



FCC TEST REPORT

**Test report
On Behalf of
Shenzhen Rikomagic Tech Corp.,LTD
For
Quad Core Android MINI PC
Model No.:V3, V3S, V3 Plus
FCC ID: 2ABE8-V3**

**Prepared for : Shenzhen Rikomagic Tech Corp.,LTD
A5-209 Mingxi Industrial Park HuaiDe South RD,Fuyong Street,
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Bao'an District, Shenzhen City, China**

**Date of Test: Jun. 05, 2019~ Jun. 15, 2019
Date of Report: Jun. 15, 2019
Report Number: HK1906121310E**



TEST RESULT CERTIFICATION

Applicant's name: Shenzhen Rikomagic Tech Corp.,LTD

Address.....: A5-209 Mingxi Industrial Park HuaiDe South RD,Fuyong Street,
Bao'an,Shenzhen,China,518103

Manufacture's Name.....: Shenzhen Rikomagic Tech Corp.,LTD

Address.....: A5-209 Mingxi Industrial Park HuaiDe South RD,Fuyong Street,
Bao'an,Shenzhen,China,518103

Product description

Trade Mark: RKM

Product name: Quad Core Android MINI PC

Model and/or type reference .: V3

Standards: FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.10: 2013

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Date of Test.....:

Date (s) of performance of tests.....: Jun. 05, 2019~ Jun. 15, 2019

Date of Issue: Jun. 15, 2019

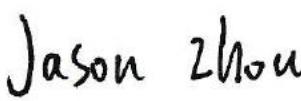
Test Result: Pass

Testing Engineer : 

(Gary Qian)

Technical Manager : 

(Eden Hu)

Authorized Signatory : 

(Jason Zhou)



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1. Test Result Summary

1.1. TEST PROCEDURES AND RESULTS

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203/§15.247 (c)	PASS
AC Power Line Conducted Emission	§15.207	PASS
Conducted Peak Output Power	§15.247 (b)(3) §2.1046	PASS
6dB Emission Bandwidth	§15.247 (a)(2) §2.1049	PASS
Power Spectral Density	§15.247 (e)	PASS
Band Edge	1§5.247(d) §2.1051, §2.1057	PASS
Spurious Emission	§15.205/§15.209 §2.1053, §2.1057	PASS

Note:

1. PASS: *Test item meets the requirement.*
2. Fail: *Test item does not meet the requirement.*
3. N/A: *Test case does not apply to the test object.*
4. *The test result judgment is decided by the limit of test standard.*

1.2. TEST FACILITY

Test Firm : Shenzhen HUAK Testing Technology Co., Ltd.

Address 1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China



1.3. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.12\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.92\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^\circ\text{C}$
7	Humidity	$\pm 1.0\%$



2. EUT Description

2.1. GENERAL DESCRIPTION OF EUT

Equipment	Quad Core Android MINI PC
Model Name	V3, V3S, V3 Plus
Serial No.	N/A
Model Difference	All the models are identical except the model name.
Trade Mark	RKM
Antenna Type	FPC Antenna
Antenna Gain	0dBi
Operation frequency	802.11b/g/n 20:2412~2462 MHz
Number of Channels	802.11b/g/n20: 11CH
Modulation Type	CCK/OFDM/DBPSK/DAPSK
PowerSource	N/A
Power Rating	DC 5V by Adapter DC 5V by Adapter AC 120V/60Hz



2.2. Carrier Frequency of Channels

Channel List for 802.11b/802.11g/802.11n (HT20)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

2.3. Operation of EUT during testing

Operating Mode

The mode is used: **Transmitting mode for 802.11b/802.11g/802.11n (HT20)**

Low Channel: 2412MHz

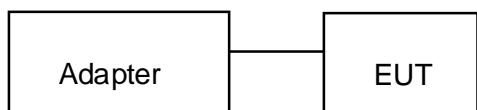
Middle Channel: 2437MHz

High Channel: 2462MHz



2.4. DESCRIPTION OF TEST SETUP

Operation of EUT during conducted and Radiation testing:





3. General Information

3.1. Test mode

Test Mode: EUT run software for test mode(2018_RK3328M_V1.1)	
Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations(The value of duty cycle is 98.46%)
<p>The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. For the full battery state and The output power to the maximum state.</p>	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:								
Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.								
<table border="1"><thead><tr><th>Mode</th><th>Data rate</th></tr></thead><tbody><tr><td>802.11b</td><td>1Mbps</td></tr><tr><td>802.11g</td><td>6Mbps</td></tr><tr><td>802.11n(H20)</td><td>6.5Mbps</td></tr></tbody></table>	Mode	Data rate	802.11b	1Mbps	802.11g	6Mbps	802.11n(H20)	6.5Mbps
Mode	Data rate							
802.11b	1Mbps							
802.11g	6Mbps							
802.11n(H20)	6.5Mbps							
Final Test Mode:								
Operation mode: Keep the EUT in continuous transmitting with modulation								
1. For WIFI function, the engineering test program was provided and enabled to make EUT continuous transmit/receive. 2. According to ANSI C63.10 standards, the test results are both the “worst case” and “worst setup” 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(H20), Duty cycle setting during the transmission is 98.5% with maximum power setting for all modulations.								



3.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
adapter	YM050-1000SU	/	/	YM

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.



4. Test Results and Measurement Data

4.1. Conducted Emission

Test Specification

Test Requirement:	FCC Part15 C Section 15.207															
Test Method:	ANSI C63.10:2013															
Frequency Range:	150 kHz to 30 MHz															
Receiver setup:	RBW=9 kHz, VBW=30 kHz, Sweep time=auto															
Limits:	<table border="1"><thead><tr><th>Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th></th><th>Quasi-peak</th><th>Average</th></tr></thead><tbody><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></tbody></table>	Frequency range (MHz)	Limit (dBuV)			Quasi-peak	Average	0.15-0.5	66 to 56*	56 to 46*	0.5-5	56	46	5-30	60	50
Frequency range (MHz)	Limit (dBuV)															
	Quasi-peak	Average														
0.15-0.5	66 to 56*	56 to 46*														
0.5-5	56	46														
5-30	60	50														
Test Setup:	<p style="text-align: center;">Reference Plane</p> <p><i>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</i></p>															
Test Mode:	Charging + transmitting with modulation															
Test Procedure:	<ol style="list-style-type: none">1. The E.U.T is connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.															
Test Result:	PASS															



Test Instruments

Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Receiver	R&S	ESCI 7	HKE-010	Dec. 27, 2019
LISN	R&S	ENV216	HKE-002	Dec. 27, 2019
Conducted test software	Tonscend	TS+ Rev 2.5.0.0	HKE-081	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

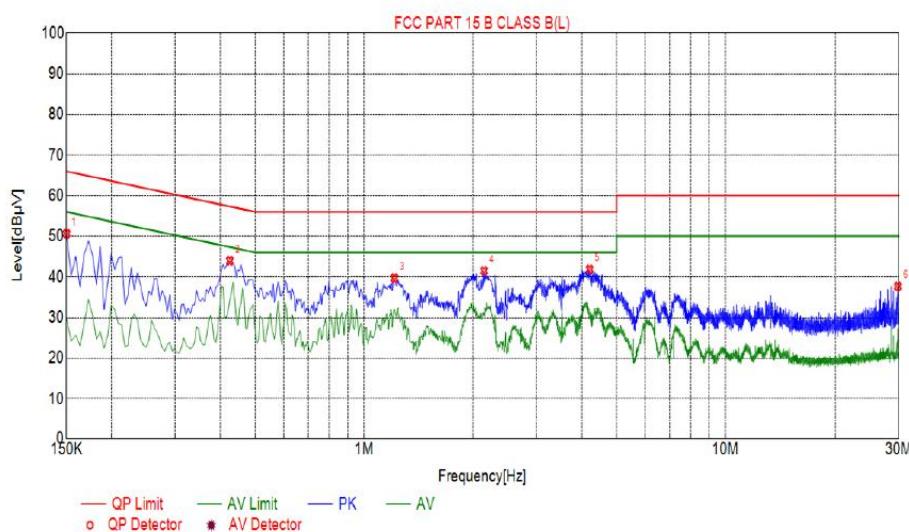


Test data

EUT :	Quad Core Android MINI PC	Model Name :	V3
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2019-06-14
Test Mode :	WIFI	Polarization :	L
Test Power :	DC 5V by Adapter AC 120V/60Hz		

Conducted Emission on Line Terminal of the power line (150 kHz to 30MHz)

Test Graph



Suspected List

NO.	Freq. [MHz]	Level [dBμV]	Factor [dB]	Limit [dBμV]	Margin [dB]	Detector
1	0.1500	50.66	10.03	66.00	15.34	PK
2	0.4245	43.96	10.04	57.36	13.40	PK
3	1.2120	39.68	10.09	56.00	16.32	PK
4	2.1480	41.50	10.16	56.00	14.50	PK
5	4.2090	41.86	10.25	56.00	14.14	PK
6	29.7780	37.67	10.26	60.00	22.33	PK

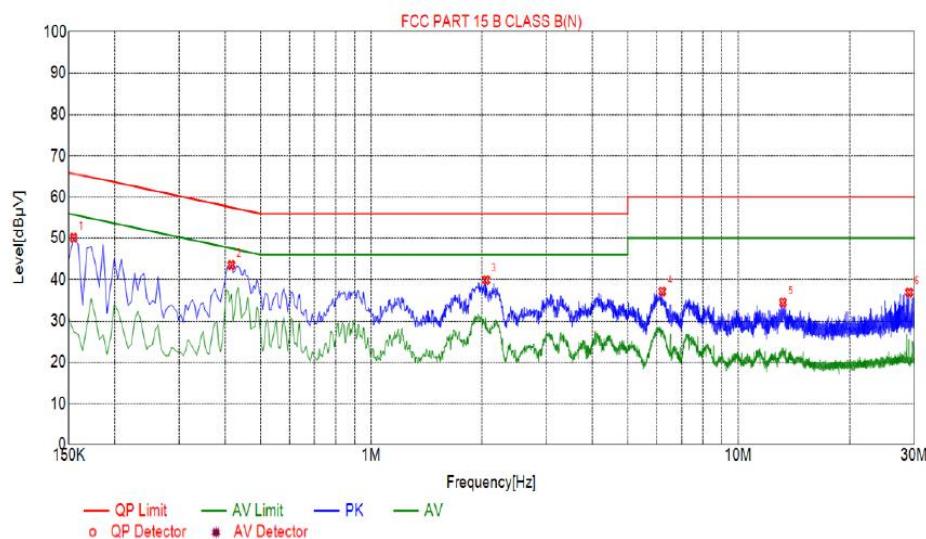
Remark: Transd = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

**Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)**

EUT :	Quad Core Android MINI PC	Model Name :	V3
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2019-06-14
Test Mode :	WIFI	Polarization :	N
Test Power :	DC 5V by Adapter AC 120V/60Hz		

Test Graph

Suspected List						
NO.	Freq. [MHz]	Level [dB μ V]	Factor [dB]	Limit [dB μ V]	Margin [dB]	Detector
1	0.1545	50.12	10.03	65.75	15.63	PK
2	0.4155	43.51	10.03	57.54	14.03	PK
3	2.0580	39.89	10.15	56.00	16.11	PK
4	6.2070	37.14	10.22	60.00	22.86	PK
5	13.2315	34.45	9.96	60.00	25.55	PK
6	29.0220	36.88	10.26	60.00	23.12	PK

Remark: Transd = Cable lose + Antenna factor - Pre-amplifier; Margin = Limit – Level

Notes:

- An initial pre-scan was performed on the line and neutral lines with peak detector.
- Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- Final Level = Receiver Read level + LISN Factor + Cable Loss.
- If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.



4.2. Maximum Conducted Output Power

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB 558074
Limit:	30dBm
Test Setup:	<p>The diagram illustrates the test setup. A green rectangular box labeled "Power meter" has two ports. One port is connected via a grey line to a small white rectangular component, which is then connected via another grey line to a yellow rectangular box labeled "EUT".</p>
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none">1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v05.2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.3. Set to the maximum power setting and enable the EUT transmit continuously.4. Measure the Peak output power and record the results in the test report.
Test Result:	PASS

Test Instruments

RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Power meter	Agilent	E4417B	HKE-107	Dec. 27, 2019
Power Sensor	Agilent	E9327A	HKE-113	Dec. 27, 2019
RF cable	Times	1-40G	HKE-034	Dec. 27, 2019
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 27, 2019

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

**Test Data**

TX 802.11b Mode			
Test Channel	Frequency	Maximum Peak Conducted Output Power	LIMIT
	(MHz)	(dBm)	dBm
CH01	2412	11.26	30
CH06	2437	11.07	30
CH11	2462	11.31	30

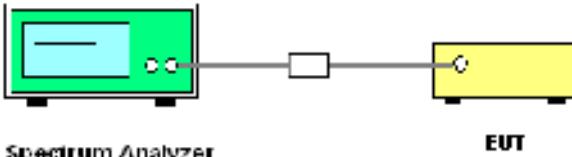
TX 802.11g Mode			
CH01	2412	10.89	30
CH06	2437	10.5	30
CH11	2462	11.27	30

TX 802.11n20 Mode			
CH01	2412	10.34	30
CH06	2437	11.36	30
CH11	2462	10.8	30



4.3. Emission Bandwidth

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB 558074
Limit:	>500kHz
Test Setup:	 <p>The diagram illustrates the test setup. A green 'Spectrum Analyzer' is connected to a yellow 'EUT' (Equipment Under Test) through a grey cable. There is also a small white rectangular component in the middle of the cable.</p>
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none">1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v05.2. Set to the maximum power setting and enable the EUT transmit continuously.3. 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 6dB bandwidth must be greater than 500 kHz.4. Measure and record the results in the test report.
Test Result:	PASS

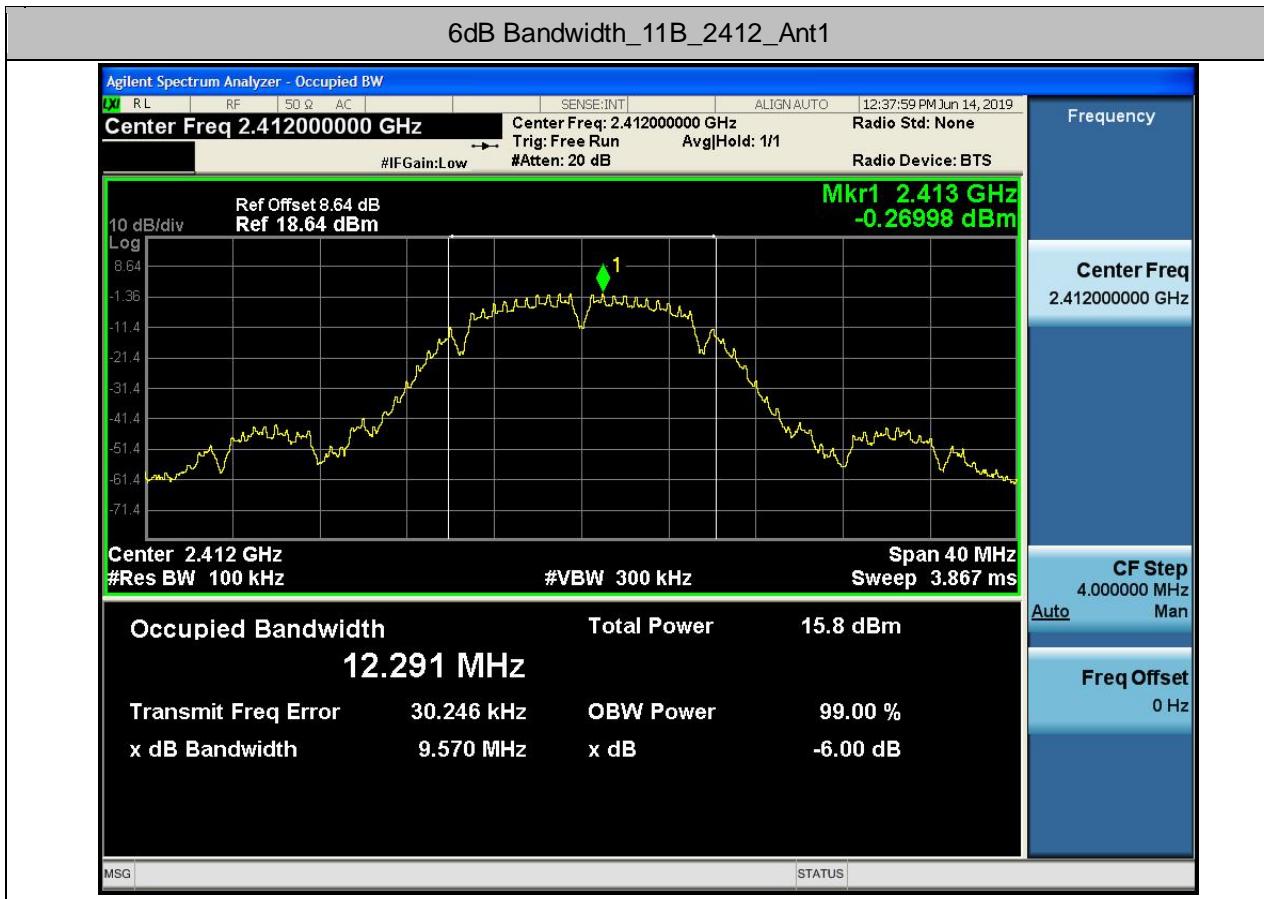
Test Instruments

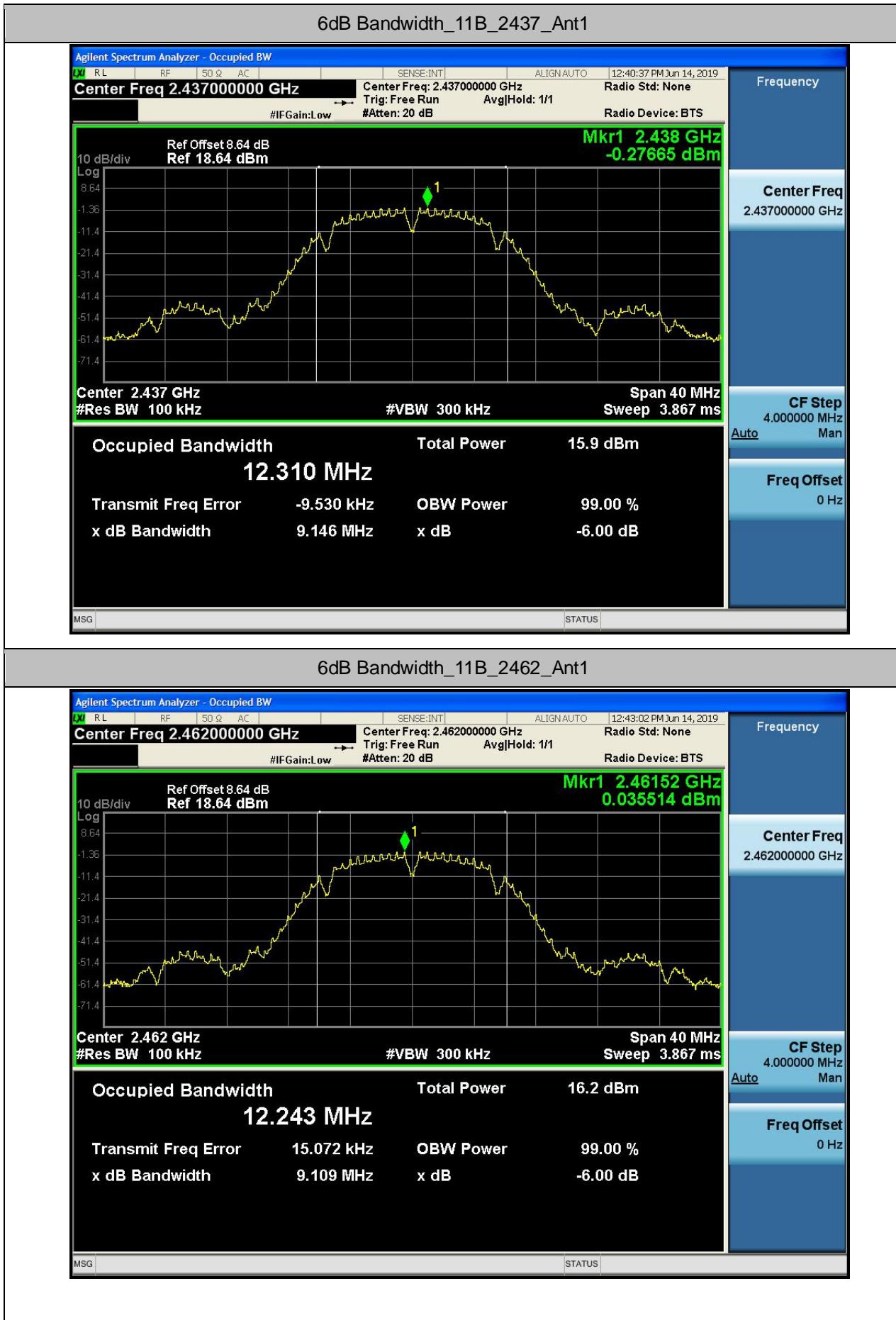
RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 27, 2019
RF Cable (9KHz-26.5GHz)	Tonscend	170660	N/A	Dec. 27, 2019
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 27, 2019

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

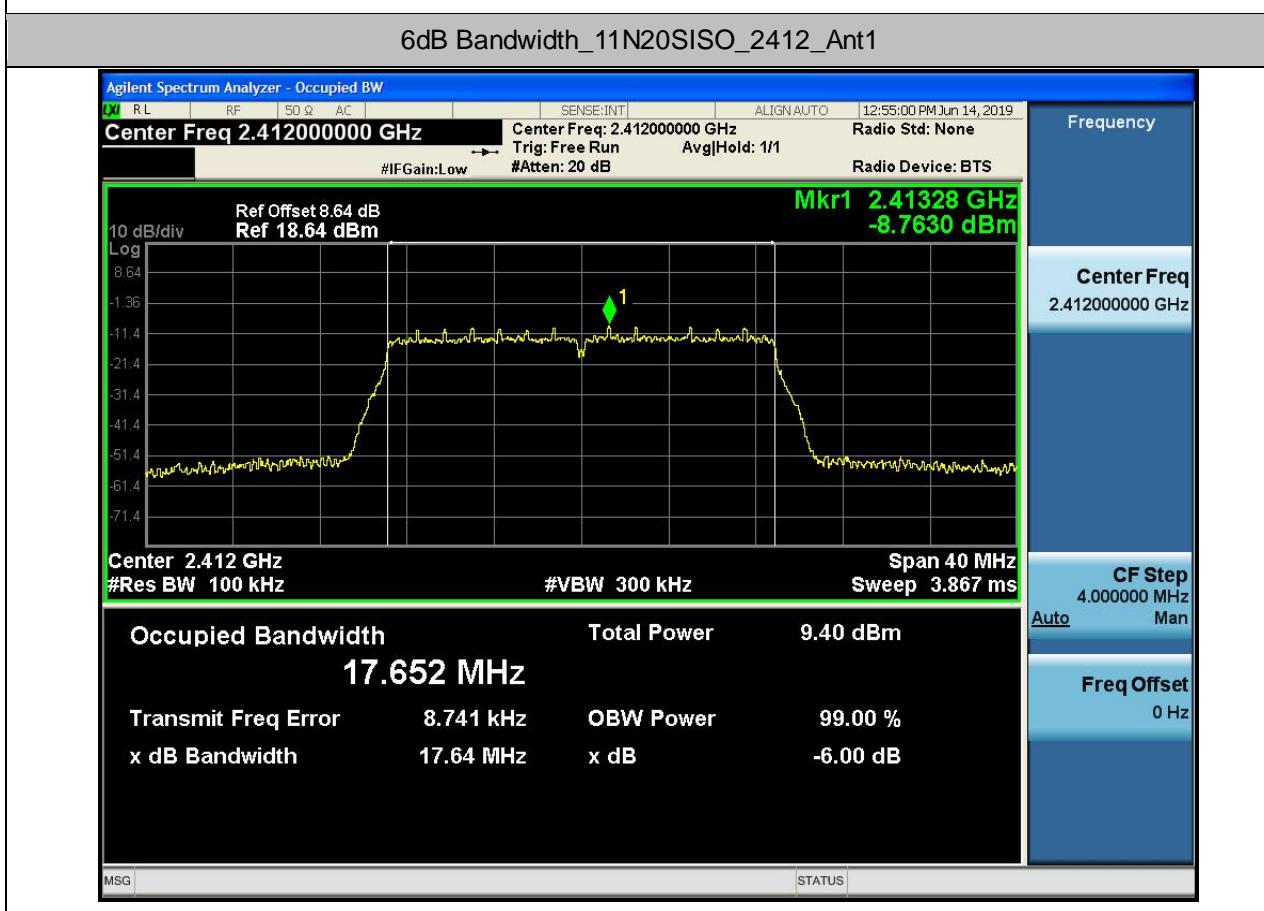
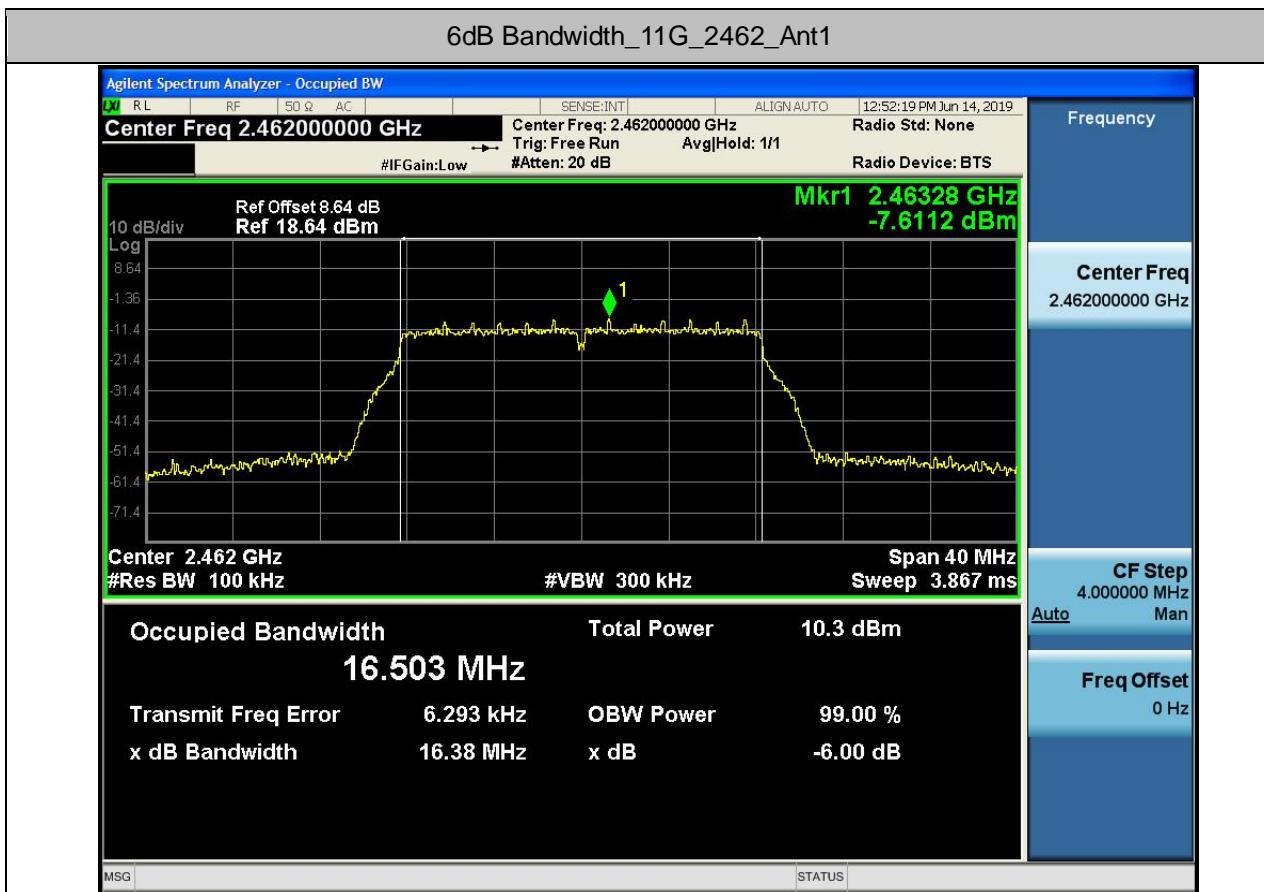
**Test data**

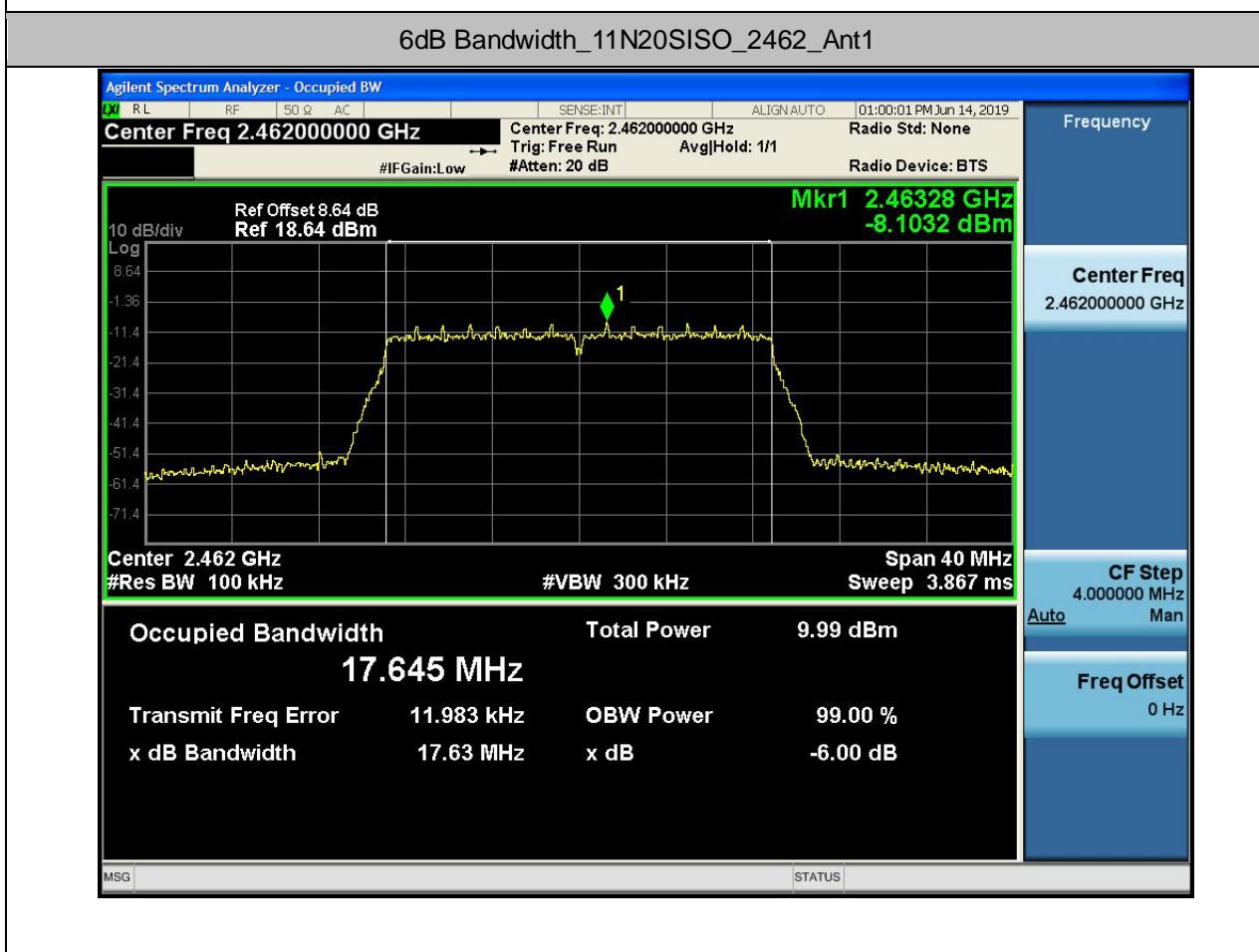
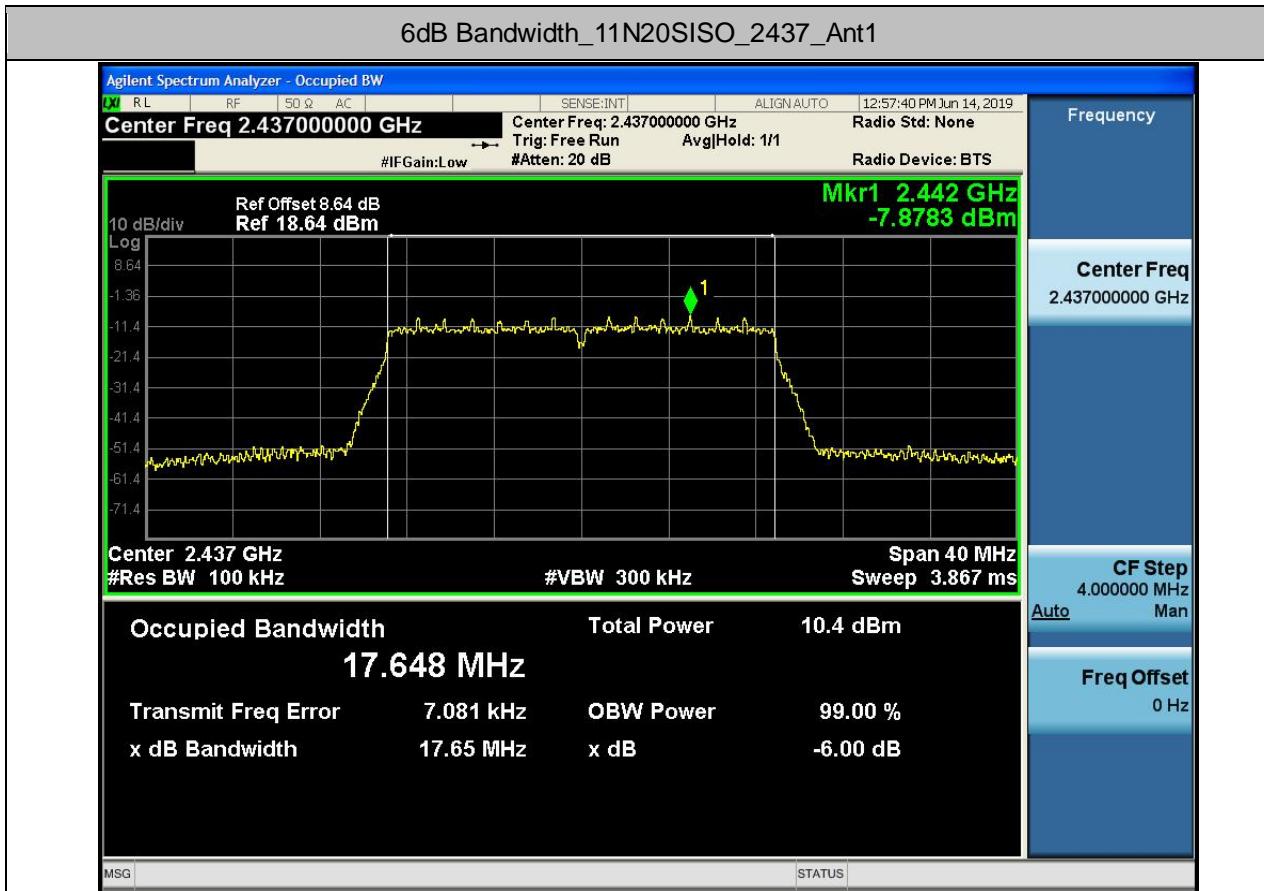
Test channel	6dB Emission Bandwidth (MHz)		
	802.11b	802.11g	802.11n(H20)
Lowest	9.570	16.39	17.64
Middle	9.146	16.40	17.65
Highest	9.109	16.38	17.63
Limit:	>500kHz		
Test Result:	PASS		

Test plots as follows:





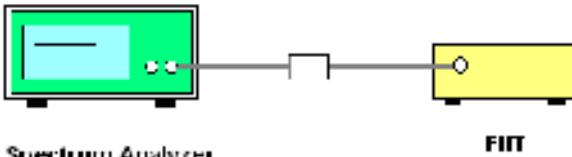






4.4. Power Spectral Density

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB 558074
Limit:	The average power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.
Test Setup:	
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none">1. The testing follows Measurement procedure 10.2 method PKPSD of FCC KDB Publication No.558074 D01 DTS Meas. Guidance v052. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.3. Set to the maximum power setting and enable the EUT transmit continuously.4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW): $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$. Video bandwidth VBW $\geq 3 \times \text{RBW}$. Set the span to at least 1.5 times the OBW.5. Detector = Peak, Sweep time = auto couple.6. Employ trace averaging (Peak) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum power level.7. Measure and record the results in the test report.
Test Result:	PASS

Test Instruments

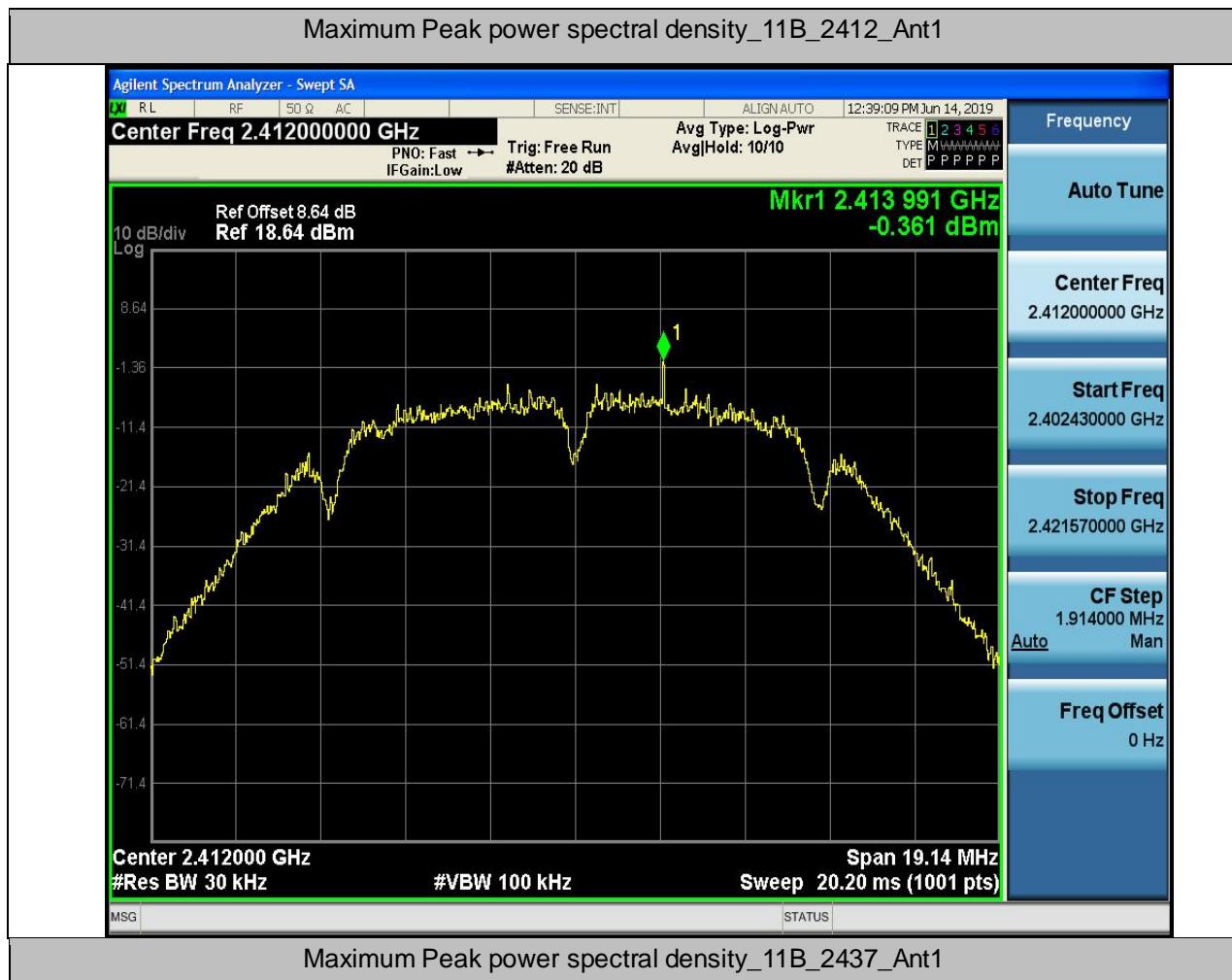
RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 27, 2019
RF Cable (9KHz-26.5GHz)	Tonscend	170660	N/A	Dec. 27, 2019
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 27, 2019

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

**Test data**

EUT Set Mode	Channel	Result (dBm/30kHz)	Limit	
802.11b	Lowest	-0.36	8dBm/3kHz	
	Middle	-0.15		
	Highest	0.13		
802.11g	Lowest	-12.37	8dBm/3kHz	
	Middle	-13.07		
	Highest	-12.89		
802.11n(H20)	Lowest	-13.19	8dBm/3kHz	
	Middle	-11.99		
	Highest	-12.64		
PSD test result (dBm/3kHz)= PSD test result (dBm/30kHz)-10				
Test Result:	PASS			

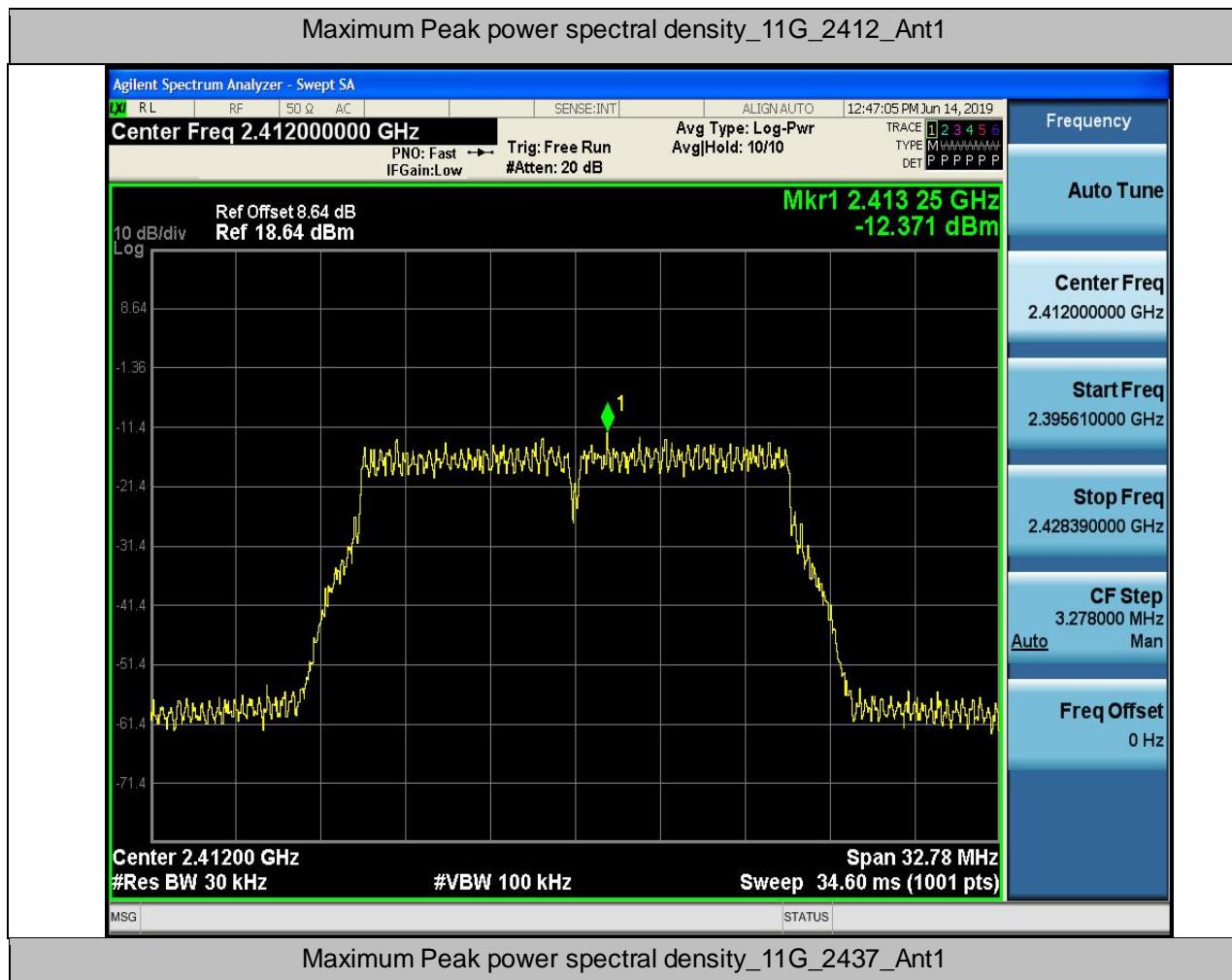
Test plots as follows:

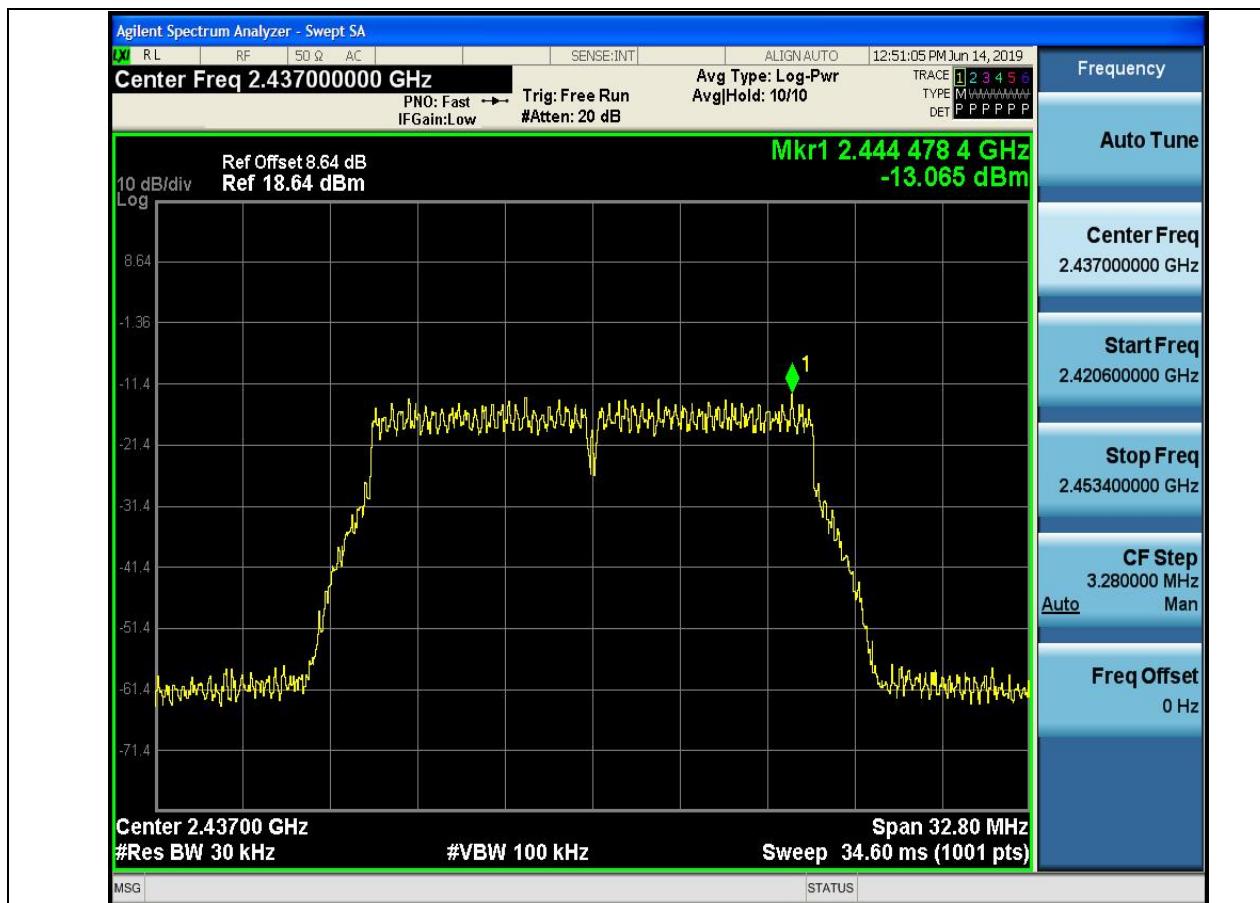




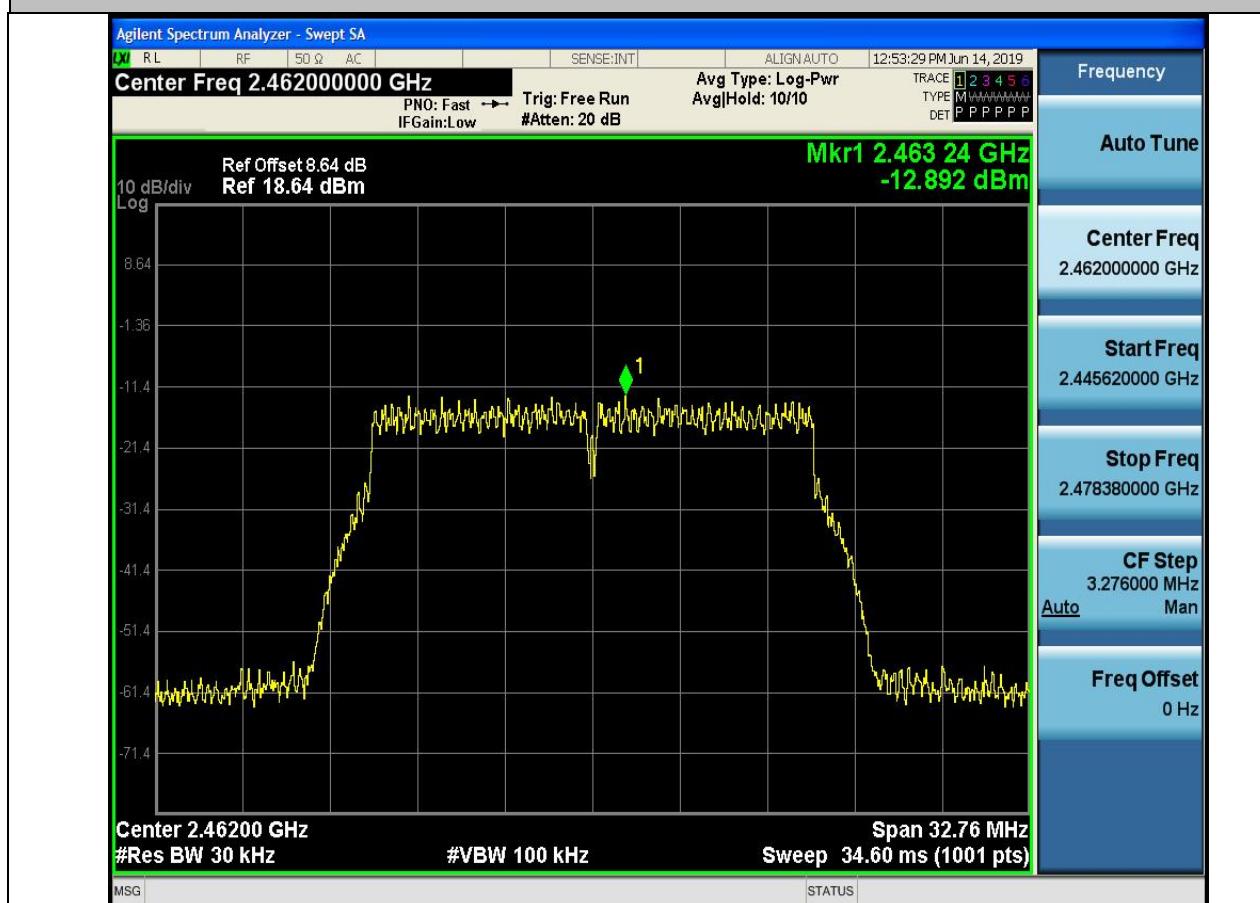
Maximum Peak power spectral density_11B_2462_Ant1

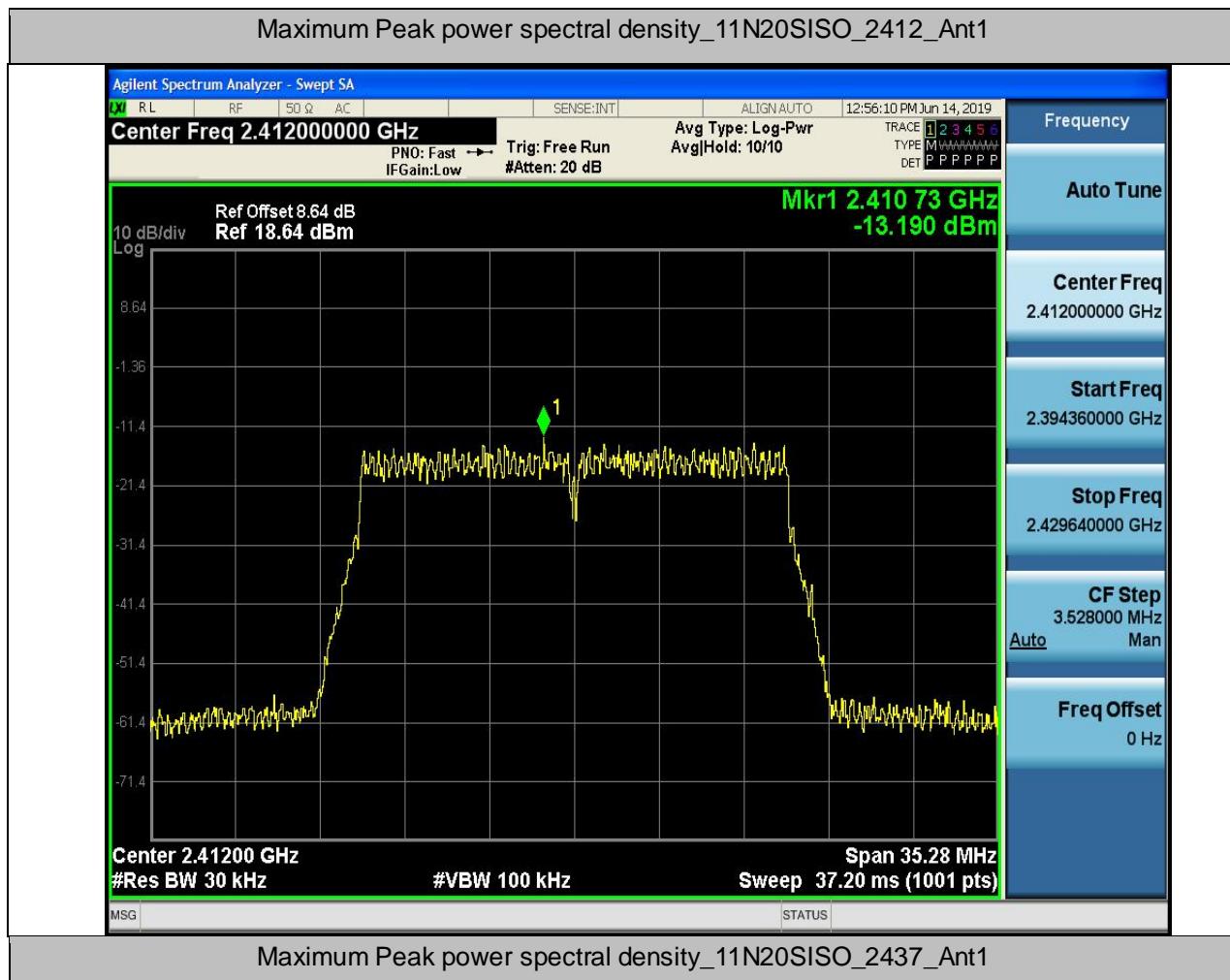


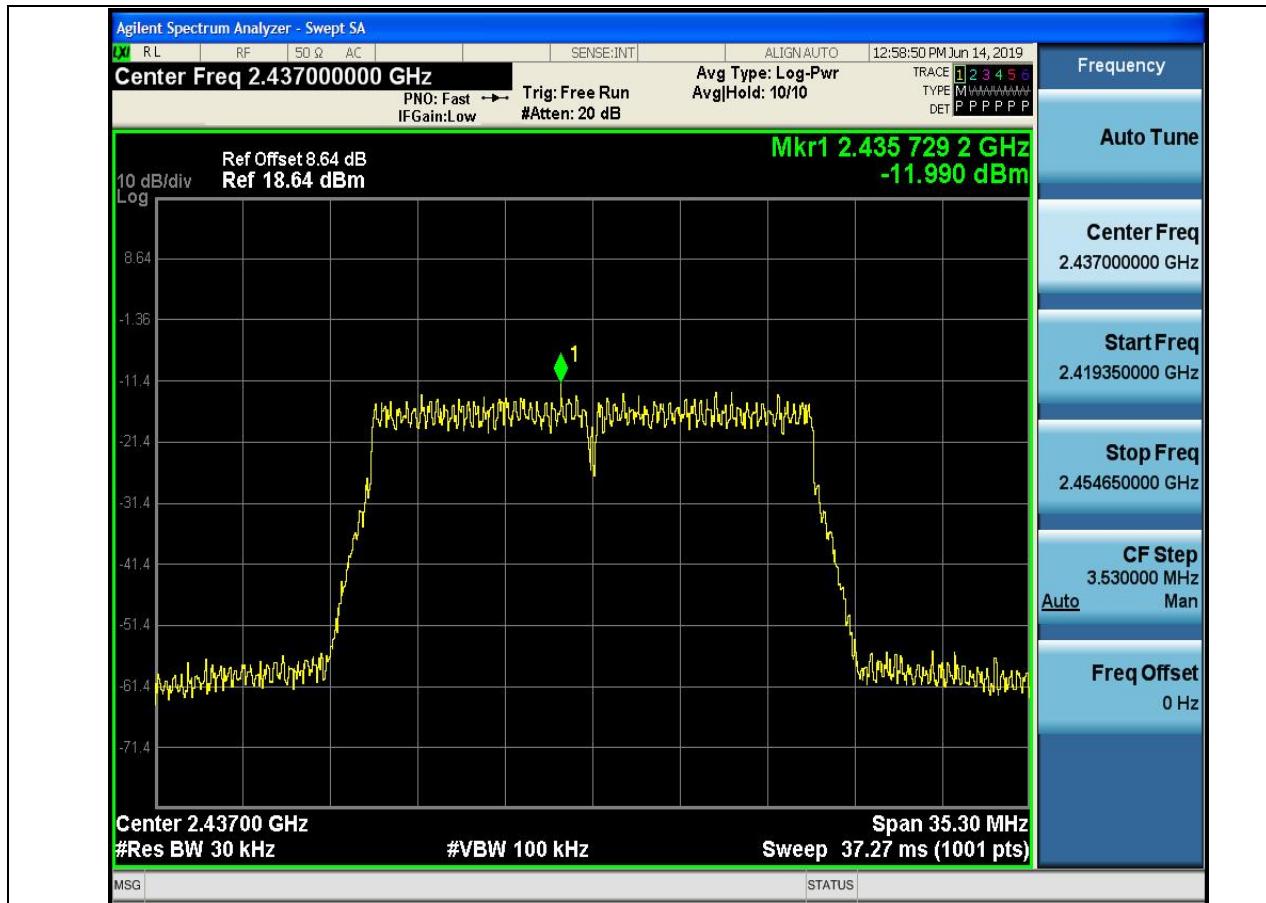




Maximum Peak power spectral density_11G_2462_Ant1







Maximum Peak power spectral density_11N20SISO_2462_Ant1





4.5. Conducted Band Edge and Spurious Emission Measurement

Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074
Limit:	In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
Test Setup:	
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none">1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05.2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.3. Set to the maximum power setting and enable the EUT transmit continuously.4. 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).5. Measure and record the results in the test report.6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
Test Result:	PASS



Test Instruments

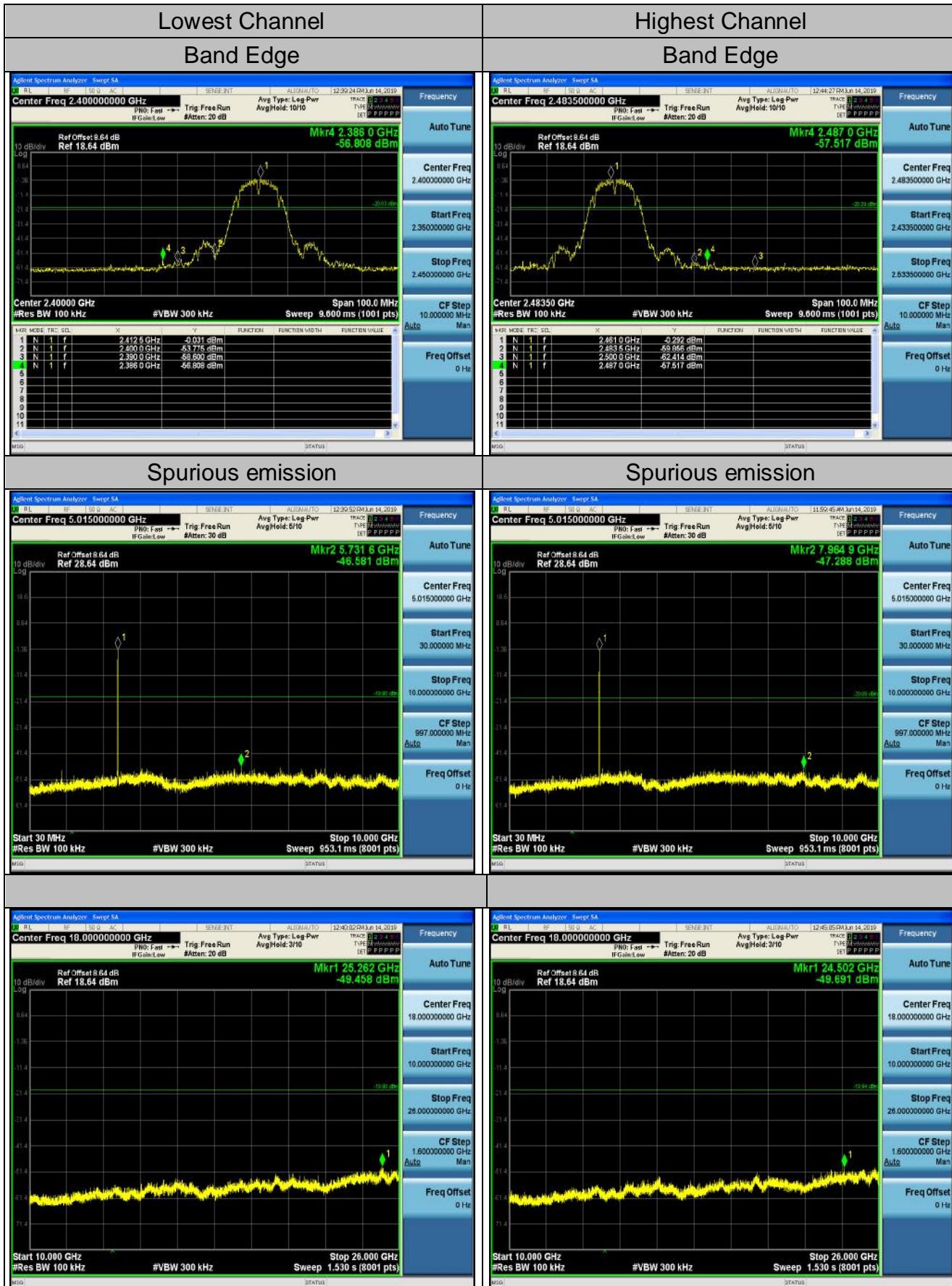
RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 27, 2019
Signal generator	Agilent	N5183A	HKE-071	Dec. 27, 2019
RF Cable (9KHz-26.5GHz)	Tonscend	170660	N/A	Dec. 27, 2019
RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 27, 2019

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



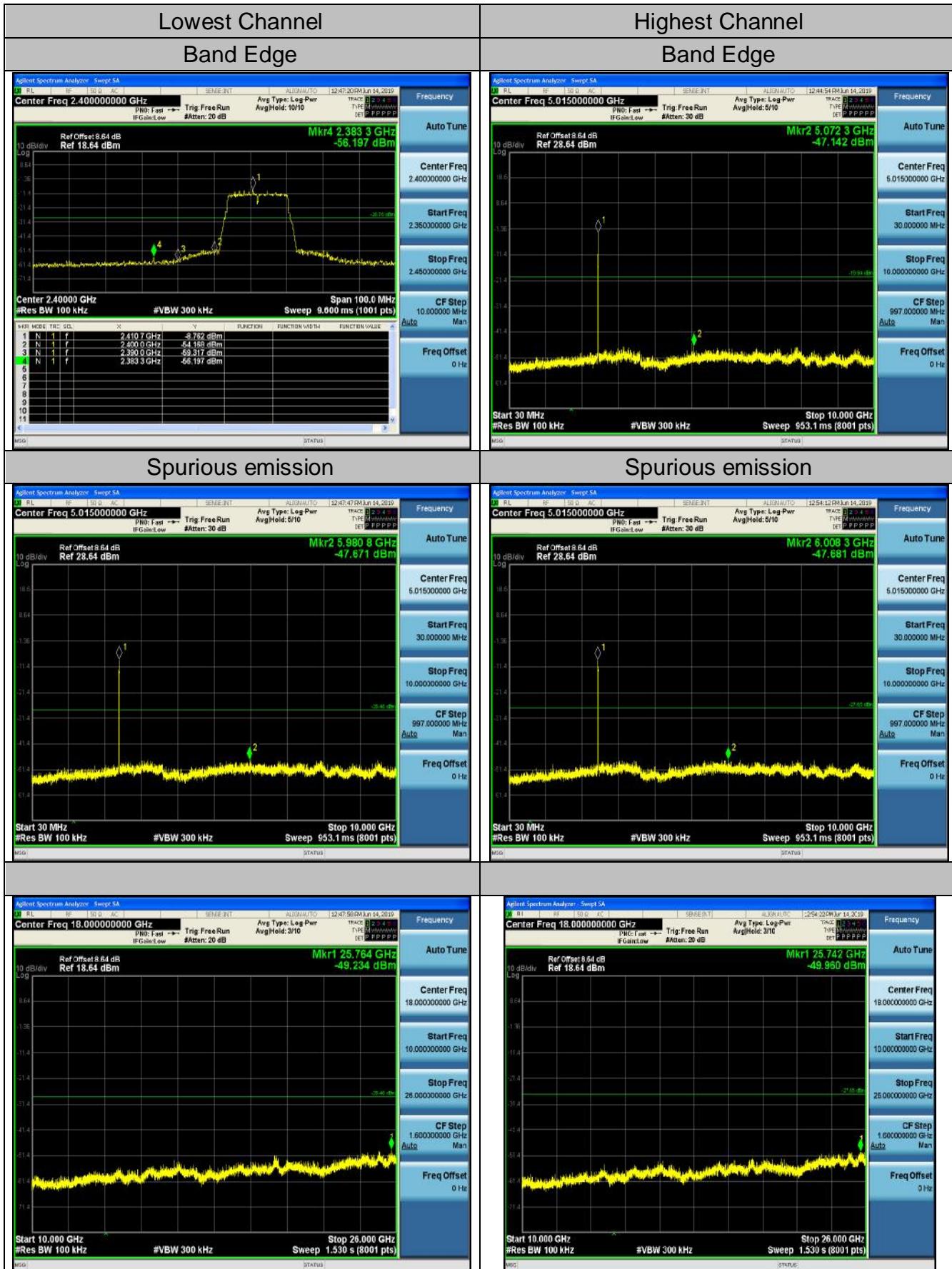
Test Data

802.11b Modulation



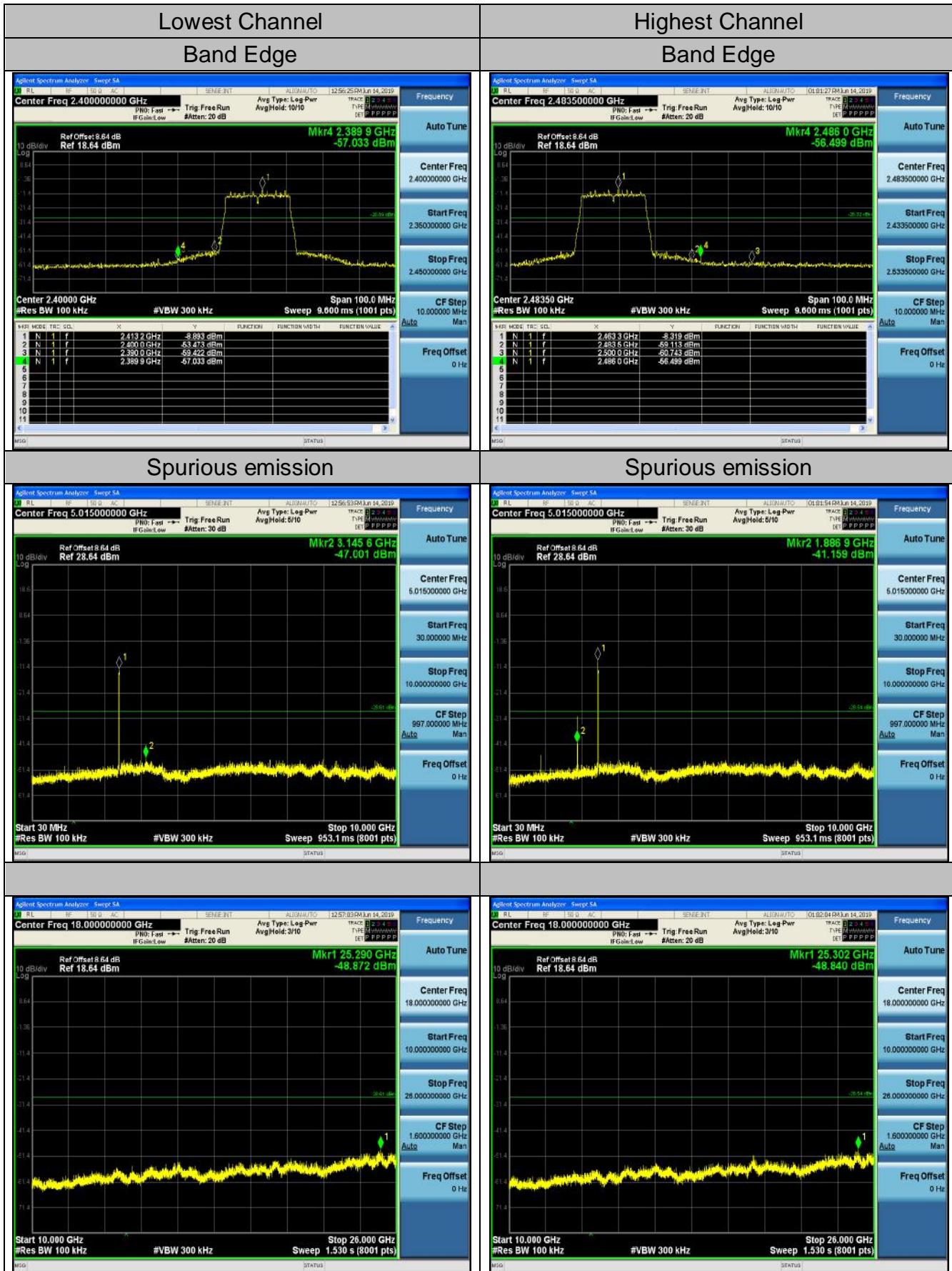


802.11g Modulation





802.11n (HT20) Modulation

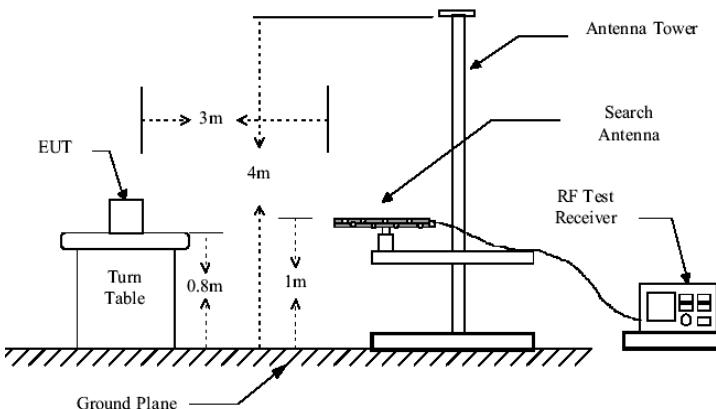




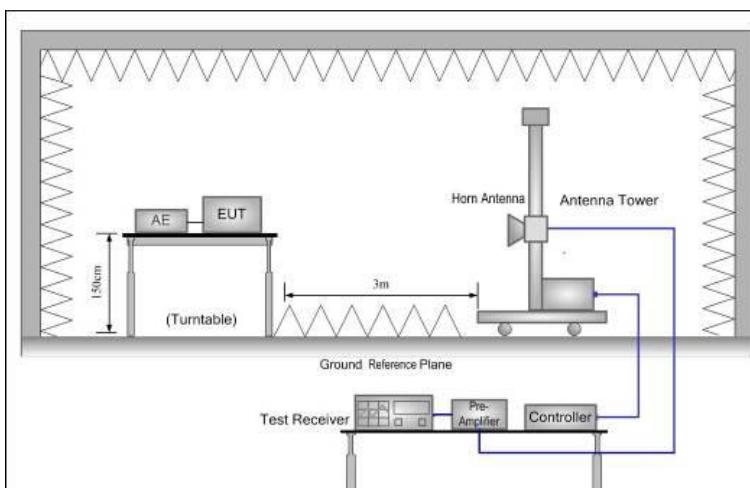
4.6. Radiated Spurious Emission Measurement

Test Specification

Test Requirement:	FCC Part15 C Section 15.209																																							
Test Method:	ANSI C63.10: 2013																																							
Frequency Range:	9 kHz to 25 GHz																																							
Measurement Distance:	3 m																																							
Antenna Polarization:	Horizontal & Vertical																																							
Operation mode:	Transmitting mode with modulation																																							
Receiver Setup:	<table border="1"><thead><tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr></thead><tbody><tr><td>9kHz- 150kHz</td><td>Quasi-peak</td><td>200Hz</td><td>1kHz</td><td>Quasi-peak Value</td></tr><tr><td>150kHz- 30MHz</td><td>Quasi-peak</td><td>9kHz</td><td>30kHz</td><td>Quasi-peak Value</td></tr><tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr><tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr><tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr></tbody></table>					Frequency	Detector	RBW	VBW	Remark	9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value	Above 1GHz	Peak	1MHz	3MHz	Peak Value	Peak	1MHz	10Hz	Average Value						
Frequency	Detector	RBW	VBW	Remark																																				
9kHz- 150kHz	Quasi-peak	200Hz	1kHz	Quasi-peak Value																																				
150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value																																				
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value																																				
Above 1GHz	Peak	1MHz	3MHz	Peak Value																																				
	Peak	1MHz	10Hz	Average Value																																				
Limit:	<table border="1"><thead><tr><th>Frequency</th><th>Field Strength (microvolts/meter)</th><th>Measurement Distance (meters)</th></tr></thead><tbody><tr><td>0.009-0.490</td><td>2400/F(KHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(KHz)</td><td>30</td></tr><tr><td>1.705-30</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100</td><td>3</td></tr><tr><td>88-216</td><td>150</td><td>3</td></tr><tr><td>216-960</td><td>200</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></tbody></table> <table border="1"><thead><tr><th>Frequency</th><th>Field Strength (microvolts/meter)</th><th>Measurement Distance (meters)</th><th>Detector</th></tr></thead><tbody><tr><td rowspan="2">Above 1GHz</td><td>500</td><td>3</td><td>Average</td></tr><tr><td>5000</td><td>3</td><td>Peak</td></tr></tbody></table>					Frequency	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	30	30	30-88	100	3	88-216	150	3	216-960	200	3	Above 960	500	3	Frequency	Field Strength (microvolts/meter)	Measurement Distance (meters)	Detector	Above 1GHz	500	3	Average	5000	3	Peak
Frequency	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	30	30																																						
30-88	100	3																																						
88-216	150	3																																						
216-960	200	3																																						
Above 960	500	3																																						
Frequency	Field Strength (microvolts/meter)	Measurement Distance (meters)	Detector																																					
Above 1GHz	500	3	Average																																					
	5000	3	Peak																																					
Test setup:	<p>For radiated emissions below 30MHz</p> <p>30MHz to 1GHz</p>																																							



Above 1GHz



- Test Procedure:**
1. For the radiated emission test below 1GHz:
The EUT was placed on a turntable with 0.8 meter above ground. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower. 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 highPASS filter are used for the test in order to get better signal level.
 - For the radiated emission test above 1GHz:
Place the measurement antenna on a turntable with 1.5 meter above ground, which is away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which



	<p>maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.</p> <p>3. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level</p> <p>4. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.</p> <p>5. Use the following spectrum analyzer settings:</p> <ul style="list-style-type: none">(1) Span shall wide enough to fully capture the emission being measured;(2) Set RBW=100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold;(3) Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement. <p>For average measurement:VBW = 10 Hz, when duty cycle is no less than 98 percent.VBW $\geq 1/T$, 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.</p>
Test results:	PASS



Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Receiver	R&S	ESCI-7	HKE-010	Dec. 27, 2019
Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 27, 2019
Preamplifier	EMCI	EMC051845 SE	HKE-015	Dec. 27, 2019
Preamplifier	Agilent	83051A	HKE-016	Dec. 27, 2019
Loop antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Dec. 26, 2019
Broadband antenna	Schwarzbeck	VULB 9163	HKE-012	Dec. 26, 2019
Horn antenna	Schwarzbeck	9120D	HKE-013	Dec. 26, 2019
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
Position controller	Taiwan MF	MF7802	HKE-011	Dec. 27, 2019
Radiated test software	Tonscend	TS+ Rev 2.5.0.0	HKE-082	N/A
RF cable (9KHz-1GHz)	Times	381806-001	N/A	N/A
RF cable	Times	1-40G	HKE-034	Dec. 27, 2019

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

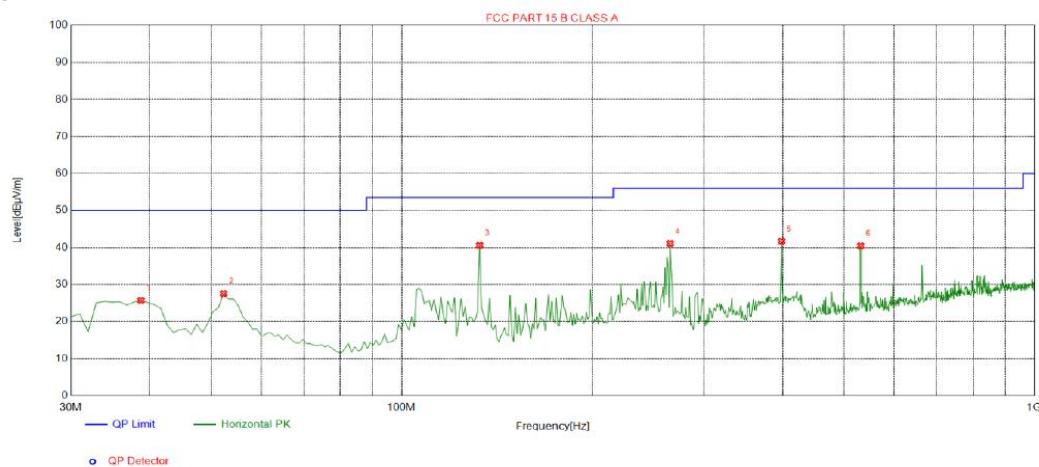


Test Data

Please refer to following diagram for individual
Below 1GHz

EUT :	Quad Core Android MINI PC	Model Name :	V3
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2019-06-14
Test Mode :	WIFI	Polarity :	Horizontal
Test Power :	DC 5V by Adapter AC 120V/60Hz		

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	38.7300	25.67	-14.95	50.00	24.33	100	180	Horizontal
2	52.3100	27.52	-14.00	50.00	22.48	100	160	Horizontal
3	132.820	40.58	-18.74	53.50	12.92	100	290	Horizontal
4	265.710	41.05	-13.60	56.00	14.95	100	270	Horizontal
5	398.600	41.68	-10.44	56.00	14.32	100	210	Horizontal
6	531.490	40.44	-7.41	56.00	15.56	100	230	Horizontal

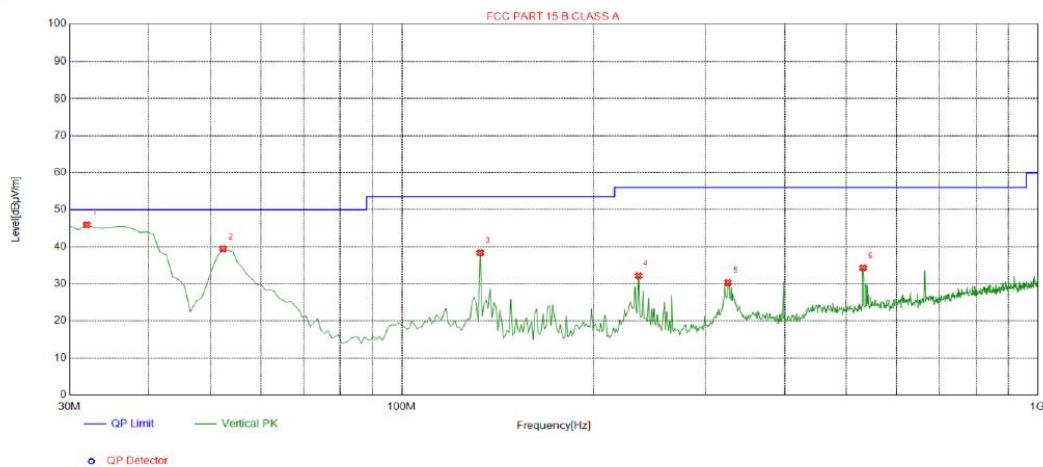
Final Data List

Remark: Transd = Cable loss + Antenna factor - Pre-amplifier; Margin = Limit – Level



EUT :	Quad Core Android MINI PC	Model Name :	V3
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2019-06-14
Test Mode :	WIFI	Polarity :	Vertical
Test Power :	DC 5V by Adapter AC 120V/60Hz		

Test Graph



Suspected List

Suspected List								
NO.	Freq. [MHz]	Level [dB μ V/m]	Factor [dB]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	31.9400	45.88	-16.26	50.00	4.12	100	350	Vertical
2	52.3100	39.44	-14.00	50.00	10.56	100	150	Vertical
3	132.820	38.35	-18.74	53.50	15.15	100	350	Vertical
4	235.640	32.15	-14.06	56.00	23.85	100	210	Vertical
5	325.850	30.31	-11.80	56.00	25.69	100	330	Vertical
6	531.490	34.31	-7.41	56.00	21.69	100	40	Vertical

Final Data List

Remark: Transd = Cable loss + Antenna factor - Pre-amplifier; Margin = Limit – Level

**Above 1GHz****RADIATED EMISSION TEST**

LOW CH1 (802.11b Mode)/2412

Horizontal:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4824	61.72	-3.64	58.08	74	-15.92	peak
4824	44.18	-3.64	40.54	54	-13.46	AVG
7236	60.29	-0.95	59.34	74	-14.66	peak
7236	41.37	-0.95	40.42	54	-13.58	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4824	63.55	-3.64	59.91	74	-14.09	peak
4824	43.12	-3.64	39.48	54	-14.52	AVG
7236	57.96	-0.95	57.01	74	-16.99	peak
7236	39.49	-0.95	38.54	54	-15.46	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



MID CH6 (802.11b Mode)/2437

Horizontal:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4874	62.54	-3.51	59.03	74	-14.97	peak
4874	43.27	-3.51	39.76	54	-14.24	Avg
7311	58.19	-0.82	57.37	74	-16.63	peak
7311	44.16	-0.82	43.34	54	-10.66	Avg

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4874	61.07	-3.51	57.56	74	-16.44	peak
4874	42.56	-3.51	39.05	54	-14.95	Avg
7311	57.34	-0.82	56.52	74	-17.48	peak
7311	41.52	-0.82	40.7	54	-13.3	Avg

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



HIGH CH11 (802.11b Mode)/2462

Horizontal:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4924	63.42	-3.43	59.99	74	-14.01	peak
4924	41.53	-3.43	38.1	54	-15.9	AVG
7386	58.16	-0.75	57.41	74	-16.59	peak
7386	40.48	-0.75	39.73	54	-14.27	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4924	61.37	-3.43	57.94	74	-16.06	peak
4924	44.28	-3.43	40.85	54	-13.15	AVG
7386	53.64	-0.75	52.89	74	-21.11	peak
7386	38.72	-0.75	37.97	54	-16.03	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes bandedge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified inprovision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Data of measurement within this frequency range shown "---" in the table above meansthe reading of emissions are attenuated more than 20dB below the permissible limits orthe field strength is too small to be measured.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHzfor measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, theAverage Detected is not need completed. For example: Top Channel at Fundamental73.16dB μ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) <54dB μ V/m(AV Limit), the Average Detected not need to completed.



LOW CH1 (802.11g Mode)/2412

Horizontal:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4824	61.05	-3.64	57.41	74	-16.59	peak
4824	43.16	-3.64	39.52	54	-14.48	Avg
7236	51.49	-0.95	50.54	74	-23.46	peak
7236	37.95	-0.95	37	54	-17	Avg

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4824	62.13	-3.64	58.49	74	-15.51	peak
4824	44.05	-3.64	40.41	54	-13.59	Avg
7236	53.78	-0.95	52.83	74	-21.17	peak
7236	38.36	-0.95	37.41	54	-16.59	Avg

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



MID CH6 (802.11g Mode)/2437

Horizontal:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4874	61.57	-3.51	58.06	74	-15.94	peak
4874	44.06	-3.51	40.55	54	-13.45	AVG
7311	54.79	-0.82	53.97	74	-20.03	peak
7311	41.68	-0.82	40.86	54	-13.14	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency	Reading Result	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dB μ V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)	
4874	59.76	-3.51	56.25	74	-17.75	peak
4874	41.92	-3.51	38.41	54	-15.59	AVG
7311	51.76	-0.82	50.94	74	-23.06	peak
7311	40.46	-0.82	39.64	54	-14.36	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



HIGH CH11 (802.11g Mode)/2462

Horizontal:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4924	61.43	-3.43	58	74	-16	peak
4924	43.92	-3.43	40.49	54	-13.51	AVG
7386	53.67	-0.75	52.92	74	-21.08	peak
7386	38.15	-0.75	37.4	54	-16.6	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4924	61.52	-3.43	58.09	74	-15.91	peak
4924	43.79	-3.43	40.36	54	-13.64	AVG
7386	52.94	-0.75	52.19	74	-21.81	peak
7386	40.83	-0.75	40.08	54	-13.92	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes bandedge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified inprovision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Data of measurement within this frequency range shown "---" in the table above meansthe reading of emissions are attenuated more than 20dB below the permissible limits orthe field strength is too small to be measured.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHzfor measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, theAverage Detected is not need completed. For example: Top Channel at Fundamental73.16dB μ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) <54dB μ V/m(AV Limit), the Average Detected not need to completed.



LOW CH1 (802.11n/H20 Mode)/2412

Horizontal:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4824	62.84	-3.64	59.2	74	-14.8	peak
4824	44.51	-3.64	40.87	54	-13.13	AVG
7236	54.87	-0.95	53.92	74	-20.08	peak
7236	39.85	-0.95	38.9	54	-15.1	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4824	63.78	-3.64	60.14	74	-13.86	peak
4824	43.16	-3.64	39.52	54	-14.48	AVG
7236	53.94	-0.95	52.99	74	-21.01	peak
7236	42.79	-0.95	41.84	54	-12.16	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



MID CH6 (802.11n/H20 Mode)/2437

Horizontal:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4874.00	61.34	-3.51	57.83	74.00	-16.17	peak
4874.00	45.26	-3.51	41.75	54.00	-12.25	Avg
7311.00	54.92	-0.82	54.10	74.00	-19.90	peak
7311.00	41.37	-0.82	40.55	54.00	-13.45	Avg

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4874.00	62.59	-3.51	59.08	74.00	-14.92	peak
4874.00	43.56	-3.51	40.05	54.00	-13.95	Avg
7311.00	51.74	-0.82	50.92	74.00	-23.08	peak
7311.00	42.06	-0.82	41.24	54.00	-12.76	Avg

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



HIGH CH11 (802.11n/H20 Mode)/2462

Horizontal:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4924	62.54	-3.43	59.11	74	-14.89	peak
4924	44.29	-3.43	40.86	54	-13.14	AVG
7386	53.23	-0.75	52.48	74	-21.52	peak
7386	39.71	-0.75	38.96	54	-15.04	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
4924	61.52	-3.43	58.09	74	-15.91	peak
4924	43.57	-3.43	40.14	54	-13.86	AVG
7386	54.61	-0.75	53.86	74	-20.14	peak
7386	41.37	-0.75	40.62	54	-13.38	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes bandedge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified inprovision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Data of measurement within this frequency range shown “---” in the table above meansthe reading of emissions are attenuated more than 20dB below the permissible limits orthe field strength is too small to be measured.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHzfor measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, theAverage Detected is not need completed. For example: Top Channel at Fundamental73.16dB μ V/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dB μ V/m(PK Value) <54dB μ V/m(AV Limit), the Average Detected not need to completed.

**Test Result of Radiated Spurious at Band edges**

Operation Mode:
802.11b Mode TX CH Low (2412MHz)

Horizontal

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2310	57.28	-5.81	51.47	74	-22.53	peak
2310	45.19	-5.81	39.38	54	-14.62	Avg
2390	61.27	-5.84	55.43	74	-18.57	peak
2390	46.92	-5.84	41.08	54	-12.92	Avg
2400	62.58	-5.84	56.74	74	-17.26	peak
2400	45.16	-5.84	39.32	54	-14.68	Avg

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2310	59.23	-5.81	53.42	74	-20.58	peak
2310	41.52	-5.81	35.71	54	-18.29	Avg
2390	63.75	-5.84	57.91	74	-16.09	peak
2390	44.19	-5.84	38.35	54	-15.65	Avg
2400	63.57	-5.84	57.73	74	-16.27	peak
2400	44.98	-5.84	39.14	54	-14.86	Avg

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



Operation Mode: TX CH High (2462MHz)

Horizontal

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	57.35	-5.65	51.7	74	-22.3	peak
2483.50	43.16	-5.65	37.51	54	-16.49	AVG
2500.00	54.82	-5.65	49.17	74	-24.83	peak
2500.00	43.17	-5.65	37.52	54	-16.48	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	55.39	-5.65	49.74	74	-24.26	peak
2483.50	46.27	-5.65	40.62	54	-13.38	AVG
2500.00	54.23	-5.65	48.58	74	-25.42	peak
2500.00	43.86	-5.65	38.21	54	-15.79	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



Operation Mode: 802.11g Mode TX CH Low (2412MHz)

Horizontal

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2310	57.82	-5.81	52.01	74	-21.99	peak
2310	46.84	-5.81	41.03	54	-12.97	AVG
2390	64.21	-5.84	58.37	74	-15.63	peak
2390	45.29	-5.84	39.45	54	-14.55	AVG
2400	63.74	-5.84	57.9	74	-16.1	peak
2400	44.65	-5.84	38.81	54	-15.19	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2310	57.16	-5.81	51.35	74	-22.65	peak
2310	45.66	-5.81	39.85	54	-14.15	AVG
2390	62.85	-5.84	57.01	74	-16.99	peak
2390	47.31	-5.84	41.47	54	-12.53	AVG
2400	62.15	-5.84	56.31	74	-17.69	peak
2400	46.38	-5.84	40.54	54	-13.46	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



Operation Mode: TX CH High (2462MHz)

Horizontal

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	61.24	-5.65	55.59	74	-18.41	peak
2483.50	46.52	-5.65	40.87	54	-13.13	Avg
2500.00	60.27	-5.65	54.62	74	-19.38	peak
2500.00	45.16	-5.65	39.51	54	-14.49	Avg

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	57.92	-5.65	52.27	74	-21.73	peak
2483.50	43.15	-5.65	37.5	54	-16.5	Avg
2500.00	56.48	-5.65	50.83	74	-23.17	peak
2500.00	42.29	-5.65	36.64	54	-17.36	Avg

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



Operation Mode: 802.11n/H20 Mode TX CH Low (2412MHz)

Horizontal

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2310	56.18	-5.81	50.37	74	-23.63	peak
2310	42.95	-5.81	37.14	54	-16.86	Avg
2390	58.35	-5.84	52.51	74	-21.49	peak
2390	43.61	-5.84	37.77	54	-16.23	Avg
2400	59.29	-5.84	53.45	74	-20.55	peak
2400	44.06	-5.84	38.22	54	-15.78	Avg

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2310	59.65	-5.81	53.84	74	-20.16	peak
2310	46.22	-5.81	40.41	54	-13.59	Avg
2390	61.37	-5.84	55.53	74	-18.47	peak
2390	45.19	-5.84	39.35	54	-14.65	Avg
2400	60.08	-5.84	54.24	74	-19.76	peak
2400	45.16	-5.84	39.32	54	-14.68	Avg

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



Operation Mode: TX CH High (2462MHz)

Horizontal

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	55.16	-5.65	49.51	74	-24.49	peak
2483.50	43.92	-5.65	38.27	54	-15.73	AVG
2500.00	54.47	-5.65	48.82	74	-25.18	peak
2500.00	44.28	-5.65	38.63	54	-15.37	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

Frequency (MHz)	Reading Result (dB μ V)	Factor (dB)	Emission Level (dB μ V/m)	Limits (dB μ V/m)	Margin (dB)	Detector Type
2483.50	56.19	-5.65	50.54	74	-23.46	peak
2483.50	43.57	-5.65	37.92	54	-16.08	AVG
2500.00	55.69	-5.65	50.04	74	-23.96	peak
2500.00	44.12	-5.65	38.47	54	-15.53	AVG

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



4.7. ANTENNA REQUIREMENT

Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

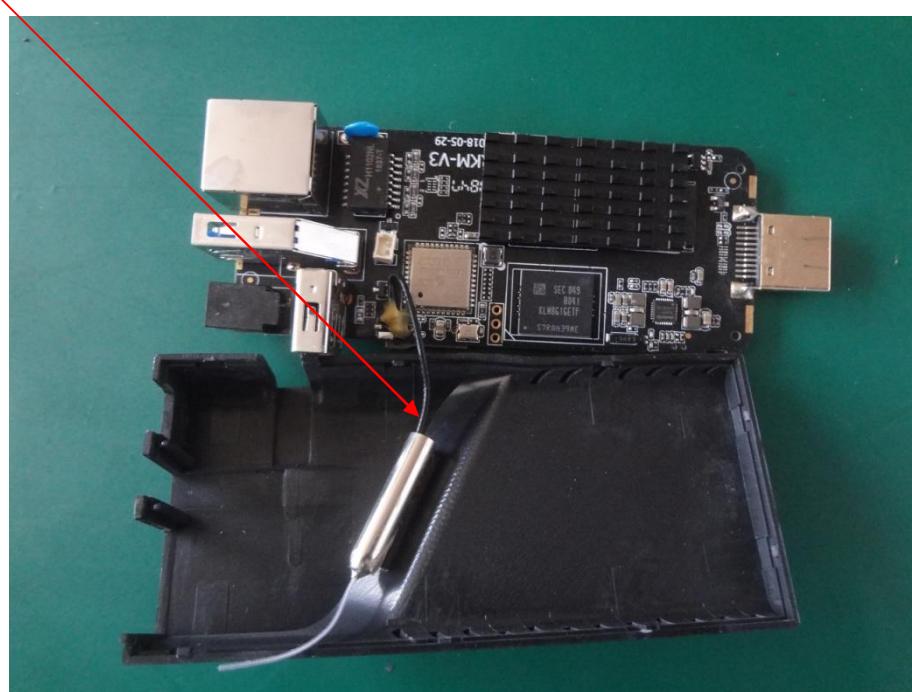
Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

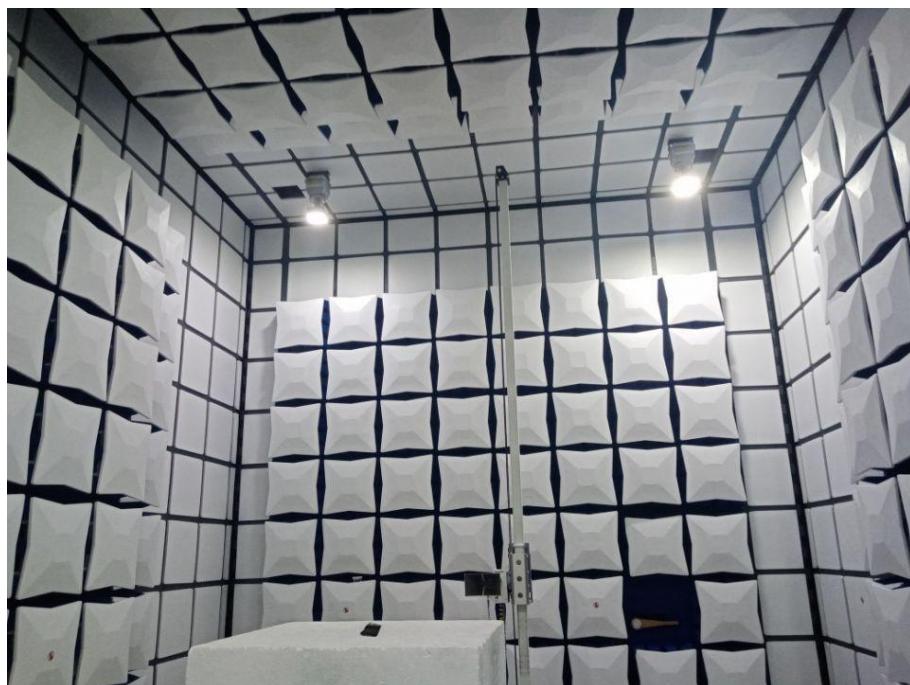
The antenna used in this product is a PCB Antenna. The directional gains of antenna used for transmitting is 0dBi.

WIFI ANTENNA



4.8. PHOTOGRAPH OF TEST

Radiated Emission





Conducted Emission

