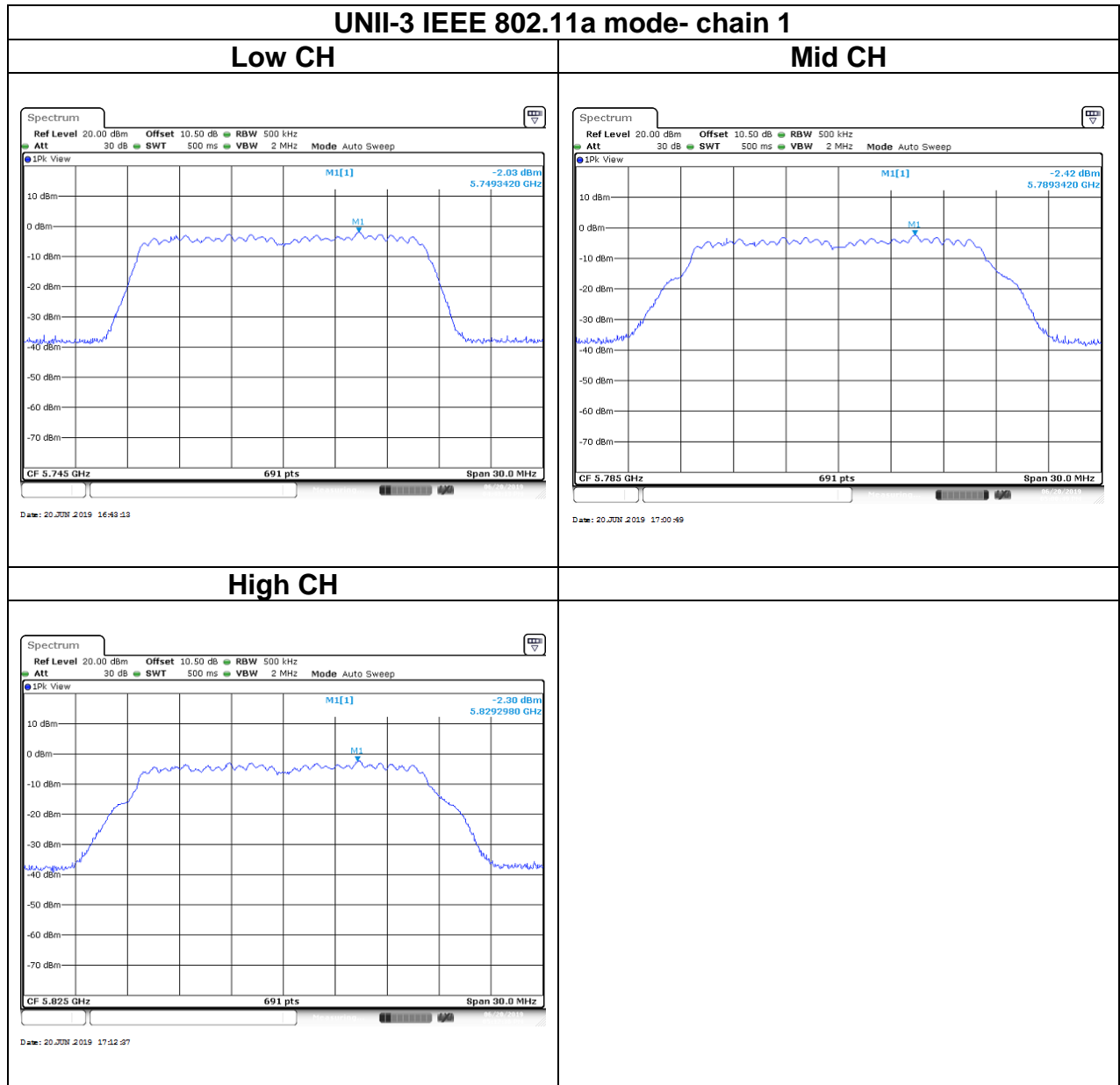
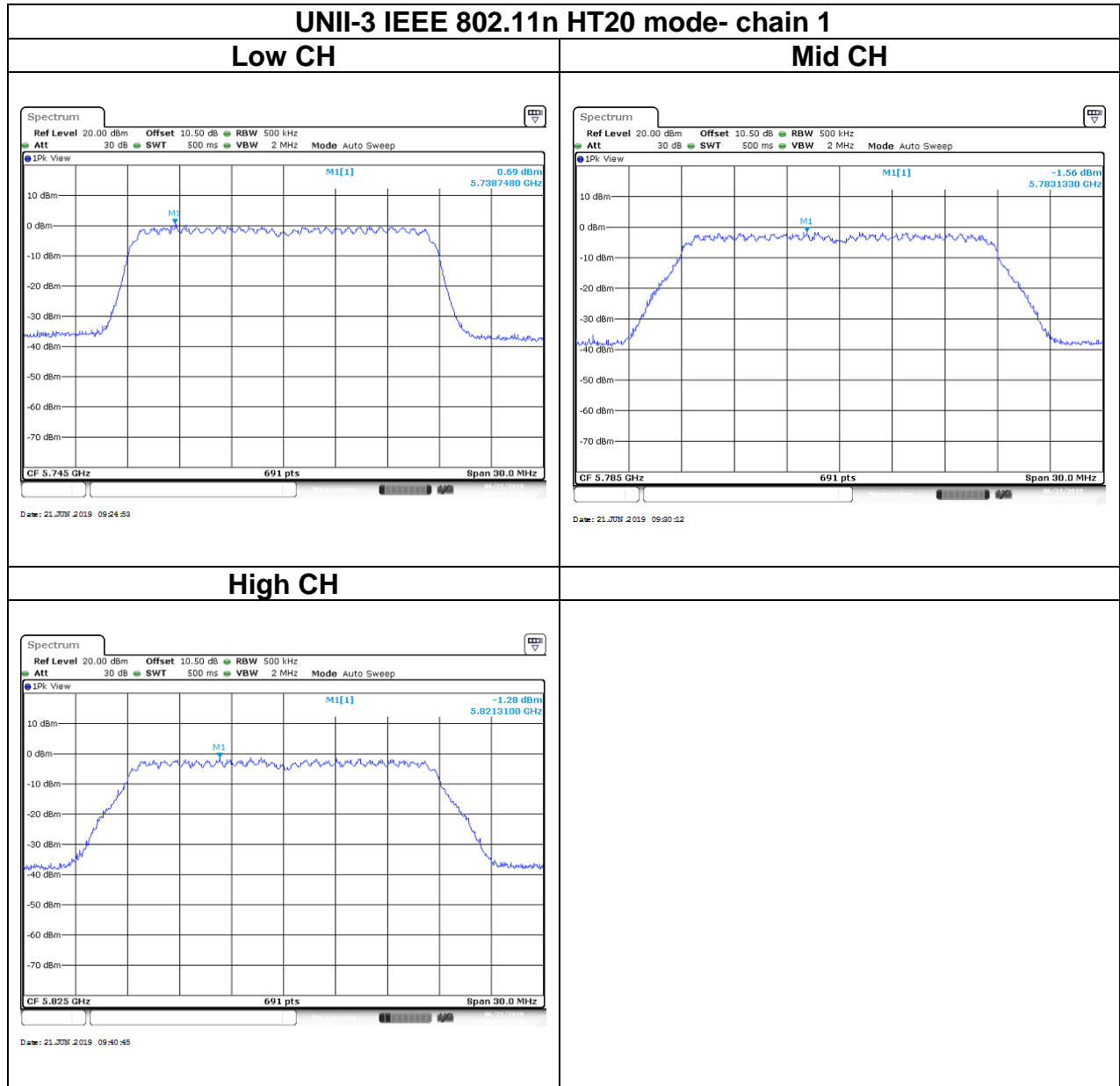
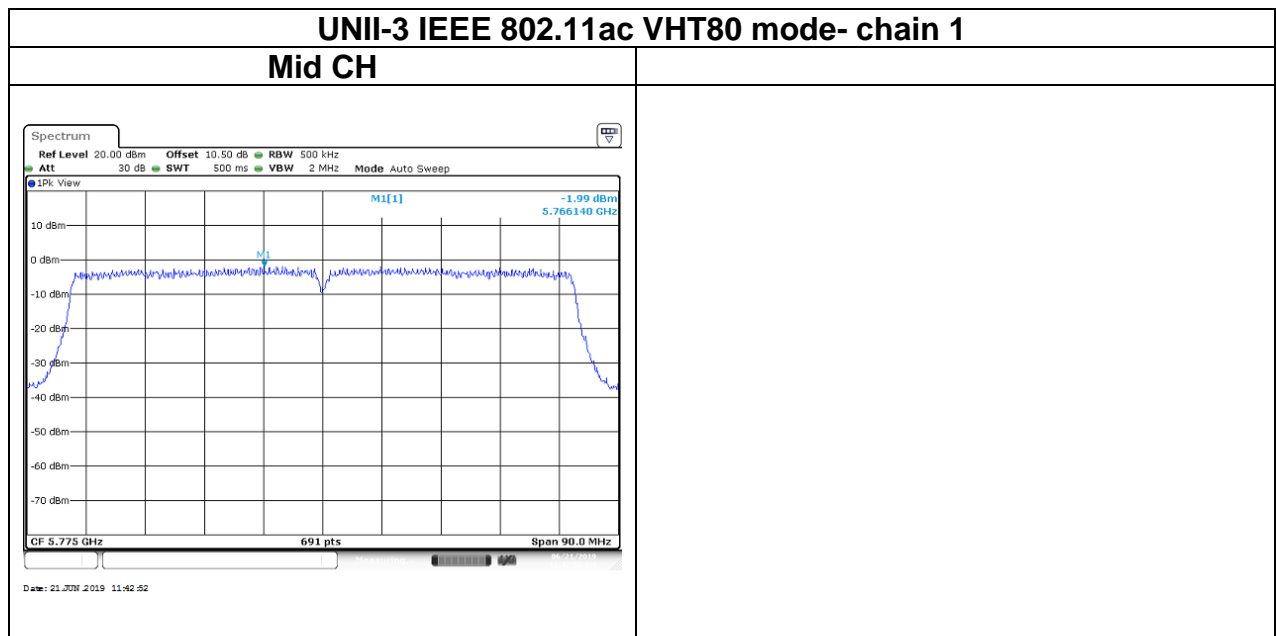
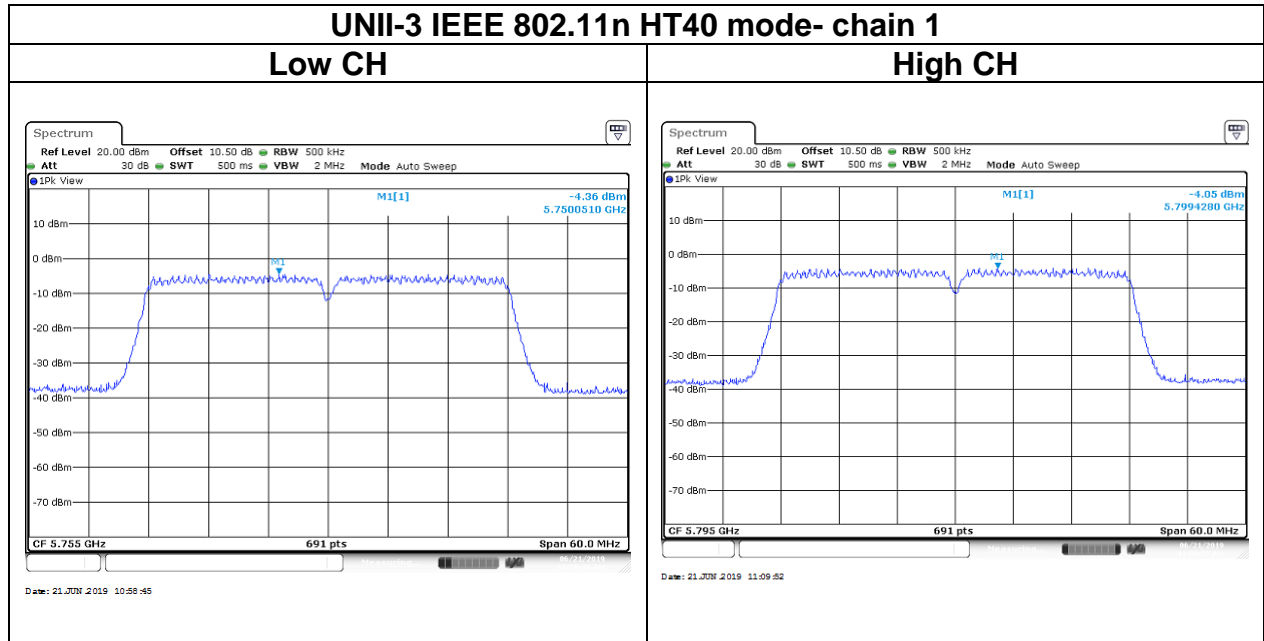


## chain 1







## 4.5 RADIATION Bandedge and Spurious Emission

### 4.5.1 Test Limit

FCC according to §15.407, §15.209 and §15.205,

IC according to RSS-247 section 6.2.1.2 and section 6.2.4.2

#### FCC

##### Below 30 MHz

Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/F (F in kHz)	300
490-1,705 kHz	24,000/F (F in kHz)	24,000/F (F in kHz)	30
1.705-30 MHz	30	N/A	30

##### Above 30 MHz

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

#### UNII-1 :

For transmitters operating in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, any unwanted emissions that fall into the band 5250-5350 MHz must be 26 dBc, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth, above 5.25 GHz. Otherwise, the transmission is considered as intentional and the devices shall implement dynamic frequency selection (DFS) and transmitter power control (TPC) as per the requirements for the band 5250-5350 MHz

#### UNII-2a and 2c :

For devices with operating frequencies in the band 5250-5350 MHz but having a channel bandwidth that overlaps the band 5150-5250 MHz, the devices' unwanted emission shall not exceed -27 dBm/MHz e.i.r.p. outside the band 5150-5350 MHz and its power shall comply with the spectral power density for operation within the band 5150-5250 MHz. The device shall be labelled "for indoor use only." Emissions outside the band 5470-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p.

### UNII-3:

All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

### IC

#### RSS-Gen Table 3 and Table 5 – General Field Strength Limits for Transmitters and Receivers at Frequencies Above 30 MHz (Note)

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

**Note:** Measurements for compliance with the limits in table 3 may be performed at distances other than 3 metres, in accordance with Section 6.6.

#### RSS-Gen Table 6: General Field Strength Limits for Transmitters at Frequencies Below 30 MHz (Transmit)

Frequency	Magnetic field strength (H-Field) (μA/m)	Measurement Distance (m)
9-490 kHz <sup>Note</sup>	6.37/F (F in kHz)	300
490-1,705 kHz	63.7/F (F in kHz)	30
1.705-30 MHz	0.08	30

**Note:** The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector..

**UNII-1 :**

For transmitters operating in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, any unwanted emissions that fall into the band 5250-5350 MHz must be 26 dBc, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth, above 5.25 GHz. Otherwise, the transmission is considered as intentional and the devices shall implement dynamic frequency selection (DFS) and transmitter power control (TPC) as per the requirements for the band 5250-5350 MHz

**UNII-2a and 2c :**

For devices with operating frequencies in the band 5250-5350 MHz but having a channel bandwidth that overlaps the band 5150-5250 MHz, the devices' unwanted emission shall not exceed -27 dBm/MHz e.i.r.p. outside the band 5150-5350 MHz and its power shall comply with the spectral power density for operation within the band 5150-5250 MHz. The device shall be labelled "for indoor use only." Emissions outside the band 5470-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p.

**UNII-3:**

For the band 5725-5850 MHz, emissions at frequencies from the band edges to 10 MHz above or below the band edges shall not exceed -17 dBm/MHz e.i.r.p.  
For emissions at frequencies more than 10 MHz above or below the band edges, the emissions power shall not exceed -27 dBm/MHz

## 4.5.2 Test Procedure

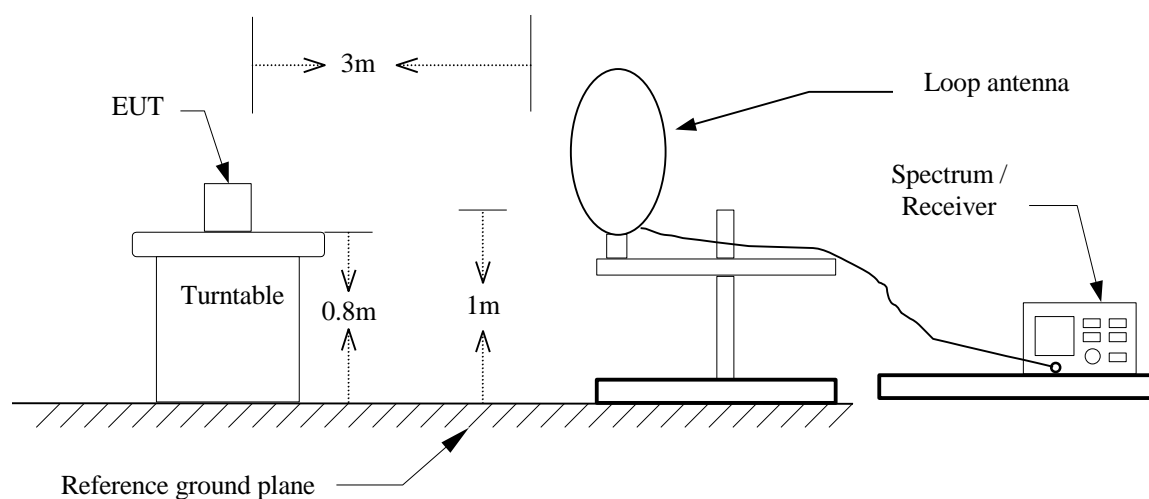
Test method Refer as KDB 789033 D02.

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m and below 1 GHz is 0.8m above ground plane. The EUT Configured un accordance with ANSI C63.10: 2013, and the EUT set in a continuous mode.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. And EUT is set 3m away from the receiving antenna, which is scanned from 1m to 4m above the ground plane to find out the highest emissions. Measurement are made polarized in both the vertical and the horizontal positions with antenna.
3. Span shall wide enough to full capture the emission measured. The SA from 9kHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.
4. No emission found between lowest internal used/generated frequency to 30MHz (9KHz~30MHz)
5. The SA setting following :
  - (1) Below 1G : RBW = 100kHz, VBW  $\geq 3 \times$  RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
  - (2) Above 1G :
    - (2.1) For Peak measurement : RBW = 1MHz, VBW  $\geq 3$  RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
    - (2.2) For Average measurement : RBW = 1MHz, VBW
      - 'If Duty Cycle  $\geq 98\%$ , VBW=10Hz.
      - 'If Duty Cycle  $< 98\%$ , VBW=1/T.

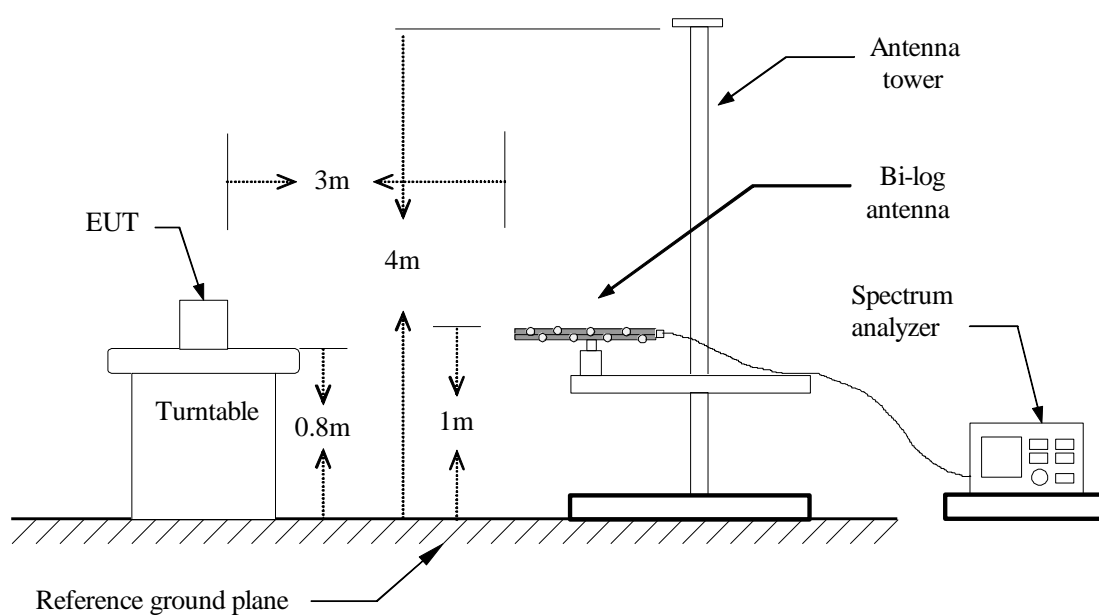
Configuration	Duty Cycle (%)	T(ms)	1/T (Hz)	VBW Setting
802.11a	99.46%	2.08	-	10Hz
802.11n 20MHz	99.94%	1.95	-	10Hz
802.11n 40MHz	98.98%	0.97	-	10Hz
802.11ac VHT80	98.00%	0.49	-	10Hz

## 4.5.3 Test Setup

### 9kHz ~ 30MHz

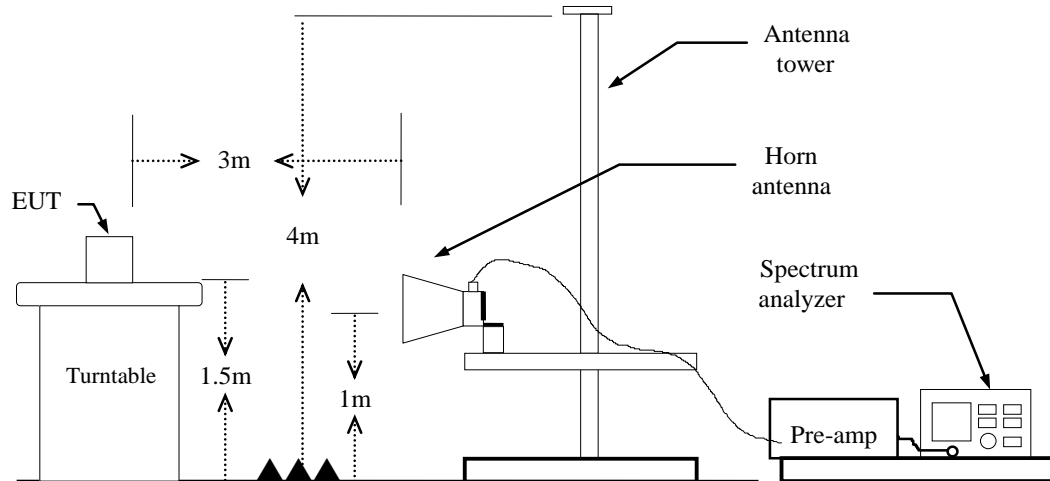


### 30MHz ~ 1GHz





### Above 1 GHz

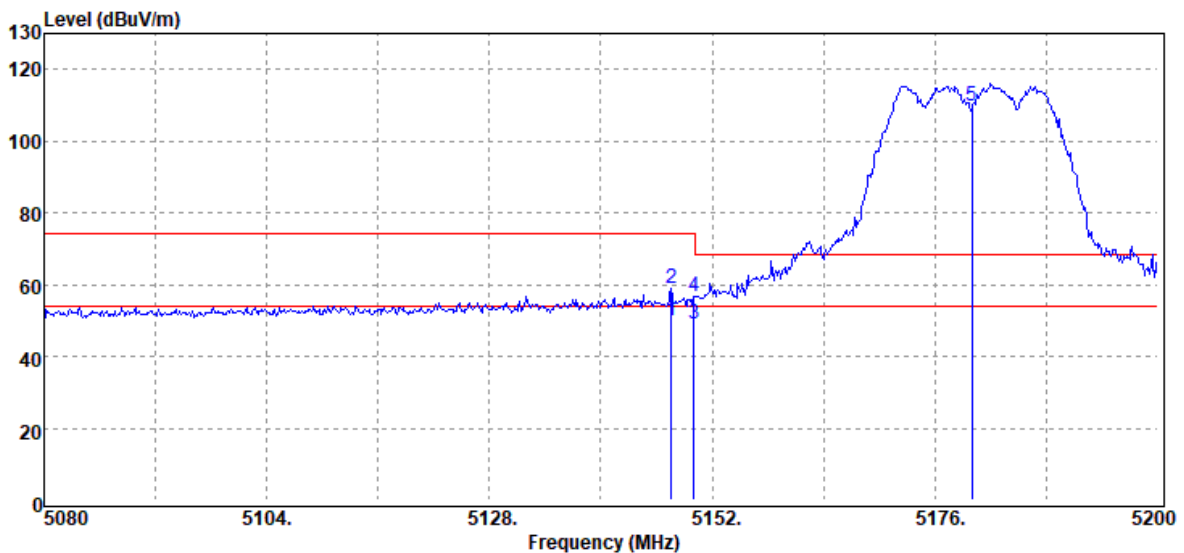


## 4.5.4 Test Result

### Test Data

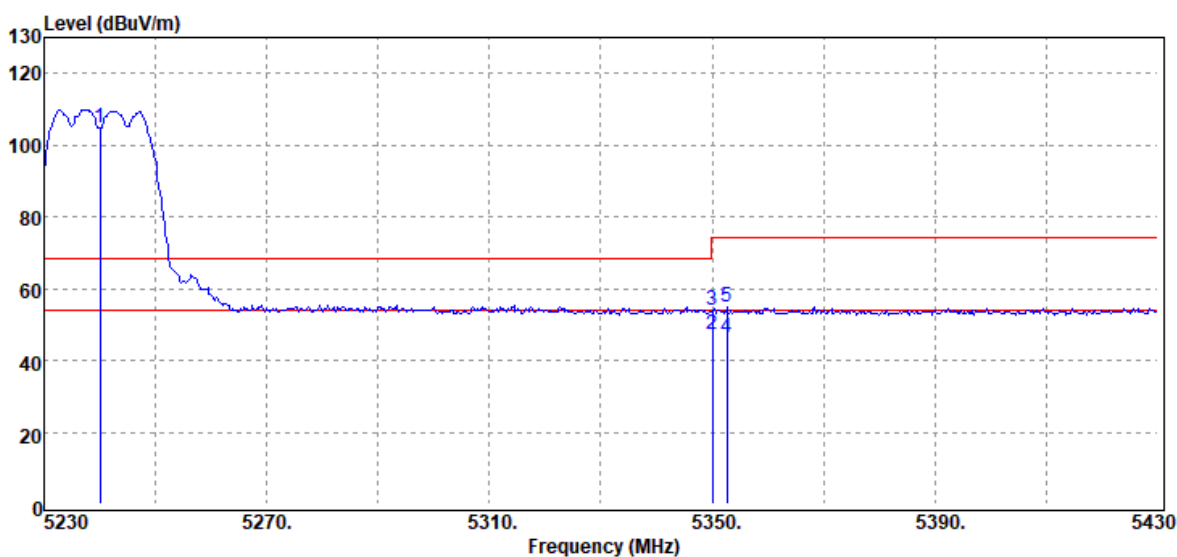
#### Band Edge Test Data for UNII-1

Test Mode	IEEE 802.11a / 5180MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



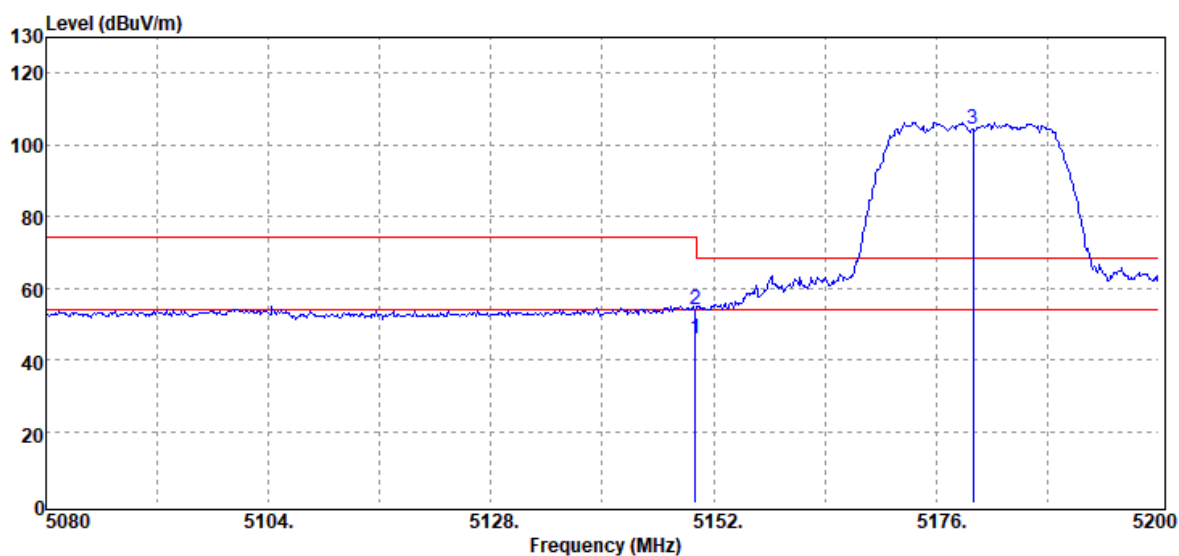
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5147.56	45.16	4.92	50.08	54.00	-3.92	Average
5147.56	54.05	4.92	58.97	74.00	-15.03	Peak
5150.00	44.18	4.92	49.10	54.00	-4.90	Average
5150.00	51.82	4.92	56.74	74.00	-17.26	Peak
5180.00	104.72	4.95	109.67	-	-	Peak

Test Mode	IEEE 802.11a / 5240MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



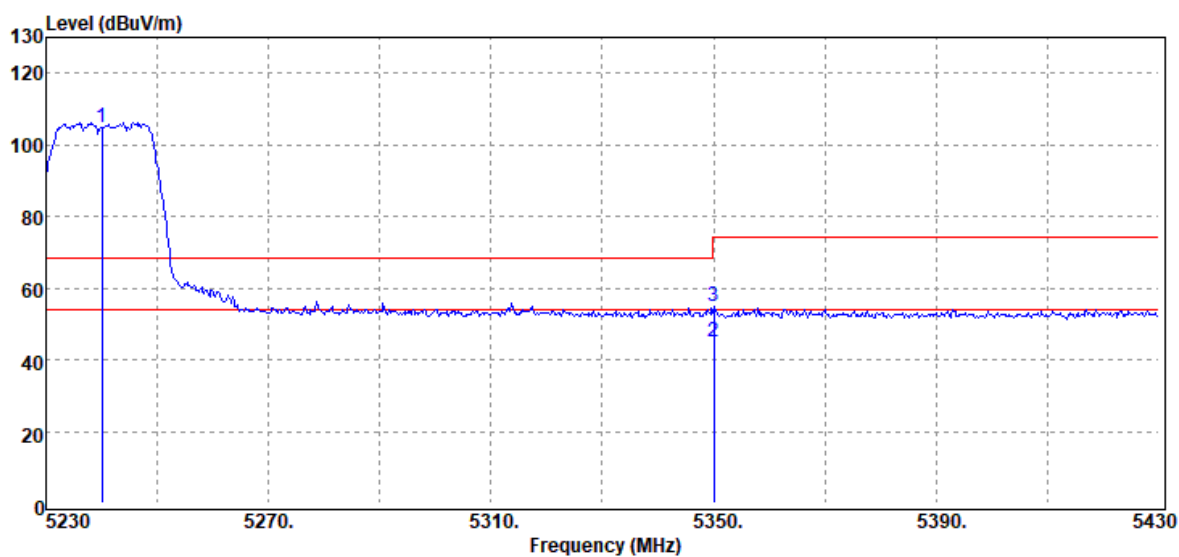
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5240.00	99.79	4.88	104.67	-	-	Peak
5350.00	42.16	5.21	47.37	54.00	-6.63	Average
5350.00	48.61	5.21	53.82	74.00	-20.18	Peak
5352.60	41.08	5.22	46.30	54.00	-7.70	Average
5352.60	49.77	5.22	54.99	74.00	-19.01	Peak

Test Mode	IEEE 802.11n 20 MHz / 5180MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



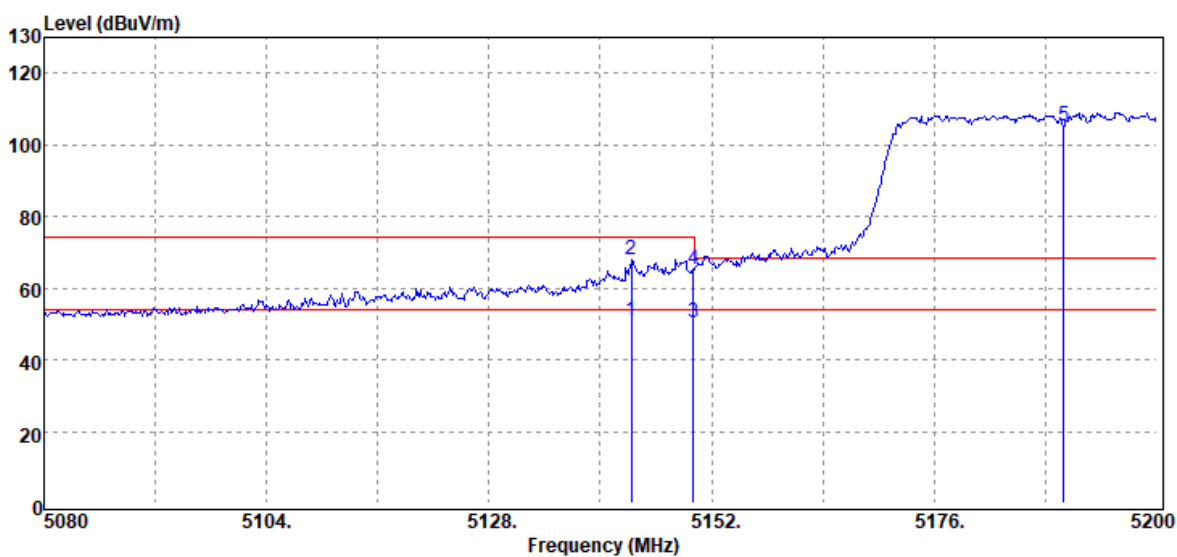
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.00	41.09	4.92	46.01	54.00	-7.99	Average
5150.00	49.02	4.92	53.94	74.00	-20.06	Peak
5180.00	99.39	4.95	104.34	-	-	Peak

Test Mode	IEEE 802.11n 20 MHz / 5240MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



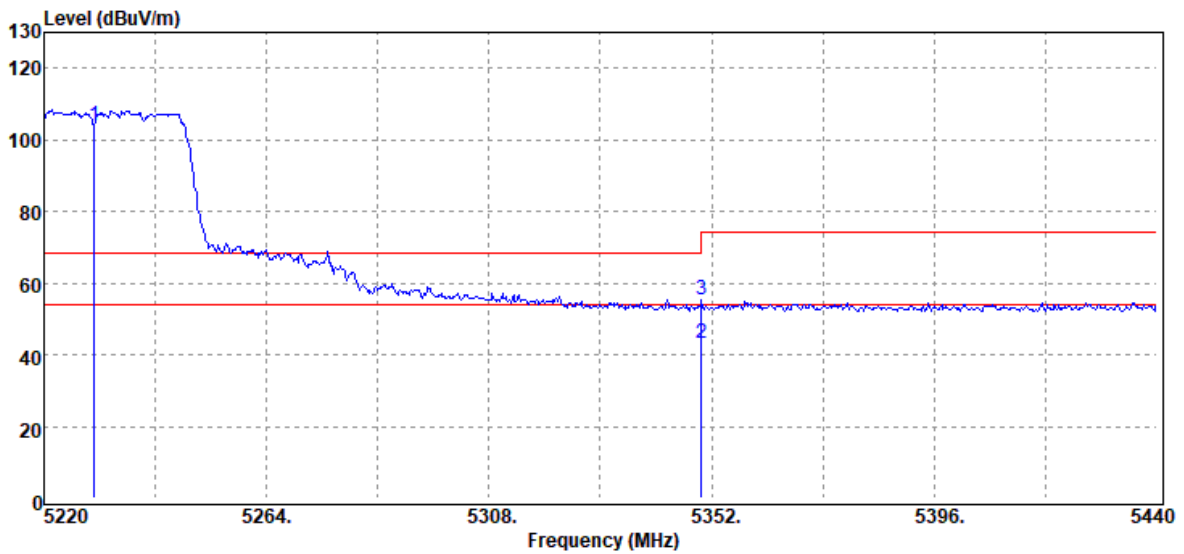
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5240.00	99.83	4.88	104.71	-	-	Peak
5350.00	39.74	5.21	44.95	54.00	-9.05	Average
5350.00	49.69	5.21	54.90	74.00	-19.10	Peak

Test Mode	IEEE 802.11n 40 MHz / 5190MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



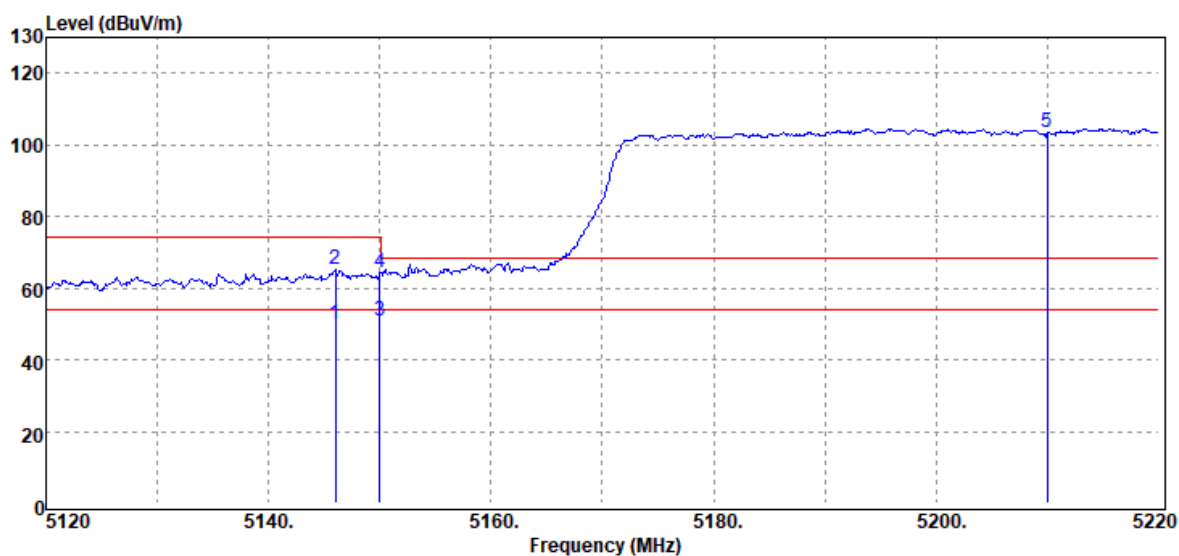
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5143.36	46.03	4.92	50.95	54.00	-3.05	Average
5143.36	63.11	4.92	68.03	74.00	-5.97	Peak
5150.00	45.55	4.92	50.47	54.00	-3.53	Average
5150.00	60.48	4.92	65.40	74.00	-8.60	Peak
5190.00	100.18	4.95	105.13	-	-	Peak

Test Mode	IEEE 802.11n 40 MHz / 5230MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5230.00	99.17	4.90	104.07	-	-	Peak
5350.00	38.01	5.21	43.22	54.00	-10.78	Average
5350.00	50.14	5.21	55.35	74.00	-18.65	Peak

Test Mode	I EEE 802.11ac VHT80 / 5210MHZ	Temp/Hum	22(°C)/ 51%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

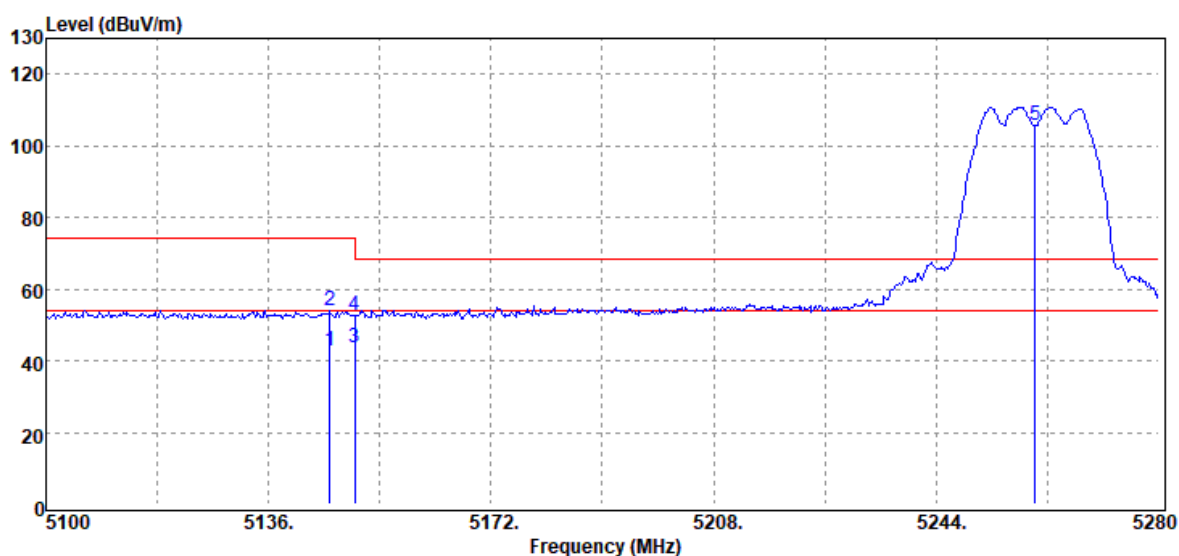


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5146.00	45.08	4.92	50.00	54.00	-4.00	Average
5146.00	60.47	4.92	65.39	74.00	-8.61	Peak
5150.00	46.06	4.92	50.98	54.00	-3.02	Average
5150.00	59.30	4.92	64.22	74.00	-9.78	Peak
5210.00	98.39	4.94	103.33	-	-	Peak



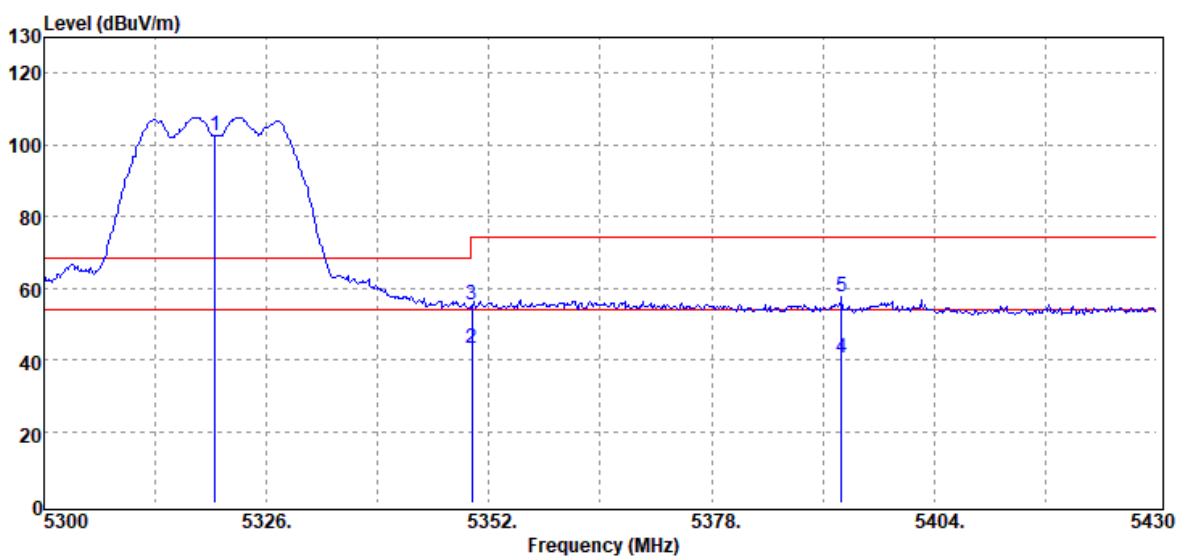
### Band Edge Test Data for UNII-2a

Test Mode	IEEE 802.11a / 5260 MHz	Temp/Hum	22(°C)/ 51%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



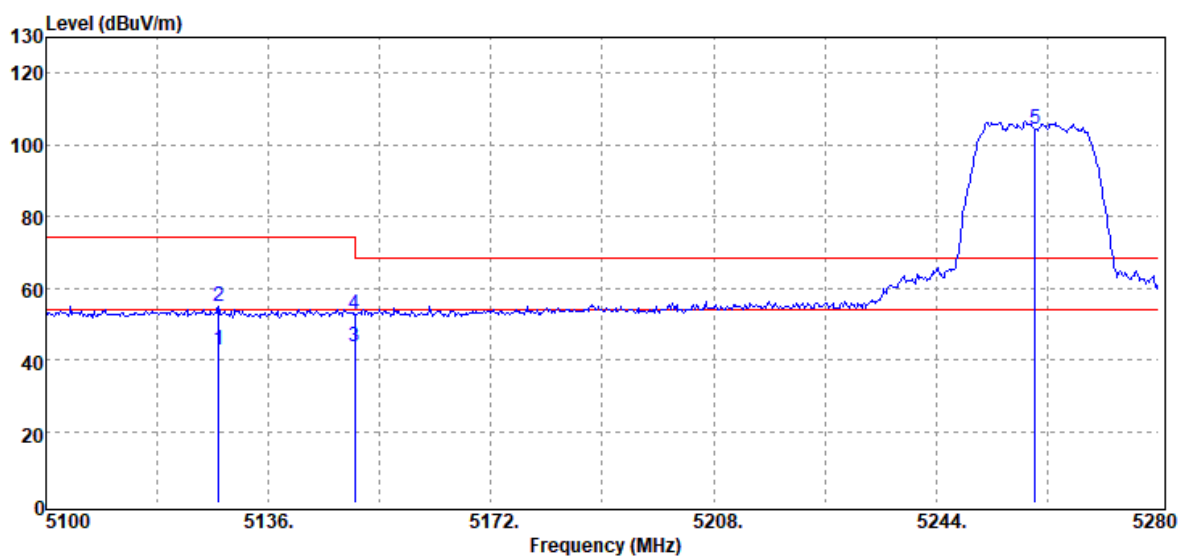
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5145.90	37.85	4.92	42.77	54.00	-11.23	Average
5145.90	49.11	4.92	54.03	74.00	-19.97	Peak
5150.00	38.93	4.92	43.85	54.00	-10.15	Average
5150.00	47.68	4.92	52.60	74.00	-21.40	Peak
5260.00	100.79	4.89	105.68	-	-	Peak

Test Mode	IEEE 802.11a / 5320MHz	Temp/Hum	22(°C)/ 51%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



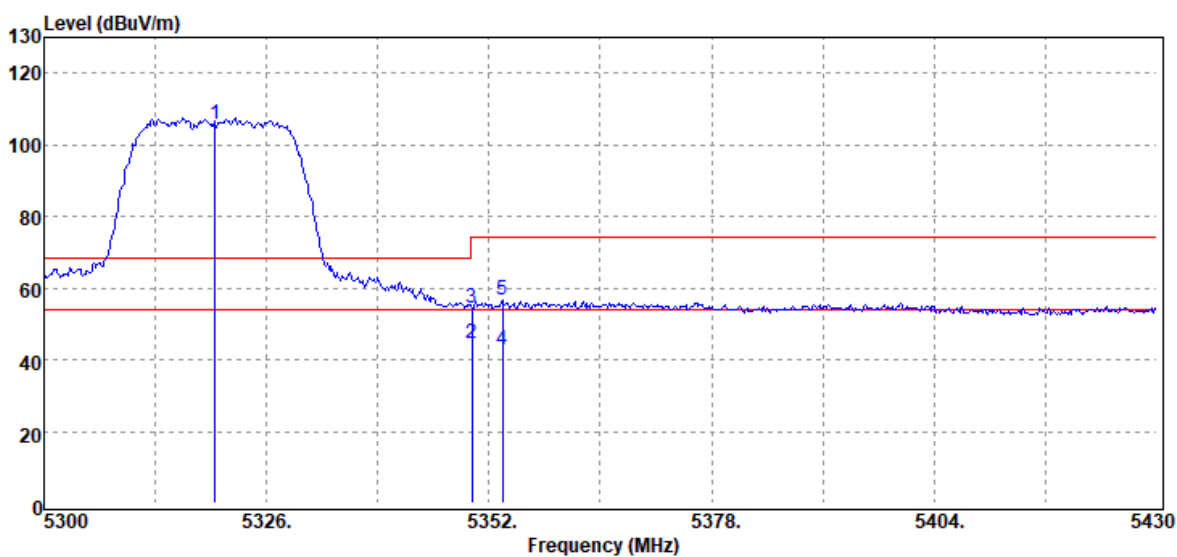
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5320.00	97.49	5.07	102.56	-	-	Peak
5350.00	37.87	5.21	43.08	54.00	-10.92	Average
5350.00	49.96	5.21	55.17	74.00	-18.83	Peak
5393.21	35.19	5.37	40.56	54.00	-13.44	Average
5393.21	52.02	5.37	57.39	74.00	-16.61	Peak

Test Mode	IEEE 802.11n 20 MHz / 5260MHz	Temp/Hum	22(°C)/ 51%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



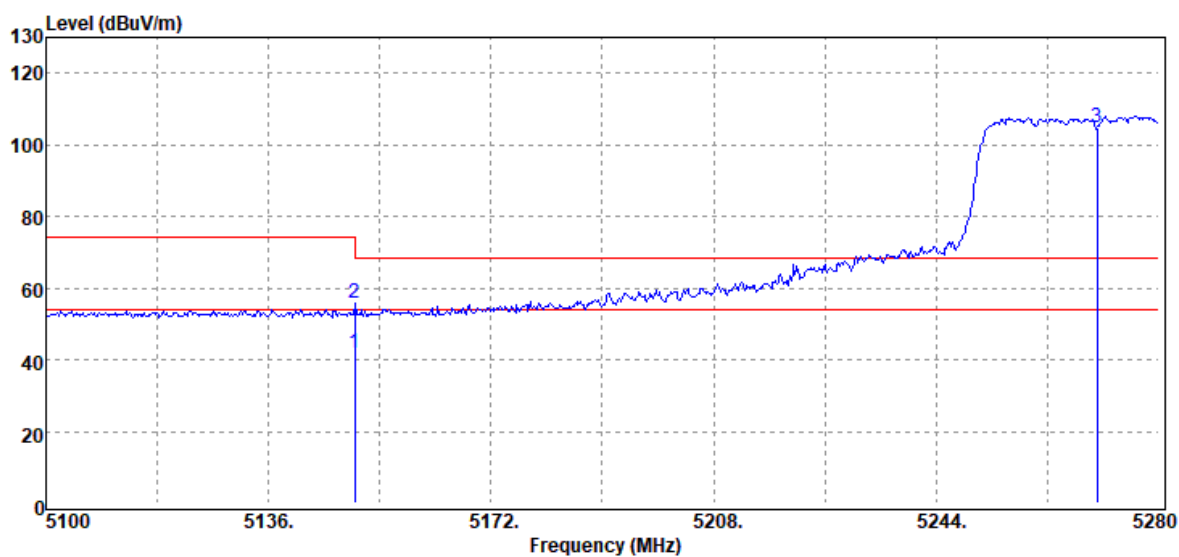
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5127.90	37.95	4.91	42.86	54.00	-11.14	Average
5127.90	49.96	4.91	54.87	74.00	-19.13	Peak
5150.00	38.81	4.92	43.73	54.00	-10.27	Average
5150.00	47.57	4.92	52.49	74.00	-21.51	Peak
5260.00	99.43	4.89	104.32	-	-	Peak

Test Mode	IEEE 802.11n 20 MHz / 5320MHz	Temp/Hum	22(°C)/ 51%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



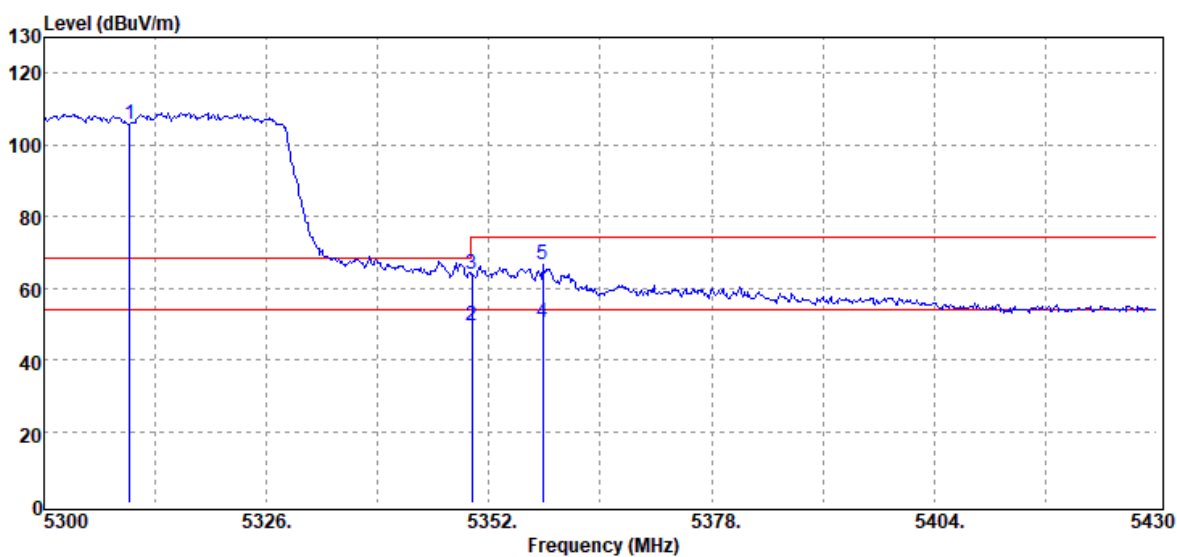
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5320.00	100.61	5.07	105.68	-	-	Peak
5350.00	39.16	5.21	44.37	54.00	-9.63	Average
5350.00	49.28	5.21	54.49	74.00	-19.51	Peak
5353.56	37.29	5.23	42.52	54.00	-11.48	Average
5353.56	51.39	5.23	56.62	74.00	-17.38	Peak

Test Mode	IEEE 802.11n 40 MHz / 5270MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



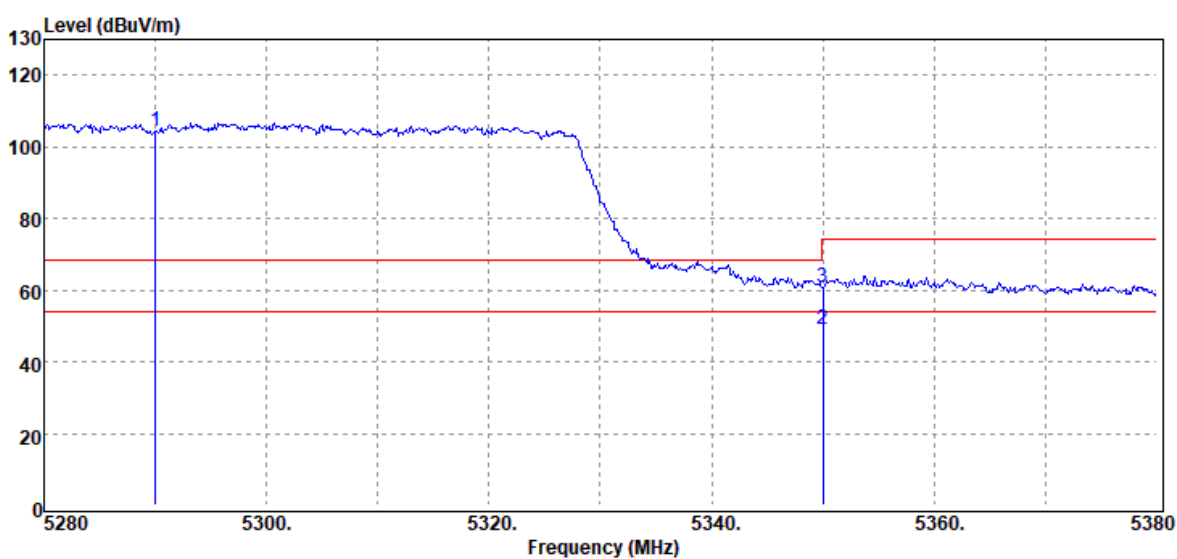
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.00	37.08	4.92	42.00	54.00	-12.00	Average
5150.00	50.68	4.92	55.60	74.00	-18.40	Peak
5270.00	99.74	4.90	104.64	-	-	Peak

Test Mode	IEEE 802.11n 40 MHz / 5310MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5310.00	100.64	5.03	105.67	-	-	Peak
5350.00	44.09	5.21	49.30	54.00	-4.70	Average
5350.00	58.65	5.21	63.86	74.00	-10.14	Peak
5358.24	45.03	5.25	50.28	54.00	-3.72	Average
5358.24	61.39	5.25	66.64	74.00	-7.36	Peak

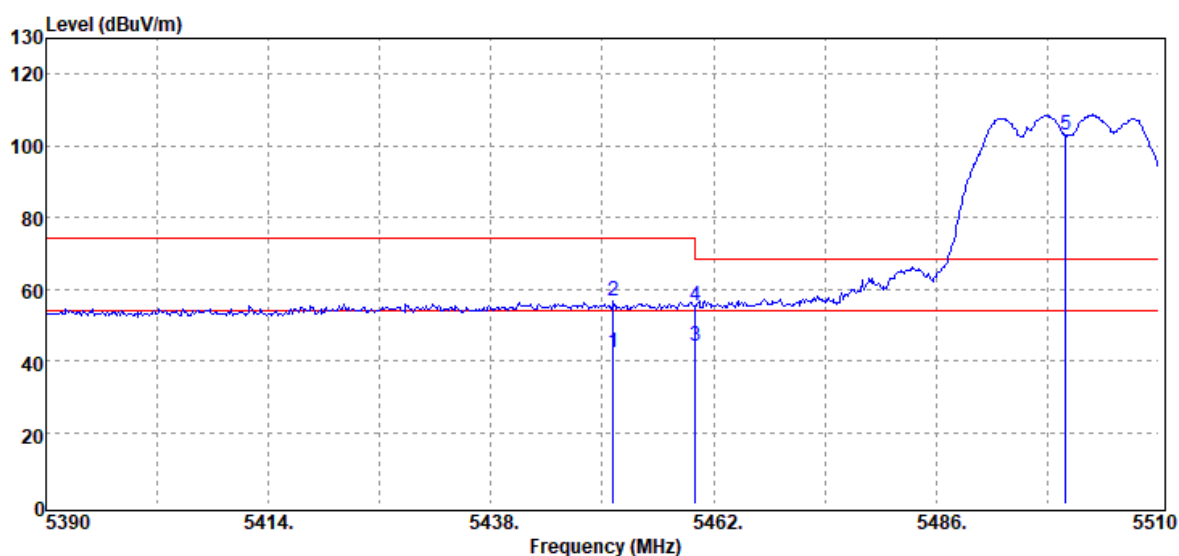
Test Mode	IEEE 802.11ac VHT80 / 5290MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5290.00	99.39	4.95	104.34	-	-	Peak
5350.00	43.69	5.21	48.90	54.00	-5.10	Average
5350.00	55.61	5.21	60.82	74.00	-13.18	Peak

### Band Edge Test Data for UNII-2c

Test Mode	IEEE 802.11a / 5500MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5451.20	36.67	5.60	42.27	54.00	-11.73	Average
5451.20	51.15	5.60	56.75	74.00	-17.25	Peak
5460.00	38.38	5.63	44.01	54.00	-9.99	Average
5460.00	49.53	5.63	55.16	74.00	-18.84	Peak
5500.00	97.09	5.71	102.80	-	-	Peak



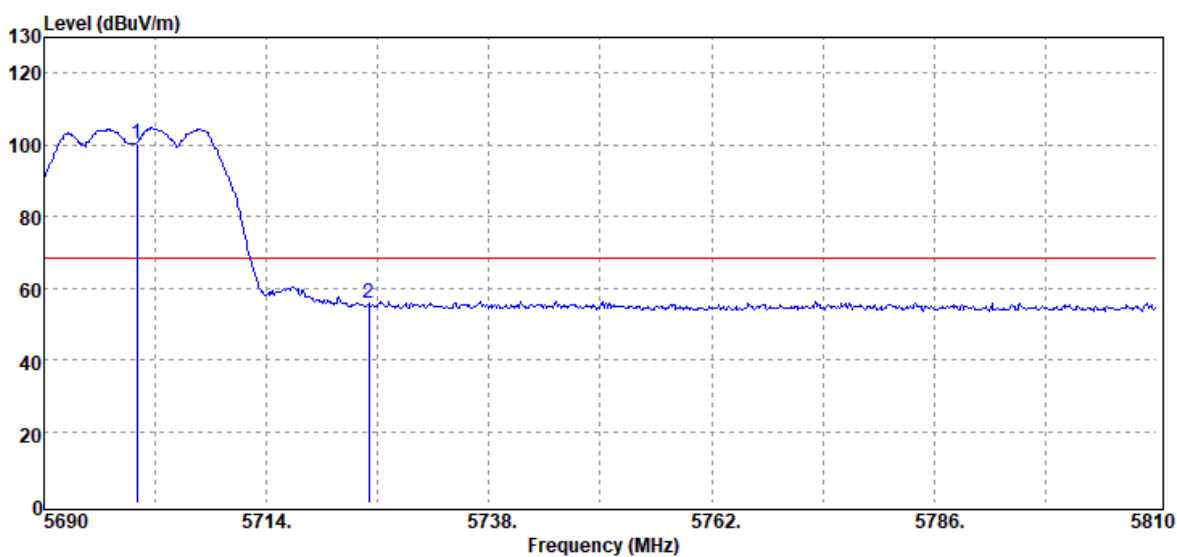


Report No.: T190503D05-A-RP4

Page: 135 / 239

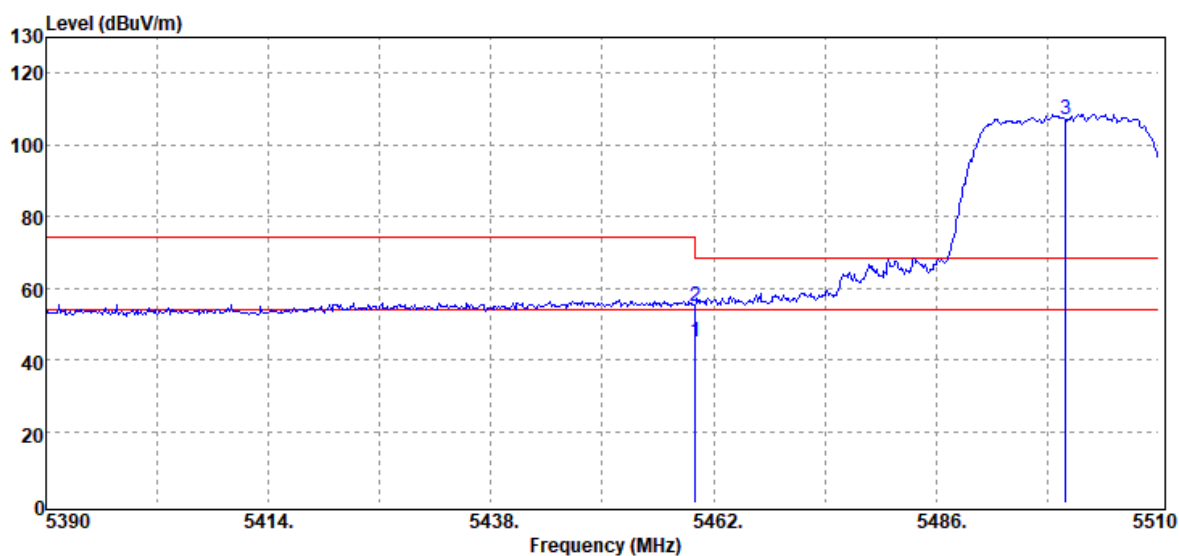
Rev.: 02

Test Mode	IEEE 802.11a / 5700 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5700.00	94.19	6.32	100.51	68.20	32.31	-
5725.00	49.48	6.34	55.82	68.20	-12.38	peak

Test Mode	IEEE 802.11n 20 MHz / 5500MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460.00	39.55	5.63	45.18	54.00	-8.82	Average
5460.00	49.40	5.63	55.03	74.00	-18.97	Peak
5500.00	101.26	5.71	106.97	-	-	Peak

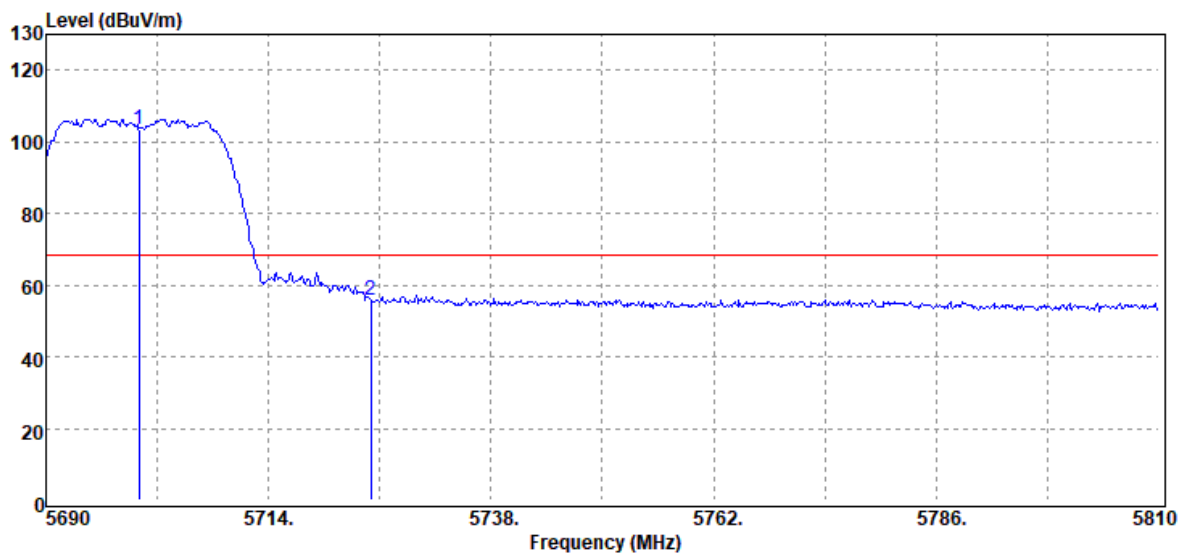


Report No.: T190503D05-A-RP4

Page: 137 / 239

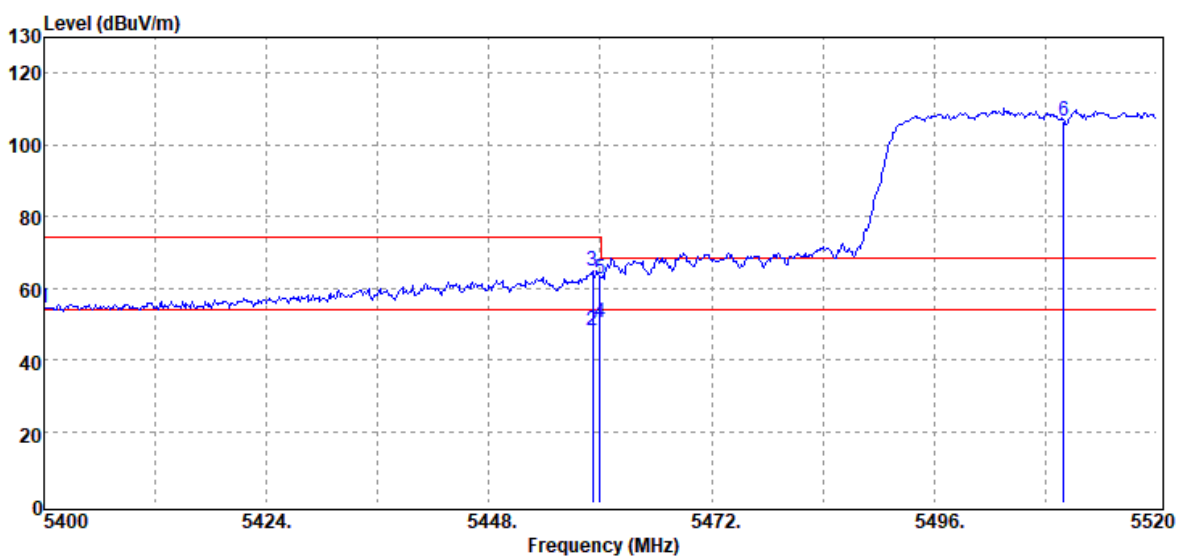
Rev.: 02

Test Mode	IEEE 802.11n 20 MHz / 5700 MHz	Temperature	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



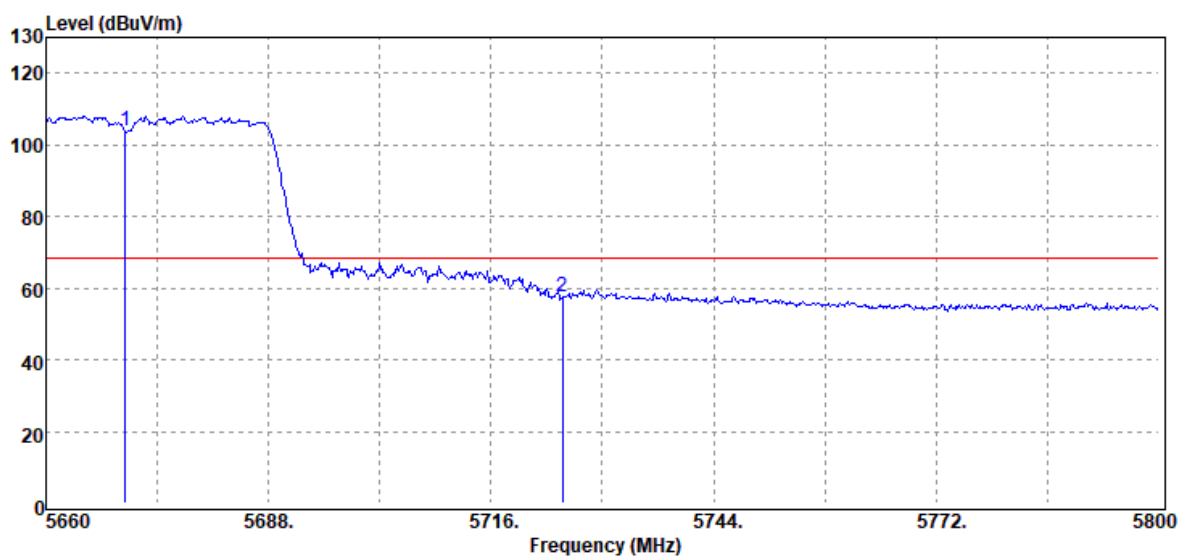
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5700.00	97.20	6.32	103.52	-	-	Peak
5725.00	49.28	6.34	55.62	68.20	-12.58	Peak

Test Mode	IEEE 802.11n 40 MHz / 5510 MHz	Temp/Hum	22(°C)/ 51%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



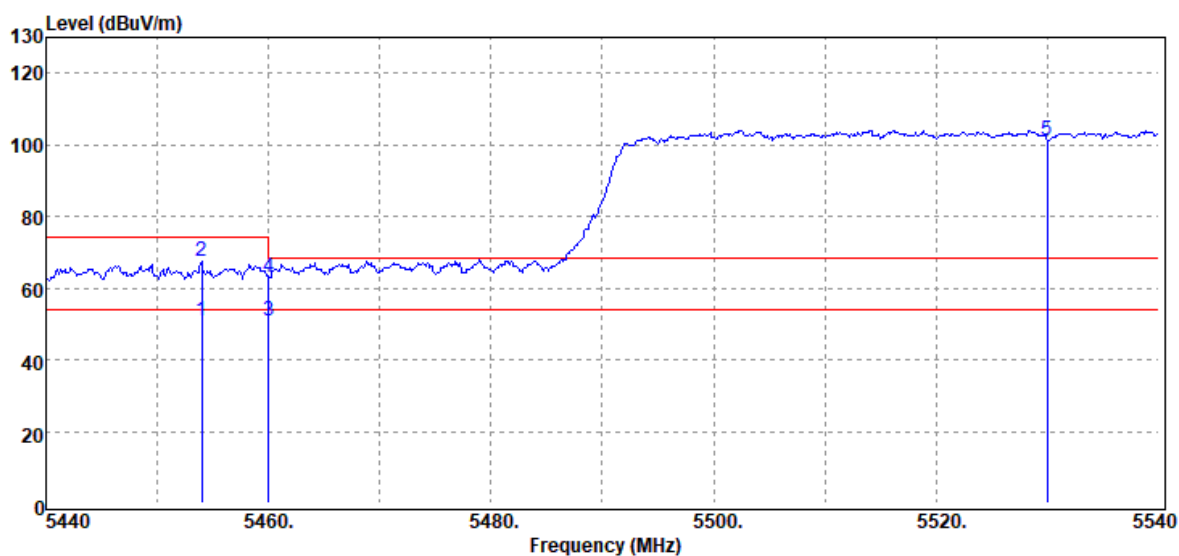
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5400.00	48.97	5.39	54.36	74.00	-19.64	Peak
5459.16	42.61	5.63	48.24	54.00	-5.76	Average
5459.16	59.12	5.63	64.75	74.00	-9.25	Peak
5460.00	44.70	5.63	50.33	54.00	-3.67	Average
5460.00	56.93	5.63	62.56	74.00	-11.44	Peak
5510.00	100.91	5.70	106.61	-	-	Peak

Test Mode	IEEE 802.11n 40 MHz / 5670 MHz	Temp/Hum	22(°C)/ 51%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5670.00	97.75	6.13	103.88	-	-	Peak
5725.00	51.10	6.34	57.44	68.20	-10.76	Peak

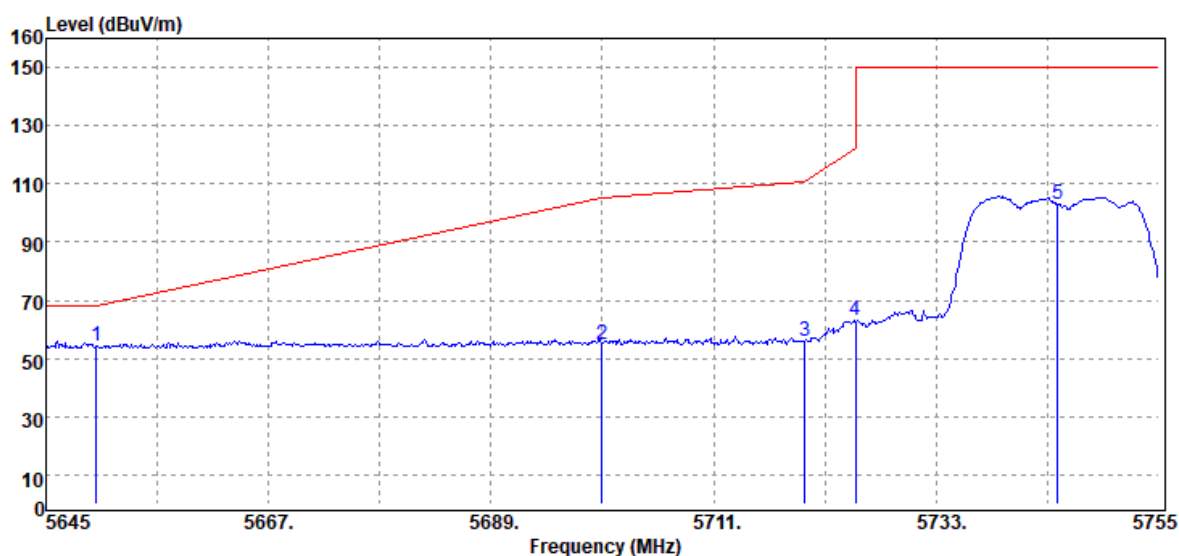
Test Mode	IEEE 802.11ac VHT80 / 5530 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5454.00	45.06	5.61	50.67	54.00	-3.33	Average
5454.00	61.92	5.61	67.53	74.00	-6.47	Peak
5460.00	45.15	5.63	50.78	54.00	-3.22	Average
5460.00	57.26	5.63	62.89	74.00	-11.11	Peak
5530.00	95.63	5.68	101.31	-	-	Peak

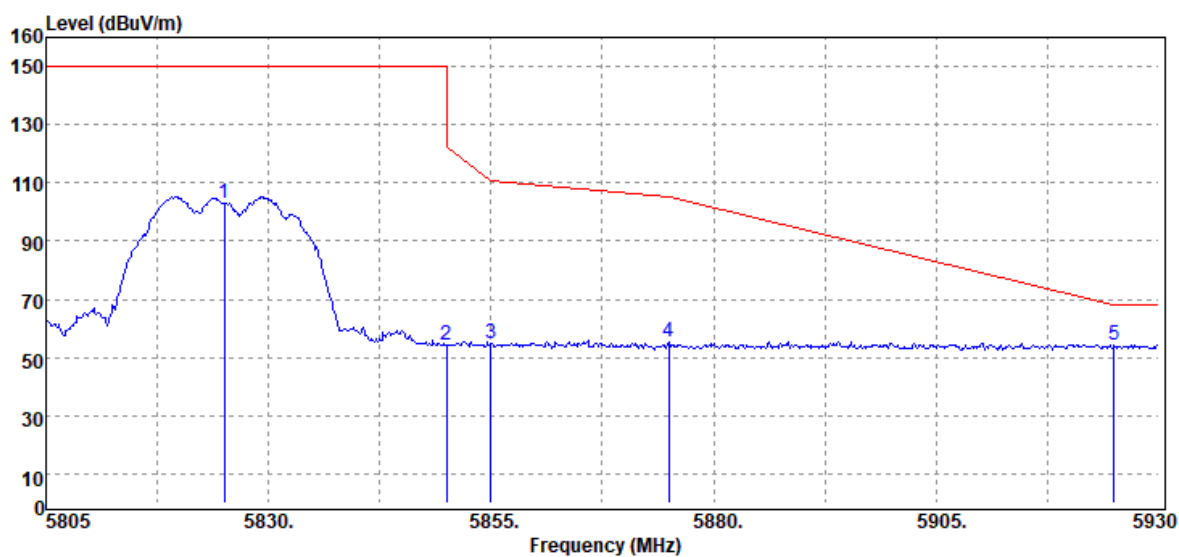
### Band Edge Test Data for UNII-3

Test Mode	IEEE 802.11a / 5745 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5650.00	47.97	6.04	54.01	68.20	-14.19	Peak
5700.00	48.36	6.32	54.68	105.20	-50.52	Peak
5720.00	49.62	6.33	55.95	110.80	-54.85	Peak
5725.00	56.53	6.34	62.87	122.20	-59.33	Peak
5745.00	96.71	6.37	103.08	-	-	Peak

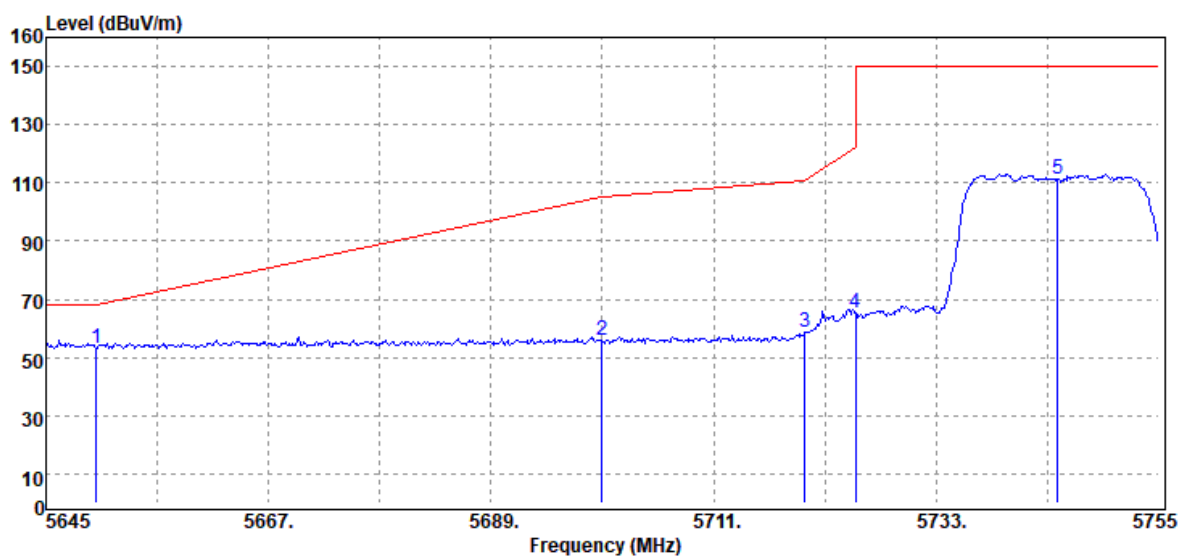
Test Mode	IEEE 802.11a / 5825 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5825.00	96.69	6.32	103.01	-	-	Peak
5850.00	47.91	6.39	54.30	122.20	-67.90	Peak
5855.00	48.31	6.38	54.69	110.80	-56.11	Peak
5875.00	48.72	6.37	55.09	105.20	-50.11	Peak
5925.00	47.74	6.42	54.16	68.20	-14.04	Peak

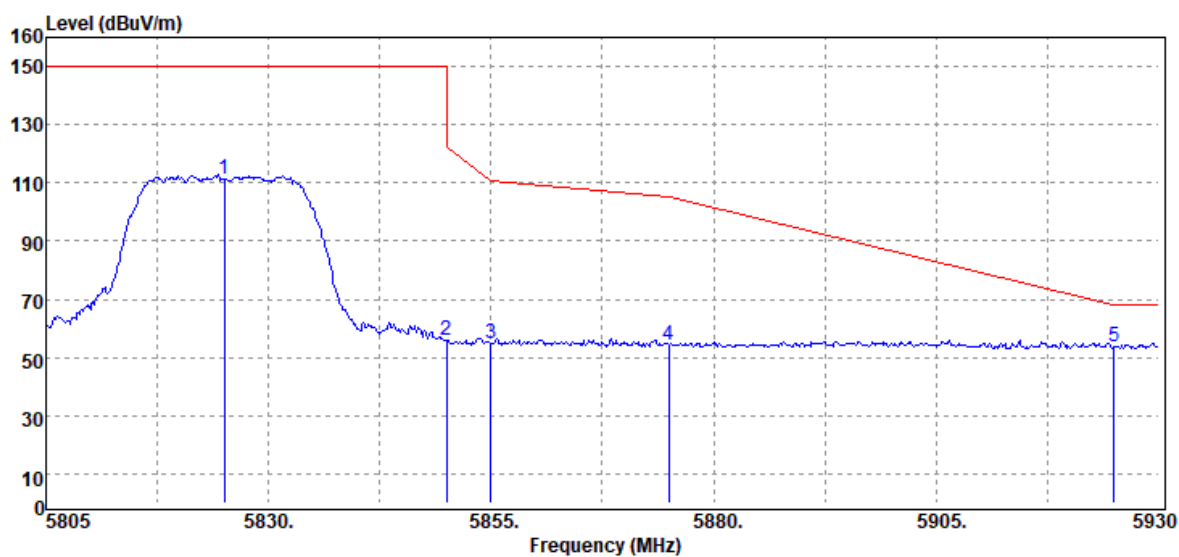


Test Mode	IEEE 802.11n 20 MHz / 5745 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



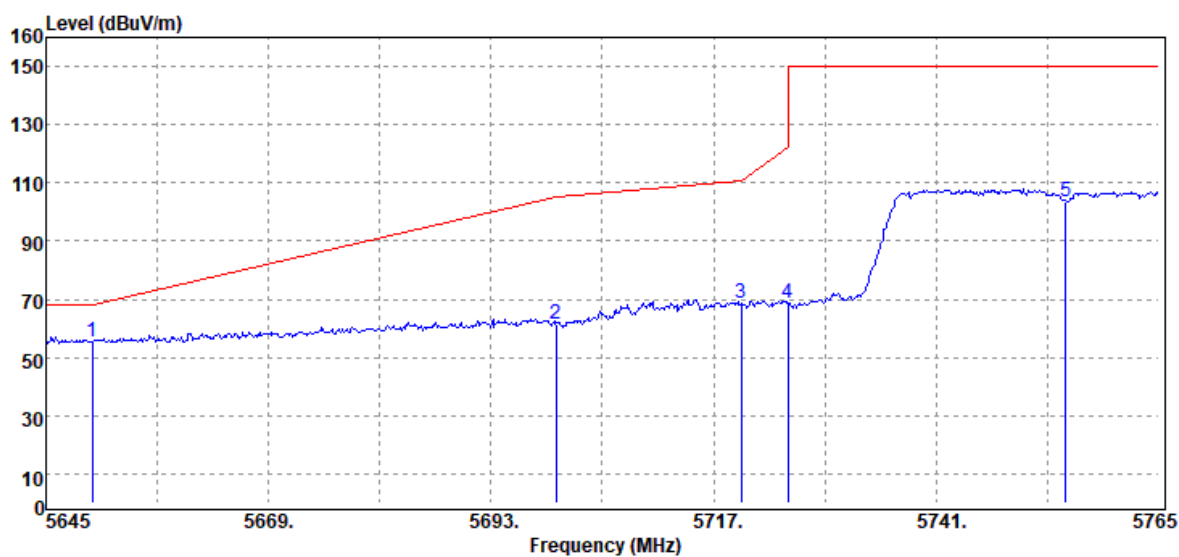
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5650.00	47.38	6.04	53.42	68.20	-14.78	peak
5700.00	49.36	6.32	55.68	105.20	-49.52	peak
5720.00	52.16	6.33	58.49	110.80	-52.31	peak
5725.00	59.16	6.34	65.50	122.20	-56.70	peak
5745.00	104.84	6.37	111.21	-	-	peak

Test Mode	IEEE 802.11n 20 MHz / 5825 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5825.00	104.84	6.32	111.16	-	-	Peak
5850.00	49.27	6.39	55.66	122.20	-66.54	Peak
5855.00	48.22	6.38	54.60	110.80	-56.20	Peak
5875.00	48.09	6.37	54.46	105.20	-50.74	Peak
5925.00	47.19	6.42	53.61	68.20	-14.59	Peak

Test Mode	IEEE 802.11n 40 MHz/ 5755 MHz	Temp/Hum	22(°C)/ 51%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



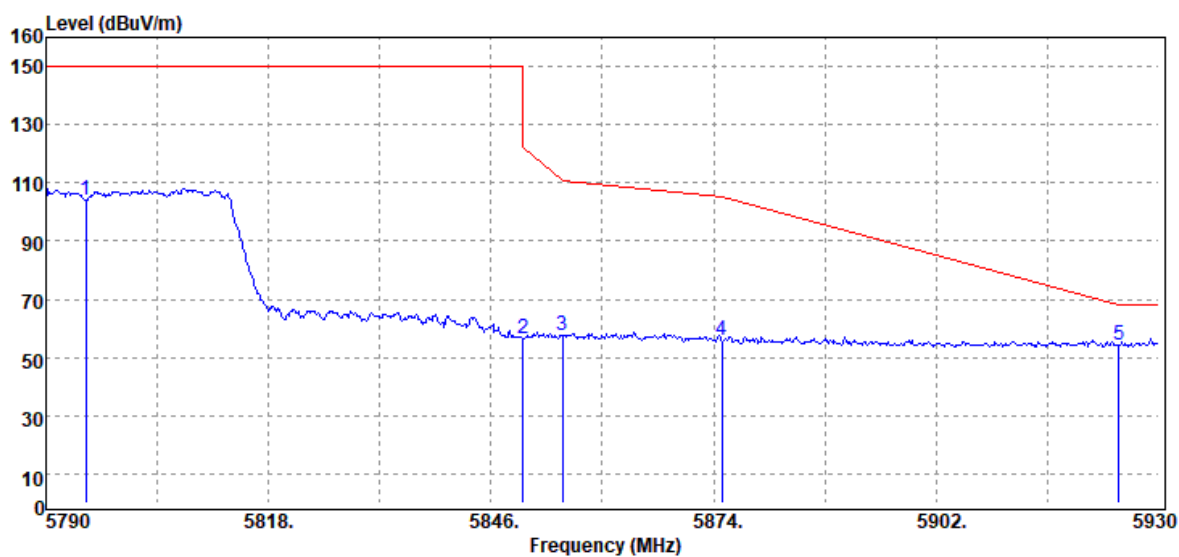
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5650.00	49.36	6.04	55.40	68.20	-12.80	peak
5700.00	55.28	6.32	61.60	105.20	-43.60	peak
5720.00	62.06	6.33	68.39	110.80	-42.41	peak
5725.00	62.03	6.34	68.37	122.20	-53.83	peak
5755.00	97.32	6.37	103.69	-	-	peak

Report No.: T190503D05-A-RP4

Page: 146 / 239

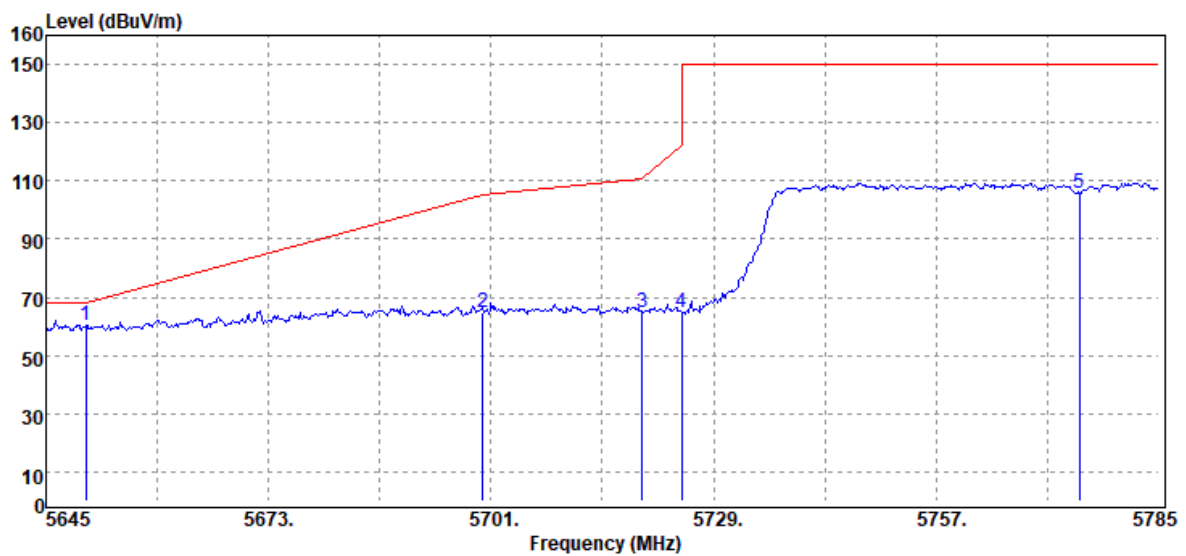
Rev.: 02

Test Mode	IEEE 802.11n 40 MHz/ 5795 MHz	Temp/Hum	22(°C)/ 51%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5795.00	97.73	6.28	104.01	--+	-	Peak
5850.00	50.23	6.39	56.62	122.20	-65.58	Peak
5855.00	51.17	6.38	57.55	110.80	-53.25	Peak
5875.00	49.76	6.37	56.13	105.20	-49.07	Peak
5925.00	47.89	6.42	54.31	68.20	-13.89	Peak

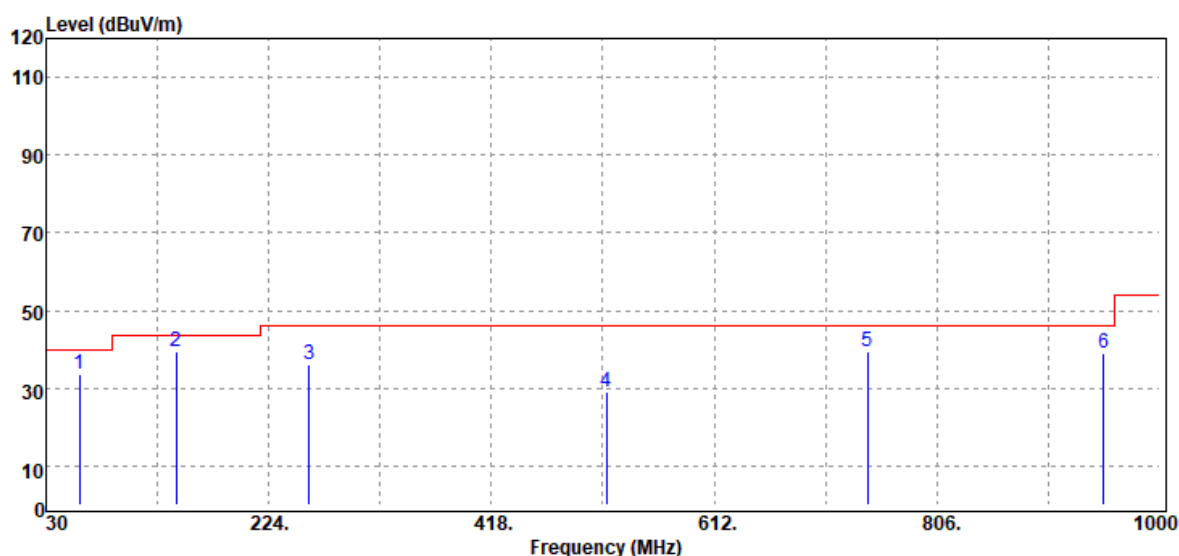
Test Mode	IEEE 802.11ac VHT80 / 5775 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Band Edge	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5650.00	54.09	6.04	60.13	68.20	-8.07	peak
5700.00	58.58	6.32	64.90	105.20	-40.30	peak
5720.00	58.64	6.33	64.97	110.80	-45.83	peak
5725.00	58.70	6.34	65.04	122.20	-57.16	peak
5775.00	99.37	6.33	105.70	-	-	peak

### Below 1G Test Data

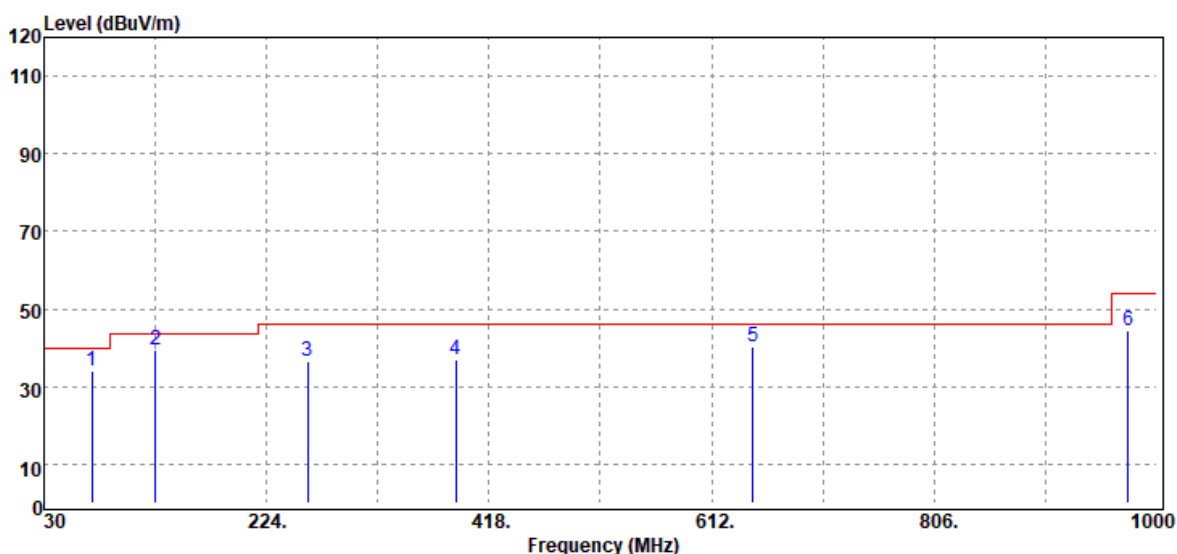
Test Mode	IEEE 802.11ac 80 MHz / 5775 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	30MHz-1GHz	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
59.10	49.79	-15.96	33.83	40.00	-6.17	peak
143.49	49.47	-9.86	39.61	43.50	-3.89	peak
258.92	45.96	-9.88	36.08	46.00	-9.92	peak
517.91	31.61	-2.68	28.93	46.00	-17.07	peak
745.86	37.38	1.96	39.34	46.00	-6.66	peak
951.50	34.71	4.19	38.90	46.00	-7.10	peak

**Note:** 1. No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)  
2. For below 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

Test Mode	IEEE 802.11ac 80 MHz / 5775 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	30MHz-1GHz	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak		

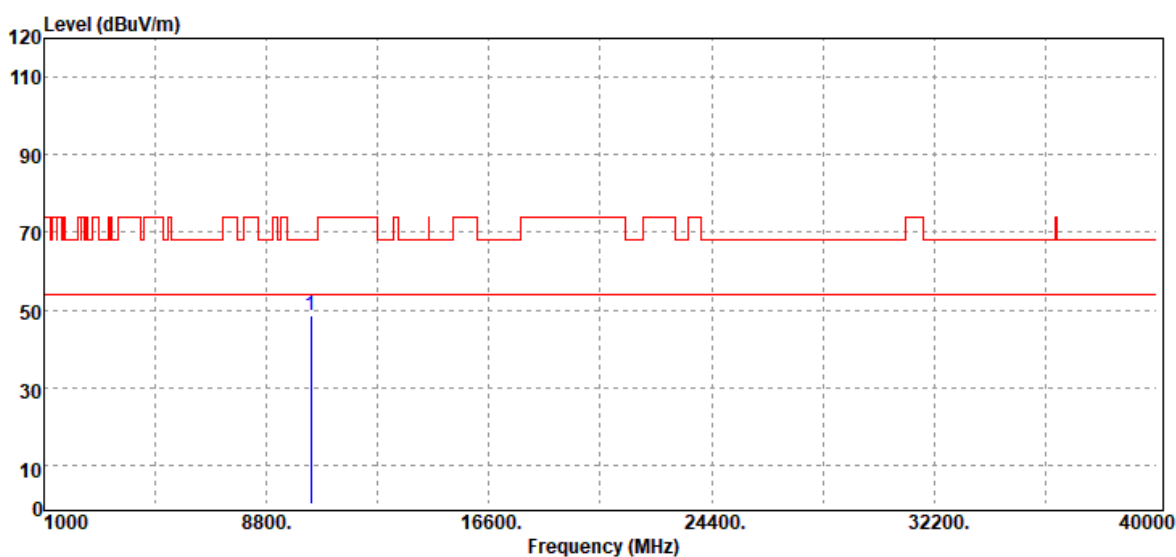


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
71.71	48.96	-14.74	34.22	40.00	-5.78	peak
127.00	48.19	-8.85	39.34	43.50	-4.16	peak
259.89	46.15	-9.77	36.38	46.00	-9.62	peak
388.90	42.86	-6.07	36.79	46.00	-9.21	peak
647.89	40.23	-0.06	40.17	46.00	-5.83	peak
974.78	38.84	5.61	44.45	54.00	-9.55	peak

**Note:** 1. No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)  
2. For below 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit.

### Above 1G Test Data for UNII-1

Test Mode	IEEE 802.11a / 5180MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



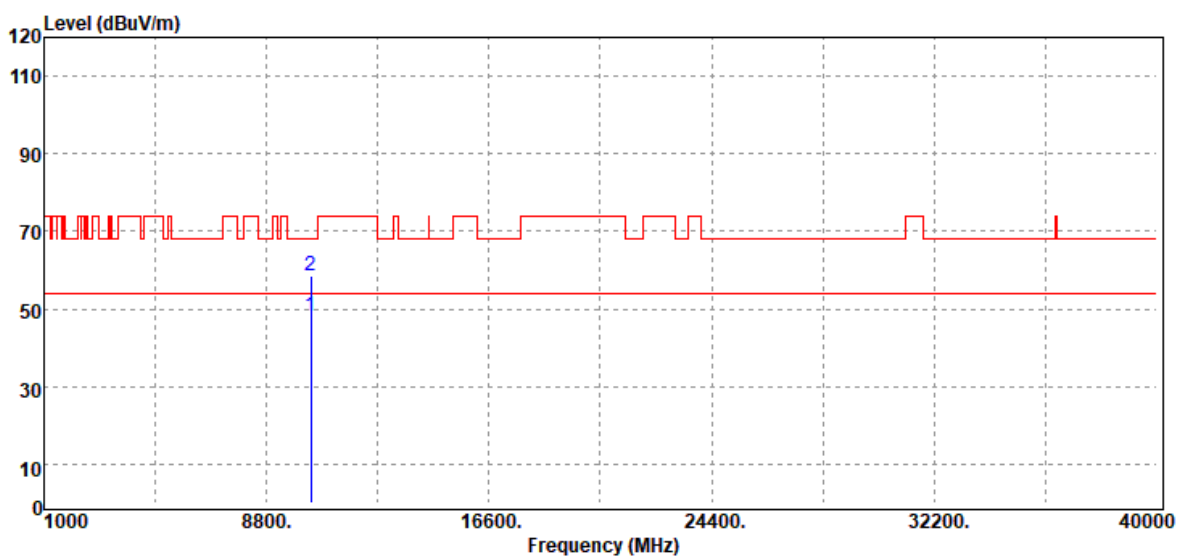
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.00	34.51	14.12	48.63	68.20	-19.57	Peak
N/A						

#### Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



Test Mode	IEEE 802.11a / 5180MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.00	33.85	14.12	47.97	54.00	-6.03	Average
10360.00	44.36	14.12	58.48	68.20	-9.72	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5220 MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonics	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

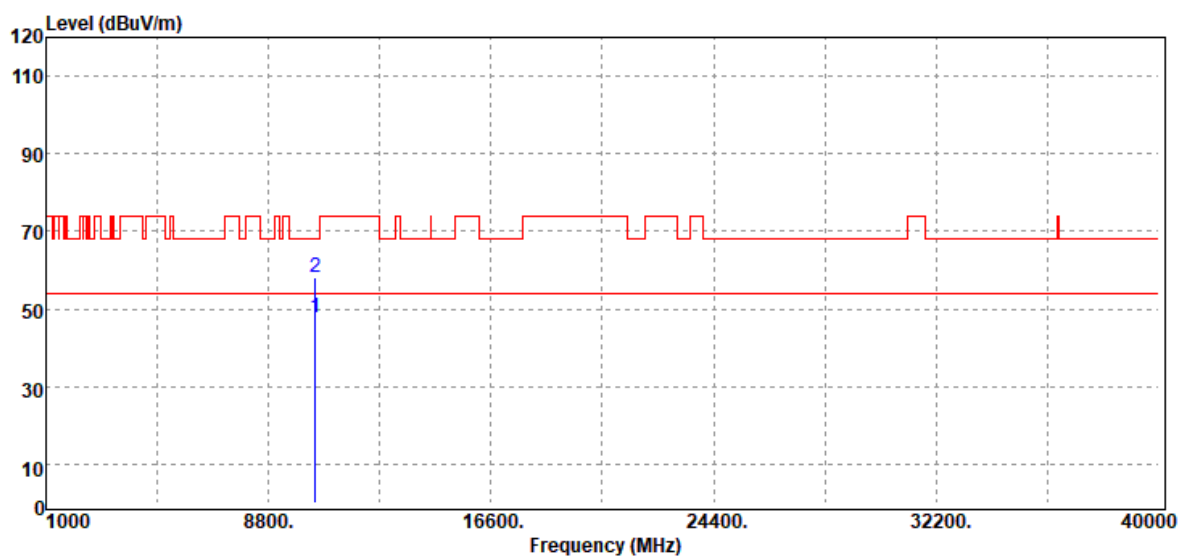


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.00	29.48	15.21	44.69	54.00	-9.31	Average
10440.00	36.51	15.21	51.72	68.20	-16.48	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5220 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

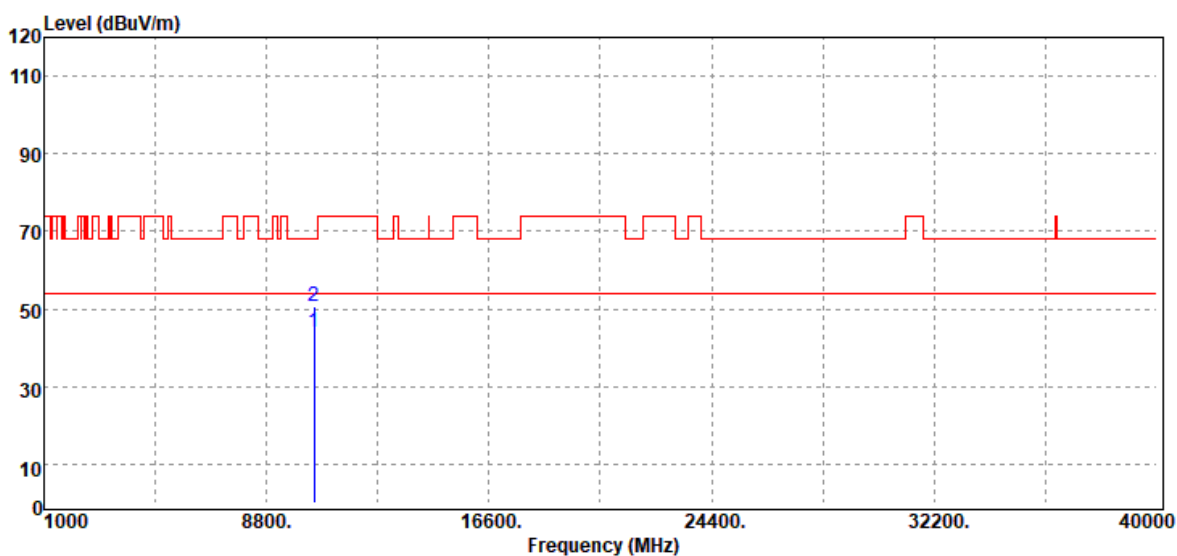


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.00	32.74	15.21	47.95	54.00	-6.05	Average
10440.00	42.81	15.21	58.02	68.20	-10.18	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5240MHZ	Temp/Hum	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

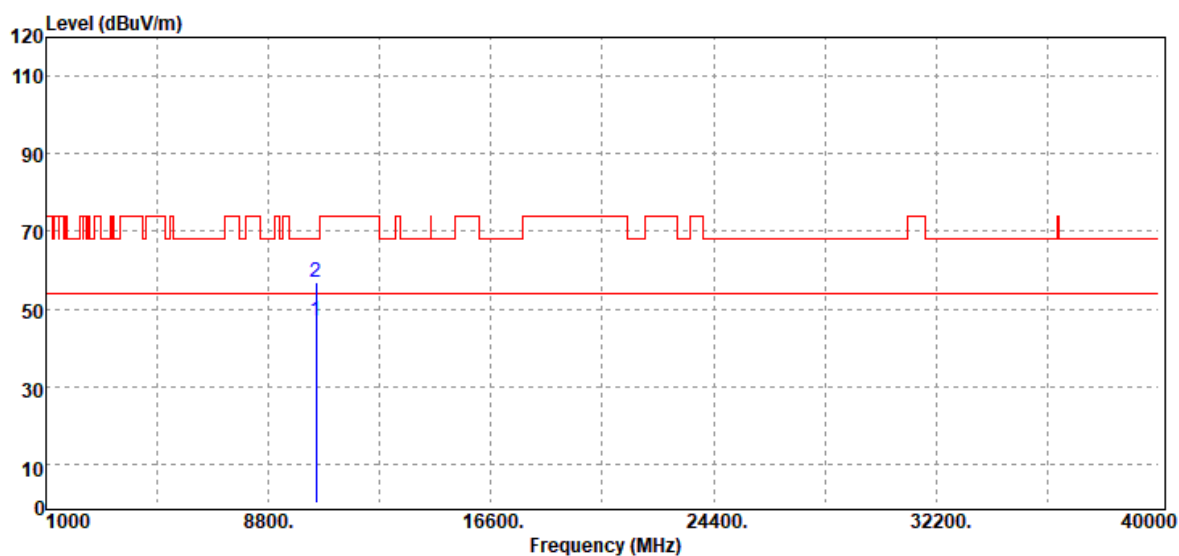


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.00	27.84	16.09	43.93	54.00	-10.07	Average
10480.00	34.59	16.09	50.68	68.20	-17.52	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5240MHZ	Temp/Hum	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

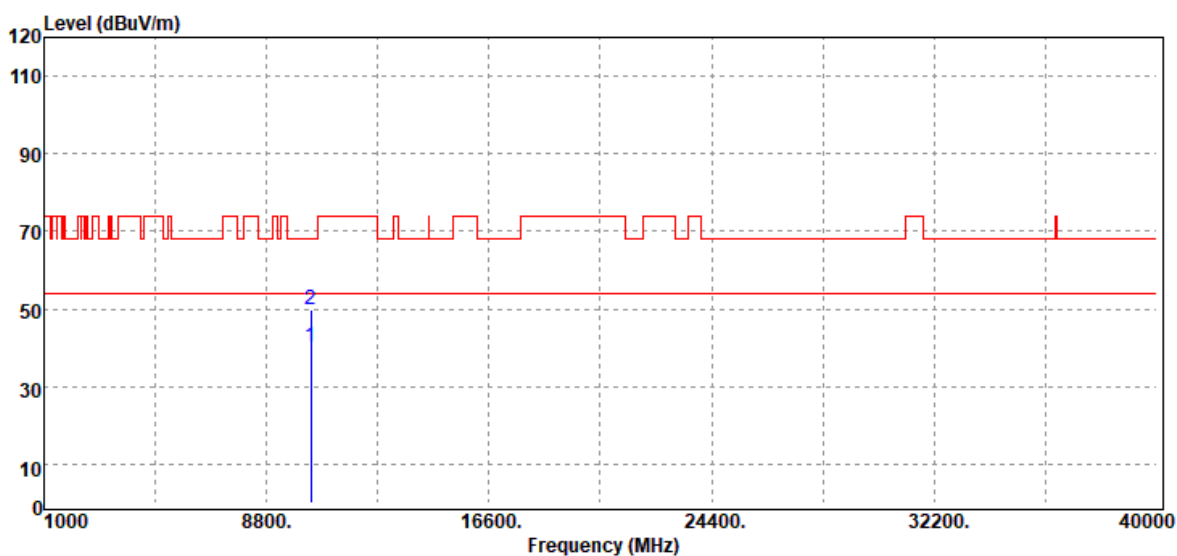


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.00	30.83	16.09	46.92	54.00	-7.08	Average
10480.00	40.95	16.09	57.04	68.20	-11.16	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5180MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

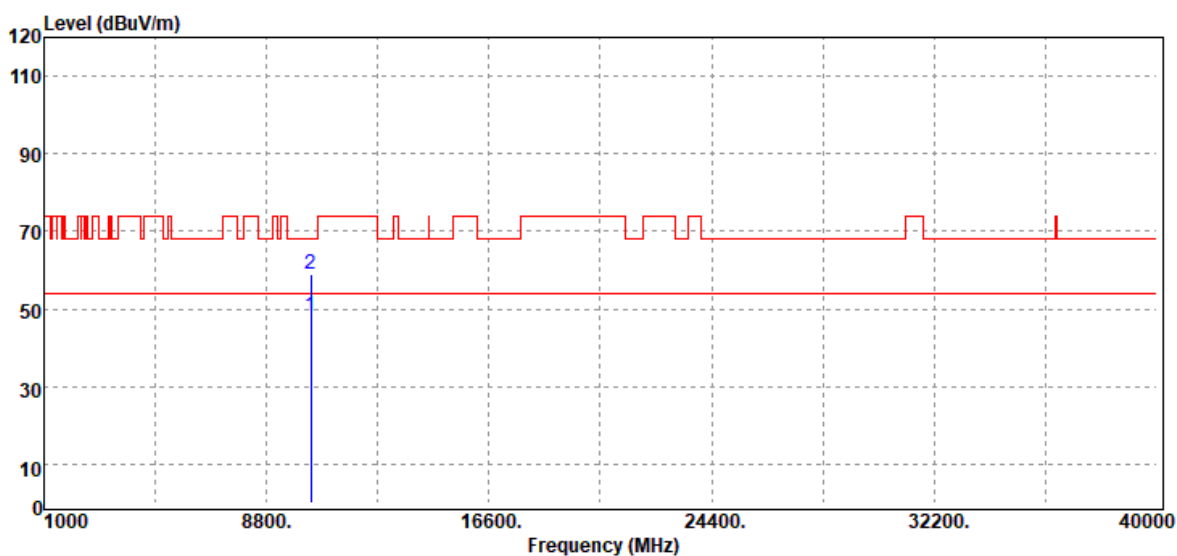


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.00	26.06	14.12	40.18	54.00	-13.82	Average
10360.00	35.88	14.12	50.00	68.20	-18.20	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz/ 5180MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

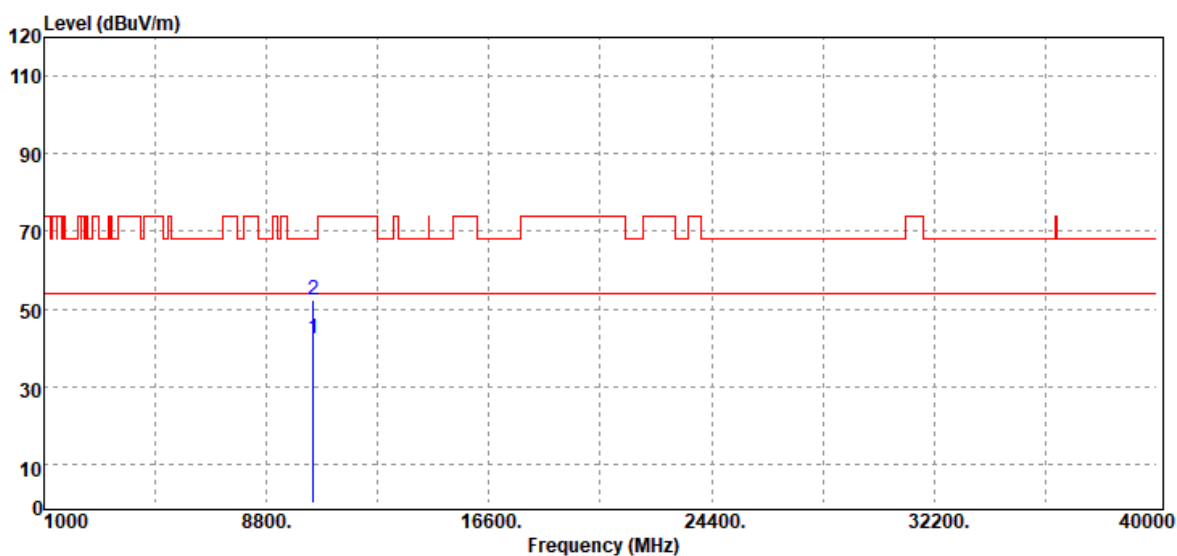


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.00	34.08	14.12	48.20	54.00	-5.80	Average
10360.00	44.78	14.12	58.90	68.20	-9.30	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5220MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



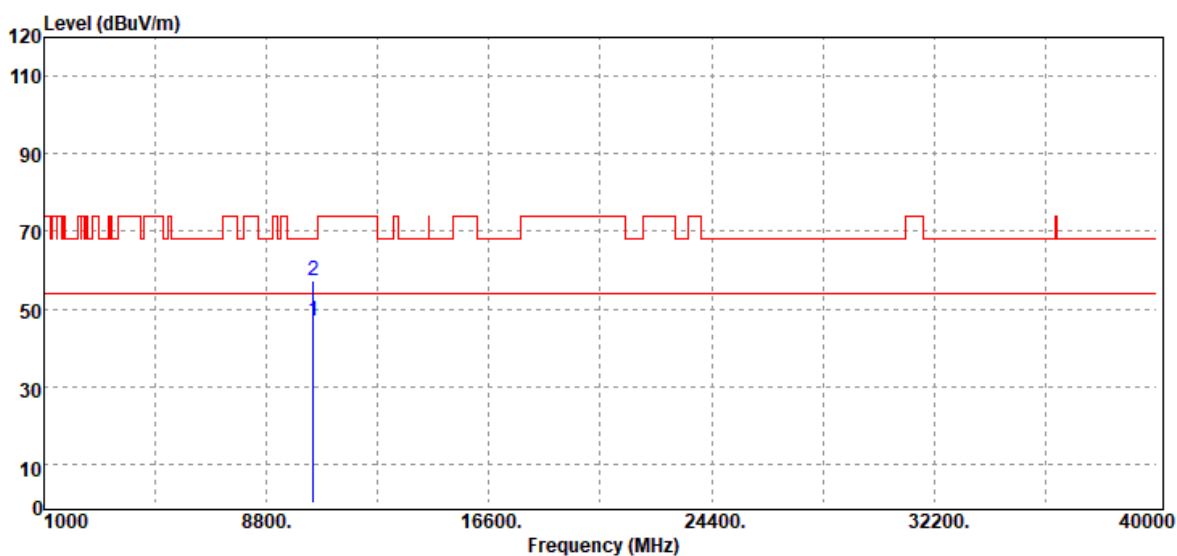
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.00	27.34	15.21	42.55	54.00	-11.45	Average
10440.00	37.08	15.21	52.29	68.20	-15.91	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Test Mode	IEEE 802.11n 20 MHz / 5220MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.00	31.88	15.21	47.09	54.00	-6.91	Average
10440.00	42.00	15.21	57.21	68.20	-10.99	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5240MHZ	Temp/Hum	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

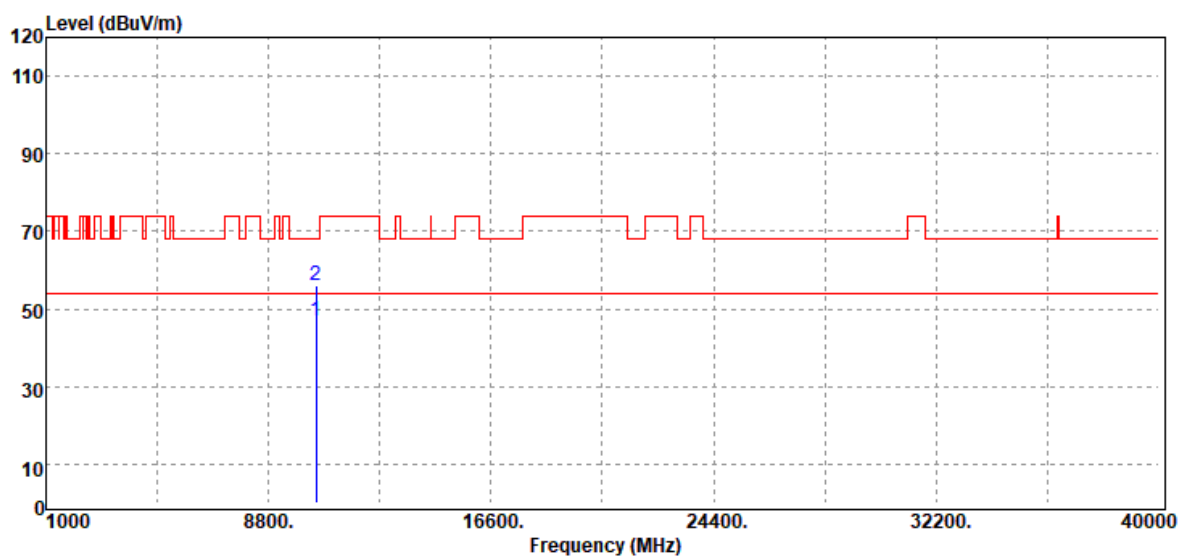


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.00	26.41	16.09	42.50	54.00	-11.50	Average
10480.00	34.81	16.09	50.90	68.20	-17.30	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5240MHZ	Temp/Hum	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

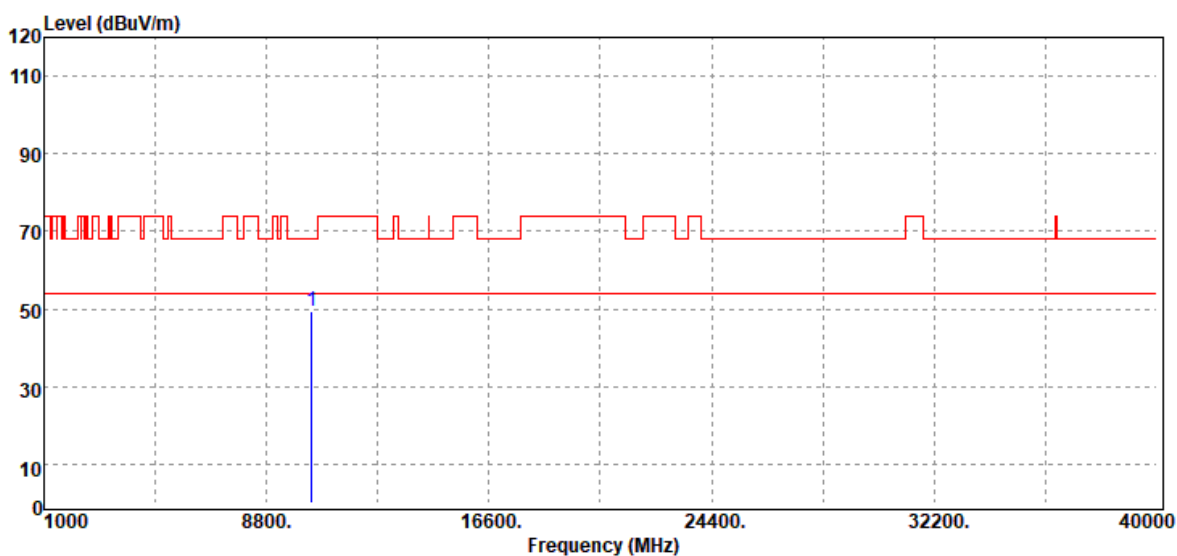


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.00	30.71	16.09	46.80	54.00	-7.20	Average
10480.00	39.79	16.09	55.88	68.20	-12.32	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz / 5190MHZ	Temp/Hum	21(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		

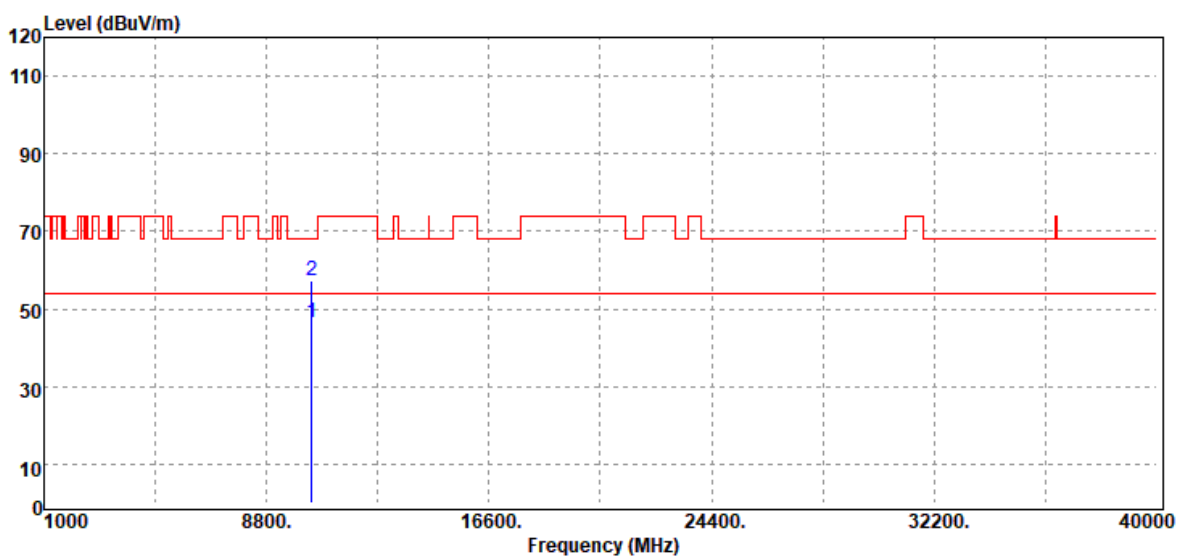


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10380.00	35.04	14.23	49.27	68.20	-18.93	Peak
N/A						

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

Test Mode	IEEE 802.11n 40 MHz / 5190MHZ	Temp/Hum	21(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

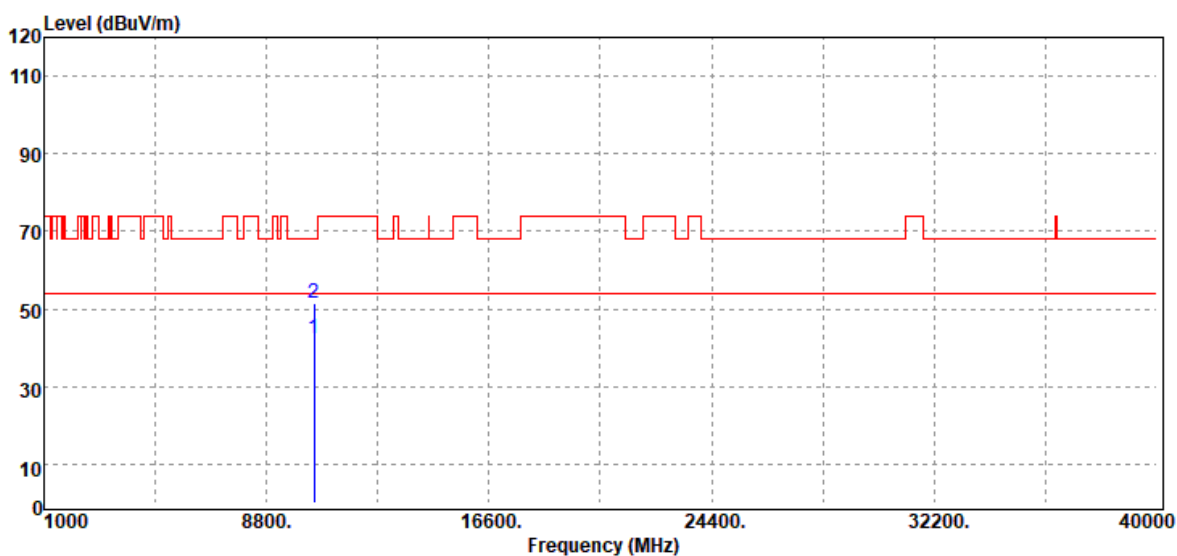


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10380.00	32.08	14.23	46.31	54.00	-7.69	Average
10380.00	43.06	14.23	57.29	68.20	-10.91	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz / 5230MHZ	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

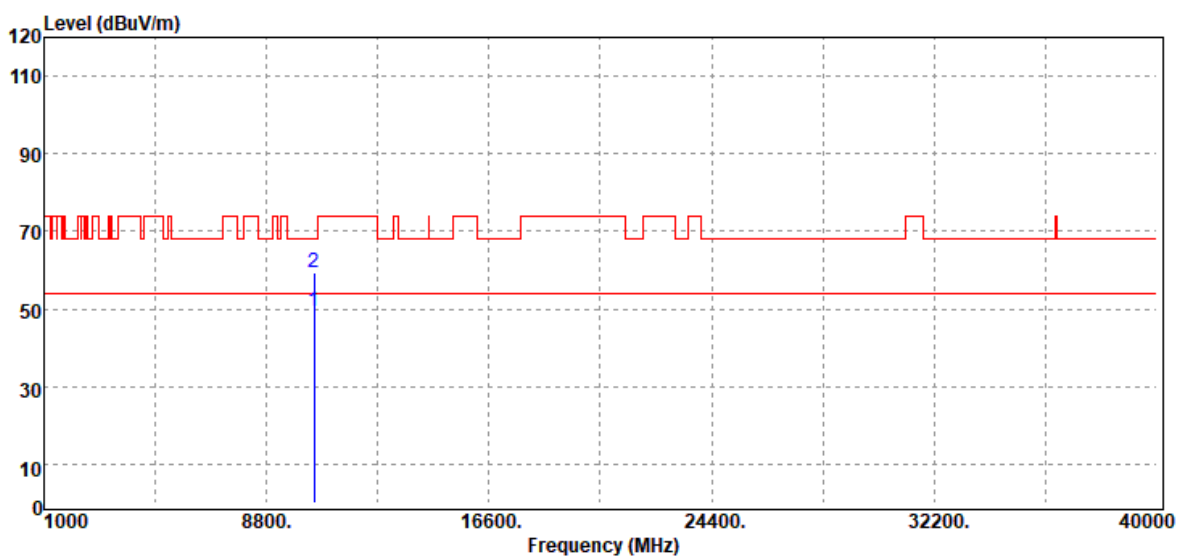


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10460.00	26.81	15.65	42.46	54.00	-11.54	Average
10460.00	35.88	15.65	51.53	68.20	-16.67	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz / 5230MHz	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

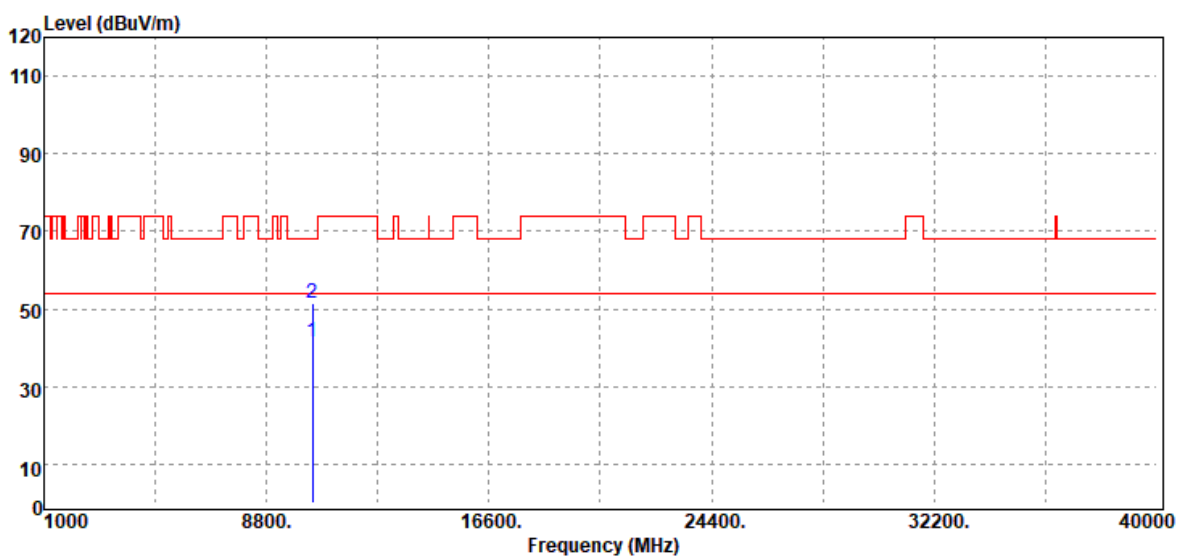


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10460.00	33.73	15.65	49.38	54.00	-4.62	Average
10460.00	43.89	15.65	59.54	68.20	-8.66	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11ac VHT80 / 5210MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



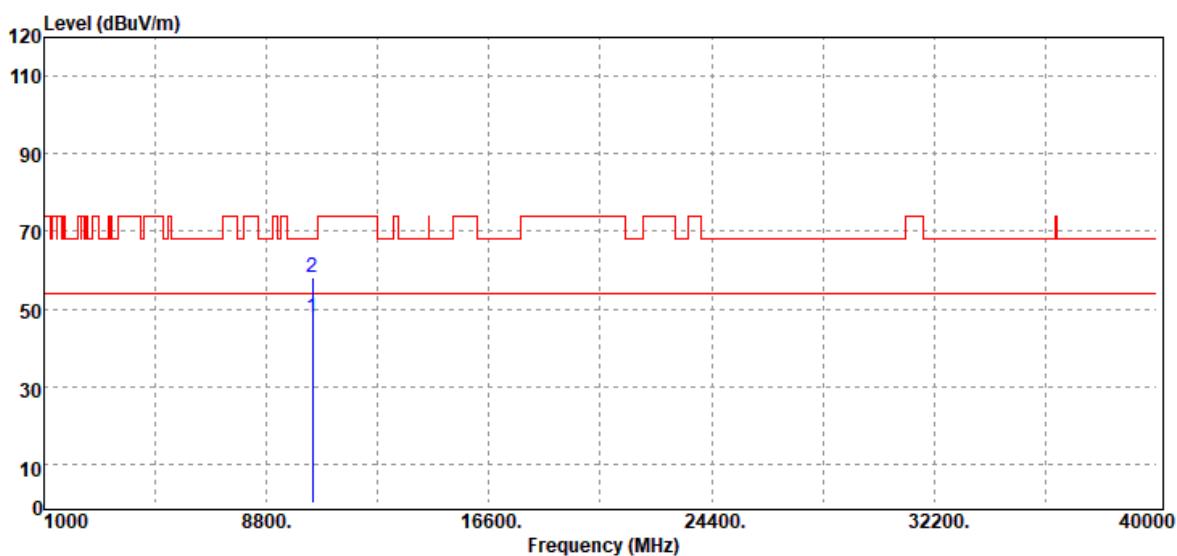
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10420.00	26.95	14.78	41.73	54.00	-12.27	Average
10420.00	36.59	14.78	51.37	68.20	-16.83	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Test Mode	IEEE 802.11ac VHT80 / 5210MHZ	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		



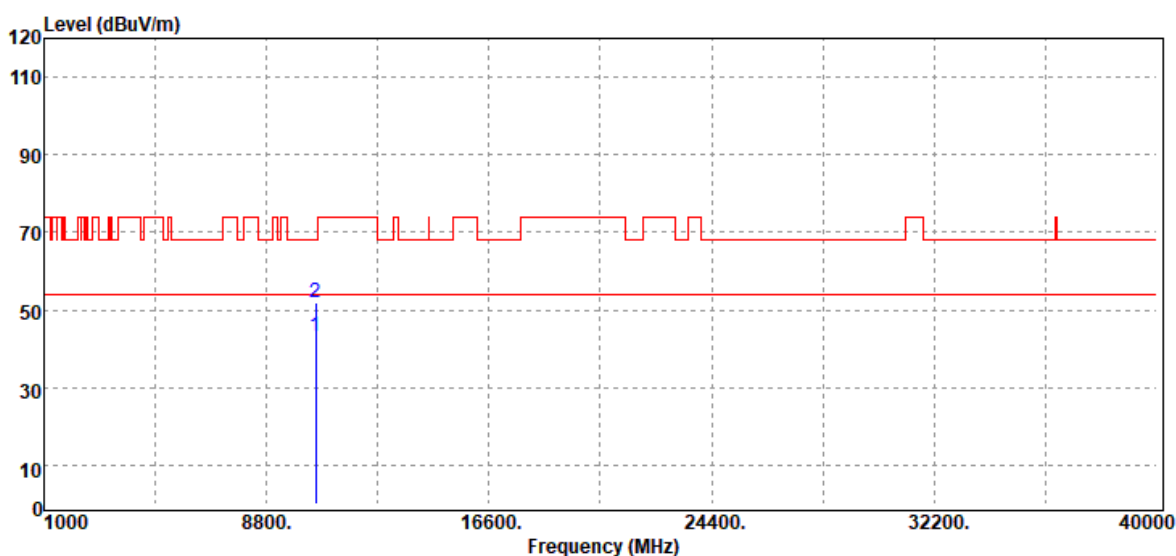
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10420.00	33.14	14.78	47.92	54.00	-6.08	Average
10420.00	43.52	14.78	58.30	68.20	-9.90	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

### Above 1G Test Data for UNII-2a

Test Mode	IEEE 802.11a / 5260 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

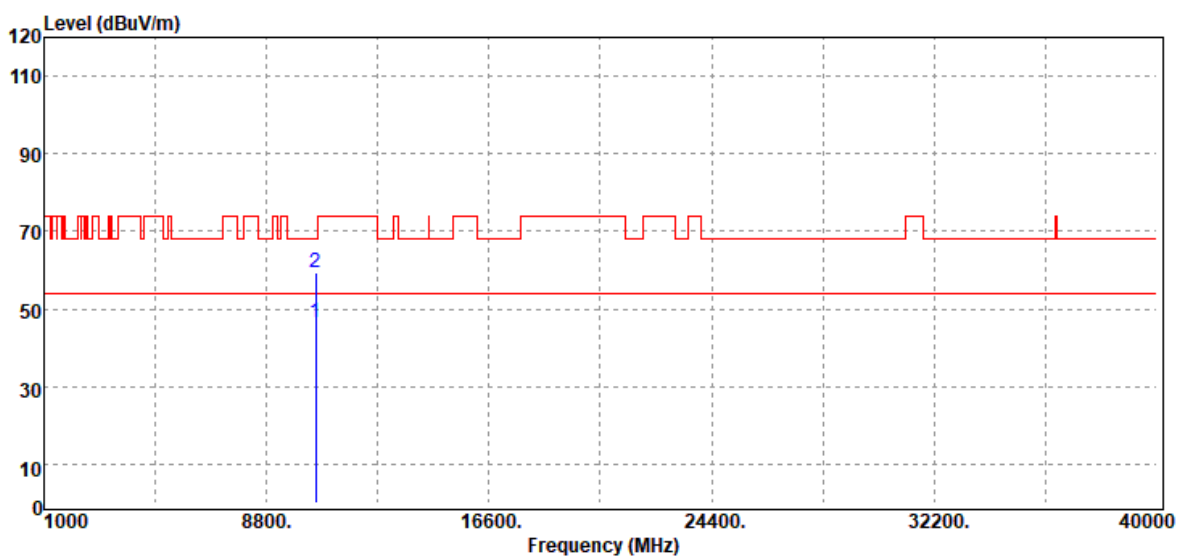


Frequency (MHz)	Reading (dBUV)	Correct Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
10520.00	27.81	15.33	43.14	54.00	-10.86	Average
10520.00	36.57	15.33	51.90	68.20	-16.30	Peak
N/A						

#### Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5260 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

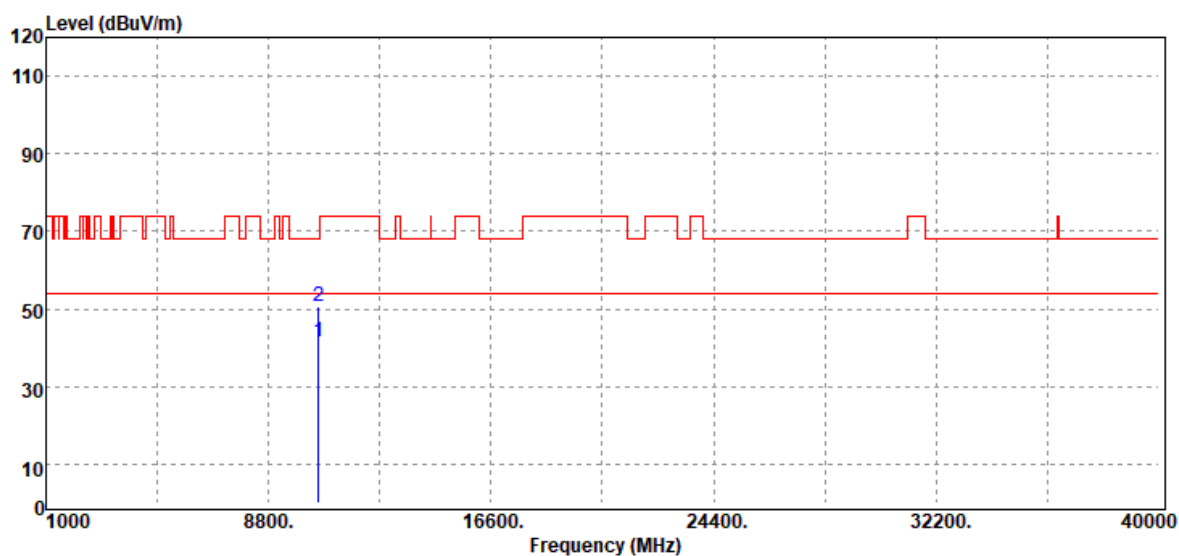


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10520.00	30.98	15.33	46.31	54.00	-7.69	Average
10520.00	44.16	15.33	59.49	68.20	-8.71	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5280 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

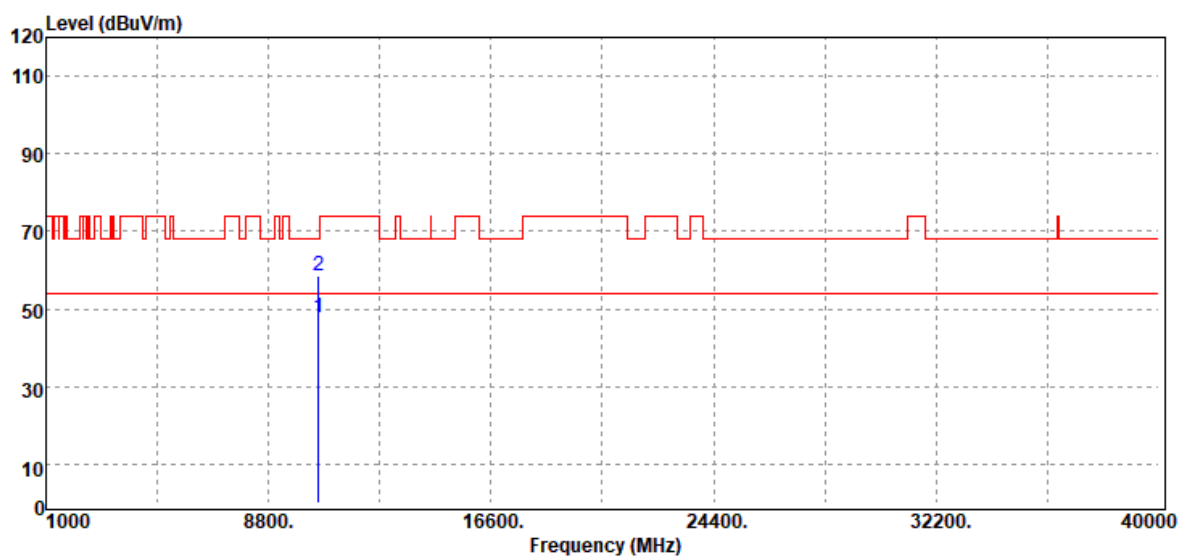


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10560.00	26.97	14.58	41.55	54.00	-12.45	Average
10560.00	36.11	14.58	50.69	68.20	-17.51	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5280 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

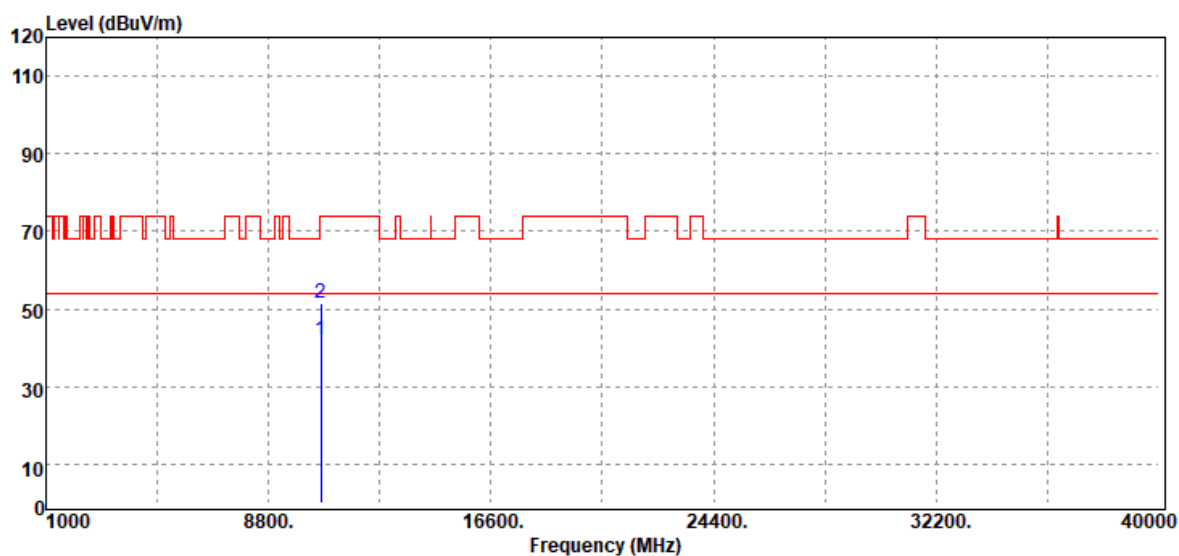


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10560.00	33.35	14.58	47.93	54.00	-6.07	Average
10560.00	44.16	14.58	58.74	68.20	-9.46	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5320 MHz	Temp/Hum	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

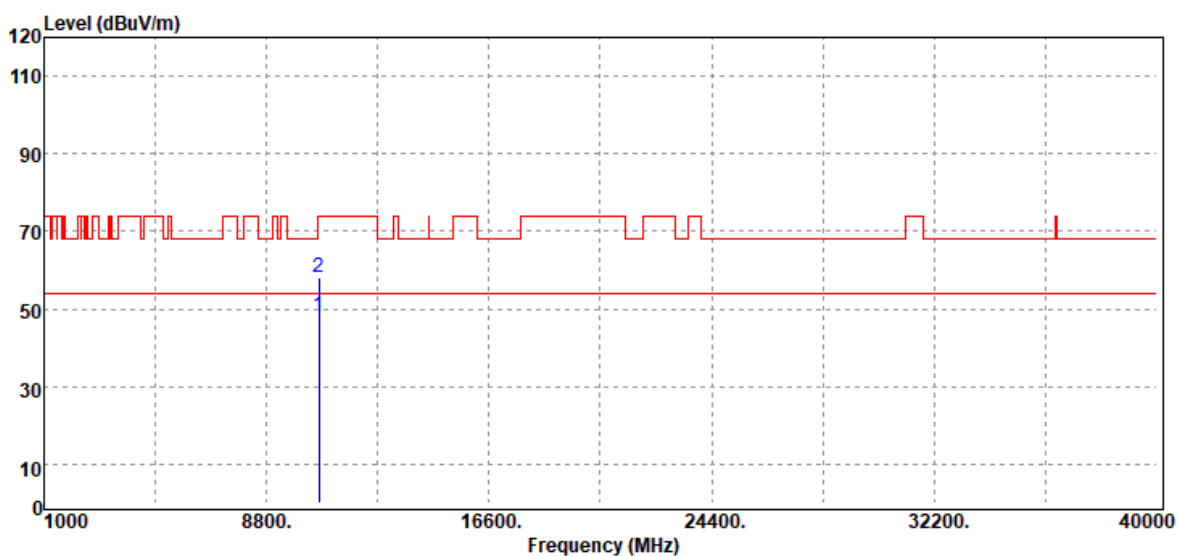


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10640.00	26.76	15.05	41.81	54.00	-12.19	Average
10640.00	36.33	15.05	51.38	74.00	-22.62	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5320 MHz	Temp/Hum	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

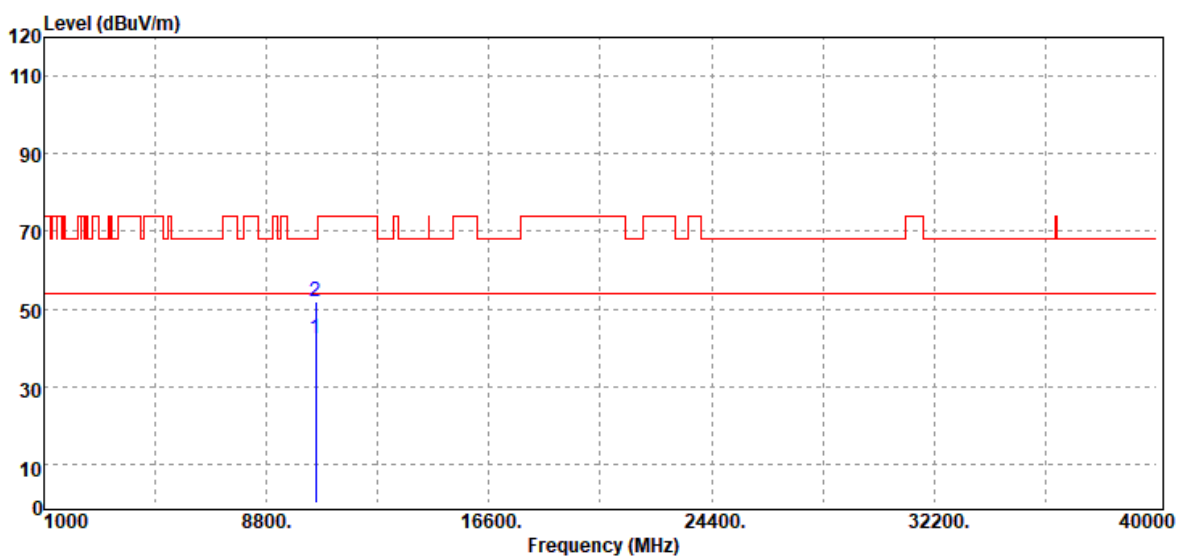


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10640.00	33.26	15.05	48.31	54.00	-5.69	Average
10640.00	43.03	15.05	58.08	74.00	-15.92	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5260 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



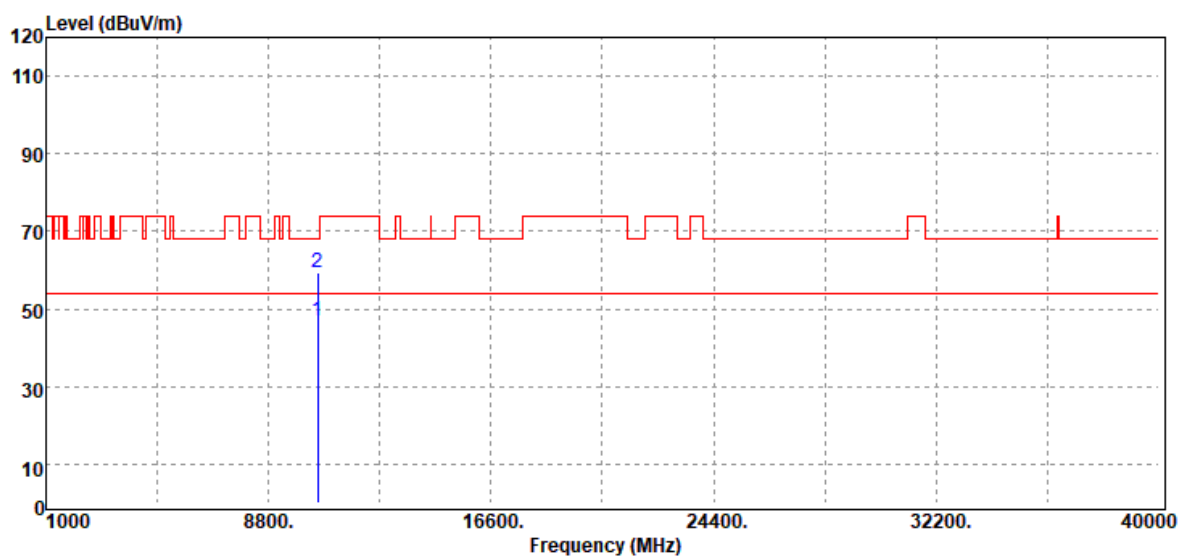
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10520.00	26.82	15.33	42.15	54.00	-11.85	Average
10520.00	36.41	15.33	51.74	68.20	-16.46	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Test Mode	IEEE 802.11n 20 MHz / 5260 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

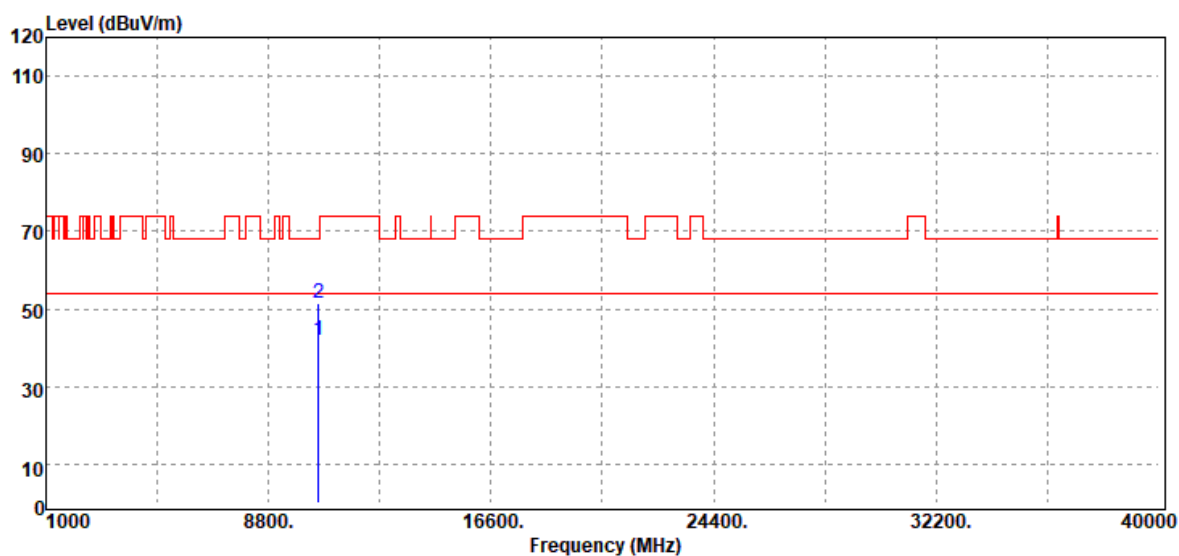


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10520.00	31.48	15.33	46.81	54.00	-7.19	Average
10520.00	43.85	15.33	59.18	68.20	-9.02	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5280 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

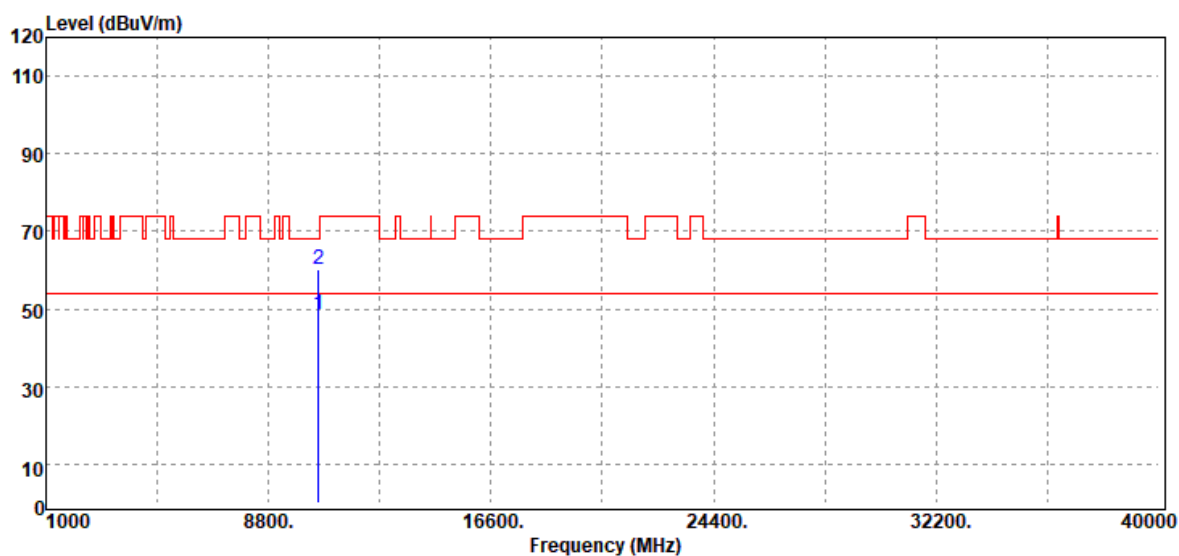


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10560.00	27.49	14.58	42.07	54.00	-11.93	Average
10560.00	36.80	14.58	51.38	68.20	-16.82	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5280 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

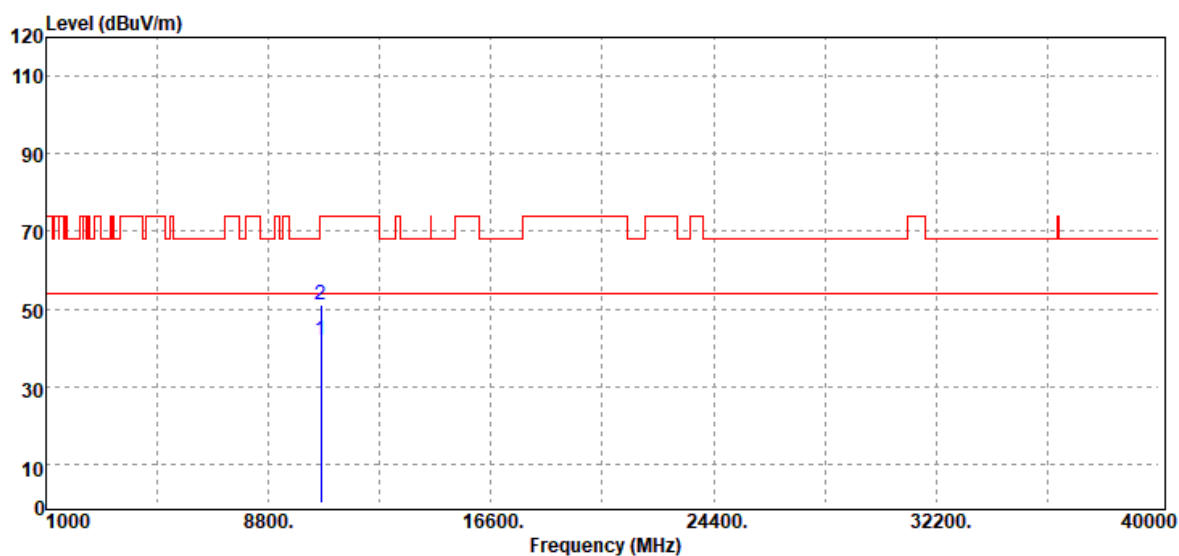


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10560.00	34.08	14.58	48.66	54.00	-5.34	Average
10560.00	45.77	14.58	60.35	68.20	-7.85	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5320 MHz	Temp/Hum	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

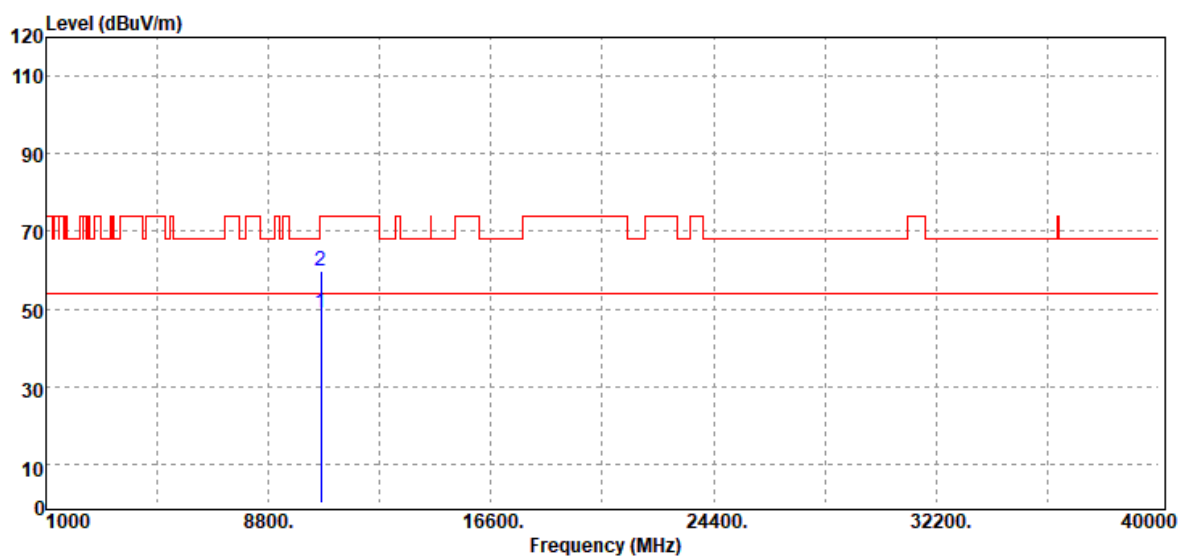


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10640.00	26.77	15.05	41.82	54.00	-12.18	Average
10640.00	35.82	15.05	50.87	74.00	-23.13	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5320 MHz	Temp/Hum	22(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

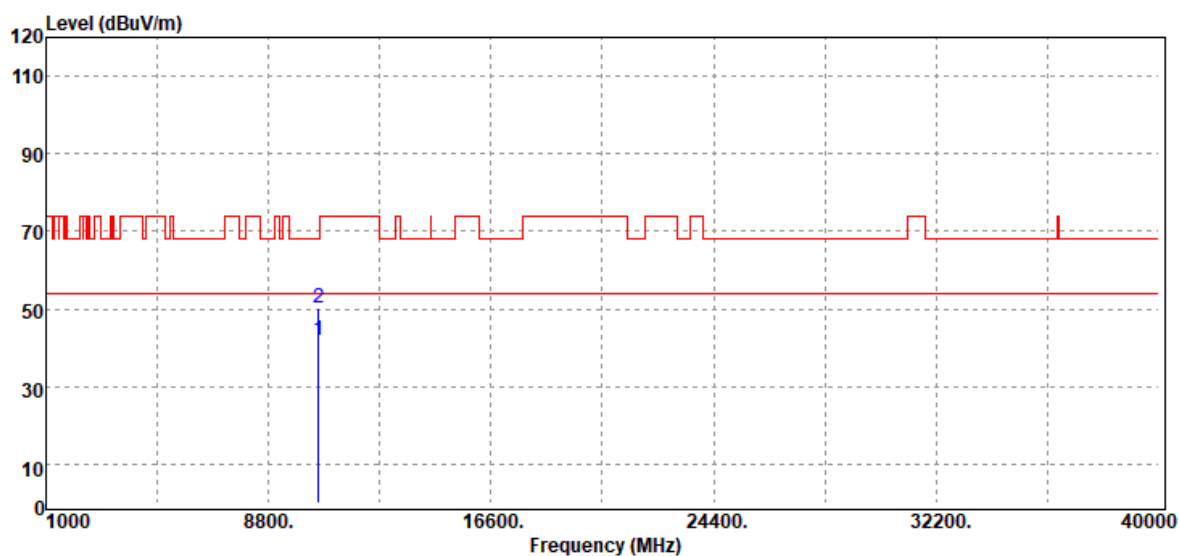


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10640.00	34.08	15.05	49.13	54.00	-4.87	Average
10640.00	44.71	15.05	59.76	74.00	-14.24	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz / 5270 MHz	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

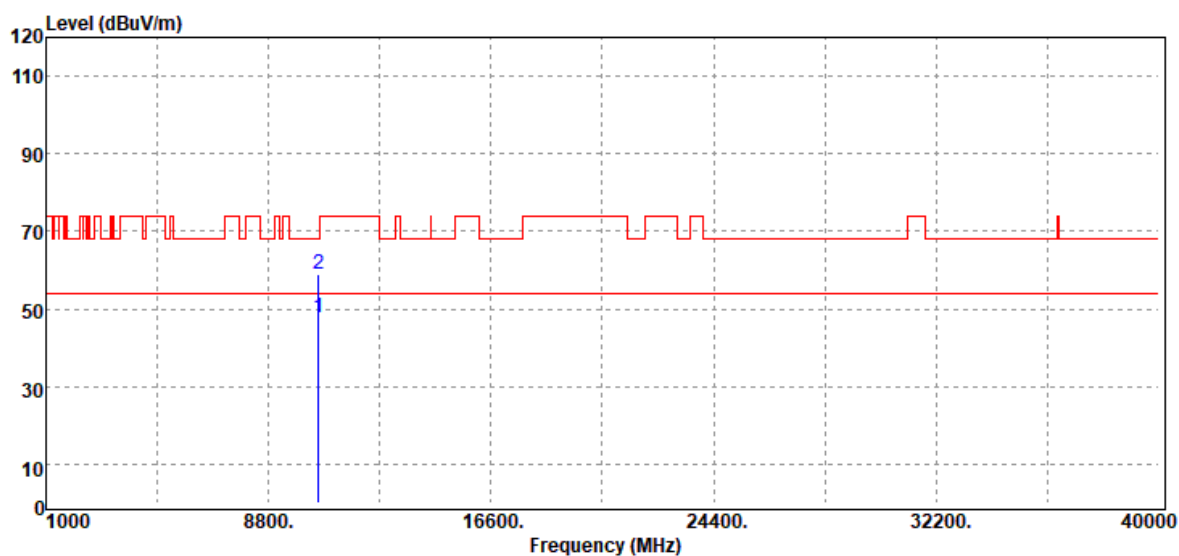


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10540.00	26.95	14.95	41.90	54.00	-12.10	Average
10540.00	35.50	14.95	50.45	68.20	-17.75	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz / 5270 MHz	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

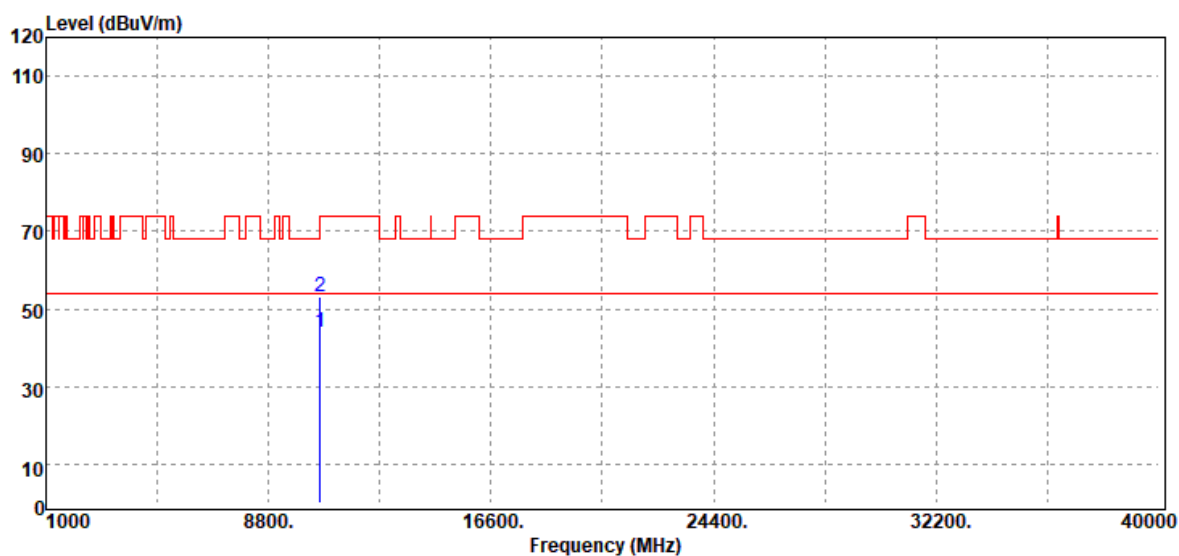


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10540.00	32.75	14.95	47.70	54.00	-6.30	Average
10540.00	44.19	14.95	59.14	68.20	-9.06	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz / 5310 MHz	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



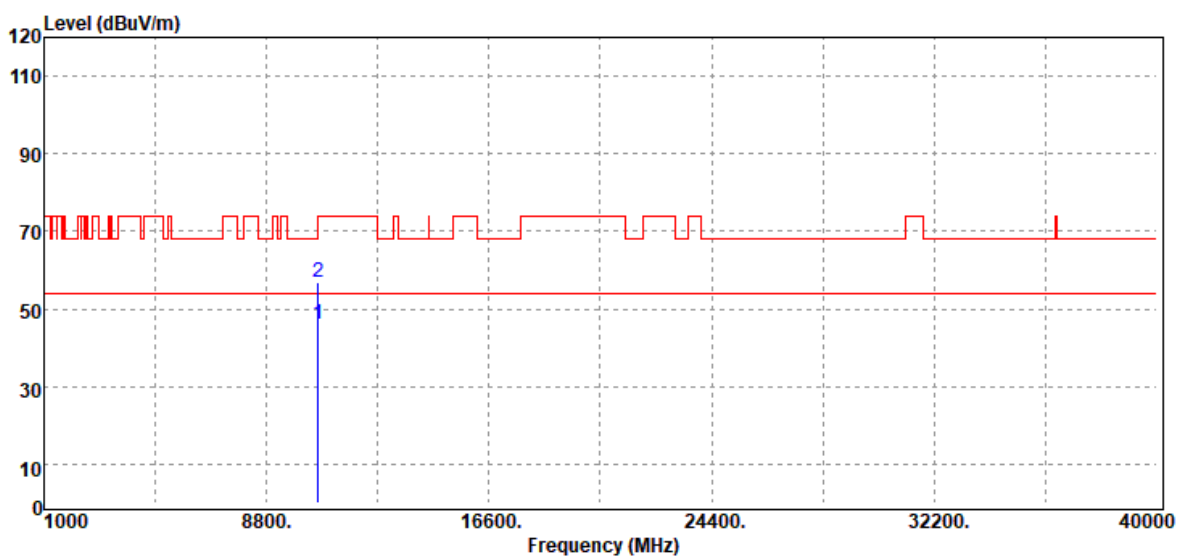
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10620.00	29.41	14.81	44.22	54.00	-9.78	Average
10620.00	38.13	14.81	52.94	74.00	-21.06	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Test Mode	IEEE 802.11n 40 MHz / 5310 MHz	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

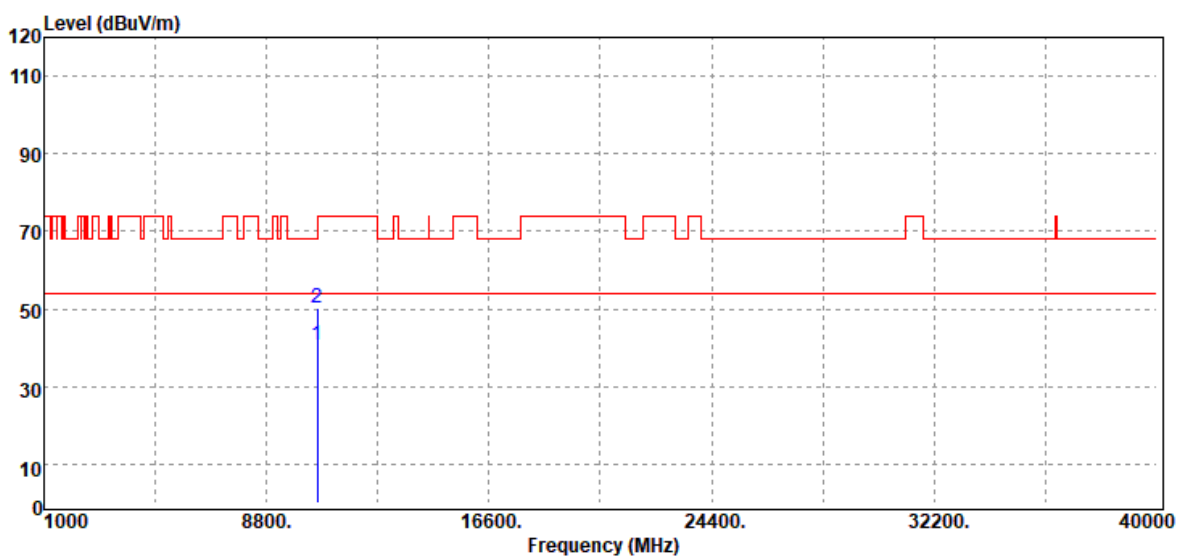


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10620.00	31.11	14.81	45.92	54.00	-8.08	Average
10620.00	42.02	14.81	56.83	74.00	-17.17	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11ac VHT80 / 5290 MHz	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

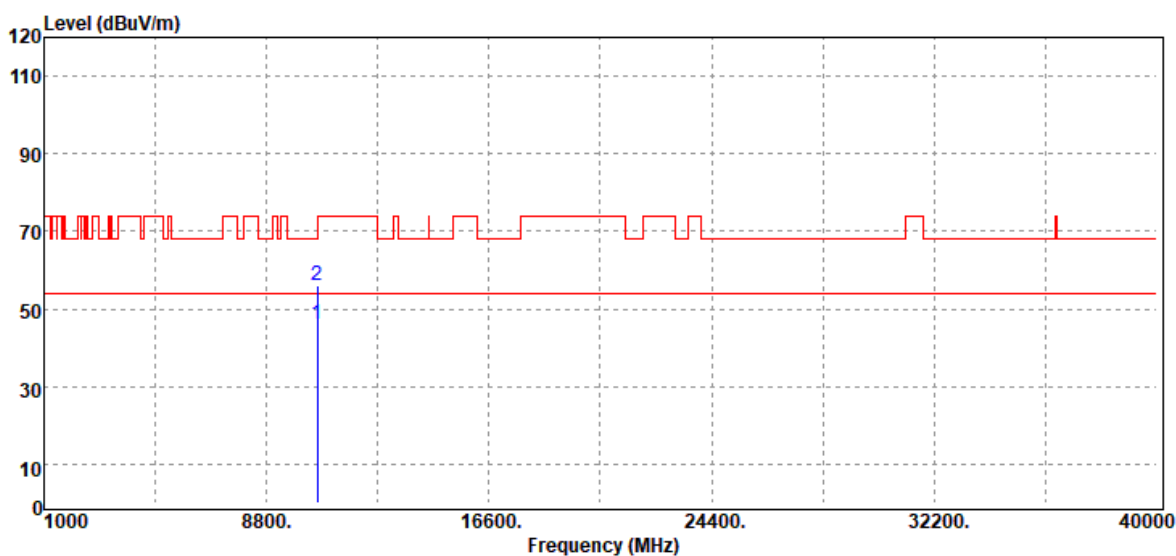


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10580.00	25.98	14.56	40.54	54.00	-13.46	Average
10580.00	35.48	14.56	50.04	68.20	-18.16	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11ac VHT80 / 5290 MHz	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		



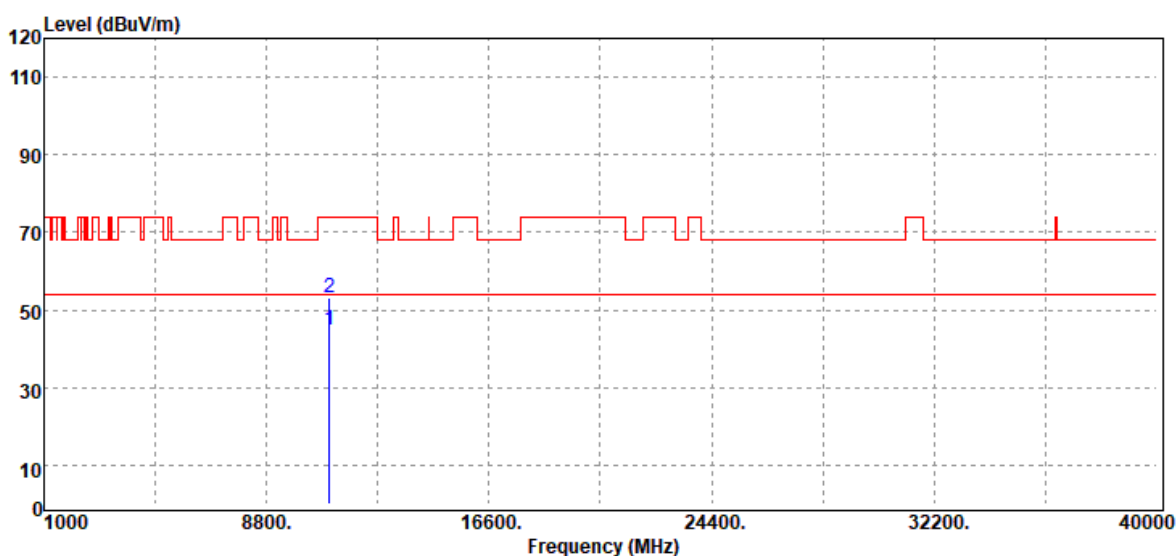
Frequency (MHz)	Reading (dBUV)	Correct Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
10580.00	31.50	14.56	46.06	54.00	-7.94	Average
10580.00	41.41	14.56	55.97	68.20	-12.23	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

### Above 1G Test Data for UNII-2c

Test Mode	IEEE 802.11a / 5500 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

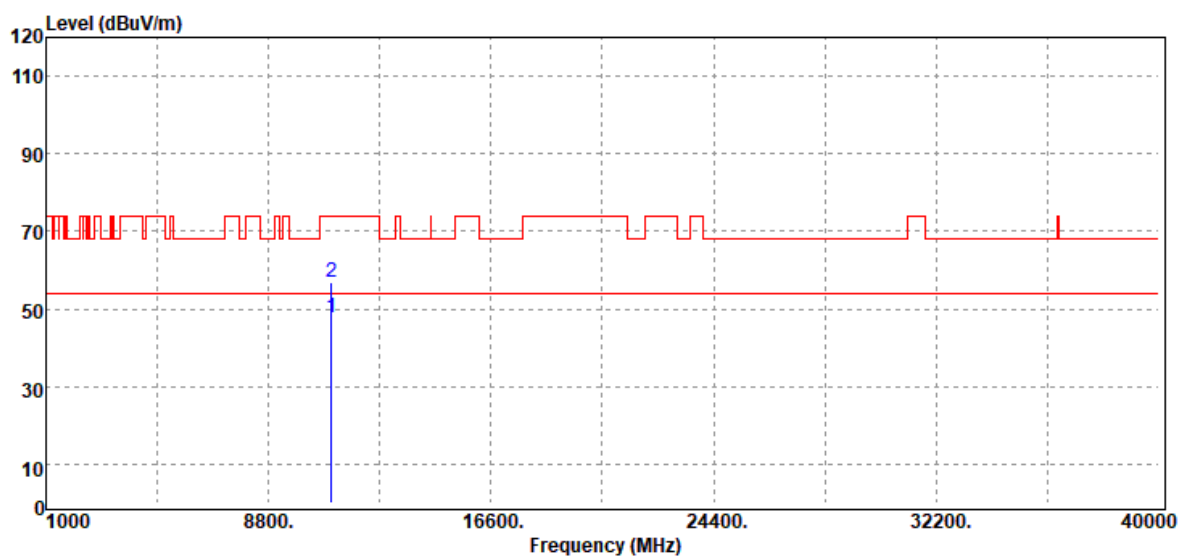


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11000.00	28.97	15.80	44.77	54.00	-9.23	Average
11000.00	37.16	15.80	52.96	74.00	-21.04	Peak
N/A						

#### Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5500 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

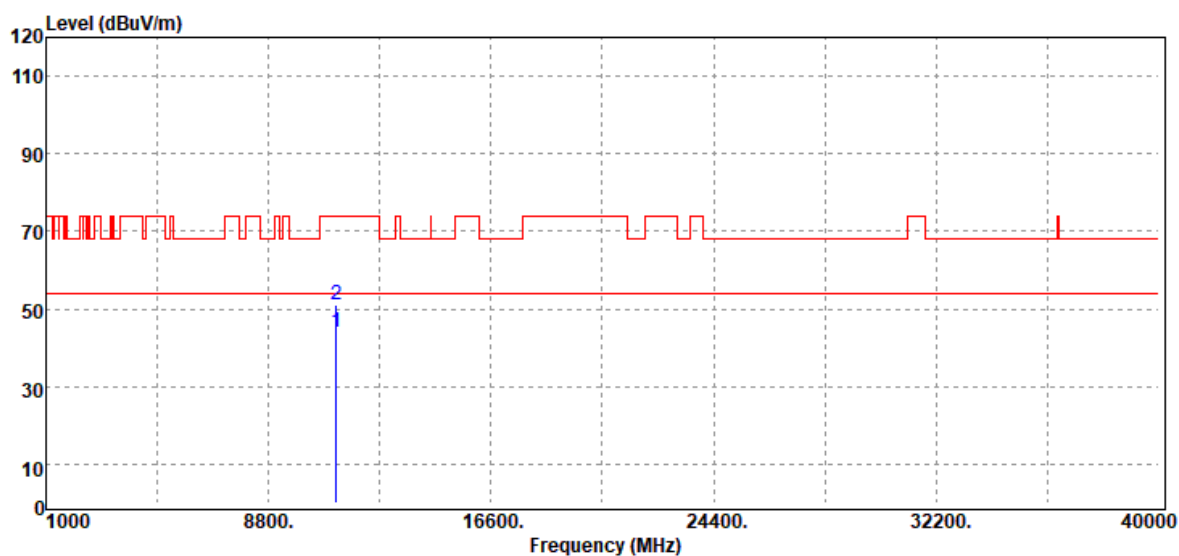


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11000.00	32.06	15.80	47.86	54.00	-6.14	Average
11000.00	41.25	15.80	57.05	74.00	-16.95	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5580 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

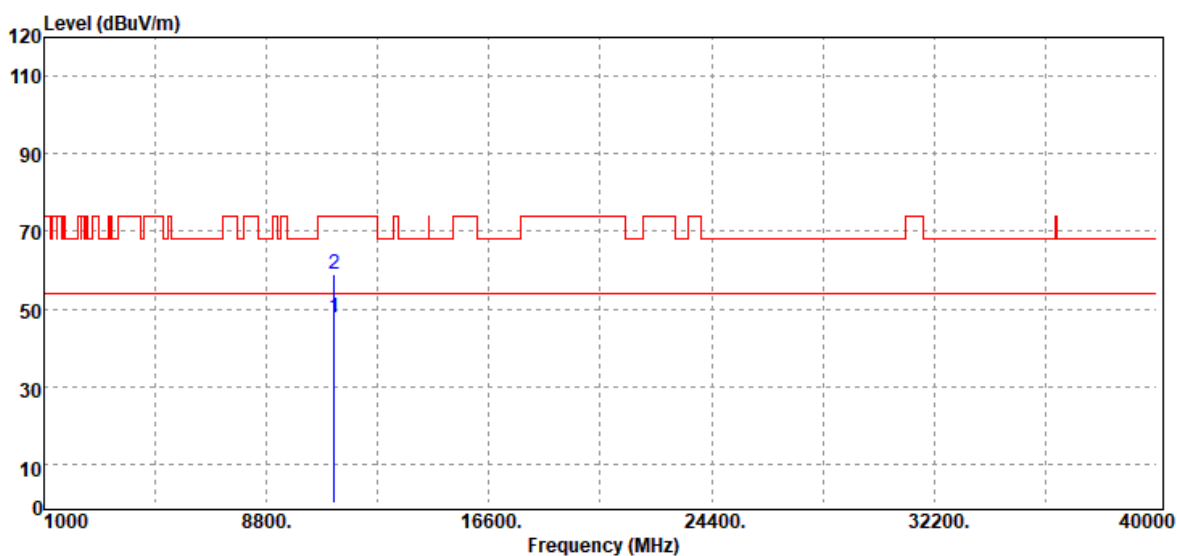


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11160.00	27.94	16.17	44.11	54.00	-9.89	Average
11160.00	34.72	16.17	50.89	74.00	-23.11	Peak
N/A						

### Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5580 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

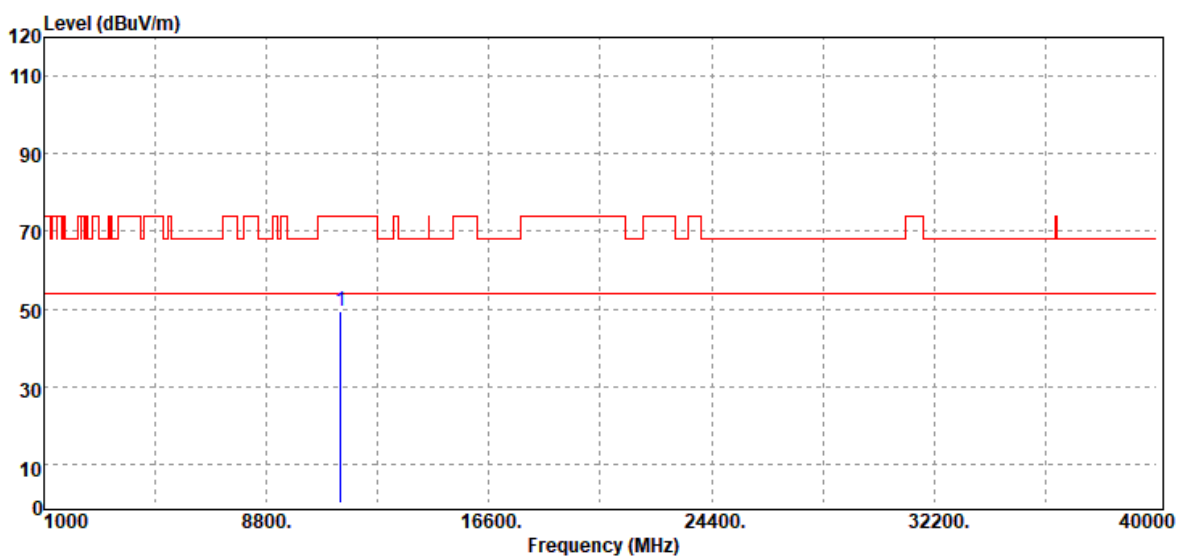


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11160.00	31.73	16.17	47.90	54.00	-6.10	Average
11160.00	42.85	16.17	59.02	74.00	-14.98	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5700 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



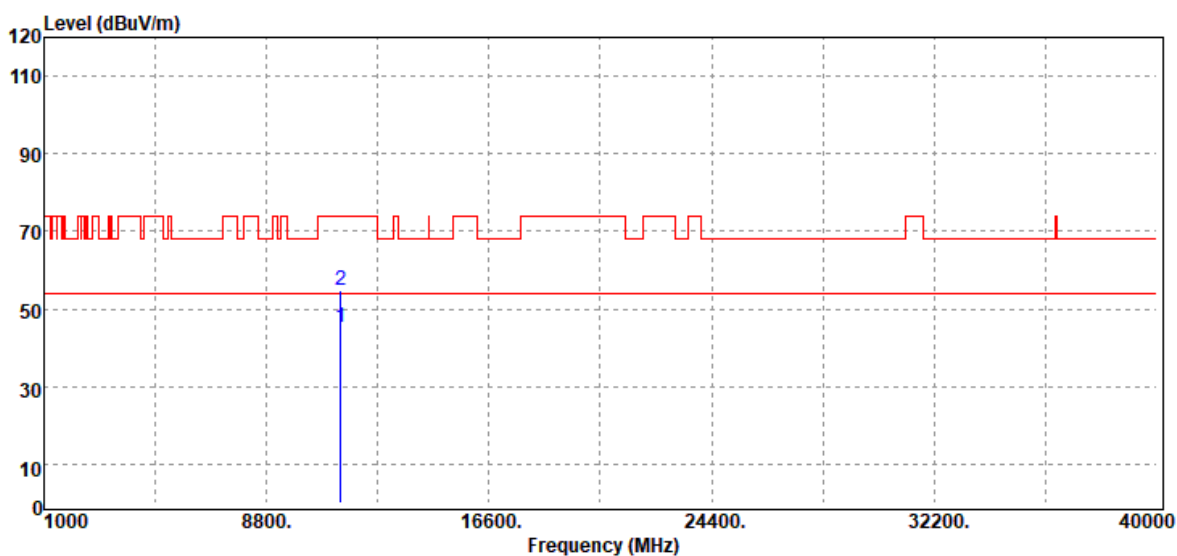
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11400.00	33.29	15.94	49.23	74.00	-24.77	Peak
N/A						

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



Test Mode	IEEE 802.11a / 5700 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

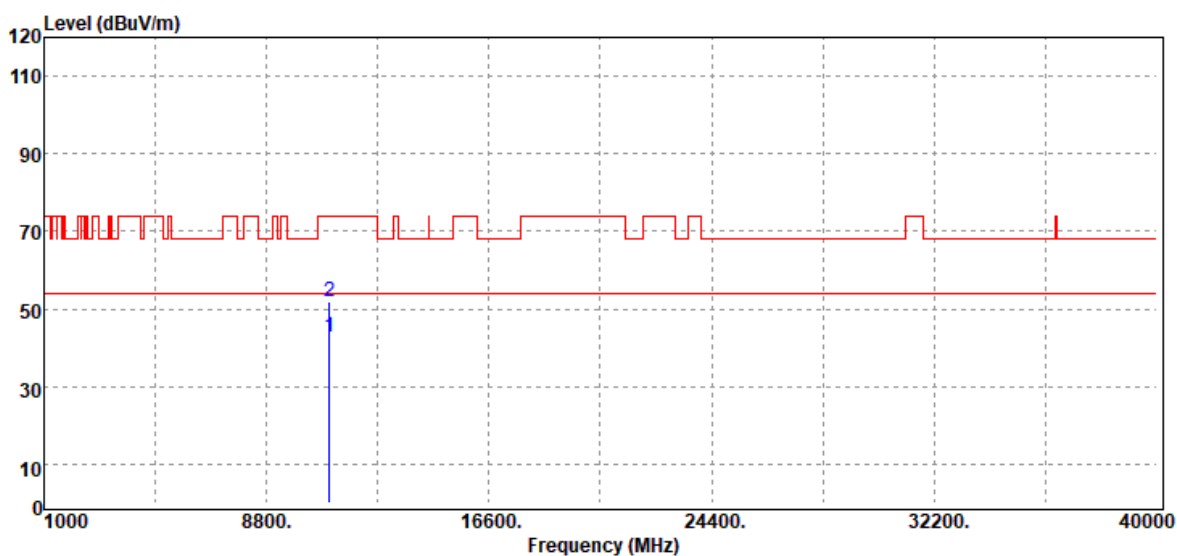


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11400.00	29.16	15.94	45.10	54.00	-8.90	Average
11400.00	38.77	15.94	54.71	74.00	-19.29	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5500 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

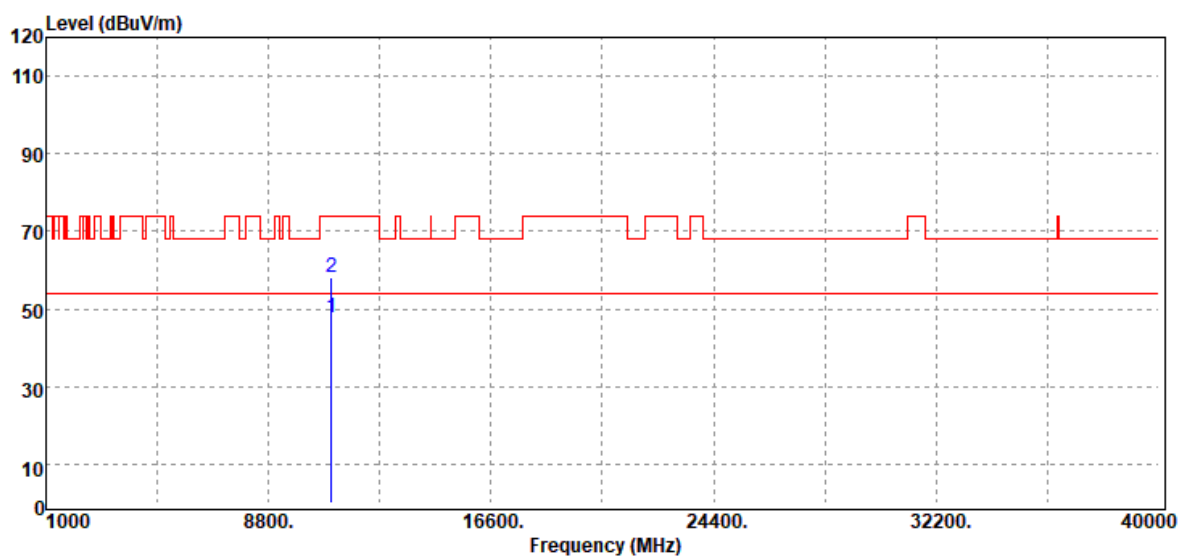


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11000.00	27.11	15.80	42.91	54.00	-11.09	Average
11000.00	36.14	15.80	51.94	74.00	-22.06	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5500 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

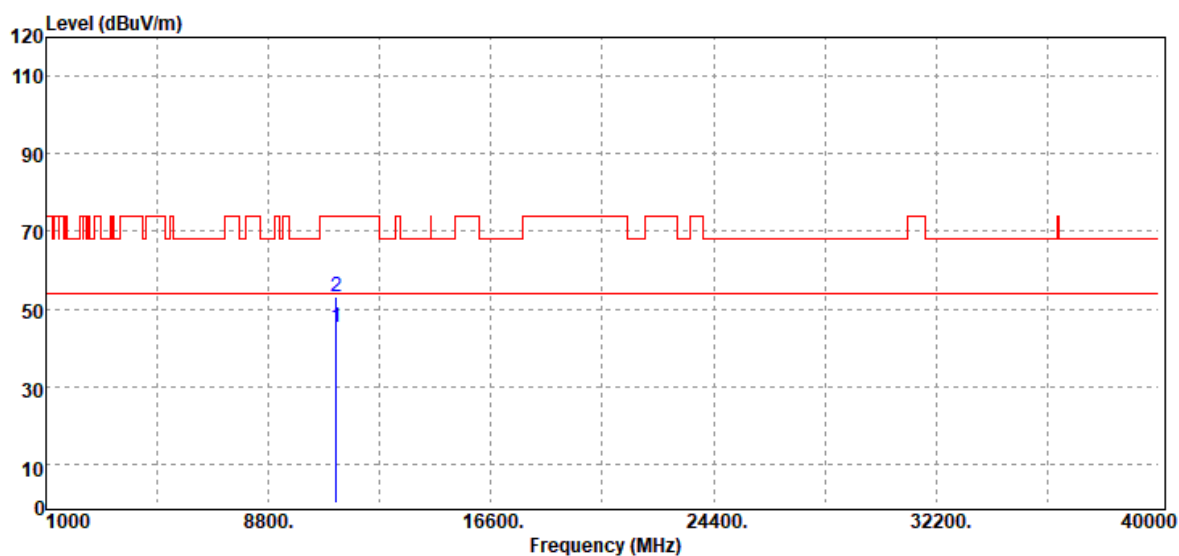


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11000.00	32.07	15.80	47.87	54.00	-6.13	Average
11000.00	42.19	15.80	57.99	74.00	-16.01	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5580 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

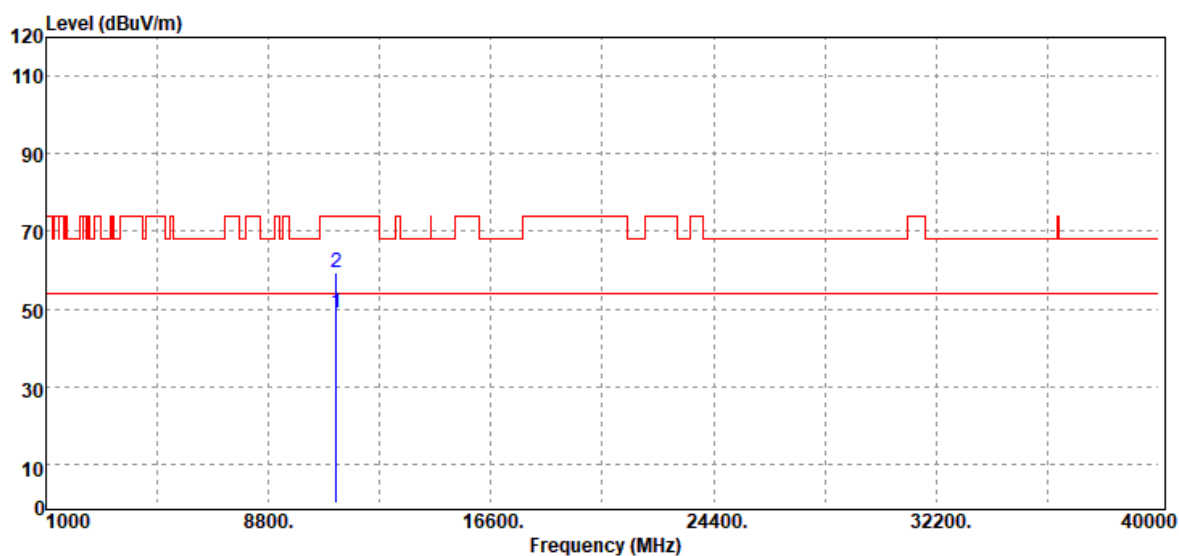


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11160.00	29.08	16.17	45.25	54.00	-8.75	Average
11160.00	37.14	16.17	53.31	74.00	-20.69	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5580 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

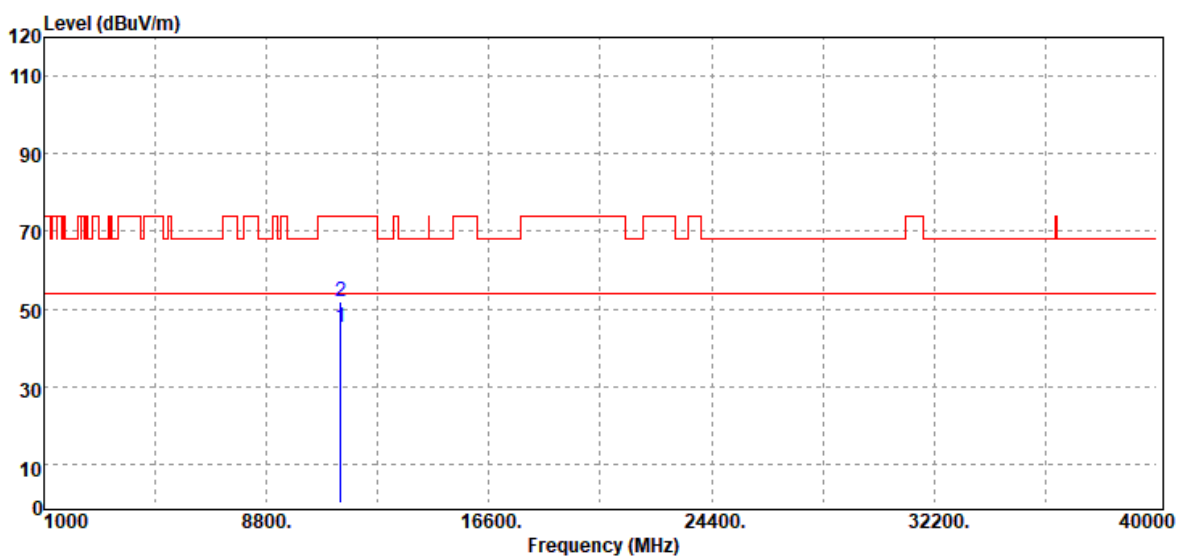


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11160.00	32.77	16.17	48.94	54.00	-5.06	Average
11160.00	43.15	16.17	59.32	74.00	-14.68	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5700 MHz	Temp/Hum	21(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11400.00	29.18	15.94	45.12	54.00	-8.88	Average
11400.00	35.77	15.94	51.71	74.00	-22.29	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5700 MHz	Temp/Hum	21(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

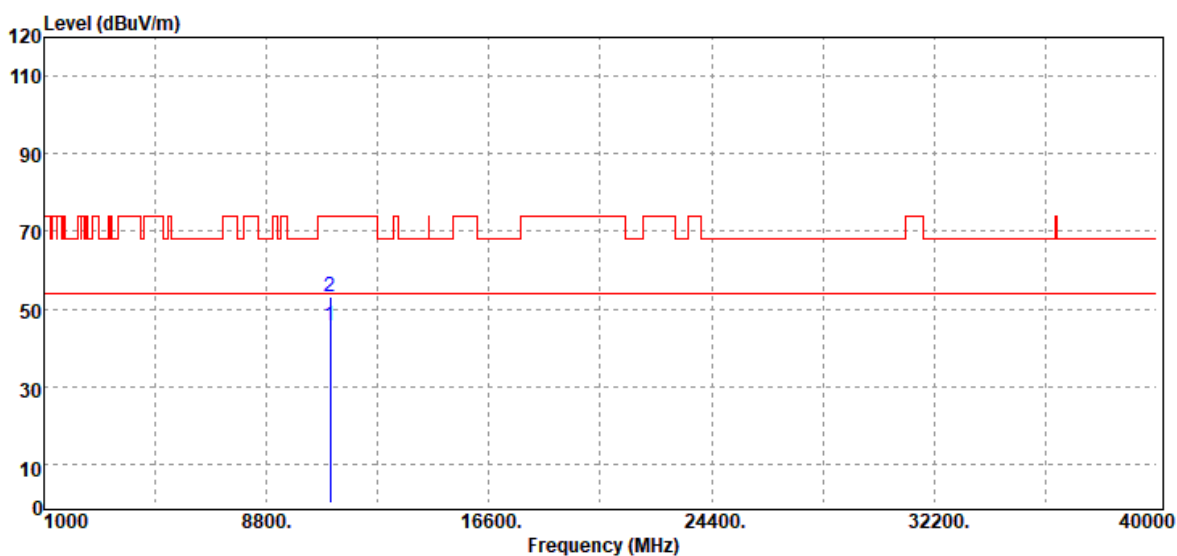


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11400.00	30.97	15.94	46.91	54.00	-7.09	Average
11400.00	41.52	15.94	57.46	74.00	-16.54	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz / 5510 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



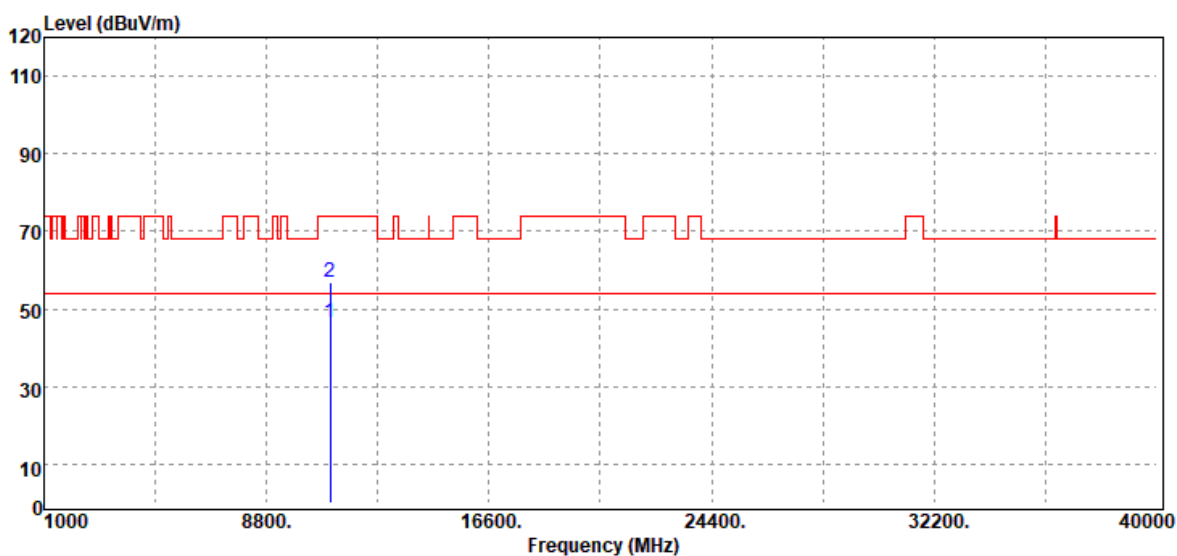
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11020.00	29.75	15.84	45.59	54.00	-8.41	Average
11020.00	37.49	15.84	53.33	74.00	-20.67	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Test Mode	IEEE 802.11n 40 MHz / 5510 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

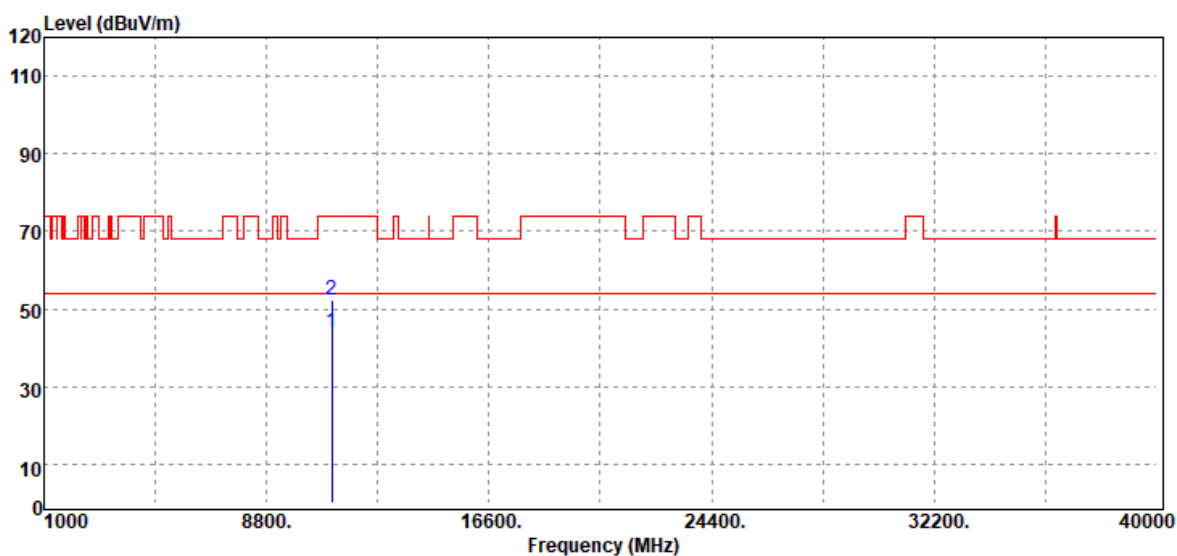


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11020.00	30.81	15.84	46.65	54.00	-7.35	Average
11020.00	40.96	15.84	56.80	74.00	-17.20	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz / 5550 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

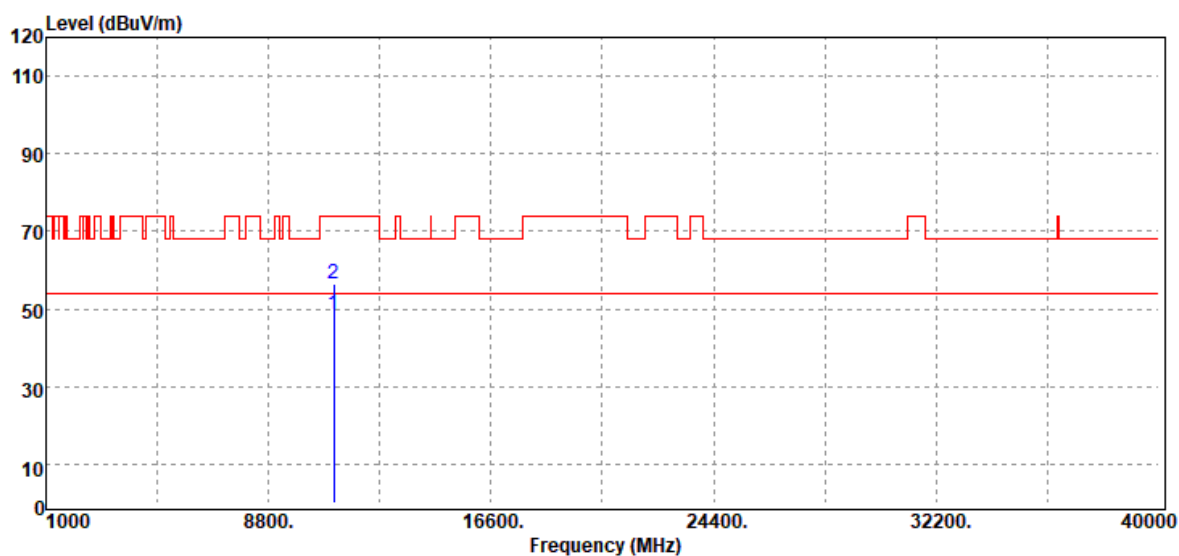


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11100.00	27.77	16.39	44.16	54.00	-9.84	Average
11100.00	35.87	16.39	52.26	74.00	-21.74	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz / 5550 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

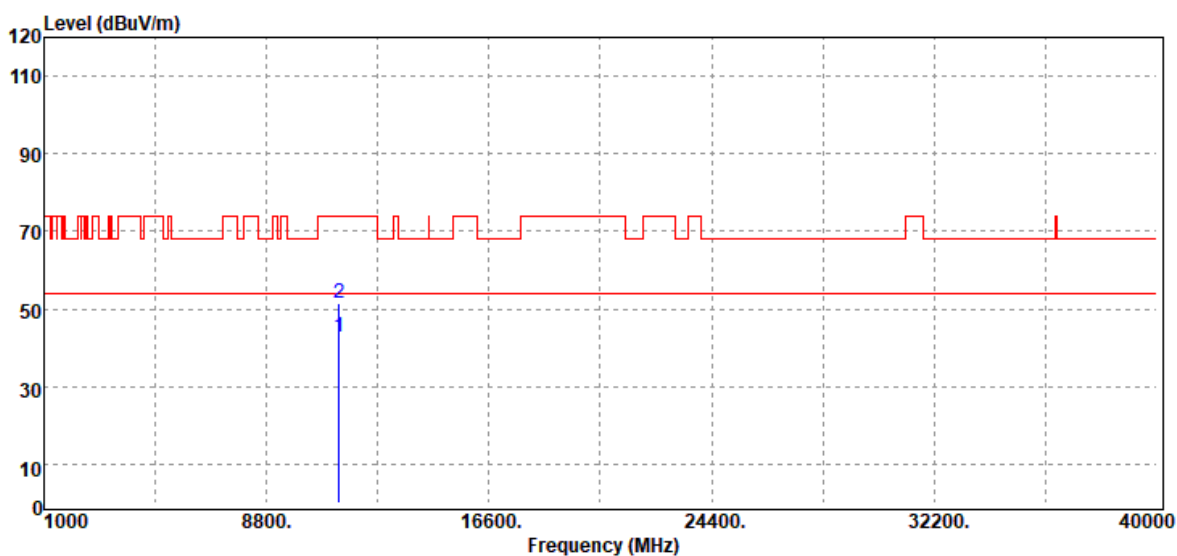


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11100.00	32.19	16.39	48.58	54.00	-5.42	Average
11100.00	40.20	16.39	56.59	74.00	-17.41	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz / 5670 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

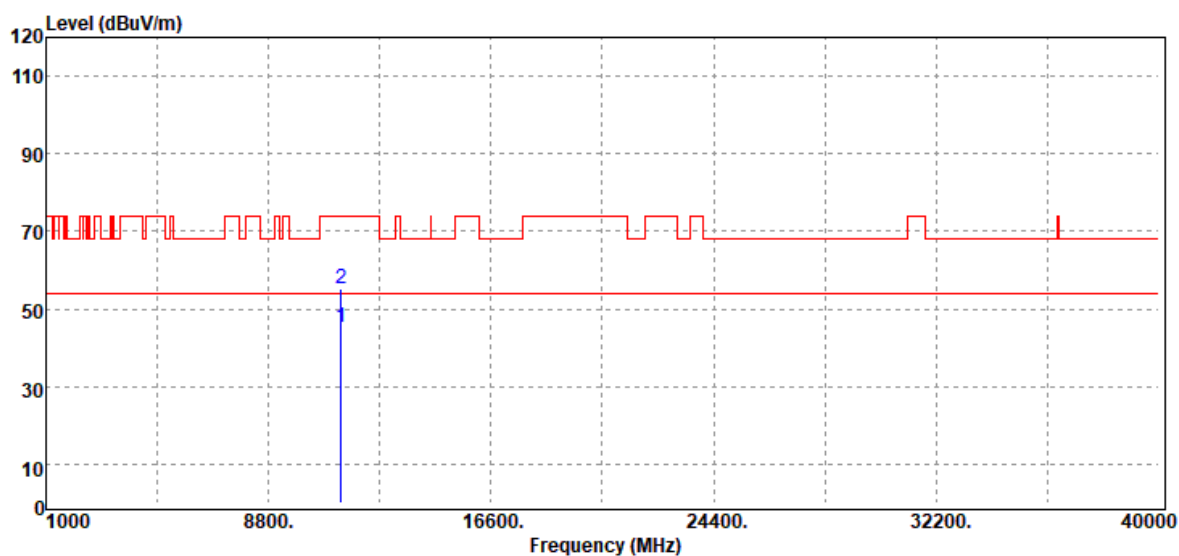


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11340.00	26.89	15.99	42.88	54.00	-11.12	peak
11340.00	35.53	15.99	51.52	74.00	-22.48	AVG
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz / 5670 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

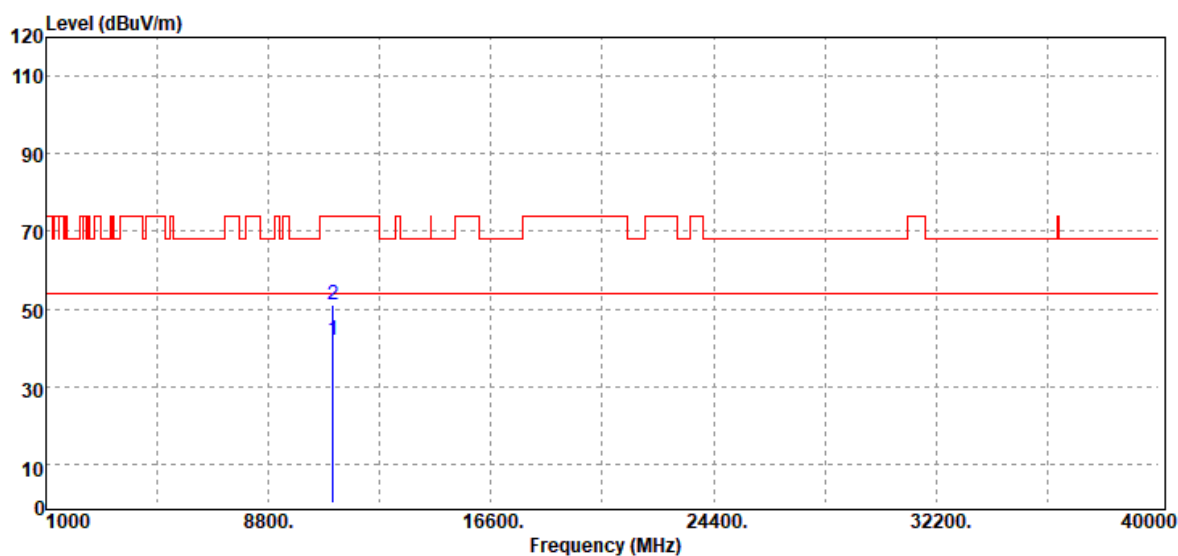


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11340.00	29.41	15.99	45.40	54.00	-8.60	Average
11340.00	39.20	15.99	55.19	74.00	-18.81	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11ac VHT80 / 5530 MHz	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

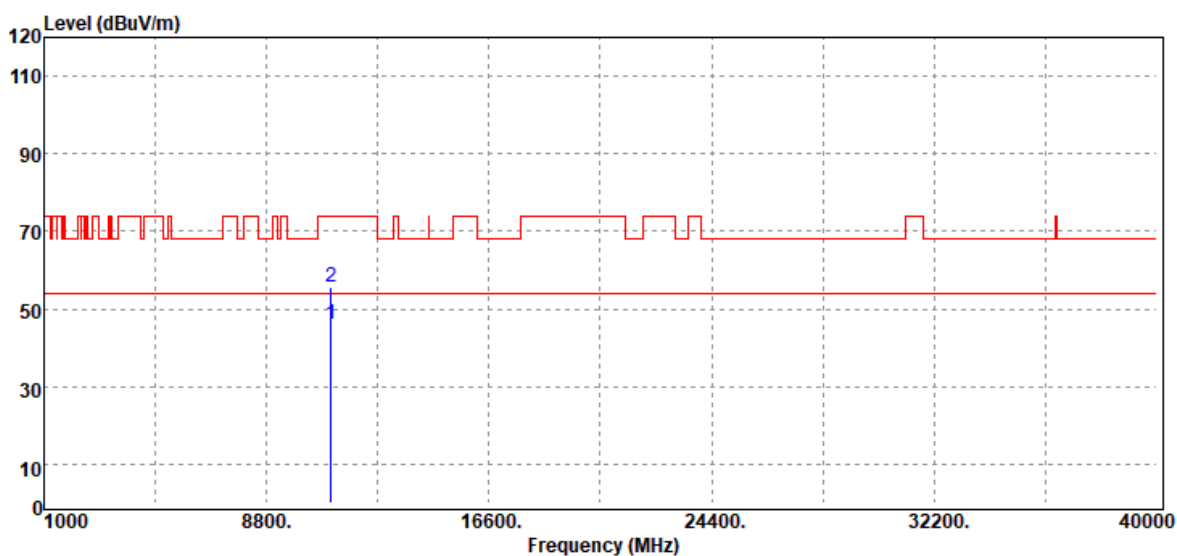


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11060.00	25.84	16.08	41.92	54.00	-12.08	Average
11060.00	35.12	16.08	51.20	74.00	-22.80	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11ac VHT80 / 5530 MHz	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		



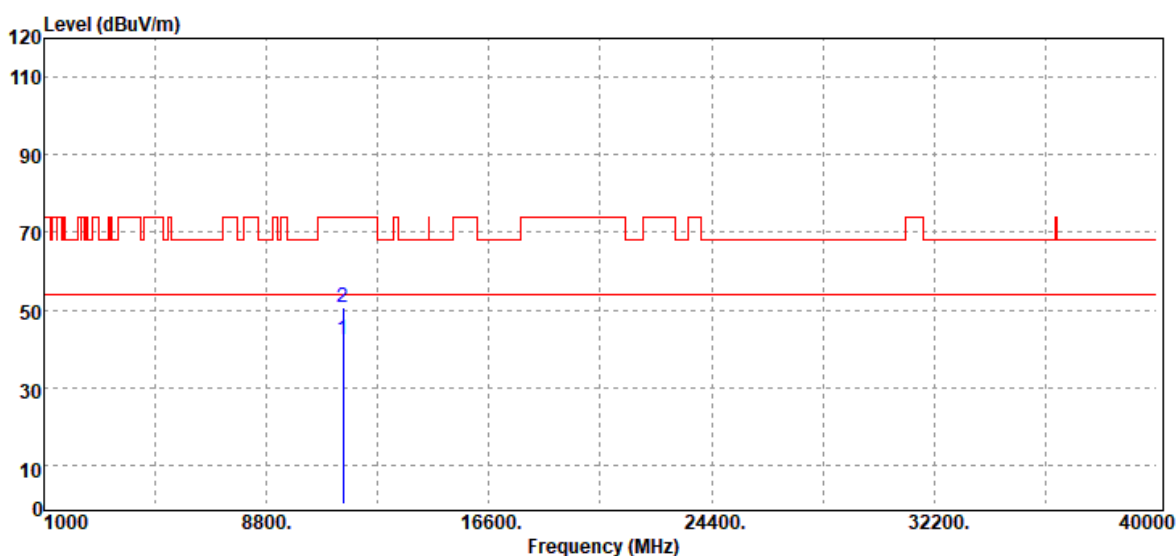
Frequency (MHz)	Reading (dBUV)	Correct Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Remark
11060.00	29.81	16.08	45.89	54.00	-8.11	Average
11060.00	39.62	16.08	55.70	74.00	-18.30	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

### Above 1G Test Data for UNII-3

Test Mode	IEEE 802.11a / 5745 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



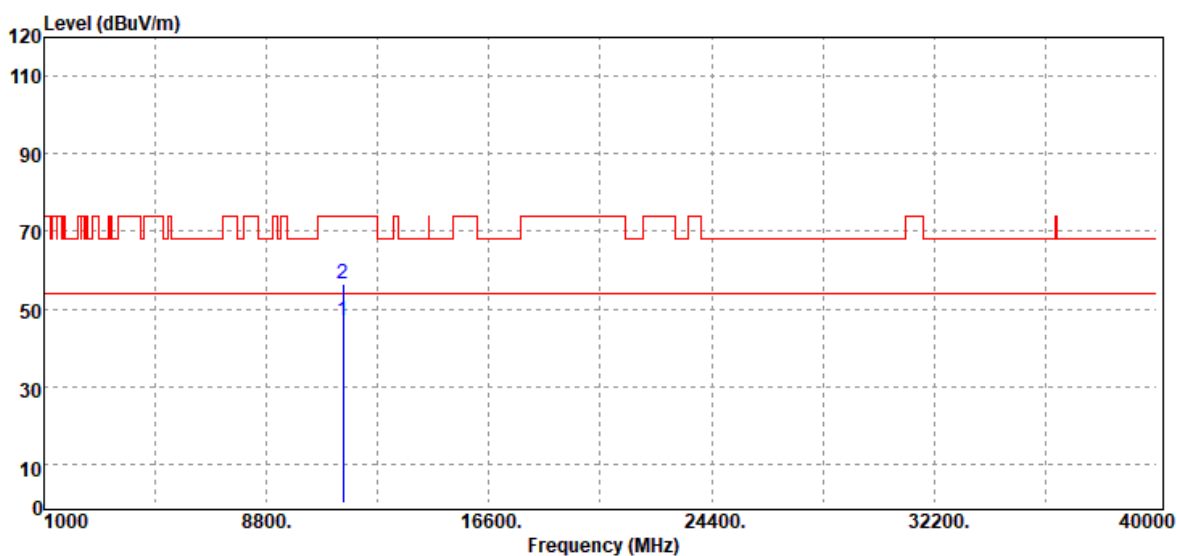
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.00	26.80	15.57	42.37	54.00	-11.63	Average
11490.00	35.17	15.57	50.74	74.00	-23.26	Peak
N/A						

#### Remark:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Test Mode	IEEE 802.11a / 5745 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

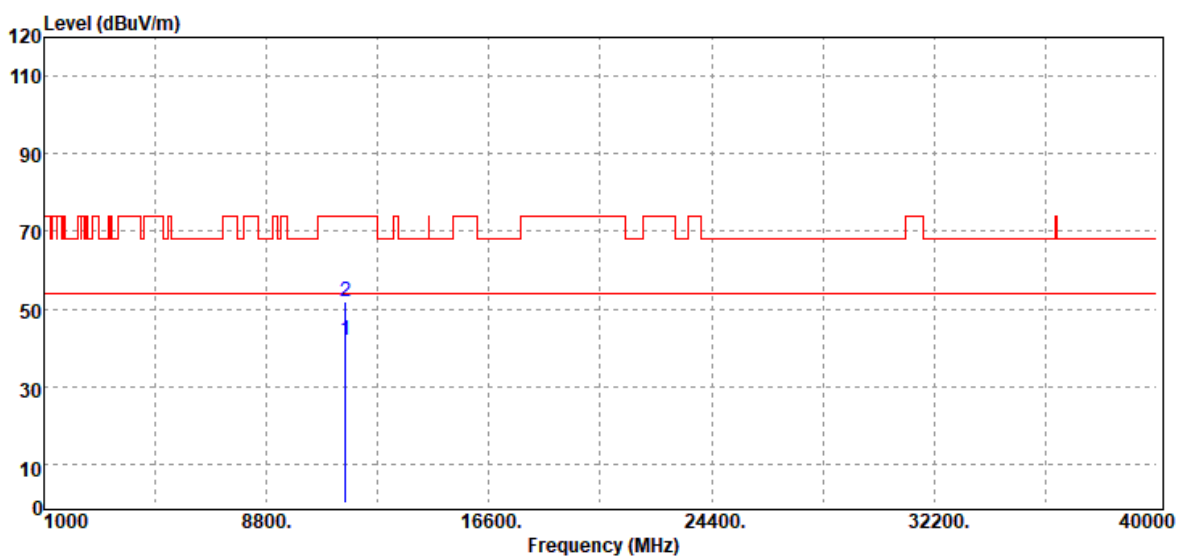


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.00	31.45	15.57	47.02	54.00	-6.98	Average
11490.00	41.06	15.57	56.63	74.00	-17.37	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5785 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

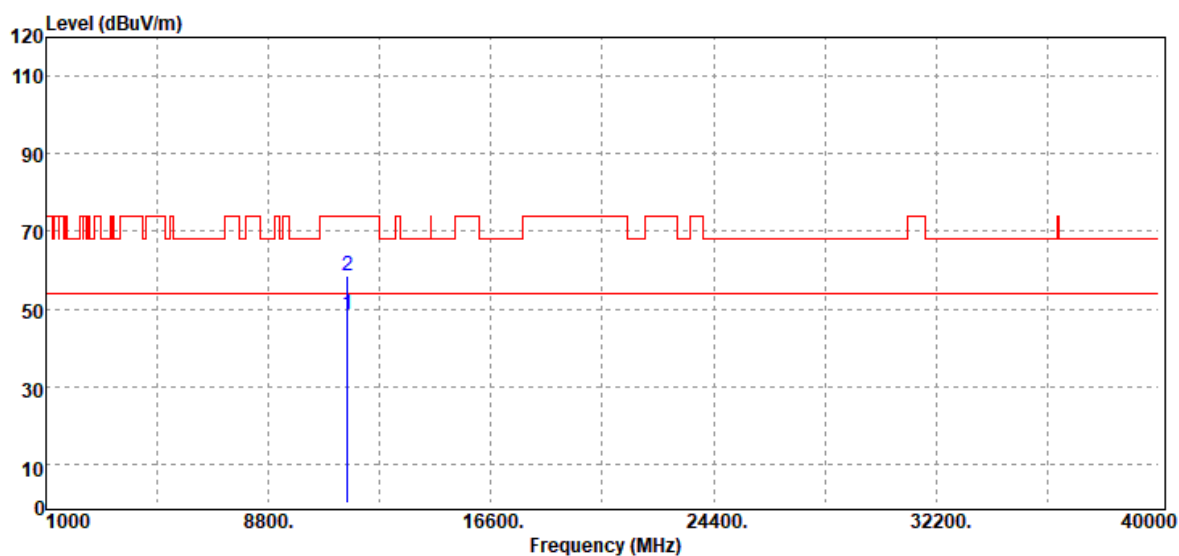


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.00	26.27	15.50	41.77	54.00	-12.23	Average
11570.00	36.30	15.50	51.80	74.00	-22.20	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5785 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

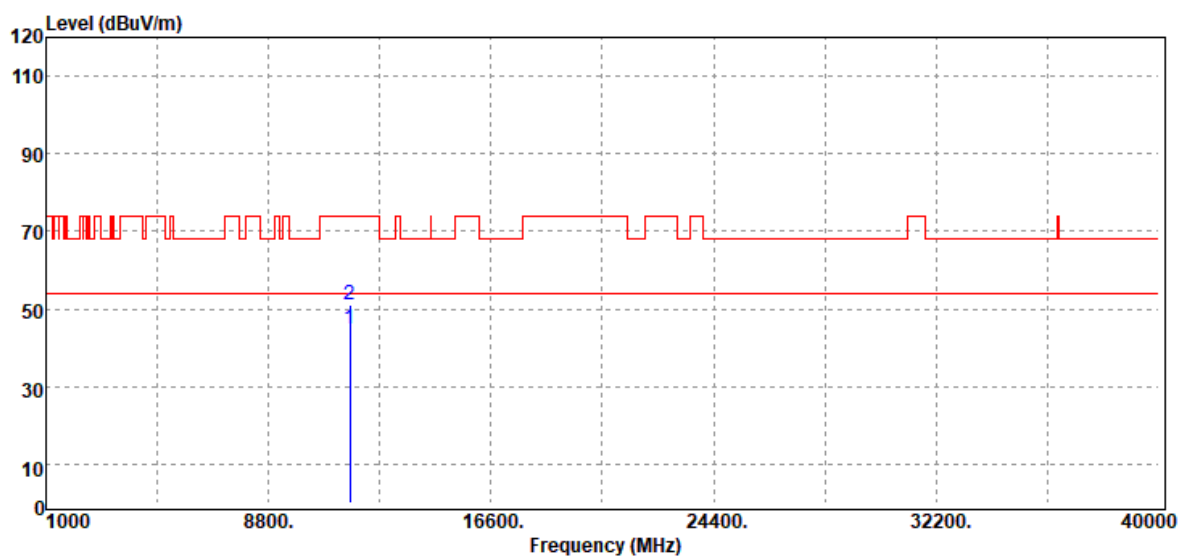


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.00	33.16	15.50	48.66	54.00	-5.34	Average
11570.00	43.15	15.50	58.65	74.00	-15.35	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5825 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

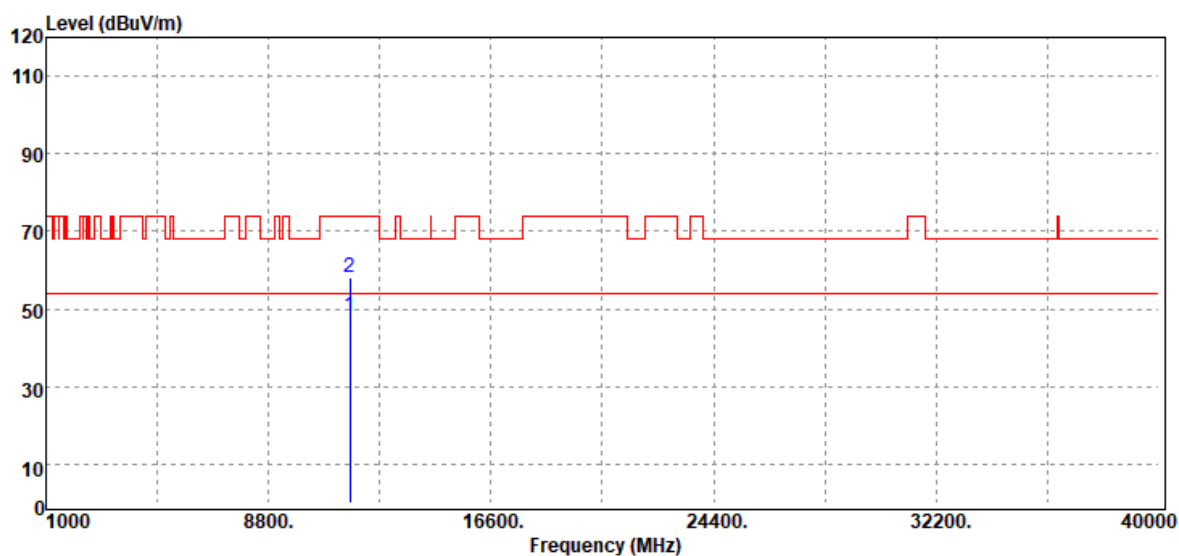


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.00	29.49	15.53	45.02	54.00	-8.98	Average
11650.00	35.49	15.53	51.02	74.00	-22.98	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11a / 5825 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

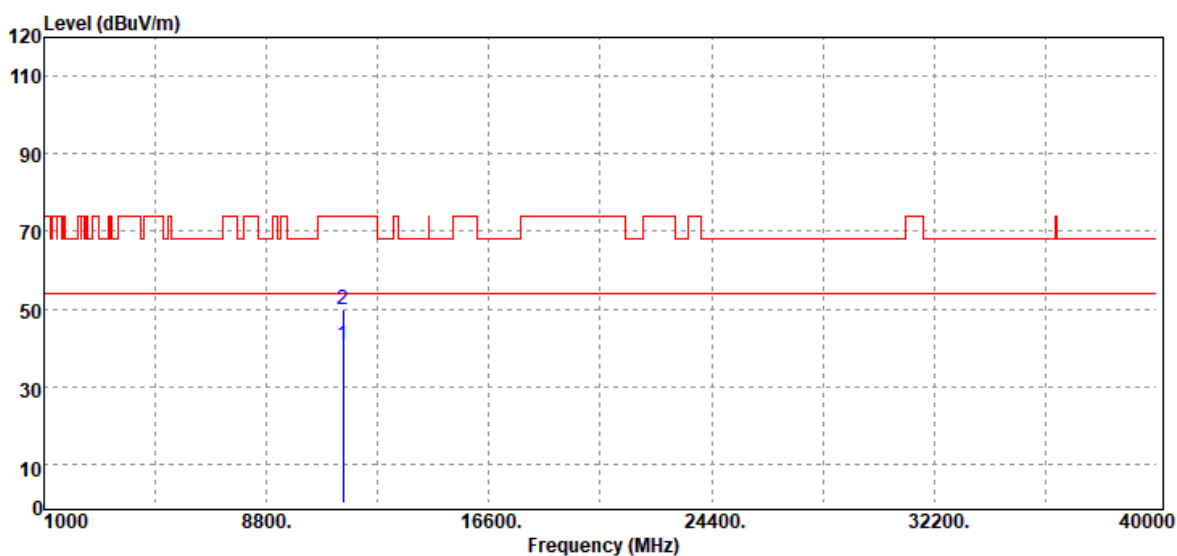


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.00	32.46	15.53	47.99	54.00	-6.01	Average
11650.00	42.43	15.53	57.96	74.00	-16.04	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5745 MHz	Temp/Hum	21(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

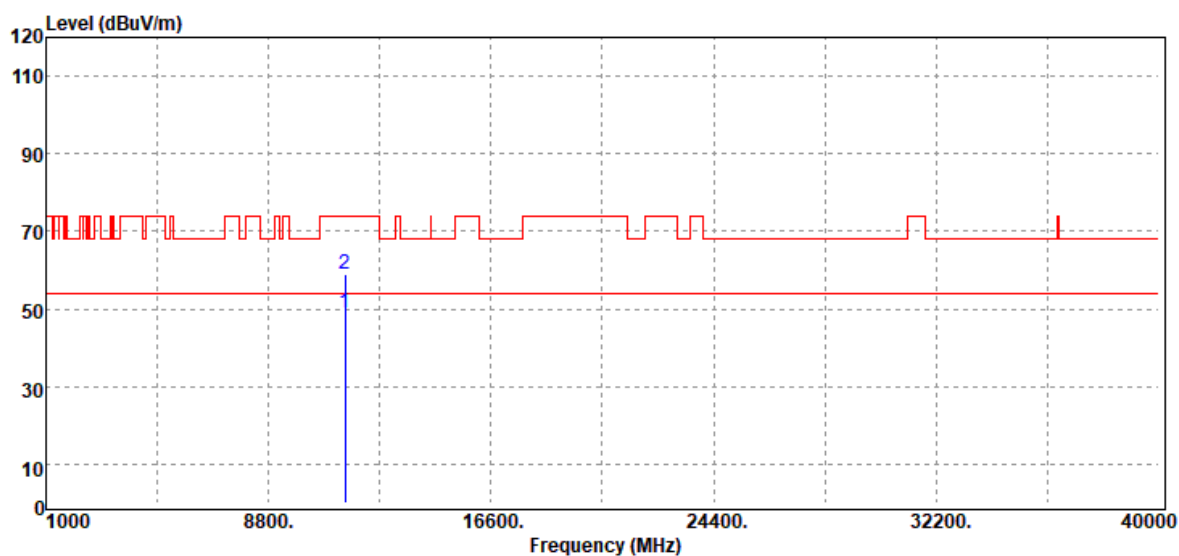


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.00	25.20	15.57	40.77	54.00	-13.23	Average
11490.00	34.20	15.57	49.77	74.00	-24.23	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz / 5745 MHz	Temp/Hum	21(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

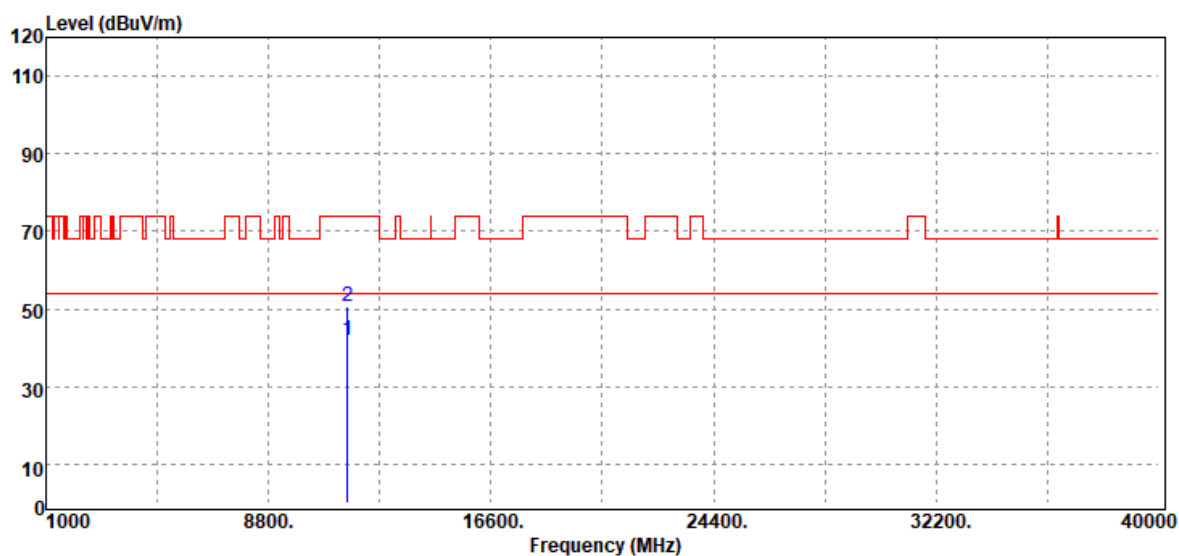


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.00	33.57	15.57	49.14	54.00	-4.86	Average
11490.00	43.57	15.57	59.14	74.00	-14.86	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz/ 5785 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		



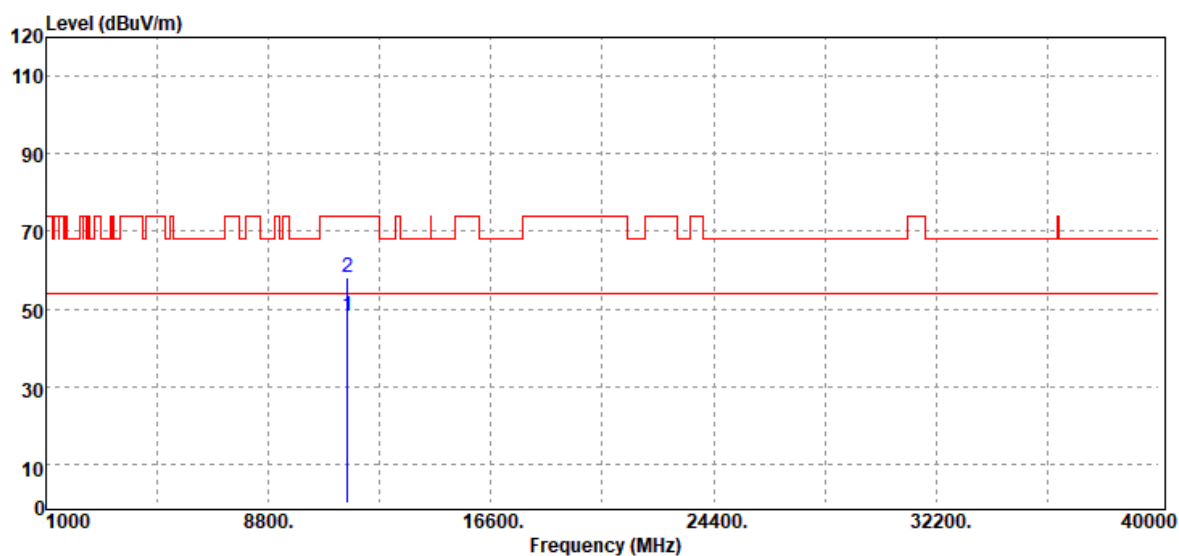
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.00	26.59	15.50	42.09	54.00	-11.91	Average
11570.00	35.16	15.50	50.66	74.00	-23.34	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.



Test Mode	IEEE 802.11n 20 MHz/ 5785 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

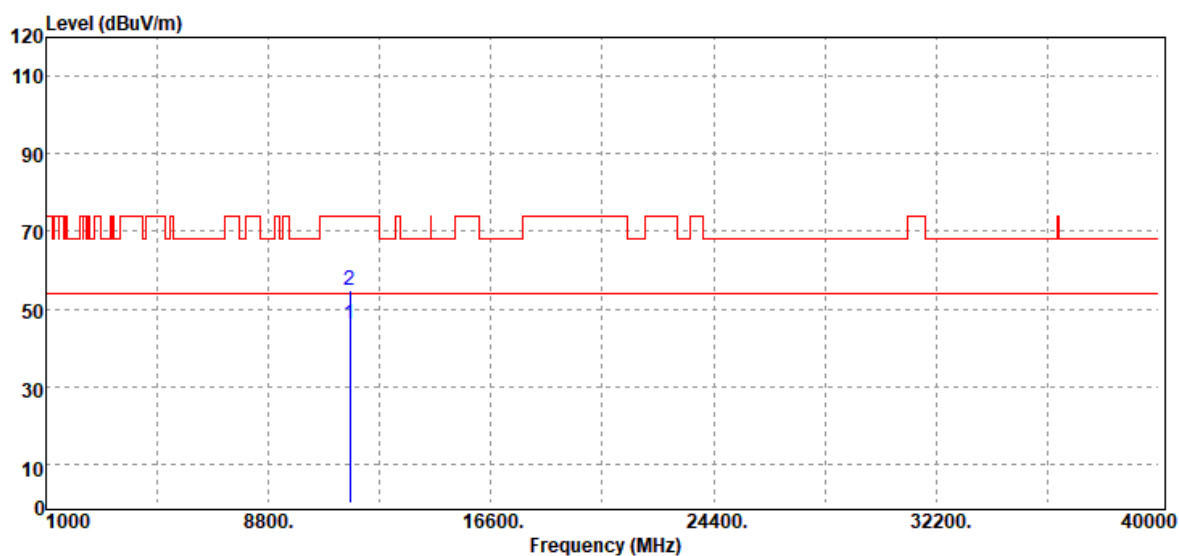


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.00	32.71	15.50	48.21	54.00	-5.79	Average
11570.00	42.43	15.50	57.93	74.00	-16.07	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz/ 5825 MHz	Temp/Hum	21(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

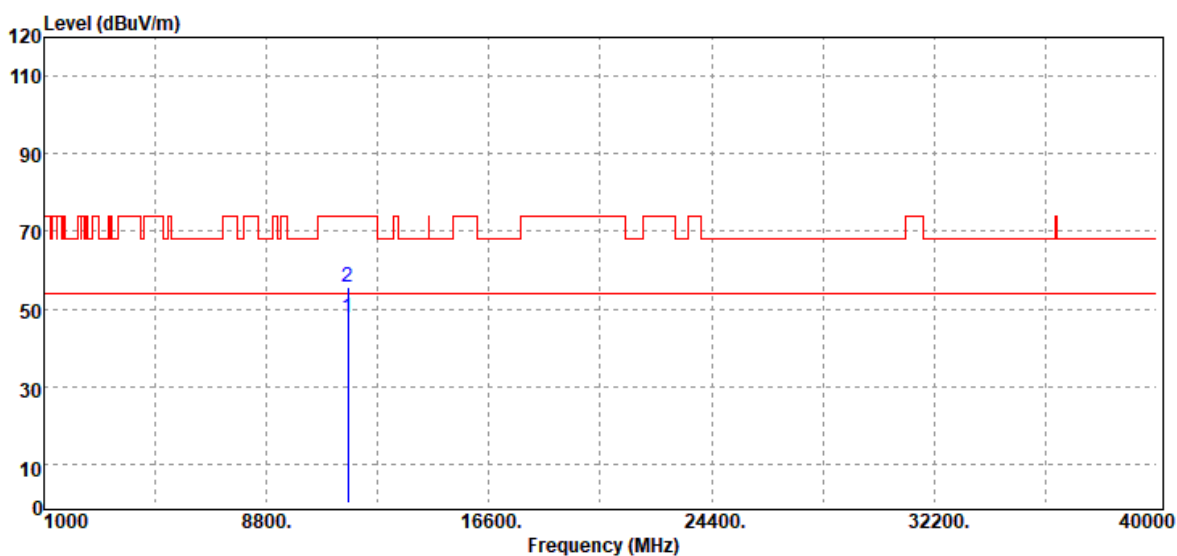


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.00	30.57	15.53	46.10	54.00	-7.90	Average
11650.00	39.23	15.53	54.76	74.00	-19.24	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 20 MHz/ 5825 MHz	Temp/Hum	21(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

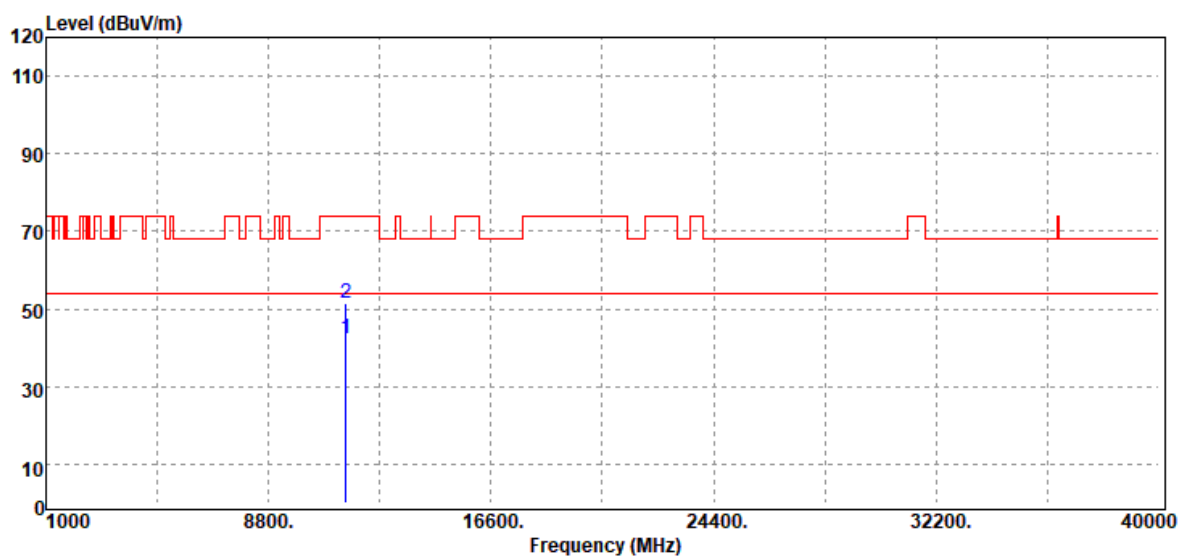


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.00	32.07	15.53	47.60	54.00	-6.40	Average
11650.00	40.16	15.53	55.69	74.00	-18.31	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz/ 5755 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

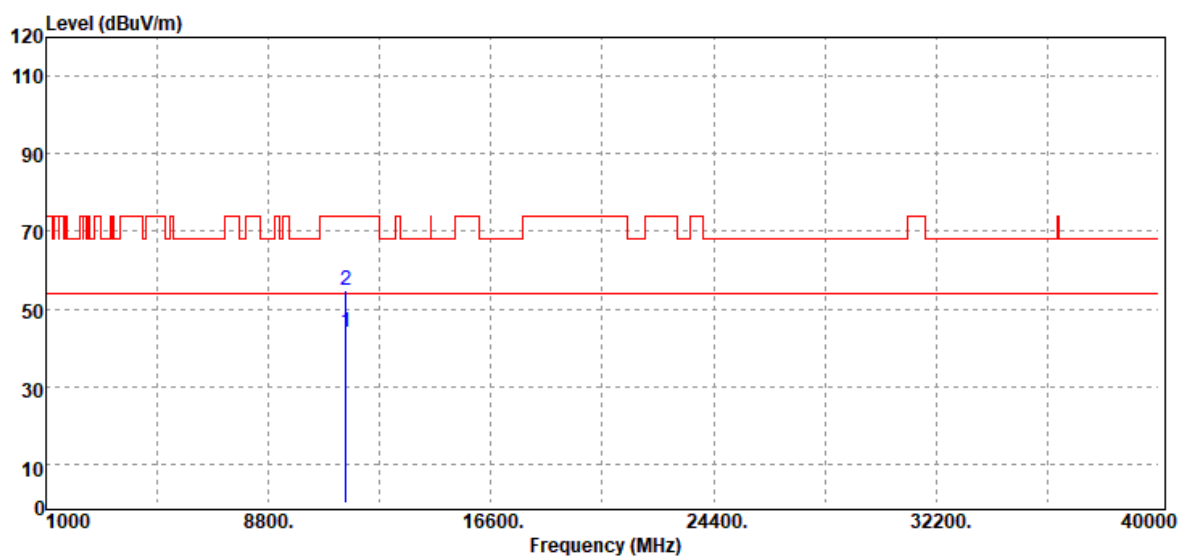


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11510.00	26.99	15.35	42.34	54.00	-11.66	Average
11510.00	36.11	15.35	51.46	74.00	-22.54	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz/ 5755 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

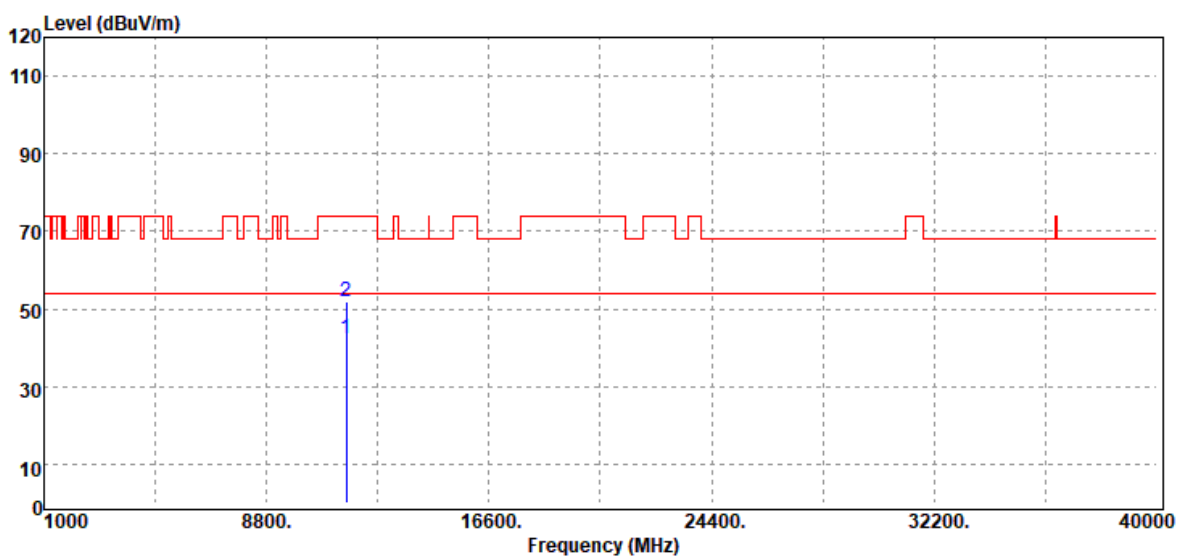


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11510.00	28.49	15.35	43.84	54.00	-10.16	Average
11510.00	39.31	15.35	54.66	74.00	-19.34	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz/ 5795 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak and Average		

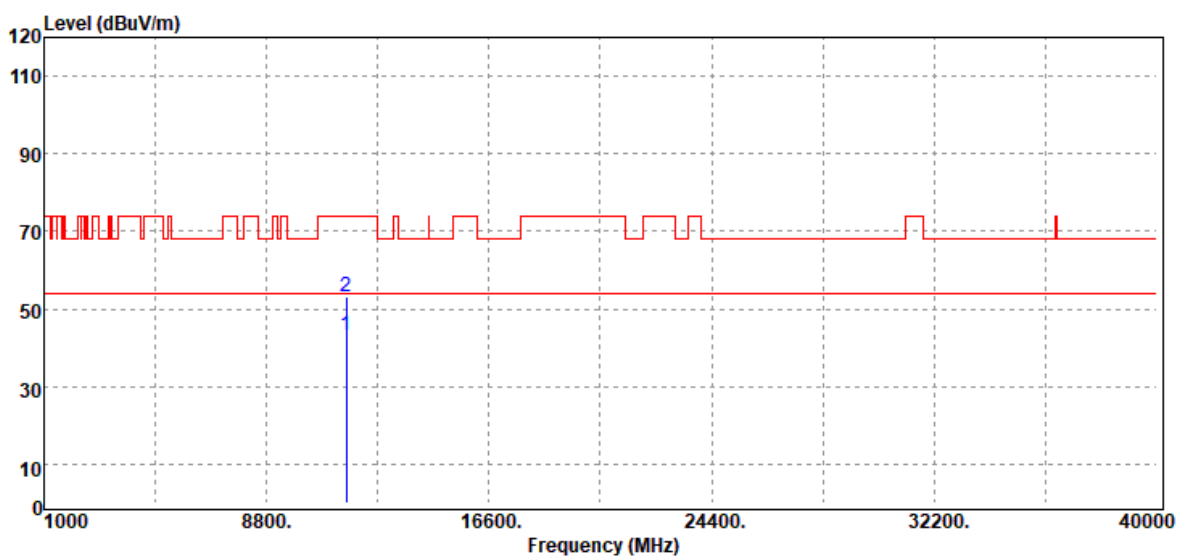


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11590.00	26.88	15.62	42.50	54.00	-11.50	Average
11590.00	36.19	15.62	51.81	74.00	-22.19	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11n 40 MHz/ 5795 MHz	Temp/Hum	22(°C)/ 50%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		

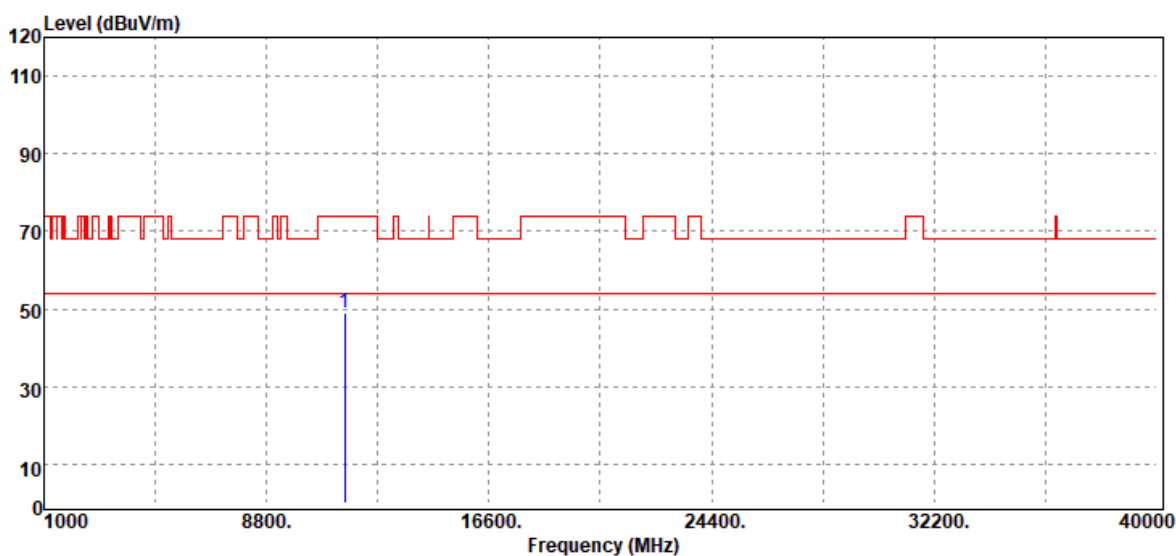


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11590.00	27.47	15.62	43.09	54.00	-10.91	Average
11590.00	37.46	15.62	53.08	74.00	-20.92	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode	IEEE 802.11ac VHT80/ 5775 MHz	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Vertical	Test Engineer	Kailin Lee
Detector	Peak		



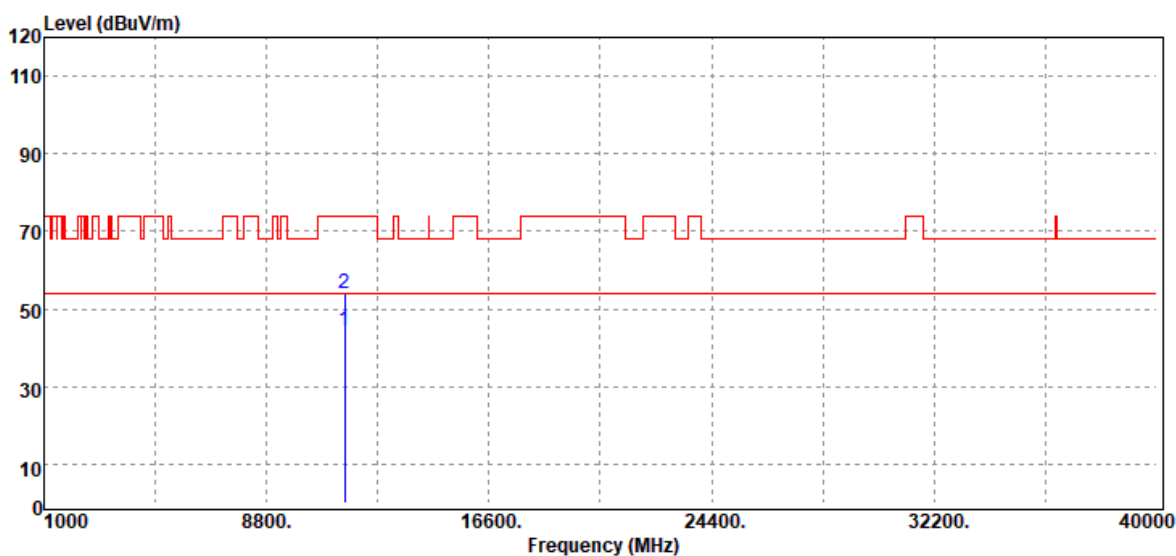
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11550.00	33.81	15.39	49.20	74.00	-24.80	Peak
N/A						

**Remark:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



Test Mode	IEEE 802.11ac VHT80/ 5775 MHz	Temp/Hum	21(°C)/ 51%RH
Test Item	Harmonic	Test Date	May 29, 2019
Polarize	Horizontal	Test Engineer	Kailin Lee
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11550.00	28.97	15.39	44.36	54.00	-9.64	Average
11550.00	38.76	15.39	54.15	74.00	-19.85	Peak
N/A						

**Remark:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

## 4.6 FREQUENCY STABILITY

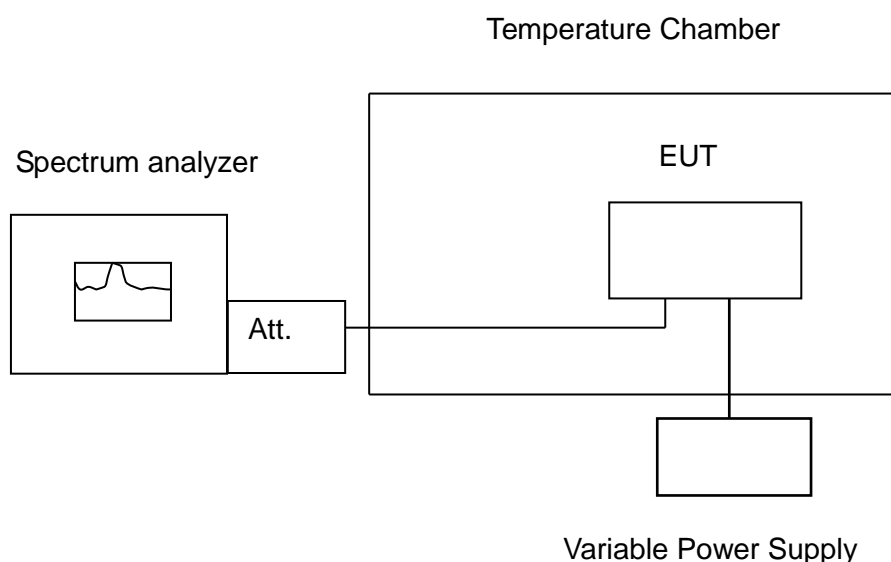
### 4.6.1 Test Limit

According to §15.407(g) manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the operational description.

### 4.6.2 Test Procedure

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to 0°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

### 4.6.3 Test Setup



#### 4.6.4 Test Result

Temp. (°C)	Voltage (V)	Measured Frequency	5180		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:		0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	
35	Normal	5179.97572	5179.97432	5179.97442	5179.97416	-4.6873	-4.9575	-4.9382	-4.9884	Pass
30	Normal	5179.97546	5179.97546	5179.97546	5179.97486	-4.7375	-4.7375	-4.7375	-4.8533	Pass
25	Normal	5179.99259	5179.99273	5179.99259	5179.99259	-1.4305	-1.4035	-1.4305	-1.4305	Pass
10	Normal	5179.99666	5179.99581	5179.99673	5179.99586	-0.6448	-0.8089	-0.6313	-0.7992	Pass
0	Normal	5180.00432	5180.00512	5180.00512	5180.00572	0.8340	0.9884	0.9884	1.1042	Pass
Temp. (°C)	Voltage (V)	Measured Frequency	5180		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:		0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	
Normal	108	5179.99339	5179.99213	5179.99246	5179.99278	-1.2761	-1.5193	-1.4556	-1.3938	Pass
Normal	120	5179.99259	5179.99273	5179.99235	5179.99235	-1.4305	-1.4035	-1.4768	-1.4768	Pass
Normal	132	5179.99329	5179.99235	5179.99254	5179.99345	-1.2954	-1.4768	-1.4402	-1.2645	Pass

Note: ppm = (measurement frequency-center frequency)/center frequency\*1000000

Temp. (°C)	Voltage (V)	Measured Frequency	5260		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:		0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	Result
35	Normal	5260.06291	5260.04656	5260.04832	5260.05622	11.9601	8.8517	9.1863	10.6882	
30	Normal	5260.06256	5260.04622	5260.04772	5260.05532	11.8937	8.7871	9.0722	10.5171	Pass
25	Normal	5260.04913	5260.04523	5260.03245	5260.02952	9.3403	8.5989	6.1692	5.6122	Pass
10	Normal	5260.01862	5260.03852	5260.02891	5260.03453	3.5399	7.3232	5.4962	6.5646	Pass
0	Normal	5260.00572	5260.00129	5260.00676	5260.00432	1.0875	0.2443	1.2852	0.8213	Pass
Temp. (°C)	Voltage (V)	Measured Frequency	5260		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:		0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	Result
Normal	108	5260.04833	5260.04555	5260.03272	5260.02855	9.1882	8.6597	6.2205	5.4278	
Normal	120	5260.04913	5260.04523	5260.03245	5260.02952	9.3403	8.5989	6.1692	5.6122	Pass
Normal	132	5260.04710	5260.04452	5260.03298	5260.02856	8.9544	8.4639	6.2700	5.4297	Pass

Note: ppm = (measurement frequency-center frequency)/center frequency\*1000000



Report No.: T190503D05-A-RP4

Page: 226 / 239

Rev.: 02

Temp. (°C)	Voltage (V)	Measured Frequency	5500		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:		0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	
35	Normal	5500.10075	5500.10133	5500.10147	5500.10230	18.3182	18.4236	18.4491	18.6000	Pass
30	Normal	5500.10485	5500.10458	5500.10857	5500.10485	19.0628	19.0137	19.7398	19.0639	Pass
25	Normal	5500.07698	5500.07134	5500.07698	5500.07965	13.9964	12.9709	13.9964	14.4820	Pass
10	Normal	5500.06352	5500.06352	5500.06789	5500.06352	11.5491	11.5491	12.3435	11.5491	Pass
0	Normal	5500.05130	5500.05179	5500.05791	5500.05385	9.3269	9.4167	10.5295	9.7913	Pass
Temp. (°C)	Voltage (V)	Measured Frequency	5500		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:		0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	
Normal	108	5500.08560	5500.07175	5500.07698	5500.08560	15.5636	13.0455	13.9964	15.5636	Pass
Normal	120	5500.07698	5500.07134	5500.08560	5500.07698	13.9964	12.9709	15.5636	13.9964	Pass
Normal	132	5500.07134	5500.08560	5500.07698	5500.07134	12.9709	15.5636	13.9964	12.9709	Pass

Note: ppm = (measurement frequency-center frequency)/center frequency\*1000000

Temp. (°C)	Voltage (V)	Measured Frequency	5745		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:		0 min	2 min	5 min	10 min	0 min	2 min	5 min	10 min	
35	Normal	5745.08455	5745.08455	5745.08543	5745.08651	14.7171	14.7171	14.8703	15.0583	Pass
30	Normal	5745.08434	5745.08491	5745.08575	5745.08491	14.6806	14.7798	14.9260	14.7798	Pass
25	Normal	5745.07023	5745.07319	5745.07154	5745.07945	12.2247	12.7391	12.4519	13.8296	Pass
10	Normal	5745.05153	5745.05123	5745.05979	5745.05059	8.9697	8.9175	10.4071	8.8057	Pass
0	Normal	5745.03487	5745.03312	5745.03312	5745.03312	6.0704	5.7654	5.7654	5.7654	Pass
Temp. (°C)	Voltage (V)	Measured Frequency	5745		(MHz)	Limit				Result
		Time (min)				20ppm				
Operating Frequency:			2 min	5 min	10 min	0 min	2 min	5 min	10 min	
Normal	108	5745.07852	5745.07852	5745.07234	5745.07023	13.6675	13.6675	12.5918	12.2247	Pass
Normal	120	5745.07023	5745.07319	5745.07023	5745.07945	12.2247	12.7391	12.2247	13.8296	Pass
Normal	132	5745.07852	5745.07234	5745.07234	5745.07852	13.6675	12.5918	12.5918	13.6675	Pass

Note: ppm = (measurement frequency-center frequency)/center frequency\*1000000

## 4.7 DYNAMIC FREQUENCY SELECTION

### 4.7.1 Test Limit

FCC according to §15.407 (h), KDB 905462 D02 "compliance measurement procedures for unlicensed-national information infrastructure devices operating in the 5250-5350 MHz and 5470-5725 MHz bands incorporating dynamic frequency selection". and KDB 905462 D03 " U-NII client devices without radar detection capability.

IC according RSS-247 section 6.3, and it harmonized with FCC Part 15 DFS rules.

The EIRP refer section 4.3 output power measurement in this report.

**Table 1: Applicability of DFS requirements prior to use of a channel**

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client(with radar detection)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

**Table 2: Applicability of DFS requirements during normal operation**

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth mods	Master Device or Client with Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

**Table 3: Interference Threshold values, Master or Client incorporating In-Service**

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP $\geq$ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm

**Note 1:** This is the level at the input of the receiver assuming a 0 dBi receive antenna.

**Note 2:** Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

**Note3:** EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

**Table 4: DFS Response requirement values**

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.

**Note 1:** Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

**Note 2:** The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

**Note 3:** During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

**Table 5 – Short Pulse Radar Test Waveforms**

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	Roundup $\left\{ \left( \frac{1}{360} \right) \cdot \left( \frac{19 \cdot 10^6}{\text{PRI}_{\mu\text{sec}}} \right) \right\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120
<b>Note 1:</b> Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.					

**Table 6 – Long Pulse Radar Test Signal**

Radar Type	Pulse Width (μsec)	Chirp Width (MHz)	PRI (μsec)	Number of Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Number of Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

**Table 7 – Frequency Hopping Radar Test Signal**

Radar Type	Pulse Width (μsec)	PRI (μsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30





Report No.: T190503D05-A-RP4

Page: 231 / 239

Rev.: 02

## 4.7.2 Test Procedure

### **Overview Of EUT With Respect To §15.407 (H) Requirements**

The firmware installed in the EUT during testing was:

**Firmware Rev: 1030.27.425.2018**

The EUT operates over the 5250-5350 MHz range as a Client Device that does not have radar detection capability.

The EUT uses one transmitter connected to two 50-ohm coaxial antenna ports via a diversity switch. Only one antenna port is connected to the test system since the EUT has one antenna only.

The Slave device associated with the EUT during these tests does not have radar detection capability.

WLAN traffic is generated by streaming the video file TestFile.mp2 “6 ½ Magic Hours” from the Master to the Slave in full motion video mode using the media player with the V2.61 Codec package.

The EUT utilizes the 802.11a architecture, with a nominal channel bandwidth of 20 MHz.

The rated output power of the Master unit is < 23dBm (EIRP). Therefore the required interference threshold level is -62 dBm. After correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is  $-62 + 5 = -57$ dBm.

The calibrated conducted DFS Detection Threshold level is set to -57 dBm. The tested level is lower than the required level hence it provides margin to the limit.

### **Manufacturer’s Statement Regarding Uniform Channel Spreading**

The end product implements an automatic channel selection feature at startup such that operation commences on channels distributed across the entire set of allowed 5GHz channels. This feature will ensure uniform spreading is achieved while avoiding non-allowed channels due to prior radar events.

## **TEST AND MEASUREMENT SYSTEM**

### **System Overview**

The measurement system is based on a conducted test method.

The short pulse and long pulse signal generating system utilizes the NTIA software. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

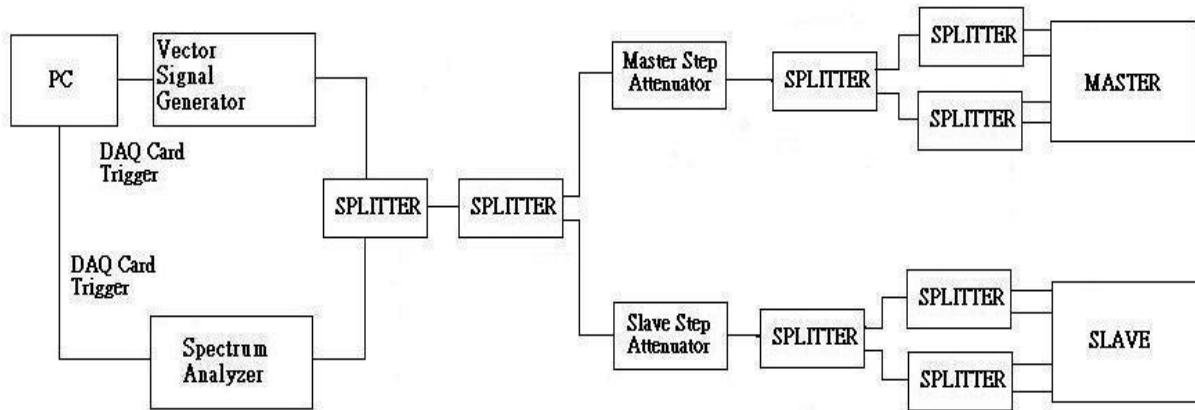
The short pulse types 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of FCC 06-96 APPENDIX. The frequency of the signal generator is incremented in 1 MHz steps from FL to FH for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer set to display 8001 bins on the horizontal axis. The time-domain resolution is 2 msec / bin with a 16 second sweep time, meeting the 10 second short pulse reporting criteria. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold. The time-domain resolution is 3 msec / bin with a 24 second sweep time, meeting the 22 second long pulse reporting criteria and allowing a minimum of 10 seconds after the end of the long pulse waveform.

Should multiple RF ports be utilized for the Master and/or Slave devices (for example, for diversity or MIMO implementations), 50 ohm termination would be removed from the splitter so that connection can be established between splitter and the Master and/or Slave devices.

### Conducted Method System Block Diagram



**System Calibration**

Connect the spectrum analyzer to the test system in place of the master device. Set the signal generator to CW mode. Adjust the amplitude of the signal generator to yield a measured level of  $-62$  dBm on the spectrum analyzer.

Without changing any of the instrument settings, reconnect the spectrum analyzer to the Common port of the Spectrum Analyzer Combiner/Divider and connect a 50 ohm load to the Master Device port of the test system.

Measure the amplitude and calculate the difference from  $-62$  dBm. Adjust the Reference Level Offset of the spectrum analyzer to this difference. Confirm that the signal is displayed at  $-62$  dBm. Readjust the RBW and VBW to 3 MHz, set the span to 10 MHz, and confirm that the signal is still displayed at  $-62$  dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of  $-62$  dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

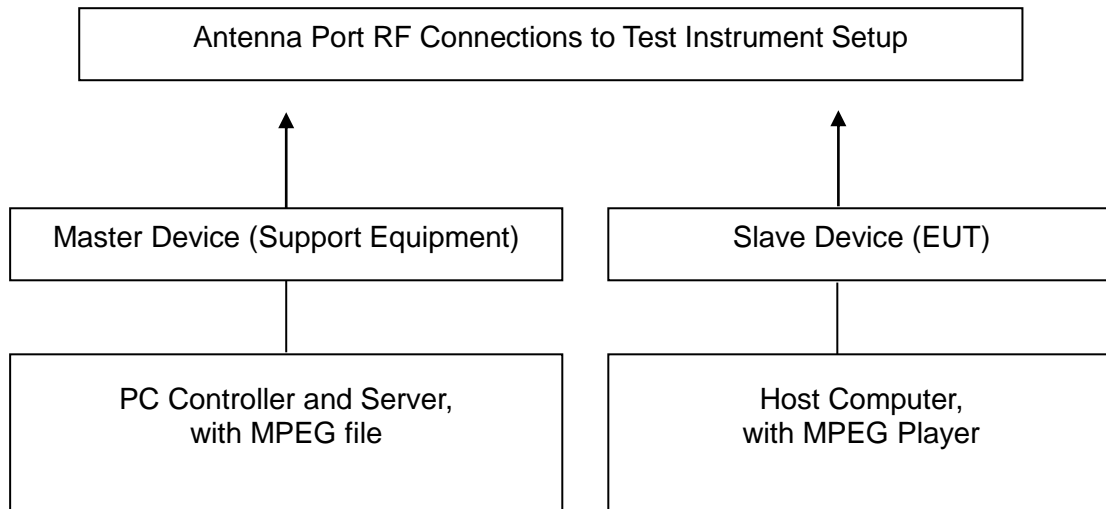
Set the signal generator to produce a radar waveform, trigger a burst manually and measure the level on the spectrum analyzer. Readjust the amplitude of the signal generator as required so that the peak level of the waveform is at a displayed level equal to the required or desired interference detection threshold. Separate signal generator amplitude settings are determined as required for each radar type.

**Adjustment Of Displayed Traffic Level**

Establish a link between the Master and Slave, adjusting the Link Step Attenuator as needed to provide a suitable received level at the Master and Slave devices. Stream the video test file to generate WLAN traffic. Confirm that the WLAN traffic level, as displayed on the spectrum analyzer, is at lower amplitude than the radar detection threshold. Confirm that the displayed traffic is from the Master Device. For Master Device testing confirm that the displayed traffic does not include Slave Device traffic. For Slave Device testing confirm that the displayed traffic does not include Master Device traffic.

If a different setting of the Master Step Attenuator is required to meet the above conditions, perform a new System Calibration for the new Master Step Attenuator setting.

### 4.7.3 Test Setup



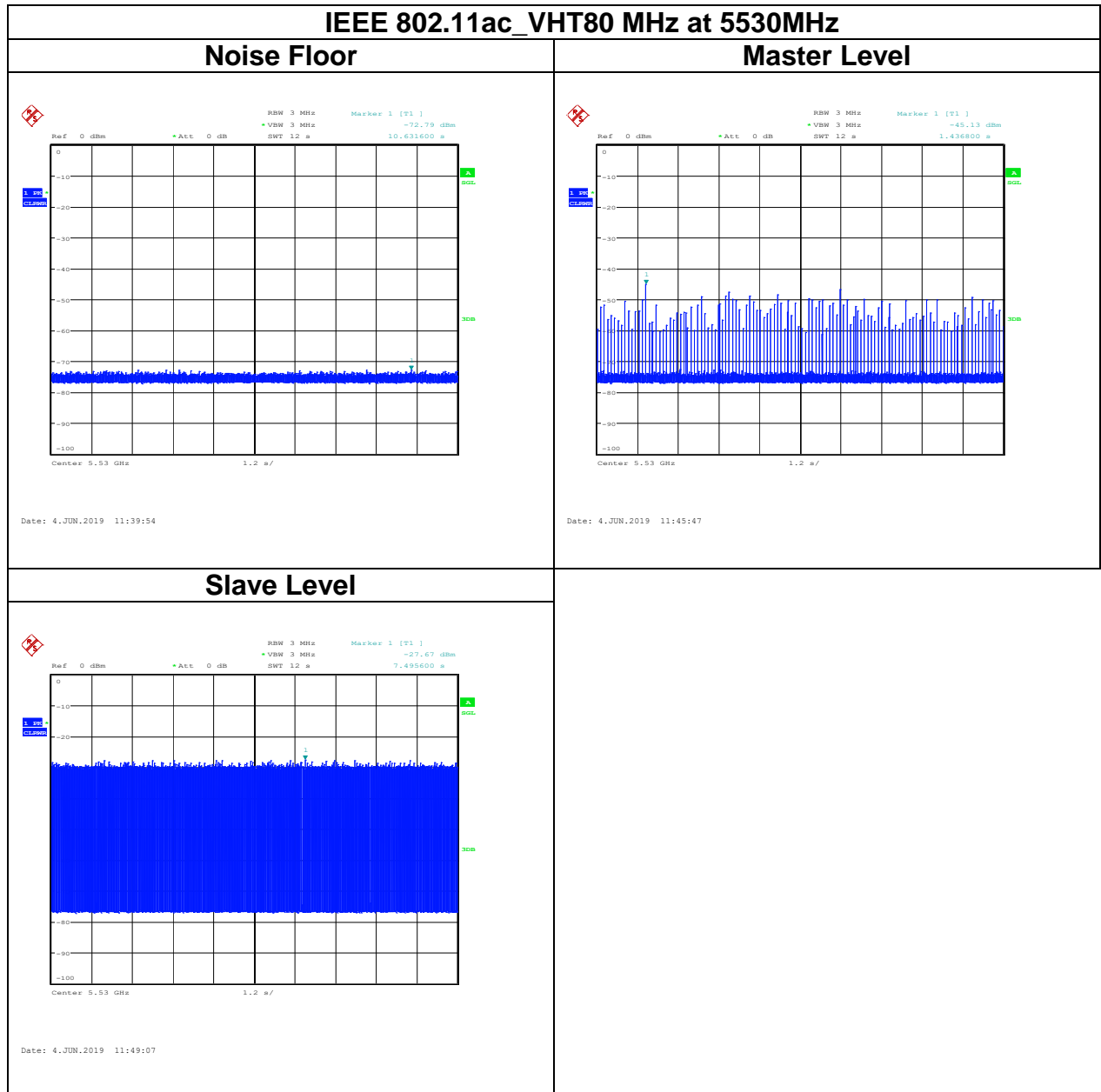


Report No.: T190503D05-A-RP4

Page: 236 / 239

Rev.: 02

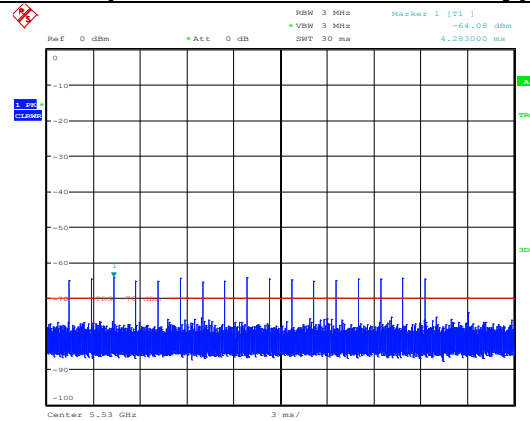
#### 4.7.4 Test Result



Report No.: T190503D05-A-RP4

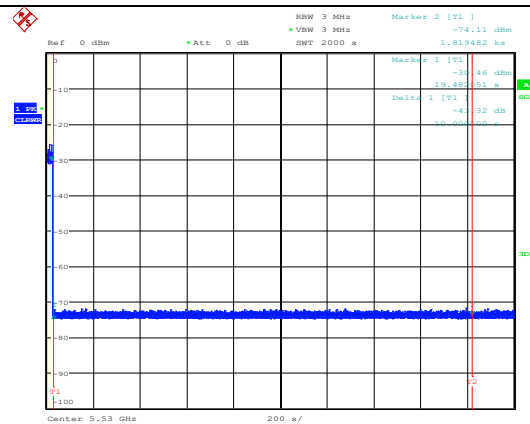
## Radar Waveforms

### Sample of short Pluse Radar Type 0



Date: 4.JUN.2019 10:10:20

**Non-Occupancy Period**  
**5530MHz**



Date: 29.AUG.2019 14:42:16



Report No.: T190503D05-A-RP4

Page: 238 / 239

Rev.: 02

## **TEST CHANNEL AND METHOD**

All tests were performed at a channel center frequency of 5310 MHz utilizing a conducted test method.

## **CHANNEL MOVE TIME AND CHANNEL CLOSING TRANSMISSION TIME**

### **GENERAL REPORTING NOTES**

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =

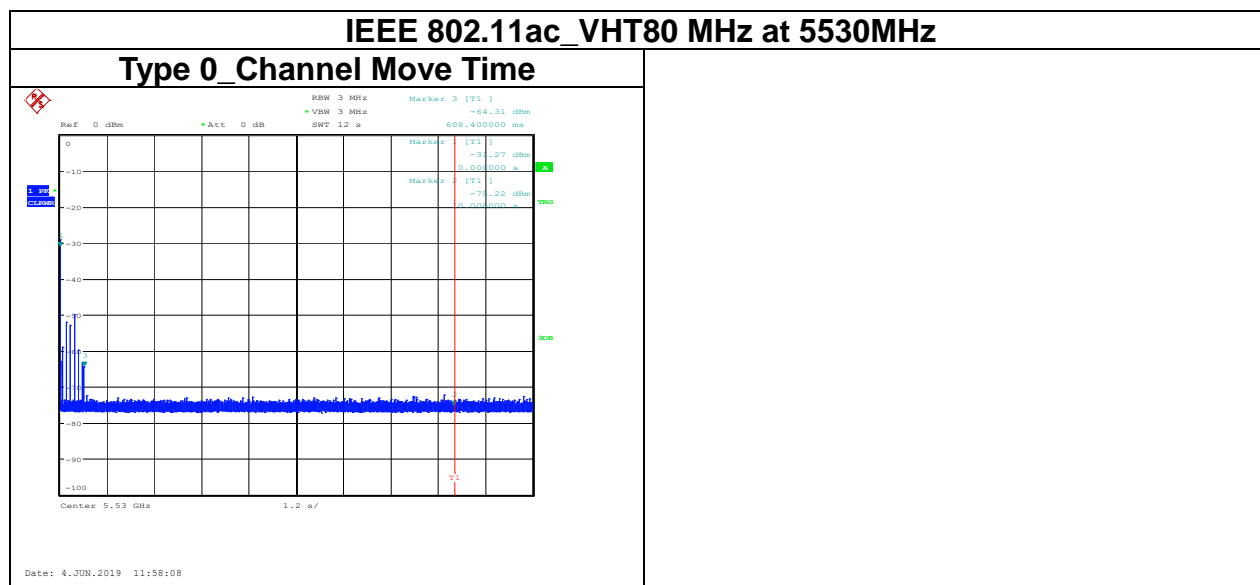
(Number of analyzer bins showing transmission) \* (dwell time per bin)

The observation period over which the aggregate time is calculated

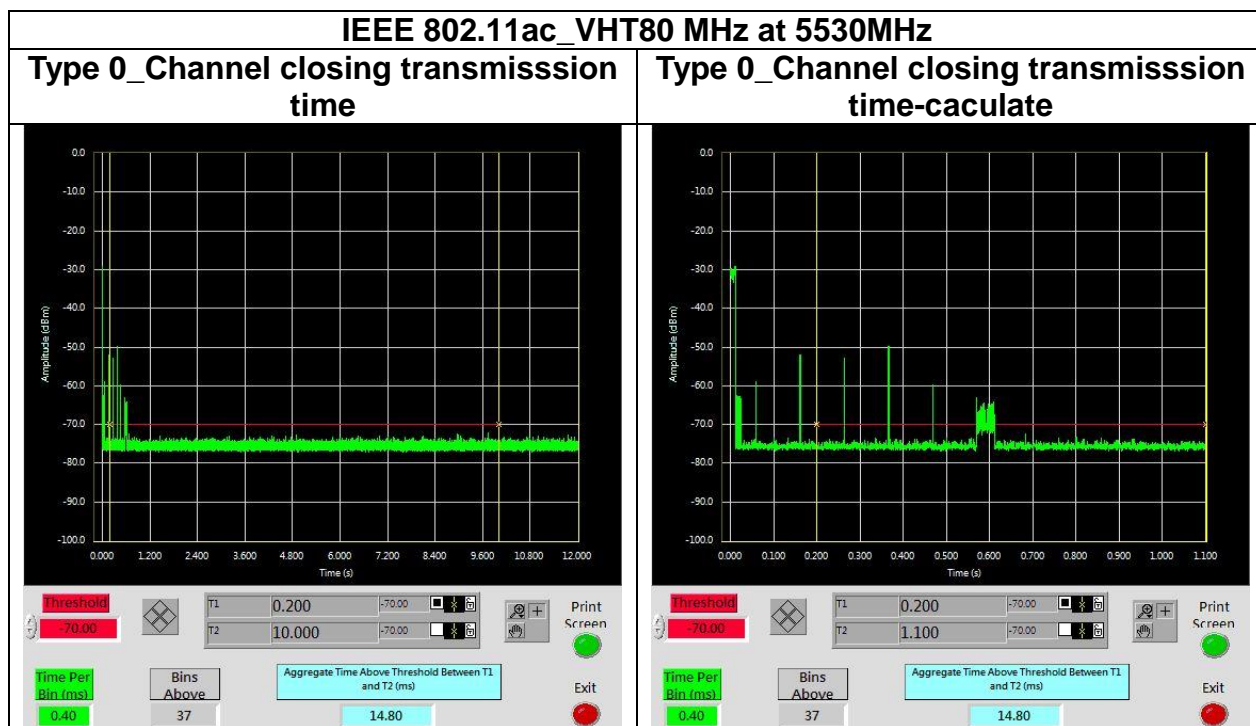
Begins at (Reference Marker + 200 msec) and

Ends no earlier than (Reference Marker + 10 sec).





Channel Move Time (s)	Limit (s)
0.6084	10



Aggregate Transmission Time (ms)	Limit (ms)	Margin (ms)
14.80	60	-45.2

--End Report--