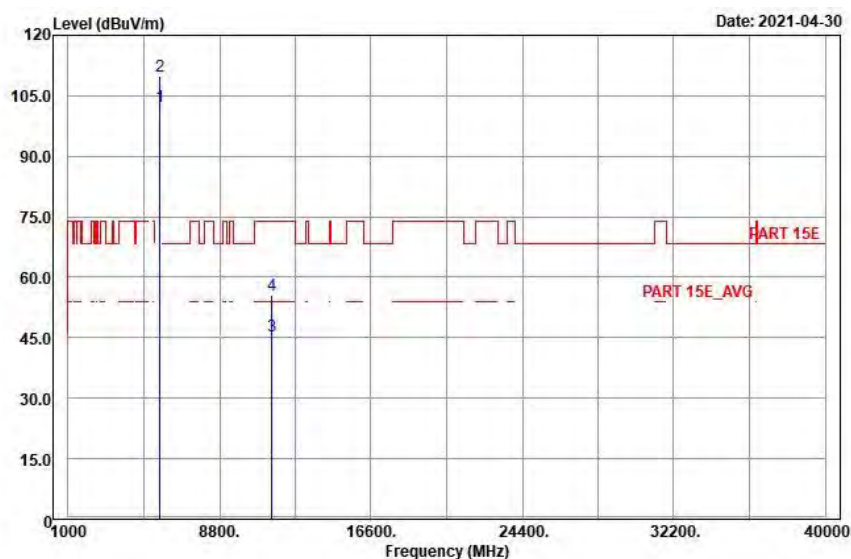
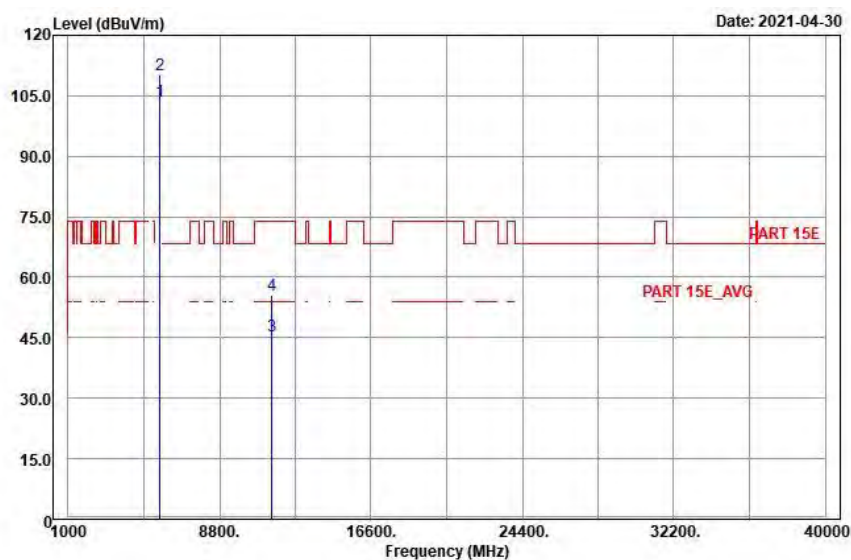


EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

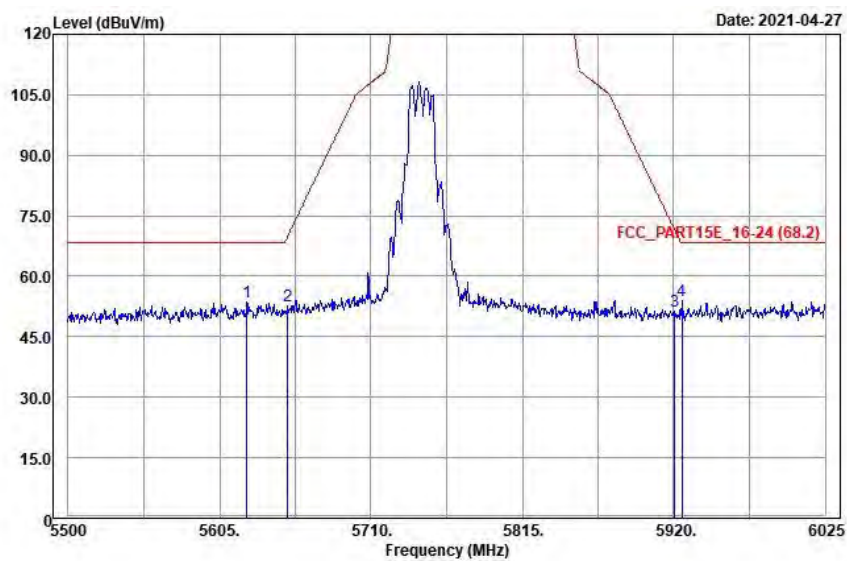
<Spurious Emission> Horizontal



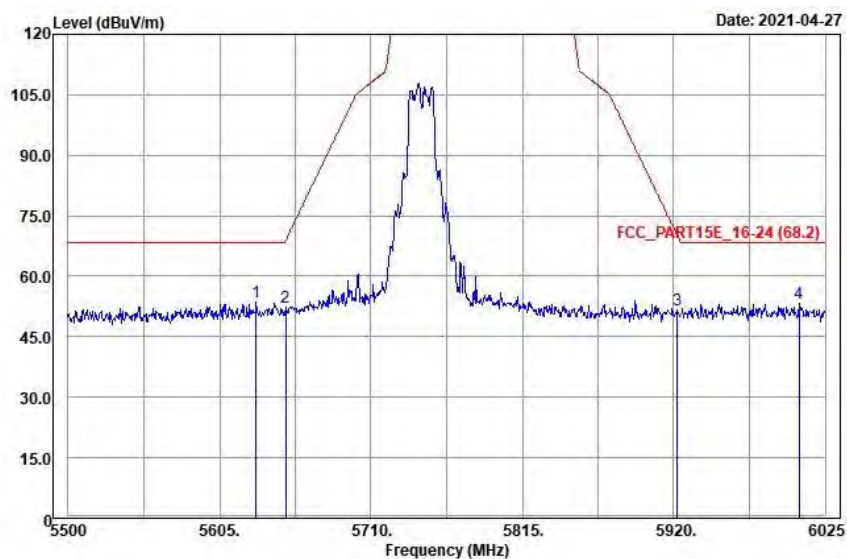
Vertical



<Out of Band Emission (OOBE)> Horizontal



Vertical



<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	102.25	59.48	42.77			218	116	Average
5745	109.95	67.18	42.77			218	116	Peak
11490	45.47	29	16.47	54	-8.53	126	171	Average
11490	55.7	39.23	16.47	74	-18.3	126	171	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	103.64	92.76	10.88			205	92	Average
5745	110.27	99.39	10.88			205	92	Peak
11490	45.39	28.92	16.47	54	-8.61	198	143	Average
11490	55.66	39.19	16.47	74	-18.34	198	143	Peak

<Out of Band Emission (OOBE)>

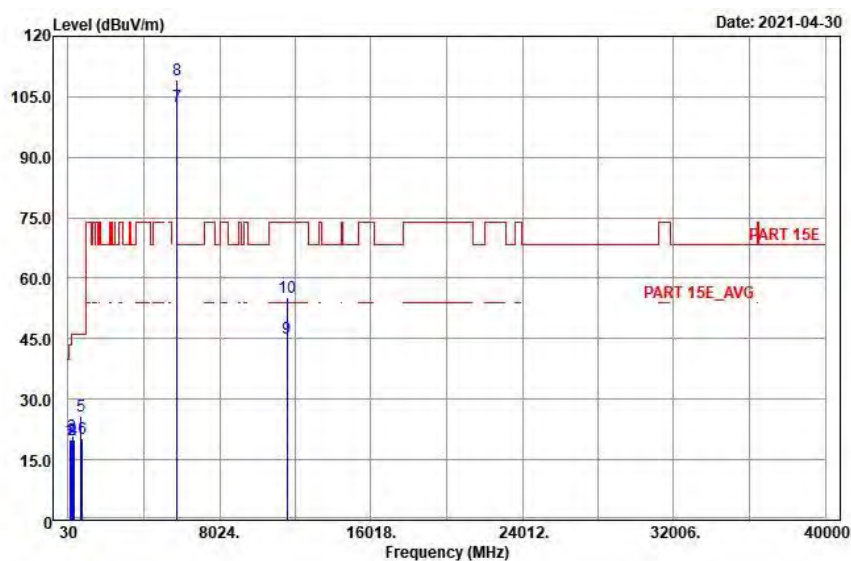
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5623.9	53.46	42.67	10.79	68.2	-14.74	218	116	Peak
5652.25	52.5	41.63	10.87	69.86	-17.36	218	116	Peak
5920.525	51.34	40.25	11.09	71.51	-20.17	218	116	Peak
*5925.775	53.89	42.78	11.11	68.2	-14.31	218	116	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5630.2	53.48	42.67	10.81	68.2	-14.72	205	92	Peak
5650.675	52.29	41.42	10.87	68.7	-16.41	205	92	Peak
5922.625	51.56	40.45	11.11	69.96	-18.4	205	92	Peak
*6007.15	53.45	42.1	11.35	68.2	-14.75	205	92	Peak

Remarks:

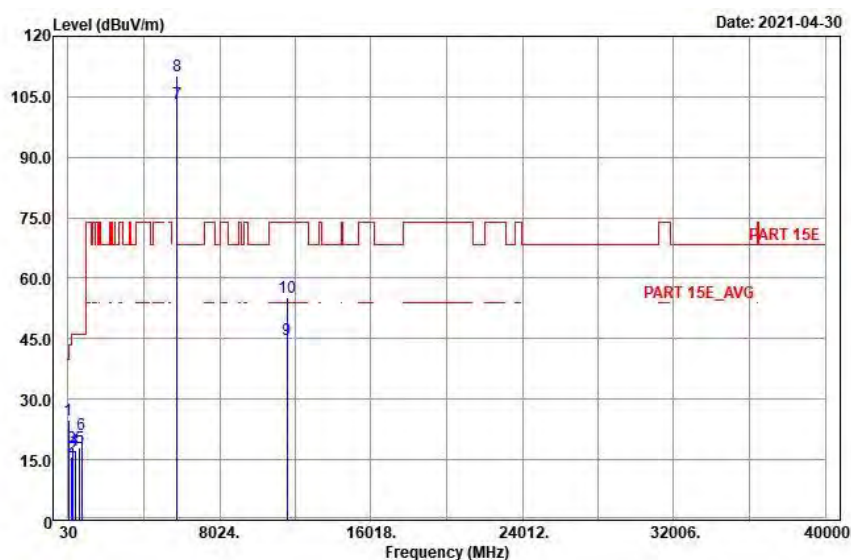
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5745 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	30 MHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Above 1GHz: Peak (PK) Average (AV) Below 1GHz: Quasi-Peak(QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

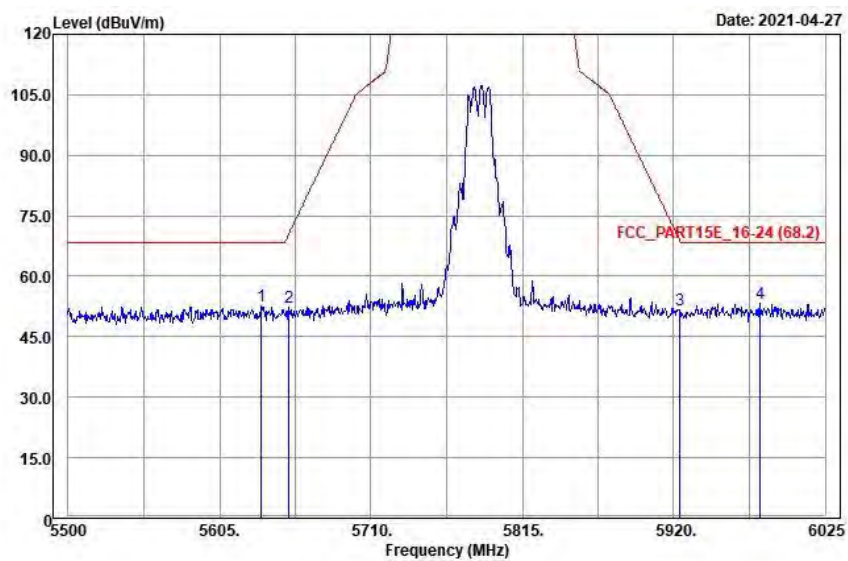
<Spurious Emission> Horizontal



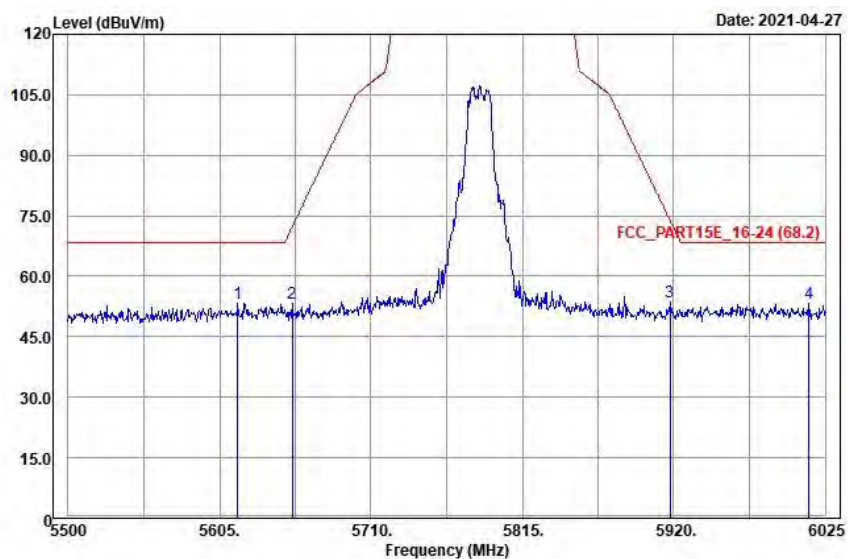
Vertical



<Out of Band Emission (OOBE)> Horizontal



Vertical



<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
110.19	19.91	37.58	-17.67	43.5	-23.59	155	241	QP
213.6	20.04	38.09	-18.05	43.5	-23.46	164	199	QP
253.29	20.97	37.77	-16.8	46	-25.03	105	211	QP
318.2	19.86	35.43	-15.57	46	-26.14	165	196	QP
696.9	25.71	34.96	-9.25	46	-20.29	188	174	QP
786.5	20.35	28.29	-7.94	46	-25.65	124	210	QP
5785	102.58	91.77	10.81			218	116	Average
5785	109.3	98.49	10.81			218	116	Peak
11570	45.11	28.62	16.49	54	-8.89	244	129	Average
11570	55.32	38.83	16.49	74	-18.68	244	129	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
45.93	24.82	40.12	-15.3	40	-15.18	145	193	QP
208.2	15.8	33.95	-18.15	43.5	-27.7	105	111	QP
260.04	17.98	34.66	-16.68	46	-28.02	124	26	QP
404.3	17.32	31.17	-13.85	46	-28.68	162	266	QP
652.8	18.01	28.02	-10.01	46	-27.99	184	115	QP
734	21.1	29.73	-8.63	46	-24.9	134	178	QP
5785	103.33	92.52	10.81			205	92	Average
5785	110.06	99.25	10.81			205	92	Peak
11570	44.94	28.45	16.49	54	-9.06	231	188	Average
11570	55.19	38.7	16.49	74	-18.81	231	188	Peak

<Out of Band Emission (OOBE)>

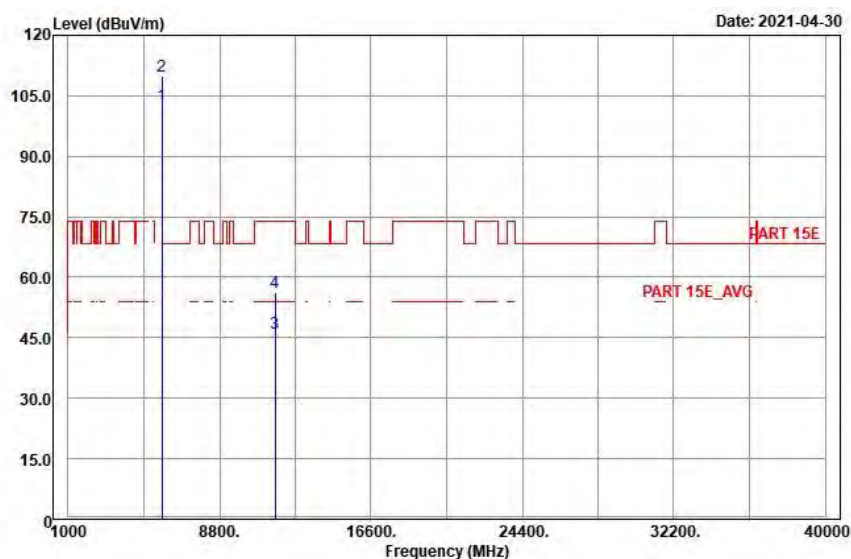
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5633.875	52.48	41.65	10.83	68.2	-15.72	218	116	Peak
5653.3	52.33	41.46	10.87	70.64	-18.31	218	116	Peak
5924.2	51.75	40.64	11.11	68.79	-17.04	218	116	Peak
*5979.85	53.14	41.88	11.26	68.2	-15.06	218	116	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5617.6	53.41	42.62	10.79	68.2	-14.79	205	92	Peak
5655.4	53.31	42.44	10.87	72.2	-18.89	205	92	Peak
5917.375	53.63	42.54	11.09	73.84	-20.21	205	92	Peak
*6013.975	53.21	41.86	11.35	68.2	-14.99	205	92	Peak

Remarks:

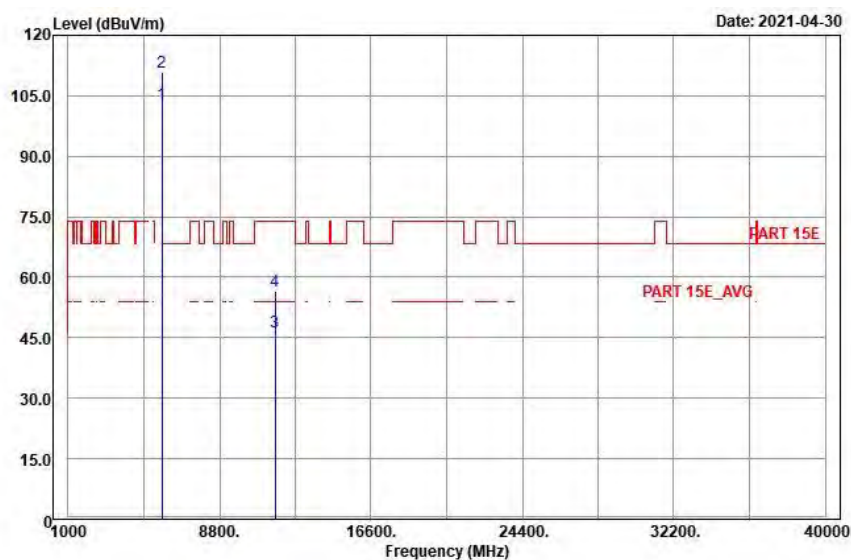
- Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
- 5785 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

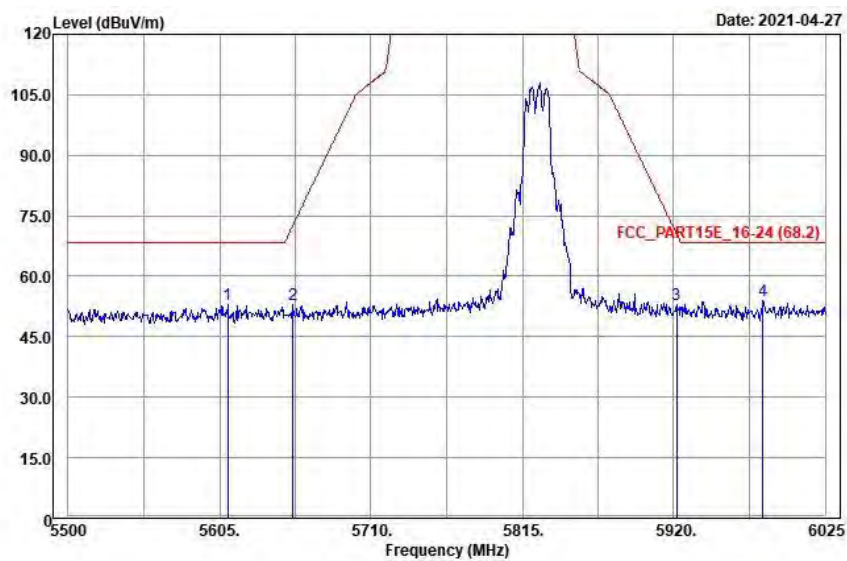
<Spurious Emission> Horizontal



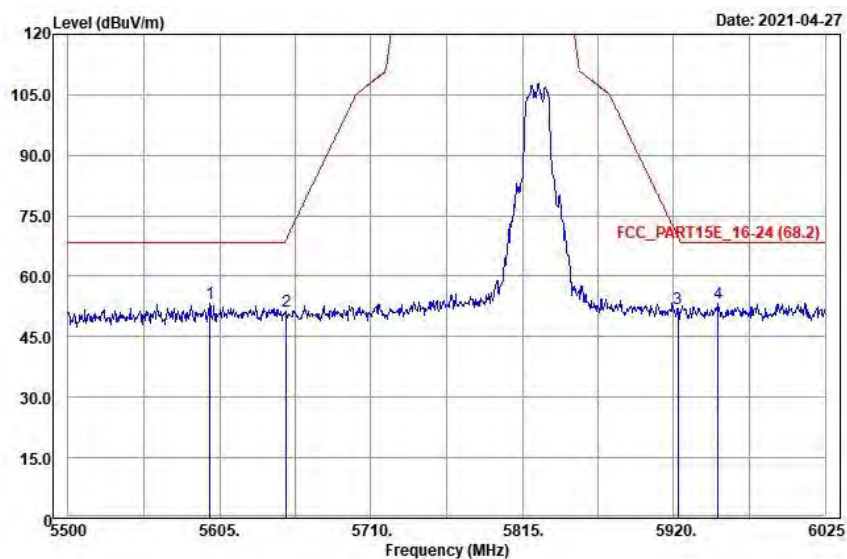
Vertical



<Out of Band Emission (OOBE)> Horizontal



Vertical



<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	102.58	91.7	10.88			218	116	Average
5825	109.71	98.83	10.88			218	116	Peak
11650	46.06	29.28	16.78	54	-7.94	182	21	Average
11650	56.4	39.62	16.78	74	-17.6	182	21	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	103.16	92.28	10.88			205	92	Average
5825	110.76	99.88	10.88			205	92	Peak
11650	46.35	29.57	16.78	54	-7.65	292	132	Average
11650	56.44	39.66	16.78	74	-17.56	292	132	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5610.775	52.97	42.2	10.77	68.2	-15.23	218	116	Peak
5655.925	52.81	41.94	10.87	72.58	-19.77	218	116	Peak
5922.1	52.93	41.82	11.11	70.35	-17.42	218	116	Peak
*5981.95	53.83	42.57	11.26	68.2	-14.37	218	116	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5598.175	53.17	42.42	10.75	68.2	-15.03	205	92	Peak
5651.2	51.45	40.58	10.87	69.09	-17.64	205	92	Peak
5923.15	52.13	41.02	11.11	69.57	-17.44	205	92	Peak
*5950.975	53.35	42.17	11.18	68.2	-14.85	205	92	Peak

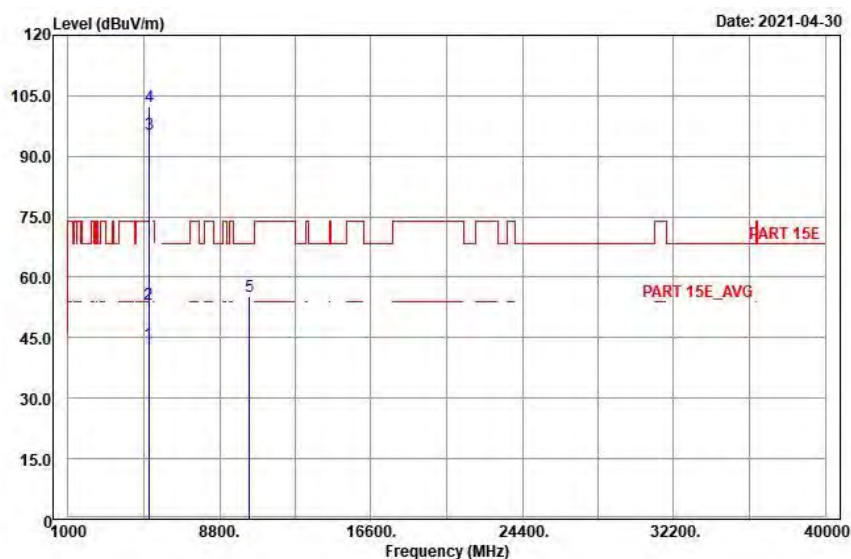
Remarks:

- Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The other emission levels were very low against the limit.

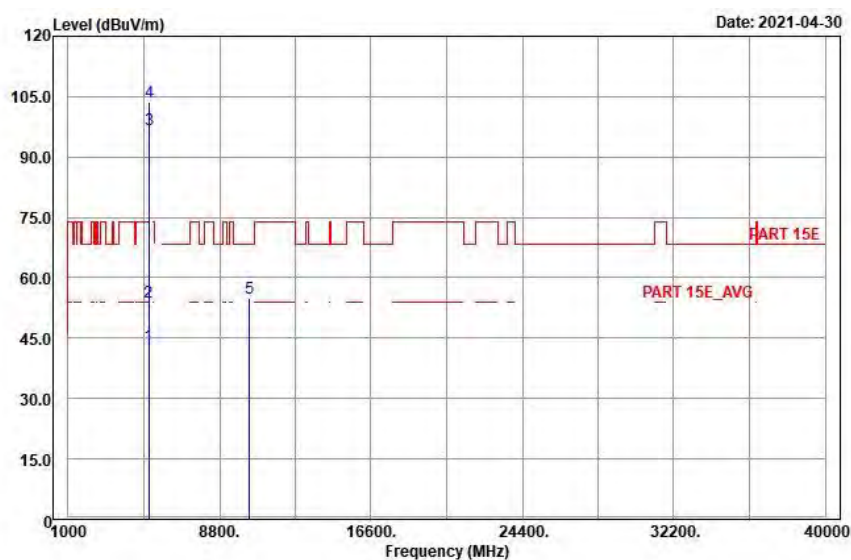
802.11ac (VHT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 36	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



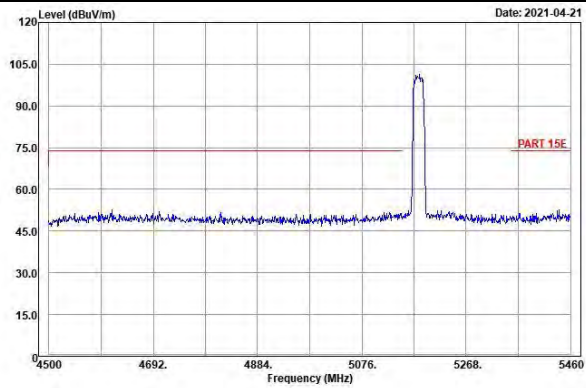
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	43.34	33.29	10.05	54	-10.66	218	144	Average
5150	53.21	43.16	10.05	74	-20.79	218	144	Peak
5180	95.49	85.37	10.12			218	144	Average
5180	102.24	92.12	10.12			218	144	Peak
*10360	55.34	39.32	16.02	68.2	-12.86	247	171	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	43.11	33.06	10.05	54	-10.89	205	86	Average
5150	53.95	43.9	10.05	74	-20.05	205	86	Peak
5180	96.66	86.54	10.12			205	86	Average
5180	103.73	93.61	10.12			205	86	Peak
*10360	54.86	38.84	16.02	68.2	-13.34	159	228	Peak

Remarks:

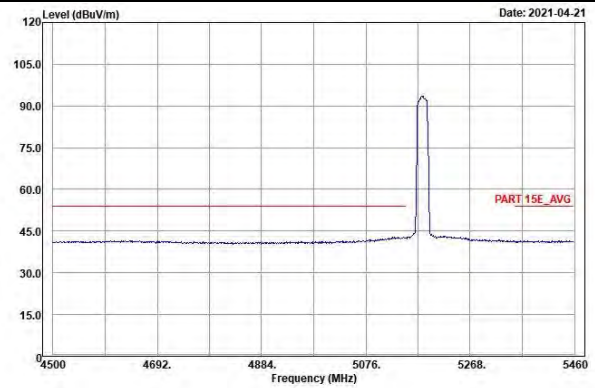
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5180 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 36

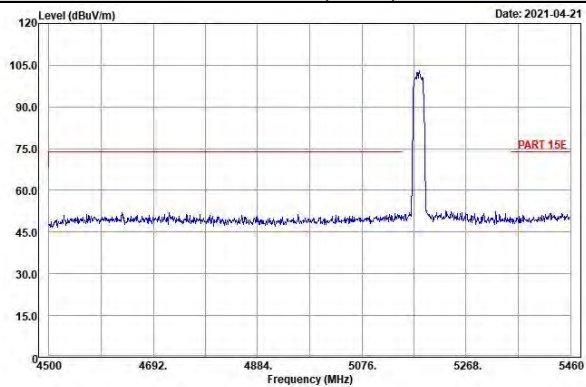
Horizontal (Peak)



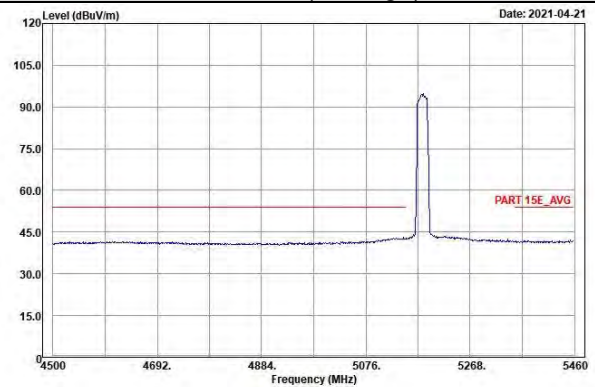
Horizontal (Average)



Vertical (Peak)

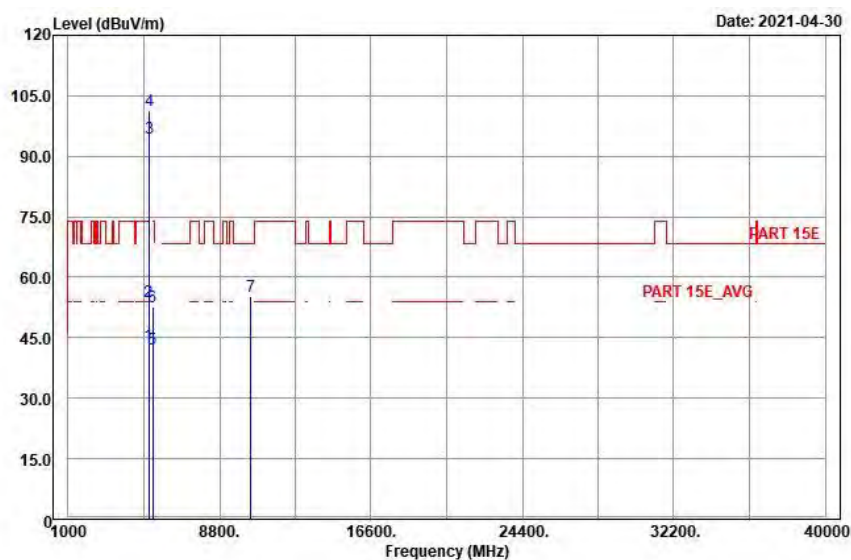


Vertical (Average)

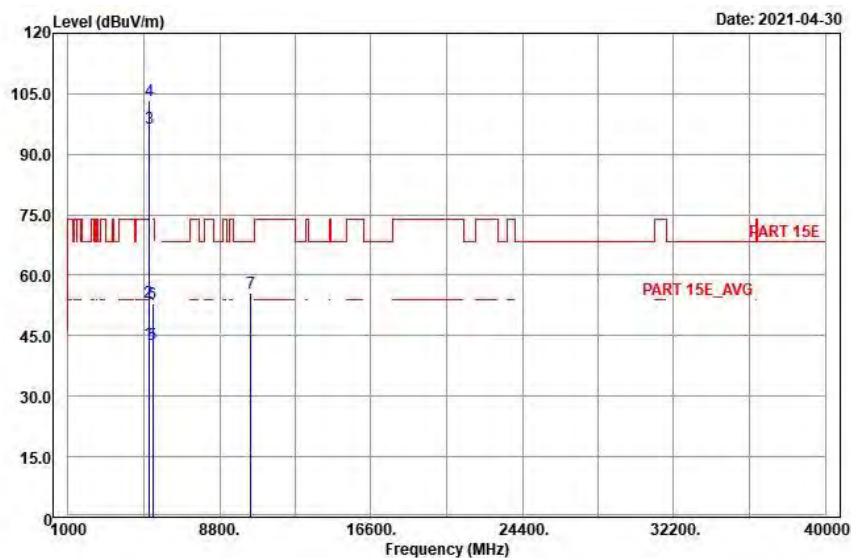


EUT Test Condition		Measurement Detail	
Channel	Channel 40	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



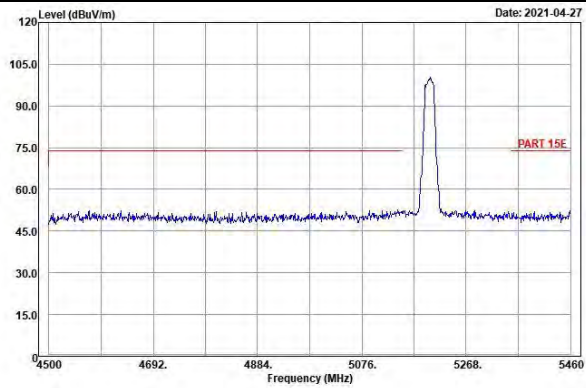
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	43.27	33.22	10.05	54	-10.73	218	144	Average
5150	53.81	43.76	10.05	74	-20.19	218	144	Peak
5200	94.51	84.35	10.16			218	144	Average
5200	101.4	91.24	10.16			218	144	Peak
5350	42.13	31.9	10.23	54	-11.87	218	144	Average
5350	52.77	42.54	10.23	74	-21.23	218	144	Peak
*10400	55.37	39.19	16.18	68.2	-12.83	129	335	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	43.26	33.21	10.05	54	-10.74	205	86	Average
5150	53.25	43.2	10.05	74	-20.75	205	86	Peak
5200	96.45	86.29	10.16			205	86	Average
5200	103.2	93.04	10.16			205	86	Peak
5350	42.89	32.66	10.23	54	-11.11	205	86	Average
5350	52.81	42.58	10.23	74	-21.19	205	86	Peak
*10400	55.46	39.28	16.18	68.2	-12.74	211	175	Peak

Remarks:

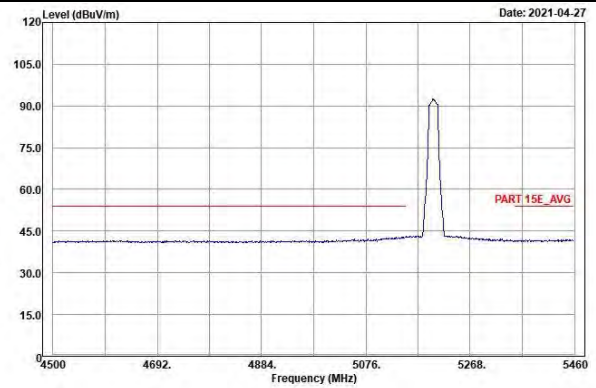
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5200 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 40

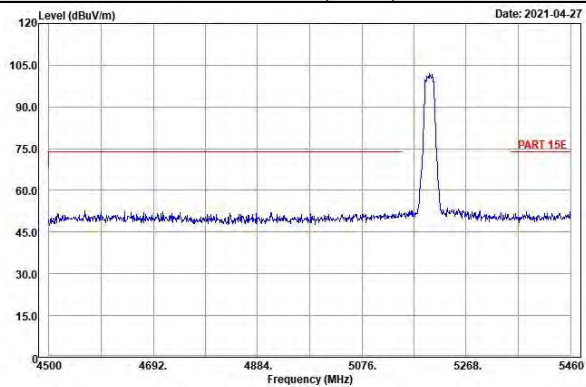
Horizontal (Peak)



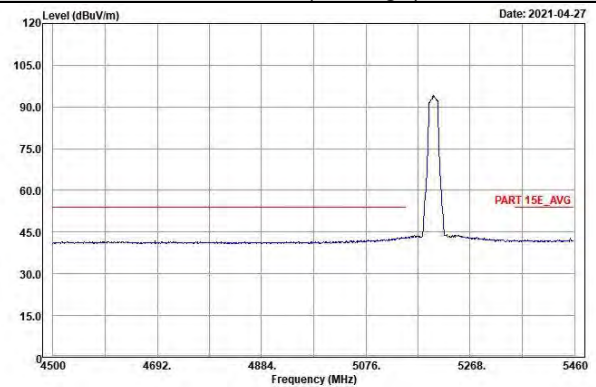
Horizontal (Average)



Vertical (Peak)

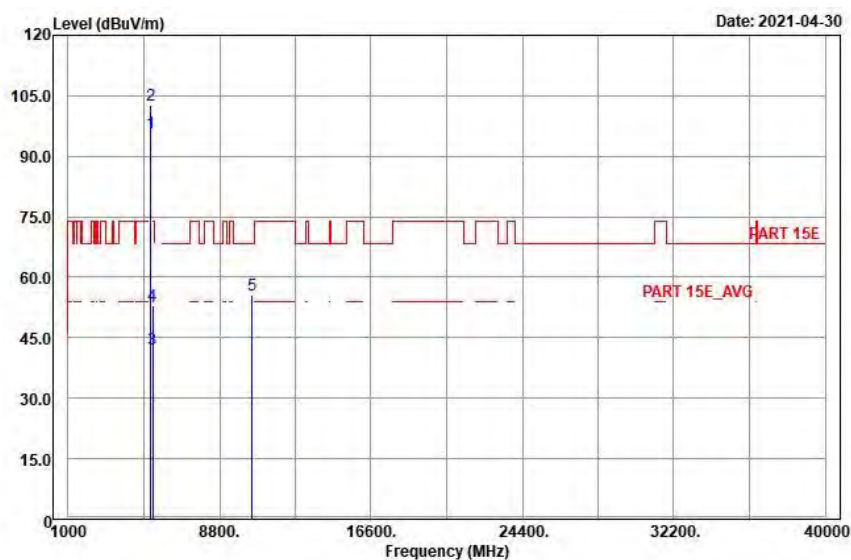


Vertical (Average)

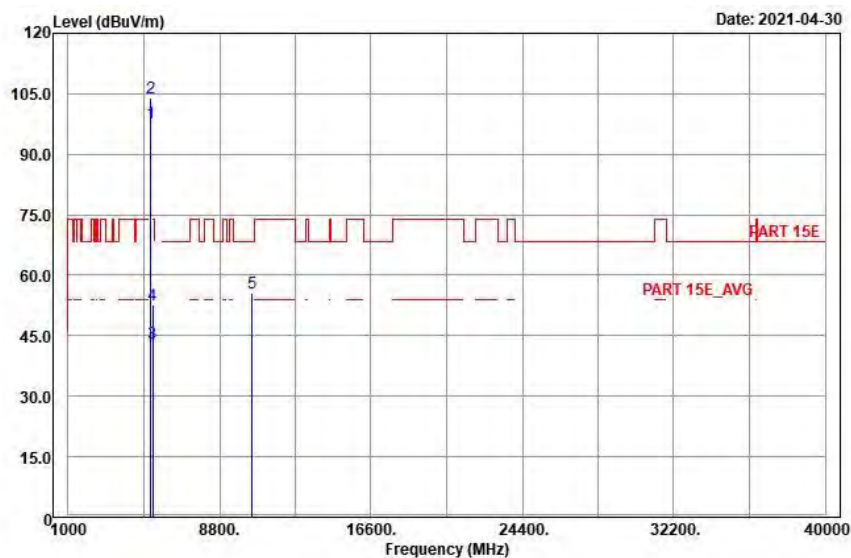


EUT Test Condition		Measurement Detail	
Channel	Channel 48	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



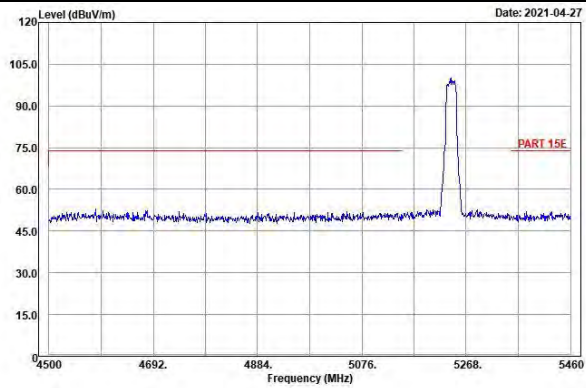
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	95.74	85.6	10.14			218	144	Average
5240	102.51	92.37	10.14			218	144	Peak
5350	42.24	32.01	10.23	54	-11.76	218	144	Average
5350	53.11	42.88	10.23	74	-20.89	218	144	Peak
*10480	55.73	39.83	15.9	68.2	-12.47	192	157	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5240	97.62	87.48	10.14			205	86	Average
5240	104.08	93.94	10.14			205	86	Peak
5350	43.06	32.83	10.23	54	-10.94	205	86	Average
5350	52.65	42.42	10.23	74	-21.35	205	86	Peak
*10480	55.49	39.59	15.9	68.2	-12.71	151	38	Peak

Remarks:

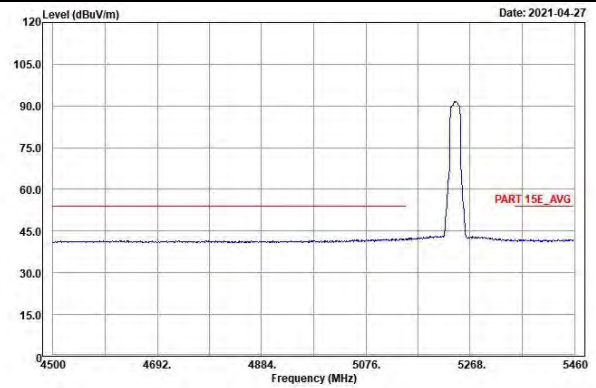
- Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
- 5240 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The other emission levels were very low against the limit.

Channel 48

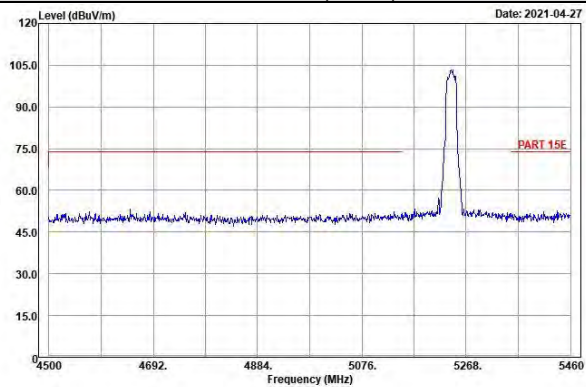
Horizontal (Peak)



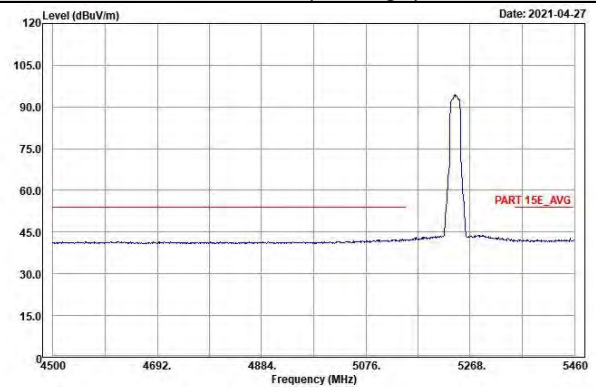
Horizontal (Average)



Vertical (Peak)

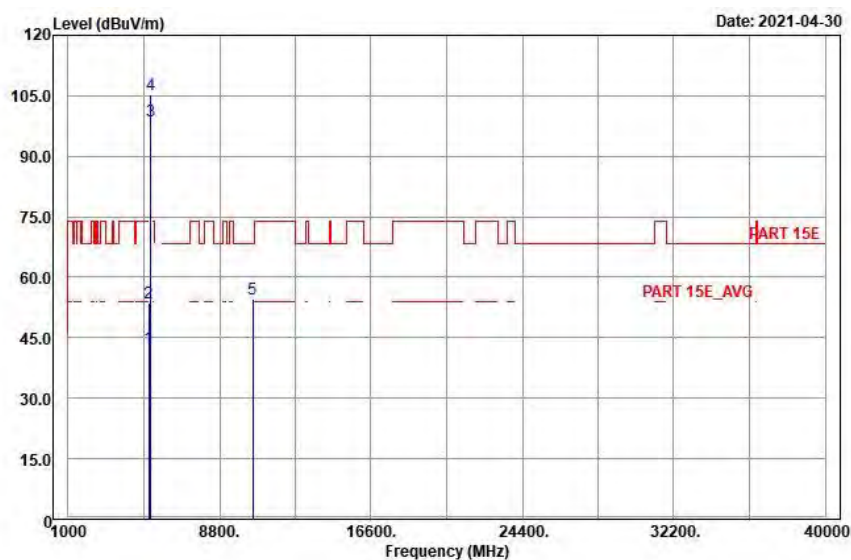


Vertical (Average)

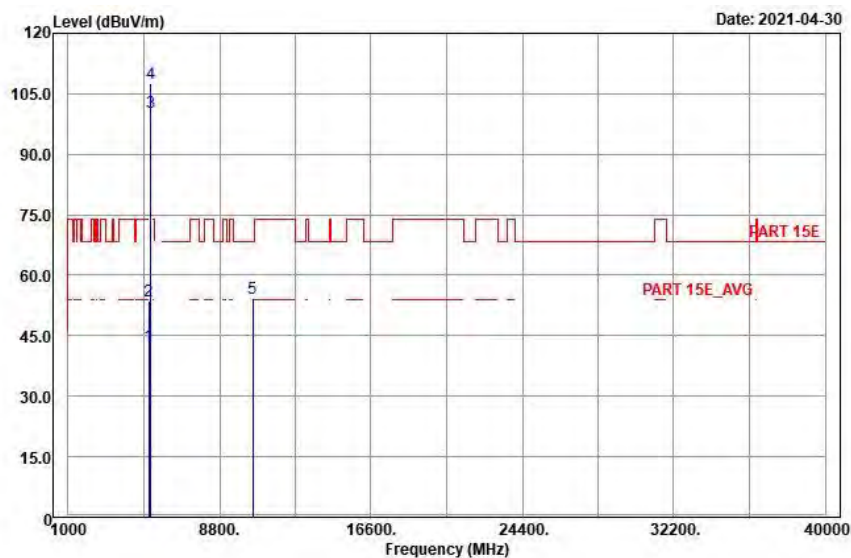


EUT Test Condition		Measurement Detail	
Channel	Channel 52	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



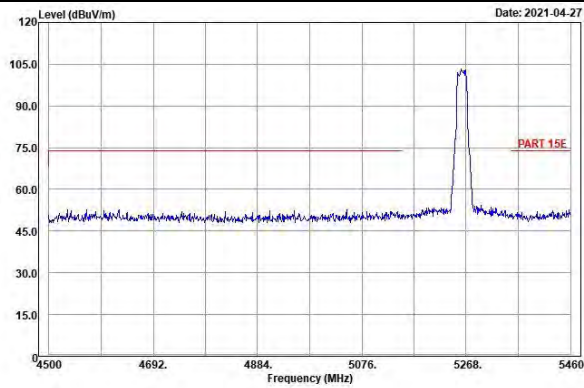
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	42.43	32.38	10.05	54	-11.57	218	144	Average
5150	53.56	43.51	10.05	74	-20.44	218	144	Peak
5260	98.59	88.47	10.12			218	144	Average
5260	105.39	95.27	10.12			218	144	Peak
*10520	54.47	38.59	15.88	68.2	-13.73	147	161	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	42.52	32.47	10.05	54	-11.48	205	86	Average
5150	53.63	43.58	10.05	74	-20.37	205	86	Peak
5260	100.33	90.21	10.12			205	86	Average
5260	107.53	97.41	10.12			205	86	Peak
*10520	54.43	38.55	15.88	68.2	-13.77	196	135	Peak

Remarks:

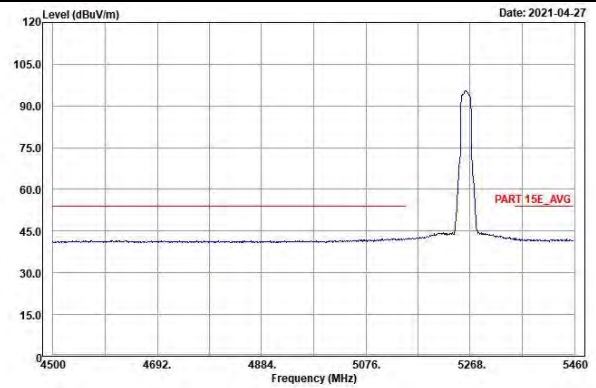
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5260 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 52

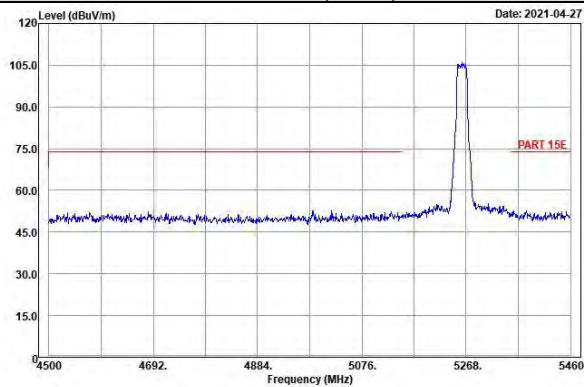
Horizontal (Peak)



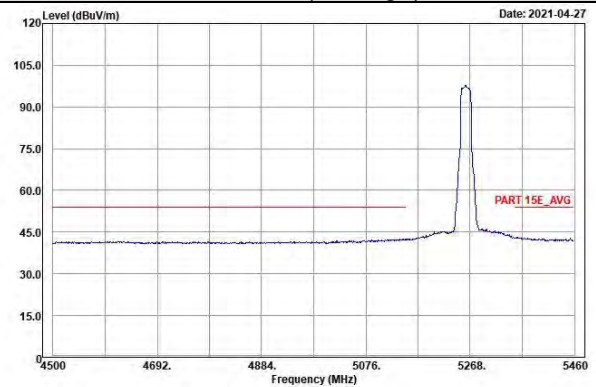
Horizontal (Average)



Vertical (Peak)

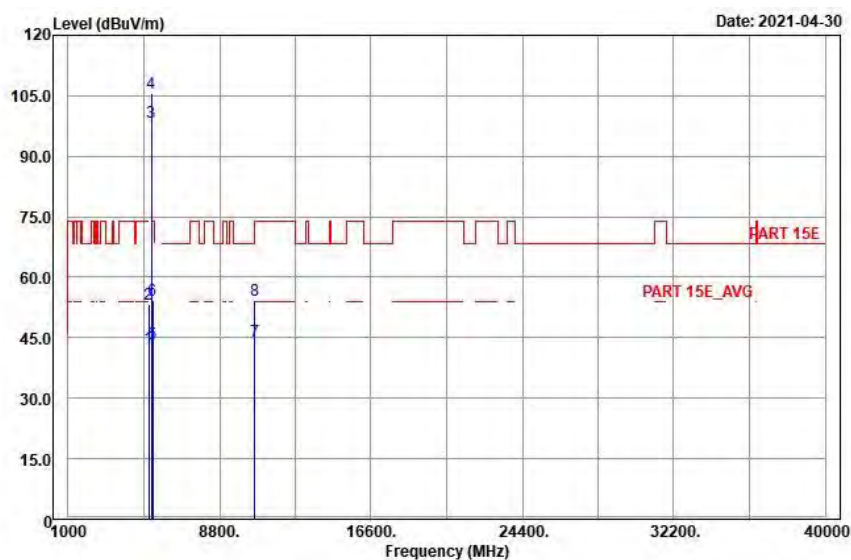


Vertical (Average)

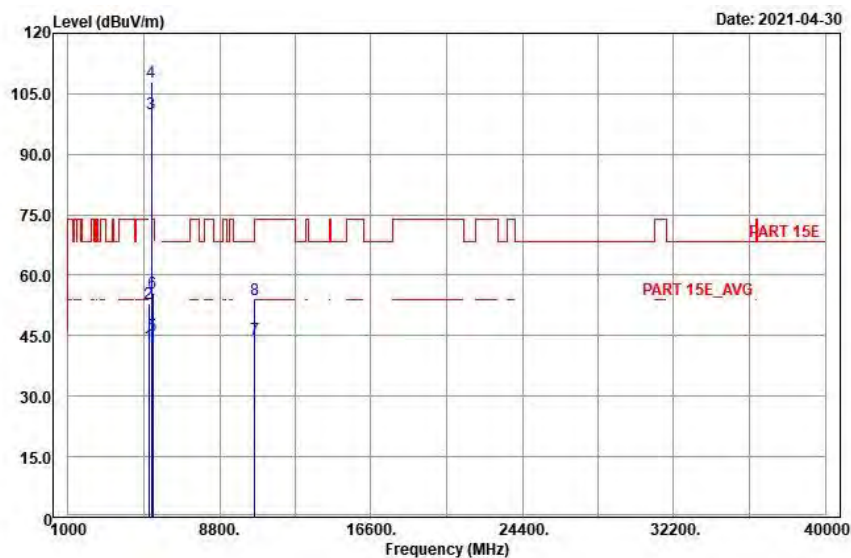


EUT Test Condition		Measurement Detail	
Channel	Channel 60	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



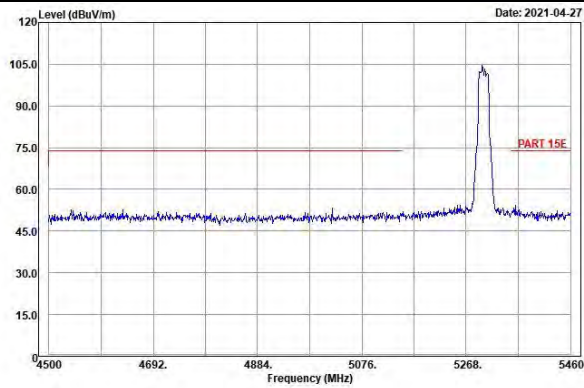
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	42.37	32.32	10.05	54	-11.63	218	144	Average
5150	53.34	43.29	10.05	74	-20.66	218	144	Peak
5300	98.29	88.23	10.06			218	144	Average
5300	105.74	95.68	10.06			218	144	Peak
5350	43.48	33.25	10.23	54	-10.52	218	144	Average
5350	54.17	43.94	10.23	74	-19.83	218	144	Peak
10600	44.16	28.4	15.76	54	-9.84	108	351	Average
10600	54.37	38.61	15.76	74	-19.63	108	351	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	42.46	32.41	10.05	54	-11.54	205	86	Average
5150	53.04	42.99	10.05	74	-20.96	205	86	Peak
5300	100.11	90.05	10.06			205	86	Average
5300	107.87	97.81	10.06			205	86	Peak
5350	45.28	35.05	10.23	54	-8.72	205	86	Average
5350	55.45	45.22	10.23	74	-18.55	205	86	Peak
10600	44.25	28.49	15.76	54	-9.75	282	157	Average
10600	54.04	38.28	15.76	74	-19.96	282	157	Peak

Remarks:

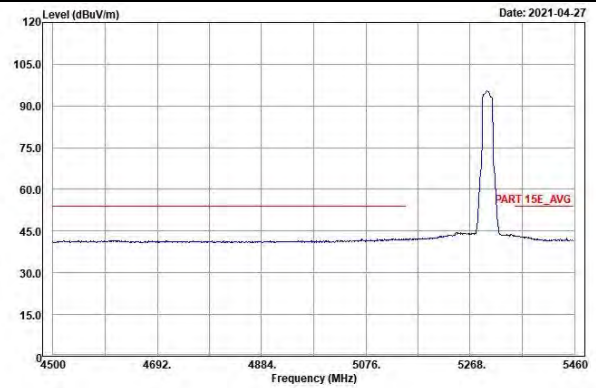
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5300 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 60

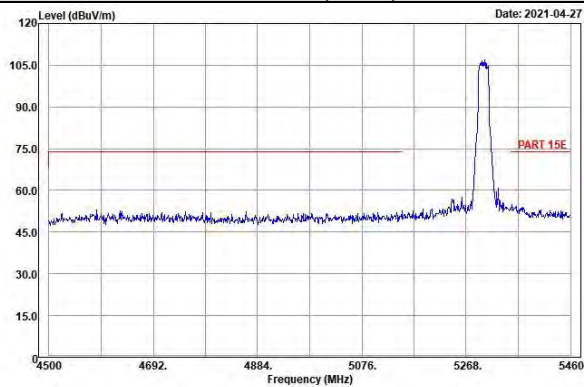
Horizontal (Peak)



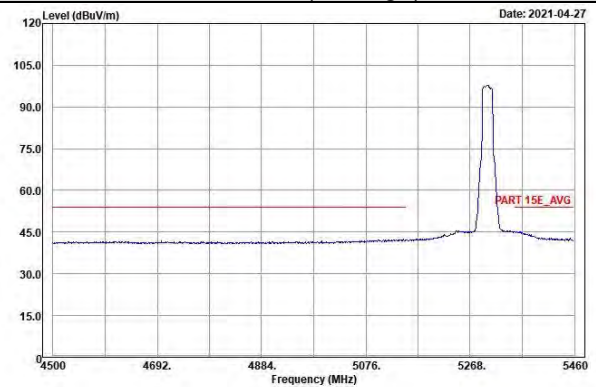
Horizontal (Average)



Vertical (Peak)

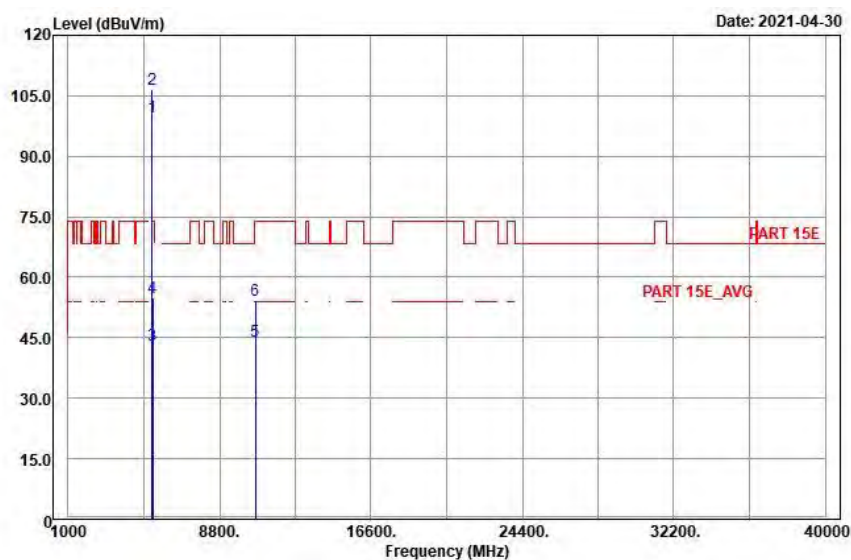


Vertical (Average)

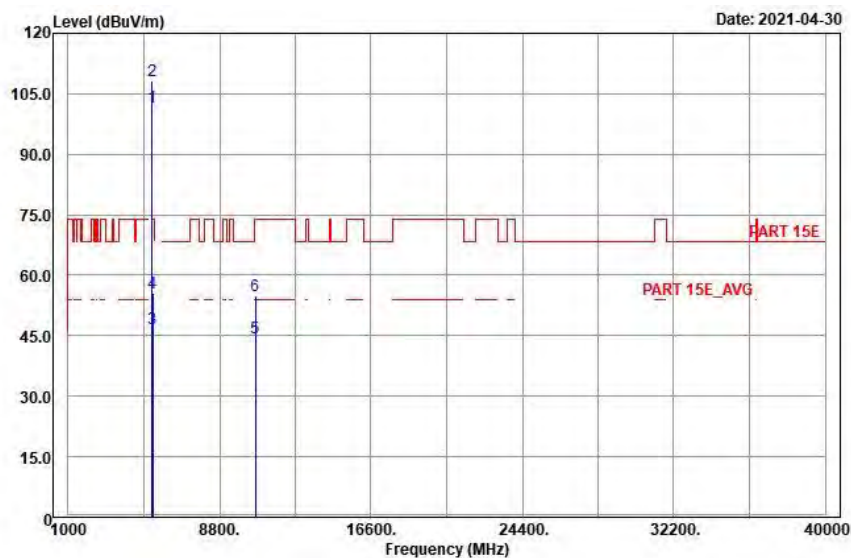


EUT Test Condition		Measurement Detail	
Channel	Channel 64	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



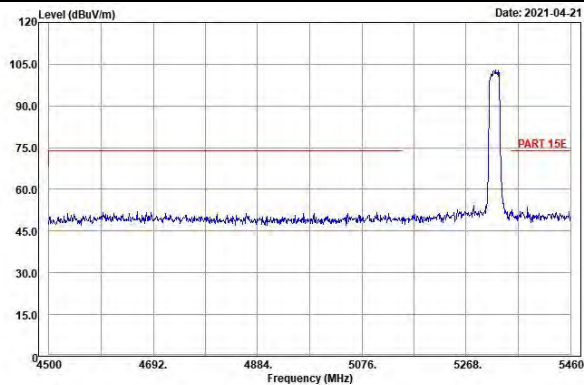
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	99.61	89.52	10.09			218	144	Average
5320	106.53	96.44	10.09			218	144	Peak
5350	43.08	32.85	10.23	54	-10.92	218	144	Average
5350	54.97	44.74	10.23	74	-19.03	218	144	Peak
10640	44.29	28.3	15.99	54	-9.71	253	142	Average
10640	54.42	38.43	15.99	74	-19.58	253	142	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5320	101.74	91.65	10.09			205	86	Average
5320	108.37	98.28	10.09			205	86	Peak
5350	46.62	36.39	10.23	54	-7.38	205	86	Average
5350	55.54	45.31	10.23	74	-18.46	205	86	Peak
10640	44.61	28.62	15.99	54	-9.39	237	139	Average
10640	54.88	38.89	15.99	74	-19.12	237	139	Peak

Remarks:

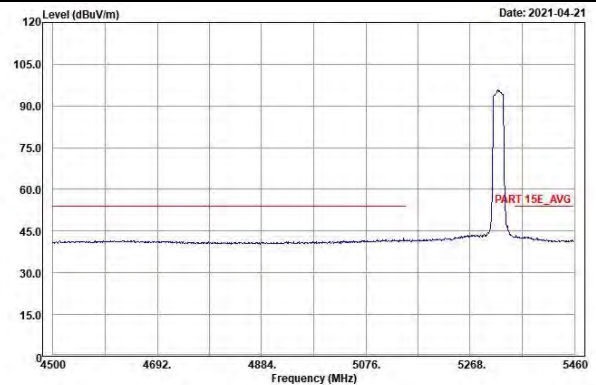
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5320 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 64

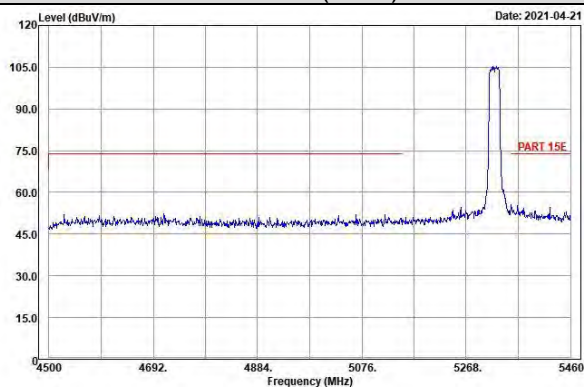
Horizontal (Peak)



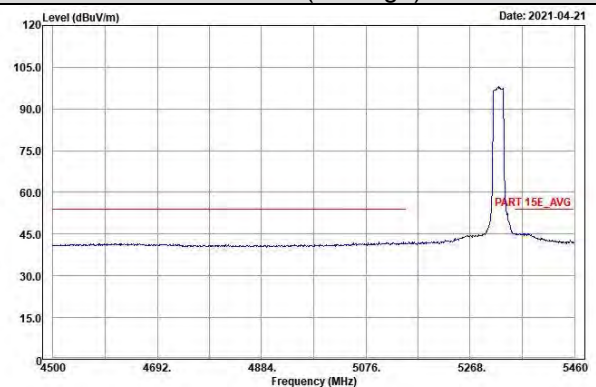
Horizontal (Average)



Vertical (Peak)

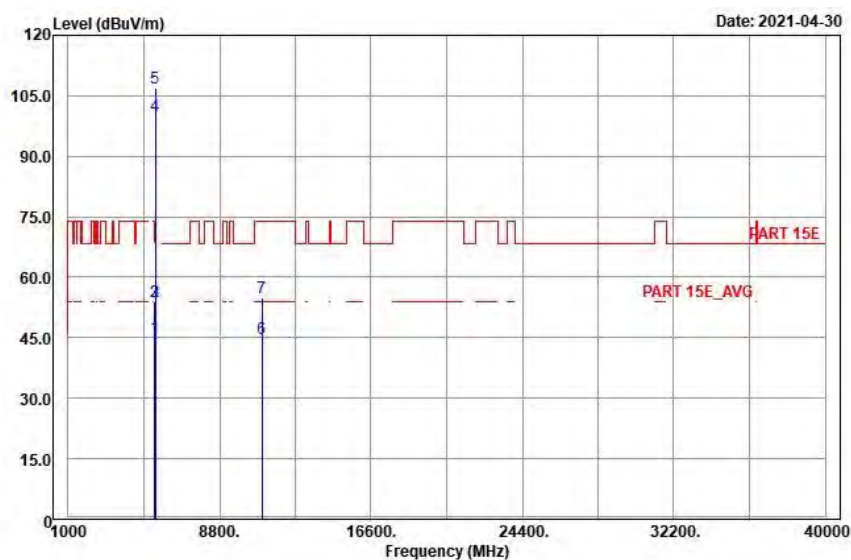


Vertical (Average)

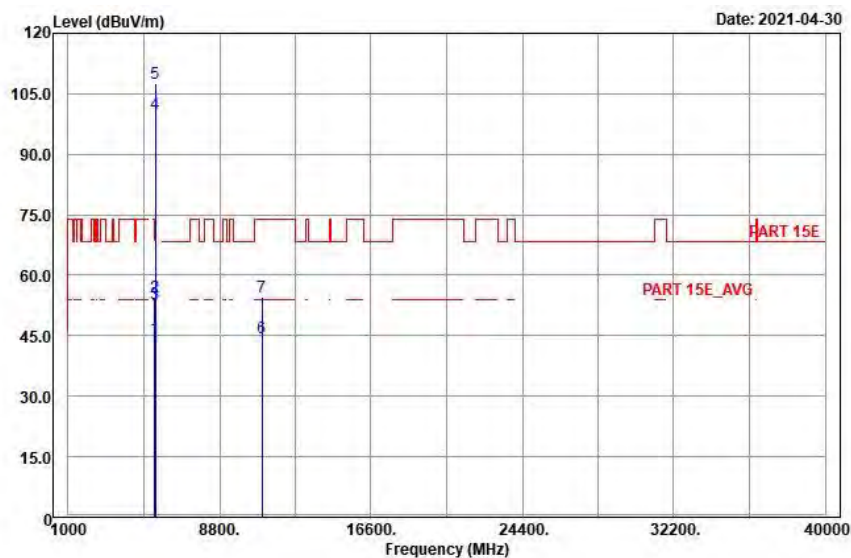


EUT Test Condition		Measurement Detail	
Channel	Channel 100	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



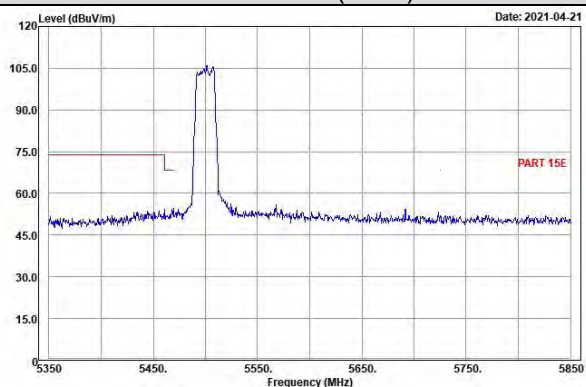
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	45.22	34.71	10.51	54	-8.78	218	116	Average
5460	53.97	43.46	10.51	74	-20.03	218	116	Peak
*5470	54.08	43.55	10.53	68.2	-14.12	218	116	Peak
5500	99.91	89.31	10.6			218	116	Average
5500	106.78	96.18	10.6			218	116	Peak
11000	44.81	28.68	16.13	54	-9.19	131	184	Average
11000	54.94	38.81	16.13	74	-19.06	131	184	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	44.35	33.84	10.51	54	-9.65	205	92	Average
5460	54.69	44.18	10.51	74	-19.31	205	92	Peak
*5470	52.95	42.42	10.53	68.2	-15.25	205	92	Peak
5500	100.18	89.58	10.6			205	92	Average
5500	107.65	97.05	10.6			205	92	Peak
11000	44.32	28.19	16.13	54	-9.68	257	120	Average
11000	54.6	38.47	16.13	74	-19.4	257	120	Peak

Remarks:

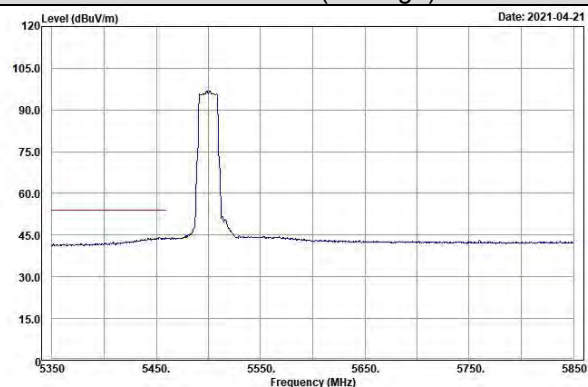
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5500 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 100

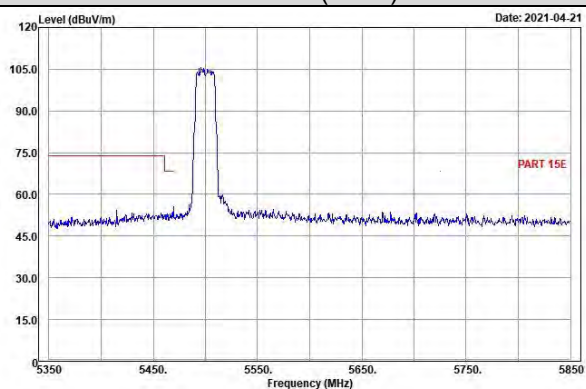
Horizontal (Peak)



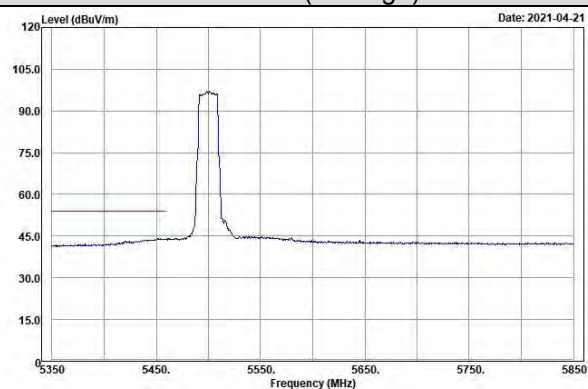
Horizontal (Average)



Vertical (Peak)

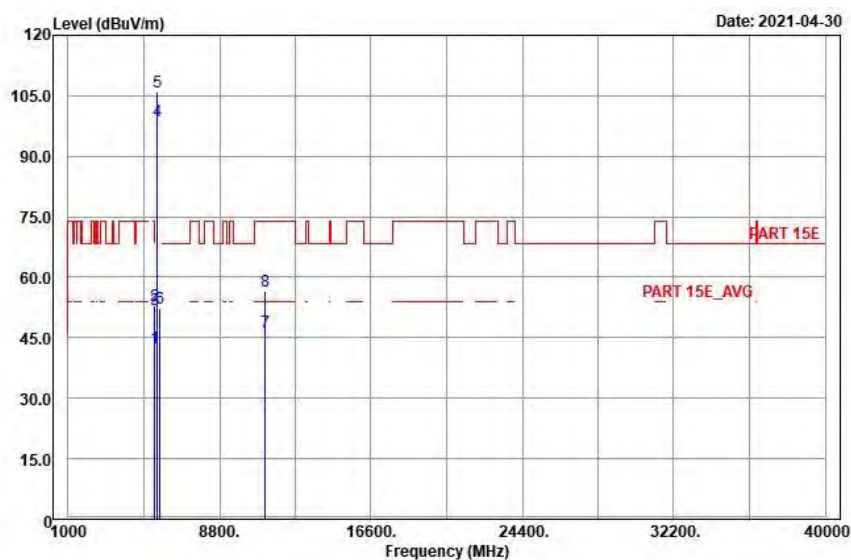


Vertical (Average)

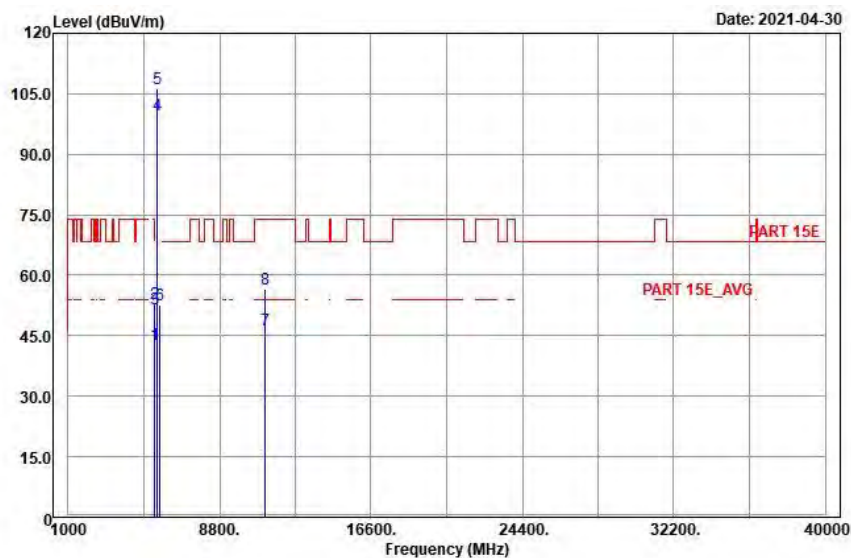


EUT Test Condition		Measurement Detail	
Channel	Channel 116	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



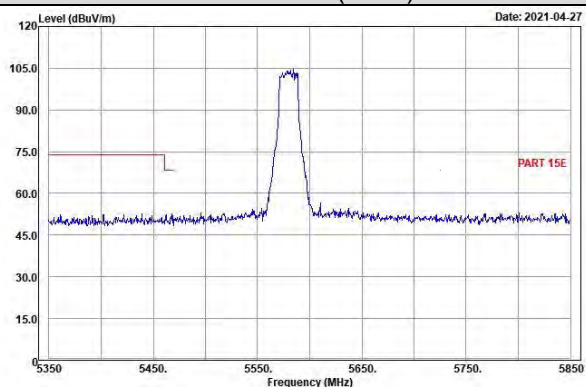
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	42.53	32.02	10.51	54	-11.47	218	116	Average
5460	52.95	42.44	10.51	74	-21.05	218	116	Peak
*5470	51.86	41.33	10.53	68.2	-16.34	218	116	Peak
5580	98.85	88.14	10.71			218	116	Average
5580	105.81	95.1	10.71			218	116	Peak
*5725	52.39	41.47	10.92	68.2	-15.81	218	116	Peak
11160	46.43	30.07	16.36	54	-7.57	181	175	Average
11160	56.59	40.23	16.36	74	-17.41	181	175	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	42.87	32.36	10.51	54	-11.13	205	92	Average
5460	53.09	42.58	10.51	74	-20.91	205	92	Peak
*5470	51.8	41.27	10.53	68.2	-16.4	205	92	Peak
5580	99.68	88.97	10.71			205	92	Average
5580	106.39	95.68	10.71			205	92	Peak
*5725	52.57	41.65	10.92	68.2	-15.63	205	92	Peak
11160	46.27	29.91	16.36	54	-7.73	125	273	Average
11160	56.53	40.17	16.36	74	-17.47	125	273	Peak

Remarks:

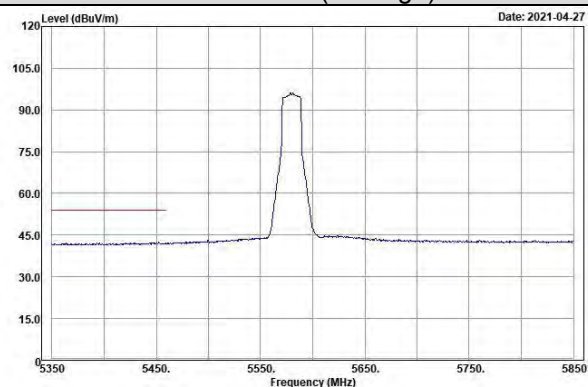
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5580 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 116

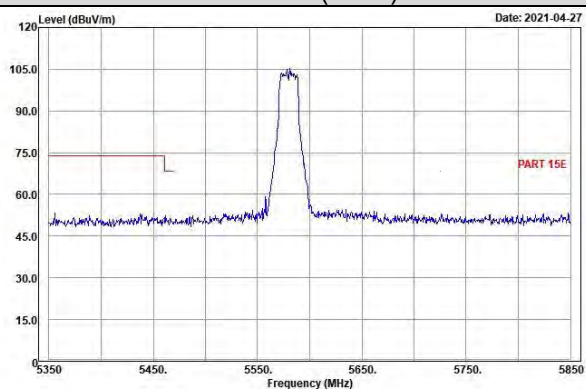
Horizontal (Peak)



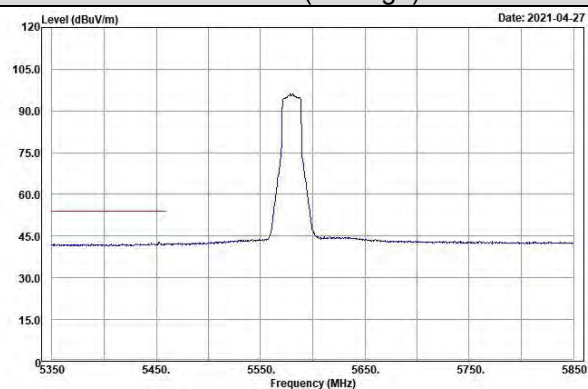
Horizontal (Average)



Vertical (Peak)

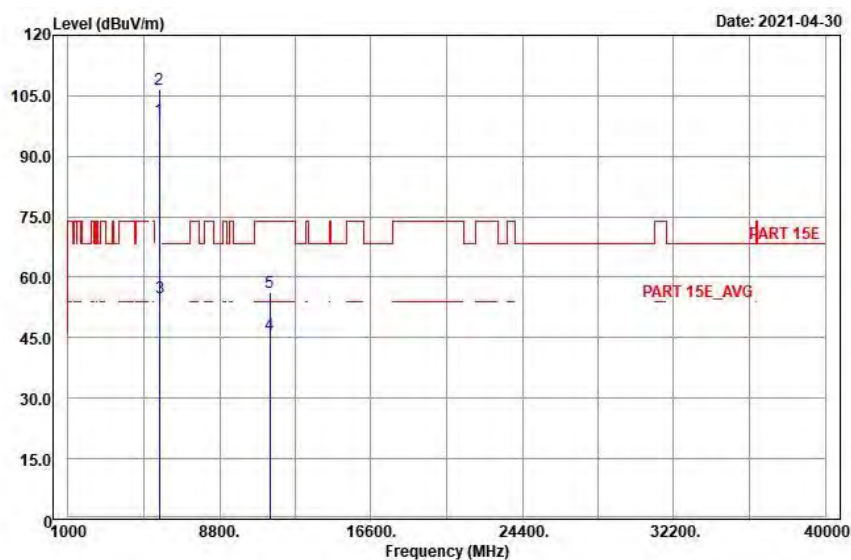


Vertical (Average)

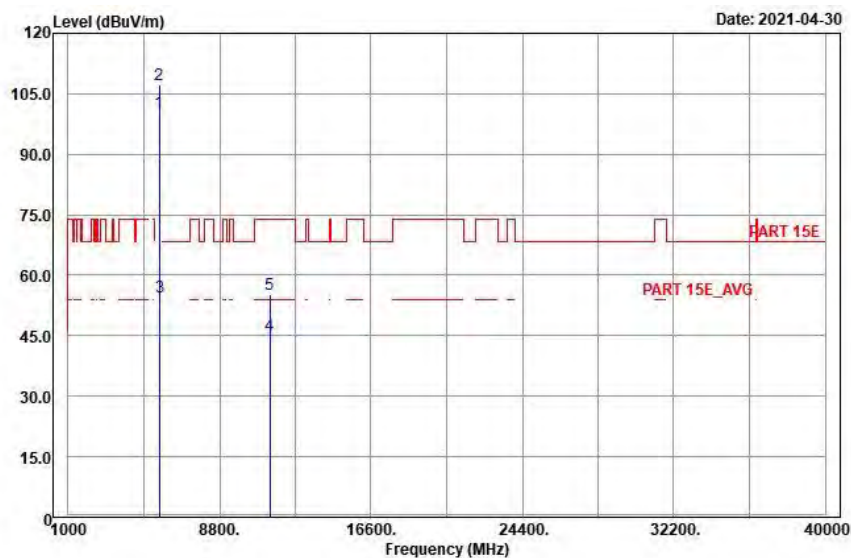


EUT Test Condition		Measurement Detail	
Channel	Channel 140	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



Antenna Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	99.12	88.17	10.95			218	116	Average
5700	106.5	95.55	10.95			218	116	Peak
*5725	55.02	44.1	10.92	68.2	-13.18	218	116	Peak
11400	45.85	29.66	16.19	54	-8.15	211	74	Average
11400	56.29	40.1	16.19	74	-17.71	211	74	Peak

Antenna Polarity & Test Distance: Vertical at 3 m

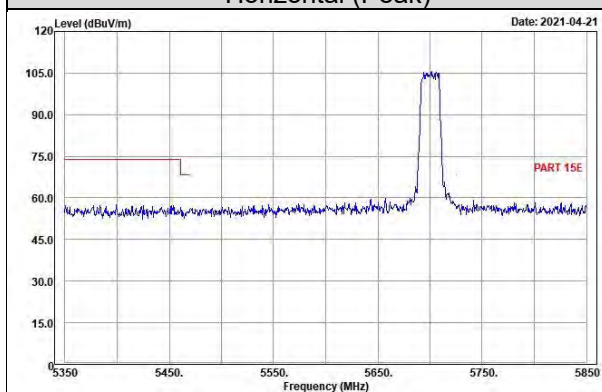
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5700	100.52	89.57	10.95			205	92	Average
5700	107.38	96.43	10.95			205	92	Peak
*5725	54.62	43.7	10.92	68.2	-13.58	205	92	Peak
11400	45.06	28.87	16.19	54	-8.94	162	180	Average
11400	55.32	39.13	16.19	74	-18.68	162	180	Peak

Remarks:

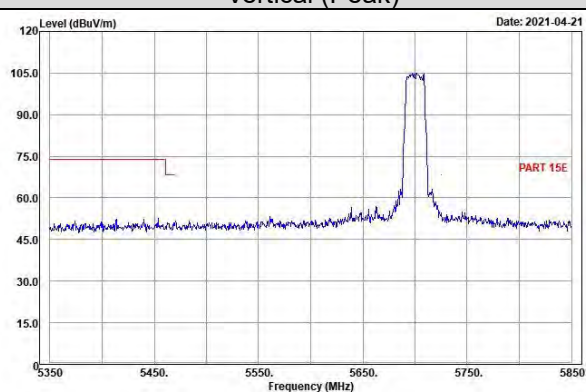
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5700 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 140

Horizontal (Peak)

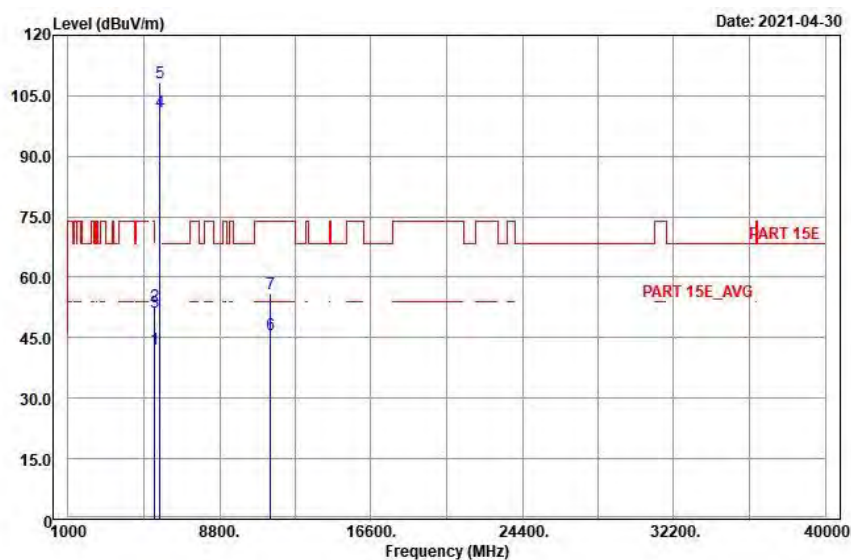


Vertical (Peak)

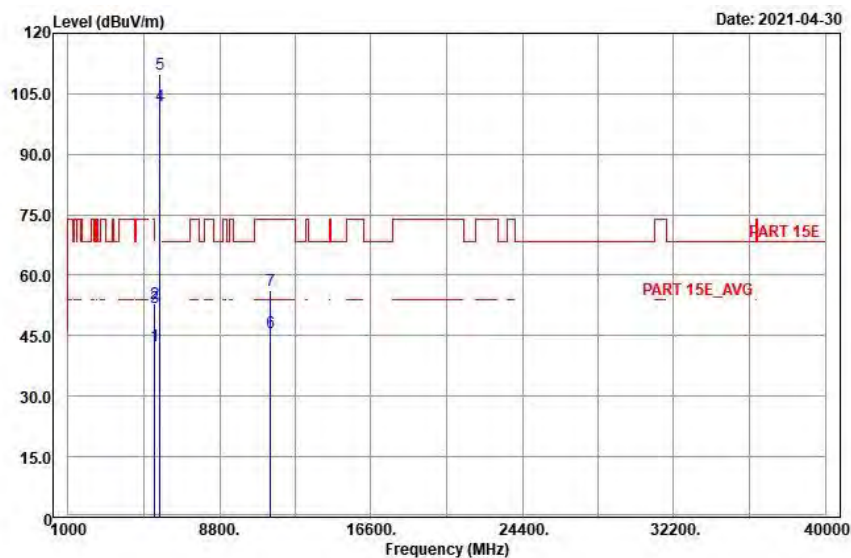


EUT Test Condition		Measurement Detail	
Channel	Channel 144	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



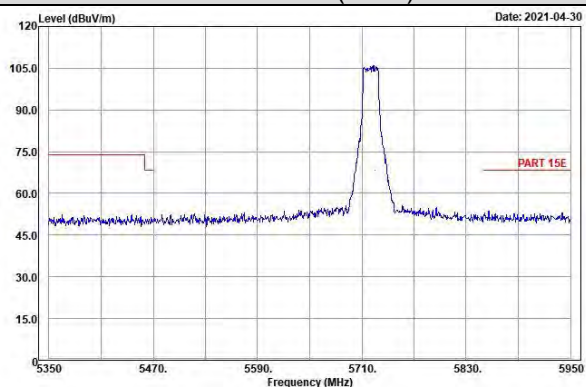
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	42.23	31.72	10.51	54	-11.77	218	116	Average
5460	53.03	42.52	10.51	74	-20.97	218	116	Peak
*5470	51.3	40.77	10.53	68.2	-16.9	218	116	Peak
5720	101.18	90.26	10.92			218	116	Average
5720	108.32	97.4	10.92			218	116	Peak
11440	45.62	29.33	16.29	54	-8.38	187	116	Average
11440	55.81	39.52	16.29	74	-18.19	187	116	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	42.47	31.96	10.51	54	-11.53	205	92	Average
5460	52.83	42.32	10.51	74	-21.17	205	92	Peak
*5470	51.89	41.36	10.53	68.2	-16.31	205	92	Peak
5720	102.14	91.22	10.92			205	92	Average
5720	109.82	98.9	10.92			205	92	Peak
11440	45.84	29.55	16.29	54	-8.16	326	142	Average
11440	56.14	39.85	16.29	74	-17.86	326	142	Peak

Remarks:

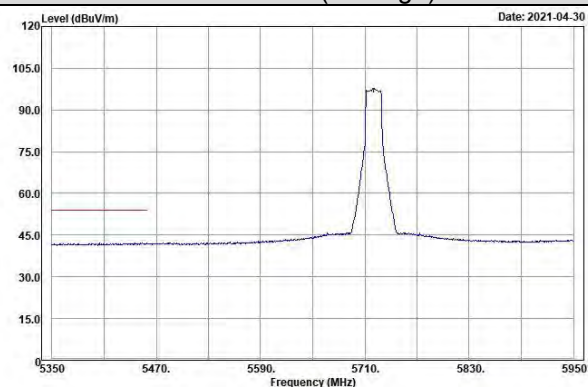
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5720 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 144

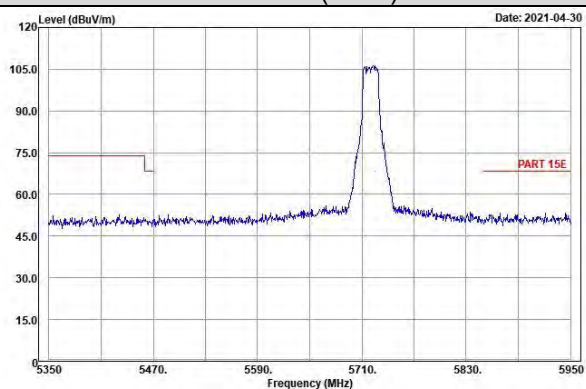
Horizontal (Peak)



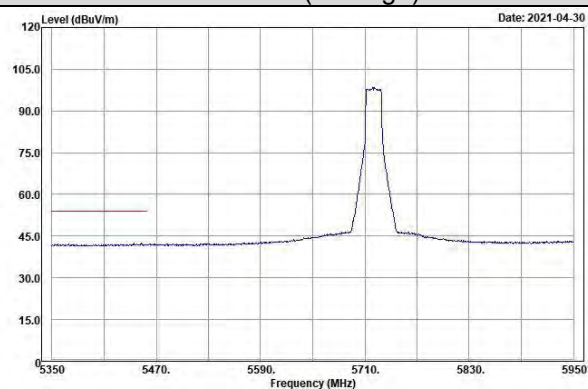
Horizontal (Average)



Vertical (Peak)

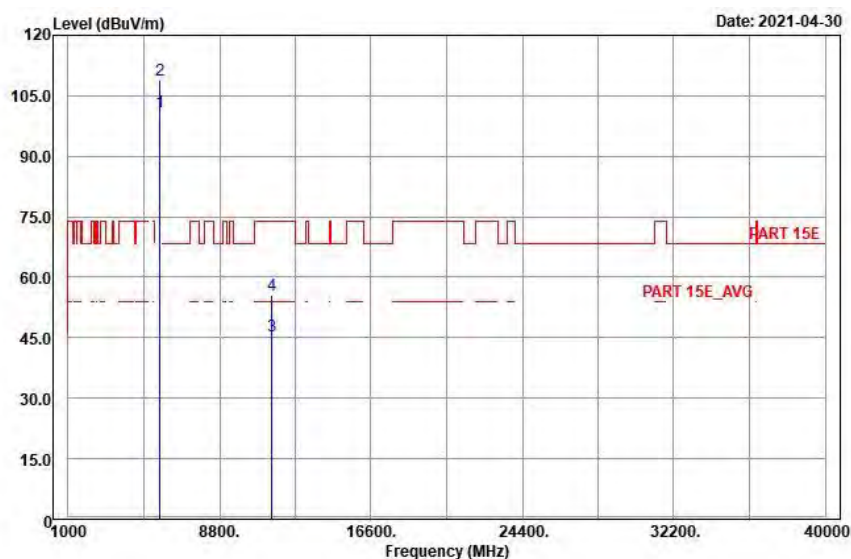


Vertical (Average)

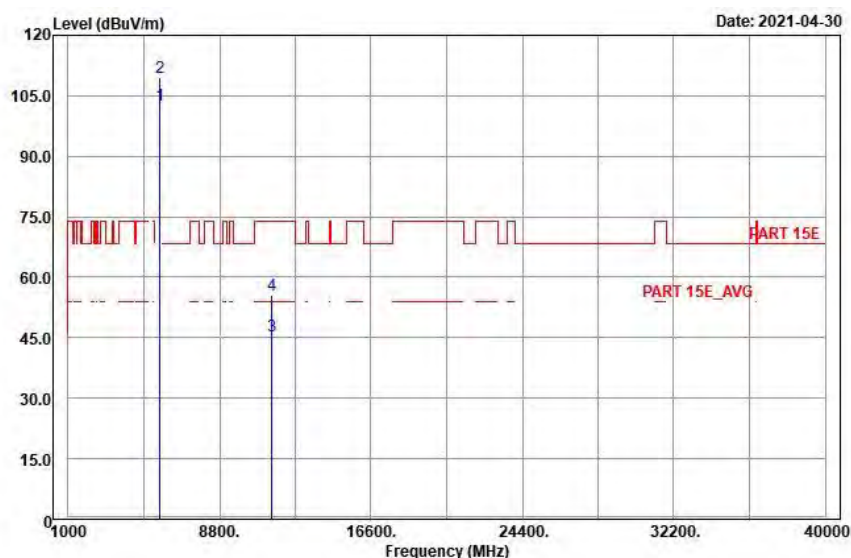


EUT Test Condition		Measurement Detail	
Channel	Channel 149	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

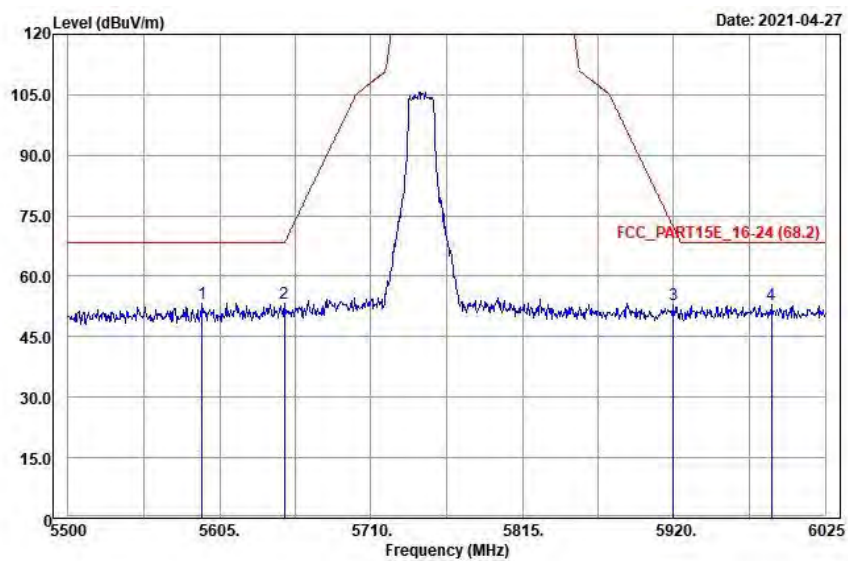
<Spurious Emission> Horizontal



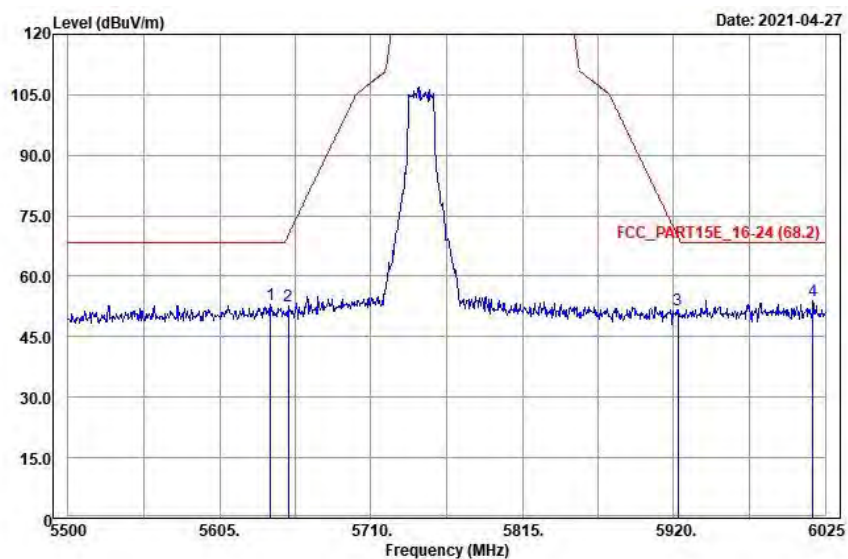
Vertical



<Out of Band Emission (OOBE)> Horizontal



Vertical



<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	101.16	90.28	10.88			218	116	Average
5745	108.97	98.09	10.88			218	116	Peak
11490	45.31	28.84	16.47	54	-8.69	243	287	Average
11490	55.45	38.98	16.47	74	-18.55	243	287	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5745	102.58	91.7	10.88			205	92	Average
5745	109.62	98.74	10.88			205	92	Peak
11490	45.37	28.9	16.47	54	-8.63	140	152	Average
11490	55.59	39.12	16.47	74	-18.41	140	152	Peak

<Out of Band Emission (OOBE)>

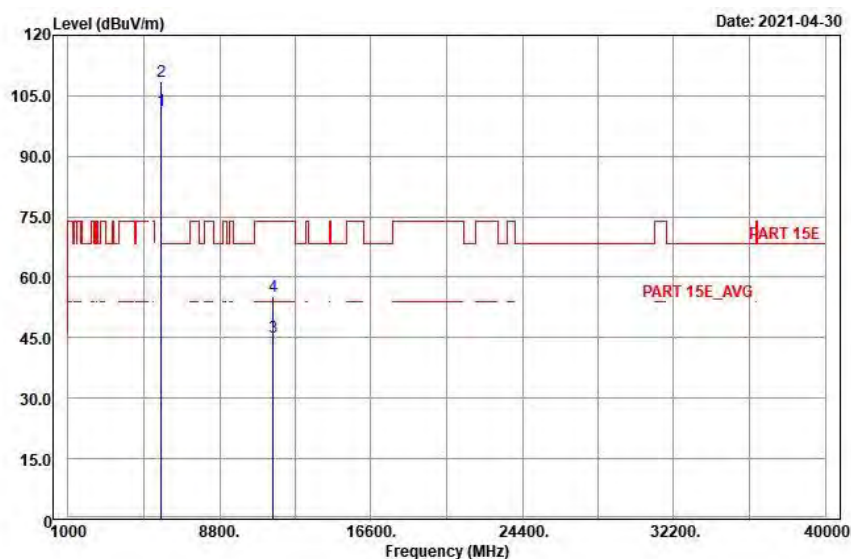
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5592.925	53.3	42.55	10.75	68.2	-14.9	218	116	Peak
5650.15	53.21	42.34	10.87	68.31	-15.1	218	116	Peak
5920	52.86	41.77	11.09	71.9	-19.04	218	116	Peak
*5987.725	52.9	41.59	11.31	68.2	-15.3	218	116	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5640.175	52.84	42.01	10.83	68.2	-15.36	205	92	Peak
5652.775	52.65	41.78	10.87	70.25	-17.6	205	92	Peak
5923.15	51.7	40.59	11.11	69.57	-17.87	205	92	Peak
*6016.6	53.93	42.58	11.35	68.2	-14.27	205	92	Peak

Remarks:

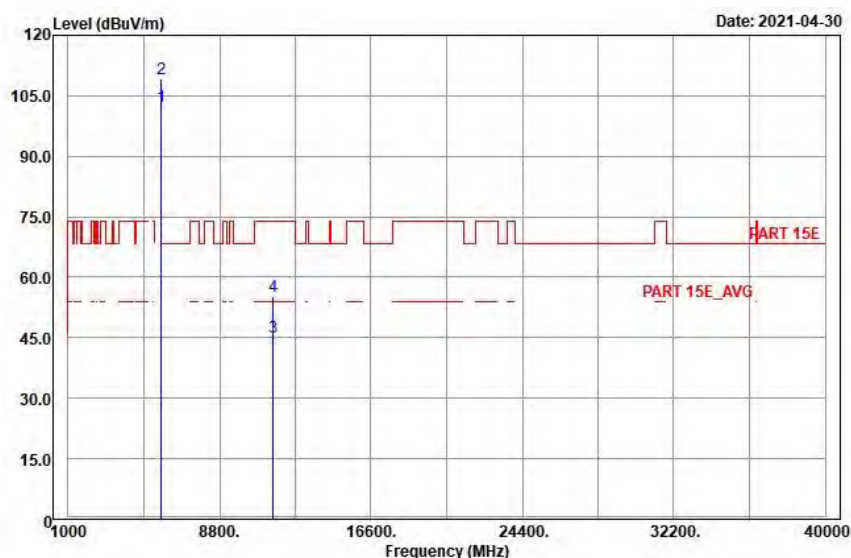
- Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
- 5745 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

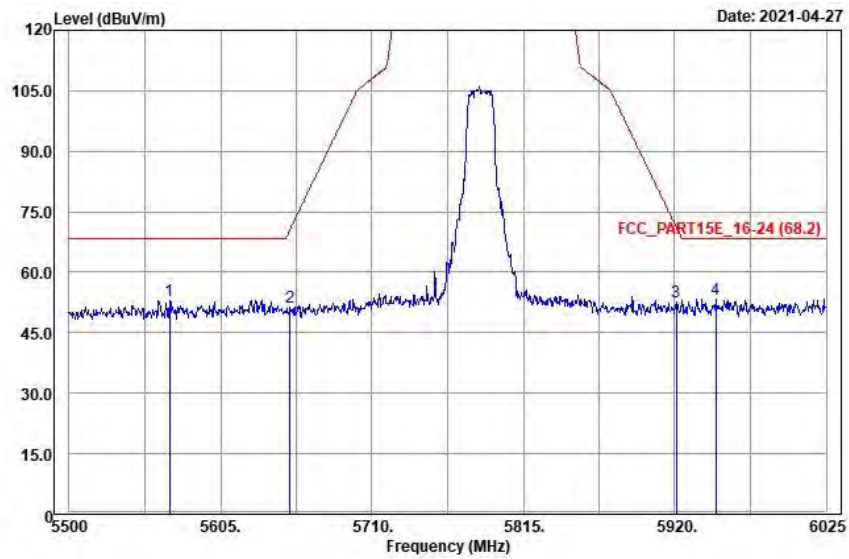
<Spurious Emission> Horizontal



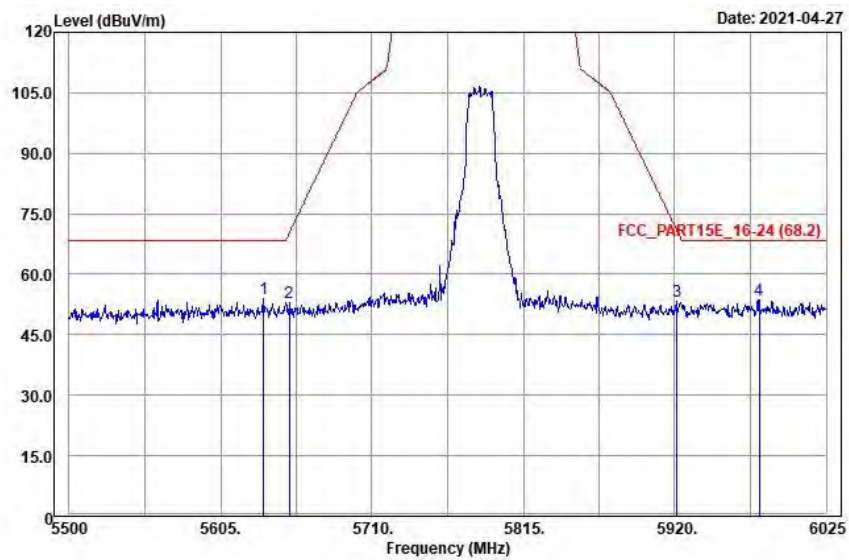
Vertical



<Out of Band Emission (OOBE)> Horizontal



Vertical



<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	101.26	90.45	10.81			218	116	Average
5785	108.69	97.88	10.81			218	116	Peak
11570	45.07	28.58	16.49	54	-8.93	216	227	Average
11570	55.19	38.7	16.49	74	-18.81	216	227	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5785	102.26	91.45	10.81			205	92	Average
5785	109.12	98.31	10.81			205	92	Peak
11570	45.2	28.71	16.49	54	-8.8	314	126	Average
11570	55.11	38.62	16.49	74	-18.89	314	126	Peak

<Out of Band Emission (OOBE)>

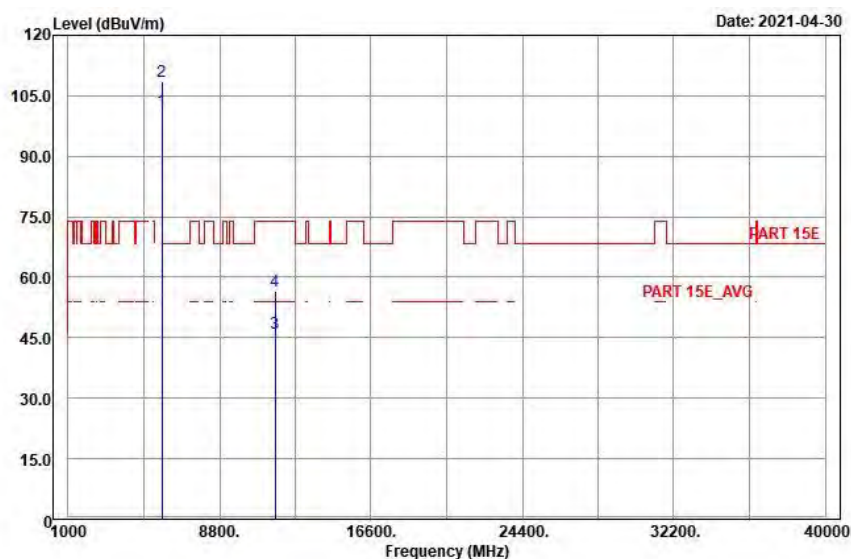
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5569.825	53.08	42.38	10.7	68.2	-15.12	218	116	Peak
5653.3	51.2	40.33	10.87	70.64	-19.44	218	116	Peak
5921.05	52.63	41.54	11.09	71.12	-18.49	218	116	Peak
*5948.35	53.29	42.11	11.18	68.2	-14.91	218	116	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5634.925	53.87	43.04	10.83	68.2	-14.33	205	92	Peak
5652.775	52.83	41.96	10.87	70.25	-17.42	205	92	Peak
5921.575	53.23	42.12	11.11	70.73	-17.5	205	92	Peak
*5978.8	53.68	42.42	11.26	68.2	-14.52	205	92	Peak

Remarks:

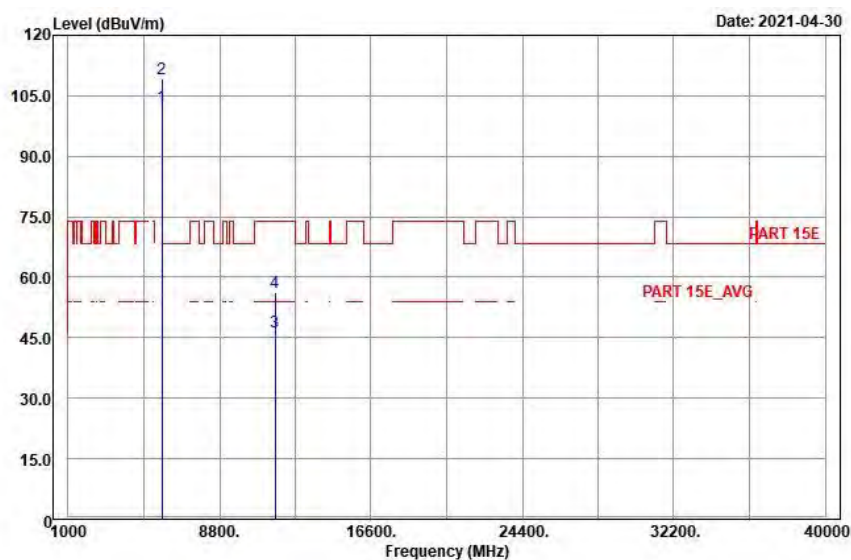
1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin Value = Emission Level – Limit value
2. 5785 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 165	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

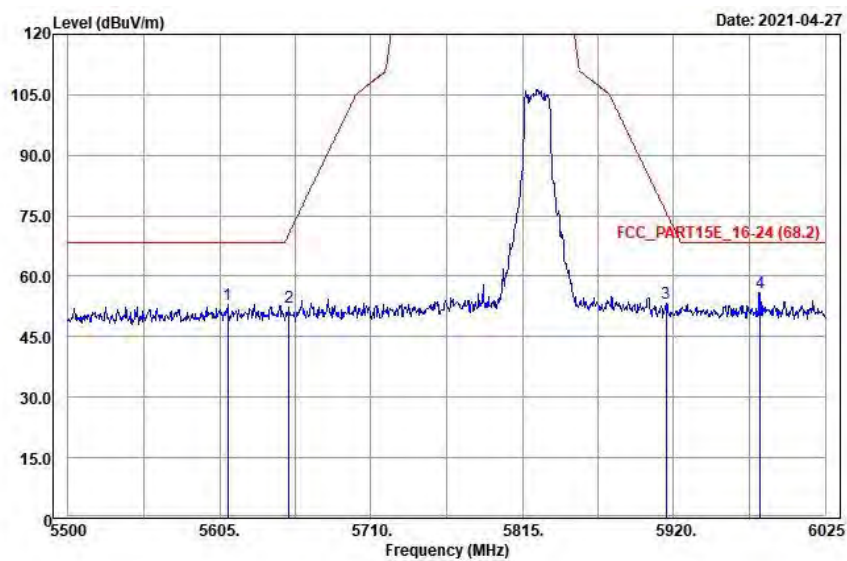
<Spurious Emission> Horizontal



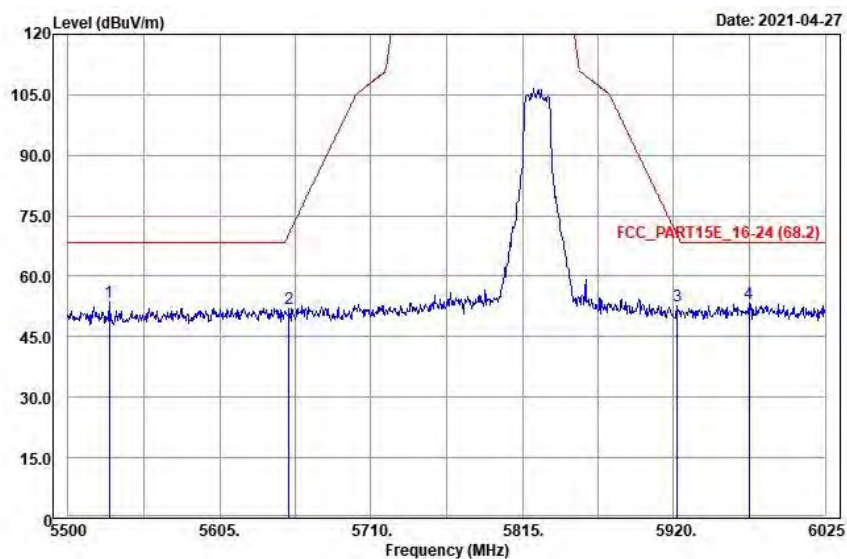
Vertical



<Out of Band Emission (OOBE)> Horizontal



Vertical



<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	101.36	90.48	10.88			218	116	Average
5825	108.56	97.68	10.88			218	116	Peak
11650	46.11	29.33	16.78	54	-7.89	152	183	Average
11650	56.44	39.66	16.78	74	-17.56	152	183	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5825	102.44	91.56	10.88			205	92	Average
5825	109.27	98.39	10.88			205	92	Peak
11650	46.41	29.63	16.78	54	-7.59	135	73	Average
11650	56.39	39.61	16.78	74	-17.61	135	73	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5610.775	53.1	42.33	10.77	68.2	-15.1	218	116	Peak
5653.3	52.46	41.59	10.87	70.64	-18.18	218	116	Peak
5914.75	53.45	42.38	11.07	75.78	-22.33	218	116	Peak
*5979.85	55.98	44.72	11.26	68.2	-12.22	218	116	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5528.35	53.53	42.9	10.63	68.2	-14.67	205	92	Peak
5653.3	52.15	41.28	10.87	70.64	-18.49	205	92	Peak
5922.625	52.57	41.46	11.11	69.96	-17.39	205	92	Peak
*5972.5	53.26	42.01	11.25	68.2	-14.94	205	92	Peak

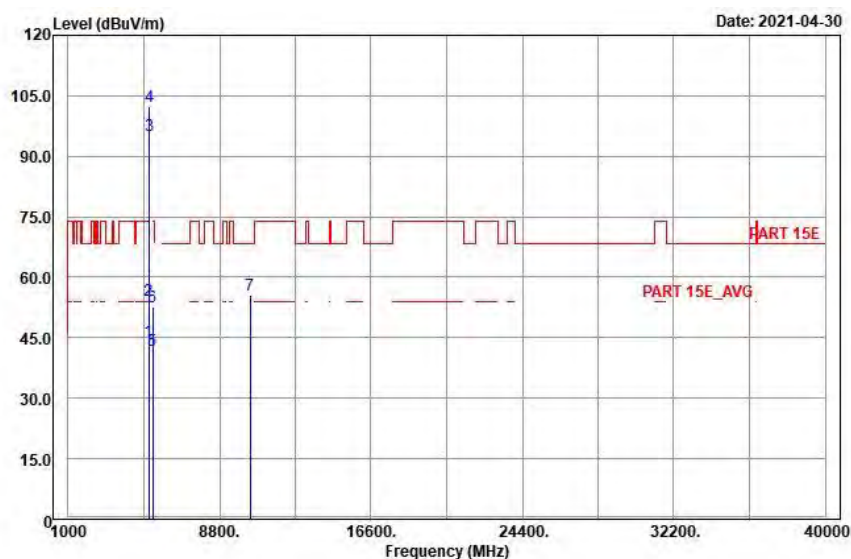
Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin Value = Emission Level – Limit value
- 5825 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The other emission levels were very low against the limit.

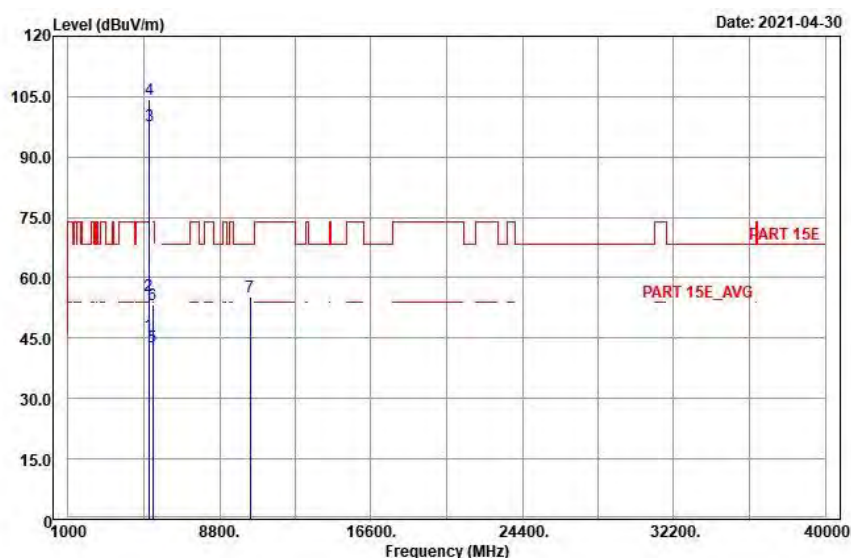
802.11ac (VHT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 38	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



Antenna Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	44.28	34.23	10.05	54	-9.72	218	144	Average
5150	54.41	44.36	10.05	74	-19.59	218	144	Peak
5190	95.3	85.18	10.12			218	144	Average
5190	102.23	92.11	10.12			218	144	Peak
5350	41.91	31.68	10.23	54	-12.09	218	144	Average
5350	52.59	42.36	10.23	74	-21.41	218	144	Peak
*10380	55.43	39.33	16.1	68.2	-12.77	284	136	Peak

Antenna Polarity & Test Distance: Vertical at 3 m

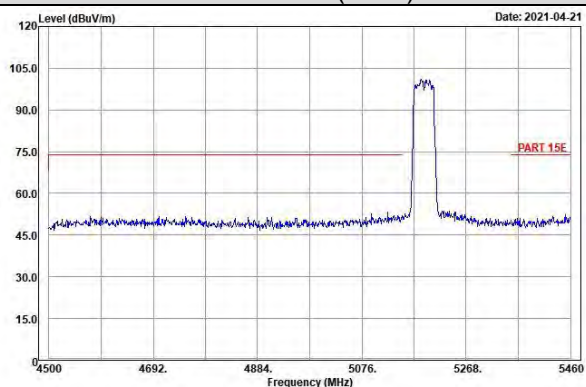
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	45.69	35.64	10.05	54	-8.31	205	86	Average
5150	55.67	45.62	10.05	74	-18.33	205	86	Peak
5190	97.81	87.69	10.12			205	86	Average
5190	104.21	94.09	10.12			205	86	Peak
5350	42.79	32.56	10.23	54	-11.21	205	86	Average
5350	53.3	43.07	10.23	74	-20.7	205	86	Peak
*10380	55.22	39.12	16.1	68.2	-12.98	194	274	Peak

Remarks:

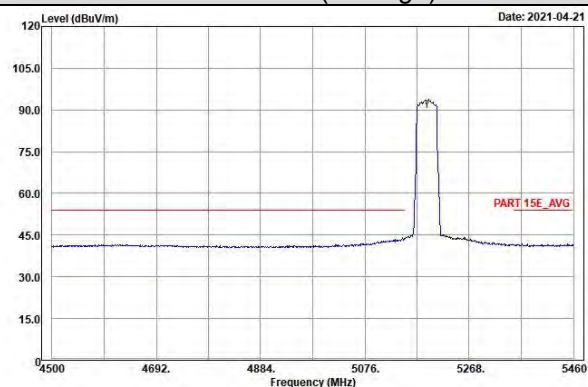
- Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
- 5190 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The other emission levels were very low against the limit.

Channel 38

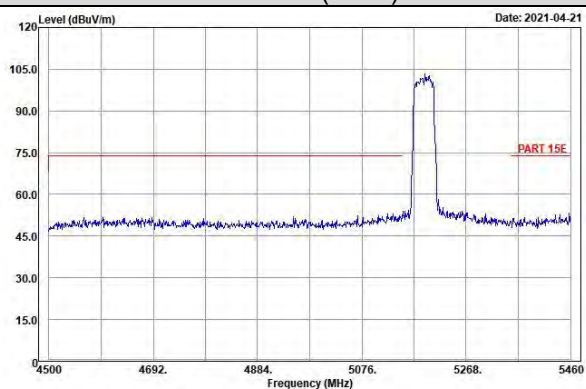
Horizontal (Peak)



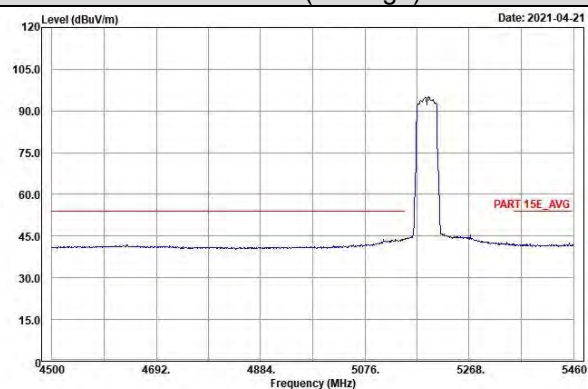
Horizontal (Average)



Vertical (Peak)

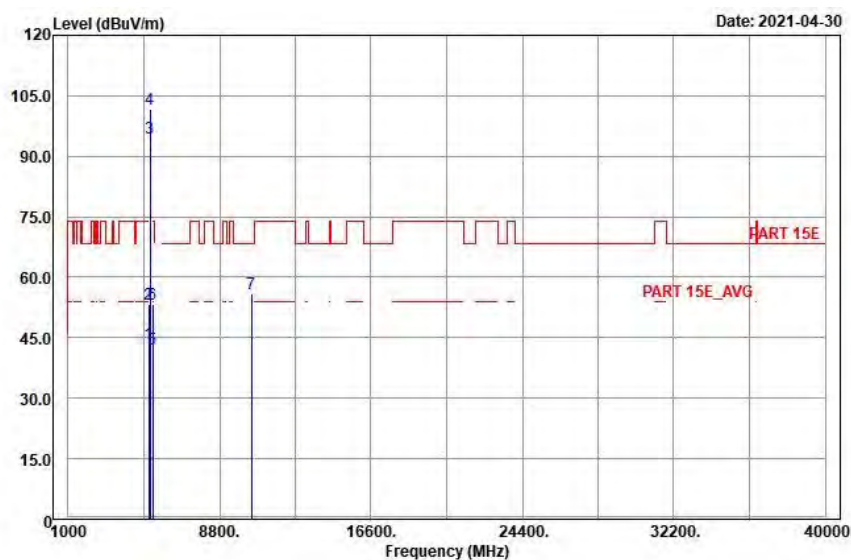


Vertical (Average)

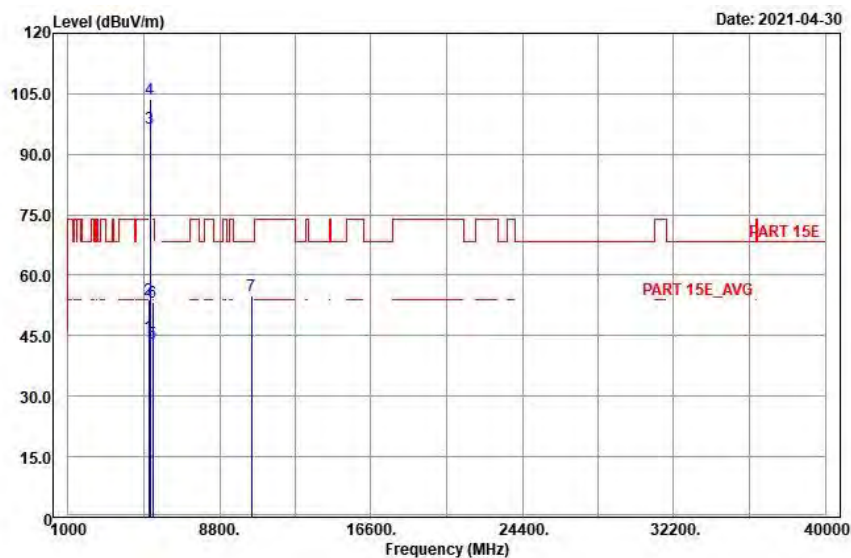


EUT Test Condition		Measurement Detail	
Channel	Channel 46	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



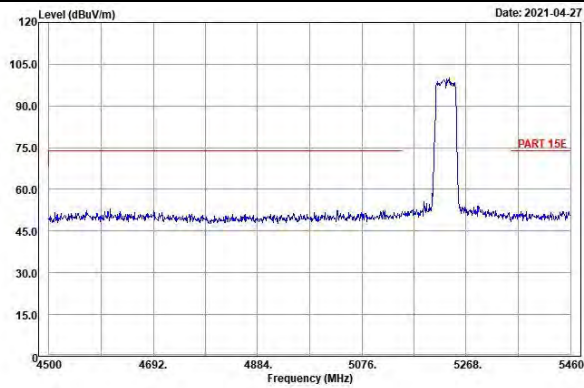
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	43.54	33.49	10.05	54	-10.46	218	144	Average
5150	53.23	43.18	10.05	74	-20.77	218	144	Peak
5230	94.53	84.39	10.14			218	144	Average
5230	101.68	91.54	10.14			218	144	Peak
5350	42.22	31.99	10.23	54	-11.78	218	144	Average
5350	53.33	43.1	10.23	74	-20.67	218	144	Peak
*10460	55.85	39.85	16	68.2	-12.35	164	124	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	44.84	34.79	10.05	54	-9.16	205	86	Average
5150	53.81	43.76	10.05	74	-20.19	205	86	Peak
5230	96.43	86.29	10.14			205	86	Average
5230	103.6	93.46	10.14			205	86	Peak
5350	43	32.77	10.23	54	-11	205	86	Average
5350	53.32	43.09	10.23	74	-20.68	205	86	Peak
*10460	55.03	39.03	16	68.2	-13.17	253	181	Peak

Remarks:

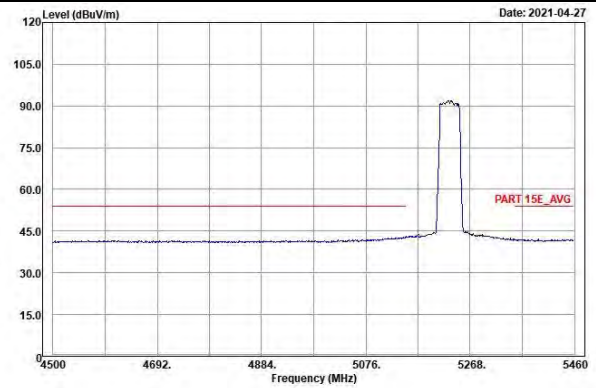
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5230 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 46

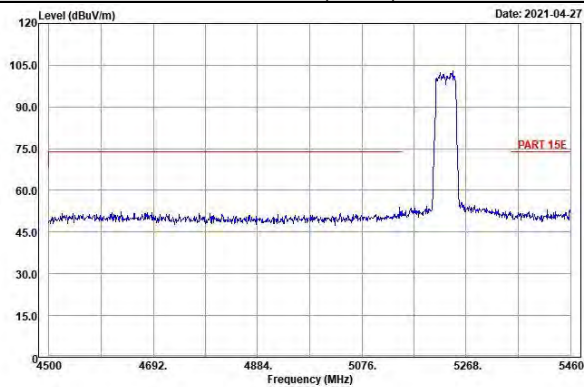
Horizontal (Peak)



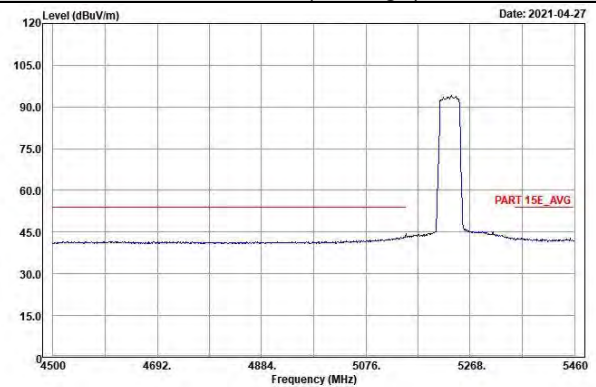
Horizontal (Average)



Vertical (Peak)

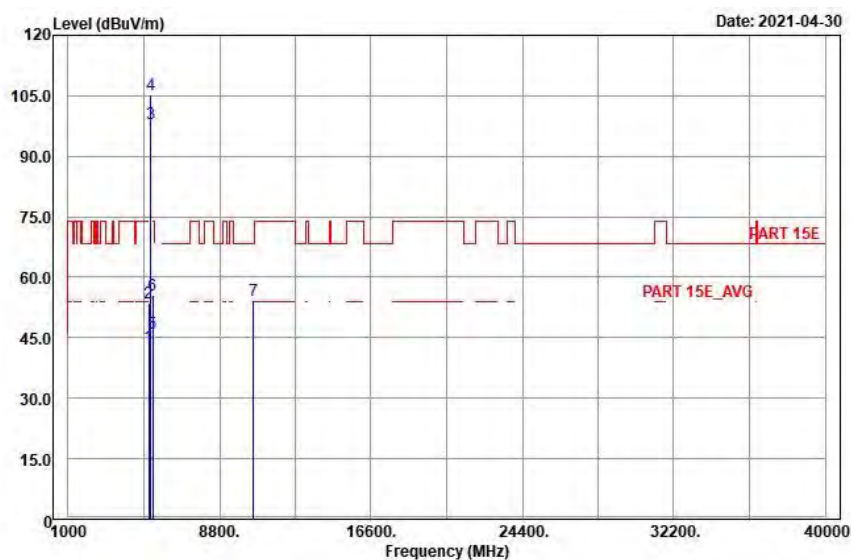


Vertical (Average)

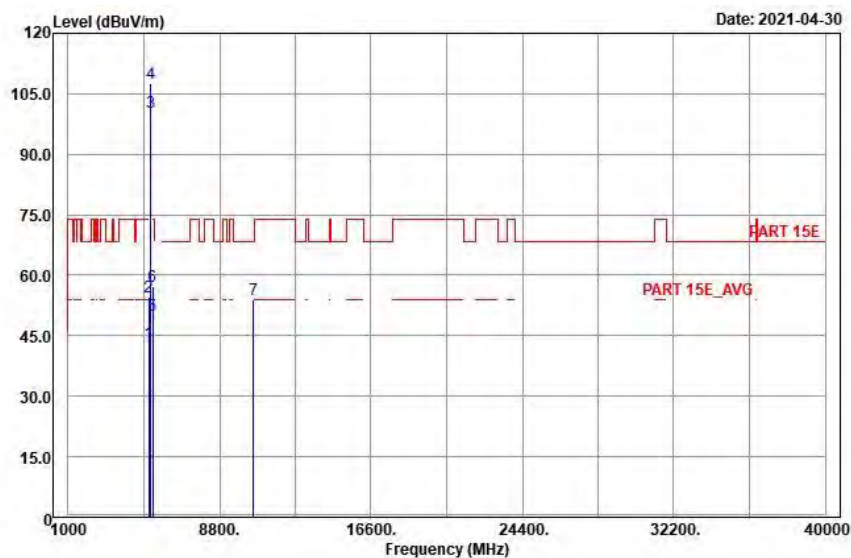


EUT Test Condition		Measurement Detail	
Channel	Channel 54	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



Antenna Polarity & Test Distance: Horizontal at 3 m

Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	42.97	32.92	10.05	54	-11.03	218	144	Average
5150	53.49	43.44	10.05	74	-20.51	218	144	Peak
5270	98.14	88.02	10.12			218	144	Average
5270	105.19	95.07	10.12			218	144	Peak
5350	46.2	35.97	10.23	54	-7.8	218	144	Average
5350	55.73	45.5	10.23	74	-18.27	218	144	Peak
*10540	54.21	38.38	15.83	68.2	-13.99	228	161	Peak

Antenna Polarity & Test Distance: Vertical at 3 m

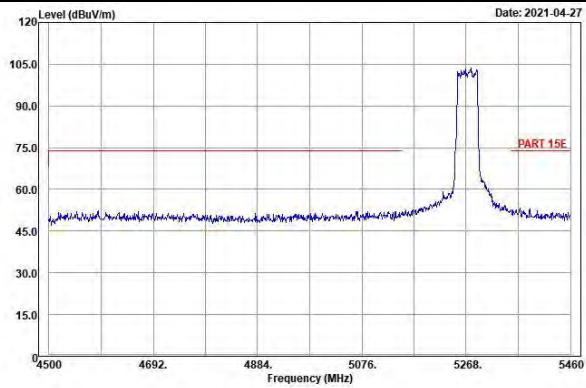
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	43.15	33.1	10.05	54	-10.85	205	85	Average
5150	54.58	44.53	10.05	74	-19.42	205	85	Peak
5270	100.44	90.32	10.12			205	85	Average
5270	107.68	97.56	10.12			205	85	Peak
5350	50.05	39.82	10.23	54	-3.95	240	85	Average
5350	57.3	47.07	10.23	74	-16.7	240	85	Peak
*10540	54.02	38.19	15.83	68.2	-14.18	217	131	Peak

Remarks:

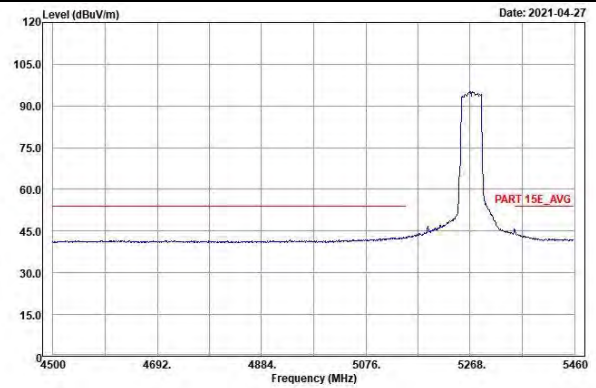
- Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
- 5270 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The other emission levels were very low against the limit.

Channel 54

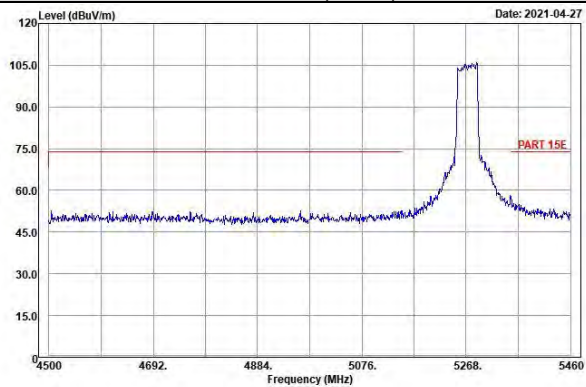
Horizontal (Peak)



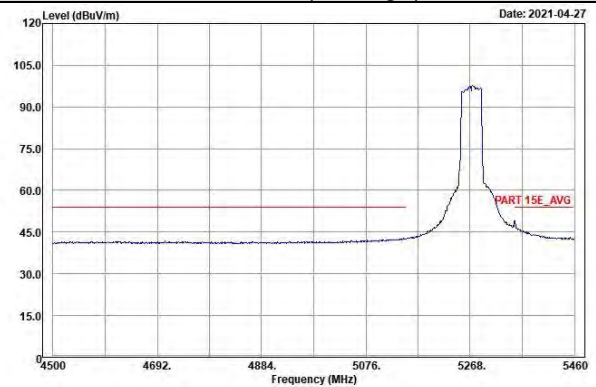
Horizontal (Average)



Vertical (Peak)

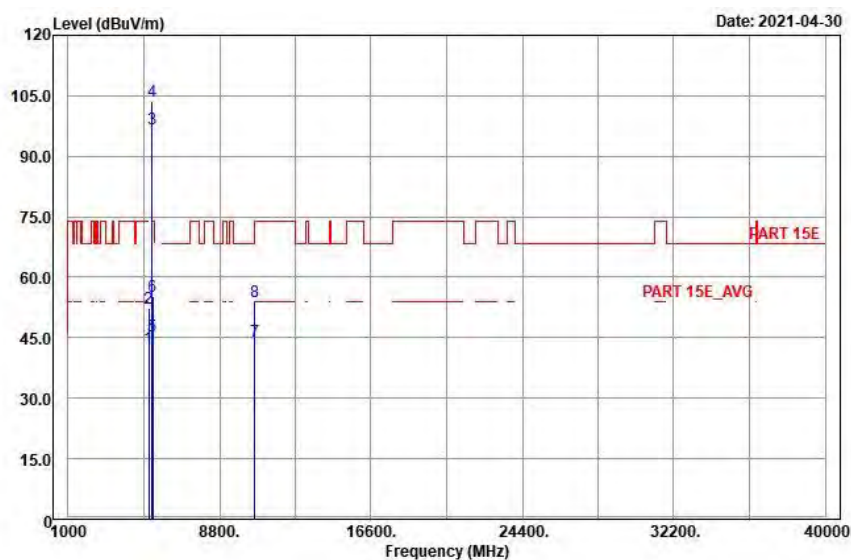


Vertical (Average)

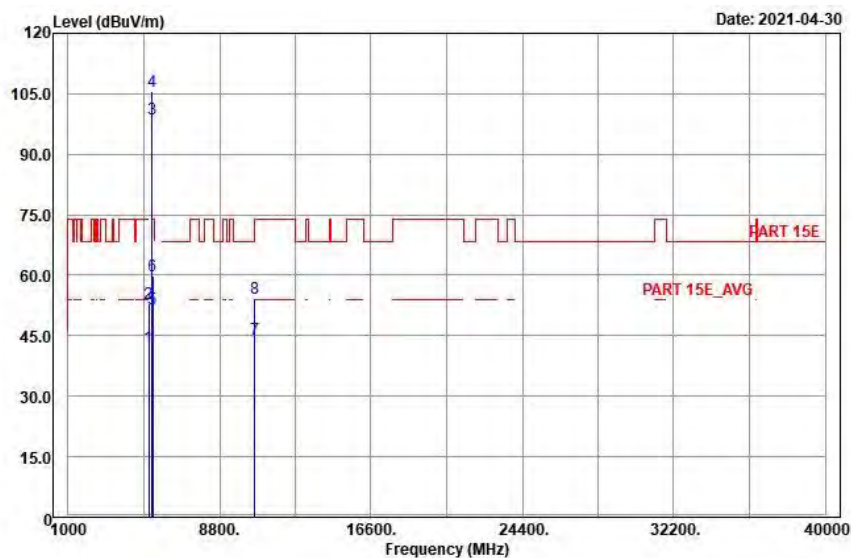


EUT Test Condition		Measurement Detail	
Channel	Channel 62	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



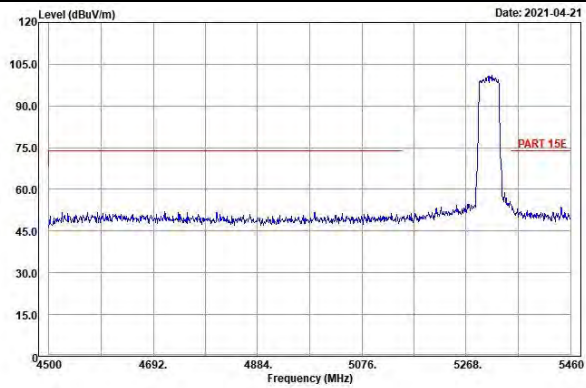
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	42.44	32.39	10.05	54	-11.56	218	144	Average
5150	52.33	42.28	10.05	74	-21.67	218	144	Peak
5310	96.73	86.64	10.09			218	144	Average
5310	103.66	93.57	10.09			218	144	Peak
5350	45.56	35.33	10.23	54	-8.44	218	144	Average
5350	55.26	45.03	10.23	74	-18.74	218	144	Peak
10620	44.16	28.28	15.88	54	-9.84	256	172	Average
10620	54.09	38.21	15.88	74	-19.91	256	172	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	42.18	32.13	10.05	54	-11.82	205	86	Average
5150	52.85	42.8	10.05	74	-21.15	205	86	Peak
5310	98.82	88.73	10.09			205	86	Average
5310	105.51	95.42	10.09			205	86	Peak
5350	51.68	41.45	10.23	54	-2.32	205	85	Average
5350	59.82	49.59	10.23	74	-14.18	205	85	Peak
10620	44.26	28.38	15.88	54	-9.74	187	250	Average
10620	54.35	38.47	15.88	74	-19.65	187	250	Peak

Remarks:

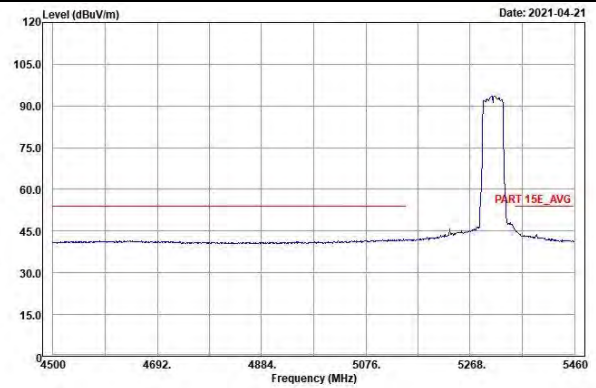
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5310 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 62

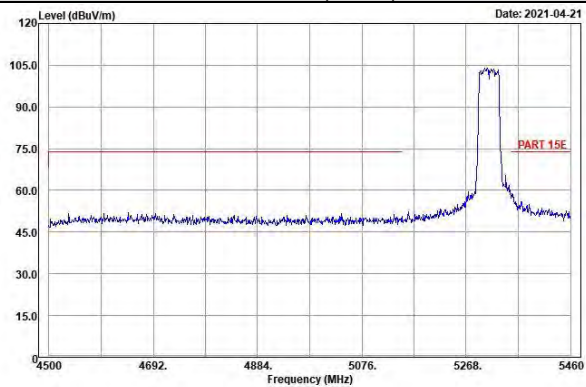
Horizontal (Peak)



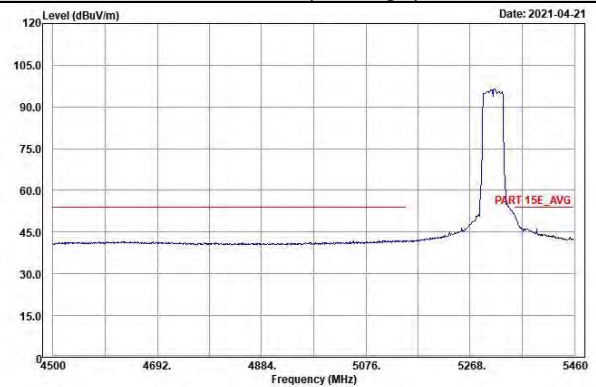
Horizontal (Average)



Vertical (Peak)

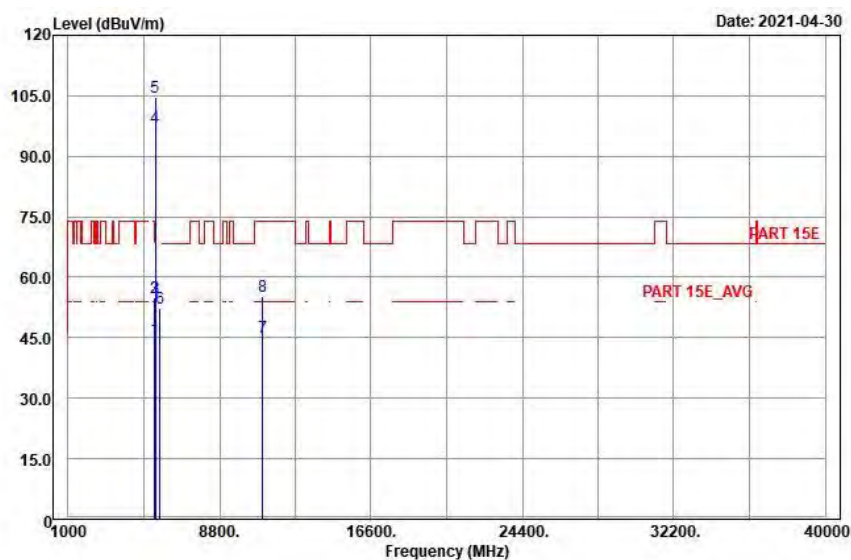


Vertical (Average)

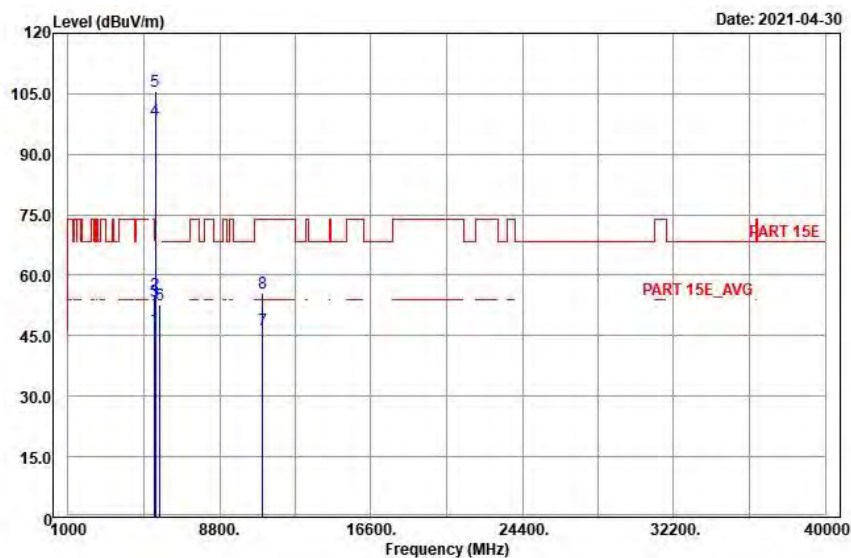


EUT Test Condition		Measurement Detail	
Channel	Channel 102	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



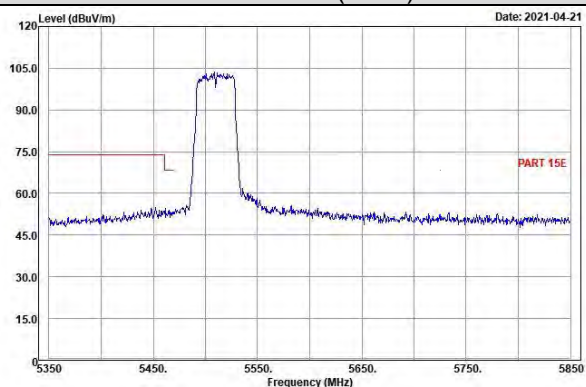
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	44.94	34.43	10.51	54	-9.06	218	116	Average
5460	54.92	44.41	10.51	74	-19.08	218	116	Peak
*5470	54.9	44.37	10.53	68.2	-13.3	218	116	Peak
5510	97.19	86.59	10.6			218	116	Average
5510	104.5	93.9	10.6			218	116	Peak
*5725	52.47	41.55	10.92	68.2	-15.73	218	116	Peak
11020	45.06	28.9	16.16	54	-8.94	168	242	Average
11020	55.27	39.11	16.16	74	-18.73	168	242	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	46.71	36.2	10.51	54	-7.29	205	92	Average
5460	55.18	44.67	10.51	74	-18.82	205	92	Peak
*5470	53.48	42.95	10.53	68.2	-14.72	205	92	Peak
5510	98.55	87.95	10.6			205	92	Average
5510	105.65	95.05	10.6			205	92	Peak
*5725	52.51	41.59	10.92	68.2	-15.69	205	92	Peak
11020	46.33	30.17	16.16	54	-7.67	198	211	Average
11020	55.61	39.45	16.16	74	-18.39	198	211	Peak

Remarks:

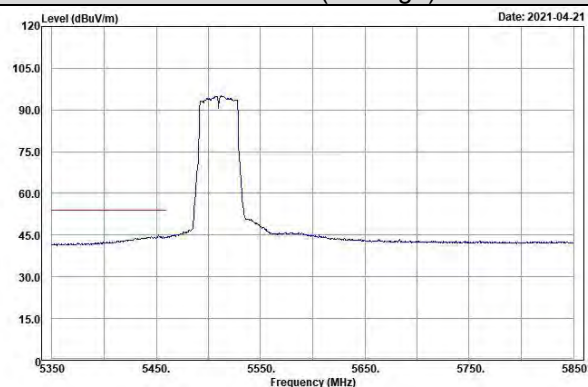
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5510 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 102

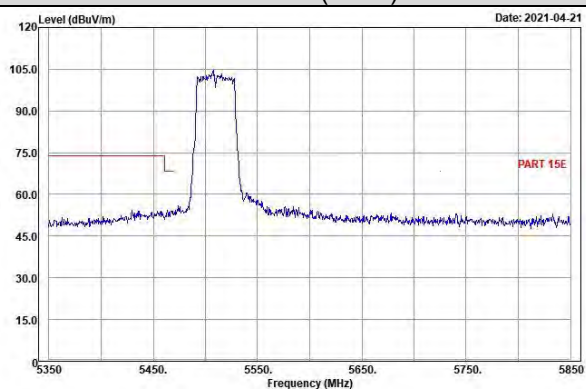
Horizontal (Peak)



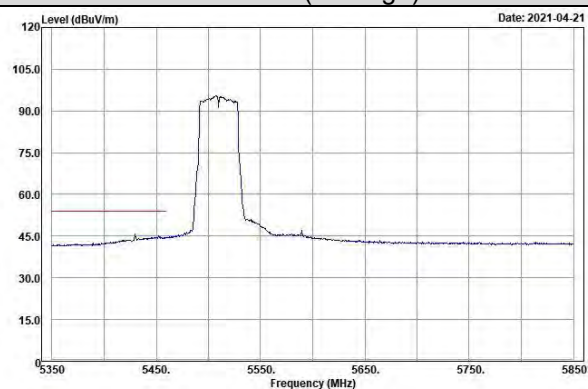
Horizontal (Average)



Vertical (Peak)

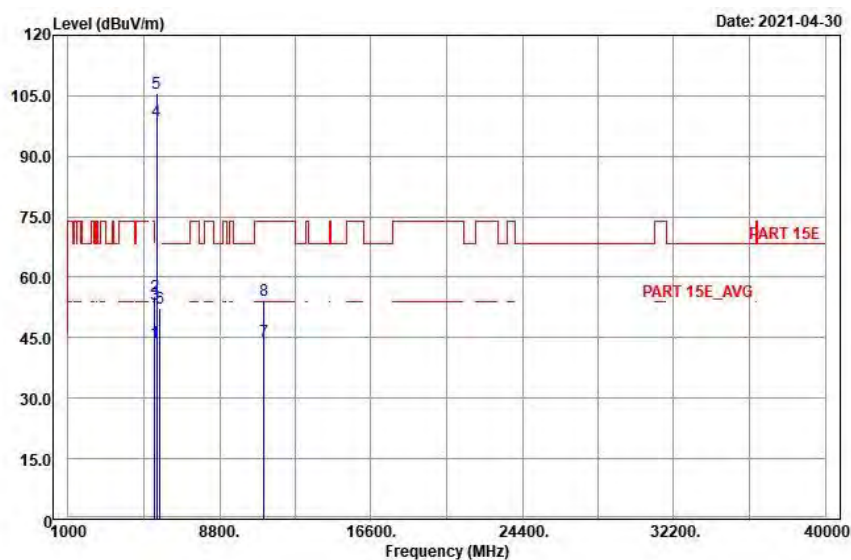


Vertical (Average)

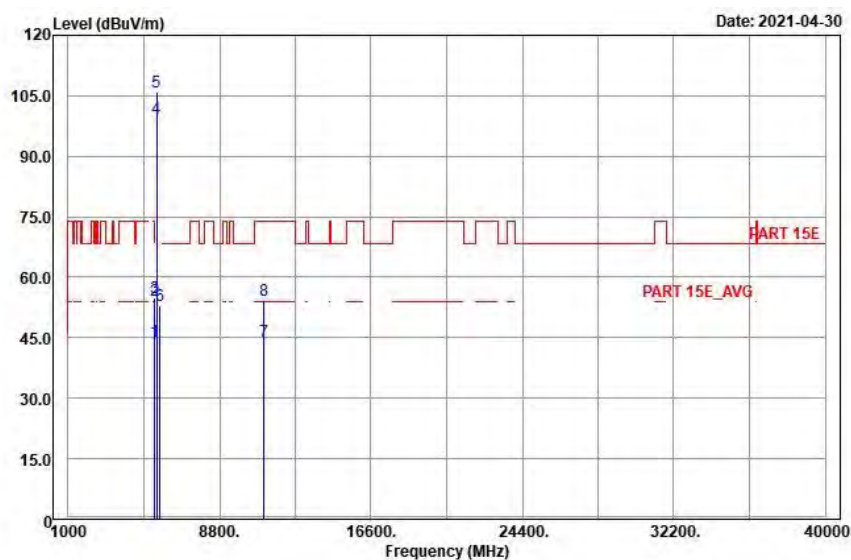


EUT Test Condition		Measurement Detail	
Channel	Channel 110	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



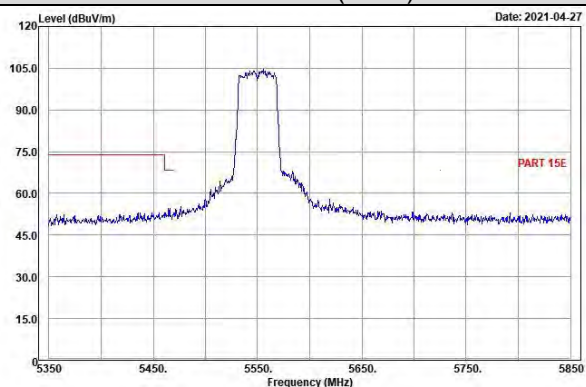
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	43.9	33.39	10.51	54	-10.1	218	116	Average
5460	55.32	44.81	10.51	74	-18.68	218	116	Peak
*5470	53.44	42.91	10.53	68.2	-14.76	218	116	Peak
5550	98.59	87.91	10.68			218	116	Average
5550	105.5	94.82	10.68			218	116	Peak
*5725	52.28	41.36	10.92	68.2	-15.92	218	116	Peak
11100	44.17	27.9	16.27	54	-9.83	322	185	Average
11100	54.22	37.95	16.27	74	-19.78	322	185	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	44.08	33.57	10.51	54	-9.92	205	92	Average
5460	54.29	43.78	10.51	74	-19.71	205	92	Peak
*5470	55.04	44.51	10.53	68.2	-13.16	205	92	Peak
5550	99.25	88.57	10.68			205	92	Average
5550	106.09	95.41	10.68			205	92	Peak
*5725	52.82	41.9	10.92	68.2	-15.38	205	92	Peak
11100	44.04	27.77	16.27	54	-9.96	226	172	Average
11100	54.23	37.96	16.27	74	-19.77	226	172	Peak

Remarks:

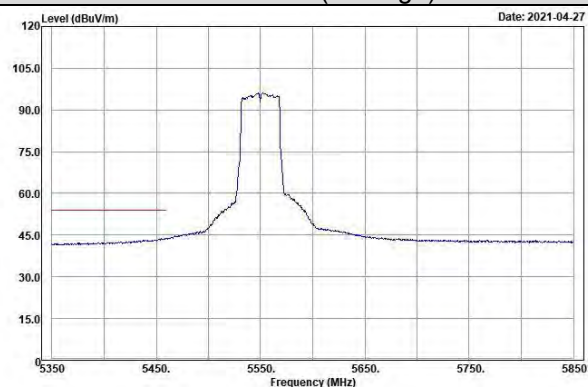
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5550 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 110

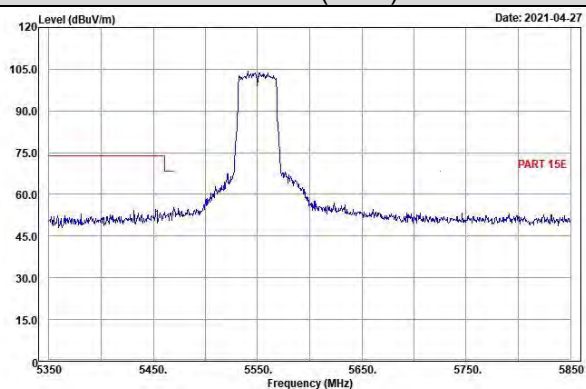
Horizontal (Peak)



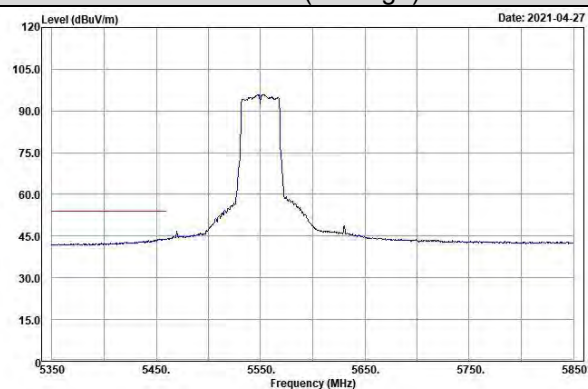
Horizontal (Average)



Vertical (Peak)

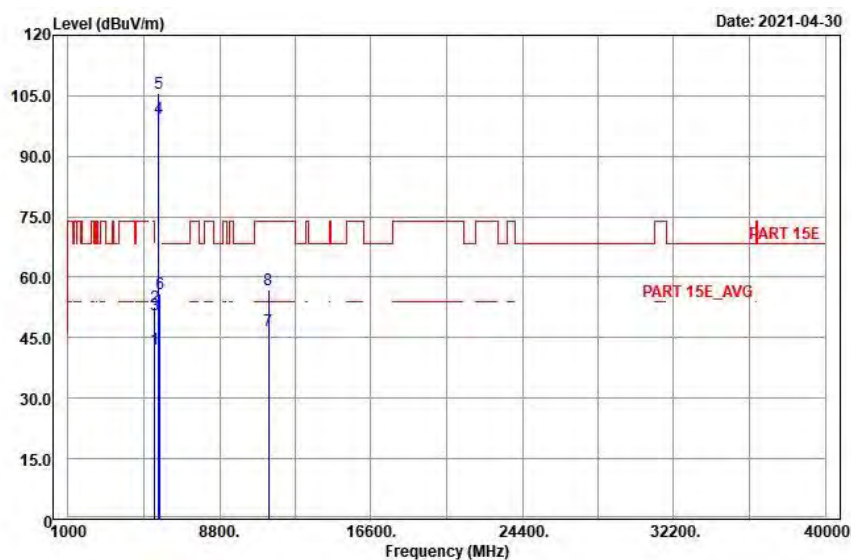


Vertical (Average)

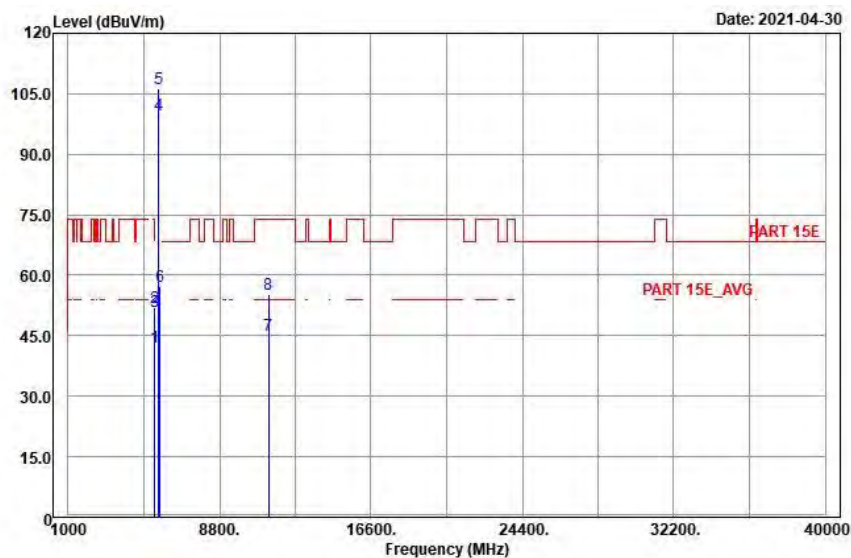


EUT Test Condition		Measurement Detail	
Channel	Channel 134	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



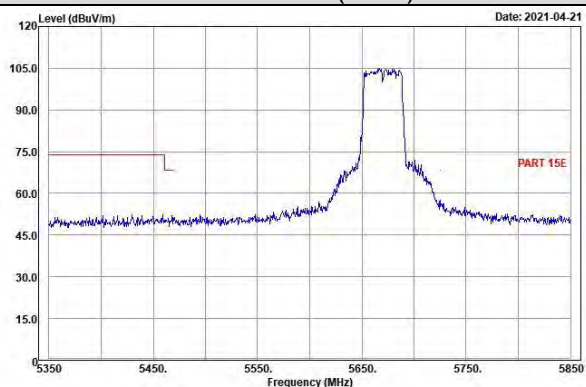
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	42.03	31.52	10.51	54	-11.97	218	116	Average
5460	52.53	42.02	10.51	74	-21.47	218	116	Peak
*5470	50.71	40.18	10.53	68.2	-17.49	218	116	Peak
5670	99.24	88.34	10.9			218	116	Average
5670	105.77	94.87	10.9			218	116	Peak
*5725	55.81	44.89	10.92	68.2	-12.39	218	116	Peak
11340	46.62	30.2	16.42	54	-7.38	254	115	Average
11340	56.88	40.46	16.42	74	-17.12	254	115	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	42.1	31.59	10.51	54	-11.9	205	92	Average
5460	52.13	41.62	10.51	74	-21.87	205	92	Peak
*5470	51.16	40.63	10.53	68.2	-17.04	205	92	Peak
5670	99.82	88.92	10.9			205	92	Average
5670	106.24	95.34	10.9			205	92	Peak
*5725	57.21	46.29	10.92	68.2	-10.99	205	92	Peak
11340	45.11	28.69	16.42	54	-8.89	139	26	Average
11340	55.26	38.84	16.42	74	-18.74	139	26	Peak

Remarks:

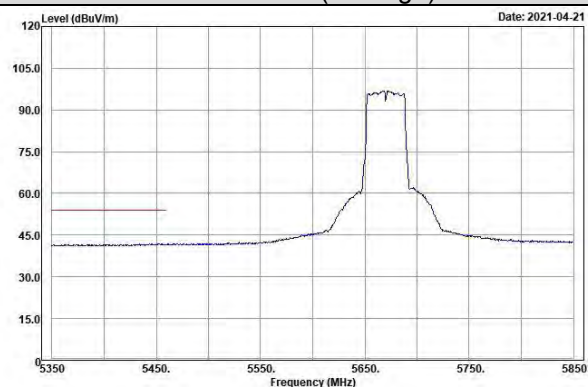
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5670 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 134

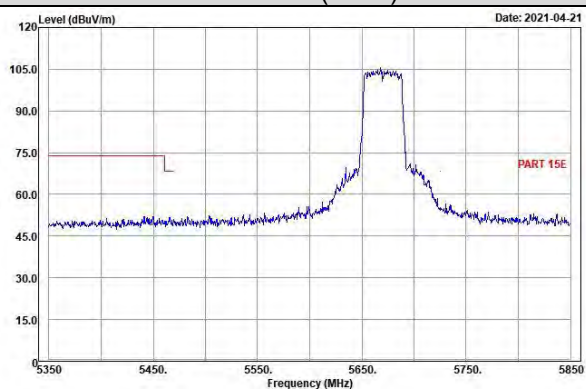
Horizontal (Peak)



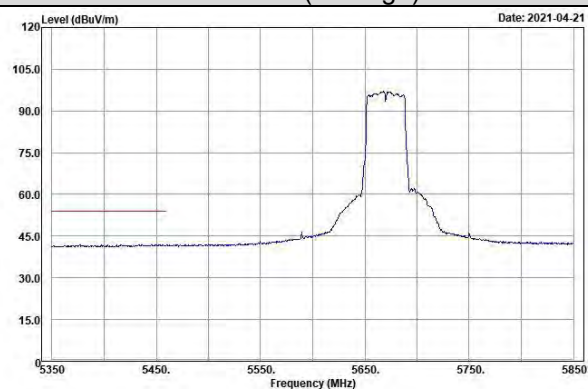
Horizontal (Average)



Vertical (Peak)

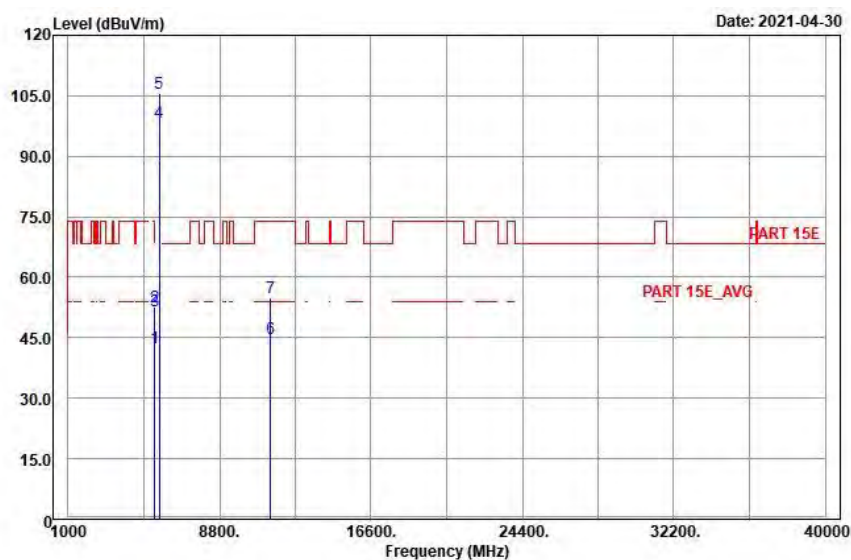


Vertical (Average)

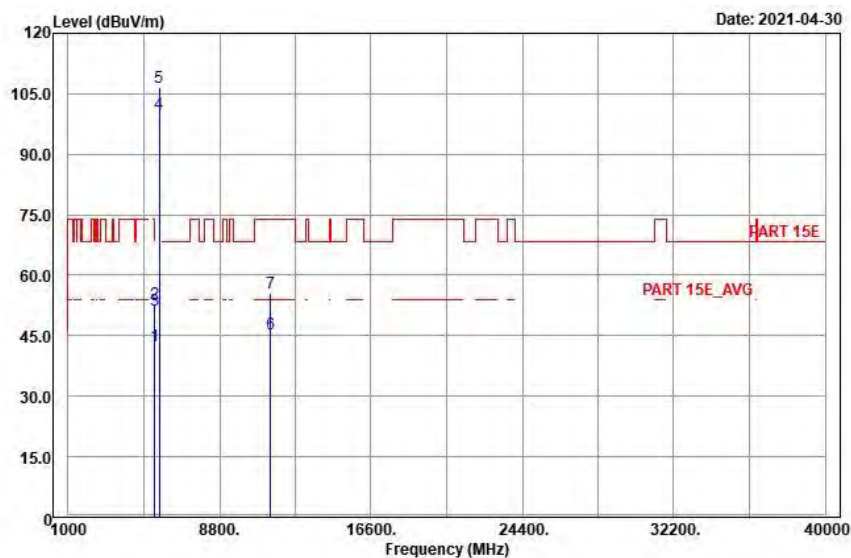


EUT Test Condition		Measurement Detail	
Channel	Channel 142	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



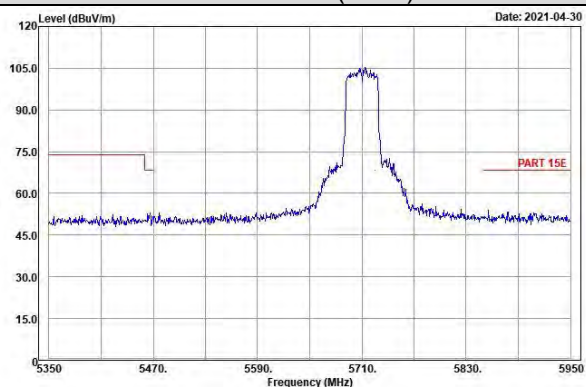
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	42.4	31.89	10.51	54	-11.6	218	116	Average
5460	52.71	42.2	10.51	74	-21.29	218	116	Peak
*5470	51.62	41.09	10.53	68.2	-16.58	218	116	Peak
5710	98.46	87.55	10.91			218	116	Average
5710	105.58	94.67	10.91			218	116	Peak
11420	44.76	28.5	16.26	54	-9.24	155	227	Average
11420	54.94	38.68	16.26	74	-19.06	155	227	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	42.51	32	10.51	54	-11.49	205	92	Average
5460	52.97	42.46	10.51	74	-21.03	205	92	Peak
*5470	51.27	40.74	10.53	68.2	-16.93	205	92	Peak
5710	99.95	89.04	10.91			205	92	Average
5710	106.59	95.68	10.91			205	92	Peak
11420	45.43	29.17	16.26	54	-8.57	304	182	Average
11420	55.55	39.29	16.26	74	-18.45	304	182	Peak

Remarks:

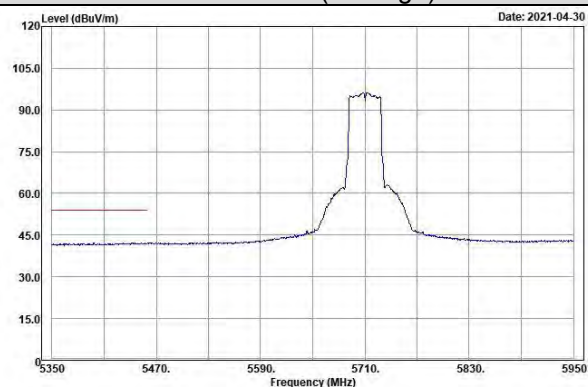
- Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
- 5710 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The other emission levels were very low against the limit.

Channel 142

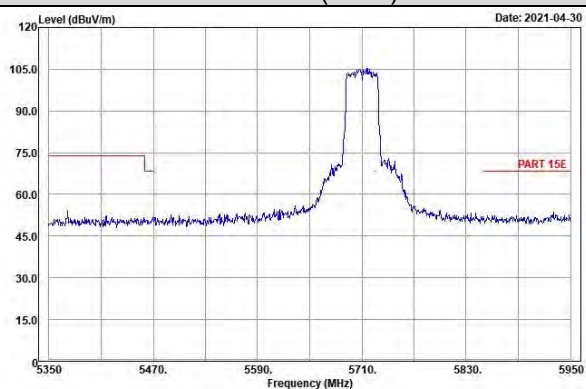
Horizontal (Peak)



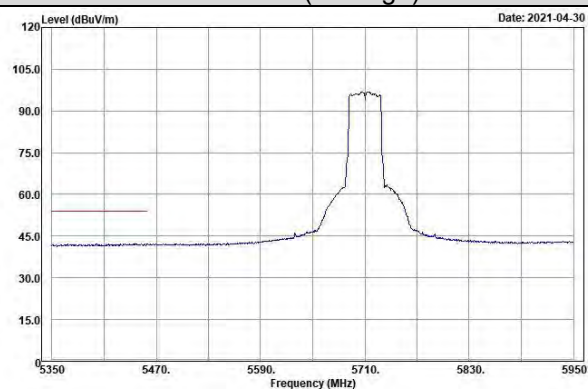
Horizontal (Average)



Vertical (Peak)

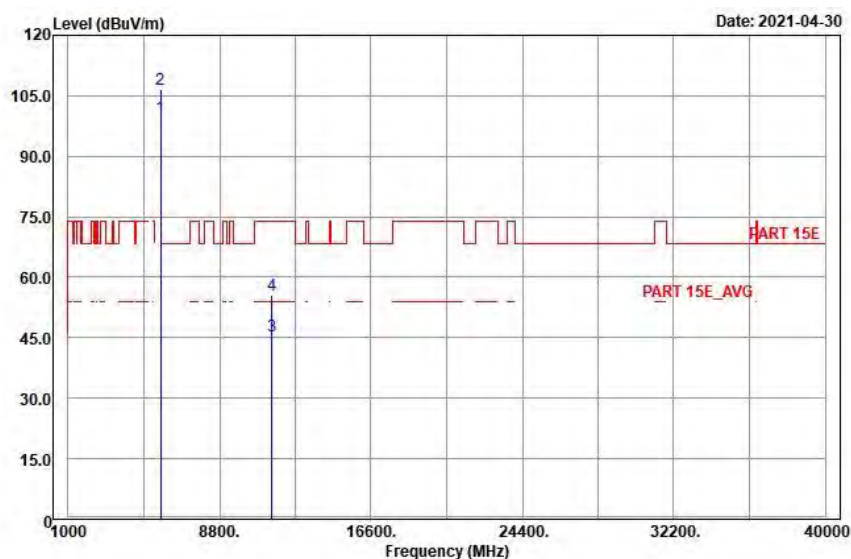


Vertical (Average)

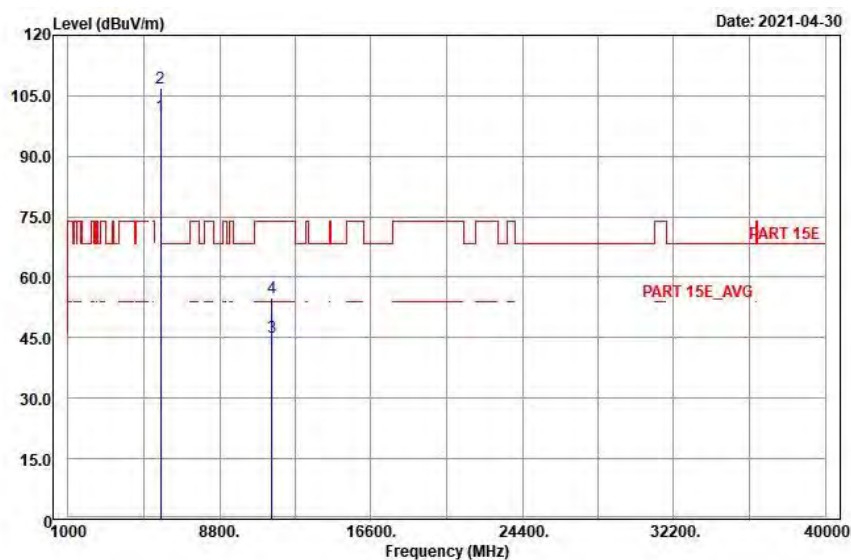


EUT Test Condition		Measurement Detail	
Channel	Channel 151	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

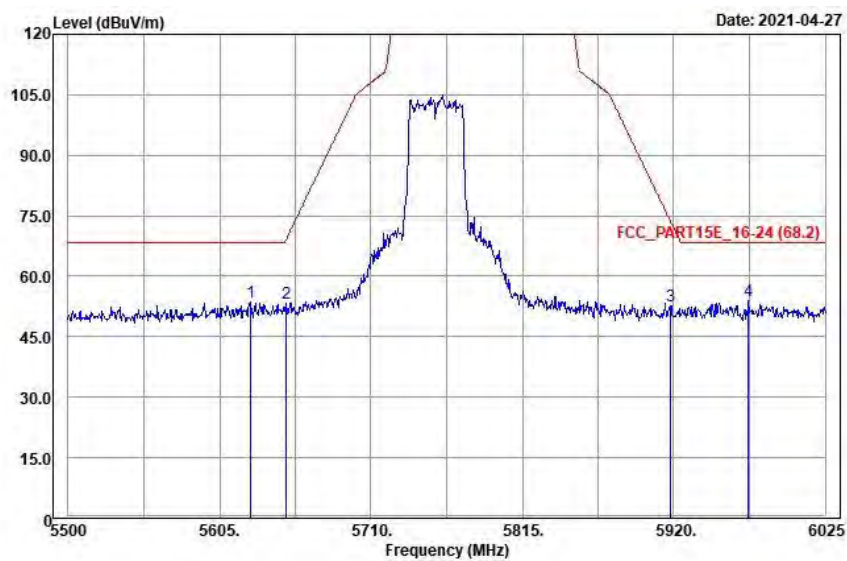
<Spurious Emission> Horizontal



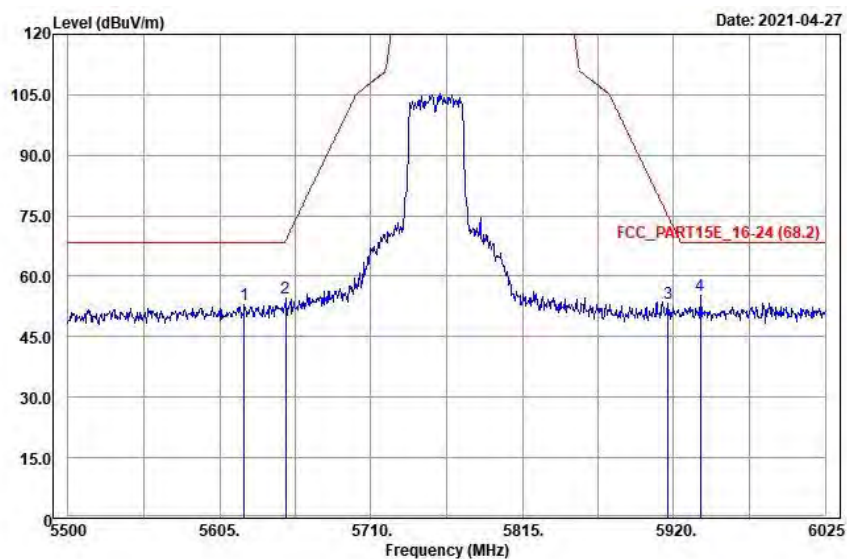
Vertical



<Out of Band Emission (OOBE)> Horizontal



Vertical



<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5755	99.84	88.94	10.9			218	116	Average
5755	106.53	95.63	10.9			218	116	Peak
11510	45.32	28.81	16.51	54	-8.68	218	61	Average
11510	55.56	39.05	16.51	74	-18.44	218	61	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5755	100.14	89.24	10.9			205	92	Average
5755	107	96.1	10.9			205	92	Peak
11510	45.04	28.53	16.51	54	-8.96	226	197	Average
11510	54.97	38.46	16.51	74	-19.03	226	197	Peak

<Out of Band Emission (OOBE)>

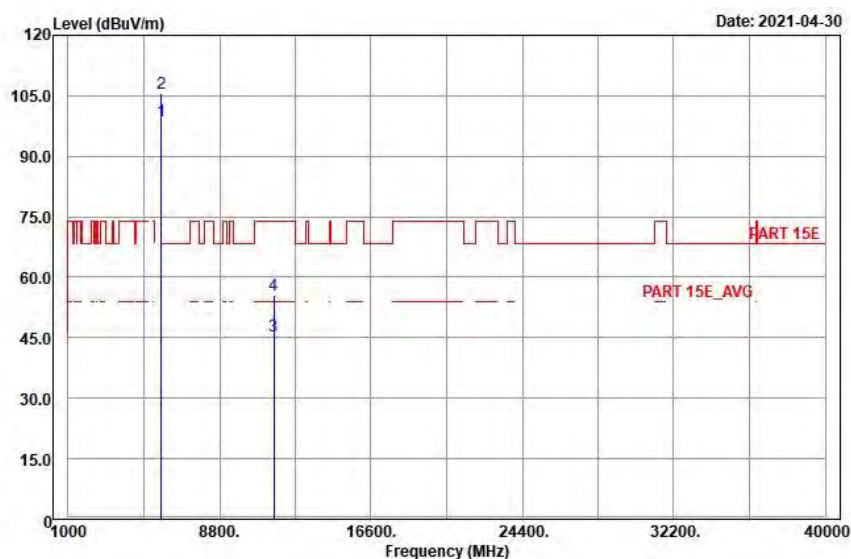
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5626.525	53.51	42.72	10.79	68.2	-14.69	218	116	Peak
5651.2	53.28	42.41	10.87	69.09	-15.81	218	116	Peak
5917.9	52.68	41.59	11.09	73.45	-20.77	218	116	Peak
*5971.975	53.94	42.69	11.25	68.2	-14.26	218	116	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5622.325	52.99	42.2	10.79	68.2	-15.21	205	92	Peak
5650.675	54.76	43.89	10.87	68.7	-13.94	205	92	Peak
5916.325	53.15	42.06	11.09	74.62	-21.47	205	92	Peak
*5938.375	55.12	43.96	11.16	68.2	-13.08	205	92	Peak

Remarks:

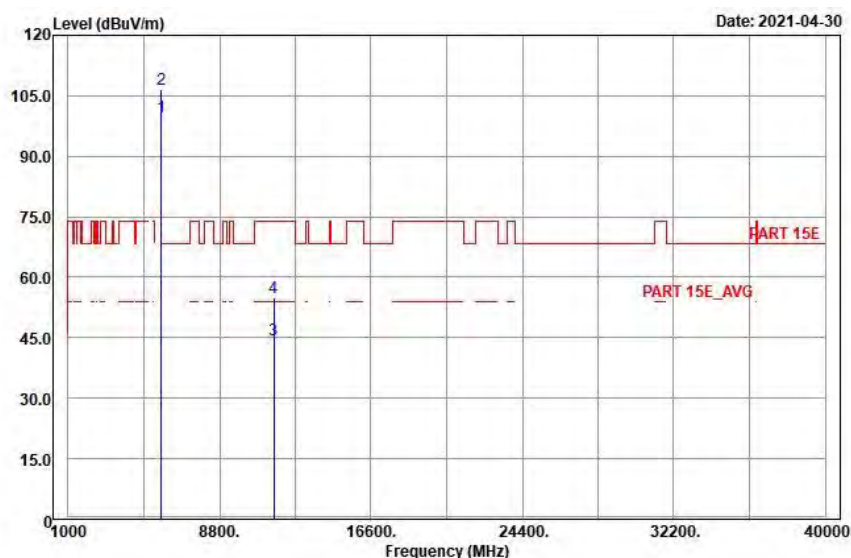
1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin Value = Emission Level – Limit value
2. 5755 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

EUT Test Condition		Measurement Detail	
Channel	Channel 159	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

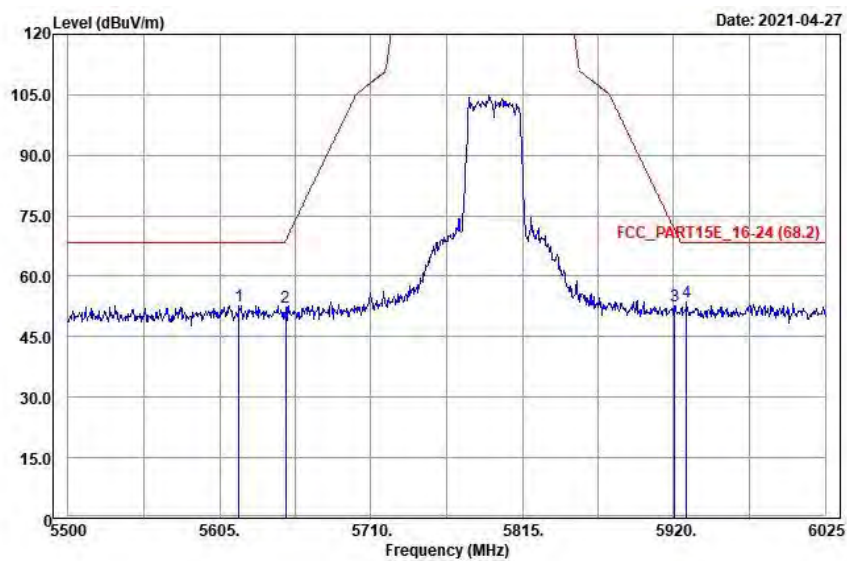
<Spurious Emission> Horizontal



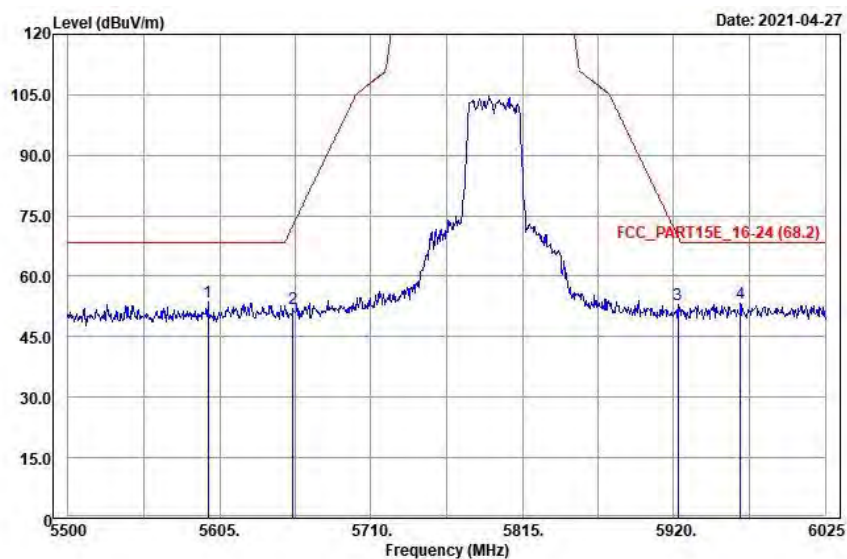
Vertical



<Out of Band Emission (OOBE)> Horizontal



Vertical



<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	98.59	87.77	10.82			218	116	Average
5795	105.51	94.69	10.82			218	116	Peak
11590	45.4	28.89	16.51	54	-8.6	156	332	Average
11590	55.71	39.2	16.51	74	-18.29	156	332	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5795	99.68	88.86	10.82			205	92	Average
5795	106.43	95.61	10.82			205	92	Peak
11590	44.46	27.95	16.51	54	-9.54	236	243	Average
11590	54.83	38.32	16.51	74	-19.17	236	243	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5618.65	52.63	41.84	10.79	68.2	-15.57	218	116	Peak
5650.675	52.39	41.52	10.87	68.7	-16.31	218	116	Peak
5920.525	52.74	41.65	11.09	71.51	-18.77	218	116	Peak
*5928.925	53.65	42.54	11.11	68.2	-14.55	218	116	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
*5597.125	53.59	42.84	10.75	68.2	-14.61	205	92	Peak
5655.925	51.96	41.09	10.87	72.58	-20.62	205	92	Peak
5923.15	52.99	41.88	11.11	69.57	-16.58	205	92	Peak
*5966.2	53.17	41.94	11.23	68.2	-15.03	205	92	Peak

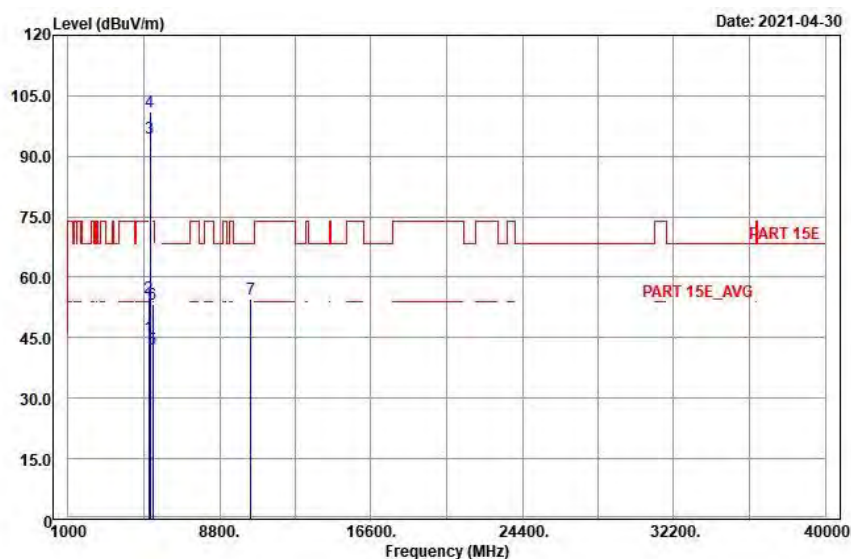
Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin Value = Emission Level – Limit value
2. 5795 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

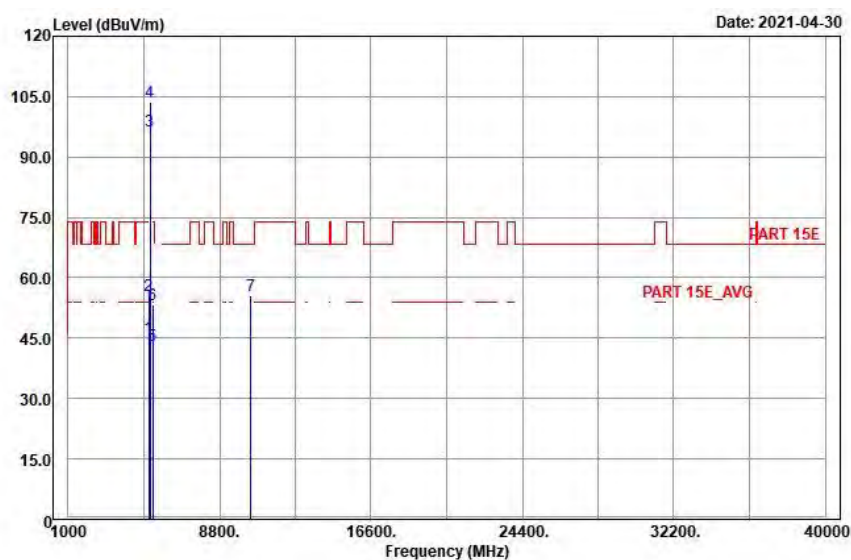
802.11ac (VHT80)

EUT Test Condition		Measurement Detail	
Channel	Channel 42	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



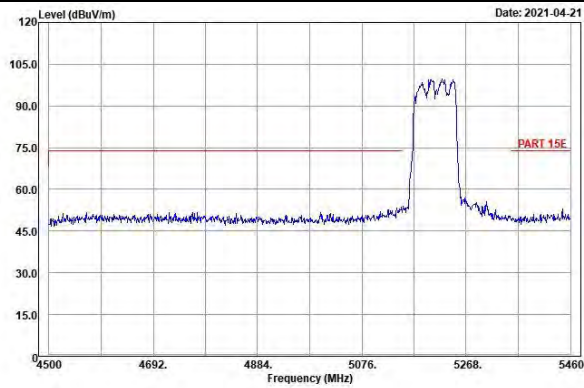
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	45.18	35.13	10.05	54	-8.82	218	144	Average
5150	55	44.95	10.05	74	-19	218	144	Peak
5210	94.6	84.43	10.17			218	144	Average
5210	101.04	90.87	10.17			218	144	Peak
5350	42.1	31.87	10.23	54	-11.9	218	144	Average
5350	53.26	43.03	10.23	74	-20.74	218	144	Peak
*10420	54.69	38.53	16.16	68.2	-13.51	158	156	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	44.99	34.94	10.05	54	-9.01	205	86	Average
5150	55.66	45.61	10.05	74	-18.34	205	86	Peak
5210	96.37	86.2	10.17			205	86	Average
5210	103.74	93.57	10.17			205	86	Peak
5350	43.02	32.79	10.23	54	-10.98	205	86	Average
5350	53.21	42.98	10.23	74	-20.79	205	86	Peak
*10420	55.73	39.57	16.16	68.2	-12.47	273	164	Peak

Remarks:

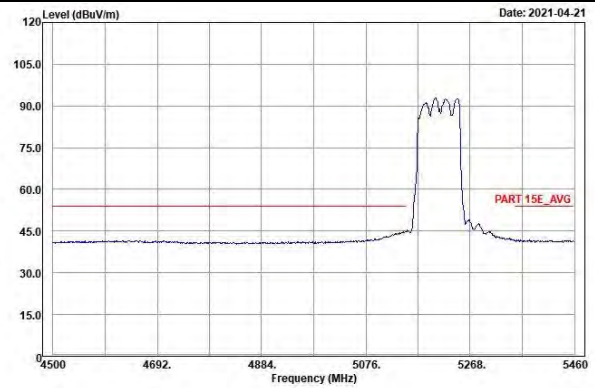
- Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
- 5210 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The other emission levels were very low against the limit.

Channel 42

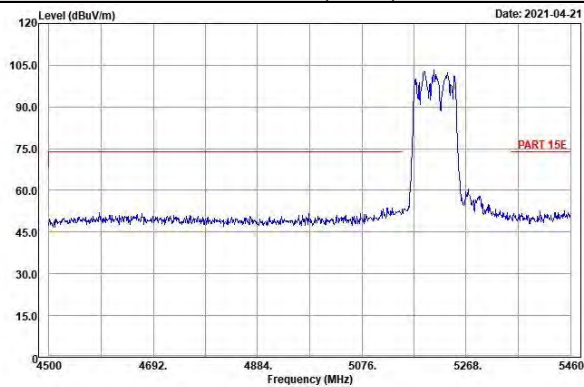
Horizontal (Peak)



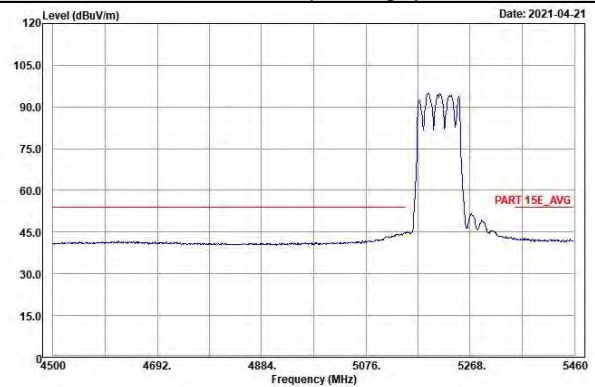
Horizontal (Average)



Vertical (Peak)

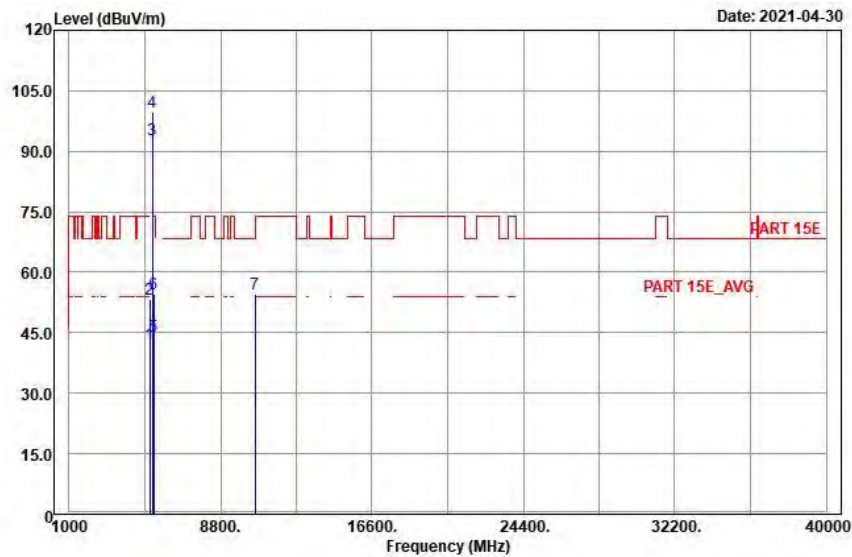


Vertical (Average)

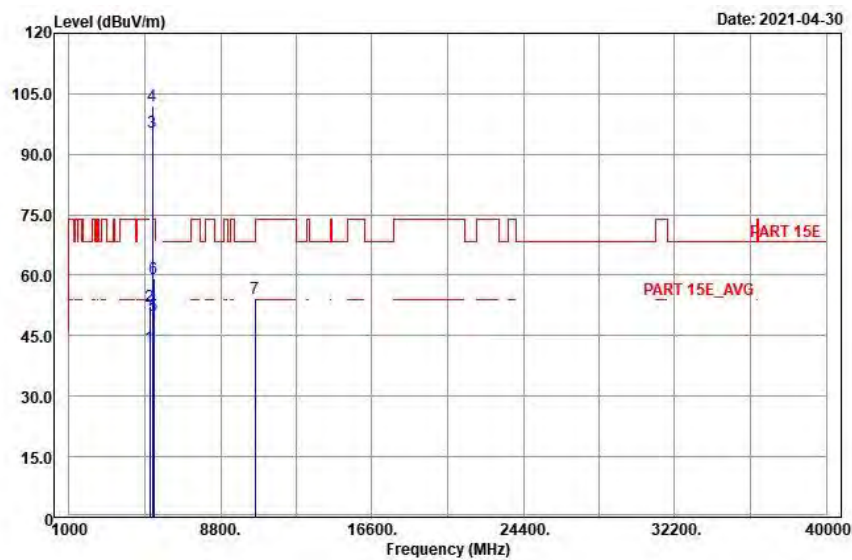


EUT Test Condition		Measurement Detail	
Channel	Channel 58	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



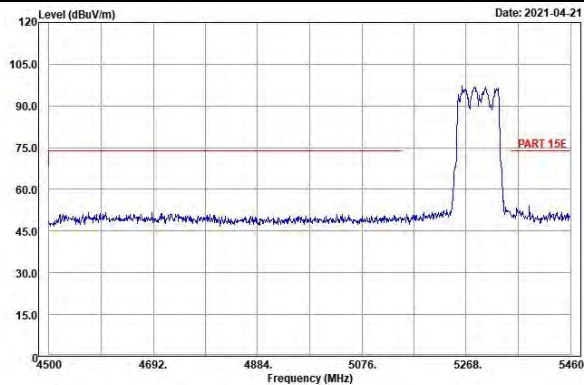
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	42.32	32.27	10.05	54	-11.68	218	144	Average
5150	53.36	43.31	10.05	74	-20.64	218	144	Peak
5290	92.73	82.63	10.1			218	144	Average
5290	99.8	89.7	10.1			218	144	Peak
5350	44.2	33.97	10.23	54	-9.8	218	144	Average
5350	54.65	44.42	10.23	74	-19.35	218	144	Peak
*10580	54.49	38.78	15.71	68.2	-13.71	142	39	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5150	42.2	32.15	10.05	54	-11.8	205	85	Average
5150	52.46	42.41	10.05	74	-21.54	205	85	Peak
5290	95.49	85.39	10.1			205	85	Average
5290	102.01	91.91	10.1			205	85	Peak
5350	50.13	39.9	10.23	54	-3.87	224	85	Average
5350	59.14	48.91	10.23	74	-14.86	224	85	Peak
*10580	54.36	38.65	15.71	68.2	-13.84	231	101	Peak

Remarks:

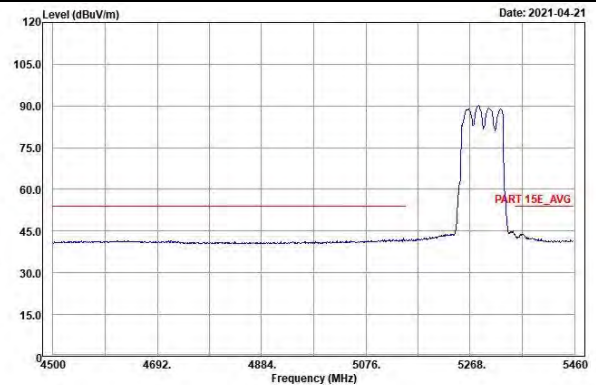
- Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
- 5290 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The other emission levels were very low against the limit.

Channel 58

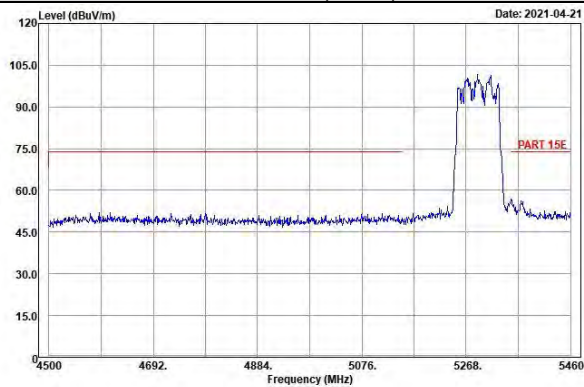
Horizontal (Peak)



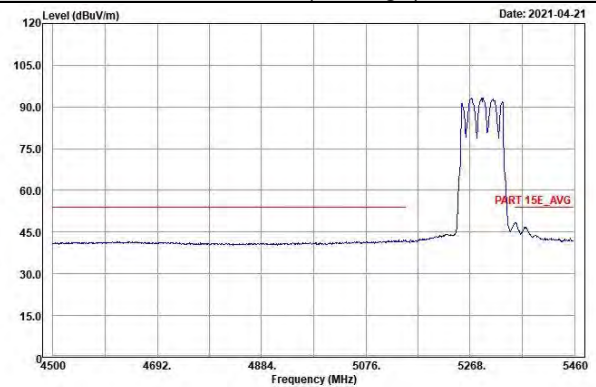
Horizontal (Average)



Vertical (Peak)

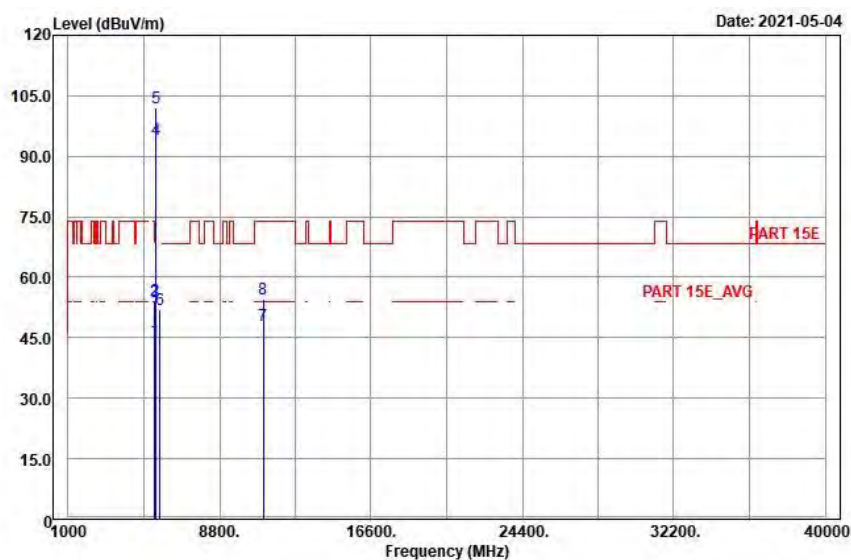


Vertical (Average)

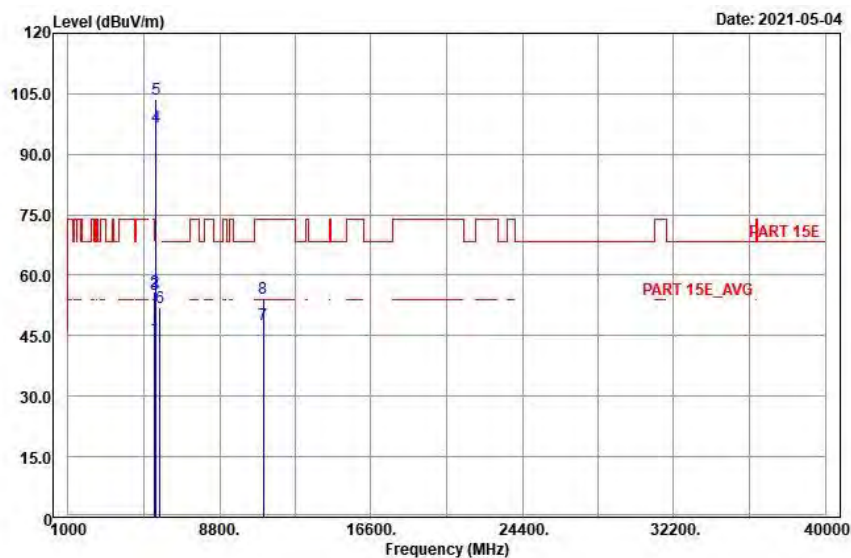


EUT Test Condition		Measurement Detail	
Channel	Channel 106	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



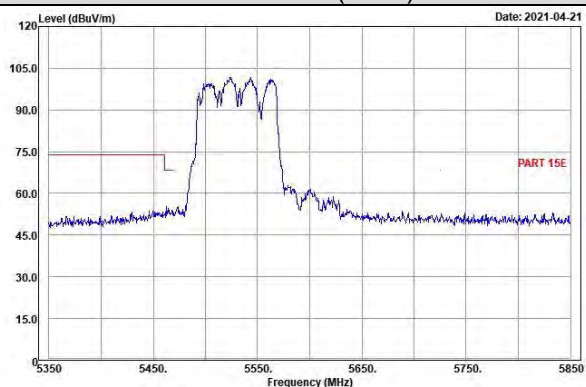
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	44.38	33.87	10.51	54	-9.62	218	116	Average
5460	54.26	43.75	10.51	74	-19.74	218	116	Peak
*5470	53.95	43.42	10.53	68.2	-14.25	218	116	Peak
5530	94.11	83.48	10.63			218	116	Average
5530	101.98	91.35	10.63			218	116	Peak
*5725	51.86	40.94	10.92	68.2	-16.34	218	116	Peak
11060	47.91	31.68	16.23	54	-6.09	164	177	Average
11060	54.71	38.48	16.23	74	-19.29	164	177	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	44.44	33.93	10.51	54	-9.56	205	91	Average
5460	55.84	45.33	10.51	74	-18.16	205	91	Peak
*5470	55.27	44.74	10.53	68.2	-12.93	205	91	Peak
5530	96.68	86.05	10.63			205	91	Average
5530	103.65	93.02	10.63			205	91	Peak
*5725	52.08	41.16	10.92	68.2	-16.12	205	91	Peak
11060	47.6	31.37	16.23	54	-6.4	188	25	Average
11060	54.36	38.13	16.23	74	-19.64	188	25	Peak

Remarks:

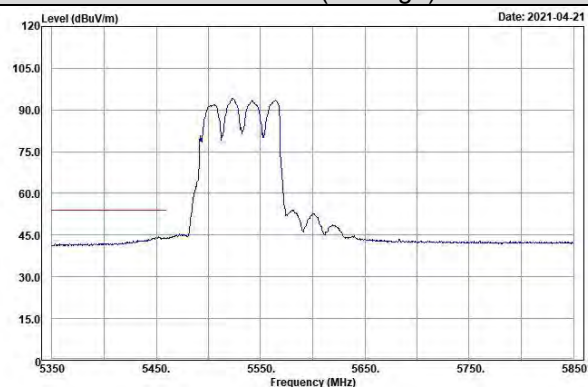
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5530 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 106

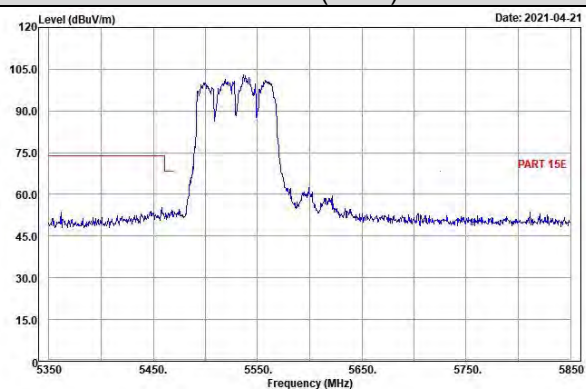
Horizontal (Peak)



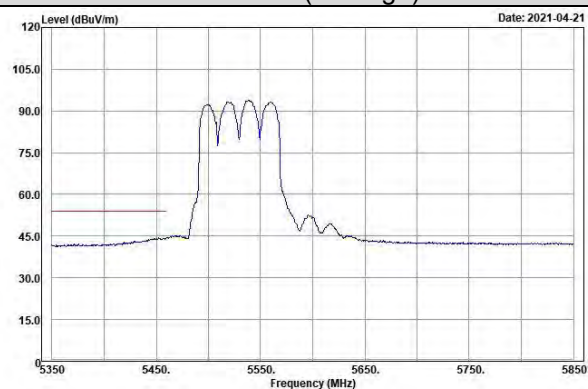
Horizontal (Average)



Vertical (Peak)

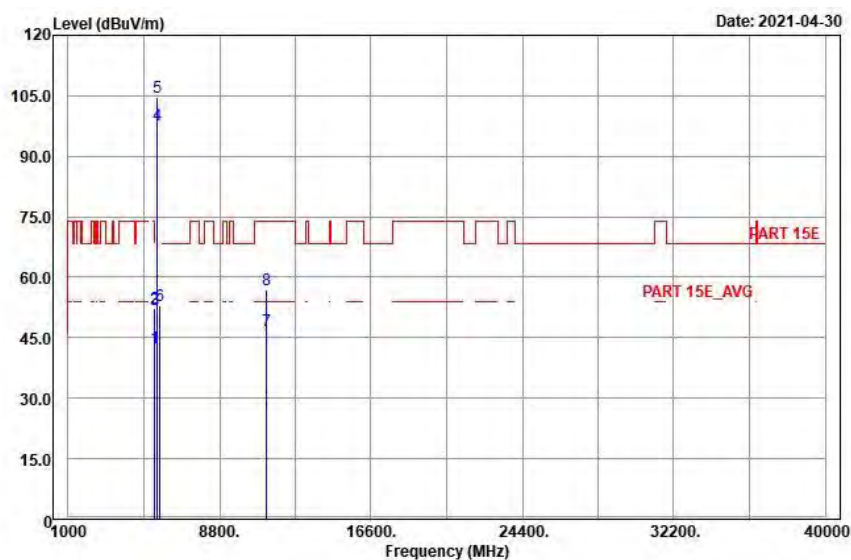


Vertical (Average)

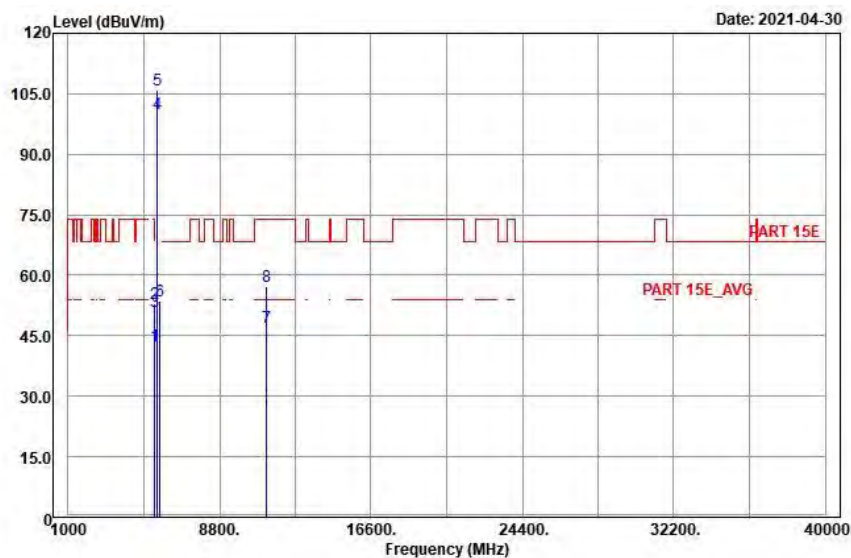


EUT Test Condition		Measurement Detail	
Channel	Channel 122	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



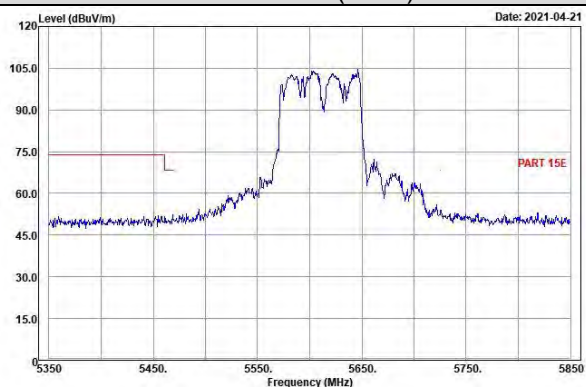
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	42.54	32.03	10.51	54	-11.46	218	116	Average
5460	52.37	41.86	10.51	74	-21.63	218	116	Peak
*5470	52.05	41.52	10.53	68.2	-16.15	218	116	Peak
5610	97.88	87.11	10.77			218	116	Average
5610	104.73	93.96	10.77			218	116	Peak
*5725	53.03	42.11	10.92	68.2	-15.17	218	116	Peak
11220	46.64	30.22	16.42	54	-7.36	146	236	Average
11220	56.82	40.4	16.42	74	-17.18	146	236	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	42.55	32.04	10.51	54	-11.45	205	91	Average
5460	52.93	42.42	10.51	74	-21.07	205	91	Peak
*5470	51.03	40.5	10.53	68.2	-17.17	205	91	Peak
5610	99.92	89.15	10.77			205	91	Average
5610	106.02	95.25	10.77			205	91	Peak
*5725	53.47	42.55	10.92	68.2	-14.73	205	91	Peak
11220	47.11	30.69	16.42	54	-6.89	215	117	Average
11220	57.25	40.83	16.42	74	-16.75	215	117	Peak

Remarks:

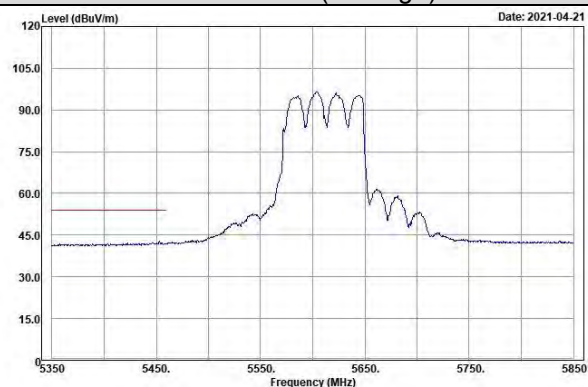
1. Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
2. 5610 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

Channel 122

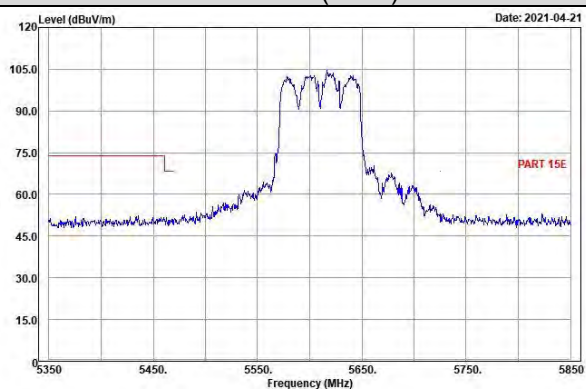
Horizontal (Peak)



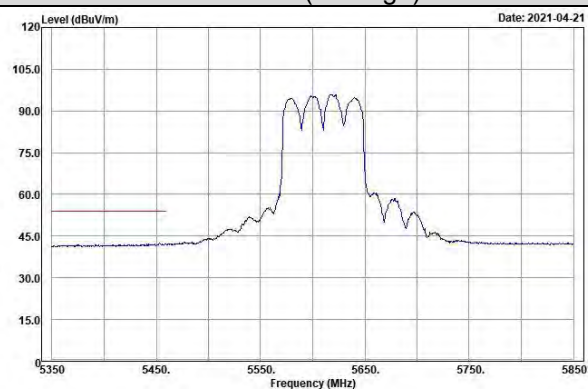
Horizontal (Average)



Vertical (Peak)

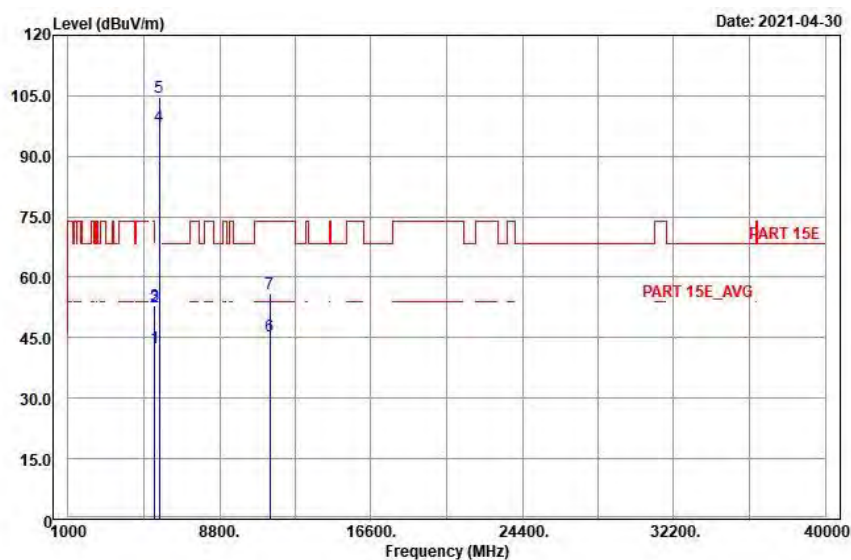


Vertical (Average)

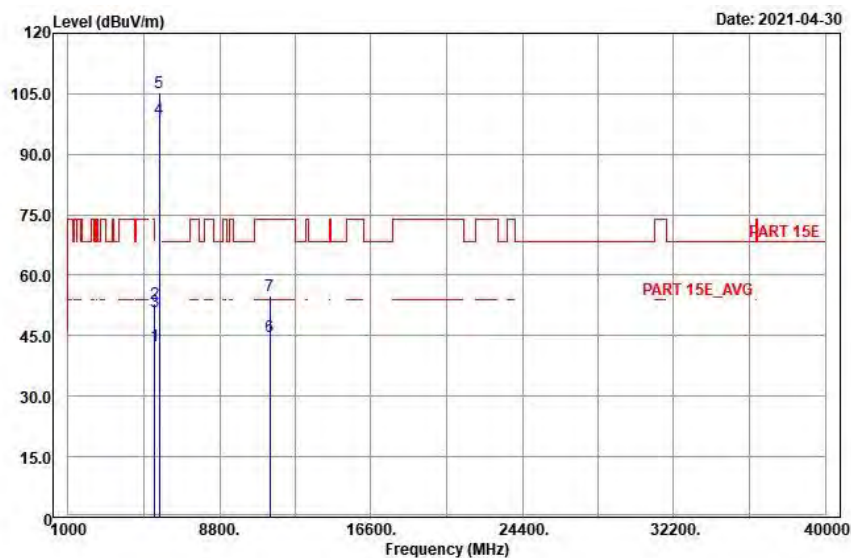


EUT Test Condition		Measurement Detail	
Channel	Channel 138	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

Horizontal



Vertical



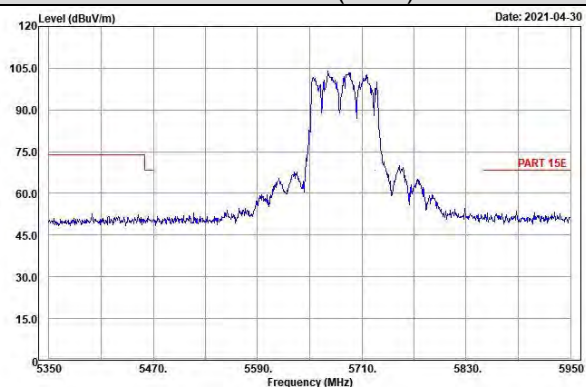
Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	42.5	31.99	10.51	54	-11.5	218	116	Average
5460	52.59	42.08	10.51	74	-21.41	218	116	Peak
*5470	52.81	42.28	10.53	68.2	-15.39	218	116	Peak
5690	97.44	86.51	10.93			218	116	Average
5690	104.63	93.7	10.93			218	116	Peak
11380	45.46	29.19	16.27	54	-8.54	217	154	Average
11380	55.81	39.54	16.27	74	-18.19	217	154	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5460	42.54	32.03	10.51	54	-11.46	205	92	Average
5460	53.05	42.54	10.51	74	-20.95	205	92	Peak
*5470	50.9	40.37	10.53	68.2	-17.3	205	92	Peak
5690	98.85	87.92	10.93			205	92	Average
5690	105.38	94.45	10.93			205	92	Peak
11380	44.65	28.38	16.27	54	-9.35	272	143	Average
11380	55.09	38.82	16.27	74	-18.91	272	143	Peak

Remarks:

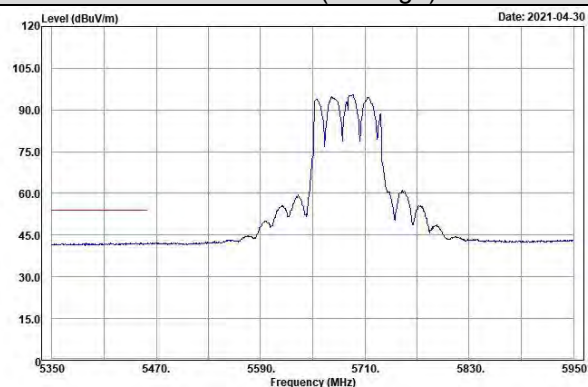
- Emission Level = Read Level + Factor
Margin Value = Emission Level – Limit value
- 5690 MHz: Fundamental Frequency
- *: Out of Restricted Band
- The other emission levels were very low against the limit.

Channel 138

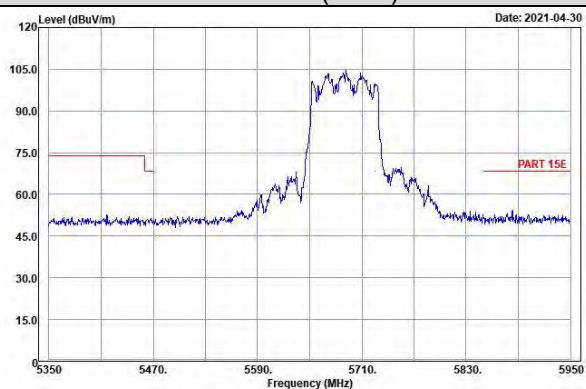
Horizontal (Peak)



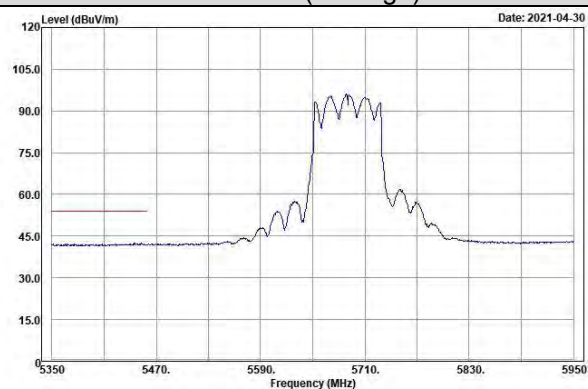
Horizontal (Average)



Vertical (Peak)

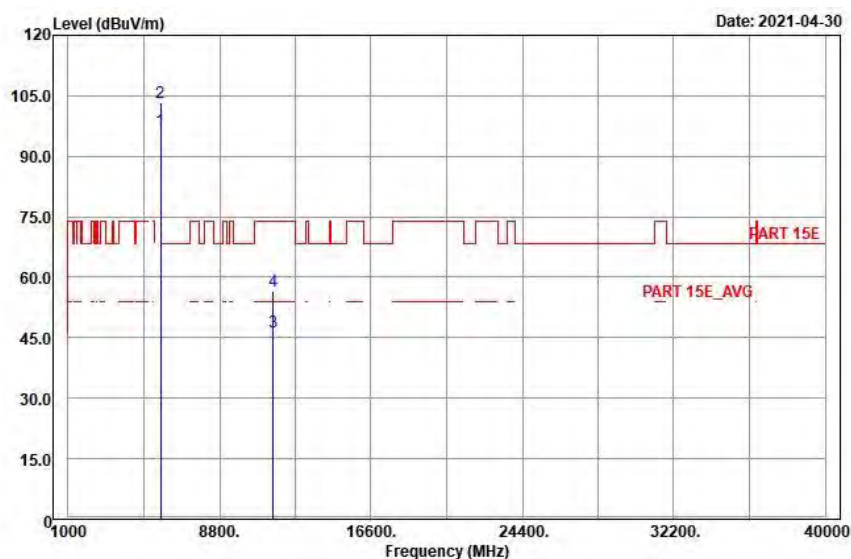


Vertical (Average)

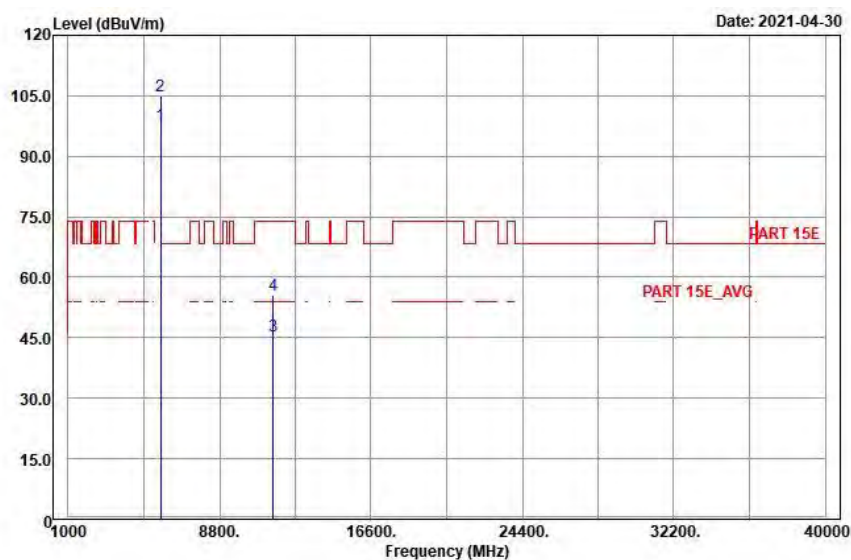


EUT Test Condition		Measurement Detail	
Channel	Channel 155	Frequency Range	1 GHz ~ 40 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee, Charles Hsiao

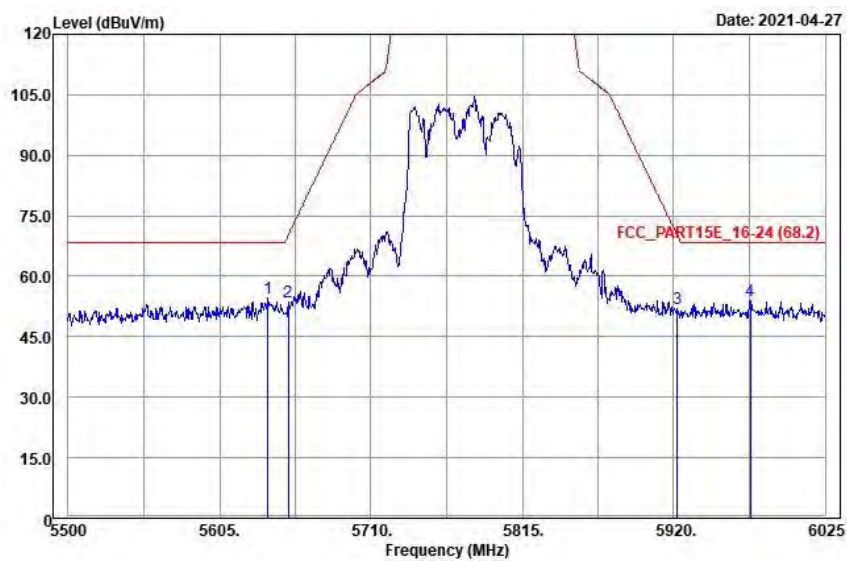
<Spurious Emission> Horizontal



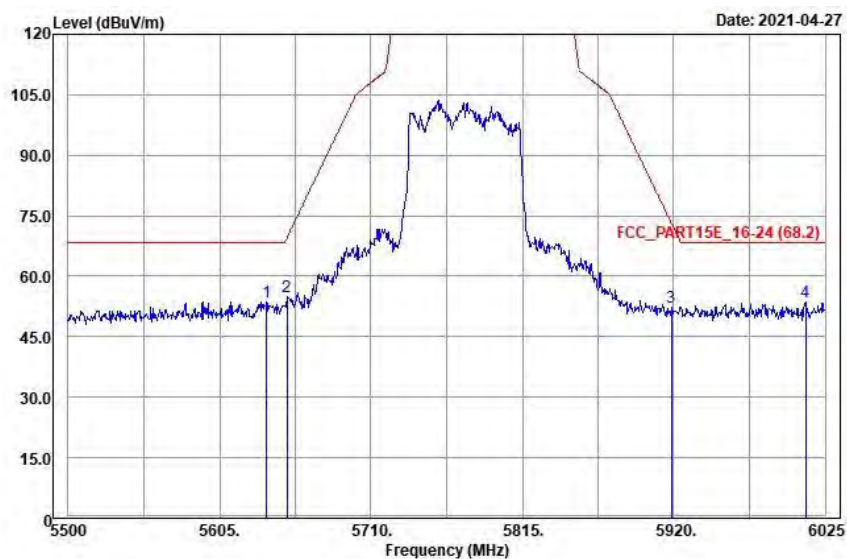
Vertical



<Out of Band Emission (OOBE)> Horizontal



Vertical



<Spurious Emission>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5775	96.53	85.66	10.87			218	116	Average
5775	103.24	92.37	10.87			218	116	Peak
11550	46.52	30.02	16.5	54	-7.48	141	118	Average
11550	56.61	40.11	16.5	74	-17.39	141	118	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5775	97.74	86.87	10.87			205	92	Average
5775	104.91	94.04	10.87			205	92	Peak
11550	45.33	28.83	16.5	54	-8.67	243	109	Average
11550	55.55	39.05	16.5	74	-18.45	243	109	Peak

<Out of Band Emission (OOBE)>

Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5638.6	54.48	43.65	10.83	68.2	-13.72	218	116	Peak
5652.775	53.56	42.69	10.87	70.25	-16.69	218	116	Peak
5922.625	51.98	40.87	11.11	69.96	-17.98	218	116	Peak
5973.025	53.83	42.57	11.26	68.2	-14.37	218	116	Peak
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
5637.55	53.74	42.91	10.83	68.2	-14.46	205	92	Peak
5651.725	55	44.13	10.87	69.48	-14.48	205	92	Peak
5918.425	52.24	41.15	11.09	73.07	-20.83	205	92	Peak
6011.35	53.53	42.18	11.35	68.2	-14.67	205	92	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin Value = Emission Level – Limit value
2. 5775 MHz: Fundamental Frequency
3. *: Out of Restricted Band
4. The other emission levels were very low against the limit.

9 kHz ~ 30 MHz Data:

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

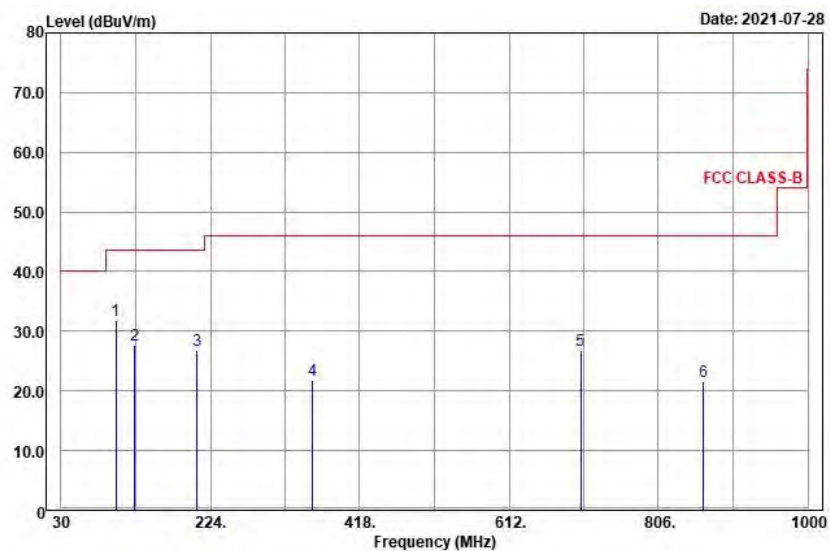
30 MHz ~ 1 GHz Worst-Case Data:

MIMO

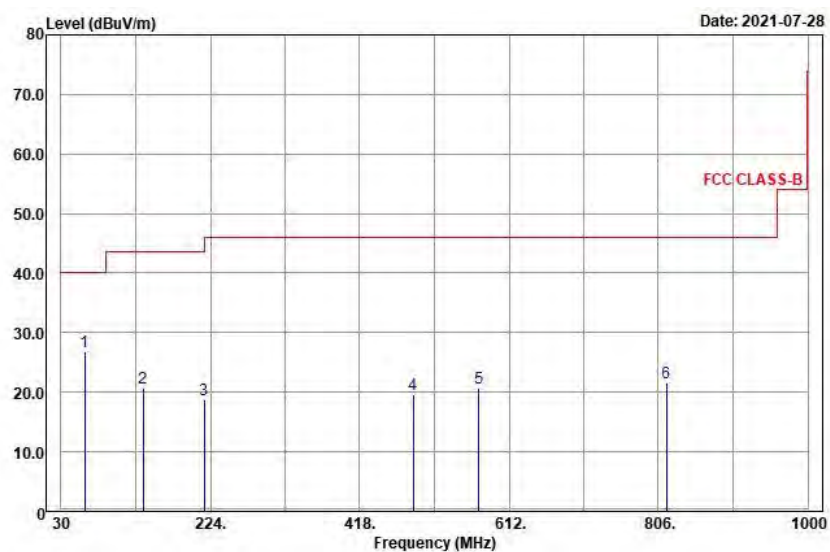
802.11a

EUT Test Condition		Measurement Detail	
Channel	Channel 157	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK) or Quasi-Peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Karl Lee

Horizontal



Vertical



Antenna Polarity & Test Distance: Horizontal at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
101.56	31.82	48.98	-17.16	43.5	-11.68	157	209	QP
125.36	27.62	47.59	-19.97	43.5	-15.88	174	42	QP
206.53	26.87	45.04	-18.17	43.5	-16.63	139	225	QP
356.83	21.76	36.39	-14.63	46	-24.24	132	117	QP
705.62	26.83	35.96	-9.13	46	-19.17	168	135	QP
864.37	21.65	28.14	-6.49	46	-24.35	172	132	QP
Antenna Polarity & Test Distance: Vertical at 3 m								
Frequency (MHz)	Emission Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
60.86	26.84	43.26	-16.42	40	-13.16	298	167	QP
136.29	20.74	41.57	-20.83	43.5	-22.76	136	208	QP
215.67	18.74	36.73	-17.99	43.5	-24.76	159	226	QP
487.24	19.63	32.21	-12.58	46	-26.37	157	96	QP
572.63	20.72	31.82	-11.1	46	-25.28	129	336	QP
816.82	21.49	28.92	-7.43	46	-24.51	108	174	QP

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin Value = Emission Level – Limit value

2. The other emission levels were very low against the limit.

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

- Note: 1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 04, 2020	Dec. 03, 2021
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 04, 2020	Sep. 03, 2021
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 25, 2021	Feb. 24, 2022
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 28, 2020	Aug. 27, 2021
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 1 (Conduction 1).
 3. The VCCI Site Registration No. is C-12040.

4.2.3 Test Procedures

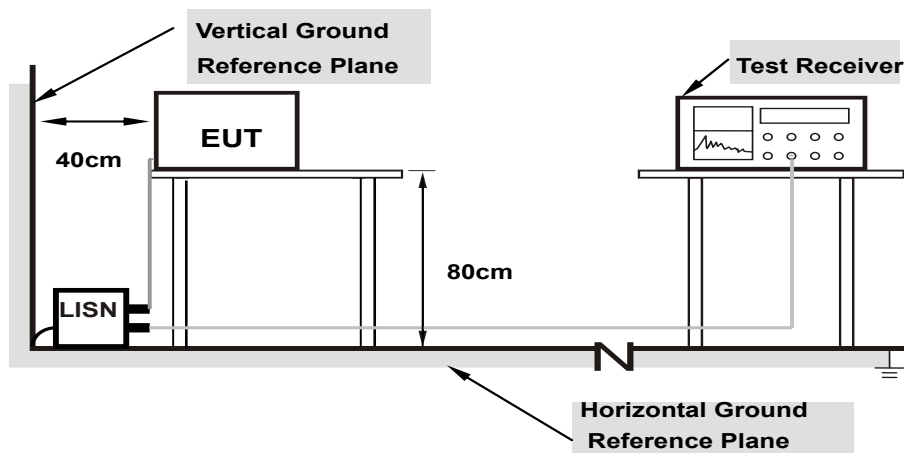
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

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

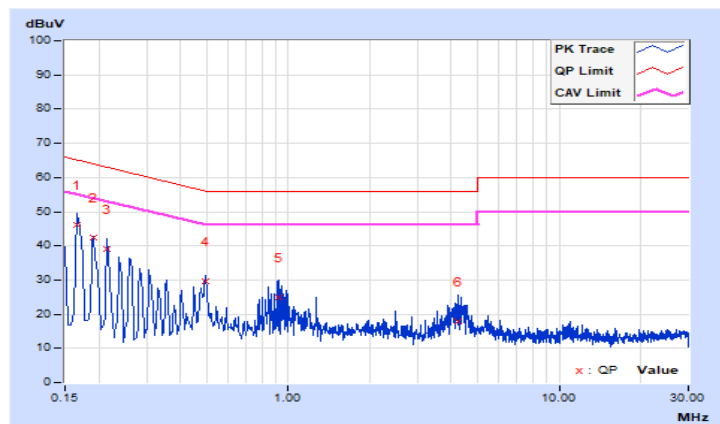
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	22°C, 66%RH
Tested by	Jones Chang	Test Date	2021/7/28

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16600	9.71	36.39	17.81	46.10	27.52	65.16	55.16	-19.06	-27.64
2	0.19000	9.71	32.87	14.84	42.58	24.55	64.04	54.04	-21.46	-29.49
3	0.21400	9.71	29.34	11.65	39.05	21.36	63.05	53.05	-24.00	-31.69
4	0.49400	9.73	19.93	13.41	29.66	23.14	56.10	46.10	-26.44	-22.96
5	0.91800	9.76	15.22	1.63	24.98	11.39	56.00	46.00	-31.02	-34.61
6	4.25000	9.79	8.22	1.10	18.01	10.89	56.00	46.00	-37.99	-35.11

Remarks:

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

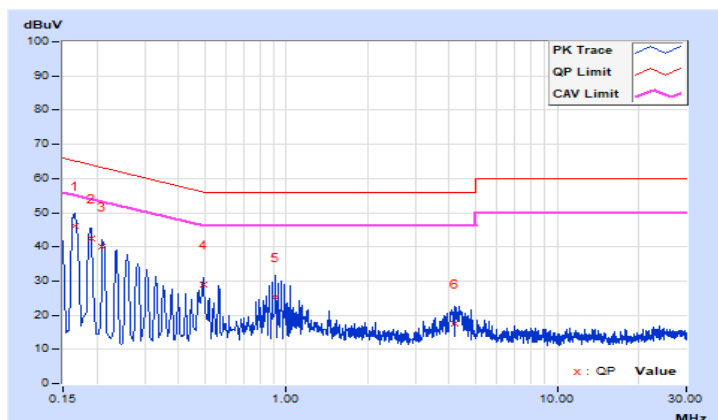


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	22°C, 66%RH
Tested by	Jones Chang	Test Date	2021/7/28

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16579	9.77	36.37	17.20	46.14	26.97	65.17	55.17	-19.03	-28.20
2	0.19000	9.77	32.72	13.82	42.49	23.59	64.04	54.04	-21.55	-30.45
3	0.21000	9.77	30.31	11.55	40.08	21.32	63.21	53.21	-23.13	-31.89
4	0.49400	9.79	19.03	10.52	28.82	20.31	56.10	46.10	-27.28	-25.79
5	0.91400	9.82	15.48	1.94	25.30	11.76	56.00	46.00	-30.70	-34.24
6	4.18600	9.85	7.62	1.37	17.47	11.22	56.00	46.00	-38.53	-34.78

Remarks:

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



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125 mW (21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Mobile and Portable client device	250 mW (24 dBm)
U-NII-2A	√		250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-2C	√		250 mW (24 dBm) or 11 dBm + 10 log B*
U-NII-3	√		1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

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

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

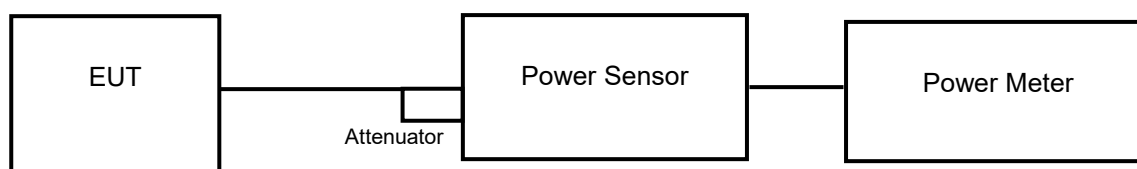
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

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

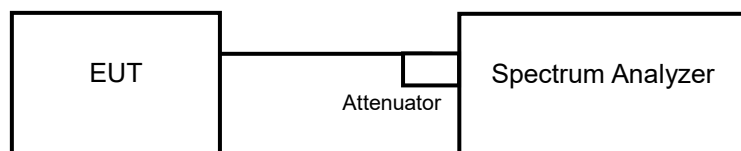
For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup

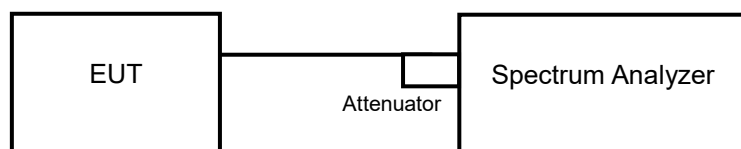
<Power Output Measurement>



or



<26 dB Bandwidth>



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Average Power Measurement

<802.11a, 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT20), 802.11ac (VHT40), 802.11ac (VHT80)>

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

<Straddle Channel (CH144,CH142,CH138)>

- Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99 % occupied bandwidth) of the signal.
- Set sweep trigger to "free run".
- Set RBW = 1 MHz.
- Set VBW $\geq$ 3 MHz
- Number of points in sweep $\geq$ 2 Span / RBW.
- Sweep time $\leq$ (number of points in sweep) * T
- Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
- Detector = RMS.
- Trace mode = max hold.
- Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.
- Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum

26 dB Bandwidth

- Set RBW = approximately 1 % of the emission bandwidth.
- Set the VBW $\geq$ 3 x RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1 %.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Results

Power Output:

SISO_Chain A

802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	45.499	16.58	24	Pass
40	5200	46.238	16.65	24	Pass
48	5240	45.604	16.59	24	Pass
52	5260	83.946	19.24	24	Pass
60	5300	85.704	19.33	24	Pass
64	5320	84.918	19.29	24	Pass
100	5500	84.528	19.27	24	Pass
116	5580	85.901	19.34	24	Pass
140	5700	84.528	19.27	24	Pass
144	5720 (U-NII-2C)	66.069	18.20	22.89	Pass
144	5720 (U-NII-3)	15.849	12.00	30	Pass
144	5720	81.846	19.13	-	-
149	5745	102.565	20.11	30	Pass
157	5785	106.66	20.28	30	Pass
165	5825	103.039	20.13	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log(20.93) = 24.21 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(20.91) = 24.20 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(20.91) = 24.20 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(20.95) = 24.21 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(20.95) = 24.21 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(20.94) = 24.21 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log(15.44) = 22.89 \text{ dBm} < 24 \text{ dBm}$.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	45.29	16.56	24	Pass
40	5200	45.814	16.61	24	Pass
48	5240	45.186	16.55	24	Pass
52	5260	67.764	18.31	24	Pass
60	5300	68.234	18.34	24	Pass
64	5320	67.608	18.30	24	Pass
100	5500	65.615	18.17	24	Pass
116	5580	67.764	18.31	24	Pass
140	5700	66.374	18.22	24	Pass
144	5720 (U-NII-2C)	52.481	17.20	22.93	Pass
144	5720 (U-NII-3)	12.078	10.82	30	Pass
144	5720	64.417	18.09	-	-
149	5745	83.753	19.23	30	Pass
157	5785	84.528	19.27	30	Pass
165	5825	83.56	19.22	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log (21.34) = 24.29 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (21.29) = 24.28 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (21.25) = 24.27 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (21.34) = 24.29 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (21.22) = 24.27 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (21.23) = 24.27 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log (15.60) = 22.93 \text{ dBm} < 24 \text{ dBm}$.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	67.92	18.32	24	Pass
46	5230	68.549	18.36	24	Pass
54	5270	71.45	18.54	24	Pass
62	5310	44.978	16.53	24	Pass
102	5510	45.186	16.55	24	Pass
110	5550	71.945	18.57	24	Pass
134	5670	71.779	18.56	24	Pass
142	5710 (U-NII-2C)	53.703	17.30	24	Pass
142	5710 (U-NII-3)	14.454	11.60	30	Pass
142	5710	68.077	18.33	-	-
151	5755	87.902	19.44	30	Pass
159	5795	87.498	19.42	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log (42.09) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (42.52) = 27.29 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (42.08) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (42.07) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (41.89) = 27.22 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (35.92) = 26.55 \text{ dBm} > 24 \text{ dBm}$.

802.11ac (VHT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	45.604	16.59	24	Pass
40	5200	46.238	16.65	24	Pass
48	5240	45.394	16.57	24	Pass
52	5260	68.234	18.34	24	Pass
60	5300	68.865	18.38	24	Pass
64	5320	68.077	18.33	24	Pass
100	5500	66.222	18.21	24	Pass
116	5580	68.234	18.34	24	Pass
140	5700	66.681	18.24	24	Pass
144	5720 (U-NII-2C)	52.845	17.23	22.93	Pass
144	5720 (U-NII-3)	12.134	10.84	30	Pass
144	5720	64.979	18.13	-	-
149	5745	84.528	19.27	30	Pass
157	5785	85.31	19.31	30	Pass
165	5825	84.14	19.25	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log (21.34) = 24.29 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (21.29) = 24.28 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (21.25) = 24.27 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (21.34) = 24.29 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (21.22) = 24.27 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (21.23) = 24.27 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log (15.60) = 22.93 \text{ dBm} < 24 \text{ dBm}$.

802.11ac (VHT40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	68.391	18.35	24	Pass
46	5230	69.024	18.39	24	Pass
54	5270	71.945	18.57	24	Pass
62	5310	45.29	16.56	24	Pass
102	5510	45.394	16.57	24	Pass
110	5550	72.611	18.61	24	Pass
134	5670	72.277	18.59	24	Pass
142	5710 (U-NII-2C)	53.951	17.32	24	Pass
142	5710 (U-NII-3)	14.521	11.62	30	Pass
142	5710	68.391	18.36	-	-
151	5755	88.512	19.47	30	Pass
159	5795	88.105	19.45	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log (42.09) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (42.52) = 27.29 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (42.08) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (42.07) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (41.89) = 27.22 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (35.92) = 26.55 \text{ dBm} > 24 \text{ dBm}$.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
42	5210	63.241	18.01	24	Pass
58	5290	36.559	15.63	24	Pass
106	5530	42.364	16.27	24	Pass
122	5610	67.764	18.31	24	Pass
138	5690 (U-NII-2C)	54.325	17.35	24	Pass
138	5690 (U-NII-3)	11.298	10.53	30	Pass
138	5690	65.615	18.17	-	-
155	5775	86.099	19.35	30	Pass

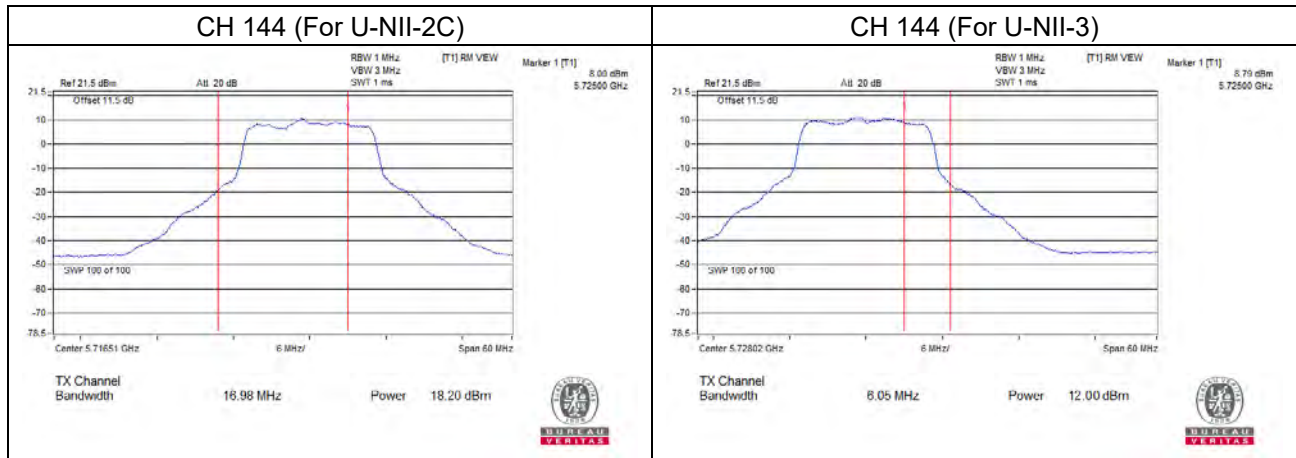
Note:

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

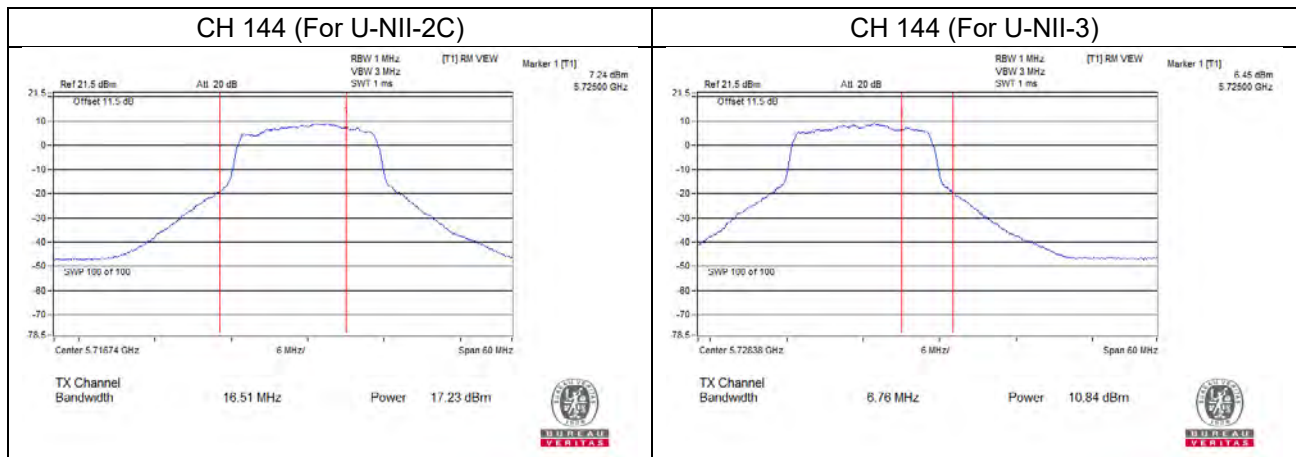
1. $11 \text{ dBm} + 10\log (84.67) = 30.28 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (84.44) = 30.27 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (84.47) = 30.27 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (77.08) = 29.87 \text{ dBm} > 24 \text{ dBm}$.

Straddle channel power plots:

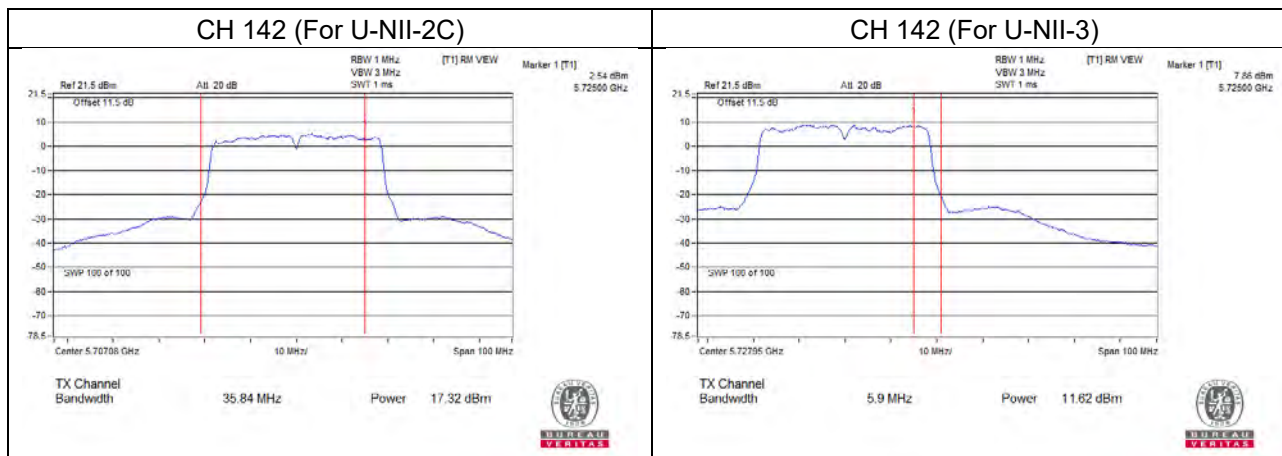
802.11a



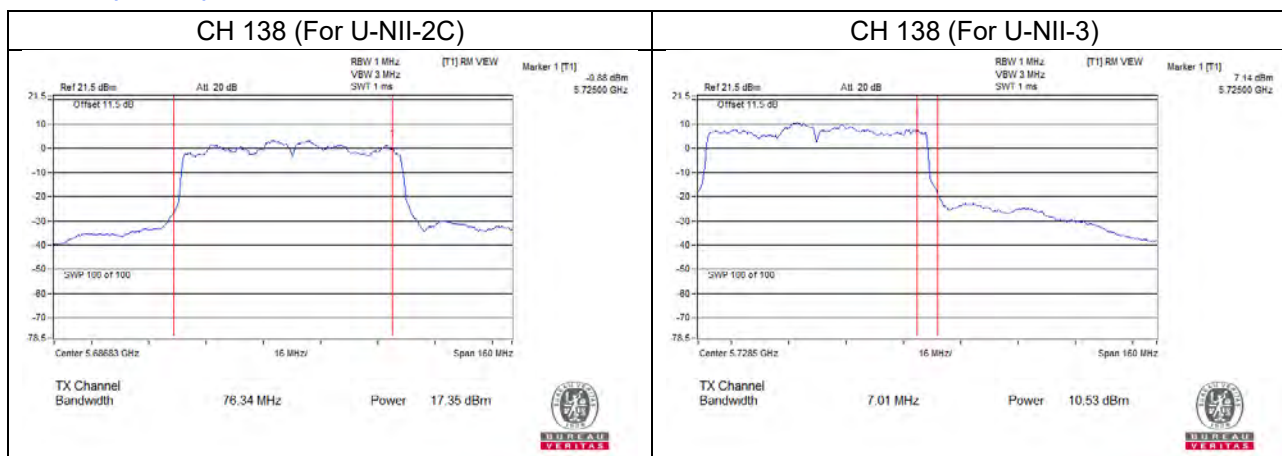
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



26 dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	20.84
40	5200	20.91
48	5240	20.90
52	5260	20.93
60	5300	20.91
64	5320	20.91
100	5500	20.95
116	5580	20.95
140	5700	20.94
144	5720 (U-NII-2C)	15.44
144	5720 (U-NII-3)	5.50

802.11ac (VHT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	21.33
40	5200	21.30
48	5240	21.30
52	5260	21.34
60	5300	21.29
64	5320	21.25
100	5500	21.34
116	5580	21.22
140	5700	21.23
144	5720 (U-NII-2C)	15.60
144	5720 (U-NII-3)	5.70

802.11ac (VHT40)

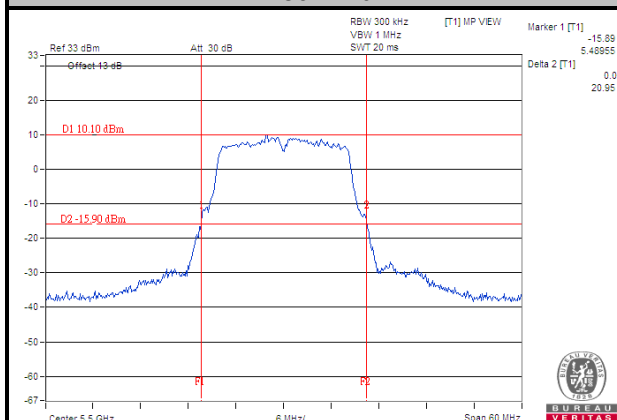
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
38	5190	41.94
46	5230	41.99
54	5270	42.09
62	5310	42.52
102	5510	42.08
110	5550	42.07
134	5670	41.89
142	5710 (U-NII-2C)	35.92
142	5710 (U-NII-3)	5.96

802.11ac (VHT80)

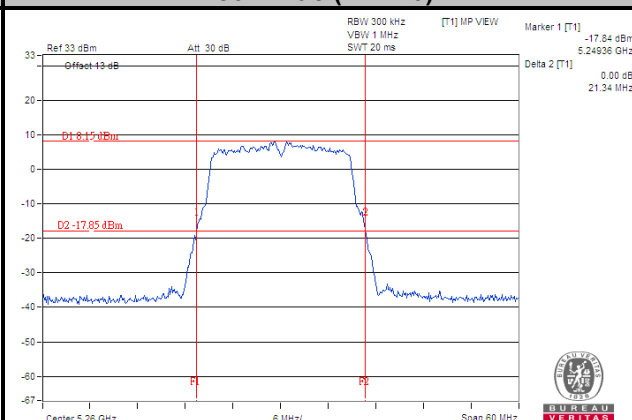
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
42	5210	84.41
58	5290	84.67
106	5530	84.44
122	5610	84.47
138	5690 (U-NII-2C)	77.08
138	5690 (U-NII-3)	7.30

Spectrum Plot of Worst Value

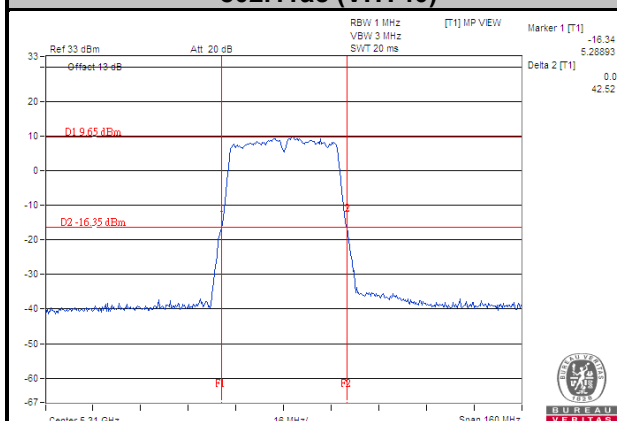
802.11a



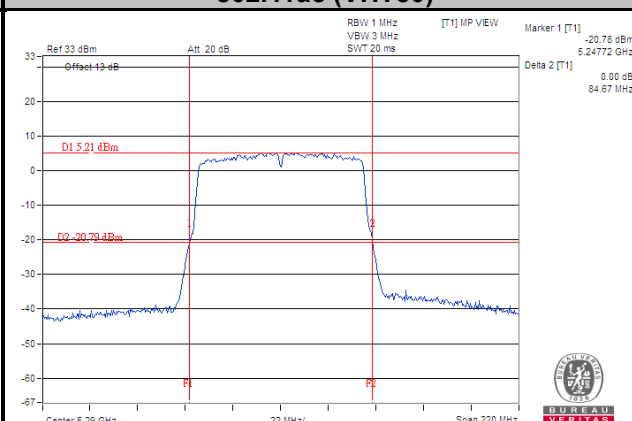
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



SISO_Chain B
802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	45.186	16.55	24	Pass
40	5200	44.771	16.51	24	Pass
48	5240	45.082	16.54	24	Pass
52	5260	88.308	19.46	24	Pass
60	5300	88.716	19.48	24	Pass
64	5320	87.902	19.44	24	Pass
100	5500	89.743	19.53	24	Pass
116	5580	89.95	19.54	24	Pass
140	5700	89.331	19.51	24	Pass
144	5720 (U-NII-2C)	69.502	18.42	22.91	Pass
144	5720 (U-NII-3)	18.535	12.68	30	Pass
144	5720	88.037	19.45	-	-
149	5745	107.895	20.33	30	Pass
157	5785	109.396	20.39	30	Pass
165	5825	108.893	20.37	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log (20.91) = 24.20 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (20.94) = 24.21 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (20.91) = 24.20 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (20.95) = 24.21 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (20.99) = 24.22 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (20.91) = 24.20 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log (15.51) = 22.91 \text{ dBm} < 24 \text{ dBm}$.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	44.157	16.45	24	Pass
40	5200	44.463	16.48	24	Pass
48	5240	44.259	16.46	24	Pass
52	5260	69.823	18.44	24	Pass
60	5300	69.502	18.42	24	Pass
64	5320	70.146	18.46	24	Pass
100	5500	73.282	18.65	24	Pass
116	5580	72.946	18.63	24	Pass
140	5700	72.111	18.58	24	Pass
144	5720 (U-NII-2C)	54.2	17.34	22.93	Pass
144	5720 (U-NII-3)	14.322	11.56	30	Pass
144	5720	68.522	18.36	-	-
149	5745	85.901	19.34	30	Pass
157	5785	86.696	19.38	30	Pass
165	5825	86.298	19.36	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log(21.27) = 24.28 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(21.21) = 24.27 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(21.28) = 24.28 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(21.30) = 24.28 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(21.23) = 24.27 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(21.33) = 24.29 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log(15.60) = 22.93 \text{ dBm} < 24 \text{ dBm}$.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	71.285	18.53	24	Pass
46	5230	69.502	18.42	24	Pass
54	5270	77.804	18.91	24	Pass
62	5310	46.559	16.68	24	Pass
102	5510	49.659	16.96	24	Pass
110	5550	84.14	19.25	24	Pass
134	5670	83.368	19.21	24	Pass
142	5710 (U-NII-2C)	62.661	17.97	24	Pass
142	5710 (U-NII-3)	15.922	12.02	30	Pass
142	5710	78.583	18.95	-	-
151	5755	87.297	19.41	30	Pass
159	5795	86.298	19.36	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log (41.81) = 27.21 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (42.11) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (42.15) = 27.25 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (42.08) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (42.12) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (36.05) = 26.57 \text{ dBm} > 24 \text{ dBm}$.

802.11ac (VHT20)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	44.463	16.48	24	Pass
40	5200	44.668	16.50	24	Pass
48	5240	44.566	16.49	24	Pass
52	5260	70.307	18.47	24	Pass
60	5300	70.146	18.46	24	Pass
64	5320	70.632	18.49	24	Pass
100	5500	73.961	18.69	24	Pass
116	5580	73.451	18.66	24	Pass
140	5700	72.778	18.62	24	Pass
144	5720 (U-NII-2C)	54.45	17.36	22.93	Pass
144	5720 (U-NII-3)	14.388	11.58	30	Pass
144	5720	68.838	18.38	-	-
149	5745	86.497	19.37	30	Pass
157	5785	87.498	19.42	30	Pass
165	5825	86.696	19.38	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log (21.27) = 24.28 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (21.21) = 24.27 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (21.28) = 24.28 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (21.30) = 24.28 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (21.23) = 24.27 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (21.33) = 24.29 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log (15.60) = 22.93 \text{ dBm} < 24 \text{ dBm}$.

802.11ac (VHT40)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	71.945	18.57	24	Pass
46	5230	69.984	18.45	24	Pass
54	5270	78.343	18.94	24	Pass
62	5310	46.989	16.72	24	Pass
102	5510	50.234	17.01	24	Pass
110	5550	84.723	19.28	24	Pass
134	5670	83.946	19.24	24	Pass
142	5710 (U-NII-2C)	63.096	18.00	24	Pass
142	5710 (U-NII-3)	16.069	12.06	30	Pass
142	5710	79.165	18.99	-	-
151	5755	87.902	19.44	30	Pass
159	5795	86.896	19.39	30	Pass

Note:

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

1. $11 \text{ dBm} + 10\log(41.81) = 27.21 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(42.11) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(42.15) = 27.25 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(42.08) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(42.12) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(36.05) = 26.57 \text{ dBm} > 24 \text{ dBm}$.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
42	5210	67.608	18.30	24	Pass
58	5290	39.084	15.92	24	Pass
106	5530	45.499	16.58	24	Pass
122	5610	75.336	18.77	24	Pass
138	5690 (U-NII-2C)	57.412	17.59	24	Pass
138	5690 (U-NII-3)	14.289	11.55	30	Pass
138	5690	71.701	18.56	-	-
155	5775	89.331	19.51	30	Pass

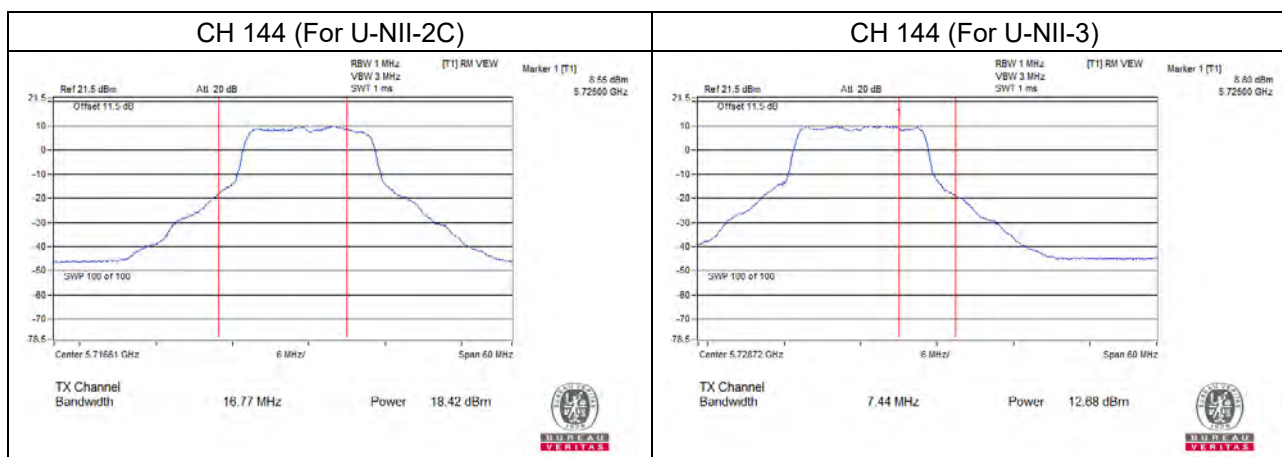
Note:

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

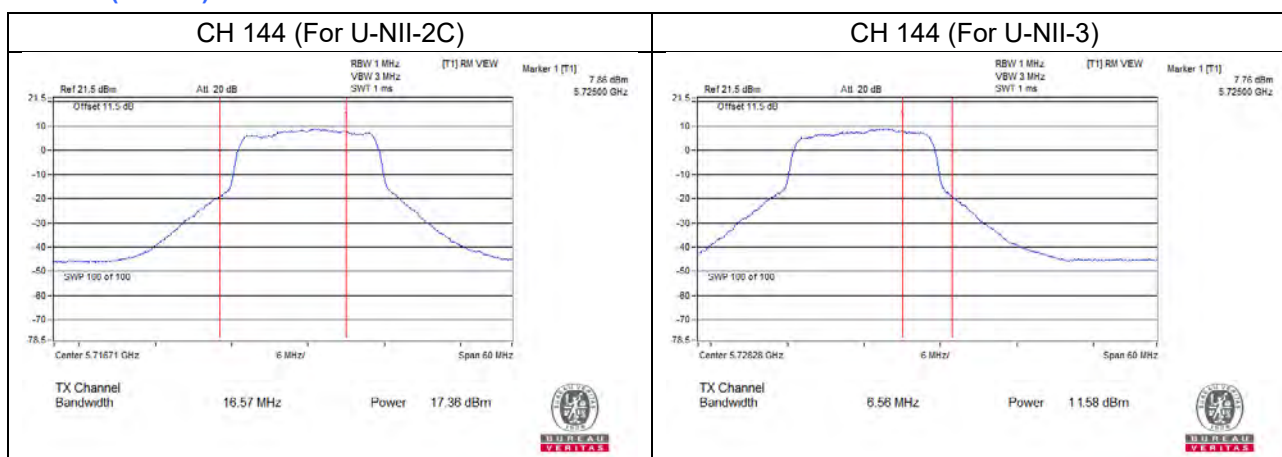
1. $11 \text{ dBm} + 10\log(84.58) = 30.27 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(84.34) = 30.26 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(84.97) = 30.29 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(77.31) = 29.88 \text{ dBm} > 24 \text{ dBm}$.

Straddle channel power plots:

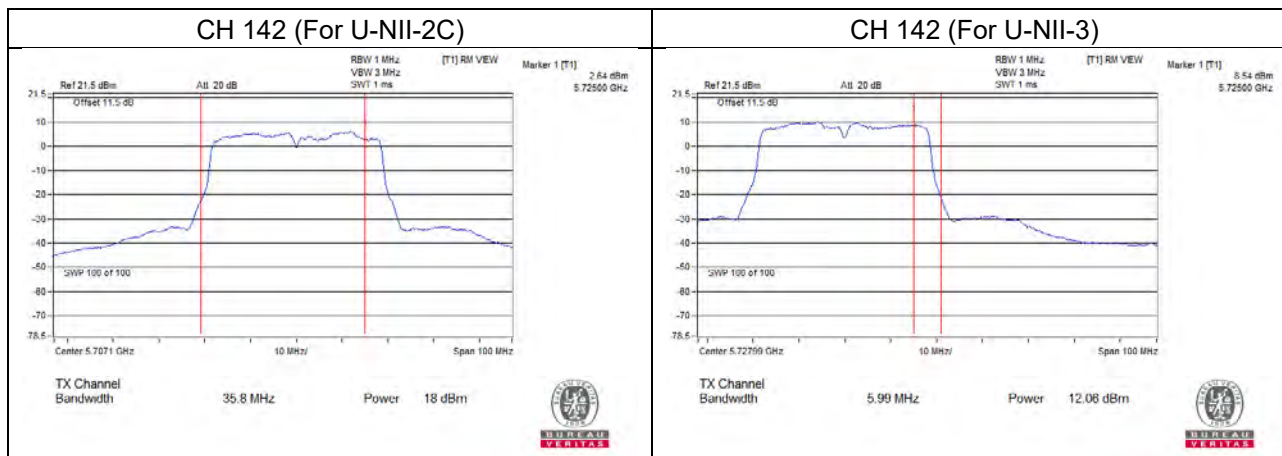
802.11a



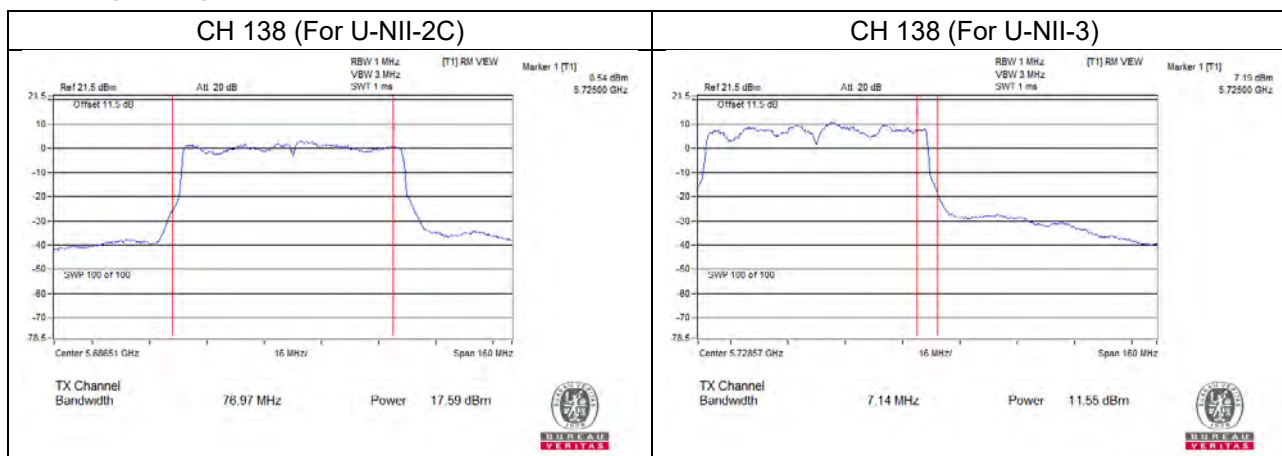
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



26 dB Bandwidth:

802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	20.90
40	5200	20.88
48	5240	20.90
52	5260	20.91
60	5300	20.94
64	5320	20.91
100	5500	20.95
116	5580	20.99
140	5700	20.91
144	5720 (U-NII-2C)	15.51
144	5720 (U-NII-3)	5.48

802.11ac (VHT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
36	5180	21.22
40	5200	21.25
48	5240	21.15
52	5260	21.27
60	5300	21.21
64	5320	21.28
100	5500	21.30
116	5580	21.23
140	5700	21.33
144	5720 (U-NII-2C)	15.60
144	5720 (U-NII-3)	5.70

802.11ac (VHT40)

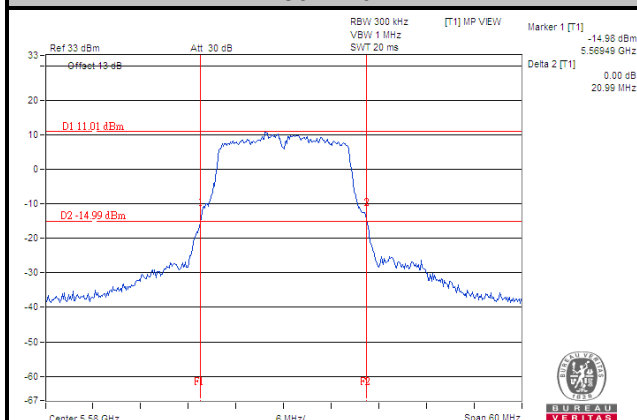
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
38	5190	41.83
46	5230	42.07
54	5270	41.81
62	5310	42.11
102	5510	42.15
110	5550	42.08
134	5670	42.12
142	5710 (U-NII-2C)	36.05
142	5710 (U-NII-3)	5.95

802.11ac (VHT80)

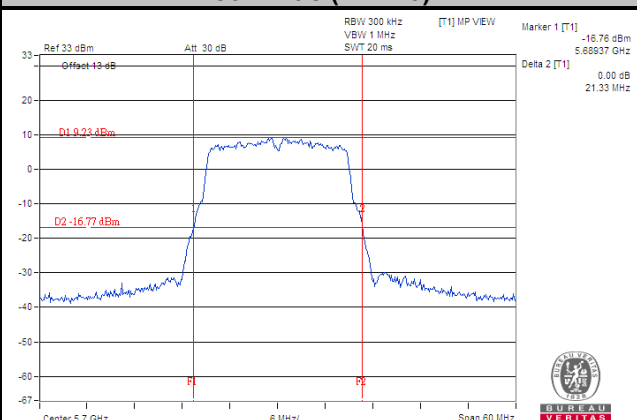
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)
42	5210	84.37
58	5290	84.58
106	5530	84.34
122	5610	84.97
138	5690 (U-NII-2C)	77.31
138	5690 (U-NII-3)	7.10

Spectrum Plot of Worst Value

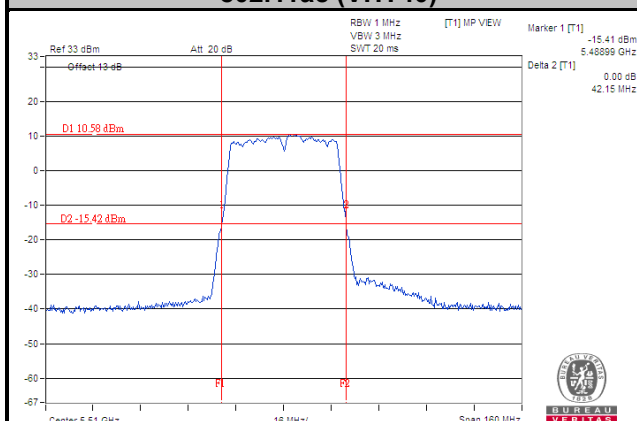
802.11a



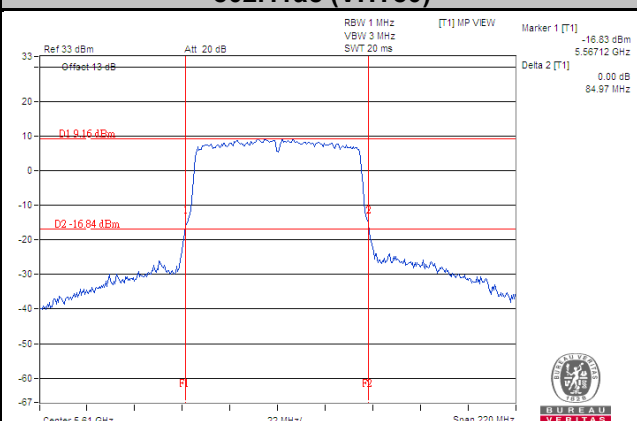
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



MIMO
802.11a

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain A	Chain B				
36	5180	10.89	11.34	25.889	14.13	24	Pass
40	5200	10.91	11.37	26.04	14.16	24	Pass
48	5240	11.85	11.32	28.863	14.60	24	Pass
52	5260	17.21	17.52	109.095	20.38	24	Pass
60	5300	17.24	17.57	110.114	20.42	24	Pass
64	5320	17.05	17.50	106.933	20.29	24	Pass
100	5500	17.50	17.74	115.663	20.63	24	Pass
116	5580	17.55	17.79	117.003	20.68	24	Pass
140	5700	17.51	17.71	115.384	20.62	24	Pass
144	5720 (U-NII-2C)	16.36	16.40	86.903	19.39	22.88	Pass
144	5720 (U-NII-3)	9.48	9.99	18.849	12.75	30	Pass
144	5720	17.17	17.29	105.699	20.24	-	-
149	5745	20.36	20.23	214.081	23.31	30	Pass
157	5785	20.41	20.35	218.293	23.39	30	Pass
165	5825	20.31	20.26	213.568	23.30	30	Pass

Note:

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

Chain A

1. $11 \text{ dBm} + 10\log (21.04) = 24.23 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (20.78) = 24.18 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (21.03) = 24.23 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (20.83) = 24.19 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (20.76) = 24.17 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (20.74) = 24.17 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log (15.43) = 22.88 \text{ dBm} < 24 \text{ dBm}$.

Chain B

1. $11 \text{ dBm} + 10\log (20.87) = 24.20 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (20.84) = 24.19 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (20.86) = 24.19 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (20.86) = 24.19 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (20.87) = 24.20 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (20.89) = 24.20 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log (15.50) = 22.90 \text{ dBm} < 24 \text{ dBm}$.

802.11n (HT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain A	Chain B				
36	5180	11.11	11.52	27.103	14.33	24	Pass
40	5200	11.21	11.56	27.535	14.40	24	Pass
48	5240	11.10	11.50	27.008	14.31	24	Pass
52	5260	15.78	16.16	79.149	18.98	24	Pass
60	5300	15.89	16.21	80.598	19.06	24	Pass
64	5320	15.88	16.14	79.841	19.02	24	Pass
100	5500	15.94	16.42	83.118	19.20	24	Pass
116	5580	16.05	16.47	84.633	19.28	24	Pass
140	5700	16.00	16.40	83.462	19.21	24	Pass
144	5720 (U-NII-2C)	15.37	15.33	68.554	18.36	22.92	Pass
144	5720 (U-NII-3)	6.65	8.81	12.227	10.87	30	Pass
144	5720	15.91	16.20	80.681	19.07	-	-
149	5745	19.23	19.37	170.25	22.31	30	Pass
157	5785	19.32	19.42	173.005	22.38	30	Pass
165	5825	19.24	19.40	171.042	22.33	30	Pass

Note:

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

Chain A

1. $11 \text{ dBm} + 10\log(21.25) = 24.27 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(21.31) = 24.29 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(21.12) = 24.25 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(21.10) = 24.24 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(21.00) = 24.22 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(21.00) = 24.22 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log(15.56) = 22.92 \text{ dBm} < 24 \text{ dBm}$.

Chain B

1. $11 \text{ dBm} + 10\log(21.40) = 24.30 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(21.41) = 24.31 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(21.48) = 24.32 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(21.27) = 24.28 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(21.37) = 24.30 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(21.28) = 24.28 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log(15.61) = 22.93 \text{ dBm} < 24 \text{ dBm}$.

802.11n (HT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain A	Chain B				
38	5190	14.40	14.50	55.726	17.46	24	Pass
46	5230	14.38	14.52	55.73	17.46	24	Pass
54	5270	18.50	18.90	148.419	21.71	24	Pass
62	5310	16.60	16.65	91.947	19.64	24	Pass
102	5510	16.70	16.82	94.857	19.77	24	Pass
110	5550	18.67	19.01	153.237	21.85	24	Pass
134	5670	17.65	18.97	137.096	21.37	24	Pass
142	5710 (U-NII-2C)	17.26	17.28	106.667	20.28	24	Pass
142	5710 (U-NII-3)	10.73	10.71	23.606	13.73	30	Pass
142	5710	18.13	18.14	130.176	21.15	-	-
151	5755	19.17	19.32	168.11	22.26	30	Pass
159	5795	19.22	19.30	168.674	22.27	30	Pass

Note:

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

Chain A

1. $11 \text{ dBm} + 10\log(42.09) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(42.21) = 27.25 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(41.96) = 27.23 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(41.90) = 27.22 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(42.09) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(35.94) = 26.56 \text{ dBm} > 24 \text{ dBm}$.

Chain B

1. $11 \text{ dBm} + 10\log(42.17) = 27.25 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(42.29) = 27.26 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(42.20) = 27.25 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(42.25) = 27.26 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(42.09) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(36.05) = 26.57 \text{ dBm} > 24 \text{ dBm}$.

802.11ac (VHT20)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain A	Chain B				
36	5180	11.14	11.55	27.291	14.36	24	Pass
40	5200	11.25	11.59	27.756	14.43	24	Pass
48	5240	11.13	11.52	27.162	14.34	24	Pass
52	5260	15.81	16.19	79.698	19.01	24	Pass
60	5300	15.92	16.24	81.157	19.09	24	Pass
64	5320	15.91	16.17	80.394	19.05	24	Pass
100	5500	15.97	16.45	83.694	19.23	24	Pass
116	5580	16.08	16.51	85.322	19.31	24	Pass
140	5700	16.02	16.43	83.949	19.24	24	Pass
144	5720 (U-NII-2C)	15.39	15.35	68.871	18.38	22.92	Pass
144	5720 (U-NII-3)	8.68	8.84	15.035	11.77	30	Pass
144	5720	16.22	16.22	83.759	19.23	-	-
149	5745	19.27	19.40	171.624	22.35	30	Pass
157	5785	19.34	19.45	174.006	22.41	30	Pass
165	5825	19.26	19.42	171.832	22.35	30	Pass

Note:

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

Chain A

1. $11 \text{ dBm} + 10\log (21.25) = 24.27 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (21.31) = 24.29 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (21.12) = 24.25 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (21.10) = 24.24 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (21.00) = 24.22 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (21.00) = 24.22 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log (15.56) = 22.92 \text{ dBm} < 24 \text{ dBm}$.

Chain B

1. $11 \text{ dBm} + 10\log (21.40) = 24.30 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (21.41) = 24.31 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (21.48) = 24.32 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (21.27) = 24.28 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log (21.37) = 24.30 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log (21.28) = 24.28 \text{ dBm} > 24 \text{ dBm}$.
7. $11 \text{ dBm} + 10\log (15.61) = 22.93 \text{ dBm} < 24 \text{ dBm}$.

802.11ac (VHT40)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain A	Chain B				
38	5190	14.43	14.53	56.112	17.49	24	Pass
46	5230	14.42	14.55	56.18	17.50	24	Pass
54	5270	18.52	18.93	149.284	21.74	24	Pass
62	5310	16.63	16.67	92.477	19.66	24	Pass
102	5510	16.72	16.84	95.295	19.79	24	Pass
110	5550	18.71	19.05	154.655	21.89	24	Pass
134	5670	17.68	19.01	138.23	21.41	24	Pass
142	5710 (U-NII-2C)	17.29	17.30	107.283	20.31	24	Pass
142	5710 (U-NII-3)	10.76	10.73	23.743	13.76	30	Pass
142	5710	18.16	18.16	130.927	21.17	-	-
151	5755	19.21	19.34	169.269	22.29	30	Pass
159	5795	19.24	19.32	169.453	22.29	30	Pass

Note:

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

Chain A

1. $11 \text{ dBm} + 10\log(42.09) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(42.21) = 27.25 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(41.96) = 27.23 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(41.90) = 27.22 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(42.09) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(35.94) = 26.56 \text{ dBm} > 24 \text{ dBm}$.

Chain B

1. $11 \text{ dBm} + 10\log(42.17) = 27.25 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log(42.29) = 27.26 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log(42.20) = 27.25 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log(42.25) = 27.26 \text{ dBm} > 24 \text{ dBm}$.
5. $11 \text{ dBm} + 10\log(42.09) = 27.24 \text{ dBm} > 24 \text{ dBm}$.
6. $11 \text{ dBm} + 10\log(36.05) = 26.57 \text{ dBm} > 24 \text{ dBm}$.

802.11ac (VHT80)

Channel	Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain A	Chain B				
42	5210	15.93	16.31	81.93	19.13	24	Pass
58	5290	14.15	14.31	52.979	17.24	24	Pass
106	5530	16.51	16.75	92.086	19.64	24	Pass
122	5610	18.49	18.62	143.41	21.57	24	Pass
138	5690 (U-NII-2C)	18.16	18.27	132.607	21.23	24	Pass
138	5690 (U-NII-3)	11.82	11.73	30.099	14.79	30	Pass
138	5690	19.06	19.14	162.555	22.11	-	-
155	5775	19.35	19.44	174.002	22.41	30	Pass

Note:

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

Chain A

1. $11 \text{ dBm} + 10\log (83.93) = 30.24 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (84.56) = 30.27 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (83.89) = 30.24 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (77.26) = 29.88 \text{ dBm} > 24 \text{ dBm}$.

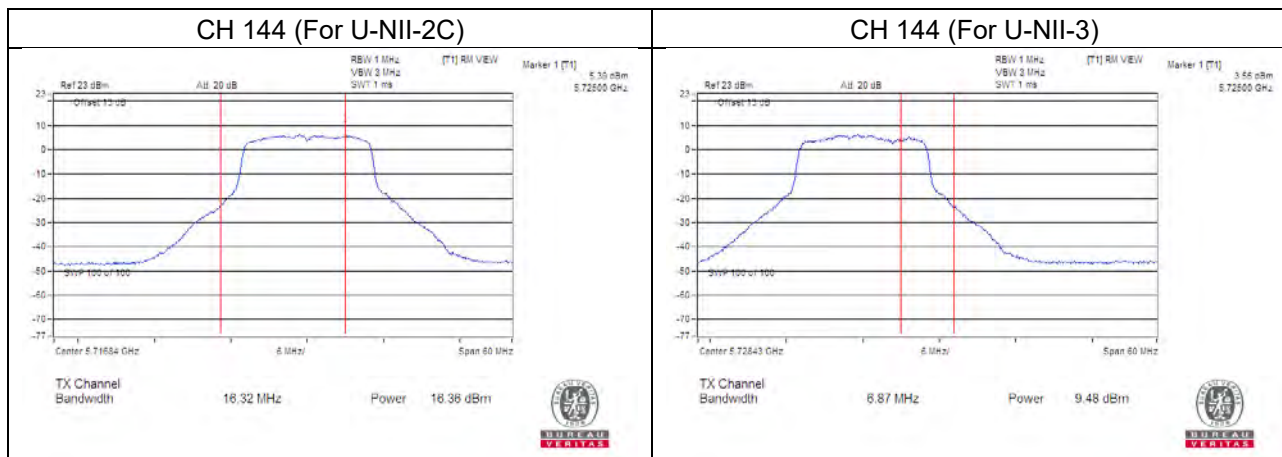
Chain B

1. $11 \text{ dBm} + 10\log (83.51) = 30.22 \text{ dBm} > 24 \text{ dBm}$.
2. $11 \text{ dBm} + 10\log (83.34) = 30.21 \text{ dBm} > 24 \text{ dBm}$.
3. $11 \text{ dBm} + 10\log (83.55) = 30.22 \text{ dBm} > 24 \text{ dBm}$.
4. $11 \text{ dBm} + 10\log (76.72) = 29.85 \text{ dBm} > 24 \text{ dBm}$.

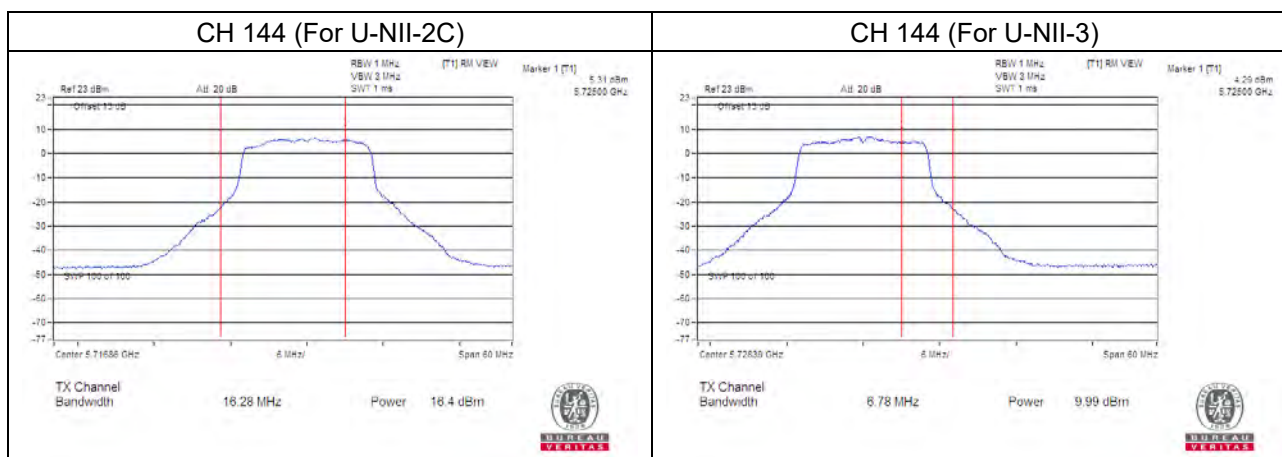
Straddle channel power plots:

802.11a

Chain A

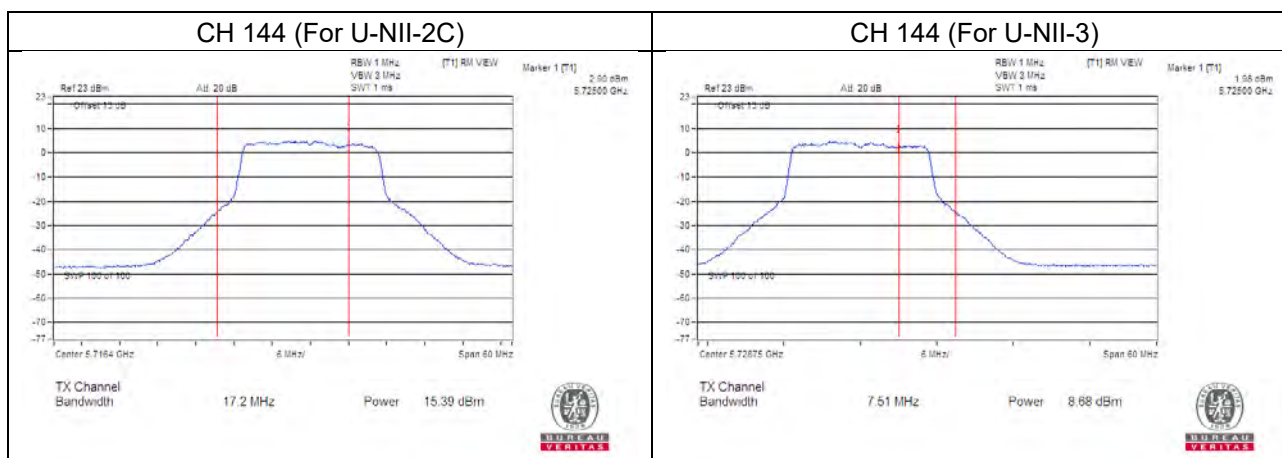


Chain B

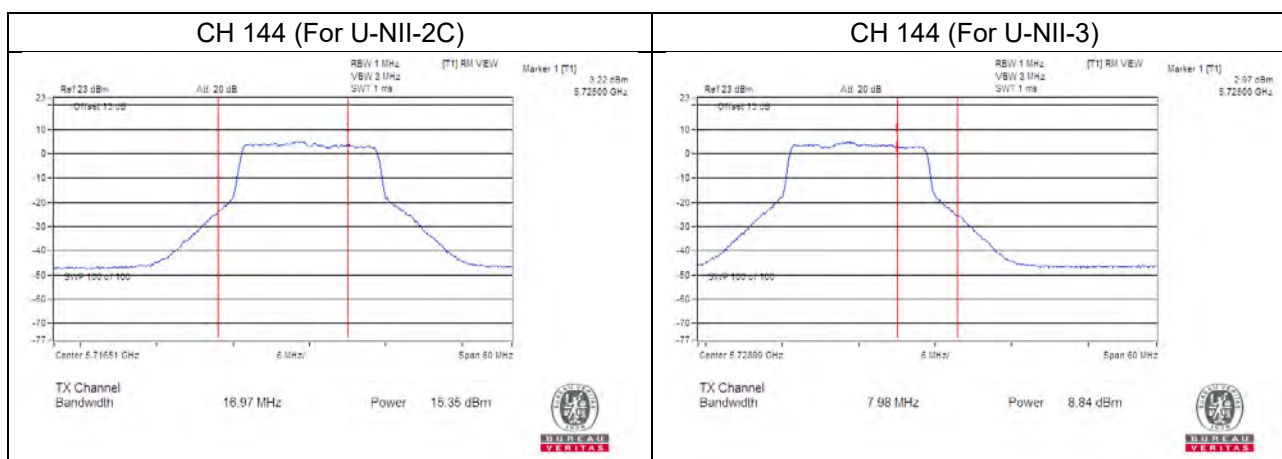


802.11ac (VHT20)

Chain A

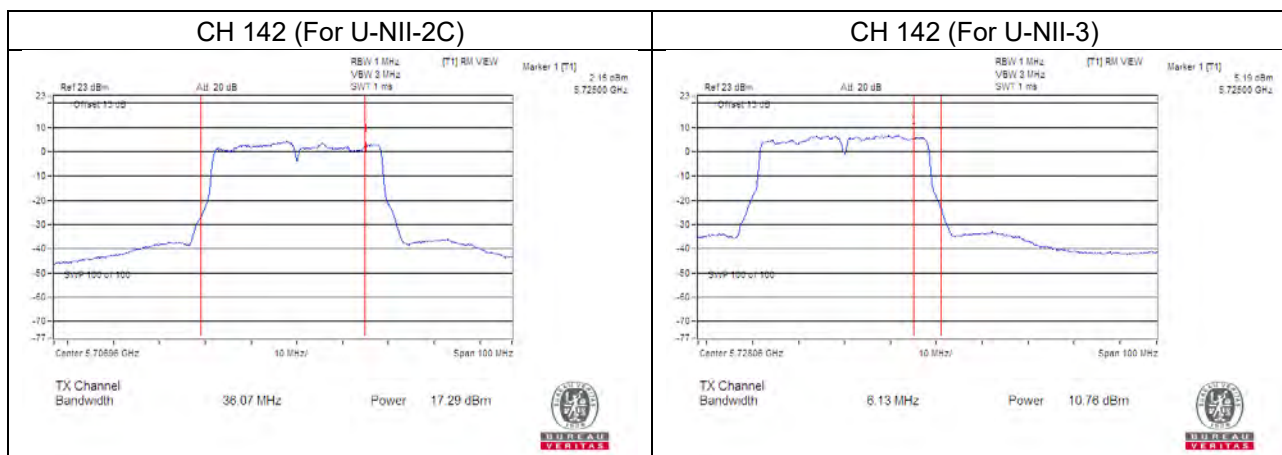


Chain B

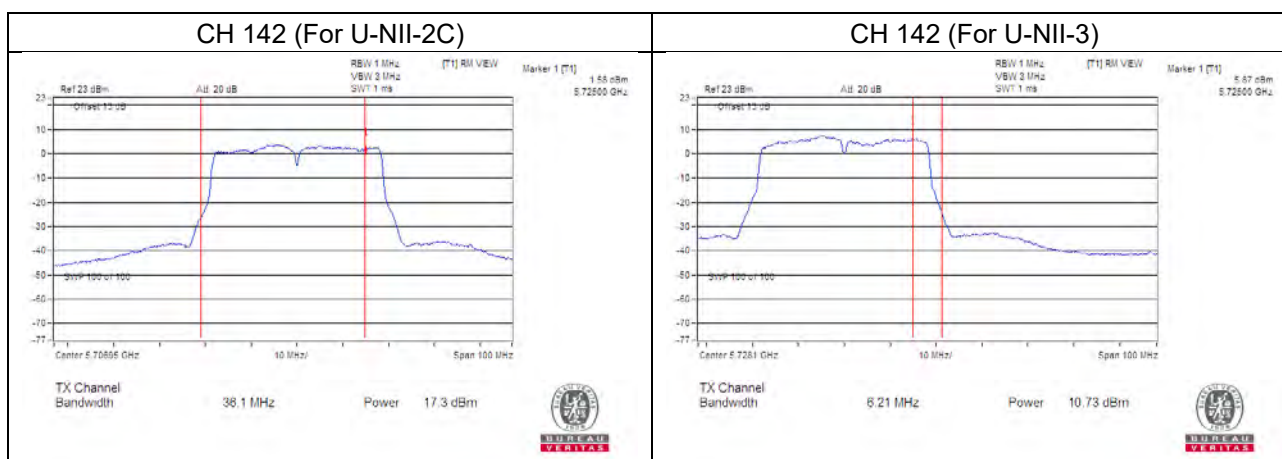


802.11ac (VHT40)

Chain A

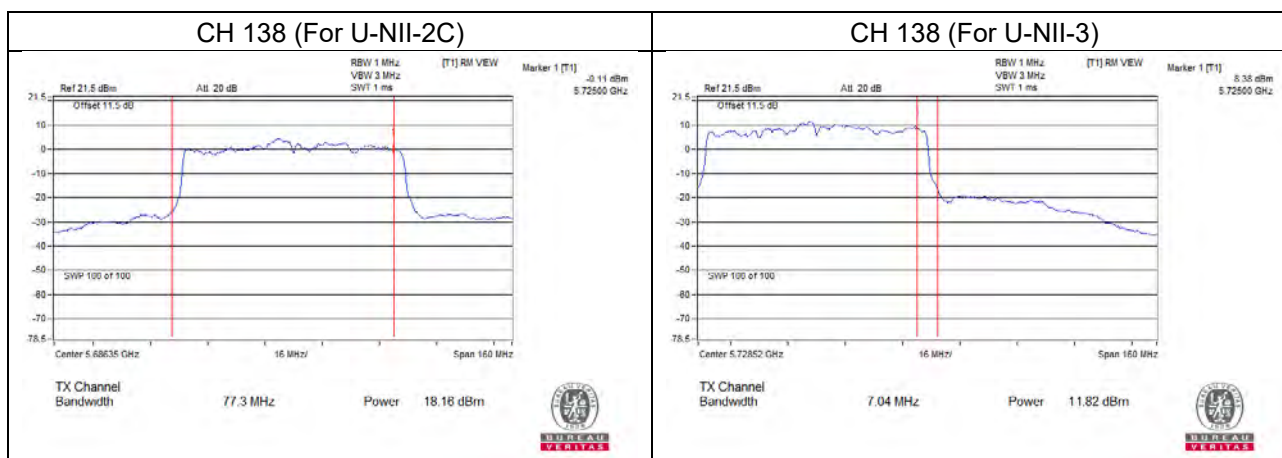


Chain B

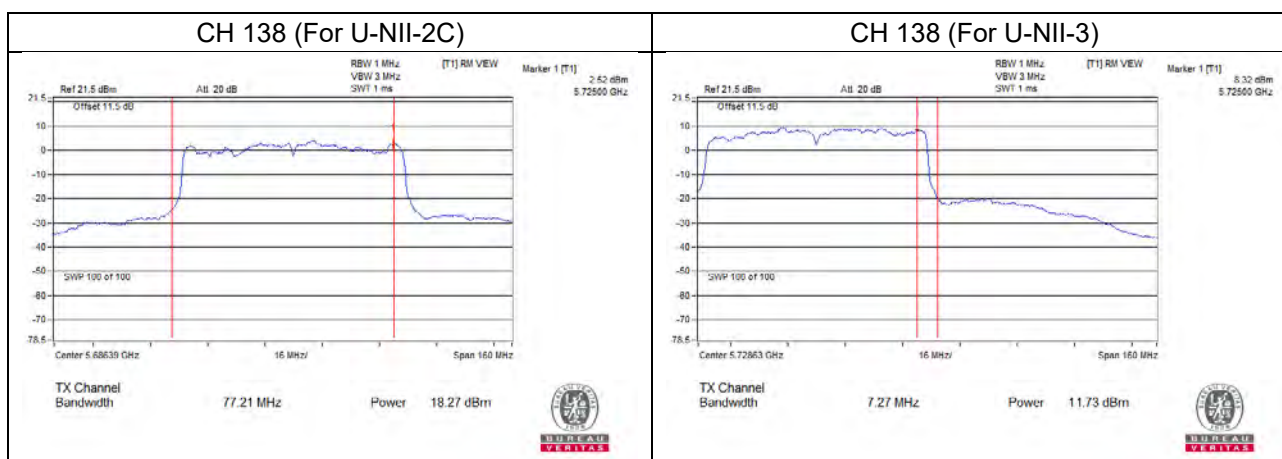


802.11ac (VHT80)

Chain A



Chain B



26 dB Bandwidth:
802.11a

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain A	Chain B
36	5180	20.73	20.87
40	5200	21.09	20.82
48	5240	21.00	20.89
52	5260	21.04	20.87
60	5300	20.78	20.84
64	5320	21.03	20.86
100	5500	20.83	20.86
116	5580	20.76	20.87
140	5700	20.74	20.89
144	5720 (U-NII-2C)	15.43	15.50
144	5720 (U-NII-3)	5.39	5.41

802.11ac (VHT20)

Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain A	Chain B
36	5180	21.48	21.33
40	5200	21.11	21.25
48	5240	21.13	21.35
52	5260	21.25	21.40
60	5300	21.31	21.41
64	5320	21.12	21.48
100	5500	21.10	21.27
116	5580	21.00	21.37
140	5700	21.00	21.28
144	5720 (U-NII-2C)	15.56	15.61
144	5720 (U-NII-3)	5.72	5.77

802.11ac (VHT40)

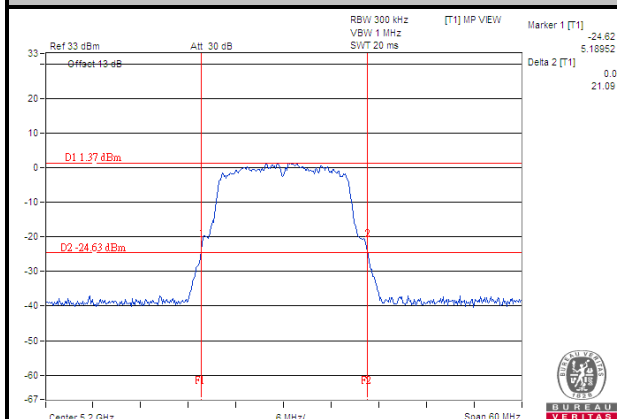
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain A	Chain B
38	5190	42.22	42.16
46	5230	42.03	42.38
54	5270	42.09	42.17
62	5310	42.21	42.29
102	5510	41.96	42.20
110	5550	41.90	42.25
134	5670	42.09	42.09
142	5710 (U-NII-2C)	35.94	36.05
142	5710 (U-NII-3)	5.94	6.08

802.11ac (VHT80)

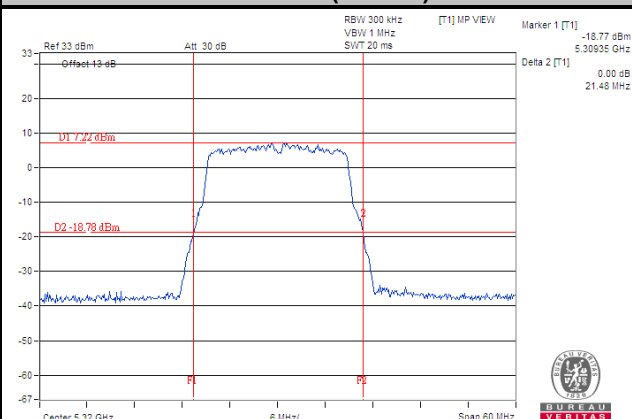
Channel	Frequency (MHz)	26 dBc Bandwidth (MHz)	
		Chain A	Chain B
42	5210	84.26	83.49
58	5290	83.93	83.51
106	5530	84.56	83.34
122	5610	83.89	83.55
138	5690 (U-NII-2C)	77.26	76.72
138	5690 (U-NII-3)	7.34	6.94

Spectrum Plot of Worst Value

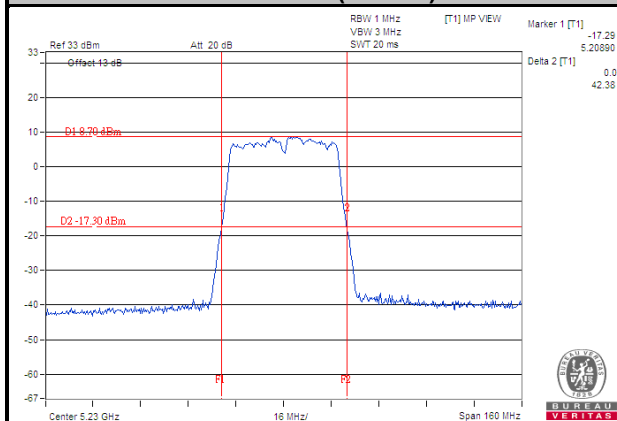
802.11a



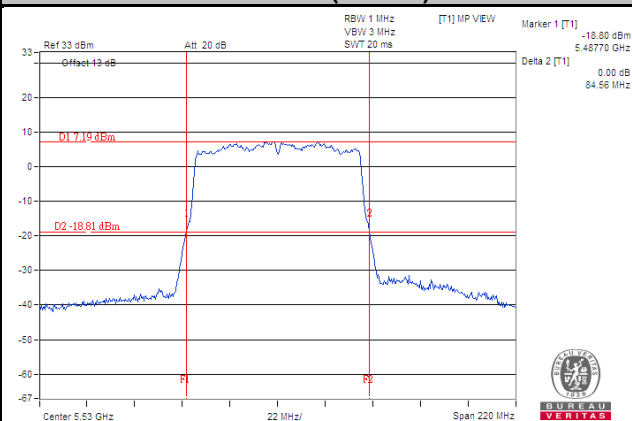
802.11ac (VHT20)



802.11ac (VHT40)

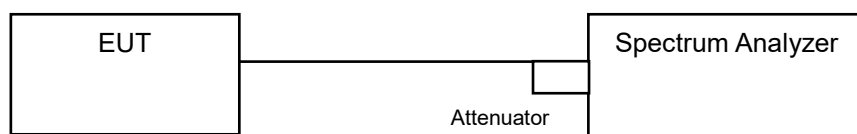


802.11ac (VHT80)



4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Results

SISO_Chain A

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	16.56
40	5200	16.56
48	5240	16.56
52	5260	16.56
60	5300	16.68
64	5320	16.68
100	5500	16.56
116	5580	16.68
140	5700	16.68
144	5720 (U-NII-2C)	13.40
144	5720 (U-NII-3)	3.28
149	5745	16.68
157	5785	16.56
165	5825	16.68

802.11ac (VHT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.76
40	5200	17.76
48	5240	17.76
52	5260	17.76
60	5300	17.76
64	5320	17.76
100	5500	17.76
116	5580	17.76
140	5700	17.76
144	5720 (U-NII-2C)	13.88
144	5720 (U-NII-3)	3.88
149	5745	17.76
157	5785	17.76
165	5825	17.76

802.11ac (VHT40)

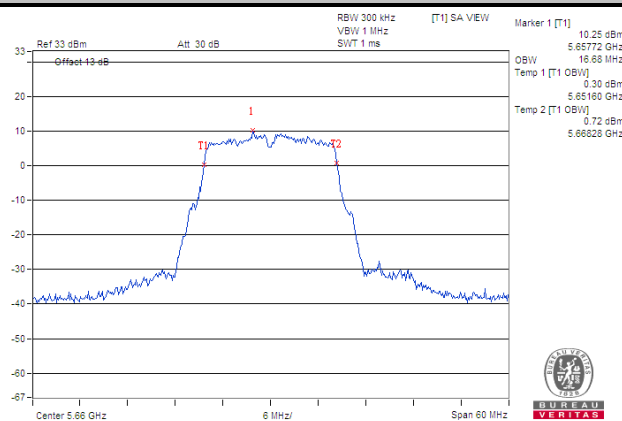
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	36.60
46	5230	36.48
54	5270	36.60
62	5310	36.60
102	5510	36.60
110	5550	36.60
134	5670	36.60
142	5710 (U-NII-2C)	33.36
142	5710 (U-NII-3)	3.36
151	5755	36.48
159	5795	36.48

802.11ac (VHT80)

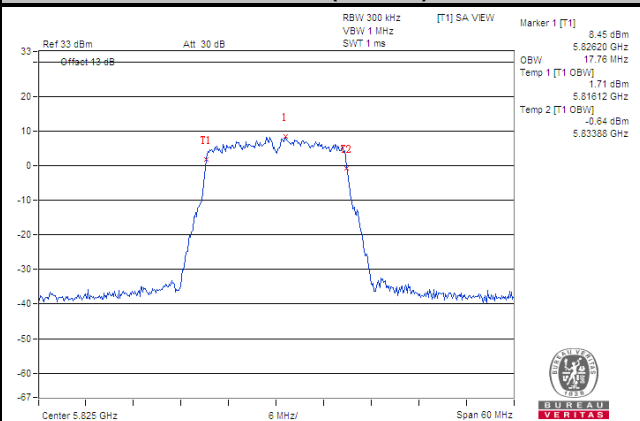
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
42	5210	75.84
58	5290	75.84
106	5530	75.84
122	5610	75.84
138	5690 (U-NII-2C)	72.92
138	5690 (U-NII-3)	2.92
155	5775	75.84

Spectrum Plot of Worst Value

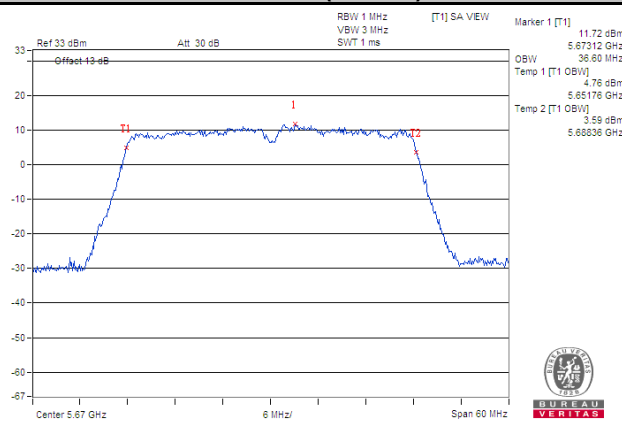
802.11a



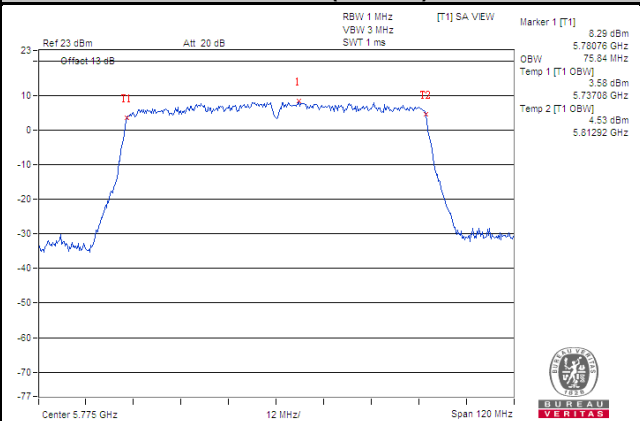
802.11ac (VHT20)



802.11ac (VHT40)



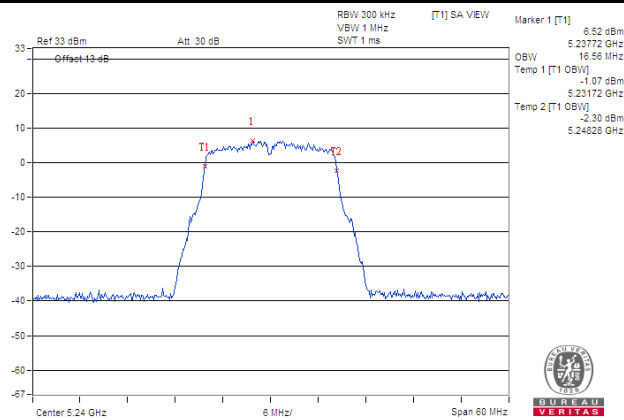
802.11ac (VHT80)



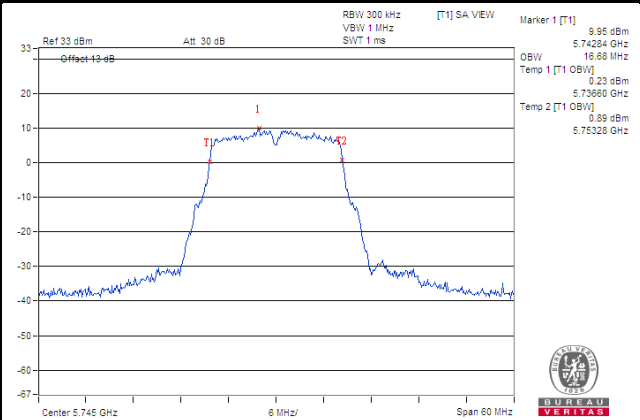
Spectrum Plot for Nearby DFS Band

802.11a

Ch 48 (5240 MHz)

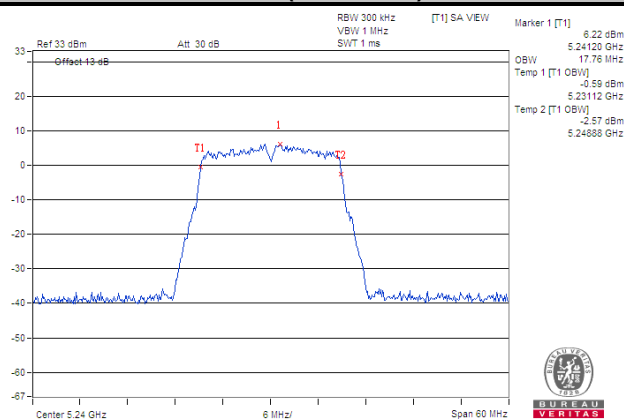


Ch 149 (5745 MHz)

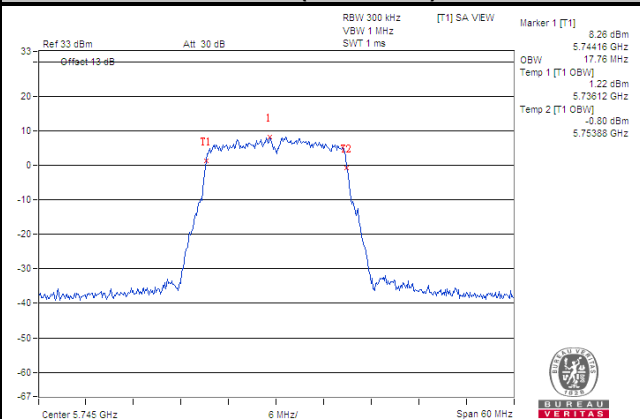


802.11ac (VHT20)

Ch 48 (5240 MHz)

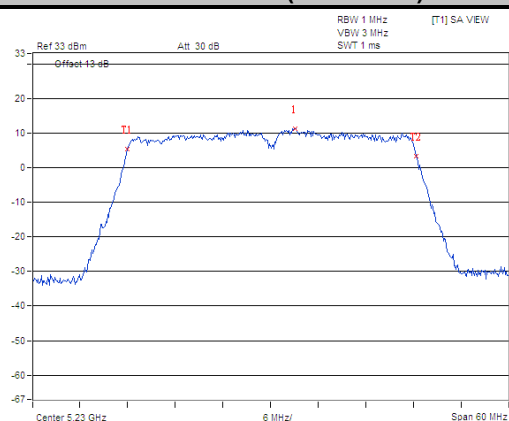


Ch 149 (5745 MHz)

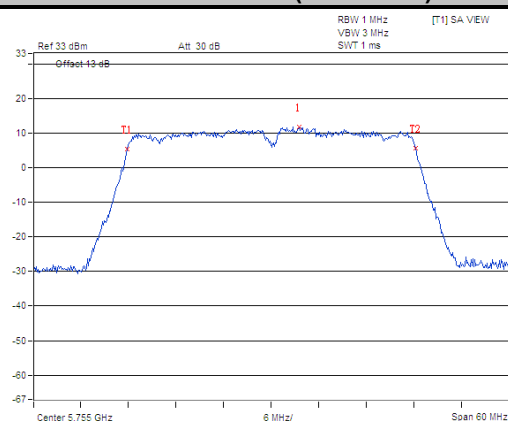


802.11ac (VHT40)

Ch 46 (5230 MHz)

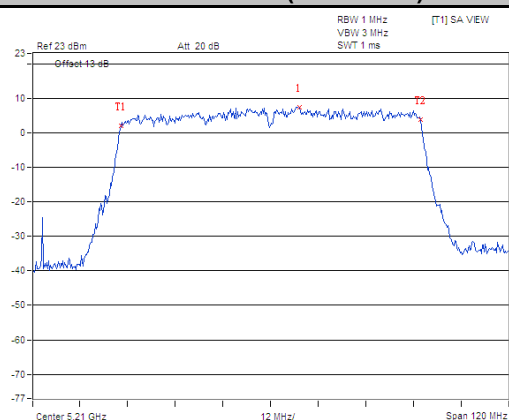


Ch 151 (5755 MHz)

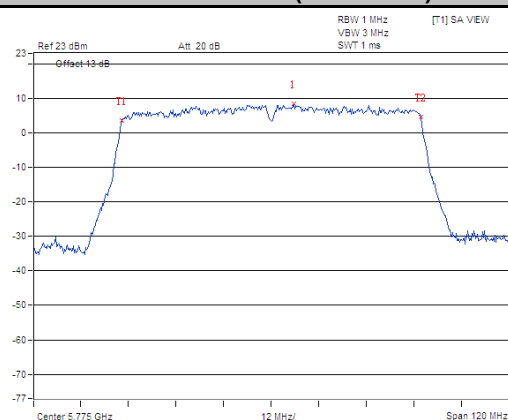


802.11ac (VHT80)

Ch 42 (5210 MHz)



Ch 155 (5775 MHz)



SISO_Chain B
802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	16.56
40	5200	16.56
48	5240	16.56
52	5260	16.56
60	5300	16.68
64	5320	16.68
100	5500	16.68
116	5580	16.68
140	5700	16.68
144	5720 (U-NII-2C)	13.40
144	5720 (U-NII-3)	3.28
149	5745	16.68
157	5785	16.68
165	5825	16.68

802.11ac (VHT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.76
40	5200	17.76
48	5240	17.76
52	5260	17.76
60	5300	17.76
64	5320	17.76
100	5500	17.76
116	5580	17.76
140	5700	17.76
144	5720 (U-NII-2C)	13.88
144	5720 (U-NII-3)	3.88
149	5745	17.76
157	5785	17.76
165	5825	17.76

802.11ac (VHT40)

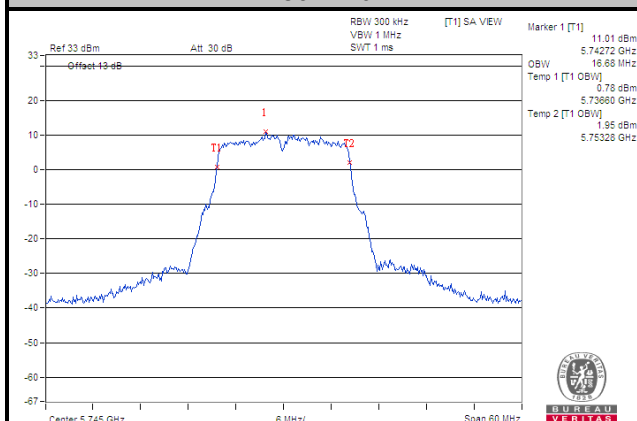
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	36.60
46	5230	36.60
54	5270	36.60
62	5310	36.60
102	5510	36.48
110	5550	36.48
134	5670	36.48
142	5710 (U-NII-2C)	33.24
142	5710 (U-NII-3)	3.24
151	5755	36.48
159	5795	36.60

802.11ac (VHT80)

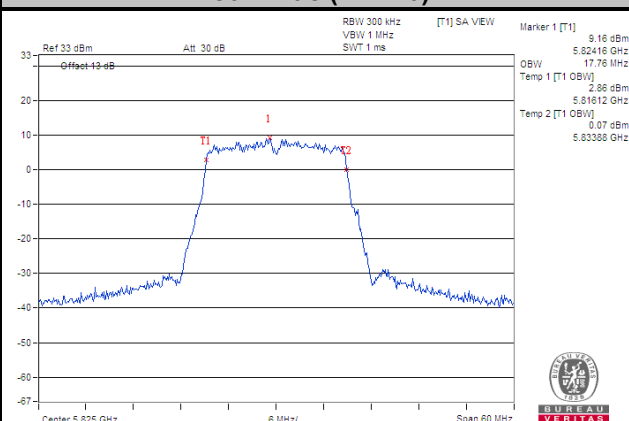
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)
42	5210	75.84
58	5290	75.84
106	5530	75.84
122	5610	75.84
138	5690 (U-NII-2C)	72.92
138	5690 (U-NII-3)	2.92
155	5775	75.84

Spectrum Plot of Worst Value

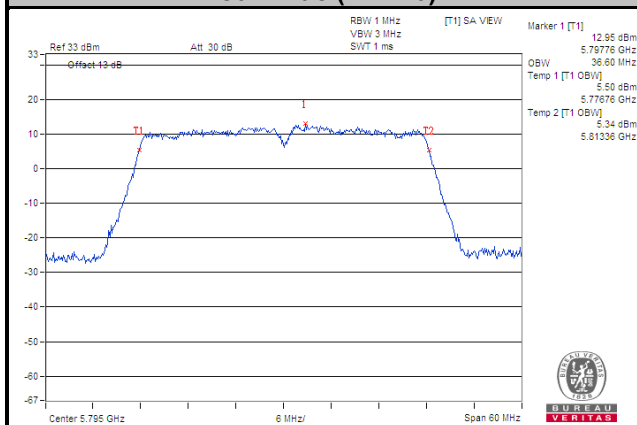
802.11a



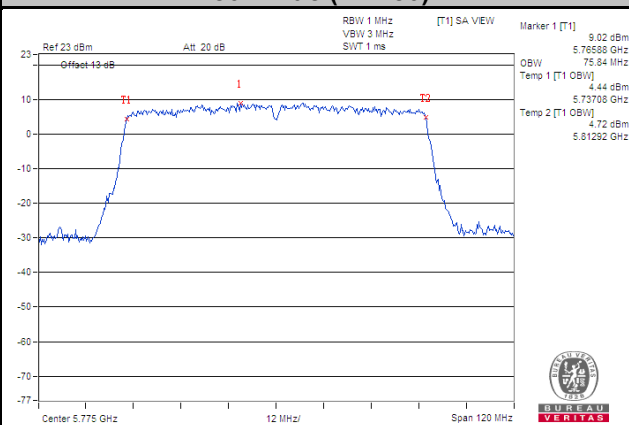
802.11ac (VHT20)



802.11ac (VHT40)



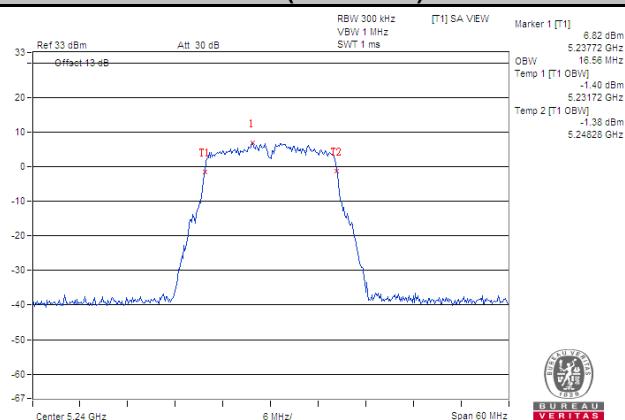
802.11ac (VHT80)



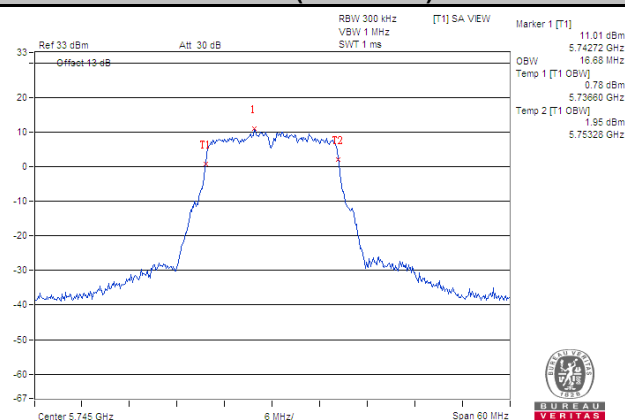
Spectrum Plot for Nearby DFS Band

802.11a

Ch 48 (5240 MHz)

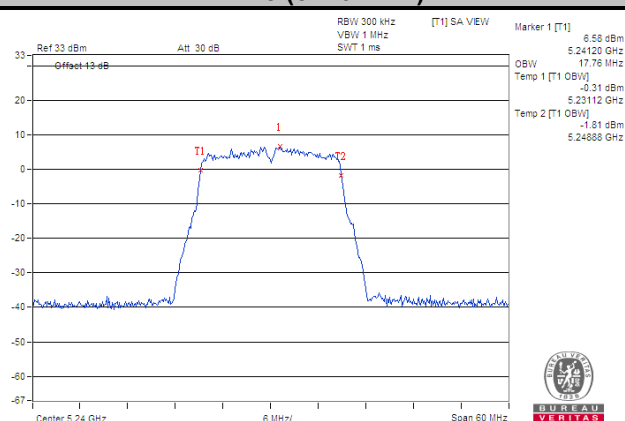


Ch 149 (5745 MHz)

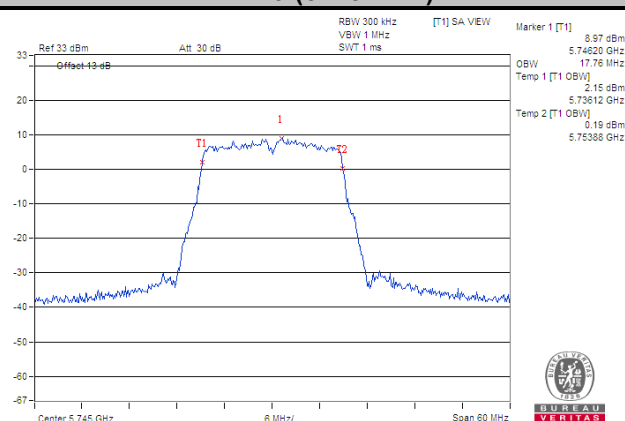


802.11ac (VHT20)

Ch 48 (5240 MHz)

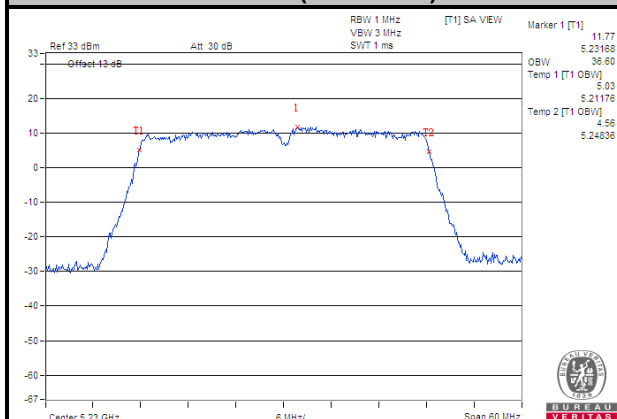


Ch 149 (5745 MHz)

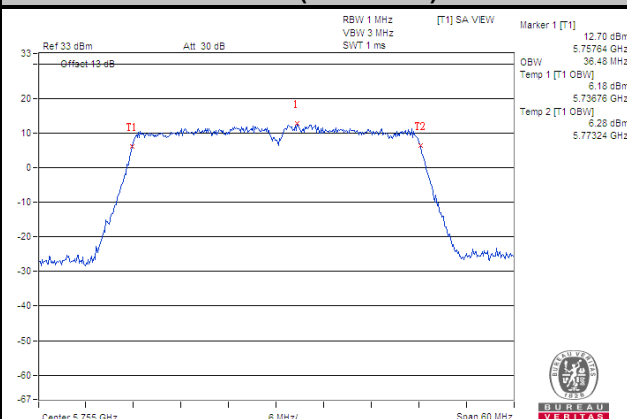


802.11ac (VHT40)

Ch 46 (5230 MHz)

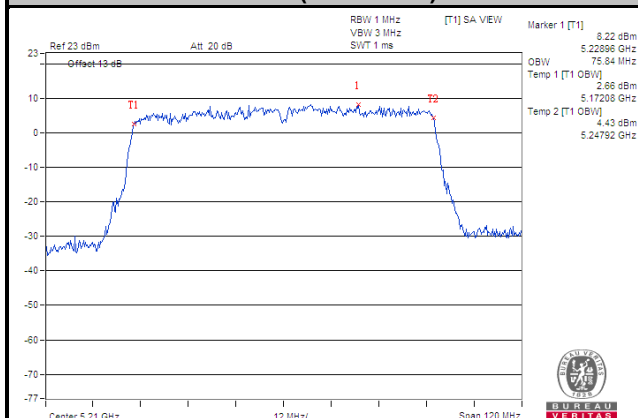


Ch 151 (5755 MHz)

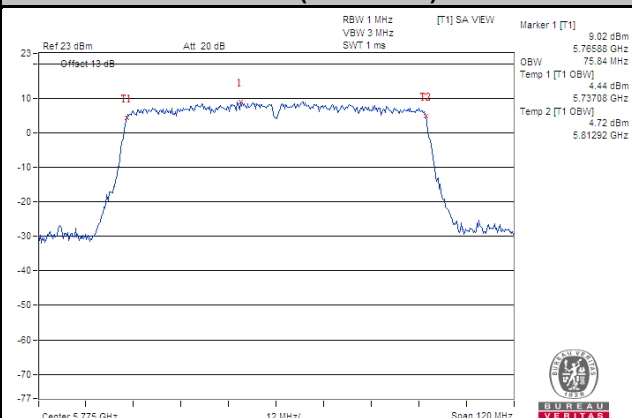


802.11ac (VHT80)

Ch 42 (5210 MHz)



Ch 155 (5775 MHz)



MIMO
802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain A	Chain B
36	5180	16.68	16.56
40	5200	16.56	16.56
48	5240	16.68	16.56
52	5260	16.56	16.56
60	5300	16.68	16.56
64	5320	16.68	16.56
100	5500	16.68	16.56
116	5580	16.68	16.56
140	5700	16.56	16.56
144	5720 (U-NII-2C)	13.40	13.28
144	5720 (U-NII-3)	3.28	3.28
149	5745	16.80	16.56
157	5785	16.68	16.56
165	5825	16.68	16.56

802.11ac (VHT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain A	Chain B
36	5180	17.88	17.76
40	5200	17.76	17.76
48	5240	17.76	17.76
52	5260	17.88	17.76
60	5300	17.76	17.76
64	5320	17.76	17.76
100	5500	17.64	17.76
116	5580	17.64	17.76
140	5700	17.76	17.64
144	5720 (U-NII-2C)	14.00	13.88
144	5720 (U-NII-3)	3.88	3.76
149	5745	17.88	17.64
157	5785	17.88	17.76
165	5825	17.76	17.76

802.11ac (VHT40)

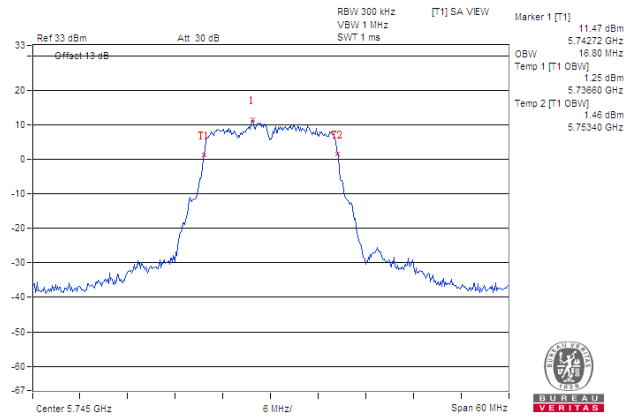
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain A	Chain B
38	5190	36.48	36.60
46	5230	36.60	36.60
54	5270	36.48	36.48
62	5310	36.48	36.60
102	5510	36.36	36.48
110	5550	36.36	36.48
134	5670	36.48	36.48
142	5710 (U-NII-2C)	33.36	33.24
142	5710 (U-NII-3)	3.24	3.24
151	5755	36.60	36.60
159	5795	36.60	36.48

802.11ac (VHT80)

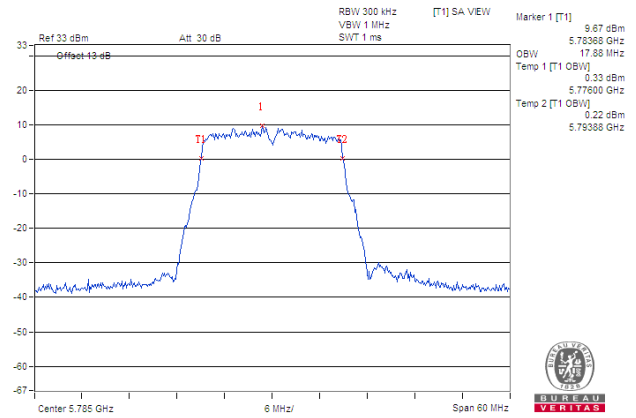
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain A	Chain B
42	5210	76.08	75.84
58	5290	75.84	75.84
106	5530	75.84	75.84
122	5610	75.84	75.84
138	5690 (U-NII-2C)	72.92	72.92
138	5690 (U-NII-3)	2.92	2.92
155	5775	75.84	75.84

Spectrum Plot of Worst Value

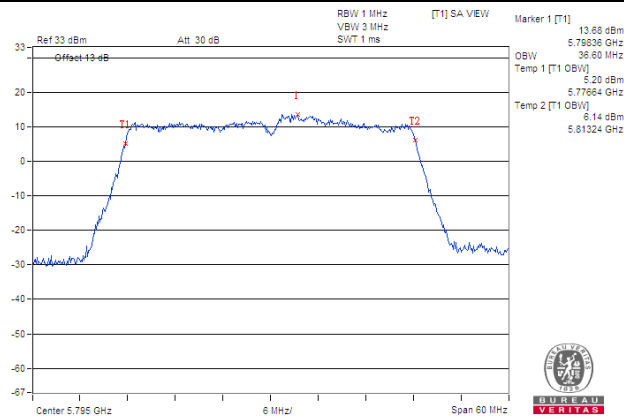
802.11a



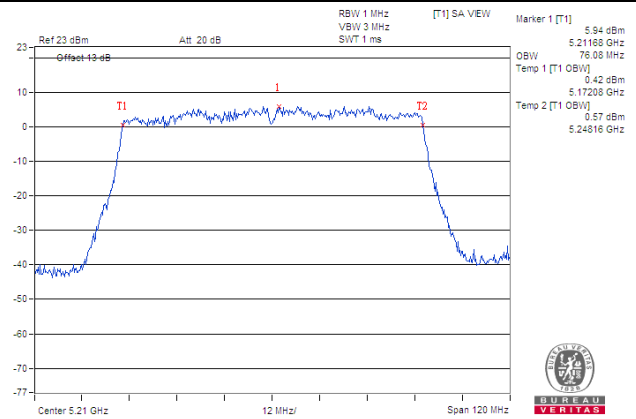
802.11ac (VHT20)



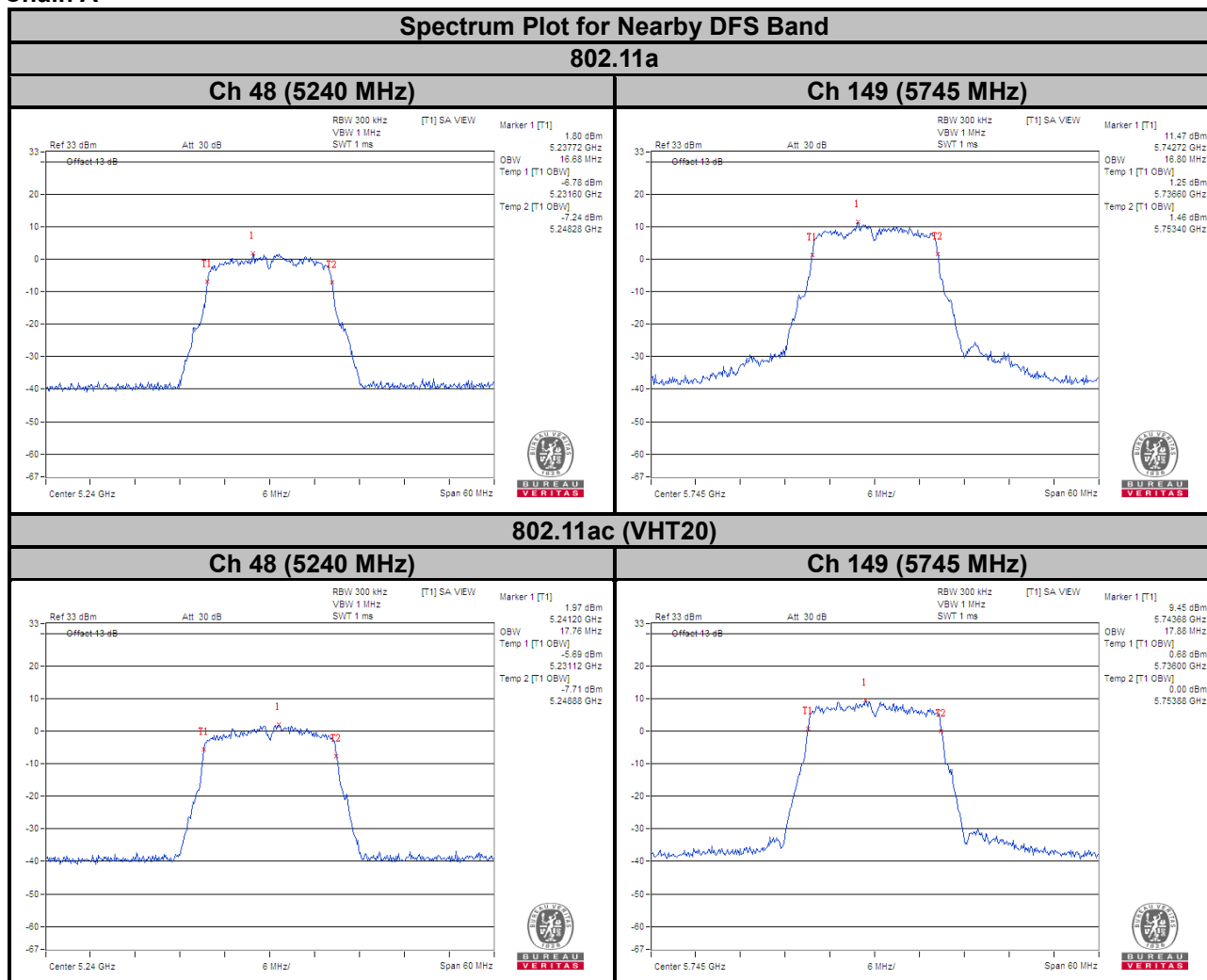
802.11ac (VHT40)



802.11ac (VHT80)

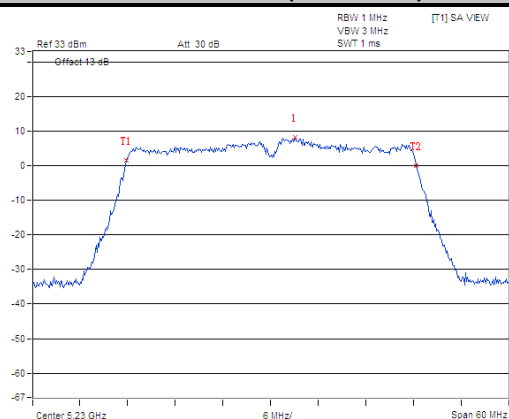


Chain A

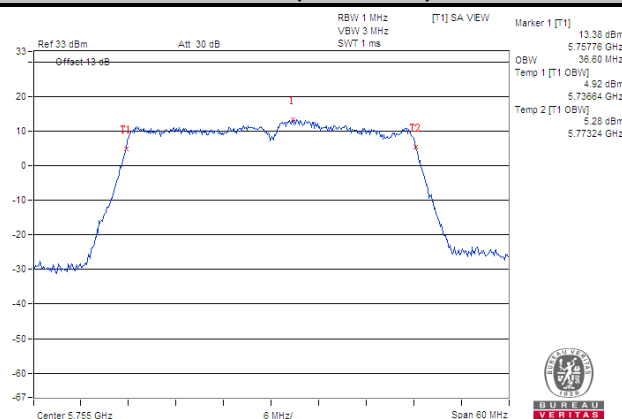


802.11ac (VHT40)

Ch 46 (5230 MHz)

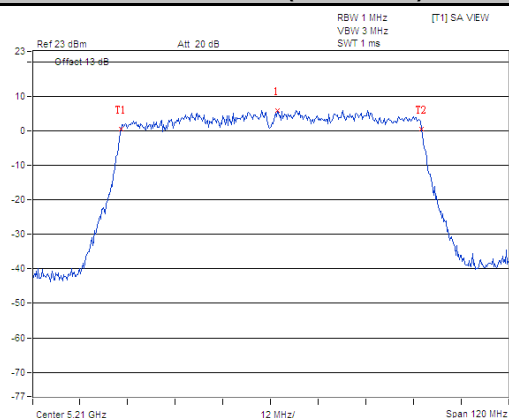


Ch 151 (5755 MHz)

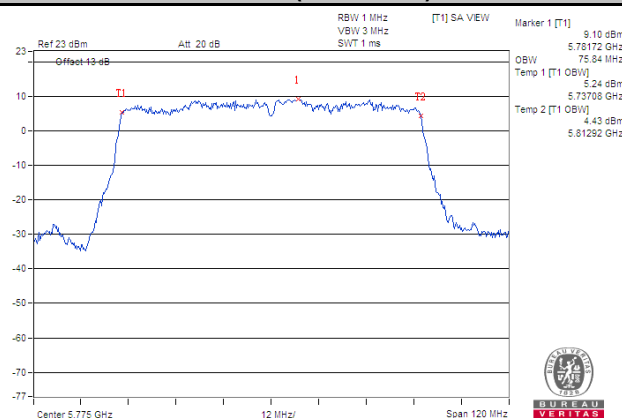


802.11ac (VHT80)

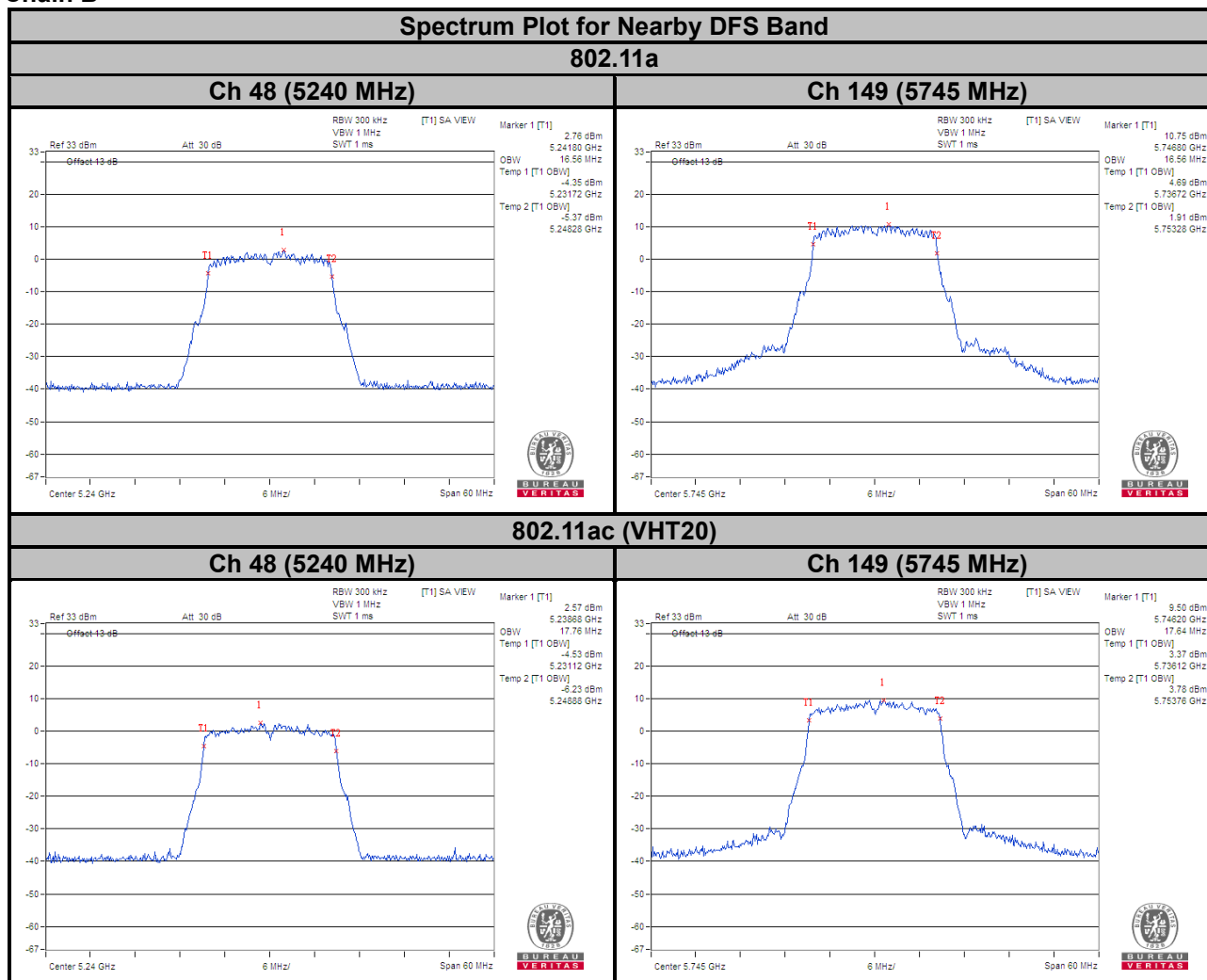
Ch 42 (5210 MHz)



Ch 155 (5775 MHz)

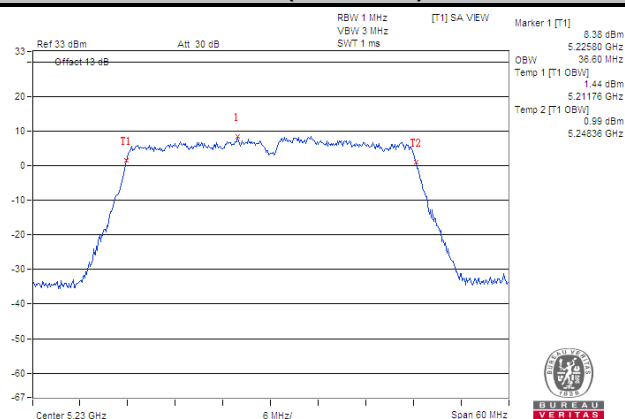


Chain B

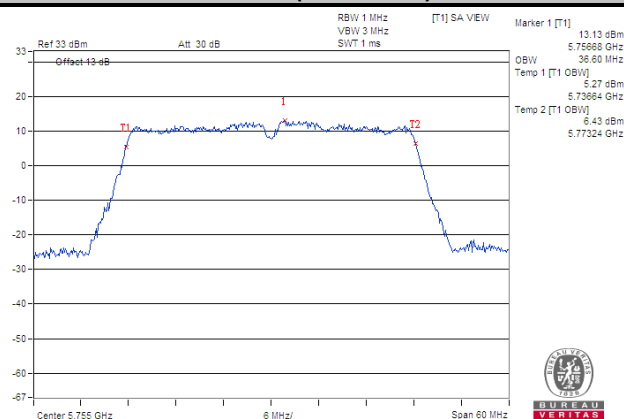


802.11ac (VHT40)

Ch 46 (5230 MHz)

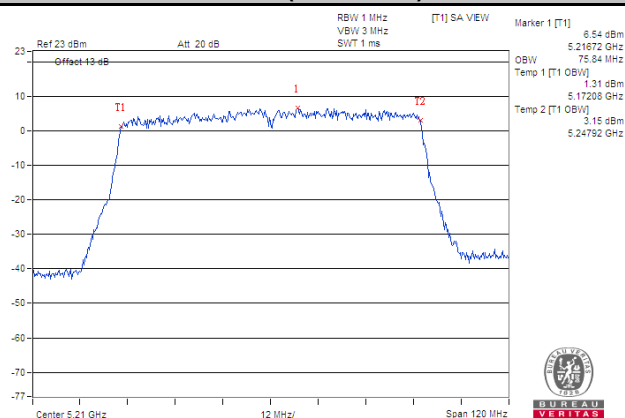


Ch 151 (5755 MHz)

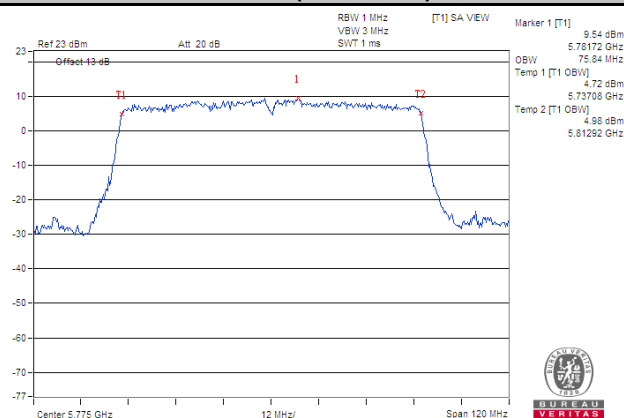


802.11ac (VHT80)

Ch 42 (5210 MHz)



Ch 155 (5775 MHz)

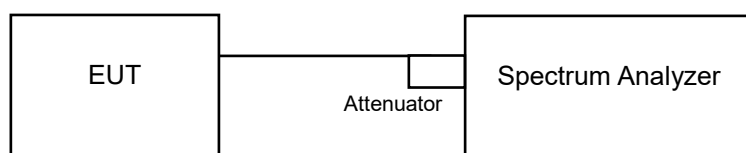


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

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

Using method SA-1 (Duty cycle $\geq 98\%$)

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

Using method SA-2 (Duty cycle $< 98\%$)

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

※For U-NII-3: without duty cycle & Duty cycle >98 %

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW $\geq$ 3 RBW, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 1 MHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz}/1 \text{ MHz})$
5. Sweep time = auto, trigger set to "free run".
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value

※For U-NII-3: with duty cycle & Duty cycle <98 %

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW $\geq$ 3 RBW, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 1 MHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz}/1 \text{ MHz})$
5. Sweep time = auto, trigger set to "free run".
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value and add $10 \log (1/\text{duty cycle})$

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

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

4.5.7 Test Results

SISO_Chain A

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

802.11a

Channel	Frequency (MHz)	PSD (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	2.81	11	Pass
40	5200	2.49	11	Pass
48	5240	2.47	11	Pass
52	5260	5.05	11	Pass
60	5300	5.24	11	Pass
64	5320	5.04	11	Pass
100	5500	5.11	11	Pass
116	5580	5.12	11	Pass
140	5700	5.37	11	Pass
144	5720 (U-NII-2C)	5.42	11	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor (dB)	PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
36	5180	2.19	0.14	2.33	11	Pass
40	5200	1.93	0.14	2.07	11	Pass
48	5240	1.93	0.14	2.07	11	Pass
52	5260	3.53	0.14	3.67	11	Pass
60	5300	3.67	0.14	3.81	11	Pass
64	5320	3.41	0.14	3.55	11	Pass
100	5500	3.53	0.14	3.67	11	Pass
116	5580	3.57	0.14	3.71	11	Pass
140	5700	3.83	0.14	3.97	11	Pass
144	5720 (U-NII-2C)	3.90	0.14	4.04	11	Pass

Note:

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

802.11ac (VHT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor (dB)	PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
38	5190	1.07	0.17	1.24	11	Pass
46	5230	0.78	0.17	0.95	11	Pass
54	5270	1.00	0.17	1.17	11	Pass
62	5310	-0.90	0.17	-0.73	11	Pass
102	5510	-1.00	0.17	-0.83	11	Pass
110	5550	0.95	0.17	1.12	11	Pass
134	5670	1.10	0.17	1.27	11	Pass
142	5710 (U-NII-2C)	1.31	0.17	1.48	11	Pass

Note:

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

802.11ac (VHT80):

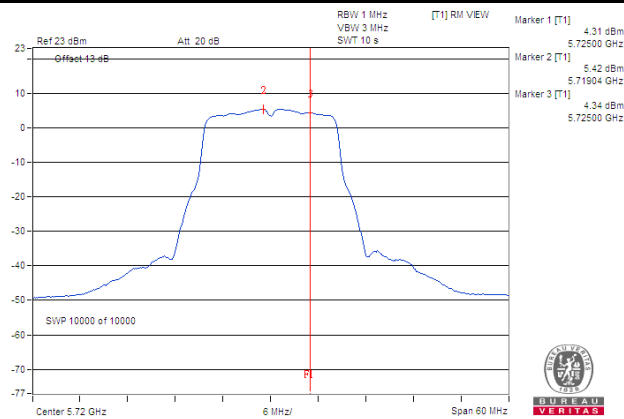
Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor (dB)	PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
42	5210	-2.60	0.37	-2.23	11	Pass
58	5290	-5.06	0.37	-4.69	11	Pass
106	5530	-4.42	0.37	-4.05	11	Pass
122	5610	-2.35	0.37	-1.98	11	Pass
138	5690 (U-NII-2C)	-2.20	0.37	-1.83	11	Pass

Note:

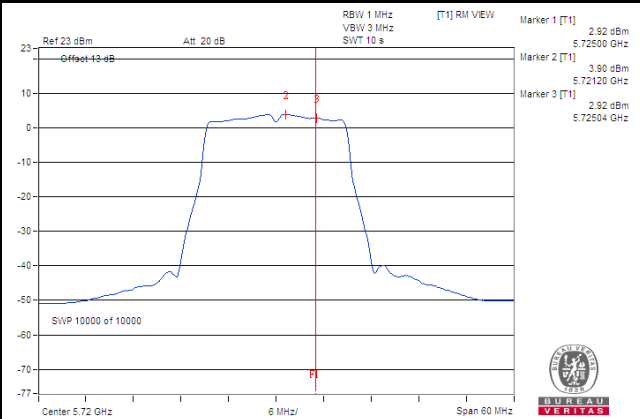
1. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

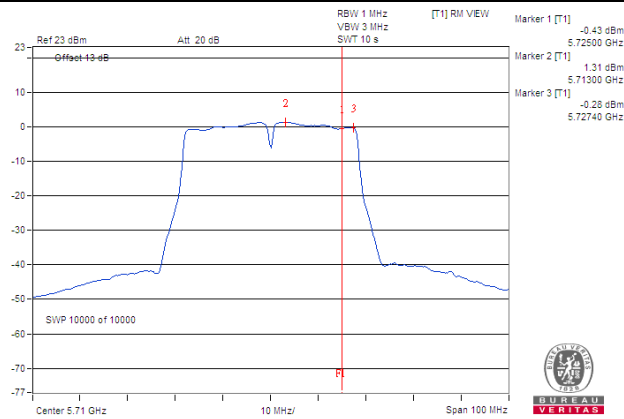
802.11a



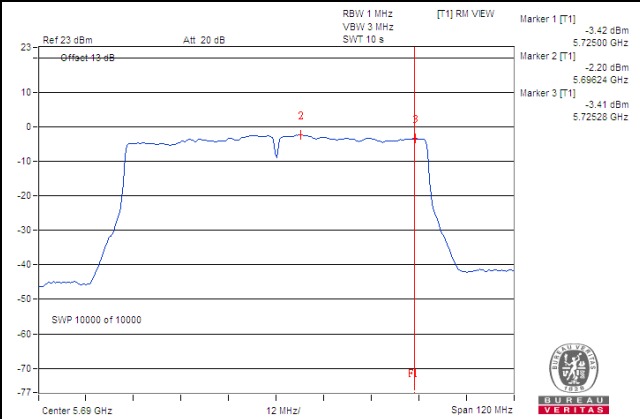
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



For U-NII-3 Band

802.11a

Channel	Freq. (MHz)	PSD (dBm/1000 kHz)	PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
144	5720 (U-NII-3)	4.36	1.35	30	Pass
149	5745	5.49	2.48	30	Pass
157	5785	5.57	2.56	30	Pass
165	5825	5.73	2.72	30	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/1000 kHz)	(dBm/500 kHz)				
144	5720 (U-NII-3)	2.9	-0.11	0.14	0.03	30	Pass
149	5745	3.97	0.96	0.14	1.1	30	Pass
157	5785	4.04	1.03	0.14	1.17	30	Pass
165	5825	4.22	1.21	0.14	1.35	30	Pass

Note:

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

802.11ac (VHT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/1000 kHz)	(dBm/500 kHz)				
142	5710 (U-NII-3)	-0.2	-3.21	0.17	-3.04	30	Pass
151	5755	1.51	-1.5	0.17	-1.33	30	Pass
159	5795	1.6	-1.41	0.17	-1.24	30	Pass

Note:

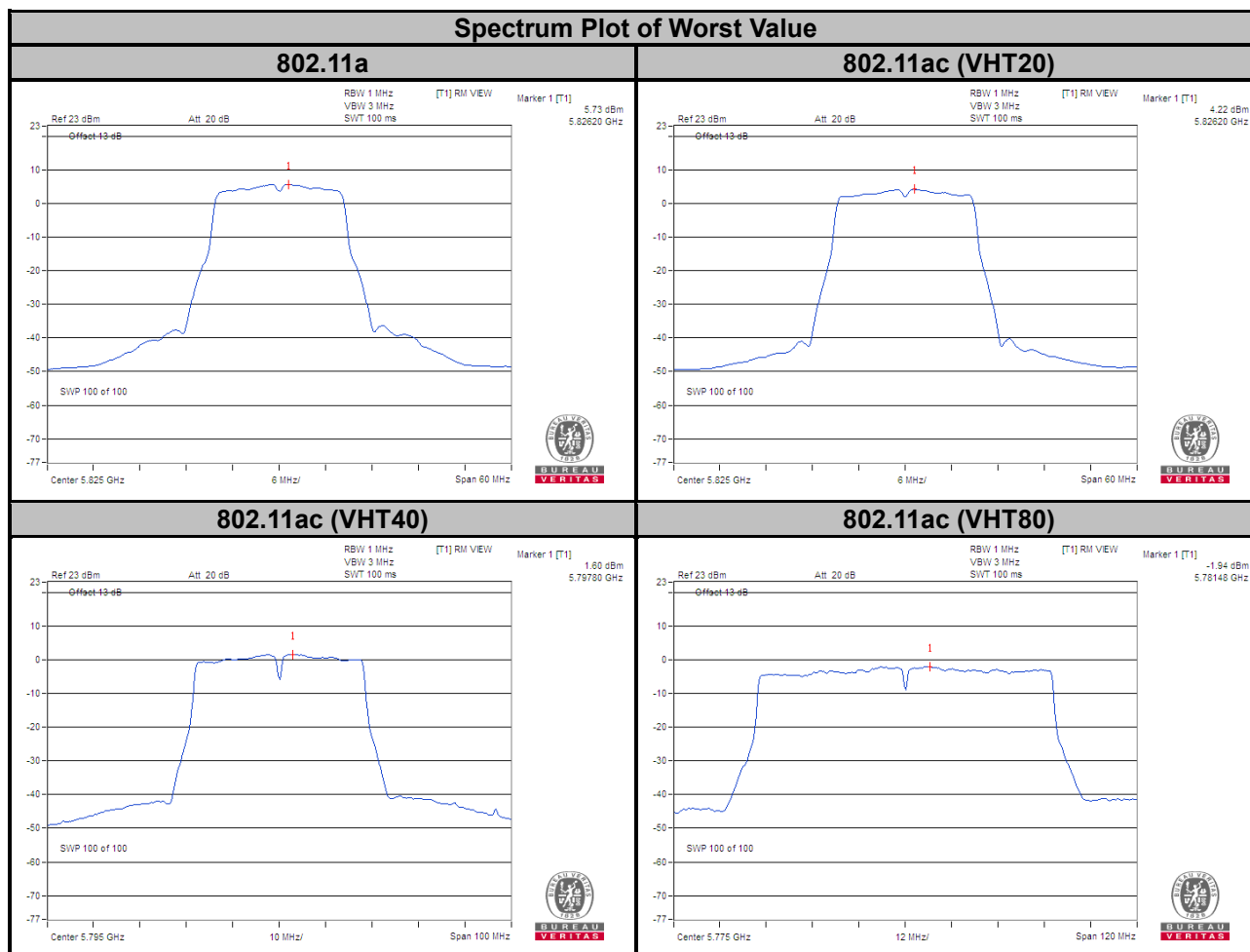
1. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80):

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/1000 kHz)	(dBm/500 kHz)				
138	5690 (U-NII-3)	-3.38	-6.39	0.37	-6.02	30	Pass
155	5775	-1.94	-4.95	0.37	-4.58	30	Pass

Note:

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



SISO_Chain B

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

802.11a

Channel	Frequency (MHz)	PSD (dBm/MHz)	Maximum Limit (dBm/MHz)	Pass / Fail
36	5180	3.02	11	Pass
40	5200	3.21	11	Pass
48	5240	2.80	11	Pass
52	5260	5.65	11	Pass
60	5300	5.73	11	Pass
64	5320	5.84	11	Pass
100	5500	5.88	11	Pass
116	5580	5.96	11	Pass
140	5700	5.92	11	Pass
144	5720 (U-NII-2C)	6.06	11	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor (dB)	PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
36	5180	2.32	0.09	2.41	11	Pass
40	5200	2.49	0.09	2.58	11	Pass
48	5240	2.37	0.09	2.46	11	Pass
52	5260	4.31	0.09	4.40	11	Pass
60	5300	4.39	0.09	4.48	11	Pass
64	5320	4.48	0.09	4.57	11	Pass
100	5500	4.53	0.09	4.62	11	Pass
116	5580	4.66	0.09	4.75	11	Pass
140	5700	4.72	0.09	4.81	11	Pass
144	5720 (U-NII-2C)	4.73	0.09	4.82	11	Pass

Note:

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

802.11ac (VHT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor (dB)	PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
38	5190	1.58	0.19	1.77	11	Pass
46	5230	1.54	0.19	1.73	11	Pass
54	5270	1.74	0.19	1.93	11	Pass
62	5310	-0.39	0.19	-0.20	11	Pass
102	5510	-0.11	0.19	0.08	11	Pass
110	5550	2.13	0.19	2.32	11	Pass
134	5670	2.04	0.19	2.23	11	Pass
142	5710 (U-NII-2C)	2.04	0.19	2.23	11	Pass

Note:

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

802.11ac (VHT80):

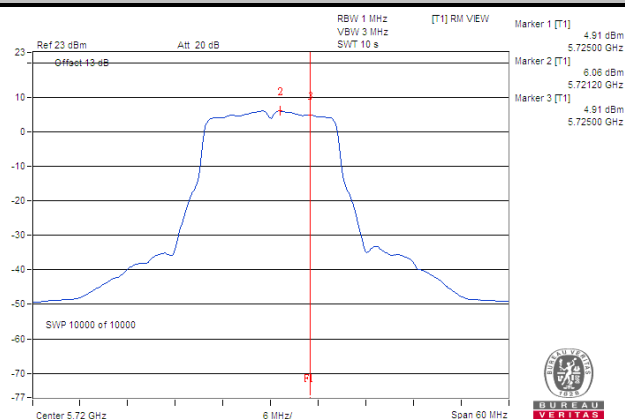
Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm)	Duty Factor (dB)	PSD with Duty Factor (dBm)	Maximum Limit (dBm)	Pass / Fail
42	5210	-1.80	0.35	-1.45	11	Pass
58	5290	-4.22	0.35	-3.87	11	Pass
106	5530	-3.54	0.35	-3.19	11	Pass
122	5610	-1.31	0.35	-0.96	11	Pass
138	5690 (U-NII-2C)	-1.27	0.35	-0.92	11	Pass

Note:

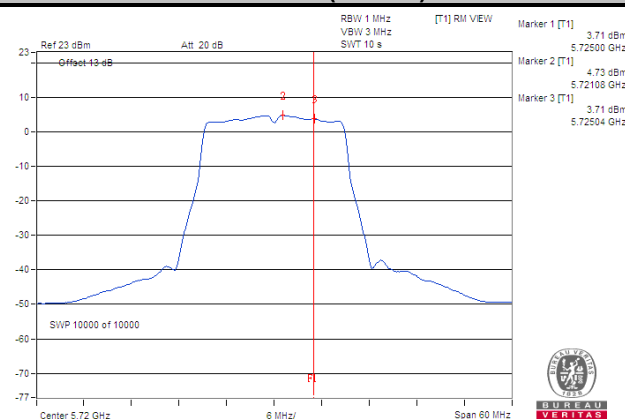
1. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

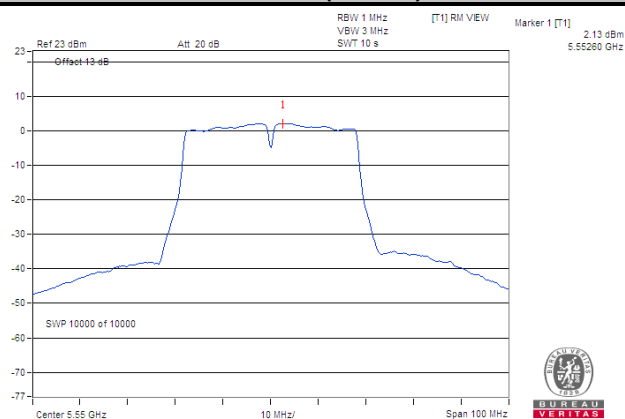
802.11a



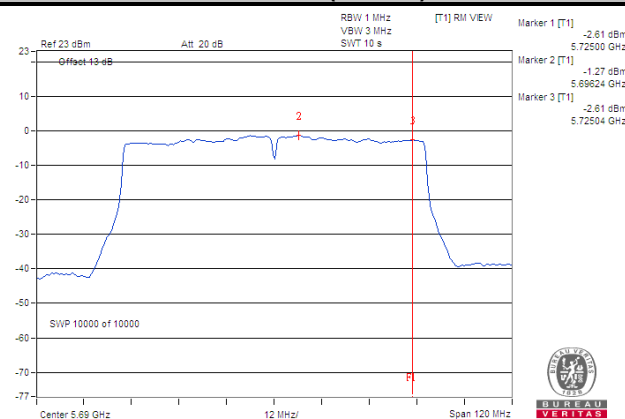
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



For U-NII-3 Band

802.11a

Channel	Freq. (MHz)	PSD (dBm/1000 kHz)	PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
144	5720 (U-NII-3)	4.89	1.88	30	Pass
149	5745	6.19	3.18	30	Pass
157	5785	6.18	3.17	30	Pass
165	5825	6.35	3.34	30	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/1000 kHz)	(dBm/500 kHz)				
144	5720 (U-NII-3)	3.68	0.67	0.09	0.76	30	Pass
149	5745	4.73	1.72	0.09	1.81	30	Pass
157	5785	4.73	1.72	0.09	1.81	30	Pass
165	5825	4.9	1.89	0.09	1.98	30	Pass

Note:

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

802.11ac (VHT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/1000 kHz)	(dBm/500 kHz)				
142	5710 (U-NII-3)	0.42	-2.59	0.19	-2.4	30	Pass
151	5755	2.21	-0.8	0.19	-0.61	30	Pass
159	5795	2.3	-0.71	0.19	-0.52	30	Pass

Note:

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

802.11ac (VHT80):

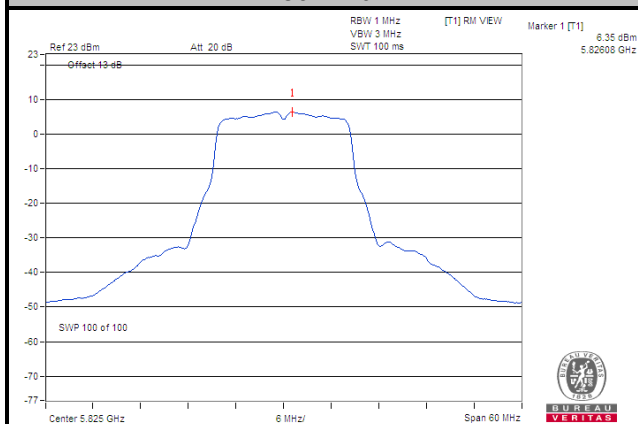
Channel	Frequency (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
		(dBm/1000 kHz)	(dBm/500 kHz)				
138	5690 (U-NII-3)	-2.63	-5.64	0.35	-5.29	30	Pass
155	5775	-1.15	-4.16	0.35	-3.81	30	Pass

Note:

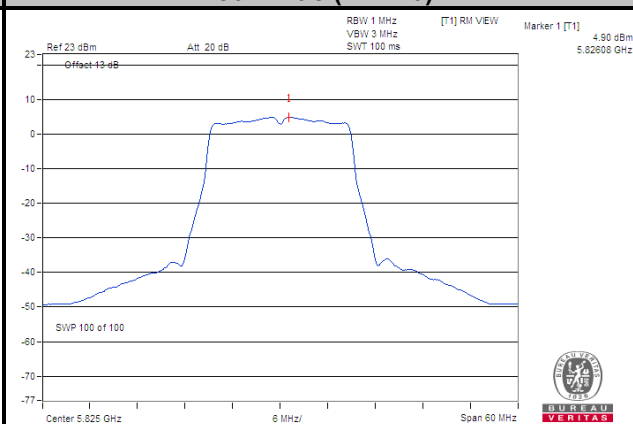
1. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

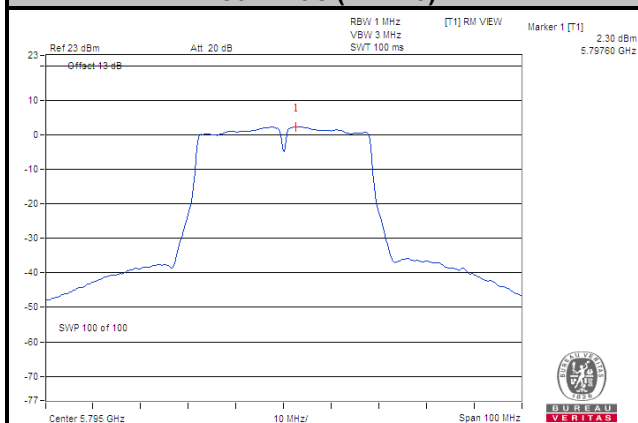
802.11a



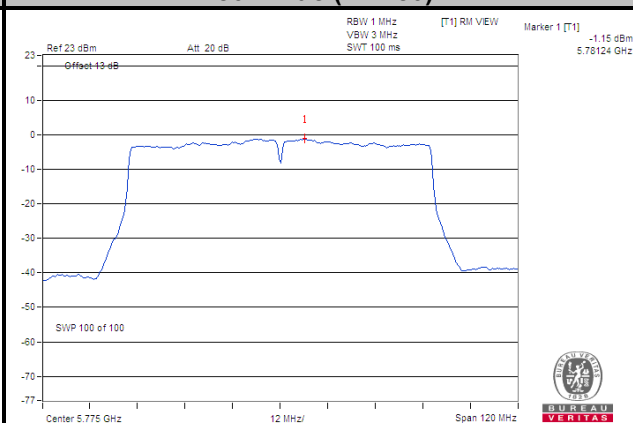
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



MIMO

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

802.11a

Channel	Frequency (MHz)	PSD (dBm/MHz)		Total Power Density (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain A	Chain B			
36	5180	-2.93	-1.85	0.65	10.74	Pass
40	5200	-2.51	-1.95	0.79	10.74	Pass
48	5240	-2.33	-1.82	0.94	10.74	Pass
52	5260	4.05	4.51	7.30	10.69	Pass
60	5300	4.12	4.52	7.34	10.69	Pass
64	5320	4.27	4.40	7.35	10.69	Pass
100	5500	4.30	4.20	7.26	10.49	Pass
116	5580	3.89	4.66	7.30	10.49	Pass
140	5700	4.65	4.45	7.56	10.49	Pass
144	5720 (U-NII-2C)	6.81	6.46	9.65	10.49	Pass

Note:

- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.26 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.26 - 6) = 10.74 \text{ dBm}$.
For U-NII-2A Band:
Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.31 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.31 - 6) = 10.69 \text{ dBm}$.
For U-NII-2C Band:
Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.51 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.51 - 6) = 10.49 \text{ dBm}$.

802.11ac (VHT20)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain A	Chain B				
36	5180	-3.60	-1.94	0.14	0.46	10.74	Pass
40	5200	-2.28	-2.05	0.14	0.98	10.74	Pass
48	5240	-2.31	-1.78	0.14	1.11	10.74	Pass
52	5260	1.50	2.70	0.14	5.29	10.69	Pass
60	5300	2.13	2.57	0.14	5.50	10.69	Pass
64	5320	2.55	2.62	0.14	5.73	10.69	Pass
100	5500	3.13	3.05	0.14	6.24	10.49	Pass
116	5580	3.26	3.10	0.14	6.33	10.49	Pass
140	5700	3.37	3.10	0.14	6.38	10.49	Pass
144	5720 (U-NII-2C)	4.67	5.21	0.14	8.10	10.49	Pass

Note:

- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.26 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.26 - 6) = 10.74 \text{ dBm}$.
For U-NII-2A Band:
Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.31 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.31 - 6) = 10.69 \text{ dBm}$.
For U-NII-2C Band:
Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.51 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.51 - 6) = 10.49 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT40)

Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain A	Chain B				
38	5190	-3.00	-1.89	0.17	0.77	10.74	Pass
46	5230	-2.36	-1.93	0.17	1.04	10.74	Pass
54	5270	1.49	2.28	0.17	5.08	10.69	Pass
62	5310	-0.13	0.12	0.17	3.18	10.69	Pass
102	5510	-0.10	0.24	0.17	3.25	10.49	Pass
110	5550	1.44	2.67	0.17	5.28	10.49	Pass
134	5670	1.80	2.24	0.17	5.21	10.49	Pass
142	5710 (U-NII-2C)	2.83	2.07	0.17	5.65	10.49	Pass

Note:

- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.26 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11-(6.26-6) = 10.74 \text{ dBm}$.
For U-NII-2A Band:
Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.31 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11-(6.31-6) = 10.69 \text{ dBm}$.
For U-NII-2C Band:
Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.51 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11-(6.51-6) = 10.49 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80):

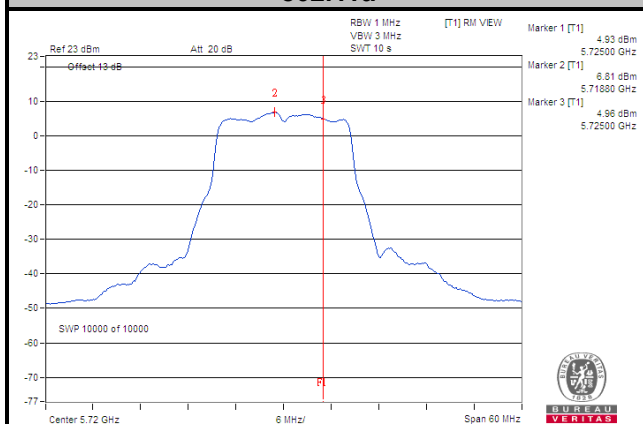
Channel	Frequency (MHz)	PSD (dBm/MHz)		Duty Factor (dB)	Total PSD with Duty Factor (dBm/MHz)	Max. Limit (dBm/MHz)	Pass / Fail
		Chain A	Chain B				
42	5210	-4.22	-3.65	0.37	-0.54	10.74	Pass
58	5290	-5.59	-5.29	0.37	-2.06	10.69	Pass
106	5530	-3.26	-3.52	0.37	-0.01	10.49	Pass
122	5610	-1.16	-1.30	0.37	2.15	10.49	Pass
138	5690 (U-NII-2C)	-0.99	-1.29	0.37	2.24	10.49	Pass

Note:

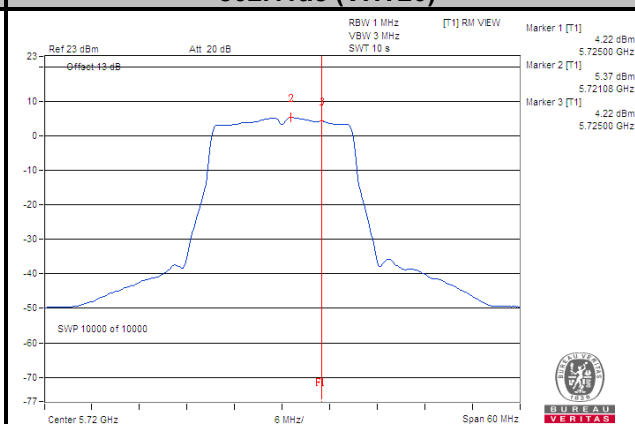
- Method E) 2) a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.26 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.26 - 6) = 10.74 \text{ dBm}$.
For U-NII-2A Band:
Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.31 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.31 - 6) = 10.69 \text{ dBm}$.
For U-NII-2C Band:
Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.51 \text{ dBi} > 6 \text{ dBi}$, so the power density limit shall be reduced to $11 - (6.51 - 6) = 10.49 \text{ dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

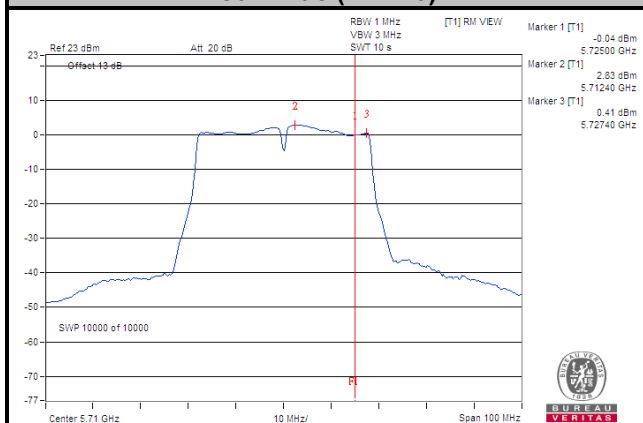
802.11a



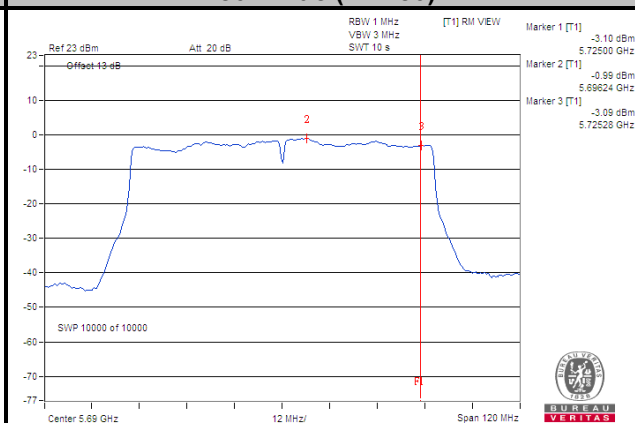
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



For U-NII-3 Band

802.11a:

TX Chain	Channel	Freq. (MHz)	PSD		10 log (N=2) dB	Total PSD (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/MHz)	(dBm/500 kHz)				
A	144	5720 (U-NII-3)	4.96	1.95	3.01	4.96	29.44	Pass
	149	5745	6.85	3.84	3.01	6.85	29.44	Pass
	157	5785	7.07	4.06	3.01	7.07	29.44	Pass
	165	5825	7.11	4.1	3.01	7.11	29.44	Pass
B	144	5720 (U-NII-3)	5.07	2.06	3.01	5.07	29.44	Pass
	149	5745	6.5	3.49	3.01	6.5	29.44	Pass
	157	5785	6.56	3.55	3.01	6.56	29.44	Pass
	165	5825	6.71	3.7	3.01	6.71	29.44	Pass

NOTE:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is measure value add 10 log (N_{ANT}) dB.
- Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.56 > 6$ dBi, so the power density limit shall be reduced to $30-(6.56-6) = 29.44$ dBm.

802.11ac (VHT20):

TX Chain	Channel	Frequency (MHz)	PSD w/o Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/MHz)	(dBm/500 kHz)					
A	144	5720 (U-NII-3)	3.22	0.21	3.01	0.14	3.36	29.44	Pass
	149	5745	4.83	1.82	3.01	0.14	4.97	29.44	Pass
	157	5785	4.92	1.91	3.01	0.14	5.06	29.44	Pass
	165	5825	5.52	2.51	3.01	0.14	5.66	29.44	Pass
B	144	5720 (U-NII-3)	4.2	1.19	3.01	0.14	4.34	29.44	Pass
	149	5745	5.32	2.31	3.01	0.14	5.46	29.44	Pass
	157	5785	4.93	1.92	3.01	0.14	5.07	29.44	Pass
	165	5825	4.89	1.88	3.01	0.14	5.03	29.44	Pass

NOTE:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is measure value add 10 log (N_{ANT}) dB.
- Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.56 > 6$ dBi, so the power density limit shall be reduced to $30-(6.56-6) = 29.44$ dBm.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT40):

TX Chain	Channel	Frequency (MHz)	PSD w/o Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/MHz)	(dBm/500 kHz)					
A	142	5710 (U-NII-3)	0.4	2.62	3.01	0.17	5.8	29.44	Pass
	151	5755	2.87	5.09	3.01	0.17	8.27	29.44	Pass
	159	5795	2.99	5.21	3.01	0.17	8.39	29.44	Pass
B	142	5710 (U-NII-3)	0.69	2.91	3.01	0.17	6.09	29.44	Pass
	151	5755	2.68	4.9	3.01	0.17	8.08	29.44	Pass
	159	5795	2.72	4.94	3.01	0.17	8.12	29.44	Pass

NOTE:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is measure value add 10 log (N_{ANT}) dB.
- Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.56 > 6$ dBi, so the power density limit shall be reduced to $30 - (6.56 - 6) = 29.44$ dBm.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80):

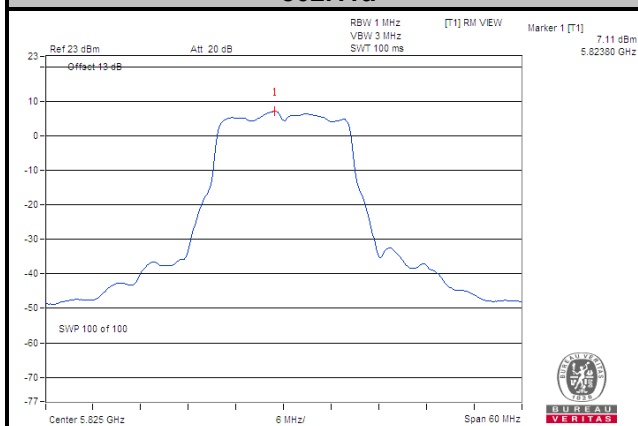
TX Chain	Channel	Frequency (MHz)	PSD w/o Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD with Duty Factor (dBm/500 kHz)	Limit (dBm/500 kHz)	Pass / Fail
			(dBm/MHz)	(dBm/500 kHz)					
A	138	5690 (U-NII-3)	-3.1	-0.88	3.01	0.37	2.5	29.44	Pass
	155	5775	-0.5	1.72	3.01	0.37	5.1	29.44	Pass
B	138	5690 (U-NII-3)	-2.44	-0.22	3.01	0.37	3.16	29.44	Pass
	155	5775	-0.97	1.25	3.01	0.37	4.63	29.44	Pass

NOTE:

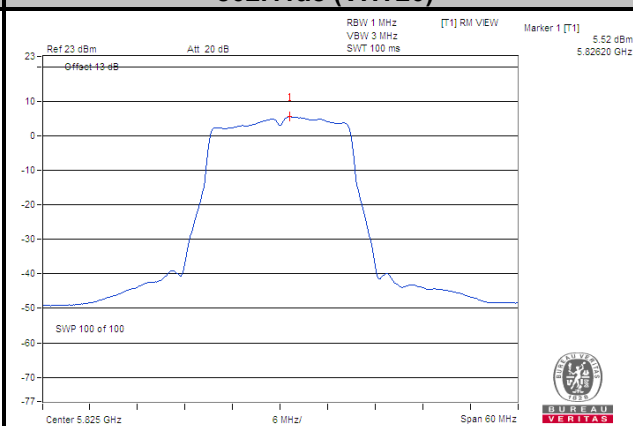
- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is measure value add 10 log (N_{ANT}) dB.
- Correlated, Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 6.56 > 6$ dBi, so the power density limit shall be reduced to $30 - (6.56 - 6) = 29.44$ dBm.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

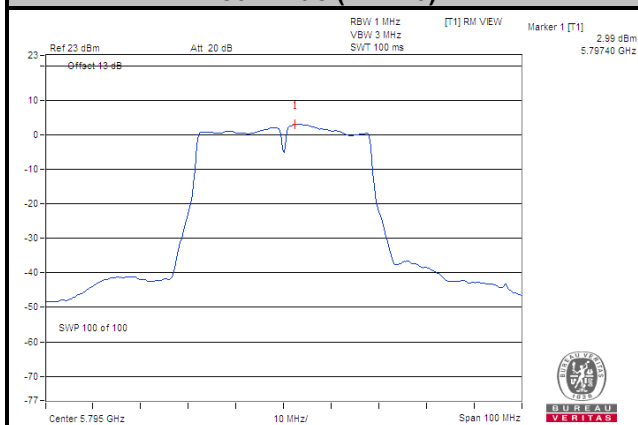
802.11a



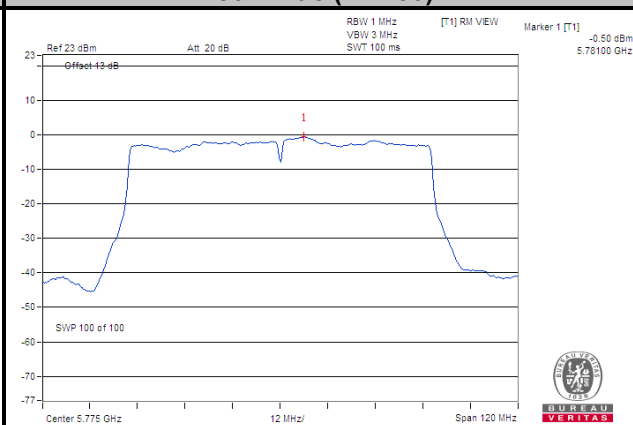
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)

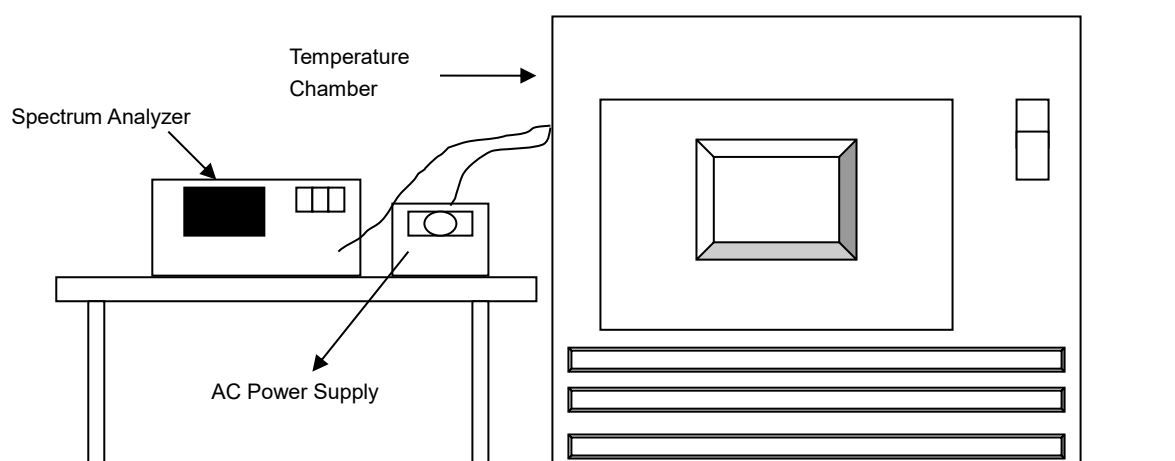


4.6 Frequency Stability

4.6.1 Limit of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
- Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
- The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

SISO_Chain A

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
35	120	5180.0093	PASS	5180.0094	PASS	5180.0078	PASS	5180.0092	PASS
30	120	5180.0019	PASS	5179.9994	PASS	5180.004	PASS	5180.0033	PASS
20	120	5180.0224	PASS	5180.0228	PASS	5180.0202	PASS	5180.0232	PASS
10	120	5179.9992	PASS	5179.9961	PASS	5179.9959	PASS	5179.9967	PASS
0	120	5179.9926	PASS	5179.9927	PASS	5179.9942	PASS	5179.9932	PASS

Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5180.0232	PASS	5180.0231	PASS	5180.0199	PASS	5180.0223	PASS
	120	5180.0224	PASS	5180.0228	PASS	5180.0202	PASS	5180.0232	PASS
	102	5180.0233	PASS	5180.0226	PASS	5180.0209	PASS	5180.0226	PASS

SISO_Chain B

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
35	120	5180.0177	PASS	5180.0142	PASS	5180.0148	PASS	5180.0152	PASS
30	120	5180.0241	PASS	5180.0274	PASS	5180.0254	PASS	5180.0226	PASS
20	120	5180.024	PASS	5180.0217	PASS	5180.0209	PASS	5180.0212	PASS
10	120	5180.0204	PASS	5180.0218	PASS	5180.0212	PASS	5180.0196	PASS
0	120	5180.021	PASS	5180.0229	PASS	5180.0207	PASS	5180.0207	PASS

Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5180.0247	PASS	5180.0207	PASS	5180.0199	PASS	5180.0222	PASS
	120	5180.024	PASS	5180.0217	PASS	5180.0209	PASS	5180.0212	PASS
	102	5180.0248	PASS	5180.0219	PASS	5180.0209	PASS	5180.0213	PASS

MIMO

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
35	120	5179.9749	PASS	5179.974	PASS	5179.9775	PASS	5179.9733	PASS
30	120	5180.0227	PASS	5180.0235	PASS	5180.0229	PASS	5180.0187	PASS
20	120	5179.9772	PASS	5179.9761	PASS	5179.9746	PASS	5179.9787	PASS
10	120	5179.9845	PASS	5179.9857	PASS	5179.9873	PASS	5179.9847	PASS
0	120	5179.9799	PASS	5179.9791	PASS	5179.9798	PASS	5179.9808	PASS

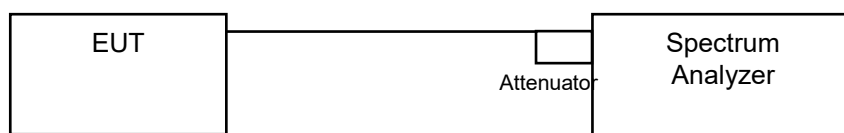
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result	Measured Frequency (MHz)	Result
20	138	5179.9773	PASS	5179.9757	PASS	5179.9746	PASS	5179.9794	PASS
	120	5179.9772	PASS	5179.9761	PASS	5179.9746	PASS	5179.9787	PASS
	102	5179.9778	PASS	5179.9762	PASS	5179.9753	PASS	5179.9789	PASS

4.7 6 dB Bandwidth Measurement

4.7.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

- Set resolution bandwidth (RBW) = 100 kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

SISO_Chain A

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
144	5720 (U-NII-3)	2.77	0.5	Pass
149	5745	15.39	0.5	Pass
157	5785	15.38	0.5	Pass
165	5825	15.68	0.5	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
144	5720 (U-NII-3)	3.41	0.5	Pass
149	5745	16.77	0.5	Pass
157	5785	16.79	0.5	Pass
165	5825	16.83	0.5	Pass

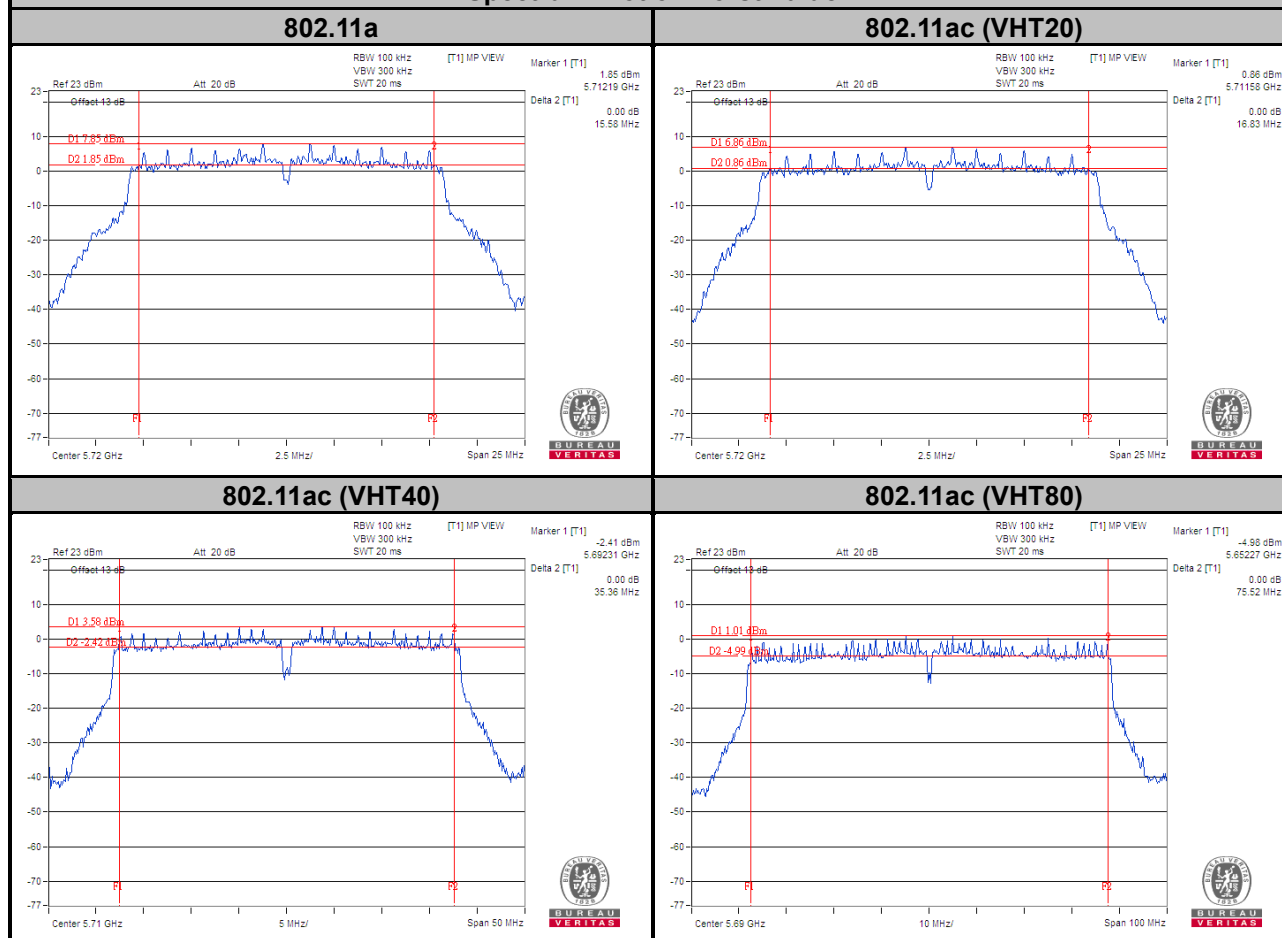
802.11ac (VHT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
142	5710 (U-NII-3)	2.67	0.5	Pass
151	5755	35.88	0.5	Pass
159	5795	35.88	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
138	5690 (U-NII-3)	2.79	0.5	Pass
155	5775	75.56	0.5	Pass

Spectrum Plot of Worst Value



Note:

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

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

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

SISO_Chain B

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
144	5720 (U-NII-3)	2.76	0.5	Pass
149	5745	15.67	0.5	Pass
157	5785	15.54	0.5	Pass
165	5825	15.68	0.5	Pass

802.11ac (VHT20)

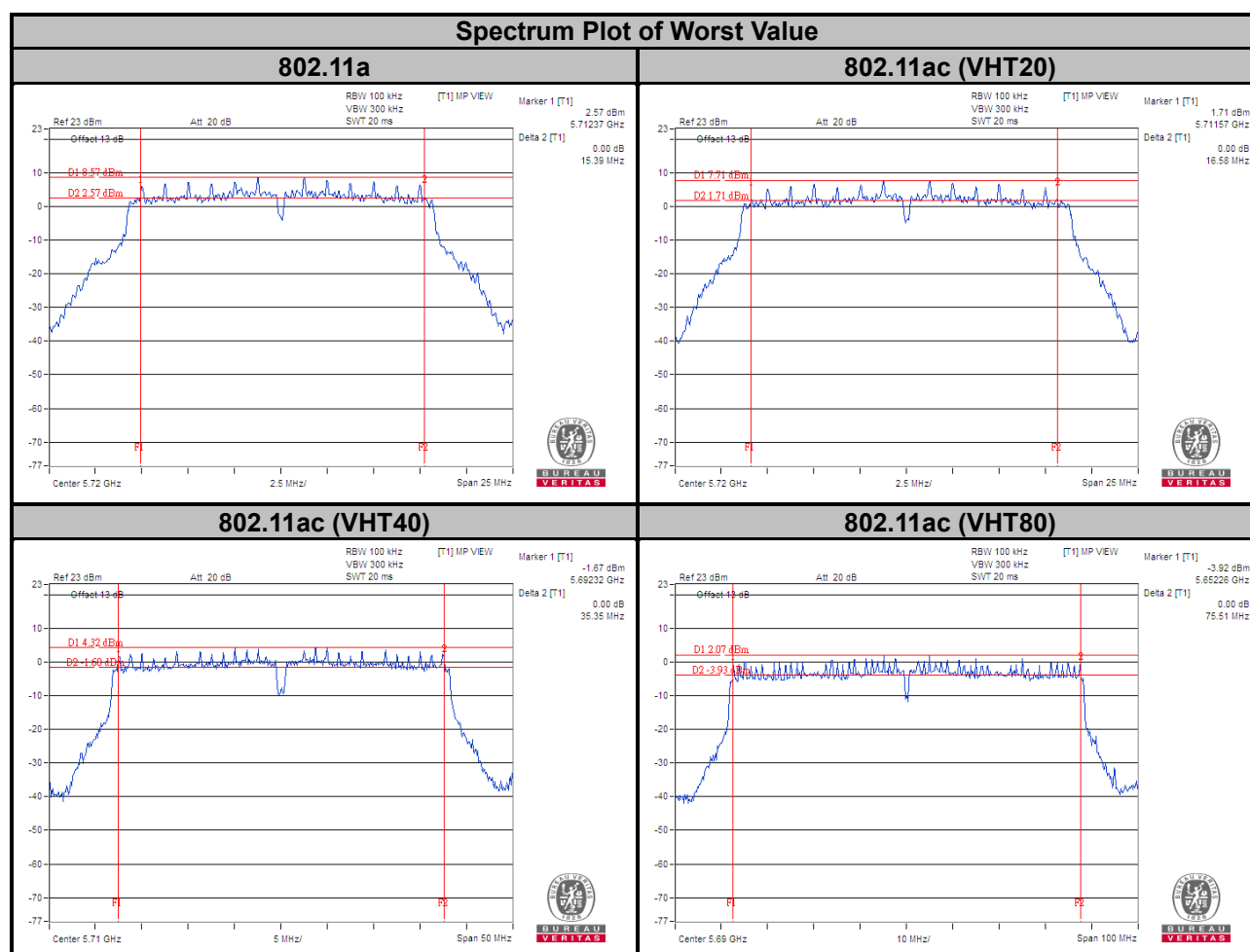
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
144	5720 (U-NII-3)	3.15	0.5	Pass
149	5745	16.86	0.5	Pass
157	5785	16.86	0.5	Pass
165	5825	16.58	0.5	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
142	5710 (U-NII-3)	2.67	0.5	Pass
151	5755	35.36	0.5	Pass
159	5795	35.35	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
138	5690 (U-NII-3)	2.77	0.5	Pass
155	5775	75.49	0.5	Pass



Note:

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

MIMO

802.11a

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain A	Chain B		
144	5720 (U-NII-3)	2.76	2.85	0.5	Pass
149	5745	15.37	16.08	0.5	Pass
157	5785	15.20	16.34	0.5	Pass
165	5825	15.37	15.19	0.5	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain A	Chain B		
144	5720 (U-NII-3)	2.58	3.15	0.5	Pass
149	5745	16.01	16.57	0.5	Pass
157	5785	16.86	16.04	0.5	Pass
165	5825	15.19	16.87	0.5	Pass

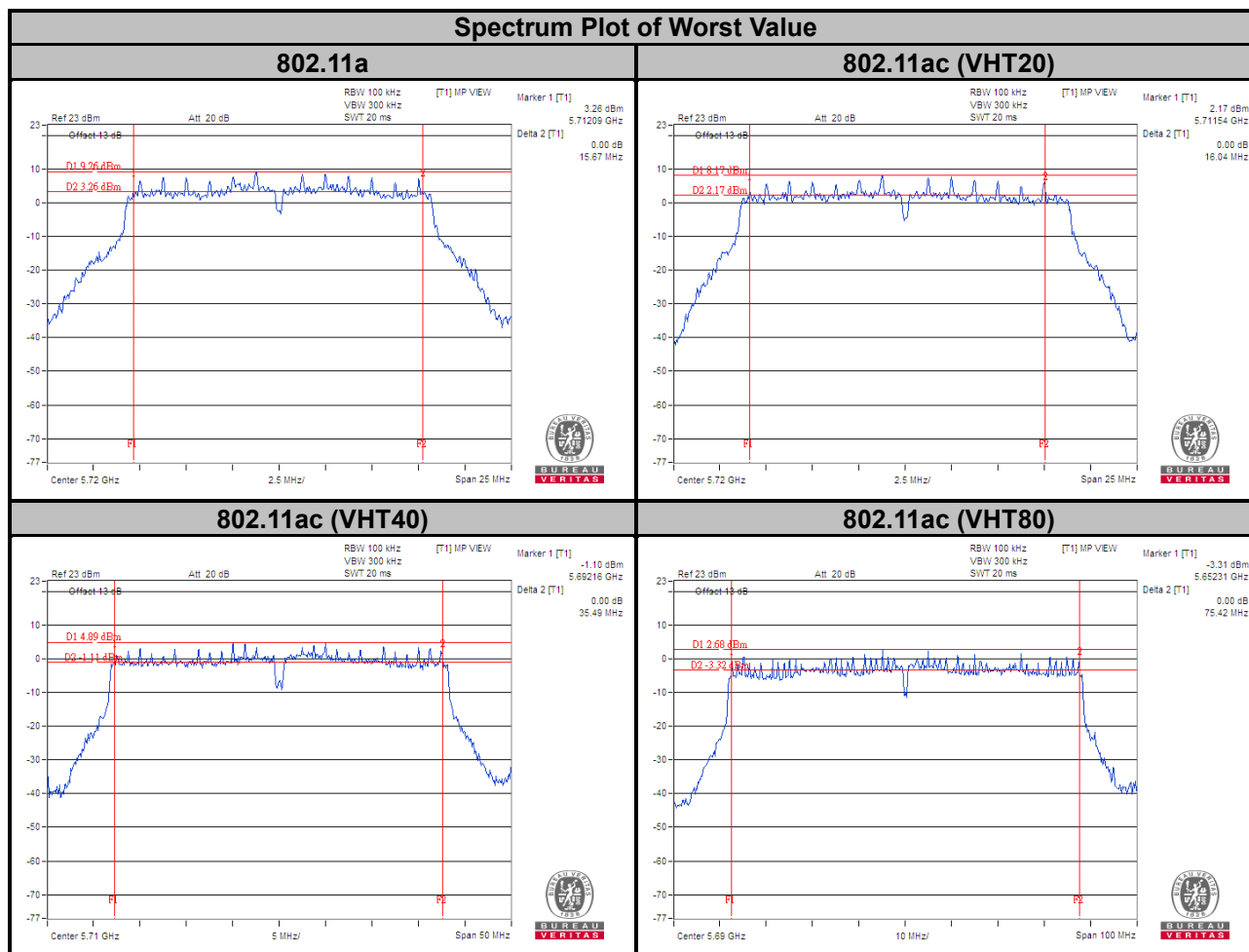
802.11ac (VHT40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain A	Chain B		
142	5710 (U-NII-3)	2.65	3.14	0.5	Pass
151	5755	35.51	35.33	0.5	Pass
159	5795	35.67	35.27	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain A	Chain B		
138	5690 (U-NII-3)	2.73	2.73	0.5	Pass
155	5775	75.46	75.42	0.5	Pass

Spectrum Plot of Worst Value



Note:

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

5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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

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