



Test report No. : 4788637943-US-R1-V0
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Issued date : Oct. 2, 2019
FCC ID : SXE-BDEM01

RADIO TEST REPORT

Product : Skin scanner-Lumos

Model Name : BDEM-01

FCC ID : SXE-BDEM01

Test Regulation : FCC 47 CFR Part 15 Subpart E (Section 15.407)

Received Date : Aug. 28, 2018

Test Date : Sep. 14, 2018 ~ Nov 27, 2018

Issued Date : Oct. 2, 2019

Applicant : Barco NV
President Kennedypark 35, 8500 Kortrijk, Belgium

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



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REVISION HISTORY

Original Test Report No.: 4788637943-US-R1-V0

[illegible]

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1. Attestation of Test Results

APPLICANT: Barco NV
President Kennedypark 35, 8500 Kortrijk, Belgium

MANUFACTURER Barco NV
President Kennedypark 35, 8500 Kortrijk, Belgium

EUT DESCRIPTION: Skin scanner-Lumos

BRAND: Barco

MODEL: BDEM-01

SAMPLE STAGE: Identical Prototype

DATE of TESTED: Sep. 14, 2018 ~ Nov 27, 2018

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. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by 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:

Evelyn Lee
Project Handler

Date : Oct. 2, 2019

Approve By:

Stanley Wu
Senior Project Engineer

Date : Oct. 2, 2019

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2. Summary of Test Results

Summary of Test Results		
FCC Clause	Test Items	Result
15.407(e)	6dB Bandwidth	PASS
2.1049	Occupied Bandwidth	See Note2
15.403(i)	26dB Bandwidth	PASS
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	PASS
15.203	Antenna Requirement	PASS
15.407(h)	Dynamic Frequency Selection	See Note3

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 "Dynamic Frequency Selection measurement" was recorded in Report No.: 4788637943-US-R2-V0

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3. Test Methodology and Reference Procedures

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

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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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)
Conducted disturbance at mains terminals ports	0.15MHz ~ 30MHz	2	2.6
RF Conducted	9 kHz - 40GHz	2	1.0
Radiated disturbance below 30MHz	9 kHz - 30 MHz	2	2.4
Radiated disturbance below 1 GHz	30MHz ~ 1GHz	2	5.5
Radiated disturbance above 1GHz	1GHz ~ 40GHz	2	5.0

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6. Equipment under Test

6.1. Description of EUT

Product	Skin scanner-Lumos	
Brand Name	Barco	
Model Name	BDEM-01	
Operating Frequency	5180 ~ 5240 MHz, 5260 ~ 5320 MHz, 5500 ~ 5700 MHz, 5745 ~ 5825 MHz	
Modulation	256QAM, 64QAM, 16QAM, QPSK, BPSK	
Transfer Rate	802.11a: up to 54 Mbps 802.11n: up to MCS7 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), 802.11ac (VHT40)
		1 for 802.11ac (VHT80)
	5260 ~ 5320 MHz	4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20)
		2 for 802.11n (HT40), 802.11ac (VHT40)
		1 for 802.11ac (VHT80)
	5500 ~ 5700 MHz	11 for 802.11a, 802.11n (HT20), 802.11ac (VHT20)
		5 for 802.11n (HT40), 802.11ac (VHT40)
		2 for 802.11ac (VHT80)
	5745 ~ 5825 MHz	5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20)
		2 for 802.11n (HT40), 802.11ac (VHT40)
		1 for 802.11ac (VHT80)
Maximum Output Power	5180 ~ 5240 MHz: 16.34 dBm 5260 ~ 5320 MHz: 16.29 dBm 5500 ~ 5700 MHz: 16.87 dBm 5745 ~ 5825 MHz: 16.99 dBm	
Normal Voltage	100~240Vac for adapter 3.7Vdc for battery	
Hardware Version	N/A	
Software Version	Android version : 8.1.0 Kernel version : 3.18.71-g18d2fa8 (gcc version 4.9.x 20150123 (prerelease) (GCC)) Snapdragon Camera Version 2.0.002	

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Note:

1. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

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

* 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
CPU	Qualcomm	APQ8053(2.0 GHz)	ARM Cortex-A53 microprocessor cores at 2.0 GHz
RAM	SK Hynix	H9TQ26ACLTC UR (4GB)	F1ynm 64Gb MLC x 4
HDD	SK Hynix	H9TQ26ACLTC UR (32GB)	2ynm 8Gb LPDDR3 x 4
Power Supply (Li-Battery)	Apack	APP00281	2670mAh
		APP00280	5000mAh
Adapter	ADAPTER TECH.	ATM012T-W051V	Input : AC 100-240V, 50-60Hz Output : DC 5V, 3A
Docking	BARCO	K9302003A	Input: DC 5V/3A Output: DC 5V/3A
Battery grip	BARCO	K9302002A	Controller with battery 5000mAh

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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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 5260 ~ 5320MHz

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

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290MHz

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FOR 5500 ~ 5700MHz

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

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz	-	-

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

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz	-	-

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530MHz	122	5610 MHz

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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6.3. Test Condition

Test Item	Test Site No.	Environmental Condition	Input Power	Test Date	Tested by
Antenna Port Conducted Measurement	SR4	24~26°C / 63~65%RH	120Vac / 60 Hz	Sep. 14, 2018 ~ Nov. 26, 2018	Wayne Chen
Radiated Spurious Emission	966-2	25~27°C / 58~62%RH	120Vac / 60 Hz	Sep. 14, 2018 ~ Nov. 27, 2018	Wayne Chen
AC power Line Conducted Emission	SR1	24~26°C / 52~56%RH	120Vac / 60 Hz	Oct. 12, 2018 ~ Nov. 15, 2018	Wayne Chen

FCC Test Firm Registration Number: 498077

6.4. Description Of Available Antennas

Antenna	Brand Name	Model Name	Antenna Type	Antenna Gain(dBi)
0	INPAQ	WA-F-LB-02-145	FPCB	3.51

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6.5. Test Mode Applicability and Tested Channel Detail

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	5260-5320	OFDM	52 to 64	52, 60, 64	6.0
	802.11n(HT20)		OFDM	52 to 64	52, 60, 64	MCS0
	802.11n(HT40)		OFDM	54 to 62	54, 62	MCS0
	802.11ac (VHT80)		OFDM	58	58	MCS0
	802.11a	5500-5700	OFDM	100 to 140	100, 116, 140	6.0
	802.11n(HT20)		OFDM	100 to 140	100, 116, 140	MCS0
	802.11n(HT40)		OFDM	102 to 134	102, 110, 134	MCS0
	802.11ac (VHT80)		OFDM	106,122	106,122	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	36 to 48	38	MCS0
AC Power Line Conducted Emission	802.11n(HT40)	5180-5240	OFDM	36 to 48	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	5260-5320	OFDM	52 to 64	52, 60, 64	6.0
	802.11n(HT20)		OFDM	52 to 64	52, 60, 64	MCS0
	802.11n(HT40)		OFDM	54 to 62	54, 62	MCS0
	802.11ac (VHT80)		OFDM	58	58	MCS0
	802.11a	5500-5700	OFDM	100 to 140	100, 116, 140	6.0
	802.11n(HT20)		OFDM	100 to 140	100, 116, 140	MCS0
	802.11n(HT40)		OFDM	102 to 134	102, 110, 134	MCS0
	802.11ac (VHT80)		OFDM	106,122	106,122	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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Note:

1. 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).
2. For below 1 GHz radiated emission and AC power line conducted emission have performed all modes of operation were investigated and the worst-case emissions are reported.
3. 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.
4. The fundamental of the EUT was investigated in three orthogonal axes X/Y/Z and charging cradle mode, it was determined that charging cradle mode was worst-case. Therefore, all final radiated testing was performed with charging cradle mode.
5. 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.

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6.6. Duty cycle

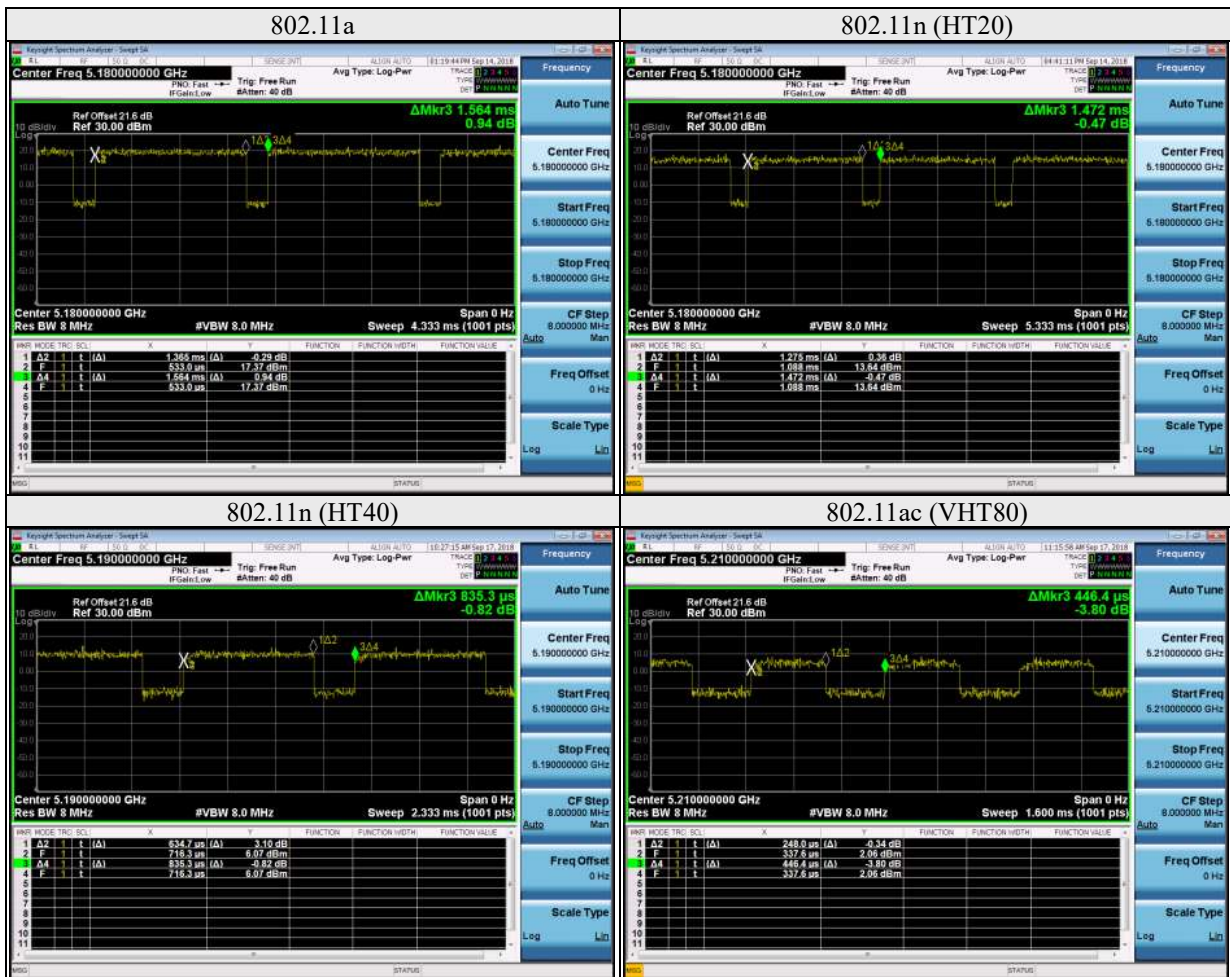
Duty cycle of test signal is < 98 %, duty factor is required.

802.11a: Duty cycle = $1.365/1.564 = 0.8728$, Duty factor = $10 * \log(1/0.8728) = 0.591$

802.11n (HT20): Duty cycle = $1.275/1.472 = 0.8662$, Duty factor = $10 * \log(1/0.8662) = 0.624$

802.11n (HT40): Duty cycle = $0.6347/0.8353 = 0.7598$, Duty factor = $10 * \log(1/0.7598) = 1.193$

802.11ac (VHT80): Duty cycle = $0.248/0.4454 = 0.5568$, Duty factor = $10 * \log(1/0.5568) = 2.543$





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. 28, 2017	1 year
EMI Test Receiver	Rohde & Schwarz	ESR7	101754	Nov. 28, 2017	1 year
Loop Antenna	ETS lindgren	6502	00213440	Dec. 7, 2017	1 year
Trilog-Broadband Antenna with 5dB Attenuator	Schwarzbeck & EMCI	VULB 9168 & N-6-05	774 & AT-N0538	Feb. 12, 2018	1 year
Horn Antenna (1-18 GHz)	Schwarzbeck	BBHA 9120 D	01690	Jan. 23, 2018	1 year
Horn Antenna(18-40 GHz)	Schwarzbeck	BBHA 9170	781	Jan.12, 2018	1 year
Preamplifier (30-1000 MHz)	EMCI	EMC330E	980405	Feb. 1, 2018	1 year
Preamplifier (1-18 GHz)	EMCI	EMC051835BE	980406	Feb. 2, 2018	1 year
Preamplifier (18-40GHz)	EMCI	EMC184040SE E	980426	Apr. 26, 2018	1 year
RF Cable (9 KHz~18 GHz)	UltraPhase & EMC Instrument	A1K50-UP0358-A1K50-1500&EMC106-NM-SM-2500/7000	170111-4&170219/170102	Feb. 1, 2018	1 year
RF Cable (18 GHz~40 GHz)	UltraPhase	K1K50-UP0264-K1K50-2500/2500/600	170214-2/170214-6/170111-1	Feb. 1, 2018	1 year

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Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
Antenna Port Conducted Measurement					
Spectrum Analyzer	Keysight	N9010A	MY56070834	Nov. 20, 2017	1 year
				Nov. 8, 2018	1 year
Pulse Power Sensor	Anrisu	MA2411B	1531202	Dec. 14, 2017	1 year
Power Meter	Anrisu	ML2495A	1645002	Dec. 14, 2017	1 year
Temperature & Humidity Test Chamber	GIANT FORCE	GTH-150-40-CP-AR	MAA1701-010	Mar. 20, 2018	1 year
DC Power Supply	GW Insrek	GPD-2303S	GEQ902177	Apr. 23, 2018	1 year
AC power Line Conducted Emission					
EMI Test Receiver	Rohde & Schwarz	ESR7	101753	Nov. 28, 2017	1 year
Two-Line V-Network	Rohde & Schwarz	ENV216	102136	Aug. 5, 2018	1 year
Impuls-Begrenzer Pulse Limiter	Rohde & Schwarz	ESH3-Z2	102219-Qt	Aug. 2, 2018	1 year
Cables	Huber+Suhner	RG 214/U	FCC-BCICF-4_RF	Feb. 1, 2018	1 year

Note:

1. The first calibration date for the spectrum analyzer (N9010A) is November 20, 2017, and the second calibration date is November 8, 2018, and both calibration dates are within the test date range (September 14, 2018 to November 26, 2018).

UL Software

Description	Name	Version
Radiated measurement	EZ_EMC	1.1.4.2
Conducted measurement	Keysight.TestSystem	1.0.0.0
AC power Line Conducted Emission	EZ_EMC	1.1.4.2

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8. Description of Test Setup

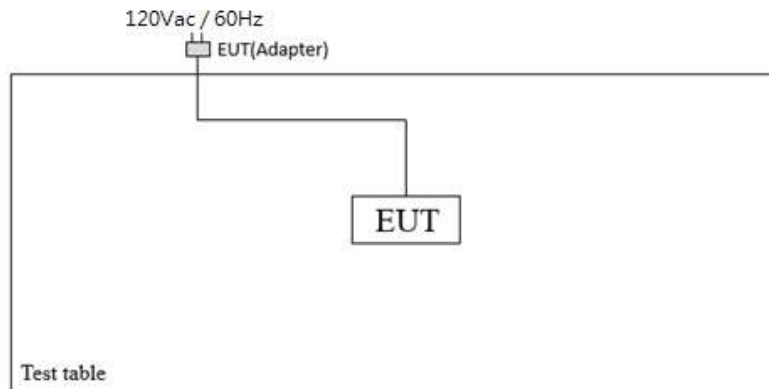
Support Equipment

Item	Equipment	Brand Name	Model Name	P/N
1	Notebook	DELL	Latitude E5470	3JFKWF2

Test Setup

Controlled using a bespoke application (QRCT) 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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9. Test Results

9.1. 6dB Bandwidth

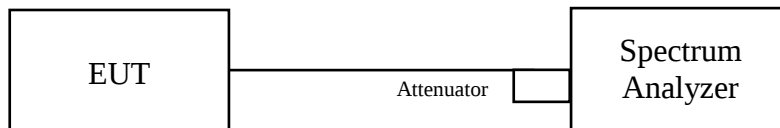
Requirements

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

Test procedure

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- 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.



Test Data

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.38	0.5	Pass
157	5785	16.35	0.5	Pass
165	5825	16.32	0.5	Pass

802.11n (HT-20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	17.58	0.5	Pass
157	5785	17.55	0.5	Pass
165	5825	17.58	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	33.78	0.5	Pass
159	5795	35.34	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	75.12	0.5	Pass

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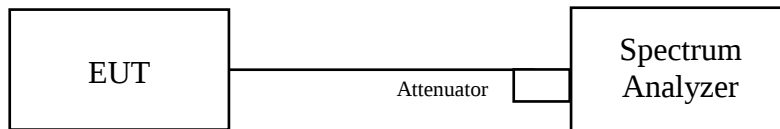


9.2. 26dB Bandwidth

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 Data

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dB Bandwidth (MHz)	PASS / FAIL
36	5180	22.42	PASS
44	5200	22.42	PASS
48	5240	22.21	PASS
52	5260	22.79	PASS
60	5300	22.53	PASS
64	5320	22.42	PASS
100	5500	22.22	PASS
116	5580	22.93	PASS
140	5700	22.58	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dB Bandwidth (MHz)	PASS / FAIL
36	5180	22.58	PASS
44	5200	22.59	PASS
48	5240	22.62	PASS
52	5260	22.48	PASS
60	5300	22.74	PASS
64	5320	22.63	PASS
100	5500	22.8	PASS
116	5580	22.55	PASS
140	5700	22.71	PASS

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802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dB Bandwidth (MHz)	PASS / FAIL
38	5190	44.47	PASS
46	5230	44.65	PASS
54	5270	44.16	PASS
62	5310	44.06	PASS
102	5510	43.9	PASS
110	5550	43.78	PASS
134	5670	43.93	PASS

802.11ac (80MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dB Bandwidth (MHz)	PASS / FAIL
42	5210	84.7	PASS
58	5290	85.11	PASS
106	5530	85.88	PASS
122	5610	85.51	PASS

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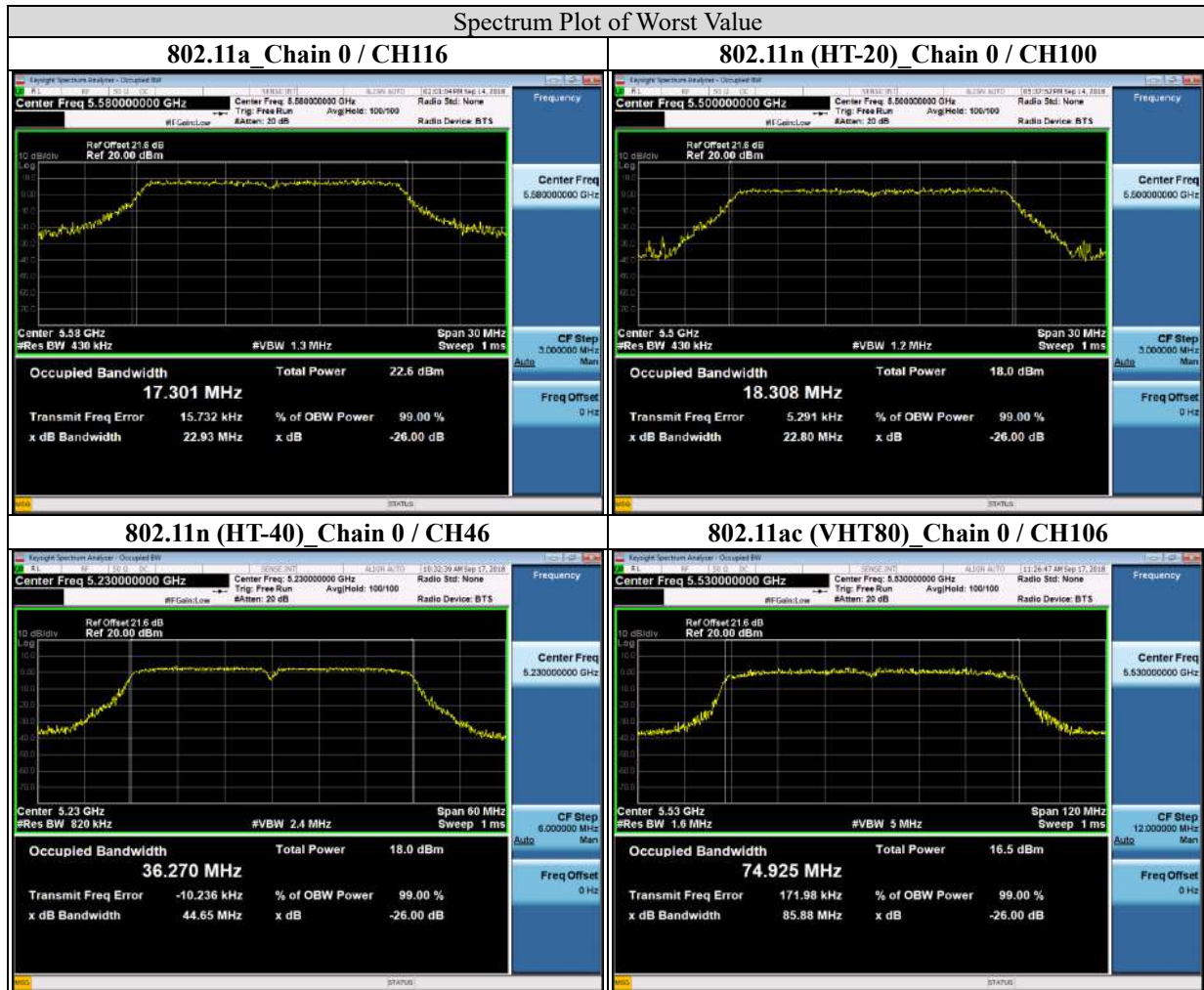
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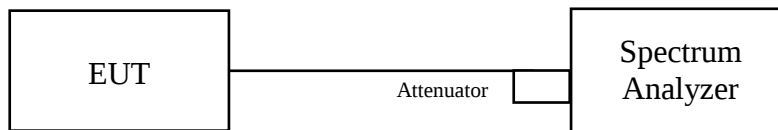


9.3. Occupied Bandwidth

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 $\geq 3 \times$ 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 Data

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	16.948
40	5200	16.957
48	5240	16.948
52	5260	16.995
60	5300	16.974
64	5320	16.981
100	5500	16.993
116	5580	17.017
140	5700	17.034
149	5745	17.027
157	5785	17.001
165	5825	17.060

802.11n (HT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	18.049
40	5200	18.003
48	5240	18.008
52	5260	18.047
60	5300	18.062
64	5320	18.062
100	5500	18.022
116	5580	18.018
140	5700	18.041
149	5745	18.028
157	5785	18.057
165	5825	18.041

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802.11n (HT40)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	36.144
46	5230	36.140
54	5270	36.179
62	5310	36.210
102	5510	36.130
110	5550	36.203
134	5670	36.122
151	5755	36.132
159	5795	36.244

802.11ac (VHT80)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
42	5210	74.747
58	5290	74.795
106	5530	74.819
122	5610	74.766
155	5775	74.650

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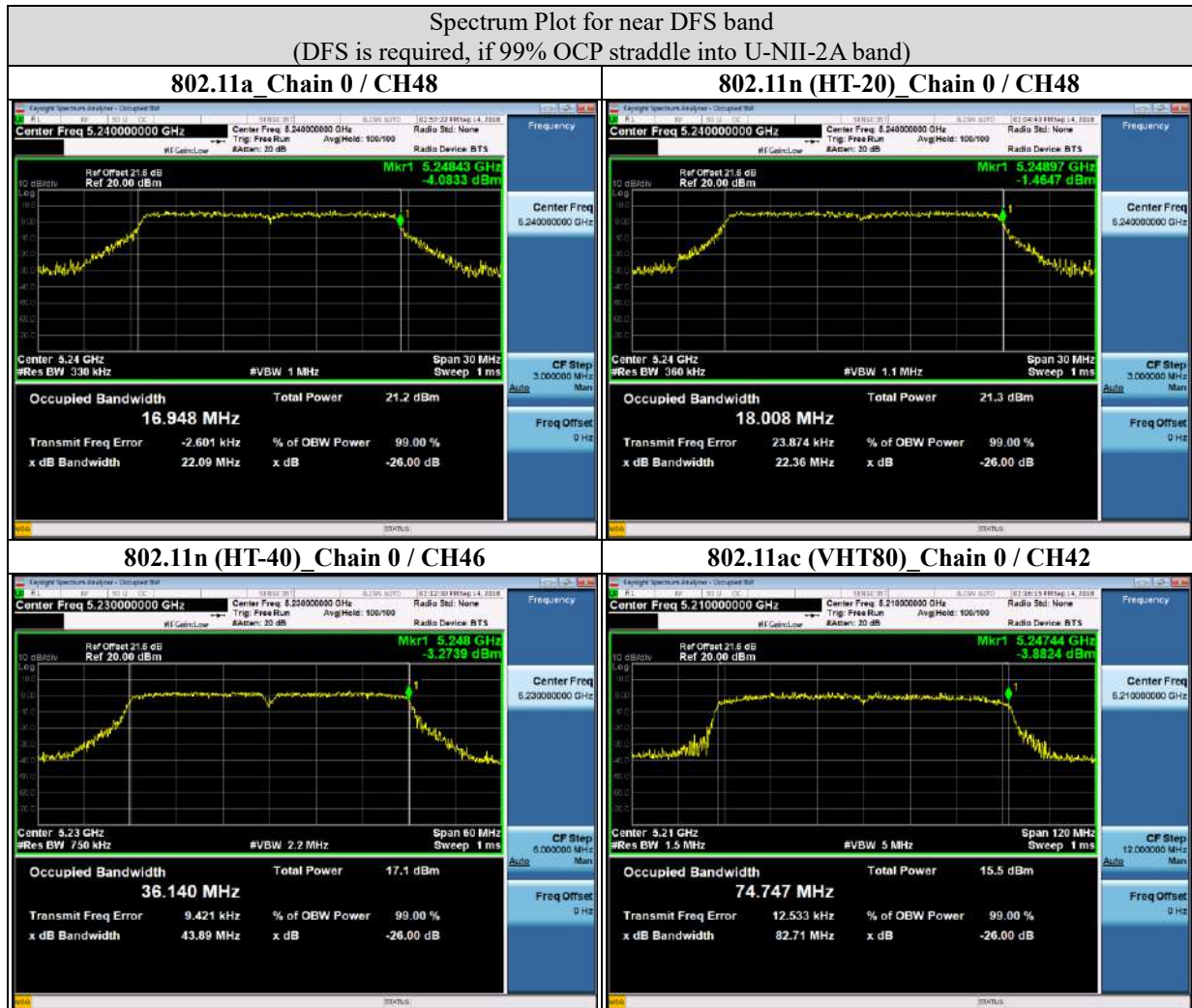
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9.4. Conducted output power

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)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Client device	250mW (24 dBm)
U-NII-2A	---		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	---		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	---		1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

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.

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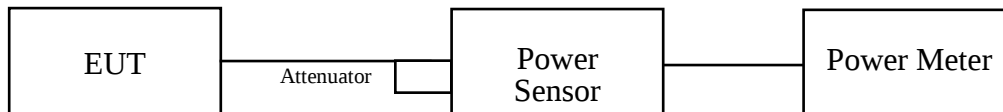
Test method SA-1

For 802.11ac (VHT80)

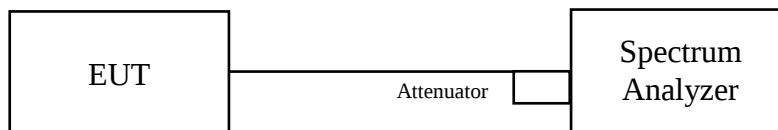
- 1) Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- 2) Set sweep trigger*.
- 3) Set RBW = 1 MHz.
- 4) Set VBW $\geq$ 3 MHz
- 5) Number of points in sweep $\geq$ 2 Span / RBW.
- 6) Sweep time $\leq$ (number of points in sweep) * T
- 7) 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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Test Data

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	MAXIMUM CONDUCTED POWER (mW)	MAXIMUM CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	42.46	16.28	24	PASS
44	5200	43.05	16.34	24	PASS
48	5240	41.11	16.14	24	PASS
52	5260	42.17	16.25	24	PASS
60	5300	41.50	16.18	24	PASS
64	5320	42.56	16.29	24	PASS
100	5500	44.98	16.53	24	PASS
116	5580	46.13	16.64	24	PASS
140	5700	48.64	16.87	24	PASS
149	5745	48.98	16.9	30	PASS
157	5785	49.32	16.93	30	PASS
165	5825	50.00	16.99	30	PASS

NOTE:

For U-NII-2A, U-NII-2C Band:

1. $11\text{dBm} + 10\log(22.79) = 24.58 \text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(22.53) = 24.53 \text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(22.42) = 24.51 \text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(22.22) = 24.47 \text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(22.93) = 24.60 \text{ dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(22.58) = 24.54 \text{ dBm} > 24\text{dBm}$.

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802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	MAXIMUM CONDUCTED POWER (mW)	MAXIMUM CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	16.56	12.19	24	PASS
44	5200	16.41	12.15	24	PASS
48	5240	16.37	12.14	24	PASS
52	5260	16.33	12.13	24	PASS
60	5300	16.41	12.15	24	PASS
64	5320	16.52	12.18	24	PASS
100	5500	17.22	12.36	24	PASS
116	5580	17.46	12.42	24	PASS
140	5700	18.32	12.63	24	PASS
149	5745	18.79	12.74	30	PASS
157	5785	19.05	12.8	30	PASS
165	5825	19.59	12.92	30	PASS

NOTE:

For U-NII-2A, U-NII-2C Band:

1. $11\text{dBm} + 10\log(22.48) = 24.52 \text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(22.74) = 24.57 \text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(22.63) = 24.55 \text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(22.8) = 24.58 \text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(22.55) = 24.53 \text{ dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(22.71) = 24.56 \text{ dBm} > 24\text{dBm}$.

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802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	MAXIMUM CONDUCTED POWER (mW)	MAXIMUM CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
38	5190	13.93	11.44	24	PASS
46	5230	13.40	11.27	24	PASS
54	5270	14.13	11.5	24	PASS
62	5310	14.32	11.56	24	PASS
102	5510	14.66	11.66	24	PASS
110	5550	14.76	11.69	24	PASS
134	5670	15.21	11.82	24	PASS
151	5755	15.52	11.91	30	PASS
159	5795	15.74	11.97	30	PASS

NOTE:

For U-NII-2A, U-NII-2C Band:

1. $11\text{dBm} + 10\log(44.16) = 27.45 \text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(44.06) = 27.44 \text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(43.9) = 27.42 \text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(43.78) = 27.41 \text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(43.93) = 27.43 \text{ dBm} > 24\text{dBm}$.

802.11ac (VHT80)

CHANNEL	CHANNEL FREQUENCY (MHz)	MAXIMUM CONDUCTED POWER (mW)	MAXIMUM CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
42	5210	8.99	9.54	24	PASS
58	5290	9.18	9.63	24	PASS
106	5530	9.27	9.67	24	PASS
122	5610	9.44	9.75	24	PASS
155	5775	9.95	9.98	30	PASS

NOTE:

For U-NII-2A, U-NII-2C Band:

1. $11\text{dBm} + 10\log(85.11) = 30.30 \text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(85.88) = 30.34 \text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(85.51) = 30.32 \text{ dBm} > 24\text{dBm}$.

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9.5. Power Spectral Density

Requirements

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
	√	Client device	11dBm/ MHz
U-NII-2A	---		11dBm/ MHz
U-NII-2C	---		11dBm/ MHz
U-NII-3	---		30dBm/ 500kHz

Test procedure

For U-NII-1, U-NII-2A, U-NII-2C band:

Using method SA-2_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 and add 10 log (1/duty cycle)

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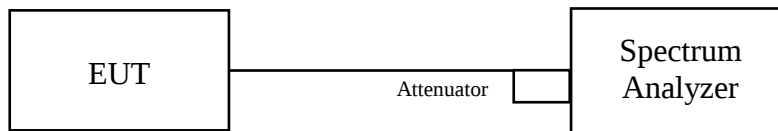


For U-NII-3:

Using method SA-2_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.

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 Data

802.11a

CHANNEL	FREQUENCY (MHz)	PSD w/o duty factor (dBm)	Duty Factor (dB)	PSD with duty factor (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	-0.869	0.591	-0.278	11	PASS
44	5200	-2.773	0.591	-2.182	11	PASS
48	5240	-1.494	0.591	-0.903	11	PASS
52	5260	-0.492	0.591	0.099	11	PASS
60	5300	-2.228	0.591	-1.637	11	PASS
64	5320	0.152	0.591	0.743	11	PASS
100	5500	-2.277	0.591	-1.686	11	PASS
116	5580	0.92	0.591	1.511	11	PASS
140	5700	-0.406	0.591	0.185	11	PASS

NOTE: Refer to section 6.6 for duty cycle spectrum plot.

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802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	PSD w/o duty factor (dBm)	Duty Factor (dB)	PSD with duty factor (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	-5.355	0.624	-4.731	11	PASS
44	5200	-6.176	0.624	-5.552	11	PASS
48	5240	-6.036	0.624	-5.412	11	PASS
52	5260	-6.095	0.624	-5.471	11	PASS
60	5300	-6.317	0.624	-5.693	11	PASS
64	5320	-4.131	0.624	-3.507	11	PASS
100	5500	-3.316	0.624	-2.692	11	PASS
116	5580	-5.468	0.624	-4.844	11	PASS
140	5700	-5.619	0.624	-4.995	11	PASS

NOTE: Refer to section 6.6 for duty cycle spectrum plot.

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802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	PSD w/o duty factor (dBm)	Duty Factor (dB)	PSD with duty factor (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
38	5190	-13.971	1.193	-12.778	11	PASS
46	5230	-13.191	1.193	-11.998	11	PASS
54	5270	-13.392	1.193	-12.199	11	PASS
62	5310	-13.986	1.193	-12.793	11	PASS
102	5510	-13.477	1.193	-12.284	11	PASS
110	5550	-12.354	1.193	-11.161	11	PASS
134	5670	-12.438	1.193	-11.245	11	PASS

NOTE: Refer to section 6.6 for duty cycle spectrum plot.

802.11ac (VHT80)

CHANNEL	FREQUENCY (MHz)	PSD w/o duty factor (dBm)	Duty Factor (dB)	PSD with duty factor (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
42	5210	-23.346	2.543	-20.803	11	PASS
58	5290	-25.377	2.543	-22.834	11	PASS
106	5530	-23.404	2.543	-20.861	11	PASS
122	5610	-24.454	2.543	-21.911	11	PASS

NOTE: Refer to section 6.6 for duty cycle spectrum plot.

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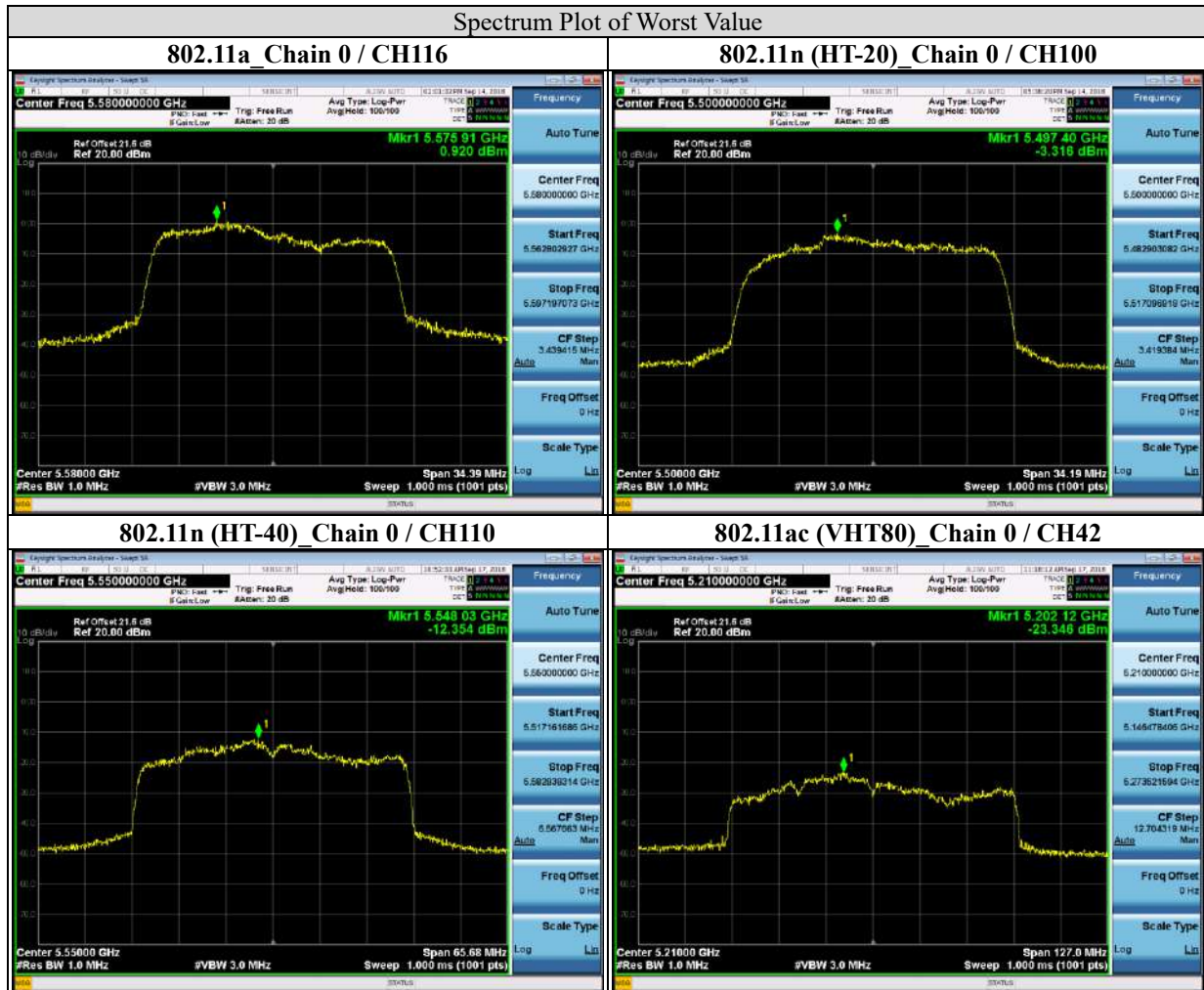
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For U-NII-3 Band

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/300 kHz)	PSD w/o Duty Factor (dBm/500 kHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
149	5745	-6.55	-4.332	0.591	-3.740	30	Pass
157	5785	-3.183	-0.965	0.591	-0.373	30	Pass
165	5825	-4.124	-1.906	0.591	-1.314	30	Pass

Note:

1. Refer to section 6.6 for duty cycle spectrum plot.
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)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/300 kHz)	PSD w/o Duty Factor (dBm/500 kHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
149	5745	-11.09	-8.872	0.624	-8.248	30	Pass
157	5785	-8.615	-6.397	0.624	-5.773	30	Pass
165	5825	-10.199	-7.981	0.624	-7.357	30	Pass

Note:

1. Refer to section 6.6 for duty cycle spectrum plot.
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)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/300 kHz)	PSD w/o Duty Factor (dBm/500 kHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
151	5755	-17.435	-15.217	1.193	-14.024	30	Pass
159	5795	-17.12	-14.902	1.193	-13.709	30	Pass

Note:

1. Refer to section 6.6 for duty cycle spectrum plot.
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)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/300 kHz)	PSD w/o Duty Factor (dBm/500 kHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
155	5775	-27.922	-25.704	2.543	-23.161	30	Pass

Note:

1. Refer to section 6.6 for duty cycle spectrum plot.
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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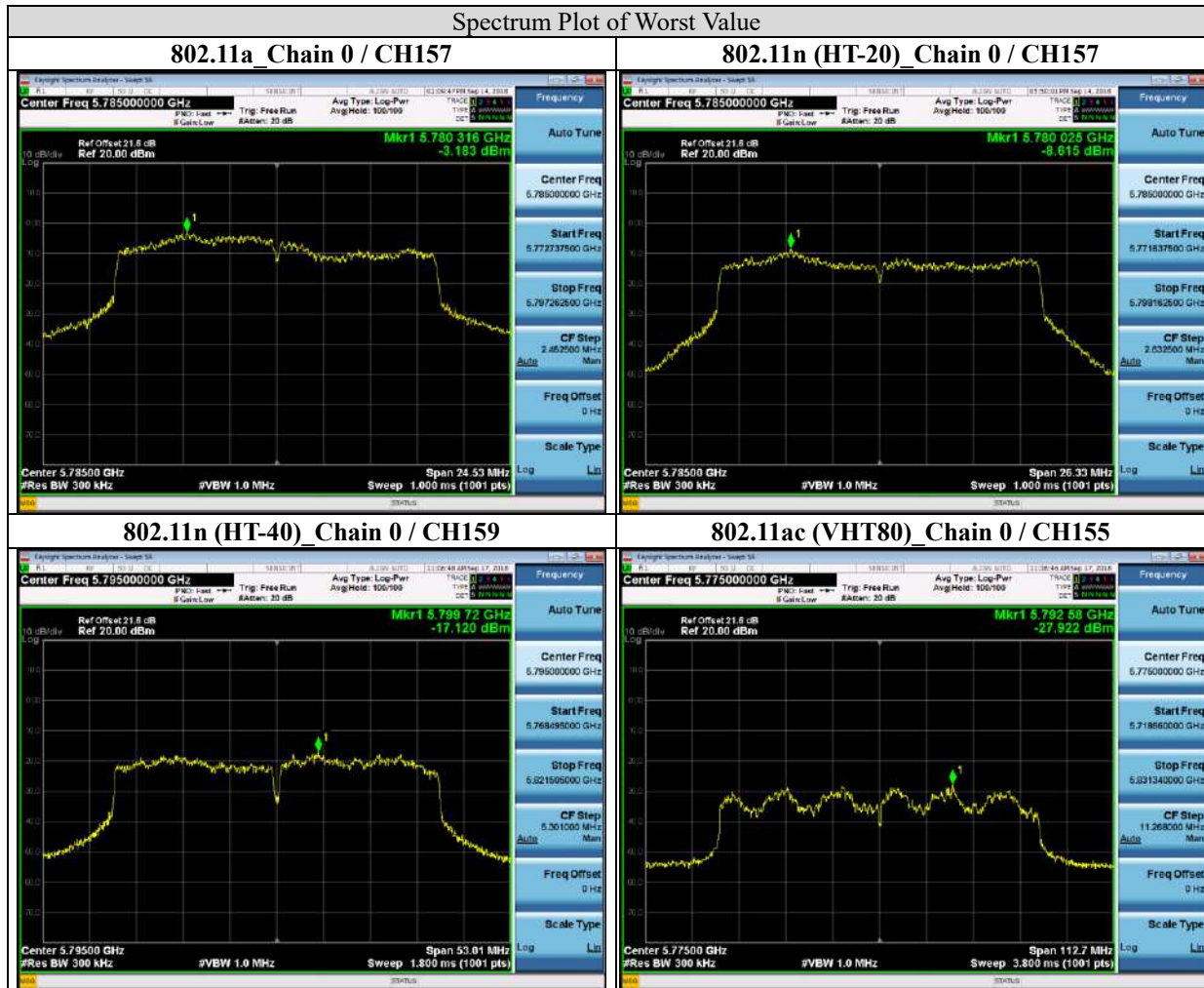
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9.6. Frequency Stability

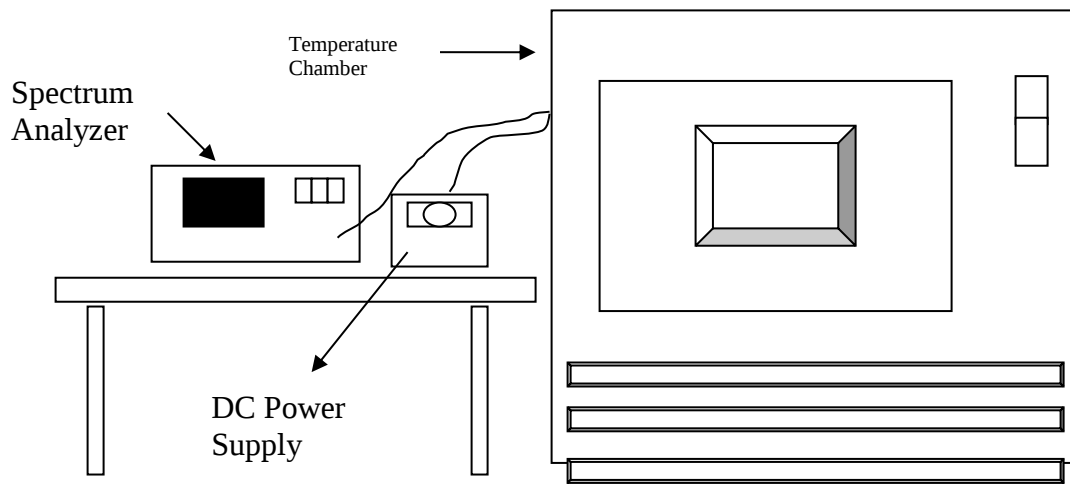
Requirements

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

Test procedure

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- 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.
- Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- 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



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 Data

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vac)	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	3.7	5180.0067	1.29	5180.0065	1.25	5179.9977	-0.44	5180.0018	0.35
40	3.7	5179.9995	-0.10	5180.0263	5.08	5179.9982	-0.35	5180.0012	0.23
30	3.7	5179.9997	-0.06	5180.0268	5.17	5180.0144	2.78	5180.0172	3.32
20	3.7	5179.9962	-0.73	5180.0253	4.88	5180.0136	2.63	5180.0175	3.38
10	3.7	5180.003	0.58	5180.0124	2.39	5180.0122	2.36	5180.0071	1.37
0	3.7	5180.0028	0.54	5180.0113	2.18	5180.0097	1.87	5180.0079	1.53
-10	3.7	5180.0044	0.85	5180.0143	2.76	5180.0112	2.16	5180.0085	1.64
-20	3.7	5180.0139	2.68	5180.0148	2.86	5180.0031	0.60	5180.0218	4.21
-30	3.7	5180.0129	2.49	5180.0039	0.75	5180.0024	0.46	5180.0213	4.11
TEMP. (°C)	Power Supply (Vac)	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	3.55	5180.0132	2.55	5180.0041	0.79	5180.0162	3.13	5180.0327	6.31
20	4.2	5180.0032	0.62	5179.9943	-1.10	5180.016	3.09	5180.0204	3.94

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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 (dBuV/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	
		PK:74 (dBμV/m)	AV:54 (dBμV/m)
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(dBμV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
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(dBμV/m) ^{*1} PK:105.2 (dBμV/m) ^{*2} PK: 110.8(dBμV/m) ^{*3} PK:122.2 (dBμV/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:

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

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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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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	1 kHz
802.11n (HT20)		1 kHz
802.11n (HT40)		2 kHz
802.11ac (VHT80)		5 kHz

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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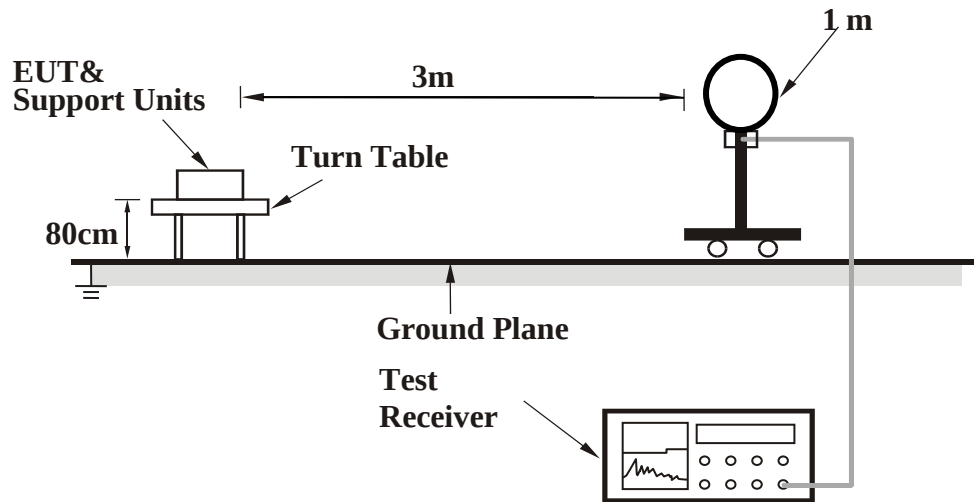
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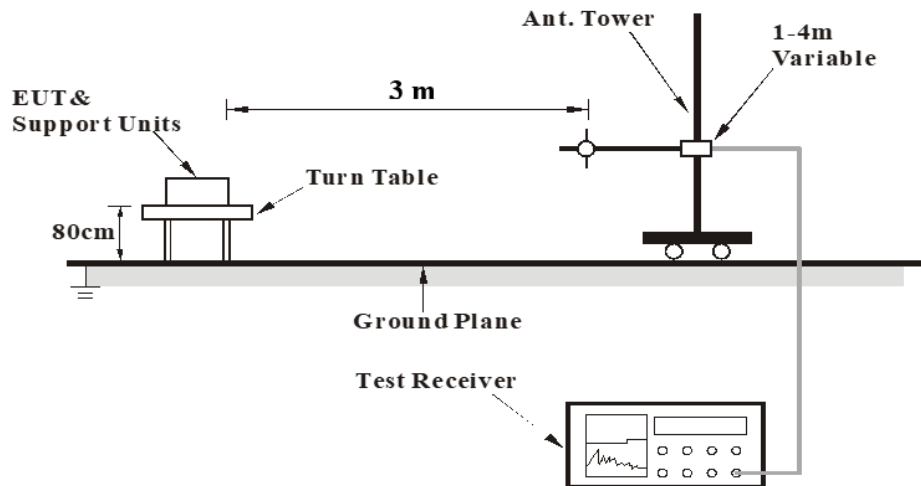


Test Setup

<Frequency Range 9 kHz ~ 30 MHz>



<Frequency Range 30 MHz ~ 1 GHz >



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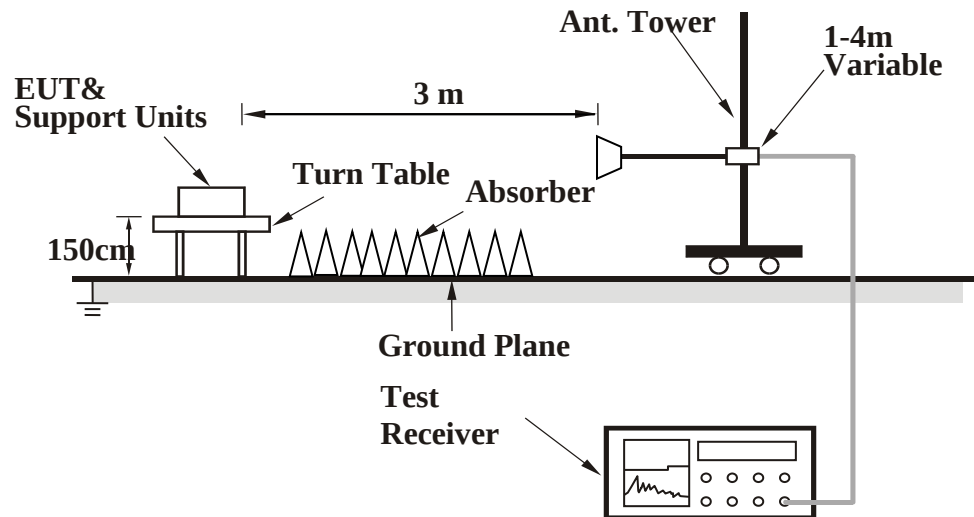
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<Frequency Range above 1 GHz>



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

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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)	
-	5148.430	75.39	-3.81	71.58	74.00	-2.42	peak
@	5174.030	109.82	-3.79	106.03	-	-	peak
-	5150.000	53.92	-3.81	50.11	54.00	-3.89	AVG
@	5174.680	90.73	-3.79	86.94	-	-	AVG
#	10360.000	37.55	6.99	44.54	68.20	-23.66	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)	
-	5149.440	75.28	-3.81	71.47	74.00	-2.53	peak
@	5178.100	109.24	-3.78	105.46	-	-	peak
-	5150.000	51.13	-3.81	47.32	54.00	-6.68	AVG
@	5186.520	90.21	-3.77	86.44	-	-	AVG
#	10360.000	37.49	6.99	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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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)	
-	5150.000	54.80	-3.81	50.99	74.00	-23.01	peak
@	5215.140	109.63	-3.74	105.89	-	-	peak
-	5150.000	36.57	-3.81	32.76	54.00	-21.24	AVG
@	5224.560	90.64	-3.74	86.90	-	-	AVG
#	10440.000	37.55	7.18	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)	
-	5150.000	52.95	-3.81	49.14	74.00	-24.86	peak
@	5213.340	109.51	-3.75	105.76	-	-	peak
-	5150.000	34.92	-3.81	31.11	54.00	-22.89	AVG
@	5224.450	90.23	-3.74	86.49	-	-	AVG
#	10440.000	37.64	7.18	44.82	68.20	-23.38	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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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)	
-	5150.000	48.15	-3.81	44.34	74.00	-29.66	peak
@	5243.460	110.44	-3.71	106.73	-	-	peak
-	5150.000	36.13	-3.81	32.32	54.00	-21.68	AVG
@	5246.940	90.92	-3.71	87.21	-	-	AVG
#	10480.000	38.31	7.27	45.58	68.20	-22.62	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	47.98	-3.81	44.17	74.00	-29.83	peak
@	5244.710	109.95	-3.71	106.24	-	-	peak
-	5150.000	35.05	-3.81	31.24	54.00	-22.76	AVG
@	5246.350	90.73	-3.71	87.02	-	-	AVG
#	10480.000	37.56	7.27	44.83	68.20	-23.37	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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EUT Test Condition		Measurement Detail	
Channel	Channel 52	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)	
@	5255.630	109.89	-3.71	106.18	-	-	peak
-	5350.000	47.40	-3.61	43.79	74.00	-30.21	peak
@	5254.710	90.43	-3.71	86.72	-	-	AVG
-	5350.000	34.95	-3.61	31.34	54.00	-22.66	AVG
#	10520.000	37.20	7.37	44.57	68.20	-23.63	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)	
@	5253.830	109.27	-3.71	105.56	-	-	peak
-	5350.000	45.92	-3.61	42.31	74.00	-31.69	peak
@	5254.520	89.20	-3.71	85.49	-	-	AVG
-	5350.000	34.44	-3.61	30.83	54.00	-23.17	AVG
#	10520.000	37.90	7.37	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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EUT Test Condition		Measurement Detail	
Channel	Channel 60	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)	
@	5305.350	109.40	-3.66	105.74	-	-	peak
-	5350.000	61.55	-3.61	57.94	74.00	-16.06	peak
@	5294.090	90.56	-3.66	86.90	-	-	AVG
-	5350.000	41.89	-3.61	38.28	54.00	-15.72	AVG
*	10600.000	37.51	7.53	45.04	74.00	-28.96	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)	
@	5298.210	109.12	-3.67	105.45	-	-	peak
-	5350.000	59.55	-3.61	55.94	74.00	-18.06	peak
@	5293.040	90.39	-3.66	86.73	-	-	AVG
-	5350.000	40.13	-3.61	36.52	54.00	-17.48	AVG
*	10600.000	37.10	7.53	44.63	74.00	-29.37	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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EUT Test Condition		Measurement Detail	
Channel	Channel 64	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)	
@	5326.170	109.86	-3.63	106.23	-	-	peak
-	5354.830	76.34	-3.61	72.73	74.00	-1.27	peak
@	5313.260	90.61	-3.65	86.96	-	-	AVG
-	5350.000	51.91	-3.61	48.30	54.00	-5.70	AVG
*	10640.000	37.02	7.61	44.63	74.00	-29.37	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)	
@	5319.120	108.92	-3.64	105.28	-	-	peak
-	5350.000	75.74	-3.61	72.13	74.00	-1.87	peak
@	5313.860	90.39	-3.65	86.74	-	-	AVG
-	5350.000	51.86	-3.61	48.25	54.00	-5.75	AVG
*	10640.000	36.41	7.61	44.02	74.00	-29.98	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.
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EUT Test Condition		Measurement Detail	
Channel	Channel 100	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)	
-	5448.148	61.52	-3.52	58.00	74.00	-16.00	peak
-	5448.148	44.31	-3.52	40.79	54.00	-13.21	AVG
#	5469.078	70.21	-3.50	66.71	68.20	-1.49	peak
@	5494.640	107.61	-3.47	104.14	-	-	peak
@	5494.640	90.02	-3.47	86.55	-	-	AVG
*	11000.000	37.10	8.37	45.47	74.00	-28.53	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)	
-	5458.123	61.38	-3.52	57.86	74.00	-16.14	peak
-	5458.123	44.77	-3.52	41.25	54.00	-12.75	AVG
#	5467.025	69.36	-3.50	65.86	68.20	-2.34	peak
@	5503.763	107.16	-3.46	103.70	-	-	peak
@	5503.763	88.05	-3.46	84.59	-	-	AVG
*	11000.000	36.42	8.37	44.79	74.00	-29.21	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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EUT Test Condition		Measurement Detail	
Channel	Channel 116	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)	
-	5428.303	46.11	-3.54	42.57	74.00	-31.43	peak
-	5428.303	36.22	-3.54	32.68	54.00	-21.32	AVG
#	5462.195	45.50	-3.51	41.99	68.20	-26.21	peak
@	5578.243	108.40	-3.34	105.06	-	-	peak
@	5578.243	99.92	-3.34	96.58	-	-	AVG
*	11160.000	35.02	8.44	43.46	74.00	-30.54	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)	
-	5434.522	44.98	-3.53	41.45	74.00	-32.55	peak
-	5434.522	32.79	-3.53	29.26	54.00	-24.74	AVG
#	5464.598	43.94	-3.50	40.44	68.20	-27.76	peak
@	5586.422	107.83	-3.33	104.50	-	-	peak
@	5586.422	98.62	-3.33	95.29	-	-	AVG
*	11160.000	35.13	8.44	43.57	74.00	-30.43	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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EUT Test Condition		Measurement Detail	
Channel	Channel 140	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)	
@	5704.663	108.43	-3.13	105.30	-	-	peak
@	5704.663	88.46	-3.13	85.33	-	-	AVG
#	5725.000	68.23	-3.10	65.13	68.20	-3.07	peak
*	11400.000	35.03	8.52	43.55	74.00	-30.45	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)	
@	5694.128	108.21	-3.15	105.06	-	-	peak
@	5694.128	88.34	-3.15	85.19	-	-	AVG
#	5725.000	68.01	-3.10	64.91	68.20	-3.29	peak
*	11400.000	35.07	8.52	43.59	74.00	-30.41	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 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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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)	
#	5559.700	53.68	-3.37	50.31	68.20	-17.89	peak
-	5723.817	85.59	-3.10	82.49	119.50	-37.01	peak
@	5751.400	108.68	-3.05	105.63	-	-	peak
@	5751.400	89.38	-3.05	86.33	-	-	AVG
*	11490.000	34.94	8.55	43.49	74.00	-30.51	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)	
#	5560.100	52.41	-3.37	49.04	68.20	-19.16	peak
-	5724.733	85.39	-3.10	82.29	121.59	-39.30	peak
@	5739.883	108.62	-3.07	105.55	-	-	peak
@	5739.883	89.15	-3.07	86.08	-	-	AVG
*	11490.000	34.90	8.55	43.45	74.00	-30.55	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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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)	
#	5599.467	52.50	-3.30	49.20	68.20	-19.00	peak
-	5724.750	56.97	-3.10	53.87	121.63	-67.76	peak
@	5790.467	109.20	-2.99	106.21	-	-	peak
@	5790.467	90.43	-2.99	87.44	-	-	AVG
-	5852.483	56.20	-2.89	53.31	116.54	-63.23	peak
#	5972.900	49.07	-2.68	46.39	68.20	-21.81	peak
*	11570.000	35.02	8.53	43.55	74.00	-30.45	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)	
#	5599.317	53.47	-3.30	50.17	68.20	-18.03	peak
-	5722.250	56.38	-3.10	53.28	115.93	-62.65	peak
@	5781.633	109.14	-3.01	106.13	-	-	peak
@	5781.633	90.30	-3.01	87.29	-	-	AVG
-	5851.817	55.92	-2.89	53.03	118.06	-65.03	peak
#	5994.150	46.46	-2.65	43.81	68.20	-24.39	peak
*	11570.000	35.23	8.53	43.76	74.00	-30.24	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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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)	
@	5831.117	109.20	-2.93	106.27	-	-	peak
@	5831.117	90.07	-2.93	87.14	-	-	AVG
-	5852.783	81.63	-2.89	78.74	115.85	-37.11	peak
#	6012.350	49.36	-2.59	46.77	68.20	-21.43	peak
*	11650.000	34.47	8.52	42.99	74.00	-31.01	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)	
@	5826.850	108.15	-2.93	105.22	-	-	peak
@	5826.850	89.24	-2.93	86.31	-	-	AVG
-	5851.667	72.80	-2.89	69.91	118.40	-48.49	peak
#	5999.717	46.58	-2.64	43.94	68.20	-24.26	peak
*	11650.000	34.95	8.52	43.47	74.00	-30.53	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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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)	
-	5148.580	64.64	-3.81	60.83	74.00	-13.17	peak
@	5174.480	106.80	-3.79	103.01	-	-	peak
-	5150.000	45.09	-3.81	41.28	54.00	-12.72	AVG
@	5185.060	88.37	-3.77	84.60	-	-	AVG
#	10360.000	38.05	6.99	45.04	68.20	-23.16	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	64.63	-3.81	60.82	74.00	-13.18	peak
@	5177.230	106.75	-3.78	102.97	-	-	peak
-	5128.160	43.38	-3.82	39.56	54.00	-14.44	AVG
@	5174.590	87.42	-3.79	83.63	-	-	AVG
#	10360.000	37.68	6.99	44.67	68.20	-23.53	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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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)	
-	5150.000	44.53	-3.81	40.72	74.00	-33.28	peak
@	5215.060	106.88	-3.74	103.14	-	-	peak
-	5130.370	34.40	-3.82	30.58	54.00	-23.42	AVG
@	5214.630	88.28	-3.74	84.54	-	-	AVG
#	10440.000	37.64	7.18	44.82	68.20	-23.38	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	44.71	-3.81	40.90	74.00	-33.10	peak
@	5214.080	106.16	-3.74	102.42	-	-	peak
-	5119.230	35.47	-3.84	31.63	54.00	-22.37	AVG
@	5216.240	87.85	-3.74	84.11	-	-	AVG
#	10440.000	38.30	7.18	45.48	68.20	-22.72	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.

Underwriters Laboratories Taiwan Co., Ltd.

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Doc No: 17-EM-F0878 / 3.0



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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)	
-	5054.380	52.26	-3.90	48.36	74.00	-25.64	peak
@	5243.110	108.16	-3.71	104.45	-	-	peak
-	5150.000	34.43	-3.81	30.62	54.00	-23.38	AVG
@	5244.610	88.71	-3.71	85.00	-	-	AVG
#	10480.000	37.36	7.27	44.63	68.20	-23.57	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	46.63	-3.81	42.82	74.00	-31.18	peak
@	5244.830	106.77	-3.71	103.06	-	-	peak
-	5150.000	34.61	-3.81	30.80	54.00	-23.20	AVG
@	5235.170	88.37	-3.73	84.64	-	-	AVG
#	10480.000	37.62	7.27	44.89	68.20	-23.31	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.
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EUT Test Condition		Measurement Detail	
Channel	Channel 52	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)	
@	5256.920	106.93	-3.71	103.22	-	-	peak
-	5354.790	46.34	-3.61	42.73	74.00	-31.27	peak
@	5265.290	87.75	-3.69	84.06	-	-	AVG
-	5350.000	32.98	-3.61	29.37	54.00	-24.63	AVG
#	10520.000	37.47	7.37	44.84	68.20	-23.36	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)	
@	5265.320	106.77	-3.69	103.08	-	-	peak
-	5409.680	47.64	-3.55	44.09	74.00	-29.91	peak
@	5254.930	86.39	-3.71	82.68	-	-	AVG
-	5350.000	32.36	-3.61	28.75	54.00	-25.25	AVG
#	11520.000	34.04	8.55	42.59	68.20	-25.61	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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EUT Test Condition		Measurement Detail	
Channel	Channel 60	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)	
@	5305.590	106.94	-3.66	103.28	-	-	peak
-	5351.350	54.97	-3.61	51.36	74.00	-22.64	peak
@	5304.410	87.31	-3.66	83.65	-	-	AVG
-	5351.800	41.11	-3.61	37.50	54.00	-16.50	AVG
*	10600.000	36.77	7.53	44.30	74.00	-29.70	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)	
@	5294.090	106.84	-3.66	103.18	-	-	peak
-	5350.000	54.05	-3.61	50.44	74.00	-23.56	peak
@	5295.230	87.12	-3.66	83.46	-	-	AVG
-	5351.860	41.00	-3.61	37.39	54.00	-16.61	AVG
*	10600.000	37.13	7.53	44.66	74.00	-29.34	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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EUT Test Condition		Measurement Detail	
Channel	Channel 64	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)	
@	5326.210	107.05	-3.63	103.42	-	-	peak
-	5350.000	60.40	-3.61	56.79	74.00	-17.21	peak
@	5315.760	87.59	-3.65	83.94	-	-	AVG
-	5350.000	41.05	-3.61	37.44	54.00	-16.56	AVG
*	10640.000	36.77	7.61	44.38	74.00	-29.62	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)	
@	5322.640	106.89	-3.64	103.25	-	-	peak
-	5350.000	63.84	-3.61	60.23	74.00	-13.77	peak
@	5315.130	87.48	-3.65	83.83	-	-	AVG
-	5350.000	44.12	-3.61	40.51	54.00	-13.49	AVG
*	10640.000	37.02	7.61	44.63	74.00	-29.37	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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EUT Test Condition		Measurement Detail	
Channel	Channel 100	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)	
-	5459.815	58.79	-3.51	55.28	74.00	-18.72	peak
-	5459.815	41.05	-3.51	37.54	54.00	-16.46	AVG
#	5468.868	60.06	-3.50	56.56	68.20	-11.64	peak
@	5506.773	104.89	-3.46	101.43	-	-	peak
@	5506.773	86.41	-3.46	82.95	-	-	AVG
*	11000.000	36.25	8.37	44.62	74.00	-29.38	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)	
-	5447.752	52.91	-3.52	49.39	74.00	-24.61	peak
-	5447.752	32.63	-3.52	29.11	54.00	-24.89	AVG
#	5467.818	59.50	-3.50	56.00	68.20	-12.20	peak
@	5494.640	104.67	-3.47	101.20	-	-	peak
@	5494.640	85.60	-3.47	82.13	-	-	AVG
*	11000.000	37.48	8.37	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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EUT Test Condition		Measurement Detail	
Channel	Channel 116	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)	
-	5428.747	44.07	-3.54	40.53	74.00	-33.47	peak
-	5428.747	32.67	-3.54	29.13	54.00	-24.87	AVG
#	5468.483	42.36	-3.50	38.86	68.20	-29.34	peak
@	5585.103	105.09	-3.33	101.76	-	-	peak
@	5585.103	85.58	-3.33	82.25	-	-	AVG
*	11160.000	32.89	8.44	41.33	74.00	-32.67	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)	
-	5429.902	45.54	-3.54	42.00	74.00	-32.00	peak
-	5429.902	32.50	-3.54	28.96	54.00	-25.04	AVG
#	5467.865	43.62	-3.50	40.12	68.20	-28.08	peak
@	5573.985	104.86	-3.35	101.51	-	-	peak
@	5573.985	85.56	-3.35	82.21	-	-	AVG
*	11160.000	33.56	8.44	42.00	74.00	-32.00	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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EUT Test Condition		Measurement Detail	
Channel	Channel 140	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)	
@	5694.210	105.23	-3.15	102.08	-	-	peak
@	5694.210	87.02	-3.15	83.87	-	-	AVG
#	5725.000	67.78	-3.10	64.68	68.20	-3.52	peak
*	11400.000	33.65	8.52	42.17	74.00	-31.83	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)	
@	5702.435	102.92	-3.14	99.78	-	-	peak
@	5702.435	84.49	-3.14	81.35	-	-	AVG
#	5725.535	62.52	-3.10	59.42	68.20	-8.78	peak
*	11400.000	33.75	8.52	42.27	74.00	-31.73	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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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)	
#	5560.033	49.84	-3.37	46.47	68.20	-21.73	peak
-	5723.100	75.63	-3.10	72.53	117.87	-45.34	peak
@	5750.500	105.12	-3.05	102.07	-	-	peak
@	5750.500	86.59	-3.05	83.54	-	-	AVG
*	11490.000	33.84	8.55	42.39	74.00	-31.61	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)	
#	5559.150	47.75	-3.37	44.38	68.20	-23.82	peak
-	5724.450	70.83	-3.10	67.73	120.95	-53.22	peak
@	5751.950	103.22	-3.05	100.17	-	-	peak
@	5751.950	84.21	-3.05	81.16	-	-	AVG
*	11490.000	34.19	8.55	42.74	74.00	-31.26	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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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)	
#	5599.783	50.29	-3.30	46.99	68.20	-21.21	peak
-	5718.083	46.28	-3.10	43.18	110.26	-67.08	peak
@	5790.083	104.40	-2.99	101.41	-	-	peak
@	5790.083	85.34	-2.99	82.35	-	-	AVG
-	5874.167	45.32	-2.85	42.47	105.43	-62.96	peak
#	5981.367	45.44	-2.68	42.76	68.20	-25.44	peak
*	11570.000	33.83	8.53	42.36	74.00	-31.64	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)	
#	5588.333	48.75	-3.33	45.42	68.20	-22.78	peak
-	5717.617	48.13	-3.11	45.02	110.13	-65.11	peak
@	5777.817	104.32	-3.01	101.31	-	-	peak
@	5777.817	85.31	-3.01	82.30	-	-	AVG
-	5851.717	45.43	-2.89	42.54	118.29	-75.75	peak
#	5986.933	45.22	-2.67	42.55	68.20	-25.65	peak
*	11570.000	34.56	8.53	43.09	74.00	-30.91	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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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)	
@	5831.100	104.57	-2.93	101.64	-	-	peak
@	5831.100	85.18	-2.93	82.25	-	-	AVG
-	5856.917	62.01	-2.88	59.13	110.26	-51.13	peak
#	5998.700	45.40	-2.64	42.76	68.20	-25.44	peak
*	11650.000	33.96	8.52	42.48	74.00	-31.52	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)	
@	5830.650	104.05	-2.93	101.12	-	-	peak
@	5830.650	85.10	-2.93	82.17	-	-	AVG
-	5856.817	60.26	-2.88	57.38	110.29	-52.91	peak
#	5993.517	45.70	-2.65	43.05	68.20	-25.15	peak
*	11650.000	34.43	8.52	42.95	74.00	-31.05	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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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	75.00	-3.81	71.19	74.00	-2.81	peak
@	5178.680	104.53	-3.78	100.75	-	-	peak
-	5150.000	56.94	-3.81	53.13	54.00	-0.87	AVG
@	5201.990	92.05	-3.75	88.30	-	-	AVG
#	10380.000	37.10	7.04	44.14	68.20	-24.06	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	74.67	-3.81	70.86	74.00	-3.14	peak
@	5196.510	104.18	-3.76	100.42	-	-	peak
@	5203.360	91.47	-3.76	87.71	-	-	AVG
-	5150.000	54.78	-3.81	50.97	54.00	-3.03	AVG
#	10380.000	37.15	7.04	44.19	68.20	-24.01	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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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)	
-	5146.030	54.07	-3.81	50.26	74.00	-23.74	peak
@	5233.290	103.85	-3.72	100.13	-	-	peak
-	5150.000	37.60	-3.81	33.79	54.00	-20.21	AVG
@	5241.650	92.68	-3.73	88.95	-	-	AVG
#	10460.000	37.66	7.23	44.89	68.20	-23.31	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	53.80	-3.81	49.99	74.00	-24.01	peak
@	5225.540	103.29	-3.73	99.56	-	-	peak
@	5217.990	92.19	-3.74	88.45	-	-	AVG
-	5126.690	39.86	-3.82	36.04	54.00	-17.96	AVG
#	10460.000	39.43	7.23	46.66	68.20	-21.54	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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EUT Test Condition		Measurement Detail	
Channel	Channel 54	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)	
@	5280.140	103.45	-3.68	99.77	-	-	peak
-	5350.000	51.37	-3.61	47.76	74.00	-26.24	peak
@	5258.810	92.17	-3.69	88.48	-	-	AVG
-	5373.550	37.87	-3.60	34.27	54.00	-19.73	AVG
#	10540.000	36.95	7.40	44.35	68.20	-23.85	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)	
@	5262.780	102.44	-3.69	98.75	-	-	peak
-	5363.240	51.71	-3.60	48.11	74.00	-25.89	peak
@	5257.470	91.56	-3.70	87.86	-	-	AVG
-	5372.940	37.22	-3.60	33.62	54.00	-20.38	AVG
#	10540.000	37.30	7.40	44.70	68.20	-23.50	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 other emission levels were very low against the limit.

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EUT Test Condition		Measurement Detail	
Channel	Channel 62	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)	
@	5308.020	103.57	-3.66	99.91	-	-	peak
-	5350.000	73.87	-3.61	70.26	74.00	-3.74	peak
@	5301.010	91.57	-3.67	87.90	-	-	AVG
-	5350.000	53.97	-3.61	50.36	54.00	-3.64	AVG
*	10620.000	35.96	7.58	43.54	74.00	-30.46	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)	
@	5297.940	103.38	-3.67	99.71	-	-	peak
-	5350.000	69.23	-3.61	65.62	74.00	-8.38	peak
@	5299.610	91.25	-3.67	87.58	-	-	AVG
-	5350.000	53.52	-3.61	49.91	54.00	-4.09	AVG
*	10620.000	37.06	7.58	44.64	74.00	-29.36	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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EUT Test Condition		Measurement Detail	
Channel	Channel 102	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)	
-	5441.697	60.04	-3.53	56.51	74.00	-17.49	peak
-	5441.697	46.79	-3.53	43.26	54.00	-10.74	AVG
#	5469.592	70.50	-3.50	67.00	68.20	-1.20	peak
@	5515.302	102.04	-3.44	98.60	-	-	peak
@	5515.302	90.70	-3.44	87.26	-	-	AVG
*	11020.000	36.23	8.37	44.60	74.00	-29.40	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)	
-	5459.255	60.51	-3.51	57.00	74.00	-17.00	peak
-	5459.255	44.77	-3.51	41.26	54.00	-12.74	AVG
#	5468.168	69.98	-3.50	66.48	68.20	-1.72	peak
@	5515.442	100.92	-3.44	97.48	-	-	peak
@	5515.442	89.95	-3.44	86.51	-	-	AVG
*	11020.000	36.18	8.37	44.55	74.00	-29.45	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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EUT Test Condition		Measurement Detail	
Channel	Channel 110	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)	
-	5445.675	49.18	-3.52	45.66	74.00	-28.34	peak
-	5445.675	34.78	-3.52	31.26	54.00	-22.74	AVG
#	5469.615	51.38	-3.50	47.88	68.20	-20.32	peak
@	5548.155	101.92	-3.39	98.53	-	-	peak
@	5548.155	91.27	-3.39	87.88	-	-	AVG
#	5741.203	44.22	-3.07	41.15	68.20	-27.05	peak
*	11100.000	37.11	8.41	45.52	74.00	-28.48	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)	
-	5447.273	48.14	-3.52	44.62	74.00	-29.38	peak
-	5447.273	32.78	-3.52	29.26	54.00	-24.74	AVG
#	5466.932	50.41	-3.50	46.91	68.20	-21.29	peak
@	5545.390	101.29	-3.40	97.89	-	-	peak
@	5545.390	89.95	-3.40	86.55	-	-	AVG
#	5736.922	44.60	-3.08	41.52	68.20	-26.68	peak
*	11100.000	36.09	8.41	44.50	74.00	-29.50	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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EUT Test Condition		Measurement Detail	
Channel	Channel 134	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)	
@	5673.210	100.71	-3.18	97.53	-	-	peak
@	5673.210	90.35	-3.18	87.17	-	-	AVG
#	5728.265	54.46	-3.10	51.36	68.20	-16.84	peak
*	11340.000	33.64	8.49	42.13	74.00	-31.87	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)	
@	5657.040	99.24	-3.21	96.03	-	-	peak
@	5657.040	88.51	-3.21	85.30	-	-	AVG
#	5725.605	51.73	-3.10	48.63	68.20	-19.57	peak
*	11340.000	32.74	8.49	41.23	74.00	-32.77	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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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)	
#	5647.433	48.12	-3.22	44.90	68.20	-23.30	peak
-	5721.483	73.27	-3.10	70.17	114.18	-44.01	peak
@	5759.000	101.87	-3.04	98.83	-	-	peak
@	5759.000	90.73	-3.04	87.69	-	-	AVG
*	11510.000	34.25	8.56	42.81	74.00	-31.19	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)	
#	5573.333	46.07	-3.35	42.72	68.20	-25.48	peak
-	5718.983	66.08	-3.10	62.98	110.52	-47.54	peak
@	5767.383	100.15	-3.03	97.12	-	-	peak
@	5767.383	89.75	-3.03	86.72	-	-	AVG
*	11510.000	33.91	8.56	42.47	74.00	-31.53	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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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)	
#	5553.533	46.42	-3.39	43.03	68.20	-25.17	peak
-	5692.200	46.96	-3.15	43.81	99.43	-55.62	peak
@	5806.100	101.17	-2.96	98.21	-	-	peak
@	5806.100	90.47	-2.96	87.51	-	-	AVG
-	5856.850	56.68	-2.88	53.80	110.28	-56.48	peak
#	5931.933	45.47	-2.76	42.71	68.20	-25.49	peak
*	11590.000	33.41	8.53	41.94	74.00	-32.06	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)	
#	5594.050	47.22	-3.32	43.90	68.20	-24.30	peak
-	5716.717	51.47	-3.11	48.36	109.88	-61.52	peak
@	5783.950	101.03	-3.00	98.03	-	-	peak
@	5783.950	90.33	-3.00	87.33	-	-	AVG
-	5853.517	55.08	-2.89	52.19	114.18	-61.99	peak
#	5987.833	45.24	-2.67	42.57	68.20	-25.63	peak
*	11590.000	33.31	8.53	41.84	74.00	-32.16	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 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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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)	
-	5150.000	70.42	-3.81	66.61	74.00	-7.39	peak
@	5183.320	99.84	-3.78	96.06	-	-	peak
-	5150.000	51.41	-3.81	47.60	54.00	-6.40	AVG
@	5191.710	88.52	-3.77	84.75	-	-	AVG
#	10420.000	37.23	7.13	44.36	68.20	-23.84	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	68.24	-3.81	64.43	74.00	-9.57	peak
@	5190.840	99.05	-3.77	95.28	-	-	peak
-	5150.000	49.56	-3.81	45.75	54.00	-8.25	AVG
@	5190.170	88.45	-3.77	84.68	-	-	AVG
#	10420.000	37.57	7.13	44.70	68.20	-23.50	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 other emission levels were very low against the limit.

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Doc No: 17-EM-F0878 / 3.0



Test report No. : 4788637943-US-R1-V0
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FCC ID : SXE-BDEM01

EUT Test Condition		Measurement Detail	
Channel	Channel 58	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)	
@	5283.000	99.80	-3.68	96.12	-	-	peak
-	5354.780	67.93	-3.61	64.32	74.00	-9.68	peak
@	5287.300	89.55	-3.67	85.88	-	-	AVG
-	5350.000	53.90	-3.61	50.29	54.00	-3.71	AVG
#	10580.000	36.61	7.49	44.10	68.20	-24.10	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)	
@	5263.320	99.38	-3.69	95.69	-	-	peak
-	5350.000	66.08	-3.61	62.47	74.00	-11.53	peak
@	5271.820	88.29	-3.70	84.59	-	-	AVG
-	5350.000	47.93	-3.61	44.32	54.00	-9.68	AVG
#	10580.000	37.00	7.49	44.49	68.20	-23.71	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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EUT Test Condition		Measurement Detail	
Channel	Channel 106	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)	
-	5460.000	67.02	-3.51	63.51	74.00	-10.49	peak
-	5460.000	53.66	-3.51	50.15	54.00	-3.85	AVG
#	5466.022	69.39	-3.50	65.89	68.20	-2.31	peak
@	5523.270	99.07	-3.43	95.64	-	-	peak
@	5523.270	89.76	-3.43	86.33	-	-	AVG
*	11060.000	36.07	8.40	44.47	74.00	-29.53	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)	
-	5456.992	58.77	-3.52	55.25	74.00	-18.75	peak
-	5456.992	50.72	-3.52	47.20	54.00	-6.80	AVG
#	5466.407	61.43	-3.50	57.93	68.20	-10.27	peak
@	5503.262	96.93	-3.47	93.46	-	-	peak
@	5503.262	87.94	-3.47	84.47	-	-	AVG
*	11060.000	36.82	8.40	45.22	74.00	-28.78	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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EUT Test Condition		Measurement Detail	
Channel	Channel 122	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)	
-	5443.412	48.28	-3.52	44.76	74.00	-29.24	peak
-	5443.412	32.01	-3.52	28.49	54.00	-25.51	AVG
#	5464.213	45.27	-3.50	41.77	68.20	-26.43	peak
@	5583.377	97.92	-3.33	94.59	-	-	peak
@	5583.377	87.09	-3.33	83.76	-	-	AVG
#	5732.057	45.34	-3.09	42.25	68.20	-25.95	peak
*	11220.000	32.69	8.45	41.14	74.00	-32.86	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)	
-	5429.563	45.23	-3.54	41.69	74.00	-32.31	peak
-	5429.563	32.89	-3.54	29.35	54.00	-24.65	AVG
#	5464.867	44.37	-3.50	40.87	68.20	-27.33	peak
@	5603.210	94.97	-3.30	91.67	-	-	peak
@	5603.210	83.89	-3.30	80.59	-	-	AVG
#	5738.205	44.87	-3.08	41.79	68.20	-26.41	peak
*	11220.000	32.74	8.45	41.19	74.00	-32.81	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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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)	
#	5648.450	45.99	-3.22	42.77	68.20	-25.43	peak
-	5718.100	65.46	-3.10	62.36	110.27	-47.91	peak
@	5768.133	97.39	-3.02	94.37	-	-	peak
@	5768.133	86.58	-3.02	83.56	-	-	AVG
-	5859.183	58.61	-2.87	55.74	109.63	-53.89	peak
#	5959.333	44.44	-2.71	41.73	68.20	-26.47	peak
*	11550.000	33.66	8.54	42.20	74.00	-31.80	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)	
#	5620.600	45.41	-3.26	42.15	68.20	-26.05	peak
-	5715.283	57.53	-3.11	54.42	109.48	-55.06	peak
@	5768.283	95.51	-3.02	92.49	-	-	peak
@	5768.283	84.47	-3.02	81.45	-	-	AVG
-	5859.133	54.50	-2.87	51.63	109.64	-58.01	peak
#	5957.833	44.64	-2.71	41.93	68.20	-26.27	peak
*	11550.000	33.43	8.54	41.97	74.00	-32.03	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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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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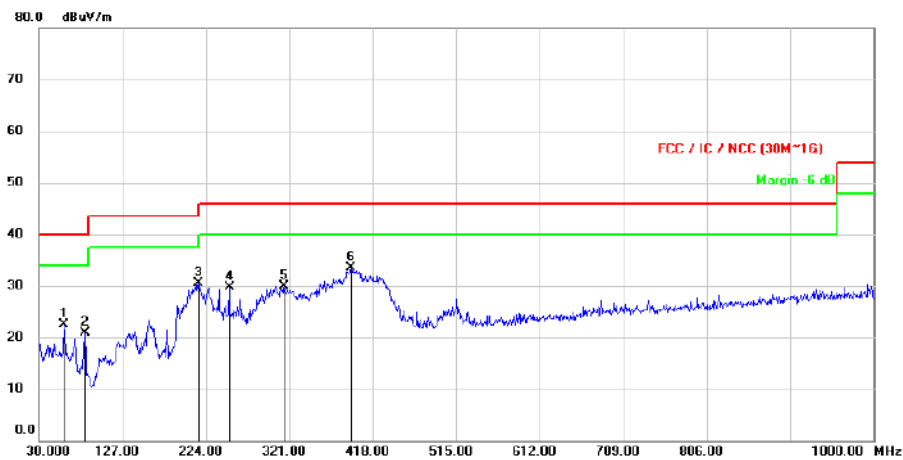


30 MHz ~ 1 GHz Data

802.11n(HT-40)

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

Horizontal



Vertical



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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)	
-	60.0053	38.31	-15.87	22.44	40.00	-17.56	peak
-	83.8350	41.55	-20.57	20.98	40.00	-19.02	peak
-	216.1753	48.50	-17.94	30.56	46.00	-15.44	peak
-	252.0330	46.00	-16.24	29.76	46.00	-16.24	peak
-	315.3740	44.13	-14.13	30.00	46.00	-16.00	peak
-	393.1680	45.58	-12.12	33.46	46.00	-12.54	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)	
-	60.1023	42.98	-15.89	27.09	40.00	-12.91	peak
-	83.8997	48.87	-20.58	28.29	40.00	-11.71	peak
-	208.8033	52.06	-17.97	34.09	43.50	-9.41	peak
-	400.0873	48.63	-11.91	36.72	46.00	-9.28	peak
-	426.4390	47.02	-11.23	35.79	46.00	-10.21	peak
-	507.1430	41.63	-9.70	31.93	46.00	-14.07	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 other emission levels were very low against the limit.

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9.8. AC Power Line Conducted Emission

Requirements

Frequency (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Note:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

Test Procedures

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

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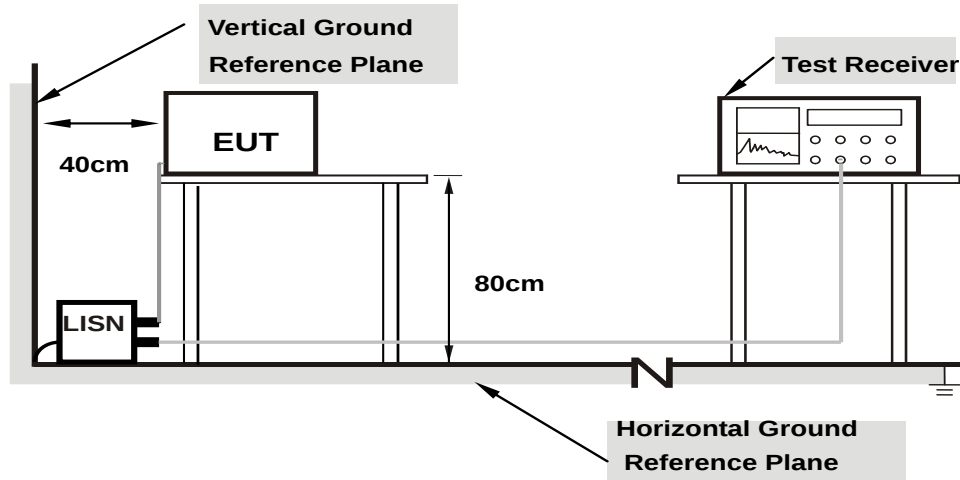
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Test Setup



Note: 1.Support units were connected to second LISN.

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

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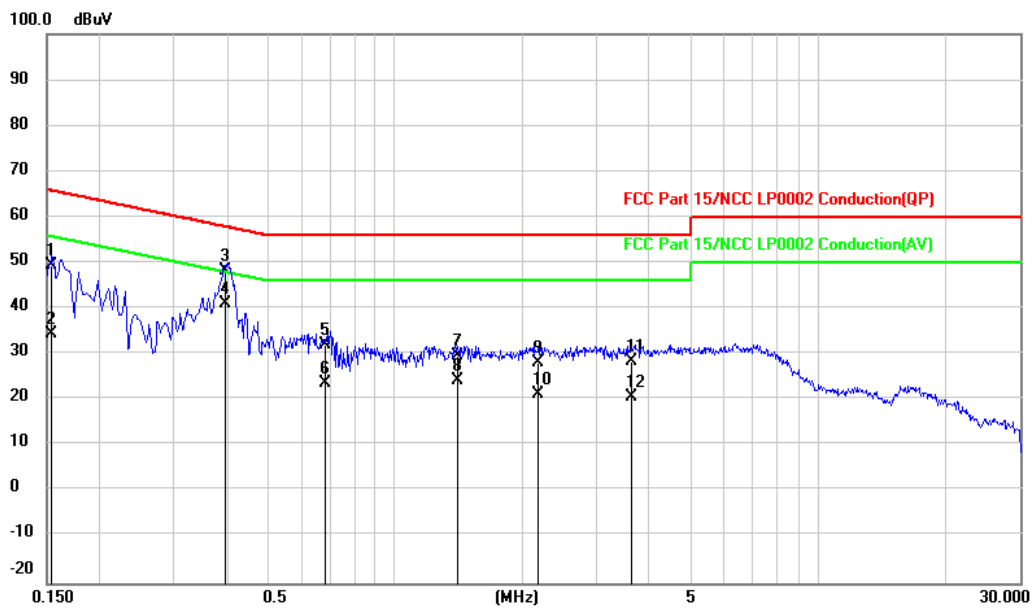


Test Data

802.11n(HT-40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	Frequency Range	150 kHz ~ 30 MHz

Phase of Power : Line (L)



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No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB	(dBuV)	(dBuV)	(dB)	
1	0.1542	29.99	19.55	49.54	65.77	-16.23	QP
2	0.1542	14.82	19.55	34.37	55.77	-21.40	AVG
3	0.3974	28.75	19.53	48.28	57.91	-9.63	QP
4	0.3974	21.57	19.53	41.10	47.91	-6.81	AVG
5	0.6838	12.54	19.53	32.07	56.00	-23.93	QP
6	0.6838	4.12	19.53	23.65	46.00	-22.35	AVG
7	1.4065	10.06	19.55	29.61	56.00	-26.39	QP
8	1.4065	4.70	19.55	24.25	46.00	-21.75	AVG
9	2.1671	8.54	19.56	28.10	56.00	-27.90	QP
10	2.1671	1.56	19.56	21.12	46.00	-24.88	AVG
11	3.6493	8.80	19.58	28.38	56.00	-27.62	QP
12	3.6493	1.13	19.58	20.71	46.00	-25.29	AVG

Remarks:

1. Result value (dBuV) = Reading value (dBuV) + Correction Factor (dB)
2. Margin(dB) = Result value (dBuV) - Limit value (dBuV)
3. Correction Factor(dB) = Insertion loss(dB) + Cable loss(dB)
4. The other emission levels were very low against the limit.

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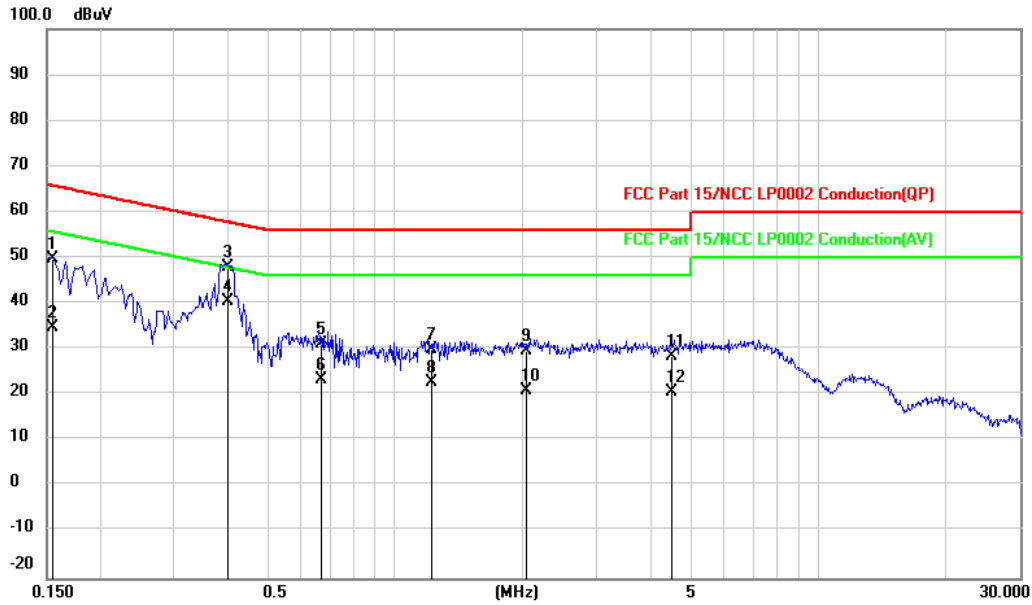
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Phase of Power : Neutral (N)



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No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB	(dBuV)	(dBuV)	(dB)	
1	0.1556	30.09	19.54	49.63	65.70	-16.07	QP
2	0.1556	15.11	19.54	34.65	55.70	-21.05	AVG
3	0.4031	28.55	19.53	48.08	57.79	-9.71	QP
4	0.4031	20.91	19.53	40.44	47.79	-7.35	AVG
5	0.6727	11.71	19.53	31.24	56.00	-24.76	QP
6	0.6727	3.96	19.53	23.49	46.00	-22.51	AVG
7	1.2200	10.27	19.54	29.81	56.00	-26.19	QP
8	1.2200	3.23	19.54	22.77	46.00	-23.23	AVG
9	2.0549	10.02	19.56	29.58	56.00	-26.42	QP
10	2.0549	1.42	19.56	20.98	46.00	-25.02	AVG
11	4.5042	9.01	19.59	28.60	56.00	-27.40	QP
12	4.5042	1.14	19.59	20.73	46.00	-25.27	AVG

Remarks:

1. Result value (dBuV) = Reading value (dBuV) + Correction Factor (dB)
2. Margin(dB) = Result value (dBuV) - Limit value (dBuV)
3. Correction Factor(dB) = Insertion loss(dB) + Cable loss(dB)
4. The other emission levels were very low against the limit.

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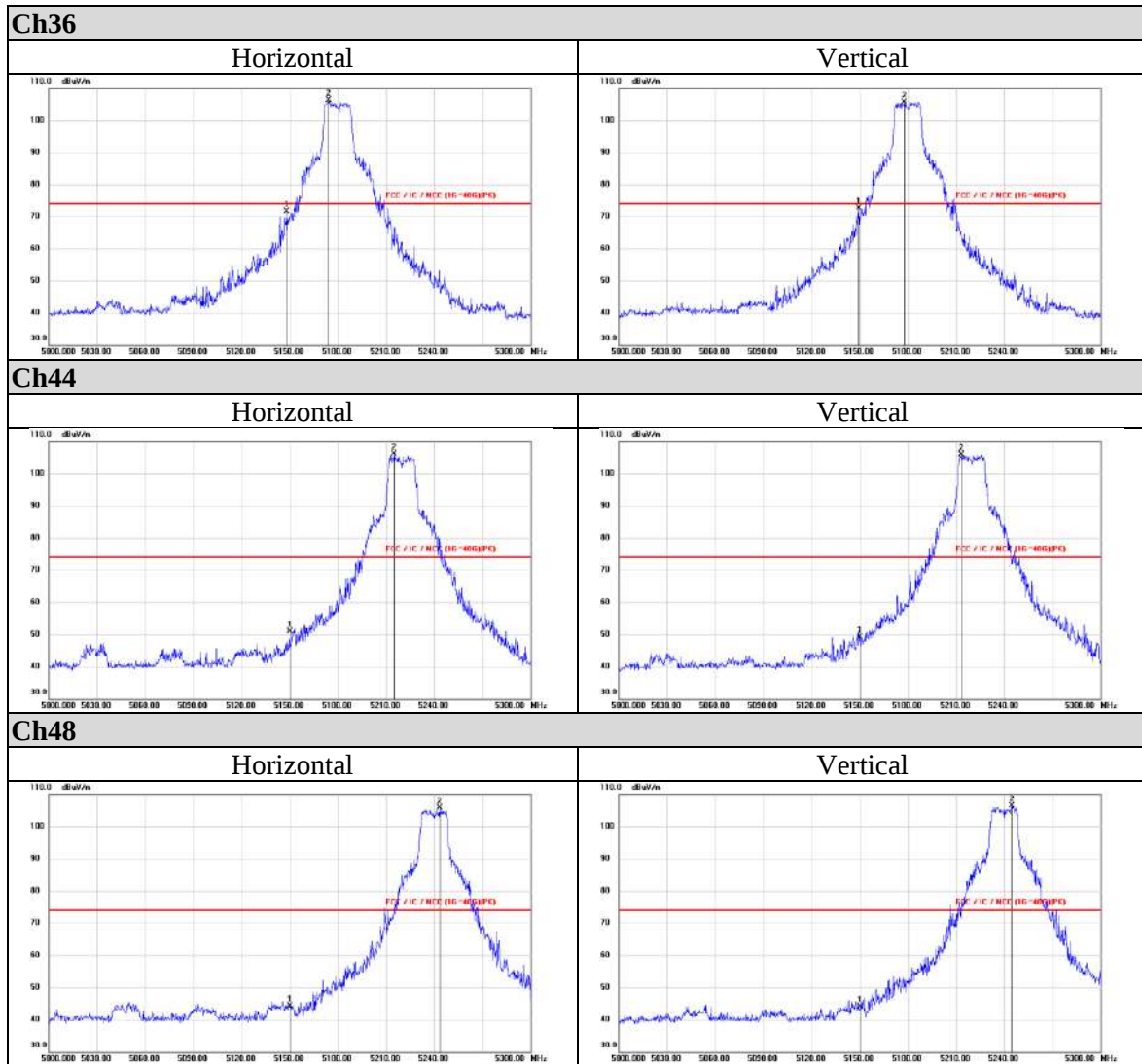
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Appendix I Radiated Band Edge and OOB Measurement

802.11a

Peak



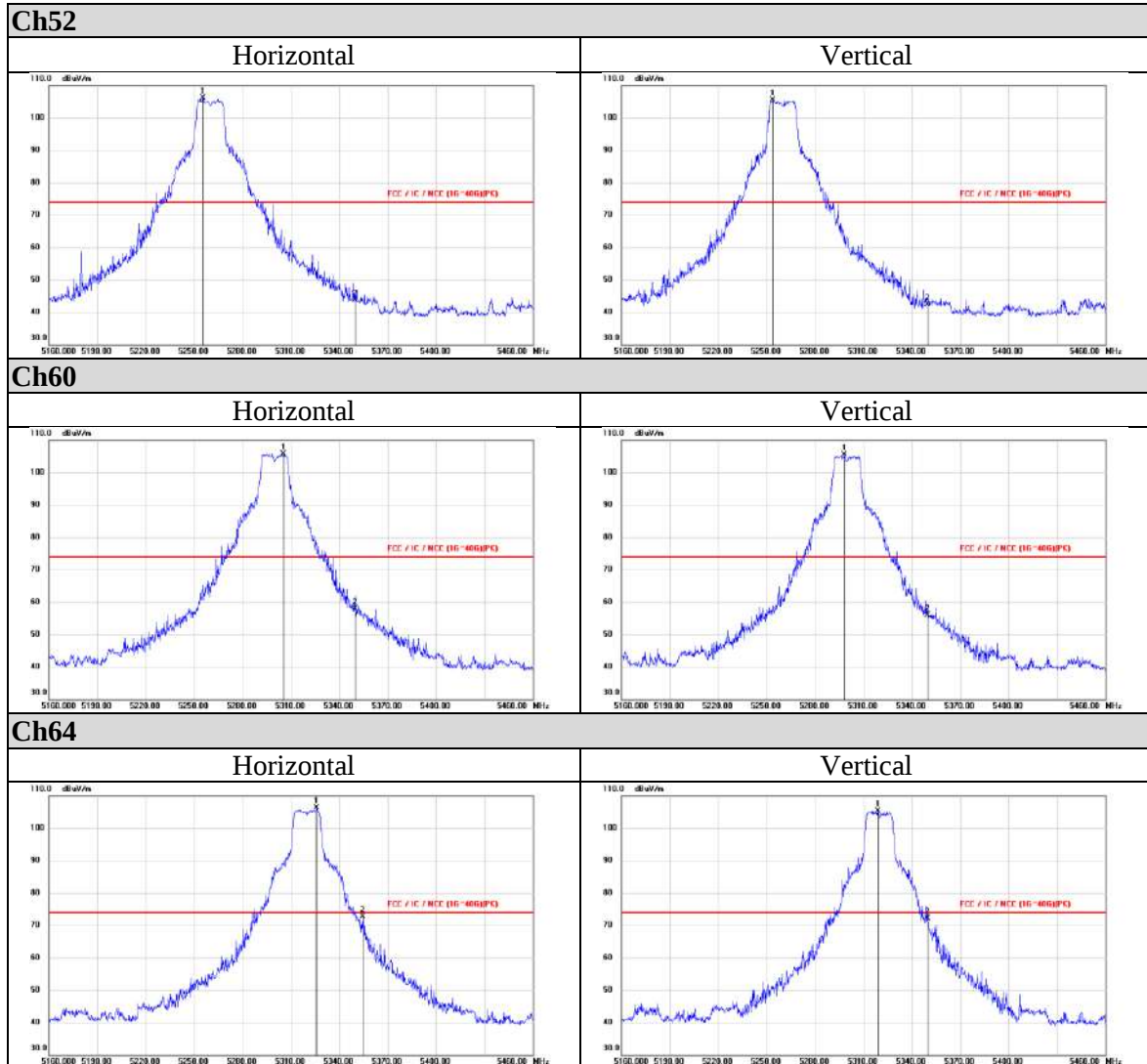
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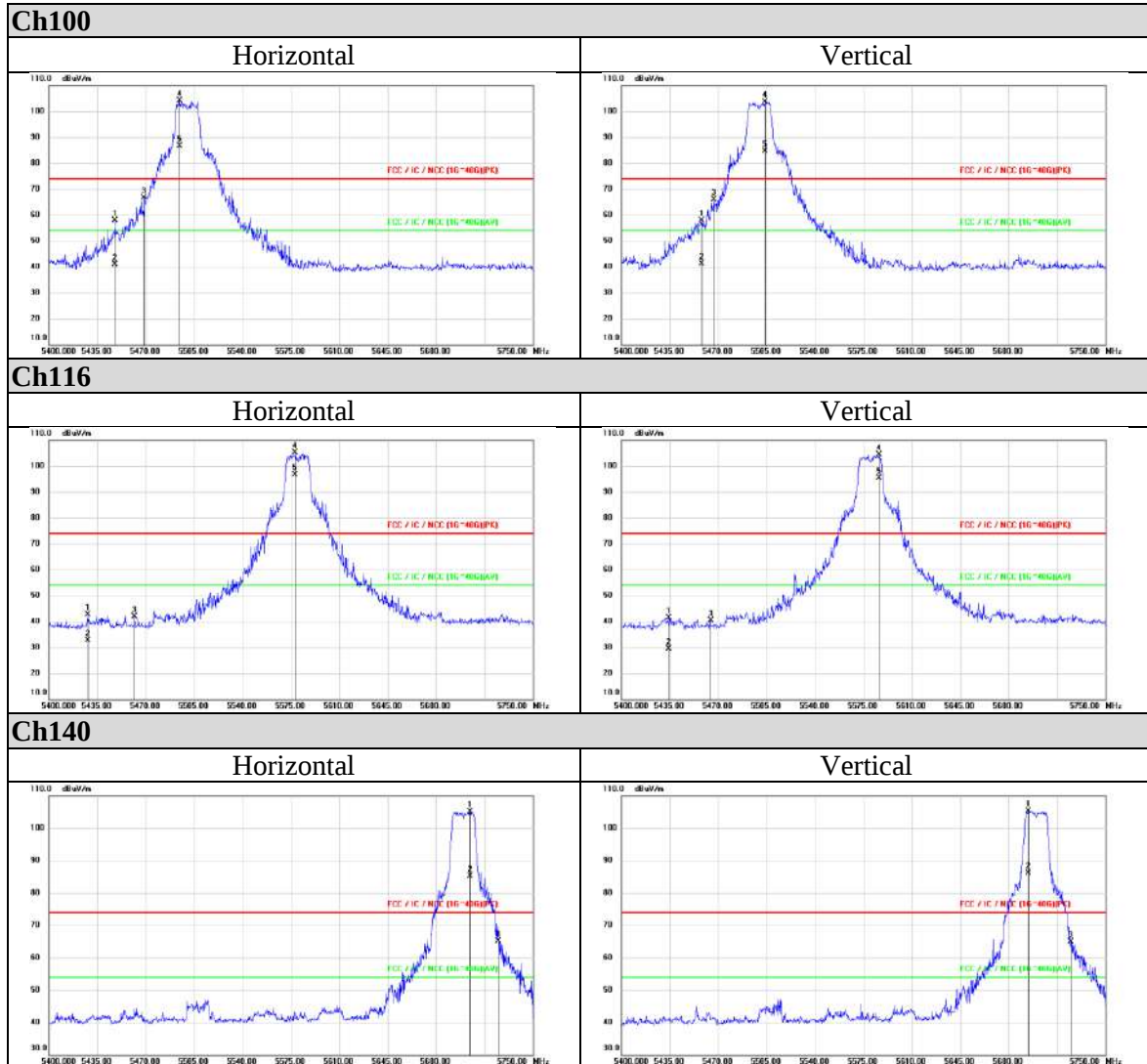
Underwriters Laboratories Taiwan Co., Ltd.

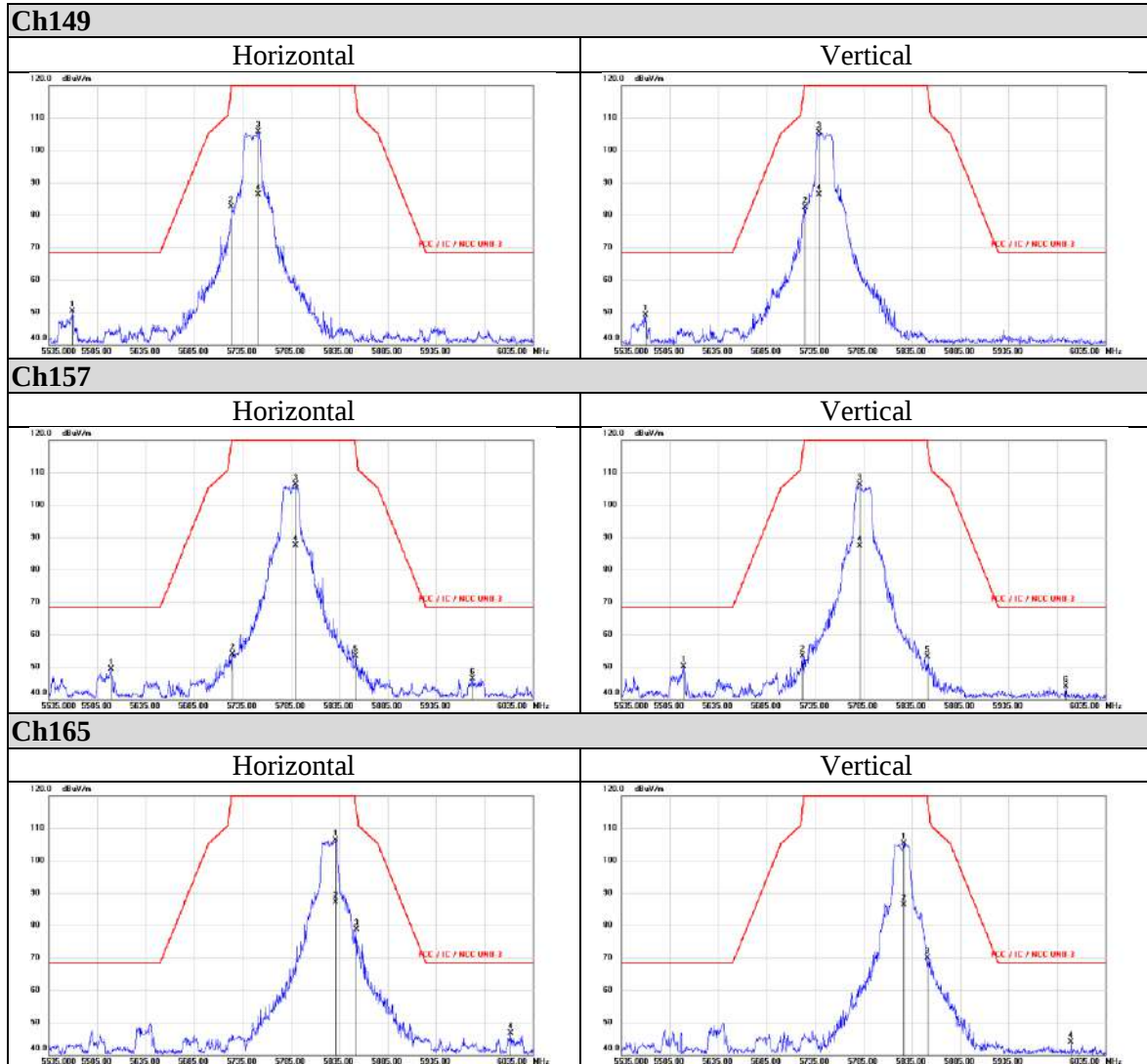
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Doc No: 17-EM-F0878 / 3.0

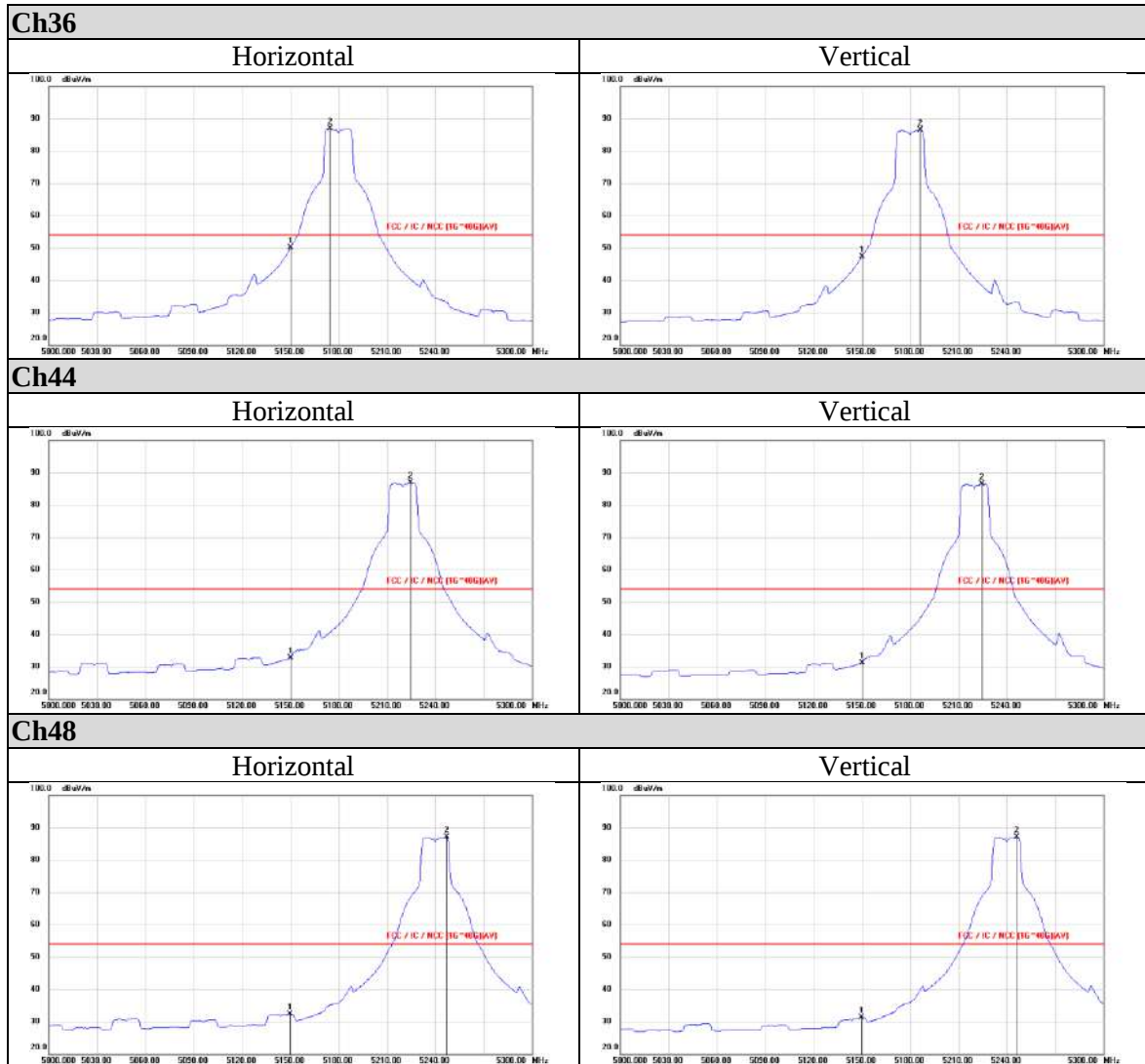






802.11a

Average



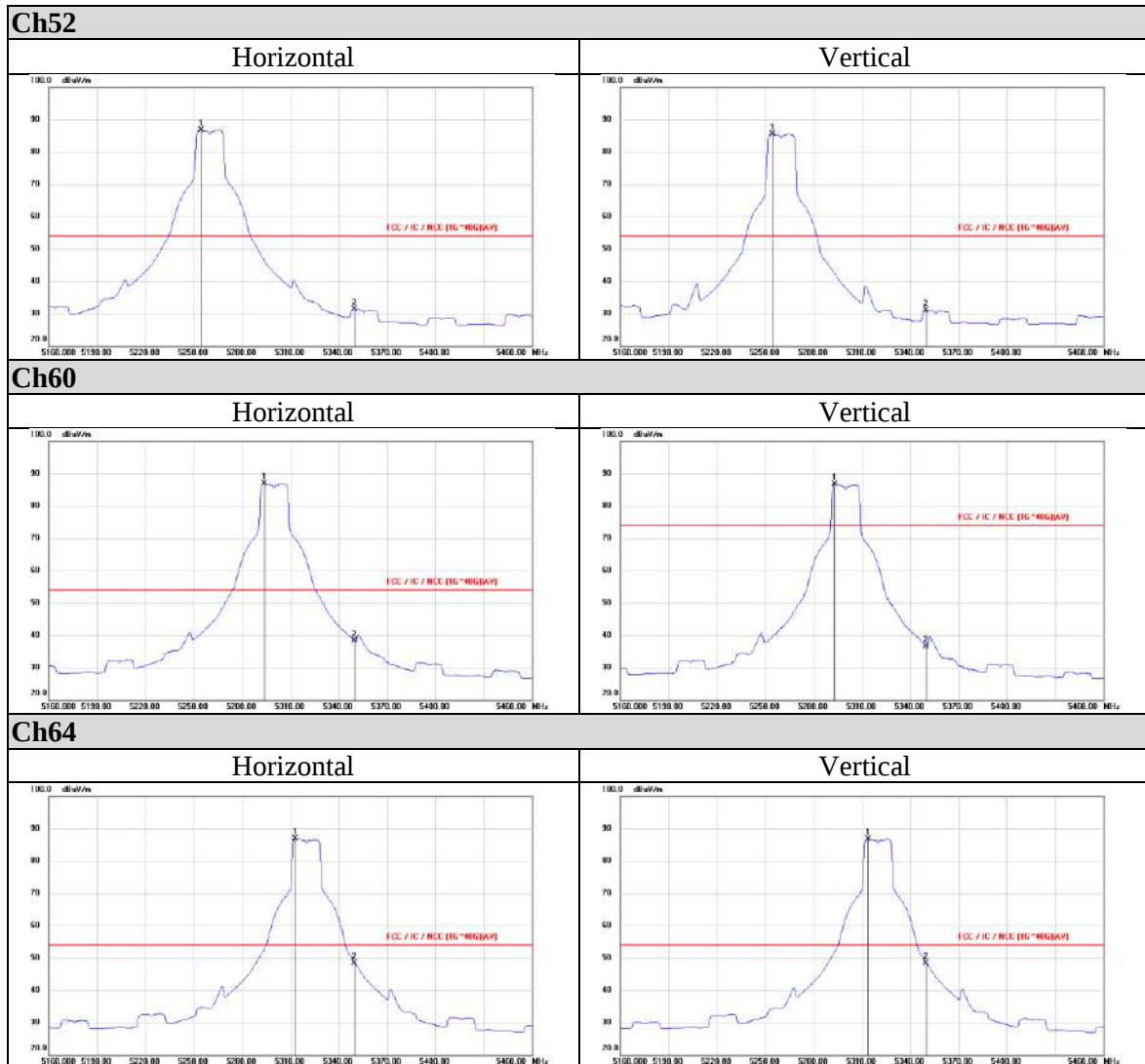
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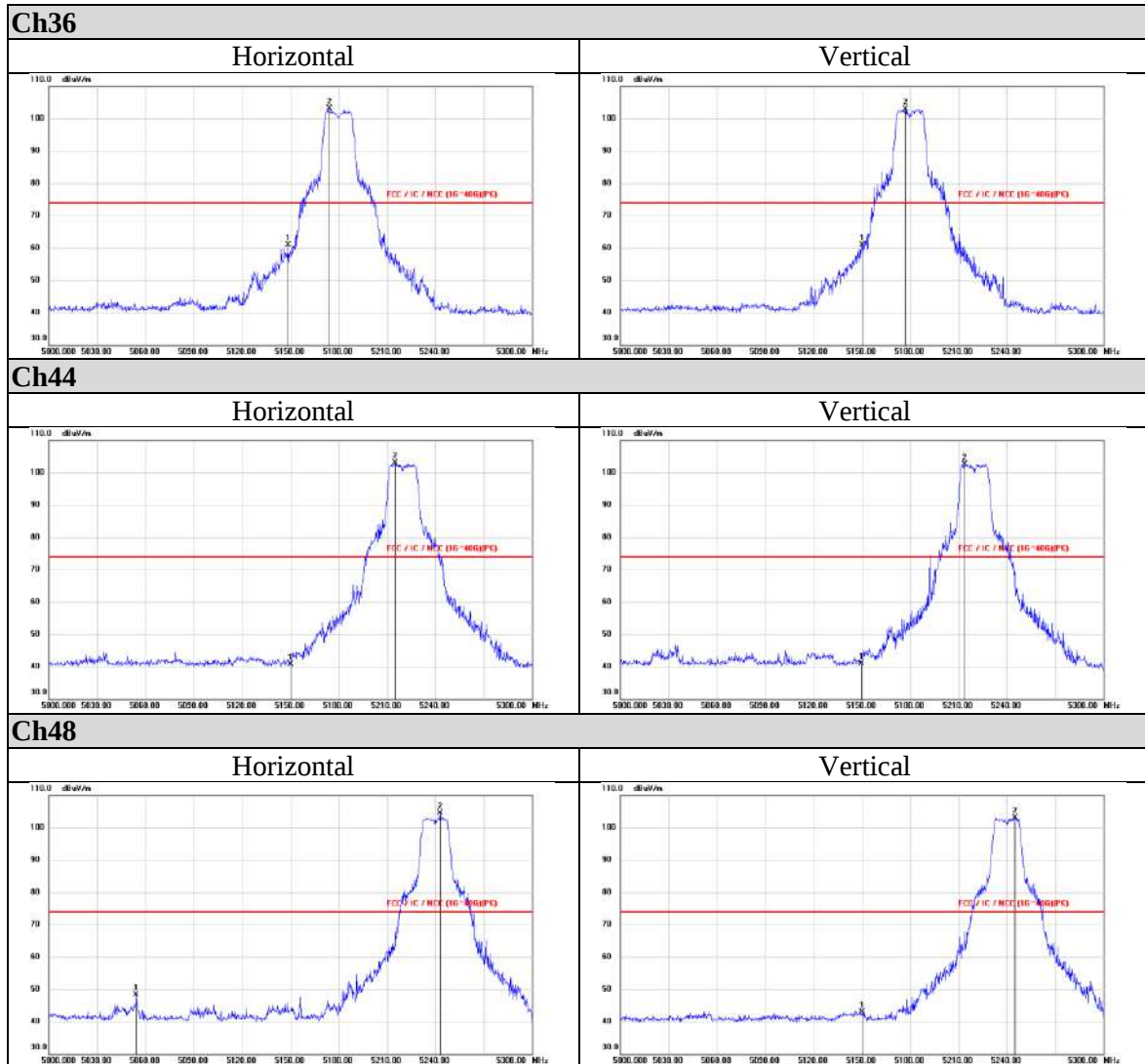
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802.11n (HT20)

Peak



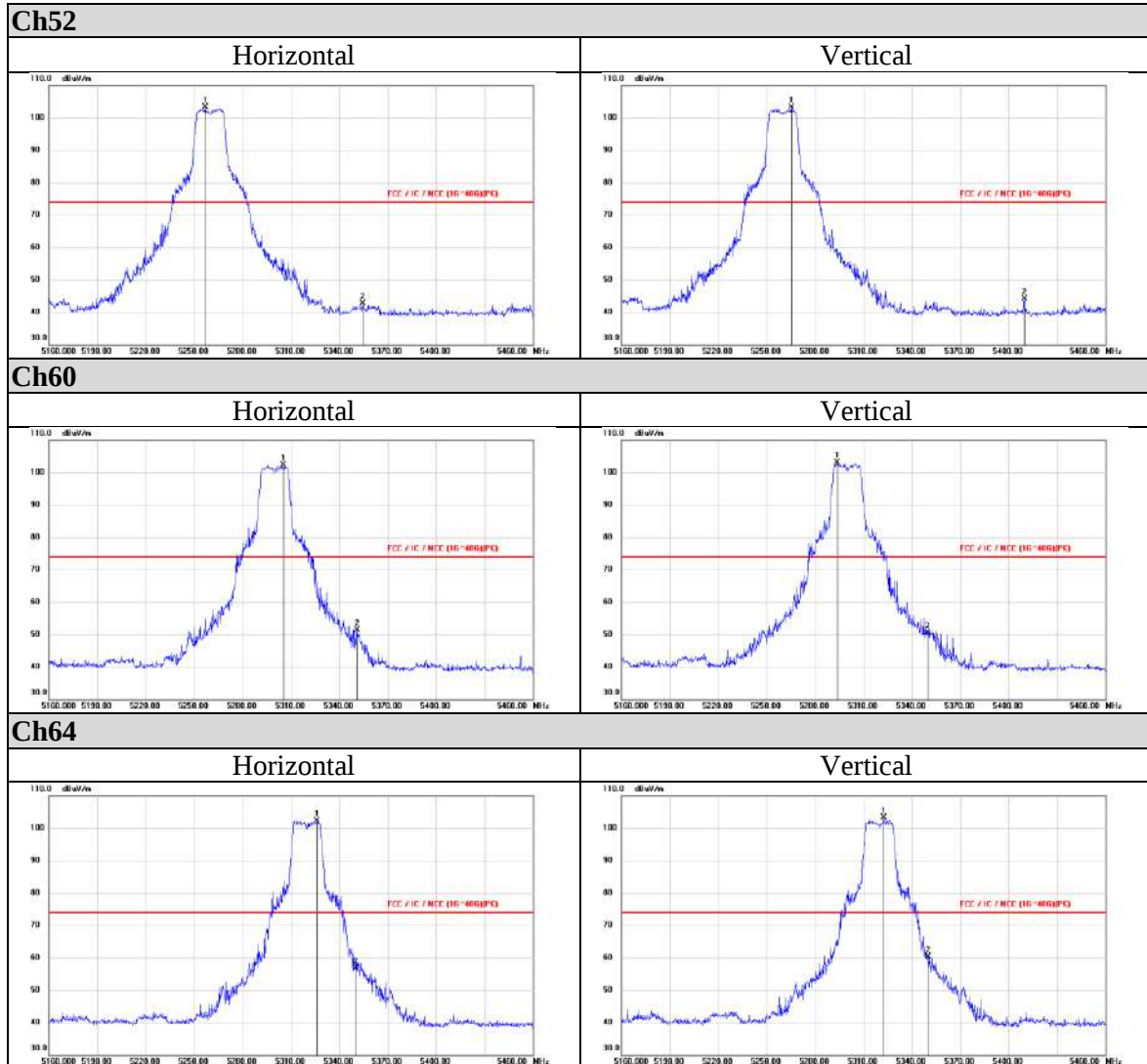
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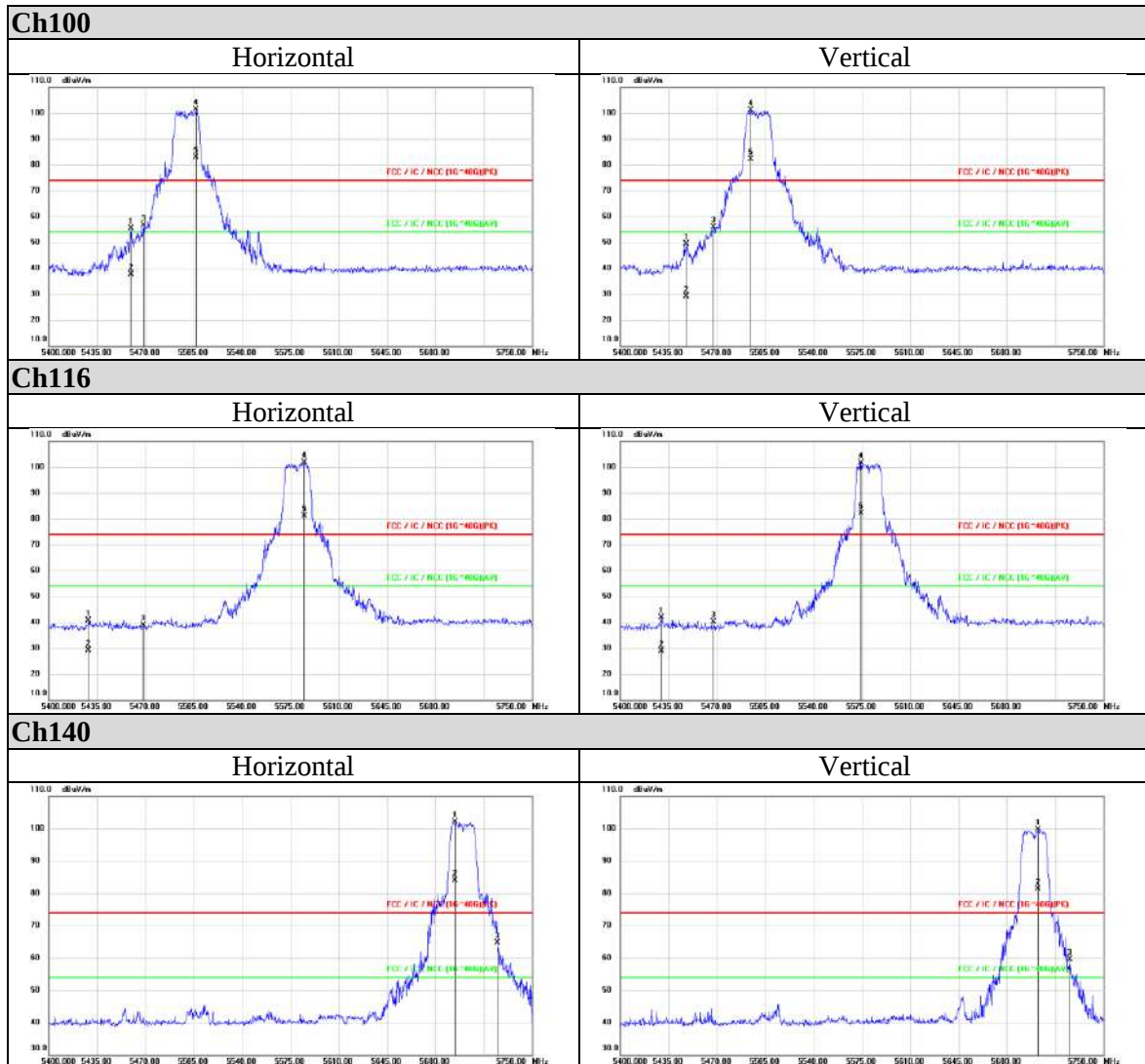
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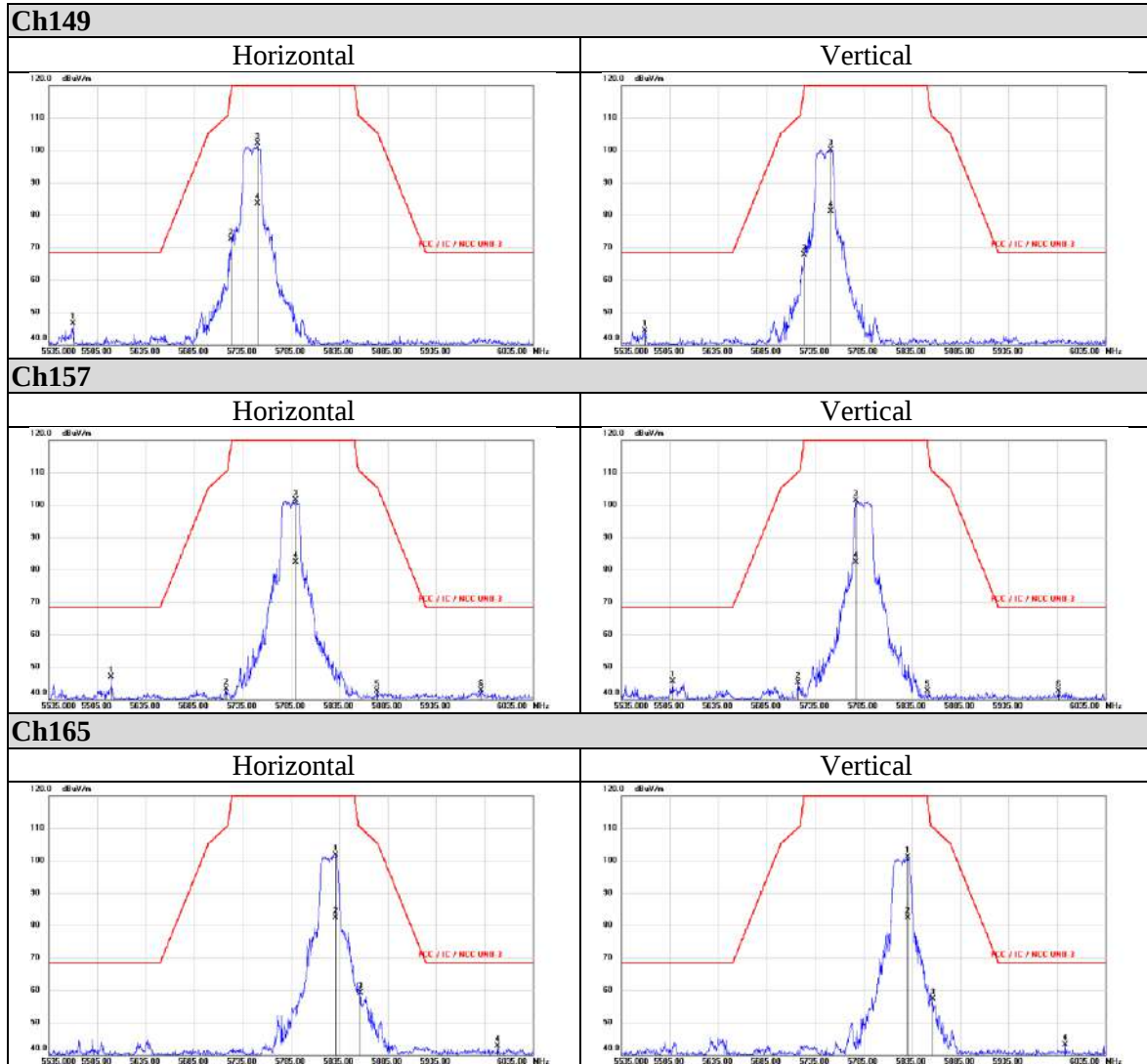
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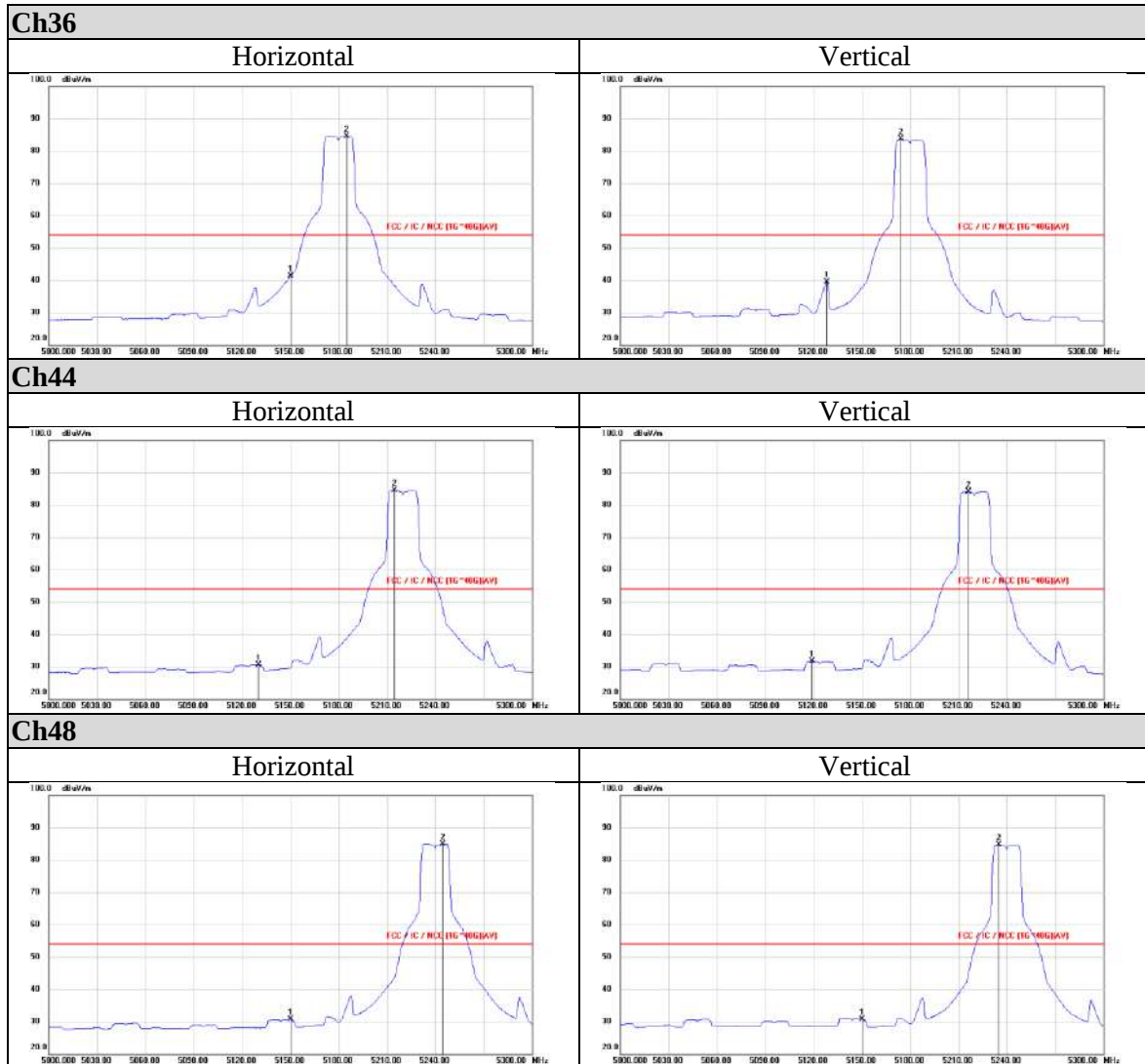






802.11n (HT20)

Average



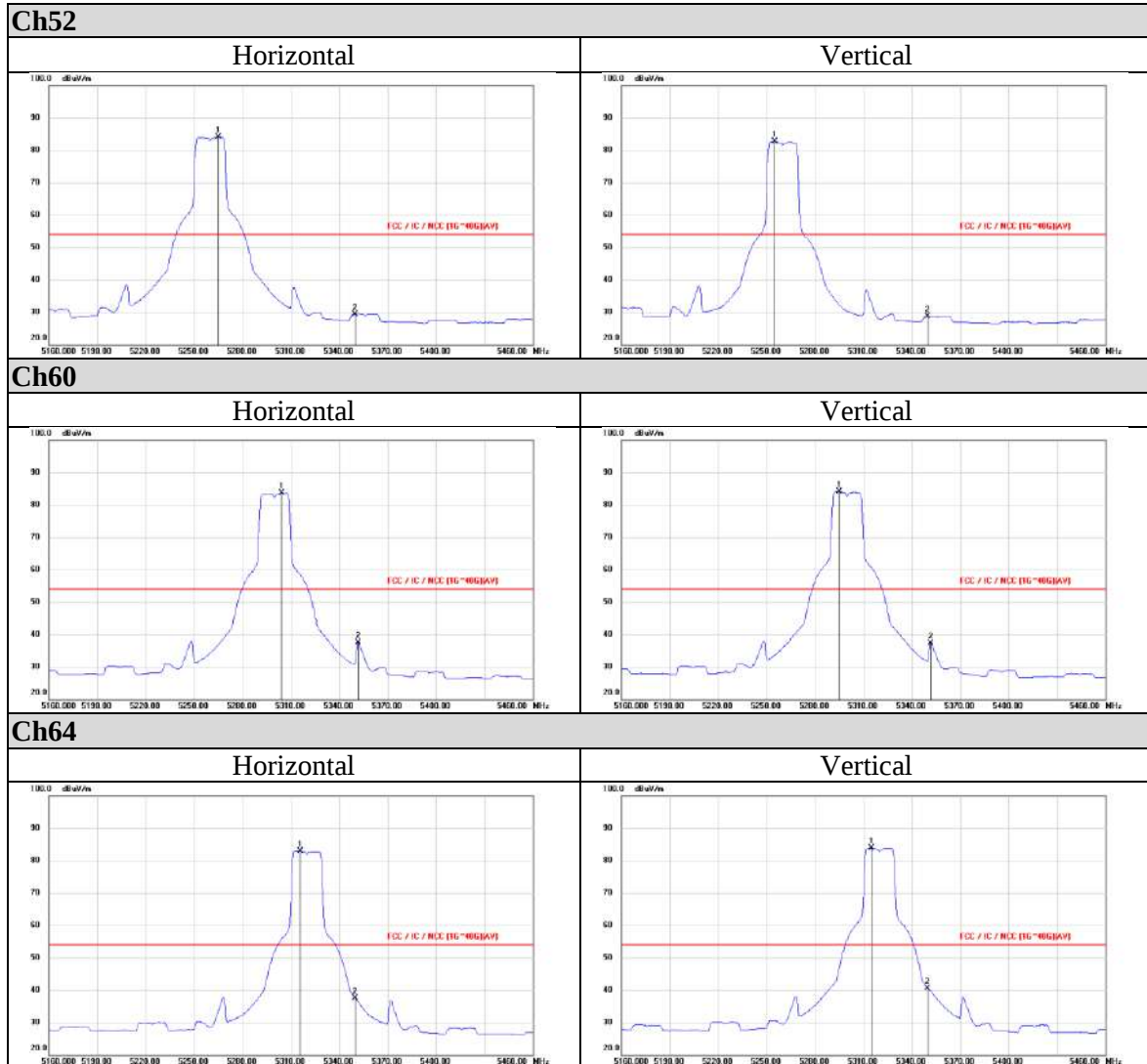
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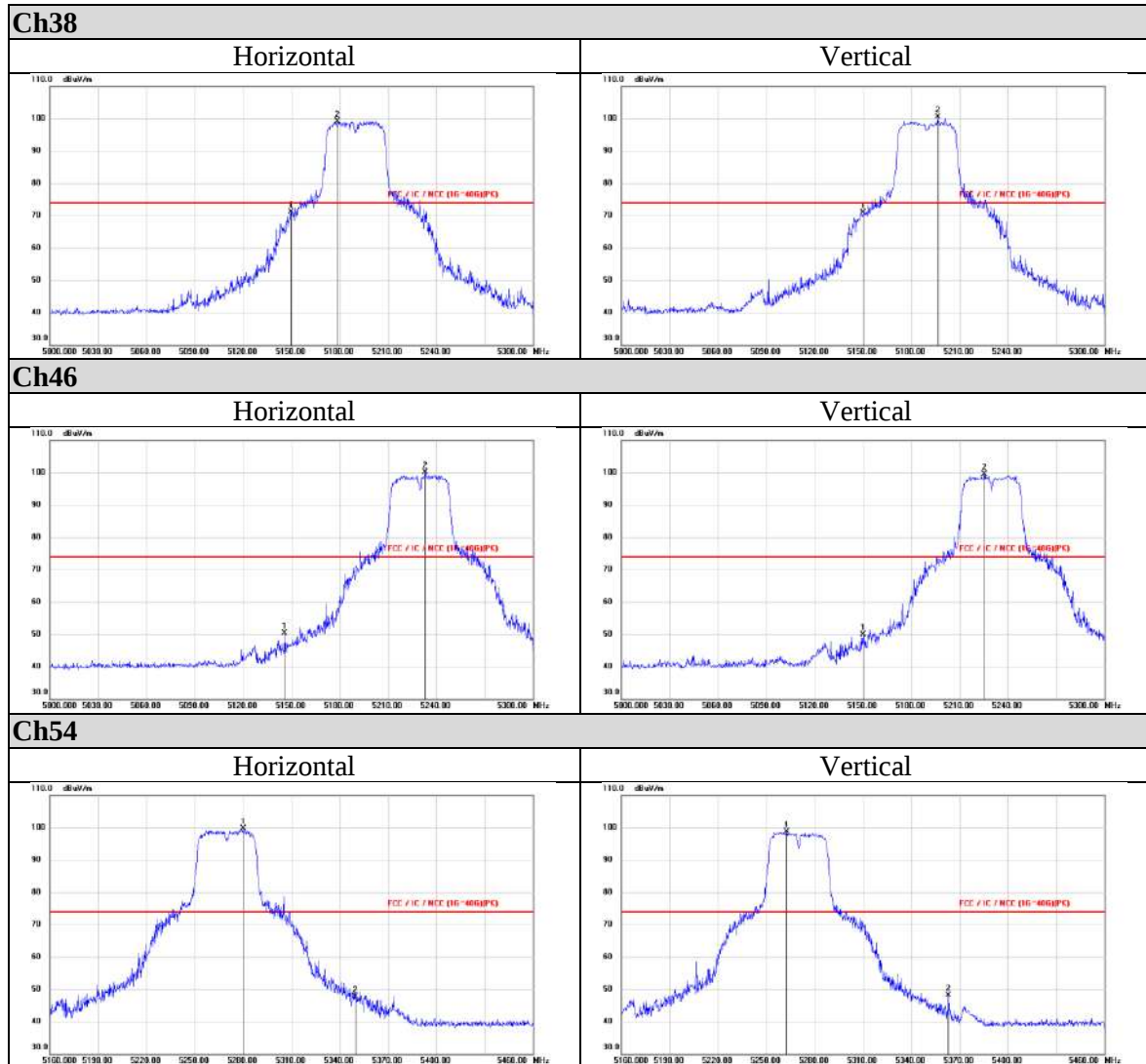
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802.11n (HT40)

Peak



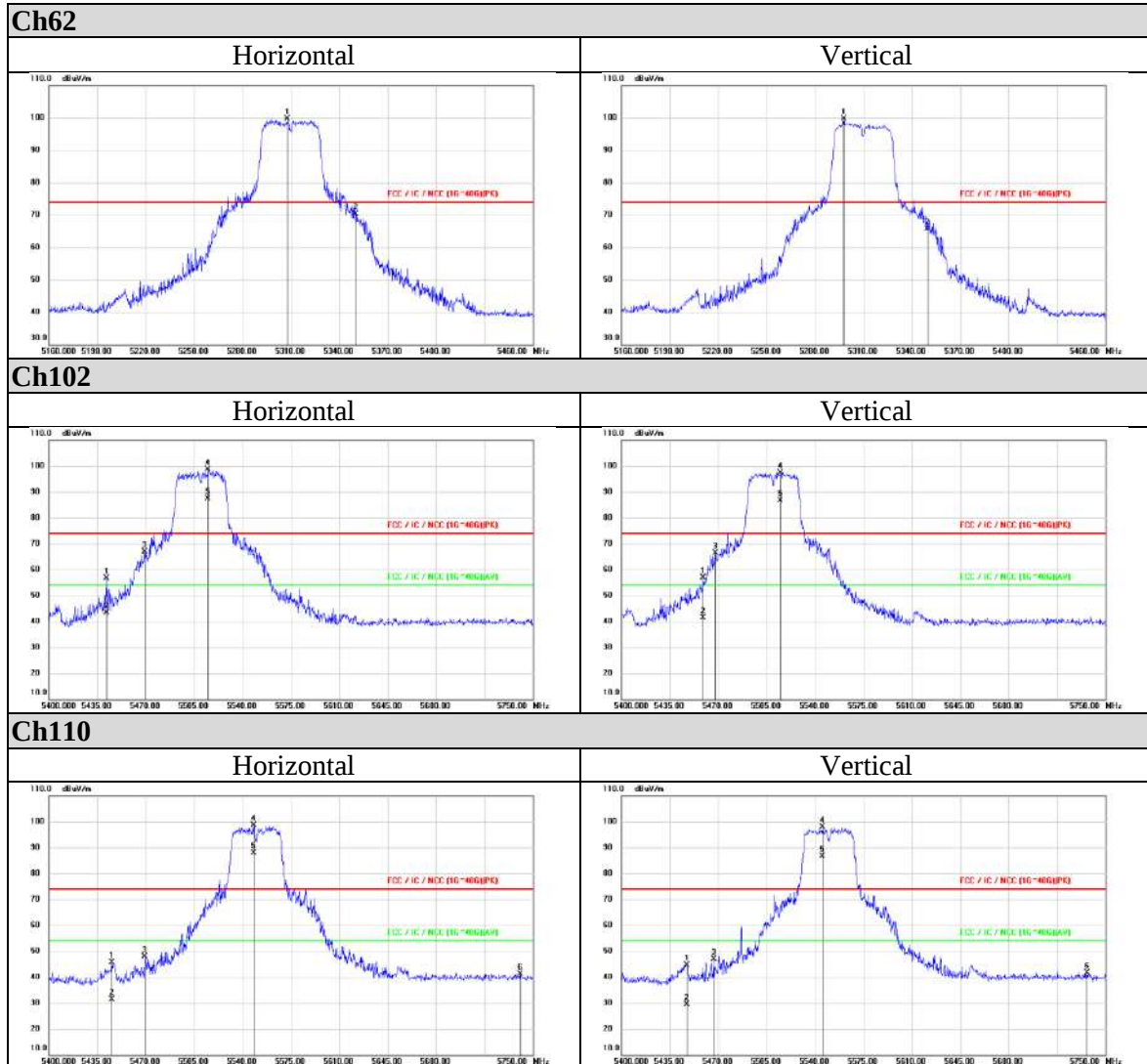
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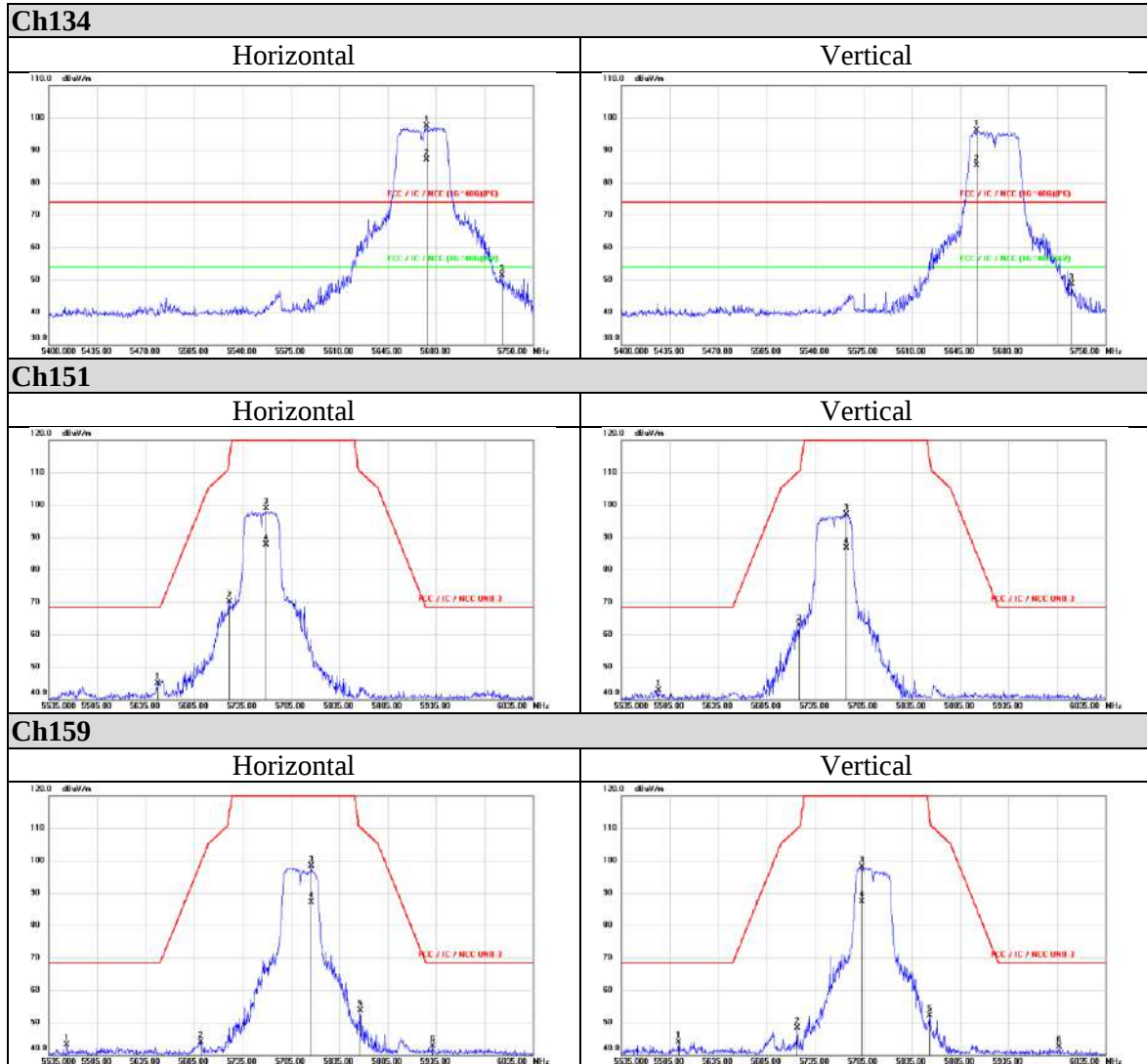
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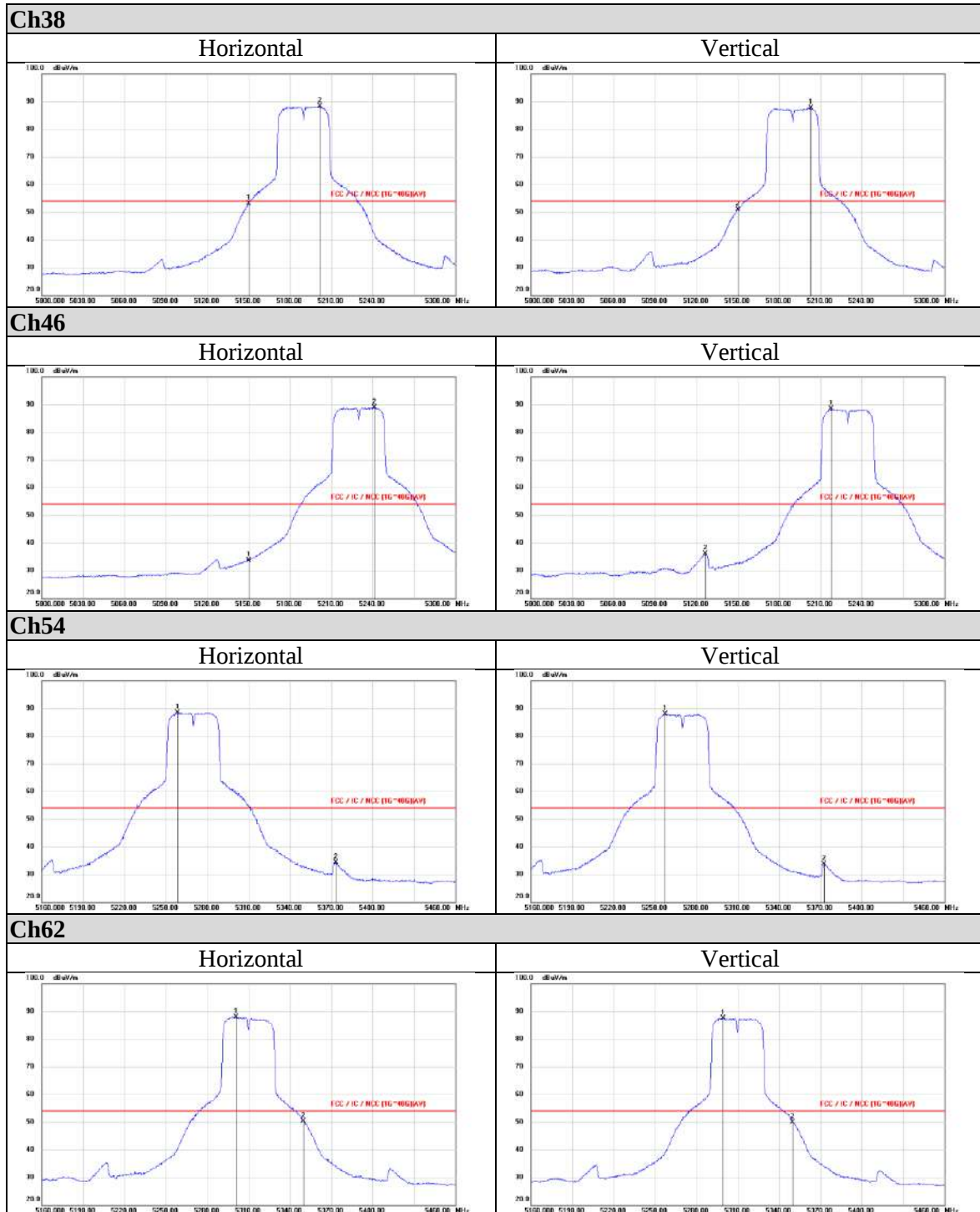






802.11n (HT40)

Average



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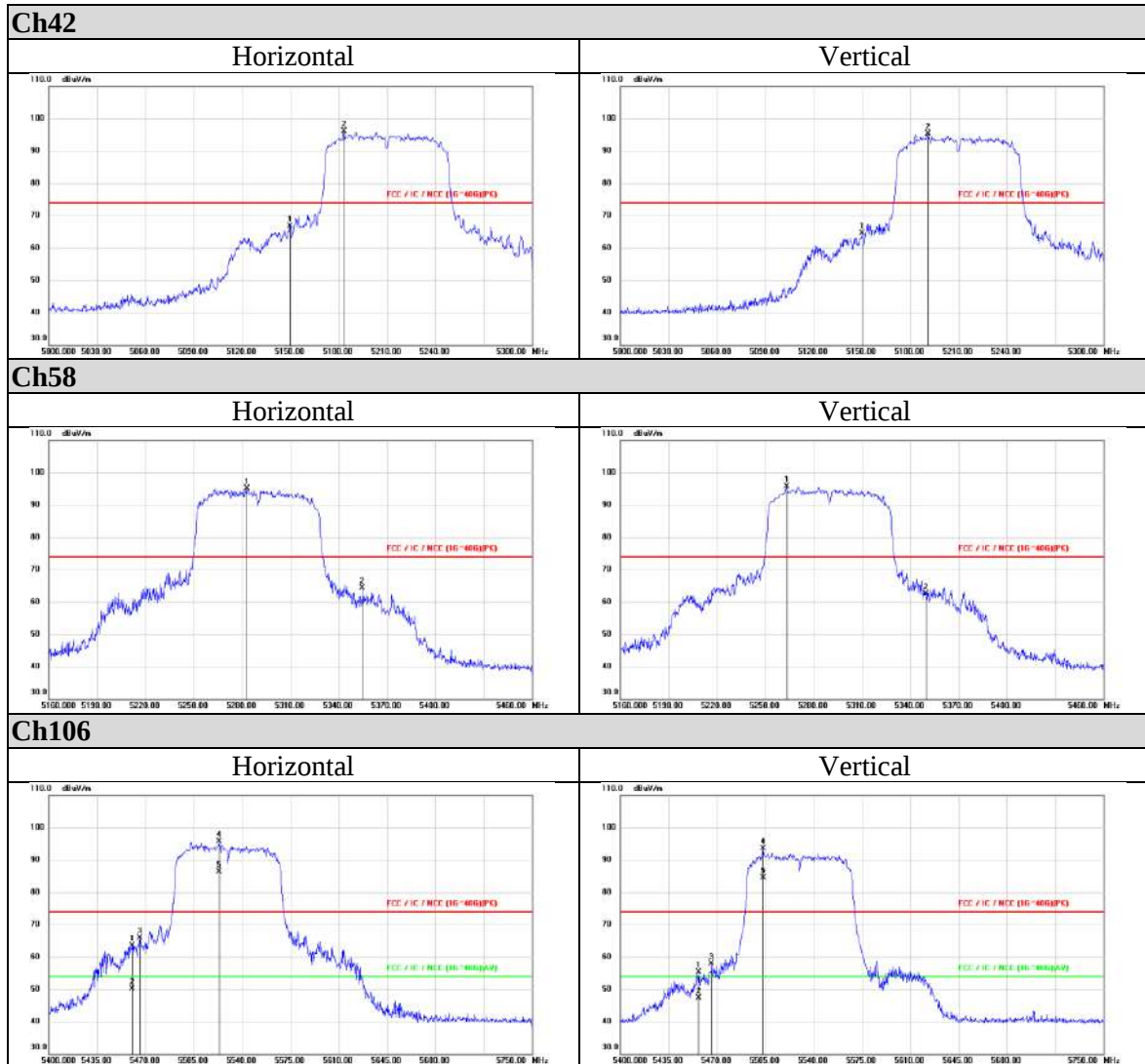
Facsimile (FAX) : +886-3-583-7948

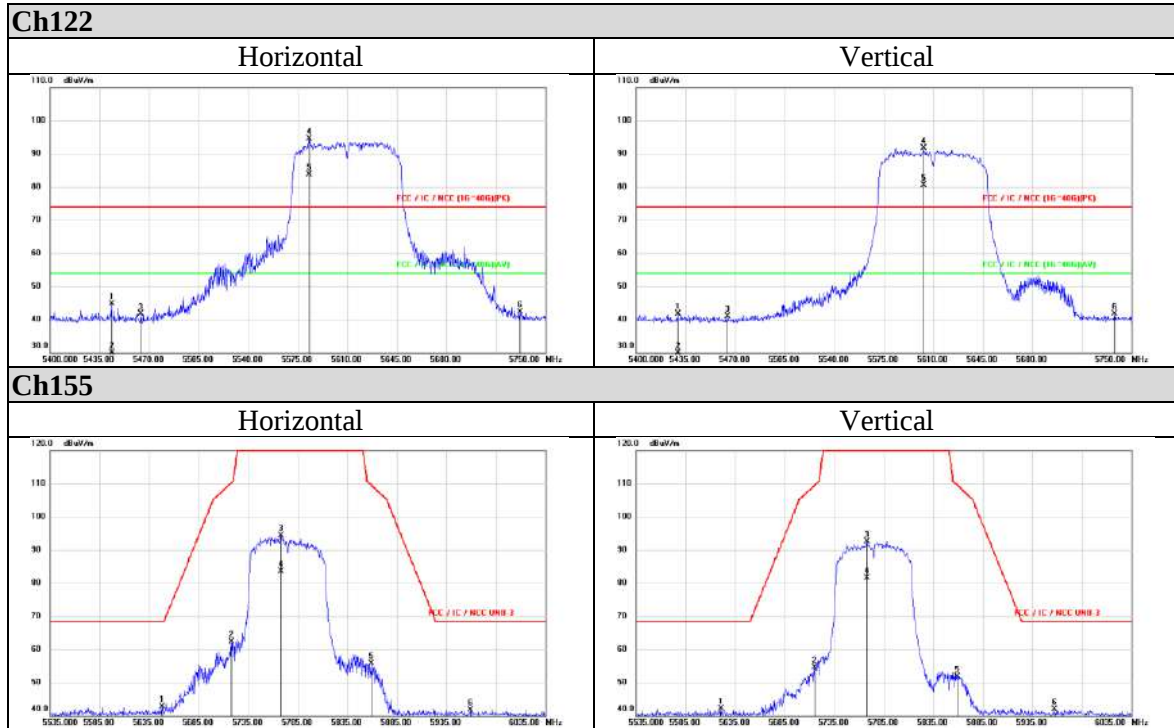
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802.11ac (VHT80)

Peak





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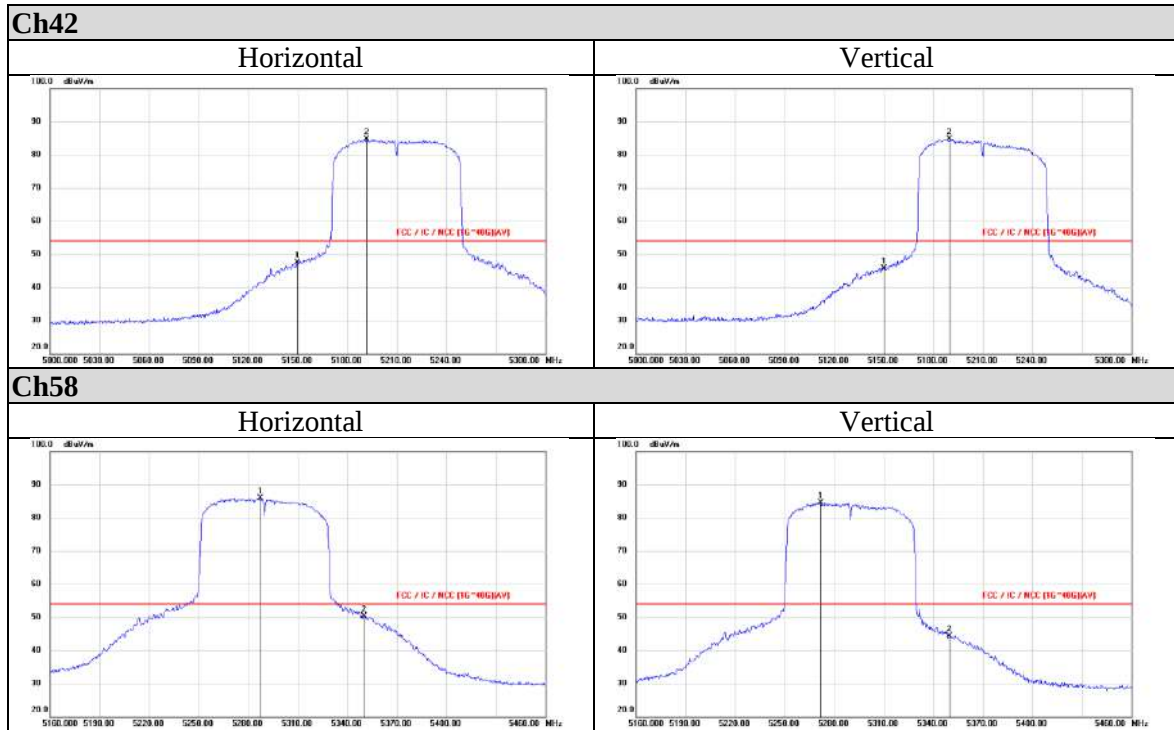
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802.11ac (VHT80)

Average



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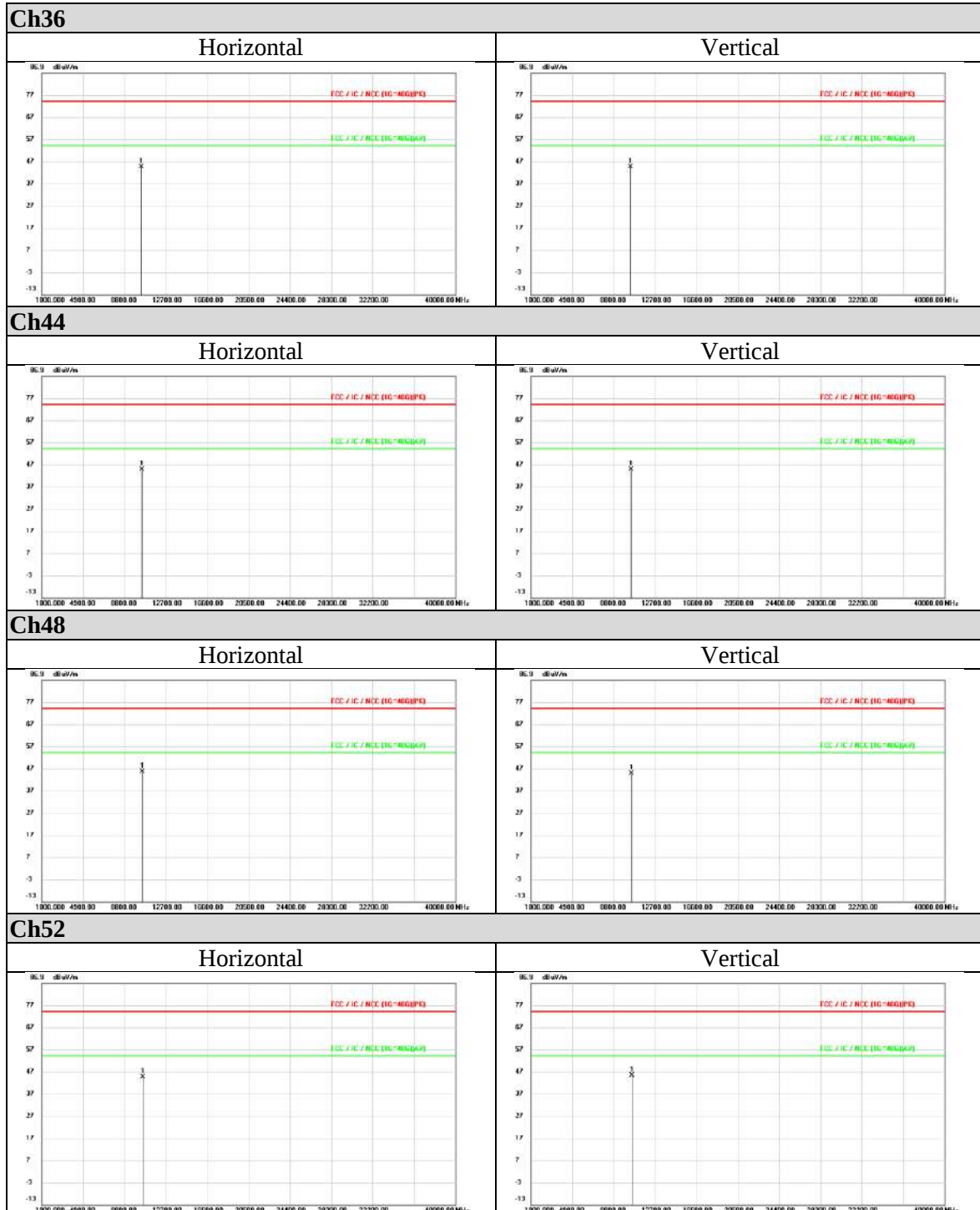
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Appendix II Radiated Spurious Emission Measurement

802.11a



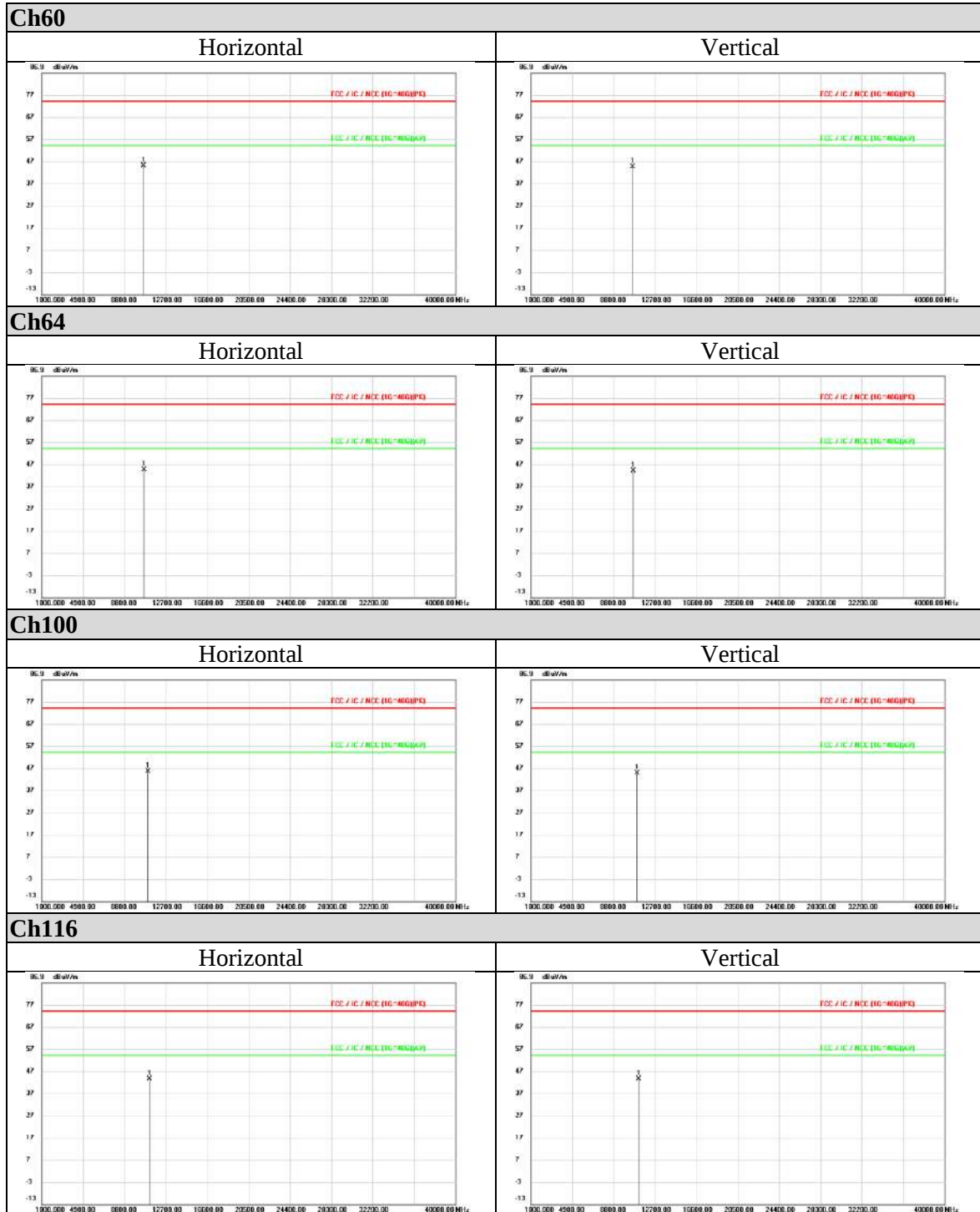
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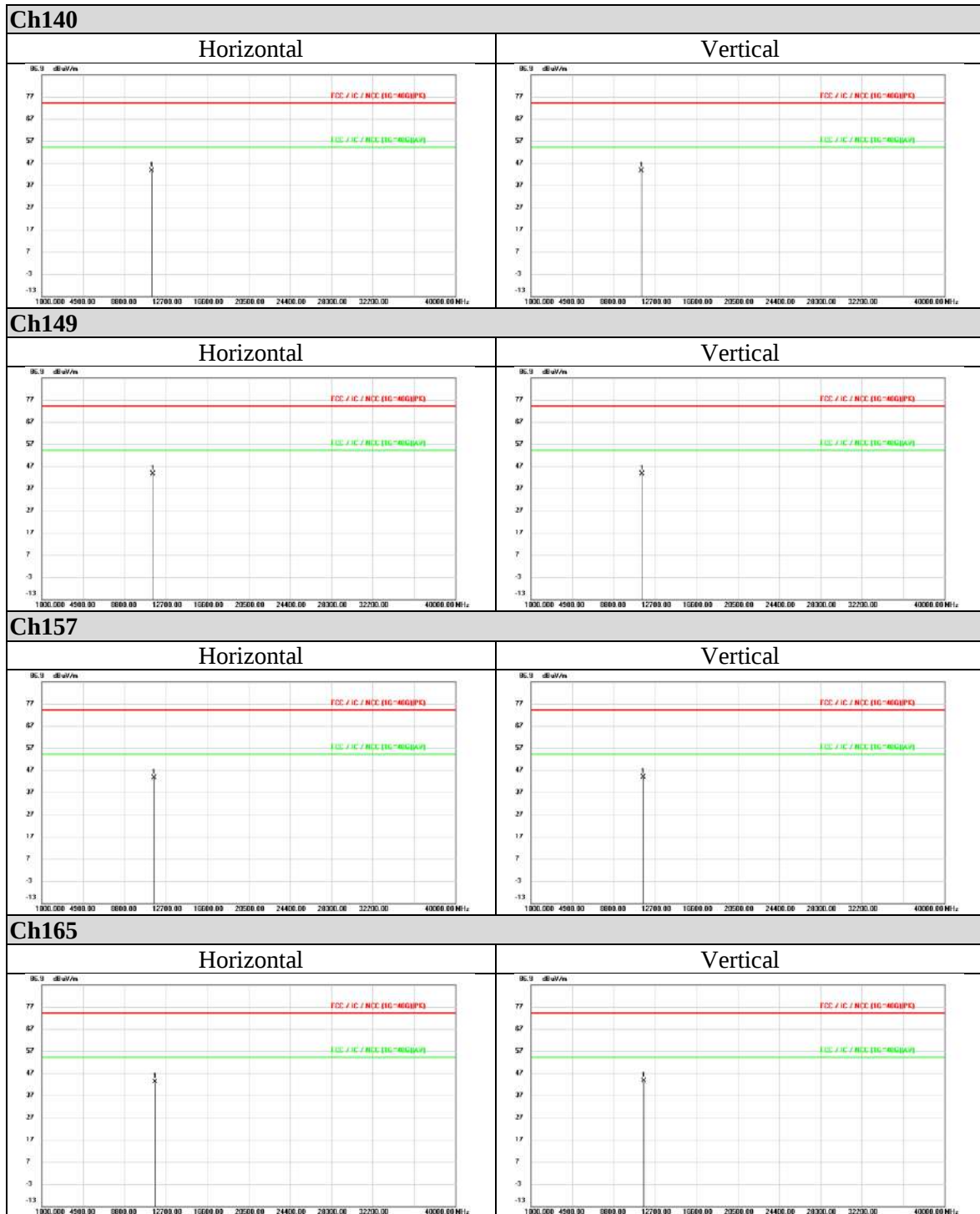
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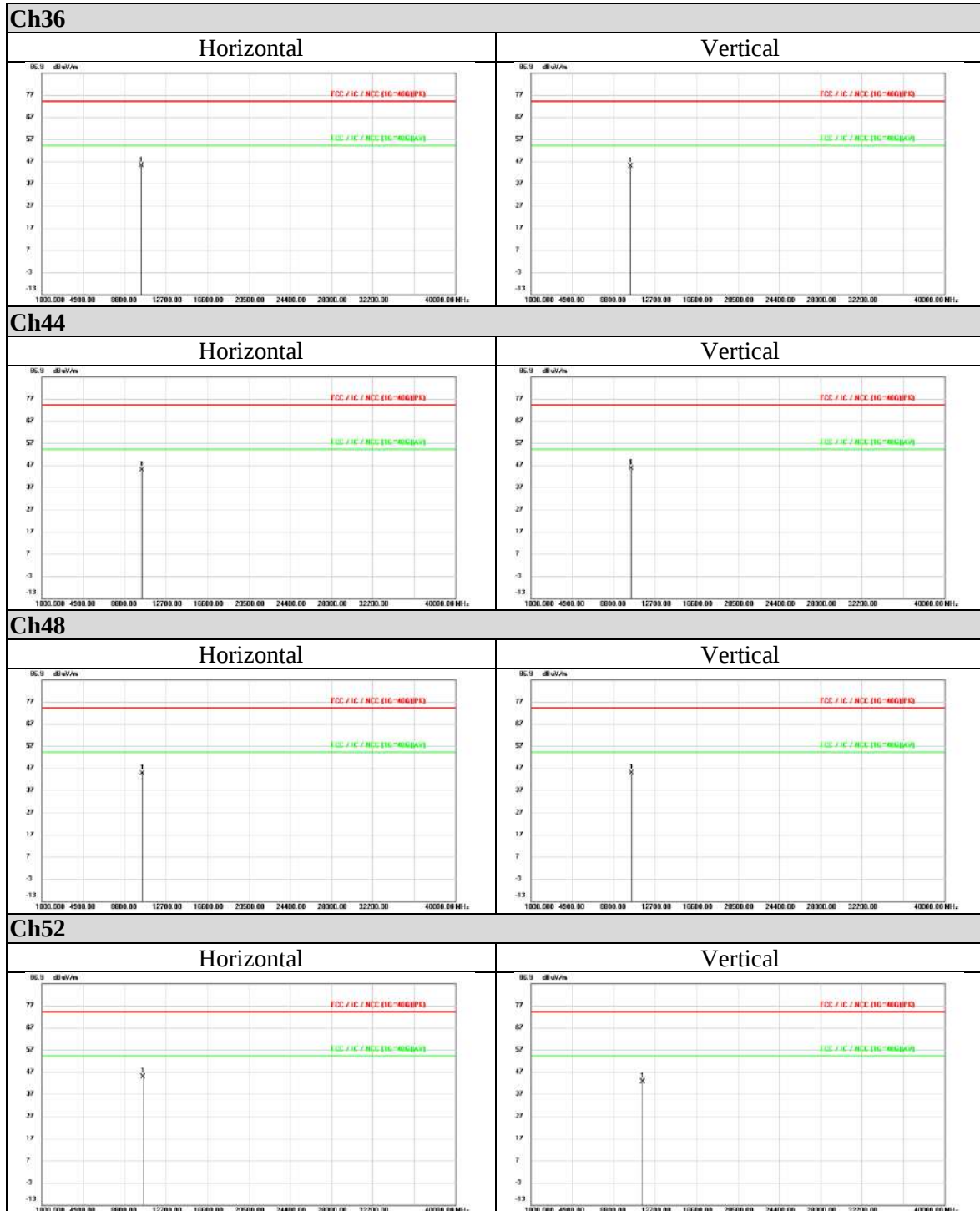
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802.11n (HT20)



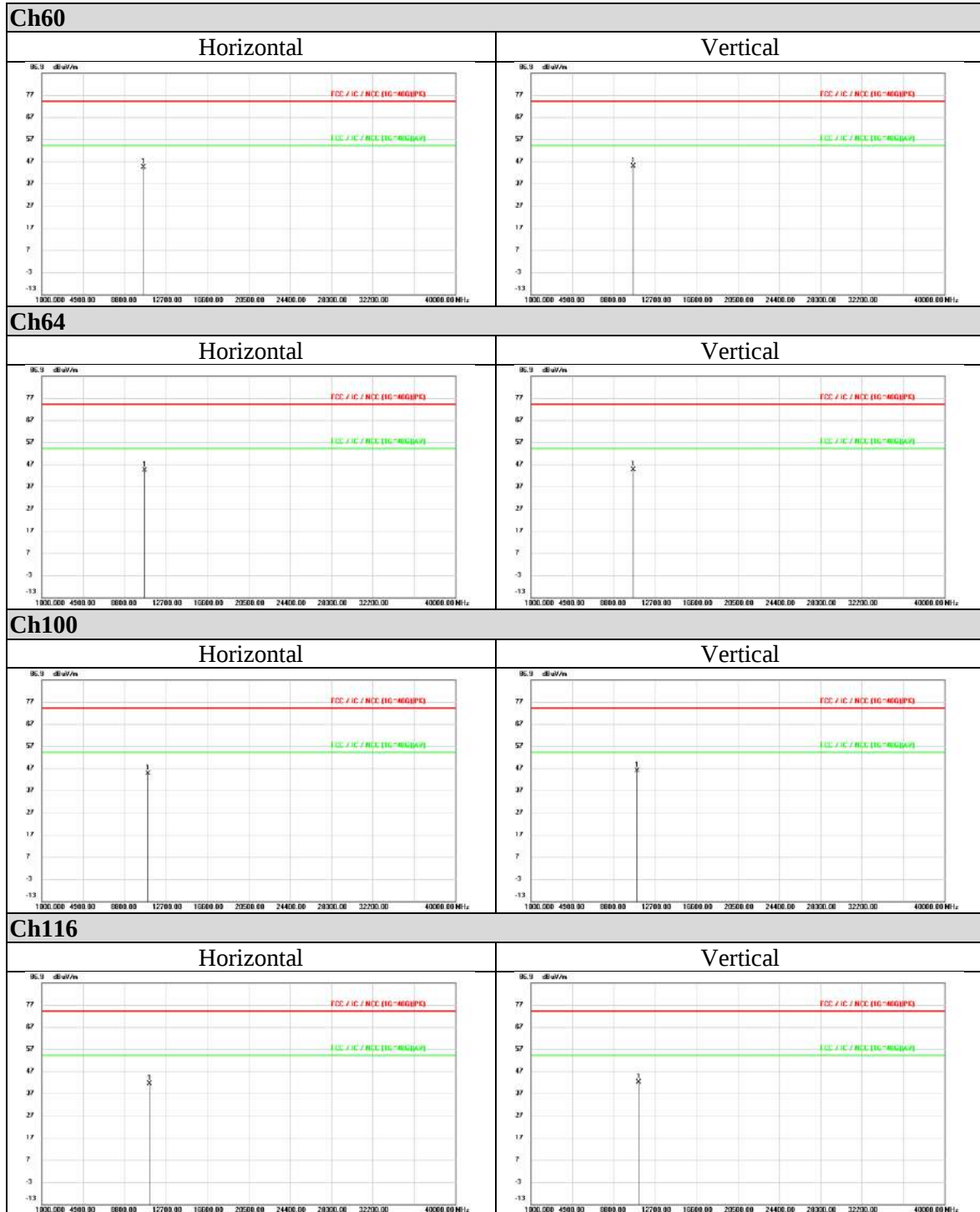
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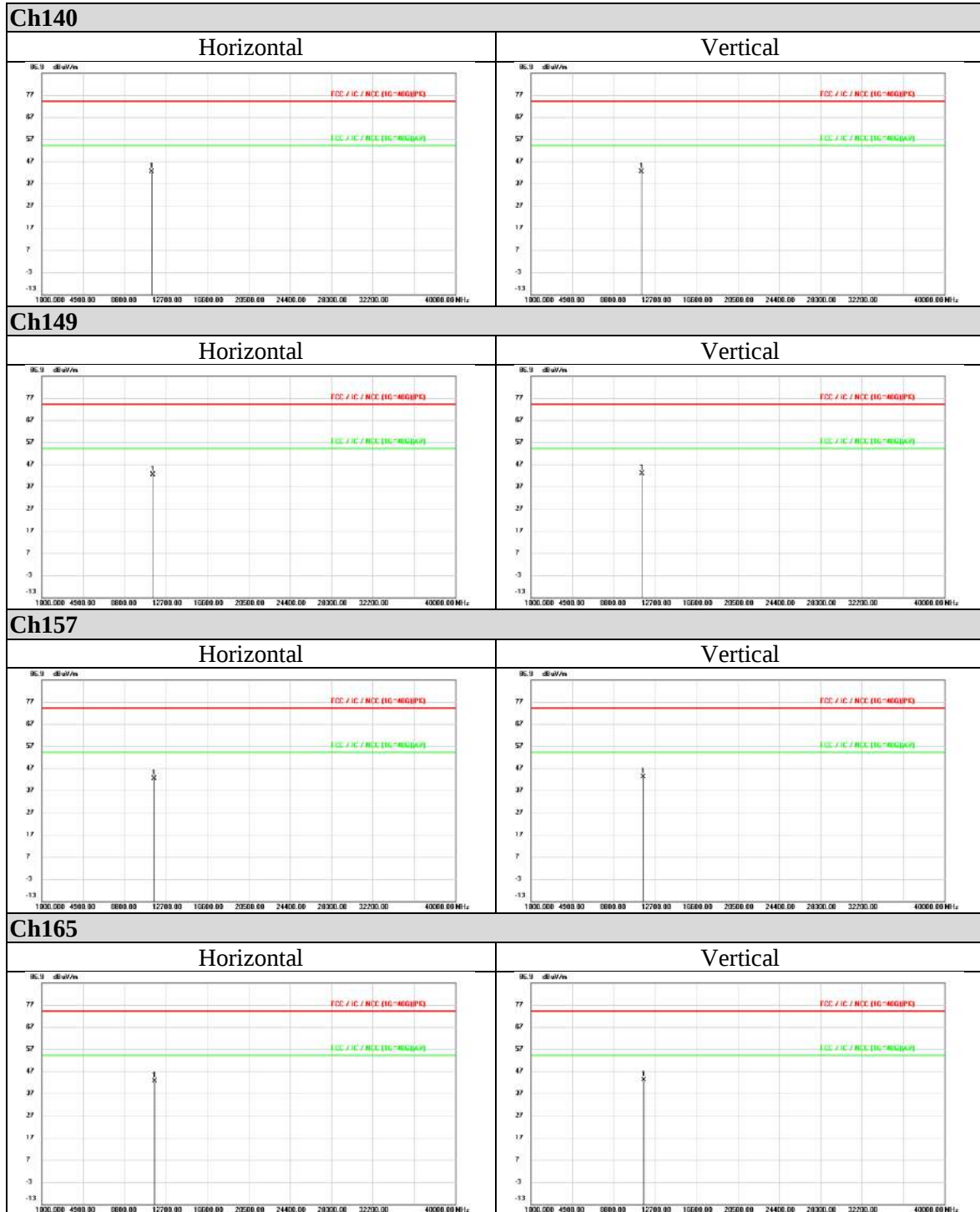
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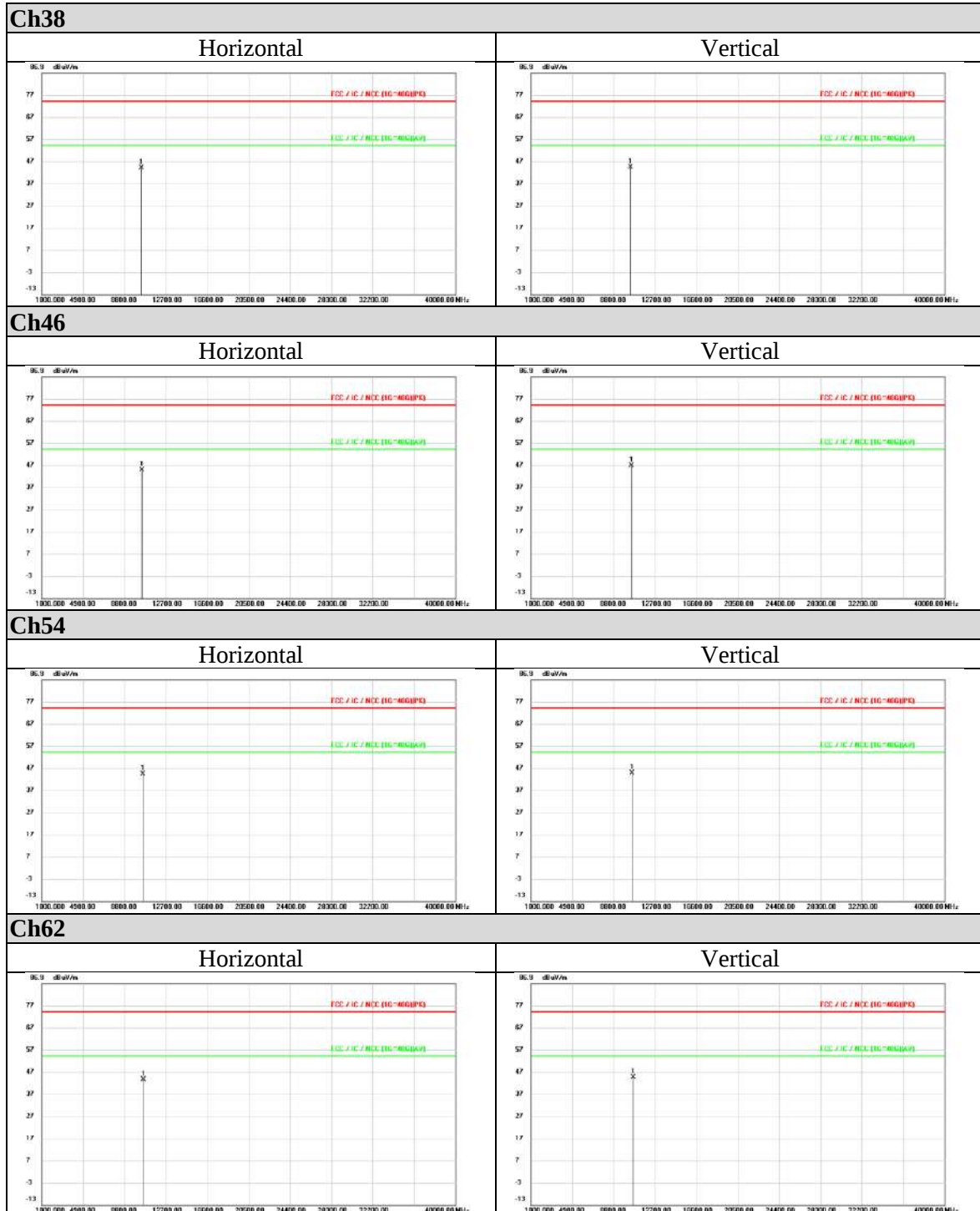
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802.11n (HT40)



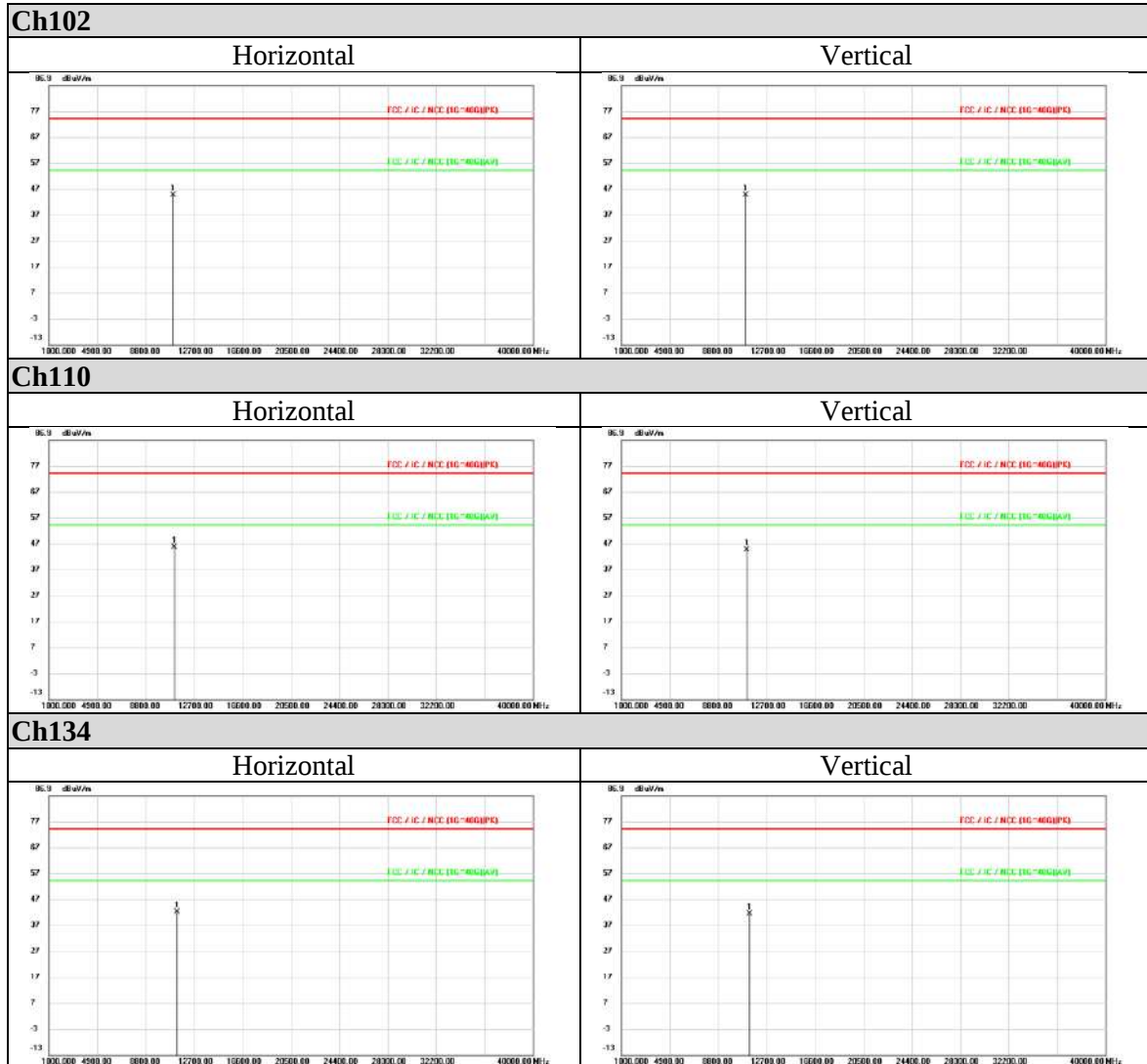
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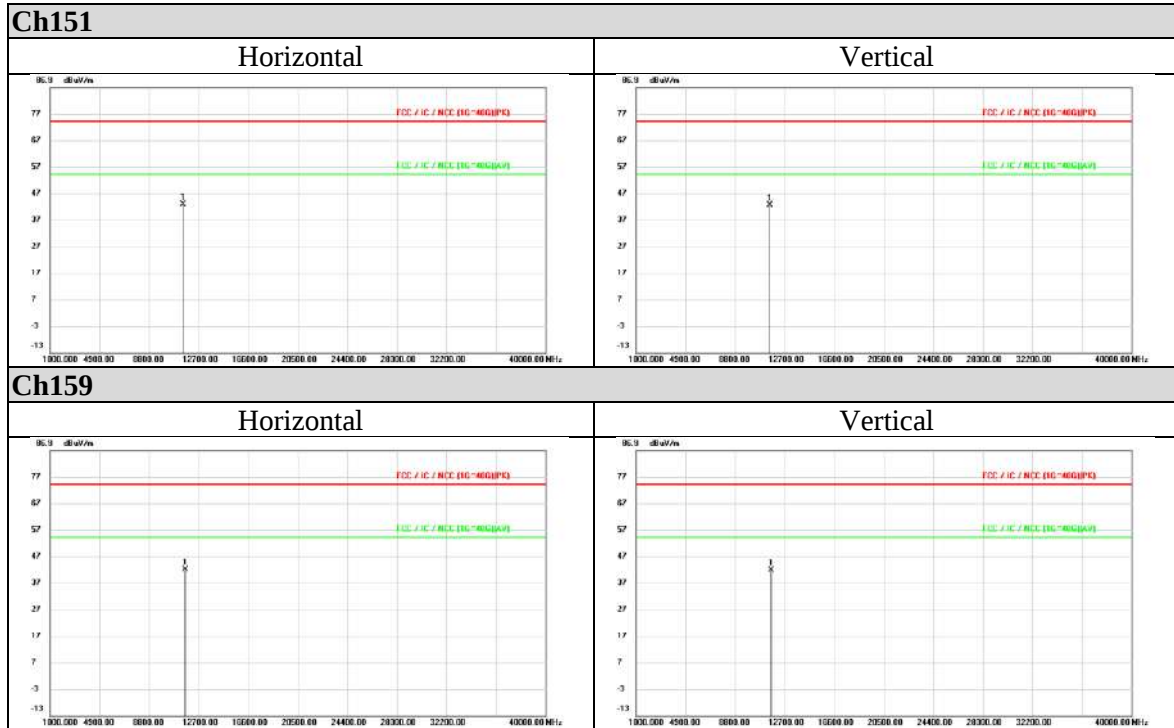
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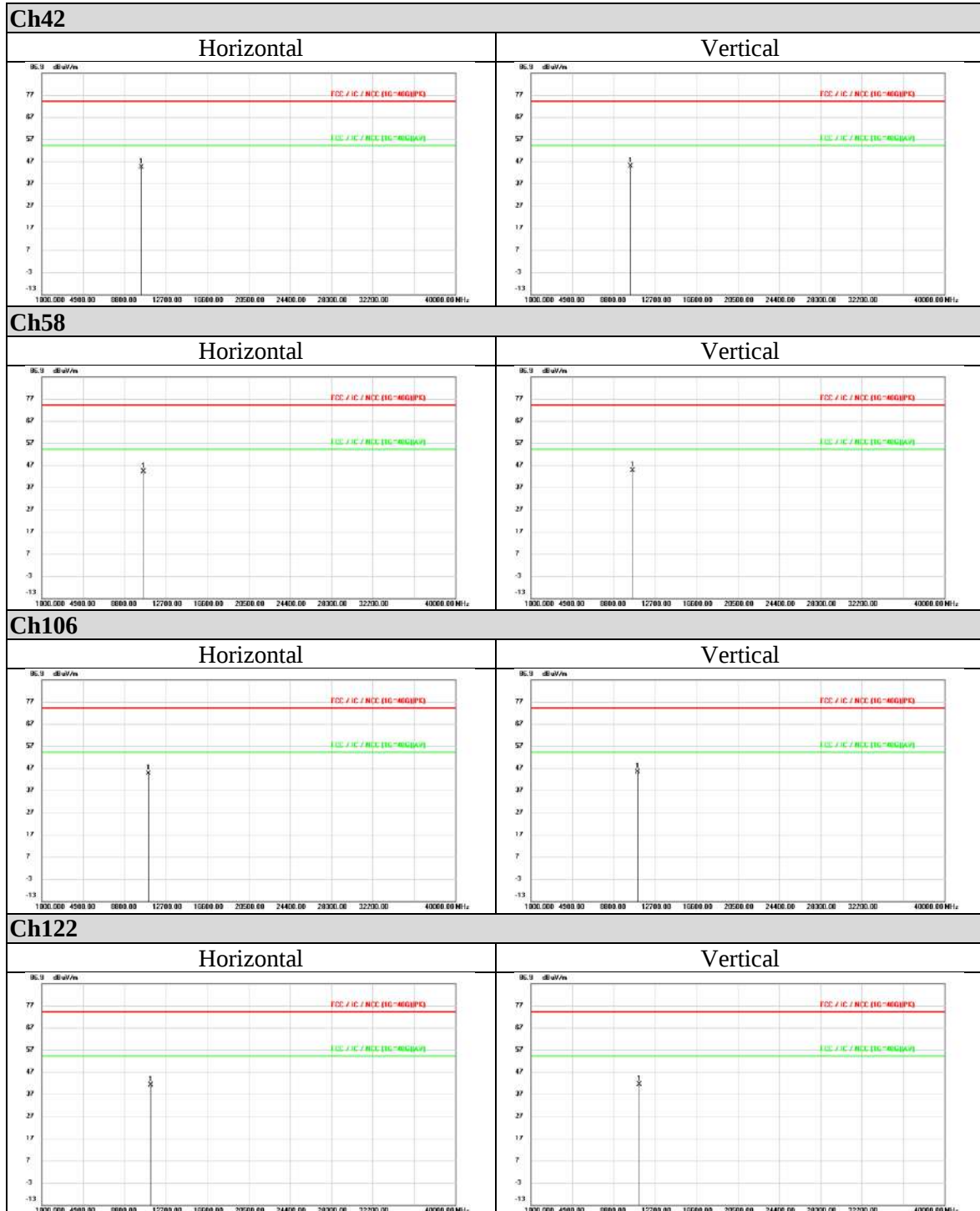
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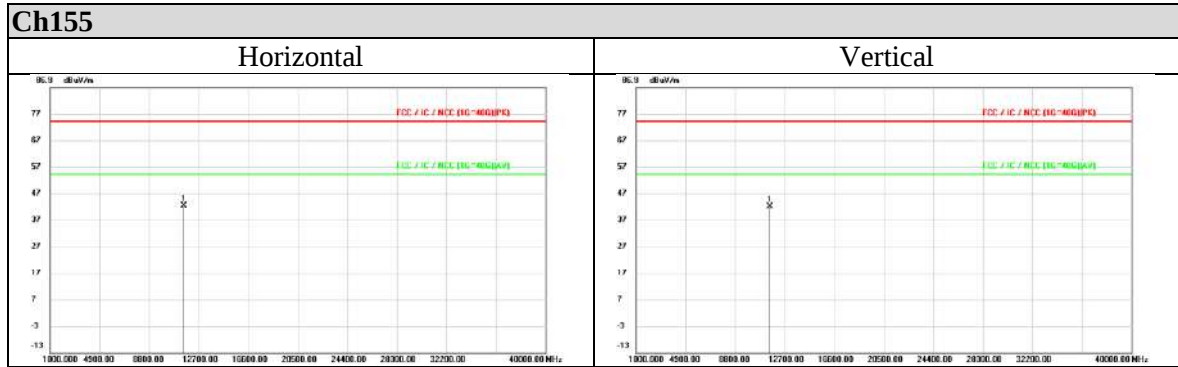
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