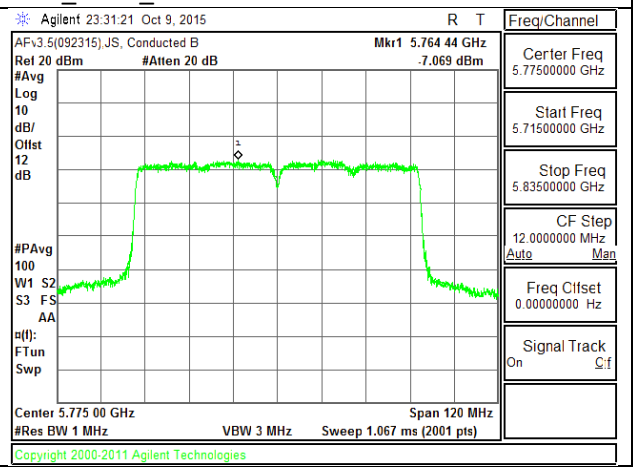
PSD _ 11ac_HT80 5.5 Chain 1 Low Ch



PSD _ 11ac_HT80 5.8 Chain 0 Low Ch



PSD _ 11ac_HT80 5.8 Chain 1 Low Ch



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

10. TRANSMITTER ABOVE 1 GHz

LIMITS

FCC §15.205 and §15.209
RSS-GEN 8.9
RSS-247 6

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 for below 1GHz and 150cm for above 1GHz. The antenna to EUT distance is 3 meters.

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

Reference to KDB 789033 UNII part H) 6) d) Method VB:
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor to the reading offset for average measurements.

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

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

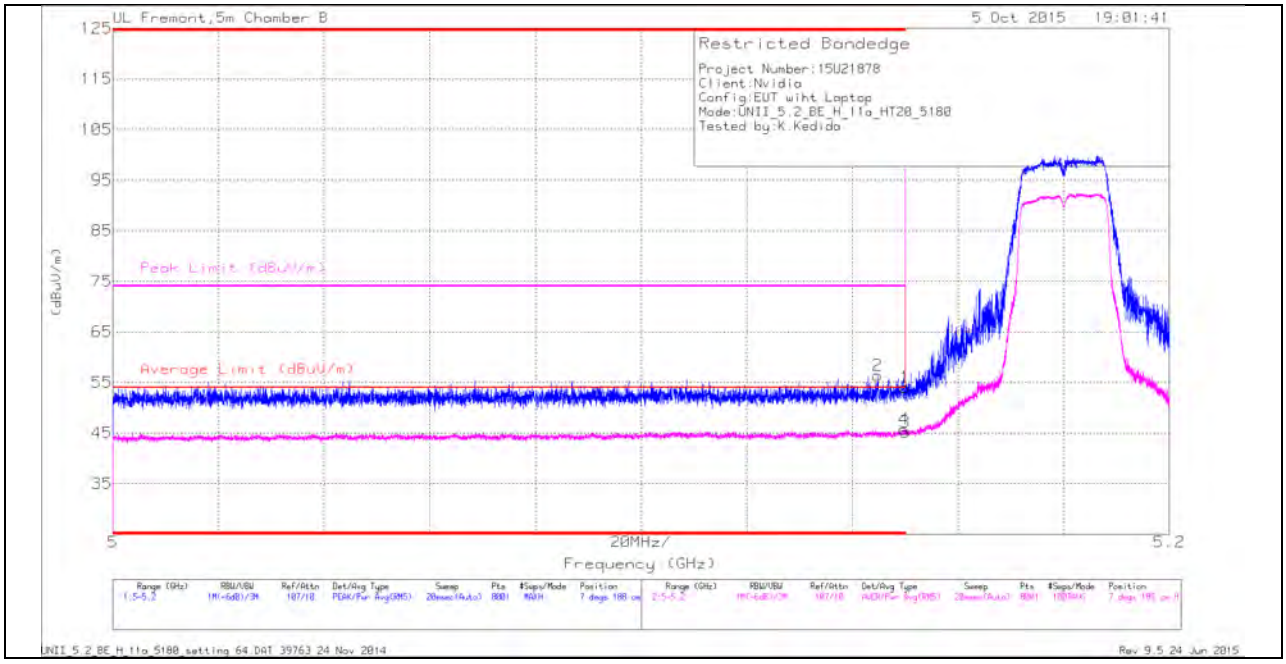
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

10.1. 5.2 GHz

10.1.1. TX ABOVE 1 GHz 802.11a SISO MODE IN THE 5.2 GHz BAND (Chain 0)

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	38.91	Pk	34.1	-19	0	54.01	-	-	74	-19.99	7	188	H
2	* 5.145	41.39	Pk	34.1	-19.1	0	56.39	-	-	74	-17.61	7	188	H
3	* 5.15	29.82	RMS	34.1	-19	.29	45.21	54	-8.79	-	-	7	188	H
4	* 5.15	30.27	RMS	34.1	-19	.29	45.66	54	-8.34	-	-	7	188	H

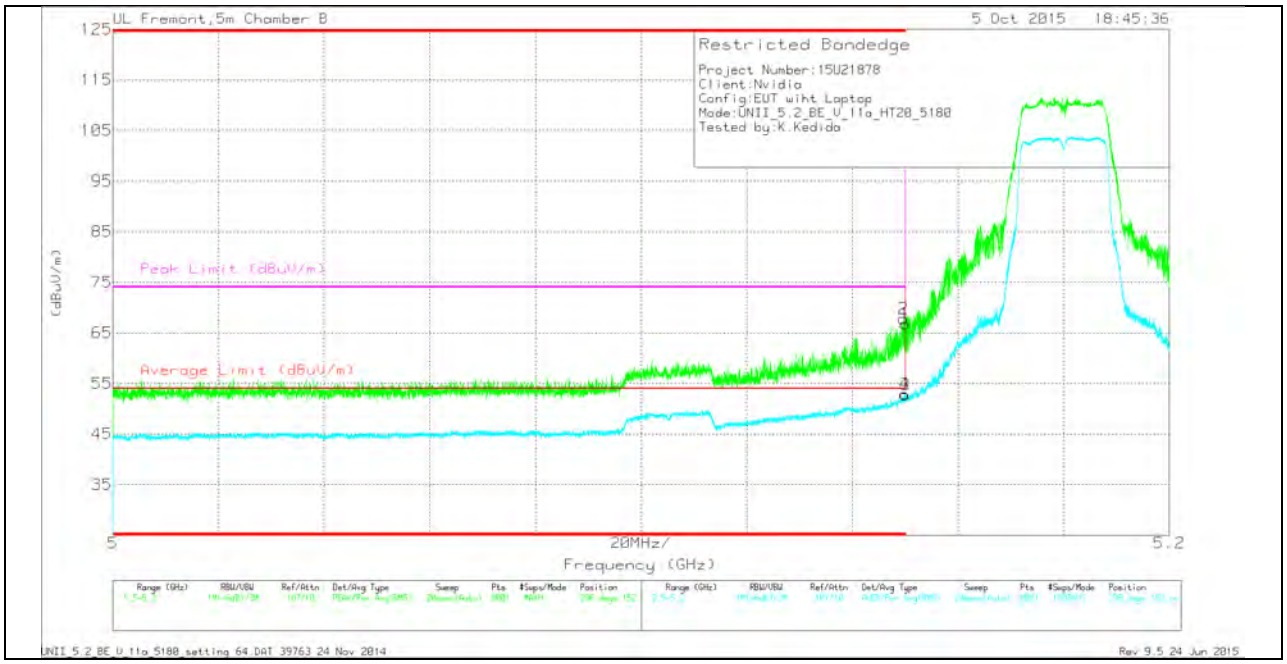
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	51.68	Pk	34.1	-19	0	66.78	-	-	74	-7.22	298	152	V
2	* 5.15	52.55	Pk	34.1	-18.9	0	67.75	-	-	74	-6.25	298	152	V
3	* 5.15	37.35	RMS	34.1	-19	.29	52.74	54	-1.26	-	-	298	152	V
4	* 5.15	37.45	RMS	34.1	-19	.29	52.84	54	-1.16	-	-	298	152	V

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

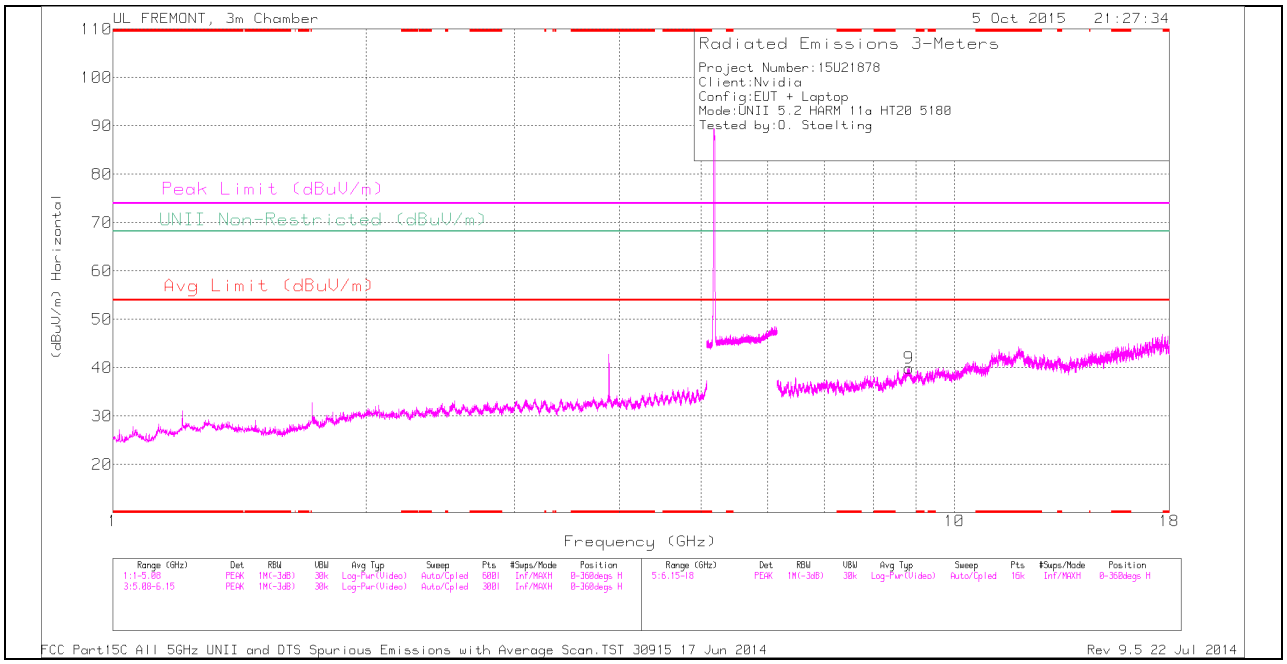
Pk - Peak detector

RMS - RMS detection

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

HARMONICS AND SPURIOUS EMISSIONS

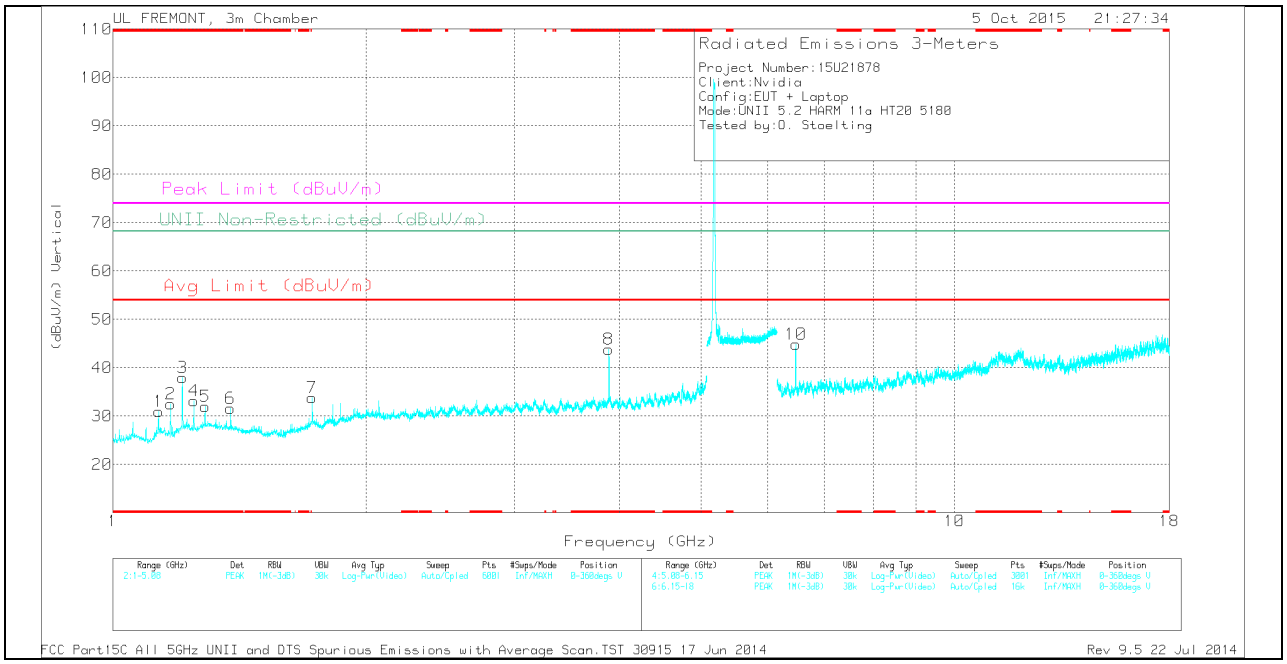
LOW CHANNEL HORIZONTAL



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

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

LOW CHANNEL VERTICAL



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

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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.133	35.75	PK	27.9	-32.7	0	30.95	-	-	74	-43.05	-	-	0-360	100	V
2	* 1.171	36.66	PK	28.5	-32.6	0	32.56	-	-	74	-41.44	-	-	0-360	200	V
3	* 1.209	41.65	PK	29	-32.7	0	37.95	-	-	74	-36.05	-	-	0-360	100	V
4	* 1.248	36.57	PK	29.4	-32.8	0	33.17	-	-	74	-40.83	-	-	0-360	100	V
5	* 1.286	35.17	PK	29.8	-33	0	31.97	-	-	74	-42.03	-	-	0-360	200	V
6	* 1.379	35.21	PK	28.9	-32.5	0	31.61	-	-	74	-42.39	-	-	0-360	100	V
8	* 3.885	40.48	PK	33.2	-29.9	0	43.78	-	-	74	-30.22	-	-	0-360	200	V
7	1.725	36.05	PK	29.3	-31.5	0	33.85	-	-	-	-	68.2	-34.35	0-360	200	V
10	6.475	37.94	PK	35.6	-28.7	0	44.84	-	-	-	-	68.2	-23.36	0-360	200	V
9	8.826	28.38	PK	35.9	-24.3	0	39.98	-	-	-	-	68.2	-28.22	0-360	100	H

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

PK - Peak detector

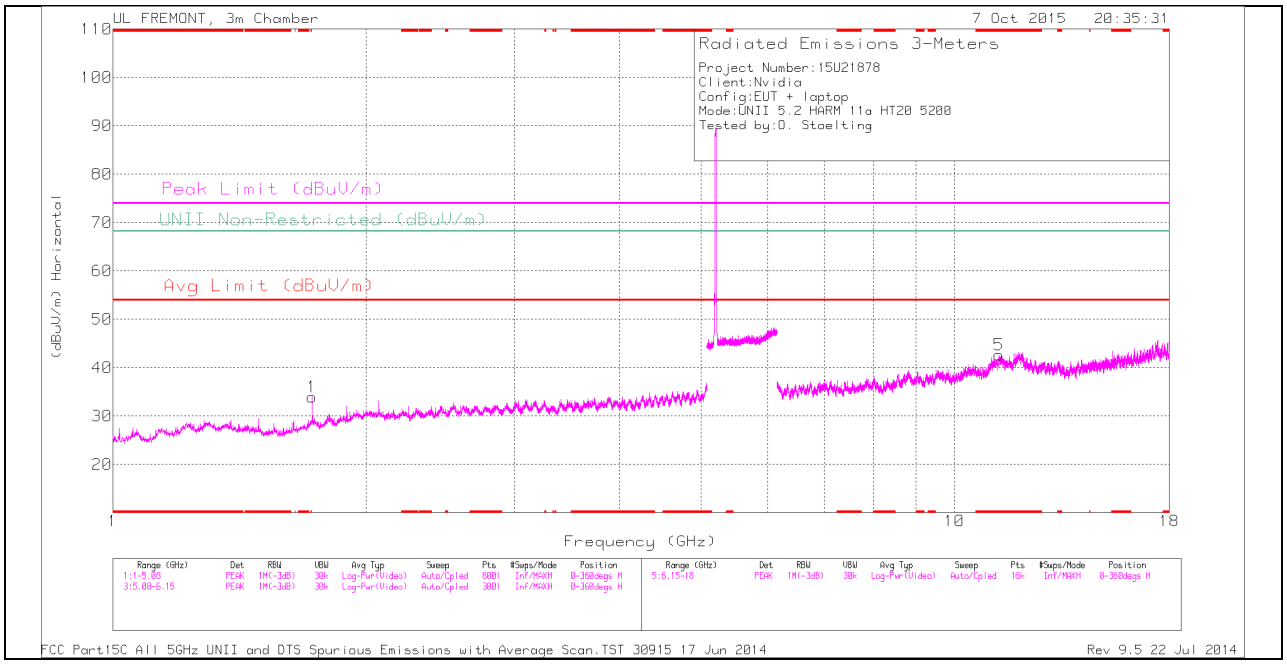
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.133	43.84	PK1	27.9	-32.7	0	39.04	-	-	74	-34.96	-	-	167	103	V
* 1.133	35.16	AD1	27.9	-32.7	.29	30.65	54	-23.35	-	-	-	-	167	103	V
* 1.171	44.18	PK1	28.5	-32.6	0	40.08	-	-	74	-33.92	-	-	72	200	V
* 1.171	36.5	AD1	28.5	-32.6	.29	32.69	54	-21.31	-	-	-	-	72	200	V
* 1.21	47.73	PK1	29	-32.7	0	44.03	-	-	74	-29.97	-	-	68	238	V
* 1.21	42.88	AD1	29	-32.7	.29	39.47	54	-14.53	-	-	-	-	68	238	V
* 1.248	44.03	PK1	29.4	-32.8	0	40.63	-	-	74	-33.37	-	-	11	133	V
* 1.248	35.58	AD1	29.4	-32.8	.29	32.47	54	-21.53	-	-	-	-	11	133	V
* 1.287	43.47	PK1	29.8	-33	0	40.27	-	-	74	-33.73	-	-	20	195	V
* 1.286	34.14	AD1	29.8	-33	.29	31.23	54	-22.77	-	-	-	-	20	195	V
* 1.381	41.67	PK1	28.9	-32.4	0	38.17	-	-	74	-35.83	-	-	267	105	V
* 1.38	29.4	AD1	28.9	-32.4	.29	26.19	54	-27.81	-	-	-	-	267	105	V
* 3.885	43.38	PK1	33.2	-29.8	0	46.78	-	-	74	-27.22	-	-	43	153	V
* 3.885	36.13	AD1	33.2	-29.8	.29	39.82	54	-14.18	-	-	-	-	43	153	V
1.725	45.25	PK1	29.3	-31.5	0	43.05	-	-	-	-	68.2	-25.15	162	309	V
1.725	31.5	AD1	29.3	-31.5	.29	29.59	-	-	-	-	-	-	162	309	V
6.475	43.37	PK1	35.6	-28.7	0	50.27	-	-	-	-	68.2	-17.93	234	100	V
6.475	36.58	AD1	35.6	-28.7	.29	43.77	-	-	-	-	-	-	234	100	V
8.827	37.31	PK1	35.9	-24.3	0	48.91	-	-	-	-	68.2	-19.29	327	260	H
8.828	24.88	AD1	35.9	-24.3	.29	36.77	-	-	-	-	-	-	327	260	H

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

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

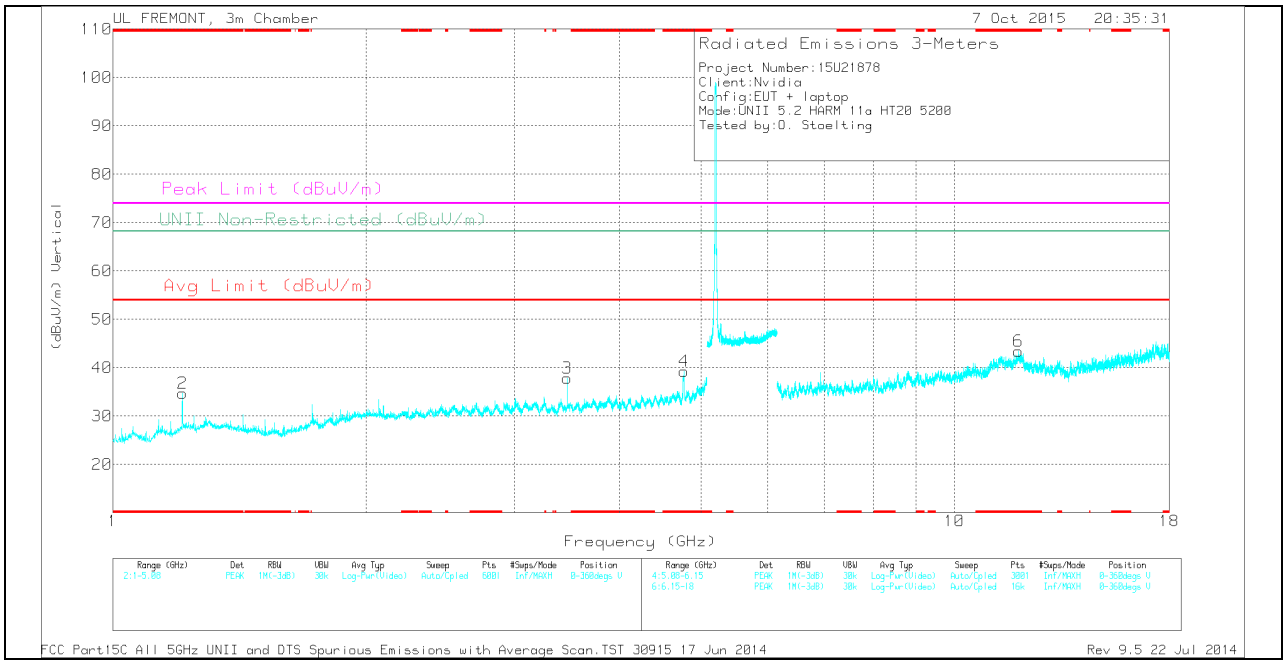
MID CHANNEL HORIZONTAL



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

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

MID CHANNEL VERTICAL



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

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

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 1.209	38.41	PK	29	-32.7	0	34.71	-	-	74	-39.29	-	-	0-360	100	V
4	* 4.774	34.93	PK	34	-29.7	0	39.23	-	-	74	-34.77	-	-	0-360	100	V
5	* 11.301	27.35	PK	38.1	-22.8	0	42.65	-	-	74	-31.35	-	-	0-360	100	H
6	* 11.915	27.97	PK	39.1	-23.6	0	43.47	-	-	74	-30.53	-	-	0-360	100	V
1	1.725	36.18	PK	29.3	-31.5	0	33.98	-	-	-	-	68.2	-34.22	0-360	200	H
3	3.467	35.5	PK	32.8	-30.5	0	37.8	-	-	-	-	68.2	-30.4	0-360	200	V

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

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fl tr/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
* 1.21	44.98	PK1	29	-32.7	0	41.28	-	-	74	-32.72	-	-	325	101	V
* 1.21	38.09	AD1	29	-32.7	.29	34.68	54	-19.32	-	-	-	-	325	101	V
* 4.772	44.65	PK1	34	-29.7	0	48.95	-	-	74	-25.05	-	-	115	102	V
* 4.773	33.5	AD1	34	-29.7	.29	38.09	54	-15.91	-	-	-	-	115	102	V
* 11.303	36.41	PK1	38.1	-22.8	0	51.71	-	-	74	-22.29	-	-	206	123	H
* 11.303	24.62	AD1	38.1	-22.8	.29	40.21	54	-13.79	-	-	-	-	206	123	H
* 11.917	37.27	PK1	39.1	-23.6	0	52.77	-	-	74	-21.23	-	-	232	164	V
* 11.917	24.96	AD1	39.1	-23.6	.29	40.75	54	-13.25	-	-	-	-	232	164	V
1.725	44.83	PK1	29.3	-31.5	0	42.63	-	-	-	-	68.2	-25.57	128	229	H
1.725	32.01	AD1	29.3	-31.5	.29	30.10	-	-	-	-	-	-	128	229	H
3.467	43.71	PK1	32.8	-30.5	0	46.01	-	-	-	-	68.2	-22.19	48	178	V
3.467	32.56	AD1	32.8	-30.5	.29	35.15	-	-	-	-	-	-	48	178	V

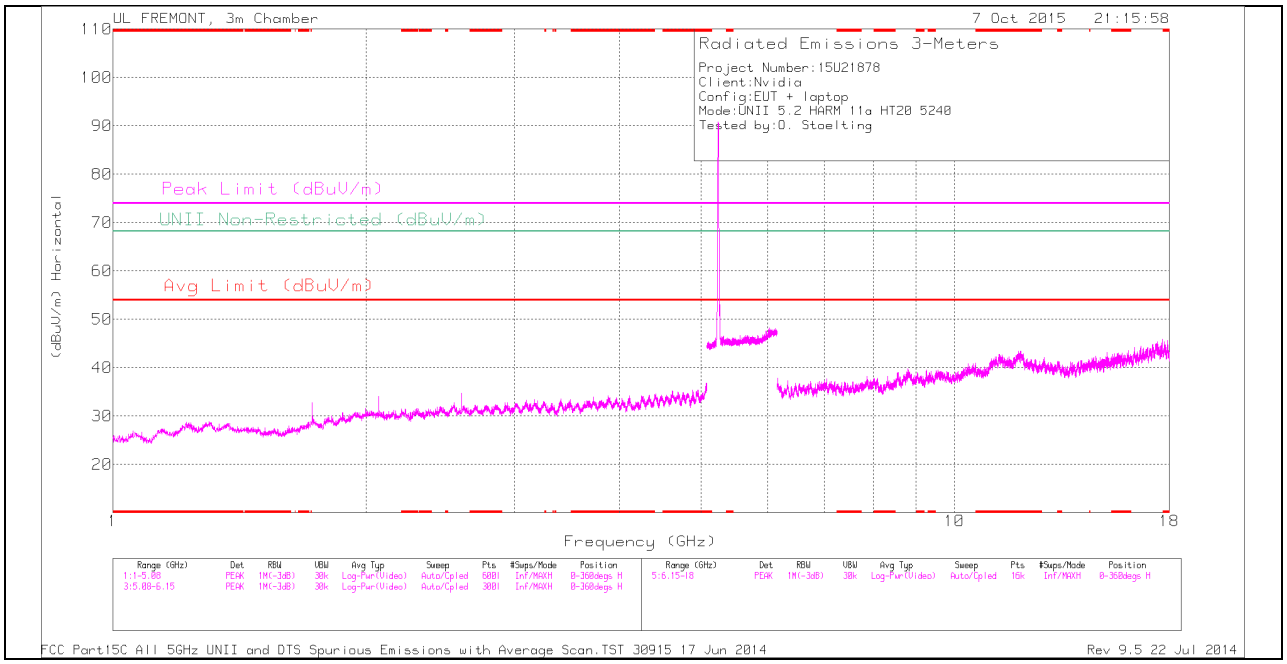
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

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

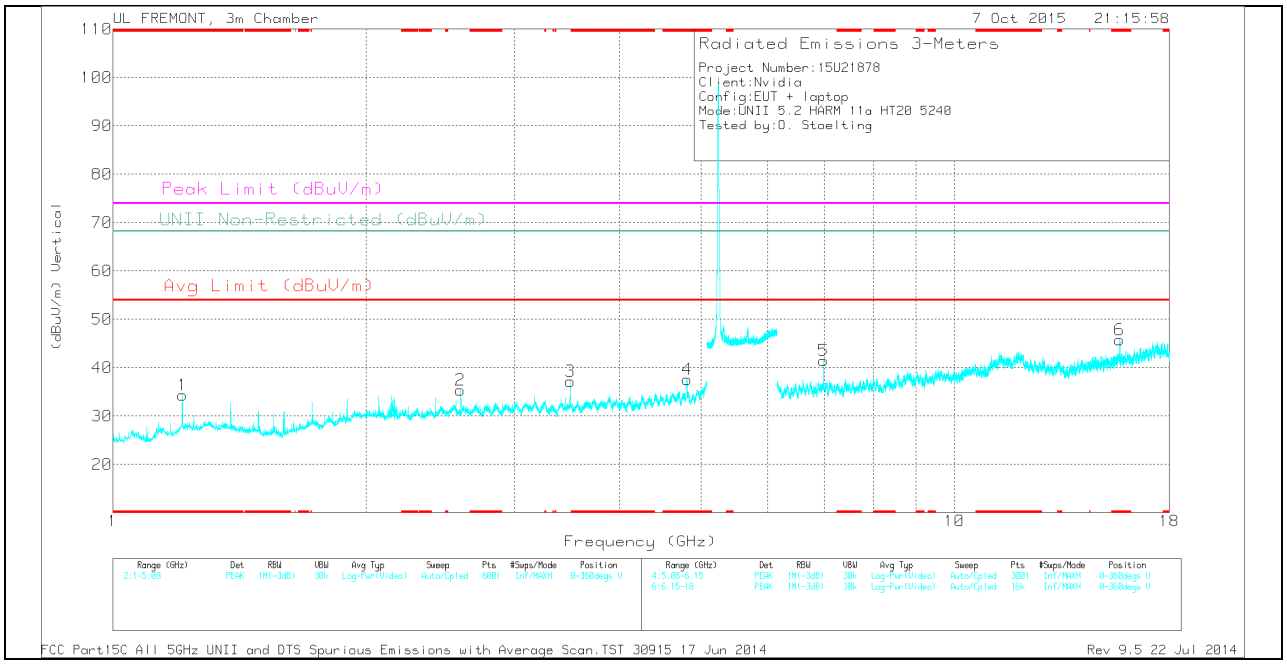
HIGH CHANNEL HORIZONTAL



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

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

HIGH CHANNEL VERTICAL



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

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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.209	38.09	PK	29	-32.7	0	34.39	-	-	74	-39.61	-	-	0-360	200	V
4	* 4.81	33.22	PK	34	-29.6	0	37.62	-	-	74	-36.38	-	-	0-360	200	V
6	* 15.721	31.31	PK	40.4	-26	0	45.71	-	-	74	-28.29	-	-	0-360	200	V
2	2.588	34.65	PK	32.4	-31.7	0	35.35	-	-	-	-	68.2	-32.85	0-360	200	V
3	3.494	35.19	PK	32.8	-30.8	0	37.19	-	-	-	-	68.2	-31.01	0-360	200	V
5	6.987	33.6	PK	35.6	-27.7	0	41.5	-	-	-	-	68.2	-26.7	0-360	200	V

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

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fl tr/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
* 1.21	45.62	PK1	29	-32.7	0	41.92	-	-	74	-32.08	-	-	314	161	V
* 1.21	38.78	AD1	29	-32.7	.29	35.37	54	-18.63	-	-	-	-	314	161	V
* 4.809	43.7	PK1	34	-29.6	0	48.1	-	-	74	-25.9	-	-	120	180	V
* 4.81	32.2	AD1	34	-29.6	.29	36.89	54	-17.11	-	-	-	-	120	180	V
* 15.722	43.92	PK1	40.4	-26	0	58.32	-	-	74	-15.68	-	-	360	357	V
* 15.721	29.43	AD1	40.4	-26	.29	44.12	54	-9.88	-	-	-	-	360	357	V
2.587	28.39	AD1	32.4	-31.7	.29	29.38	-	-	-	-	-	-	107	145	V
2.588	40.57	PK1	32.4	-31.7	0	41.27	-	-	-	-	68.2	-26.93	107	145	V
3.493	43.35	PK1	32.8	-30.9	0	45.25	-	-	-	-	68.2	-22.95	121	233	V
3.493	31.76	AD1	32.8	-30.9	.29	33.95	-	-	-	-	-	-	121	233	V
6.987	41.26	PK1	35.6	-27.7	0	49.16	-	-	-	-	68.2	-19.04	175	185	V
6.987	32.35	AD1	35.6	-27.7	.29	40.54	-	-	-	-	-	-	175	185	V

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

PK1 - KDB789033 Method: Peak

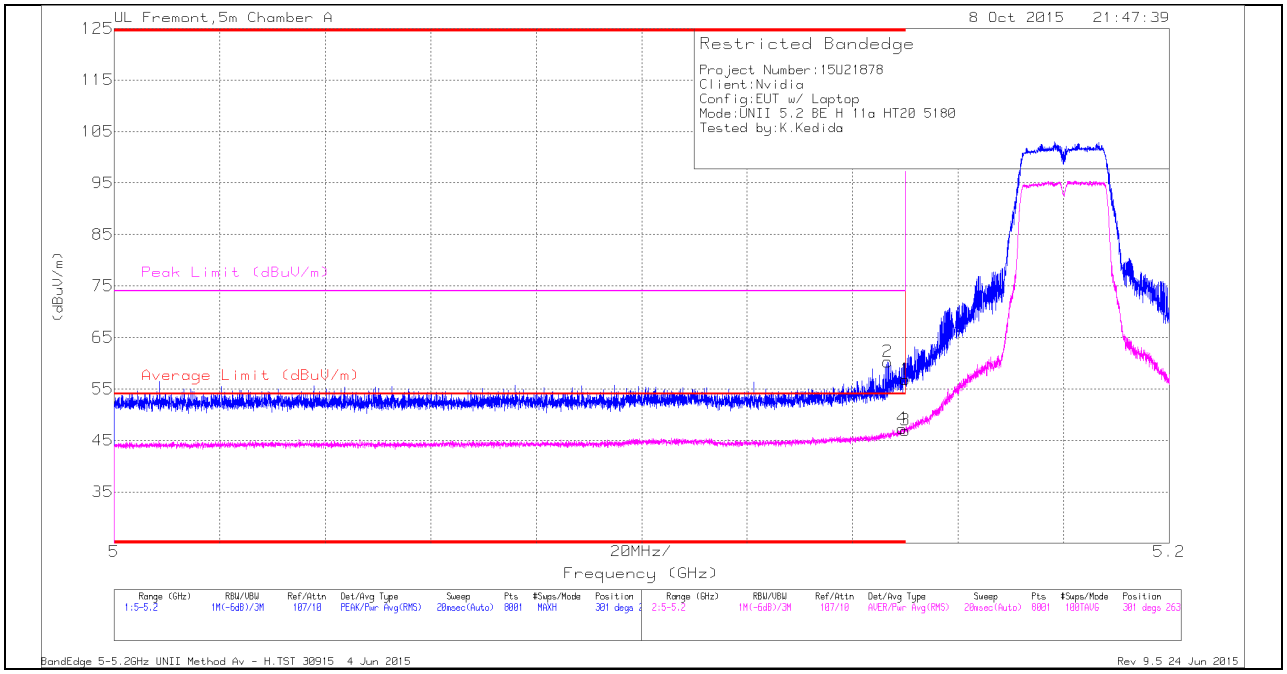
AD1 - KDB789033 Method: AD Primary Power Average

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

10.1.2. TX ABOVE 1 GHz 802.11a SISO MODE IN THE 5.2 GHz BAND (Chain 1)

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	43.35	Pk	34.2	-20.7	0	56.85	-	-	74	-17.15	301	263	H
2	* 5.147	46.79	Pk	34.2	-20.7	0	60.29	-	-	74	-13.71	301	263	H
3	* 5.15	33.17	RMS	34.2	-20.7	.29	46.96	54	-7.04	-	-	301	263	H
4	* 5.149	33.54	RMS	34.2	-20.7	.29	47.33	54	-6.67	-	-	301	263	H

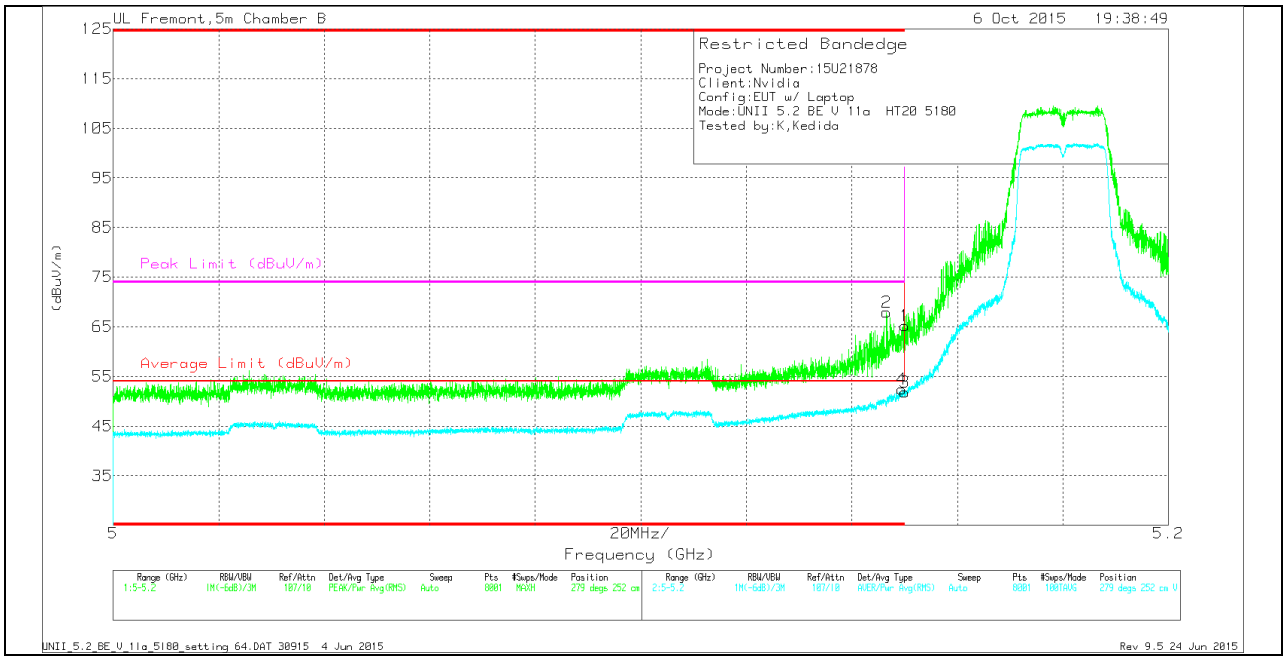
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	53.11	Pk	34.1	-22	0	65.21	-	-	74	-8.79	279	252	V
2	* 5.147	55.8	Pk	34.1	-22	0	67.9	-	-	74	-6.1	279	252	V
3	* 5.15	39.43	RMS	34.1	-22	.29	51.82	54	-2.18	-	-	279	252	V
4	* 5.149	40.01	RMS	34.1	-22	.29	52.40	54	-1.60	-	-	279	252	V

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

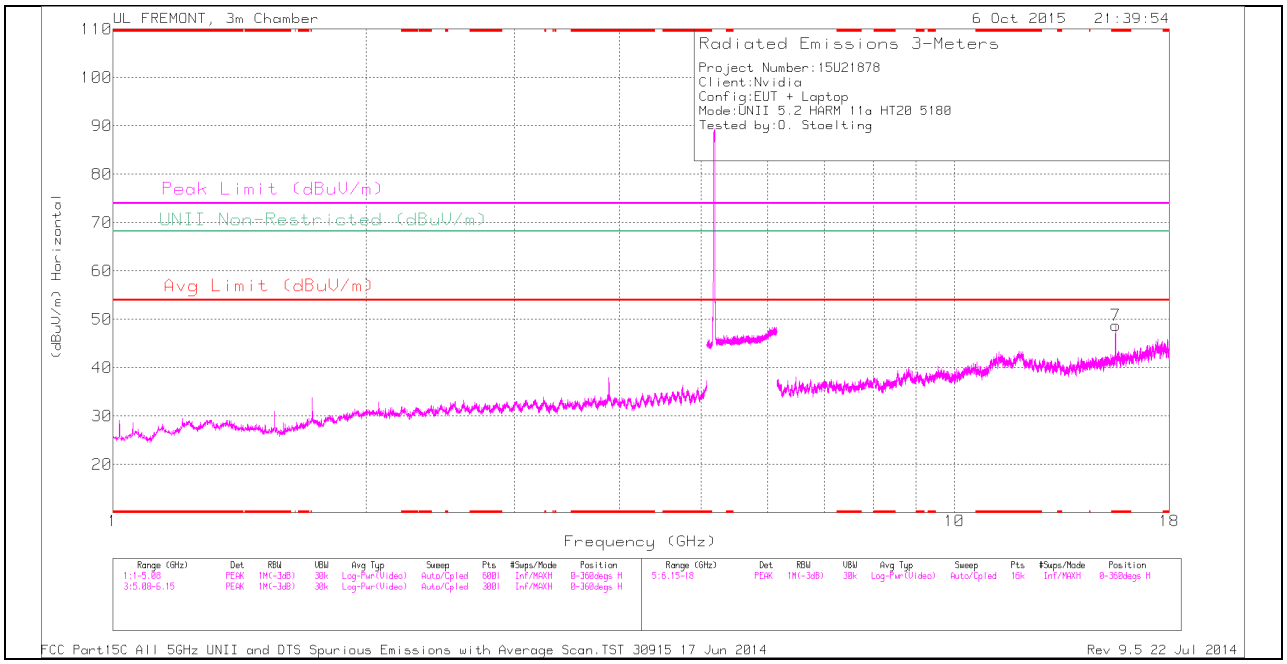
Pk - Peak detector

RMS - RMS detection

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

HARMONICS AND SPURIOUS EMISSIONS

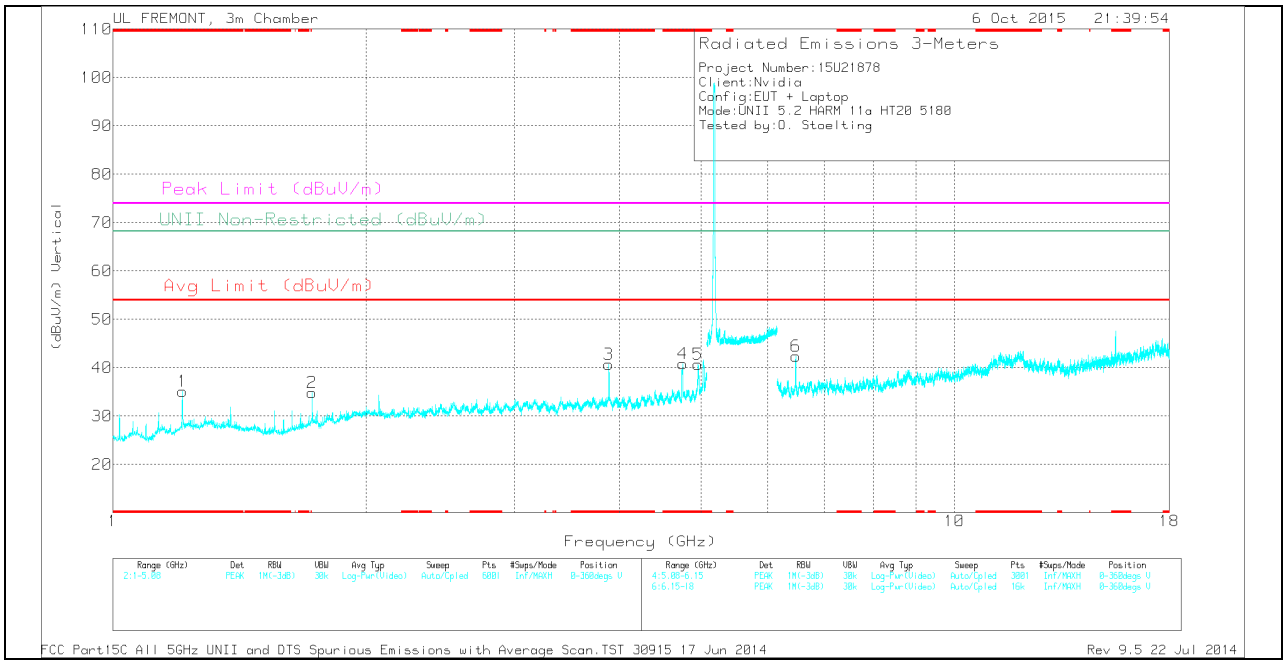
LOW CHANNEL HORIZONTAL



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

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

LOW CHANNEL VERTICAL



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

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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.209	38.81	PK	29	-32.7	0	35.11	-	-	74	-38.89	-	-	0-360	100	V
3	* 3.885	37.4	PK	33.2	-29.9	0	40.7	-	-	74	-33.3	-	-	0-360	200	V
4	* 4.752	36.7	PK	34	-29.9	0	40.8	-	-	74	-33.2	-	-	0-360	200	V
5	* 4.958	35.59	PK	34	-28.9	0	40.69	-	-	74	-33.31	-	-	0-360	200	V
7	* 15.538	34.59	PK	40.2	-26	0	48.79	-	-	74	-25.21	-	-	0-360	200	H
2	1.725	37.1	PK	29.3	-31.5	0	34.9	-	-	-	-	68.2	-33.3	0-360	100	V
6	6.475	35.46	PK	35.6	-28.7	0	42.36	-	-	-	-	68.2	-25.84	0-360	200	V

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

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fl tr/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
* 1.21	45.31	PK1	29	-32.7	0	41.61	-	-	74	-32.39	-	-	47	268	V
* 1.21	39.01	AD1	29	-32.7	.29	35.60	54	-18.40	-	-	-	-	47	268	V
* 3.885	43.56	PK1	33.2	-29.9	0	46.86	-	-	74	-27.14	-	-	0	204	V
* 3.885	32.48	AD1	33.2	-29.9	.29	36.07	54	-17.93	-	-	-	-	0	204	V
* 4.751	46.31	PK1	34	-30	0	50.31	-	-	74	-23.69	-	-	178	205	V
* 4.753	35.46	AD1	34	-29.9	.29	39.85	54	-14.15	-	-	-	-	178	205	V
* 4.959	46.77	PK1	34	-28.9	0	51.87	-	-	74	-22.13	-	-	159	204	V
* 4.957	35.12	AD1	34	-28.9	.29	40.51	54	-13.49	-	-	-	-	159	204	V
* 15.536	42.35	PK1	40.2	-26	0	56.55	-	-	74	-17.45	-	-	9	384	H
* 15.537	30.23	AD1	40.2	-26	.29	44.72	54	-9.28	-	-	-	-	9	384	H
1.725	42.64	PK1	29.3	-31.5	0	40.44	-	-	-	-	68.2	-27.76	200	115	V
1.725	30.09	AD1	29.3	-31.5	.29	28.18	-	-	-	-	-	-	200	115	V
6.475	42.97	PK1	35.6	-28.7	0	49.87	-	-	-	-	68.2	-18.33	11	193	V
6.475	35.13	AD1	35.6	-28.7	.29	42.32	-	-	-	-	-	-	11	193	V

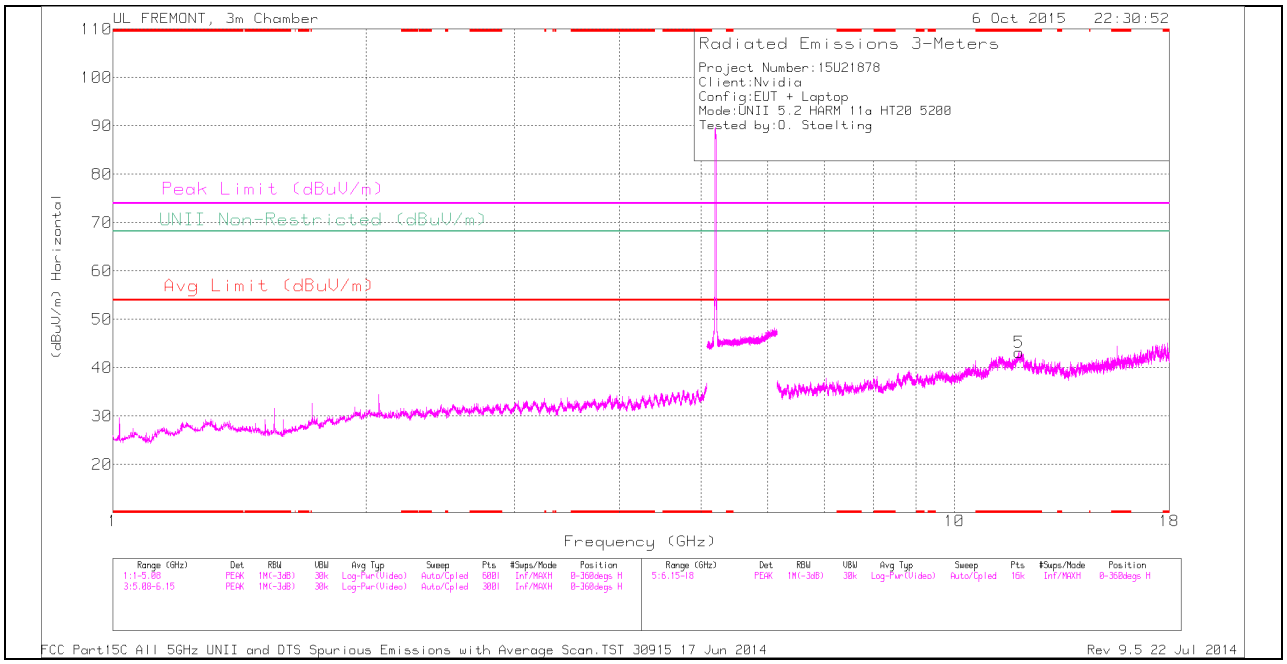
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

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

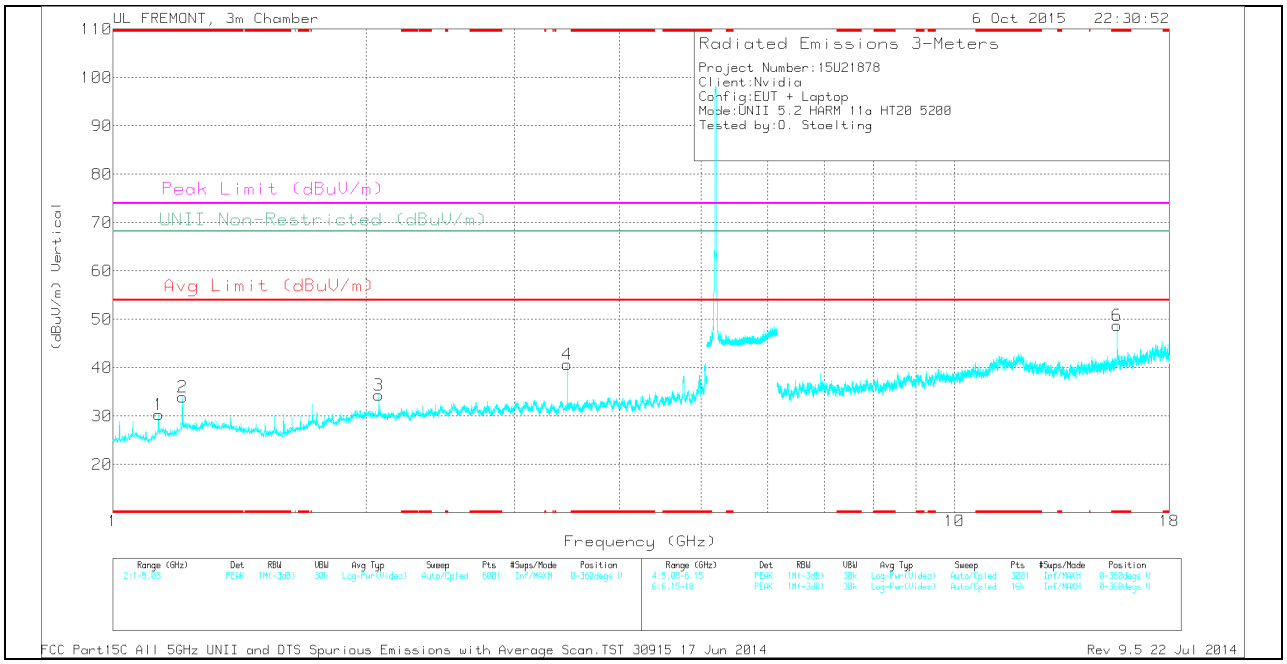
MID CHANNEL HORIZONTAL



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

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

MID CHANNEL VERTICAL



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

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

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.133	35.17	PK	27.9	-32.7	0	30.37	-	-	74	-43.63	-	-	0-360	100	V
2	* 1.21	37.69	PK	29	-32.7	0	33.99	-	-	74	-40.01	-	-	0-360	100	V
5	* 11.922	27.61	PK	39.1	-23.6	0	43.11	-	-	74	-30.89	-	-	0-360	100	H
6	* 15.609	33.5	PK	40.3	-25.1	0	48.7	-	-	74	-25.3	-	-	0-360	100	V
3	2.07	34.78	PK	31.5	-31.9	0	34.38	-	-	-	-	68.2	-33.82	0-360	200	V
4	3.467	38.39	PK	32.8	-30.5	0	40.69	-	-	-	-	68.2	-27.51	0-360	200	V

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

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fl tr/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
* 1.133	43.85	PK1	27.9	-32.7	0	39.05	-	-	74	-34.95	-	-	15	101	V
* 1.133	33.86	AD1	27.9	-32.7	.29	29.35	54	-24.65	-	-	-	-	15	101	V
* 1.21	45.6	PK1	29	-32.7	0	41.9	-	-	74	-32.1	-	-	51	262	V
* 1.21	39.14	AD1	29	-32.7	.29	35.73	54	-18.27	-	-	-	-	51	262	V
* 11.921	36.66	PK1	39.1	-23.6	0	52.16	-	-	74	-21.84	-	-	214	379	H
* 11.921	24.31	AD1	39.1	-23.6	.29	40.10	54	-13.90	-	-	-	-	214	379	H
* 15.608	45.85	PK1	40.3	-25.2	0	60.95	-	-	74	-13.05	-	-	24	110	V
* 15.608	32.71	AD1	40.3	-25.3	.29	48.00	54	-6.00	-	-	-	-	24	110	V
2.07	45.2	PK1	31.5	-31.9	0	44.8	-	-	-	-	68.2	-23.4	174	227	V
2.07	30.31	AD1	31.5	-31.9	.29	30.20	-	-	-	-	-	-	174	227	V
3.467	45.42	PK1	32.8	-30.5	0	47.72	-	-	-	-	68.2	-20.48	9	183	V
3.467	35.01	AD1	32.8	-30.5	.29	37.60	-	-	-	-	-	-	9	183	V

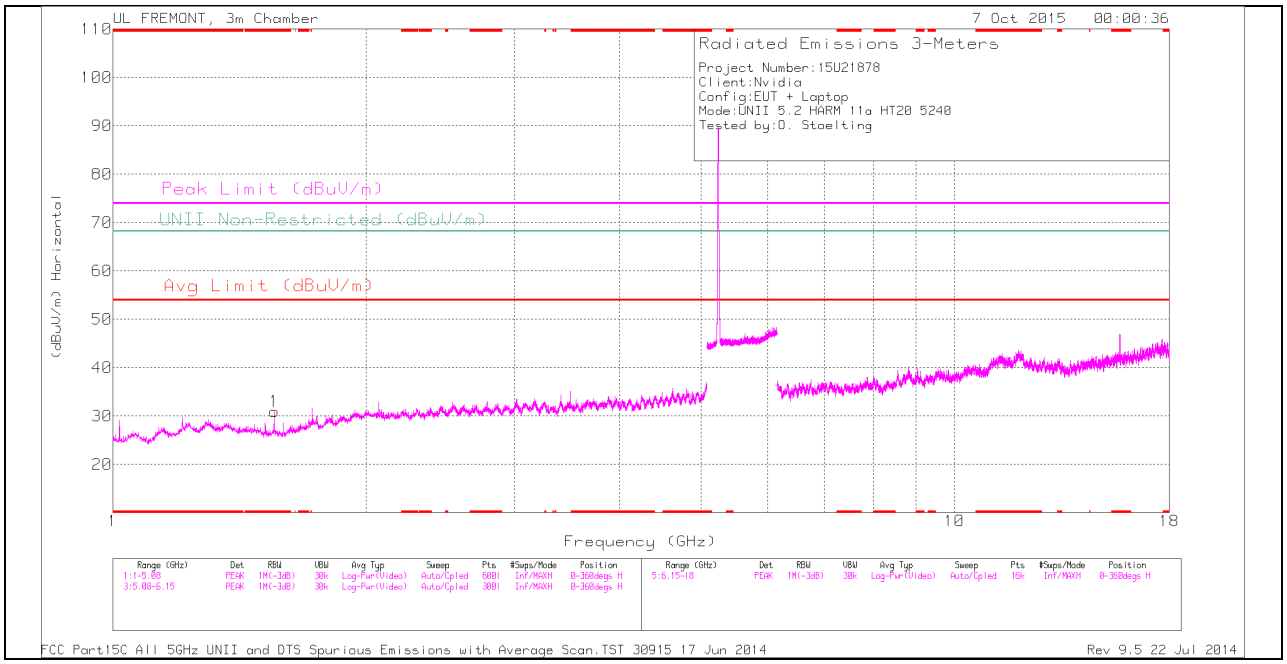
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701J
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc. .

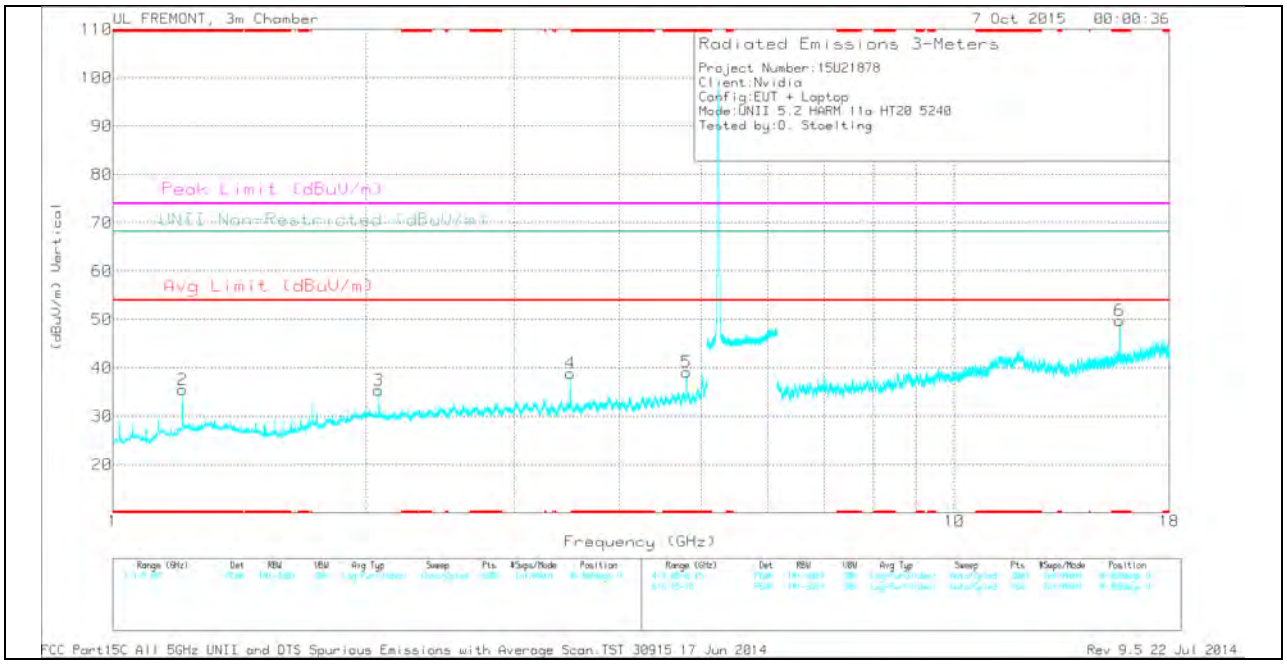
HIGH CHANNEL HORIZONTAL



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

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

HIGH CHANNEL VERTICAL



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

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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.555	35.65	PK	28	-32.7	0	30.95	-	-	74	-43.05	-	-	0-360	100	H
2	* 1.209	39.25	PK	29	-32.7	0	35.55	-	-	74	-38.45	-	-	0-360	100	V
5	* 4.808	34.62	PK	34	-29.5	0	39.12	-	-	74	-34.88	-	-	0-360	200	V
6	* 15.722	35.4	PK	40.4	-26	0	49.8	-	-	74	-24.2	-	-	0-360	100	V
3	2.07	35.81	PK	31.5	-31.9	0	35.41	-	-	-	-	68.2	-32.79	0-360	100	V
4	3.493	36.93	PK	32.8	-30.9	0	38.83	-	-	-	-	68.2	-29.37	0-360	200	V

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

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fl tr/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
* 1.553	44.25	PK1	28	-32.7	0	39.55	-	-	74	-34.45	-	-	43	103	H
* 1.555	35.4	AD1	28	-32.7	.29	30.99	54	-23.01	-	-	-	-	43	103	H
* 1.21	45.25	PK1	29	-32.7	0	41.55	-	-	74	-32.45	-	-	43	221	V
* 1.21	38	AD1	29	-32.7	.29	34.59	54	-19.41	-	-	-	-	43	221	V
* 4.808	45.13	PK1	34	-29.5	0	49.63	-	-	74	-24.37	-	-	168	200	V
* 4.808	33.78	AD1	34	-29.5	.29	38.57	54	-15.43	-	-	-	-	168	200	V
* 15.723	42.72	PK1	40.4	-26	0	57.12	-	-	74	-16.88	-	-	10	349	V
* 15.722	28.82	AD1	40.4	-26	.29	43.51	54	-10.49	-	-	-	-	10	349	V
2.07	48.55	PK1	31.5	-31.9	0	48.15	-	-	-	-	68.2	-20.05	191	239	V
2.07	30.81	AD1	31.5	-31.9	.29	30.7	-	-	-	-	-	-	191	239	V
3.493	43.25	PK1	32.8	-30.8	0	45.25	-	-	-	-	68.2	-22.95	31	309	V
3.493	32.57	AD1	32.8	-30.8	.29	34.86	-	-	-	-	-	-	31	309	V

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

PK1 - KDB789033 Method: Peak

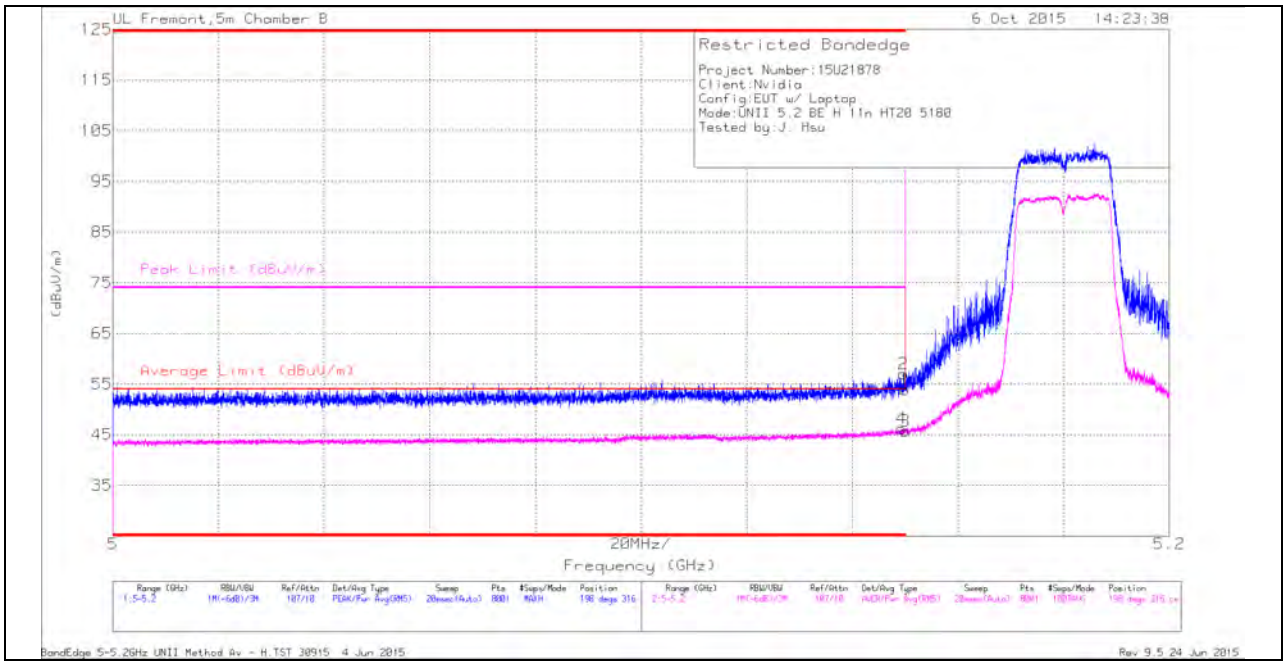
AD1 - KDB789033 Method: AD Primary Power Average

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

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

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	41.83	Pk	34.1	-22	0	53.93	-	-	74	-20.07	198	316	H
2	* 5.15	44.92	Pk	34.1	-22	0	57.02	-	-	74	-16.98	198	316	H
3	* 5.15	33.05	RMS	34.1	-22	.6	45.75	54	-8.25	-	-	198	316	H
4	* 5.149	33.44	RMS	34.1	-22	.6	46.14	54	-7.86	-	-	198	316	H

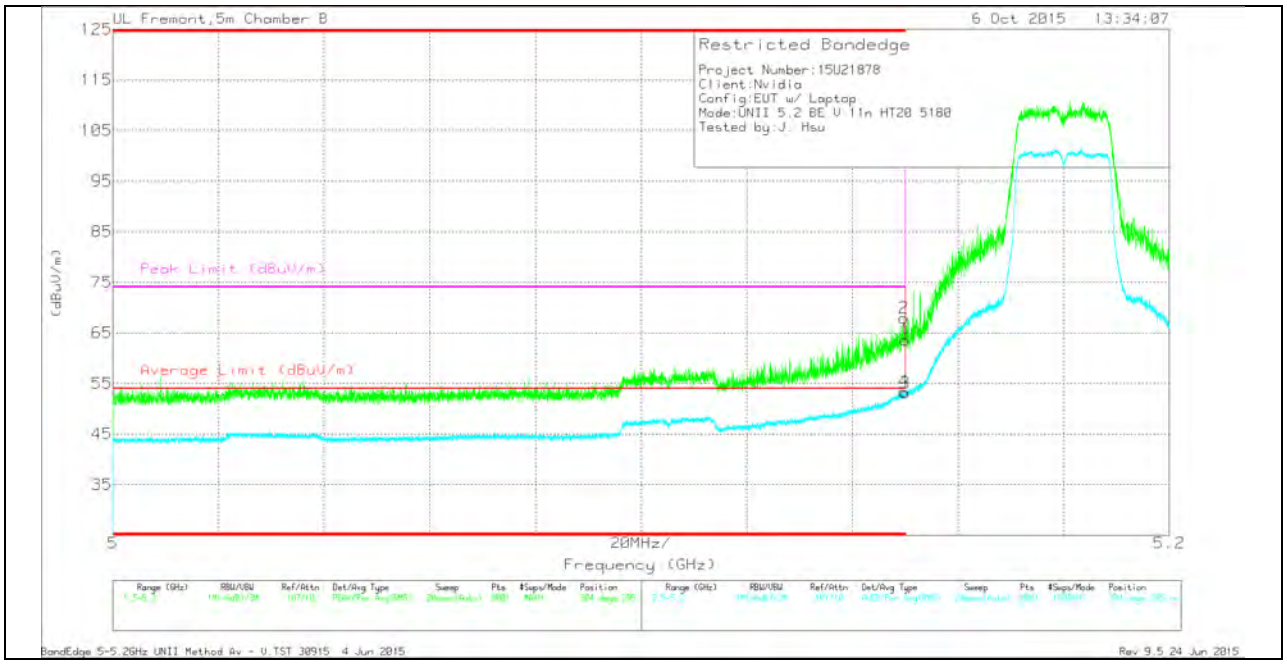
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	51.48	Pk	34.1	-22	0	63.58	-	-	74	-10.42	304	295	V
2	* 5.15	55.8	Pk	34.1	-22	0	67.9	-	-	74	-6.1	304	295	V
3	* 5.15	40.44	RMS	34.1	-22	.6	53.14	54	-.86	-	-	304	295	V
4	* 5.15	40.75	RMS	34.1	-22	.6	53.45	54	-.55	-	-	304	295	V

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

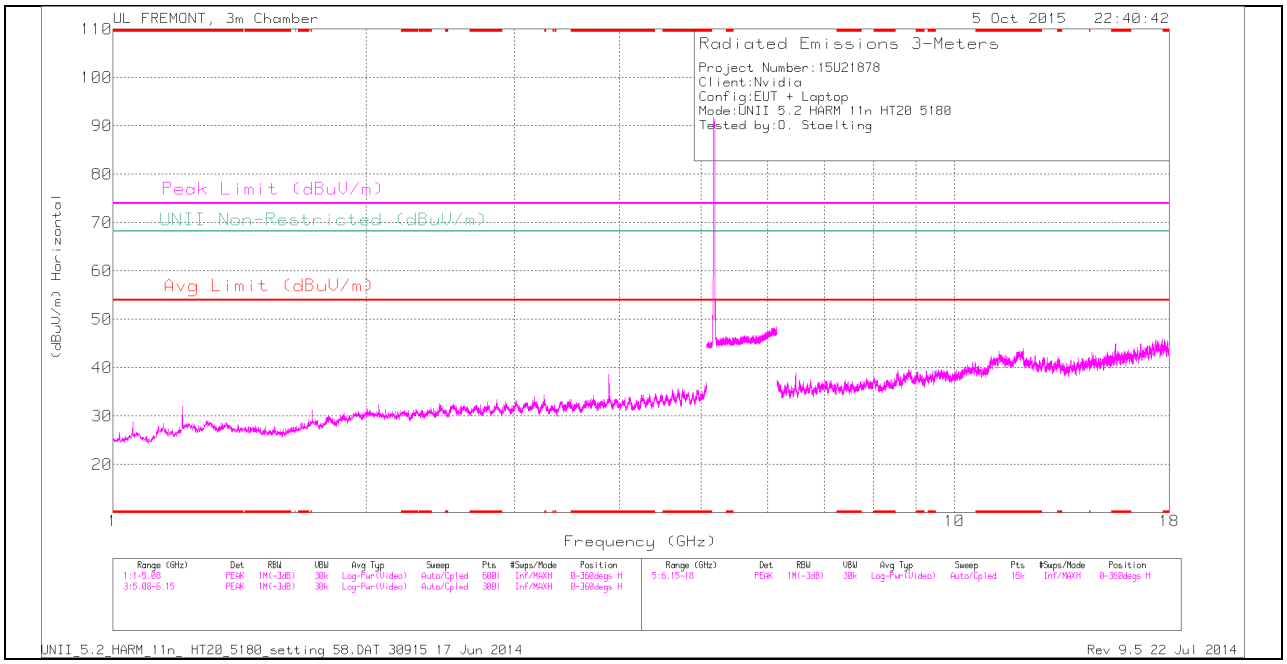
Pk - Peak detector

RMS - RMS detection

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

HARMONICS AND SPURIOUS EMISSIONS

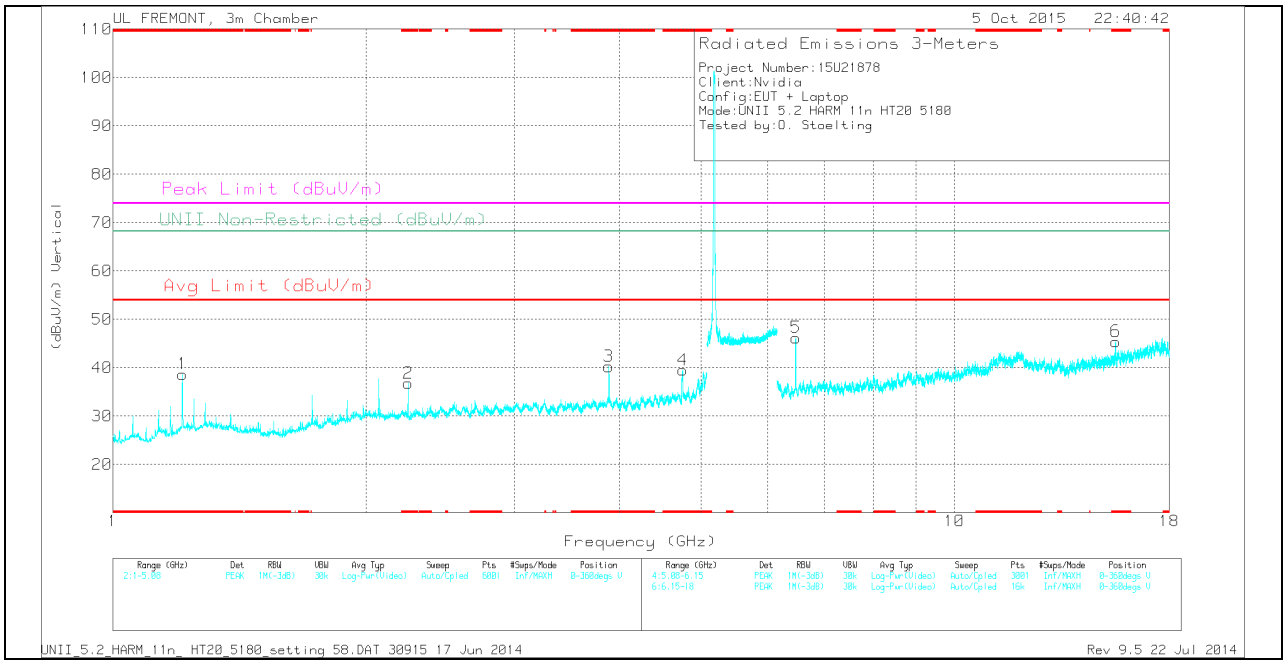
LOW CHANNEL HORIZONTAL



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

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

LOW CHANNEL VERTICAL



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

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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.209	42.39	PK	29	-32.7	0	38.69	-	-	74	-35.31	-	-	0-360	100	V
2	* 2.242	36.97	PK	31.5	-31.7	0	36.77	-	-	74	-37.23	-	-	0-360	200	V
3	* 3.885	36.95	PK	33.2	-29.9	0	40.25	-	-	74	-33.75	-	-	0-360	200	V
4	* 4.754	35.4	PK	34	-29.9	0	39.5	-	-	74	-34.5	-	-	0-360	200	V
6	* 15.535	31.24	PK	40.2	-26	0	45.44	-	-	74	-28.56	-	-	0-360	100	V
5	6.475	39.32	PK	35.6	-28.7	0	46.22	-	-	-	-	68.2	-21.98	0-360	200	V

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

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fl tr/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
* 1.209	46.56	PK1	29	-32.7	0	42.86	-	-	74	-31.14	-	-	177	100	V
* 1.21	41.39	AD1	29	-32.7	.6	38.29	54	-15.71	-	-	-	-	177	100	V
* 2.243	46.45	PK1	31.5	-31.7	0	46.25	-	-	74	-27.75	-	-	166	320	V
* 2.243	28.5	AD1	31.5	-31.7	.6	28.9	54	-25.1	-	-	-	-	166	320	V
* 3.885	43.06	PK1	33.2	-29.9	0	46.36	-	-	74	-27.64	-	-	42	123	V
* 3.885	35.64	AD1	33.2	-29.8	.6	39.64	54	-14.36	-	-	-	-	42	123	V
* 4.752	45.71	PK1	34	-30	0	49.71	-	-	74	-24.29	-	-	18	165	V
* 4.752	33.89	AD1	34	-30	.6	38.49	54	-15.51	-	-	-	-	18	165	V
* 15.535	44.66	PK1	40.2	-26	0	58.86	-	-	74	-15.14	-	-	138	218	V
* 15.537	30.6	AD1	40.2	-26	.6	45.4	54	-8.6	-	-	-	-	138	218	V
* 11.991	36.96	PK1	39.1	-23.4	0	52.66	-	-	74	-21.34	-	-	185	112	V
* 11.992	24.65	AD1	39.1	-23.4	.6	40.95	54	-13.05	-	-	-	-	185	112	V
6.475	44.53	PK1	35.6	-28.7	0	51.43	-	-	-	-	68.2	-16.77	91	215	V
6.475	38.62	AD1	35.6	-28.7	.6	46.12	-	-	-	-	-	-	91	215	V

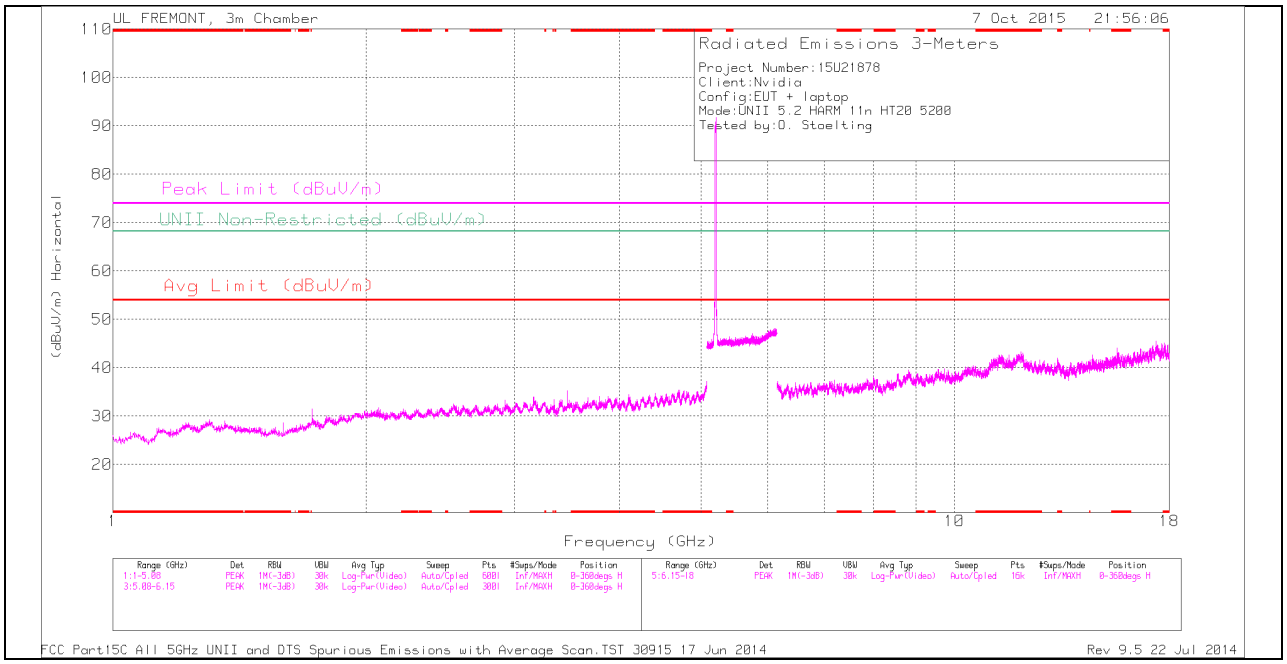
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

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

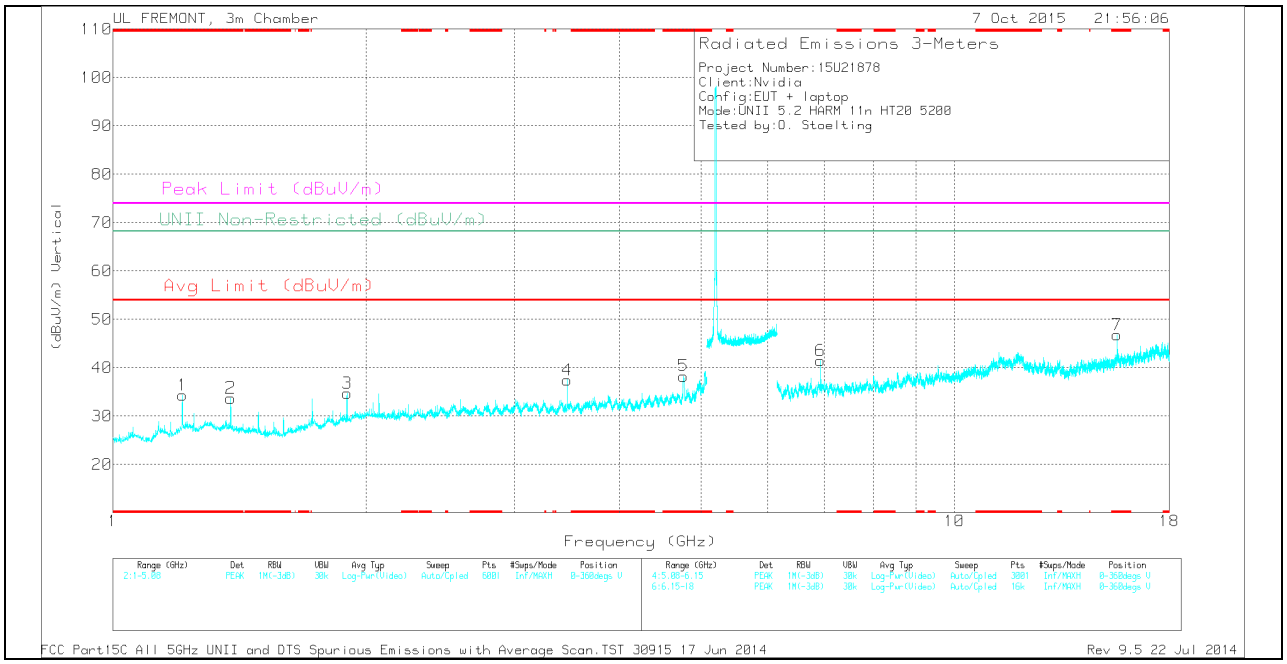
MID CHANNEL HORIZONTAL



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

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

MID CHANNEL VERTICAL



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

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

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.209	38.08	PK	29	-32.7	0	34.38	-	-	74	-39.62	-	-	0-360	100	V
2	* 1.38	37.35	PK	28.9	-32.5	0	33.75	-	-	74	-40.25	-	-	0-360	200	V
5	* 4.762	34.2	PK	34	-29.9	0	38.3	-	-	74	-35.7	-	-	0-360	200	V
7	* 15.608	31.71	PK	40.3	-25.2	0	46.81	-	-	74	-27.19	-	-	0-360	100	V
3	1.898	35.88	PK	31.1	-32.3	0	34.68	-	-	-	-	68.2	-33.52	0-360	200	V
4	3.467	35.16	PK	32.8	-30.5	0	37.46	-	-	-	-	68.2	-30.74	0-360	100	V
6	6.934	33.33	PK	35.6	-27.5	0	41.43	-	-	-	-	68.2	-26.77	0-360	200	V

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

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fl tr/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
* 1.21	45.04	PK1	29	-32.7	0	41.34	-	-	74	-32.66	-	-	326	157	V
* 1.21	38.59	AD1	29	-32.7	.6	35.49	54	-18.51	-	-	-	-	326	157	V
* 1.379	44.32	PK1	28.9	-32.5	0	40.72	-	-	74	-33.28	-	-	201	363	V
* 1.38	31.6	AD1	28.9	-32.5	.6	28.6	54	-25.4	-	-	-	-	201	363	V
* 4.764	45.37	PK1	34	-29.8	0	49.57	-	-	74	-24.43	-	-	321	191	V
* 4.764	32.92	AD1	34	-29.8	.6	37.72	54	-16.28	-	-	-	-	321	191	V
* 15.607	42.56	PK1	40.3	-25.3	0	57.56	-	-	74	-16.44	-	-	308	385	V
* 15.606	28.9	AD1	40.3	-25.4	.6	44.4	54	-9.6	-	-	-	-	308	385	V
1.897	43.6	PK1	31.1	-32.3	0	42.4	-	-	-	-	68.2	-25.8	131	165	V
1.898	29.14	AD1	31.1	-32.3	.6	28.54	-	-	-	-	-	-	131	165	V
3.467	43.11	PK1	32.8	-30.5	0	45.41	-	-	-	-	68.2	-22.79	281	123	V
3.467	33.37	AD1	32.8	-30.5	.6	36.27	-	-	-	-	-	-	281	123	V
6.933	41.02	PK1	35.6	-27.5	0	49.12	-	-	-	-	68.2	-19.08	176	202	V
6.933	33.59	AD1	35.6	-27.5	.6	42.29	-	-	-	-	-	-	176	202	V

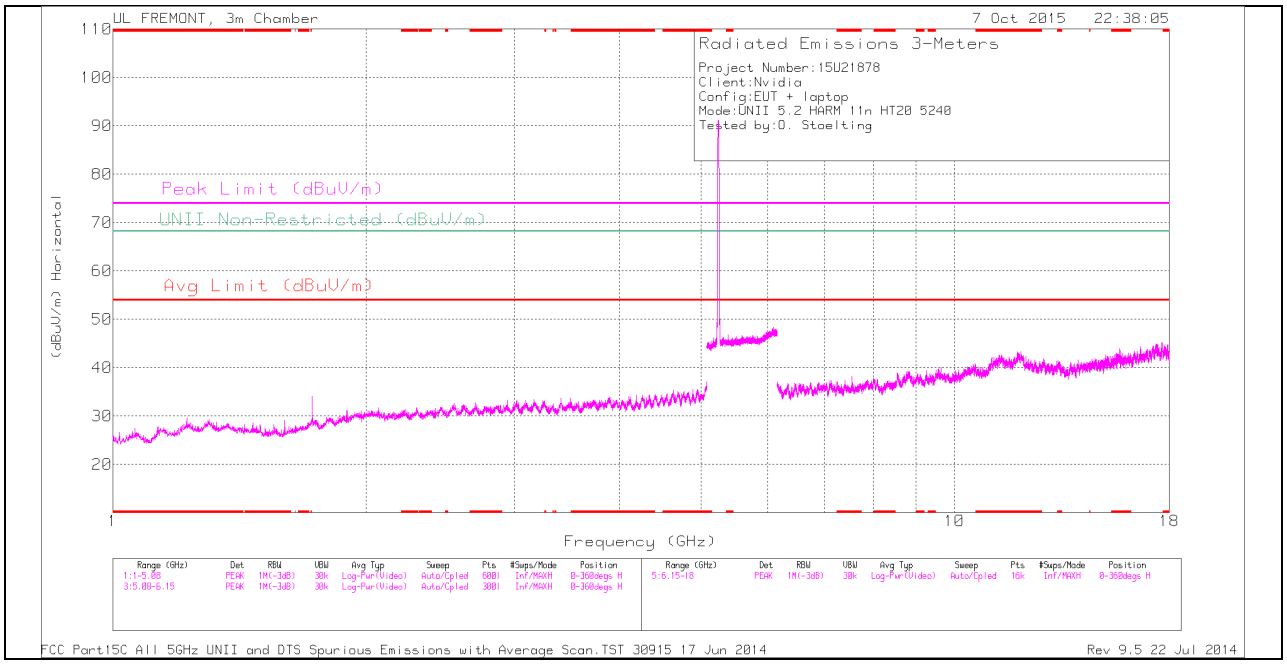
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

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

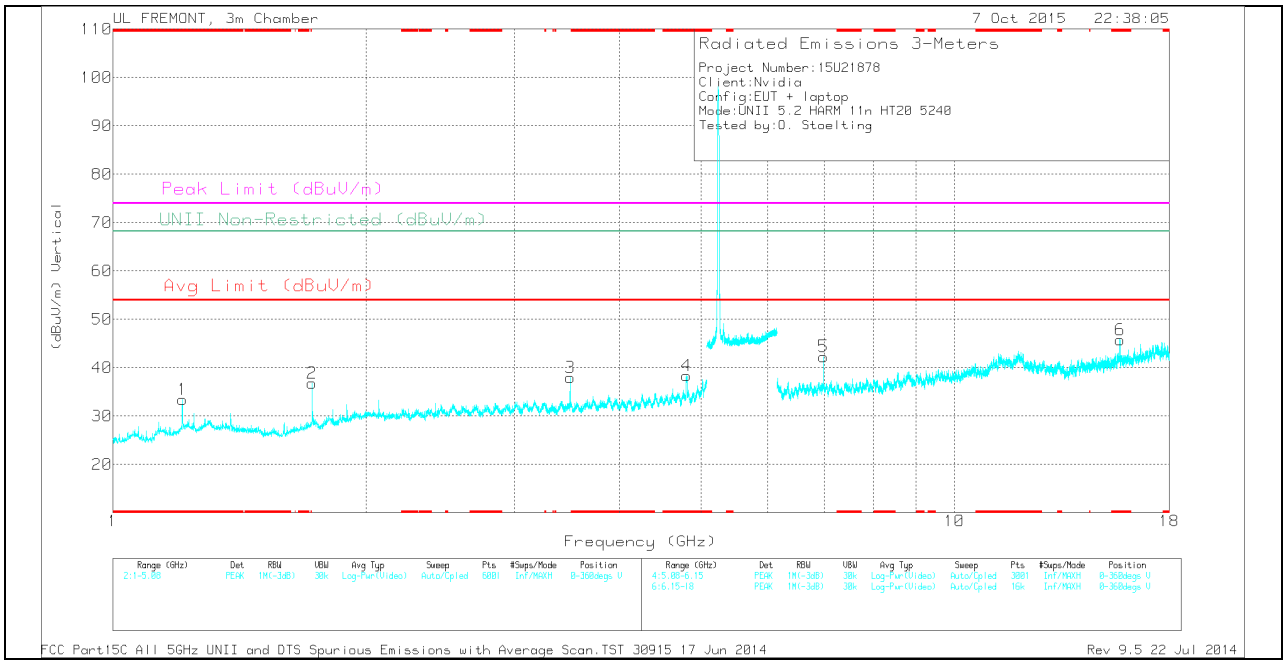
HIGH CHANNEL HORIZONTAL



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

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

HIGH CHANNEL VERTICAL



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

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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.209	37.15	PK	29	-32.7	0	33.45	-	-	74	-40.55	-	-	0-360	200	V
4	* 4.807	33.85	PK	34	-29.5	0	38.35	-	-	74	-35.65	-	-	0-360	200	V
6	* 15.726	31.41	PK	40.4	-26	0	45.81	-	-	74	-28.19	-	-	0-360	200	V
2	1.725	39.02	PK	29.3	-31.5	0	36.82	-	-	-	-	68.2	-31.38	0-360	200	V
3	3.494	35.93	PK	32.8	-30.8	0	37.93	-	-	-	-	68.2	-30.27	0-360	200	V
5	6.987	34.42	PK	35.6	-27.7	0	42.32	-	-	-	-	68.2	-25.88	0-360	200	V

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

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fl tr/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
* 1.209	45.27	PK1	29	-32.7	0	41.57	-	-	74	-32.43	-	-	316	263	V
* 1.21	38.64	AD1	29	-32.7	.6	35.54	54	-18.46	-	-	-	-	316	263	V
* 4.807	46.7	PK-U	34	-29.5	0	51.2	-	-	74	-22.8	68.2	-17	279	213	V
* 4.802	34.42	ADR	34	-29.3	.6	39.72	54	-14.28	-	-	-	-	279	213	V
* 15.725	47.44	PK1	40.4	-26	0	61.84	-	-	74	-12.16	-	-	360	350	V
* 15.724	32.94	AD1	40.4	-26	.6	47.94	54	-6.06	-	-	-	-	360	350	V
1.725	43.4	PK1	29.3	-31.5	0	41.2	-	-	-	-	68.2	-27	170	182	V
1.725	33.96	AD1	29.3	-31.5	.6	32.36	-	-	-	-	-	-	170	182	V
3.493	45.04	PK1	32.8	-30.8	0	47.04	-	-	-	-	68.2	-21.16	118	253	V
3.493	32.36	AD1	32.8	-30.8	.6	34.96	-	-	-	-	-	-	118	253	V
6.987	41.59	PK1	35.6	-27.7	0	49.49	-	-	-	-	68.2	-18.71	177	174	V
6.987	34.24	AD1	35.6	-27.7	.6	42.74	-	-	-	-	-	-	177	174	V

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

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

PK1 - KDB789033 Method: Peak

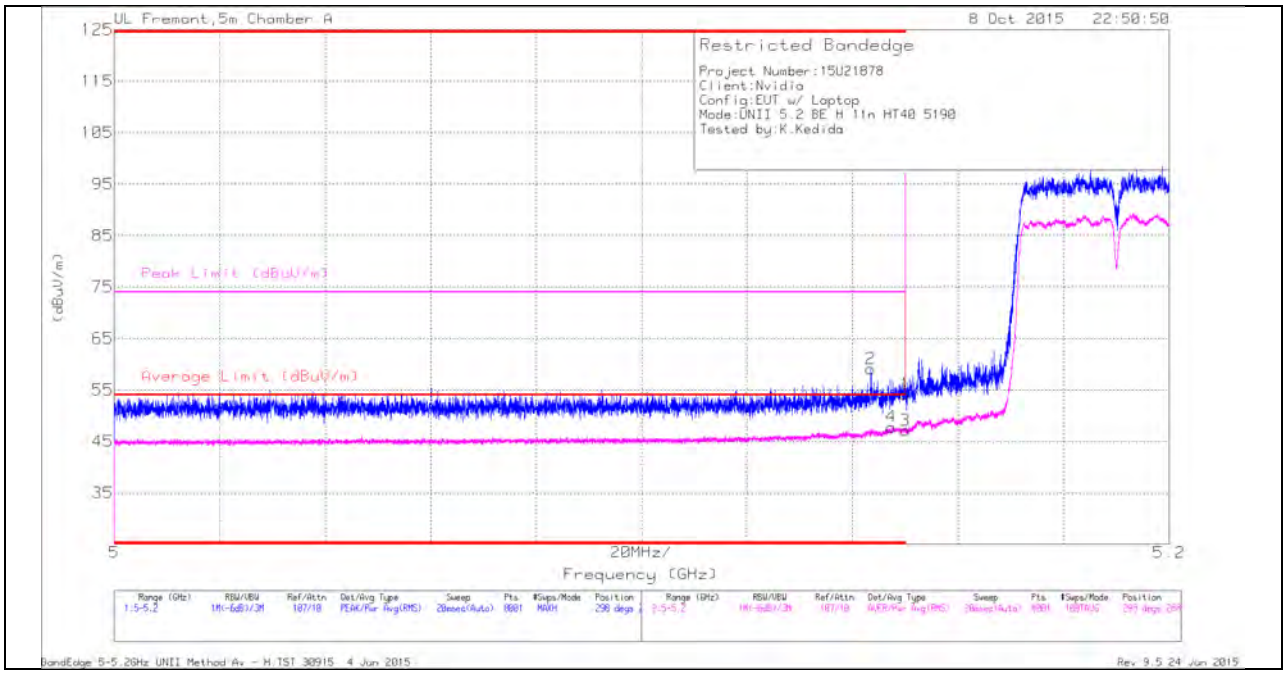
AD1 - KDB789033 Method: AD Primary Power Average

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

10.1.4. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	40.65	Pk	34.2	-20.7	0	54.15	-	-	74	-19.85	298	288	H
2	* 5.143	45.6	Pk	34.2	-20.7	0	59.1	-	-	74	-14.9	298	288	H
3	* 5.15	32.57	RMS	34.2	-20.7	1.07	47.14	54	-6.86	-	-	298	288	H
4	* 5.147	33.25	RMS	34.2	-20.7	1.07	47.82	54	-6.18	-	-	298	288	H

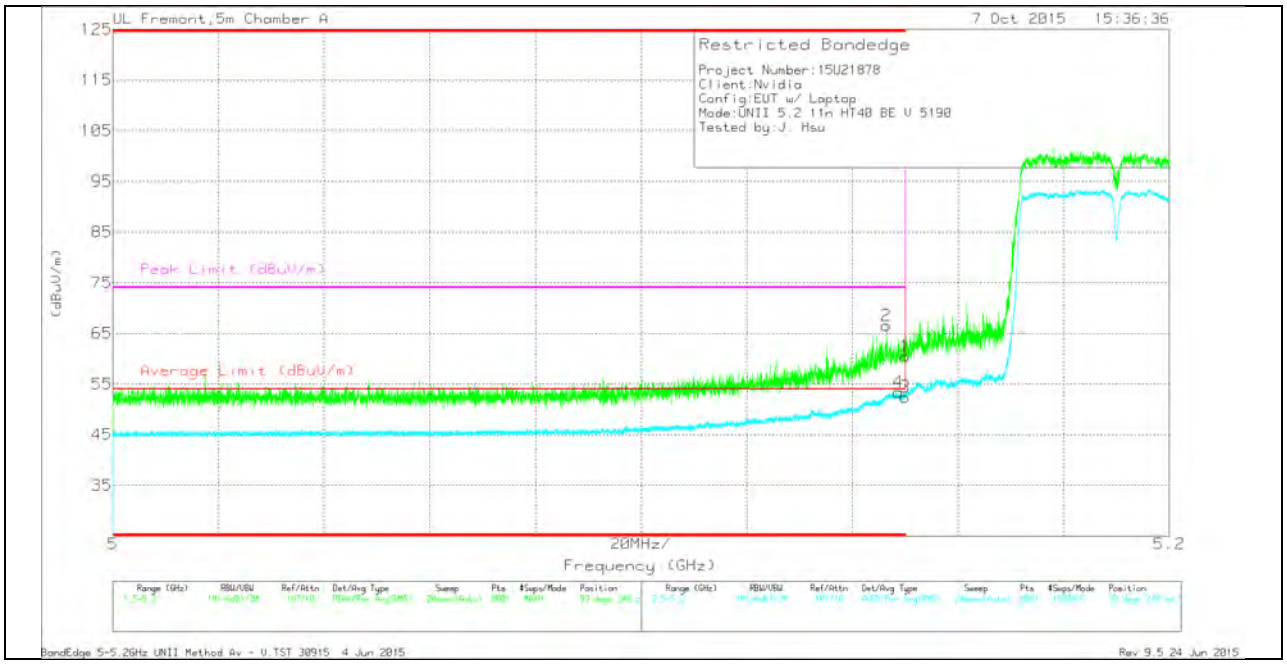
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

RMS - RMS detection

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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	47.02	Pk	34.2	-20.7	0	60.52	-	-	74	-13.48	99	248	V
2	* 5.146	53	Pk	34.2	-20.7	0	66.5	-	-	74	-7.5	99	248	V
3	* 5.15	37.89	RMS	34.2	-20.7	1.07	52.46	54	-1.54	-	-	99	248	V
4	* 5.149	38.81	RMS	34.2	-20.7	1.07	53.38	54	-0.62	-	-	99	248	V

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

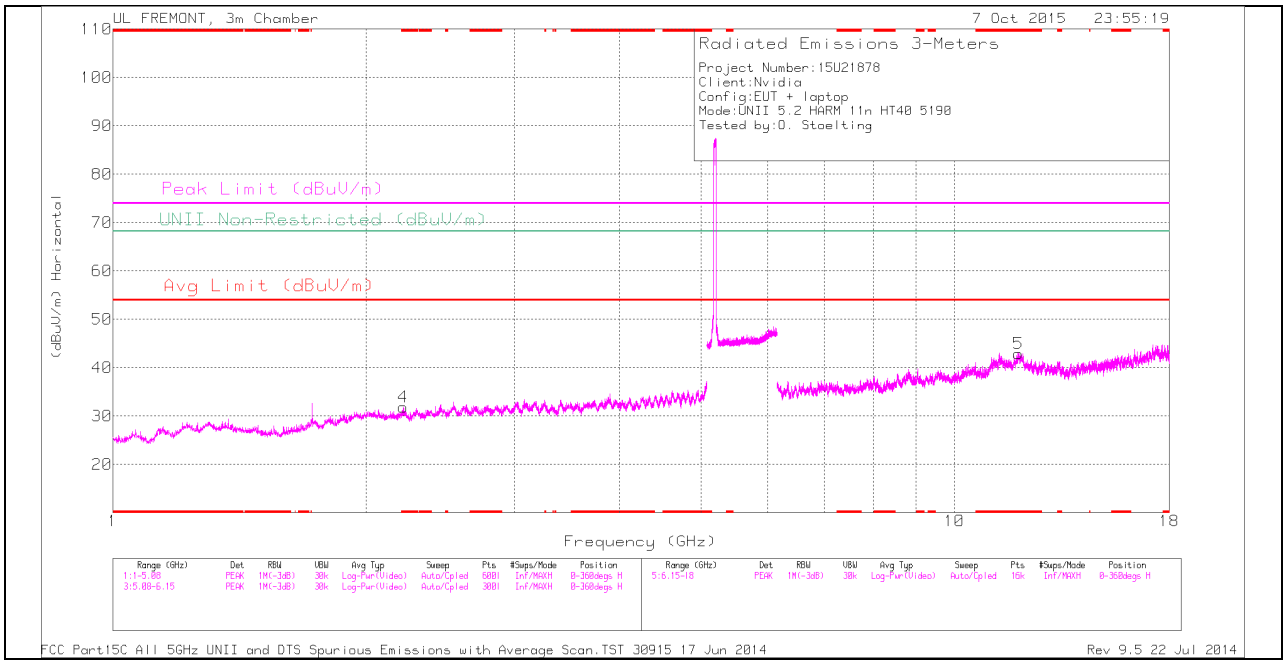
Pk - Peak detector

RMS - RMS detection

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

HARMONICS AND SPURIOUS EMISSIONS

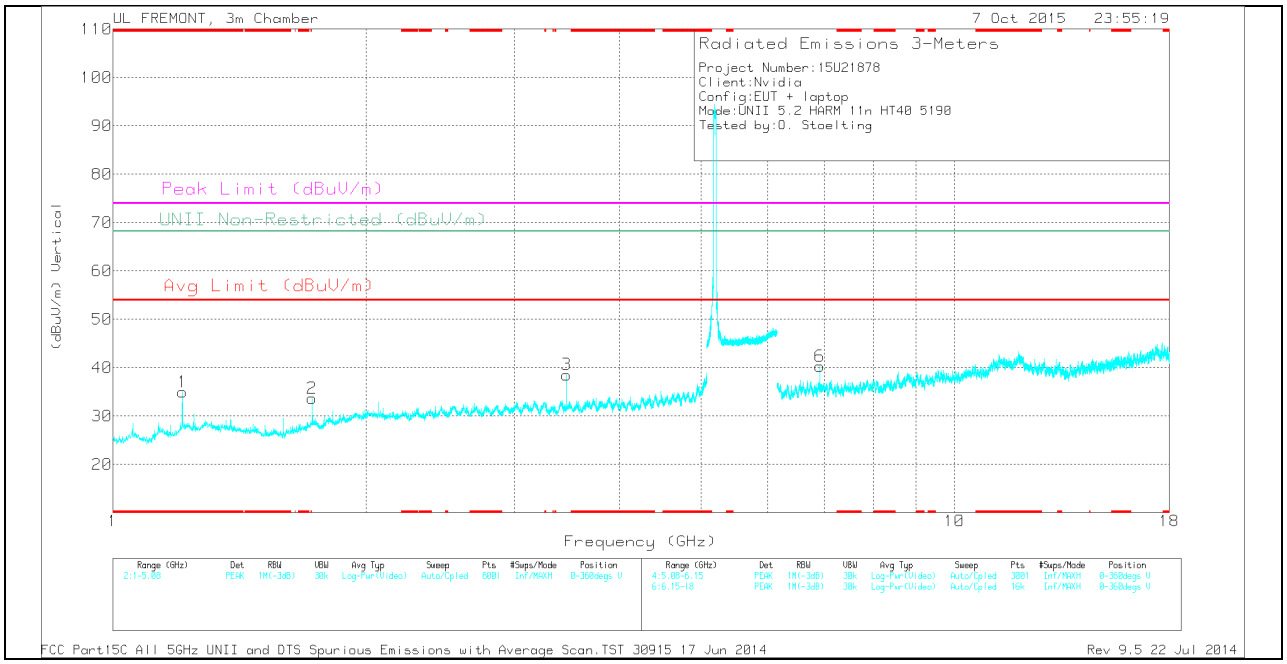
LOW CHANNEL HORIZONTAL



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

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

LOW CHANNEL VERTICAL



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

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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.211	32.23	PK	31.4	-31.7	0	31.93	-	-	74	-42.07	-	-	0-360	200	H
1	* 1.209	38.72	PK	29	-32.7	0	35.02	-	-	74	-38.98	-	-	0-360	100	V
5	* 11.908	27.31	PK	39.1	-23.5	0	42.91	-	-	74	-31.09	-	-	0-360	100	H
2	1.725	35.86	PK	29.3	-31.5	0	33.66	-	-	-	-	68.2	-34.54	0-360	200	V
3	3.46	36.36	PK	32.8	-30.6	0	38.56	-	-	-	-	68.2	-29.64	0-360	100	V
6	6.92	32.85	PK	35.6	-28.1	0	40.35	-	-	-	-	68.2	-27.85	0-360	200	V

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

PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fl tr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.21	41.14	PK1	31.4	-31.8	0	40.74	-	-	74	-33.26	-	-	164	166	H
* 2.213	29.07	AD1	31.4	-31.7	1.08	29.85	54	-24.15	-	-	-	-	164	166	H
* 1.21	45.16	PK1	29	-32.7	0	41.46	-	-	74	-32.54	-	-	328	154	V
* 1.21	38.33	AD1	29	-32.7	1.08	35.71	54	-18.29	-	-	-	-	328	154	V
* 11.907	36.01	PK1	39.1	-23.4	0	51.71	-	-	74	-22.29	-	-	260	387	H
* 11.91	24.11	AD1	39.1	-23.5	1.08	40.79	54	-13.21	-	-	-	-	260	387	H
1.725	43.83	PK1	29.3	-31.5	0	41.63	-	-	-	-	68.2	-26.57	71	323	V
1.725	30.98	AD1	29.3	-31.5	1.08	29.86	-	-	-	-	-	-	71	323	V
3.46	42.37	PK1	32.8	-30.6	0	44.57	-	-	-	-	68.2	-23.63	296	117	V
3.46	33.32	AD1	32.8	-30.6	1.08	36.6	-	-	-	-	-	-	296	117	V
6.92	40.68	PK1	35.6	-28.1	0	48.18	-	-	-	-	68.2	-20.02	179	199	V
6.92	32.11	AD1	35.6	-28.2	1.08	40.59	-	-	-	-	-	-	179	199	V

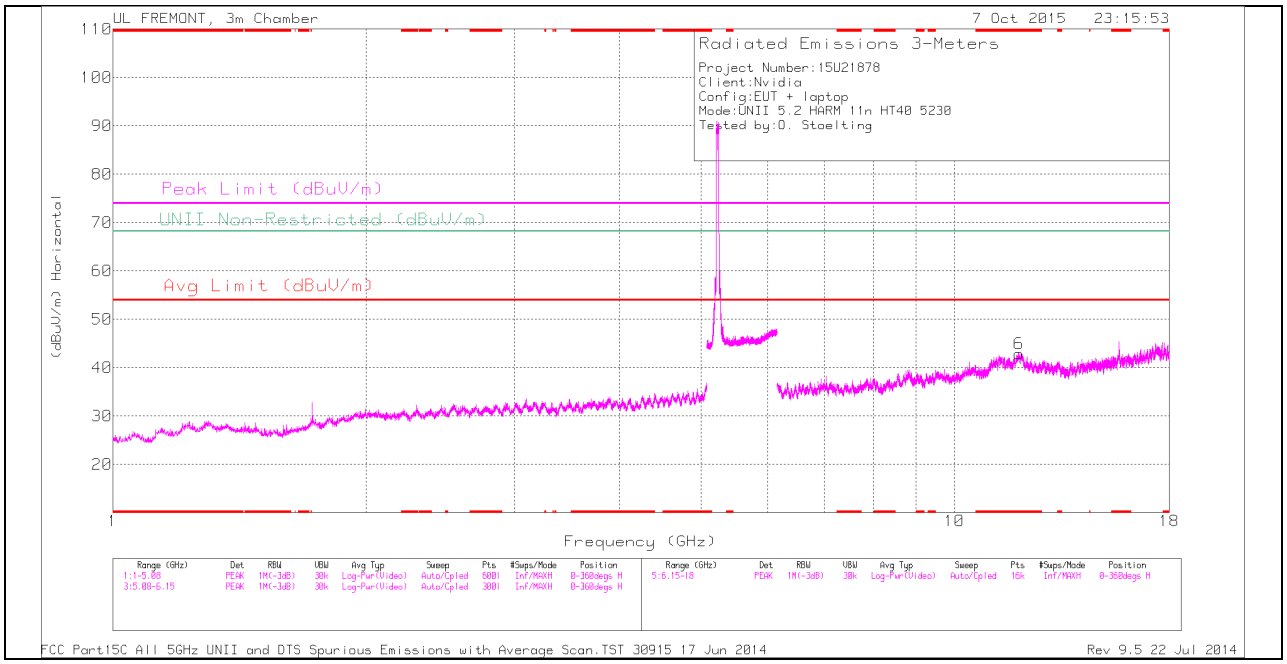
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

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

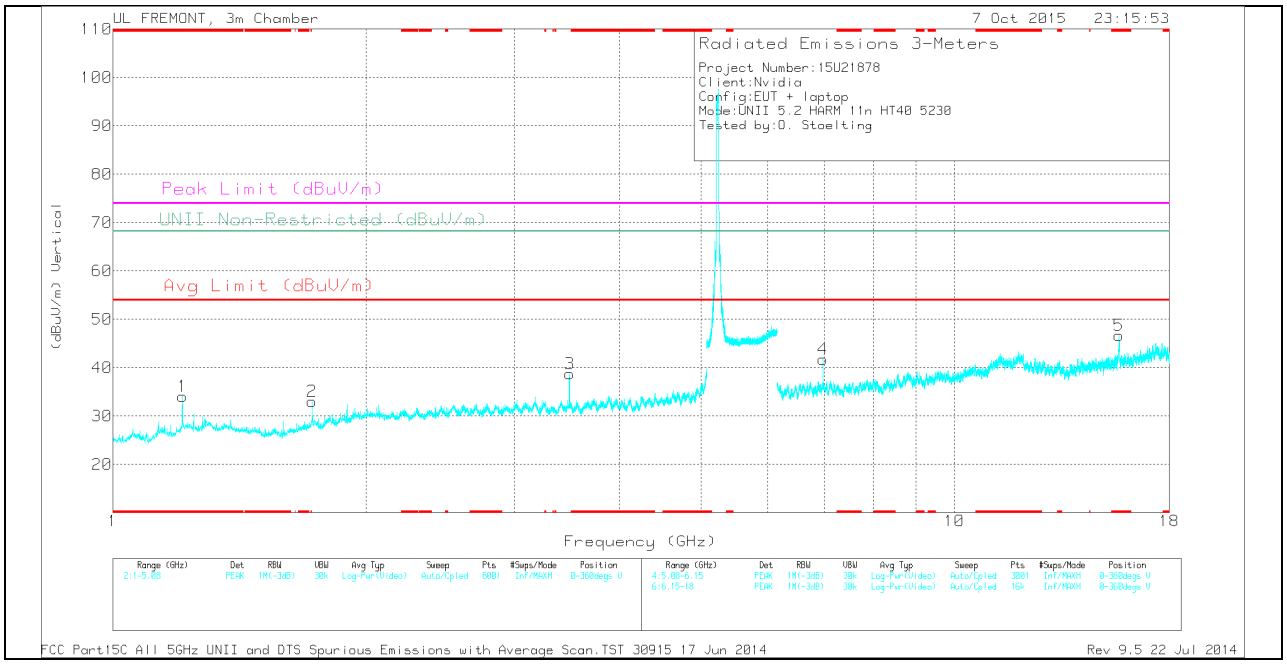
MID CHANNEL HORIZONTAL



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

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

MID CHANNEL VERTICAL



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

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