

FCC Test Report

Report No.: RFBGSN-WTW-P21120080-3

FCC ID: 2AX8C-3545

Test Model: FL44TE

Received Date: Dec. 09, 2021

Test Date: Dec. 28, 2021 ~ Jan. 06, 2022

Issued Date: Jan. 19, 2022

Applicant: Amazon.com Services LLC

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RFBGSN-WTW-P21120080-3	Original Release	Jan. 19, 2022

1 **Certificate of Conformity**

Product: Fleet Edge

Brand: N/A

Test Model: FL44TE

Sample Status: Engineering Sample

Applicant: Amazon.com Services LLC

Test Date: Dec. 28, 2021 ~ Jan. 06, 2022

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 :

Vera Huang

, Date:

Jan. 19, 2022

Vera Huang / Specialist

Approved by :

Jeremy Lin

, Date:

Jan. 19, 2022

Jeremy Lin / Project Engineer

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 -7.26 dB at 0.19000 MHz.
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 -0.60 dB at 5150.00 MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB 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	No antenna connector is used.

Note:

1. For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.
2. For U-NII-1, U-NII-2A, 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.
3. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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) (\pm)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.79 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Fleet Edge
Brand	N/A
Test Model	FL44TE
Status of EUT	Engineering Sample
Power Supply Rating	12 Vdc (adapter)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0 Mbps 802.11n: up to 300.0 Mbps 802.11ac: up to 1733.3 Mbps
Operating Frequency	5180 ~ 5250 MHz, 5250 ~ 5320 MHz, 5500 ~ 5720 MHz, 5745 ~ 5825 MHz
Number of Channel	5180 ~ 5250 MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 1 for 802.11ac (VHT160) 5250 ~ 5320 MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT20) 1 for 802.11ac (VHT80) 1 for 802.11ac (VHT160) 5500 ~ 5720 MHz: 11 for 802.11a 12 for 802.11n (HT20), 802.11ac (VHT20) 6 for 802.11n (HT40), 802.11ac (VHT40) 3 for 802.11ac (VHT80) 1 for 802.11ac (VHT160) 5745 ~ 5825 MHz: 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)
Output Power	179.498 mW for 5180 ~ 5240 MHz 184.73 mW for 5260 ~ 5320 MHz 216.543 mW for 5500 ~ 5720 MHz 260.644 mW for 5745 ~ 5825 MHz
Antenna Type	Refer to Note as below
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	N/A

Note:

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

Modulation Mode	Tx Function
802.11a	1TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX
802.11ac (VHT20)	2TX
802.11ac (VHT40)	2TX
802.11ac (VHT80)	2TX
802.11ac (VHT160)	2TX

* The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for VHT20 / VHT40, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

2. The EUT contains following accessory devices.

Product	Brand	Model	Description
BT/WLAN Module	Intel	9560NGW	802.11 a/b/g/n/ac Wireless LAN + Bluetooth 5
WWAN Module	Quectel	EM06-A	WCDMA, LTE
CPU	Intel	i5-9500TE	CFL-S, 6C 35W
SO-DIMM	Innodisk	--	2667MHz, 8G&16G
LTE Main Antenna	Rivian	N/A	Cable length: 2445mm P/N: J7-1
LTE Aux Antenna	Rivian	N/A	Cable length: 3520mm P/N: J6-1
WiFi Main Antenna	Rivian	PT00206181-A	Cable length: 3550mm P/N: J5-1
WiFi Aux Antenna	Rivian	PT00207642-A	Cable length: 2475mm P/N: J4-1

3. The antenna information is listed as below.

Antenna information		Antenna Gain (dBi)			
Type	Ant.	BT/WLAN2.4GHz	WLAN5.15~5.35GHz	WLAN5.47~5.725 GHz	WLAN5.725~5.85GHz
PIFA	0	3.89	2.11	1.97	1.97
	1	4.2	2.24	2.09	2.09

4. 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.
5. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or User's Manual.

3.2 Description of Test Modes

For 5180 ~ 5250 MHz

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
42	5210

1 channel is provided for 802.11ac (VHT160):

Channel	Frequency (MHz)
50	5250

For 5250 ~ 5320 MHz

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270	62	5310

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
58	5290

1 channel is provided for 802.11ac (VHT160):

Channel	Frequency (MHz)
50	5250

For 5500 ~ 5720 MHz

11 channels are provided for 802.11a:

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

12 channels are provided for 802.11n (HT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	124	5620
104	5520	128	5640
108	5540	132	5660
112	5560	136	5680
116	5580	140	5700
120	5600	144	5720

6 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510	126	5630
110	5550	134	5670
118	5590	142	5710

3 channels are provided for 802.11ac (VHT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	138	5690
122	5610		

1 channel is provided for 802.11ac (VHT160):

Channel	Frequency (MHz)
114	5570

For 5745 ~ 5825 MHz:

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

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

2 channels are provided for 802.11n (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency (MHz)
155	5775

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE \geq 1G	RE $<$ 1G	PLC	APCM	
-	√	√	√	√	-

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

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.
2. For radiated emission (below 1GHz) and power line conducted emission test items chosen the worst maximum power.

Radiated Emission Test (Above 1 GHz):

- 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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5250	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	13.5
-		802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
-		802.11ac (VHT160)	50	50	OFDM	BPSK	58.5
-	5250-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11n (HT20)	52 to 64	52, 60, 64	OFDM	BPSK	6.5
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	13.5
-		802.11ac (VHT80)	58	58	OFDM	BPSK	29.3
-		802.11ac (VHT160)	50	50	OFDM	BPSK	58.5
-	5500-5720	802.11a	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.5
-		802.11n (HT40)	102 to 142	102, 110, 134, 142	OFDM	BPSK	13.5
-		802.11ac (VHT80)	106 to 138	106, 122, 138	OFDM	BPSK	29.3
-		802.11ac (VHT160)	114	114	OFDM	BPSK	58.5
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5
-		802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

Radiated Emission Test (Below 1 GHz):

- 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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5745-5825	802.11n (HT20)	149 to 165	157	OFDM	BPSK	6.5

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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5745-5825	802.11n (HT20)	149 to 165	157	OFDM	BPSK	6.5

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	Frequency Band (MHz)	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	5180-5250	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
-		802.11n (HT20)	36 to 48	36, 40, 48	OFDM	BPSK	6.5
-		802.11n (HT40)	38 to 46	38, 46	OFDM	BPSK	13.5
-		802.11ac (VHT80)	42	42	OFDM	BPSK	29.3
-		802.11ac (VHT160)	50	50	OFDM	BPSK	58.5
-	5250-5320	802.11a	52 to 64	52, 60, 64	OFDM	BPSK	6.0
-		802.11n (HT20)	52 to 64	52, 60, 64	OFDM	BPSK	6.5
-		802.11n (HT40)	54 to 62	54, 62	OFDM	BPSK	13.5
-		802.11ac (VHT80)	58	58	OFDM	BPSK	29.3
-		802.11ac (VHT160)	50	50	OFDM	BPSK	58.5
-	5500-5720	802.11a	100 to 140	100, 116, 140	OFDM	BPSK	6.0
-		802.11n (HT20)	100 to 144	100, 116, 140, 144	OFDM	BPSK	6.5
-		802.11n (HT40)	102 to 142	102, 110, 134, 142	OFDM	BPSK	13.5
-		802.11ac (VHT80)	106 to 138	106, 122, 138	OFDM	BPSK	29.3
-		802.11ac (VHT160)	114	114	OFDM	BPSK	58.5
-	5745-5825	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
-		802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	6.5
-		802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	13.5
-		802.11ac (VHT80)	155	155	OFDM	BPSK	29.3

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	21 deg. C, 73 % RH	120 Vac, 60 Hz	Vincent Chen / Thomas Cheng
RE<1G	21 deg. C, 73 % RH	120 Vac, 60 Hz	Tim Chen
PLC	22 deg. C, 66 % RH	120 Vac, 60 Hz	Tim Chen
APCM	25 deg. C, 60 % RH	120 Vac, 60 Hz	Alan Wu / Chris Lin

3.3 Duty Cycle of Test Signal

MODULATION TYPE: BPSK

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

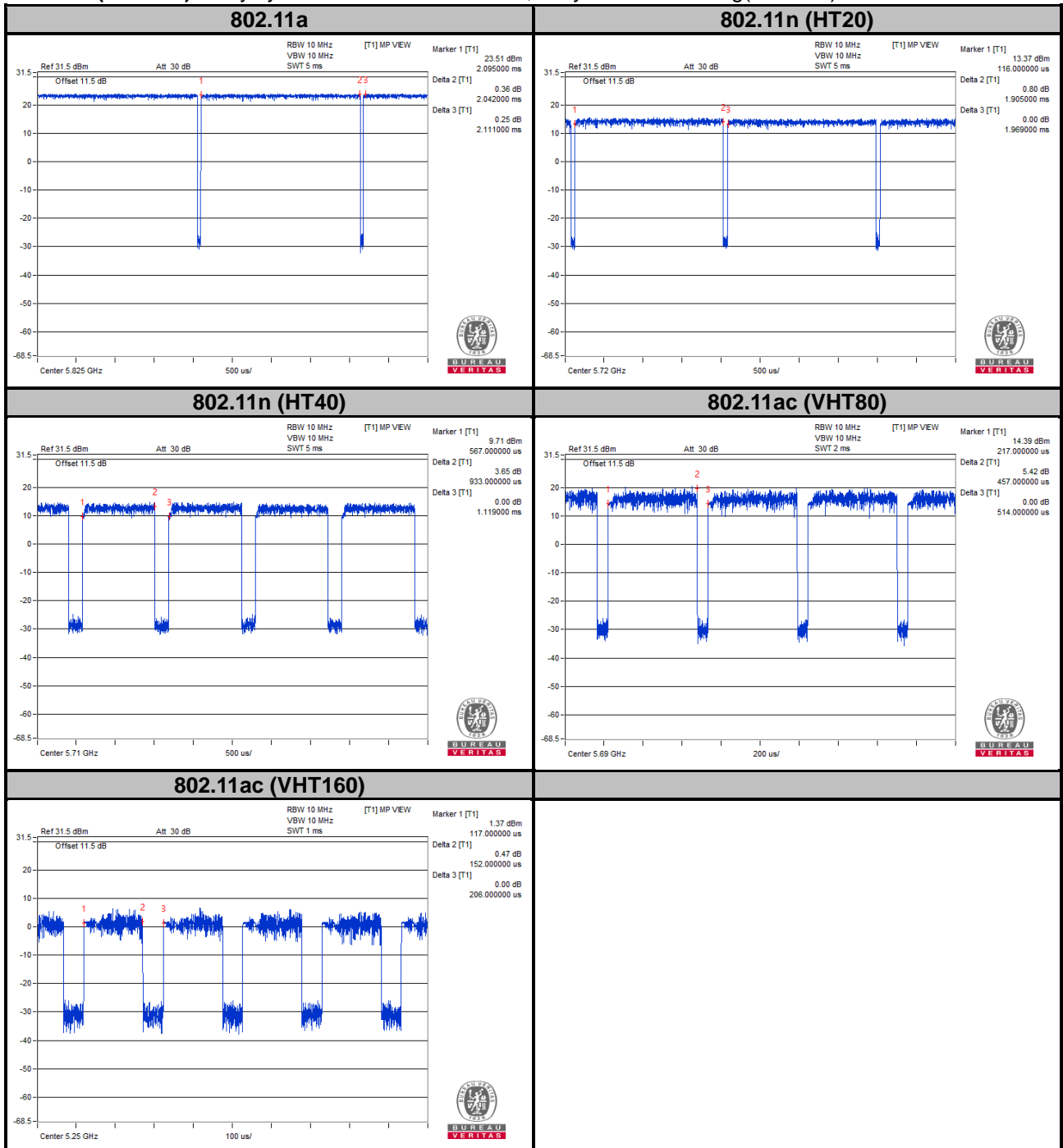
802.11a: Duty cycle = $2.042/2.111 = 0.967$, Duty factor = $10 * \log(1/0.967) = 0.14$

802.11n (HT20): Duty cycle = $1.905/1.969 = 0.967$, Duty factor = $10 * \log(1/0.967) = 0.14$

802.11n (HT40): Duty cycle = $0.933/1.119 = 0.834$, Duty factor = $10 * \log(1/0.834) = 0.79$

802.11ac (VHT80): Duty cycle = $0.457/0.514 = 0.889$, Duty factor = $10 * \log(1/0.889) = 0.51$

802.11ac (VHT160): Duty cycle = $0.152/0.206 = 0.738$, Duty factor = $10 * \log(1/0.738) = 1.32$



3.4 Description of Support Units

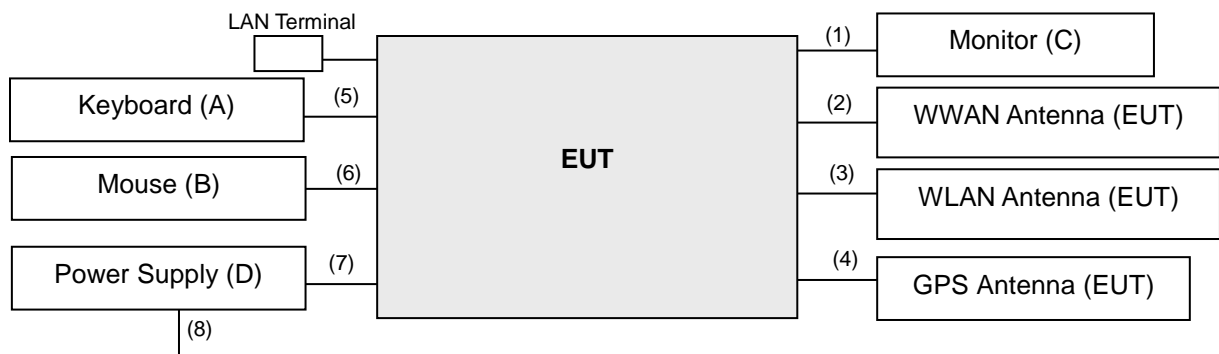
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Keyboard	Lenovo	KB1021	N/A	N/A	--
B	Mouse	DELL	MS111-P	CN-011D3V-71581-1CJ-092E	N/A	--
C	Monitor	HP	HP Z24s	6CM5172L56	N/A	--
D	Power Supply	NA	NA	NA	NA	--

Note: All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	HDMI Cable	1	2 m	N	0	-
2.	RF Cable	1	2445 mm	N	0	Accessory of the EUT
		1	3520 mm	N	0	Accessory of the EUT
3.	RF Cable	1	3550 mm	N	0	Accessory of the EUT
		1	2475 mm	N	0	Accessory of the EUT
4.	RF Cable	1	0.5 m	N	0	Accessory of the EUT
5.	USB Cable	1	2.4 m	N	0	-
6.	USB Cable	1	2.2 m	N	0	-
7.	DC power Cable	1	1.2 m	N	0	-
8.	AC power Cable	1	1.8 m	N	0	-

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 Procedures New Rules v02r01

KDB 662911 D01 Multiple Transmitter Output 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:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, 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 20 dB under any condition of modulation.

Limits of Unwanted Emission Out of the Restricted Bands

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v02r01		Field Strength at 3 m	
		PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
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
	<input type="checkbox"/> 15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
<p>*1 beyond 75 MHz or more above of the band edge.</p> <p>*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.</p> <p>*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.</p> <p>*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.</p>			

Note:

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

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Spectrum Analyzer Agilent	N9038A	MY51210203	Sep. 22, 2021	Sep. 21, 2022
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Apr. 12, 2021	Apr. 11, 2022
Broadband Horn Antenna SCHWARZBECK	BBHA 9170	9170-480	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 14, 2021	Nov. 13, 2022
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Oct. 28, 2021	Oct. 27, 2022
Fixed Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	Apr. 13, 2021	Apr. 12, 2022
Loop Antenna	EM-6879	269	Sep. 16, 2021	Sep. 15, 2022
Preamplifier EMCI	EMC001340	980201	Sep. 15, 2021	Sep. 14, 2022
Preamplifier EMCI	EMC 012645	980115	Oct. 05, 2021	Oct. 04, 2022
Preamplifier EMCI	EMC 184045	980116	Oct. 05, 2021	Oct. 04, 2022
Preamplifier EMCI	EMC 330H	980112	Oct. 05, 2021	Oct. 04, 2022
Power Meter Anritsu	ML2495A	1012010	Sep. 09, 2021	Sep. 08, 2022
Power Sensor Anritsu	MA2411B	1315050	Sep. 09, 2021	Sep. 08, 2022
RF Coaxial Cable EMCI	EMC104-SM-SM-8000	171005	Oct. 05, 2021	Oct. 04, 2022
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1000(140807)	Oct. 05, 2021	Oct. 04, 2022
RF Coaxial Cable WOKEN	8D-FB	Cable-Ch10-01	Oct. 05, 2021	Oct. 04, 2022
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	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 HwaYa Chamber 10.

4.1.3 Test Procedures

For Radiated Emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. 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 9 kHz at frequency below 30 MHz.

For Radiated Emission above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) 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 detected 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:

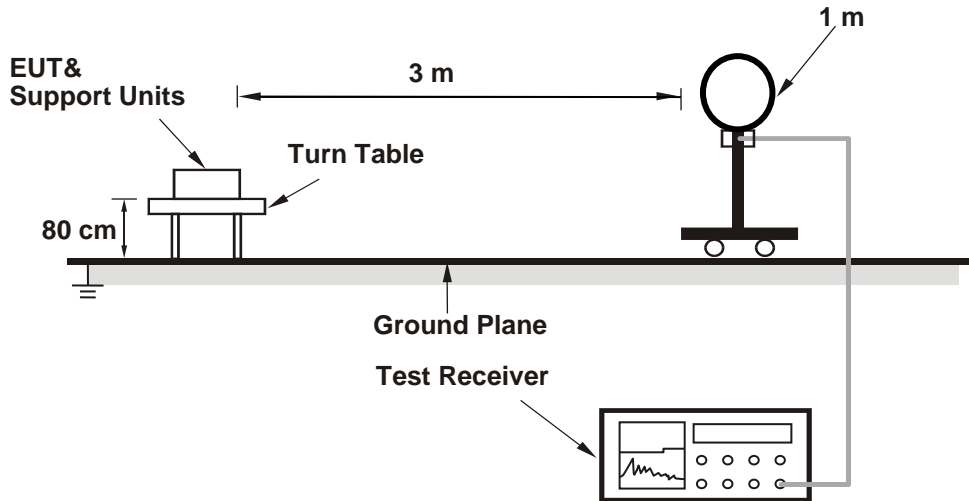
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98 %) or 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
(11a: RBW = 1 MHz, VBW = 1 kHz ; 11n (HT20): RBW = 1 MHz, VBW = 1 kHz ;
11n (HT40): RBW = 1 MHz, VBW = 3 kHz ; 11ac (VHT80): RBW = 1 MHz, VBW = 3 kHz;
11ac (VHT160): RBW = 1 MHz, VBW = 10 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

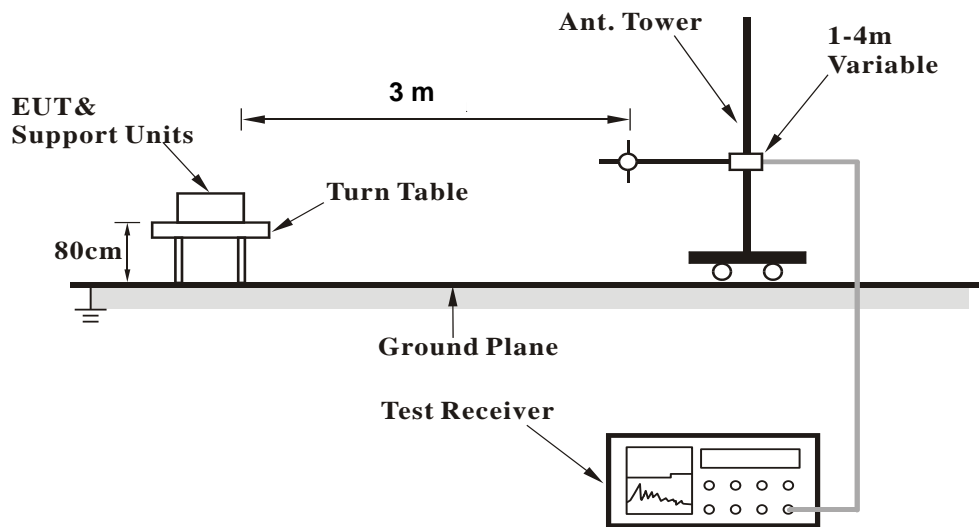
No deviation.

4.1.5 Test Setup

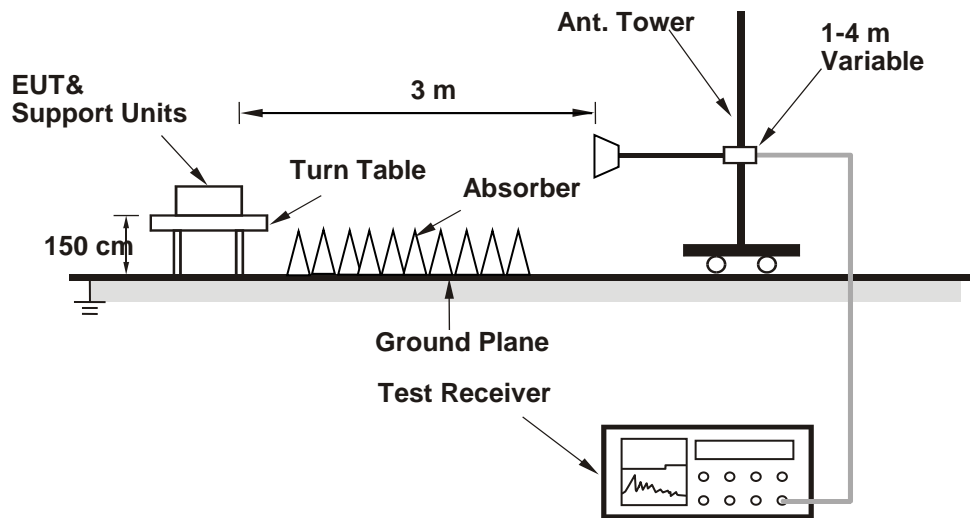
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



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 a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1 GHz 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	57.57 PK	74.00	-16.43	2.61 H	126	74.29	-16.72
2	5150.00	44.18 AV	54.00	-9.82	2.61 H	126	60.90	-16.72
3	*5180.00	96.41 PK			2.61 H	126	60.09	36.32
4	*5180.00	87.33 AV			2.61 H	126	51.01	36.32
5	#10360.00	53.08 PK	68.20	-15.12	1.53 H	56	57.24	-4.16

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	66.90 PK	74.00	-7.10	2.12 V	146	83.62	-16.72
2	5150.00	51.94 AV	54.00	-2.06	2.12 V	146	68.66	-16.72
3	*5180.00	104.68 PK			2.12 V	146	68.36	36.32
4	*5180.00	96.87 AV			2.12 V	146	60.55	36.32
5	#10360.00	54.16 PK	68.20	-14.04	1.69 V	223	58.32	-4.16

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 802.11a	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	99.14 PK			2.29 H	123	62.80	36.34
2	*5200.00	90.59 AV			2.29 H	123	54.25	36.34
3	#10400.00	53.32 PK	68.20	-14.88	2.35 H	347	57.26	-3.94
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	107.49 PK			1.96 V	147	71.15	36.34
2	*5200.00	99.02 AV			1.96 V	147	62.68	36.34
3	#10400.00	54.29 PK	68.20	-13.91	1.69 V	227	58.23	-3.94

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	97.34 PK			2.04 H	122	61.07	36.27
2	*5240.00	88.47 AV			2.04 H	122	52.20	36.27
3	5350.00	52.54 PK	74.00	-21.46	2.04 H	122	69.07	-16.53
4	5350.00	40.63 AV	54.00	-13.37	2.04 H	122	57.16	-16.53
5	#10480.00	53.64 PK	68.20	-14.56	1.47 H	225	57.56	-3.92
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	106.61 PK			2.04 V	150	70.34	36.27
2	*5240.00	98.05 AV			2.04 V	150	61.78	36.27
3	5350.00	59.87 PK	74.00	-14.13	2.04 V	150	76.40	-16.53
4	5350.00	41.91 AV	54.00	-12.09	2.04 V	150	58.44	-16.53
5	#10480.00	54.50 PK	68.20	-13.70	1.98 V	223	58.42	-3.92

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	51.99 PK	74.00	-22.01	2.09 H	122	68.71	-16.72
2	5150.00	42.44 AV	54.00	-11.56	2.09 H	122	59.16	-16.72
3	*5260.00	98.90 PK			2.09 H	122	62.69	36.21
4	*5260.00	90.11 AV			2.09 H	122	53.90	36.21
5	#10520.00	53.67 PK	68.20	-14.53	3.25 H	141	57.56	-3.89
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	54.56 PK	74.00	-19.44	2.06 V	145	71.28	-16.72
2	5150.00	42.20 AV	54.00	-11.80	2.06 V	145	58.92	-16.72
3	*5260.00	107.44 PK			2.06 V	145	71.23	36.21
4	*5260.00	99.06 AV			2.06 V	145	62.85	36.21
5	#10520.00	54.56 PK	68.20	-13.64	3.26 V	221	58.45	-3.89

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	99.43 PK			2.22 H	119	63.33	36.10
2	*5300.00	90.84 AV			2.22 H	119	54.74	36.10
3	10600.00	53.38 PK	74.00	-20.62	1.79 H	223	57.16	-3.78
4	10600.00	43.45 AV	54.00	-10.55	1.79 H	223	47.23	-3.78

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	107.60 PK			2.13 V	118	71.50	36.10
2	*5300.00	98.73 AV			2.13 V	118	62.63	36.10
3	10600.00	54.86 PK	74.00	-19.14	1.96 V	45	58.64	-3.78
4	10600.00	44.49 AV	54.00	-9.51	1.96 V	45	48.27	-3.78

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	93.55 PK			2.16 H	122	57.41	36.14
2	*5320.00	84.76 AV			2.16 H	122	48.62	36.14
3	5350.00	51.58 PK	74.00	-22.42	2.16 H	122	68.11	-16.53
4	5350.00	41.28 AV	54.00	-12.72	2.16 H	122	57.81	-16.53
5	5380.00	55.58 PK	74.00	-18.42	2.16 H	122	71.97	-16.39
6	5380.00	39.06 AV	54.00	-14.94	2.16 H	122	55.45	-16.39
7	10640.00	53.79 PK	74.00	-20.21	3.25 H	177	57.46	-3.67
8	10640.00	43.59 AV	54.00	-10.41	3.25 H	177	47.26	-3.67

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	101.90 PK			1.85 V	149	65.76	36.14
2	*5320.00	93.33 AV			1.85 V	149	57.19	36.14
3	5350.00	61.03 PK	74.00	-12.97	1.85 V	149	77.56	-16.53
4	5350.00	45.93 AV	54.00	-8.07	1.85 V	149	62.46	-16.53
5	5371.45	63.35 PK	74.00	-10.65	1.85 V	149	79.78	-16.43
6	5371.45	43.69 AV	54.00	-10.31	1.85 V	149	60.12	-16.43
7	10640.00	54.78 PK	74.00	-19.22	1.09 V	322	58.45	-3.67
8	10640.00	44.44 AV	54.00	-9.56	1.09 V	322	48.11	-3.67

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	5450.00	55.99 PK	74.00	-18.01	2.49 H	289	72.10	-16.11
2	5450.00	42.04 AV	54.00	-11.96	2.49 H	289	58.15	-16.11
3	5460.00	47.67 PK	74.00	-26.33	2.49 H	289	63.78	-16.11
4	5460.00	41.24 AV	54.00	-12.76	2.49 H	289	57.35	-16.11
5	#5470.00	50.36 PK	68.20	-17.84	2.49 H	289	66.47	-16.11
6	*5500.00	94.52 PK			2.49 H	289	57.98	36.54
7	*5500.00	86.53 AV			2.49 H	289	49.99	36.54
8	11000.00	55.70 PK	74.00	-18.30	3.55 H	281	59.36	-3.66
9	11000.00	45.14 AV	54.00	-8.86	3.55 H	281	48.80	-3.66
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	5450.00	60.36 PK	74.00	-13.64	2.16 V	123	76.47	-16.11
2	5450.00	45.51 AV	54.00	-8.49	2.16 V	123	61.62	-16.11
3	5460.00	54.79 PK	74.00	-19.21	2.16 V	123	70.90	-16.11
4	5460.00	42.56 AV	54.00	-11.44	2.16 V	123	58.67	-16.11
5	#5470.00	57.65 PK	68.20	-10.55	2.16 V	123	73.76	-16.11
6	*5500.00	102.12 PK			2.16 V	123	65.58	36.54
7	*5500.00	94.42 AV			2.16 V	123	57.88	36.54
8	11000.00	55.47 PK	74.00	-18.53	2.16 V	123	59.13	-3.66
9	11000.00	44.71 AV	54.00	-9.29	2.16 V	123	48.37	-3.66

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 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	99.07 PK			2.49 H	106	62.41	36.66
2	*5580.00	90.18 AV			2.49 H	106	53.52	36.66
3	11160.00	55.53 PK	74.00	-18.47	2.62 H	163	59.08	-3.55
4	11160.00	44.90 AV	54.00	-9.10	2.62 H	163	48.45	-3.55
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	*5580.00	107.19 PK			2.00 V	152	70.53	36.66
2	*5580.00	99.00 AV			2.00 V	152	62.34	36.66
3	11160.00	55.33 PK	74.00	-18.67	1.27 V	116	58.88	-3.55
4	11160.00	45.26 AV	54.00	-8.74	1.27 V	116	48.81	-3.55

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.

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	96.03 PK			2.48 H	123	58.95	37.08
2	*5700.00	87.94 AV			2.48 H	123	50.86	37.08
3	#5725.00	57.80 PK	68.20	-10.40	2.48 H	123	73.42	-15.62
4	11140.00	55.73 PK	74.00	-18.27	3.20 H	348	59.27	-3.54
5	11140.00	44.85 AV	54.00	-9.15	3.20 H	348	48.39	-3.54

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	103.89 PK			1.99 V	153	66.81	37.08
2	*5700.00	95.36 AV			1.99 V	153	58.28	37.08
3	#5725.00	58.78 PK	68.20	-9.42	1.99 V	153	74.40	-15.62
4	11140.00	54.97 PK	74.00	-19.03	2.53 V	246	58.51	-3.54
5	11140.00	45.12 AV	54.00	-8.88	2.53 V	246	48.66	-3.54

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	*5745.00	98.41 PK			2.48 H	118	61.41	37.00
2	*5745.00	90.37 AV			2.48 H	118	53.37	37.00
3	11490.00	56.79 PK	74.00	-17.21	2.74 H	114	59.34	-2.55
4	11490.00	46.30 AV	54.00	-7.70	2.74 H	114	48.85	-2.55
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	*5745.00	105.73 PK			2.00 V	150	68.73	37.00
2	*5745.00	96.96 AV			2.00 V	150	59.96	37.00
3	11490.00	56.53 PK	74.00	-17.47	2.80 V	167	59.08	-2.55
4	11490.00	45.65 AV	54.00	-8.35	2.80 V	167	48.20	-2.55

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.

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	*5785.00	96.95 PK			2.52 H	122	59.96	36.99
2	*5785.00	88.71 AV			2.52 H	122	51.72	36.99
3	11570.00	56.36 PK	74.00	-17.64	2.07 H	311	59.21	-2.85
4	11570.00	45.52 AV	54.00	-8.48	2.07 H	311	48.37	-2.85
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	*5785.00	103.81 PK			1.93 V	150	66.82	36.99
2	*5785.00	95.35 AV			1.93 V	150	58.36	36.99
3	11570.00	56.75 PK	74.00	-17.25	1.80 V	172	59.60	-2.85
4	11570.00	45.76 AV	54.00	-8.24	1.80 V	172	48.61	-2.85

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.
5. " * ": Fundamental frequency.

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	*5825.00	96.46 PK			2.50 H	125	59.27	37.19
2	*5825.00	88.80 AV			2.50 H	125	51.61	37.19
3	11650.00	55.52 PK	74.00	-18.48	1.36 H	41	58.77	-3.25
4	11650.00	45.14 AV	54.00	-8.86	1.36 H	41	48.39	-3.25
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	*5825.00	103.33 PK			1.99 V	157	66.14	37.19
2	*5825.00	94.94 AV			1.99 V	157	57.75	37.19
3	11650.00	56.26 PK	74.00	-17.74	1.36 V	189	59.51	-3.25
4	11650.00	45.64 AV	54.00	-8.36	1.36 V	189	48.89	-3.25

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 (HT20)	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	50.03 PK	74.00	-23.97	2.28 H	74	66.75	-16.72
2	5150.00	40.55 AV	54.00	-13.45	2.28 H	74	57.27	-16.72
3	*5180.00	96.71 PK			2.28 H	74	60.39	36.32
4	*5180.00	89.19 AV			2.28 H	74	52.87	36.32
5	#10360.00	55.25 PK	68.20	-12.95	1.67 H	274	59.41	-4.16

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	51.69 PK	74.00	-22.31	2.15 V	191	68.41	-16.72
2	5150.00	41.85 AV	54.00	-12.15	2.15 V	191	58.57	-16.72
3	*5180.00	104.65 PK			2.15 V	191	68.33	36.32
4	*5180.00	96.35 AV			2.15 V	191	60.03	36.32
5	#10360.00	54.88 PK	68.20	-13.32	2.79 V	130	59.04	-4.16

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 802.11n (HT20)	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	99.88 PK			2.21 H	73	63.54	36.34
2	*5200.00	92.09 AV			2.21 H	73	55.75	36.34
3	#10400.00	54.84 PK	68.20	-13.36	2.74 H	157	58.78	-3.94
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	107.28 PK			2.14 V	145	70.94	36.34
2	*5200.00	99.50 AV			2.14 V	145	63.16	36.34
3	#10400.00	54.86 PK	68.20	-13.34	1.49 V	174	58.80	-3.94

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 (HT20)	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	98.26 PK			2.30 H	72	61.99	36.27
2	*5240.00	91.22 AV			2.30 H	72	54.95	36.27
3	5350.00	51.26 PK	74.00	-22.74	2.30 H	72	67.79	-16.53
4	5350.00	40.54 AV	54.00	-13.46	2.30 H	72	57.07	-16.53
5	#10480.00	54.52 PK	68.20	-13.68	3.22 H	216	58.44	-3.92
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	106.76 PK			2.10 V	193	70.49	36.27
2	*5240.00	98.09 AV			2.10 V	193	61.82	36.27
3	5350.00	50.64 PK	74.00	-23.36	2.10 V	193	67.17	-16.53
4	5350.00	40.93 AV	54.00	-13.07	2.10 V	193	57.46	-16.53
5	#10480.00	55.68 PK	68.20	-12.52	1.52 V	254	59.60	-3.92

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 (HT20)	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	51.90 PK	74.00	-22.10	2.37 H	89	68.62	-16.72
2	5150.00	41.76 AV	54.00	-12.24	2.37 H	89	58.48	-16.72
3	*5260.00	98.38 PK			2.37 H	89	62.17	36.21
4	*5260.00	90.04 AV			2.37 H	89	53.83	36.21
5	#10520.00	55.01 PK	68.20	-13.19	3.08 H	47	58.90	-3.89
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	50.18 PK	74.00	-23.82	2.13 V	195	66.90	-16.72
2	5150.00	40.58 AV	54.00	-13.42	2.13 V	195	57.30	-16.72
3	*5260.00	106.48 PK			2.13 V	195	70.27	36.21
4	*5260.00	98.34 AV			2.13 V	195	62.13	36.21
5	#10520.00	54.68 PK	68.20	-13.52	3.83 V	240	58.57	-3.89

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 (HT20)	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	97.48 PK			2.30 H	89	61.38	36.10
2	*5300.00	89.79 AV			2.30 H	89	53.69	36.10
3	10600.00	55.00 PK	74.00	-19.00	3.67 H	176	58.78	-3.78
4	10600.00	44.76 AV	54.00	-9.24	3.67 H	176	48.54	-3.78
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	105.49 PK			2.17 V	190	69.39	36.10
2	*5300.00	97.19 AV			2.17 V	190	61.09	36.10
3	10600.00	55.07 PK	74.00	-18.93	2.37 V	300	58.85	-3.78
4	10600.00	44.85 AV	54.00	-9.15	2.37 V	300	48.63	-3.78

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 (HT20)	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	93.05 PK			2.46 H	107	56.91	36.14
2	*5320.00	84.99 AV			2.46 H	107	48.85	36.14
3	5350.00	51.48 PK	74.00	-22.52	2.46 H	107	68.01	-16.53
4	5350.00	41.89 AV	54.00	-12.11	2.46 H	107	58.42	-16.53
5	10640.00	55.89 PK	74.00	-18.11	2.86 H	323	59.56	-3.67
6	10640.00	44.76 AV	54.00	-9.24	2.86 H	323	48.43	-3.67
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	101.05 PK			2.07 V	195	64.91	36.14
2	*5320.00	93.66 AV			2.07 V	195	57.52	36.14
3	5350.00	56.56 PK	74.00	-17.44	2.07 V	195	73.09	-16.53
4	5350.00	45.26 AV	54.00	-8.74	2.07 V	195	61.79	-16.53
5	10640.00	55.08 PK	74.00	-18.92	2.61 V	358	58.75	-3.67
6	10640.00	44.84 AV	54.00	-9.16	2.61 V	358	48.51	-3.67

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 (HT20)	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	51.02 PK	74.00	-22.98	2.28 H	112	67.13	-16.11
2	5460.00	40.70 AV	54.00	-13.30	2.28 H	112	56.81	-16.11
3	#5470.00	51.16 PK	68.20	-17.04	2.28 H	112	67.27	-16.11
4	*5500.00	94.82 PK			2.28 H	112	58.28	36.54
5	*5500.00	87.30 AV			2.28 H	112	50.76	36.54
6	11000.00	55.78 PK	74.00	-18.22	1.91 H	345	59.44	-3.66
7	11000.00	45.24 AV	54.00	-8.76	1.91 H	345	48.90	-3.66
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	5460.00	50.78 PK	74.00	-23.22	2.11 V	188	66.89	-16.11
2	5460.00	41.28 AV	54.00	-12.72	2.11 V	188	57.39	-16.11
3	#5470.00	51.49 PK	68.20	-16.71	2.11 V	188	67.60	-16.11
4	*5500.00	101.09 PK			2.11 V	188	64.55	36.54
5	*5500.00	93.88 AV			2.11 V	188	57.34	36.54
6	11000.00	55.82 PK	74.00	-18.18	2.36 V	195	59.48	-3.66
7	11000.00	45.00 AV	54.00	-9.00	2.36 V	195	48.66	-3.66

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 802.11n (HT20)	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	99.66 PK			2.45 H	111	63.00	36.66
2	*5580.00	92.04 AV			2.45 H	111	55.38	36.66
3	11160.00	55.40 PK	74.00	-18.60	3.93 H	148	58.95	-3.55
4	11160.00	45.00 AV	54.00	-9.00	3.93 H	148	48.55	-3.55
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	*5580.00	106.59 PK			2.25 V	65	69.93	36.66
2	*5580.00	98.63 AV			2.25 V	65	61.97	36.66
3	11160.00	55.35 PK	74.00	-18.65	2.13 V	89	58.90	-3.55
4	11160.00	44.95 AV	54.00	-9.05	2.13 V	89	48.50	-3.55

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.

RF Mode	TX 802.11n (HT20)	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	98.38 PK			2.45 H	113	61.30	37.08
2	*5700.00	91.91 AV			2.45 H	113	54.83	37.08
3	#5725.00	54.66 PK	68.20	-13.54	2.45 H	113	70.28	-15.62
4	11400.00	55.94 PK	74.00	-18.06	3.01 H	30	58.40	-2.46
5	11400.00	46.00 AV	54.00	-8.00	3.01 H	30	48.46	-2.46

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	*5700.00	105.01 PK			1.98 V	148	67.93	37.08
2	*5700.00	97.14 AV			1.98 V	148	60.06	37.08
3	#5725.00	63.95 PK	68.20	-4.25	1.98 V	148	79.57	-15.62
4	11400.00	56.99 PK	74.00	-17.01	2.48 V	146	59.45	-2.46
5	11400.00	45.95 AV	54.00	-8.05	2.48 V	146	48.41	-2.46

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 802.11n (HT20)	Channel	CH 144 : 5720 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	*5720.00	99.92 PK			2.39 H	120	62.87	37.05
2	*5720.00	92.48 AV			2.39 H	120	55.43	37.05
3	#5850.00	53.53 PK	68.20	-14.67	2.39 H	120	68.99	-15.46
4	11440.00	54.62 PK	74.00	-19.38	1.97 H	134	57.12	-2.50
5	11440.00	44.73 AV	54.00	-9.27	1.97 H	134	47.23	-2.50

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	*5720.00	106.86 PK			2.01 V	154	69.81	37.05
2	*5720.00	99.86 AV			2.01 V	154	62.81	37.05
3	#5850.00	52.17 PK	68.20	-16.03	2.01 V	154	67.63	-15.46
4	11440.00	55.95 PK	74.00	-18.05	1.74 V	223	58.45	-2.50
5	11440.00	44.73 AV	54.00	-9.27	1.74 V	223	47.23	-2.50

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 (HT20)	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	*5745.00	100.96 PK			2.65 H	111	63.96	37.00
2	*5745.00	93.42 AV			2.65 H	111	56.42	37.00
3	11490.00	54.68 PK	74.00	-19.32	2.36 H	110	57.23	-2.55
4	11490.00	44.61 AV	54.00	-9.39	2.36 H	110	47.16	-2.55
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	*5745.00	108.98 PK			2.12 V	152	71.98	37.00
2	*5745.00	100.79 AV			2.12 V	152	63.79	37.00
3	11490.00	55.87 PK	74.00	-18.13	1.41 V	341	58.42	-2.55
4	11490.00	45.71 AV	54.00	-8.29	1.41 V	341	48.26	-2.55

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.

RF Mode	TX 802.11n (HT20)	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	*5785.00	100.83 PK			2.57 H	109	63.84	36.99
2	*5785.00	92.97 AV			2.57 H	109	55.98	36.99
3	11570.00	54.64 PK	74.00	-19.36	1.06 H	232	57.49	-2.85
4	11570.00	44.33 AV	54.00	-9.67	1.06 H	232	47.18	-2.85
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	*5785.00	108.31 PK			1.87 V	162	71.32	36.99
2	*5785.00	100.22 AV			1.87 V	162	63.23	36.99
3	11570.00	55.58 PK	74.00	-18.42	3.14 V	220	58.43	-2.85
4	11570.00	45.35 AV	54.00	-8.65	3.14 V	220	48.20	-2.85

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.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11n (HT20)	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	*5825.00	100.34 PK			2.24 H	116	63.15	37.19
2	*5825.00	92.42 AV			2.24 H	116	55.23	37.19
3	11650.00	54.61 PK	74.00	-19.39	3.47 H	104	57.86	-3.25
4	11650.00	44.31 AV	54.00	-9.69	3.47 H	104	47.56	-3.25
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	*5825.00	107.67 PK			2.13 V	159	70.48	37.19
2	*5825.00	99.29 AV			2.13 V	159	62.10	37.19
3	11650.00	55.22 PK	74.00	-18.78	1.97 V	223	58.47	-3.25
4	11650.00	45.44 AV	54.00	-8.56	1.97 V	223	48.69	-3.25

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 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	53.78 PK	74.00	-20.22	2.39 H	73	70.50	-16.72
2	5150.00	44.23 AV	54.00	-9.77	2.39 H	73	60.95	-16.72
3	*5190.00	95.70 PK			2.39 H	73	59.37	36.33
4	*5190.00	87.51 AV			2.39 H	73	51.18	36.33
5	#10380.00	53.74 PK	68.20	-14.46	1.97 H	323	57.78	-4.04

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	63.22 PK	74.00	-10.78	2.20 V	189	79.94	-16.72
2	5150.00	53.40 AV	54.00	-0.60	2.20 V	189	70.12	-16.72
3	*5190.00	101.40 PK			2.20 V	189	65.07	36.33
4	*5190.00	93.18 AV			2.20 V	189	56.85	36.33
5	#10380.00	54.41 PK	68.20	-13.79	1.67 V	336	58.45	-4.04

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	5150.00	54.49 PK	74.00	-19.51	2.58 H	115	71.21	-16.72
2	5150.00	45.85 AV	54.00	-8.15	2.58 H	115	62.57	-16.72
3	*5230.00	97.98 PK			2.58 H	115	61.69	36.29
4	*5230.00	89.51 AV			2.58 H	115	53.22	36.29
5	#10460.00	53.84 PK	68.20	-14.36	1.17 H	209	57.76	-3.92

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	60.04 PK	74.00	-13.96	1.95 V	195	76.76	-16.72
2	5150.00	51.66 AV	54.00	-2.34	1.95 V	195	68.38	-16.72
3	*5230.00	103.75 PK			1.95 V	195	67.46	36.29
4	*5230.00	95.75 AV			1.95 V	195	59.46	36.29
5	#10460.00	54.55 PK	68.20	-13.65	2.38 V	220	58.47	-3.92

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	*5270.00	96.05 PK			2.62 H	97	59.87	36.18
2	*5270.00	88.30 AV			2.62 H	97	52.12	36.18
3	5350.00	51.72 PK	74.00	-22.28	2.62 H	97	68.25	-16.53
4	5350.00	40.55 AV	54.00	-13.45	2.62 H	97	57.08	-16.53
5	#10540.00	53.31 PK	68.20	-14.89	1.98 H	220	57.18	-3.87

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	*5270.00	103.02 PK			2.11 V	114	66.84	36.18
2	*5270.00	94.57 AV			2.11 V	114	58.39	36.18
3	5350.00	53.35 PK	74.00	-20.65	2.11 V	114	69.88	-16.53
4	5350.00	43.40 AV	54.00	-10.60	2.11 V	114	59.93	-16.53
5	#10540.00	54.91 PK	68.20	-13.29	1.77 V	204	58.78	-3.87

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 802.11n (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	91.25 PK			2.73 H	106	55.13	36.12
2	*5310.00	83.76 AV			2.73 H	106	47.64	36.12
3	5350.00	53.67 PK	74.00	-20.33	2.73 H	106	70.20	-16.53
4	5350.00	43.43 AV	54.00	-10.57	2.73 H	106	59.96	-16.53
5	10620.00	53.47 PK	74.00	-20.53	2.27 H	293	57.19	-3.72
6	10620.00	43.50 AV	54.00	-10.50	2.27 H	293	47.22	-3.72
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	99.03 PK			2.10 V	106	62.91	36.12
2	*5310.00	90.72 AV			2.10 V	106	54.60	36.12
3	5350.00	59.86 PK	74.00	-14.14	2.10 V	106	76.39	-16.53
4	5350.00	49.11 AV	54.00	-4.89	2.10 V	106	65.64	-16.53
5	10620.00	54.75 PK	74.00	-19.25	1.06 V	48	58.47	-3.72
6	10620.00	44.54 AV	54.00	-9.46	1.06 V	48	48.26	-3.72

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	53.09 PK	74.00	-20.91	2.76 H	41	69.20	-16.11
2	5460.00	42.00 AV	54.00	-12.00	2.76 H	41	58.11	-16.11
3	#5470.00	53.23 PK	68.20	-14.97	2.76 H	41	69.34	-16.11
4	*5510.00	95.69 PK			2.76 H	41	59.12	36.57
5	*5510.00	87.08 AV			2.76 H	41	50.51	36.57
6	11020.00	53.53 PK	74.00	-20.47	3.27 H	17	57.18	-3.65
7	11020.00	44.04 AV	54.00	-9.96	3.27 H	17	47.69	-3.65

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	58.07 PK	74.00	-15.93	1.94 V	145	74.18	-16.11
2	5460.00	46.60 AV	54.00	-7.40	1.94 V	145	62.71	-16.11
3	#5470.00	63.81 PK	68.20	-4.39	1.94 V	145	79.92	-16.11
4	*5510.00	101.75 PK			1.94 V	145	65.18	36.57
5	*5510.00	93.62 AV			1.94 V	145	57.05	36.57
6	11020.00	55.02 PK	74.00	-18.98	3.42 V	228	58.67	-3.65
7	11020.00	44.70 AV	54.00	-9.30	3.42 V	228	48.35	-3.65

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	5460.00	51.86 PK	74.00	-22.14	2.25 H	56	67.97	-16.11
2	5460.00	40.72 AV	54.00	-13.28	2.25 H	56	56.83	-16.11
3	#5470.00	52.22 PK	68.20	-15.98	2.25 H	56	68.33	-16.11
4	*5550.00	99.03 PK			2.25 H	56	62.35	36.68
5	*5550.00	90.94 AV			2.25 H	56	54.26	36.68
6	11100.00	54.32 PK	74.00	-19.68	3.17 H	22	57.86	-3.54
7	11100.00	44.43 AV	54.00	-9.57	3.17 H	22	47.97	-3.54
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	52.66 PK	74.00	-21.34	1.96 V	152	68.77	-16.11
2	5460.00	42.10 AV	54.00	-11.90	1.96 V	152	58.21	-16.11
3	#5470.00	53.05 PK	68.20	-15.15	1.96 V	152	69.16	-16.11
4	*5550.00	106.55 PK			1.96 V	152	69.87	36.68
5	*5550.00	98.32 AV			1.96 V	152	61.64	36.68
6	11100.00	54.58 PK	74.00	-19.42	3.15 V	280	58.12	-3.54
7	11100.00	43.85 AV	54.00	-10.15	3.15 V	280	47.39	-3.54

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 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	97.58 PK			2.48 H	112	60.63	36.95
2	*5670.00	89.48 AV			2.48 H	112	52.53	36.95
3	#5725.00	53.44 PK	68.20	-14.76	2.48 H	112	69.06	-15.62
4	11340.00	54.28 PK	74.00	-19.72	1.64 H	207	57.19	-2.91
5	11340.00	44.48 AV	54.00	-9.52	1.64 H	207	47.39	-2.91
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	104.63 PK			2.17 V	62	67.68	36.95
2	*5670.00	96.06 AV			2.17 V	62	59.11	36.95
3	#5725.00	55.56 PK	68.20	-12.64	2.17 V	62	71.18	-15.62
4	11340.00	55.22 PK	74.00	-18.78	1.10 V	307	58.13	-2.91
5	11340.00	45.46 AV	54.00	-8.54	1.10 V	307	48.37	-2.91

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 142 : 5710 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	*5710.00	98.71 PK			3.05 H	93	61.65	37.06
2	*5710.00	90.46 AV			3.05 H	93	53.40	37.06
3	#5850.00	53.12 PK	68.20	-15.08	3.05 H	93	68.58	-15.46
4	11420.00	55.34 PK	74.00	-18.66	1.10 H	341	57.83	-2.49
5	11420.00	44.80 AV	54.00	-9.20	1.10 H	341	47.29	-2.49

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	*5710.00	105.84 PK			2.82 V	71	68.78	37.06
2	*5710.00	97.53 AV			2.82 V	71	60.47	37.06
3	#5850.00	53.85 PK	68.20	-14.35	2.82 V	71	69.31	-15.46
4	11420.00	56.30 PK	74.00	-17.70	1.68 V	224	58.79	-2.49
5	11420.00	45.72 AV	54.00	-8.28	1.68 V	224	48.21	-2.49

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	*5755.00	98.35 PK			3.38 H	88	61.36	36.99
2	*5755.00	89.94 AV			3.38 H	88	52.95	36.99
3	11510.00	54.77 PK	74.00	-19.23	2.09 H	222	57.38	-2.61
4	11510.00	45.23 AV	54.00	-8.77	2.09 H	222	47.84	-2.61
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	*5755.00	105.22 PK			1.88 V	166	68.23	36.99
2	*5755.00	96.55 AV			1.88 V	166	59.56	36.99
3	11510.00	55.88 PK	74.00	-18.12	2.03 V	179	58.49	-2.61
4	11510.00	45.76 AV	54.00	-8.24	2.03 V	179	48.37	-2.61

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 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	*5795.00	97.70 PK			2.47 H	121	60.70	37.00
2	*5795.00	89.32 AV			2.47 H	121	52.32	37.00
3	11590.00	54.32 PK	74.00	-19.68	3.87 H	224	57.23	-2.91
4	11590.00	44.28 AV	54.00	-9.72	3.87 H	224	47.19	-2.91
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	*5795.00	105.80 PK			1.99 V	148	68.80	37.00
2	*5795.00	97.00 AV			1.99 V	148	60.00	37.00
3	11590.00	55.42 PK	74.00	-18.58	1.23 V	332	58.33	-2.91
4	11590.00	45.46 AV	54.00	-8.54	1.23 V	332	48.37	-2.91

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 (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	50.78 PK	74.00	-23.22	2.49 H	109	67.50	-16.72
2	5150.00	42.70 AV	54.00	-11.30	2.49 H	109	59.42	-16.72
3	*5210.00	89.90 PK			2.49 H	109	53.58	36.32
4	*5210.00	82.36 AV			2.49 H	109	46.04	36.32
5	#10420.00	53.89 PK	68.20	-14.31	3.57 H	282	57.82	-3.93
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	56.45 PK	74.00	-17.55	2.26 V	194	73.17	-16.72
2	5150.00	47.76 AV	54.00	-6.24	2.26 V	194	64.48	-16.72
3	*5210.00	96.72 PK			2.26 V	194	60.40	36.32
4	*5210.00	88.06 AV			2.26 V	194	51.74	36.32
5	#10420.00	53.66 PK	68.20	-14.54	2.39 V	295	57.59	-3.93

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	*5290.00	85.72 PK			2.51 H	107	49.59	36.13
2	*5290.00	78.35 AV			2.51 H	107	42.22	36.13
3	5350.00	50.87 PK	74.00	-23.13	2.51 H	107	67.40	-16.53
4	5350.00	42.01 AV	54.00	-11.99	2.51 H	107	58.54	-16.53
5	#10580.00	54.00 PK	68.20	-14.20	1.51 H	65	57.80	-3.80
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	*5290.00	93.19 PK			2.23 V	197	57.06	36.13
2	*5290.00	84.77 AV			2.23 V	197	48.64	36.13
3	5350.00	52.68 PK	74.00	-21.32	2.23 V	197	69.21	-16.53
4	5350.00	44.77 AV	54.00	-9.23	2.23 V	197	61.30	-16.53
5	#10580.00	53.47 PK	68.20	-14.73	1.97 V	211	57.27	-3.80

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 (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	51.31 PK	74.00	-22.69	2.57 H	68	67.42	-16.11
2	5460.00	43.52 AV	54.00	-10.48	2.57 H	68	59.63	-16.11
3	#5470.00	52.66 PK	68.20	-15.54	2.57 H	68	68.77	-16.11
4	*5530.00	89.63 PK			2.57 H	68	53.01	36.62
5	*5530.00	81.88 AV			2.57 H	68	45.26	36.62
6	11060.00	53.89 PK	74.00	-20.11	1.81 H	192	57.48	-3.59
7	11060.00	45.56 AV	54.00	-8.44	1.81 H	192	49.15	-3.59

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	54.38 PK	74.00	-19.62	2.10 V	192	70.49	-16.11
2	5460.00	46.49 AV	54.00	-7.51	2.10 V	192	62.60	-16.11
3	#5470.00	54.60 PK	68.20	-13.60	2.10 V	192	70.71	-16.11
4	*5530.00	96.63 PK			2.10 V	192	60.01	36.62
5	*5530.00	88.50 AV			2.10 V	192	51.88	36.62
6	11060.00	53.51 PK	74.00	-20.49	3.44 V	202	57.10	-3.59
7	11060.00	45.54 AV	54.00	-8.46	3.44 V	202	49.13	-3.59

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	*5610.00	93.81 PK			2.57 H	58	57.12	36.69
2	*5610.00	86.59 AV			2.57 H	58	49.90	36.69
3	#5725.00	56.62 PK	68.20	-11.58	2.57 H	58	72.24	-15.62
4	11220.00	54.12 PK	74.00	-19.88	1.31 H	292	57.60	-3.48
5	11220.00	45.61 AV	54.00	-8.39	1.31 H	292	49.09	-3.48

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	*5610.00	100.13 PK			2.07 V	193	63.44	36.69
2	*5610.00	91.07 AV			2.07 V	193	54.38	36.69
3	#5725.00	55.88 PK	68.20	-12.32	2.07 V	193	71.50	-15.62
4	11220.00	53.93 PK	74.00	-20.07	1.83 V	115	57.41	-3.48
5	11220.00	45.58 AV	54.00	-8.42	1.83 V	115	49.06	-3.48

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.
6. " # ": The radiated frequency is out of the restricted band.

RF Mode	TX 802.11ac (VHT80)	Channel	CH 138 : 5690 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	*5690.00	95.05 PK			3.23 H	133	58.01	37.04
2	*5690.00	87.19 AV			3.23 H	133	50.15	37.04
3	#5850.00	53.10 PK	68.20	-15.10	3.23 H	133	68.56	-15.46
4	11380.00	54.62 PK	74.00	-19.38	1.54 H	227	57.23	-2.61
5	11380.00	46.43 AV	54.00	-7.57	1.54 H	227	49.04	-2.61
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	*5690.00	102.12 PK			2.08 V	159	65.08	37.04
2	*5690.00	92.87 AV			2.08 V	159	55.83	37.04
3	#5850.00	54.29 PK	68.20	-13.91	2.08 V	159	69.75	-15.46
4	11380.00	54.62 PK	74.00	-19.38	1.62 V	197	57.23	-2.61
5	11380.00	46.55 AV	54.00	-7.45	1.62 V	197	49.16	-2.61

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	*5775.00	92.27 PK			2.44 H	124	55.28	36.99
2	*5775.00	85.02 AV			2.44 H	124	48.03	36.99
3	11550.00	55.11 PK	74.00	-18.89	3.30 H	299	57.87	-2.76
4	11550.00	46.43 AV	54.00	-7.57	3.30 H	299	49.19	-2.76
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	*5775.00	99.33 PK			2.04 V	165	62.34	36.99
2	*5775.00	91.83 AV			2.04 V	165	54.84	36.99
3	11550.00	54.59 PK	74.00	-19.41	2.51 V	218	57.35	-2.76
4	11550.00	46.16 AV	54.00	-7.84	2.51 V	218	48.92	-2.76

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 (VHT160)	Channel	CH 50 : 5250 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	50.70 PK	74.00	-23.30	2.45 H	108	67.42	-16.72
2	5150.00	42.86 AV	54.00	-11.14	2.45 H	108	59.58	-16.72
3	*5250.00	83.54 PK			2.45 H	108	47.30	36.24
4	*5250.00	76.82 AV			2.45 H	108	40.58	36.24
5	5350.00	50.35 PK	74.00	-23.65	2.45 H	108	66.88	-16.53
6	5350.00	41.79 AV	54.00	-12.21	2.45 H	108	58.32	-16.53
7	#10500.00	53.35 PK	68.20	-14.85	2.76 H	95	57.26	-3.91
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	51.97 PK	74.00	-22.03	2.03 V	147	68.69	-16.72
2	5150.00	44.88 AV	54.00	-9.12	2.03 V	147	61.60	-16.72
3	*5250.00	90.50 PK			2.03 V	147	54.26	36.24
4	*5250.00	83.53 AV			2.03 V	147	47.29	36.24
5	5350.00	51.72 PK	74.00	-22.28	2.03 V	147	68.25	-16.53
6	5350.00	43.55 AV	54.00	-10.45	2.03 V	147	60.08	-16.53
7	#10500.00	53.40 PK	68.20	-14.80	1.12 V	272	57.31	-3.91

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 (VHT160)	Channel	CH 114 : 5570 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	51.69 PK	74.00	-22.31	2.60 H	70	67.80	-16.11
2	5460.00	44.09 AV	54.00	-9.91	2.60 H	70	60.20	-16.11
3	#5470.00	51.97 PK	68.20	-16.23	2.60 H	70	68.08	-16.11
4	*5570.00	84.68 PK			2.60 H	70	48.01	36.67
5	*5570.00	78.74 AV			2.60 H	70	42.07	36.67
6	#5725.00	53.96 PK	68.20	-14.24	2.60 H	70	69.58	-15.62
7	11140.00	54.18 PK	74.00	-19.82	2.55 H	271	57.72	-3.54
8	11140.00	45.75 AV	54.00	-8.25	2.55 H	271	49.29	-3.54

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	52.72 PK	74.00	-21.28	2.59 V	78	68.83	-16.11
2	5460.00	45.37 AV	54.00	-8.63	2.59 V	78	61.48	-16.11
3	#5470.00	52.80 PK	68.20	-15.40	2.59 V	78	68.91	-16.11
4	*5570.00	91.73 PK			2.59 V	78	55.06	36.67
5	*5570.00	85.47 AV			2.59 V	78	48.80	36.67
6	#5725.00	55.54 PK	68.20	-12.66	2.59 V	78	71.16	-15.62
7	11600.00	54.77 PK	74.00	-19.23	1.21 V	109	57.72	-2.95
8	11600.00	46.12 AV	54.00	-7.88	1.21 V	109	49.07	-2.95

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.

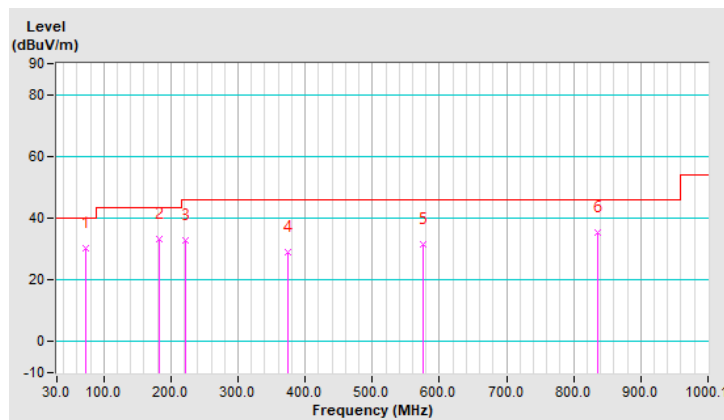
Below 1GHz worst-case data:

RF Mode	TX 802.11n (HT20)	Channel	CH 157 : 5785 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	72.68	30.17 QP	40.00	-9.83	1.86 H	315	45.76	-15.59
2	182.31	33.31 QP	43.50	-10.19	1.17 H	307	47.88	-14.57
3	222.08	32.83 QP	46.00	-13.17	2.35 H	68	49.25	-16.42
4	373.42	29.03 QP	46.00	-16.97	2.20 H	98	38.76	-9.73
5	576.17	31.52 QP	46.00	-14.48	1.74 H	50	35.94	-4.42
6	835.18	35.23 QP	46.00	-10.77	1.19 H	31	34.12	1.11

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 of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

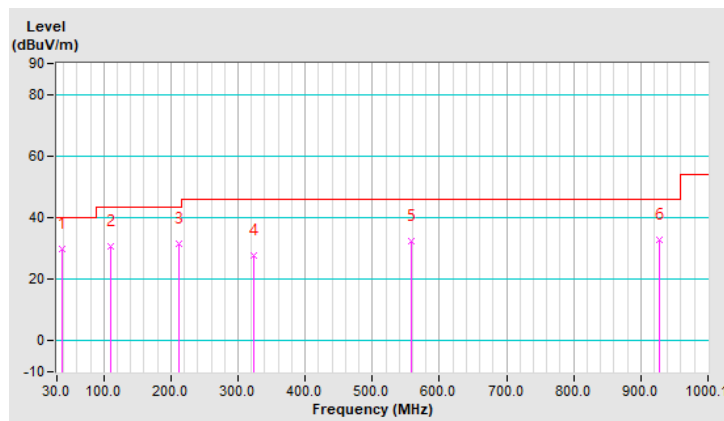


RF Mode	TX 802.11n (HT20)	Channel	CH 157 : 5785 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	37.76	29.80 QP	40.00	-10.20	1.05 V	10	43.11	-13.31
2	109.55	30.69 QP	43.50	-12.81	3.35 V	211	45.88	-15.19
3	211.41	31.33 QP	43.50	-12.17	2.87 V	251	47.57	-16.24
4	323.94	27.82 QP	46.00	-18.18	3.36 V	292	38.88	-11.06
5	557.73	32.55 QP	46.00	-13.45	1.55 V	39	37.52	-4.97
6	927.34	32.90 QP	46.00	-13.10	1.78 V	33	30.63	2.27

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 of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB 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 0.50 MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESR3	102783	Dec. 20, 2021	Dec. 19, 2022
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 04, 2021	Sep. 03, 2022
AMN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 28, 2021	Jan. 27, 2022
AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Sep. 17, 2021	Sep. 16, 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.

4.2.3 Test Procedures

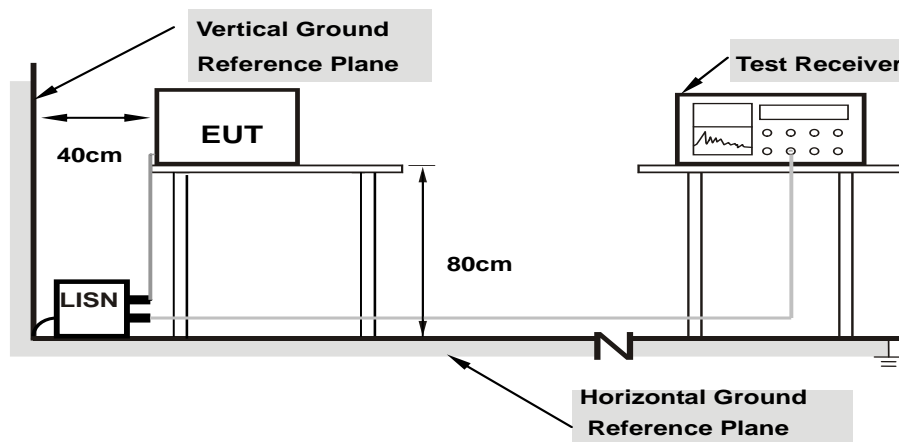
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



- Note:**
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.2.6 EUT Operating Conditions

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

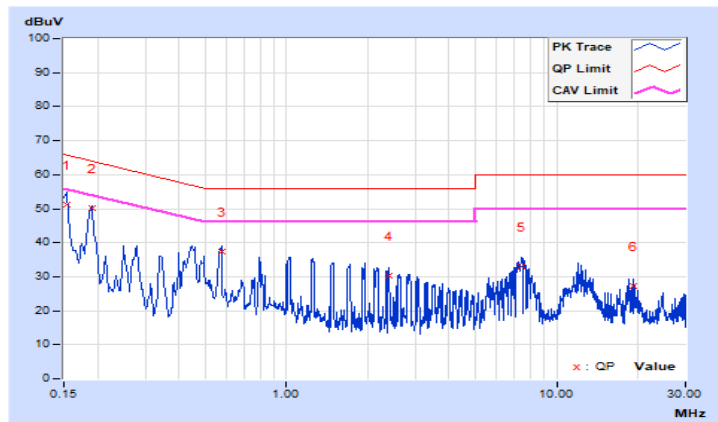
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	22°C, 66%RH
Tested by	Tim Chen	Test Date	2022/1/1

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.11	41.18	23.21	51.29	33.32	65.78	55.78	-14.49	-22.46
2	0.19000	10.13	40.01	36.65	50.14	46.78	64.04	54.04	-13.90	-7.26
3	0.57400	10.15	27.33	22.10	37.48	32.25	56.00	46.00	-18.52	-13.75
4	2.39400	10.22	20.09	11.42	30.31	21.64	56.00	46.00	-25.69	-24.36
5	7.39000	10.29	22.85	6.77	33.14	17.06	60.00	50.00	-26.86	-32.94
6	19.18600	10.47	16.86	15.41	27.33	25.88	60.00	50.00	-32.67	-24.12

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

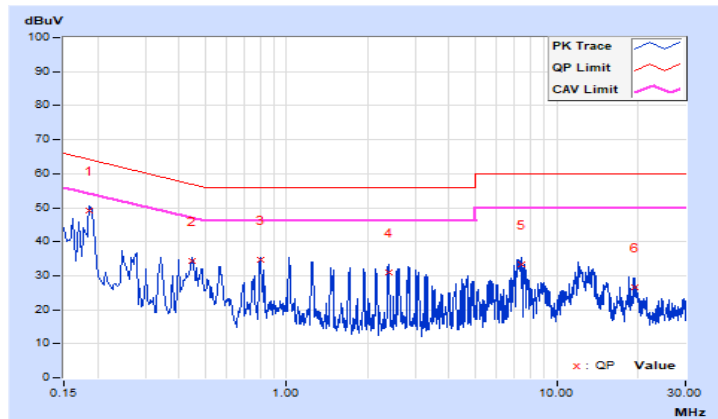


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	22°C, 66%RH
Tested by	Tim Chen	Test Date	2022/1/1

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18600	10.13	39.00	35.46	49.13	45.59	64.21	54.21	-15.08	-8.62
2	0.44999	10.15	24.34	20.97	34.49	31.12	56.88	46.88	-22.39	-15.76
3	0.79800	10.17	24.37	21.11	34.54	31.28	56.00	46.00	-21.46	-14.72
4	2.39400	10.23	20.67	11.80	30.90	22.03	56.00	46.00	-25.10	-23.97
5	7.40200	10.36	23.10	7.41	33.46	17.77	60.00	50.00	-26.54	-32.23
6	19.58600	10.67	15.93	13.28	26.60	23.95	60.00	50.00	-33.40	-26.05

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 125 mW (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	250 mW (24 dBm)
U-NII-2A		√	250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-2C		√	250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-3		√	1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

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

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

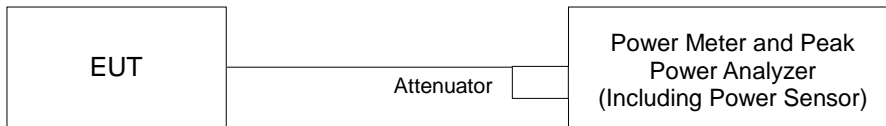
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

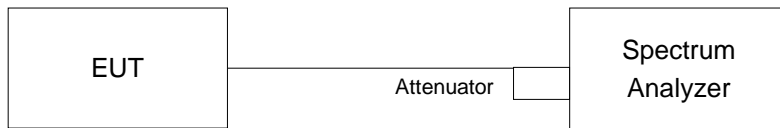
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

For Power Output



For 26dB Bandwidth and power output of transmission above 5.725 GHz where the EBW crosses 5.725 GHz



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

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 transmission above 5.725 GHz where the EBW crosses 5.725 GHz

For channel aggregation (channel 138, 142, 144) measurement refer to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Section III Channel Aggregation subpart C. measurement procedures 2.

For 26dB Bandwidth

- a. Set RBW = approximately 1% of the emission bandwidth.
- b. Set the VBW $\geq 3 \times$ 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%.

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 Results

Power Output:

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	73.451	18.66	24	Pass
40	5200	136.458	21.35	24	Pass
48	5240	123.88	20.93	24	Pass
52	5260	131.22	21.18	24	Pass
60	5300	133.968	21.27	24	Pass
64	5320	47.206	16.74	24	Pass
100	5500	82.794	19.18	24	Pass
116	5580	126.765	21.03	24	Pass
140	5700	70.307	18.47	24	Pass
149	5745	124.451	20.95	30	Pass
157	5785	130.017	21.14	30	Pass
165	5825	128.529	21.09	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log (43.05) = 27.34 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (44.77) = 27.51 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (24.45) = 24.88 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (25.45) = 25.06 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (40.81) = 27.11 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (25.34) = 25.04 \text{ dBm} > 24 \text{ dBm}$.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	15.59	15.57	72.282	18.59	24	Pass
40	5200	19.48	19.58	179.498	22.54	24	Pass
48	5240	19.49	19.47	177.432	22.49	24	Pass
52	5260	19.68	19.63	184.73	22.67	24	Pass
60	5300	19.47	19.55	178.669	22.52	24	Pass
64	5320	16.00	15.94	79.075	18.98	24	Pass
100	5500	15.84	15.75	75.954	18.81	24	Pass
116	5580	19.53	19.62	181.365	22.59	24	Pass
140	5700	17.94	18.05	126.056	21.01	24	Pass
144	5720 (U-NII-2C)	18.49	19.33	161.588	22.08	23.41	Pass
144	5720 (U-NII-3)	13.04	13.87	46.011	16.63	30	Pass
149	5745	20.99	20.98	250.917	24.00	30	Pass
157	5785	21.11	21.19	260.644	24.16	30	Pass
165	5825	21.06	20.99	253.247	24.04	30	Pass

Note:
For U-NII-2A, U-NII-2C Band:
Chain 0

1. $11 \text{ dBm} + 10\log(48.33) = 27.84 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(48.35) = 27.84 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(24.65) = 24.92 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(24.97) = 24.97 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(27.47) = 25.39 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(25.22) = 25.02 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log(17.44) = 23.41 \text{ dBm} < 24 \text{ dBm}$.

Chain 1

1. $11 \text{ dBm} + 10\log(44.17) = 27.45 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(41.79) = 27.21 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(25.21) = 25.02 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(24.77) = 24.94 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(28.86) = 25.60 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(25.87) = 25.13 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log(20.36) = 24.09 \text{ dBm} > 24 \text{ dBm}$.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	15.28	15.32	67.77	18.31	24	Pass
46	5230	18.49	18.48	141.101	21.50	24	Pass
54	5270	17.33	17.43	109.41	20.39	24	Pass
62	5310	14.11	14.21	52.127	17.17	24	Pass
102	5510	15.65	15.69	73.796	18.68	24	Pass
110	5550	20.38	20.31	216.543	23.36	24	Pass
134	5670	18.04	18.10	128.245	21.08	24	Pass
142	5710 (U-NII-2C)	19.14	18.99	193.439	22.87	24	Pass
142	5710 (U-NII-3)	9.24	9.04	19.683	12.94	30	Pass
151	5755	18.32	18.26	134.909	21.30	30	Pass
159	5795	19.40	19.45	175.201	22.44	30	Pass

Note:

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

Chain 0

1. $11 \text{ dBm} + 10\log (57.87) = 28.62 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (44.95) = 27.53 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (46.43) = 27.67 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (50.55) = 28.04 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (47.16) = 27.74 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (44.57) = 27.49 \text{ dBm} > 24 \text{ dBm}$.

Chain 1

1. $11 \text{ dBm} + 10\log (45.54) = 27.58 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (45.21) = 27.55 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (45.82) = 27.61 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (78.94) = 29.97 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (46.35) = 27.66 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (38.89) = 26.90 \text{ dBm} > 24 \text{ dBm}$.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	14.08	14.09	51.231	17.10	24	Pass
58	5290	12.23	12.18	33.231	15.22	24	Pass
106	5530	14.86	14.88	61.381	17.88	24	Pass
122	5610	19.68	19.66	185.366	22.68	24	Pass
138	5690 (U-NII-2C)	19.75	19.65	209.945	23.22	24	Pass
138	5690 (U-NII-3)	3.56	3.46	5.048	7.03	30	Pass
155	5775	17.83	17.81	121.068	20.83	30	Pass

Note:

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

Chain 0

1. $11 \text{ dBm} + 10\log (88.01) = 30.45 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (86.46) = 30.37 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (88.11) = 30.45 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (83.06) = 30.19 \text{ dBm} > 24 \text{ dBm}$.

Chain 1

1. $11 \text{ dBm} + 10\log (91.59) = 30.62 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (89.51) = 30.52 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (94.56) = 30.76 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (86.50) = 30.37 \text{ dBm} > 24 \text{ dBm}$.

802.11ac (VHT160)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
50 (U-NII-1)	5250	5.77	6.35	10.965	10.40	24	Pass
50 (U-NII-2A)	5250	5.84	6.51	11.268	10.52	24	Pass
114	5570	12.31	12.31	34.043	15.32	24	Pass

Note:

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

Chain 0

1. $11 \text{ dBm} + 10\log (83.37) = 30.21 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (167.51) = 33.24 \text{ dBm} > 24 \text{ dBm}$.

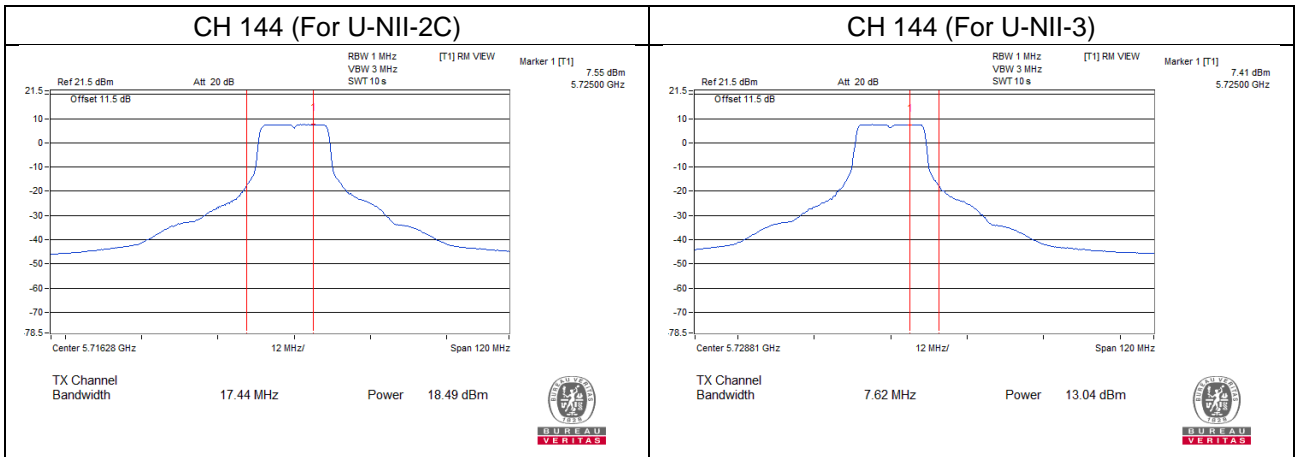
Chain 1

1. $11 \text{ dBm} + 10\log (82.70) = 30.18 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (166.58) = 33.22 \text{ dBm} > 24 \text{ dBm}$.

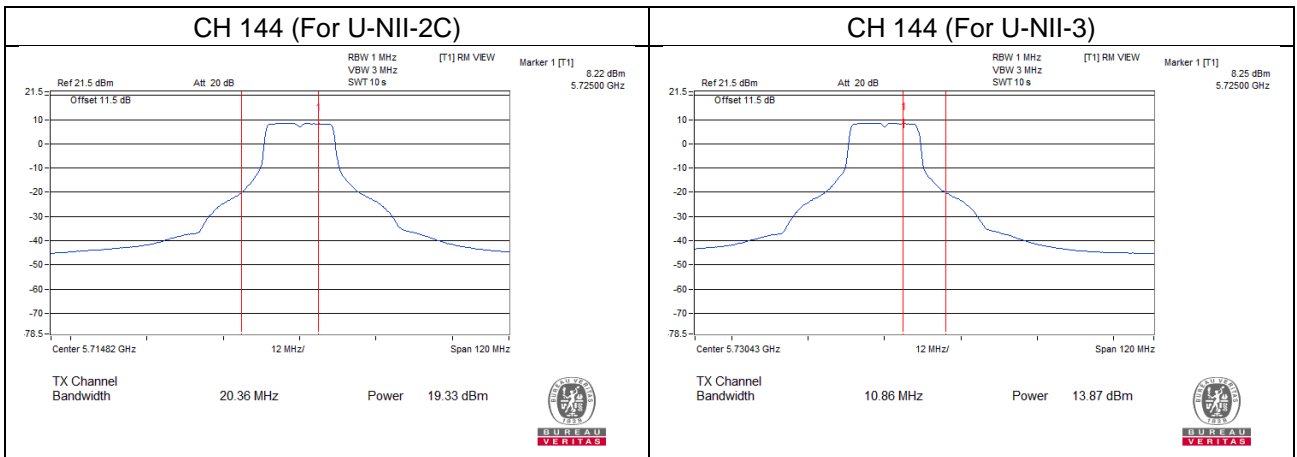
Straddle channel power plots:

802.11n (HT20)

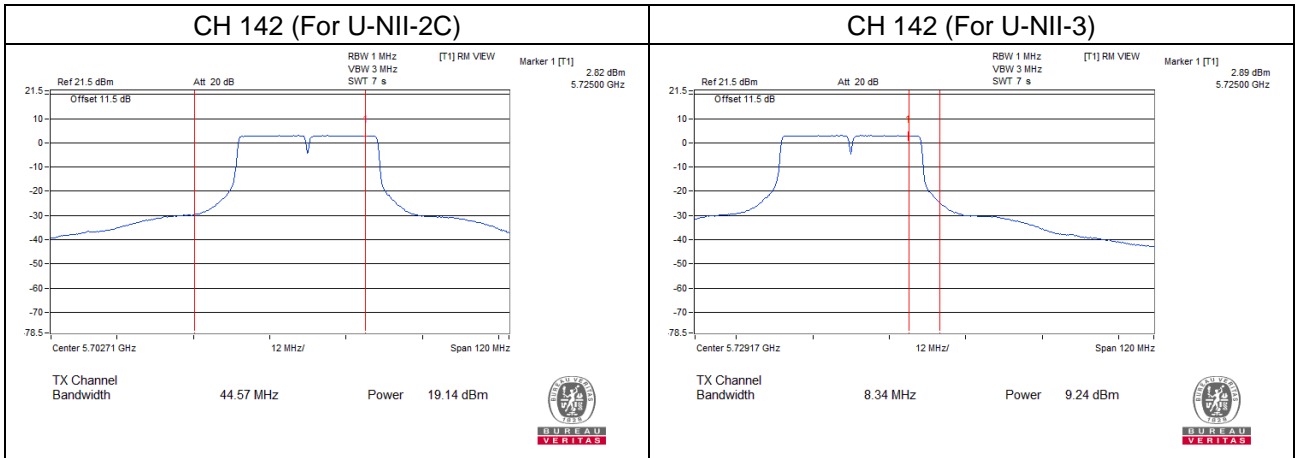
Chain 0



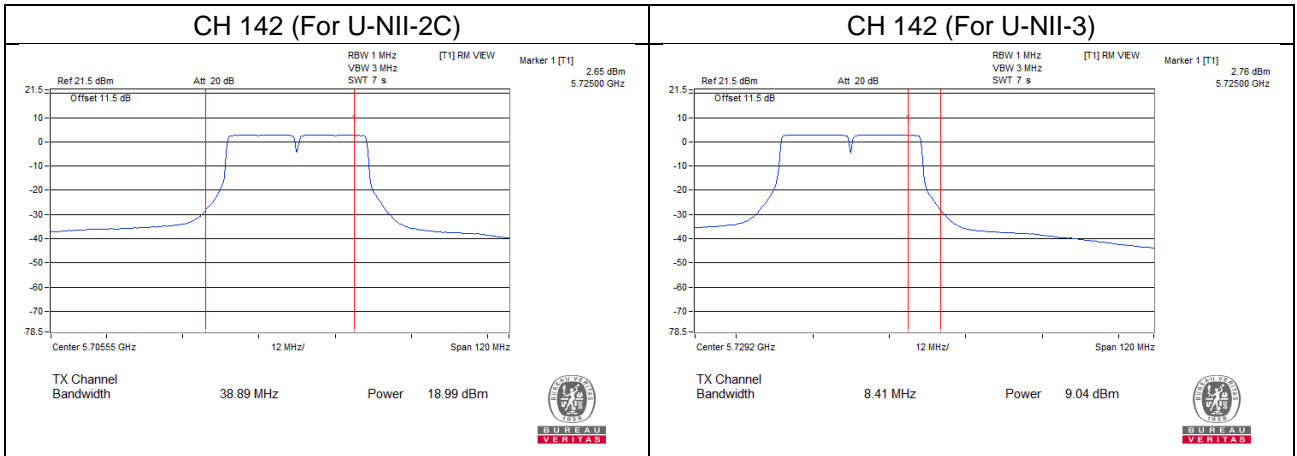
Chain 1



802.11n (HT40)
Chain 0

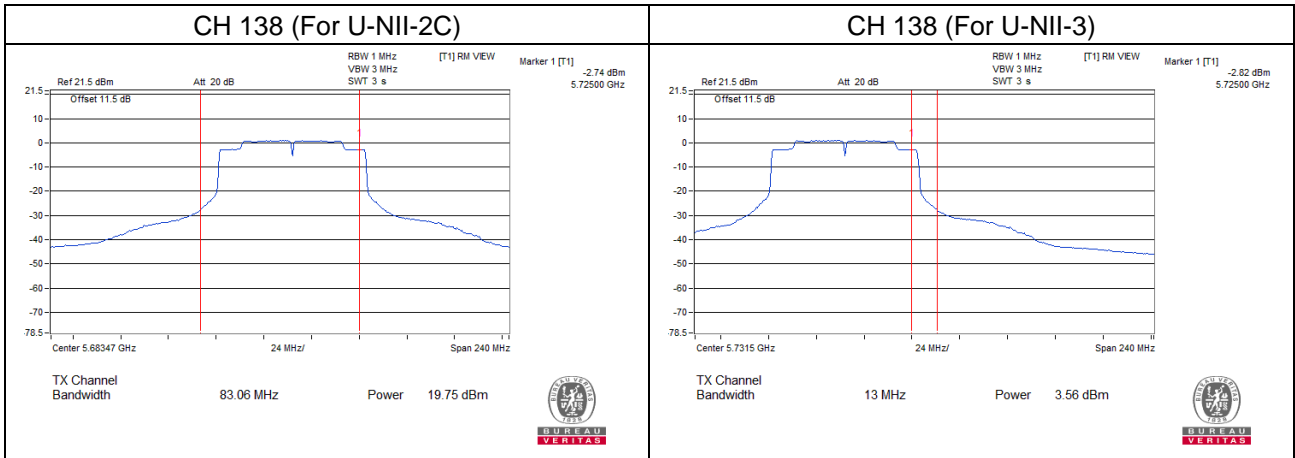


Chain 1

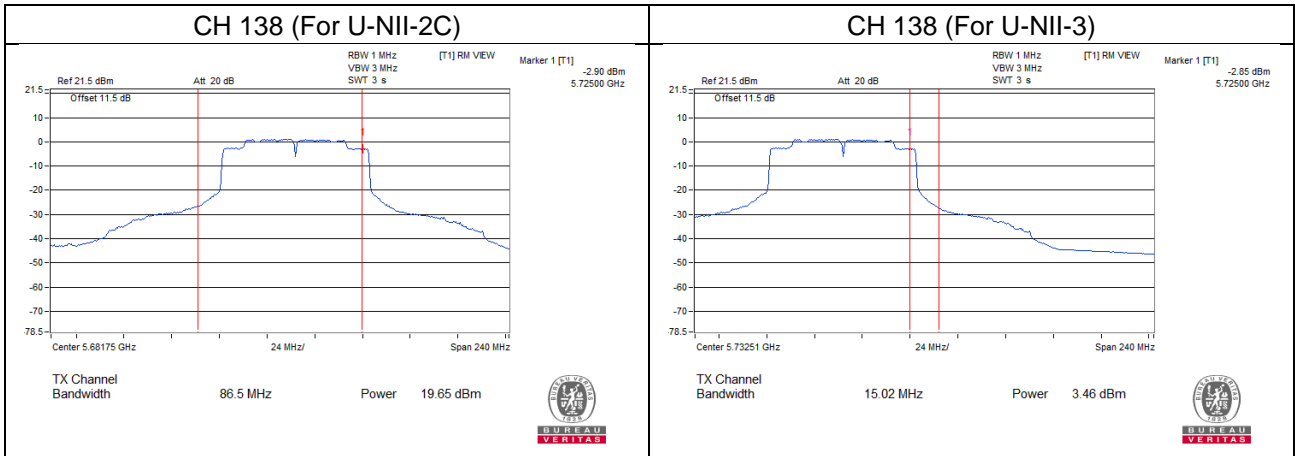


802.11ac (VHT80)

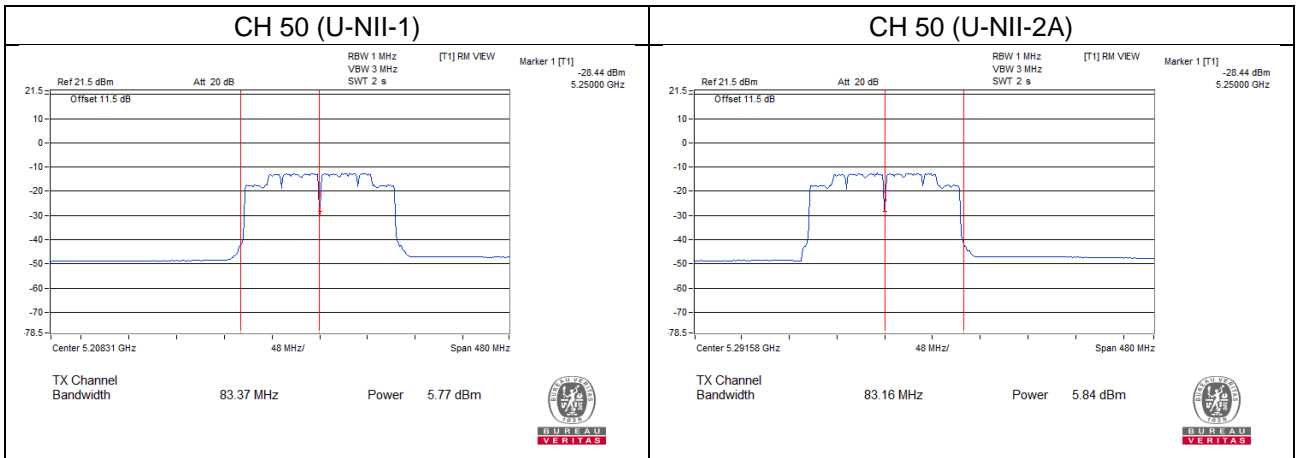
Chain 0



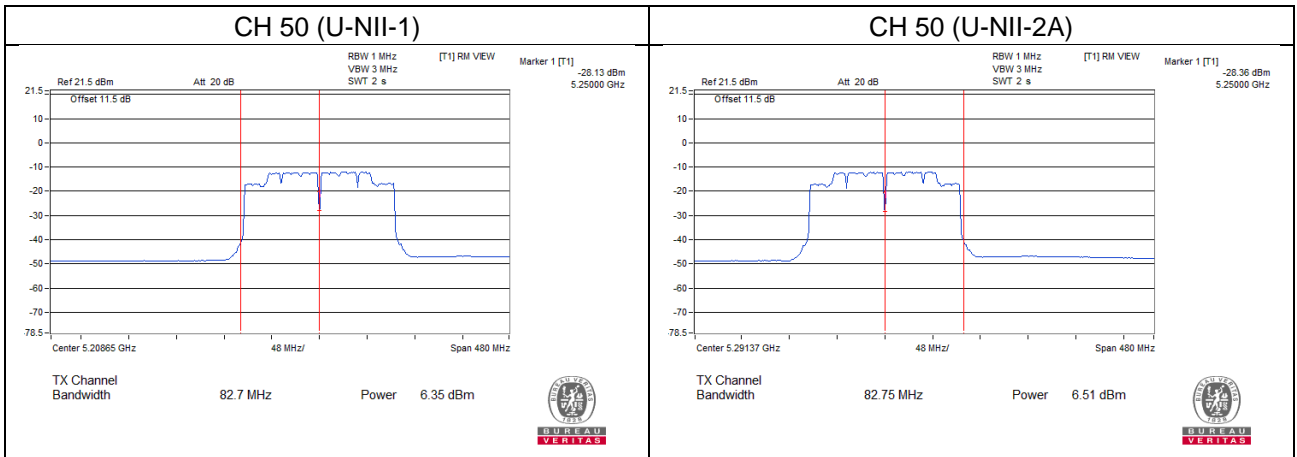
Chain 1



802.11ac (VHT160)
Chain 0



Chain 1



26 dB Bandwidth:
802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
52	5260	43.05
60	5300	44.77
64	5320	24.45
100	5500	25.45
116	5580	40.81
140	5700	25.34

802.11n (HT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	48.33	44.17
60	5300	48.35	41.79
64	5320	24.65	25.21
100	5500	24.97	24.77
116	5580	27.47	28.86
140	5700	25.22	25.87
144	5720 (U-NII-2C)	17.44	20.36

802.11n (HT40)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	57.87	45.54
62	5310	44.95	45.21
102	5510	46.43	45.82
110	5550	50.55	78.94
134	5670	47.16	46.35
142	5710 (U-NII-2C)	44.57	38.89

802.11ac (VHT80)

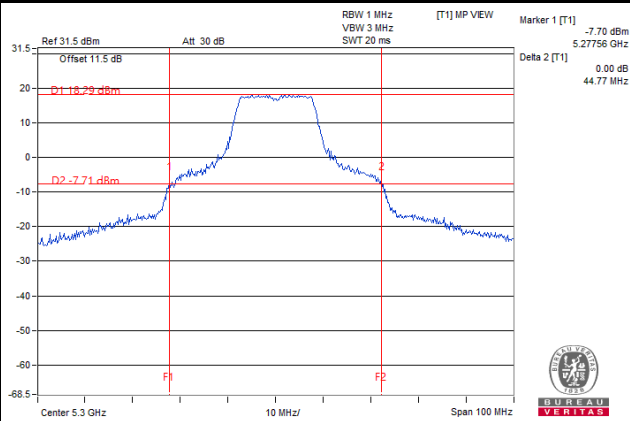
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	88.01	91.59
106	5530	86.46	89.51
122	5610	88.11	94.56
138	5690 (U-NII-2C)	83.06	86.50

802.11ac (VHT160)

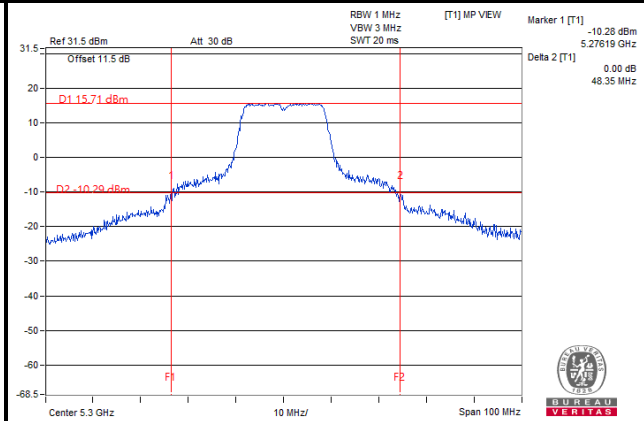
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain 0	Chain 1
50 (U-NII-2A)	5250	83.37	82.70
114	5570	167.51	166.58

Spectrum Plot of Worst Value

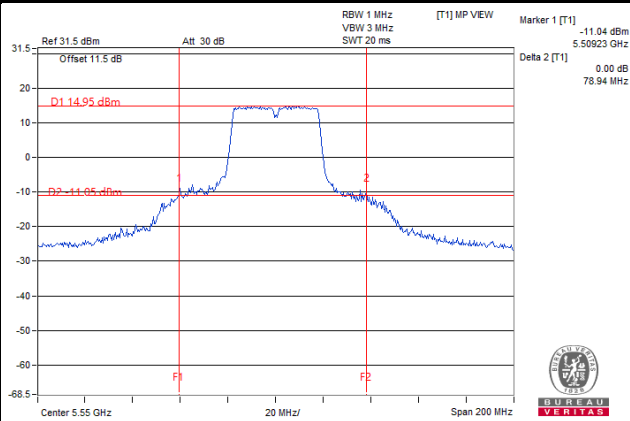
802.11a



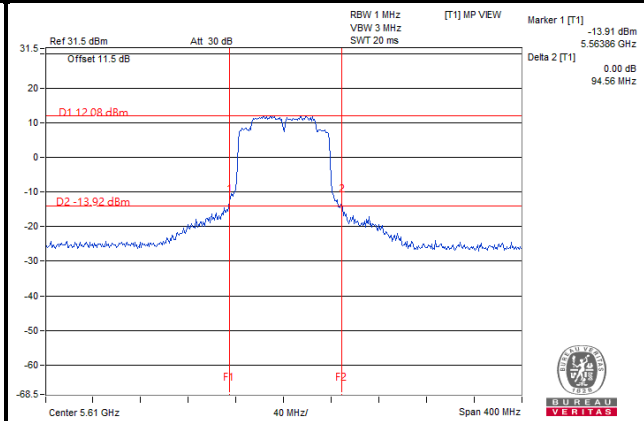
802.11n (HT20)



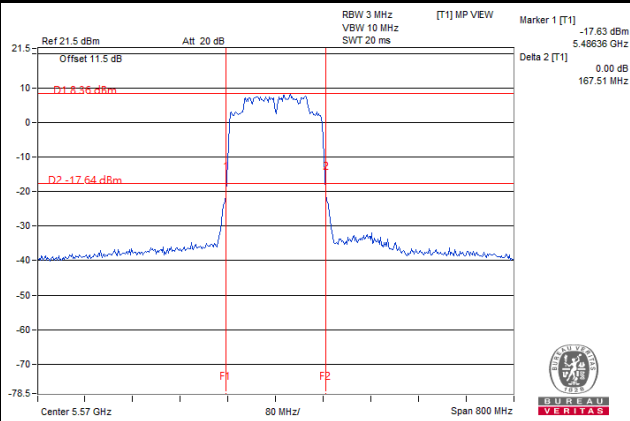
802.11n (HT40)



802.11ac (VHT80)

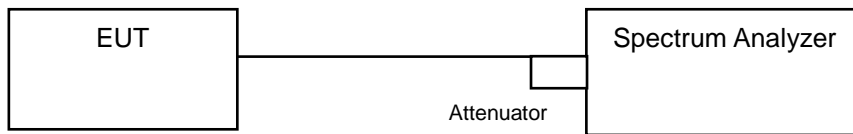


802.11ac (VHT160)



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 SAMPLE. 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 Results

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.04
40	5200	20.76
48	5240	18.00
52	5260	20.16
60	5300	21.60
64	5320	17.04
100	5500	17.16
116	5580	20.28
140	5700	17.16
149	5745	20.09
157	5785	19.80
165	5825	20.28

802.11n (HT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	18.12	18.12
40	5200	18.12	18.72
48	5240	18.60	18.60
52	5260	21.48	18.12
60	5300	18.12	19.08
64	5320	18.12	18.12
100	5500	18.12	18.12
116	5580	18.48	18.12
140	5700	18.12	18.12
144	5720 (U-NII-2C)	14.24	14.60
144	5720 (U-NII-3)	4.12	4.48
149	5745	20.40	24.48
157	5785	22.08	22.32
165	5825	23.28	23.88

802.11n (HT40)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.84	36.84
46	5230	36.96	36.96
54	5270	36.96	36.96
62	5310	36.84	36.96
102	5510	36.96	36.96
110	5550	36.84	36.84
134	5670	36.96	36.96
142	5710 (U-NII-2C)	33.48	33.48
142	5710 (U-NII-3)	3.48	3.48
151	5755	36.96	36.96
159	5795	36.96	36.96

802.11ac (VHT80)

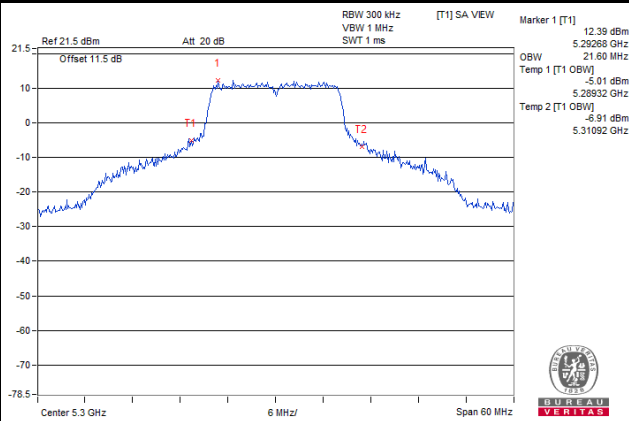
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	75.36	75.36
58	5290	75.36	75.36
106	5530	75.36	75.12
122	5610	75.12	75.12
138	5690 (U-NII-2C)	72.92	72.92
138	5690 (U-NII-3)	2.44	2.92
155	5775	75.36	75.12

802.11ac (VHT160)

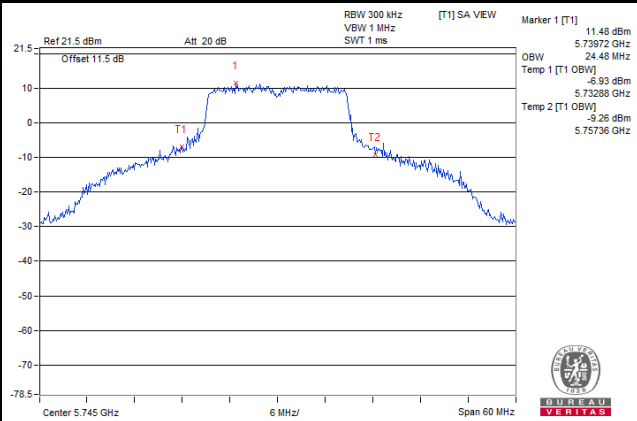
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
50 (U-NII-1)	5250	76.80	76.80
50 (U-NII-2A)	5250	76.80	76.80
114	5570	153.60	152.64

Spectrum Plot of Worst Value

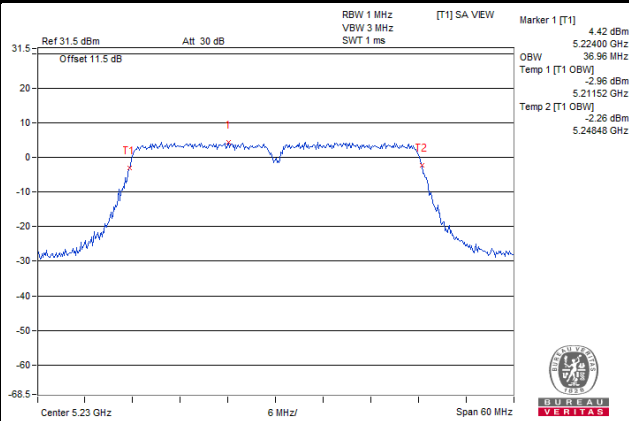
802.11a



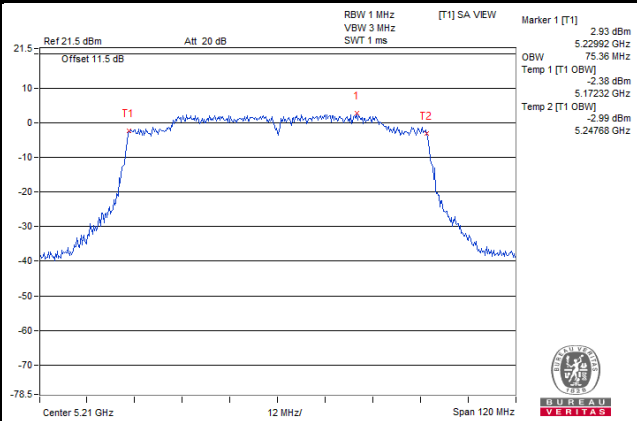
802.11n (HT20)



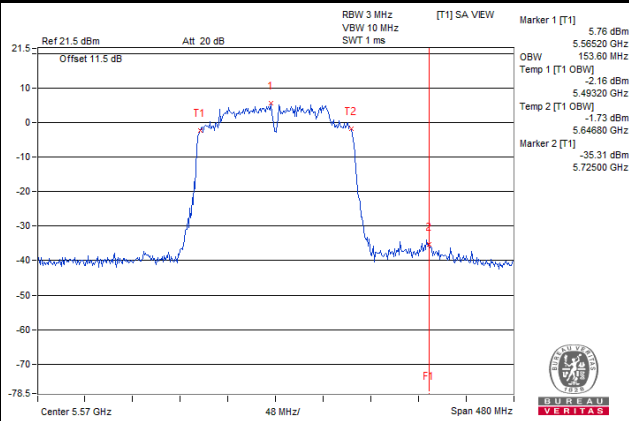
802.11n (HT40)



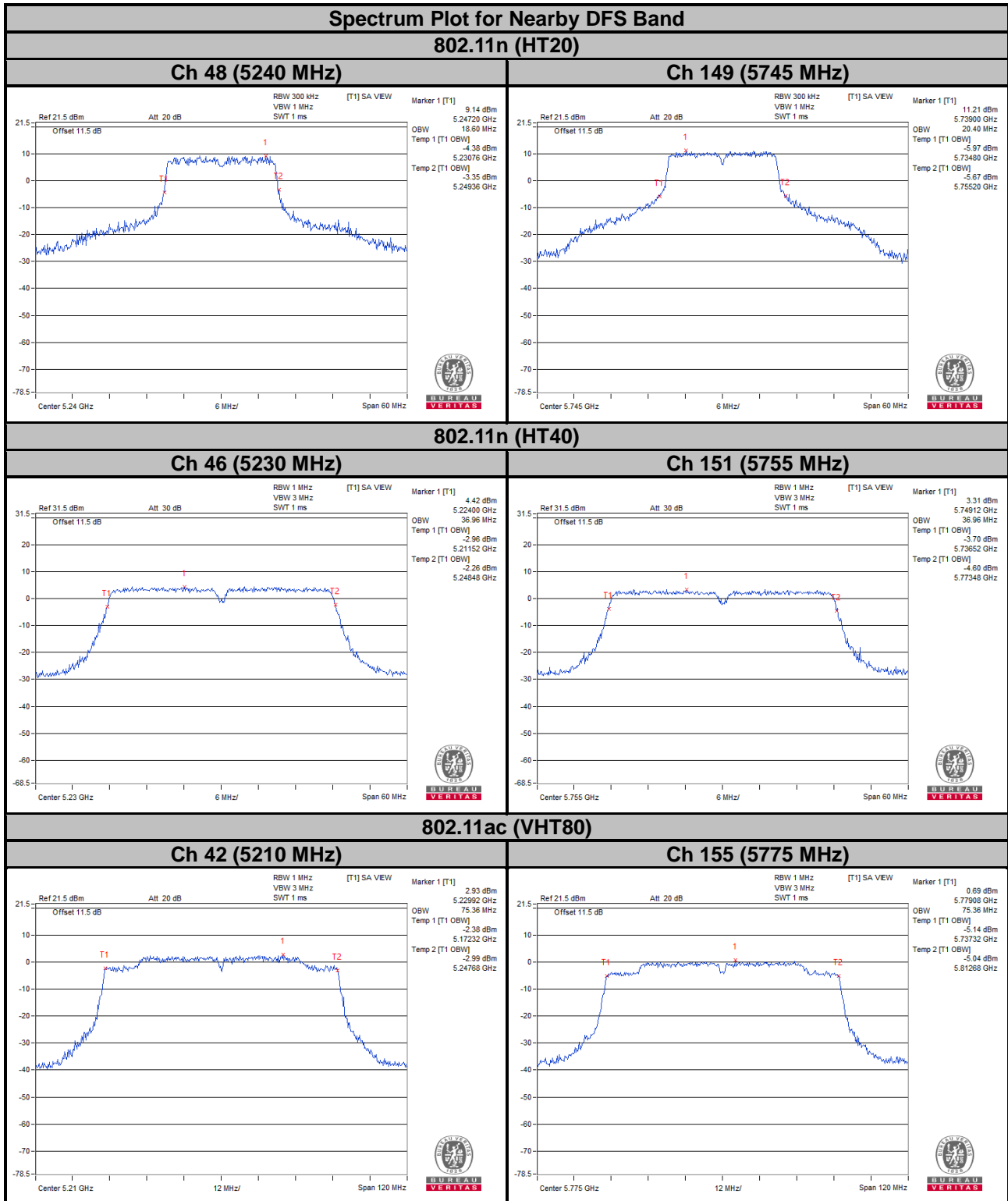
802.11ac (VHT80)



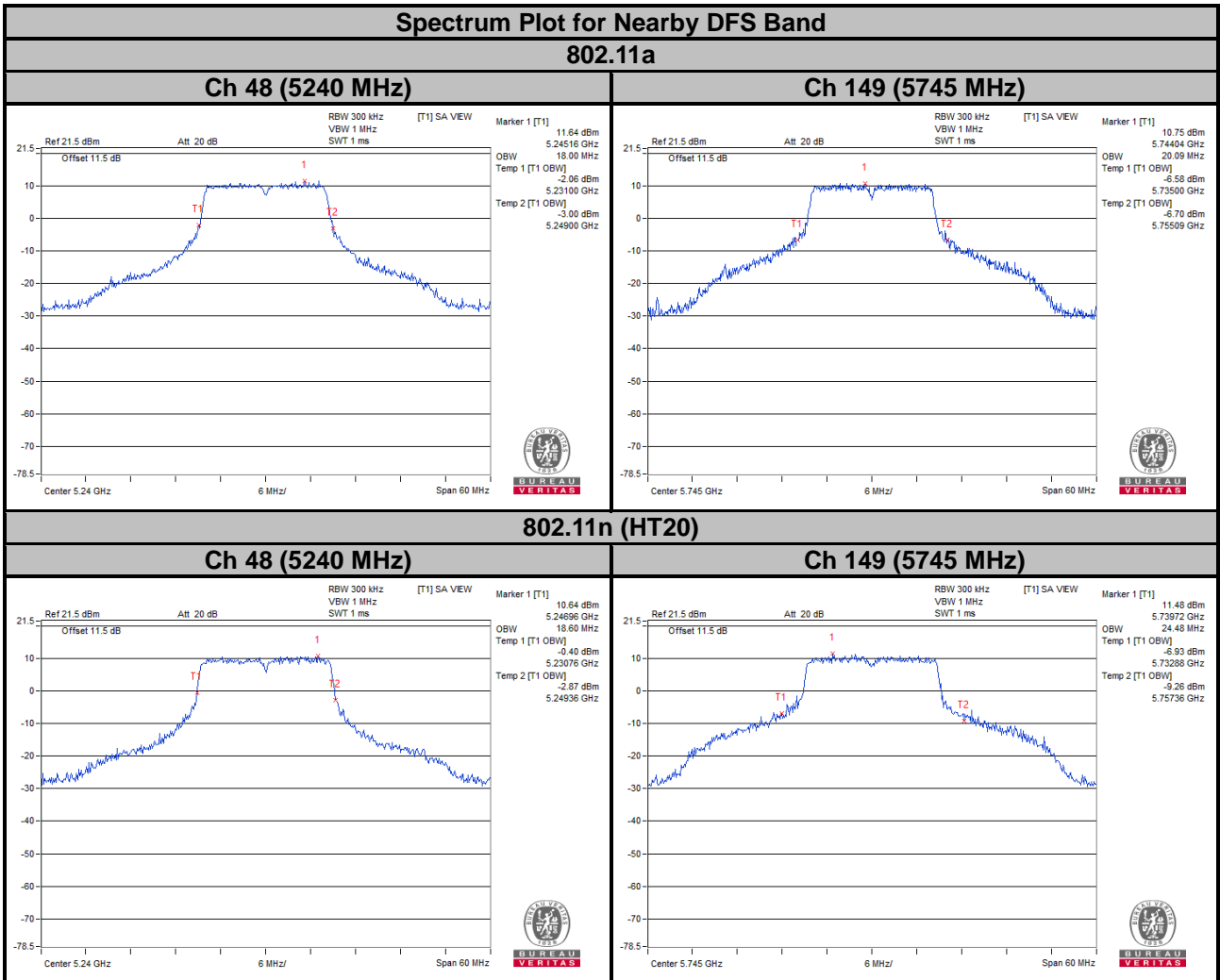
802.11ac (VHT160)



Chain 0

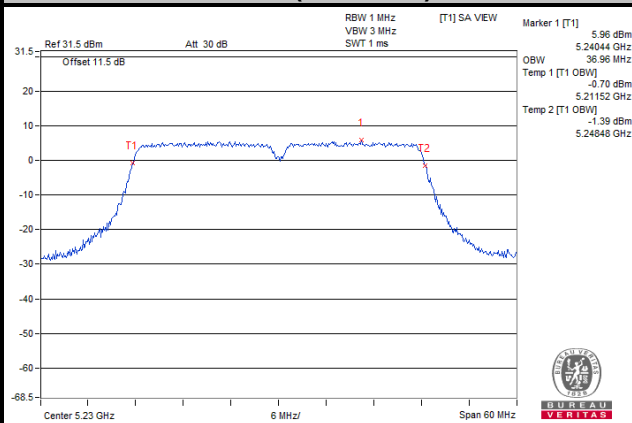


Chain 1

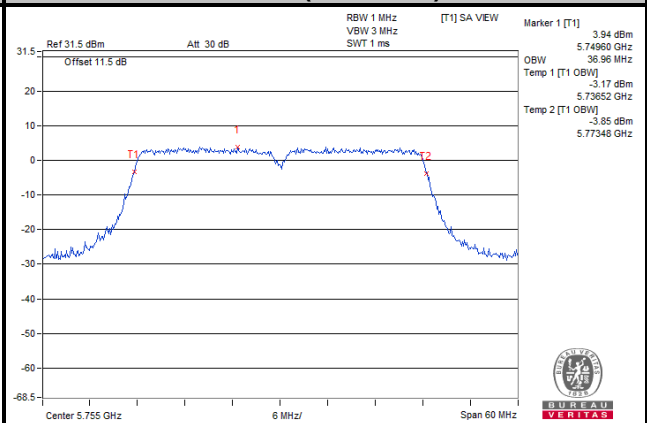


802.11n (HT40)

Ch 46 (5230 MHz)

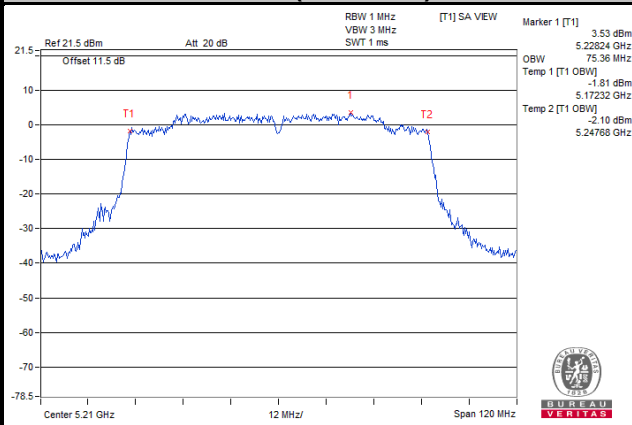


Ch 151 (5755 MHz)

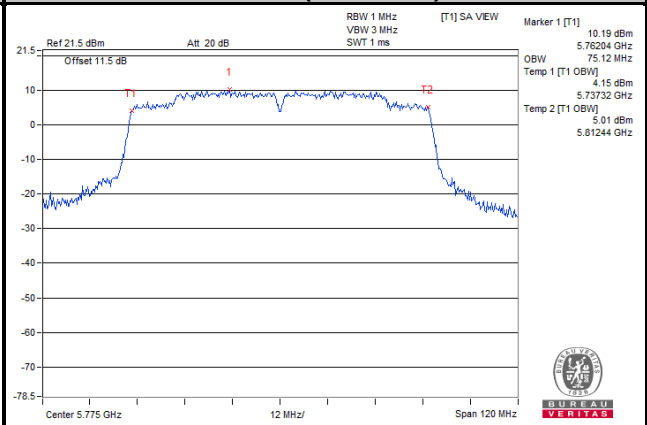


802.11ac (VHT80)

Ch 42 (5210 MHz)



Ch 155 (5775 MHz)

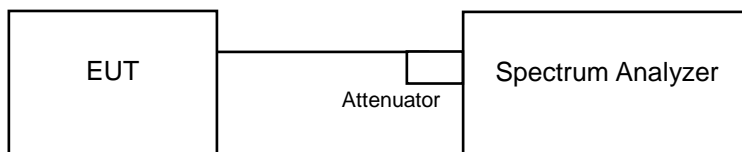


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

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:

Using method SA-2

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

※ For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW \geq 1 RBW, 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 (increasing) 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

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

4.5.7 Test Results

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

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD with Duty Factor (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	4.63	0.14	4.77	11	Pass
40	5200	7.20	0.14	7.34	11	Pass
48	5240	6.50	0.14	6.64	11	Pass
52	5260	7.26	0.14	7.40	11	Pass
60	5300	7.54	0.14	7.68	11	Pass
64	5320	2.49	0.14	2.63	11	Pass
100	5500	5.31	0.14	5.45	11	Pass
116	5580	7.25	0.14	7.39	11	Pass
140	5700	4.46	0.14	4.60	11	Pass

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

802.11n (HT20)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	1.73	2.67	0.14	5.38	11	Pass
40	5200	6.44	6.43	0.14	9.59	11	Pass
48	5240	6.20	6.22	0.14	9.36	11	Pass
52	5260	6.31	6.51	0.14	9.56	11	Pass
60	5300	6.95	6.34	0.14	9.81	11	Pass
64	5320	2.24	2.74	0.14	5.65	11	Pass
100	5500	2.08	2.43	0.14	5.41	11	Pass
116	5580	6.21	6.51	0.14	9.51	11	Pass
140	5700	4.42	4.09	0.14	7.41	11	Pass
144	5720 (U-NII-2C)	5.99	6.95	0.14	9.65	11	Pass

Note:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2.

5180~5240MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.19 \text{ dBi} < 6 \text{ dBi}$, so the limit no need to be reduced.

5260~5320MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.19 \text{ dBi} < 6 \text{ dBi}$, so the limit no need to be reduced.

5500~5700MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.04 \text{ dBi} < 6 \text{ dBi}$, so the limit no need to be reduced.

3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
38	5190	-1.52	-0.88	0.79	2.61	11	Pass
46	5230	1.52	2.33	0.79	5.74	11	Pass
54	5270	-0.91	-0.14	0.79	3.29	11	Pass
62	5310	-3.32	-2.60	0.79	0.86	11	Pass
102	5510	-1.12	-1.66	0.79	2.42	11	Pass
110	5550	3.41	4.06	0.79	7.55	11	Pass
134	5670	1.11	1.43	0.79	5.07	11	Pass
142	5710 (U-NII-2C)	2.78	2.91	0.79	6.65	11	Pass

Note:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2.

5180~5240MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.19 \text{ dBi} < 6 \text{ dBi}$, so the limit no need to be reduced.

5260~5320MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.19 \text{ dBi} < 6 \text{ dBi}$, so the limit no need to be reduced.

5500~5700MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.04 \text{ dBi} < 6 \text{ dBi}$, so the limit no need to be reduced.

3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-5.77	-4.70	0.51	-1.68	11	Pass
58	5290	-7.27	-7.88	0.51	-4.04	11	Pass
106	5530	-4.80	-4.81	0.51	-1.28	11	Pass
122	5610	0.13	0.44	0.51	3.81	11	Pass
138	5690 (U-NII-2C)	0.94	0.59	0.51	4.29	11	Pass

Note:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2.

5180~5240MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.19 \text{ dBi} < 6 \text{ dBi}$, so the limit no need to be reduced.

5260~5320MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.19 \text{ dBi} < 6 \text{ dBi}$, so the limit no need to be reduced.

5500~5700MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.04 \text{ dBi} < 6 \text{ dBi}$, so the limit no need to be reduced.

3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT160)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
50 (U-NII-1)	5250	-13.05	-12.69	1.32	-8.54	11	Pass
50 (U-NII-2A)	5250	-14.74	-13.27	1.32	-9.61	11	Pass
114	5570	-11.18	-12.01	1.32	-7.24	11	Pass

Note:

1. Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2.

5180~5240MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.19 \text{ dBi} < 6 \text{ dBi}$, so the limit no need to be reduced.

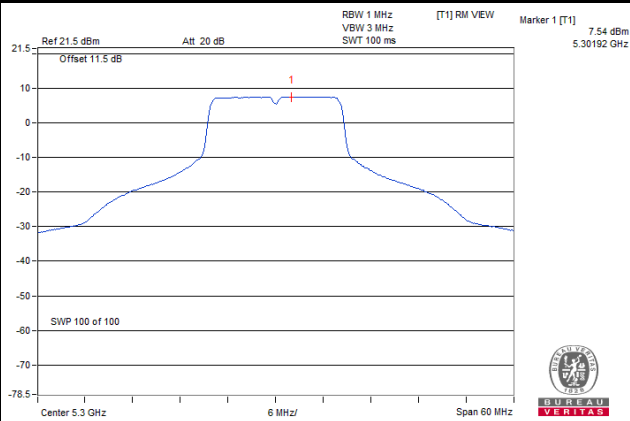
5260~5320MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.19 \text{ dBi} < 6 \text{ dBi}$, so the limit no need to be reduced.

5500~5700MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.04 \text{ dBi} < 6 \text{ dBi}$, so the limit no need to be reduced.

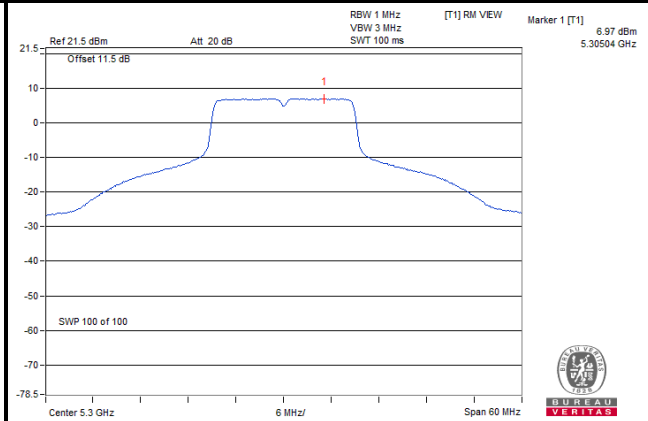
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

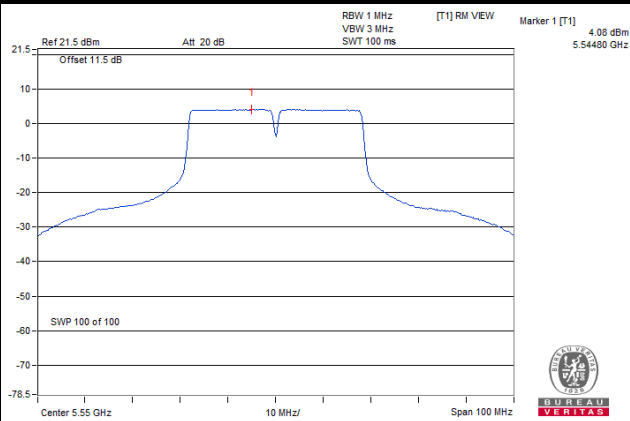
802.11a / CH 60



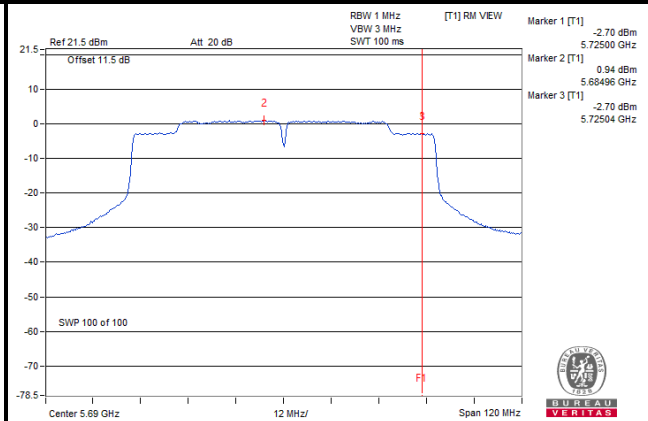
802.11n (HT20) / Chain 0 / CH 60



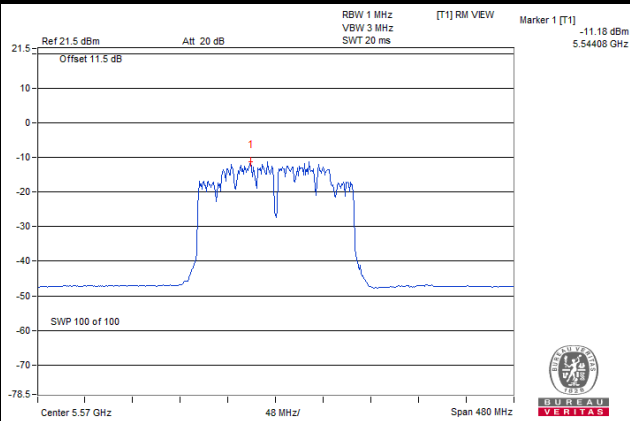
802.11n (HT40) / Chain 1 / CH 110



802.11ac (VHT80) / Chain 0 / CH 138



802.11ac (VHT160) / Chain 0 / CH 114



For U-NII-3 Band

802.11a

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/300 kHz)	(dBm/500 kHz)				
149	5745	-0.08	2.14	0.14	2.28	30	Pass
157	5785	0.13	2.35	0.14	2.49	30	Pass
165	5825	0.46	2.68	0.14	2.82	30	Pass

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

802.11n (HT20)

TX Chain	Channel	Frequency (MHz)	PSD		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)					
0	144	5720 (U-NII-3)	-2.15	0.07	3.01	0.14	3.22	30	Pass
	149	5745	-1.09	1.13	3.01	0.14	4.28	30	Pass
	157	5785	-1.62	0.6	3.01	0.14	3.75	30	Pass
	165	5825	-0.74	1.48	3.01	0.14	4.63	30	Pass
1	144	5720 (U-NII-3)	-1.52	0.7	3.01	0.14	3.85	30	Pass
	149	5745	-0.04	2.18	3.01	0.14	5.33	30	Pass
	157	5785	-0.23	1.99	3.01	0.14	5.14	30	Pass
	165	5825	-1.08	1.14	3.01	0.14	4.29	30	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
- Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.04 < 6$ dBi, so the limit no need to be reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

TX Chain	Channel	Frequency (MHz)	PSD		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)					
0	142	5710 (U-NII-3)	-5.94	-3.72	3.01	0.79	0.08	30	Pass
	151	5755	-7.19	-4.97	3.01	0.79	-1.17	30	Pass
	159	5795	-6.5	-4.28	3.01	0.79	-0.48	30	Pass
1	142	5710 (U-NII-3)	-5.81	-3.59	3.01	0.79	0.21	30	Pass
	151	5755	-6.71	-4.49	3.01	0.79	-0.69	30	Pass
	159	5795	-5.92	-3.7	3.01	0.79	0.1	30	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.04 < 6$ dBi, so the limit no need to be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

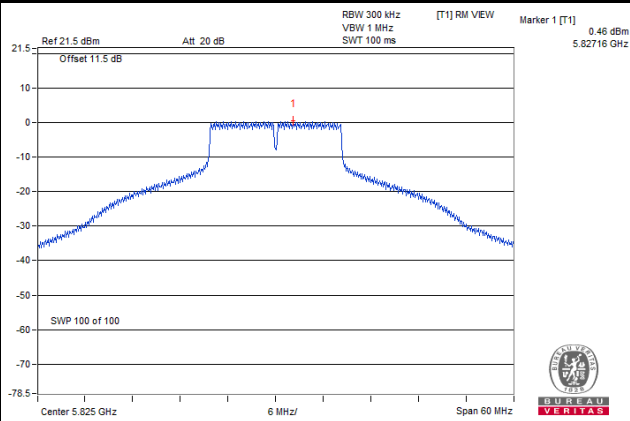
TX Chain	Channel	Frequency (MHz)	PSD		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/300 kHz)	(dBm/500 kHz)					
0	138	5690 (U-NII-3)	-11.26	-9.04	3.01	0.51	-5.52	30	Pass
	155	5775	-10.24	-8.02	3.01	0.51	-4.5	30	Pass
1	138	5690 (U-NII-3)	-10.98	-8.76	3.01	0.51	-5.24	30	Pass
	155	5775	-9.39	-7.17	3.01	0.51	-3.65	30	Pass

Note:

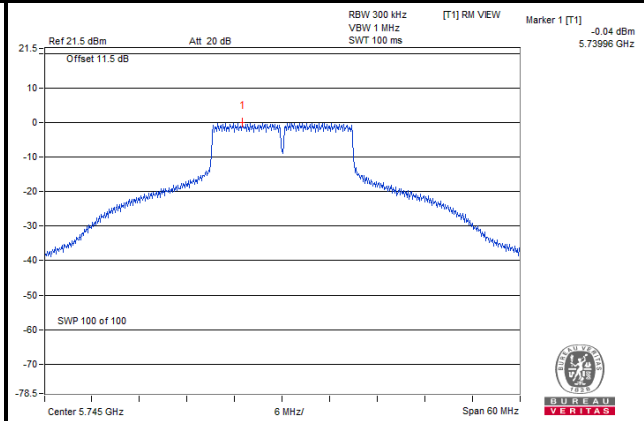
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.04 < 6$ dBi, so the limit no need to be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

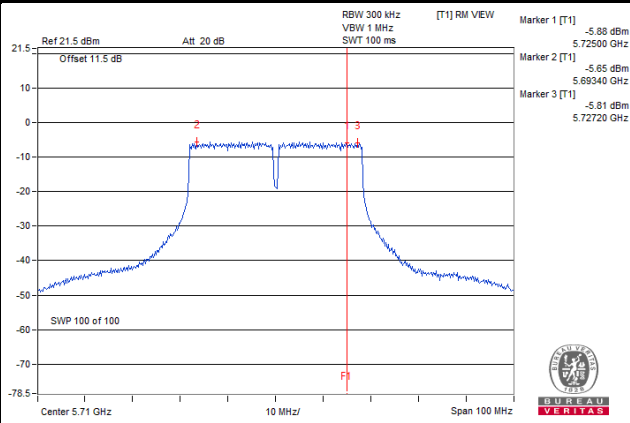
802.11a / CH 165



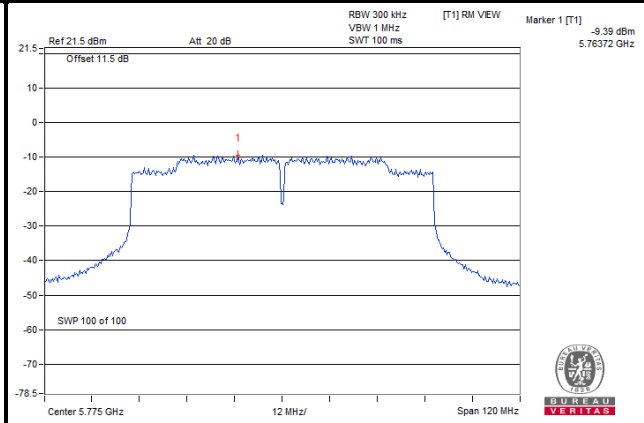
802.11n (HT20) / Chain 1 / CH 149



802.11n (HT40) / Chain 1 / CH 142



802.11ac (VHT80) / Chain 1 / CH 155

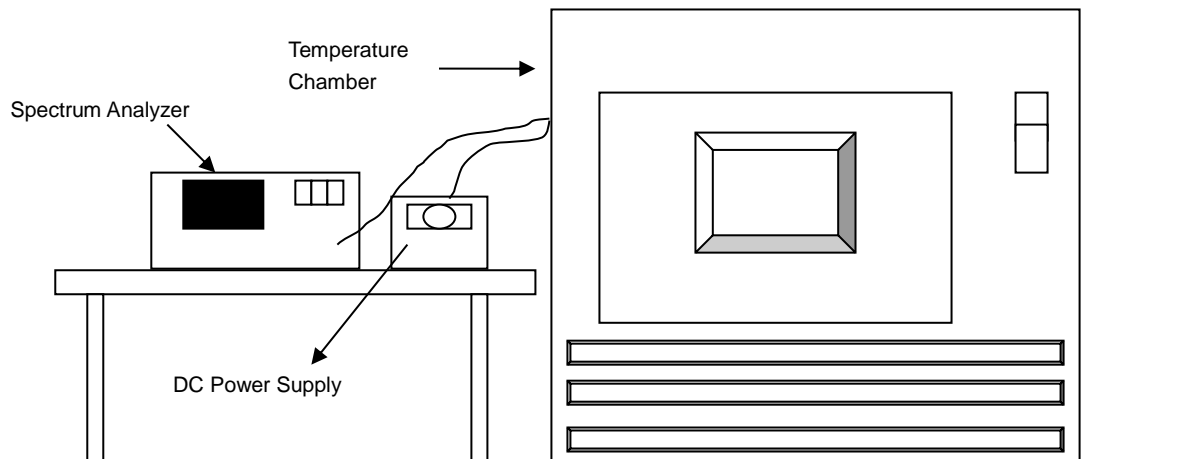


4.6 Frequency Stability

4.6.1 Limit 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

Refer to section 4.1.2 to get information of above instrument.

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: 5180 MHz									
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
80	12	5180.0021	Pass	5179.9994	Pass	5180.0006	Pass	5180.0008	Pass
70	12	5179.993	Pass	5179.9903	Pass	5179.9923	Pass	5179.9882	Pass
60	12	5179.9964	Pass	5179.9992	Pass	5179.999	Pass	5179.9966	Pass
50	12	5180.0216	Pass	5180.0208	Pass	5180.0207	Pass	5180.0205	Pass
40	12	5179.9916	Pass	5179.987	Pass	5179.9915	Pass	5179.9887	Pass
30	12	5180.0142	Pass	5180.0124	Pass	5180.0138	Pass	5180.0157	Pass
20	12	5179.9909	Pass	5179.9919	Pass	5179.9941	Pass	5179.9937	Pass
10	12	5180.0112	Pass	5180.0118	Pass	5180.0108	Pass	5180.0132	Pass
0	12	5179.9942	Pass	5179.9973	Pass	5179.994	Pass	5179.9942	Pass
-10	12	5180.012	Pass	5180.0139	Pass	5180.0141	Pass	5180.0162	Pass
-20	12	5179.9946	Pass	5179.9921	Pass	5179.993	Pass	5179.9907	Pass
-30	12	5180.0083	Pass	5180.0066	Pass	5180.0103	Pass	5180.0111	Pass

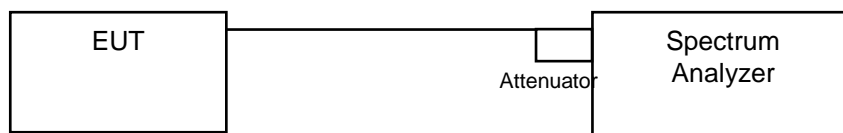
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	13.8	5179.9876	Pass	5179.9839	Pass	5179.9864	Pass	5179.9877	Pass
	12	5179.9909	Pass	5179.9919	Pass	5179.9941	Pass	5179.9937	Pass
	10.2	5179.9811	Pass	5179.9785	Pass	5179.9826	Pass	5179.9816	Pass

4.7 6 dB Bandwidth Measurement

4.7.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

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) = 100 kHz
- 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)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.38	0.5	Pass
157	5785	16.42	0.5	Pass
165	5825	16.41	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
144	5720 (U-NII-3)	3.79	3.81	0.5	Pass
149	5745	17.64	17.62	0.5	Pass
157	5785	17.66	17.64	0.5	Pass
165	5825	17.66	17.63	0.5	Pass

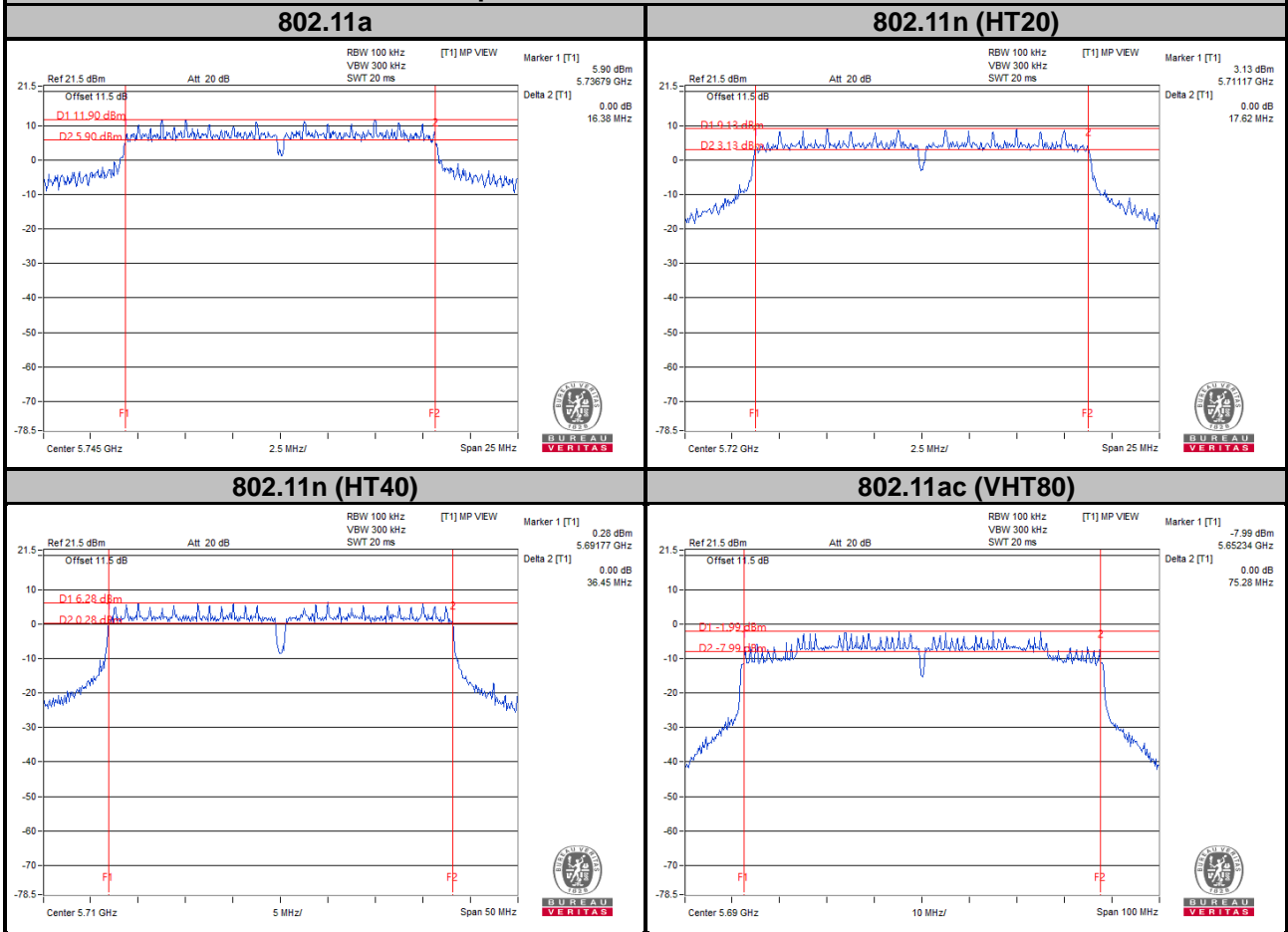
802.11n (HT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
142	5710 (U-NII-3)	3.22	3.23	0.5	Pass
151	5755	36.44	36.45	0.5	Pass
159	5795	36.43	36.44	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
138	5690 (U-NII-3)	2.62	2.71	0.5	Pass
155	5775	75.36	75.31	0.5	Pass

Spectrum Plot of Worst Value



Note:

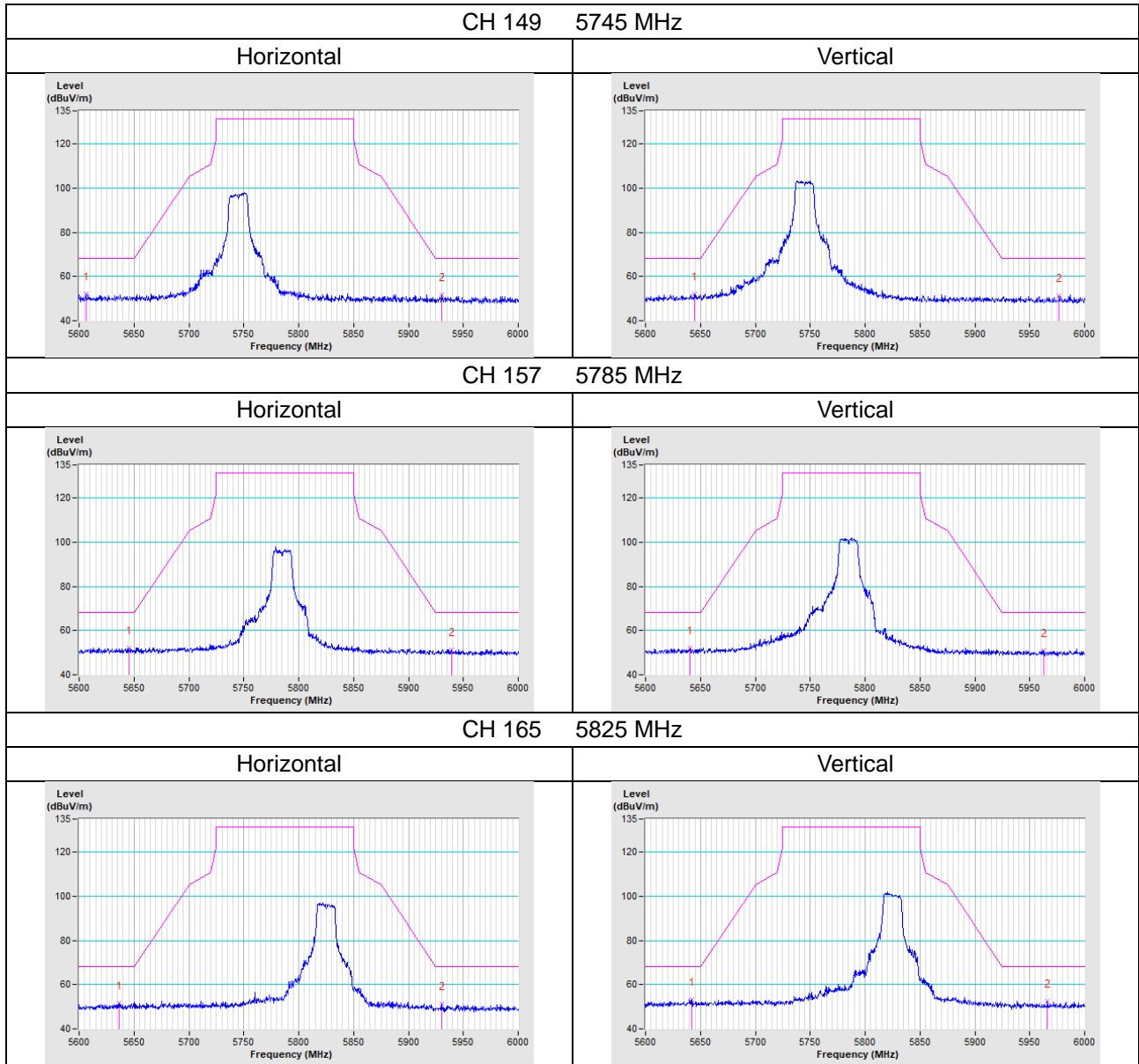
- For Ch144 (UNII-3 Band): The 6 dB bandwidth above 5725 MHz = Marker 1 + Delta 2 – 5725 MHz
- For Ch142 (UNII-3 Band): The 6 dB bandwidth above 5725 MHz = Marker 1 + Delta 2 – 5725 MHz
- For Ch138 (UNII-3 Band): The 6 dB bandwidth above 5725 MHz = Marker 1 + Delta 2 – 5725 MHz

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)

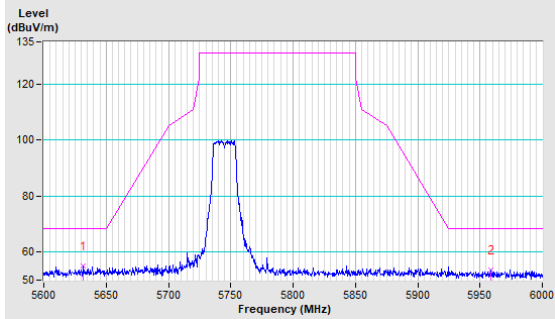
802.11a



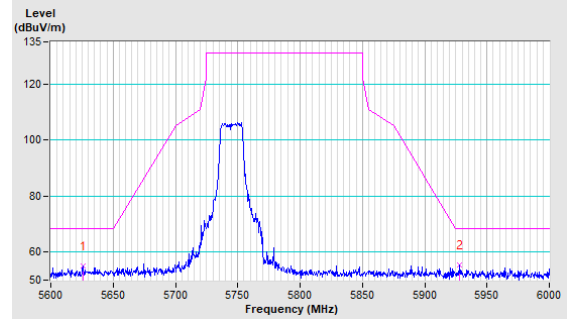
802.11n (HT20)

CH 149 5745 MHz

Horizontal

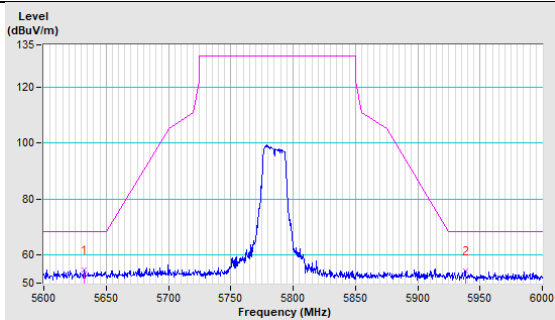


Vertical

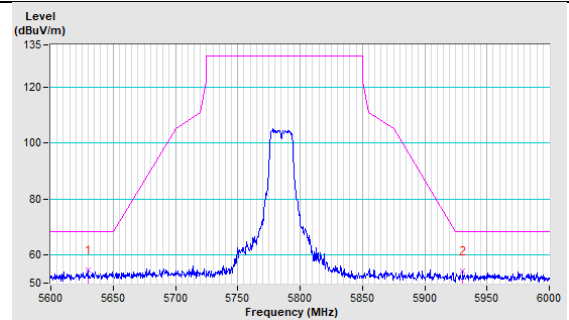


CH 157 5785 MHz

Horizontal

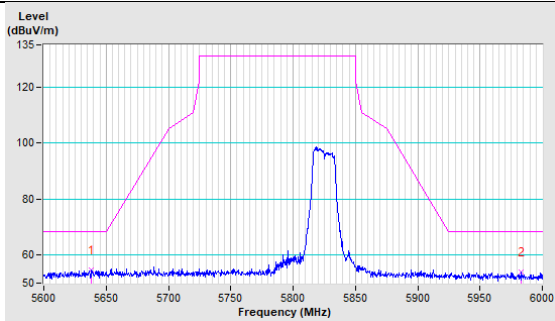


Vertical

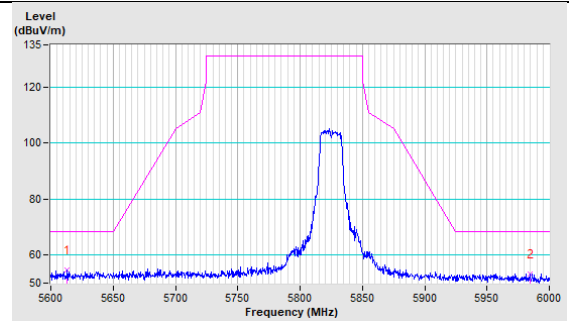


CH 165 5825 MHz

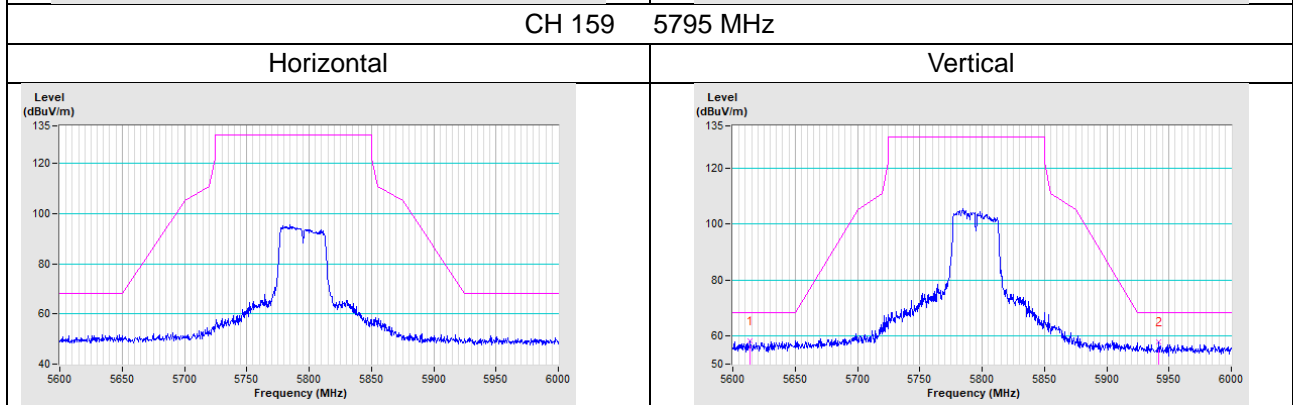
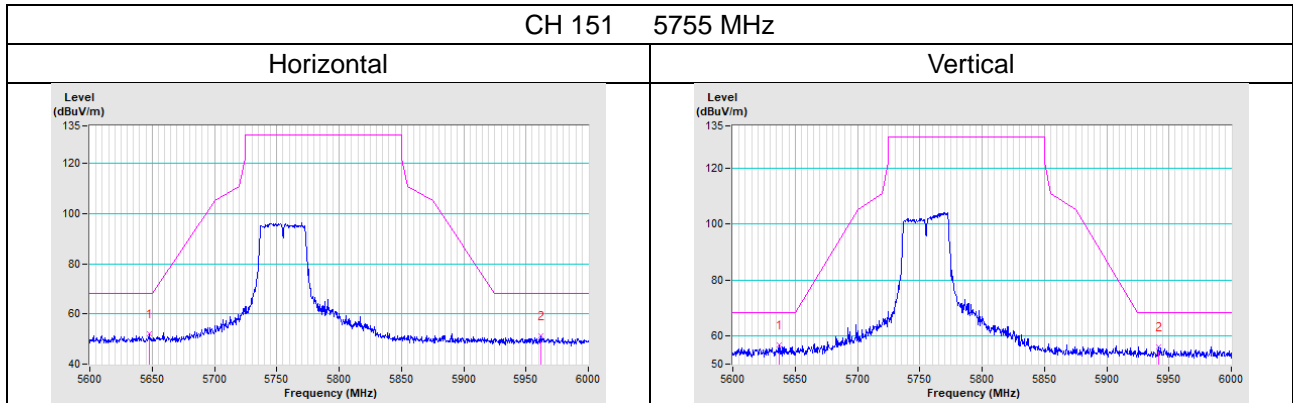
Horizontal



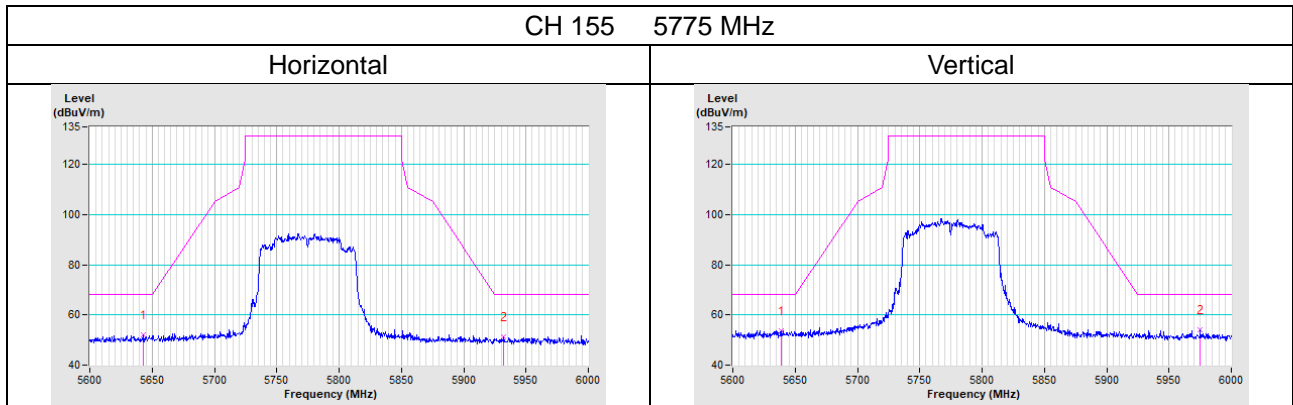
Vertical



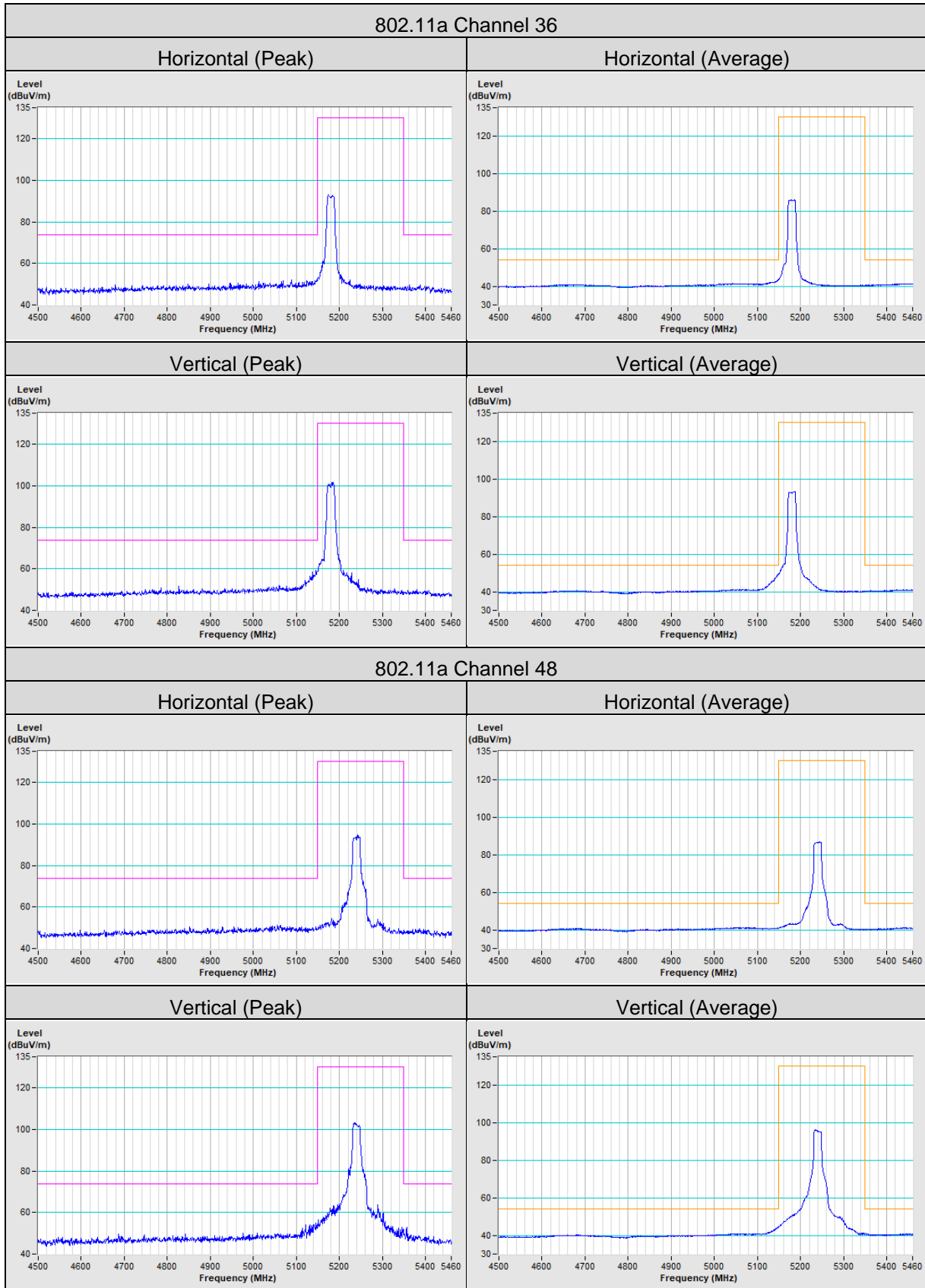
802.11n (HT40)



802.11ac (VHT80)

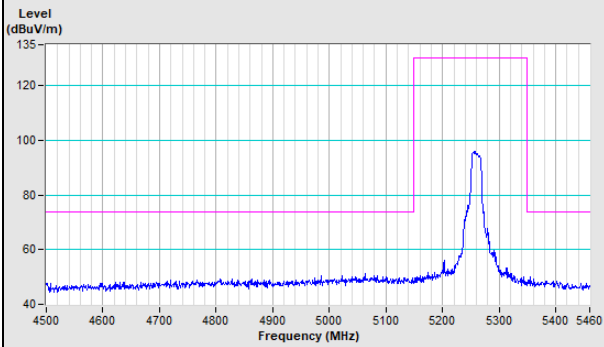


Annex B- Band Edge Measurement

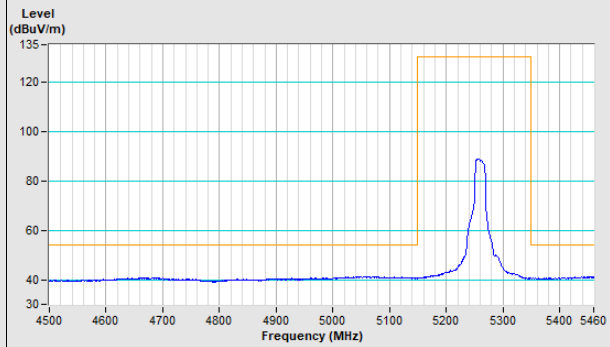


802.11a Channel 52

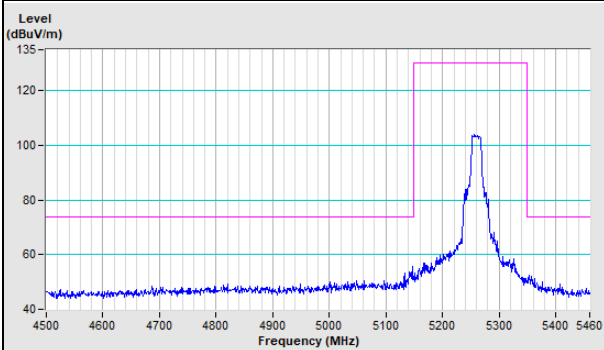
Horizontal (Peak)



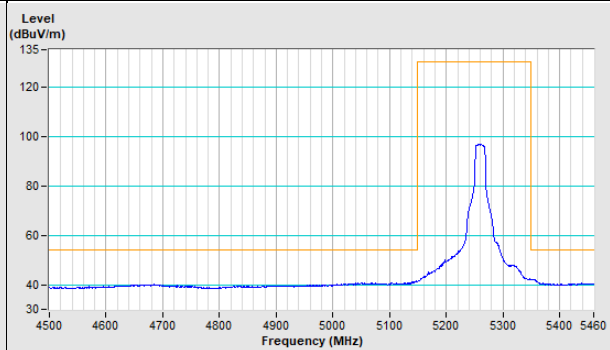
Horizontal (Average)



Vertical (Peak)

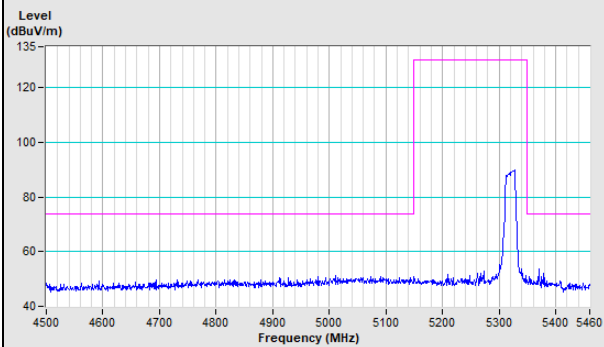


Vertical (Average)

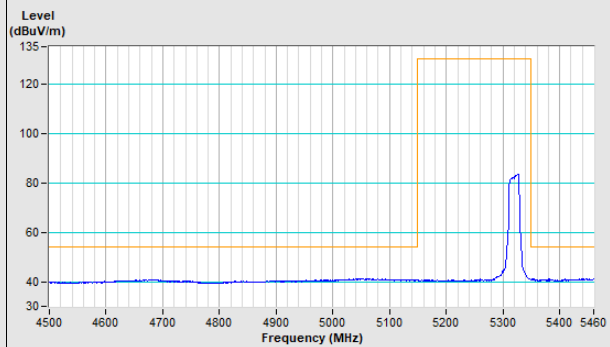


802.11a Channel 64

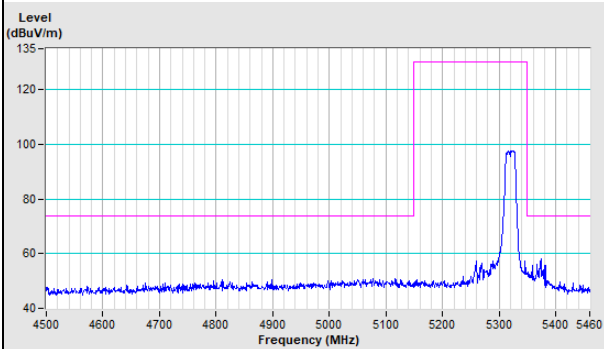
Horizontal (Peak)



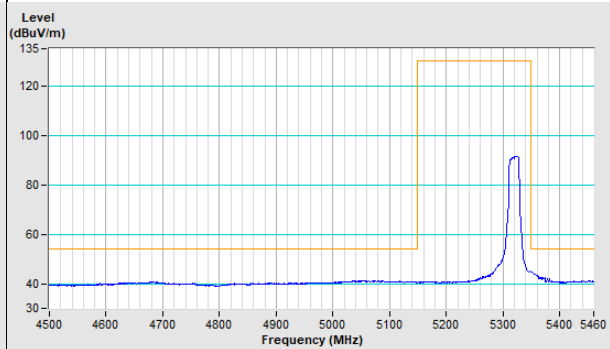
Horizontal (Average)

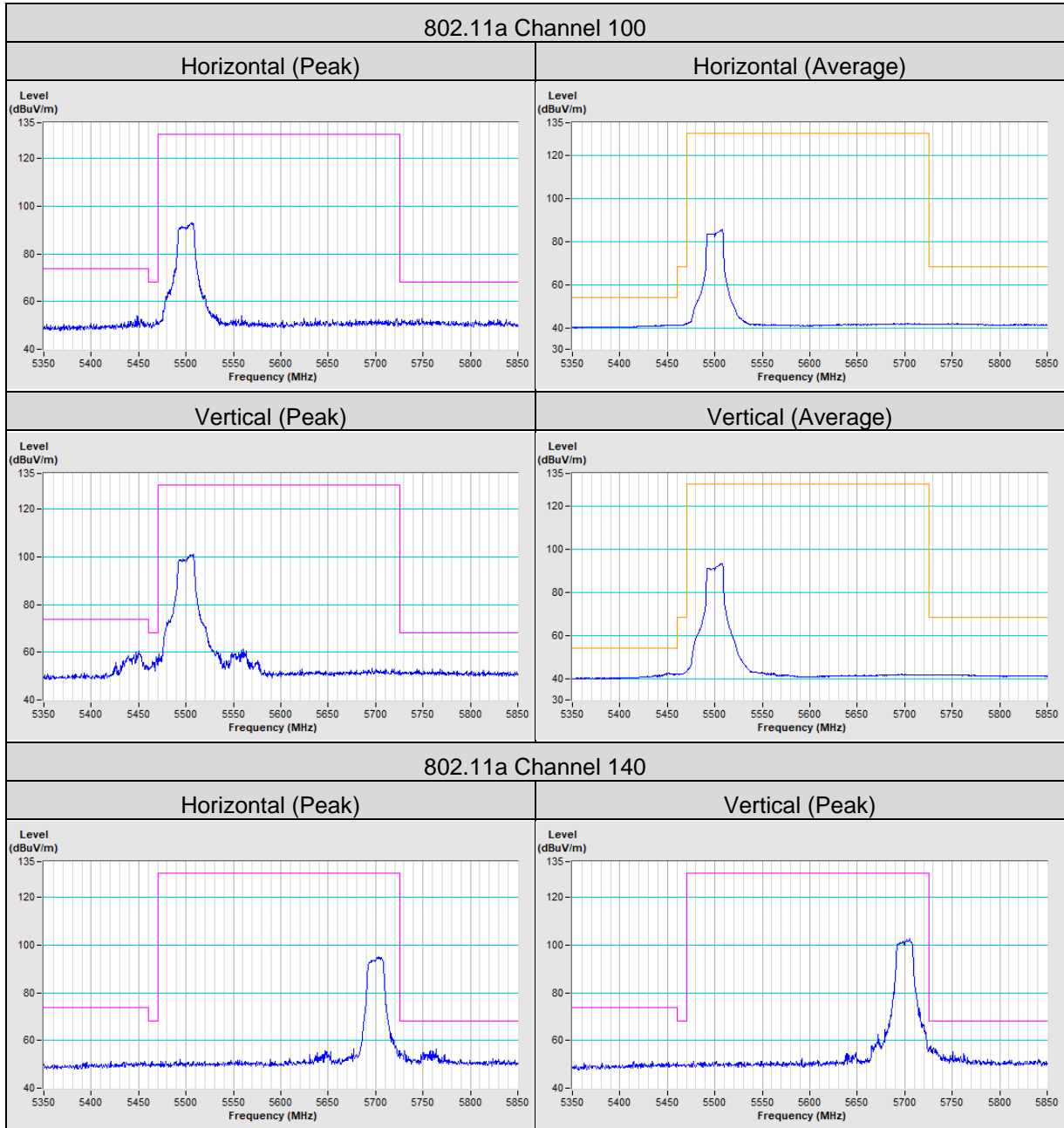


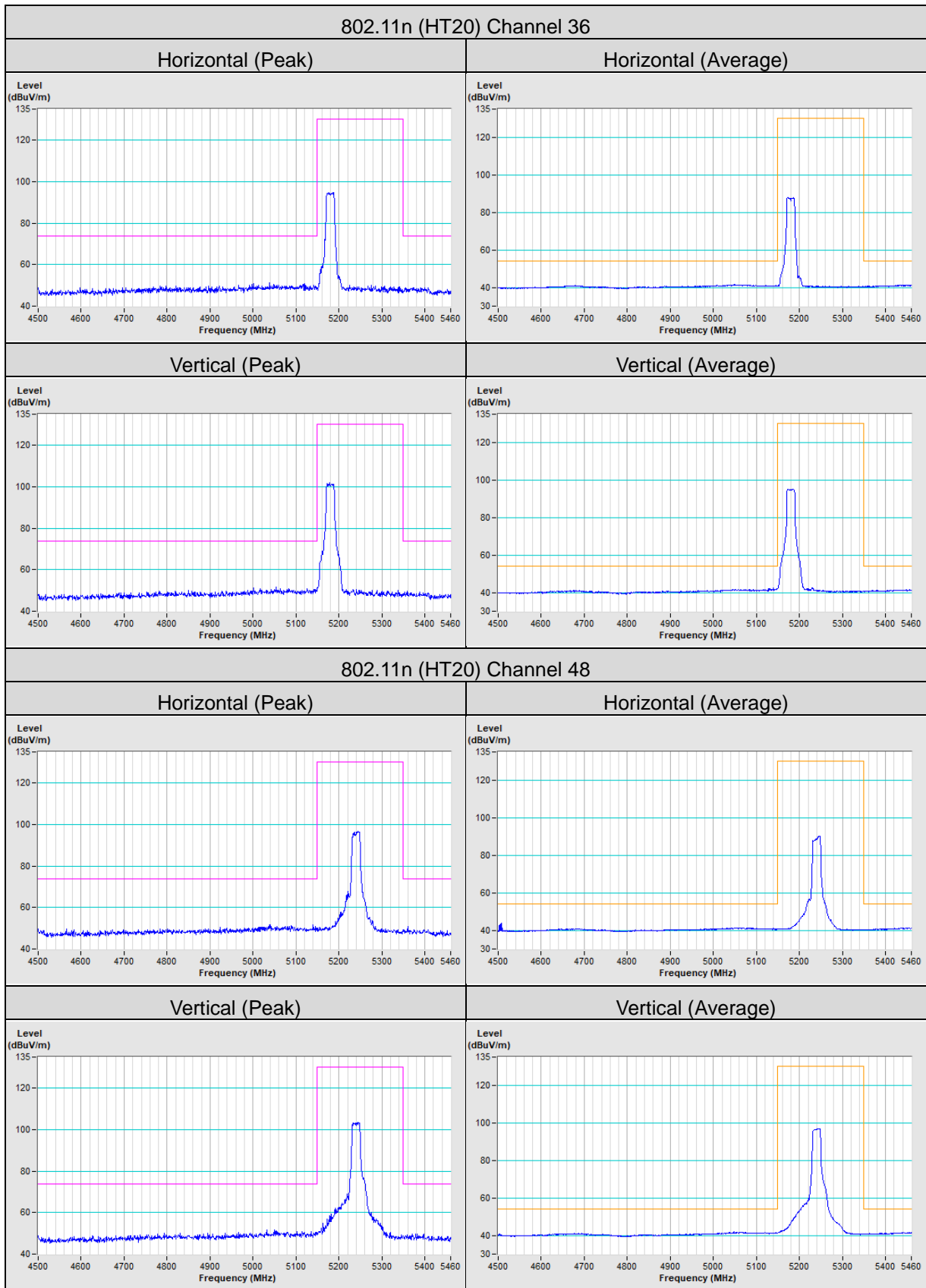
Vertical (Peak)

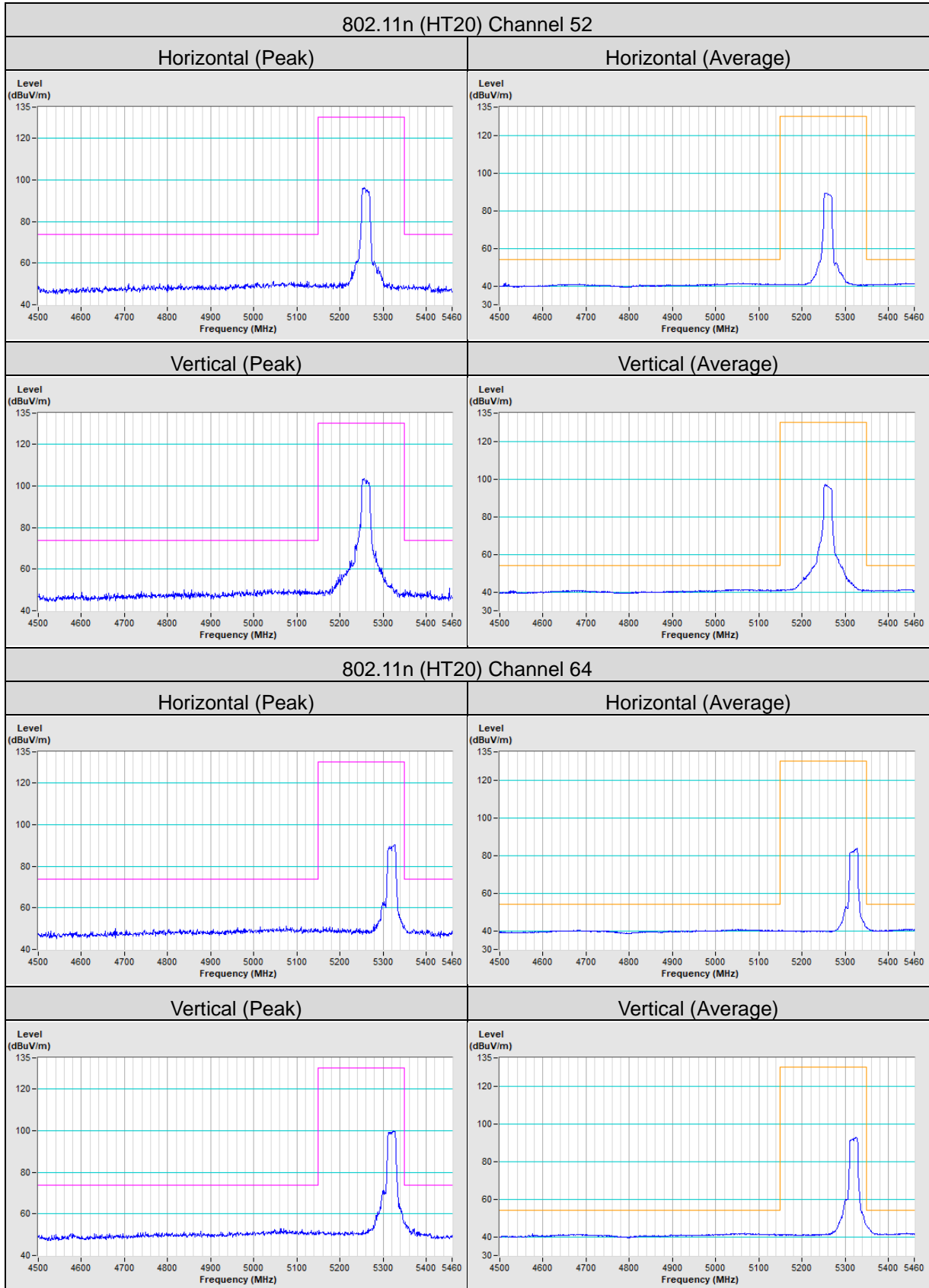


Vertical (Average)

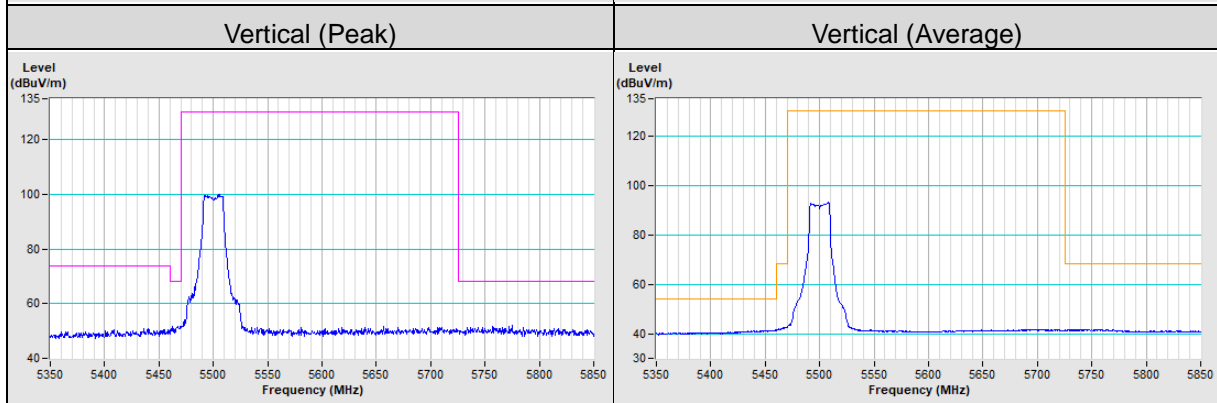
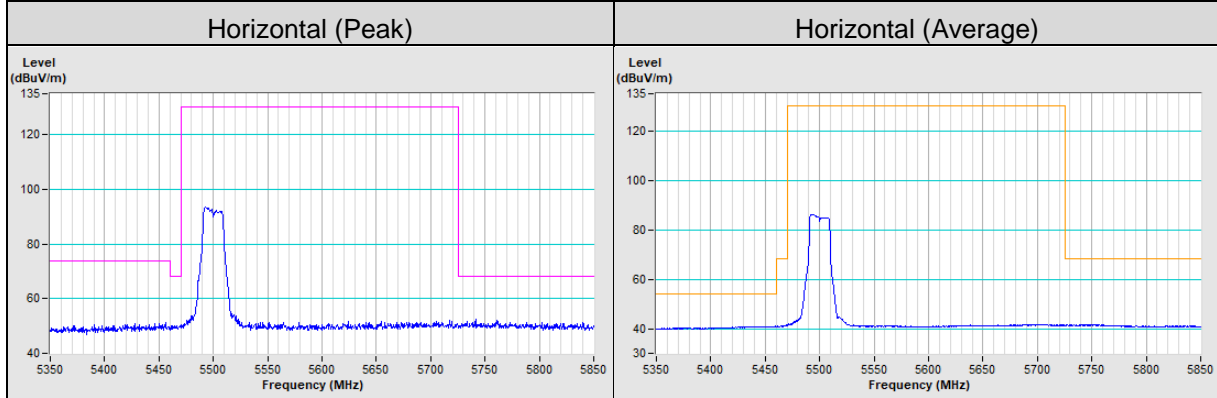




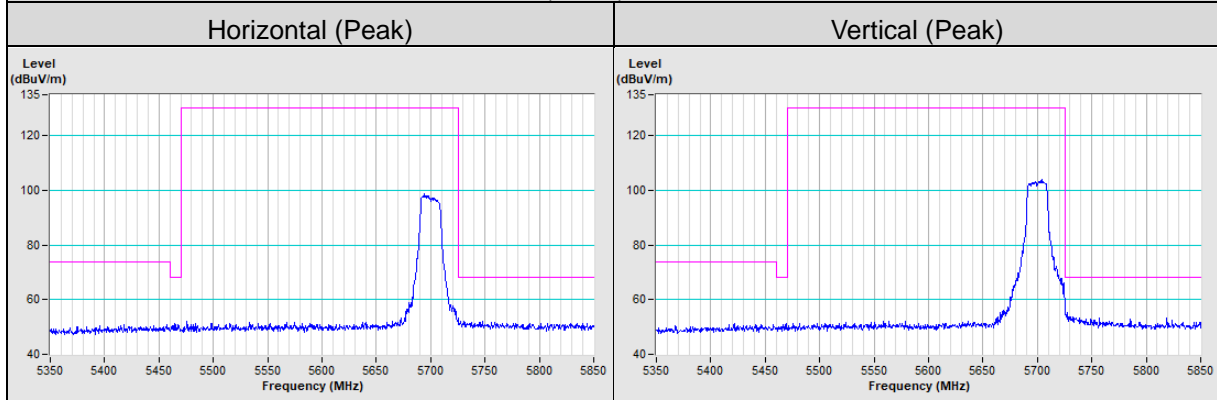




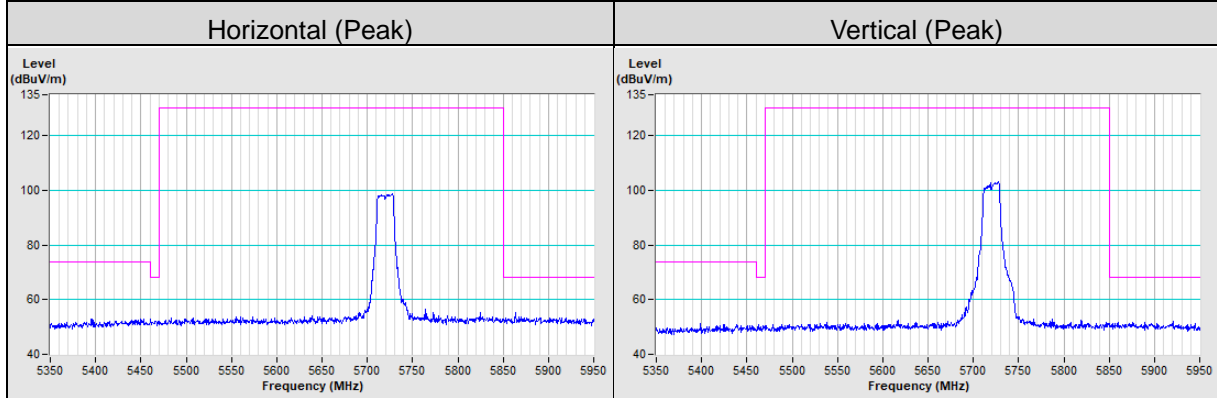
802.11n (HT20) Channel 100

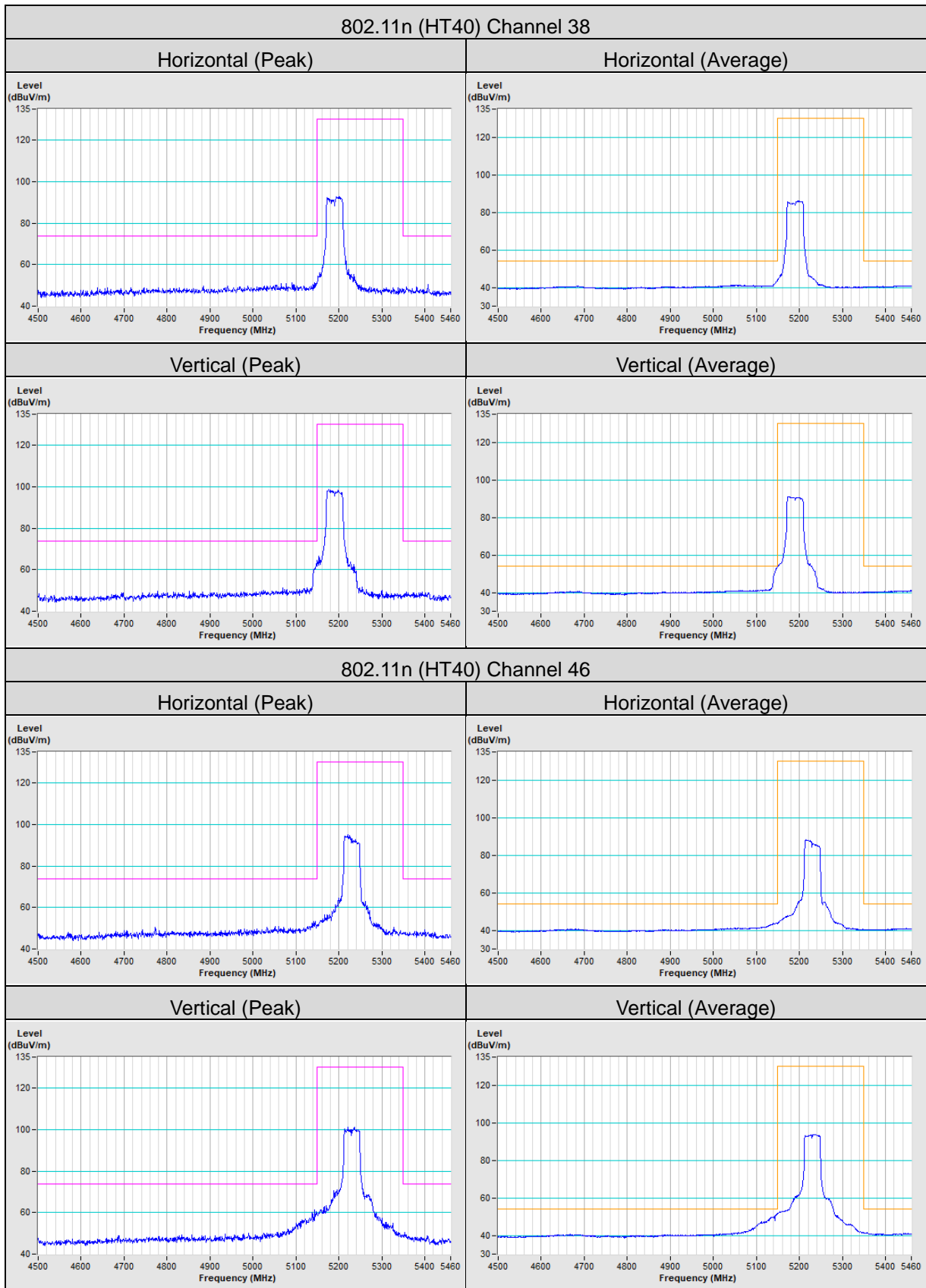


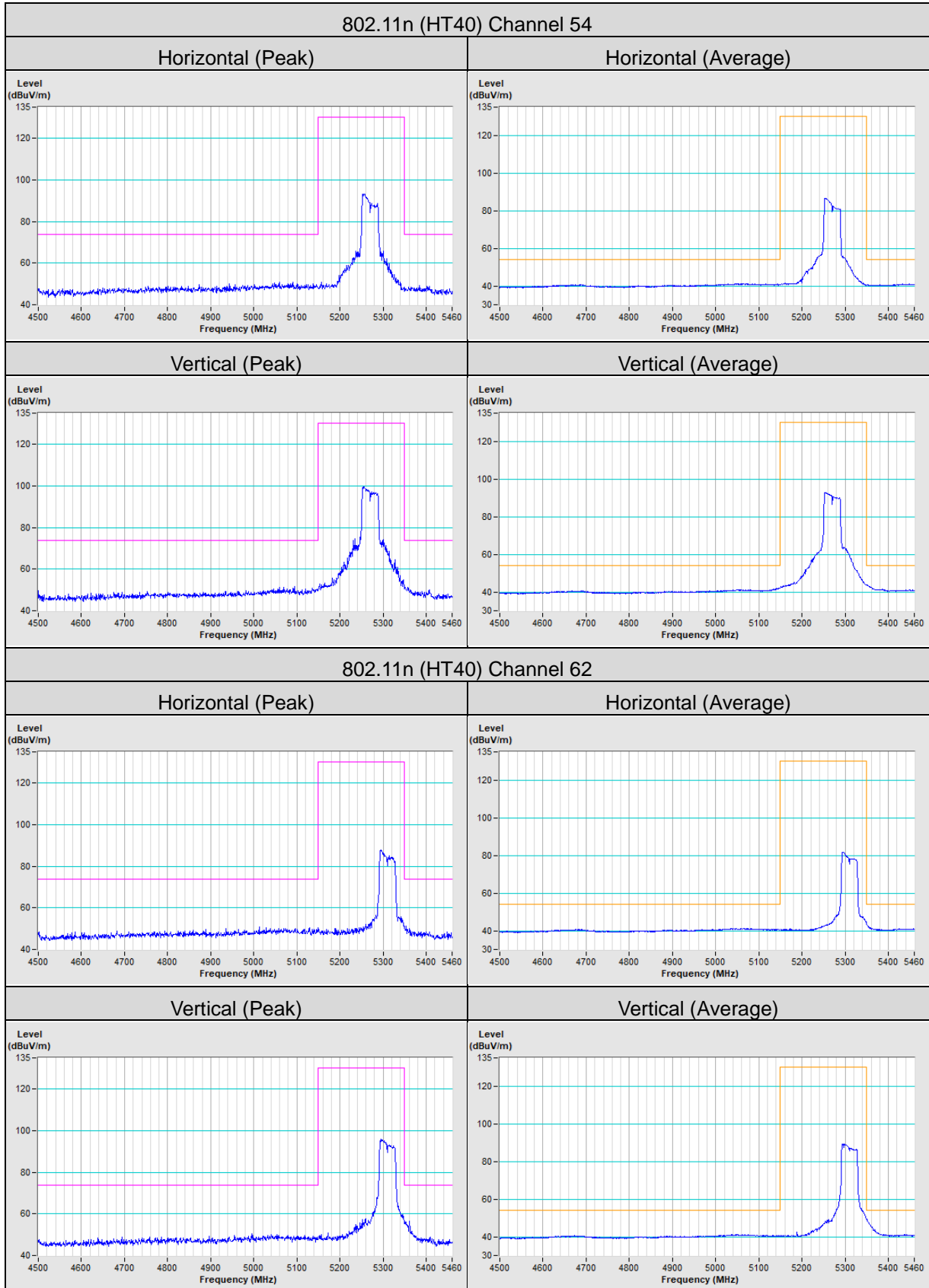
802.11n (HT20) Channel 140

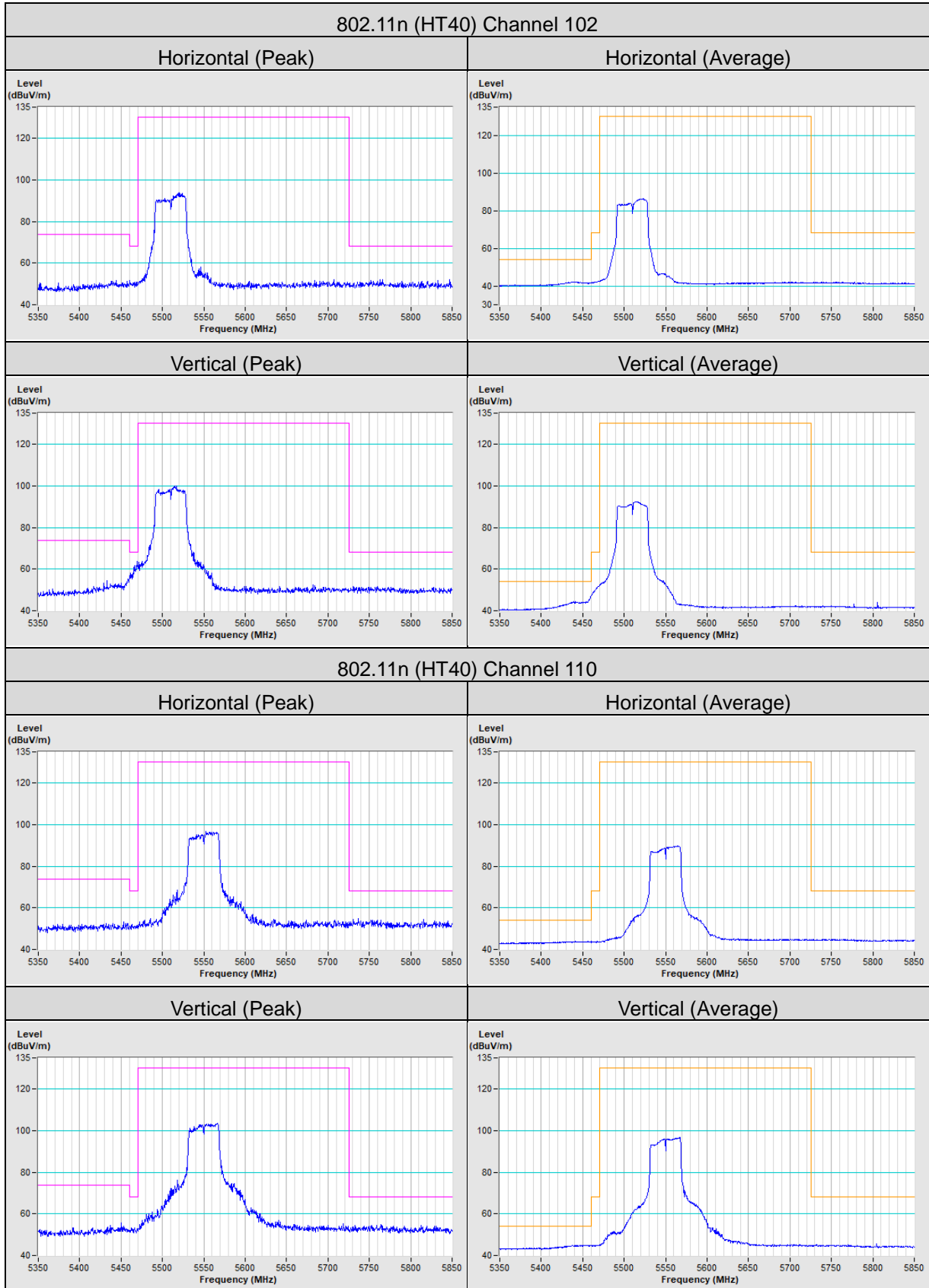


802.11n (HT20) Channel 144



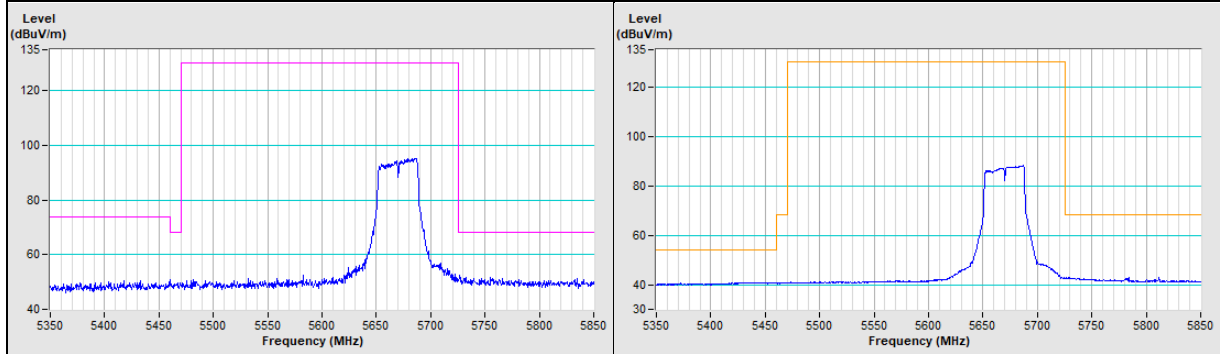




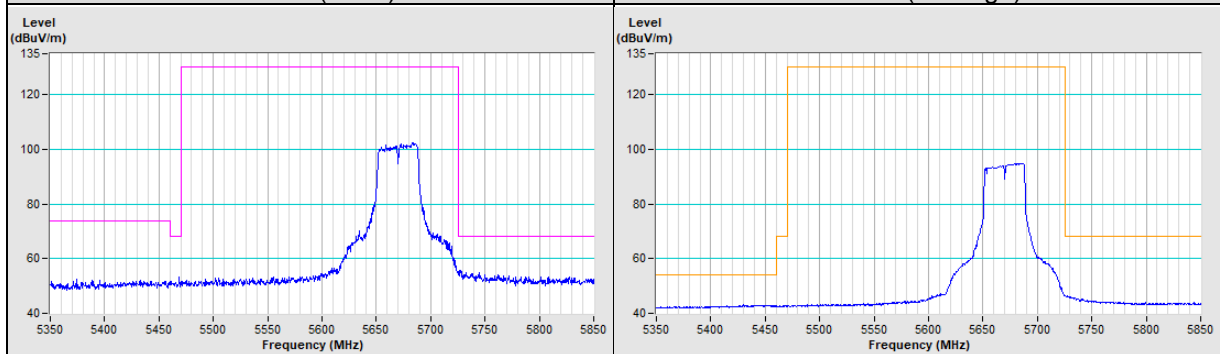


802.11n (HT40) Channel 134

Horizontal (Peak)	Horizontal (Average)
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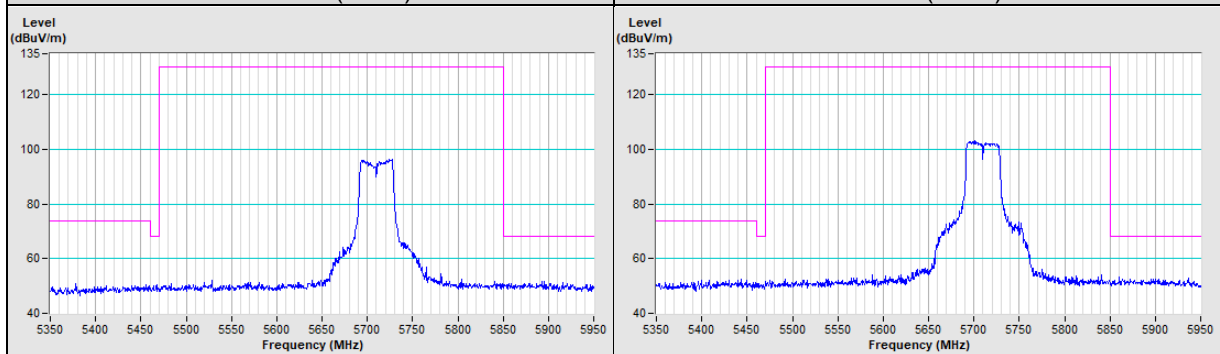


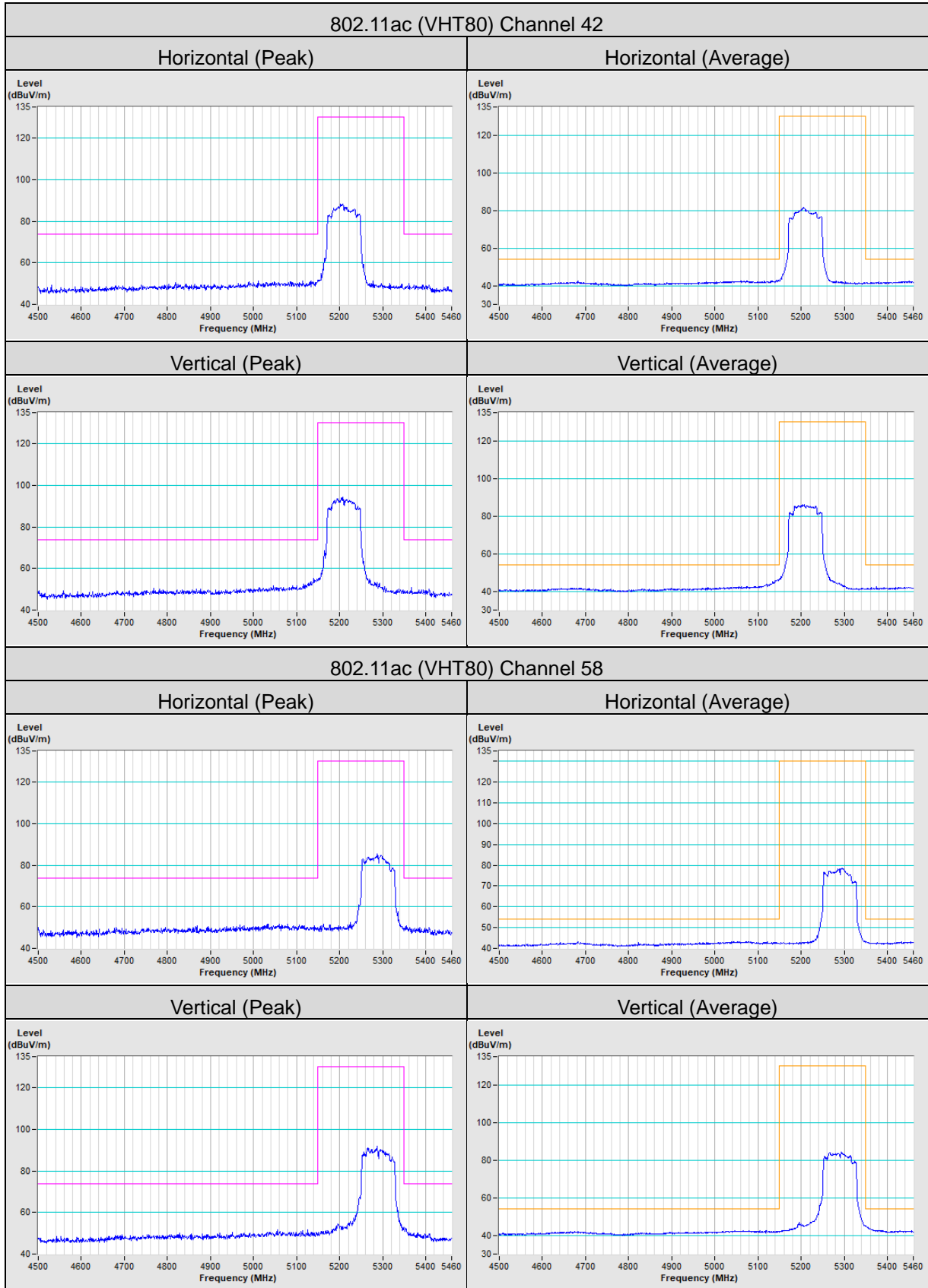
Vertical (Peak)	Vertical (Average)
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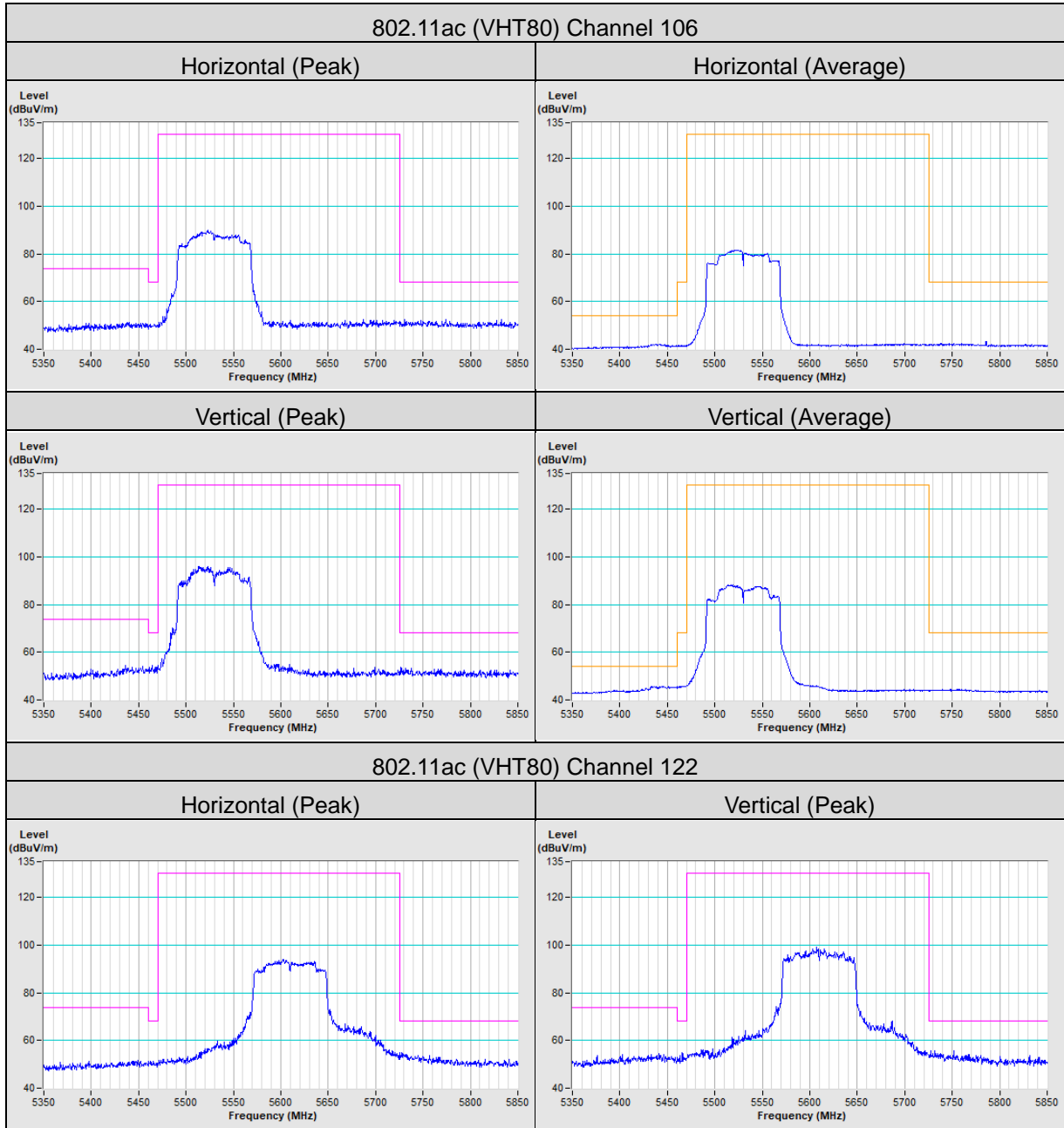


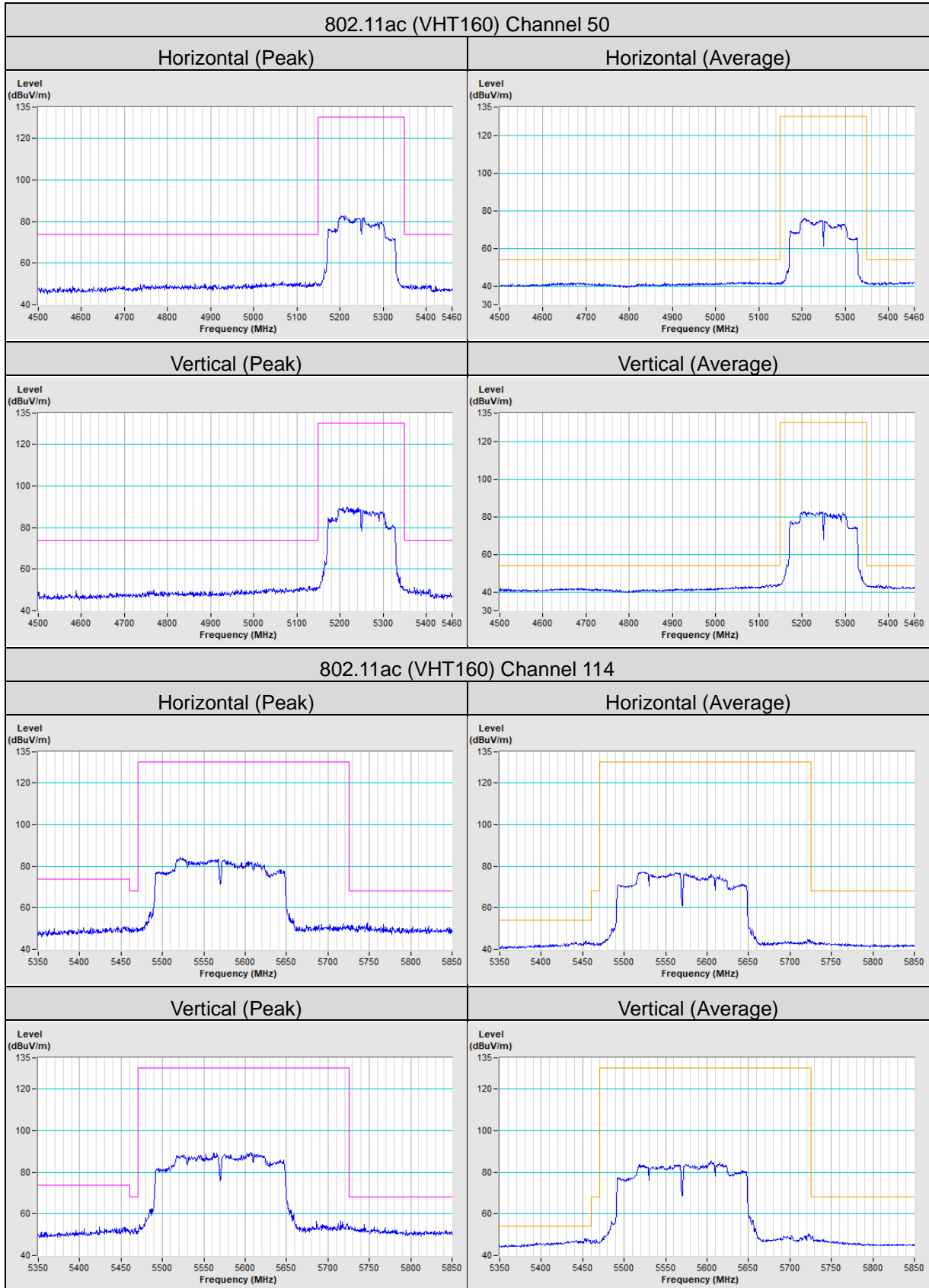
802.11n (HT40) Channel 142

Horizontal (Peak)	Vertical (Peak)
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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 according to ISO/IEC 17025.

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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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