



FCC 47 CFR PART 15 SUBPART E

TEST REPORT

For

Wireless AC Day/Night HD Mini Bullet Cloud Camera

Model: DCS-7000L

Trade Name: D-Link

Issued to

D-Link Corporation

NO. 289, Sinhu 3rd Rd., Neihu District, Taipei City114, Taiwan, R.O.C.

Issued by

Compliance Certification Services Inc.

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Testing Laboratory
1309

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	September 17, 2014	Initial Issue	All	Iren Wang



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1. TEST RESULT CERTIFICATION

Applicant: **D-Link Corporation**
NO. 289, Sinhu 3rd Rd., Neihu District, Taipei City114, Taiwan, R.O.C.

Manufacturer: **APPRO Technology Inc.**
13F, No. 66, Zhongzheng Rd., Xinzhuang Dist., New Taipei City, Taiwan.

Equipment Under Test: Wireless AC Day/Night HD Mini Bullet Cloud Camera

Trade Name: D-Link

Model: DCS-7000L

Date of Test: June 17 ~ September 5, 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

Product	Wireless AC Day/Night HD Mini Bullet Cloud Camera				
Trade Name	D-Link				
Model Number	DCS-7000L				
Model Discrepancy	N/A				
EUT Power Rating	5VDC, 1.2A				
Received Date	March 17, 2014				
Power Adapter	D-Link	Model	AMS1-0501200FU		
Power Adapter Power Rating	I/P: 100-240VAC, 50/60HZ, 0.2A O/P: 5VDC, 1.2A				
RF Module Manufacturer	Reltek	Model	RTL8811AU		
Operating Frequency Range & Number of Channels	Band	Mode	Frequency Range (MHz)	Number of Channels	
	UNII Band I	IEEE 802.11a	5180-5240	4 Channels	
		IEEE 802.11n HT20	5180-5240	4 Channels	
		IEEE 802.11n HT40	5190-5230	2 Channels	
		IEEE 802.11ac HT80	5210	1 Channels	
	UNII Band IIA	IEEE 802.11a	5260-5320	4 Channels	
		IEEE 802.11n HT20	5260-5320	4 Channels	
		IEEE 802.11n HT40	5270-5310	3 Channels	
		IEEE 802.11ac HT80	5290	1 Channels	
	UNII Band IIC	IEEE 802.11a	5500-5700	8 Channels	
		IEEE 802.11n HT20	5500-5700	8 Channels	
		IEEE 802.11n HT40	5510-5670	6 Channels	
		IEEE 802.11ac HT80	5530	1 Channels	
	UNII Band III	IEEE 802.11a	5745-5825	5 Channels	
		IEEE 802.11n HT20	5745-5825	5 Channels	
		IEEE 802.11n HT40	5755-5795	2 Channels	
IEEE 802.11ac HT80		5775	1 Channels		
Transmit Power	Band	Mode	Frequency Range	Output Power (dBm)	Output Power (W)
	UNII Band I	IEEE 802.11a	5180-5240	12.28	0.0169
		IEEE 802.11n HT20	5180-5240	13.33	0.0215
		IEEE 802.11n HT40	5190-5230	13.01	0.0200
		IEEE 802.11ac HT80	5210	12.53	0.0179
	UNII Band IIA	IEEE 802.11a	5260-5320	14.08	0.0256
		IEEE 802.11n HT20	5260-5320	13.58	0.0228
		IEEE 802.11n HT40	5270-5310	13.95	0.0248
		IEEE 802.11ac HT80	5290	13.27	0.0212
	UNII Band IIC	IEEE 802.11a	5500-5700	13.61	0.0230
		IEEE 802.11n HT20	5500-5700	13.21	0.0209
		IEEE 802.11n HT40	5510-5670	14.53	0.0284
		IEEE 802.11ac HT80	5530	13.04	0.0201
	UNII Band III	IEEE 802.11a	5745-5825	17.56	0.0570
		IEEE 802.11n HT20	5745-5825	16.73	0.0471
		IEEE 802.11n HT40	5755-5795	16.12	0.0409
IEEE 802.11ac HT80		5775	15.70	0.0372	



Modulation Technique	OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)
Transmit Data Rate	IEEE 802.11a: 54, 48, 36, 24, 18, 12, 9, 6 Mbps IEEE 802.11n HT20: OFDM (6.5, 7.2, 13, 14.4, 14.44, 19.5, 21.7, 26, 28.89, 28.9, 39, 43.3, 43.33 52, 57.78, 57.8, 58.5, 65.0, 72.2, 78, 86.67, 104, 115.56, 117, 130, 144.44 Mbps) IEEE 802.11n HT40: OFDM (13.5, 15, 27, 30, 40.5, 45, 54, 60, 81, 90, 108, 120, 121.5, 135, 150, 162, 180, 216, 240, 243, 270, 300 Mbps) IEEE 802.11ac HT80: OFDM (29.3, 32.5, 58.5, 65, 87.8, 97.5, 117, 130, 175.5, 195, 234, 260, 263.3, 292.5, 292.5, 325, 351, 390, 433.3 Mbps)
Antenna Specification	PCB Antenna / Gain: 3.97 dBi



Operation Frequency:

UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII)	
CHANNEL	MHz
36	5180
38	5190
40	5200
42	5210
44	5220
46	5230
48	5240
52	5260
54	5270
56	5280
58	5290
60	5300
62	5310
64	5320
100	5500
102	5510
104	5520
106	5530
108	5540
110	5550
112	5560
116	5580
118	5590
120	5600
124	5620
126	5630
128	5640
132	5660
134	5670
136	5680
140	5700
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: **KA2CS7000LA1** filing to comply with Section 15.207, 15.209 and 15.407 of the FCC Part 15, Subpart E Rules.*
3. *The test is follow the UNII 15E: KDB 789033 D02, KDB 905462 D06.*



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 (model: DCS-7000L) 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 LAN 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.

WIFI Mode & LAN Mode have been pre-scanned during the test, and the LAN Mode was selected as the worst case for final test.

UNII Band I:

IEEE 802.11a 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 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 for 5190-5230MHz:

Channel Low (5190MHz) and Channel High (5230MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11ac HT80 for 5210MHz:

Channel (5210MHz) with 29.3Mbps data rate were chosen for full testing.

UNII Band IIA:

IEEE 802.11a for 5260-5320MHz:

Channel Low (5260MHz), Channel Mid (5280MHz) and Channel High (5320MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT20 for 5260-5320MHz:

Channel Low (5260MHz), Channel Mid (5280MHz) and Channel High (5320MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT40 for 5270-5310MHz:

Channel Low (5270MHz) and Channel High (5310MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11ac HT80 for 5290MHz:

Channel (5290MHz) with 29.3Mbps data rate were chosen for full testing.



UNII Band IIC:

IEEE 802.11a for 5500-5700MHz:

Channel Low (5500MHz), Channel Mid (5580MHz) and Channel High (5700MHz) with 6Mbps data rate were chosen for full testing.

IEEE 802.11n HT20 for 5500-5700MHz:

Channel Low (5500MHz), Channel Mid (5580MHz) and Channel High (5700MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT40 for 5510-5670MHz:

Channel Low (5510MHz), Channel Mid (5550MHz) and Channel High (5670MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11ac HT80 for 5530MHz:

Channel (5530MHz) with 29.3Mbps data rate were chosen for full testing.

UNII Band III:

IEEE 802.11a for 5745-5825MHz:

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

IEEE 802.11n HT20 for 5745-5825MHz:

Channel Low(5745MHz), Channel Mid(5785MHz) and Channel High(5825MHz) with 6.5Mbps data rate were chosen for full testing.

IEEE 802.11n HT40 for 5755-5795 MHz:

Channel Low(5755MHz) and Channel High(5795MHz) with 13.5Mbps data rate were chosen for full testing.

IEEE 802.11ac HT80 for 5775MHz:

Channel (5775MHz) with 29.3Mbps 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-260400-4 0-8P	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	08/20/2015
Bilog Antenna	TESEQ	CBL 6112D	35378	08/21/2015
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 #4				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESCI	100782	06/12/2015
LISN	R&S	ENV216	100066	02/06/2015
LISN	R&S	ENV 4200	830326/016	05/22/2015
ISN	FCC	FCC-TLISN-T2-02	20587	07/28/2015
ISN	TESEQ	ISN-T8	30843	08/11/2015
Current Probe	FCC	F-35	506	07/13/2015
ISN	TESEQ	ISN ST08	27907	09/30/2014
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 #4	±2.0543
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	 TESTING CERT #0824.01
USA	FCC MRA	3 meter Open Area Test Sites to perform FCC Part 15/18 measurements	
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	 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	 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 Powerline Conducted Emission & Radiated Emissions(Below 1GHz)							
No.	Device Type	Model	Series No.	FCC ID	Brand	Data Cable	Power Cord
1	Notebook PC (Remote)	ThinkPad T430u	PB-VZHMR 12/09	FCC DOC	Lenovo	LAN Cable: Unshielded, 10m	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core
2	Earphone	ClearChat	N/A	FCC DoC	Logitech	Unshielded, 1.8m	N/A

For Radiated Emissions(Above 1GHz)							
No.	Device Type	Model	Series No.	FCC ID	Brand	Data Cable	Power Cord
1	Notebook PC (Remote)	ThinkPad T430u	PB-VZLGG 12/09	FCC DOC	Lenovo	LAN Cable: Unshielded, 10m	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

For Conducted Emission							
No.	Device Type	Model	Series No.	FCC ID	Brand	Data Cable	Power Cord
1	Notebook PC	D400	0932RY	E2K24GBRL	DELL	LAN Cable: Unshielded, 1.8m	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.



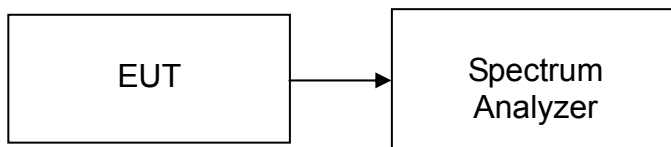
7. FCC PART 15 REQUIREMENTS

7.1 26 dB EMISSION BANDWIDTH

LIMIT

According to §15.403(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 / 5180 ~ 5240MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5180	25.164
Mid	5220	24.884
High	5240	24.908

Test mode: IEEE 802.11n HT20 / 5180 ~ 5240MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5180	22.281
Mid	5220	22.166
High	5240	25.040

Test mode: IEEE 802.11n HT40 / 5190 ~ 5230MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5190	44.042
High	5230	43.983

Test mode: IEEE 802.11ac HT80 / 5210MHz

Frequency (MHz)	Bandwidth (MHz)
5210	99.637



Test mode: IEEE 802.11a / 5260-5320MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5260	23.237
Mid	5280	21.793
High	5320	23.365

Test mode: IEEE 802.11n HT20 / 5260-5320MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5260	22.207
Mid	5280	22.260
High	5320	22.288

Test mode: IEEE 802.11n HT40 / 5270-5310MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5270	43.968
High	5310	44.031

Test mode: IEEE 802.11ac HT80 / 5290MHz

Frequency (MHz)	Bandwidth (MHz)
5290	97.177



Test mode: IEEE 802.11a / 5500-5700MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5500	21.233
Mid	5580	21.063
High	5700	20.930

Test mode: IEEE 802.11n HT20 / 5500-5700MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5500	21.748
Mid	5580	21.543
High	5700	21.414

Test mode: IEEE 802.11n HT40 / 5510-5670MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5510	43.700
Mid	5550	43.687
High	5670	43.640

Test mode: IEEE 802.11ac HT80 / 5530MHz

Frequency (MHz)	Bandwidth (MHz)
5530	84.168



Test mode: IEEE 802.11a / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5745	21.063
Mid	5785	21.317
High	5825	21.077

Test mode: IEEE 802.11n HT20 / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5745	21.578
Mid	5785	21.856
High	5825	21.846

Test mode: IEEE 802.11n HT40 / 5755 ~ 5795MHz

Channel	Frequency (MHz)	Bandwidth (MHz)
Low	5755	43.451
High	5795	43.764

Test mode: IEEE 802.11ac HT80 / 5775MHz

Frequency (MHz)	Bandwidth (MHz)
5775	84.058



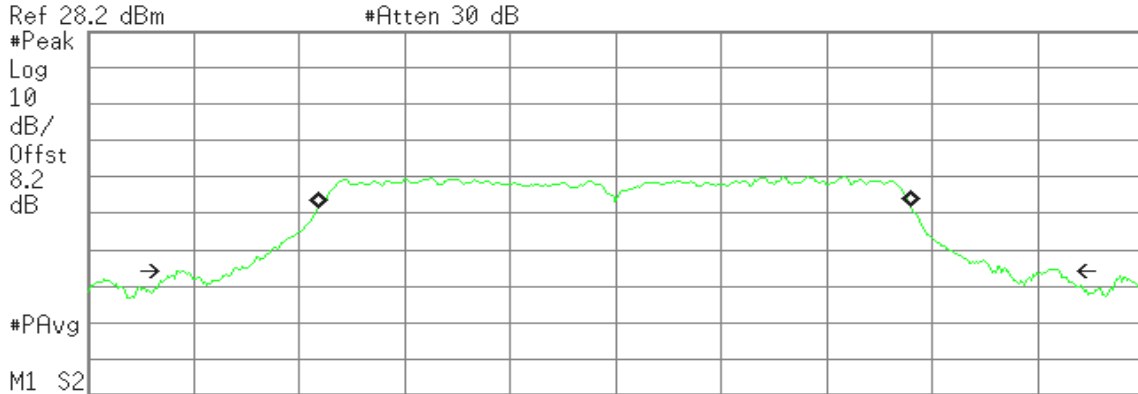
Test Plot

IEEE 802.11a / 5180 ~ 5240MHz

CH Low

Agilent

R L



Occupied Bandwidth
16.8602 MHz

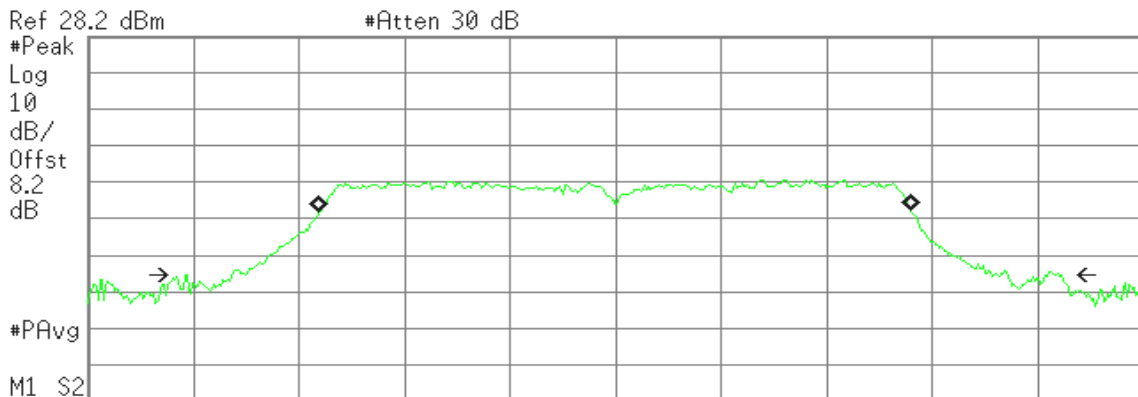
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -42.474 kHz
x dB Bandwidth 25.164 MHz

CH Mid

Agilent

R L



Occupied Bandwidth
16.8318 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

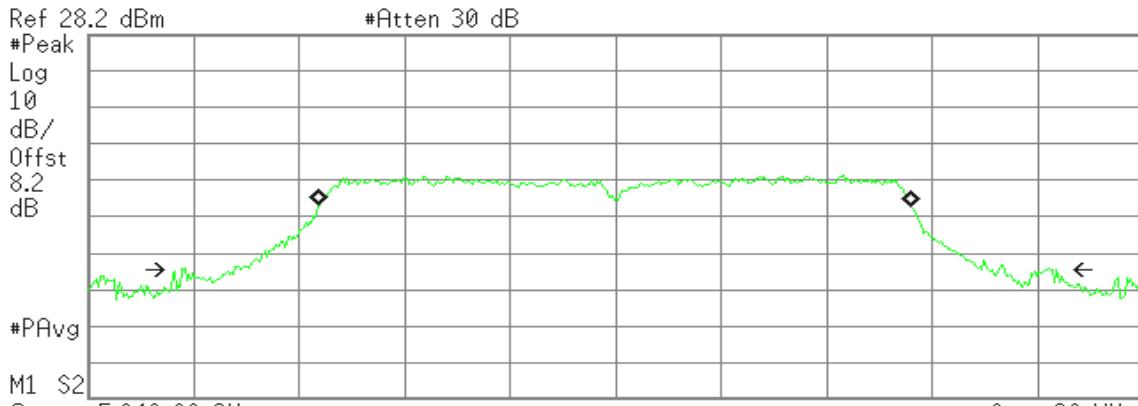
Transmit Freq Error -32.555 kHz
x dB Bandwidth 24.884 MHz



CH High

Agilent

R L



Ref 28.2 dBm #Atten 30 dB
Center 5.240 00 GHz Span 30 MHz
#Res BW 300 kHz #VBW 910 kHz Sweep 1 ms (601 pts)

Occupied Bandwidth
16.8234 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

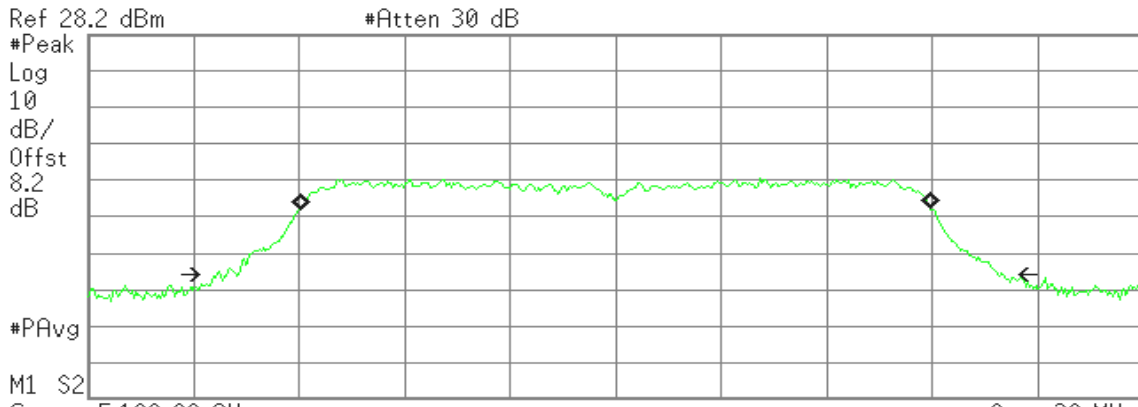
Transmit Freq Error -29.032 kHz
x dB Bandwidth 24.908 MHz

IEEE 802.11n HT20 / 5180 ~ 5240MHz

CH Low

Agilent

R L



Ref 28.2 dBm #Atten 30 dB
Center 5.180 00 GHz Span 30 MHz
#Res BW 300 kHz #VBW 910 kHz Sweep 1 ms (601 pts)

Occupied Bandwidth
17.8863 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

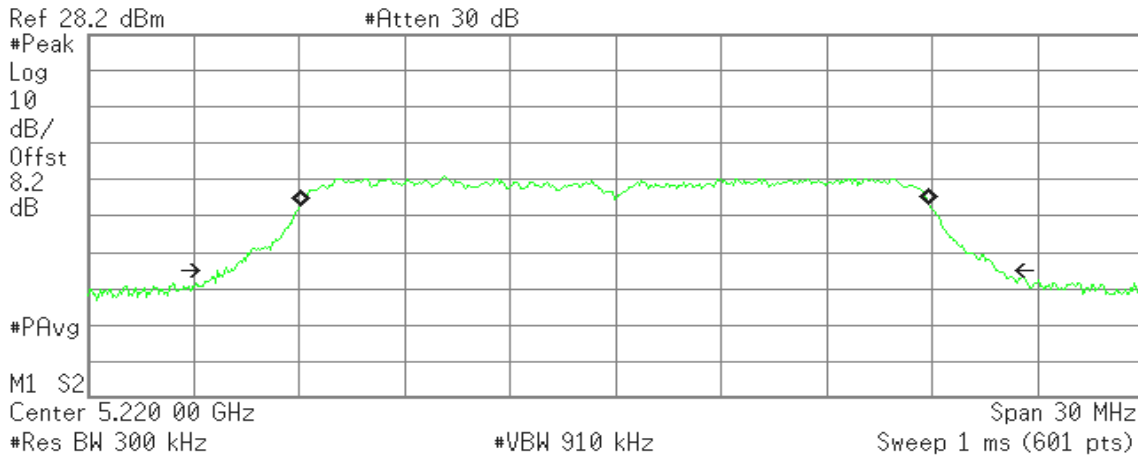
Transmit Freq Error -8.136 kHz
x dB Bandwidth 22.281 MHz



CH Mid

Agilent

R L



Occupied Bandwidth
17.8581 MHz

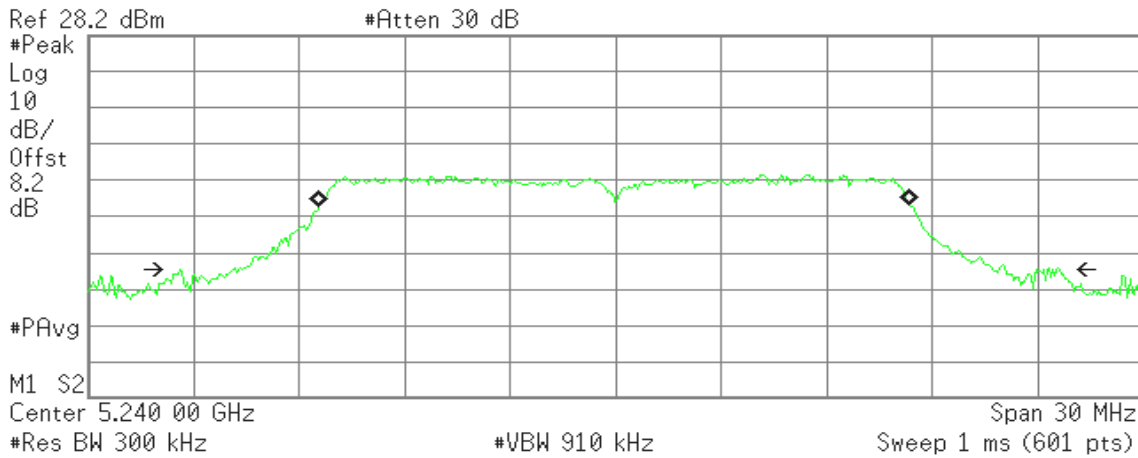
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -7.987 kHz
x dB Bandwidth 22.166 MHz

CH High

Agilent

R L



Occupied Bandwidth
16.8094 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -33.613 kHz
x dB Bandwidth 25.040 MHz

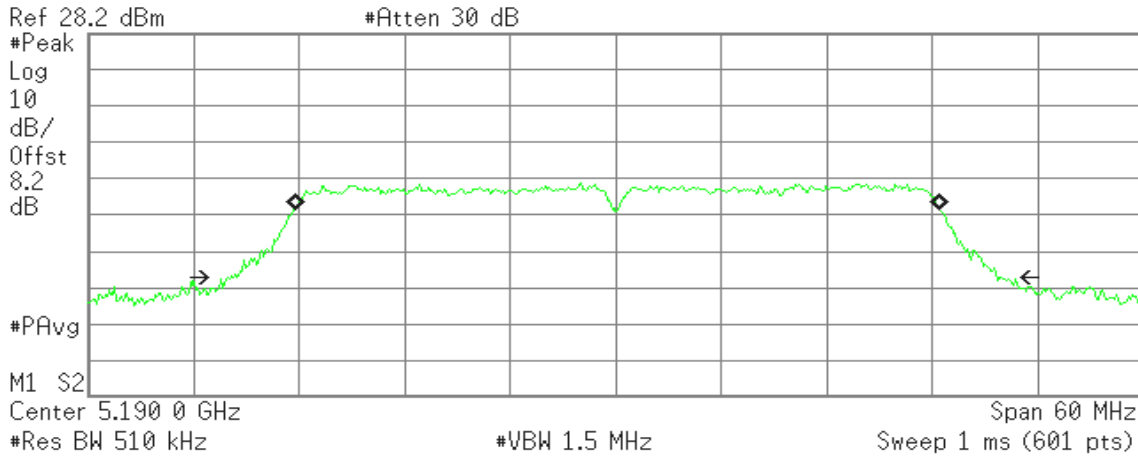


IEEE 802.11n HT40 / 5190 ~ 5230MHz

CH Low

Agilent

R L



Occupied Bandwidth
36.6366 MHz

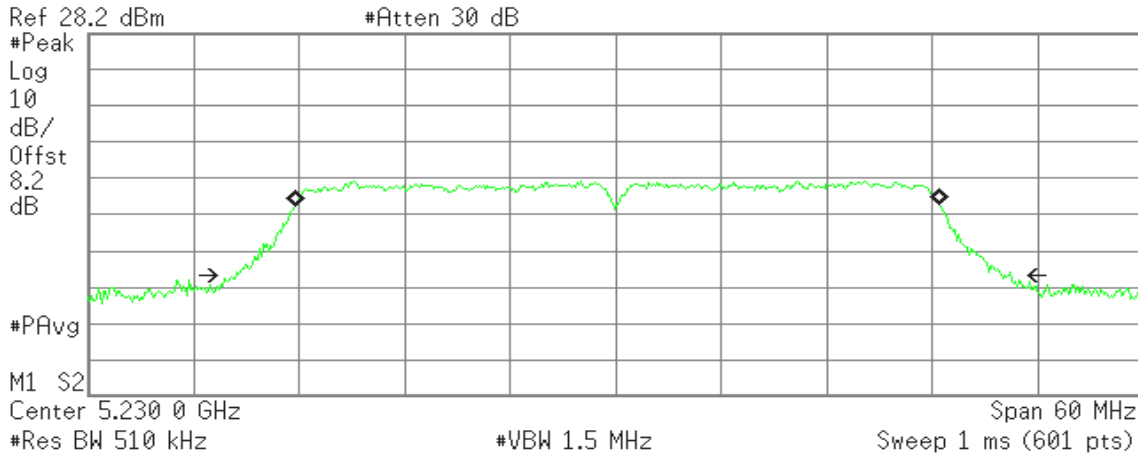
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 83.380 kHz
x dB Bandwidth 44.042 MHz

CH High

Agilent

R L



Occupied Bandwidth
36.5896 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

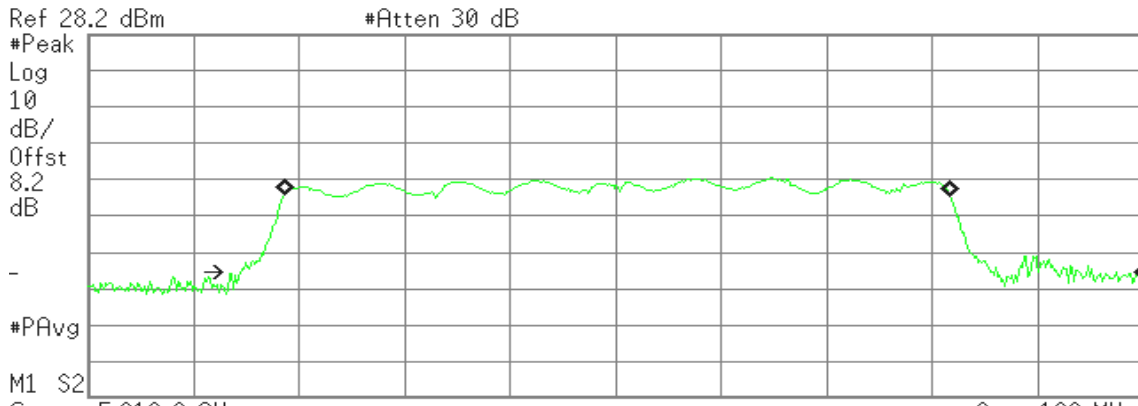
Transmit Freq Error 106.072 kHz
x dB Bandwidth 43.983 MHz



IEEE 802.11ac HT80 / 5210MHz

Agilent

R L



Occupied Bandwidth
75.7665 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 195.385 kHz
x dB Bandwidth 99.637 MHz

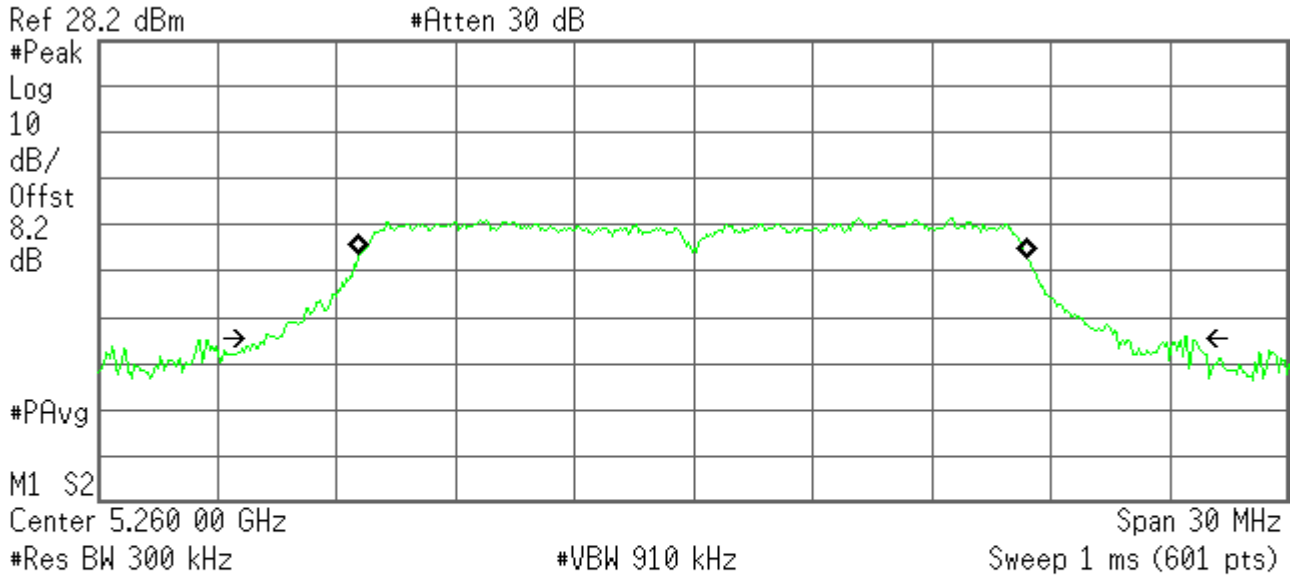


IEEE 802.11a / 5260 ~ 5320MHz

CH Low

Agilent

R L



Occupied Bandwidth
16.8084 MHz

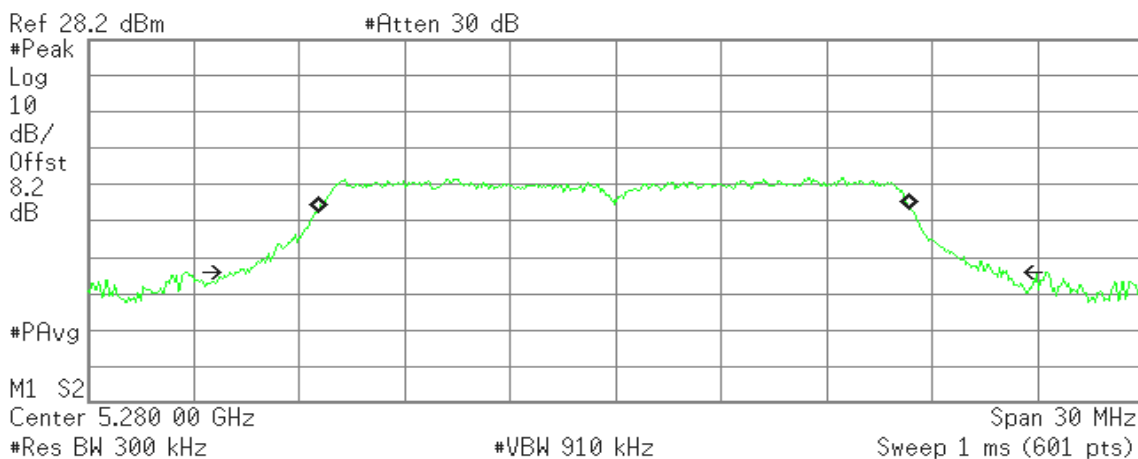
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -22.008 kHz
x dB Bandwidth 23.237 MHz

CH Mid

Agilent

R L



Occupied Bandwidth
16.8399 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

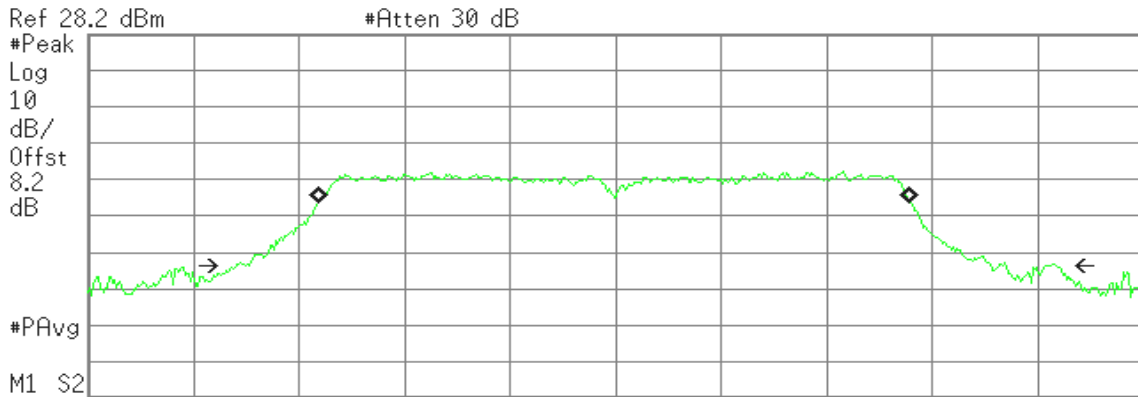
Transmit Freq Error -45.683 kHz
x dB Bandwidth 21.793 MHz



CH High

Agilent

R L



Occupied Bandwidth
16.8445 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

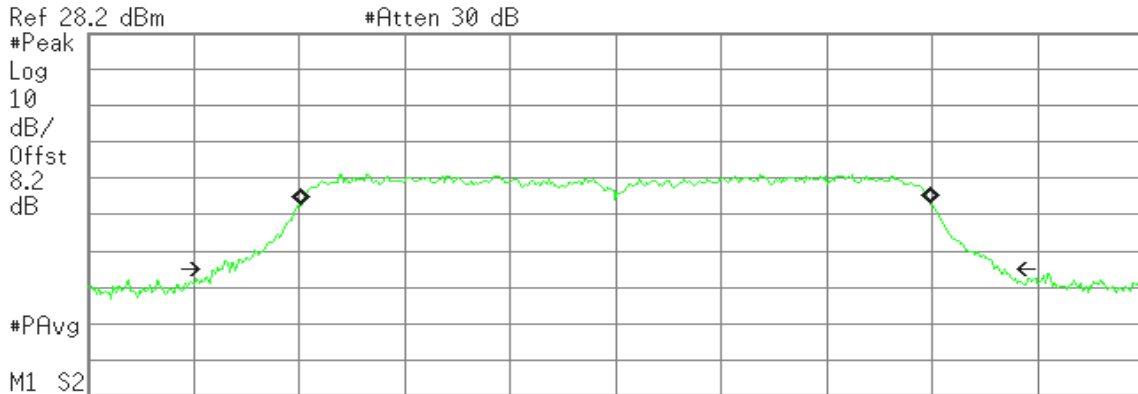
Transmit Freq Error -51.688 kHz
x dB Bandwidth 23.365 MHz

IEEE 802.11n HT20 / 5260 ~ 5320MHz

CH Low

Agilent

R L



Occupied Bandwidth
17.8681 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

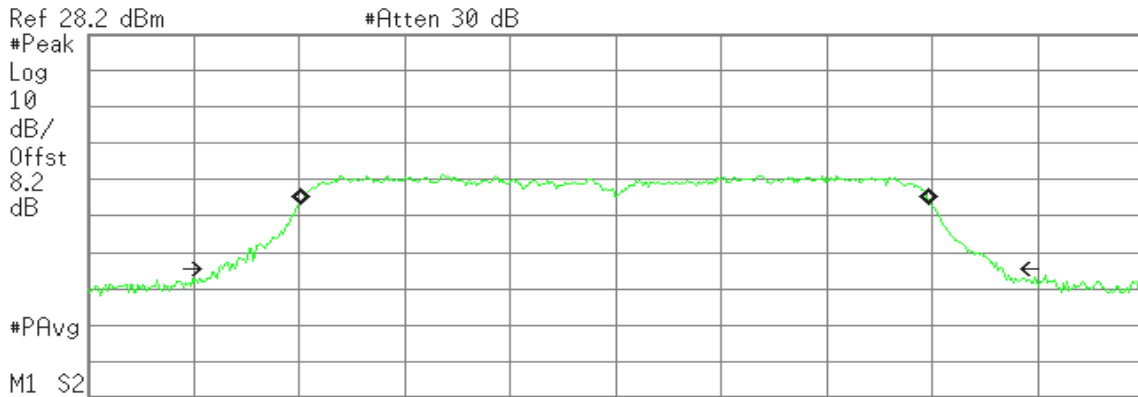
Transmit Freq Error -3.013 kHz
x dB Bandwidth 22.207 MHz



CH Mid

Agilent

R L



Occupied Bandwidth
17.8808 MHz

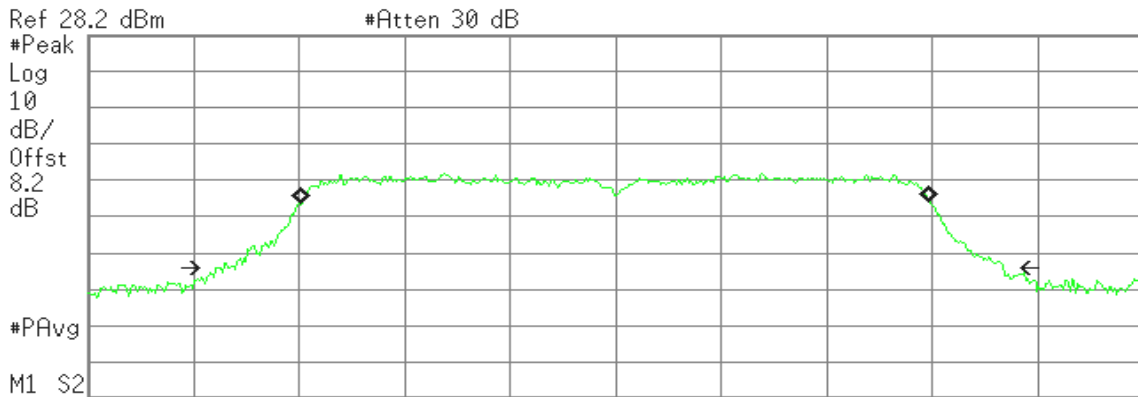
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -15.515 kHz
x dB Bandwidth 22.260 MHz

CH High

Agilent

R L



Occupied Bandwidth
17.8574 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -7.317 kHz
x dB Bandwidth 22.288 MHz

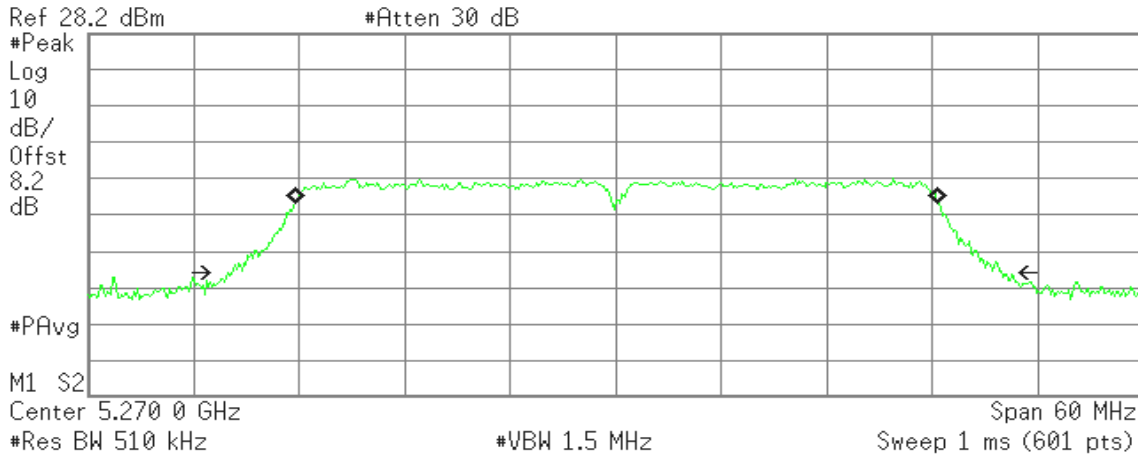


IEEE 802.11n HT40 / 5270 ~ 5310MHz

CH Low

Agilent

R L



Occupied Bandwidth
36.5748 MHz

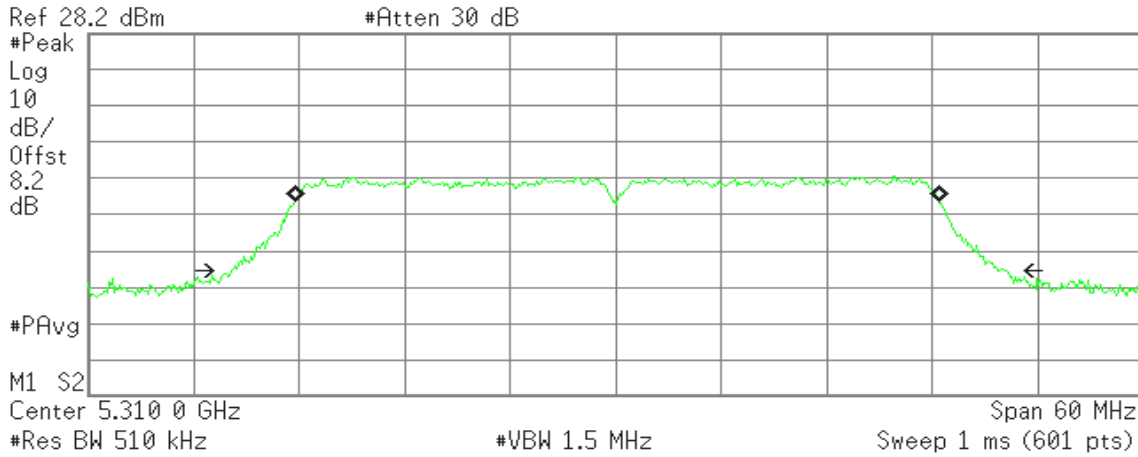
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 45.160 kHz
x dB Bandwidth 43.968 MHz

CH High

Agilent

R L



Occupied Bandwidth
36.6144 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

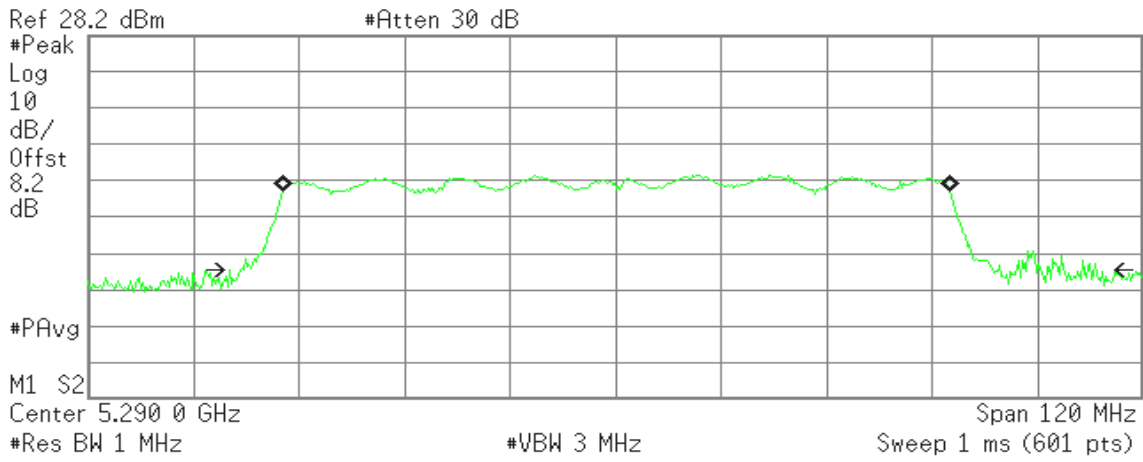
Transmit Freq Error 57.344 kHz
x dB Bandwidth 44.031 MHz



IEEE 802.11ac HT80 / 5290MHz

Agilent

R L



Occupied Bandwidth
75.7123 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 126.586 kHz
x dB Bandwidth 97.177 MHz

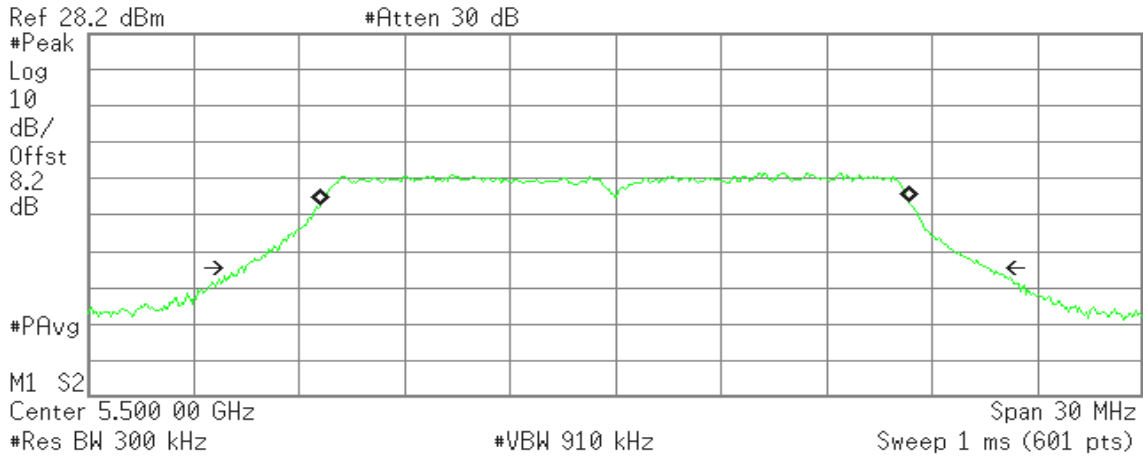


IEEE 802.11a / 5500 ~ 5700MHz

CH Low

Agilent

R L



Occupied Bandwidth
16.7359 MHz

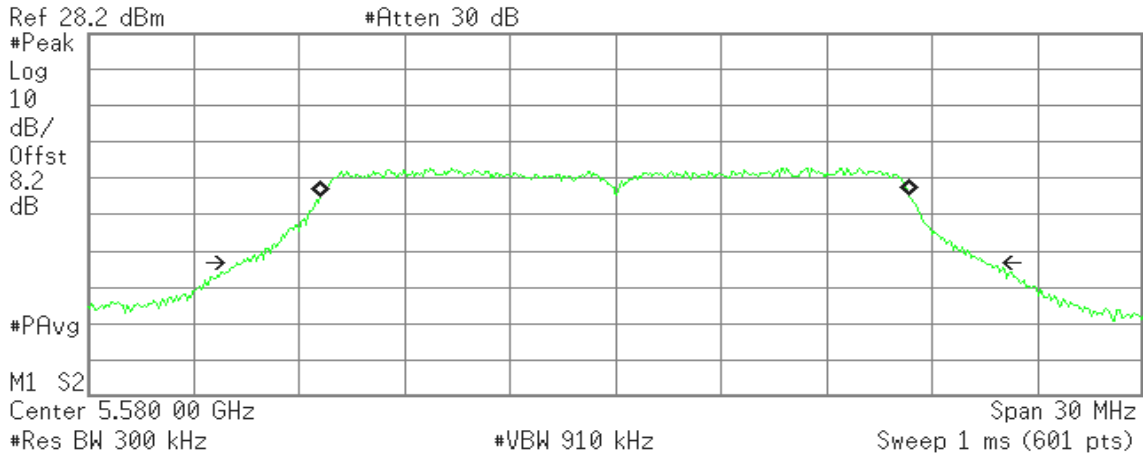
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -30.826 kHz
x dB Bandwidth 21.233 MHz

CH Mid

Agilent

R L



Occupied Bandwidth
16.7551 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

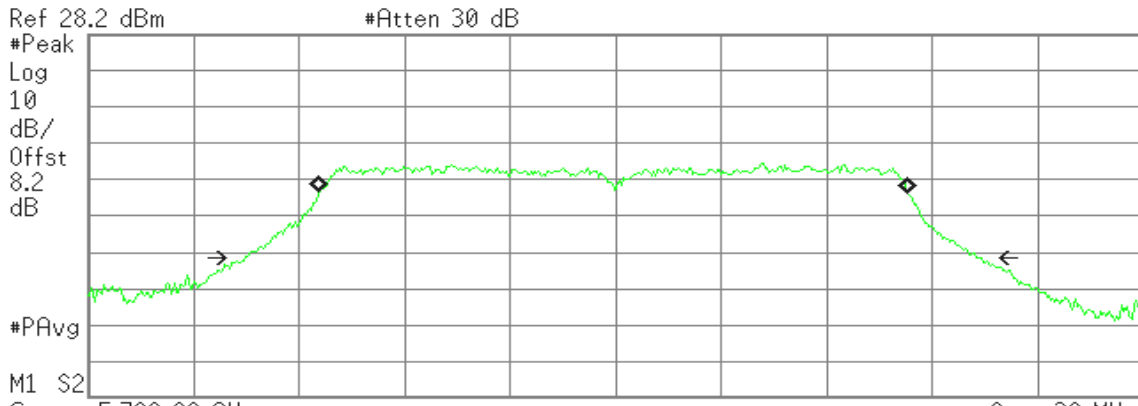
Transmit Freq Error -33.525 kHz
x dB Bandwidth 21.063 MHz



CH High

Agilent

R L



Occupied Bandwidth
16.7326 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

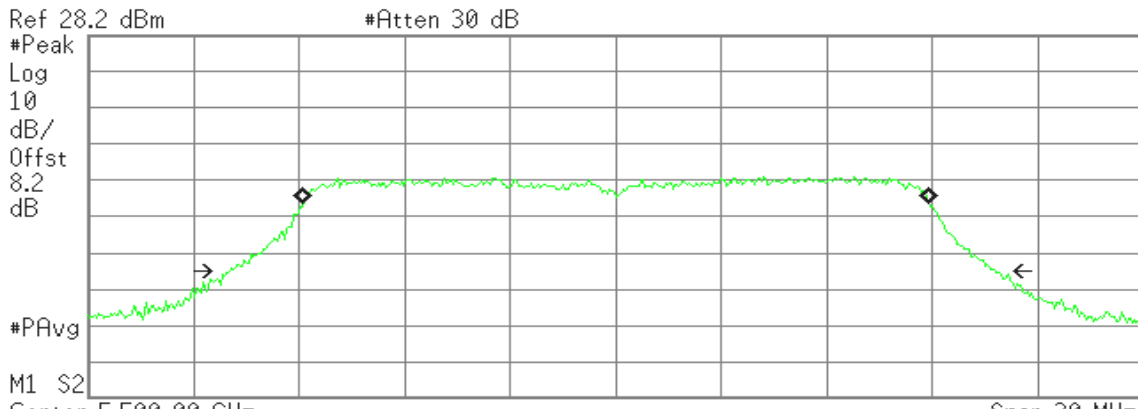
Transmit Freq Error -61.766 kHz
x dB Bandwidth 20.930 MHz

IEEE 802.11n HT20 / 5500 ~ 5700MHz

CH Low

Agilent

R L



Occupied Bandwidth
17.8052 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

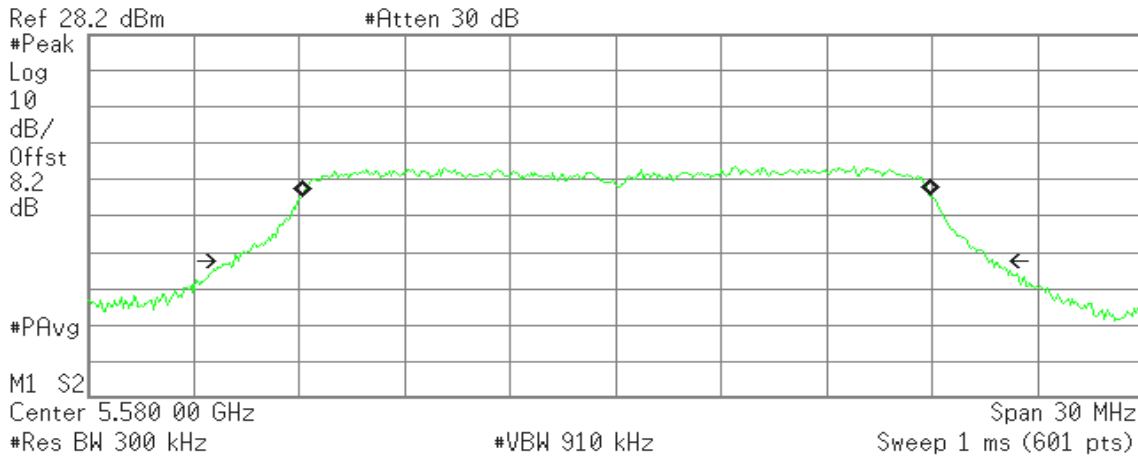
Transmit Freq Error 21.756 kHz
x dB Bandwidth 21.748 MHz



CH Mid

Agilent

R L



Occupied Bandwidth
17.8161 MHz

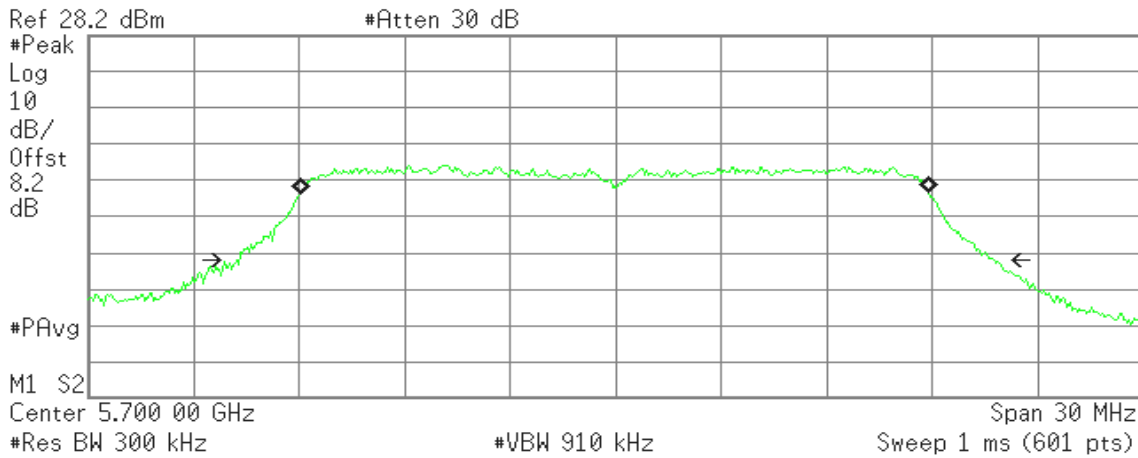
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 19.029 kHz
x dB Bandwidth 21.543 MHz

CH High

Agilent

R L



Occupied Bandwidth
17.8173 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -24.197 kHz
x dB Bandwidth 21.414 MHz

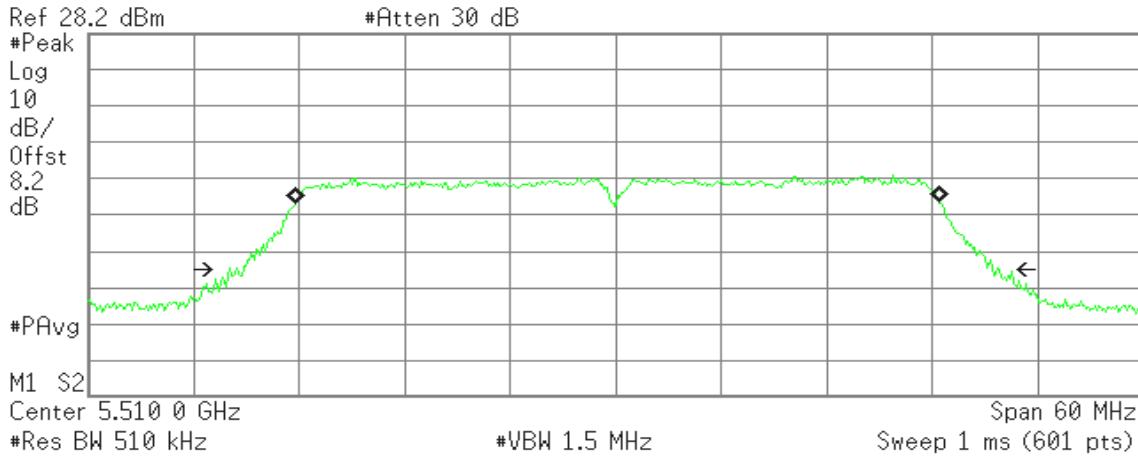


IEEE 802.11n HT40 / 5510 ~ 5670MHz

CH Low

Agilent

R L



Occupied Bandwidth
36.5590 MHz

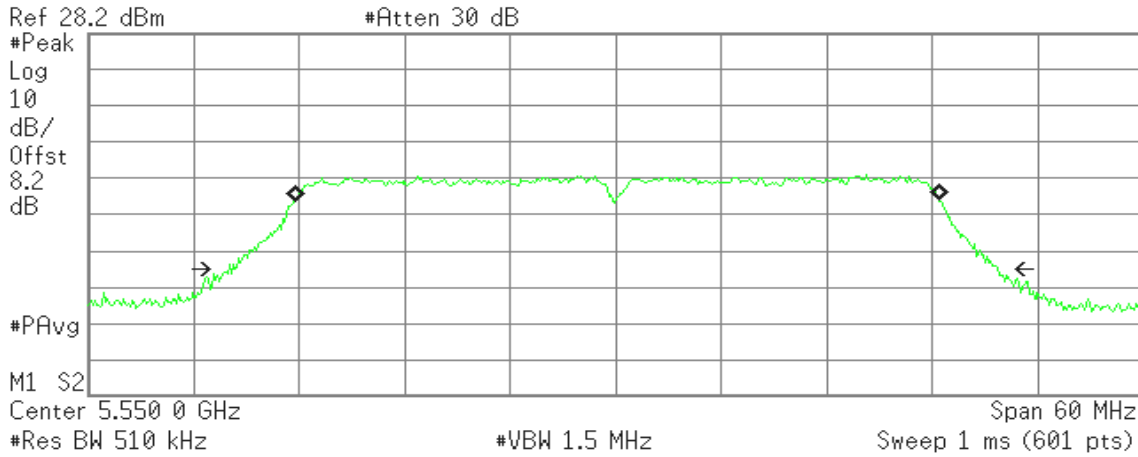
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 109.119 kHz
x dB Bandwidth 43.700 MHz

CH Mid

Agilent

R T



Occupied Bandwidth
36.6159 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

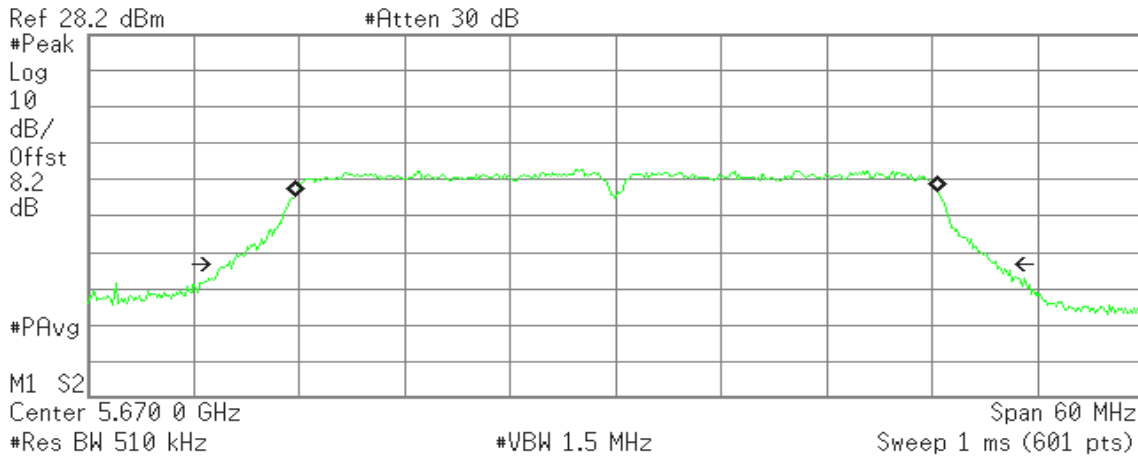
Transmit Freq Error 63.189 kHz
x dB Bandwidth 43.687 MHz



CH High

Agilent

R L



Occupied Bandwidth
36.5163 MHz

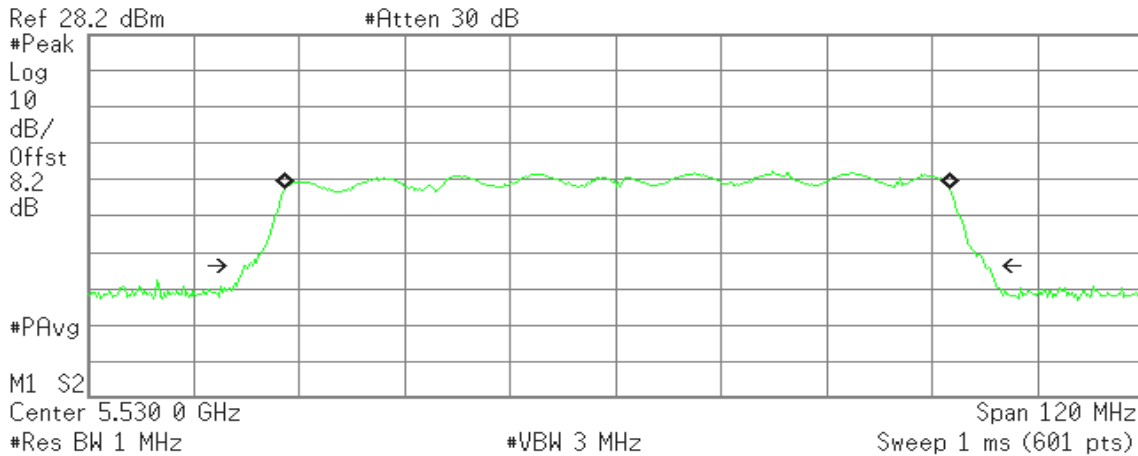
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 19.456 kHz
x dB Bandwidth 43.640 MHz

IEEE 802.11ac HT80 / 5530MHz

Agilent

R L



Occupied Bandwidth
75.5328 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 182.276 kHz
x dB Bandwidth 84.168 MHz

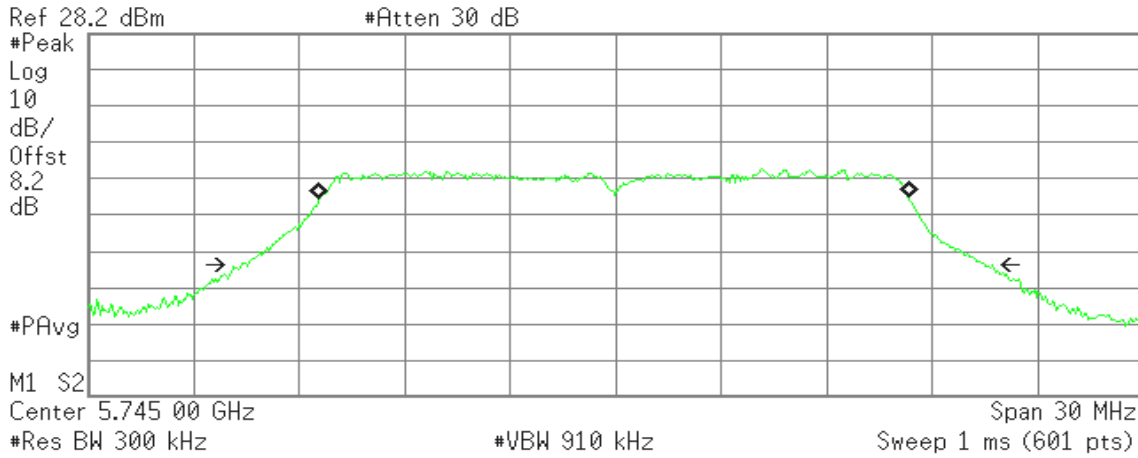


IEEE 802.11a / 5745 ~ 5825MHz

CH Low

Agilent

R L



Occupied Bandwidth
16.7586 MHz

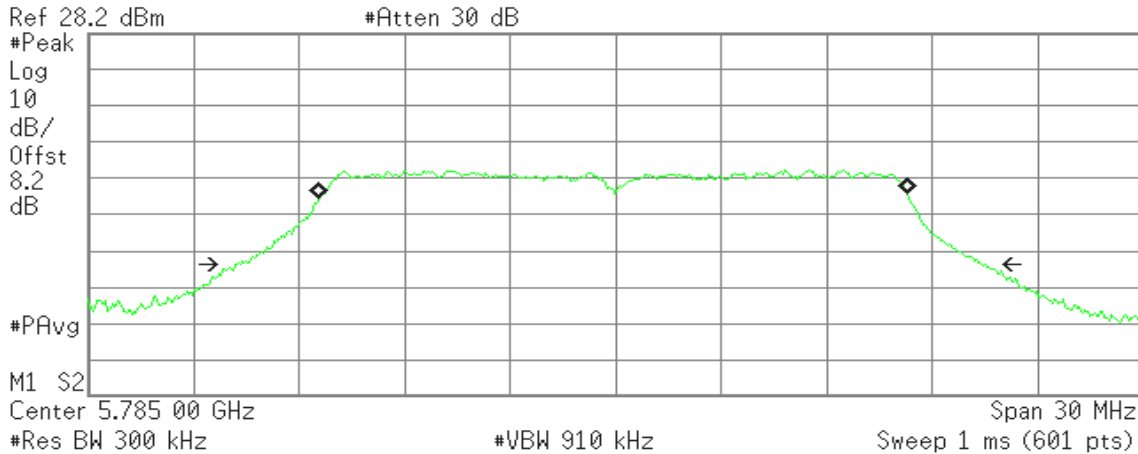
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -54.066 kHz
x dB Bandwidth 21.063 MHz

CH Mid

Agilent

R L



Occupied Bandwidth
16.7501 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

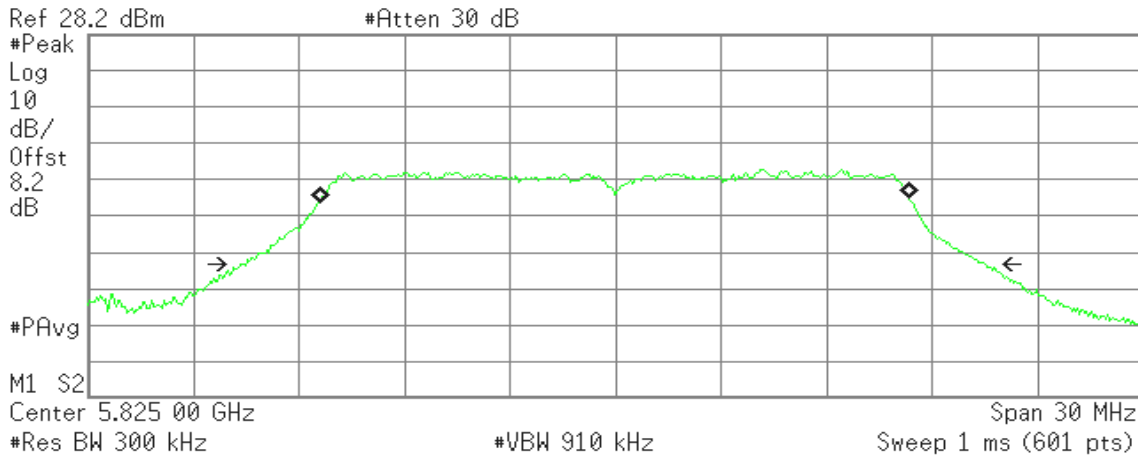
Transmit Freq Error -74.381 kHz
x dB Bandwidth 21.317 MHz



CH High

Agilent

R L



Occupied Bandwidth
16.7591 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

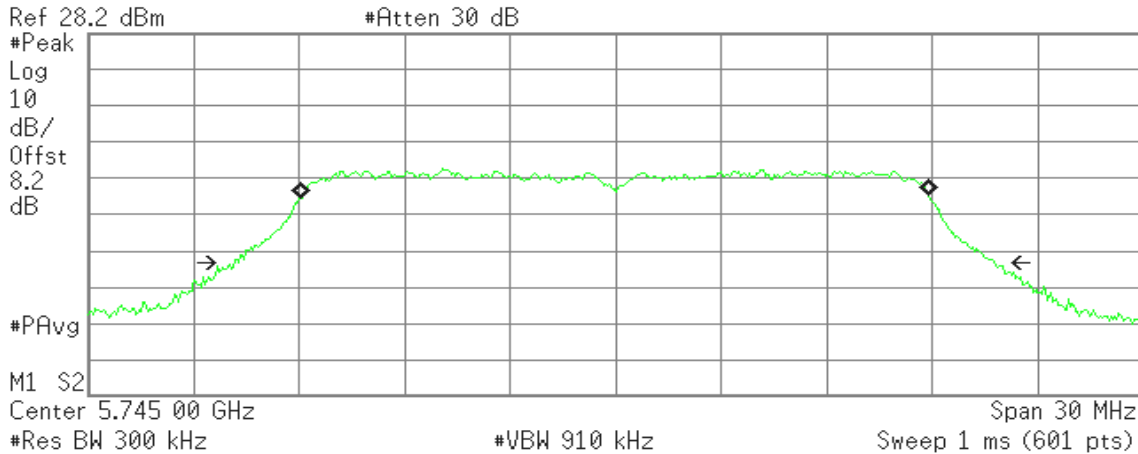
Transmit Freq Error -44.001 kHz
x dB Bandwidth 21.077 MHz

IEEE 802.11n HT20 / 5745 ~ 5825MHz

CH Low

Agilent

R L



Occupied Bandwidth
17.8088 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

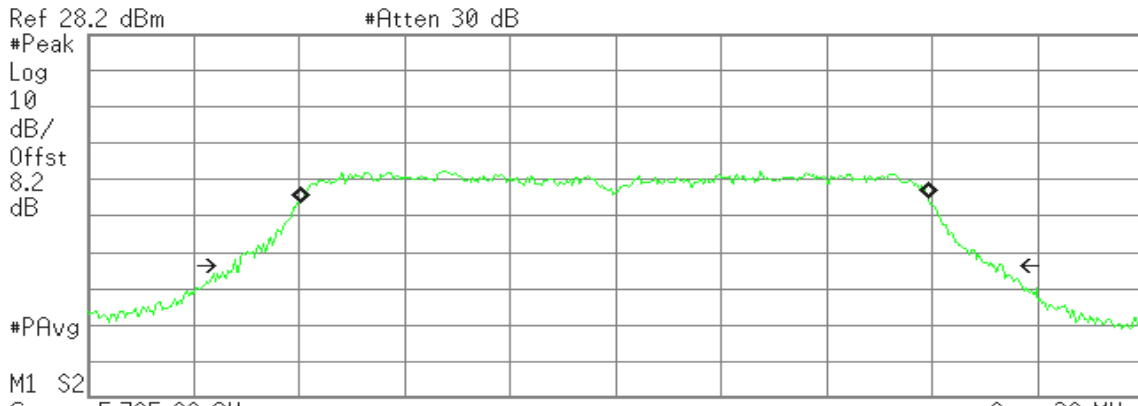
Transmit Freq Error -21.140 kHz
x dB Bandwidth 21.578 MHz



CH Mid

Agilent

R L



Center 5.785 00 GHz Span 30 MHz
 #Res BW 300 kHz #VBW 910 kHz Sweep 1 ms (601 pts)

Occupied Bandwidth

17.8147 MHz

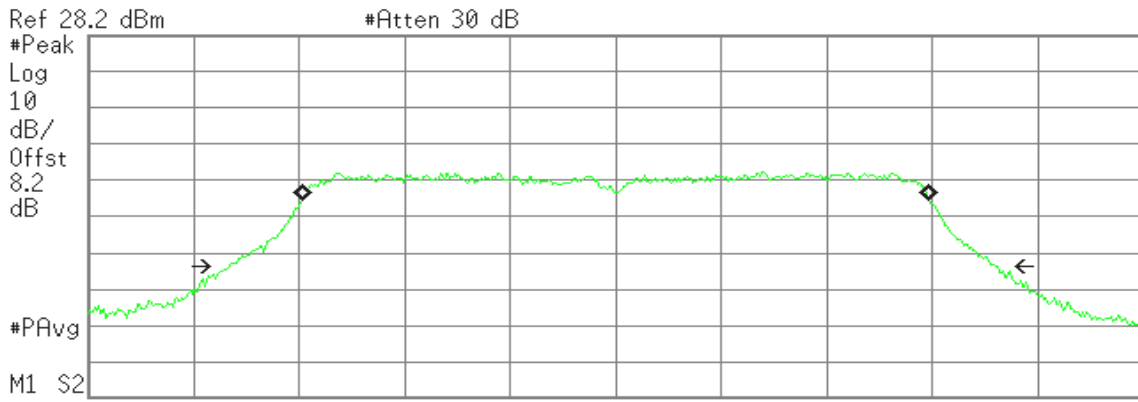
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error -29.853 kHz
x dB Bandwidth 21.856 MHz

CH High

Agilent

R L



Center 5.825 00 GHz Span 30 MHz
 #Res BW 300 kHz #VBW 910 kHz Sweep 1 ms (601 pts)

Occupied Bandwidth

17.7996 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 5.742 kHz
x dB Bandwidth 21.846 MHz

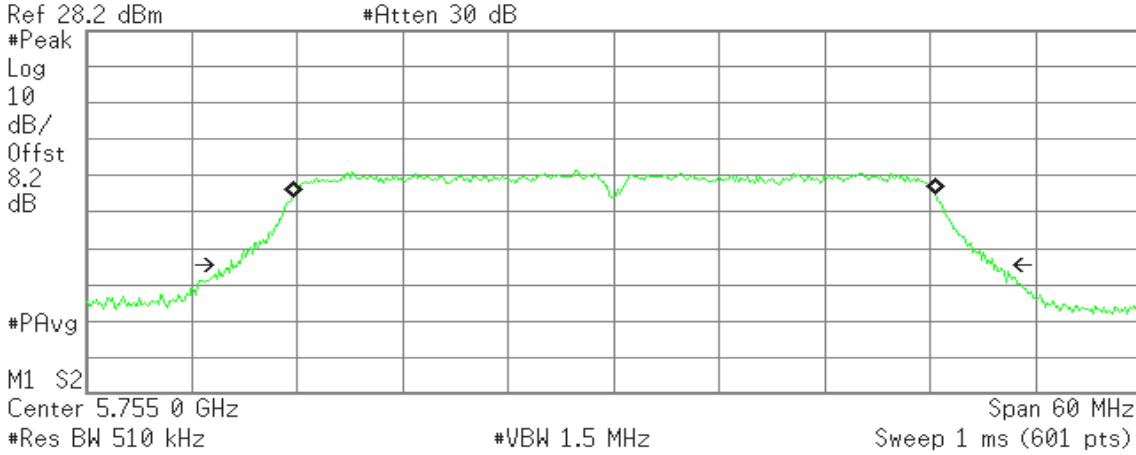


IEEE 802.11n HT40 / 5755 ~ 5795MHz

CH Low

Agilent

R L



Occupied Bandwidth
36.5295 MHz

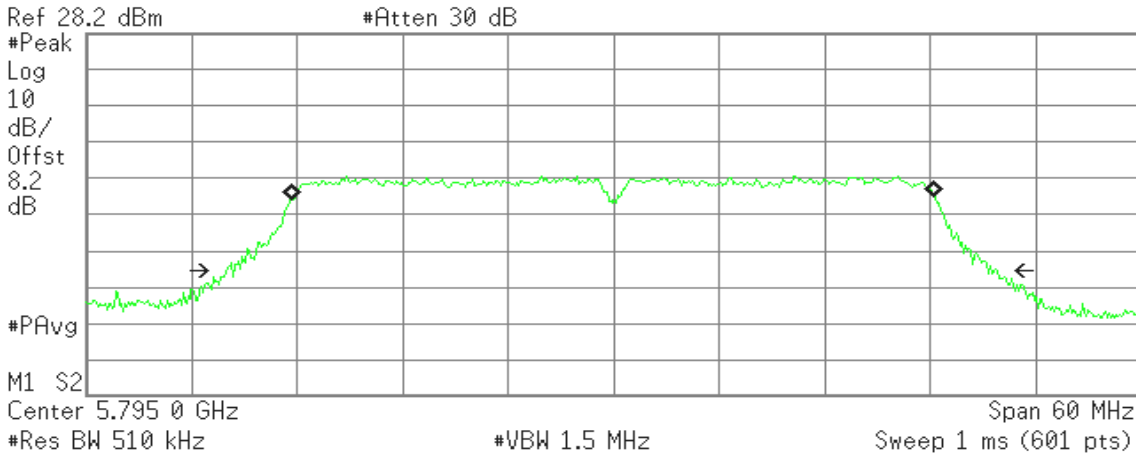
Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 30.085 kHz
x dB Bandwidth 43.451 MHz

CH High

Agilent

R L



Occupied Bandwidth
36.5135 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

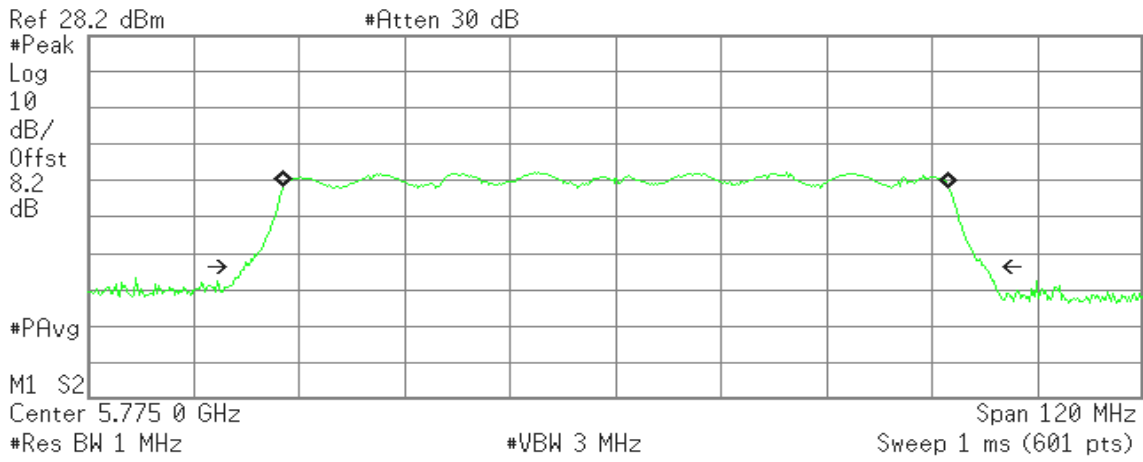
Transmit Freq Error -9.636 kHz
x dB Bandwidth 43.764 MHz



IEEE 802.11ac HT80 / 5775MHz

Agilent

R L



Occupied Bandwidth
75.5546 MHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 60.561 kHz
x dB Bandwidth 84.058 MHz

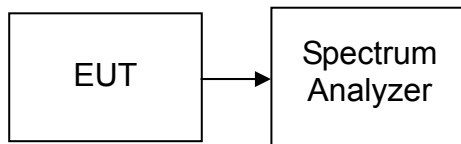


7.2 6DB BANDWIDTH

LIMIT

According to §15.407 (e), within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz

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 = 100kHz, VBW = 300kHz, Sweep = auto, Span = 30MHz (IEEE 802.11a, IEEE 802.11n HT20) or Span = 60MHz (IEEE 802.11n HT40) or Span = 120MHz (IEEE 802.11ac HT80).
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat until all the rest channels are investigated.

TEST RESULTS

No non-compliance noted



Test mode: IEEE 802.11a / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	16.60	>500	PASS
Mid	5785	16.60		PASS
High	5825	16.60		PASS

Test mode: IEEE 802.11n HT20 / 5745 ~ 5825MHz

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5745	17.80	>500	PASS
Mid	5785	17.80		PASS
High	5825	17.90		PASS

Test mode: IEEE 802.11n HT40 / 5755 ~ 5795MHz

Channel	Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
Low	5755	36.6	>500	PASS
High	5795	36.6		PASS

Test mode: IEEE 802.11ac HT80 / 5775MHz

Frequency (MHz)	Bandwidth (MHz)	Limit (kHz)	Result
5775	76.6	>500	PASS



Test Plot

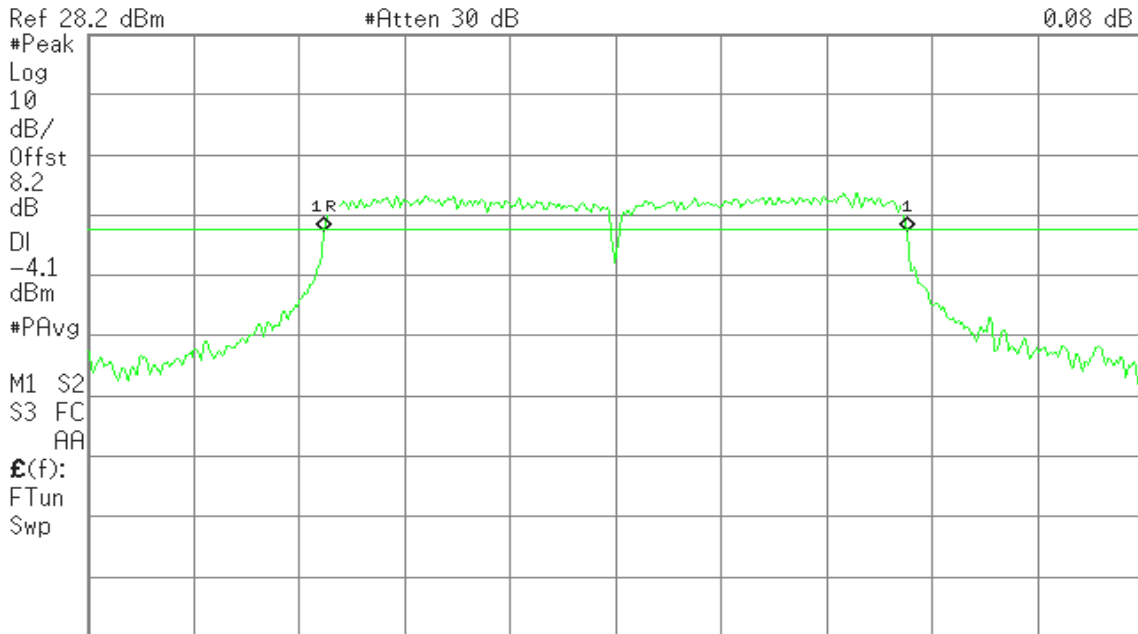
IEEE 802.11a / 5745 ~ 5825MHz

CH Low

Agilent

R L

Mkr1 16.60 MHz
0.08 dB



Center 5.745 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 30 MHz

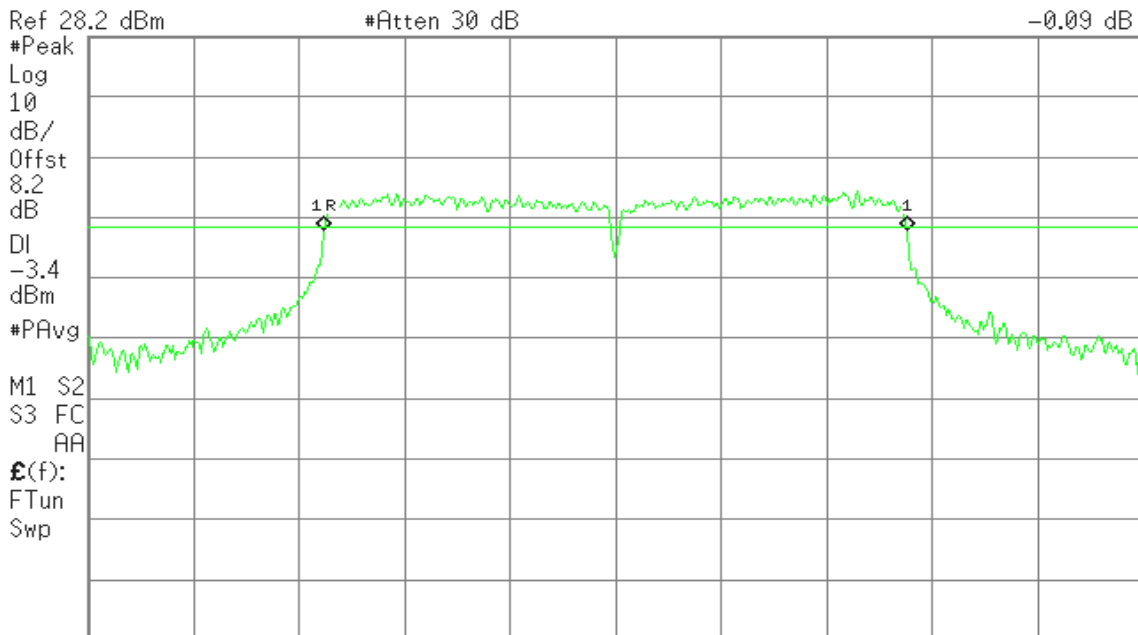
Sweep 2.88 ms (601 pts)

CH Mid

Agilent

R L

Mkr1 16.60 MHz
-0.09 dB



Center 5.785 00 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 30 MHz

Sweep 2.88 ms (601 pts)



CH High

Agilent

R L

Mkr1 16.60 MHz
0.19 dB

Ref 28.2 dBm

#Atten 30 dB

#Peak

Log

10

dB/

Offst

8.2

dB

DI

-2.8

dBm

#PAvg

M1 S2

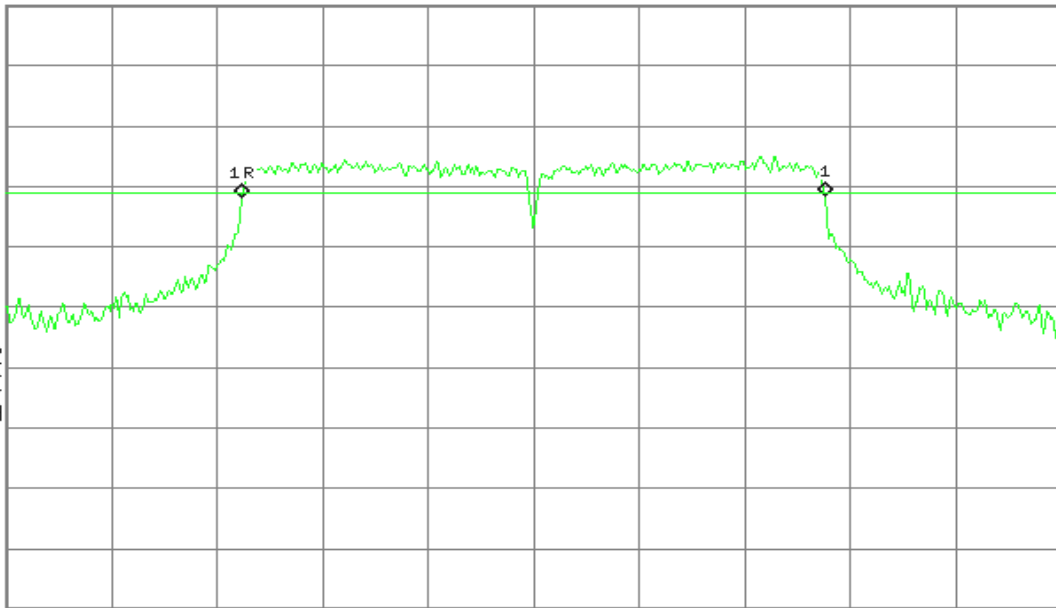
S3 FC

AA

£(f):

FTun

Swp



Center 5.825 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.88 ms (601 pts)

IEEE 802.11n HT20 / 5745 ~ 5825MHz

CH Low

Agilent

R L

Mkr1 16.60 MHz
0.19 dB

Ref 28.2 dBm

#Atten 30 dB

#Peak

Log

10

dB/

Offst

8.2

dB

DI

-2.8

dBm

#PAvg

M1 S2

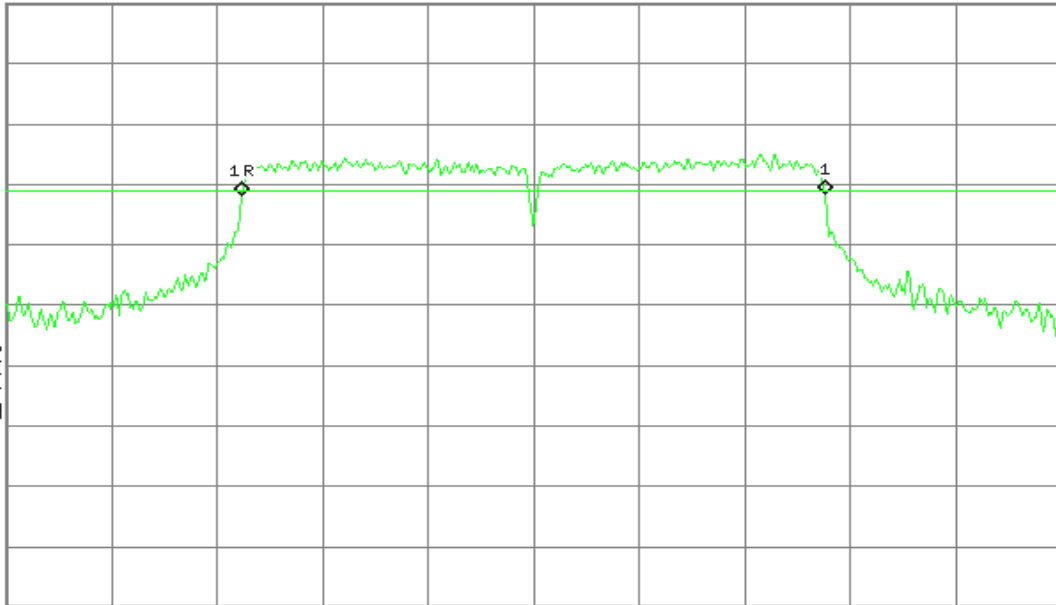
S3 FC

AA

£(f):

FTun

Swp



Center 5.825 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.88 ms (601 pts)

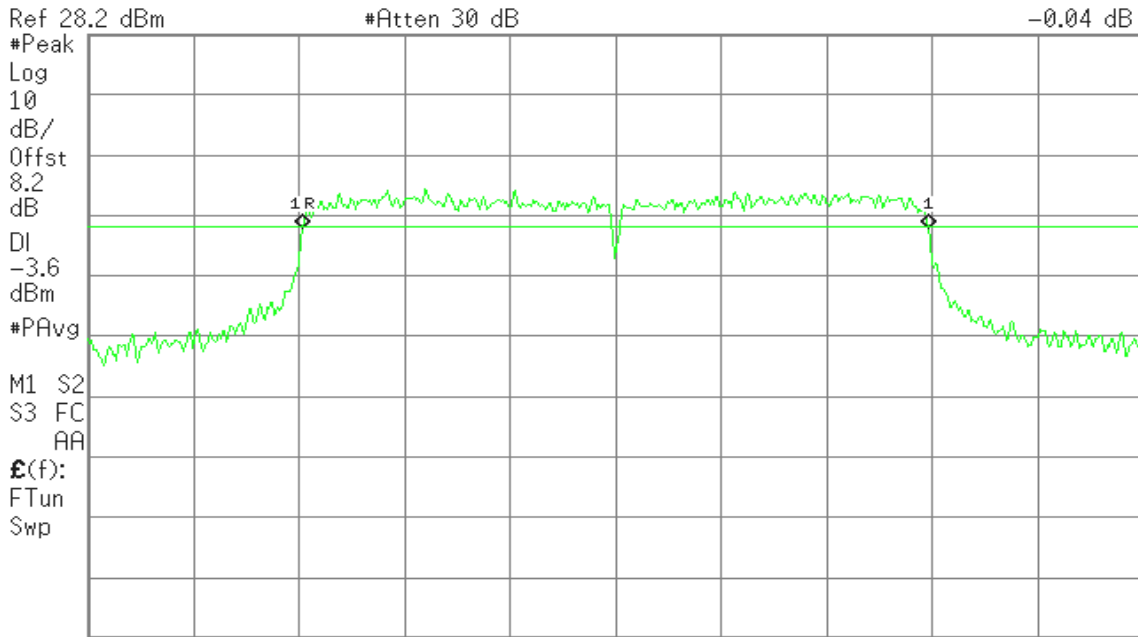


CH Mid

Agilent

R L

Mkr1 17.80 MHz
-0.04 dB



Center 5.785 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

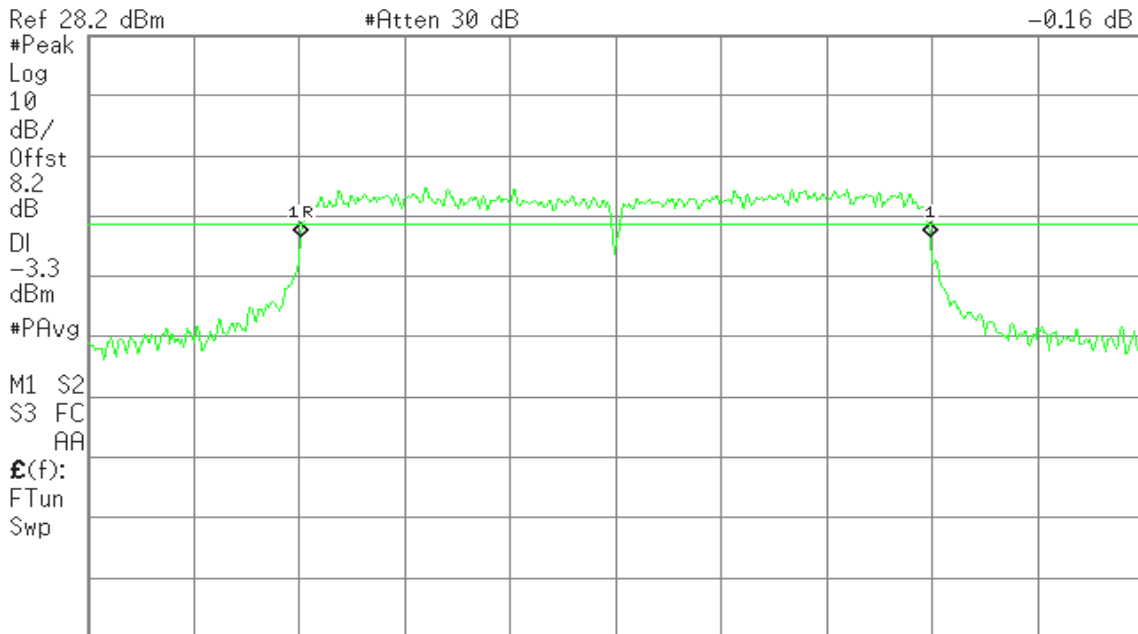
Sweep 2.88 ms (601 pts)

CH High

Agilent

R L

Mkr1 17.90 MHz
-0.16 dB



Center 5.825 00 GHz

Span 30 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.88 ms (601 pts)



IEEE 802.11n HT40 / 5755 ~ 5795MHz

CH Low

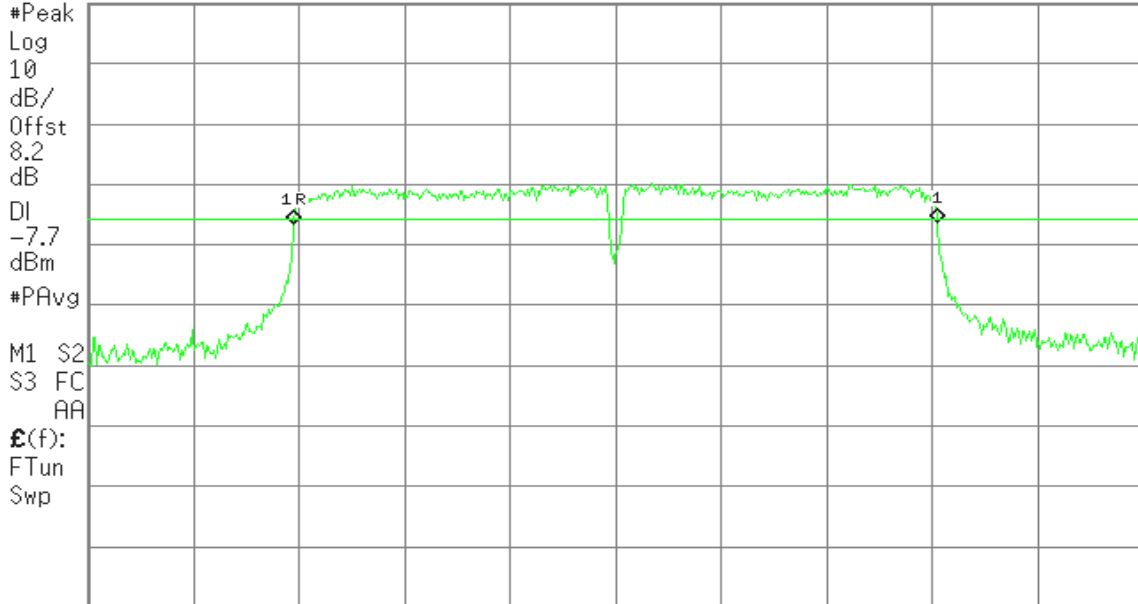
Agilent

R L

Mkr1 36.6 MHz
0.26 dB

Ref 28.2 dBm

#Atten 30 dB



Center 5.755 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 60 MHz
Sweep 5.76 ms (601 pts)

CH High

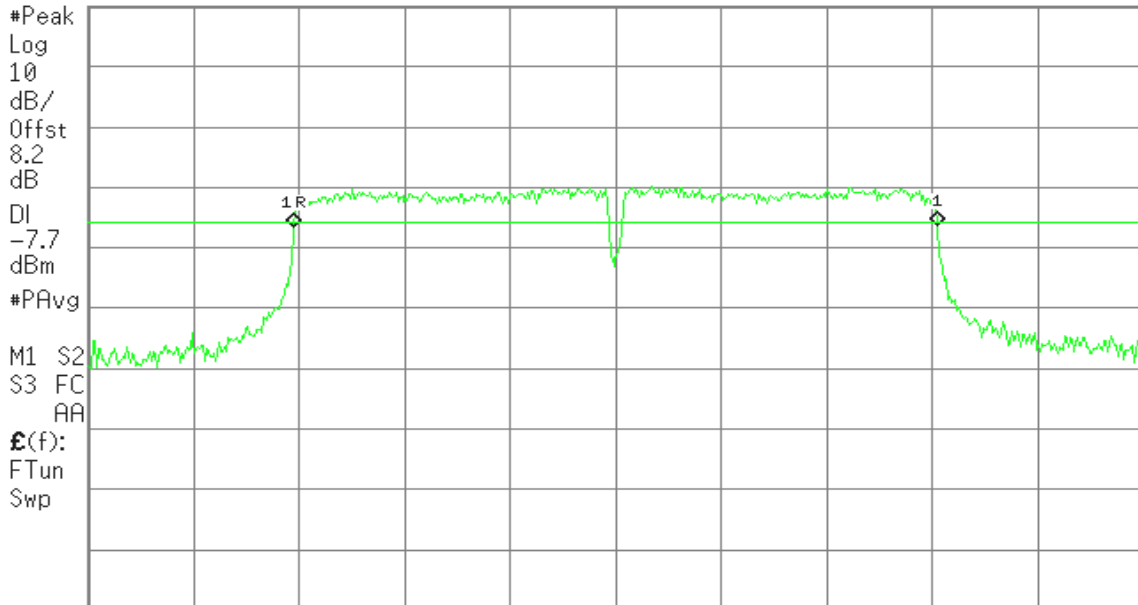
Agilent

R L

Mkr1 36.6 MHz
0.26 dB

Ref 28.2 dBm

#Atten 30 dB



Center 5.755 0 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 60 MHz
Sweep 5.76 ms (601 pts)

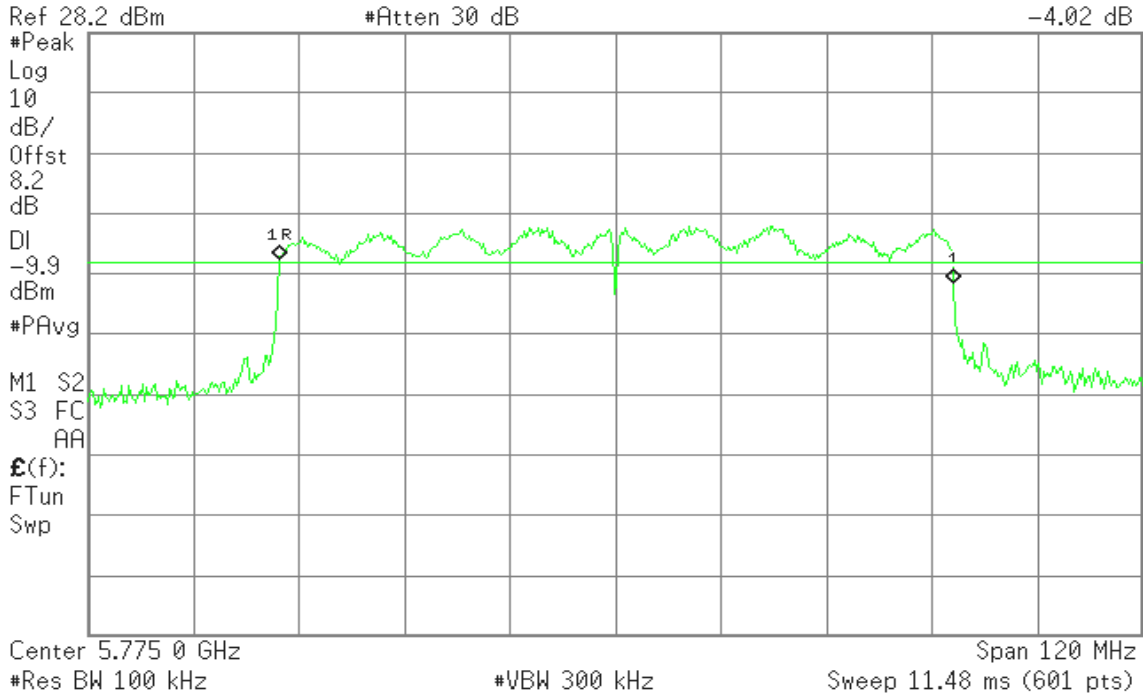


IEEE 802.11ac HT80 / 5775MHz

Agilent

R L

Mkr1 76.6 MHz
-4.02 dB





7.3 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.



Specified Limit of the Output Power

Test mode: IEEE 802.11a mode / 5260-5320MHz

Channel	Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	11 + 10 Log B (dBm)	Maximum Conducted Output Power Limit
Low	5260	23.237	13.66	24.66	24.00
Mid	5280	21.793	13.38	24.38	24.00
High	5320	23.365	13.69	24.69	24.00

Test mode: IEEE 802.11n HT20 mode / 5260-5320MHz

Channel	Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	11 + 10 Log B (dBm)	Maximum Conducted Output Power Limit
Low	5260	22.207	13.46	24.46	24.00
Mid	5280	22.26	13.48	24.48	24.00
High	5320	22.288	13.48	24.48	24.00

Test mode: IEEE 802.11n HT40 mode / 5190-5230MHz

Channel	Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	11 + 10 Log B (dBm)	Maximum Conducted Output Power Limit
Low	5190	43.968	16.43	27.43	24.00
High	5230	44.031	16.44	27.44	24.00

Test mode: IEEE 802.11ac HT80 mode / 5290MHz

Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	11 + 10 Log B (dBm)	Maximum Conducted Output Power Limit
5290	97.177	19.88	30.88	24.00



Test mode: IEEE 802.11a mode / 5500-5700MHz

Channel	Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	11 + 10 Log B (dBm)	Maximum Conducted Output Power Limit
Low	5500	21.233	13.27	24.27	24.00
Mid	5580	21.063	13.24	24.24	24.00
High	5700	20.93	13.21	24.21	24.00

Test mode: IEEE 802.11n HT20 mode / 5500-5700MHz

Channel	Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	11 + 10 Log B (dBm)	Maximum Conducted Output Power Limit
Low	5500	21.748	13.37	24.37	24.00
Mid	5580	21.543	13.33	24.33	24.00
High	5700	21.414	13.31	24.31	24.00

Test mode: IEEE 802.11n HT40 mode / 5510-5670MHz

Channel	Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	11 + 10 Log B (dBm)	Maximum Conducted Output Power Limit
Low	5510	43.7	16.40	27.40	24.00
Mid	5550	43.687	16.40	27.40	24.00
High	5670	43.64	16.40	27.40	24.00

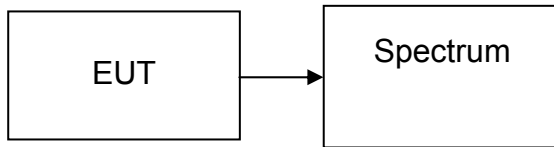
Test mode: IEEE 802.11ac HT80 mode / 5530MHz

Frequency (MHz)	26 dB Bandwidth (B) (MHz)	10 Log B (dB)	11 + 10 Log B (dBm)	Maximum Conducted Output Power Limit
5530	84.168	19.25	30.25	24.00



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 / 5180 ~ 5240MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5180	11.75	24.00
Mid	5220	12.28	24.00
High	5240	11.85	24.00

Test mode: IEEE 802.11n HT20 / 5180 ~ 5240MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5180	12.11	24.00
Mid	5220	12.76	24.00
High	5240	13.33	24.00

Test mode: IEEE 802.11n HT40 / 5190 ~ 5230MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5190	12.43	24.00
High	5230	13.01	24.00

Test mode: IEEE 802.11ac HT80 / 5210MHz

Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
5210	12.53	24.00



Test mode: IEEE 802.11a / 5260-5320MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5260	12.65	24.00
Mid	5280	13.45	24.00
High	5320	14.08	24.00

Test mode: IEEE 802.11n HT20 / 5260-5320MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5260	13.58	24.00
Mid	5280	13.28	24.00
High	5320	12.93	24.00

Test mode: IEEE 802.11n HT40 / 5270-5310MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5270	13.28	24.00
High	5310	13.95	24.00

Test mode: IEEE 802.11ac HT80 / 5290MHz

Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
5290	13.27	24.00



Test mode: IEEE 802.11a / 5500-5700MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5500	13.47	24.00
Mid	5580	13.61	24.00
High	5700	13.57	24.00

Test mode: IEEE 802.11n HT20 / 5500-5700MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5500	13.21	24.00
Mid	5580	13.19	24.00
High	5700	12.54	24.00

Test mode: IEEE 802.11n HT40 / 5510-5670MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5510	12.88	24.00
Mid	5550	13.82	24.00
High	5670	14.53	24.00

Test mode: IEEE 802.11ac HT80 / 5530MHz

Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
5530	13.04	24.00



Test mode: IEEE 802.11a / 5745-5825MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5745	17.15	30.00
Mid	5785	17.56	30.00
High	5825	16.66	30.00

Test mode: IEEE 802.11n HT20 / 5745-5825MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5745	16.47	30.00
Mid	5785	16.39	30.00
High	5825	16.73	30.00

Test mode: IEEE 802.11n HT40 / 5755-5795MHz

Channel	Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
Low	5755	16.05	30.00
High	5795	16.12	30.00

Test mode: IEEE 802.11ac HT80 / 5775MHz

Frequency (MHz)	Maximum Conducted Output Power (dBm)	Limit (dBm)
5775	15.70	30.00



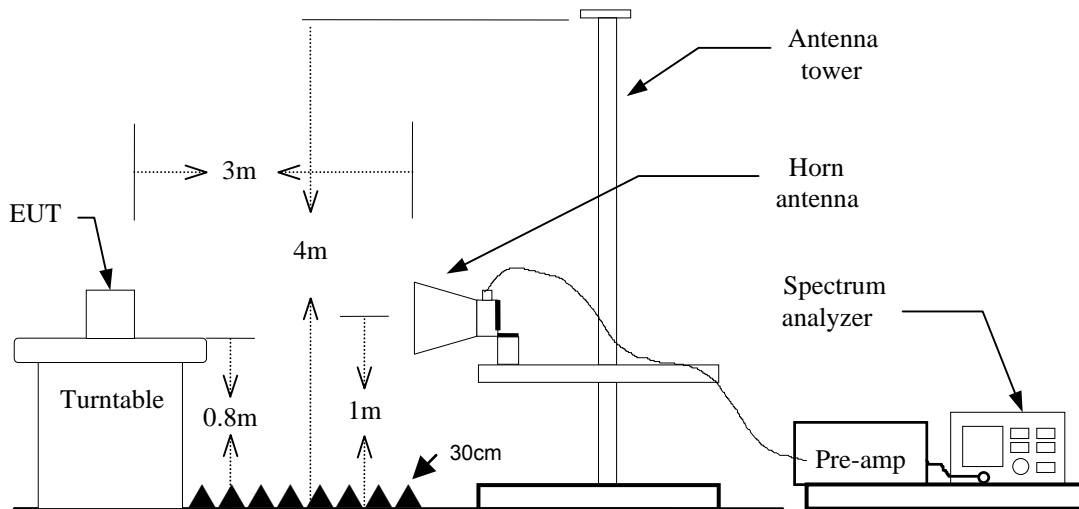
7.4 BAND EDGES MEASUREMENT

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⁽¹⁾ / Sweep=AUTO
 - (c) Duty Cycle: RBW=1MHz / VBW=1MHz
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

(1): Because Duty Cycle > 98%, the use of more rigorous testing methods VBW = 300Hz.

TEST RESULTS

Refer to attach spectrum analyzer data chart.



DUTY CYCLE

IEEE 802.11a

Agilent

R L



Center 5.180 000 GHz

Span 0 Hz

Res BW 1 MHz

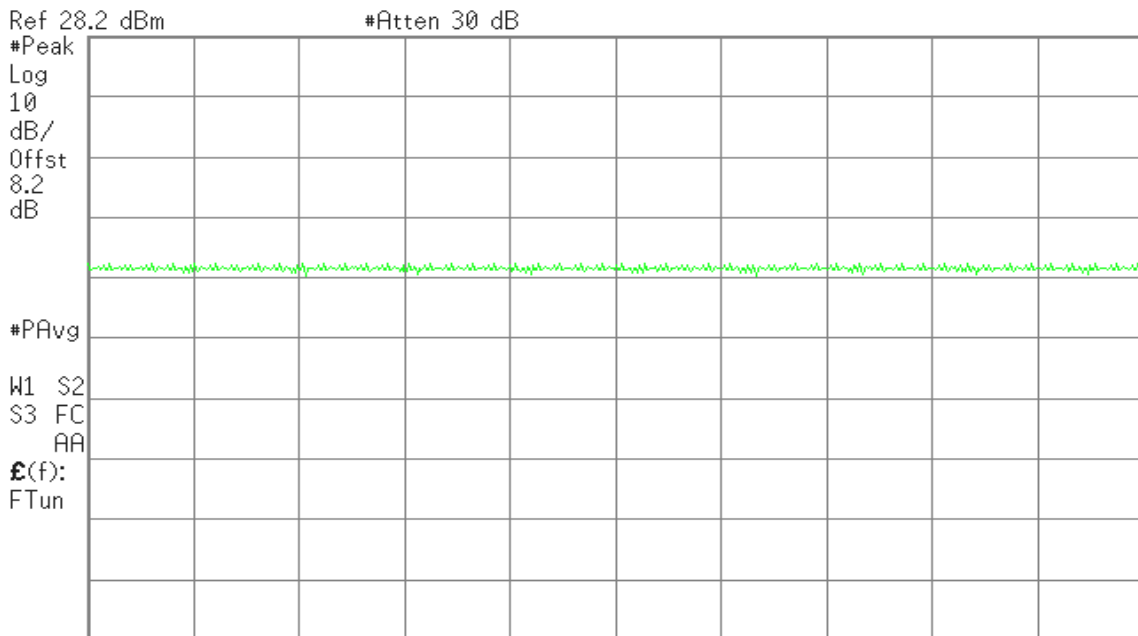
#VBW 1 MHz

Sweep 100 ms (601 pts)

IEEE 802.11n HT20

Agilent

R L



Center 5.180 000 GHz

Span 0 Hz

Res BW 1 MHz

#VBW 1 MHz

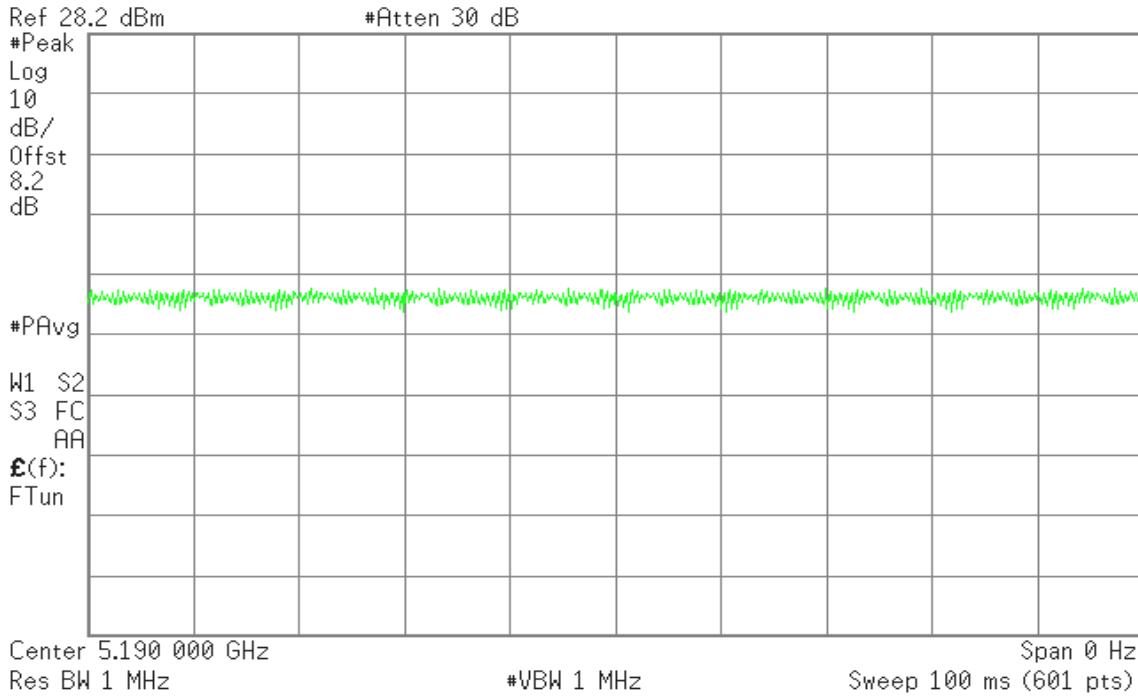
Sweep 100 ms (601 pts)



IEEE 802.11n HT40

Agilent

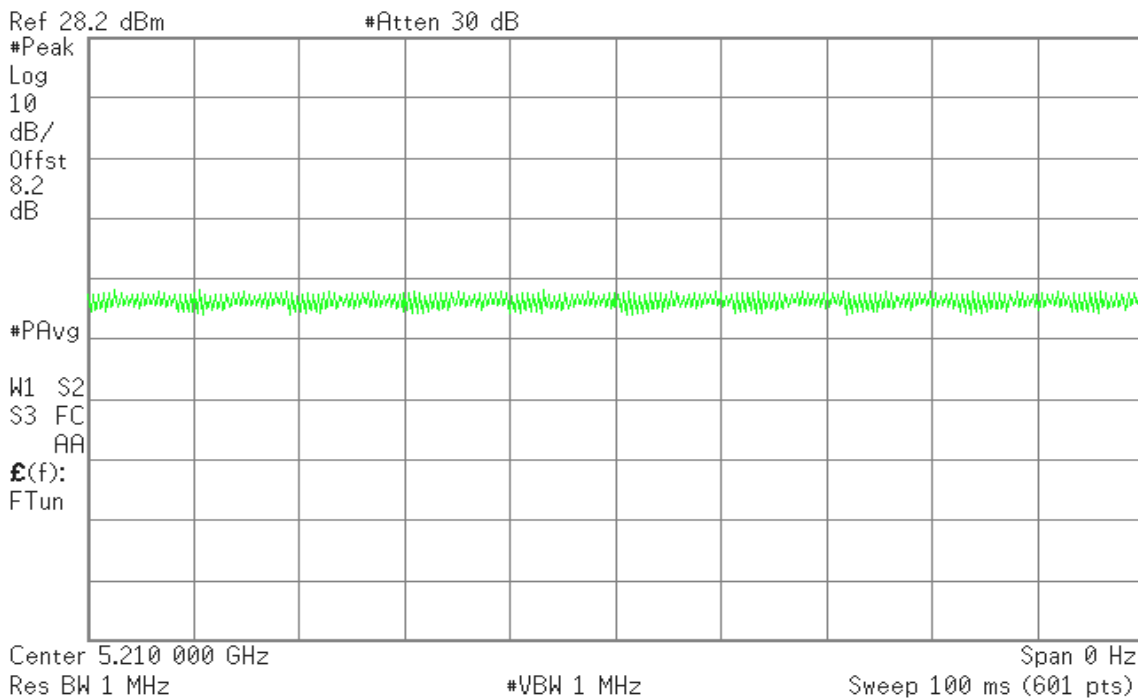
R L



IEEE 802.11ac HT80

Agilent

R L

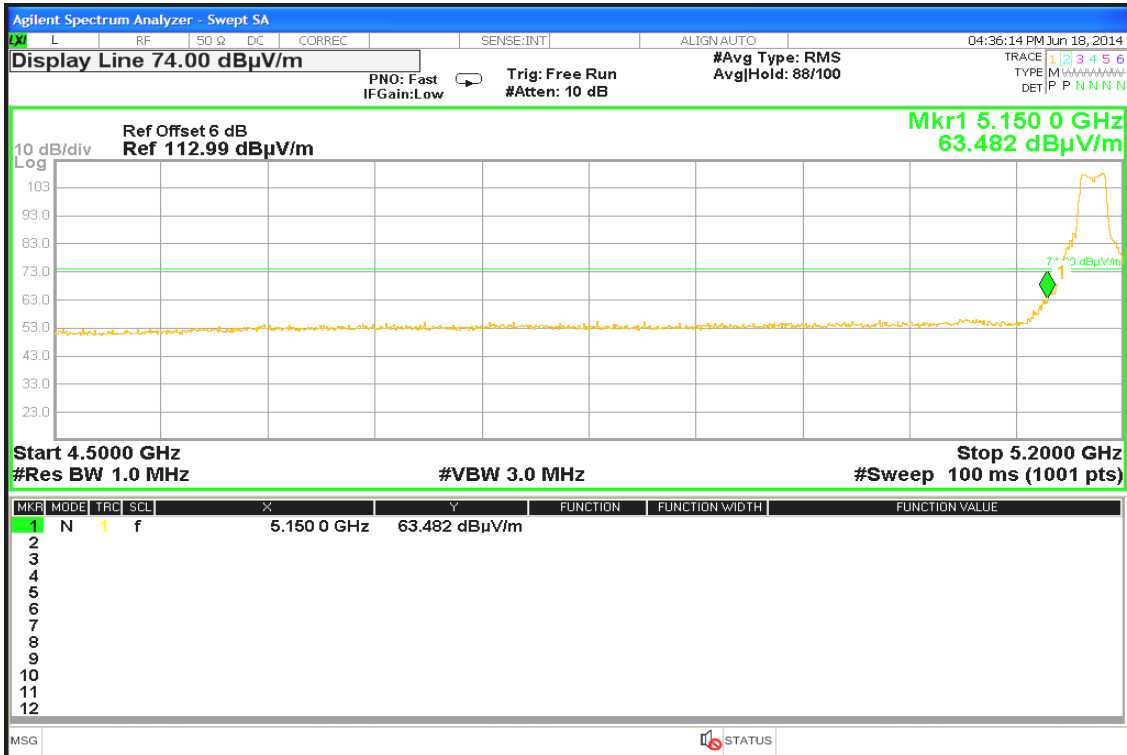




IEEE 802.11a / 5180-5240MHz / CH Low

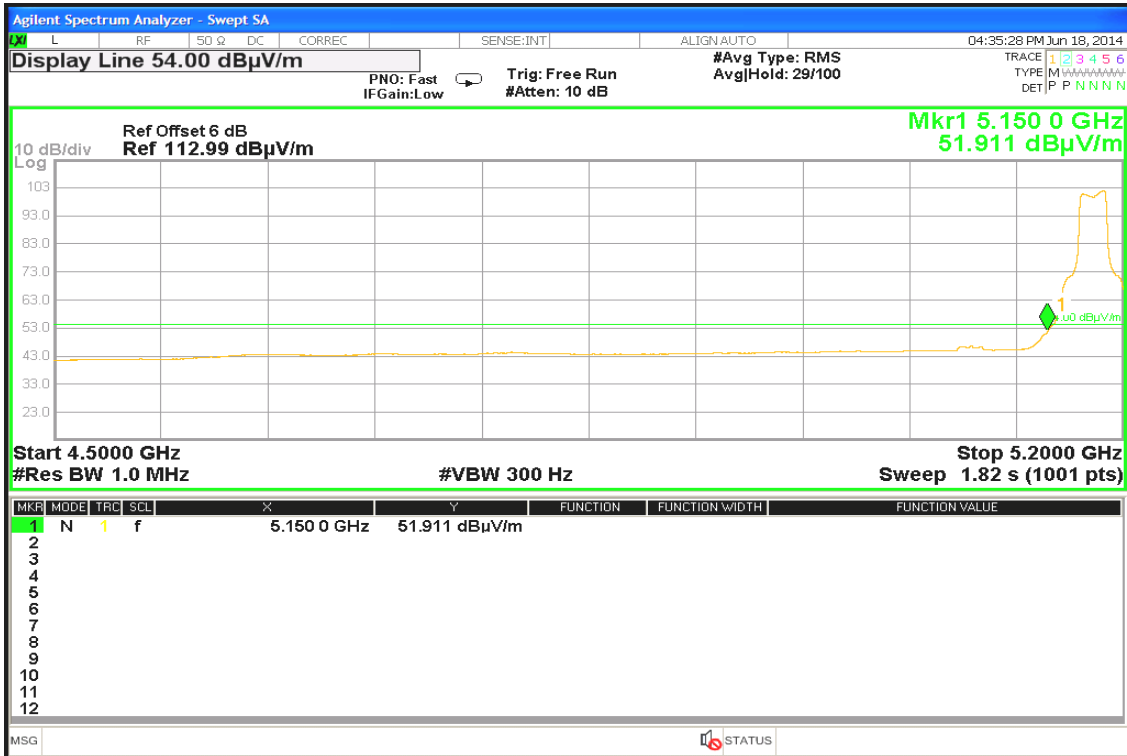
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

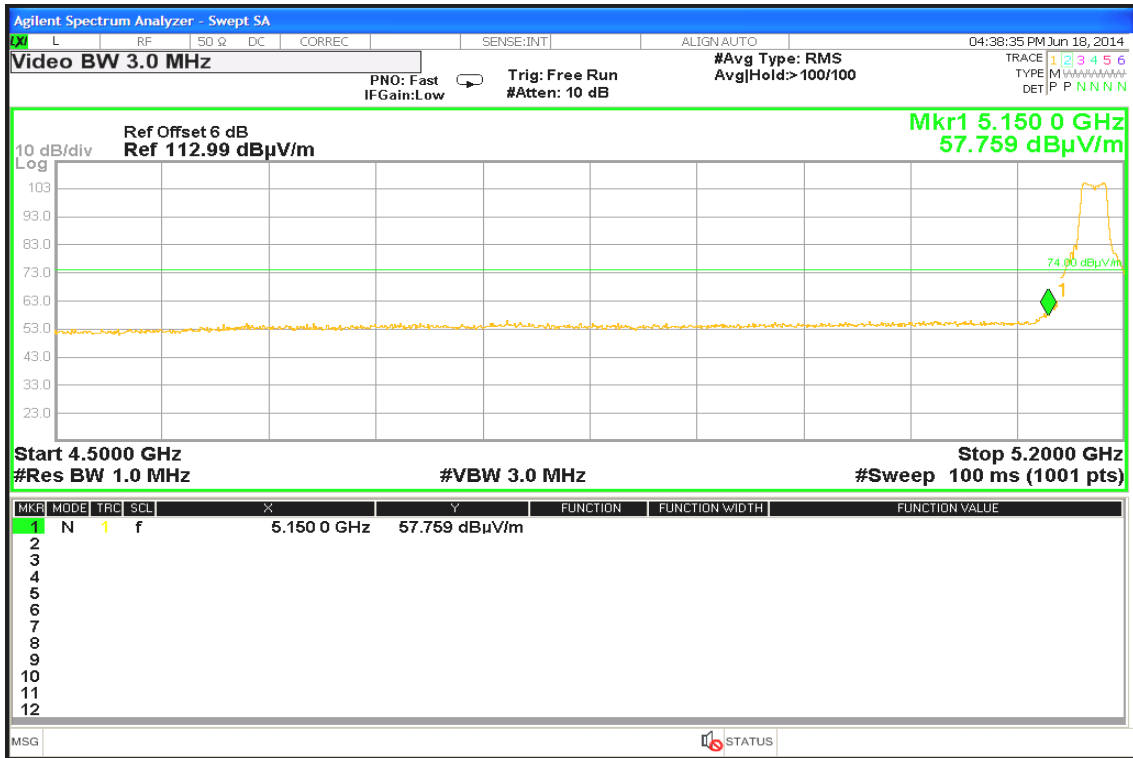
Polarity: Vertical





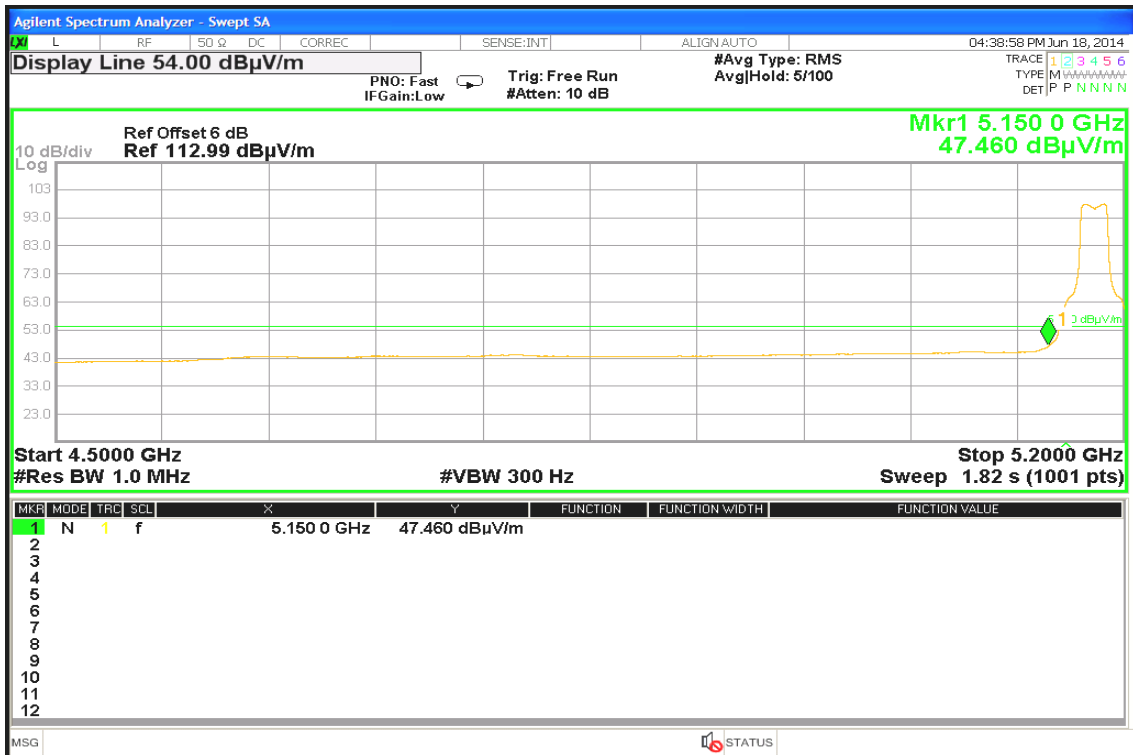
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal

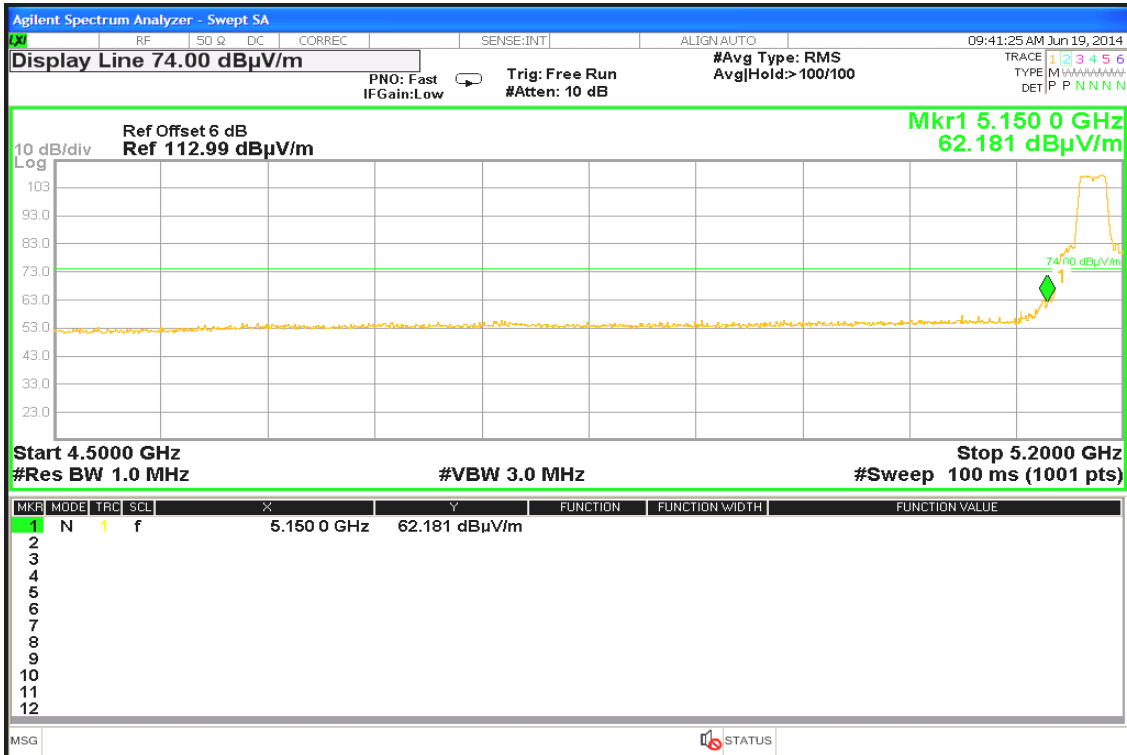




Band Edges / IEEE 802.11n HT20 / 5180-5240MHz / CH Low

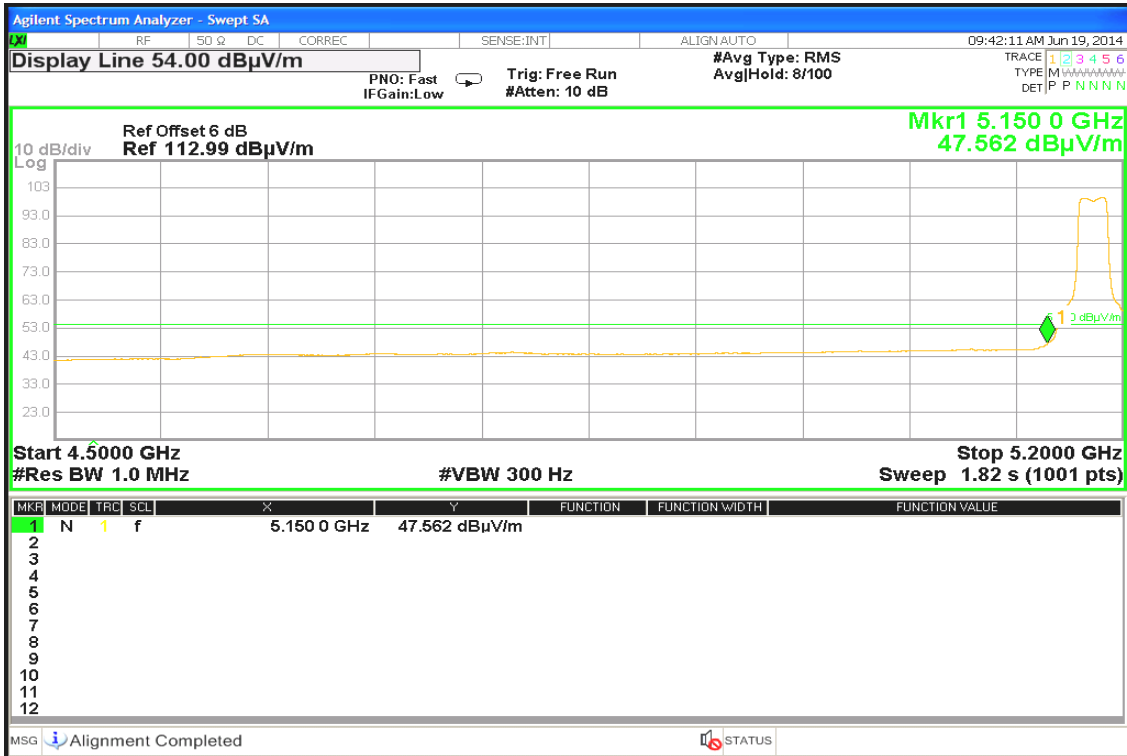
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

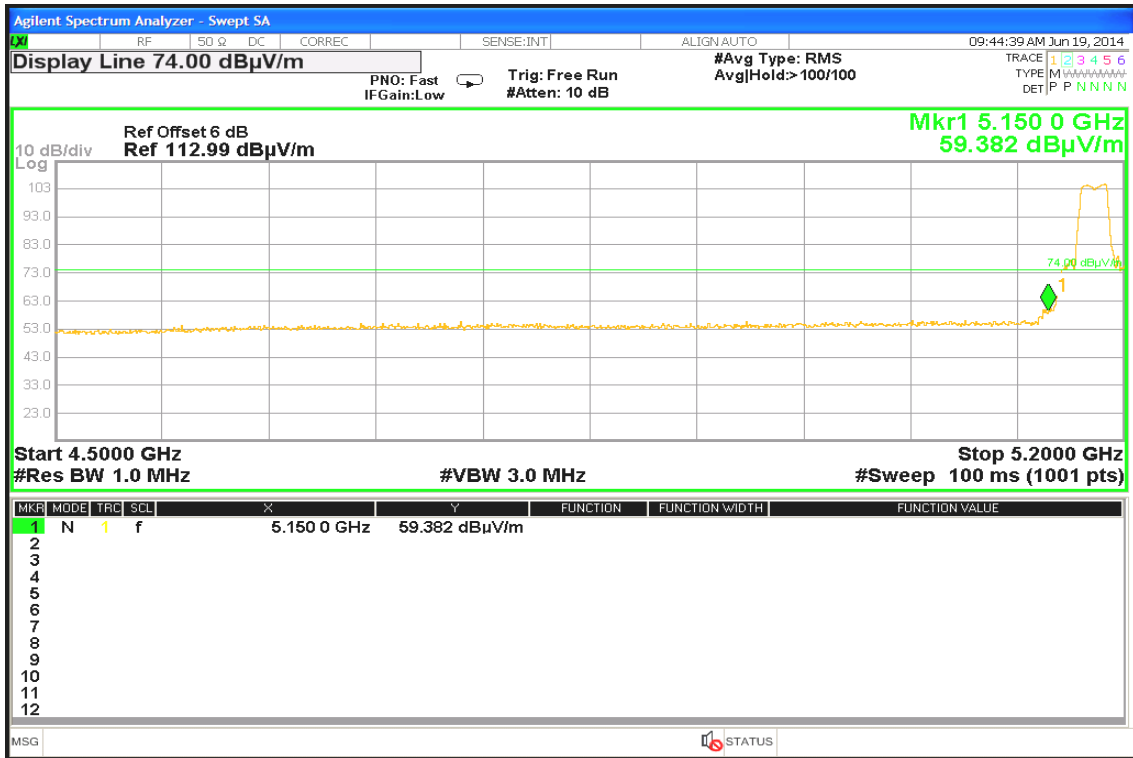
Polarity: Vertical





Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal

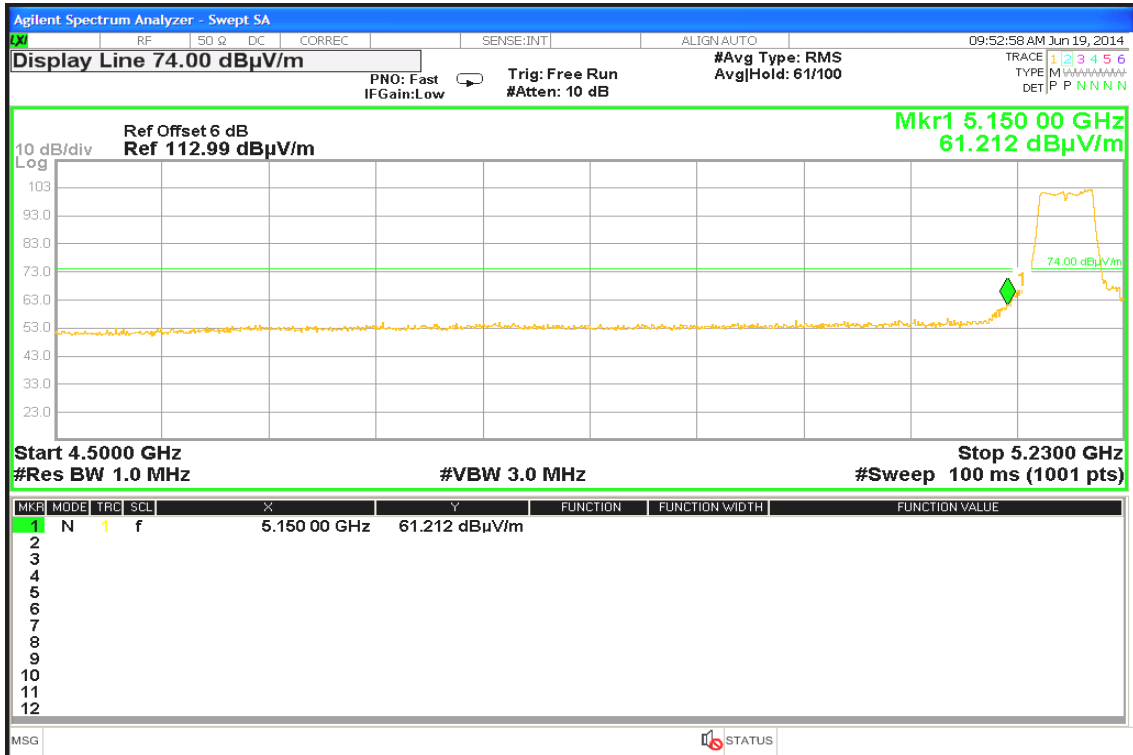




Band Edges / IEEE 802.11n HT40 / 5190-5230MHz / CH Low

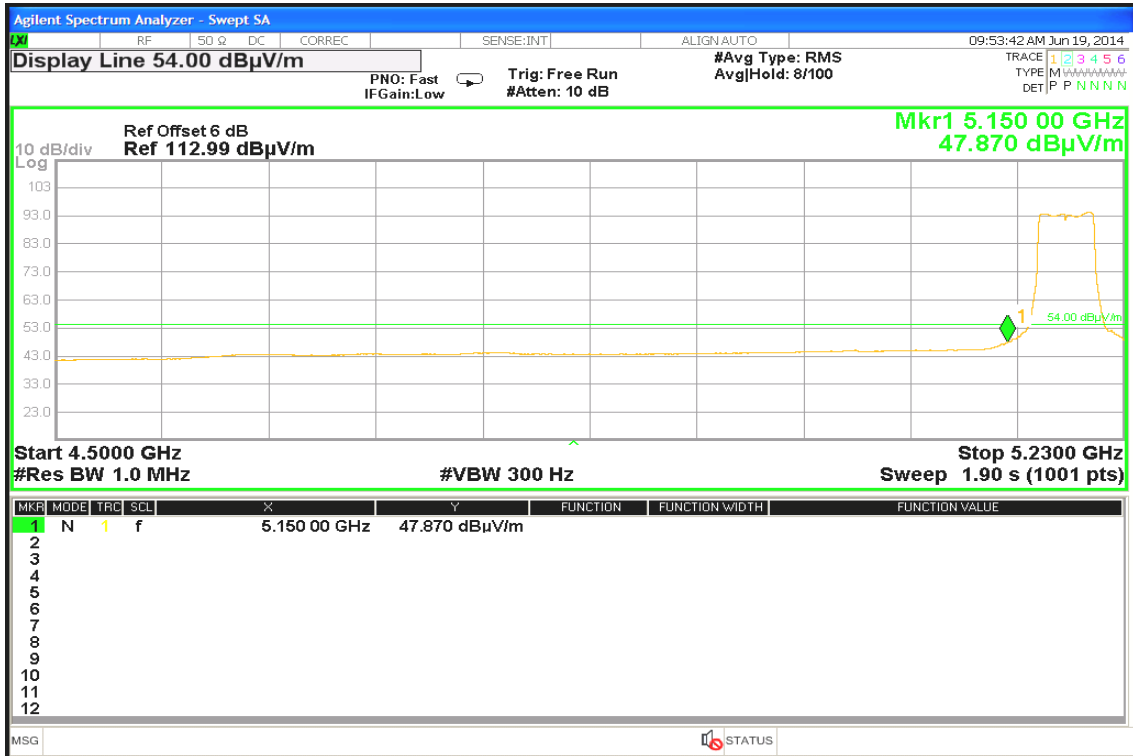
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

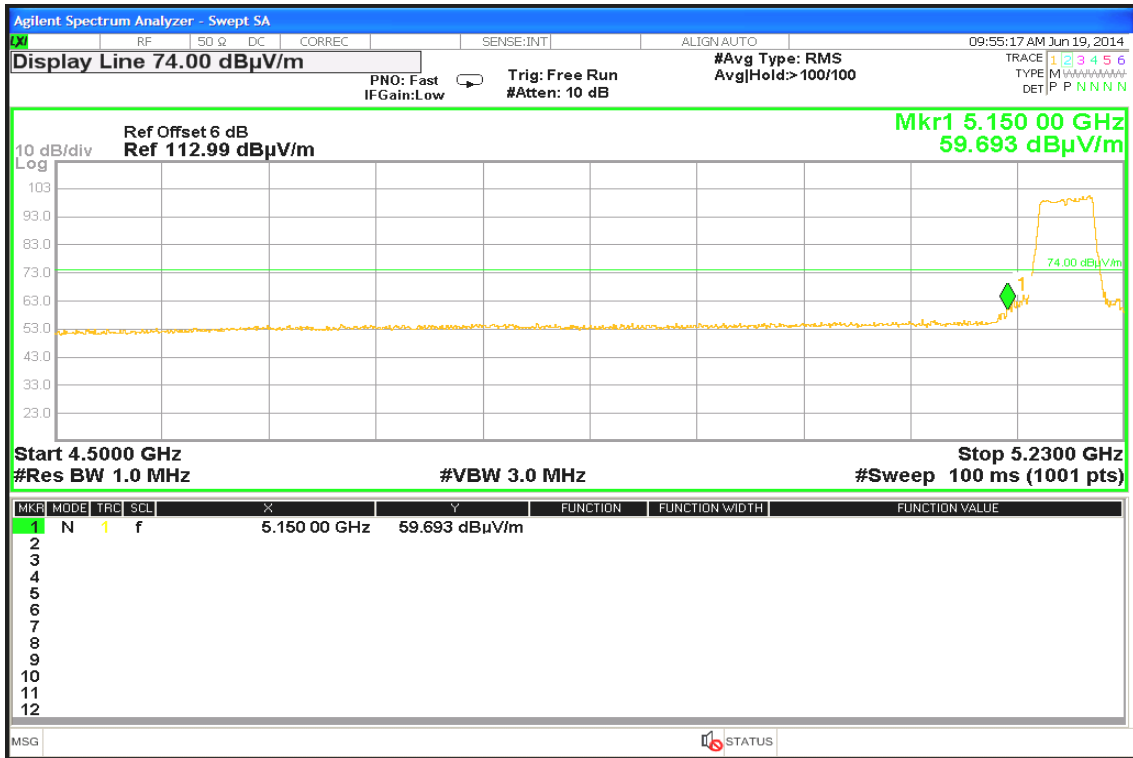
Polarity: Vertical





Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal

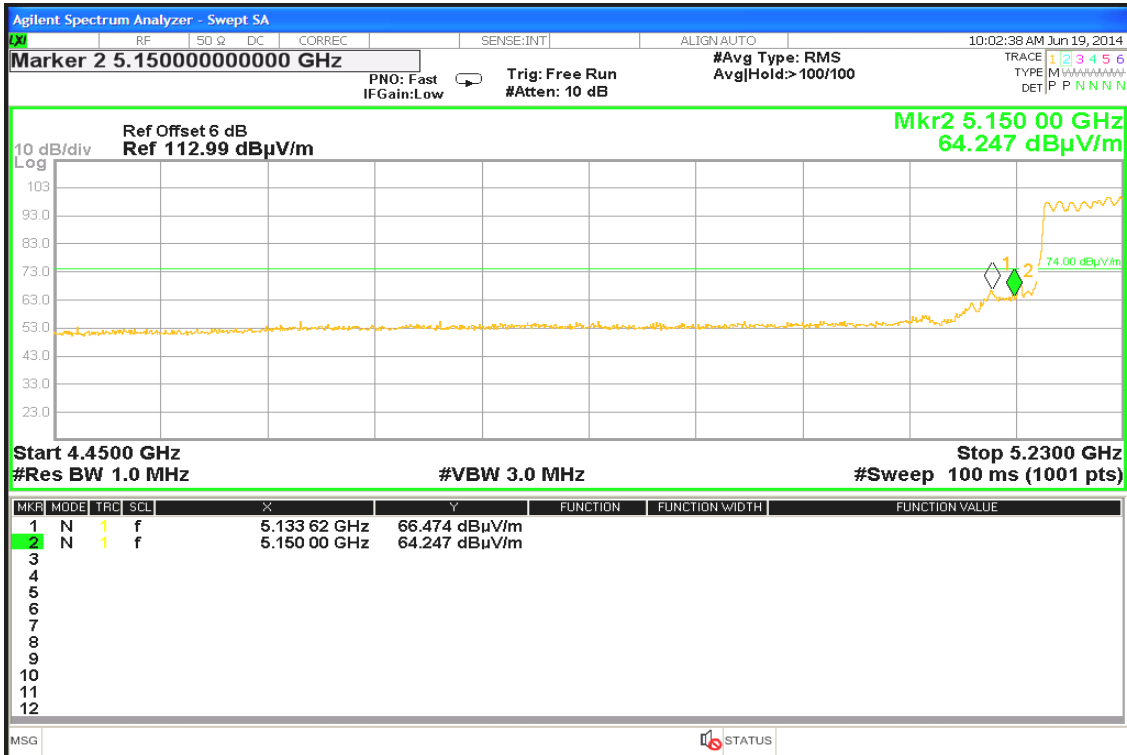




Band Edges / IEEE 802.11ac HT80 / 5210MHz / CH Low

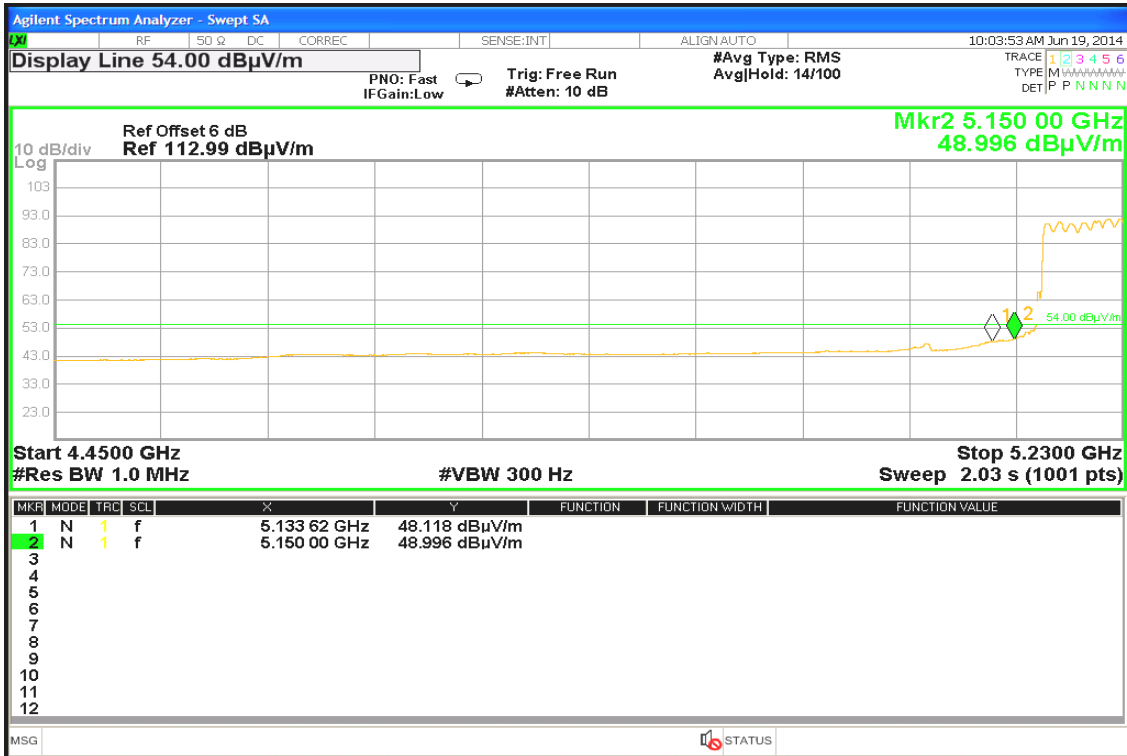
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

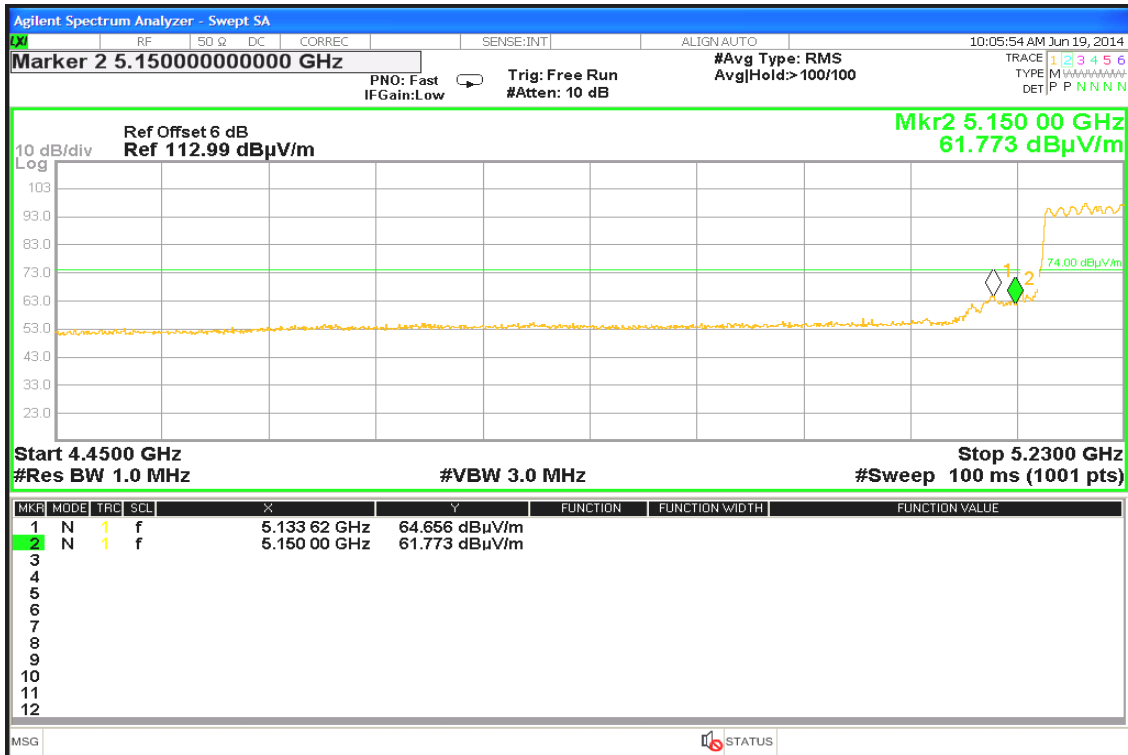
Polarity: Vertical





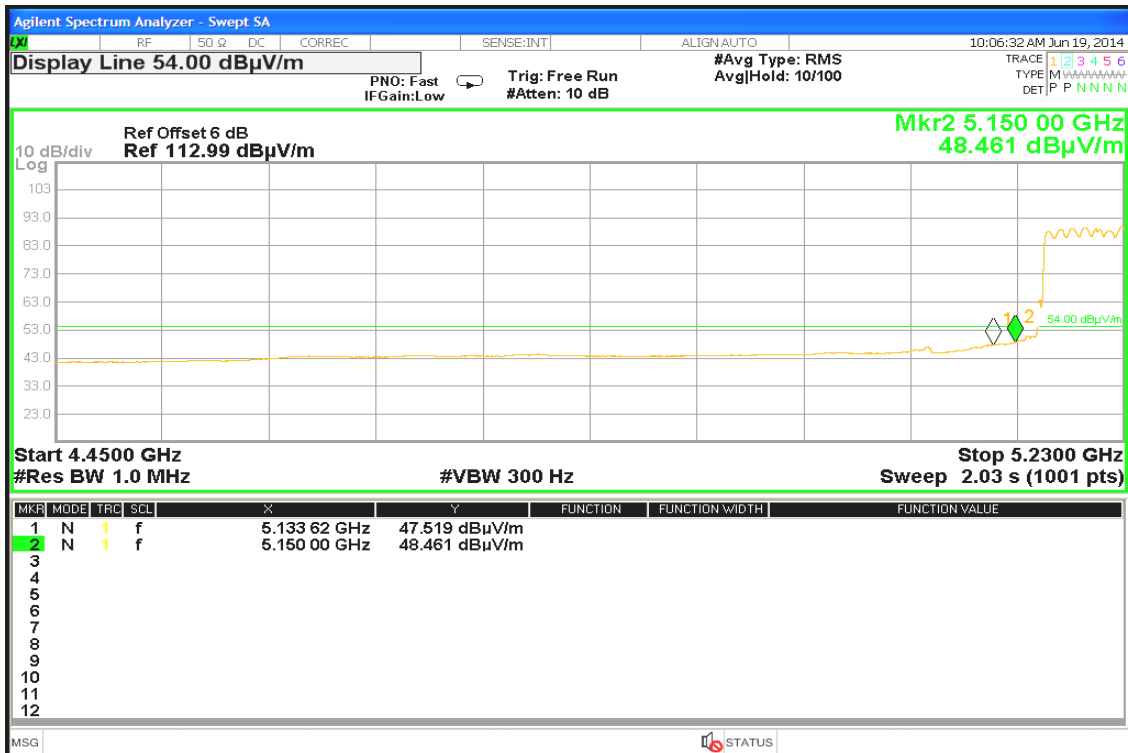
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal

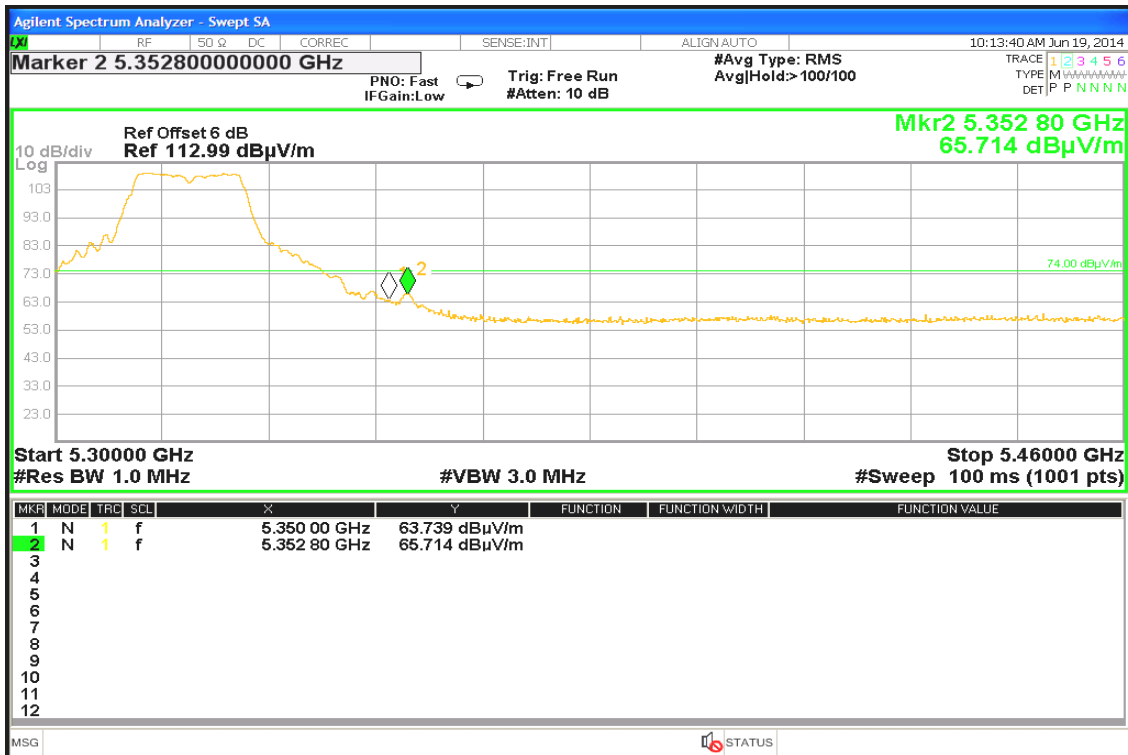




Band Edges / IEEE 802.11a / 5260-5320MHz / CH High

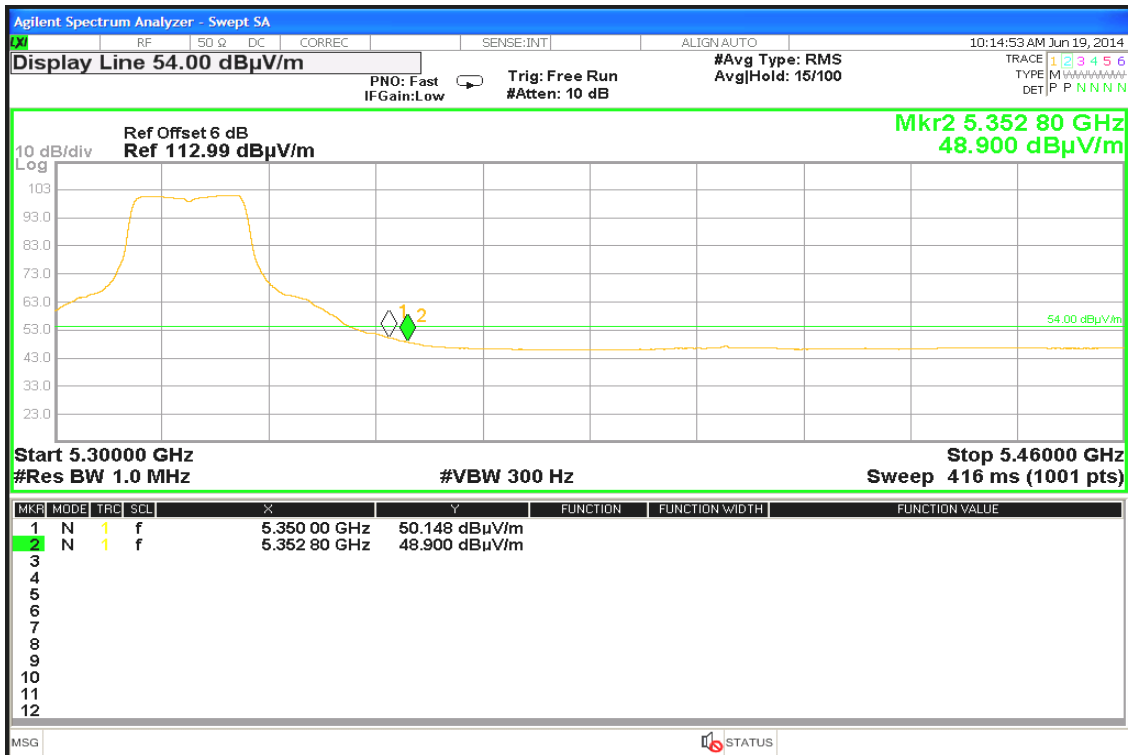
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

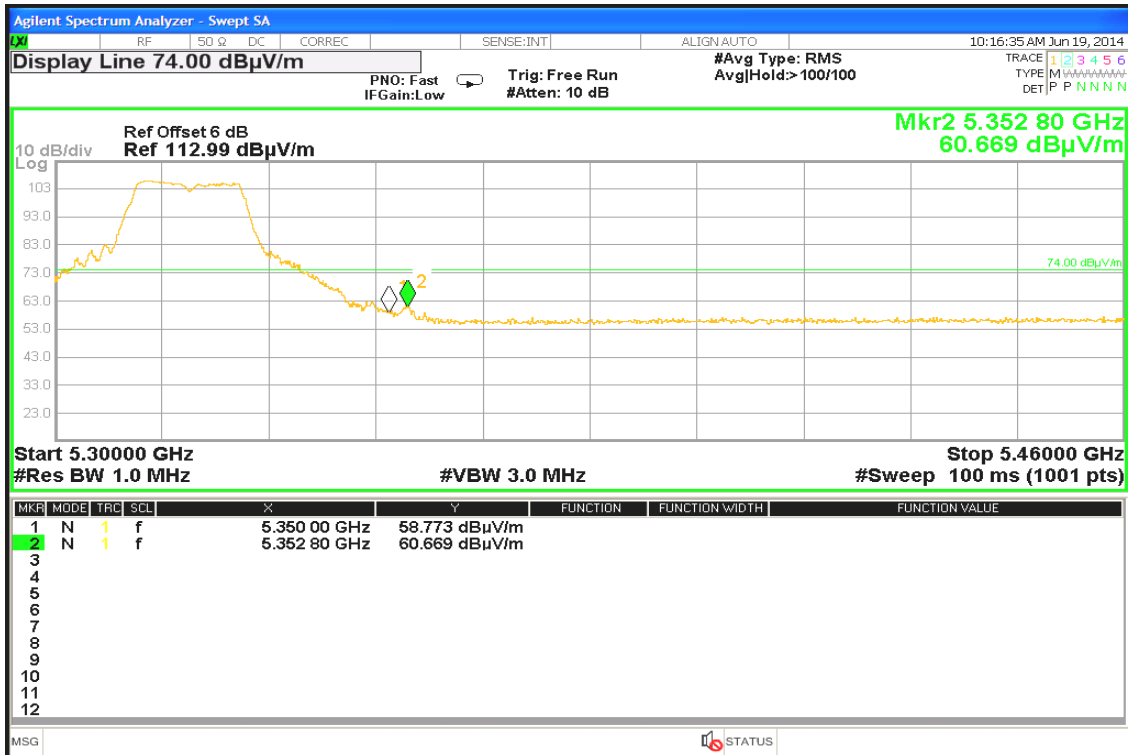
Polarity: Vertical





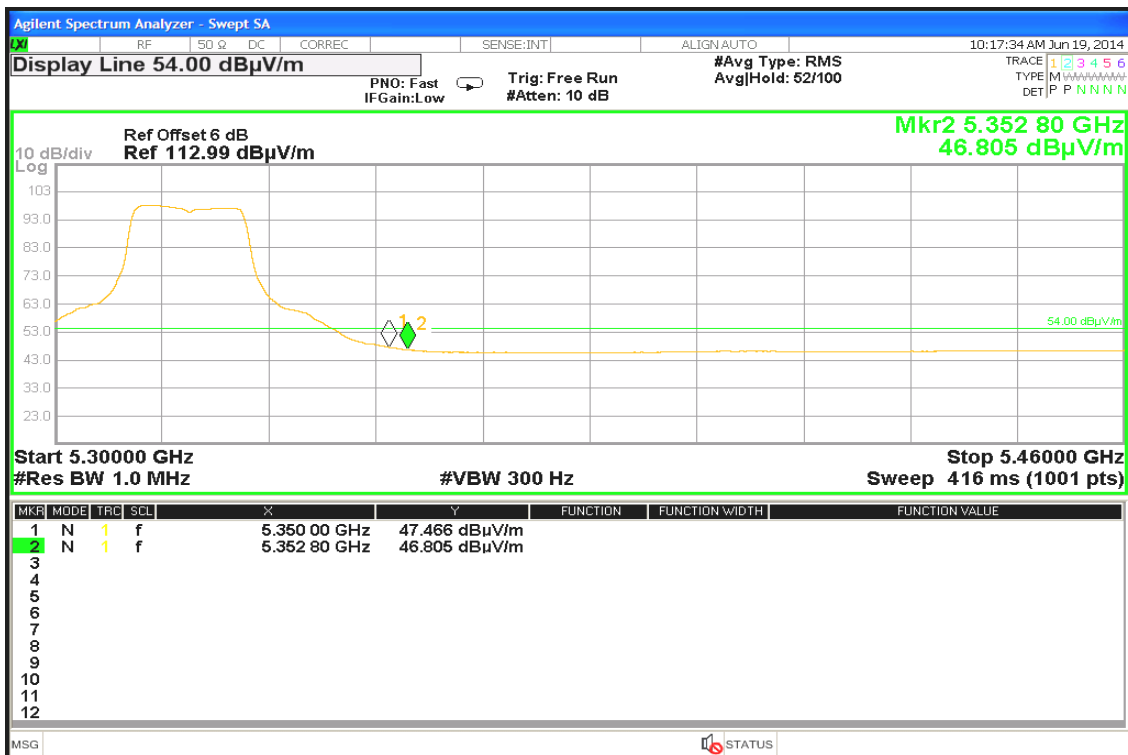
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal

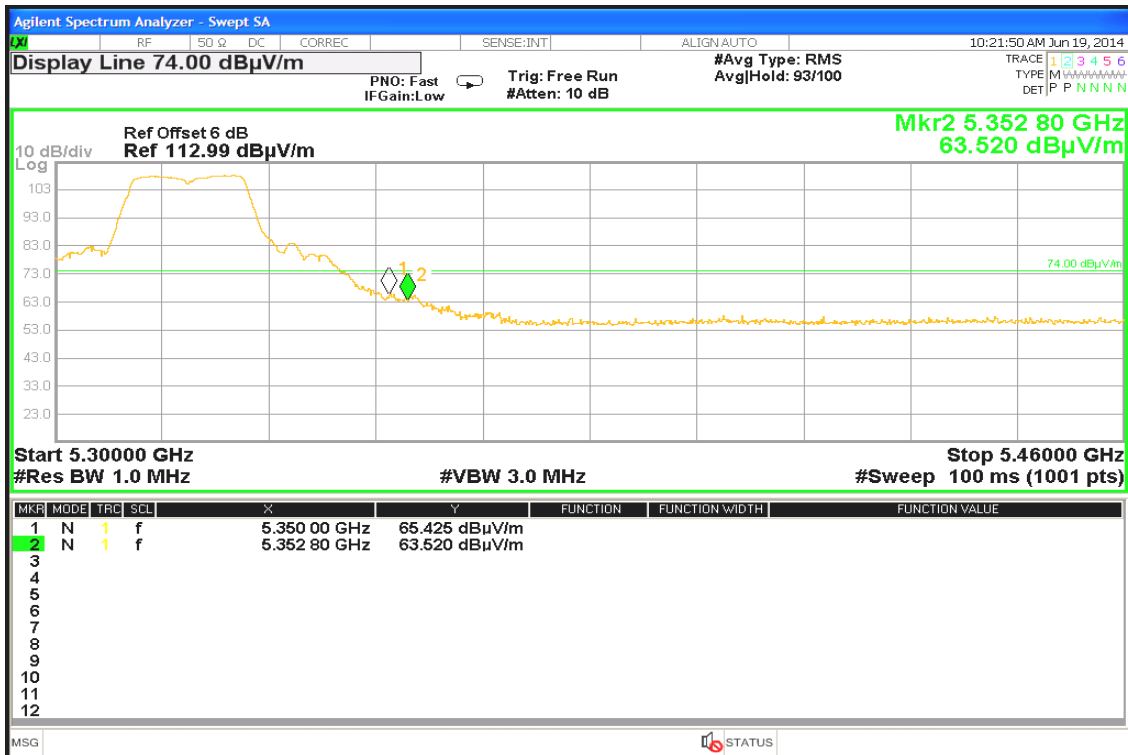




Band Edges / IEEE 802.11n HT20 / 5260-5320MHz / CH High

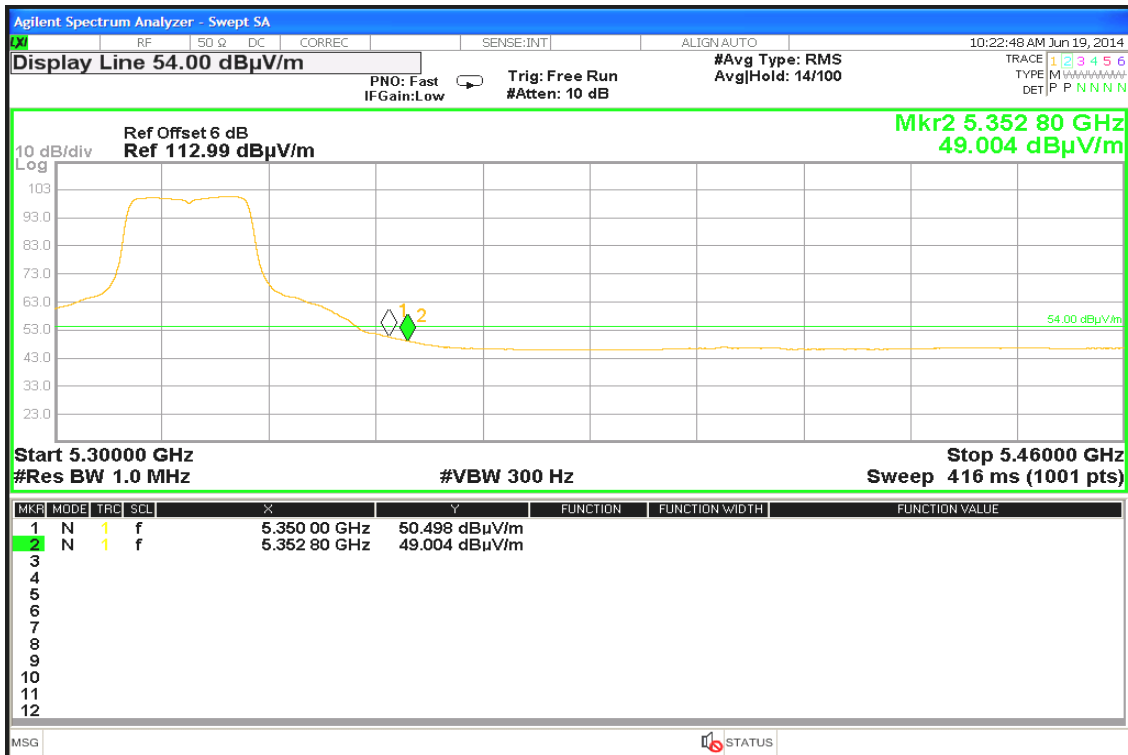
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

Polarity: Vertical





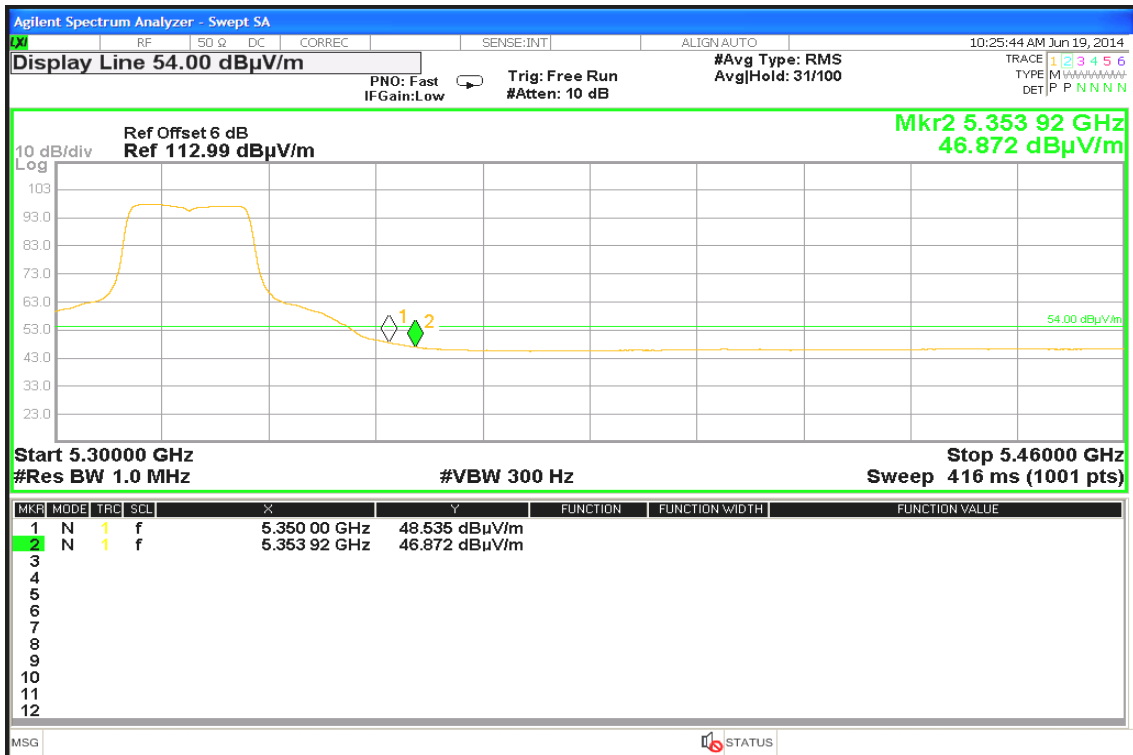
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal





Band Edges / IEEE 802.11n HT40 / 5270-5310MHz / CH High

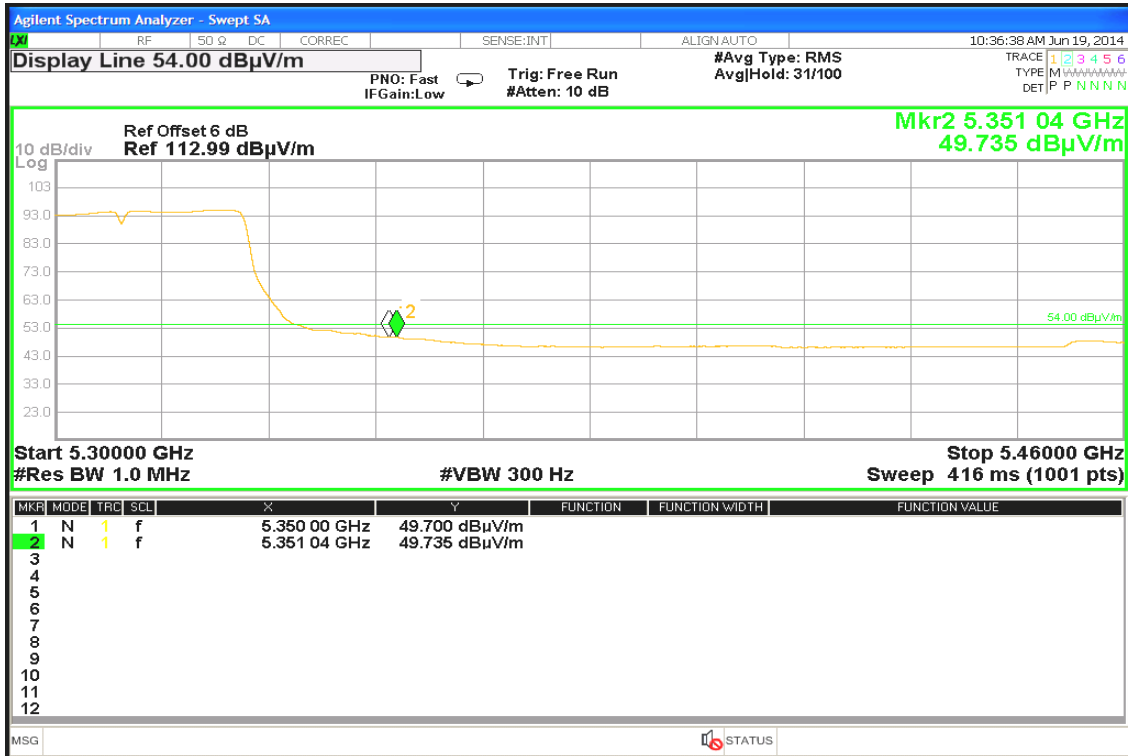
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

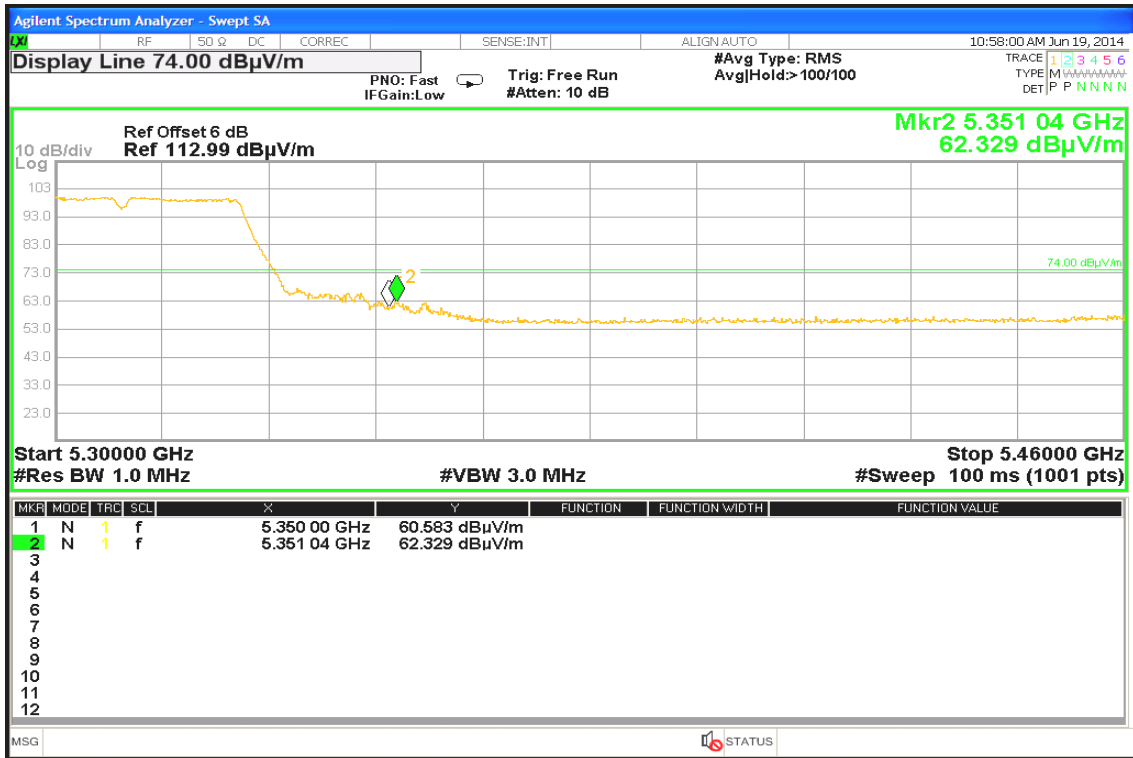
Polarity: Vertical





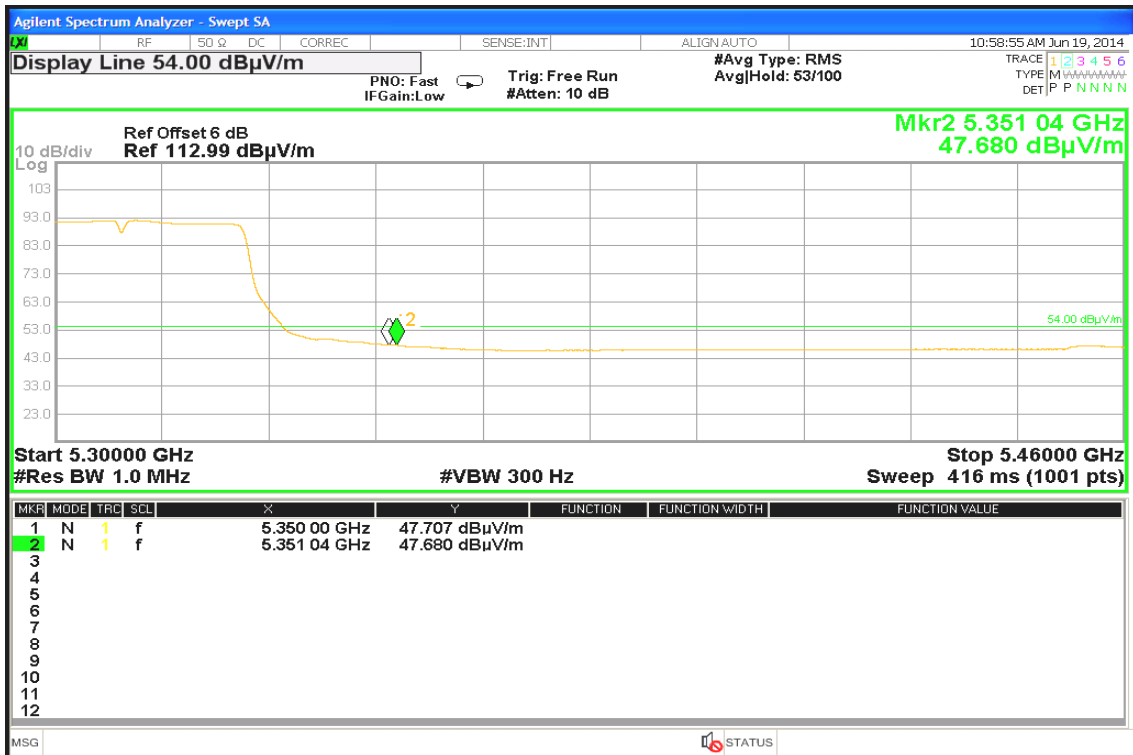
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal

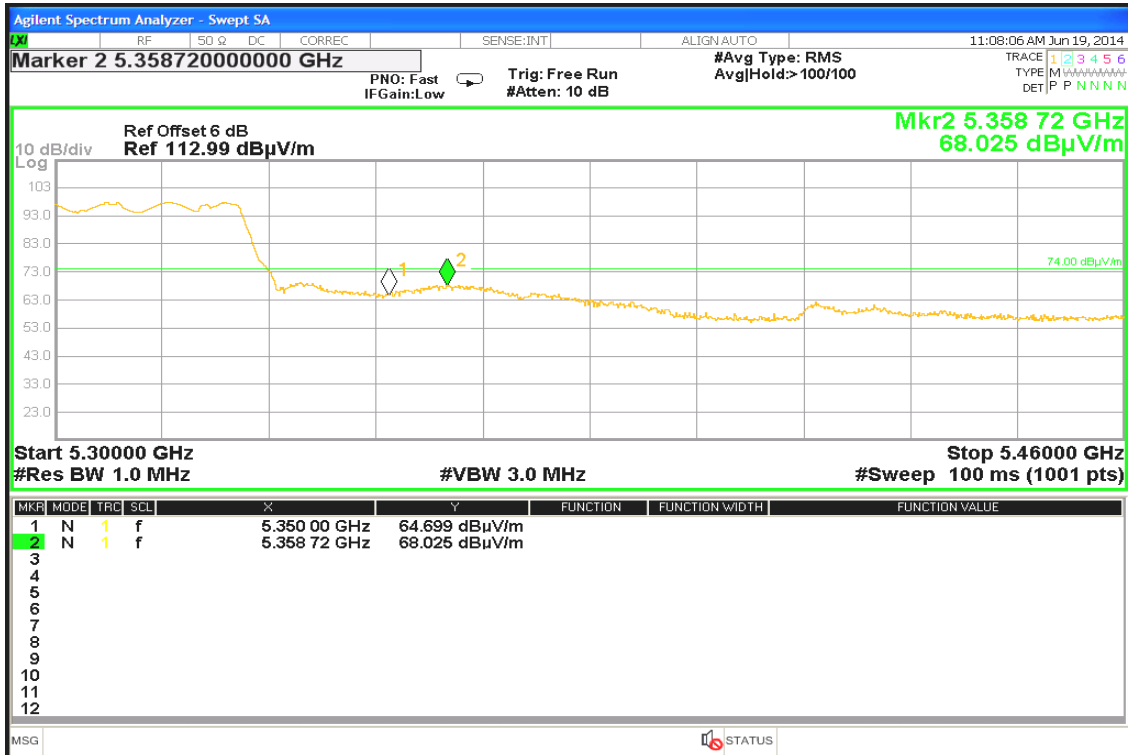




Band Edges / IEEE 802.11ac HT80 / 5290Hz / CH High

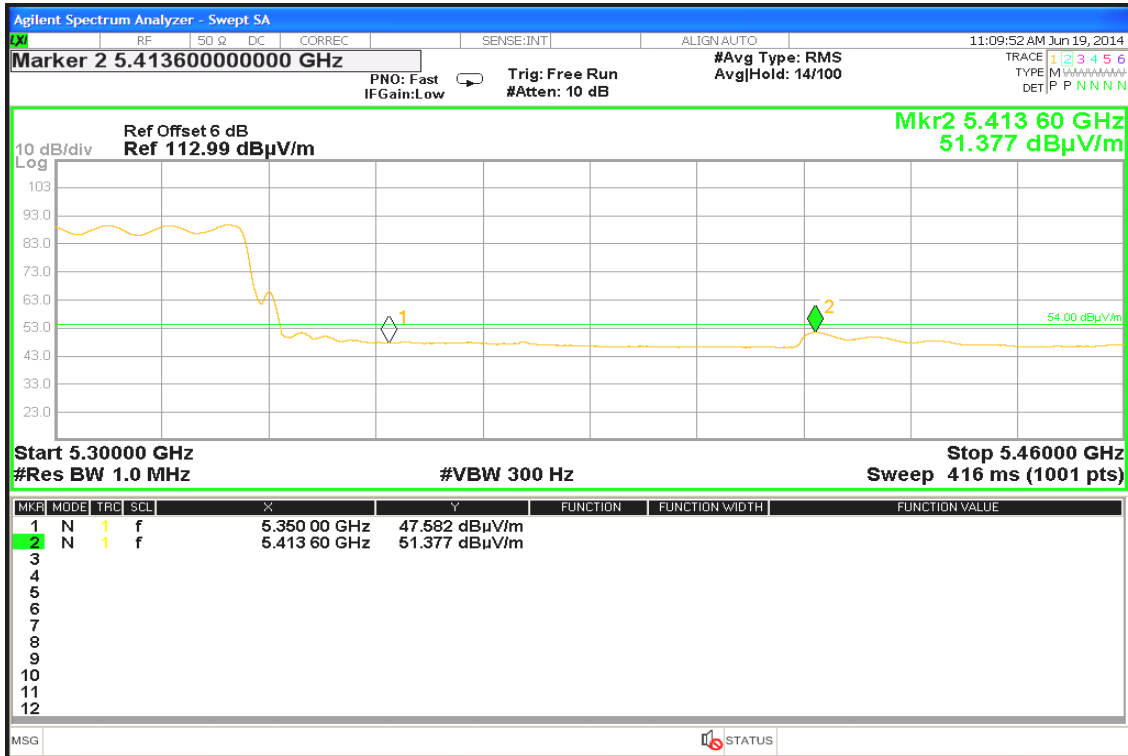
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

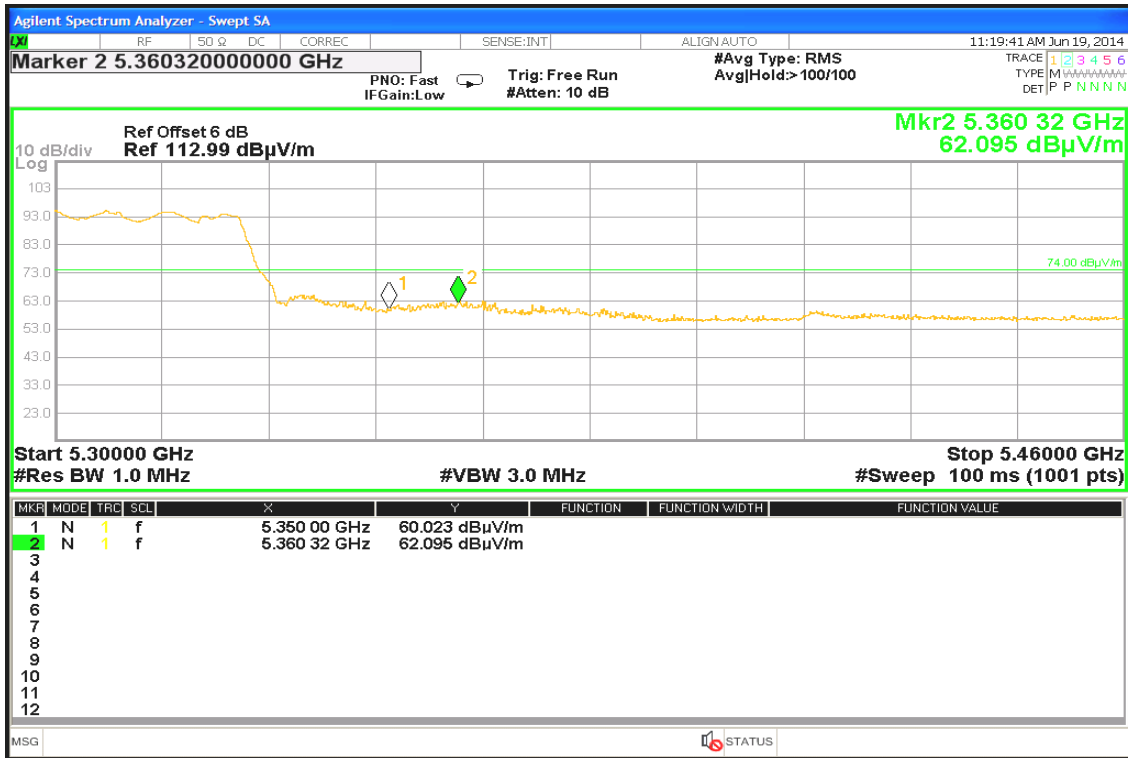
Polarity: Vertical





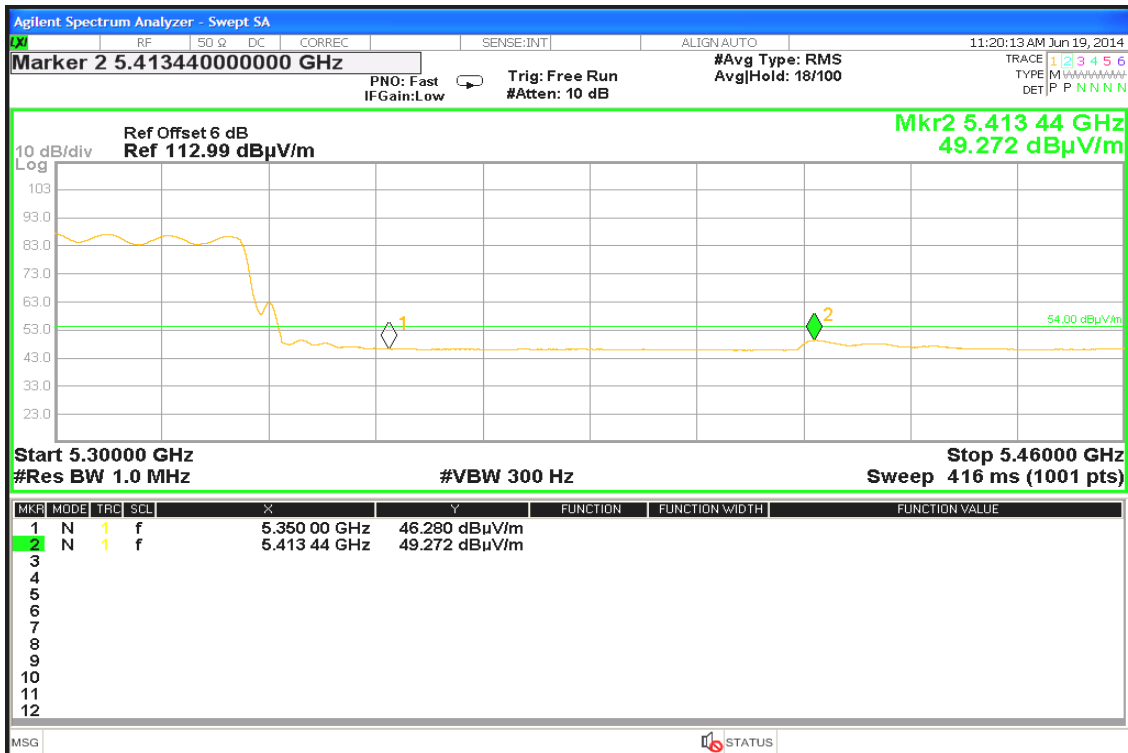
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal

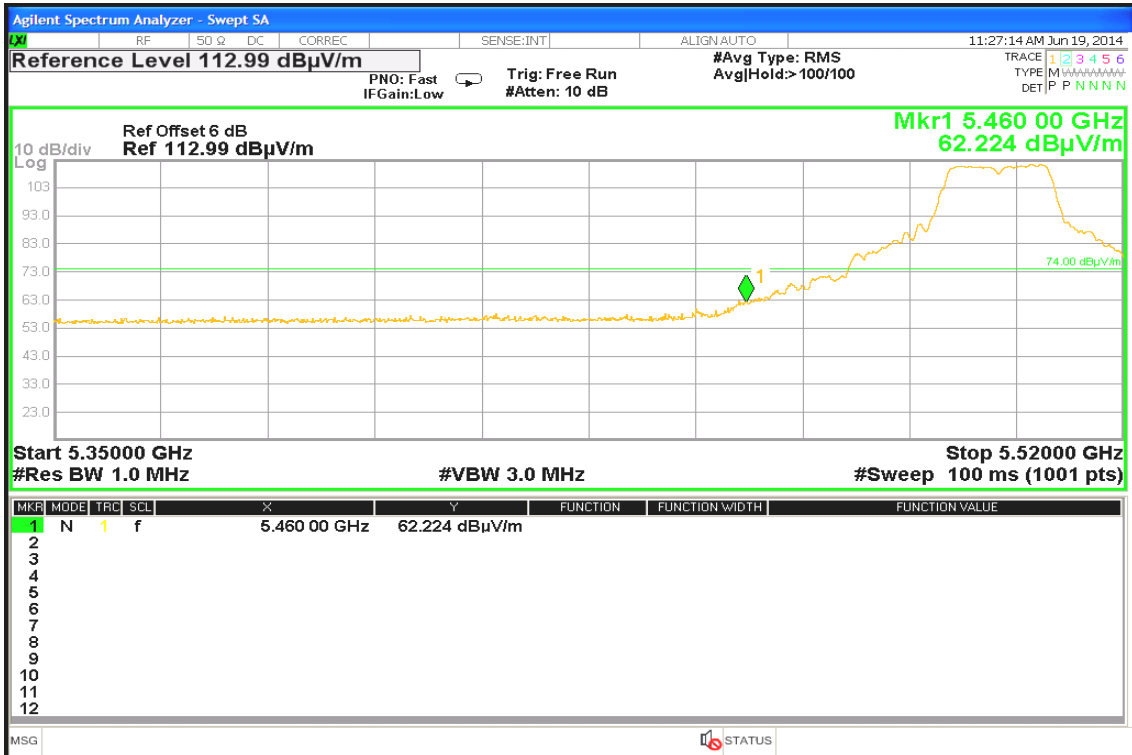




Band Edges / IEEE 802.11a / 5500-5700MHz / CH Low

Detector mode: Peak

Polarity: Vertical



Detector mode: Average

Polarity: Vertical





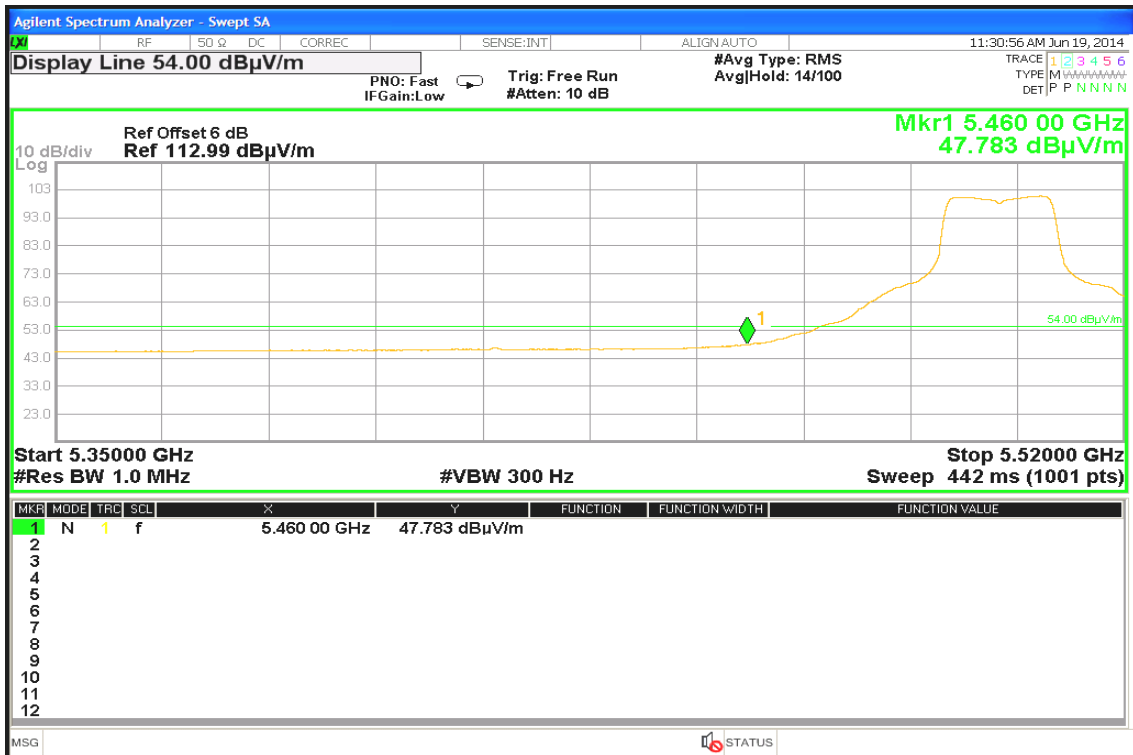
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal

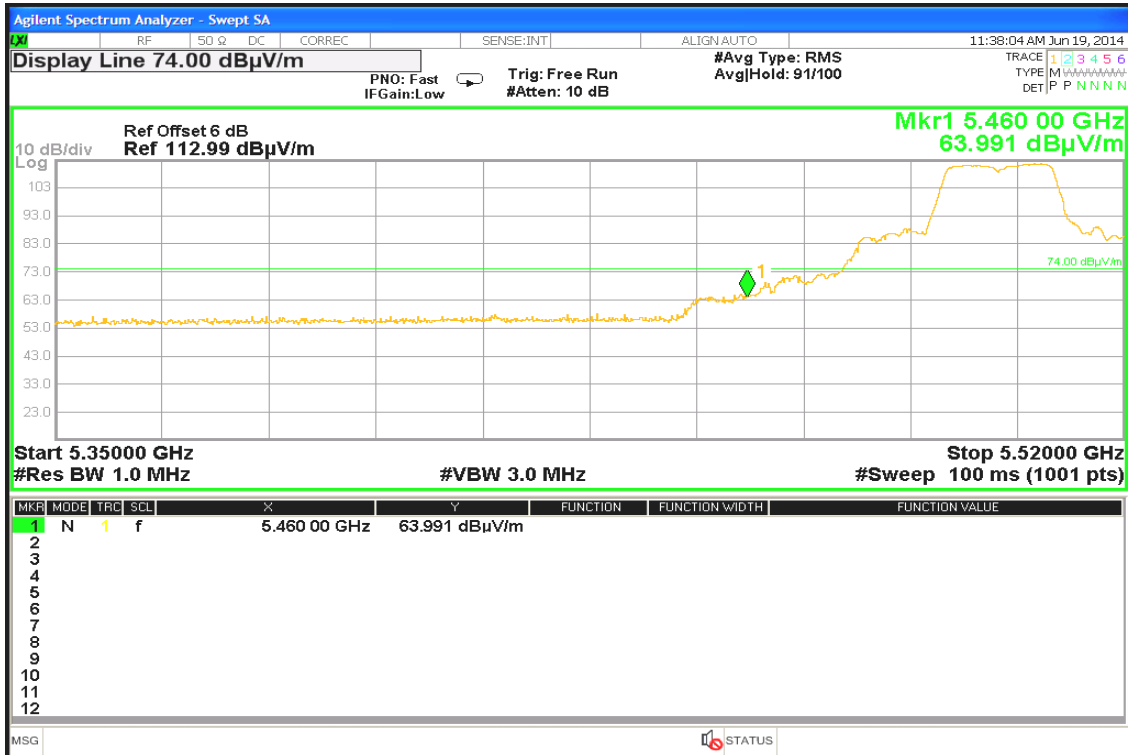




Band Edges / IEEE 802.11n HT20 / 5500-5700MHz / CH Low

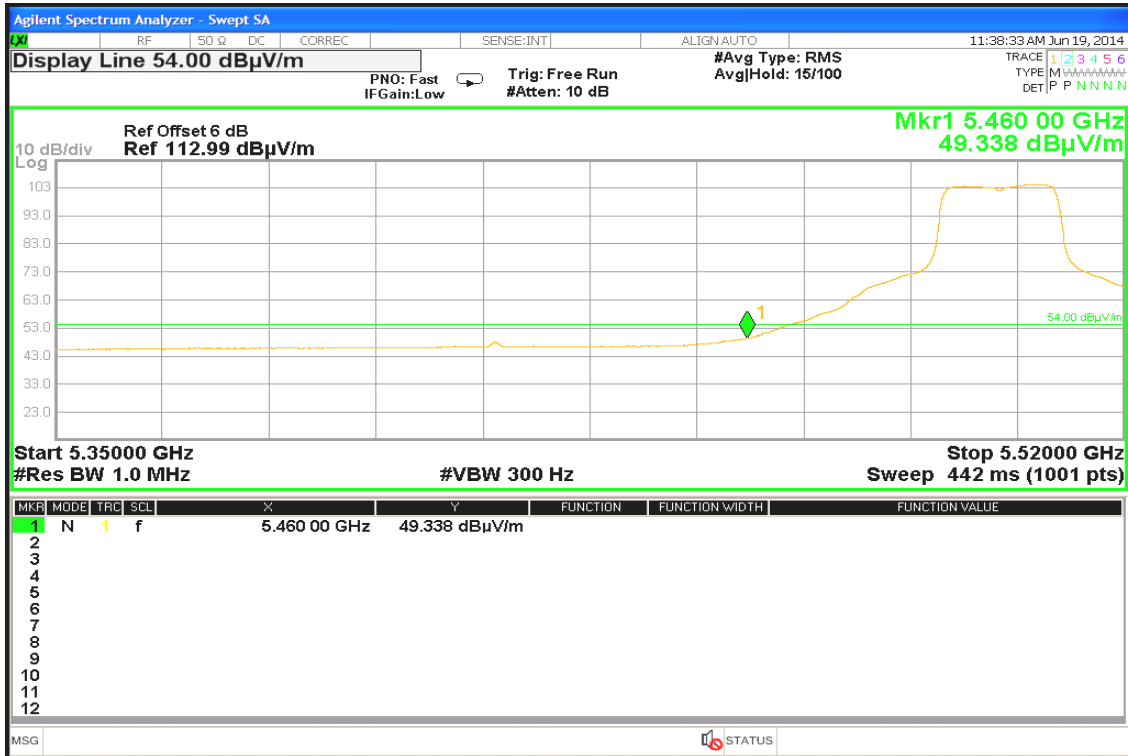
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

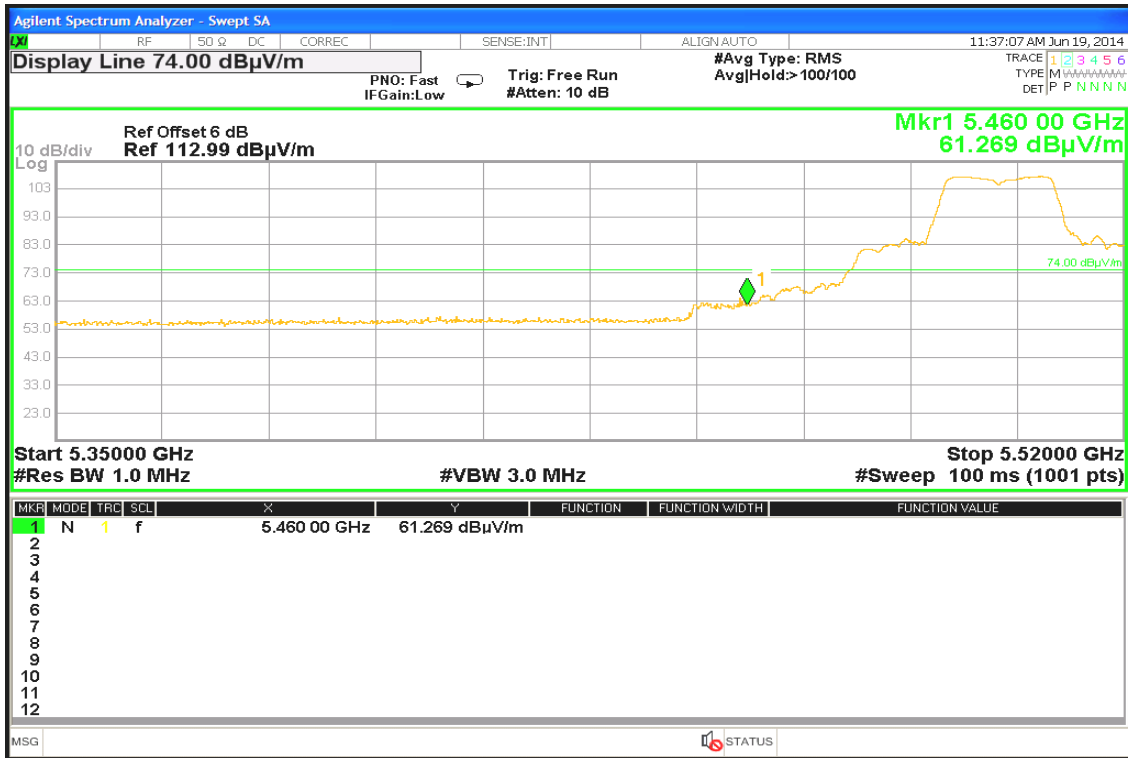
Polarity: Vertical





Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal

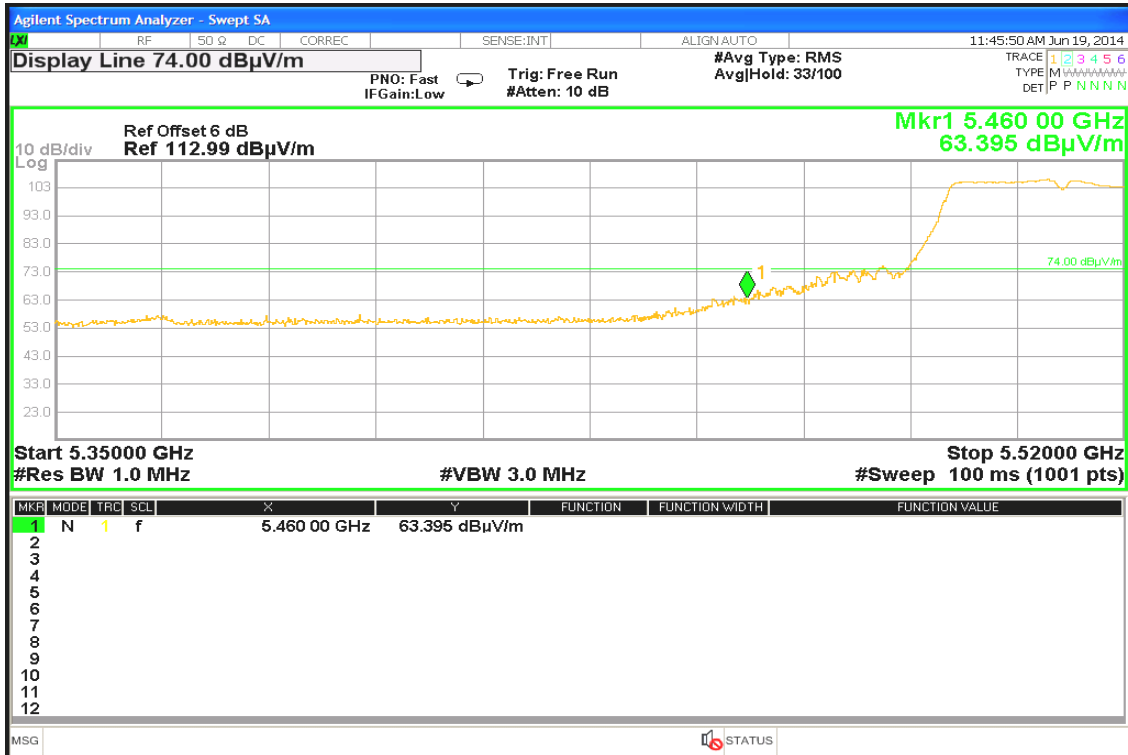




Band Edges / IEEE 802.11n HT40 / 5510-5670MHz / CH Low

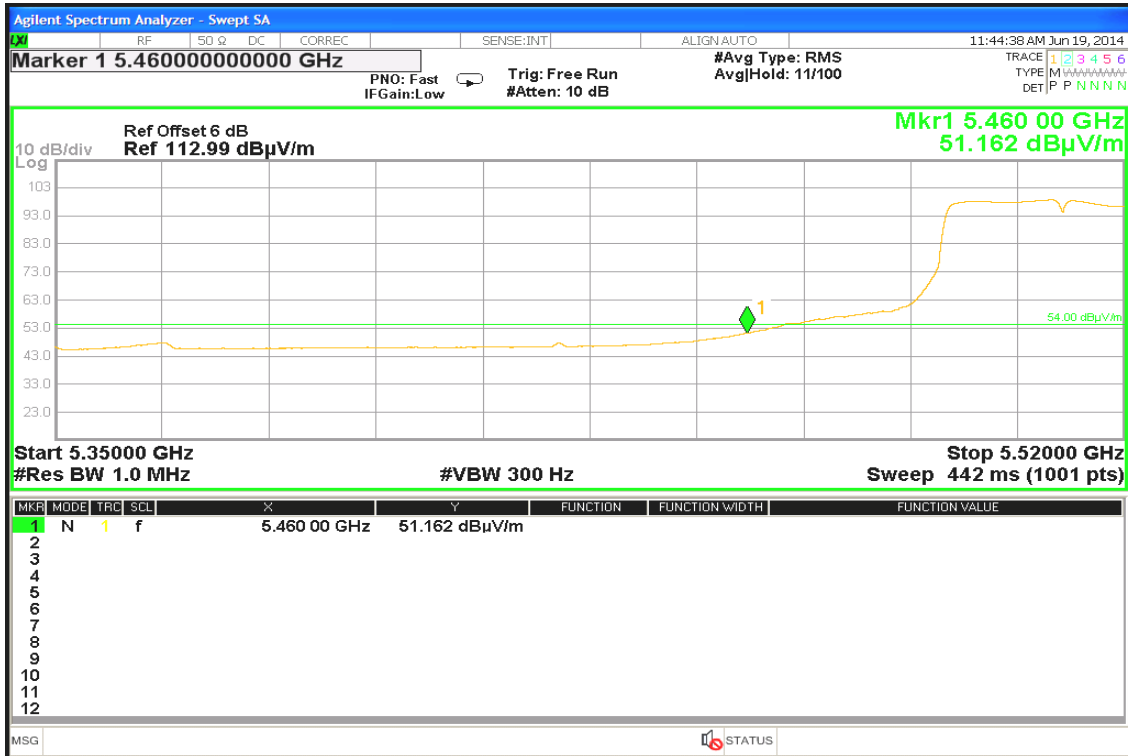
Detector mode: Peak

Polarity: Vertical



Detector mode: Average

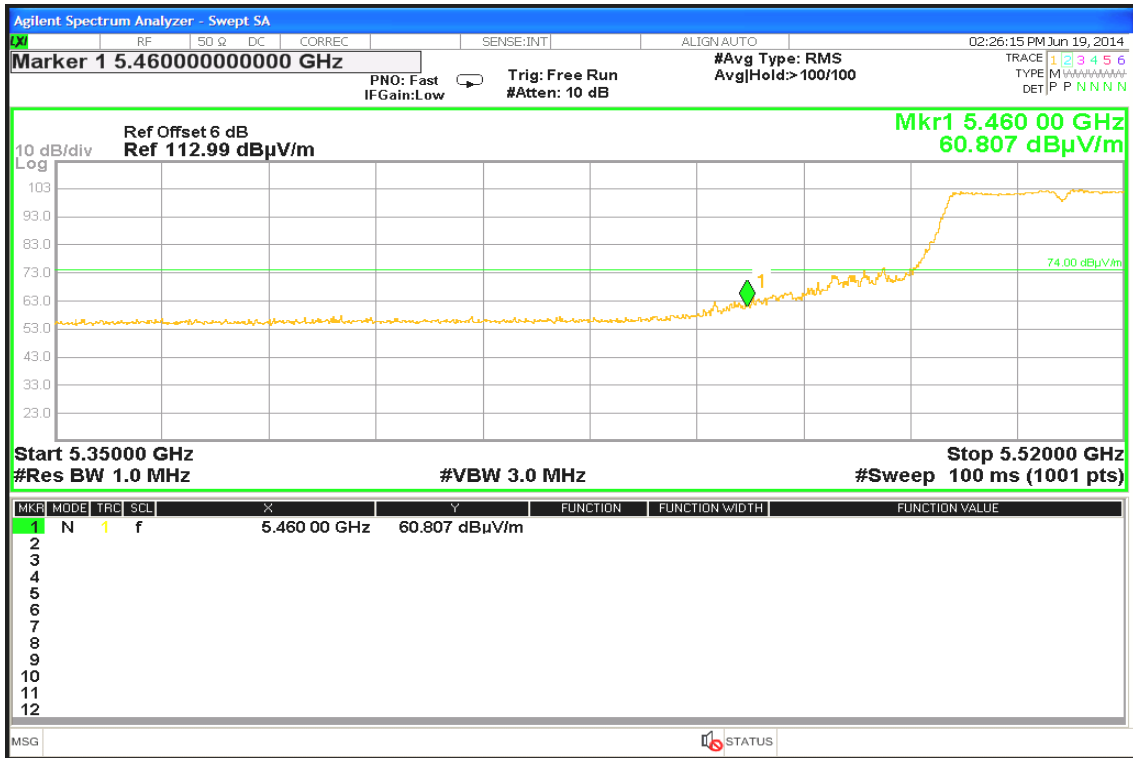
Polarity: Vertical





Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal





Band Edges / IEEE 802.11ac HT80 / 5530MHz / CH Low

Detector mode: Peak

Polarity: Vertical



Detector mode: Average

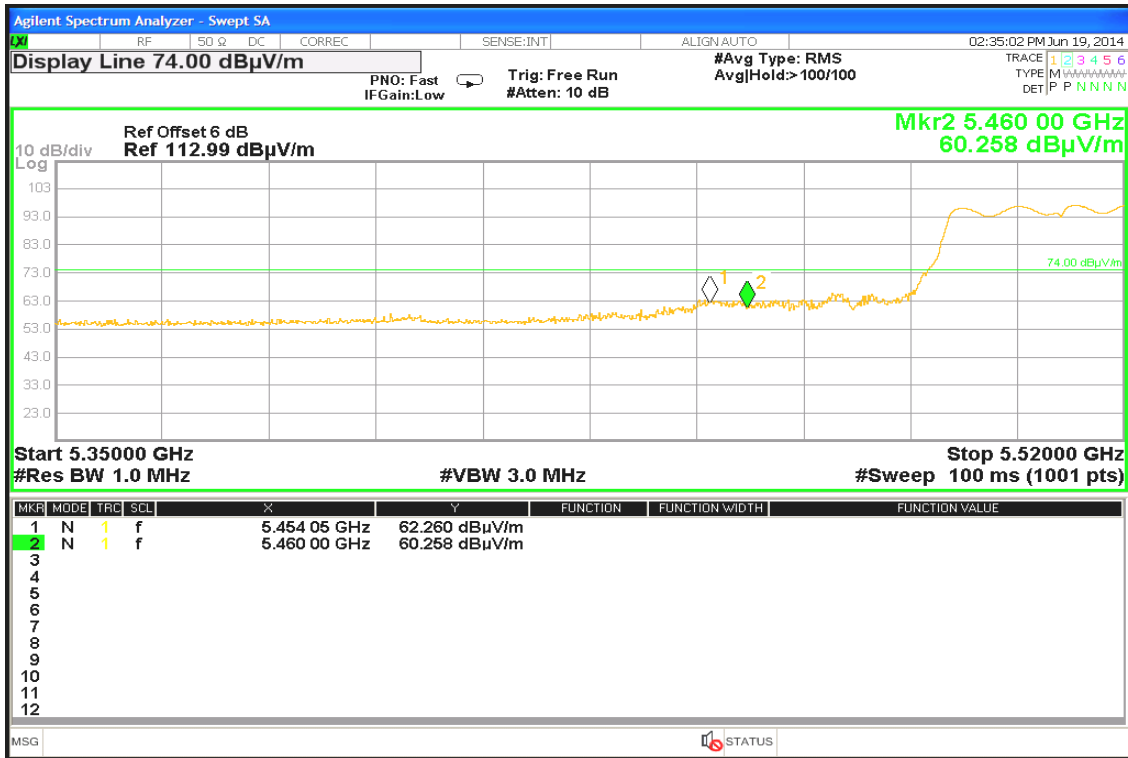
Polarity: Vertical





Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal





7.5 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.

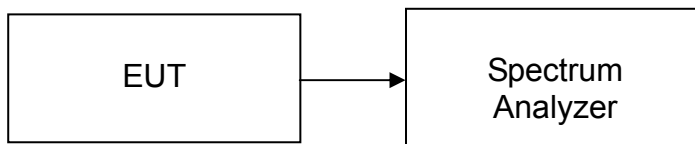
(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction 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 in the following setting as:

UNII Band I/IIA/IIC:

RBW = 1MHz, VBW = 3MHz, Span = Sweep= AUTO

UNII Band III:

RBW = 510kHz, VBW = 1.5MHz, 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 / 5180 ~ 5240MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
Low	5180	8.48	17.00	PASS
Mid	5220	8.68	17.00	PASS
High	5240	9.12	17.00	PASS

Test mode: IEEE 802.11n HT20 / 5180 ~ 5240MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
Low	5180	9.85	17.00	PASS
Mid	5220	9.53	17.00	PASS
High	5240	9.01	17.00	PASS

Test mode: IEEE 802.11n HT40 / 5190 ~ 5230MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
Low	5190	8.47	17.00	PASS
High	5230	7.46	17.00	PASS

Test mode: IEEE 802.11ac HT80 / 5210MHz

Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
5210	4.92	17.00	PASS



Test mode: IEEE 802.11a / 5260 ~ 5320MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
Low	5260	9.78	11.00	PASS
Mid	5280	10.22	11.00	PASS
High	5320	10.09	11.00	PASS

Test mode: IEEE 802.11n HT20 / 5260 ~ 5320MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
Low	5260	10.15	11.00	PASS
Mid	5280	10.17	11.00	PASS
High	5320	9.72	11.00	PASS

Test mode: IEEE 802.11n HT40 / 5270 ~ 5310MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
Low	5270	9.57	11.00	PASS
High	5310	8.90	11.00	PASS

Test mode: IEEE 802.11ac HT80 / 5290MHz

Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
5290	6.76	11.00	PASS



Test mode: IEEE 802.11a / 5500 ~ 5700MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
Low	5500	9.17	11.00	PASS
Mid	5580	10.25	11.00	PASS
High	5700	9.89	11.00	PASS

Test mode: IEEE 802.11n HT20 / 5500 ~ 5700MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
Low	5500	9.69	11.00	PASS
Mid	5580	9.81	11.00	PASS
High	5700	9.33	11.00	PASS

Test mode: IEEE 802.11n HT40 / 5510 ~ 5670MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
Low	5510	8.90	11.00	PASS
Mid	5550	9.35	11.00	PASS
High	5670	10.24	11.00	PASS

Test mode: IEEE 802.11ac HT80 / 5530MHz

Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
5530	5.83	11.00	PASS



Test mode: IEEE 802.11a / 5745 ~ 5825MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
Low	5745	10.66	30.00	PASS
Mid	5785	10.05	30.00	PASS
High	5825	10.62	30.00	PASS

Test mode: IEEE 802.11n HT20 / 5745 ~ 5825MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
Low	5745	10.44	30.00	PASS
Mid	5785	10.15	30.00	PASS
High	5825	10.63	30.00	PASS

Test mode: IEEE 802.11n HT40 / 5755 ~ 5795MHz

Channel	Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
Low	5755	8.42	30.00	PASS
High	5795	8.46	30.00	PASS

Test mode: IEEE 802.11ac HT80 / 5775MHz

Frequency (MHz)	PEAK POWER SPECTRAL DENSITY (dB)	Limit (dB)	Result
5775	5.86	30.00	PASS



Test Plot

IEEE 802.11a / 5180 ~ 5240MHz

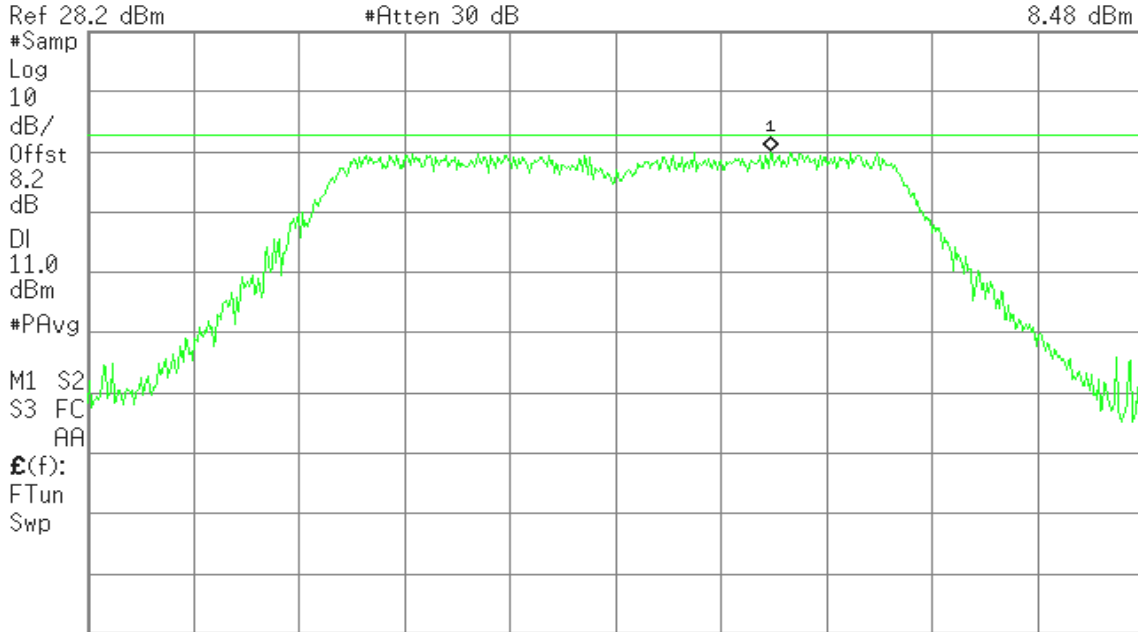
CH Low

Agilent

R L

Mkr1 5.184 40 GHz

8.48 dBm



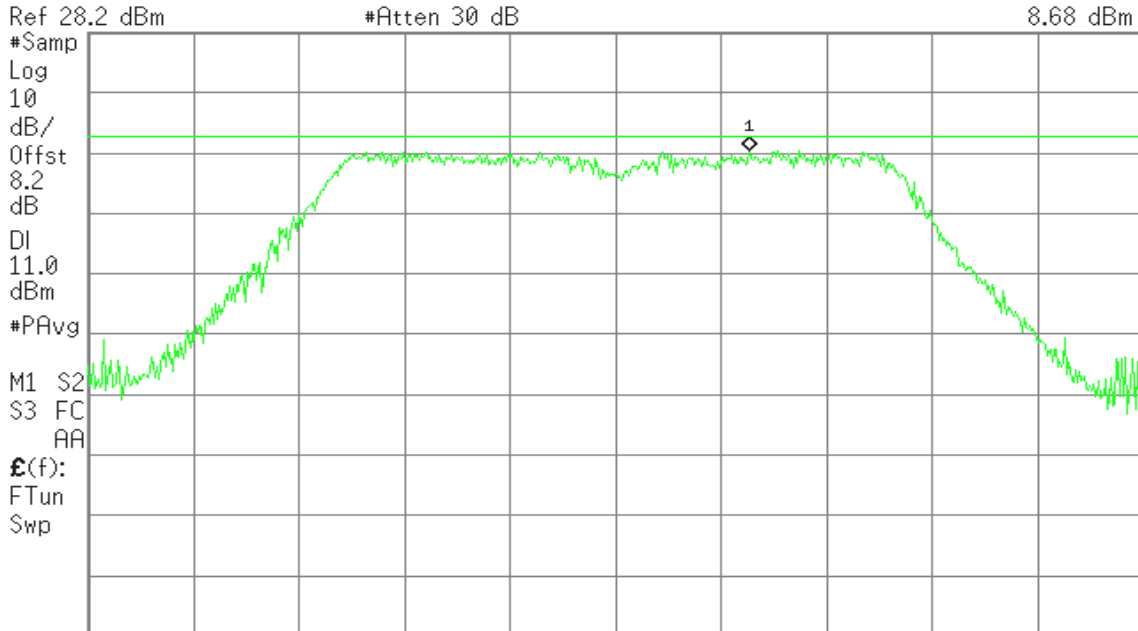
CH Mid

Agilent

R L

Mkr1 5.223 80 GHz

8.68 dBm



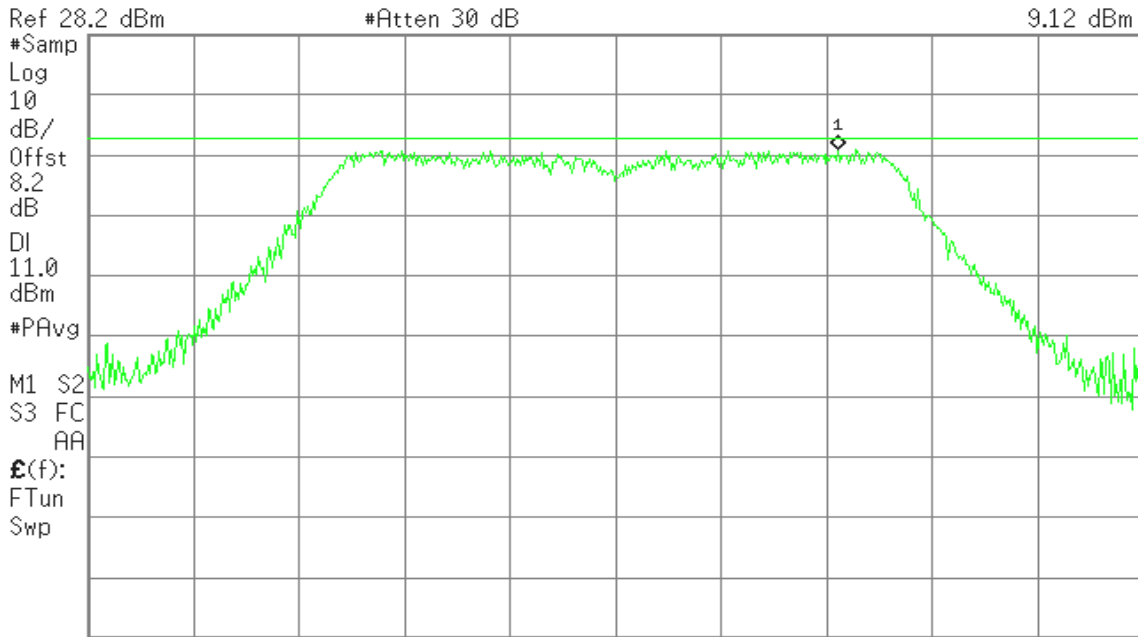


CH High

Agilent

R L

Mkr1 5.246 35 GHz
9.12 dBm



Center 5.240 00 GHz Span 30 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

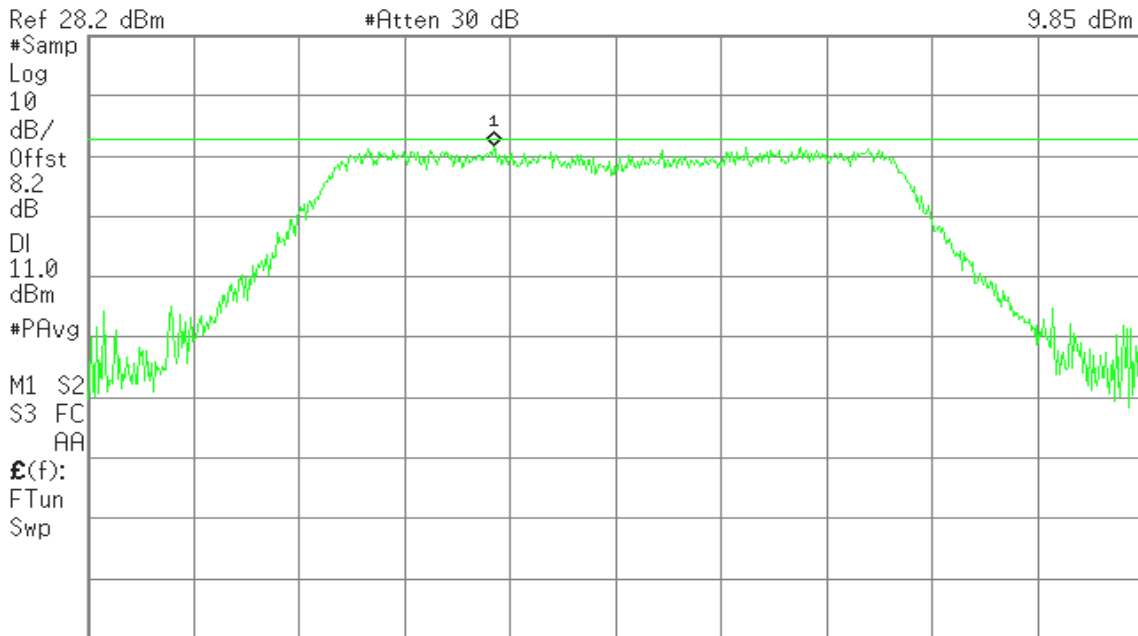
IEEE 802.11n HT20 / 5180 ~ 5240MHz

CH Low

Agilent

R L

Mkr1 5.176 55 GHz
9.85 dBm



Center 5.180 00 GHz Span 30 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

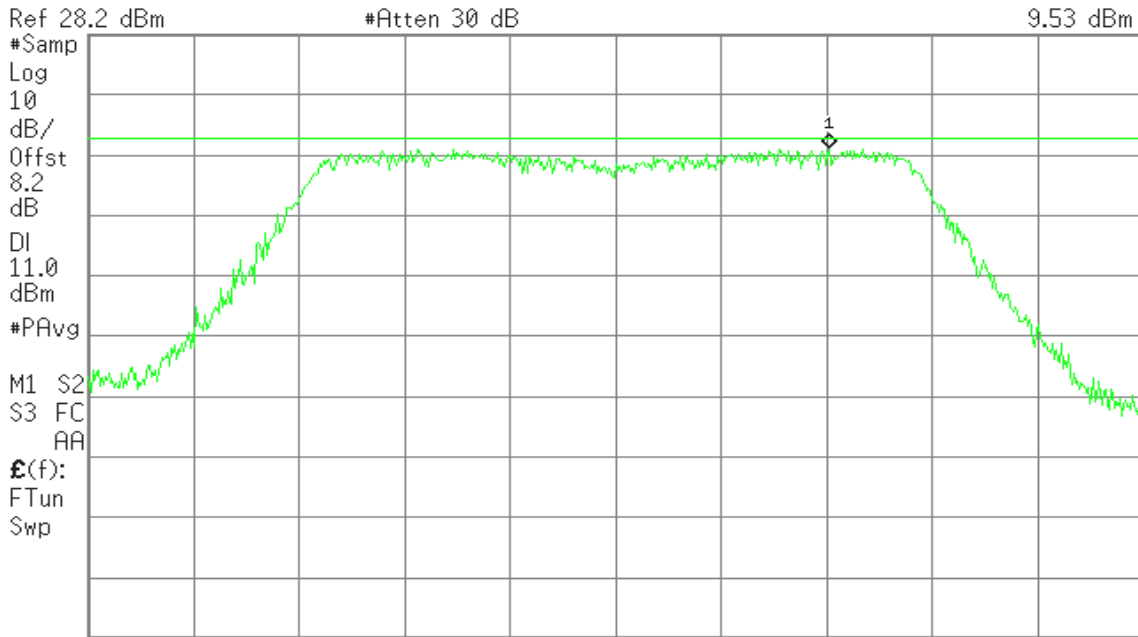


CH Mid

Agilent

R L

Mkr1 5.226 10 GHz
9.53 dBm



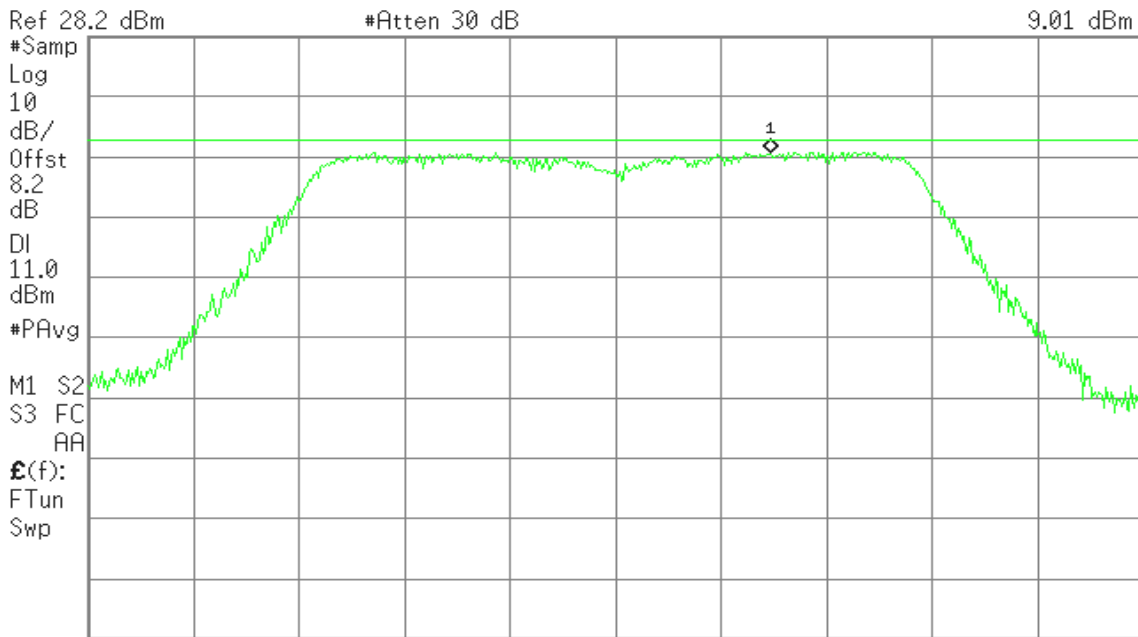
Center 5.220 00 GHz Span 30 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

CH High

Agilent

R L

Mkr1 5.244 40 GHz
9.01 dBm



Center 5.240 00 GHz Span 30 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)



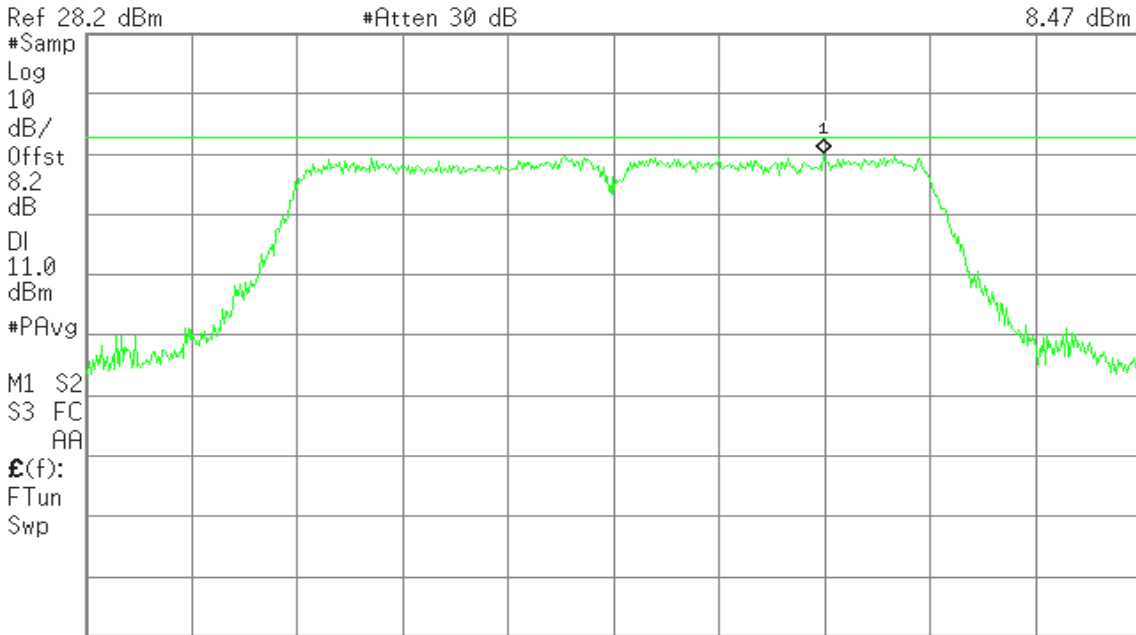
IEEE 802.11n HT40 / 5190 ~ 5230MHz

CH Low

Agilent

R L

Mkr1 5.201 9 GHz
8.47 dBm



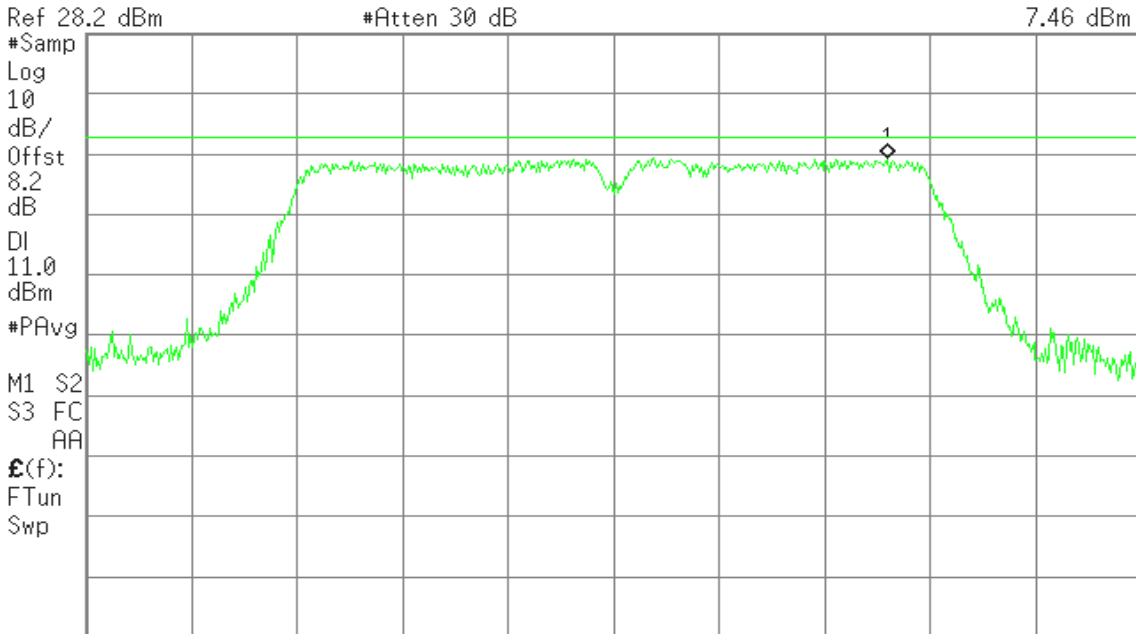
Center 5.190 0 GHz Span 60 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

CH High

Agilent

R T

Mkr1 5.245 6 GHz
7.46 dBm



Center 5.230 0 GHz Span 60 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

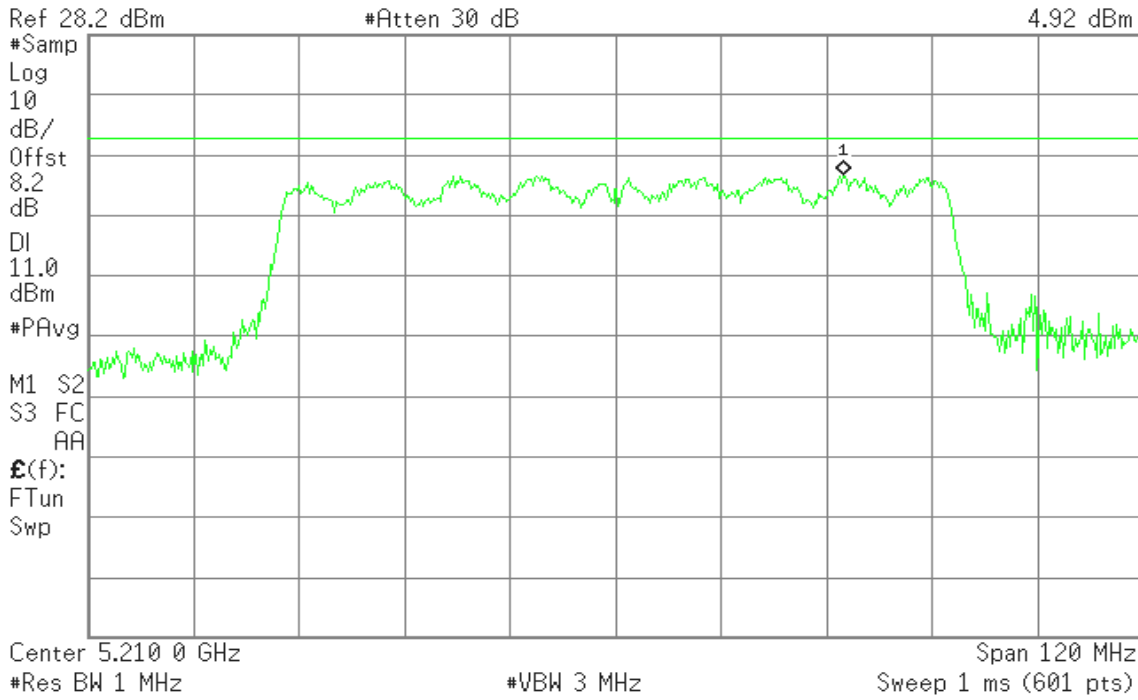


IEEE 802.11ac HT80 / 5210MHz

Agilent

R L

Mkr1 5.236 0 GHz
4.92 dBm





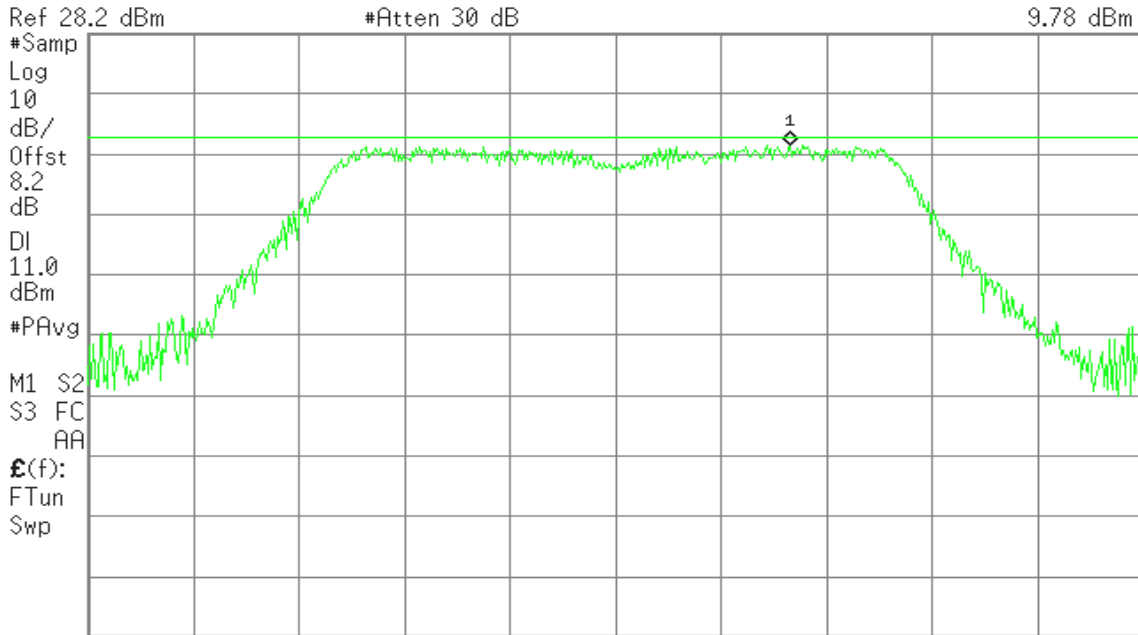
IEEE 802.11a / 5260 ~ 5320MHz

CH Low

Agilent

R L

Mkr1 5.264 95 GHz
9.78 dBm



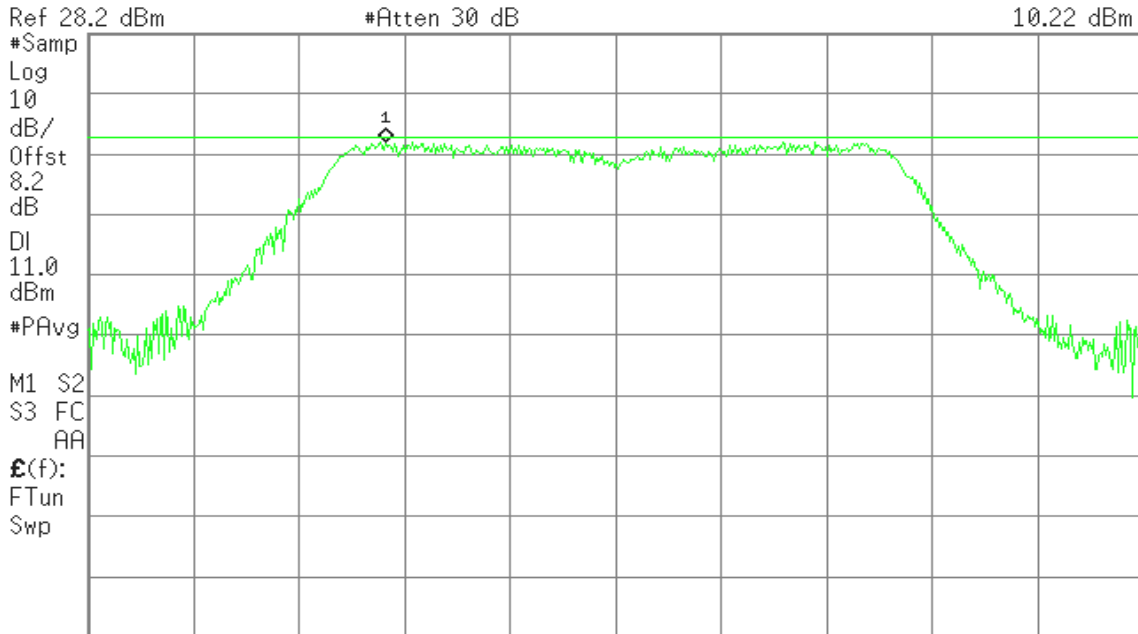
Center 5.260 00 GHz Span 30 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

CH Mid

Agilent

R L

Mkr1 5.273 45 GHz
10.22 dBm



Center 5.280 00 GHz Span 30 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

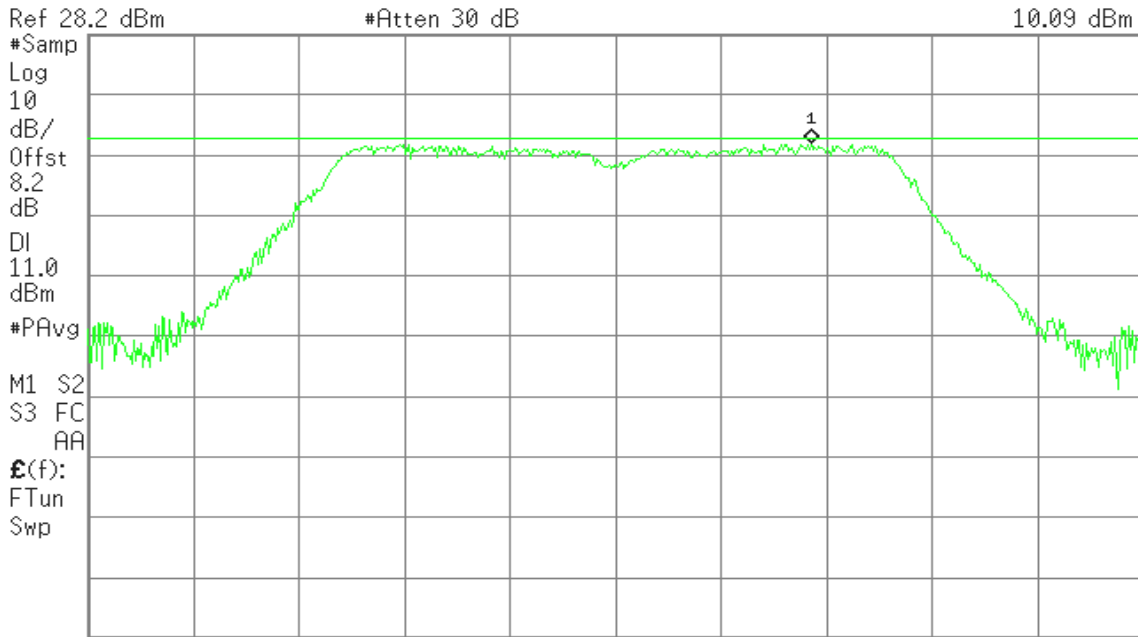


CH High

Agilent

R L

Mkr1 5.325 55 GHz
10.09 dBm



Center 5.320 00 GHz Span 30 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

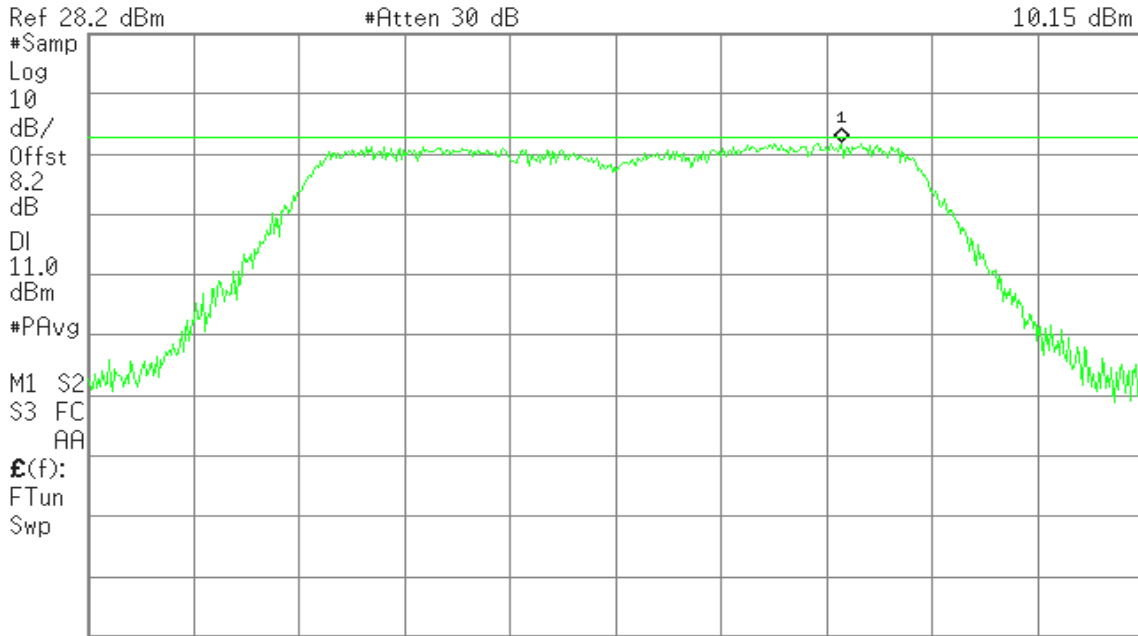
IEEE 802.11n HT20 / 5260 ~ 5320MHz

CH Low

Agilent

R L

Mkr1 5.266 45 GHz
10.15 dBm



Center 5.260 00 GHz Span 30 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

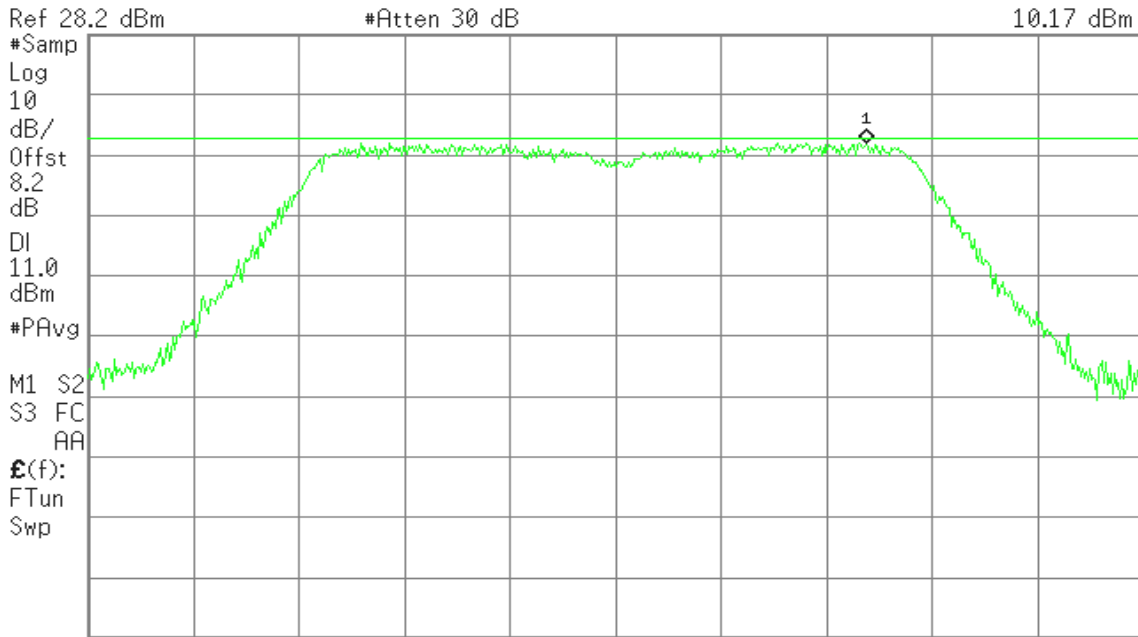


CH Mid

Agilent

R L

Mkr1 5.287 15 GHz
10.17 dBm



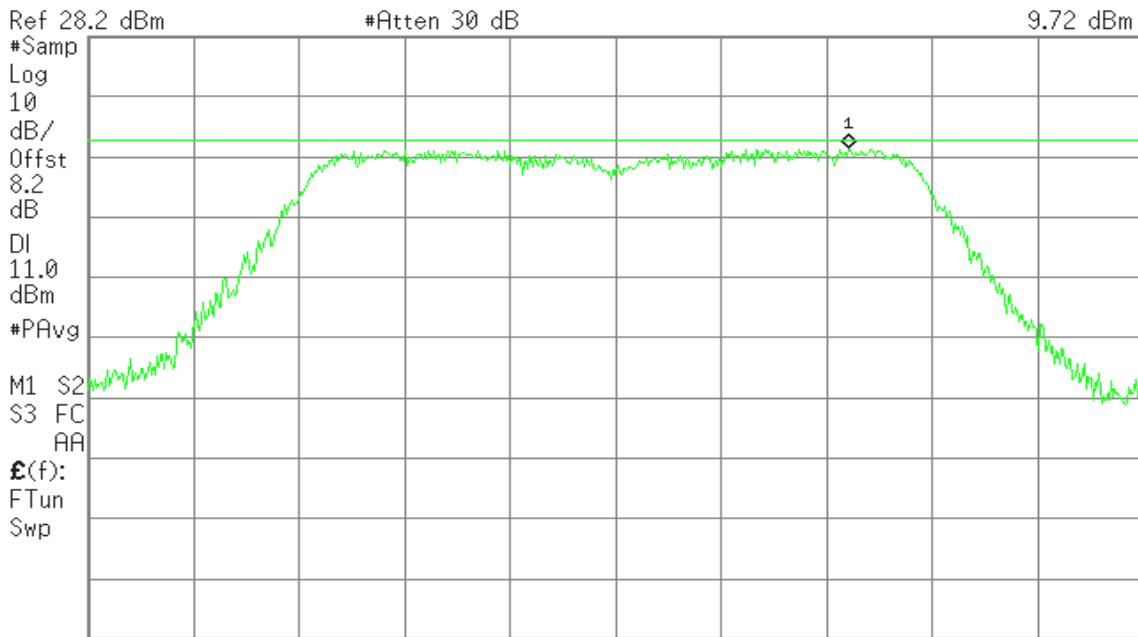
Center 5.280 00 GHz Span 30 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

CH High

Agilent

R L

Mkr1 5.326 65 GHz
9.72 dBm



Center 5.320 00 GHz Span 30 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)



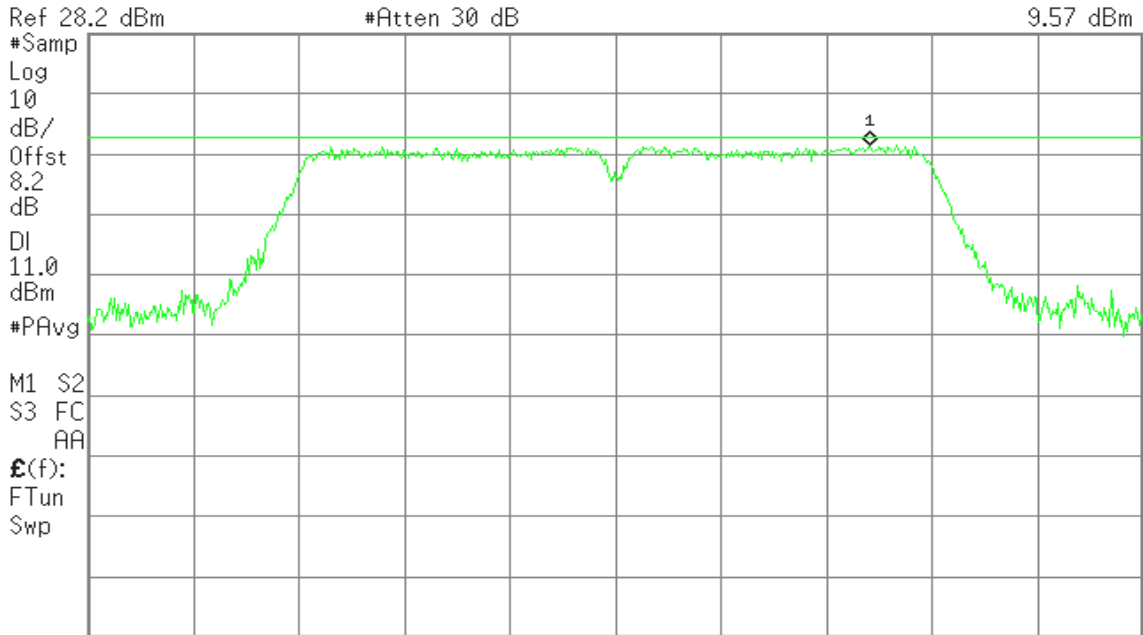
IEEE 802.11n HT40 / 5270 ~ 5310MHz

CH Low

Agilent

R L

Mkr1 5.324 5 GHz
9.57 dBm



Center 5.310 0 GHz Span 60 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

CH High

Agilent

R L

Mkr1 5.523 3 GHz
8.90 dBm



Center 5.510 0 GHz Span 60 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)



IEEE 802.11ac HT80 / 5290MHz

Agilent

R L

Mkr1 5.307 8 GHz
6.76 dBm

Ref 28.2 dBm

#Atten 30 dB

#Samp

Log

10

dB/

Offst

8.2

dB

DI

11.0

dBm

#PAvg

M1 S2

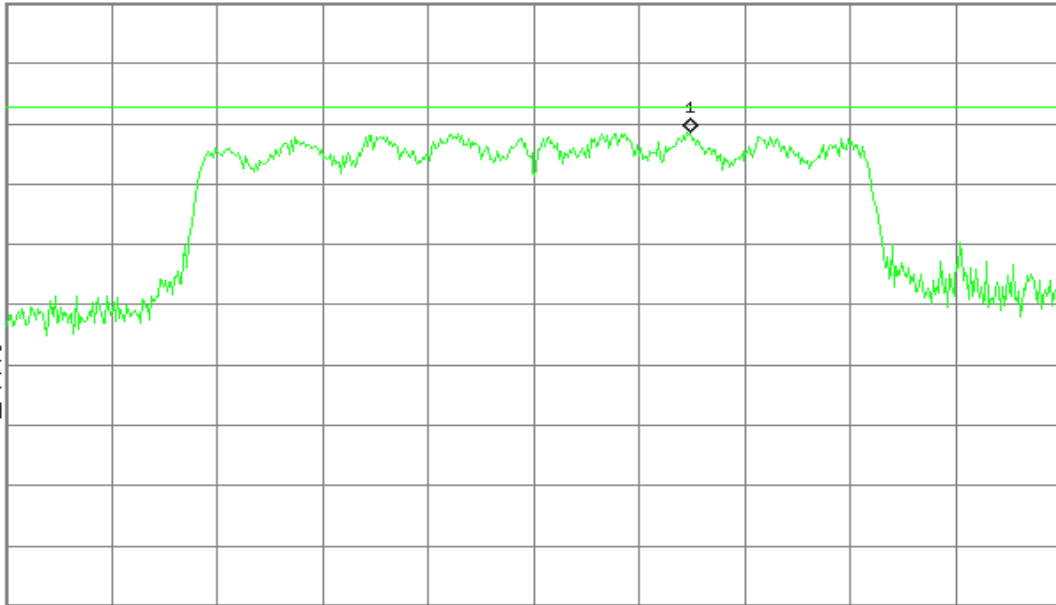
S3 FC

AA

£(f):

FTun

Swp



Center 5.290 0 GHz

#Res BW 1 MHz

#VBW 3 MHz

Span 120 MHz

Sweep 1 ms (601 pts)



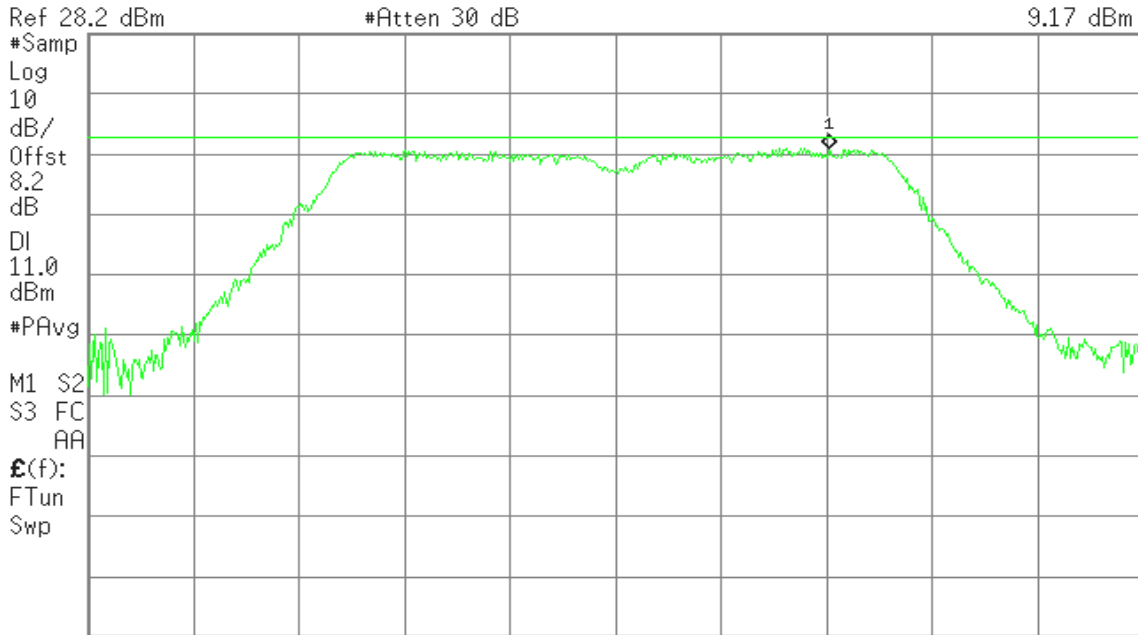
IEEE 802.11a / 5500 ~ 5700MHz

CH Low

Agilent

R L

Mkr1 5.506 10 GHz
9.17 dBm



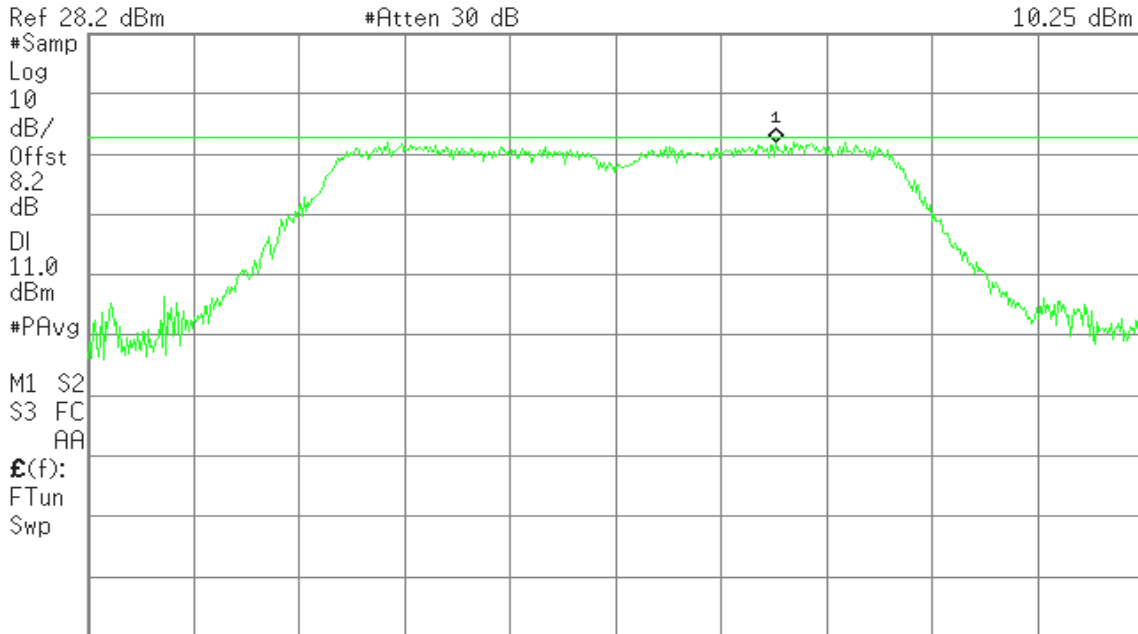
Center 5.500 00 GHz Span 30 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

CH Mid

Agilent

R T

Mkr1 5.584 55 GHz
10.25 dBm



Center 5.580 00 GHz Span 30 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)



CH High

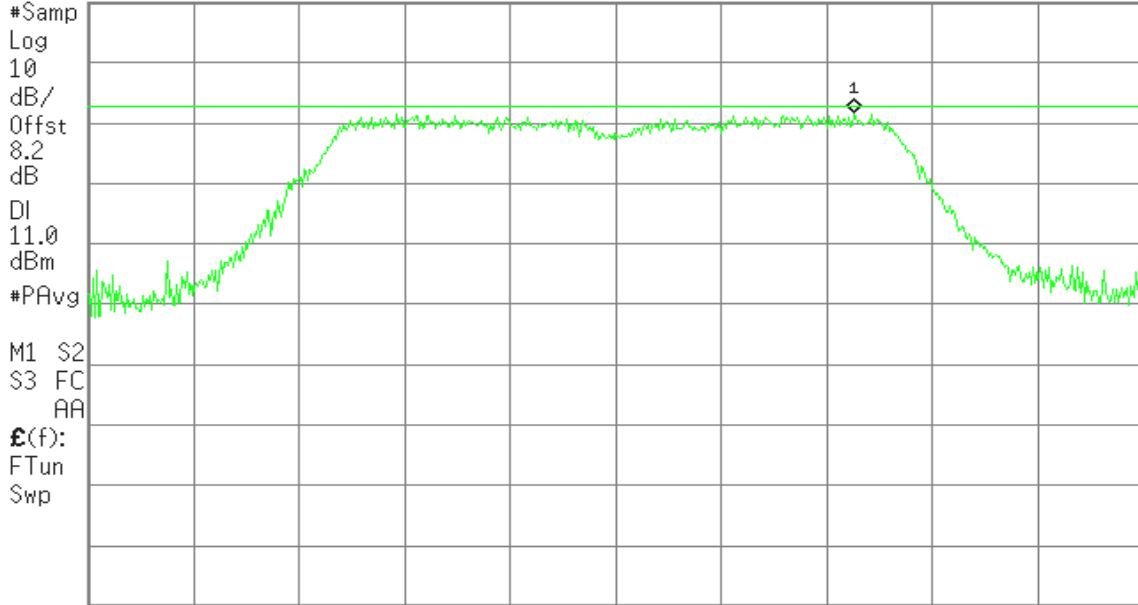
Agilent

R L

Mkr1 5.706 80 GHz
9.89 dBm

Ref 28.2 dBm

#Atten 30 dB



Center 5.700 00 GHz

Span 30 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

IEEE 802.11n HT20 / 5500 ~ 5700MHz

CH Low

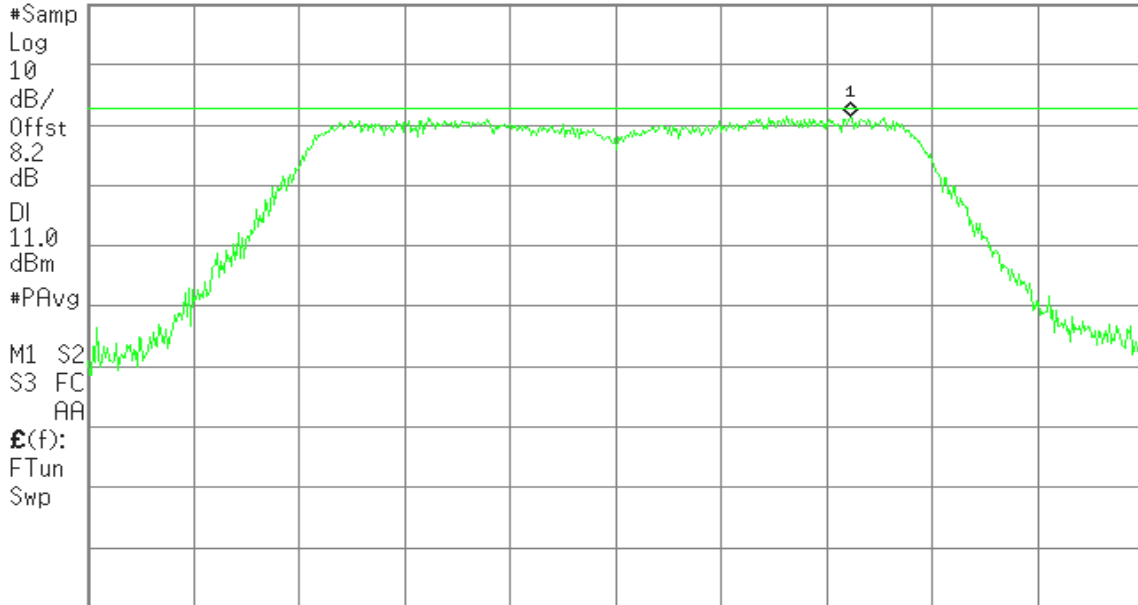
Agilent

R L

Mkr1 5.506 70 GHz
9.69 dBm

Ref 28.2 dBm

#Atten 30 dB



Center 5.500 00 GHz

Span 30 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)

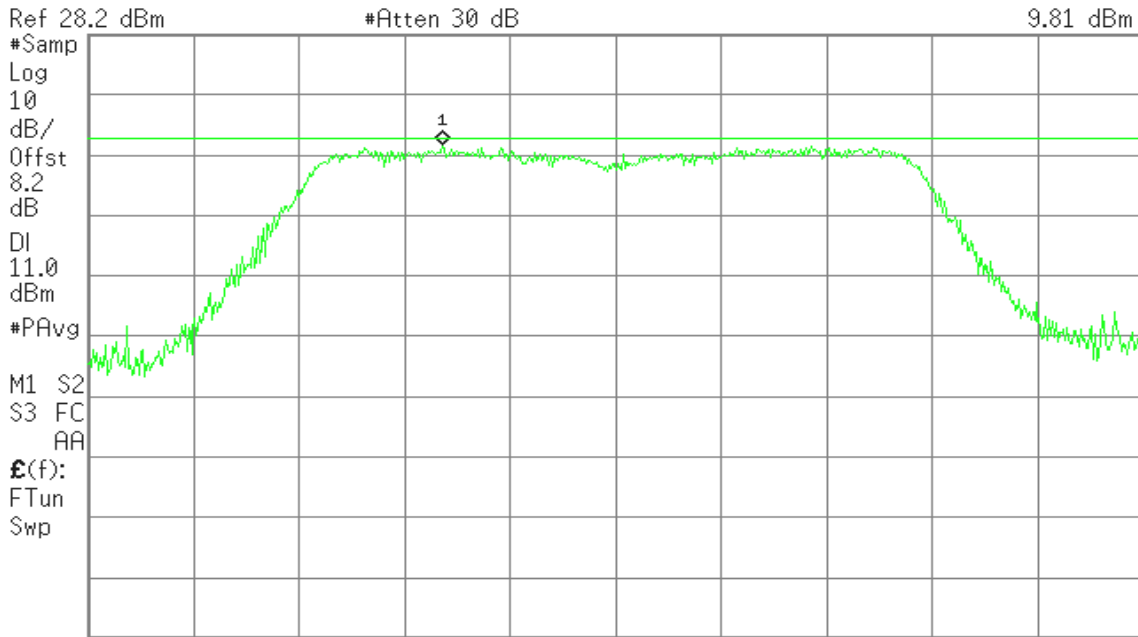


CH Mid

Agilent

R L

Mkr1 5.575 10 GHz
9.81 dBm



Center 5.580 00 GHz

Span 30 MHz

#Res BW 1 MHz

#VBW 3 MHz

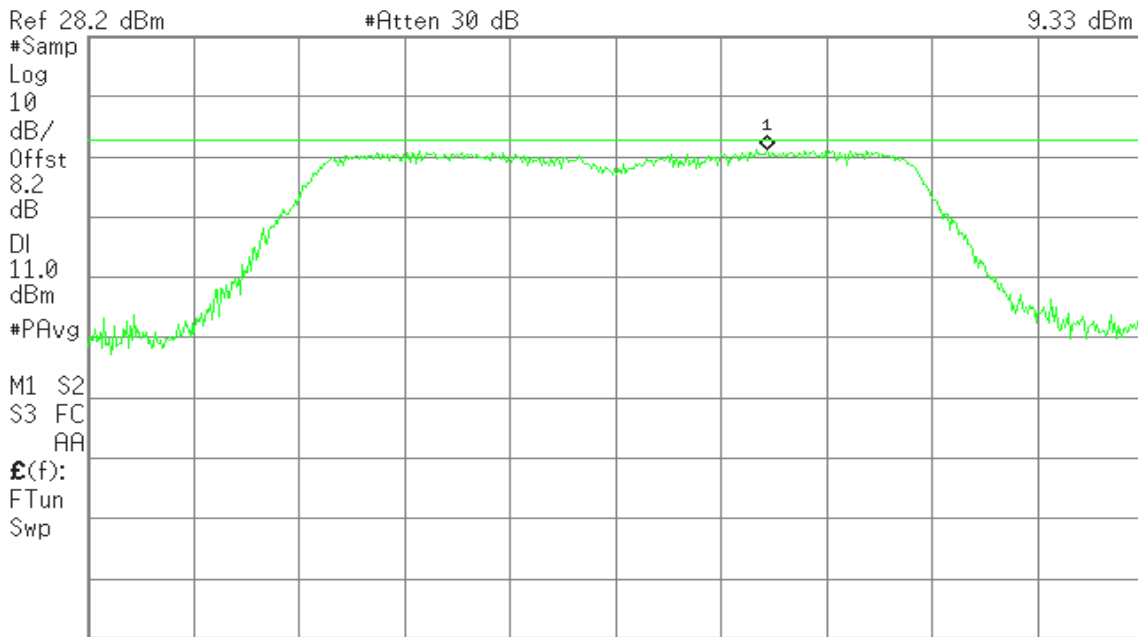
Sweep 1 ms (601 pts)

CH High

Agilent

R L

Mkr1 5.704 30 GHz
9.33 dBm



Center 5.700 00 GHz

Span 30 MHz

#Res BW 1 MHz

#VBW 3 MHz

Sweep 1 ms (601 pts)



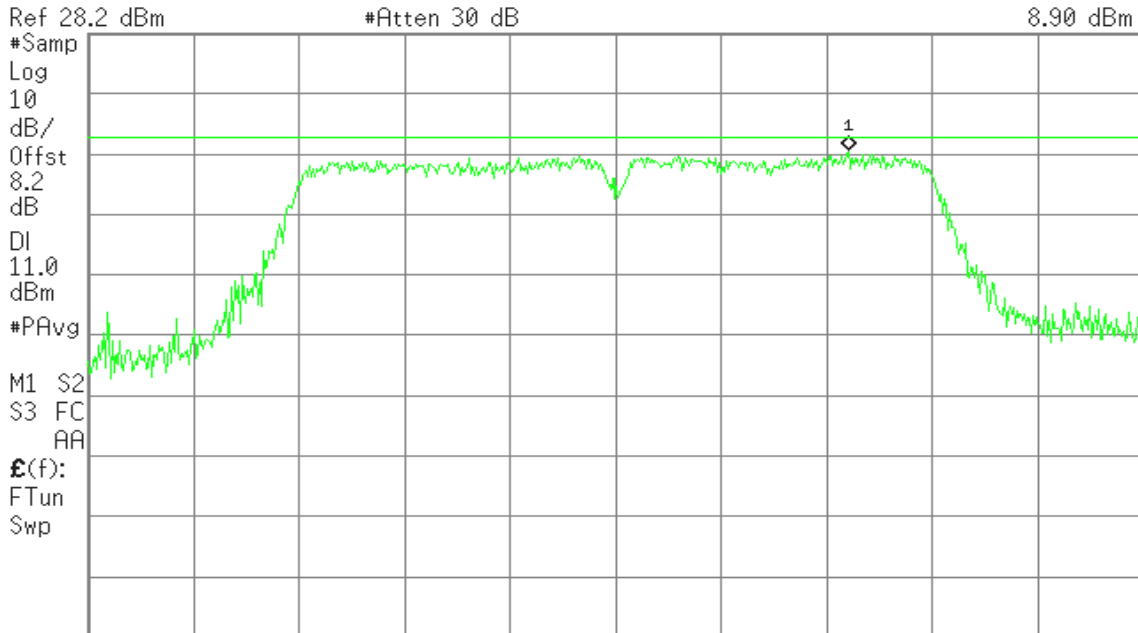
IEEE 802.11n HT40 / 5510 ~ 5670MHz

CH Low

Agilent

R L

Mkr1 5.523 3 GHz
8.90 dBm



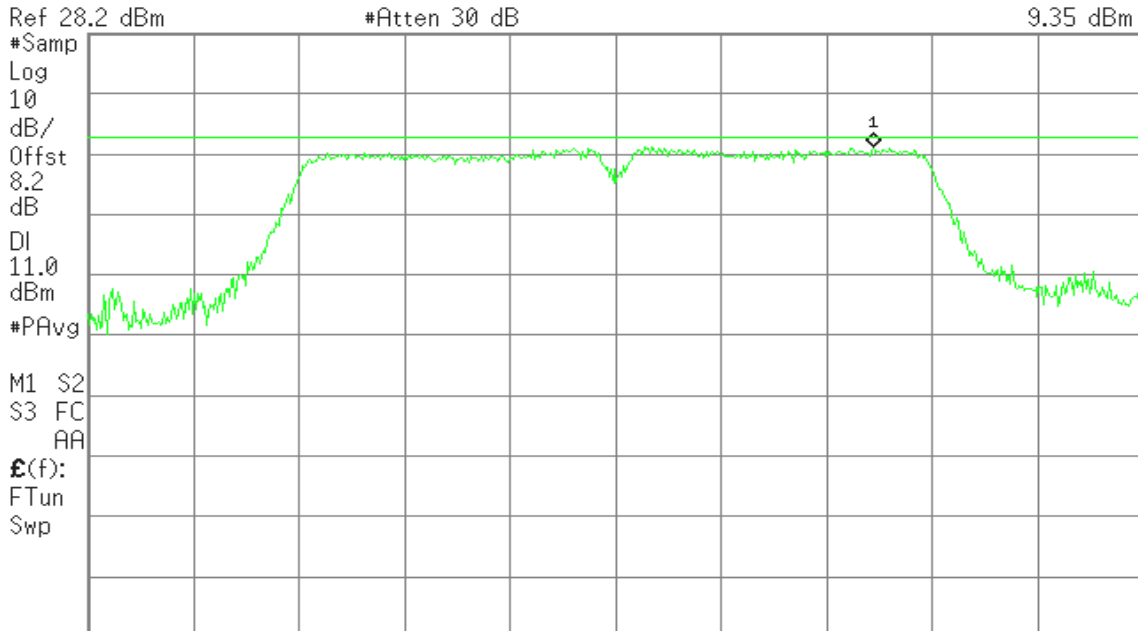
Center 5.510 0 GHz Span 60 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

CH Mid

Agilent

R L

Mkr1 5.564 7 GHz
9.35 dBm



Center 5.550 0 GHz Span 60 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

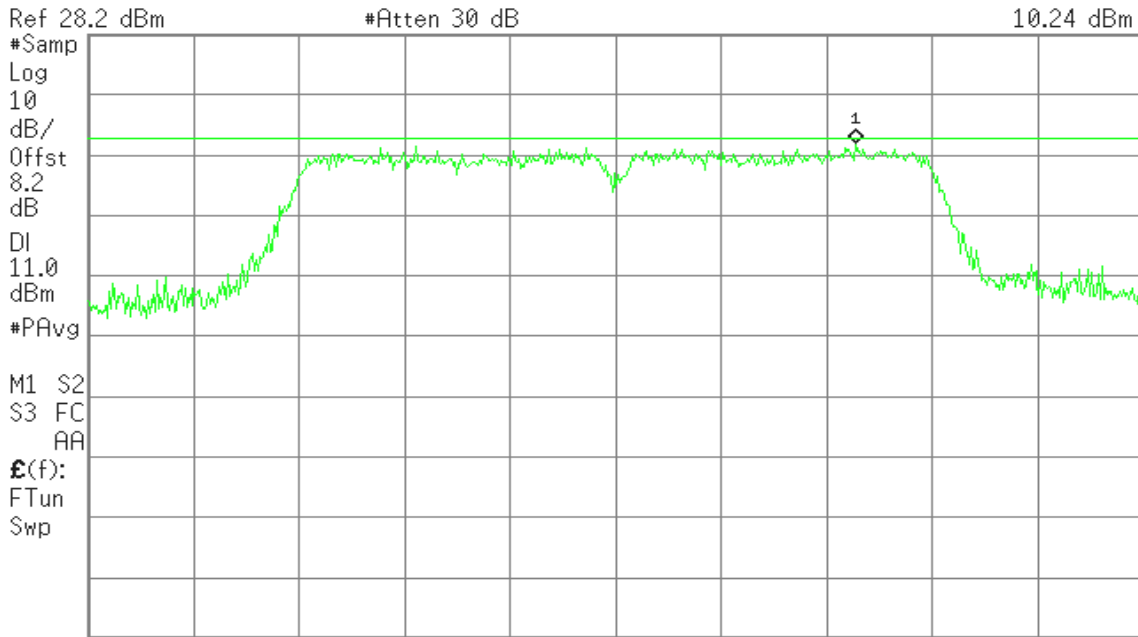


CH High

Agilent

R L

Mkr1 5.683 7 GHz
10.24 dBm



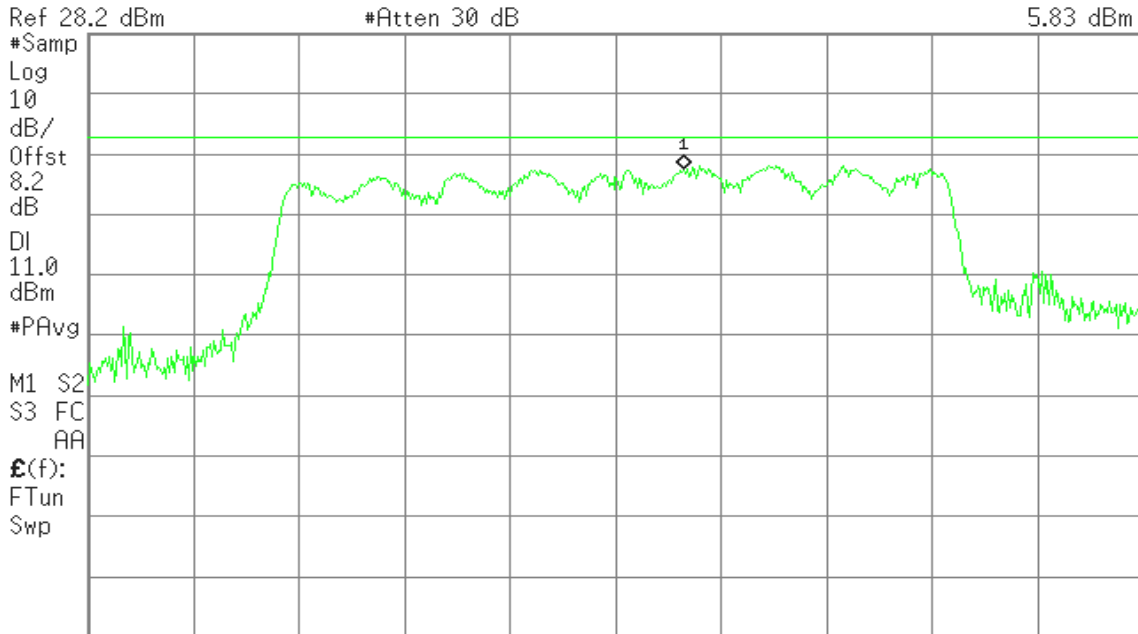
Center 5.670 0 GHz Span 60 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

IEEE 802.11ac HT80 / 5530MHz

Agilent

R T

Mkr1 5.537 8 GHz
5.83 dBm



Center 5.530 0 GHz Span 120 MHz
#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)



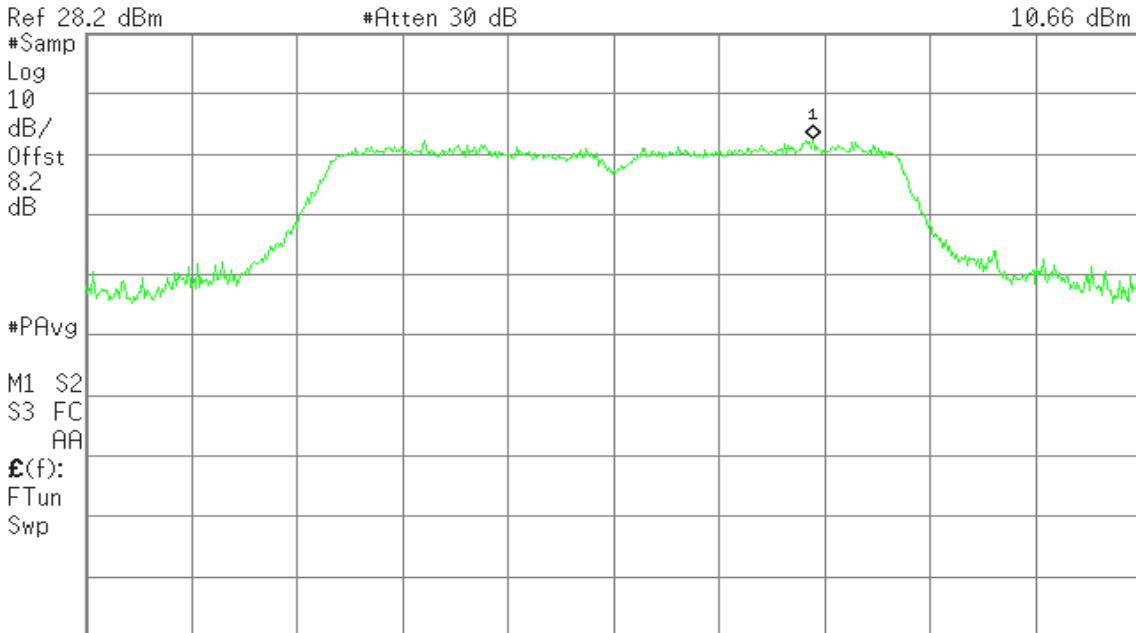
IEEE 802.11a / 5745 ~ 5825MHz

CH Low

Agilent

R L

Mkr1 5.750 65 GHz
10.66 dBm



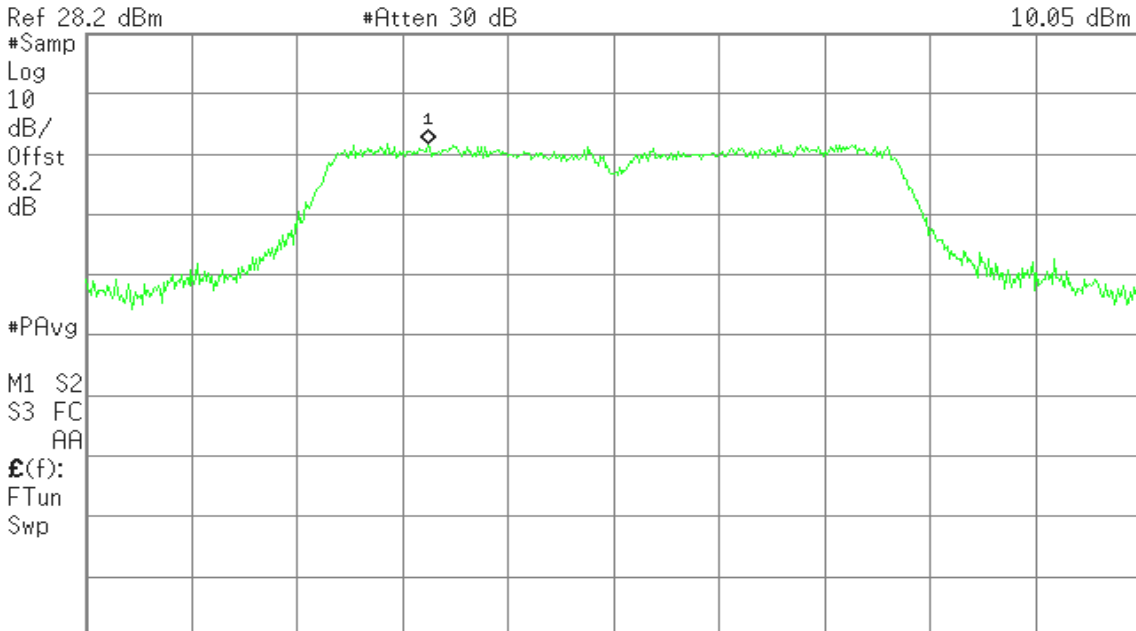
Center 5.745 00 GHz Span 30 MHz
#Res BW 510 kHz #VBW 1.5 MHz Sweep 1 ms (601 pts)

CH Mid

Agilent

R T

Mkr1 5.779 75 GHz
10.05 dBm



Center 5.785 00 GHz Span 30 MHz
#Res BW 510 kHz #VBW 1.5 MHz Sweep 1 ms (601 pts)



CH High

Agilent

R L

Mkr1 5.831 50 GHz
10.62 dBm

Ref 28.2 dBm

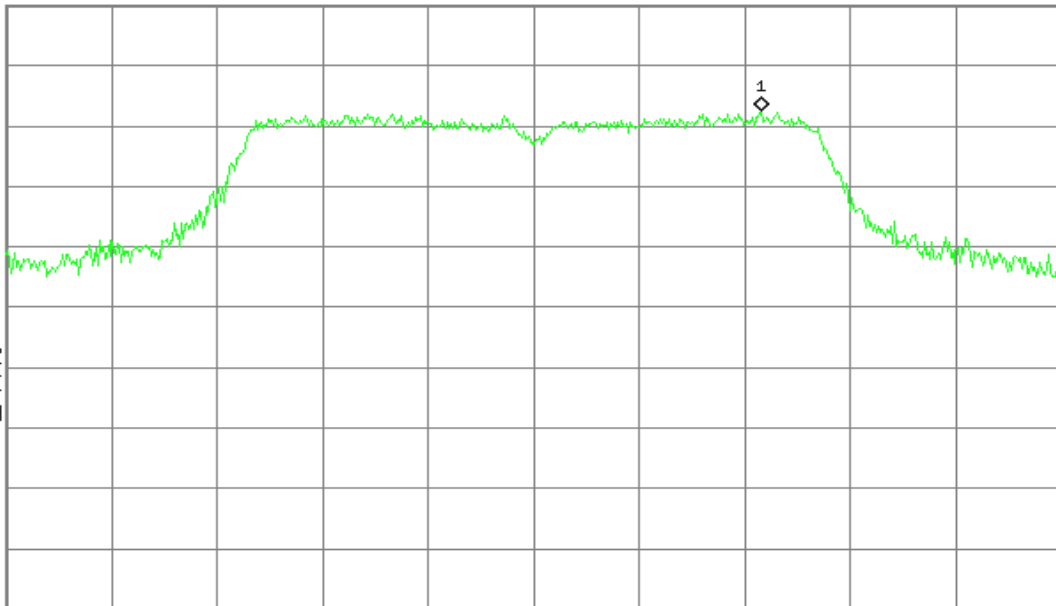
#Atten 30 dB

#Samp
Log
10
dB/
Offst
8.2
dB

#PAvg

M1 S2
S3 FC
AA

£(f):
FTun
Swp



Center 5.825 00 GHz

Span 30 MHz

#Res BW 510 kHz

#VBW 1.5 MHz

Sweep 1 ms (601 pts)

IEEE 802.11n HT20 / 5745 ~ 5825MHz

CH Low

Agilent

R L

Mkr1 5.751 30 GHz
10.44 dBm

Ref 28.2 dBm

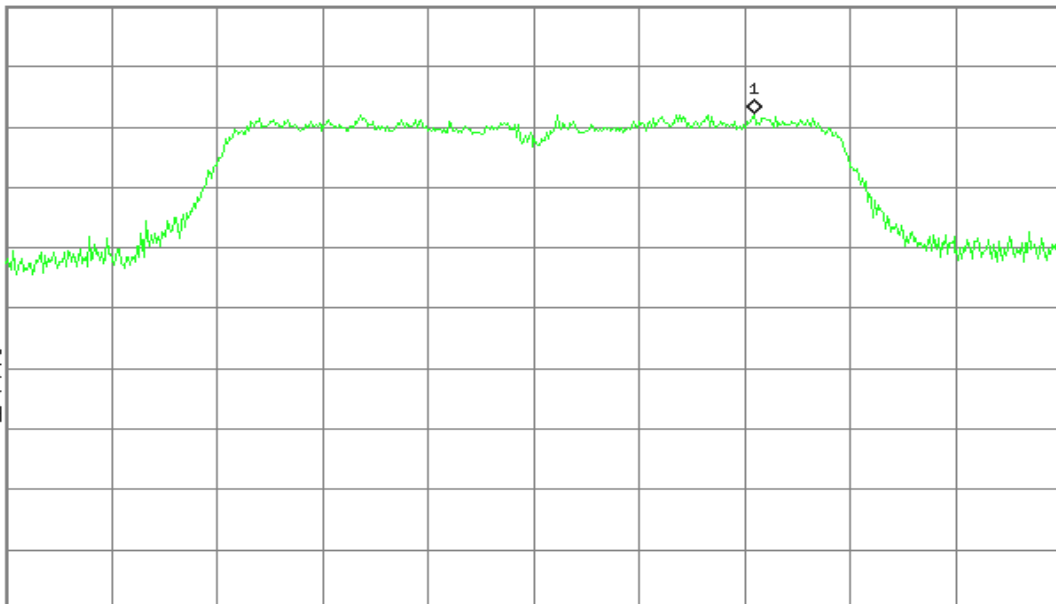
#Atten 30 dB

#Samp
Log
10
dB/
Offst
8.2
dB

#PAvg

M1 S2
S3 FC
AA

£(f):
FTun
Swp



Center 5.745 00 GHz

Span 30 MHz

#Res BW 510 kHz

#VBW 1.5 MHz

Sweep 1 ms (601 pts)

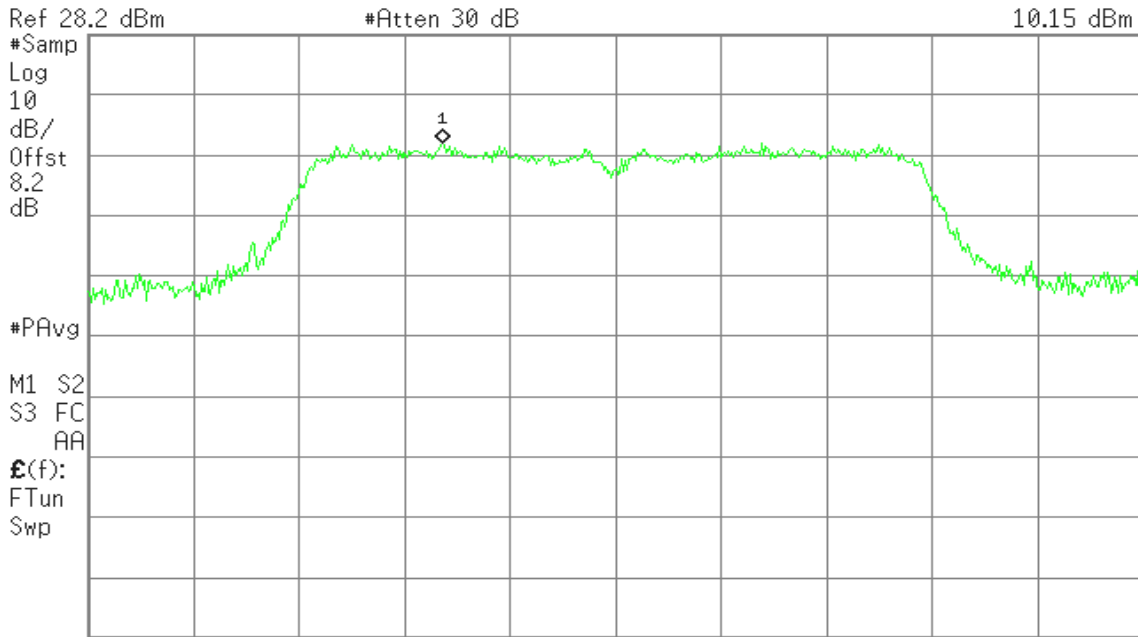


CH Mid

Agilent

R L

Mkr1 5.780 10 GHz
10.15 dBm



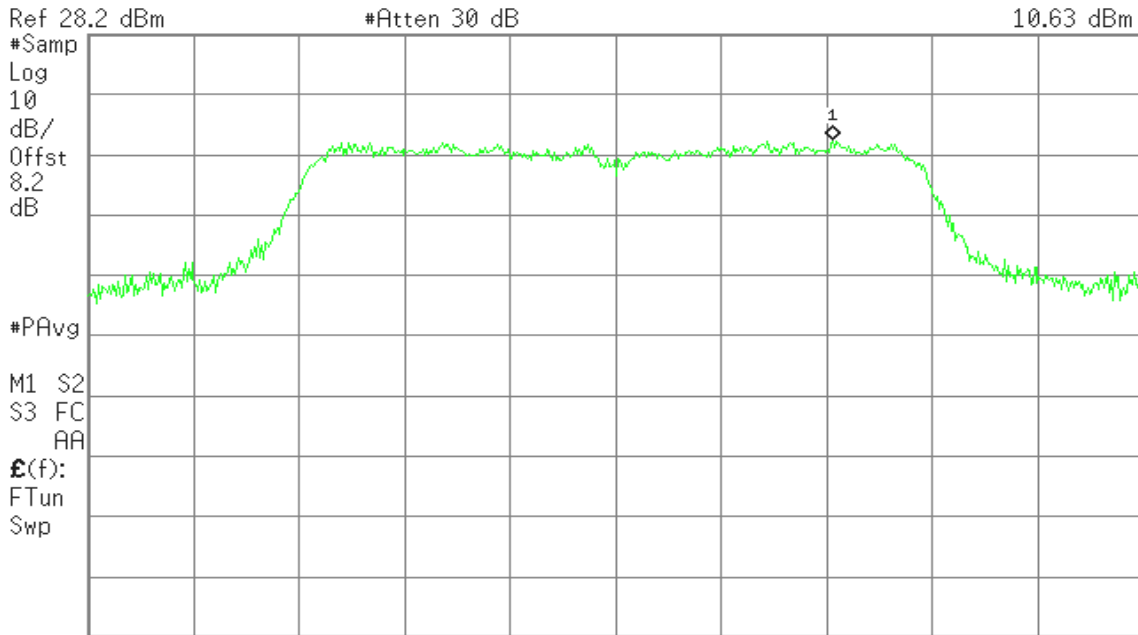
Center 5.785 00 GHz Span 30 MHz
#Res BW 510 kHz #VBW 1.5 MHz Sweep 1 ms (601 pts)

CH High

Agilent

R L

Mkr1 5.831 20 GHz
10.63 dBm



Center 5.825 00 GHz Span 30 MHz
#Res BW 510 kHz #VBW 1.5 MHz Sweep 1 ms (601 pts)



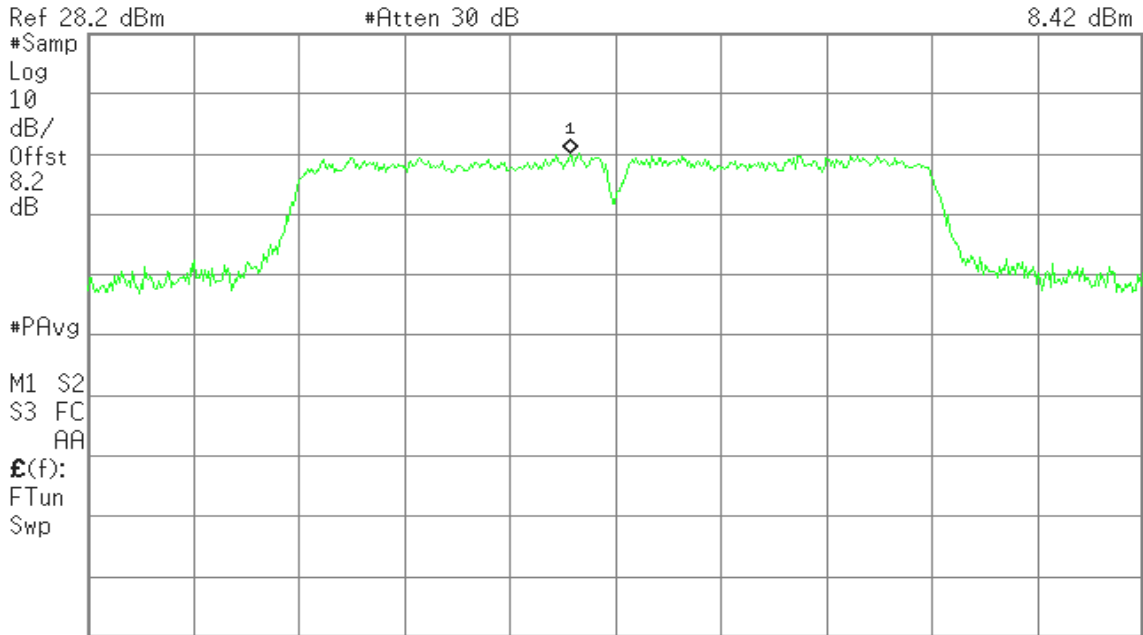
IEEE 802.11n HT40 / 5755 ~ 5795MHz

CH Low

Agilent

R L

Mkr1 5.752 4 GHz
8.42 dBm



Center 5.755 0 GHz

#Res BW 510 kHz

#VBW 1.5 MHz

Span 60 MHz

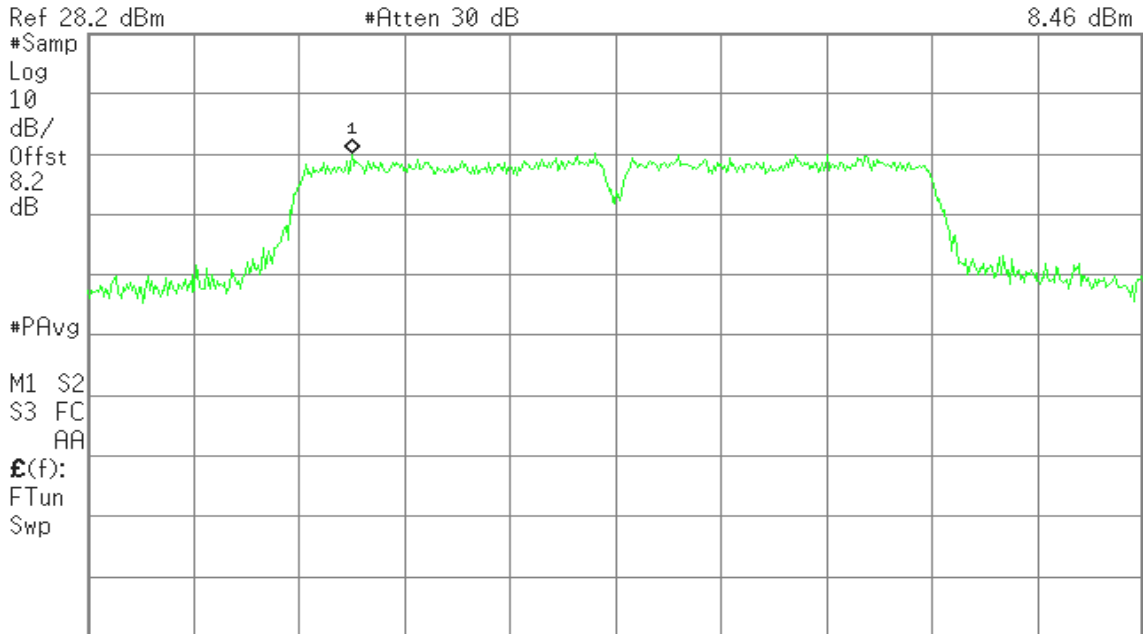
Sweep 1 ms (601 pts)

CH High

Agilent

R L

Mkr1 5.780 0 GHz
8.46 dBm



Center 5.795 0 GHz

#Res BW 510 kHz

#VBW 1.5 MHz

Span 60 MHz

Sweep 1 ms (601 pts)

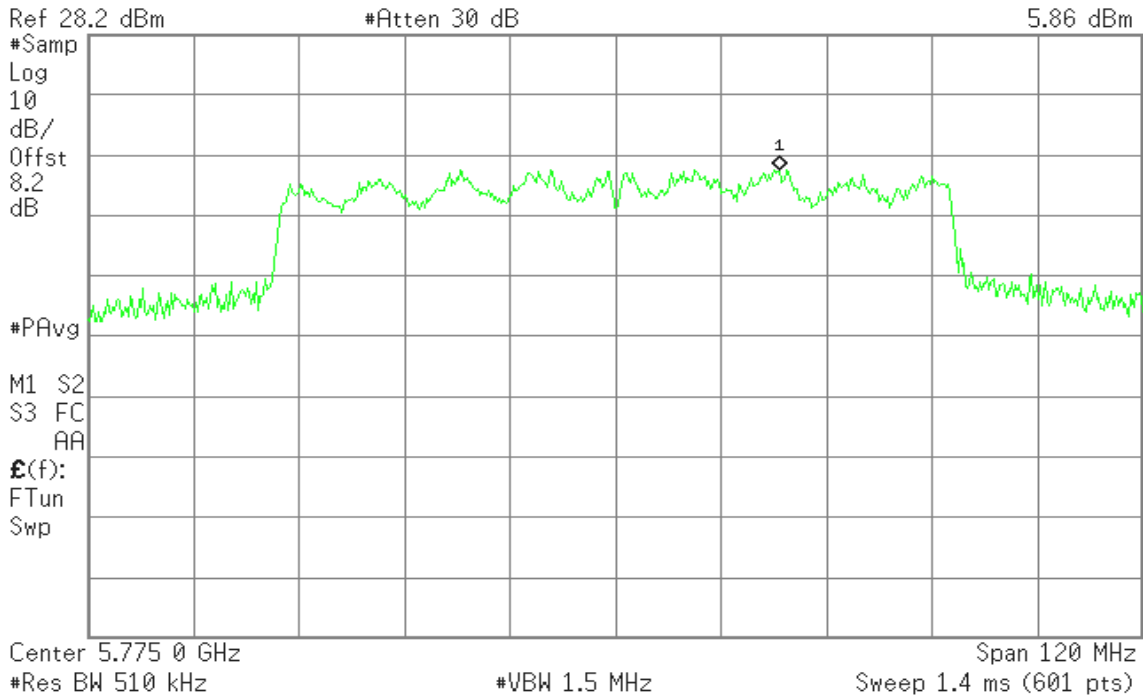


IEEE 802.11ac HT80 / 5775MHz

Agilent

R L

Mkr1 5.793 6 GHz
5.86 dBm





7.6 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 ($\mu\text{V/m}$)	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.

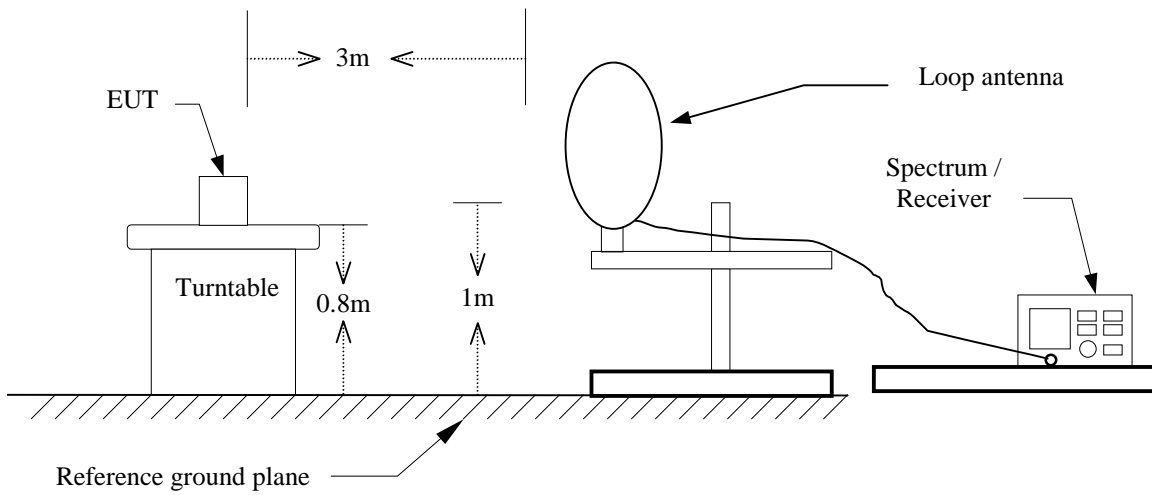
2. In the emission table above, the tighter limit applies at the band edges.

Frequency (MHz)	Field Strength ($\mu\text{V/m}$ at 3-meter)	Field Strength (dB $\mu\text{V/m}$ at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

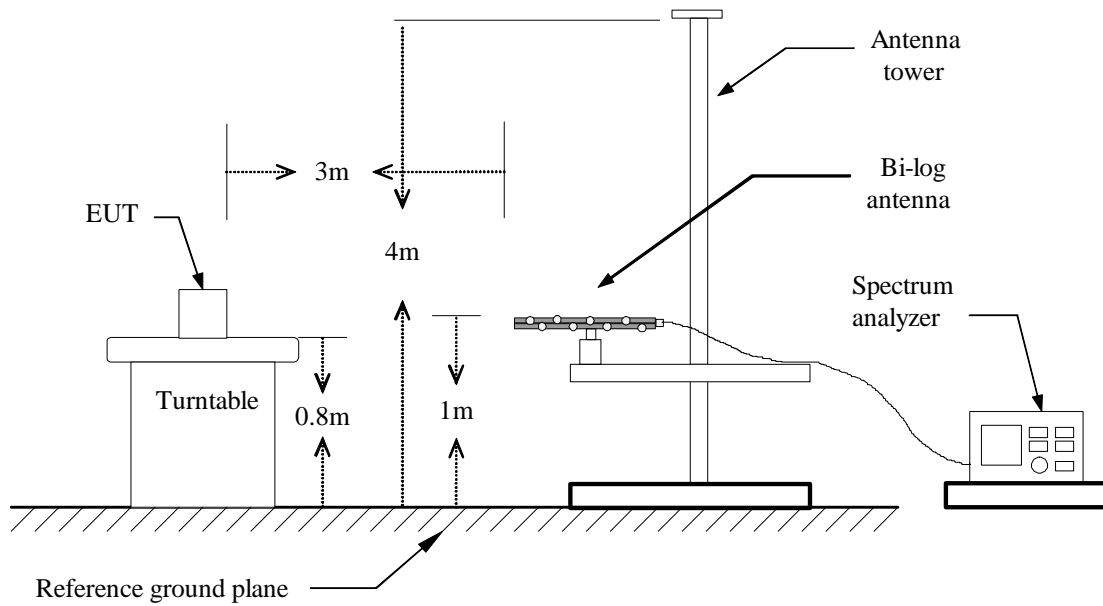


Test Configuration

9kHz ~ 30MHz

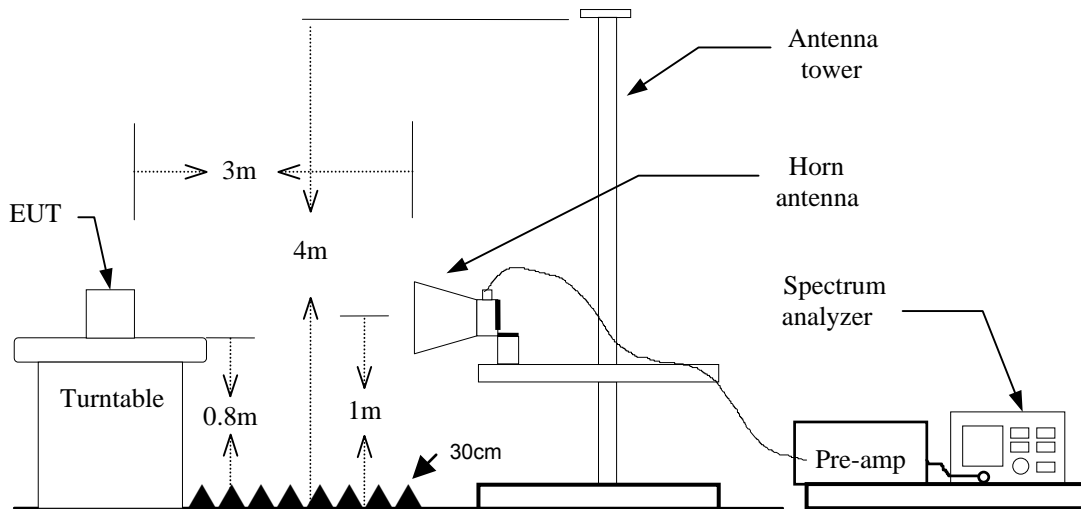


30MHz ~ 1GHz





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: LAN Mode **Test Date:** 2014/9/9
Temperature: 26°C **Tested by:** Eric Liao
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
43.5799	43.90	-16.27	27.63	40.00	-12.37	V	QP
126.0300	41.81	-15.32	26.49	43.50	-17.01	V	QP
167.7400	46.60	-16.91	29.69	43.50	-13.81	V	QP
210.4199	48.50	-16.39	32.11	43.50	-11.39	V	QP
377.2599	48.30	-10.67	37.63	46.00	-8.37	V	QP
800.1799	39.80	-5.78	34.02	46.00	-11.98	V	QP
210.4200	49.40	-16.39	33.01	43.50	-10.49	H	QP
240.4900	41.50	-14.22	27.28	46.00	-18.72	H	QP
335.5500	50.30	-11.49	38.81	46.00	-7.19	H	QP
378.2300	53.10	-10.65	42.45	46.00	-3.55	H	QP
480.0800	34.40	-9.55	24.85	46.00	-21.15	H	QP
800.1800	42.70	-5.78	36.92	46.00	-9.08	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 / 5180-5240MHz / Low **Test Date:** 2014/6/16~17

Temperature: 26°C **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
2135.000	51.31	-2.79	48.52	74.00	-25.48	V	peak
3610.000	47.92	2.88	50.80	74.00	-23.20	V	peak
4700.000	47.42	2.80	50.22	74.00	-23.78	V	peak
5725.000	46.41	5.74	52.15	74.00	-21.85	V	peak
5725.000	35.09	5.74	40.83	54.00	-13.17	V	AVG
10356.000	44.89	10.53	55.42	74.00	-18.58	V	peak
10356.000	36.36	10.53	46.89	54.00	-7.11	V	AVG
15540.000	41.86	11.21	53.07	74.00	-20.93	V	peak
15540.000	29.40	11.21	40.61	54.00	-13.39	V	AVG
3130.000	48.05	1.26	49.31	74.00	-24.69	H	peak
3765.000	47.76	4.63	52.39	74.00	-21.61	H	peak
3765.000	36.79	4.63	41.42	54.00	-12.58	H	AVG
4310.000	45.67	7.59	53.26	74.00	-20.74	H	peak
4310.000	36.00	7.59	43.59	54.00	-10.41	H	AVG
5600.000	45.06	9.20	54.26	74.00	-19.74	H	peak
5600.000	35.50	9.20	44.70	54.00	-9.30	H	AVG
10368.000	44.83	10.00	54.83	74.00	-19.17	H	peak
10368.000	36.93	10.00	46.93	54.00	-7.07	H	AVG
15768.000	39.35	11.09	50.44	74.00	-23.56	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).



Compliance Certification Services Inc.

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11a mode / **Test Date:** 2014/6/16~17
5180-5240MHz / Mid

Temperature: 26°C **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
2135.000	49.74	-2.79	46.95	74.00	-27.05	V	peak
3805.000	46.92	3.58	50.50	74.00	-23.50	V	peak
5005.000	45.40	5.27	50.67	74.00	-23.33	V	peak
5905.000	45.48	6.21	51.69	74.00	-22.31	V	peak
5905.000	34.96	6.21	41.17	54.00	-12.83	V	AVG
10440.000	44.85	9.88	54.73	74.00	-19.27	V	peak
10440.000	34.65	9.88	44.53	54.00	-9.47	V	AVG
15648.000	39.62	11.15	50.77	74.00	-23.23	V	peak
2135.000	48.71	-3.70	45.01	74.00	-28.99	H	peak
4315.000	46.38	7.55	53.93	74.00	-20.07	H	peak
4315.000	35.87	7.55	43.42	54.00	-10.58	H	AVG
5030.000	46.17	7.21	53.38	74.00	-20.62	H	peak
5030.000	35.47	7.21	42.68	54.00	-11.32	H	AVG
5565.000	45.43	9.08	54.51	74.00	-19.49	H	peak
5565.000	35.19	9.08	44.27	54.00	-9.73	H	AVG
5875.000	45.86	8.61	54.47	74.00	-19.53	H	peak
5875.000	35.26	8.61	43.87	54.00	-10.13	H	AVG
10440.000	44.82	9.68	54.50	74.00	-19.50	H	peak
10440.000	35.71	9.68	45.39	54.00	-8.61	H	AVG
15660.000	41.34	11.14	52.48	74.00	-21.52	H	peak
15660.000	31.77	11.14	42.91	54.00	-11.09	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 802.11a mode / **Test Date:** 2014/6/16~17
5180-5240MHz / High

Temperature: 26°C **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
2135.000	50.58	-2.79	47.79	74.00	-26.21	V	peak
3595.000	46.54	2.90	49.44	74.00	-24.56	V	peak
5555.000	45.89	6.05	51.94	74.00	-22.06	V	peak
5555.000	35.46	6.05	41.51	54.00	-12.49	V	AVG
10464.000	44.98	9.69	54.67	74.00	-19.33	V	peak
10464.000	34.37	9.69	44.06	54.00	-9.94	V	AVG
15708.000	40.71	11.12	51.83	74.00	-22.17	V	peak
15708.000	29.79	11.12	40.91	54.00	-13.09	V	AVG
2135.000	48.63	-3.70	44.93	74.00	-29.07	H	peak
4300.000	45.76	7.66	53.42	74.00	-20.58	H	peak
4300.000	35.54	7.66	43.20	54.00	-10.80	H	AVG
4965.000	45.82	7.44	53.26	74.00	-20.74	H	peak
4965.000	35.23	7.44	42.67	54.00	-11.33	H	AVG
5560.000	46.08	9.06	55.14	74.00	-18.86	H	peak
5560.000	34.94	9.06	44.00	54.00	-10.00	H	AVG
5965.000	45.97	8.97	54.94	74.00	-19.06	H	peak
5965.000	34.97	8.97	43.94	54.00	-10.06	H	AVG
10488.000	46.53	9.46	55.99	74.00	-18.01	H	peak
10488.000	38.00	9.46	47.46	54.00	-6.54	H	AVG
16164.000	39.72	11.37	51.09	74.00	-22.91	H	peak
16164.000	29.60	11.37	40.97	54.00	-13.03	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 / 5180-5240MHz / Low **Test Date:** 2014/6/16~17

Temperature: 26°C **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
2200.000	48.61	-1.33	47.28	74.00	-26.72	V	peak
3640.000	47.39	2.75	50.14	74.00	-23.86	V	peak
5640.000	45.78	5.92	51.70	74.00	-22.30	V	peak
5640.000	34.94	5.92	40.86	54.00	-13.14	V	AVG
5915.000	45.81	6.10	51.91	74.00	-22.09	V	peak
5915.000	35.05	6.10	41.15	54.00	-12.85	V	AVG
11508.000	39.14	10.60	49.74	74.00	-24.26	V	peak
16080.000	39.86	11.16	51.02	74.00	-22.98	V	peak
16080.000	28.37	11.16	39.53	54.00	-14.47	V	AVG
2155.000	48.47	-3.66	44.81	74.00	-29.19	H	peak
4310.000	45.31	7.59	52.90	74.00	-21.10	H	peak
4310.000	35.64	7.59	43.23	54.00	-10.77	H	AVG
4705.000	45.35	7.22	52.57	74.00	-21.43	H	peak
4705.000	35.61	7.22	42.83	54.00	-11.17	H	AVG
5575.000	45.67	9.11	54.78	74.00	-19.22	H	peak
5575.000	35.50	9.11	44.61	54.00	-9.39	H	AVG
5940.000	46.15	9.06	55.21	74.00	-18.79	H	peak
5940.000	35.14	9.06	44.20	54.00	-9.80	H	AVG
11232.000	38.21	10.39	48.60	74.00	-25.40	H	peak
15528.000	40.83	11.21	52.04	74.00	-21.96	H	peak
15528.000	28.74	11.21	39.95	54.00	-14.05	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11n HT20 mode / 5180-5240MHz / Mid **Test Date:** 2014/6/16~18

Temperature: 26°C **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
2275.000	48.48	-1.50	46.98	74.00	-27.02	V	peak
3765.000	46.11	3.26	49.37	74.00	-24.63	V	peak
5005.000	45.78	5.27	51.05	74.00	-22.95	V	peak
5005.000	35.22	5.27	40.49	54.00	-13.51	V	AVG
5645.000	45.58	5.92	51.50	74.00	-22.50	V	peak
5645.000	34.87	5.92	40.79	54.00	-13.21	V	AVG
11172.000	38.87	10.34	49.21	74.00	-24.79	V	peak
16248.000	38.81	11.58	50.39	74.00	-23.61	V	peak
2190.000	48.45	-3.58	44.87	74.00	-29.13	H	peak
4295.000	45.75	7.58	53.33	74.00	-20.67	H	peak
4295.000	35.61	7.58	43.19	54.00	-10.81	H	AVG
4900.000	45.97	7.15	53.12	74.00	-20.88	H	peak
4900.000	35.26	7.15	42.41	54.00	-11.59	H	AVG
5555.000	45.49	9.05	54.54	74.00	-19.46	H	peak
5555.000	35.11	9.05	44.16	54.00	-9.84	H	AVG
5920.000	45.42	9.14	54.56	74.00	-19.44	H	peak
5920.000	35.00	9.14	44.14	54.00	-9.86	H	AVG
10440.000	45.07	9.68	54.75	74.00	-19.25	H	peak
10440.000	35.24	9.68	44.92	54.00	-9.08	H	AVG
15648.000	38.91	11.15	50.06	74.00	-23.94	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 / 5180-5240MHz / High Test Date: 2014/6/16~18

Temperature: 26°C 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
2135.000	49.59	-2.79	46.80	74.00	-27.20	V	peak
3810.000	46.27	3.47	49.74	74.00	-24.26	V	peak
4915.000	45.42	4.51	49.93	74.00	-24.07	V	peak
5550.000	46.24	6.07	52.31	74.00	-21.69	V	peak
5550.000	35.76	6.07	41.83	54.00	-12.17	V	AVG
11544.000	39.23	10.61	49.84	74.00	-24.16	V	peak
16236.000	39.20	11.55	50.75	74.00	-23.25	V	peak
3100.000	46.90	1.33	48.23	74.00	-25.77	H	peak
4355.000	45.88	7.25	53.13	74.00	-20.87	H	peak
4355.000	35.56	7.25	42.81	54.00	-11.19	H	AVG
5005.000	45.31	7.53	52.84	74.00	-21.16	H	peak
5005.000	35.20	7.53	42.73	54.00	-11.27	H	AVG
5515.000	45.47	8.91	54.38	74.00	-19.62	H	peak
5515.000	34.97	8.91	43.88	54.00	-10.12	H	AVG
5990.000	46.79	8.87	55.66	74.00	-18.34	H	peak
5990.000	35.08	8.87	43.95	54.00	-10.05	H	AVG
10476.000	40.95	9.52	50.47	74.00	-23.53	H	peak
15720.000	40.05	11.11	51.16	74.00	-22.84	H	peak
15720.000	27.22	11.11	38.33	54.00	-15.67	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 / 5190 ~ 5230MHz / Low **Test Date:** 2014/6/17~18

Temperature: 26°C **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
2245.000	48.60	-1.43	47.17	74.00	-26.83	V	peak
3110.000	47.20	0.32	47.52	74.00	-26.48	V	peak
3995.000	45.75	3.39	49.14	74.00	-24.86	V	peak
5830.000	45.83	5.47	51.30	74.00	-22.70	V	peak
5830.000	34.77	5.47	40.24	54.00	-13.76	V	AVG
10920.000	38.91	10.07	48.98	74.00	-25.02	V	peak
15972.000	40.22	10.98	51.20	74.00	-22.80	V	peak
15972.000	28.61	10.98	39.59	54.00	-14.41	V	AVG
3135.000	46.93	1.24	48.17	74.00	-25.83	H	peak
4275.000	45.94	7.24	53.18	74.00	-20.82	H	peak
4275.000	35.48	7.24	42.72	54.00	-11.28	H	AVG
4540.000	47.25	6.34	53.59	74.00	-20.41	H	peak
4540.000	35.27	6.34	41.61	54.00	-12.39	H	AVG
5630.000	45.40	8.87	54.27	74.00	-19.73	H	peak
5630.000	34.82	8.87	43.69	54.00	-10.31	H	AVG
5940.000	45.69	9.06	54.75	74.00	-19.25	H	peak
5940.000	34.88	9.06	43.94	54.00	-10.06	H	AVG
10512.000	40.16	9.43	49.59	74.00	-24.41	H	peak
15900.000	39.19	11.01	50.20	74.00	-23.80	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 / 5190 ~ 5230MHz / High **Test Date:** 2014/6/17~18

Temperature: 26°C **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	48.41	-1.30	47.11	74.00	-26.89	V	peak
3800.000	45.98	3.69	49.67	74.00	-24.33	V	peak
4950.000	45.43	4.85	50.28	74.00	-23.72	V	peak
5875.000	45.36	5.98	51.34	74.00	-22.66	V	peak
5875.000	35.17	5.98	41.15	54.00	-12.85	V	AVG
10440.000	41.10	9.88	50.98	74.00	-23.02	V	peak
16044.000	39.20	11.07	50.27	74.00	-23.73	V	peak
2210.000	49.18	-3.84	45.34	74.00	-28.66	H	peak
4275.000	46.27	7.24	53.51	74.00	-20.49	H	peak
4275.000	36.24	7.24	43.48	54.00	-10.52	H	AVG
4645.000	46.48	6.55	53.03	74.00	-20.97	H	peak
4645.000	35.79	6.55	42.34	54.00	-11.66	H	AVG
4905.000	45.88	7.17	53.05	74.00	-20.95	H	peak
4905.000	35.19	7.17	42.36	54.00	-11.64	H	AVG
5610.000	44.93	9.09	54.02	74.00	-19.98	H	peak
5610.000	34.95	9.09	44.04	54.00	-9.96	H	AVG
5960.000	45.11	8.99	54.10	74.00	-19.90	H	peak
5960.000	34.95	8.99	43.94	54.00	-10.06	H	AVG
10440.000	43.68	9.68	53.36	74.00	-20.64	H	peak
10440.000	36.27	9.68	45.95	54.00	-8.05	H	AVG
16164.000	39.65	11.37	51.02	74.00	-22.98	H	peak
16164.000	28.65	11.37	40.02	54.00	-13.98	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 802.11ac HT80 mode / 5210MHz

Test Date: 2014/6/17~18

Temperature: 26°C

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
2135.000	50.64	-2.79	47.85	74.00	-26.15	V	peak
3795.000	46.28	3.63	49.91	74.00	-24.09	V	peak
4690.000	46.43	2.67	49.10	74.00	-24.90	V	peak
5735.000	45.97	5.66	51.63	74.00	-22.37	V	peak
5735.000	34.12	5.66	39.78	54.00	-14.22	V	AVG
5910.000	44.95	6.15	51.10	74.00	-22.90	V	peak
5910.000	34.49	6.15	40.64	54.00	-13.36	V	AVG
11688.000	38.74	10.66	49.40	74.00	-24.60	V	peak
16176.000	40.35	11.40	51.75	74.00	-22.25	V	peak
16176.000	28.63	11.40	40.03	54.00	-13.97	V	AVG
2160.000	48.03	-3.65	44.38	74.00	-29.62	H	peak
4300.000	45.79	7.66	53.45	74.00	-20.55	H	peak
4300.000	34.56	7.66	42.22	54.00	-11.78	H	AVG
4645.000	47.02	6.55	53.57	74.00	-20.43	H	peak
4645.000	35.30	6.55	41.85	54.00	-12.15	H	AVG
5680.000	45.82	8.31	54.13	74.00	-19.87	H	peak
5680.000	34.32	8.31	42.63	54.00	-11.37	H	AVG
5955.000	45.12	9.01	54.13	74.00	-19.87	H	peak
5955.000	34.41	9.01	43.42	54.00	-10.58	H	AVG
11148.000	38.97	10.32	49.29	74.00	-24.71	H	peak
15804.000	39.61	11.07	50.68	74.00	-23.32	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11a mode / 5260 ~ 5320MHz / Low**Test Date:** 2014/6/16~17**Temperature:** 26°C**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
2135.000	49.53	-2.79	46.74	74.00	-27.26	V	peak
3770.000	47.05	3.32	50.37	74.00	-23.63	V	peak
4900.000	45.96	4.37	50.33	74.00	-23.67	V	peak
5875.000	45.98	5.98	51.96	74.00	-22.04	V	peak
5875.000	34.94	5.98	40.92	54.00	-13.08	V	AVG
10536.000	46.02	9.47	55.49	74.00	-18.51	V	peak
10536.000	37.74	9.47	47.21	54.00	-6.79	V	AVG
15780.000	43.50	11.08	54.58	74.00	-19.42	V	peak
15780.000	35.31	11.08	46.39	54.00	-7.61	V	AVG
2180.000	48.37	-3.60	44.77	74.00	-29.23	H	peak
4315.000	46.03	7.55	53.58	74.00	-20.42	H	peak
4315.000	35.67	7.55	43.22	54.00	-10.78	H	AVG
4950.000	46.03	7.37	53.40	74.00	-20.60	H	peak
4950.000	35.40	7.37	42.77	54.00	-11.23	H	AVG
5575.000	45.53	9.11	54.64	74.00	-19.36	H	peak
5575.000	35.51	9.11	44.62	54.00	-9.38	H	AVG
5940.000	45.30	9.06	54.36	74.00	-19.64	H	peak
5940.000	35.00	9.06	44.06	54.00	-9.94	H	AVG
10524.000	44.65	9.45	54.10	74.00	-19.90	H	peak
10524.000	35.48	9.45	44.93	54.00	-9.07	H	AVG
15792.000	40.08	11.07	51.15	74.00	-22.85	H	peak
15792.000	31.03	11.07	42.10	54.00	-11.90	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11a mode / 5260 ~ 5320MHz / Mid**Test Date:** 2014/6/16~17**Temperature:** 26°C**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
2135.000	50.49	-2.79	47.70	74.00	-26.30	V	peak
3640.000	48.71	2.75	51.46	74.00	-22.54	V	peak
3640.000	36.32	2.75	39.07	54.00	-14.93	V	AVG
5450.000	46.56	6.31	52.87	74.00	-21.13	V	peak
5450.000	37.12	6.31	43.43	54.00	-10.57	V	AVG
10560.000	44.40	9.50	53.90	74.00	-20.10	V	peak
10560.000	36.07	9.50	45.57	54.00	-8.43	V	AVG
15840.000	43.92	11.05	54.97	74.00	-19.03	V	peak
15840.000	36.83	11.05	47.88	54.00	-6.12	V	AVG
2200.000	48.61	-3.56	45.05	74.00	-28.95	H	peak
4265.000	46.27	7.07	53.34	74.00	-20.66	H	peak
4265.000	35.69	7.07	42.76	54.00	-11.24	H	AVG
4710.000	45.74	7.12	52.86	74.00	-21.14	H	peak
4710.000	35.79	7.12	42.91	54.00	-11.09	H	AVG
5010.000	46.08	7.46	53.54	74.00	-20.46	H	peak
5010.000	35.31	7.46	42.77	54.00	-11.23	H	AVG
5650.000	45.66	8.64	54.30	74.00	-19.70	H	peak
5650.000	34.90	8.64	43.54	54.00	-10.46	H	AVG
5900.000	45.22	9.22	54.44	74.00	-19.56	H	peak
5900.000	34.98	9.22	44.20	54.00	-9.80	H	AVG
10560.000	44.07	9.50	53.57	74.00	-20.43	H	peak
10560.000	36.99	9.50	46.49	54.00	-7.51	H	AVG
15840.000	39.77	11.05	50.82	74.00	-23.18	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11a mode / 5260 ~ 5320MHz / High**Test Date:** 2014/6/16~17**Temperature:** 26°C**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
2135.000	50.04	-3.70	46.34	74.00	-27.66	V	peak
3795.000	45.52	5.03	50.55	74.00	-23.45	V	peak
5485.000	44.30	8.79	53.09	74.00	-20.91	V	peak
5485.000	37.26	8.79	46.05	54.00	-7.95	V	AVG
10644.000	39.98	9.64	49.62	74.00	-24.38	V	peak
16140.000	39.18	11.31	50.49	74.00	-23.51	V	peak
2140.000	48.14	-3.69	44.45	74.00	-29.55	H	peak
4315.000	45.68	7.55	53.23	74.00	-20.77	H	peak
4315.000	35.57	7.55	43.12	54.00	-10.88	H	AVG
4915.000	45.73	7.22	52.95	74.00	-21.05	H	peak
4915.000	35.40	7.22	42.62	54.00	-11.38	H	AVG
5655.000	45.64	8.59	54.23	74.00	-19.77	H	peak
5655.000	34.95	8.59	43.54	54.00	-10.46	H	AVG
5960.000	45.49	8.99	54.48	74.00	-19.52	H	peak
5960.000	35.07	8.99	44.06	54.00	-9.94	H	AVG
10644.000	41.73	9.64	51.37	74.00	-22.63	H	peak
10644.000	30.67	9.64	40.31	54.00	-13.69	H	AVG
16248.000	40.78	11.58	52.36	74.00	-21.64	H	peak
16248.000	28.69	11.58	40.27	54.00	-13.73	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11n HT20 mode / 5260 ~ 5320MHz / Low **Test Date:** 2014/6/17~18
Temperature: 26°C **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
2135.000	49.96	-2.79	47.17	74.00	-26.83	V	peak
3790.000	46.08	3.57	49.65	74.00	-24.35	V	peak
4935.000	46.60	4.70	51.30	74.00	-22.70	V	peak
4935.000	35.44	4.70	40.14	54.00	-13.86	V	AVG
5615.000	46.15	5.91	52.06	74.00	-21.94	V	peak
5615.000	35.17	5.91	41.08	54.00	-12.92	V	AVG
5880.000	45.82	6.03	51.85	74.00	-22.15	V	peak
5880.000	35.23	6.03	41.26	54.00	-12.74	V	AVG
11580.000	38.80	10.63	49.43	74.00	-24.57	V	peak
15780.000	38.88	11.08	49.96	74.00	-24.04	V	peak
2175.000	47.98	-3.61	44.37	74.00	-29.63	H	peak
4330.000	45.68	7.44	53.12	74.00	-20.88	H	peak
4330.000	35.56	7.44	43.00	54.00	-11.00	H	AVG
4635.000	46.17	6.41	52.58	74.00	-21.42	H	peak
4635.000	36.26	6.41	42.67	54.00	-11.33	H	AVG
4965.000	45.26	7.44	52.70	74.00	-21.30	H	peak
4965.000	35.27	7.44	42.71	54.00	-11.29	H	AVG
5605.000	44.87	9.14	54.01	74.00	-19.99	H	peak
5605.000	35.06	9.14	44.20	54.00	-9.80	H	AVG
5920.000	45.15	9.14	54.29	74.00	-19.71	H	peak
5920.000	35.20	9.14	44.34	54.00	-9.66	H	AVG
10656.000	40.38	9.66	50.04	74.00	-23.96	H	peak
15792.000	39.43	11.07	50.50	74.00	-23.50	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 HT20 mode / 5260 ~ 5320MHz / Mid **Test Date:** 2014/6/17~18

Temperature: 26°C **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
2530.000	49.03	-1.30	47.73	74.00	-26.27	V	peak
3745.000	46.62	3.02	49.64	74.00	-24.36	V	peak
4925.000	46.57	4.61	51.18	74.00	-22.82	V	peak
4925.000	35.43	4.61	40.04	54.00	-13.96	V	AVG
5575.000	46.22	5.99	52.21	74.00	-21.79	V	peak
5575.000	35.14	5.99	41.13	54.00	-12.87	V	AVG
5940.000	45.90	5.84	51.74	74.00	-22.26	V	peak
5940.000	35.08	5.84	40.92	54.00	-13.08	V	AVG
11244.000	38.61	10.40	49.01	74.00	-24.99	V	peak
16188.000	39.83	11.43	51.26	74.00	-22.74	V	peak
16188.000	26.33	11.43	37.76	54.00	-16.24	V	AVG
2165.000	48.05	-3.64	44.41	74.00	-29.59	H	peak
4260.000	46.05	6.99	53.04	74.00	-20.96	H	peak
4260.000	35.44	6.99	42.43	54.00	-11.57	H	AVG
4975.000	45.74	7.48	53.22	74.00	-20.78	H	peak
4975.000	35.05	7.48	42.53	54.00	-11.47	H	AVG
5525.000	45.47	8.95	54.42	74.00	-19.58	H	peak
5525.000	35.10	8.95	44.05	54.00	-9.95	H	AVG
5605.000	45.29	9.14	54.43	74.00	-19.57	H	peak
5605.000	35.00	9.14	44.14	54.00	-9.86	H	AVG
5915.000	45.47	9.16	54.63	74.00	-19.37	H	peak
5915.000	34.98	9.16	44.14	54.00	-9.86	H	AVG
10560.000	41.41	9.50	50.91	74.00	-23.09	H	peak
15780.000	38.89	11.08	49.97	74.00	-24.03	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).



Compliance Certification Services Inc.

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11n HT20 mode / 5260 ~ 5320MHz / High **Test Date:** 2014/6/17~18

Temperature: 26°C **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
2135.000	50.27	-2.79	47.48	74.00	-26.52	V	peak
3630.000	46.76	2.79	49.55	74.00	-24.45	V	peak
5015.000	46.05	5.18	51.23	74.00	-22.77	V	peak
5015.000	35.11	5.18	40.29	54.00	-13.71	V	AVG
5520.000	45.49	6.17	51.66	74.00	-22.34	V	peak
5520.000	35.58	6.17	41.75	54.00	-12.25	V	AVG
5900.000	45.93	6.26	52.19	74.00	-21.81	V	peak
5900.000	35.16	6.26	41.42	54.00	-12.58	V	AVG
11556.000	39.53	10.62	50.15	74.00	-23.85	V	peak
15960.000	39.47	10.98	50.45	74.00	-23.55	V	peak
2170.000	47.87	-3.63	44.24	74.00	-29.76	H	peak
4290.000	47.17	7.49	54.66	74.00	-19.34	H	peak
4290.000	35.47	7.49	42.96	54.00	-11.04	H	AVG
4735.000	46.17	6.66	52.83	74.00	-21.17	H	peak
4735.000	35.54	6.66	42.20	54.00	-11.80	H	AVG
4965.000	45.88	7.44	53.32	74.00	-20.68	H	peak
4965.000	35.06	7.44	42.50	54.00	-11.50	H	AVG
5590.000	45.66	9.17	54.83	74.00	-19.17	H	peak
5590.000	35.07	9.17	44.24	54.00	-9.76	H	AVG
5905.000	45.91	9.20	55.11	74.00	-18.89	H	peak
5905.000	35.15	9.20	44.35	54.00	-9.65	H	AVG
10644.000	40.05	9.64	49.69	74.00	-24.31	H	peak
15792.000	39.31	11.07	50.38	74.00	-23.62	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 HT40 mode / 5270 ~ 5310MHz / Low **Test Date:** 2014/6/17~18

Temperature: 26°C **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
2015.000	48.88	-1.64	47.24	74.00	-26.76	V	peak
3755.000	46.37	3.14	49.51	74.00	-24.49	V	peak
4950.000	45.66	4.85	50.51	74.00	-23.49	V	peak
5900.000	46.31	6.26	52.57	74.00	-21.43	V	peak
5900.000	35.12	6.26	41.38	54.00	-12.62	V	AVG
11304.000	39.10	10.44	49.54	74.00	-24.46	V	peak
15780.000	39.44	11.08	50.52	74.00	-23.48	V	peak
2185.000	47.95	-3.59	44.36	74.00	-29.64	H	peak
4310.000	45.47	7.59	53.06	74.00	-20.94	H	peak
4310.000	35.34	7.59	42.93	54.00	-11.07	H	AVG
4665.000	46.18	6.82	53.00	74.00	-21.00	H	peak
4665.000	35.74	6.82	42.56	54.00	-11.44	H	AVG
5000.000	45.63	7.59	53.22	74.00	-20.78	H	peak
5000.000	35.00	7.59	42.59	54.00	-11.41	H	AVG
5610.000	44.80	9.09	53.89	74.00	-20.11	H	peak
5610.000	34.74	9.09	43.83	54.00	-10.17	H	AVG
5915.000	45.26	9.16	54.42	74.00	-19.58	H	peak
5915.000	34.78	9.16	43.94	54.00	-10.06	H	AVG
10524.000	40.66	9.45	50.11	74.00	-23.89	H	peak
16116.000	39.92	11.25	51.17	74.00	-22.83	H	peak
16116.000	28.78	11.25	40.03	54.00	-13.97	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 / 5270 ~ 5310MHz / High **Test Date:** 2014/6/17~18

Temperature: 26°C **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
2135.000	50.18	-2.79	47.39	74.00	-26.61	V	peak
3795.000	46.73	3.63	50.36	74.00	-23.64	V	peak
4930.000	45.42	4.66	50.08	74.00	-23.92	V	peak
5655.000	45.77	5.93	51.70	74.00	-22.30	V	peak
5655.000	34.86	5.93	40.79	54.00	-13.21	V	AVG
5900.000	44.90	6.26	51.16	74.00	-22.84	V	peak
5900.000	35.02	6.26	41.28	54.00	-12.72	V	AVG
10596.000	40.77	9.56	50.33	74.00	-23.67	V	peak
15780.000	39.84	11.08	50.92	74.00	-23.08	V	peak
2115.000	47.67	-3.75	43.92	74.00	-30.08	H	peak
3930.000	48.00	5.11	53.11	74.00	-20.89	H	peak
3930.000	36.07	5.11	41.18	54.00	-12.82	H	AVG
4300.000	45.53	7.66	53.19	74.00	-20.81	H	peak
4300.000	35.34	7.66	43.00	54.00	-11.00	H	AVG
4950.000	45.45	7.37	52.82	74.00	-21.18	H	peak
4950.000	35.25	7.37	42.62	54.00	-11.38	H	AVG
5570.000	44.61	9.10	53.71	74.00	-20.29	H	peak
5570.000	35.00	9.10	44.10	54.00	-9.90	H	AVG
5935.000	45.68	9.08	54.76	74.00	-19.24	H	peak
5935.000	34.90	9.08	43.98	54.00	-10.02	H	AVG
10776.000	40.06	9.85	49.91	74.00	-24.09	H	peak
16092.000	38.96	11.19	50.15	74.00	-23.85	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 802.11ac HT80 mode / 5290MHz **Test Date:** 2014/6/17~18

Temperature: 26°C **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
1945.000	48.37	-2.17	46.20	74.00	-27.80	V	peak
3745.000	46.87	3.02	49.89	74.00	-24.11	V	peak
4915.000	46.12	4.51	50.63	74.00	-23.37	V	peak
5855.000	45.10	5.75	50.85	74.00	-23.15	V	peak
11460.000	38.73	10.57	49.30	74.00	-24.70	V	peak
15792.000	39.83	11.07	50.90	74.00	-23.10	V	peak
2895.000	47.98	-1.77	46.21	74.00	-27.79	H	peak
4255.000	46.29	6.90	53.19	74.00	-20.81	H	peak
4255.000	35.35	6.90	42.25	54.00	-11.75	H	AVG
4895.000	45.58	7.07	52.65	74.00	-21.35	H	peak
4895.000	35.12	7.07	42.19	54.00	-11.81	H	AVG
5580.000	44.99	9.13	54.12	74.00	-19.88	H	peak
5580.000	34.93	9.13	44.06	54.00	-9.94	H	AVG
5900.000	45.47	9.22	54.69	74.00	-19.31	H	peak
5900.000	34.59	9.22	43.81	54.00	-10.19	H	AVG
11388.000	38.88	10.51	49.39	74.00	-24.61	H	peak
15264.000	40.74	12.18	52.92	74.00	-21.08	H	peak
15264.000	28.27	12.18	40.45	54.00	-13.55	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11a mode / 5500 ~ 5700MHz / Low **Test Date:** 2014/6/16~17**Temperature:** 26°C **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
2220.000	48.42	-1.37	47.05	74.00	-26.95	V	peak
4010.000	46.83	3.45	50.28	74.00	-23.72	V	peak
5005.000	45.24	5.27	50.51	74.00	-23.49	V	peak
5880.000	45.58	6.03	51.61	74.00	-22.39	V	peak
5880.000	35.11	6.03	41.14	54.00	-12.86	V	AVG
10824.000	39.08	9.92	49.00	74.00	-25.00	V	peak
16188.000	39.09	11.43	50.52	74.00	-23.48	V	peak
2165.000	47.80	-3.64	44.16	74.00	-29.84	H	peak
4315.000	47.18	7.55	54.73	74.00	-19.27	H	peak
4315.000	35.59	7.55	43.14	54.00	-10.86	H	AVG
4465.000	47.12	6.72	53.84	74.00	-20.16	H	peak
4465.000	35.56	6.72	42.28	54.00	-11.72	H	AVG
5015.000	47.19	7.40	54.59	74.00	-19.41	H	peak
5015.000	35.09	7.40	42.49	54.00	-11.51	H	AVG
5955.000	45.71	9.01	54.72	74.00	-19.28	H	peak
5955.000	35.17	9.01	44.18	54.00	-9.82	H	AVG
11532.000	38.70	10.61	49.31	74.00	-24.69	H	peak
15576.000	39.44	11.19	50.63	74.00	-23.37	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 / 5500 ~ 5700MHz / Mid **Test Date:** 2014/6/16~17

Temperature: 26°C **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
2425.000	48.88	-1.48	47.40	74.00	-26.60	V	peak
3660.000	47.31	2.65	49.96	74.00	-24.04	V	peak
5150.000	46.85	4.96	51.81	74.00	-22.19	V	peak
5150.000	35.17	4.96	40.13	54.00	-13.87	V	AVG
5735.000	47.83	5.66	53.49	74.00	-20.51	V	peak
5735.000	37.56	5.66	43.22	54.00	-10.78	V	AVG
11172.000	39.74	10.34	50.08	74.00	-23.92	V	peak
16104.000	40.08	11.22	51.30	74.00	-22.70	V	peak
16104.000	28.95	11.22	40.17	54.00	-13.83	V	AVG
2095.000	48.71	-3.91	44.80	74.00	-29.20	H	peak
3680.000	47.55	3.85	51.40	74.00	-22.60	H	peak
3680.000	35.97	3.85	39.82	54.00	-14.18	H	AVG
4365.000	46.12	7.18	53.30	74.00	-20.70	H	peak
4365.000	35.57	7.18	42.75	54.00	-11.25	H	AVG
4920.000	46.13	7.24	53.37	74.00	-20.63	H	peak
4920.000	35.37	7.24	42.61	54.00	-11.39	H	AVG
5945.000	45.88	9.04	54.92	74.00	-19.08	H	peak
5945.000	34.93	9.04	43.97	54.00	-10.03	H	AVG
11160.000	40.43	10.33	50.76	74.00	-23.24	H	peak
15972.000	40.16	10.98	51.14	74.00	-22.86	H	peak
15972.000	28.71	10.98	39.69	54.00	-14.31	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11a mode / 5500 ~ 5700MHz / High **Test Date:** 2014/6/16~17**Temperature:** 26°C **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
2185.000	48.58	-1.67	46.91	74.00	-27.09	V	peak
3825.000	47.14	3.13	50.27	74.00	-23.73	V	peak
5255.000	45.98	5.38	51.36	74.00	-22.64	V	peak
5255.000	35.27	5.38	40.65	54.00	-13.35	V	AVG
5905.000	45.42	6.21	51.63	74.00	-22.37	V	peak
5905.000	35.23	6.21	41.44	54.00	-12.56	V	AVG
11400.000	42.18	10.52	52.70	74.00	-21.30	V	peak
11400.000	36.23	10.52	46.75	54.00	-7.25	V	AVG
16104.000	38.64	11.22	49.86	74.00	-24.14	V	peak
2090.000	49.01	-4.04	44.97	74.00	-29.03	H	peak
4355.000	46.05	7.25	53.30	74.00	-20.70	H	peak
4355.000	35.62	7.25	42.87	54.00	-11.13	H	AVG
4910.000	46.27	7.19	53.46	74.00	-20.54	H	peak
4910.000	35.51	7.19	42.70	54.00	-11.30	H	AVG
5925.000	45.52	9.12	54.64	74.00	-19.36	H	peak
5925.000	35.14	9.12	44.26	54.00	-9.74	H	AVG
11400.000	40.11	10.52	50.63	74.00	-23.37	H	peak
16164.000	39.05	11.37	50.42	74.00	-23.58	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11n HT20 mode / 5500 ~ 5700MHz / Low **Test Date:** 2014/6/17~18

Temperature: 26°C **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	48.23	-1.30	46.93	74.00	-27.07	V	peak
3780.000	46.22	3.45	49.67	74.00	-24.33	V	peak
5235.000	45.86	5.44	51.30	74.00	-22.70	V	peak
5235.000	35.32	5.44	40.76	54.00	-13.24	V	AVG
5895.000	45.09	6.20	51.29	74.00	-22.71	V	peak
5895.000	35.21	6.20	41.41	54.00	-12.59	V	AVG
11760.000	40.29	10.68	50.97	74.00	-23.03	V	peak
15612.000	38.42	11.17	49.59	74.00	-24.41	V	peak
2120.000	49.21	-3.74	45.47	74.00	-28.53	H	peak
4360.000	46.08	7.22	53.30	74.00	-20.70	H	peak
4360.000	35.56	7.22	42.78	54.00	-11.22	H	AVG
4705.000	45.64	7.22	52.86	74.00	-21.14	H	peak
4705.000	35.72	7.22	42.94	54.00	-11.06	H	AVG
5000.000	46.11	7.59	53.70	74.00	-20.30	H	peak
5000.000	35.16	7.59	42.75	54.00	-11.25	H	AVG
5655.000	45.55	8.59	54.14	74.00	-19.86	H	peak
5655.000	34.92	8.59	43.51	54.00	-10.49	H	AVG
5940.000	45.55	9.06	54.61	74.00	-19.39	H	peak
5940.000	35.16	9.06	44.22	54.00	-9.78	H	AVG
11016.000	41.94	10.21	52.15	74.00	-21.85	H	peak
11016.000	30.26	10.21	40.47	54.00	-13.53	H	AVG
16128.000	40.18	11.28	51.46	74.00	-22.54	H	peak
16128.000	26.55	11.28	37.83	54.00	-16.17	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 / 5500 ~ 5700MHz / Mid Test Date: 2014/6/17~18

Temperature: 26°C Tested by: Francis Lee

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

Table with 8 columns: Freq. (MHz), Reading (dBuV), Correct Factor (dB/m), Result (dBuV/m), Limit (dBuV/m), Margin (dB), Ant. Pol H/V, Remark. It contains 24 rows of measurement data.

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 / 5500 ~ 5700MHz / High **Test Date:** 2014/6/17~18

Temperature: 26°C **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
2200.000	48.48	-1.33	47.15	74.00	-26.85	V	peak
4020.000	47.06	3.42	50.48	74.00	-23.52	V	peak
5220.000	45.88	5.48	51.36	74.00	-22.64	V	peak
5220.000	35.51	5.48	40.99	54.00	-13.01	V	AVG
5890.000	45.77	6.15	51.92	74.00	-22.08	V	peak
5890.000	35.45	6.15	41.60	54.00	-12.40	V	AVG
11400.000	42.42	10.52	52.94	74.00	-21.06	V	peak
11400.000	37.57	10.52	48.09	54.00	-5.91	V	AVG
15804.000	39.65	11.07	50.72	74.00	-23.28	V	peak
2185.000	47.79	-3.59	44.20	74.00	-29.80	H	peak
4360.000	46.63	7.22	53.85	74.00	-20.15	H	peak
4360.000	35.55	7.22	42.77	54.00	-11.23	H	AVG
4680.000	45.90	7.03	52.93	74.00	-21.07	H	peak
4680.000	35.60	7.03	42.63	54.00	-11.37	H	AVG
5435.000	45.53	8.55	54.08	74.00	-19.92	H	peak
5435.000	35.04	8.55	43.59	54.00	-10.41	H	AVG
5965.000	45.27	8.97	54.24	74.00	-19.76	H	peak
5965.000	35.29	8.97	44.26	54.00	-9.74	H	AVG
11400.000	41.54	10.52	52.06	74.00	-21.94	H	peak
11400.000	37.87	10.52	48.39	54.00	-5.61	H	AVG
16428.000	40.28	12.02	52.30	74.00	-21.70	H	peak
16428.000	29.31	12.02	41.33	54.00	-12.67	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11n HT40 mode / 5510 ~ 5670MHz / Low **Test Date:** 2014/6/17~18
Temperature: 26°C **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
2135.000	48.78	-2.79	45.99	74.00	-28.01	V	peak
4040.000	46.19	3.34	49.53	74.00	-24.47	V	peak
5020.000	45.56	5.13	50.69	74.00	-23.31	V	peak
5840.000	45.61	5.58	51.19	74.00	-22.81	V	peak
5840.000	35.44	5.58	41.02	54.00	-12.98	V	AVG
11004.000	39.71	10.20	49.91	74.00	-24.09	V	peak
15768.000	39.81	11.09	50.90	74.00	-23.10	V	peak
2125.000	48.03	-3.72	44.31	74.00	-29.69	H	peak
3620.000	47.33	4.08	51.41	74.00	-22.59	H	peak
3620.000	36.11	4.08	40.19	54.00	-13.81	H	AVG
4345.000	45.71	7.33	53.04	74.00	-20.96	H	peak
4345.000	35.46	7.33	42.79	54.00	-11.21	H	AVG
4910.000	46.46	7.19	53.65	74.00	-20.35	H	peak
4910.000	35.41	7.19	42.60	54.00	-11.40	H	AVG
5885.000	45.71	8.85	54.56	74.00	-19.44	H	peak
5885.000	35.22	8.85	44.07	54.00	-9.93	H	AVG
10668.000	39.39	9.68	49.07	74.00	-24.93	H	peak
15552.000	39.18	11.20	50.38	74.00	-23.62	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11n HT40 mode / 5510 ~ 5670MHz / Mid **Test Date:** 2014/6/17~18
Temperature: 26°C **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
2135.000	50.14	-2.79	47.35	74.00	-26.65	V	peak
3755.000	46.52	3.14	49.66	74.00	-24.34	V	peak
5000.000	45.30	5.32	50.62	74.00	-23.38	V	peak
5905.000	44.88	6.21	51.09	74.00	-22.91	V	peak
5905.000	35.15	6.21	41.36	54.00	-12.64	V	AVG
11076.000	39.34	10.26	49.60	74.00	-24.40	V	peak
16032.000	39.83	11.04	50.87	74.00	-23.13	V	peak
2115.000	47.73	-3.75	43.98	74.00	-30.02	H	peak
3620.000	46.73	4.08	50.81	74.00	-23.19	H	peak
4320.000	46.37	7.51	53.88	74.00	-20.12	H	peak
4320.000	35.32	7.51	42.83	54.00	-11.17	H	AVG
4965.000	46.52	7.44	53.96	74.00	-20.04	H	peak
4965.000	35.14	7.44	42.58	54.00	-11.42	H	AVG
5975.000	45.18	8.93	54.11	74.00	-19.89	H	peak
5975.000	35.15	8.93	44.08	54.00	-9.92	H	AVG
11856.000	38.58	10.71	49.29	74.00	-24.71	H	peak
16032.000	39.92	11.04	50.96	74.00	-23.04	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11n HT40 mode / 5510 ~ 5670MHz / High **Test Date:** 2014/6/18~20
Temperature: 26°C **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
2455.000	47.84	-1.26	46.58	74.00	-27.42	V	peak
3655.000	46.87	2.68	49.55	74.00	-24.45	V	peak
4460.000	46.70	2.22	48.92	74.00	-25.08	V	peak
5385.000	45.61	6.22	51.83	74.00	-22.17	V	peak
5385.000	34.58	6.22	40.80	54.00	-13.20	V	AVG
5890.000	46.40	6.15	52.55	74.00	-21.45	V	peak
5890.000	34.25	6.15	40.40	54.00	-13.60	V	AVG
11316.000	39.57	10.45	50.02	74.00	-23.98	V	peak
16092.000	39.91	11.19	51.10	74.00	-22.90	V	peak
16092.000	28.82	11.19	40.01	54.00	-13.99	V	AVG
2210.000	48.61	-3.84	44.77	74.00	-29.23	H	peak
4355.000	45.34	7.25	52.59	74.00	-21.41	H	peak
4355.000	34.95	7.25	42.20	54.00	-11.80	H	AVG
4930.000	45.89	7.28	53.17	74.00	-20.83	H	peak
4930.000	34.34	7.28	41.62	54.00	-12.38	H	AVG
5440.000	45.17	8.58	53.75	74.00	-20.25	H	peak
5440.000	34.66	8.58	43.24	54.00	-10.76	H	AVG
5892.000	45.55	9.02	54.57	74.00	-19.43	H	peak
5892.000	36.29	9.02	45.31	54.00	-8.69	H	AVG
11316.000	40.42	10.45	50.87	74.00	-23.13	H	peak
16044.000	39.97	11.07	51.04	74.00	-22.96	H	peak
16044.000	28.59	11.07	39.66	54.00	-14.34	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 802.11ac HT80 mode / 5530MHz **Test Date:** 2014/6/17~18

Temperature: 26°C **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
2235.000	48.56	-1.41	47.15	74.00	-26.85	V	peak
3755.000	46.13	3.14	49.27	74.00	-24.73	V	peak
4855.000	46.83	3.36	50.19	74.00	-23.81	V	peak
5930.000	44.86	5.94	50.80	74.00	-23.20	V	peak
11592.000	38.99	10.63	49.62	74.00	-24.38	V	peak
15732.000	39.54	11.10	50.64	74.00	-23.36	V	peak
2100.000	47.78	-3.78	44.00	74.00	-30.00	H	peak
4360.000	45.65	7.22	52.87	74.00	-21.13	H	peak
4360.000	35.35	7.22	42.57	54.00	-11.43	H	AVG
4650.000	46.18	6.62	52.80	74.00	-21.20	H	peak
4650.000	36.00	6.62	42.62	54.00	-11.38	H	AVG
4990.000	45.08	7.55	52.63	74.00	-21.37	H	peak
4990.000	34.97	7.55	42.52	54.00	-11.48	H	AVG
5920.000	44.67	9.14	53.81	74.00	-20.19	H	peak
5920.000	34.99	9.14	44.13	54.00	-9.87	H	AVG
10848.000	39.40	9.96	49.36	74.00	-24.64	H	peak
15948.000	39.62	10.99	50.61	74.00	-23.39	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 / CH Low **Test Date:** 2014/6/17~18

Temperature: 26°C

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
2135.000	49.88	-2.79	47.09	74.00	-26.91	V	peak
3780.000	46.14	3.45	49.59	74.00	-24.41	V	peak
5555.000	46.00	6.05	52.05	74.00	-21.95	V	peak
5555.000	35.03	6.05	41.08	54.00	-12.92	V	AVG
5960.000	45.81	5.62	51.43	74.00	-22.57	V	peak
5960.000	35.30	5.62	40.92	54.00	-13.08	V	AVG
11496.000	42.58	10.60	53.18	74.00	-20.82	V	peak
11496.000	37.10	10.60	47.70	54.00	-6.30	V	AVG
15828.000	39.09	11.05	50.14	74.00	-23.86	V	peak
2135.000	47.79	-3.70	44.09	74.00	-29.91	H	peak
4290.000	45.80	7.49	53.29	74.00	-20.71	H	peak
4290.000	35.48	7.49	42.97	54.00	-11.03	H	AVG
4945.000	46.28	7.35	53.63	74.00	-20.37	H	peak
4945.000	35.21	7.35	42.56	54.00	-11.44	H	AVG
5900.000	45.98	9.22	55.20	74.00	-18.80	H	peak
5900.000	35.29	9.22	44.51	54.00	-9.49	H	AVG
11496.000	42.44	10.60	53.04	74.00	-20.96	H	peak
11496.000	34.78	10.60	45.38	54.00	-8.62	H	AVG
15852.000	38.07	11.04	49.11	74.00	-24.89	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 / CH Mid **Test Date:** 2014/6/17~18

Temperature: 26°C

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
2135.000	50.38	-2.79	47.59	74.00	-26.41	V	peak
3765.000	46.59	3.26	49.85	74.00	-24.15	V	peak
4925.000	45.87	4.61	50.48	74.00	-23.52	V	peak
5455.000	45.49	6.30	51.79	74.00	-22.21	V	peak
5455.000	35.44	6.30	41.74	54.00	-12.26	V	AVG
11568.000	43.54	10.62	54.16	74.00	-19.84	V	peak
11568.000	37.21	10.62	47.83	54.00	-6.17	V	AVG
16140.000	38.64	11.31	49.95	74.00	-24.05	V	peak
2155.000	48.06	-3.66	44.40	74.00	-29.60	H	peak
4295.000	45.62	7.58	53.20	74.00	-20.80	H	peak
4295.000	35.39	7.58	42.97	54.00	-11.03	H	AVG
4715.000	45.94	7.03	52.97	74.00	-21.03	H	peak
4715.000	35.57	7.03	42.60	54.00	-11.40	H	AVG
5605.000	45.12	9.14	54.26	74.00	-19.74	H	peak
5605.000	35.17	9.14	44.31	54.00	-9.69	H	AVG
5940.000	45.23	9.06	54.29	74.00	-19.71	H	peak
5940.000	35.65	9.06	44.71	54.00	-9.29	H	AVG
11568.000	42.57	10.62	53.19	74.00	-20.81	H	peak
11568.000	35.20	10.62	45.82	54.00	-8.18	H	AVG
16068.000	39.39	11.13	50.52	74.00	-23.48	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 / CH High **Test Date:** 2014/6/17~18

Temperature: 26°C

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
2185.000	48.33	-1.67	46.66	74.00	-27.34	V	peak
3790.000	46.19	3.57	49.76	74.00	-24.24	V	peak
5045.000	46.46	4.89	51.35	74.00	-22.65	V	peak
5045.000	35.88	4.89	40.77	54.00	-13.23	V	AVG
5665.000	45.83	5.93	51.76	74.00	-22.24	V	peak
5665.000	35.02	5.93	40.95	54.00	-13.05	V	AVG
11640.000	43.13	10.64	53.77	74.00	-20.23	V	peak
11640.000	38.80	10.64	49.44	54.00	-4.56	V	AVG
15864.000	39.00	11.03	50.03	74.00	-23.97	V	peak
3105.000	47.16	1.32	48.48	74.00	-25.52	H	peak
4345.000	46.11	7.33	53.44	74.00	-20.56	H	peak
4345.000	35.43	7.33	42.76	54.00	-11.24	H	AVG
5165.000	47.55	6.77	54.32	74.00	-19.68	H	peak
5165.000	34.87	6.77	41.64	54.00	-12.36	H	AVG
5550.000	45.58	9.03	54.61	74.00	-19.39	H	peak
5550.000	34.64	9.03	43.67	54.00	-10.33	H	AVG
5985.000	46.34	8.89	55.23	74.00	-18.77	H	peak
5985.000	35.20	8.89	44.09	54.00	-9.91	H	AVG
11652.000	42.79	10.65	53.44	74.00	-20.56	H	peak
11652.000	33.47	10.65	44.12	54.00	-9.88	H	AVG
16428.000	39.29	12.02	51.31	74.00	-22.69	H	peak
16428.000	28.20	12.02	40.22	54.00	-13.78	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).



Compliance Certification Services Inc.

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11n HT20 mode / CH Low

Test Date: 2014/6/17~18

Temperature: 26°C

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	48.11	-1.30	46.81	74.00	-27.19	V	peak
3825.000	46.70	3.13	49.83	74.00	-24.17	V	peak
4980.000	46.08	5.13	51.21	74.00	-22.79	V	peak
4980.000	35.08	5.13	40.21	54.00	-13.79	V	AVG
5395.000	44.73	6.33	51.06	74.00	-22.94	V	peak
5395.000	34.96	6.33	41.29	54.00	-12.71	V	AVG
5860.000	46.06	5.81	51.87	74.00	-22.13	V	peak
5860.000	35.15	5.81	40.96	54.00	-13.04	V	AVG
11496.000	41.54	10.60	52.14	74.00	-21.86	V	peak
11496.000	36.85	10.60	47.45	54.00	-6.55	V	AVG
16296.000	39.36	11.69	51.05	74.00	-22.95	V	peak
16296.000	28.05	11.69	39.74	54.00	-14.26	V	AVG
2085.000	49.42	-4.17	45.25	74.00	-28.75	H	peak
4670.000	46.72	6.89	53.61	74.00	-20.39	H	peak
4670.000	35.74	6.89	42.63	54.00	-11.37	H	AVG
4980.000	45.74	7.50	53.24	74.00	-20.76	H	peak
4980.000	35.15	7.50	42.65	54.00	-11.35	H	AVG
5565.000	44.77	9.08	53.85	74.00	-20.15	H	peak
5565.000	34.94	9.08	44.02	54.00	-9.98	H	AVG
5940.000	45.50	9.06	54.56	74.00	-19.44	H	peak
5940.000	34.91	9.06	43.97	54.00	-10.03	H	AVG
11496.000	40.73	10.60	51.33	74.00	-22.67	H	peak
11496.000	35.91	10.60	46.51	54.00	-7.49	H	AVG
15936.000	39.27	10.99	50.26	74.00	-23.74	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11n HT20 mode /
CH Mid**Test Date:** 2014/6/17~18**Temperature:** 26°C**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	49.25	-1.30	47.95	74.00	-26.05	V	peak
3950.000	47.30	2.48	49.78	74.00	-24.22	V	peak
5150.000	46.63	4.96	51.59	74.00	-22.41	V	peak
5150.000	34.99	4.96	39.95	54.00	-14.05	V	AVG
5605.000	46.12	5.91	52.03	74.00	-21.97	V	peak
5605.000	35.00	5.91	40.91	54.00	-13.09	V	AVG
11568.000	42.91	10.62	53.53	74.00	-20.47	V	peak
11568.000	37.40	10.62	48.02	54.00	-5.98	V	AVG
16008.000	39.30	10.98	50.28	74.00	-23.72	V	peak
2120.000	48.00	-3.74	44.26	74.00	-29.74	H	peak
3915.000	46.67	5.16	51.83	74.00	-22.17	H	peak
3915.000	36.04	5.16	41.20	54.00	-12.80	H	AVG
4345.000	45.73	7.33	53.06	74.00	-20.94	H	peak
4345.000	35.60	7.33	42.93	54.00	-11.07	H	AVG
5460.000	45.89	8.67	54.56	74.00	-19.44	H	peak
5460.000	35.11	8.67	43.78	54.00	-10.22	H	AVG
5545.000	44.86	9.01	53.87	74.00	-20.13	H	peak
5545.000	34.90	9.01	43.91	54.00	-10.09	H	AVG
11568.000	42.52	10.62	53.14	74.00	-20.86	H	peak
11568.000	35.17	10.62	45.79	54.00	-8.21	H	AVG
15972.000	38.79	10.98	49.77	74.00	-24.23	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11n HT20 mode /
CH High**Test Date:** 2014/6/17~18**Temperature:** 26°C**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	48.96	-1.30	47.66	74.00	-26.34	V	peak
3610.000	47.00	2.88	49.88	74.00	-24.12	V	peak
5000.000	45.14	5.32	50.46	74.00	-23.54	V	peak
5415.000	44.80	6.37	51.17	74.00	-22.83	V	peak
5415.000	35.02	6.37	41.39	54.00	-12.61	V	AVG
11640.000	42.88	10.64	53.52	74.00	-20.48	V	peak
11640.000	37.04	10.64	47.68	54.00	-6.32	V	AVG
15864.000	39.60	11.03	50.63	74.00	-23.37	V	peak
2105.000	48.54	-3.77	44.77	74.00	-29.23	H	peak
3160.000	47.67	1.18	48.85	74.00	-25.15	H	peak
4345.000	45.53	7.33	52.86	74.00	-21.14	H	peak
4345.000	35.50	7.33	42.83	54.00	-11.17	H	AVG
5385.000	45.93	8.20	54.13	74.00	-19.87	H	peak
5385.000	34.97	8.20	43.17	54.00	-10.83	H	AVG
5580.000	45.35	9.13	54.48	74.00	-19.52	H	peak
5580.000	34.92	9.13	44.05	54.00	-9.95	H	AVG
11652.000	43.98	10.65	54.63	74.00	-19.37	H	peak
11652.000	37.18	10.65	47.83	54.00	-6.17	H	AVG
15900.000	38.89	11.01	49.90	74.00	-24.10	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11n HT40 mode
/ CH Low**Test Date:** 2014/6/17~18**Temperature:** 26°C**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
2455.000	47.98	-1.26	46.72	74.00	-27.28	V	peak
3825.000	46.78	3.13	49.91	74.00	-24.09	V	peak
4460.000	46.70	2.22	48.92	74.00	-25.08	V	peak
5380.000	45.18	6.16	51.34	74.00	-22.66	V	peak
5380.000	34.47	6.16	40.63	54.00	-13.37	V	AVG
11496.000	40.61	10.60	51.21	74.00	-22.79	V	peak
11496.000	35.51	10.60	46.11	54.00	-7.89	V	AVG
16224.000	40.29	11.52	51.81	74.00	-22.19	V	peak
16224.000	28.59	11.52	40.11	54.00	-13.89	V	AVG
2215.000	48.62	-3.98	44.64	74.00	-29.36	H	peak
4350.000	45.57	7.29	52.86	74.00	-21.14	H	peak
4350.000	34.81	7.29	42.10	54.00	-11.90	H	AVG
4925.000	45.67	7.26	52.93	74.00	-21.07	H	peak
4925.000	34.65	7.26	41.91	54.00	-12.09	H	AVG
5440.000	45.17	8.58	53.75	74.00	-20.25	H	peak
5440.000	34.66	8.58	43.24	54.00	-10.76	H	AVG
5890.000	45.92	8.98	54.90	74.00	-19.10	H	peak
5890.000	36.05	8.98	45.03	54.00	-8.97	H	AVG
11496.000	40.05	10.60	50.65	74.00	-23.35	H	peak
16176.000	40.29	11.40	51.69	74.00	-22.31	H	peak
16176.000	28.52	11.40	39.92	54.00	-14.08	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).

**Compliance Certification Services Inc.**

Report No.: T140317J01-RP2

FCC ID: KA2CS7000LA1

Date of Issue: September 17, 2014

Operation Mode: TX / IEEE 802.11n HT40 mode
/ CH High**Test Date:** 2014/6/17~18**Temperature:** 26°C**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	47.82	-1.46	46.36	74.00	-27.64	V	peak
4115.000	46.03	3.03	49.06	74.00	-24.94	V	peak
5235.000	45.39	5.44	50.83	74.00	-23.17	V	peak
5610.000	46.27	5.91	52.18	74.00	-21.82	V	peak
5610.000	34.82	5.91	40.73	54.00	-13.27	V	AVG
11568.000	40.24	10.62	50.86	74.00	-23.14	V	peak
15552.000	40.13	11.20	51.33	74.00	-22.67	V	peak
15552.000	28.23	11.20	39.43	54.00	-14.57	V	AVG
2200.000	48.04	-3.56	44.48	74.00	-29.52	H	peak
4310.000	45.71	7.59	53.30	74.00	-20.70	H	peak
4310.000	34.87	7.59	42.46	54.00	-11.54	H	AVG
4715.000	46.52	7.03	53.55	74.00	-20.45	H	peak
4715.000	35.05	7.03	42.08	54.00	-11.92	H	AVG
5240.000	46.55	7.06	53.61	74.00	-20.39	H	peak
5240.000	34.44	7.06	41.50	54.00	-12.50	H	AVG
5600.000	44.88	9.20	54.08	74.00	-19.92	H	peak
5600.000	34.61	9.20	43.81	54.00	-10.19	H	AVG
11568.000	40.01	10.62	50.63	74.00	-23.37	H	peak
16332.000	39.54	11.78	51.32	74.00	-22.68	H	peak
16332.000	28.59	11.78	40.37	54.00	-13.63	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 802.11ac HT80 mode

Test Date: 2014/6/17~18

Temperature: 26°C

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	48.00	-1.46	46.54	74.00	-27.46	V	peak
3785.000	45.62	3.51	49.13	74.00	-24.87	V	peak
4920.000	45.99	4.56	50.55	74.00	-23.45	V	peak
5235.000	45.34	5.44	50.78	74.00	-23.22	V	peak
11556.000	39.67	10.62	50.29	74.00	-23.71	V	peak
15900.000	39.29	11.01	50.30	74.00	-23.70	V	peak
2155.000	47.85	-3.66	44.19	74.00	-29.81	H	peak
4040.000	46.97	5.08	52.05	74.00	-21.95	H	peak
4040.000	35.79	5.08	40.87	54.00	-13.13	H	AVG
4325.000	45.40	7.47	52.87	74.00	-21.13	H	peak
4325.000	35.32	7.47	42.79	54.00	-11.21	H	AVG
4975.000	45.72	7.48	53.20	74.00	-20.80	H	peak
4975.000	35.03	7.48	42.51	54.00	-11.49	H	AVG
5295.000	45.93	7.12	53.05	74.00	-20.95	H	peak
5295.000	35.00	7.12	42.12	54.00	-11.88	H	AVG
11160.000	38.89	10.33	49.22	74.00	-24.78	H	peak
16032.000	39.50	11.04	50.54	74.00	-23.46	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).



7.7 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 μ H/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 (dB μ V)	
	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.

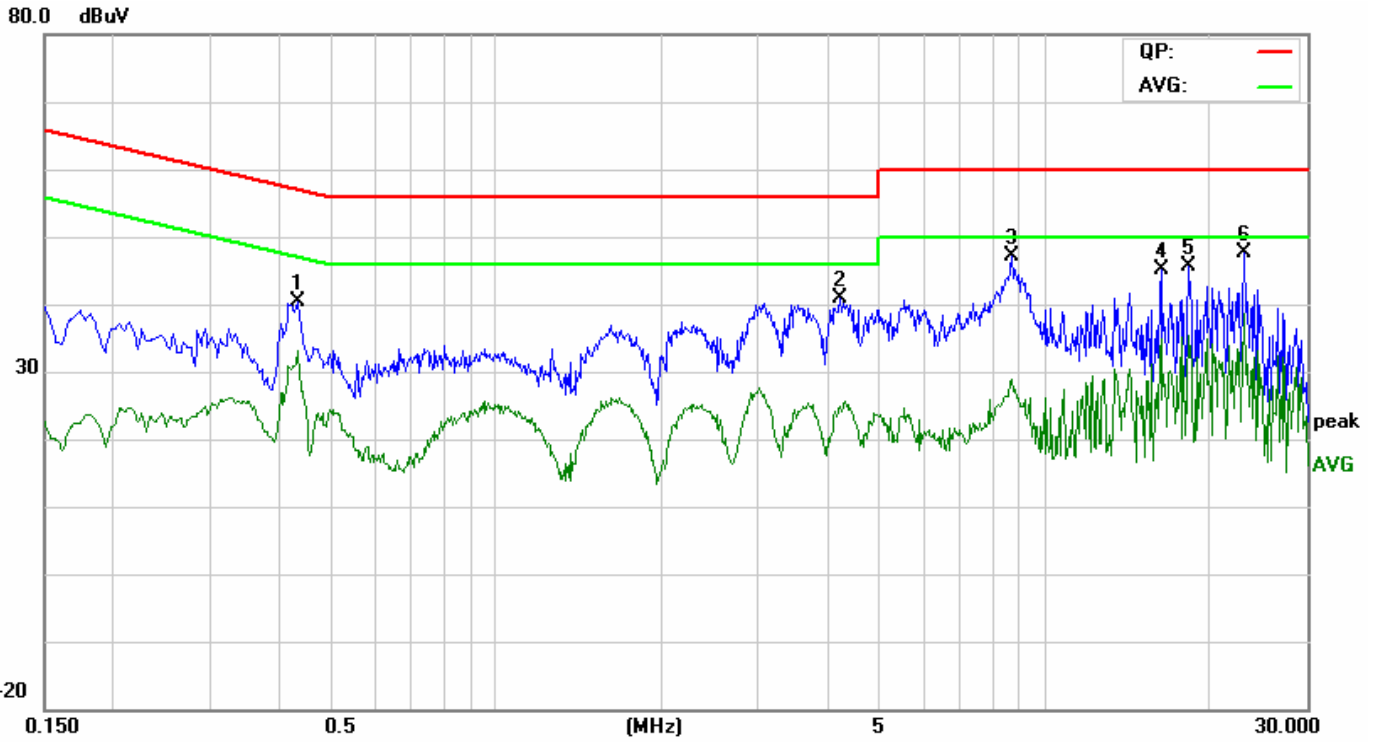
TEST RESULTS

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	LAN Mode	6dBBandwidth	9 kHz
Environmental Conditions	25°C, 57% RH	Test Date:	2014/5/19
Tested By	Tony Tsai	Line	L1

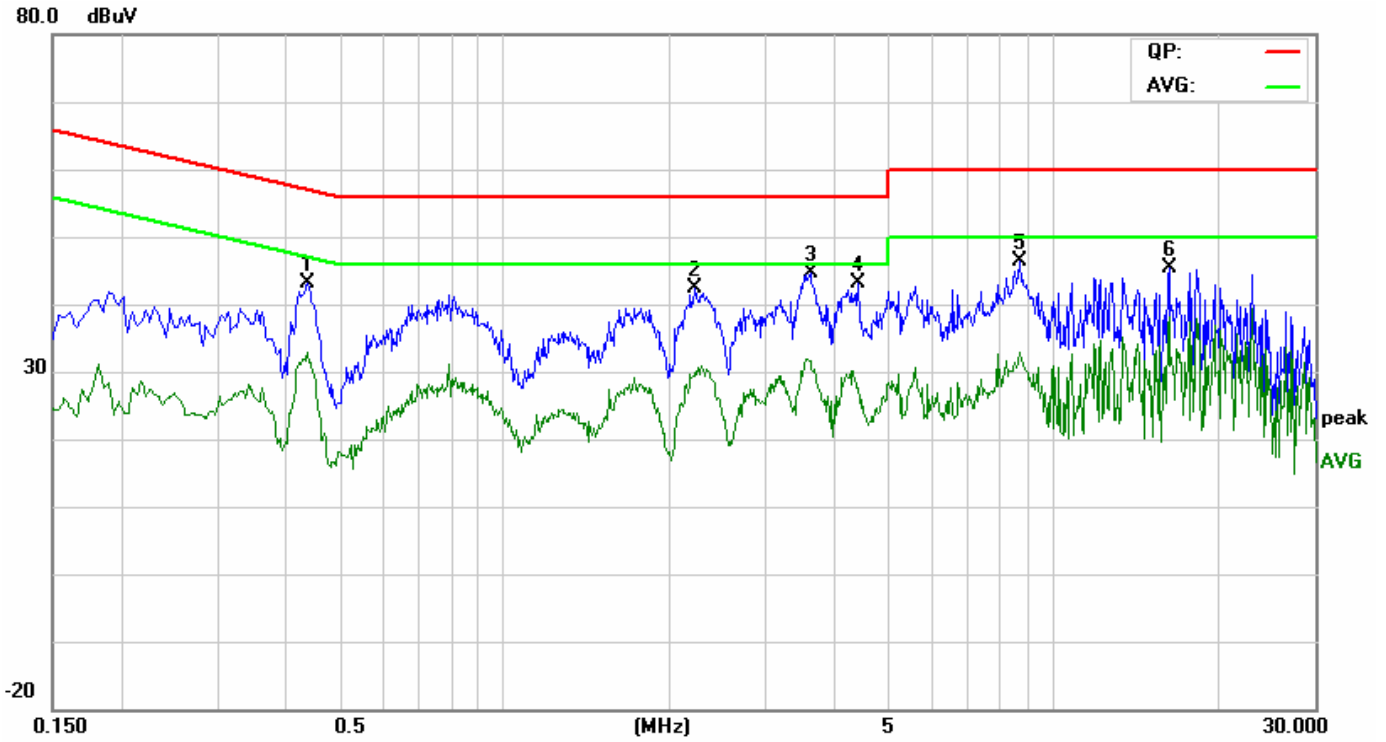


NO.	Frequency (MHz)	QuasiPeak			Average			QuasiPeak			Average			Remark
		reading	reading	factor	result	result	limit	limit	margin	margin	margin	margin		
1	0.4340	30.60	23.22	9.89	40.49	33.11	57.18	47.18	-16.69	-14.07		Pass		
2	4.2300	30.63	14.61	10.17	40.80	24.78	56.00	46.00	-15.20	-21.22		Pass		
3	8.7180	36.89	18.50	10.27	47.16	28.77	60.00	50.00	-12.84	-21.23		Pass		
4	16.2300	34.55	24.25	10.58	45.13	34.83	60.00	50.00	-14.87	-15.17		Pass		
5	18.2460	29.05	11.85	10.65	39.70	22.50	60.00	50.00	-20.30	-27.50		Pass		
6*	23.1300	36.76	27.62	10.91	47.67	38.53	60.00	50.00	-12.33	-11.47		Pass		

REMARKS:L1 = Line One (Live Line)



Test Mode	LAN Mode	6dBBandwidth	9 kHz
Environmental Conditions	25°C, 57% RH	Test Date:	2014/5/19
Tested By	Tony Tsai	Line	L2



NO.	Frequency (MHz)	QuasiPeak	Average	Correction factor (dB)	QuasiPeak	Average	QuasiPeak	Average	QuasiPeak	Average	Remark
		reading	reading		result	result					
1	0.4380	33.19	23.07	9.81	43.00	32.88	57.10	47.10	-14.10	-14.22	Pass
2	2.2260	32.34	20.00	10.00	42.34	30.00	56.00	46.00	-13.66	-16.00	Pass
3*	3.6180	34.40	21.47	10.12	44.52	31.59	56.00	46.00	-11.48	-14.41	Pass
4	4.4140	32.89	17.48	10.18	43.07	27.66	56.00	46.00	-12.93	-18.34	Pass
5	8.7180	35.99	22.52	10.31	46.30	32.83	60.00	50.00	-13.70	-17.17	Pass
6	16.2300	34.77	27.56	10.57	45.34	38.13	60.00	50.00	-14.66	-11.87	Pass

REMARKS:L2 = Line Two (Neutral Line)

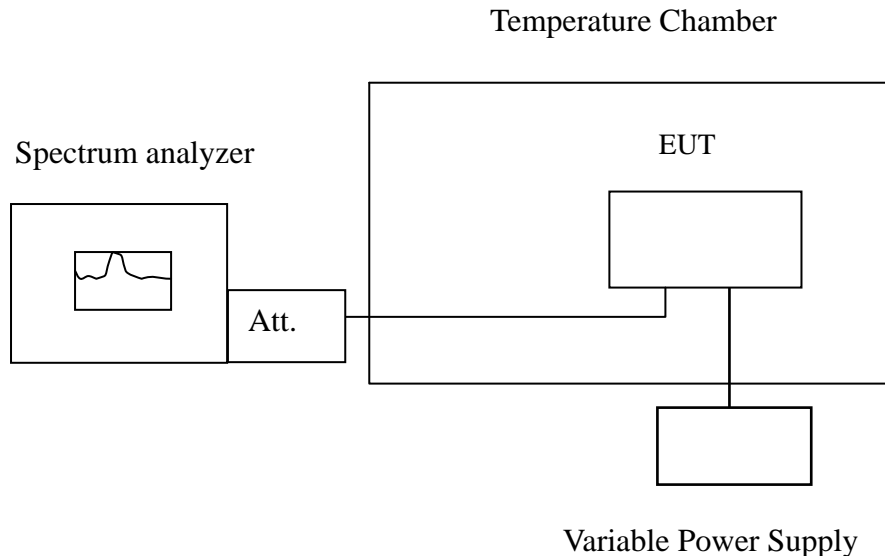


7.8 FREQUENCY STABILITY

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°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

TEST RESULTS

No non-compliance noted.



IEEE 802.11a / 5180 ~ 5240 MHz:

CH Low

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5179.928649	5150~5250	Pass
-10	120	5179.998292	5150~5250	Pass
0	120	5179.992895	5150~5250	Pass
10	120	5179.967972	5150~5250	Pass
20	120	5179.990118	5150~5250	Pass
30	120	5180.006566	5150~5250	Pass
40	120	5180.025492	5150~5250	Pass
50	120	5180.005545	5150~5250	Pass

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5179.972945	5150~5250	Pass
	120	5179.990395	5150~5250	Pass
	132	5180.004671	5150~5250	Pass



CH High

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5239.930444	5150~5250	Pass
-10	120	5239.964721	5150~5250	Pass
0	120	5239.982103	5150~5250	Pass
10	120	5239.963488	5150~5250	Pass
20	120	5240.013790	5150~5250	Pass
30	120	5240.003001	5150~5250	Pass
40	120	5240.018846	5150~5250	Pass
50	120	5240.037258	5150~5250	Pass

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5239.990520	5150~5250	Pass
	120	5239.990551	5150~5250	Pass
	132	5240.005689	5150~5250	Pass



IEEE 802.11n HT20 / 5180 ~ 5240 MHz:

CH Low

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5179.969865	5150~5250	Pass
-10	120	5179.964945	5150~5250	Pass
0	120	5179.969518	5150~5250	Pass
10	120	5179.990543	5150~5250	Pass
20	120	5180.018794	5150~5250	Pass
30	120	5180.005122	5150~5250	Pass
40	120	5180.015699	5150~5250	Pass
50	120	5180.012454	5150~5250	Pass

Operating Frequency: 5180 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5179.992159	5150~5250	Pass
	120	5179.981468	5150~5250	Pass
	132	5180.018245	5150~5250	Pass



CH High

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5239.961448	5150~5250	Pass
-10	120	5239.989086	5150~5250	Pass
0	120	5239.965936	5150~5250	Pass
10	120	5239.985853	5150~5250	Pass
20	120	5240.010293	5150~5250	Pass
30	120	5240.015488	5150~5250	Pass
40	120	5240.000495	5150~5250	Pass
50	120	5240.038554	5150~5250	Pass

Operating Frequency: 5240 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5239.979056	5150~5250	Pass
	120	5239.990994	5150~5250	Pass
	132	5240.007741	5150~5250	Pass



IEEE 802.11n HT40 / 5190 ~ 5230 MHz:

CH Low

Operating Frequency: 5190 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5189.981116	5150~5250	Pass
-10	120	5189.930998	5150~5250	Pass
0	120	5189.995786	5150~5250	Pass
10	120	5189.965165	5150~5250	Pass
20	120	5190.016499	5150~5250	Pass
30	120	5190.000937	5150~5250	Pass
40	120	5190.015578	5150~5250	Pass
50	120	5190.003320	5150~5250	Pass

Operating Frequency: 5190 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5189.990431	5150~5250	Pass
	120	5189.990333	5150~5250	Pass
	132	5190.025477	5150~5250	Pass



CH High

Operating Frequency: 5230 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5229.980549	5150~5250	Pass
-10	120	5229.999066	5150~5250	Pass
0	120	5229.997282	5150~5250	Pass
10	120	5229.996157	5150~5250	Pass
20	120	5230.015784	5150~5250	Pass
30	120	5230.009630	5150~5250	Pass
40	120	5230.004361	5150~5250	Pass
50	120	5230.043152	5150~5250	Pass

Operating Frequency: 5230 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5229.993331	5150~5250	Pass
	120	5229.983053	5150~5250	Pass
	132	5230.002702	5150~5250	Pass



IEEE 802.11ac HT80 / 5210MHz:

Operating Frequency: 5210 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5209.923970	5150~5250	Pass
-10	120	5209.950102	5150~5250	Pass
0	120	5209.983523	5150~5250	Pass
10	120	5209.977934	5150~5250	Pass
20	120	5210.008629	5150~5250	Pass
30	120	5210.002420	5150~5250	Pass
40	120	5210.019848	5150~5250	Pass
50	120	5210.043627	5150~5250	Pass

Operating Frequency: 5210 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5209.975383	5150~5250	Pass
	120	5209.990141	5150~5250	Pass
	132	5210.026635	5150~5250	Pass



IEEE 802.11a / 5260 ~ 5320 MHz:

CH Low

Operating Frequency: 5260 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5259.954697	5250~5350	Pass
-10	120	5259.965165	5250~5350	Pass
0	120	5259.957040	5250~5350	Pass
10	120	5259.983780	5250~5350	Pass
20	120	5260.013325	5250~5350	Pass
30	120	5260.012440	5250~5350	Pass
40	120	5260.006417	5250~5350	Pass
50	120	5260.035200	5250~5350	Pass

Operating Frequency: 5260 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5259.976996	5250~5350	Pass
	120	5259.992202	5250~5350	Pass
	132	5260.001791	5250~5350	Pass



CH High

Operating Frequency: 5320 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5319.950834	5250~5350	Pass
-10	120	5319.970582	5250~5350	Pass
0	120	5319.961744	5250~5350	Pass
10	120	5319.981837	5250~5350	Pass
20	120	5320.017151	5250~5350	Pass
30	120	5320.020248	5250~5350	Pass
40	120	5320.019283	5250~5350	Pass
50	120	5320.036113	5250~5350	Pass

Operating Frequency: 5320 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5319.972249	5250~5350	Pass
	120	5319.986964	5250~5350	Pass
	132	5320.020535	5250~5350	Pass



IEEE 802.11n HT20 / 5260 ~ 5320 MHz:

CH Low

Operating Frequency: 5260 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5259.992884	5250~5350	Pass
-10	120	5259.969071	5250~5350	Pass
0	120	5259.975872	5250~5350	Pass
10	120	5259.985602	5250~5350	Pass
20	120	5259.994845	5250~5350	Pass
30	120	5260.003248	5250~5350	Pass
40	120	5260.027593	5250~5350	Pass
50	120	5260.028959	5250~5350	Pass

Operating Frequency: 5260 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5259.983722	5250~5350	Pass
	120	5259.996607	5250~5350	Pass
	132	5260.029862	5250~5350	Pass



CH High

Operating Frequency: 5320 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5319.93004	5250~5350	Pass
-10	120	5319.950195	5250~5350	Pass
0	120	5319.983706	5250~5350	Pass
10	120	5319.960354	5250~5350	Pass
20	120	5320.002659	5250~5350	Pass
30	120	5320.0038	5250~5350	Pass
40	120	5320.021534	5250~5350	Pass
50	120	5320.01693	5250~5350	Pass

Operating Frequency: 5320 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5319.981064	5250~5350	Pass
	120	5319.98873	5250~5350	Pass
	132	5320.005032	5250~5350	Pass



IEEE 802.11n HT40 / 5270 ~ 5310 MHz:

CH Low

Operating Frequency: 5270 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5269.939182	5250~5350	Pass
-10	120	5269.975235	5250~5350	Pass
0	120	5269.958771	5250~5350	Pass
10	120	5269.990603	5250~5350	Pass
20	120	5270.013604	5250~5350	Pass
30	120	5270.015525	5250~5350	Pass
40	120	5270.025043	5250~5350	Pass
50	120	5270.018783	5250~5350	Pass

Operating Frequency: 5270 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5269.968110	5250~5350	Pass
	120	5269.987699	5250~5350	Pass
	132	5270.020058	5250~5350	Pass



CH High

Operating Frequency: 5310 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5309.923486	5250~5350	Pass
-10	120	5309.956495	5250~5350	Pass
0	120	5309.958673	5250~5350	Pass
10	120	5309.961789	5250~5350	Pass
20	120	5310.001122	5250~5350	Pass
30	120	5310.014595	5250~5350	Pass
40	120	5310.011150	5250~5350	Pass
50	120	5310.043453	5250~5350	Pass

Operating Frequency: 5310 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5309.974017	5250~5350	Pass
	120	5309.988483	5250~5350	Pass
	132	5310.024961	5250~5350	Pass



IEEE 802.11ac HT80 / 5290MHz:

Operating Frequency: 5290 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5289.933689	5250~5350	Pass
-10	120	5289.940045	5250~5350	Pass
0	120	5289.952410	5250~5350	Pass
10	120	5289.999332	5250~5350	Pass
20	120	5290.012901	5250~5350	Pass
30	120	5290.012303	5250~5350	Pass
40	120	5290.033824	5250~5350	Pass
50	120	5290.013317	5250~5350	Pass

Operating Frequency: 5290 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5289.972694	5250~5350	Pass
	120	5289.986186	5250~5350	Pass
	132	5290.006175	5250~5350	Pass



IEEE 802.11a / 5500 ~ 5700 MHz:

CH Low

Operating Frequency: 5500 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5499.974869	5470~5725	Pass
-10	120	5499.952986	5470~5725	Pass
0	120	5499.968137	5470~5725	Pass
10	120	5499.985179	5470~5725	Pass
20	120	5500.015019	5470~5725	Pass
30	120	5500.023058	5470~5725	Pass
40	120	5500.031388	5470~5725	Pass
50	120	5500.007049	5470~5725	Pass

Operating Frequency: 5500 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5499.993831	5470~5725	Pass
	120	5499.998819	5470~5725	Pass
	132	5500.028136	5470~5725	Pass



CH High

Operating Frequency: 5700 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5699.920474	5470~5725	Pass
-10	120	5699.970080	5470~5725	Pass
0	120	5699.976127	5470~5725	Pass
10	120	5699.974129	5470~5725	Pass
20	120	5700.010037	5470~5725	Pass
30	120	5700.026115	5470~5725	Pass
40	120	5700.008253	5470~5725	Pass
50	120	5700.014810	5470~5725	Pass

Operating Frequency: 5700 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5699.977401	5470~5725	Pass
	120	5699.998087	5470~5725	Pass
	132	5700.014430	5470~5725	Pass



IEEE 802.11n HT20 / 5500 ~ 5700 MHz:

CH Low

Operating Frequency: 5500 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5499.935314	5470~5725	Pass
-10	120	5499.987095	5470~5725	Pass
0	120	5499.988718	5470~5725	Pass
10	120	5499.994929	5470~5725	Pass
20	120	5500.003403	5470~5725	Pass
30	120	5500.001133	5470~5725	Pass
40	120	5500.021419	5470~5725	Pass
50	120	5500.018493	5470~5725	Pass

Operating Frequency: 5500 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5499.993425	5470~5725	Pass
	120	5499.995941	5470~5725	Pass
	132	5500.007337	5470~5725	Pass



CH High

Operating Frequency: 5700 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5699.967587	5470~5725	Pass
-10	120	5699.986777	5470~5725	Pass
0	120	5699.963985	5470~5725	Pass
10	120	5699.993065	5470~5725	Pass
20	120	5700.018086	5470~5725	Pass
30	120	5700.002394	5470~5725	Pass
40	120	5700.008588	5470~5725	Pass
50	120	5700.040322	5470~5725	Pass

Operating Frequency: 5700 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5699.985928	5470~5725	Pass
	120	5699.996029	5470~5725	Pass
	132	5700.021667	5470~5725	Pass



IEEE 802.11n HT40 / 5510 ~ 5670 MHz:

CH Low

Operating Frequency: 5510 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5509.956133	5470~5725	Pass
-10	120	5509.980846	5470~5725	Pass
0	120	5509.973281	5470~5725	Pass
10	120	5509.984760	5470~5725	Pass
20	120	5510.006002	5470~5725	Pass
30	120	5510.004588	5470~5725	Pass
40	120	5510.004514	5470~5725	Pass
50	120	5510.048197	5470~5725	Pass

Operating Frequency: 5510 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5509.976916	5470~5725	Pass
	120	5509.980480	5470~5725	Pass
	132	5510.003026	5470~5725	Pass



CH High

Operating Frequency: 5670 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5669.983108	5470~5725	Pass
-10	120	5669.941276	5470~5725	Pass
0	120	5669.960627	5470~5725	Pass
10	120	5669.981426	5470~5725	Pass
20	120	5670.007930	5470~5725	Pass
30	120	5670.029209	5470~5725	Pass
40	120	5670.037624	5470~5725	Pass
50	120	5670.023789	5470~5725	Pass

Operating Frequency: 5670 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5669.961968	5470~5725	Pass
	120	5669.986639	5470~5725	Pass
	132	5670.021549	5470~5725	Pass



IEEE 802.11ac HT80 / 5530MHz:

Operating Frequency: 5530 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5529.958649	5470~5725	Pass
-10	120	5529.934695	5470~5725	Pass
0	120	5529.978054	5470~5725	Pass
10	120	5529.997232	5470~5725	Pass
20	120	5530.009046	5470~5725	Pass
30	120	5530.018533	5470~5725	Pass
40	120	5530.033945	5470~5725	Pass
50	120	5530.044627	5470~5725	Pass

Operating Frequency: 5530 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5529.983407	5470~5725	Pass
	120	5529.995680	5470~5725	Pass
	132	5530.020130	5470~5725	Pass



IEEE 802.11a / 5745 ~ 5825MHz:

CH Low

Operating Frequency: 5745 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5744.999575	5725~5850	Pass
-10	120	5744.943964	5725~5850	Pass
0	120	5744.991332	5725~5850	Pass
10	120	5744.981880	5725~5850	Pass
20	120	5745.018386	5725~5850	Pass
30	120	5745.004606	5725~5850	Pass
40	120	5745.002134	5725~5850	Pass
50	120	5745.008568	5725~5850	Pass

Operating Frequency: 5745 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5744.985301	5725~5850	Pass
	120	5744.984948	5725~5850	Pass
	132	5745.019967	5725~5850	Pass



CH High

Operating Frequency: 5825 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5824.975847	5725~5850	Pass
-10	120	5824.979743	5725~5850	Pass
0	120	5824.967040	5725~5850	Pass
10	120	5824.994255	5725~5850	Pass
20	120	5825.005761	5725~5850	Pass
30	120	5825.010087	5725~5850	Pass
40	120	5825.013613	5725~5850	Pass
50	120	5825.031795	5725~5850	Pass

Operating Frequency: 5825 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5824.978953	5725~5850	Pass
	120	5824.986437	5725~5850	Pass
	132	5825.008952	5725~5850	Pass



IEEE 802.11n HT20 / 5745 ~ 5825MHz:

CH Low

Operating Frequency: 5745 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5744.938354	5725~5850	Pass
-10	120	5744.976047	5725~5850	Pass
0	120	5744.952815	5725~5850	Pass
10	120	5744.968481	5725~5850	Pass
20	120	5745.000060	5725~5850	Pass
30	120	5745.005043	5725~5850	Pass
40	120	5745.033796	5725~5850	Pass
50	120	5745.000833	5725~5850	Pass

Operating Frequency: 5745 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5744.998836	5725~5850	Pass
	120	5744.988684	5725~5850	Pass
	132	5745.023568	5725~5850	Pass



CH High

Operating Frequency: 5825 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5824.971858	5725~5850	Pass
-10	120	5824.950448	5725~5850	Pass
0	120	5824.987499	5725~5850	Pass
10	120	5824.988883	5725~5850	Pass
20	120	5825.011378	5725~5850	Pass
30	120	5825.010219	5725~5850	Pass
40	120	5825.007840	5725~5850	Pass
50	120	5825.039314	5725~5850	Pass

Operating Frequency: 5825 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5824.980077	5725~5850	Pass
	120	5824.988937	5725~5850	Pass
	132	5825.027689	5725~5850	Pass



IEEE 802.11n HT40 / 5755 ~ 5795MHz:

CH Low

Operating Frequency: 5755 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5754.978833	5725~5850	Pass
-10	120	5754.941332	5725~5850	Pass
0	120	5754.993831	5725~5850	Pass
10	120	5754.993864	5725~5850	Pass
20	120	5755.005804	5725~5850	Pass
30	120	5755.002203	5725~5850	Pass
40	120	5755.008243	5725~5850	Pass
50	120	5755.041992	5725~5850	Pass

Operating Frequency: 5755 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5754.992662	5725~5850	Pass
	120	5754.983163	5725~5850	Pass
	132	5755.004718	5725~5850	Pass



CH High

Operating Frequency: 5795 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5794.971710	5725~5850	Pass
-10	120	5794.986289	5725~5850	Pass
0	120	5794.979729	5725~5850	Pass
10	120	5794.954001	5725~5850	Pass
20	120	5794.963163	5725~5850	Pass
30	120	5795.018413	5725~5850	Pass
40	120	5795.027180	5725~5850	Pass
50	120	5795.023349	5725~5850	Pass

Operating Frequency: 5795 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5794.971351	5725~5850	Pass
	120	5794.997124	5725~5850	Pass
	132	5795.002831	5725~5850	Pass



IEEE 802.11ac HT80 / 5775MHz:

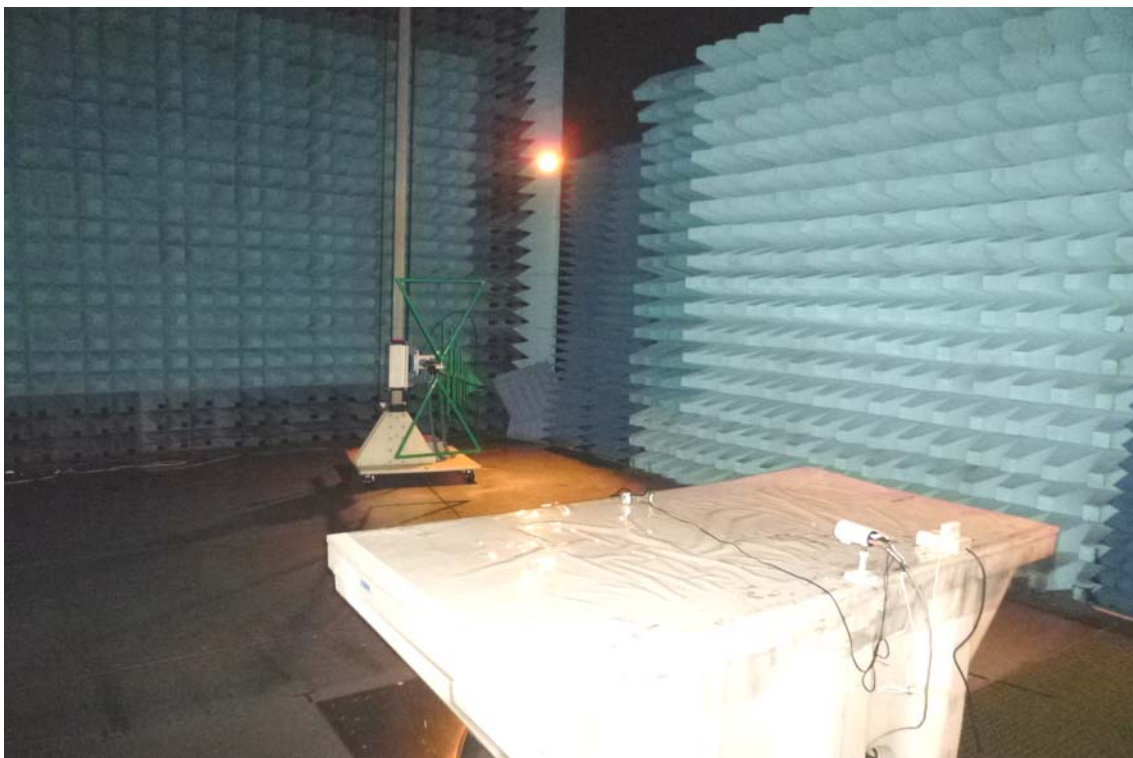
Operating Frequency: 5775 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
-20	120	5774.937728	5725~5850	Pass
-10	120	5774.936347	5725~5850	Pass
0	120	5774.985370	5725~5850	Pass
10	120	5774.966677	5725~5850	Pass
20	120	5775.013637	5725~5850	Pass
30	120	5775.018705	5725~5850	Pass
40	120	5775.025867	5725~5850	Pass
50	120	5775.046138	5725~5850	Pass

Operating Frequency: 5775 MHz				
Environment Temperature (°C)	Voltage (V)	Measured Frequency (MHz)	Limit Range	Test Result
20	108	5774.988207	5725~5850	Pass
	120	5774.986468	5725~5850	Pass
	132	5775.011933	5725~5850	Pass



8. APPENDIX I PHOTOGRAPHS OF TEST SETUP

Radiated Emission Set up Photos Below 1GHz





Above 1GHz





Conducted Emissions Setup Photo





Powerline Conducted Emissions Setup Photos





9. APPENDIX II: PHOTOGRAPHS OF EUT

Refer to T140317J01 External Photographs.