Band 5180-5240MHz
IEEE 802.11a

Low Channel

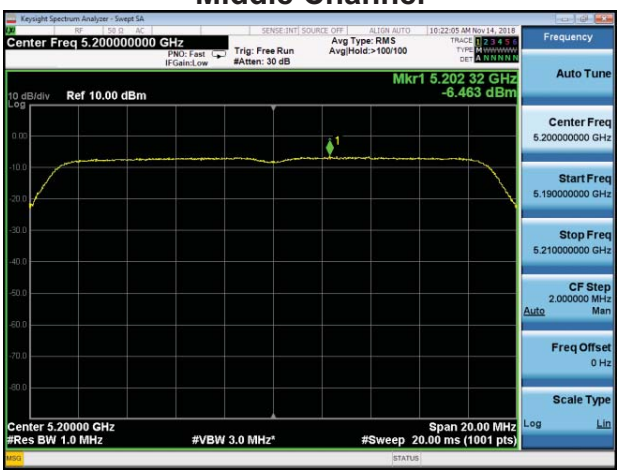
Middle Channel

High Channel

802.11n(HT20)

Low Channel

Middle Channel



High Channel

802.11ac(VHT20)

Low Channel

Middle Channel

High Channel

802.11n(HT40)

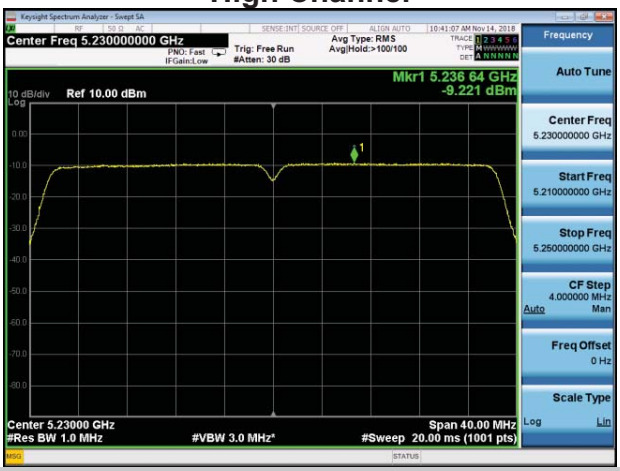
Low Channel

High Channel

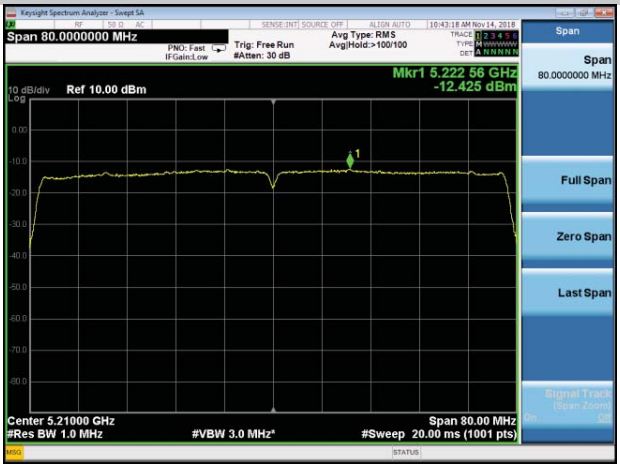
802.11ac(VHT40)

Low Channel

High Channel



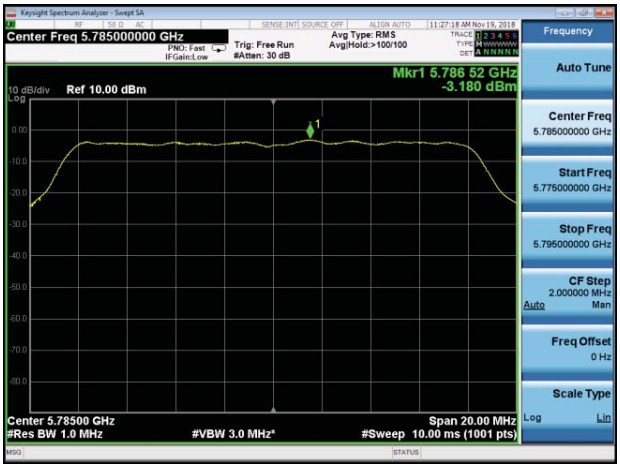
802.11ac(VHT80)



Band 5745-5825MHz
IEEE 802.11a

Low Channel

Middle Channel

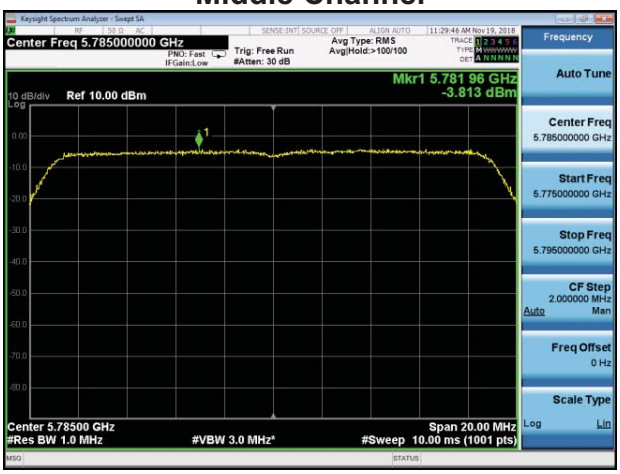


High Channel

802.11n(HT20)

Low Channel

Middle Channel



High Channel

802.11ac(VHT20)

Low Channel

Middle Channel

High Channel

802.11n(HT40)

Low Channel

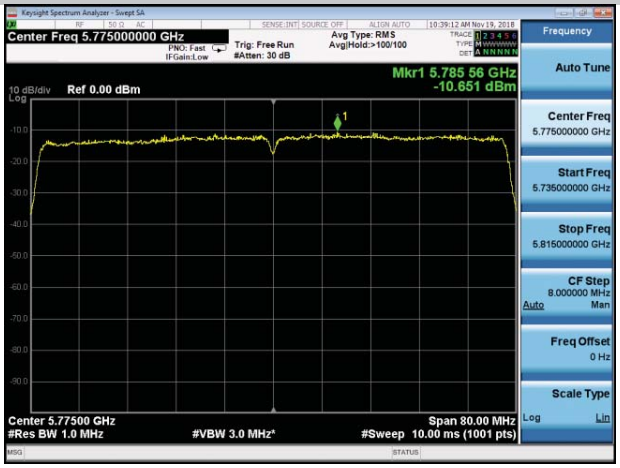
High Channel

802.11ac(VHT40)

Low Channel

High Channel

802.11ac(VHT80)



8. Band Edge

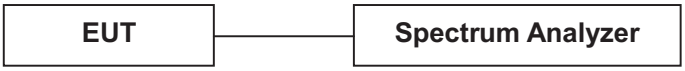
8.1 Limits

For transmitters operating in the 5.15-5.25GHz band: all emissions outside of the 5.15-5.35GHz band shall not exceed an EIRP of -27dBm

For transmitter operating in the 5.25-5.35GHz band: all emissions outside of the 5.15-5.35GHz band shall not exceed an EIRP of -27dBm/MHz. Devices operating in the 5.25-5.35GHz band generate emissions in the 5.15-5.25GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27dBm/MHz in the 5.15-5.25GHz band.

For transmitters operating in the 5.725-5.850GHz band: all emissions shall be limited to a level of -27dBm/MHz at 75MHz or more above or below the band edge increasing linearly to 10dBm/MHz at 25MHz above or below the band edge, and from 25MHz above or below the band edge increasing linearly to a level of 15.6dBm/MHz at 5MHz above or below the band edge, and from 5MHz above or below the band increasing linearly to a level of 27dBm/MHz at the band edge.

8.2 Test SET-UP (Block Diagram of Configuration)



8.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibration or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 1MHz and VBW to 3MHz of spectrum analyzer.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

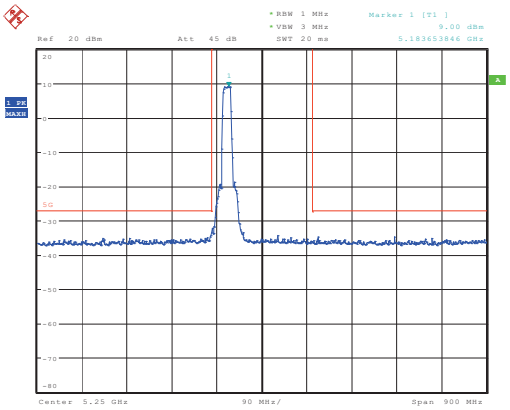
8.4 Measurement Results

Pass

Please refer to following plots.

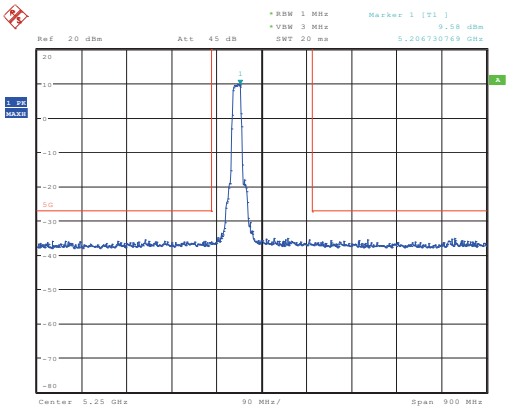
Band 5180-5240MHz
IEEE 802.11a

Low Channel



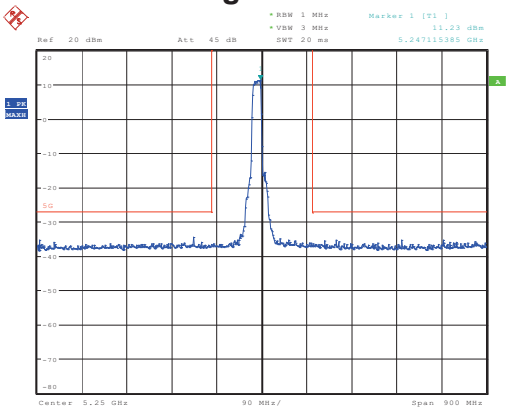
Date: 19.NOV.2018 13:53:38

Middle Channel



Date: 19.NOV.2018 13:54:24

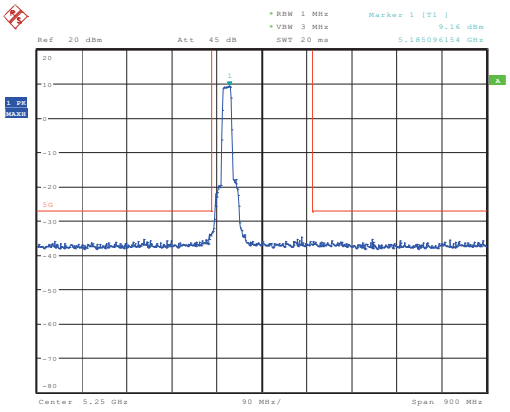
High Channel



Date: 19.NOV.2018 13:54:58

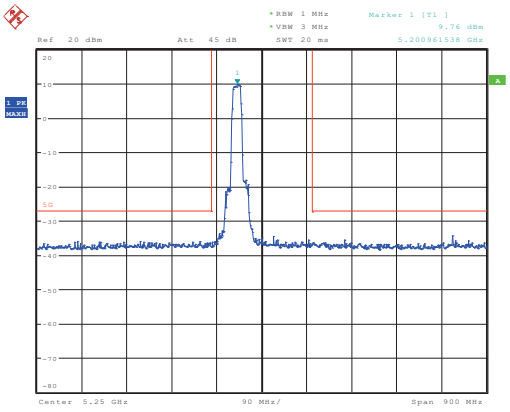
802.11n(HT20)

Low Channel



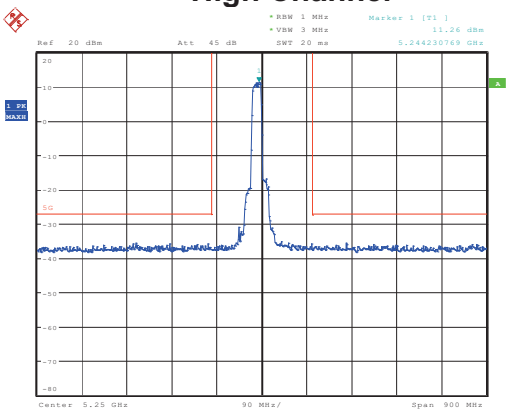
Date: 19.NOV.2018 13:55:37

Middle Channel



Date: 19.NOV.2018 13:56:06

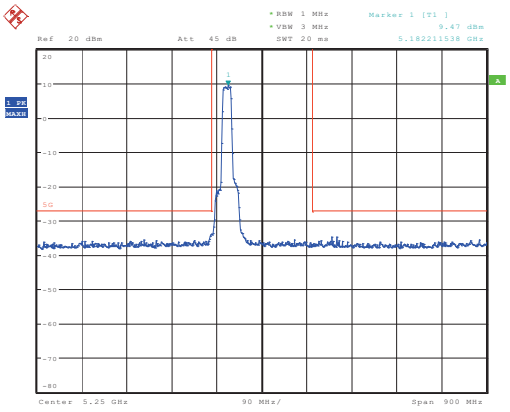
High Channel



Date: 19.NOV.2018 13:56:35

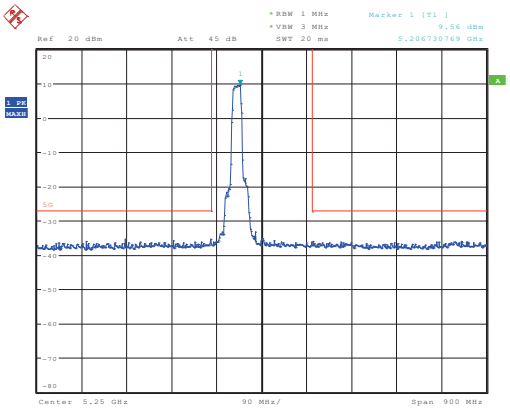
802.11ac(VHT20)

Low Channel



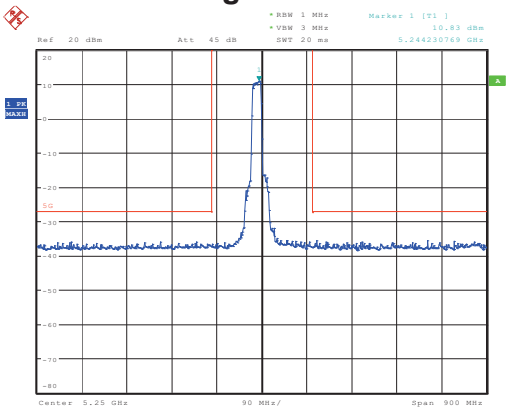
Date: 19.NOV.2018 13:57:27

Middle Channel



Date: 19.NOV.2018 13:57:52

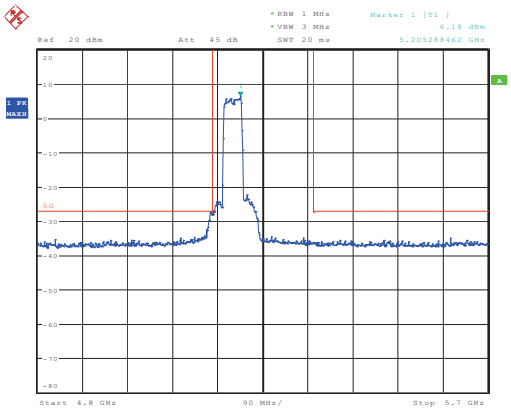
High Channel



Date: 19.NOV.2018 13:58:34

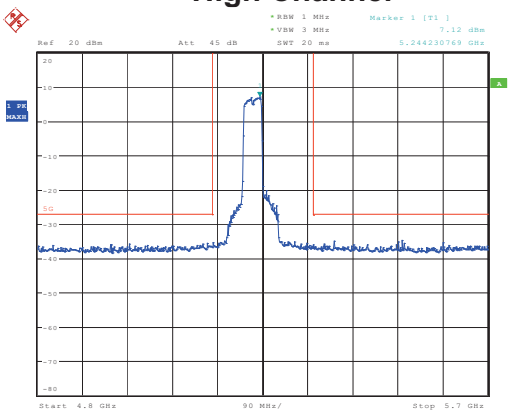
802.11n(HT40)

Low Channel



Date: 19.NOV.2018 14:04:00

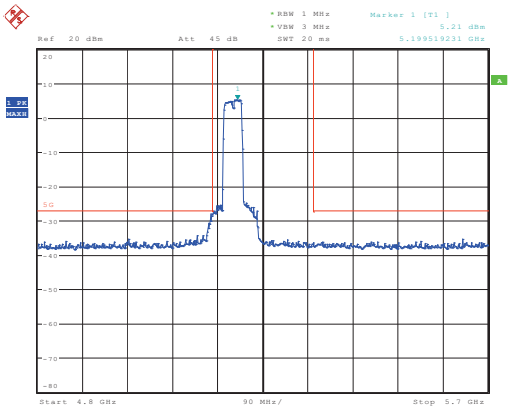
High Channel



Date: 19.NOV.2018 14:04:32

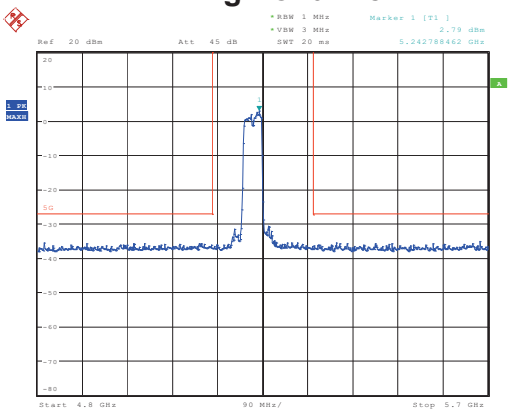
802.11ac(VHT40)

Low Channel



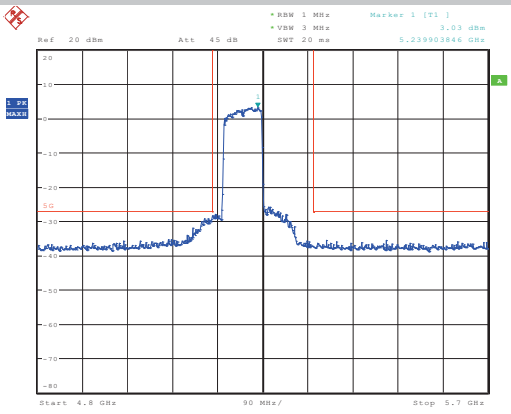
Date: 19.NOV.2018 14:05:13

High Channel



Date: 19.NOV.2018 15:19:55

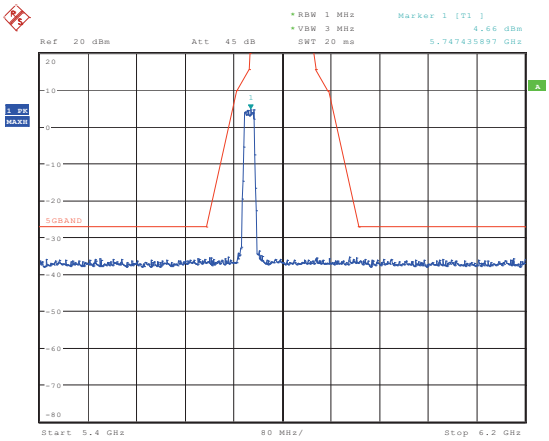
802.11ac(VHT80)



Date: 19.NOV.2018 14:05:46

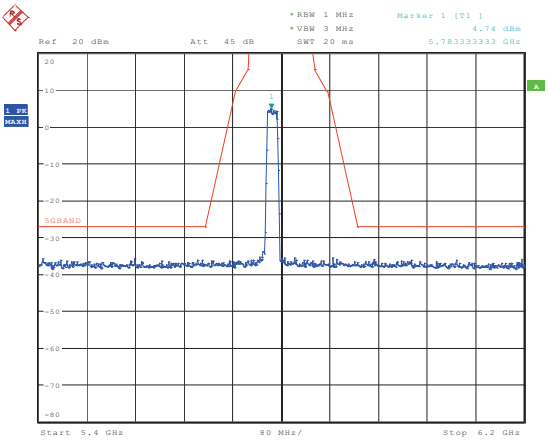
Band 5745-5825MHz
IEEE 802.11a

Low Channel



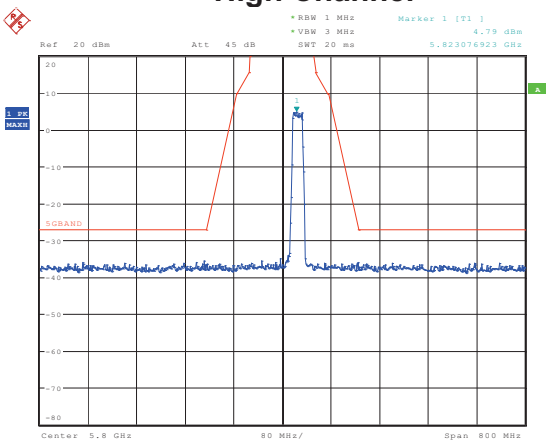
Date: 19.NOV.2018 14:33:08

Middle Channel



Date: 19.NOV.2018 14:33:44

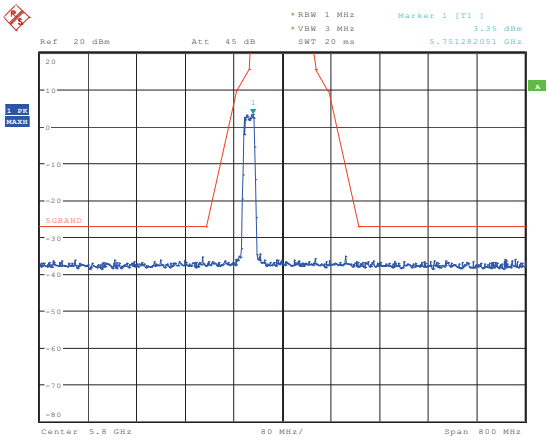
High Channel



Date: 19.NOV.2018 14:36:14

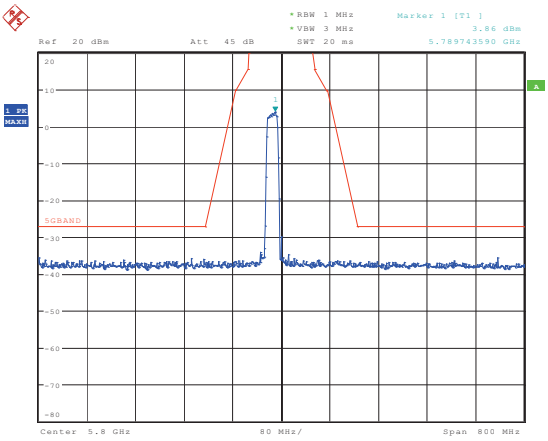
802.11n(HT20)

Low Channel



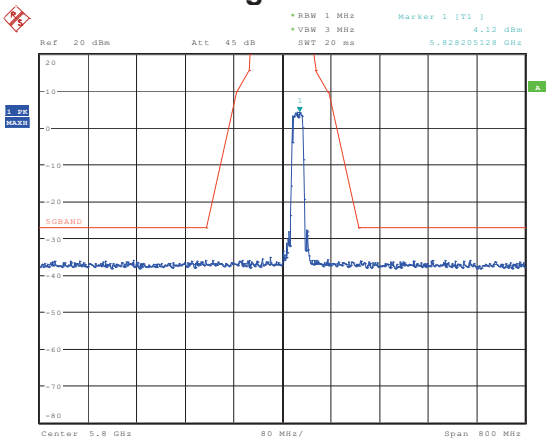
Date: 19.NOV.2018 14:37:19

Middle Channel



Date: 19.NOV.2018 14:37:49

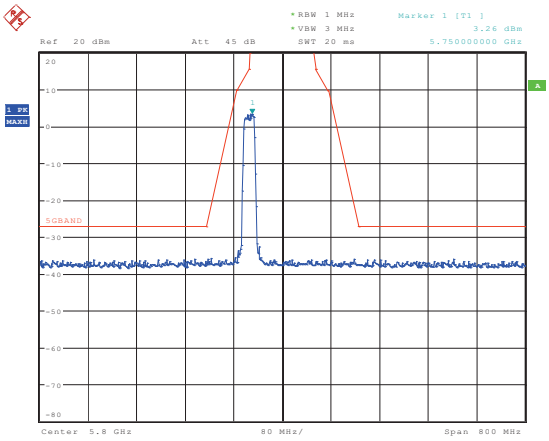
High Channel



Date: 19.NOV.2018 14:38:38

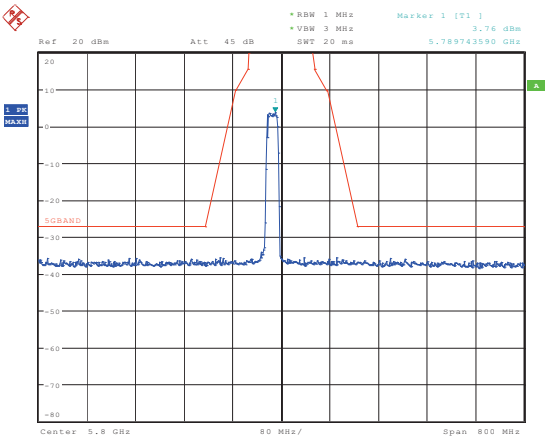
802.11ac(VHT20)

Low Channel



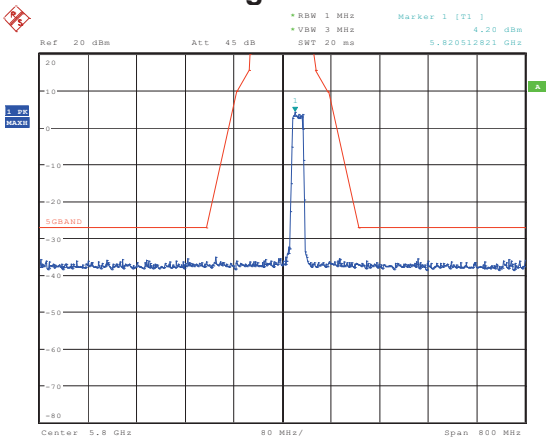
Date: 19.NOV.2018 14:39:28

Middle Channel



Date: 19.NOV.2018 14:40:19

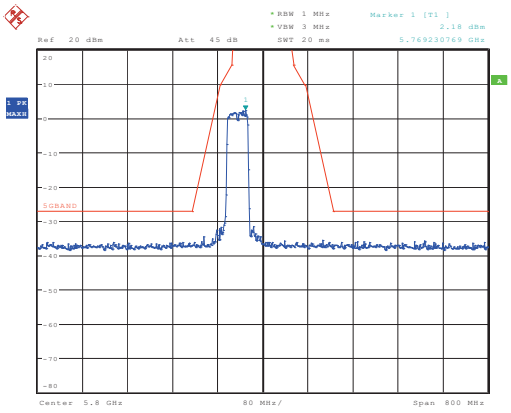
High Channel



Date: 19.NOV.2018 14:40:54

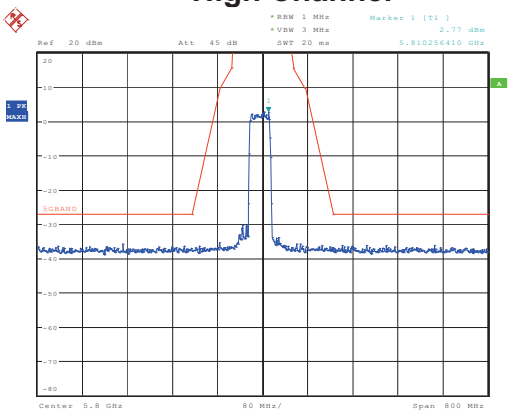
802.11n(HT40)

Low Channel



Date: 19.NOV.2018 14:41:41

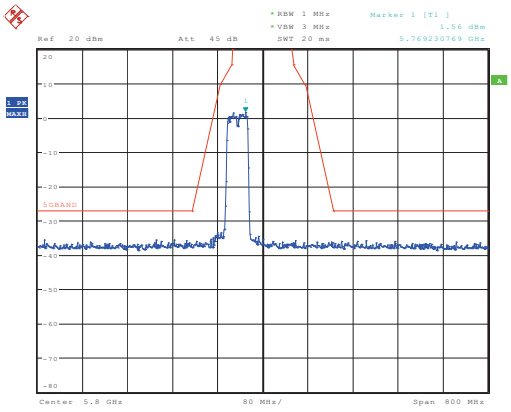
High Channel



Date: 19.NOV.2018 14:42:13

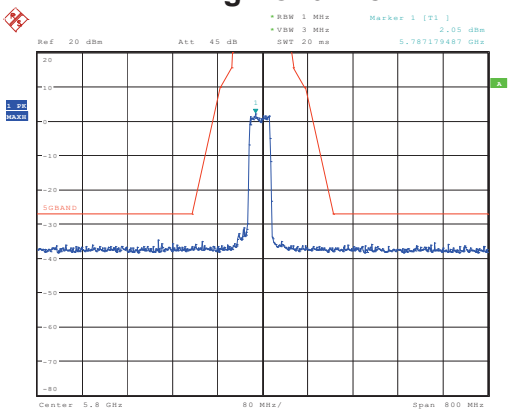
802.11ac(VHT40)

Low Channel



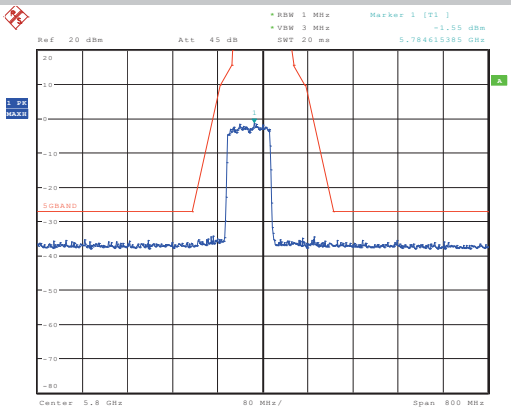
Date: 19.NOV.2018 14:43:30

High Channel



Date: 19.NOV.2018 14:44:00

802.11ac(VHT80)



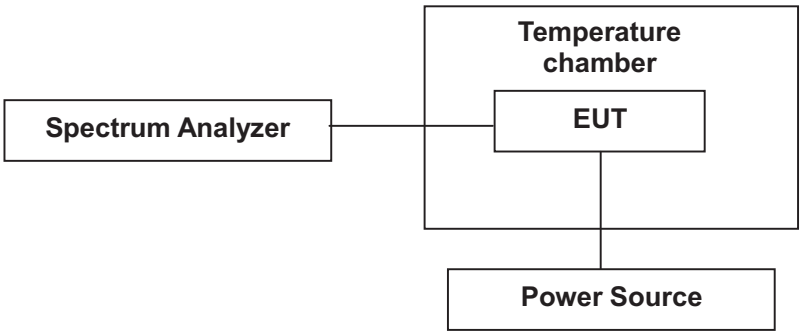
Date: 19.NOV.2018 14:47:48

9. Frequency Stability

9.1 Limits

Manufactures 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 users manual.

9.2 Test SET-UP (Block Diagram of Configuration)



9.3 Test Procedure

1. The EUT was placed inside the environmental test chamber and powered by Power source.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.
   Note: The EUT set at un-modulation mode during frequency stability test.

9.4 Measurement Results

Pass

Please refer to following tables.

Temperature :	21 ℃	Humidity :	51 %
Test By:	Lee	Test Date :	November 14, 2018

5180~5240MHz Band

Lowest channel
5180MHz

Temperature (℃)	Power Supplied (AC)	Measured Frequency (MHz)				Test Result
		0 Minute	2 Minute	5 Minute	10 Minute	
0	120.0	5180.0161	5180.0122	5180.0129	5180.0142	Pass
10		5180.0123	5180.0179	5180.0160	5180.0145	Pass
20		5180.0130	5180.0165	5180.0105	5180.0159	Pass
30		5180.0159	5180.0125	5180.0169	5180.0152	Pass
45		5180.0176	5180.0130	5180.0157	5180.0142	Pass
60		5180.0175	5180.0125	5180.0149	5180.0140	Pass
20	138.0	5180.0185	5180.0179	5180.0123	5180.0165	Pass
	102.0	5180.0123	5180.0184	5180.0179	5180.0147	Pass

Note: EUT temperature working range is 0 to 46.

Temperature :	21 ℃	Humidity :	51 %
Test By:	Lee	Test Date :	November 14, 2018

5180~5240MHz Band

Highest channel
5240MHz

Temperature (℃)	Power Supplied (Vdc)	Measured Frequency (MHz)				Test Result
		0 Minute	2 Minute	5 Minute	10 Minute	
0	120.0	5240.0141	5240.0207	5240.0170	5420.0115	Pass
10		5240.0159	5240.0112	5240.0125	5420.0124	Pass
20		5240.0157	5240.0129	5240.0161	5420.0116	Pass
30		5240.0165	5240.0107	5240.0158	5420.0179	Pass
45		5240.0129	5240.0115	5240.0155	5420.0181	Pass
60		5240.0147	5240.0110	5240.0148	5240.0180	Pass
20	138.0	5240.0138	5240.0130	5240.0127	5420.0184	Pass
	102.0	5240.0155	5240.0149	5240.0102	5420.0135	Pass

Note: EUT temperature working range is 0 to 60.

Temperature :	21 ℃	Humidity :	51 %
Test By:	Lee	Test Date :	November 14, 2018

5745~5825MHz Band

Lowest channel
5745MHz

Temperature (℃)	Power Supplied (Vdc)	Measured Frequency (MHz)				Test Result
		0 Minute	2 Minute	5 Minute	10 Minute	
0	120.0	5745.0154	5745.0112	5745.0134	5745.0124	Pass
10		5745.0137	5745.0137	5745.0128	5745.0138	Pass
20		5745.0119	5745.0146	5745.0164	5745.0149	Pass
30		5745.0128	5745.0122	5745.0155	5745.0144	Pass
45		5745.0151	5745.0127	5745.0163	5745.0141	Pass
60		5745.0128	5745.0127	5745.0160	5745.0147	Pass
20	138.0	5745.0168	5745.0118	5745.0162	5745.0156	Pass
	102.0	5745.0129	5745.0165	5745.0160	5745.0135	Pass

Note: EUT temperature working range is 0 to 60.

Temperature :	21 ℃	Humidity :	51 %
Test By:	Lee	Test Date :	November 14, 2018

5745~5825MHz Band

Highest channel
5825MHz

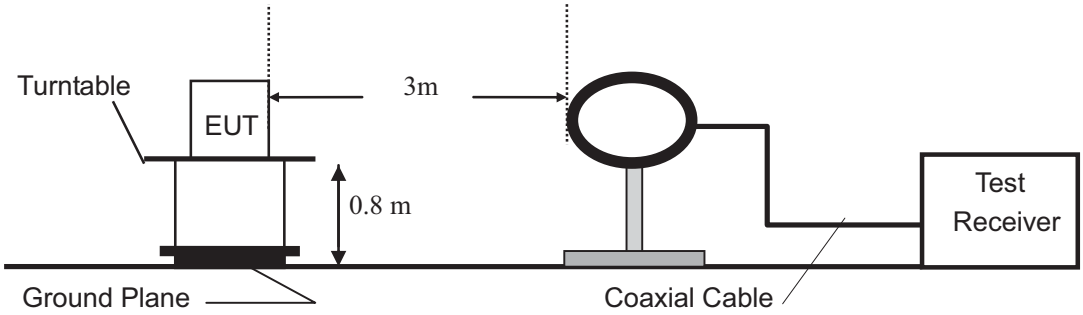
Temperature (℃)	Power Supplied (Vdc)	Measured Frequency (MHz)				Test Result
		0 Minute	2 Minute	5 Minute	10 Minute	
0	120.0	5825.0129	5825.0151	5825.0169	5825.0165	Pass
10		5825.0125	5825.0169	5825.0167	5825.0113	Pass
20		5825.0132	5825.0150	5825.0124	5825.0129	Pass
30		5825.0147	5825.0137	5825.0152	5825.0172	Pass
45		5825.0169	5825.0149	5825.0144	5825.0173	Pass
60		5825.0158	5825.0144	5825.0135	5825.0170	Pass
20	138.0	5825.0152	5825.0150	5825.0130	5825.0146	Pass
	102.0	5825.0114	5825.0155	5825.0179	5825.0180	Pass

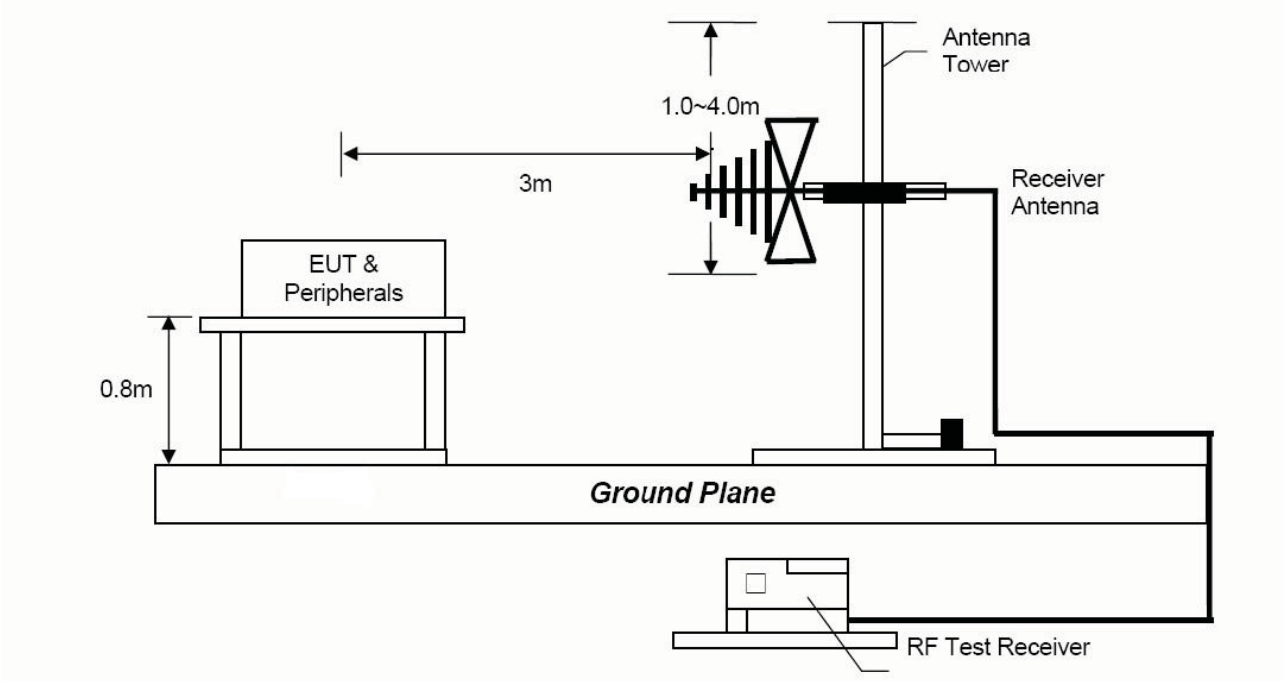
Note: EUT temperature working range is 0 to 60.

10. Radiated Spurious Emissions and Restricted Bands

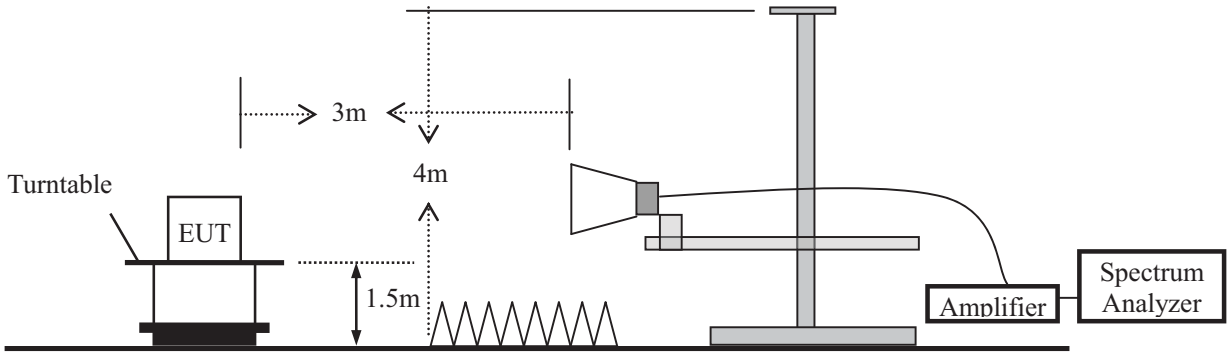
10.1 Test SET-UP (Block Diagram of Configuration)

10.1.1 Radiated Emission Test Set-Up, Frequency Below 30MHz





10.1.2 Radiated Emission Test Set-Up, Frequency above 1GHz



10.2 Measurement Procedure

a. Blow 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi- anechoic chamber room.
b. For the radiated emission test above 1GHz:
The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter full anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
c. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
d. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to peak detect function and specified bandwidth with maximum hold mode.
f. A Quasi-peak measurement was then made for that frequency point for below 1GHz test. PK and AV for above 1GHz emission test.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

Frequency Band (MHz)	Level	Resolution Bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	3 MHz
	Average	1 MHz	1/T

10.3 Limit

Frequency range MHz	Distance Meters	Field Strengths Limit (15.209) μV/m
0.009 ~ 0.490	300	2400/F(kHz)
0.490 ~ 1.705	30	24000/F(kHz)
1.705 ~ 30	30	30
30 ~ 88	3	100
88 ~ 216	3	150
216 ~ 960	3	200
Above 960	3	500

Remark：(1) Emission level (dB)μV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
(4) The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.
(5) §15.247(d) specifies that emissions which fall in the restricted bands, as defined in §15.205 comply with radiated emission limits specified in §15.209.

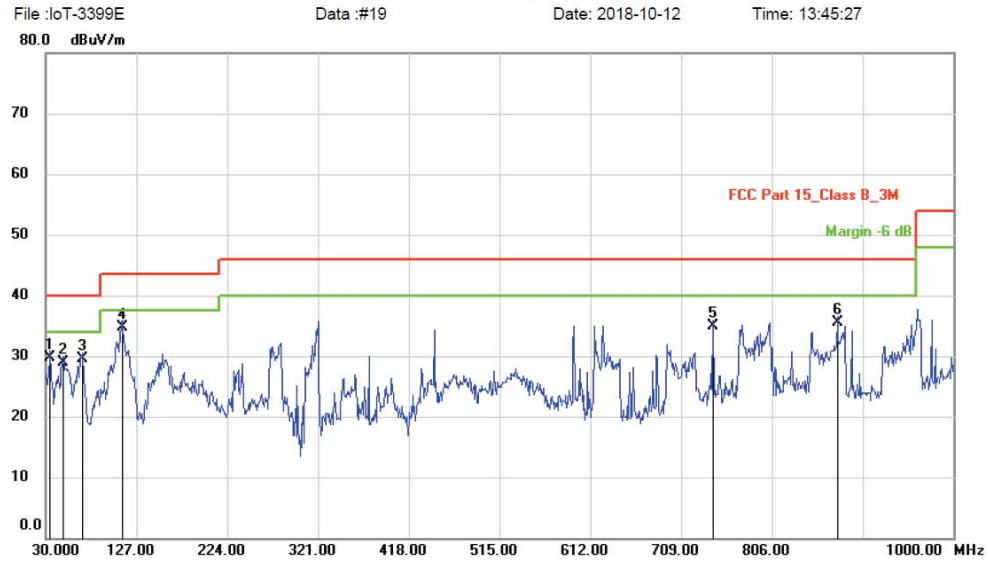
10.4 Measurement Results

For 5G WIFI Band 1
Please refer to following plots of the worst case: 802.11a high channel.

For 5G WIFI Band 4
Please refer to following plots of the worst case: 802.11n (HT20) middle channel.

Dongguan NTC Co., Ltd.
Tel:+86-769-22022444 Fax:+86-769-22022799
Web: Http://www.ntc-c.com

Radiated Emission Measurement



Site: 3m Chamber
Limit: FCC Part 15_Class B_3M
EUT: IoT-3399E
M/N: IoT-3399E
Mode: TX(5G Band 1)
Note:

Polarization: *Vertical*
Power: AC120V/60Hz
Distance: 3m

Temperature: 26
Humidity: 47 %

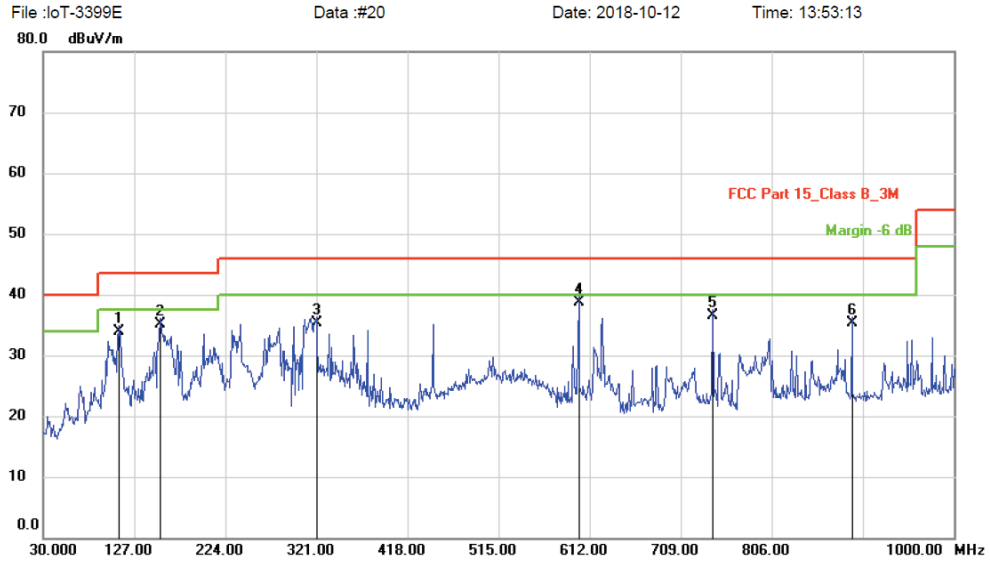
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		34.8500	45.97	-16.17	29.80	40.00	-10.20	QP			
2		48.4299	42.32	-13.42	28.90	40.00	-11.10	QP			
3		69.7699	46.91	-17.31	29.60	40.00	-10.40	QP			
4	*	111.4800	50.92	-16.12	34.80	43.50	-8.70	QP			
5		742.9500	37.66	-2.76	34.90	46.00	-11.10	QP			
6		875.8400	36.65	-1.15	35.50	46.00	-10.50	QP			

*:Maximum data x:Over limit !:over margin 〈Reference Only

Note: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

Dongguan NTC Co., Ltd.
Tel:+86-769-22022444 Fax:+86-769-22022799
Web: Http://www.ntc-c.com

Radiated Emission Measurement



Site: 3m Chamber
Limit: FCC Part 15_Class B_3M
EUT: IoT-3399E
M/N: IoT-3399E
Mode: TX(5G Band 1)
Note:

Polarization: *Horizontal*
Power: AC120V/60Hz
Distance: 3m

Temperature: 26
Humidity: 47 %

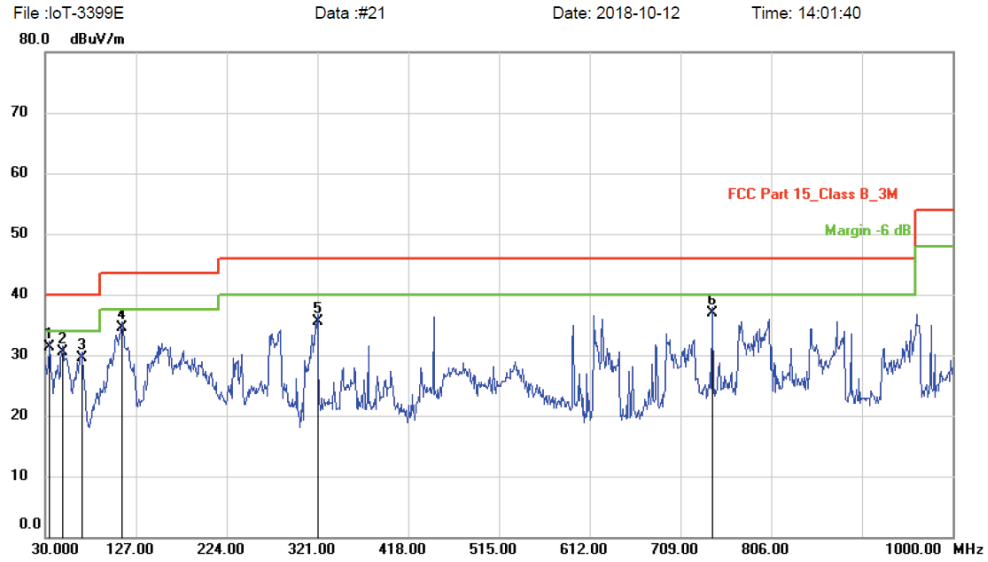
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		110.5100	46.16	-12.26	33.90	43.50	-9.60	QP			
2		155.1297	50.56	-15.36	35.20	43.50	-8.30	QP			
3		321.0000	45.20	-9.90	35.30	46.00	-10.70	QP			
4	*	600.3600	43.70	-5.00	38.70	46.00	-7.30	QP			
5		742.9500	39.26	-2.76	36.50	46.00	-9.50	QP			
6		891.3600	36.60	-1.20	35.40	46.00	-10.60	QP			

*:Maximum data x:Over limit !:over margin 〈Reference Only

Note: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

Dongguan NTC Co., Ltd.
Tel:+86-769-22022444 Fax:+86-769-22022799
Web: Http://www.ntc-c.com

Radiated Emission Measurement



Site: 3m Chamber
Limit: FCC Part 15_Class B_3M
EUT: IoT-3399E
M/N: IoT-3399E
Mode: TX(5G Band 4)
Note:

Polarization: *Vertical*
Power: AC120V/60Hz
Distance: 3m

Temperature: 26
Humidity: 47 %

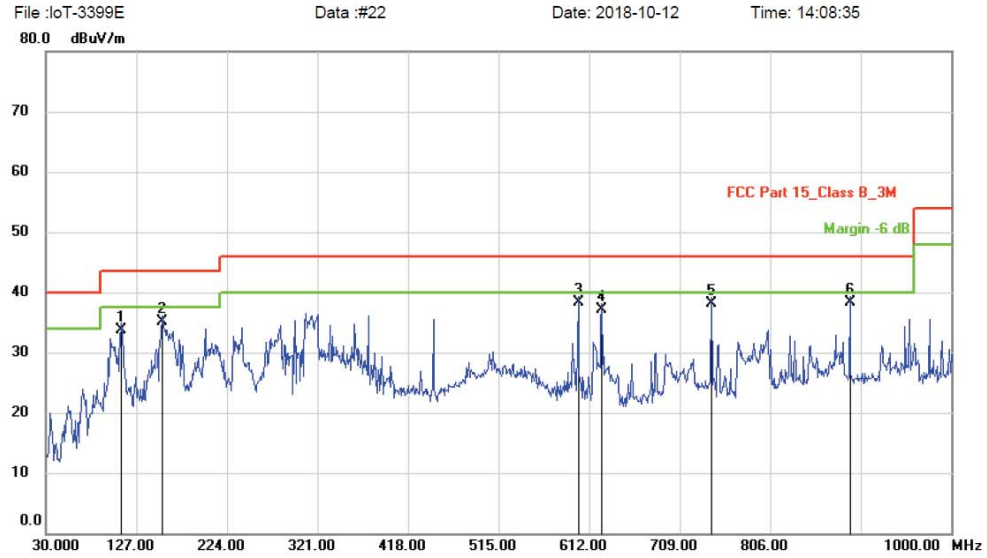
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	34.8500	47.47	-16.17	31.30	40.00	-8.70	QP			
2		48.4299	44.02	-13.42	30.60	40.00	-9.40	QP			
3		69.7699	46.91	-17.31	29.60	40.00	-10.40	QP			
4		112.4500	50.58	-16.08	34.50	43.50	-9.00	QP			
5		321.0000	47.50	-11.90	35.60	46.00	-10.40	QP			
6		742.9500	39.66	-2.76	36.90	46.00	-9.10	QP			

*:Maximum data x:Over limit !:over margin 〈Reference Only

Note: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

Dongguan NTC Co., Ltd.
Tel:+86-769-22022444 Fax:+86-769-22022799
Web: Http://www.ntc-c.com

Radiated Emission Measurement



Site: 3m Chamber
Limit: FCC Part 15_Class B_3M
EUT: IoT-3399E
M/N: IoT-3399E
Mode: TX(5G Band 4)
Note:

Polarization: *Horizontal*
Power: AC120V/60Hz
Distance: 3m

Temperature: 26
Humidity: 47 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		110.5100	46.06	-12.26	33.80	43.50	-9.70	QP			
2		155.1297	50.56	-15.36	35.20	43.50	-8.30	QP			
3	*	600.3600	43.30	-5.00	38.30	46.00	-7.70	QP			
4		625.5800	42.29	-5.09	37.20	46.00	-8.80	QP			
5		742.9500	40.86	-2.76	38.10	46.00	-7.90	QP			
6		891.3600	39.50	-1.20	38.30	46.00	-7.70	QP			

*:Maximum data x:Over limit !:over margin 〈Reference Only

Note: Below 30MHz, the emissions are lower than 20dB below the allowable limit.

Test Mode:	The worst case: 802.11a	Test Date :	November 14, 2018
Frequency Range:	Above 1GHz	Temperature :	24℃
Test Result:	PASS	Humidity :	47 %
Measured Distance:	3m	Test By:	Lee

Band 1(5180-5240 MHz)

Freq. (MHz)	Ant.Pol. (H/V)	Reading Level(dBuV)		Factor (dB/m)	Emission Level (dBuV)		Limit 3m (dBuV/m)		Margin (dB)	
		PK	AV		PK	AV	PK	AV	PK	AV
Operation Mode: TX Mode (Low)										
5180	V	104.44	93.78	6.91	111.35	100.69	/	/	/	/
10360	V	46.69	31.54	14.04	60.73	45.58	74.00	54.00	-13.27	-8.42
15540	V	37.28	25.16	19.00	56.28	44.16	74.00	54.00	-17.72	-9.84

5180	H	108.03	95.60	6.91	114.94	102.51	/	/	/	/
10360	H	47.45	31.83	14.04	61.49	45.87	74.00	54.00	-12.51	-8.13
15540	H	38.35	26.59	19.00	57.35	45.59	74.00	54.00	-16.65	-8.41

Operation Mode: TX Mode (Mid)										
5200	V	98.84	88.54	6.92	105.76	95.46	/	/	/	/
10400	V	46.71	31.45	14.12	60.83	45.57	74.00	54.00	-13.17	-8.43
15600	V	38.56	25.71	20.20	58.76	45.91	74.00	54.00	-15.24	-8.09

5200	H	103.65	92.79	6.92	110.57	99.71	/	/	/	/
10400	H	46.44	31.55	14.12	60.56	45.67	74.00	54.00	-13.44	-8.33
15600	H	37.47	25.70	20.20	57.67	45.90	74.00	54.00	-16.33	-8.10

Operation Mode: TX Mode (High)										
5240	V	99.66	89.07	6.95	106.61	96.02	/	/	/	/
10480	V	46.47	31.30	14.29	60.76	45.59	74.00	54.00	-13.24	-8.41
15720	V	37.94	25.79	20.82	58.76	46.61	74.00	54.00	-15.24	-7.39

5240	H	103.52	93.63	6.95	110.47	100.58	/	/	/	/
10480	H	46.48	31.54	14.29	60.77	45.83	74.00	54.00	-13.23	-8.17
15720	H	38.86	26.41	20.82	59.68	47.23	74.00	54.00	-14.32	-6.77

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level + Factor
(3) Factor= Antenna Gain + Cable Loss – Amplifier Gain
(4) Data of measurement within this frequency range shown " ---" in the table above means the reading of emissions are attenuated more than 10dB below the permissible limits.
(5) Measurement uncertainty : ±3.7dB.
(6) Horn antenna used for the emission over 1000MHz.

Test Mode: The worst case: 802.11n(HT20) Test Date : November 14, 2018
Frequency Range: Above 1GHz Temperature : 24℃
Test Result: PASS Humidity : 47 %
Measured Distance: 3m Test By: Lee
Band4 (5745-5825 MHz)

Freq. (MHz)	Ant.Pol. (H/V)	Reading Level(dBuV)		Factor (dB/m)	Emission Level (dBuV)		Limit 3m (dBuV/m)		Margin (dB)	
		PK	AV		PK	AV	PK	AV	PK	AV
Operation Mode: TX Mode (Low)										
5745	V	97.92	87.84	7.05	104.97	94.89	/	/	/	/
11490	V	40.09	27.05	16.86	56.95	43.91	74.00	54.00	-17.05	-10.09
17235	V	40.12	27.03	22.23	62.35	49.26	74.00	54.00	-11.65	-4.74

5745	H	102.4	91.07	7.05	109.45	98.12	/	/	/	/
11490	H	41.37	29.59	16.86	58.23	46.45	74.00	54.00	-15.77	-7.55
17235	H	39.45	26.11	22.23	61.68	48.34	74.00	54.00	-12.32	-5.66

Operation Mode: TX Mode (Mid)										
5785	V	102.50	91.85	7.23	109.73	99.08	/	/	/	/
11570	V	42.42	30.39	17.01	59.43	47.40	74.00	54.00	-14.57	-6.60
17355	V	39.72	27.00	22.62	62.34	49.62	74.00	54.00	-11.66	-4.38

5785	H	103.14	93.53	7.23	110.37	100.76	/	/	/	/
11570	H	43.11	31.52	17.01	60.12	48.53	74.00	54.00	-13.88	-5.47
17355	H	40.56	27.42	22.62	63.18	50.04	74.00	54.00	-10.82	-3.96

Operation Mode: TX Mode (High)										
5825	V	103.28	92.82	7.30	110.58	100.12	/	/	/	/
11650	V	40.48	28.06	17.16	57.64	45.22	74.00	54.00	-16.36	-8.78
17475	V	37.01	25.67	23.01	60.02	48.68	74.00	54.00	-13.98	-5.32

5825	H	106.39	94.97	7.30	113.69	102.27	/	/	/	/
11650	H	43.41	30.54	17.16	60.57	47.70	74.00	54.00	-13.43	-6.30
17475	H	38.64	26.92	23.01	61.65	49.93	74.00	54.00	-12.35	-4.07

Note: (1) All Readings are Peak Value and AV.
(2) Emission Level= Reading Level + Factor
(3) Factor= Antenna Gain + Cable Loss – Amplifier Gain
(4) Data of measurement within this frequency range shown " ---" in the table above means the reading of emissions are attenuated more than 10dB below the permissible limits.
(5) Measurement uncertainty : ±3.7dB.
(6) Horn antenna used for the emission over 1000MHz.

11. Antenna Application

11.1 Antenna requirement

According to of FCC part 15C section 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, 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. The structure and application of the EUT were analyzed to determine compliance with section 15.203 of the rules.

And according to 47 CFR section 15.407(a), if the transmitting antennas of directional gain greater than 6dBi are used, the transmit power and power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2 Measurement Results

The antenna is Integral antenna that no antenna other than furnished by the responsible party shall be used with the device, and the best case gain of the antenna is 3.5dBi, So, the antenna is consider meet the requirement.

12. Test Equipment List

Description	Manufacturer	Model Number	Serial Number	Characteristics	Calibration Date	Calibration Due Date
Test Receiver	Rohde & Schwarz	ESCI7	100837	9KHz~7GHz	Mar. 14, 2018	Mar. 13, 2019
Antenna	Schwarzbeck	VULB9162	9162-010	30MHz~7GHz	Mar. 23, 2018	Mar. 22, 2019
Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	20Hz~26.5GHz	Mar. 14, 2018	Mar. 13, 2019
Spectrum Analyzer	Keysight	N9020A	MY54200831	20Hz~26.5GHz	Apr. 24, 2018	Apr. 23, 2019
Spectrum Analyzer	Rohde & Schwarz	FSV40	101003	10Hz~40GHz	Apr. 24, 2018	Apr. 23, 2019
Horn Antenna	Schwarzbeck	BBHA9170	9170-372	15GHz~40GHz	Mar. 23, 2018	Mar. 22, 2019
Pre-Amplifier	EMCI	EMC 184045	980102	18GHz~40GHz	Apr. 24, 2018	Apr. 23, 2019
Power Sensor	DARE	RPR3006W	15I00041SNO64	100MHz~6GHz	Mar. 14, 2018	Mar. 13, 2019
Communication Tester	Rohde & Schwarz	CMW500	149004	70MHz~6GHz	Mar. 14, 2018	Mar. 13, 2019
Horn Antenna	COM-Power	AH-118	071078	500MHz~18GHz	Mar. 23, 2018	Mar. 22, 2019
Pre-Amplifier	HP	HP 8449B	3008A00964	1GHz~26.5GHz	Mar. 14, 2018	Mar. 13, 2019
Pre-Amplifier	HP	HP 8447D	1145A00203	100KHz~1.3GHz	Mar. 14, 2018	Mar. 13, 2019
Loop Antenna	Schwarzbeck	FMZB 1513	1513-272	9KHz~30MHz	Apr. 24, 2018	Apr. 23, 2019
Temperature & Humidity Chamber	REMAFEE	SYHR225L	N/A	-40~150℃	Apr. 24, 2018	Apr. 23, 2019
DC Source	MY	MY8811	N/A	0~30V	N/A	N/A
Temporary antenna connector	TESCOM	SS402	N/A	9KHz~25GHz	N/A	N/A
Power Meter	Anritsu	ML2495A	1139001	100k-65GHz	Apr. 24, 2018	Apr. 23, 2019
Power Sensor	Anritsu	MA2411B	100345	300M-40GHz	Apr. 24, 2018	Apr. 23, 2019
Test Software	EZ	EZ_EMC	N/A	N/A	N/A	N/A

Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

---End---