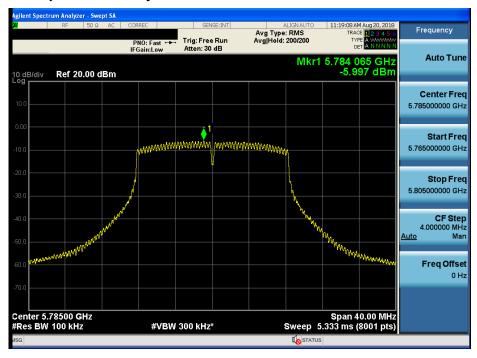
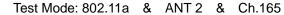
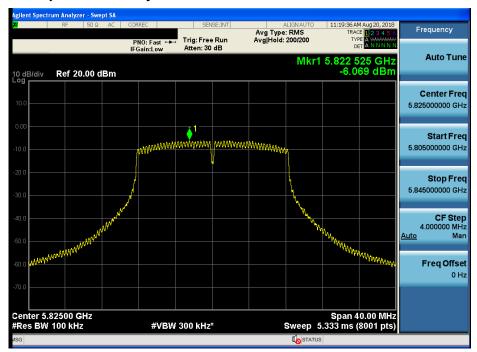


Test Mode: 802.11a & ANT 2 & Ch.157



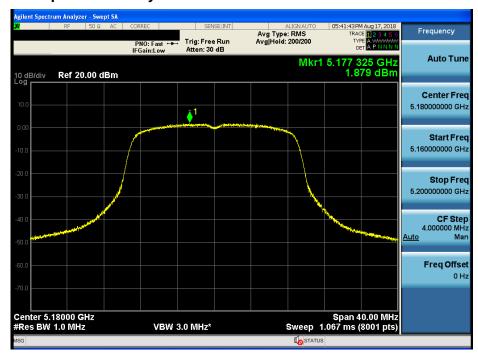




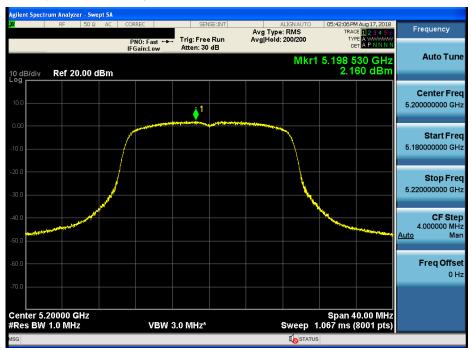




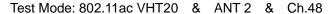


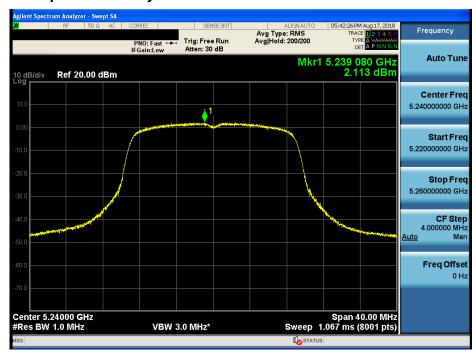






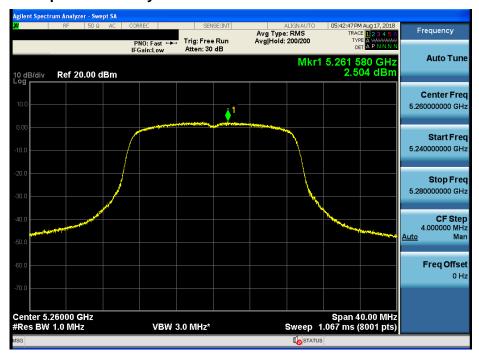
Report No.: DRTFCC1809-0228



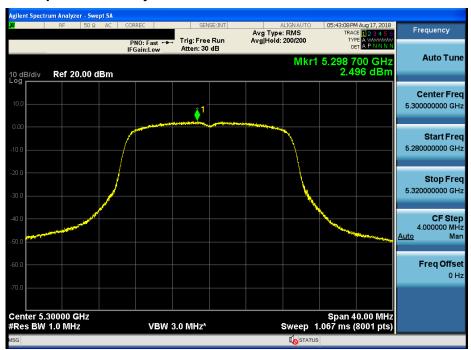




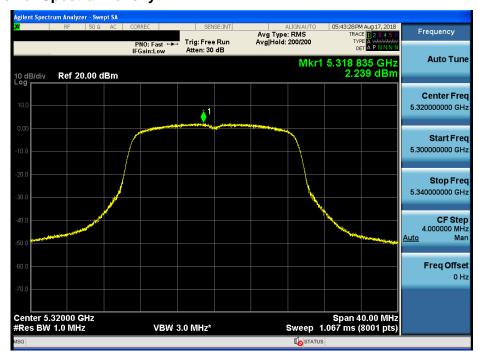








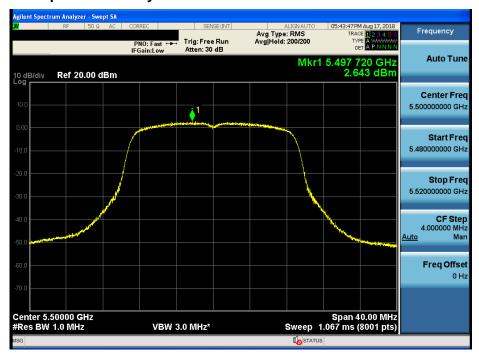
Test Mode: 802.11ac VHT20 & ANT 2 & Ch.64

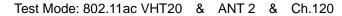


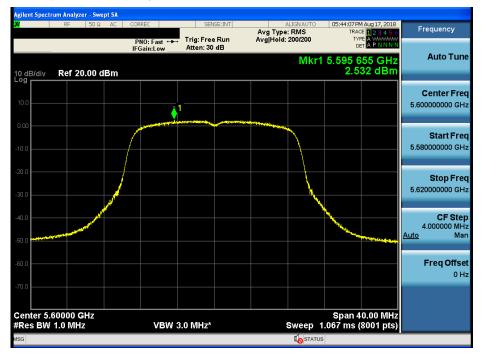
Report No.: DRTFCC1809-0228





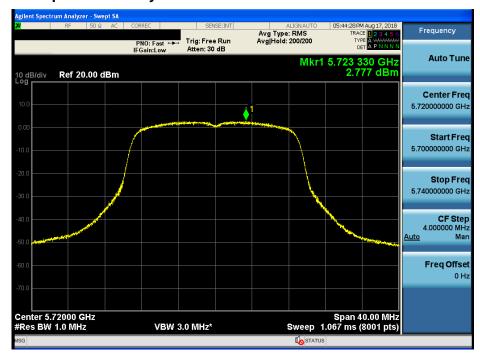




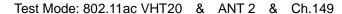


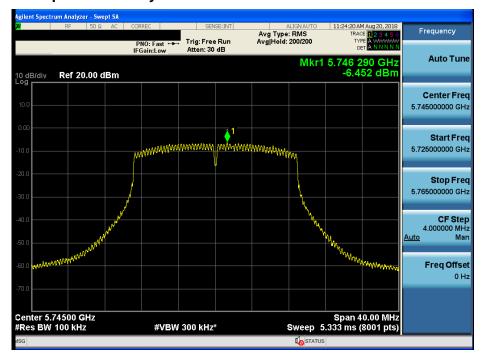


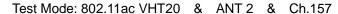
Test Mode: 802.11ac VHT20 & ANT 2 & Ch.144

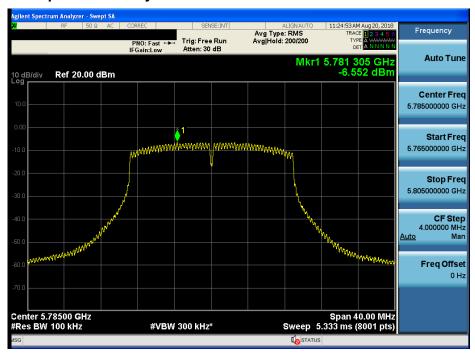






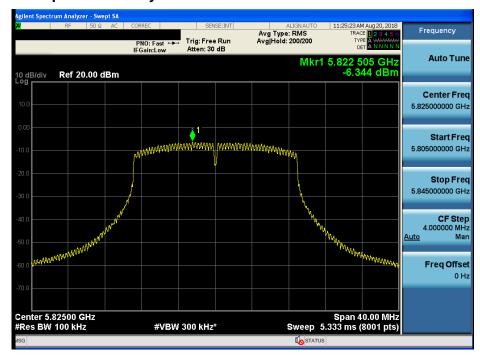




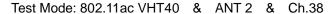


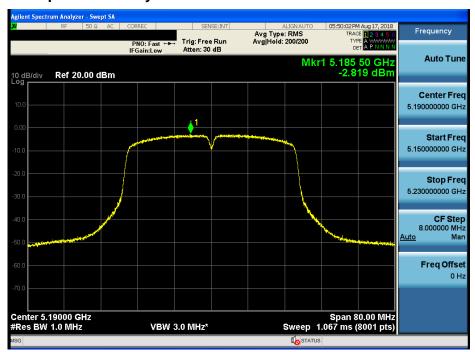


Test Mode: 802.11ac VHT20 & ANT 2 & Ch.165





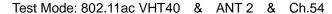


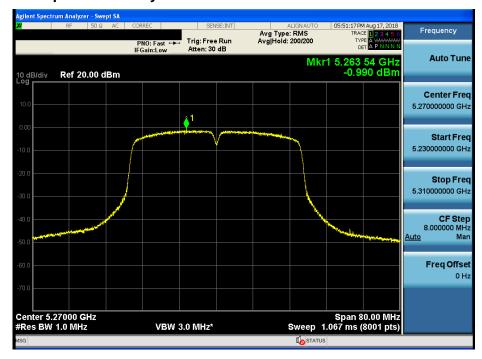




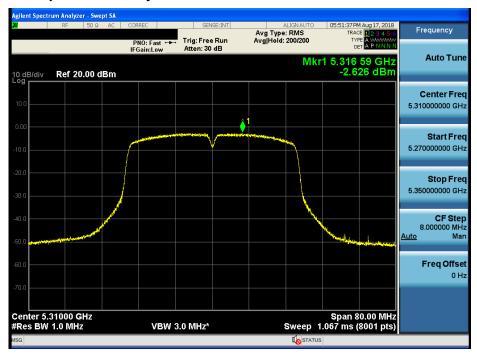




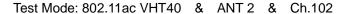


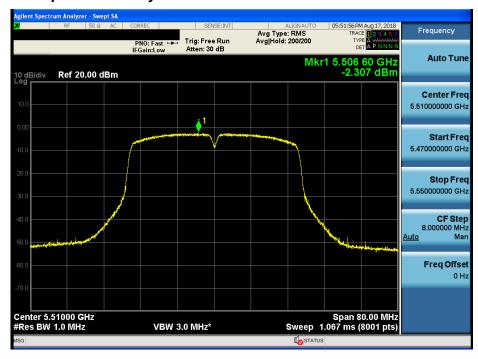


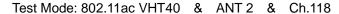


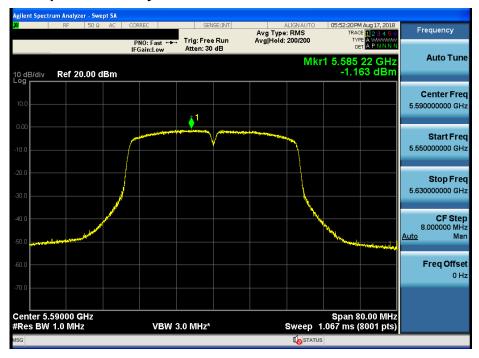








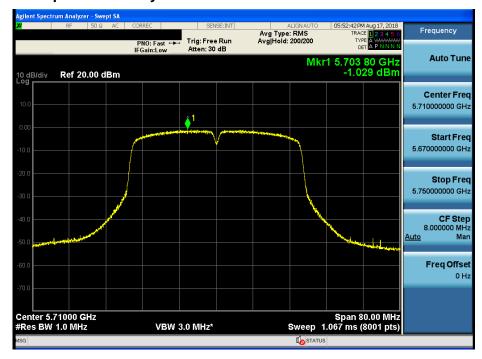




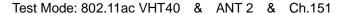
Report No.: DRTFCC1809-0228

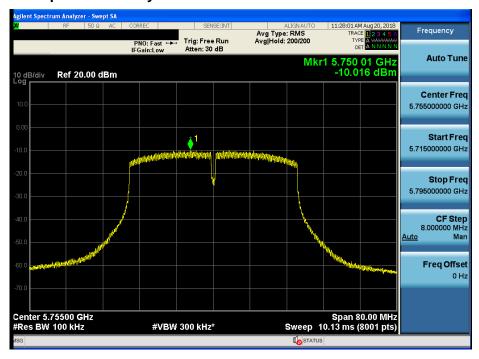
Maximum Power Spectral Density

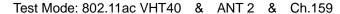
Test Mode: 802.11ac VHT40 & ANT 2 & Ch.142

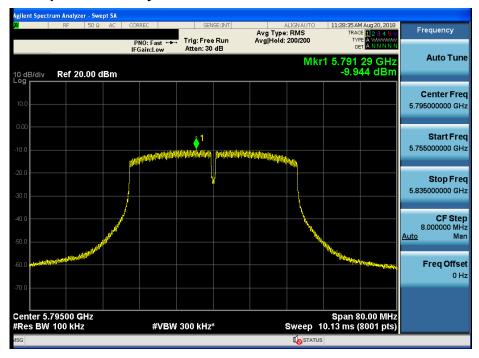






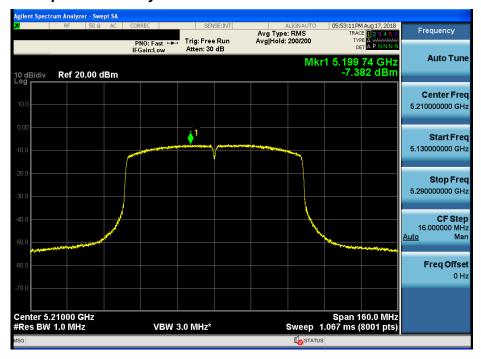




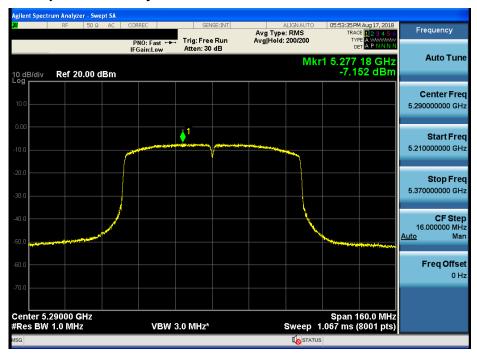






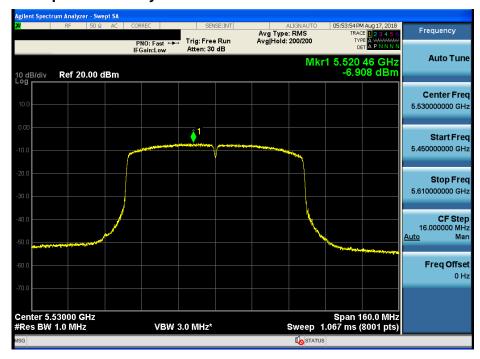




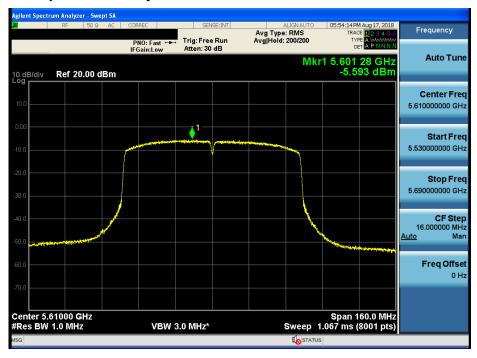






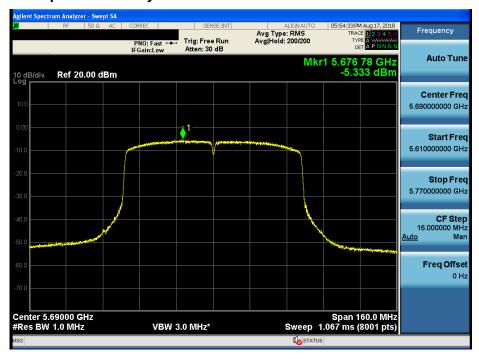




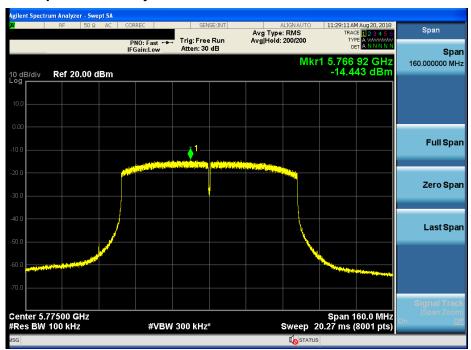










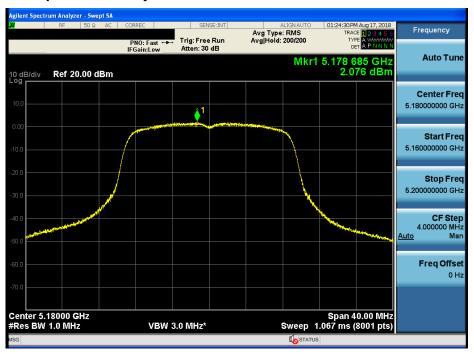




- Power spectral density: SDM-Antenna 1

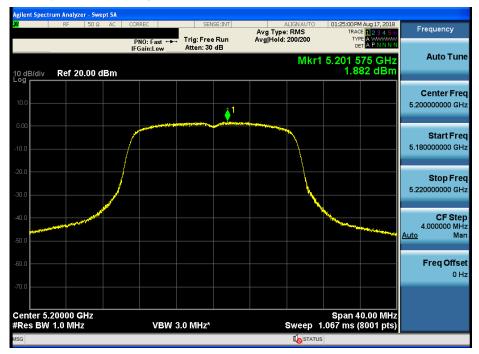
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.36



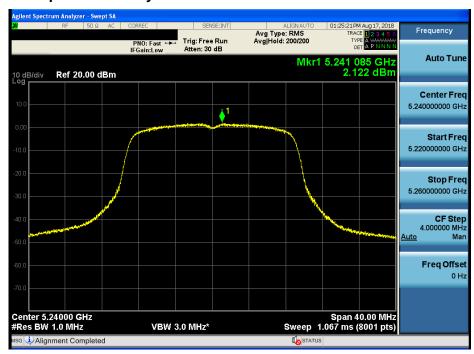
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 1 & Ch.40



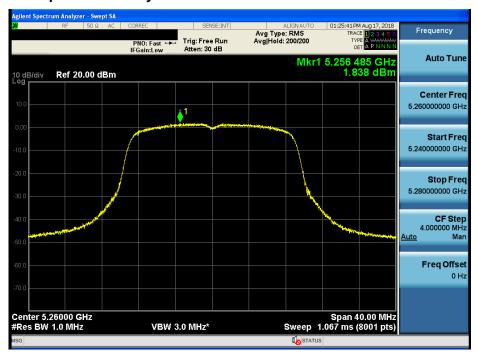


Test Mode: 802.11ac VHT20 & ANT 1 & Ch.48

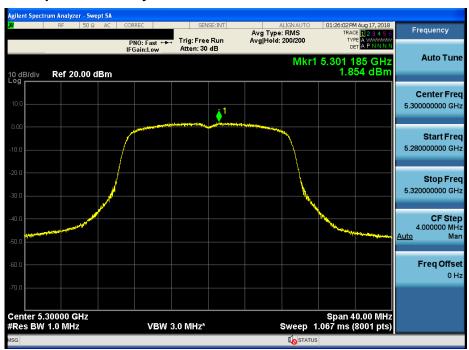


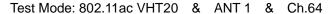


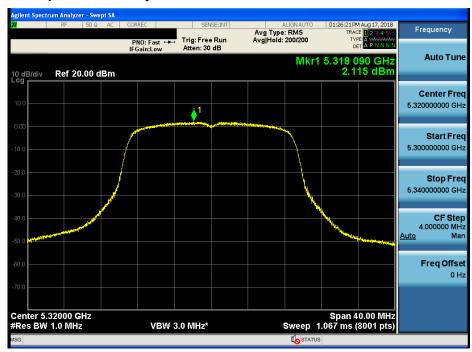








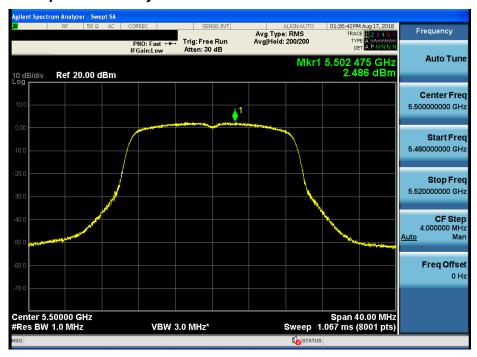


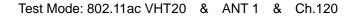


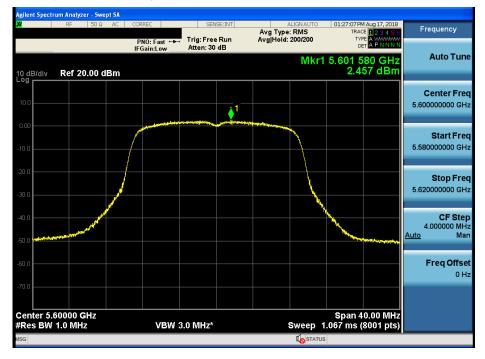
Report No.: DRTFCC1809-0228





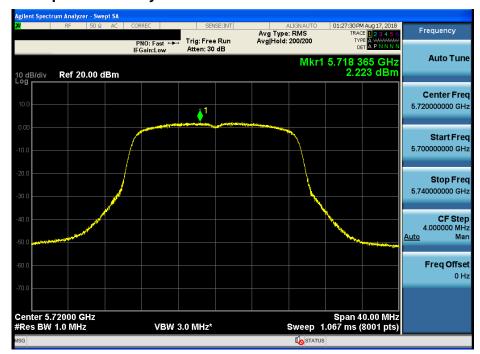






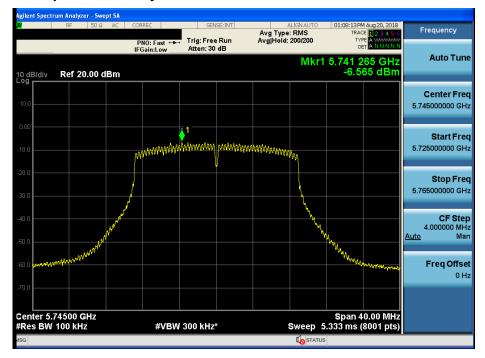


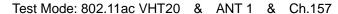


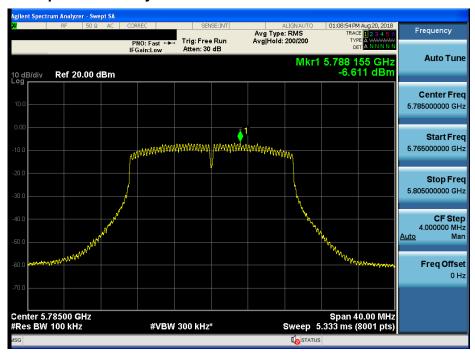




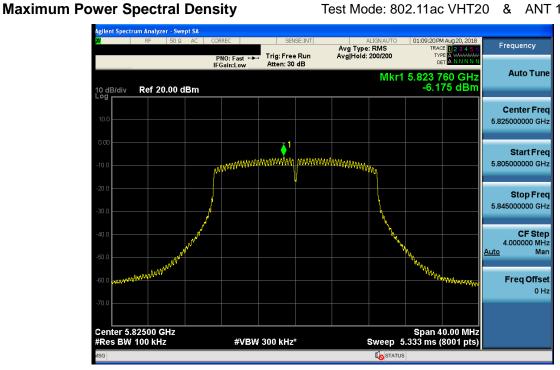








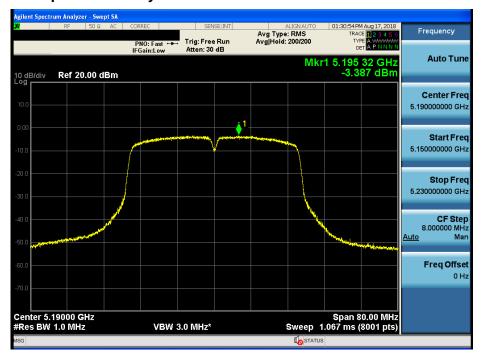
Test Mode: 802.11ac VHT20 & ANT 1 & Ch.165

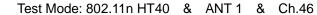


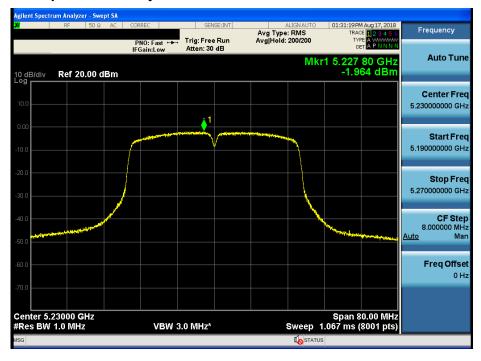
Report No.: DRTFCC1809-0228





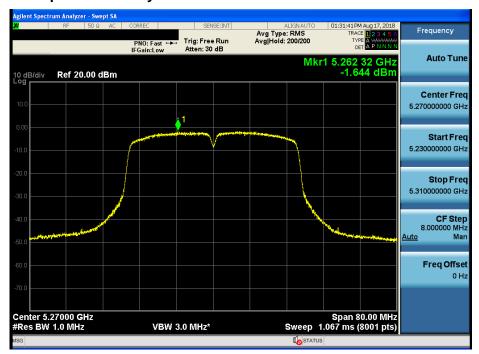


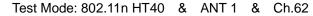


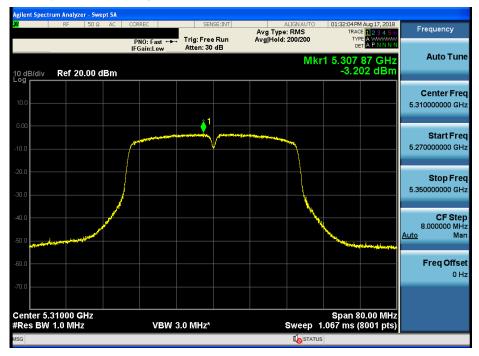




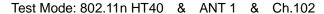


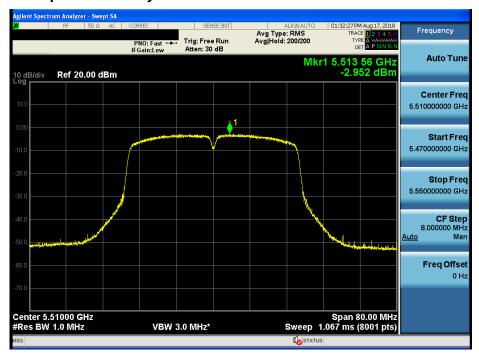




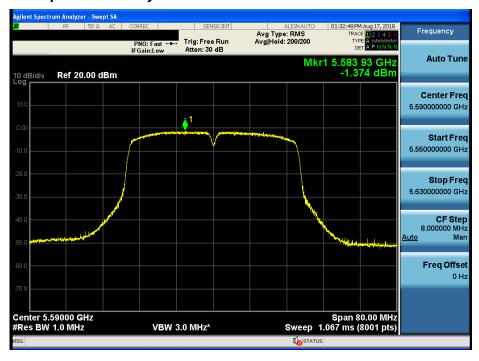






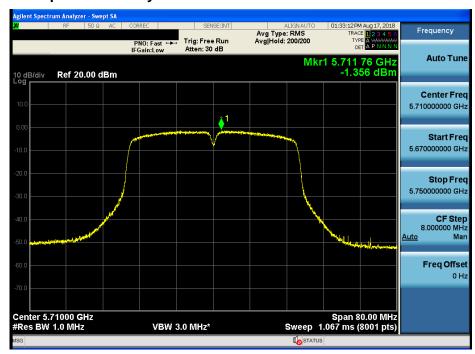






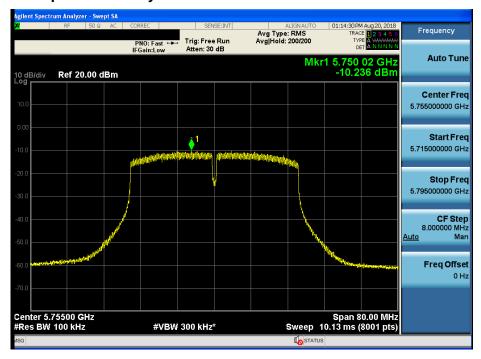


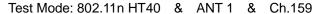


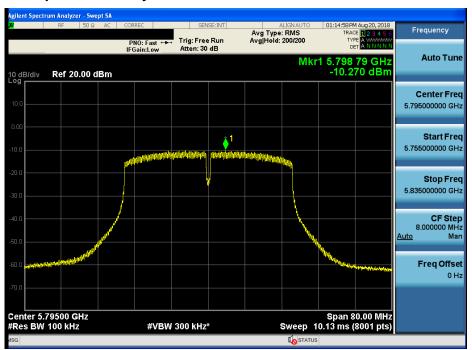






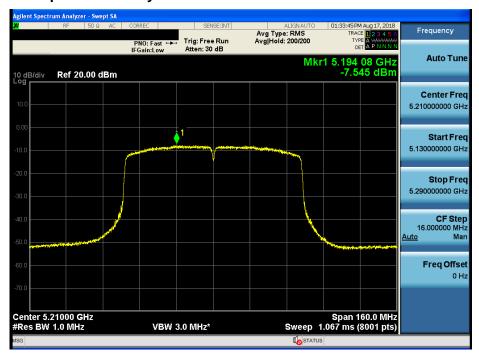




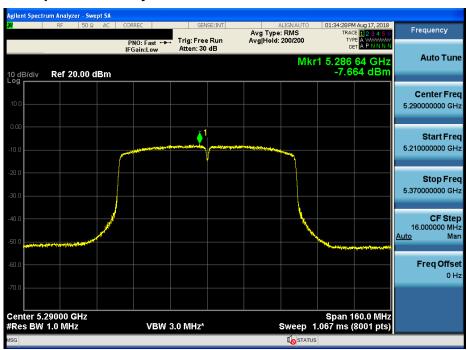






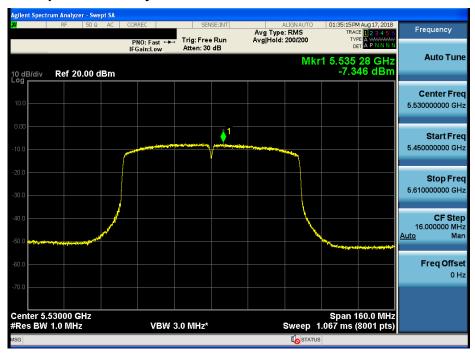




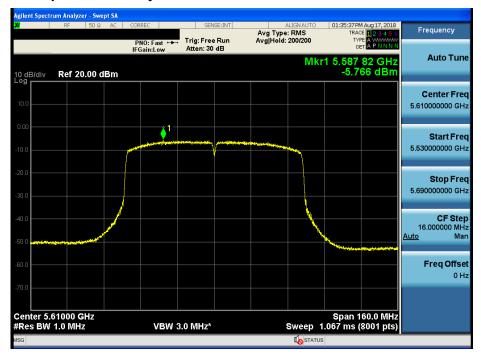






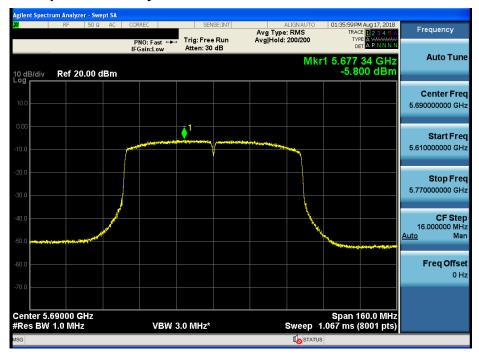




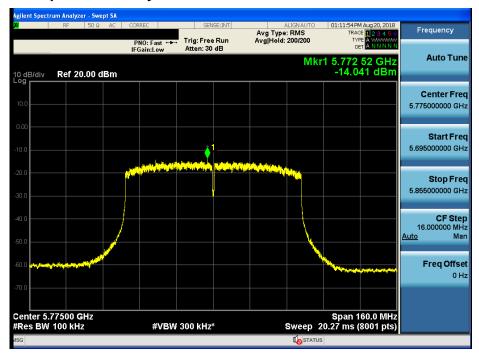










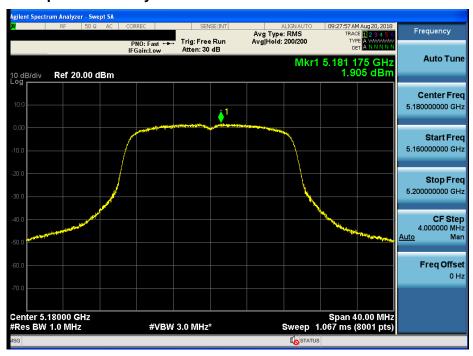




- Power spectral density: SDM-Antenna 2

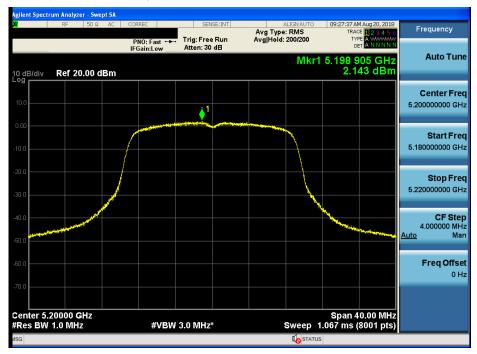
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.36



Maximum Power Spectral Density

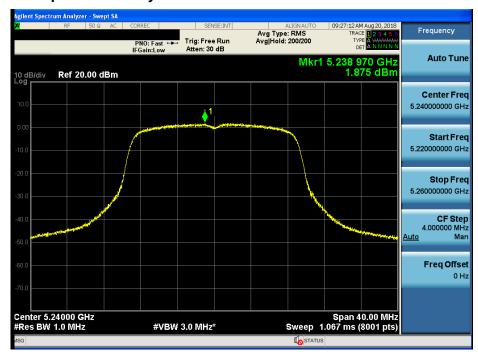
Test Mode: 802.11ac VHT20 & ANT 2 & Ch.40



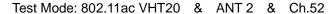
TDt&C

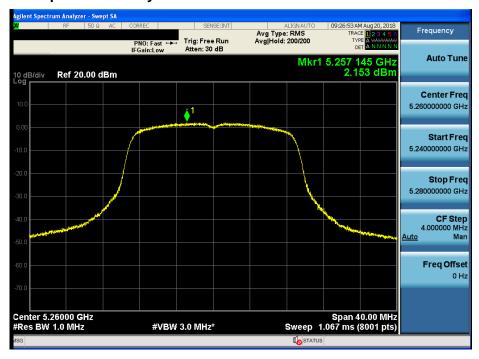
Maximum Power Spectral Density

Test Mode: 802.11ac VHT20 & ANT 2 & Ch.48

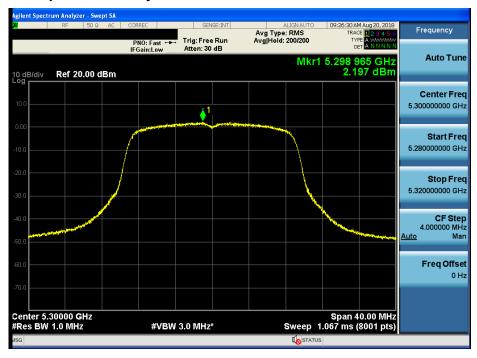












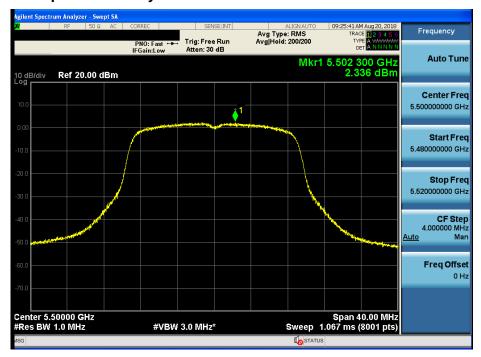
Test Mode: 802.11ac VHT20 & ANT 2 & Ch.64

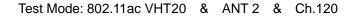


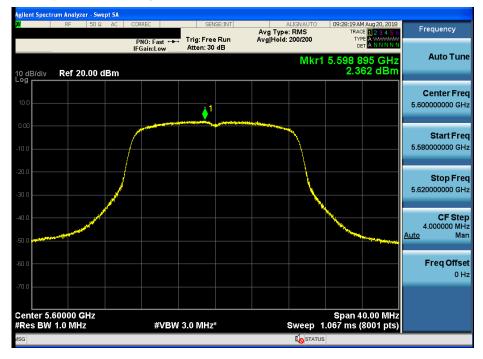
Report No.: DRTFCC1809-0228





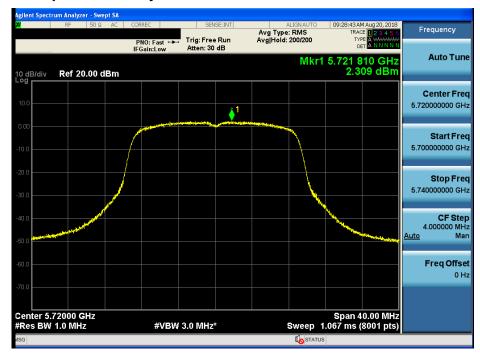




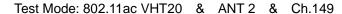


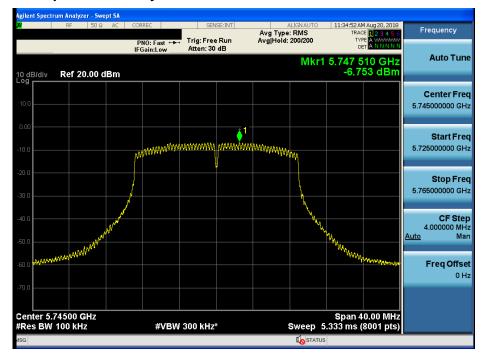


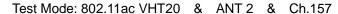






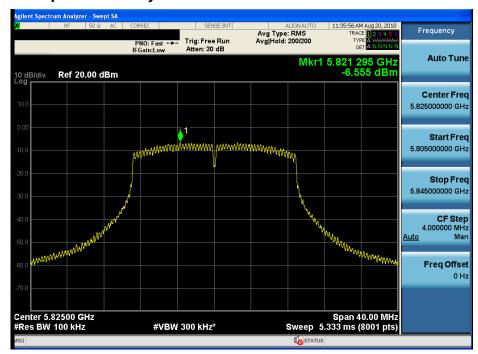








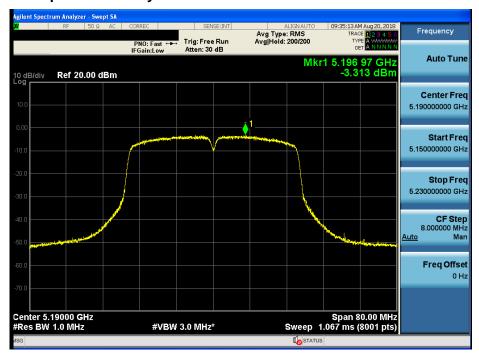
Test Mode: 802.11ac VHT20 & ANT 2 & Ch.165



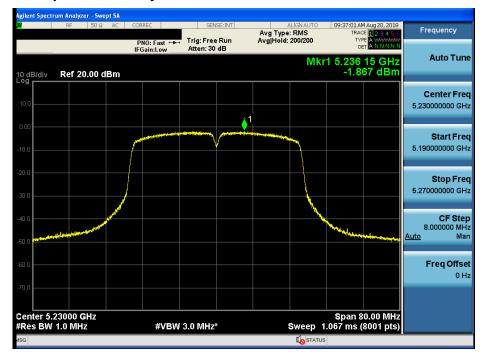
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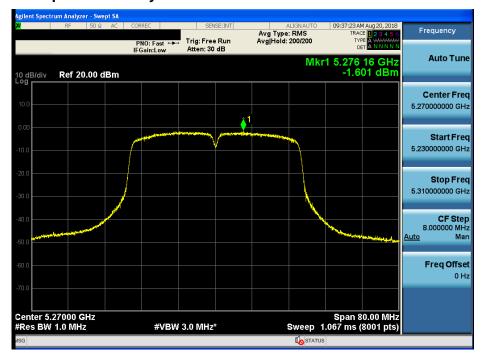


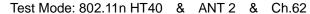


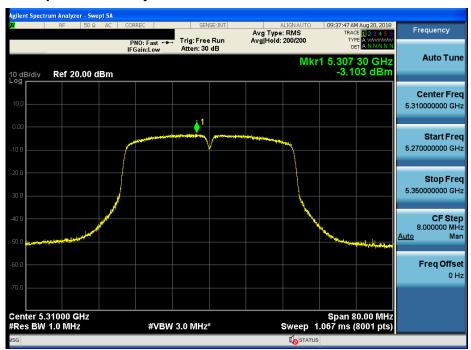




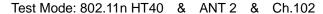


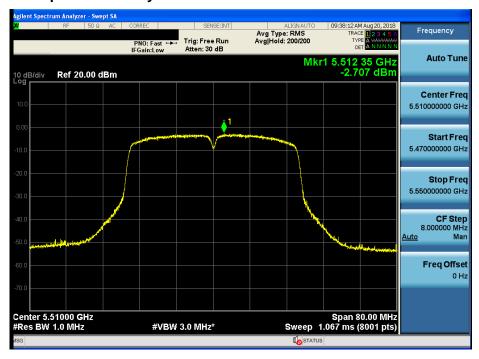


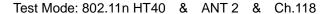


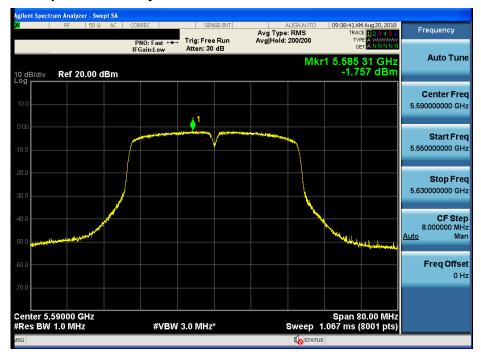




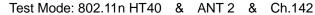


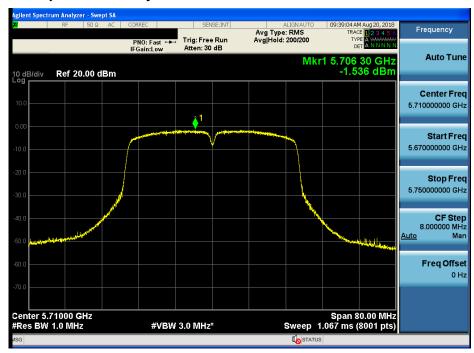






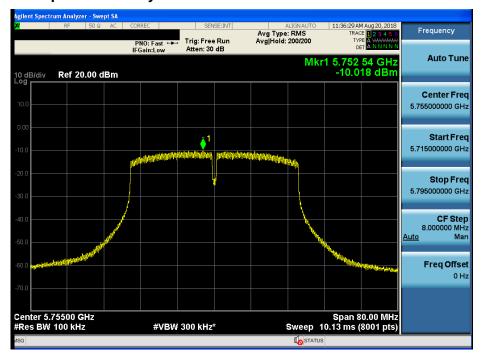


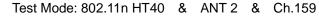


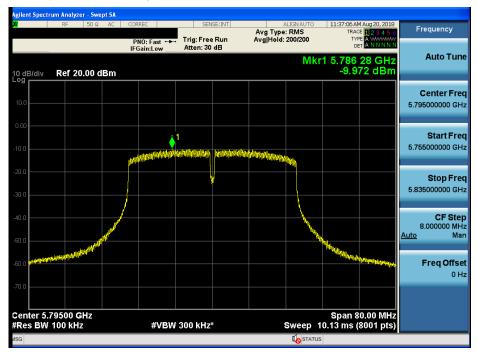




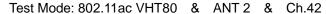


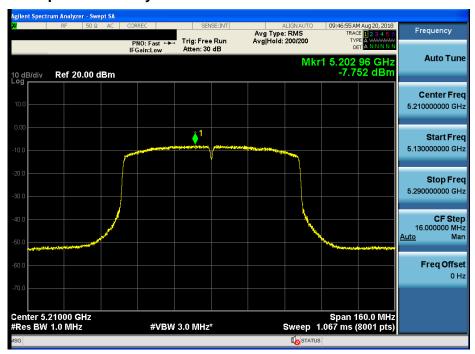




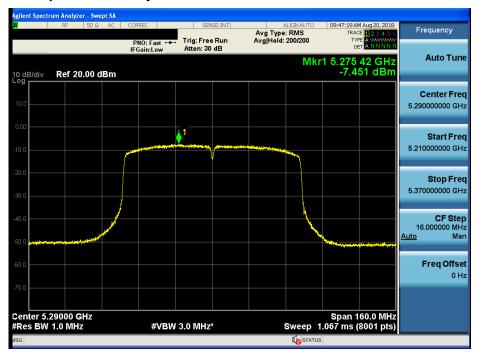






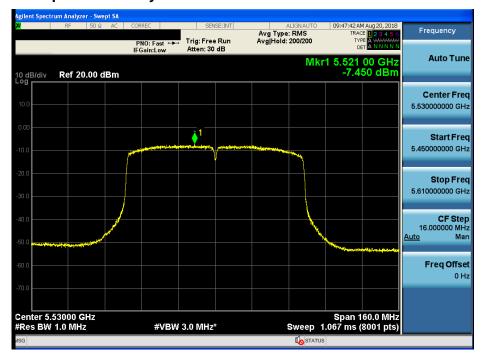


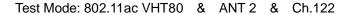


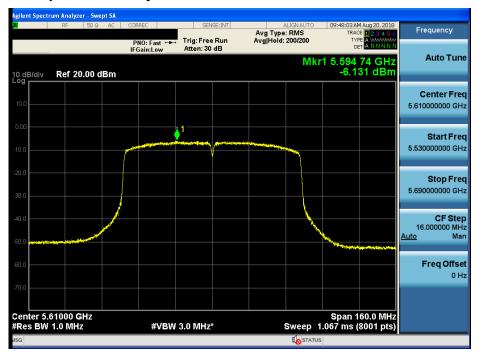






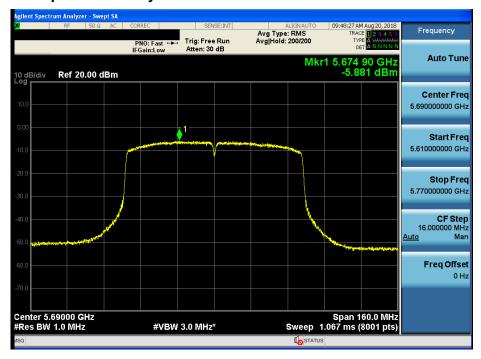




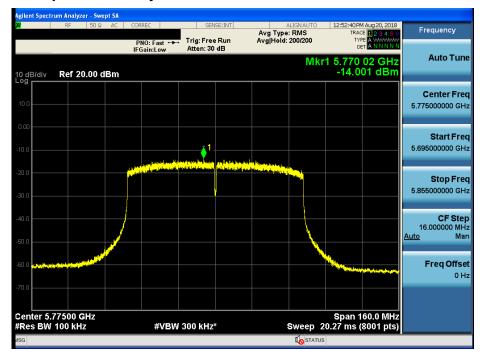














8.5 Frequency Stability

■ Test requirements

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

Report No.: DRTFCC1809-0228

■ Test Procedure

The EUT was placed inside of an environmental chamber as the temperature in the chamber was varied between -20°C and +50°C. The temperature was incremented by 10°C intervals and the unit was allowed to stabilize at each measurement. And the edge point of EBW (26dB or 6dB bandwidth) was reported.

■ Test Results: Comply

U-NII 1 & U-NII 2A: (5150 MHz ~ 5350 MHz)

0l		Operating	Frequency
Supply Voltage	TEMP (°C)	5180 MHz	5320 MHz
(V DC)	()	26dBc low edge (Hz)	26dBc High edge(Hz)
	+20(Ref)	5,170,624,000	5,329,308,000
	+50	5,170,513,000	5,329,183,000
	+40	5,170,586,000	5,329,225,000
	+30	5,170,608,000	5,329,268,000
3.85	+20	5,170,624,000	5,329,308,000
	+10	5,170,771,000	5,329,384,000
	0	5,170,868,000	5,329,427,000
	-10	5,170,912,000	5,329,481,000
	-20	5,170,931,000	5,329,503,000
4.43	+20	5,170,662,000	5,329,454,000
3.40	+20	5,170,782,000	5,329,381,000

U-NII 2C : (5470 MHz ~ 5725 MHz)

Committee		Operating	Frequency
Supply Voltage	TEMP (°C)	5500 MHz	5720 MHz ^{Note1}
(V DC)	()	26dBc low edge (Hz)	26dBc High edge(Hz)
	+20(Ref)	5,490,733,000	-
	+50	5,490,696,000	-
	+40	5,490,708,000	-
	+30	5,490,725,000	-
3.85	+20	5,490,733,000	-
	+10	5,490,767,000	-
	0	5,490,796,000	-
	-10	5,490,803,000	-
	-20	5,490,825,000	-
4.43	+20	5,490,802,000	-
3.40	+20	5,490,771,000	-

Report No.: DRTFCC1809-0228

Note 1: This channel was not performed because operate in cross-band(U-NII 2C & 3).

U-NII 3: (5725 MHz ~ 5850 MHz)

Cupply		Operating	Frequency
Supply Voltage	TEMP (°C)	5745 MHz	5825 MHz
(V DC)	(5)	6dBc low edge (Hz)	6dBc High edge(Hz)
	+20(Ref)	5,737,029,000	5,832,973,000
	+50	5,737,005,000	5,832,997,000
	+40	5,737,008,000	5,832,991,000
	+30	5,737,018,000	5,832,983,000
3.85	+20	5,737,029,000	5,832,973,000
	+10	5,737,039,000	5,832,965,000
	0	5,737,102,000	5,832,913,000
	-10	5,737,115,000	5,832,894,000
	-20	5,737,152,000	5,832,859,000
4.43	+20	5,737,205,000	5,832,787,000
3.40	+20	5,737,183,000	5,832,758,000



8.6 Radiated Spurious Emission Measurements

■ Test Procedure

• FCC Part 15.209(a) and (b)

Frequency (MHz)	Limit (uV/m)	Measurement Distance (meter)
0.009 - 0.490	2400/F(KHz)	300
0.490 - 1.705	24000/F(KHz)	30
1.705 – 30.0	30	30
30 ~ 88	100 **	3
88 ~ 216	150 **	3
216 ~ 960	200 **	3
Above 960	500	3

Report No.: DRTFCC1809-0228

• FCC Part 15.205 (a): Only spurious emissions are permitted in any of the frequency bands listed below:

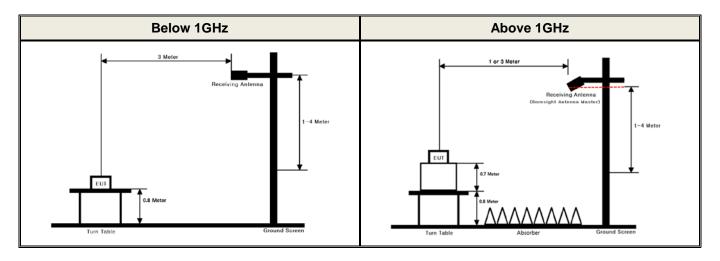
MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.41425 ~ 8.41475	108 ~ 121.94	1300 ~ 1427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1435 ~ 1626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.1735 ~ 2.1905	12.51975 ~	149.9 ~ 150.05	1645.5 ~ 1646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.52025	160.52475 ~	1660 ~ 1710	8.025 ~ 8.5	22.01 ~ 23.12
4.17725 ~ 4.17775	12.57675 ~	160.52525	1718.8 ~ 1722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.20725 ~ 4.20775	12.57725	160.7 ~ 160.9	2200 ~ 2300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	13.36 ~ 13.41	162.0125 ~ 167.17	2310 ~ 2390	10.6 ~ 12.7	36.43 ~ 36.5
6.26775 ~ 6.26825	16.42 ~ 16.423	167.72 ~ 173.2	2483.5 ~ 2500	13.25 ~ 13.4	Above 38.6
6.31175 ~ 6.31225	16.69475 ~	240 ~ 285	2655 ~ 2900		
8.291 ~ 8.294	16.69525	322 ~ 335.4	3260 ~ 3267		
8.362 ~ 8.366	16.80425 ~	399.90 ~ 410	3332 ~ 3339		
8.37625 ~ 8.38675	16.80475	608 ~ 614	3345.8 ~ 3358		
	25.5 ~ 25.67	960 ~ 1240	3600 ~ 4000		
	37.5 ~ 38.25				
	73 ~ 74.6				
	74.8 ~ 75.2				

- FCC Part 15.205(b): The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.
- FCC Part 15.407 (b): Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
 - For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.
 - (2) For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.
 - (3) For transmitters operating in the **5.47-5.725 GHz band**: all emissions outside of the **5.47-5.725 GHz band** shall not exceed an **EIRP of -27 dBm/MHz**.
 - (4) For transmitters operating in the **5.725-5.85 GHz band**: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
 - (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
 - (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in Section 15.207.
 - (7) The provisions of §15.205 apply to intentional radiators operating under this section
 - (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

^{**} Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

Report No.: DRTFCC1809-0228

■ Test Procedure



■ Test Procedure

- 1. The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m.
- 2. The turn table shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 1m or 3 m away from the receiving antenna, which is varied from 1m to 4 m to find out the highest emissions.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Repeat above procedures until the measurements for all frequencies are complete.

Radiated spurious emission measured using following Measurement Procedure of KDB789033 D02v02r01

▶ General Requirements for Unwanted Emissions Measurements

The following requirements apply to all unwanted emissions measurements, both in and outside of the restricted bands:

- EUT Duty Cycle
 - (1) The EUT shall be configured or modified to transmit continuously except as stated in (ii), below. The intent is to test at 100 percent duty cycle; however a small reduction in duty cycle (to no lower than 98 percent) is permitted if required by the EUT for amplitude control purposes. Manufacturers are expected to provide software to the test lab to permit such continuous operation.
 - (2) If continuous transmission (or at least 98 percent duty cycle) cannot be achieved due to hardware limitations of the EUT (e.g., overheating), the following additions to the measurement and reporting procedures are required:
 - The EUT shall be configured to operate at the maximum achievable duty cycle.
 - Measure the duty cycle, x, of the transmitter output signal.
 - Adjustments to measurement procedures (e.g., increasing test time and number of traces averaged) shall be performed as described in the procedures below.
 - The test report shall include the following additional information:
 - The reason for the duty cycle limitation.
 - \circ The duty cycle achieved for testing and the associated transmit duration and interval between transmissions.
 - The sweep time and the amount of time used for trace stabilization during max-hold measurements for peak emission measurements.
 - (3) Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission not on an average across on and off times of the transmitter.



► Measurements below 1000 MHz

a) Follow the requirements in section II.G.3, "General Requirements for Unwanted Emissions Measurements".

Report No.: DRTFCC1809-0228

b) Compliance shall be demonstrated using **CISPR quasi-peak detection**; however, **peak detection** is permitted as an alternative to quasi-peak detection.

► Measurements Above 1000 MHz (Peak)

- a) Follow the requirements in section II.G.3, "General Requirements for Unwanted Emissions Measurements".
- b) Peak emission levels are measured by setting the analyzer as follows:
 - (i) RBW = 1 MHz.
 - (ii) **VBW** ≥ 3 **MHz**.
 - (iii) Detector = Peak.
 - (iv) Sweep time = Auto.
 - (v) Trace mode = Max hold.
 - (vi) Allow sweeps to continue until the trace stabilizes. Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately 1/x, where x is the duty cycle. For example, at 50 percent duty cycle, the measurement time will increase by a factor of two relative to measurement time for continuous transmission.

► Measurements Above 1000 MHz (Method AD)

- (i) RBW = 1 MHz.
- (ii) VBW ≥ 3 MHz.
- (iii) Detector = RMS, if span / (# of points in sweep) ≤ RBW / 2. Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If the condition is not satisfied, the detector mode shall be set to peak.
- (iv) Averaging type = power (i.e., RMS)
 - As an alternative, the detector and averaging type may be set for linear voltage averaging.
 Some analyzers require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.
- (v) Sweep time = Auto.
- (vi) Perform a trace average of at least 100 traces if the transmission is continuous. If the transmission is not continuous, the number of traces shall be increased by a factor of 1/x, where x is the duty cycle. For example, with 50 percent duty cycle, at least 200 traces shall be averaged.
- (vii) If tests are performed with the EUT transmitting at a duty cycle less than 98 percent, a correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:
 - If power averaging (RMS) mode was used in step (iv) above, the correction factor is 10 log(1/x), where x is the duty cycle. For example, if the transmit duty cycle was 50 percent, then 3 dB must be added to the measured emission levels.
 - If linear voltage averaging mode was used in step (iv) above, the correction factor is 20 log (1/x), where x is the duty cycle. For example, if the transmit duty cycle was 50 percent, then 6 dB must be added to the measured emission levels.
 - If a specific emission is demonstrated to be continuous (100 percent duty cycle) rather than turning on and off with the transmit cycle, no duty cycle correction is required for that emission.

Please refer to Appendix II for the duty correction factor



■ Measurement Data:

Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : MIMO(CDD) & 802.11a

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
		5132.34	Н	Z	PK	53.48	2.22	N/A	N/A	55.70	74.00	18.30
	36 (5180 MHz)	5132.22	Н	Z	AV	43.64	2.22	0.21	N/A	46.07	54.00	7.93
U-NII 1	,	10358.70	V	Υ	PK	45.96	6.04	N/A	N/A	52.00	68.20	16.20
	40 (5200 MHz)	10401.76	٧	Y	PK	46.85	6.05	N/A	N/A	52.90	68.20	15.30
	48 (5240 MHz)	10479.78	V	Y	PK	46.19	6.08	N/A	N/A	52.27	68.20	15.93
	52 (5260 MHz)	10519.77	٧	Υ	PK	46.18	6.11	N/A	N/A	52.29	68.20	15.91
	60	10600.37	V	Υ	PK	46.22	6.22	N/A	N/A	52.44	74.00	21.56
	(5300 MHz)	10600.31	V	Υ	AV	35.01	6.22	0.21	N/A	41.44	54.00	12.56
U-NII 2A		5368.12	Н	Z	PK	53.39	3.12	N/A	N/A	56.51	74.00	17.49
	64	5368.18	Н	Z	AV	44.37	3.12	0.21	N/A	47.70	54.00	6.30
	(5320 MHz)	10641.32	V	Y	PK	45.92	6.27	N/A	N/A	52.19	74.00	21.81
		10640.98	V	Y	AV	34.88	6.27	0.21	N/A	41.36	54.00	12.64
		5452.42	Н	Z	PK	52.36	3.43	N/A	N/A	55.79	74.00	18.21
	100 (5500 MHz)	5452.18	Н	Z	AV	43.73	3.43	0.21	N/A	47.37	54.00	6.63
		5467.62	Н	Z	PK	52.72	3.48	N/A	N/A	56.20	68.20	12.00
		11001.45	V	Υ	PK	47.17	6.74	N/A	N/A	53.91	74.00	20.09
U-NII 2C		11001.40	V	Υ	AV	35.84	6.74	0.21	N/A	42.79	54.00	11.21
	120	11200.19	V	Υ	PK	45.49	7.36	N/A	N/A	52.85	74.00	21.15
	(5600 MHz)	11200.37	V	Υ	AV	35.37	7.36	0.21	N/A	42.94	54.00	11.06
	144	11441.28	V	Υ	PK	46.57	8.11	N/A	N/A	54.68	74.00	19.32
	(5720 MHz)	11441.21	V	Y	AV	35.53	8.11	0.21	N/A	43.85	54.00	10.15
		5696.98	Н	Z	PK	51.48	3.29	N/A	N/A	54.77	68.20	13.43
	149	5724.92	Н	Z	PK	58.89	3.18	N/A	N/A	62.07	78.20	16.13
	(5745 MHz)	11490.26	V	Y	PK	45.65	8.26	N/A	N/A	53.91	74.00	20.09
		11490.23	V	Υ	AV	35.10	8.26	0.21	N/A	43.57	54.00	10.43
U-NII 3	157	11571.03	V	Υ	PK	45.73	8.34	N/A	N/A	54.07	74.00	19.93
O-INII O	(5785 MHz)	11570.52	V	Y	AV	35.56	8.34	0.21	N/A	44.11	54.00	9.89
		5851.74	Н	Z	PK	52.45	3.66	N/A	N/A	56.11	78.20	22.09
	165	5873.36	Н	Z	PK	50.71	3.64	N/A	N/A	54.35	68.20	13.85
	(EOOE MILLS)	11649.94	V	Y	PK	46.10	8.40	N/A	N/A	54.50	74.00	19.50
		11650.62	٧	Y	AV	35.68	8.40	0.21	N/A	44.29	54.00	9.71

Report No.: DRTFCC1809-0228

Note.

2. Sample Calculation.

 $\begin{aligned} & \text{Margin = Limit} - \text{Result} \quad / \quad \text{Result = Reading + T.F+ DCCF + DCF} \quad / \quad \text{T.F = AF + CL - AG} \\ & \text{Where, T.F = Total Factor,} \quad \text{AF = Antenna Factor,} \quad \text{CL = Cable Loss,} \quad \text{AG = Amplifier Gain,} \\ & \text{DCCF = Duty Cycle Correction Factor,} \quad \text{DCF = Distance Correction Factor} \end{aligned}$

3. Information of Distance Factor

For finding emissions, the test distance might be reduced from 3 m to 1 m. In this case, the distance factor (-9.54 dB) is applied to the result.

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

When distance factor is "N/A", the distance is 3 m and distance factor is not applied.

4. The limit is converted to field strength.

^{1.} The radiated emissions were investigated 9kHz to the 10th harmonic of highest fundamental frequency. And no other spurious and harmonic emissions were found above listed frequencies.



Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : MIMO(CDD) & 802.11ac(VHT20)

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
		5147.87	Н	Z	PK	53.73	2.25	N/A	N/A	55.98	74.00	18.02
	36 (5180 MHz)	5149.91	Н	Z	AV	43.38	2.25	0.25	N/A	45.88	54.00	8.12
U-NII 1	(* ,	10361.70	V	Υ	PK	46.09	6.04	N/A	N/A	52.13	68.20	16.07
	40 (5200 MHz)	10398.64	V	Υ	PK	46.33	6.05	N/A	N/A	52.38	68.20	15.82
	48 (5240 MHz)	10481.75	V	Υ	PK	46.14	6.08	N/A	N/A	52.22	68.20	15.98
	52 (5260 MHz)	10520.32	V	Υ	PK	46.84	6.11	N/A	N/A	52.95	68.20	15.25
	60	10601.02	V	Υ	PK	45.76	6.22	N/A	N/A	51.98	74.00	22.02
	(5300 MHz)	10600.46	V	Y	AV	35.08	6.22	0.25	N/A	41.55	54.00	12.45
U-NII 2A		5367.85	Н	Z	PK	54.44	3.12	N/A	N/A	57.56	74.00	16.44
	64	5368.21	Н	Z	AV	44.84	3.12	0.25	N/A	48.21	54.00	5.79
	(5320 MHz)	10641.81	V	Y	PK	45.89	6.27	N/A	N/A	52.16	74.00	21.84
		10641.78	V	Y	AV	35.17	6.27	0.25	N/A	41.69	54.00	12.31
	100 (5500 MHz)	5450.13	Н	Z	PK	52.89	3.42	N/A	N/A	56.31	74.00	17.69
		5451.94	Н	Z	AV	43.80	3.43	0.25	N/A	47.48	54.00	6.52
		5461.05	Н	Z	PK	54.02	3.46	N/A	N/A	57.48	68.20	10.72
		10999.76	V	Υ	PK	46.17	6.74	N/A	N/A	52.91	74.00	21.09
U-NII 2C		10999.64	V	Υ	AV	35.90	6.74	0.25	N/A	42.89	54.00	11.11
	120	11199.24	V	Y	PK	46.52	7.36	N/A	N/A	53.88	74.00	20.12
	(5600 MHz)	11198.78	V	Υ	AV	35.28	7.36	0.25	N/A	42.89	54.00	11.11
	144	11438.82	V	Υ	PK	46.31	8.10	N/A	N/A	54.41	74.00	19.59
	(5720 MHz)	11439.64	V	Υ	AV	35.85	8.10	0.25	N/A	44.20	54.00	9.80
		5714.18	Н	Z	PK	52.27	3.30	N/A	N/A	55.57	68.20	12.63
	149	5724.67	Н	Z	PK	59.68	3.18	N/A	N/A	62.86	78.20	15.34
	(5745 MHz)	11490.30	V	Y	PK	45.84	8.26	N/A	N/A	54.10	74.00	19.90
		11489.95	V	Υ	AV	35.27	8.26	0.25	N/A	43.78	54.00	10.22
U-NII 3	157	11571.80	V	Υ	PK	46.37	8.34	N/A	N/A	54.71	74.00	19.29
U-INII 3	(5785 MHz)	11571.83	V	Υ	AV	35.39	8.34	0.25	N/A	43.98	54.00	10.02
		5850.12	Н	Z	PK	52.44	3.66	N/A	N/A	56.10	78.20	22.10
	165	5860.38	Н	Z	PK	50.03	3.70	N/A	N/A	53.73	68.20	14.47
	(5825 MHz)	11649.45	V	Y	PK	45.73	8.40	N/A	N/A	54.13	74.00	19.87
		11649.68	V	Υ	AV	35.54	8.40	0.25	N/A	44.19	54.00	9.81

Report No.: DRTFCC1809-0228

Note.

2. Sample Calculation.

 $\begin{aligned} & \text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG} \\ & \text{Where, T.F} = \text{Total Factor,} \quad \text{AF} = \text{Antenna Factor,} \quad \text{CL} = \text{Cable Loss,} \quad \text{AG} = \text{Amplifier Gain,} \\ & \text{DCCF} = \text{Duty Cycle Correction Factor,} \quad \text{DCF} = \text{Distance Correction Factor} \end{aligned}$

3. Information of Distance Factor

For finding emissions, the test distance might be reduced from 3 m to 1 m. In this case, the distance factor (-9.54 dB) is applied to the result.

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

When distance factor is "N/A", the distance is 3 m and distance factor is not applied.

4. The limit is converted to field strength.

^{1.} The radiated emissions were investigated 9kHz to the 10th harmonic of highest fundamental frequency. And no other spurious and harmonic emissions were found above listed frequencies.



Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : MIMO(CDD) & 802.11ac(VHT40)

Report No.: DRTFCC1809-0228

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
		5146.64	Н	Z	PK	60.08	2.24	N/A	N/A	62.32	74.00	11.68
U-NII 1	38 (5190 MHz)	5149.56	Н	Z	AV	45.44	2.25	0.33	N/A	48.02	54.00	5.98
U-NII 1	,	10379.50	V	Υ	PK	45.93	6.05	N/A	N/A	51.98	68.20	16.22
	46 (5230 MHz)	10459.38	V	Υ	PK	45.73	6.07	N/A	N/A	51.80	68.20	16.40
	54 (5270 MHz)	10539.11	V	Υ	PK	46.00	6.14	N/A	N/A	52.14	68.20	16.06
		5352.04	Н	Z	PK	63.65	3.05	N/A	N/A	66.70	74.00	7.30
U-NII 2A	62	5350.44	Н	Z	AV	46.59	3.04	0.33	N/A	49.96	54.00	4.04
	(5310 MHz)	10621.06	V	Υ	PK	45.49	6.24	N/A	N/A	51.73	74.00	22.27
		10621.35	V	Υ	AV	34.85	6.24	0.33	N/A	41.42	54.00	12.58
		5440.12	Н	Z	PK	56.52	3.39	N/A	N/A	59.91	74.00	14.09
	102 (5510 MHz)	5459.87	Н	Z	AV	43.56	3.46	0.33	N/A	47.35	54.00	6.65
		5467.15	Н	Z	PK	59.71	3.48	N/A	N/A	63.19	68.20	5.01
		11019.43	V	Υ	PK	46.15	6.80	N/A	N/A	52.95	74.00	21.05
U-NII 2C		11020.11	V	Υ	AV	35.78	6.80	0.33	N/A	42.91	54.00	11.09
	118	11178.80	V	Υ	PK	45.89	7.29	N/A	N/A	53.18	74.00	20.82
	(5590 MHz)	11178.87	V	Υ	AV	35.06	7.29	0.33	N/A	42.68	54.00	11.32
	142	11421.35	V	Υ	PK	45.96	8.05	N/A	N/A	54.01	74.00	19.99
	(5710 MHz)	11421.14	V	Υ	AV	35.43	8.05	0.33	N/A	43.81	54.00	10.19
		5714.60	Н	Z	PK	59.50	3.30	N/A	N/A	62.80	68.20	5.40
	151	5724.38	Н	Z	PK	62.17	3.18	N/A	N/A	65.35	78.20	12.85
	(5755 MHz)	11511.58	V	Υ	PK	46.66	8.30	N/A	N/A	54.96	74.00	19.04
U-NII 3		11511.09	V	Υ	AV	34.93	8.30	0.33	N/A	43.56	54.00	10.44
U-INII 3	_	5852.12	Н	Z	PK	55.27	3.67	N/A	N/A	58.94	68.20	9.26
	159	5870.14	Н	Z	PK	56.23	3.63	N/A	N/A	59.86	78.20	18.34
	(5795 MHz)	11591.58	V	Υ	PK	46.01	8.36	N/A	N/A	54.37	74.00	19.63
		11591.08	V	Y	AV	35.48	8.36	0.33	N/A	44.17	54.00	9.83

Note.

2. Sample Calculation.

 $\begin{aligned} & \text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG} \\ & \text{Where, T.F} = \text{Total Factor,} \quad \text{AF} = \text{Antenna Factor,} \quad \text{CL} = \text{Cable Loss,} \quad \text{AG} = \text{Amplifier Gain,} \\ & \text{DCCF} = \text{Duty Cycle Correction Factor,} \quad \text{DCF} = \text{Distance Correction Factor} \end{aligned}$

3. Information of Distance Factor

For finding emissions, the test distance might be reduced from 3 m to 1 m. In this case, the distance factor (-9.54 dB) is applied to the result.

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

When distance factor is "N/A", the distance is 3 m and distance factor is not applied.

4. The limit is converted to field strength.

^{1.} The radiated emissions were investigated 9kHz to the 10th harmonic of highest fundamental frequency. And no other spurious and harmonic emissions were found above listed frequencies.



Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : MIMO(CDD) & 802.11ac(VHT80)

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
		5143.42	Н	Z	PK	55.64	2.24	N/A	N/A	57.88	74.00	16.12
U-NII 1	42 (5210 MHz)	5148.75	Н	Z	AV	45.31	2.25	0.40	N/A	47.96	54.00	6.04
	,	10419.63	V	Y	PK	46.26	6.06	N/A	N/A	52.32	68.20	15.88
		5350.21	Н	Z	PK	56.81	3.04	N/A	N/A	59.85	74.00	14.15
U-NII 2A	58 (5290 MHz)	5350.28	Η	Z	AV	47.00	3.04	0.40	N/A	50.44	54.00	3.56
	10580.42	V	Υ	PK	45.45	6.19	N/A	N/A	51.64	68.20	16.56	
		5449.88	Н	Z	PK	55.73	3.42	N/A	N/A	59.15	74.00	14.85
		5459.63	Н	Z	AV	45.81	3.46	0.40	N/A	49.67	54.00	4.33
	106 (5530 MHz)	5465.43	Н	Z	PK	56.89	3.47	N/A	N/A	60.36	68.20	7.84
	(5555)	11058.24	V	Υ	PK	46.42	6.92	N/A	N/A	53.34	74.00	20.66
U-NII 2C		11058.80	V	Υ	AV	36.10	6.92	0.40	N/A	43.42	54.00	10.58
	122	11218.75	V	Υ	PK	46.18	7.42	N/A	N/A	53.60	74.00	20.40
	(5610 MHz)	11218.20	V	Υ	AV	35.52	7.42	0.40	N/A	43.34	54.00	10.66
	138	11380.47	V	Υ	PK	45.64	7.92	N/A	N/A	53.56	74.00	20.44
	(5690 MHz)	11380.08	V	Υ	AV	34.98	7.92	0.40	N/A	43.30	54.00	10.70
		5714.80	Н	Z	PK	55.42	3.30	N/A	N/A	58.72	68.20	9.48
		5724.40	Н	Z	PK	62.61	3.18	N/A	N/A	65.79	78.20	12.41
U-NII 3	155	5850.44	Н	Z	PK	51.89	3.66	N/A	N/A	55.55	78.20	22.65
0-1411 3	(5775 MHz)	5863.34	Н	Z	PK	51.97	3.68	N/A	N/A	55.65	68.20	12.55
		11550.59	V	Υ	PK	46.02	8.33	N/A	N/A	54.35	74.00	19.65
		11550.88	٧	Υ	AV	35.32	8.33	0.40	N/A	44.05	54.00	9.95

Report No.: DRTFCC1809-0228

Note.

- 1. The radiated emissions were investigated 9kHz to the 10th harmonic of highest fundamental frequency. And no other spurious and harmonic emissions were found above listed frequencies.
- 2. Sample Calculation.

 $\begin{aligned} & \text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F+ DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG} \\ & \text{Where, T.F} = \text{Total Factor,} \quad \text{AF} = \text{Antenna Factor,} \quad \text{CL} = \text{Cable Loss,} \quad \text{AG} = \text{Amplifier Gain,} \\ & \text{DCCF} = \text{Duty Cycle Correction Factor,} \quad \text{DCF} = \text{Distance Correction Factor} \end{aligned}$

3. Information of Distance Factor

For finding emissions, the test distance might be reduced from 3 m to 1 m. In this case, the distance factor (-9.54 dB) is applied to the result.

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

When distance factor is "N/A", the distance is 3 m and distance factor is not applied.

4. The limit is converted to field strength.



Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : MIMO(SDM) & 802.11ac(VHT20)

Report No.: DRTFCC1809-0228

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
		5146.46	Н	Z	PK	53.77	2.24	N/A	N/A	56.01	74.00	17.99
	36 (5180 MHz)	5147.54	Н	Z	AV	43.40	2.25	0.39	N/A	46.04	54.00	7.96
U-NII 1		10359.04	V	Υ	PK	45.88	6.04	N/A	N/A	51.92	68.20	16.28
	40 (5200 MHz)	10399.63	V	Y	PK	46.37	6.05	N/A	N/A	52.42	68.20	15.78
	48 (5240 MHz)	10480.99	V	Υ	PK	45.78	6.08	N/A	N/A	51.86	68.20	16.34
	52 (5260 MHz)	10520.04	V	Y	PK	45.40	6.11	N/A	N/A	51.51	68.20	16.69
	60	10600.56	V	Y	PK	46.21	6.22	N/A	N/A	52.43	74.00	21.57
	(5300 MHz)	10600.86	V	Υ	AV	35.15	6.22	0.39	N/A	41.76	54.00	12.24
U-NII 2A		5363.47	Η	Z	PK	54.33	3.10	N/A	N/A	57.43	74.00	16.57
	64	5368.06	Н	Z	AV	44.69	3.12	0.39	N/A	48.20	54.00	5.80
	(5320 MHz)	10639.79	V	Υ	PK	45.84	6.27	N/A	N/A	52.11	74.00	21.89
		10640.08	V	Υ	AV	34.78	6.27	0.39	N/A	41.44	54.00	12.56
		5451.72	Н	Z	PK	53.79	3.43	N/A	N/A	57.22	74.00	16.78
	100 (5500 MHz)	5451.94	Н	Z	AV	43.98	3.43	0.39	N/A	47.80	54.00	6.20
		5462.86	Η	Z	PK	54.32	3.47	N/A	N/A	57.79	74.00	16.21
	,	11001.66	V	Υ	PK	47.19	6.75	N/A	N/A	53.94	74.00	20.06
U-NII 2C		11001.42	V	Υ	AV	36.05	6.74	0.39	N/A	43.18	54.00	10.82
	120	11201.71	V	Υ	PK	46.06	7.37	N/A	N/A	53.43	74.00	20.57
	(5600 MHz)	11201.57	V	Υ	AV	35.23	7.36	0.39	N/A	42.98	54.00	11.02
	144	11439.29	V	Υ	PK	46.56	8.10	N/A	N/A	54.66	74.00	19.34
	(5720 MHz)	11439.28	V	Y	AV	35.89	8.10	0.39	N/A	44.38	54.00	9.62
		5714.66	Η	Z	PK	52.99	3.30	N/A	N/A	56.29	68.20	11.91
	149	5724.06	Ι	Z	PK	58.45	3.19	N/A	N/A	61.64	78.20	16.56
	(5745 MHz)	11488.64	٧	Υ	PK	45.89	8.25	N/A	N/A	54.14	74.00	19.86
		11489.82	V	Υ	AV	35.37	8.26	0.39	N/A	44.02	54.00	9.98
LLNILO	157	11570.76	V	Υ	PK	45.96	8.34	N/A	N/A	54.30	74.00	19.70
U-NII 3	(5785 MHz)	11570.92	V	Υ	AV	35.41	8.34	0.39	N/A	44.14	54.00	9.86
		5850.08	Н	Z	PK	51.78	3.66	N/A	N/A	55.44	78.20	22.76
	165	5868.34	Η	Z	PK	50.72	3.64	N/A	N/A	54.36	68.20	13.84
	(EOOE MILLS)	11649.53	V	Y	PK	45.85	8.40	N/A	N/A	54.25	74.00	19.75
		11648.75	V	Y	AV	35.40	8.40	0.39	N/A	44.19	54.00	9.81

Note.

2. Sample Calculation.

 $\begin{aligned} & \text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} + \text{DCCF} + \text{DCF} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG} \\ & \text{Where, T.F} = \text{Total Factor,} \quad \text{AF} = \text{Antenna Factor,} \quad \text{CL} = \text{Cable Loss,} \quad \text{AG} = \text{Amplifier Gain,} \\ & \text{DCCF} = \text{Duty Cycle Correction Factor,} \quad \text{DCF} = \text{Distance Correction Factor} \end{aligned}$

3. Information of Distance Factor

For finding emissions, the test distance might be reduced from 3 m to 1 m. In this case, the distance factor (-9.54 dB) is applied to the result.

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

When distance factor is "N/A", the distance is 3 m and distance factor is not applied.

4. The limit is converted to field strength.

^{1.} The radiated emissions were investigated 9kHz to the 10th harmonic of highest fundamental frequency. And no other spurious and harmonic emissions were found above listed frequencies.



Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : MIMO(SDM) & 802.11n(HT40)

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
		5149.92	Н	Z	PK	63.62	2.25	N/A	N/A	65.87	74.00	8.13
	38 (5190 MHz)	5149.52	Н	Z	AV	44.83	2.25	0.62	N/A	47.70	54.00	6.30
U-NII 1	,	10379.95	V	Υ	PK	46.61	6.05	N/A	N/A	52.66	68.20	15.54
	46 (5230 MHz)	10460.66	V	Υ	PK	46.43	6.07	N/A	N/A	52.50	68.20	15.70
	54 (5270 MHz)	10538.84	V	Υ	PK	46.68	6.14	N/A	N/A	52.82	68.20	15.38
		5357.52	Н	Z	PK	61.03	3.07	N/A	N/A	64.10	74.00	9.90
U-NII 2A	62	5350.96	Н	Z	AV	46.08	3.04	0.62	N/A	49.74	54.00	4.26
	(5310 MHz)	10620.22	V	Υ	PK	45.14	6.24	N/A	N/A	51.38	74.00	22.62
		10620.27	V	Υ	AV	34.72	6.24	0.62	N/A	41.58	54.00	12.42
		5455.64	Н	Z	PK	58.97	3.44	N/A	N/A	62.41	74.00	11.59
	102 (5510 MHz)	5459.43	Н	Z	AV	43.15	3.45	0.62	N/A	47.22	54.00	6.78
		5467.78	Н	Z	PK	58.43	3.48	N/A	N/A	61.91	68.20	6.29
		11019.75	V	Υ	PK	45.75	6.80	N/A	N/A	52.55	74.00	21.45
U-NII 2C		11019.50	V	Υ	AV	35.45	6.80	0.62	N/A	42.87	54.00	11.13
	118	11178.52	V	Υ	PK	45.68	7.29	N/A	N/A	52.97	74.00	21.03
	(5590 MHz)	11178.62	V	Υ	AV	35.24	7.29	0.62	N/A	43.15	54.00	10.85
	142	11419.55	V	Υ	PK	46.16	8.04	N/A	N/A	54.20	74.00	19.80
	(5710 MHz)	11419.69	V	Υ	AV	35.64	8.04	0.62	N/A	44.30	54.00	9.70
		5715.00	Н	Z	PK	58.86	3.31	N/A	N/A	62.17	68.20	6.03
	151	5721.94	Н	Z	PK	62.57	3.21	N/A	N/A	65.78	78.20	12.42
	(5755 MHz)	11509.40	V	Υ	PK	45.20	8.30	N/A	N/A	53.50	74.00	20.50
U-NII 3		11509.48	V	Υ	AV	34.97	8.30	0.62	N/A	43.89	54.00	10.11
O-INII 3		5851.16	Н	Z	PK	56.05	3.66	N/A	N/A	59.71	68.20	8.49
	159	5869.62	Н	Z	PK	53.62	3.63	N/A	N/A	57.25	78.20	20.95
	(5795 MHz)	11591.01	V	Y	PK	46.38	8.36	N/A	N/A	54.74	74.00	19.26
		11590.87	V	Υ	AV	35.44	8.36	0.62	N/A	44.42	54.00	9.58

Report No.: DRTFCC1809-0228

Note.

2. Sample Calculation.

 $\begin{aligned} & \text{Margin} = \text{Limit} - \text{Result} \ \ \, / \ \ & \text{Result} = \text{Reading} + \text{T.F+ DCCF} + \text{DCF} \ \ \, / \ \ \, \text{T.F} = \text{AF} + \text{CL} - \text{AG} \\ & \text{Where, T.F} = \text{Total Factor,} \ \ \, \text{AF} = \text{Antenna Factor,} \ \ \, \text{CL} = \text{Cable Loss,} \ \ \, \text{AG} = \text{Amplifier Gain,} \\ & \text{DCCF} = \text{Duty Cycle Correction Factor,} \ \ \, \text{DCF} = \text{Distance Correction Factor} \end{aligned}$

3. Information of Distance Factor

For finding emissions, the test distance might be reduced from 3 m to 1 m. In this case, the distance factor (-9.54 dB) is applied to the result.

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

When distance factor is "N/A", the distance is 3 m and distance factor is not applied.

4. The limit is converted to field strength.

^{1.} The radiated emissions were investigated 9kHz to the 10th harmonic of highest fundamental frequency. And no other spurious and harmonic emissions were found above listed frequencies.



Radiated Spurious Emissions data(9 kHz ~ 40 GHz) : MIMO(SDM) & 802.11ac(VHT80)

Band	Tested Channel	Freq. (MHz)	ANT Pol	EUT Position (Axis)	Detector Mode	Reading (dBuV)	T.F (dB/m)	DCCF (dB)	DCF (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
		5145.67	Н	Z	PK	55.35	2.24	N/A	N/A	57.59	74.00	16.41
U-NII 1	42 (5210 MHz)	5149.33	Н	Z	AV	45.08	2.25	0.73	N/A	48.06	54.00	5.94
	(,	10419.56	V	Υ	PK	46.77	6.06	N/A	N/A	52.83	68.20	15.37
		5350.42	Н	Z	PK	58.26	3.04	N/A	N/A	61.30	74.00	12.70
U-NII 2A	58 (5290 MHz)	5350.42	Н	Z	AV	46.94	3.04	0.73	N/A	50.71	54.00	3.29
	10580.84	V	Υ	PK	47.49	6.19	N/A	N/A	53.68	68.20	14.52	
		5456.55	Н	Z	PK	57.49	3.45	N/A	N/A	60.94	74.00	13.06
		5457.29	Н	Z	AV	45.49	3.45	0.73	N/A	49.67	54.00	4.33
	106 (5530 MHz)	5461.54	Н	Z	PK	56.26	3.46	N/A	N/A	59.72	68.20	8.48
	,	11059.02	V	Υ	PK	47.39	6.92	N/A	N/A	54.31	74.00	19.69
U-NII 2C		11058.64	V	Y	AV	35.89	6.92	0.73	N/A	43.54	54.00	10.46
	122	11059.37	V	Υ	PK	46.67	6.92	N/A	N/A	53.59	74.00	20.41
	(5610 MHz)	11059.46	V	Υ	AV	35.79	6.92	0.73	N/A	43.44	54.00	10.56
	138	11378.42	V	Υ	PK	46.67	7.91	N/A	N/A	54.58	74.00	19.42
	(5690 MHz)	11378.69	V	Υ	AV	35.09	7.91	0.73	N/A	43.73	54.00	10.27
		5714.22	Н	Z	PK	56.08	3.30	N/A	N/A	59.38	68.20	8.82
		5723.92	Н	Z	PK	58.60	3.19	N/A	N/A	61.79	78.20	16.41
U-NII 3	155	5850.52	Н	Z	PK	52.65	3.66	N/A	N/A	56.31	78.20	21.89
0-1411 3	(5775 MHz)	5861.58	Н	Z	PK	52.07	3.69	N/A	N/A	55.76	68.20	12.44
		11551.18	V	Υ	PK	45.98	8.33	N/A	N/A	54.31	74.00	19.69
		11551.60	V	Y	AV	35.86	8.33	0.73	N/A	44.92	54.00	9.08

Report No.: DRTFCC1809-0228

Note.

- 1. The radiated emissions were investigated 9kHz to the 10th harmonic of highest fundamental frequency. And no other spurious and harmonic emissions were found above listed frequencies.
- 2. Sample Calculation.

Margin = Limit - Result / Result = Reading + T.F+ DCCF + DCF / T.F = AF + CL - AG Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain, DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

3. Information of Distance Factor

For finding emissions, the test distance might be reduced from 3 m to 1 m. In this case, the distance factor (-9.54 dB) is applied to the result.

- Calculation of distance factor = 20 log(applied distance / required distance) = 20 log(1 m / 3 m) = -9.54 dB

When distance factor is "N/A", the distance is 3 m and distance factor is not applied.

4. The limit is converted to field strength.



8.7 AC Conducted Emissions

■ Test Requirements and limit, §15.207

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).

Report No.: DRTFCC1809-0228

F (1411-)	Conducted Limit (dBuV)				
Frequency Range (MHz)	Quasi-Peak	Average			
0.15 ~ 0.5	66 to 56 *	56 to 46 *			
0.5 ~ 5	56	46			
5 ~ 30	60	50			

^{*} Decreases with the logarithm of the frequency

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

■ Test Configuration

See test photographs for the actual connections between EUT and support equipment.

■ Test Procedure

Conducted emissions from the EUT were measured according to the ANSI C63.10-2013.

- 1. The test procedure is performed in a 6.5 m \times 3.5 m \times 3.5 m (L \times W \times H) shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) \times 1.5 m (L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
- 2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
- 3. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
- 4. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

Measurement Data: Comply

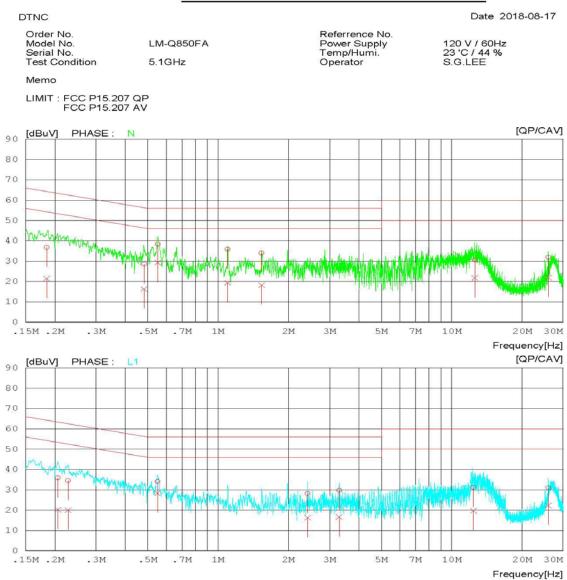
Note 1: See next pages for actual measured spectrum plots and data for worst case result.



AC Line Conducted Emissions (Graph)

Test Mode: U-NII 1 & 802.11ac VHT20 & MIMO(CDD) & 5180 MHz

Results of Conducted Emission



Report No.: DRTFCC1809-0228

AC Line Conducted Emissions (Data List)

Test Mode: U-NII 1 & 802.11ac VHT20 & MIMO(CDD) & 5180 MHz

Results of Conducted Emission

DTNC Date 2018-08-17

 Order No.
 Reference No.

 Model No.
 LM-Q850FA
 Power Supply
 120 V / 60Hz

 Serial No.
 Temp/Humi.
 23 'C / 44 %

 Test Condition
 5.1GHz
 Operator
 S.G.LEE

Memo

LIMIT : FCC P15.207 QP FCC P15.207 AV

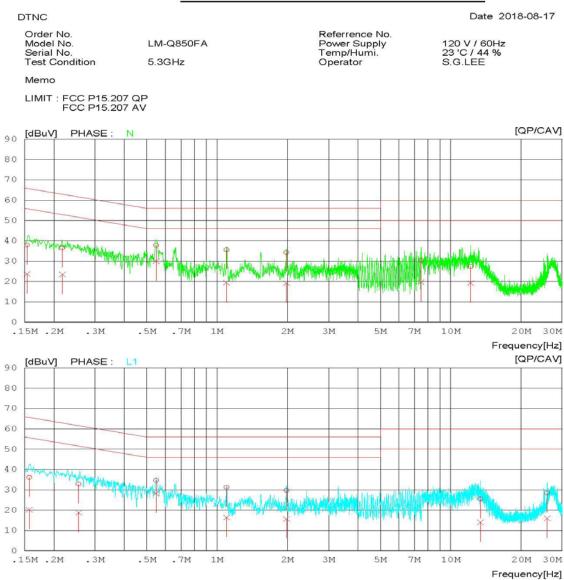
NO	FREQ	READING QP CAV [dBuV][dBuV]	C.FACTOR	RESULT QP CAV [dBuV][dBuV	LIMIT QP CAV] [dBuV] [dBuV]	MARGIN QP CAV [dBuV][dBuV]	PHASE
1	0.18455	26.69 11.49	9.96	36.65 21.45	64.28 54.28	27.63 32.83	И
2	0.48198	18.57 6.26	9.99	28.5616.25	56.30 46.30	27.74 30.05	N
3	0.55228	28.3619.27	9.98	38.34 29.25	56.00 46.00	17.66 16.75	N
4	1.09820	25.88 9.34	9.99	35.87 19.33	56.00 46.00	20.13 26.67	N
5	1.53440	23.98 8.17	10.02	34.00 18.19	56.00 46.00	22.00 27.81	N
6	12.55360	20.3711.53	10.25	30.6221.78	60.00 50.00	29.38 28.22	N
7	25.89580	21.47 11.40	10.48	31.95 21.88	60.00 50.00	28.05 28.12	N
8	0.20606	25.89 10.33	9.94	35.83 20.27	63.36 53.36	27.53 33.09	L1
9	0.22775	24.6210.06	9.94	34.5620.00	62.53 52.53	27.97 32.53	L1
10	0.55013	24.11 18.35	9.98	34.09 28.33	56.00 46.00	21.91 17.67	L1
11	2.41840	18.08 6.26	10.05	28.13 16.31	56.00 46.00	27.87 29.69	L1
12	3.29480	19.61 6.57	10.06	29.67 16.63	56.00 46.00	26.33 29.37	L1
13	12.38340	20.84 9.46	10.24	31.08 19.70	60.00 50.00	28.9230.30	L1
14	25.89520	20.47 11.79	10.48	30.95 22.27	60.00 50.00	29.05 27.73	L1



AC Line Conducted Emissions (Graph)

Test Mode: U-NII 2A & 802.11ac VHT20 & MIMO(CDD) & 5320 MHz

Results of Conducted Emission



Report No.: DRTFCC1809-0228

AC Line Conducted Emissions (Data List)

Test Mode: U-NII 2A & 802.11ac20 VHT & MIMO(CDD) & 5320 MHz

Results of Conducted Emission

DTNC Date 2018-08-17

 Order No.
 Referre

 Model No.
 LM-Q850FA
 Power 5

 Serial No.
 Temp/H

 Test Condition
 5.3GHz
 Operato

Referrence No.
Power Supply
Temp/Humi.
Operator

120 V / 60Hz
23 'C / 44 %
S.G.LEE

Memo

LIMIT : FCC P15.207 QP FCC P15.207 AV

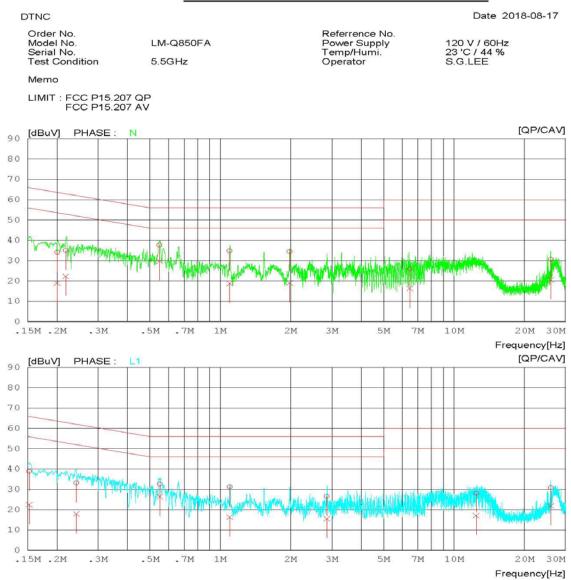
ИС		READING QP CAV	C.FACTOR	RESULT QP CAV	LIM	CAV	MARGIN QP CAV	PHASE
	[MHz]	[dBuV] [dBuV]	[dB]	[dBuV][dBuV] [dBuV]	[dBuV]	[dBuV] [dBuV]	
1	0.15355	27.95 13.68	9.99	37.94 23.67	65.81 5	5.81 2	27.8732.14	И
2	0.21764	26.59 13.52	9.94	36.53 23.46	62.91 5	2.91 2	26.38 29.45	N
3	0.54799	27.88 19.99	9.98	37.8629.97	56.00 4	6.00	18.14 16.03	И
4	1.09760	25.60 9.39	9.99	35.59 19.38	56.00 4	6.00 2	20.41 26.62	N
5	1.97880	24.32 9.09	10.04	34.3619.13	56.00 4	6.00 2	21.64 26.87	N
6	7.46500	20.15 9.60	10.15	30.3019.75	60.00 5	0.00 2	29.70 30.25	N
7	12.18160	17.18 9.04	10.23	27.41 19.27	60.00 5	0.00 3	32.59 30.73	N
8	0.15690	26.14 10.10	9.98	36.1220.08	65.63 5	5.63	29.51 35.55	L1
9	0.25556	22.87 8.81	9.95	32.8218.76	61.57 5	1.57 2	28.75 32.81	L1
10	0.54794	24.68 18.22	9.98	34.6628.20	56.00 4	6.00 2	21.34 17.80	L1
11	1.09780	21.28 6.37	9.99	31.27 16.36	56.00 4	6.00 2	24.73 29.64	L1
12	1.98100	19.63 5.60	10.04	29.67 15.64	56.00 4	6.00 2	26.33 30.36	L1
13	13.40620	15.24 3.75	10.27	25.51 14.02	60.00 5	0.00	34.49 35.98	L1
14	25.87160	17.97 5.45	10.48	28.45 15.93	60.00 5	0.00	31.55 34.07	L1



AC Line Conducted Emissions (Graph)

Test Mode: U-NII 2C & 802.11ac VHT20 & MIMO(CDD) & 5500 MHz

Results of Conducted Emission



Report No.: DRTFCC1809-0228

AC Line Conducted Emissions (Data List)

Test Mode: U-NII 2C & 802.11ac VHT20 & MIMO(CDD) & 5500 MHz

Results of Conducted Emission

DTNC Date 2018-08-17

 Order No.
 Reference No.

 Model No.
 LM-Q850FA
 Power Supply
 120 V / 60Hz

 Serial No.
 Temp/Humi.
 23 'C / 44 %

 Test Condition
 5.5GHz
 Operator
 S.G.LEE

Memo

LIMIT : FCC P15.207 QP FCC P15.207 AV

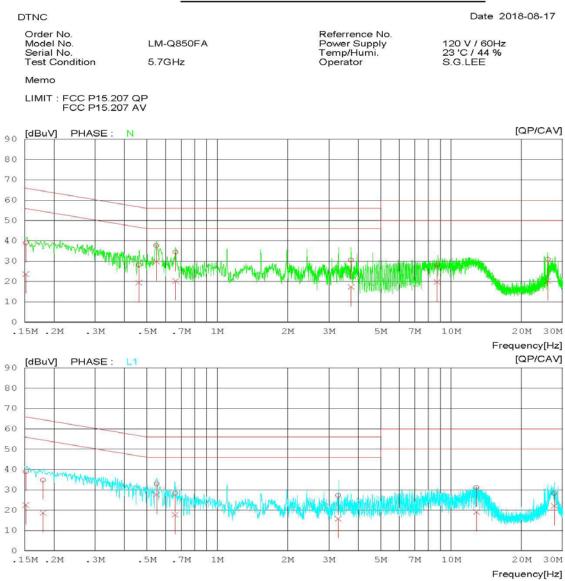
ИО	FREQ	READING QP CAV [dBuV][dBuV]	C.FACTOR	RESULT QP CAV [dBuV] [dBuV	LIMIT QP CAV] [dBuV][dBu		PHASE
1		24.18 9.03	9.94	34.1218.97	63.58 53.58		И
2	0.21812	25.09 12.42	9.94	35.03 22.36	62.89 52.89	27.8630.53	N
3	0.54900	27.74 19.88	9.98	37.72 29.86	56.00 46.00	18.28 16.14	И
4	1.09600	24.76 8.80	9.99	34.75 18.79	56.00 46.00	21.25 27.21	N
5	1.97880	24.35 9.04	10.04	34.39 19.08	56.00 46.00	21.61 26.92	N
6	6.46540	15.74 6.20	10.12	25.8616.32	60.00 50.00	34.14 33.68	N
7	25.90180	20.27 10.07	10.48	30.75 20.55	60.00 50.00	29.25 29.45	N
8	0.15237	28.87 12.39	9.99	38.8622.38	65.87 55.87	27.01 33.49	L1
9	0.24238	23.15 7.95	9.95	33.1017.90	62.01 52.01	28.91 34.11	L1
10	0.55185	22.49 16.39	9.98	32.47 26.37	56.00 46.00	23.53 19.63	L1
11	1.09760	21.24 6.33	9.99	31.2316.32	56.00 46.00	24.77 29.68	L1
12	2.85240	16.52 5.55	10.05	26.5715.60	56.00 46.00	29.43 30.40	L1
13	12.44380	17.83 6.85	10.24	28.0717.09	60.00 50.00	31.9332.91	L1
14		20.26 11.28	10.48	30.74 21.76	60.00 50.00		L1



AC Line Conducted Emissions (Graph)

Test Mode: U-NII 2C & 802.11ac VHT20 & MIMO(CDD) & 5745 MHz

Results of Conducted Emission



Report No.: DRTFCC1809-0228

AC Line Conducted Emissions (Data List)

Test Mode: U-NII 2C & 802.11ac VHT20 & MIMO(CDD) & 5745 MHz

Results of Conducted Emission

DTNC Date 2018-08-17

 Order No.
 Reference No.

 Model No.
 LM-Q850FA
 Power Supply
 120 V / 60Hz

 Serial No.
 Temp/Humi.
 23 'C / 44 %

 Test Condition
 5.7GHz
 Operator
 S.G.LEE

Memo

LIMIT : FCC P15.207 QP FCC P15.207 AV

NG C.FACTOR R CAV QP RESULT QP CAV LIMIT QP CAV NO FREO READING MARGIN PHASE [dBuV] [dBuV] [dB] [dBuV][dBuV] [dBuV] [dBuV] [dBuV] [MHz] 0.15155 28.94 13.65 9.99 38.93 23.64 65.91 55.91 26.98 32.27 9.98 9.98 9.97 10.06 0.46184 18.03 9.37 0.54901 27.77 19.84 0.66293 24.73 10.27 3.73120 20.42 7.32 8.71580 17.99 9.49 25.90920 20.44 9.83 0.15173 28.95 12.51 N 10.18 10.48 9.99 N L1 9.99 9.96 9.98 9.97 10.06 10.26 0.17972 24.81 8.67 0.54959 22.91 17.58 L1 0.54959 22.9117.58 0.66015 18.26 7.75 3.29320 17.21 5.64 12.83140 20.89 8.81 27.64660 17.6911.56 L1 10.49



9. LIST OF TEST EQUIPMENT

Туре	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
Spectrum Analyzer	Agilent Technologies	N9020A	17/12/28	18/12/28	MY50200816
Spectrum Analyzer Agilent Technologies		N9020A	18/01/03	19/01/03	MY48011700
Spectrum Analyzer Agilent Technologies		N9030A	18/07/09	19/07/09	MY53310140
Multimeter	FLUKE	17B	17/12/26	18/12/26	26030065WS
Signal Generator	Rohde Schwarz	SMBV100A	17/12/27	18/12/27	255571
Signal Generator	ANRITSU	MG3695C	18/02/12	19/02/12	173501
Thermohygrometer	BODYCOM	BJ5478	18/07/09	19/07/09	N/A
Thermohygrometer	BODYCOM	BJ5478	18/01/03	19/01/03	120612-1
Temp & Humi	SJ Science	SJ-TH-S50	18/07/06	19/07/06	U5542113
Loop Antenna	Schwarzbeck	FMZB1513	18/01/30	20/01/30	1513-128
Bilog Antenna	Schwarzbeck	VULB 9160	18/07/13	20/07/13	3359
Horn Antenna	ETS-Lindgren	3115	17/01/13	19/01/13	9202-3820
Horn Antenna	Schwarzbeck	BBHA 9120C	17/12/04	19/12/04	9120C-561
Horn Antenna	A.H.Systems Inc.	SAS-574	17/07/31	19/07/31	155
PreAmplifier	tsj	MLA-100K01-B01- 26	18/02/19	19/02/19	1252741
PreAmplifier	tsj	MLA-0118-J01-45	18/02/08	19/02/08	17138
PreAmplifier	tsj	MLA-1840-J02-45	18/07/06	19/07/06	16966-10728
EMI Test Receiver	ROHDE&SCHWARZ	ESR7	18/02/13	19/02/13	101061
Attenuator	SMAJK	SMAJK-2-3	18/07/02	19/07/02	3
Attenuator	Aeroflex/Weinschel	56-3	17/12/27	18/12/27	Y2370
Attenuator	SRTechnology	F01-B0606-01	18/07/02	19/07/02	13092403
Attenuator	Hefei Shunze	SS5T2.92-10-40	17/12/27	18/12/27	16012202
Attenuator	SMAJK	SMAJK-50-10	18/07/04	19/07/04	15081903
High Pass Filter	Wainwright Instruments	WHKX12-935- 1000-15000-40SS	18/07/02	19/07/02	8
High Pass Filter	Wainwright Instruments	WHNX8.0/26.5- 6SS	18/07/02	19/07/02	3
High Pass Filter	Wainwright Instruments	WHKX10-2838- 3300-18000-60SS	18/07/02	19/07/02	1
Power Meter & Wide	Anritsu	ML2495A	18/04/17	19/04/17	1306007
Bandwidth Sensor	7111100	MA2490A	10/0 1/11		1249001
EMI TEST RECEIVER	Rohde Schwarz	ESCI7	18/02/12	19/02/12	100910
PULSE LIMITER	Rohde Schwarz	ESH3-Z2	17/09/29	18/09/29	101333
LISN	SCHWARZBECK	NNLK 8121	18/03/20	19/03/20	06183
Cable	DT&C	CABLE	18/01/10	19/01/10	RF-55
Cable	DT&C	CABLE	18/03/26	19/03/26	RF-68
Cable	DT&C	CABLE	18/03/26	19/03/26	P-IN
Cable	DT&C	CABLE	18/03/26	19/03/26	RF-71
Cable	DT&C	CABLE	18/06/22	19/06/22	RF-82
Cable	Radiall	TESTPRO3	18/06/22	19/06/22	RF-74
Cable	Radiall	TESTPRO3	18/06/22	19/06/22	RF-66
Cable	HUBER+SUHNER	SUCOFLEX	17/12/22	18/12/22	C-1
Cable	HUBER+SUHNER	SUCOFLEX	17/12/22	18/12/22	C-2
Cable	HUBER+SUHNER	SUCOFLEX	17/12/22	18/12/22	C-3
Cable	HUBER+SUHNER	SUCOFLEX	17/12/22	18/12/22	C-4

Report No.: DRTFCC1809-0228

Note 1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017

Note 2: The cable is not a regular calibration item, so it has been calibrated by DT & C itself.