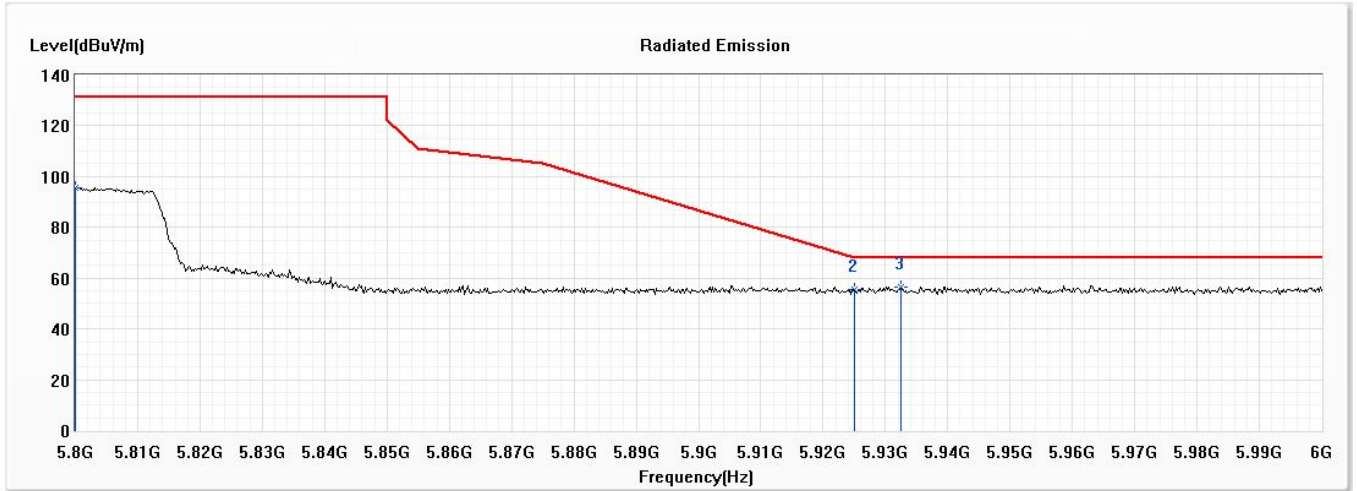


Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps) (5795MHz)  
 Test Date : 2021/02/08

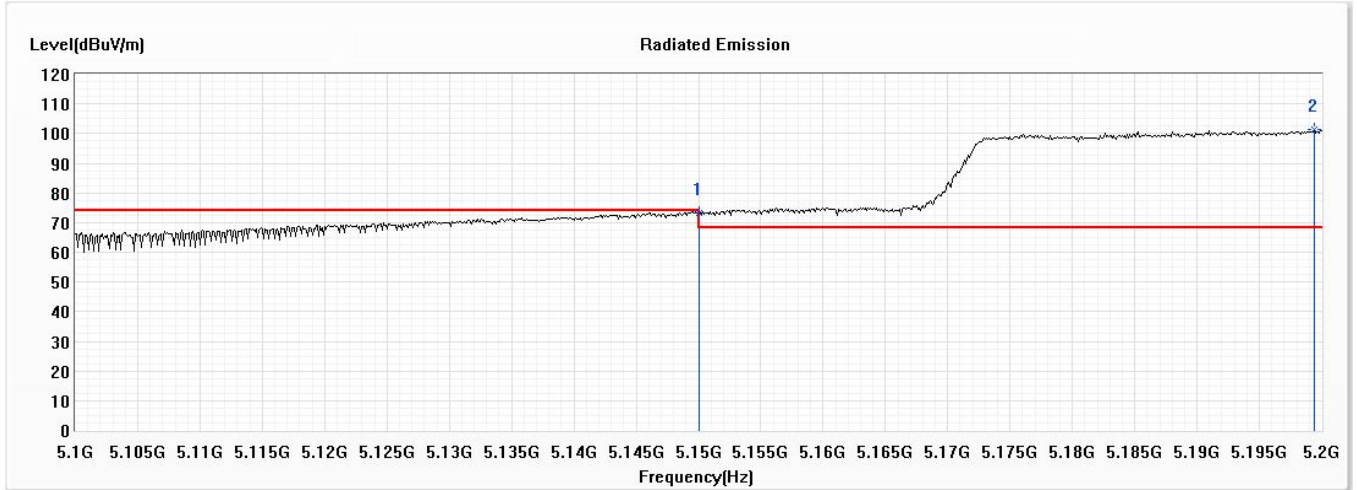
**Vertical**



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5800.000	95.72	--	--	76.65	19.07	PK
2	5925.000	55.39	68.22	-12.83	36.16	19.23	PK
* 3	5932.400	56.72	68.22	-11.50	37.54	19.18	PK

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5210MHz)  
 Test Date : 2021/02/08

**Horizontal**



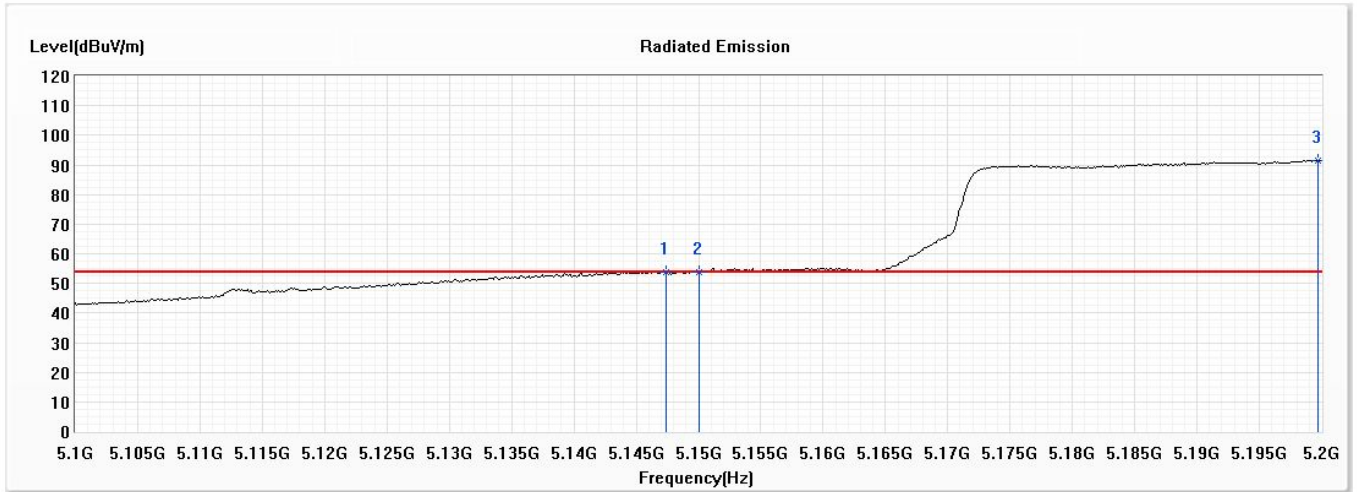
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5150.000	73.25	74.00	-0.75	55.97	17.28	PK
2	5199.400	101.24	--	--	83.46	17.78	PK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5210MHz)  
 Test Date : 2021/02/08

**Horizontal**



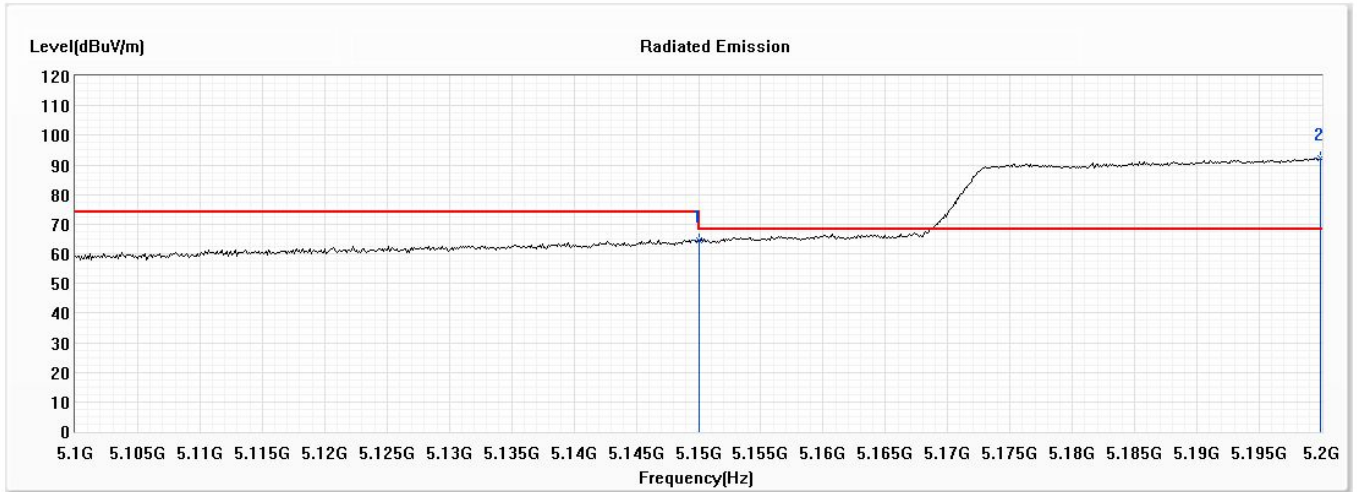
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5147.400	53.88	54.00	-0.12	36.62	17.26	AV
2	5150.000	53.81	54.00	-0.19	36.53	17.28	AV
3	5199.700	91.59	--	--	73.81	17.78	AV

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5210MHz)  
 Test Date : 2021/02/08

**Vertical**



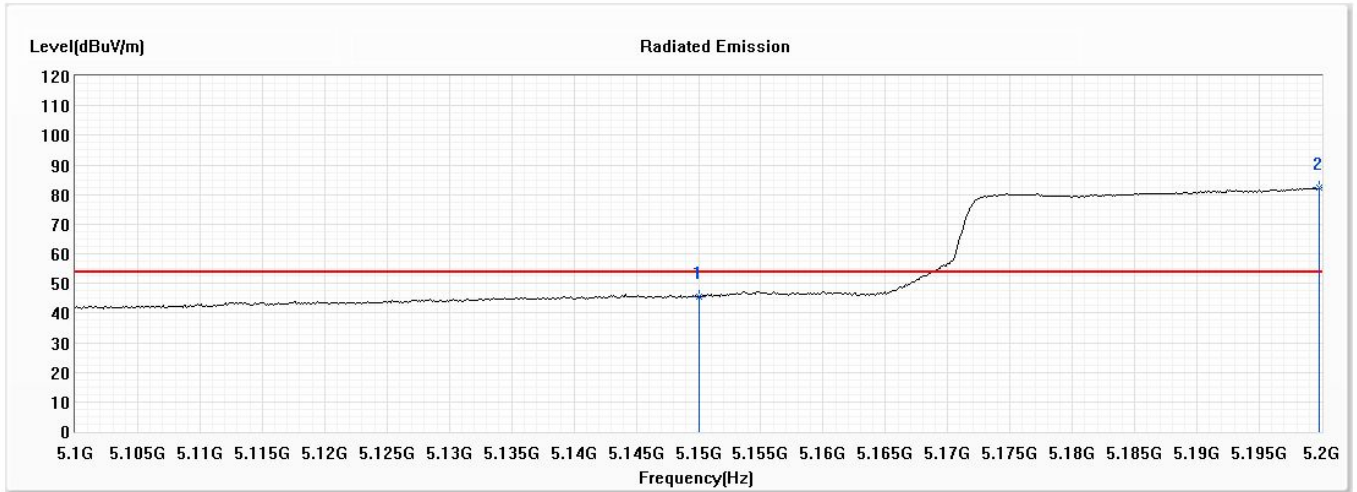
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5150.000	64.72	74.00	-9.28	47.44	17.28	PK
2	5199.900	92.14	--	--	74.37	17.77	PK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5210MHz)  
 Test Date : 2021/02/08

**Vertical**



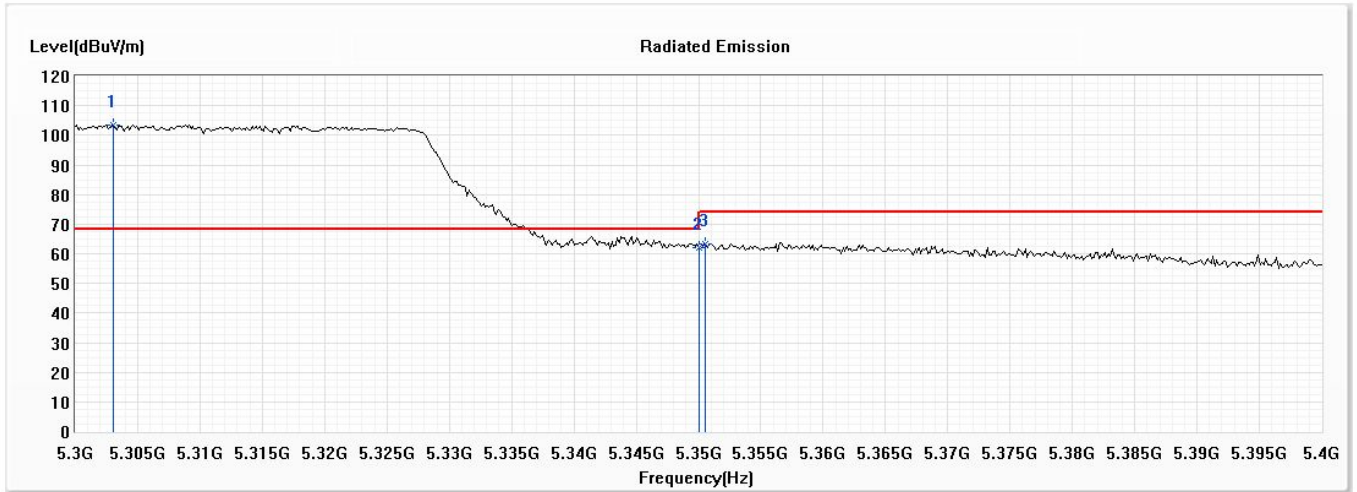
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5150.000	45.64	54.00	-8.36	28.36	17.28	AV
2	5199.800	82.33	--	--	64.55	17.78	AV

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5290MHz)  
 Test Date : 2021/02/08

**Horizontal**



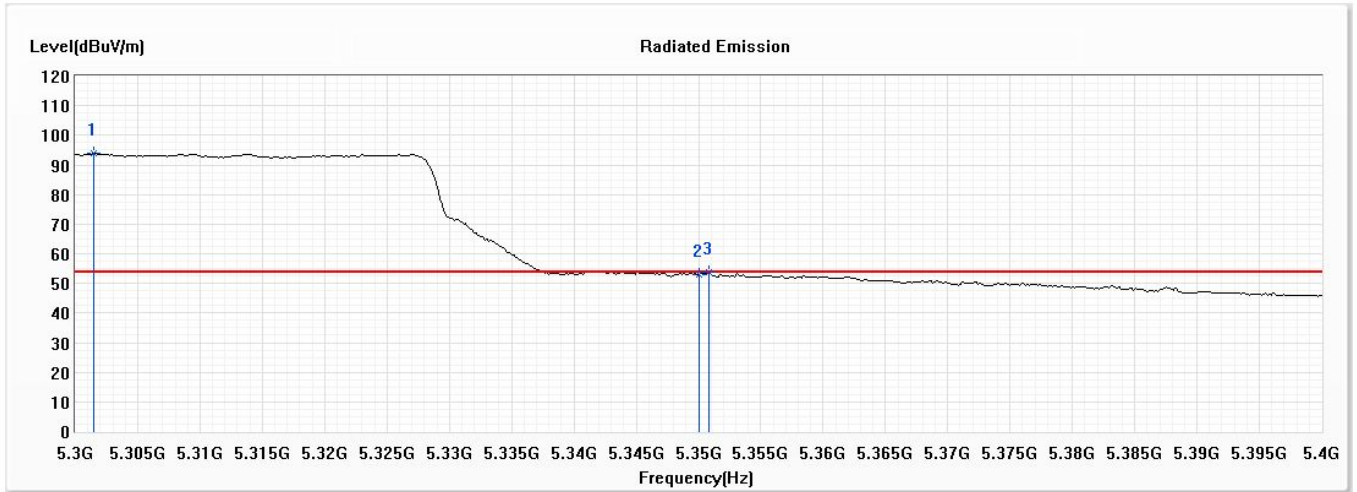
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5303.043	103.57	--	--	85.60	17.97	PK
2	5350.000	62.02	74.00	-11.98	44.08	17.94	PK
3	5350.580	63.47	74.00	-10.53	45.53	17.94	PK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5290MHz)  
 Test Date : 2021/02/08

**Horizontal**



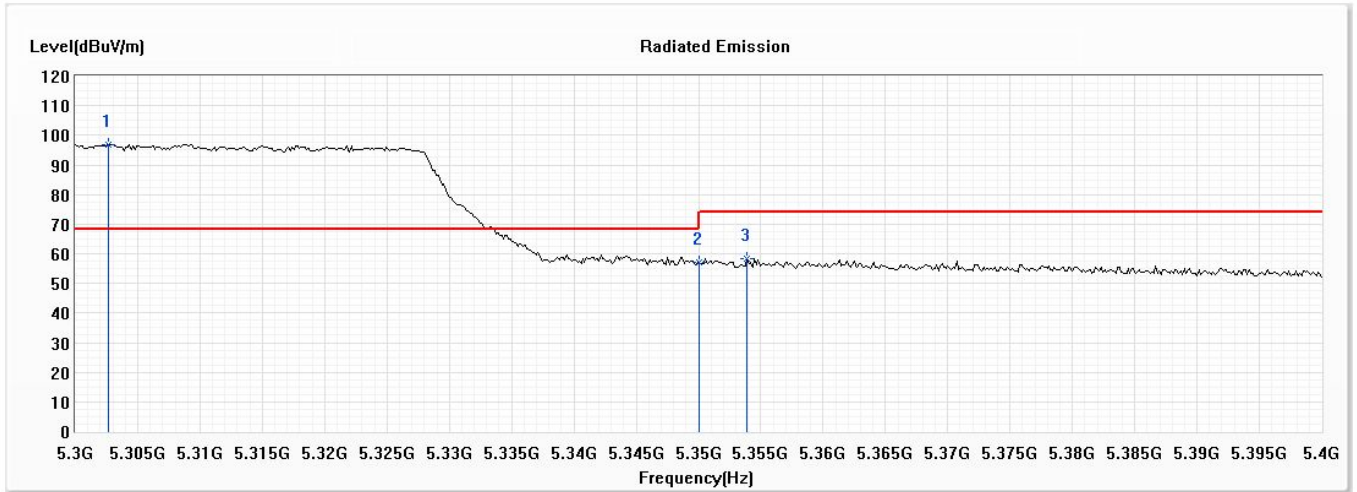
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5301.449	93.80	--	--	75.82	17.98	AV
2	5350.000	53.08	54.00	-0.92	35.14	17.94	AV
3	5350.870	53.66	54.00	-0.34	35.72	17.94	AV

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5290MHz)  
 Test Date : 2021/02/08

**Vertical**



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5302.609	96.98	--	--	79.01	17.97	PK
2	5350.000	56.99	74.00	-17.01	39.05	17.94	PK
3	5353.913	58.41	74.00	-15.59	40.45	17.96	PK

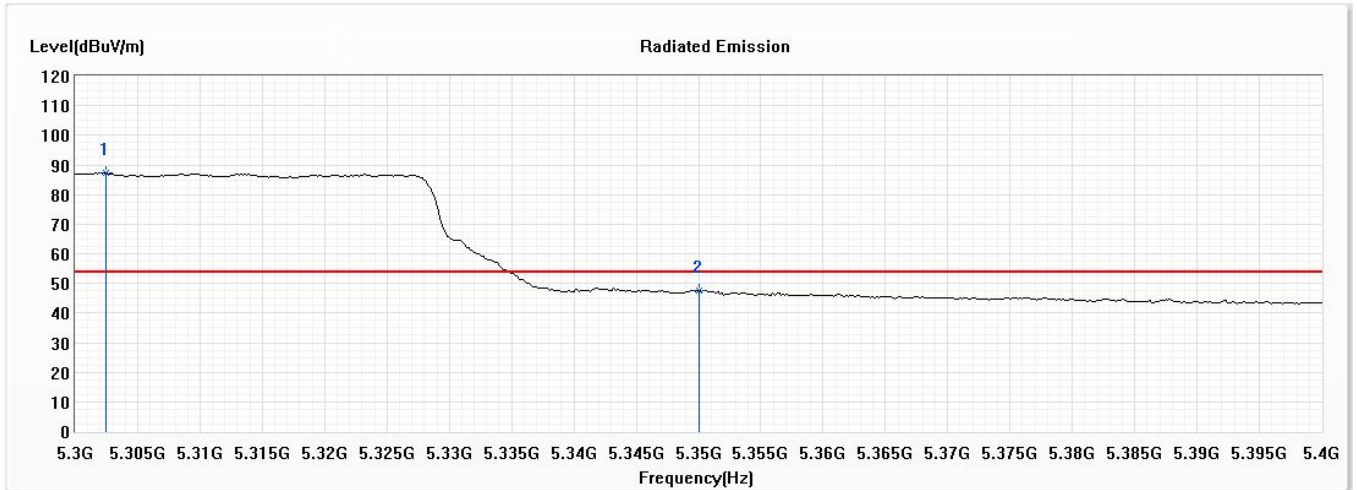
Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.



Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5290MHz)  
 Test Date : 2021/02/08

**Vertical**



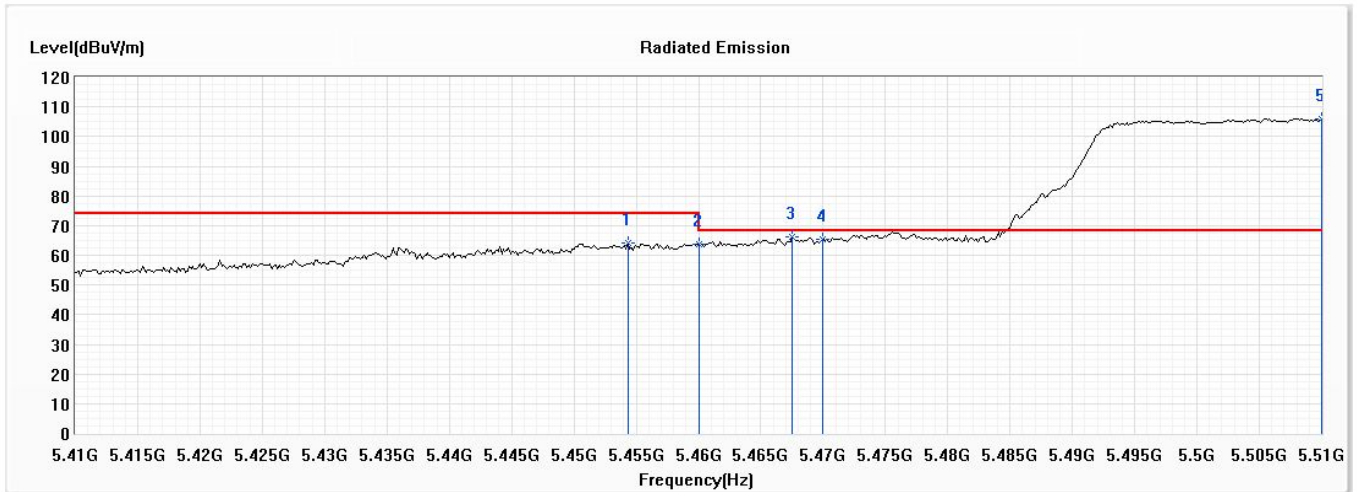
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5302.464	87.30	--	--	69.32	17.98	AV
2	5350.000	47.39	54.00	-6.61	29.45	17.94	AV

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5530MHz)  
 Test Date : 2021/02/08

**Horizontal**



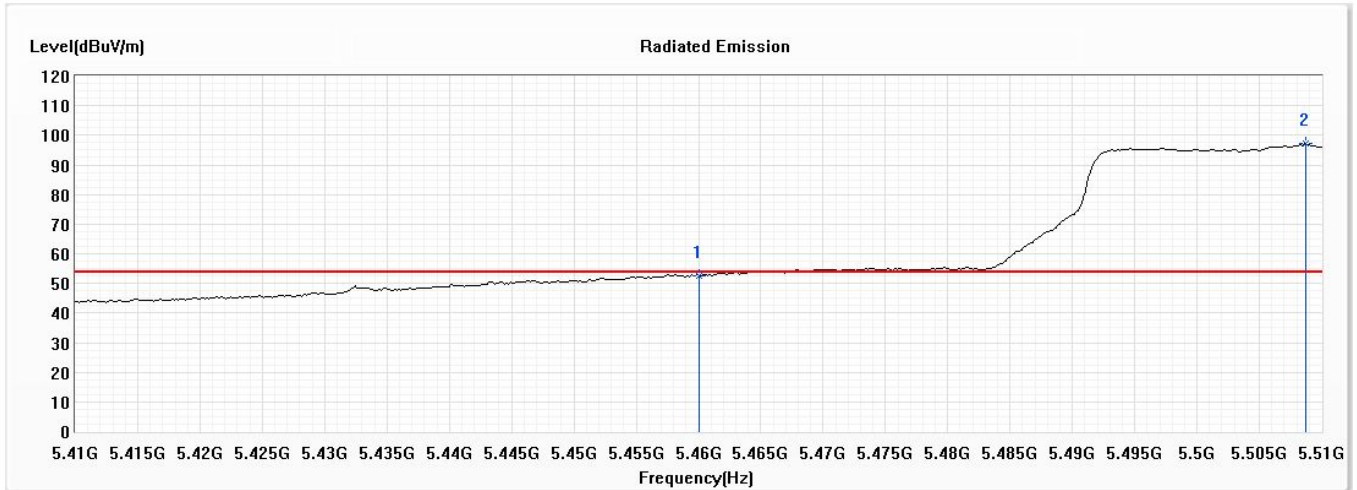
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5454.348	64.29	74.00	-9.71	46.15	18.14	PK
2	5460.000	63.81	74.00	-10.19	45.56	18.25	PK
3	5467.536	66.20	68.22	-2.02	47.82	18.38	PK
4	5470.000	65.30	68.22	-2.92	46.93	18.37	PK
5	5510.000	106.08	--	--	87.61	18.47	PK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5530MHz)  
 Test Date : 2021/02/08

**Horizontal**



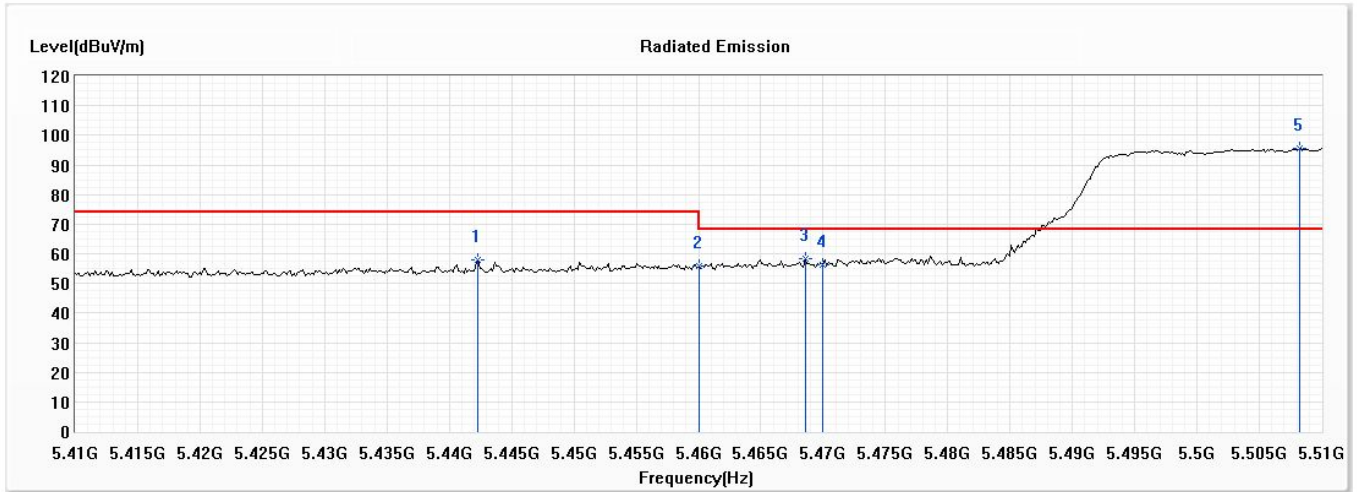
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5460.000	52.54	54.00	-1.46	34.29	18.25	AV
2	5508.696	97.05	--	--	78.57	18.48	AV

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5530MHz)  
 Test Date : 2021/02/08

**Vertical**



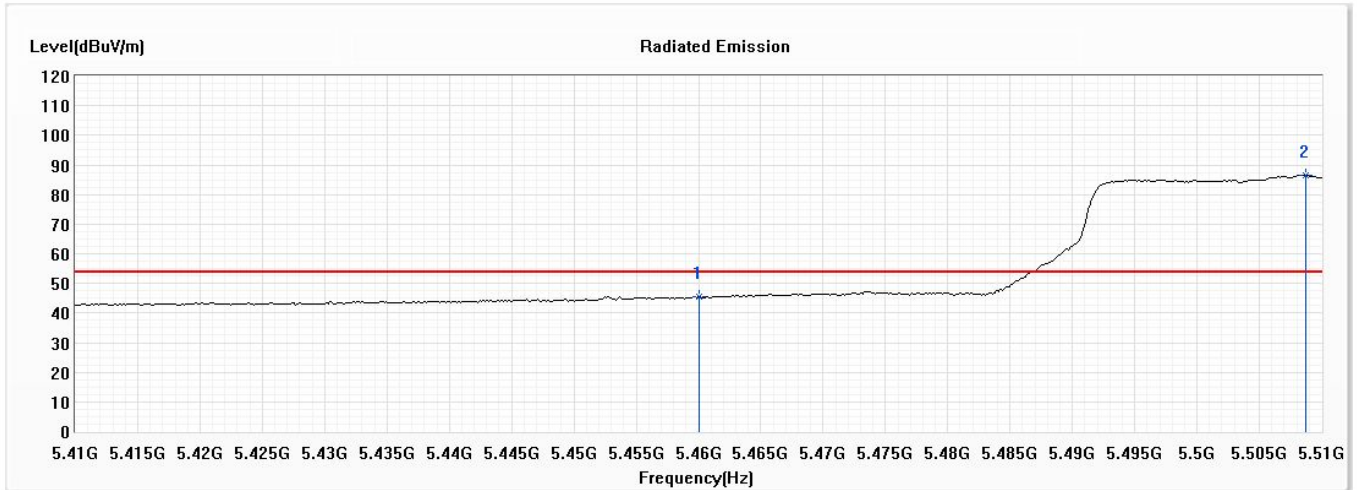
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5442.319	58.00	74.00	-16.00	39.77	18.23	PK
2	5460.000	55.71	74.00	-18.29	37.46	18.25	PK
3	5468.551	58.29	68.22	-9.93	39.92	18.37	PK
4	5470.000	56.14	68.22	-12.08	37.77	18.37	PK
5	5508.261	95.56	--	--	77.07	18.49	PK

**Note:**

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5530MHz)  
 Test Date : 2021/02/08

**Vertical**



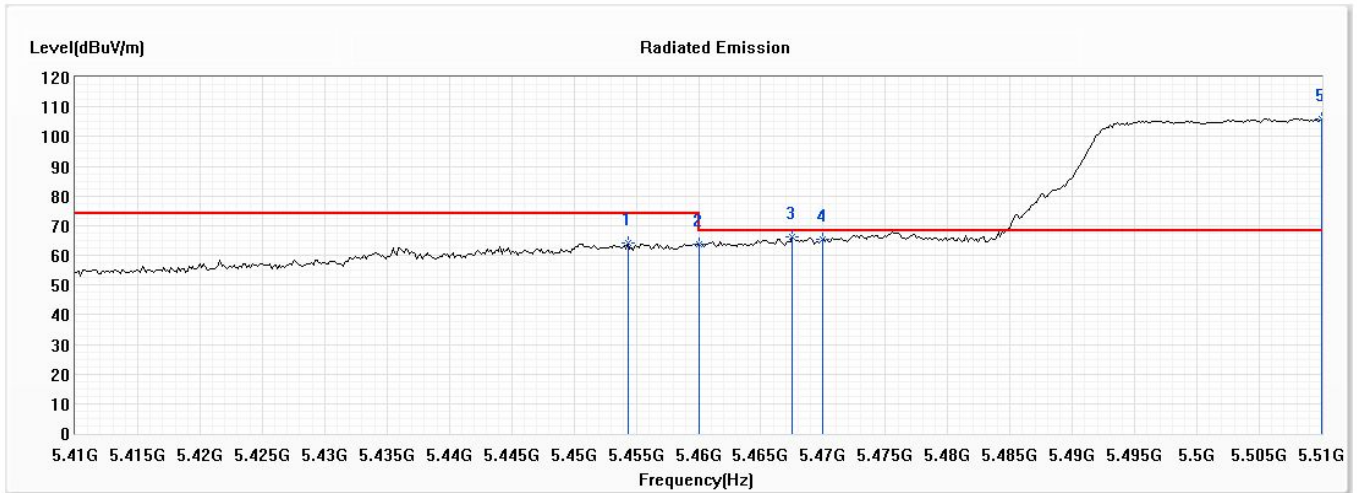
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5460.000	45.39	54.00	-8.61	27.14	18.25	AV
2	5508.696	86.57	--	--	68.09	18.48	AV

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5530MHz)  
 Test Date : 2021/02/08

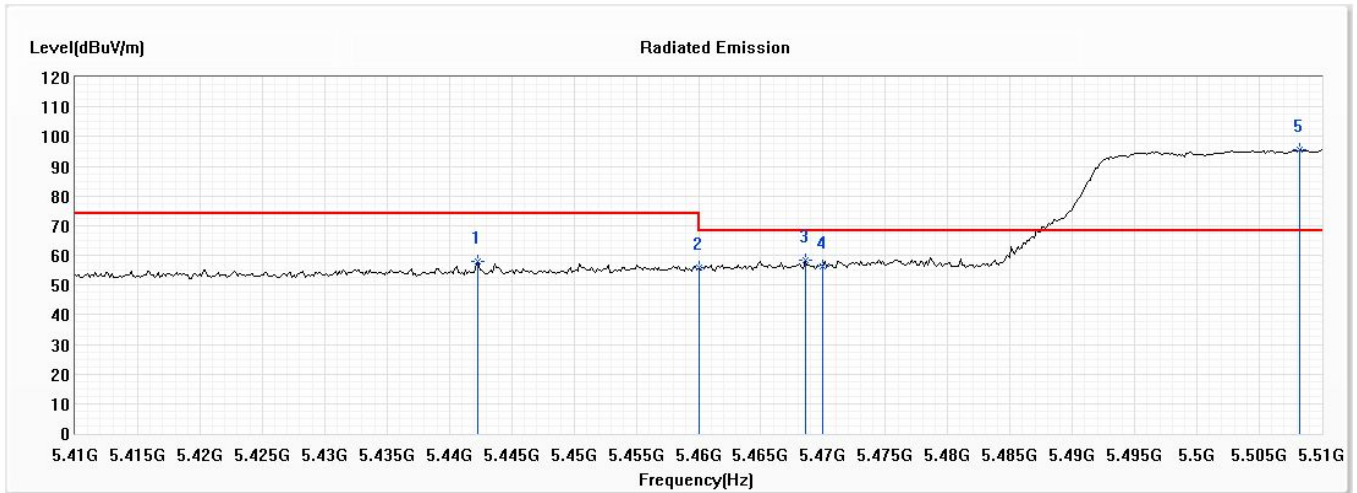
**Horizontal**



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5454.348	64.29	74.00	-9.71	46.15	18.14	PK
2	5460.000	63.81	74.00	-10.19	45.56	18.25	PK
* 3	5467.536	66.20	68.22	-2.02	47.82	18.38	PK
4	5470.000	65.30	68.22	-2.92	46.93	18.37	PK
5	5510.000	106.08	--	--	87.61	18.47	PK

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5530MHz)  
 Test Date : 2021/02/08

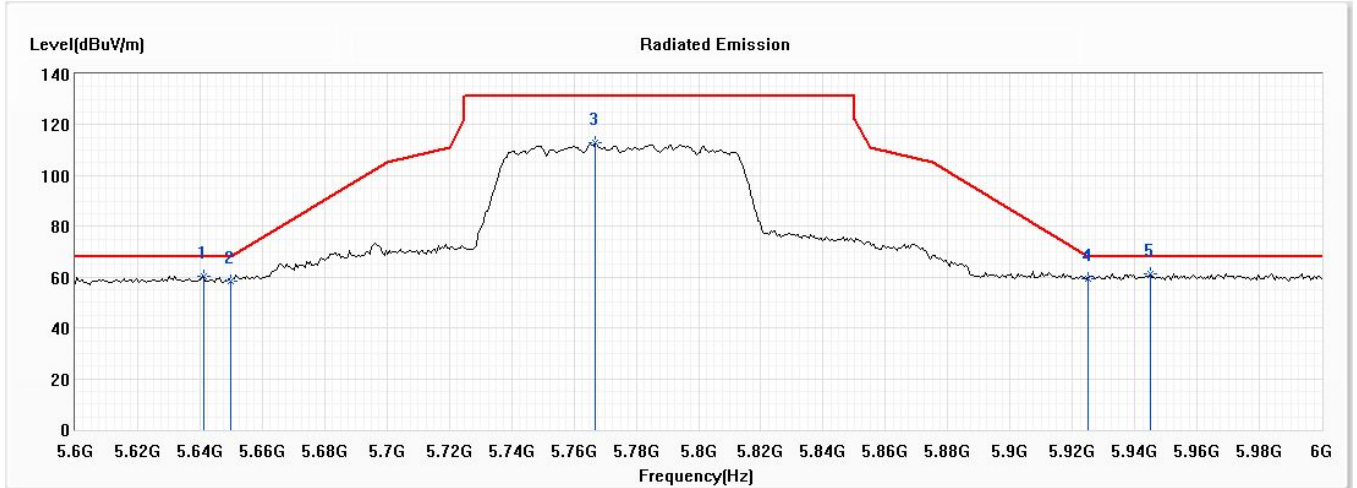
**Vertical**



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5442.319	58.00	74.00	-16.00	39.77	18.23	PK
2	5460.000	55.71	74.00	-18.29	37.46	18.25	PK
* 3	5468.551	58.29	68.22	-9.93	39.92	18.37	PK
4	5470.000	56.14	68.22	-12.08	37.77	18.37	PK
5	5508.261	95.56	--	--	77.07	18.49	PK

Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5775MHz)  
 Test Date : 2021/02/08

**Horizontal**

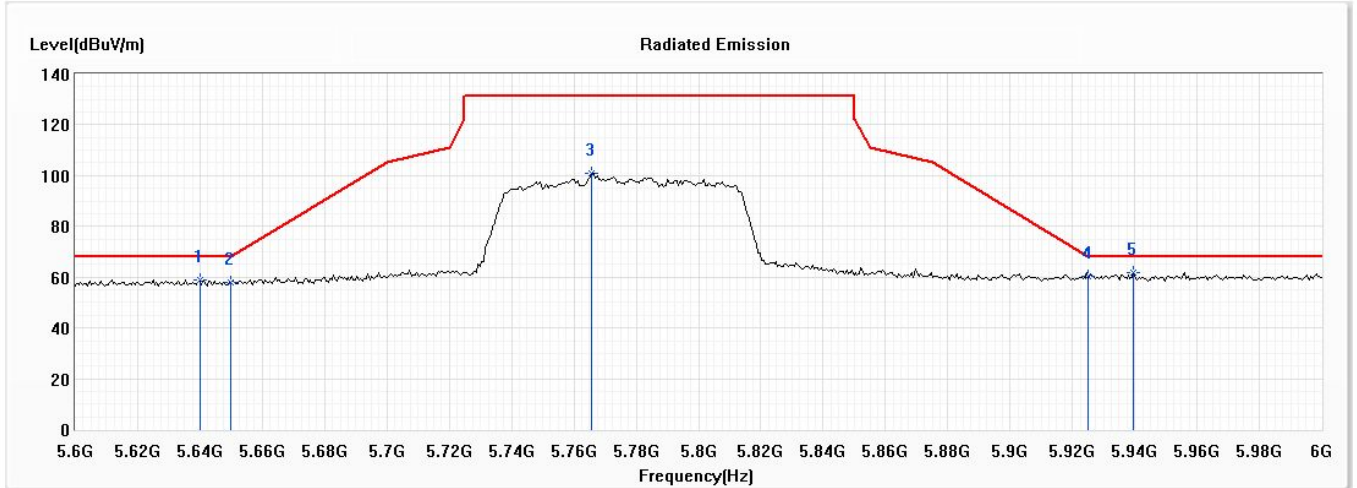


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5641.159	60.49	68.22	-7.73	42.13	18.36	PK
2	5650.000	58.61	68.22	-9.61	40.26	18.35	PK
3	5766.957	112.87	--	--	94.05	18.82	PK
4	5925.000	59.59	68.22	-8.63	40.36	19.23	PK
* 5	5944.928	61.43	68.22	-6.79	42.25	19.18	PK



Product : PanaCast 50  
 Test Item : Band Edge Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps) (5775MHz)  
 Test Date : 2021/02/08

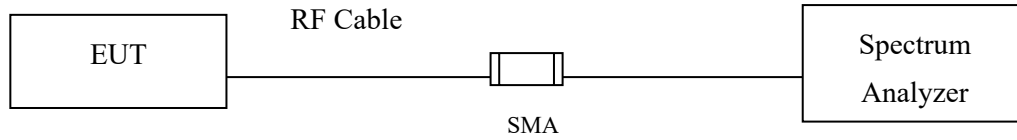
**Vertical**



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	5640.000	59.04	68.22	-9.18	40.69	18.35	PK
2	5650.000	58.02	68.22	-10.20	39.67	18.35	PK
3	5765.797	100.70	--	--	81.89	18.81	PK
4	5925.000	60.23	68.22	-7.99	41.00	19.23	PK
* 5	5939.710	61.70	68.22	-6.52	42.55	19.15	PK

## 7. Occupied Bandwidth

### 7.1. Test Setup



### 7.2. Limits

For the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz

### 7.3. Test Procedure

The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

### 7.4. Test Result of Occupied Bandwidth

Product : PanaCast 50  
 Test Item : Occupied Bandwidth Data  
 Test Mode : Mode 1: Transmit (802.11a 6Mbps)  
 Test Date : 2020/12/31

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745	15900	>500	Pass
157	5785	15200	>500	Pass
165	5825	15200	>500	Pass

Figure Channel 149:

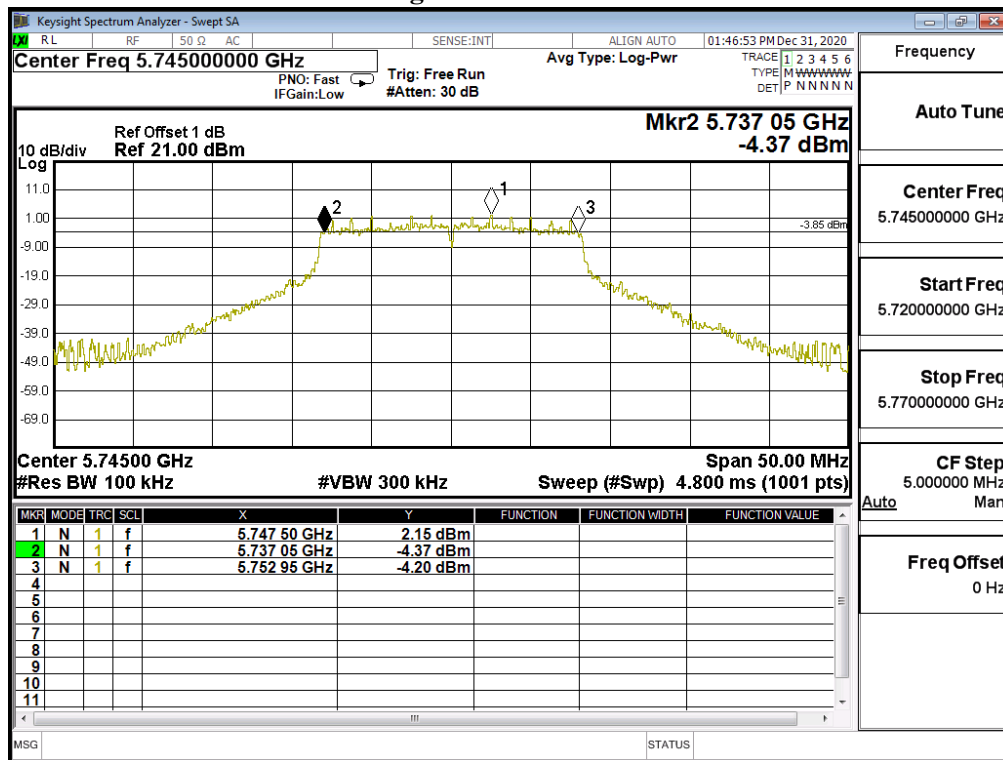


Figure Channel 157:

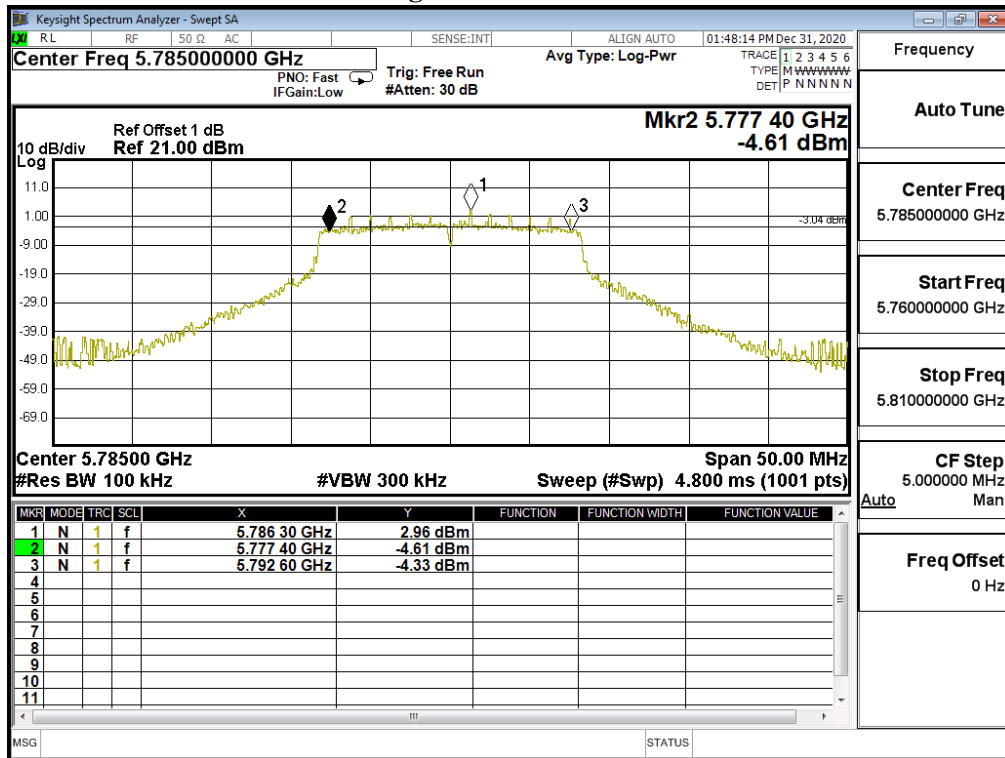
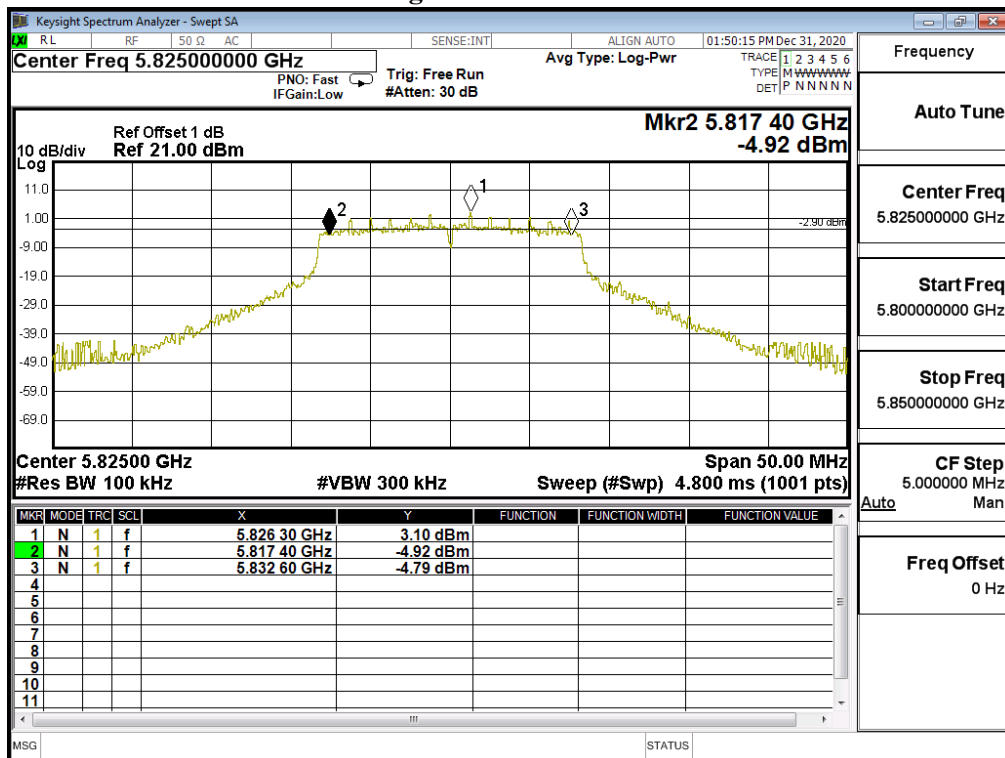


Figure Channel 165:



Product : PanaCast 50  
 Test Item : Occupied Bandwidth Data  
 Test Mode : Mode 2: Transmit (802.11n-20BW 7.2Mbps)  
 Test Date : 2020/12/31

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	5745	16650	>500	Pass
157	5785	15600	>500	Pass
165	5825	15500	>500	Pass

Figure Channel 149:

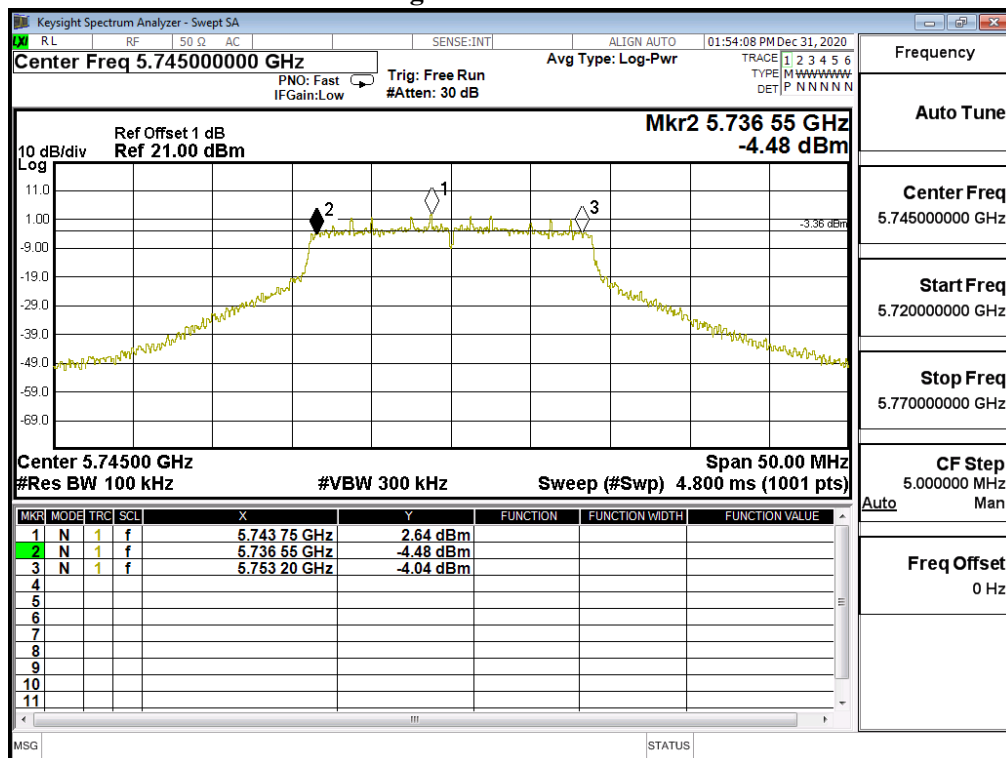


Figure Channel 157:

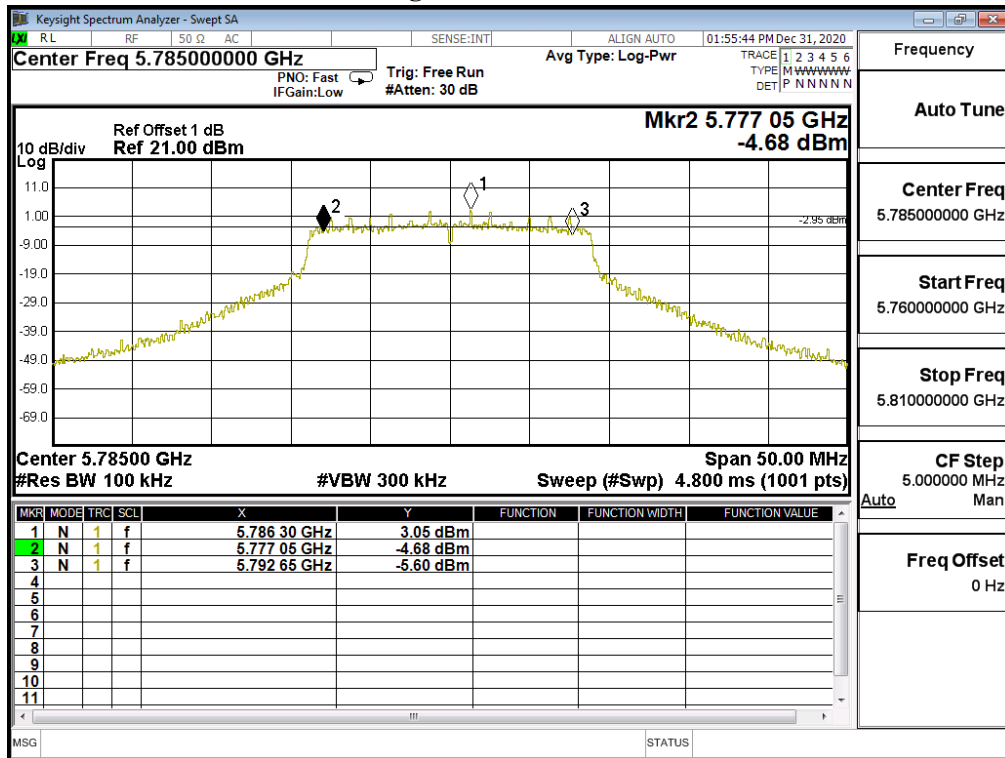
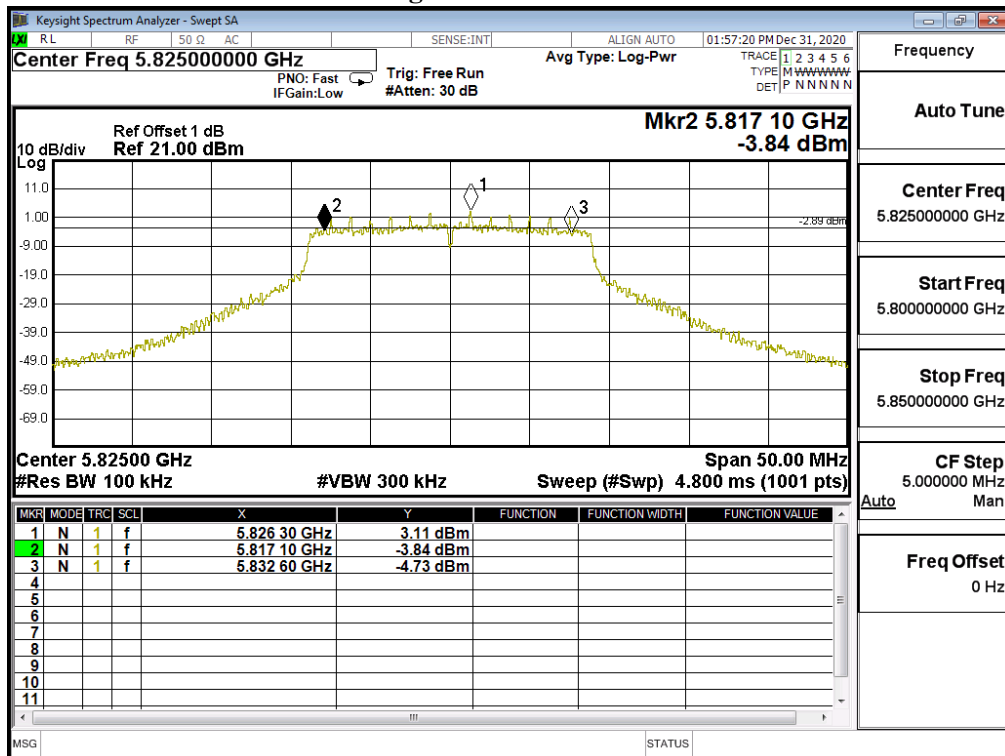


Figure Channel 165:



Product : PanaCast 50  
 Test Item : Occupied Bandwidth Data  
 Test Mode : Mode 3: Transmit (802.11n-40BW 15Mbps)  
 Test Date : 2020/12/31

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	5755	35900	>500	Pass
159	5795	35700	>500	Pass

Figure Channel 151:

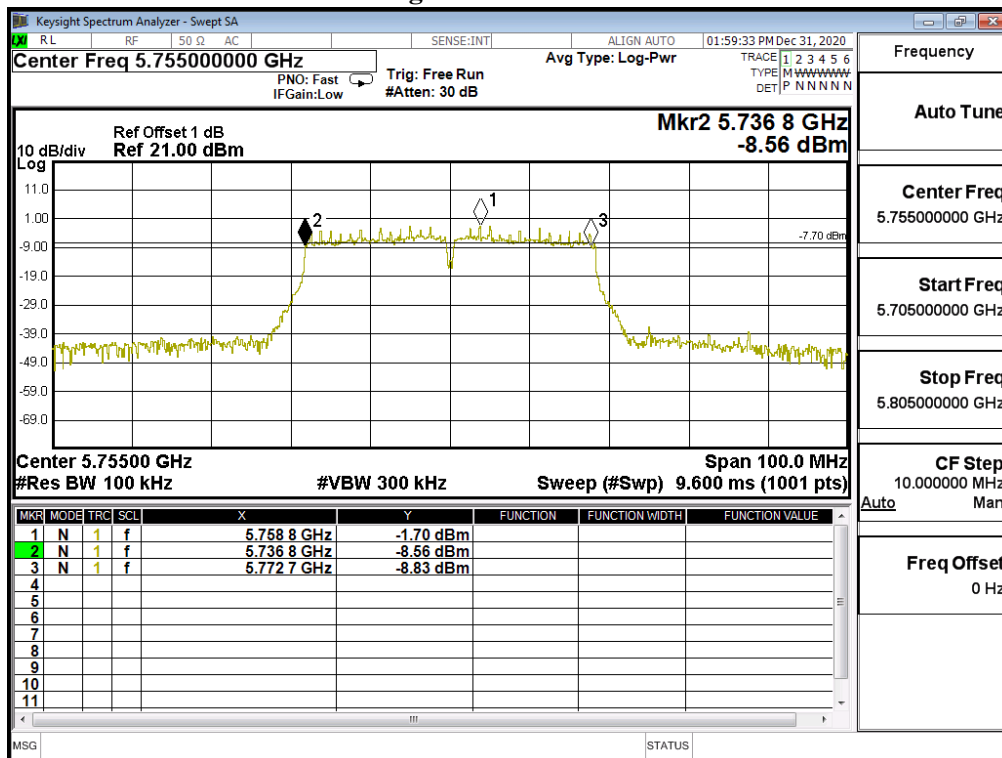
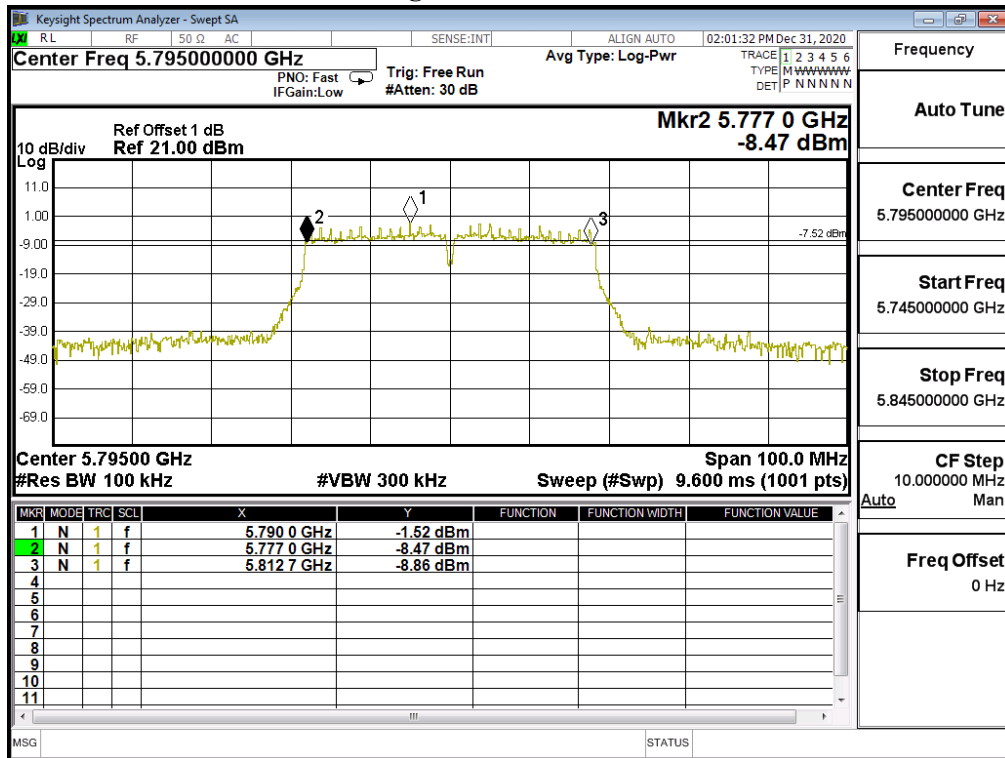


Figure Channel 159:

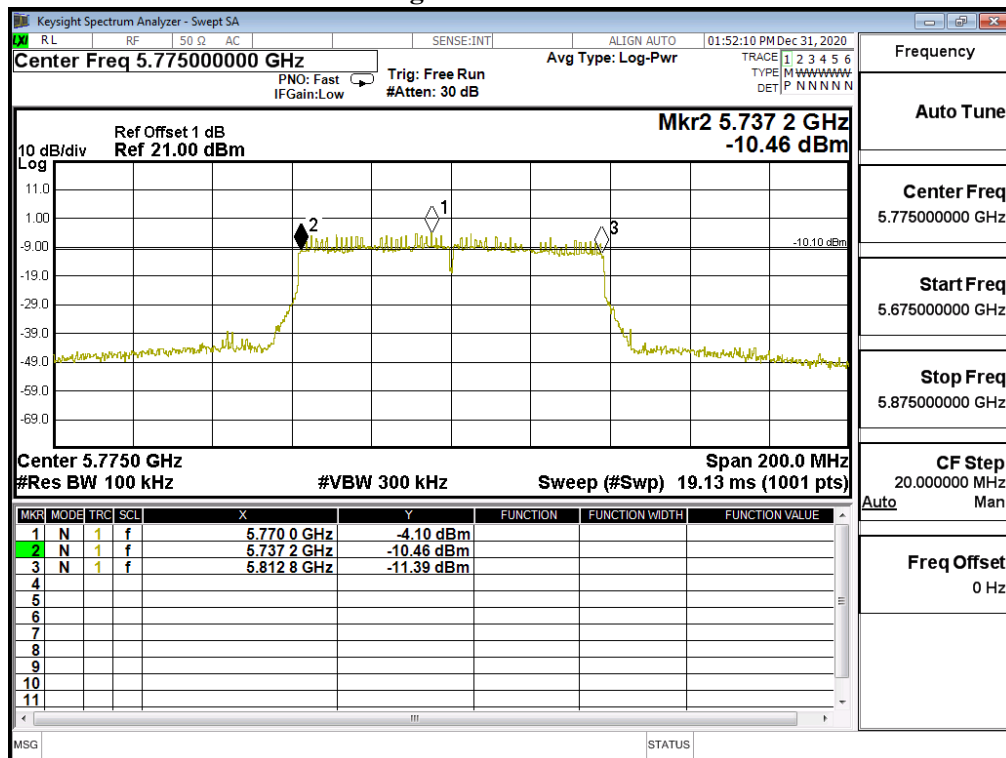




Product : PanaCast 50  
 Test Item : Occupied Bandwidth Data  
 Test Mode : Mode 4: Transmit (802.11ac-80BW 32.5Mbps)  
 Test Date : 2020/12/31

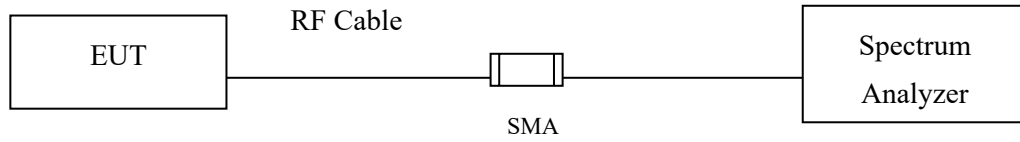
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
155	5775	75600	>500	Pass

Figure Channel 155:



## 8. Duty Cycle

### 8.1. Test Setup



### 8.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to U-NII test procedure of KDB789033 for compliance to FCC 47CFR 15.407 requirements.

### 8.3. Test Result of Duty Cycle

Product : PanaCast 50  
Test Item : Duty Cycle  
Test Mode : Transmit

Duty Cycle Formula:

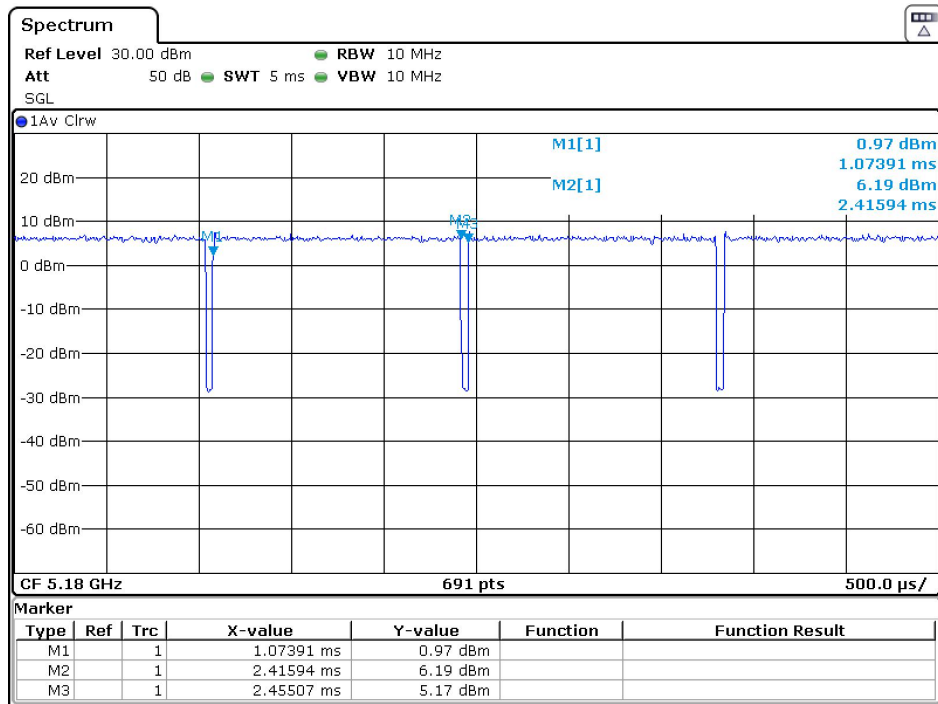
Duty Cycle = Ton / (Ton + Toff)

Duty Factor = 10 Log (1/Duty Cycle)

Results:

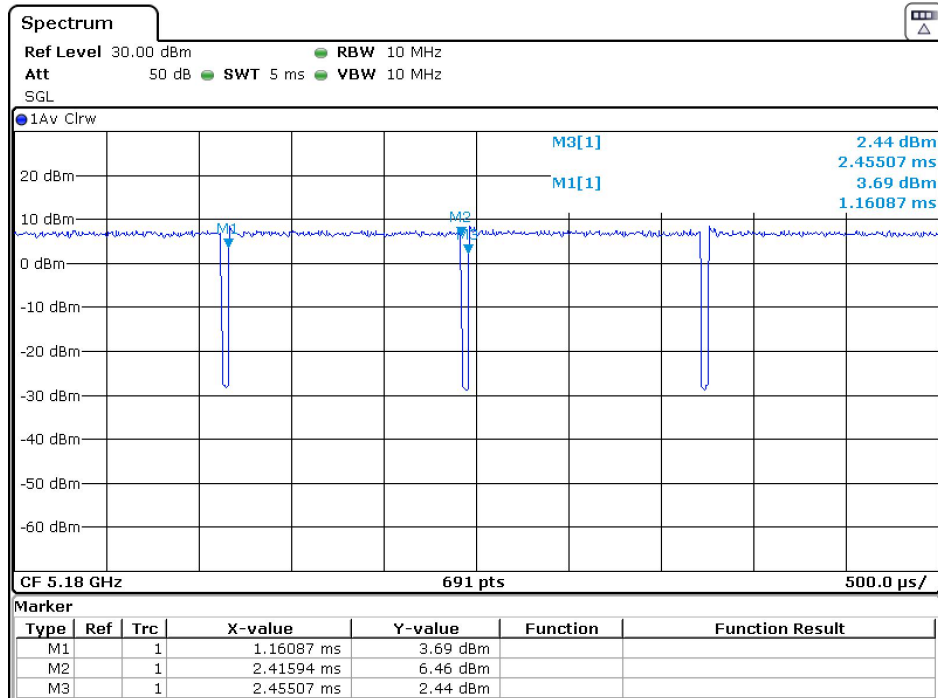
5GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11a	1.3420	1.3812	97.17	0.12
802.11n20	1.2551	1.2942	96.98	0.13
802.11n40	0.6246	0.6638	94.10	0.26
802.11ac80	0.3131	0.3522	88.89	0.51

### 802.11a



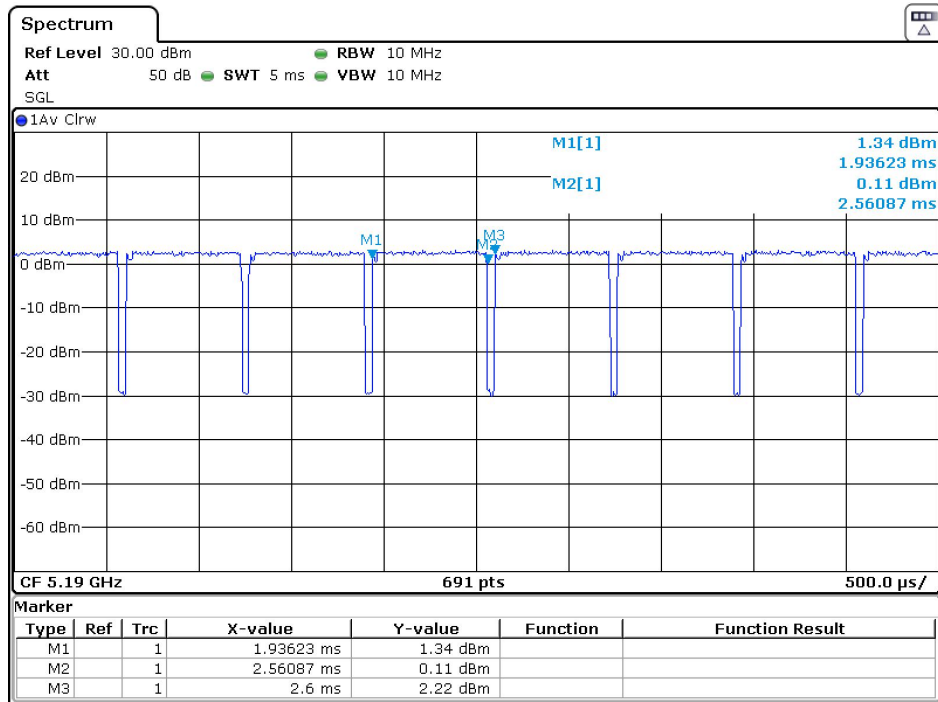
Date: 21. JAN. 2021 13:09:26

### 802.11n20



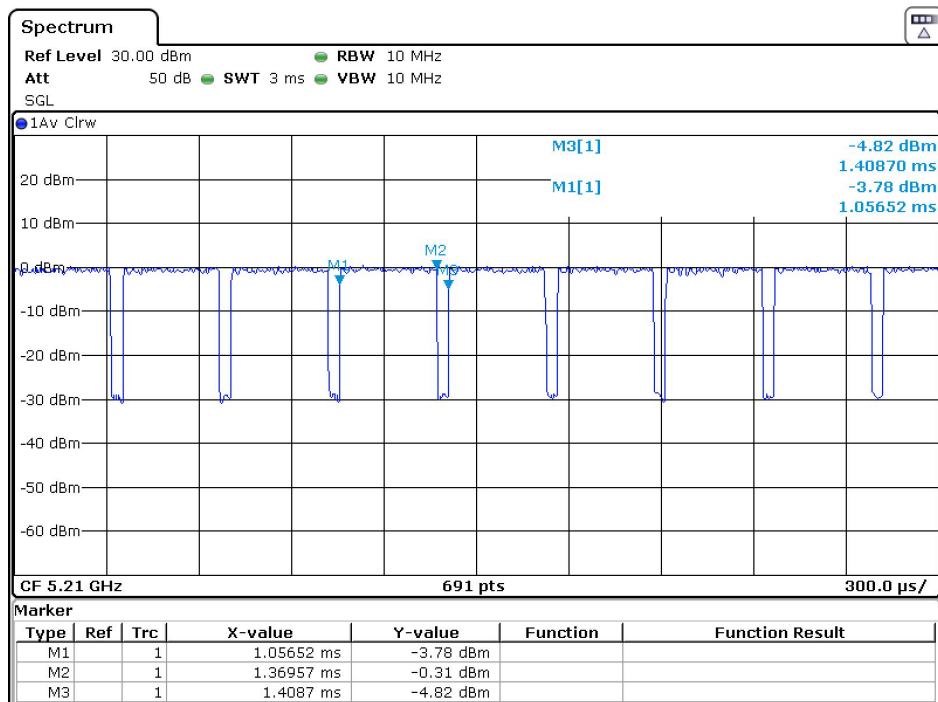
Date: 21. JAN. 2021 13:12:19

### 802.11n40



Date: 21. JAN. 2021 13:14:48

### 802.11ac80



Date: 21. JAN. 2021 13:16:10

## 9. EMI Reduction Method During Compliance Testing

No modification was made during testing.