

TEST REPORT

FCC ID: VMINVW800

Product: Wireless Network Video Recorder

Model No.: NVW-800

Additional Model No.: A03-H8108AQ-N-W, A03-H8008AQ-N-W



Trade Mark:

Report No.: TCT210423E006

Issued Date: May 20, 2021

Issued for:

Swann Communications Pty Ltd

Unit 5B, 706 Lorimer Street, Port Melbourne, 3207 Australia

Issued By:

SHENZHEN TONGCE TESTING LAB

**TCT Testing Industrial Park Fuqiao 5th Industrial Zone, Fuhai Street, Bao'an
District Shenzhen, Guangdong, 518103, People's Republic of China**

TEL: +86-755-27673339

FAX: +86-755-27673332

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1. Test Certification

Product:	Wireless Network Video Recorder
Model No.:	NVW-800
Additional Model No.:	A03-H8108AQ-N-W, A03-H8008AQ-N-W
Trade Mark:	 Swann
Applicant:	Swann Communications Pty Ltd
Address:	Unit 5B, 706 Lorimer Street, Port Melbourne, 3207 Australia
Manufacturer:	Swann Communications Pty Ltd
Address:	Unit 5B, 706 Lorimer Street, Port Melbourne, 3207 Australia
Date of Test:	Apr. 26, 2021 – May 19, 2021
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247 FCC KDB 558074 D01 15.247 Meas Guidance v05r01 FCC KDB 662911 D01 Multiple Transmitter Output v02r01 ANSI C63.10:2013

The above equipment has been tested by SHENZHEN TONGCE TESTING LAB and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By: Brave Zeng.

Brave Zeng

Date: May 19, 2021

Reviewed By: Beryl Zhao

Beryl Zhao

Date: May 20, 2021

Approved By: Tomsin

Tomsin

Date: May 20, 2021

2. Test Result Summary

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)	PASS
6dB Emission Bandwidth	§15.247 (a)(2)	PASS
Power Spectral Density	§15.247 (e)	PASS
Band Edge	§15.247(d)	PASS
Spurious Emission	§15.205/§15.209	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.

3. EUT Description

Product:	Wireless Network Video Recorder
Model No.:	NVW-800
Additional Model No.:	A03-H8108AQ-N-W, A03-H8008AQ-N-W
Trade Mark:	 Swann
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(HT20)) 2422MHz~2452MHz (802.11n(HT40))
Channel Separation:	5MHz
Number of Channel:	11 for 802.11b/802.11g/802.11n(HT20) 7 for 802.11n(HT40)
Modulation Technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)
Modulation Technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
Data speed (IEEE 802.11n):	Up to 150Mbps
Antenna Type:	Internal Antenna
Antenna Gain:	2.7dBi
Power Supply:	DC 12V
Remark:	1. All models above are identical in interior structure, electrical circuits and components, and just model names are different for the marketing requirement. 2. The EUT has two kinds of memory, one is 2Gb each for two chips, and the other is 4Gb for one chip.

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

Operation Frequency each of channel For 802.11b/g/n(HT20)

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

Operation Frequency each of channel For 802.11n (HT40)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
--	--	4	2427MHz	7	2442MHz	--	--
--	--	5	2432MHz	8	2447MHz	--	--
3	2422MHz	6	2437MHz	9	2452MHz		

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:

802.11b/802.11g/802.11n (HT20)

Channel	Frequency
The lowest channel	2412MHz
The middle channel	2437MHz
The Highest channel	2462MHz

802.11n (HT40)

Channel	Frequency
The lowest channel	2422MHz
The middle channel	2437MHz
The Highest channel	2452MHz

4. General Information

4.1. Test environment and mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
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 (Z axis) are shown in Test Results of the following pages.</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.

Mode	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n(H20)	6.5Mbps
802.11n(H40)	13.5Mbps

Final Test Mode:

Operation mode:	Keep the EUT in continuous transmitting with modulation
<p>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), 13.5Mbps for 802.11n(H40). Duty cycle setting during the transmission is 98.46% with maximum power setting for all modulations.</p>	

4.2. 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	CS-1202000	/	/	/

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.

5. Facilities and Accreditations

5.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098

SHENZHEN TONGCE TESTING LAB

Designation Number: CN1205

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

CAB identifier: CN0031

The 3m Semi-anechoic chamber of SHENZHEN TONGCE TESTING LAB has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

5.2. Location

SHENZHEN TONGCE TESTING LAB

Address: TCT Testing Industrial Park, Fuqiao 5th Industrial Zone, Fuhai Street, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

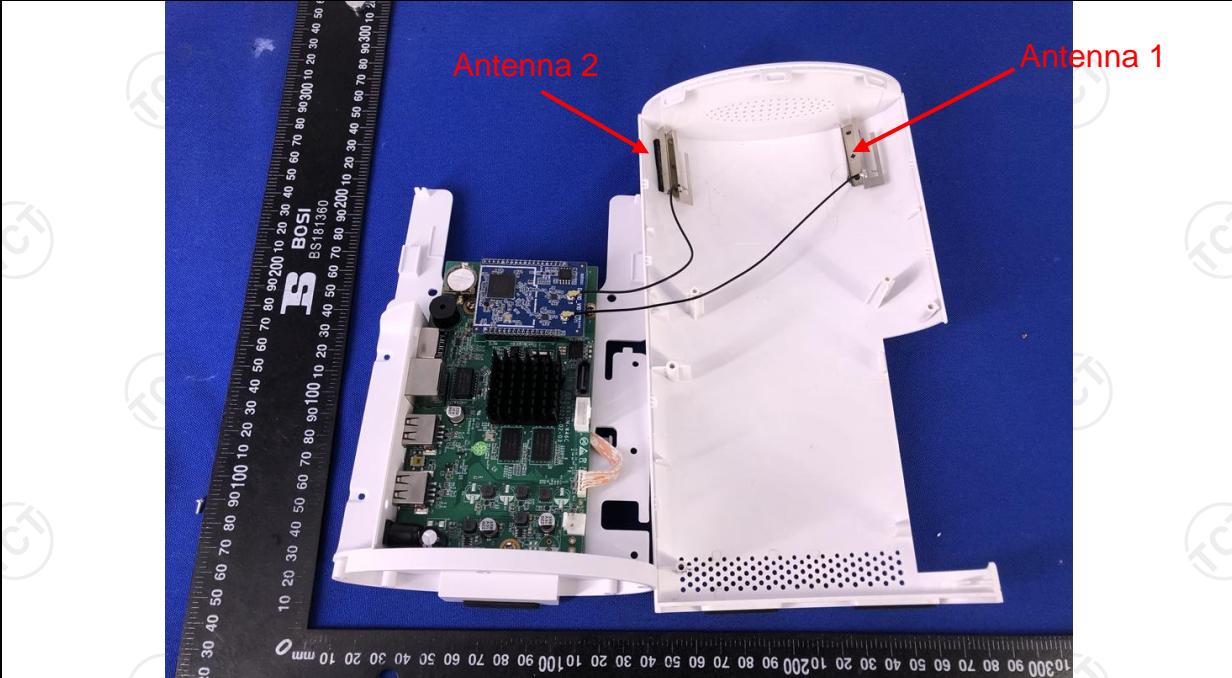
5.3. Measurement Uncertainty

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	$\pm 1.0\%$

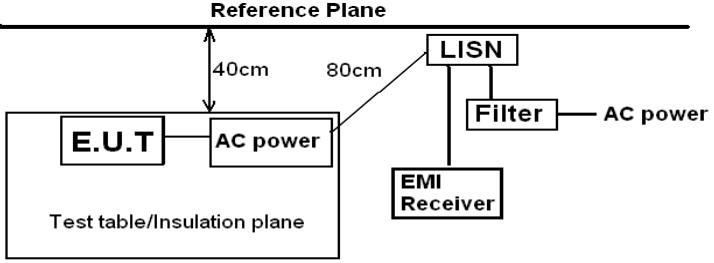
6. Test Results and Measurement Data

6.1. Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203 /247(c)
15.203 requirement: An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
15.247(c) (1)(i) requirement: (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.	
E.U.T Antenna:	
The EUT has two internal antennas, and the best case gains of the both antennas are 2.7dBi.	
	

6.2. Conducted Emission

6.2.1. 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 rowspan="2">Frequency range (MHz)</th> <th colspan="2">Limit (dBuV)</th> </tr> <tr> <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>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>														
Test Mode:	transmitting with modulation														
Test Procedure:	<ol style="list-style-type: none"> 1. The E.U.T and simulators are 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														

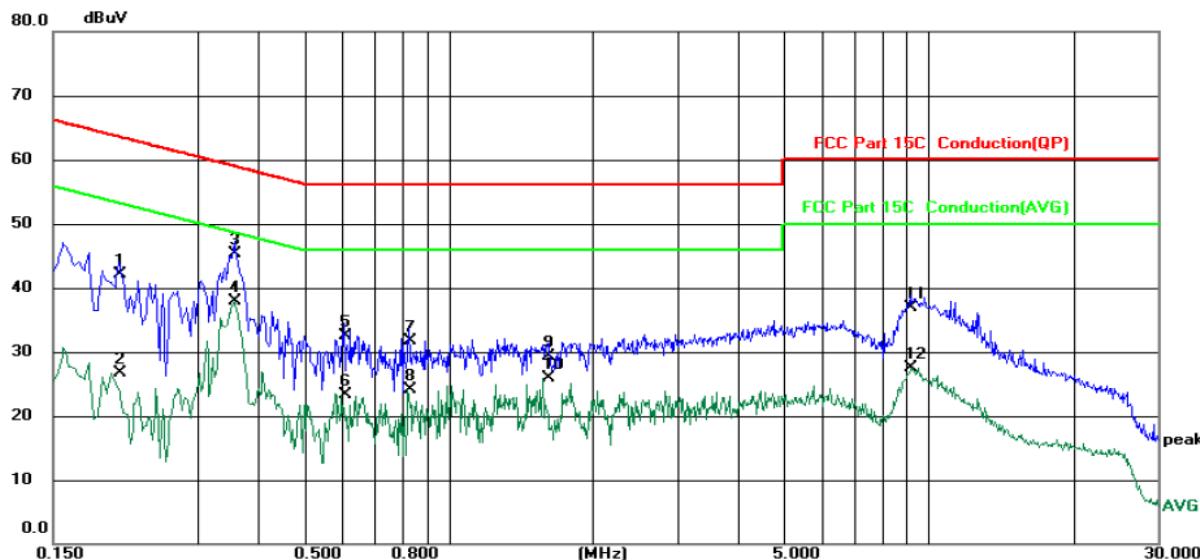
6.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	R&S	ESCI3	100898	Jul. 27, 2021
LISN-2	Schwarzbeck	NSLK 8126	8126453	Sep. 11, 2021
Line-5	TCT	CE-05	N/A	Sep. 02, 2021
EMI Test Software	Shurples Technology	EZ-EMC	N/A	N/A

6.2.3. Test data

Please refer to following diagram for individual

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



Site				Phase: L1			Temperature: 25 (C)	
Limit: FCC Part 15C Conduction(QP)				Power: AC 120 V/60 Hz			Humidity: 55 %RH	
No.	Mk.	Reading	Correct	Measure-	Limit	Over	Comment	
		MHz	dBuV	dB	dBuV	dB		
1	0.2060	32.75	9.40	42.15	63.37	-21.22	QP	
2	0.2060	17.24	9.40	26.64	53.37	-26.73	AVG	
3	0.3580	35.96	9.31	45.27	58.77	-13.50	QP	
4 *	0.3580	28.65	9.31	37.96	48.77	-10.81	AVG	
5	0.6060	23.31	9.24	32.55	56.00	-23.45	QP	
6	0.6060	14.00	9.24	23.24	46.00	-22.76	AVG	
7	0.8300	22.40	9.31	31.71	56.00	-24.29	QP	
8	0.8300	14.81	9.31	24.12	46.00	-21.88	AVG	
9	1.6180	19.91	9.47	29.38	56.00	-26.62	QP	
10	1.6180	16.37	9.47	25.84	46.00	-20.16	AVG	
11	9.1899	27.27	9.65	36.92	60.00	-23.08	QP	
12	9.1899	17.82	9.65	27.47	50.00	-22.53	AVG	

Note:

Freq. = Emission frequency in MHz

Reading level (dB μ V) = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement (dB μ V) = Reading level (dB μ V) + Corr. Factor (dB)

Limit (dB μ V) = Limit stated in standard

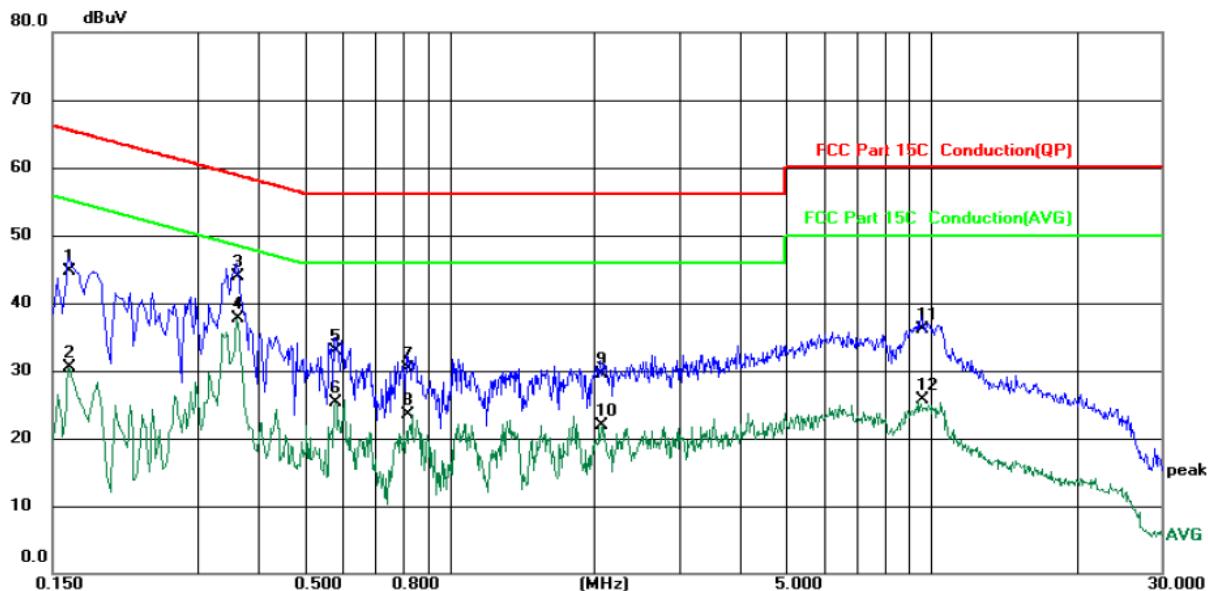
Margin (dB) = Measurement (dB μ V) – Limits (dB μ V)

Q.P. =Quasi-Peak

AVG =average

* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz

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



Site			Phase: <i>N</i>			Temperature: 25 (C)	
Limit: FCC Part 15C Conduction(QP)			Power: AC 120 V/60 Hz			Humidity: 55 %RH	
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dB μ V	dB	dB μ V	dB	Detector
1		0.1620	35.25	9.43	44.68	65.36	-20.68
2		0.1620	21.14	9.43	30.57	55.36	-24.79
3		0.3620	34.56	9.33	43.89	58.68	-14.79
4 *		0.3620	28.34	9.33	37.67	48.68	-11.01
5		0.5780	23.66	9.27	32.93	56.00	-23.07
6		0.5780	16.00	9.27	25.27	46.00	-20.73
7		0.8139	21.06	9.32	30.38	56.00	-25.62
8		0.8139	14.27	9.32	23.59	46.00	-22.41
9		2.0620	20.13	9.45	29.58	56.00	-26.42
10		2.0620	12.43	9.45	21.88	46.00	-24.12
11		9.5300	26.48	9.67	36.15	60.00	-23.85
12		9.5300	15.98	9.67	25.65	50.00	-24.35

Note1:

Freq. = Emission frequency in MHz

Reading level (dB μ V) = Receiver reading

Corr. Factor (dB) = LISN factor + Cable loss

Measurement (dB μ V) = Reading level (dB μ V) + Corr. Factor (dB)

Limit (dB μ V) = Limit stated in standard

Margin (dB) = Measurement (dB μ V) – Limits (dB μ V)

Q.P. =Quasi-Peak AVG =average

* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

Note2:

Both memory have been tested, Only the data of the worse memory(single chip of 4Gb) is listed.

6.3. Maximum Conducted (Average) Output Power

6.3.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB 558074 D01 v05r01, KDB662911 D01 v02r01
Limit:	30dBm
Test Setup:	<p style="text-align: center;">Spectrum Analyzer EUT</p>
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none"> 1. 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. 2. Set to the maximum power setting and enable the EUT transmit continuously. 3. Measure the conducted output power and record the results in the test report.
Test Result:	PASS

6.3.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 11, 2021
RF Cable (9KHz-26.5GHz)	TCT	RE-06	N/A	Sep. 11, 2021
Antenna Connector	TCT	RFC-01	N/A	Sep. 11, 2021

6.3.3. Test Data

Configuration IEEE 802.11b/ Antenna 1+Antenna 2

Test channel	Maximum Conducted (Average) Output Power (dBm)		Limit (dBm)	Result
	Antenna 1	Antenna 2		
Lowest	15.55	14.67	30.00	PASS
Middle	14.38	16.23	30.00	PASS
Highest	15.13	15.13	30.00	PASS

Configuration IEEE 802.11g/ Antenna 1+Antenna 2

Test channel	Maximum Conducted (Average) Output Power (dBm)		Limit (dBm)	Result
	Antenna 1	Antenna 2		
Lowest	14.03	15.02	30.00	PASS
Middle	14.88	14.93	30.00	PASS
Highest	14.83	13.91	30.00	PASS

Configuration IEEE 802.11n(H20)/ Antenna 1+Antenna 2

Test channel	Maximum Conducted (Average) Output Power (dBm)			Limit (dBm)	Result
	Antenna 1	Antenna 2	Total		
Lowest	14.31	13.54	16.95	30.00	PASS
Middle	14.20	14.27	17.25	30.00	PASS
Highest	14.23	13.27	16.79	30.00	PASS

Configuration IEEE 802.11n(H40)/ Antenna 1+Antenna 2

Test channel	Maximum Conducted (Average) Output Power (dBm)			Limit (dBm)	Result
	Antenna 1	Antenna 2	Total		
Lowest	14.63	13.33	17.04	30.00	PASS
Middle	14.26	14.20	17.24	30.00	PASS
Highest	14.33	14.25	17.30	30.00	PASS

Note: $G_{ANT} = 2.7\text{dBi}$, Array Gain= $10\log(N_{ANT}/NSS) = 3.01\text{dBi}$

Directional Gain= $G_{ANT} + \text{Array Gain} = 5.71\text{dBi} < 6\text{dBi}$, So limit=30dBm

Refer to Appendix A: Test Result of Conducted Test

6.4. Emission Bandwidth

6.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB 558074 D01 v05r01
Limit:	>500kHz
Test Setup:	 <p>Spectrum Analyzer EUT</p>
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none"> 1. Set to the maximum power setting and enable the EUT transmit continuously. 2. 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. 3. Measure and record the results in the test report.
Test Result:	PASS

6.4.2. Test Instruments

RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 11, 2021
RF Cable (9KHz-26.5GHz)	TCT	RE-06	N/A	Sep. 11, 2021
Antenna Connector	TCT	RFC-01	N/A	Sep. 11, 2021

6.5. Power Spectral Density

6.5.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB 558074 D01 v05r01, KDB662911 D01 v02r01
Limit:	The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.
Test Setup:	 <p style="text-align: center;">Spectrum Analyzer EUT</p>
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none"> 1. 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. 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): $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$. Video bandwidth $\text{VBW} \geq 3 \times \text{RBW}$. Set the span to at least 1.5 times the OBW. 4. Detector = RMS, Sweep time = auto couple. 5. Employ trace averaging (RMS) mode over a minimum of 100 traces. Use the peak marker function to determine the maximum power level. 6. Measure and record the results in the test report.
Test Result:	PASS

6.5.2. Test Instruments

RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 11, 2021
RF Cable (9KHz-26.5GHz)	TCT	RE-06	N/A	Sep. 11, 2021
Antenna Connector	TCT	RFC-01	N/A	Sep. 11, 2021

6.5.3. Test data

Configuration IEEE 802.11b/ Antenna 1, Antenna 2

Test channel	AVG Power Spectral Density (dBm/3kHz)		Limit (dBm/3kHz)	Result
	Antenna 1	Antenna 2		
Lowest	-11.07	-11.69	8.00	PASS
Middle	-12.15	-10.10	8.00	PASS
Highest	-11.20	-11.33	8.00	PASS

Configuration IEEE 802.11g/ Antenna 1, Antenna 2

Test channel	AVG Power Spectral Density (dBm/3kHz)		Limit (dBm/3kHz)	Result
	Antenna 1	Antenna 2		
Lowest	-13.23	-12.57	8.00	PASS
Middle	-12.41	-11.92	8.00	PASS
Highest	-12.45	-13.58	8.00	PASS

Configuration IEEE 802.11n (HT20)/ Antenna 1, Antenna 2

Test channel	AVG Power Spectral Density (dBm/3kHz)			Limit (dBm/3kHz)	Result
	Antenna 1	Antenna 2	Total		
Lowest	-13.19	-13.49	-10.33	8.00	PASS
Middle	-13.46	-13.42	-10.43	8.00	PASS
Highest	-13.37	-14.20	-10.75	8.00	PASS

Configuration IEEE 802.11n (HT40)/ Antenna 1, Antenna 2

Test channel	AVG Power Spectral Density (dBm/3kHz)			Limit (dBm/3kHz)	Result
	Antenna 1	Antenna 2	Total		
Lowest	-16.06	-17.34	-13.64	8.00	PASS
Middle	-16.30	-16.51	-13.39	8.00	PASS
Highest	-16.40	-16.39	-13.38	8.00	PASS

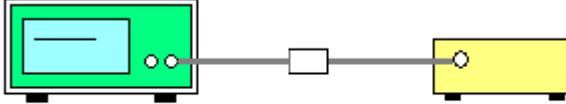
Note: $G_{ANT} = 2.7\text{dBi}$, Array Gain= $10\log(NANT/NSS) = 3.01\text{dBi}$

Directional Gain= $G_{ANT} + \text{Array Gain} = 5.71\text{dBi} < 6\text{dBi}$, So limit=8dBm/3kHz

Refer to Appendix A: Test Result of Conducted Test

6.6. Conducted Band Edge and Spurious Emission Measurement

6.6.1. Test Specification

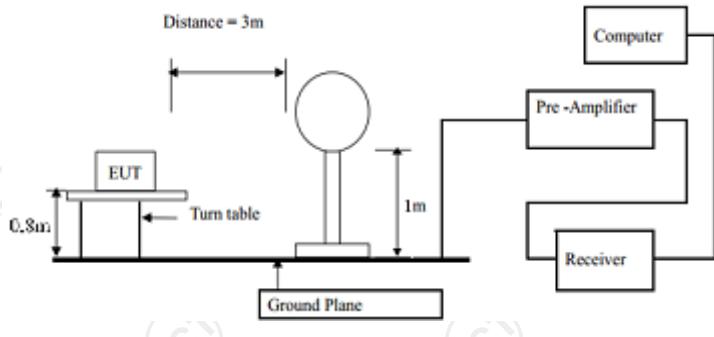
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB 558074 D01 v05r01
Limit:	In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by 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:	 <p style="text-align: center;">Spectrum Analyzer EUT</p>
Test Mode:	Transmitting mode with modulation
Test Procedure:	<ol style="list-style-type: none"> 1. 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. 2. Set to the maximum power setting and enable the EUT transmit continuously. 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.
Test Result:	PASS

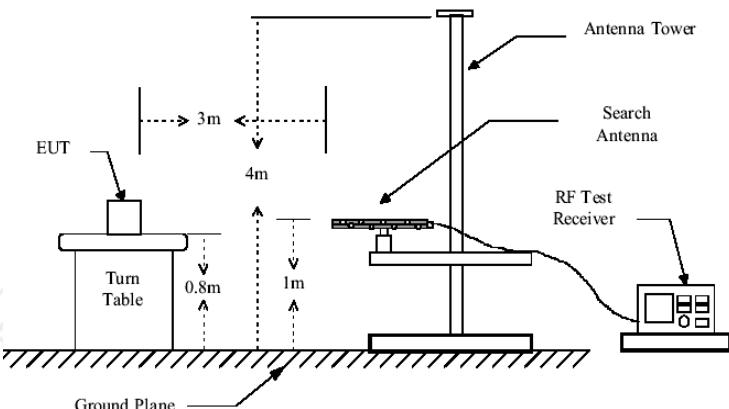
6.6.2. Test Instruments

RF Test Room				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 11, 2021
RF Cable (9KHz-26.5GHz)	TCT	RE-06	N/A	Sep. 11, 2021
Antenna Connector	TCT	RFC-01	N/A	Sep. 11, 2021

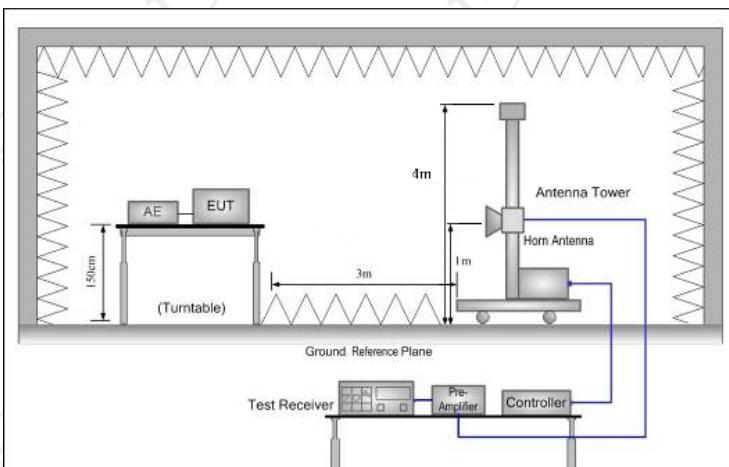
6.7. Radiated Spurious Emission Measurement

6.7.1. 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>120KHz</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	120KHz	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	120KHz	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> <th></th> </tr> </thead> <tbody> <tr> <td>0.009-0.490</td> <td>2400/F(KHz)</td> <td>300</td> <td></td> </tr> <tr> <td>0.490-1.705</td> <td>24000/F(KHz)</td> <td>30</td> <td></td> </tr> <tr> <td>1.705-30</td> <td>30</td> <td>30</td> <td></td> </tr> <tr> <td>30-88</td> <td>100</td> <td>3</td> <td></td> </tr> <tr> <td>88-216</td> <td>150</td> <td>3</td> <td></td> </tr> <tr> <td>216-960</td> <td>200</td> <td>3</td> <td></td> </tr> <tr> <td>Above 960</td> <td>500</td> <td>3</td> <td></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>Distance = 3m</p> <p>Turn table</p> <p>0.8m</p> <p>1m</p> <p>Ground Plane</p> <p>30MHz to 1GHz</p>																																															



Above 1GHz



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 high PASS 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

Test Procedure:

	<p>measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.</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=120 kHz for $f < 1$ GHz; $VBW \geq RBW$; Sweep = auto; Detector function = peak; Trace = max hold;(3) Set RBW = 1 MHz, $VBW = 3$ MHz for $f > 1$ 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

6.7.2. Test Instruments

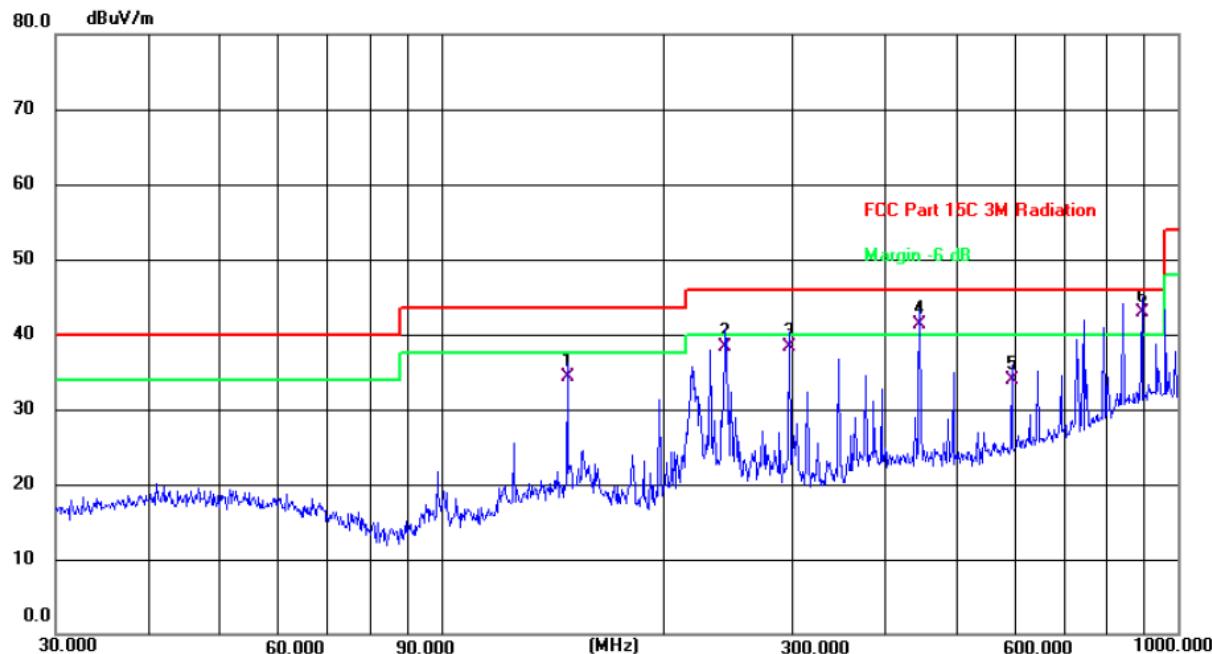
Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	ROHDE&SCHW ARZ	ESIB7	100197	Jul. 27, 2021
Spectrum Analyzer	ROHDE&SCHW ARZ	FSQ40	200061	Sep. 11, 2021
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 02, 2021
Pre-amplifier	HP	8447D	2727A05017	Sep. 02, 2021
Loop antenna	ZHINAN	ZN30900A	12024	Sep. 05, 2022
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 04, 2022
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 04, 2022
Horn Antenna	A-INFO	LB-180400-KF	J211020657	Sep. 04, 2022
Antenna Mast	Keleto	RE-AM	N/A	N/A
Line-4	TCT	RE-high-04	N/A	Sep. 02, 2021
Line-8	TCT	RE-01	N/A	Sep. 02, 2021
EMI Test Software	Shurples Technology	EZ-EMC	N/A	N/A

6.7.3. Test Data

Please refer to following diagram for individual

Below 1GHz

Horizontal:



Site

Polarization: *Horizontal*

Temperature: 24.9(C)

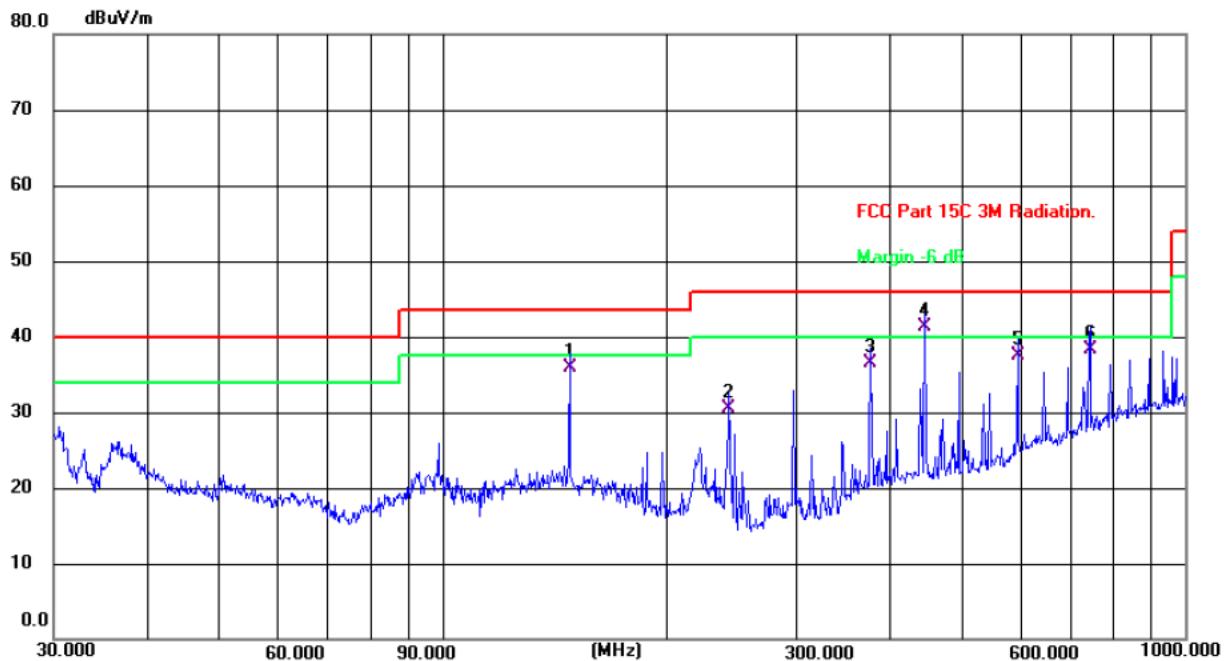
Limit: FCC Part 15C 3M Radiation

Power:

Humidity: 51 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	148.4410	21.03	13.31	34.34	43.50	-9.16	QP	P
2	243.3771	25.66	12.74	38.40	46.00	-7.60	QP	P
3	297.2238	24.48	13.80	38.28	46.00	-7.72	QP	P
4 !	446.4139	23.03	18.25	41.28	46.00	-4.72	QP	P
5	595.1326	12.67	21.17	33.84	46.00	-12.16	QP	P
6 *	893.8564	16.54	26.41	42.95	46.00	-3.05	QP	P

Vertical:



Site

 Polarization: **Vertical**

Temperature: 24.9(C)

Limit: FCC Part 15C 3M Radiation.

Power:

Humidity: 51 %

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	148.4410	22.59	13.31	35.90	43.50	-7.60	QP	P
2	243.3771	17.76	12.74	30.50	46.00	-15.50	QP	P
3	377.2590	20.11	16.46	36.57	46.00	-9.43	QP	P
4 *	446.4139	23.05	18.25	41.30	46.00	-4.70	QP	P
5	595.1326	16.42	21.17	37.59	46.00	-8.41	QP	P
6	744.8659	14.44	23.84	38.28	46.00	-7.72	QP	P

Note: 1. The low frequency, which started from 9KHz~30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported

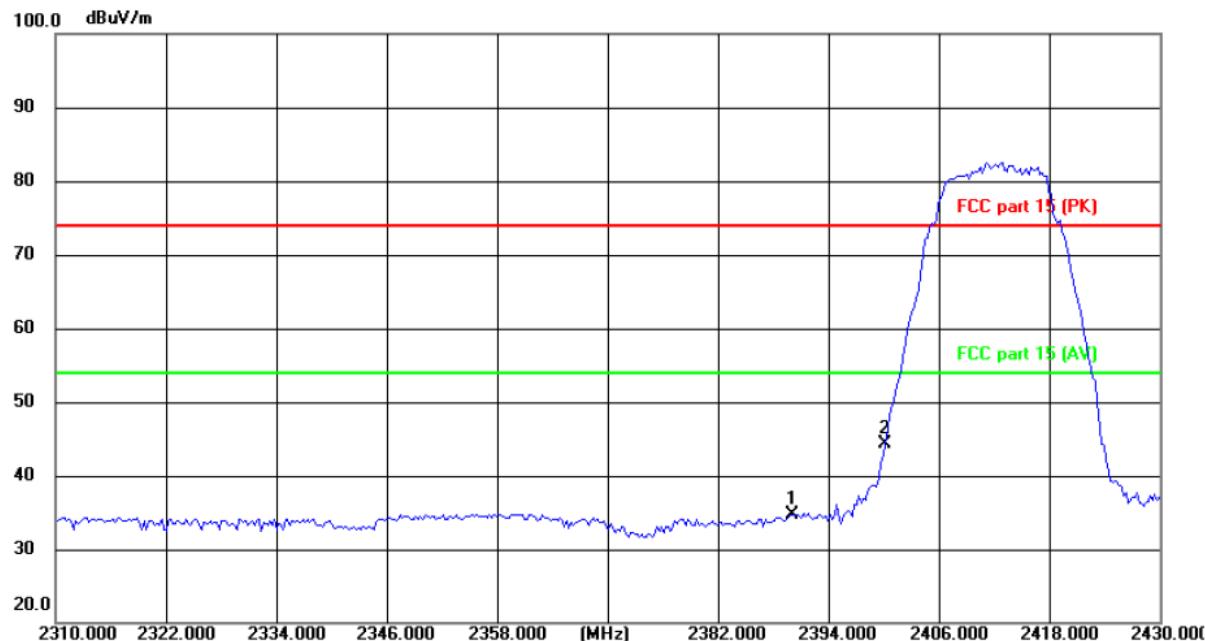
2. Measurements were conducted in all three channels (high, middle, low) and all modulation (802.11b, 802.11g, 802.11n(HT20), 802.11n(HT40)), and the worst case Mode (Middle channel and 802.11b)

3. Both memory have been tested, Only the data of the worse memory(single chip of 4Gb) is listed.

Test Result of Radiated Spurious at Band edges

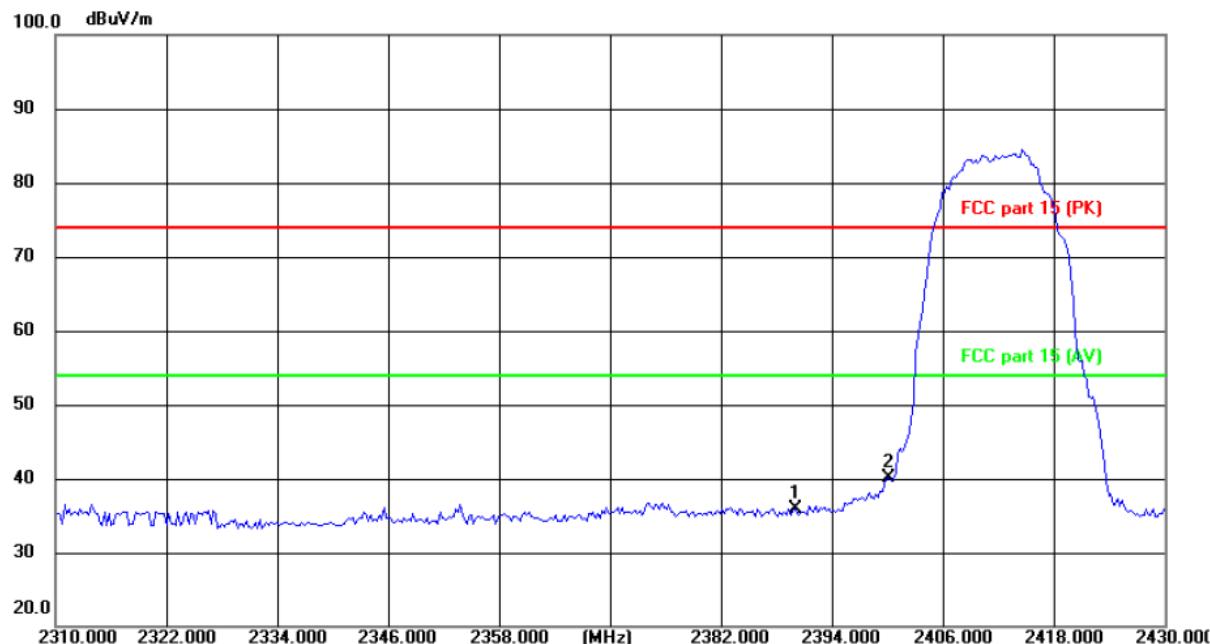
Lowest channel 2412:

Horizontal:



Site		Polarization: <i>Horizontal</i>		Temperature: 25(C)		
Limit: FCC part 15 (PK)		Power:		Humidity: 55 %		
No.	Mk.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dBuV	dB	dB/m	dB
1		2390.000	47.89	-13.15	34.74	74.00 -39.26 peak
2	*	2400.000	57.41	-13.12	44.29	74.00 -29.71 peak

Vertical:



Site

Polarization: **Vertical**

Temperature: 25(C)

Limit: FCC part 15 (PK)

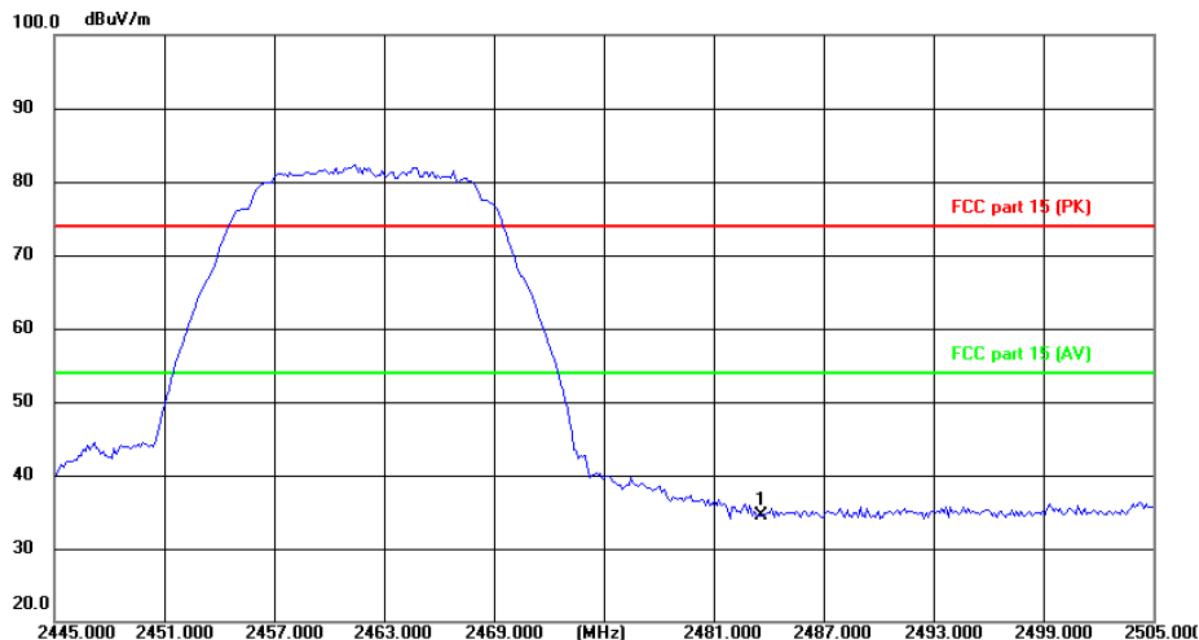
Power:

Humidity: 55 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		2390.000	48.96	-13.15	35.81	74.00	-38.19	peak
2	*	2400.000	53.19	-13.12	40.07	74.00	-33.93	peak

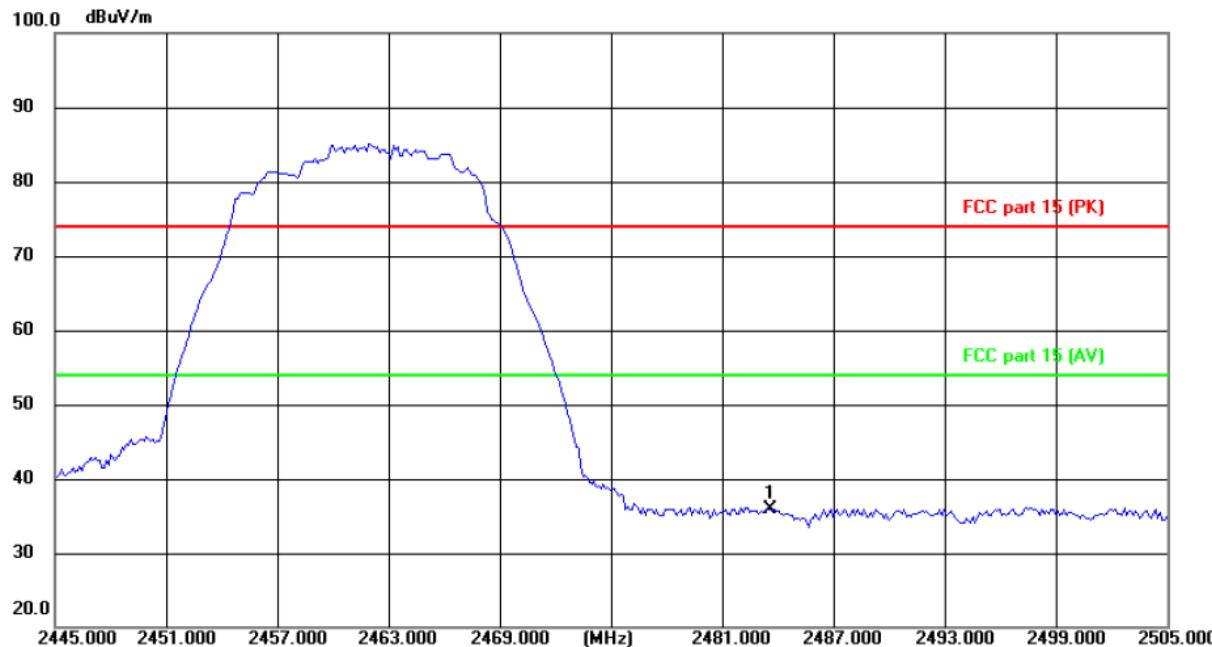
Highest channel 2462:

Horizontal:



Site			Polarization: <i>Horizontal</i>		Temperature: 25(C)		
Limit: FCC part 15 (PK)			Power:		Humidity: 55 %		
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over
		MHz	dBuV	dB	dBuV/m	dB/m	dB
1	*	2483.500	47.15	-12.74	34.41	74.00	-39.59 peak

Vertical:



Site

Polarization: **Vertical**

Temperature: 25(C)

Limit: FCC part 15 (PK)

Power:

Humidity: 55 %

No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over
			Level	Factor	ment		
		MHz	dBuV	dB	dBuV/m	dB/m	dB
1	*	2483.500	48.68	-12.74	35.94	74.00	-38.06 peak

Note:

1. Peak Final Emission Level=Peak Reading + Correction Factor;
2. Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
3. Measurements were conducted in all modulation(802.11b, 802.11g, 802.11n(HT20), 802.11n(HT40)), and the worst case Mode 802.11b) was submitted only.
4. Both memory have been tested, Only the data of the worse memory(single chip of 4Gb) is listed.

Above 1GHz

Modulation Type: 802.11b

Low channel: 2412 MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4824	H	47.37	---	0.75	48.12	---	74	54	-5.88
7236	H	36.84	---	9.87	46.71	---	74	54	-7.29
---	H	---	---	---	---	---	---	---	---
4824	V	44.72	---	0.75	45.47	---	74	54	-8.53
7236	V	33.96	---	9.87	43.83	---	74	54	-10.17
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4874	H	47.14	---	0.97	48.11	---	74	54	-5.89
7311	H	34.52	---	9.83	44.35	---	74	54	-9.65
---	H	---	---	---	---	---	---	---	---
4874	V	48.97	---	0.97	49.94	---	74	54	-4.06
7311	V	39.33	---	9.83	49.16	---	74	54	-4.84
---	V	---	---	---	---	---	---	---	---

High channel: 2462 MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4924	H	45.98	---	1.18	47.16	---	74	54	-6.84
7386	H	37.37	---	10.07	47.44	---	74	54	-6.56
---	H	---	---	---	---	---	---	---	---
4924	V	49.75	---	1.18	50.93	---	74	54	-3.07
7386	V	40.54	---	10.07	50.61	---	74	54	-3.39
---	V	---	---	---	---	---	---	---	---

Note:

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
2. Margin (dB) = Emission Level (Peak) (dB μ V/m)-Average limit (dB μ V/m)
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency. The highest test frequency is 25GHz.
5. Data of measurement shown “---” in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.
6. Both memory have been tested, Only the data of the worse memory(single chip of 4Gb) is listed.

Modulation Type: 802.11g

Low channel: 2412 MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4824	H	41.91	---	0.75	42.66	---	74	54	-11.34
7236	H	33.85	---	9.87	43.72	---	74	54	-10.28
---	H	---	---	---	---	---	---	---	---
4824	V	42.49	---	0.75	43.24	---	74	54	-10.76
7236	V	33.97	---	9.87	43.84	---	74	54	-10.16
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4874	H	42.48	---	0.97	43.45	---	74	54	-10.55
7311	H	35.96	---	9.83	45.79	---	74	54	-8.21
---	H	---	---	---	---	---	---	---	---
4874	V	42.89	---	0.97	43.86	---	74	54	-10.14
7311	V	35.03	---	9.83	44.86	---	74	54	-9.14
---	V	---	---	---	---	---	---	---	---

High channel: 2462 MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4924	H	43.27	---	1.18	44.45	---	74	54	-9.55
7386	H	34.86	---	10.07	44.93	---	74	54	-9.07
---	H	---	---	---	---	---	---	---	---
4924	V	41.54	---	1.18	42.72	---	74	54	-11.28
7386	V	33.22	---	10.07	43.29	---	74	54	-10.71
---	V	---	---	---	---	---	---	---	---

Note:

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
2. Margin (dB) = Emission Level (Peak) (dB μ V/m)-Average limit (dB μ V/m)
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency. The highest test frequency is 25GHz.
5. Data of measurement shown “---” in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.
6. Both memory have been tested, Only the data of the worse memory(single chip of 4Gb) is listed.

Modulation Type: 802.11n (HT20)

Low channel: 2412 MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4824	H	44.51	---	0.75	45.26	---	74	54	-8.74
7236	H	35.72	---	9.87	45.59	---	74	54	-8.41
---	H	---	---	---	---	---	---	---	---
4824	V	44.89	---	0.75	45.64	---	74	54	-8.36
7236	V	34.93	---	9.87	44.80	---	74	54	-9.20
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4874	H	46.54	---	0.97	47.51	---	74	54	-6.49
7311	H	36.07	---	9.83	45.90	---	74	54	-8.10
---	H	---	---	---	---	---	---	---	---
4874	V	44.84	---	0.97	45.81	---	74	54	-8.19
7311	V	34.77	---	9.83	44.60	---	74	54	-9.40
---	V	---	---	---	---	---	---	---	---

High channel: 2462 MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4924	H	44.18	---	1.18	45.36	---	74	54	-8.64
7386	H	33.39	---	10.07	43.46	---	74	54	-10.54
---	H	---	---	---	---	---	---	---	---
4924	V	42.92	---	1.18	44.10	---	74	54	-9.90
7386	V	33.47	---	10.07	43.54	---	74	54	-10.46
---	V	---	---	---	---	---	---	---	---

Note:

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
2. Margin (dB) = Emission Level (Peak) (dB μ V/m)-Average limit (dB μ V/m)
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency. The highest test frequency is 25GHz.
5. Data of measurement shown “---” in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.
6. Both memory have been tested, Only the data of the worse memory(single chip of 4Gb) is listed.

Modulation Type: 802.11n (HT40)

Low channel: 2422 MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4844	H	42.98	---	0.75	43.73	---	74	54	-10.27
7266	H	33.37	---	9.87	43.24	---	74	54	-10.76
---	H	---	---	---	---	---	---	---	---
4824	V	42.87	---	0.75	43.62	---	74	54	-10.38
7236	V	32.42	---	9.87	42.29	---	74	54	-11.71
---	V	---	---	---	---	---	---	---	---

Middle channel: 2437MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4874	H	44.02	---	0.97	44.99	---	74	54	-9.01
7311	H	33.97	---	9.83	43.80	---	74	54	-10.20
---	H	---	---	---	---	---	---	---	---
4874	V	42.47	---	0.97	43.44	---	74	54	-10.56
7311	V	32.36	---	9.83	42.19	---	74	54	-11.81
---	V	---	---	---	---	---	---	---	---

High channel: 2452 MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dB μ V)	AV reading (dB μ V)	Correction Factor (dB/m)	Emission Level		Peak limit (dB μ V/m)	AV limit (dB μ V/m)	Margin (dB)
					Peak (dB μ V/m)	AV (dB μ V/m)			
4904	H	44.17	---	1.18	45.35	---	74	54	-8.65
7356	H	33.78	---	10.07	43.85	---	74	54	-10.15
---	H	---	---	---	---	---	---	---	---
4904	V	42.95	---	1.18	44.13	---	74	54	-9.87
7356	V	35.19	---	10.07	45.26	---	74	54	-8.74
---	V	---	---	---	---	---	---	---	---

Note:

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss – Pre-amplifier
2. Margin (dB) = Emission Level (Peak) (dB μ V/m)-Average limit (dB μ V/m)
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency. The highest test frequency is 25GHz.
5. Data of measurement shown “---” in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.
6. Both memory have been tested, Only the data of the worse memory(single chip of 4Gb) is listed.

Appendix A: Test Result of Conducted Test

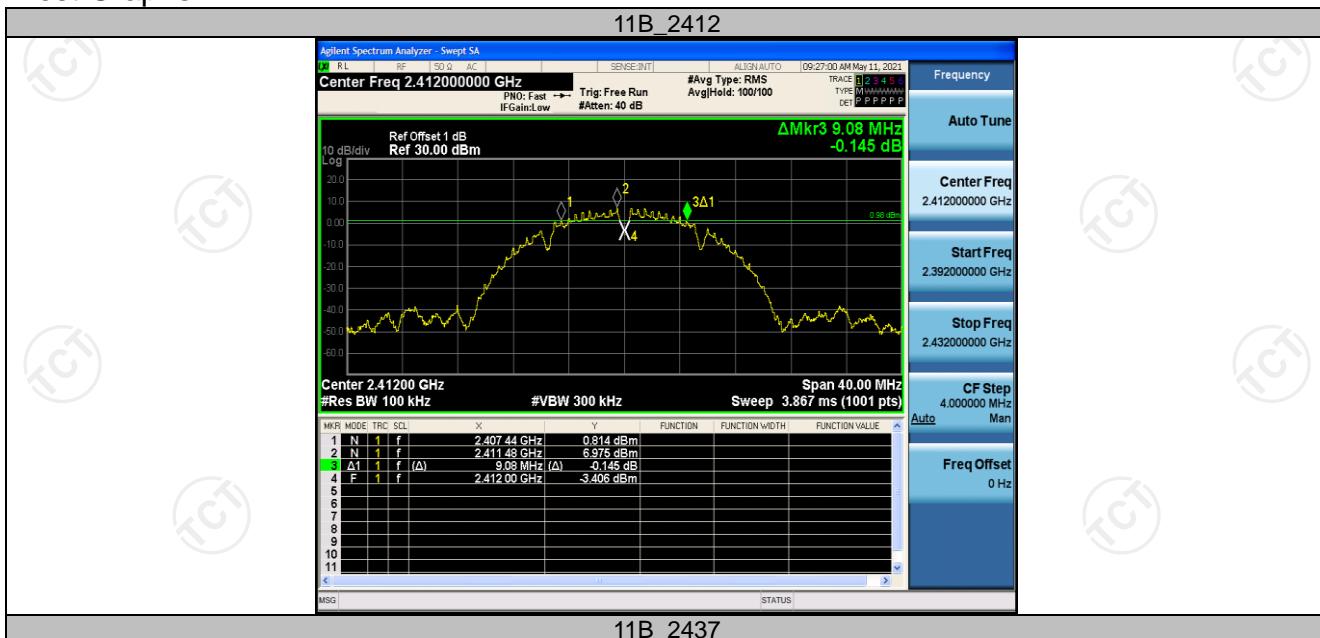
Antenna 1

DTS Bandwidth

Test Result

Test Mode	Channel	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	2412	9.080	2407.440	2416.520	0.5	PASS
	2437	8.640	2432.920	2441.560	0.5	PASS
	2462	9.160	2457.400	2466.560	0.5	PASS
11G	2412	15.920	2404.040	2419.960	0.5	PASS
	2437	15.560	2429.040	2444.600	0.5	PASS
	2462	15.960	2453.840	2469.800	0.5	PASS
11N20SISO	2412	17.120	2403.480	2420.600	0.5	PASS
	2437	17.640	2428.200	2445.840	0.5	PASS
	2462	17.440	2453.400	2470.840	0.5	PASS
11N40SISO	2422	36.080	2404.160	2440.240	0.5	PASS
	2437	35.920	2419.080	2455.000	0.5	PASS
	2452	35.600	2434.400	2470.000	0.5	PASS

Test Graphs









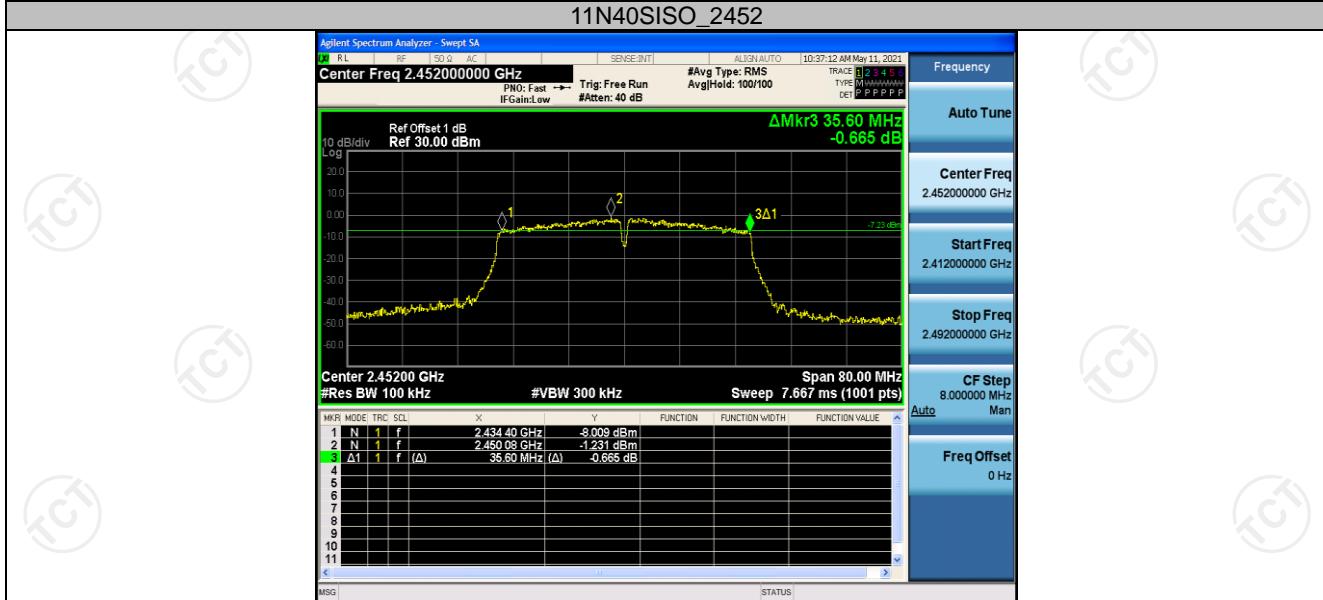
11N20SISO_2462



11N40SISO_2422



11N40SISO_2437



Maximum conducted output power

Test Result

Test Mode	Channel	Result[dBm]	Limit[dBm]	Verdict
11B	2412	15.55	<=30	PASS
	2437	14.38	<=30	PASS
	2462	15.13	<=30	PASS
11G	2412	14.03	<=30	PASS
	2437	14.88	<=30	PASS
	2462	14.83	<=30	PASS
11N20SISO	2412	14.31	<=30	PASS
	2437	14.20	<=30	PASS
	2462	14.23	<=30	PASS
11N40SISO	2422	14.63	<=30	PASS
	2437	14.26	<=30	PASS
	2452	14.33	<=30	PASS

Test Graphs



11B_2462



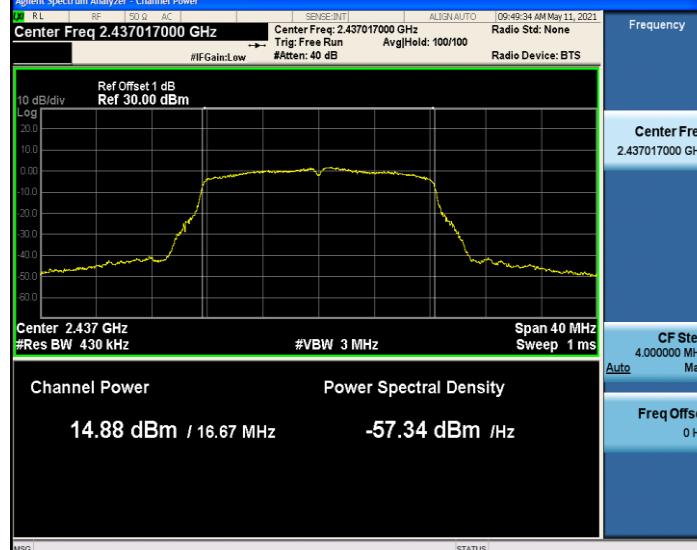
MSG STATUS

11G_2412



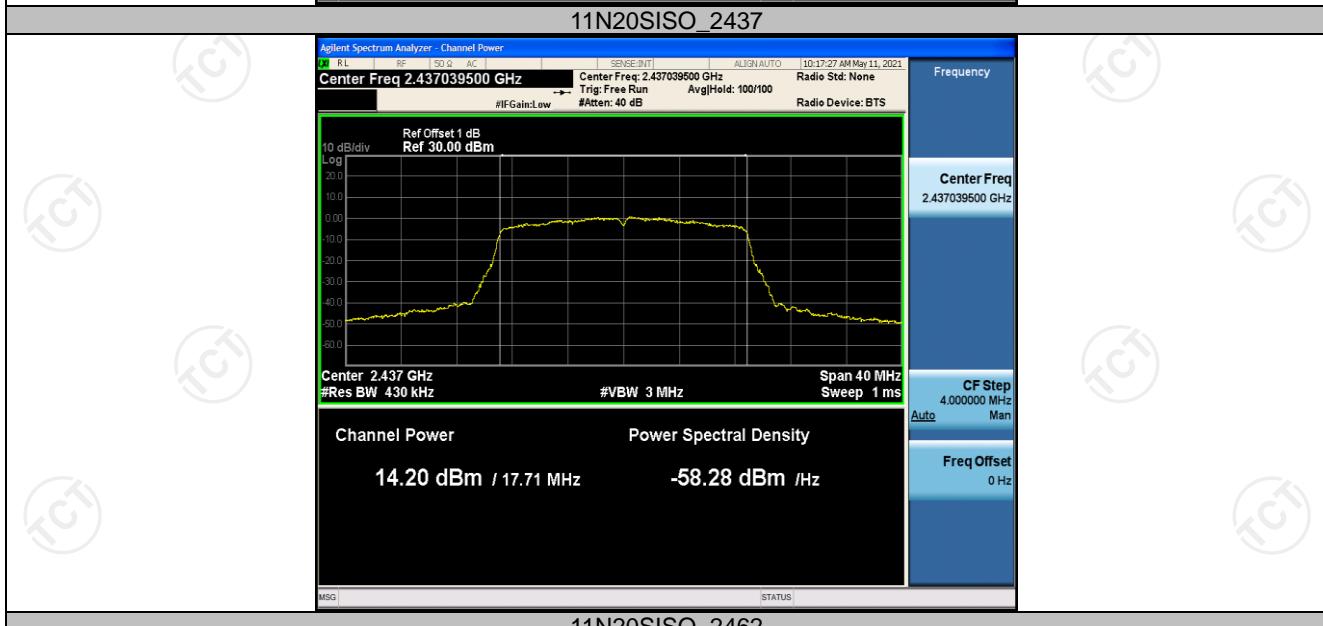
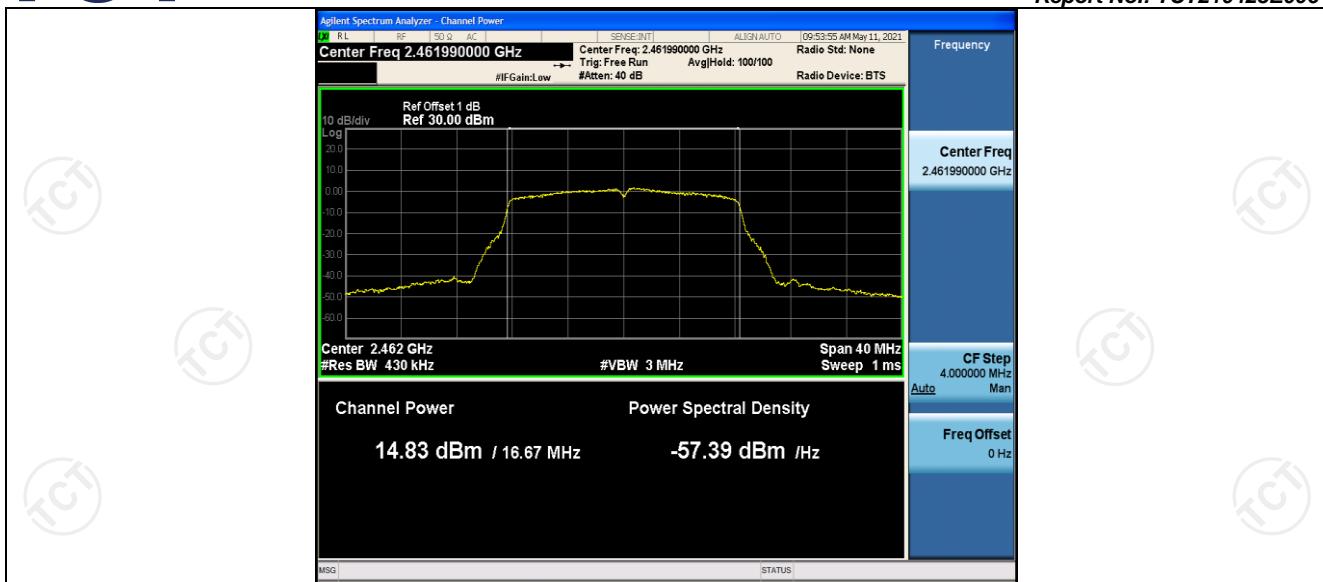
MSG STATUS

11G_2437

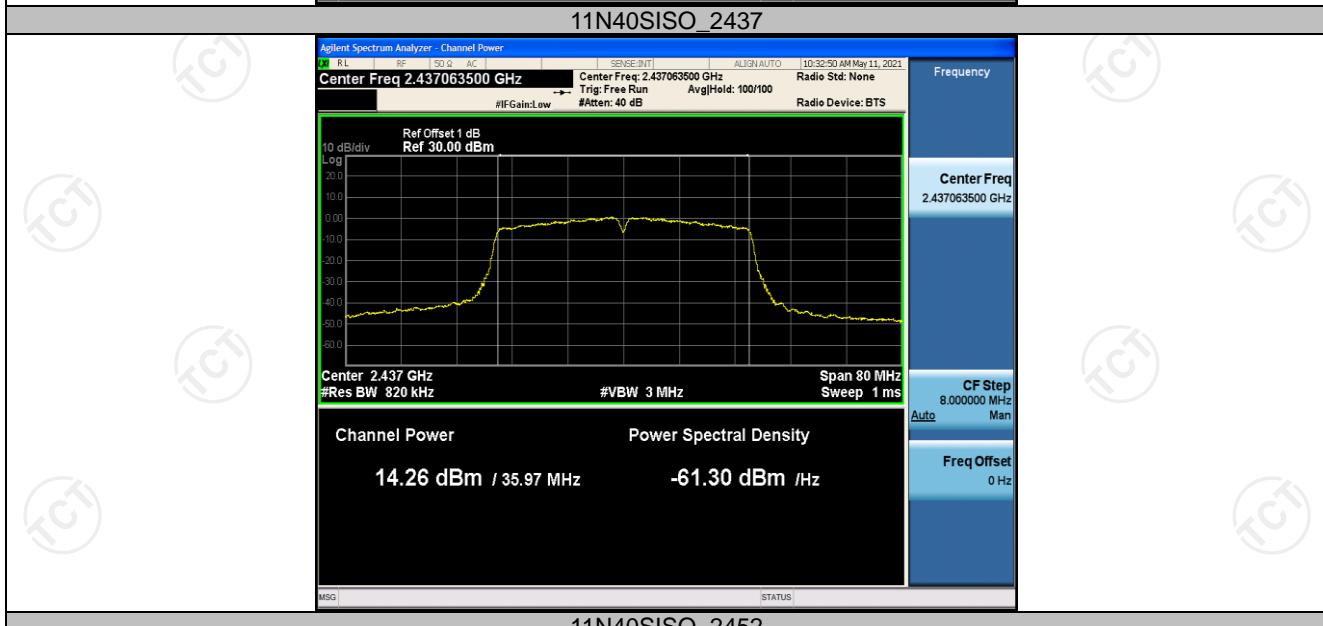
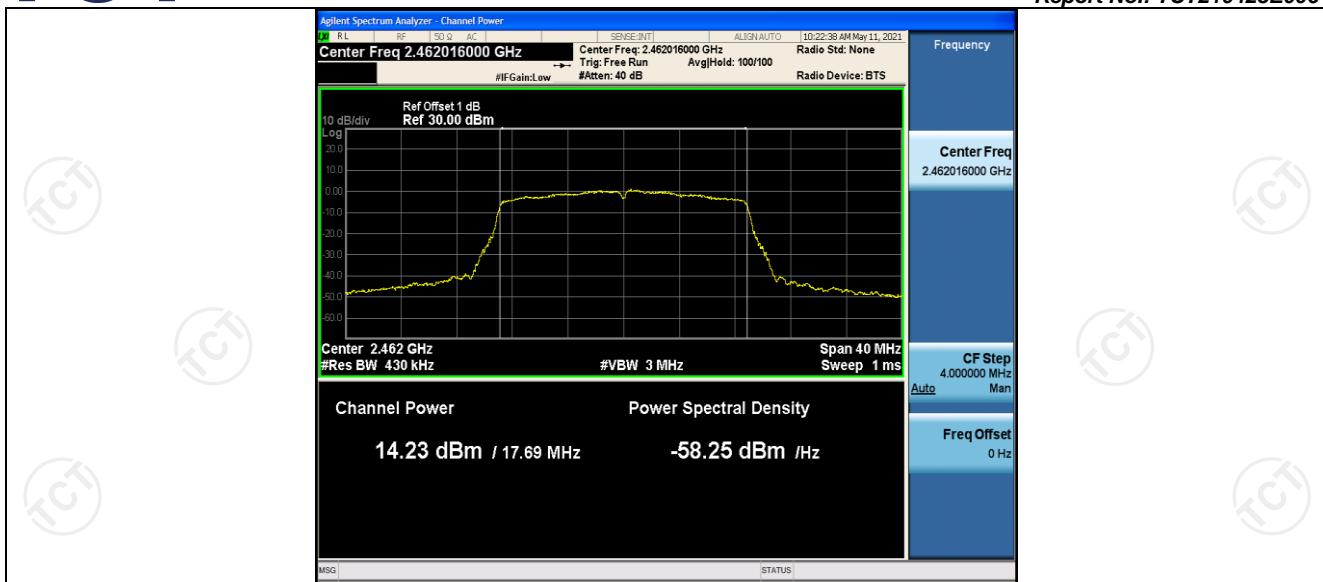


MSG STATUS

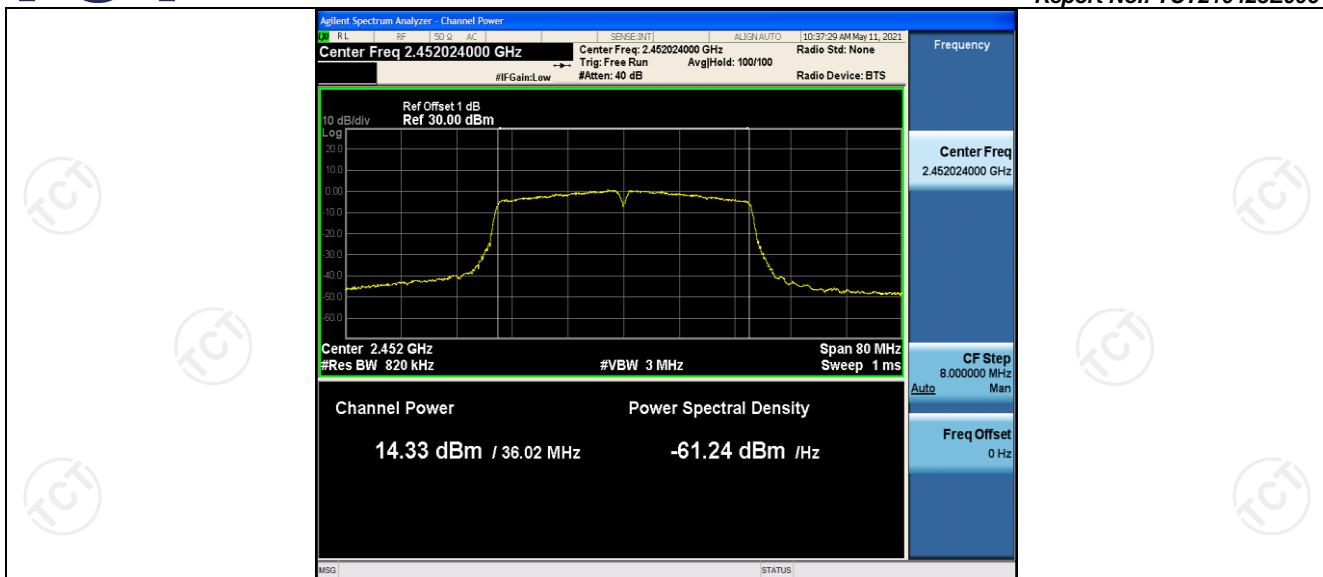
11G_2462



11N20SISO_2462



11N40SISO_2452

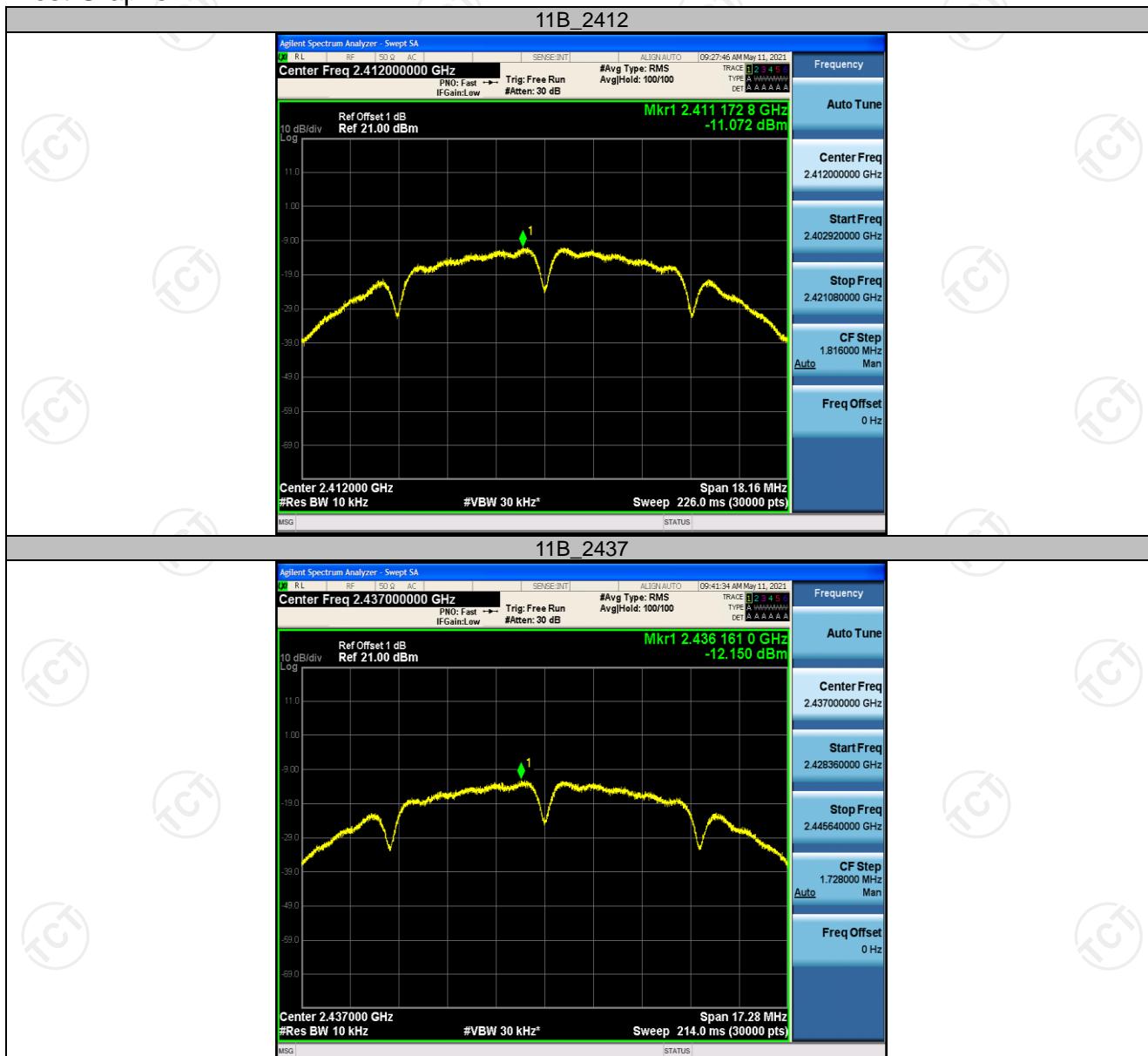


Maximum power spectral density

Test Result

Test Mode	Channel	Result[dBm/10kHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	2412	-11.07	-16.30	<=8	PASS
	2437	-12.15	-17.38	<=8	PASS
	2462	-11.20	-16.43	<=8	PASS
11G	2412	-13.23	-18.46	<=8	PASS
	2437	-12.41	-17.64	<=8	PASS
	2462	-12.45	-17.68	<=8	PASS
11N20SISO	2412	-13.19	-18.42	<=8	PASS
	2437	-13.46	-18.69	<=8	PASS
	2462	-13.37	-18.60	<=8	PASS
11N40SISO	2422	-16.06	-21.29	<=8	PASS
	2437	-16.30	-21.53	<=8	PASS
	2452	-16.40	-21.63	<=8	PASS

Test Graphs



11B_2462



11G_2412



11G_2437



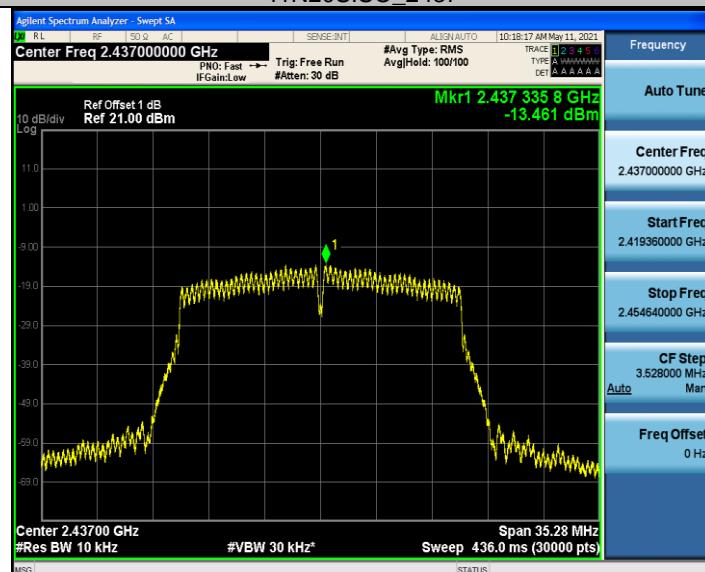
11G_2462



11N20SISO_2412



11N20SISO 2437



11N20SISO 2462



11N40SISO_2422



11N40SISO_2437



11N40SISO_2452



Band edge measurements

Test Result

Test Mode	Ch Name	Channel	Ref Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
11B	Low	2412	6.89	-38.11	<=-23.11	PASS
	High	2462	6.29	-49.34	<=-23.71	PASS
11G	Low	2412	1.88	-38.61	<=-28.13	PASS
	High	2462	2.12	-46.38	<=-27.88	PASS
11N20SISO	Low	2412	1.38	-37.91	<=-28.62	PASS
	High	2462	1.39	-44.89	<=-28.61	PASS
11N40SISO	Low	2422	-1.11	-36.09	<=-31.11	PASS
	High	2452	-1.56	-47.7	<=-31.56	PASS

Test Graphs

