FCC 47 CFR PART 15 SUBPART E

TEST REPORT

For

HP Wireless Streaming Connector

Model: HSTND-C008

Trade Name: hp

Issued to

GOOD WAY TECHNOLOGY CO., LTD.
3F, No. 135, Ln.235, Baociao Rd., Sindian Dist., New Taipei City 231, Taiwan

Issued by

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Testing Laboratory
1309

Revision History

Rev.		Issue Date		Revisions	Effect Page	Revised By
00		September 2, 2014		Initial Issue	ALL	Landy Huang

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1. TEST RESULT CERTIFICATION

Applicant:	**GOOD WAY TECHNOLOGY CO., LTD.** 3F, No. 135, Ln.235, Baociao Rd., Sindian Dist., New Taipei City 231, Taiwan
Manufacturer:	**GOOD WAY TECHNOLOGY CO., LTD.** 3F, No. 135, Ln.235, Baociao Rd., Sindian Dist., New Taipei City 231, Taiwan
Equipment Under Test:	HP Wireless Streaming Connector
Trade Name:	hp
Model:	HSTND-C008
Date of Test:	August 14 ~ September 1, 2014

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 15 SUBPART E	No non-compliance noted

We hereby certify that:

Compliance Certification Services Inc. tested the above equipment. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in **ANSI C63.4: 2009** and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.407.

The test results of this report relate only to the tested sample identified in this report.

Approved by:

Bill Cheng
Section Manager

Reviewed by:

Angel Hu
Section Manager

2. EUT DESCRIPTION

<table>
<tr><td>Product</td><td colspan="3">HP Wireless Streaming Connector</td></tr>
<tr><td>Trade Name</td><td colspan="3">hp</td></tr>
<tr><td>Model Number</td><td colspan="3">HSTND-C008</td></tr>
<tr><td>Model Discrepancy</td><td colspan="3">N/A</td></tr>
<tr><td>EUT Power Rating</td><td colspan="3">5VDC From PC</td></tr>
<tr><td>RF Module Manufacturer</td><td>Realtek</td><td>Model</td><td>RTL8192DU</td></tr>
<tr><td>Operating Frequency Range &
Number of Channels</td><td colspan="3">
<table>
<tr><th></th><th>Mode</th><th>Frequency Range (MHz)</th><th>Number of Channels</th></tr>
<tr><td rowspan="3">UNII Band I</td><td>IEEE 802.11a</td><td>5180-5240</td><td>4 Channels</td></tr>
<tr><td>IEEE 802.11n HT20</td><td>5180-5240</td><td>4 Channels</td></tr>
<tr><td>IEEE 802.11n HT40</td><td>5190-5230</td><td>2 Channels</td></tr>
<tr><td rowspan="3">UNII Band III</td><td>IEEE 802.11a</td><td>5745-5825</td><td>5 Channels</td></tr>
<tr><td>IEEE 802.11n HT20</td><td>5745-5825</td><td>5 Channels</td></tr>
<tr><td>IEEE 802.11n HT40</td><td>5755-5795</td><td>2 Channels</td></tr>
</table>
</td></tr>
<tr><td>Transmit Power</td><td colspan="3">
<table>
<tr><th></th><th>Mode</th><th>Frequency Range (MHz)</th><th>Output Power (dBm)</th><th>Output Power (W)</th></tr>
<tr><td rowspan="3">UNII Band I</td><td>IEEE 802.11a</td><td>5180-5240</td><td>13.56</td><td>0.0227</td></tr>
<tr><td>IEEE 802.11n HT20</td><td>5180-5240</td><td>13.38</td><td>0.0218</td></tr>
<tr><td>IEEE 802.11n HT40</td><td>5190-5230</td><td>13.24</td><td>0.0211</td></tr>
<tr><td rowspan="3">UNII Band III</td><td>IEEE 802.11a</td><td>5745-5825</td><td>13.53</td><td>0.0225</td></tr>
<tr><td>IEEE 802.11n HT20</td><td>5745-5825</td><td>13.47</td><td>0.0222</td></tr>
<tr><td>IEEE 802.11n HT40</td><td>5755-5815</td><td>13.36</td><td>0.0217</td></tr>
</table>
</td></tr>
<tr><td>Modulation Technique</td><td colspan="3">OFDM (QPSK, BPSK, 16-QAM, 64-QAM)</td></tr>
<tr><td>Transmit Data Rate</td><td colspan="3">IEEE 802.11a mode: 54, 48, 36, 24, 18, 12, 9, 6 Mbps
IEEE 802.11n HT20 mode: OFDM (144.4, 130, 117, 115.6, 104, 86.7, 78, 72.2, 65.0, 58.5, 57.8, 52, 43.3, 39, 28.9, 26, 21.7, 19.5, 14.4, 13, 7.2, 6.5 Mbps)
IEEE 802.11n HT40 mode: OFDM (300, 270, 243, 240, 216, 180, 162, 150, 135, 121.5, 120, 108, 90, 81, 60, 54, 45, 40.5, 30, 27, 15, 13.5 Mbps)</td></tr>
<tr><td>Antenna Specification</td><td colspan="3">Chain 0: PCB Antenna / Gain: 4.6dBi (For IEEE 802.11a)
Chain 1: PCB Antenna / Gain: 5.9dBi(For IEEE 802.11a)
MIMO: $10\log[(10^{4.6/20}+10^{5.9/20})^2/2]=8.28$) (For IEEE 802.11n)</td></tr>
</table>

Operation Frequency:

UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII)	
CHANNEL	**MHz**
36	5180
38	5190
40	5200
42	5210
44	5220
46	5230
48	5240
149	5745
151	5755
153	5765
155	5775
157	5785
159	5795
161	5805
165	5825

Remark:

1. The sample selected for test was production product and was provided by manufacturer.

*2. This submittal(s) (test report) is intended for FCC ID: **SW8-WD9012R1** filing to comply with Section 15.207, 15.209 and 15.407 of the FCC Part 15, Subpart E Rules.*

3. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4: 2009 Radiated testing was performed at an antenna to EUT distance 3 meters.

The tests documented in this report were performed in accordance with ANSI C63.4: 2009 and FCC CFR 47 Part 15.207, 15.209 and 15.407.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed for RF field strength measurement to meet the Commissions requirement, and is operated in a manner intended to generate the maximum emission in a continuous normal application.

3.2 EUT EXERCISE

The EUT is operated in the engineering mode to fix the Tx frequency for the purposes of measurement.

According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is positioned at 0.8 m above the ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4, the conducted emission from the EUT is measured in the frequency range between 0.15 MHz and 30MHz, using the CISPR Quasi-Peak detector mode.

Radiated Emissions

The EUT is placed on the turntable, which is 0.8 m above the ground plane. The turntable is then rotated for 360 degrees to determine the proper orientation for the maximum emission level. The EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission level. And, each emission is to be maximized by changing the horizontal and vertical polarization of the receiving antenna. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4: 2003.

3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	([2])
13.36 - 13.41	322 - 335.4		

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

3.5 DESCRIPTION OF TEST MODES

The EUT is a 2Tx2R MIMO transmitter.

The EUT (model: HSTND-C008) had been tested under operating condition and had been reported as worst case on this test report.
Software used to control the EUT for staying in continuous transmitting mode was programmed.
The worst case data rate is determined as the data rate with highest output power.
After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode.

The field strength of spurious emission was measured in the following position: EUT stand-up position (Y axis), lie-down position (X, Z axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

UNII Band I:

IEEE 802.11a mode for 5180-5240MHz:
Channel Low (5180MHz), Channel Mid (5220MHz) and Channel High (5240MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT20 mode for 5180-5240MHz:
Channel Low (5180MHz), Channel Mid (5220MHz) and Channel High (5240MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT40 mode for 5190-5230MHz:
Channel Low (5190MHz) and Channel High (5230MHz) with 13.5Mbps data rate were chosen for full testing.

UNII Band III:

IEEE 802.11a mode:
Channel Low (5745MHz), Channel Mid (5785MHz) and Channel High (5825MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT20 mode:
Channel Low(5745MHz), Channel Mid(5785MHz) and Channel High(5825MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT40 mode:
Channel Low(5755MHz) and Channel High(5795MHz) with 13.5Mbps data rate were chosen for full testing.

4. INSTRUMENT CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

4.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Conducted Emissions Test Site				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY48250064	01/01/2015
Spectrum Analyzer	Agilent	N9010A	MY52220817	03/20/2015
Spectrum Analyzer	R&S	FSL	100837	11/11/2014
Power meter	Anritsu	ML2495A	1033009	09/29/2014
Power Sensor	Anritsu	MA2411B	0917221	09/29/2014

3MSemi Anechoic Chamber				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Spectrum Analyzer	Agilent	E4446A	MY48250064	01/01/2015
Spectrum Analyzer	R&S	FSL	100837	11/11/2014
Pre-Amplifier	HP	8447D	2944A06530	05/02/2015
Pre-Amplifier	EMEC	EM01M26G	060570	07/28/2015
Pre-Amplifier	MITEQ	AMF-6F-260400-40-8P	985646	06/12/2015
Pre-Amplifier	Agilent	8449B	3008A01738	08/11/2015
EMI Test Receiver	SCHAFFNER	SCR 3501	430	03/30/2015
Loop Antenna	EMCO	6502	8905-2356	08/20/2014
Bilog Antenna	TESEQ	CBL 6112D	35378	09/11/2014
Horn Antenna	EMCO	3115	00022250	08/05/2015
Horn Antenna	EMCO	3116	00026370	12/29/2014
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R
Test S/W	EZ-EMC			

NOTE: *1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.*
2. N.C.R = No Calibration Request.

Powerline Conducted Emissions Test Site#3				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESCI	101300	09/06/2014
LISN	R&S	ENV216	100069	06/09/2015
LISN	FCC	FCC-LISN-50/250-16-2-07	06013	11/20/2014
ISN	TESEQ	ISN-T8	30842	07/30/2015
Current Probe	FCC	F-35	506	07/13/2015
ISN	FCC	FCC-TLISN-T2-02	20587	07/28/2015
Test S/W	EZ-EMC			

NOTE: *1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.*
2. N.C.R = No Calibration Request.

4.3 MEASUREMENT UNCERTAINTY

Parameter	Uncertainty
Powerline Conducted Emission # 3	±2.1876
3M Semi Anechoic Chamber / 30MHz ~ 200MHz	±3.5921
3M Semi Anechoic Chamber / 200MHz ~ 1GHz	±3.5657
3M Semi Anechoic Chamber / 1 ~ 8GHz	±2.5873
3M Semi Anechoic Chamber / 8 ~ 18GHz	±2.6646
3M Semi Anechoic Chamber / 18 ~ 26GHz	±2.9617
3M Semi Anechoic Chamber / 26 ~ 40GHz	±3.4250

Remark*: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.*

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☐ No. 163-1, Jhongsheng Rd., Sindien District, Taipei City 23151, Taiwan
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☐ No 11, Wugong 6th Rd, Wugu District, New Taipei City 24891, Taiwan (R.O.C)
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

☒ No.81-1, Lane 210, Bade 2nd Rd., Lujhu Township, Taoyuan County 33841, Taiwan
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

5.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 0824-01 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC 2324G-1 for 3M Semi Anechoic Chamber A, 2324G-2 for 3M Semi Anechoic Chamber B.

5.4 TABLE OF ACCREDITATIONS AND LISTINGS

Country	Agency	Scope of Accreditation	Logo
USA	A2LA	CFR 47, FCC Part15/18, CISPR 22, EN 55022, ICES-003, AS/NZS CISPR 22, VCCI V-3, EN 55011, CISPR 11, IEC/EN 61000-4-2/3/4/5/6/8/11, EN 61000-6-1/2/3/4, EN 55024, CISPR 24, AS/NZS CISPR 24, AS/NZS 61000.6.2, EN 55014-1/-2, ETSI EN 300 386 v1.3.2/v1.3.3, IEC/EN 61000-3-2, AS/NZS 61000.3.2, IEC/EN 61000-3-3, AS/NZS 61000.3.3	ACCREDITED TESTING CERT #0824.01
USA	FCC MRA	3 meter Open Area Test Sites to perform FCC Part 15/18 measurements	TW1026
Japan	VCCI	3/10 meter Open Area Test Sites and conducted test sites to perform radiated/conducted measurements	VCCI R-2882/2541/2798/725/1868 C-402/747/912 T-1930/1646
Taiwan	TAF	EN 55014-1, CISPR 14, CNS 13781-1, EN 55013, CISPR 13, CNS 13439, EN 55011, CISPR 11, CNS 13803, PLMN09, IS2045-0, LP0002 FCC Part 27/90, Part 15B/C/D/E, RSS-192/193/210/310 ETSI EN 300 328/ 300 220-1/ 300 220-2/ 301 893/ 301 489-01/ 301 489-03/ 301 489-07 / 301 489-17/ 300 440-1/ 300 440-2 AS/NZS 4268, AS/NZS 4771 CISPR 22, EN 55022, CNS 13438, AS/NZS CISPR 22, VCCI, IEC/EN 61000-4-2/3/4/5/6/8/11, CNS 14676-2/3/4/5/6/8, CNS 14934-2/3, CNS 13783-1, CNS 13439, CNS 13803	ilac-MRA TAF Testing Laboratory 0363
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS 13439, CNS 14115	SL2-IS-E-0014 / IN-E-0014 /A1-E-0014 /R1-E-0014 /R2-E-0014 /L1-E-0014
Canada	Industry Canada	RSS-Gen Issue 3	Canada IC 2324C-5

** No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.*

6. SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix I for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

For Radiated Emission (Below 1GHz) and Power line conducted emission measurement:							
No.	**Device Type**	**Model**	**Series No.**	**FCC ID**	**Brand**	**Data Cable**	**Power Cord**
1	Monitor	CNC2150001	N/A	FCC DoC	hp	Shielded,1.2m	N/A
2	Adapter (For Monitor)	TPC-DA52	N/A	FCC DOC	hp	N/A	AC I/P: Unshielded,1.8m DC O/P: Shielded,1.8m with two cores

For Radiated Emission (Above 1GHz) and Conducted emission measurement:							
No.	**Device Type**	**Model**	**Series No.**	**FCC ID**	**Brand**	**Data Cable**	**Power Cord**
1	Test Jig	N/A	N/A	N/A	N/A	Unshielded,0.5m	N/A
2	Notebook PC	ThinkPad T430u	PB-VZLGG 12/09	FCC DOC	LENOVO	USB Cable: Unshielded,1.0m	AC I/P: Unshielded,1.8m DC O/P: Unshielded,1.8m with a core

Remark: *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

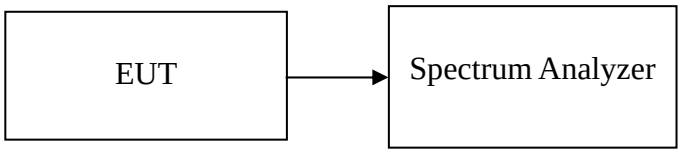
7. FCC PART 15 REQUIREMENTS

7.1 26 dB EMISSION BANDWIDTH

LIMIT

According to §15.303(c), for purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier. Compliance with the emissions limits is based on the use of measurement instrumentation employing a peak detector function with an instrument resolutions bandwidth approximately equal to 1.0 percent of the emission bandwidth of the device under measurement.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low-loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW > 1%EBW, VBW > RBW, Span >26dB bandwidth, and Sweep = auto.
4. Mark the peak frequency and –26dB (upper and lower) frequency.
5. Repeat until all the rest channels were investigated.

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11a mode / 5150 ~ 5250MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5180	23.009
Mid	5220	23.009
High	5240	23.263

Test mode: IEEE 802.11n HT20 mode / 5150 ~ 5250MHz / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5180	23.980
Mid	5220	23.556
High	5240	24.015

Test mode: IEEE 802.11n HT20 mode / 5150 ~ 5250MHz / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5180	24.088
Mid	5220	23.766
High	5240	23.858

Test mode: IEEE 802.11n HT40 mode / 5150 ~ 5250MHz / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5190	40.664
High	5230	40.703

Test mode: IEEE 802.11n HT40 mode / 5150 ~ 5250MHz / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5190	40.947
High	5230	40.820

Test mode: IEEE 802.11a mode / 5725 ~ 5850MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5745	23.316
Mid	5785	24.186
High	5825	24.269

Test mode: IEEE 802.11n HT20 mode / 5725 ~ 5850MHz / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5745	24.215
Mid	5785	24.430
High	5825	24.171

Test mode: IEEE 802.11n HT20 mode / 5725 ~ 5850MHz / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5745	23.736
Mid	5785	23.824
High	5825	23.526

Test mode: IEEE 802.11n HT40 mode / 5725 ~ 5850MHz / Chain 0

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5755	40.841
High	5795	41.084

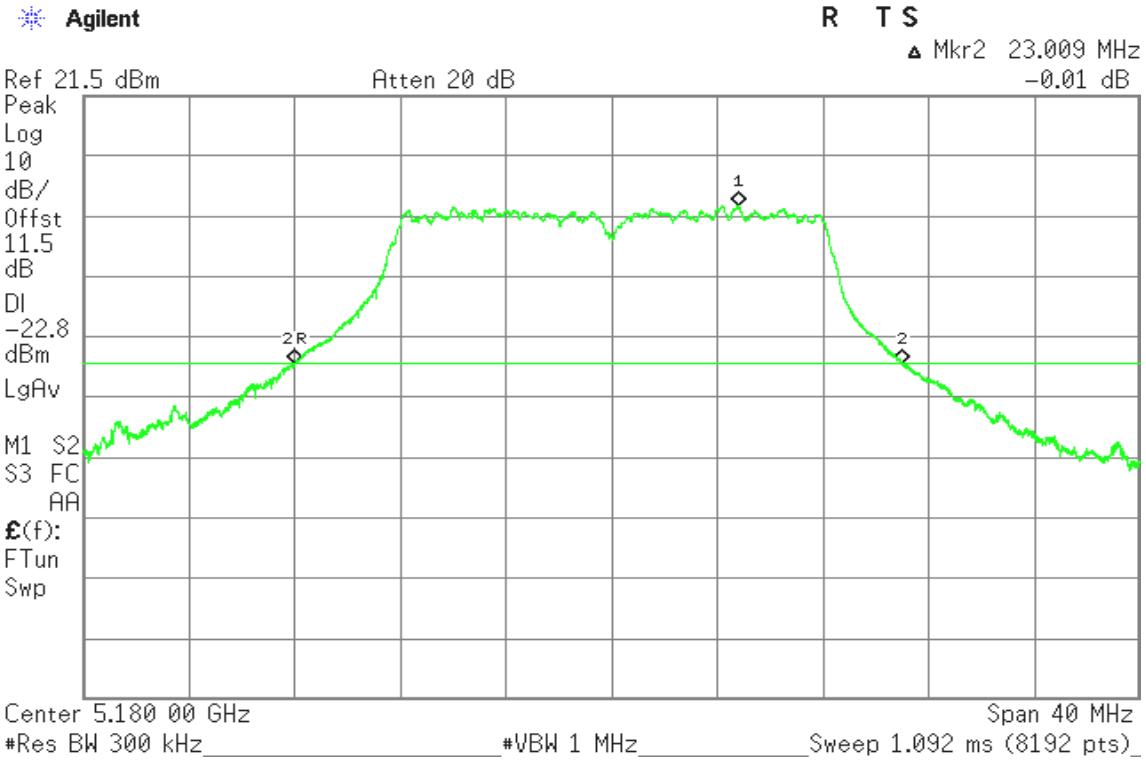
Test mode: IEEE 802.11n HT40 mode / 5725 ~ 5850MHz / Chain 1

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5755	41.065
High	5795	41.094

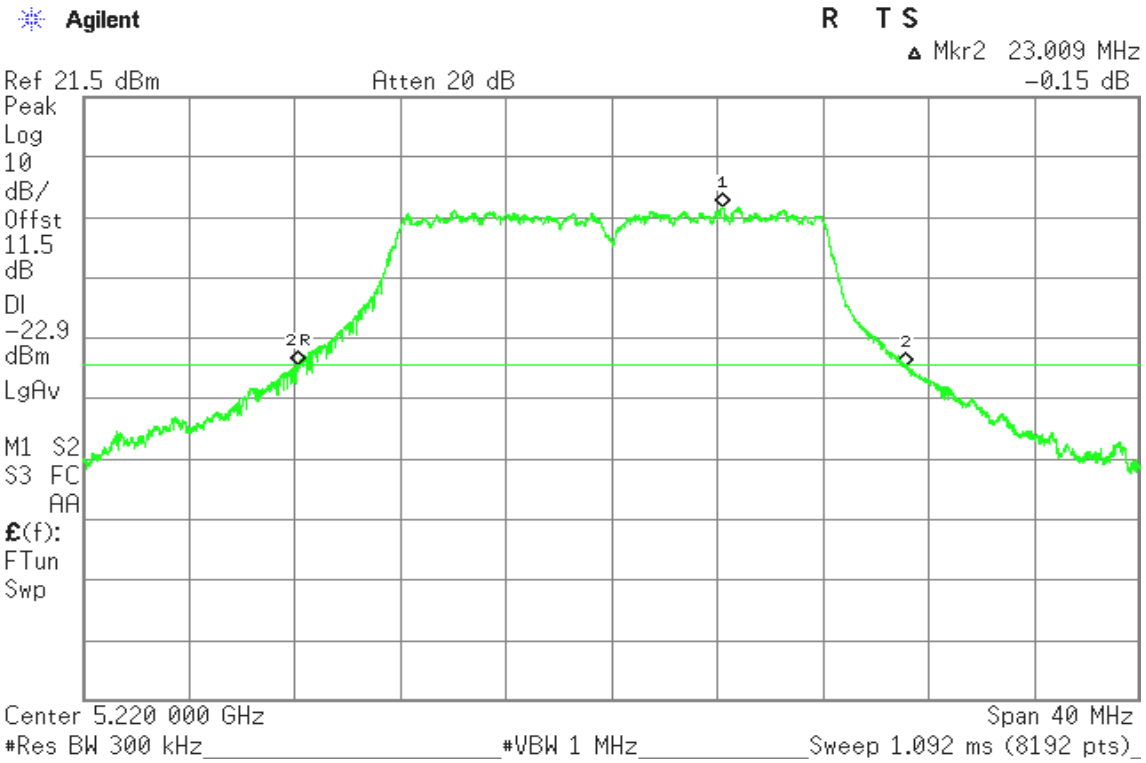
Test Plot

IEEE 802.11a mode / 5150 ~ 5250MHz

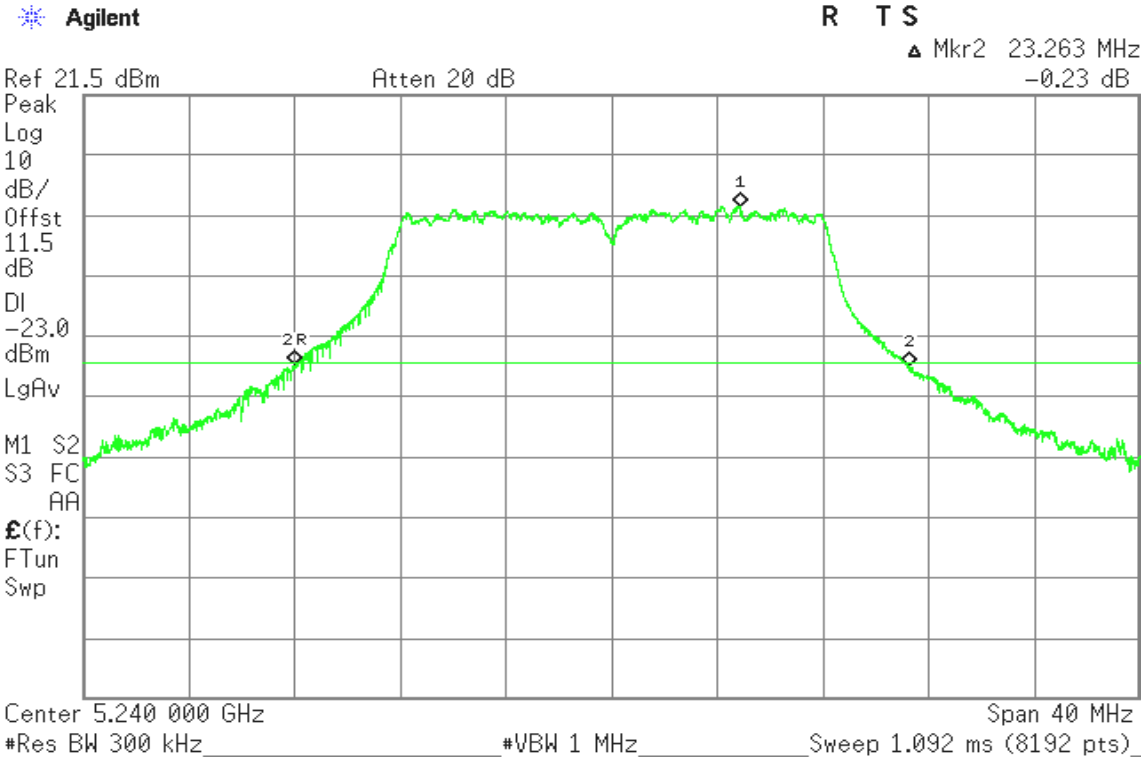
CH Low



CH Mid

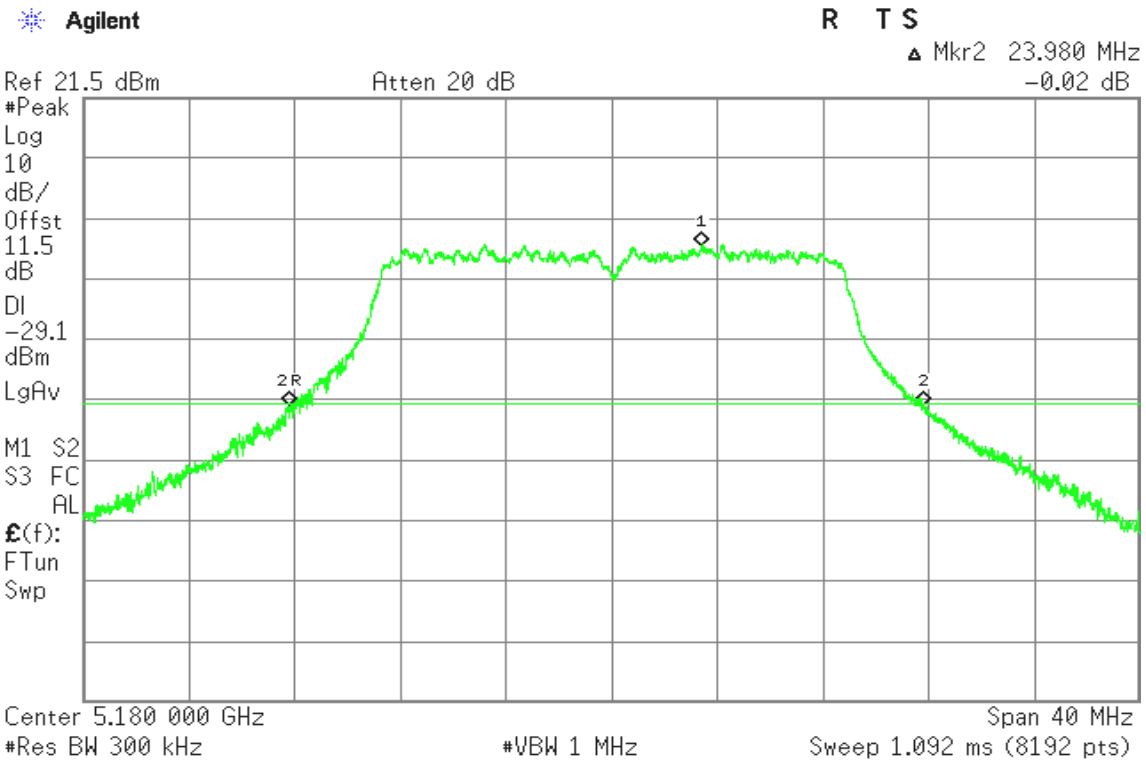


CH High

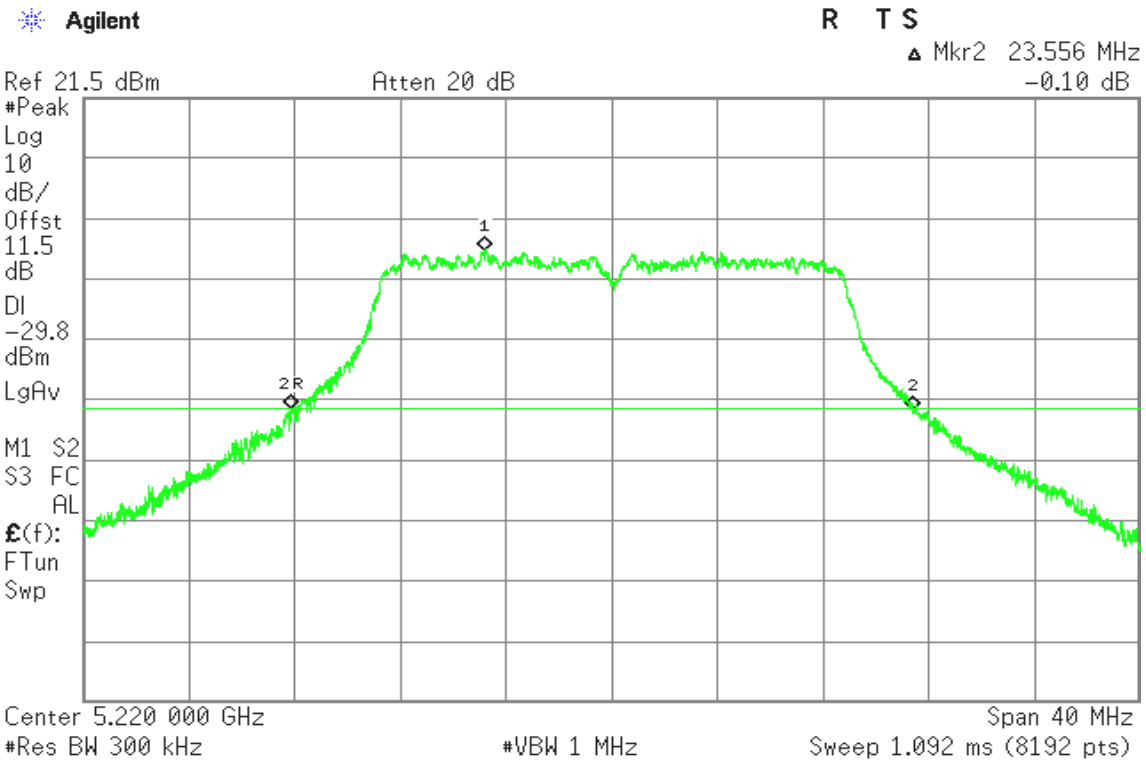


IEEE 802.11n HT20 mode / 5150 ~ 5250MHz / Chain 0

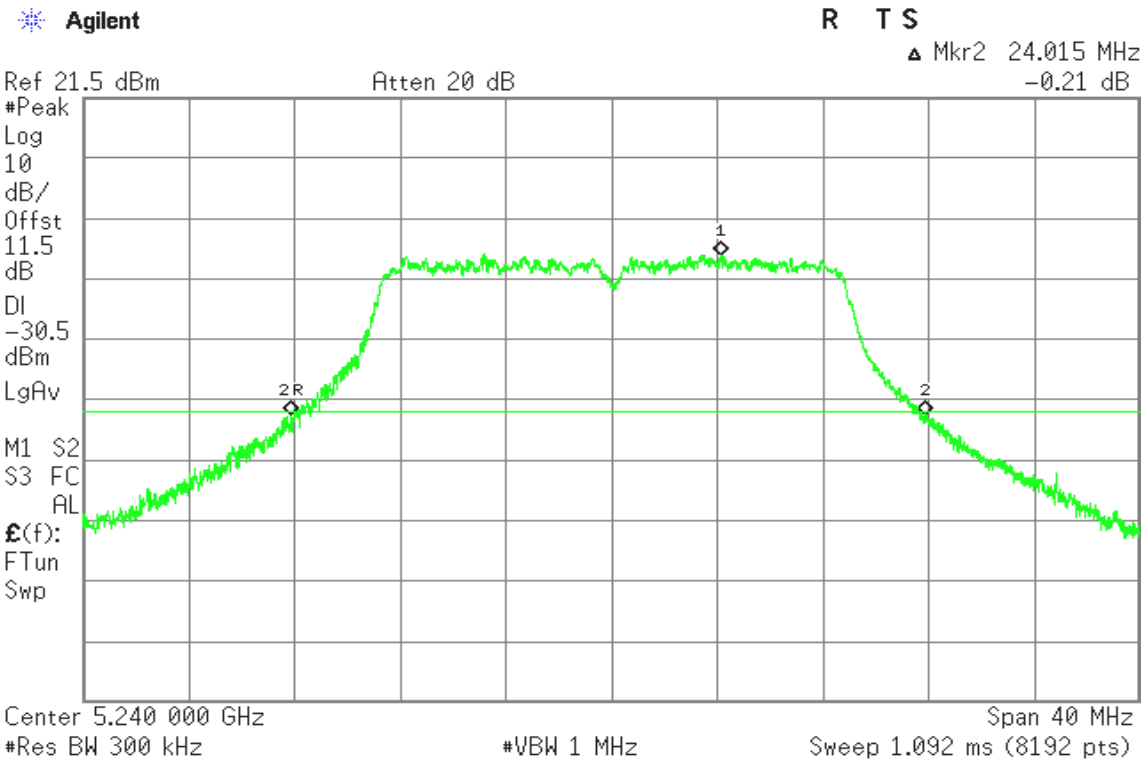
CH Low



CH Mid

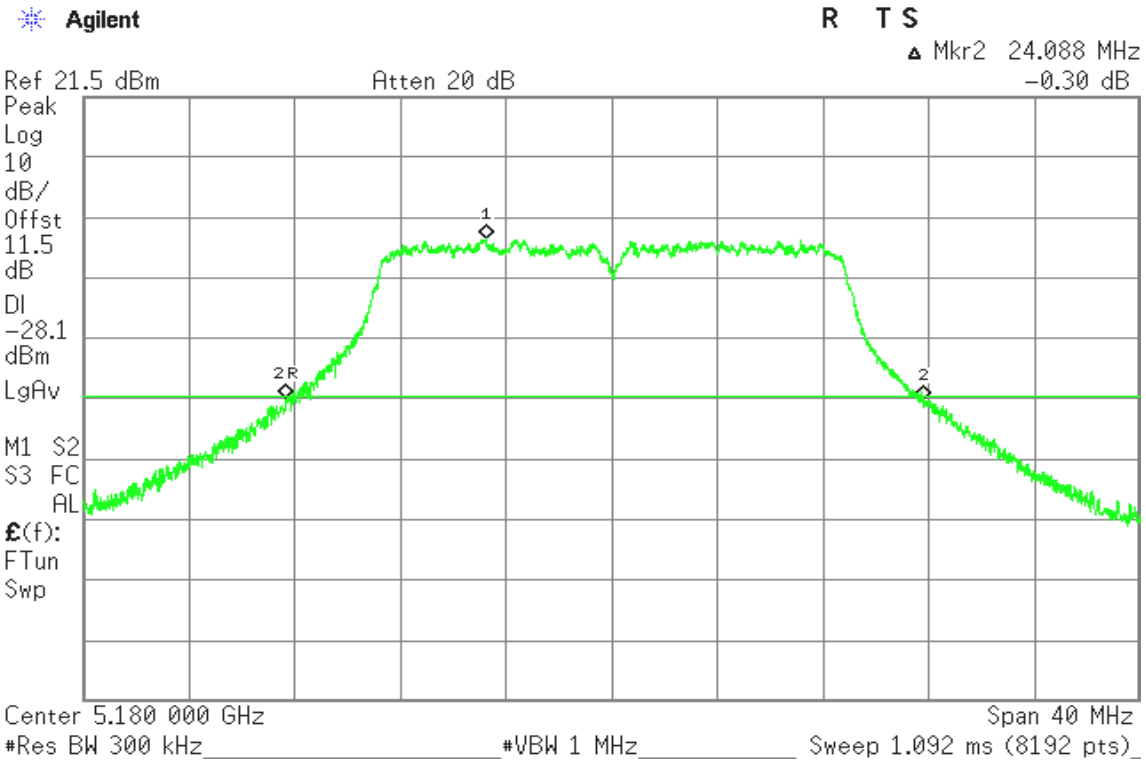


CH High

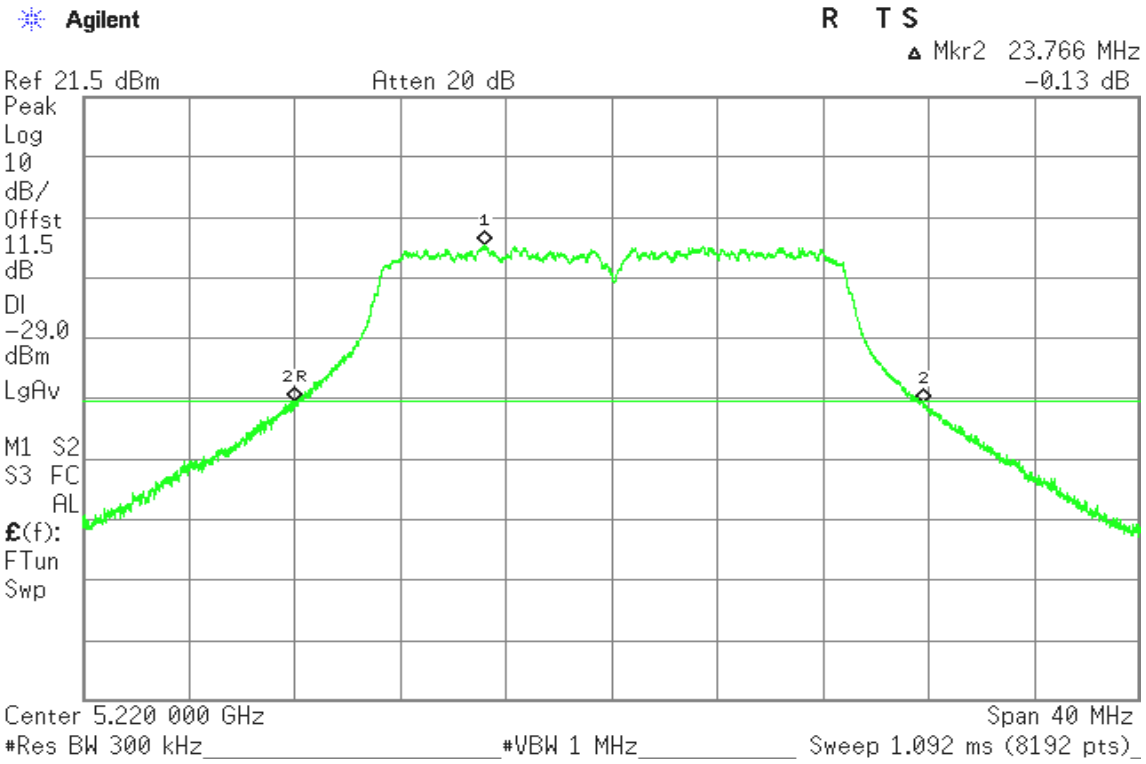


IEEE 802.11n HT20 mode / 5150 ~ 5250MHz / Chain 1

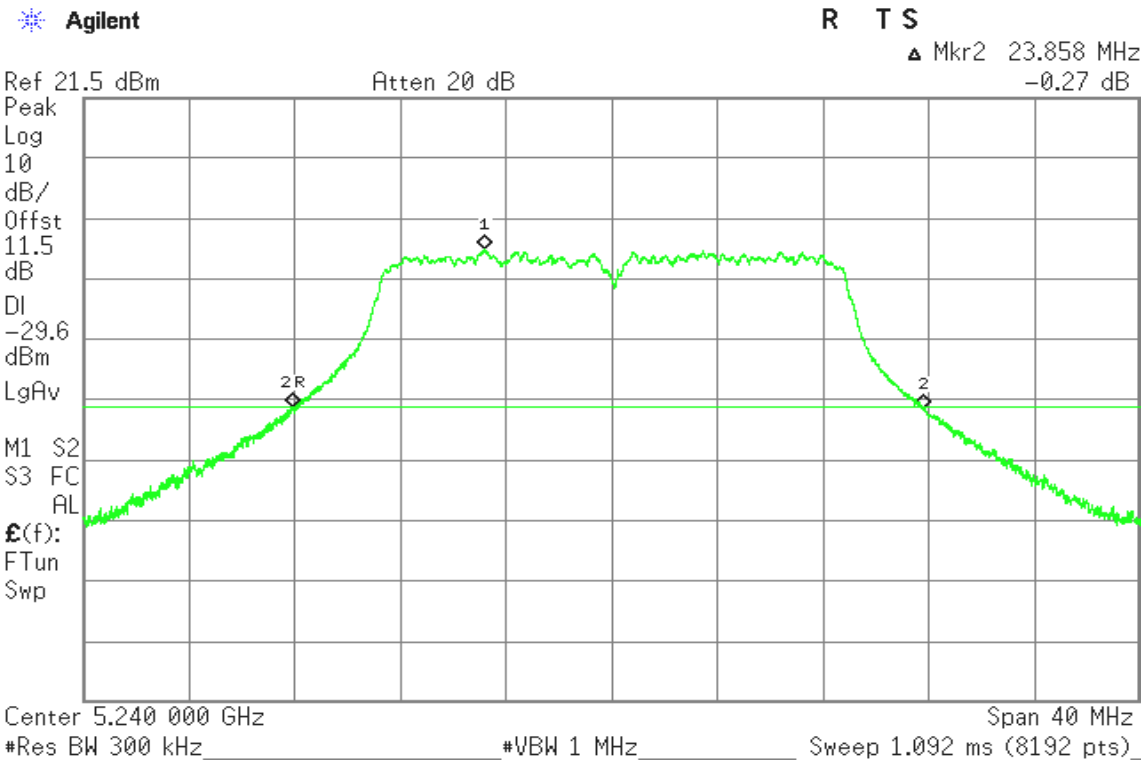
CH Low



CH Mid

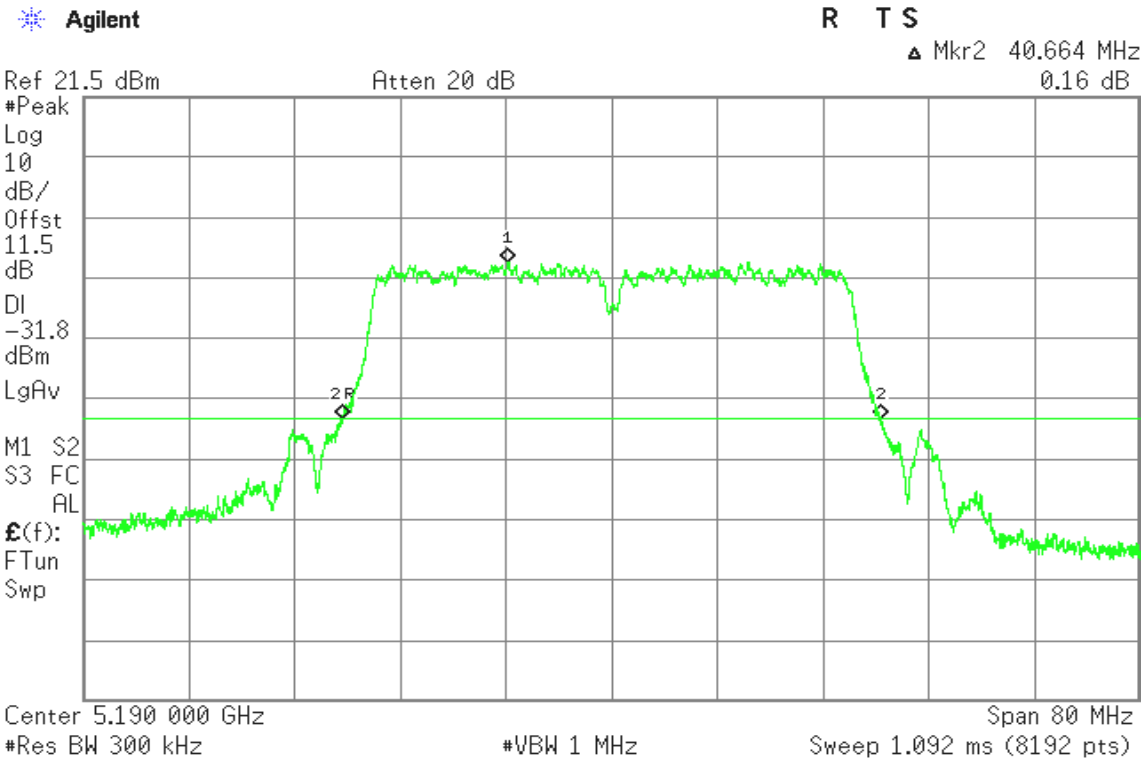


CH High

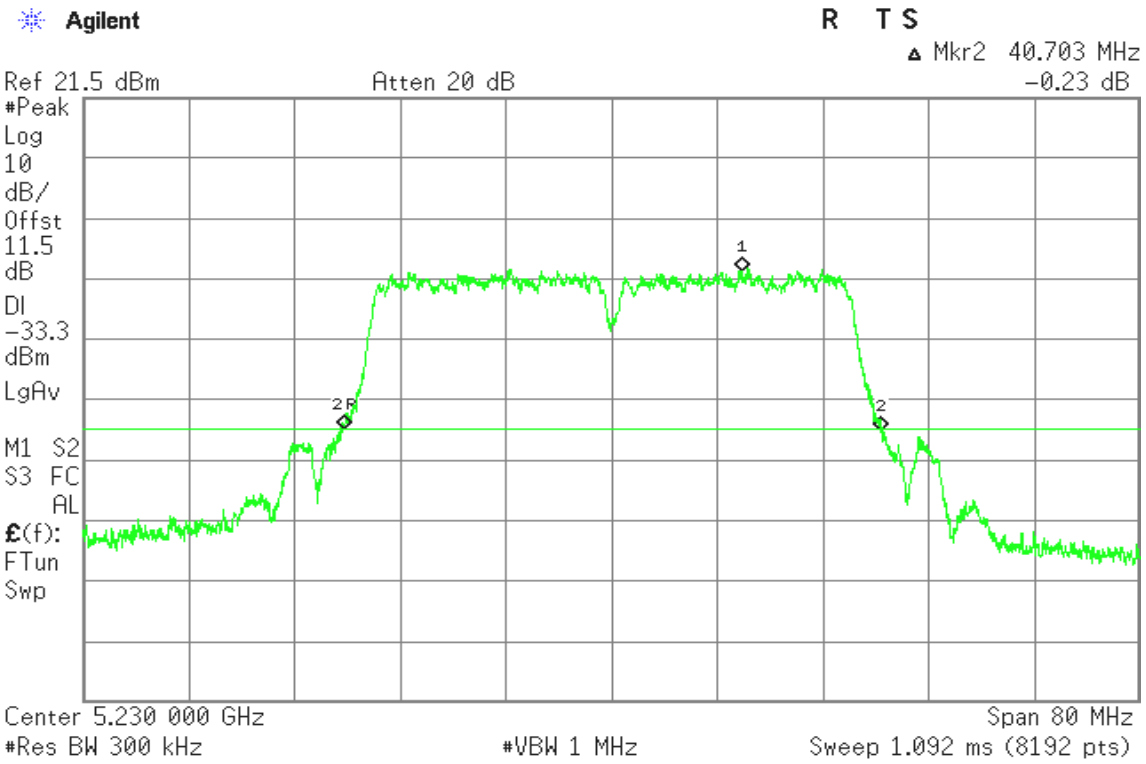


IEEE 802.11n HT40 mode / 5150 ~ 5250MHz / Chain 0

CH Low

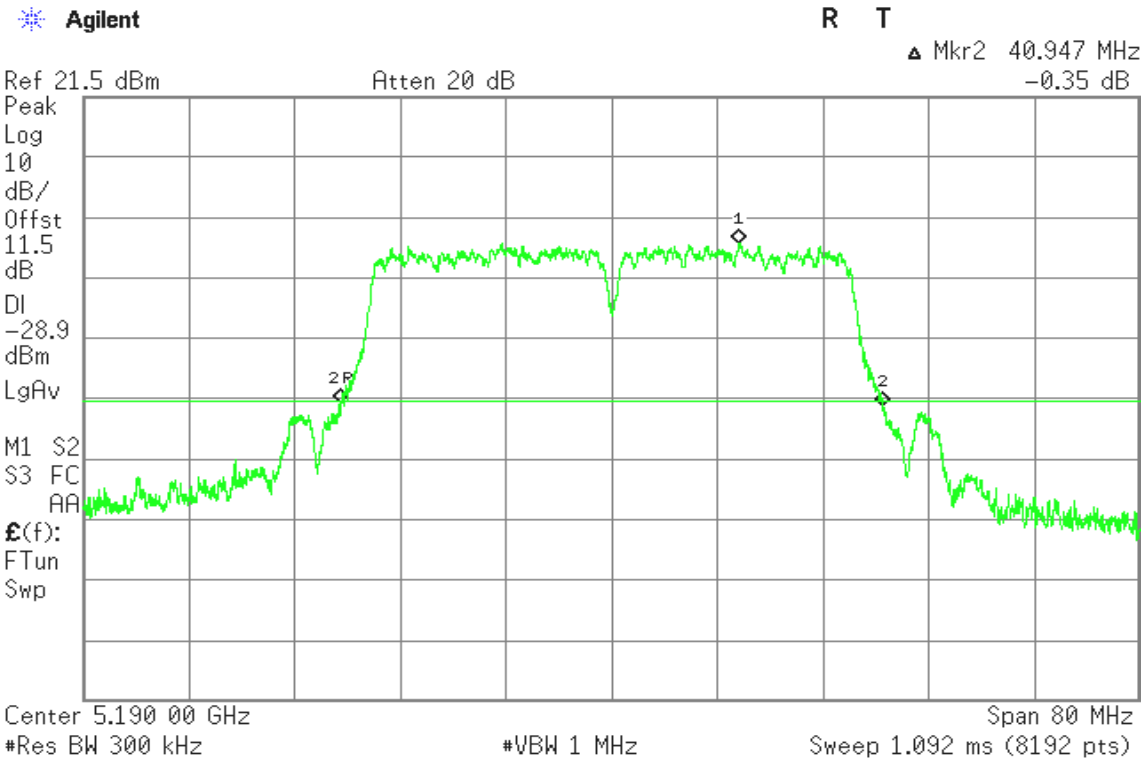


CH High

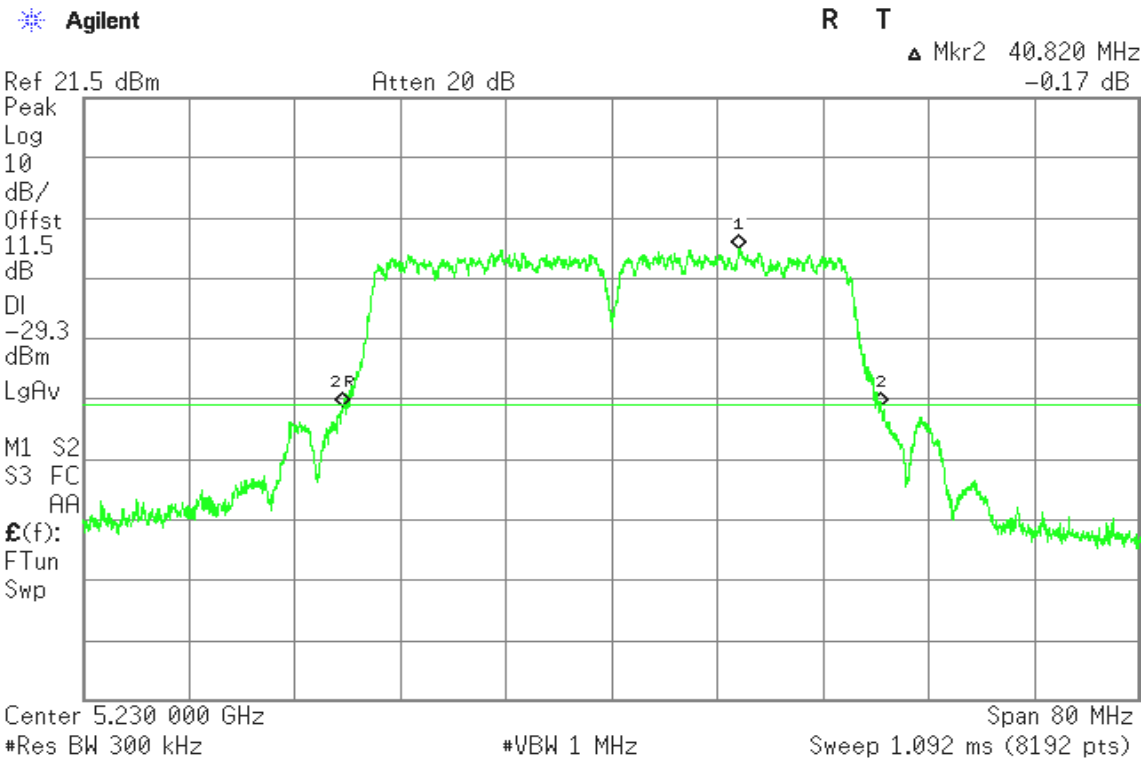


IEEE 802.11n HT40 mode / 5150 ~ 5250MHz / Chain 1

CH Low

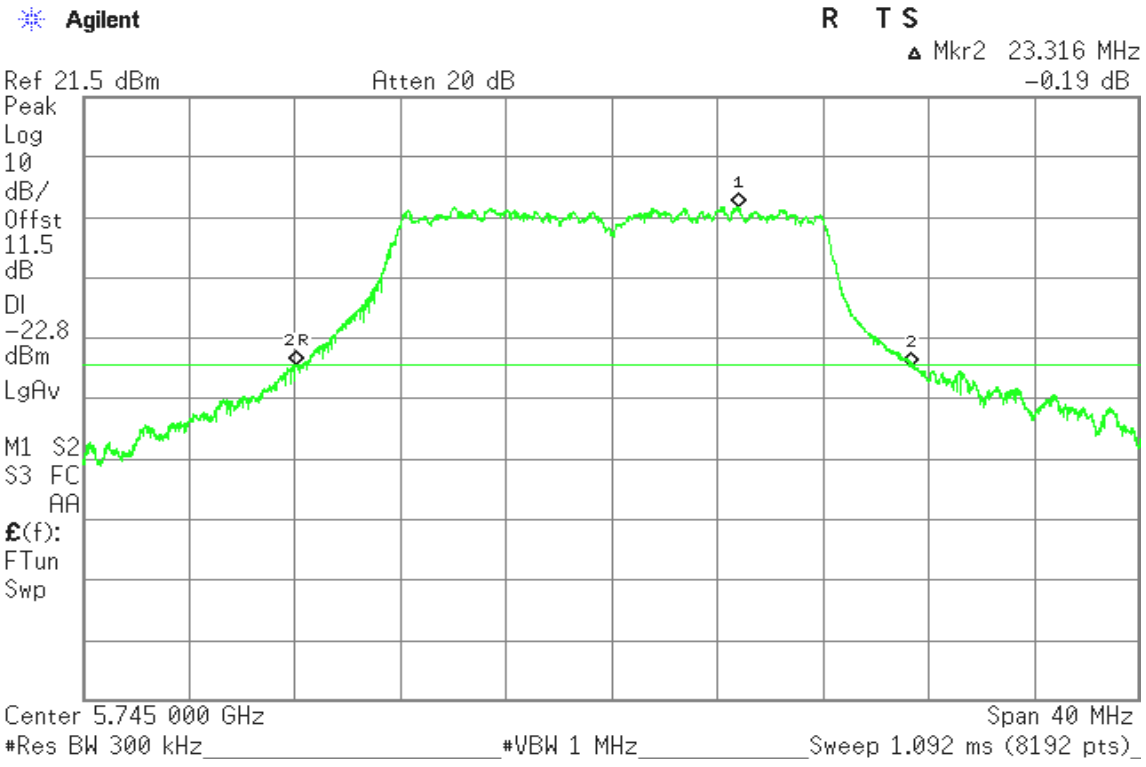


CH High

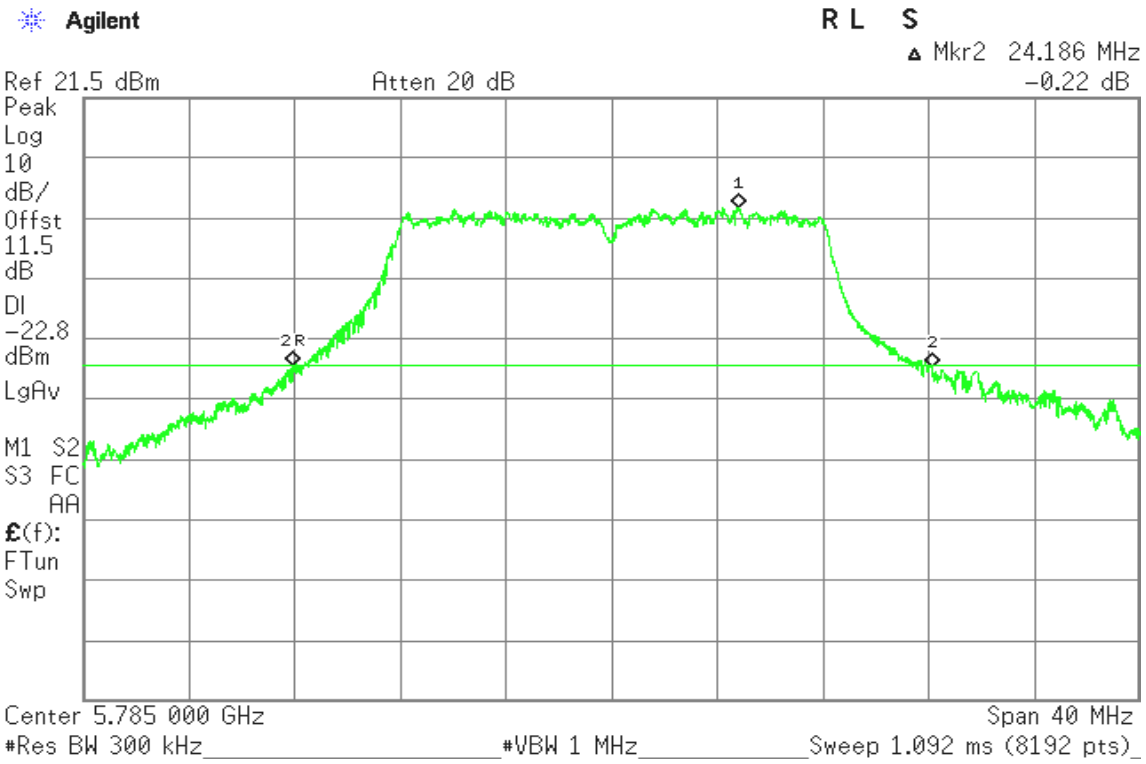


IEEE 802.11a mode / 5725 ~ 5850MHz

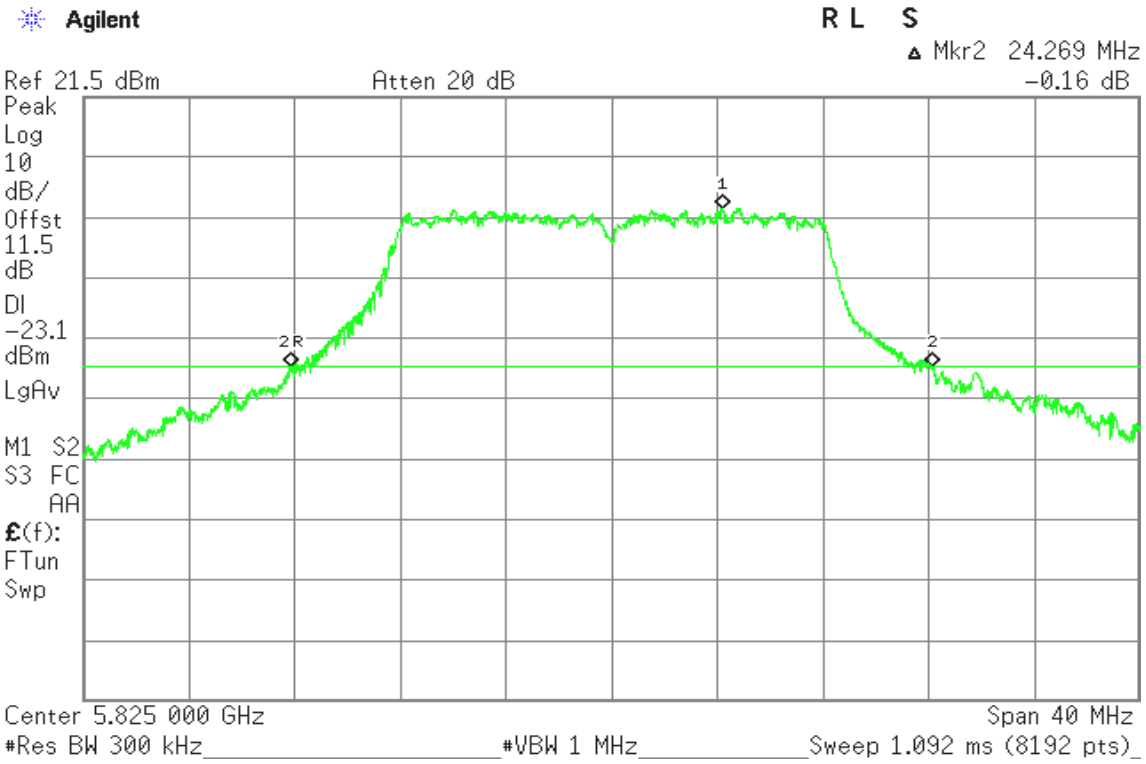
CH Low



CH Mid

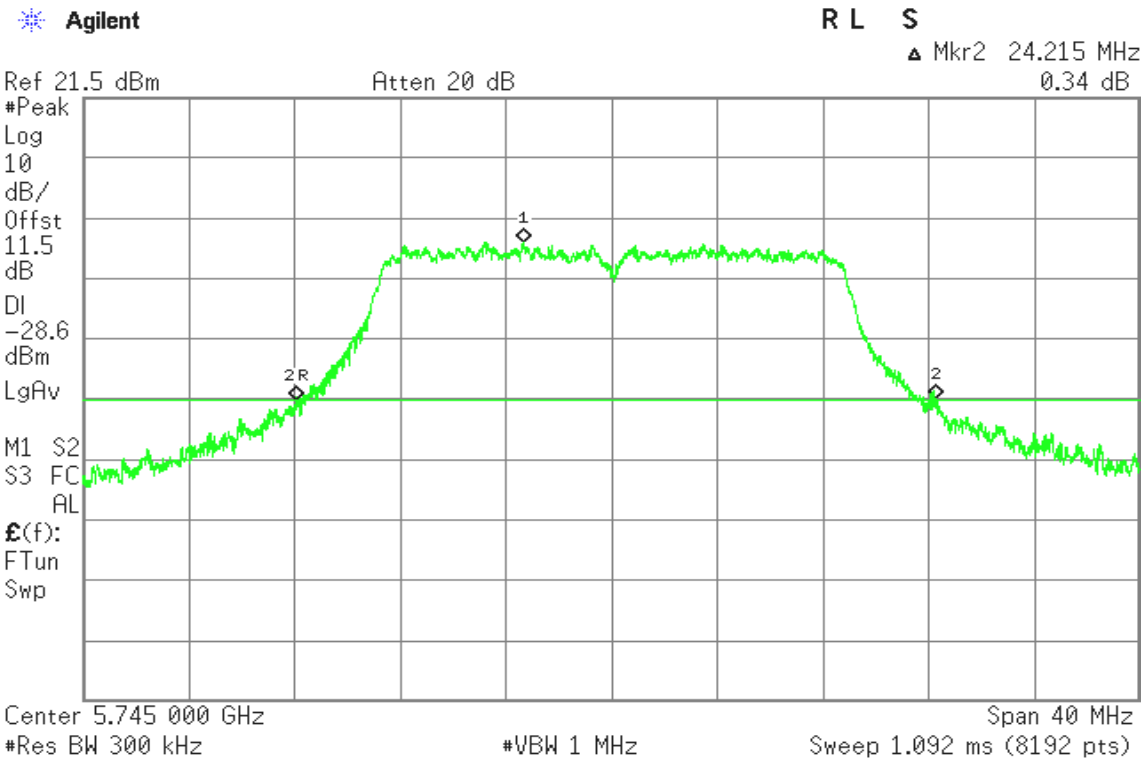


CH High

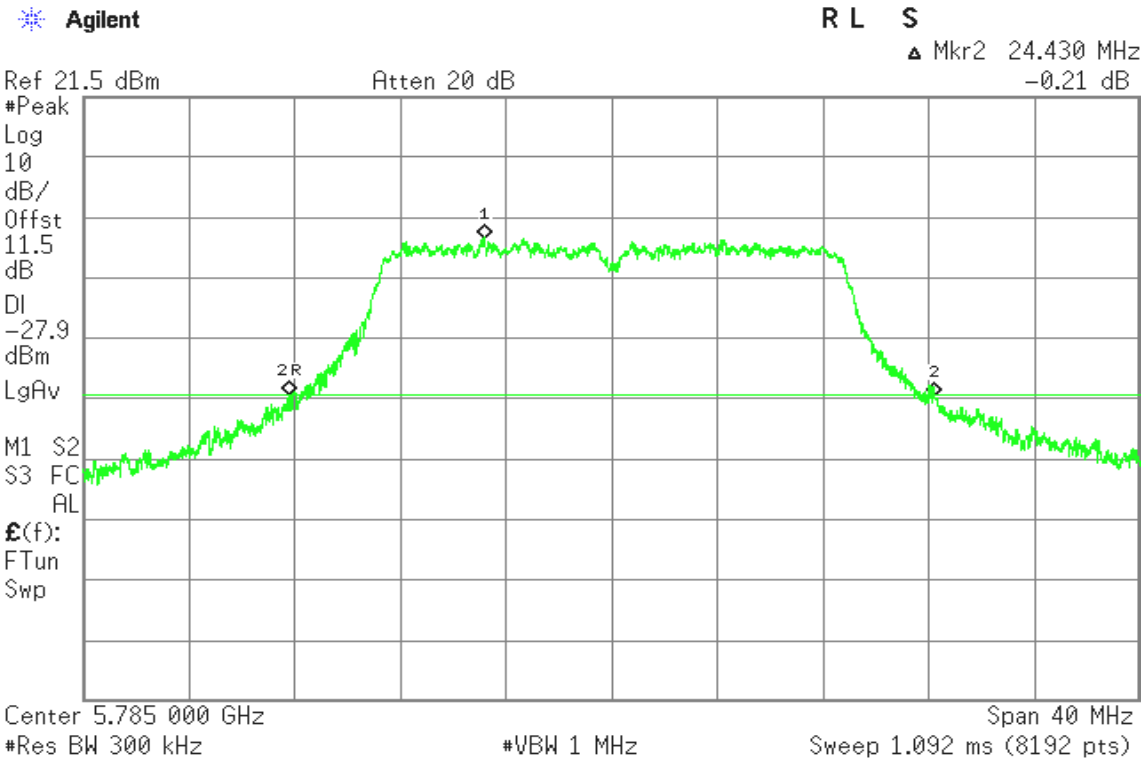


IEEE 802.11n HT20 mode / 5725 ~ 5850MHz / Chain 0

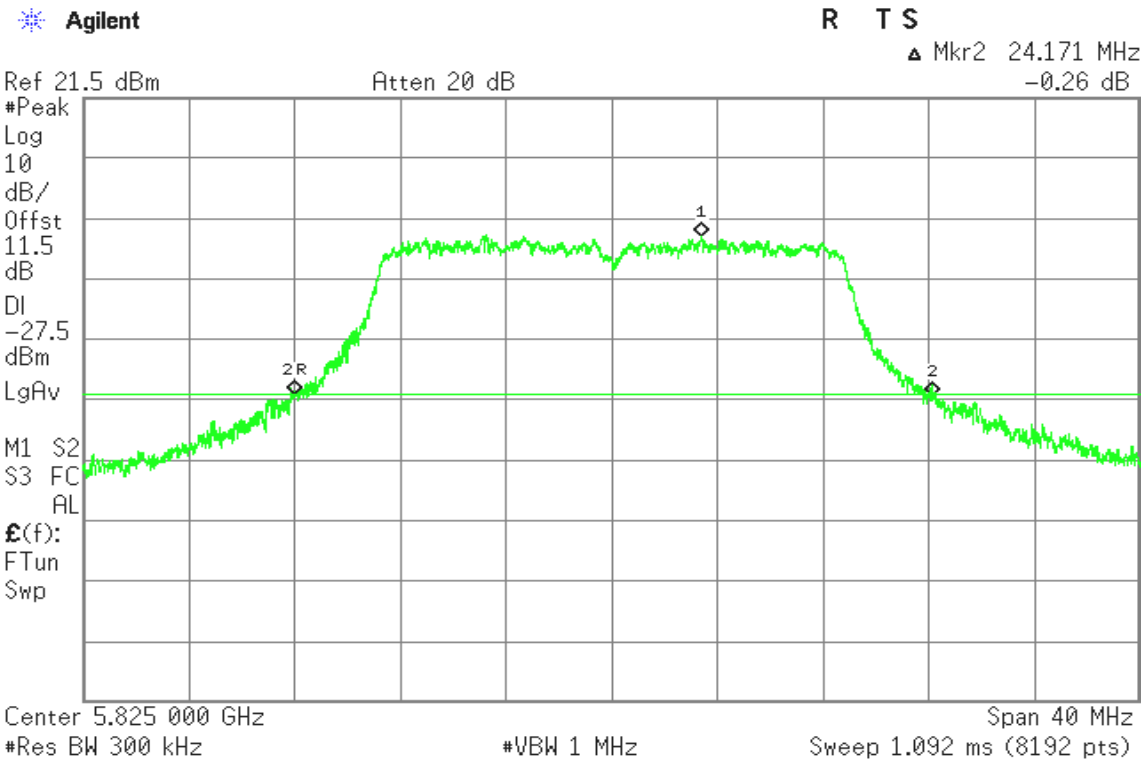
CH Low



CH Mid

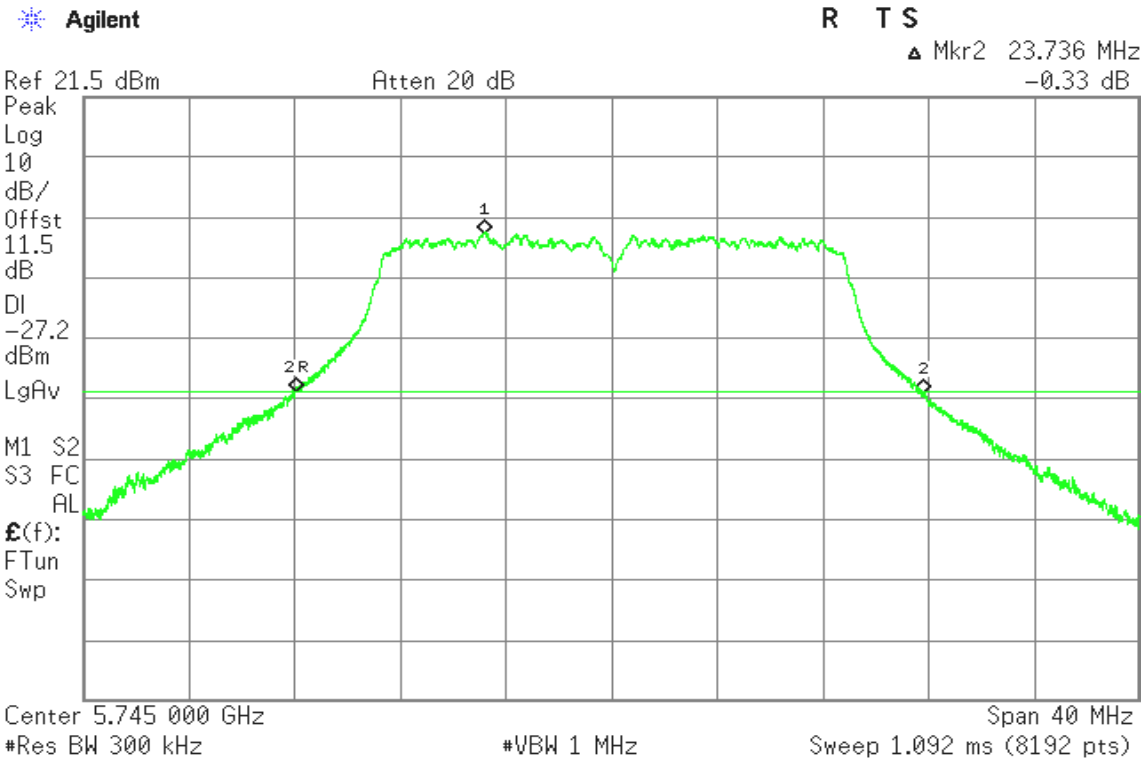


CH High

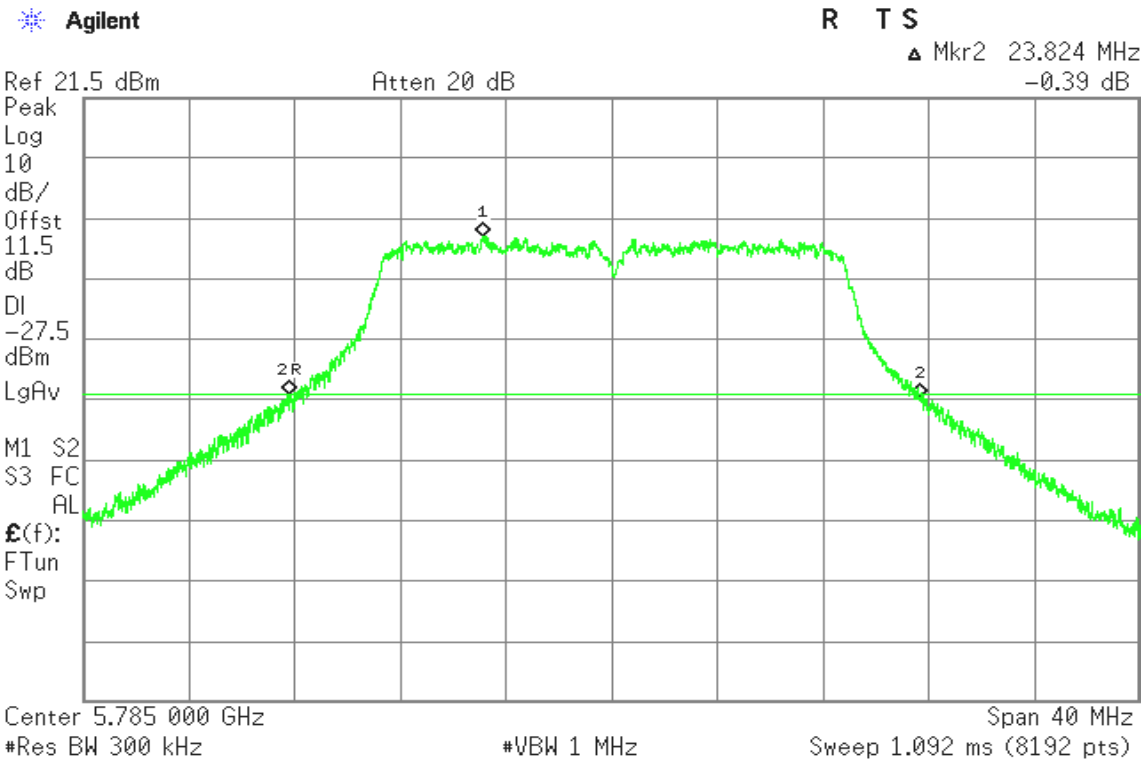


IEEE 802.11n HT20 mode / 5725 ~ 5850MHz / Chain 1

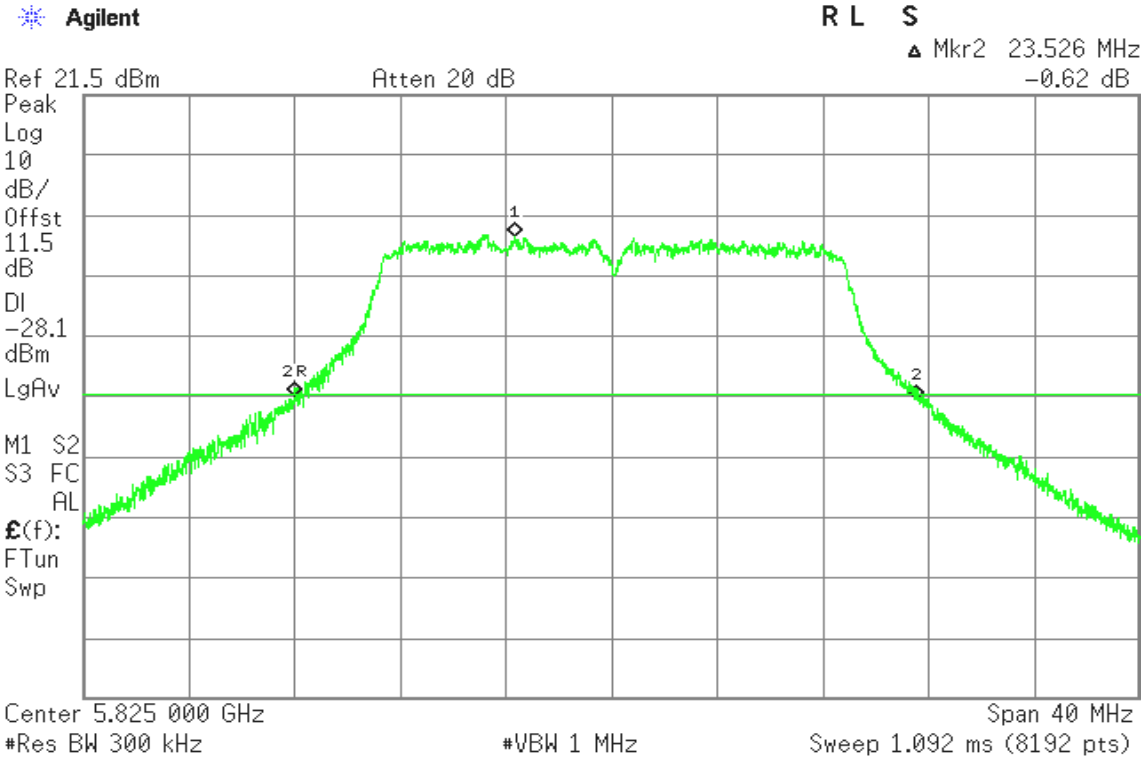
CH Low



CH Mid

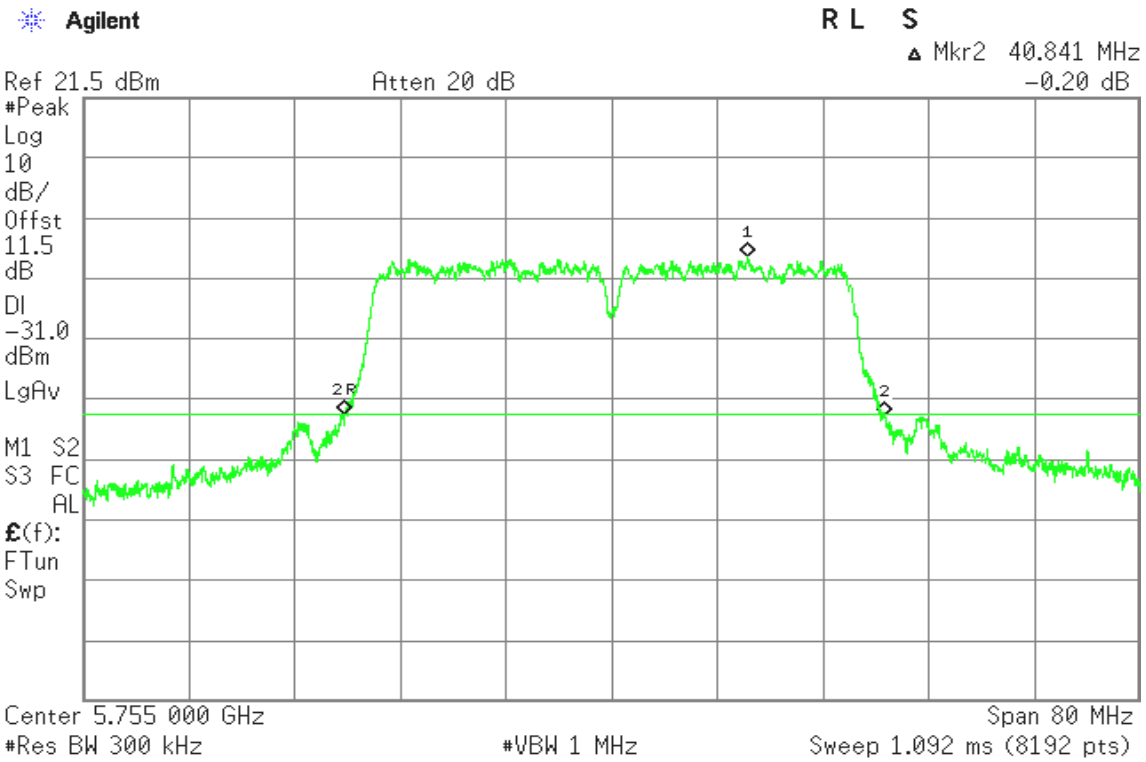


CH High

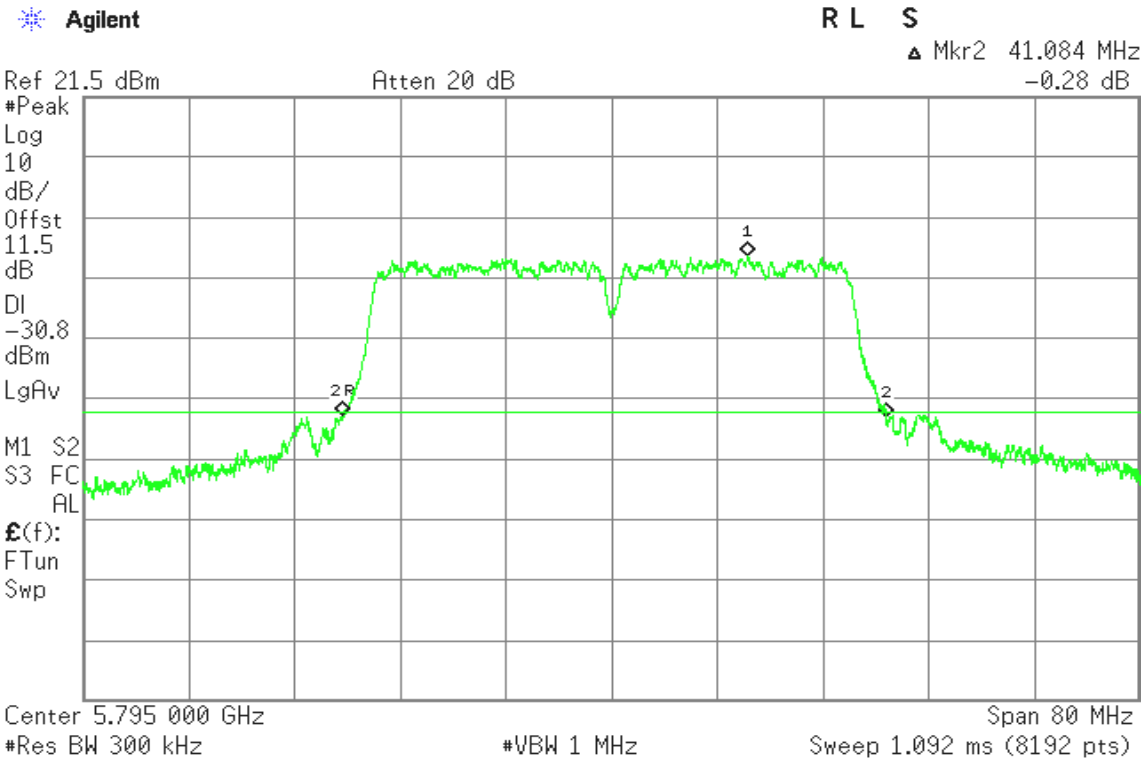


IEEE 802.11n HT40 mode / 5725 ~ 5850MHz / Chain 0

CH Low

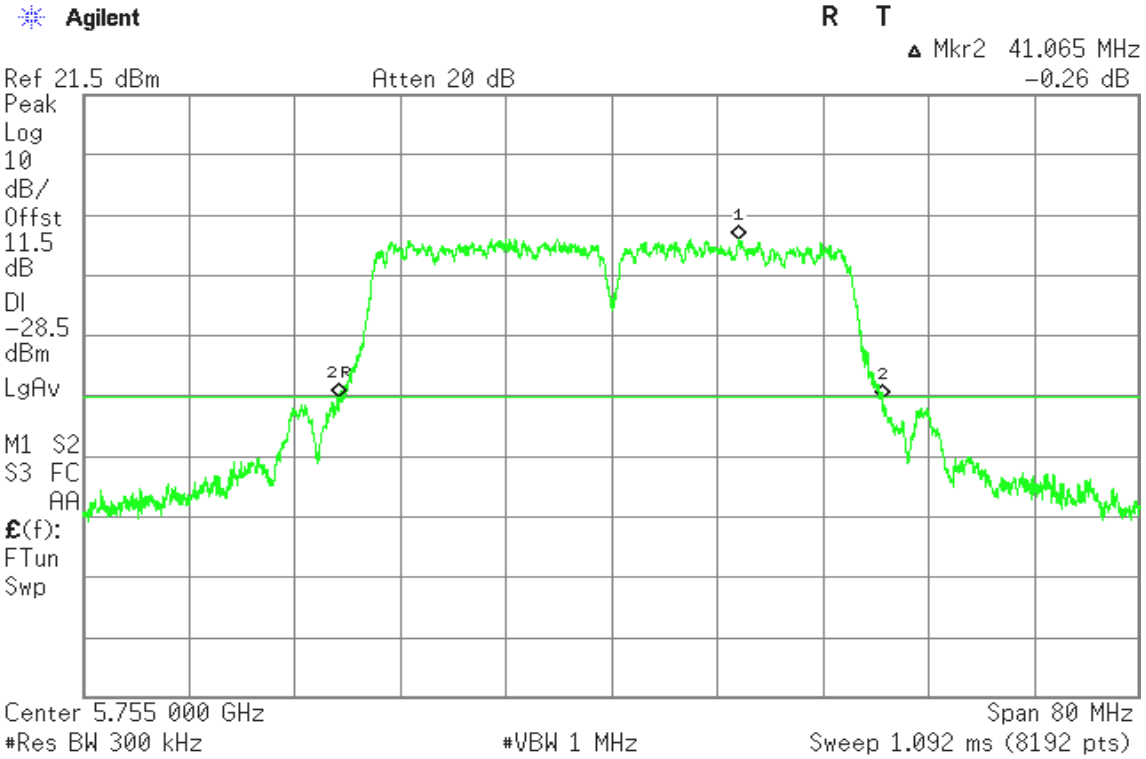


CH High

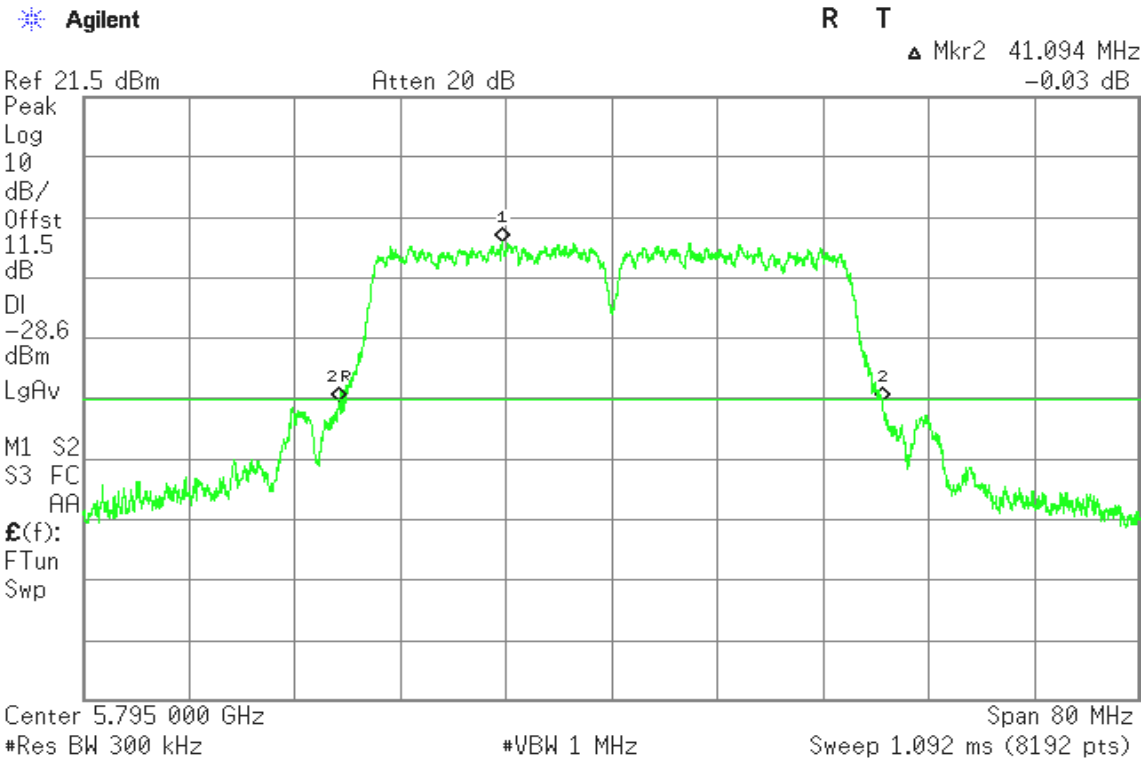


IEEE 802.11n HT40 mode / 5725 ~ 5850MHz / Chain 1

CH Low



CH High



7.2 MAXIMUM CONDUCTED OUTPUT POWER

LIMIT

According to § 15.407(a)

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

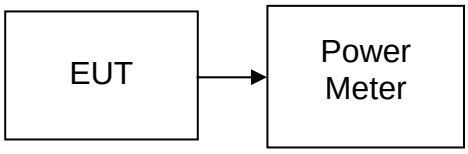
(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII 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. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Configuration

The EUT was connected to a spectrum analyzer through a 50Ω RF cable.



TEST PROCEDURE

Set span to encompass the entire emission bandwidth (EBW) of the signal.

Set RBW = 1 MHz / Set VBW = 3 MHz.

Use sample detector mode if bin width (i.e., span/number of points in spectrum display) < 0.5 RBW. Otherwise use peak detector mode. Use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at full control power for entire sweep of every sweep. If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to “free run”.·Trace average 100 traces in power averaging mode. Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer’s band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11a mode / 5150 ~ 5250MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5180	13.22	24.00
Mid	5220	13.51	24.00
High	5240	13.56	24.00

Test mode: IEEE 802.11n HT20 mode / 5150 ~ 5250MHz

Channel	Frequency (MHz)	Chain 0 Maximum Conducted Output Power (dBm)	Chain 1 Maximum Conducted Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5180	8.67	11.59	13.38	21.72
Mid	5220	8.31	11.66	13.31	21.72
High	5240	8.54	11.53	13.30	21.72

Test mode: IEEE 802.11n HT40 mode / 5150 ~ 5250MHz

Channel	Frequency (MHz)	Chain 0 Maximum Conducted Output Power (dBm)	Chain 1 Maximum Conducted Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5190	8.75	11.33	13.24	21.72
High	5230	8.21	11.56	13.21	21.72

Remark:
1. Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000) + Chain 1 (10^(Output Power /10)/1000))
2. The maximum antenna gain is 8.28dBi; therefore the reduction due to antenna gain is 2.28dBi, so the limit is 21.72dBm(0.1486W).

Test mode: IEEE 802.11a mode / 5725 ~ 5850MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5745	13.52	30.00
Mid	5785	13.53	30.00
High	5825	13.17	30.00

Test mode: IEEE 802.11n HT20 mode / 5725 ~ 5850MHz

Channel	Frequency (MHz)	Chain 0 Maximum Conducted Output Power (dBm)	Chain 1 Maximum Conducted Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5745	9.52	11.06	13.37	27.72
Mid	5785	9.92	10.73	13.35	27.72
High	5825	10.6	10.32	13.47	27.72

Test mode: IEEE 802.11n HT40 mode / 5725 ~ 5850MHz

Channel	Frequency (MHz)	Chain 0 Maximum Conducted Output Power (dBm)	Chain 1 Maximum Conducted Output Power (dBm)	Total Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5755	9.5	10.75	13.18	27.72
High	5795	10.11	10.57	13.36	27.72

Remark:
1. Total Output Power (w) = Chain 0 (10^(Output Power /10)/1000) + Chain 1 (10^(Output Power /10)/1000))
2. The maximum antenna gain is 8.28dBi; therefore the reduction due to antenna gain is 2.28dBi, so the limit is 27.72dBm(0.5916W).

7.3 BAND EDGES MEASUREMENT

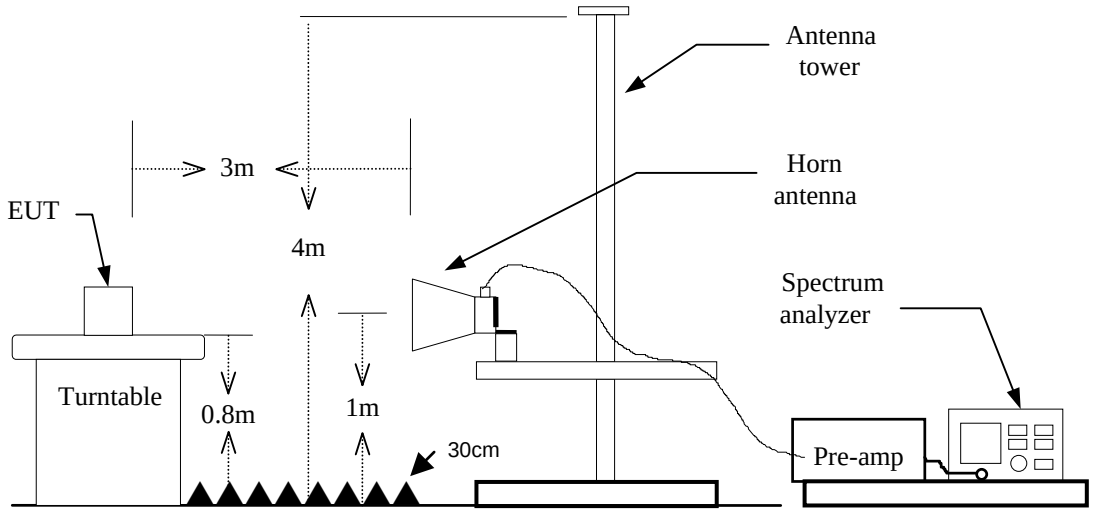
LIMIT

According to §15.407(b)

(1) The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

(2) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency block edges as the design of the equipment permits.

Test Configuration



TEST PROCEDURE

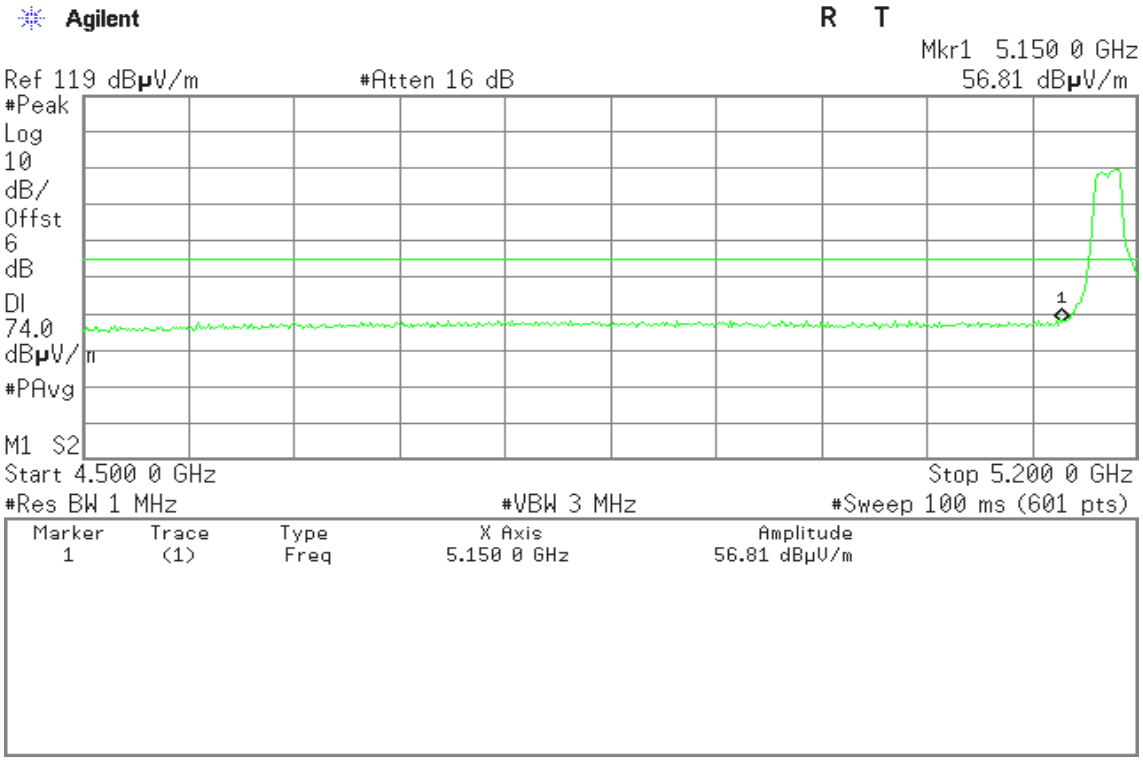
1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   (a) PEAK: RBW=1MHz / VBW=3MHz / Sweep=AUTO
   (b) AVERAGE: RBW=1MHz / VBW=300Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

TEST RESULTS

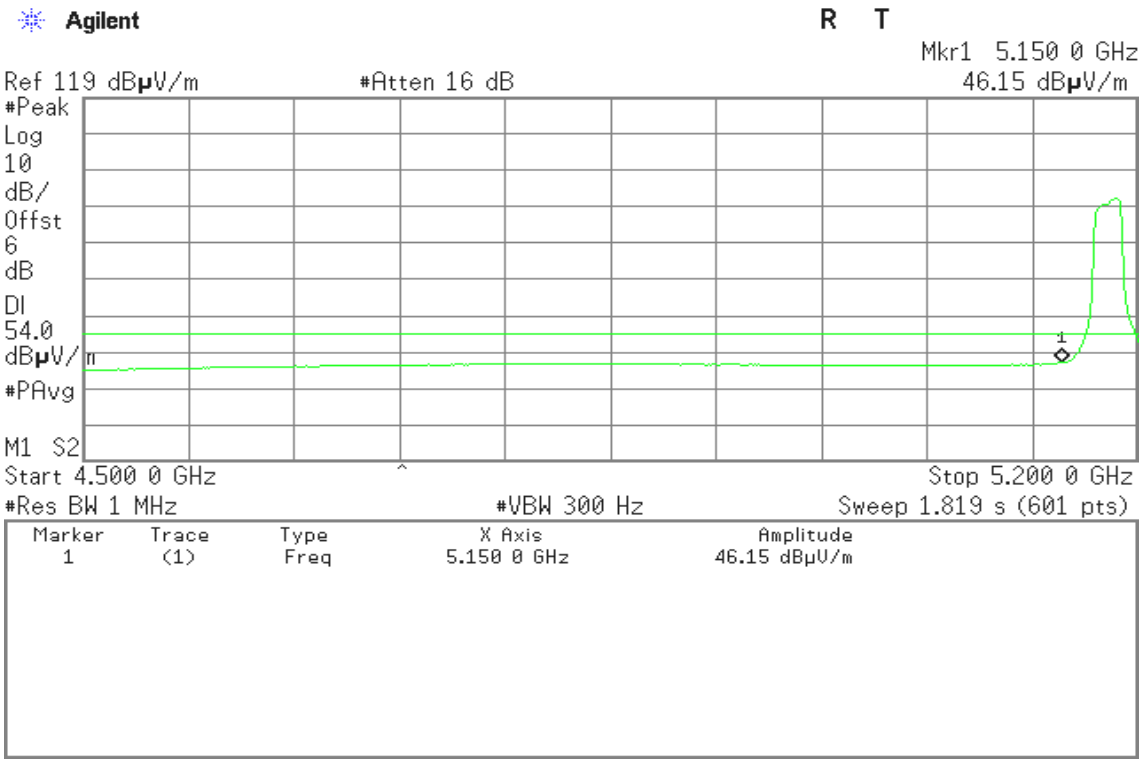
Refer to attach spectrum analyzer data chart.

IEEE 802.11a mode / 5150 ~ 5250MHz / CH Low

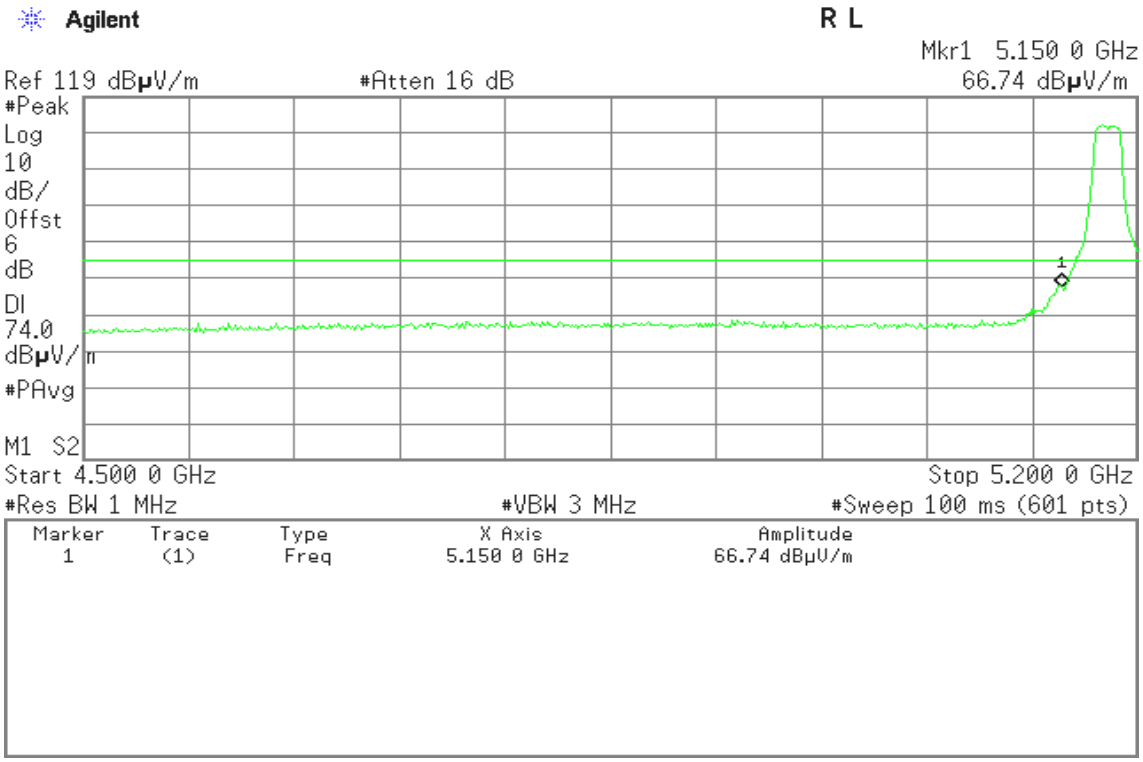
Detector mode: Peak Polarity: Vertical



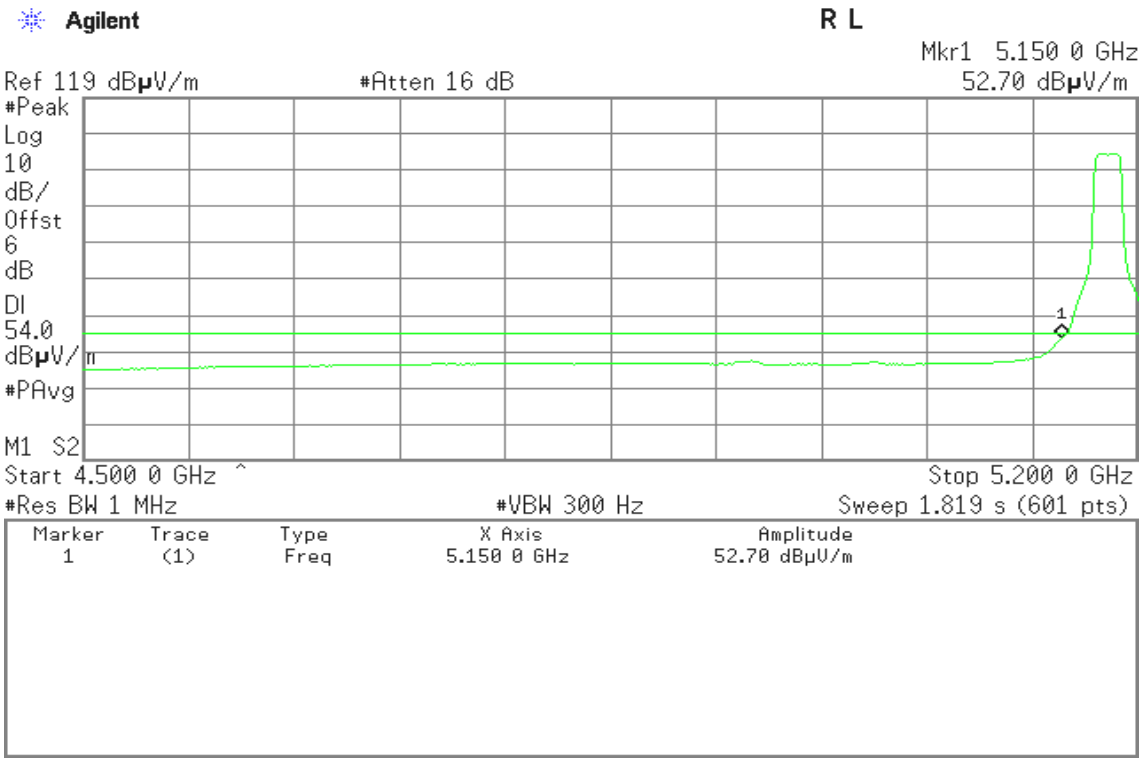
Detector mode: Average Polarity: Vertical



Detector mode: Peak Polarity: Horizontal

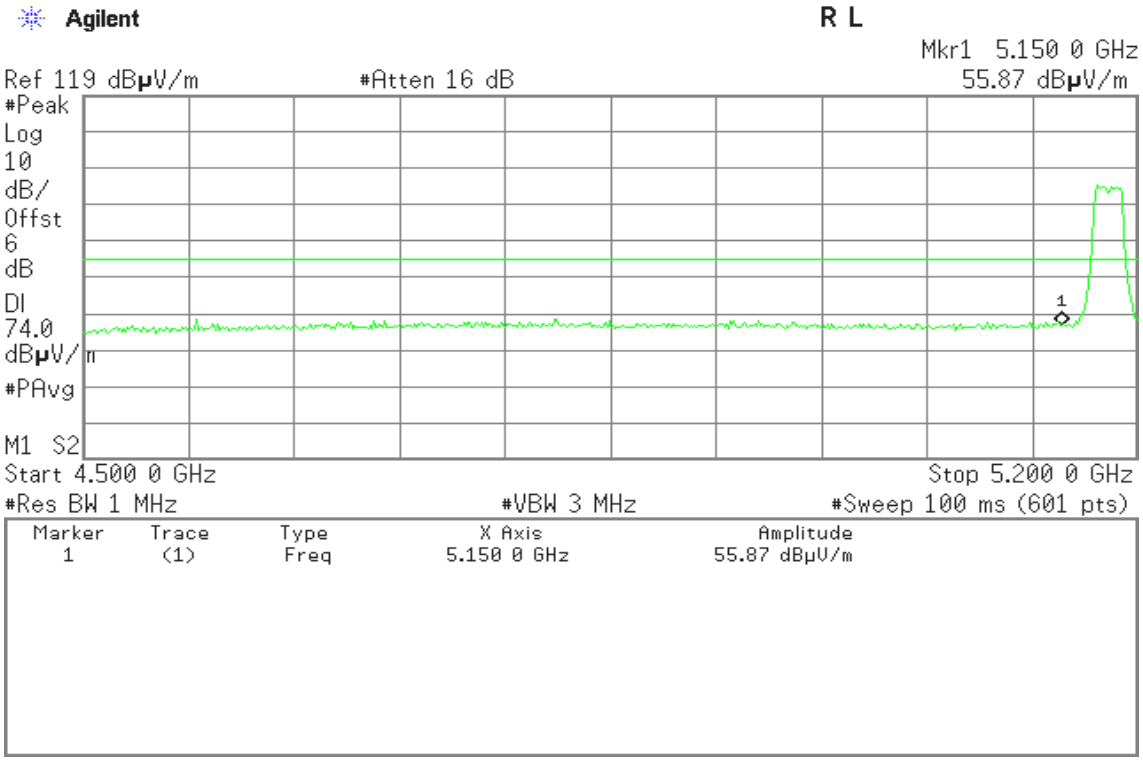


Detector mode: Average Polarity: Horizontal

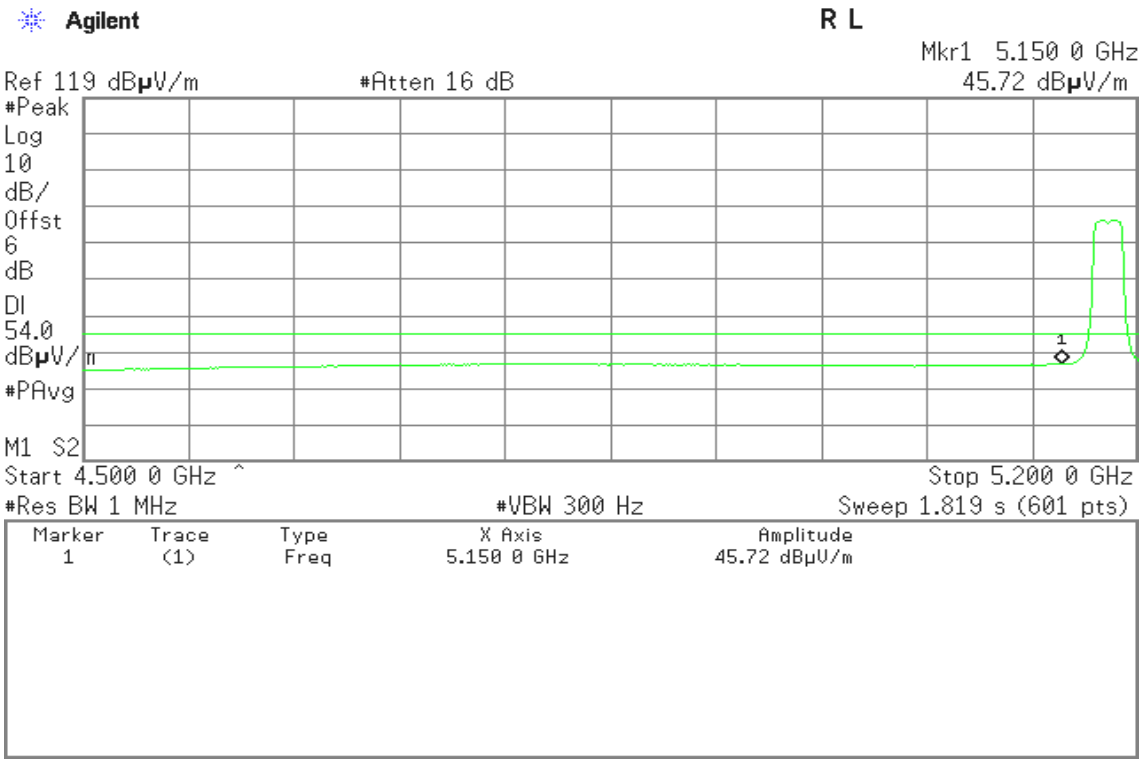


IEEE 802.11n HT20 mode / 5150 ~ 5250MHz / CH Low

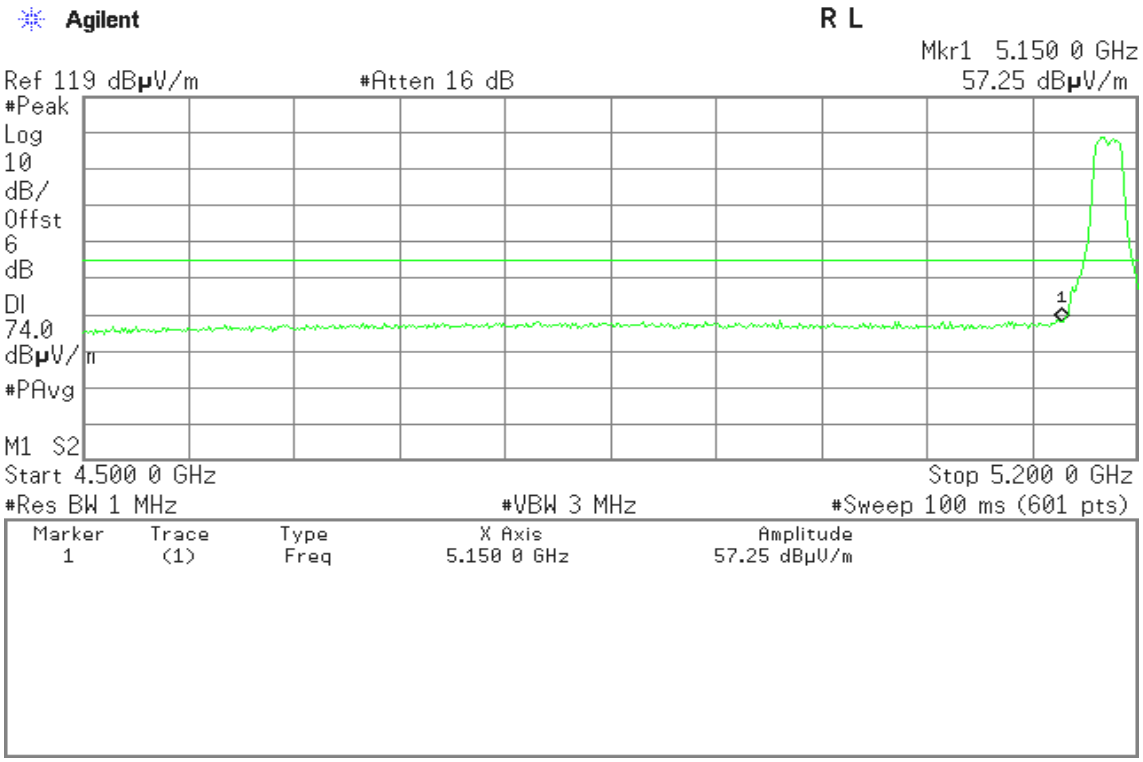
Detector mode: Peak Polarity: Vertical



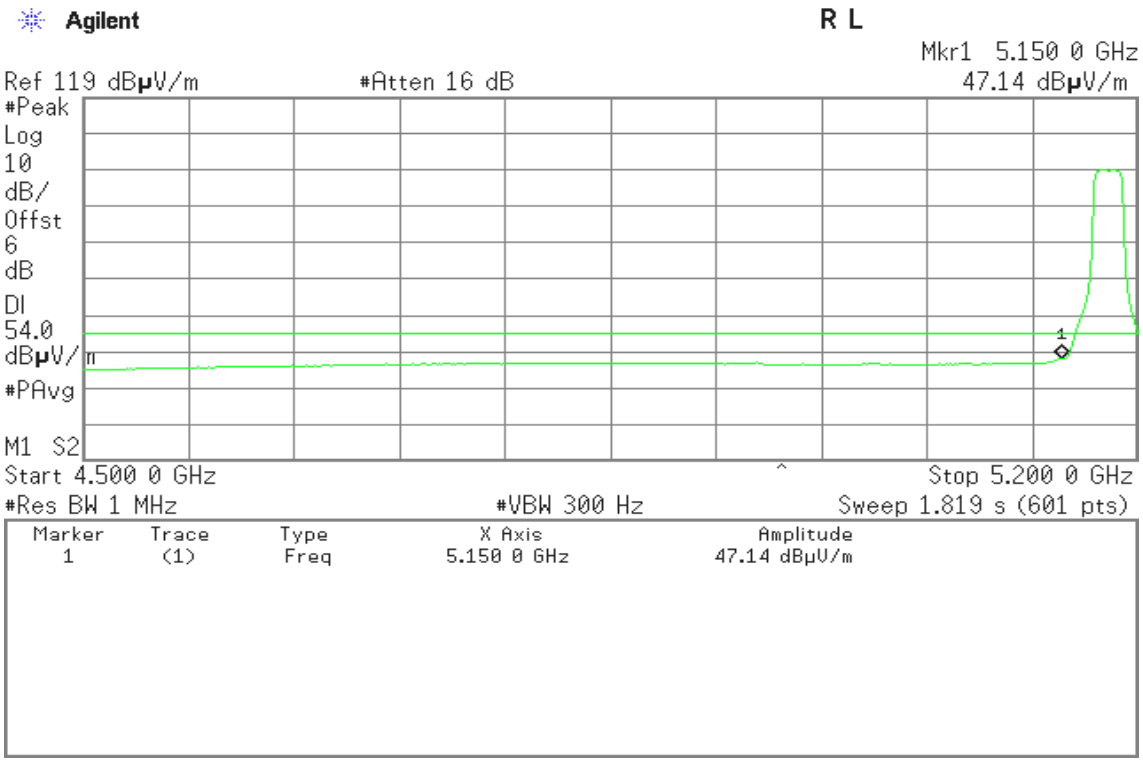
Detector mode: Average Polarity: Vertical



Detector mode: Peak Polarity: Horizontal

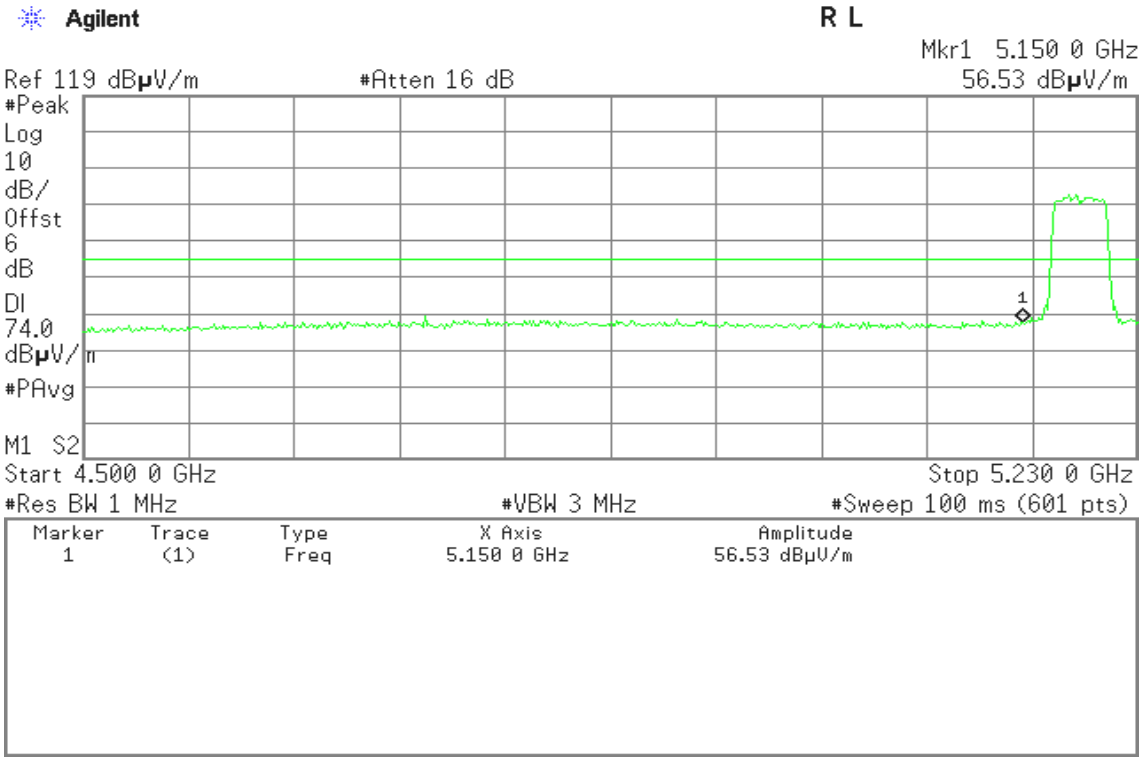


Detector mode: Average Polarity: Horizontal

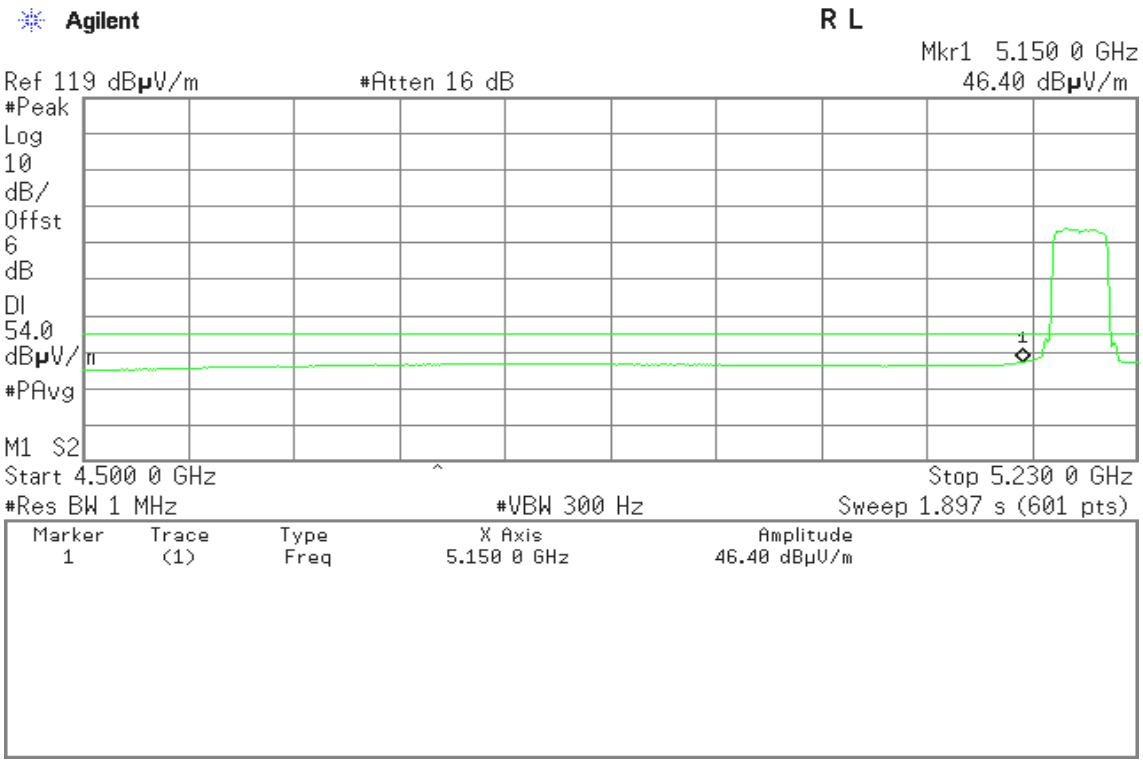


IEEE 802.11n HT40 mode / 5150 ~ 5250MHz / CH Low

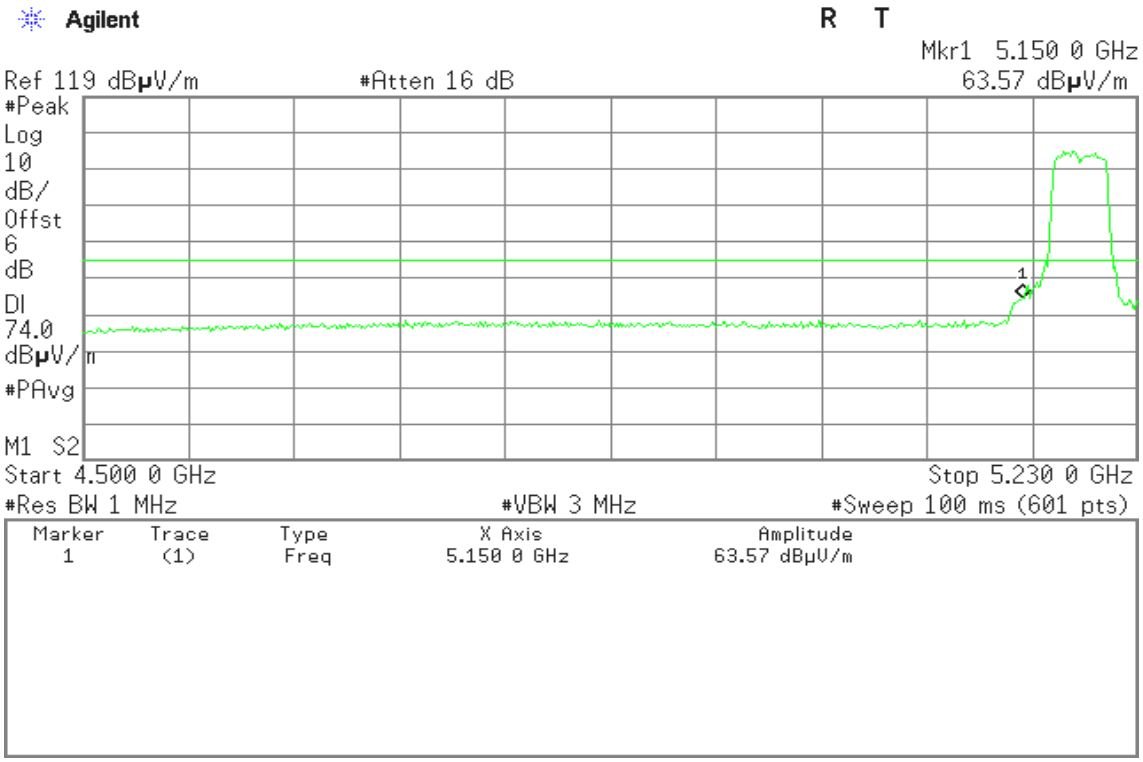
Detector mode: Peak Polarity: Vertical



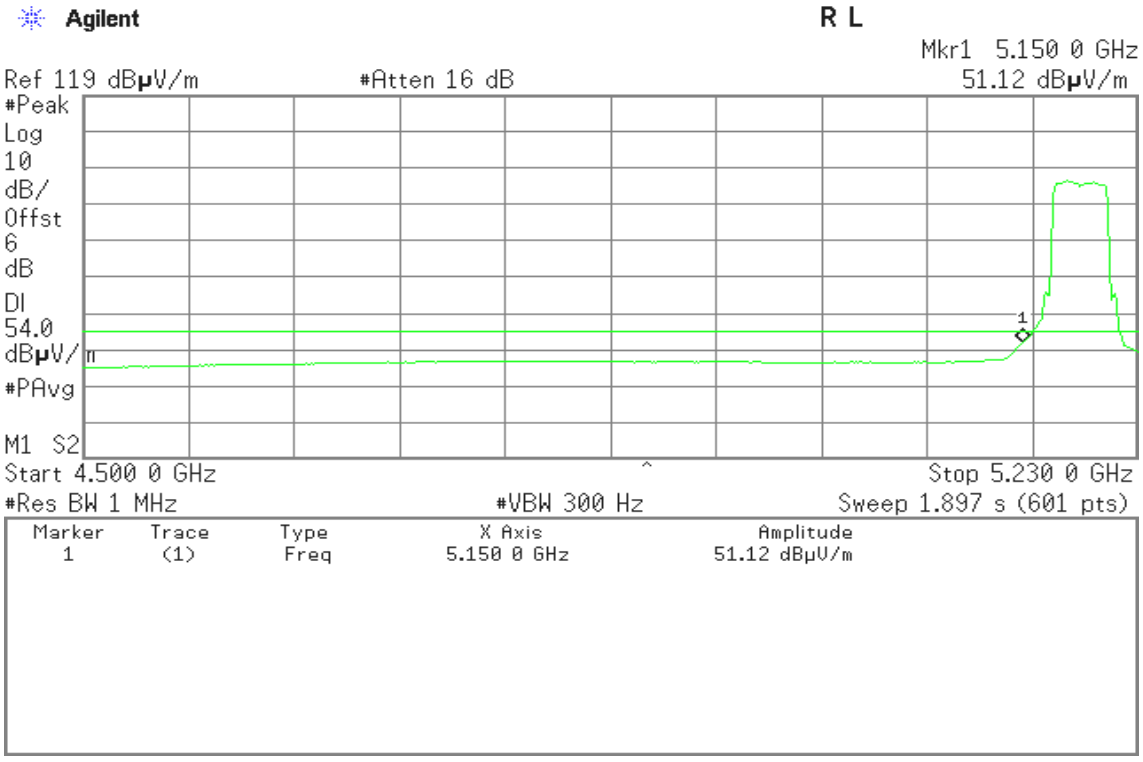
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**



7.4 PEAK POWER SPECTRAL DENSITY

LIMIT

According to §15.407(a)

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

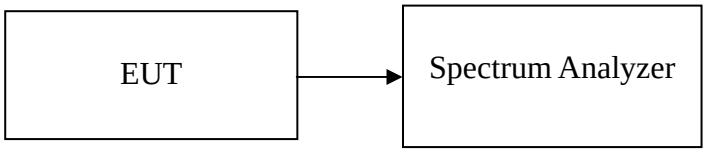
(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction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

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII 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. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
   Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer as RBW = 1MHz, VBW = 3MHz, Span = Sweep= AUTO
3. Record the max. reading.
4. Repeat the above procedure until the measurements for all frequencies are completed

TEST RESULTS

No non-compliance noted

Test Data

Test mode: IEEE 802.11a mode / 5150 ~ 5250MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY	Limit (dB)	Margin (dB)	Result
Low	5180	0.00	11.00	-11.00	PASS
Mid	5220	0.17	11.00	-10.83	PASS
High	5240	0.17	11.00	-10.83	PASS

Test mode: IEEE 802.11n HT20 mode / 5150 ~ 5250MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (Chain 0) (dB)	PEAK POWER SPECTRAL DENSITY (Chain 1) (dB)	PEAK POWER SPECTRAL DENSITY (Total) (dB)	Limit (dB)	Margin (dB)	Result
Low	5180	-5.19	-5.92	-2.53	8.72	-11.25	PASS
Mid	5220	-6.43	-6.29	-3.35	8.72	-12.07	PASS
High	5240	-6.85	-6.42	-3.62	8.72	-12.34	PASS

Test mode: IEEE 802.11n HT40 mode / 5150 ~ 5250MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (Chain 0) (dB)	PEAK POWER SPECTRAL DENSITY (Chain 1) (dB)	PEAK POWER SPECTRAL DENSITY (Total) (dB)	Limit (dB)	Margin (dB)	Result
Low	5190	-8.87	-6.49	-4.51	8.72	-13.23	PASS
High	5230	-9.79	-7.29	-5.35	8.72	-14.07	PASS

Remark:

*1.Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10)+10^(Chain 1 PPSD /10))*

2. The maximum antenna gain is 8.28dBi; therefore the reduction due to antenna gain is 2.28dBi, so the limit is 8.72dBm.

Test mode: IEEE 802.11a mode / 5725 ~ 5850MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY	Limit (dB)	Margin (dB)	Result
Low	5745	0.42	11.00	-10.58	PASS
Mid	5785	0.44	11.00	-10.56	PASS
High	5852	0.15	11.00	-10.85	PASS

Test mode: IEEE 802.11n HT20 mode / 5725 ~ 5850MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (Chain 0) (dB)	PEAK POWER SPECTRAL DENSITY (Chain 1) (dB)	PEAK POWER SPECTRAL DENSITY (Total) (dB)	Limit (dB)	Margin (dB)	Result
Low	5745	-5.17	-3.92	-1.49	8.72	-10.21	PASS
Mid	5785	-4.56	-4.11	-1.32	8.72	-10.04	PASS
High	5825	-3.97	-4.48	-1.21	8.72	-9.93	PASS

Test mode: IEEE 802.11n HT40 mode / 5725 ~ 5850MHz

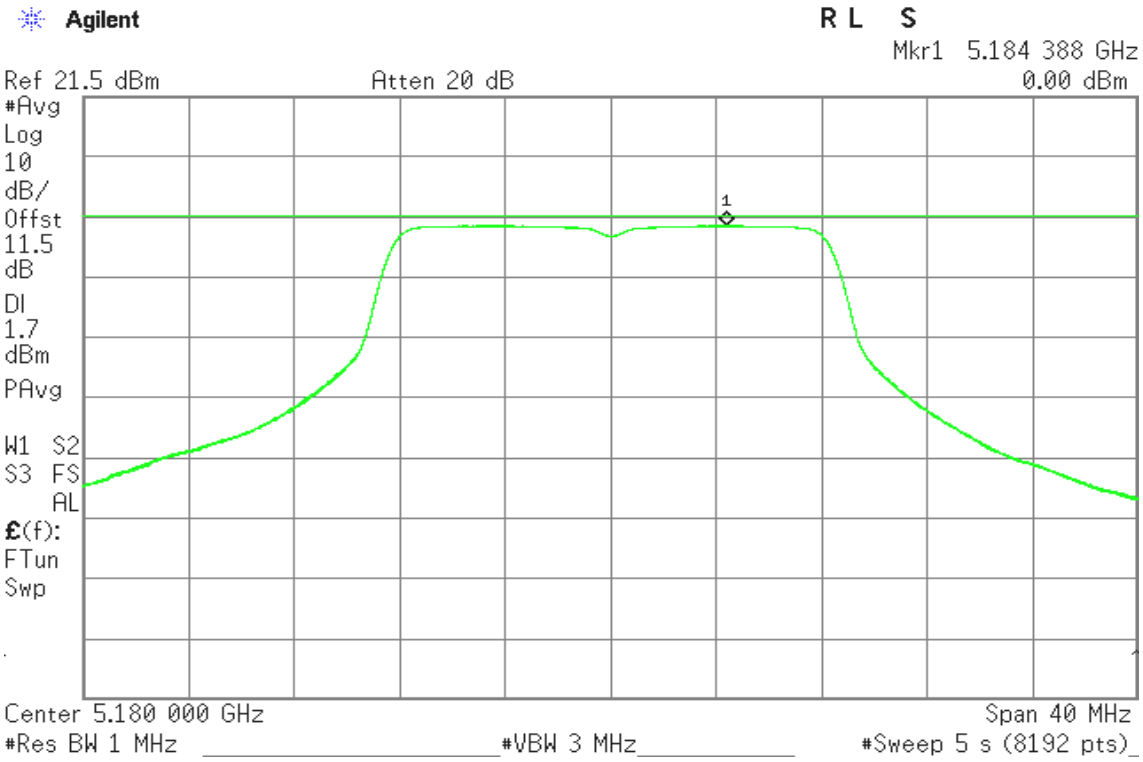
Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (Chain 0) (dB)	PEAK POWER SPECTRAL DENSITY (Chain 1) (dB)	PEAK POWER SPECTRAL DENSITY (Total) (dB)	Limit (dB)	Margin (dB)	Result
Low	5755	-8.25	-5.61	-3.72	8.72	-12.44	PASS
High	5795	-7.36	2.24	2.69	8.72	-6.03	PASS

Remark:

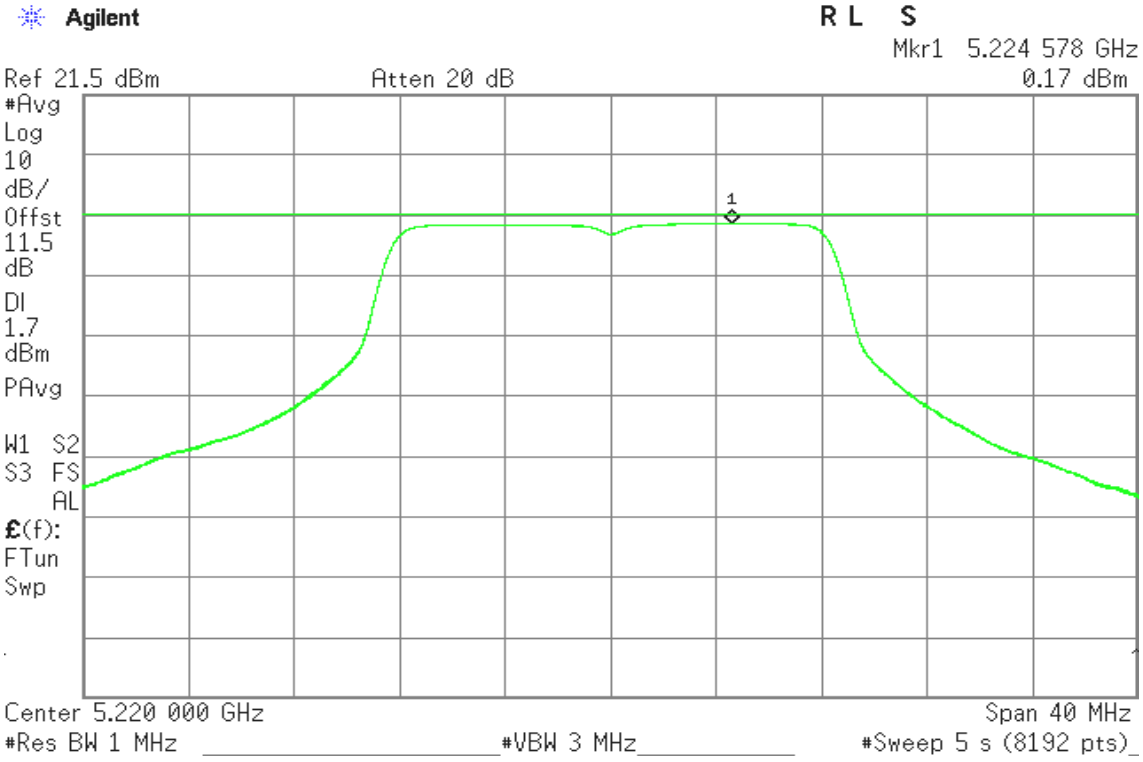
*1.Total PPSD (dBm) = 10*LOG(10^(Chain 0 PPSD / 10)+10^(Chain 1 PPSD /10))*

2. The maximum antenna gain is 8.28dBi; therefore the reduction due to antenna gain is 2.28dBi, so the limit is 8.72dBm.

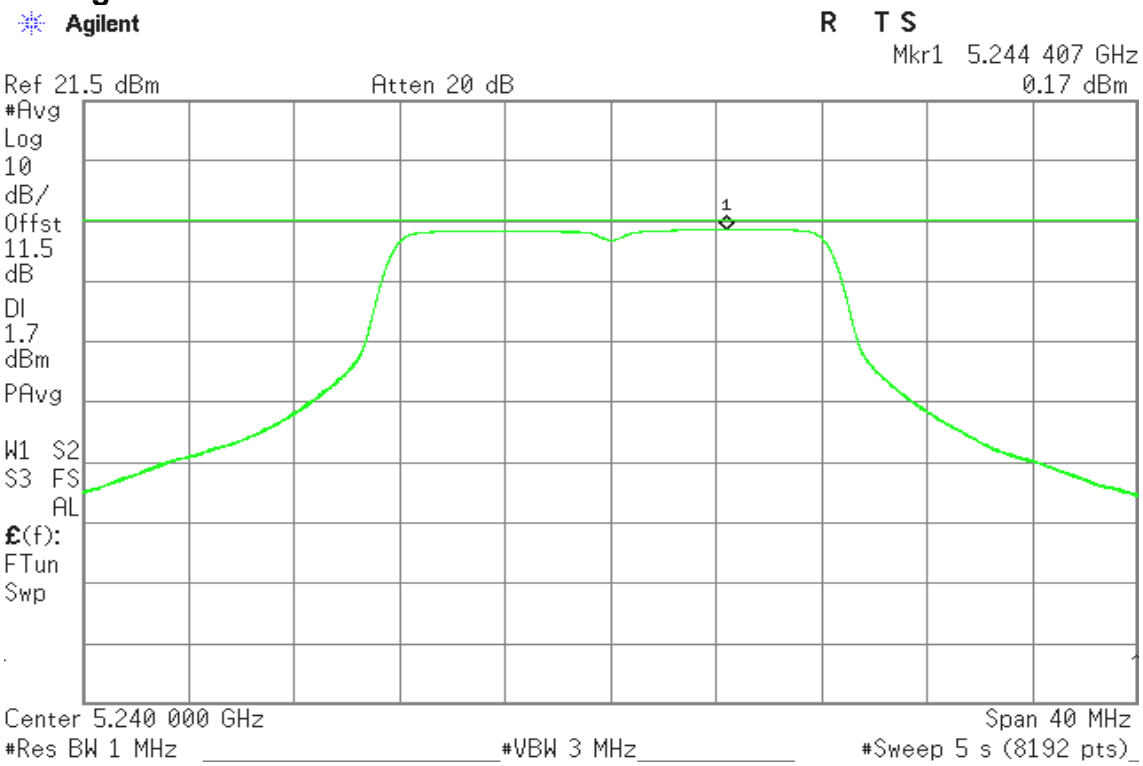
Test Plot
IEEE 802.11a mode / 5150-5250MHz
CH Low



CH Mid

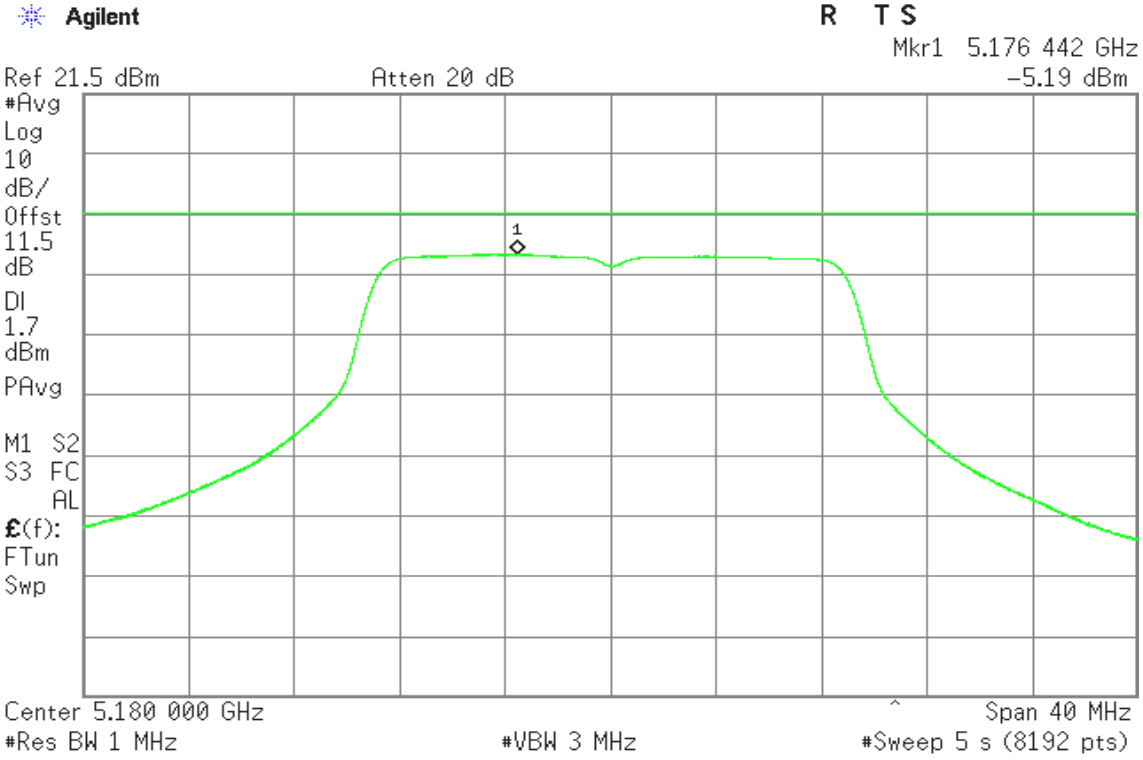


CH High

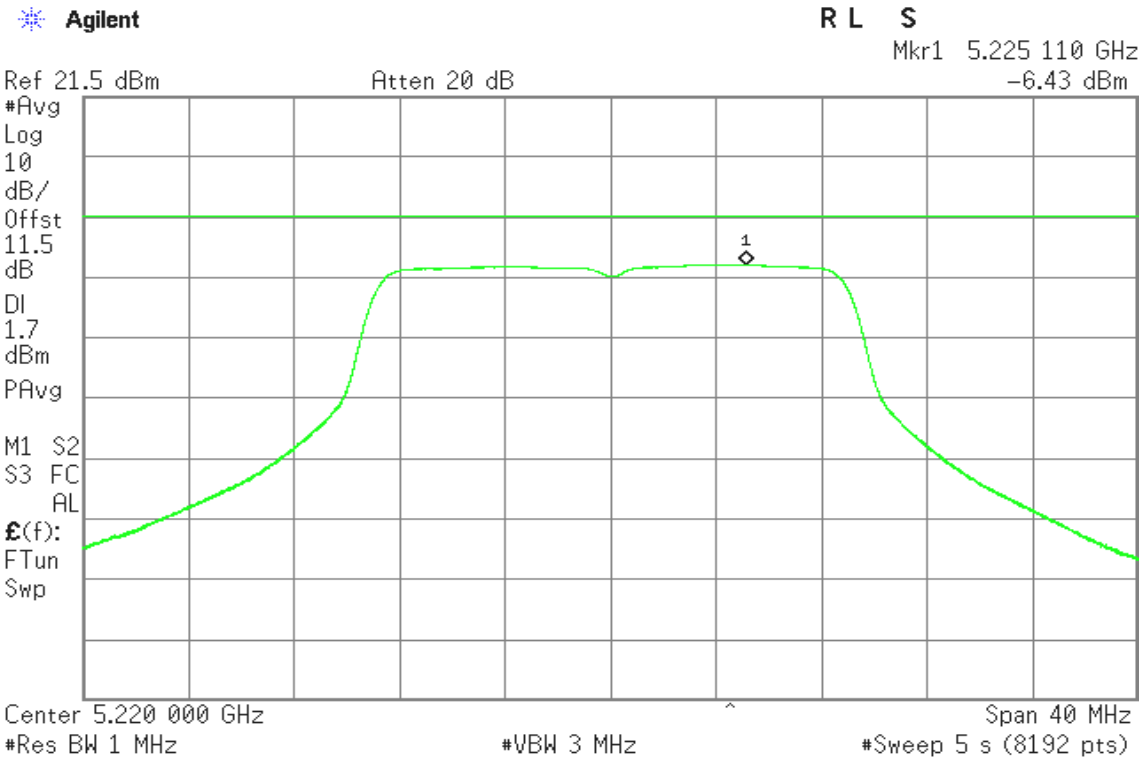


IEEE 802.11n HT20 mode / 5150-5250MHz / Chain 0

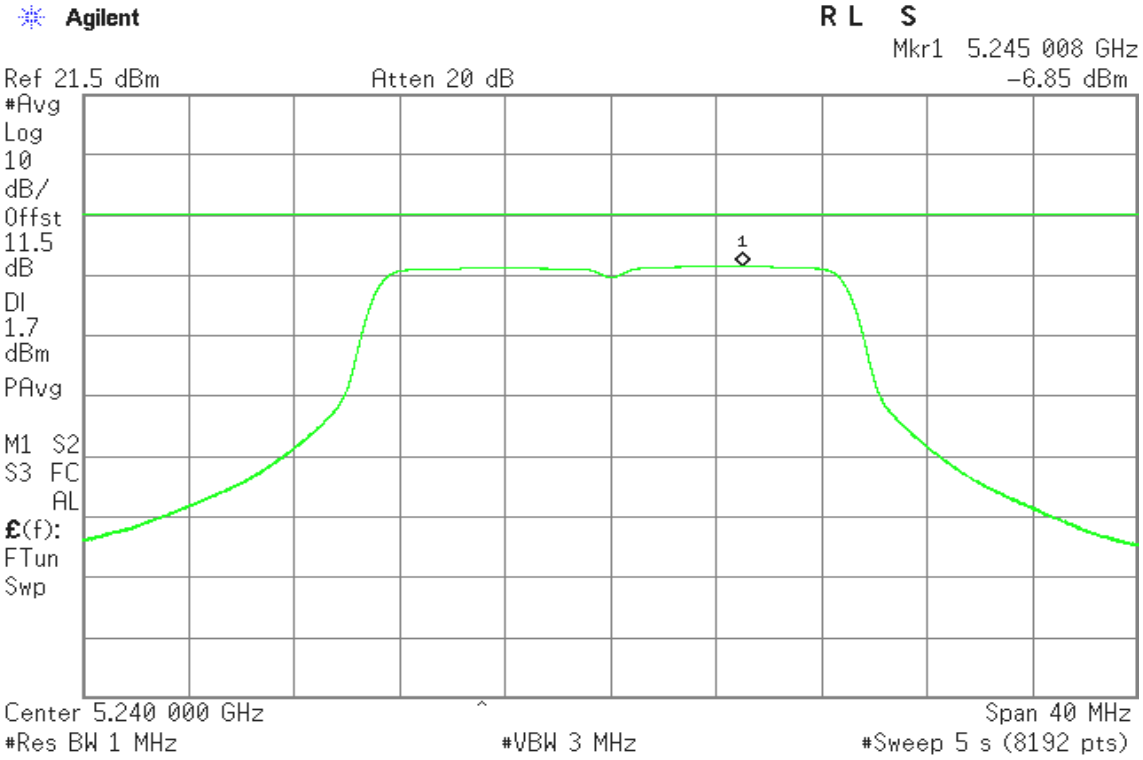
CH Low



CH Mid

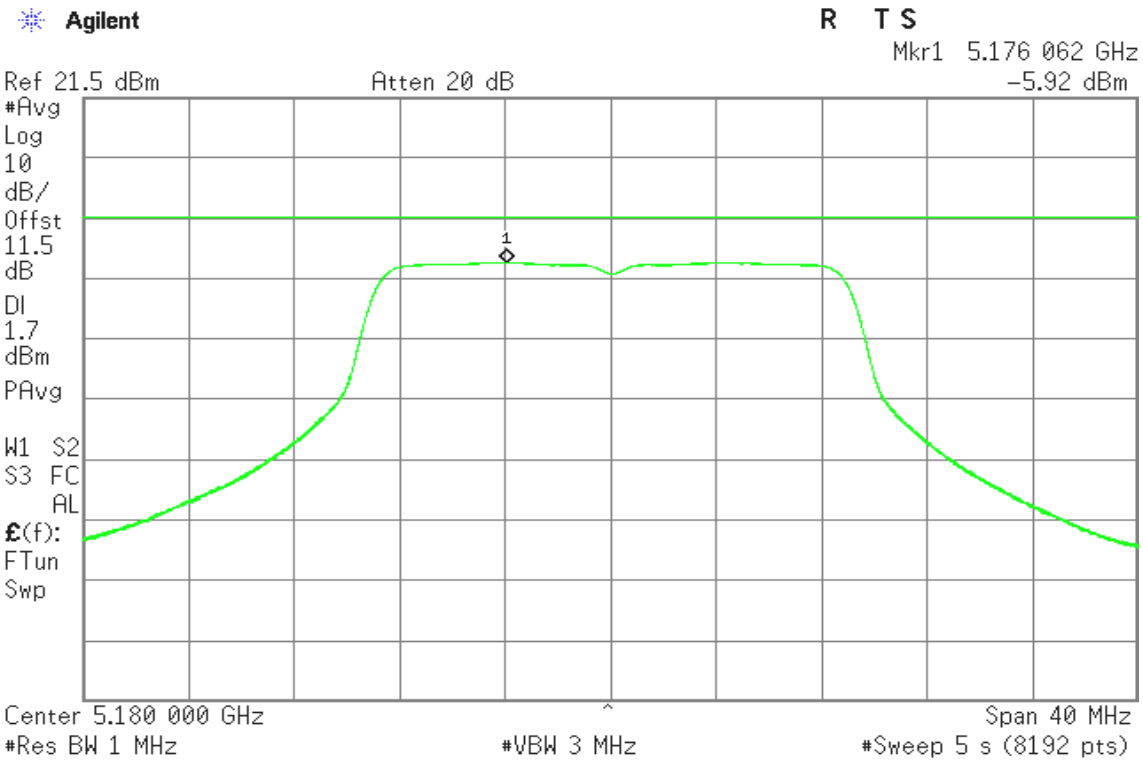


CH High

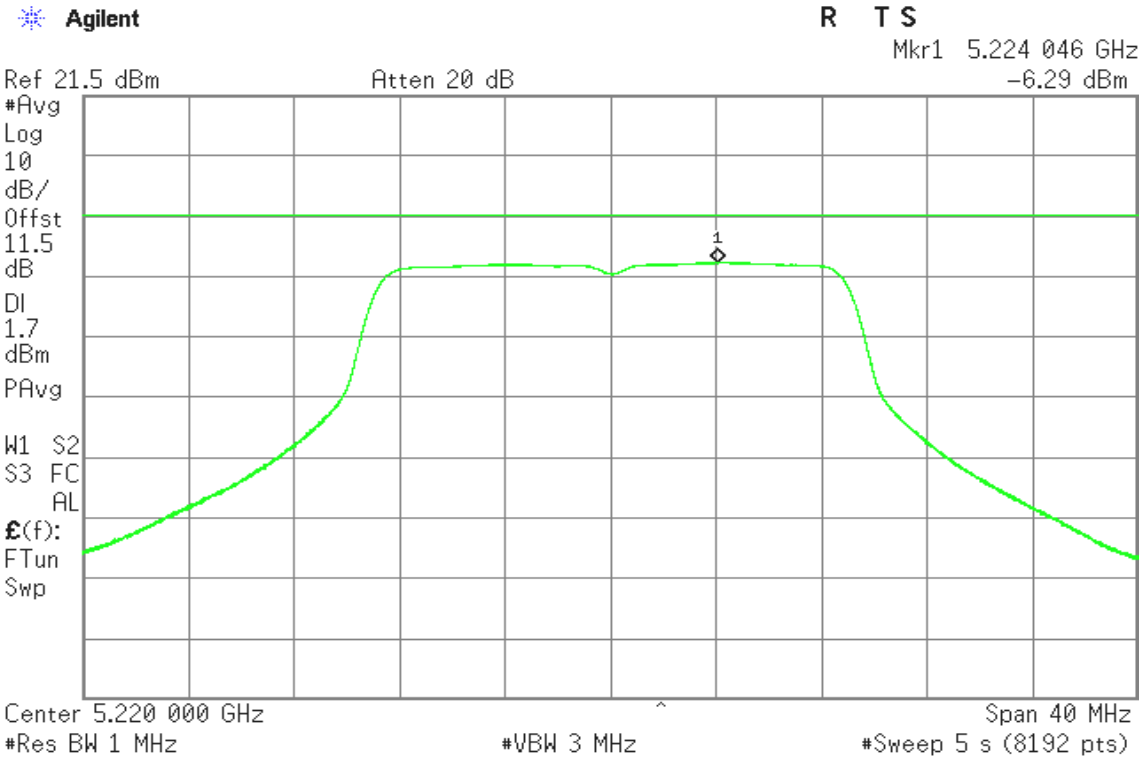


IEEE 802.11n HT20 mode / 5150-5250MHz / Chain 1

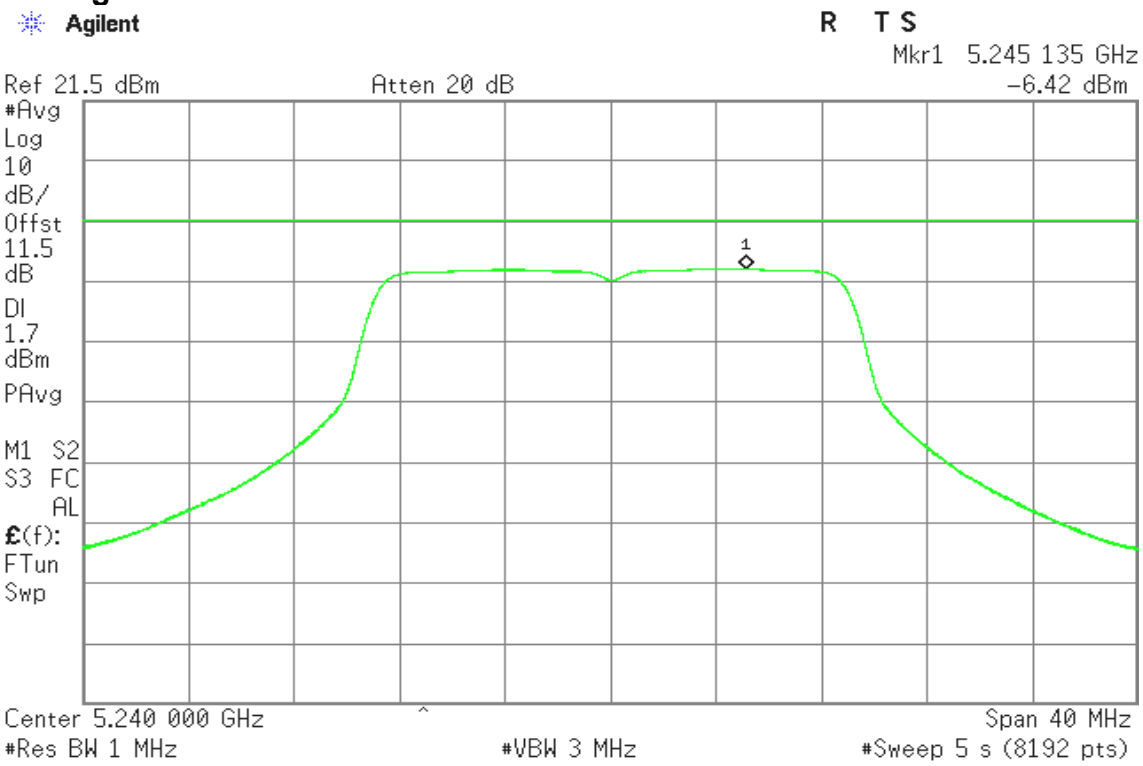
CH Low



CH Mid

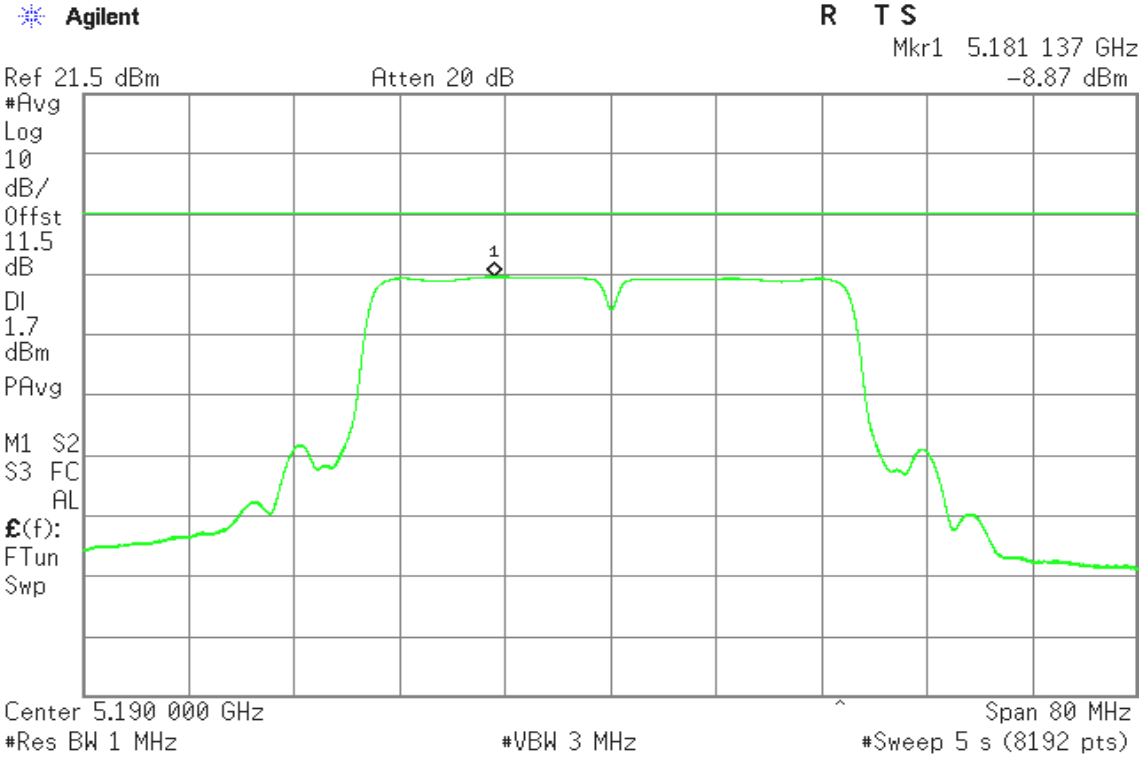


CH High

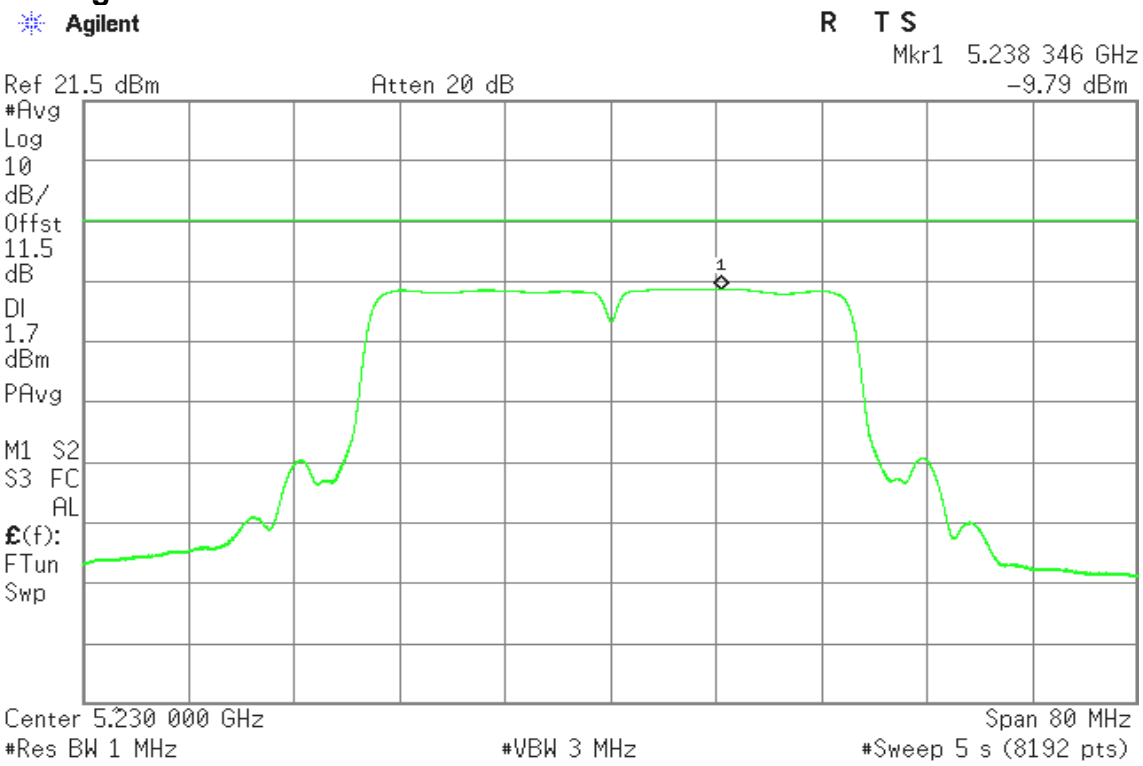


IEEE 802.11n HT40 mode / 5150-5250MHz / Chain 0

CH Low

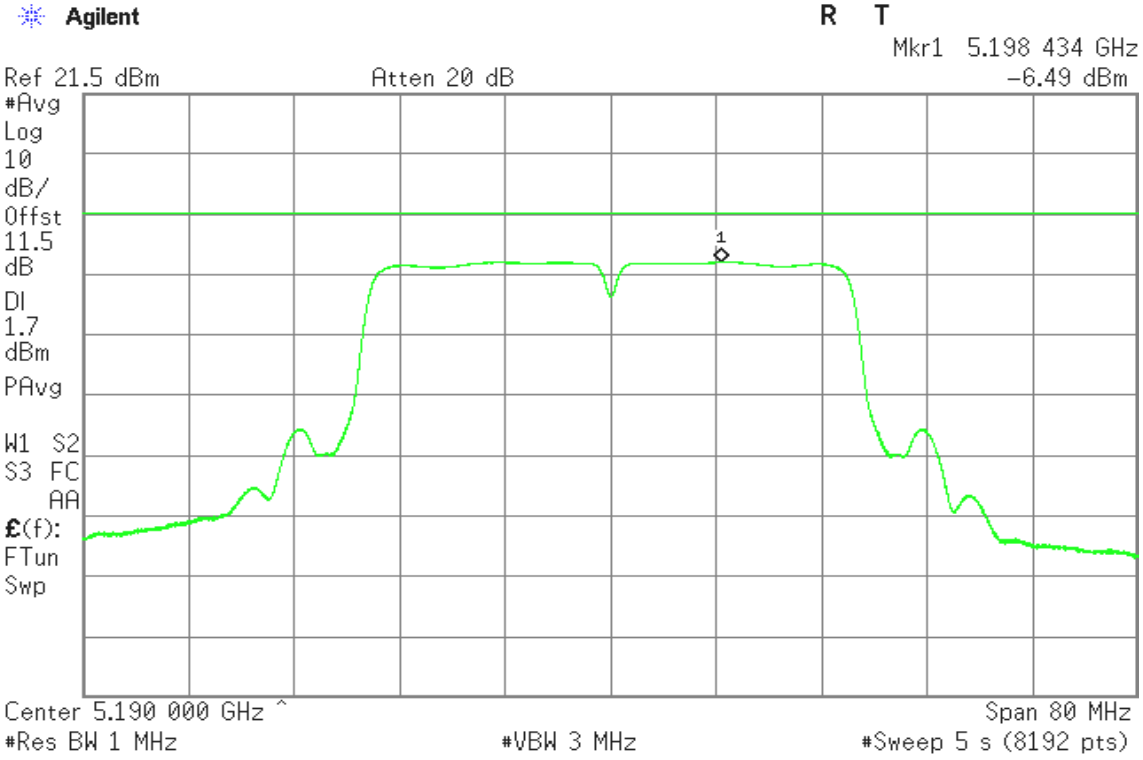


CH High

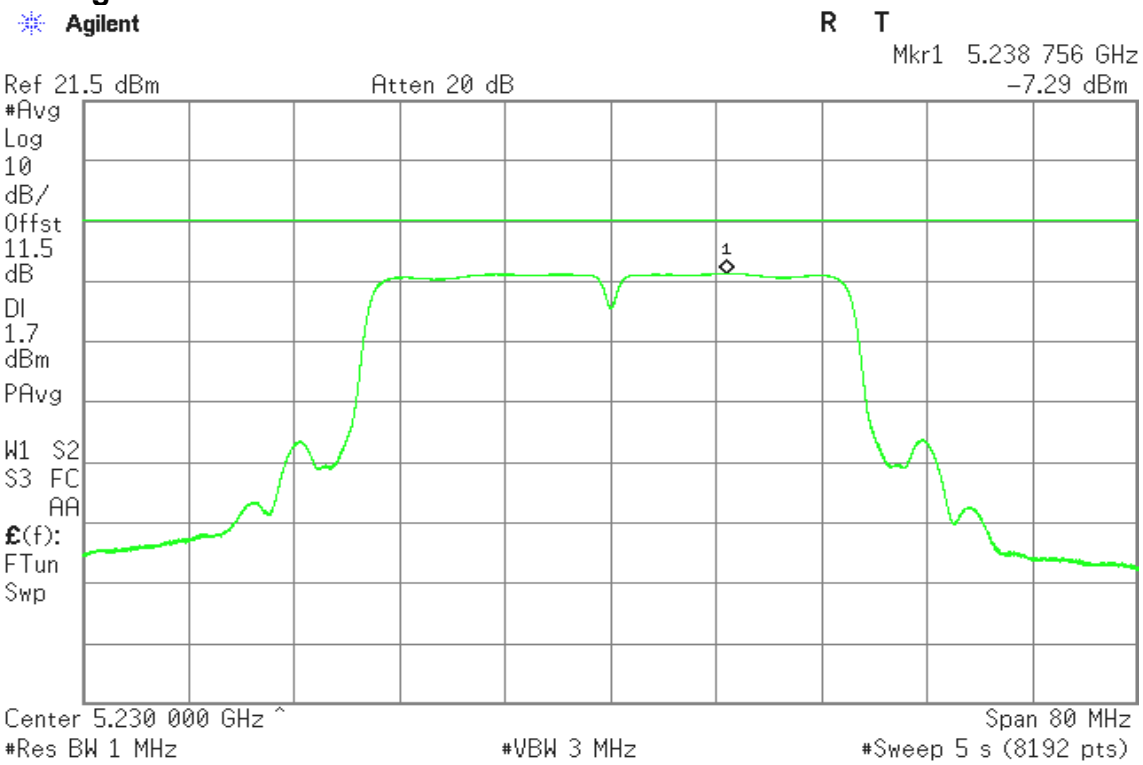


IEEE 802.11n HT40 mode / 5150-5250MHz / Chain 1

CH Low

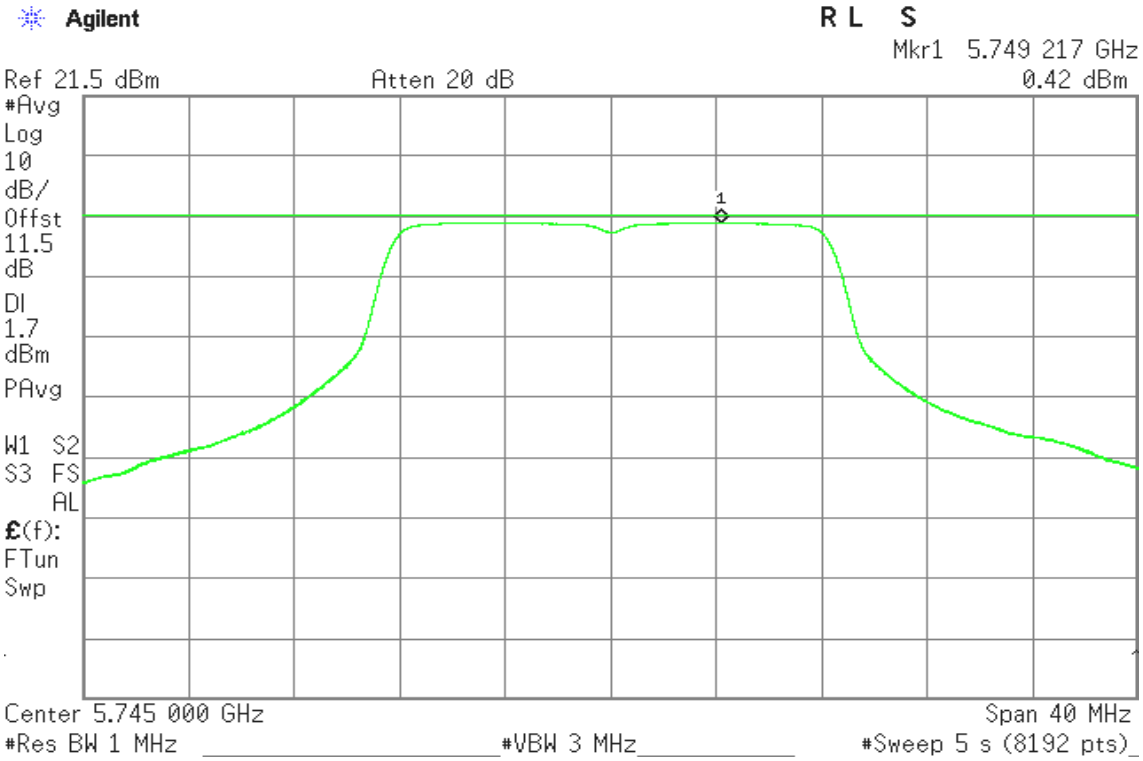


CH High

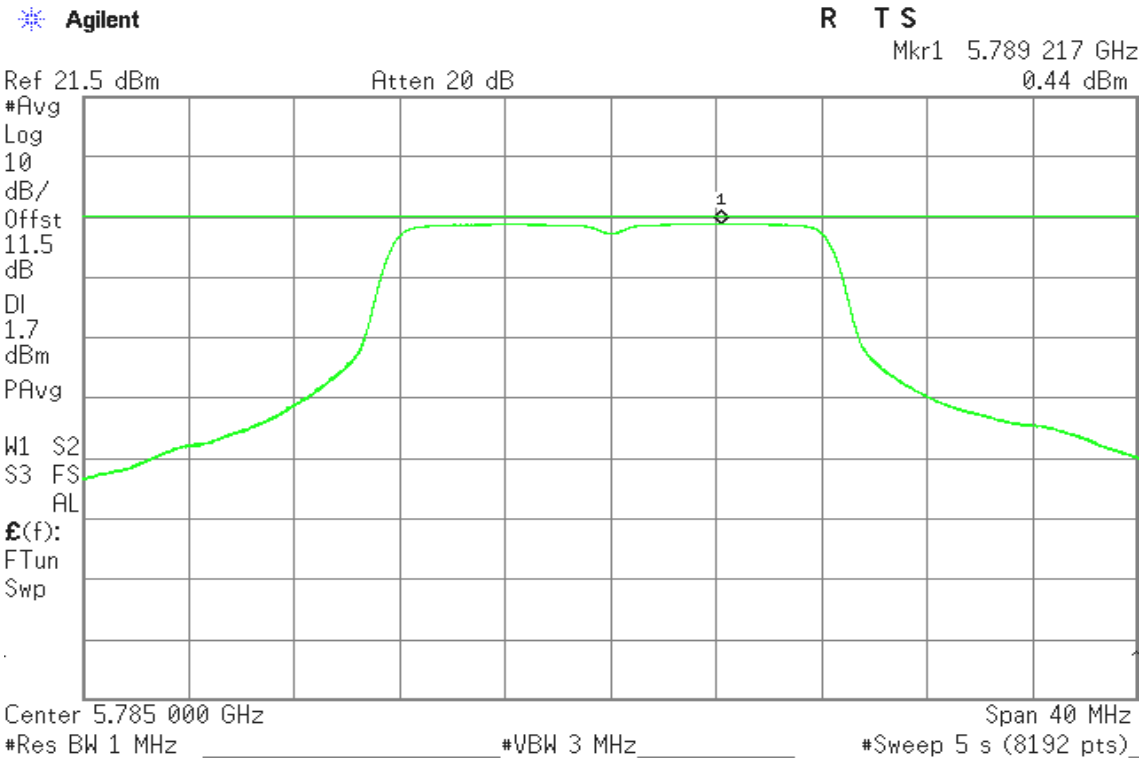


Test mode: IEEE 802.11a mode / 5725 ~ 5850MHz

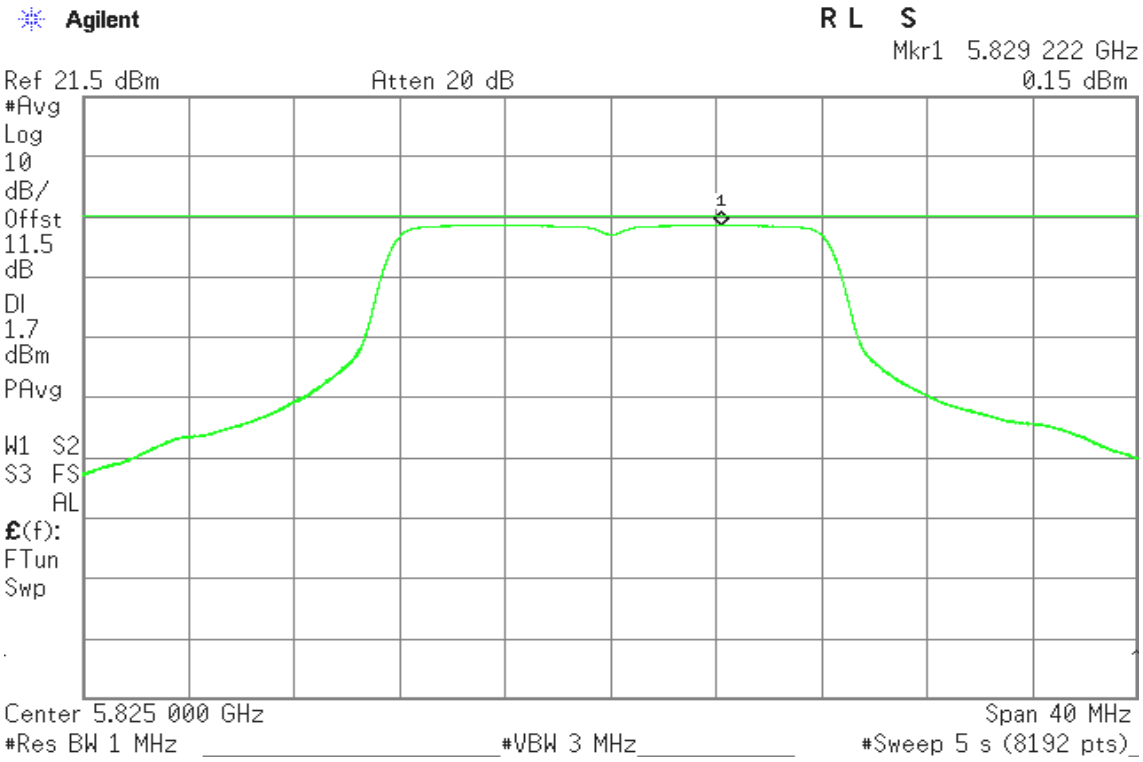
CH Low



CH Mid

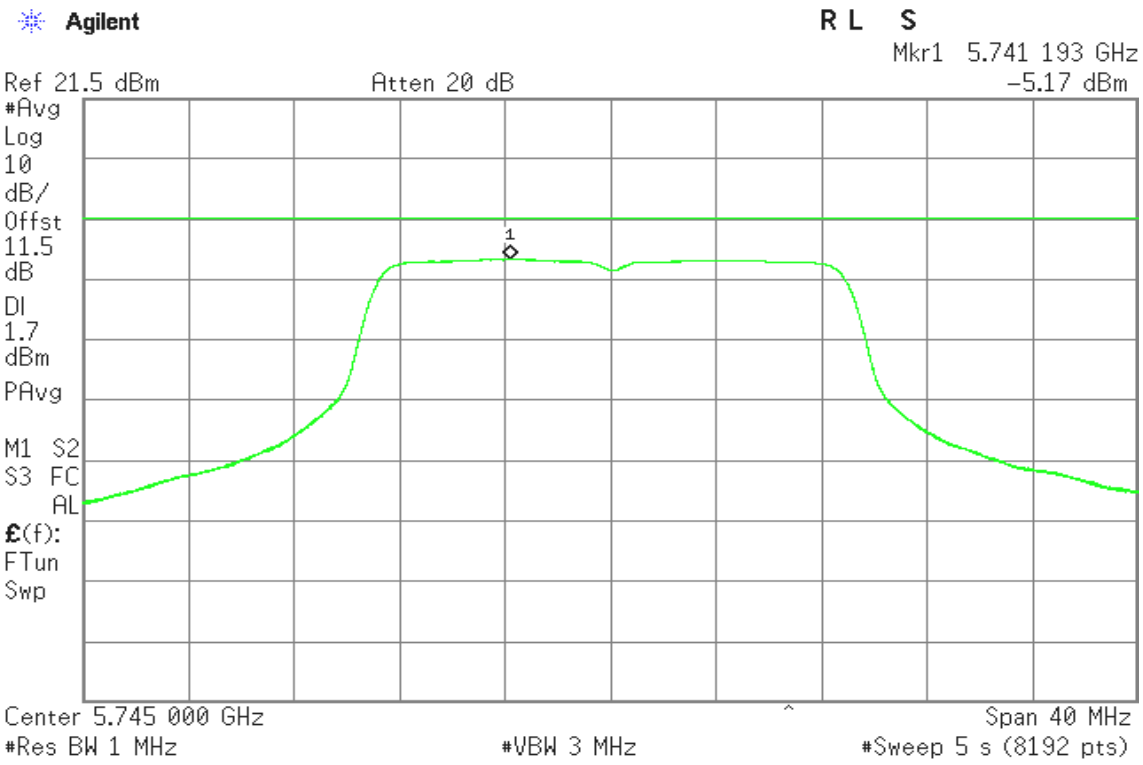


CH High

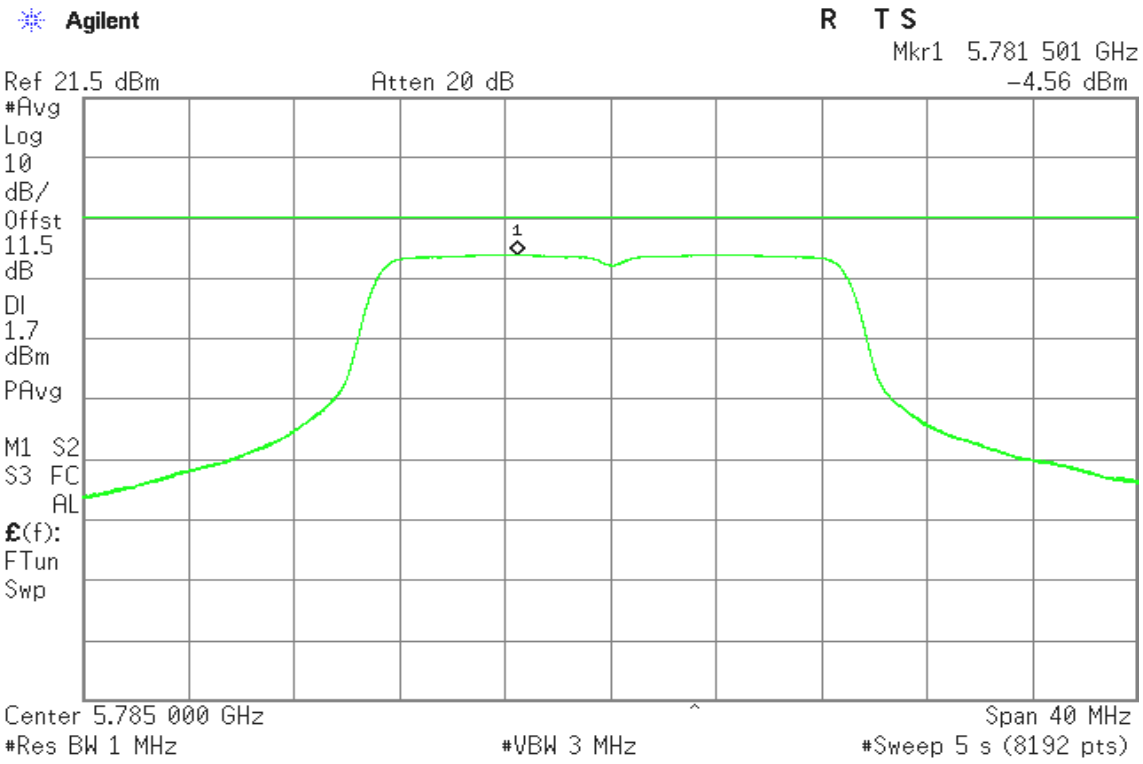


Test mode: IEEE 802.11n HT20 mode / 5725 ~ 5850MHz / Chain 0

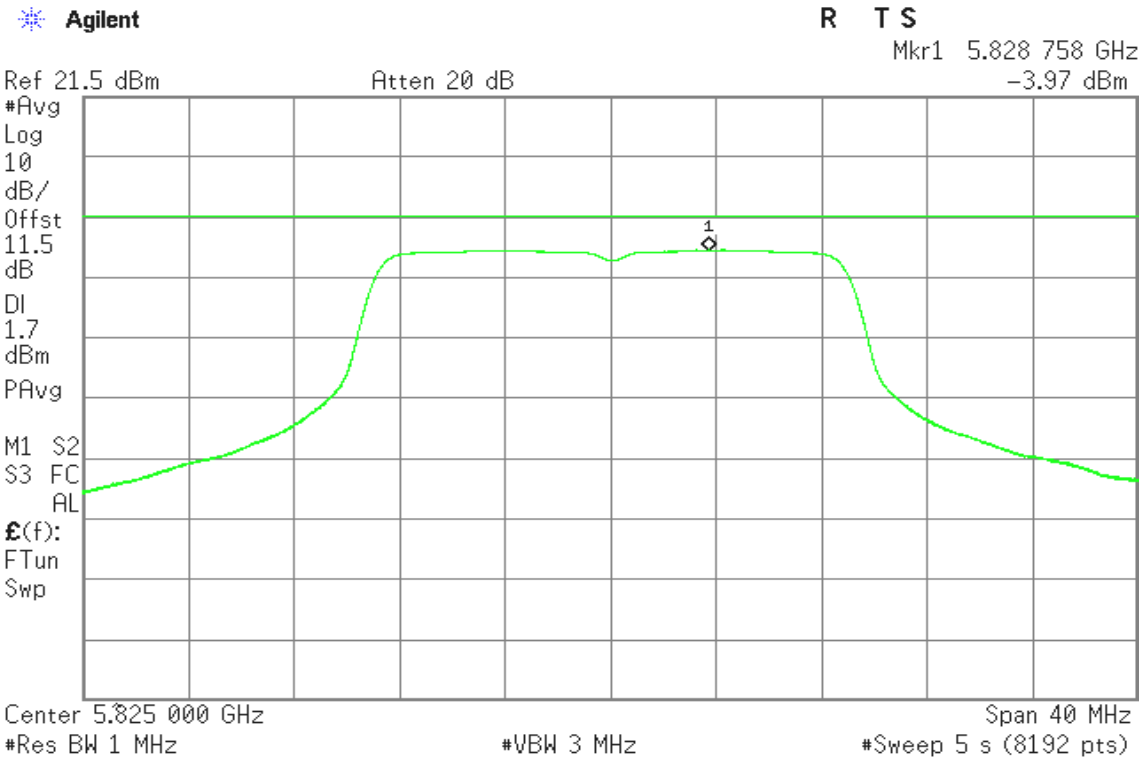
CH Low



CH Mid

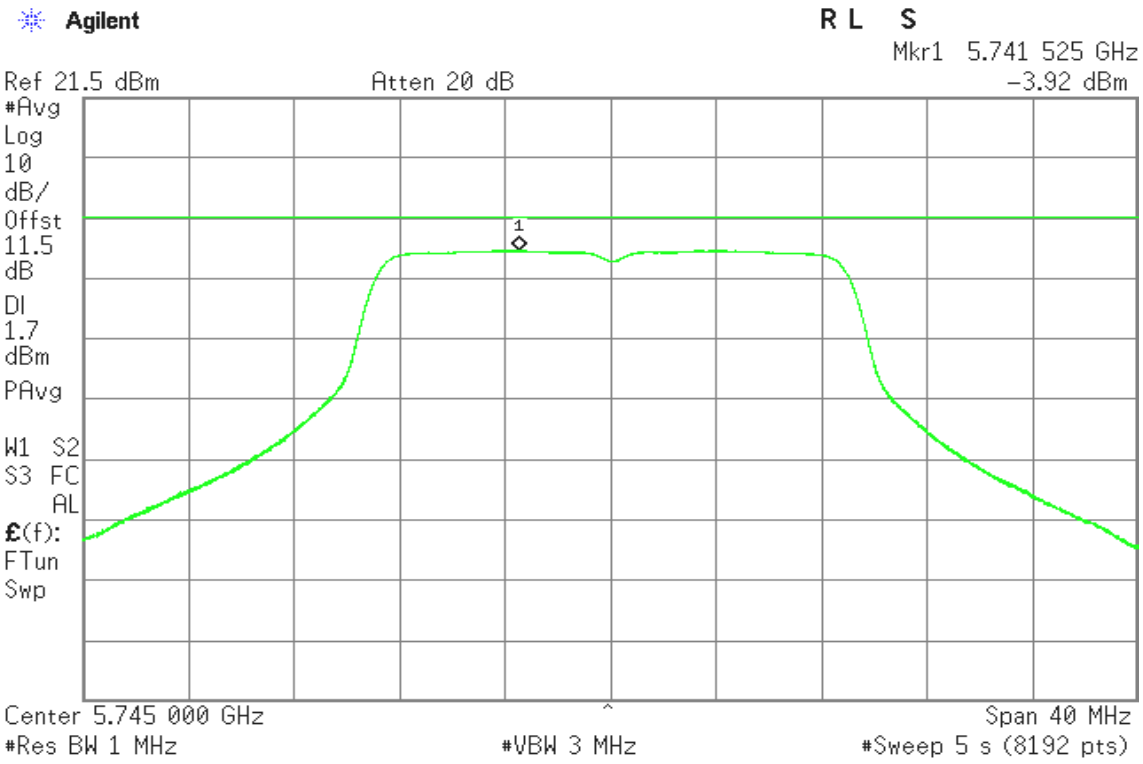


CH High

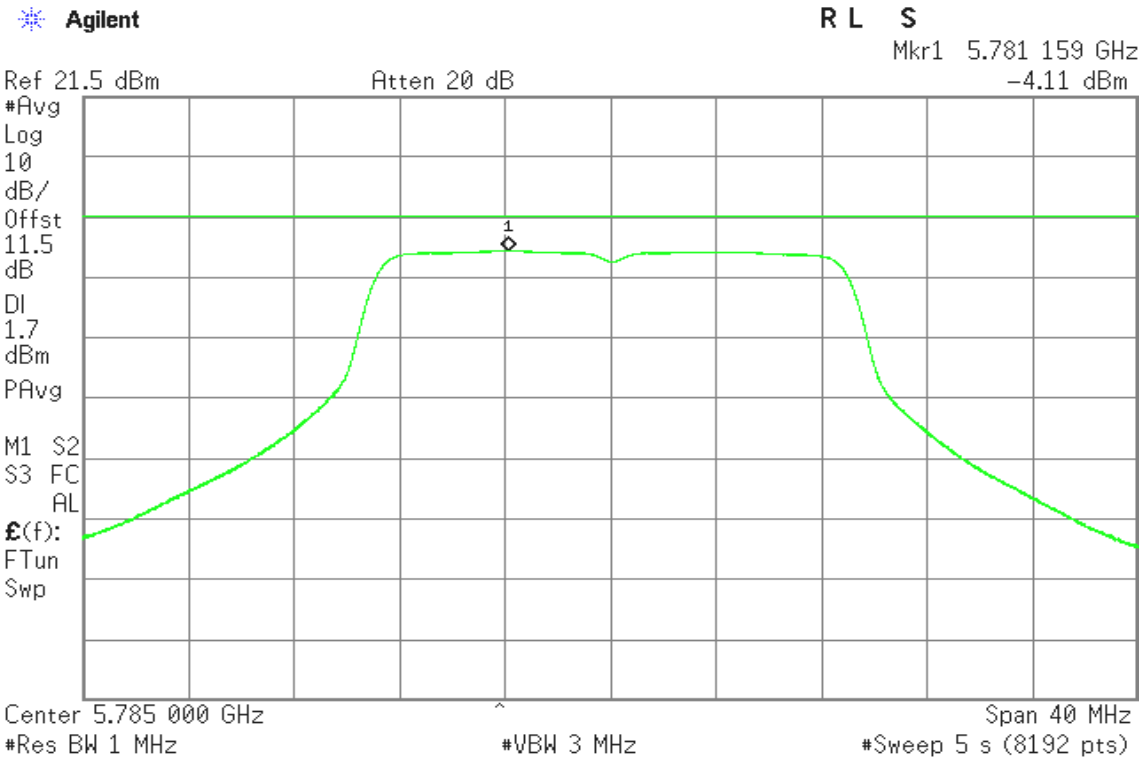


Test mode: IEEE 802.11n HT20 mode / 5725 ~ 5850MHz / Chain 1

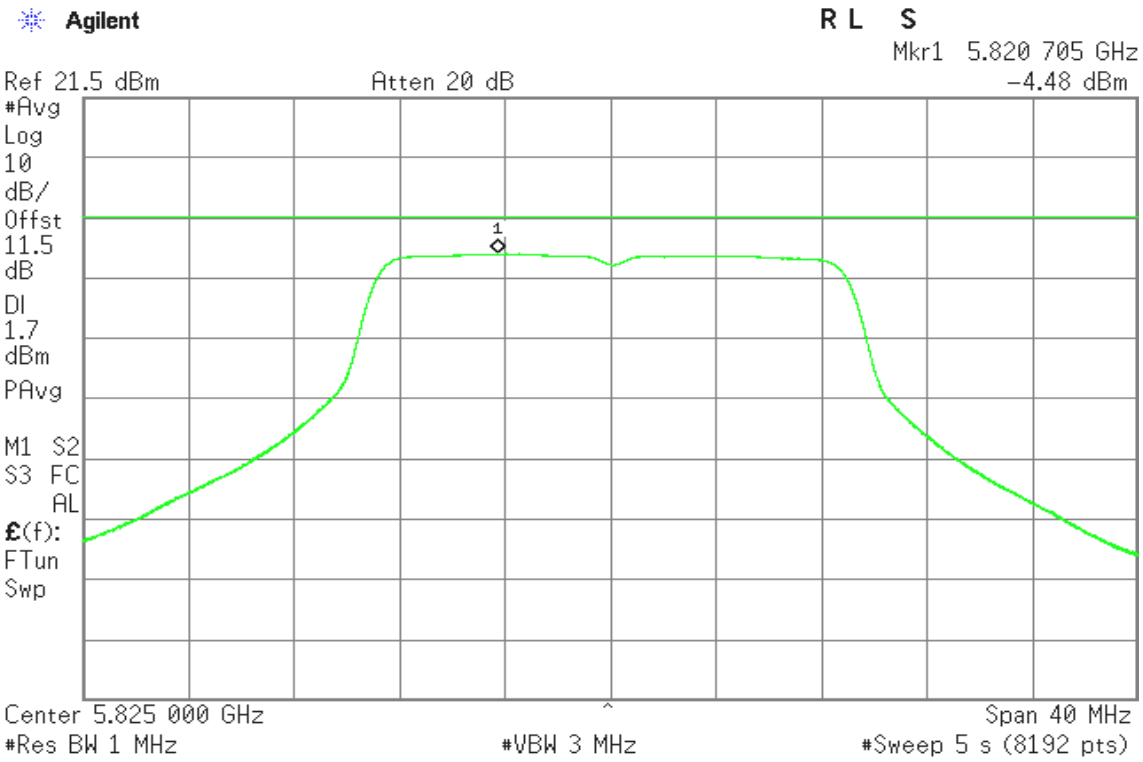
CH Low



CH Mid

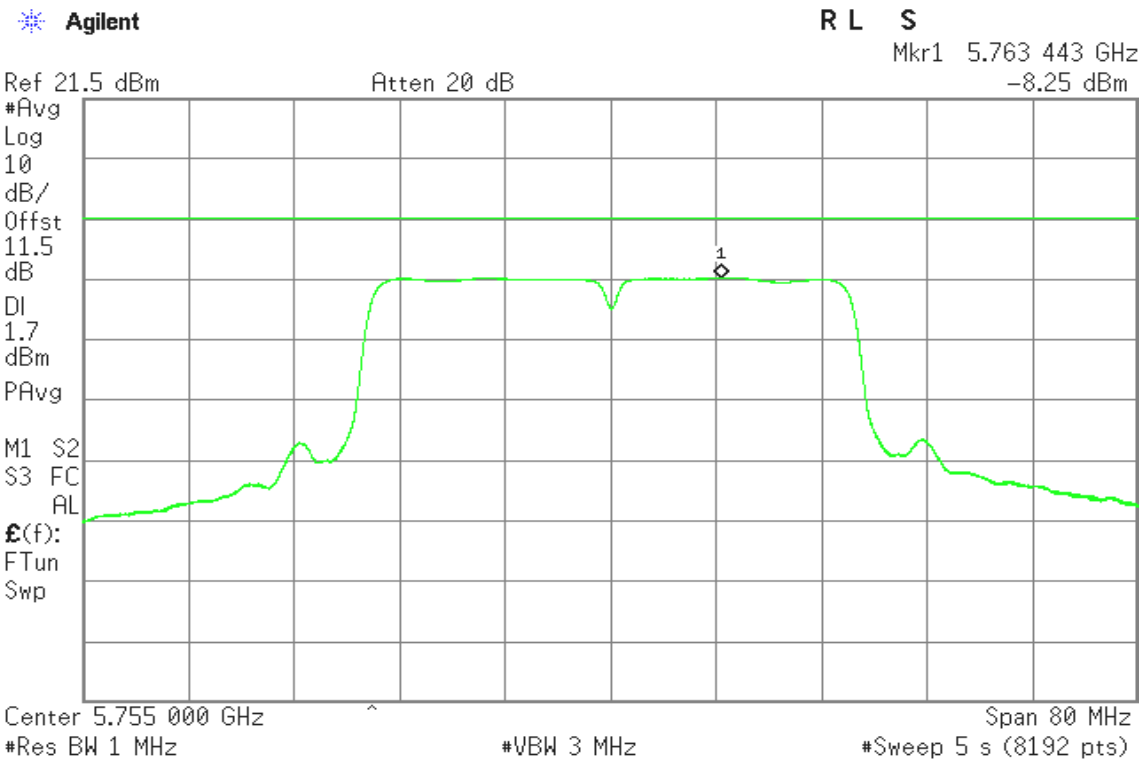


CH High

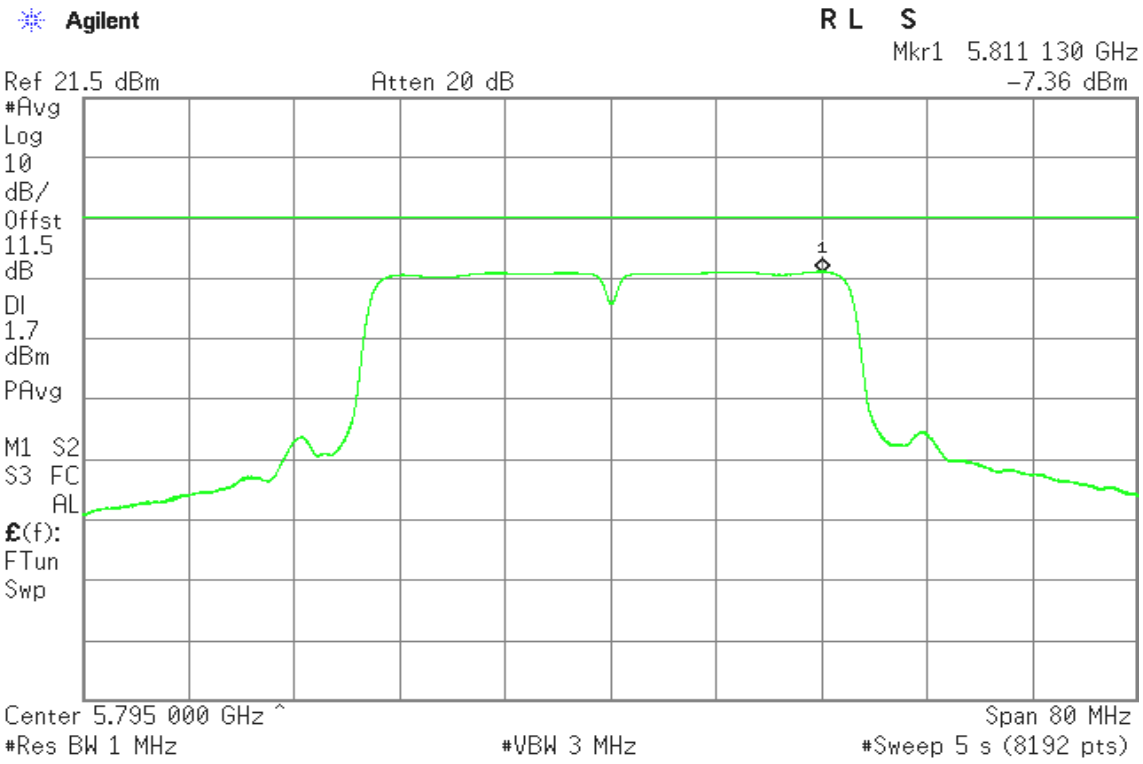


Test mode: IEEE 802.11n HT40 mode / 5725 ~ 5850MHz / Chain 0

CH Low

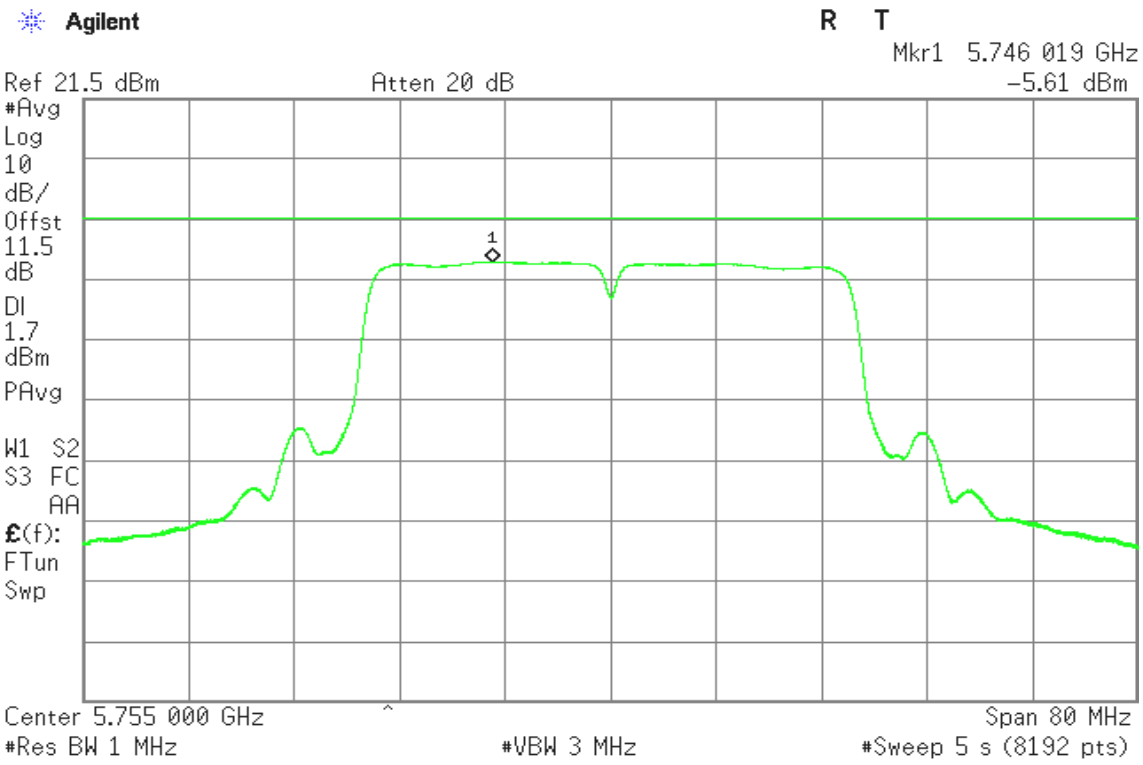


CH High

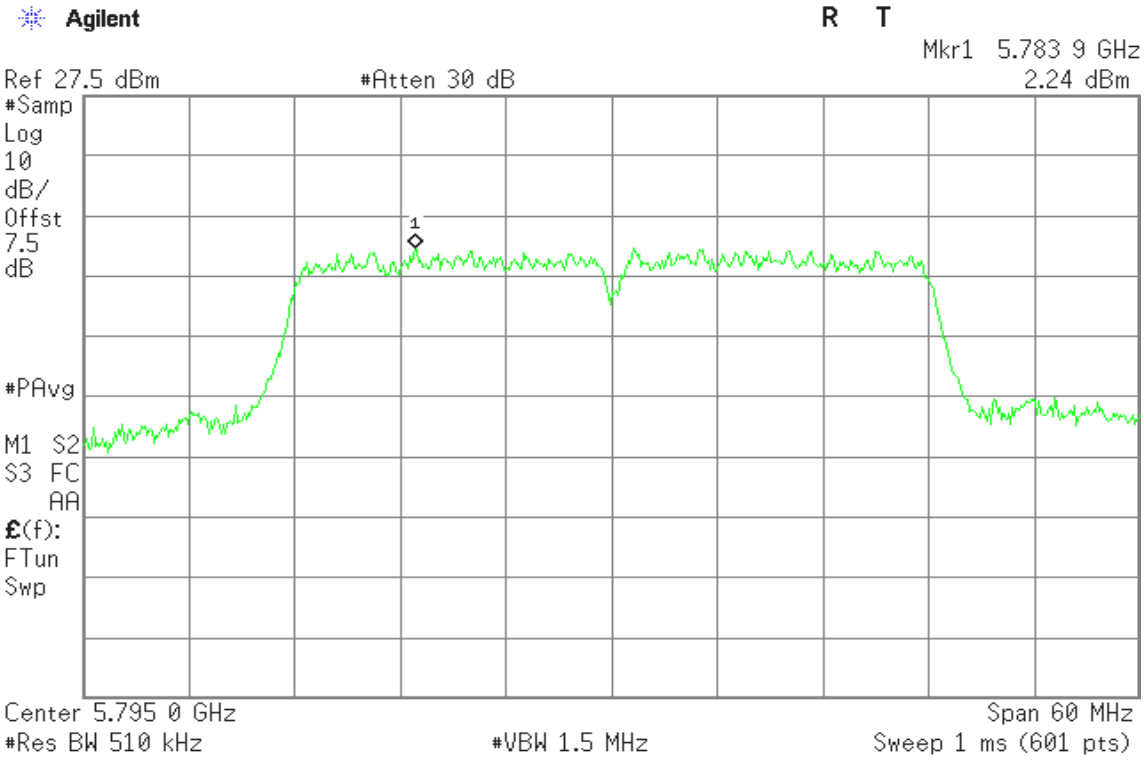


Test mode: IEEE 802.11n HT40 mode / 5725 ~ 5850MHz / Chain 1

CH Low



CH High



7.5 RADIATED UNDESIRABLE EMISSION

1. According to §15.209(a), except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

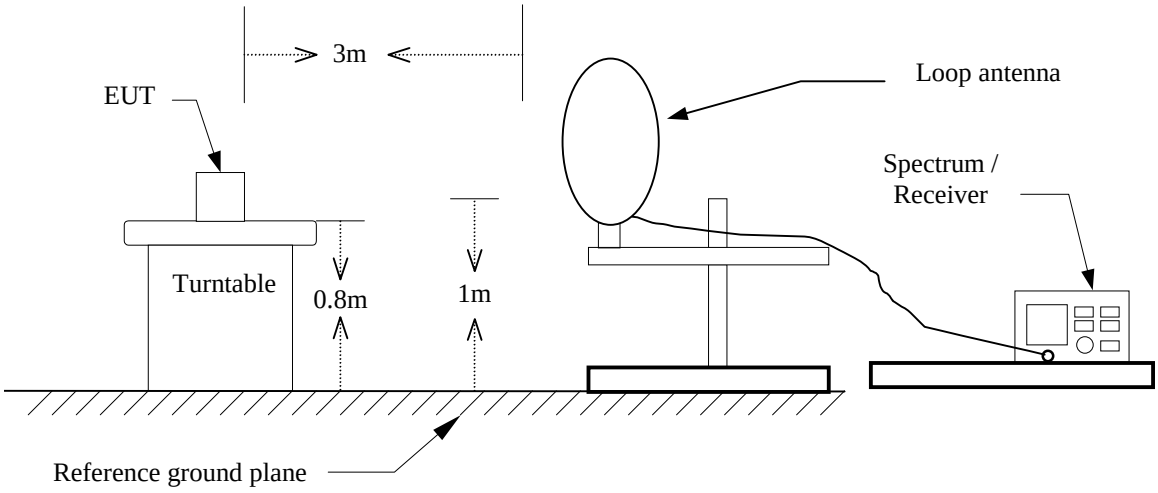
Remark: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

2. In the emission table above, the tighter limit applies at the band edges.

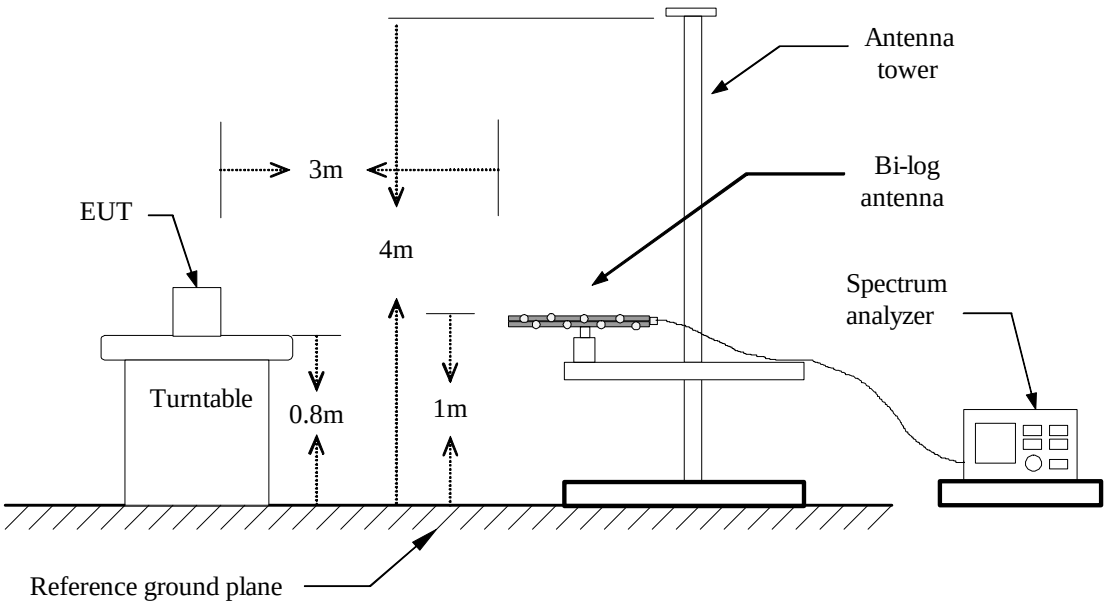
Frequency (MHz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Test Configuration

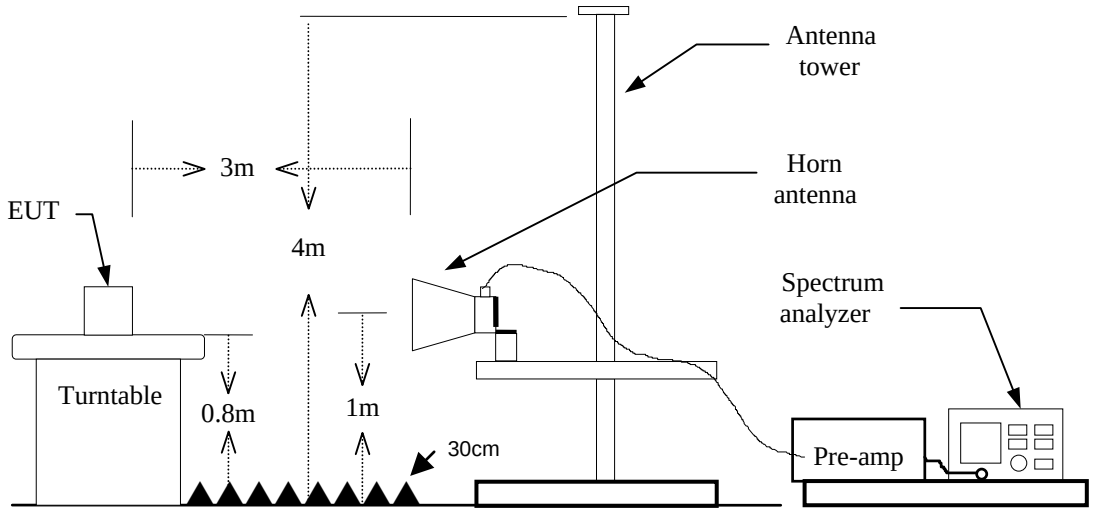
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

   Below 30MHz

   RBW=10kHz / VBW=30kHz / Sweep=AUTO

   30 ~ 1000MHz:

   RBW=100kHz / VBW=300KHz / Sweep=AUTO

   Above 1GHz:

   a) PEAK: RBW=1MHz / VBW=3MHz / Sweep=AUTO

   b) AVERAGE: RBW=1MHz / VBW=300Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

DATA SAMPLE

Below 1 GHz

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol. (H/V)	Remark
x.xx	43.20	-20.71	22.49	40.00	-17.51	V	QP

Frequency (MHz) = Emission frequency in MHz
Reading (dBuV) = Uncorrected Analyzer / Receiver reading
Correction Factor (dB/m) = Antenna factor – Amplifier gain + Cable loss
Result (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
Limit (dBuV/m) = Limit stated in standard
Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)
Q.P. = Quasi-Peak

Above 1 GHz

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
x.xx	45.25	6.91	52.16	74.00	-21.84	H	peak
x.xx	32.33	6.91	39.24	54.00	-14.76	H	AVG

Frequency (MHz) = Emission frequency in MHz
Reading (dBuV) = Uncorrected Analyzer / Receiver reading
Correction Factor (dB/m) = Antenna factor + Cable loss – Amplifier gain
Result (dBuV/m) = Reading (dBuV) + Corr. Factor (dB/m)
Limit (dBuV/m) = Limit stated in standard
Margin (dB) = Result (dBuV/m) – Limit (dBuV/m)

TEST RESULTS

No non-compliance noted.

TEST DATA

Below 1GHz

Operation Mode:	Normal Link	**Test Date:**	2014/8/29
Temperature:	26°C	**Tested by:**	Francis Lee
Humidity:	56% RH	**Polarity:**	Ver. / Hor.

Frequency (MHz)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol. (H/V)	Remark
154.1599	38.50	-16.39	22.11	43.50	-21.39	V	QP
312.2699	39.50	-12.04	27.46	46.00	-18.54	V	QP
445.1600	45.60	-10.03	35.57	46.00	-10.43	V	QP
532.4600	41.90	-8.64	33.26	46.00	-12.74	V	QP
722.5800	46.80	-6.62	40.18	46.00	-5.82	V	QP
742.9500	47.20	-6.17	41.03	46.00	-4.97	V	QP
151.2500	43.30	-16.24	27.06	43.50	-16.44	H	QP
445.1600	45.20	-10.03	35.17	46.00	-10.83	H	QP
535.3700	40.20	-8.58	31.62	46.00	-14.38	H	QP
586.7800	29.80	-8.02	21.78	46.00	-24.22	H	QP
719.6700	40.50	-6.68	33.82	46.00	-12.18	H	QP
898.1500	29.40	-3.97	25.43	46.00	-20.57	H	QP

Remark:

1. *No emission found between lowest internal used / generated frequency to 30 MHz. (9kHz ~ 30MHz)*
2. *Measuring frequencies from 9 kHz to the 1GHz.*
3. *Radiated emissions measured in the measured frequency range were made with an instrument using peak detector or quasi-peak detector mode.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.*

Above 1 GHz

Operation Mode: TX / IEEE 802.11a mode / 5150-5250MHz / Low **Test Date:** 2014/08/16

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
2150.000	52.38	-2.45	49.93	74.00	-24.07	V	peak
3990.000	46.19	3.29	49.48	74.00	-24.52	V	peak
5505.000	45.06	6.21	51.27	74.00	-22.73	V	peak
10356.000	39.03	10.53	49.56	74.00	-24.44	V	peak
N/A							
2100.000	48.72	-3.78	44.94	74.00	-29.06	H	peak
3775.000	47.42	4.77	52.19	74.00	-21.81	H	peak
3775.000	35.92	4.77	40.69	54.00	-13.31	H	AVG
4695.000	45.69	7.24	52.93	74.00	-21.07	H	peak
4695.000	34.57	7.24	41.81	54.00	-12.19	H	AVG
5510.000	44.95	8.89	53.84	74.00	-20.16	H	peak
5510.000	34.34	8.89	43.23	54.00	-10.77	H	AVG
5910.000	44.15	9.18	53.33	74.00	-20.67	H	peak
5910.000	34.36	9.18	43.54	54.00	-10.46	H	AVG
10368.000	40.94	10.00	50.94	74.00	-23.06	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11a mode / 5150-5250MHz / Mid	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1990.000	51.29	-1.46	49.83	74.00	-24.17	V	peak
3790.000	45.97	3.57	49.54	74.00	-24.46	V	peak
5590.000	45.29	5.94	51.23	74.00	-22.77	V	peak
10452.000	40.08	9.78	49.86	74.00	-24.14	V	peak
N/A							
3075.000	48.41	0.83	49.24	74.00	-24.76	H	peak
4660.000	47.01	6.75	53.76	74.00	-20.24	H	peak
4660.000	34.98	6.75	41.73	54.00	-12.27	H	AVG
4980.000	46.98	7.50	54.48	74.00	-19.52	H	peak
4980.000	35.41	7.50	42.91	54.00	-11.09	H	AVG
5455.000	46.39	8.65	55.04	74.00	-18.96	H	peak
5455.000	38.11	8.65	46.76	54.00	-7.24	H	AVG
5990.000	45.31	8.87	54.18	74.00	-19.82	H	peak
5990.000	34.26	8.87	43.13	54.00	-10.87	H	AVG
10440.000	39.75	9.68	49.43	74.00	-24.57	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11a mode / 5150-5250MHz / High	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1990.000	49.72	-1.46	48.26	74.00	-25.74	V	peak
3795.000	45.81	3.63	49.44	74.00	-24.56	V	peak
4920.000	45.55	4.56	50.11	74.00	-23.89	V	peak
5750.000	45.49	5.54	51.03	74.00	-22.97	V	peak
10476.000	40.02	9.60	49.62	74.00	-24.38	V	peak
N/A							
1535.000	55.15	-9.19	45.96	74.00	-28.04	H	peak
4640.000	46.74	6.48	53.22	74.00	-20.78	H	peak
4640.000	35.27	6.48	41.75	54.00	-12.25	H	AVG
4925.000	46.42	7.26	53.68	74.00	-20.32	H	peak
4925.000	34.63	7.26	41.89	54.00	-12.11	H	AVG
5565.000	45.09	9.08	54.17	74.00	-19.83	H	peak
5565.000	33.97	9.08	43.05	54.00	-10.95	H	AVG
5915.000	44.40	9.16	53.56	74.00	-20.44	H	peak
5915.000	34.12	9.16	43.28	54.00	-10.72	H	AVG
10476.000	40.23	9.52	49.75	74.00	-24.25	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT20 mode / 5150-5250MHz / Low	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1995.000	50.11	-1.38	48.73	74.00	-25.27	V	peak
3800.000	46.33	3.69	50.02	74.00	-23.98	V	peak
5595.000	45.41	5.93	51.34	74.00	-22.66	V	peak
10344.000	38.97	10.62	49.59	74.00	-24.41	V	peak
N/A							
3125.000	47.69	1.27	48.96	74.00	-25.04	H	peak
4320.000	45.58	7.51	53.09	74.00	-20.91	H	peak
4320.000	35.32	7.51	42.83	54.00	-11.17	H	AVG
4705.000	46.10	7.22	53.32	74.00	-20.68	H	peak
4705.000	34.77	7.22	41.99	54.00	-12.01	H	AVG
4940.000	45.49	7.33	52.82	74.00	-21.18	H	peak
4940.000	34.78	7.33	42.11	54.00	-11.89	H	AVG
5605.000	45.46	9.14	54.60	74.00	-19.40	H	peak
5605.000	34.40	9.14	43.54	54.00	-10.46	H	AVG
10356.000	46.94	10.06	57.00	74.00	-17.00	H	peak
10356.000	35.85	10.06	45.91	54.00	-8.09	H	AVG

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT20 mode / 5150-5250MHz / Mid	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
2000.000	50.85	-1.30	49.55	74.00	-24.45	V	peak
4050.000	46.65	3.31	49.96	74.00	-24.04	V	peak
5495.000	45.11	6.24	51.35	74.00	-22.65	V	peak
11352.000	37.12	10.48	47.60	74.00	-26.40	V	peak
N/A							
3080.000	49.87	0.93	50.80	74.00	-23.20	H	peak
4710.000	46.47	7.12	53.59	74.00	-20.41	H	peak
4710.000	34.83	7.12	41.95	54.00	-12.05	H	AVG
4985.000	45.98	7.52	53.50	74.00	-20.50	H	peak
4985.000	37.44	7.52	44.96	54.00	-9.04	H	AVG
5465.000	45.56	8.70	54.26	74.00	-19.74	H	peak
5465.000	37.46	8.70	46.16	54.00	-7.84	H	AVG
5955.000	44.76	9.01	53.77	74.00	-20.23	H	peak
5955.000	37.46	9.01	46.47	54.00	-7.53	H	AVG
10452.000	46.10	9.63	55.73	74.00	-18.27	H	peak
10452.000	34.49	9.63	44.12	54.00	-9.88	H	AVG

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT20 mode / 5150-5250MHz / High	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1990.000	50.14	-1.46	48.68	74.00	-25.32	V	peak
3990.000	45.74	3.29	49.03	74.00	-24.97	V	peak
5605.000	45.37	5.91	51.28	74.00	-22.72	V	peak
11220.000	37.33	10.38	47.71	74.00	-26.29	V	peak
N/A							
3075.000	48.33	0.83	49.16	74.00	-24.84	H	peak
4415.000	46.11	6.88	52.99	74.00	-21.01	H	peak
4415.000	35.11	6.88	41.99	54.00	-12.01	H	AVG
5000.000	45.97	7.59	53.56	74.00	-20.44	H	peak
5000.000	34.56	7.59	42.15	54.00	-11.85	H	AVG
5475.000	46.55	8.74	55.29	74.00	-18.71	H	peak
5475.000	34.13	8.74	42.87	54.00	-11.13	H	AVG
5915.000	44.22	9.16	53.38	74.00	-20.62	H	peak
5915.000	34.13	9.16	43.29	54.00	-10.71	H	AVG
10488.000	42.04	9.46	51.50	74.00	-22.50	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT40 mode / 5150-5250MHz / Low	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1365.000	59.45	-7.33	52.12	74.00	-21.88	V	peak
1365.000	47.90	-7.33	40.57	54.00	-13.43	V	AVG
4035.000	47.90	3.36	51.26	74.00	-22.74	V	peak
5700.000	44.54	5.94	50.48	74.00	-23.52	V	peak
10392.000	40.71	10.25	50.96	74.00	-23.04	V	peak
N/A							
3250.000	48.26	1.18	49.44	74.00	-24.56	H	peak
4320.000	45.21	7.51	52.72	74.00	-21.28	H	peak
4320.000	35.36	7.51	42.87	54.00	-11.13	H	AVG
4970.000	45.31	7.46	52.77	74.00	-21.23	H	peak
4970.000	35.19	7.46	42.65	54.00	-11.35	H	AVG
5430.000	45.77	8.53	54.30	74.00	-19.70	H	peak
5430.000	35.08	8.53	43.61	54.00	-10.39	H	AVG
5630.000	45.09	8.87	53.96	74.00	-20.04	H	peak
5630.000	34.21	8.87	43.08	54.00	-10.92	H	AVG
5940.000	44.08	9.06	53.14	74.00	-20.86	H	peak
5940.000	34.28	9.06	43.34	54.00	-10.66	H	AVG
10404.000	40.20	9.84	50.04	74.00	-23.96	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT40 mode / 5150-5250MHz / High	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1990.000	49.11	-1.46	47.65	74.00	-26.35	V	peak
3780.000	46.51	3.45	49.96	74.00	-24.04	V	peak
4900.000	46.13	4.37	50.50	74.00	-23.50	V	peak
5490.000	45.44	6.25	51.69	74.00	-22.31	V	peak
11088.000	38.17	10.27	48.44	74.00	-25.56	V	peak
N/A							
3085.000	47.91	1.03	48.94	74.00	-25.06	H	peak
4295.000	45.97	7.58	53.55	74.00	-20.45	H	peak
4295.000	35.27	7.58	42.85	54.00	-11.15	H	AVG
4915.000	45.63	7.22	52.85	74.00	-21.15	H	peak
4915.000	35.10	7.22	42.32	54.00	-11.68	H	AVG
5460.000	45.81	8.67	54.48	74.00	-19.52	H	peak
5460.000	34.96	8.67	43.63	54.00	-10.37	H	AVG
5950.000	44.28	9.03	53.31	74.00	-20.69	H	peak
5950.000	35.35	9.03	44.38	54.00	-9.62	H	AVG
10464.000	39.84	9.57	49.41	74.00	-24.59	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11a mode / 5745-5825MHz / Low **Test Date:** 2014/08/16

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1990.000	50.57	-1.46	49.11	74.00	-24.89	V	peak
3495.000	47.45	2.18	49.63	74.00	-24.37	V	peak
4935.000	46.56	4.70	51.26	74.00	-22.74	V	peak
5850.000	45.70	5.70	51.40	74.00	-22.60	V	peak
11352.000	37.81	10.48	48.29	74.00	-25.71	V	peak
N/A							
3075.000	48.99	0.83	49.82	74.00	-24.18	H	peak
4335.000	45.42	7.40	52.82	74.00	-21.18	H	peak
4335.000	35.24	7.40	42.64	54.00	-11.36	H	AVG
4915.000	45.39	7.22	52.61	74.00	-21.39	H	peak
4915.000	35.07	7.22	42.29	54.00	-11.71	H	AVG
5500.000	46.48	8.86	55.34	74.00	-18.66	H	peak
5500.000	38.19	8.86	47.05	54.00	-6.95	H	AVG
5910.000	45.31	9.18	54.49	74.00	-19.51	H	peak
5910.000	35.74	9.18	44.92	54.00	-9.08	H	AVG
11664.000	38.22	10.65	48.87	74.00	-25.13	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode: TX / IEEE 802.11a mode / 5745-5825MHz / Mid **Test Date:** 2014/08/16

Temperature: 26℃ **Tested by:** Francis Lee

Humidity: 56%RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1995.000	53.51	-1.38	52.13	74.00	-21.87	V	peak
1995.000	41.20	-1.38	39.82	54.00	-14.18	V	AVG
3780.000	46.23	3.45	49.68	74.00	-24.32	V	peak
5455.000	45.61	6.30	51.91	74.00	-22.09	V	peak
5915.000	44.30	6.10	50.40	74.00	-23.60	V	peak
11568.000	42.31	10.62	52.93	74.00	-21.07	V	peak
11568.000	34.16	10.62	44.78	54.00	-9.22	V	AVG
2205.000	49.18	-3.70	45.48	74.00	-28.52	H	peak
4245.000	45.76	6.74	52.50	74.00	-21.50	H	peak
4245.000	35.48	6.74	42.22	54.00	-11.78	H	AVG
5010.000	45.37	7.46	52.83	74.00	-21.17	H	peak
5010.000	34.99	7.46	42.45	54.00	-11.55	H	AVG
5620.000	46.21	8.98	55.19	74.00	-18.81	H	peak
5620.000	37.02	8.98	46.00	54.00	-8.00	H	AVG
5890.000	44.94	8.98	53.92	74.00	-20.08	H	peak
5890.000	34.51	8.98	43.49	54.00	-10.51	H	AVG
11568.000	41.37	10.62	51.99	74.00	-22.01	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11a mode / 5745-5825MHz / High	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1995.000	50.56	-1.38	49.18	74.00	-24.82	V	peak
4915.000	46.61	4.51	51.12	74.00	-22.88	V	peak
5415.000	45.23	6.37	51.60	74.00	-22.40	V	peak
5915.000	44.52	6.10	50.62	74.00	-23.38	V	peak
11640.000	42.57	10.64	53.21	74.00	-20.79	V	peak
11640.000	34.62	10.64	45.26	54.00	-8.74	V	AVG
1535.000	54.88	-9.19	45.69	74.00	-28.31	H	peak
4320.000	46.48	7.51	53.99	74.00	-20.01	H	peak
4320.000	35.32	7.51	42.83	54.00	-11.17	H	AVG
5005.000	45.12	7.53	52.65	74.00	-21.35	H	peak
5005.000	34.80	7.53	42.33	54.00	-11.67	H	AVG
5580.000	45.83	9.13	54.96	74.00	-19.04	H	peak
5580.000	36.67	9.13	45.80	54.00	-8.20	H	AVG
5950.000	45.24	9.03	54.27	74.00	-19.73	H	peak
5950.000	34.90	9.03	43.93	54.00	-10.07	H	AVG
11652.000	40.73	10.65	51.38	74.00	-22.62	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT20 mode / 5745-5825MHz / Low	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
2000.000	53.71	-1.30	52.41	74.00	-21.59	V	peak
2000.000	40.57	-1.30	39.27	54.00	-14.73	V	AVG
4035.000	46.30	3.36	49.66	74.00	-24.34	V	peak
5205.000	45.92	5.53	51.45	74.00	-22.55	V	peak
5915.000	43.90	6.10	50.00	74.00	-24.00	V	peak
11496.000	38.81	10.60	49.41	74.00	-24.59	V	peak
1535.000	54.92	-9.19	45.73	74.00	-28.27	H	peak
4310.000	45.37	7.59	52.96	74.00	-21.04	H	peak
4310.000	35.23	7.59	42.82	54.00	-11.18	H	AVG
4935.000	46.32	7.30	53.62	74.00	-20.38	H	peak
4935.000	34.90	7.30	42.20	54.00	-11.80	H	AVG
5590.000	46.50	9.17	55.67	74.00	-18.33	H	peak
5590.000	35.74	9.17	44.91	54.00	-9.09	H	AVG
5900.000	45.56	9.22	54.78	74.00	-19.22	H	peak
5900.000	34.60	9.22	43.82	54.00	-10.18	H	AVG
11484.000	42.35	10.59	52.94	74.00	-21.06	H	peak
11484.000	31.13	10.59	41.72	54.00	-12.28	H	AVG

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT20 mode / 5745-5825MHz / Mid	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
2000.000	52.41	-1.30	51.11	74.00	-22.89	V	peak
4080.000	46.76	3.19	49.95	74.00	-24.05	V	peak
5535.000	44.87	6.12	50.99	74.00	-23.01	V	peak
5925.000	44.25	6.00	50.25	74.00	-23.75	V	peak
11568.000	39.68	10.62	50.30	74.00	-23.70	V	peak
N/A							
2100.000	48.62	-3.78	44.84	74.00	-29.16	H	peak
3885.000	46.55	5.20	51.75	74.00	-22.25	H	peak
4320.000	45.84	7.51	53.35	74.00	-20.65	H	peak
4320.000	35.28	7.51	42.79	54.00	-11.21	H	AVG
5595.000	46.36	9.18	55.54	74.00	-18.46	H	peak
5595.000	35.07	9.18	44.25	54.00	-9.75	H	AVG
5900.000	44.41	9.22	53.63	74.00	-20.37	H	peak
5900.000	34.58	9.22	43.80	54.00	-10.20	H	AVG
11568.000	39.45	10.62	50.07	74.00	-23.93	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT20 mode / 5745-5825MHz / High	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1990.000	49.72	-1.46	48.26	74.00	-25.74	V	peak
4065.000	46.06	3.25	49.31	74.00	-24.69	V	peak
5475.000	44.90	6.27	51.17	74.00	-22.83	V	peak
5905.000	45.08	6.21	51.29	74.00	-22.71	V	peak
11652.000	39.95	10.65	50.60	74.00	-23.40	V	peak
N/A							
3105.000	47.90	1.32	49.22	74.00	-24.78	H	peak
4300.000	45.40	7.66	53.06	74.00	-20.94	H	peak
4300.000	35.08	7.66	42.74	54.00	-11.26	H	AVG
4855.000	46.75	6.39	53.14	74.00	-20.86	H	peak
4855.000	34.65	6.39	41.04	54.00	-12.96	H	AVG
5620.000	45.98	8.98	54.96	74.00	-19.04	H	peak
5620.000	35.18	8.98	44.16	54.00	-9.84	H	AVG
5910.000	45.12	9.18	54.30	74.00	-19.70	H	peak
5910.000	35.11	9.18	44.29	54.00	-9.71	H	AVG
11652.000	42.10	10.65	52.75	74.00	-21.25	H	peak
11652.000	32.05	10.65	42.70	54.00	-11.30	H	AVG

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT40 mode / 5755-5815MHz / Low	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
1995.000	51.77	-1.38	50.39	74.00	-23.61	V	peak
4110.000	46.72	3.06	49.78	74.00	-24.22	V	peak
5460.000	45.47	6.29	51.76	74.00	-22.24	V	peak
5920.000	44.74	6.05	50.79	74.00	-23.21	V	peak
11820.000	38.13	10.70	48.83	74.00	-25.17	V	peak
N/A							
3070.000	48.36	0.73	49.09	74.00	-24.91	H	peak
4270.000	46.09	7.16	53.25	74.00	-20.75	H	peak
4270.000	35.40	7.16	42.56	54.00	-11.44	H	AVG
4730.000	46.19	6.75	52.94	74.00	-21.06	H	peak
4730.000	34.85	6.75	41.60	54.00	-12.40	H	AVG
5510.000	46.55	8.89	55.44	74.00	-18.56	H	peak
5510.000	35.30	8.89	44.19	54.00	-9.81	H	AVG
5915.000	44.55	9.16	53.71	74.00	-20.29	H	peak
5915.000	34.90	9.16	44.06	54.00	-9.94	H	AVG
11496.000	39.68	10.60	50.28	74.00	-23.72	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

Operation Mode:	TX / IEEE 802.11n HT40 mode / 5755-5815MHz / High	**Test Date:**	2014/08/16
Temperature:	26℃	**Tested by:**	Francis Lee
Humidity:	56%RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant. Pol H/V	Remark
3115.000	48.26	0.25	48.51	74.00	-25.49	V	peak
4035.000	45.76	3.36	49.12	74.00	-24.88	V	peak
5445.000	45.69	6.32	52.01	74.00	-21.99	V	peak
5445.000	34.52	6.32	40.84	54.00	-13.16	V	AVG
5955.000	44.84	5.68	50.52	74.00	-23.48	V	peak
11604.000	38.55	10.63	49.18	74.00	-24.82	V	peak
3080.000	48.09	0.93	49.02	74.00	-24.98	H	peak
4420.000	46.36	6.86	53.22	74.00	-20.78	H	peak
4420.000	35.42	6.86	42.28	54.00	-11.72	H	AVG
5405.000	46.22	8.41	54.63	74.00	-19.37	H	peak
5405.000	34.27	8.41	42.68	54.00	-11.32	H	AVG
5585.000	45.58	9.15	54.73	74.00	-19.27	H	peak
5585.000	35.07	9.15	44.22	54.00	-9.78	H	AVG
5940.000	44.41	9.06	53.47	74.00	-20.53	H	peak
5940.000	34.66	9.06	43.72	54.00	-10.28	H	AVG
12216.000	38.14	10.88	49.02	74.00	-24.98	H	peak

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.*
3. *Average test would be performed if the peak result were greater than the average limit.*
4. *Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.*
5. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
6. *Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).*

7.6 POWERLINE CONDUCTED EMISSIONS

LIMIT

According to §15.207(a), except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

** Decreases with the logarithm of the frequency.*

Test Configuration

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

TEST PROCEDURE

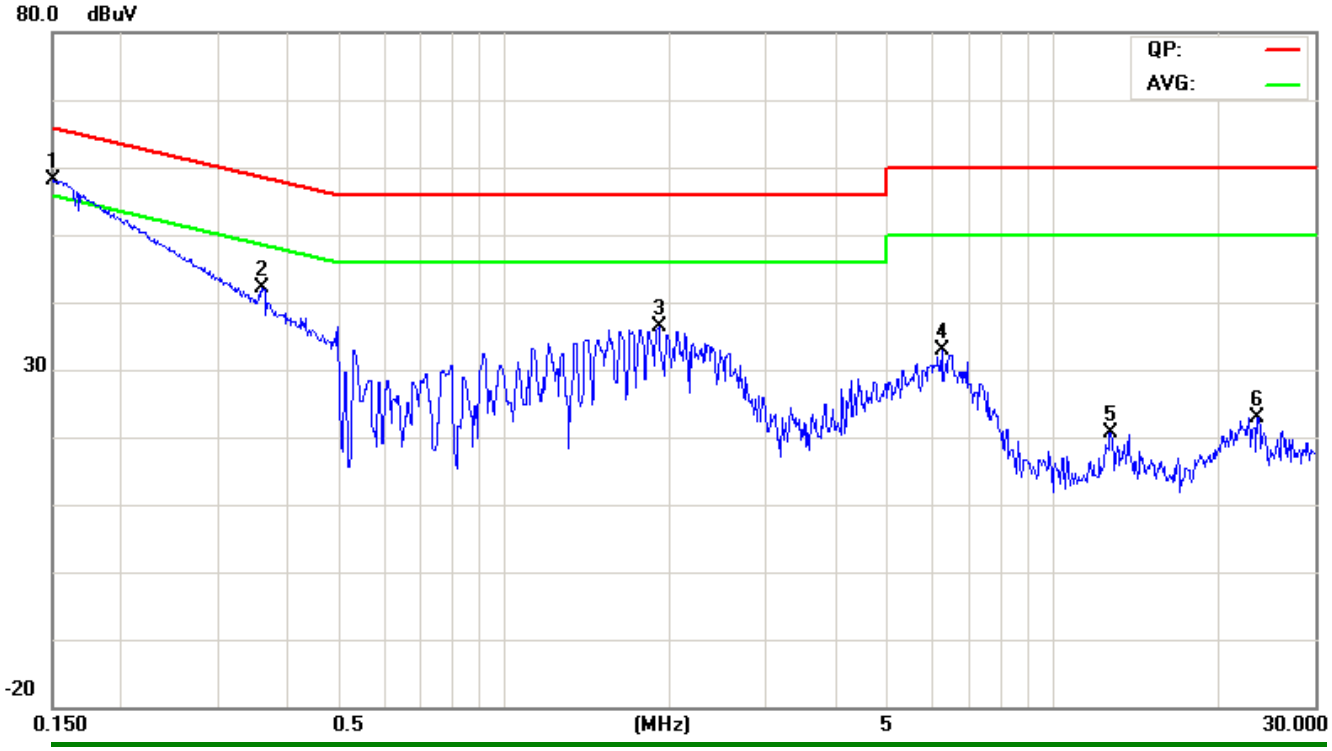
1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

TEST DATA

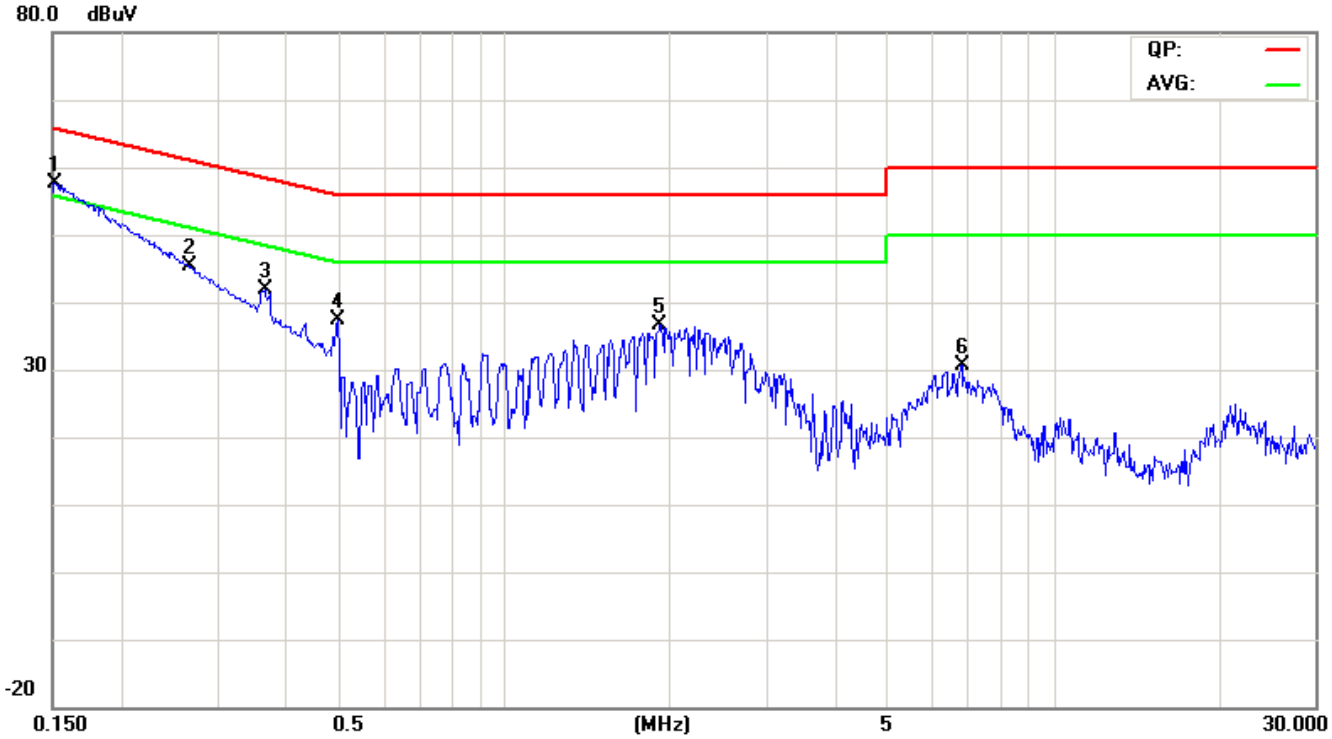
Test Mode	Normal Link	**6dBBandwidth**	9 kHz
Environmental Conditions	25°C, 57% RH	**Test Date:**	2014/9/1
Tested By	Francis Lee	**Line**	L1



NO.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	(Pass/Fail)
1*	0.1520	40.67	15.19	9.79	50.46	24.98	65.88	55.89	-15.42	-30.91	Pass
2	0.3605	24.19	15.53	9.74	33.93	25.27	58.72	48.72	-24.79	-23.45	Pass
3	1.9017	24.57	14.77	9.79	34.36	24.56	56.00	46.00	-21.64	-21.44	Pass
4	6.2451	17.29	8.61	9.93	27.22	18.54	60.00	50.00	-32.78	-31.46	Pass
5	12.6611	3.91	-2.26	10.01	13.92	7.75	60.00	50.00	-46.08	-42.25	Pass
6	23.4806	6.66	0.52	10.09	16.75	10.61	60.00	50.00	-43.25	-39.39	Pass

REMARKS:L1 = Line One (Live Line)

Test Mode	Normal Link	**6dBBandwidth**	9 kHz
Environmental Conditions	25°C, 57% RH	**Test Date:**	2014/9/1
Tested By	Francis Lee	**Line**	L2



NO.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	(Pass/Fail)
1*	0.1504	41.09	16.39	9.77	50.86	26.16	65.97	55.98	-15.11	-29.82	Pass
2	0.2686	28.14	5.70	9.71	37.85	15.41	61.16	51.16	-23.31	-35.75	Pass
3	0.3598	25.13	17.05	9.72	34.85	26.77	58.73	48.73	-23.88	-21.96	Pass
4	0.4957	23.27	19.47	9.73	33.00	29.20	56.07	46.07	-23.07	-16.87	Pass
5	1.9071	24.72	15.45	9.77	34.49	25.22	56.00	46.00	-21.51	-20.78	Pass
6	6.8122	14.84	7.78	9.93	24.77	17.71	60.00	50.00	-35.23	-32.29	Pass

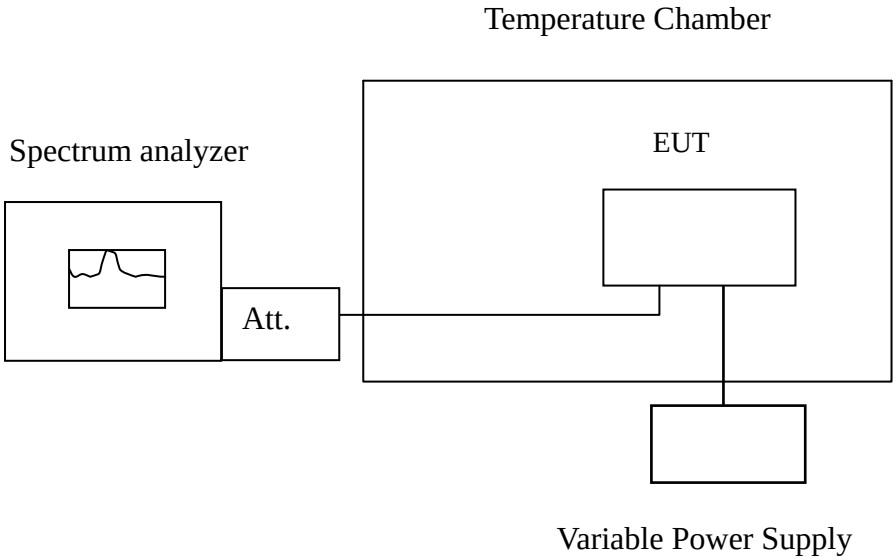
REMARKS:L2 = Line Two (Neutral Line)

7.7 FREQUENCY STABILITY

LIMIT

According to §15.407(g), manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the operational description.

Test Configuration



Remark: *Measurement setup for testing on Antenna connector*

TEST PROCEDURE

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20^{o}C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –20^{o}C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10^{o}C increased per stage until the highest temperature of +50^{o}C reached.

TEST RESULTS

No non-compliance noted.

IEEE 802.11a mode / 5180 ~ 5240 MHz:

CH Low

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
-20	120	5179.971844	5150~5250	Pass
-10	120	5179.992458	5150~5250	Pass
0	120	5179.992623	5150~5250	Pass
10	120	5179.995311	5150~5250	Pass
20	120	5180.012569	5150~5250	Pass
30	120	5180.012553	5150~5250	Pass
40	120	5180.026254	5150~5250	Pass
50	120	5180.027331	5150~5250	Pass

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
20	108	5179.972422	5150~5250	Pass
	120	5179.996840	5150~5250	Pass
	132	5180.017894	5150~5250	Pass

CH High

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
-20	120	5239.959588	5150~5250	Pass
-10	120	5239.989435	5150~5250	Pass
0	120	5239.977686	5150~5250	Pass
10	120	5239.965645	5150~5250	Pass
20	120	5240.002386	5150~5250	Pass
30	120	5240.023518	5150~5250	Pass
40	120	5240.038156	5150~5250	Pass
50	120	5240.013215	5150~5250	Pass

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
20	108	5239.986423	5150~5250	Pass
	120	5239.995381	5150~5250	Pass
	132	5240.017280	5150~5250	Pass

IEEE 802.11n HT20 mode / 5180 ~ 5240 MHz:

CH Low

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
-20	120	5179.967593	5150~5250	Pass
-10	120	5179.970982	5150~5250	Pass
0	120	5179.95427	5150~5250	Pass
10	120	5179.976677	5150~5250	Pass
20	120	5180.004116	5150~5250	Pass
30	120	5180.011107	5150~5250	Pass
40	120	5180.038651	5150~5250	Pass
50	120	5180.031426	5150~5250	Pass

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
20	108	5179.988204	5150~5250	Pass
	120	5179.985478	5150~5250	Pass
	132	5180.010592	5150~5250	Pass

CH High

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
-20	120	5239.998138	5150~5250	Pass
-10	120	5239.952047	5150~5250	Pass
0	120	5239.954793	5150~5250	Pass
10	120	5239.972234	5150~5250	Pass
20	120	5240.002306	5150~5250	Pass
30	120	5240.019663	5150~5250	Pass
40	120	5240.000435	5150~5250	Pass
50	120	5240.021942	5150~5250	Pass

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
20	108	5239.992960	5150~5250	Pass
	120	5239.999974	5150~5250	Pass
	132	5240.013788	5150~5250	Pass

IEEE 802.11n HT40 mode / 5190 ~ 5230 MHz:

CH Low

Operating Frequency: 5190 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
-20	120	5189.991347	5150~5250	Pass
-10	120	5189.937934	5150~5250	Pass
0	120	5189.987045	5150~5250	Pass
10	120	5189.969820	5150~5250	Pass
20	120	5190.016997	5150~5250	Pass
30	120	5190.023535	5150~5250	Pass
40	120	5190.039275	5150~5250	Pass
50	120	5190.008577	5150~5250	Pass

Operating Frequency: 5190 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
20	108	5189.987144	5150~5250	Pass
	120	5189.981108	5150~5250	Pass
	132	5190.021205	5150~5250	Pass

CH High

Operating Frequency: 5230 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
-20	120	5229.929393	5150~5250	Pass
-10	120	5229.992404	5150~5250	Pass
0	120	5229.956074	5150~5250	Pass
10	120	5229.964366	5150~5250	Pass
20	120	5230.000627	5150~5250	Pass
30	120	5230.028759	5150~5250	Pass
40	120	5230.036333	5150~5250	Pass
50	120	5230.006989	5150~5250	Pass

Operating Frequency: 5230 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
20	108	5229.987755	5150~5250	Pass
	120	5229.999692	5150~5250	Pass
	132	5230.022060	5150~5250	Pass

IEEE 802.11a mode / 5725 ~ 5850MHz:

CH Low

Operating Frequency: 5745 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
-20	120	5744.979538	5725~5850	Pass
-10	120	5744.937206	5725~5850	Pass
0	120	5744.951763	5725~5850	Pass
10	120	5744.970805	5725~5850	Pass
20	120	5745.002251	5725~5850	Pass
30	120	5745.013196	5725~5850	Pass
40	120	5745.021610	5725~5850	Pass
50	120	5745.010698	5725~5850	Pass

Operating Frequency: 5745 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
20	108	5744.983269	5725~5850	Pass
	120	5744.985850	5725~5850	Pass
	132	5745.023761	5725~5850	Pass

CH High

Operating Frequency: 5825 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
-20	120	5824.984137	5725~5850	Pass
-10	120	5824.974170	5725~5850	Pass
0	120	5824.972604	5725~5850	Pass
10	120	5824.993890	5725~5850	Pass
20	120	5825.010121	5725~5850	Pass
30	120	5825.029848	5725~5850	Pass
40	120	5825.031147	5725~5850	Pass
50	120	5825.024400	5725~5850	Pass

Operating Frequency: 5825 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
20	108	5824.961746	5725~5850	Pass
	120	5824.985193	5725~5850	Pass
	132	5825.005048	5725~5850	Pass

IEEE 802.11n HT20 mode / 5725 ~ 5850MHz:

CH Low

Operating Frequency: 5745 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
-20	120	5744.990097	5725~5850	Pass
-10	120	5744.980863	5725~5850	Pass
0	120	5744.994751	5725~5850	Pass
10	120	5744.982001	5725~5850	Pass
20	120	5745.004037	5725~5850	Pass
30	120	5745.008040	5725~5850	Pass
40	120	5745.006011	5725~5850	Pass
50	120	5745.019397	5725~5850	Pass

Operating Frequency: 5745 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
20	108	5744.983996	5725~5850	Pass
	120	5744.982802	5725~5850	Pass
	132	5745.010125	5725~5850	Pass

CH High

Operating Frequency: 5825 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
-20	120	5824.98197	5725~5850	Pass
-10	120	5824.981102	5725~5850	Pass
0	120	5824.969793	5725~5850	Pass
10	120	5824.995931	5725~5850	Pass
20	120	5824.98056	5725~5850	Pass
30	120	5825.017661	5725~5850	Pass
40	120	5825.017731	5725~5850	Pass
50	120	5825.039747	5725~5850	Pass

Operating Frequency: 5825 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
20	108	5824.994821	5725~5850	Pass
	120	5824.98504	5725~5850	Pass
	132	5825.0165	5725~5850	Pass

IEEE 802.11n HT40 mode / 5725 ~ 5850MHz:

CH Low

Operating Frequency: 5755 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5754.957961	5725~5850	Pass
-10	120	5754.946748	5725~5850	Pass
0	120	5754.974430	5725~5850	Pass
10	120	5754.989707	5725~5850	Pass
20	120	5755.004266	5725~5850	Pass
30	120	5755.022116	5725~5850	Pass
40	120	5755.012440	5725~5850	Pass
50	120	5755.024377	5725~5850	Pass

Operating Frequency: 5755 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5754.971091	5725~5850	Pass
	120	5754.998003	5725~5850	Pass
	132	5755.000699	5725~5850	Pass

CH High

Operating Frequency: 5795 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
-20	120	5794.940730	5725~5850	Pass
-10	120	5794.980338	5725~5850	Pass
0	120	5794.978261	5725~5850	Pass
10	120	5794.966651	5725~5850	Pass
20	120	5795.009866	5725~5850	Pass
30	120	5795.010561	5725~5850	Pass
40	120	5795.032820	5725~5850	Pass
50	120	5795.015251	5725~5850	Pass

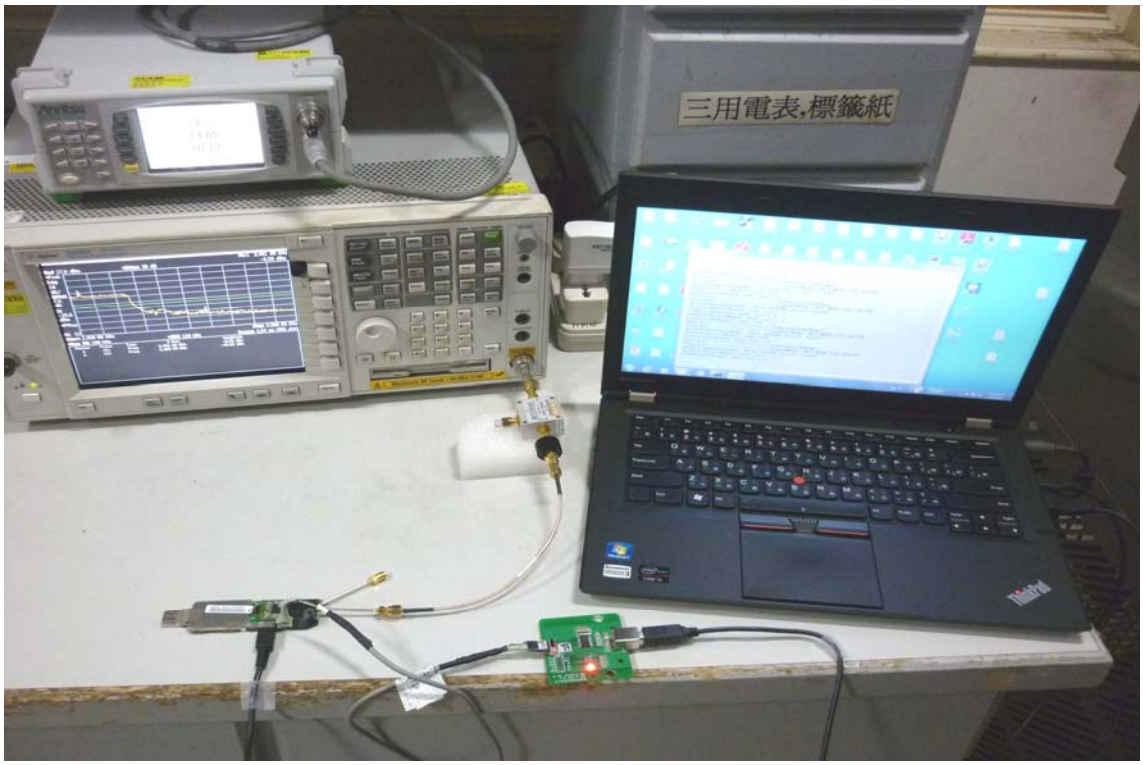
Operating Frequency: 5795 MHz				
Environment Temperature (°C)	**Voltage (V)**	**Measured Frequency (MHz)**	**Limit Range**	**Test Result**
20	108	5794.974258	5725~5850	Pass
	120	5794.996144	5725~5850	Pass
	132	5795.011055	5725~5850	Pass

8. APPENDIX I
PHOTOGRAPHS OF TEST SETUP

Radiated Emission Set up Photos
Below 1GHz

Above 1GHz

Conducted Emission Setup Photos



Powerline Conducted EmissionsSetup Photos

APPENDIX II: PHOTOGRAPHS OF EUT

Refer toT140813D03 Photographs.