

Project No.: TM-2309000356P
Report No.: TMWK2309003420KR

FCC ID: Z3K-EVOLVESLS10
IC: 9930A-EVOLVESLS10

Page: 1 / 80
Rev.: 01

RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

INDUSTRY CANADA RSS-247

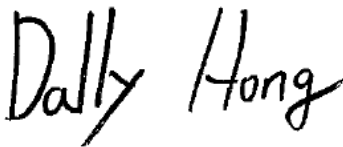
Test Standard	FCC Part 15.247 IC RSS-247 issue 3 and IC RSS-GEN issue 5
Product name	Evolve SLS 10 Monitor
Brand Name	JET OPTOELECTRONICS CO., LTD.
Model No.	620105
Test Result	Pass
Statements of Conformity	Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.

The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc. (Wugu Laboratory).

Approved by:



Dally Hong
Sr. Engineer

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	February 16, 2024	Initial Issue	ALL	Peggy Tsai
01	February 27, 2024	See the following Note Rev. (01)	P.1, 9	Peggy Tsai

Rev. (01):

1. Modify IC Test Standard.
2. Modify Test Methodology and Applied Standards in section 1.8.

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	JET OPTOELECTRONICS CO.,LTD. (FCC) 7F-2, No. 300, Yangguang St., Neihu Dist., Taipei City 11491,Taiwan (IC) 3F., No. 300, Yangguang St., Neihu Dist., Taipei City 11491,Taiwan
Manufacturer	JET OPTOELECTRONICS CO.,LTD. (FCC) 7F-2, No. 300, Yangguang St., Neihu Dist., Taipei City 11491,Taiwan (IC) 3F., No. 300, Yangguang St., Neihu Dist., Taipei City 11491,Taiwan
Equipment	Evolve SLS 10 Monitor
Model Name	620105
Model Discrepancy	N/A
Trade Name	JET OPTOELECTRONICS CO., LTD.
Received Date	September 21, 2023
Date of Test	October 3 ~ 12, 2023
Power Supply	Powered from Car Battery (DC 12V)
HW Version	20230607 D01
SW Version	MAINLINE-115 MCU version V1.2.16
Serial number	H230811M5000020

Remark:

1. For more details, please refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

1.2 EUT CHANNEL INFORMATION

Frequency Range	802.11b/g/n HT 20: 2412MHz ~ 2462MHz
Modulation Type	1. IEEE 802.11b mode: CCK 2. IEEE 802.11g mode: OFDM 3. IEEE 802.11n HT 20 MHz mode : OFDM
Number of channel	1. IEEE 802.11b mode: 11 Channels 2. IEEE 802.11g mode: 11 Channels 3. IEEE 802.11n HT 20 MHz mode : 11 Channels

Remark:

Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 and RSS-GEN Table A1 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
☐ 1 MHz or less	1	Middle
☐ 1 MHz to 10 MHz	2	1 near top and 1 near bottom
☒ More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.3 ANTENNA INFORMATION

Antenna Type	☒ PIFA ☐ PCB ☐ Dipole ☐ Coils
Antenna Gain	Gain: 2.7 dBi Power Directional Gain: 5.71 dBi
Antenna connector	N/A

Notes:

- Antenna must use a unique type of connector to attach to the EUT. So the EUT complies with the requirements of §15.203 and RSS-GEN 6.8.
- Power Directional Gain = $10 \cdot \log \{ [10^{(Ant1/20)} + 10^{(Ant2/20)} + \dots + 10^{(Ant N /20)}]^2 / N \text{ ANT} \}$ dBi

1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	± 2.213 dB
Channel Bandwidth	± 2.7 %
RF output power (Power Meter + Power sensor)	± 0.243 dB
Power Spectral density	± 2.739 dB
Conducted Bandedge	± 2.739 dB
Conducted Spurious Emission	± 2.742 dB
Radiated Emission_9kHz-30MHz	± 3.115 dB
Radiated Emission_30MHz-200MHz	± 4.071 dB
Radiated Emission_200MHz-1GHz	± 4.419 dB
Radiated Emission_1GHz-6GHz	± 5.023 dB
Radiated Emission_6GHz-18GHz	± 5.068 dB
Radiated Emission_18GHz-26GHz	± 3.349 dB
Radiated Emission_26GHz-40GHz	± 3.229 dB

Remark:

- 1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at

AC Powerline Conducted Emission and Conducted:

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan.

Radiated emission 9kHz to 40GHz:

☐ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan.

☒ No. 12, Ln. 116, Wugong 3rd Rd., Wugu Dist., New Taipei City, Taiwan 24803

CAB identifier: TW1309

Test site	Test Engineer	Remark
AC Conduction Room	-	Not applicable, because EUT doesn't connect to AC Main Source direct.
Radiation	Czerny Lin	-
RF Conducted	Allen Shen	-

Remark: The lab has been recognized as the FCC accredited lab. under the KDB 974614 D01 and is listed in the FCC public Access Link (PAL) database, FCC Registration No. :444940, the FCC Designation No.:TW1309

1.6 INSTRUMENT CALIBRATION

Conducted_FCC/IC/NCC (All)					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Power Sensor	Anritsu	MA2411B	1911386	2023-07-25	2024-07-24
Power Sensor	Anritsu	MA2411B	1911387	2023-07-25	2024-07-24
Power Meter	Anritsu	ML2496A	2136002	2022-11-24	2023-11-23
EXA Signal Analyzer	Keysight	N9010B	MY60242460	2023-02-02	2024-02-01
Software	Radio Test Software Ver. 21				

Radiated Emission Test Site: 966 D					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Antenna	SHWARZBECK	VULB 9168	1277	2023-01-13	2024-01-12
Pre-Amplifier	EMCI	EMC118A45SE	980820	2022-12-23	2023-12-22
Pre-Amplifier	EMCI	EMC330N	980853	2022-12-23	2023-12-22
Coaxial Cable	EMC	EMC101G-KM-KM-9000	220407+211228+230205	2023-03-21	2024-03-20
EXA Signal Analyzer	Agilent	N9010A	MY52220817	2023-03-09	2024-03-08
Coaxial Cable	EMC	EMCCFD400	211212+211222+211020	2023-03-21	2024-03-20
High Pass Filter	TITAN	T04H30001800070S01	211215-7-1	2023-02-02	2024-02-01
Thermo-Hygro Meter	EDSDS	EDS-A49	966D1	2023-05-11	2024-05-10
Pre-Amplifier	EMCI	EMC184045SE	980872	2023-01-03	2024-01-02
Horn Antenna	RF SPIN	DRH18-E	210301A18ES	2023-02-03	2024-02-02
Horn Antenna	SHWARZBECK	BBHA 9170	1134	2022-12-30	2023-12-29
Loop Antenna	SCHWARZBECK	FMZB 1513-60	1513-60-028	2022-12-27	2023-12-26
Software	e3 V9-210616c				

Remark:

- Each piece of equipment is scheduled for calibration once a year.
- N.C.R. = No Calibration Required.

1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

Conducted_FCC/IC/NCC (All)					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
NB(E)	Lenovo	T460	N/A	N/A	N/A

Radiated_Sup_Units					
N0	Kind	Brand	Model	Core	Length
1	NB(E)	Lenovo	IBM7663	N/A	N/A
2	Car Battery	YUASA	70B24R	N/A	N/A
3	C to USB Cable	N/A	N/A	N/A	0.3m
A	DC Cable	N/A	N/A	N/A	0.2m

1.8 TEST METHODOLOGY AND APPLIED STANDARDS

Test Mode

The EUT is connected to the laptop, and the test software (adb.exe) is used to set according to the test requirements (Modulation, Frequency, Power Setting...), so that the RF signal is continuously transmitted to perform the test.

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.247, KDB 662911, KDB 558074, RSS-247 Issue 3 and RSS-GEN Issue 5.

2. TEST SUMMARY

IC Standard Section	FCC Standard Section	Report Section	Test Item	Result
-	15.203	1.3	Antenna Requirement	Pass
RSS-GEN 8.8	15.207(a)	4.1	AC Conducted Emission	N/A
RSS-247(5.2)(a)	15.247(a)(2)	4.2	6 dB Bandwidth	Pass
RSS-GEN 6.7	-	4.2	Occupied Bandwidth (99%)	Pass
RSS-247(5.4)(d)	15.247(b)	4.3	Output Power Measurement	Pass
RSS-247(5.2)(b)	15.247(e)	4.4	Power Spectral Density	Pass
RSS-247(5.5)	15.247(d)	4.5	Conducted Band Edge	Pass
RSS-247(5.5)	15.247(d)	4.5	Conducted Spurious Emission	Pass
RSS-GEN 8.9, 8.10	15.247(d) 15.205	4.6	Radiation Band Edge	Pass
RSS-GEN 8.9, 8.10	15.247(d) 15.205	4.6	Radiation Spurious Emission	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	IEEE 802.11b mode:1Mbps IEEE 802.11g mode:6Mbps IEEE 802.11n HT20 mode: MCS0
Operation Transmitter	IEEE 802.11b mode: 2T2R IEEE 802.11g mode: 2T2R IEEE 802.11n HT20 mode: 2T2R
Test Channel Frequencies	IEEE 802.11b mode: 1. Lowest Channel: 2412 MHz 2. Middle Channel: 2437MHz 3. Highest Channel: 2462 MHz IEEE 802.11g mode : 1. Lowest Channel: 2412 MHz 2. Middle Channel: 2437MHz 3. Highest Channel: 2462 MHz IEEE 802.11n HT20 mode : 1. Lowest Channel: 2412 MHz 2. Middle Channel: 2437MHz 3. Highest Channel: 2462 MHz

Remark:

1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.

3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Above 1G	
Test Condition	Radiated Emission Above 1G
Power supply Mode	Mode 1: EUT Power by Car Battery
Worst Mode	☒ Mode 1
Worst Position	☐ Placed in fixed position. ☐ Placed in fixed position at X-Plane (E2-Plane) ☒ Placed in fixed position at Y-Plane (E1-Plane) ☐ Placed in fixed position at Z-Plane (H-Plane)

Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: EUT Power by Car Battery
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

Remark:

1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(Y-Plane) were recorded in this report.

3.3 EUT DUTY CYCLE

Temperature: 23.4 ~ 25.1℃

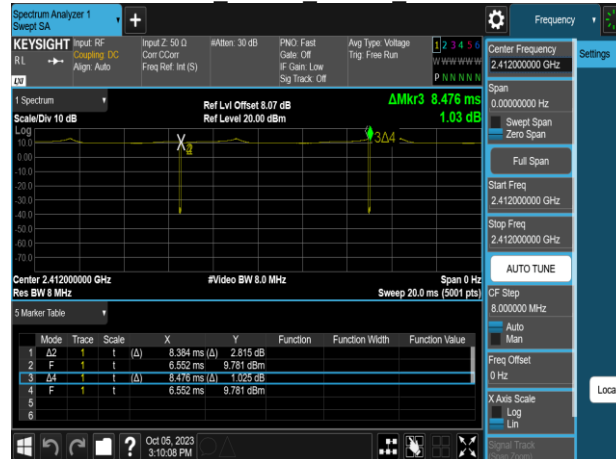
Test date: October 3 ~ 5, 2023

Humidity: 53 ~ 58% RH

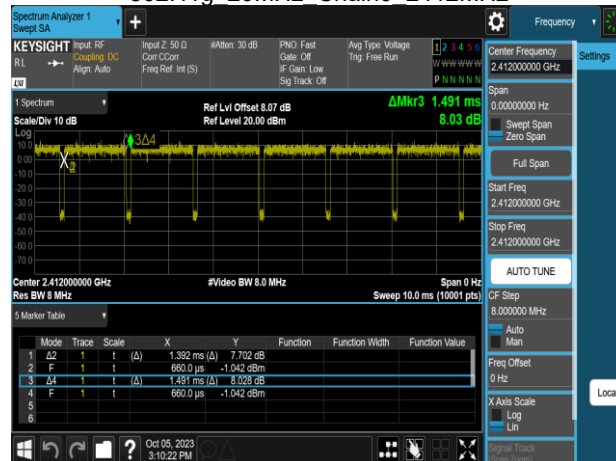
Tested by: Allen Shen

	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
802.11b	98.91	0.05	0.12	0.01
802.11g	93.36	0.30	0.72	1.00
802.11n_20	92.92	0.32	0.77	1.00

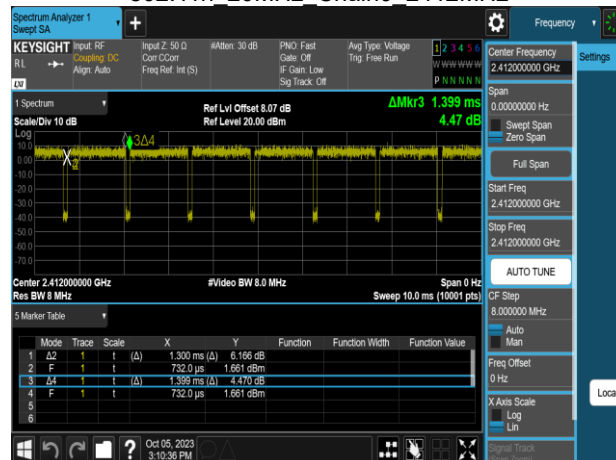
802.11b 20MHz Chain0 2412MHz



802.11g 20MHz Chain0 2412MHz



802.11n 20MHz Chain0 2412MHz



4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a)(2) and RSS-GEN section 8.8

Frequency Range (MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

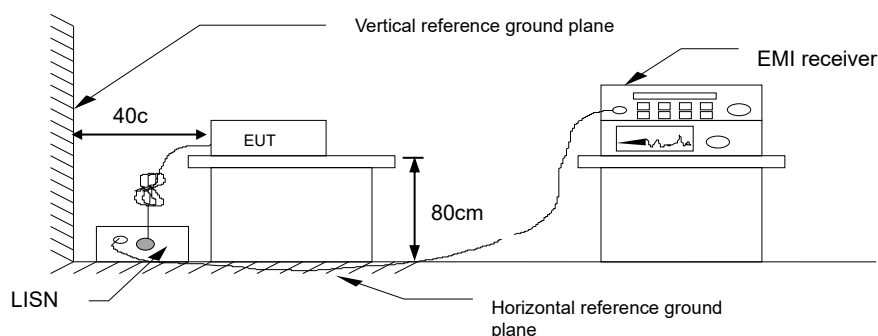
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 6.2,

1. The EUT was placed on a non-conducted table, which is 0.8m above horizontal ground plane and 0.4m above vertical ground plane.
2. EUT connected to the line impedance stabilization network (LISN)
3. Receiver set RBW of 9kHz and Detector Peak, and note as quasi-peak and average.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. Recorded Line for Neutral and Line.

4.1.3 Test Setup



4.1.4 Test Result

Not applicable, because EUT not connect to AC Main Source direct.

4.2 6dB BANDWIDTH AND OCCUPIED BANDWIDTH (99%)

4.2.1 Test Limit

According to §15.247(a)(2) and RSS-247 section 5.2(a)

6 dB Bandwidth :

Limit	Shall be at least 500kHz
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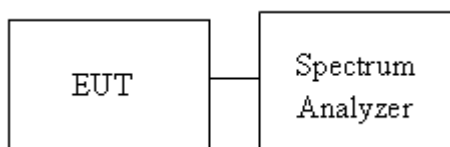
Occupied Bandwidth(99%) : For reporting purposes only.

4.2.2 Test Procedure

Test method Refer as ANSI C63.10: 2013,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 100kHz, VBW = 300kHz and Detector = Peak, to measurement 6 dB Bandwidth.
4. SA set RBW = 1% ~ 5% OBW, VBW = three times the RBW and Detector = Peak, to measurement 99% Bandwidth
5. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

4.2.3 Test Setup



4.2.4 Test Result

Temperature: 23.4 ~ 25.1°C

Test date: October 3 ~ 5, 2023

Humidity: 53 ~ 58% RH

Tested by: Allen Shen

6dB BANDWIDTH

802.11b Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	9107.00	≥ 500	PASS
2437	9114.00	≥ 500	PASS
2462	9106.00	≥ 500	PASS

802.11b Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	9103.00	≥ 500	PASS
2437	9104.00	≥ 500	PASS
2462	9102.00	≥ 500	PASS

802.11g Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15160.00	≥ 500	PASS
2437	15160.00	≥ 500	PASS
2462	15160.00	≥ 500	PASS

802.11g Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15150.00	≥ 500	PASS
2437	15160.00	≥ 500	PASS
2462	15160.00	≥ 500	PASS

802.11n_HT_20M Ch0

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15160.00	≥ 500	PASS
2437	15150.00	≥ 500	PASS
2462	15160.00	≥ 500	PASS

802.11n_HT_20M Ch1

Freq. (MHz)	6dB BW (kHz)	Limit (kHz)	Result
2412	15740.00	≥ 500	PASS
2437	15740.00	≥ 500	PASS
2462	15720.00	≥ 500	PASS

BANDWIDTH 99%

802.11b Ch0

Freq. (MHz)	99% BW (MHz)	6dB BW (MHz)
2412	13.978	9.153
2437	14.013	9.161
2462	13.992	9.158

802.11b Ch1

Freq. (MHz)	99% BW (MHz)	6dB BW (MHz)
2412	13.679	9.144
2437	13.683	9.138
2462	13.698	9.137

802.11g Ch0

Freq. (MHz)	99% BW (MHz)	6dB BW (MHz)
2412	17.060	16.21
2437	17.088	16.17
2462	17.059	16.18

802.11g Ch1

Freq. (MHz)	99% BW (MHz)	6dB BW (MHz)
2412	16.566	16.29
2437	16.600	16.29
2462	16.575	16.26

802.11n_HT20M Ch0

Freq. (MHz)	99% BW (MHz)	6dB BW (MHz)
2412	17.932	17.1
2437	17.960	17.34
2462	17.990	17.29

802.11n_HT20M Ch1

Freq. (MHz)	99% BW (MHz)	6dB BW (MHz)
2412	17.633	17.04
2437	17.639	17.03
2462	17.635	16.81

Test Data

6dB BANDWIDTH

802.11b 20MHz Chain0 2412MHz



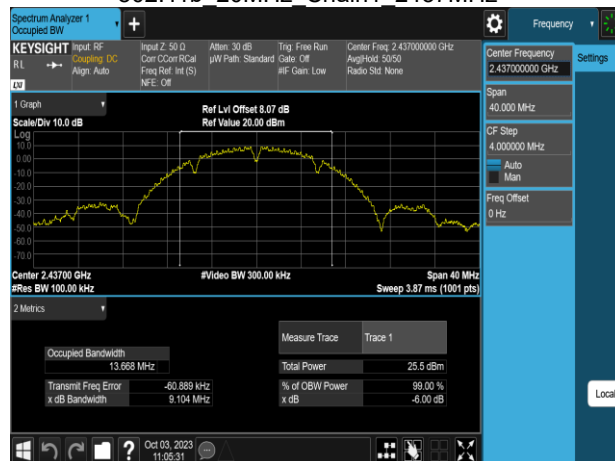
802.11b 20MHz Chain1 2412MHz



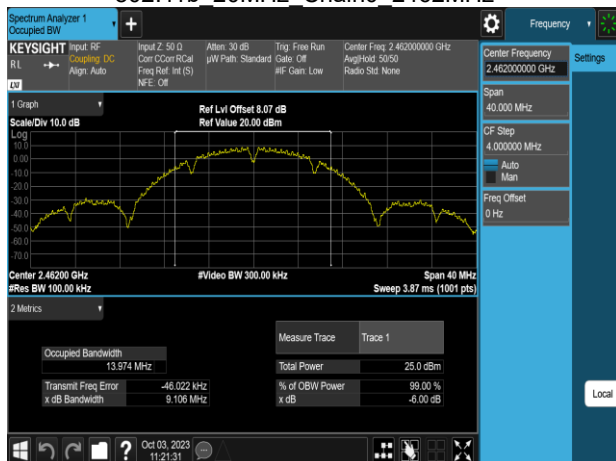
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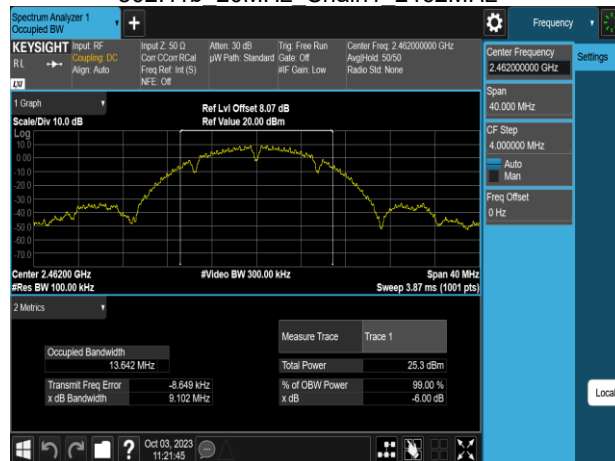
802.11b 20MHz Chain1 2437MHz



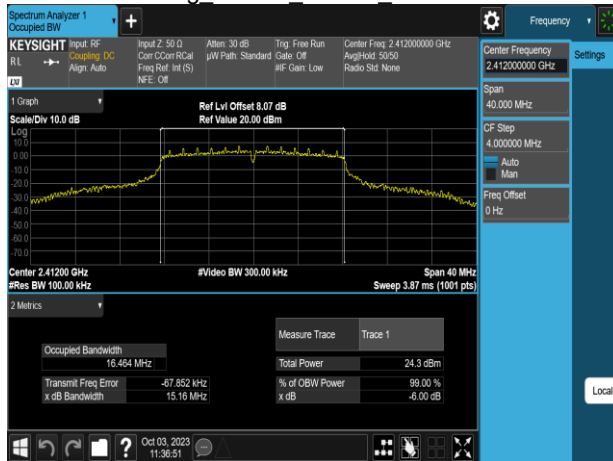
802.11b 20MHz Chain0 2462MHz



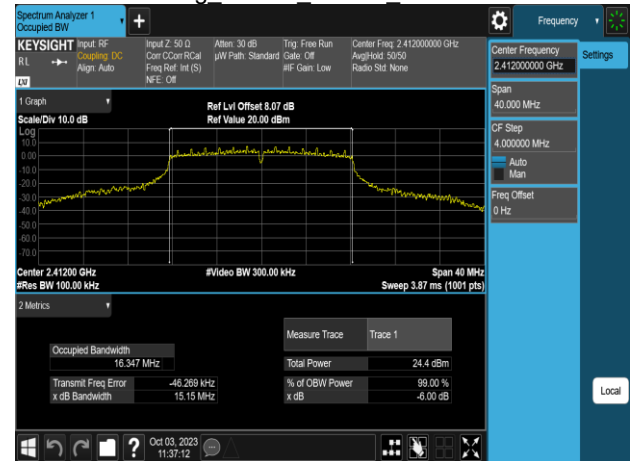
802.11b 20MHz Chain1 2462MHz



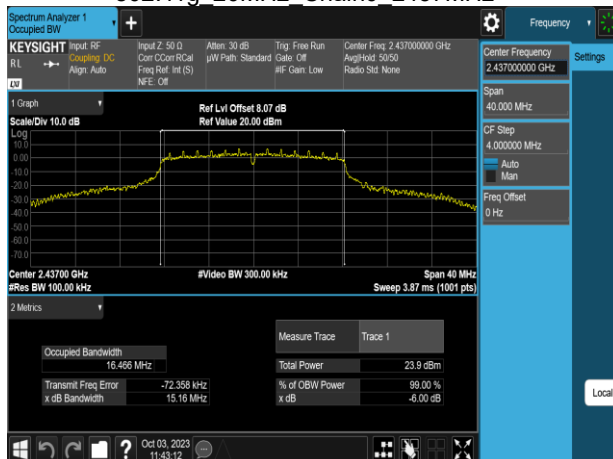
802.11g 20MHz Chain0 2412MHz



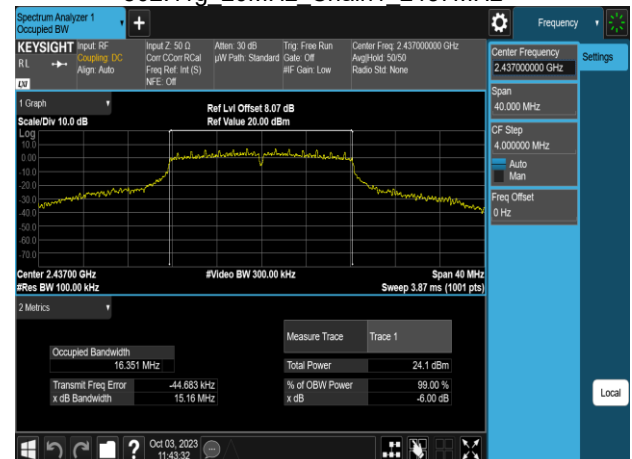
802.11g 20MHz Chain1 2412MHz



802.11g 20MHz Chain0 2437MHz



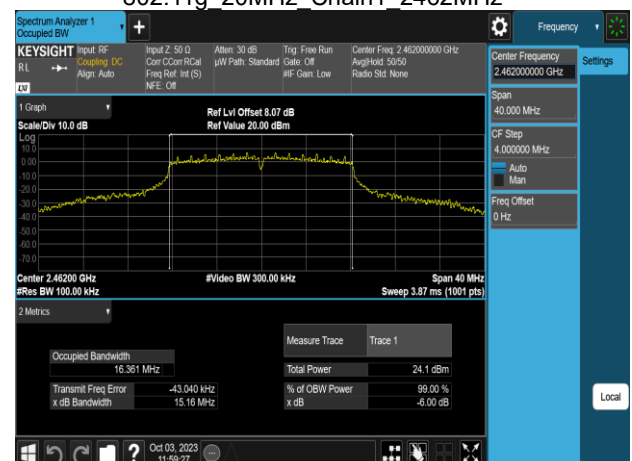
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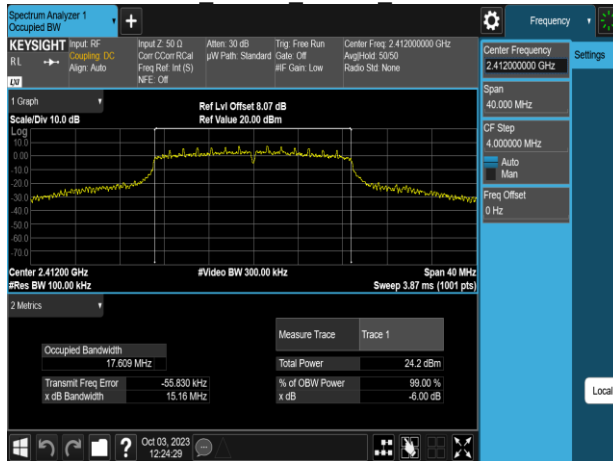
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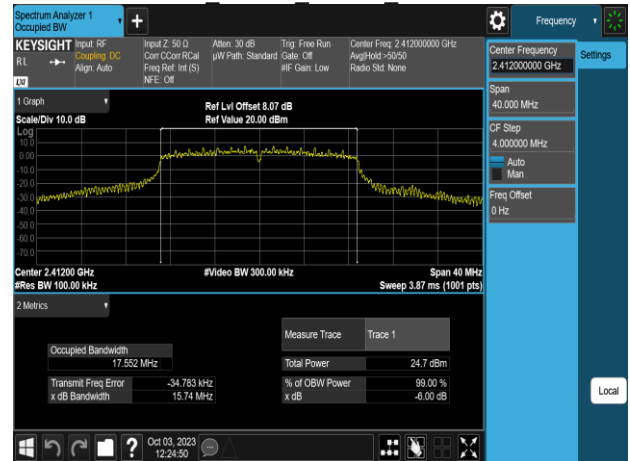
802.11g 20MHz Chain1 2462MHz



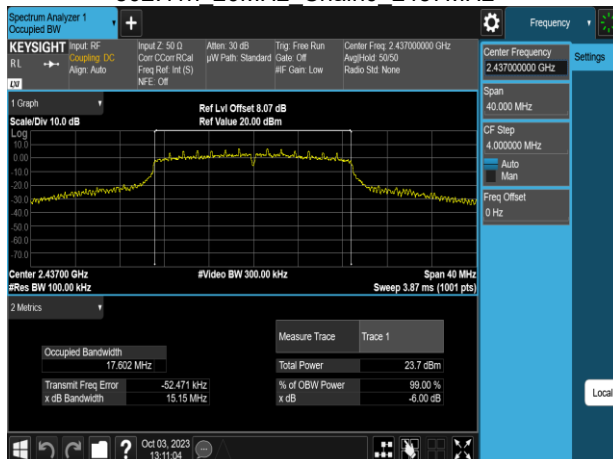
802.11n 20MHz Chain0 2412MHz



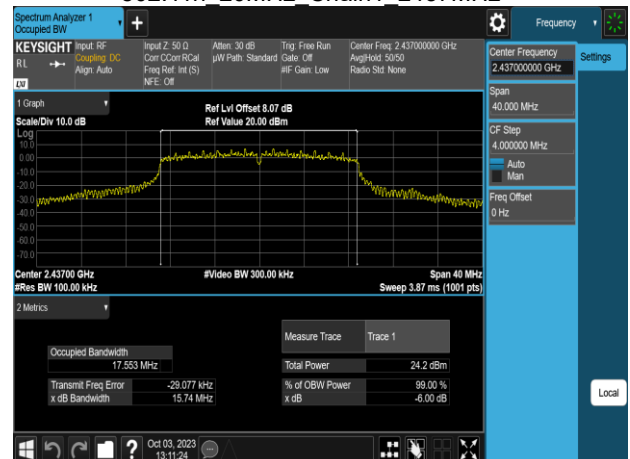
802.11n 20MHz Chain1 2412MHz



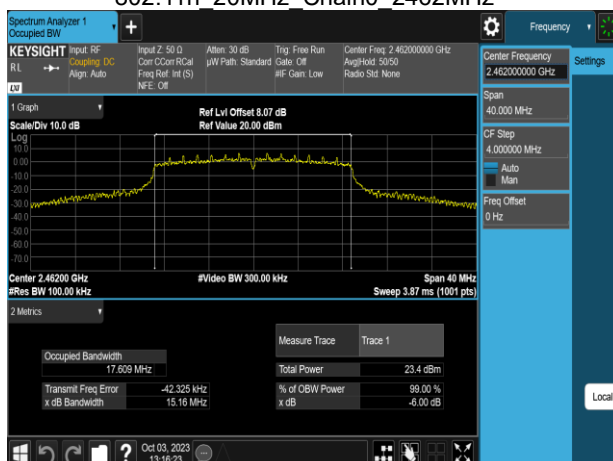
802.11n 20MHz Chain0 2437MHz



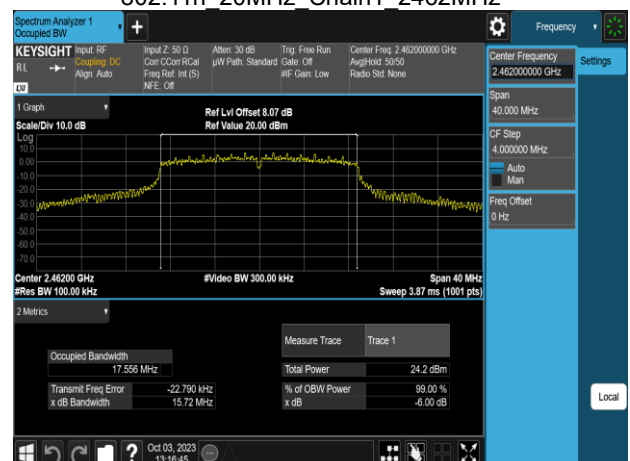
802.11n 20MHz Chain1 2437MHz



802.11n 20MHz Chain0 2462MHz



802.11n 20MHz Chain1 2462MHz



Report No.: TMWK2309003420KR

Test Data

BANDWIDTH 99%

802.11b 20MHz Chain0 2412MHz



802.11b 20MHz Chain1 2412MHz



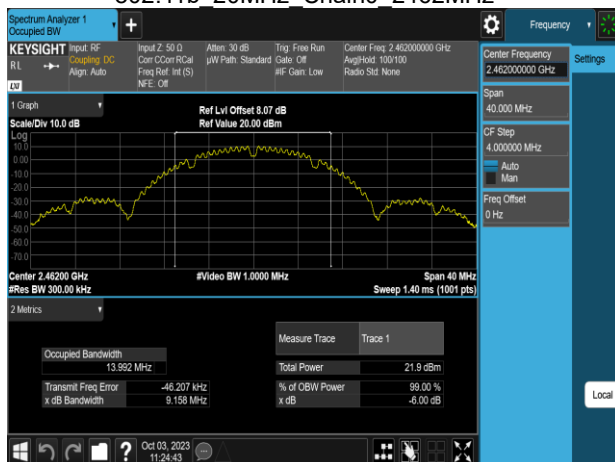
802.11b 20MHz Chain0 2437MHz



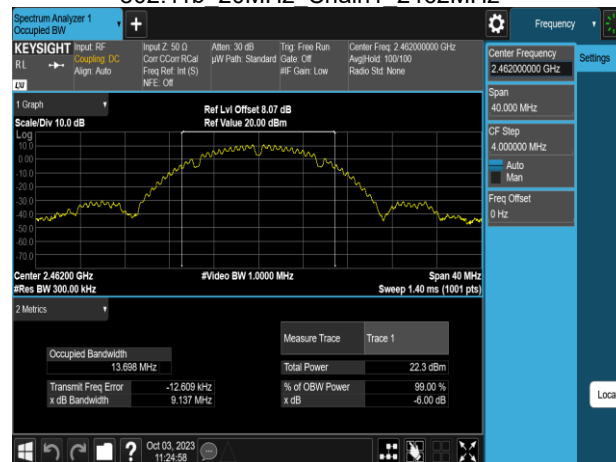
802.11b 20MHz Chain1 2437MHz



802.11b 20MHz Chain0 2462MHz



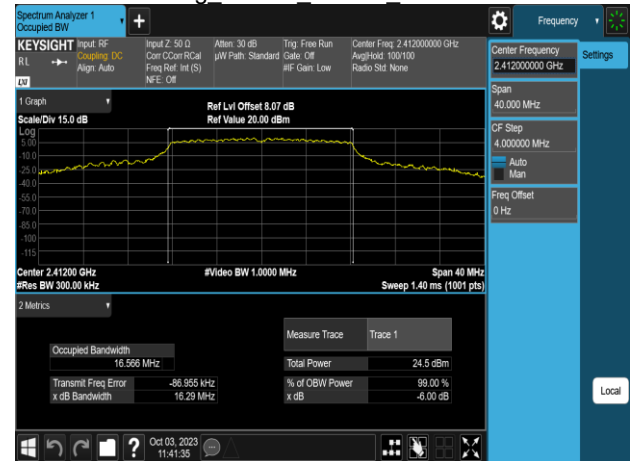
802.11b 20MHz Chain1 2462MHz



802.11g 20MHz Chain0 2412MHz



802.11g 20MHz Chain1 2412MHz



802.11g 20MHz Chain0 2437MHz



802.11g 20MHz Chain1 2437MHz



802.11g 20MHz Chain0 2462MHz



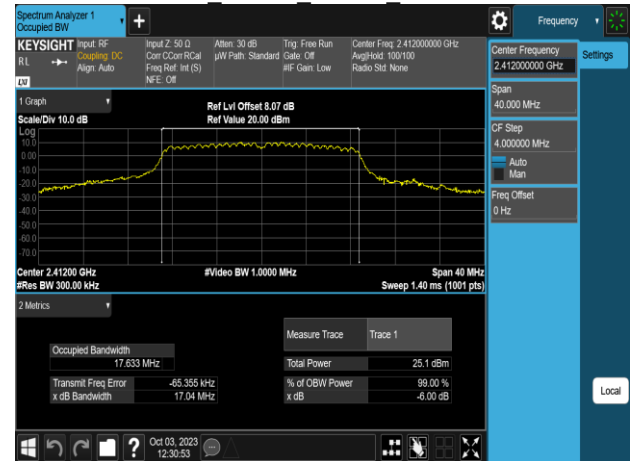
802.11g 20MHz Chain1 2462MHz



802.11n 20MHz Chain0 2412MHz



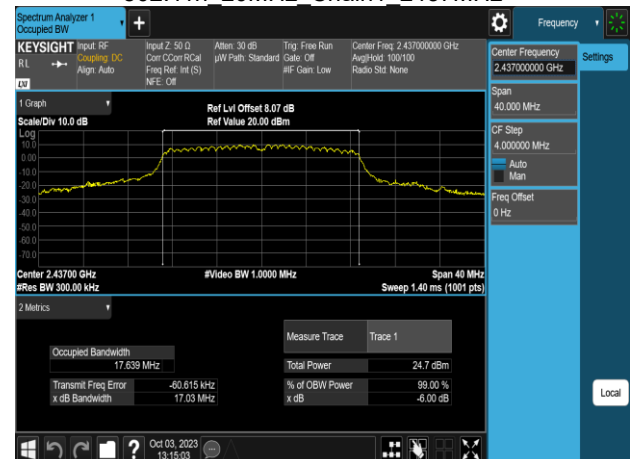
802.11n 20MHz Chain1 2412MHz



802.11n 20MHz Chain0 2437MHz



802.11n 20MHz Chain1 2437MHz



802.11n 20MHz Chain0 2462MHz



802.11n 20MHz Chain1 2462MHz



4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.247(b) and RSS-247 section 5.4(d)

Peak output power :

For FCC:

For systems using digital modulation in the 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt(30 dBm) and the e.i.r.p. shall not exceed 4Watt(36 dBm), base on the use of antennas with directional gain not exceed 6 dBi If transmitting antennas of directional gain greater than 6dBi are used the peak output power the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

For IC:

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

Limit	☒ Antenna not exceed 6 dBi : 30dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 30 – (DG – 6)] ☐ Point-to-point operation :
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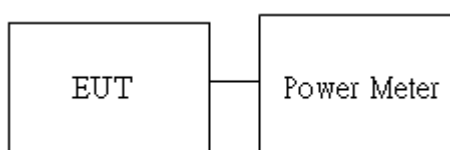
Average output power : For reporting purposes only.

4.3.2 Test Procedure

Test method Refer as ANSI C63.10:2013.

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Peak output power and Average output power. in the test report.

4.3.3 Test Setup



4.3.4 Test Result

Temperature: 23.4 ~ 25.1℃
Humidity: 53 ~ 58% RH

Test date: October 3 ~ 5, 2023
Tested by: Allen Shen

Peak & Average output power :

802.11b_2TX								
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	1	10.5	14.78	14.86	17.83	30.00	PASS
6	2437	1	14	17.95	18.18	21.08	30.00	PASS
11	2462	1	14	17.68	17.98	20.84	30.00	PASS
802.11b_2TX								
CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	1	10.5	12.69	12.76	15.73	30.00	PASS
6	2437	1	14	15.89	16.07	18.99	30.00	PASS
11	2462	1	14	15.44	15.85	18.66	30.00	PASS
802.11g_2TX								
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	6	11	20.66	21.11	23.90	30.00	PASS
6	2437	6	17	22.90	23.65	26.30	30.00	PASS
11	2462	6	13	21.33	22.14	24.76	30.00	PASS
802.11g_2TX								
CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	6	11	11.05	11.17	14.12	30.00	PASS
6	2437	6	17	16.36	16.49	19.43	30.00	PASS
11	2462	6	13	12.48	12.82	15.66	30.00	PASS

802.11n_HT20M_2TX								
CH	Freq. (MHz)	Data Rate	Power set	Peak Output Power (dBm)		Total Peak Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	MCS0	12	21.64	22.21	24.94	30.00	PASS
6	2437	MCS0	18	23.20	23.98	26.62	30.00	PASS
11	2462	MCS0	12.5	21.33	22.18	24.79	30.00	PASS
802.11n_HT20M_2TX								
CH	Freq. (MHz)	Data Rate	Power set	Avg. Output Power (dBm)		Total Avg. Output Power (dBm)	Limit (dBm)	RESULT
				Ch0	Ch1			
1	2412	MCS0	12	10.84	11.24	14.05	30.00	PASS
6	2437	MCS0	18	16.32	16.68	19.51	30.00	PASS
11	2462	MCS0	12.5	10.76	11.26	14.03	30.00	PASS

EIRP Power:

802.11b_2TX									
CH	Freq. (MHz)	Data Rate	Avg. Output Power		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1					
1	2412	1	12.69	12.76	15.73	5.71	21.44	36	PASS
6	2437	1	15.89	16.07	18.99	5.71	24.70	36	PASS
11	2462	1	15.44	15.85	18.66	5.71	24.37	36	PASS
802.11g_2TX									
CH	Freq. (MHz)	Data Rate	Avg. Output Power		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1					
1	2412	6	11.05	11.17	14.12	5.71	19.83	36	PASS
6	2437	6	16.36	16.49	19.43	5.71	25.14	36	PASS
11	2462	6	12.48	12.82	15.66	5.71	21.37	36	PASS
802.11n_HT20M_2TX									
CH	Freq. (MHz)	Data Rate	Avg. Output Power		Total Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	RESULT
			Ch0	Ch1					
1	2412	MCS0	10.84	11.24	14.05	5.71	19.76	36	PASS
6	2437	MCS0	16.32	16.68	19.51	5.71	25.22	36	PASS
11	2462	MCS0	10.76	11.26	14.03	5.71	19.74	36	PASS

4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.247(e) and RSS-247 section 5.2(b)

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

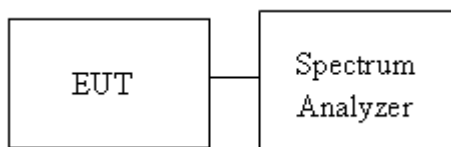
Limit	☒ Antenna not exceed 6 dBi : 8dBm ☐ Antenna with DG greater than 6 dBi : [Limit = 8 – (DG – 6)] ☐ Point-to-point operation :
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4.4.2 Test Procedure

Test method Refer as ANSI C63.10:2013,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 3kHz, VBW = 10kHz, Span = 1.5 times DTS Bandwidth (6 dB BW), Detector = Peak, Sweep Time = Auto and Trace = Max hold.
4. The path loss and Duty Factor were compensated to the results for each measurement by SA.
5. Mark the maximum level.
6. Measure and record the result of power spectral density. in the test report.

4.4.3 Test Setup



4.4.4 Test Result

Temperature: 23.4 ~ 25.1℃

Test date: October 3 ~ 5, 2023

Humidity: 53 ~ 58% RH

Tested by: Allen Shen

POWER DENSITY 802.11b					
Freq. (MHz)	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-6.28	-6.25	-3.25	8.00	PASS
2437	-5.76	-6.71	-3.20	8.00	PASS
2462	-6.82	-7.02	-3.91	8.00	PASS
POWER DENSITY 802.11g					
Freq. (MHz)	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-9.38	-10.07	-6.70	8.00	PASS
2437	-9.63	-9.99	-6.80	8.00	PASS
2462	-9.83	-9.07	-6.42	8.00	PASS
POWER DENSITY 802.11n HT20					
Freq. (MHz)	Ch0 PSD	Ch1 PSD	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
2412	-8.79	-9.32	-6.04	8.00	PASS
2437	-9.69	-8.71	-6.16	8.00	PASS
2462	-9.61	-7.86	-5.64	8.00	PASS

Test Data

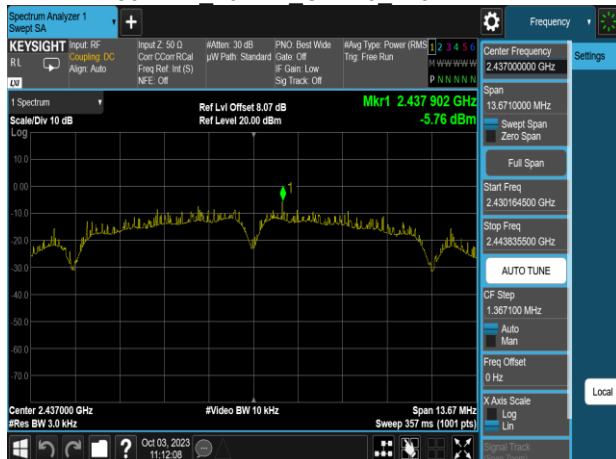
802.11b 20MHz Chain0 2412MHz



802.11b 20MHz Chain1 2412MHz



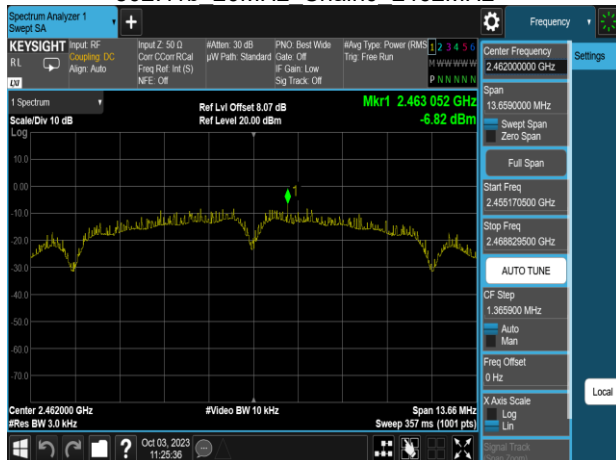
802.11b 20MHz Chain0 2437MHz



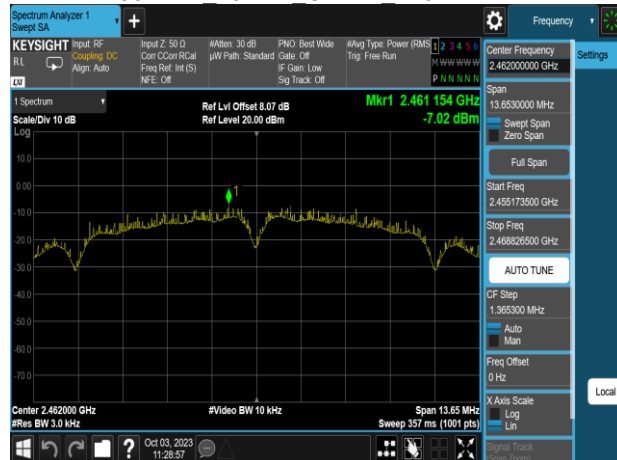
802.11b 20MHz Chain1 2437MHz



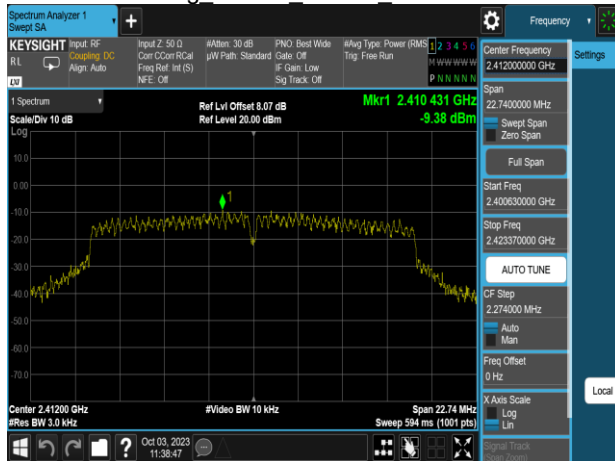
802.11b 20MHz Chain0 2462MHz



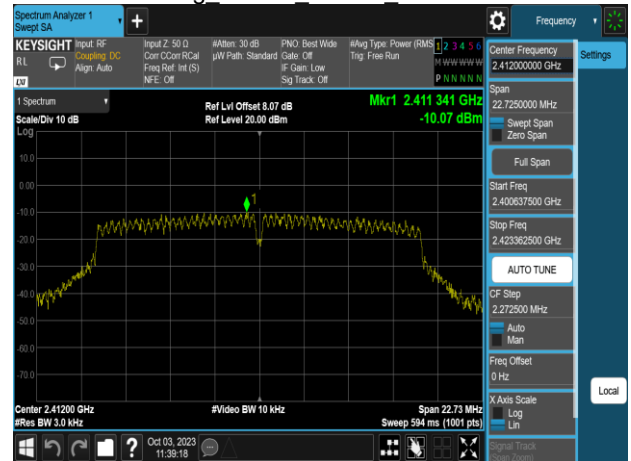
802.11b 20MHz Chain1 2462MHz



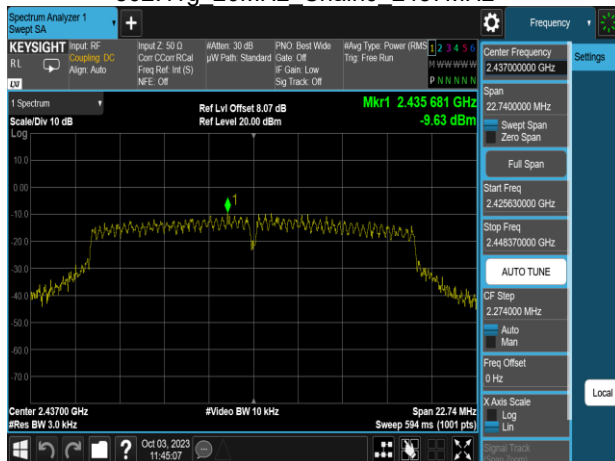
802.11g 20MHz Chain0 2412MHz



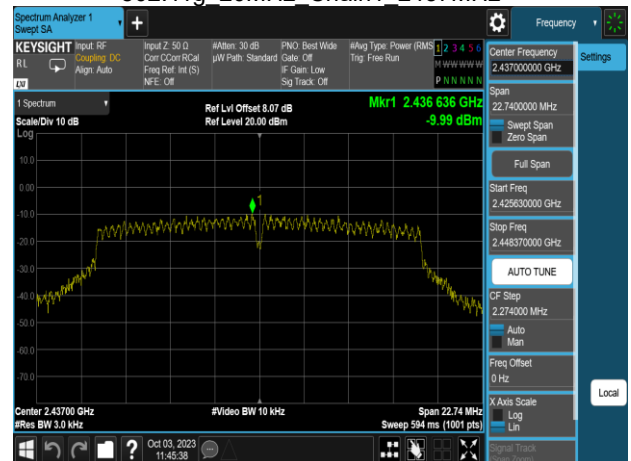
802.11g 20MHz Chain1 2412MHz



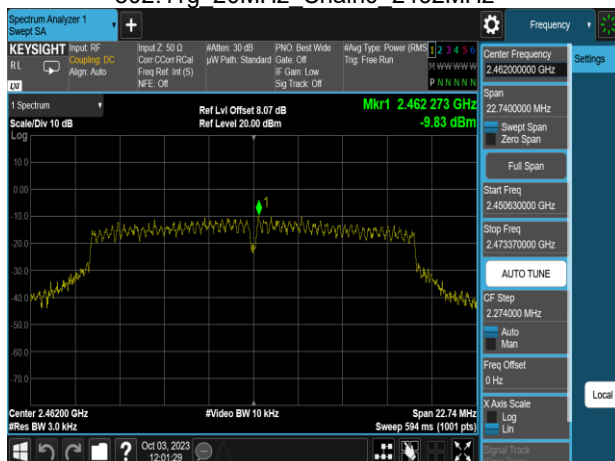
802.11g 20MHz Chain0 2437MHz



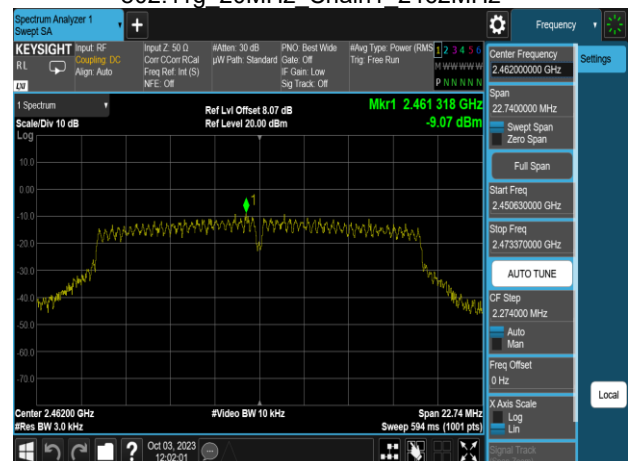
802.11g 20MHz Chain1 2437MHz



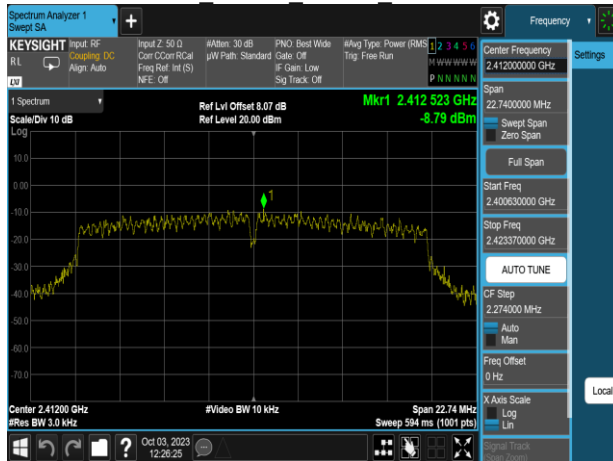
802.11g 20MHz Chain0 2462MHz



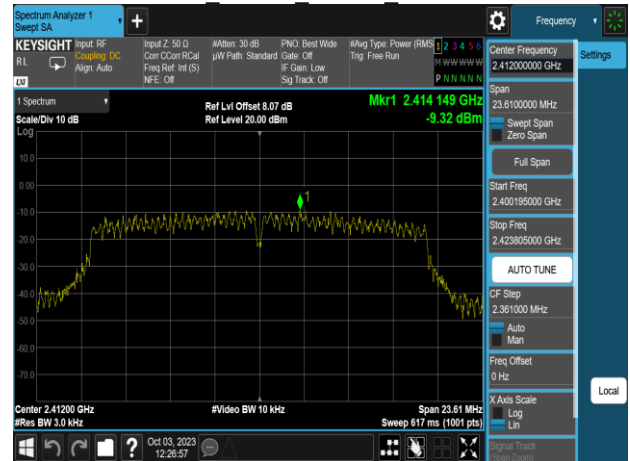
802.11g 20MHz Chain1 2462MHz



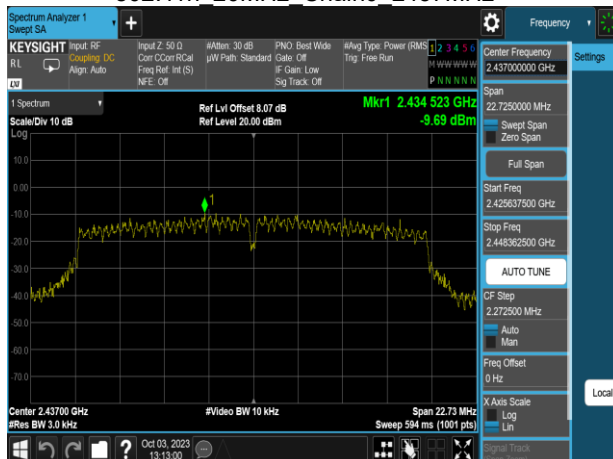
802.11n 20MHz Chain0 2412MHz



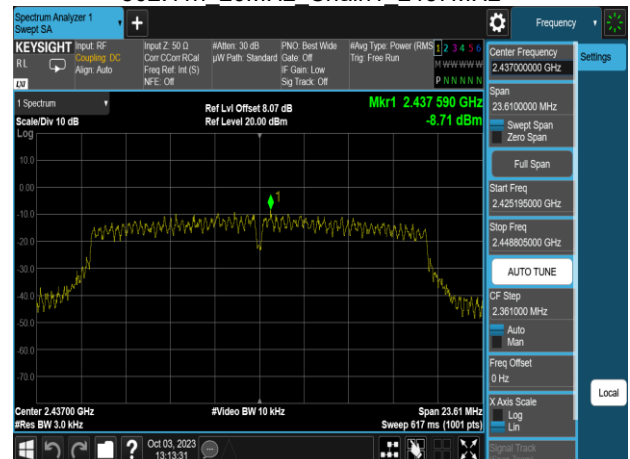
802.11n 20MHz Chain1 2412MHz



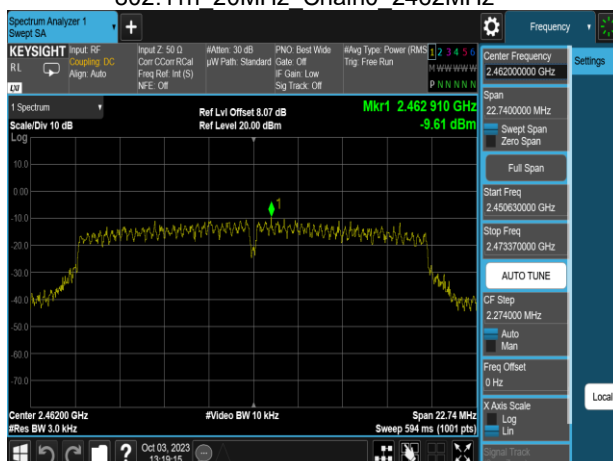
802.11n 20MHz Chain0 2437MHz



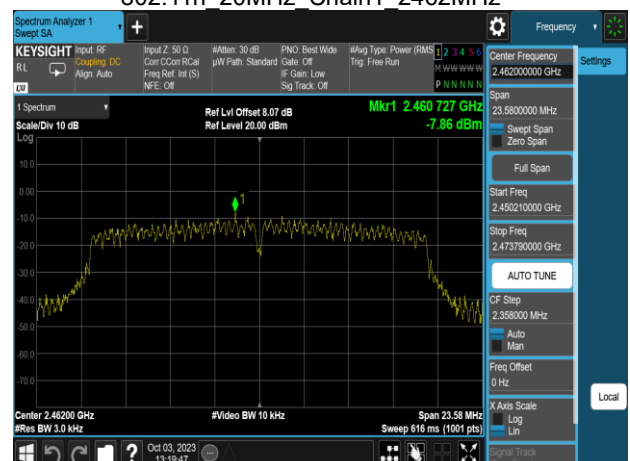
802.11n 20MHz Chain1 2437MHz



802.11n 20MHz Chain0 2462MHz



802.11n 20MHz Chain1 2462MHz



4.5 CONDUCTED BANDEGE AND SPURIOUS EMISSION

4.5.1 Test Limit

According to §15.247(d) and RSS-247 section 5.5,

In any 100 kHz bandwidth outside the authorized frequency band,

Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

4.5.2 Test Procedure

Test method Refer as ANSI C63.10:2013.

1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. f 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.

4.5.3 Test Setup



4.5.4 Test Result

Test Data

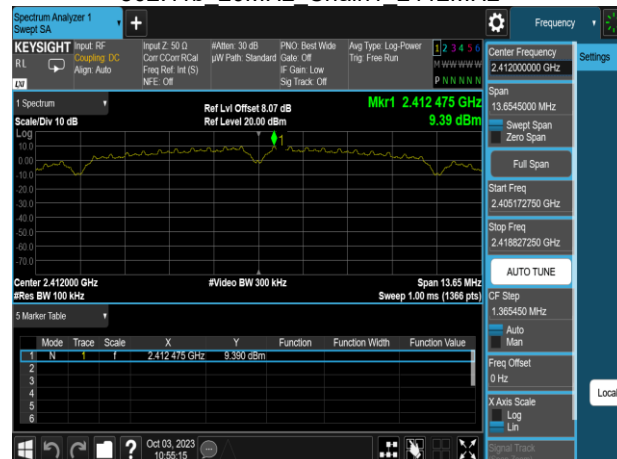
Temperature:	23.4 ~ 25.1℃	Test date:	October 3 ~ 5, 2023
Humidity:	53 ~ 58% RH	Tested by:	Allen Shen

Reference Level

802.11b 20MHz Chain0 2412MHz



802.11b 20MHz Chain1 2412MHz



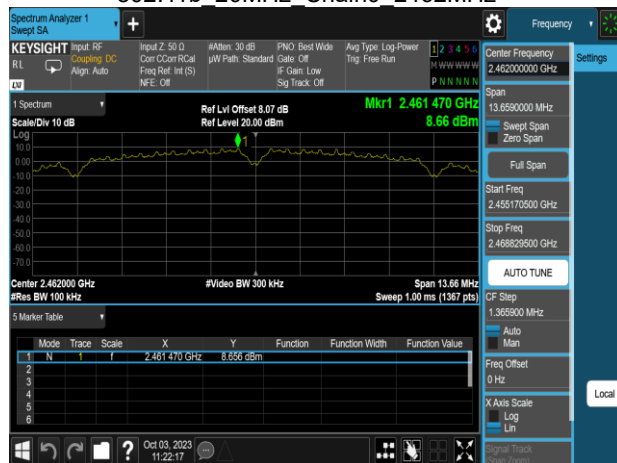
802.11b 20MHz Chain0 2437MHz



802.11b 20MHz Chain1 2437MHz



802.11b 20MHz Chain0 2462MHz



802.11b 20MHz Chain1 2462MHz

