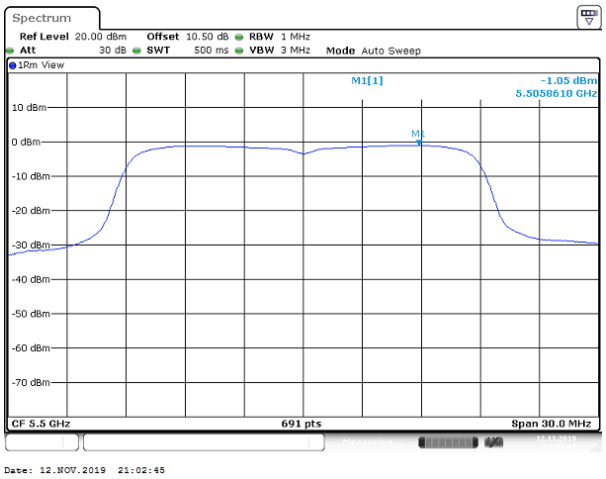
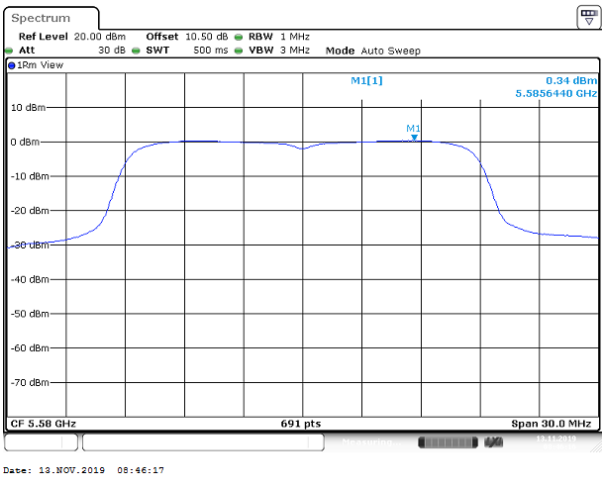
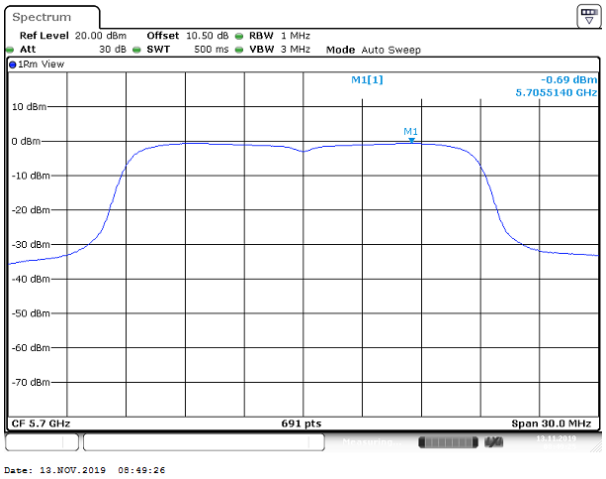
UNII-2c IEEE 802.11n HT20 mode- chain B	
Low CH	**Mid CH**
	
High CH	
	

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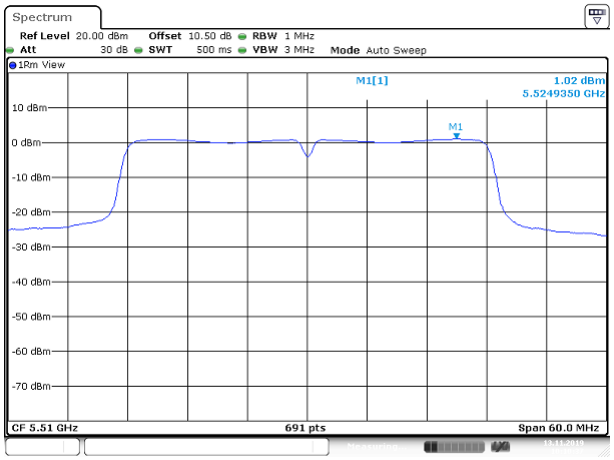
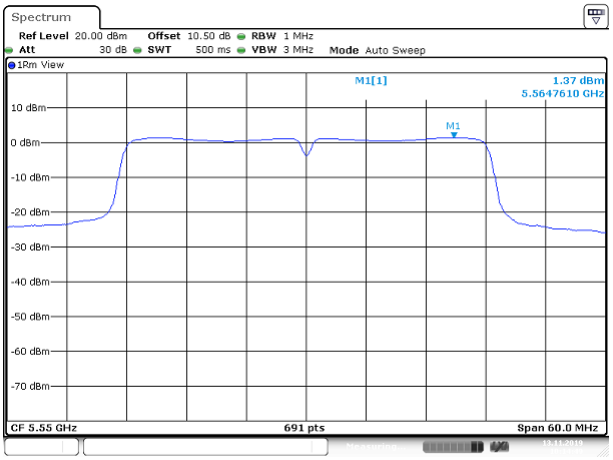
UNII-2c IEEE 802.11n HT40 mode- chain A

Low CH



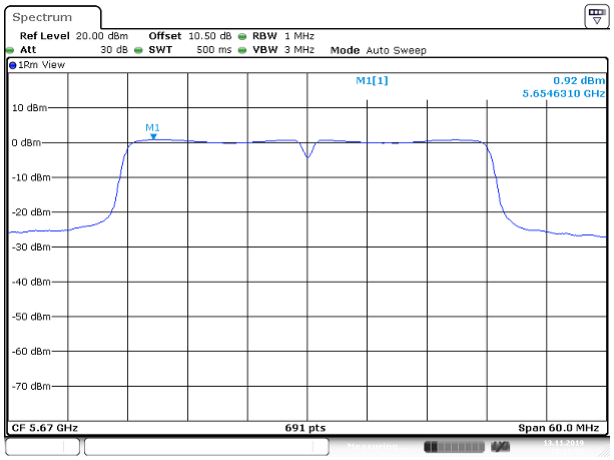
Date: 13.NOV.2019 10:10:38

Mid CH



Date: 13.NOV.2019 10:14:50

High CH



Date: 13.NOV.2019 10:19:56

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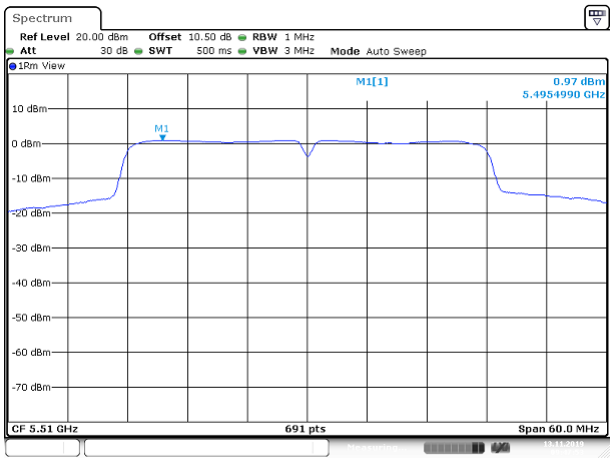
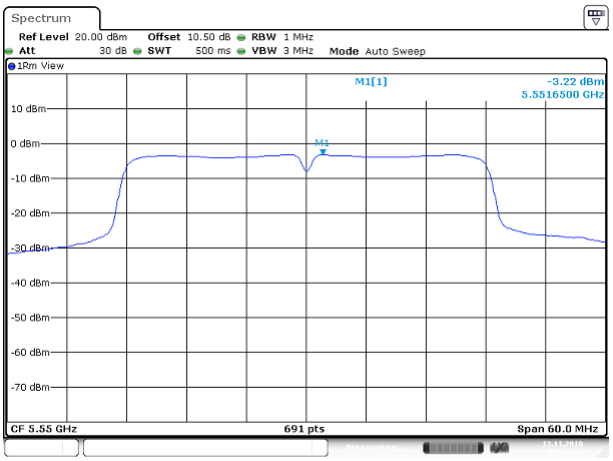
UNII-2c IEEE 802.11n HT40 mode- chain B

Low CH



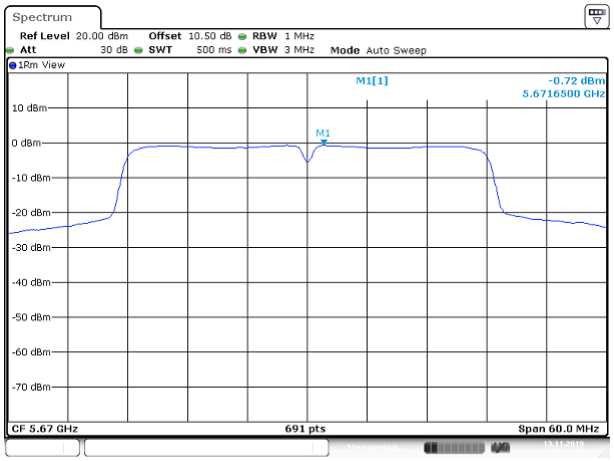
Date: 13.NOV.2019 09:47:54

Mid CH



Date: 13.NOV.2019 09:33:47

High CH



Date: 13.NOV.2019 09:37:53

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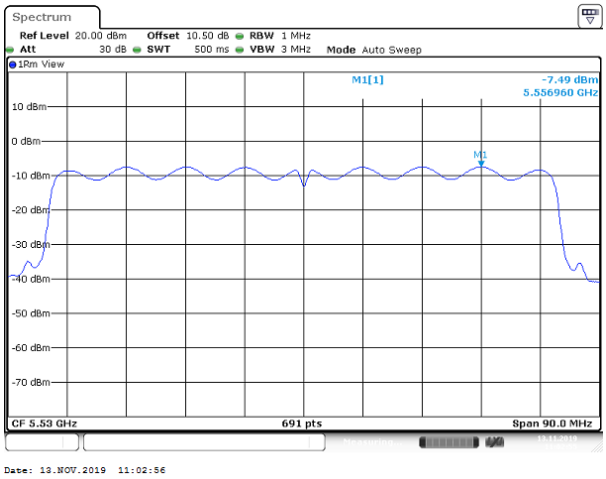
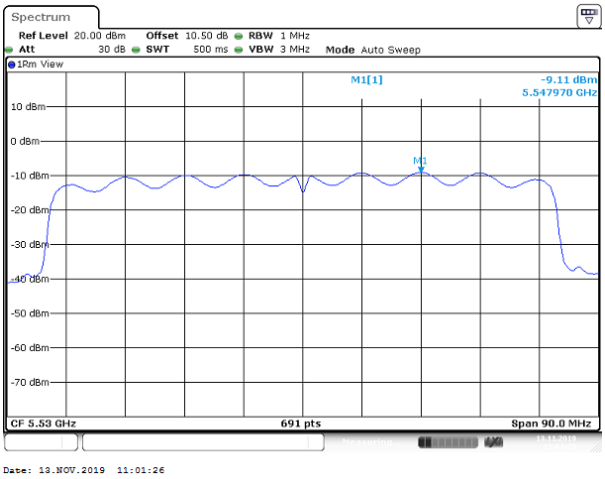
UNII-2c IEEE 802.11ac VHT80 mode	
Mid CH- chain A	**Mid CH- chain B**
	

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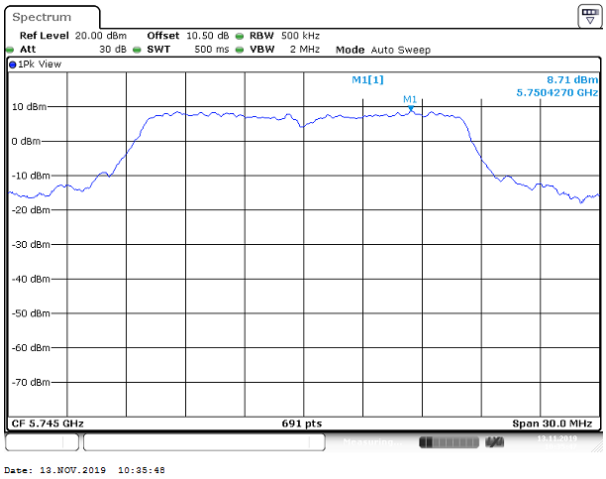
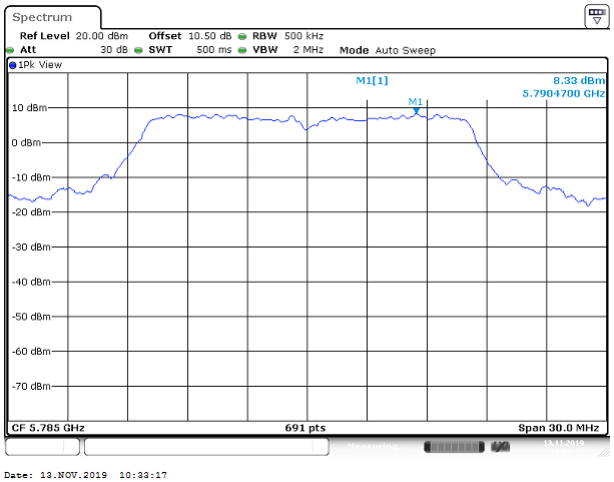
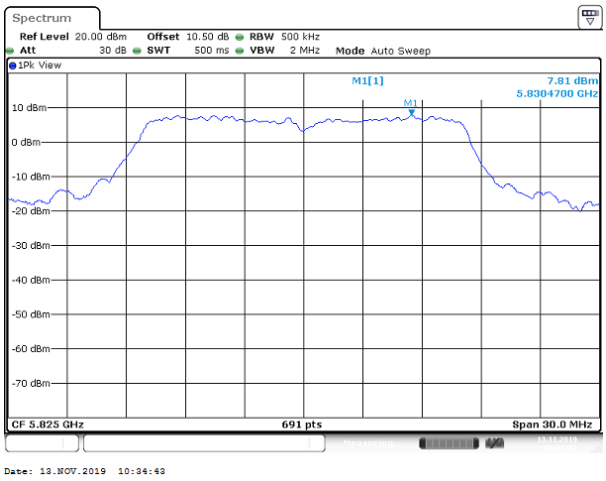
Test Data

UNII-3 IEEE 802.11a mode- chain A	
Low CH	**Mid CH**
	
High CH	
	

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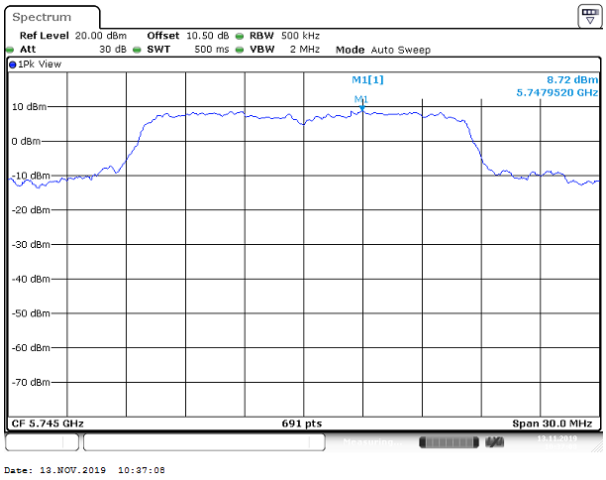
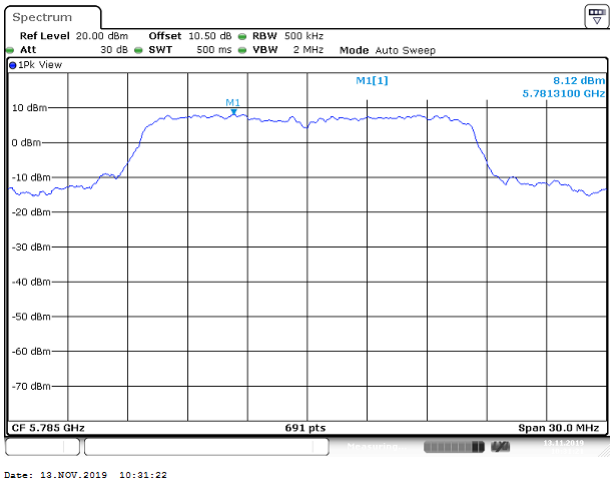
UNII-3 IEEE 802.11a mode- chain B

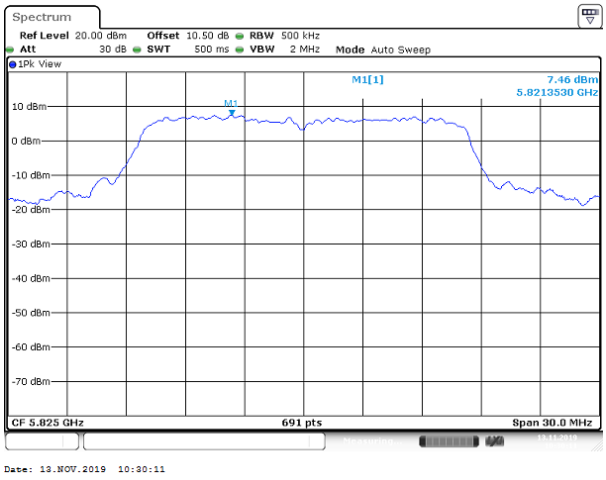
Low CH



Mid CH



High CH



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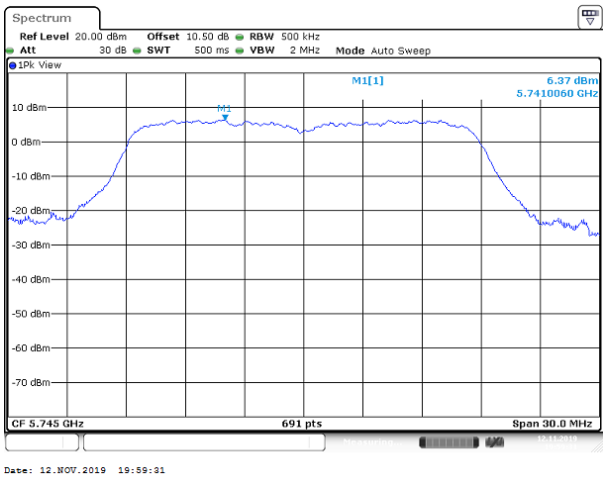
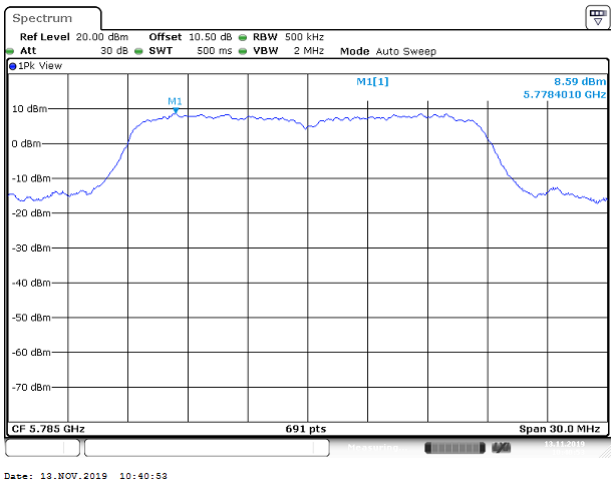
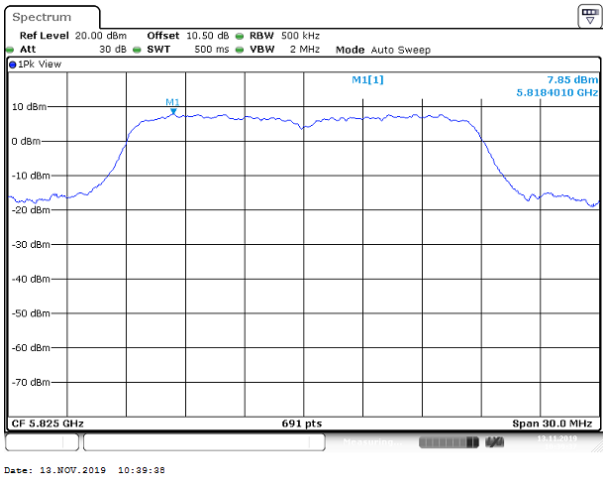
UNII-3 IEEE 802.11n HT20 mode- chain A	
Low CH	**Mid CH**
	
High CH	
	

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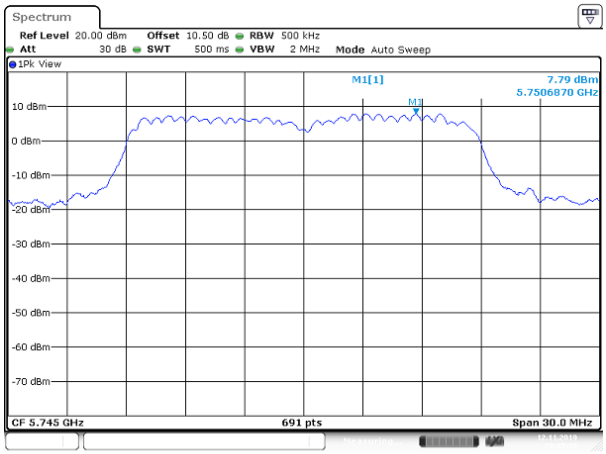
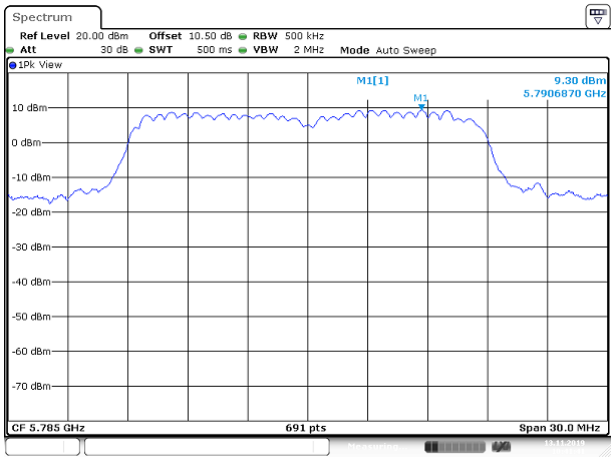
UNII-3 IEEE 802.11n HT20 mode- chain B

Low CH



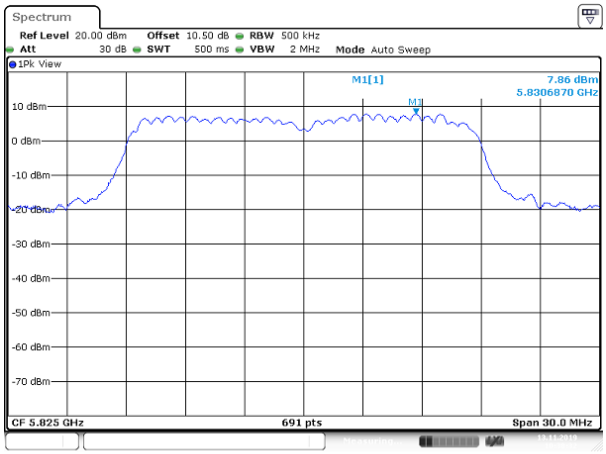
Date: 12.NOV.2019 20:15:35

Mid CH



Date: 13.NOV.2019 10:41:42

High CH



Date: 13.NOV.2019 10:38:33

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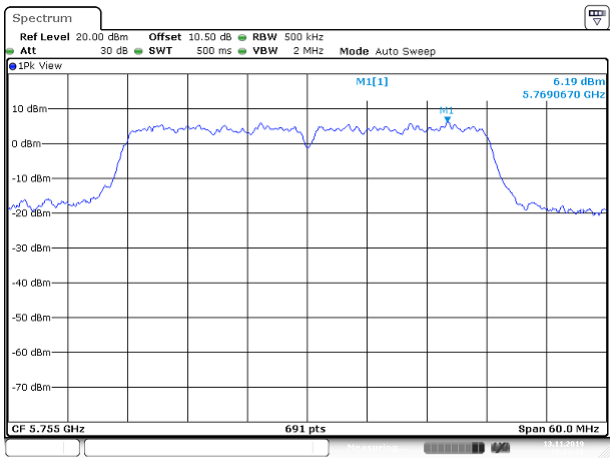
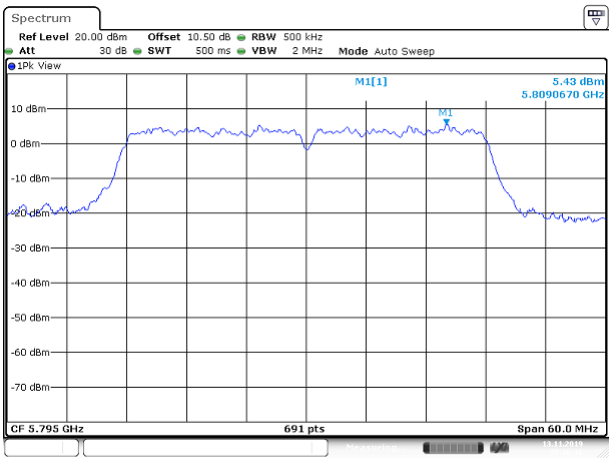
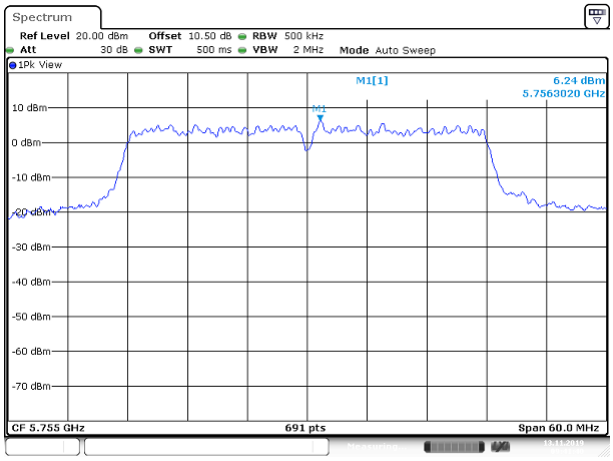
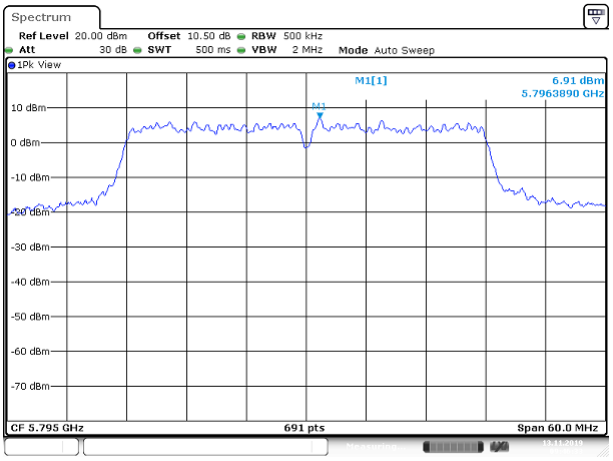
UNII-3 IEEE 802.11n HT40 mode- chain A

Low CH	High CH
	

UNII-3 IEEE 802.11n HT40 mode- chain B

Low CH	High CH
	

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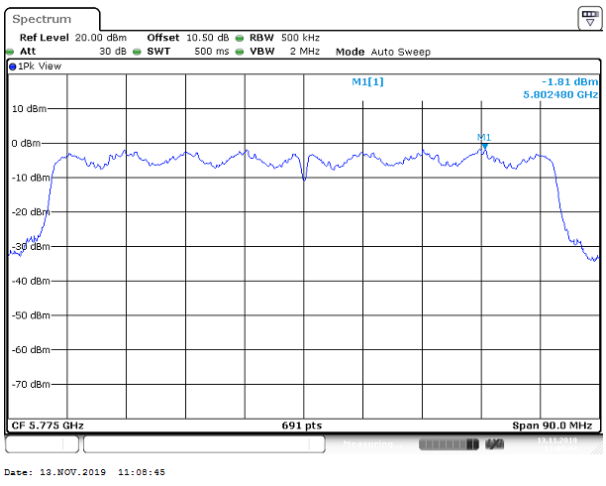
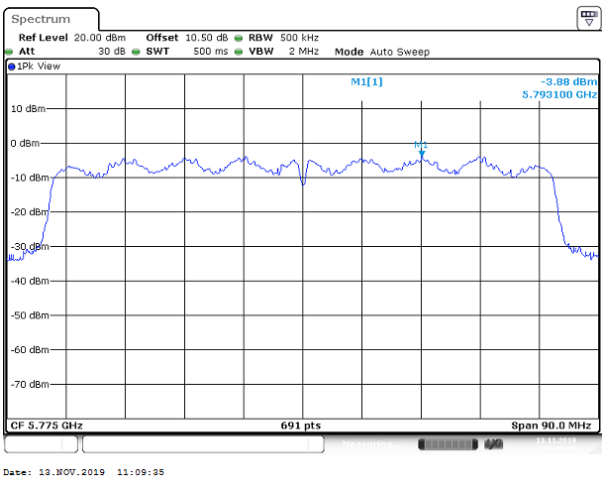
UNII-3 IEEE 802.11ac VHT80 mode	
Mid CH- chain A	**Mid CH- chain B**
	

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4.5 RADIATION BANDEDGE AND SPURIOUS EMISSION

4.5.1 Test Limit

According to §15.407, §15.209 and §15.205,

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.

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4.5.2 Test Procedure

Test method Refer as KDB 789033 D02 v02r01, Section G.3, G.4, G.5, and G.6,.

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 ≥ 3*RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.

(2) Above 1G：

(2.1) For Peak measurement：RBW = 1MHz, VBW ≥ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.

(2.2) For Average measurement：RBW = 1MHz, VBW

˙If Duty Cycle ≥ 98%, VBW=10Hz.

˙If Duty Cycle < 98%, VBW=1/T.

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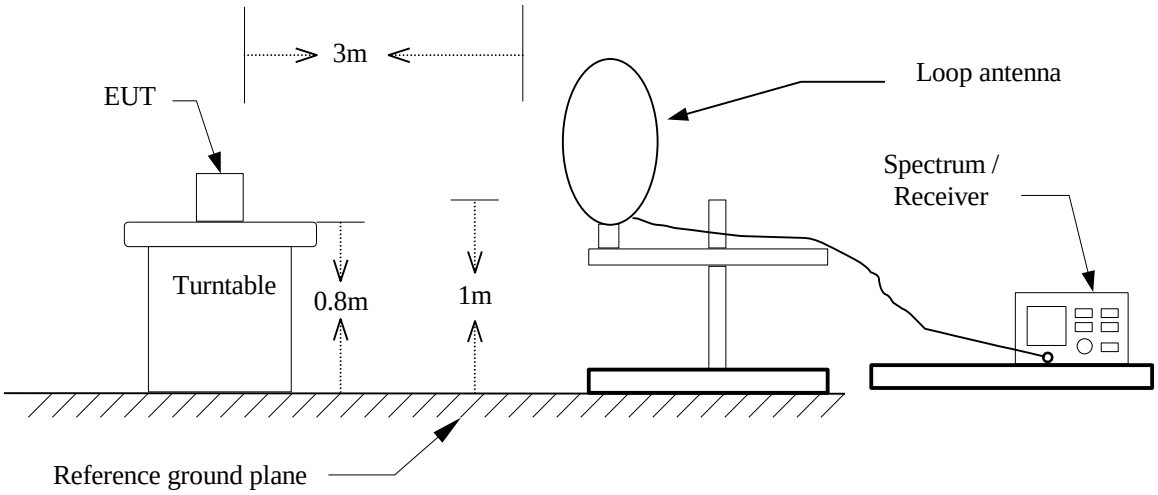
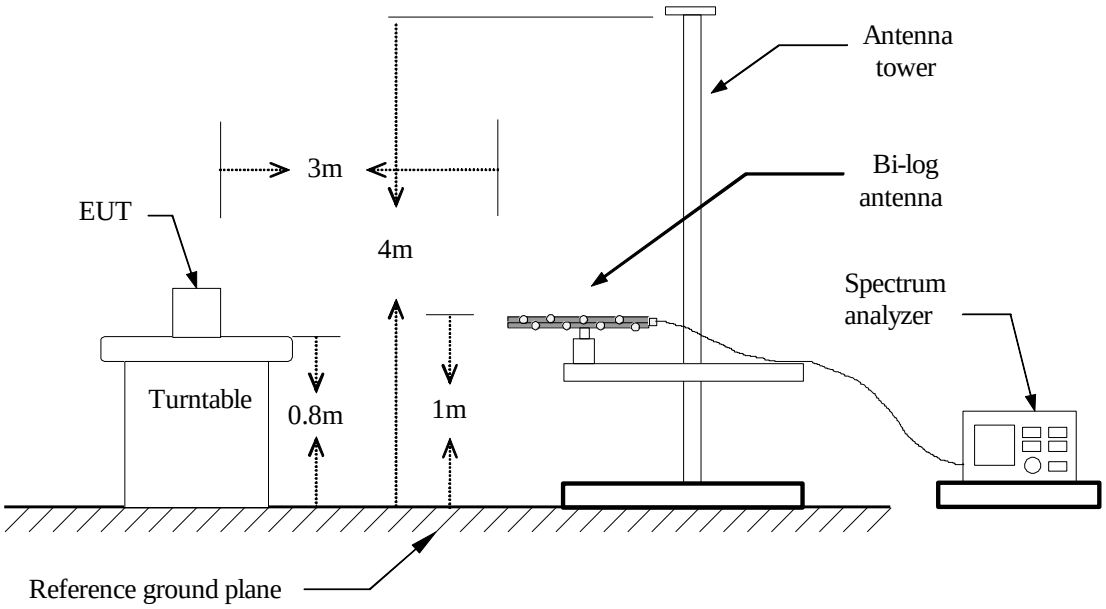
4.5.3 Test Setup

9kHz ~ 30MHz



30MHz ~ 1GHz



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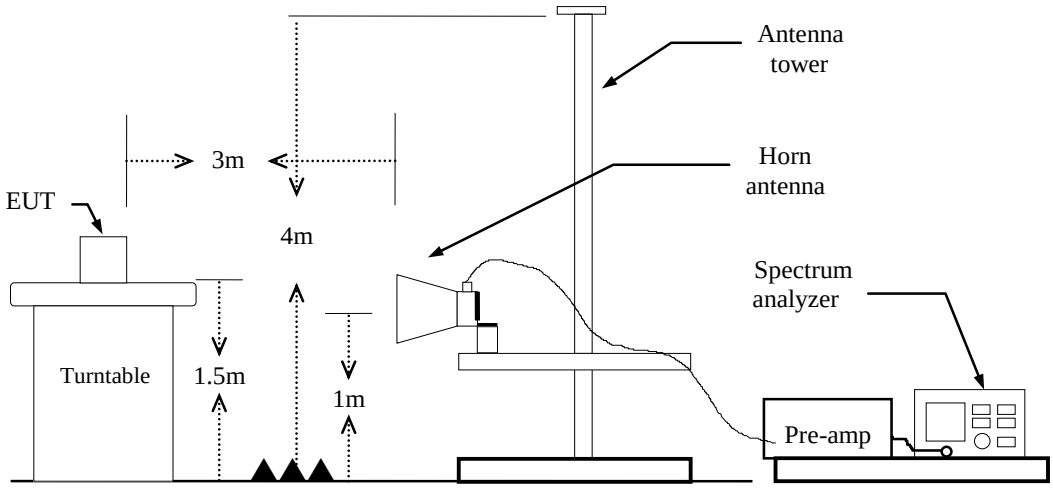
Above 1 GHz



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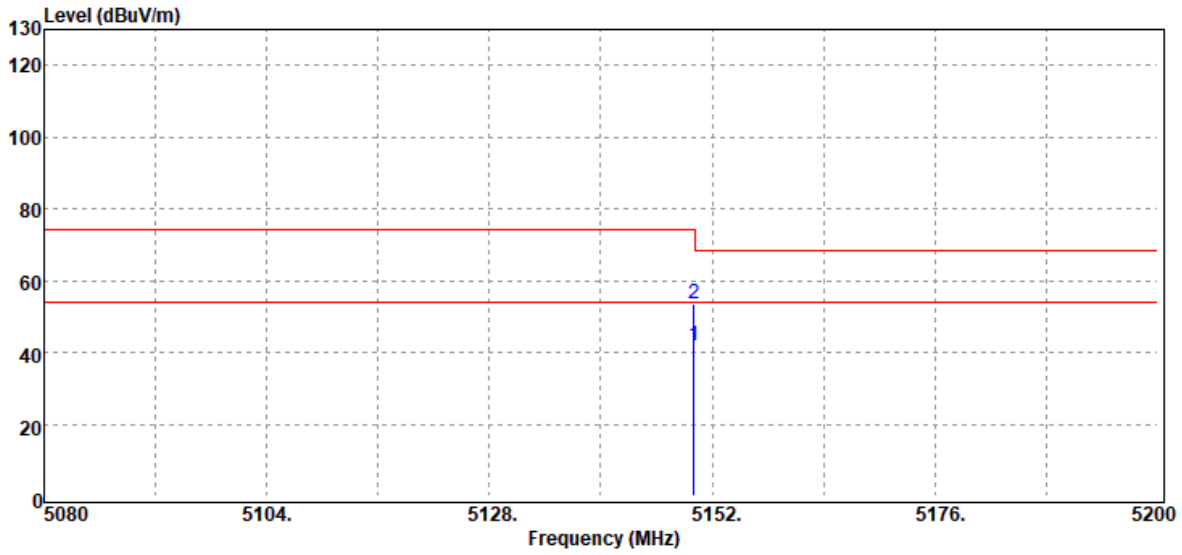
4.5.4 Test Result

Test Data

Band Edge Test Data for UNII-1

Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.00	36.74	4.92	41.66	54.00	-12.34	Average
5150.00	48.79	4.92	53.71	74.00	-20.29	Peak

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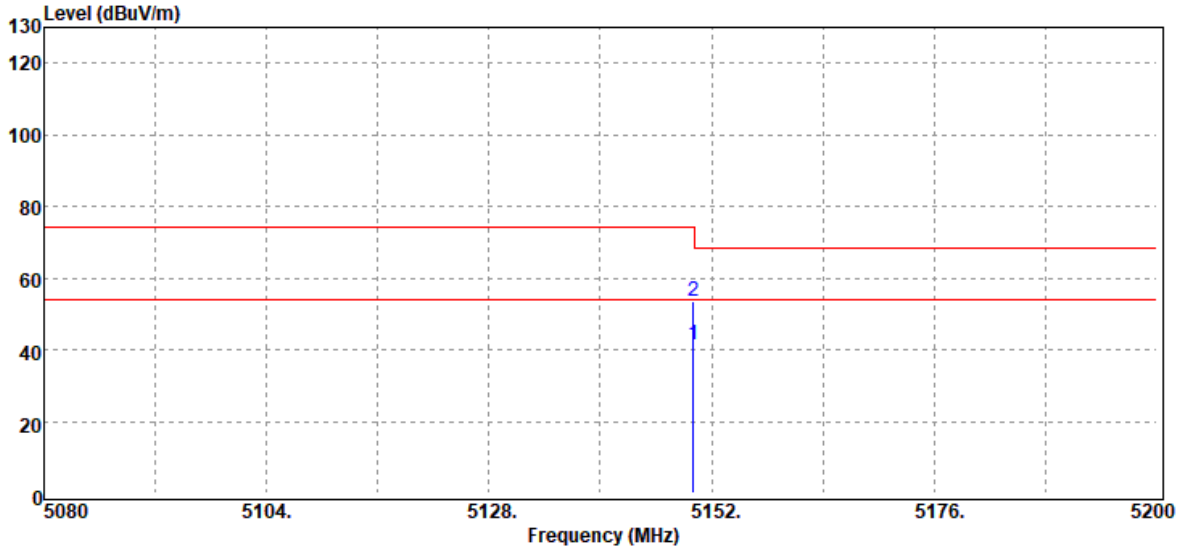
Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.00	36.66	4.92	41.58	54.00	-12.42	Average
5150.00	48.64	4.92	53.56	74.00	-20.44	Peak

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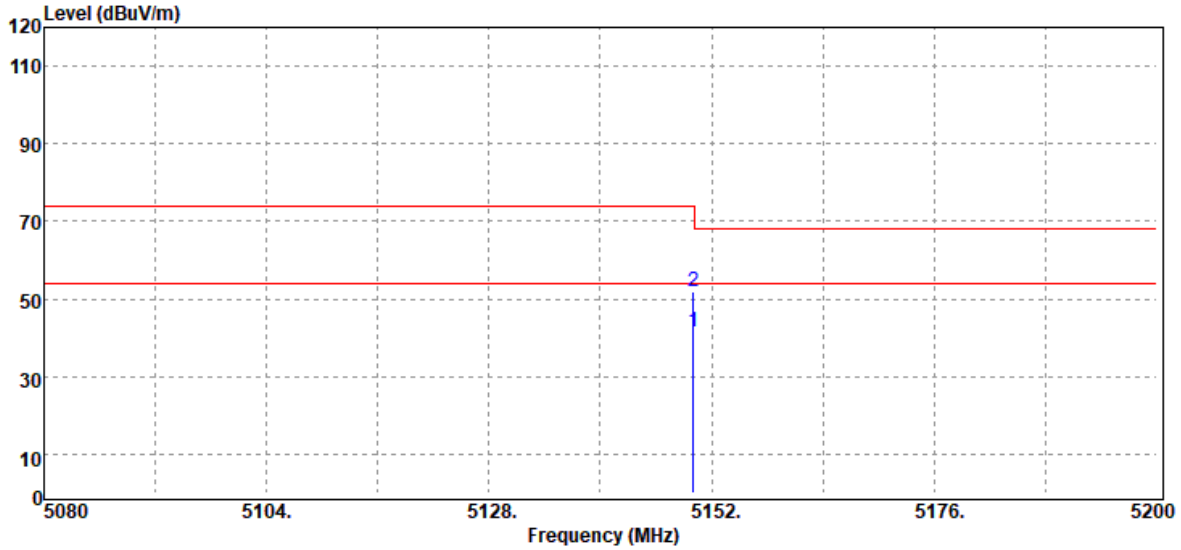
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.00	36.71	4.92	41.63	54.00	-12.37	Average
5150.00	46.92	4.92	51.84	74.00	-22.16	Peak

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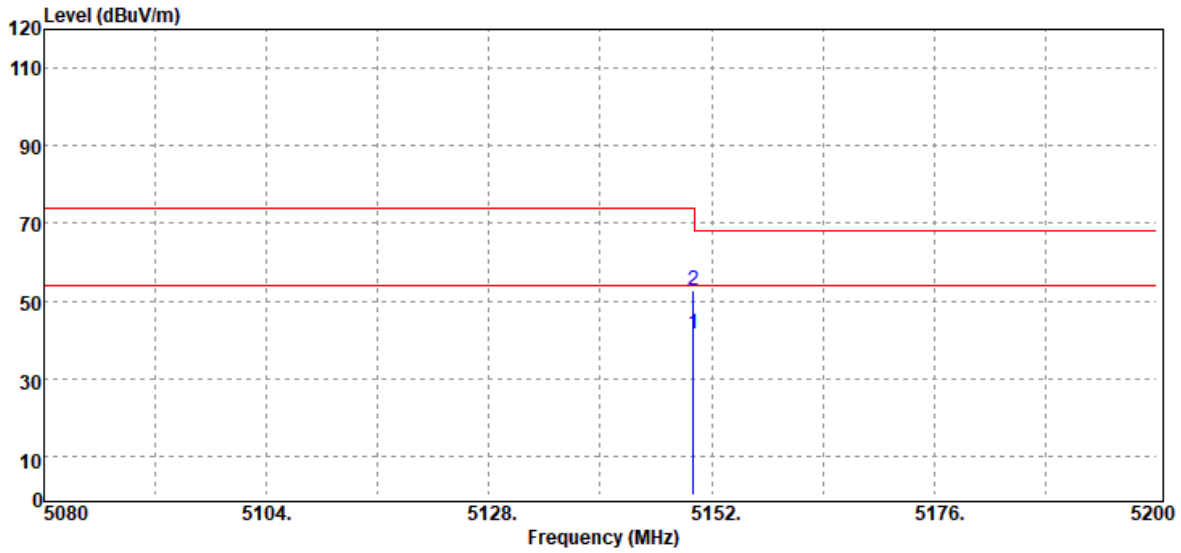
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.00	36.65	4.92	41.57	54.00	-12.43	Average
5150.00	47.76	4.92	52.68	74.00	-21.32	Peak

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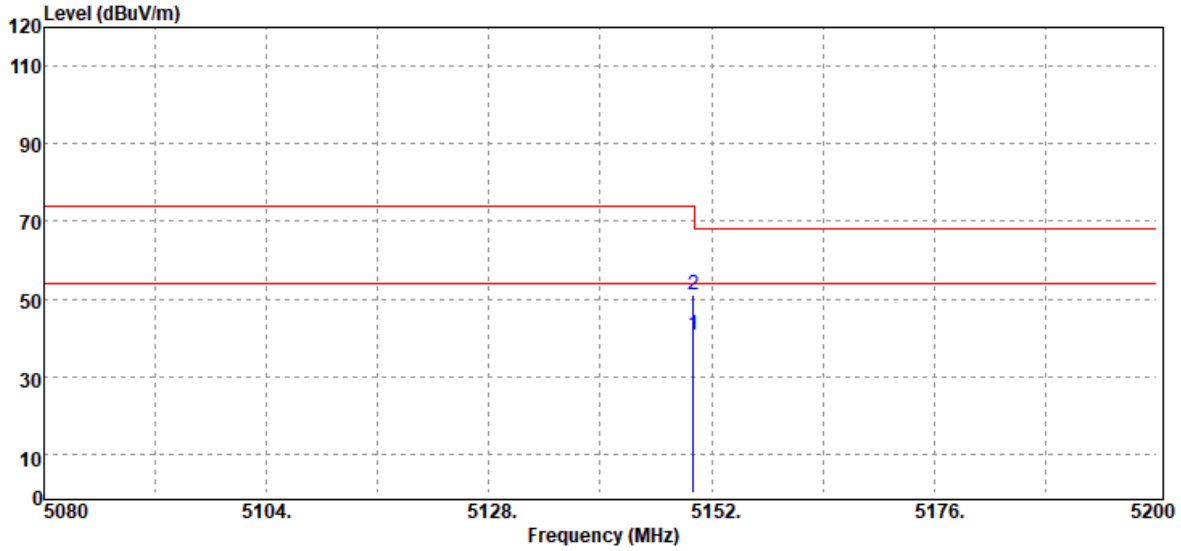
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.00	35.65	4.92	40.57	54.00	-13.43	Average
5150.00	46.24	4.92	51.16	74.00	-22.84	Peak

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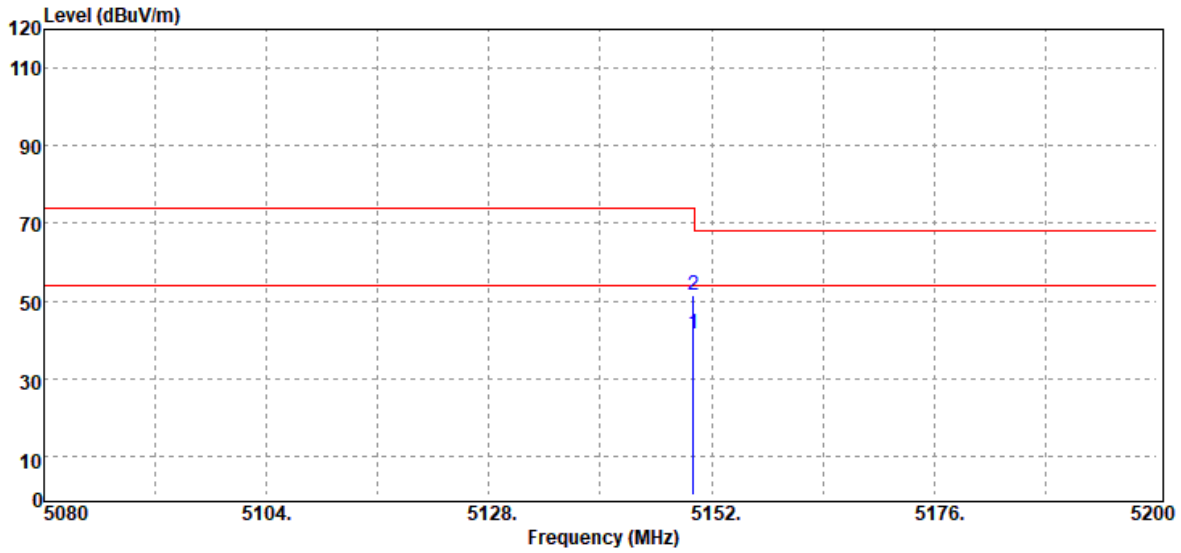
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.00	36.66	4.92	41.58	54.00	-12.42	Average
5150.00	46.41	4.92	51.33	74.00	-22.67	Peak

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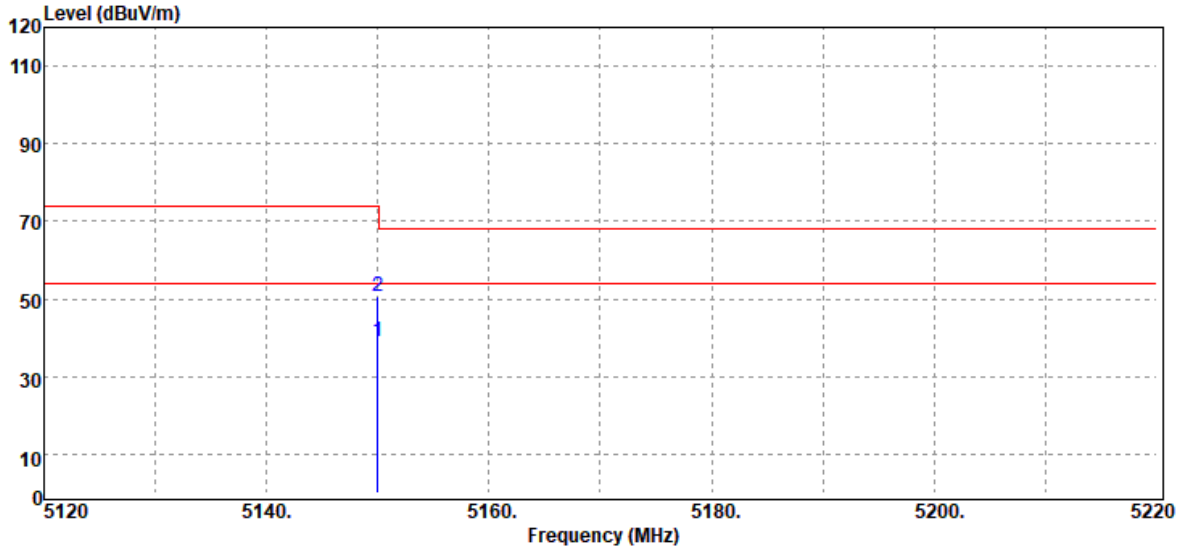
Test Mode	IEEE 802.11ac 80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.00	33.94	4.92	38.86	54.00	-15.14	Average
5150.00	45.80	4.92	50.72	74.00	-23.28	Peak

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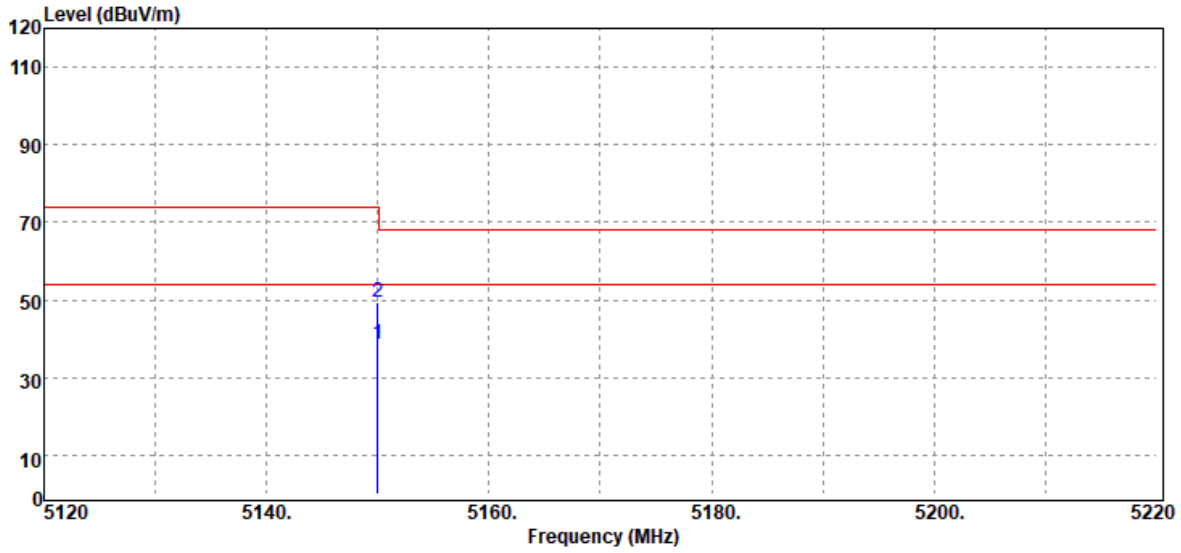
Test Mode	IEEE 802.11ac 80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150.00	33.76	4.92	38.68	74.00	-35.32	Average
5150.00	44.64	4.92	49.56	74.00	-24.44	Peak

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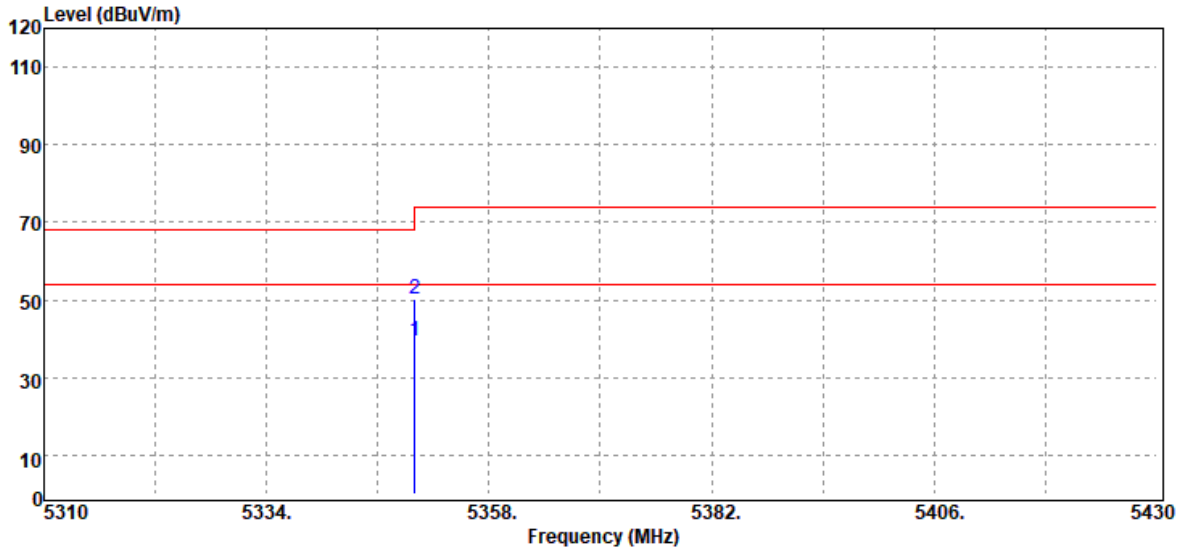
Test Data

Band Edge Test Data for UNII-2a

Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350.00	34.11	5.21	39.32	54.00	-14.68	Average
5350.00	44.96	5.21	50.17	74.00	-23.83	Peak

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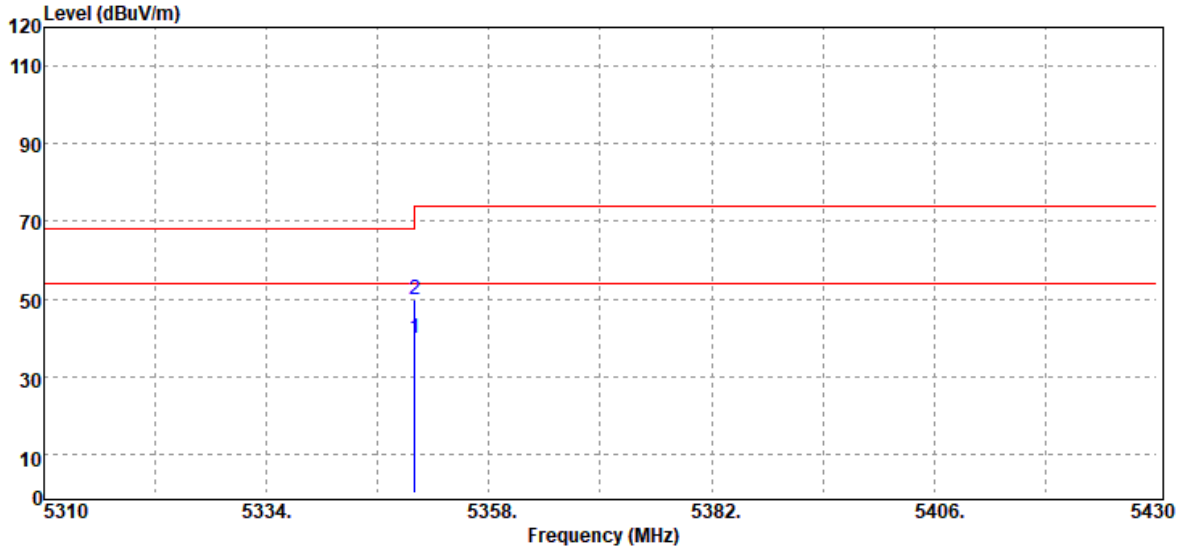
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350.00	34.67	5.21	39.88	54.00	-14.12	Average
5350.00	44.48	5.21	49.69	74.00	-24.31	Peak

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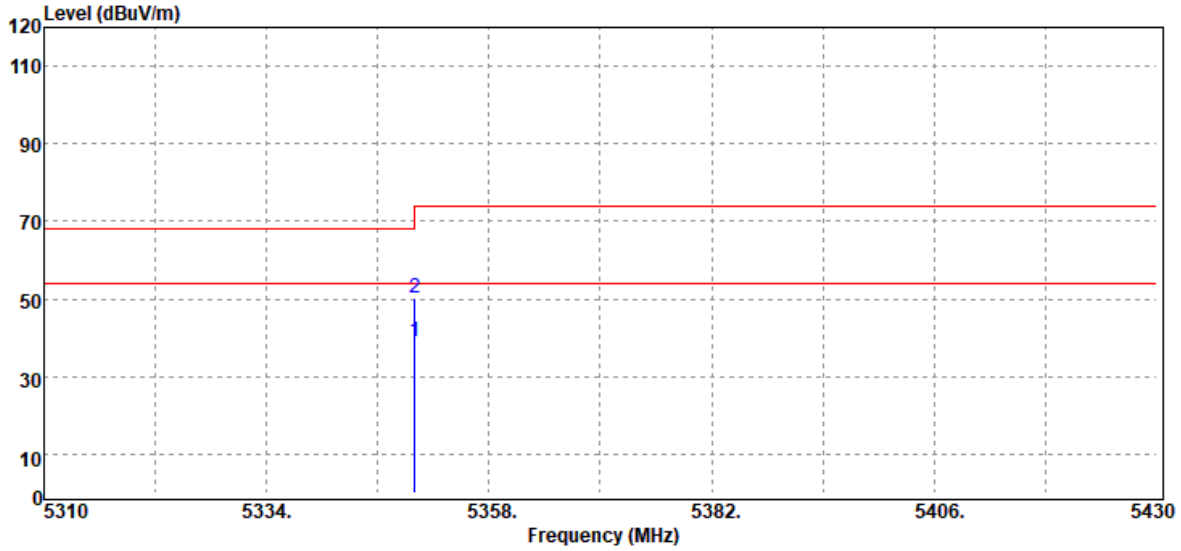
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350.00	34.01	5.21	39.22	54.00	-14.78	Average
5350.00	45.20	5.21	50.41	74.00	-23.59	Peak

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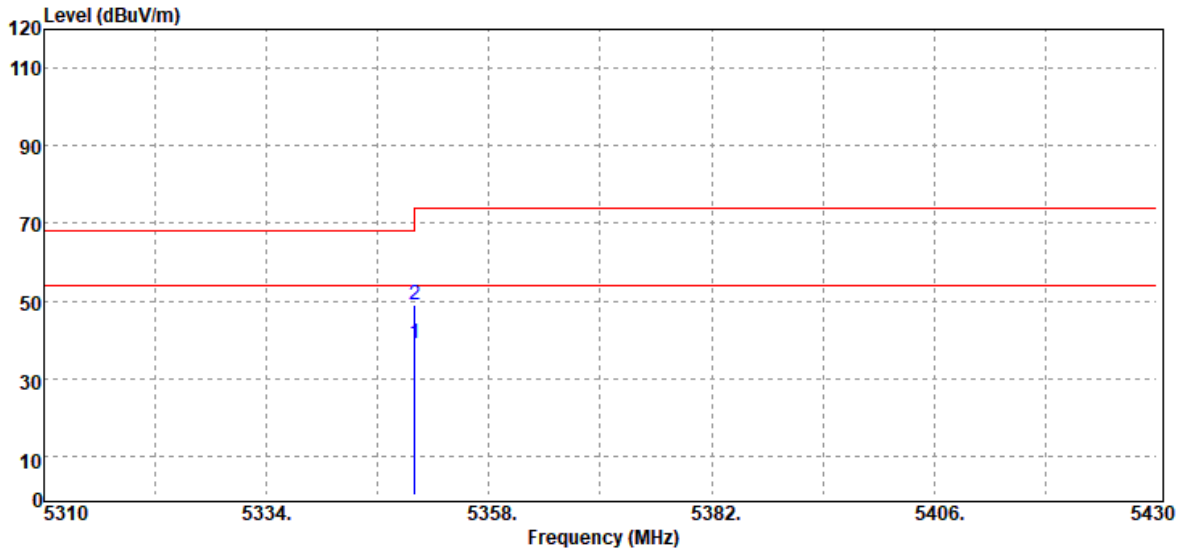
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350.00	34.02	5.21	39.23	54.00	-14.77	Average
5350.00	43.98	5.21	49.19	74.00	-24.81	Peak

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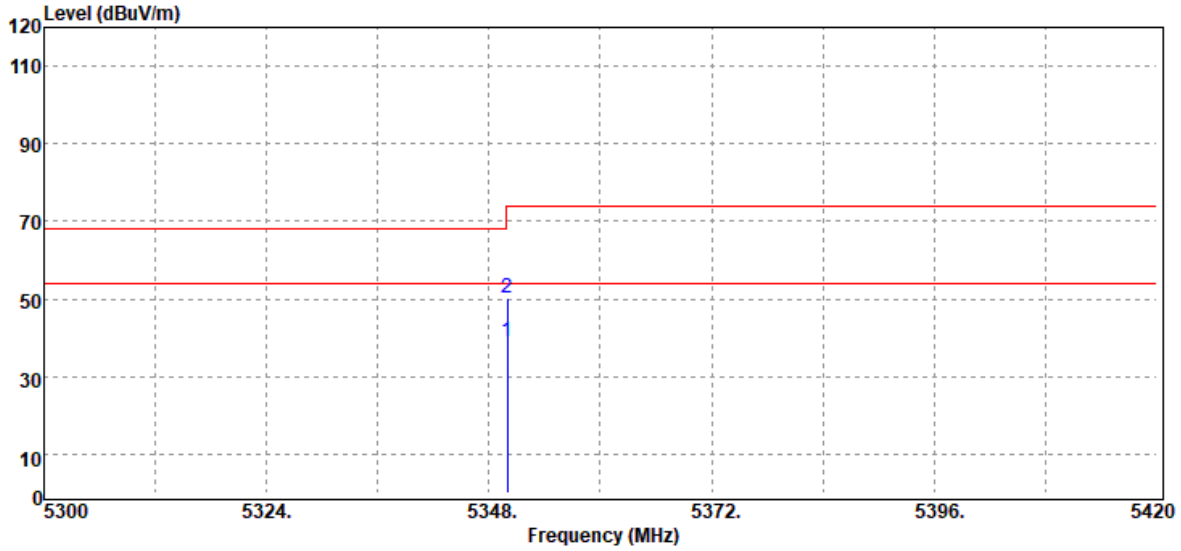
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350.00	34.00	5.21	39.21	54.00	-14.79	Average
5350.00	44.95	5.21	50.16	74.00	-23.84	Peak

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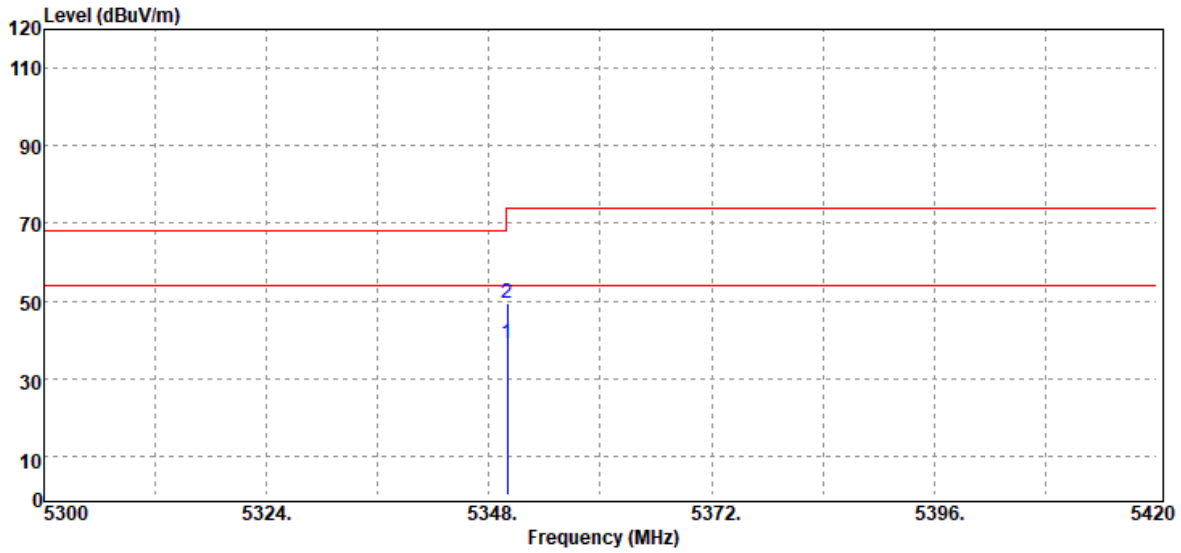
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350.00	33.98	5.21	39.19	54.00	-14.81	Average
5350.00	44.25	5.21	49.46	74.00	-24.54	Peak

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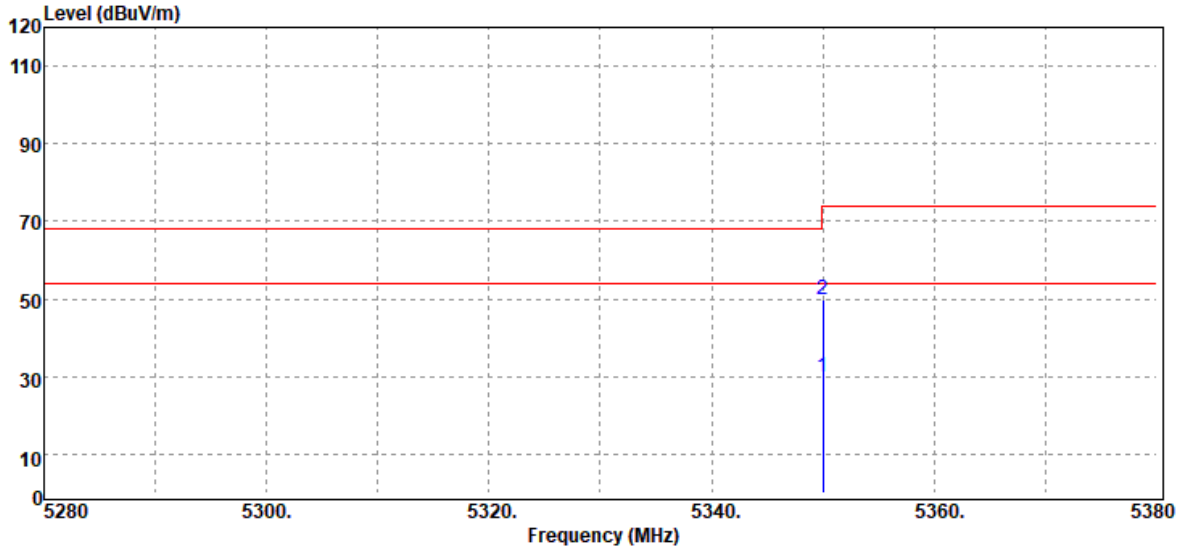
Test Mode	IEEE 802.11ac 80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350.00	24.87	5.21	30.08	54.00	-23.92	Average
5350.00	44.54	5.21	49.75	74.00	-24.25	Peak

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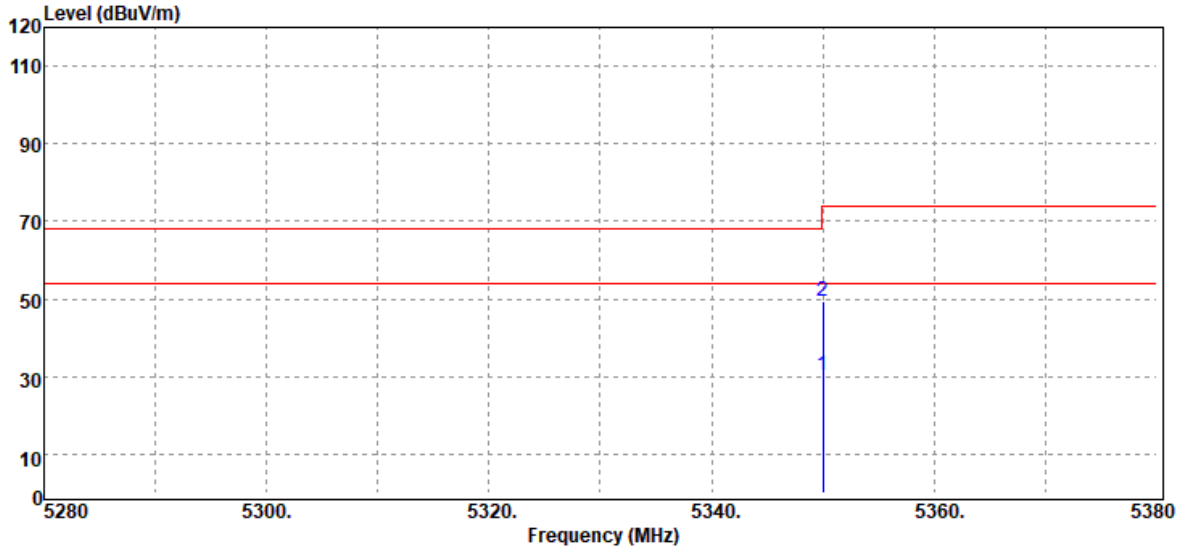
Test Mode	IEEE 802.11ac 80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350.00	24.92	5.21	30.13	54.00	-23.87	Average
5350.00	44.18	5.21	49.39	74.00	-24.61	Peak

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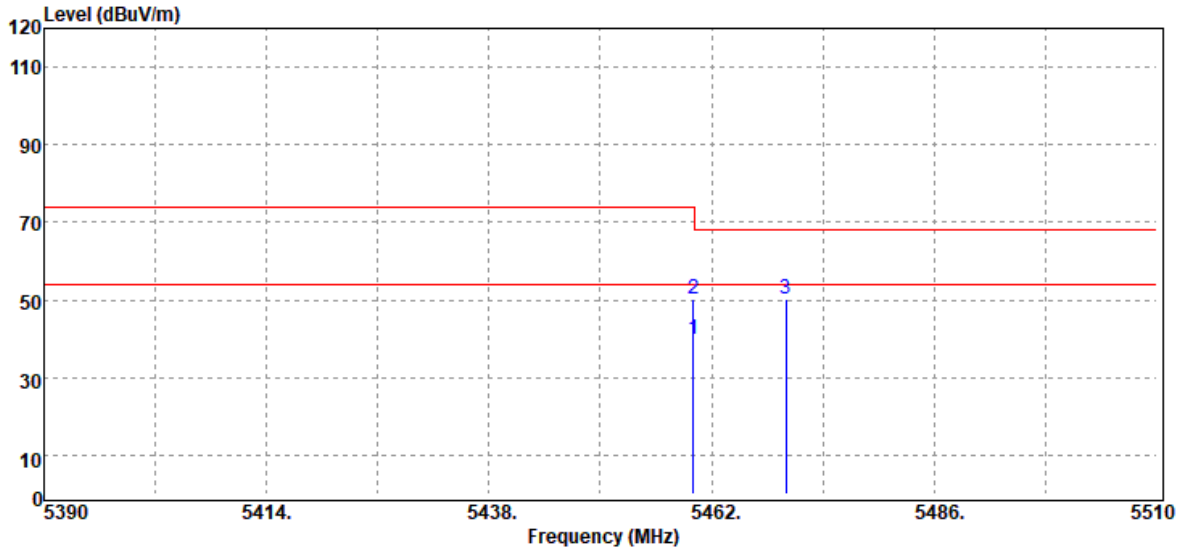
Test Data

Band Edge Test Data for UNII-2c

Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460.00	34.30	5.63	39.93	54.00	-14.07	Average
5460.00	44.58	5.63	50.21	74.00	-23.79	Peak
5470.00	44.64	5.65	50.29	68.20	-17.91	Peak

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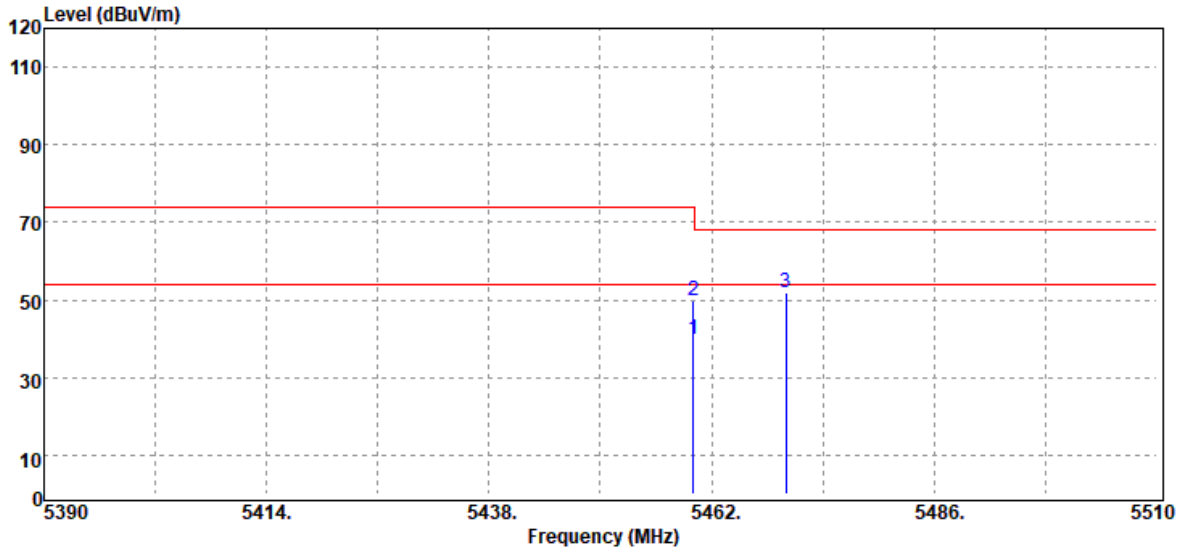
Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460.00	34.28	5.63	39.91	54.00	-14.09	Average
5460.00	44.37	5.63	50.00	74.00	-24.00	Peak
5470.00	46.10	5.65	51.75	68.20	-16.45	Peak

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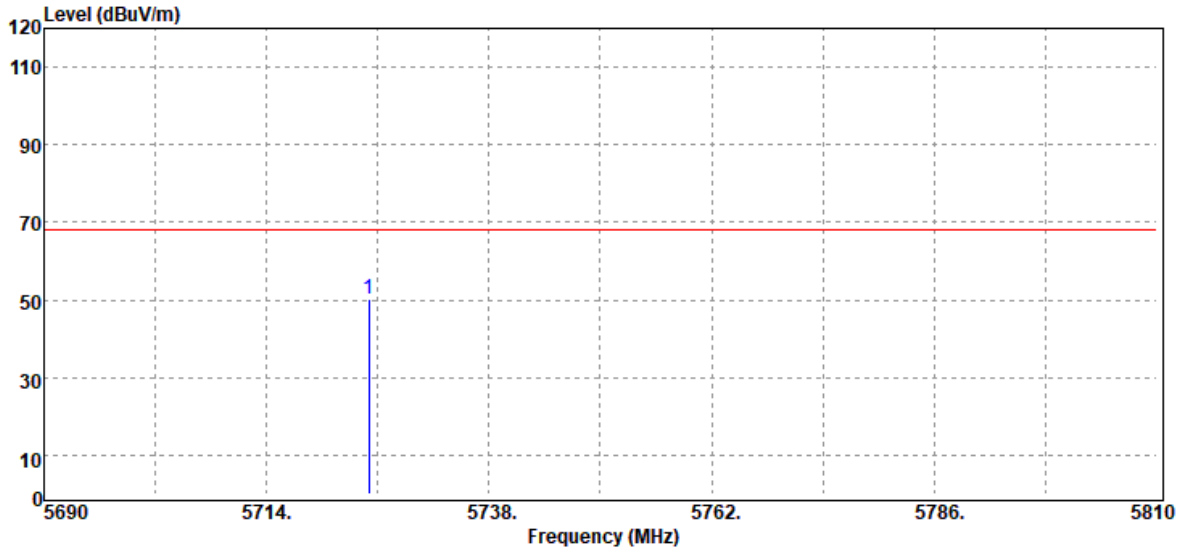
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5725.00	43.72	6.34	50.06	68.20	-18.14	Peak

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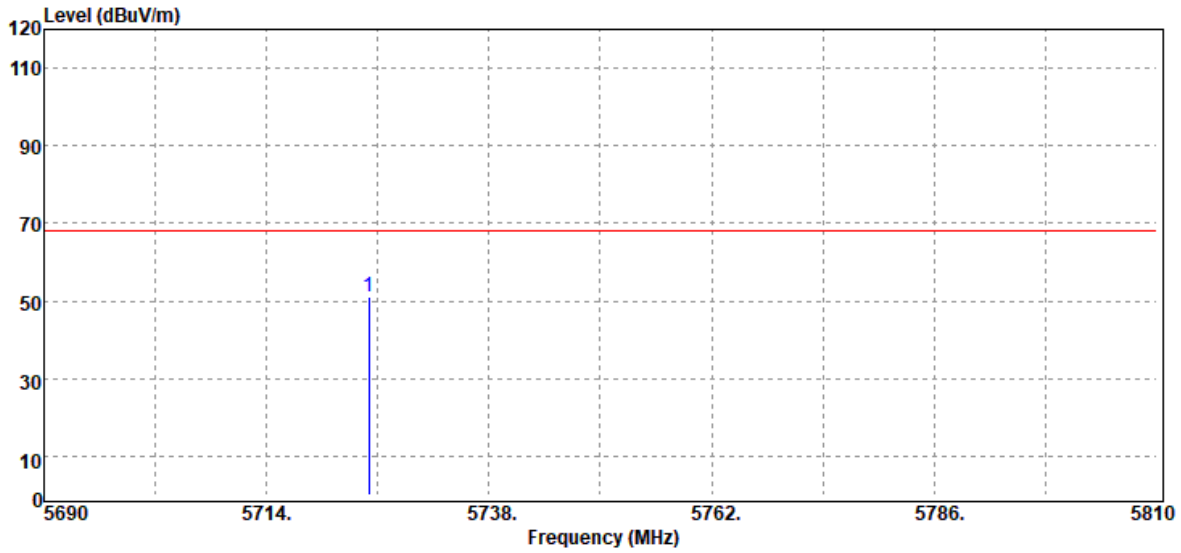
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5725.00	44.81	6.34	51.15	68.20	-17.05	Peak

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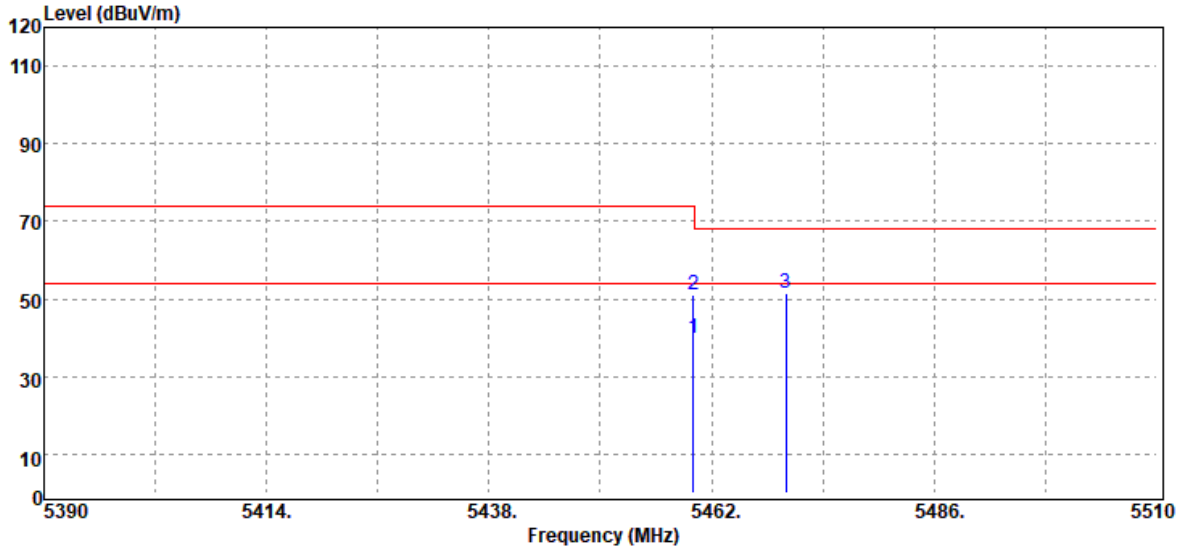
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460.00	34.23	5.63	39.86	54.00	-14.14	Average
5460.00	45.39	5.63	51.02	74.00	-22.98	Peak
5470.00	45.99	5.65	51.64	68.20	-16.56	Peak

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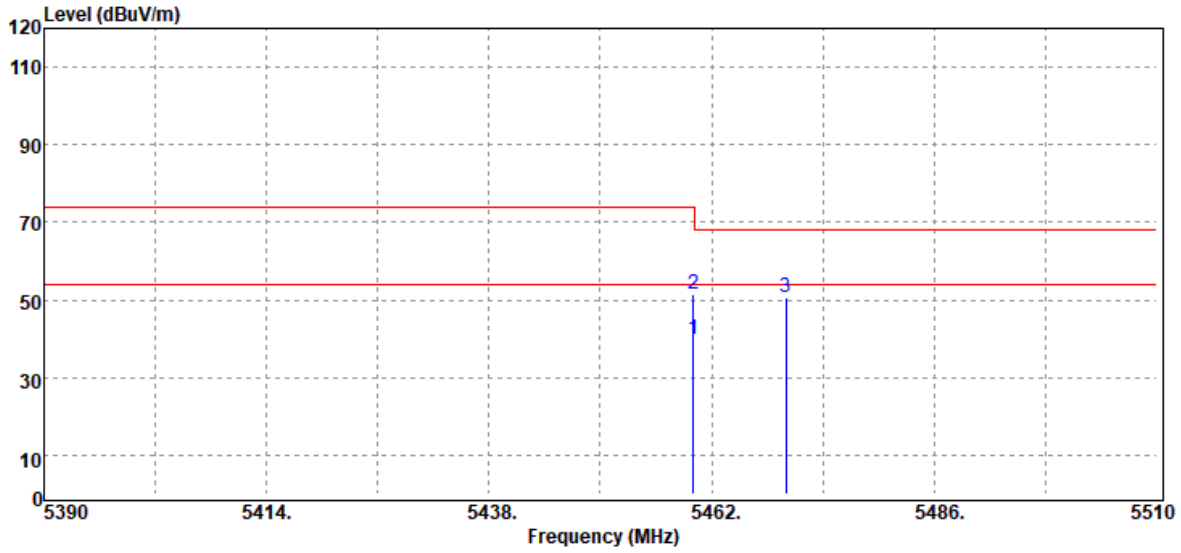
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460.00	34.27	5.63	39.90	54.00	-14.10	Average
5460.00	45.94	5.63	51.57	74.00	-22.43	Peak
5470.00	44.94	5.65	50.59	68.20	-17.61	Peak

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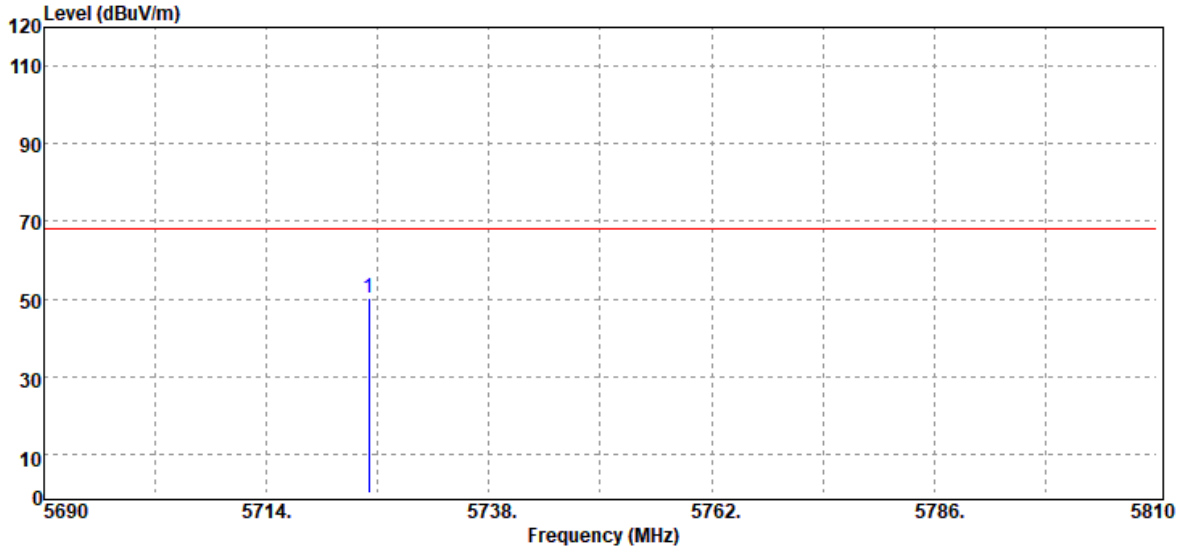
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5725.00	43.75	6.34	50.09	68.20	-18.11	Peak

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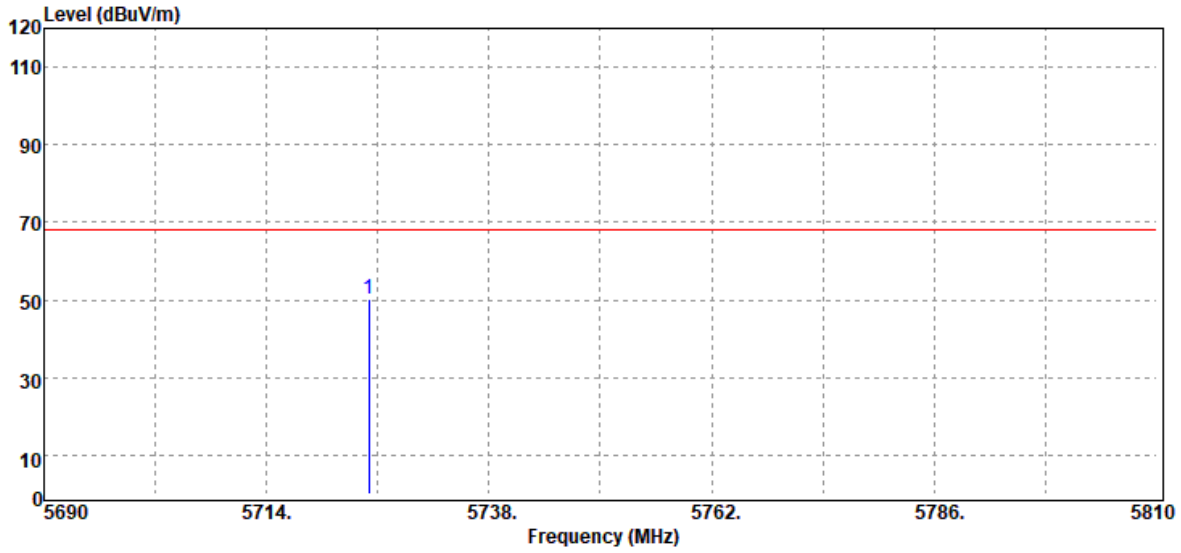
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5725.00	43.82	6.34	50.16	68.20	-18.04	Peak

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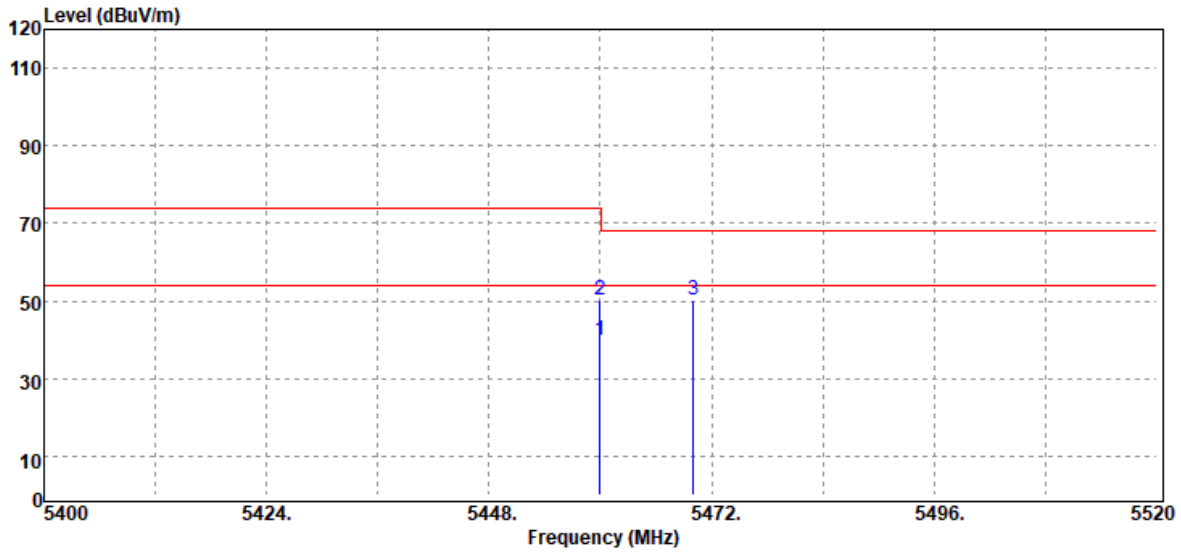
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460.00	34.22	5.63	39.85	54.00	-14.15	Average
5460.00	44.41	5.63	50.04	74.00	-23.96	Peak
5470.00	44.51	5.65	50.16	68.20	-18.04	Peak

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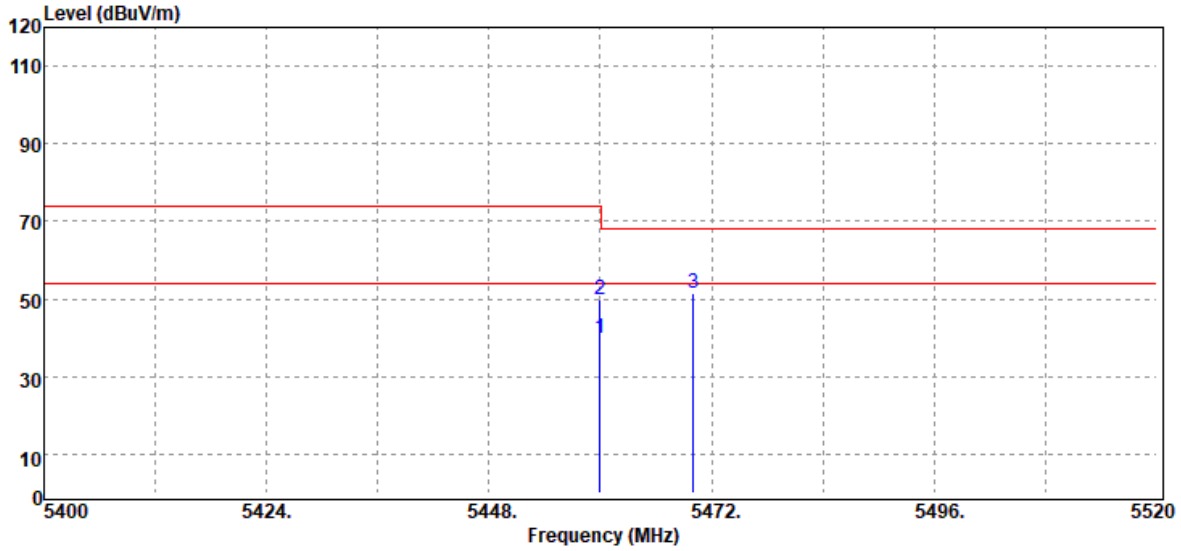
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460.00	34.21	5.63	39.84	54.00	-14.16	Average
5460.00	44.03	5.63	49.66	74.00	-24.34	Peak
5470.00	45.79	5.65	51.44	68.20	-16.76	Peak

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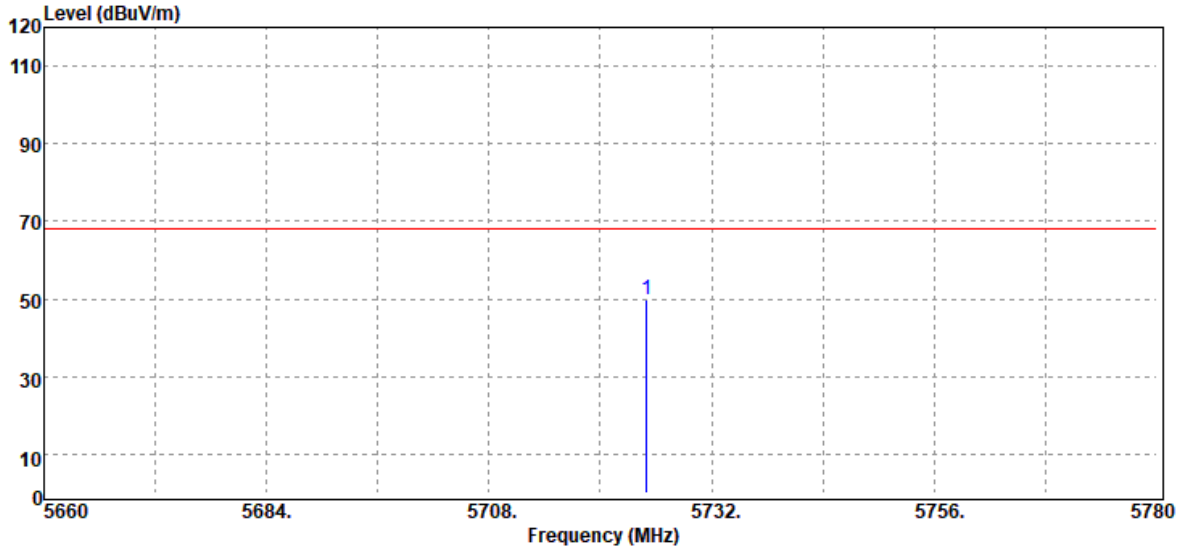
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5725.00	43.61	6.34	49.95	68.20	-18.25	Peak

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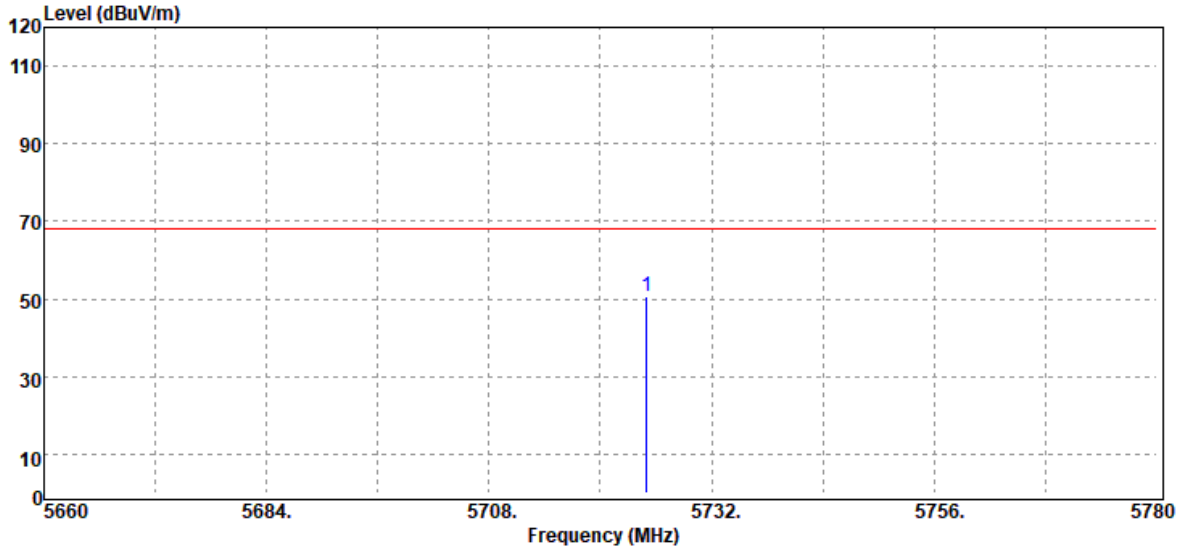
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5725.00	44.22	6.34	50.56	68.20	-17.64	Peak

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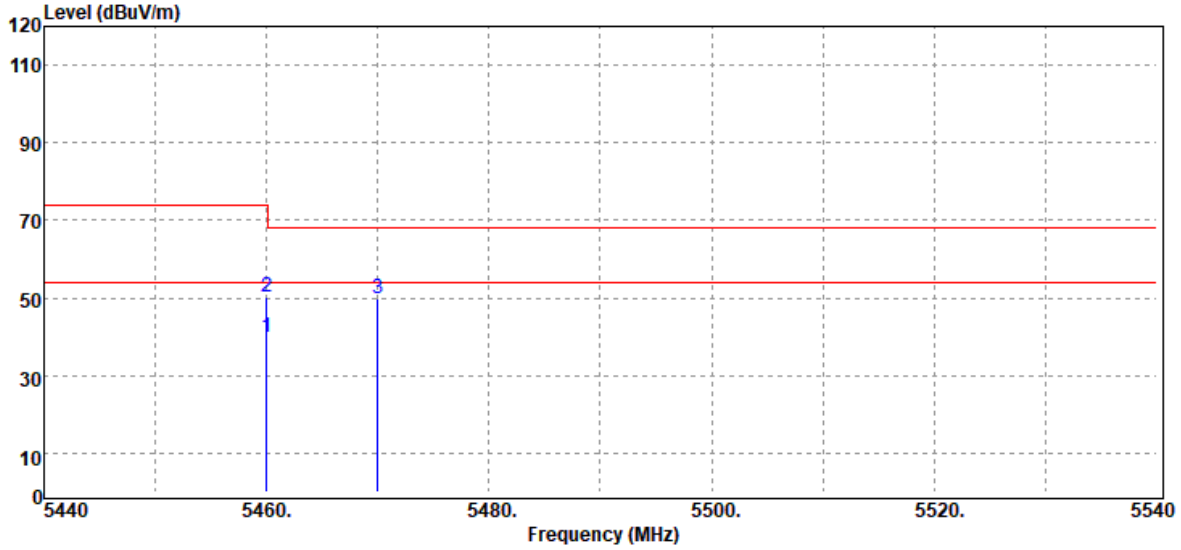
Test Mode	IEEE 802.11ac 80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460.00	34.06	5.63	39.69	54.00	-14.31	Average
5460.00	44.64	5.63	50.27	74.00	-23.73	Peak
5470.00	44.24	5.65	49.89	68.20	-18.31	Peak

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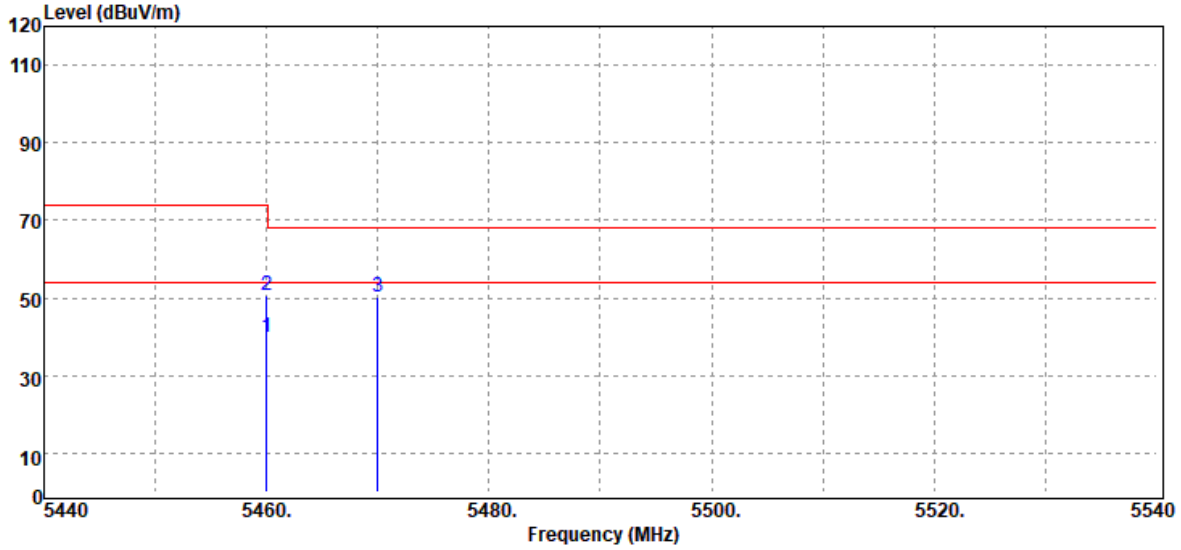
Test Mode	IEEE 802.11ac 80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak / Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460.00	34.05	5.63	39.68	54.00	-14.32	Average
5460.00	45.00	5.63	50.63	74.00	-23.37	Peak
5470.00	44.62	5.65	50.27	68.20	-17.93	Peak

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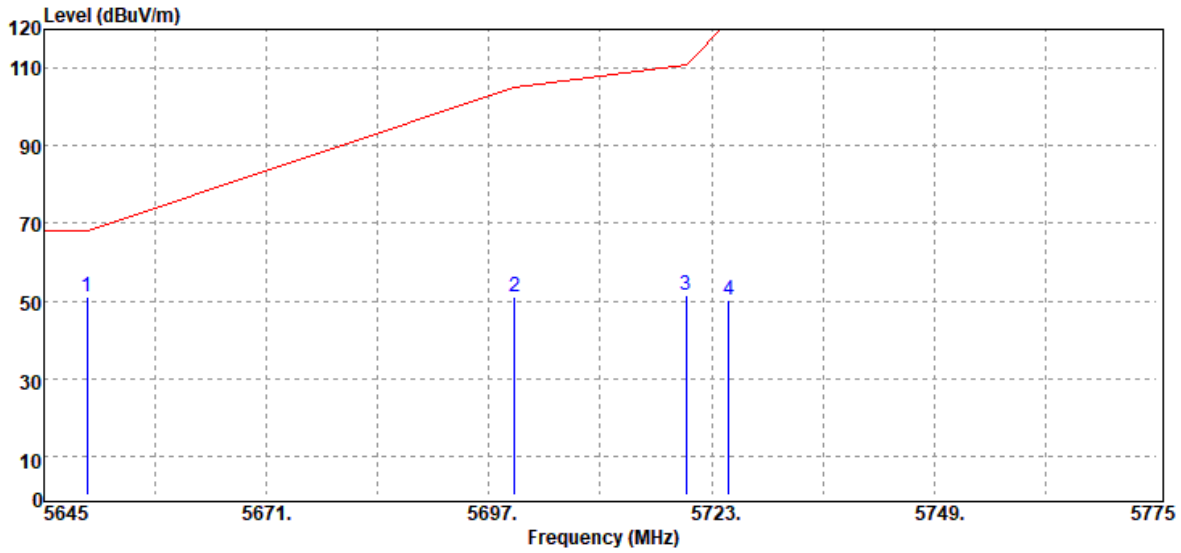
Band Edge Test Data for UNII-3

Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5650.00	45.16	6.04	51.20	68.20	-17.00	Peak
5700.00	44.77	6.32	51.09	105.20	-54.11	Peak
5720.00	44.98	6.33	51.31	110.80	-59.49	Peak
5725.00	44.03	6.34	50.37	122.20	-71.83	Peak

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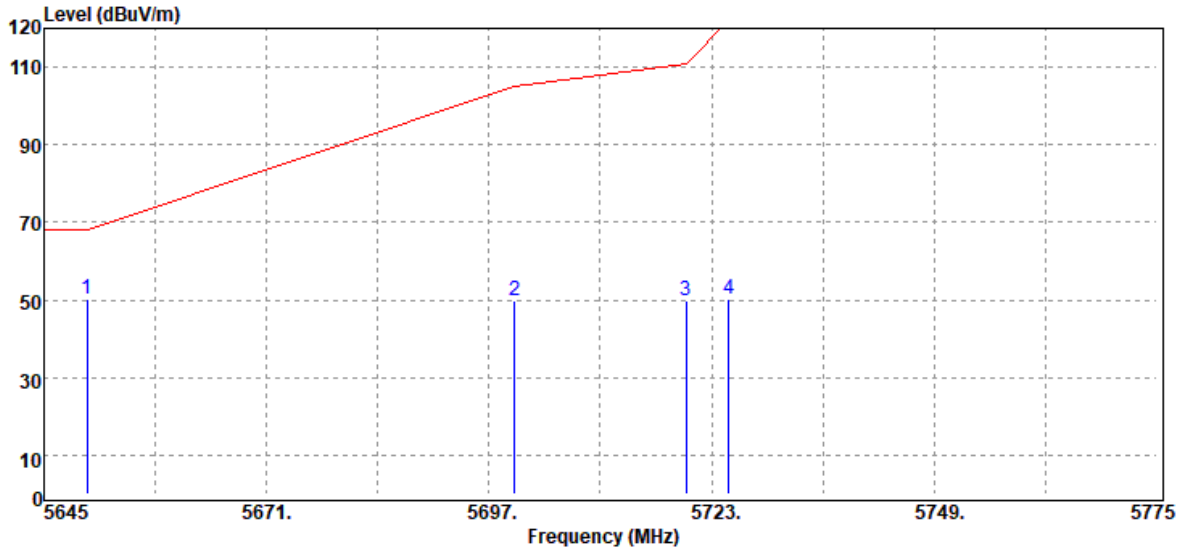
Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5650.00	44.26	6.04	50.30	68.20	-17.90	Peak
5700.00	43.31	6.32	49.63	105.20	-55.57	Peak
5720.00	43.55	6.33	49.88	110.80	-60.92	Peak
5725.00	44.04	6.34	50.38	122.20	-71.82	Peak

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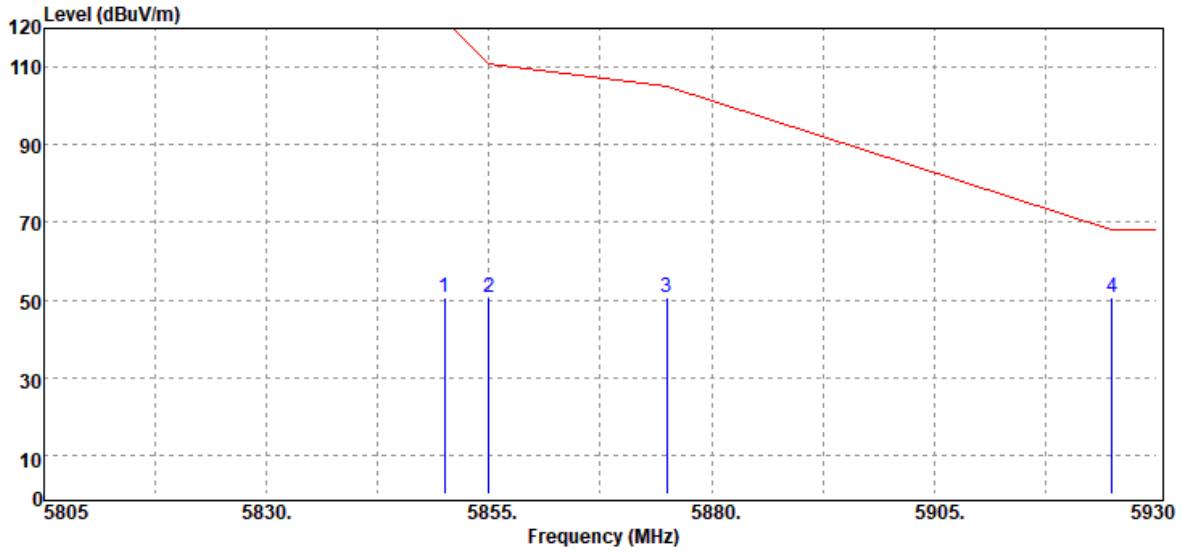
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850.00	44.45	6.39	50.84	122.20	-71.36	Peak
5855.00	44.43	6.38	50.81	110.80	-59.99	Peak
5875.00	44.27	6.37	50.64	105.20	-54.56	Peak
5925.00	44.30	6.42	50.72	68.20	-17.48	Peak

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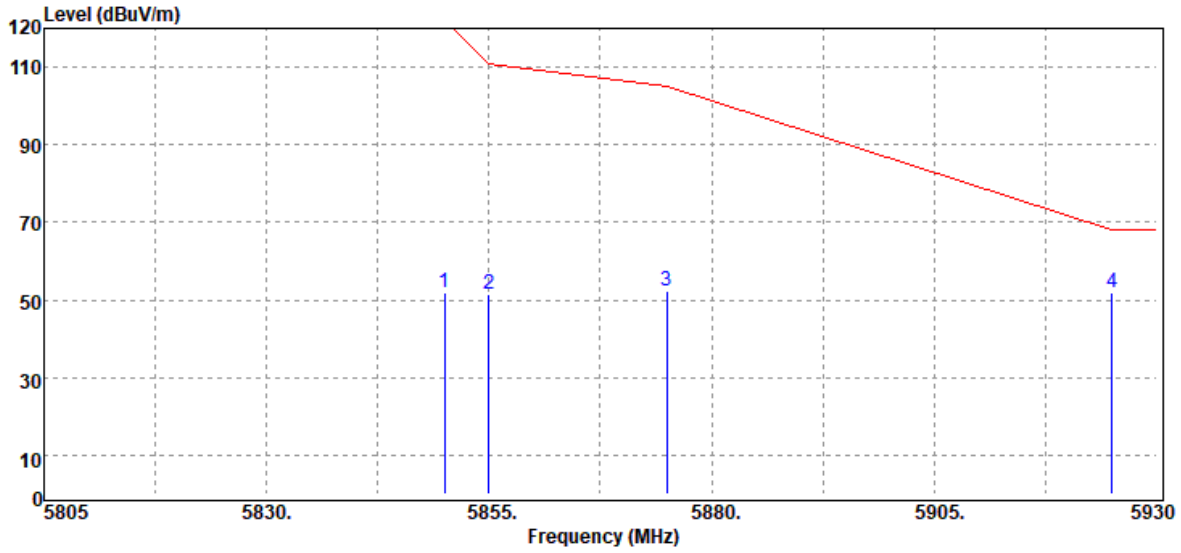
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850.00	45.46	6.39	51.85	122.20	-70.35	Peak
5855.00	45.07	6.38	51.45	110.80	-59.35	Peak
5875.00	45.81	6.37	52.18	105.20	-53.02	Peak
5925.00	45.46	6.42	51.88	68.20	-16.32	Peak

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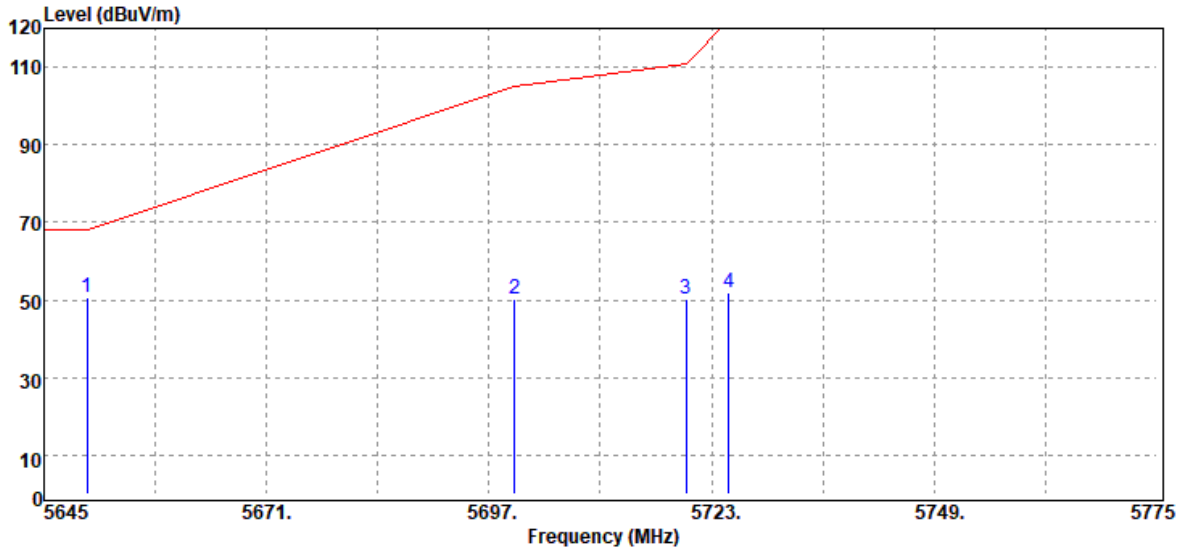
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5650.00	44.64	6.04	50.68	68.20	-17.52	Peak
5700.00	44.08	6.32	50.40	105.20	-54.80	Peak
5720.00	43.78	6.33	50.11	110.80	-60.69	Peak
5725.00	45.69	6.34	52.03	122.20	-70.17	Peak

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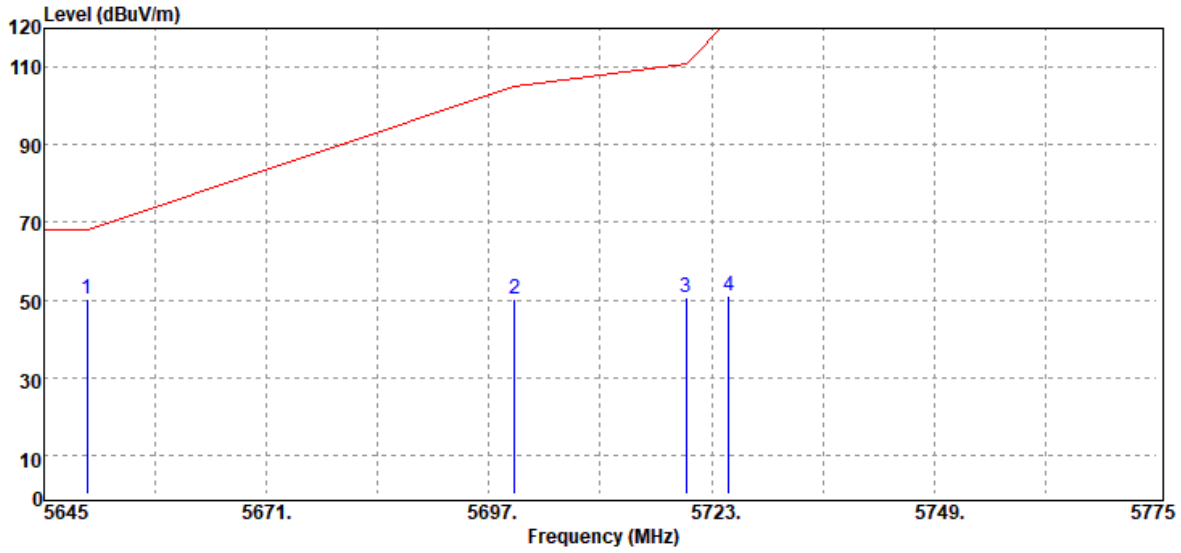
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5650.00	44.31	6.04	50.35	68.20	-17.85	Peak
5700.00	43.75	6.32	50.07	105.20	-55.13	Peak
5720.00	44.19	6.33	50.52	110.80	-60.28	Peak
5725.00	44.54	6.34	50.88	122.20	-71.32	Peak

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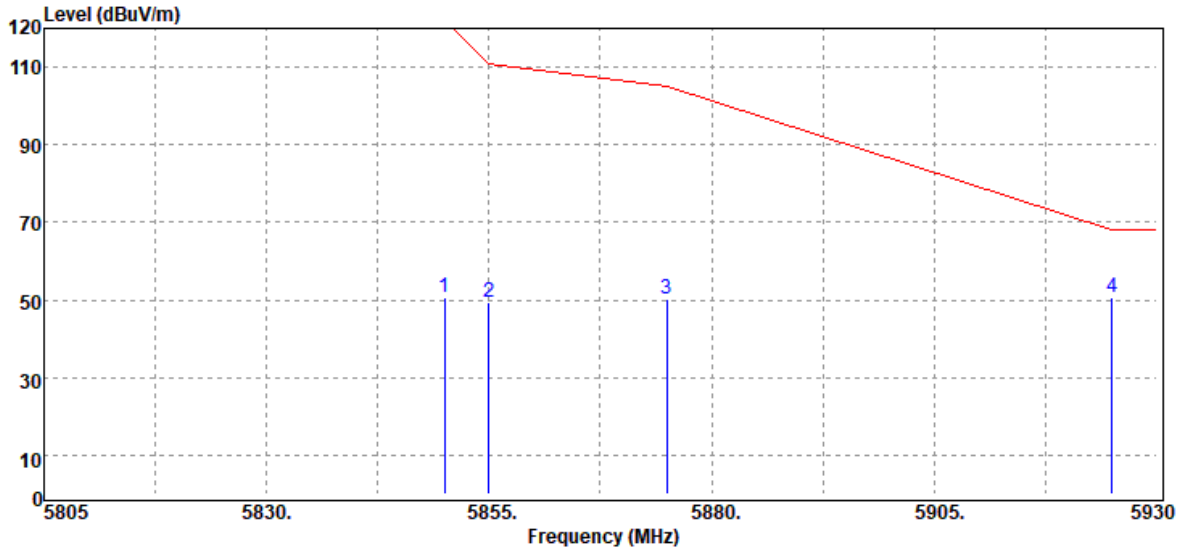
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850.00	44.30	6.39	50.69	122.20	-71.51	Peak
5855.00	43.00	6.38	49.38	110.80	-61.42	Peak
5875.00	43.85	6.37	50.22	105.20	-54.98	Peak
5925.00	44.28	6.42	50.70	68.20	-17.50	Peak

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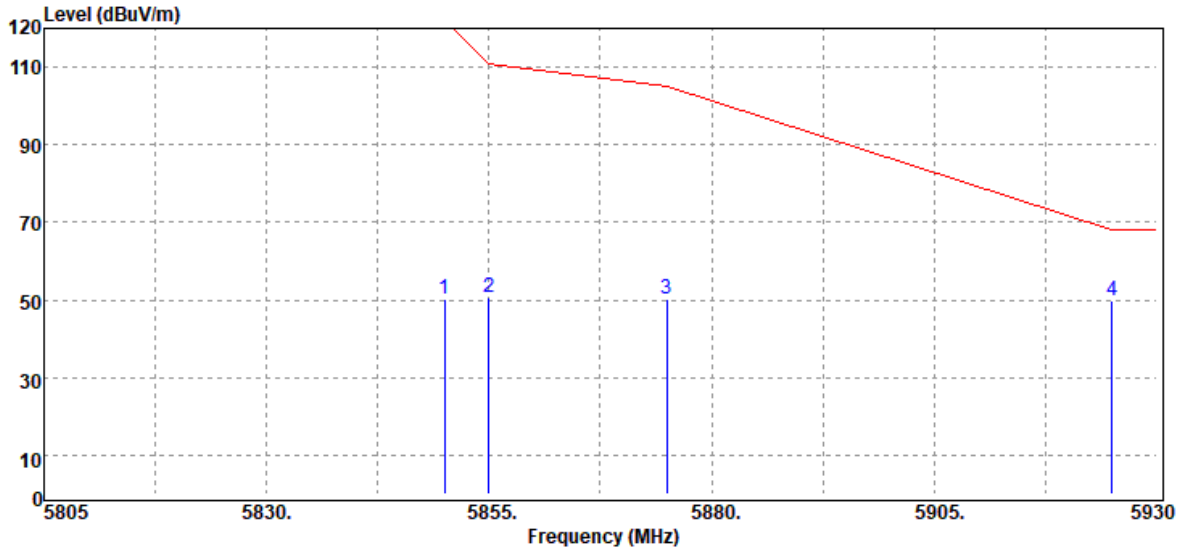
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850.00	43.72	6.39	50.11	122.20	-72.09	Peak
5855.00	44.15	6.38	50.53	110.80	-60.27	Peak
5875.00	44.01	6.37	50.38	105.20	-54.82	Peak
5925.00	43.49	6.42	49.91	68.20	-18.29	Peak

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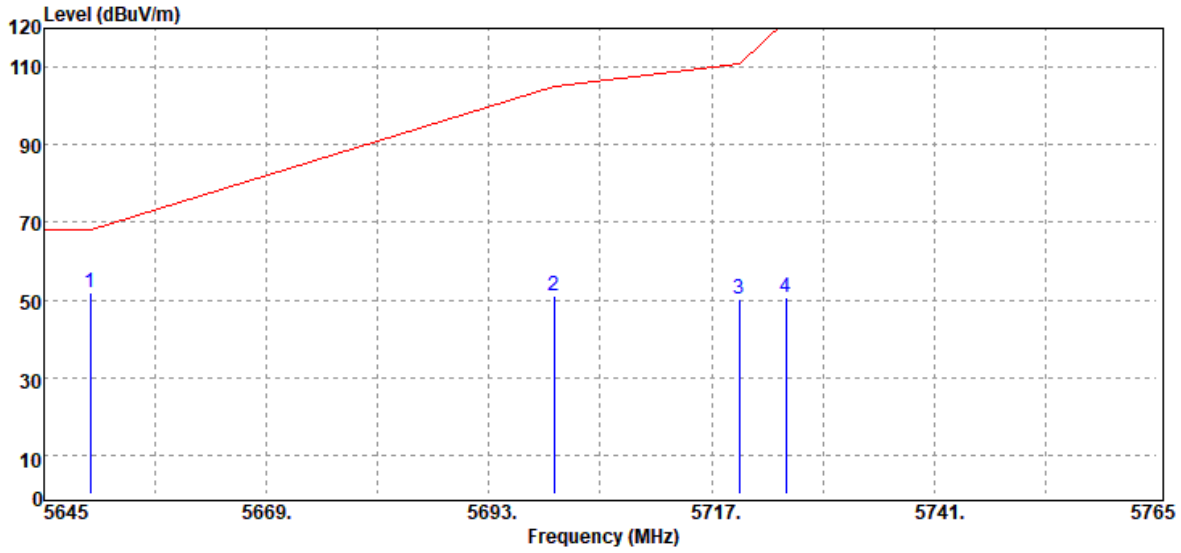
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5650.00	45.86	6.04	51.90	68.20	-16.30	Peak
5700.00	44.55	6.32	50.87	105.20	-54.33	Peak
5720.00	43.83	6.33	50.16	110.80	-60.64	Peak
5725.00	44.18	6.34	50.52	122.20	-71.68	Peak

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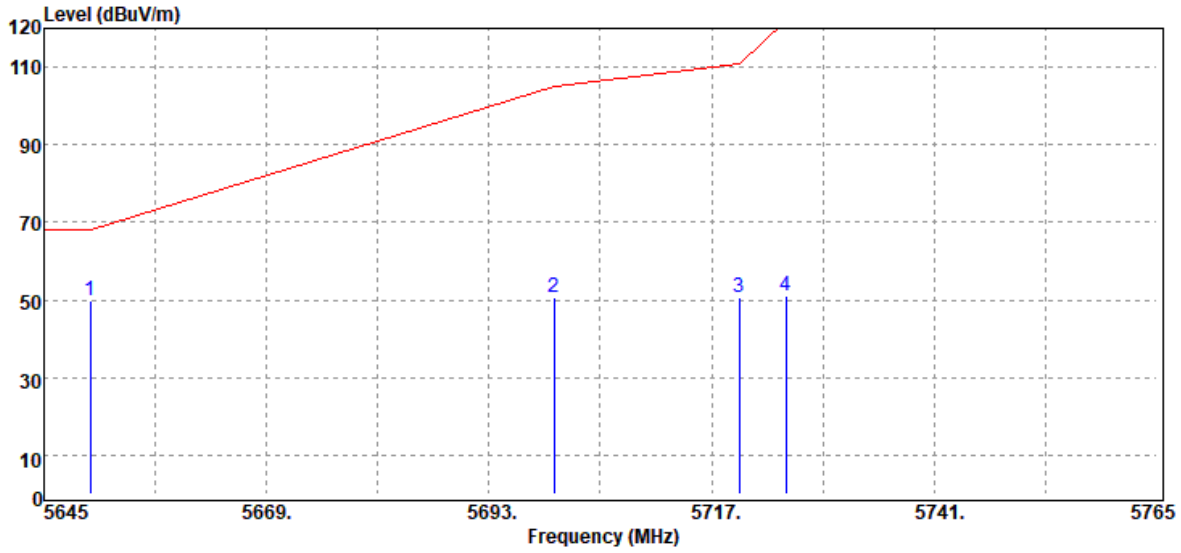
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5650.00	43.97	6.04	50.01	68.20	-18.19	Peak
5700.00	44.47	6.32	50.79	105.20	-54.41	Peak
5720.00	44.24	6.33	50.57	110.80	-60.23	Peak
5725.00	44.92	6.34	51.26	122.20	-70.94	Peak

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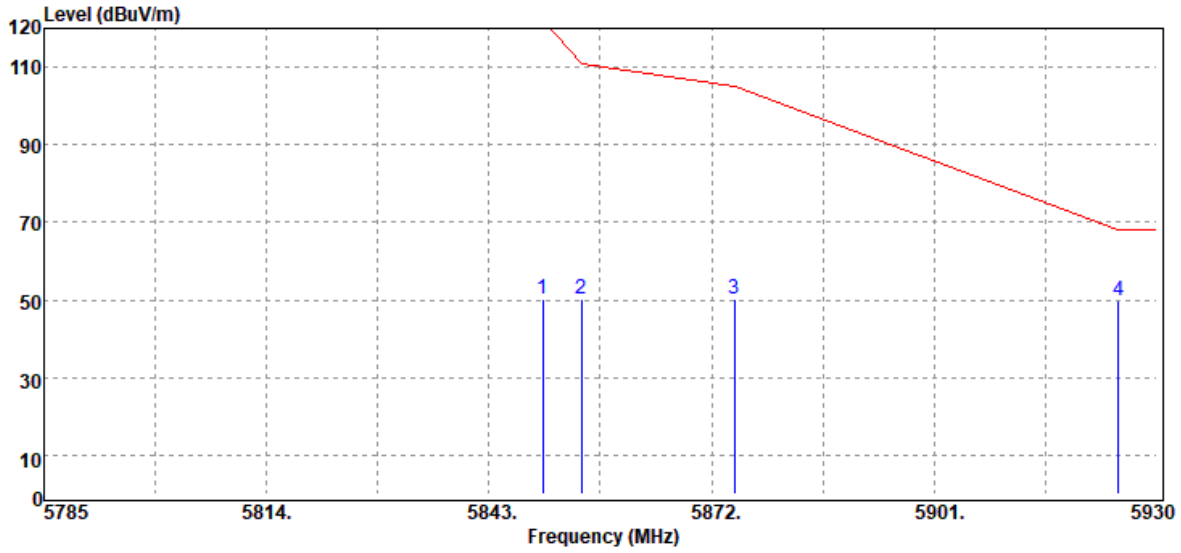
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850.00	44.03	6.39	50.42	122.20	-71.78	Peak
5855.00	43.89	6.38	50.27	110.80	-60.53	Peak
5875.00	43.90	6.37	50.27	105.20	-54.93	Peak
5925.00	43.53	6.42	49.95	68.20	-18.25	Peak

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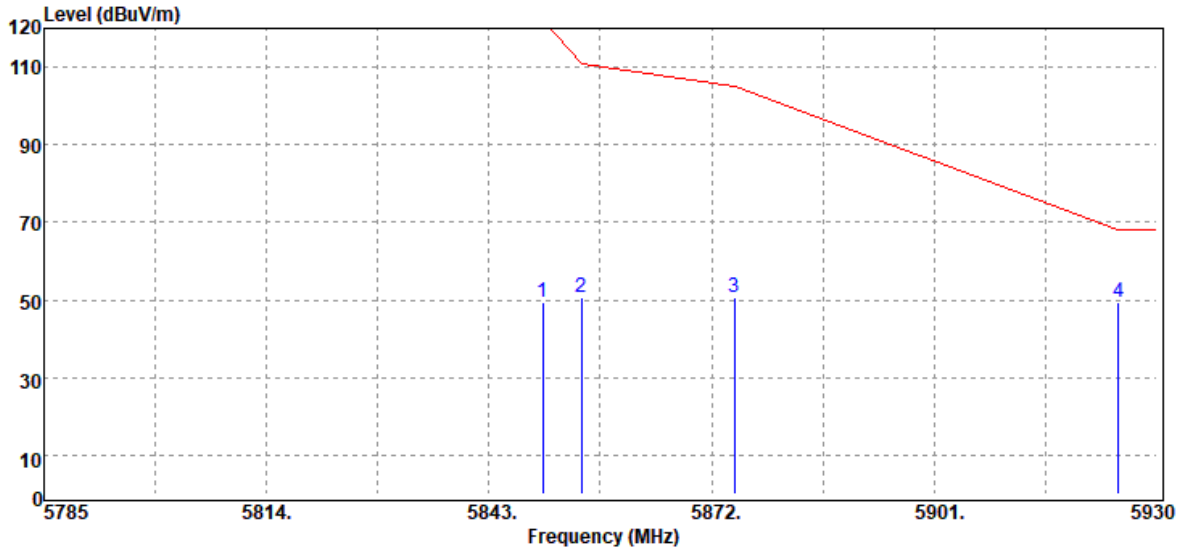
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850.00	43.07	6.39	49.46	122.20	-72.74	Peak
5855.00	44.09	6.38	50.47	110.80	-60.33	Peak
5875.00	44.41	6.37	50.78	105.20	-54.42	Peak
5925.00	42.98	6.42	49.40	68.20	-18.80	Peak

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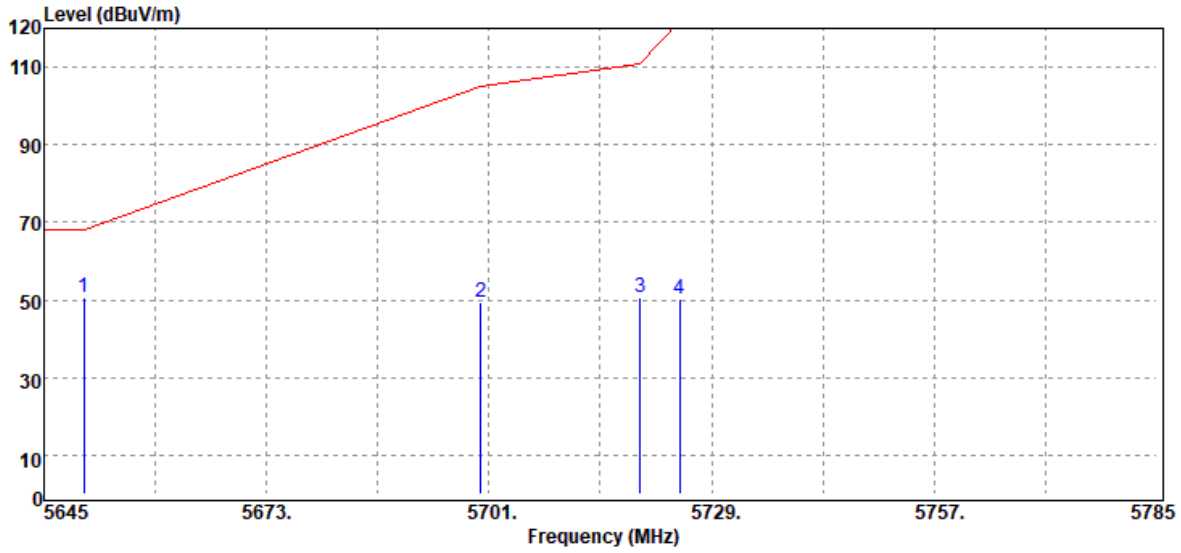
Test Mode	IEEE 802.11ac 80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5650.00	44.63	6.04	50.67	68.20	-17.53	Peak
5700.00	42.94	6.32	49.26	105.20	-55.94	Peak
5720.00	44.47	6.33	50.80	110.80	-60.00	Peak
5725.00	43.72	6.34	50.06	122.20	-72.14	Peak

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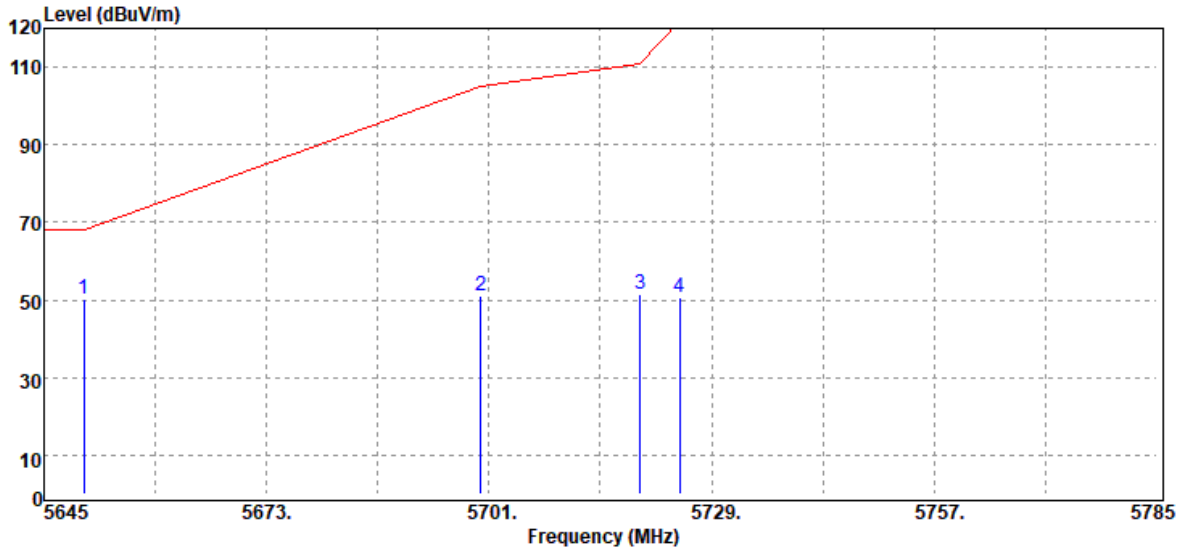
Test Mode	IEEE 802.11ac 80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Band Edge	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5650.00	44.07	6.04	50.11	68.20	-18.09	Peak
5700.00	44.60	6.32	50.92	105.20	-54.28	Peak
5720.00	44.96	6.33	51.29	110.80	-59.51	Peak
5725.00	44.15	6.34	50.49	122.20	-71.71	Peak

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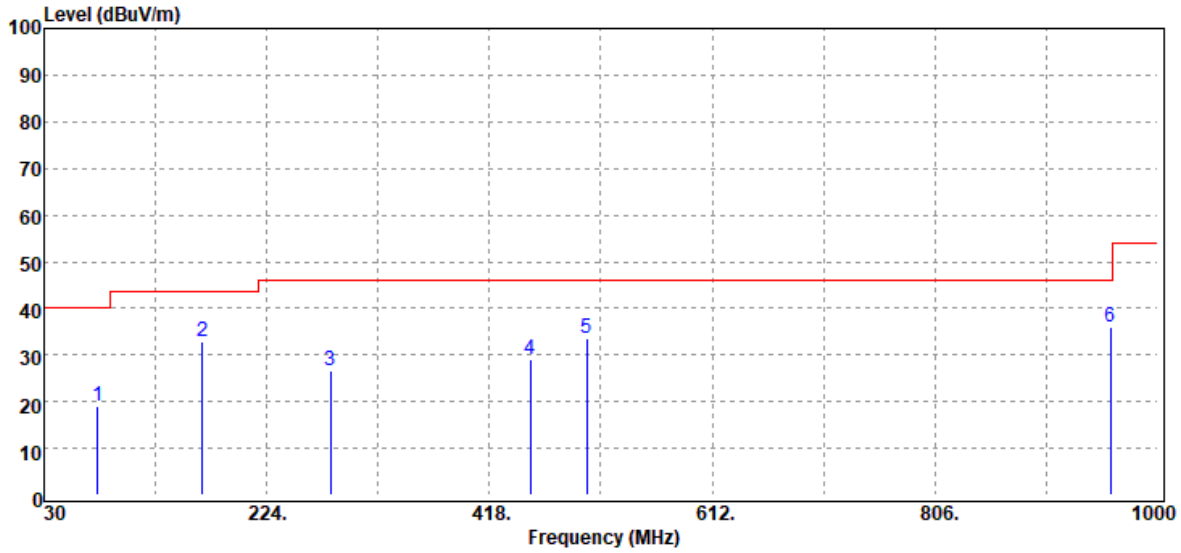
Below 1G Test Data

Test Mode	Mode 1	Temp/Hum	22(℃)/ 50%RH
Test Item	30MHz-1GHz	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
76.56	33.88	-14.89	18.99	40.00	-21.01	Peak
167.74	43.53	-10.56	32.97	43.50	-10.53	Peak
279.29	34.91	-8.40	26.51	46.00	-19.49	Peak
453.89	32.88	-3.84	29.04	46.00	-16.96	Peak
502.39	36.36	-2.96	33.40	46.00	-12.60	Peak
959.26	31.35	4.48	35.83	46.00	-10.17	Peak

Note: *No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)*

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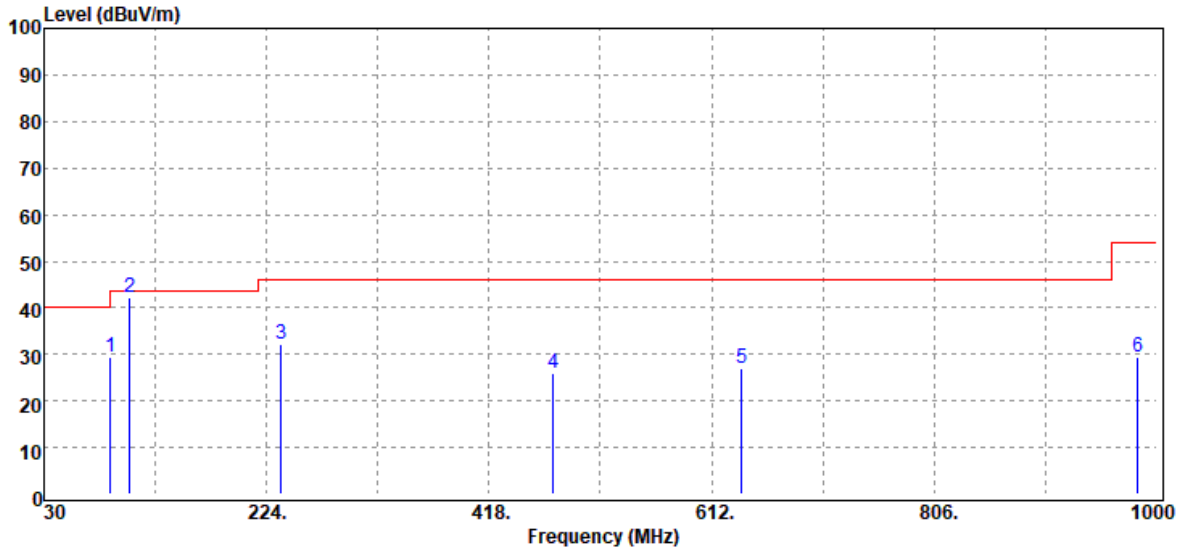
Test Mode	Mode 1	Temp/Hum	22(℃)/ 50%RH
Test Item	30MHz-1GHz	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
88.20	44.72	-15.47	29.25	43.50	-14.25	Peak
104.69	53.55	-11.18	42.37	43.50	-1.13	Peak
236.61	42.55	-10.51	32.04	46.00	-13.96	Peak
474.26	29.14	-3.23	25.91	46.00	-20.09	Peak
638.19	27.51	-0.37	27.14	46.00	-18.86	Peak
983.51	24.02	5.45	29.47	54.00	-24.53	Peak

Note: *No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)*

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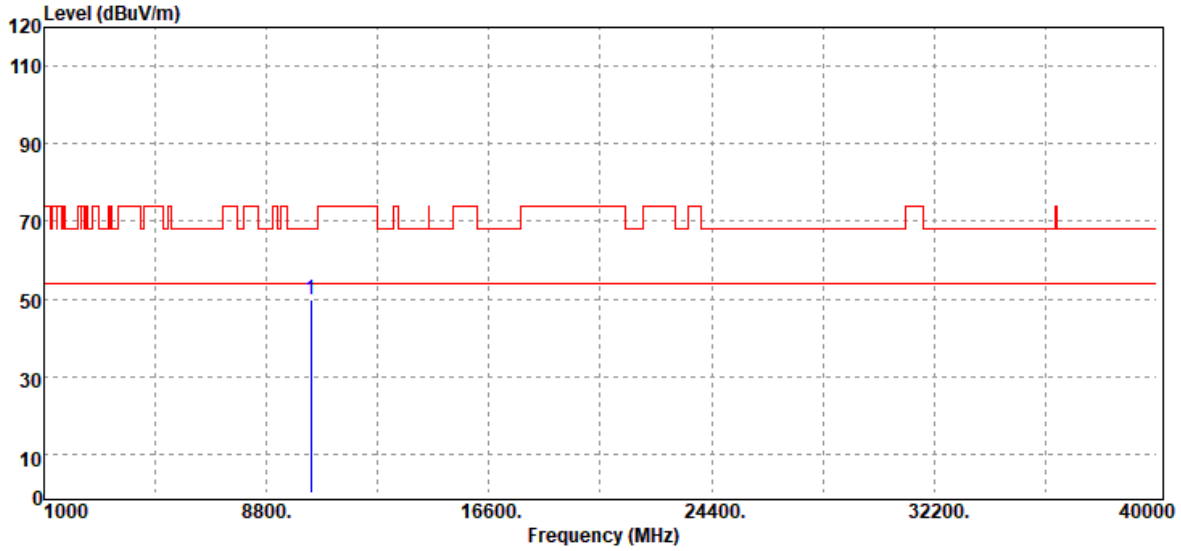
Report No.: T190902W03-RP4

Above 1G Test Data for UNII-1

Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.00	35.57	14.12	49.69	68.20	-18.51	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*

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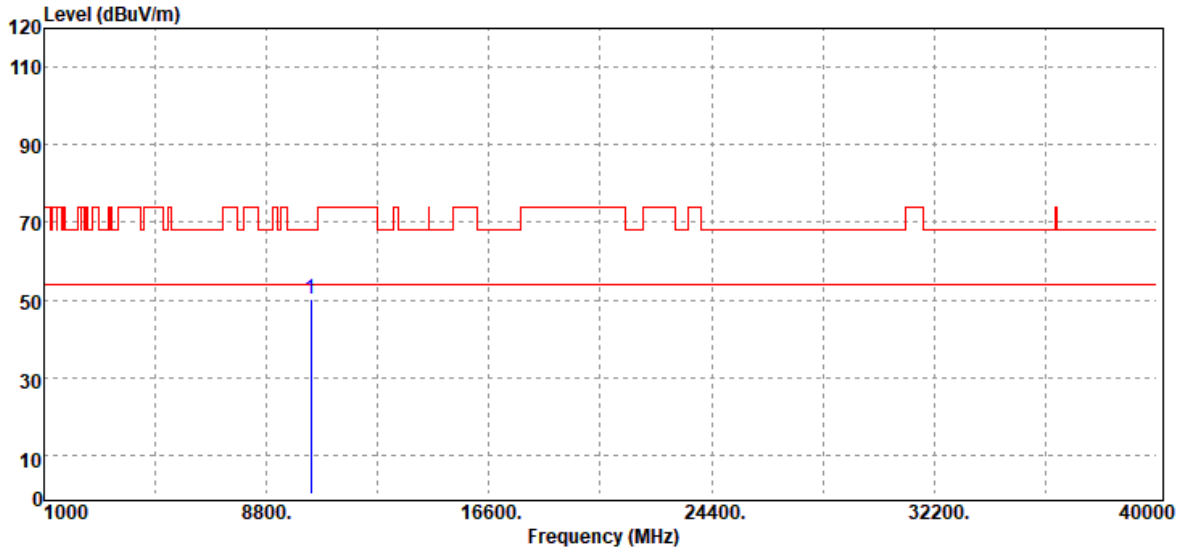
Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.00	35.99	14.12	50.11	68.20	-18.09	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*

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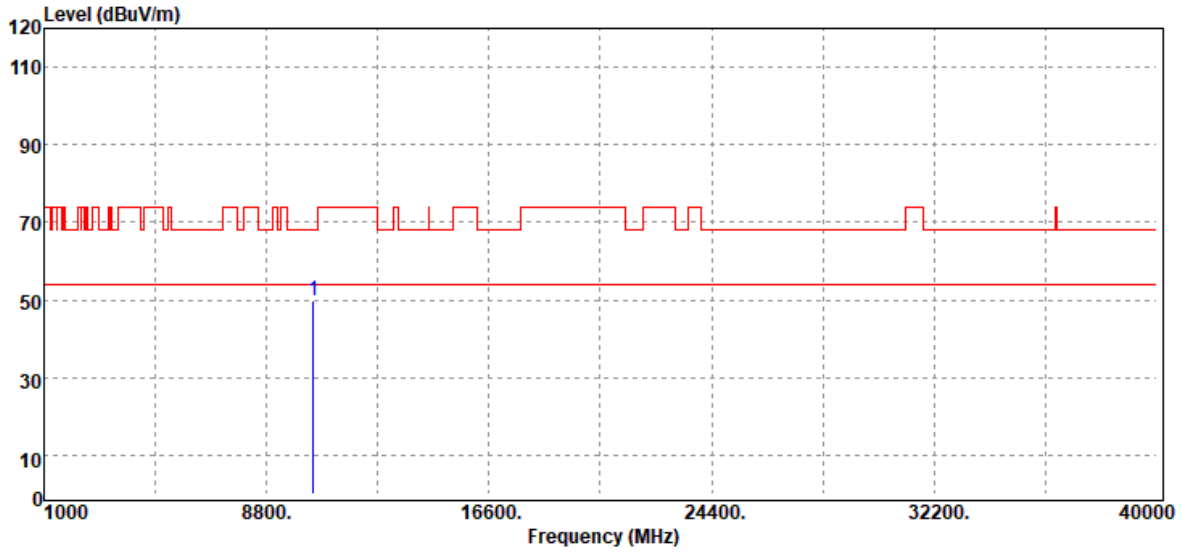
Test Mode	IEEE 802.11a Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.00	34.50	15.21	49.71	68.20	-18.49	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*

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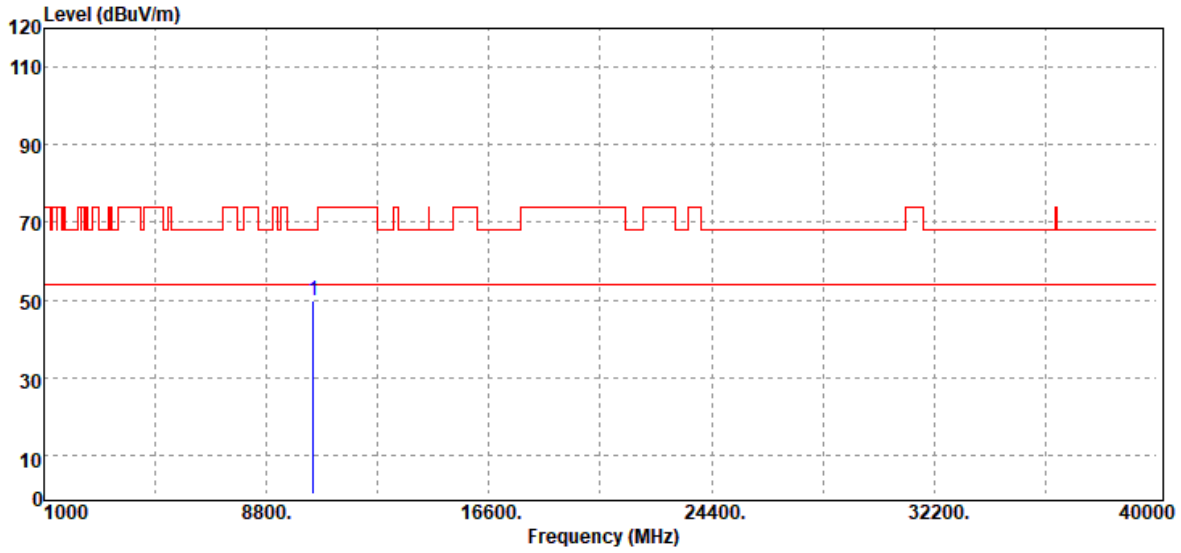
Test Mode	IEEE 802.11a Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.00	34.80	15.21	50.01	68.20	-18.19	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*

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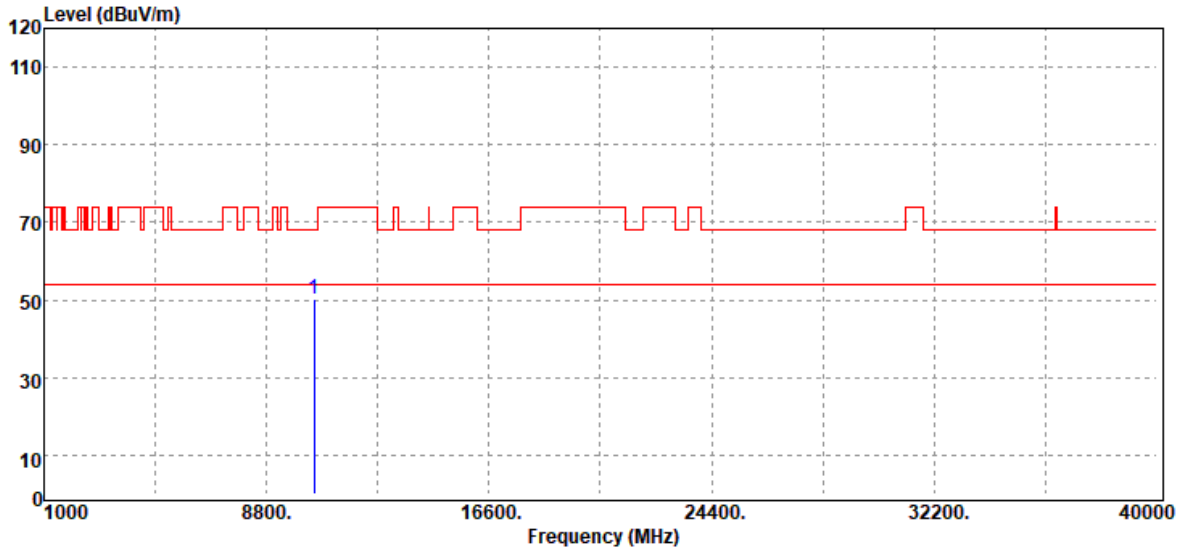
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.00	34.20	16.09	50.29	68.20	-17.91	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*

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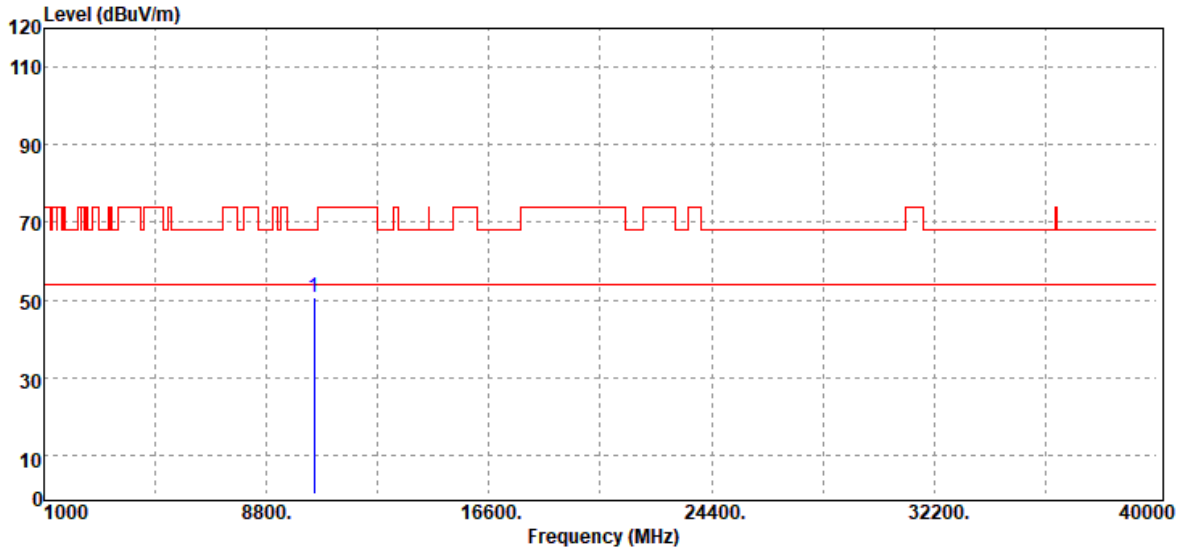
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.00	34.70	16.09	50.79	68.20	-17.41	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*

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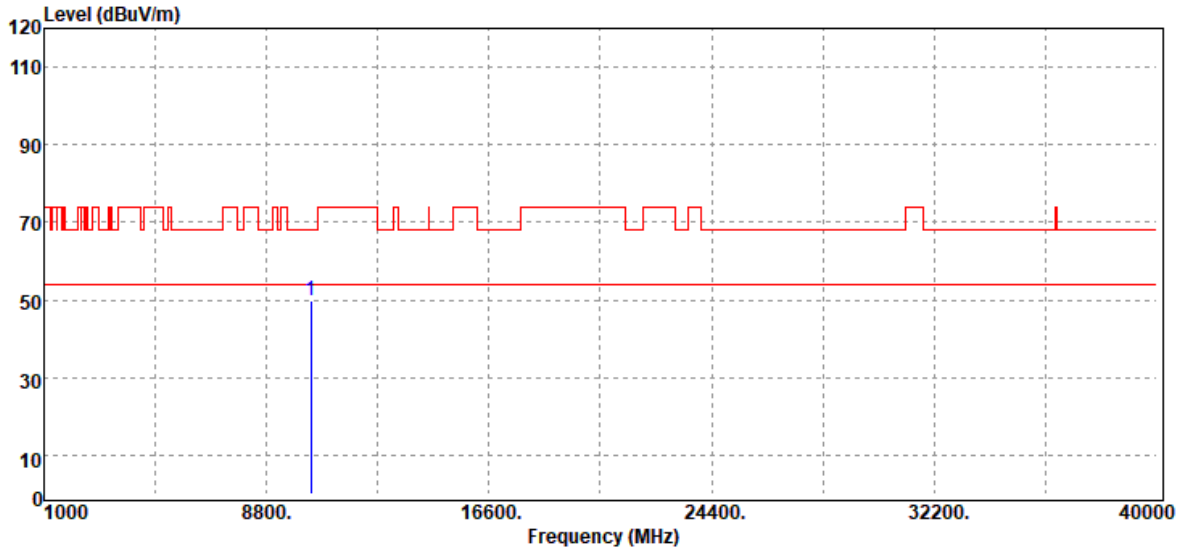
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.00	35.71	14.12	49.83	68.20	-18.37	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*

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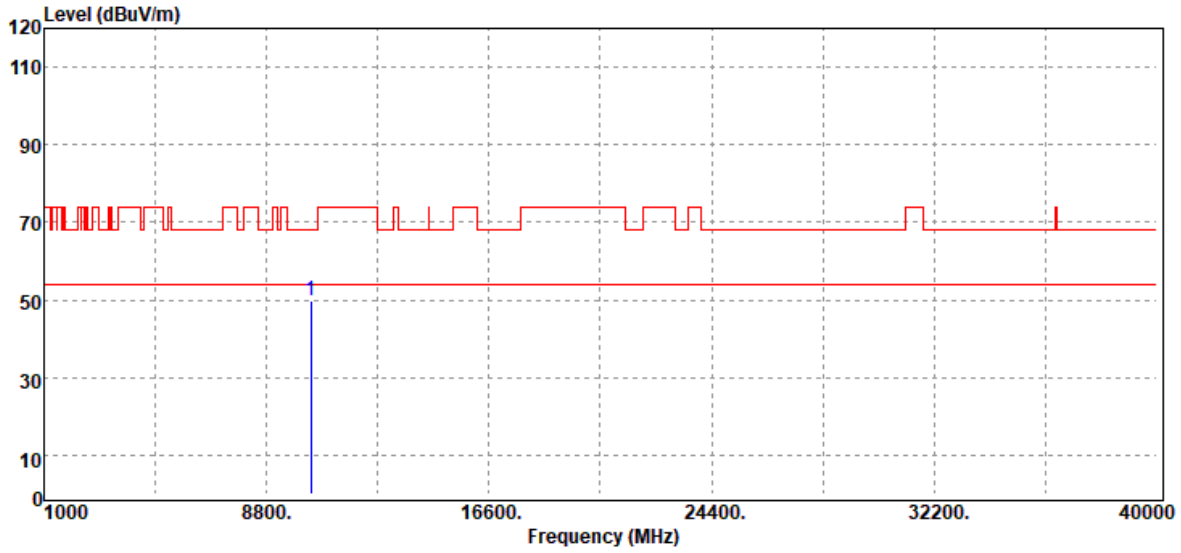
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10360.00	35.83	14.12	49.95	68.20	-18.25	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*

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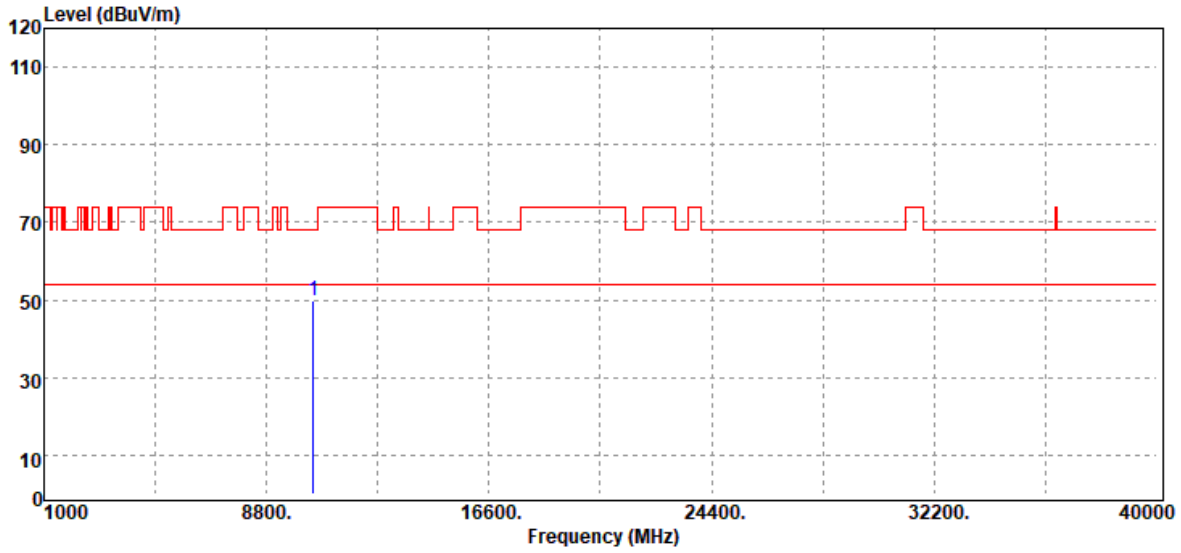
Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.00	34.50	15.21	49.71	68.20	-18.49	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*

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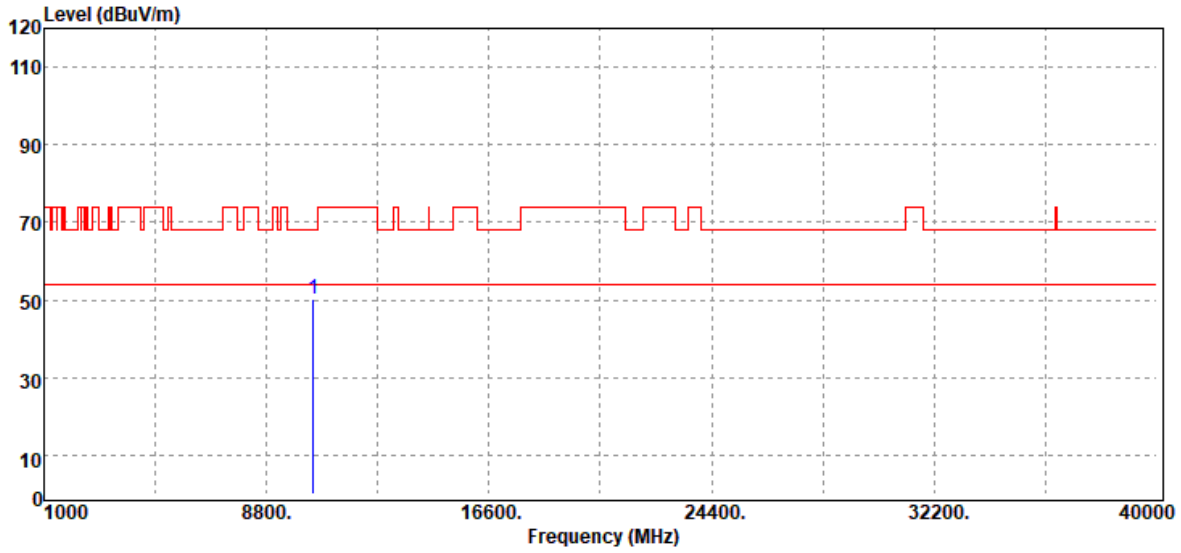
Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10440.00	35.02	15.21	50.23	68.20	-17.97	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*

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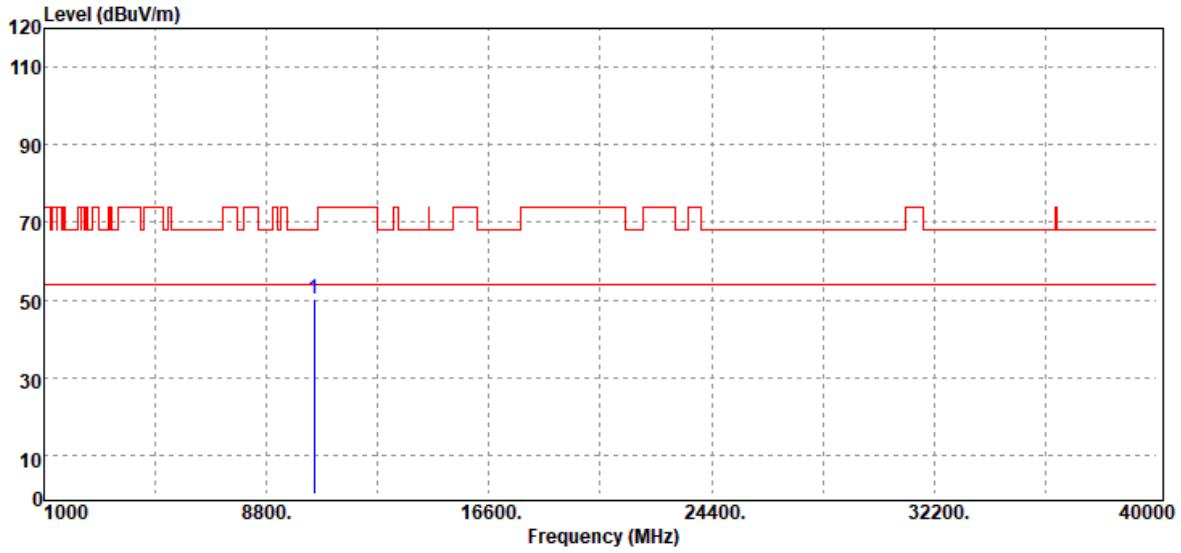
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.00	34.17	16.09	50.26	68.20	-17.94	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*

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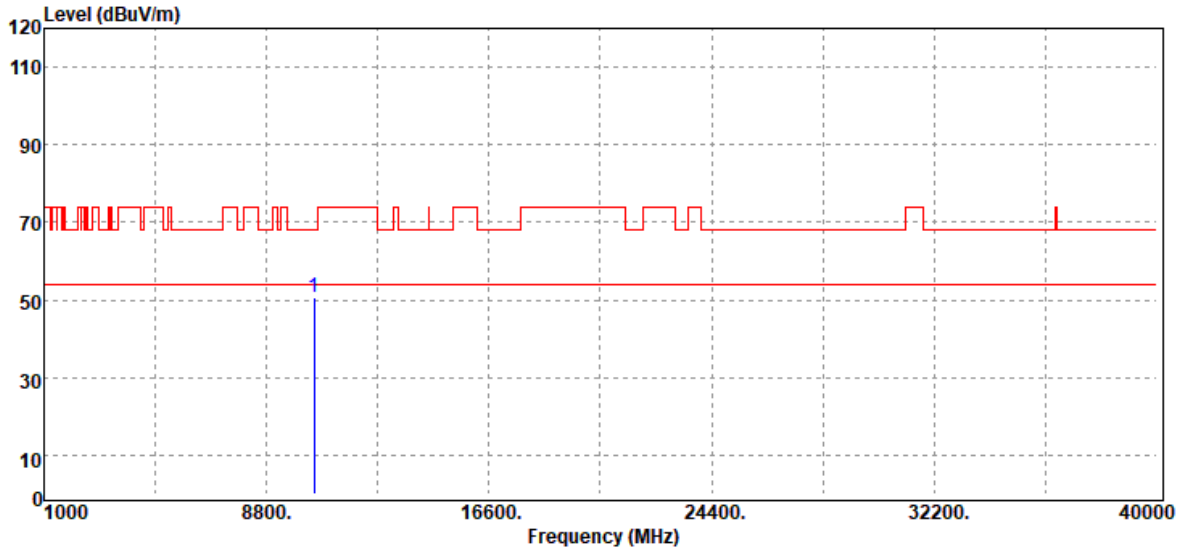
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10480.00	34.62	16.09	50.71	68.20	-17.49	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*

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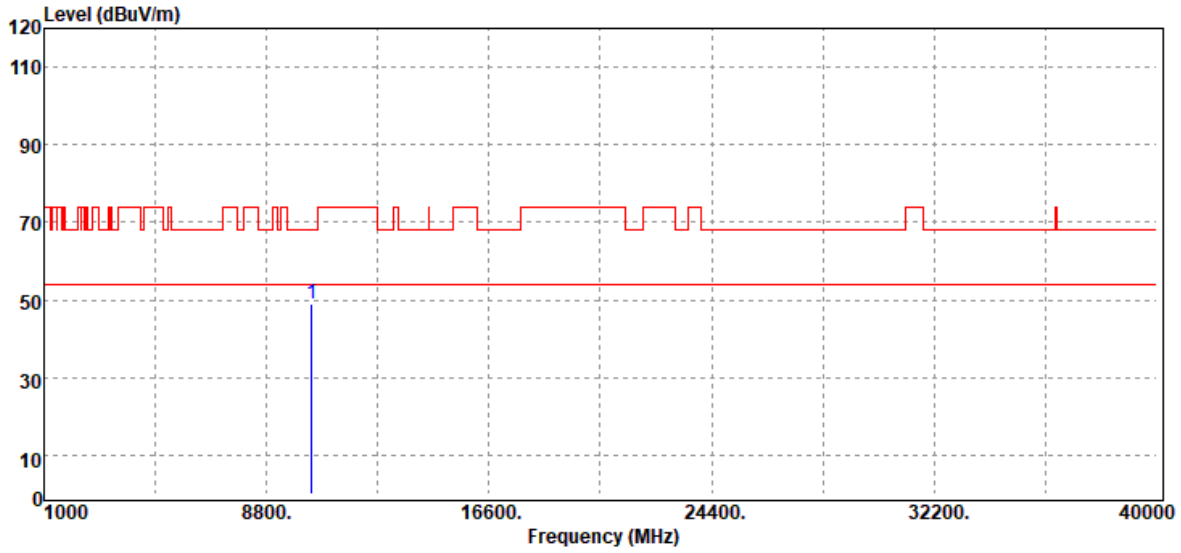
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10380.00	34.63	14.23	48.86	68.20	-19.34	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*

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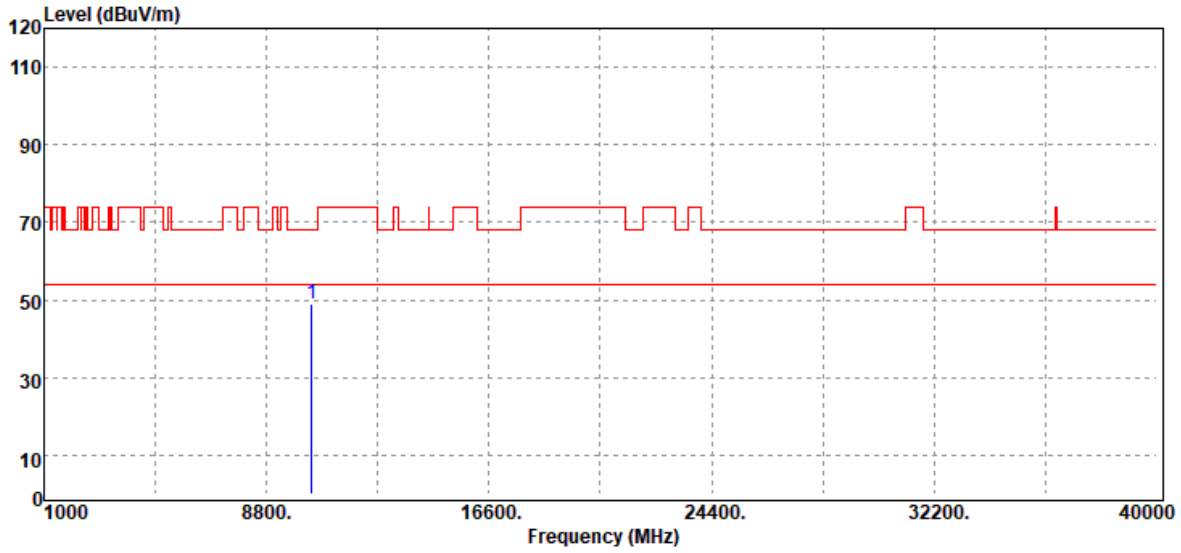
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10380.00	34.88	14.23	49.11	68.20	-19.09	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*

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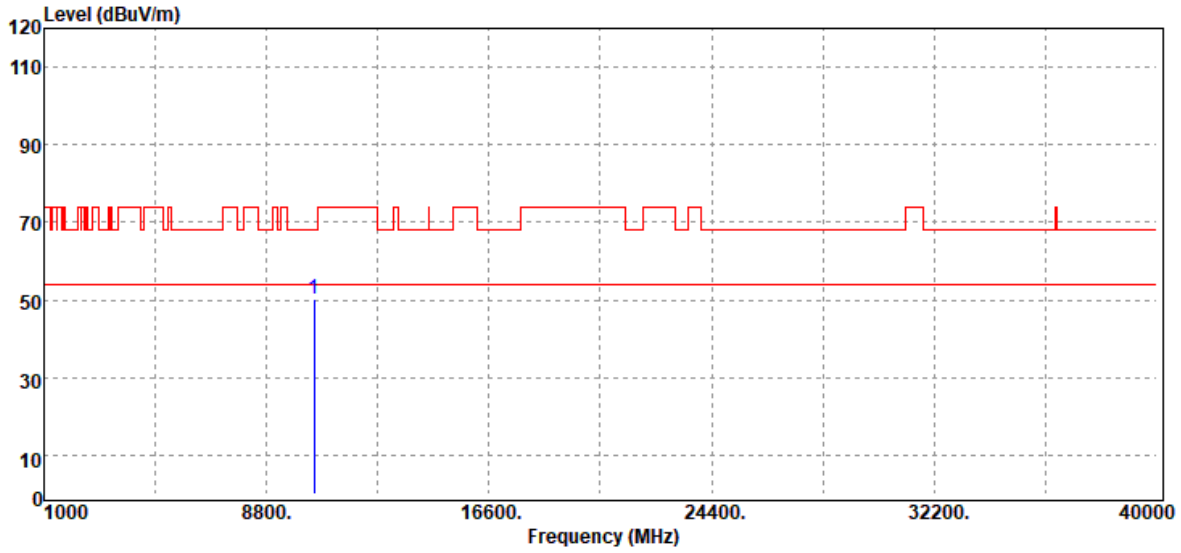
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10460.00	34.53	15.65	50.18	68.20	-18.02	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*

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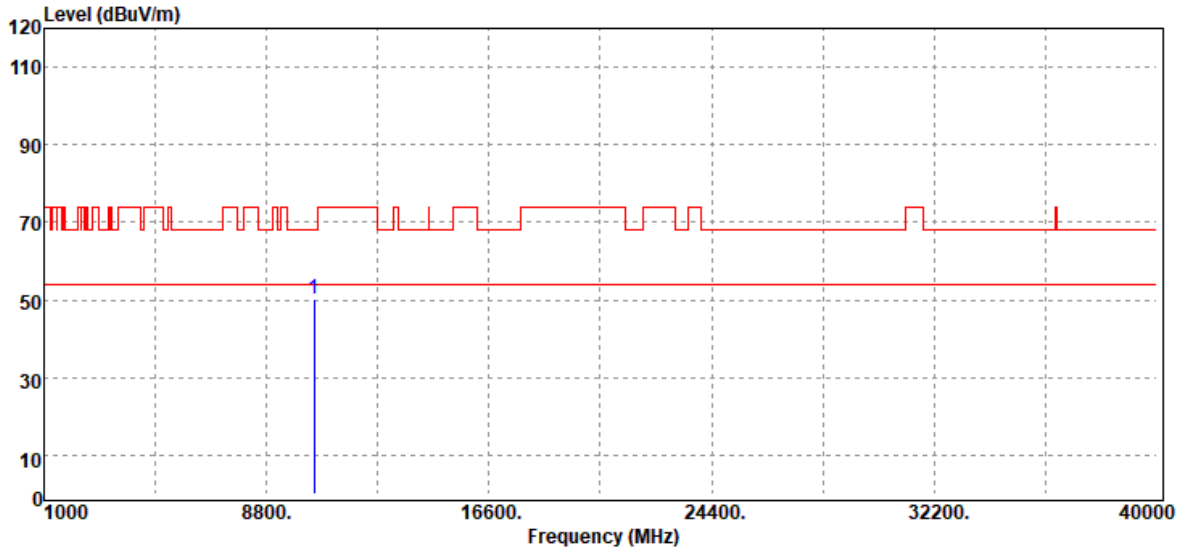
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10460.00	34.40	15.65	50.05	68.20	-18.15	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*

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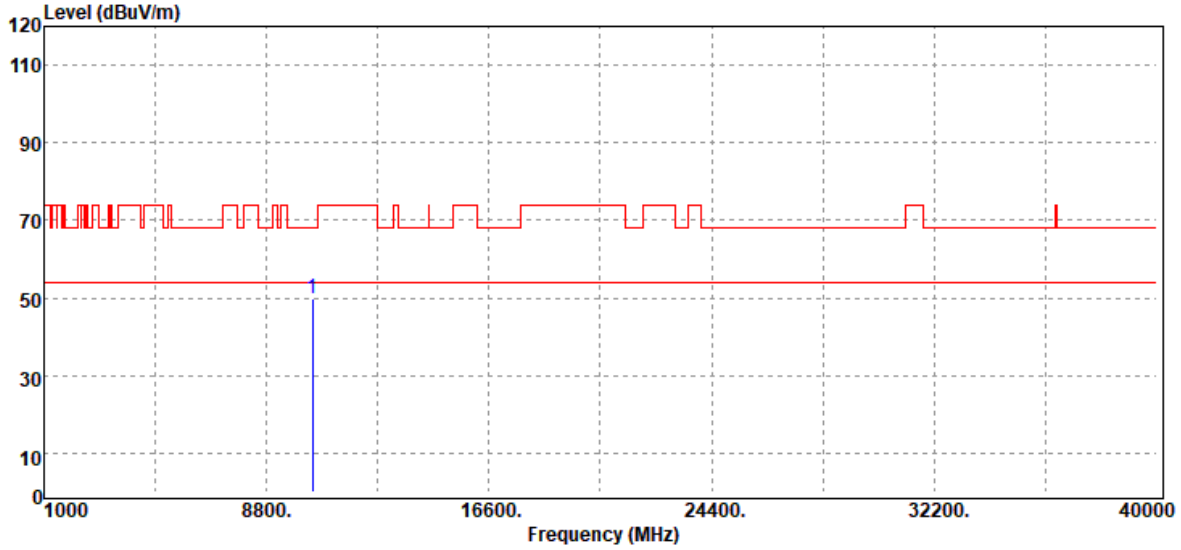
Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10420.00	35.05	14.78	49.83	68.20	-18.37	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*

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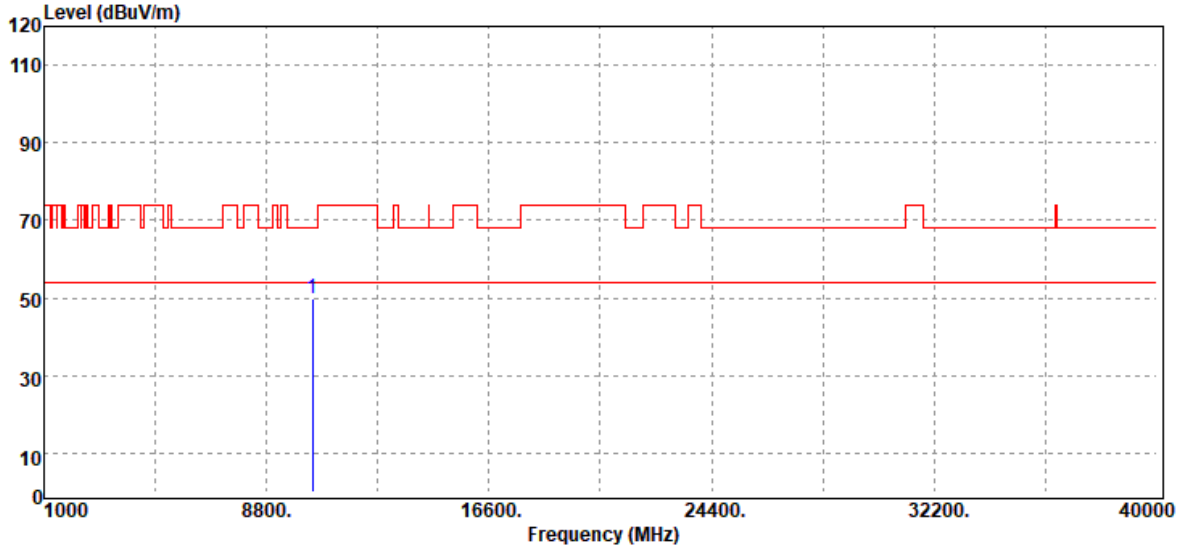
Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10420.00	35.09	14.78	49.87	68.20	-18.33	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*

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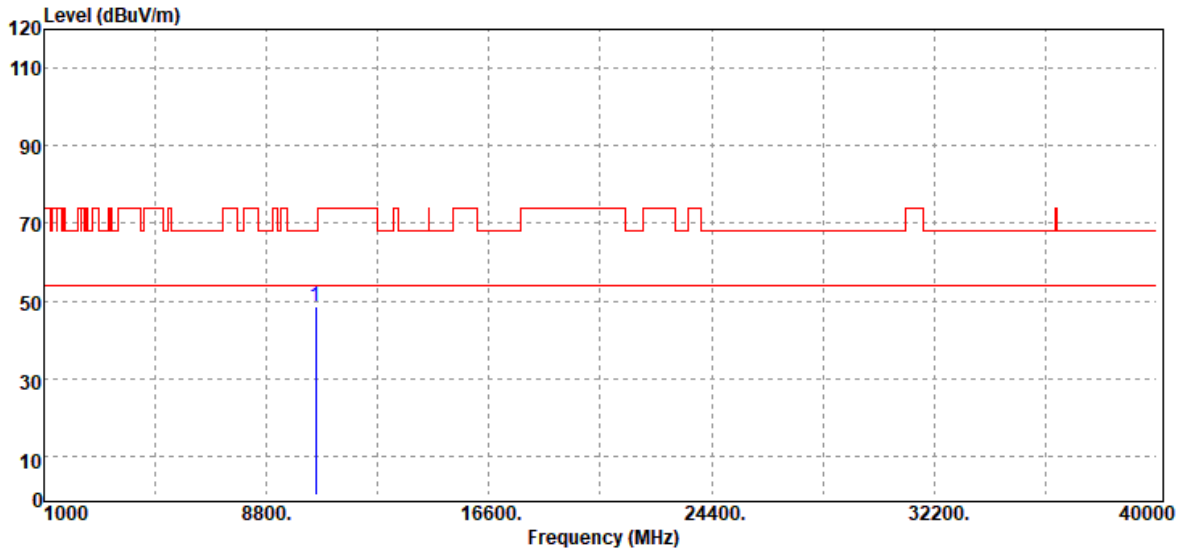
Above 1G Test Data for UNII-2a

Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10520.00	33.30	15.33	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*

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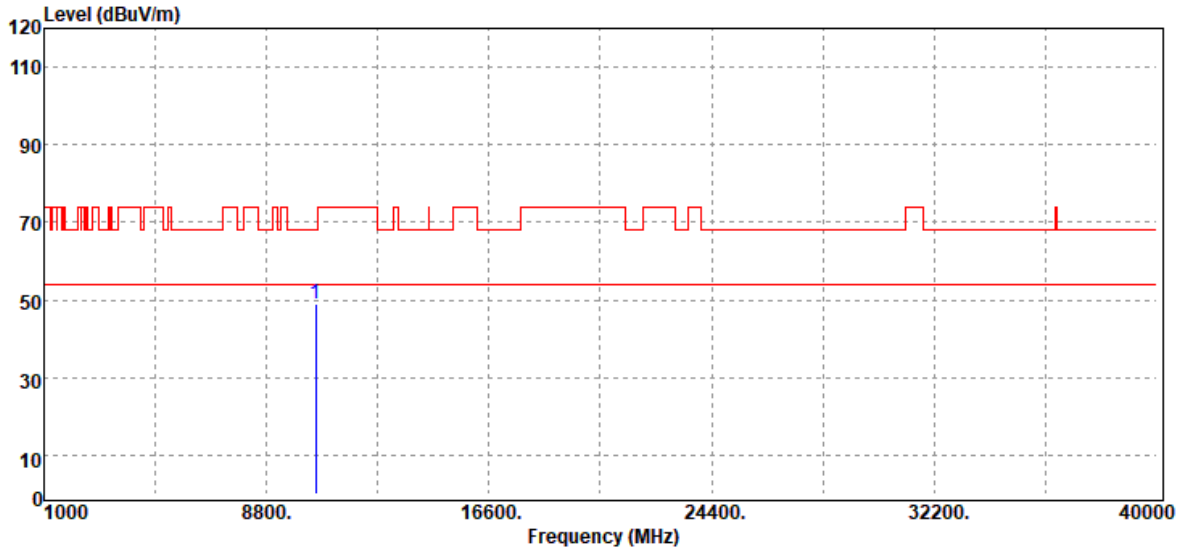
Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10520.00	33.81	15.33	49.14	68.20	-19.06	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*

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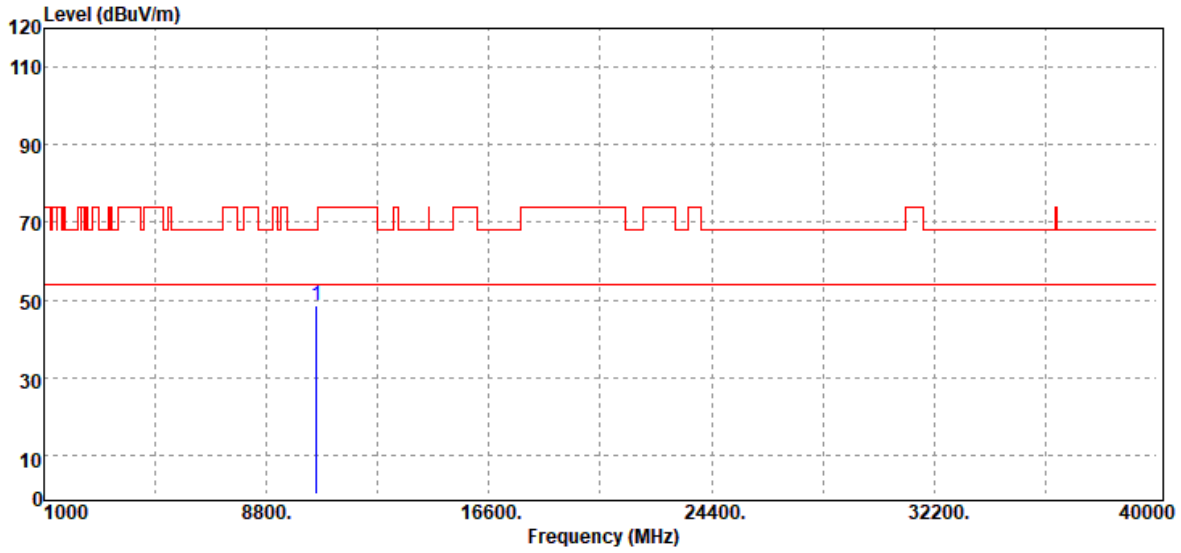
Test Mode	IEEE 802.11a Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10560.00	34.05	14.58	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*

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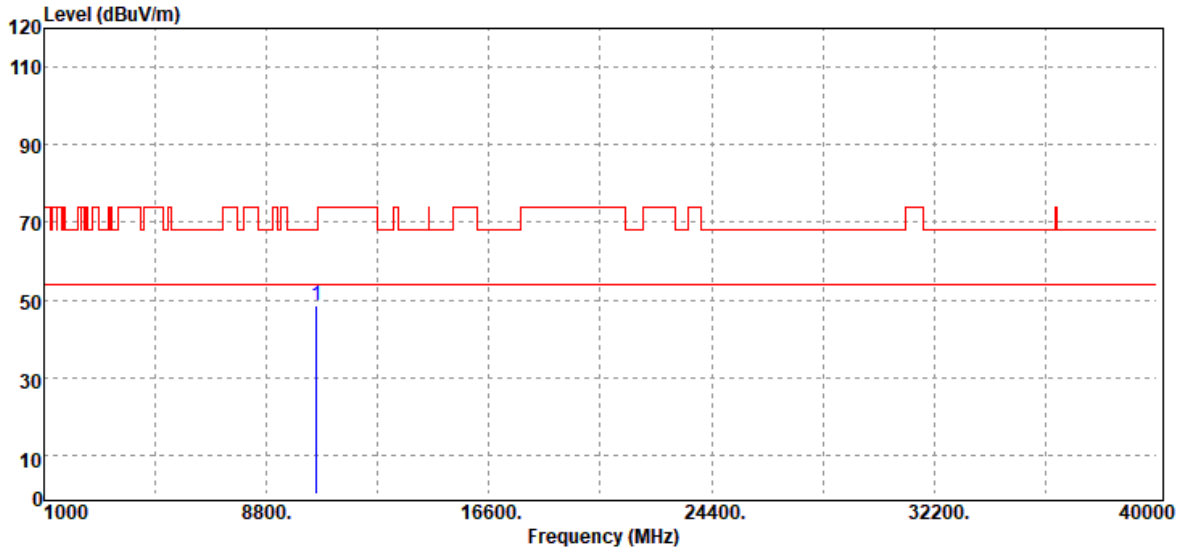
Test Mode	IEEE 802.11a Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10560.00	33.95	14.58	48.53	68.20	-19.67	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*

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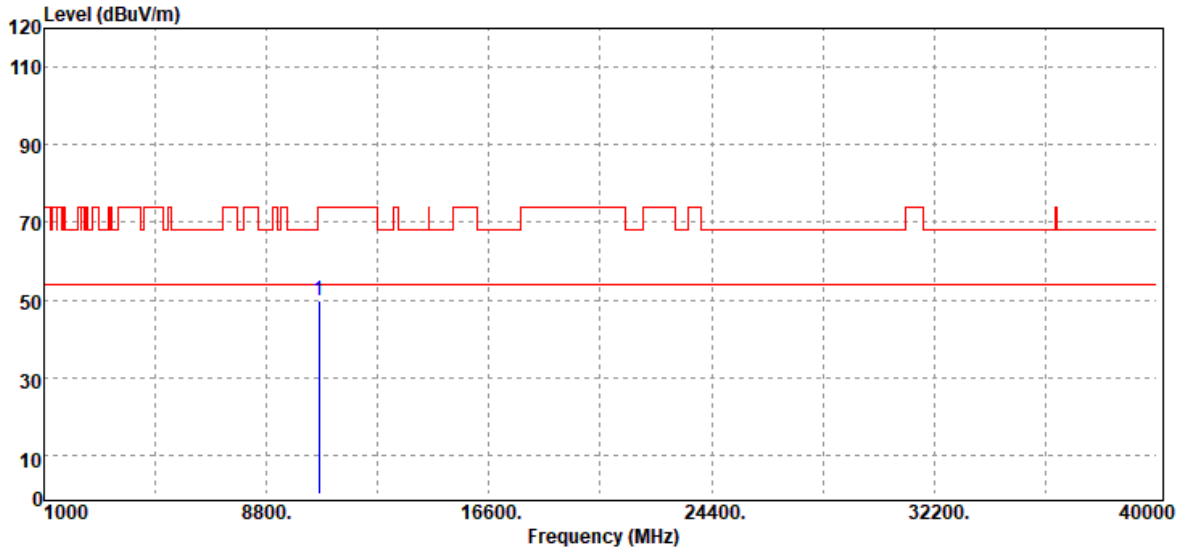
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10640.00	34.85	15.05	49.90	74.00	-24.10	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*

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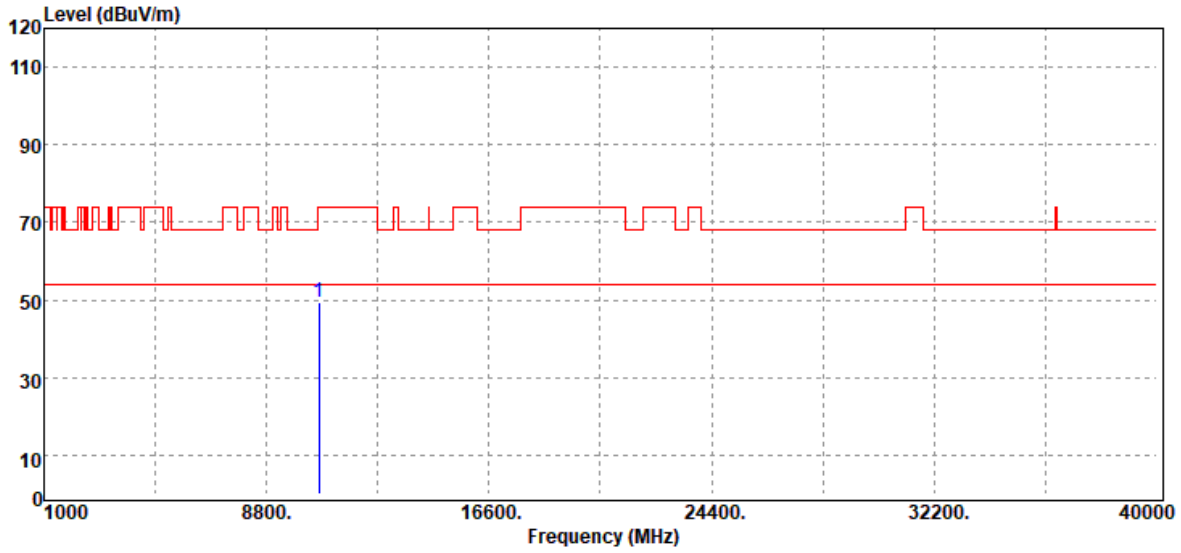
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10640.00	34.37	15.05	49.42	74.00	-24.58	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*

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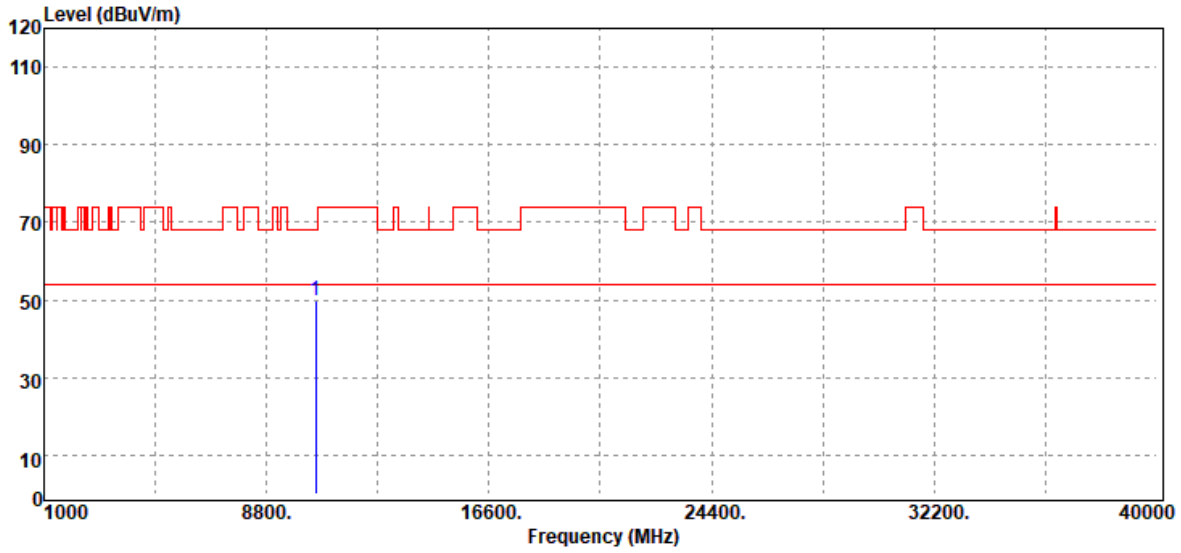
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10520.00	34.52	15.33	49.85	68.20	-18.35	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*

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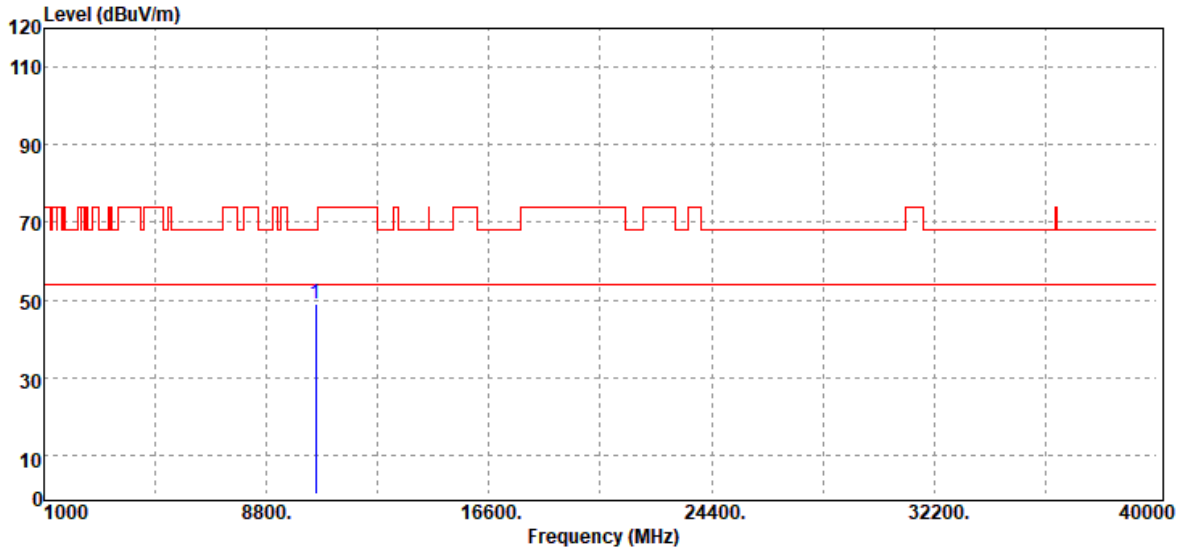
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10520.00	33.68	15.33	49.01	68.20	-19.19	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*

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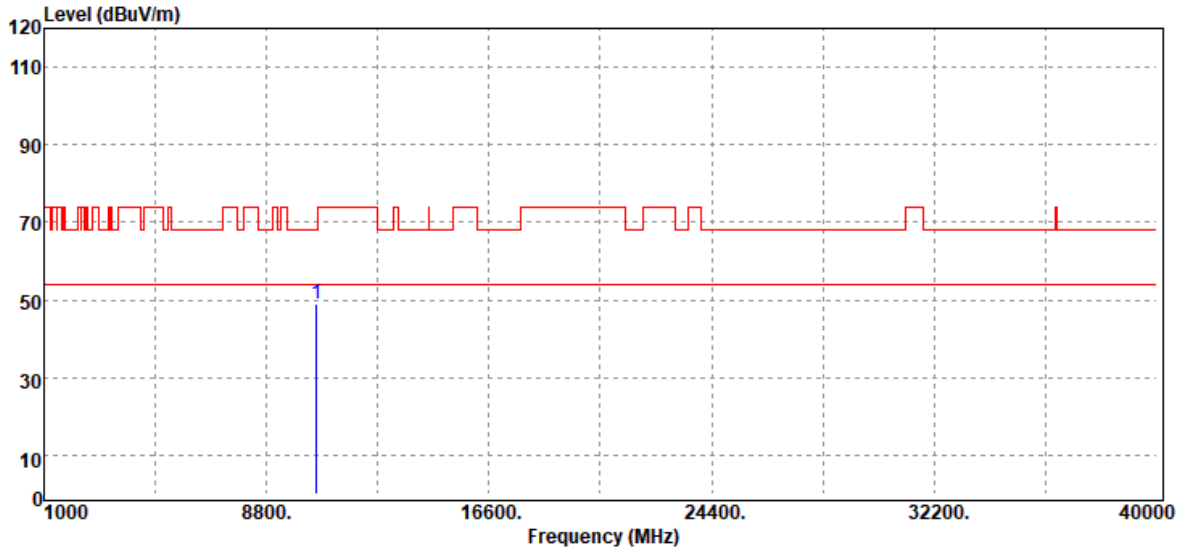
Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10560.00	34.59	14.58	49.17	68.20	-19.03	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*

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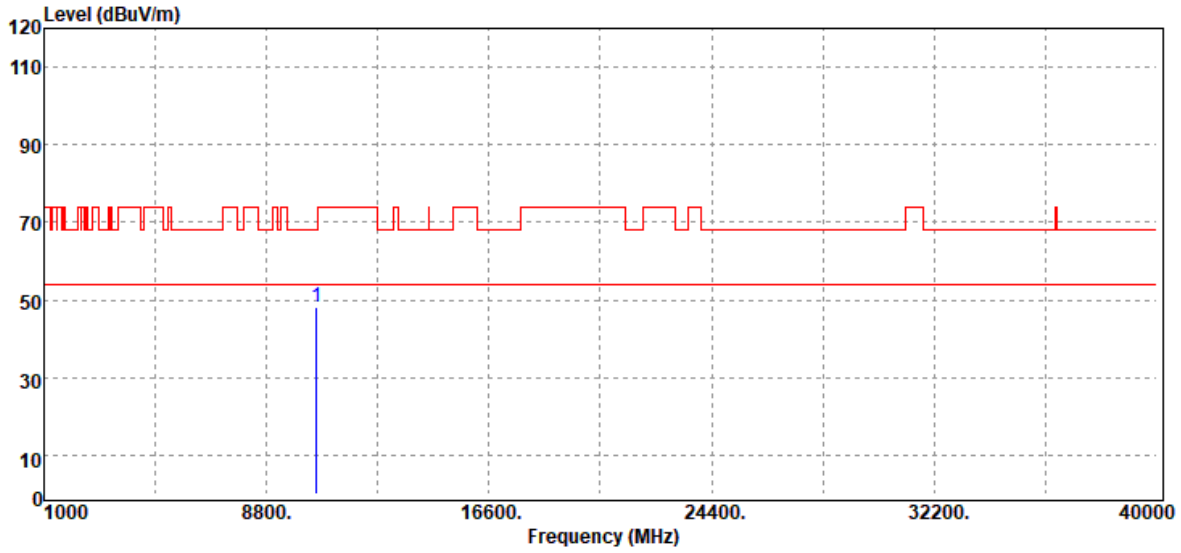
Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10560.00	33.79	14.58	48.37	68.20	-19.83	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*

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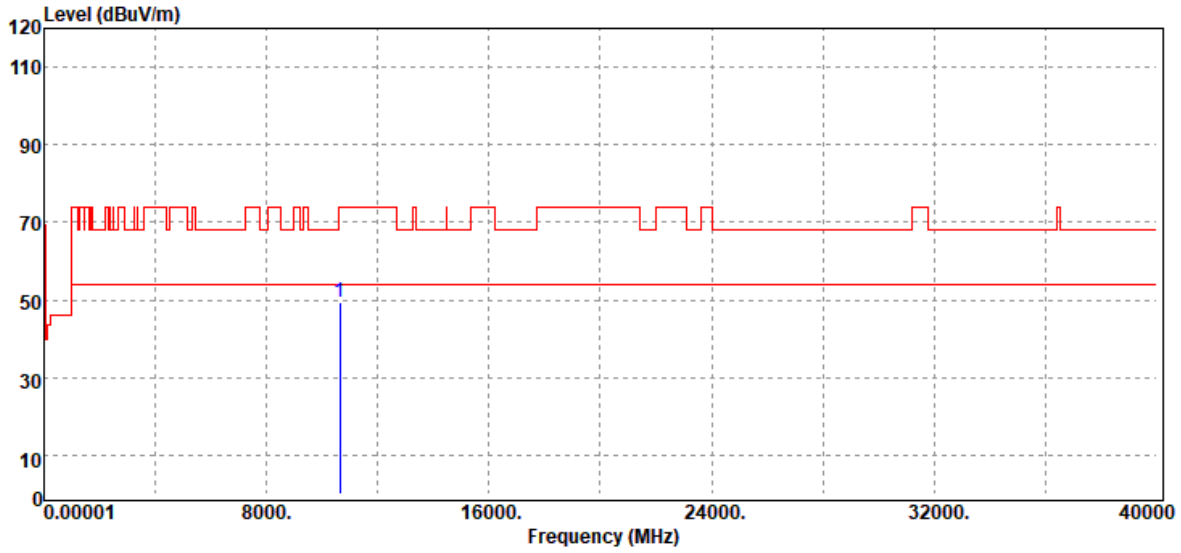
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10640.00	34.44	15.05	49.49	74.00	-24.51	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*

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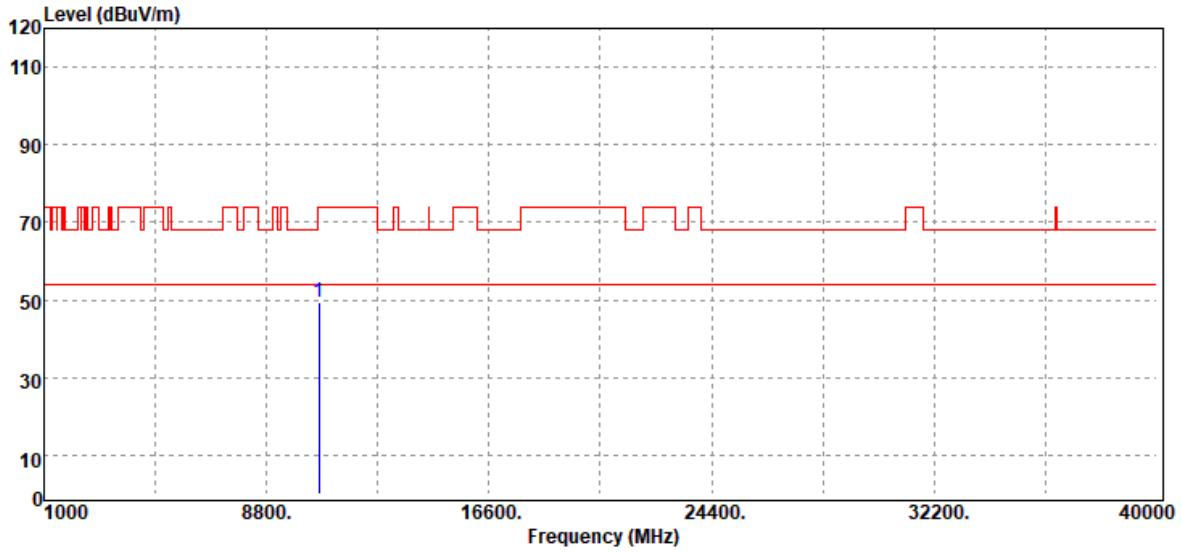
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10640.00	34.16	15.05	49.21	74.00	-24.79	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*

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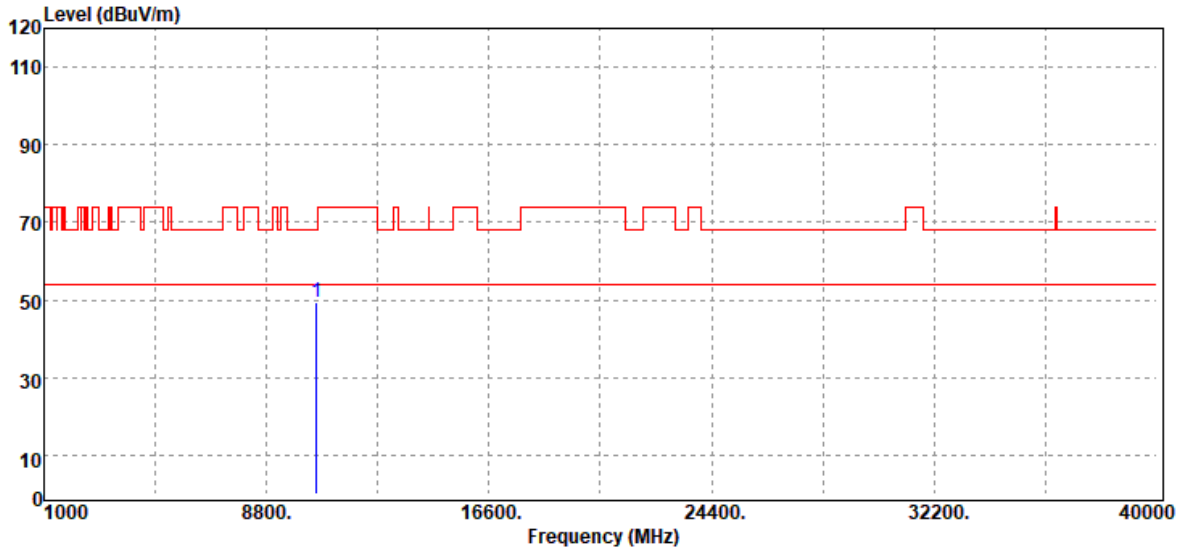
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10540.00	34.51	14.95	49.46	68.20	-18.74	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*

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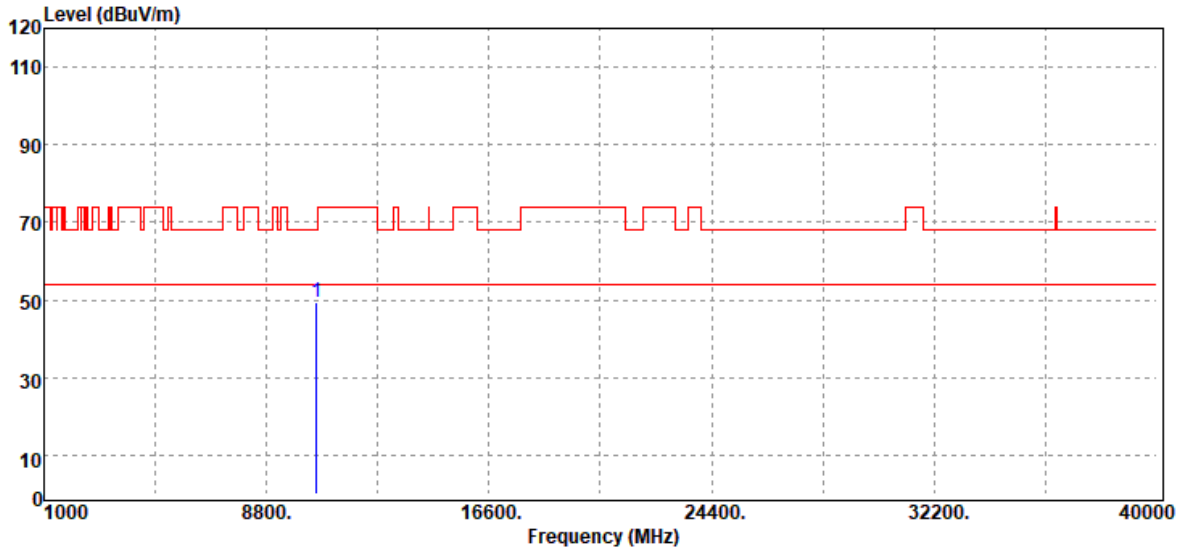
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10540.00	34.33	14.95	49.28	68.20	-18.92	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*

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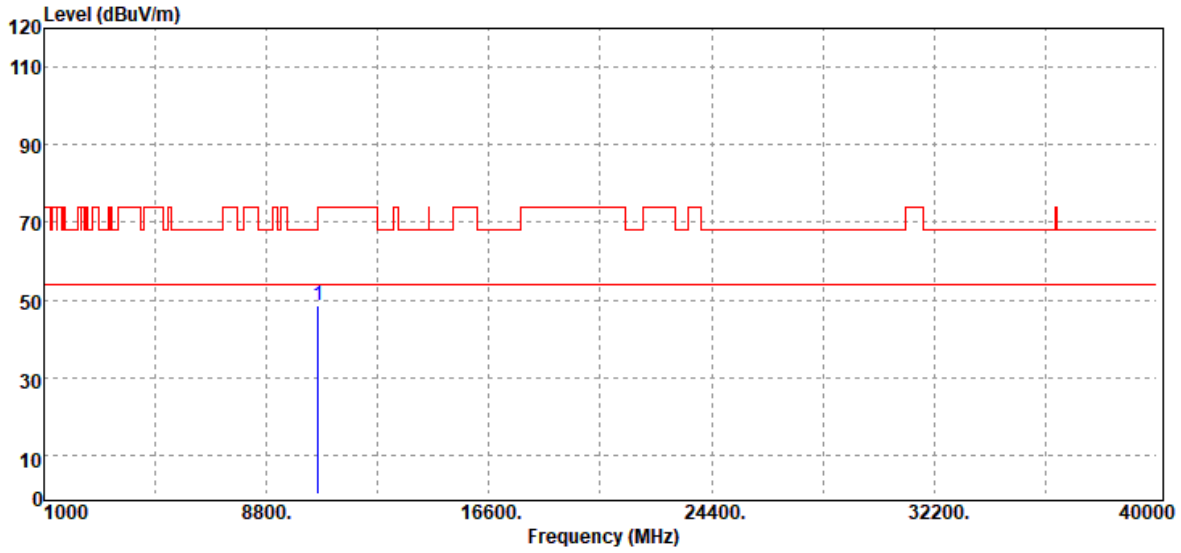
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10620.00	33.94	14.81	48.75	74.00	-25.25	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*

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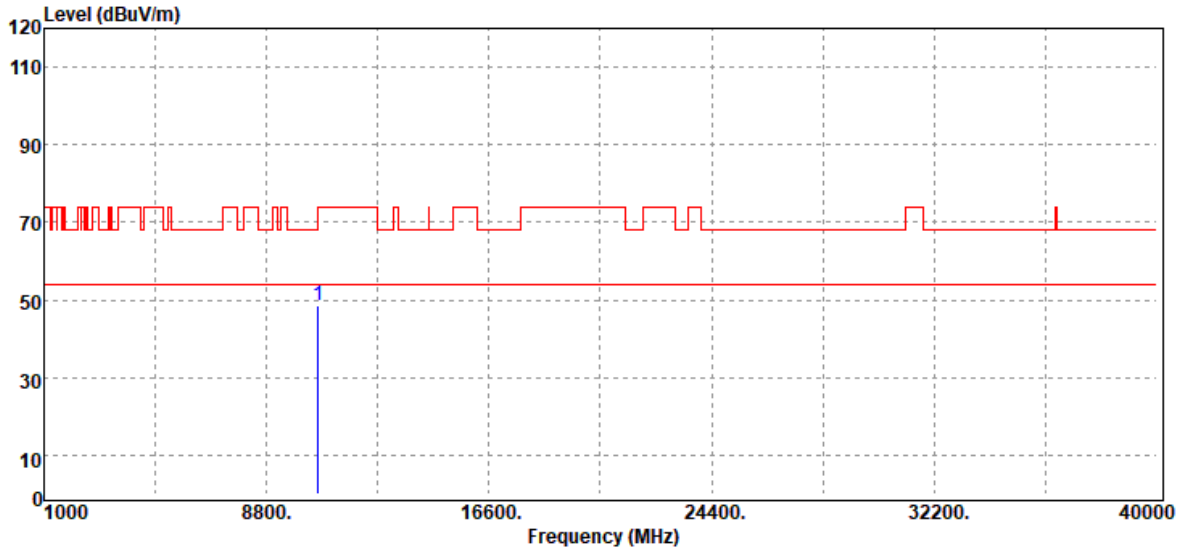
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10620.00	33.74	14.81	48.55	74.00	-25.45	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*

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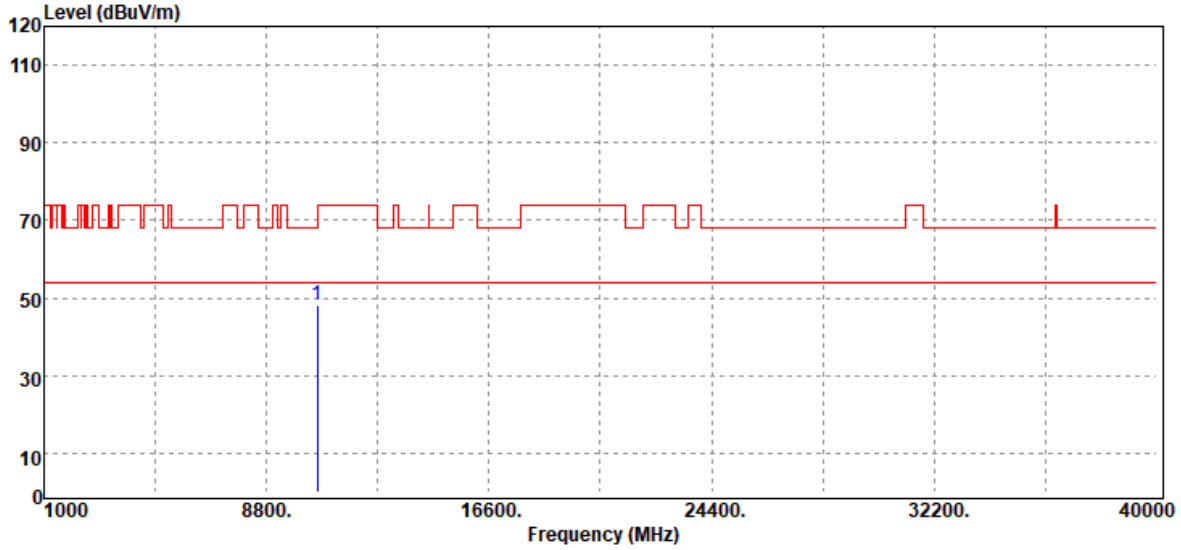
Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10580.00	33.49	14.56	48.05	68.20	-20.15	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*

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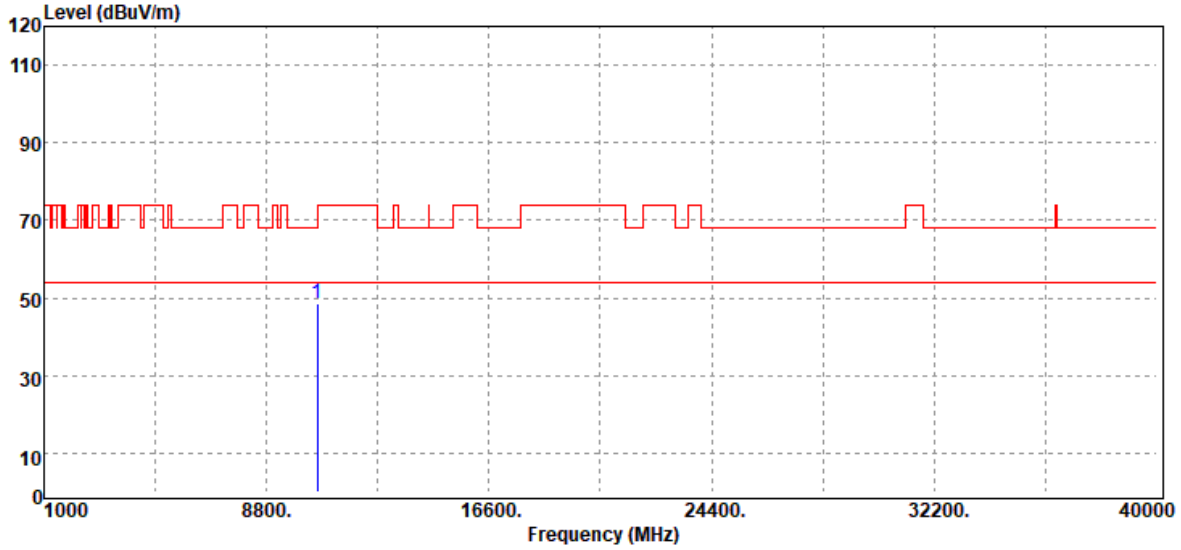
Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
10580.00	34.18	14.56	48.74	68.20	-19.46	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*

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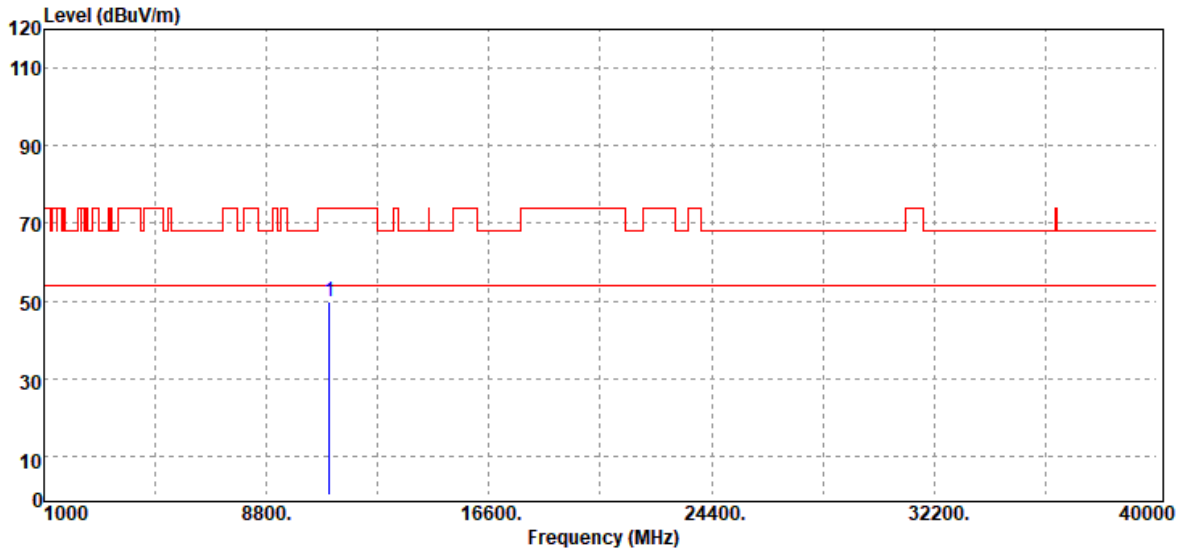
Above 1G Test Data for UNII-2c

Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11000.00	33.96	15.80	49.76	74.00	-24.24	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*

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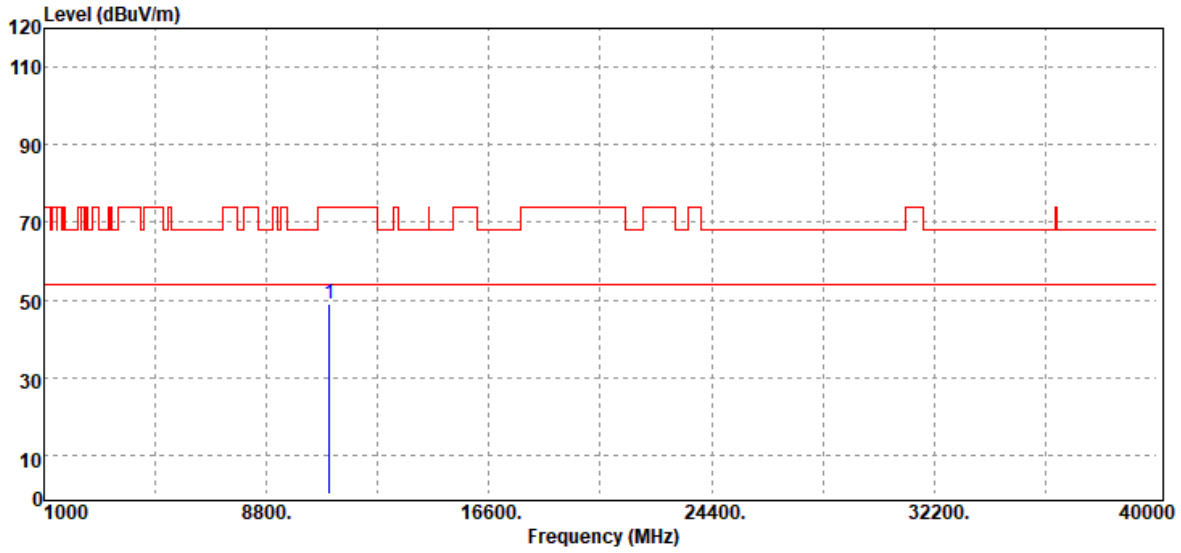
Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11000.00	33.30	15.80	49.10	74.00	-24.90	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*

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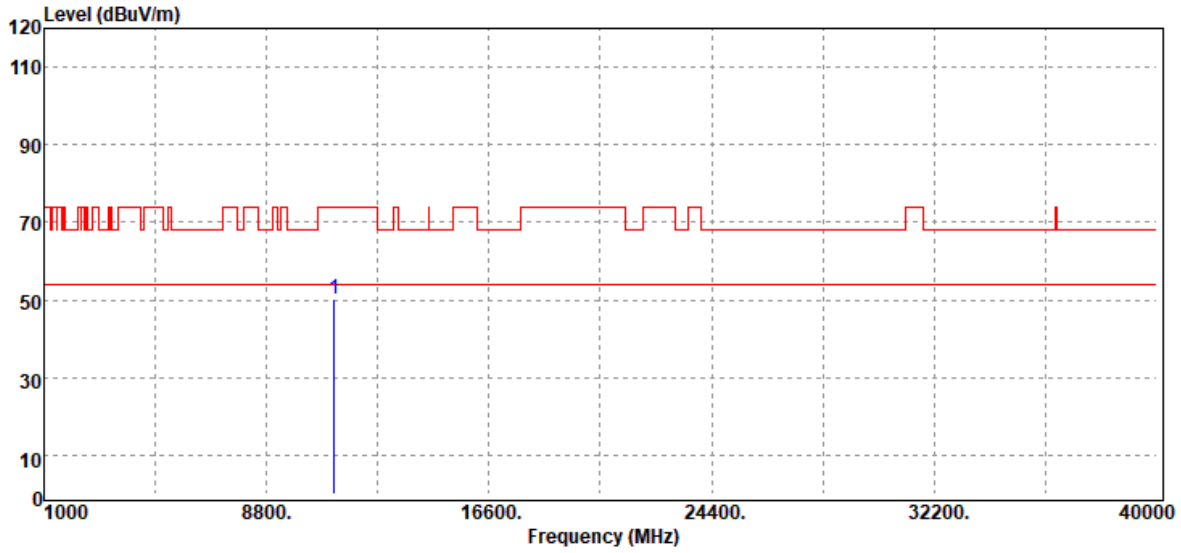
Test Mode	IEEE 802.11a Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11160.00	34.24	16.17	50.41	74.00	-23.59	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*

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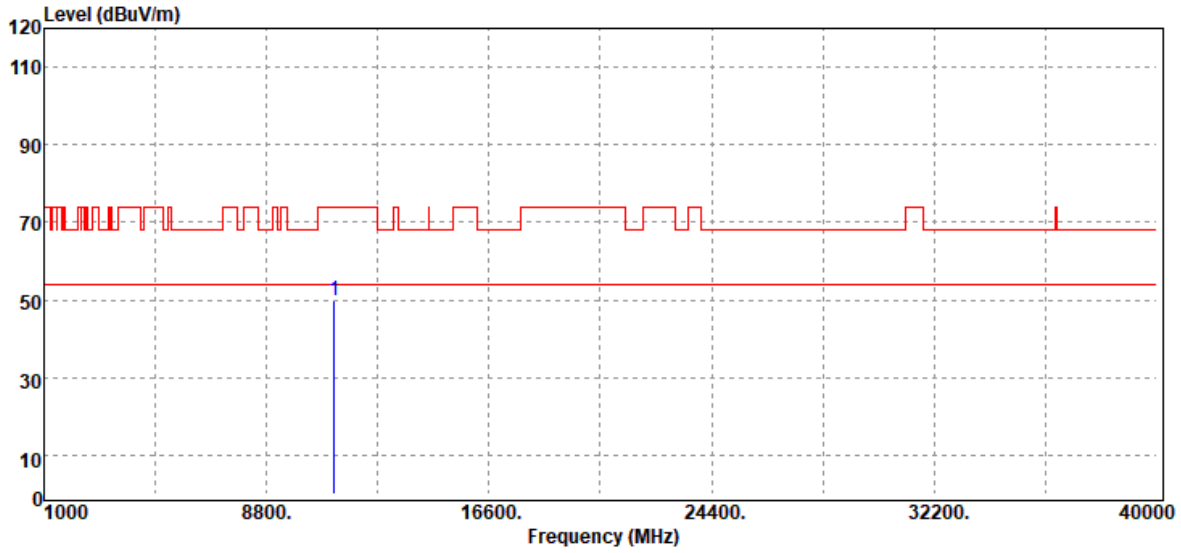
Test Mode	IEEE 802.11a Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11160.00	33.66	16.17	49.83	74.00	-24.17	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*

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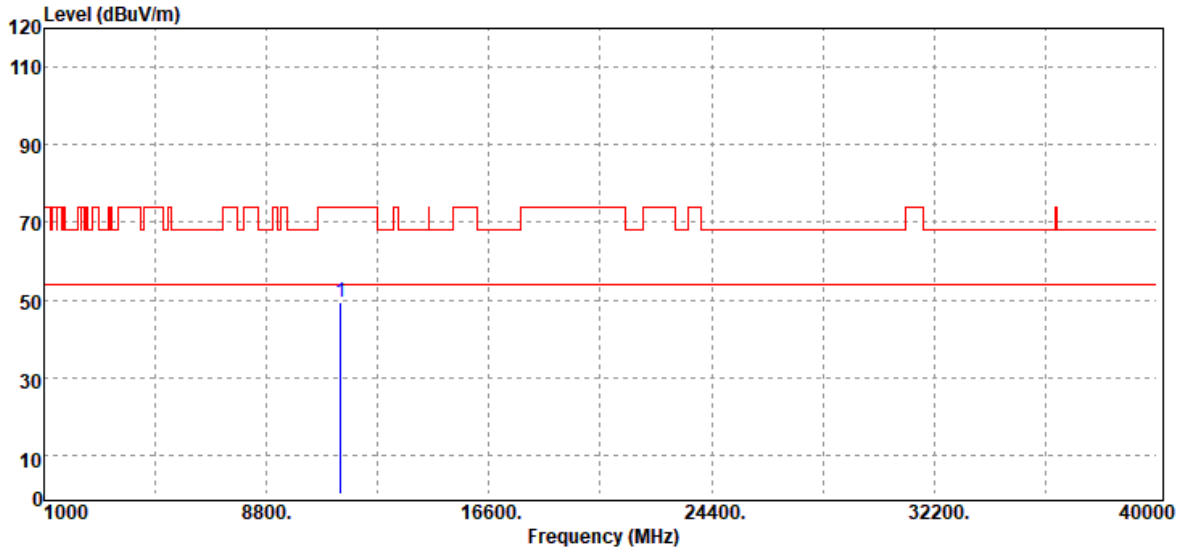
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11400.00	33.27	15.94	49.21	74.00	-24.79	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*

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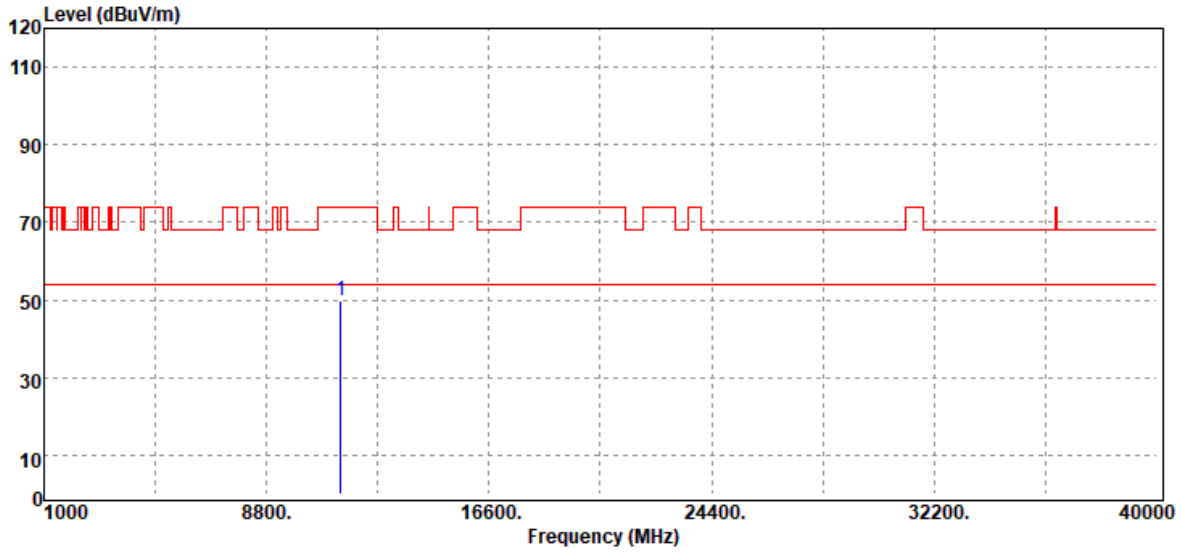
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11400.00	34.06	15.94	50.00	74.00	-24.00	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*

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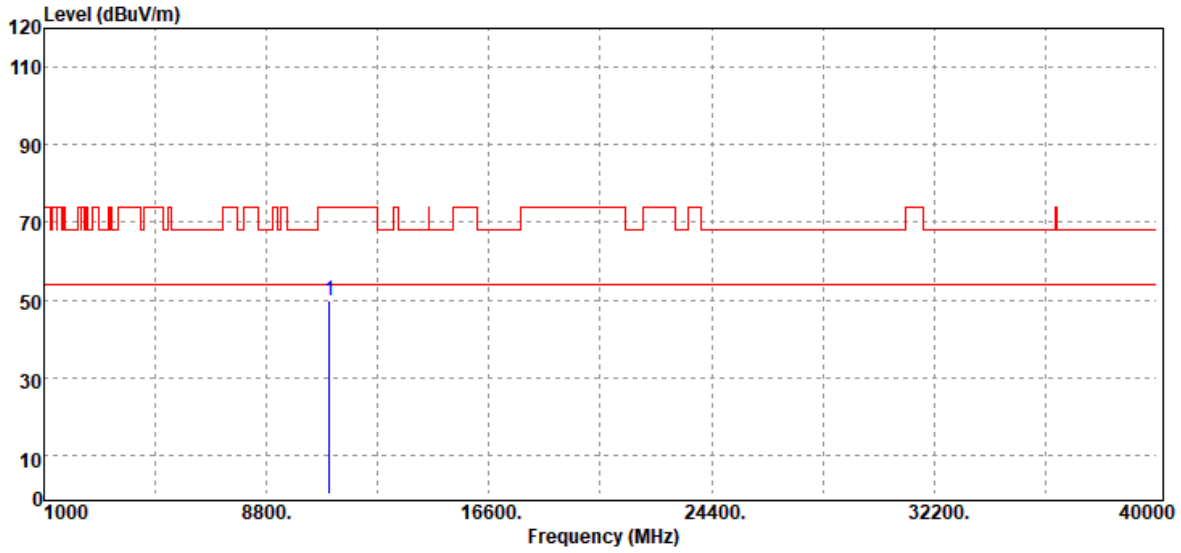
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11000.00	34.19	15.80	49.99	74.00	-24.01	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*

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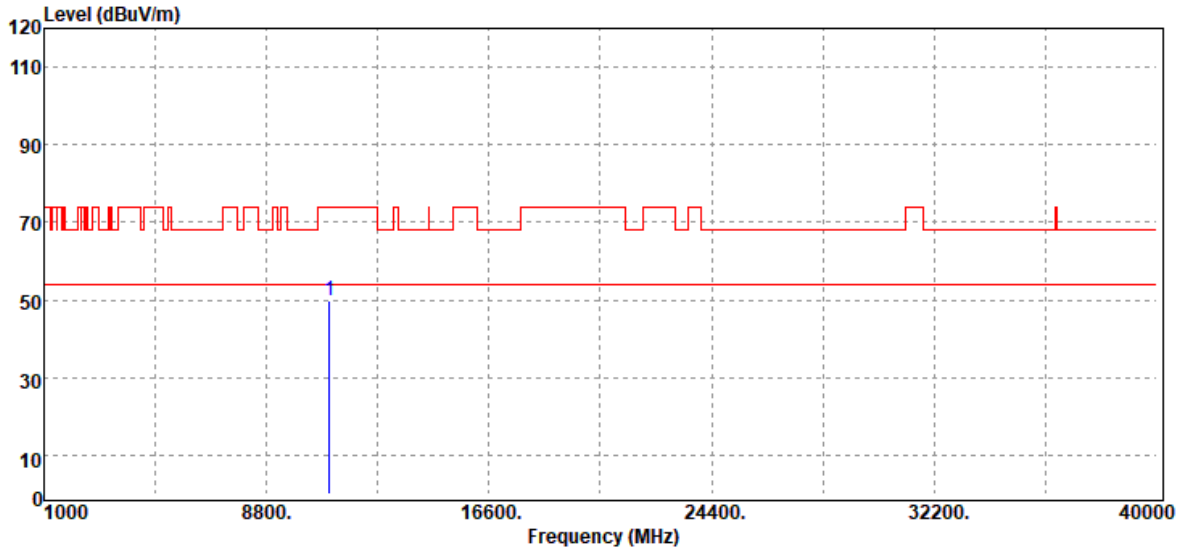
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11000.00	33.86	15.80	49.66	74.00	-24.34	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*

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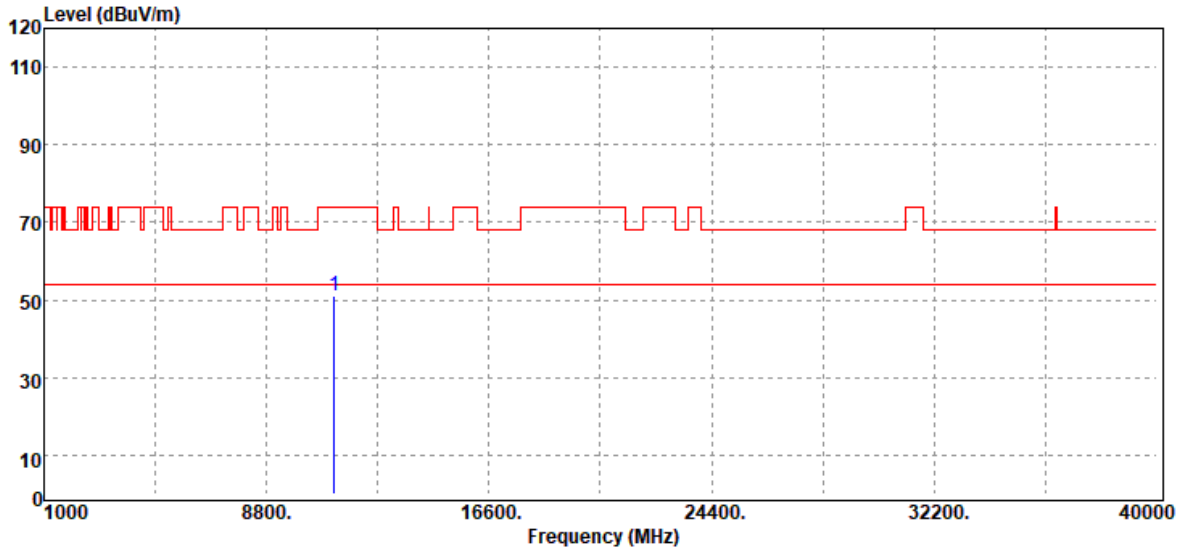
Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11160.00	34.87	16.17	51.04	74.00	-22.96	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*

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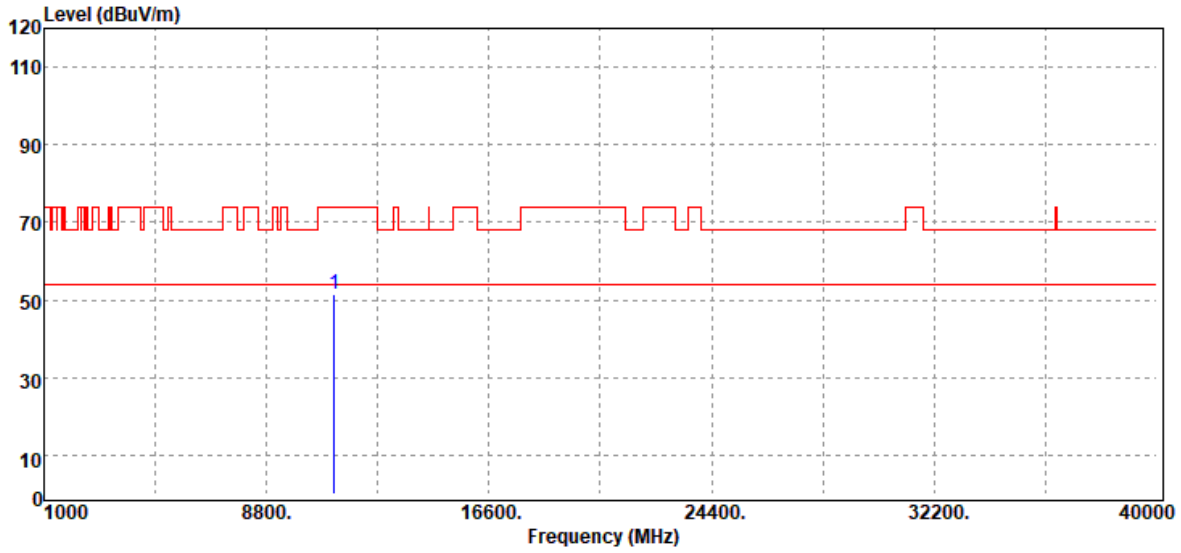
Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11160.00	35.37	16.17	51.54	74.00	-22.46	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*

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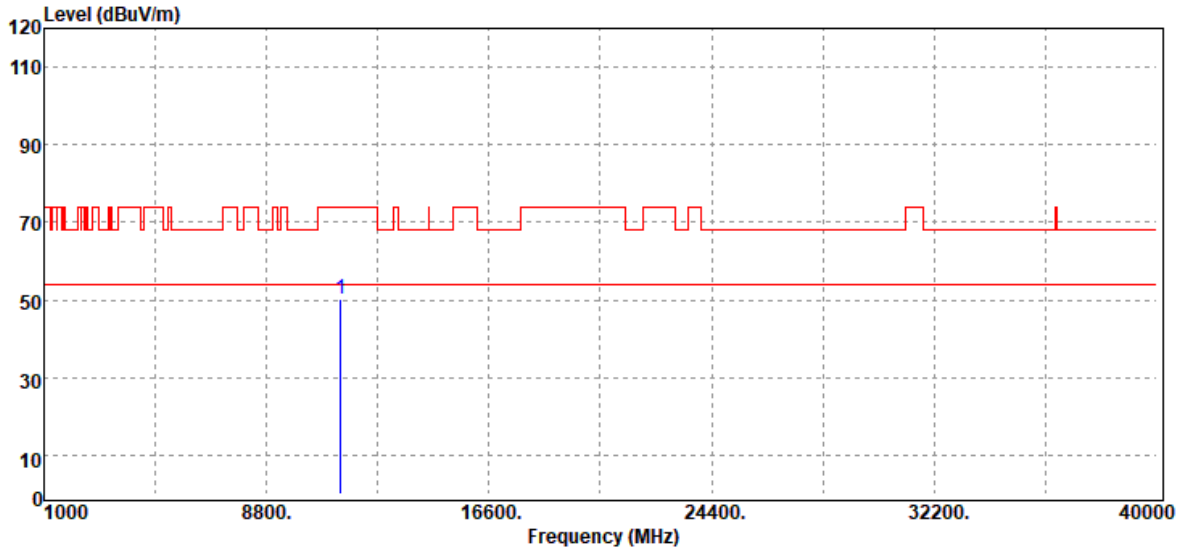
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11400.00	34.44	15.94	50.38	74.00	-23.62	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*

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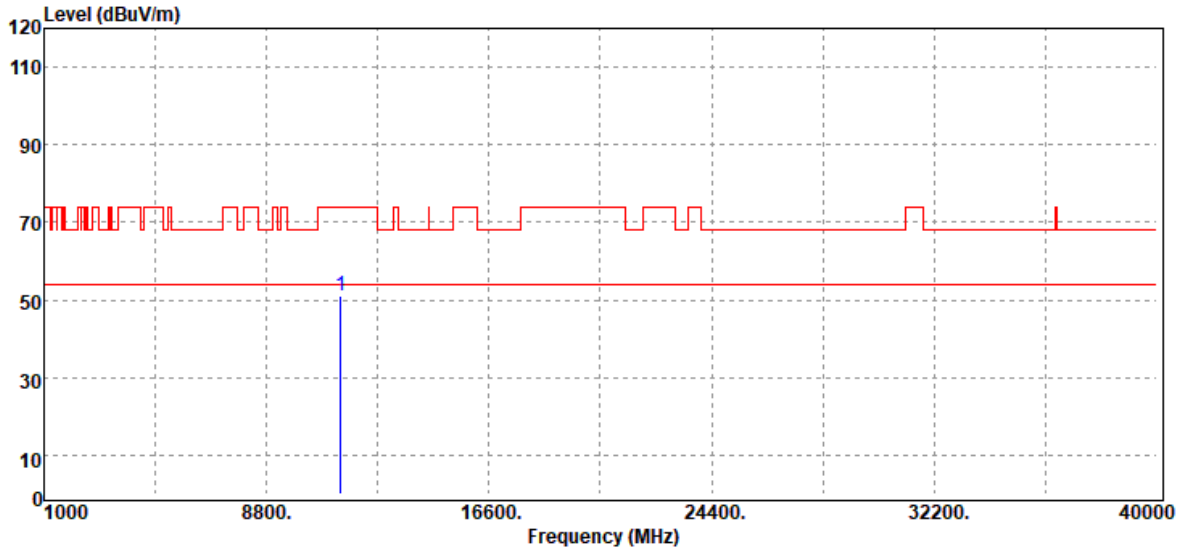
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11400.00	34.98	15.94	50.92	74.00	-23.08	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*

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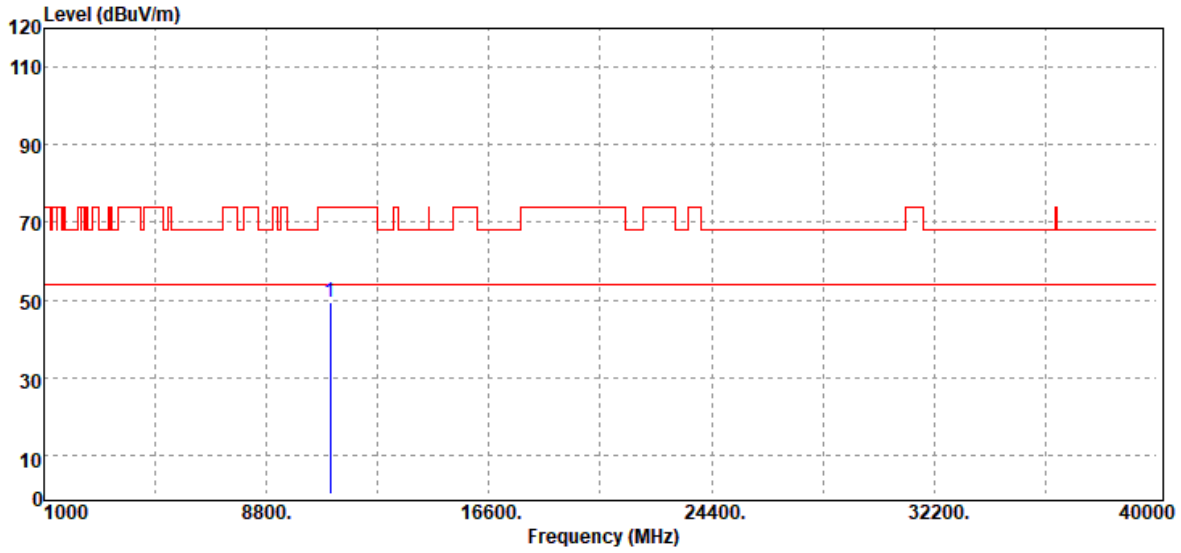
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11020.00	33.62	15.84	49.46	74.00	-24.54	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*

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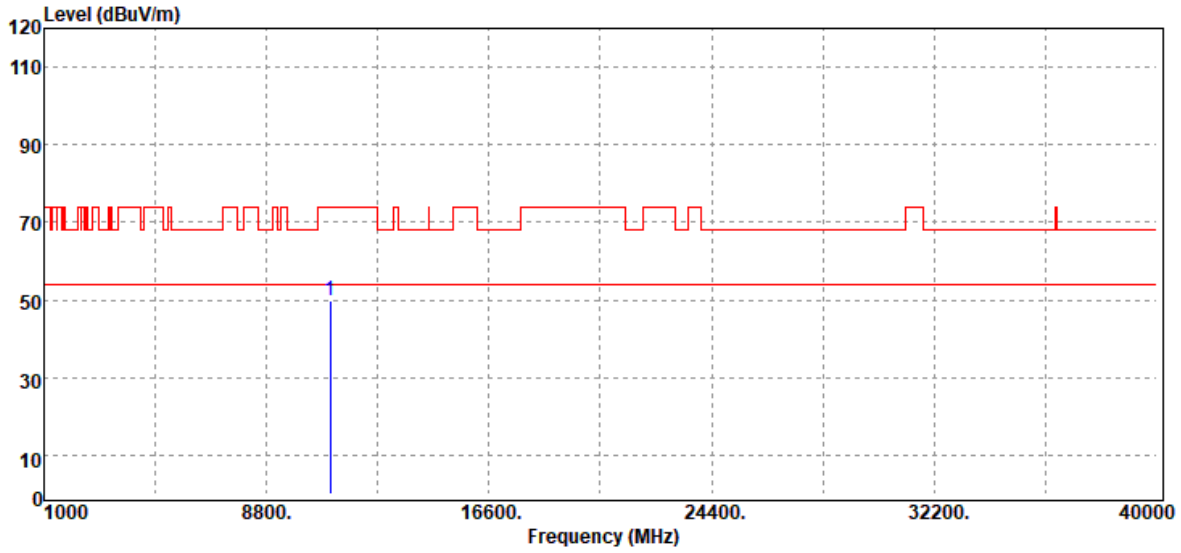
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11020.00	34.14	15.84	49.98	74.00	-24.02	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*

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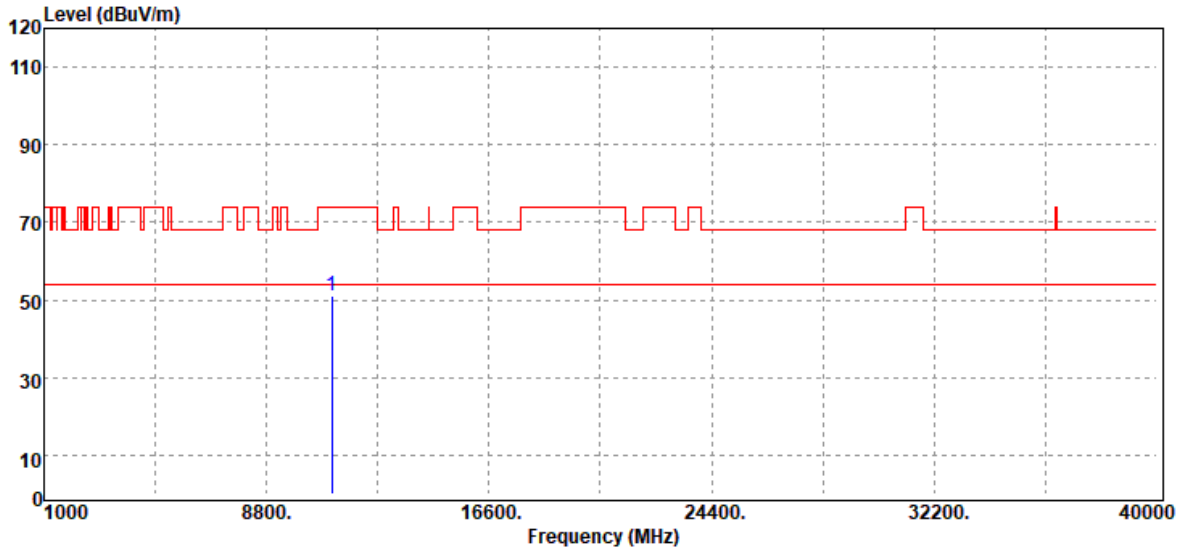
Test Mode	IEEE 802.11n HT40 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11100.00	34.86	16.39	51.25	74.00	-22.75	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*

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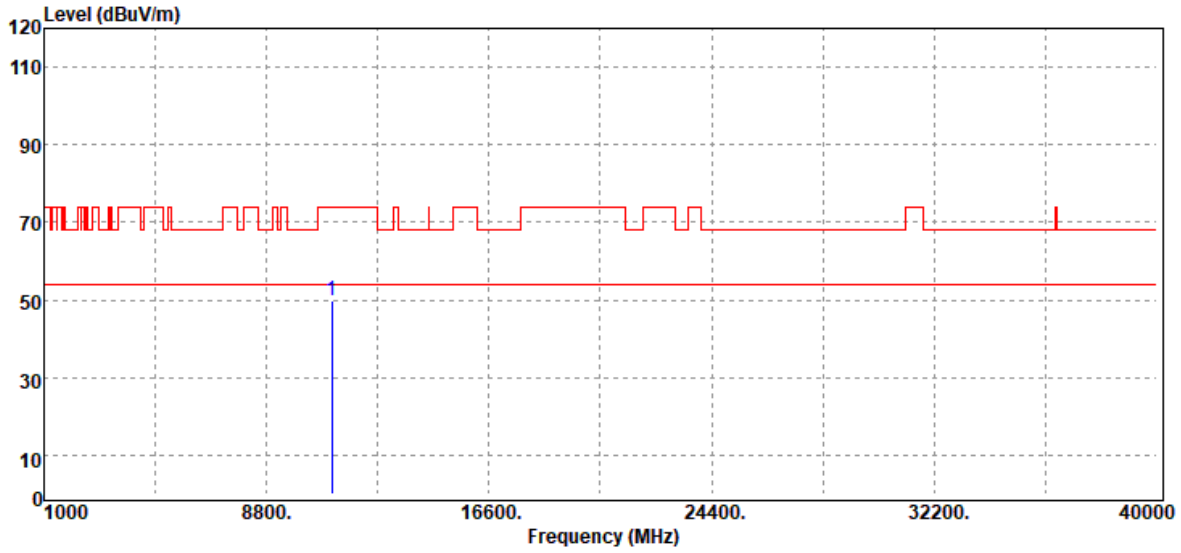
Test Mode	IEEE 802.11n HT40 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11100.00	33.51	16.39	49.90	74.00	-24.10	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*

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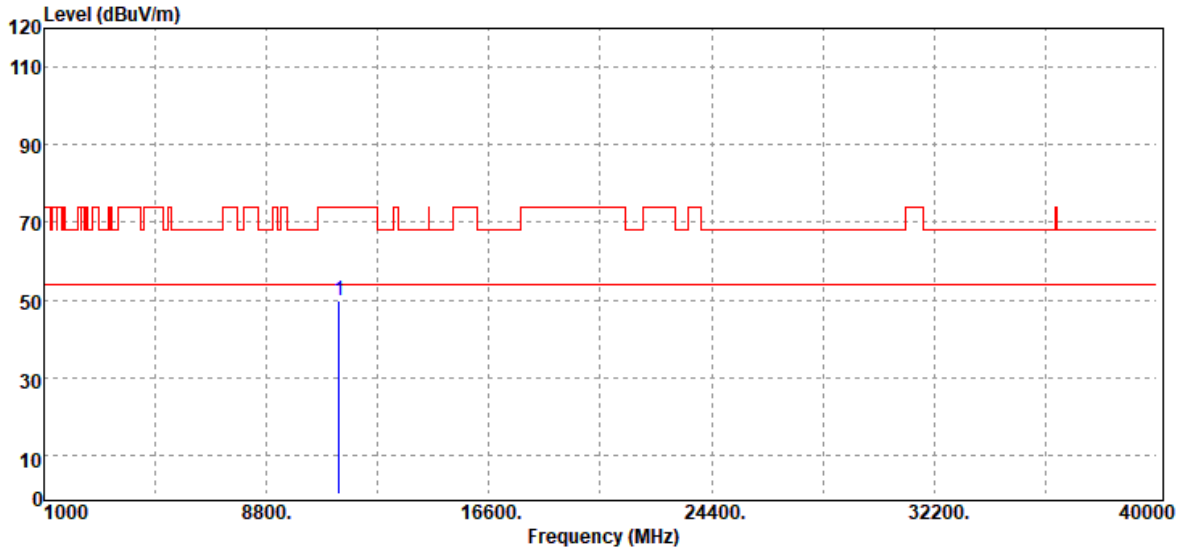
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11340.00	33.75	15.99	49.74	74.00	-24.26	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*

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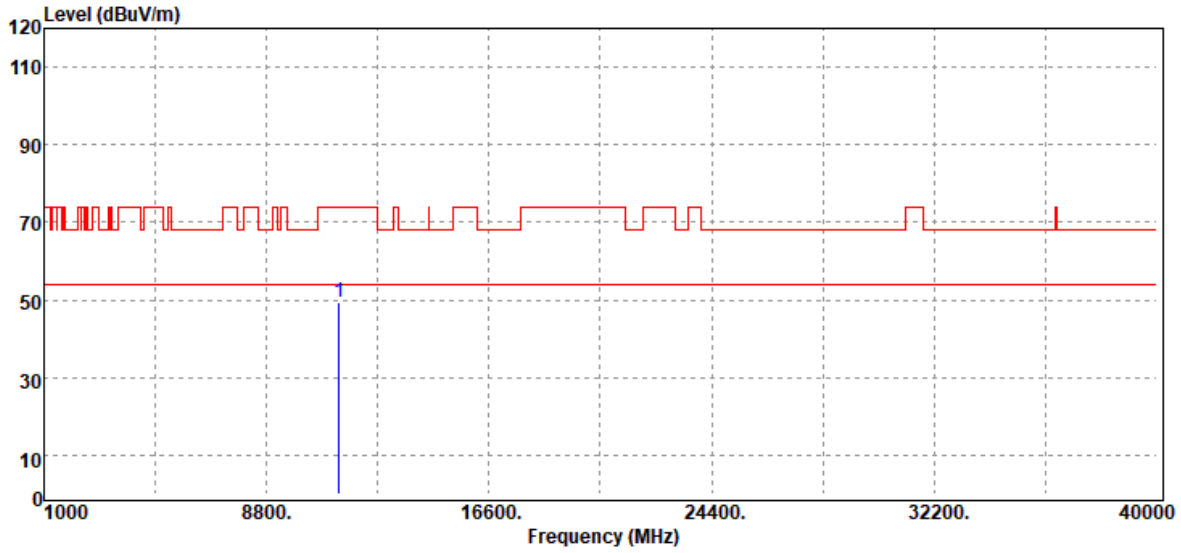
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11340.00	33.62	15.99	49.61	74.00	-24.39	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*

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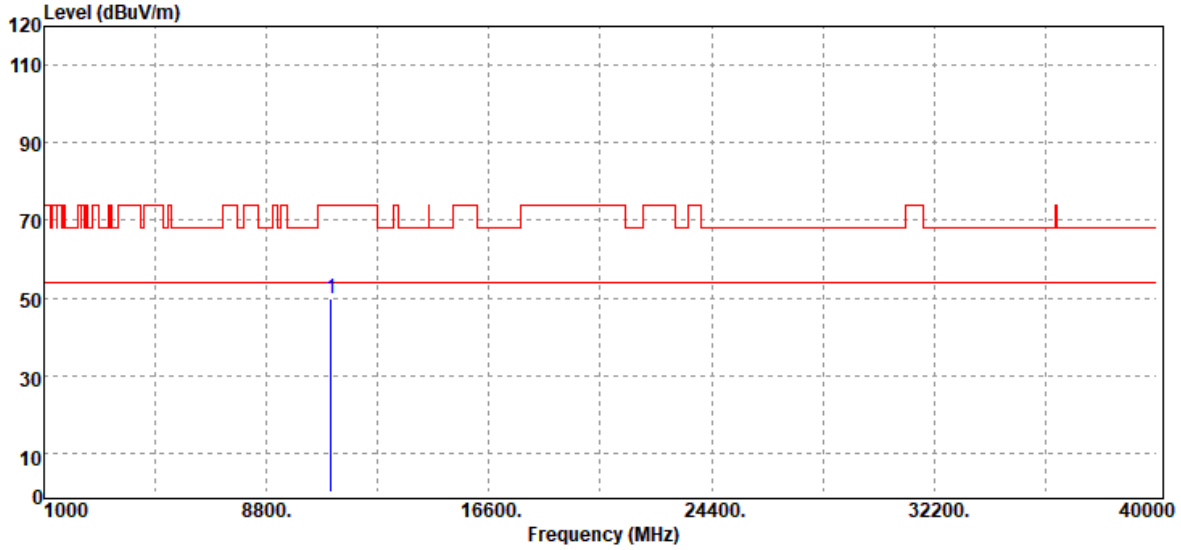
Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11060.00	33.83	16.08	49.91	74.00	-24.09	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*

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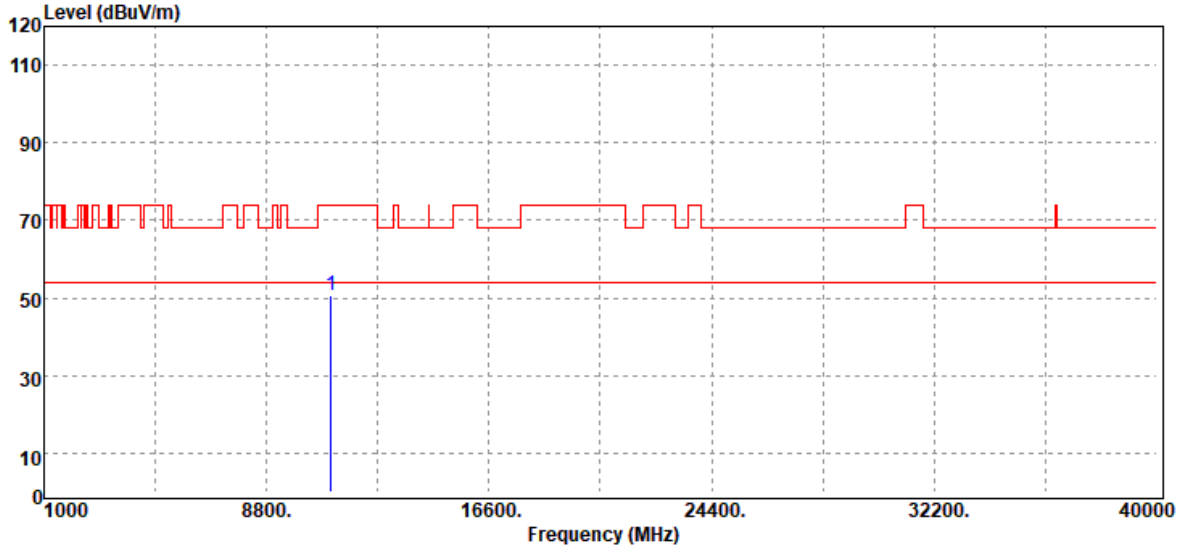
Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11060.00	34.41	16.08	50.49	74.00	-23.51	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*

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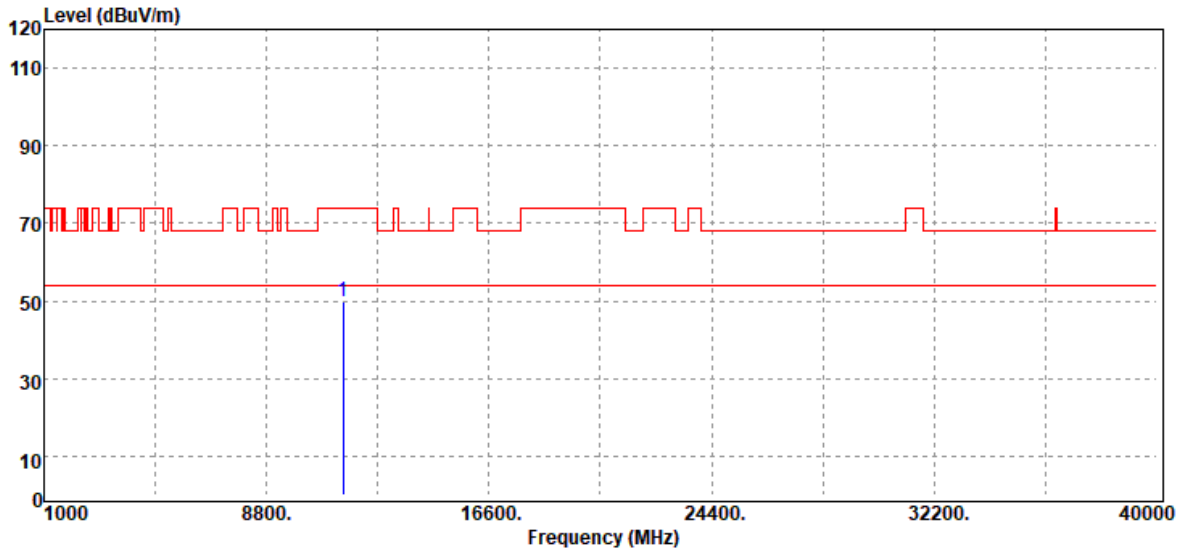
Above 1G Test Data for UNII-3

Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.00	34.20	15.57	49.77	74.00	-24.23	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*

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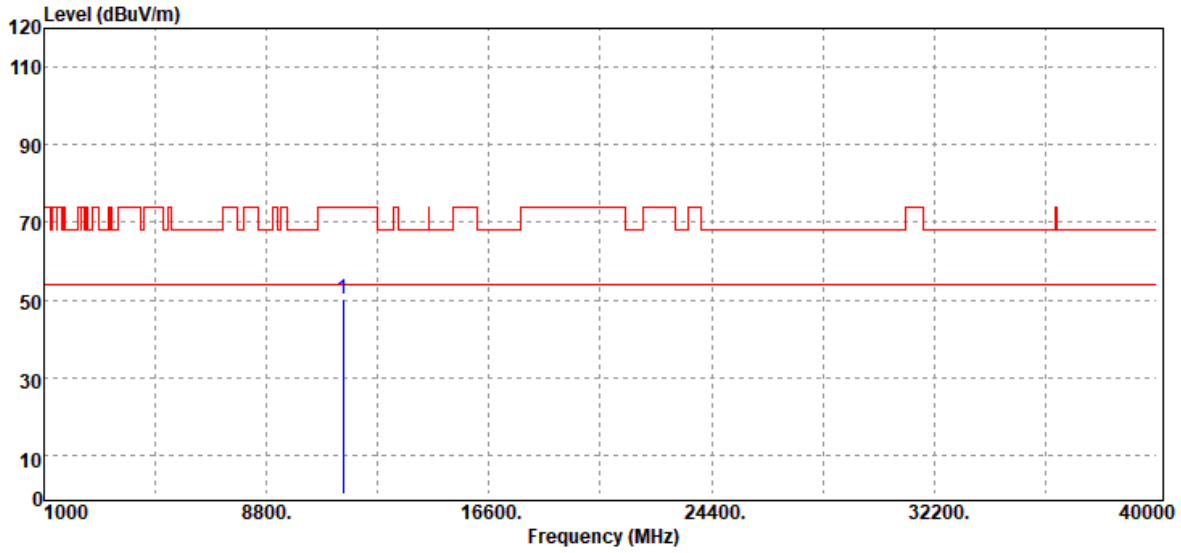
Test Mode	IEEE 802.11a Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.00	34.61	15.57	50.18	74.00	-23.82	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*

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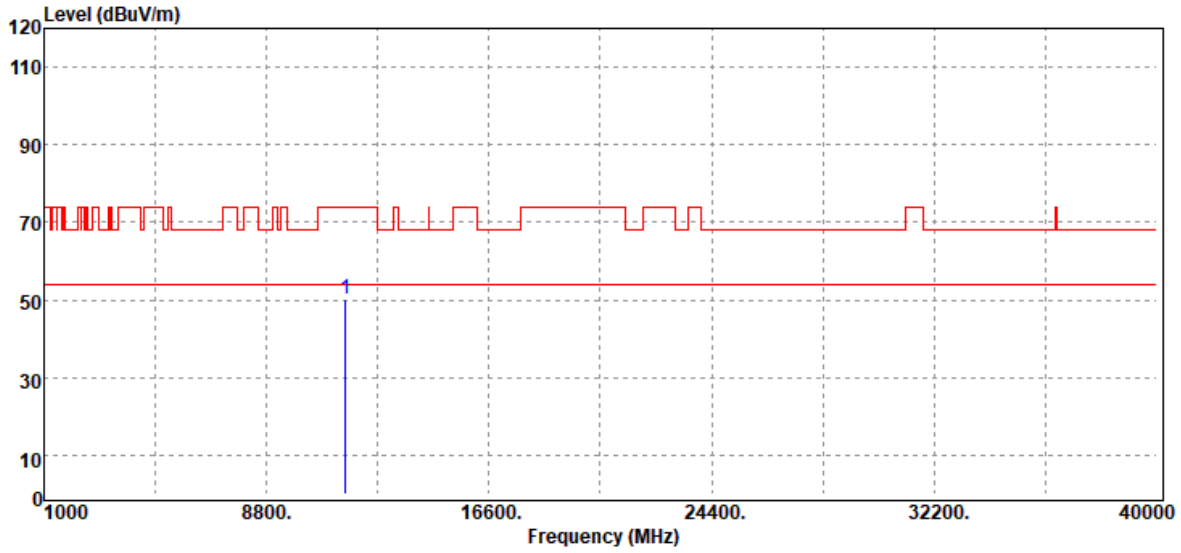
Test Mode	IEEE 802.11a Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.00	34.68	15.50	50.18	74.00	-23.82	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*

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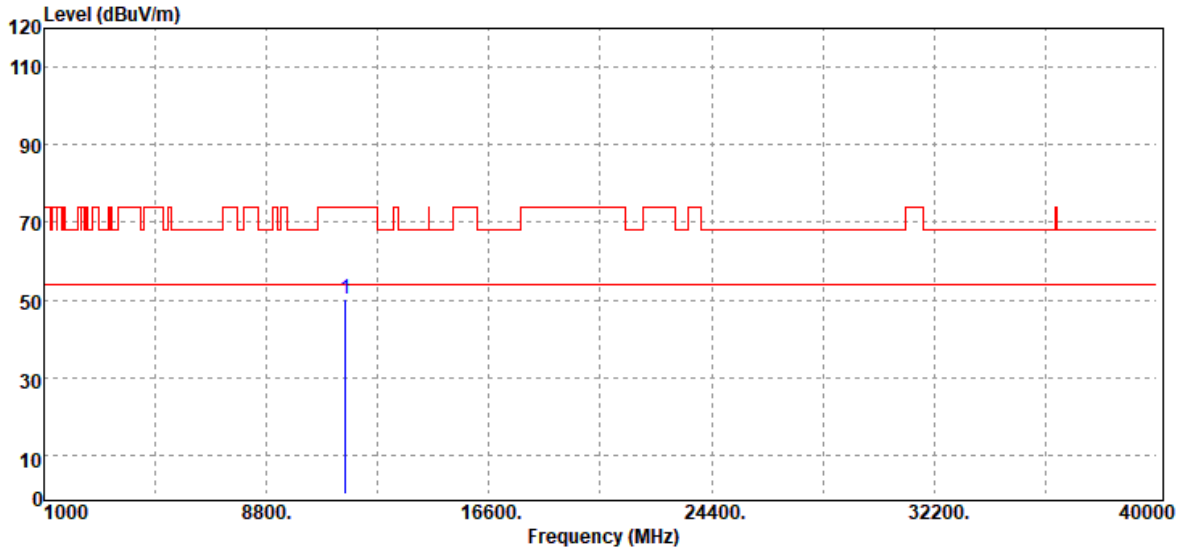
Test Mode	IEEE 802.11a Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.00	34.79	15.50	50.29	74.00	-23.71	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*

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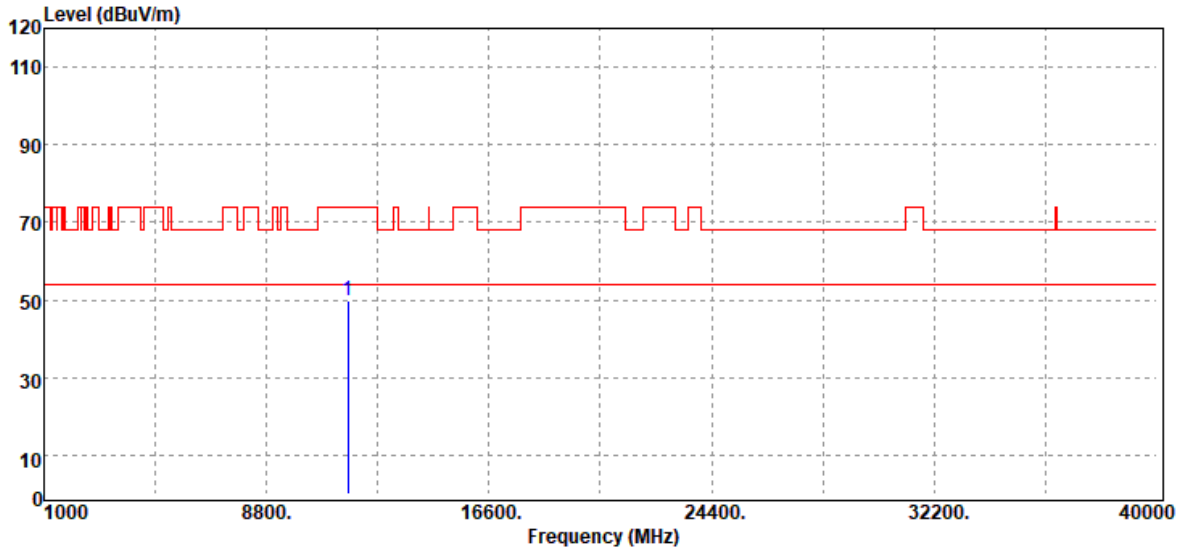
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.00	34.49	15.53	50.02	74.00	-23.98	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*

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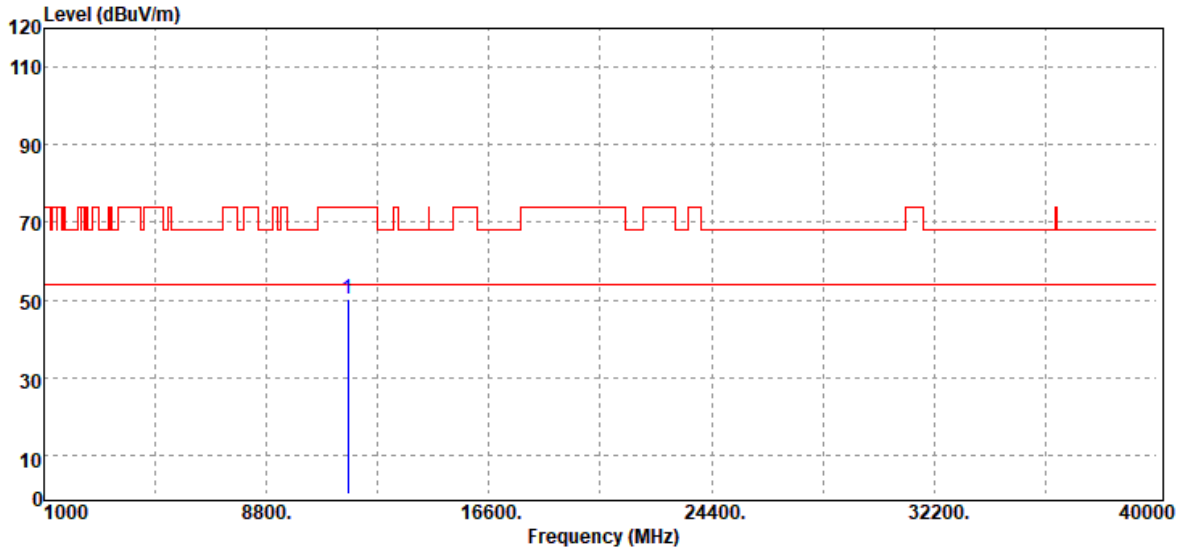
Test Mode	IEEE 802.11a High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.00	34.53	15.53	50.06	74.00	-23.94	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*

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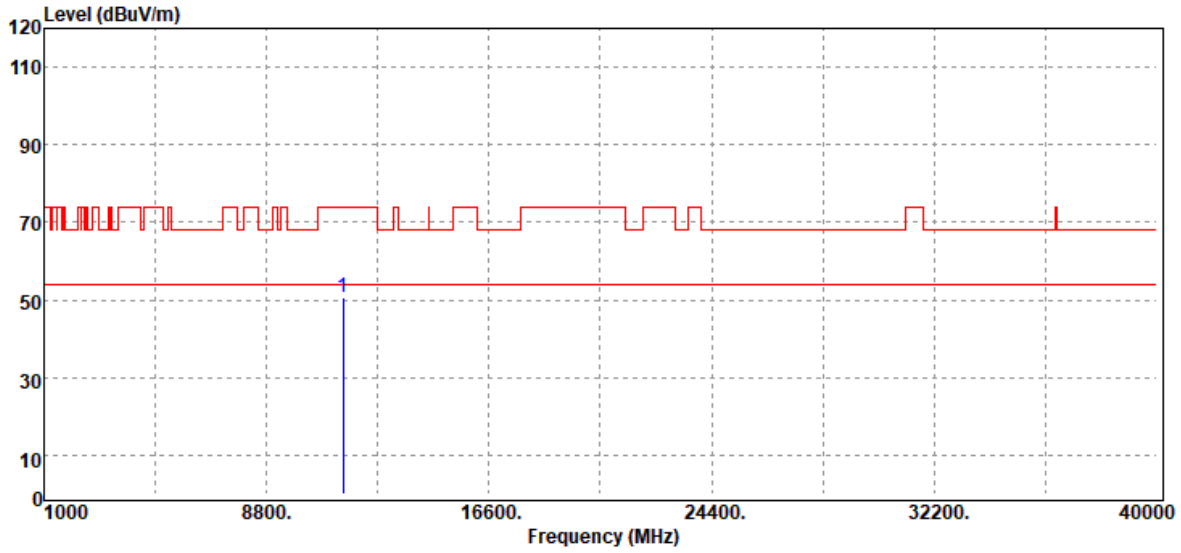
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.00	35.19	15.57	50.76	74.00	-23.24	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*

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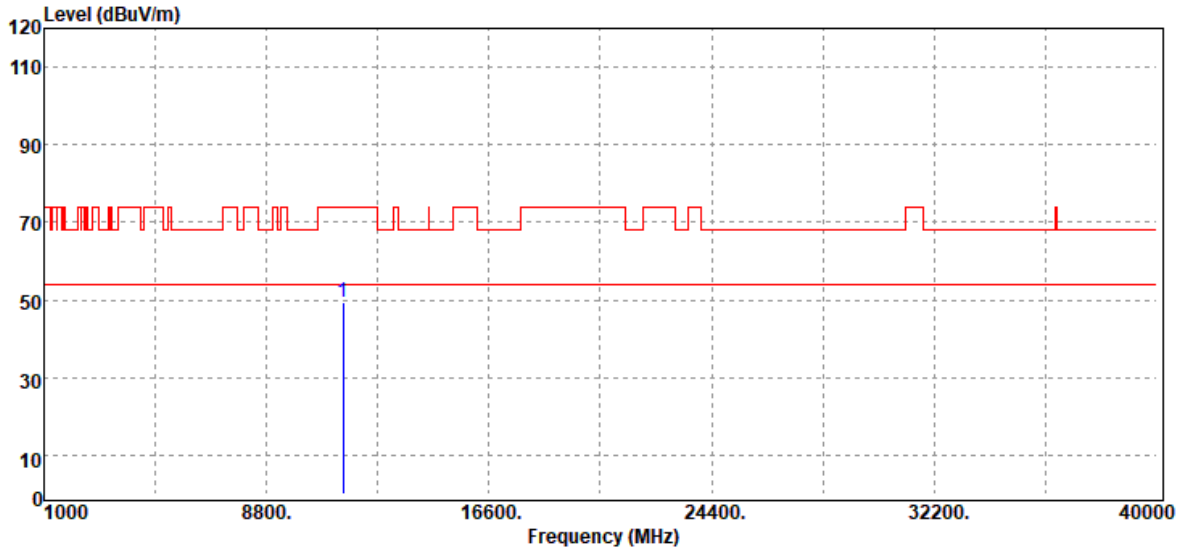
Test Mode	IEEE 802.11n HT20 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11490.00	33.99	15.57	49.56	74.00	-24.44	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*

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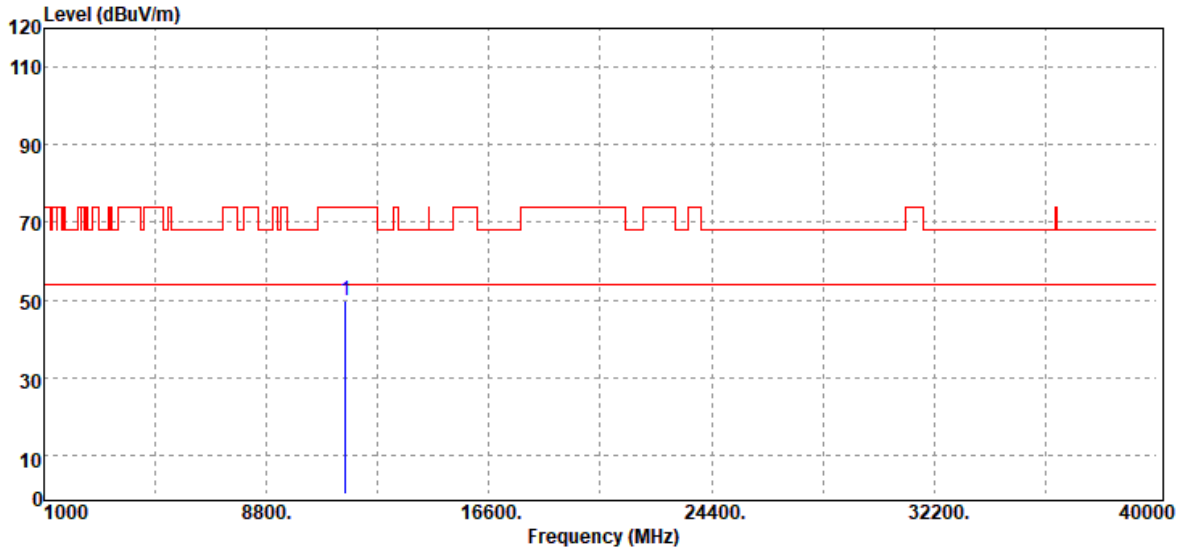
Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.00	34.14	15.50	49.64	74.00	-24.36	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*

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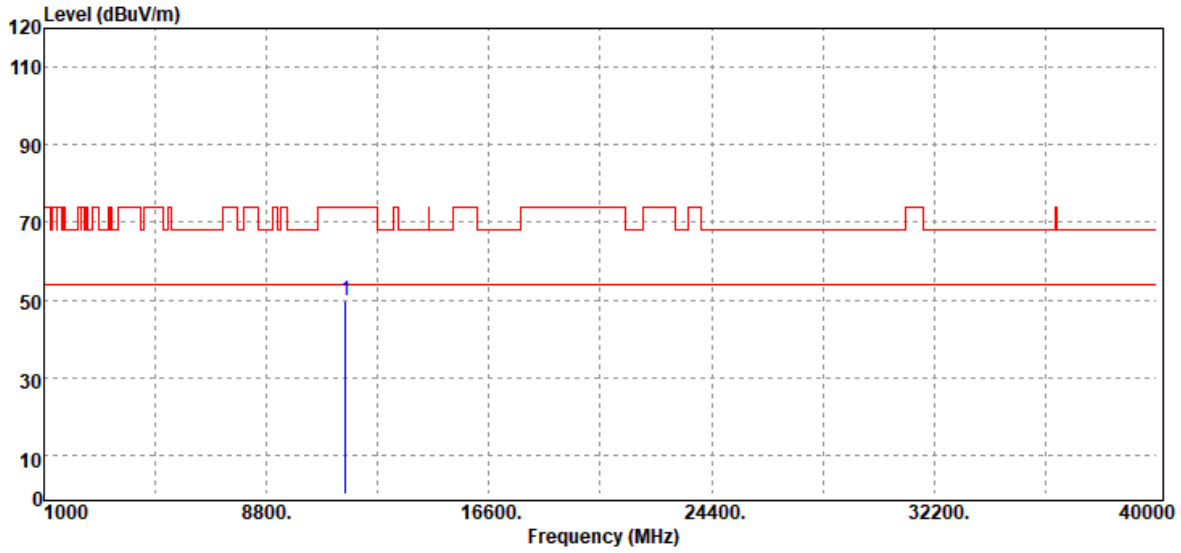
Test Mode	IEEE 802.11n HT20 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11570.00	34.52	15.50	50.02	74.00	-23.98	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*

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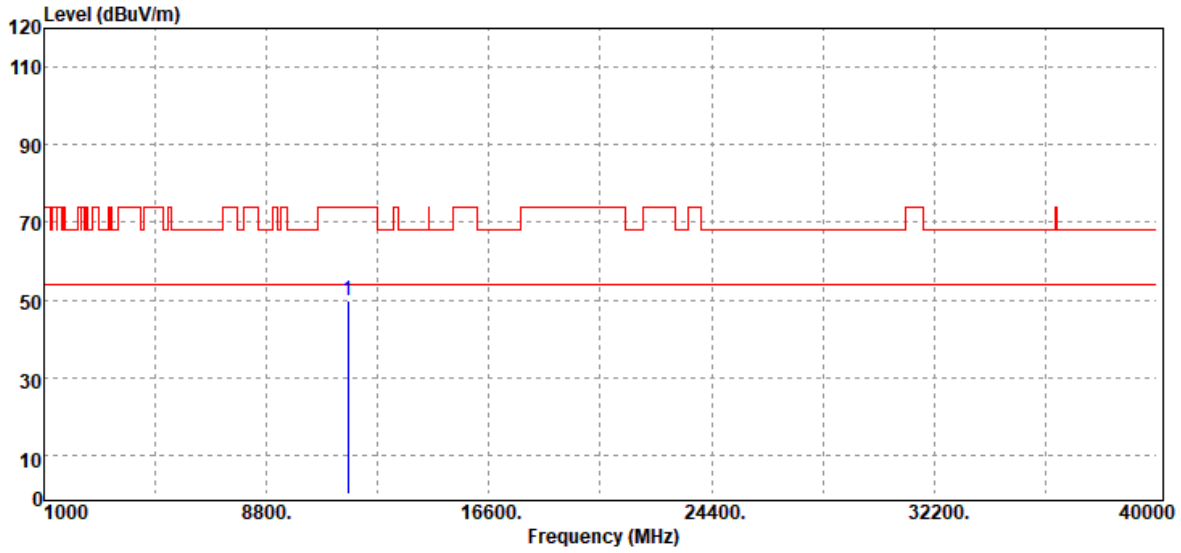
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.00	34.48	15.53	50.01	74.00	-23.99	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*

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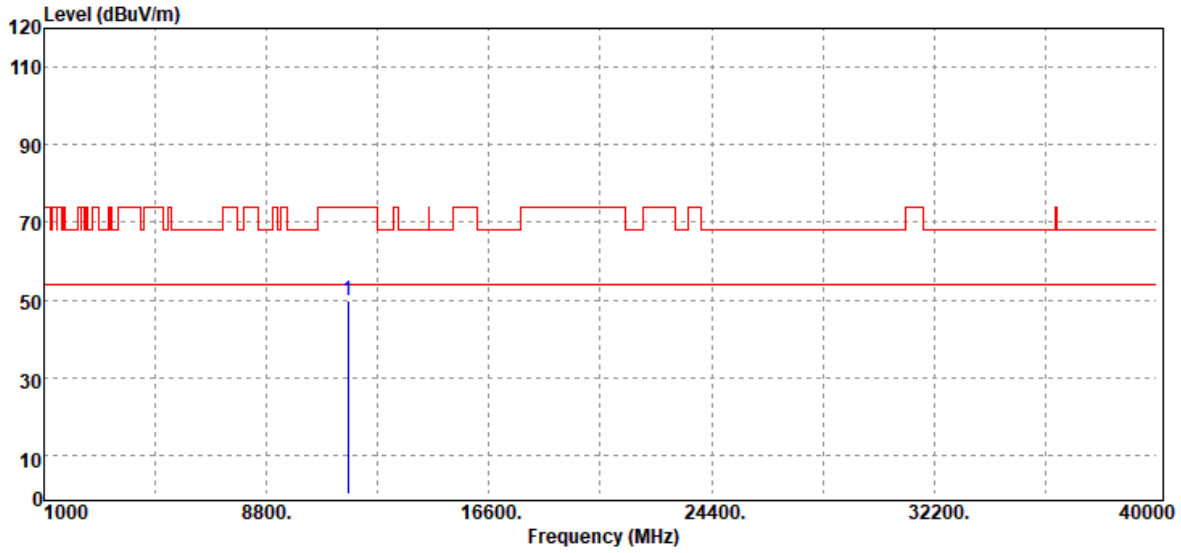
Test Mode	IEEE 802.11n HT20 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11650.00	34.26	15.53	49.79	74.00	-24.21	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*

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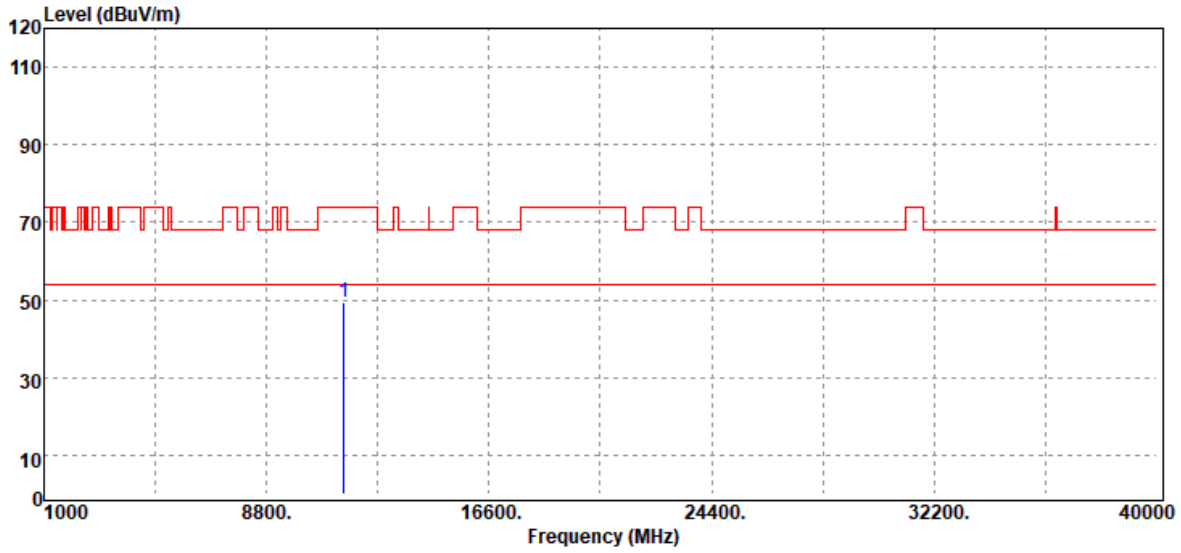
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11510.00	33.87	15.35	49.22	74.00	-24.78	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*

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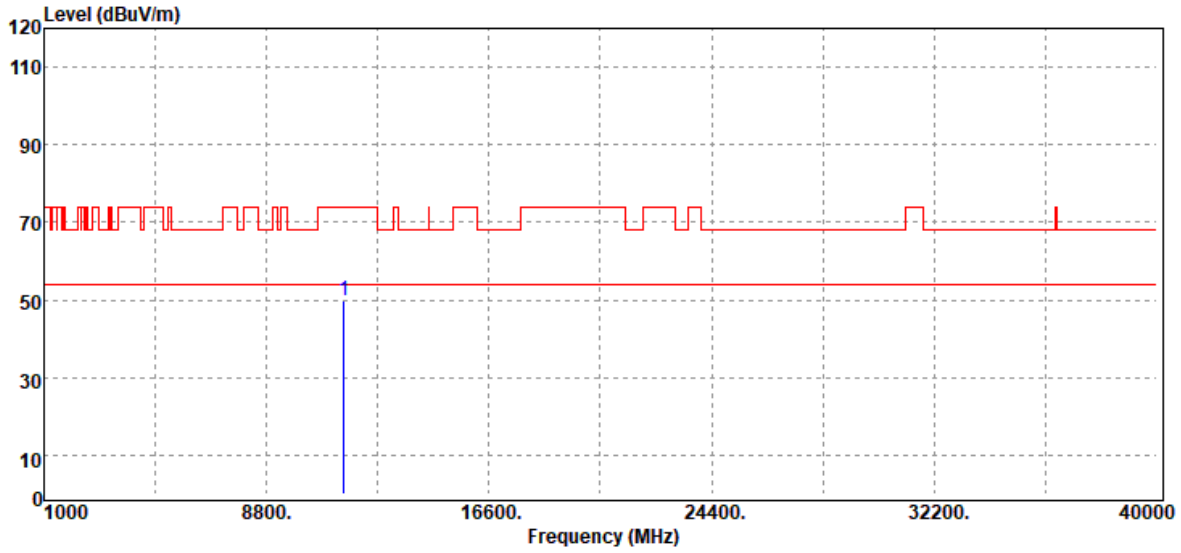
Test Mode	IEEE 802.11n HT40 Low CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11510.00	34.42	15.35	49.77	74.00	-24.23	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*

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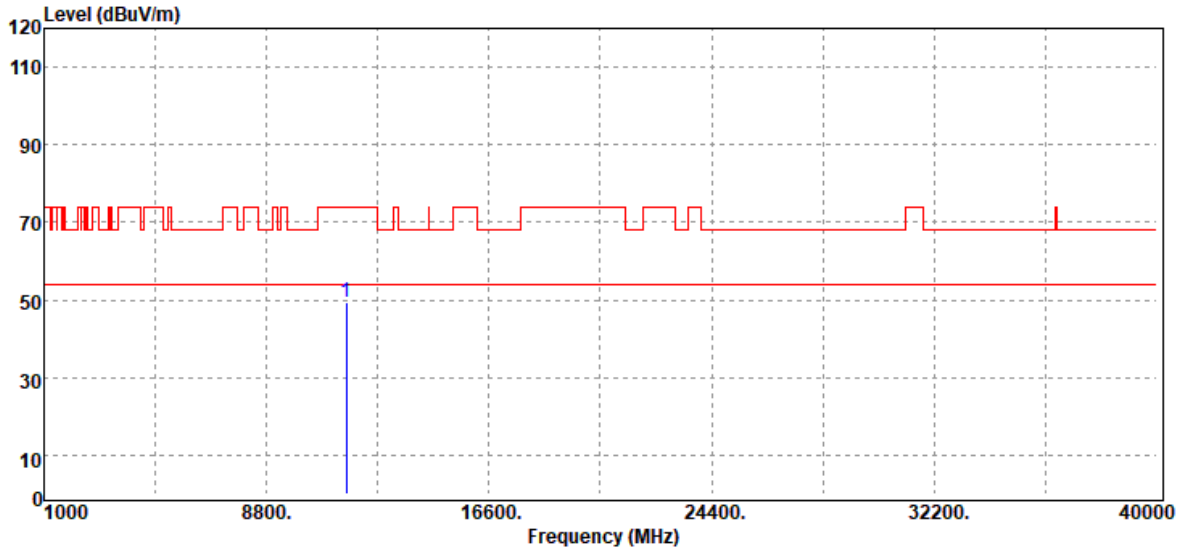
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11590.00	33.82	15.62	49.44	74.00	-24.56	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*

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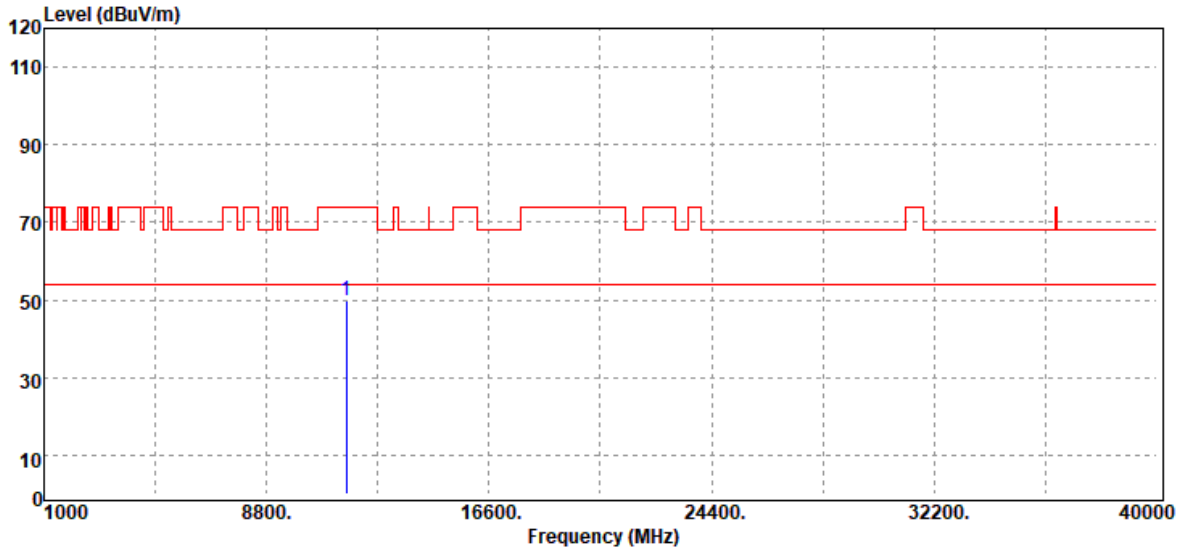
Test Mode	IEEE 802.11n HT40 High CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11590.00	34.38	15.62	50.00	74.00	-24.00	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*

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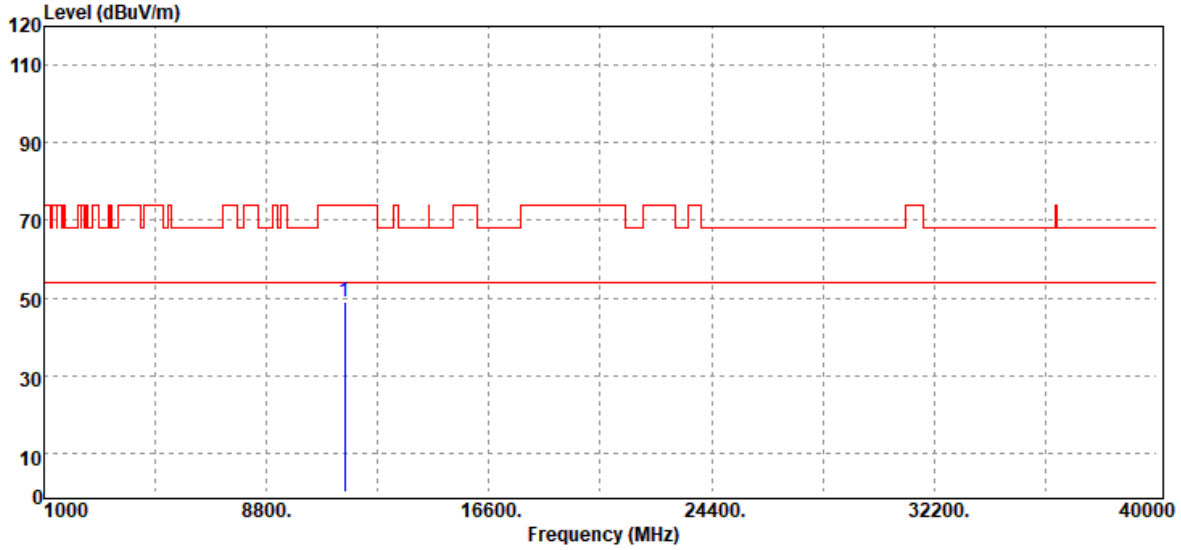
Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Vertical	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11550.00	33.51	15.39	48.90	74.00	-25.10	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*

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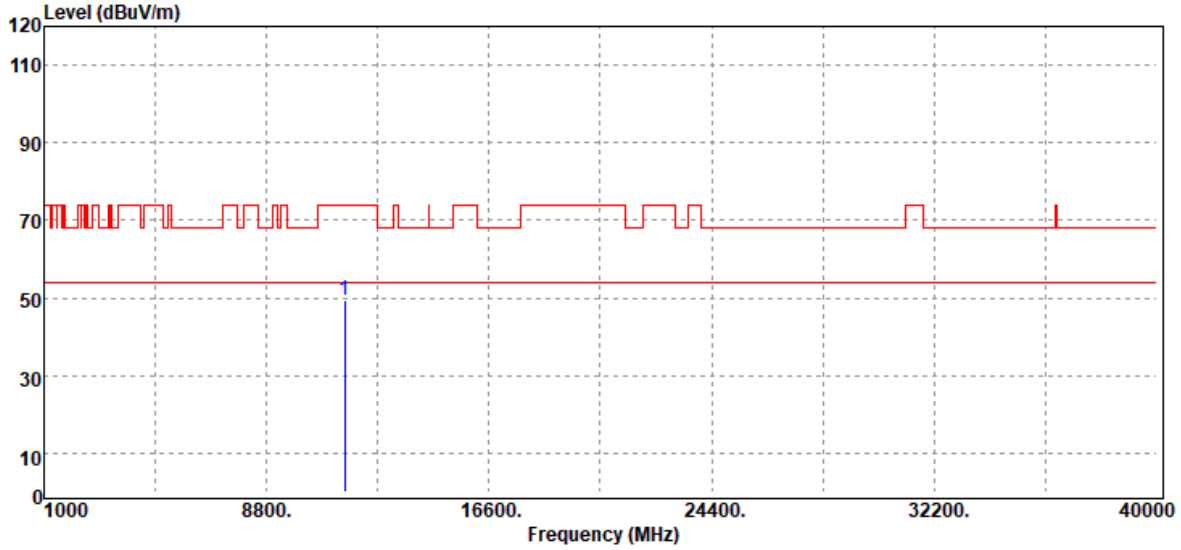
Test Mode	IEEE 802.11ac VHT80 Mid CH	Temp/Hum	22(℃)/ 50%RH
Test Item	Harmonic	Test Date	November 11, 2019
Polarize	Horizontal	Test Engineer	Dally Hong
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
11550.00	33.89	15.39	49.28	74.00	-24.72	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*

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4.6 FREQUENCY STABILITY

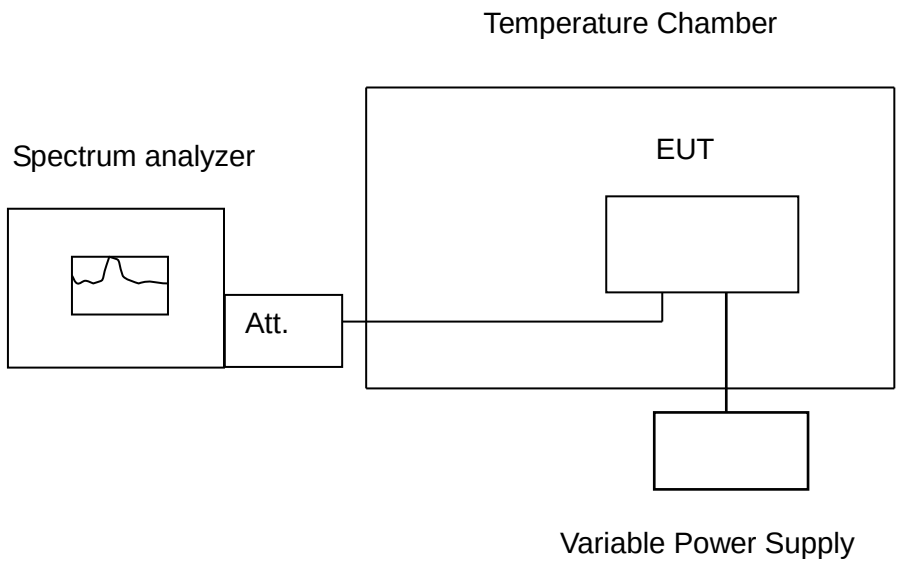
4.6.1 Test Limit

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 +35°C reached.

4.6.3 Test Setup



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4.6.4 Test Result

Temp. (ºC)	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	120	5180.03430	5180.03300	5180.03169	5180.03082	6.6216	6.3707	6.1178	5.9498	Pass
30	120	5180.02648	5180.02779	5180.02822	5180.02996	5.1120	5.3649	5.4479	5.7838	Pass
25	120	5180.01910	5180.02171	5180.01301	5180.02431	3.6873	4.1911	2.5116	4.6931	Pass
10	120	5180.03517	5180.03603	5180.03690	5180.03734	6.7896	6.9556	7.1236	7.2085	Pass
0	120	5180.03864	5180.03951	5180.04038	5180.04124	7.4595	7.6274	7.7954	7.9614	Pass
Temp. (ºC)	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	
25	108	5180.00347	5180.01433	5180.02301	5180.02779	0.6699	2.7664	4.4421	5.3649	Pass
25	120	5180.03039	5180.03343	5180.03517	5180.03647	5.8668	6.4537	6.7896	7.0405	Pass
25	132	5180.03734	5180.03821	5180.03994	5180.04081	7.2085	7.3764	7.7104	7.8784	Pass

Temp. (ºC)	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	
35	120	5259.99696	5259.99740	5259.99826	5259.99740	-0.5779	-0.4943	-0.3308	-0.4943	Pass
30	120	5259.99740	5259.99826	5259.99783	5259.99870	-0.4943	-0.3308	-0.4125	-0.2471	Pass
25	120	5259.98741	5259.99522	5259.99783	5259.99696	-2.3935	-0.9087	-0.4125	-0.5779	Pass
10	120	5259.99826	5259.99783	5259.99826	5259.99740	-0.3308	-0.4125	-0.3308	-0.4943	Pass
0	120	5259.99870	5259.99826	5259.99696	5259.99783	-0.2471	-0.3308	-0.5779	-0.4125	Pass
Temp. (ºC)	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	
25	108	5259.99740	5259.99826	5259.99783	5259.99740	-0.4943	-0.3308	-0.4125	-0.4943	Pass
25	120	5259.99826	5259.99783	5259.99913	5259.99826	-0.3308	-0.4125	-0.1654	-0.3308	Pass
25	132	5259.99870	5259.99826	5259.99740	5259.99913	-0.2471	-0.3308	-0.4943	-0.1654	Pass

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Temp. (ºC)	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	120	5500.00000	5499.99130	5499.99130	5499.99870	0.0000	-1.5818	-1.5818	-0.2364	Pass
30	120	5499.99570	5499.99870	5499.99570	5499.99130	-0.7818	-0.2364	-0.7818	-1.5818	Pass
25	120	5499.98611	5499.99219	5499.99349	5499.99436	-2.5255	-1.4200	-1.1836	-1.0255	Pass
10	120	5499.99479	5499.99913	5499.99870	5499.99570	-0.9473	-0.1582	-0.2364	-0.7818	Pass
0	120	5499.99783	5499.99130	5499.99870	5499.99826	-0.3945	-1.5818	-0.2364	-0.3164	Pass
Temp. (ºC)	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	
25	108	5499.99566	5499.99606	5499.99653	5499.99696	-0.7891	-0.7164	-0.6309	-0.5527	Pass
25	120	5499.99783	5499.99826	5499.99826	5499.99783	-0.3945	-0.3164	-0.3164	-0.3945	Pass
25	132	5499.99870	5499.82600	5499.99870	5499.99570	-0.2364	-31.6364	-0.2364	-0.7818	Pass

Temp. (ºC)	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	120	5744.99130	5744.99570	5744.99130	5744.99570	-1.5144	-0.7485	-1.5144	-0.7485	Pass
30	120	5745.00000	5744.99570	5745.00000	5744.99575	0.0000	-0.7485	0.0000	-0.7398	Pass
25	120	5744.89815	5744.99262	5744.99392	5744.99436	-17.7285	-1.2846	-1.0583	-0.9817	Pass
10	120	5744.99870	5744.99130	5744.99870	5744.99130	-0.2263	-1.5144	-0.2263	-1.5144	Pass
0	120	5744.99570	5744.99870	5744.99570	5744.99130	-0.7485	-0.2263	-0.7485	-1.5144	Pass
Temp. (ºC)	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	
25	108	5744.99479	5744.99566	5744.99696	5744.99740	-0.9069	-0.7554	-0.5292	-0.4526	Pass
25	120	5744.99826	5744.99783	5744.99826	5744.99783	-0.3029	-0.3777	-0.3029	-0.3777	Pass
25	132	5744.99870	5744.99783	5744.99826	5744.99870	-0.2263	-0.3777	-0.3029	-0.2263	Pass

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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

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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.		

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

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 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.

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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	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{\text{PRI}_{\mu\text{sec}}}\right)\right\}$	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

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.

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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

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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: arran-userdebug 9 NFA1 20191014.480 098037 test-keys

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 = -57dBm.

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.

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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.

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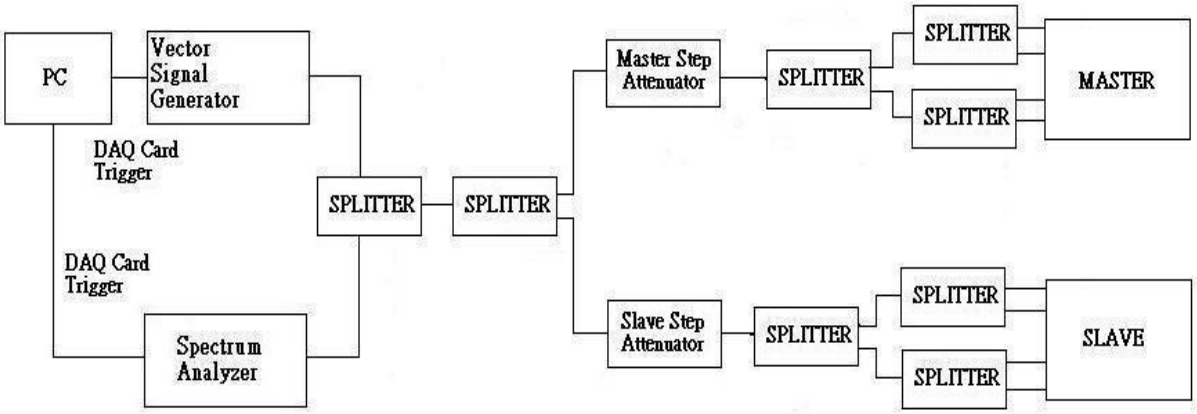
Conducted Method System Block Diagram



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.

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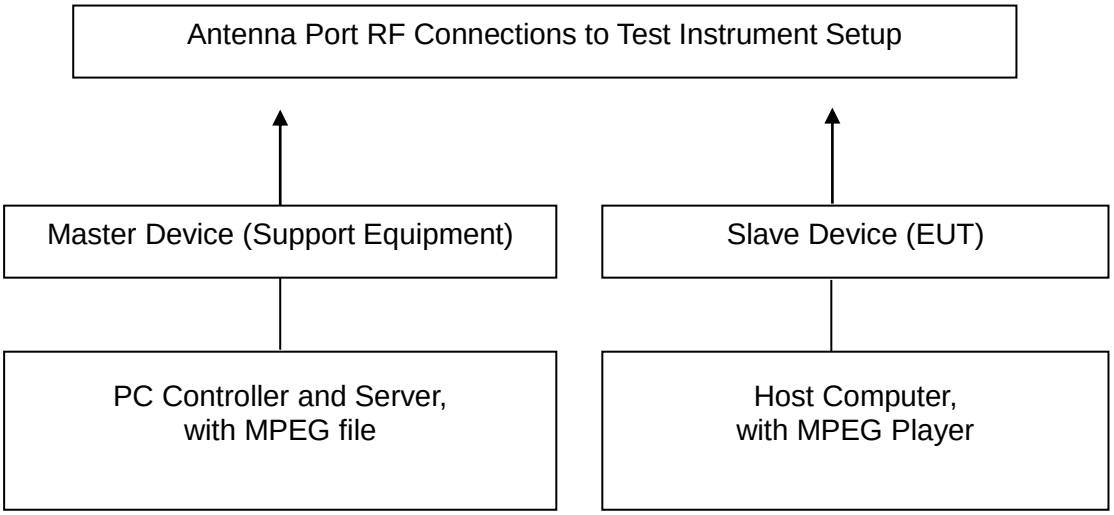
Adjustment Of Displayed Traffic Level

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



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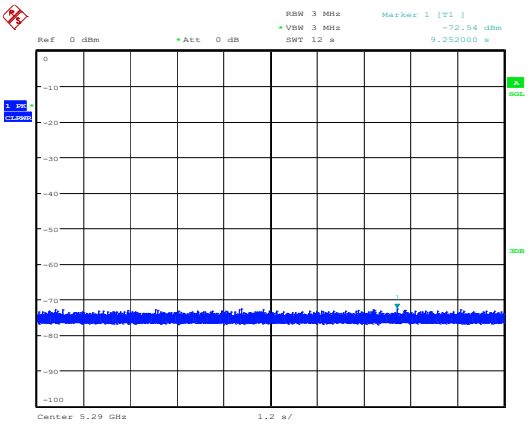
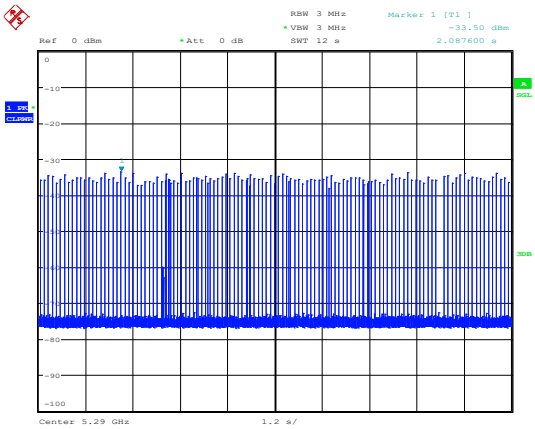
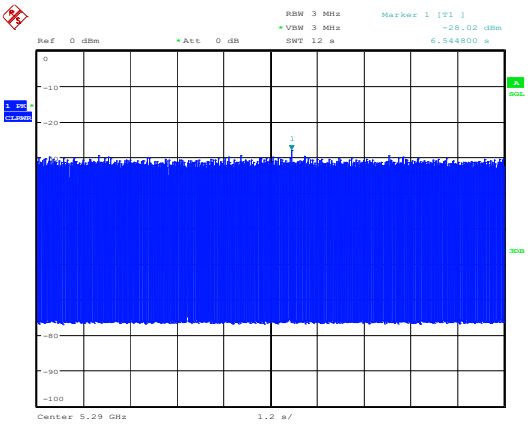
4.7.4 Test Result

IEEE 802.11ac 80 MHz at 5290MHz	
Noise Floor	**Master Level**
	
Slave Level	
	

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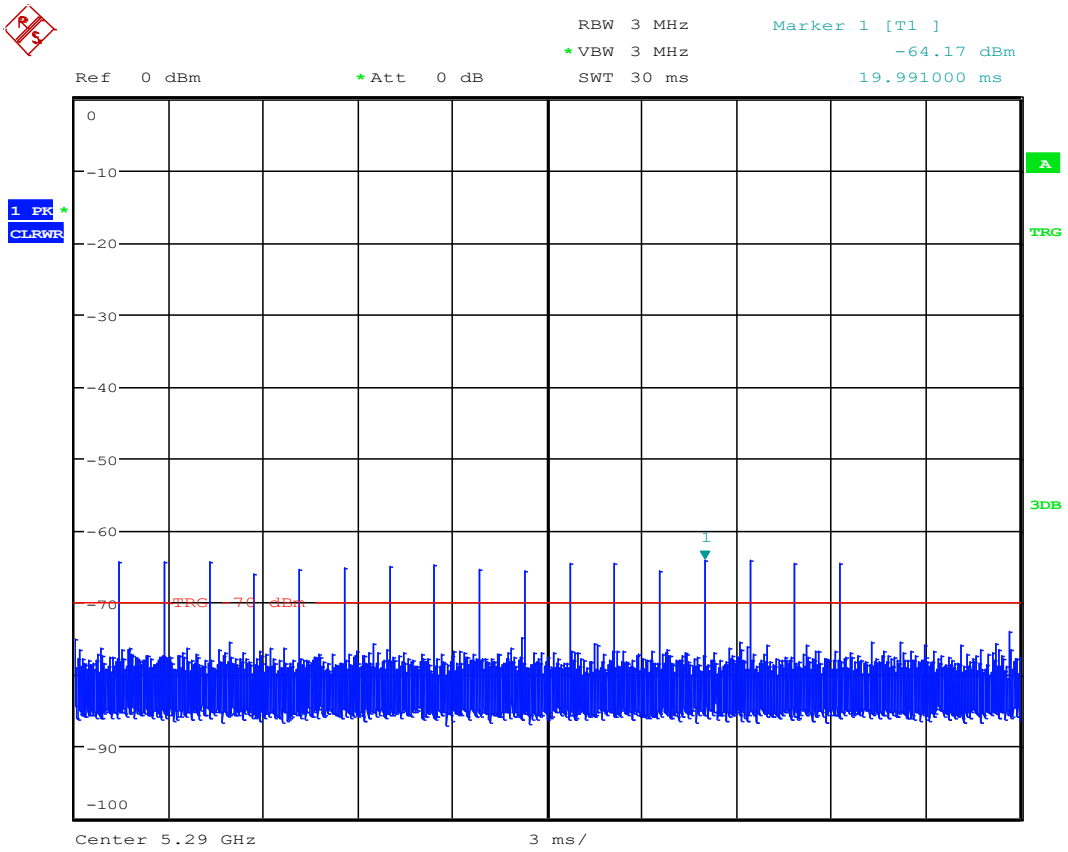
Radar Waveforms

Sample of short Pluse Radar Type 0



Date: 12.NOV.2019 14:34:45

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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).

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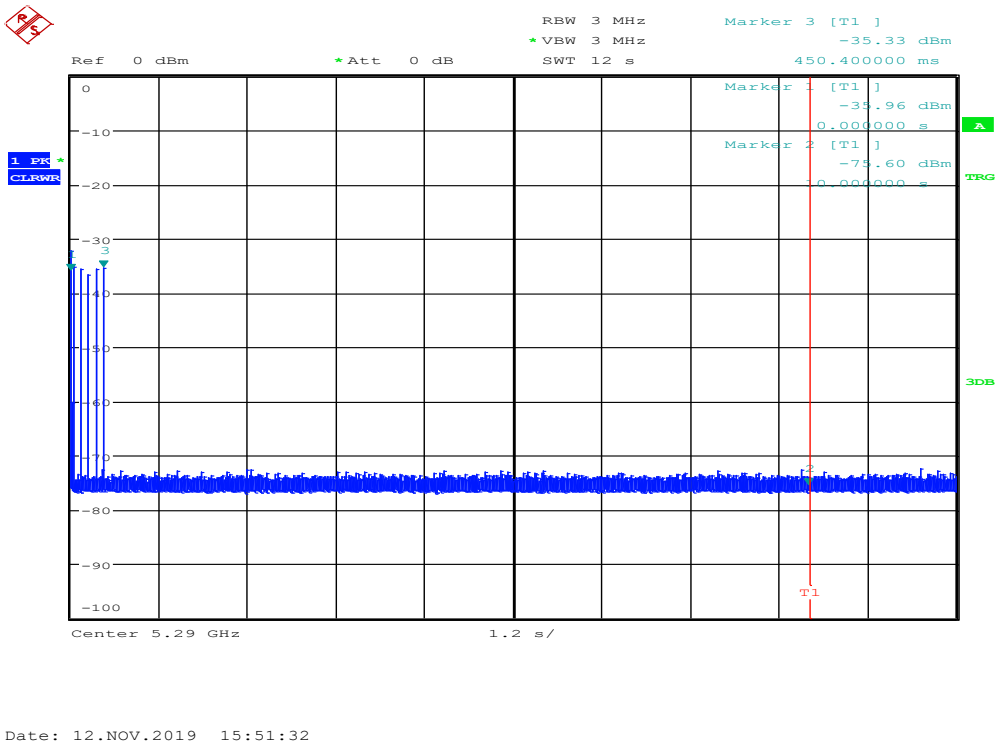
IEEE 802.11 ac 80 MHz at 5290MHz

Type 1_Channel Move Time



Channel Move Time (s)	Limit (s)
0.4504	10

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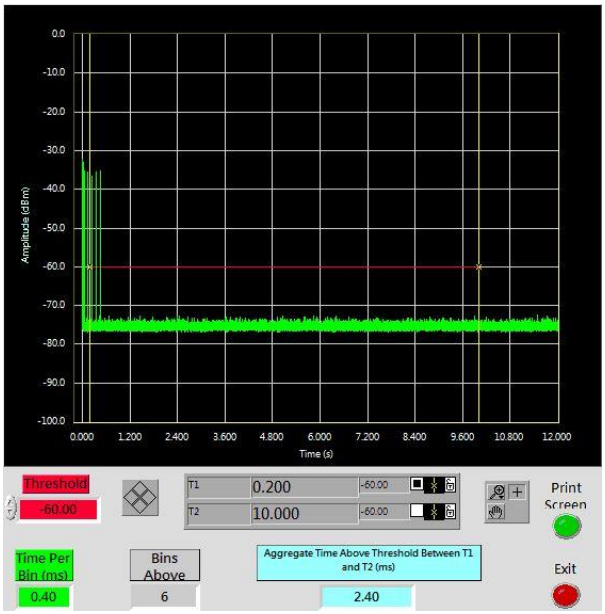
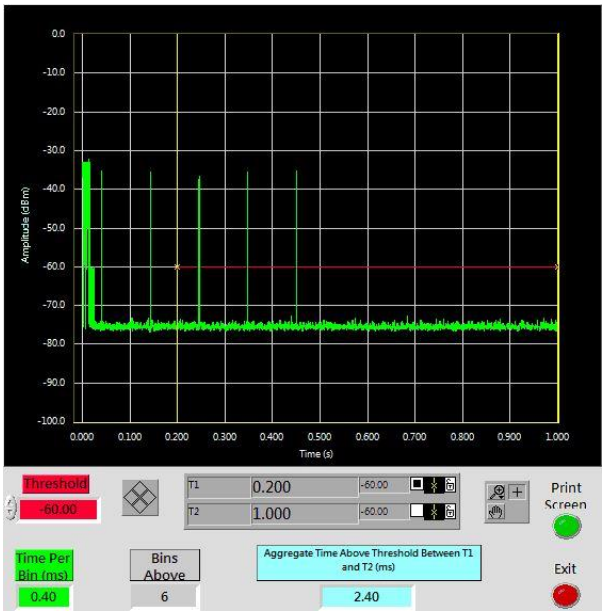
IEEE 802.11 HT40 MHz at 5310MHz	
Type 1_Channel closing transmisssion time	**Type 1_Channel closing transmisssion time-caculate**
	

Aggregate Transmission Time (ms)	Limit (ms)	Margin (ms)
2.4	60	-57.6

--End of Test Report--

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