RF Test Report

For

HUNAN FN-LINK TECHNOLOGY LIMITED

Test Standards:	Part 15C Subpart C §15.247
Product Name:	WIFI Module
Tested Model:	3161A-SL
Brand Name:	FN-LINK
FCC ID:	2AATL3161ASL
Classification	(DTS) Digital Transmission System
Report No.:	EC2009015RF01
Tested Date:	2020-09-23 to 2020-10-21
Issued Date:	2020-10-21
Prepared By:	Jerry Wang / Engineer
Approved By:	Bacon Wu / RF Manager

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	2020.10.21	Valid	Original Report

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Summary Of Test Result

FCC Rule	Description	Limit	Result	Remark
15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
-	99% Bandwidth	-	Pass	-
15.247(b)(3)	Peak Output Power	≤ 30dBm	Pass	-
15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
15.247(d)	Conducted Band Edges and Spurious Emission	≤ 20dBc	Pass	-
15.247(d)	Radiated Band Edges and Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 9.30 dB at 2486.18 MHz
15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 4.85 dB at 0.402 MHz
15.203 & 15.247(b)	Antenna Requirement	15.203 & 15.247(b)	Pass	-

1 Test Laboratory

1.1 Test facility

CNAS (accreditation number: L11138)

Hunan Ecloud Testing Technology Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

FCC (Designation number: CN1244 , Test Firm Registration Number: 793308)

Hunan Ecloud Testing Technology Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

ISED(CAB identifier: CN0012, ISED# :24347)

Hunan Ecloud Testing Technology Co., Ltd. has been listed on the Wireless Device Testing Laboratories list of innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements.

A2LA (Certificate Code : 4895.01)

Hunan Ecloud Testing Technology Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

2 General Description

2.1 Applicant

HUNAN FN-LINK TECHNOLOGY LIMITED
No. 8，Litong Road，Liuyang Economic Development Zone，Liuyang City, Hunan Province, China

2.2 Manufacturer

HUNAN FN-LINK TECHNOLOGY LIMITED
No. 8，Litong Road，Liuyang Economic Development Zone，Liuyang City, Hunan Province, China

2.3 General Description Of EUT

Product	WIFI Module
Model No.	3161A-SL
Additional No.	N/A
Difference Description	N/A
FCC ID	2AATL3161ASL
Power Supply	3.3Vdc
Modulation Technology	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Type	802.11b : DSSS 802.11g/n : OFDM
Operating Frequency	2412-2462MHz
Number Of Channel	11
Max. Output Power	802.11b : 16.01 dBm (0.0399 W) 802.11g : 16.59 dBm (0.0456 W) 802.11n HT20 : 16.08 dBm (0.0406 W)
Antenna Type	FPC Antenna with 2dBi gain
HW Version	1.1
SW Version	1.1
I/O Ports	Refer to user's manual

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. For the test results, the EUT had been tested with all conditions. But only the worst case was

shown in test report.

2.4 Modification of EUT

No modifications are made to the EUT during all test items.

2.5 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- ANSI C63.10-2013
- KDB 558074 D01 15.247 Meas Guidance v05r02

Remark:

1. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

3 Test Configuration of Equipment Under Test

3.1 Descriptions of Test Mode

11 channels are provided for 802.11b, 802.11g and 802.11n(HT20):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

The transmitter has a maximum peak conducted output power as follows:

Frequency Range(MHz)	Mode	Rate	Output Power(dBm)
2412~2462	802.11b	1Mbps	16.01
2412~2462	802.11g	6Mbps	16.59
2412~2462	802.11n HT20	MCS0	16.08

a. Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

3.2 Test Mode

3.2.1 Antenna Port Conducted Measurement

Summary table of Test Cases			
Test Item	Modulation		
	802.11 b	802.11 g	802.11n HT20
Conducted Test Cases	Mode 1: CH01 Mode 2: CH06 Mode 3: CH011	Mode 1: CH01 Mode 2: CH06 Mode 3: CH011	Mode 1: CH01 Mode 2: CH06 Mode 3: CH011

3.2.2 Radiated Emission Test (Below 1GHz)

Radiated Test Cases	802.11 b
	Mode 1: CH01

Note : 1. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis, antenna ports (if EUT with antenna

diversity architecture) and packet type. Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

2. Following channel(s) was (were) selected for the final test as listed above

3.2.3 Radiated Emission Test (Above 1GHz)

Test Item	Modulation		
	802.11 b	802.11 g	802.11n HT20
Radiated Test Cases	Mode 1: CH01 Mode 2: CH06 Mode 3: CH11	Mode 1: CH01 Mode 2: CH06 Mode 3: CH11	Mode 1: CH01 Mode 2: CH06 Mode 3: CH11

Note : 1. The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

2. Following channel(s) was (were) selected for the final test as listed above

3. For frequency above 18GHz, the measured value is much lower than the limit, therefore, it is not reflected in the report.

3.2.4 Power Line Conducted Emission Test:

AC Conducted Emission	Mode 1 : WLAN Linking + Iperf + Adapter

3.3 Support Equipment

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	WLAN AP	NETGEAR	R7800	PY315100319	N/A	shielded, 1.8 m
2.	Notebook	Lenovo	E470C	FCC sDoC	N/A	shielded cable DC O/P 1.8 m unshielded AC I/P cable1.2 m
3.	Test Board	NA	3131A-S	NA	NA	NA
4.	Adapter	Chunghwa Telecom	CYV024S012V2000U	FCC sDoC	NA	shielded, 1.8 m
5.	Test Fxiture	NA	HI1131HDM008	NA	NA	NA
6.	20pin Extension cord	NA	NA	NA	NA	shielded, 0.5 m

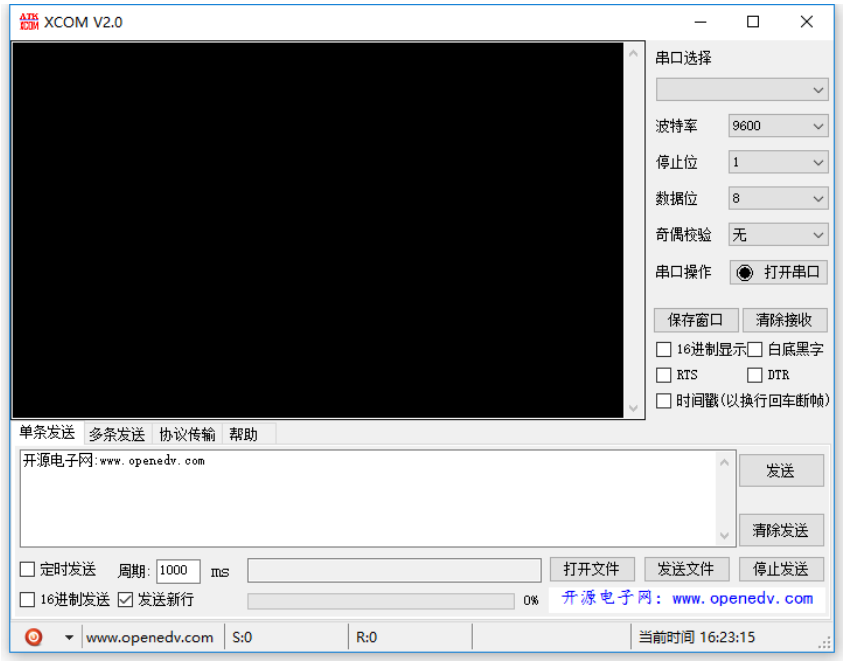
7.	Micro USB Cable	NA	NA	NA	NA	shielded, 0.8 m

3.4 Test Setup

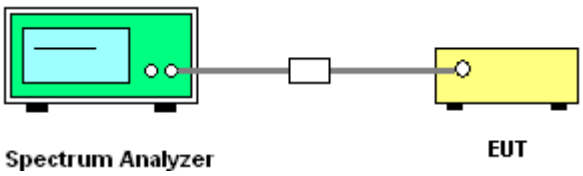
The EUT is continuously communicating to the WIFI tester during the tests.

EUT was set in the Hidden menu mode to enable WIFI communications.

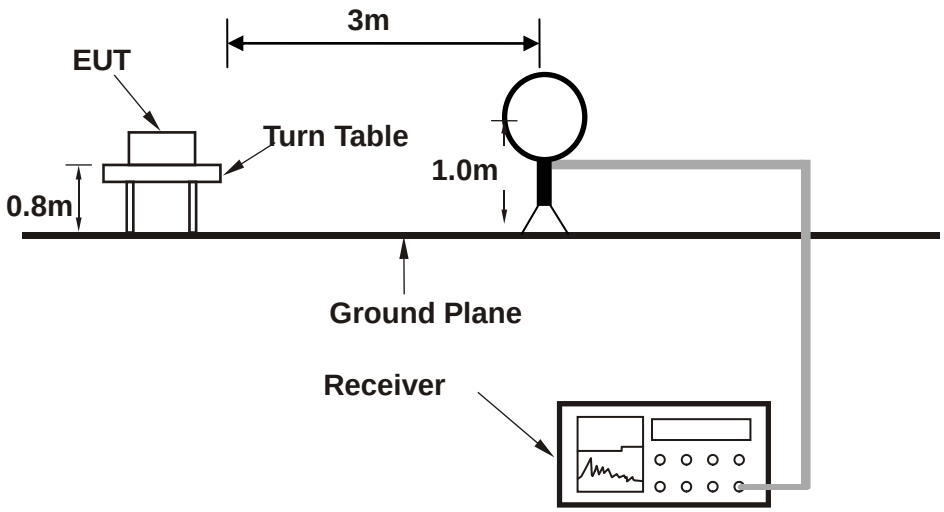
The following picture is a screenshot of the test software



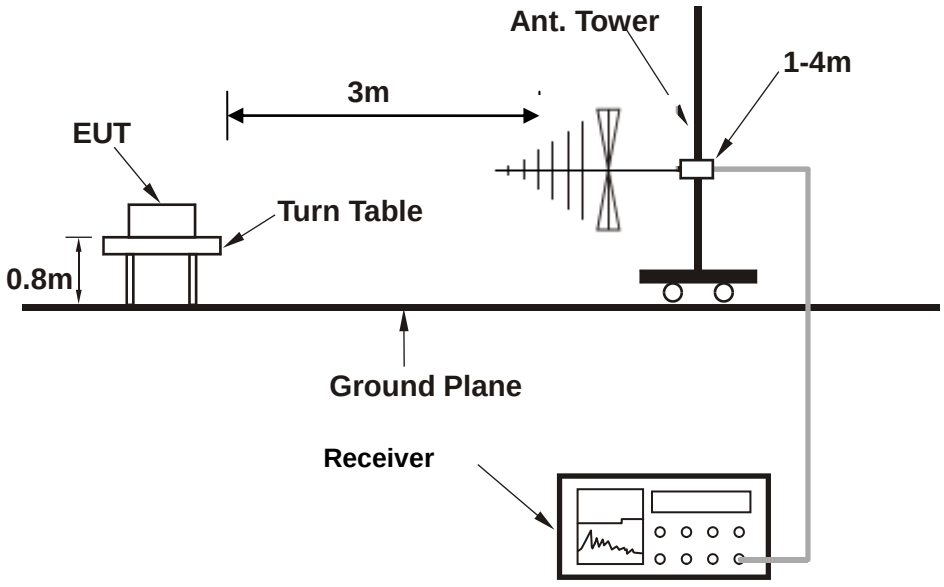
Setup diagram for Conducted Test



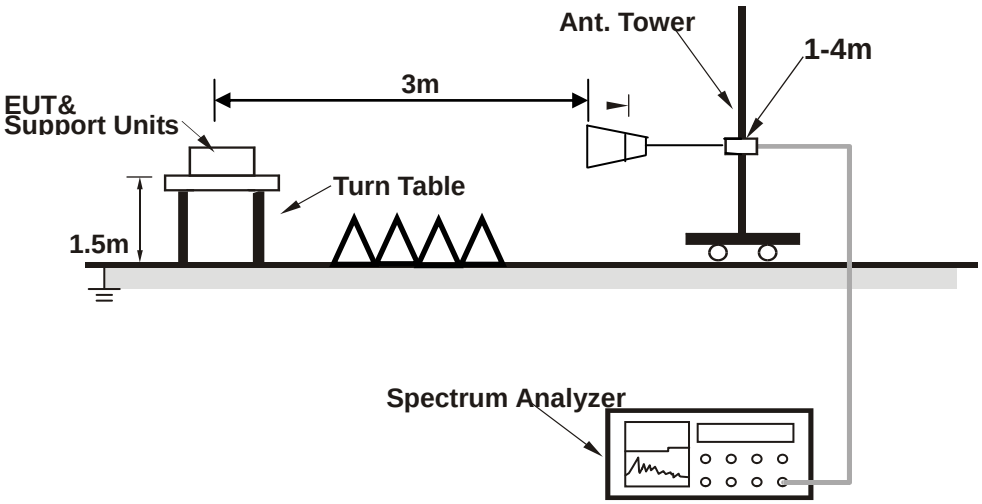
Setup diagram for Raidation(9KHz~30MHz) Test



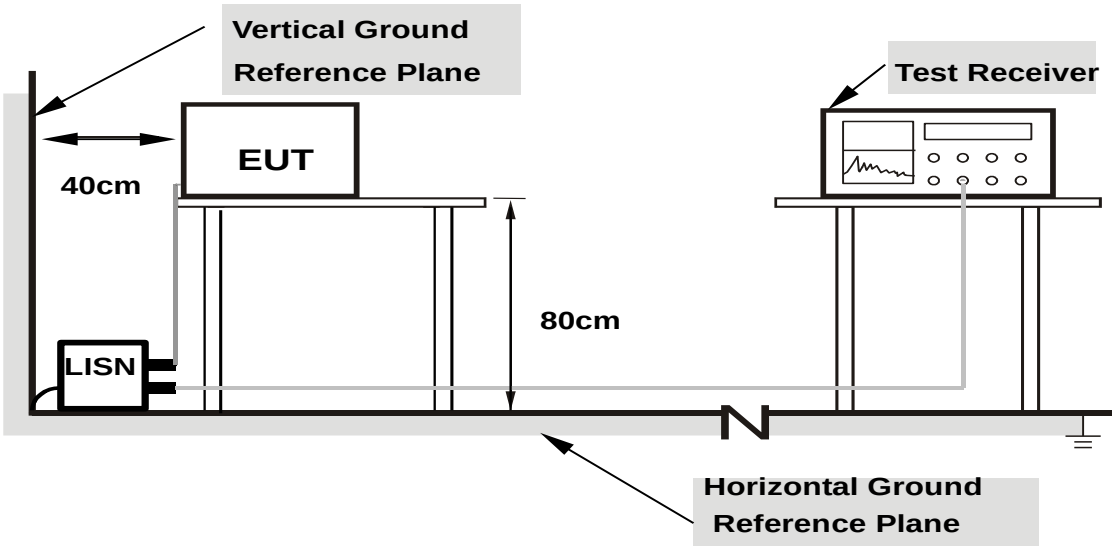
Setup diagram for Raidation(Below 1G) Test



Setup diagram for Raidation(Above1G) Test



Setup diagram for AC Conducted Emission Test



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.5 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 5 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 5 + 10 = 15 (dB)

For all radiated test items:

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Over Limit (dB μ V/m) = Level(dB μ V/m) - Limit Level (dB μ V/m)

4 Test Result

4.1 DTS and Occupied Channel Bandwidth Measurement

4.1.1 Limit of 6dB Bandwidth

FCC §15.247 (a) (2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

4.1.2 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v05r02.
2. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
3. Turn on the EUT and connect it to measurement instrument.
4. Set to the maximum power setting and enable Transmitting the EUT transmit continuously
5. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
6. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) setting should be 1%-5% of OBW, please revise and set the Video bandwidth (VBW) ≥3* RBW.

4.1.3 Test Result of 6dB Bandwidth

Please refer to **Appendix A** in the Appendix Report in Chapter 7 of the report.

4.1.4 Test Result of 99% Bandwidth

Please refer to **Appendix B** in the Appendix Report in Chapter 7 of the report.

4.2 Maximum Conducted Output Power Measurement

4.2.1 Limit of Output Power

FCC §15.247 (b)(3)

For systems using digital modulation in the 2400-2483.5 MHz bands: 30dBm.

4.2.2 Test Procedures

1. The testing follows the Measurement Procedure of ANSI C63.10-2013 section 11.9.2.2.4 Measurement using a spectrum analyzer.
2. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
3. Turn on the EUT and connect it to spectrum analyzer.
4. Set to the maximum power setting and enaBle Transmitting the EUT transmit continuously
5. Measure the duty cycle, x, of the transmitter output signal as described in below:
   a. Set the center frequency of the instrument to the center frequency of the transmission.
   b. Set RBW to the largest available Transmitting value.
   c. Set detector = peak
6. Set span to at least 1.5*OBW.Set RBW=510KHz,VBW=2MHz, Number of points in sweep ≥ 2/3* span, Sweep time = auto. Detector = RMS
7. Allow the sweep to “free run”. Trace average 100 traces in RMS mode
8. Compute power by integrating the spectrum across the OBW of the signal using the instrument’s Channel power measurement function with band limits set equal to the OBW band edges.
9. Add 10 log (1/x), where x is the duty cycle. The duty cycle factor has been compensated to the ‘offset ” of the spectrum analyser.

4.2.3 Test Result of Peak Output Power

Please refer to **Appendix C** in the Appendix Report in Chapter 7 of the report.

4.2.4 Test Result of Duty Cycle

Please refer to **Appendix G** in the Appendix Report in Chapter 7 of the report.

4.3 Maximum Power Spectral Density Measurement

4.3.1 Limits of Power Spectral Density

FCC§15.247(e)

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

4.3.2 Test Procedure

1. The testing follows Measurement Procedure 8.4 DTS maximum power spectral density level in the fundamental emission of ANSI C63.10-2013 section 11.9.2.2.4
2. Turn on the EUT and connect it to measurement instrument.
3. Measure the duty cycle, x, of the transmitter output signal as described in below:
   a. Set the center frequency of the instrument to the center frequency of the transmission.
   b. Set RBW to the largest availaBle Transmitting value.
   c. Set detector = peak
4. Set span to at least 1.5*OBW.Set RBW= 30 KHz,VBW=100 KHz, Number of points in sweep ≥ 2/3* span, Sweep time = auto.
5. Detector = power averaging (rms), Sweep time = auto couple, Trace mode = averaging (rms) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum power level.
6. Add 10 log (1/x), where x is the duty cycle.
7. Measure and record the results in the test report.
8. The Measured power density (dBm)/ 100kHz is a reference level and used as 30dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.
9. Add 10 log(1/x), where x is the duty cycle. The duty cycle factor has been compensated to the ‘offset ” of the spectrum analyser.

4.3.3 Test Result of Power Spectral Density

Please refer to **Appendix D** in the Appendix Report in Chapter 7 of the report.

4.4 Band Edges and Spurious Emission Measurement

4.4.1 Limit of Conducted Band Edges and Spurious Emission

FCC §15.247 (d)

Maximum conducted (average) output power was used to determine compliance, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).

4.4.2 Test Procedures

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument.
3. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
4. Measure and record the results in the test report.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

4.4.3 Test Result of Conducted Band Edges

Please refer to **Appendix E** in the Appendix Report in Chapter 7 of the report.

4.4.4 Test Result of Conducted Spurious Emission

Please refer to **Appendix F** in the Appendix Report in Chapter 7 of the report.

4.5 Radiated Band Edges and Spurious Emission Measurement

4.5.1 Limit of Radiated Band Edges and Spurious Emission

FCC §15.247 (d)

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 30 dB below the highest emission level within the authorized band. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

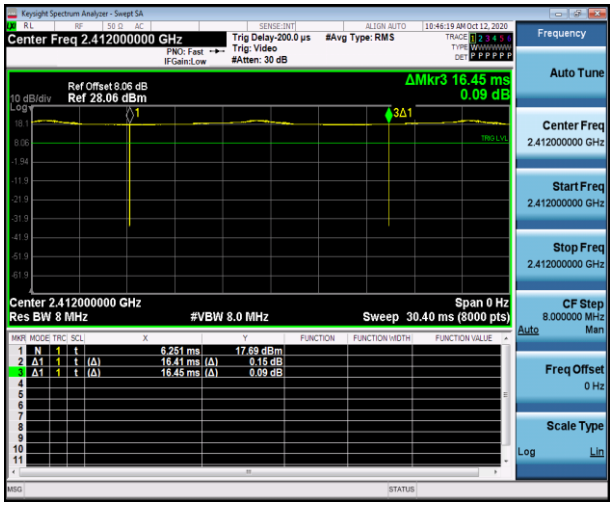
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

4.5.2 Test Procedures

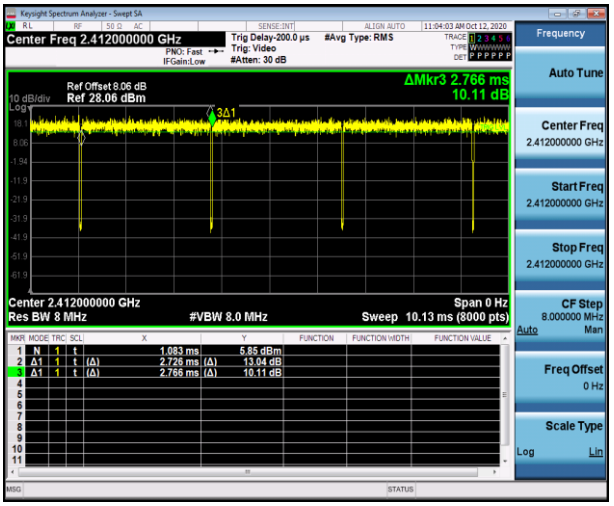
1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The measurement distance is 3 meter.
3. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
4. Set to the maximum power setting and enable the EUT transmit continuously.
5. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz, RBW=1MHz for f>1GHz ; VBW RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
   (3) For average measurement:
   VBW = 10 Hz, when duty cycle is no less than 98 percent.
   VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control

level for the tested mode of operation.

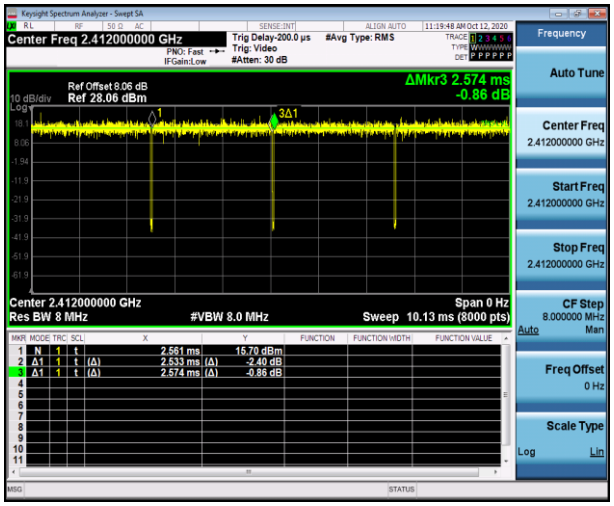
Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	99.75	-	-	10Hz
802.11g	98.53	-	-	10Hz
802.11n HT20	98.43	-	-	10Hz



802.11b



802.11g



802.11n HT20

6. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

4.5.3 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

4.5.4 Test Result of Radiated Spurious at Band Edges

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Horizontal

```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
Test Mode    : 802.11b CH01(2412MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
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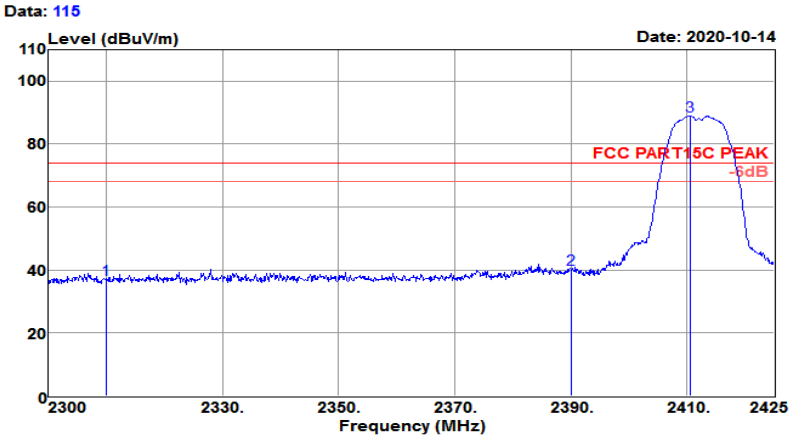

Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	41.13	27.38	4.11	35.61	37.01	74.00	-36.99	Peak
2390.000	44.45	27.56	4.18	35.79	40.40	74.00	-33.60	Peak
2410.500	93.02	27.60	4.20	35.84	88.98	74.00	14.98	Peak

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Horizontal

```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
Test Mode    : 802.11b CH01(2412MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
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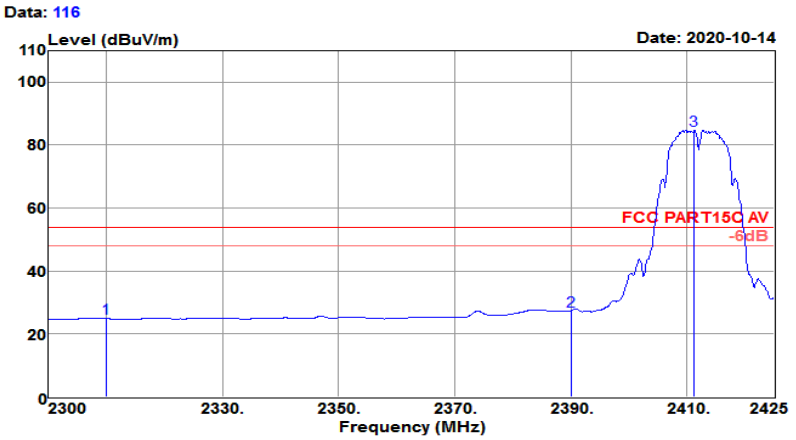

Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	29.06	27.38	4.11	35.61	24.94	54.00	-29.06	Average
2390.000	31.41	27.56	4.18	35.79	27.36	54.00	-26.64	Average
2411.250	88.84	27.60	4.20	35.84	84.80	54.00	30.80	Average

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Vertical

```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : VERTICAL
Test Mode    : 802.11b CH01(2412MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
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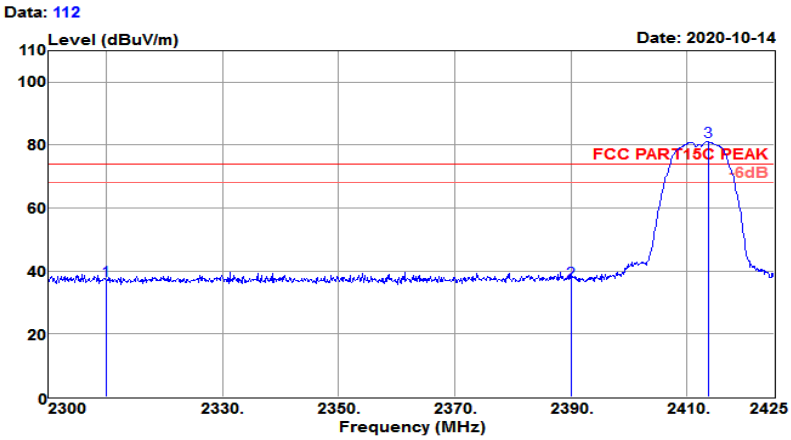

Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	41.04	27.38	4.11	35.61	36.92	74.00	-37.08	Peak
2390.000	40.70	27.56	4.18	35.79	36.65	74.00	-37.35	Peak
2413.625	85.12	27.61	4.20	35.84	81.09	74.00	7.09	Peak

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Vertical

```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : VERTICAL
Test Mode    : 802.11b CH01(2412MHz)     Power rating: DC 3.3V
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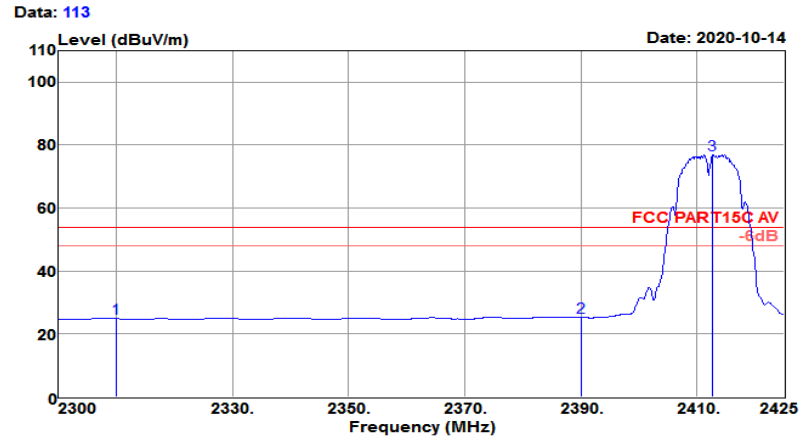
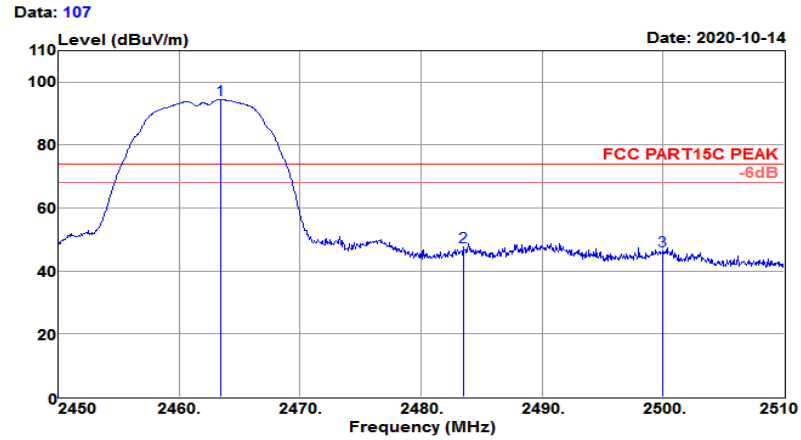


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	29.00	27.38	4.11	35.61	24.88	54.00	-29.12	Average
2390.000	29.23	27.56	4.18	35.79	25.18	54.00	-28.82	Average
2412.750	80.95	27.61	4.20	35.84	76.92	54.00	22.92	Average

Test Mode :	802.11b CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz	Polarization :	Horizontal

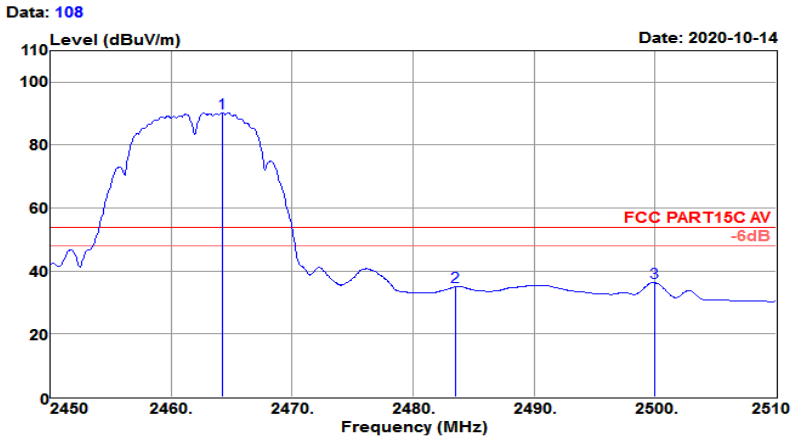
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
Test Mode    : 802.11b CH11(2462MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2463.440	98.45	27.72	4.24	35.96	94.45	74.00	20.45	Peak
2483.500	51.71	27.76	4.26	36.00	47.73	74.00	-26.27	Peak
2500.000	50.45	27.80	4.28	36.04	46.49	74.00	-27.51	Peak

Test Mode :	802.11b CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz	Polarization :	Horizontal

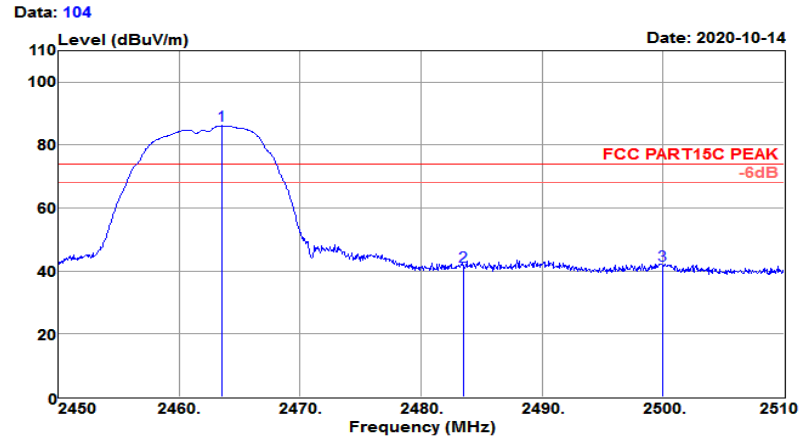
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
Test Mode    : 802.11b CH11(2462MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2464.220	94.30	27.72	4.24	35.96	90.30	54.00	36.30	Average
2483.500	39.00	27.76	4.26	36.00	35.02	54.00	-18.98	Average
2500.000	40.28	27.80	4.28	36.04	36.32	54.00	-17.68	Average

Test Mode :	802.11b CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz	Polarization :	Vertical

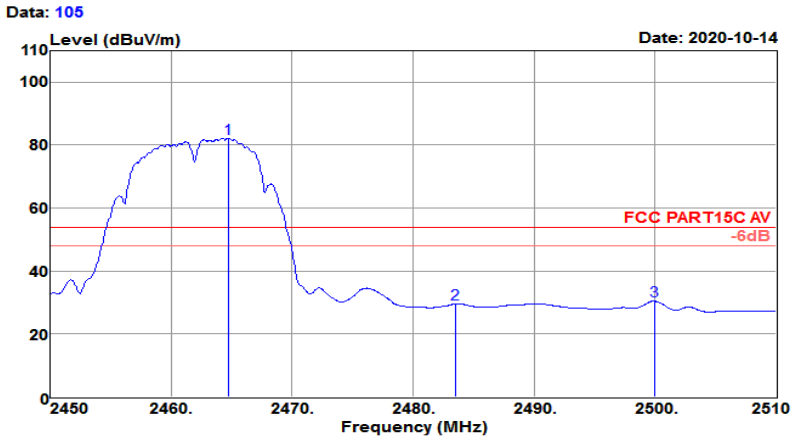
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                ----------------
Tested by    : Jack                      Pol/Phase    : VERTICAL
               --------------------------                ----------------
Test Mode    : 802.11b CH11(2462MHz)     Power rating: DC 3.3V
               --------------------------                ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2463.560	90.18	27.72	4.24	35.96	86.18	74.00	12.18	Peak
2483.500	45.59	27.76	4.26	36.00	41.61	74.00	-32.39	Peak
2500.000	45.93	27.80	4.28	36.04	41.97	74.00	-32.03	Peak

Test Mode :	802.11b CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz	Polarization :	Vertical

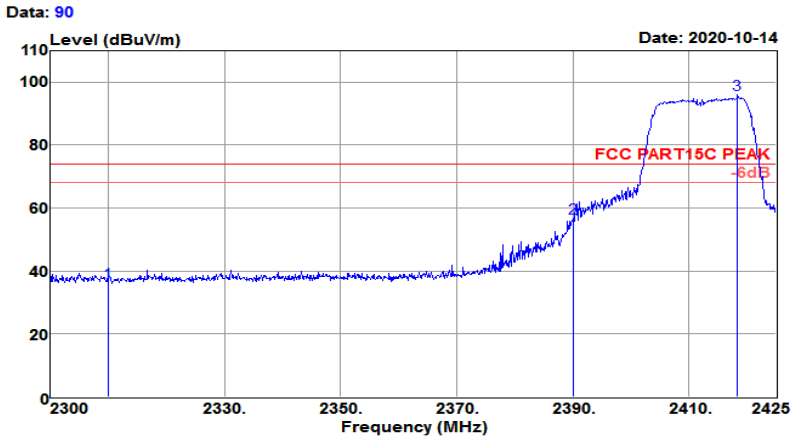
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : VERTICAL
Test Mode    : 802.11b CH11(2462MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2464.700	86.26	27.72	4.24	35.96	82.26	54.00	28.26	Average
2483.500	33.57	27.76	4.26	36.00	29.59	54.00	-24.41	Average
2500.000	34.37	27.80	4.28	36.04	30.41	54.00	-23.59	Average

Test Mode :	802.11g CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Horizontal

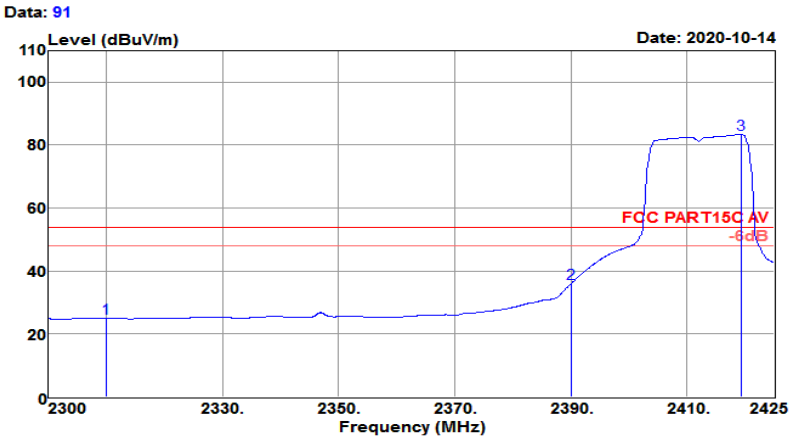
Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11g CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	40.62	27.38	4.11	35.61	36.50	74.00	-37.50	Peak
2390.000	60.73	27.56	4.18	35.79	56.68	74.00	-17.32	Peak
2418.375	99.95	27.62	4.21	35.85	95.93	74.00	21.93	Peak

Test Mode :	802.11g CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Horizontal

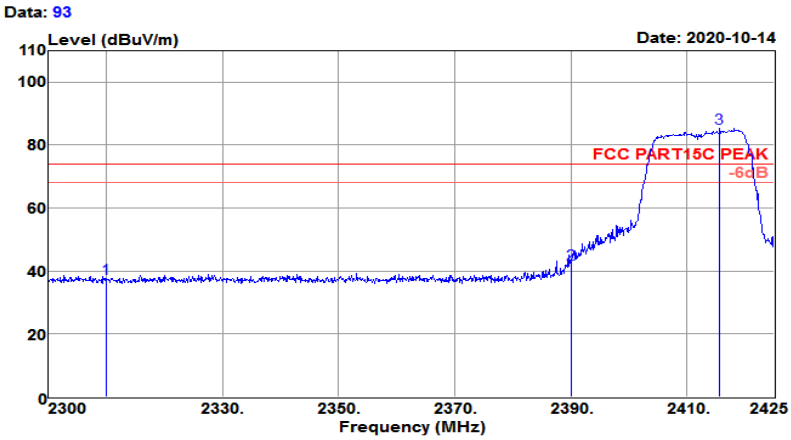
Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11g CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2310.000	29.12	27.38	4.11	35.61	25.00	54.00	-29.00	Average
2390.000	39.98	27.56	4.18	35.79	35.93	54.00	-18.07	Average
2419.375	87.42	27.62	4.21	35.86	83.39	54.00	29.39	Average

Test Mode :	802.11g CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Vertical

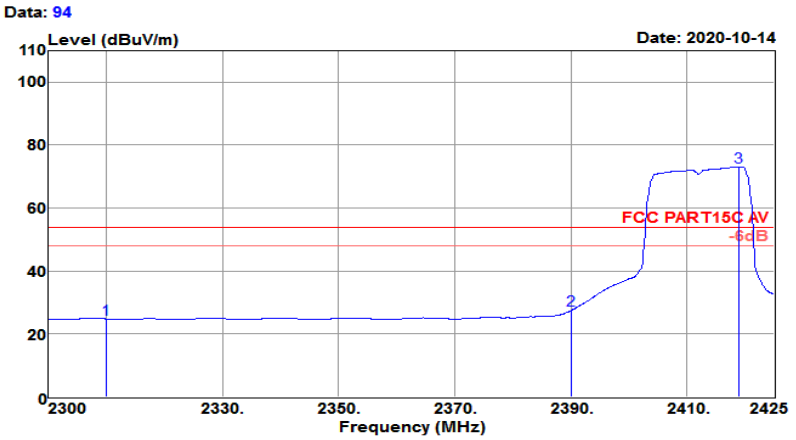
Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11g CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	41.75	27.38	4.11	35.61	37.63	74.00	-36.37	Peak
2390.000	46.39	27.56	4.18	35.79	42.34	74.00	-31.66	Peak
2415.625	89.40	27.61	4.20	35.85	85.36	74.00	11.36	Peak

Test Mode :	802.11g CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Vertical

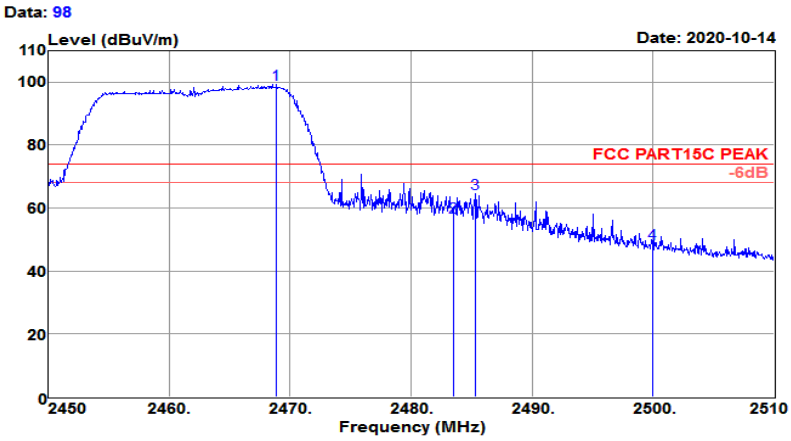
Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11g CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	28.92	27.38	4.11	35.61	24.80	54.00	-29.20	Average
2390.000	31.51	27.56	4.18	35.79	27.46	54.00	-26.54	Average
2419.000	77.20	27.62	4.21	35.86	73.17	54.00	19.17	Average

Test Mode :	802.11g CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz	Polarization :	Horizontal

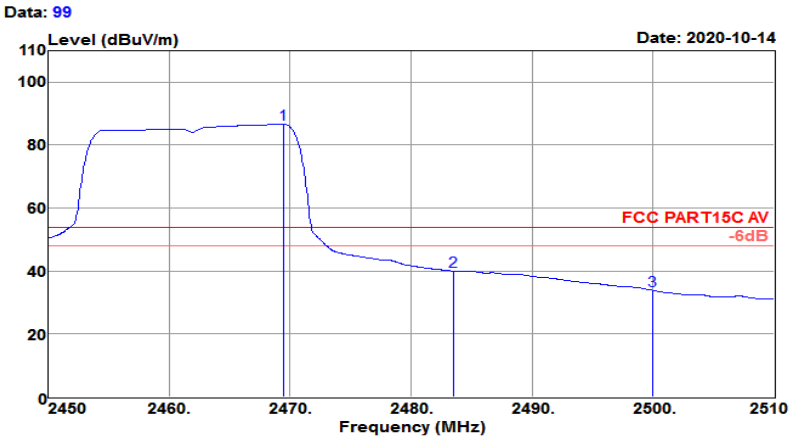
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
Test Mode    : 802.11g CH11(2462MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2468.900	103.19	27.73	4.25	35.97	99.20	74.00	25.20	Peak
2483.500	61.02	27.76	4.26	36.00	57.04	74.00	-16.96	Peak
2485.280	68.41	27.77	4.26	36.01	64.43	74.00	-9.57	Peak
2500.000	52.51	27.80	4.28	36.04	48.55	74.00	-25.45	Peak

Test Mode :	802.11g CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz	Polarization :	Horizontal

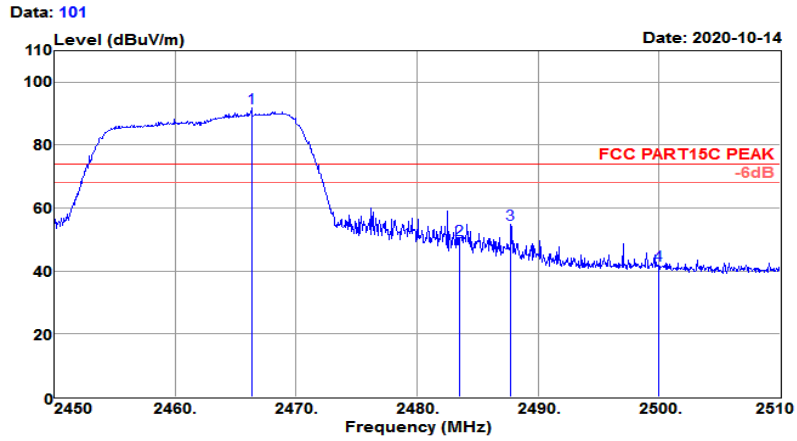
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
Test Mode    : 802.11g CH11(2462MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2469.440	90.76	27.73	4.25	35.97	86.77	54.00	32.77	Average
2483.500	43.99	27.76	4.26	36.00	40.01	54.00	-13.99	Average
2500.000	37.80	27.80	4.28	36.04	33.84	54.00	-20.16	Average

Test Mode :	802.11g CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz	Polarization :	Vertical

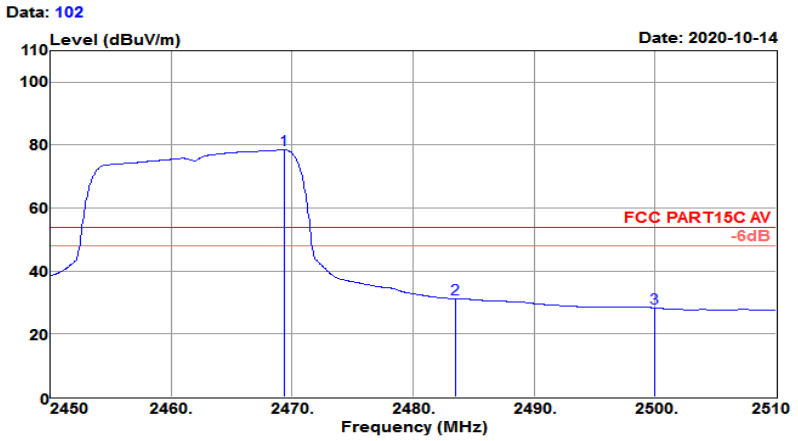
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : VERTICAL
Test Mode    : 802.11g CH11(2462MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2466.320	95.76	27.73	4.25	35.96	91.78	74.00	17.78	Peak
2483.500	53.99	27.76	4.26	36.00	50.01	74.00	-23.99	Peak
2487.740	58.94	27.77	4.26	36.01	54.96	74.00	-19.04	Peak
2500.000	45.94	27.80	4.28	36.04	41.98	74.00	-32.02	Peak

Test Mode :	802.11g CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz	Polarization :	Vertical

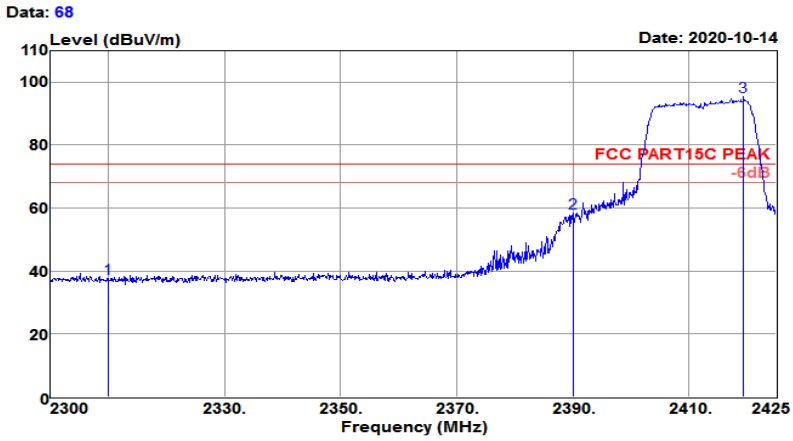
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : VERTICAL
Test Mode    : 802.11g CH11(2462MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2469.320	82.45	27.73	4.25	35.97	78.46	54.00	24.46	Average
2483.500	35.13	27.76	4.26	36.00	31.15	54.00	-22.85	Average
2500.000	32.27	27.80	4.28	36.04	28.31	54.00	-25.69	Average

Test Mode :	802.11n HT20 CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Horizontal

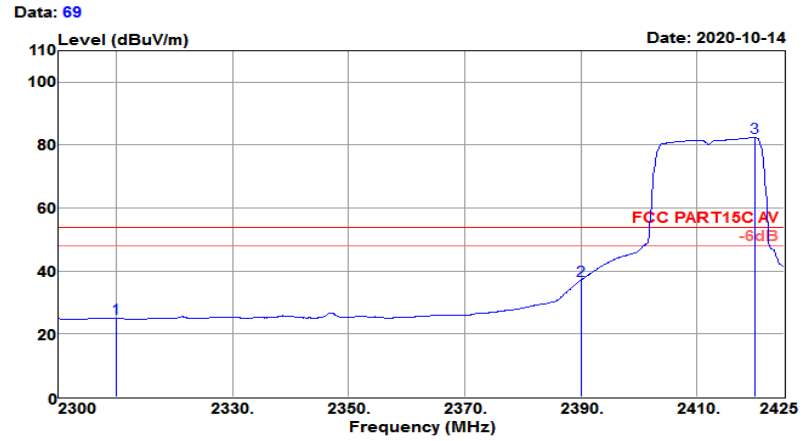
```
Test Site    : 3m Chamber                  Temp/Humi    : 25℃/64%
Tested by    : Jack                        Pol/Phase    : HORIZONTAL
Test Mode    : 802.11N HT20 CH01(2412MHz)  Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	41.76	27.38	4.11	35.61	37.64	74.00	-36.36	Peak
2390.000	62.59	27.56	4.18	35.79	58.54	74.00	-15.46	Peak
2419.375	99.30	27.62	4.21	35.86	95.27	74.00	21.27	Peak

Test Mode :	802.11n HT20 CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Horizontal

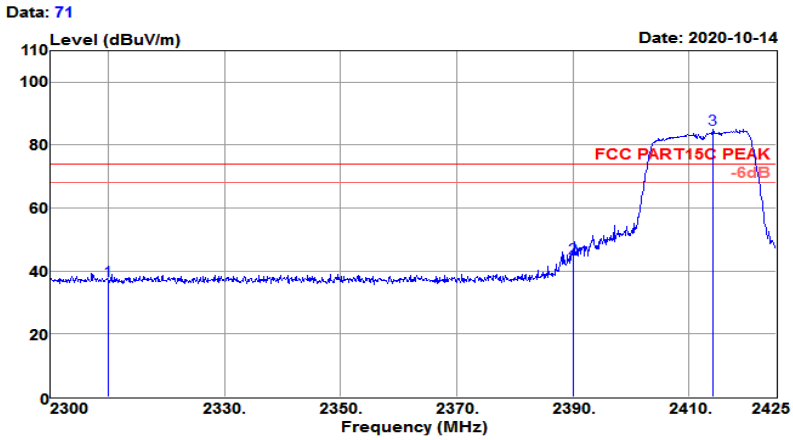
Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11N HT20 CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	29.06	27.38	4.11	35.61	24.94	54.00	-29.06	Average
2390.000	41.14	27.56	4.18	35.79	37.09	54.00	-16.91	Average
2420.000	86.56	27.62	4.21	35.86	82.53	54.00	28.53	Average

Test Mode :	802.11n HT20 CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Vertical

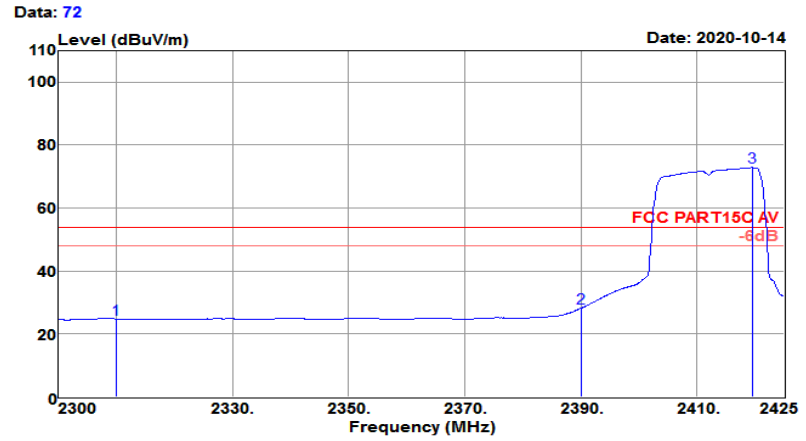
```
Test Site    : 3m Chamber                  Temp/Humi    : 25℃/64%
               ---------------------                     ----------
Tested by    : Jack                        Pol/Phase    : VERTICAL
               ---------------------                     ----------
Test Mode    : 802.11N HT20 CH01(2412MHz)  Power rating: DC 3.3V
               ---------------------                     ----------
EUT          : WIFI Module
               ---------------------
Model No.    : 3161A-SL
               ---------------------
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	41.04	27.38	4.11	35.61	36.92	74.00	-37.08	Peak
2390.000	48.27	27.56	4.18	35.79	44.22	74.00	-29.78	Peak
2414.125	89.11	27.61	4.20	35.84	85.08	74.00	11.08	Peak

Test Mode :	802.11n HT20 CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz	Polarization :	Vertical

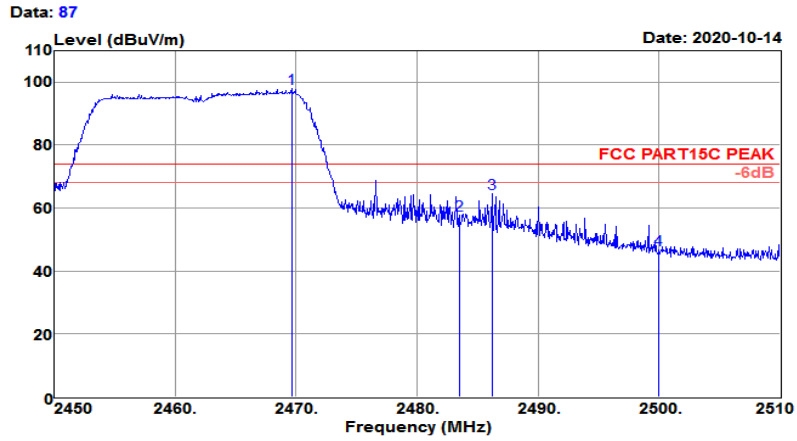
Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11N HT20 CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2310.000	28.92	27.38	4.11	35.61	24.80	54.00	-29.20	Average
2390.000	32.23	27.56	4.18	35.79	28.18	54.00	-25.82	Average
2419.500	76.90	27.62	4.21	35.86	72.87	54.00	18.87	Average

Test Mode :	802.11n HT20 CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz	Polarization :	Horizontal

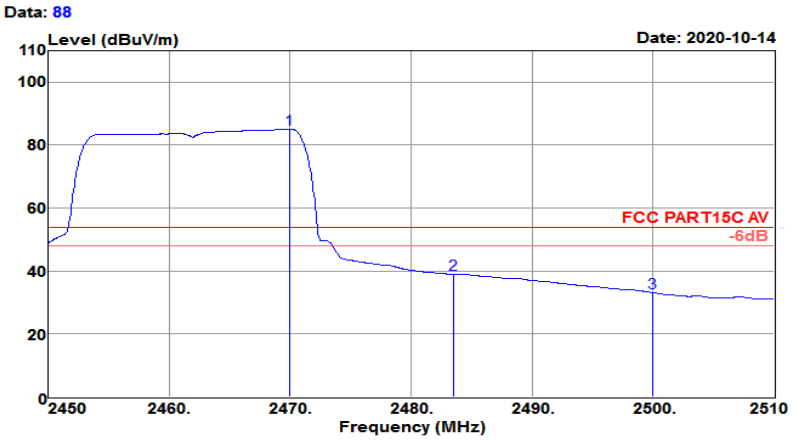
```
Test Site    : 3m Chamber                    Temp/Humi    : 25℃/64%
               ----------------------------                ----------------
Tested by    : Jack                          Pol/Phase    : HORIZONTAL
               ----------------------------                ----------------
Test Mode    : 802.11N HT20 CH11(2462MHz)    Power rating: DC 3.3V
               ----------------------------                ----------------
EUT          : WIFI Module
               ----------------------------
Model No.    : 3161A-SL
               ----------------------------
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2469.620	101.90	27.73	4.25	35.97	97.91	74.00	23.91	Peak
2483.500	61.88	27.76	4.26	36.00	57.90	74.00	-16.10	Peak
2486.180	68.68	27.77	4.26	36.01	64.70	74.00	-9.30	Peak
2500.000	50.57	27.80	4.28	36.04	46.61	74.00	-27.39	Peak

Test Mode :	802.11n HT20 CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz	Polarization :	Horizontal

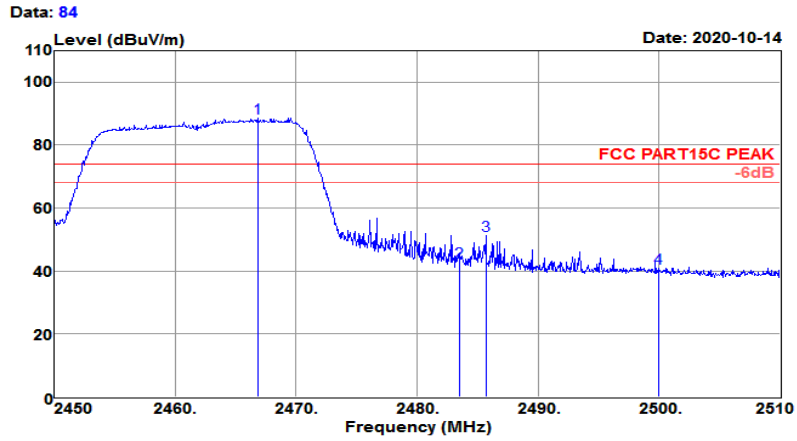
```
Test Site    : 3m Chamber                  Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                        Pol/Phase    : HORIZONTAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH11(2462MHz)  Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2469.980	89.14	27.73	4.25	35.97	85.15	54.00	31.15	Average
2483.500	42.89	27.76	4.26	36.00	38.91	54.00	-15.09	Average
2500.000	37.08	27.80	4.28	36.04	33.12	54.00	-20.88	Average

Test Mode :	802.11n HT20 CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz	Polarization :	Vertical

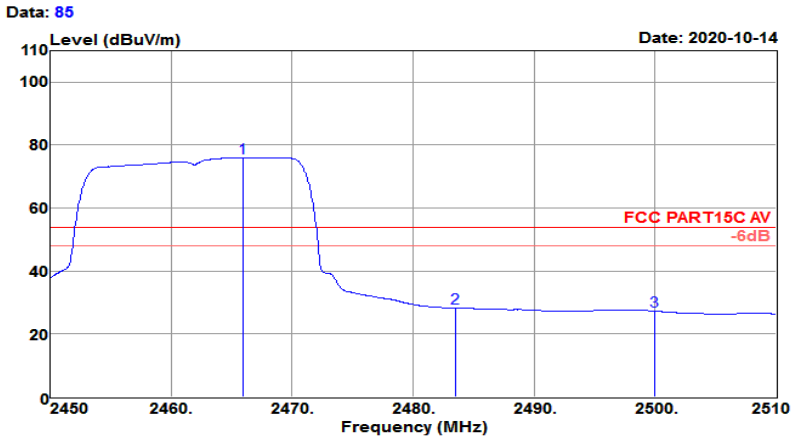
```
Test Site    : 3m Chamber                  Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                        Pol/Phase    : VERTICAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH11(2462MHz)  Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2466.860	92.54	27.73	4.25	35.96	88.56	74.00	14.56	Peak
2483.500	46.92	27.76	4.26	36.00	42.94	74.00	-31.06	Peak
2485.700	55.24	27.77	4.26	36.01	51.26	74.00	-22.74	Peak
2500.000	44.82	27.80	4.28	36.04	40.86	74.00	-33.14	Peak

Test Mode :	802.11n HT20 CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz	Polarization :	Vertical

```
Test Site    : 3m Chamber                    Temp/Humi    : 25℃/64%
               ----------------------------                ----------------
Tested by    : Jack                          Pol/Phase    : VERTICAL
               ----------------------------                ----------------
Test Mode    : 802.11N HT20 CH11(2462MHz)    Power rating: DC 3.3V
               ----------------------------                ----------------
EUT          : WIFI Module
               ----------------------------
Model No.    : 3161A-SL
               ----------------------------
```

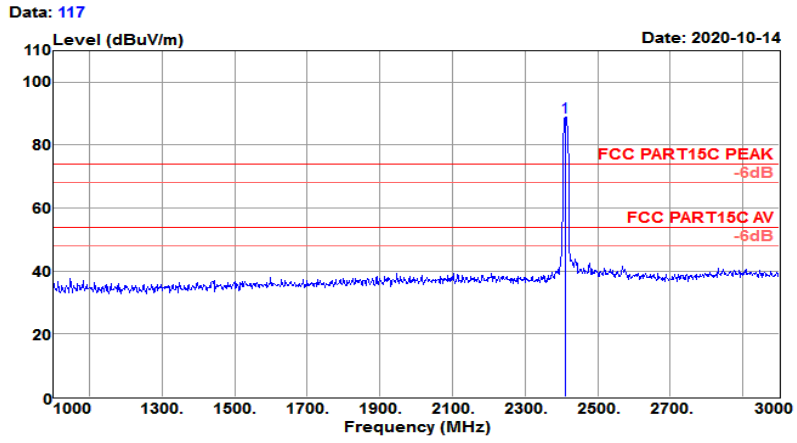


Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2465.960	79.97	27.73	4.25	35.96	75.99	54.00	21.99	Average
2483.500	32.08	27.76	4.26	36.00	28.10	54.00	-25.90	Average
2500.000	31.25	27.80	4.28	36.04	27.29	54.00	-26.71	Average

4.5.1 Test Result of Radiated Spurious Emission (1GHz ~ 10th Harmonic)

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Horizontal

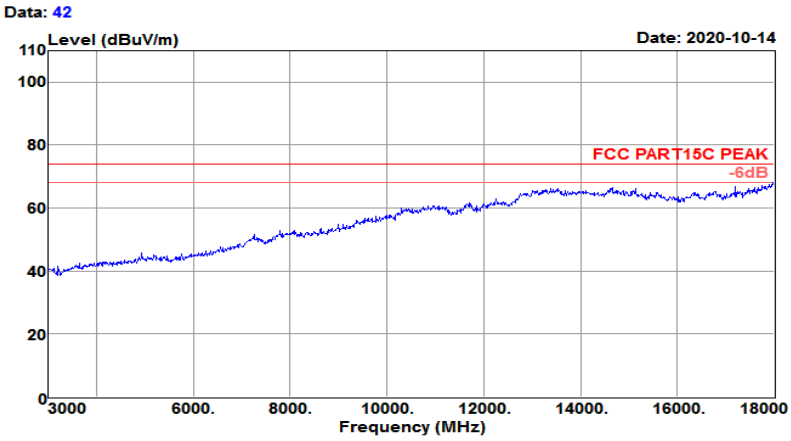
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
Test Mode    : 802.11b CH01(2412MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



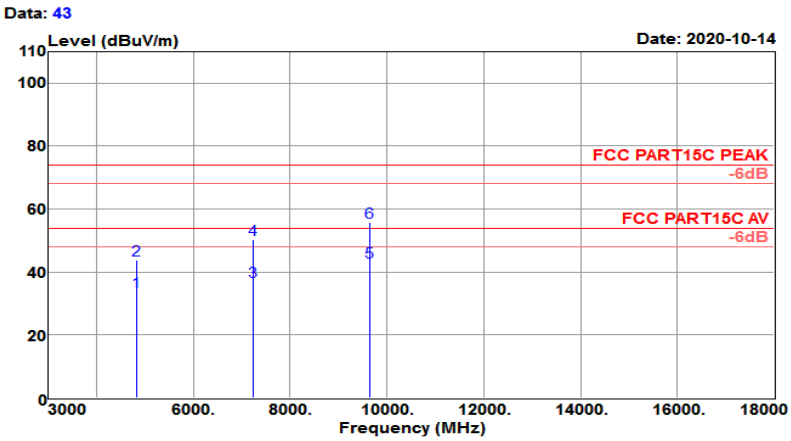
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2412.000	92.98	27.61	4.20	35.84	88.95	74.00	14.95	Peak

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Horizontal

```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                -----------------
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
               --------------------------                -----------------
Test Mode    : 802.11b CH01(2412MHz)     Power rating: DC 3.3V
               --------------------------                -----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11b CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

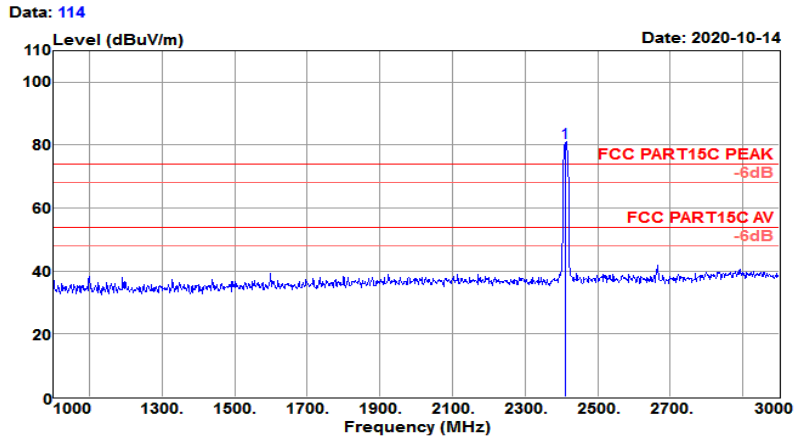


Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4824.000	54.91	30.95	6.09	58.24	33.71	54.00	-20.29	Average
4824.000	65.07	30.95	6.09	58.24	43.87	74.00	-30.13	Peak
7236.000	50.72	35.47	9.21	58.53	36.87	54.00	-17.13	Average
7236.000	64.17	35.47	9.21	58.53	50.32	74.00	-23.68	Peak
9648.000	50.43	38.42	12.32	58.03	43.14	54.00	-10.86	Average
9648.000	63.26	38.42	12.32	58.03	55.97	74.00	-18.03	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Vertical

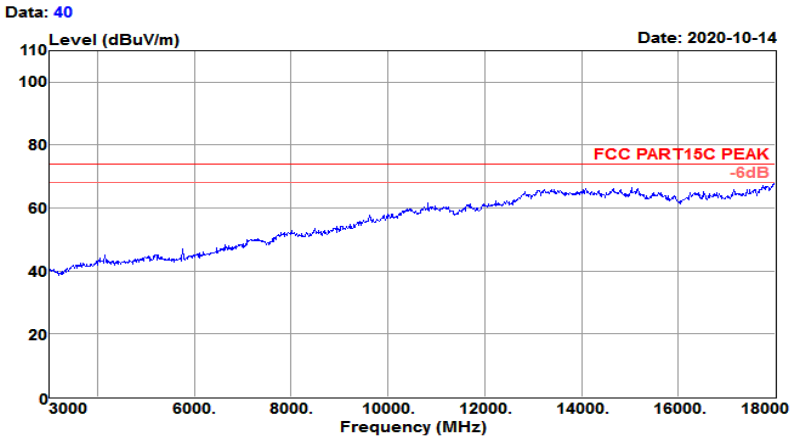
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : VERTICAL
Test Mode    : 802.11b CH01(2412MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



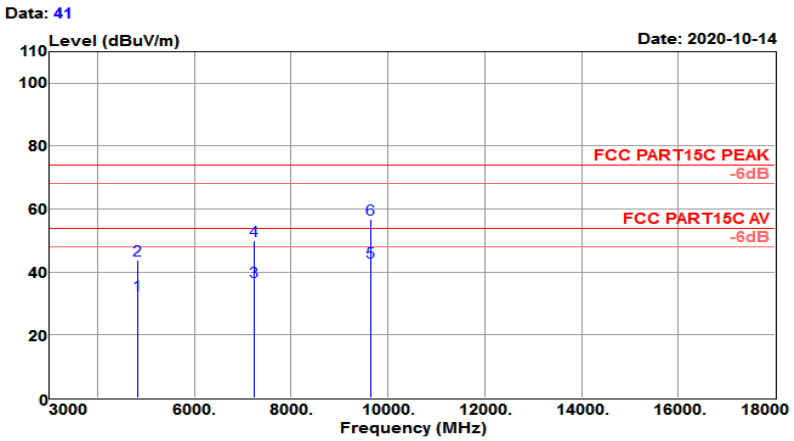
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2412.000	84.85	27.61	4.20	35.84	80.82	74.00	6.82	Peak

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Vertical

```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                -----------------
Tested by    : Jack                      Pol/Phase    : VERTICAL
               --------------------------                -----------------
Test Mode    : 802.11b CH01(2412MHz)     Power rating: DC 3.3V
               --------------------------                -----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11b CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

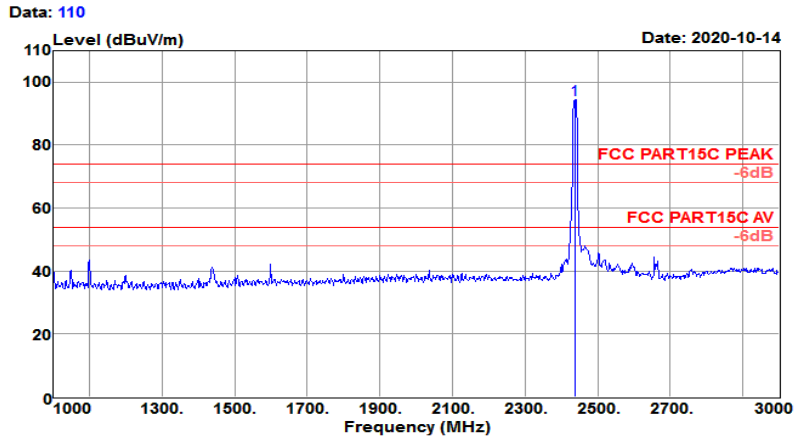


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4824.000	53.91	30.95	6.09	58.24	32.71	54.00	-21.29	Average
4824.000	64.99	30.95	6.09	58.24	43.79	74.00	-30.21	Peak
7236.000	50.73	35.47	9.21	58.53	36.88	54.00	-17.12	Average
7236.000	63.75	35.47	9.21	58.53	49.90	74.00	-24.10	Peak
9648.000	50.46	38.42	12.32	58.03	43.17	54.00	-10.83	Average
9648.000	64.17	38.42	12.32	58.03	56.88	74.00	-17.12	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11b CH06 (2437MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Horizontal

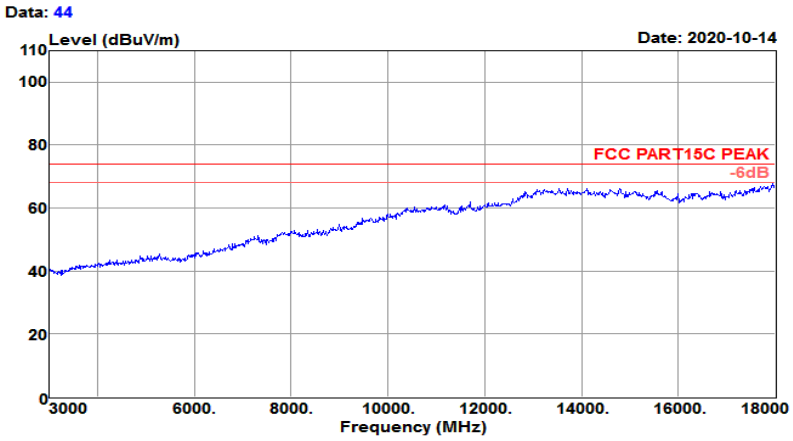
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
Test Mode    : 802.11b CH06(2437MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



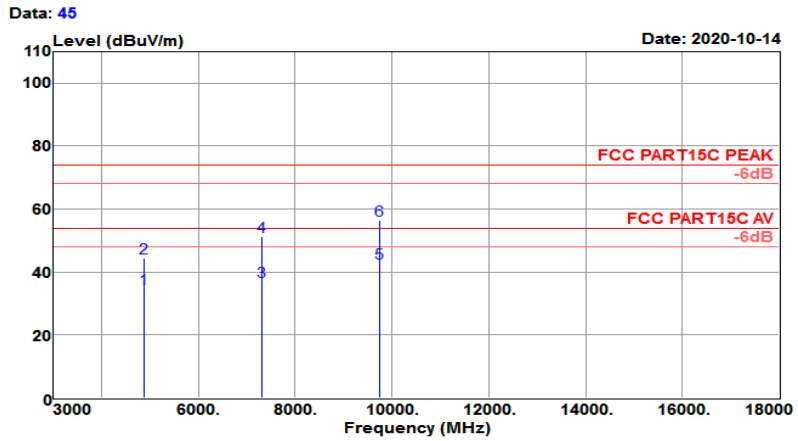
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2437.000	98.32	27.66	4.22	35.90	94.30	74.00	20.30	Peak

Test Mode :	802.11b CH06 (2437MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Horizontal

Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11b CH06(2437MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11b CH06(2437MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

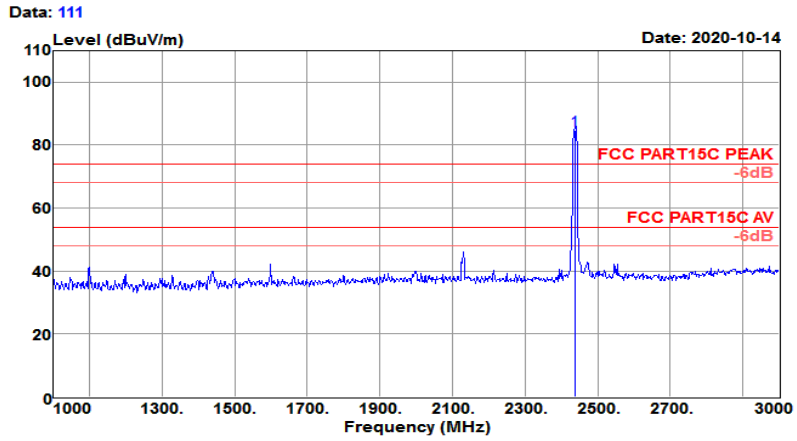


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4874.000	55.87	31.02	6.08	58.17	34.80	54.00	-19.20	Average
4874.000	65.52	31.02	6.08	58.17	44.45	74.00	-29.55	Peak
7311.000	50.72	35.65	9.20	58.56	37.01	54.00	-16.99	Average
7311.000	64.87	35.65	9.20	58.56	51.16	74.00	-22.84	Peak
9748.000	49.80	38.50	12.48	57.96	42.82	54.00	-11.18	Average
9748.000	63.38	38.50	12.48	57.96	56.40	74.00	-17.60	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11b CH06 (2437MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Vertical

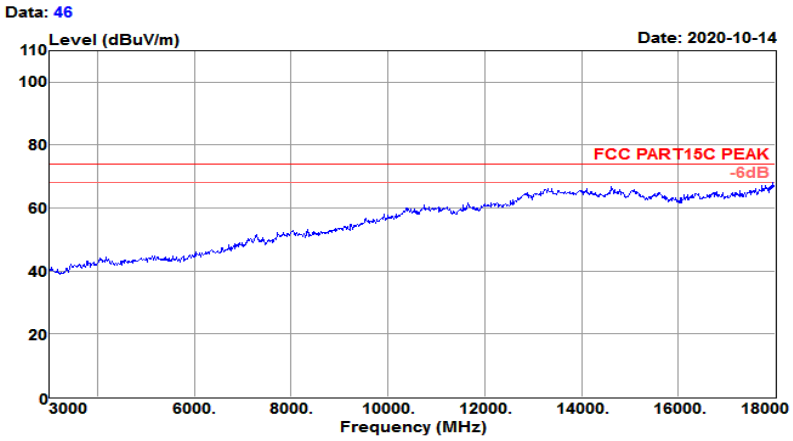
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                ----------------
Tested by    : Jack                      Pol/Phase    : VERTICAL
               --------------------------                ----------------
Test Mode    : 802.11b CH06(2437MHz)     Power rating: DC 3.3V
               --------------------------                ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



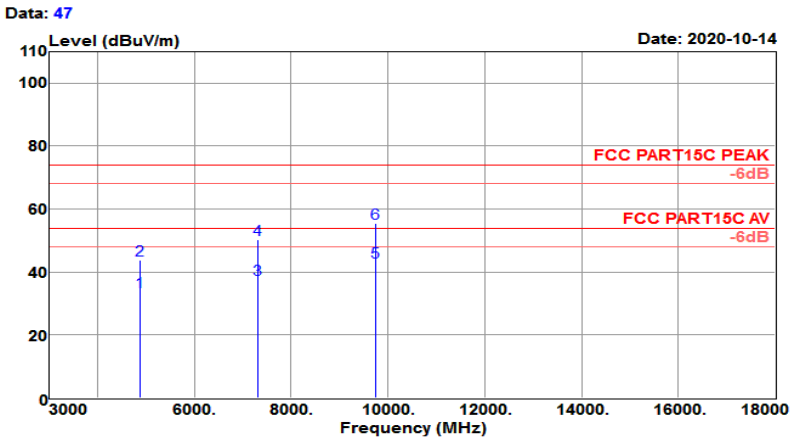
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2437.000	88.59	27.66	4.22	35.90	84.57	74.00	10.57	Peak

Test Mode :	802.11b CH06 (2437MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Vertical

Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11b CH06(2437MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11b CH06(2437MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

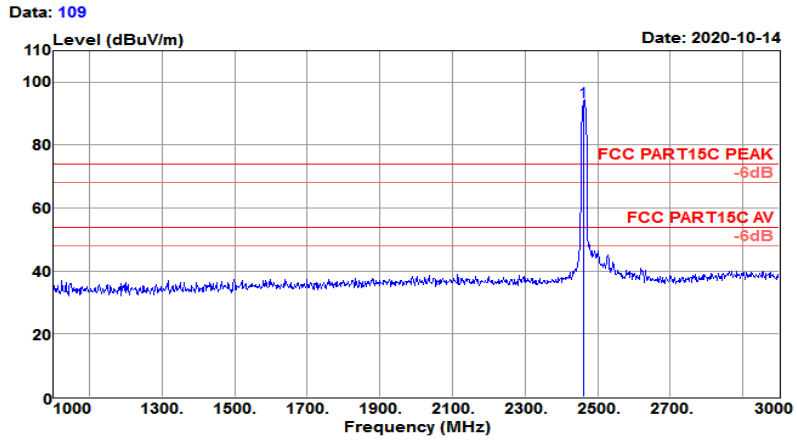


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4874.000	54.92	31.02	6.08	58.17	33.85	54.00	-20.15	Average
4874.000	64.81	31.02	6.08	58.17	43.74	74.00	-30.26	Peak
7311.000	51.26	35.65	9.20	58.56	37.55	54.00	-16.45	Average
7311.000	63.95	35.65	9.20	58.56	50.24	74.00	-23.76	Peak
9748.000	50.13	38.50	12.48	57.96	43.15	54.00	-10.85	Average
9748.000	62.42	38.50	12.48	57.96	55.44	74.00	-18.56	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11b CH11 (2462MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Horizontal

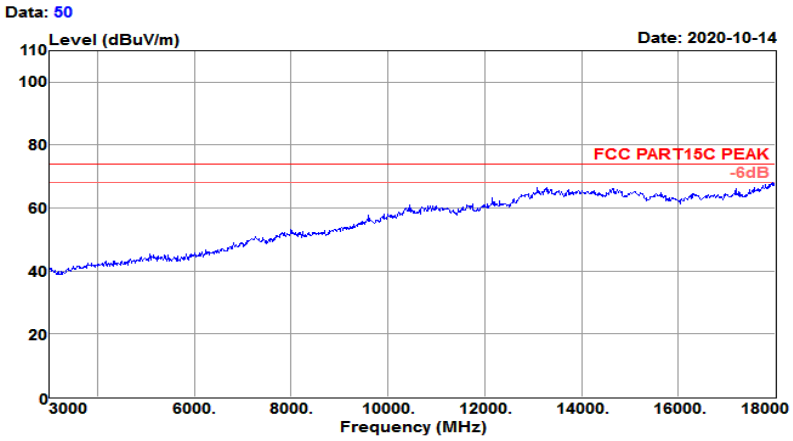
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                -----------------
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
               --------------------------                -----------------
Test Mode    : 802.11b CH11(2462MHz)     Power rating: DC 3.3V
               --------------------------                -----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



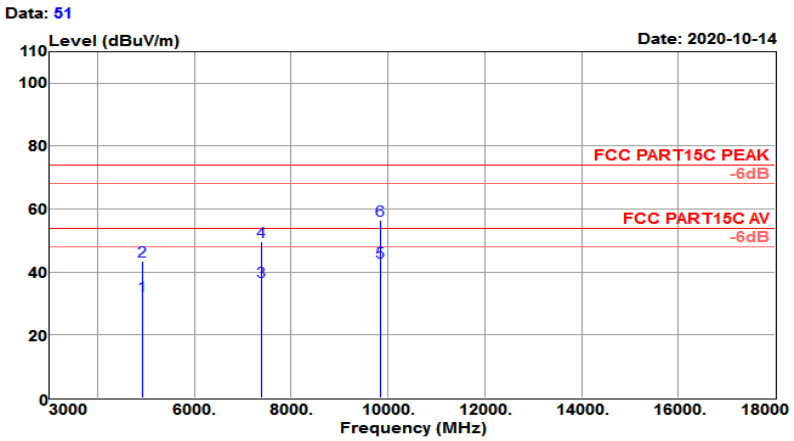
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2462.000	97.70	27.72	4.24	35.95	93.71	74.00	19.71	Peak

Test Mode :	802.11b CH11 (2462MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Horizontal

```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                -----------------
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
               --------------------------                -----------------
Test Mode    : 802.11b CH11(2462MHz)     Power rating: DC 3.3V
               --------------------------                -----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11b CH11(2462MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

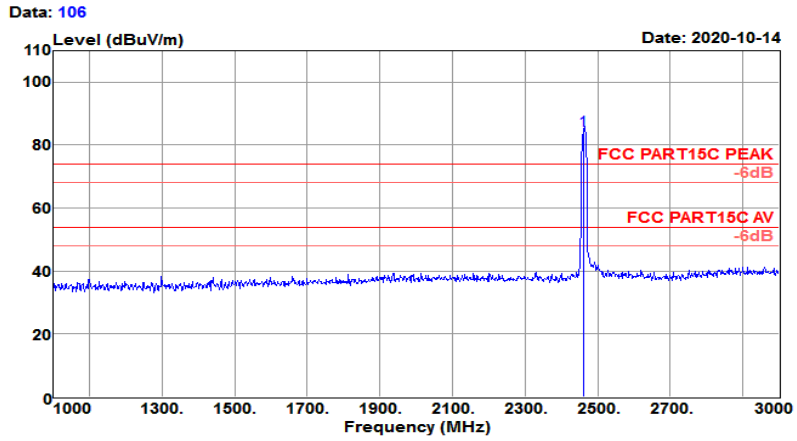


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4924.000	53.46	31.09	6.08	58.11	32.52	54.00	-21.48	Average
4924.000	64.35	31.09	6.08	58.11	43.41	74.00	-30.59	Peak
7386.000	50.43	35.83	9.18	58.59	36.85	54.00	-17.15	Average
7386.000	63.30	35.83	9.18	58.59	49.72	74.00	-24.28	Peak
9848.000	49.53	38.58	12.83	57.89	43.05	54.00	-10.95	Average
9848.000	62.98	38.58	12.83	57.89	56.50	74.00	-17.50	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11b CH11 (2462MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Vertical

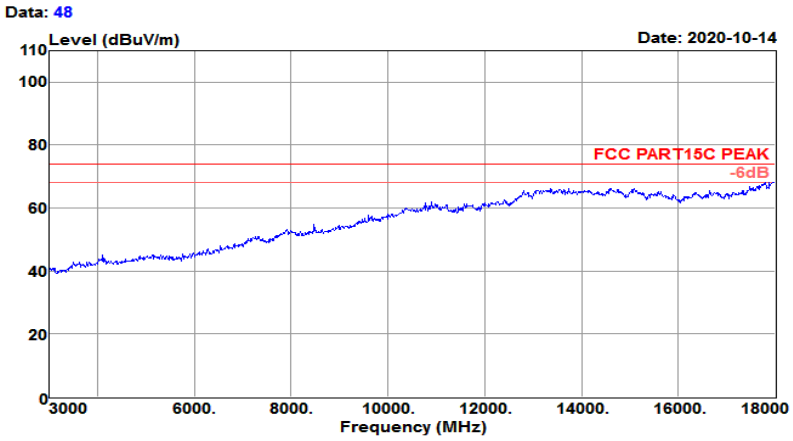
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------               ----------------
Tested by    : Jack                      Pol/Phase    : VERTICAL
               --------------------------               ----------------
Test Mode    : 802.11b CH11(2462MHz)     Power rating: DC 3.3V
               --------------------------               ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



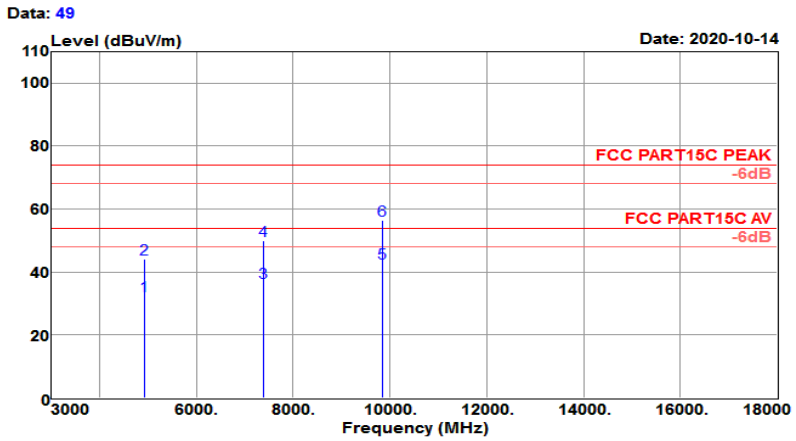
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2462.000	88.81	27.72	4.24	35.95	84.82	74.00	10.82	Peak

Test Mode :	802.11b CH11 (2462MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Vertical

```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------                     ----------
Tested by    : Jack                      Pol/Phase    : VERTICAL
               --------------------                     ----------
Test Mode    : 802.11b CH11(2462MHz)     Power rating: DC 3.3V
               --------------------                     ----------
EUT          : WIFI Module
               --------------------
Model No.    : 3161A-SL
               --------------------
```



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11b CH11(2462MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

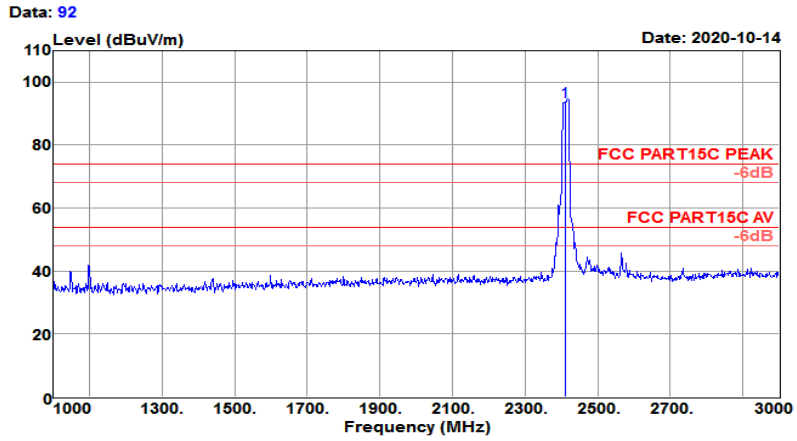


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4924.000	53.27	31.09	6.08	58.11	32.33	54.00	-21.67	Average
4924.000	64.93	31.09	6.08	58.11	43.99	74.00	-30.01	Peak
7386.000	50.14	35.83	9.18	58.59	36.56	54.00	-17.44	Average
7386.000	63.44	35.83	9.18	58.59	49.86	74.00	-24.14	Peak
9848.000	49.39	38.58	12.83	57.89	42.91	54.00	-11.09	Average
9848.000	62.93	38.58	12.83	57.89	56.45	74.00	-17.55	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11g CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Horizontal

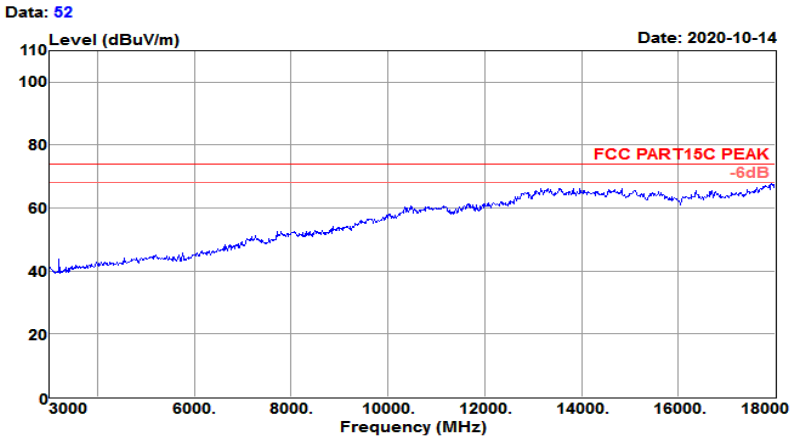
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                -----------------
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
               --------------------------                -----------------
Test Mode    : 802.11g CH01(2412MHz)     Power rating: DC 3.3V
               --------------------------                -----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



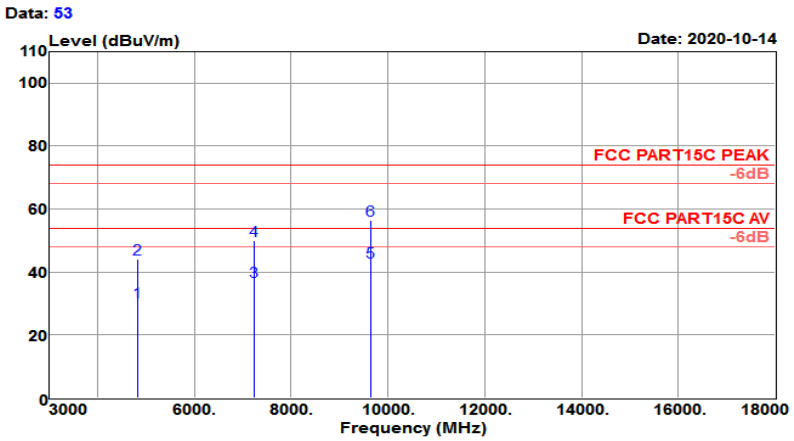
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2412.000	97.79	27.61	4.20	35.84	93.76	74.00	19.76	Peak

Test Mode :	802.11g CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Horizontal

Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11g CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11g CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

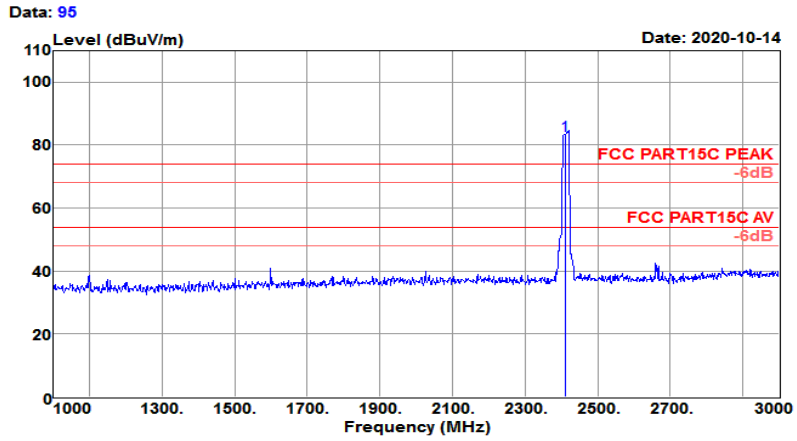


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4824.000	51.74	30.95	6.09	58.24	30.54	54.00	-23.46	Average
4824.000	65.32	30.95	6.09	58.24	44.12	74.00	-29.88	Peak
7236.000	50.72	35.47	9.21	58.53	36.87	54.00	-17.13	Average
7236.000	63.92	35.47	9.21	58.53	50.07	74.00	-23.93	Peak
9648.000	50.44	38.42	12.32	58.03	43.15	54.00	-10.85	Average
9648.000	63.78	38.42	12.32	58.03	56.49	74.00	-17.51	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11g CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Vertical

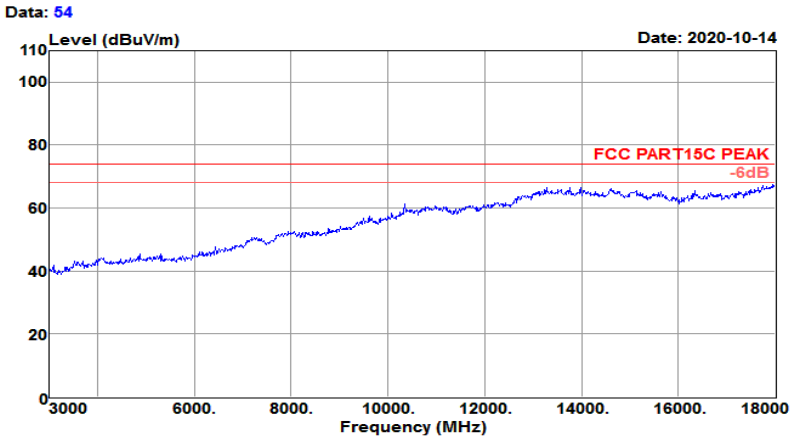
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                -----------------
Tested by    : Jack                      Pol/Phase    : VERTICAL
               --------------------------                -----------------
Test Mode    : 802.11g CH01(2412MHz)     Power rating: DC 3.3V
               --------------------------                -----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



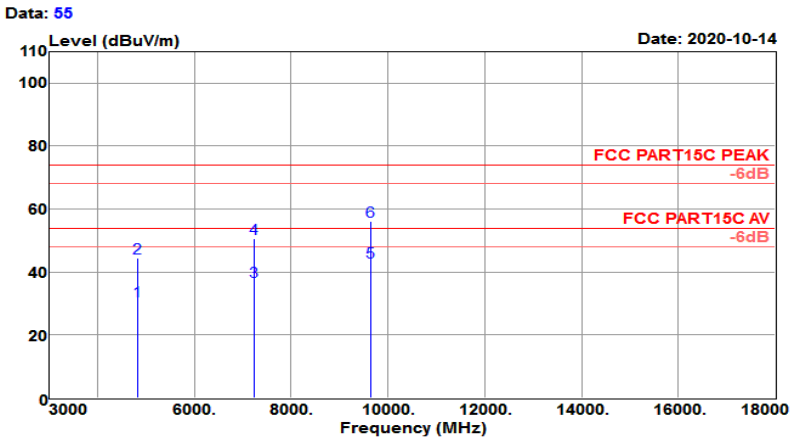
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2412.000	87.15	27.61	4.20	35.84	83.12	74.00	9.12	Peak

Test Mode :	802.11g CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Vertical

```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                -----------------
Tested by    : Jack                      Pol/Phase    : VERTICAL
               --------------------------                -----------------
Test Mode    : 802.11g CH01(2412MHz)     Power rating: DC 3.3V
               --------------------------                -----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11g CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

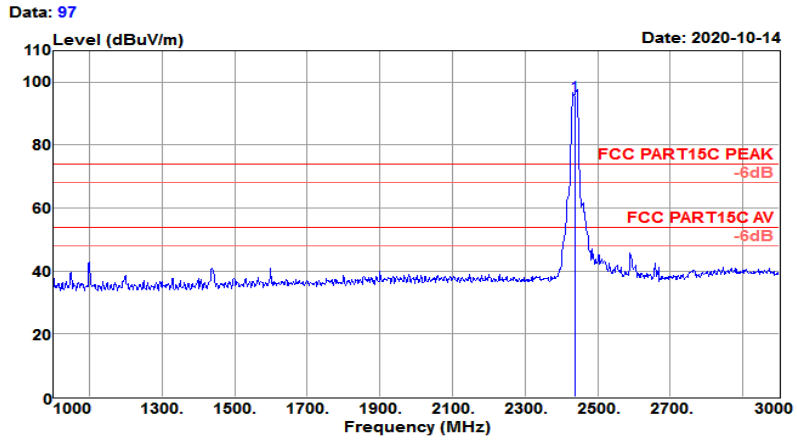


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4824.000	52.07	30.95	6.09	58.24	30.87	54.00	-23.13	Average
4824.000	65.73	30.95	6.09	58.24	44.53	74.00	-29.47	Peak
7236.000	50.88	35.47	9.21	58.53	37.03	54.00	-16.97	Average
7236.000	64.33	35.47	9.21	58.53	50.48	74.00	-23.52	Peak
9648.000	50.36	38.42	12.32	58.03	43.07	54.00	-10.93	Average
9648.000	63.37	38.42	12.32	58.03	56.08	74.00	-17.92	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11g CH06 (2437MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Horizontal

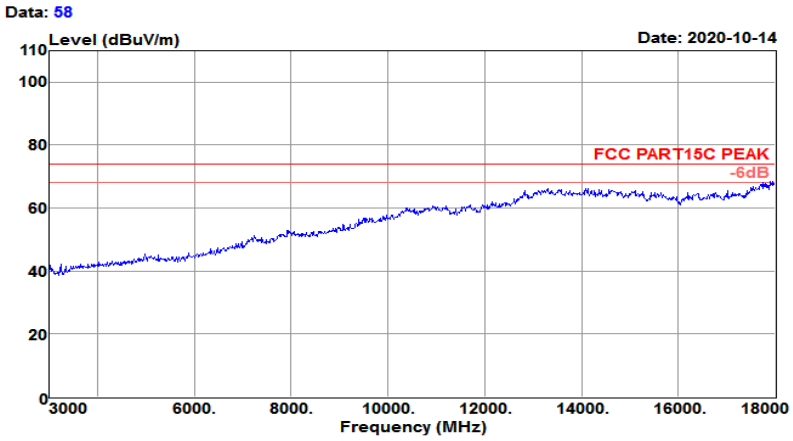
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                -----------------
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
               --------------------------                -----------------
Test Mode    : 802.11g CH06(2437MHz)     Power rating: DC 3.3V
               --------------------------                -----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



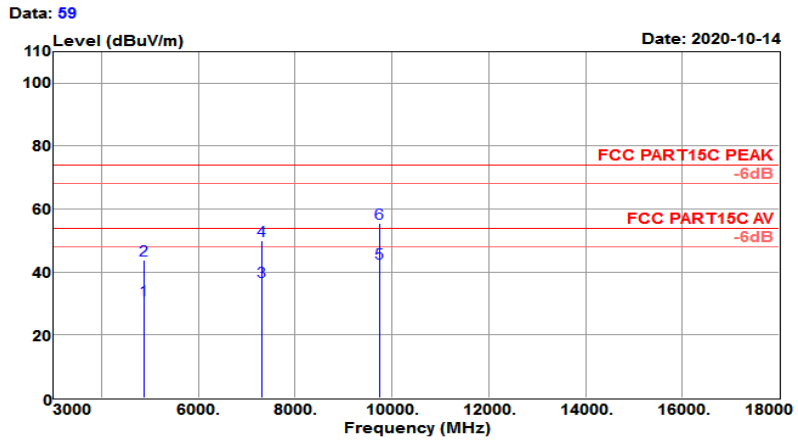
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2437.000	99.84	27.66	4.22	35.90	95.82	74.00	21.82	Peak

Test Mode :	802.11g CH06 (2437MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Horizontal

Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11g CH06(2437MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11g CH06(2437MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

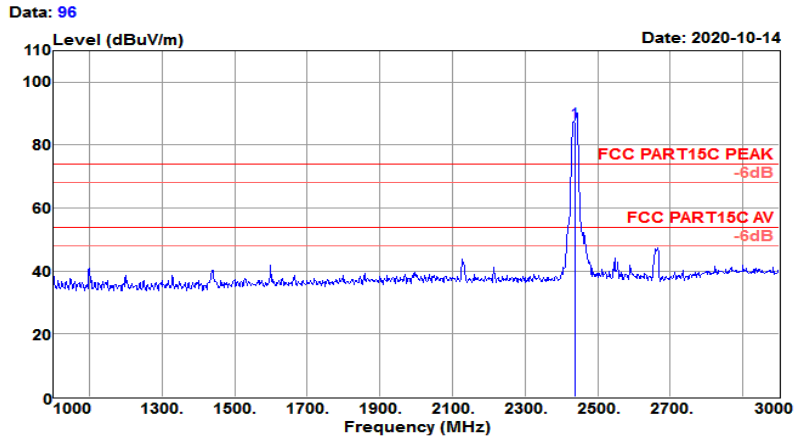


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4874.000	52.29	31.02	6.08	58.17	31.22	54.00	-22.78	Average
4874.000	65.03	31.02	6.08	58.17	43.96	74.00	-30.04	Peak
7311.000	50.72	35.65	9.20	58.56	37.01	54.00	-16.99	Average
7311.000	63.83	35.65	9.20	58.56	50.12	74.00	-23.88	Peak
9748.000	49.73	38.50	12.48	57.96	42.75	54.00	-11.25	Average
9748.000	62.61	38.50	12.48	57.96	55.63	74.00	-18.37	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11g CH06 (2437MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Vertical

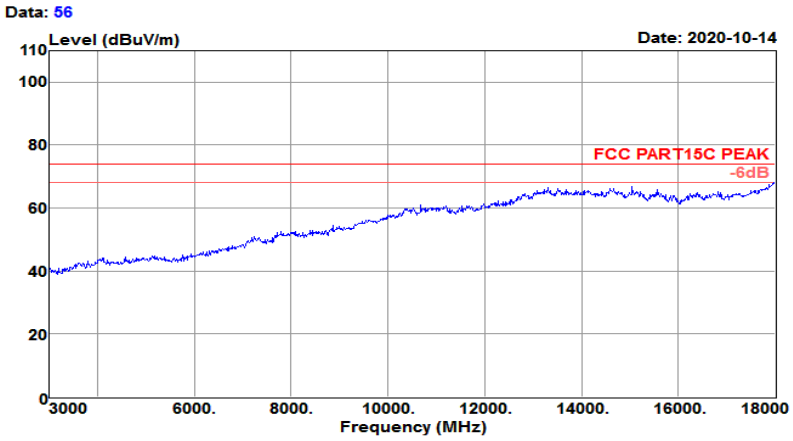
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : VERTICAL
Test Mode    : 802.11g CH06(2437MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



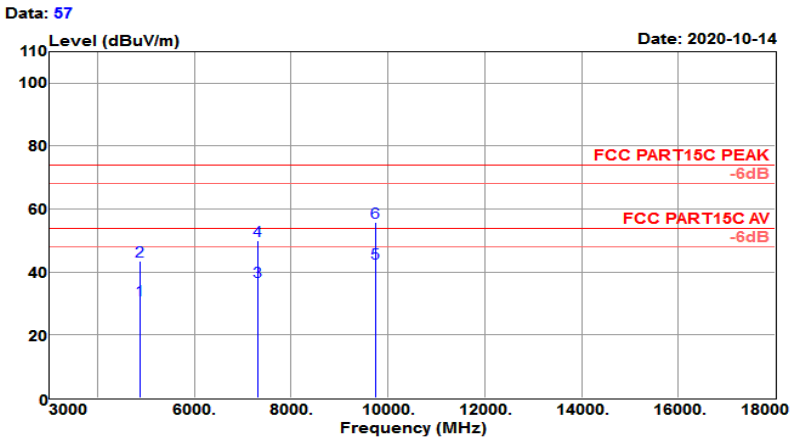
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2437.000	91.22	27.66	4.22	35.90	87.20	74.00	13.20	Peak

Test Mode :	802.11g CH06 (2437MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Vertical

Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11g CH06(2437MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11g CH06(2437MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

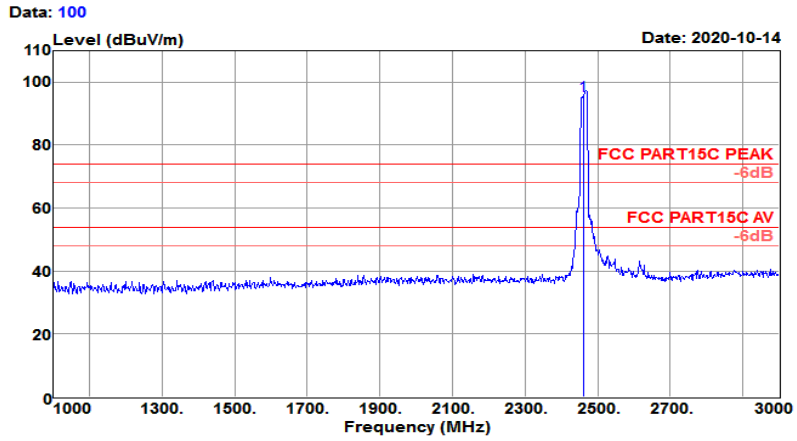


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4874.000	52.22	31.02	6.08	58.17	31.15	54.00	-22.85	Average
4874.000	64.63	31.02	6.08	58.17	43.56	74.00	-30.44	Peak
7311.000	50.73	35.65	9.20	58.56	37.02	54.00	-16.98	Average
7311.000	63.74	35.65	9.20	58.56	50.03	74.00	-23.97	Peak
9748.000	49.78	38.50	12.48	57.96	42.80	54.00	-11.20	Average
9748.000	62.81	38.50	12.48	57.96	55.83	74.00	-18.17	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11g CH11 (2462MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Horizontal

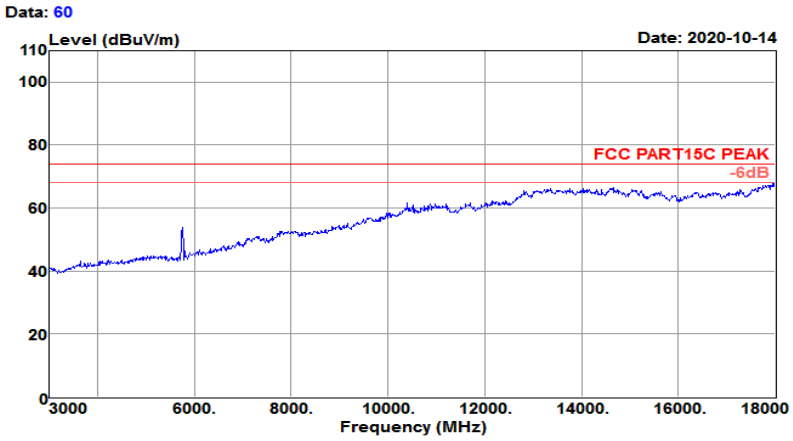
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                -----------------
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
               --------------------------                -----------------
Test Mode    : 802.11g CH11(2462MHz)     Power rating: DC 3.3V
               --------------------------                -----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



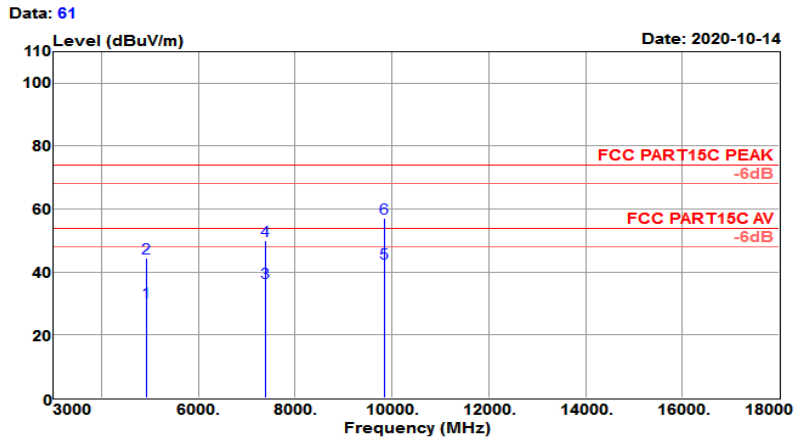
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2462.000	99.89	27.72	4.24	35.95	95.90	74.00	21.90	Peak

Test Mode :	802.11g CH11 (2462MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Horizontal

```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                -----------------
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
               --------------------------                -----------------
Test Mode    : 802.11g CH11(2462MHz)     Power rating: DC 3.3V
               --------------------------                -----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11g CH11(2462MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

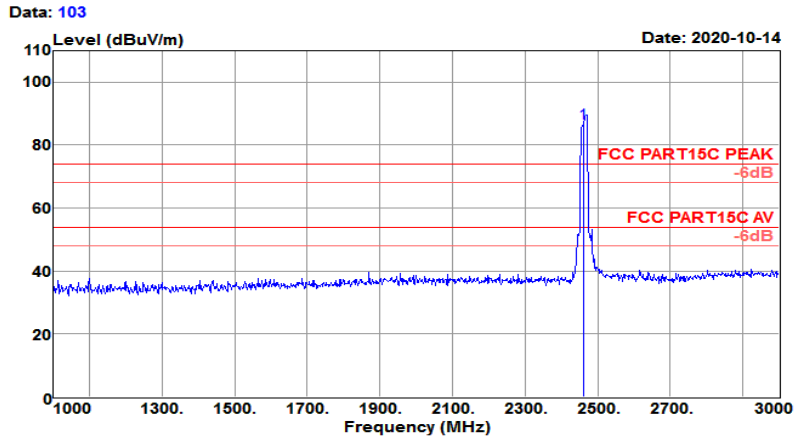


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4924.000	51.59	31.09	6.08	58.11	30.65	54.00	-23.35	Average
4924.000	65.52	31.09	6.08	58.11	44.58	74.00	-29.42	Peak
7386.000	50.17	35.83	9.18	58.59	36.59	54.00	-17.41	Average
7386.000	63.41	35.83	9.18	58.59	49.83	74.00	-24.17	Peak
9848.000	49.42	38.58	12.83	57.89	42.94	54.00	-11.06	Average
9848.000	63.69	38.58	12.83	57.89	57.21	74.00	-16.79	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11g CH11 (2462MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Vertical

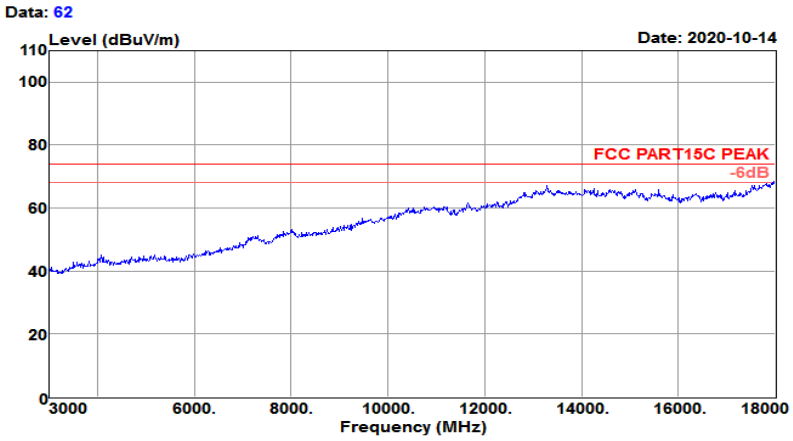
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : VERTICAL
Test Mode    : 802.11g CH11(2462MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



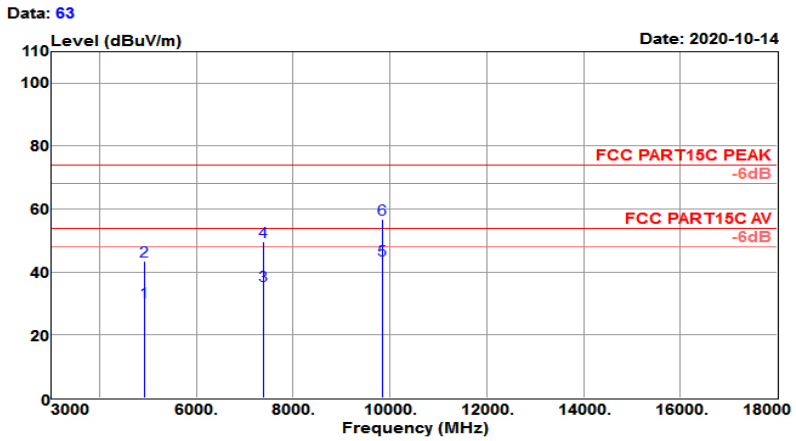
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2462.000	91.11	27.72	4.24	35.95	87.12	74.00	13.12	Peak

Test Mode :	802.11g CH11 (2462MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Vertical

```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                -----------------
Tested by    : Jack                      Pol/Phase    : VERTICAL
               --------------------------                -----------------
Test Mode    : 802.11g CH11(2462MHz)     Power rating: DC 3.3V
               --------------------------                -----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11g CH11(2462MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

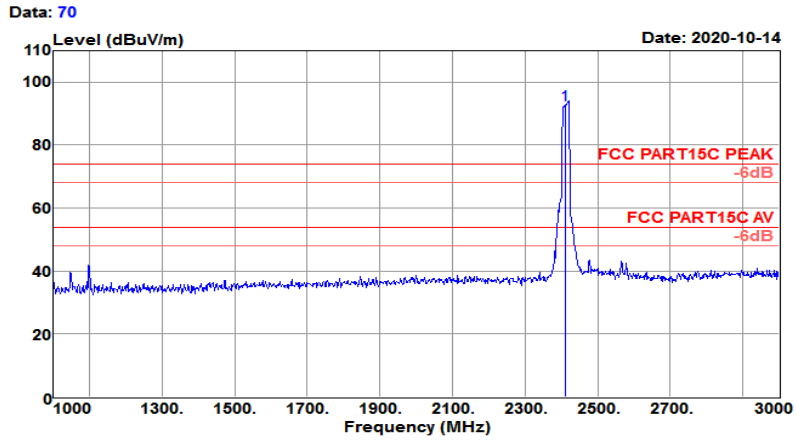


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4924.000	51.45	31.09	6.08	58.11	30.51	54.00	-23.49	Average
4924.000	64.55	31.09	6.08	58.11	43.61	74.00	-30.39	Peak
7386.000	49.23	35.83	9.18	58.59	35.65	54.00	-18.35	Average
7386.000	63.26	35.83	9.18	58.59	49.68	74.00	-24.32	Peak
9848.000	50.16	38.58	12.83	57.89	43.68	54.00	-10.32	Average
9848.000	63.35	38.58	12.83	57.89	56.87	74.00	-17.13	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11n HT20 CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Horizontal

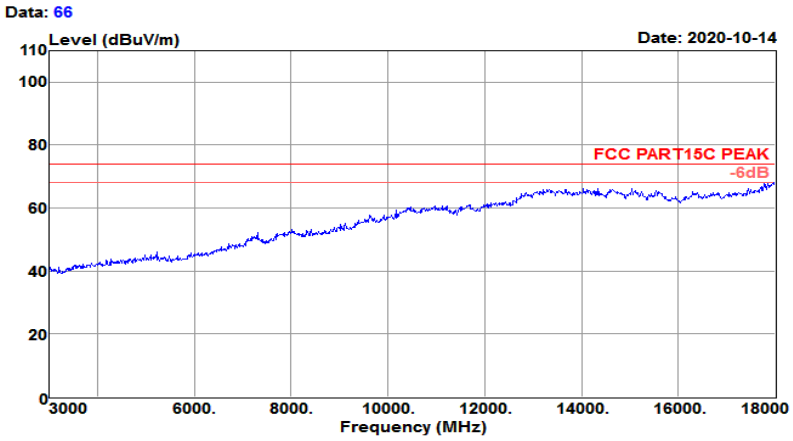
```
Test Site    : 3m Chamber                    Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                          Pol/Phase    : HORIZONTAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH01(2412MHz)    Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



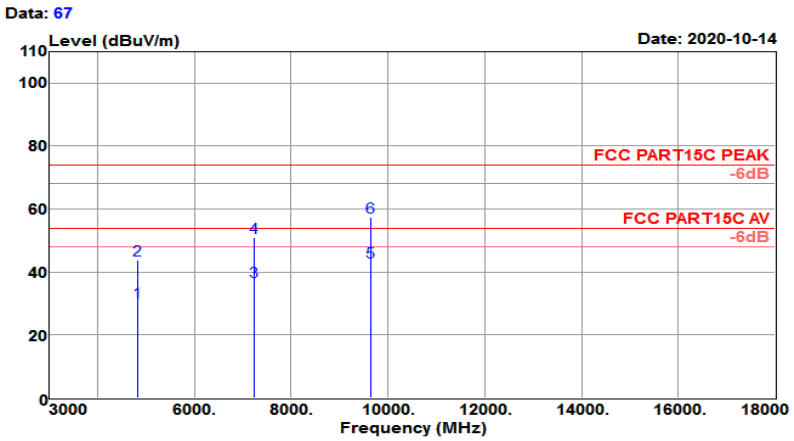
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2412.000	96.71	27.61	4.20	35.84	92.68	74.00	18.68	Peak

Test Mode :	802.11n HT20 CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Horizontal

```
Test Site    : 3m Chamber                  Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                        Pol/Phase    : HORIZONTAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH01(2412MHz)  Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11N HT20 CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

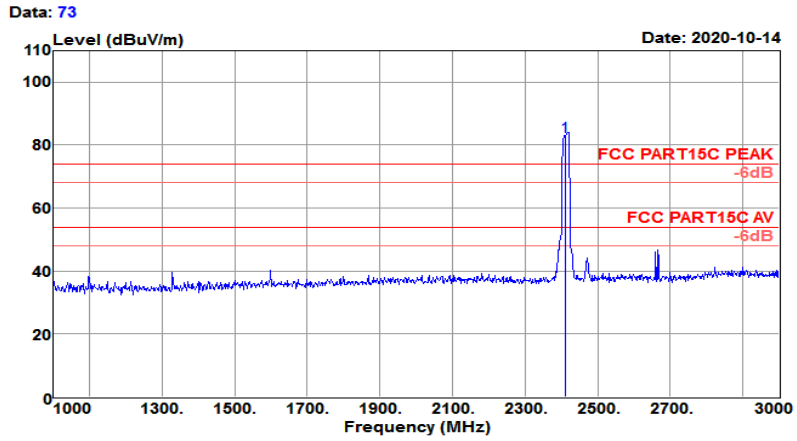


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4824.000	51.61	30.95	6.09	58.24	30.41	54.00	-23.59	Average
4824.000	64.93	30.95	6.09	58.24	43.73	74.00	-30.27	Peak
7236.000	50.80	35.47	9.21	58.53	36.95	54.00	-17.05	Average
7236.000	64.92	35.47	9.21	58.53	51.07	74.00	-22.93	Peak
9648.000	50.40	38.42	12.32	58.03	43.11	54.00	-10.89	Average
9648.000	64.64	38.42	12.32	58.03	57.35	74.00	-16.65	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11n HT20 CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Vertical

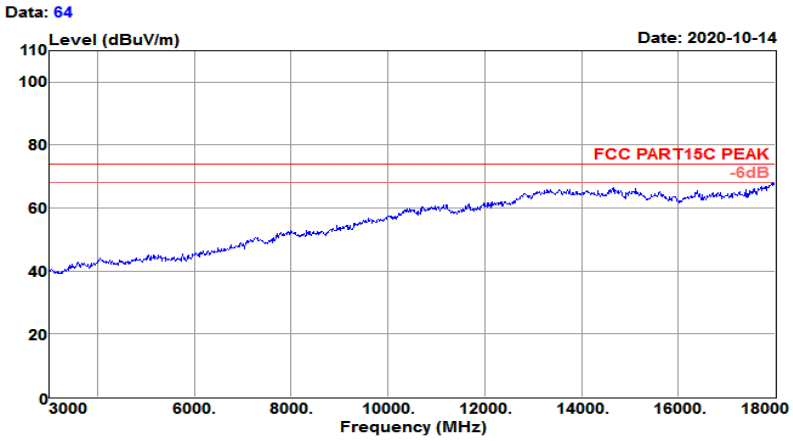
```
Test Site    : 3m Chamber                  Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                        Pol/Phase    : VERTICAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH01(2412MHz)  Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



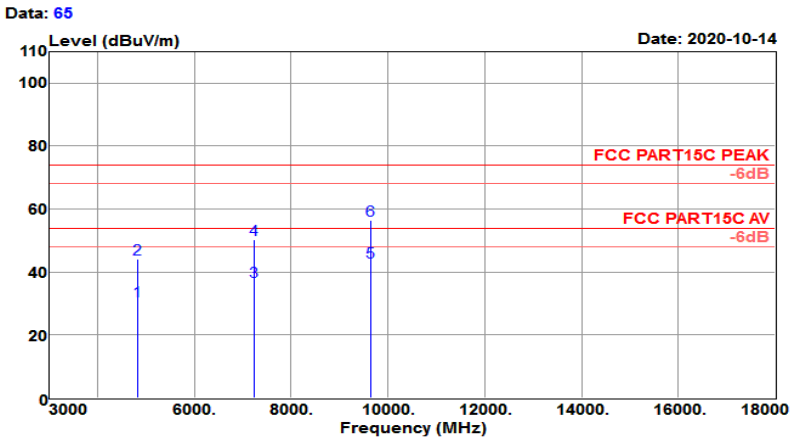
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2412.000	86.65	27.61	4.20	35.84	82.62	74.00	8.62	Peak

Test Mode :	802.11n HT20 CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Vertical

```
Test Site    : 3m Chamber                  Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                        Pol/Phase    : VERTICAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH01(2412MHz)  Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11N HT20 CH01(2412MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

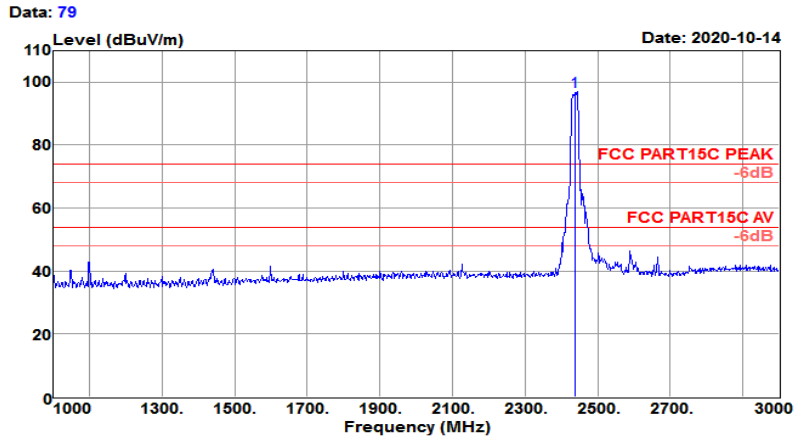


Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4824.000	52.16	30.95	6.09	58.24	30.96	54.00	-23.04	Average
4824.000	65.26	30.95	6.09	58.24	44.06	74.00	-29.94	Peak
7236.000	50.86	35.47	9.21	58.53	37.01	54.00	-16.99	Average
7236.000	64.01	35.47	9.21	58.53	50.16	74.00	-23.84	Peak
9648.000	50.40	38.42	12.32	58.03	43.11	54.00	-10.89	Average
9648.000	63.66	38.42	12.32	58.03	56.37	74.00	-17.63	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11n HT20 CH06 (2437MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Horizontal

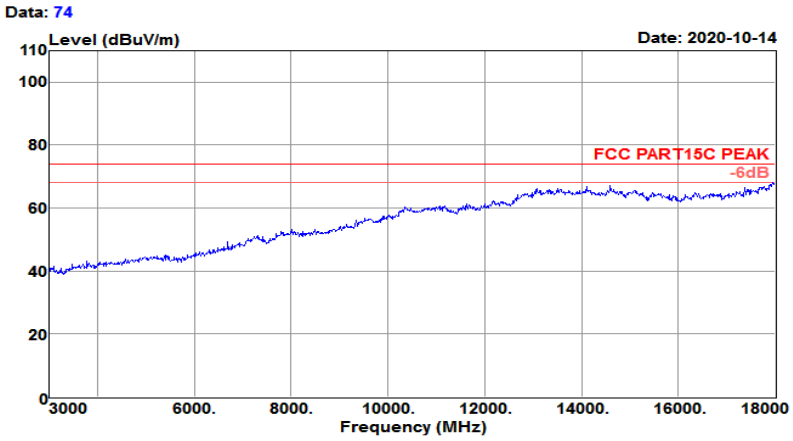
```
Test Site    : 3m Chamber                    Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                          Pol/Phase    : HORIZONTAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH06(2437MHz)    Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



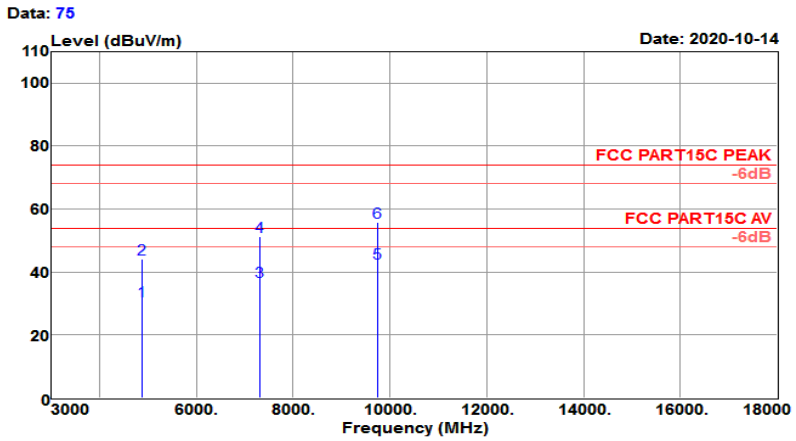
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2437.000	101.19	27.66	4.22	35.90	97.17	74.00	23.17	Peak

Test Mode :	802.11n HT20 CH06 (2437MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Horizontal

```
Test Site    : 3m Chamber                  Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                        Pol/Phase    : HORIZONTAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH06(2437MHz)  Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11N HT20 CH06(2437MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

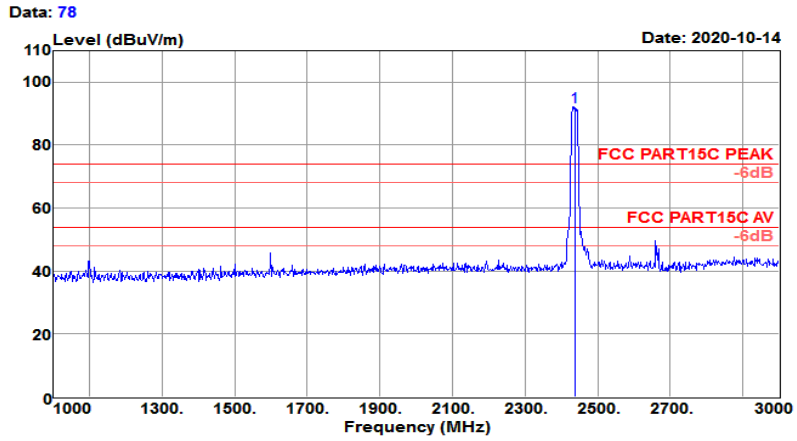


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4874.000	51.88	31.02	6.08	58.17	30.81	54.00	-23.19	Average
4874.000	65.12	31.02	6.08	58.17	44.05	74.00	-29.95	Peak
7311.000	50.79	35.65	9.20	58.56	37.08	54.00	-16.92	Average
7311.000	65.09	35.65	9.20	58.56	51.38	74.00	-22.62	Peak
9748.000	49.82	38.50	12.48	57.96	42.84	54.00	-11.16	Average
9748.000	62.69	38.50	12.48	57.96	55.71	74.00	-18.29	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11n HT20 CH06 (2437MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Vertical

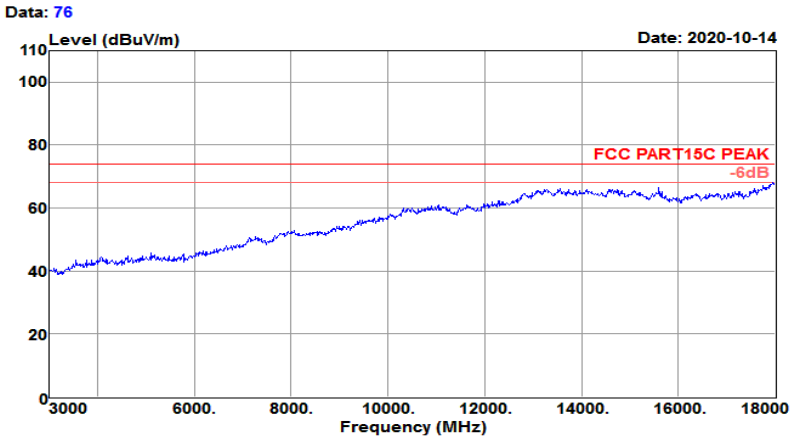
```
Test Site    : 3m Chamber                    Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                          Pol/Phase    : VERTICAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH06(2437MHz)    Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



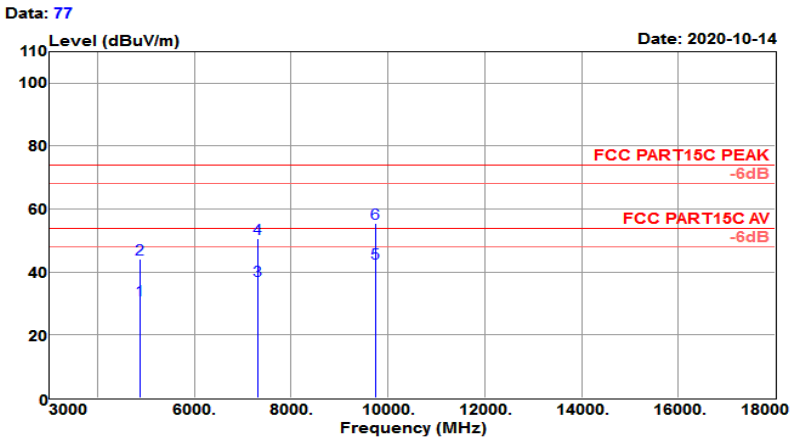
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2437.000	96.14	27.66	4.22	35.90	92.12	74.00	18.12	Peak

Test Mode :	802.11n HT20 CH06 (2437MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Vertical

```
Test Site    : 3m Chamber                  Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                        Pol/Phase    : VERTICAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH06(2437MHz)  Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11N HT20 CH06(2437MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

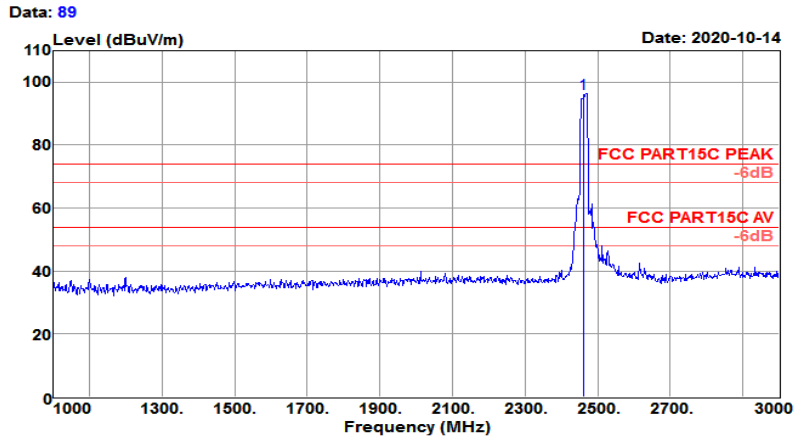


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4874.000	52.25	31.02	6.08	58.17	31.18	54.00	-22.82	Average
4874.000	65.06	31.02	6.08	58.17	43.99	74.00	-30.01	Peak
7311.000	51.05	35.65	9.20	58.56	37.34	54.00	-16.66	Average
7311.000	64.26	35.65	9.20	58.56	50.55	74.00	-23.45	Peak
9748.000	49.81	38.50	12.48	57.96	42.83	54.00	-11.17	Average
9748.000	62.53	38.50	12.48	57.96	55.55	74.00	-18.45	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11n HT20 CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Horizontal

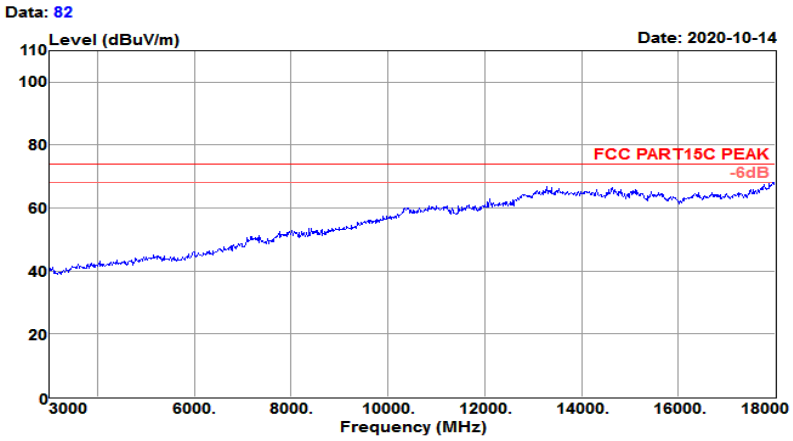
```
Test Site    : 3m Chamber                    Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                          Pol/Phase    : HORIZONTAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH11(2462MHz)    Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



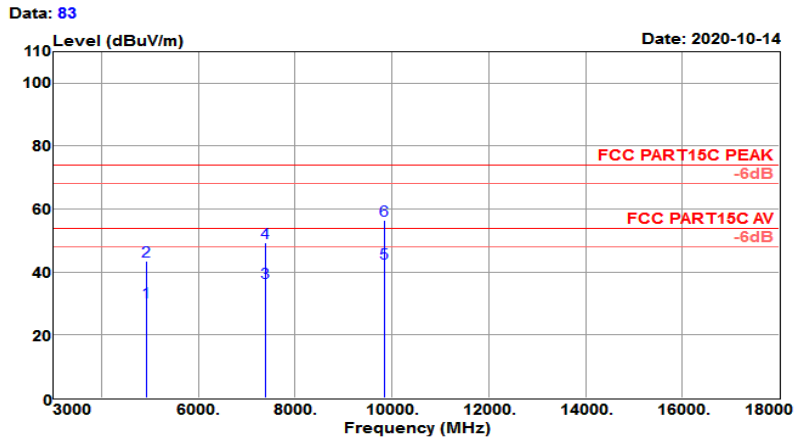
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
2462.000	100.50	27.72	4.24	35.95	96.51	74.00	22.51	Peak

Test Mode :	802.11n HT20 CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Horizontal

```
Test Site    : 3m Chamber                  Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                        Pol/Phase    : HORIZONTAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH11(2462MHz)  Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11N HT20 CH11(2462MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

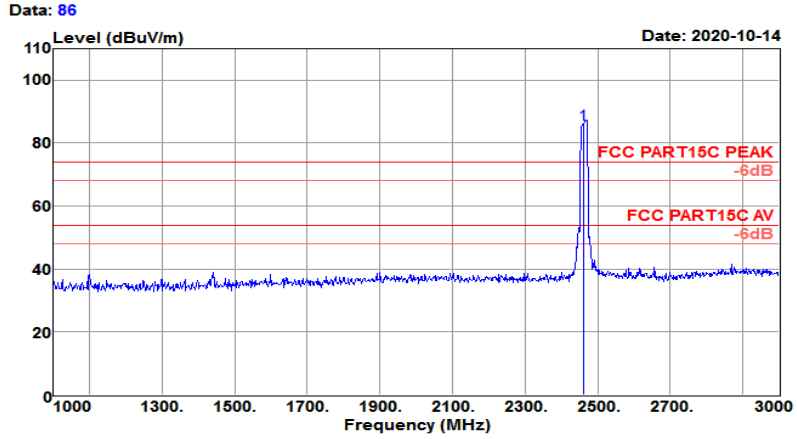


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4924.000	51.60	31.09	6.08	58.11	30.66	54.00	-23.34	Average
4924.000	64.36	31.09	6.08	58.11	43.42	74.00	-30.58	Peak
7386.000	50.21	35.83	9.18	58.59	36.63	54.00	-17.37	Average
7386.000	63.01	35.83	9.18	58.59	49.43	74.00	-24.57	Peak
9848.000	49.43	38.58	12.83	57.89	42.95	54.00	-11.05	Average
9848.000	62.90	38.58	12.83	57.89	56.42	74.00	-17.58	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Test Mode :	802.11n HT20 CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz	Polarization :	Vertical

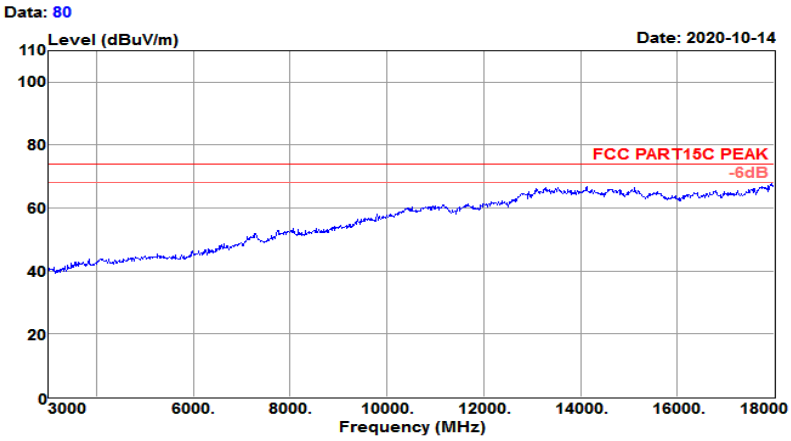
```
Test Site    : 3m Chamber                  Temp/Humi    : 25℃/64%
               --------------------------                 ----------------
Tested by    : Jack                        Pol/Phase    : VERTICAL
               --------------------------                 ----------------
Test Mode    : 802.11N HT20 CH11(2462MHz)  Power rating: DC 3.3V
               --------------------------                 ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2462.000	89.92	27.72	4.24	35.95	85.93	74.00	11.93	Peak

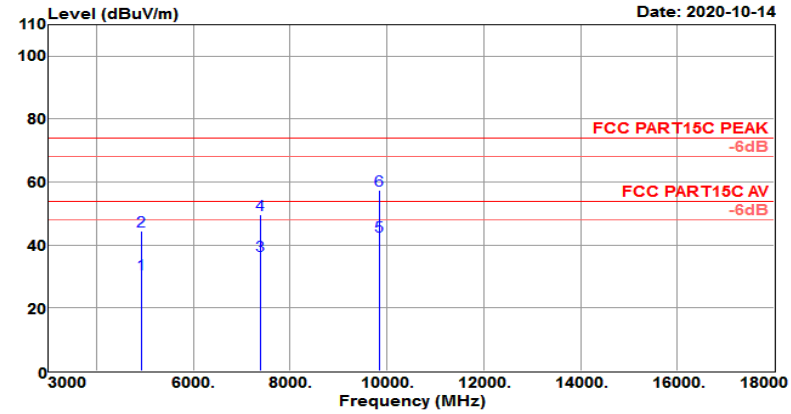
Test Mode :	802.11n HT20 CH11 (2462 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	3GHz~18GHz	Polarization :	Vertical

Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11N HT20 CH11(2462MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		



Test Site	: 3m Chamber	Temp/Humi	: 25℃/64%
Tested by	: Jack	Pol/Phase	: VERTICAL
Test Mode	: 802.11N HT20 CH11(2462MHz)	Power rating	: DC 3.3V
EUT	: WIFI Module		
Model No.	: 3161A-SL		

Data: 81



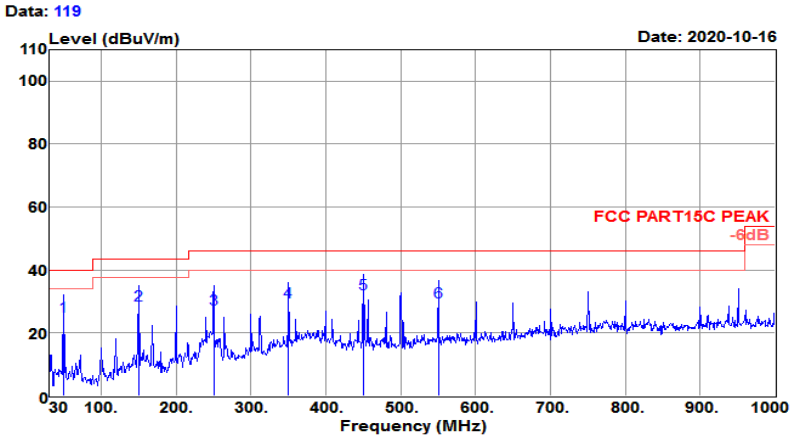
Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
4924.000	51.80	31.09	6.08	58.11	30.86	54.00	-23.14	Average
4924.000	65.44	31.09	6.08	58.11	44.50	74.00	-29.50	Peak
7386.000	50.25	35.83	9.18	58.59	36.67	54.00	-17.33	Average
7386.000	63.38	35.83	9.18	58.59	49.80	74.00	-24.20	Peak
9848.000	49.45	38.58	12.83	57.89	42.97	54.00	-11.03	Average
9848.000	63.92	38.58	12.83	57.89	57.44	74.00	-16.56	Peak

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

4.5.2 Test Result of Radiated Spurious Emission (30MHz ~ 1GHz)

Test Mode :	802.11b CH01 (2412 MHz)	**Temperature :**	23~25℃
Test Engineer :	Jack Liu	**Relative Humidity :**	63~65%
Frequencey Range	30MHz~1GHz	**Polarization :**	Horizontal

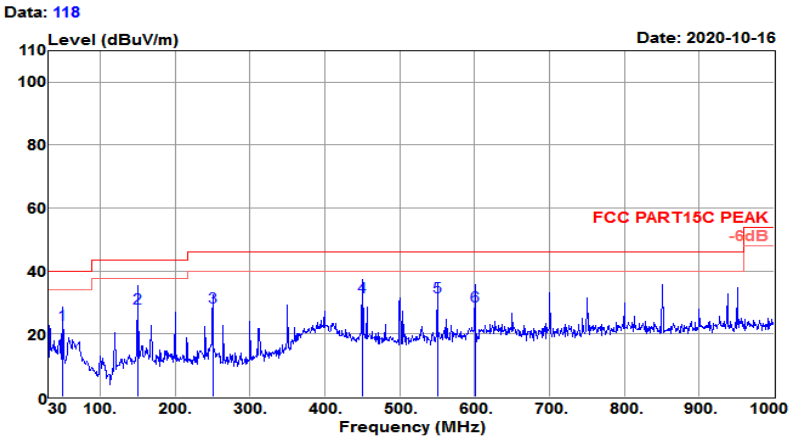
```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
               --------------------------                ----------------
Tested by    : Jack                      Pol/Phase    : HORIZONTAL
               --------------------------                ----------------
Test Mode    : 802.11b CH01(2412MHz)     Power rating: DC 3.3V
               --------------------------                ----------------
EUT          : WIFI Module
               --------------------------
Model No.    : 3161A-SL
               --------------------------
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
49.400	43.82	12.70	1.35	32.51	25.36	40.00	-14.64	QP
149.310	44.61	14.47	2.36	32.48	28.96	43.50	-14.54	QP
250.190	43.88	13.10	3.10	32.48	27.60	46.00	-18.40	QP
350.100	43.86	14.80	3.69	32.52	29.83	46.00	-16.17	QP
450.010	43.38	17.30	4.22	32.59	32.31	46.00	-13.69	QP
549.920	38.85	19.10	4.69	32.66	29.98	46.00	-16.02	QP

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	23~25℃
Test Engineer :	Jack Liu	Relative Humidity :	63~65%
Frequencey Range	30MHz~1GHz	Polarization :	Vertical

```
Test Site    : 3m Chamber                Temp/Humi    : 25℃/64%
Tested by    : Jack                      Pol/Phase    : VERTICAL
Test Mode    : 802.11b CH01(2412MHz)     Power rating: DC 3.3V
EUT          : WIFI Module
Model No.    : 3161A-SL
```



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
49.400	41.62	12.70	1.35	32.51	23.16	40.00	-16.84	QP
149.310	43.85	14.47	2.36	32.48	28.20	43.50	-15.30	QP
250.190	44.94	13.10	3.10	32.48	28.66	46.00	-17.34	QP
450.010	42.86	17.30	4.22	32.59	31.79	46.00	-14.21	QP
549.920	40.82	19.10	4.69	32.66	31.95	46.00	-14.05	QP
600.360	36.85	20.01	4.87	32.69	29.04	46.00	-16.96	QP

4.6 AC Conducted Emission Measurement

4.6.1 Limit of AC Conducted Emission

FCC §15.207

For equipment 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.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

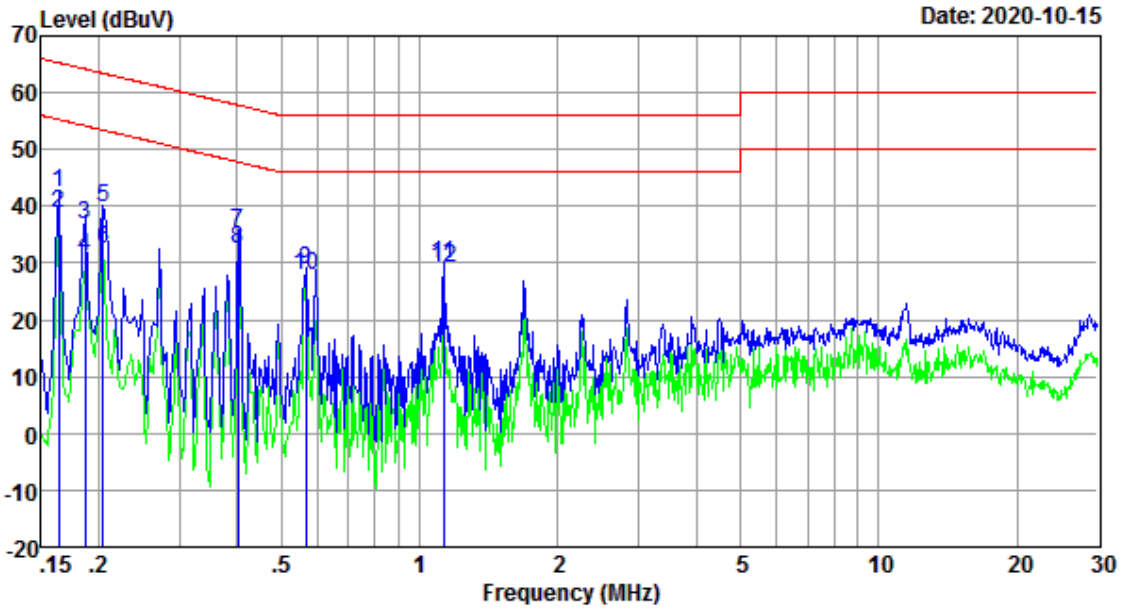
*Decreases with the logarithm of the frequency.

4.6.2 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

4.6.3 Test Result of AC Conducted Emission

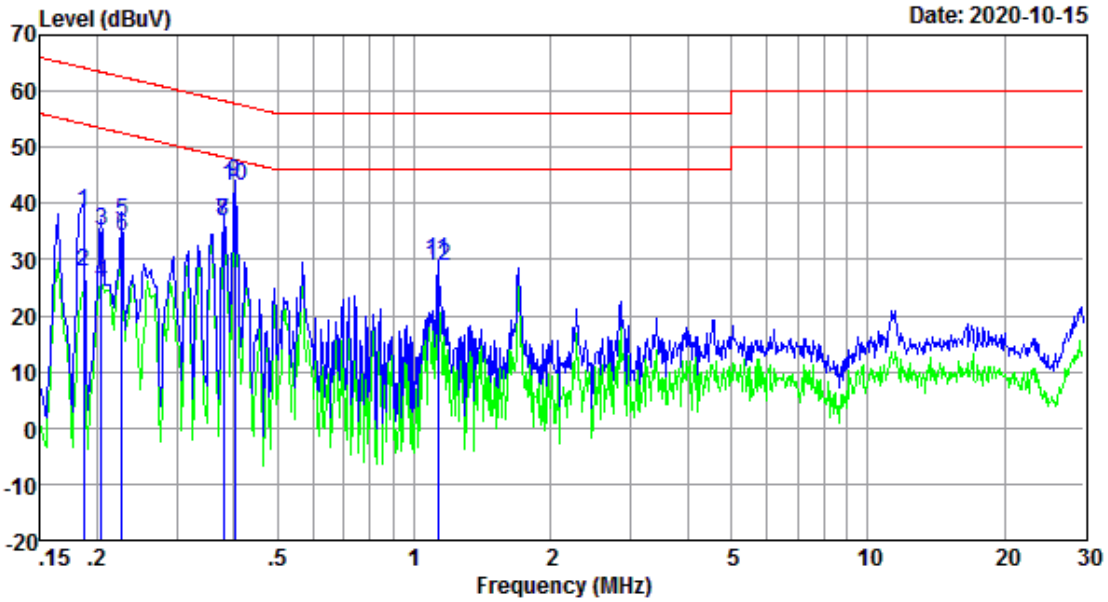
Test Mode :	Mode 1	**Temperature :**	20℃
Test Engineer :	Jack Liu	**Relative Humidity :**	64%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	WLAN Linking + Iperf + Adapter		



Freq MHz	Reading level dBuV	LISN/ISN factor dB	Cable loss dB	Result level dBuV	Limit level dBuV	Over limit dB	Remark
0.163	32.81	9.54	0.02	42.37	65.30	-22.93	QP
0.163	29.11	9.54	0.02	38.67	55.30	-16.63	Average
0.186	27.24	9.55	0.03	36.82	64.20	-27.38	QP
0.186	21.62	9.55	0.03	31.20	54.20	-23.00	Average
0.204	30.18	9.55	0.03	39.76	63.45	-23.69	QP
0.204	22.95	9.55	0.03	32.53	53.45	-20.92	Average
0.402	25.93	9.56	0.02	35.51	57.81	-22.30	QP
0.402	22.84	9.56	0.02	32.42	47.81	-15.39	Average
0.564	19.13	9.56	0.02	28.71	56.00	-27.29	QP
0.564	18.29	9.56	0.02	27.87	46.00	-18.13	Average
1.129	20.23	9.57	0.01	29.81	56.00	-26.19	QP
1.129	19.47	9.57	0.01	29.05	46.00	-16.95	Average

Result Level= Reading Level + LISN Factor + Cable Loss

Test Mode :	Mode 1	Temperature :	20℃
Test Engineer :	Jack Liu	Relative Humidity :	64%
Test Voltage :	120Vac / 60Hz	Phase :	NEUTRAL
Function Type :	WLAN Linking + Iperf + Adapter		



Freq	Reading level	LISN/ISN factor	Cable loss	Result level	Limit level	Over limit	Remark
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
0.186	28.93	9.56	0.03	38.52	64.20	-25.68	QP
0.186	18.24	9.56	0.03	27.83	54.20	-26.37	Average
0.204	25.39	9.56	0.03	34.98	63.45	-28.47	QP
0.204	16.12	9.56	0.03	25.71	53.45	-27.74	Average
0.227	27.35	9.57	0.03	36.95	62.57	-25.62	QP
0.227	24.68	9.57	0.03	34.28	52.57	-18.29	Average
0.379	27.16	9.58	0.02	36.76	58.30	-21.54	QP
0.379	27.31	9.58	0.02	36.91	48.30	-11.39	Average
0.402	34.12	9.58	0.02	43.72	57.81	-14.09	QP
0.402	33.36	9.58	0.02	42.96	47.81	-4.85	Average
1.129	20.23	9.60	0.01	29.84	56.00	-26.16	QP
1.129	19.14	9.60	0.01	28.75	46.00	-17.25	Average

Result Level= Reading Level + LISN Factor + Cable Loss

4.7 Antenna Requirements

4.7.1 Standard Applicable

According to antenna requirement of §15.203.

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be re-placed by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded..

And according to §15.247(4)(1), system operating in the 2400-2483.5MHz bands that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 Antenna Connected Construction

An FPC antenna design is used.

4.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
Spectrum Analyzer	Keysight	N9010A	MY56070788	2020-01-15	2021-01-14	Conducted
Power Sensor	Keysight	U2021XA	MY56510025	2020-01-16	2021-01-15	Conducted
Power Sensor	Keysight	U2021XA	MY57030005	2020-01-16	2021-01-15	Conducted
Power Sensor	Keysight	U2021XA	MY56510018	2020-01-16	2021-01-15	Conducted
Power Sensor	Keysight	U2021XA	MY56480002	2020-01-16	2021-01-15	Conducted
Thermal Chamber	Sanmtest	SMC-408-CD	2435	2020-05-09	2021-05-08	Conducted
Base Station	R&S	CMW 270	101231	2020-01-16	2021-01-15	Conducted
Signal Generator (Interferer)	Keysight	N5182B	MY56200384	2020-02-21	2021-02-20	Conducted
Signal Generator (Blocker)	Keysight	N5171B	MY56200661	2020-01-15	2021-01-14	Conducted

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV 40	101433	2020-01-16	2021-01-15	Radiation
Amplifier	Sonoma	310	363917	2020-01-15	2021-01-14	Radiation
Amplifier	Schwarzbeck	BBV 9718	327	2020-01-15	2021-01-14	Radiation
Amplifier	Narda	TTA1840-35-HG	2034380	2020-05-14	2021-05-15	Radiation
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-051	2020-02-14	2023-02-13	Radiation
Broadband Antenna	Schwarzbeck	VULB 9168	9168-757	2018-08-31	2021-08-30	Radiation
Horn Antenna	Schwarzbeck	BBHA 9120 D	1677	2020-02-14	2023-02-13	Radiation
Horn Antenna	COM-POWER	AH-1840	101117	2018-06-20	2021-06-19	Radiation
Test Software	Auidx	E3	6.111221a	N/A	N/A	Radiation
Filter	Micro-Tronics	BRM 50702	G266	N/A	N/A	Radiation

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
LISN	R&S	ENV216	102125	2020-01-08	2021-01-07	Conducted
LISN	R&S	ENV432	101327	2020-01-08	2021-01-07	Conducted
EMI Test Receiver	R&S	ESR3	102143	2020-01-16	2021-01-15	Conducted
EMI Test Software	Audix	E3	N/A	N/A	N/A	Conducted

N/A: No Calibration Required

6 Uncertainty of Evaluation

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.42dB
Radiated emission	30MHz ~ 1GMHz	2.50dB
	1GHz ~ 18GHz	3.51dB
	18GHz ~ 40GHz	3.96dB

MEASUREMENT	UNCERTAINTY
Occupied Channel Bandwidth	±196.4Hz
RF output power, conducted	±2.31dB
Power density, conducted	±2.31dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

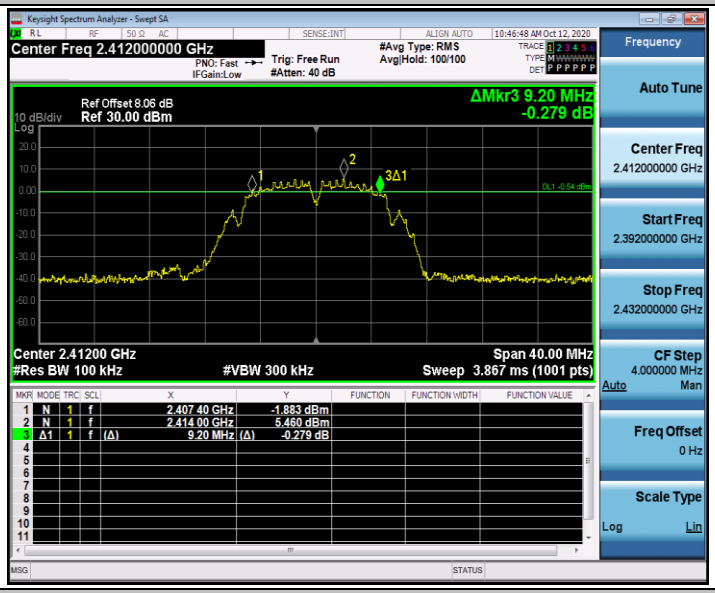
7 Appendix Report

Appendix A: DTS Bandwidth

Test Result

TestMode	Antenna	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	9.200	2407.400	2416.600	>=0.5	PASS
		2437	9.160	2432.400	2441.560	>=0.5	PASS
		2462	9.200	2457.400	2466.600	>=0.5	PASS
11G	Ant1	2412	16.440	2403.760	2420.200	>=0.5	PASS
		2437	16.440	2428.760	2445.200	>=0.5	PASS
		2462	16.440	2453.800	2470.240	>=0.5	PASS
11N20SISO	Ant1	2412	17.680	2403.160	2420.840	>=0.5	PASS
		2437	17.680	2428.160	2445.840	>=0.5	PASS
		2462	17.680	2453.160	2470.840	>=0.5	PASS

Test Graphs

11B_Ant1_2412

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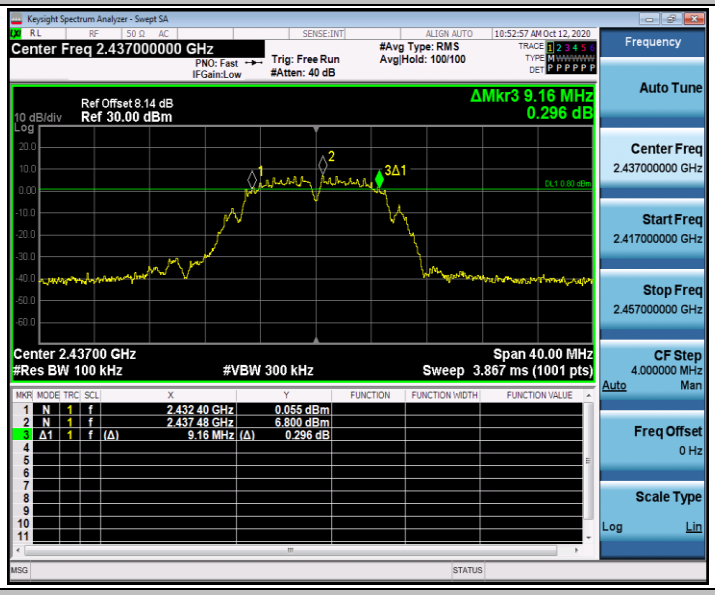
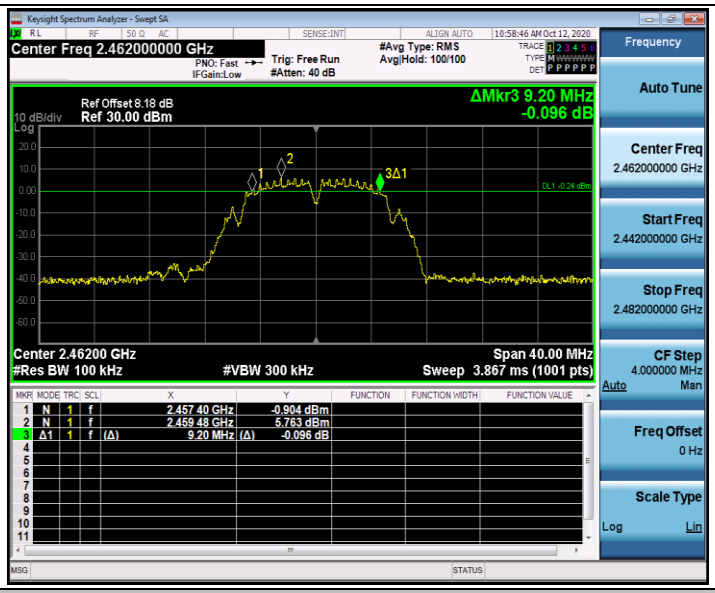
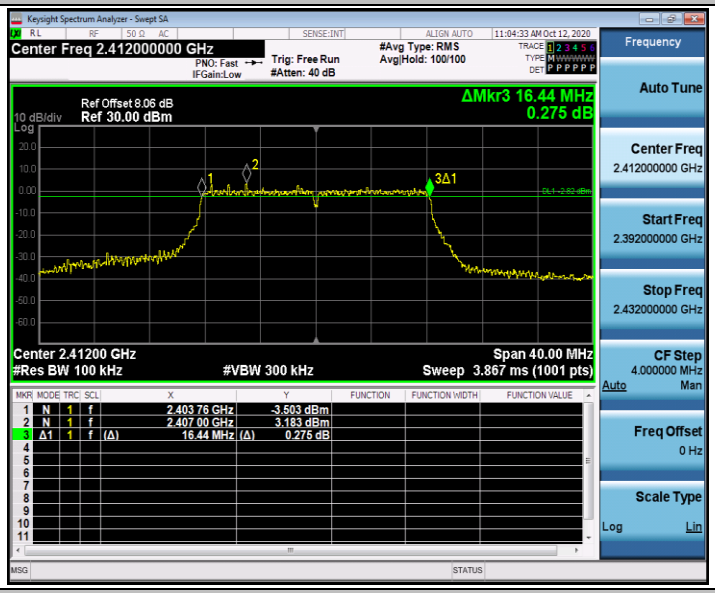
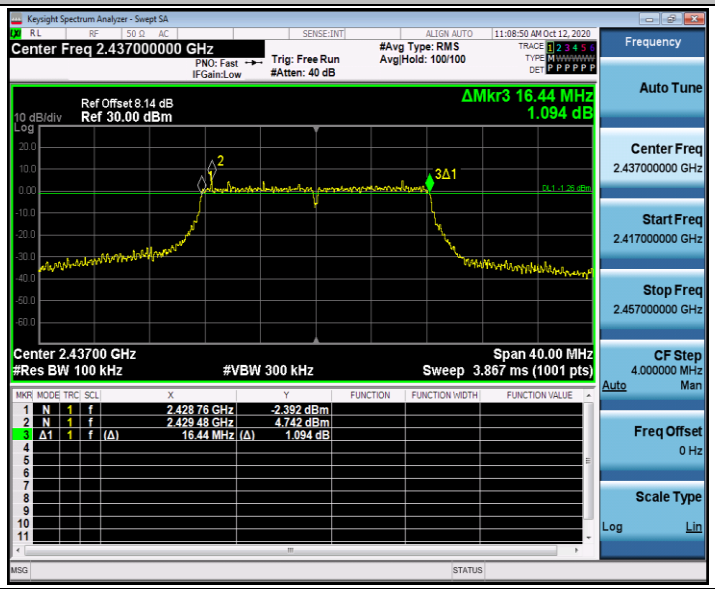

11B_Ant1_2462



11G_Ant1_2412



11G_Ant1_2437



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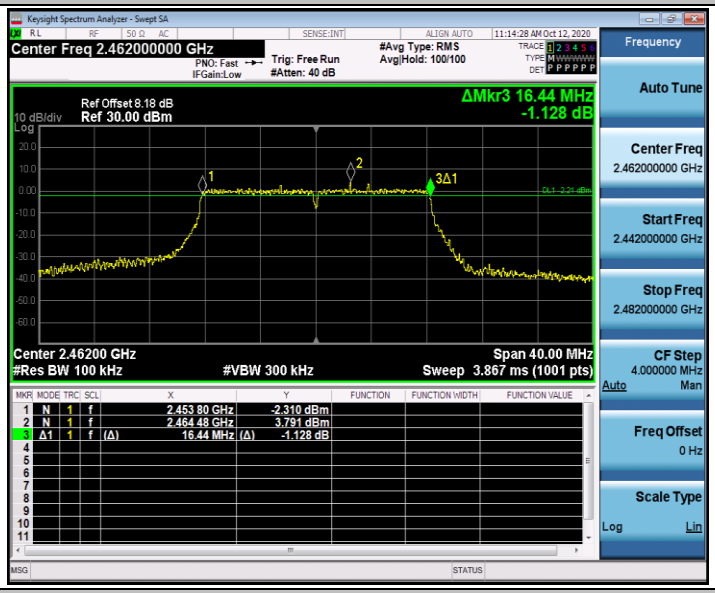
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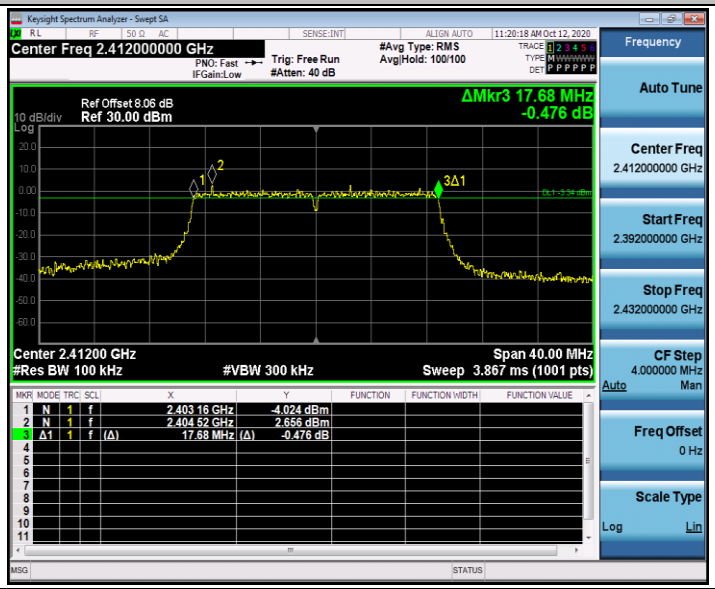
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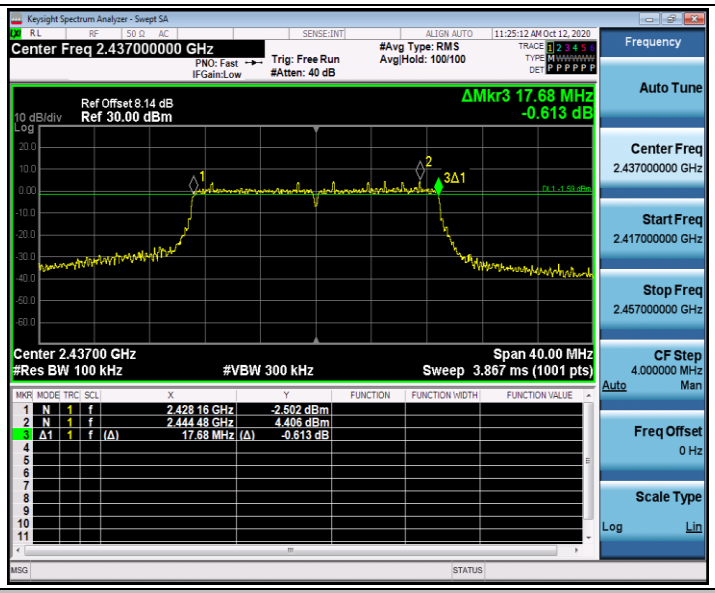

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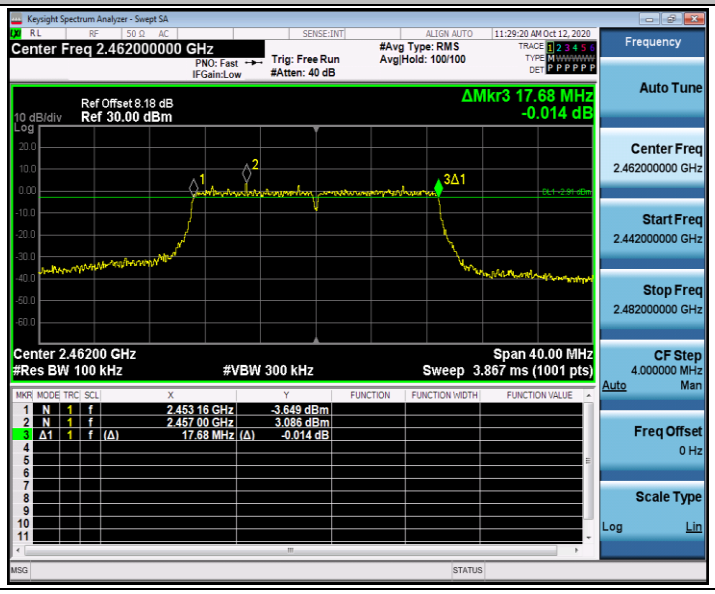
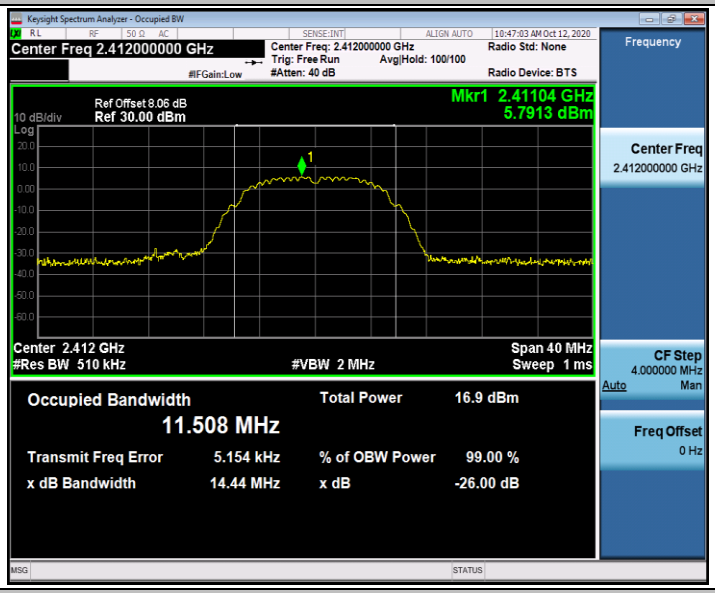


Appendix B: Occupied Channel Bandwidth

Test Result

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	11.508	2406.251	2417.759	---	PASS
		2437	11.399	2431.305	2442.704	---	PASS
		2462	11.453	2456.282	2467.735	---	PASS
11G	Ant1	2412	16.987	2403.481	2420.468	---	PASS
		2437	16.959	2428.505	2445.464	---	PASS
		2462	16.875	2453.554	2470.429	---	PASS
11N20SISO	Ant1	2412	17.908	2403.045	2420.953	---	PASS
		2437	17.876	2428.079	2445.955	---	PASS
		2462	17.919	2453.049	2470.968	---	PASS

Test Graphs

11B_Ant1_2412

11B_Ant1_2437

11B_Ant1_2462

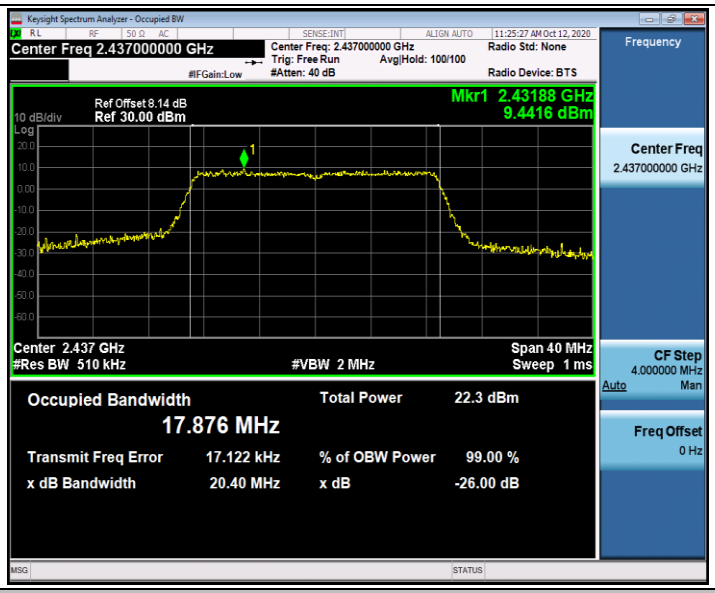
11G_Ant1_2412

11G_Ant1_2437

11G_Ant1_2462

11N20SISO_Ant1_2412

11N20SISO_Ant1_2437



11N20SISO_Ant1_2462

Appendix C: Maximum conducted output power

Test Result

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	Ant1	2412	14.36	<=30	PASS
		2437	16.01	<=30	PASS
		2462	15.00	<=30	PASS
11G	Ant1	2412	15.01	<=30	PASS
		2437	16.59	<=30	PASS
		2462	15.54	<=30	PASS
11N20SISO	Ant1	2412	14.34	<=30	PASS
		2437	16.08	<=30	PASS
		2462	15.07	<=30	PASS