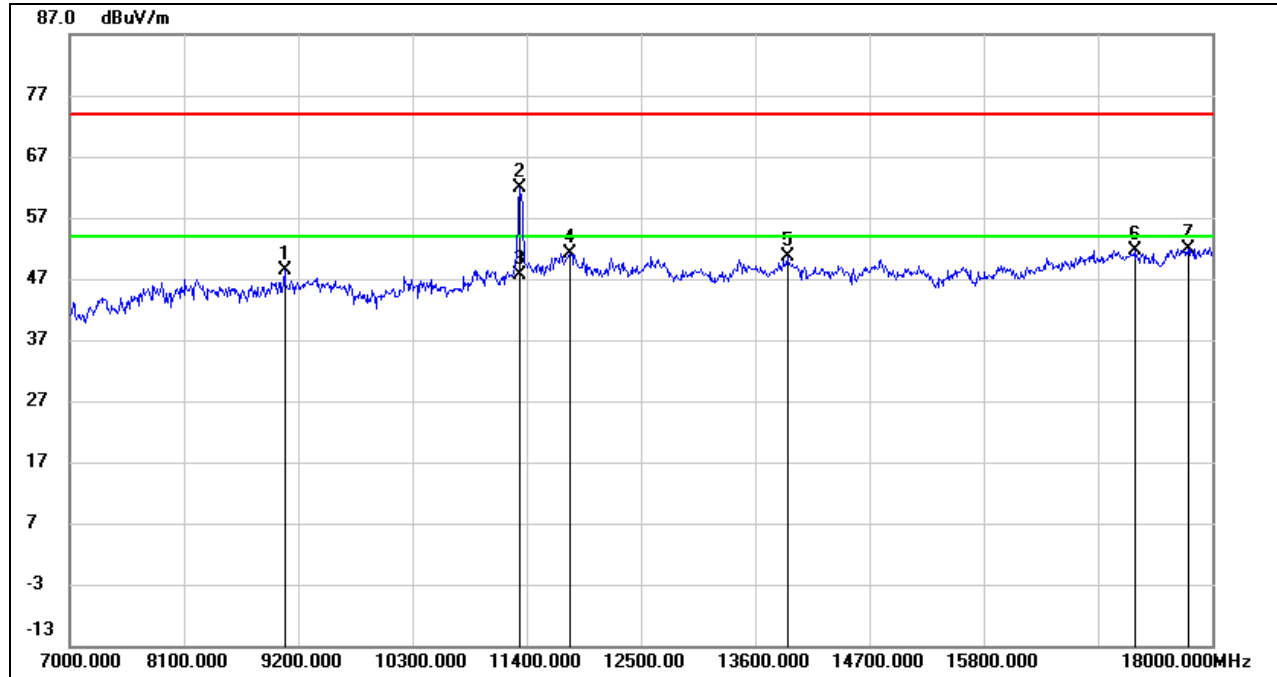




**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)**



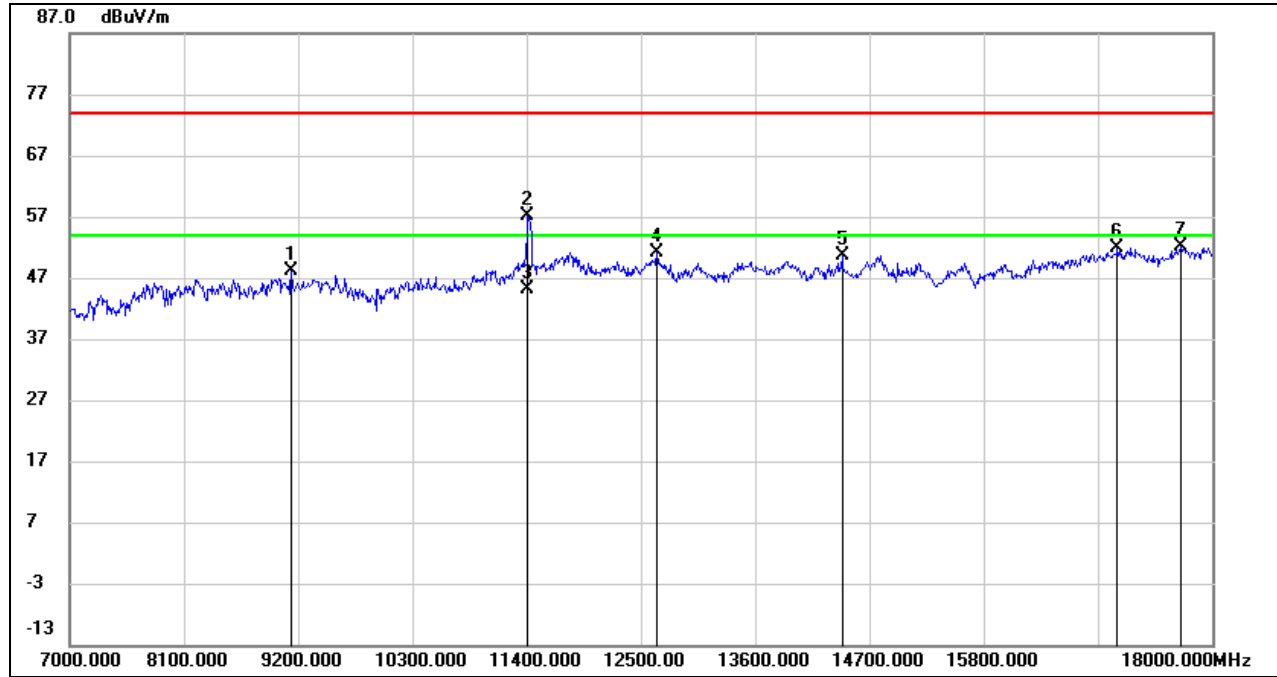
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9068.000	38.31	10.17	48.48	74.00	-25.52	peak
2	11334.000	47.86	14.02	61.88	74.00	-12.12	peak
3	11334.000	33.60	14.02	47.62	54.00	-6.38	AVG
4	11818.000	35.54	15.58	51.12	74.00	-22.88	peak
5	13908.000	33.77	16.90	50.67	74.00	-23.33	peak
6	17252.000	30.70	20.97	51.67	74.00	-22.33	peak
7	17769.000	29.41	22.48	51.89	74.00	-22.11	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
 5. For the transmitting duration, please refer to clause 7.1.  
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**STRADDLE CHANNEL 142**

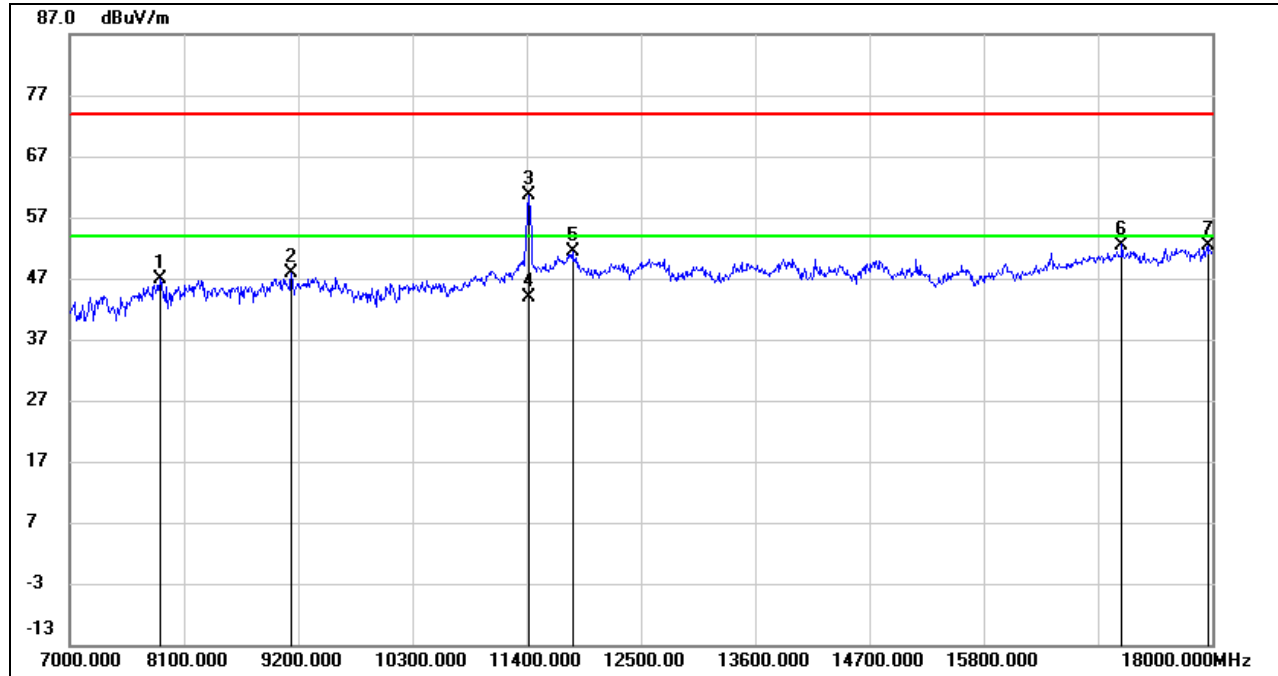
**HARMONICS AND SPURIOUS EMISSIONS (HORIZONTAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9134.000	38.28	9.73	48.01	74.00	-25.99	peak
2	11411.000	42.84	14.23	57.07	74.00	-16.93	peak
3	11411.000	30.87	14.23	45.10	54.00	-8.90	AVG
4	12654.000	35.87	15.38	51.25	74.00	-22.75	peak
5	14436.000	33.87	16.79	50.66	74.00	-23.34	peak
6	17087.000	31.39	20.58	51.97	74.00	-22.03	peak
7	17703.000	30.14	21.96	52.10	74.00	-21.90	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.
  5. For the transmitting duration, please refer to clause 7.1.
  6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
  7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
  8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (VERTICAL)**

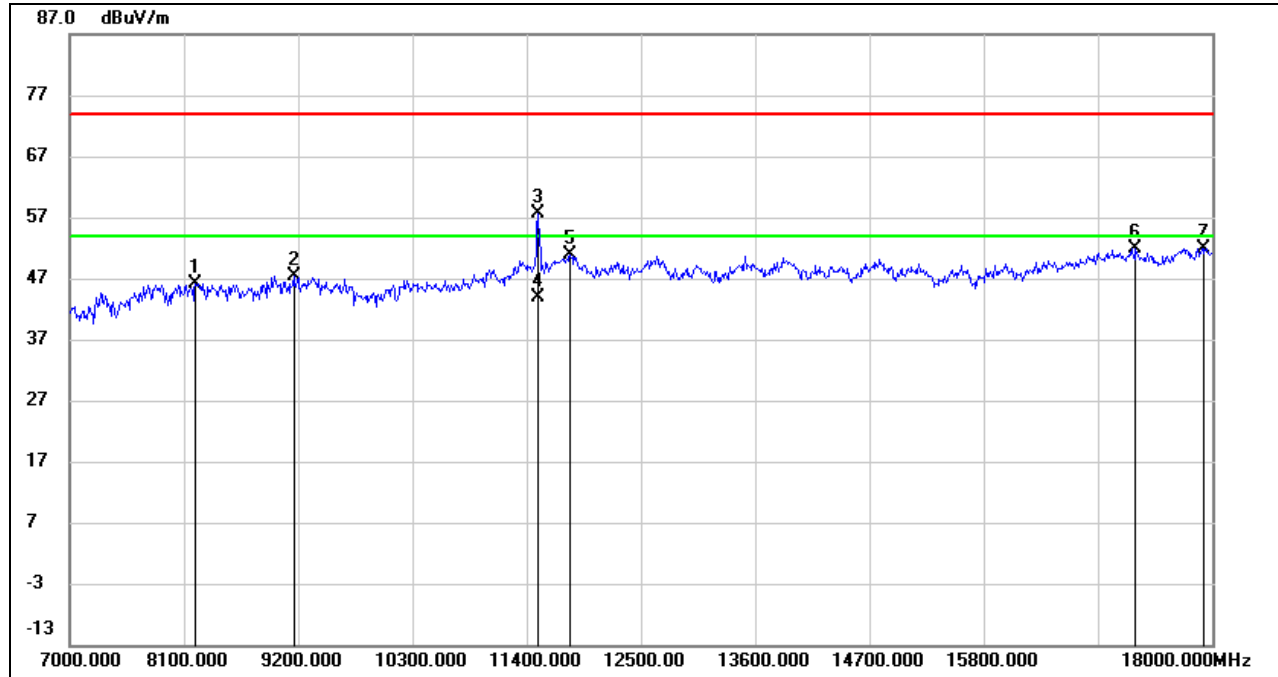


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7869.000	38.74	8.05	46.79	74.00	-27.21	peak
2	9134.000	38.21	9.73	47.94	74.00	-26.06	peak
3	11422.000	46.29	14.25	60.54	74.00	-13.46	peak
4	11422.000	29.61	14.25	43.86	54.00	-10.14	AVG
5	11840.000	35.92	15.56	51.48	74.00	-22.52	peak
6	17131.000	31.74	20.76	52.50	74.00	-21.50	peak
7	17956.000	29.71	22.68	52.39	74.00	-21.61	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.  
 5. For the transmitting duration, please refer to clause 7.1.  
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**UNII-3 BAND**

**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**

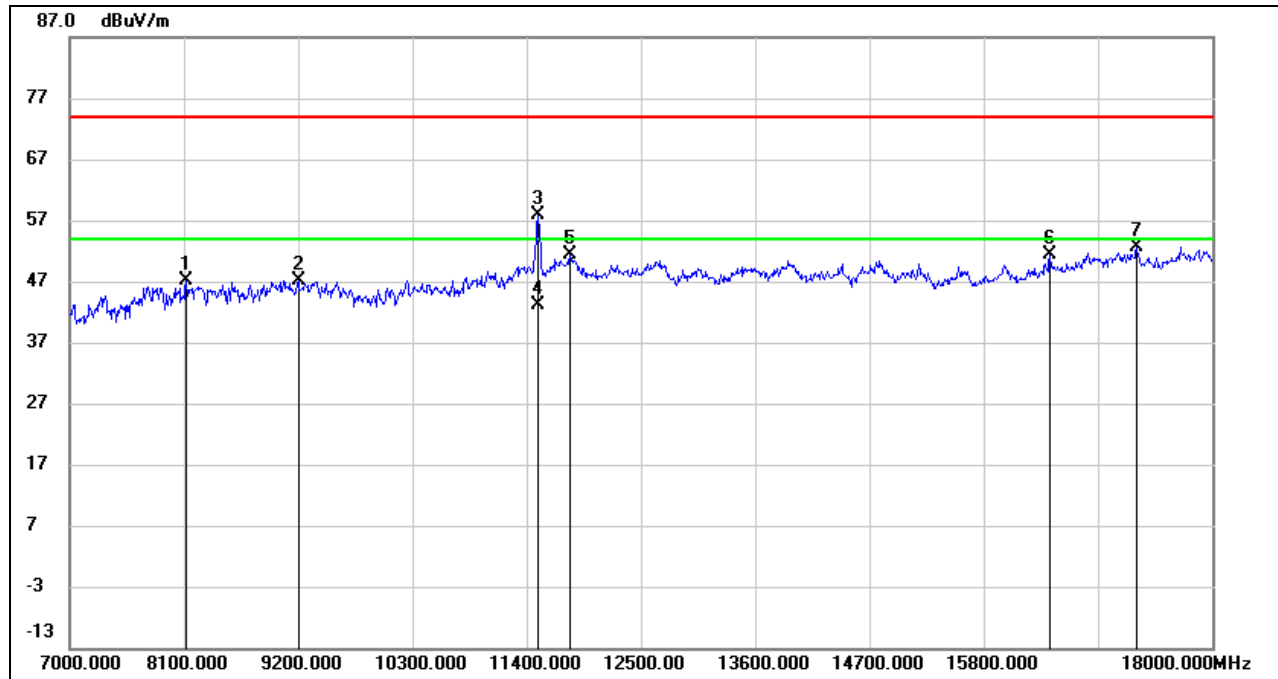


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8210.000	36.87	9.32	46.19	74.00	-27.81	peak
2	9156.000	37.90	9.58	47.48	74.00	-26.52	peak
3	11510.000	43.24	14.37	57.61	74.00	-16.39	peak
4	11510.000	29.55	14.37	43.92	54.00	-10.08	AVG
5	11818.000	35.32	15.58	50.90	74.00	-23.10	peak
6	17263.000	30.96	20.95	51.91	74.00	-22.09	peak
7	17923.000	29.27	22.69	51.96	74.00	-22.04	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.
  5. For the transmitting duration, please refer to clause 7.1.
  6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
  7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
  8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**

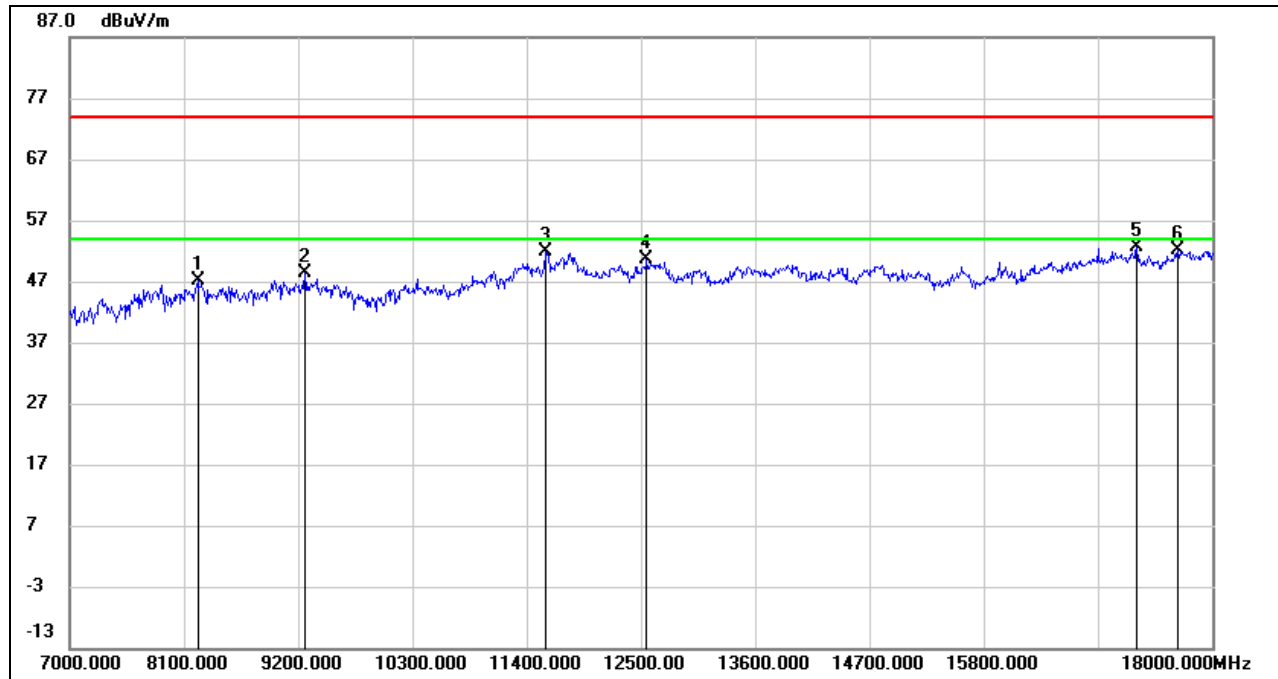


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8122.000	38.54	8.70	47.24	74.00	-26.76	peak
2	9200.000	37.79	9.29	47.08	74.00	-26.92	peak
3	11510.000	43.60	14.37	57.97	74.00	-16.03	peak
4	11510.000	28.86	14.37	43.23	54.00	-10.77	AVG
5	11818.000	35.89	15.58	51.47	74.00	-22.53	peak
6	16438.000	32.63	18.86	51.49	74.00	-22.51	peak
7	17274.000	31.68	20.93	52.61	74.00	-21.39	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.
  5. For the transmitting duration, please refer to clause 7.1.
  6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
  7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
  8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)**

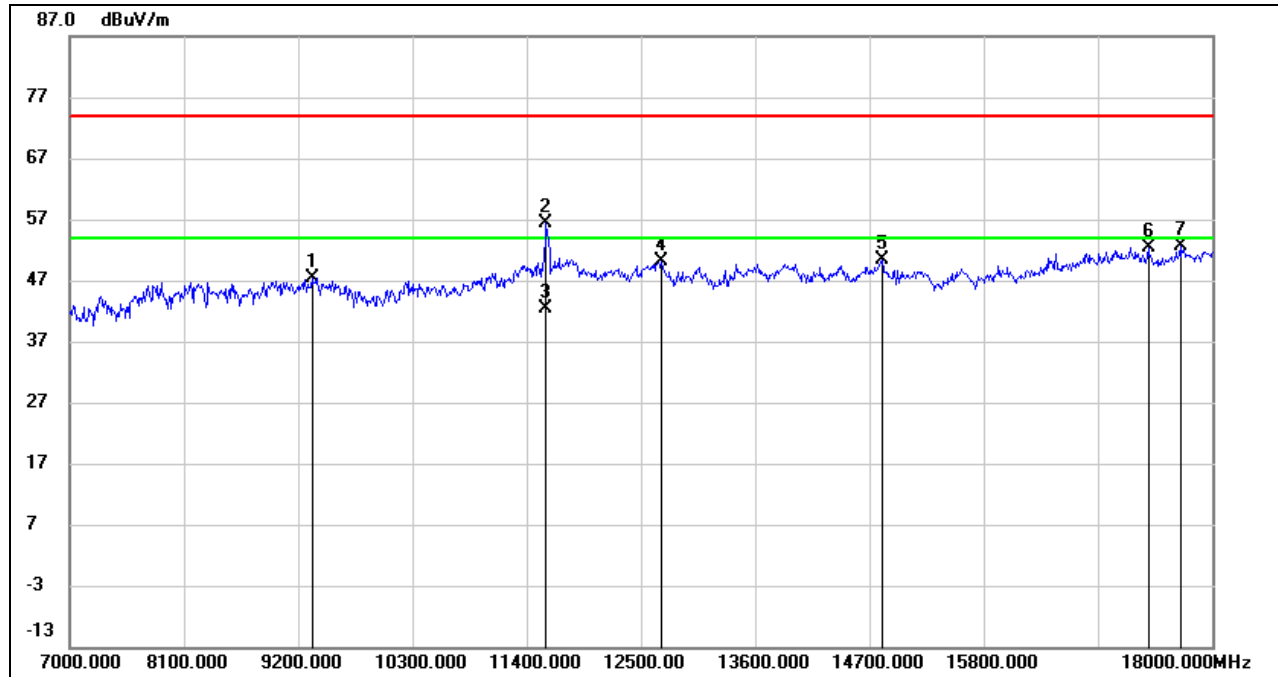


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8232.000	37.78	9.23	47.01	74.00	-26.99	peak
2	9266.000	38.87	9.62	48.49	74.00	-25.51	peak
3	11587.000	37.34	14.50	51.84	74.00	-22.16	peak
4	12555.000	35.32	15.32	50.64	74.00	-23.36	peak
5	17274.000	31.64	20.93	52.57	74.00	-21.43	peak
6	17670.000	30.40	21.70	52.10	74.00	-21.90	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)**



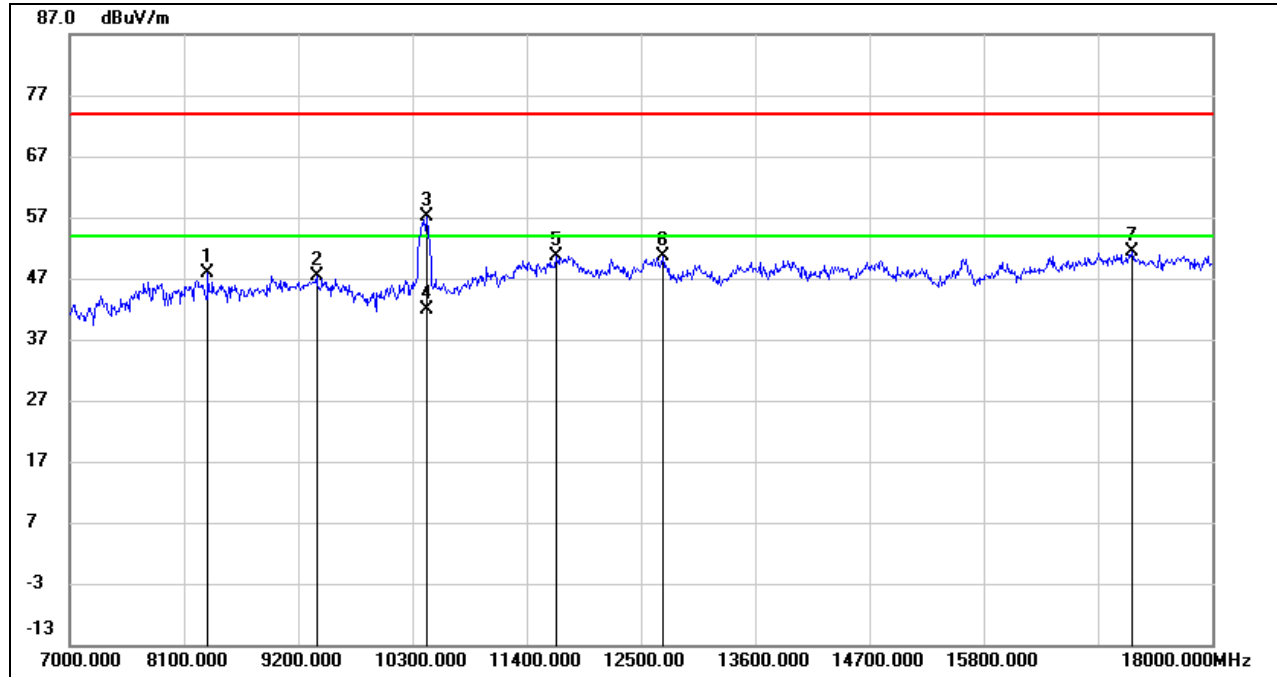
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9332.000	37.51	9.97	47.48	74.00	-26.52	peak
2	11587.000	41.91	14.50	56.41	74.00	-17.59	peak
3	11587.000	27.78	14.50	42.28	54.00	-11.72	AVG
4	12698.000	34.58	15.47	50.05	74.00	-23.95	peak
5	14821.000	33.46	16.81	50.27	74.00	-23.73	peak
6	17384.000	31.69	20.76	52.45	74.00	-21.55	peak
7	17692.000	30.65	21.87	52.52	74.00	-21.48	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
 5. For the transmitting duration, please refer to clause 7.1.  
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

### 8.3.4. 802.11ac VHT80 MIMO MODE

#### UNII-1 BAND

#### HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)

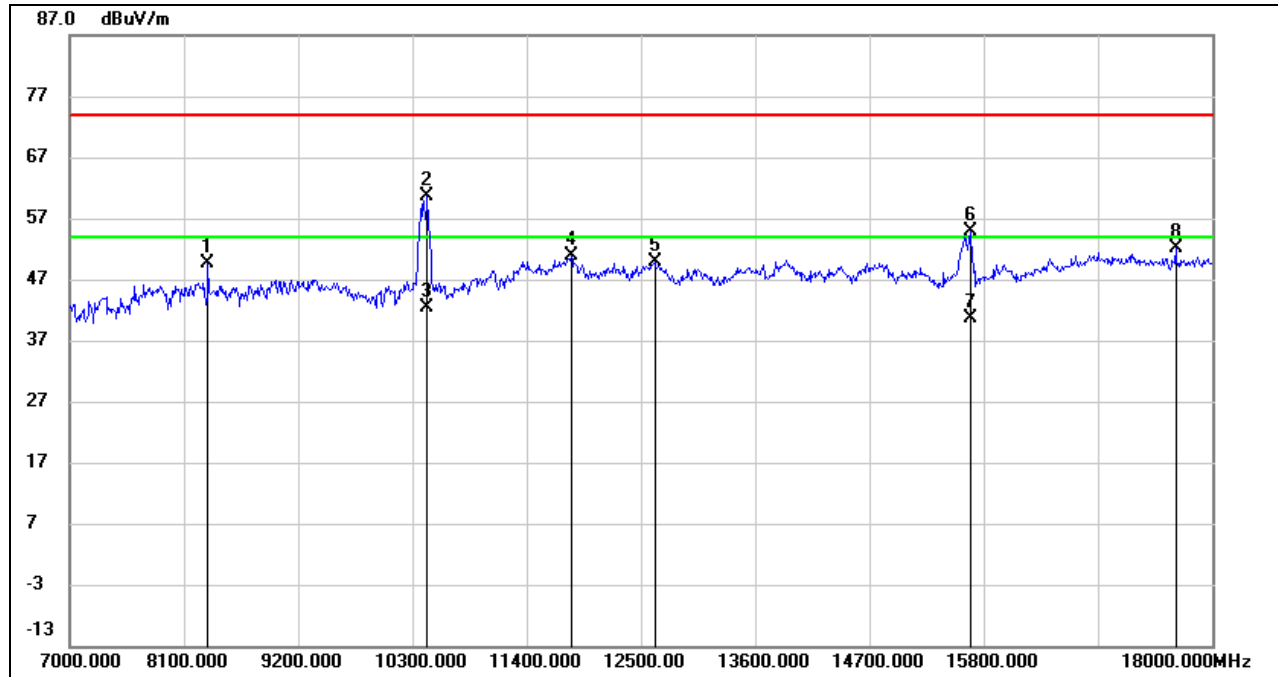


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8331.000	39.07	8.85	47.92	74.00	-26.08	peak
2	9376.000	37.28	10.19	47.47	74.00	-26.53	peak
3	10443.000	45.41	11.67	57.08	74.00	-16.92	peak
4	10443.000	30.17	11.67	41.84	54.00	-12.16	AVG
5	11686.000	35.71	14.99	50.70	74.00	-23.30	peak
6	12709.000	35.10	15.49	50.59	74.00	-23.41	peak
7	17230.000	30.41	20.99	51.40	74.00	-22.60	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.
  5. For the transmitting duration, please refer to clause 7.1.
  6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
  7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
  8. Since non-restricted band peak emissions are less than the average limit, they also comply with the  $-27dBm/MHz$  ( $68.2dBuV/m$ ) limit.



**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**



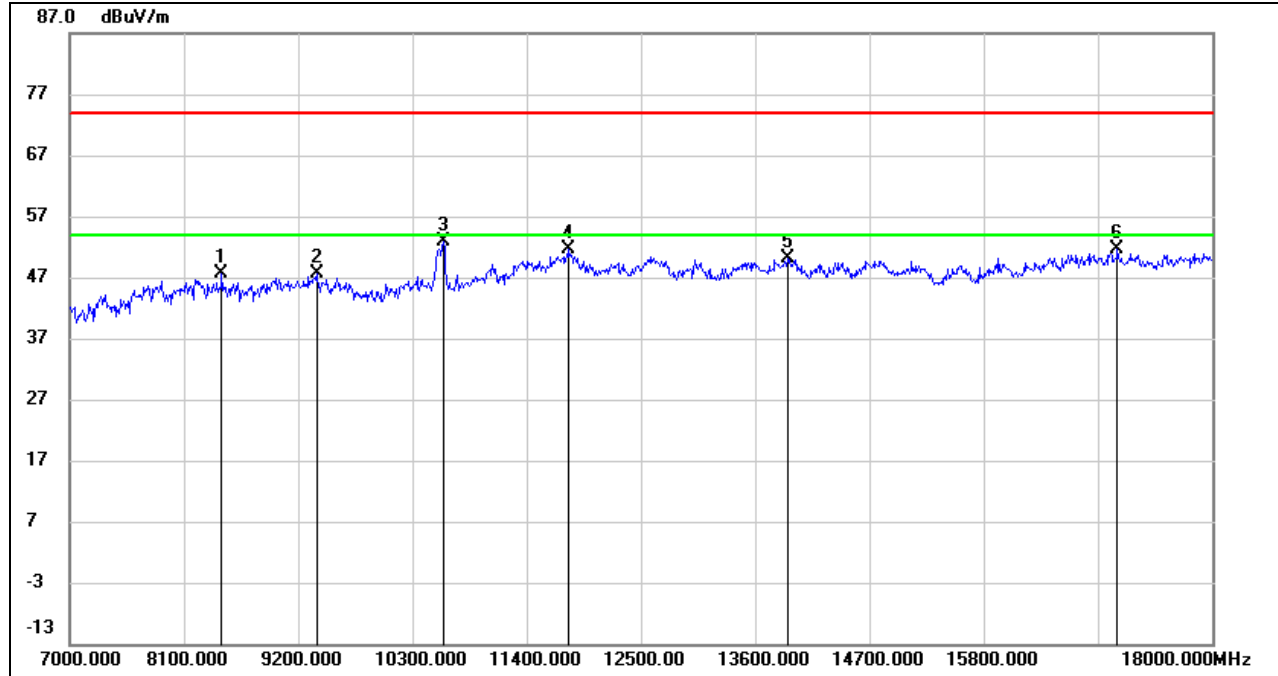
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8331.000	40.66	8.85	49.51	74.00	-24.49	peak
2	10443.000	48.90	11.67	60.57	74.00	-13.43	peak
3	10443.000	30.59	11.67	42.26	54.00	-11.74	AVG
4	11829.000	35.33	15.57	50.90	74.00	-23.10	peak
5	12632.000	34.63	15.35	49.98	74.00	-24.02	peak
6	15668.000	38.20	16.75	54.95	74.00	-19.05	peak
7	15668.000	23.78	16.75	40.53	54.00	-13.47	AVG
8	17648.000	30.70	21.54	52.24	74.00	-21.76	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
 5. For the transmitting duration, please refer to clause 7.1.  
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**UNII-2A BAND**

**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**

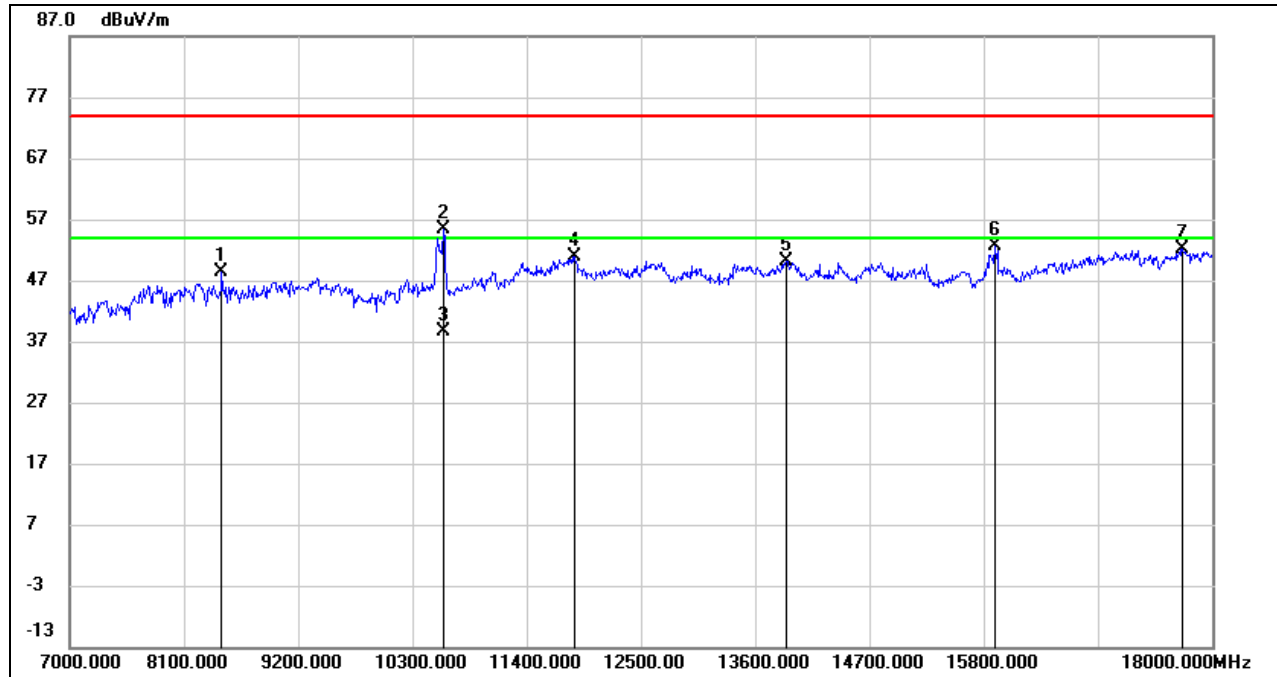


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8463.000	39.17	8.55	47.72	74.00	-26.28	peak
2	9376.000	37.40	10.19	47.59	74.00	-26.41	peak
3	10597.000	40.63	12.35	52.98	74.00	-21.02	peak
4	11807.000	36.05	15.61	51.66	74.00	-22.34	peak
5	13908.000	33.28	16.90	50.18	74.00	-23.82	peak
6	17087.000	31.01	20.58	51.59	74.00	-22.41	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**



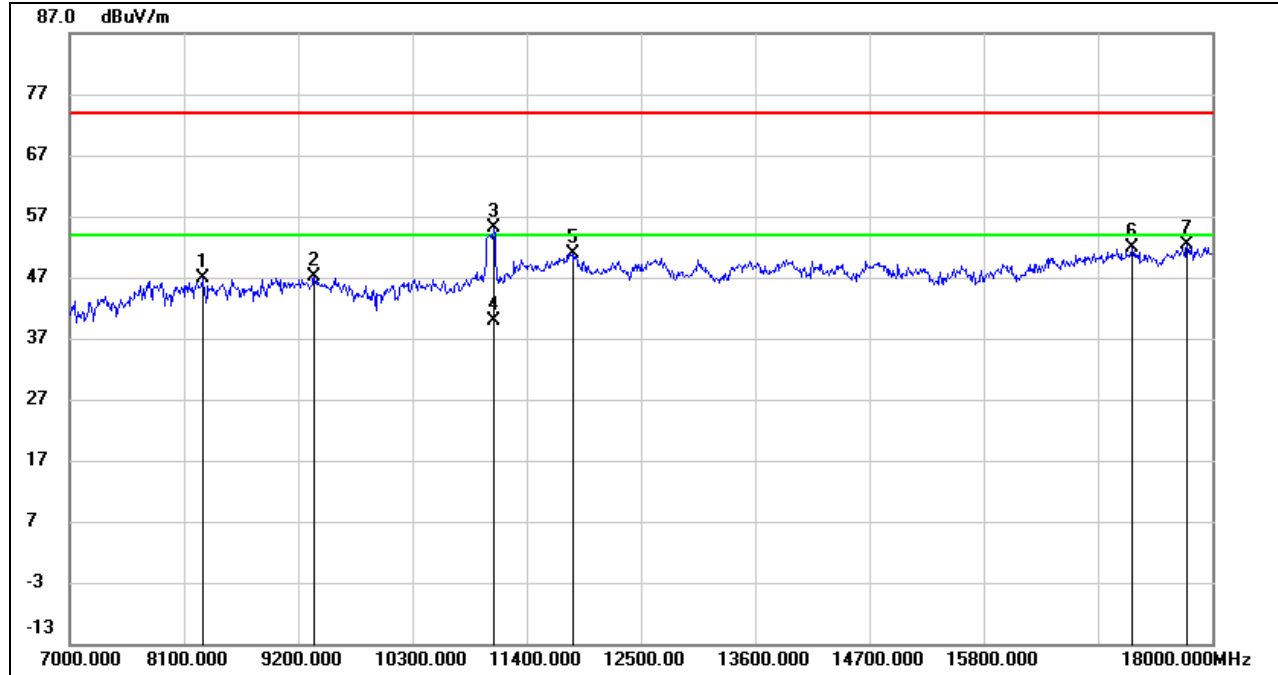
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8463.000	39.94	8.55	48.49	74.00	-25.51	peak
2	10597.000	43.08	12.35	55.43	74.00	-18.57	peak
3	10597.000	26.40	12.35	38.75	54.00	-15.25	AVG
4	11862.000	35.35	15.52	50.87	74.00	-23.13	peak
5	13897.000	33.30	16.90	50.20	74.00	-23.80	peak
6	15910.000	35.57	17.05	52.62	74.00	-21.38	peak
7	17714.000	30.08	22.04	52.12	74.00	-21.88	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.
  5. For the transmitting duration, please refer to clause 7.1.
  6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
  7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
  8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**UNII-2C BAND**

**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**

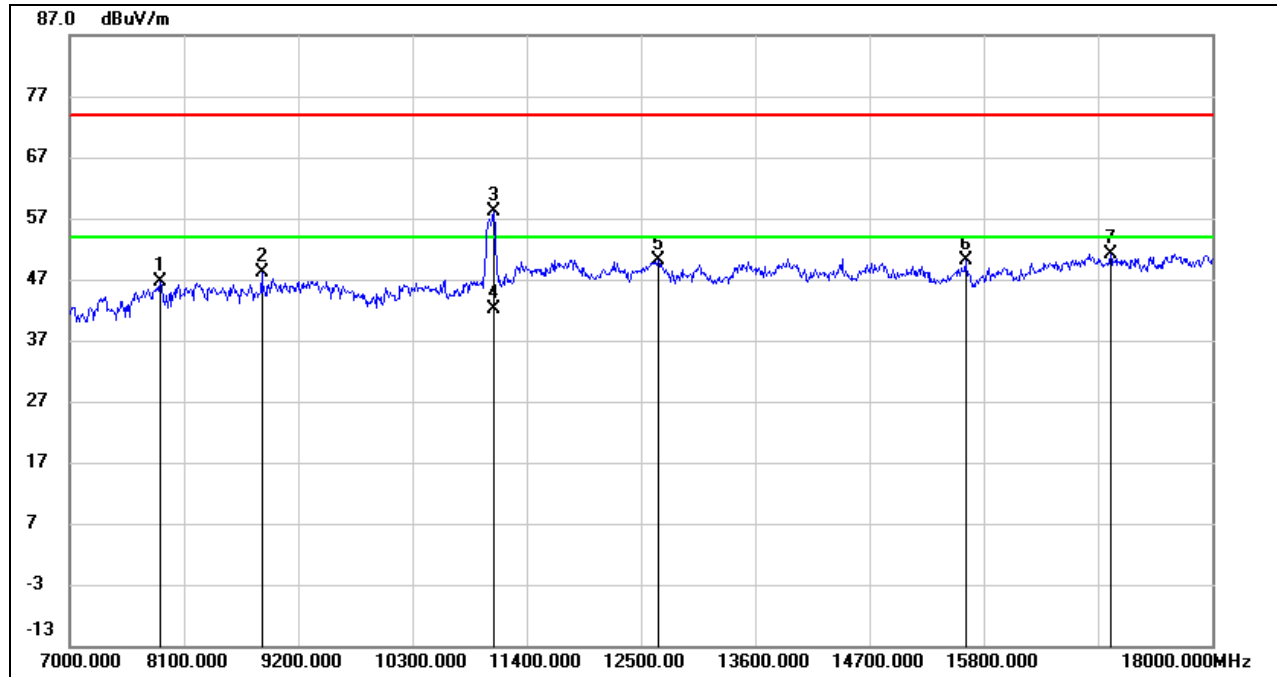


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8276.000	37.80	9.06	46.86	74.00	-27.14	peak
2	9354.000	37.16	10.07	47.23	74.00	-26.77	peak
3	11081.000	41.61	13.41	55.02	74.00	-18.98	peak
4	11081.000	26.35	13.41	39.76	54.00	-14.24	AVG
5	11840.000	35.28	15.56	50.84	74.00	-23.16	peak
6	17230.000	30.84	20.99	51.83	74.00	-22.17	peak
7	17758.000	30.07	22.40	52.47	74.00	-21.53	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
 5. For the transmitting duration, please refer to clause 7.1.  
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



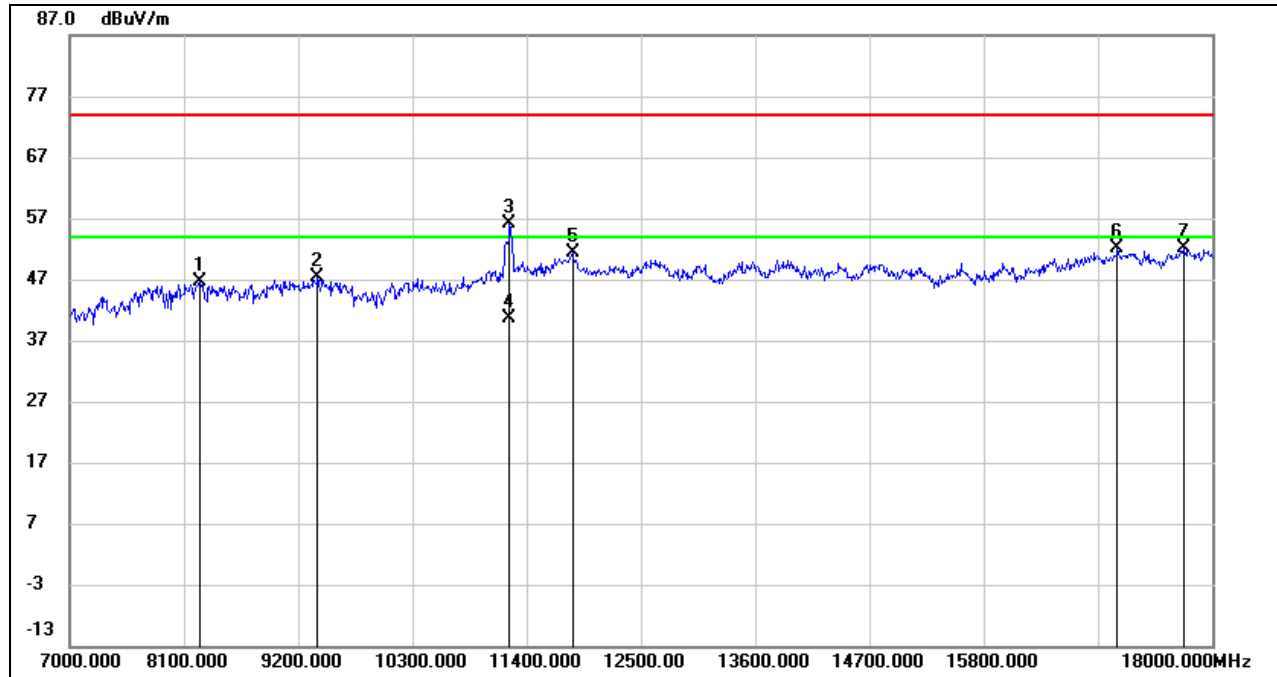
**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	7869.000	38.61	8.05	46.66	74.00	-27.34	peak
2	8848.000	39.20	9.03	48.23	74.00	-25.77	peak
3	11081.000	44.65	13.41	58.06	74.00	-15.94	peak
4	11081.000	28.75	13.41	42.16	54.00	-11.84	AVG
5	12665.000	34.73	15.41	50.14	74.00	-23.86	peak
6	15624.000	33.32	16.71	50.03	74.00	-23.97	peak
7	17021.000	30.91	20.32	51.23	74.00	-22.77	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.  
 5. For the transmitting duration, please refer to clause 7.1.  
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)**

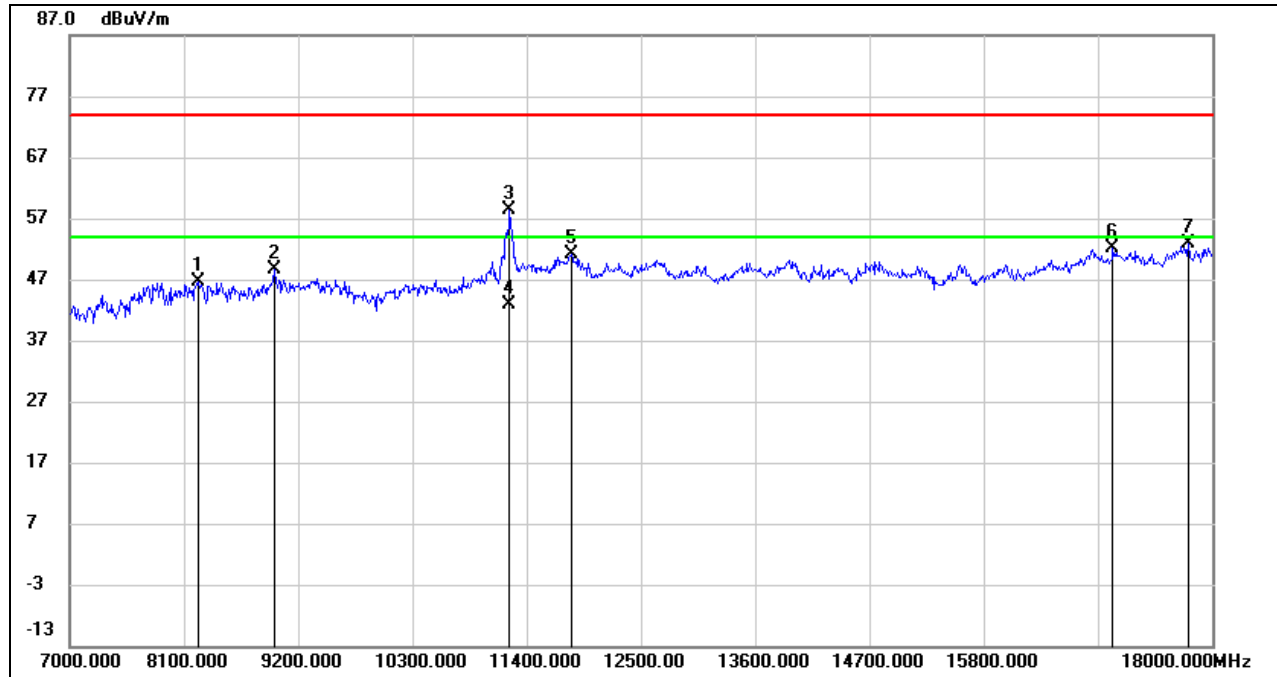


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8254.000	37.47	9.15	46.62	74.00	-27.38	peak
2	9387.000	37.06	10.24	47.30	74.00	-26.70	peak
3	11235.000	42.47	13.74	56.21	74.00	-17.79	peak
4	11235.000	26.99	13.74	40.73	54.00	-13.27	AVG
5	11840.000	35.73	15.56	51.29	74.00	-22.71	peak
6	17087.000	31.63	20.58	52.21	74.00	-21.79	peak
7	17725.000	29.99	22.13	52.12	74.00	-21.88	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
 5. For the transmitting duration, please refer to clause 7.1.  
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)**

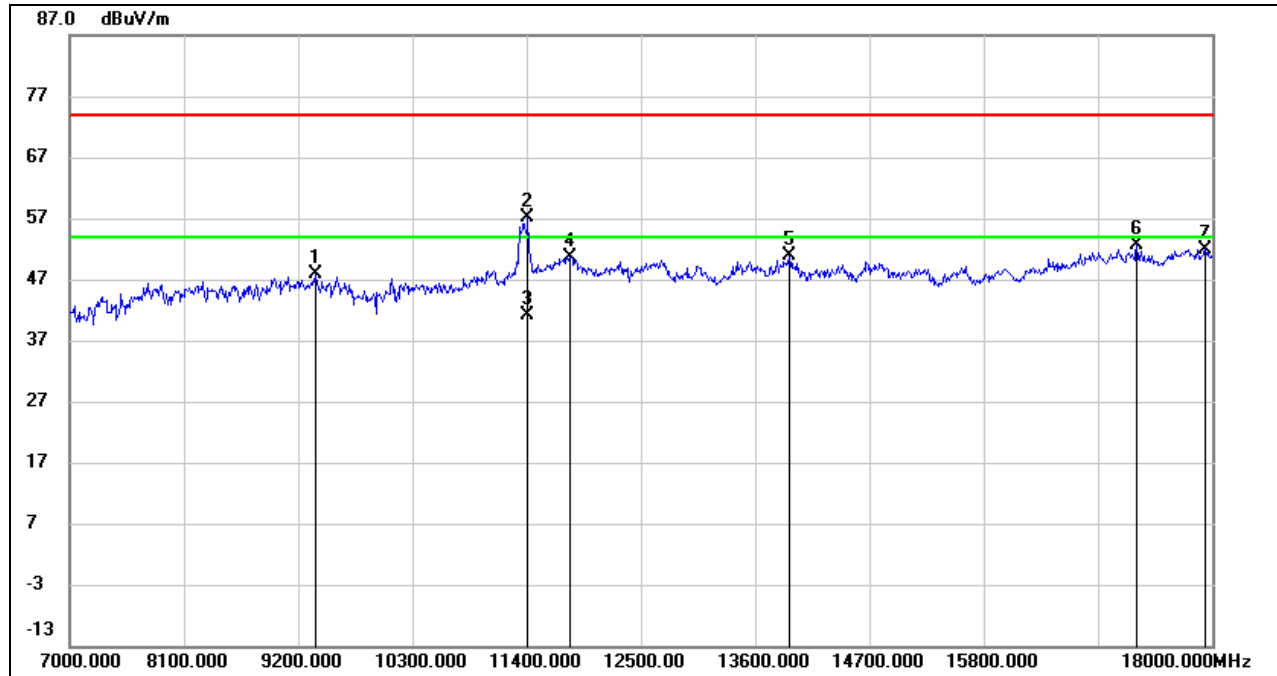


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8243.000	37.49	9.19	46.68	74.00	-27.32	peak
2	8969.000	38.30	10.31	48.61	74.00	-25.39	peak
3	11235.000	44.62	13.74	58.36	74.00	-15.64	peak
4	11235.000	29.19	13.74	42.93	54.00	-11.07	AVG
5	11829.000	35.65	15.57	51.22	74.00	-22.78	peak
6	17043.000	31.69	20.40	52.09	74.00	-21.91	peak
7	17769.000	30.36	22.48	52.84	74.00	-21.16	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
 5. For the transmitting duration, please refer to clause 7.1.  
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

**STRADDLE CHANNEL 138**

**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, HORIZONTAL)**

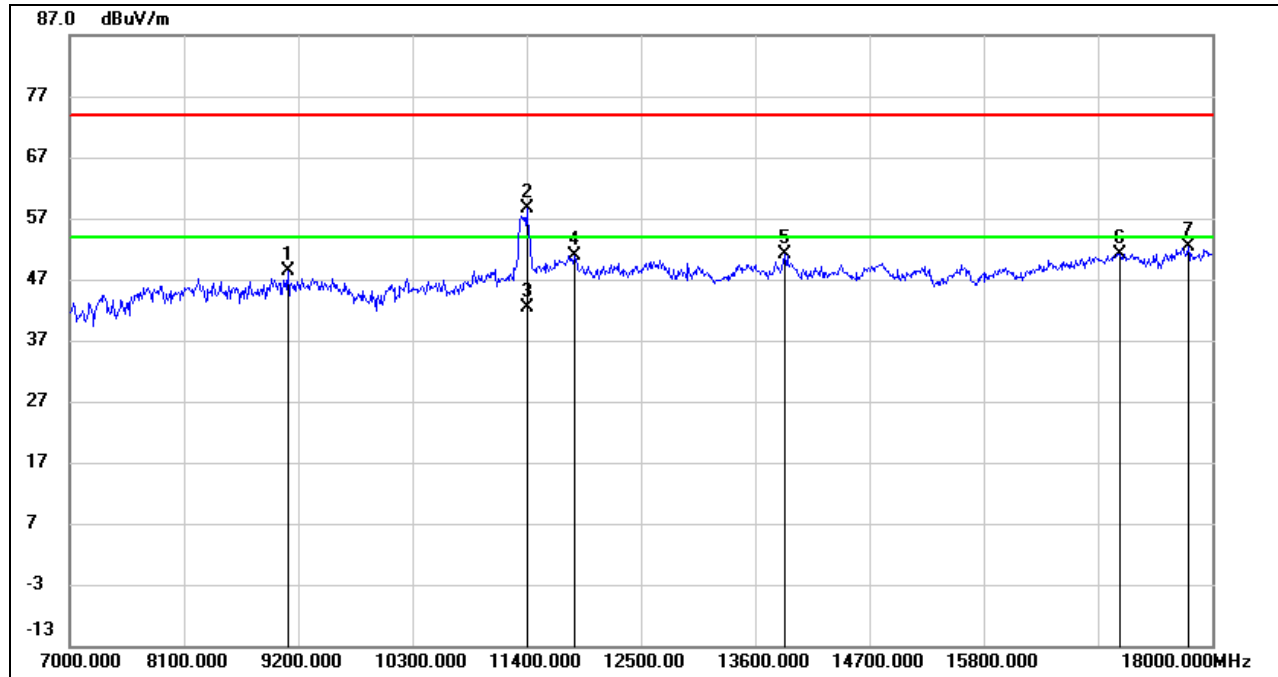


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9365.000	37.74	10.13	47.87	74.00	-26.13	peak
2	11411.000	42.92	14.23	57.15	74.00	-16.85	peak
3	11411.000	26.93	14.23	41.16	54.00	-12.84	AVG
4	11818.000	35.17	15.58	50.75	74.00	-23.25	peak
5	13930.000	33.91	16.89	50.80	74.00	-23.20	peak
6	17274.000	31.74	20.93	52.67	74.00	-21.33	peak
7	17934.000	29.31	22.69	52.00	74.00	-22.00	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. AVG: VBW=1/Ton, where: Ton is the transmitting duration.  
 5. For the transmitting duration, please refer to clause 7.1.  
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, VERTICAL)**



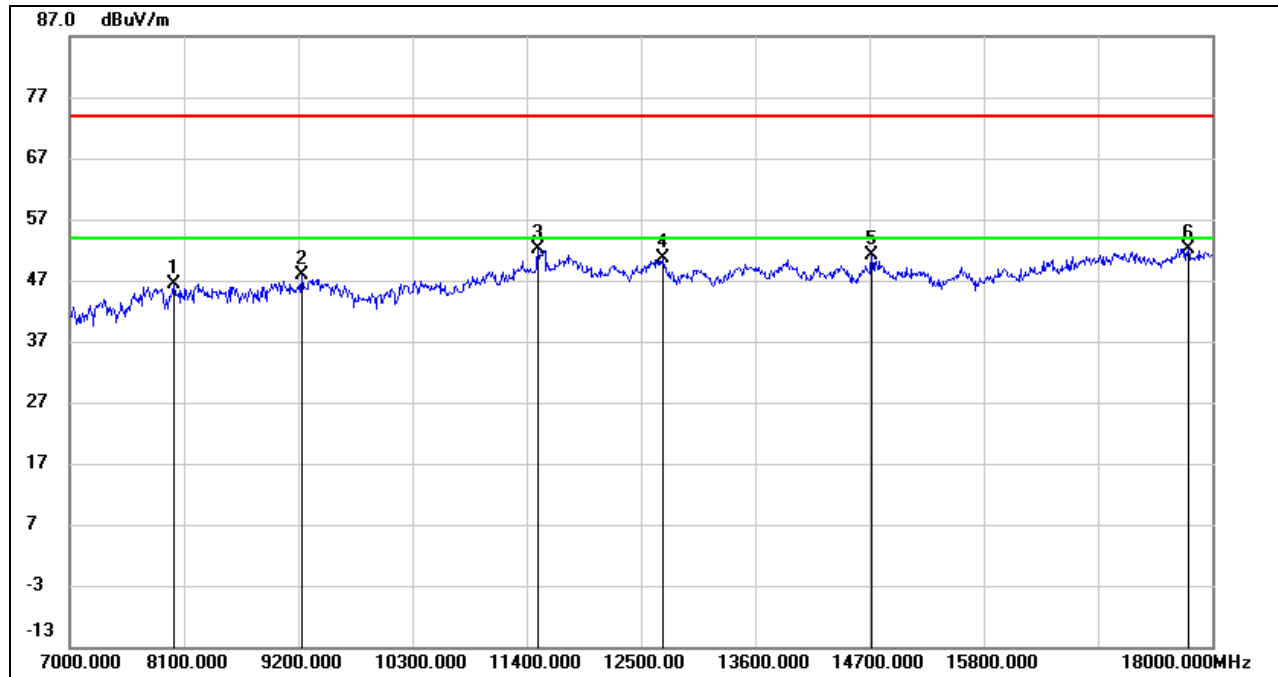
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9101.000	38.31	9.95	48.26	74.00	-25.74	peak
2	11400.000	44.51	14.22	58.73	74.00	-15.27	peak
3	11400.000	28.13	14.22	42.35	54.00	-11.65	AVG
4	11862.000	35.34	15.52	50.86	74.00	-23.14	peak
5	13886.000	34.10	16.91	51.01	74.00	-22.99	peak
6	17109.000	30.55	20.67	51.22	74.00	-22.78	peak
7	17769.000	29.80	22.48	52.28	74.00	-21.72	peak

- Note:
1. Measurement = Reading Level + Correct Factor.
  2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
  3. Peak: Peak detector.
  4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.
  5. For the transmitting duration, please refer to clause 7.1.
  6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.
  7. Proper operation of the transmitter prior to adding the filter to the measurement chain.
  8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**UNII-3 BAND**

**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, HORIZONTAL)**

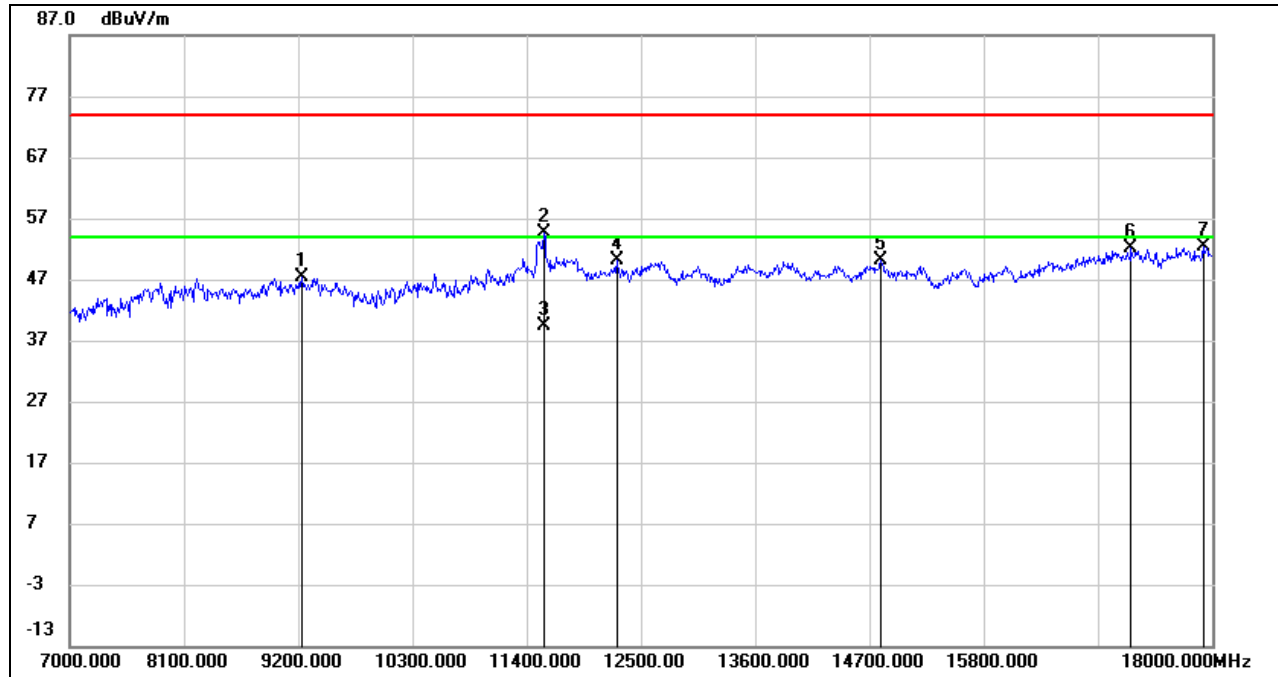


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	8001.000	38.68	7.67	46.35	74.00	-27.65	peak
2	9233.000	38.53	9.46	47.99	74.00	-26.01	peak
3	11510.000	37.65	14.37	52.02	74.00	-21.98	peak
4	12709.000	35.04	15.49	50.53	74.00	-23.47	peak
5	14722.000	34.37	16.67	51.04	74.00	-22.96	peak
6	17769.000	29.62	22.48	52.10	74.00	-21.90	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 5. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 6. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.



**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, VERTICAL)**



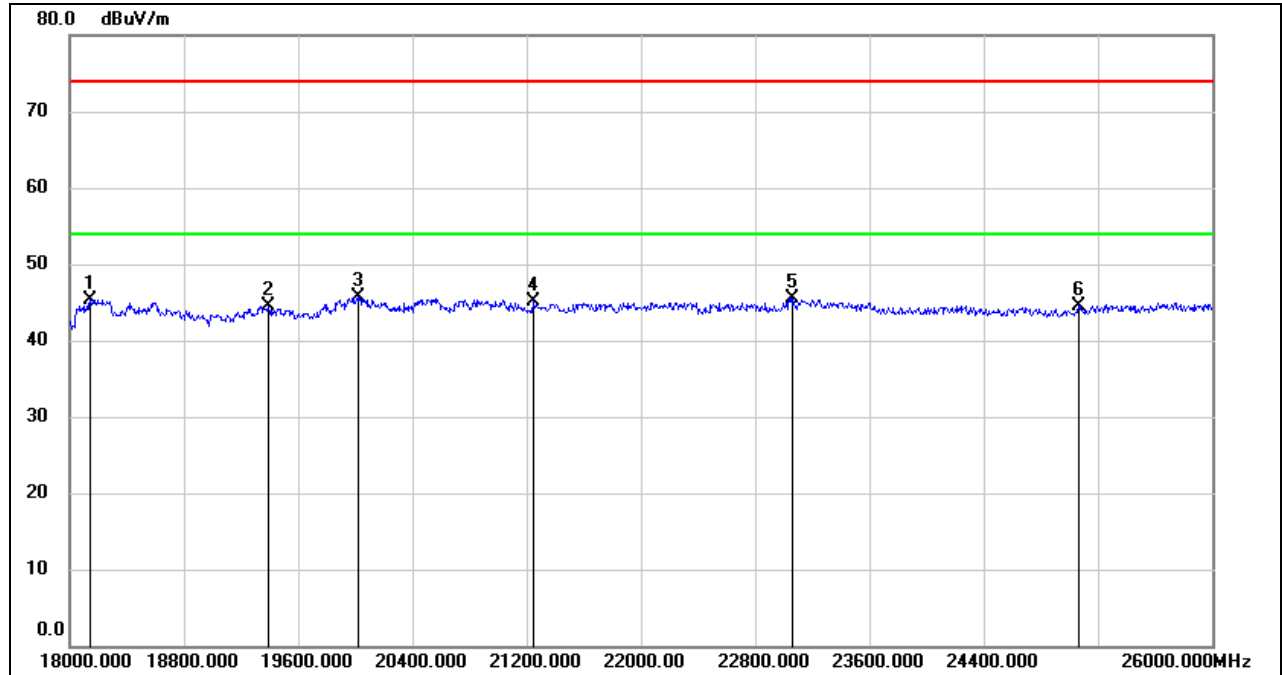
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	9233.000	37.97	9.46	47.43	74.00	-26.57	peak
2	11565.000	40.12	14.45	54.57	74.00	-19.43	peak
3	11565.000	24.82	14.45	39.27	54.00	-14.73	AVG
4	12269.000	35.00	15.24	50.24	74.00	-23.76	peak
5	14810.000	33.22	16.80	50.02	74.00	-23.98	peak
6	17219.000	31.22	21.01	52.23	74.00	-21.77	peak
7	17912.000	29.66	22.69	52.35	74.00	-21.65	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. AVG:  $VBW=1/Ton$ , where: Ton is the transmitting duration.  
 5. For the transmitting duration, please refer to clause 7.1.  
 6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.  
 7. Proper operation of the transmitter prior to adding the filter to the measurement chain.  
 8. Since non-restricted band peak emissions are less than the average limit, they also comply with the -27dBm/MHz (68.2dBuV/m) limit.

## 8.4. SPURIOUS EMISSIONS (18 GHz ~ 26 GHz)

### 8.4.1. 802.11ac VHT80 MODE

#### SPURIOUS EMISSIONS (UNII-1 BAND LOW CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)

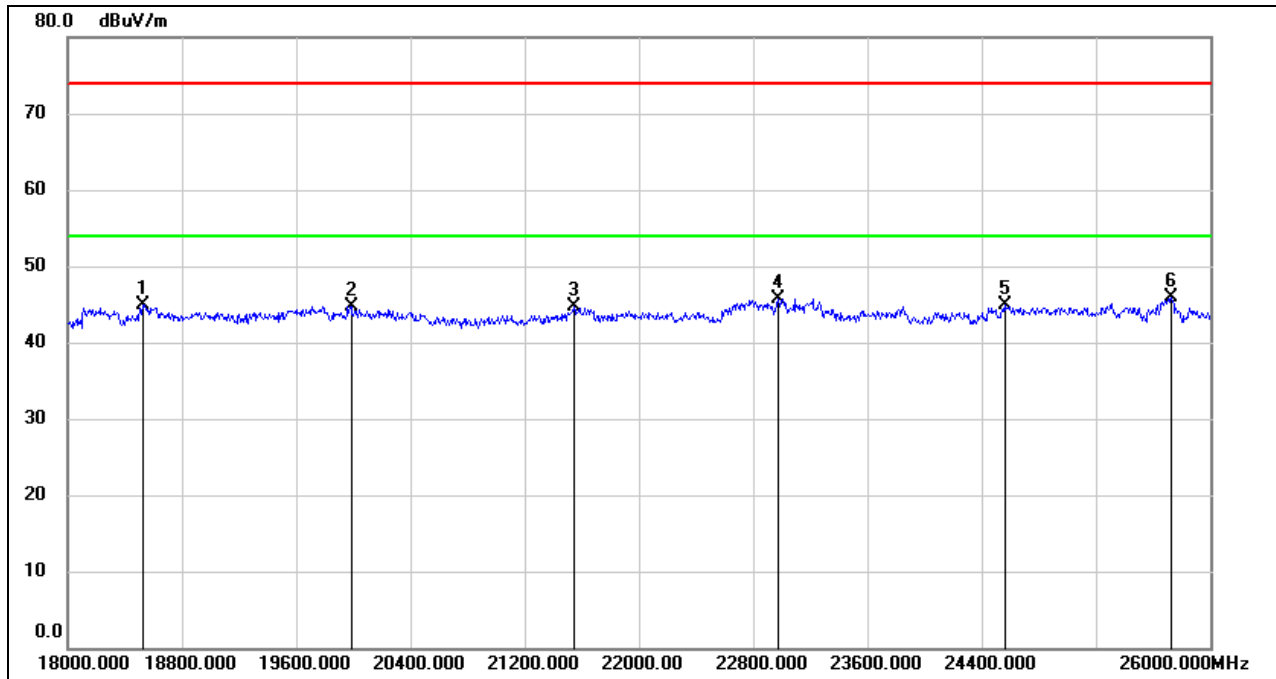


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18144.000	50.77	-5.48	45.29	74.00	-28.71	peak
2	19392.000	50.12	-5.57	44.55	74.00	-29.45	peak
3	20024.000	51.25	-5.47	45.78	74.00	-28.22	peak
4	21248.000	49.79	-4.77	45.02	74.00	-28.98	peak
5	23064.000	48.99	-3.42	45.57	74.00	-28.43	peak
6	25064.000	46.42	-1.99	44.43	74.00	-29.57	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. The preamplifier only effect to the above 18GHz signal and no filter added to the measurement chain.



**SPURIOUS EMISSIONS (UNII-1 BAND LOW CHANNEL, VERTICAL, WORST-CASE CONFIGURATION)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18528.000	50.11	-5.26	44.85	74.00	-29.15	peak
2	19984.000	50.21	-5.44	44.77	74.00	-29.23	peak
3	21544.000	49.26	-4.63	44.63	74.00	-29.37	peak
4	22976.000	49.26	-3.46	45.80	74.00	-28.20	peak
5	24560.000	47.29	-2.32	44.97	74.00	-29.03	peak
6	25728.000	46.61	-0.72	45.89	74.00	-28.11	peak

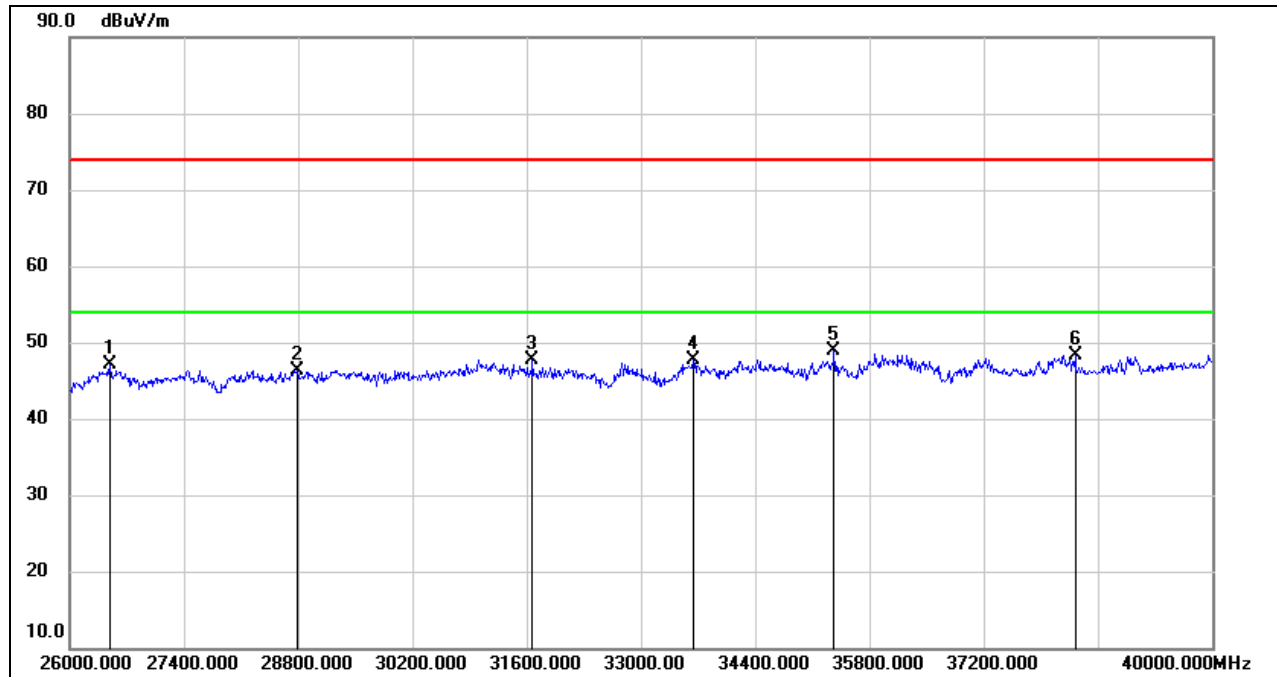
Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. The preamplifier only effect to the above 18GHz signal and no filter added to the measurement chain.

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

## 8.5. SPURIOUS EMISSIONS (26 GHz ~ 40 GHz)

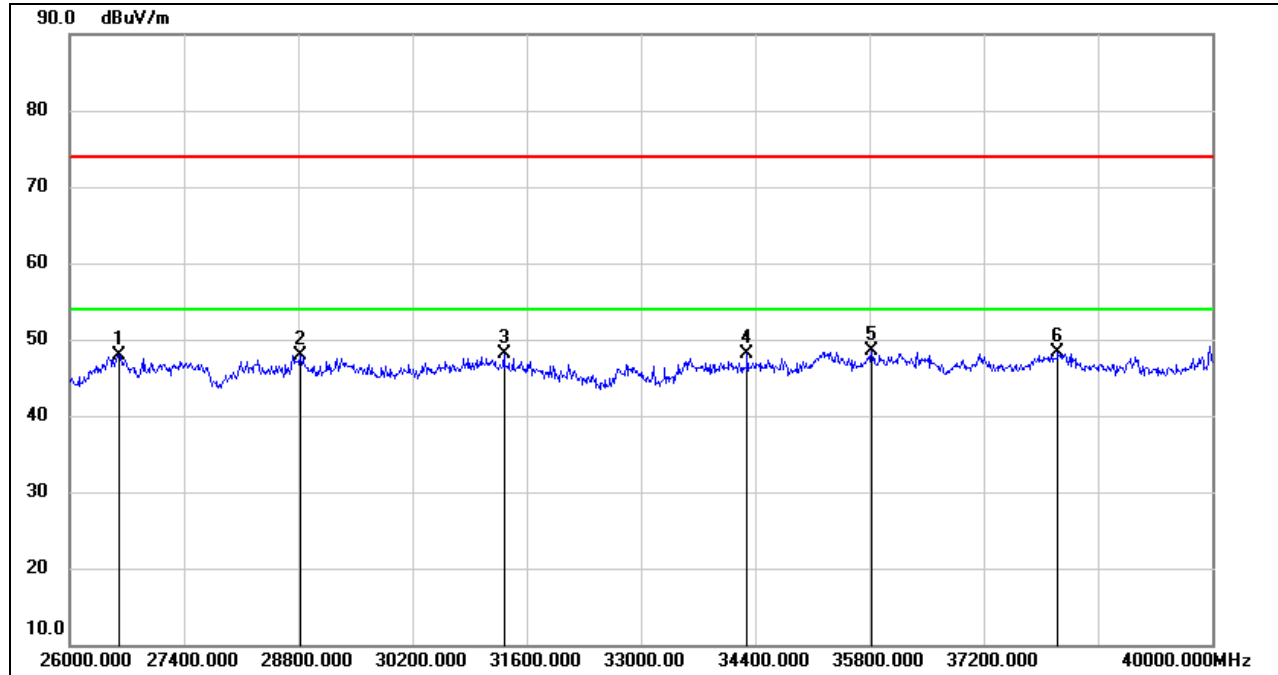
### 8.5.1. 802.11ac VHT80 MODE

#### SPURIOUS EMISSIONS (UNII-1 BAND LOW CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	26490.000	51.79	-4.74	47.05	74.00	-26.95	peak
2	28786.000	46.99	-0.64	46.35	74.00	-27.65	peak
3	31670.000	48.86	-1.21	47.65	74.00	-26.35	peak
4	33644.000	47.31	0.42	47.73	74.00	-26.27	peak
5	35366.000	46.40	2.59	48.99	74.00	-25.01	peak
6	38320.000	44.56	3.77	48.33	74.00	-25.67	peak

Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. The preamplifier only effect to the above 18GHz signal and no filter added to the measurement chain.

**SPURIOUS EMISSIONS (UNII-1 BAND LOW CHANNEL, VERTICAL, WORST-CASE CONFIGURATION)**

No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	26602.000	52.78	-4.80	47.98	74.00	-26.02	peak
2	28828.000	48.63	-0.79	47.84	74.00	-26.16	peak
3	31320.000	49.11	-0.93	48.18	74.00	-25.82	peak
4	34302.000	46.95	1.10	48.05	74.00	-25.95	peak
5	35828.000	44.75	3.67	48.42	74.00	-25.58	peak
6	38110.000	44.83	3.53	48.36	74.00	-25.64	peak

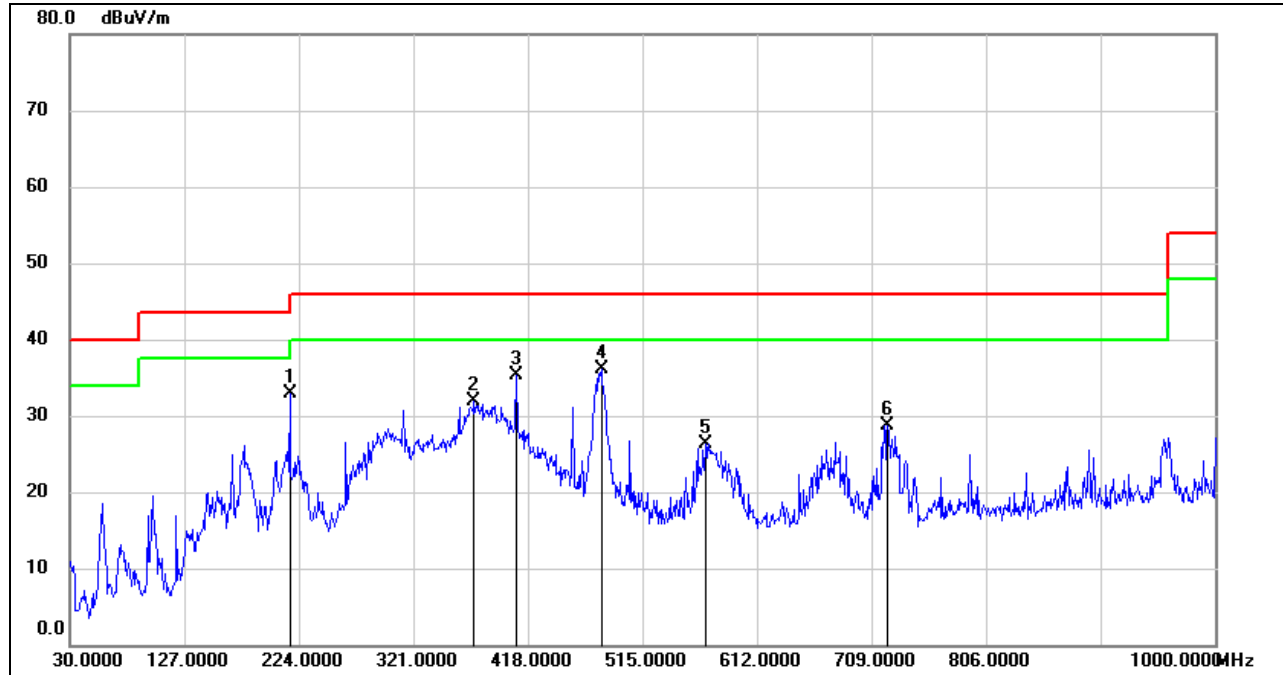
Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Peak: Peak detector.  
 4. The preamplifier only effect to the above 18GHz signal and no filter added to the measurement chain.

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

## 8.6. SPURIOUS EMISSIONS (30 MHz ~ 1 GHz)

### 8.6.1. 802.11ac VHT80 MODE

#### SPURIOUS EMISSIONS (UNII-1 BAND LOW CHANNEL, HORIZONTAL, WORST-CASE CONFIGURATION)



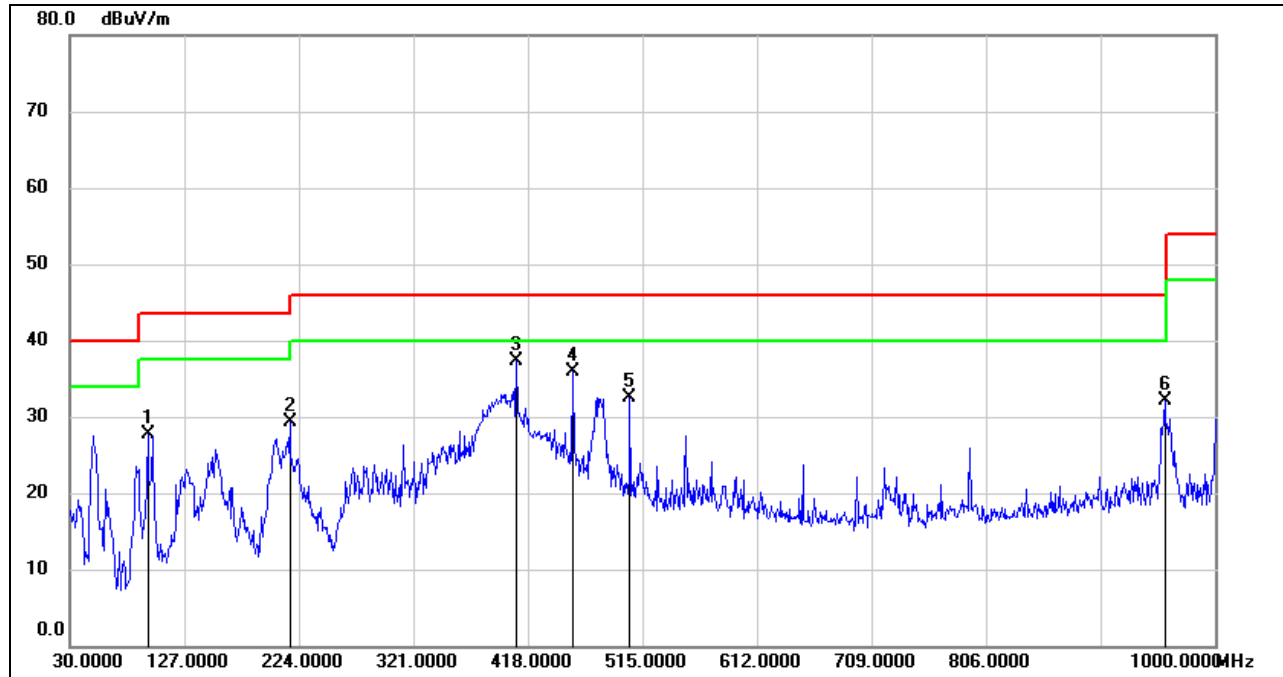
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	216.2400	50.66	-17.84	32.82	46.00	-13.18	QP
2	372.4100	45.69	-13.87	31.82	46.00	-14.18	QP
3	408.3000	48.47	-13.17	35.30	46.00	-10.70	QP
4	480.0800	47.98	-11.79	36.19	46.00	-9.81	QP
5	568.3500	36.47	-10.11	26.36	46.00	-19.64	QP
6	722.5800	36.85	-8.08	28.77	46.00	-17.23	QP

- Note: 1. Result Level = Read Level + Correct Factor.  
 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.  
 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.





**SPURIOUS EMISSIONS (UNII-1 BAND LOW CHANNEL, VERTICAL, WORST-CASE CONFIGURATION)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	95.9600	49.17	-21.44	27.73	43.50	-15.77	QP
2	216.2400	47.08	-17.84	29.24	46.00	-16.76	QP
3	408.3000	50.51	-13.17	37.34	46.00	-8.66	QP
4	455.8300	48.22	-12.27	35.95	46.00	-10.05	QP
5	504.3300	43.96	-11.37	32.59	46.00	-13.41	QP
6	957.3200	36.51	-4.50	32.01	46.00	-13.99	QP

- Note: 1. Result Level = Read Level + Correct Factor.  
 2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.  
 3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto

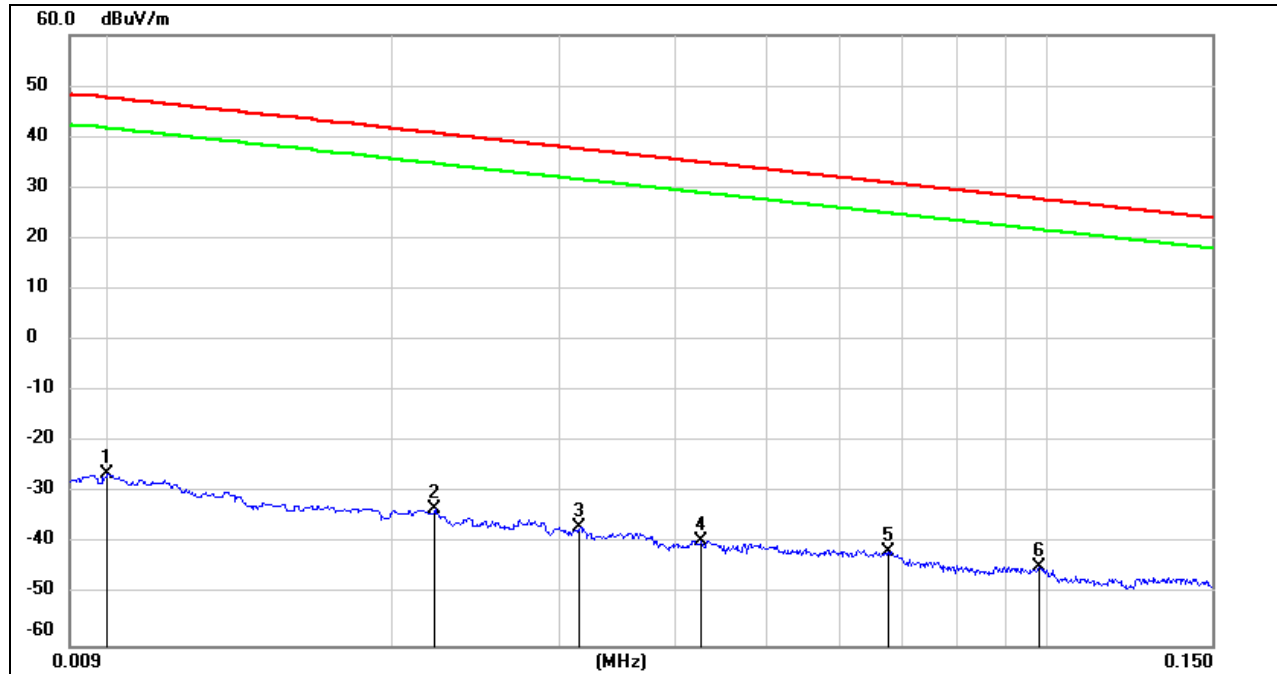
Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

## 8.7. SPURIOUS EMISSIONS BELOW 30 MHz

### 8.7.1. 802.11ac VHT80 MODE

#### SPURIOUS EMISSIONS (UNII-3 BAND LOW CHANNEL, LOOP ANTENNA FACE ON TO THE EUT, WORST-CASE CONFIGURATION)

9 kHz~ 150 kHz



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.0100	75.22	-101.40	-26.18	47.6	-77.68	-3.90	-73.78	peak
2	0.0221	68.13	-101.35	-33.22	40.71	-84.72	-10.79	-73.93	peak
3	0.0316	64.74	-101.40	-36.66	37.61	-88.16	-13.89	-74.27	peak
4	0.0427	62.14	-101.45	-39.31	34.99	-90.81	-16.51	-74.30	peak
5	0.0675	60.14	-101.56	-41.42	31.02	-92.92	-20.48	-72.44	peak
6	0.0981	57.27	-101.78	-44.51	27.77	-96.01	-23.73	-72.28	peak

Note: 1. Measurement = Reading Level + Correct Factor.

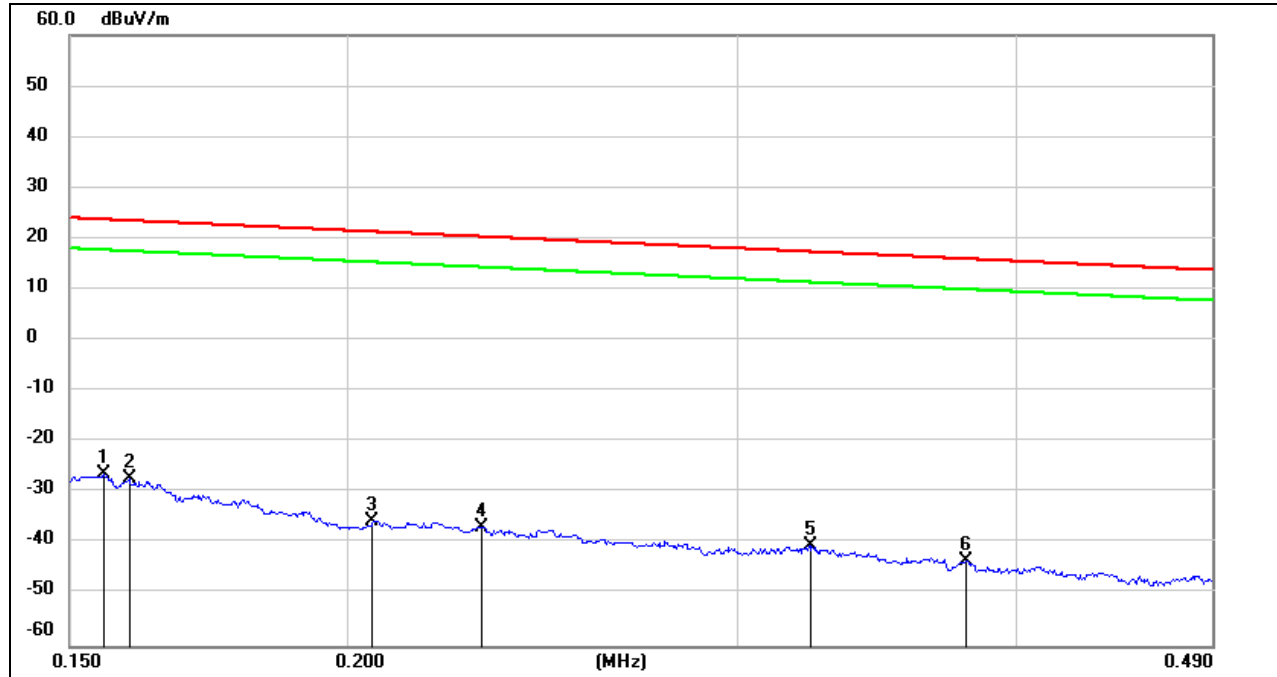
2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

4.  $\text{dBuA/m} = \text{dBuV/m} - 20\log_{10}(120\pi) = \text{dBuV/m} - 51.5$ .



**150 kHz ~ 490 kHz**

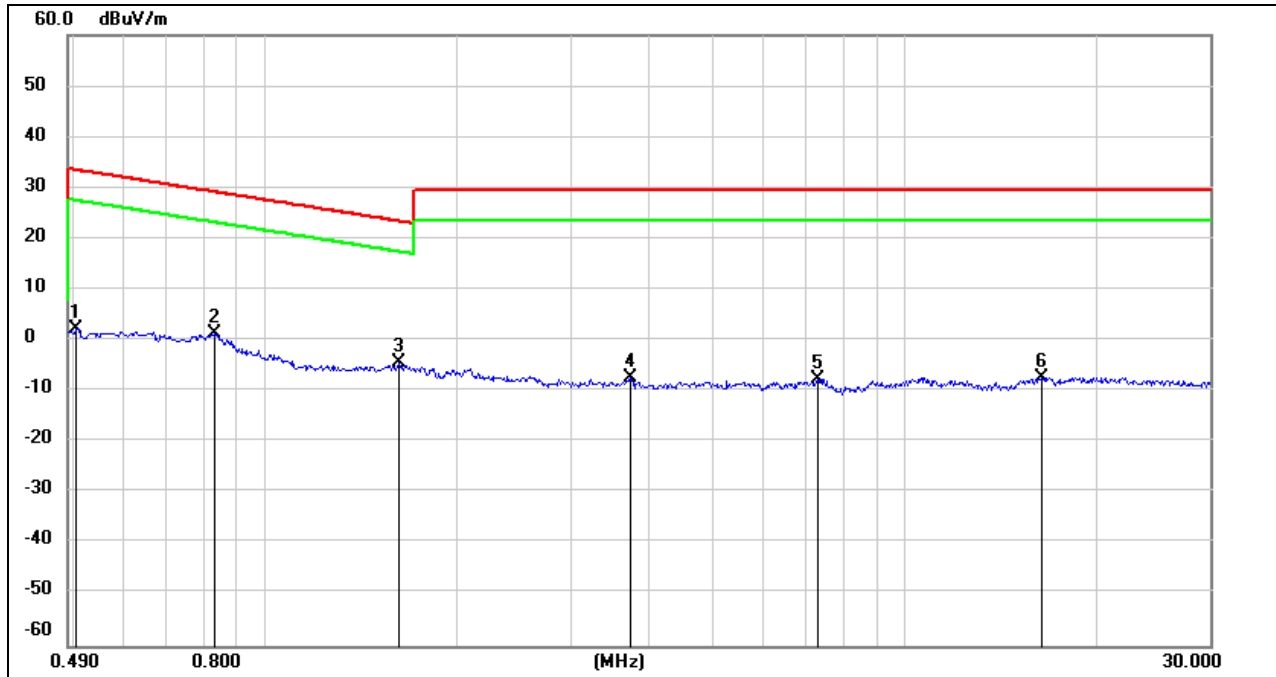


No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.1554	75.27	-101.65	-26.38	23.77	-77.88	-27.73	-50.15	peak
2	0.1595	74.36	-101.65	-27.29	23.55	-78.79	-27.95	-50.84	peak
3	0.2053	66.29	-101.73	-35.44	21.35	-86.94	-30.15	-56.79	peak
4	0.2298	65.05	-101.77	-36.72	20.37	-88.22	-31.13	-57.09	peak
5	0.3234	61.48	-101.88	-40.4	17.41	-91.90	-34.09	-57.81	peak
6	0.3800	58.52	-101.94	-43.42	16.01	-94.92	-35.49	-59.43	peak

- Note: 1. Measurement = Reading Level + Correct Factor.  
 2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.  
 3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.  
 4.  $\text{dBuA/m} = \text{dBuV/m} - 20\log_{10}(120\pi) = \text{dBuV/m} - 51.5$ .



**490 kHz ~ 30 MHz**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	FCC Result (dBuV/m)	FCC Limit (dBuV/m)	ISED Result (dBuA/m)	ISED Limit (dBuA/m)	Margin (dB)	Remark
1	0.5039	64.44	-62.07	2.37	33.56	-49.13	-17.94	-31.19	peak
2	0.8296	63.44	-62.17	1.27	29.23	-50.23	-22.27	-27.96	peak
3	1.6149	57.62	-62.00	-4.38	23.44	-55.88	-28.06	-27.82	peak
4	3.7100	54.20	-61.41	-7.21	29.54	-58.71	-21.96	-36.75	peak
5	7.3361	53.58	-61.17	-7.59	29.54	-59.09	-21.96	-37.13	peak
6	16.3959	53.67	-60.96	-7.29	29.54	-58.79	-21.96	-36.83	peak

Note: 1. Measurement = Reading Level + Correct Factor.

2. If Peak Result complies with AV and QP limit, AV and QP Result are deemed to comply with AV limit.

3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

4.  $\text{dBuA/m} = \text{dBuV/m} - 20\log_{10}(120\pi) = \text{dBuV/m} - 51.5$ .

Note: All the modes and antennas had been tested, but only the worst data was recorded in the report.

## 9. AC POWER LINE CONDUCTED EMISSIONS

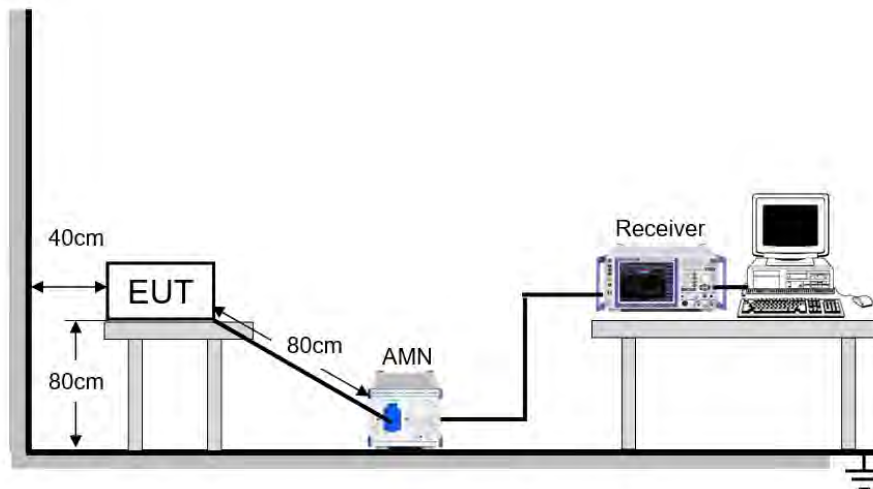
### LIMITS

Please refer to CFR 47 FCC §15.207 (a) and ISED RSS-Gen Clause 8.8

FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

### TEST SETUP AND PROCEDURE

Refer to ANSI C63.10-2013 clause 6.2.



The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

### TEST ENVIRONMENT

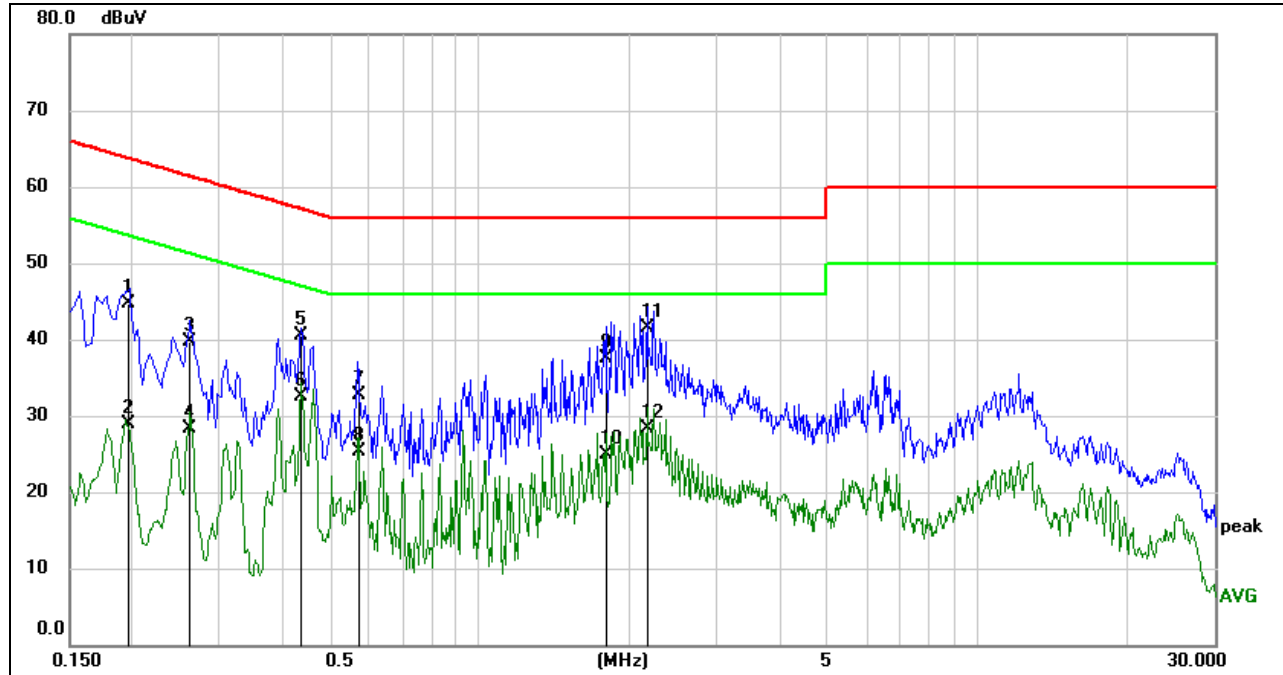
Temperature	26.1 °C	Relative Humidity	63 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 V



**RESULTS**

**9.1.1. 802.11ac VHT80 MODE**

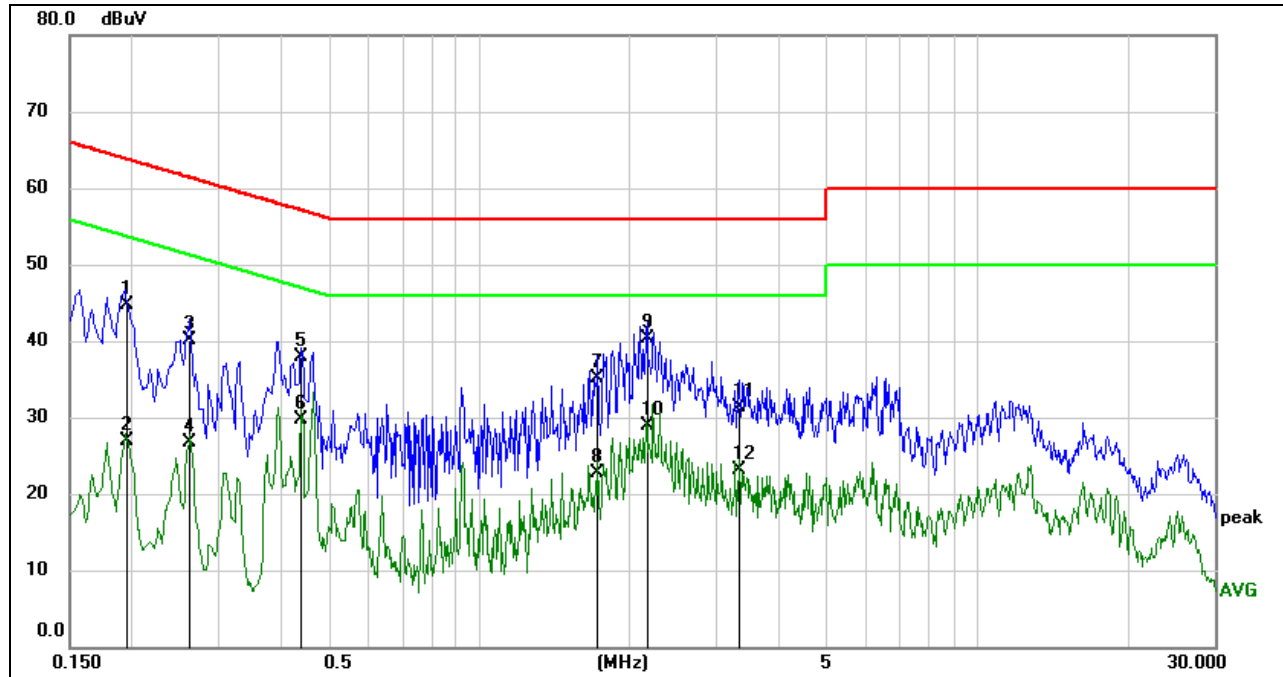
**LINE N RESULTS (UNII-1 BAND LOW CHANNEL, WORST-CASE CONFIGURATION)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1957	35.07	9.59	44.66	63.79	-19.13	QP
2	0.1957	19.23	9.59	28.82	53.79	-24.97	AVG
3	0.2617	30.06	9.59	39.65	61.38	-21.73	QP
4	0.2617	18.75	9.59	28.34	51.38	-23.04	AVG
5	0.4392	30.92	9.60	40.52	57.08	-16.56	QP
6	0.4392	22.98	9.60	32.58	47.08	-14.50	AVG
7	0.5704	23.16	9.60	32.76	56.00	-23.24	QP
8	0.5704	15.63	9.60	25.23	46.00	-20.77	AVG
9	1.7955	27.84	9.62	37.46	56.00	-18.54	QP
10	1.7955	15.21	9.62	24.83	46.00	-21.17	AVG
11	2.1697	31.91	9.63	41.54	56.00	-14.46	QP
12	2.1697	18.70	9.63	28.33	46.00	-17.67	AVG

Note: 1. Result = Reading + Correct Factor.  
 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).  
 4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

**LINE L RESULTS (UNII-1 BAND LOW CHANNEL, WORST-CASE CONFIGURATION)**



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1960	35.09	9.59	44.68	63.78	-19.10	QP
2	0.1960	17.24	9.59	26.83	53.78	-26.95	AVG
3	0.2615	30.53	9.59	40.12	61.38	-21.26	QP
4	0.2615	17.19	9.59	26.78	51.38	-24.60	AVG
5	0.4393	28.21	9.60	37.81	57.07	-19.26	QP
6	0.4393	20.02	9.60	29.62	47.07	-17.45	AVG
7	1.7299	25.53	9.62	35.15	56.00	-20.85	QP
8	1.7299	13.18	9.62	22.80	46.00	-23.20	AVG
9	2.1695	30.59	9.63	40.22	56.00	-15.78	QP
10	2.1695	19.31	9.63	28.94	46.00	-17.06	AVG
11	3.3282	21.72	9.61	31.33	56.00	-24.67	QP
12	3.3282	13.47	9.61	23.08	46.00	-22.92	AVG

- Note: 1. Result = Reading + Correct Factor.  
 2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.  
 3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).  
 4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes had been tested, but only the worst data was recorded in the report.

## 10. FREQUENCY STABILITY

### LIMITS

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

### TEST PROCEDURE

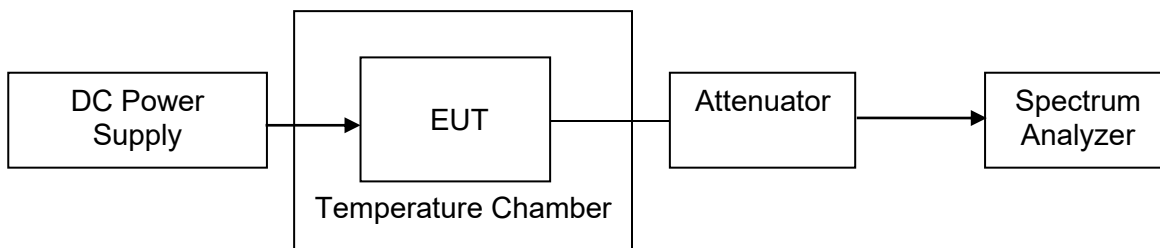
1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between 0 °C ~ 40 °C (declared by customer).
2. The temperature was incremented by 10 °C intervals and the unit allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.
3. The primary supply voltage is varied from 85 % to 115 % of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	10 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

4. While maintaining a constant temperature inside the environmental chamber, turn the EUT on and record the operating frequency at startup, and at 2 minutes, 5minutes, and 10 minutes after the EUT is energized.
5. Allow the trace to stabilize, find the peak value of the power envelope and record the frequency, then calculated the frequency drift.

### TEST SETUP







**TEST ENVIRONMENT**

	Normal Test Conditions	Extreme Test Conditions
Relative Humidity	20 % - 75 %	/
Atmospheric Pressure	100 kPa ~102 kPa	/
Temperature	T <sub>N</sub> (Normal Temperature): 25.1 °C	T <sub>L</sub> (Low Temperature): 0 °C
		T <sub>H</sub> (High Temperature): 40 °C
Supply Voltage	V <sub>N</sub> (Normal Voltage): DC 3.3 V	V <sub>L</sub> (Low Voltage): DC 2.805 V
		V <sub>H</sub> (High Voltage): DC 3.795 V

**RESULTS**

Please refer to Appendix E.

## 11. DYNAMIC FREQUENCY SELECTION

### APPLICABILITY OF DFS REQUIREMENTS

A U-NII network will employ a DFS function to detect signals from radar systems and to avoid co-channel operation with these systems. This applies to the 5250-5350 MHz and/or 5470-5725 MHz bands.

Within the context of the operation of the DFS function, a U-NII device will operate in either Master Mode or Client Mode. U-NII devices operating in Client Mode can only operate in a network controlled by a U-NII device operating in Master Mode.

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	<input type="checkbox"/> Master	<input checked="" type="checkbox"/> Client Without Radar Detection	<input type="checkbox"/> Client With Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	<input type="checkbox"/> Master Device or Client with Radar Detection	<input checked="" type="checkbox"/> Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	<input type="checkbox"/> Master Device or Client with Radar Detection	<input checked="" type="checkbox"/> Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required

Note: Frequencies selected for statistical performance check should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.

**LIMITS**

(1) DFS Detection Thresholds

Table 3: DFS Detection Thresholds for Master Devices and Client Devices With Radar Detection

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

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.  
 Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.  
 Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

(2) DFS Response Requirements

Table 4: DFS Response Requirement Values

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

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.  
 Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required facilitating a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.  
 Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

**PARAMETERS OF RADAR TEST WAVEFORMS**

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

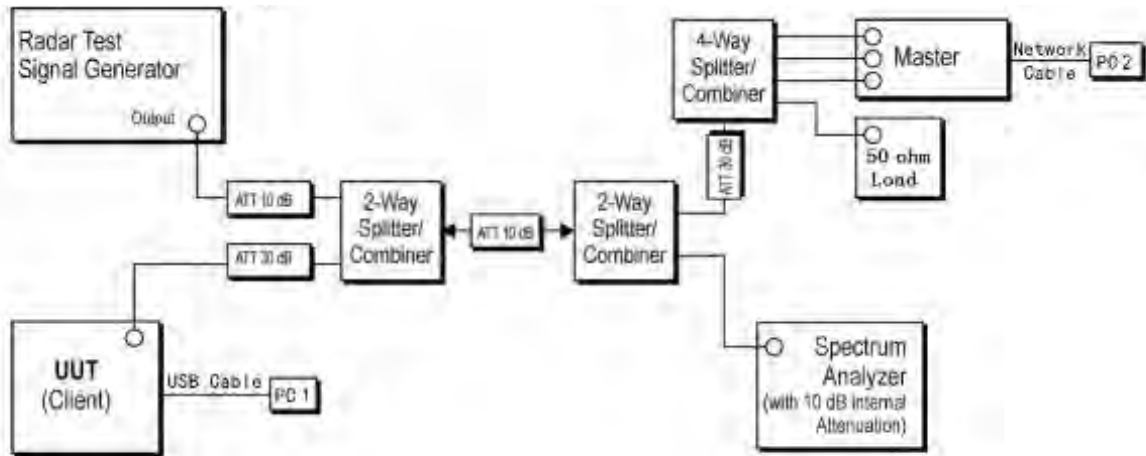
Table 5 Short Pulse Radar Test Waveforms

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

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B. Test aggregate is average of the percentage of successful detections of short pulse radar types 1-4.

**TEST SETUP**

Setup for Client with injection at the Master



**TEST ENVIRONMENT**

Temperature	24.1 °C	Relative Humidity	60.5 %
Atmosphere Pressure	101 kPa	Test Voltage	DC 3.3 V

**RESULTS**

Please refer to Appendix F.



## 12. ANTENNA REQUIREMENTS

### APPLICABLE REQUIREMENTS

Please refer to FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Please refer to FCC §15.247(b)(4)

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### RESULTS

Complies



**12.1. Appendix A1: Emission Bandwidth**  
**12.1.1. Test Result**

Test Mode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Verdict	
11A	Ant1	5180	19.840	5170.200	5190.040	PASS	
	Ant2	5180	19.320	5170.440	5189.760	PASS	
	Ant1	5200	19.760	5190.280	5210.040	PASS	
	Ant2	5200	19.800	5190.080	5209.880	PASS	
	Ant1	5240	19.960	5230.000	5249.960	PASS	
	Ant2	5240	19.760	5230.200	5249.960	PASS	
	Ant1	5260	20.080	5250.080	5270.160	PASS	
	Ant2	5260	19.920	5250.440	5270.360	PASS	
	Ant1	5280	20.040	5269.960	5290.000	PASS	
	Ant2	5280	20.320	5269.920	5290.240	PASS	
	Ant1	5320	19.840	5310.240	5330.080	PASS	
	Ant2	5320	19.600	5310.320	5329.920	PASS	
	Ant1	5500	19.960	5490.360	5510.320	PASS	
	Ant2	5500	19.640	5490.400	5510.040	PASS	
	Ant1	5580	20.200	5569.960	5590.160	PASS	
	Ant2	5580	19.560	5570.200	5589.760	PASS	
	Ant1	5700	19.800	5690.320	5710.120	PASS	
	Ant2	5700	19.880	5689.840	5709.720	PASS	
	Ant1	5720	19.720	5710.120	5729.840	PASS	
	Ant2	5720	19.600	5710.280	5729.880	PASS	
	Ant1	5720 UNII-2C	14.88	5710.120	5725	PASS	
	Ant2	5720 UNII-2C	14.72	5710.280	5725	PASS	
	Ant1	5720 UNII-3	4.84	5725	5729.840	PASS	
	Ant2	5720 UNII-3	4.88	5725	5729.880	PASS	
	Ant1	5745	19.720	5735.200	5754.920	PASS	
	Ant2	5745	19.720	5735.200	5754.920	PASS	
	Ant1	5785	19.680	5775.240	5794.920	PASS	
	Ant2	5785	19.600	5775.200	5794.800	PASS	
	Ant1	5825	19.360	5815.400	5834.760	PASS	
	Ant2	5825	19.360	5815.480	5834.840	PASS	
	11N20MIMO	Ant1	5180	20.280	5169.920	5190.200	PASS
		Ant2	5180	19.880	5170.040	5189.920	PASS
Ant1		5200	20.120	5190.080	5210.200	PASS	
Ant2		5200	19.840	5190.040	5209.880	PASS	
Ant1		5240	19.880	5230.040	5249.920	PASS	
Ant2		5240	20.480	5229.720	5250.200	PASS	
Ant1		5260	20.320	5249.760	5270.080	PASS	
Ant2		5260	20.080	5250.080	5270.160	PASS	
Ant1		5280	19.720	5270.280	5290.000	PASS	
Ant2		5280	20.560	5269.680	5290.240	PASS	
Ant1		5320	19.760	5310.240	5330.000	PASS	
Ant2		5320	19.800	5310.080	5329.880	PASS	
Ant1		5500	20.040	5489.920	5509.960	PASS	
Ant2		5500	20.040	5490.160	5510.200	PASS	
Ant1		5580	19.920	5570.040	5589.960	PASS	
Ant2		5580	19.840	5570.040	5589.880	PASS	
Ant1		5700	19.640	5690.320	5709.960	PASS	
Ant2		5700	20.200	5690.000	5710.200	PASS	
Ant1		5720	20.160	5709.840	5730.000	PASS	
Ant2		5720	19.960	5710.120	5730.080	PASS	
Ant1		5720 UNII-2C	15.16	5709.840	5725	PASS	
Ant2		5720 UNII-2C	14.88	5710.120	5725	PASS	
Ant1		5720 UNII-3	5	5725	5730.000	PASS	
Ant2		5720 UNII-3	5.08	5725	5730.080	PASS	
Ant1		5745	20.040	5735.000	5755.040	PASS	





	Ant2	5745	20.360	5734.840	5755.200	PASS
	Ant1	5785	20.040	5775.080	5795.120	PASS
	Ant2	5785	20.080	5774.880	5794.960	PASS
	Ant1	5825	20.040	5815.000	5835.040	PASS
	Ant2	5825	19.640	5815.320	5834.960	PASS
11N40MIMO	Ant1	5190	39.760	5170.240	5210.000	PASS
	Ant2	5190	39.600	5170.080	5209.680	PASS
	Ant1	5230	39.680	5210.160	5249.840	PASS
	Ant2	5230	39.360	5210.400	5249.760	PASS
	Ant1	5270	40.160	5250.160	5290.320	PASS
	Ant2	5270	40.240	5250.000	5290.240	PASS
	Ant1	5310	40.400	5289.920	5330.320	PASS
	Ant2	5310	39.760	5290.000	5329.760	PASS
	Ant1	5510	40.160	5490.000	5530.160	PASS
	Ant2	5510	39.440	5490.400	5529.840	PASS
	Ant1	5550	40.160	5530.160	5570.320	PASS
	Ant2	5550	40.000	5530.480	5570.480	PASS
	Ant1	5670	39.920	5649.840	5689.760	PASS
	Ant2	5670	39.840	5649.680	5689.520	PASS
	Ant1	5710	40.480	5689.600	5730.080	PASS
	Ant2	5710	40.560	5689.520	5730.080	PASS
	Ant1	5710 UNII-2C	35.4	5689.600	5725	PASS
	Ant2	5710 UNII-2C	35.48	5689.520	5725	PASS
	Ant1	5710 UNII-3	5.08	5725	5730.080	PASS
	Ant2	5710 UNII-3	5.08	5725	5730.080	PASS
	Ant1	5755	40.400	5735.160	5775.560	PASS
	Ant2	5755	39.440	5735.560	5775.000	PASS
	Ant1	5795	40.320	5774.680	5815.000	PASS
	Ant2	5795	40.240	5774.920	5815.160	PASS
11AC20MIMO	Ant1	5180	20.160	5170.000	5190.160	PASS
	Ant2	5180	19.760	5170.200	5189.960	PASS
	Ant1	5200	20.200	5190.000	5210.200	PASS
	Ant2	5200	19.800	5190.160	5209.960	PASS
	Ant1	5240	19.520	5230.240	5249.760	PASS
	Ant2	5240	20.040	5230.000	5250.040	PASS
	Ant1	5260	19.680	5250.240	5269.920	PASS
	Ant2	5260	20.000	5250.120	5270.120	PASS
	Ant1	5280	20.000	5270.360	5290.360	PASS
	Ant2	5280	20.000	5270.040	5290.040	PASS
	Ant1	5320	19.920	5310.040	5329.960	PASS
	Ant2	5320	19.960	5309.960	5329.920	PASS
	Ant1	5500	19.920	5490.160	5510.080	PASS
	Ant2	5500	19.880	5490.200	5510.080	PASS
	Ant1	5580	20.160	5570.040	5590.200	PASS
	Ant2	5580	19.520	5570.240	5589.760	PASS
	Ant1	5700	19.800	5690.120	5709.920	PASS
	Ant2	5700	20.080	5690.160	5710.240	PASS
	Ant1	5720	19.960	5710.000	5729.960	PASS
	Ant2	5720	19.440	5710.200	5729.640	PASS
	Ant1	5720 UNII-2C	15	5710.000	5725	PASS
	Ant2	5720 UNII-2C	14.8	5710.200	5725	PASS
	Ant1	5720 UNII-3	4.96	5725	5729.960	PASS
	Ant2	5720 UNII-3	4.64	5725	5729.640	PASS
Ant1	5745	19.760	5735.200	5754.960	PASS	
Ant2	5745	19.920	5735.000	5754.920	PASS	
Ant1	5785	19.760	5775.360	5795.120	PASS	
Ant2	5785	19.880	5775.080	5794.960	PASS	
Ant1	5825	19.920	5815.160	5835.080	PASS	
Ant2	5825	19.600	5815.440	5835.040	PASS	
11AC40MIMO	Ant1	5190	39.280	5170.400	5209.680	PASS





	Ant2	5190	39.760	5170.240	5210.000	PASS
	Ant1	5230	39.440	5210.480	5249.920	PASS
	Ant2	5230	39.600	5210.480	5250.080	PASS
	Ant1	5270	39.680	5250.320	5290.000	PASS
	Ant2	5270	39.680	5250.160	5289.840	PASS
	Ant1	5310	40.080	5290.080	5330.160	PASS
	Ant2	5310	40.160	5290.320	5330.480	PASS
	Ant1	5510	40.160	5489.920	5530.080	PASS
	Ant2	5510	40.000	5490.160	5530.160	PASS
	Ant1	5550	40.480	5529.840	5570.320	PASS
	Ant2	5550	40.080	5530.320	5570.400	PASS
	Ant1	5670	40.880	5650.080	5690.960	PASS
	Ant2	5670	40.480	5649.920	5690.400	PASS
	Ant1	5710	39.760	5690.480	5730.240	PASS
	Ant2	5710	39.440	5690.560	5730.000	PASS
	Ant1	5710 UNII-2C	34.52	5690.480	5725	PASS
	Ant2	5710 UNII-2C	34.44	5690.560	5725	PASS
	Ant1	5710 UNII-3	5.24	5725	5730.240	PASS
	Ant2	5710 UNII-3	5	5725	5730.000	PASS
	Ant1	5755	39.760	5735.240	5775.000	PASS
	Ant2	5755	39.680	5735.400	5775.080	PASS
	Ant1	5795	40.720	5774.520	5815.240	PASS
	Ant2	5795	40.320	5774.920	5815.240	PASS
11AC80MIMO	Ant1	5210	79.680	5170.160	5249.840	PASS
	Ant2	5210	80.160	5170.000	5250.160	PASS
	Ant1	5290	79.680	5250.480	5330.160	PASS
	Ant2	5290	80.320	5250.320	5330.640	PASS
	Ant1	5530	80.320	5490.320	5570.640	PASS
	Ant2	5530	79.520	5490.640	5570.160	PASS
	Ant1	5610	80.000	5570.160	5650.160	PASS
	Ant2	5610	80.320	5570.160	5650.480	PASS
	Ant1	5690	80.160	5649.680	5729.840	PASS
	Ant2	5690	79.040	5650.320	5729.360	PASS
	Ant1	5690 UNII-2C	75.32	5649.680	5725	PASS
	Ant2	5690 UNII-2C	74.68	5650.320	5725	PASS
	Ant1	5690 UNII-3	4.84	5725	5729.840	PASS
	Ant2	5690 UNII-3	4.36	5725	5729.360	PASS
	Ant1	5775	79.840	5735.480	5815.320	PASS
	Ant2	5775	79.840	5735.320	5815.160	PASS



### 12.1.2. Test Graphs





11A Ant2 5200



11A Ant1 5240



11A Ant2 5240



11A Ant1 5260



11A Ant2 5260



11A Ant1 5280





11A Ant2 5280



11A Ant1 5320



11A Ant2 5320



11A Ant1 5500



11A Ant2 5500



11A Ant1 5580







11A Ant1 5720



11A Ant2 5720



11A Ant1 5745

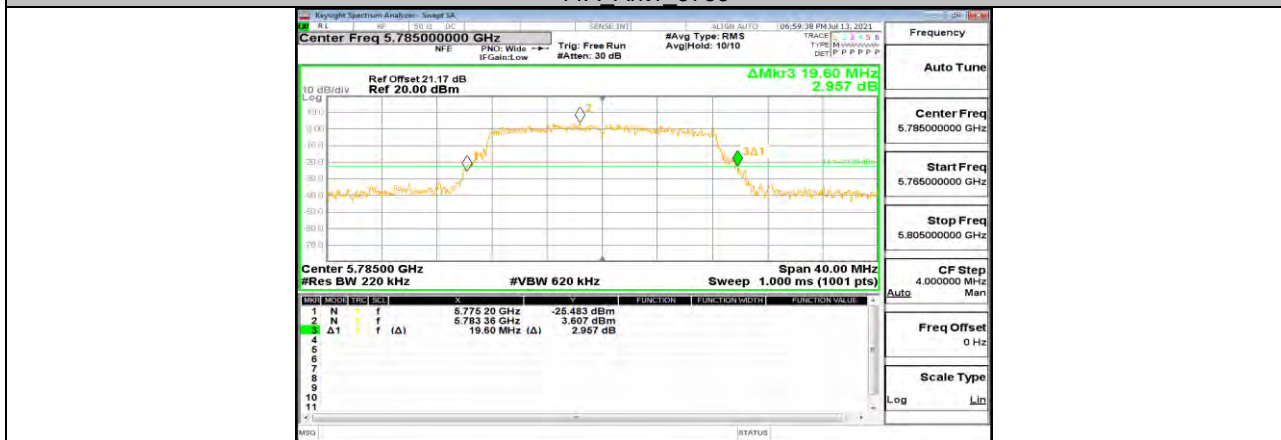




11A Ant2 5745



11A Ant1 5785



11A Ant2 5785



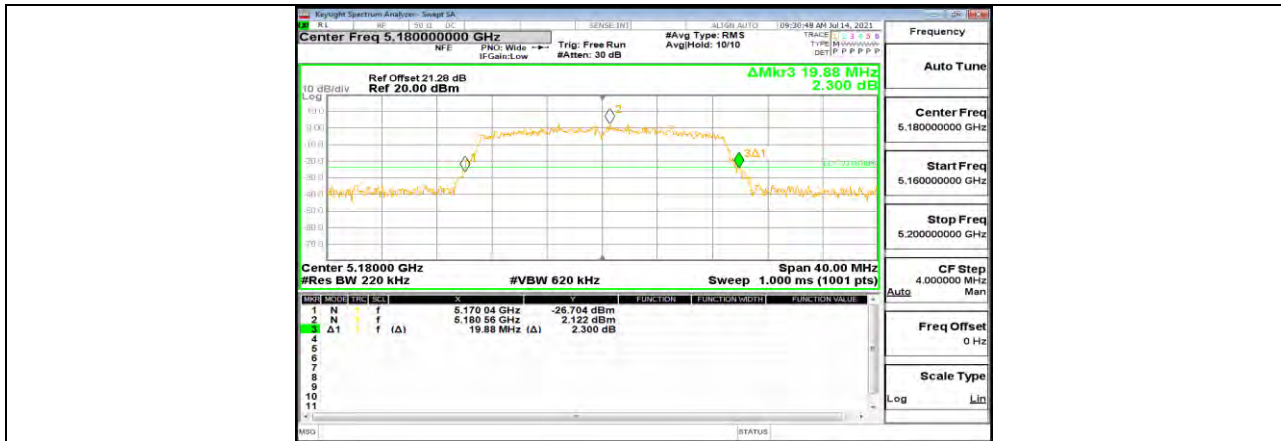
11A Ant1 5825



11A Ant2 5825



11N20MIMO Ant1 5180



11N20MIMO Ant2 5180



11N20MIMO Ant1 5200



11N20MIMO Ant2 5200





11N20MIMO Ant1 5240



11N20MIMO Ant2 5240



11N20MIMO Ant1 5260



11N20MIMO Ant2 5260



11N20MIMO Ant1 5280



11N20MIMO Ant2 5280



11N20MIMO Ant1 5320



11N20MIMO Ant2 5320



11N20MIMO Ant1 5500





11N20MIMO Ant2 5500



11N20MIMO Ant1 5580



11N20MIMO Ant2 5580



11N20MIMO Ant1 5700



11N20MIMO Ant2 5700



11N20MIMO Ant1 5720

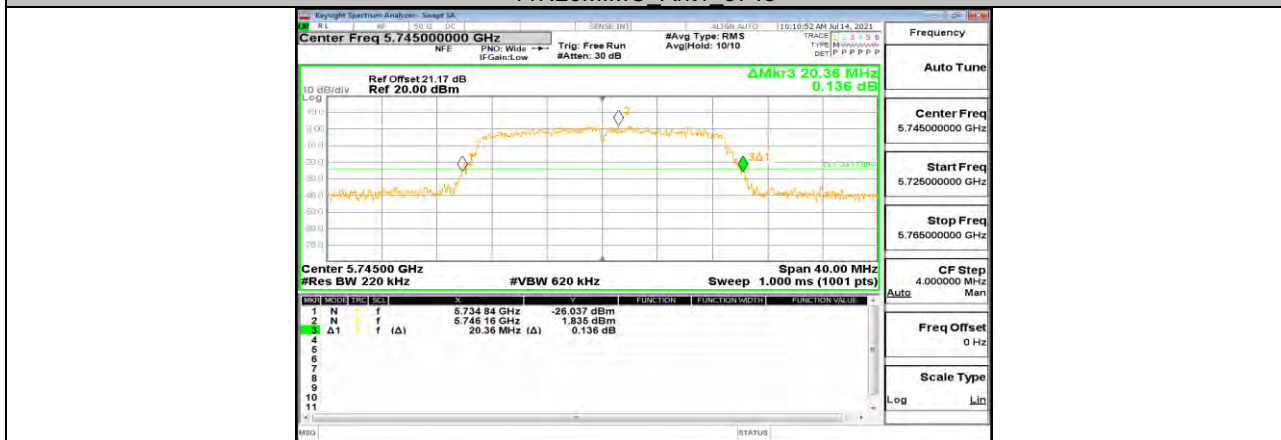




11N20MIMO Ant2 5720



11N20MIMO Ant1 5745



11N20MIMO Ant2 5745



11N20MIMO Ant1 5785



11N20MIMO Ant2 5785



11N20MIMO Ant1 5825



11N20MIMO Ant2 5825



11N40MIMO Ant1 5190



11N40MIMO Ant2 5190

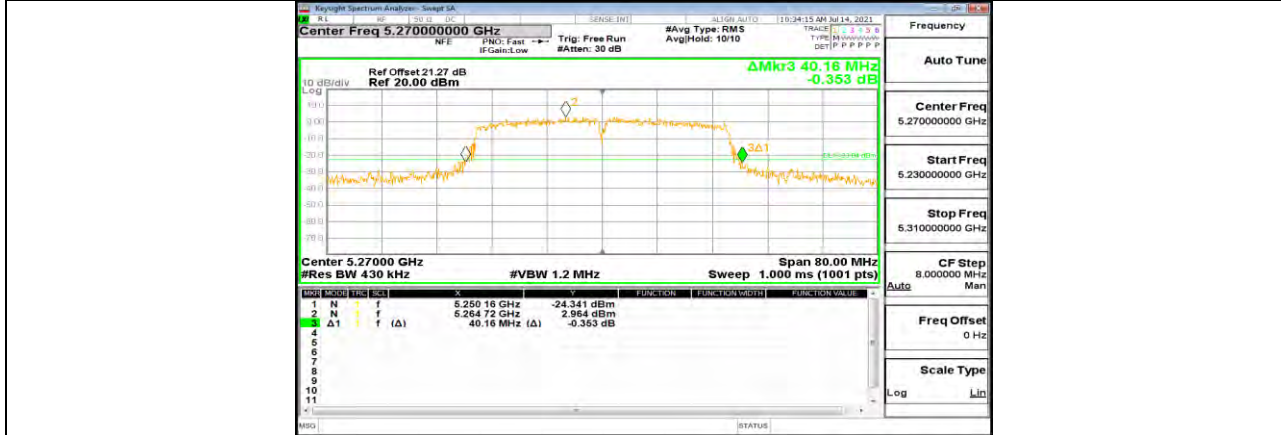




11N40MIMO Ant1 5230



11N40MIMO Ant2 5230



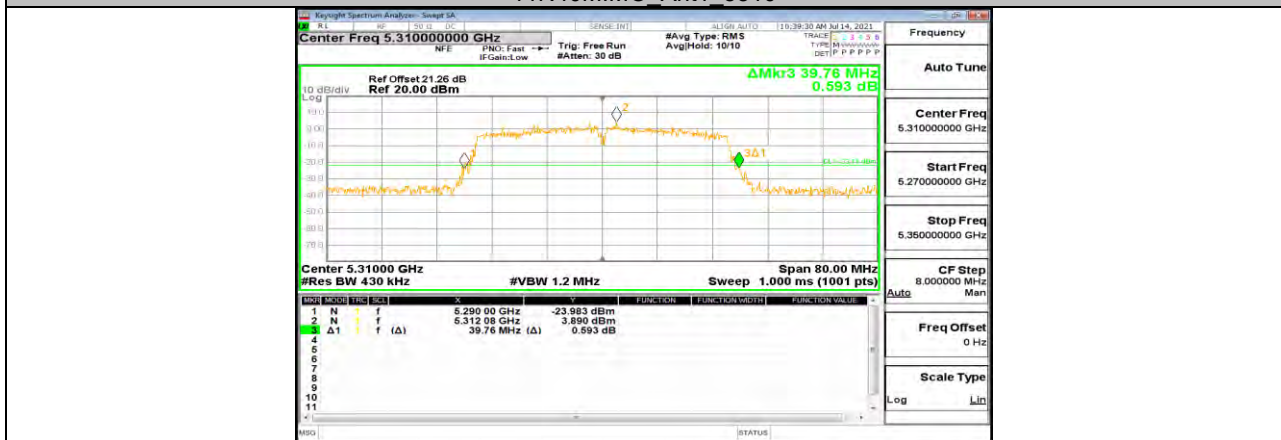
11N40MIMO Ant1 5270



11N40MIMO Ant2 5270



11N40MIMO Ant1 5310



11N40MIMO Ant2 5310



11N40MIMO Ant1 5510



11N40MIMO Ant2 5510



11N40MIMO Ant1 5550





11N40MIMO Ant2 5550



11N40MIMO Ant1 5670



11N40MIMO Ant2 5670



11N40MIMO Ant1 5710



11N40MIMO Ant2 5710



11N40MIMO Ant1 5755





11N40MIMO Ant2 5755



11N40MIMO Ant1 5795



11N40MIMO Ant2 5795



11AC20MIMO Ant1 5180



11AC20MIMO Ant2 5180



11AC20MIMO Ant1 5200



11AC20MIMO Ant2\_5200



11AC20MIMO Ant1\_5240



11AC20MIMO Ant2\_5240





11AC20MIMO Ant1 5260



11AC20MIMO Ant2 5260



11AC20MIMO Ant1 5280





11AC20MIMO Ant1 5500



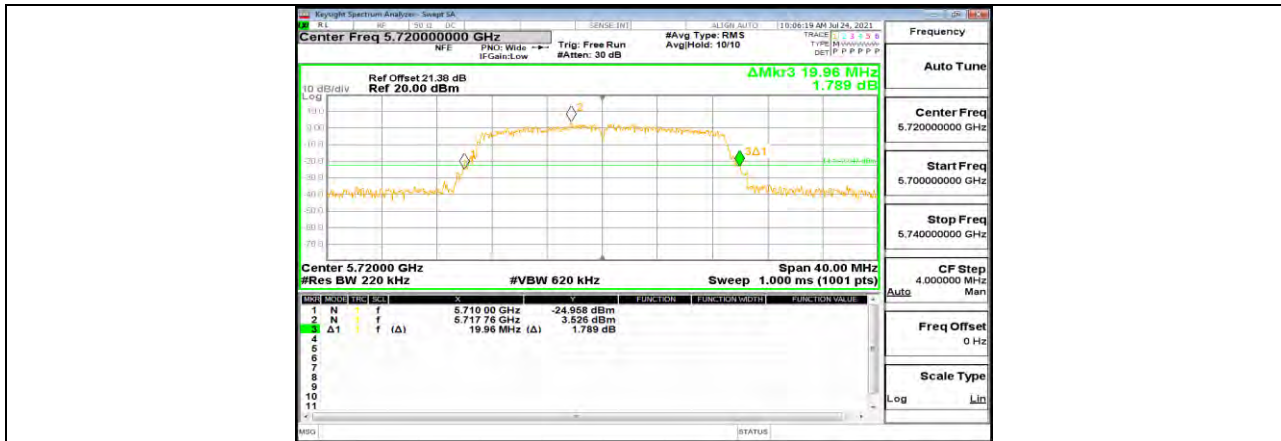
11AC20MIMO Ant2 5500



11AC20MIMO Ant1 5580







11AC20MIMO Ant1 5720



11AC20MIMO Ant2 5720



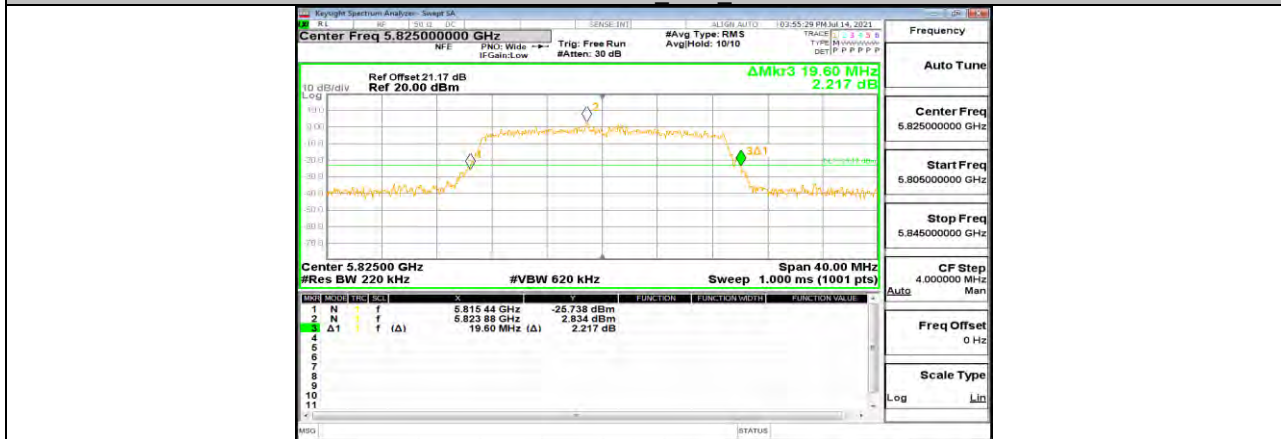
11AC20MIMO Ant1 5745







11AC20MIMO Ant1 5825



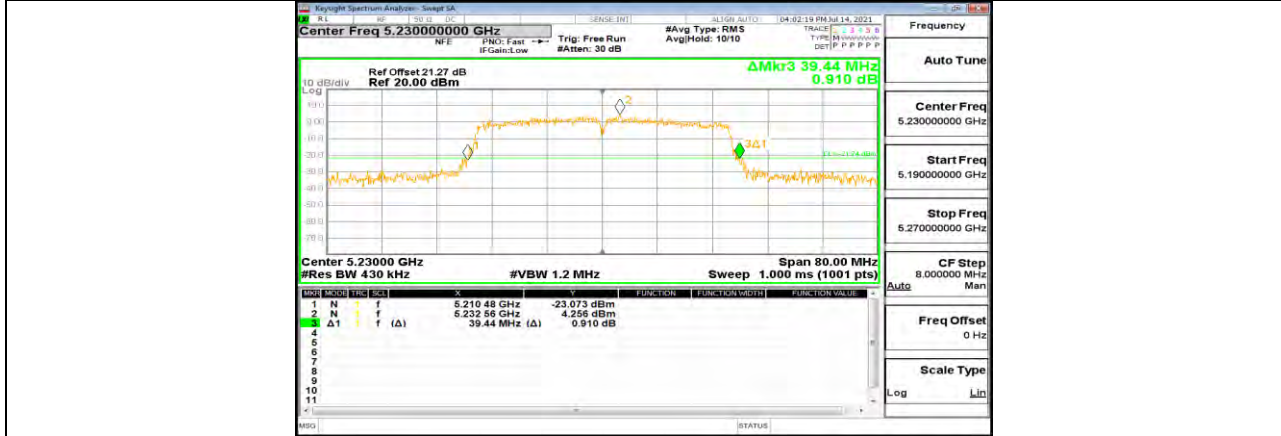
11AC20MIMO Ant2 5825



11AC40MIMO Ant1 5190



11AC40MIMO Ant2\_5190



11AC40MIMO Ant1\_5230



11AC40MIMO Ant2\_5230





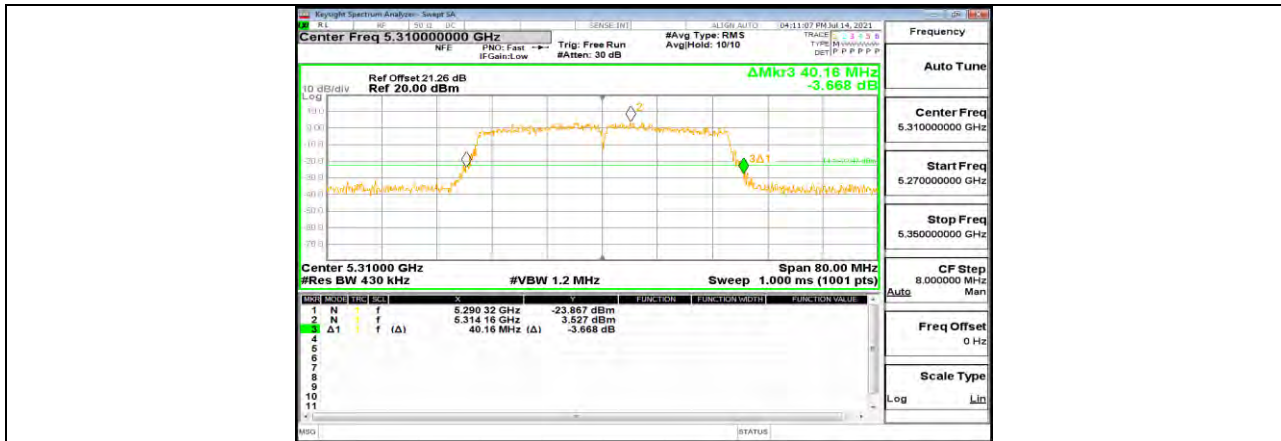
11AC40MIMO Ant1 5270



11AC40MIMO Ant2 5270



11AC40MIMO Ant1 5310



11AC40MIMO Ant2 5310



11AC40MIMO Ant1 5510

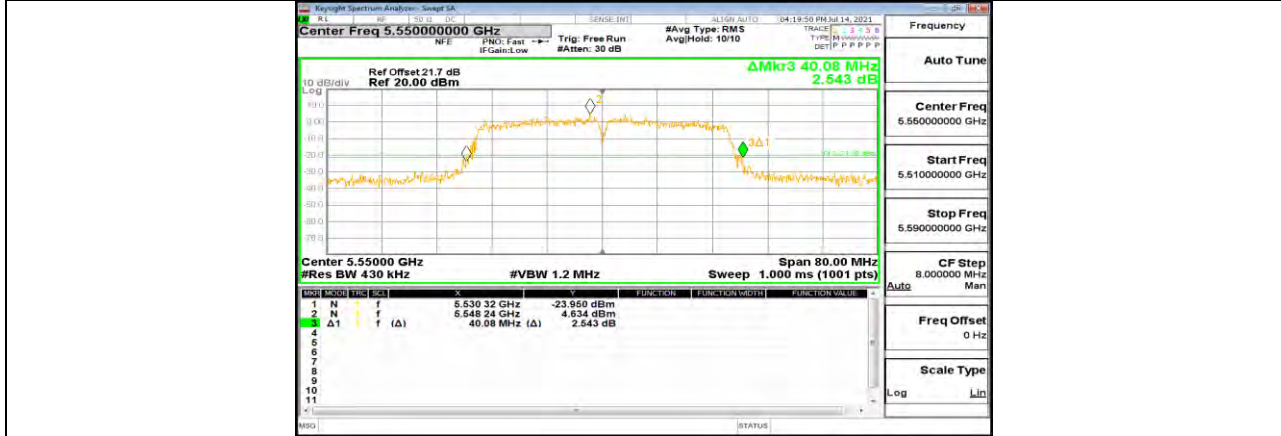


11AC40MIMO Ant2 5510





11AC40MIMO Ant1 5550



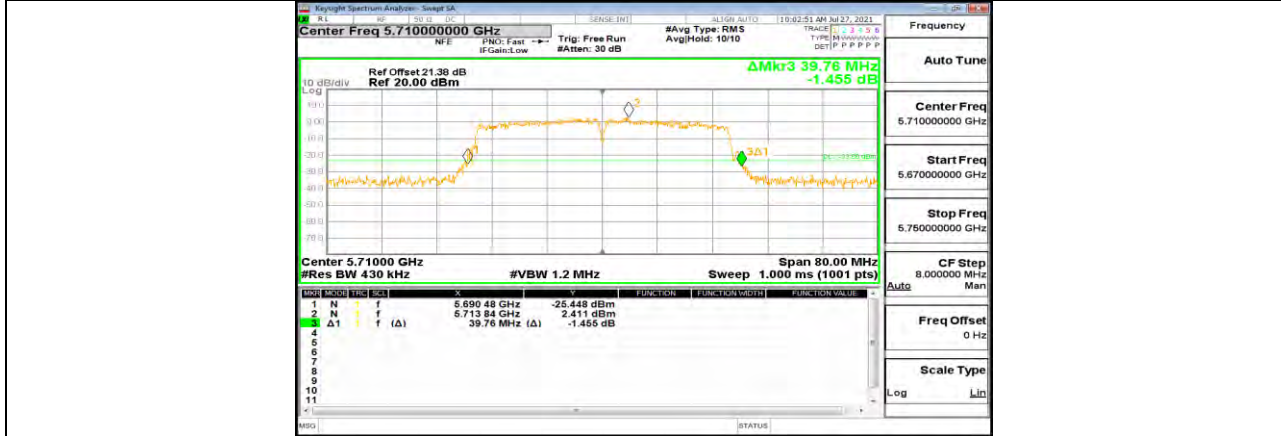
11AC40MIMO Ant2 5550



11AC40MIMO Ant1 5670



11AC40MIMO Ant2\_5670



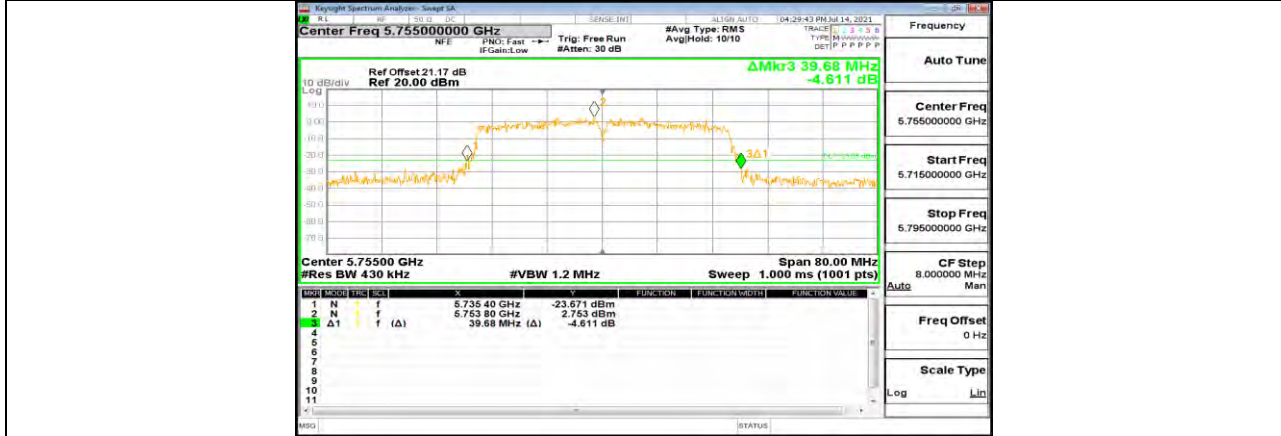
11AC40MIMO Ant1\_5710



11AC40MIMO Ant2\_5710



11AC40MIMO Ant1 5755



11AC40MIMO Ant2 5755



11AC40MIMO Ant1 5795





11AC40MIMO Ant2 5795



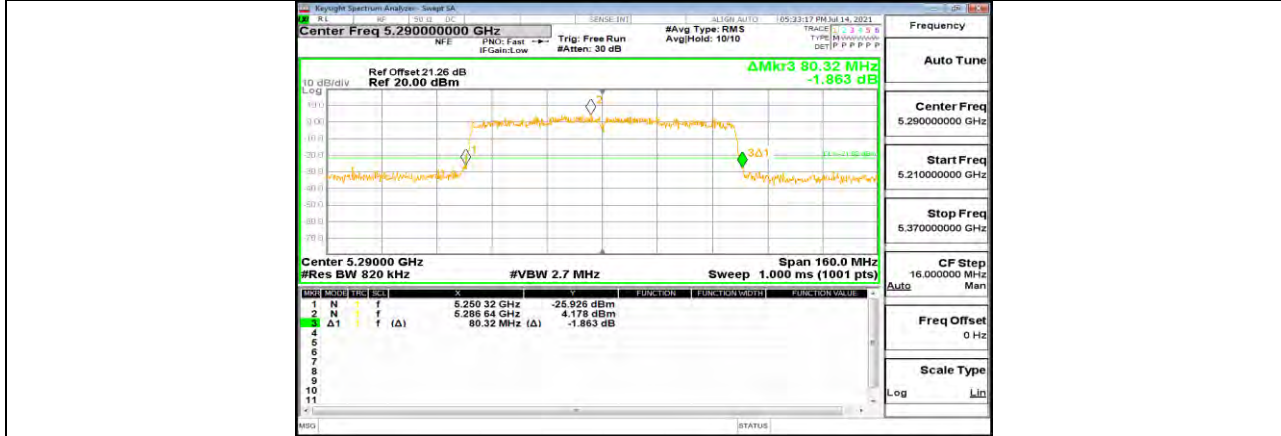
11AC80MIMO Ant1 5210



11AC80MIMO Ant2 5210



11AC80MIMO Ant1 5290



11AC80MIMO Ant2 5290



11AC80MIMO Ant1 5530