

FCC Test Report

Report No.: RFBBZS-WTW-P21080732-1

FCC ID: ZQ6-W522A

Test Model: W522A

Received Date: Sep. 28, 2021

Test Date: Nov. 11 ~ Dec. 11, 2021

Issued Date: Mar. 14, 2022

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FCC Registration / 788550 / TW0003
Designation Number (1):

FCC Registration / 281270 / TW0032
Designation Number (2):



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Release Control Record

Issue No.	Description	Date Issued
RFBBZS-WTW-P21080732-1	Original release.	Mar. 14, 2022

1 Certificate of Conformity

Product: 1Tx/1Rx 802.11 ac/a/b/g/n Wi-Fi + BT 5.0 Module

Brand: AMPAK

Test Model: W522A

Sample Status: Engineering sample

Applicant: AMPAK Technology Inc.

Test Date: Nov. 11 ~ Dec. 11, 2021

Standards: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by :


Polly Chien / Specialist

, Date:

Mar. 14, 2022

Approved by :



Jeremy Lin / Project Engineer

, Date:

Mar. 14, 2022

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(9)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -14.13dB at 0.44999MHz.
15.407(b)(1/2/3/4(i/ii)/9)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.07dB at 5470.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	Pass	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is IPEX Female not a standard connector.

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
- For U-NII-1, U-NII-2A and U-NII-2C band compliance with rule 15.407(b) of the band-edge items, the test plots were recorded in Annex B. Test Procedures refer to report 4.1.3.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.79 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~ 1000MHz	2.92 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	1Tx/1Rx 802.11 ac/a/b/g/n Wi-Fi + BT 5.0 Module
Brand	AMPAK
Test Model	W522A
Sample Status	Engineering sample
Power Supply rating	3.3Vdc (from host equipment)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 150Mbps 802.11ac: up to 433.3Mbps
Operating Frequency	5180~5240MHz, 5260~5320MHz, 5500~5700MHz, 5745~5825MHz
Number of Channel	5180~5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5260~5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1 5500~5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 11 802.11n (HT40), 802.11ac (VHT40): 5 802.11ac (VHT80): 2 5745~5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1
Output Power	5180~5240MHz: 55.847mW 5260~5320MHz: 55.847mW 5500~5700MHz: 39.446mW 5745~5825MHz: 39.355mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	NA
Cable Supplied	NA

Note:

1. The EUT provides 1 completed transmitter and 1 receiver.

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

* The modulation and bandwidth are similar for 802.11n mode for HT20/HT40 and 802.11ac mode for VHT20/VHT40. After pre-testing, 802.11ac (VHT20/VHT40) power is lower than 802.11n (HT20/HT40), therefore 802.11n (HT20/HT40) is the worst case to representative mode in test report. (Final test mode refer section 3.2.1)

2. The following antennas were provided to the EUT.

Antenna Type	Connector	Gain(dBi)	
		2.4G	5G
Dipole	IPEX Female	2	3

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.2 Description of Test Modes

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

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

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	5530 MHz	122	5610 MHz

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE \geq 1G	RE<1G	PLC	RE \geq 1G	
-	√	√	√	√	

Where RE \geq 1G: Radiated Emission above 1GHz & Bandedge Measurement
 RE<1G: Radiated Emission below 1GHz
 PLC: Power Line Conducted Emission
 APCM: Antenna Port Conducted Measurement

Radiated Emission Test (Above 1GHz):

- 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).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
	802.11ac (VHT80)		42	42	OFDM	29.3
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	29.3
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5
	802.11ac (VHT80)		155	155	OFDM	29.3

Radiated Emission Test (Below 1GHz):

- 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).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	40	OFDM	6.0
		5260-5320	52 to 64		OFDM	6.0
		5500-5700	100 to 144		OFDM	6.0
		5745-5825	149 to 165		OFDM	6.0

Power Line Conducted Emission Test:

- 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).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	40	OFDM	6.0
		5260-5320	52 to 64		OFDM	6.0
		5500-5700	100 to 144		OFDM	6.0
		5745-5825	149 to 165		OFDM	6.0

Antenna Port Conducted Measurement:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- 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).
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
	802.11ac (VHT80)		42	42	OFDM	29.3
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 140	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 134	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 122	106, 122	OFDM	29.3
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5
	802.11ac (VHT80)		155	155	OFDM	29.3

Test Condition:

Applicable to	Environmental Conditions	Input Power (System)	Tested by
RE \geq 1G	21 deg. C, 69% RH	120Vac, 60Hz	Wade Huang
RE<1G	24 deg. C, 69% RH	120Vac, 60Hz,	Wade Huang
PLC	25 deg. C, 75% RH	120Vac, 60Hz,	Edison Lee
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Chris Lin

3.3 Duty Cycle of Test Signal

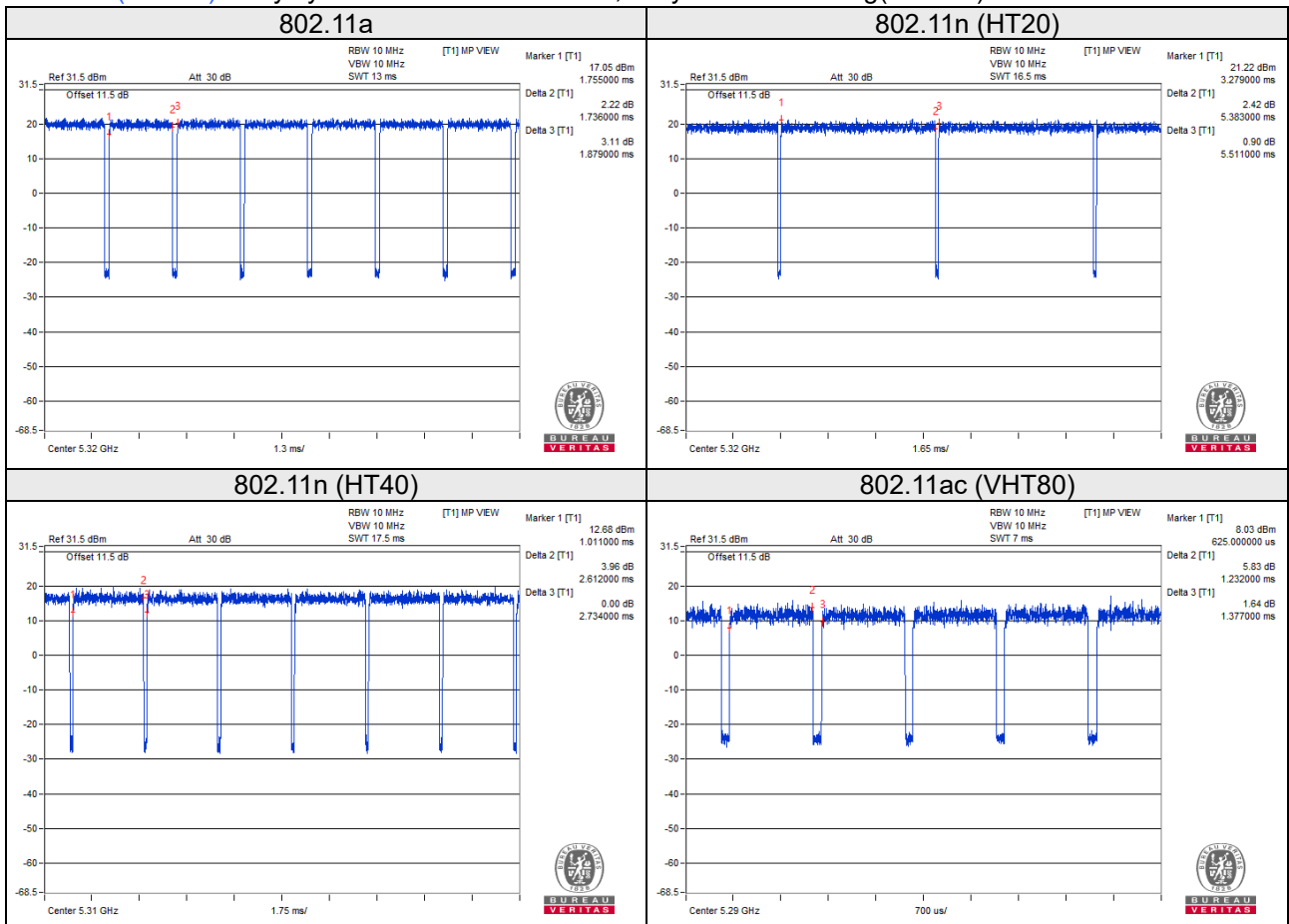
Duty cycle of test signal is < 98 %, duty factor is required

802.11a: Duty cycle = $1.736/1.879 = 0.924$, Duty factor = $10 * \log(1/0.924) = 0.34$

802.11n (HT20): Duty cycle = $5.383/5.511 = 0.977$, Duty factor = $10 * \log(1/0.977) = 0.10$

802.11n (HT40): Duty cycle = $2.612/2.734 = 0.955$, Duty factor = $10 * \log(1/0.955) = 0.20$

802.11ac (VHT80): Duty cycle = $1.232/1.377 = 0.895$, Duty factor = $10 * \log(1/0.895) = 0.48$



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Jig Board	NA	S905X_DKB	NA	NA	Provided by client
B.	Jig Board	NA	UART_V07	NA	NA	Provided by client
C.	Antenna x2	MAG.LAYERS	EDA-8709-25GR2-A7-VK	NA	NA	Provided by client
D.	Adapter	AtechOEM	ADS012T-W050200	NA	NA	Provided by client
E.	Notebook	DELL	E5420	76WNBT1	FCC DoC Approved	-

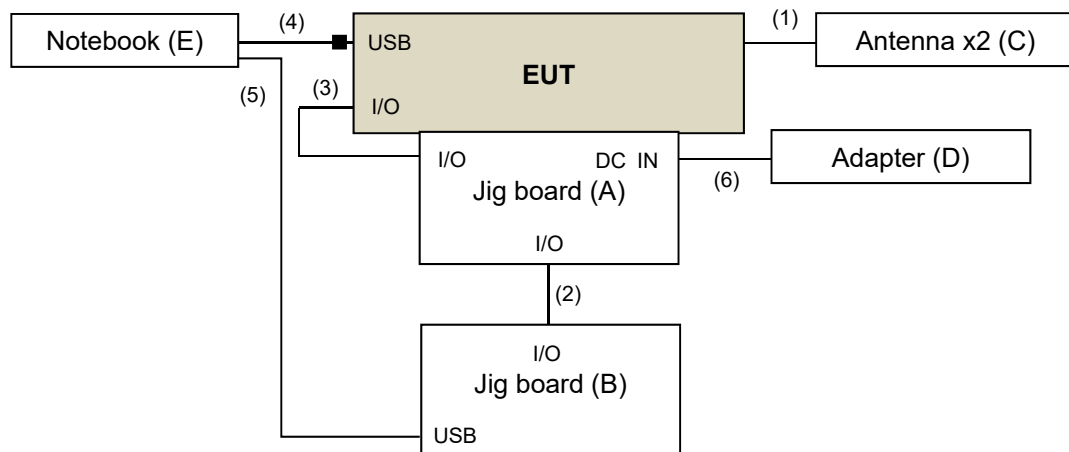
Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Items E acted as communication partners to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RF cable	2	0.12	Y	0	Provided by client
2.	I/O cable	1	0.2	N	0	Provided by client
3.	I/O cable	1	0.2	N	0	Provided by client
4.	USB cable	1	1.5	Y	1	Provided by client
5.	USB cable	1	1.5	Y	0	-
6.	USB cable	1	1.8	Y	0	-

Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test standard:

FCC Part 15, Subpart E (15.407)

ANSI C63.10:2013

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 789033 D02 General UNII Test Procedure New Rules v02r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

Frequencies (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:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 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.

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	<input checked="" type="checkbox"/> 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. ^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.		^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 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:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Rohde & Schwarz	ESR3	102579	Jul. 05, 2021	Jul. 04, 2022
Spectrum Analyzer KEYSIGHT	N9020B	MY60110462	Dec. 18, 2020	Dec. 17, 2021
BILOG Antenna SCHWARZBECK	VULB9168	995	Oct. 28, 2021	Oct. 27, 2022
HORN Antenna F SPIN	DRH18-E	210104A18E	Nov. 15, 2020	Nov. 14, 2021
			Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	9170-1049	Nov. 15, 2020	Nov. 14, 2021
			Nov. 14, 2021	Nov. 13, 2022
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier EMCI	EMC330N	980783	Jan. 19, 2021	Jan. 18, 2022
Preamplifier EMCI	EMC118A45SE	980810	Jan. 06, 2021	Jan. 05, 2022
Preamplifier EMCI	EMC184045SE	980787	Jan. 18, 2021	Jan. 17, 2022
RF signal cable EMCI	EMC104-SM-SM- (9000+2000+1000)	201230+ 201242+ 210101	Jan. 18, 2021	Jan. 17, 2022
RF signal cable EMCI	EMCCFD400-NM- NM-(9000+300+500)	201252+ 201250+ 201245	Jan. 18, 2021	Jan. 17, 2022
RF signal cable EMCI	EMC101G-KM-KM- (5000+3000+2000)	201261+201258+ 201249	Jan. 18, 2021	Jan. 17, 2022
Software BV CPS	ADT_Radiated_V7.6. 15.9.5	NA	NA	NA
Turn Table Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208675	NA	NA
Antenna Tower KaiTuo	NA	NA	NA	NA
Antenna Tower Controller KaiTuo	KT-2000	NA	NA	NA
Peak Power Analyzer KEYSIGHT	8990B	MY51000485	Jan. 19, 2021	Jan. 18, 2022
Wideband Power Sensor KEYSIGHT	N1923A	MY58020002	Jan. 11, 2021	Jan. 10, 2022

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in WM Chamber 7.
 3. Tested date: Nov. 11 ~ Dec. 01, 2021

4.1.3 Test Procedures

For Radiated emission below 30MHz

- 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. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

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

For Radiated emission above 30MHz

- 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. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect 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.

Note:

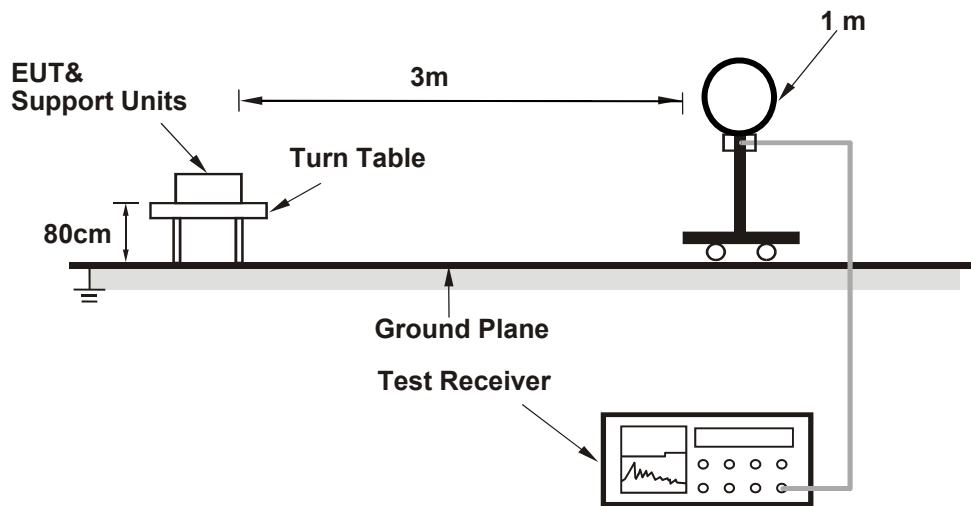
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. 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. (802.11a: RBW = 1MHz, VBW = 1kHz; 802.11n (HT20): RBW = 1MHz, VBW = 1kHz; 802.11n (HT40): RBW = 1MHz, VBW = 1kHz; 11ac (VHT80): RBW = 1MHz, VBW = 1kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

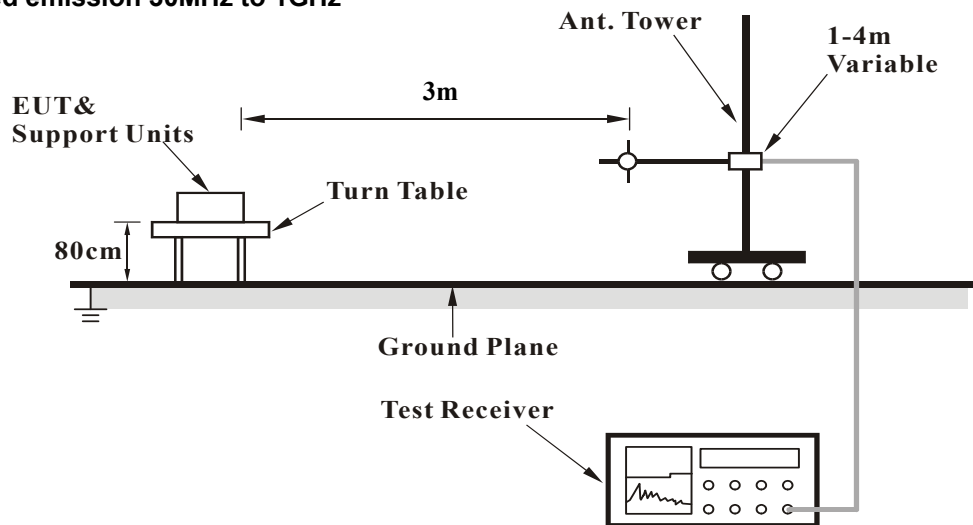
No deviation.

4.1.5 Test Set Up

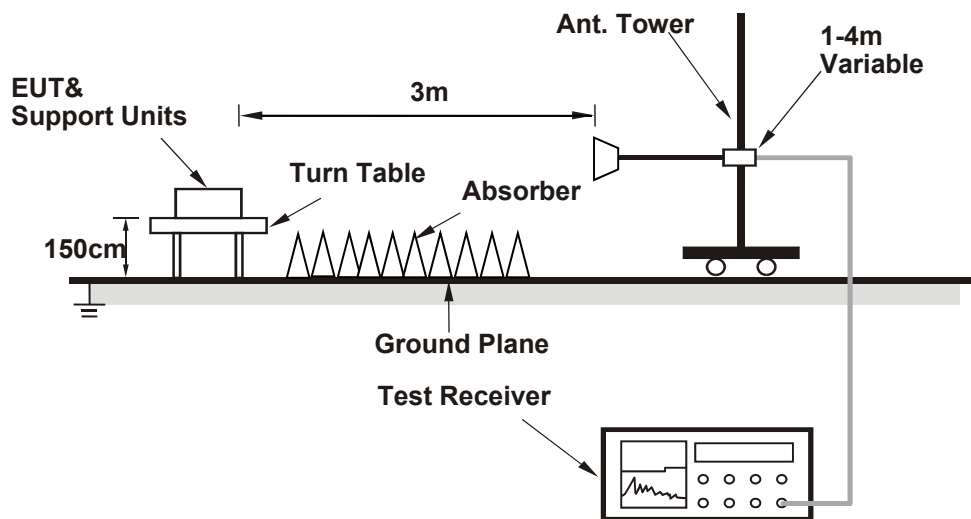
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

- a. Placed the EUT on the testing table.
- b. Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz data:

RF Mode	TX 802.11a	Channel	CH 36 : 5180 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	55.69 PK	74.00	-18.31	1.00 H	201	53.82	1.87
2	5150.00	46.09 AV	54.00	-7.91	1.00 H	201	44.22	1.87
3	*5180.00	100.96 PK			1.00 H	201	60.99	39.97
4	*5180.00	92.27 AV			1.00 H	201	52.30	39.97
5	#10360.00	53.84 PK	68.20	-14.36	2.10 H	183	45.74	8.10
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	62.12 PK	74.00	-11.88	1.91 V	43	60.25	1.87
2	5150.00	50.22 AV	54.00	-3.78	1.91 V	43	48.35	1.87
3	*5180.00	106.58 PK			1.91 V	43	66.61	39.97
4	*5180.00	97.59 AV			1.91 V	43	57.62	39.97
5	#10360.00	55.59 PK	68.20	-12.61	1.94 V	175	47.49	8.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 40 : 5200 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	100.86 PK			1.79 H	200	60.90	39.96
2	*5200.00	92.43 AV			1.79 H	200	52.47	39.96
3	#10400.00	53.65 PK	68.20	-14.55	2.16 H	103	45.57	8.08

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	106.57 PK			1.10 V	162	66.61	39.96
2	*5200.00	97.66 AV			1.10 V	162	57.70	39.96
3	#10400.00	56.46 PK	68.20	-11.74	2.26 V	179	48.38	8.08

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 48 : 5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	102.07 PK			1.03 H	198	62.11	39.96
2	*5240.00	93.22 AV			1.03 H	198	53.26	39.96
3	5350.00	55.43 PK	74.00	-18.57	1.03 H	198	53.52	1.91
4	5350.00	44.93 AV	54.00	-9.07	1.03 H	198	43.02	1.91
5	#10480.00	55.24 PK	68.20	-12.96	1.00 H	155	47.27	7.97

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	110.34 PK			2.37 V	315	70.38	39.96
2	*5240.00	101.08 AV			2.37 V	315	61.12	39.96
3	5350.00	55.03 PK	74.00	-18.97	2.37 V	315	53.12	1.91
4	5350.00	45.12 AV	54.00	-8.88	2.37 V	315	43.21	1.91
5	#10480.00	56.65 PK	68.20	-11.55	2.60 V	184	48.68	7.97

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 52 : 5260 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	54.78 PK	74.00	-19.22	1.03 H	182	52.91	1.87
2	5150.00	44.41 AV	54.00	-9.59	1.03 H	182	42.54	1.87
3	*5260.00	103.29 PK			1.03 H	182	63.32	39.97
4	*5260.00	94.27 AV			1.03 H	182	54.30	39.97
5	#10520.00	53.78 PK	68.20	-14.42	1.79 H	103	45.78	8.00

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	56.65 PK	74.00	-17.35	2.32 V	316	54.78	1.87
2	5150.00	45.39 AV	54.00	-8.61	2.32 V	316	43.52	1.87
3	*5260.00	110.36 PK			2.32 V	316	70.39	39.97
4	*5260.00	100.94 AV			2.32 V	316	60.97	39.97
5	#10520.00	58.01 PK	68.20	-10.19	2.99 V	182	50.01	8.00

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 60 : 5300 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	104.71 PK			1.15 H	251	64.74	39.97
2	*5300.00	95.39 AV			1.15 H	251	55.42	39.97
3	10600.00	55.55 PK	74.00	-18.45	1.91 H	81	47.33	8.22
4	10600.00	45.13 AV	54.00	-8.87	1.91 H	81	36.91	8.22

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	109.91 PK			2.19 V	316	69.94	39.97
2	*5300.00	100.39 AV			2.19 V	316	60.42	39.97
3	10600.00	58.29 PK	74.00	-15.71	2.61 V	47	50.07	8.22
4	10600.00	46.19 AV	54.00	-7.81	2.61 V	47	37.97	8.22

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11a	Channel	CH 64 : 5320 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	104.67 PK			1.25 H	248	64.67	40.00
2	*5320.00	95.80 AV			1.25 H	248	55.80	40.00
3	5350.00	59.53 PK	74.00	-14.47	1.25 H	248	57.62	1.91
4	5350.00	47.13 AV	54.00	-6.87	1.25 H	248	45.22	1.91
5	10640.00	55.79 PK	74.00	-18.21	2.10 H	138	47.56	8.23
6	10640.00	45.34 AV	54.00	-8.66	2.10 H	138	37.11	8.23

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	108.91 PK			2.16 V	265	68.91	40.00
2	*5320.00	99.69 AV			2.16 V	265	59.69	40.00
3	5350.00	64.53 PK	74.00	-9.47	2.16 V	265	62.62	1.91
4	5350.00	51.11 AV	54.00	-2.89	2.16 V	265	49.20	1.91
5	10640.00	58.11 PK	74.00	-15.89	2.31 V	49	49.88	8.23
6	10640.00	46.55 AV	54.00	-7.45	2.31 V	49	38.32	8.23

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11a	Channel	CH 100 : 5500 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	56.14 PK	74.00	-17.86	1.14 H	226	53.94	2.20
2	5460.00	45.35 AV	54.00	-8.65	1.14 H	226	43.15	2.20
3	#5470.00	57.67 PK	68.20	-10.53	1.14 H	226	55.43	2.24
4	*5500.00	102.42 PK			1.14 H	226	61.91	40.51
5	*5500.00	93.10 AV			1.14 H	226	52.59	40.51
6	11000.00	54.90 PK	74.00	-19.10	1.99 H	216	46.44	8.46
7	11000.00	43.02 AV	54.00	-10.98	1.99 H	216	34.56	8.46

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	56.50 PK	74.00	-17.50	1.00 V	322	54.30	2.20
2	5460.00	46.29 AV	54.00	-7.71	1.00 V	322	44.09	2.20
3	#5470.00	62.48 PK	68.20	-5.72	1.00 V	322	60.24	2.24
4	*5500.00	104.68 PK			1.00 V	322	64.17	40.51
5	*5500.00	95.70 AV			1.00 V	322	55.19	40.51
6	11000.00	56.66 PK	74.00	-17.34	3.15 V	178	48.20	8.46
7	11000.00	45.46 AV	54.00	-8.54	3.15 V	178	37.00	8.46

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 116 : 5580 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	102.75 PK			1.06 H	228	61.98	40.77
2	*5580.00	94.72 AV			1.06 H	228	53.95	40.77
3	11160.00	55.26 PK	74.00	-18.74	2.54 H	198	46.78	8.48
4	11160.00	43.37 AV	54.00	-10.63	2.54 H	198	34.89	8.48

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	104.23 PK			1.09 V	48	63.46	40.77
2	*5580.00	95.05 AV			1.09 V	48	54.28	40.77
3	11160.00	56.79 PK	74.00	-17.21	2.74 V	206	48.31	8.48
4	11160.00	45.58 AV	54.00	-8.42	2.74 V	206	37.10	8.48

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11a	Channel	CH 140 : 5700 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	105.45 PK			1.00 H	258	64.19	41.26
2	*5700.00	96.39 AV			1.00 H	258	55.13	41.26
3	#5725.00	64.75 PK	68.20	-3.45	1.00 H	258	61.44	3.31
4	11400.00	55.30 PK	74.00	-18.70	1.64 H	212	46.64	8.66
5	11400.00	43.33 AV	54.00	-10.67	1.64 H	212	34.67	8.66

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	106.73 PK			1.72 V	275	65.47	41.26
2	*5700.00	96.06 AV			1.72 V	275	54.80	41.26
3	#5725.00	64.36 PK	68.20	-3.84	1.72 V	275	61.05	3.31
4	11400.00	55.65 PK	74.00	-18.35	2.69 V	165	46.99	8.66
5	11400.00	44.65 AV	54.00	-9.35	2.69 V	165	35.99	8.66

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 149 : 5745 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5613.20	58.19 PK	68.20	-10.01	1.00 H	212	55.51	2.68
2	*5745.00	100.15 PK			1.00 H	212	58.68	41.47
3	*5745.00	91.27 AV			1.00 H	212	49.80	41.47
4	#5958.80	59.36 PK	68.20	-8.84	1.00 H	212	55.93	3.43
5	11490.00	54.58 PK	74.00	-19.42	2.51 H	101	45.78	8.80
6	11490.00	43.77 AV	54.00	-10.23	2.51 H	101	34.97	8.80

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5648.80	60.99 PK	68.20	-7.21	1.95 V	328	58.10	2.89
2	*5745.00	105.43 PK			1.95 V	328	63.96	41.47
3	*5745.00	96.14 AV			1.95 V	328	54.67	41.47
4	#5986.80	62.74 PK	68.20	-5.46	1.95 V	328	59.31	3.43
5	11490.00	56.66 PK	74.00	-17.34	1.98 V	170	47.86	8.80
6	11490.00	44.86 AV	54.00	-9.14	1.98 V	170	36.06	8.80

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 157 : 5785 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5644.80	60.92 PK	68.20	-7.28	1.14 H	194	58.04	2.88
2	*5785.00	102.76 PK			1.14 H	194	61.11	41.65
3	*5785.00	94.28 AV			1.14 H	194	52.63	41.65
4	#5966.80	62.56 PK	68.20	-5.64	1.14 H	194	59.13	3.43
5	11570.00	54.82 PK	74.00	-19.18	1.91 H	147	45.96	8.86
6	11570.00	44.09 AV	54.00	-9.91	1.91 H	147	35.23	8.86

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5605.60	60.05 PK	68.20	-8.15	1.55 V	8	57.42	2.63
2	*5785.00	105.74 PK			1.55 V	8	64.09	41.65
3	*5785.00	96.11 AV			1.55 V	8	54.46	41.65
4	#5960.00	61.61 PK	68.20	-6.59	1.55 V	8	58.18	3.43
5	11570.00	56.40 PK	74.00	-17.60	2.03 V	152	47.54	8.86
6	11570.00	44.83 AV	54.00	-9.17	2.03 V	152	35.97	8.86

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11a	Channel	CH 165 : 5825 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5626.00	58.26 PK	68.20	-9.94	1.55 H	195	55.51	2.75
2	*5825.00	99.74 PK			1.55 H	195	58.02	41.72
3	*5825.00	90.15 AV			1.55 H	195	48.43	41.72
4	#5941.60	58.90 PK	68.20	-9.30	1.55 H	195	55.47	3.43
5	11650.00	54.52 PK	74.00	-19.48	1.85 H	132	45.77	8.75
6	11650.00	43.72 AV	54.00	-10.28	1.85 H	132	34.97	8.75

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5601.60	60.71 PK	68.20	-7.49	1.99 V	333	58.10	2.61
2	*5825.00	104.40 PK			1.99 V	333	62.68	41.72
3	*5825.00	95.77 AV			1.99 V	333	54.05	41.72
4	#5930.00	62.52 PK	68.20	-5.68	1.99 V	333	59.09	3.43
5	11650.00	55.62 PK	74.00	-18.38	1.84 V	149	46.87	8.75
6	11650.00	44.09 AV	54.00	-9.91	1.84 V	149	35.34	8.75

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 36 : 5180 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	63.54 PK	74.00	-10.46	1.44 H	217	61.67	1.87
2	5150.00	49.44 AV	54.00	-4.56	1.44 H	217	47.57	1.87
3	*5180.00	104.34 PK			1.44 H	217	64.37	39.97
4	*5180.00	92.94 AV			1.44 H	217	52.97	39.97
5	#10360.00	55.86 PK	68.20	-12.34	1.60 H	243	47.76	8.10

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	61.81 PK	74.00	-12.19	1.01 V	50	59.94	1.87
2	5150.00	51.38 AV	54.00	-2.62	1.01 V	50	49.51	1.87
3	*5180.00	108.57 PK			1.01 V	50	68.60	39.97
4	*5180.00	98.36 AV			1.01 V	50	58.39	39.97
5	#10360.00	56.10 PK	68.20	-12.10	2.35 V	182	48.00	8.10

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 40 : 5200 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	66.85 PK			1.50 H	224	64.97	1.88
2	*5200.00	59.35 AV			1.50 H	224	57.47	1.88
3	#10400.00	54.54 PK	68.20	-13.66	1.34 H	157	46.46	8.08
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5200.00	110.20 PK			1.80 V	328	70.24	39.96
2	*5200.00	102.01 AV			1.80 V	328	62.05	39.96
3	#10400.00	54.35 PK	68.20	-13.85	1.33 V	210	46.27	8.08

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 48 : 5240 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	103.23 PK			1.00 H	212	63.27	39.96
2	*5240.00	93.83 AV			1.00 H	212	53.87	39.96
3	5350.00	58.18 PK	74.00	-15.82	1.00 H	212	56.27	1.91
4	5350.00	46.18 AV	54.00	-7.82	1.00 H	212	44.27	1.91
5	#10480.00	53.93 PK	68.20	-14.27	1.24 H	156	45.96	7.97

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5240.00	109.12 PK			2.35 V	303	69.16	39.96
2	*5240.00	100.82 AV			2.35 V	303	60.86	39.96
3	5350.00	55.07 PK	74.00	-18.93	2.35 V	303	53.16	1.91
4	5350.00	46.76 AV	54.00	-7.24	2.35 V	303	44.85	1.91
5	#10480.00	54.59 PK	68.20	-13.61	1.43 V	213	46.62	7.97

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 52 : 5260 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	55.49 PK	74.00	-18.51	1.18 H	249	53.62	1.87
2	5150.00	46.03 AV	54.00	-7.97	1.18 H	249	44.16	1.87
3	*5260.00	105.69 PK			1.18 H	249	65.72	39.97
4	*5260.00	96.50 AV			1.18 H	249	56.53	39.97
5	#10520.00	54.50 PK	68.20	-13.70	2.10 H	137	46.50	8.00

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	55.63 PK	74.00	-18.37	2.38 V	266	53.76	1.87
2	5150.00	47.21 AV	54.00	-6.79	2.38 V	266	45.34	1.87
3	*5260.00	109.97 PK			2.38 V	266	70.00	39.97
4	*5260.00	101.30 AV			2.38 V	266	61.33	39.97
5	#10520.00	54.95 PK	68.20	-13.25	1.79 V	113	46.95	8.00

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 60 : 5300 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	106.17 PK			1.15 H	247	66.20	39.97
2	*5300.00	97.18 AV			1.15 H	247	57.21	39.97
3	10600.00	55.00 PK	74.00	-19.00	1.98 H	147	46.78	8.22
4	10600.00	45.78 AV	54.00	-8.22	1.98 H	147	37.56	8.22
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5300.00	110.21 PK			2.36 V	262	70.24	39.97
2	*5300.00	101.23 AV			2.36 V	262	61.26	39.97
3	10600.00	55.14 PK	74.00	-18.86	2.17 V	136	46.92	8.22
4	10600.00	47.76 AV	54.00	-6.24	2.17 V	136	39.54	8.22

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 64 : 5320 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	105.11 PK			1.24 H	245	65.11	40.00
2	*5320.00	96.06 AV			1.24 H	245	56.06	40.00
3	5350.00	59.19 PK	74.00	-14.81	1.24 H	245	57.28	1.91
4	5350.00	47.93 AV	54.00	-6.07	1.24 H	245	46.02	1.91
5	10640.00	54.74 PK	74.00	-19.26	2.15 H	103	46.51	8.23
6	10640.00	45.55 AV	54.00	-8.45	2.15 H	103	37.32	8.23

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5320.00	109.05 PK			1.45 V	265	69.05	40.00
2	*5320.00	100.23 AV			1.45 V	265	60.23	40.00
3	5350.00	61.92 PK	74.00	-12.08	1.45 V	265	60.01	1.91
4	5350.00	52.87 AV	54.00	-1.13	1.45 V	265	50.96	1.91
5	10640.00	57.64 PK	74.00	-16.36	3.22 V	178	49.41	8.23
6	10640.00	48.84 AV	54.00	-5.16	3.22 V	178	40.61	8.23

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 100 : 5500 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	56.39 PK	74.00	-17.61	1.22 H	230	54.19	2.20
2	5460.00	47.23 AV	54.00	-6.77	1.22 H	230	45.03	2.20
3	#5470.00	58.72 PK	68.20	-9.48	1.22 H	230	56.48	2.24
4	*5500.00	104.24 PK			1.22 H	230	63.73	40.51
5	*5500.00	95.40 AV			1.22 H	230	54.89	40.51
6	11000.00	54.02 PK	74.00	-19.98	1.47 H	125	45.56	8.46
7	11000.00	44.24 AV	54.00	-9.76	1.47 H	125	35.78	8.46

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	55.64 PK	74.00	-18.36	1.00 V	50	53.44	2.20
2	5460.00	47.12 AV	54.00	-6.88	1.00 V	50	44.92	2.20
3	#5470.00	59.95 PK	68.20	-8.25	1.00 V	50	57.71	2.24
4	*5500.00	105.42 PK			1.00 V	50	64.91	40.51
5	*5500.00	96.95 AV			1.00 V	50	56.44	40.51
6	11000.00	56.24 PK	74.00	-17.76	2.64 V	182	47.78	8.46
7	11000.00	46.11 AV	54.00	-7.89	2.64 V	182	37.65	8.46

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 116 : 5580 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	103.99 PK			1.00 H	227	63.22	40.77
2	*5580.00	95.19 AV			1.00 H	227	54.42	40.77
3	11160.00	54.35 PK	74.00	-19.65	1.67 H	95	45.87	8.48
4	11160.00	44.37 AV	54.00	-9.63	1.67 H	95	35.89	8.48

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5580.00	105.36 PK			1.18 V	47	64.59	40.77
2	*5580.00	96.46 AV			1.18 V	47	55.69	40.77
3	11160.00	55.84 PK	74.00	-18.16	3.16 V	179	47.36	8.48
4	11160.00	46.02 AV	54.00	-7.98	3.16 V	179	37.54	8.48

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 140 : 5700 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	102.97 PK			1.21 H	260	61.71	41.26
2	*5700.00	94.86 AV			1.21 H	260	53.60	41.26
3	#5725.00	60.29 PK	68.20	-7.91	1.21 H	260	56.98	3.31
4	11400.00	53.98 PK	74.00	-20.02	1.58 H	171	45.32	8.66
5	11400.00	44.29 AV	54.00	-9.71	1.58 H	171	35.63	8.66

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5700.00	107.02 PK			2.02 V	7	65.76	41.26
2	*5700.00	98.43 AV			2.02 V	7	57.17	41.26
3	#5725.00	64.72 PK	68.20	-3.48	2.02 V	7	61.41	3.31
4	11400.00	56.47 PK	74.00	-17.53	2.24 V	203	47.81	8.66
5	11400.00	46.35 AV	54.00	-7.65	2.24 V	203	37.69	8.66

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 149 : 5745 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5617.60	58.55 PK	68.20	-9.65	1.05 H	213	55.85	2.70
2	*5745.00	101.34 PK			1.05 H	213	59.87	41.47
3	*5745.00	92.70 AV			1.05 H	213	51.23	41.47
4	#5933.20	58.75 PK	68.20	-9.45	1.05 H	213	55.32	3.43
5	11490.00	54.03 PK	74.00	-19.97	1.49 H	111	45.23	8.80
6	11490.00	45.36 AV	54.00	-8.64	1.49 H	111	36.56	8.80

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5630.40	61.52 PK	68.20	-6.68	1.59 V	33	58.74	2.78
2	*5745.00	107.33 PK			1.59 V	33	65.86	41.47
3	*5745.00	98.52 AV			1.59 V	33	57.05	41.47
4	#5931.20	63.50 PK	68.20	-4.70	1.59 V	33	60.07	3.43
5	11490.00	56.84 PK	74.00	-17.16	1.61 V	155	48.04	8.80
6	11490.00	46.18 AV	54.00	-7.82	1.61 V	155	37.38	8.80

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 157 : 5785 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5602.00	58.66 PK	68.20	-9.54	1.00 H	194	56.05	2.61
2	*5785.00	101.20 PK			1.00 H	194	59.55	41.65
3	*5785.00	91.91 AV			1.00 H	194	50.26	41.65
4	#6000.00	59.66 PK	68.20	-8.54	1.00 H	194	56.22	3.44
5	11570.00	54.73 PK	74.00	-19.27	1.46 H	102	45.87	8.86
6	11570.00	45.57 AV	54.00	-8.43	1.46 H	102	36.71	8.86

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5624.00	60.73 PK	68.20	-7.47	1.60 V	32	57.99	2.74
2	*5785.00	107.05 PK			1.60 V	32	65.40	41.65
3	*5785.00	98.13 AV			1.60 V	32	56.48	41.65
4	#5960.40	63.04 PK	68.20	-5.16	1.60 V	32	59.61	3.43
5	11570.00	57.31 PK	74.00	-16.69	1.49 V	123	48.45	8.86
6	11570.00	46.28 AV	54.00	-7.72	1.49 V	123	37.42	8.86

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT20)	Channel	CH 165 : 5825 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5634.40	58.29 PK	68.20	-9.91	1.55 H	195	55.48	2.81
2	*5825.00	100.33 PK			1.55 H	195	58.61	41.72
3	*5825.00	92.10 AV			1.55 H	195	50.38	41.72
4	#5949.20	60.34 PK	68.20	-7.86	1.55 H	195	56.91	3.43
5	11650.00	54.18 PK	74.00	-19.82	2.01 H	190	45.43	8.75
6	11650.00	45.29 AV	54.00	-8.71	2.01 H	190	36.54	8.75

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5615.60	60.80 PK	68.20	-7.40	1.50 V	34	58.11	2.69
2	*5825.00	106.79 PK			1.50 V	34	65.07	41.72
3	*5825.00	97.90 AV			1.50 V	34	56.18	41.72
4	#5945.60	62.38 PK	68.20	-5.82	1.50 V	34	58.96	3.42
5	11650.00	56.70 PK	74.00	-17.30	1.79 V	184	47.95	8.75
6	11650.00	46.07 AV	54.00	-7.93	1.79 V	184	37.32	8.75

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 38 : 5190 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	61.24 PK	74.00	-12.76	1.01 H	213	59.37	1.87
2	5150.00	47.84 AV	54.00	-6.16	1.01 H	213	45.97	1.87
3	*5190.00	97.44 PK			1.01 H	213	57.47	39.97
4	*5190.00	87.64 AV			1.01 H	213	47.67	39.97
5	#10380.00	52.95 PK	68.20	-15.25	1.18 H	147	44.86	8.09

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	65.59 PK	74.00	-8.41	1.01 V	149	63.72	1.87
2	5150.00	52.85 AV	54.00	-1.15	1.01 V	149	50.98	1.87
3	*5190.00	102.77 PK			1.01 V	149	62.80	39.97
4	*5190.00	93.01 AV			1.01 V	149	53.04	39.97
5	#10380.00	53.51 PK	68.20	-14.69	1.63 V	71	45.42	8.09

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 46 : 5230 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5230.00	100.23 PK			1.00 H	213	60.27	39.96
2	*5230.00	89.63 AV			1.00 H	213	49.67	39.96
3	5350.00	58.08 PK	74.00	-15.92	1.00 H	213	56.17	1.91
4	5350.00	46.18 AV	54.00	-7.82	1.00 H	213	44.27	1.91
5	#10460.00	53.56 PK	68.20	-14.64	1.30 H	152	45.56	8.00

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5230.00	102.01 PK			1.00 V	65	62.05	39.96
2	*5230.00	92.99 AV			1.00 V	65	53.03	39.96
3	5350.00	56.24 PK	74.00	-17.76	1.00 V	65	54.33	1.91
4	5350.00	46.13 AV	54.00	-7.87	1.00 V	65	44.22	1.91
5	#10460.00	53.91 PK	68.20	-14.29	2.25 V	163	45.91	8.00

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 54 : 5270 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	56.84 PK	74.00	-17.16	1.18 H	252	54.97	1.87
2	5150.00	44.98 AV	54.00	-9.02	1.18 H	252	43.11	1.87
3	*5270.00	102.25 PK			1.18 H	252	62.29	39.96
4	*5270.00	92.68 AV			1.18 H	252	52.72	39.96
5	5350.00	55.83 PK	74.00	-18.17	1.18 H	252	53.92	1.91
6	5350.00	45.58 AV	54.00	-8.42	1.18 H	252	43.67	1.91
7	#10540.00	54.85 PK	68.20	-13.35	1.77 H	102	46.80	8.05

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	57.00 PK	74.00	-17.00	1.53 V	347	55.13	1.87
2	5150.00	46.16 AV	54.00	-7.84	1.53 V	347	44.29	1.87
3	*5270.00	104.97 PK			1.53 V	347	65.01	39.96
4	*5270.00	96.56 AV			1.53 V	347	56.60	39.96
5	5350.00	55.78 PK	74.00	-18.22	1.53 V	347	53.87	1.91
6	5350.00	46.47 AV	54.00	-7.53	1.53 V	347	44.56	1.91
7	#10540.00	53.93 PK	68.20	-14.27	1.56 V	142	45.88	8.05

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 62 : 5310 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	101.03 PK			1.15 H	250	61.04	39.99
2	*5310.00	91.47 AV			1.15 H	250	51.48	39.99
3	5350.00	58.64 PK	74.00	-15.36	1.15 H	250	56.73	1.91
4	5350.00	49.72 AV	54.00	-4.28	1.15 H	250	47.81	1.91
5	10620.00	54.88 PK	74.00	-19.12	1.84 H	133	46.66	8.22
6	10620.00	45.72 AV	54.00	-8.28	1.84 H	133	37.50	8.22

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5310.00	102.34 PK			2.35 V	262	62.35	39.99
2	*5310.00	94.55 AV			2.35 V	262	54.56	39.99
3	5350.00	65.32 PK	74.00	-8.68	2.35 V	262	63.41	1.91
4	5350.00	52.74 AV	54.00	-1.26	2.35 V	262	50.83	1.91
5	10620.00	53.69 PK	74.00	-20.31	2.09 V	121	45.47	8.22
6	10620.00	45.00 AV	54.00	-9.00	2.09 V	121	36.78	8.22

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11n (HT40)	Channel	CH 102 : 5510 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	57.27 PK	74.00	-16.73	1.00 H	130	55.07	2.20
2	5460.00	46.81 AV	54.00	-7.19	1.00 H	130	44.61	2.20
3	#5470.00	61.21 PK	68.20	-6.99	1.00 H	130	58.97	2.24
4	*5510.00	98.54 PK			1.00 H	130	58.00	40.54
5	*5510.00	89.45 AV			1.00 H	130	48.91	40.54
6	11020.00	54.64 PK	74.00	-19.36	1.19 H	302	46.19	8.45
7	11020.00	44.32 AV	54.00	-9.68	1.19 H	302	35.87	8.45

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	57.75 PK	74.00	-16.25	1.43 V	51	55.55	2.20
2	5460.00	47.42 AV	54.00	-6.58	1.43 V	51	45.22	2.20
3	#5470.00	63.13 PK	68.20	-5.07	1.43 V	51	60.89	2.24
4	*5510.00	99.63 PK			1.43 V	51	59.09	40.54
5	*5510.00	91.83 AV			1.43 V	51	51.29	40.54
6	11020.00	53.57 PK	74.00	-20.43	2.74 V	25	45.12	8.45
7	11020.00	45.04 AV	54.00	-8.96	2.74 V	25	36.59	8.45

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 110 : 5550 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5550.00	98.86 PK			1.37 H	132	58.19	40.67
2	*5550.00	89.95 AV			1.37 H	132	49.28	40.67
3	11100.00	54.79 PK	74.00	-19.21	1.64 H	241	46.37	8.42
4	11100.00	44.36 AV	54.00	-9.64	1.64 H	241	35.94	8.42

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5550.00	99.31 PK			1.40 V	31	58.64	40.67
2	*5550.00	91.60 AV			1.40 V	31	50.93	40.67
3	11100.00	54.09 PK	74.00	-19.91	2.43 V	79	45.67	8.42
4	11100.00	45.20 AV	54.00	-8.80	2.43 V	79	36.78	8.42

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11n (HT40)	Channel	CH 134 : 5670 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5670.00	101.47 PK			1.31 H	132	60.33	41.14
2	*5670.00	90.98 AV			1.31 H	132	49.84	41.14
3	#5725.00	57.25 PK	68.20	-10.95	1.31 H	132	53.94	3.31
4	11340.00	54.83 PK	74.00	-19.17	1.59 H	193	46.21	8.62
5	11340.00	44.46 AV	54.00	-9.54	1.59 H	193	35.84	8.62

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*5670.00	102.09 PK			1.80 V	30	60.95	41.14
2	*5670.00	94.50 AV			1.80 V	30	53.36	41.14
3	#5725.00	56.21 PK	68.20	-11.99	1.80 V	30	52.90	3.31
4	11340.00	54.20 PK	74.00	-19.80	2.49 V	110	45.58	8.62
5	11340.00	45.26 AV	54.00	-8.74	2.49 V	110	36.64	8.62

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 151 : 5755 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5606.40	59.30 PK	68.20	-8.90	1.02 H	214	56.66	2.64
2	*5755.00	96.96 PK			1.02 H	214	55.46	41.50
3	*5755.00	87.83 AV			1.02 H	214	46.33	41.50
4	#5976.40	59.56 PK	68.20	-8.64	1.02 H	214	56.12	3.44
5	11510.00	54.28 PK	74.00	-19.72	2.39 H	176	45.46	8.82
6	11510.00	44.19 AV	54.00	-9.81	2.39 H	176	35.37	8.82

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5610.80	60.56 PK	68.20	-7.64	1.59 V	35	57.89	2.67
2	*5755.00	102.66 PK			1.59 V	35	61.16	41.50
3	*5755.00	94.11 AV			1.59 V	35	52.61	41.50
4	#5977.20	62.49 PK	68.20	-5.71	1.59 V	35	59.06	3.43
5	11510.00	54.95 PK	74.00	-19.05	1.89 V	247	46.13	8.82
6	11510.00	45.20 AV	54.00	-8.80	1.89 V	247	36.38	8.82

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11n (HT40)	Channel	CH 159 : 5795 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5650.80	58.56 PK	68.79	-10.23	1.00 H	213	55.65	2.91
2	*5795.00	97.50 PK			1.00 H	213	55.81	41.69
3	*5795.00	87.64 AV			1.00 H	213	45.95	41.69
4	#5982.40	59.56 PK	68.20	-8.64	1.00 H	213	56.12	3.44
5	11590.00	54.46 PK	74.00	-19.54	2.10 H	164	45.59	8.87
6	11590.00	44.33 AV	54.00	-9.67	2.10 H	164	35.46	8.87

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5648.40	61.38 PK	68.20	-6.82	1.60 V	34	58.49	2.89
2	*5795.00	101.98 PK			1.60 V	34	60.29	41.69
3	*5795.00	93.27 AV			1.60 V	34	51.58	41.69
4	#5973.20	62.95 PK	68.20	-5.25	1.60 V	34	59.51	3.44
5	11590.00	54.96 PK	74.00	-19.04	1.71 V	273	46.09	8.87
6	11590.00	45.14 AV	54.00	-8.86	1.71 V	273	36.27	8.87

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT80)	Channel	CH 42 : 5210 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	59.23 PK	74.00	-14.77	1.47 H	288	57.36	1.87
2	5150.00	47.22 AV	54.00	-6.78	1.47 H	288	45.35	1.87
3	*5210.00	93.09 PK			1.47 H	288	53.13	39.96
4	*5210.00	83.22 AV			1.47 H	288	43.26	39.96
5	#10420.00	53.16 PK	68.20	-15.04	1.92 H	161	45.11	8.05

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	67.04 PK	74.00	-6.96	2.42 V	331	65.17	1.87
2	5150.00	52.87 AV	54.00	-1.13	2.42 V	331	51.00	1.87
3	*5210.00	99.89 PK			2.42 V	331	59.93	39.96
4	*5210.00	90.21 AV			2.42 V	331	50.25	39.96
5	#10420.00	53.39 PK	68.20	-14.81	1.46 V	67	45.34	8.05

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.
6. " # " : The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT80)	Channel	CH 58 : 5290 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	55.81 PK	74.00	-18.19	1.17 H	248	53.94	1.87
2	5150.00	44.37 AV	54.00	-9.63	1.17 H	248	42.50	1.87
3	*5290.00	95.90 PK			1.17 H	248	55.94	39.96
4	*5290.00	86.25 AV			1.17 H	248	46.29	39.96
5	5350.00	63.73 PK	74.00	-10.27	1.17 H	248	61.82	1.91
6	5350.00	50.91 AV	54.00	-3.09	1.17 H	248	49.00	1.91
7	#10580.00	54.28 PK	68.20	-13.92	1.63 H	93	46.12	8.16

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5150.00	56.81 PK	74.00	-17.19	2.11 V	233	54.94	1.87
2	5150.00	45.77 AV	54.00	-8.23	2.11 V	233	43.90	1.87
3	*5290.00	97.88 PK			2.11 V	233	57.92	39.96
4	*5290.00	90.68 AV			2.11 V	233	50.72	39.96
5	5350.00	65.48 PK	74.00	-8.52	2.11 V	233	63.57	1.91
6	5350.00	52.67 AV	54.00	-1.33	2.11 V	233	50.76	1.91
7	#10580.00	54.71 PK	68.20	-13.49	1.74 V	101	46.55	8.16

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT80)	Channel	CH 106 : 5530 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	64.47 PK	74.00	-9.53	1.11 H	229	62.27	2.20
2	5460.00	52.20 AV	54.00	-1.80	1.11 H	229	50.00	2.20
3	#5470.00	67.01 PK	68.20	-1.19	1.11 H	229	64.77	2.24
4	*5530.00	94.39 PK			1.11 H	229	53.78	40.61
5	*5530.00	86.80 AV			1.11 H	229	46.19	40.61
6	11060.00	53.39 PK	74.00	-20.61	1.97 H	44	44.96	8.43
7	11060.00	43.74 AV	54.00	-10.26	1.97 H	44	35.31	8.43

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	63.02 PK	74.00	-10.98	1.00 V	53	60.82	2.20
2	5460.00	52.68 AV	54.00	-1.32	1.00 V	53	50.48	2.20
3	#5470.00	67.13 PK	68.20	-1.07	1.00 V	53	64.89	2.24
4	*5530.00	95.08 PK			1.00 V	53	54.47	40.61
5	*5530.00	87.18 AV			1.00 V	53	46.57	40.61
6	11060.00	54.18 PK	74.00	-19.82	1.94 V	312	45.75	8.43
7	11060.00	43.59 AV	54.00	-10.41	1.94 V	312	35.16	8.43

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT80)	Channel	CH 122 : 5610 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	56.14 PK	74.00	-17.86	1.03 H	230	53.94	2.20
2	5460.00	44.81 AV	54.00	-9.19	1.03 H	230	42.61	2.20
3	#5470.00	56.49 PK	68.20	-11.71	1.03 H	230	54.25	2.24
4	*5610.00	95.27 PK			1.03 H	230	54.39	40.88
5	*5610.00	86.12 AV			1.03 H	230	45.24	40.88
6	#5725.00	57.24 PK	68.20	-10.96	1.03 H	230	53.93	3.31
7	11220.00	53.30 PK	74.00	-20.70	1.63 H	88	44.75	8.55
8	11220.00	43.74 AV	54.00	-10.26	1.63 H	88	35.19	8.55

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	5460.00	54.69 PK	74.00	-19.31	1.42 V	29	52.49	2.20
2	5460.00	44.73 AV	54.00	-9.27	1.42 V	29	42.53	2.20
3	#5470.00	57.04 PK	68.20	-11.16	1.42 V	29	54.80	2.24
4	*5610.00	97.57 PK			1.42 V	29	56.69	40.88
5	*5610.00	89.64 AV			1.42 V	29	48.76	40.88
6	#5725.00	56.89 PK	68.20	-11.31	1.42 V	29	53.58	3.31
7	11220.00	54.78 PK	74.00	-19.22	2.05 V	290	46.23	8.55
8	11220.00	44.29 AV	54.00	-9.71	2.05 V	290	35.74	8.55

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT80)	Channel	CH 155 : 5775 MHz
Frequency Range	1GHz ~ 40GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5632.80	58.33 PK	68.20	-9.87	1.52 H	214	55.53	2.80
2	*5775.00	93.45 PK			1.52 H	214	51.86	41.59
3	*5775.00	84.13 AV			1.52 H	214	42.54	41.59
4	#5986.40	58.70 PK	68.20	-9.50	1.52 H	214	55.27	3.43
5	11550.00	55.71 PK	74.00	-18.29	1.77 H	44	46.86	8.85
6	11550.00	43.80 AV	54.00	-10.20	1.77 H	44	34.95	8.85
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	#5616.80	62.28 PK	68.20	-5.92	1.58 V	35	59.58	2.70
2	*5775.00	97.85 PK			1.58 V	35	56.26	41.59
3	*5775.00	89.83 AV			1.58 V	35	48.24	41.59
4	#5970.80	65.20 PK	68.20	-3.00	1.58 V	35	61.77	3.43
5	11550.00	54.28 PK	74.00	-19.72	2.17 V	184	45.43	8.85
6	11550.00	44.33 AV	54.00	-9.67	2.17 V	184	35.48	8.85

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.

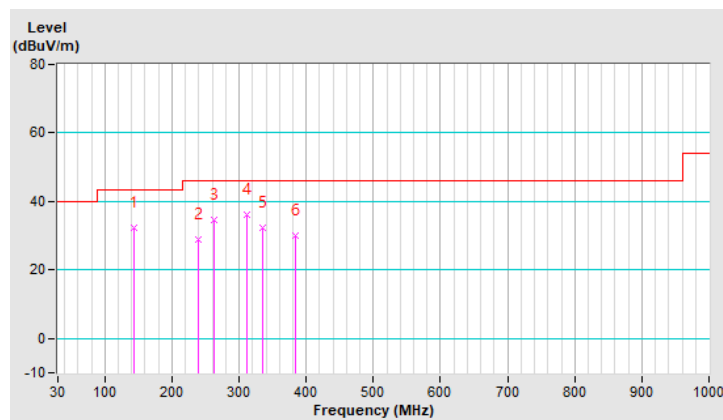
Below 1GHz Worst-Case Data: 802.11a

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTI ON FACTOR (dB/m)
1	143.87	32.25 QP	43.50	-11.25	1.01 H	2	50.59	-18.34
2	239.46	28.82 QP	46.00	-17.18	1.50 H	257	48.89	-20.07
3	263.36	34.55 QP	46.00	-11.45	1.01 H	152	53.88	-19.33
4	311.16	36.26 QP	46.00	-9.74	1.01 H	157	54.00	-17.74
5	335.06	32.28 QP	46.00	-13.72	1.50 H	129	49.29	-17.01
6	384.26	29.98 QP	46.00	-16.02	2.00 H	163	45.84	-15.86

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

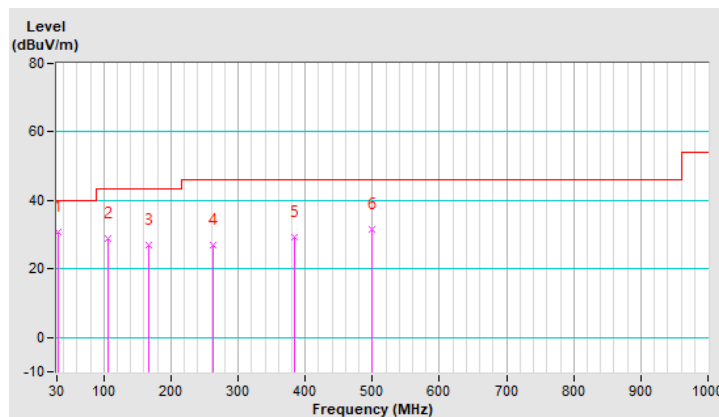


CHANNEL	TX Channel 40	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	32.81	30.93 QP	40.00	-9.07	1.01 V	247	50.38	-19.45
2	105.91	28.86 QP	43.50	-14.64	1.50 V	246	50.75	-21.89
3	167.77	27.14 QP	43.50	-16.36	1.01 V	39	45.72	-18.58
4	263.36	26.94 QP	46.00	-19.06	2.00 V	108	46.27	-19.33
5	384.26	29.24 QP	46.00	-16.76	1.50 V	151	45.10	-15.86
6	499.54	31.44 QP	46.00	-14.56	1.01 V	250	44.84	-13.40

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	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.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102412	Jan. 29, 2021	Jan. 28, 2022
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 04, 2021	Sep. 03, 2022
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 28, 2021	Jan. 27, 2022
LISN ROHDE & SCHWARZ (Peripheral)	ENV216	101196	Apr. 26, 2021	Apr. 25, 2022
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 2 (Conduction 2).

3. The VCCI Site Registration No. is C-12047.

4. Tested date: Dec. 11, 2021

4.2.3 Test Procedures

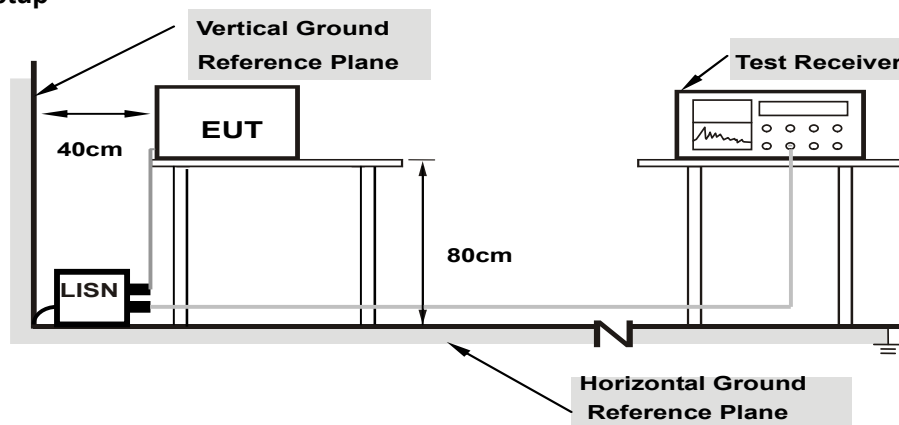
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

NOTE: 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.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

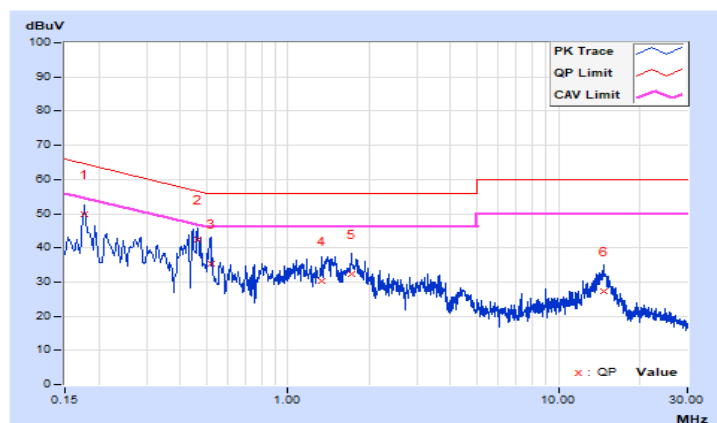
Worst-Case Data: 802.11a

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17800	10.12	39.82	30.07	49.94	40.19	64.58	54.58	-14.64	-14.39
2	0.46567	10.14	32.27	17.30	42.41	27.44	56.59	46.59	-14.18	-19.15
3	0.51800	10.15	25.30	14.47	35.45	24.62	56.00	46.00	-20.55	-21.38
4	1.33000	10.18	20.25	10.12	30.43	20.30	56.00	46.00	-25.57	-25.70
5	1.71800	10.20	22.03	13.40	32.23	23.60	56.00	46.00	-23.77	-22.40
6	14.69000	10.39	16.94	4.49	27.33	14.88	60.00	50.00	-32.67	-35.12

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

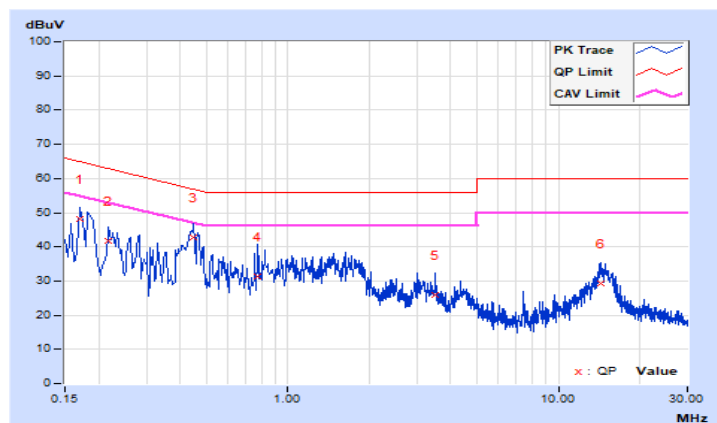


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.17000	10.12	37.91	26.33	48.03	36.45	64.96
2	0.21800	10.13	31.76	21.59	41.89	31.72	62.89	52.89	-21.00	-21.17
3	0.44999	10.15	32.60	19.40	42.75	29.55	56.88	46.88	-14.13	-17.33
4	0.77000	10.17	21.21	10.96	31.38	21.13	56.00	46.00	-24.62	-24.87
5	3.50200	10.27	15.66	5.63	25.93	15.90	56.00	46.00	-30.07	-30.10
6	14.30600	10.52	18.76	5.80	29.28	16.32	60.00	50.00	-30.72	-33.68

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



4.3 Transmit Power Measurement

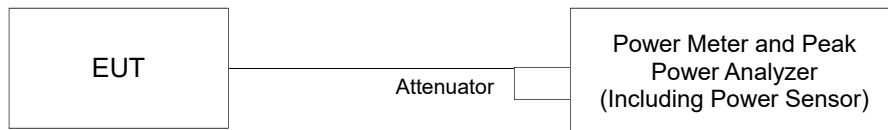
4.3.1 Limits of Transmit Power Measurement

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)
	√	Mobile and Portable 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)

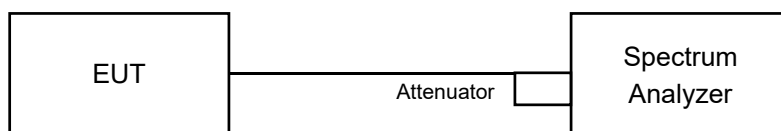
*B is the 26 dB emission bandwidth in megahertz

4.3.2 Test Setup

For Power Output
 802.11a, 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT80)



For 26dB and Occupied Bandwidth



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

For Average Power Measurement

For 802.11a, 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT80)

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.

For 26dB Bandwidth

- a. Set RBW = approximately 1% of the emission bandwidth.
- b. Set the VBW > RBW.
- c. Detector = Peak.
- d. Trace mode = max hold.
- e. 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%.

For Occupied Bandwidth

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to Sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Result

Power Output:

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	54.828	17.39	24	Pass
40	5200	55.847	17.47	24	Pass
48	5240	55.590	17.45	24	Pass
52	5260	55.847	17.47	24	Pass
60	5300	55.719	17.46	24	Pass
64	5320	55.719	17.46	24	Pass
100	5500	35.237	15.47	24	Pass
116	5580	34.754	15.41	24	Pass
140	5700	35.237	15.47	24	Pass
149	5745	35.318	15.48	30	Pass
157	5785	35.318	15.48	30	Pass
165	5825	35.156	15.46	30	Pass

Note:

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

1. $11\text{dBm} + 10\log(42.58) = 27.29 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(42.82) = 27.31 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(43.56) = 27.39 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(36.01) = 26.56 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(36.95) = 26.67 > 24\text{dBm}$
6. $11\text{dBm} + 10\log(37.19) = 26.70 > 24\text{dBm}$

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	55.719	17.46	24	Pass
40	5200	55.847	17.47	24	Pass
48	5240	55.081	17.41	24	Pass
52	5260	55.719	17.46	24	Pass
60	5300	55.463	17.44	24	Pass
64	5320	48.641	16.87	24	Pass
100	5500	38.994	15.91	24	Pass
116	5580	38.905	15.90	24	Pass
140	5700	39.446	15.96	24	Pass
149	5745	39.264	15.94	30	Pass
157	5785	39.355	15.95	30	Pass
165	5825	39.174	15.93	30	Pass

Note:

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

- $11\text{dBm} + 10\log(45.68) = 27.59 > 24\text{dBm}$
- $11\text{dBm} + 10\log(45.37) = 27.56 > 24\text{dBm}$
- $11\text{dBm} + 10\log(41.35) = 27.16 > 24\text{dBm}$
- $11\text{dBm} + 10\log(38.19) = 26.81 > 24\text{dBm}$
- $11\text{dBm} + 10\log(38.39) = 26.84 > 24\text{dBm}$
- $11\text{dBm} + 10\log(36.74) = 26.65 > 24\text{dBm}$

802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	39.628	15.98	24	Pass
46	5230	49.204	16.92	24	Pass
54	5270	49.431	16.94	24	Pass
62	5310	30.200	14.80	24	Pass
102	5510	31.189	14.94	24	Pass
110	5550	31.046	14.92	24	Pass
134	5670	31.117	14.93	24	Pass
151	5755	31.189	14.94	30	Pass
159	5795	31.117	14.93	30	Pass

Note:

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

1. $11\text{dBm} + 10\log(83.83) = 30.23 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(82.39) = 30.15 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(64.54) = 29.09 > 24\text{dBm}$
4. $11\text{dBm} + 10\log(60.18) = 28.79 > 24\text{dBm}$
5. $11\text{dBm} + 10\log(61.43) = 28.88 > 24\text{dBm}$

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
42	5210	17.140	12.34	24	Pass
58	5290	24.155	13.83	24	Pass
106	5530	31.333	14.96	24	Pass
122	5610	31.261	14.95	24	Pass
155	5775	31.117	14.93	30	Pass

Note:

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

1. $11\text{dBm} + 10\log(188.18) = 33.74 > 24\text{dBm}$
2. $11\text{dBm} + 10\log(186.25) = 33.70 > 24\text{dBm}$
3. $11\text{dBm} + 10\log(132.62) = 32.22 > 24\text{dBm}$

26dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)
52	5260	42.58
60	5300	42.82
64	5320	43.56
100	5500	36.01
116	5580	36.95
140	5700	37.19

802.11n (HT20)

Channel	Frequency (MHz)	26dBc Bandwidth (MHz)
52	5260	45.68
60	5300	45.37
64	5320	41.35
100	5500	38.19
116	5580	38.39
140	5700	36.74

802.11n (HT40)

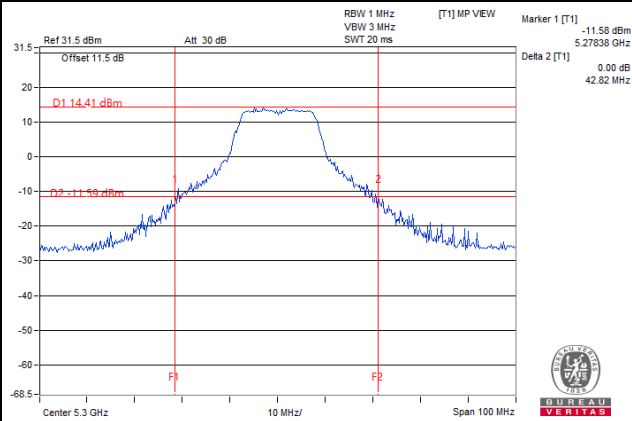
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)
54	5270	83.83
62	5310	82.39
102	5510	64.54
110	5550	60.18
134	5670	61.43

802.11ac (VHT80)

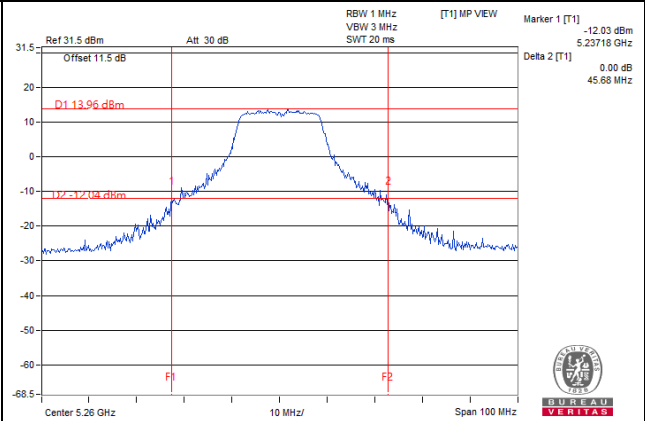
Channel	Frequency (MHz)	26dBc Bandwidth (MHz)
58	5290	188.18
106	5530	186.25
122	5610	132.62

Spectrum Plot of Worst Value

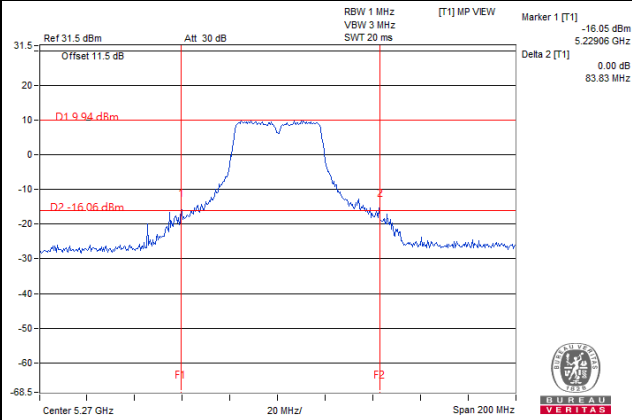
802.11a



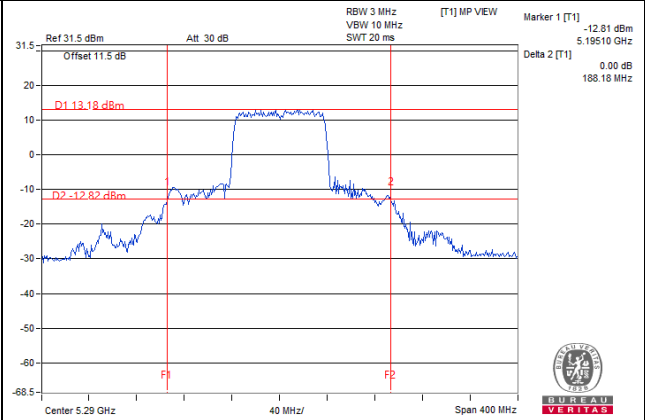
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



EUT Maximum Conducted Power

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	55.847	17.47
5470~5725	35.237	15.47

Note: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	55.719	17.46
5470~5725	39.446	15.96

Note: Manufacturer provides Transmit Power Control description to meet this requirement.

802.11n (HT40)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	49.431	16.94
5470~5725	31.189	14.94

Note: Manufacturer provides Transmit Power Control description to meet this requirement.

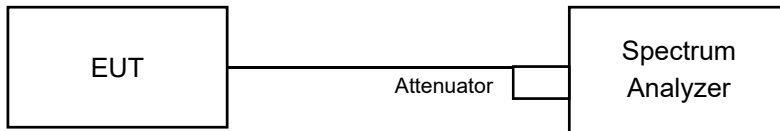
802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	24.155	13.83
5470~5725	31.333	14.96

Note: Manufacturer provides Transmit Power Control description to meet this requirement.

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

4.4.4 Test Result

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	18.72
40	5200	18.60
48	5240	19.08
52	5260	19.08
60	5300	18.96
64	5320	18.96
100	5500	18.24
116	5580	18.00
140	5700	18.24
149	5745	18.12
157	5785	18.12
165	5825	18.12

802.11n (HT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	19.32
40	5200	19.80
48	5240	19.56
52	5260	19.68
60	5300	19.56
64	5320	19.20
100	5500	18.96
116	5580	18.84
140	5700	18.96
149	5745	19.08
157	5785	19.08
165	5825	18.72

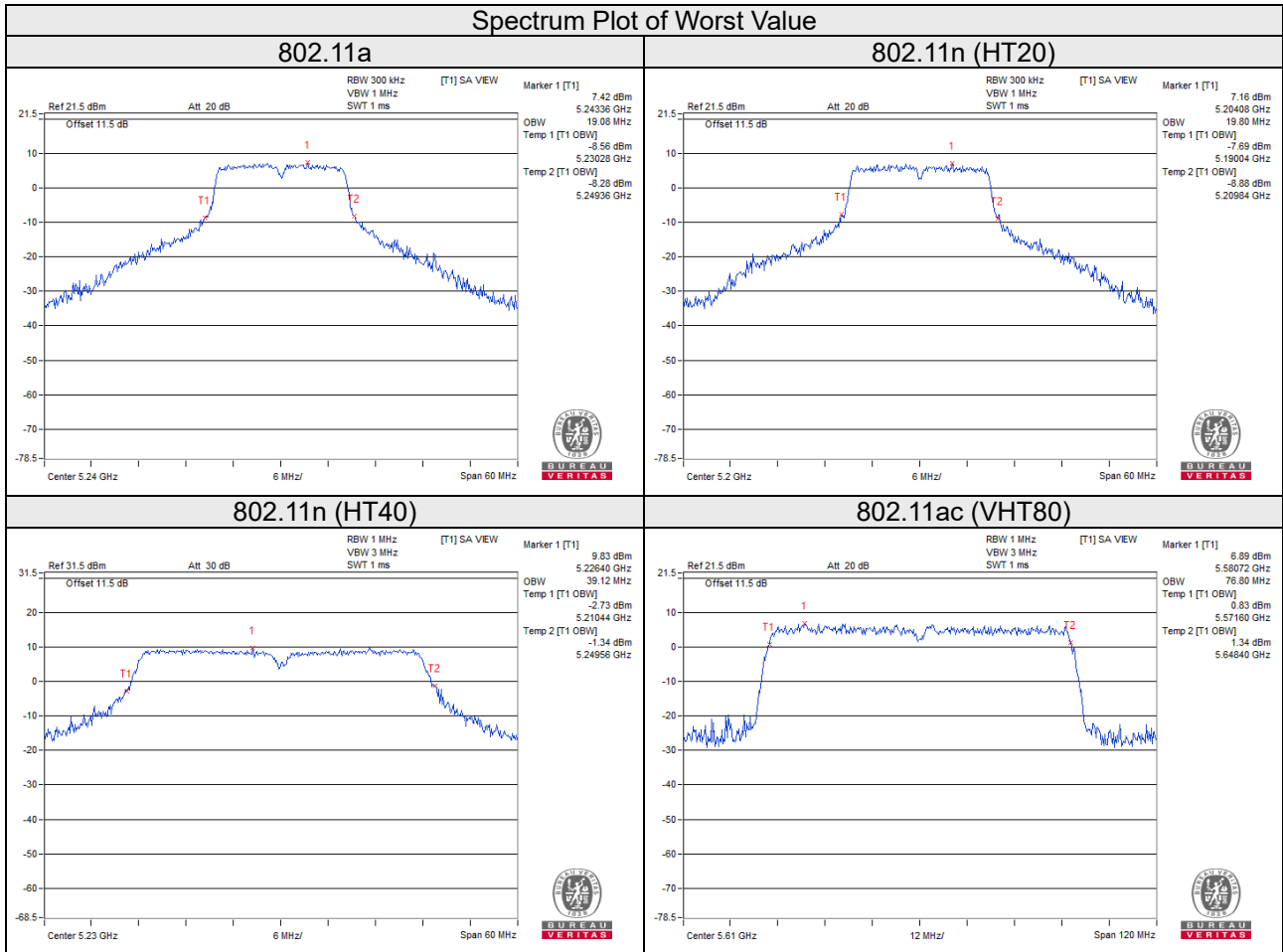
802.11n (HT40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	38.64
46	5230	39.12
54	5270	39.12
62	5310	39.12
102	5510	38.76
110	5550	38.88
134	5670	39.12
151	5755	39.00
159	5795	38.88

802.11ac (VHT80)

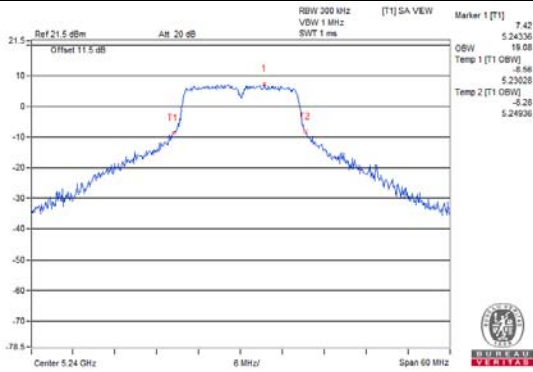
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
42	5210	76.32
58	5290	76.32
106	5530	76.32
122	5610	76.80
155	5775	76.32

Spectrum Plot of Worst Value

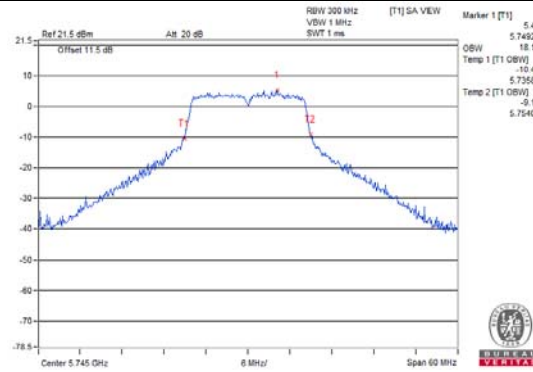


Spectrum Plot for near By DFS Band

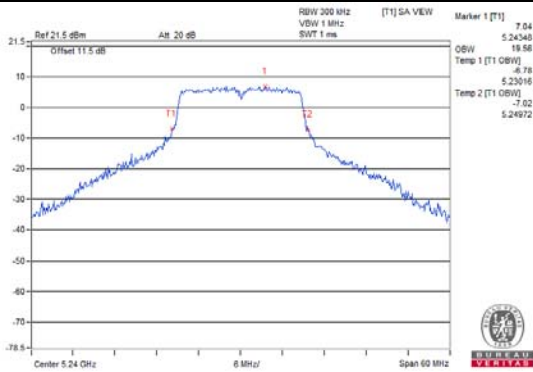
802.11a / CH 48



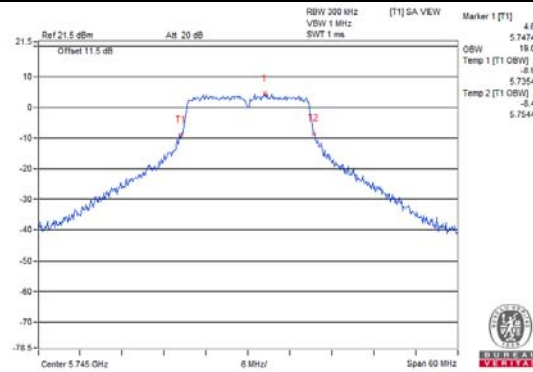
802.11a / CH 149



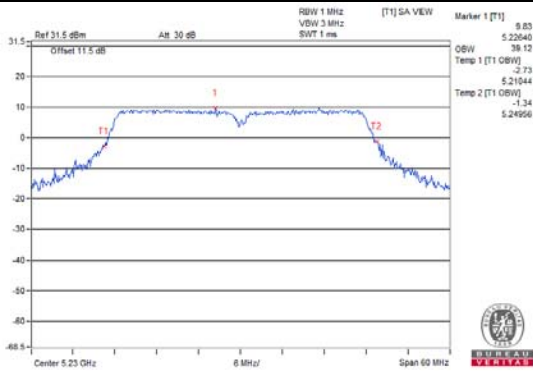
802.11n (HT20) / CH 48



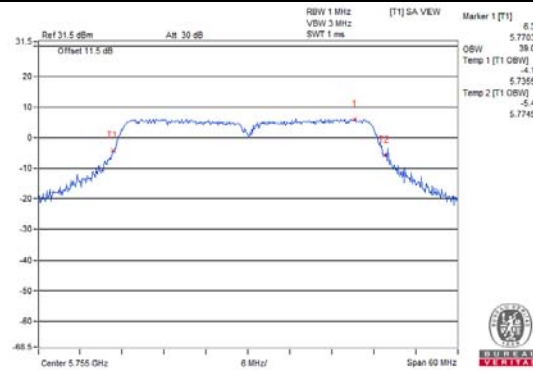
802.11n (HT20) / CH 149



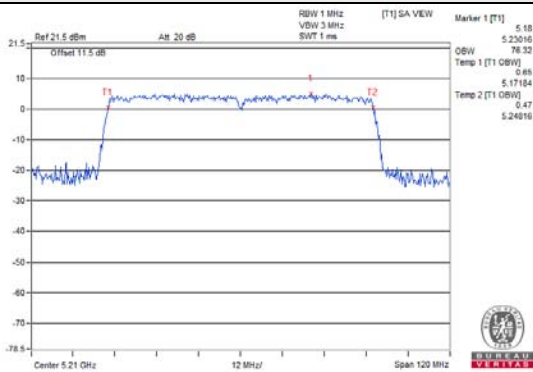
802.11n (HT40) / CH 46



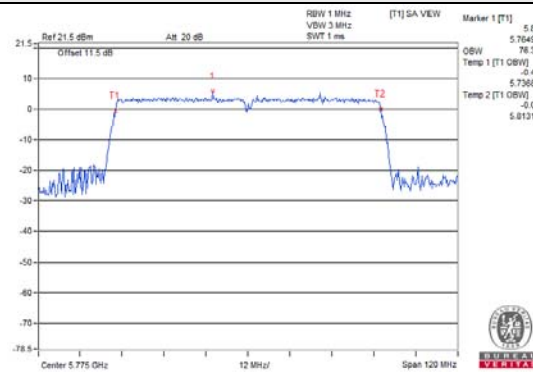
802.11n (HT40) / CH 151



802.11ac (VHT80) / CH 42



802.11ac (VHT80) / CH 155

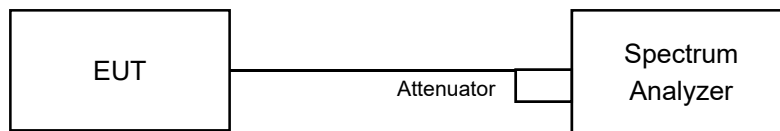


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

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

Duty cycle of test signal is < 98%

Using method SA-2

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 1MHz, Set VBW ≥ 3 MHz, Detector = RMS.
- 3) Set Channel power measure = 1MHz.
- 4) Sweep time = auto, trigger set to "free run".
- 5) Trace average at least 100 traces in power averaging mode.
- 6) Record the max value and add 10 log (1/duty cycle).

For U-NII-3 band:

Duty cycle <98%

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 300 kHz, Set VBW ≥ 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 (raising) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500\text{ kHz}/300\text{ kHz})$
- 5) Sweep time = auto, trigger set to "free run".
- 6) Trace average at least 100 traces in power averaging mode.
- 7) Record the max value and add 10 log (1/duty cycle)

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

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

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
36	5180	3.20	0.34	3.54	11	Pass
40	5200	3.14	0.34	3.48	11	Pass
48	5240	3.15	0.34	3.49	11	Pass
52	5260	3.28	0.34	3.62	11	Pass
60	5300	3.47	0.34	3.81	11	Pass
64	5320	3.38	0.34	3.72	11	Pass
100	5500	2.74	0.34	3.08	11	Pass
116	5580	2.37	0.34	2.71	11	Pass
140	5700	2.55	0.34	2.89	11	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
36	5180	3.05	0.10	3.15	11	Pass
40	5200	3.05	0.10	3.15	11	Pass
48	5240	3.39	0.10	3.49	11	Pass
52	5260	3.04	0.10	3.14	11	Pass
60	5300	3.01	0.10	3.11	11	Pass
64	5320	3.65	0.10	3.75	11	Pass
100	5500	2.34	0.10	2.44	11	Pass
116	5580	2.62	0.10	2.72	11	Pass
140	5700	2.22	0.10	2.32	11	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
38	5190	-1.22	0.20	-1.02	11	Pass
46	5230	-0.51	0.20	-0.31	11	Pass
54	5270	-0.60	0.20	-0.40	11	Pass
62	5310	-0.49	0.20	-0.29	11	Pass
102	5510	-1.62	0.20	-1.42	11	Pass
110	5550	-1.86	0.20	-1.66	11	Pass
134	5670	-1.70	0.20	-1.50	11	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

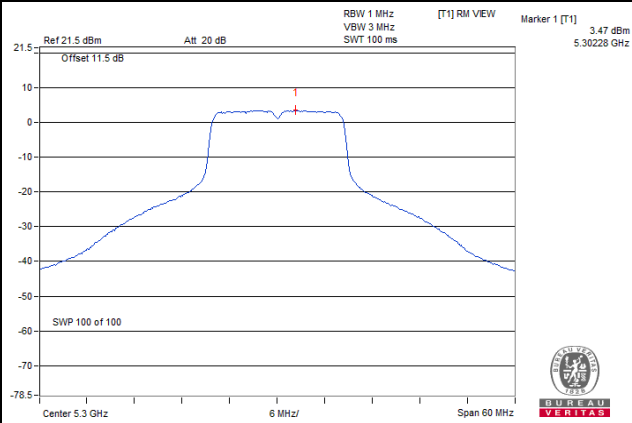
802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
42	5210	-4.98	0.48	-4.50	11	Pass
58	5290	-5.01	0.48	-4.53	11	Pass
106	5530	-6.65	0.48	-6.17	11	Pass
122	5610	-6.63	0.48	-6.15	11	Pass

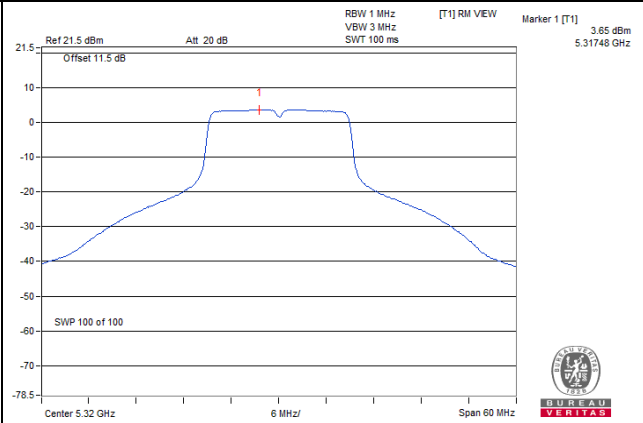
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

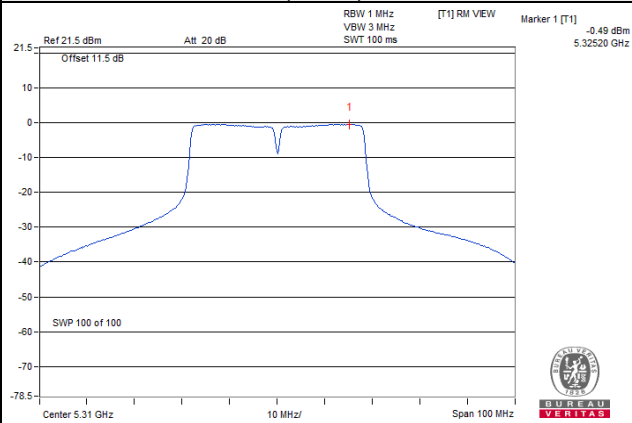
802.11a / CH 60



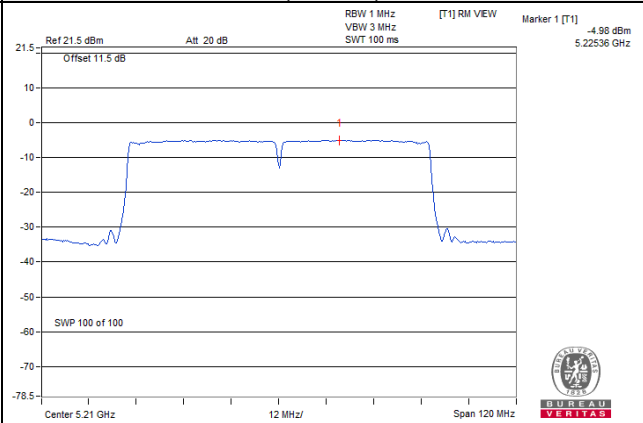
802.11n (HT20) / CH 64



802.11n (HT40) / CH 62



802.11ac (VHT80) / CH 42



For U-NII-3 band:

802.11a

Chan.	Freq. (MHz)	PSD W/O Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
149	5745	-7.76	-5.54	0.34	-5.20	30	Pass
157	5785	-8.09	-5.87	0.34	-5.53	30	Pass
165	5825	-8.41	-6.19	0.34	-5.85	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD W/O Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
149	5745	-8.15	-5.93	0.10	-5.83	30	Pass
157	5785	-8.43	-6.21	0.10	-6.11	30	Pass
165	5825	-8.62	-6.40	0.10	-6.30	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Chan.	Freq. (MHz)	PSD W/O Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
151	5755	-12.41	-10.19	0.20	-9.99	30	Pass
159	5795	-12.44	-10.22	0.20	-10.02	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

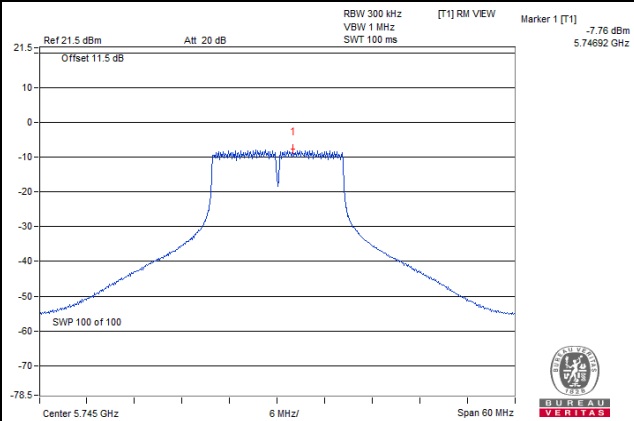
802.11ac (VHT80)

Chan.	Freq. (MHz)	PSD W/O Duty Factor		Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
155	5775	-15.12	-12.9	0.48	-12.42	30	Pass

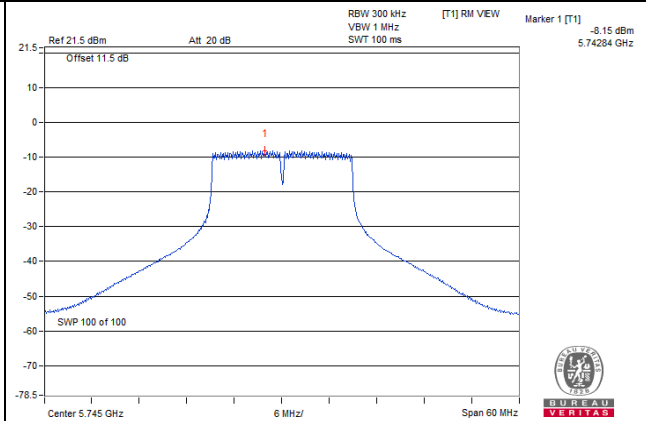
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

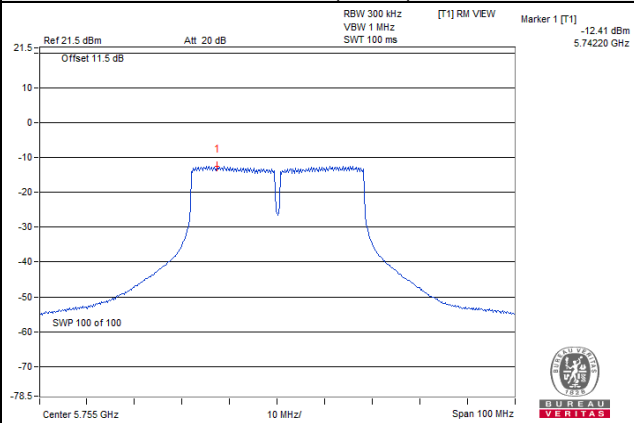
802.11a



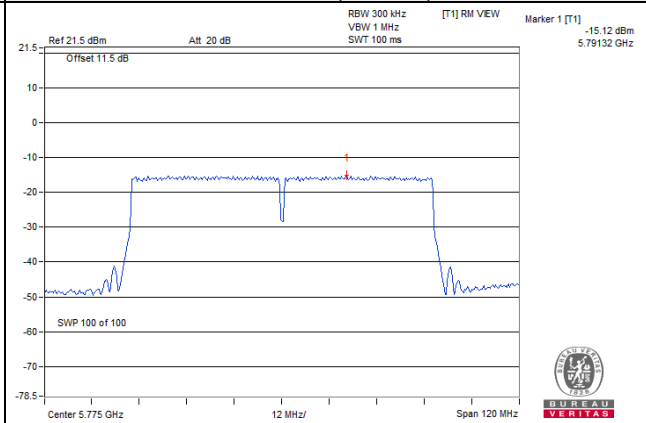
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

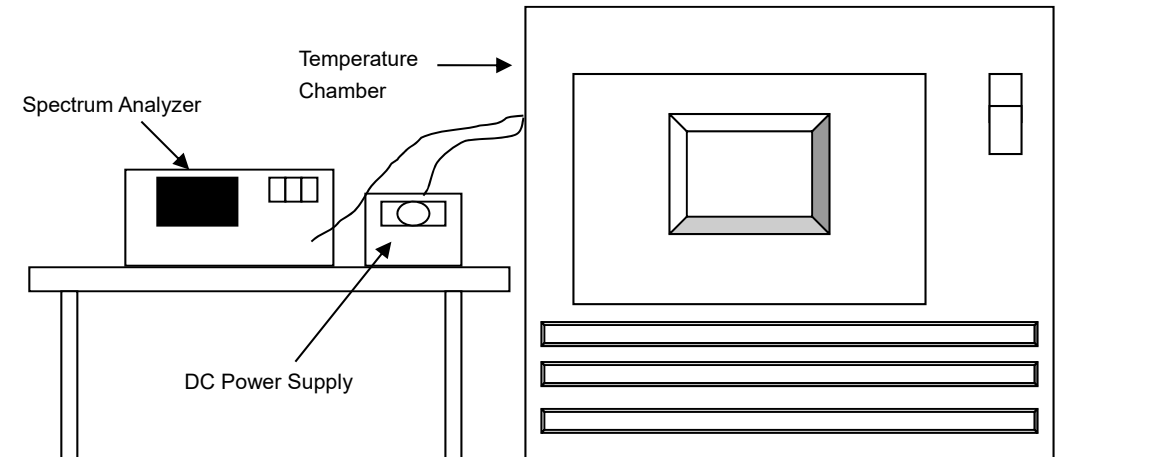


4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 07, 2021	Jun. 06, 2022
Standard Temperature And Humidity Chamber TERCHY	MHU-225AU	920842	Jun. 15, 2021	Jun. 14, 2022
Three-phase coupling / decoupling network TESEQ	CDN 3063	4006	Mar. 10, 2021	Mar. 09, 2022
DC Power Supply Topward	6306A	727263	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.4 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal DC 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 (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
- 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.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Set the EUT transmit at un-modulation mode to test frequency stability.

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
70	3.3	5180.0195	Pass	5180.0218	Pass	5180.0203	Pass	5180.0175	Pass
60	3.3	5180.0221	Pass	5180.0224	Pass	5180.0253	Pass	5180.0256	Pass
50	3.3	5180.0078	Pass	5180.0042	Pass	5180.0044	Pass	5180.0053	Pass
40	3.3	5179.9926	Pass	5179.9932	Pass	5179.9935	Pass	5179.9939	Pass
30	3.3	5179.9963	Pass	5179.9922	Pass	5179.9920	Pass	5179.9923	Pass
20	3.3	5179.9789	Pass	5179.9811	Pass	5179.9803	Pass	5179.9804	Pass
10	3.3	5180.0158	Pass	5180.0162	Pass	5180.0169	Pass	5180.0150	Pass
0	3.3	5179.9953	Pass	5179.9973	Pass	5179.9968	Pass	5179.9997	Pass
-10	3.3	5179.9841	Pass	5179.9798	Pass	5179.9800	Pass	5179.9847	Pass
-20	3.3	5179.9799	Pass	5179.9841	Pass	5179.9820	Pass	5179.9824	Pass

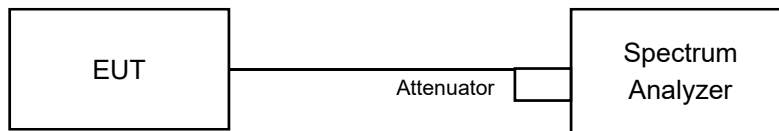
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	3.80	5179.9857	Pass	5179.9889	Pass	5179.9850	Pass	5179.9857	Pass
	3.30	5179.9789	Pass	5179.9811	Pass	5179.9803	Pass	5179.9804	Pass
	2.81	5179.9780	Pass	5179.9788	Pass	5179.9796	Pass	5179.9807	Pass

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

Measurement Procedure REF

- 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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.41	0.5	Pass
157	5785	16.41	0.5	Pass
165	5825	16.42	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	17.65	0.5	Pass
157	5785	17.68	0.5	Pass
165	5825	17.65	0.5	Pass

802.11n (HT40)

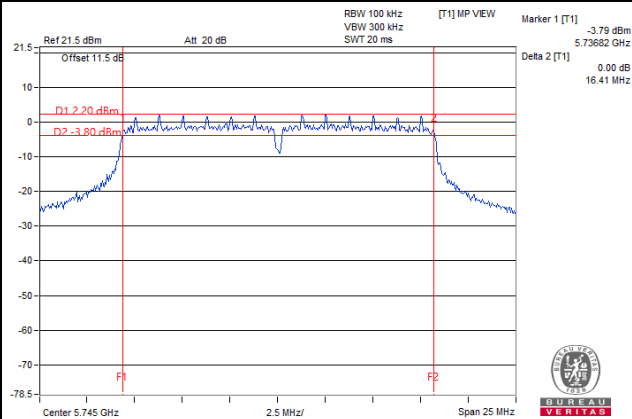
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	36.53	0.5	Pass
159	5795	36.48	0.5	Pass

802.11ac (VHT80)

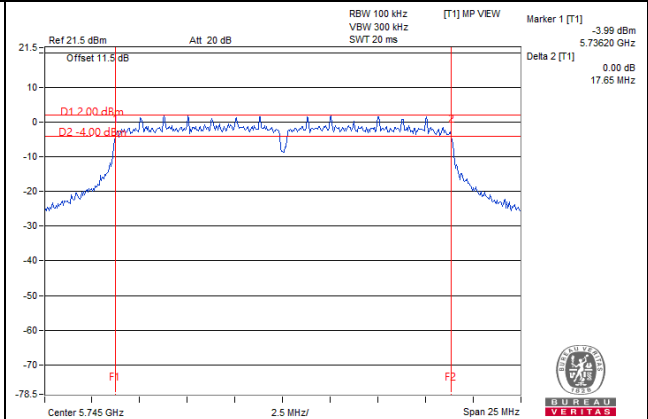
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
155	5775	76.53	0.5	Pass

Spectrum Plot of Worst Value

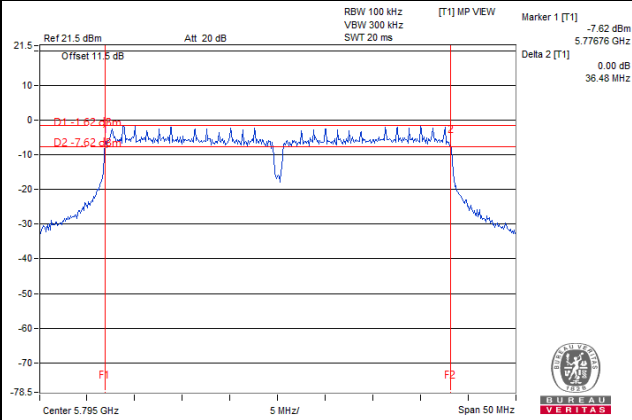
802.11a



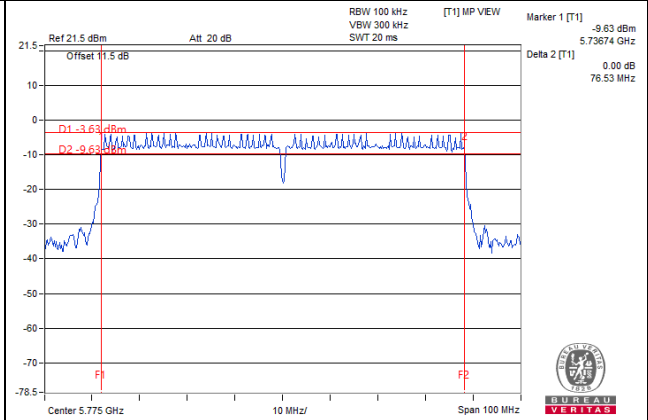
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)

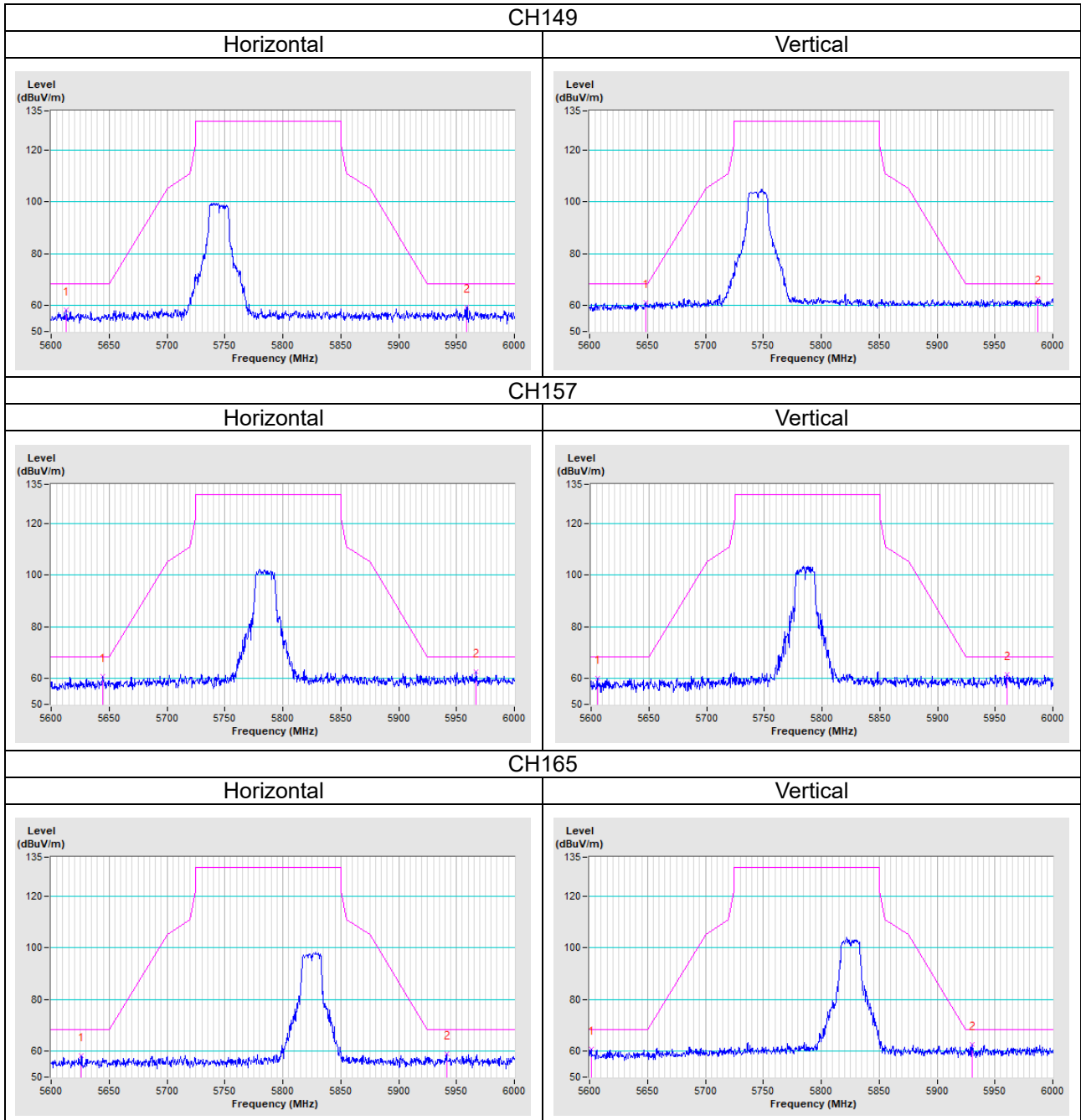


5 Pictures of Test Arrangements

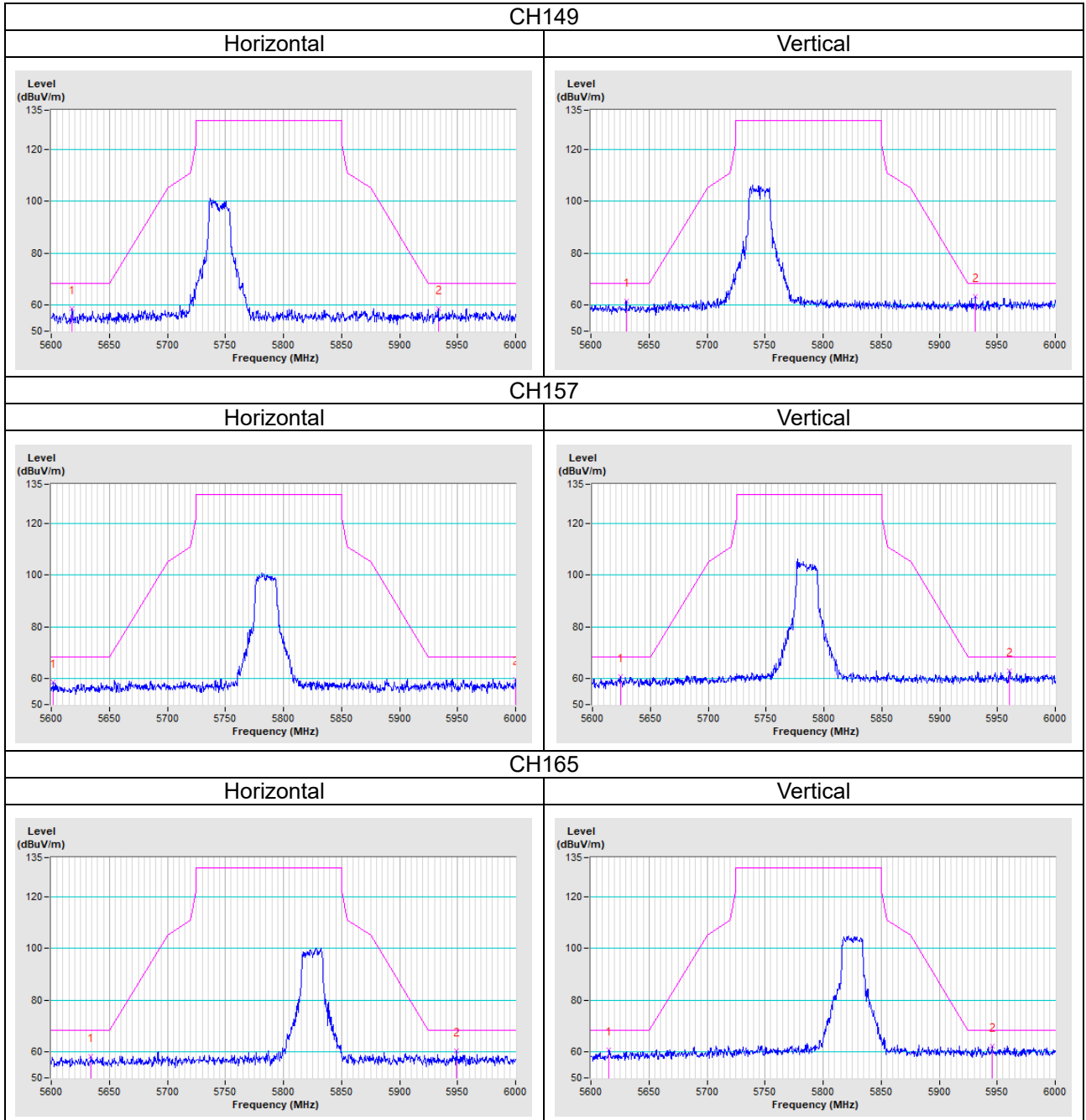
Please refer to the attached file (Test Setup Photo).

Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

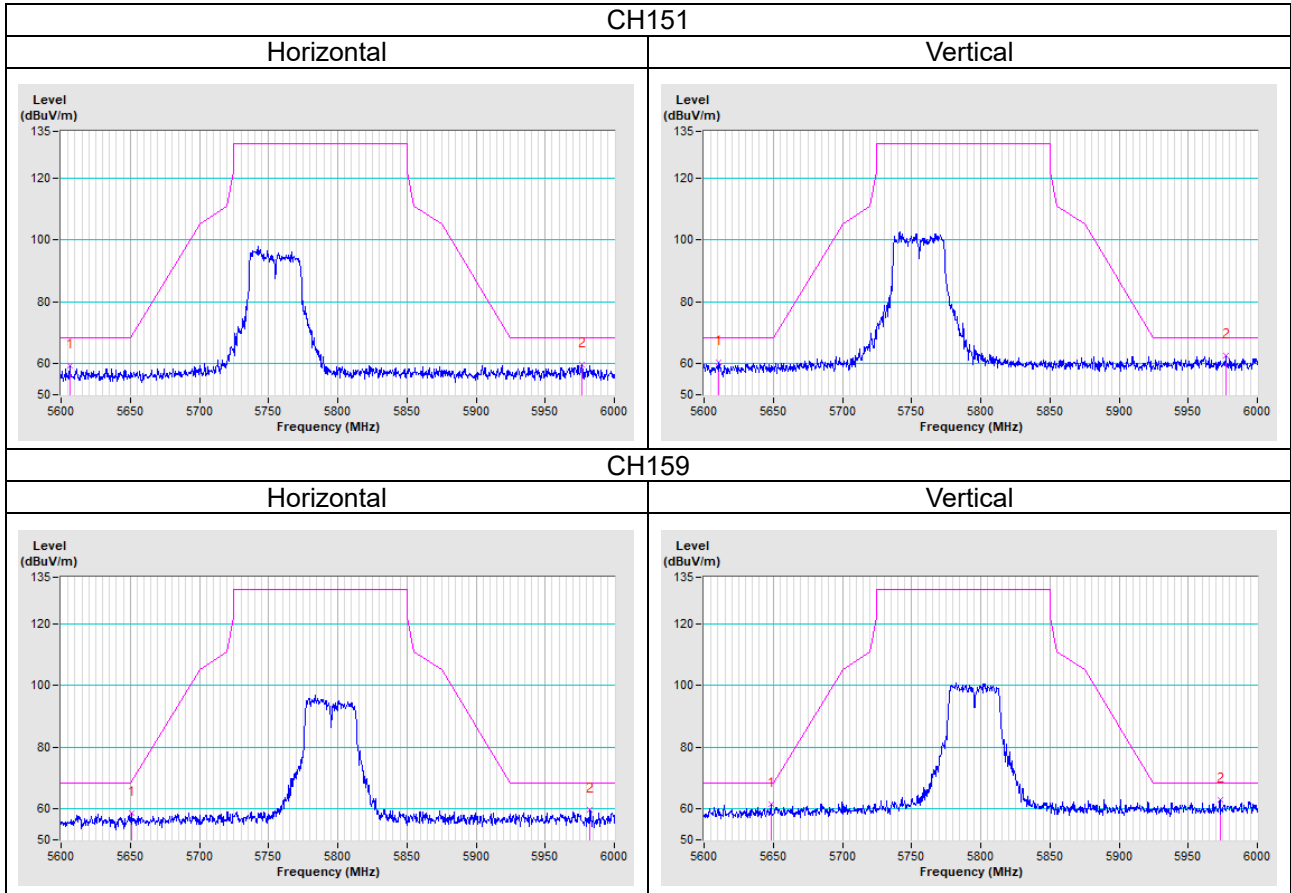
802.11a



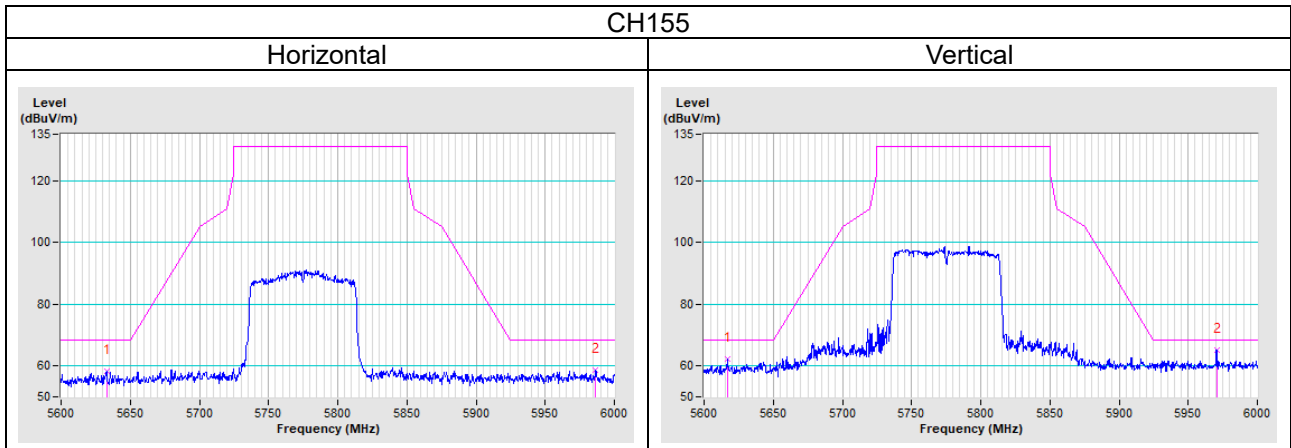
802.11n (HT20)



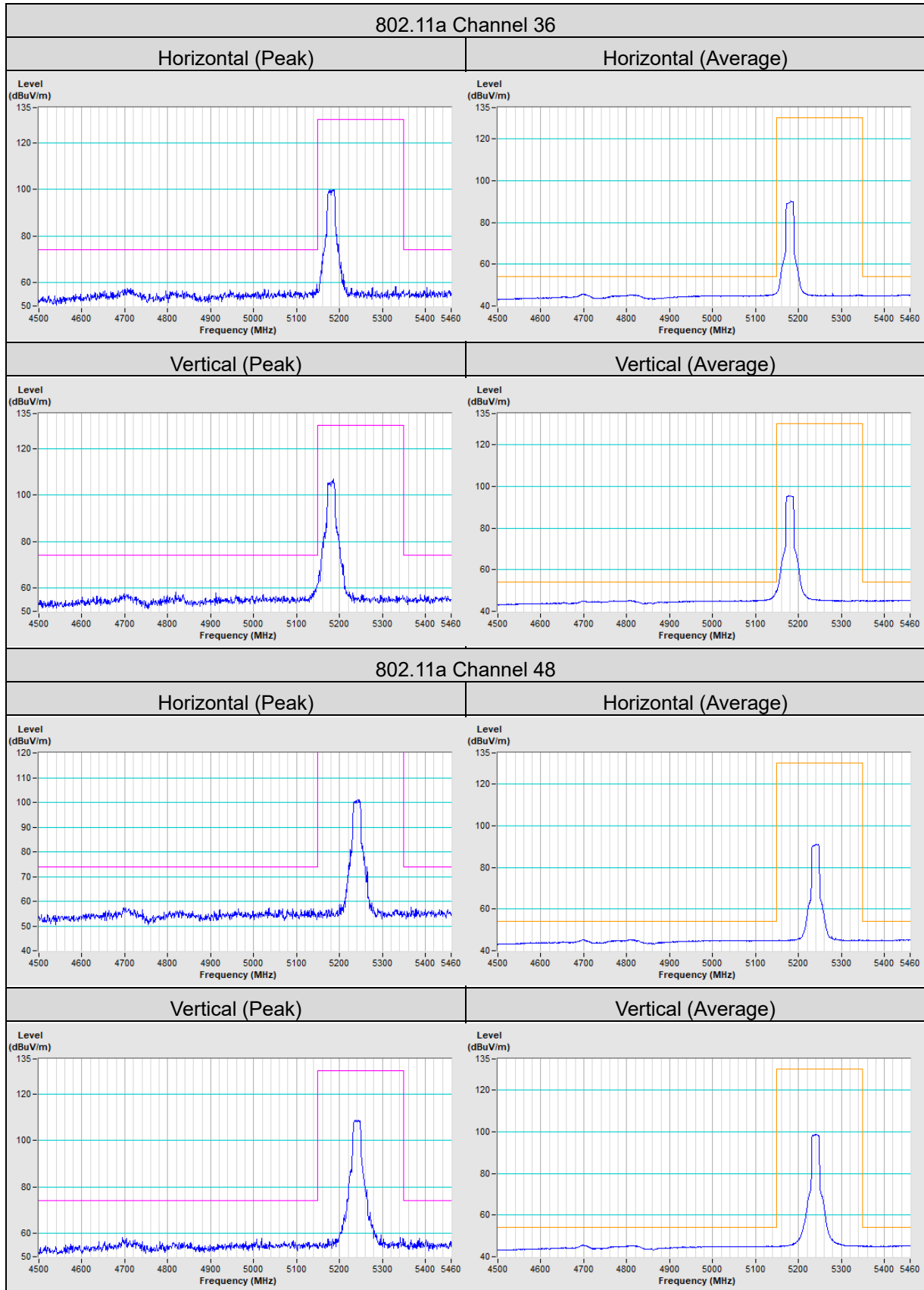
802.11n (HT40)



802.11ac (VHT80)

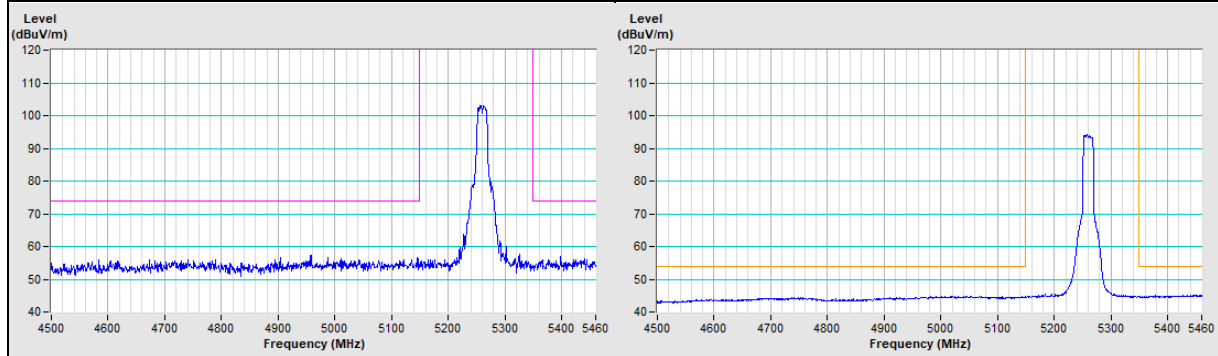


Annex B- Band Edge Measurement

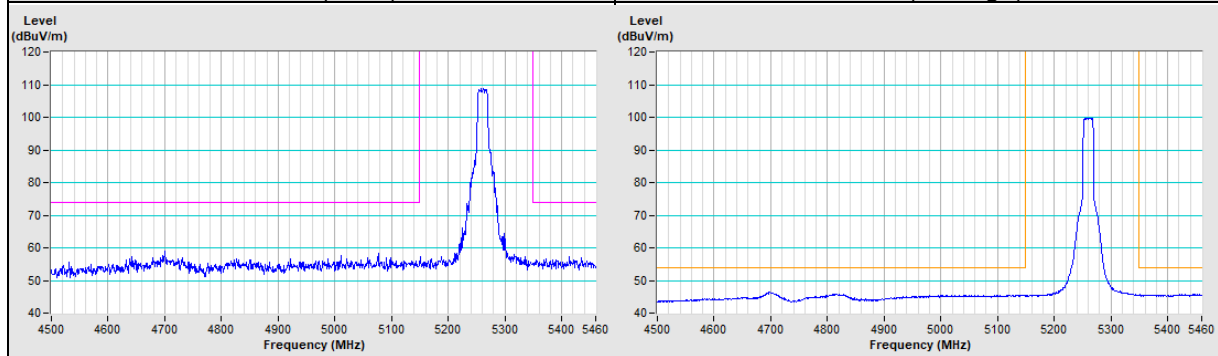


802.11a Channel 52

Horizontal (Peak)	Horizontal (Average)
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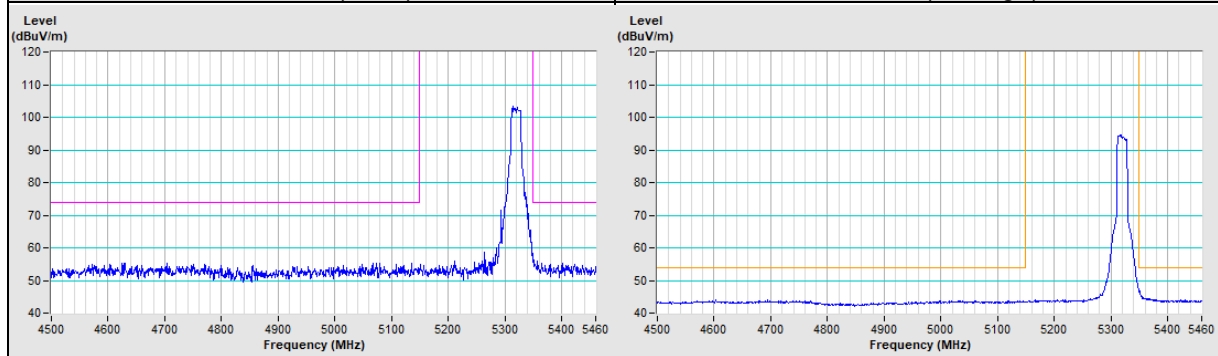


Vertical (Peak)	Vertical (Average)
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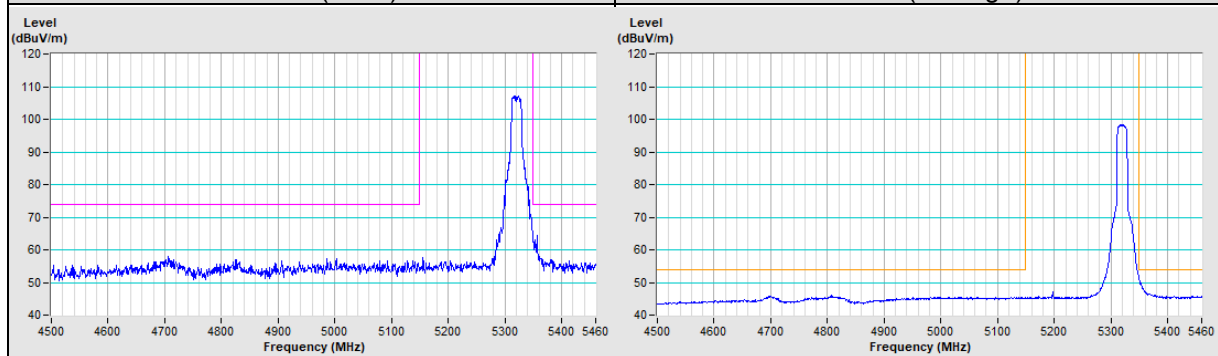


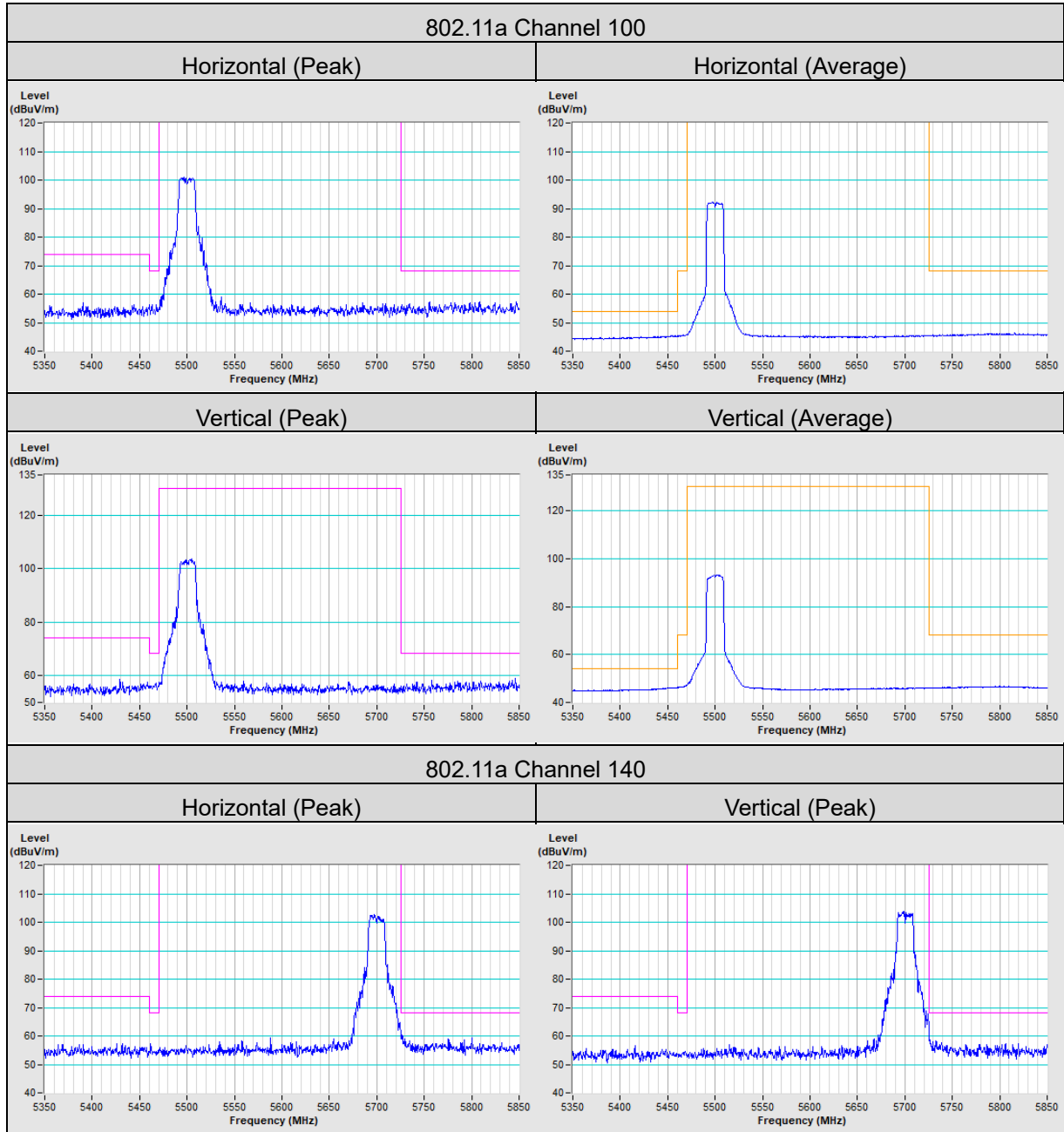
802.11a Channel 64

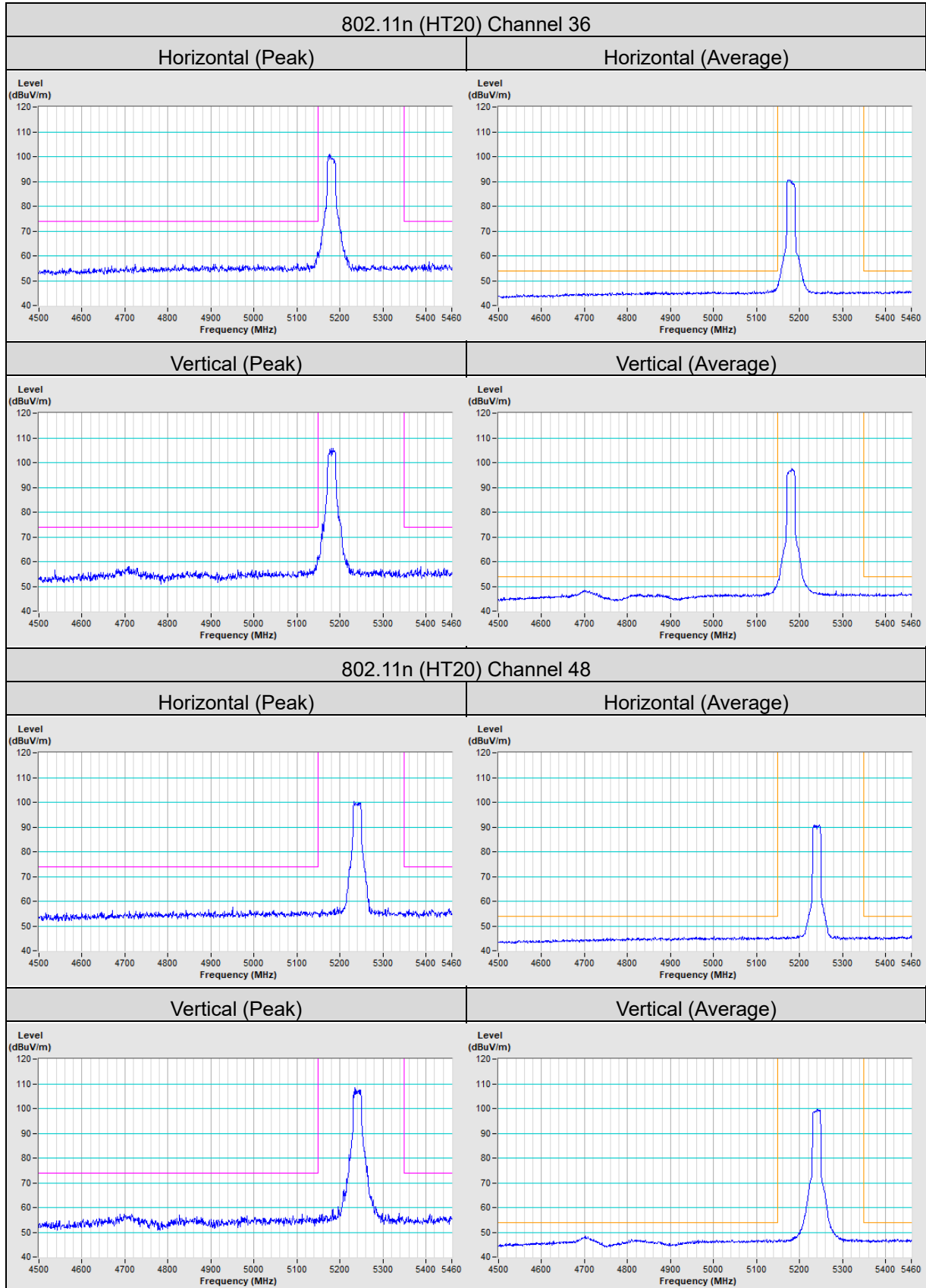
Horizontal (Peak)	Horizontal (Average)
-------------------	----------------------



Vertical (Peak)	Vertical (Average)
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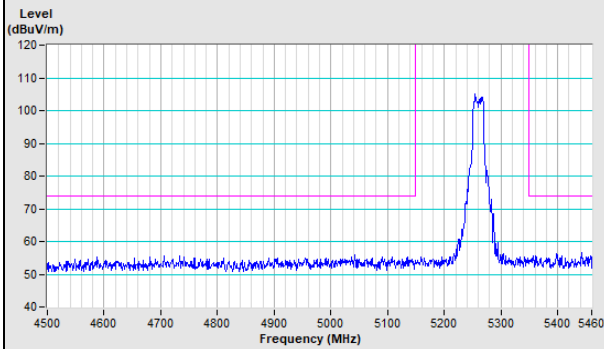




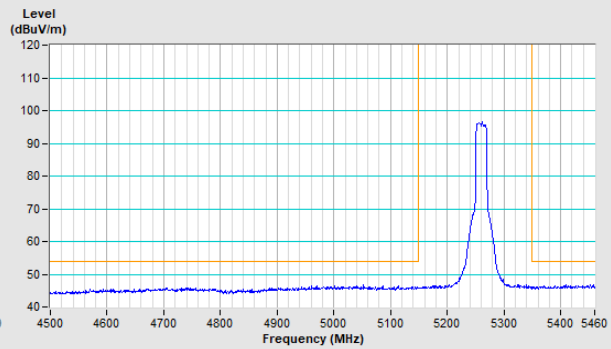


802.11n (HT20) Channel 52

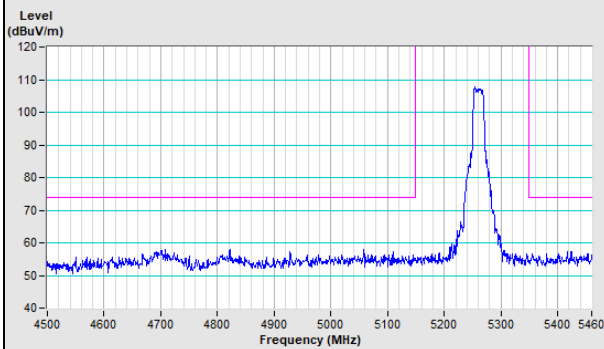
Horizontal (Peak)



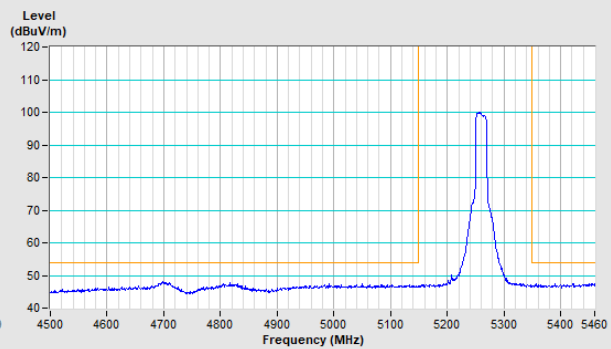
Horizontal (Average)



Vertical (Peak)

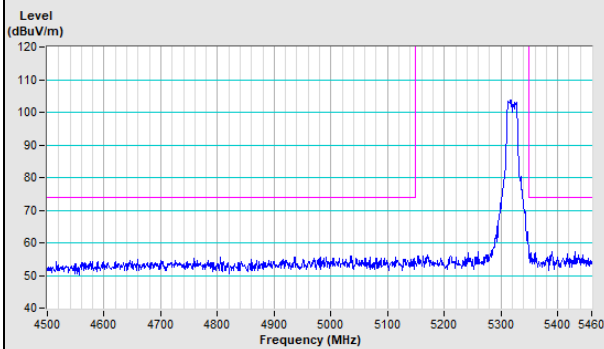


Vertical (Average)

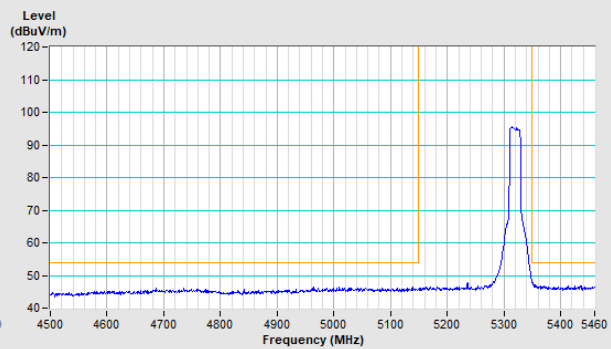


802.11n (HT20) Channel 64

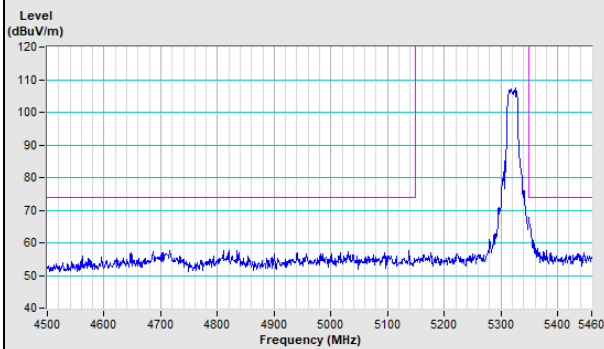
Horizontal (Peak)



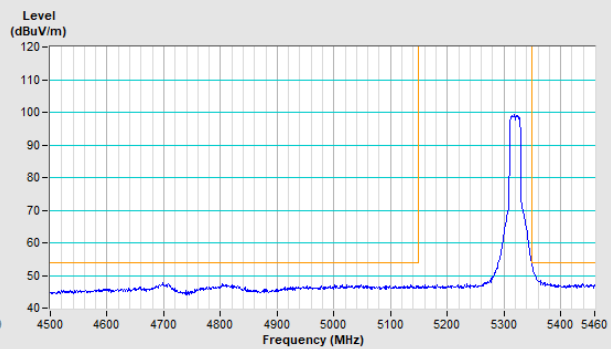
Horizontal (Average)

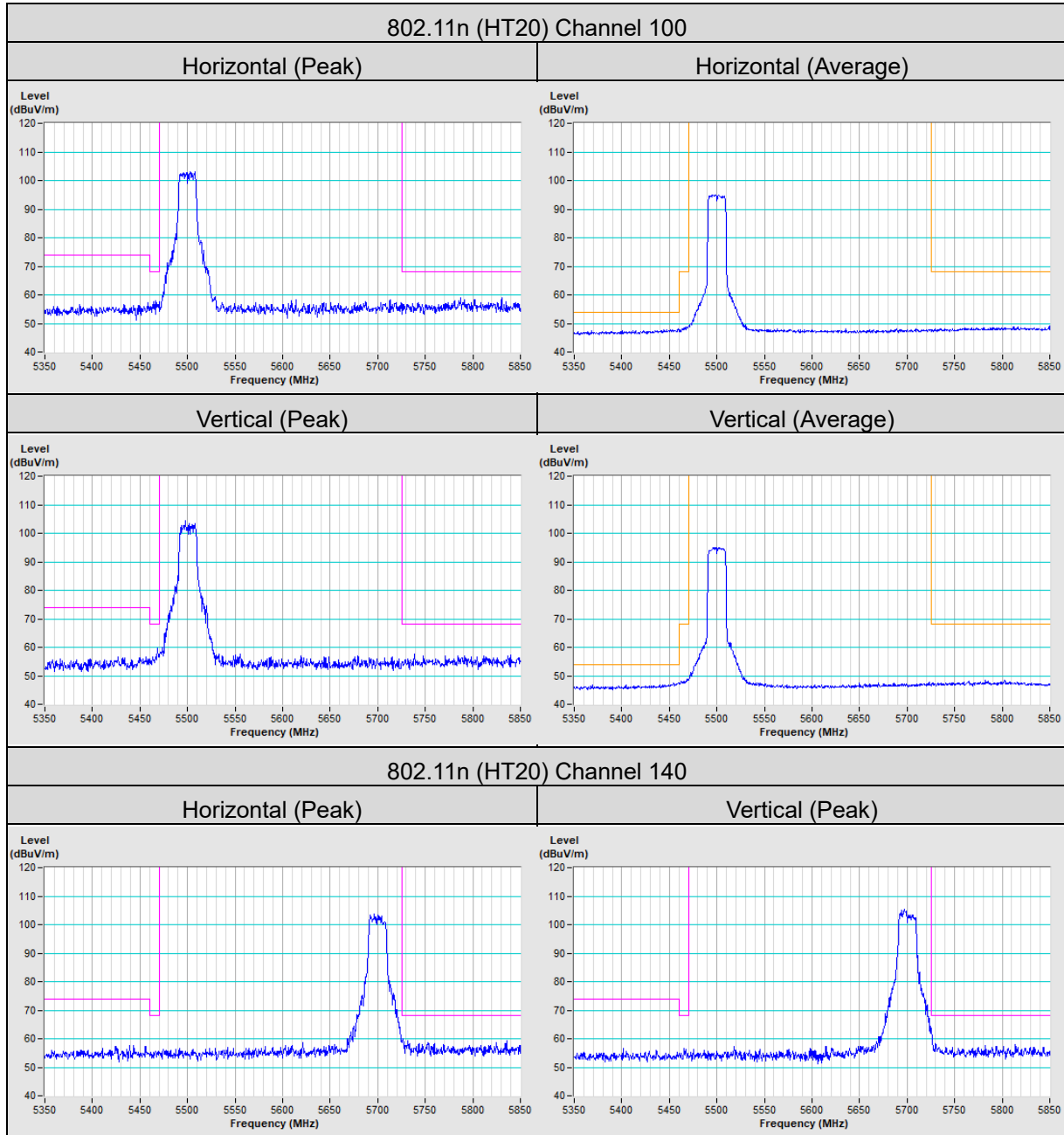


Vertical (Peak)



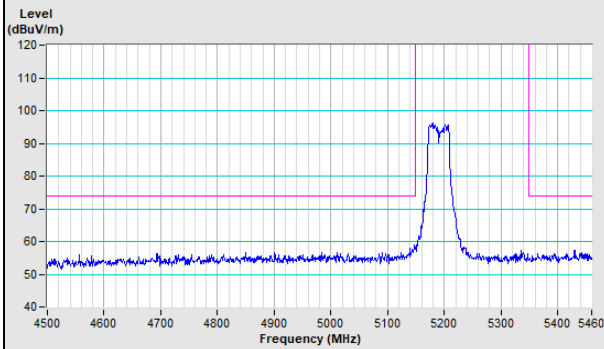
Vertical (Average)



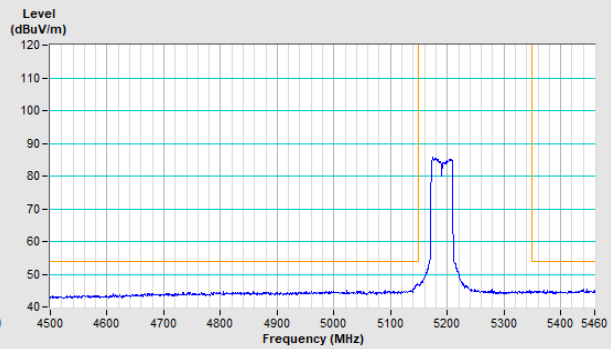


802.11n (HT40) Channel 38

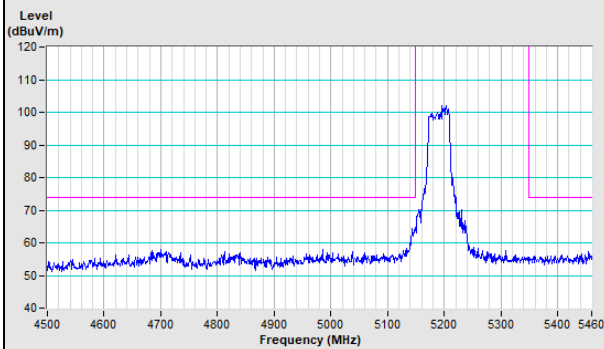
Horizontal (Peak)



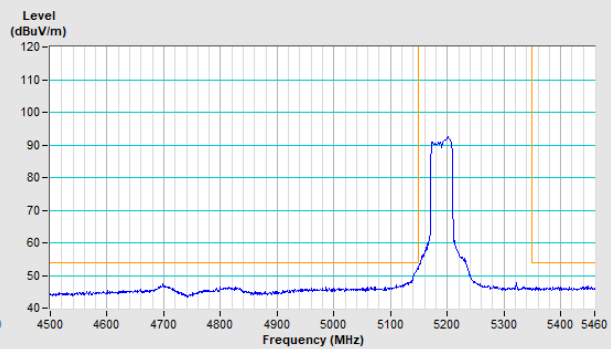
Horizontal (Average)



Vertical (Peak)

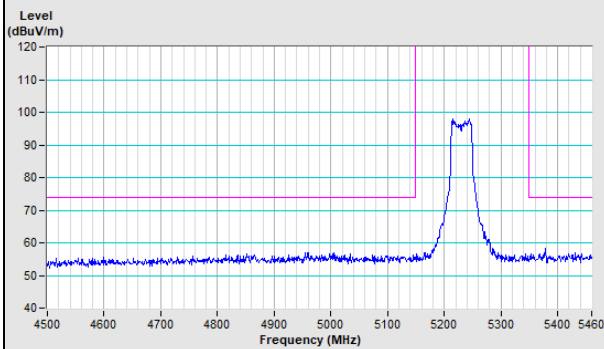


Vertical (Average)

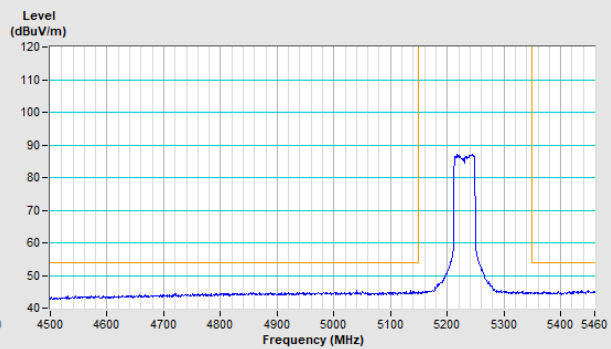


802.11n (HT40) Channel 46

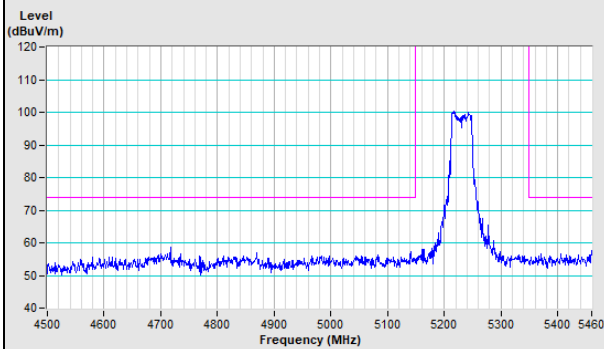
Horizontal (Peak)



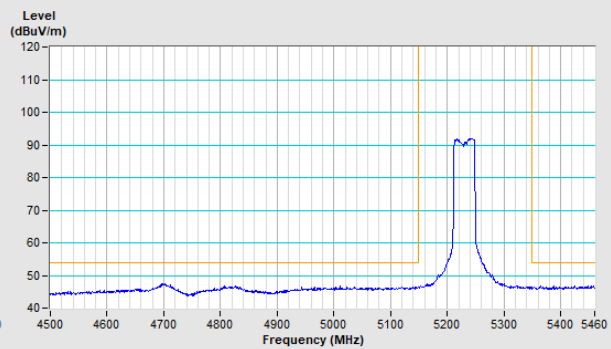
Horizontal (Average)



Vertical (Peak)

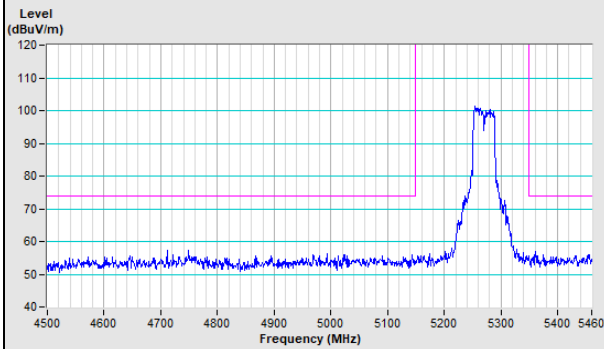


Vertical (Average)

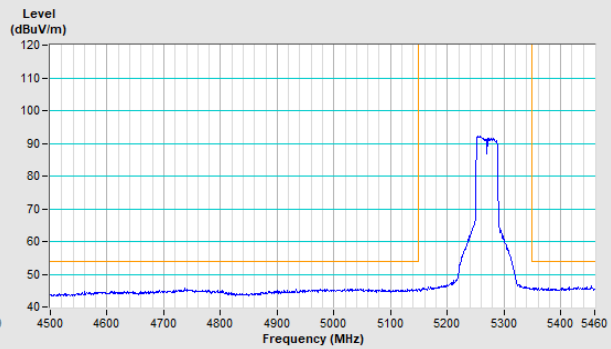


802.11n (HT40) Channel 54

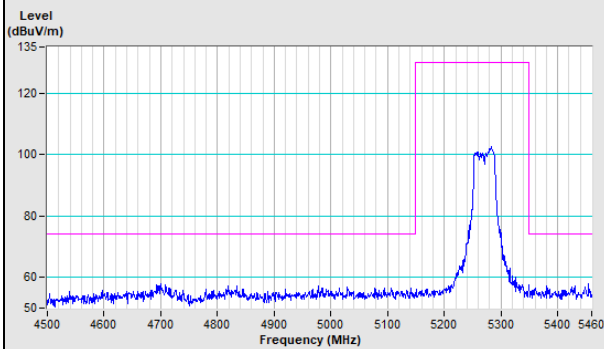
Horizontal (Peak)



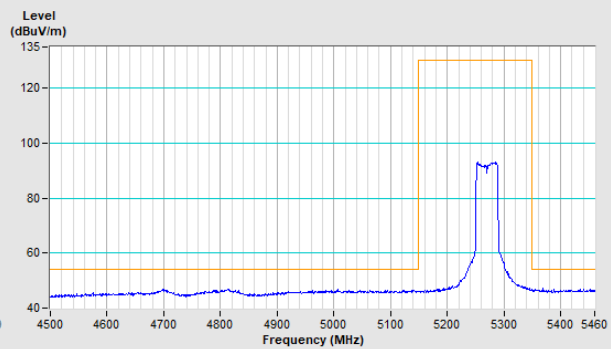
Horizontal (Average)



Vertical (Peak)

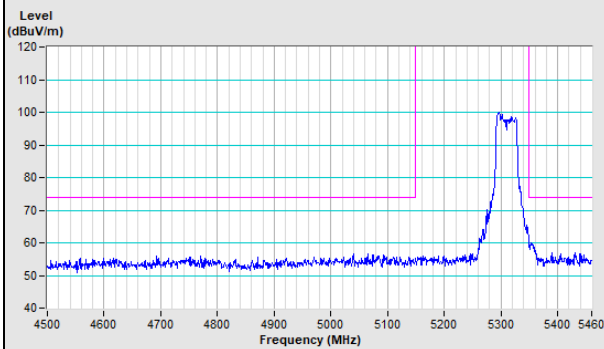


Vertical (Average)

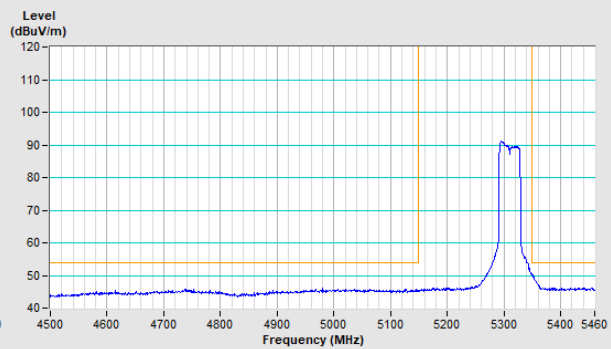


802.11n (HT40) Channel 62

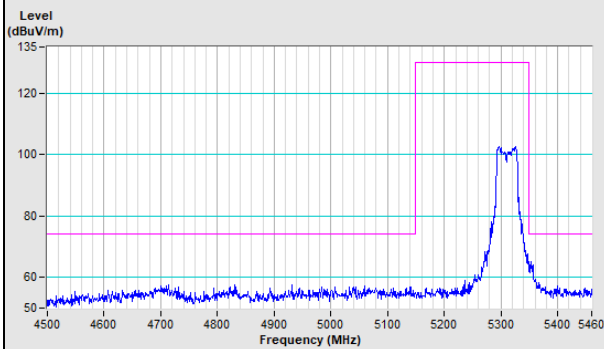
Horizontal (Peak)



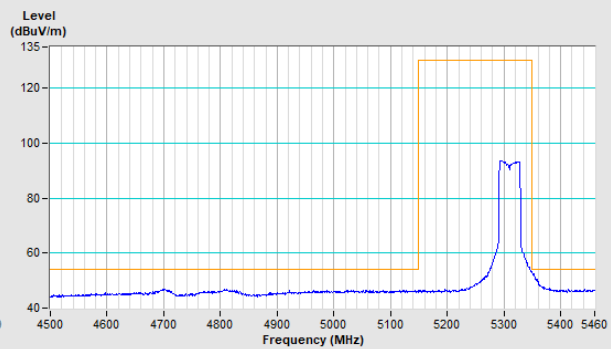
Horizontal (Average)

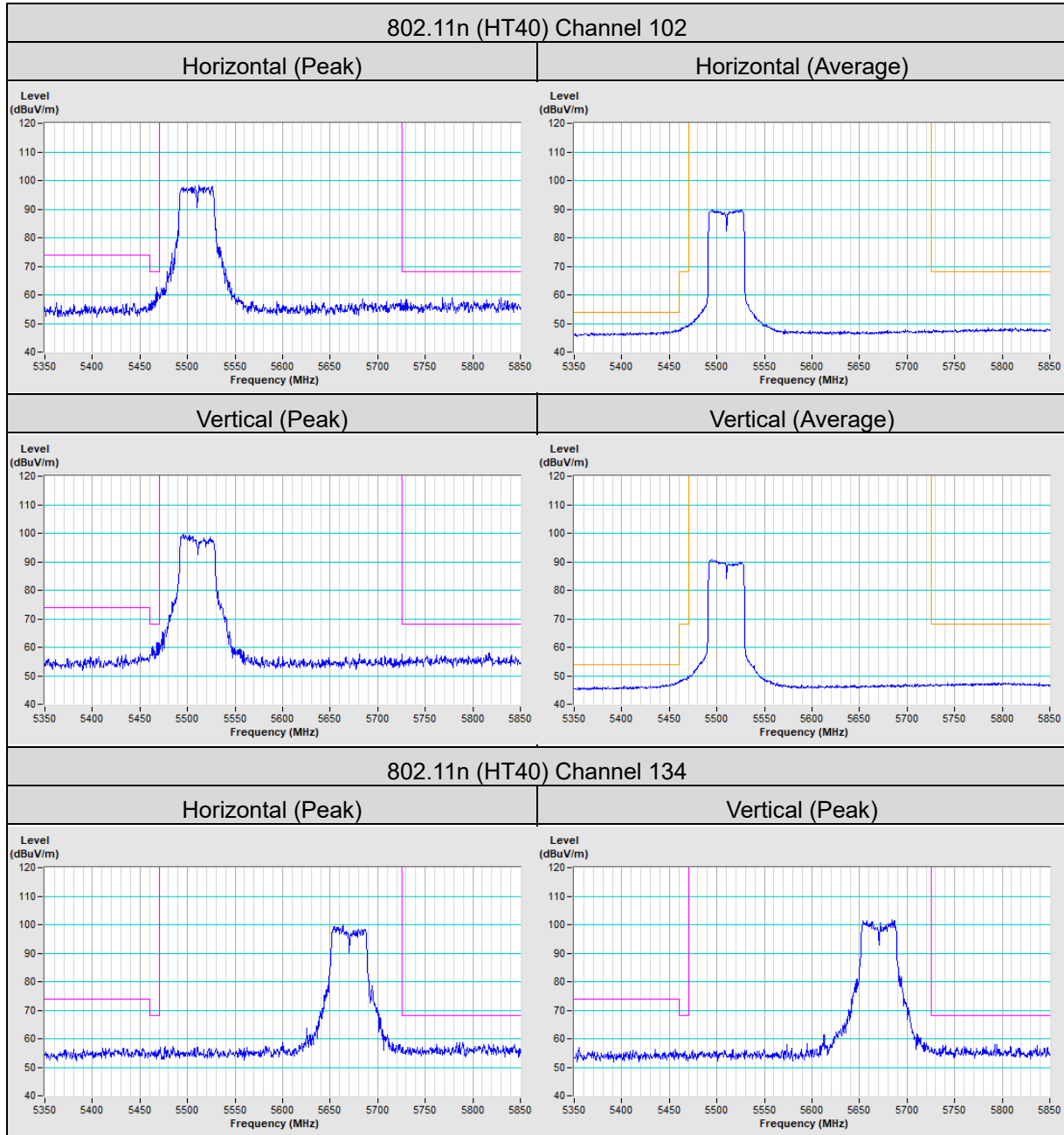


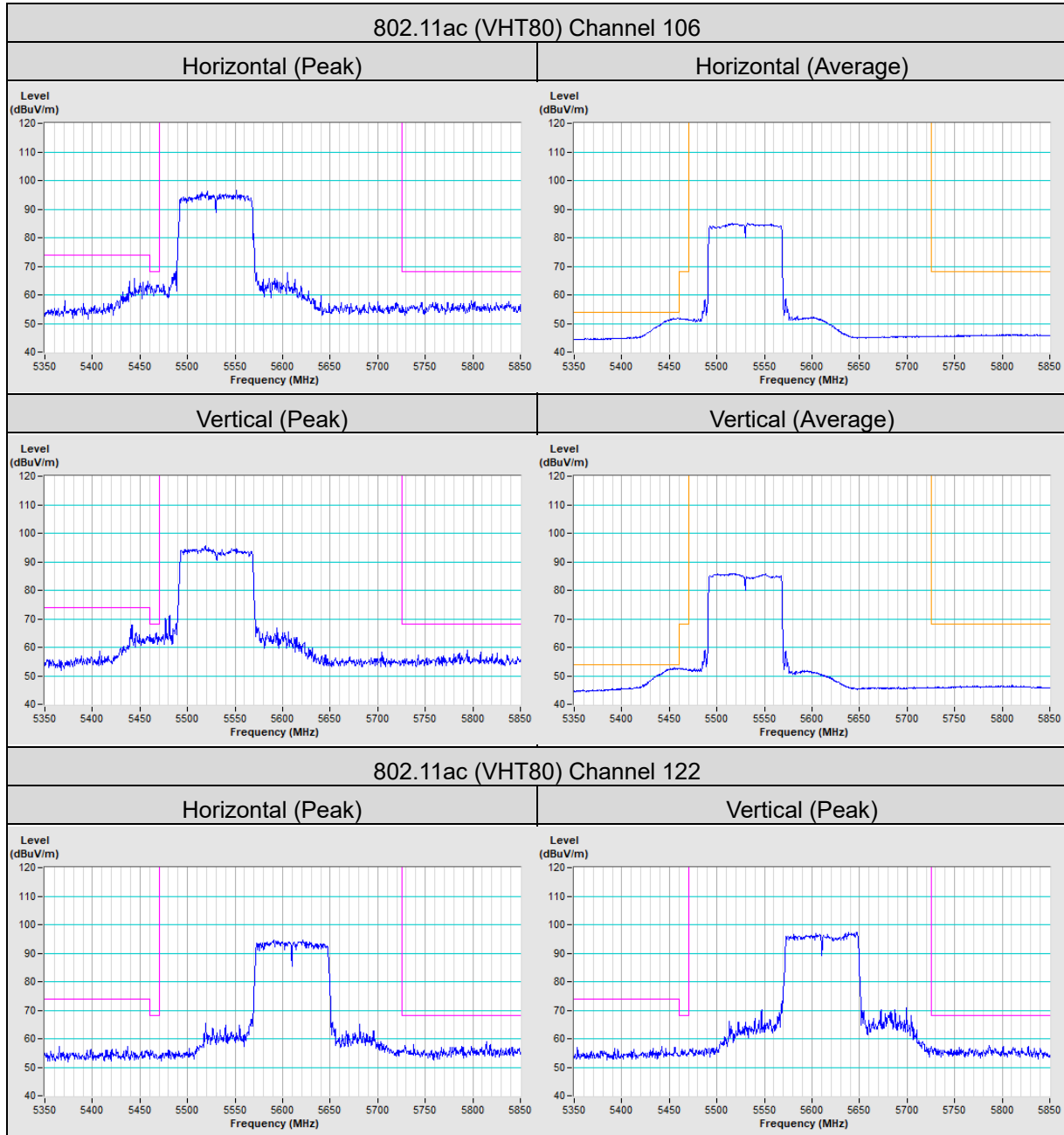
Vertical (Peak)



Vertical (Average)







Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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