

6. BAND EDGE COMPLIANCE TEST

6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Jun.30,19	1 Year
2.	Amplifier	HP	8449B	3008A02495	Apr.23,19	1 Year
3.	Horn Antenna	ETS	3115	9607-4580	Dec.13,18	3 Year
4.	RF Cable	EMCI	EMC102-KM-KM 3500	170702	May.13,19	1 Year

6.2. Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

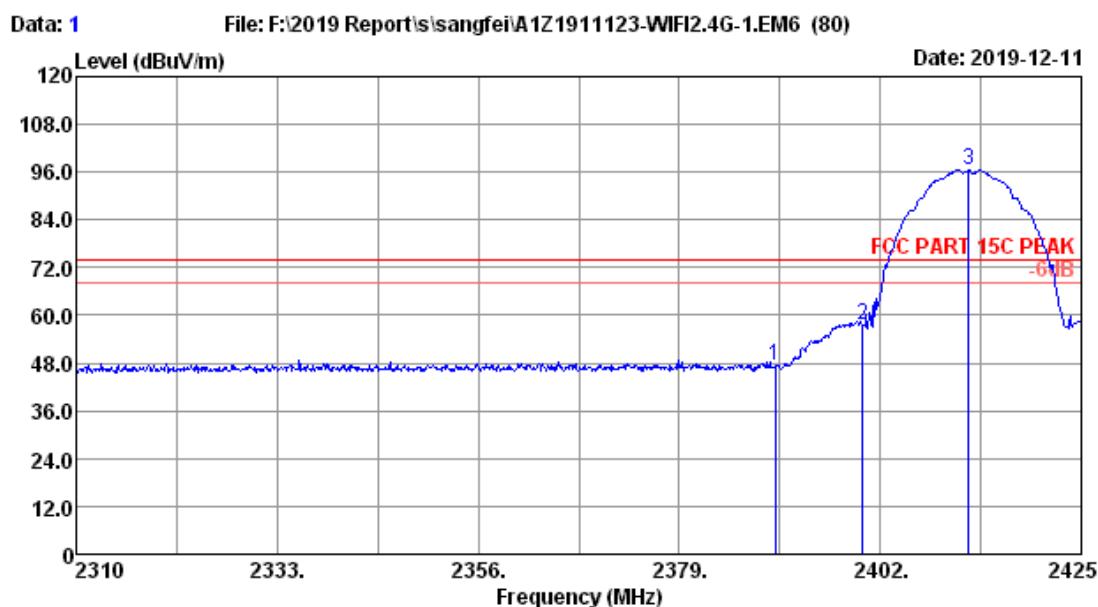
6.3. Test Procedure

Use the test method described in ANSI C63.10 clause 6.10:

1. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) PEAK: RBW=1MHz; VBW=3MHz; Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz; VBW=10Hz; Sweep=AUTO

6.4. Test Results

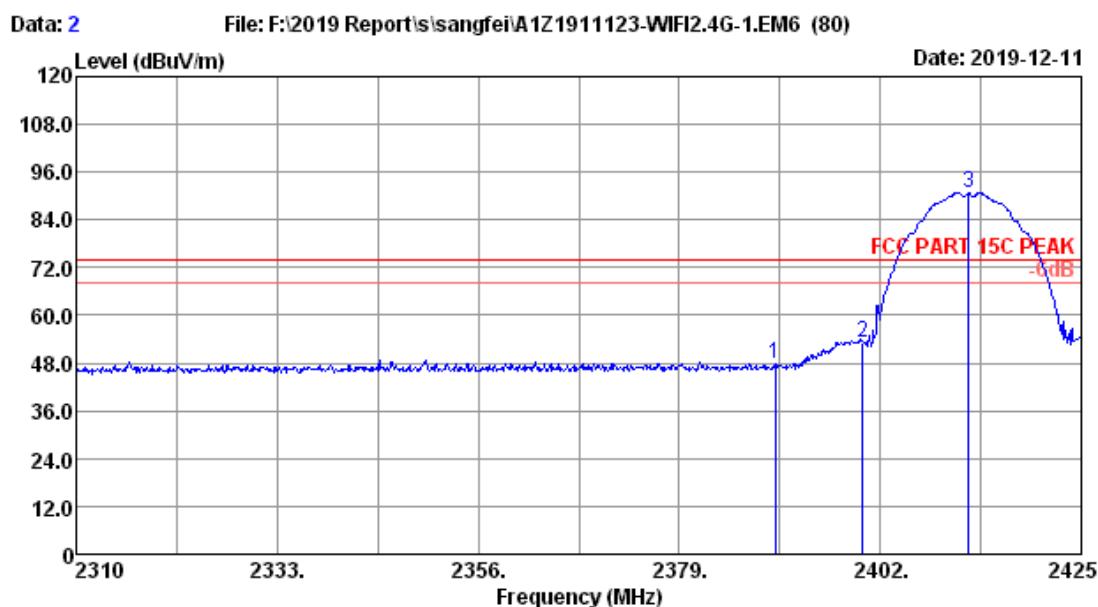
Pass (The testing data was attached in the next pages.)



Site no. : 3m Chamber Data no. : 1
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11b 2412MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2390.00	27.71	3.04	51.75	35.04	47.46	74.00 26.54 Peak
2	2400.00	27.71	3.04	61.94	35.04	57.65	74.00 16.35 Peak
3	2412.12	27.77	3.05	100.85	35.04	96.63	74.00 -22.63 Peak

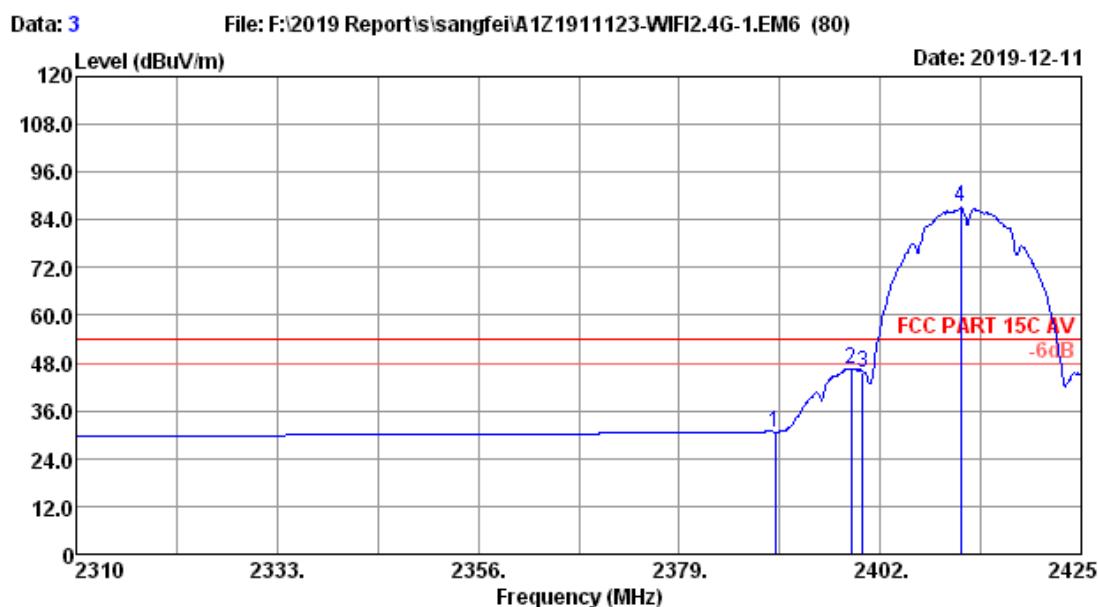
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 2
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11b 2412MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)	Limits (dBuV/m)	
1	2390.00	27.71	3.04	51.98	35.04	47.69	74.00 26.31 Peak
2	2400.00	27.71	3.04	57.64	35.04	53.35	74.00 20.65 Peak
3	2412.12	27.77	3.05	95.13	35.04	90.91	74.00 -16.91 Peak

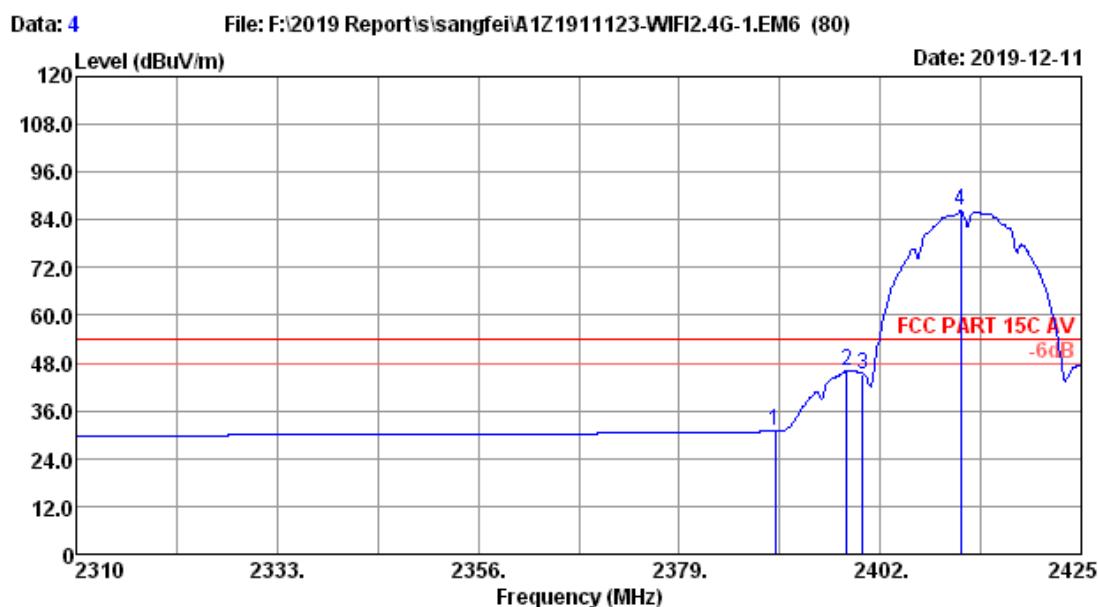
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 3
 Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23.4°C/52.9% Engineer : Garry
 Power rating : AC120V/60Hz
 Test Mode : 802.11b 2412MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)	Level (dBuV/m)	
1	2390.00	27.71	3.04	35.04	35.04	30.75	54.00 23.25 Average
2	2398.67	27.71	3.04	50.93	35.04	46.64	54.00 7.36 Average
3	2400.00	27.71	3.04	50.02	35.04	45.73	54.00 8.27 Average
4	2411.20	27.77	3.05	91.25	35.04	87.03	54.00 -33.03 Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 4
 Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23.4°C/52.9% Engineer : Garry
 Power rating : AC120V/60Hz
 Test Mode : 802.11b 2412MHz Tx Mode

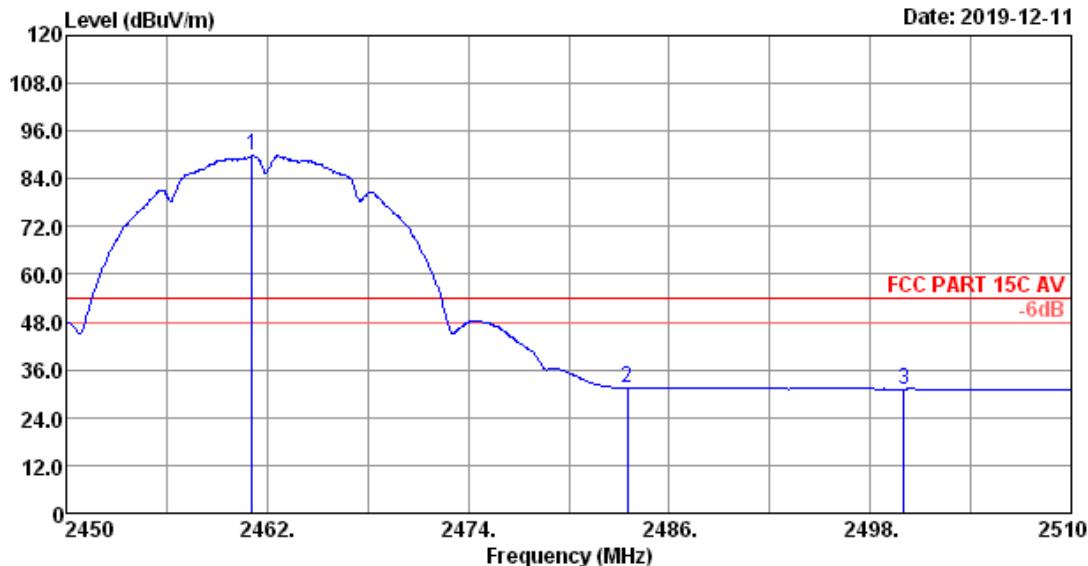
No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)	Level (dBuV/m)	
1	2390.00	27.71	3.04	35.13	35.04	30.84	54.00 23.16 Average
2	2398.21	27.71	3.04	50.54	35.04	46.25	54.00 7.75 Average
3	2400.00	27.71	3.04	49.48	35.04	45.19	54.00 8.81 Average
4	2411.20	27.77	3.05	90.48	35.04	86.26	54.00 -32.26 Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.

Data: 5

File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



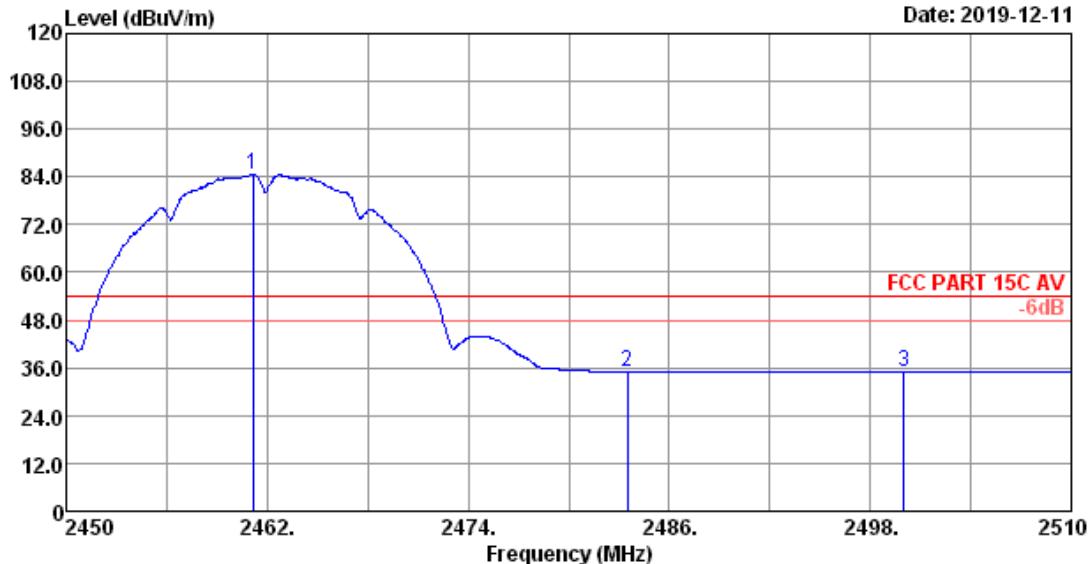
Site no. : 3m Chamber Data no. : 5
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11b 2462MHz Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.10	27.93	3.09	93.95	35.02	89.95	54.00	-35.95	Average
2	2483.50	27.98	3.10	35.38	35.01	31.45	54.00	22.55	Average
3	2500.00	28.03	3.11	35.04	35.00	31.18	54.00	22.82	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 6 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



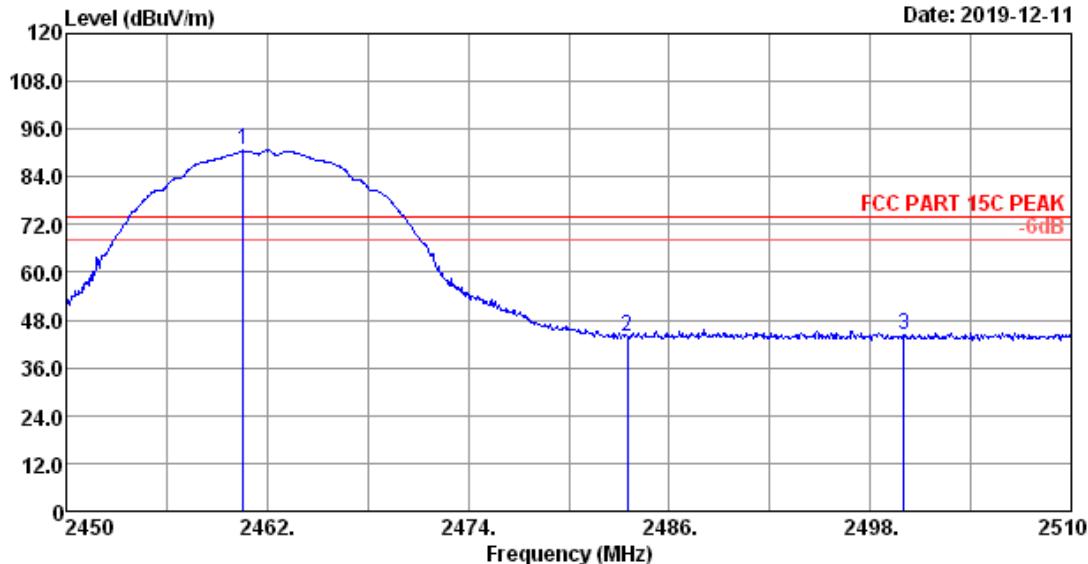
Site no. : 3m Chamber Data no. : 6
 Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
 Limit : FCC PART 15C AV
 Env. / Ins. : 23.4°C/52.9% Engineer : Garry
 Power rating : AC120V/60Hz
 Test Mode : 802.11b 2462MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)	Limits (dBuV/m)	
1	2461.16	27.93	3.09	88.73	35.02	84.73	54.00 -30.73 Average
2	2483.50	27.98	3.10	38.95	35.01	35.02	54.00 18.98 Average
3	2500.00	28.03	3.11	38.97	35.00	35.11	54.00 18.89 Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.

Data: 7 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



Site no. : 3m Chamber Data no. : 7
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11b 2462MHz Tx Mode

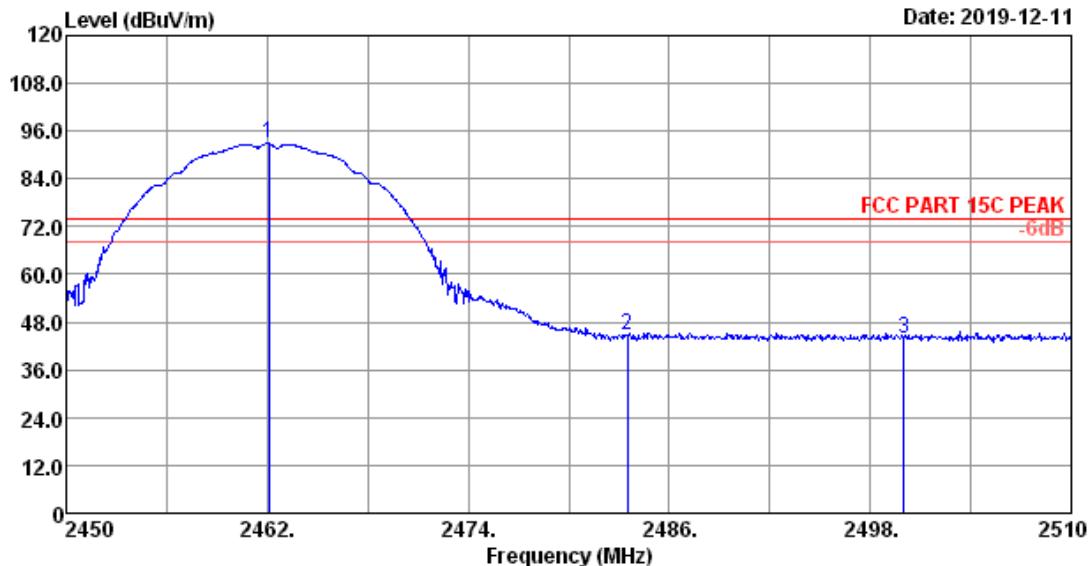
No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2460.56	27.93	3.09	94.77	35.02	90.77	74.00 -16.77 Peak
2	2483.50	27.98	3.10	47.95	35.01	44.02	74.00 29.98 Peak
3	2500.00	28.03	3.11	48.04	35.00	44.18	74.00 29.82 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp factor.
2. The emission levels that are 20dB below the official
limit are not reported.

Data: 8

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Date: 2019-12-11



Site no. : 3m Chamber Data no. : 8
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11b 2462MHz Tx Mode

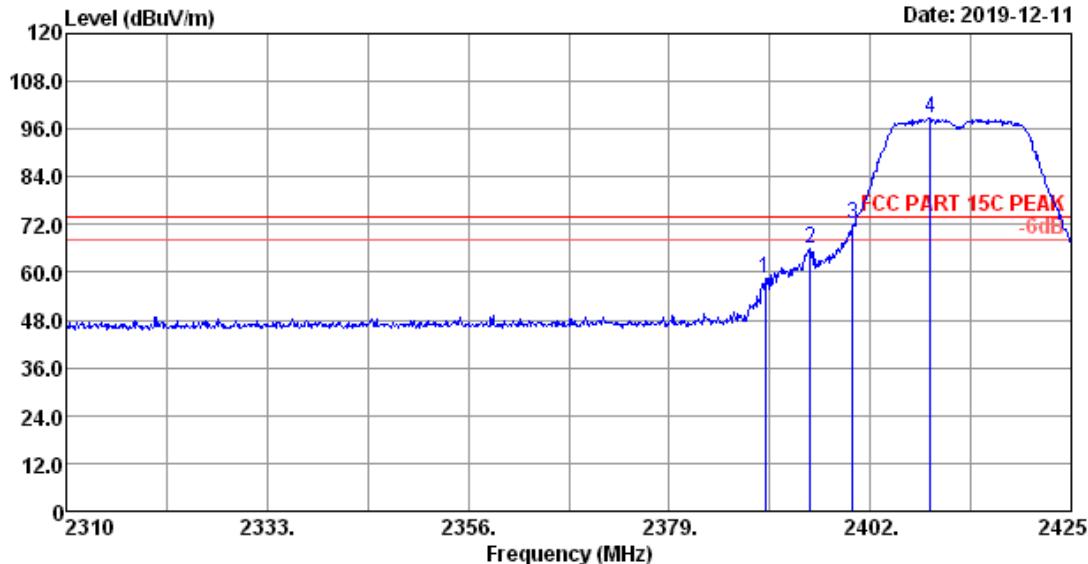
No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2462.12	27.93	3.09	96.90	35.02	92.90	74.00 -18.90 Peak
2	2483.50	27.98	3.10	48.67	35.01	44.74	74.00 29.26 Peak
3	2500.00	28.03	3.11	47.71	35.00	43.85	74.00 30.15 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 9

File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11

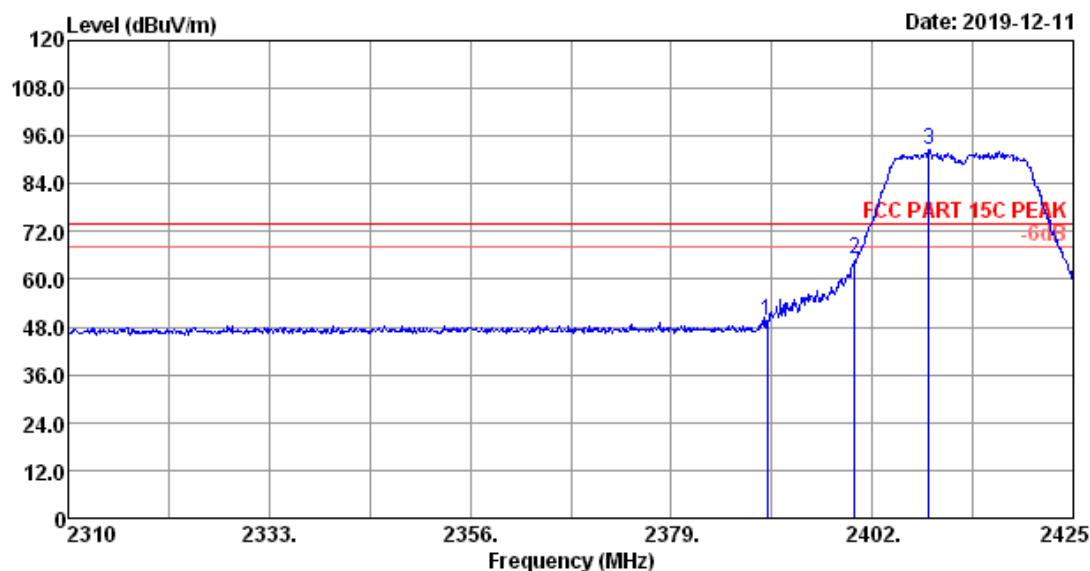


Site no. : 3m Chamber Data no. : 9
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11g 2412MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2390.00	27.71	3.04	62.80	35.04	58.51	15.49 Peak
2	2395.10	27.71	3.04	70.08	35.04	65.79	8.21 Peak
3	2400.00	27.71	3.04	76.32	35.04	72.03	1.97 Peak
4	2408.90	27.77	3.05	103.03	35.04	98.81	-24.81 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp factor.
2. The emission levels that are 20dB below the official
limit are not reported.

Data: 10 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

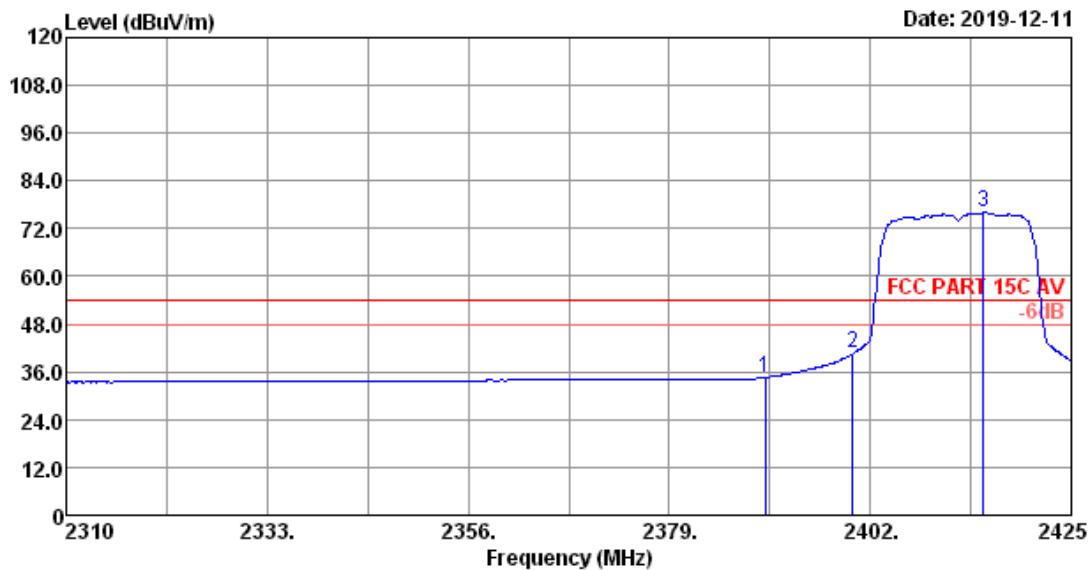


Site no. : 3m Chamber Data no. : 10
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11g 2412MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2390.00	27.71	3.04	54.01	35.04	49.72	74.00 24.28 Peak
2	2400.00	27.71	3.04	69.28	35.04	64.99	74.00 9.01 Peak
3	2408.44	27.77	3.05	96.73	35.04	92.51	74.00 -18.51 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 11 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)



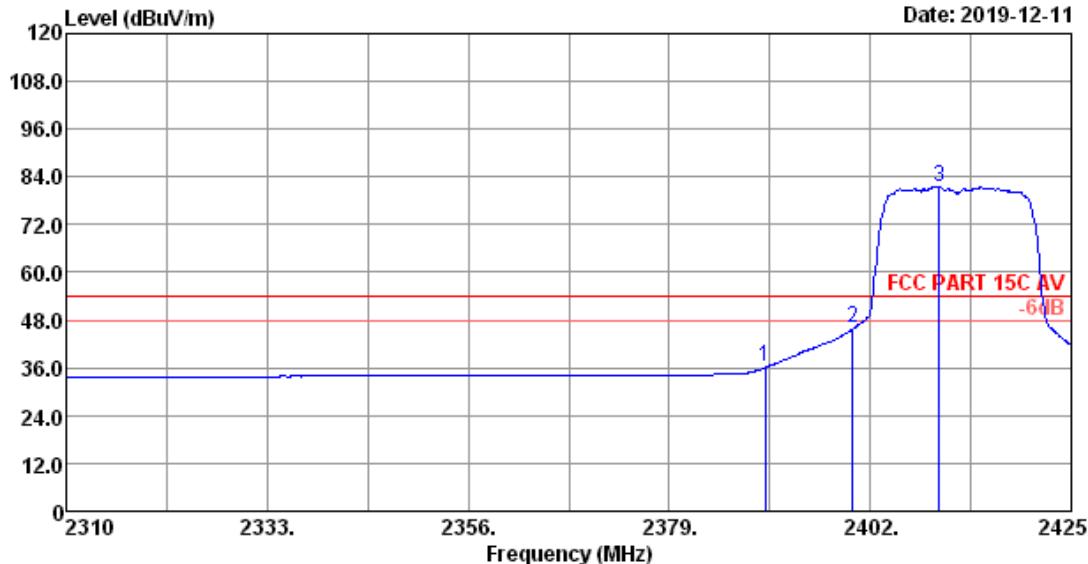
Site no. : 3m Chamber Data no. : 11
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11g 2412MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2390.00	27.71	3.04	38.88	35.04	34.59	54.00 19.41 Average
2	2400.00	27.71	3.04	44.95	35.04	40.66	54.00 13.34 Average
3	2415.00	27.77	3.05	80.34	35.04	76.12	54.00 -22.12 Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 12 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



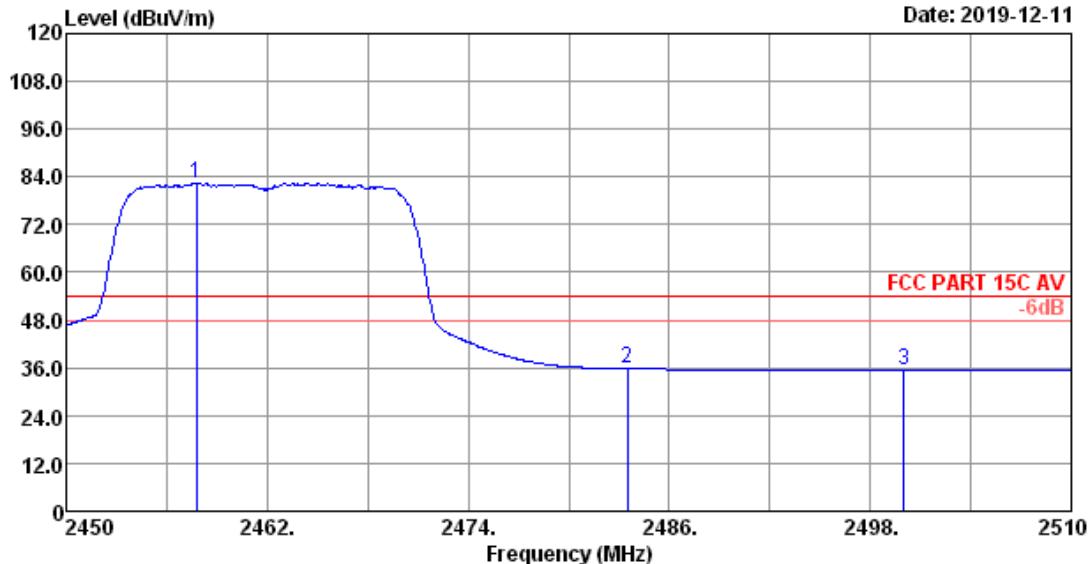
Site no. : 3m Chamber Data no. : 12
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11g 2412MHz Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.71	3.04	40.51	35.04	36.22	54.00	17.78	Average
2	2400.00	27.71	3.04	50.21	35.04	45.92	54.00	8.08	Average
3	2409.94	27.77	3.05	85.80	35.04	81.58	54.00	-27.58	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 13 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



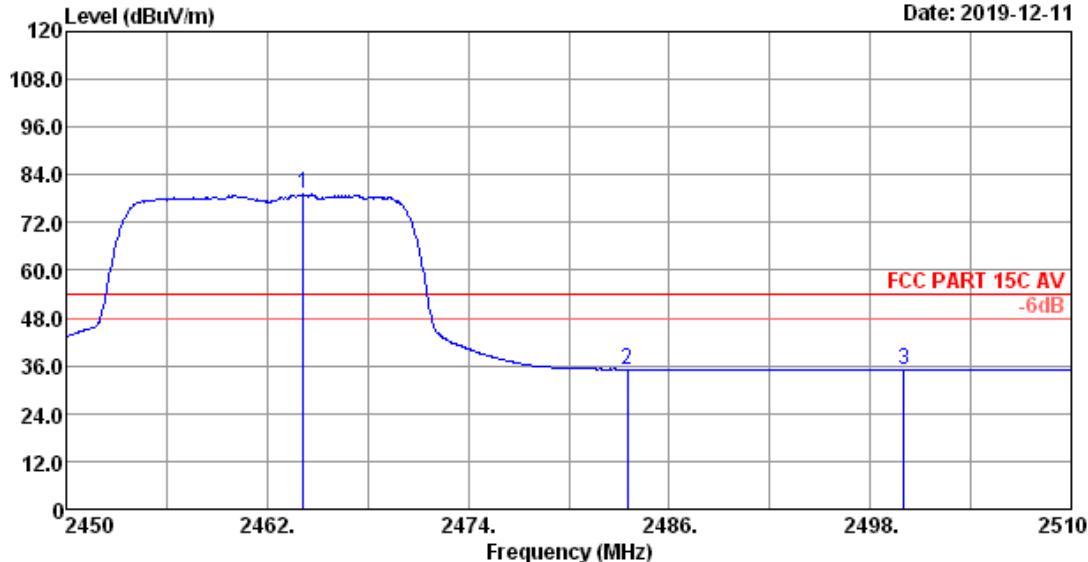
Site no. : 3m Chamber Data no. : 13
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11g 2462MHz Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2457.80	27.93	3.09	86.51	35.02	82.51	54.00	-28.51	Average
2	2483.50	27.98	3.10	39.73	35.01	35.80	54.00	18.20	Average
3	2500.00	28.03	3.11	39.36	35.00	35.50	54.00	18.50	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 14 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



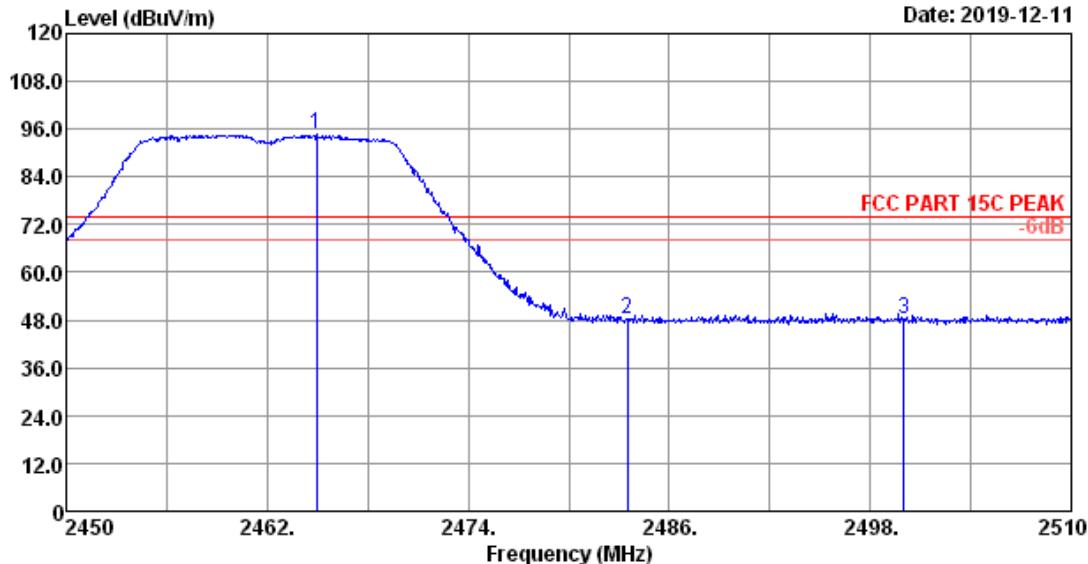
Site no. : 3m Chamber Data no. : 14
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11g 2462MHz Tx Mode

No.	Ant.	Cable	Amp	Emission					
	Freq.	Factor	Loss	Reading	factor	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	2464.16	27.93	3.09	83.04	35.02	79.04	54.00	-25.04	Average
2	2483.50	27.98	3.10	39.12	35.01	35.19	54.00	18.81	Average
3	2500.00	28.03	3.11	39.03	35.00	35.17	54.00	18.83	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 15 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



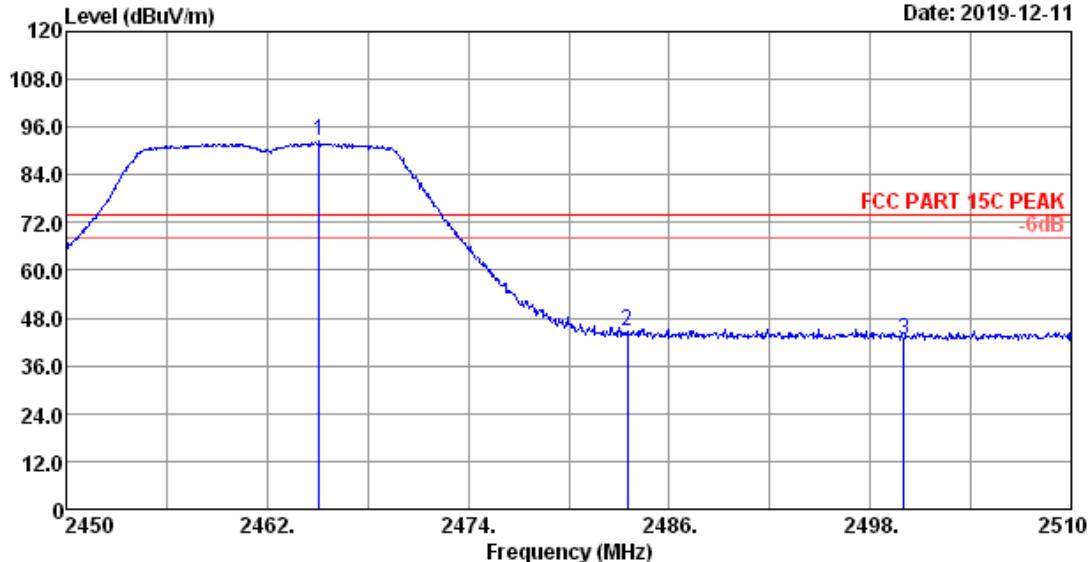
Site no. : 3m Chamber Data no. : 15
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11g 2462MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)	Level (dBuV/m)	
1	2464.94	27.93	3.09	98.88	35.02	94.88	74.00 -20.88 Peak
2	2483.50	27.98	3.10	52.27	35.01	48.34	74.00 25.66 Peak
3	2500.00	28.03	3.11	51.97	35.00	48.11	74.00 25.89 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 16 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



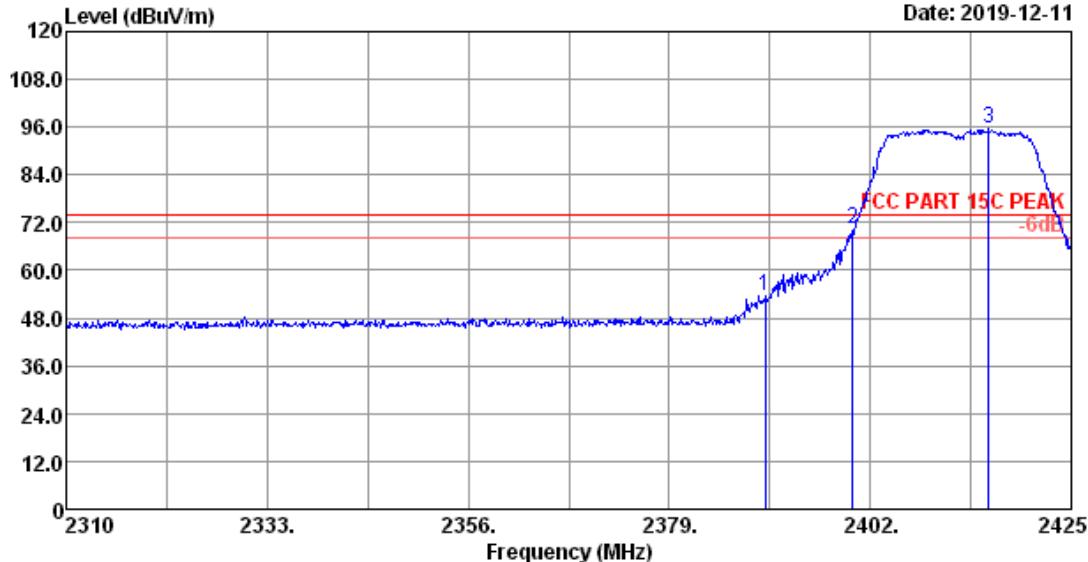
Site no. : 3m Chamber Data no. : 16
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11g 2462MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)	Level (dBuV/m)	
1	2465.12	27.93	3.09	96.33	35.02	92.33	74.00 -18.33 Peak
2	2483.50	27.98	3.10	48.80	35.01	44.87	74.00 29.13 Peak
3	2500.00	28.03	3.11	46.49	35.00	42.63	74.00 31.37 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 17 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



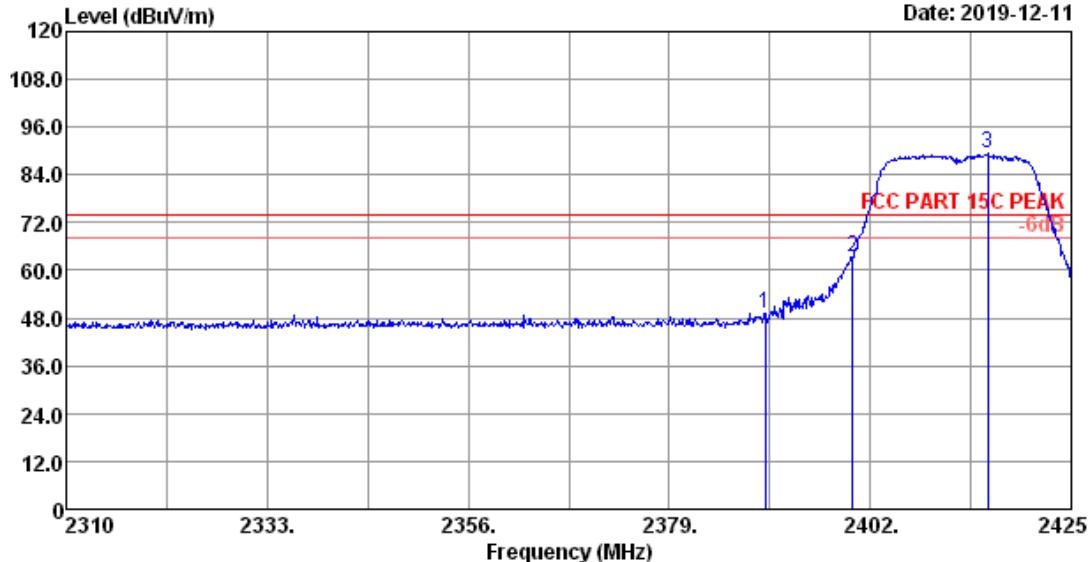
Site no. : 3m Chamber Data no. : 17
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2412MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2390.00	27.71	3.04	58.01	35.04	53.72	20.28 Peak
2	2400.00	27.71	3.04	74.49	35.04	70.20	3.80 Peak
3	2415.57	27.77	3.05	99.66	35.04	95.44	-21.44 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp factor.
2. The emission levels that are 20dB below the official
limit are not reported.

Data: 18 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



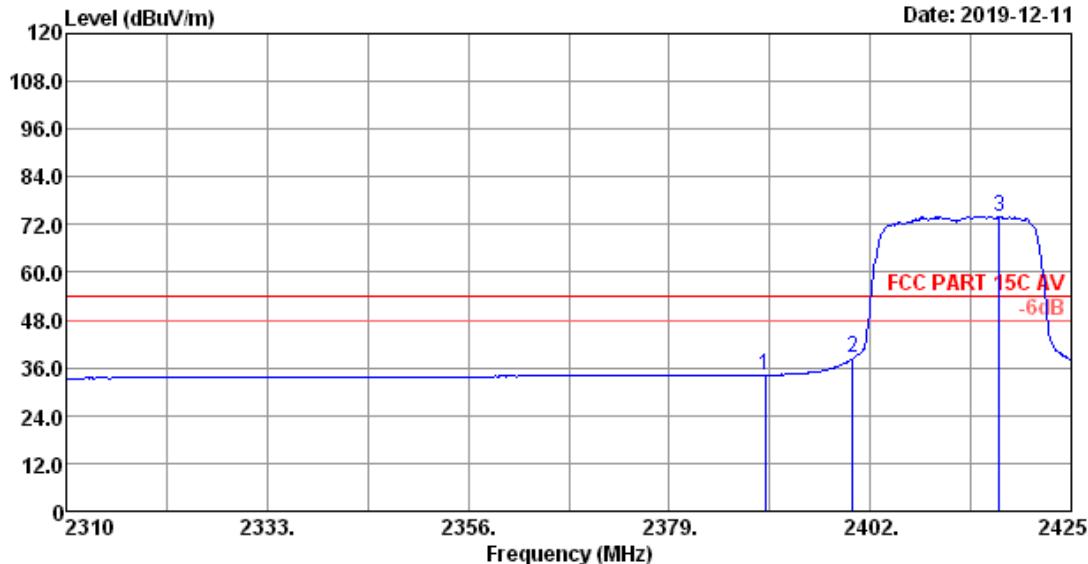
Site no. : 3m Chamber Data no. : 18
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2412MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2390.00	27.71	3.04	53.27	35.04	48.98	74.00 25.02 Peak
2	2400.00	27.71	3.04	67.64	35.04	63.35	74.00 10.65 Peak
3	2415.46	27.77	3.05	93.67	35.04	89.45	74.00 -15.45 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 19 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



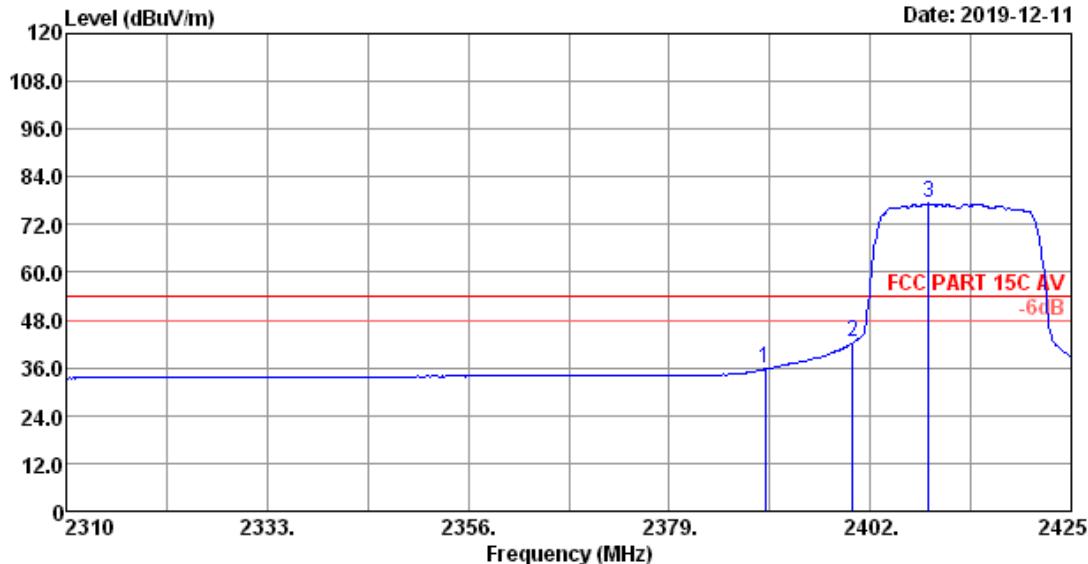
Site no. : 3m Chamber Data no. : 19
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2412MHz Tx Mode

No.	Ant.	Cable	Amp	Emission					
	Freq.	Factor	Loss	Reading	factor	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	2390.00	27.71	3.04	38.49	35.04	34.20	54.00	19.80	Average
2	2400.00	27.71	3.04	42.72	35.04	38.43	54.00	15.57	Average
3	2416.72	27.77	3.05	78.32	35.04	74.10	54.00	-20.10	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 20 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



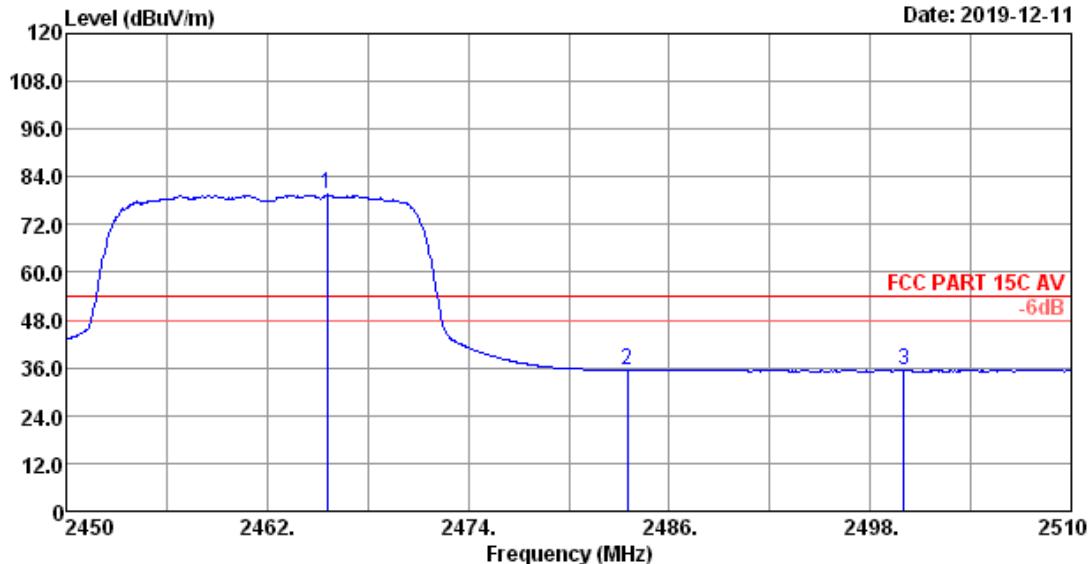
Site no. : 3m Chamber Data no. : 20
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2412MHz Tx Mode

No.	Ant.	Cable	Amp	Emission					
	Freq.	Factor	Loss	Reading	factor	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	2390.00	27.71	3.04	40.03	35.04	35.74	54.00	18.26	Average
2	2400.00	27.71	3.04	46.71	35.04	42.42	54.00	11.58	Average
3	2408.67	27.77	3.05	81.62	35.04	77.40	54.00	-23.40	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 21 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



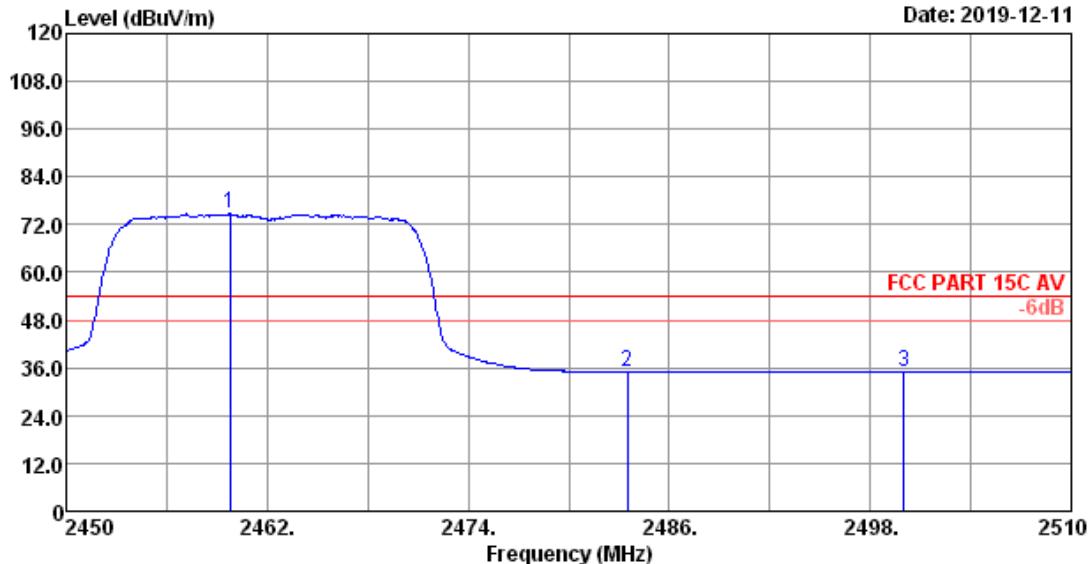
Site no. : 3m Chamber Data no. : 21
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2462MHz Tx Mode

No.	Ant.	Cable	Amp	Emission					
	Freq.	Factor	Loss	Reading	factor	Level	Limits	Margin	Remark
	(MHz)	(dB/m)	(dB)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1	2465.60	27.93	3.09	83.55	35.02	79.55	54.00	-25.55	Average
2	2483.50	27.98	3.10	39.41	35.01	35.48	54.00	18.52	Average
3	2500.00	28.03	3.11	39.11	35.00	35.25	54.00	18.75	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp factor.
2. The emission levels that are 20dB below the official
limit are not reported.

Data: 22 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



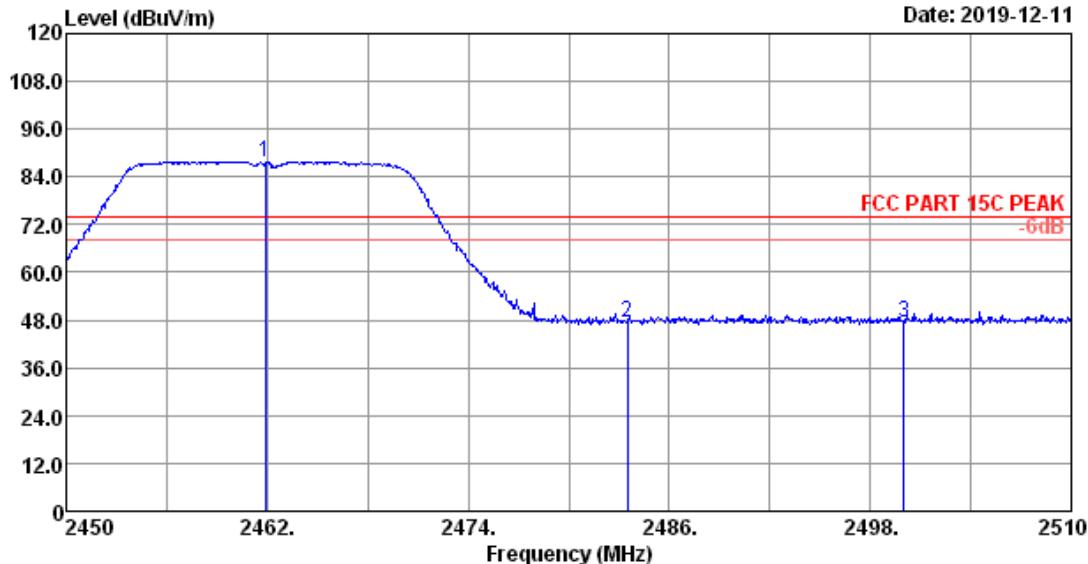
Site no. : 3m Chamber Data no. : 22
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2462MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2459.78	27.93	3.09	78.65	35.02	74.65	54.00 -20.65 Average
2	2483.50	27.98	3.10	39.00	35.01	35.07	54.00 18.93 Average
3	2500.00	28.03	3.11	38.92	35.00	35.06	54.00 18.94 Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 23 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



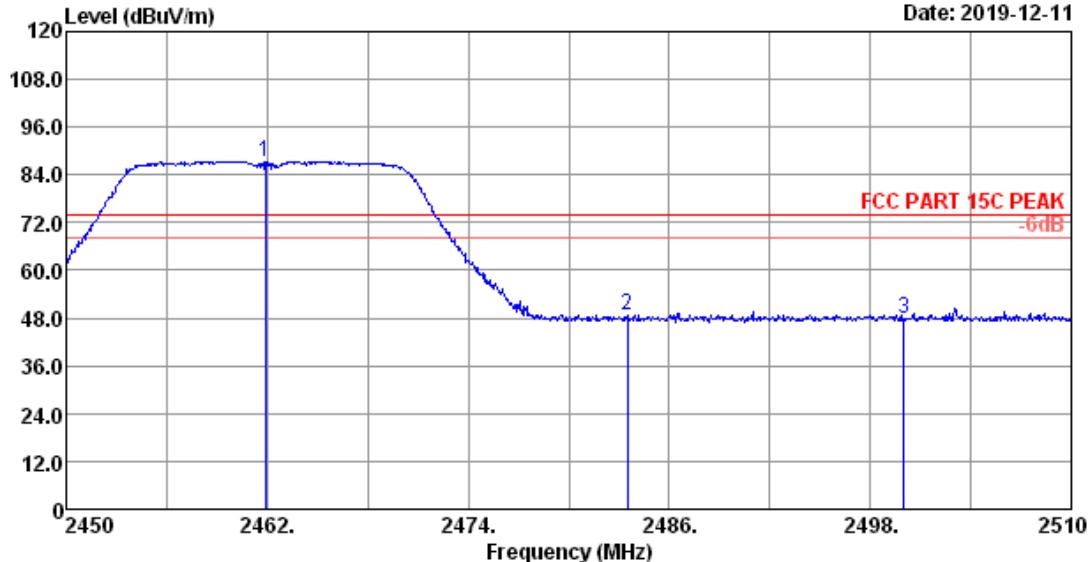
Site no. : 3m Chamber Data no. : 23
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2462MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2461.88	27.93	3.09	91.89	35.02	87.89	74.00 -13.89 Peak
2	2483.50	27.98	3.10	51.17	35.01	47.24	74.00 26.76 Peak
3	2500.00	28.03	3.11	51.26	35.00	47.40	74.00 26.60 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 24 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11

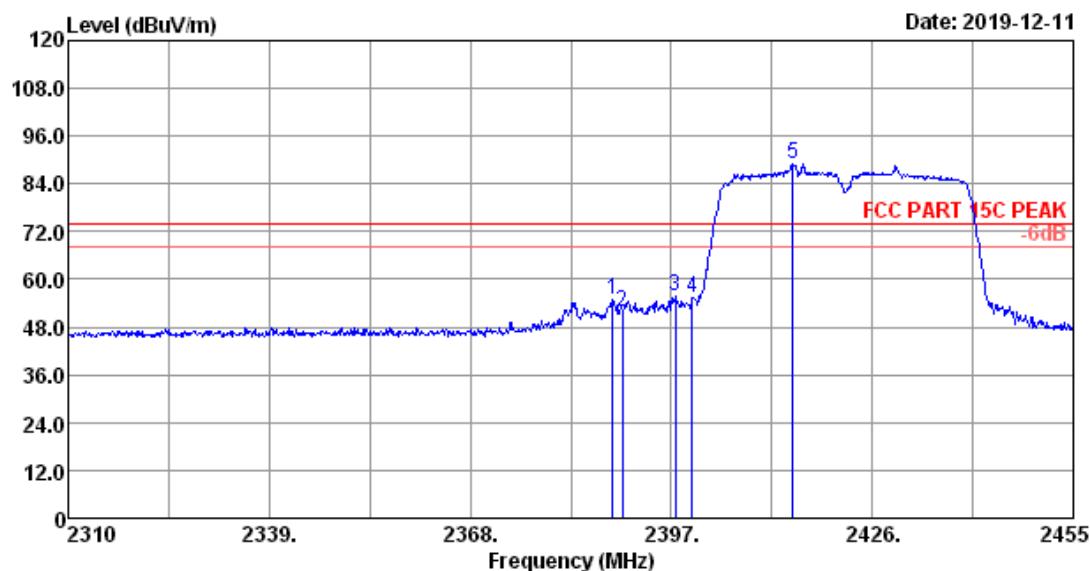


Site no. : 3m Chamber Data no. : 24
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT20 2462MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)	Limits (dBuV/m)	
1	2461.88	27.93	3.09	91.42	35.02	87.42	74.00 -13.42 Peak
2	2483.50	27.98	3.10	52.72	35.01	48.79	74.00 25.21 Peak
3	2500.00	28.03	3.11	51.83	35.00	47.97	74.00 26.03 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 25 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

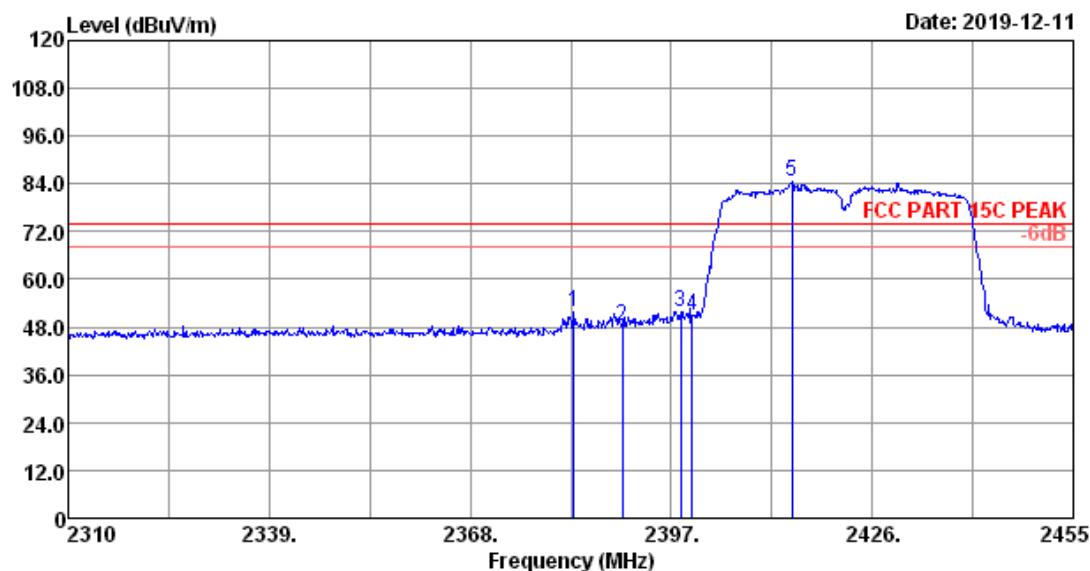


Site no. : 3m Chamber Data no. : 25
 Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.4°C/52.9% Engineer : Garry
 Power rating : AC120V/60Hz
 Test Mode : 802.11nHT40 2422MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)	Limits (dBuV/m)	
1	2388.59	27.71	3.04	59.41	35.04	55.12	18.88 Peak
2	2390.00	27.71	3.04	56.15	35.04	51.86	22.14 Peak
3	2397.58	27.71	3.04	59.90	35.04	55.61	18.39 Peak
4	2400.00	27.71	3.04	59.48	35.04	55.19	18.81 Peak
5	2414.55	27.77	3.05	93.33	35.04	89.11	-15.11 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.

Data: 26 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)



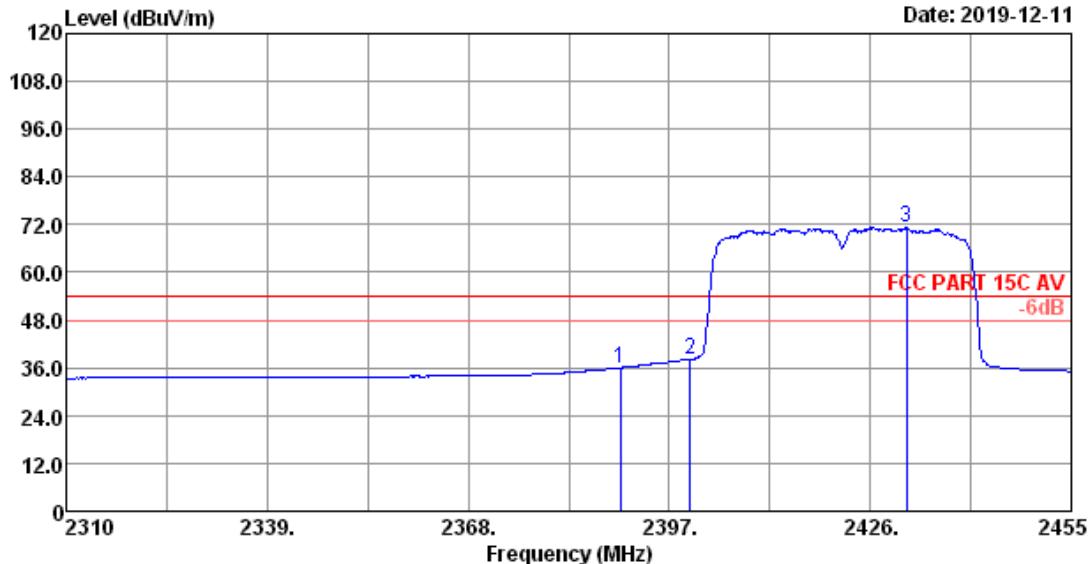
Site no. : 3m Chamber Data no. : 26
 Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.4°C/52.9% Engineer : Garry
 Power rating : AC120V/60Hz
 Test Mode : 802.11nHT40 2422MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2382.94	27.62	3.03	56.22	35.05	51.82	74.00 22.18 Peak
2	2390.00	27.71	3.04	52.60	35.04	48.31	74.00 25.69 Peak
3	2398.31	27.71	3.04	56.10	35.04	51.81	74.00 22.19 Peak
4	2400.00	27.71	3.04	55.39	35.04	51.10	74.00 22.90 Peak
5	2414.40	27.77	3.05	88.95	35.04	84.73	74.00 -10.73 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.

Data: 27 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



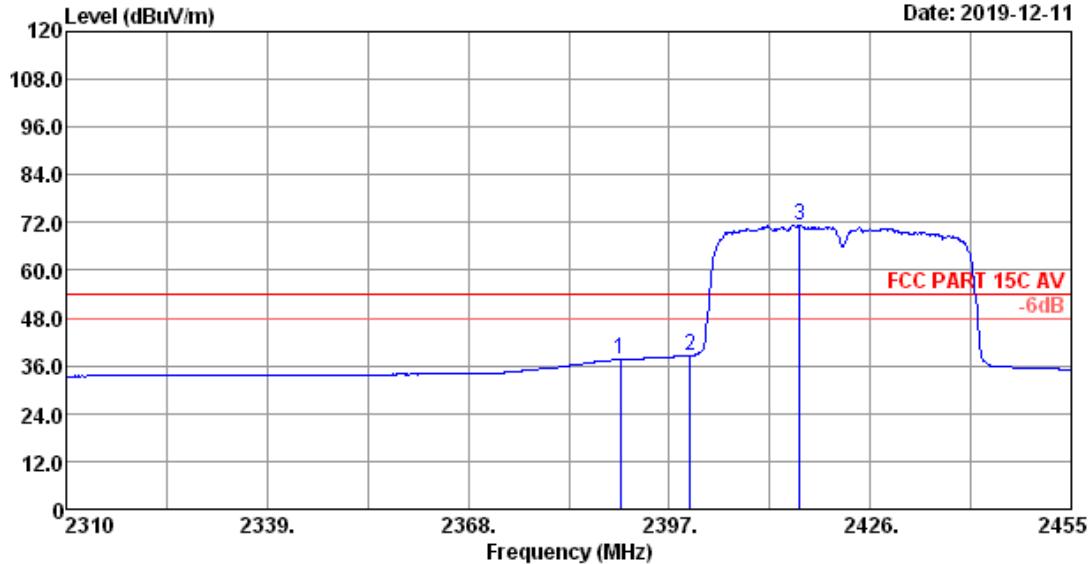
Site no. : 3m Chamber Data no. : 27
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2422MHz Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.71	3.04	40.34	35.04	36.05	54.00	17.95	Average
2	2400.00	27.71	3.04	42.49	35.04	38.20	54.00	15.80	Average
3	2431.22	27.82	3.07	75.41	35.03	71.27	54.00	-17.27	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 28 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



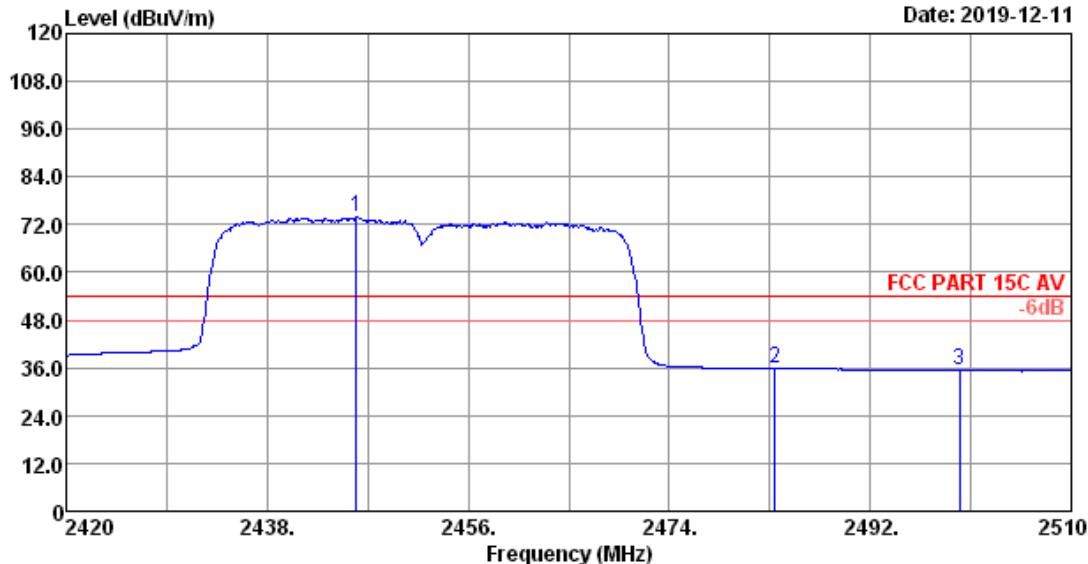
Site no. : 3m Chamber Data no. : 28
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2422MHz Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.71	3.04	41.82	35.04	37.53	54.00	16.47	Average
2	2400.00	27.71	3.04	42.87	35.04	38.58	54.00	15.42	Average
3	2415.85	27.77	3.05	75.50	35.04	71.28	54.00	-17.28	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 29 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



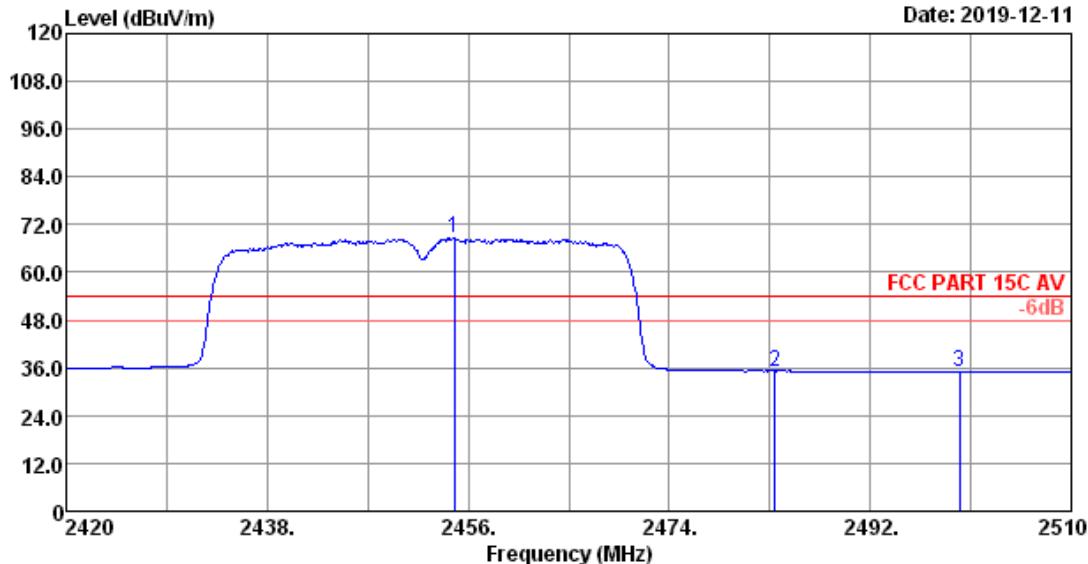
Site no. : 3m Chamber Data no. : 29
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2452MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2446.01	27.87	3.08	77.85	35.02	73.78	54.00 -19.78 Average
2	2483.50	27.98	3.10	39.71	35.01	35.78	54.00 18.22 Average
3	2500.00	28.03	3.11	39.22	35.00	35.36	54.00 18.64 Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 30 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



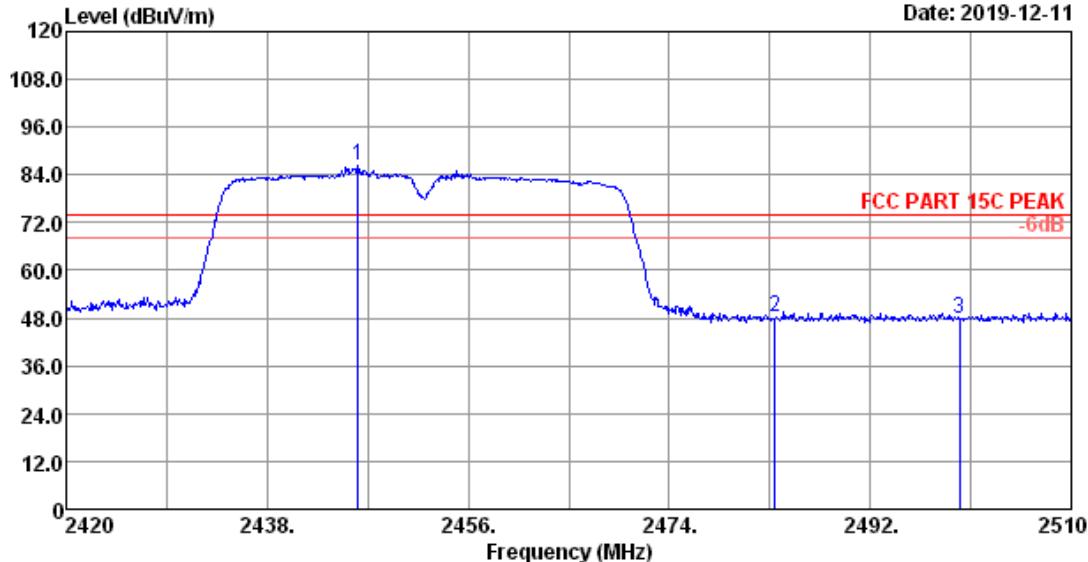
Site no. : 3m Chamber Data no. : 30
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2452MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)	Level (dBuV/m)	
1	2454.74	27.93	3.09	72.59	35.02	68.59	54.00 -14.59 Average
2	2483.50	27.98	3.10	39.13	35.01	35.20	54.00 18.80 Average
3	2500.00	28.03	3.11	38.91	35.00	35.05	54.00 18.95 Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 31 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



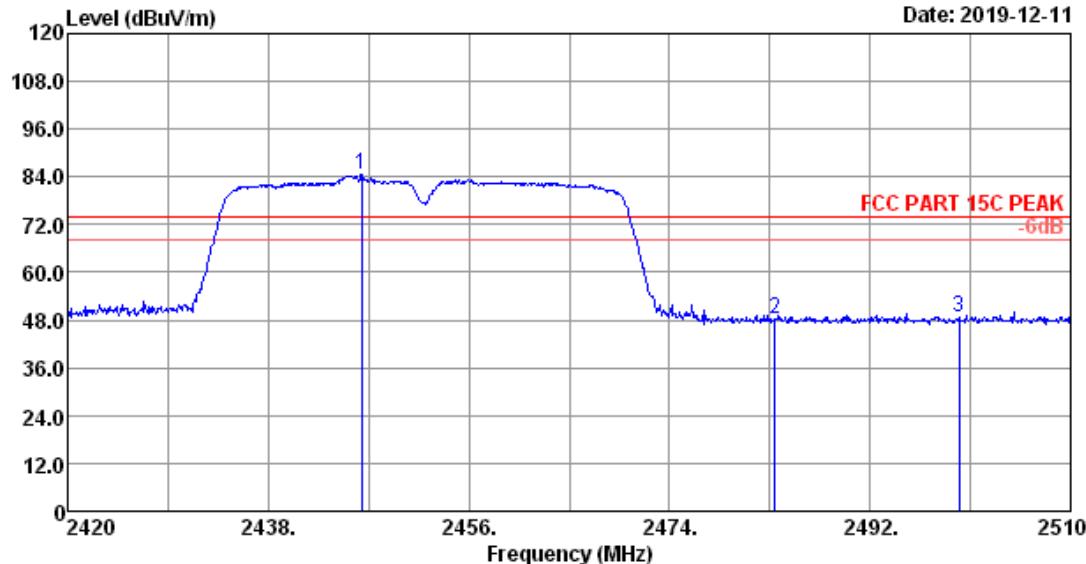
Site no. : 3m Chamber Data no. : 31
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2452MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2446.10	27.87	3.08	90.36	35.02	86.29	74.00 -12.29 Peak
2	2483.50	27.98	3.10	52.22	35.01	48.29	74.00 25.71 Peak
3	2500.00	28.03	3.11	51.71	35.00	47.85	74.00 26.15 Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

Data: 32 File: F:\2019 Report\isangfei\A1Z1911123-WIFI2.4G-1.EM6 (80)

Date: 2019-12-11



Site no. : 3m Chamber Data no. : 32
Dis. / Ant. : 3m 2018 3115-4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.4°C/52.9% Engineer : Garry
Power rating : AC120V/60Hz
Test Mode : 802.11nHT40 2452MHz Tx Mode

No.	Freq. (MHz)	Ant.	Cable	Amp	Emission	Margin (dB)	Remark
		Factor (dB/m)	Loss (dB)	Reading (dBuV)	factor (dB)		
1	2446.37	27.87	3.08	88.64	35.02	84.57	74.00 -10.57 Peak
2	2483.50	27.98	3.10	52.24	35.01	48.31	74.00 25.69 Peak
3	2500.00	28.03	3.11	52.41	35.00	48.55	74.00 25.45 Peak

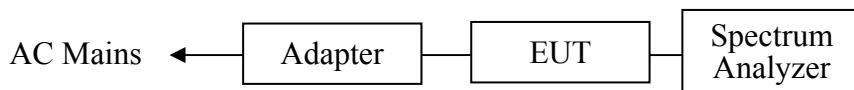
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

7. 6dB Bandwidth Test

7.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Jun.30,19	1 Year
2.	Attenuator	Agilent	8491B	MY39269201	Oct.13,19	1 Year
3.	RF Cable	EMCI	EMC102-KM-KM 3500	170702	May.13,19	1 Year

7.2. Block Diagram of Test Setup



7.3. Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

7.4. Test Procedure

Use the test method described in ANSI C63.10 Section 11.8.2:

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e., RBW = 100 kHz, VBW $\geq 3 \times$ RBW, and peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

7.5. Test Results

EUT: Smart Signboard		
M/N: IAD-18001		
Test date: 2019-12-05	Pressure: 102.3±1.0 kpa	Humidity: 53.6±3.0%
Tested by: Allen	Test site: RF site	Temperature:25.5±0.6 °C

Test Mode	CH	-6dB bandwidth (MHz)	Limit (KHz)
11b	CH1	9.967	≥ 500
	CH6	9.944	
	CH11	9.850	
11g	CH1	16.52	≥ 500
	CH6	16.51	
	CH11	16.54	
11n HT20	CH1	17.75	≥ 500
	CH6	17.76	
	CH11	17.78	
11n HT40	CH3	36.42	≥ 500
	CH6	36.44	
	CH9	36.43	
Conclusion : PASS			