



Test report No. : 4789136426-US-R0-V0
Page : 1 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

RADIO TEST REPORT

Product : Digital Image Receptor
Model Name : 4343W
FCC ID : ZZ6-WUBT-236ACN
Test Regulation : FCC 47 CFR Part 15 Subpart E (Section 15.407)
Received Date : Aug. 15, 2019
Test Date : Aug. 30, 2019 ~ Sep 25, 2019
Issued Date : Jan. 31, 2020

Applicant : Varex Imaging Corporation
1678 South Pioneer Road, Salt Lake City, Utah 84104,
USA
Issued By : Underwriters Laboratories Taiwan Co., Ltd.
Building B and Building E, No. 372-7, Sec. 4, Zhongxing
Rd., Zhudong Township, Hsinchu County, Taiwan



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Doc No: 17-EM-F0878 / 3.0



Table Of Contents

1. Attestation of Test Results	4
2. Summary of Test Results	5
3. Test Methodology and Reference Procedures.....	6
4. Facilities and Accreditation.....	6
5. Measurement Uncertainty	7
6. Equipment under Test	8
6.1. Description of EUT	8
6.2. Channel List	10
6.3. Test Condition.....	11
6.4. Description Of Available Antennas	11
6.5. Test Mode Applicability and Tested Channel Detail.....	12
6.6. Duty cycle	13
7. Test Equipment.....	14
8. Description of Test Setup.....	16
9. Test Results.....	17
9.1. 6dB Bandwidth	17
9.2. 26dB Bandwidth	20
9.3. Occupied Bandwidth.....	23
9.4. Conducted output power	28
9.5. Power Spectral Density.....	32
9.6. Frequency Stability	40
9.7. Radiated Spurious Emission	42
Appendix I Radiated Band Edge and OOB Measurement.....	69
Appendix II Radiated Spurious Emission Measurement	80

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Test report No. : 4789136426-US-R0-V0
Page : 4 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

1. Attestation of Test Results

APPLICANT: Varex Imaging Corporation
1678 South Pioneer Road, Salt Lake City, Utah 84104, USA

MANUFACTURER Varex Imaging Corporation
1678 South Pioneer Road, Salt Lake City, Utah 84104, USA

EUT DESCRIPTION: Digital Image Receptor

BRAND: Varex Imaging

MODEL: 4343W

SAMPLE STAGE: DVT

DATE of TESTED: Aug. 30, 2019 ~ Sep 25, 2019

APPLICABLE STANDARDS

STANDARD

Test Results

FCC 47 CFR PART 15 Subpart E (Section 15.407)

PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Prepared By:

Cindy Hsin

Cindy Hsin
Project Handler

Date : Jan. 31, 2020

Approved and Authorized By:

Stanley Wu

Stanley Wu
Senior Project Engineer

Date : Jan. 31, 2020

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Doc No: 17-EM-F0878 / 3.0



2. Summary of Test Results

Summary of Test Results		
FCC Clause	Test Items	Result
15.407(e)	6dB Bandwidth	PASS
15.403(i)	26dB Bandwidth	PASS
2.1049	Occupied Bandwidth	See Note2
15.407(a)(1/2/3)	Conducted Output Power	PASS
15.407(a)(1/2/3)	Power Spectral Density	PASS
15.407(g)	Frequency Stability	PASS
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions and Band Edge Measurement	PASS
15.407(b)(6)	AC Power Conducted Emission	See Note 3
15.203	Antenna Requirement	PASS

Note:

1. For the Radiated Band Edge and OOB test plots were recorded in Appendix I, the Radiated Emissions test plots were recorded in Appendix II.
2. The Occupied Bandwidth was reference only.
3. The product is powered by a DC battery, so the test is not required.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 6 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

3. Test Methodology and Reference Procedures

The tests documented in this report were performed in accordance with 47 CFR FCC Part 2, KDB 789033 D02 General UNII Test Procedure New Rules v02r01, KDB414788 D01 Radiated Test Site v01r01, ANSI C63.10-2013 and KDB 662911 D01 Multiple Transmitter Output v02r01.

4. Facilities and Accreditation

Test Location	Underwriters Laboratories Taiwan Co., Ltd.
Address	Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Accreditation Certificate	Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398. The full scope of accreditation can be viewed at http://accreditation.taftw.org.tw/taf/public/basic/viewApplyItems.action?unitNo=3398

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Doc No: 17-EM-F0878 / 3.0



5. Measurement Uncertainty

For statement of conformity, accuracy method (Section 8.2.4 and 8.2.5 of ISO Guide 98-4) was applied as decision rule for measurement in this test report.

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor k=2.

Test Item	Measurement Frequency Range	K	U(dB)
RF Conducted	9 kHz - 40GHz	2	1.0
Radiated disturbance below 30MHz	9 kHz - 30 MHz	2	2.2
Radiated disturbance below 1 GHz	30MHz ~ 1GHz	2	5.3
Radiated disturbance above 1GHz	1GHz ~ 40GHz	2	4.8

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Test report No. : 4789136426-US-R0-V0
Page : 8 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

6. Equipment under Test

6.1. Description of EUT

Product	Digital Image Receptor
Brand Name	Varex Imaging
Model Name	4343W
Operating Frequency	5180 ~ 5240 MHz, 5745 ~ 5825 MHz
Modulation	256QAM, 64QAM, 16QAM, QPSK, BPSK
Transfer Rate	802.11a: up to 54 Mbps 802.11n: up to MCS15 802.11ac: up to MCS9
Number of Channel	5180 ~ 5240 MHz 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11 ac (VHT40) 1 for 802.11ac (VHT80)
	5745 ~ 5825 MHz 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11 ac (VHT40) 1 for 802.11ac (VHT80)
Maximum Output Power	5180 ~ 5240 MHz: 16.96dBm 5745 ~ 5825 MHz: 16.70dBm
Normal Voltage	15.4Vdc from battery
Hardware Version	N/A
Software Version	M01

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Doc No: 17-EM-F0878 / 3.0



Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

Modulation Mode	Tx,Rx Function
802.11a	1TX,1RX
802.11n (HT20)	2TX,2RX
802.11n (HT40)	2TX,2RX
802.11ac (VHT20)	2TX,2RX
802.11ac (VHT40)	2TX,2RX
802.11ac (VHT80)	2TX,2RX

* The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for VHT20 / VHT40, therefore investigated worst case to representative mode in test report.

2. The EUT contains following accessory devices

Product	Brand	Model	Description
Battery	Accutronics	VB-200	15.4V/ 3.43Ah
Micro B to RJ45 cable	Varex	Service Cable	Non-Shielded, 1.7m

3. The above EUT information is declared by manufacturer and for more detailed features description, please refer the manufacturer's or user's manual.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 10 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

6.2. Channel List

FOR 5180 ~ 5240MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

FOR 5745 ~ 5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz	-	-

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

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Test report No. : 4789136426-US-R0-V0
Page : 11 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

6.3. Test Condition

Test Item	Test Site No.	Environmental Condition	Input Power	Test Date	Tested by
Antenna Port Conducted Measurement	SR4	22~25°C / 58~64%RH	15.4Vdc	Aug. 30, 2019 ~ Sep. 24, 2019	Howard Kao
Radiated Spurious Emission	966-2	24~26°C / 66~70%RH	15.4Vdc	Sep. 02, 2019 ~ Sep. 25, 2019	Will Chen

FCC Test Firm Registration Number: 498077

6.4. Description Of Available Antennas

Antenna	Frequency (MHz)	Brand Name	Model Name	Antenna Type	Connector Type	Antenna Gain(dBi)
Ant 0	5150~5350	Perkin Elmer	XRpad CBSA	PIFA	Hirose	5.6
	5725~5850				U.FL	5.9
Ant 1	5150~5350	Perkin Elmer	XRpad CBSA	PIFA	Hirose	5.6
	5725~5850				U.FL	5.9

Note: The above antenna information was provided from customer and for more detailed features description, please refer the manufacturer's specification or user's manual.

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Doc No: 17-EM-F0878 / 3.0



6.5. Test Mode Applicability and Tested Channel Detail

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- For below 1 GHz radiated emission have performed all modes of operation were investigated and the worst-case emissions are reported.
- For Antenna Port Conducted Measurement, this item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- The fundamental of the EUT was investigated in three orthogonal axes X/Y/Z, it was determined that Z axis was worst-case . Therefore, all final radiated testing was performed with the EUT in Z axis.
- For 9 kHz to 30 MHz, the loop antenna is studied in three polarization parallel/vertical/ground parallel directions, and parallel polarization has been determined to be the worst case of pre-scan radiation.

Test item	Mode	Frequency Band (MHz)	Modulation Technology	Available Channel	Test Channel	Data Rate
Radiated Emissions (Above 1GHz)	802.11a	5180-5240	OFDM	36 to 48	36, 44, 48	6.0
	802.11n(HT20)		OFDM	36 to 48	36, 44, 48	MCS0
	802.11n(HT40)		OFDM	38 to 46	38, 46	MCS0
	802.11ac (VHT80)		OFDM	42	42	MCS0
	802.11a	5745-5825	OFDM	149 to 165	149, 157, 165	6.0
	802.11n(HT20)		OFDM	149 to 165	149, 157, 165	MCS0
	802.11n(HT40)		OFDM	151 to 159	151, 159	MCS0
	802.11ac (VHT80)		OFDM	155	155	MCS0
Radiated Emissions (Below 1GHz)	802.11n(HT40)	5180-5240	OFDM	38 to 46	38	MCS0
Antenna Port Conducted Measurement	802.11a	5180-5240	OFDM	36 to 48	36, 44, 48	6.0
	802.11n(HT20)		OFDM	36 to 48	36, 44, 48	MCS0
	802.11n(HT40)		OFDM	38 to 46	38, 46	MCS0
	802.11ac (VHT80)		OFDM	42	42	MCS0
	802.11a	5745-5825	OFDM	149 to 165	149, 157, 165	6.0
	802.11n(HT20)		OFDM	149 to 165	149, 157, 165	MCS0
	802.11n(HT40)		OFDM	151 to 159	151, 159	MCS0
	802.11ac (VHT80)		OFDM	155	155	MCS0

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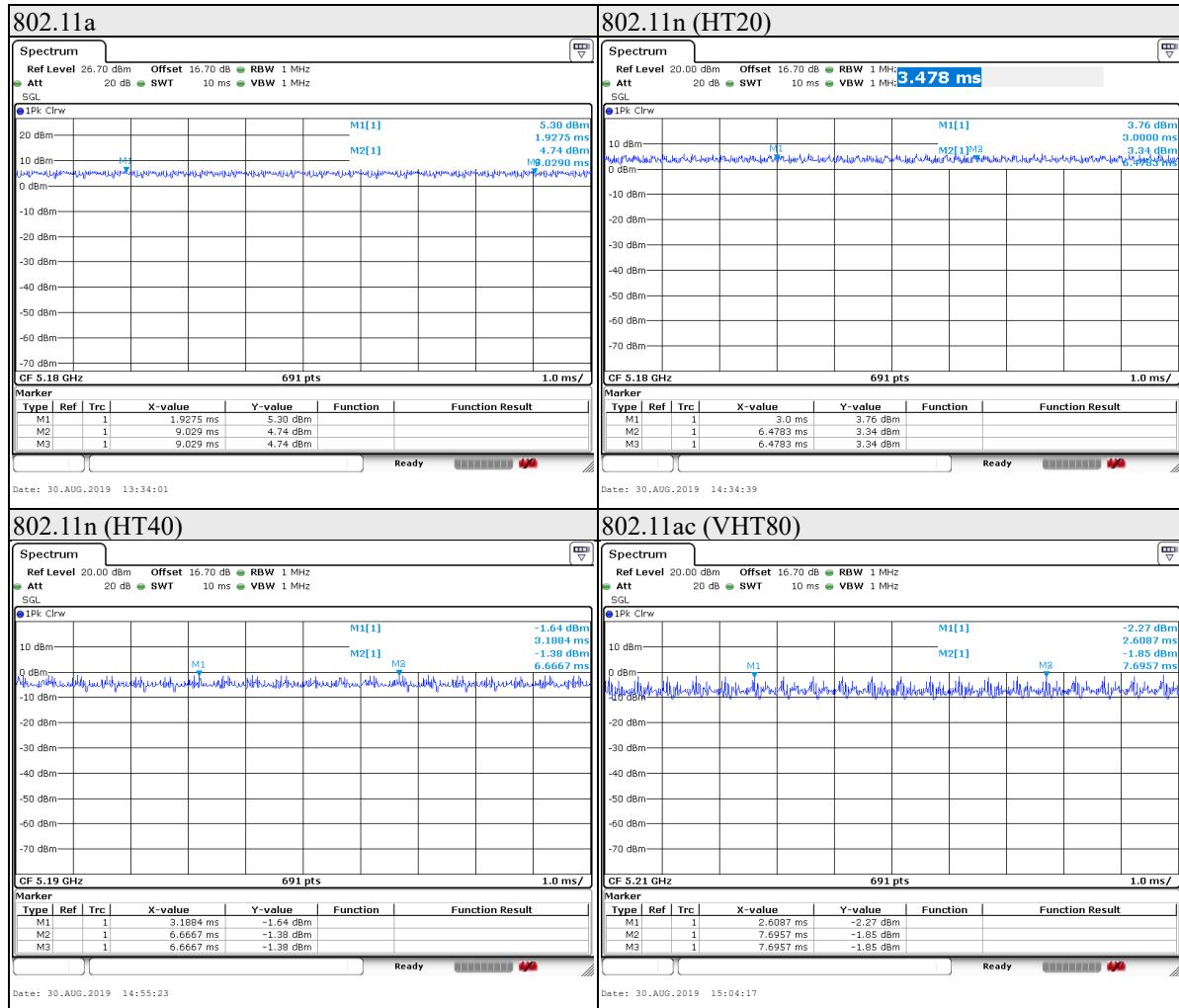
Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 13 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

6.6. Duty cycle

Duty cycle of test signal is 100 %, duty factor is not required.



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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 14 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

7. Test Equipment

Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
Radiated Spurious Emission					
Spectrum Analyzer	Keysight	N9010A	MY56070827	Nov. 8, 2018	1 year
EMI Test Receiver	Rohde & Schwarz	ESR7	101754	Nov. 8, 2018	1 year
Loop Antenna	ETS lindgren	6502	00213440	Dec. 11, 2018	1 year
Trilog-Broadband Antenna with 5dB Attenuator	Schwarzbeck & EMCI	VULB 9168 & N-6-05	774 & AT-N0538	Jan. 14, 2019	1 year
Horn Antenna (1-18 GHz)	Schwarzbeck	BBHA 9120 D	01690	Jan. 25, 2019	1 year
Horn Antenna(18-40 GHz)	Schwarzbeck	BBHA 9170	781	Jan.16, 2019	1 year
Preamplifier (30-1000 MHz)	EMCI	EMC330E	980405	Jan. 30, 2019	1 year
Preamplifier (1-18 GHz)	EMCI	EMC051835BE	980406	Jan. 29, 2019	1 year
Preamplifier (18-40GHz)	EMCI	EMC184040SE E	980426	May 8, 2019	1 year
RF Cable (9 KHz~18 GHz)	UltraPhase & EMC Instrument	A1K50-UP0358-A1K50-1500&EMC106-NM-SM-2500/7000	170111-4&170219/170 102	Jan. 29, 2019	1 year
RF Cable (18 GHz~40 GHz)	UltraPhase	K1K50-UP0264-K1K50-2500/2500/600	170214-2/170214-6/170111-1	Jan. 29, 2019	1 year

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 15 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
Antenna Port Conducted Measurement					
Spectrum Analyzer	Keysight	N9010A	MY56070834	Nov. 8, 2018	1 year
Spectrum Analyzer	Rohde & Schwarz	FSV40	101490	Sep. 25, 2018	1 year
Pulse Power Sensor	Anrisu	MA2411B	1531202	Dec. 17, 2018	1 year
Power Meter	Anrisu	ML2495A	1645002	Dec. 17, 2018	1 year
Temperature &Humidity Test Chamber	GIANT FORCE	GTH-150-40-CP-AR	MAA1701-010	Apr. 3, 2019	1 year

UL Software		
Description	Name	Version
Radiated measurement	EZ_EMC	1.1.4.2
Conducted measurement	Keysight.TestSystem	1.0.0.0

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8. Description of Test Setup

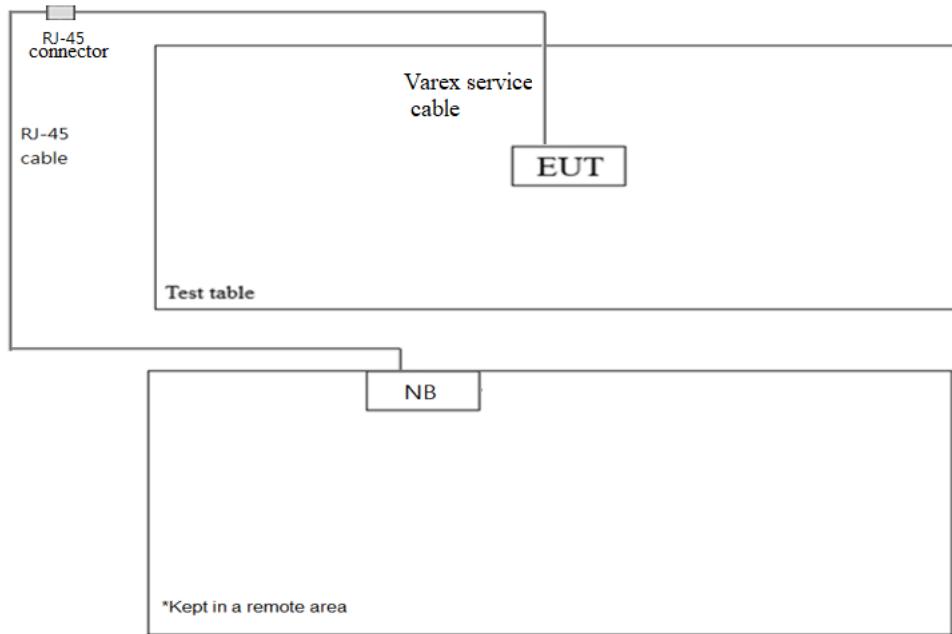
Support Equipment

Equipment	Brand Name	Model Name	S/N	Remark
Notebook	DELL	Latitude E5470	3JFKWF2	N/A
RJ-45 Cable	N/A	N/A	N/A	Length: 10 m, Non-shielded
RJ-45 connector	N/A	N/A	N/A	N/A

Test Setup

Controlled using a bespoke application (MP_Kit RTL11ac_8822BU_USB_v6.01) on a test Notebook. The application was used to enable a continuous transmission mode and to select the test channels, data rates, modulation schemes and power setting as required.

Setup Diagram for Test



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Doc No: 17-EM-F0878 / 3.0



9. Test Results

9.1. 6dB Bandwidth

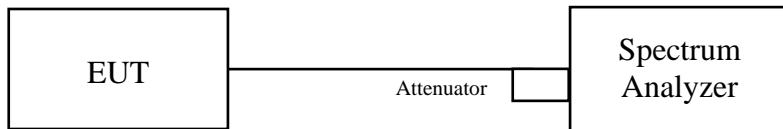
Requirements

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

Test procedure

- a. Set resolution bandwidth (RBW) = 100kHz
- b. Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- c. Trace mode = max hold.
- d. Sweep = auto couple.
- e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

Test Setup



The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 18 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

Test Data

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.404	0.5	Pass
157	5785	16.424	0.5	Pass
165	5825	16.424	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	17.582	17.581	0.5	Pass
157	5785	17.582	17.582	0.5	Pass
165	5825	17.582	17.582	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	36.364	36.484	0.5	Pass
159	5795	36.444	36.484	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	76.164	76.244	0.5	Pass

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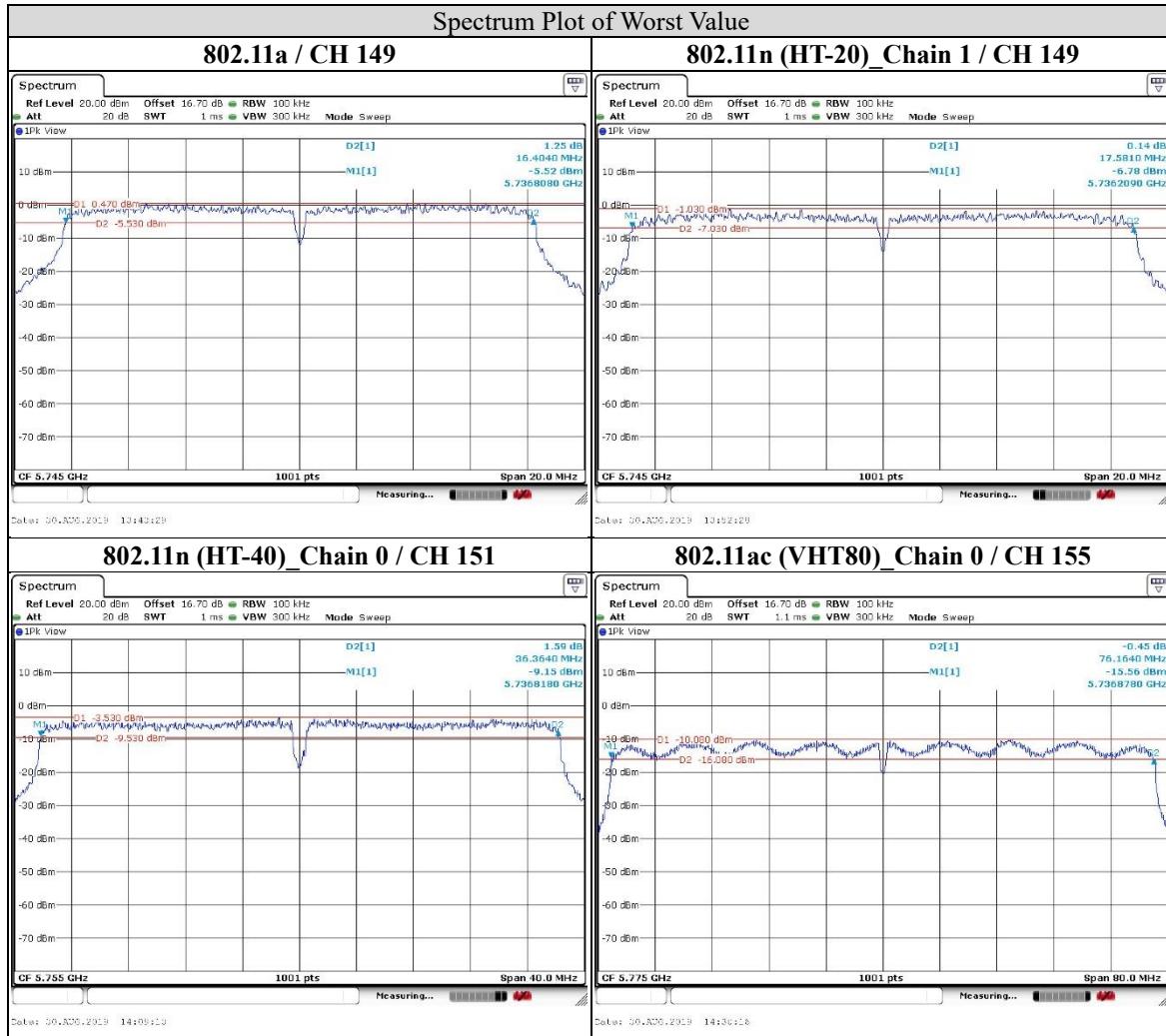
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Test report No. : 4789136426-US-R0-V0
Page : 19 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN



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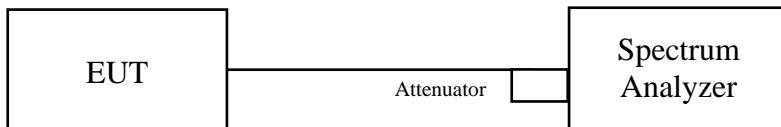
Test report No. : 4789136426-US-R0-V0
Page : 20 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

9.2. 26dB Bandwidth

Test procedure

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

Test Setup



The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

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Test report No. : 4789136426-US-R0-V0
Page : 21 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

Test Data

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26 dB Bandwidth (MHz)	PASS / FAIL
36	5180	20.709	PASS
44	5220	20.839	PASS
48	5240	20.970	PASS

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	26 dB Bandwidth (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	20.709	21.447	PASS
44	5220	21.143	21.795	PASS
48	5240	21.056	21.447	PASS

802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	26 dB Bandwidth (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	44.211	44.501	PASS
46	5230	45.007	44.935	PASS

802.11ac (VHT80)

CHANNEL	CHANNEL FREQUENCY (MHz)	26 dB Bandwidth (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
42	5210	83.07	82.92	PASS

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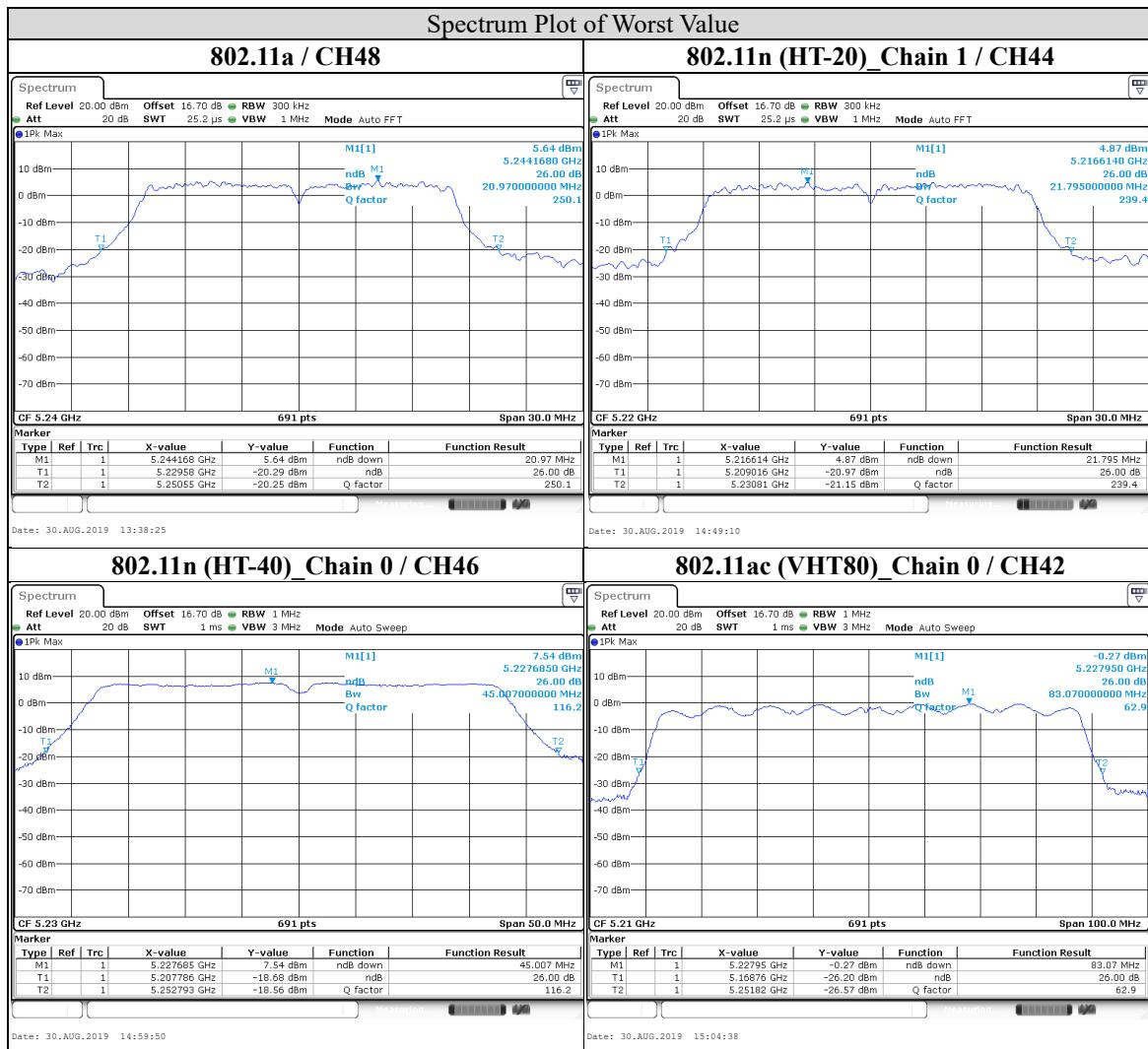
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Test report No. : 4789136426-US-R0-V0
Page : 22 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN



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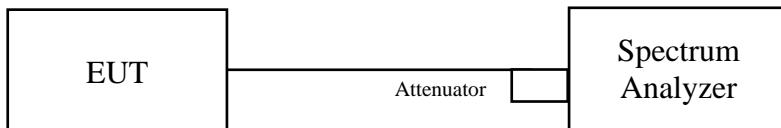


9.3. Occupied Bandwidth

Test procedure

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1% to 5% of the OBW
4. Set VBW \geq 3 x RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99% power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99% power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

Test Setup



The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

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Test report No. : 4789136426-US-R0-V0
Page : 24 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

Test Data

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	16.628
44	5220	16.671
48	5240	16.715
149	5745	17.632
157	5785	17.682
165	5825	17.682

802.11n (HT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		CHAIN 0	CHAIN 1
36	5180	17.713	17.67
44	5220	17.67	17.713
48	5240	17.713	17.757
149	5745	18.282	18.531
157	5785	18.332	18.481
165	5825	18.332	18.482

802.11n (HT40)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		CHAIN 0	CHAIN 1
38	5190	37.048	37.12
46	5230	37.12	37.12
151	5755	37.163	37.163
159	5795	37.163	37.163

802.11ac (VHT80)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		CHAIN 0	CHAIN 1
42	5210	73.398	73.398
155	5775	75.285	75.285

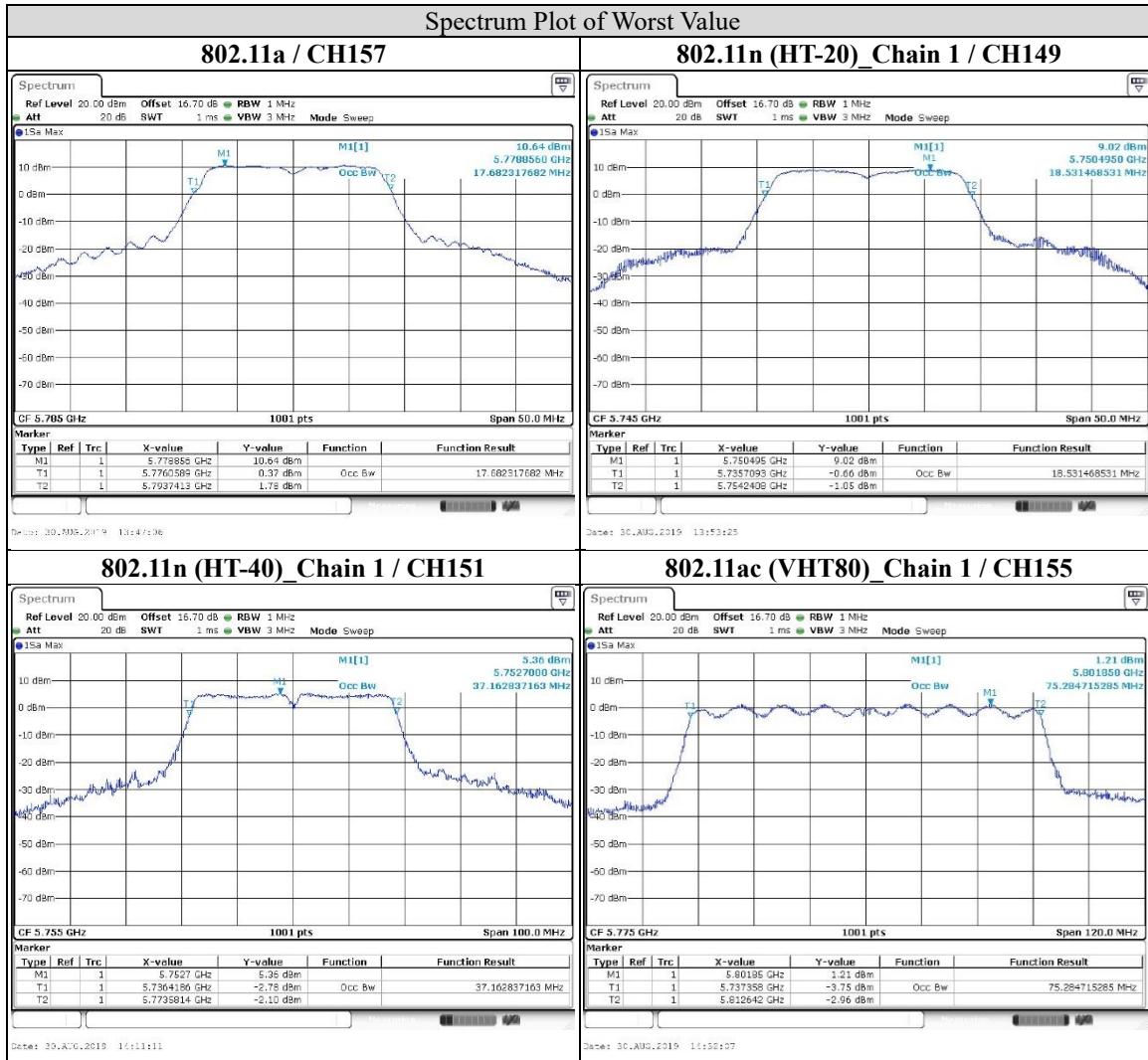
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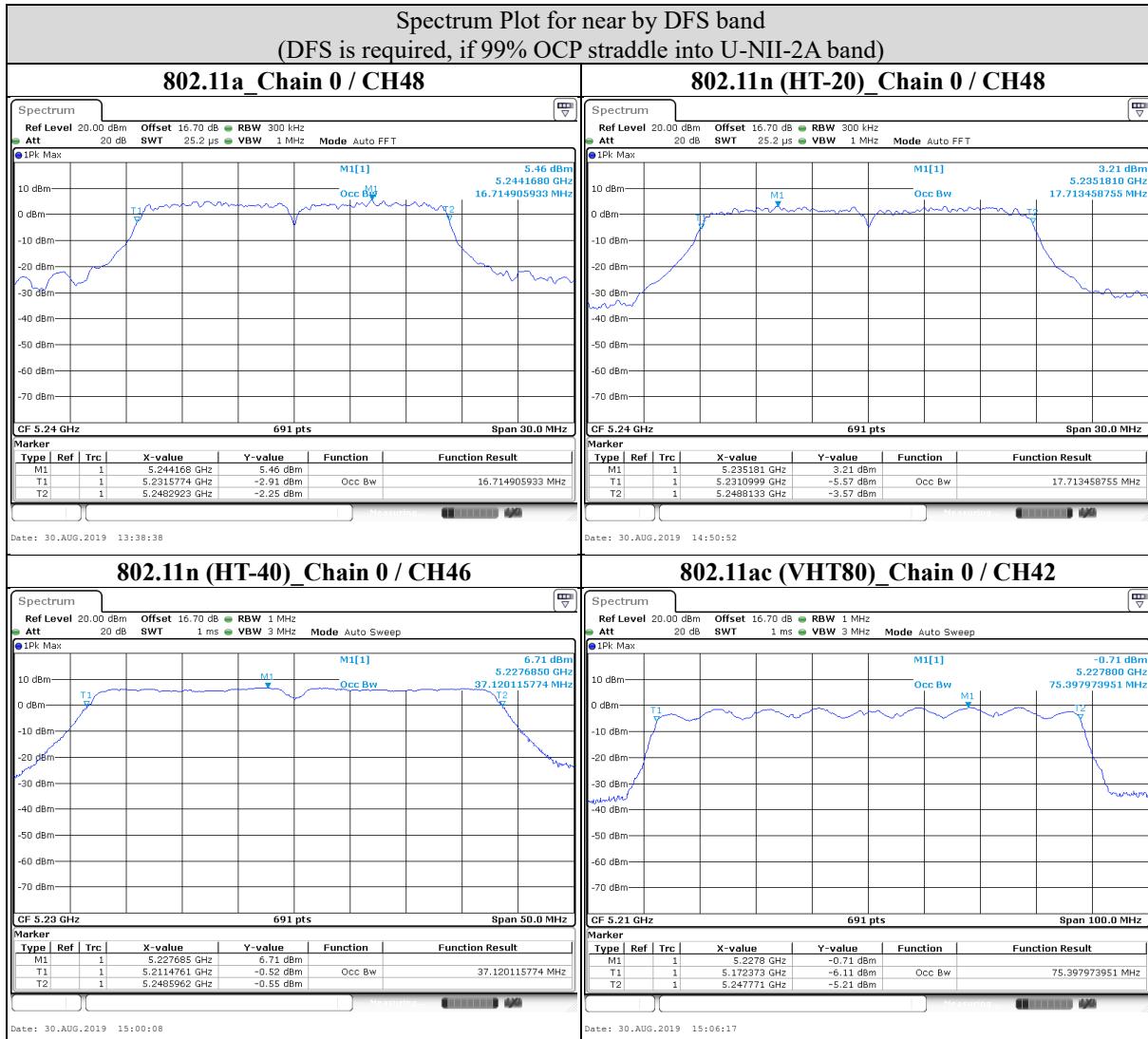
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Test report No. : 4789136426-US-R0-V0
Page : 26 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN



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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 27 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN



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9.4. Conducted output power

Requirements

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) Max. e.i.r.p \leq 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$
		Fixed point-to-point Access Point	1 Watt (30 dBm) If $G_{TX} > 23$ dBi, then $P_{Out} = 30 - (G_{TX} - 23)$
		Indoor Access Point	1 Watt (30 dBm) If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$
	✓	Client device	250mW (24 dBm) If $G_{TX} > 6$ dBi, then $P_{Out} = 24 - (G_{TX} - 6)$
U-NII-3	-		For Point-to-multipoint systems (P2M): 1 Watt (30 dBm). If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ For Point-to-point systems (P2P): 1 Watt (30 dBm)

Note:

1. P_{Out} = maximum conducted output power in dBm,
2. G_{TX} = the maximum transmitting antenna directional gain in dBi.
3. Directional Gain = $G_{ant} + 10 \log(N_{ant})$ dBi.

N_{ant}: Number of Transmit Antennas

G₁, G₂,..., G_n: Gain of Individual Antennas (Same for Each Antenna)

4. Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

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Test Procedure

Test method PM-G

For 802.11a, 802.11n (HT20), 802.11n (HT40)

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to AVERAGE. Duty factor is not added to measured value.

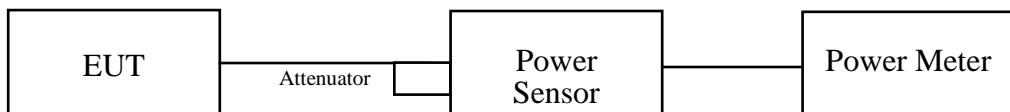
Test method SA-1

For 802.11ac (VHT80)

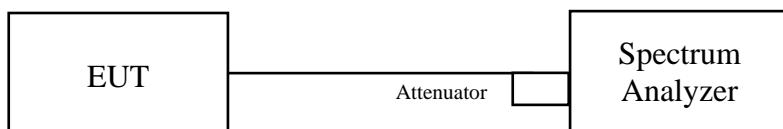
- 1) Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- 2) Set sweep trigger*.
- 3) Set RBW = 1 MHz.
- 4) Set VBW \geq 3 MHz
- 5) Number of points in sweep \geq 2 Span / RBW.
- 6) Sweep time \leq (number of points in sweep) * T
- 7) Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
- 8) Detector = RMS.
- 9) Trace mode = max hold.
- 10) Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

* If transmit duty cycle < 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle \geq 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run.”

Test Setup



The loss between RF output port of the EUT and the input port of the Power Meter has been taken into consideration.



The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 30 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

Test Data

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	MAXIMUM CONDUCTED POWER (mW)	MAXIMUM CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	28.907	14.61	24	PASS
44	5220	30.339	14.82	24	PASS
48	5240	30.832	14.89	24	PASS
149	5745	29.648	14.72	30	PASS
157	5785	30.13	14.79	30	PASS
165	5825	29.923	14.76	30	PASS

802.11n (HT20)

CHAN.	FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		chain 0	chain 1				
36	5180	13.9	13.8	48.535	16.86	24	PASS
44	5220	13.63	13.87	47.445	16.76	24	PASS
48	5240	13.61	13.56	45.66	16.60	24	PASS
149	5745	13.51	13.66	45.666	16.60	30	PASS
157	5785	13.49	13.61	45.297	16.56	30	PASS
165	5825	13.73	13.64	46.726	16.70	30	PASS

802.11n (HT40)

CHAN.	FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		chain 0	chain 1				
38	5190	11.15	11.22	26.275	14.20	24	PASS
46	5230	13.92	13.98	49.663	16.96	24	PASS
151	5755	13.23	13.46	43.22	16.36	30	PASS
159	5795	13.25	13.62	44.149	16.45	30	PASS

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 31 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

802.11ac (VHT80)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		chain 0	chain 1				
42	5210	9.07	8.85	15.746	11.97	24	PASS
155	5775	10.59	11.02	24.102	13.82	30	PASS

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9.5. Power Spectral Density

Requirements

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	17dBm/ MHz If $G_{TX} > 6 \text{ dBi}$, then PSD = $17 - (G_{TX} - 6)$
		Fixed point-to-point Access Point	17dBm/ MHz If $G_{TX} > 23 \text{ dBi}$, then PSD = $17 - (G_{TX} - 23)$
		Indoor Access Point	17dBm/ MHz If $G_{TX} > 6 \text{ dBi}$, then PSD = $17 - (G_{TX} - 6)$
	✓	Client device	11dBm/ MHz If $G_{TX} > 6 \text{ dBi}$, then PSD = $11 - (G_{TX} - 6)$
U-NII-3	---		For Point-to-multipoint systems (P2M): 30dBm/ 500kHz. If $G_{TX} > 6 \text{ dBi}$, then PSD = $30 - (G_{TX} - 6)$ For Point-to-point systems (P2P): 30dBm/ 500kHz

Note:

1. PSD = power spectral density that the same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz
2. G_{TX} = the maximum transmitting antenna directional gain in dBi.
3. Directional Gain = $G_{ant} + 10 \log (N_{ant}) \text{ dBi}$.

N_{ant}: Number of Transmit Antennas

G₁, G₂,..., G_n: Gain of Individual Antennas (Same for Each Antenna)

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 33 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

Test procedure

For U-NII-1 band:

Using method SA-1 with Duty cycle >98 %

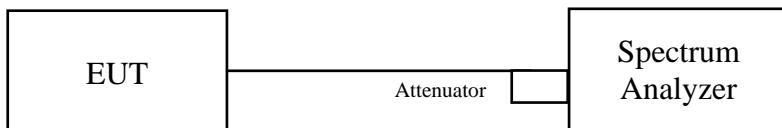
1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW \geq 3 RBW, Detector = RMS
3. Sweep time = auto, trigger set to “free run”.
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value

For U-NII-3 band:

with Duty cycle >98 %

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW \geq 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = $10\log(500 \text{ kHz}/300\text{kHz})$
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value

Test Setup



The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

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Doc No: 17-EM-F0878 / 3.0



Test Data

For U-NII-1 band

802.11a

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	2.10	11	PASS
44	5220	2.62	11	PASS
48	5240	2.55	11	PASS

Note:

1. Directional Gain = 5.6 dBi < 6 dBi, so the limit no need to reduced.

802.11n (HT20)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
36	5180	0.52	0.51	3.53	8.39	PASS
44	5220	0.50	1.25	3.90	8.39	PASS
48	5240	0.53	0.64	3.60	8.39	PASS

Note:

1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 8.61 dBi > 6 dBi , so the limit shall be reduced.

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802.11n (HT40)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
38	5190	-5.77	-5.22	-2.48	8.39	PASS
46	5230	-2.11	-2.25	0.83	8.39	PASS

Note:

1. Method a) of power density measurement of KDB 662911 is using for calculating total power density.
Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 8.61 dBi > 6 dBi , so the limit shall be reduced.

802.11ac (VHT80)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
42	5210	-9.14	-9.36	-6.24	8.39	PASS

Note:

1. Method a) of power density measurement of KDB 662911 is using for calculating total power density.
Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 8.61 dBi > 6 dBi , so the limit shall be reduced.

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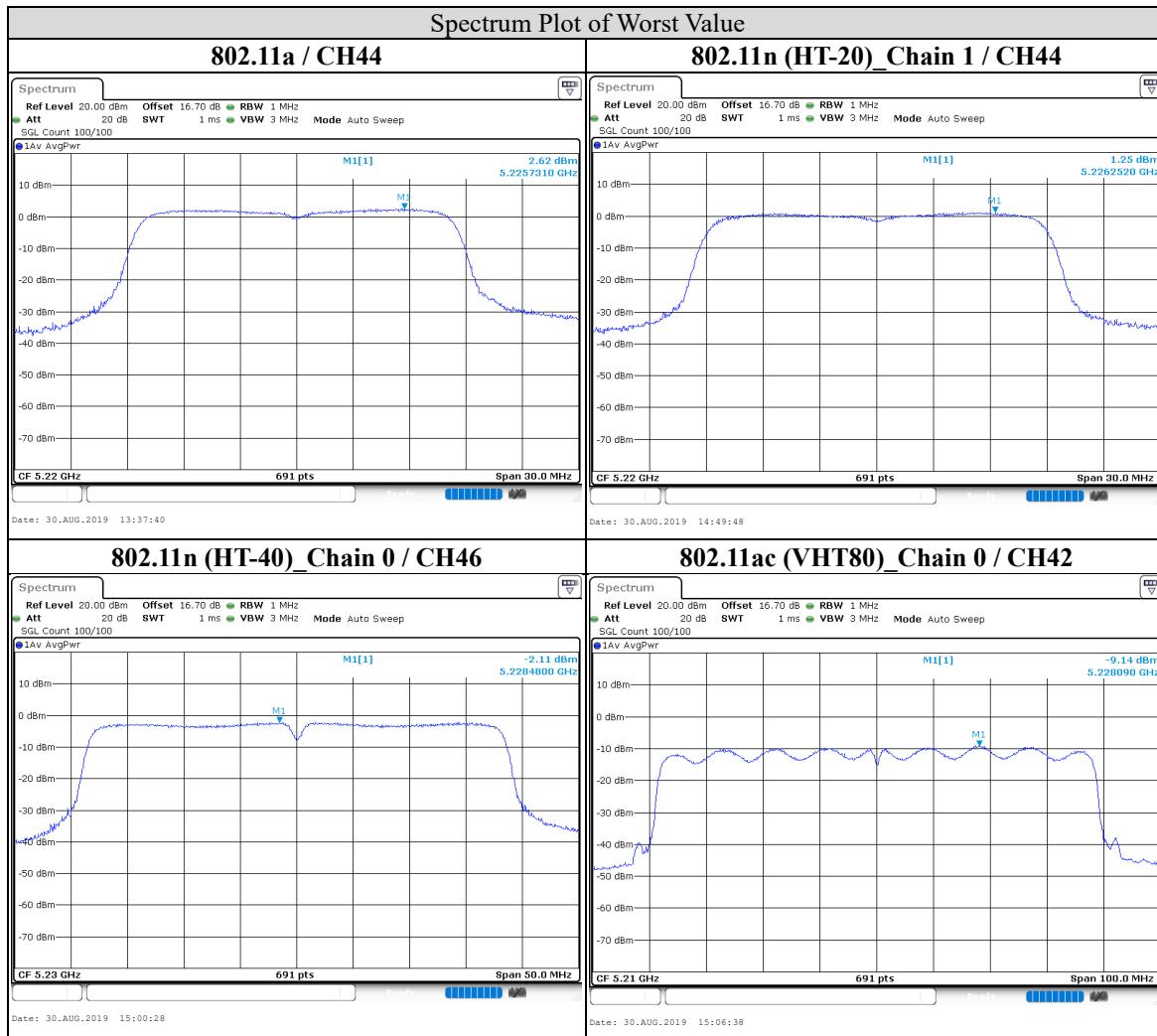
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Test report No. : 4789136426-US-R0-V0
Page : 36 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN



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Doc No: 17-EM-F0878 / 3.0



For U-NII-3 Band

802.11a

Channel	Frequency (MHz)	PSD w/o BWCF (dBm/300 kHz)	PSD with BWCF (dBm/500 kHz)	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
149	5745	-2.03	0.19	0.19	30	Pass
157	5785	-2.02	0.20	0.20	30	Pass
165	5825	-2.01	0.21	0.21	30	Pass

Note:

1. Directional Gain =5.9 dBi < 6 dBi, so the limit no need to reduced.
2. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$.

802.11n (HT20)

TX Chain	Channel	Frequency (MHz)	PSD w/o BWCF (dBm/300 kHz)	PSD with BWCF (dBm/500 kHz)	10 log (N=2) dB	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	149	5745	-3.68	-1.46	3.01	1.55	27.09	Pass
	157	5785	-3.57	-1.35	3.01	1.66	27.09	Pass
	165	5825	-3.92	-1.70	3.01	1.31	27.09	Pass
1	149	5745	-3.37	-1.15	3.01	1.86	27.09	Pass
	157	5785	-3.56	-1.34	3.01	1.67	27.09	Pass
	165	5825	-3.93	-1.71	3.01	1.30	27.09	Pass

Note:

1. Directional gain = 8.91 dBi > 6 dBi , so the limit shall be reduced.
2. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$.

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802.11n (HT40)

TX Chain	Channel	Frequency (MHz)	PSD w/o BWCF (dBm/300 kHz)	PSD with BWCF (dBm/500 kHz)	10 log (N=2) dB	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	151	5755	-7.25	-5.03	3.01	-2.02	27.09	Pass
	159	5795	-7.73	-5.51	3.01	-2.50	27.09	Pass
1	151	5755	-7.6	-5.38	3.01	-2.37	27.09	Pass
	159	5795	-7.45	-5.23	3.01	-2.22	27.09	Pass

Note:

1. Directional gain = 8.91 dBi > 6 dBi , so the limit shall be reduced.
2. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$.

802.11ac (VHT80)

TX Chain	Channel	Frequency (MHz)	PSD w/o BWCF (dBm/300 kHz)	PSD with BWCF (dBm/500 kHz)	10 log (N=2) dB	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
0	155	5775	-12.06	-9.84	3.01	-6.83	27.09	Pass
1	155	5775	-11.51	-9.29	3.01	-6.28	27.09	Pass

Note:

1. Directional gain = 8.91 dBi > 6 dBi , so the limit shall be reduced.
2. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$.

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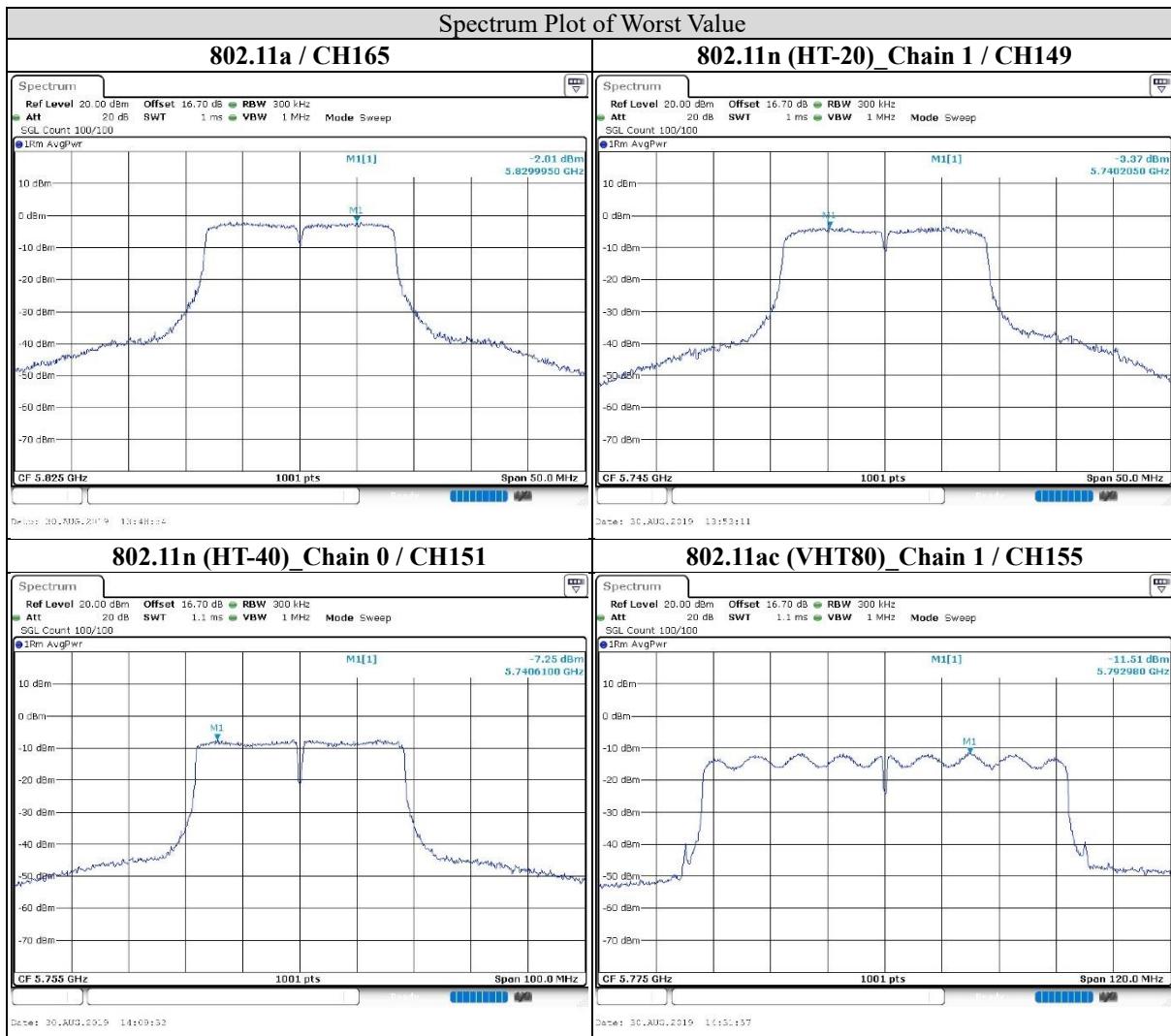
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Faxsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 39 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN



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9.6. Frequency Stability

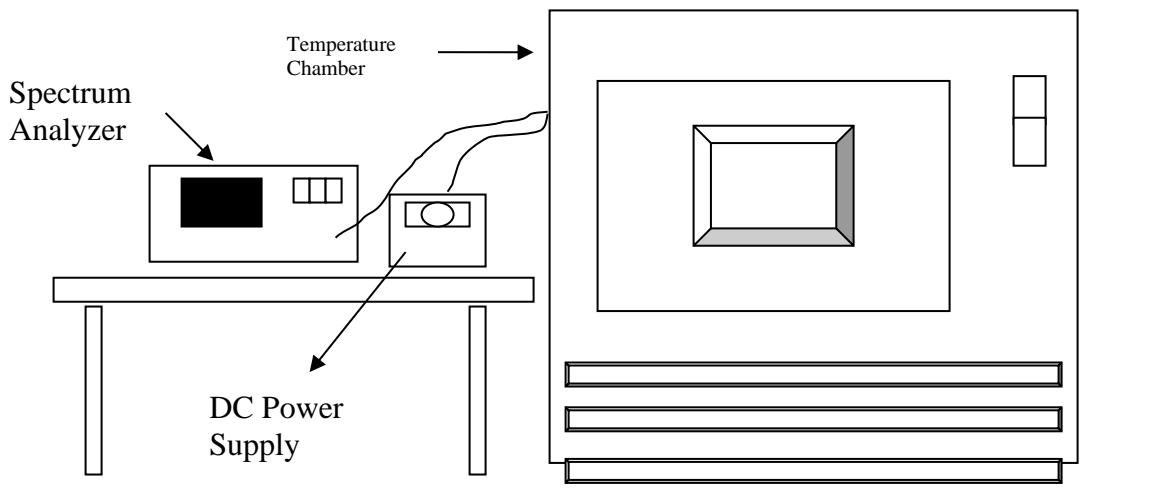
Requirements

The frequency of the carrier signal shall be maintained within band of operation.

Test procedure

- a. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- b. Turn the EUT on and couple its output to a spectrum analyzer.
- c. Turn the EUT off and set the chamber to the highest temperature specified.
- d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
- e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

Test Setup



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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 41 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

Test Data

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Freq. Drift (ppm)	Measured Frequency (MHz)	Freq. Drift (ppm)	Measured Frequency (MHz)	Freq. Drift (ppm)	Measured Frequency (MHz)	Freq. Drift (ppm)
50	15.4	5180.00997	1.92	5180.00764	1.47	5180.00890	1.72	5180.00687	1.33
40	15.4	5180.02397	4.63	5180.01397	2.70	5179.99470	-1.02	5180.00470	0.91
30	15.4	5180.01997	3.86	5180.00457	0.88	5180.01259	2.43	5179.99360	-1.24
20	15.4	5180.01997	3.86	5180.01994	3.85	5180.01993	3.85	5180.01897	3.66
10	15.4	5180.01998	3.86	5180.01983	3.83	5180.01466	2.83	5180.01963	3.79
0	15.4	5179.99780	-0.42	5179.99660	-0.66	5179.98240	-3.40	5179.99330	-1.29
-10	15.4	5180.01740	3.36	5180.01620	3.13	5180.01750	3.38	5180.01740	3.36
-20	15.4	5179.99960	-0.08	5179.99810	-0.37	5179.99620	-0.73	5179.99850	-0.29
-30	15.4	5179.99360	-1.24	5179.99840	-0.31	5179.98450	-2.99	5179.98910	-2.10
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Freq. Drift (ppm)	Measured Frequency (MHz)	Freq. Drift (ppm)	Measured Frequency (MHz)	Freq. Drift (ppm)	Measured Frequency (MHz)	Freq. Drift (ppm)
20	13.09	5180.01897	3.66	5180.01893	3.65	5180.01841	3.55	5180.01988	3.84
20	17.71	5180.01981	3.82	5180.01974	3.81	5180.01962	3.79	5180.01980	3.82

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9.7. Radiated Spurious Emission

Requirements

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequency(MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dB_BV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

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Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v02r01		Field Strength at 3m	
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dB μ V/m)
5725~5850 MHz	15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2(dB μ V/m) ^{*1} PK:105.2 (dB μ V/m) ^{*2} PK: 110.8(dB μ V/m) ^{*3} PK:122.2 (dB μ V/m) ^{*4}

*1 beyond 75 MHz or more above of the band edge.

*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

Note:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \text{ } \mu\text{V/m, where P is the eirp (Watts).}$$

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Doc No: 17-EM-F0878 / 3.0



Test Procedures

[For 9 kHz ~ 30 MHz]

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. For measurement below 30MHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

[For above 30 MHz]

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
- f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 45 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

Note:

- a. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- b. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
- c. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.

Configuration	Average	
	RBW	VBW
802.11a	1MHz	10 Hz
802.11n (HT20)		10 Hz
802.11n (HT40)		10 Hz
802.11ac (VHT80)		10 Hz

Note: Refer to section 6.6 for duty cycle.

- d. All modes of operation were investigated and the worst-case emissions are reported.

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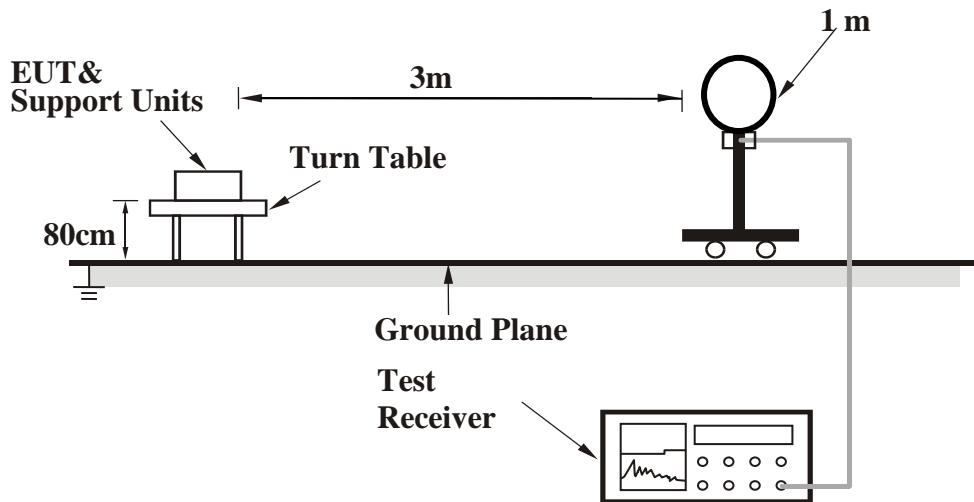
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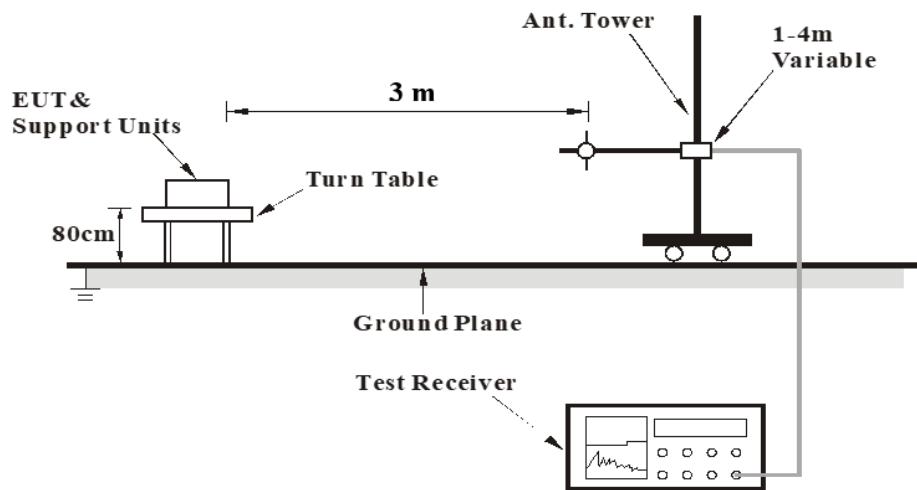
Doc No: 17-EM-F0878 / 3.0

Test Setup

<Frequency Range 9 kHz ~ 30 MHz>



<Frequency Range 30 MHz ~ 1 GHz >



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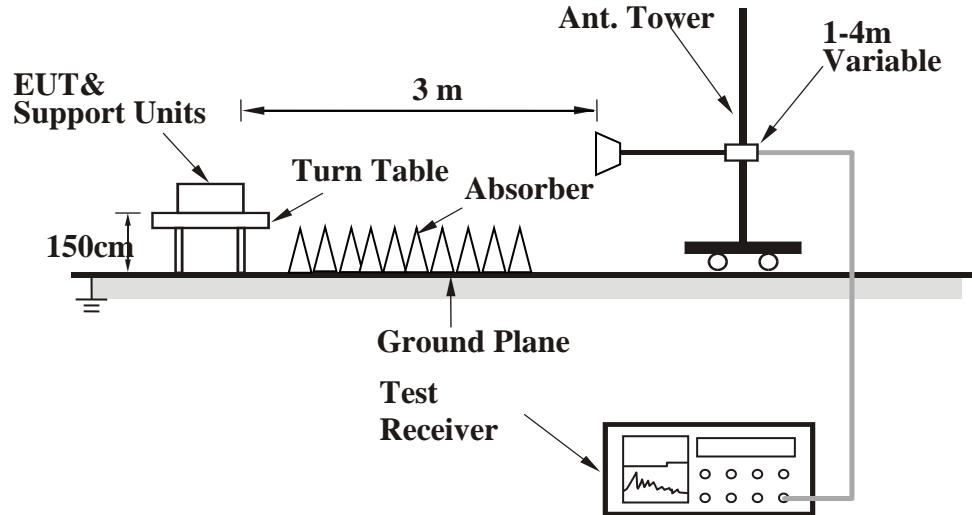
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<Frequency Range above 1 GHz>



For the actual test configuration, please refer to the Setup Configurations.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 48 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

Test Data

Above 1GHz Data

802.11a

EUT Test Condition		Measurement Detail					
Channel	Channel 36	Frequency Range			1 GHz ~ 40 GHz		

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5110.100	61.09	-2.27	58.82	74.00	-15.18	peak
@	5180.000	96.52	-2.23	94.29	-	-	peak
-	5125.700	49.59	-2.26	47.33	54.00	-6.67	AVG
@	5180.000	86.72	-2.23	84.49	-	-	AVG
#	10360.000	36.24	8.87	45.11	68.20	-23.09	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5150.000	62.57	-2.24	60.33	74.00	-13.67	peak
@	5180.000	106.24	-2.23	104.01	-	-	peak
-	5150.000	50.45	-2.24	48.21	54.00	-5.79	AVG
@	5180.000	97.12	-2.23	94.89	-	-	AVG
#	10360.000	36.92	8.87	45.79	68.20	-22.41	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#" : The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 49 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

EUT Test Condition		Measurement Detail		
Channel	Channel 44	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5057.000	62.08	-2.38	59.70	74.00	-14.30	peak
@	5220.000	97.00	-2.33	94.67	-	-	peak
-	5116.400	49.87	-2.26	47.61	54.00	-6.39	AVG
@	5220.000	87.59	-2.33	85.26	-	-	AVG
#	10440.000	36.14	9.07	45.21	68.20	-22.99	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5115.800	62.23	-2.26	59.97	74.00	-14.03	peak
@	5220.000	106.72	-2.33	104.39	-	-	peak
-	5103.500	49.89	-2.27	47.62	54.00	-6.38	AVG
@	5220.000	97.55	-2.33	95.22	-	-	AVG
#	10440.000	35.64	9.07	44.71	68.20	-23.49	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 50 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

EUT Test Condition		Measurement Detail		
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5066.600	63.05	-2.35	60.70	74.00	-13.30	peak
@	5240.000	97.17	-2.44	94.73	-	-	peak
-	5081.900	49.92	-2.32	47.60	54.00	-6.40	AVG
@	5240.000	87.54	-2.44	85.10	-	-	AVG
#	10480.000	36.78	9.03	45.81	68.20	-22.39	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5101.400	62.35	-2.27	60.08	74.00	-13.92	peak
@	5240.000	106.66	-2.44	104.22	-	-	peak
-	5075.600	49.87	-2.33	47.54	54.00	-6.46	AVG
@	5240.000	97.25	-2.44	94.81	-	-	AVG
#	10480.000	35.45	9.03	44.48	68.20	-23.72	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 51 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

EUT Test Condition		Measurement Detail		
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5573.000	59.74	-2.07	57.67	68.20	-10.53	peak
-	5724.500	60.54	-1.76	58.78	121.06	-62.28	peak
@	5745.000	95.96	-1.62	94.34	-	-	peak
@	5745.000	86.69	-1.62	85.07	-	-	AVG
*	11490.000	36.63	9.77	46.40	74.00	-27.60	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5603.500	59.48	-2.09	57.39	68.20	-10.81	peak
-	5722.000	69.43	-1.79	67.64	115.36	-47.72	peak
@	5745.000	105.26	-1.62	103.64	-	-	peak
@	5745.000	95.74	-1.62	94.12	-	-	AVG
*	11490.000	36.04	9.77	45.81	74.00	-28.19	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



EUT Test Condition		Measurement Detail					
Channel	Channel 157	Frequency Range			1 GHz ~ 40 GHz		

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5608.500	61.04	-2.09	58.95	68.20	-9.25	peak
-	5722.000	59.23	-1.79	57.44	115.36	-57.92	peak
@	5785.000	95.46	-1.36	94.10	-	-	peak
@	5785.000	85.90	-1.36	84.54	-	-	AVG
-	5863.500	59.92	-1.22	58.70	108.42	-49.72	peak
#	5992.500	60.56	-1.04	59.52	68.20	-8.68	peak
*	11570.000	36.09	9.65	45.74	74.00	-28.26	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5611.500	60.33	-2.09	58.24	68.20	-9.96	peak
-	5714.000	59.40	-1.84	57.56	109.12	-51.56	peak
@	5785.000	103.93	-1.36	102.57	-	-	peak
@	5785.000	94.33	-1.36	92.97	-	-	AVG
-	5873.500	59.72	-1.21	58.51	105.62	-47.11	peak
#	5984.500	59.55	-1.06	58.49	68.20	-9.71	peak
*	11570.000	36.50	9.65	46.15	74.00	-27.85	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 53 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

EUT Test Condition		Measurement Detail		
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
@	5825.000	95.05	-1.24	93.81	-	-	peak
@	5825.000	86.01	-1.24	84.77	-	-	AVG
-	5891.500	59.78	-1.20	58.58	92.99	-34.41	peak
#	5939.000	60.42	-1.17	59.25	68.20	-8.95	peak
*	11650.000	36.99	9.40	46.39	74.00	-27.61	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
@	5825.000	103.37	-1.24	102.13	-	-	peak
@	5825.000	94.33	-1.24	93.09	-	-	AVG
-	5850.500	62.32	-1.23	61.09	121.06	-59.97	peak
#	5953.000	60.54	-1.14	59.40	68.20	-8.80	peak
*	11650.000	37.39	9.40	46.79	74.00	-27.21	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*" : The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 54 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

802.11n (HT20)

EUT Test Condition		Measurement Detail		
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5150.000	62.92	-2.24	60.68	74.00	-13.32	peak
@	5180.000	108.14	-2.23	105.91	-	-	peak
-	5150.000	51.18	-2.24	48.94	54.00	-5.06	AVG
@	5180.000	98.89	-2.23	96.66	-	-	AVG
#	10360.000	39.07	8.87	47.94	68.20	-20.26	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5069.000	62.23	-2.34	59.89	74.00	-14.11	peak
@	5180.000	103.55	-2.23	101.32	-	-	peak
-	5105.600	49.85	-2.27	47.58	54.00	-6.42	AVG
@	5180.000	94.09	-2.23	91.86	-	-	AVG
#	10360.000	36.17	8.87	45.04	68.20	-23.16	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 55 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

EUT Test Condition		Measurement Detail		
Channel	Channel 44	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5013.800	61.93	-2.63	59.30	74.00	-14.70	peak
@	5220.000	107.77	-2.33	105.44	-	-	peak
-	5124.800	49.85	-2.25	47.60	54.00	-6.40	AVG
@	5220.000	98.27	-2.33	95.94	-	-	AVG
#	10440.000	36.41	9.07	45.48	68.20	-22.72	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5101.700	61.95	-2.27	59.68	74.00	-14.32	peak
@	5220.000	103.92	-2.33	101.59	-	-	peak
-	5097.200	49.98	-2.28	47.70	54.00	-6.30	AVG
@	5220.000	94.50	-2.33	92.17	-	-	AVG
#	10440.000	35.91	9.07	44.98	68.20	-23.22	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

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Test report No. : 4789136426-US-R0-V0
Page : 56 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

EUT Test Condition		Measurement Detail		
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5126.900	61.92	-2.26	59.66	74.00	-14.34	peak
@	5240.000	107.15	-2.44	104.71	-	-	peak
-	5100.200	49.85	-2.27	47.58	54.00	-6.42	AVG
@	5240.000	98.04	-2.44	95.60	-	-	AVG
#	10480.000	36.38	9.03	45.41	68.20	-22.79	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5039.300	62.61	-2.46	60.15	74.00	-13.85	peak
@	5240.000	103.72	-2.44	101.28	-	-	peak
-	5100.500	49.85	-2.27	47.58	54.00	-6.42	AVG
@	5240.000	94.47	-2.44	92.03	-	-	AVG
#	10480.000	37.05	9.03	46.08	68.20	-22.12	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

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Test report No. : 4789136426-US-R0-V0
Page : 57 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

EUT Test Condition		Measurement Detail		
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5566.000	59.67	-2.05	57.62	68.20	-10.58	peak
-	5725.000	61.80	-1.76	60.04	122.20	-62.16	peak
@	5745.000	104.18	-1.62	102.56	-	-	peak
@	5745.000	95.00	-1.62	93.38	-	-	AVG
*	11490.000	36.53	9.77	46.30	74.00	-27.70	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5645.500	60.60	-2.07	58.53	68.20	-9.67	peak
-	5725.000	63.71	-1.76	61.95	122.20	-60.25	peak
@	5745.000	101.30	-1.62	99.68	-	-	peak
@	5745.000	92.09	-1.62	90.47	-	-	AVG
*	11490.000	36.73	9.77	46.50	74.00	-27.50	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



EUT Test Condition			Measurement Detail			
Channel	Channel 157		Frequency Range		1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5576.000	59.76	-2.07	57.69	68.20	-10.51	peak
-	5720.500	59.00	-1.80	57.20	111.94	-54.74	peak
@	5785.000	103.75	-1.36	102.39	-	-	peak
@	5785.000	94.61	-1.36	93.25	-	-	AVG
-	5886.500	59.68	-1.20	58.48	96.69	-38.21	peak
#	5985.500	59.83	-1.06	58.77	68.20	-9.43	peak
*	11570.000	35.84	9.65	45.49	74.00	-28.51	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5549.500	60.29	-2.03	58.26	68.20	-9.94	peak
-	5722.000	59.15	-1.79	57.36	115.36	-58.00	peak
@	5785.000	100.96	-1.36	99.60	-	-	peak
@	5785.000	91.71	-1.36	90.35	-	-	AVG
-	5908.000	59.56	-1.18	58.38	80.78	-22.40	peak
#	5985.500	59.47	-1.06	58.41	68.20	-9.79	peak
*	11570.000	36.67	9.65	46.32	74.00	-27.68	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 59 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

EUT Test Condition		Measurement Detail		
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
@	5825.000	103.91	-1.24	102.67	-	-	peak
@	5825.000	94.69	-1.24	93.45	-	-	AVG
-	5904.000	60.79	-1.19	59.60	83.74	-24.14	peak
#	5958.500	59.60	-1.13	58.47	68.20	-9.73	peak
*	11650.000	36.66	9.40	46.06	74.00	-27.94	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
@	5825.000	101.52	-1.24	100.28	-	-	peak
@	5825.000	92.01	-1.24	90.77	-	-	AVG
-	5881.000	60.46	-1.20	59.26	100.76	-41.50	peak
#	5982.500	60.09	-1.08	59.01	68.20	-9.19	peak
*	11650.000	36.45	9.40	45.85	74.00	-28.15	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*" : The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 60 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

802.11n (HT40)

EUT Test Condition		Measurement Detail		
Channel	Channel 38	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5150.000	63.74	-2.24	61.50	74.00	-12.50	peak
@	5190.000	102.28	-2.23	100.05	-	-	peak
-	5150.000	52.47	-2.24	50.23	54.00	-3.77	AVG
@	5190.000	92.98	-2.23	90.75	-	-	AVG
#	10380.000	36.57	8.98	45.55	68.20	-22.65	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5150.000	61.35	-2.24	59.11	74.00	-14.89	peak
@	5190.000	98.21	-2.23	95.98	-	-	peak
-	5150.000	50.10	-2.24	47.86	54.00	-6.14	AVG
@	5190.000	89.02	-2.23	86.79	-	-	AVG
#	10380.000	36.21	8.98	45.19	68.20	-23.01	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 61 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

EUT Test Condition		Measurement Detail		
Channel	Channel 46	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5076.500	61.91	-2.33	59.58	74.00	-14.42	peak
@	5230.000	104.49	-2.38	102.11	-	-	peak
-	5110.700	49.80	-2.26	47.54	54.00	-6.46	AVG
@	5230.000	95.11	-2.38	92.73	-	-	AVG
#	10460.000	35.69	9.04	44.73	68.20	-23.47	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5147.300	61.39	-2.24	59.15	74.00	-14.85	peak
@	5230.000	101.40	-2.38	99.02	-	-	peak
-	5118.200	49.61	-2.26	47.35	54.00	-6.65	AVG
@	5230.000	91.95	-2.38	89.57	-	-	AVG
#	10460.000	36.23	9.04	45.27	68.20	-22.93	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 62 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

EUT Test Condition		Measurement Detail					
Channel	Channel 151	Frequency Range			1 GHz ~ 40 GHz		

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5542.000	59.85	-2.02	57.83	68.20	-10.37	peak
-	5724.000	62.50	-1.77	60.73	119.92	-59.19	peak
@	5755.000	100.86	-1.57	99.29	-	-	peak
@	5755.000	91.70	-1.57	90.13	-	-	AVG
*	11510.000	36.50	9.76	46.26	74.00	-27.74	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5615.500	60.04	-2.09	57.95	68.20	-10.25	peak
-	5723.000	62.31	-1.77	60.54	117.64	-57.10	peak
@	5755.000	97.66	-1.57	96.09	-	-	peak
@	5755.000	88.61	-1.57	87.04	-	-	AVG
*	11510.000	36.05	9.76	45.81	74.00	-28.19	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "*" : The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
6. The other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



EUT Test Condition			Measurement Detail			
Channel	Channel 159		Frequency Range		1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5568.500	59.49	-2.07	57.42	68.20	-10.78	peak
-	5666.500	59.81	-2.03	57.78	80.41	-22.63	peak
@	5795.000	100.75	-1.29	99.46	-	-	peak
@	5795.000	91.71	-1.29	90.42	-	-	AVG
-	5876.500	60.85	-1.20	59.65	104.09	-44.44	peak
#	5964.500	59.42	-1.11	58.31	68.20	-9.89	peak
*	11590.000	35.93	9.61	45.54	74.00	-28.46	peak
Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5586.000	59.75	-2.08	57.67	68.20	-10.53	peak
-	5689.000	59.73	-1.96	57.77	97.06	-39.29	peak
@	5795.000	96.87	-1.29	95.58	-	-	peak
@	5795.000	87.82	-1.29	86.53	-	-	AVG
-	5861.500	60.12	-1.22	58.90	108.98	-50.08	peak
#	5940.500	60.28	-1.16	59.12	68.20	-9.08	peak
*	11590.000	36.59	9.61	46.20	74.00	-27.80	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

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Test report No. : 4789136426-US-R0-V0
Page : 64 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

802.11ac (VHT80)

EUT Test Condition		Measurement Detail		
Channel	Channel 42	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5142.200	63.66	-2.25	61.41	74.00	-12.59	peak
@	5210.000	97.75	-2.28	95.47	-	-	peak
-	5144.900	51.59	-2.25	49.34	54.00	-4.66	AVG
@	5210.000	88.32	-2.28	86.04	-	-	AVG
#	10420.000	35.64	9.08	44.72	68.20	-23.48	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	5134.100	62.28	-2.25	60.03	74.00	-13.97	peak
@	5210.000	94.66	-2.28	92.38	-	-	peak
-	5147.600	50.16	-2.24	47.92	54.00	-6.08	AVG
@	5210.000	85.03	-2.28	82.75	-	-	AVG
#	10420.000	36.38	9.08	45.46	68.20	-22.74	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. The other emission levels were very low against the limit.

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Test report No. : 4789136426-US-R0-V0
Page : 65 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

EUT Test Condition		Measurement Detail		
Channel	Channel 155	Frequency Range	1 GHz ~ 40 GHz	

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5584.000	59.99	-2.08	57.91	68.20	-10.29	peak
-	5713.500	60.21	-1.84	58.37	108.98	-50.61	peak
@	5775.000	96.36	-1.43	94.93	-	-	peak
@	5775.000	87.27	-1.43	85.84	-	-	AVG
*	11550.000	35.64	9.68	45.32	74.00	-28.68	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
#	5618.000	60.28	-2.09	58.19	68.20	-10.01	peak
-	5719.500	60.86	-1.80	59.06	110.66	-51.60	peak
@	5775.000	93.99	-1.43	92.56	-	-	peak
@	5775.000	84.67	-1.43	83.24	-	-	AVG
*	11550.000	36.23	9.68	45.91	74.00	-28.09	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. "@" : Fundamental Frequency.
5. "#": The radiated frequency is out of the restricted band.
6. "*": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
7. The other emission levels were very low against the limit.

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Test report No. : 4789136426-US-R0-V0
Page : 66 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

9 kHz ~ 30 MHz Data:

For 9 kHz to 30 MHz radiated emission have performed all modes of operation were investigated. The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

No non-compliance noted:

KDB 414788 D01 OATS and Chamber Correlation Justification

- Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.
- OATs and chamber correlation testing had been performed and chamber measured test results is the worst case test result.

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30m open area test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

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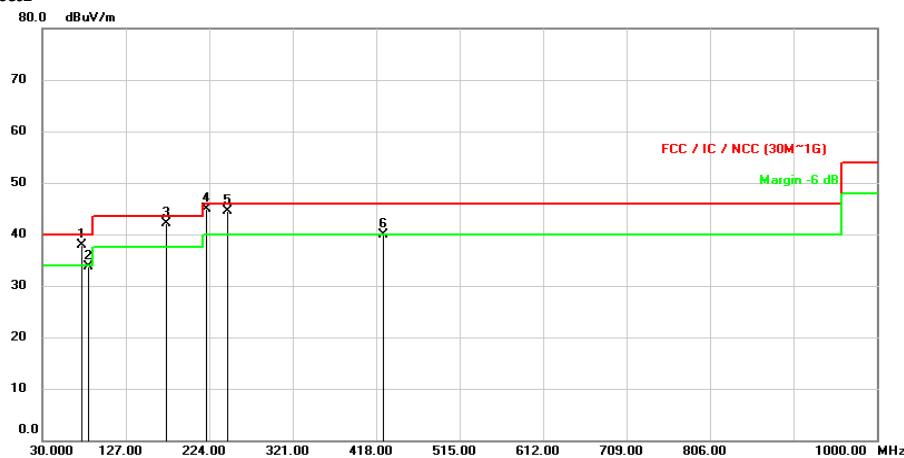
Test report No. : 4789136426-US-R0-V0
Page : 67 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

30 MHz ~ 1 GHz Data

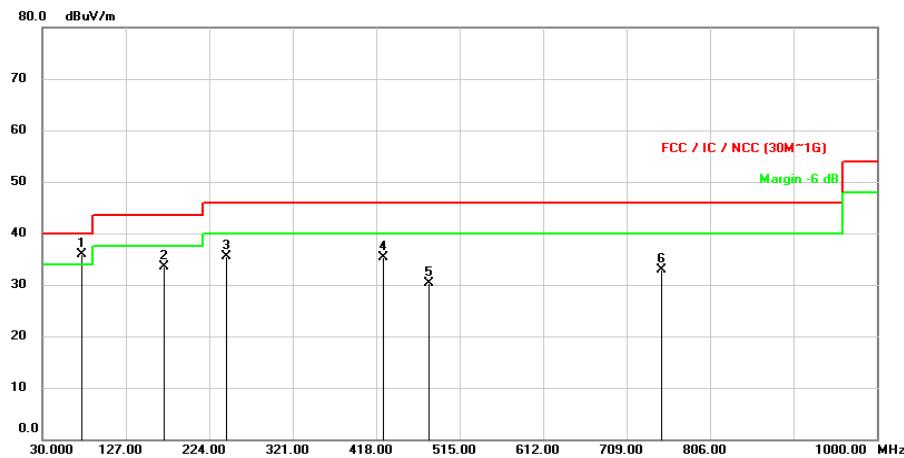
802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	Frequency Range	30 MHz ~ 1 GHz

Horizontal



Vertical



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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 68 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

Antenna Polarity & Test Distance: Horizontal at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
-	76.2043	56.59	-18.71	37.88	40.00	-2.12	QP
-	83.7703	54.29	-20.51	33.78	40.00	-6.22	QP
*	173.3335	57.70	-15.55	42.15	43.50	-1.35	peak
*	219.3763	62.50	-17.56	44.94	46.00	-1.06	peak
*	244.4347	60.41	-15.85	44.56	46.00	-1.44	peak
*	424.9840	50.62	-10.81	39.81	46.00	-6.19	peak

Antenna Polarity & Test Distance: Vertical at 3 m							
Notation	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
*	76.2690	54.62	-18.73	35.89	40.00	-4.11	peak
*	170.8440	48.70	-15.27	33.43	43.50	-10.07	peak
*	244.4993	51.42	-15.85	35.57	46.00	-10.43	peak
*	424.9840	46.11	-10.81	35.30	46.00	-10.70	peak
*	480.0153	40.13	-9.73	30.40	46.00	-15.60	peak
*	749.9986	37.34	-4.50	32.84	46.00	-13.16	peak

Remarks:

1. Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
2. Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
3. Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
4. " * ": The peak result complies with AVG limit, AVG result is deemed to comply with AVG limit.
5. The other emission levels were very low against the limit.

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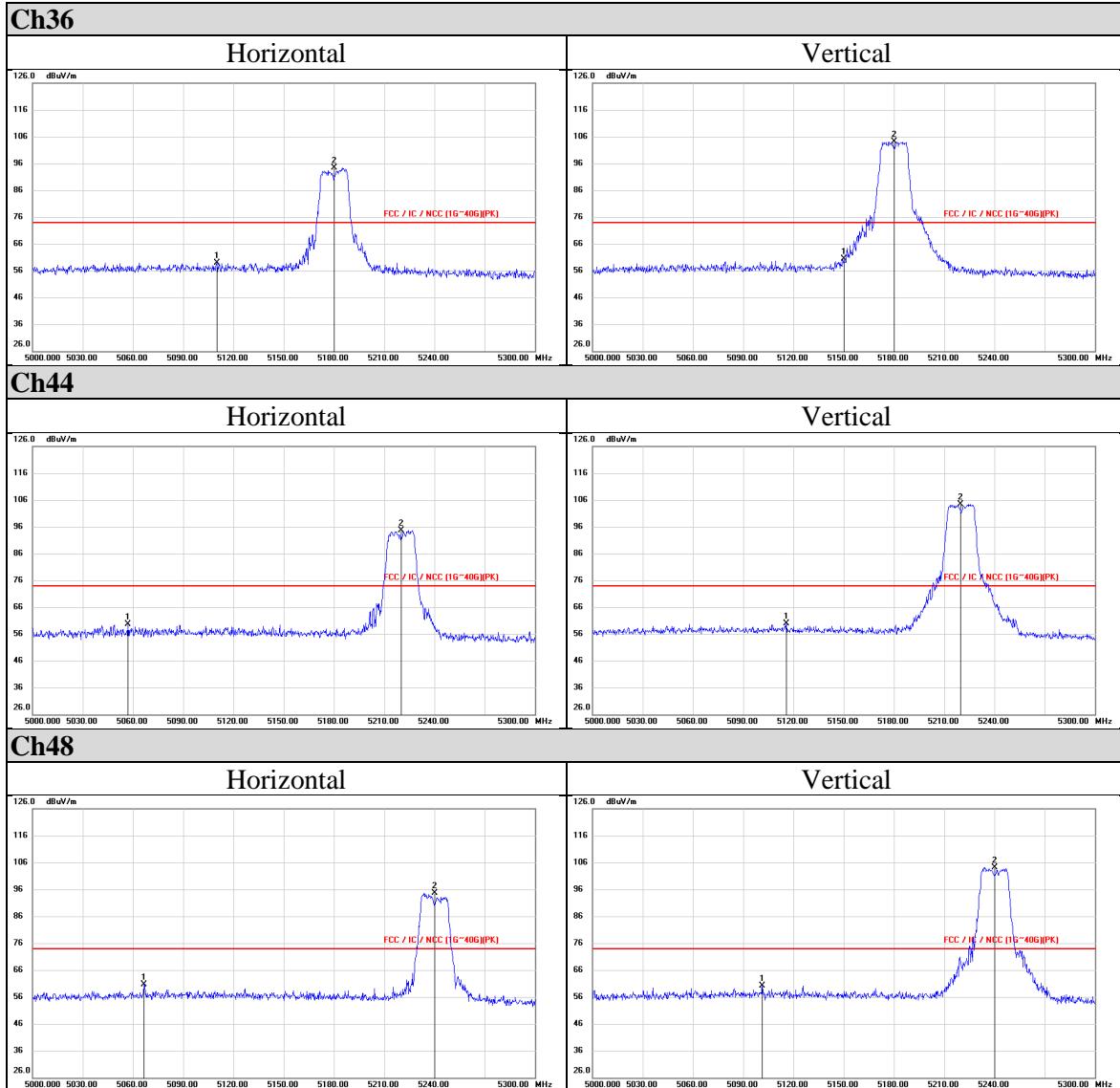
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Appendix I Radiated Band Edge and OOB Measurement

802.11a

Peak



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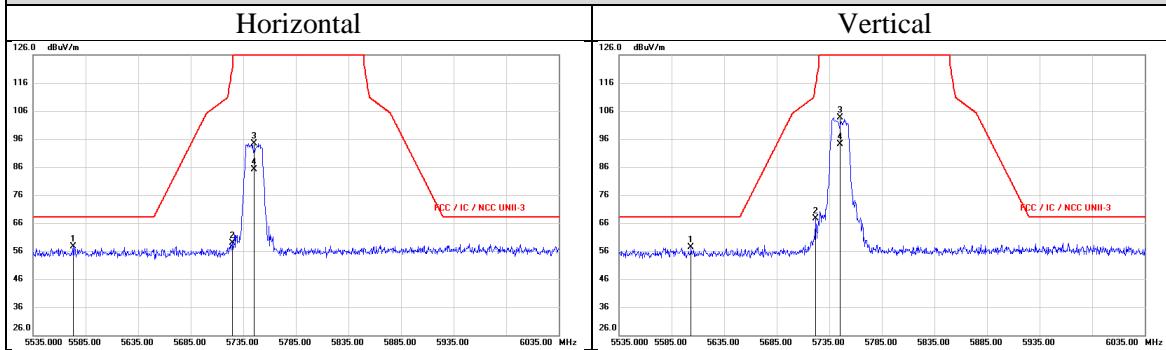
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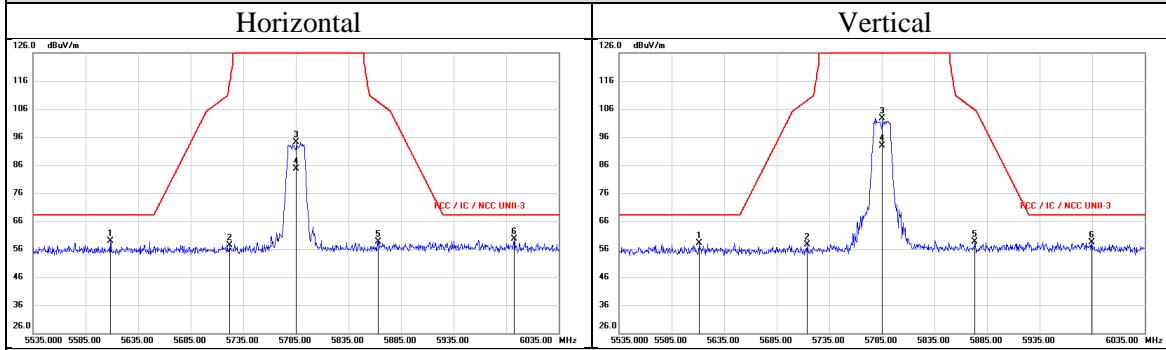


Test report No. : 4789136426-US-R0-V0
Page : 70 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

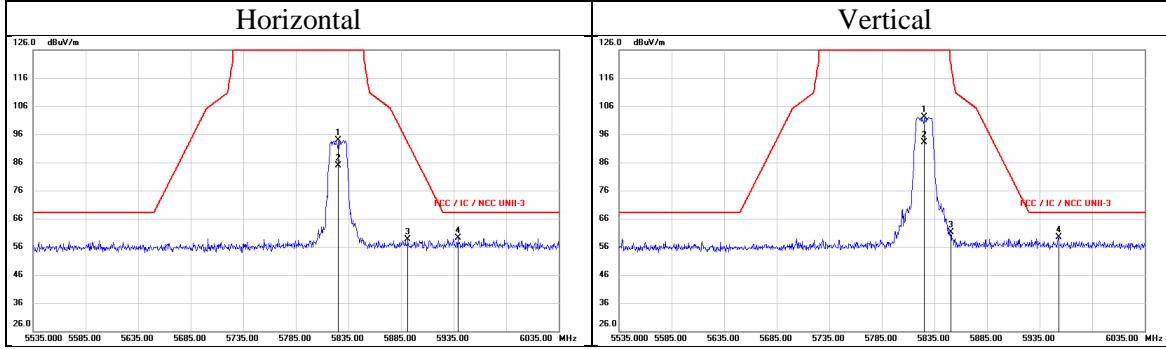
Ch149



Ch157



Ch165



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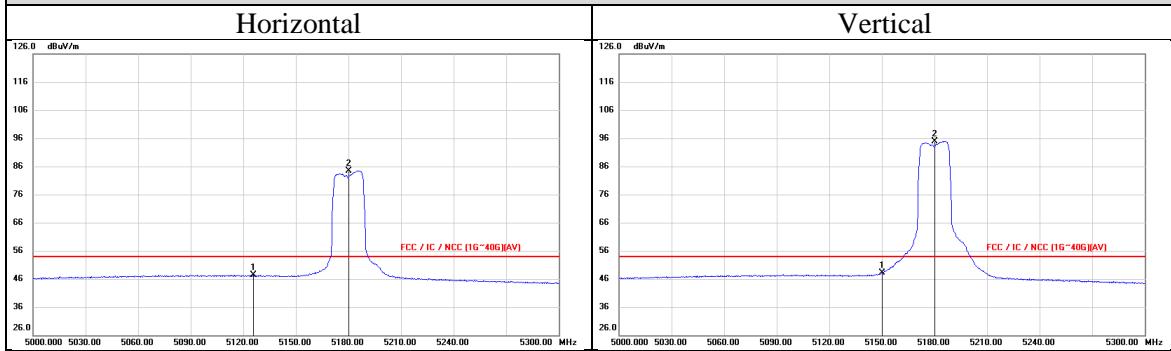


Test report No. : 4789136426-US-R0-V0
Page : 71 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

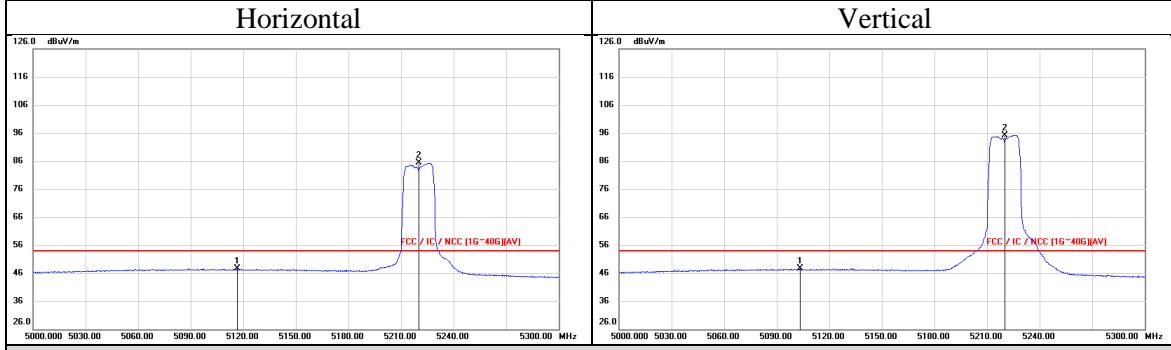
802.11a

Average

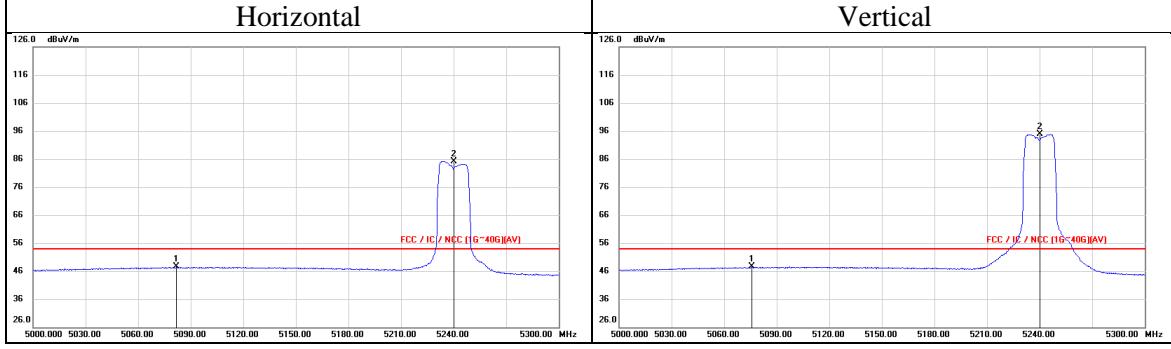
Ch36



Ch44



Ch48



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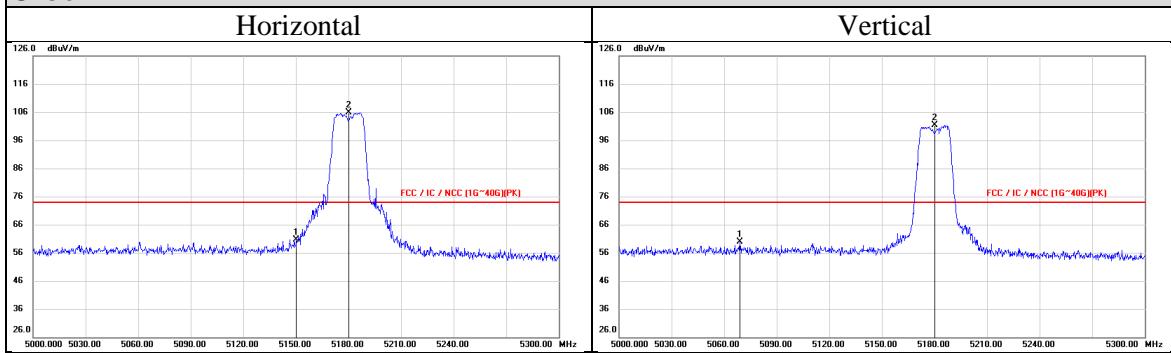


Test report No. : 4789136426-US-R0-V0
Page : 72 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

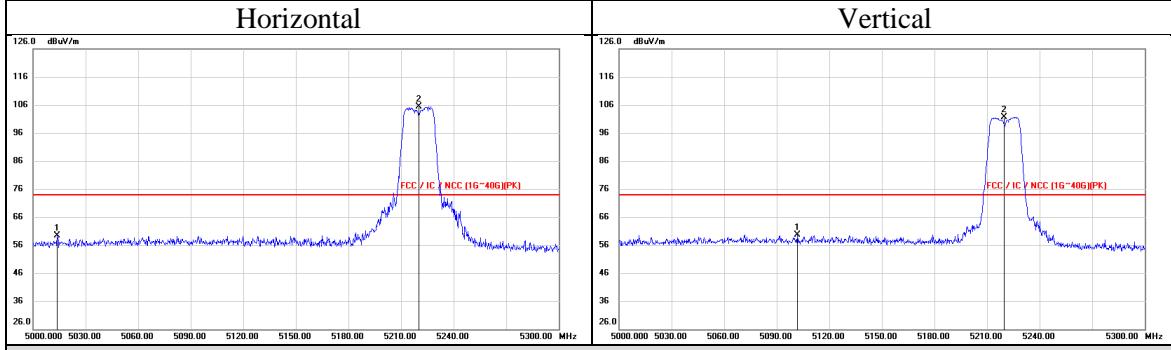
802.11n (HT20)

Peak

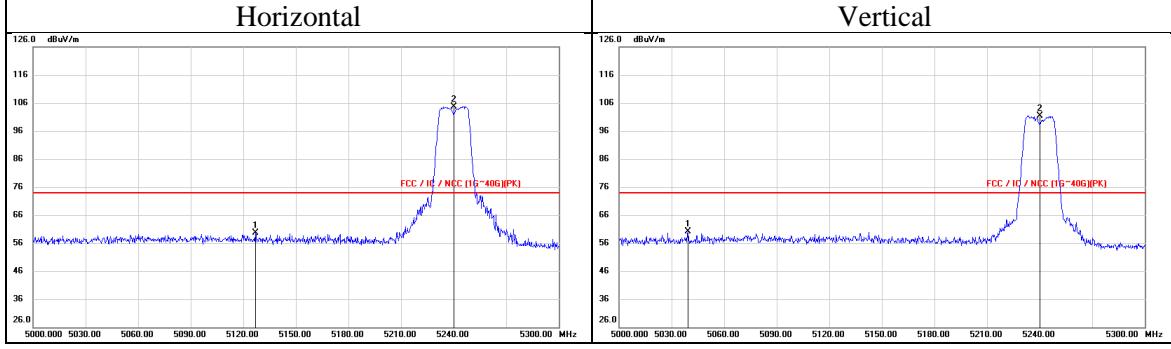
Ch36



Ch44



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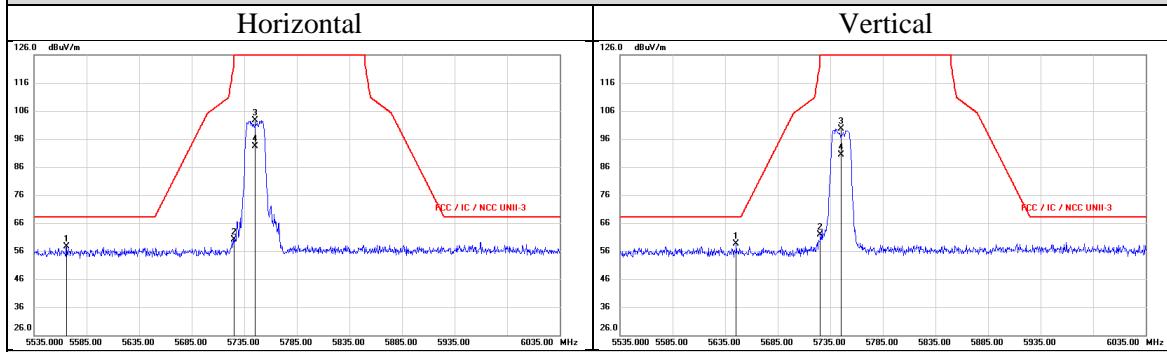
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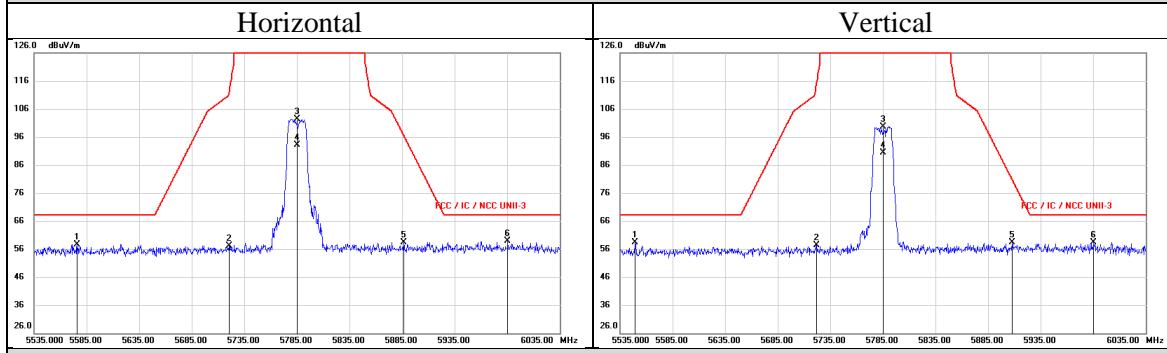


Test report No. : 4789136426-US-R0-V0
Page : 73 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

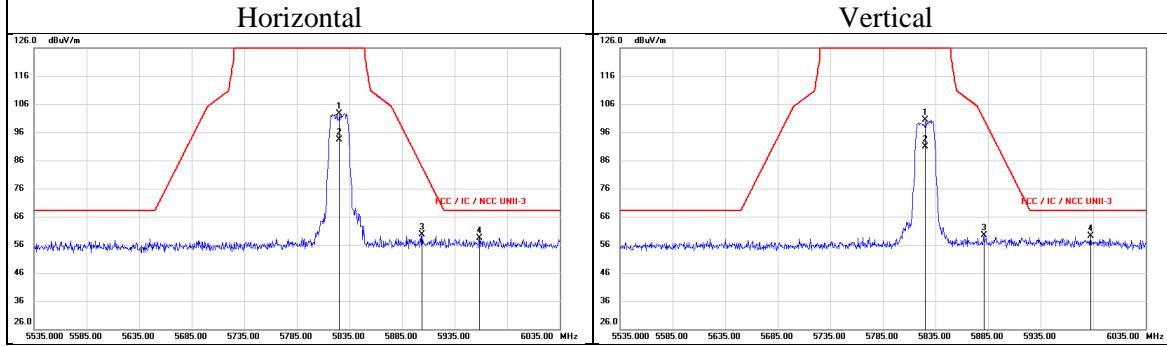
Ch149



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Ch165



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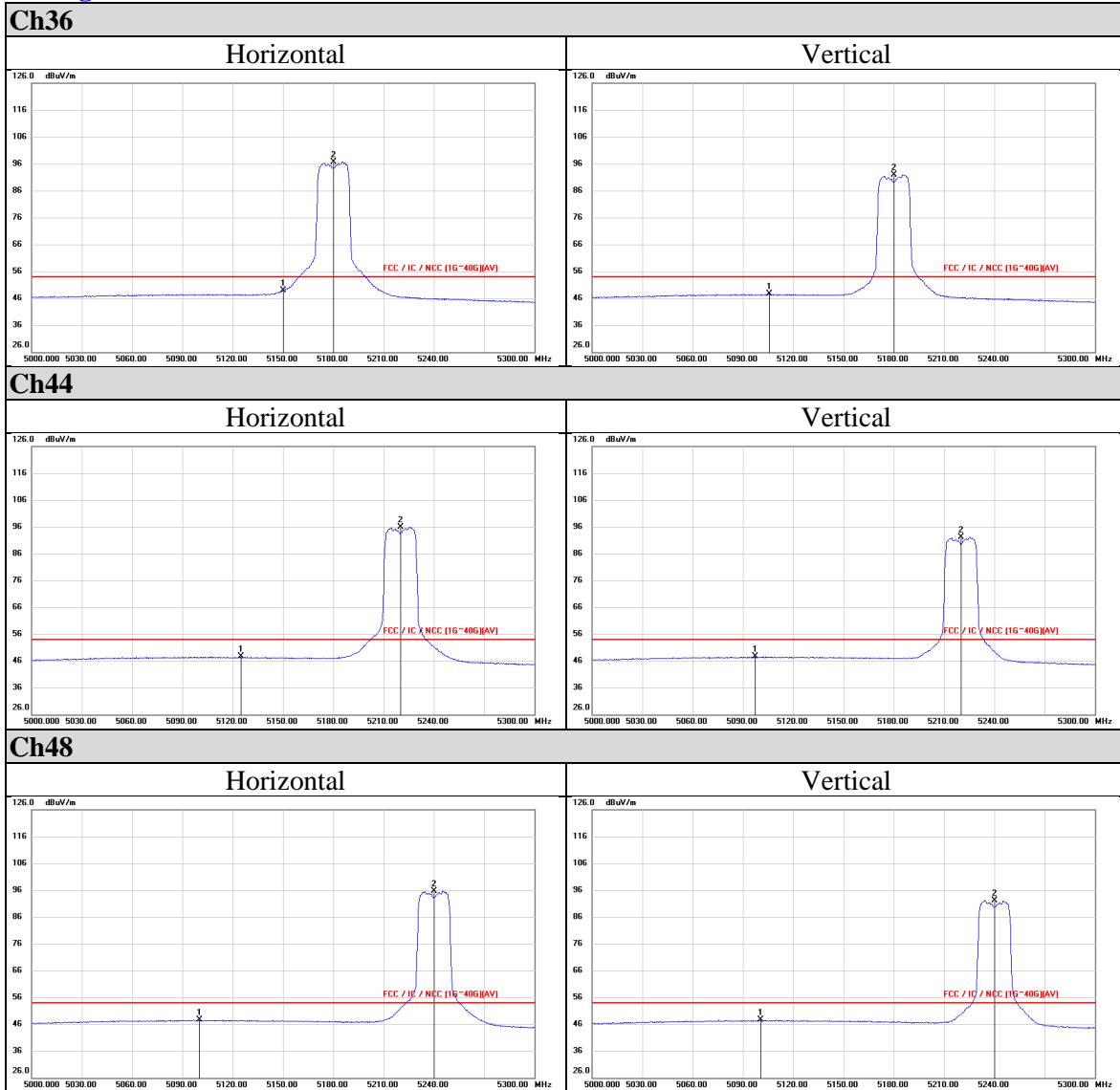
Doc No: 17-EM-F0878 / 3.0



Test report No. : 4789136426-US-R0-V0
Page : 74 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

802.11n (HT20)

Average



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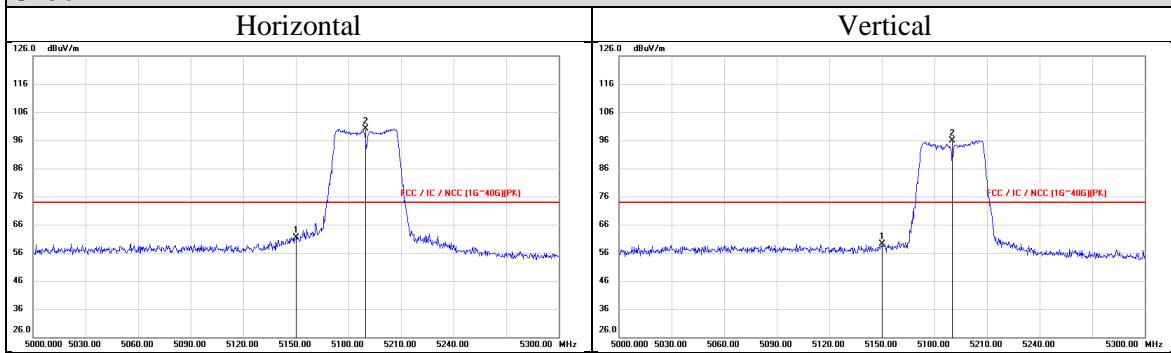


Test report No. : 4789136426-US-R0-V0
Page : 75 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

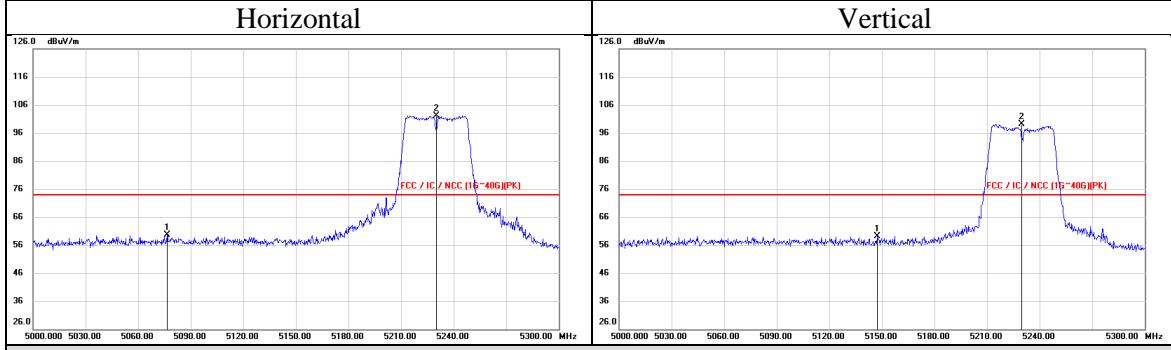
802.11n (HT40)

Peak

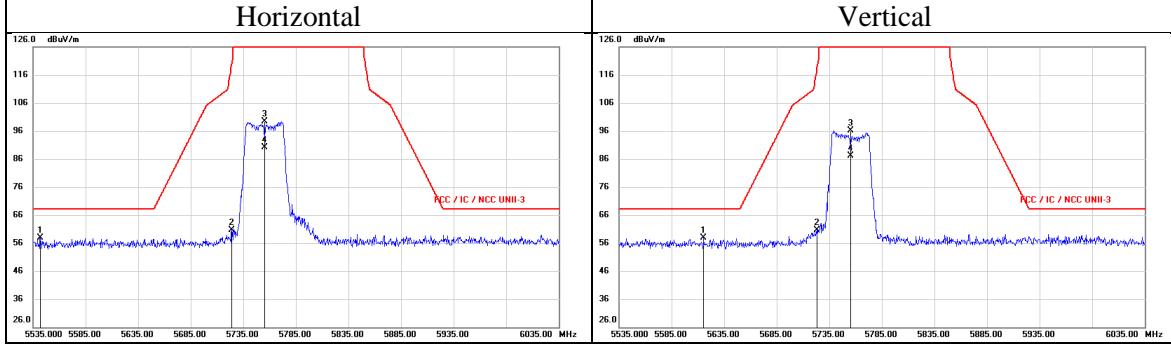
Ch38



Ch46



Ch151



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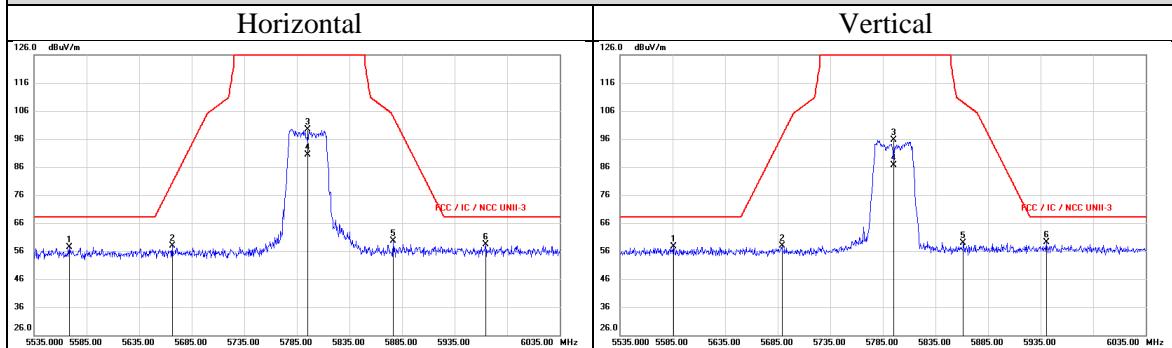
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Page : 76 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

Ch159



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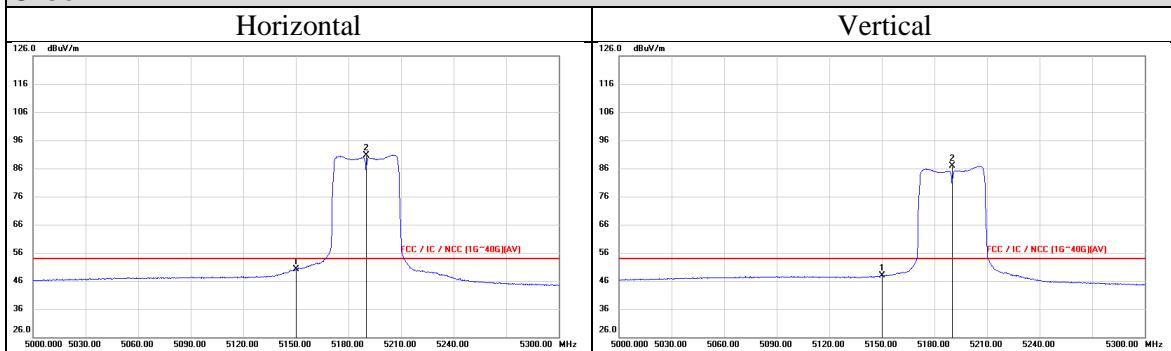


Test report No. : 4789136426-US-R0-V0
Page : 77 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

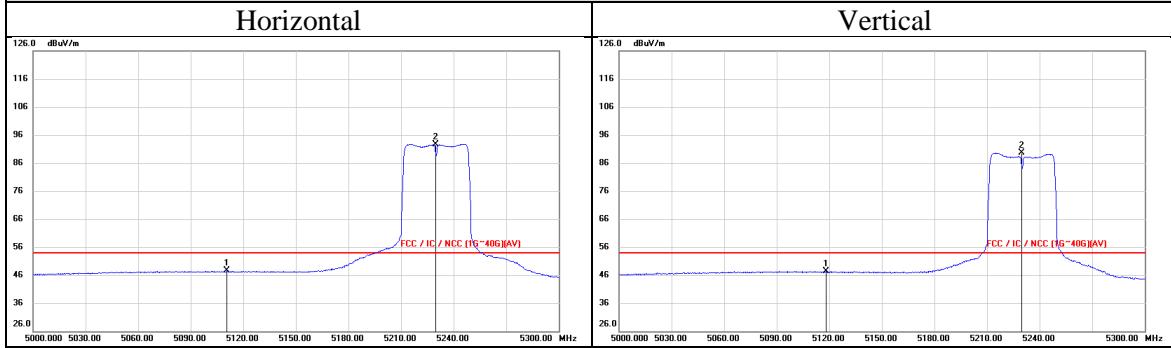
802.11n (HT40)

Average

Ch38



Ch46



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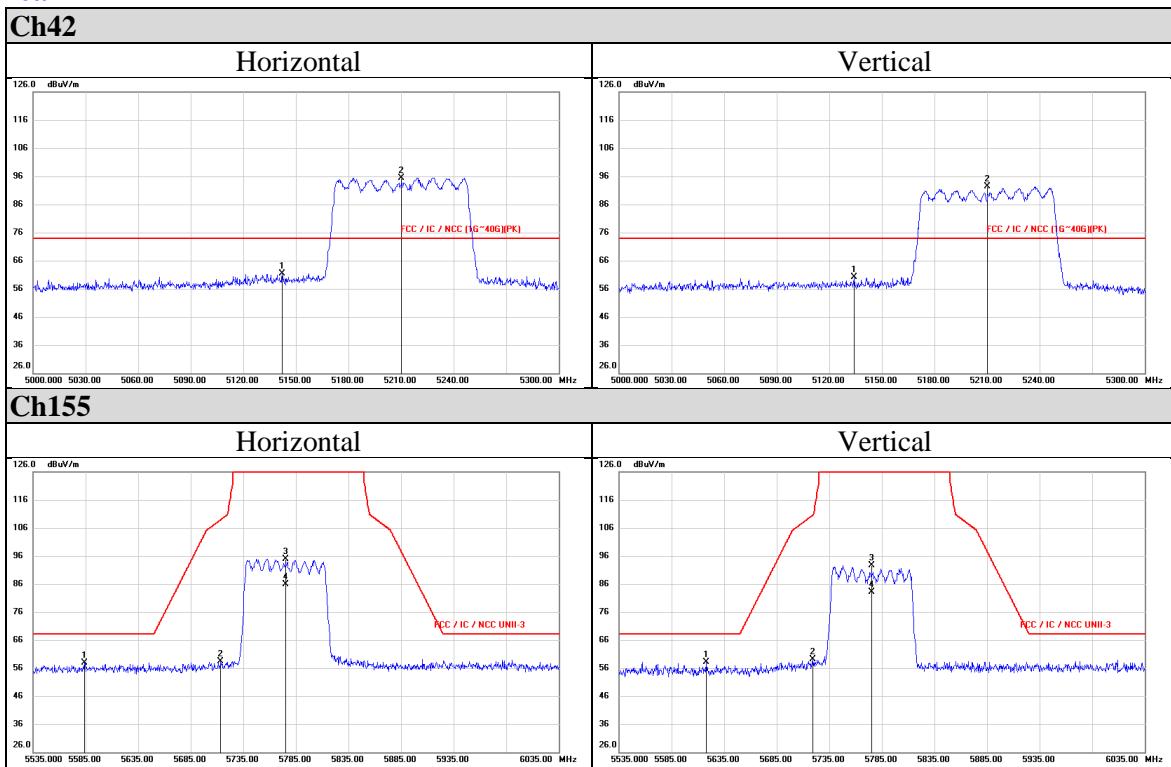
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Test report No. : 4789136426-US-R0-V0
Page : 78 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

802.11ac (VHT80)

Peak



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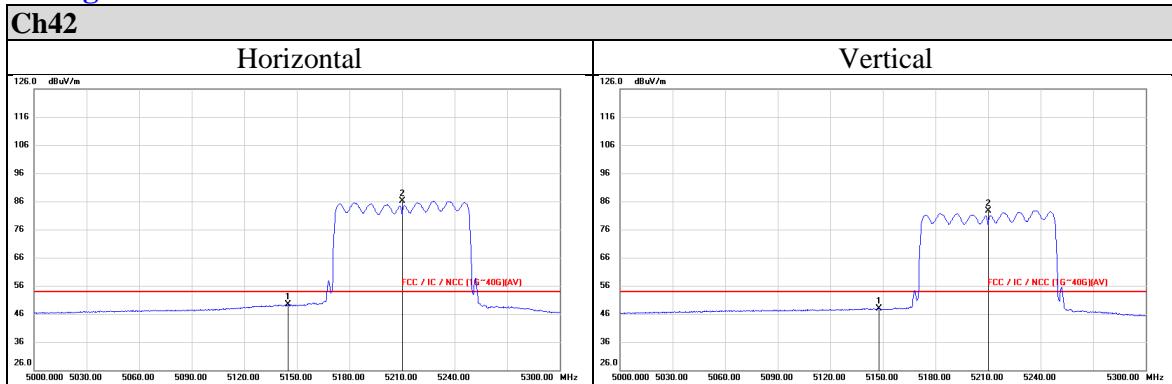
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Test report No. : 4789136426-US-R0-V0
Page : 79 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

802.11ac (VHT80)

Average



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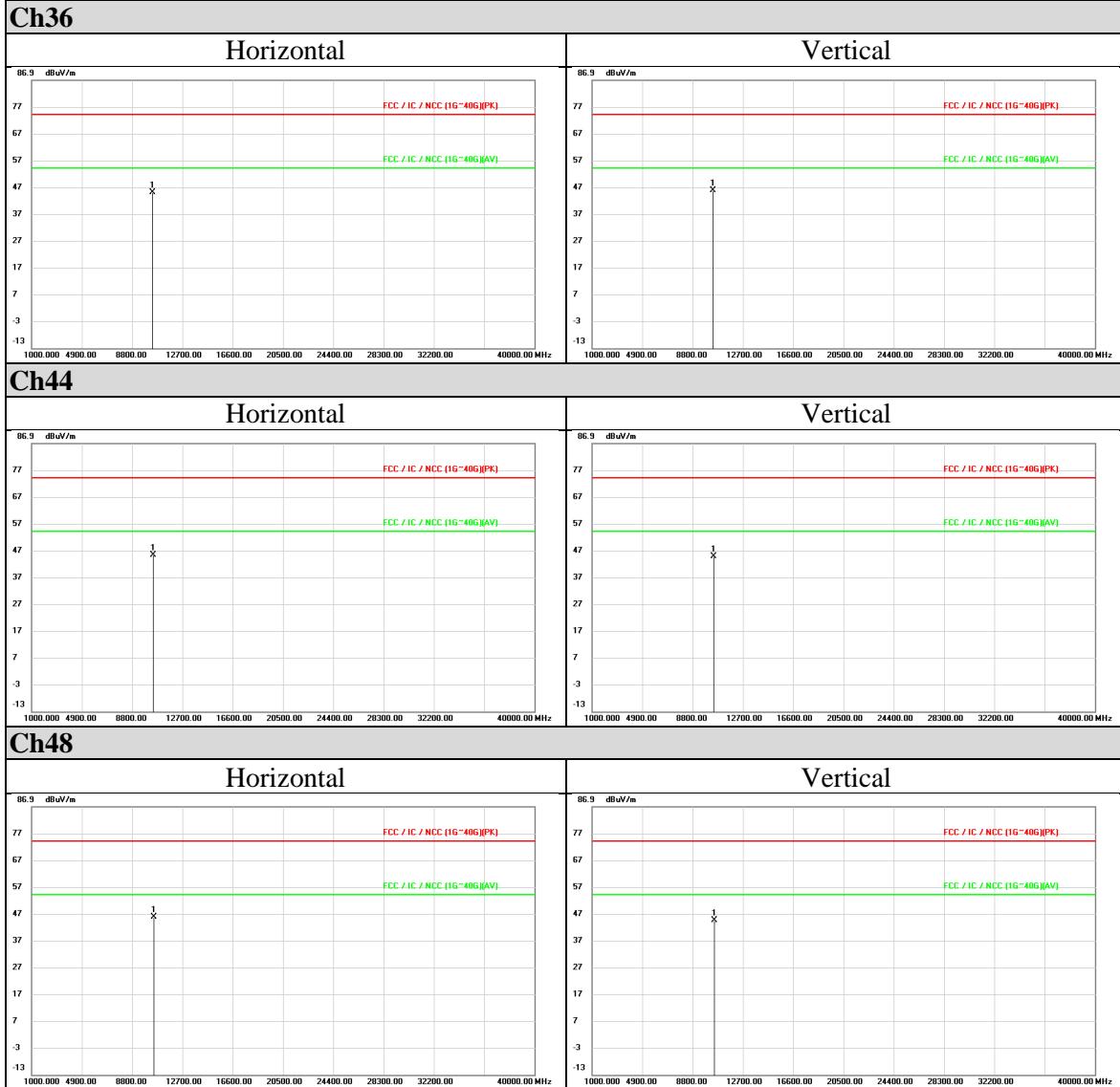
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Test report No. : 4789136426-US-R0-V0
Page : 80 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

Appendix II Radiated Spurious Emission Measurement

802.11a



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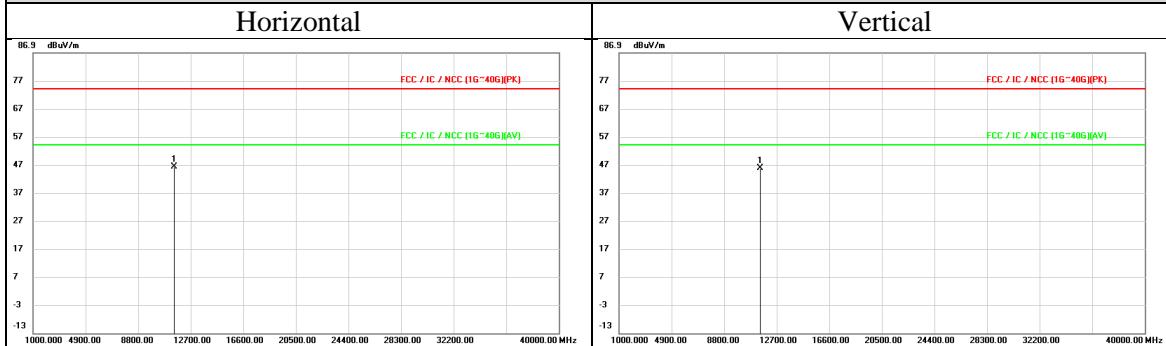
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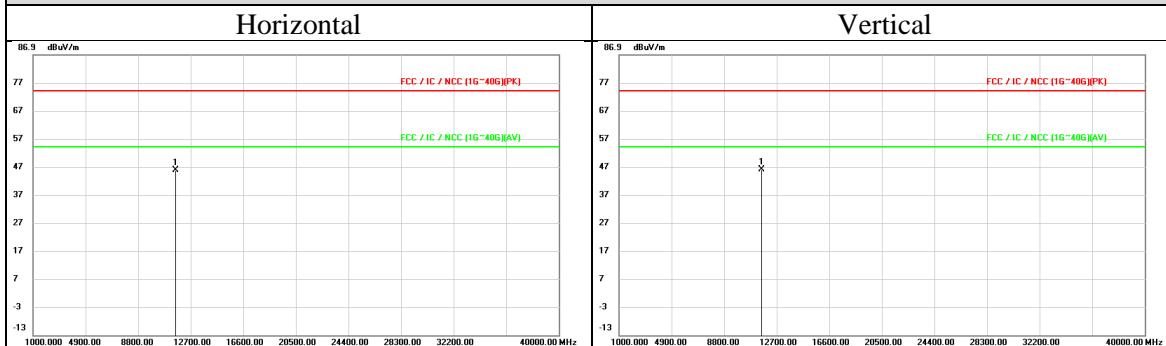


Test report No. : 4789136426-US-R0-V0
Page : 81 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

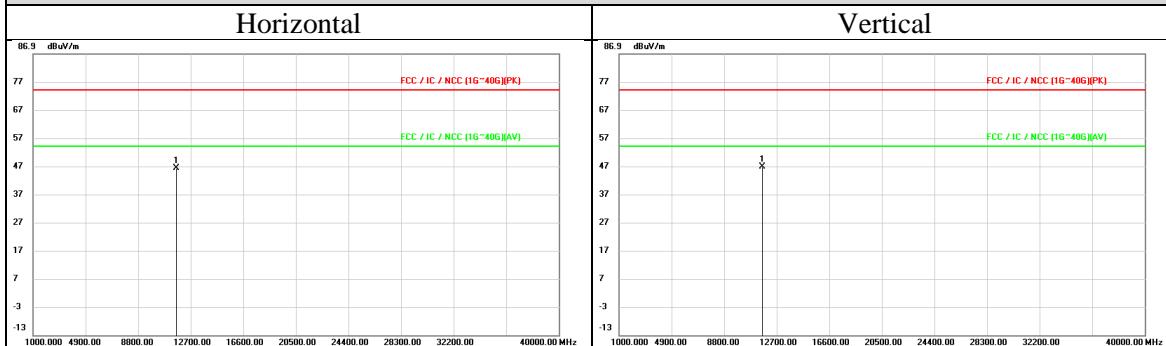
Ch149



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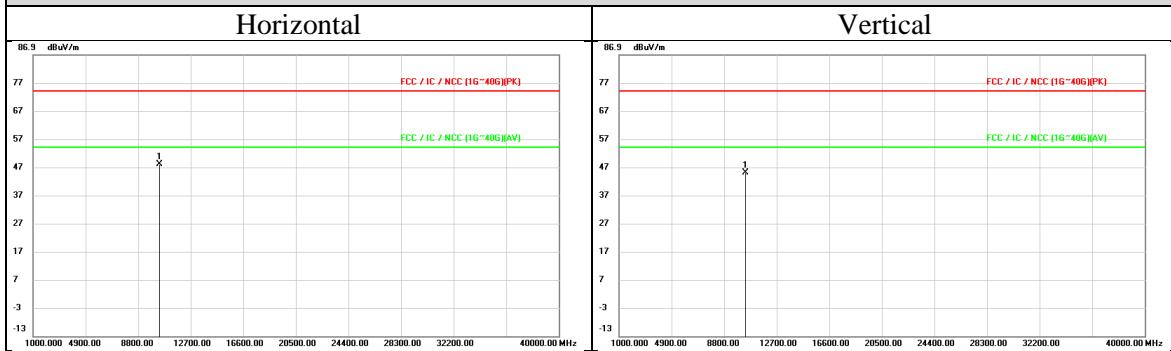
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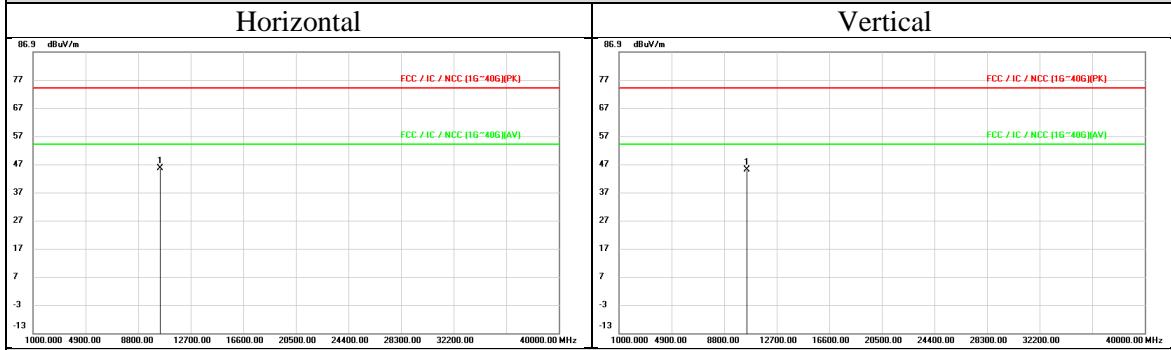
Test report No. : 4789136426-US-R0-V0
Page : 82 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

802.11n (HT20)

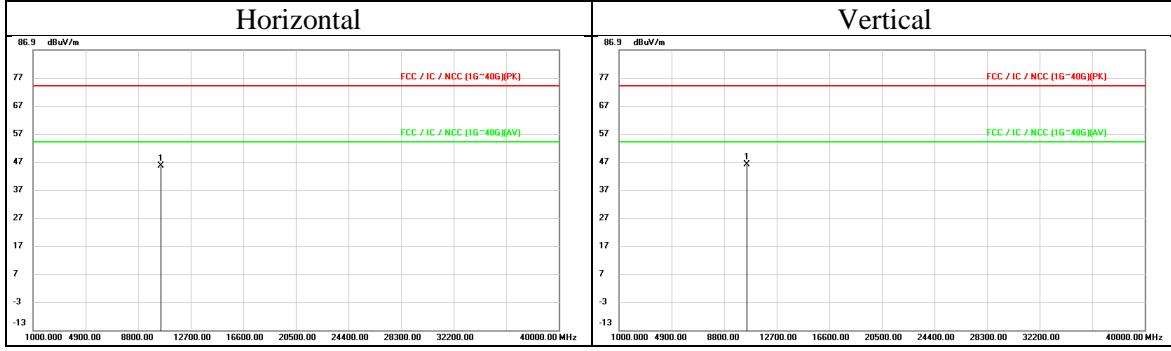
Ch36



Ch44



Ch48



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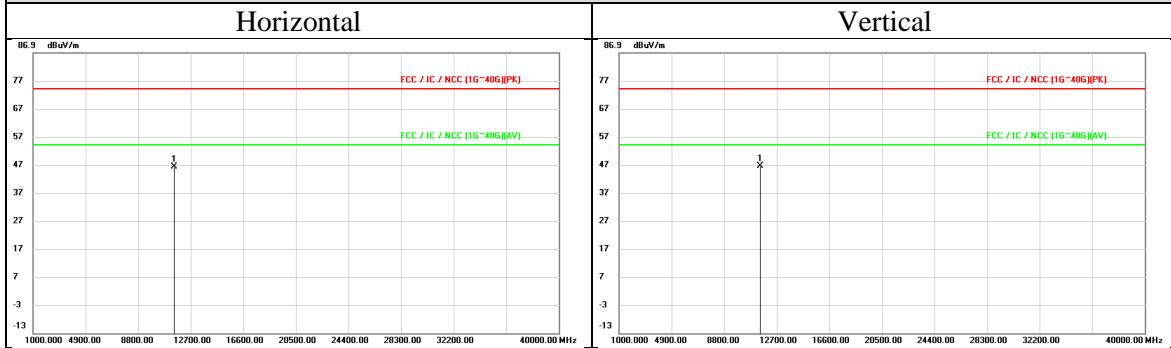
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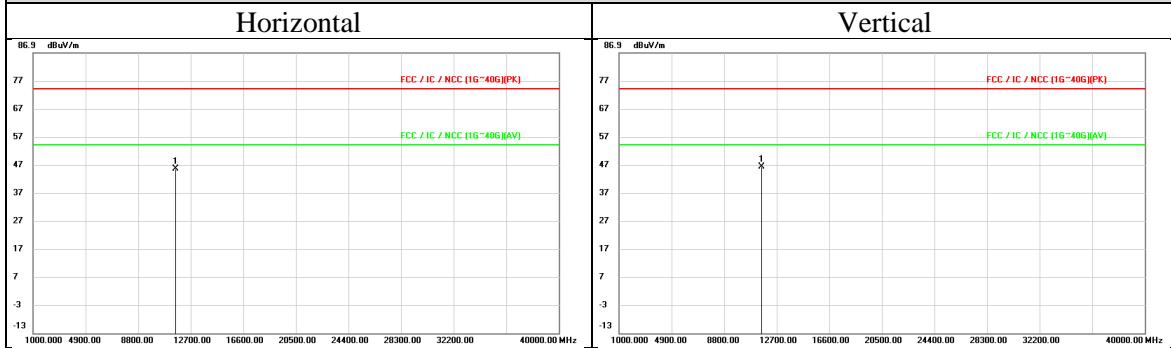


Test report No. : 4789136426-US-R0-V0
Page : 83 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

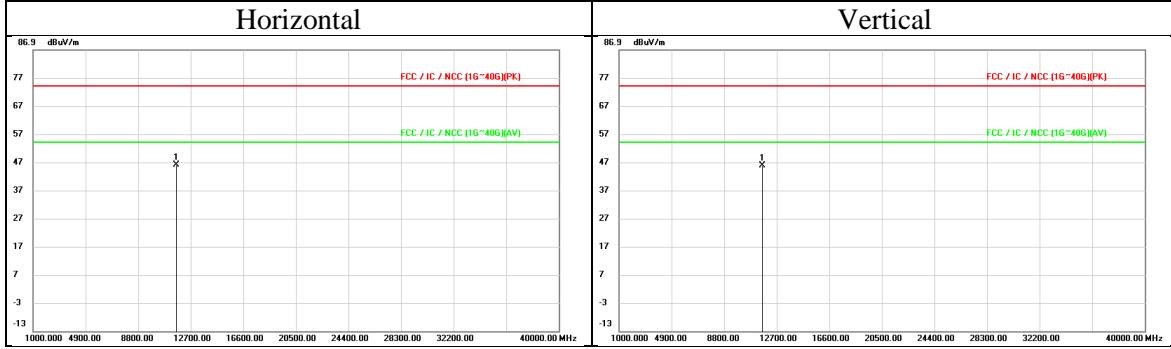
Ch149



Ch157



Ch165



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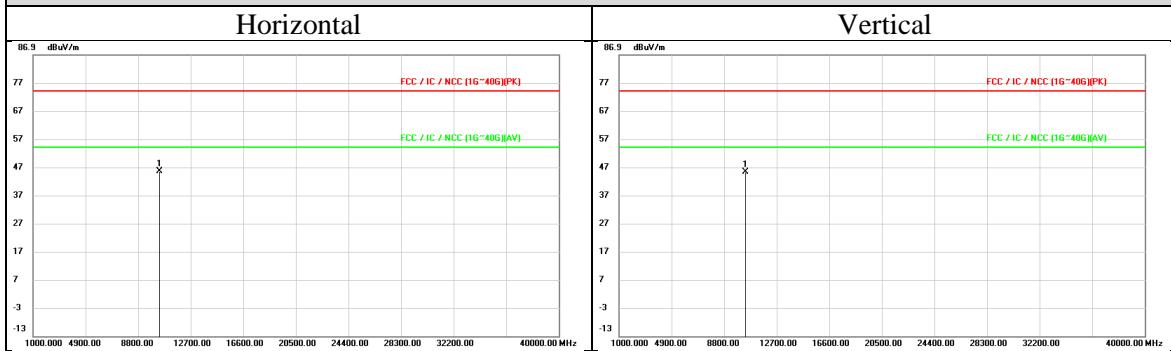
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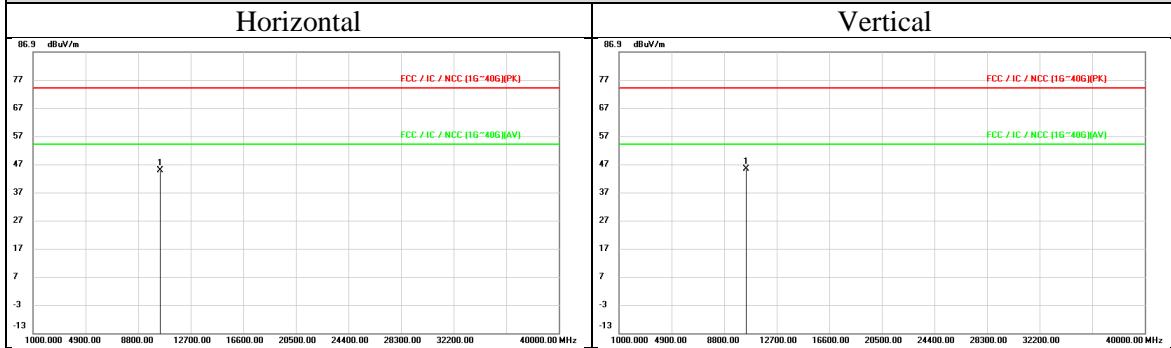
Test report No. : 4789136426-US-R0-V0
Page : 84 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

802.11n (HT40)

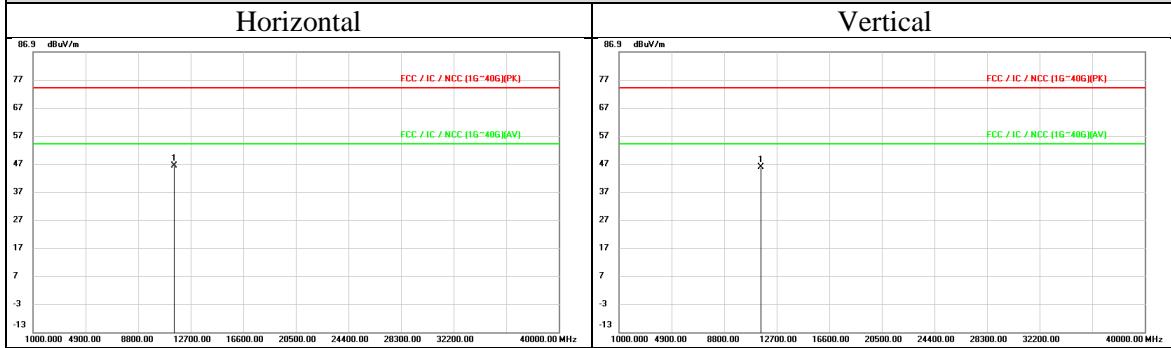
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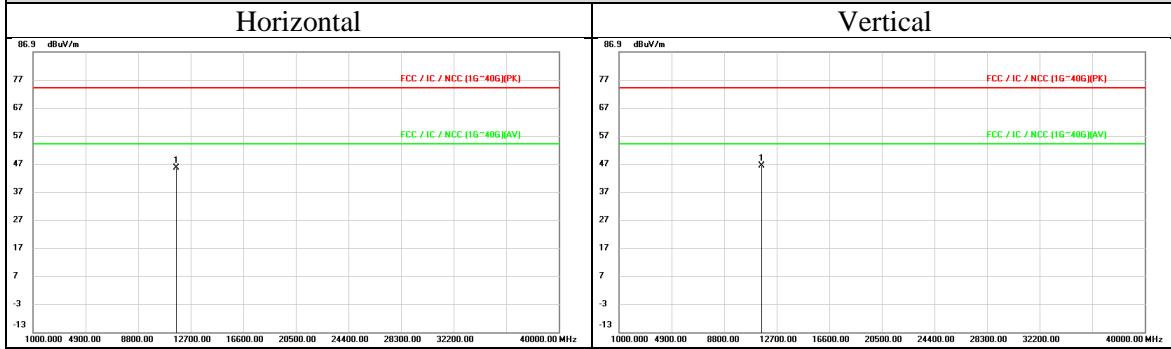
Ch46



Ch151



Ch159



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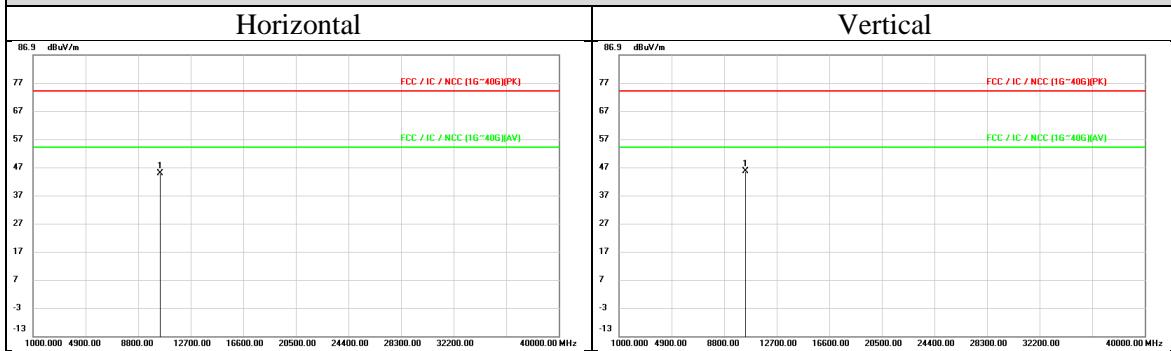
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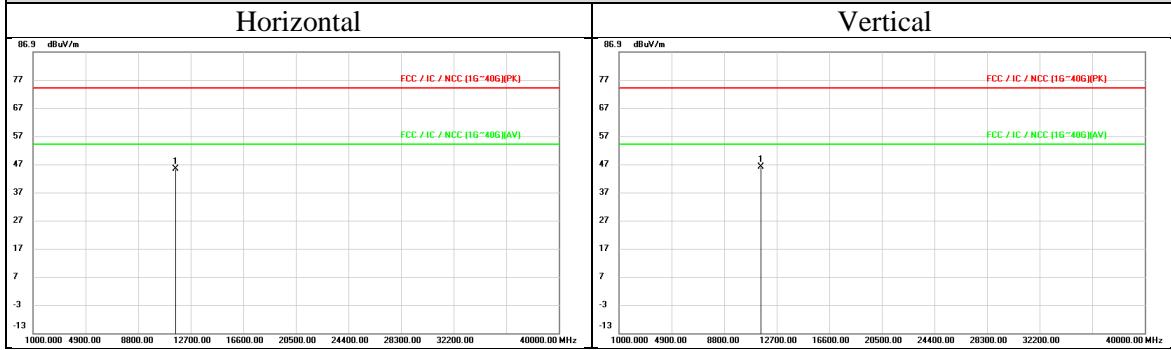
Test report No. : 4789136426-US-R0-V0
Page : 85 of 85
Issued date : Jan. 31, 2020
FCC ID : ZZ6-WUBT-236ACN

802.11ac (VHT80)

Ch42



Ch155



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