ASKEY COMPUTER COOPERATION

TEST REPORT

SCOPE OF WORK
FCC TESTING–VSN: 100024646

REPORT NUMBER
210115004SZN-003

ISSUE DATE **[REVISED DATE]**
7 February 2021 [----------]

PAGES
52

DOCUMENT CONTROL NUMBER
FCC ID 247_b

101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community,
GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China.

Tel: (86 755) 8601 6288
Fax: (86 755) 8601 6751
www.intertek.com

ASKEY COMPUTER COOPERATION

Application
For
Certification

FCC ID: H8N-SDM8821

onn. 2K Streaming Stick

Model: VSN: 100024646

2.4GHz Wi-Fi Transceiver

Report No.: 210115004SZN-003

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-19]

Prepared and Checked by:

Damon Wang
Team Leader

Approved by:

Kidd Yang
Technical Supervisor
Date: 7 February 2021

MEASUREMENT/TECHNICAL REPORT

This report concerns (check one) Original Grant ___X___ Class II Change _____

Equipment Type: DTS - Part 15 Digital Transmission Systems (Wi-Fi transmitter portion)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No ___X___

If yes, defer until : _____
date

Company Name agrees to notify the Commission by: _____
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes _____ No ___X___

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-01-19] Edition] provision.

Report prepared by:

Damon Wang
Intertek Testing Services Shenzhen Ltd. Longhua Branch
101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China.
Tel: (86 755) 8614 0743 Fax: (86 755) 8601 6661

Table of Contents

1.0 Summary of Test results

Applicant: ASKEY COMPUTER COOPERATION
Applicant Address: 10F, No.119, JIANKANG RD., ZHONGHE DIST., NEW TAIPEI CITY Taiwan
Manufacturer: ASKEY COMPUTER COOPERATION
Manufacturer Address: 10F, No.119, JIANKANG RD., ZHONGHE DIST., NEW TAIPEI CITY Taiwan

Model: VSN: 100024646

FCC ID: H8N-SDM8821

TEST ITEM	REFERENCE	RESULTS
Max. Output power	15.247(b)(3)	Pass
6 dB Bandwidth	15.247(a)(2)	Pass
Max. Power Density	15.247(e)	Pass
Out of Band Antenna Conducted Emission	15.247(d)	Pass
Radiated Emission in Restricted Bands	15.247(d), 15.209, FCC 15.205	Pass
AC Conducted Emission	15.207	Pass
Antenna Requirement	15.203	Pass (See Notes)

Notes: The EUT uses an Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

2.0 General Description

2.1 Product Description

The equipment under test (EUT) is a onn. 2K Streaming Stick with Bluetooth 4.2 (dual-mode) function operating in 2402-2480MHz, 2.4G WIFI function operating in 2412-2462MHz and 5G WIFI function operating in 5150MHz~5250 MHz, 5250MHz~5350MHz, 5470MHz-5725MHZ, 5725MHz~5850MHz. The EUT is powered by DC 5V from an adapter. For more detail information pls. refer to the user manual.

Type of Modulation: BPSK, QPSK, 16QAM, 64QAM for OFDM; CCK, DQPSK, DBPSK for DSSS.
Antenna Type: Integral Antenna
Antenna Gain: 3.29dBi

The EUT placed on the market may be equipped with the following accessories.

Accessories	Model	Manufacturer
Adapter	TPA-46B050100UU	Shenzhen Tianyin Electronics Co., Ltd.
Micro USB Cable	Nil	Libikang Electronic (Shenzhen) Co., Ltd.
HDMI Cable	Nil	Shenzhen Xinhongya Electronics Corporation
Adapter (option)	DCT07W050100US-C1	Zhuzhou Dachuan Electronic Technology Co., Ltd.
Micro USB Cable (option)	Nil	SHENZHEN ZILI ELECTRONICS CO., LTD.
HDMI Cable (option)	Nil	SHENZHEN D&SINDUSTRIES LIMITED

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

2.2 Related Submittal(s) Grants

This is an application for certification of a transceiver for the onn. 2K Streaming Stick which has 2.4GHz WIFI function.
For the classic Bluetooth function was tested and demonstrated in report 210115004SZN-001.
For the BT BLE function was tested and demonstrated in report 210115004SZN-002.
For the 5GHz WIFI function was tested and demonstrated in report 210115004SZN-004.

2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013) and KDB 558074 D01 v05r02. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.

2.4 Test Facility

The Semi-anechoic chamber and shielded room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Longhua Branch** and located at 101, 201, Building B, No. 308 Wuhe Avenue, Zhangkengjing Community, GuanHu Subdistrict, LongHua District, Shenzhen, P.R. China. This test facility and site measurement data have been fully placed on file with File Number: CN1188.

3.0 System Test Configuration

3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. The EUT was powered by DC 5V from an adapter during the test.

The product may be equipped with different adapter, HDMI Cable and Micro USB Cable which mentioned in section 2.1. All the accessories have been tested, but only the worst data was reported in this report.

On 802.11b/g/n-HT20/n-HT40 mode, only one antenna is used, and all data rate were tested and only the worst case data is shown in the report.

For maximizing emissions, the EUT was rotated through 360°, the EUT was placed on the styrene turntable with 0.8m up to 1GHz and 1.5 m above 1GHz. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

The EUT and transmitting antenna was centered on the turntable.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified testing.

The parameters of test software setting:
During the test, Channel and power controlling software provided by the applicant was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the application and is going to be fixed on the firmware of the end product.

Test software: WLAN TestTool, Version: 2.5.3

3.3 Special Accessories

Shielded Micro USB cable and Shielded HDMI cable.

3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

3.5 Equipment Modification

Any modifications installed previous to testing by ASKEY COMPUTER COOPERATION will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Longhua Branch.

3.6 Support Equipment List and Description

Description	Manufacturer	Remark
TV	SONY	150B4CG
Remote control	N/A	N/A
Adapter 1 (Provided by Applicant)	Shenzhen Tianyin Electronics Co., Ltd	Model: TPA-46B050100UU Input: 100-240V~50/60Hz 0.2A Output: 5.0V/1A
Adapter 2 (Provided by Applicant)	Zhuzhou Dachuan Electronic Technology Co., Ltd	Model: DCT07W050100US-C1 Input: 100-240V~50/60Hz 250mA Output: 5.0V/1A
Micro USB Cable 1 (Provided by Applicant)	Libikang Electronic (Shenzhen) Co., Ltd.	shielded, 100cm
Micro USB Cable 2 (Provided by Applicant)	SHENZHEN ZILI ELECTRONICS CO., LTD.	shielded, 100cm
HDMI Cable 1 (Provided by Applicant)	Shenzhen Xinhongya Electronics Corporation	shielded, 30cm
HDMI Cable 2 (Provided by Applicant)	SHENZHEN D&SINDUSTRIES LIMITED	shielded, 30cm

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646

4.0 Measurement Results

4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(3):

The antenna power of the EUT was connected to the input of a broadband peak RF power meter. The power meter have a video bandwidth that is greater than DTS bandwidth and utilize a fast-responding diode detector. Power was read directly at the EUT antenna terminals with cable loss added.

For antennas with gains of 6 dBi or less, maximum allowed Transmitter output is 1 watt (+30 dBm).

IEEE 802.11b (Antenna Gain = 3.29dBi) (CCK, 1Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	22.81	190.99
Middle Channel: 2437	22.71	186.64
High Channel: 2462	22.81	190.99

IEEE 802.11g (Antenna Gain = 3. 29dBi) (16QAM, 6Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	25.61	363.92
Middle Channel: 2437	25.61	363.92
High Channel: 2462	25.41	347.54

IEEE 802.11n-HT20 (Antenna Gain = 3. 29dBi) (64QAM, 6Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2412	25.41	347.54
Middle Channel: 2437	25.11	324.34
High Channel: 2462	25.11	324.34

IEEE 802.11n-HT40 (Antenna Gain = 3. 29dBi) (64QAM, 13.5Mbps)		
Frequency (MHz)	Output in dBm (Peak Reading)	Output in mWatt
Low Channel: 2422	25.41	347.54
Middle Channel: 2437	25.41	347.54
High Channel: 2452	25.11	324.34

Cable loss: 0.5 dB External Attenuation: 0 dB

Cable loss, external attenuation has been included in OFFSET function

EUT max. output level = 25.61dBm
EUT max. E.I.R.P = 25.61dBm + 3.29dBi = 28.9dBm = 776.25mW

For RF Exposure, the information is saved with filename: RF exposure.pdf.

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646

4.2 Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a) (2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 KHz according to FCC KDB 558074 D01 v05r02. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Limit: The 6 dB Bandwidth is at least 500 kHz.

IEEE 802.11b (CCK, 1Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	10.140
2437	10.170
2462	10.170

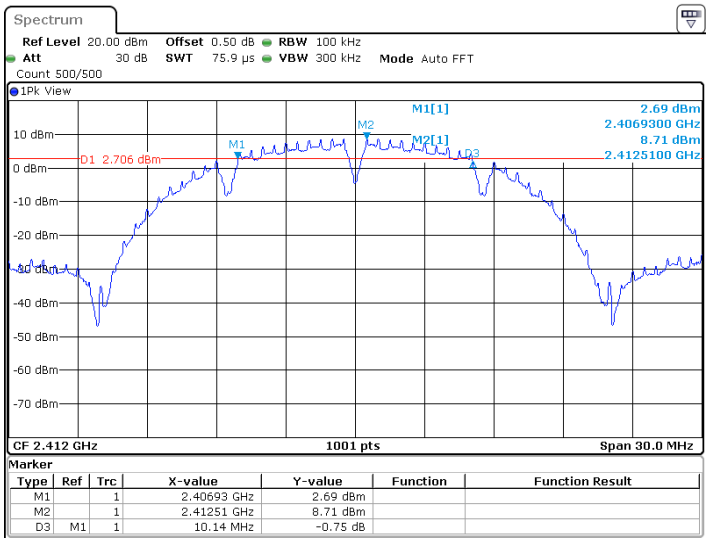
IEEE 802.11g (16QAM, 6Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	16.530
2437	16.530
2462	16.590

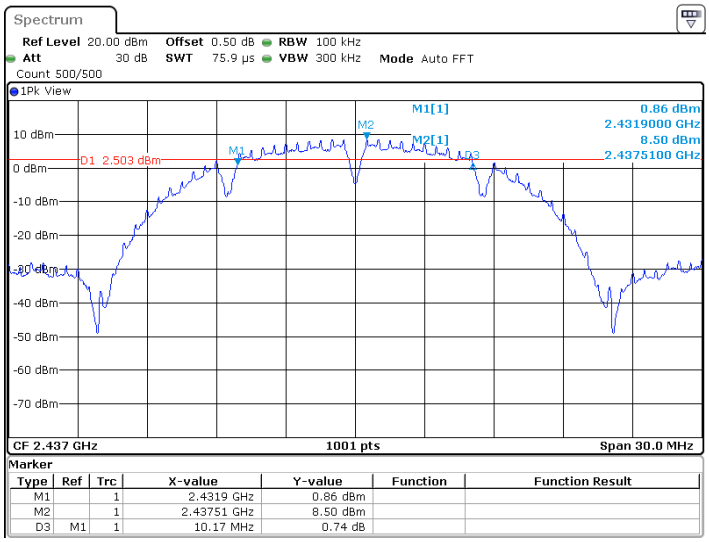
IEEE 802.11n-HT20 (64QAM, 6Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.730
2437	17.760
2462	17.730

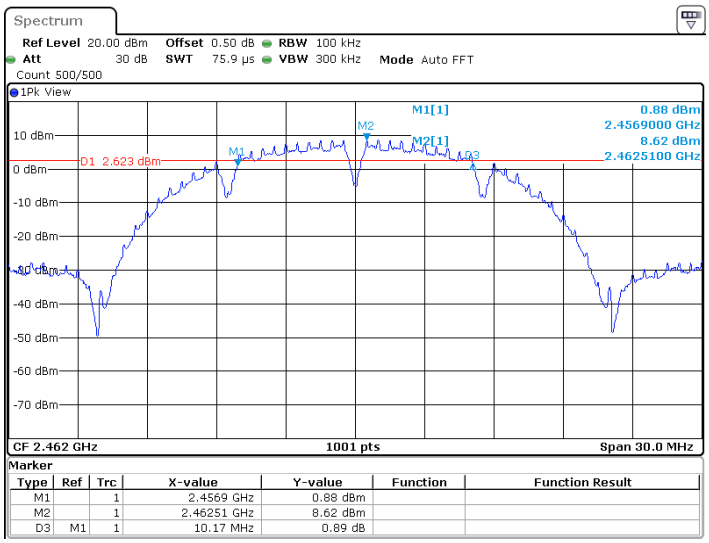
IEEE 802.11n-HT40 (64QAM, 13.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2422	36.540
2437	36.540
2452	36.540

The test plots are attached as below.

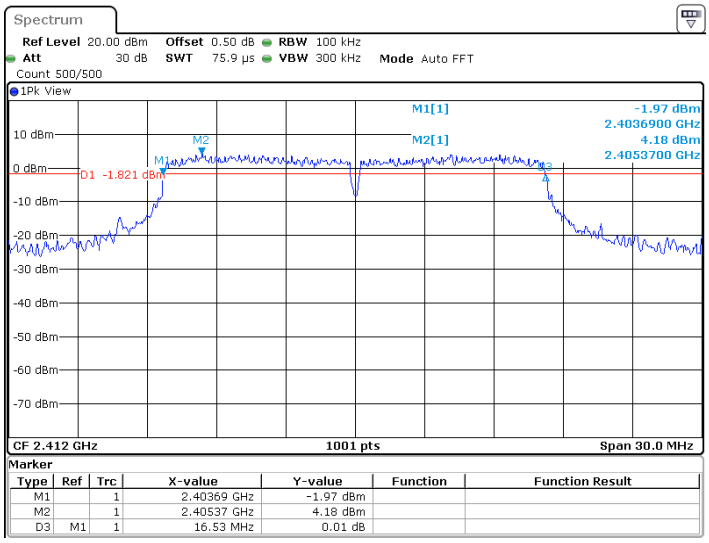
802.11b

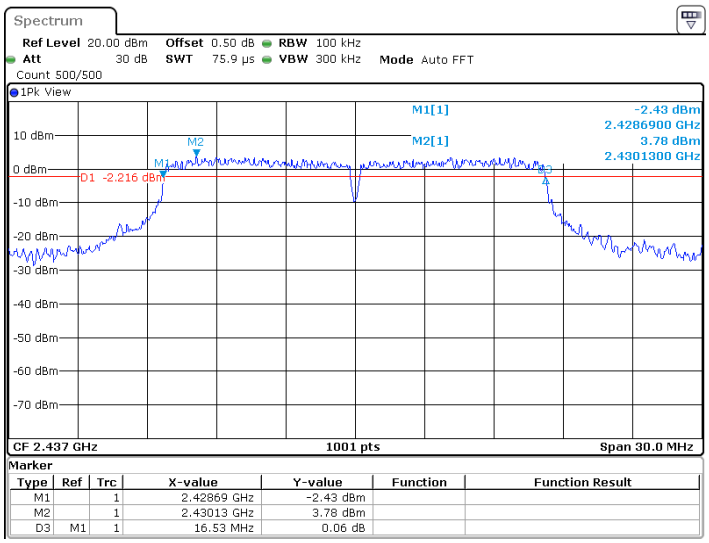

Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 75.9 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] 2.69 dBm
2.4069300 GHz
M2[1] 8.71 dBm
2.4125100 GHz
D1 2.706 dBm
CF 2.412 GHz
1001 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.40693 GHz 2.69 dBm
M2 1 2.41251 GHz 8.71 dBm
D3 M1 1 10.14 MHz -0.75 dB

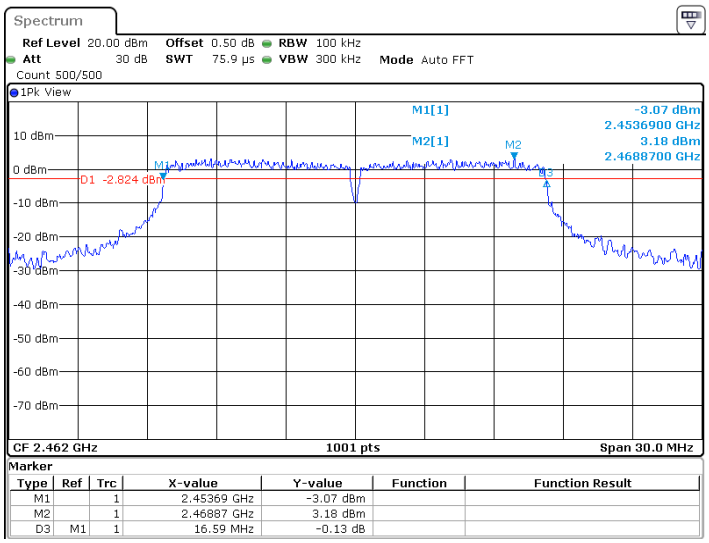

Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 75.9 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] 0.86 dBm
2.4319000 GHz
M2[1] 8.50 dBm
2.4375100 GHz
D1 2.503 dBm
CF 2.437 GHz
1001 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4319 GHz 0.86 dBm
M2 1 2.43751 GHz 8.50 dBm
D3 M1 1 10.17 MHz 0.74 dB


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 75.9 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] 0.88 dBm
2.4569000 GHz
M2[1] 8.62 dBm
2.4625100 GHz
D1 2.623 dBm
CF 2.462 GHz
1001 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4569 GHz 0.88 dBm
M2 1 2.46251 GHz 8.62 dBm
D3 M1 1 10.17 MHz 0.89 dB

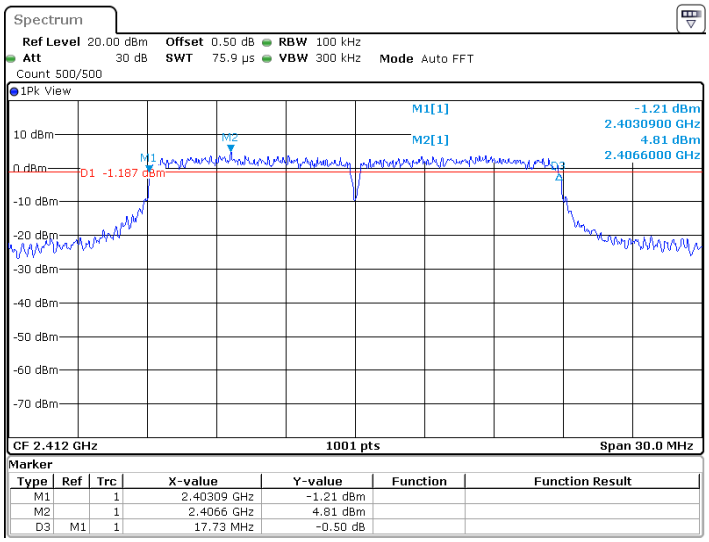
802.11g

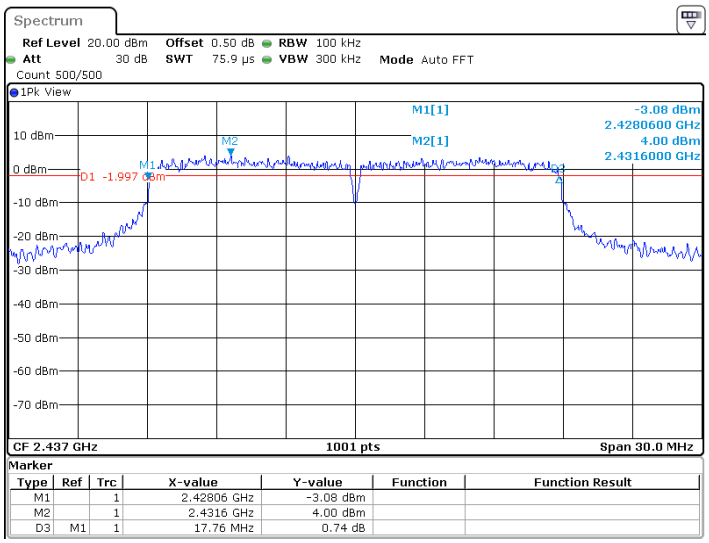

Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 75.9 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -1.97 dBm
2.4036900 GHz
M2[1] 4.18 dBm
2.4053700 GHz
D1 -1.821 dBm
CF 2.412 GHz
1001 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.40369 GHz -1.97 dBm
M2 1 2.40537 GHz 4.18 dBm
D3 M1 1 16.53 MHz 0.01 dB

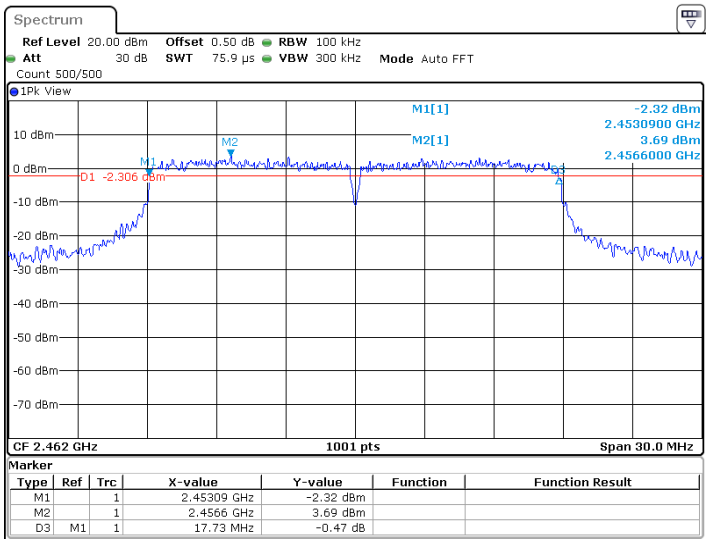

Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 75.9 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -2.43 dBm
2.4286900 GHz
M2[1] 3.78 dBm
2.4301300 GHz
D1 -2.216 dBm
CF 2.437 GHz
1001 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.42869 GHz -2.43 dBm
M2 1 2.43013 GHz 3.78 dBm
D3 M1 1 16.53 MHz 0.06 dB


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 75.9 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -3.07 dBm
2.4536900 GHz
M2[1] 3.18 dBm
2.4688700 GHz
D1 -2.824 dBm
CF 2.462 GHz
1001 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.45369 GHz -3.07 dBm
M2 1 2.46887 GHz 3.18 dBm
D3 M1 1 16.59 MHz -0.13 dB

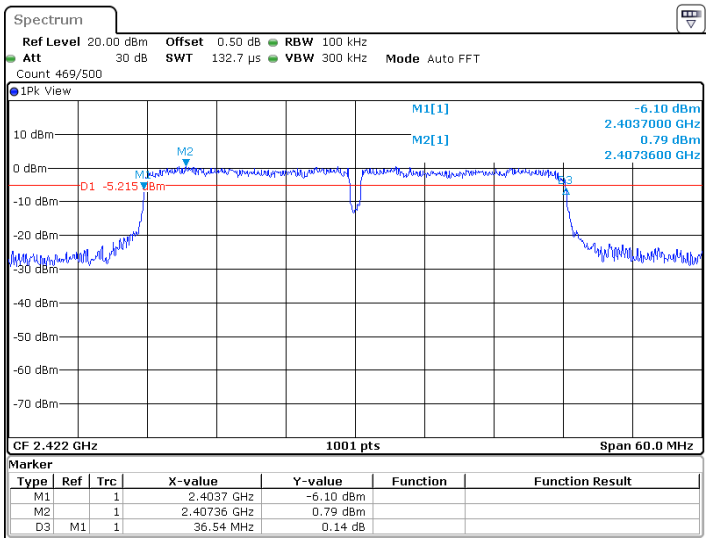
802.11n-HT20

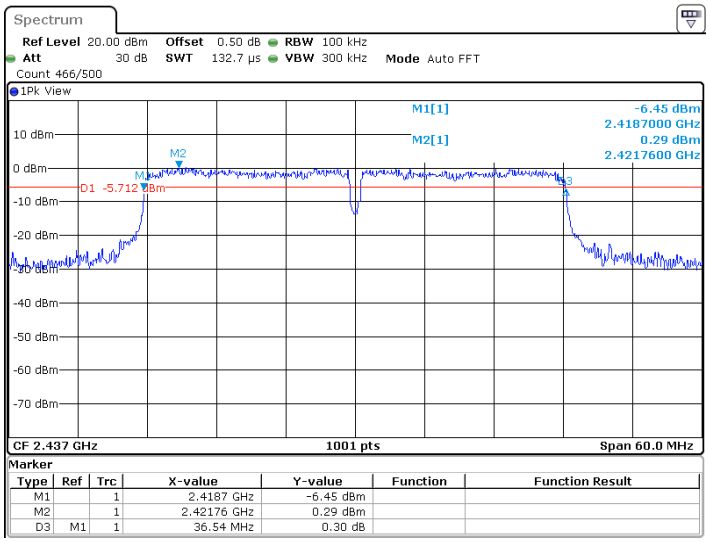

Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 75.9 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -1.21 dBm
2.4030900 GHz
M2[1] 4.81 dBm
2.4066000 GHz
D1 -1.187 dBm
CF 2.412 GHz
1001 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.40309 GHz -1.21 dBm
M2 1 2.4066 GHz 4.81 dBm
D3 M1 1 17.73 MHz -0.50 dB

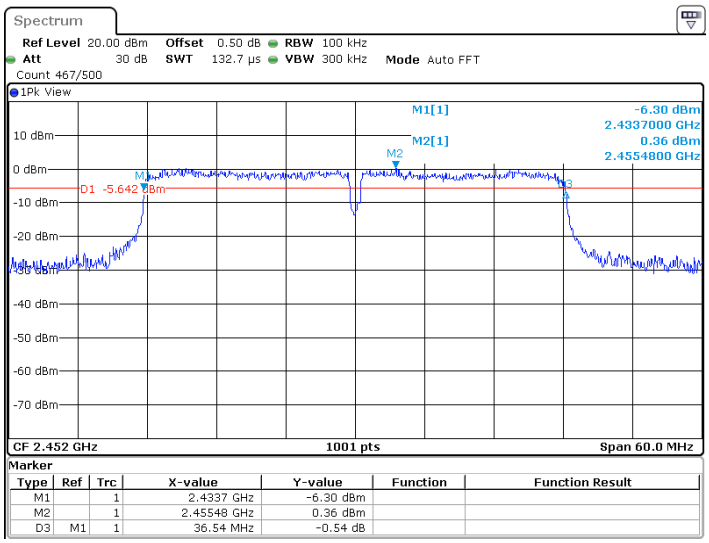

Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 75.9 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -3.08 dBm
2.4280600 GHz
M2[1] 4.00 dBm
2.4316000 GHz
D1 -1.997 dBm
CF 2.437 GHz
1001 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.42806 GHz -3.08 dBm
M2 1 2.4316 GHz 4.00 dBm
D3 M1 1 17.76 MHz 0.74 dB


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 75.9 µs VBW 300 kHz Mode Auto FFT
Count 500/500
1Pk View
M1[1] -2.32 dBm
2.4530900 GHz
M2[1] 3.69 dBm
2.4566000 GHz
D1 -2.306 dBm
CF 2.462 GHz
1001 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.45309 GHz -2.32 dBm
M2 1 2.4566 GHz 3.69 dBm
D3 M1 1 17.73 MHz -0.47 dB

802.11n-HT40


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 132.7 µs VBW 300 kHz Mode Auto FFT
Count 469/500
1Pk View
M1[1] -6.10 dBm
2.4037000 GHz
M2[1] 0.79 dBm
2.4073600 GHz
D1 -5.215 dBm
CF 2.422 GHz
1001 pts
Span 60.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4037 GHz -6.10 dBm
M2 1 2.40736 GHz 0.79 dBm
D3 M1 1 36.54 MHz 0.14 dB


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 132.7 µs VBW 300 kHz Mode Auto FFT
Count 466/500
1Pk View
M1[1] -6.45 dBm
2.4187000 GHz
M2[1] 0.29 dBm
2.4217600 GHz
D1 -5.712 dBm
CF 2.437 GHz
1001 pts
Span 60.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4187 GHz -6.45 dBm
M2 1 2.42176 GHz 0.29 dBm
D3 M1 1 36.54 MHz 0.30 dB


Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 132.7 µs VBW 300 kHz Mode Auto FFT
Count 467/500
1Pk View
M1[1] -6.30 dBm
2.4337000 GHz
M2[1] 0.36 dBm
2.4554800 GHz
D1 -5.642 dBm
CF 2.452 GHz
1001 pts
Span 60.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.4337 GHz -6.30 dBm
M2 1 2.45548 GHz 0.36 dBm
D3 M1 1 36.54 MHz -0.54 dB

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646

4.3 Maximum Power Density Reading, FCC Rule 15.247(e):

The Measurement Procedure PKPSD was set according to the FCC KDB 558074 D01 v05r02.

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

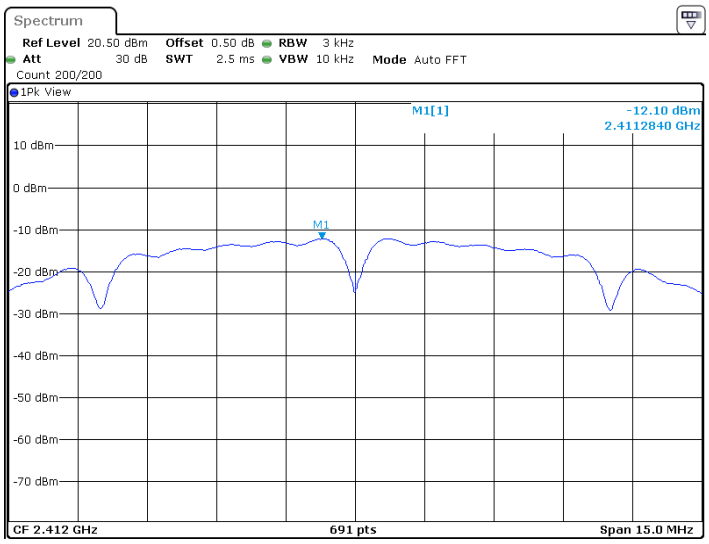
Limit: The Power Density does not exceed 8dBm/3 kHz.

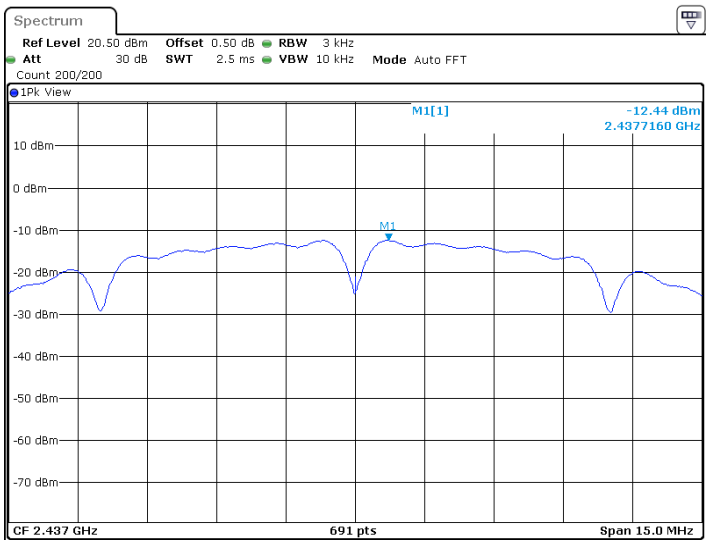
Frequency (MHz)	Power Density with RBW 3KHz		
	IEEE 802.11b (CCK, 1Mbps)	IEEE 802.11g (16QAM, 6Mbps)	IEEE 802.11n-HT20 (64QAM, 6.5Mbps)
2412	-12.1	-11.1	-9.63
2437	-12.44	-11.43	-9.91
2462	-12.5	-11.63	-10.76

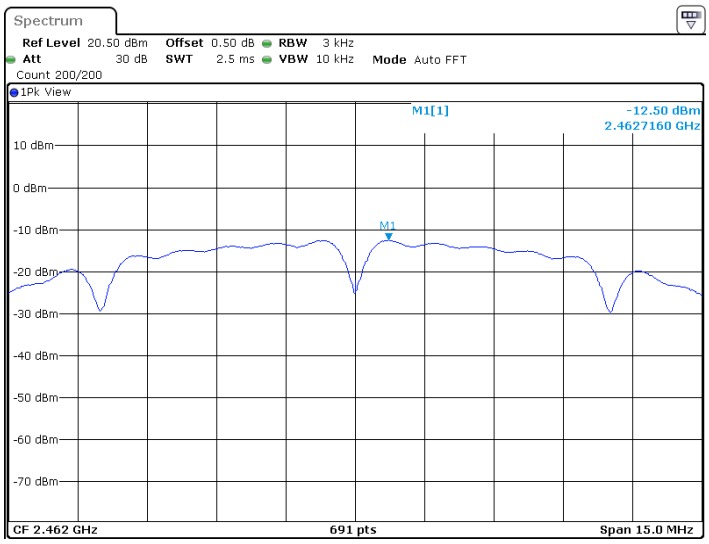
IEEE 802.11n-HT40 (64QAM, 13.5Mbps)	
Frequency (MHz)	Power Density with RBW 3KHz
2422	-20.08
2437	-20.25
2452	-20.52

The test plots are attached as below.

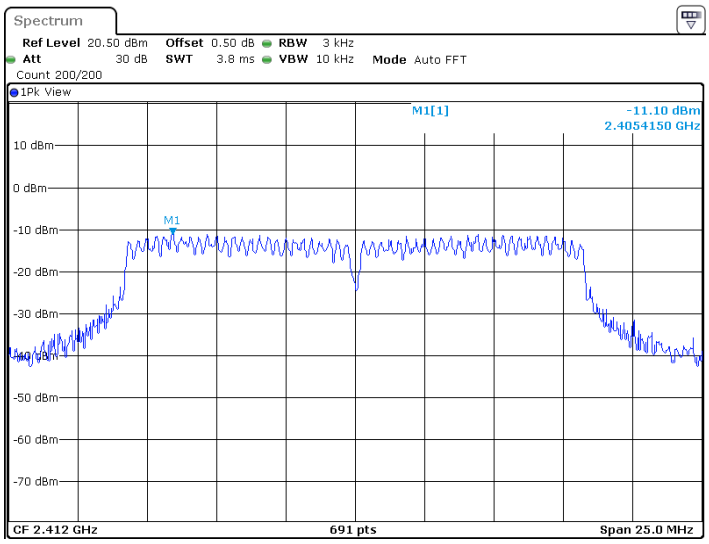
802.11b

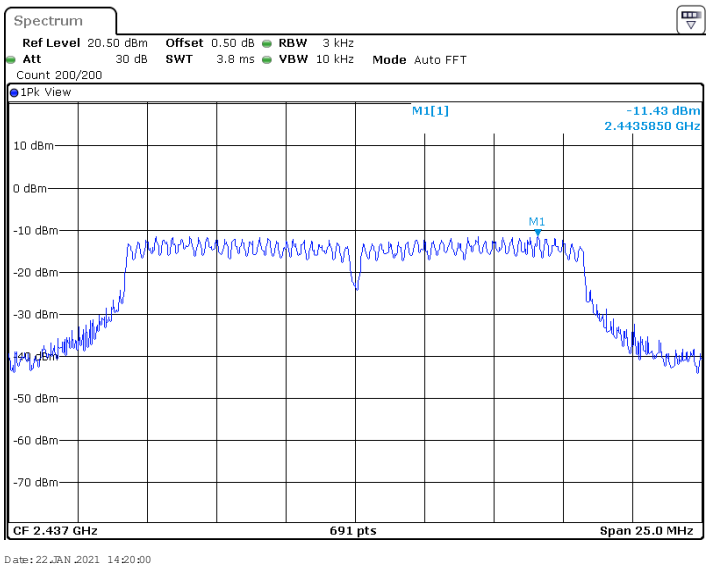

Spectrum
Ref Level 20.50 dBm Offset 0.50 dB RBW 3 kHz
Att 30 dB SWT 2.5 ms VBW 10 kHz Mode Auto FFT
Count 200/200
1Pk View
M1[1] -12.10 dBm
2.4112840 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.412 GHz
691 pts
Span 15.0 MHz
Date: 22.JAN.2021 13:54:44

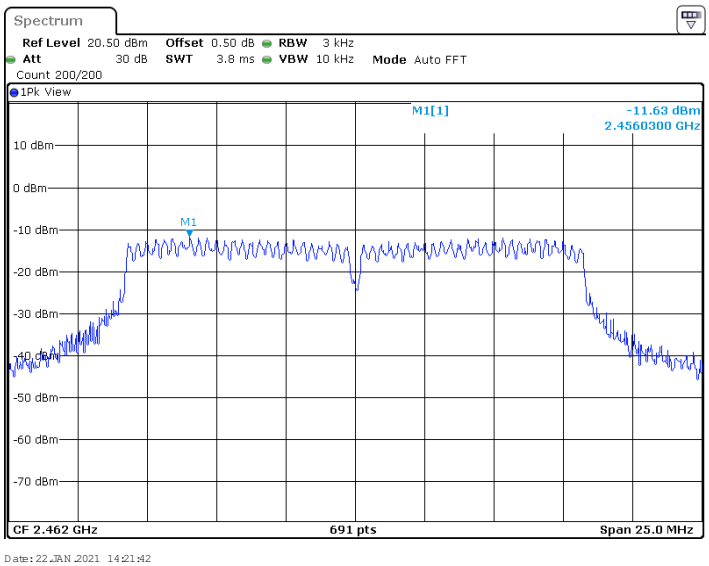

Spectrum
Ref Level 20.50 dBm Offset 0.50 dB RBW 3 kHz
Att 30 dB SWT 2.5 ms VBW 10 kHz Mode Auto FFT
Count 200/200
1Pk View
M1[1] -12.44 dBm
2.4377160 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.437 GHz
691 pts
Span 15.0 MHz
Date: 22.JAN.2021 13:56:27


Spectrum
Ref Level 20.50 dBm Offset 0.50 dB RBW 3 kHz
Att 30 dB SWT 2.5 ms VBW 10 kHz Mode Auto FFT
Count 200/200
1Pk View
M1[1] -12.50 dBm
2.4627160 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.462 GHz
691 pts
Span 15.0 MHz
Date: 22.JAN.2021 13:57:56

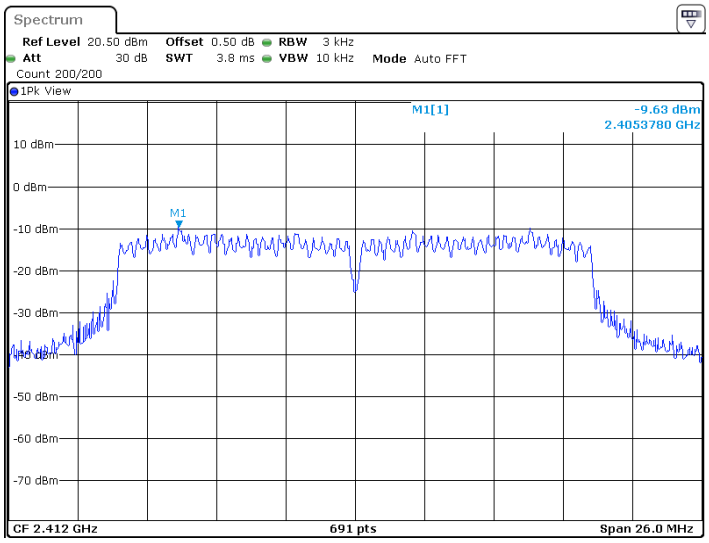
802.11g

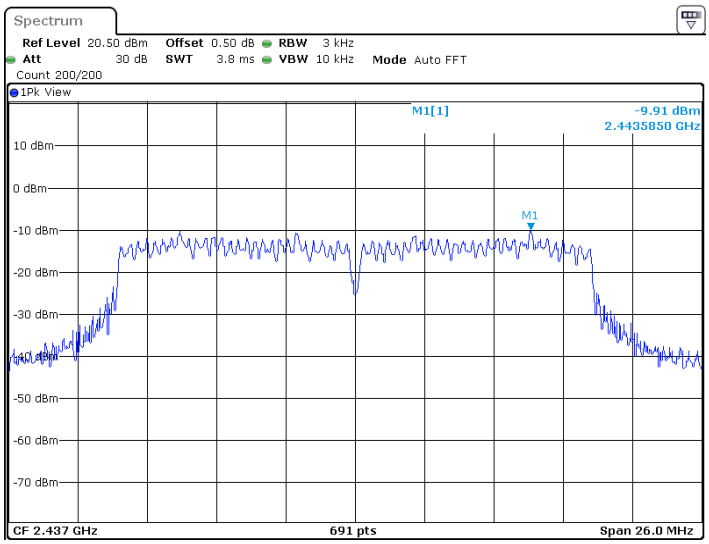

Spectrum
Ref Level 20.50 dBm Offset 0.50 dB RBW 3 kHz
Att 30 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
Count 200/200
1Pk View
M1[1] -11.10 dBm
2.4054150 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.412 GHz
691 pts
Span 25.0 MHz
Date: 22.JAN.2021 14:16:23

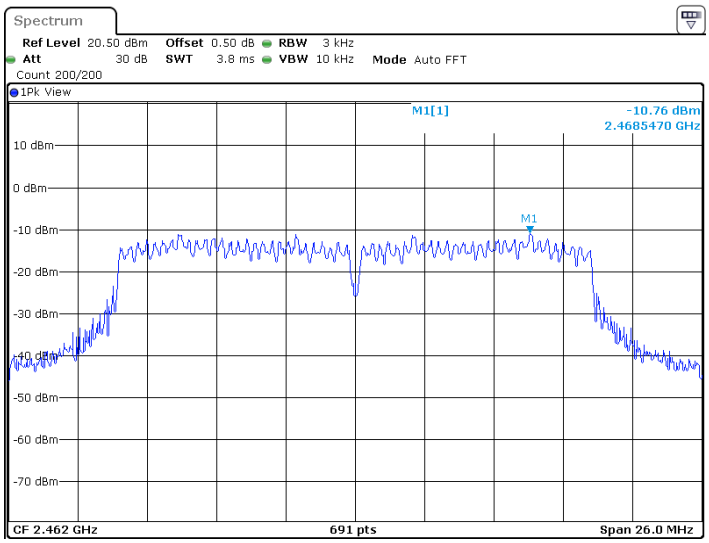

Spectrum
Ref Level 20.50 dBm Offset 0.50 dB RBW 3 kHz
Att 30 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
Count 200/200
1Pk View
M1[1] -11.43 dBm
2.4435850 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.437 GHz
691 pts
Span 25.0 MHz
Date: 22.JAN.2021 14:20:00


Spectrum
Ref Level 20.50 dBm Offset 0.50 dB RBW 3 kHz
Att 30 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
Count 200/200
1Pk View
M1[1] -11.63 dBm
2.4560300 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.462 GHz
691 pts
Span 25.0 MHz
Date: 22.JAN.2021 14:21:42

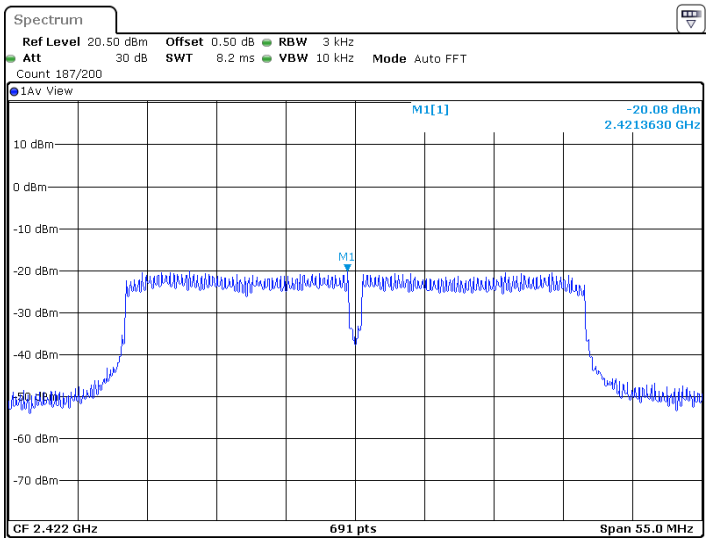
802.11n-HT20

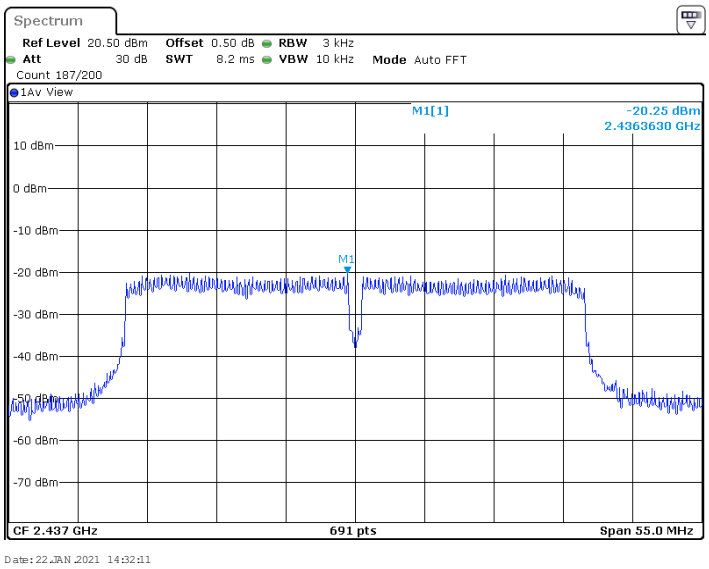

Spectrum
Ref Level 20.50 dBm Offset 0.50 dB RBW 3 kHz
Att 30 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
Count 200/200
1Pk View
M1[1] -9.63 dBm
2.4053780 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.412 GHz
691 pts
Span 26.0 MHz
Date: 22.JAN.2021 14:24:04

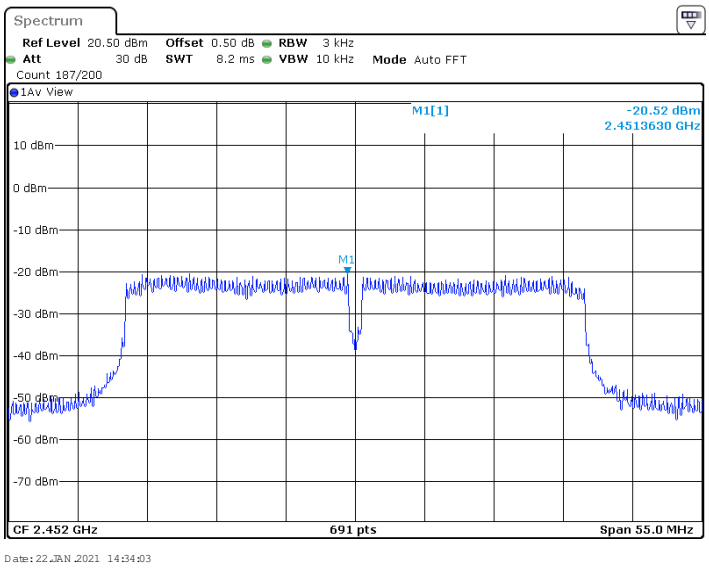

Spectrum
Ref Level 20.50 dBm Offset 0.50 dB RBW 3 kHz
Att 30 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
Count 200/200
1Pk View
M1[1] -9.91 dBm
2.4435850 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.437 GHz
691 pts
Span 26.0 MHz
Date: 22.JAN.2021 14:25:47


Spectrum
Ref Level 20.50 dBm Offset 0.50 dB RBW 3 kHz
Att 30 dB SWT 3.8 ms VBW 10 kHz Mode Auto FFT
Count 200/200
1Pk View
M1[1] -10.76 dBm
2.4685470 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.462 GHz
691 pts
Span 26.0 MHz
Date: 22.JAN.2021 14:27:24

802.11n-HT40


Spectrum
Ref Level 20.50 dBm Offset 0.50 dB RBW 3 kHz
Att 30 dB SWT 8.2 ms VBW 10 kHz Mode Auto FFT
Count 187/200
1Av View
M1[1] -20.08 dBm
2.4213630 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.422 GHz
691 pts
Span 55.0 MHz
Date: 22.JAN.2021 14:30:04


Spectrum
Ref Level 20.50 dBm Offset 0.50 dB RBW 3 kHz
Att 30 dB SWT 8.2 ms VBW 10 kHz Mode Auto FFT
Count 187/200
1Av View
M1[1] -20.25 dBm
2.4363630 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.437 GHz
691 pts
Span 55.0 MHz
Date: 22.JAN.2021 14:32:11


Spectrum
Ref Level 20.50 dBm Offset 0.50 dB RBW 3 kHz
Att 30 dB SWT 8.2 ms VBW 10 kHz Mode Auto FFT
Count 187/200
1Av View
M1[1] -20.52 dBm
2.4513630 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 2.452 GHz
691 pts
Span 55.0 MHz
Date: 22.JAN.2021 14:34:03

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646

4.4 Out of Band Conducted Emissions, FCC Rule 15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. The Measurement Procedure was set according to the FCC KDB 558074 D01 v05r02.

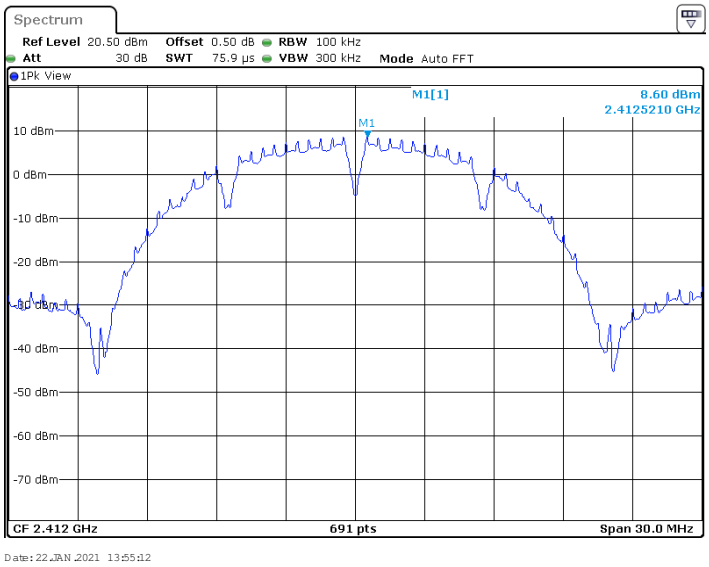
All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

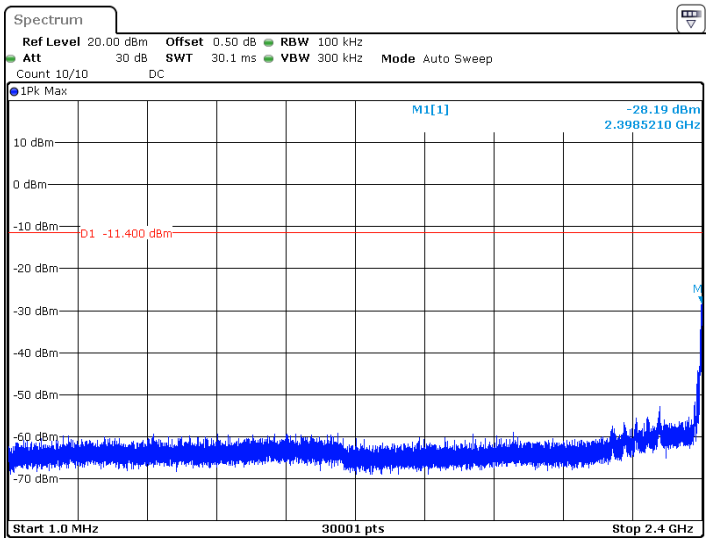
Refer to the attached test plots for out of band conducted emissions data with rate of 1Mbps for 802.11b and 6Mbps for 802.11g and 6Mbps for 802.11n-HT20 and 13.5Mbps for 802.11n-HT40.

The test plots showed all spurious emission up to the tenth harmonic were measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

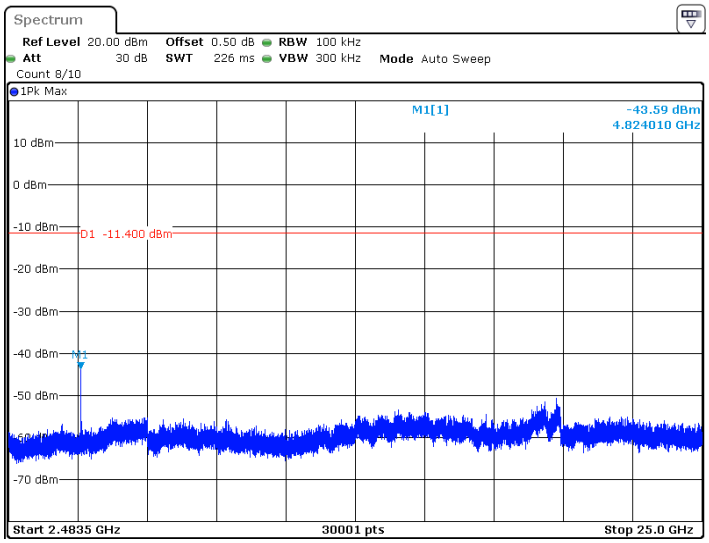
The test plots are attached as below.

802.11b
Channel 01 (2412MHz) Reference Level: 8.60dBm

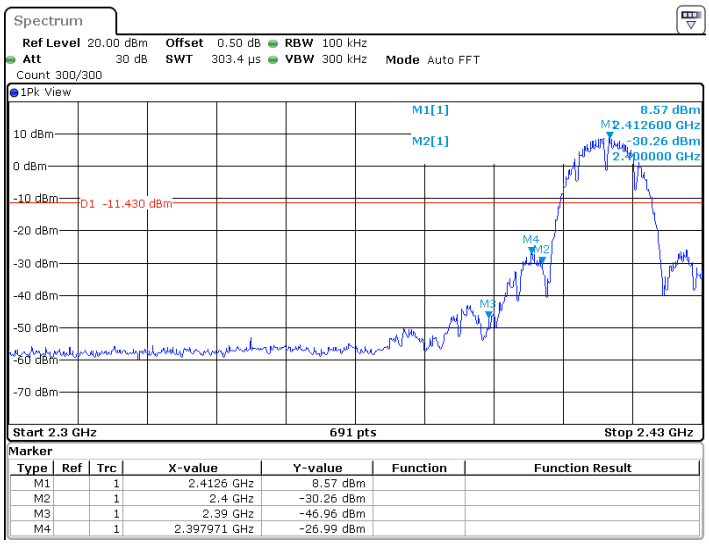




Date: 22.JAN.2021 13:55:16



Date: 22.JAN.2021 13:55:23

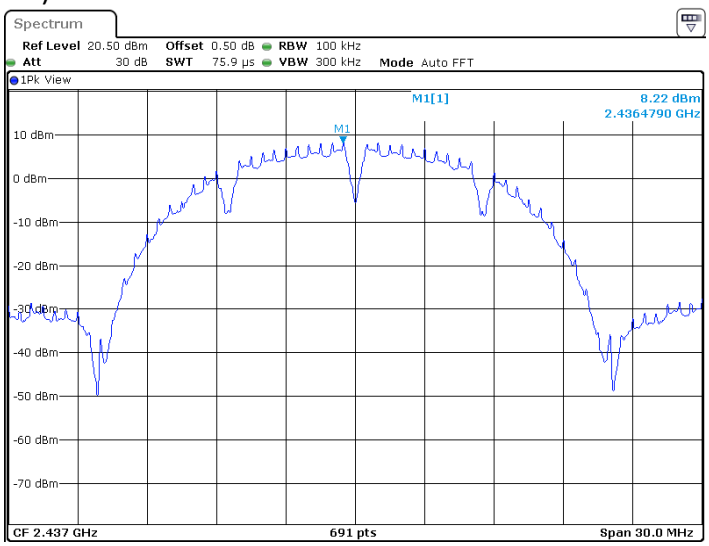


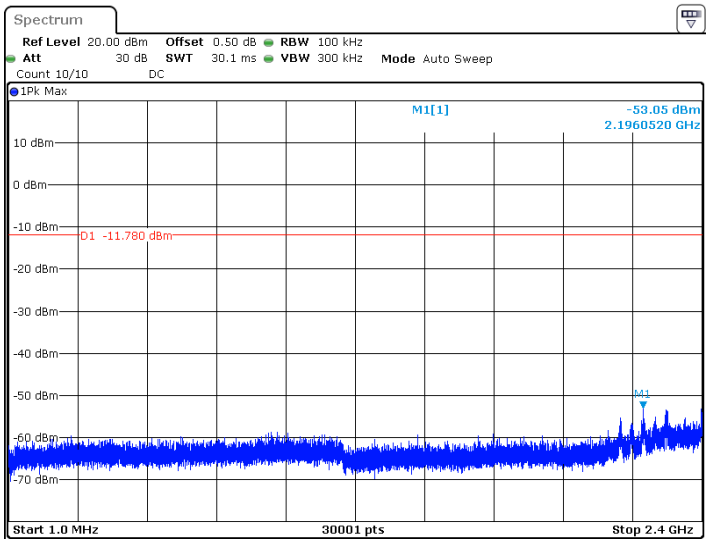
Marker

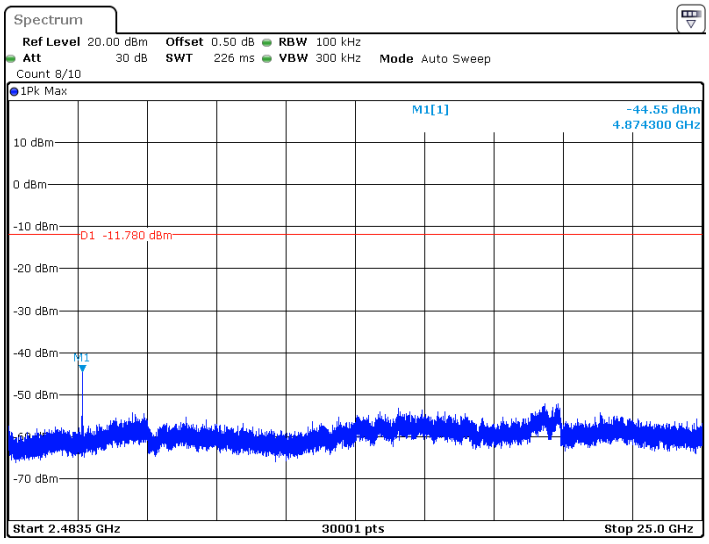
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4126 GHz	8.57 dBm		
M2		1	2.4 GHz	-30.26 dBm		
M3		1	2.39 GHz	-46.96 dBm		
M4		1	2.397971 GHz	-26.99 dBm		

Date: 22.JAN.2021 13:55:00

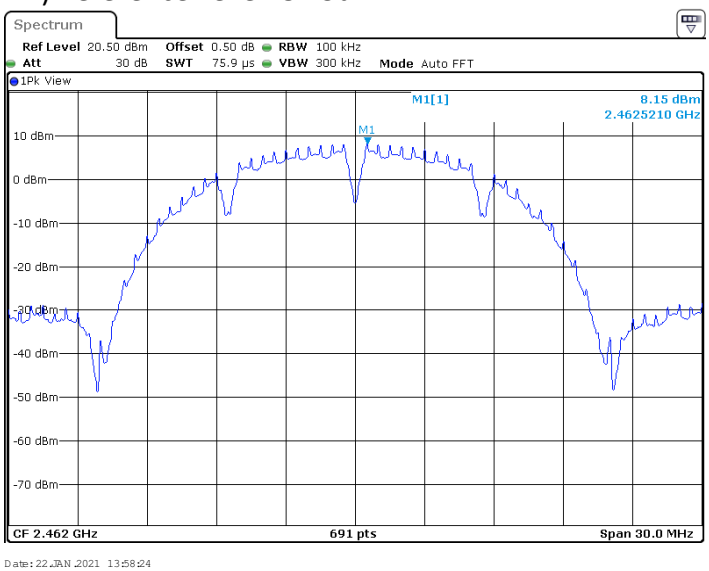
Channel 06 (2437MHz) Reference Level: 8.22dBm

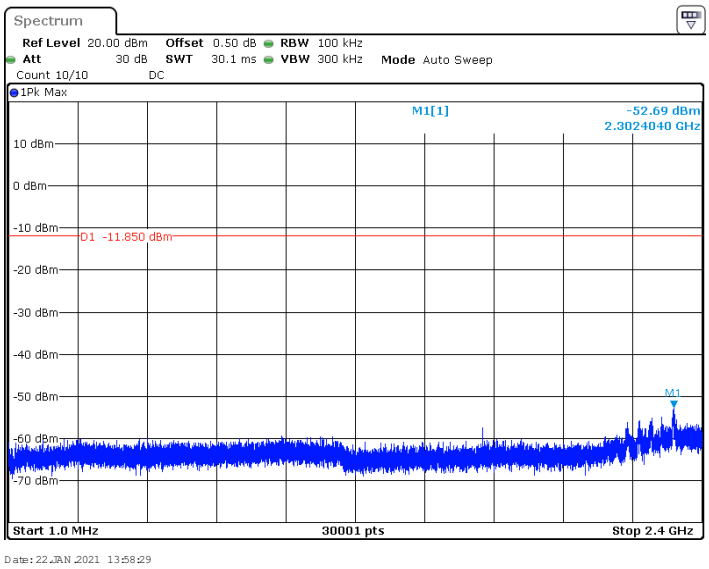


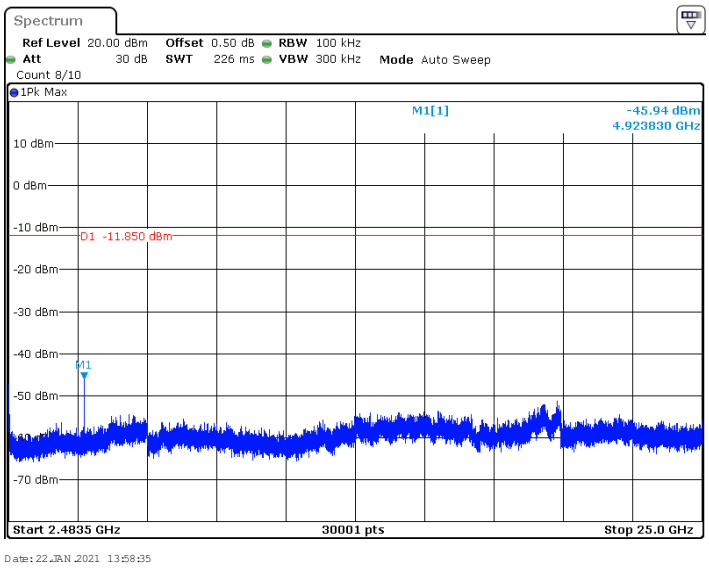


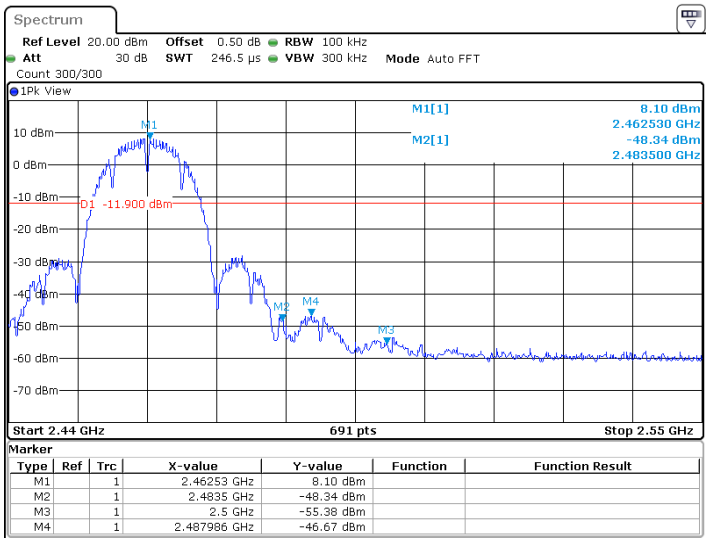


Channel 11 (2462MHz) Reference Level: 8.15dBm



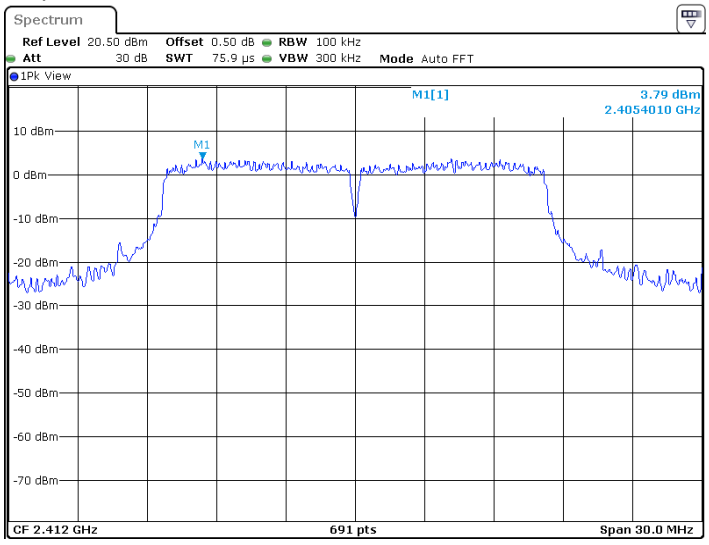


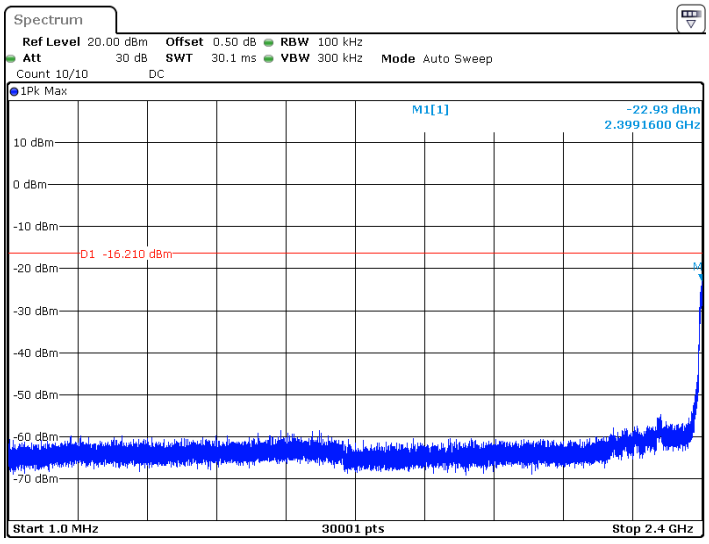


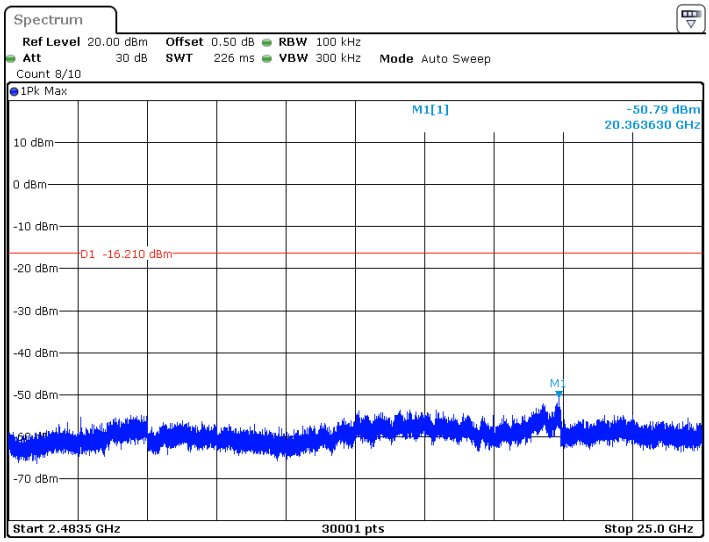


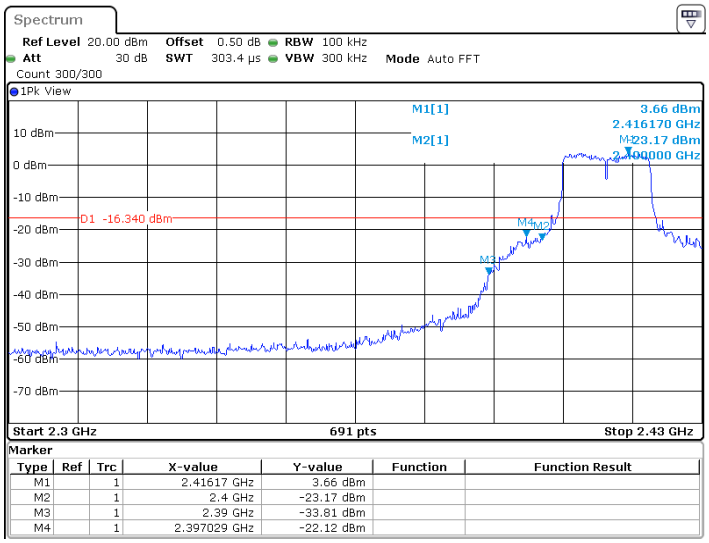
802.11g

Channel 01 (2412MHz) Reference Level: 3.79dBm

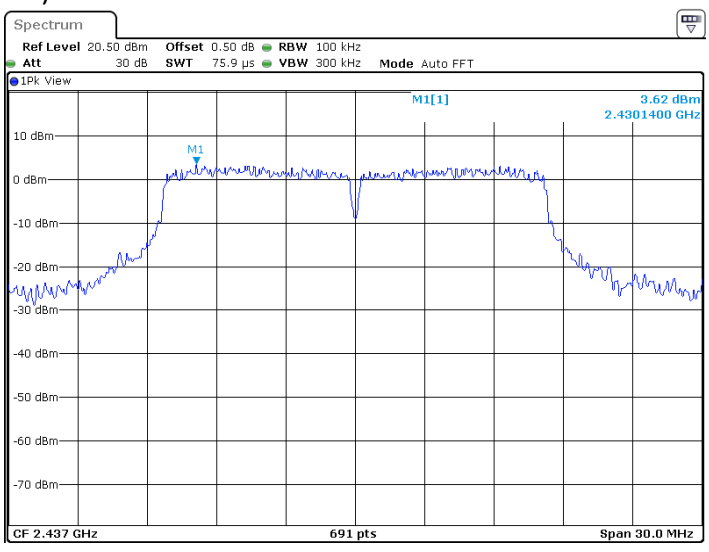


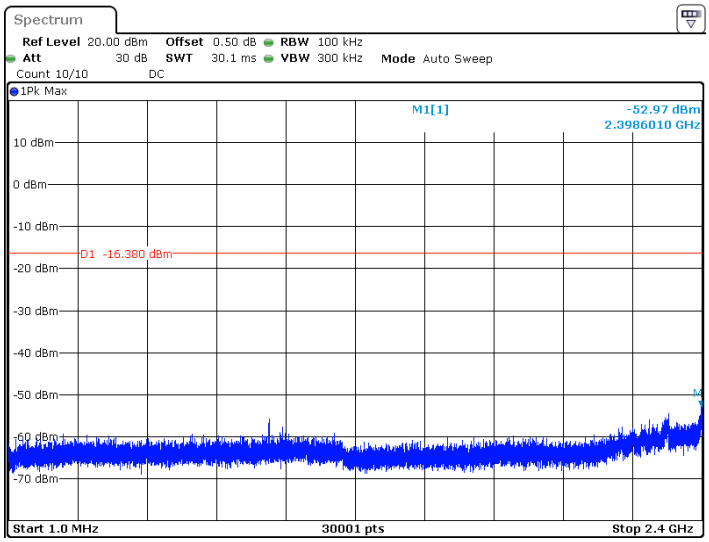


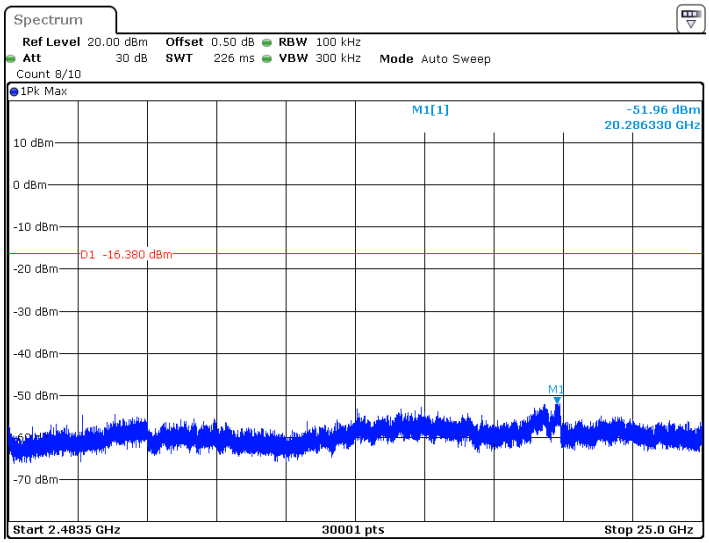




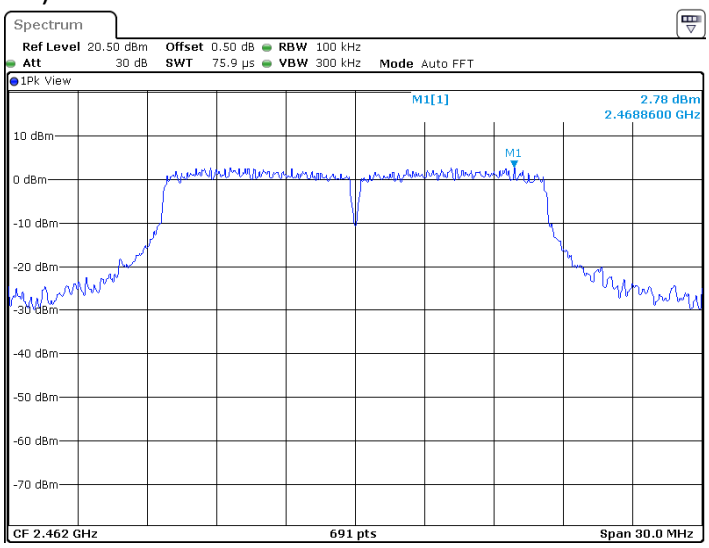
Channel 06 (2437MHz) Reference Level: 3.62dBm

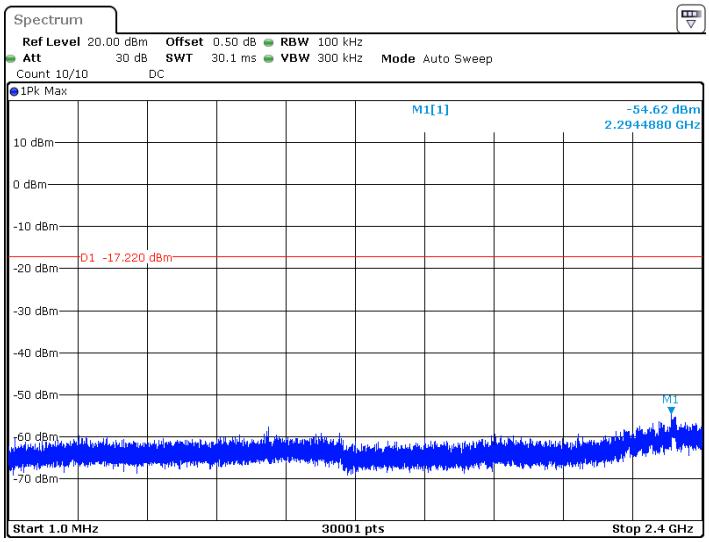


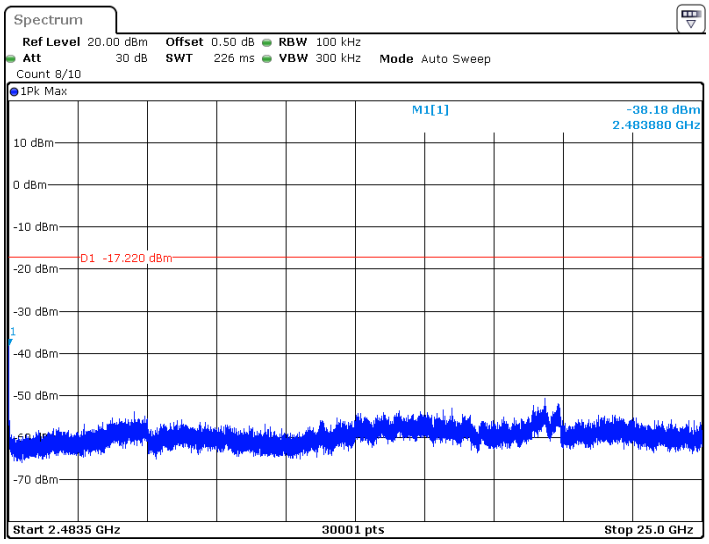


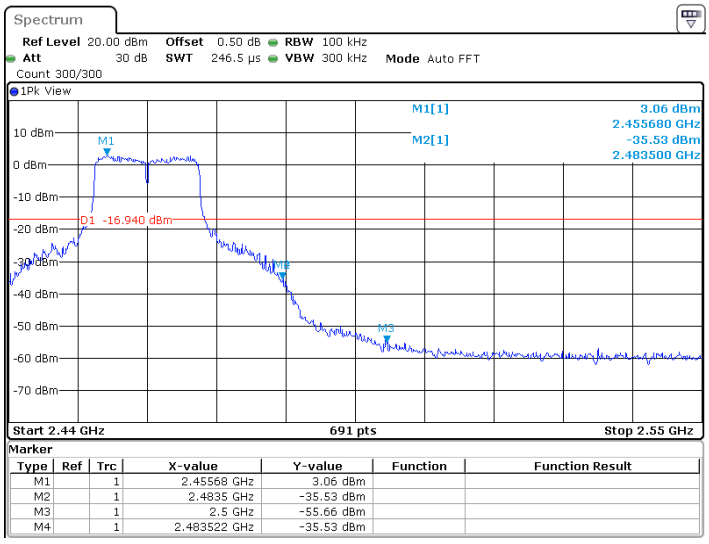


Channel 11 (2462MHz) Reference Level: 2.78dBm

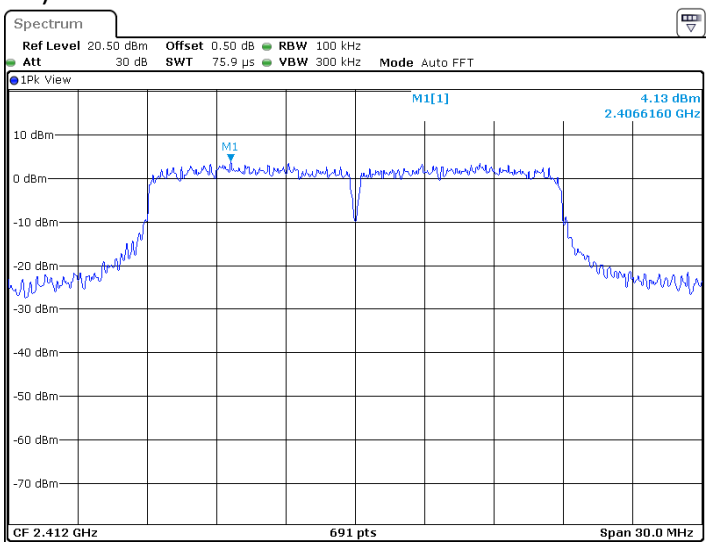


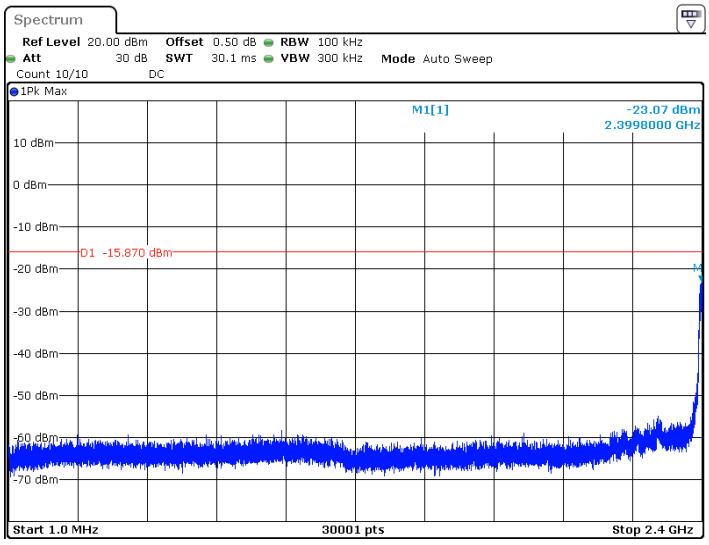

Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 30.1 ms VBW 300 kHz Mode Auto Sweep
Count 10/10 DC
1Pk Max
M1[1] -54.62 dBm
2.2944880 GHz
D1 -17.220 dBm
M1
Start 1.0 MHz 30001 pts Stop 2.4 GHz
Date: 22.JAN.2021 14:22:13

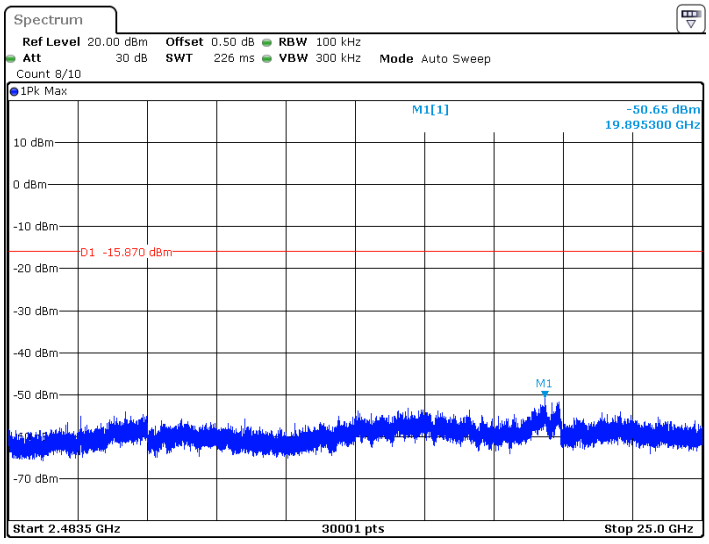

Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 226 ms VBW 300 kHz Mode Auto Sweep
Count 8/10
1Pk Max
M1[1] -38.18 dBm
2.483880 GHz
D1 -17.220 dBm
Start 2.4835 GHz 30001 pts Stop 25.0 GHz
Date: 22.JAN.2021 14:22:20

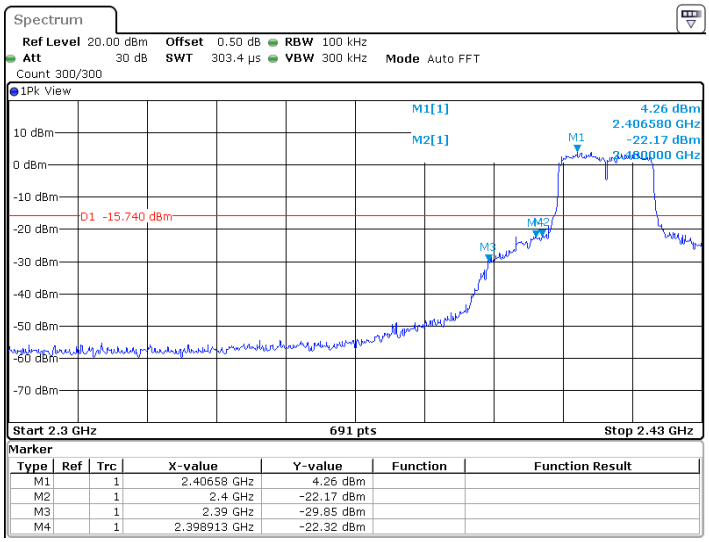

Spectrum
Ref Level 20.00 dBm Offset 0.50 dB RBW 100 kHz
Att 30 dB SWT 246.5 µs VBW 300 kHz Mode Auto FFT
Count 300/300
1Pk View
M1[1] 3.06 dBm
2.455680 GHz
M2[1] -35.53 dBm
2.483500 GHz
D1 -16.940 dBm
Start 2.44 GHz 691 pts Stop 2.55 GHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 2.45568 GHz 3.06 dBm
M2 1 2.4835 GHz -35.53 dBm
M3 1 2.5 GHz -55.66 dBm
M4 1 2.483522 GHz -35.53 dBm
Date: 22.JAN.2021 14:21:58

802.11n-HT20
Channel 01 (2412MHz) Reference Level: 4.13dBm

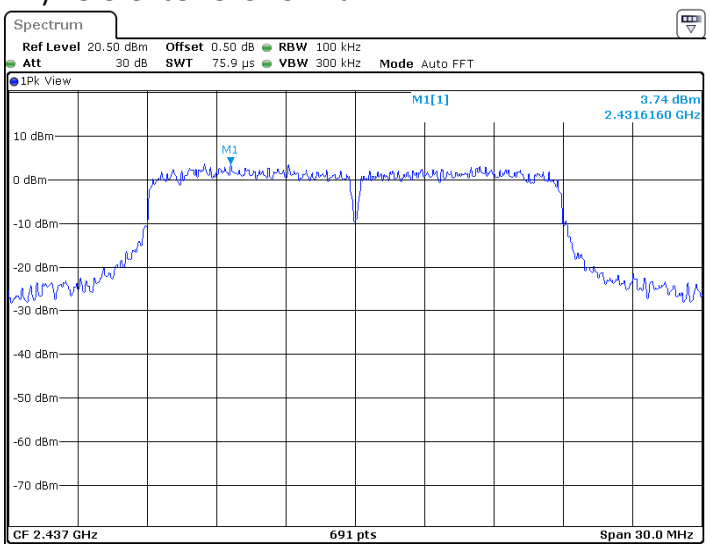


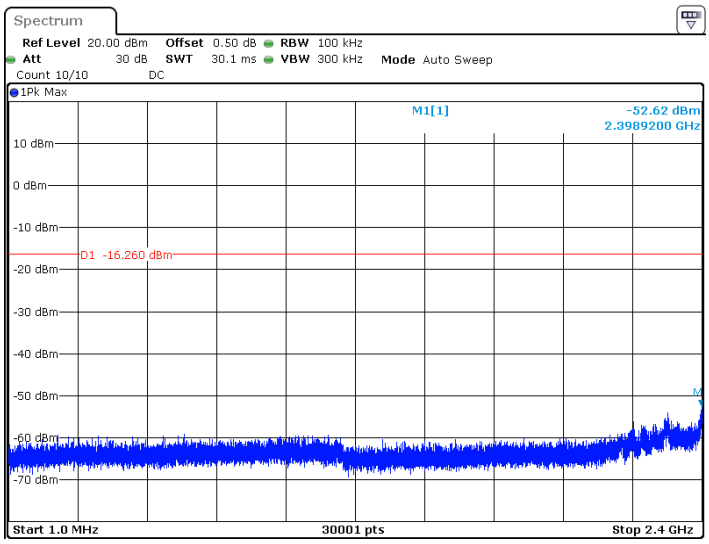


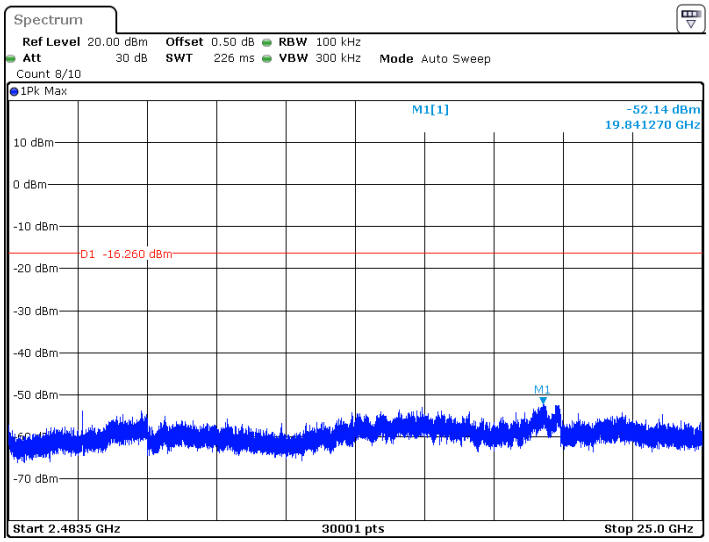




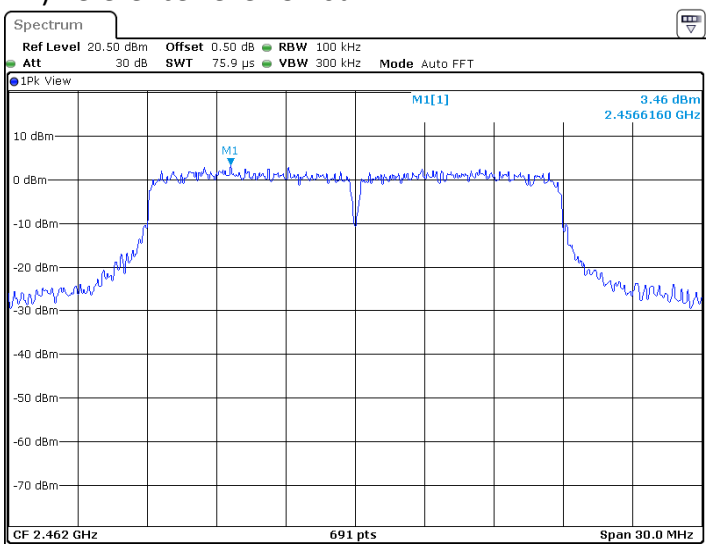
Channel 06 (2437MHz) Reference Level: 3.74dBm

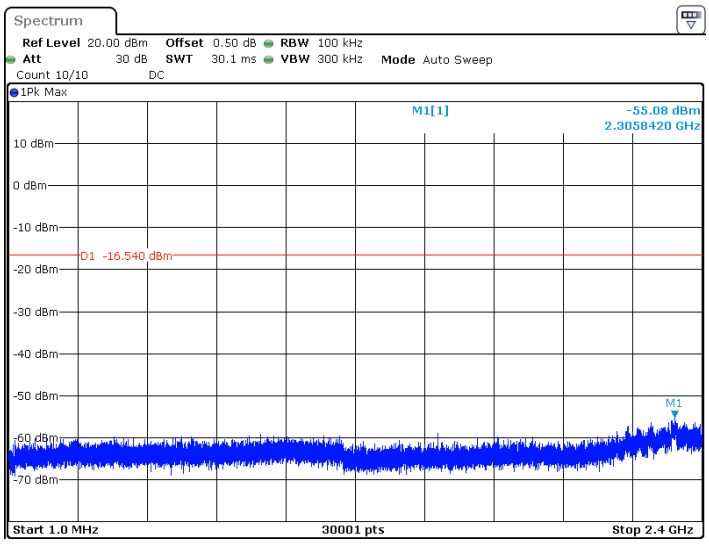


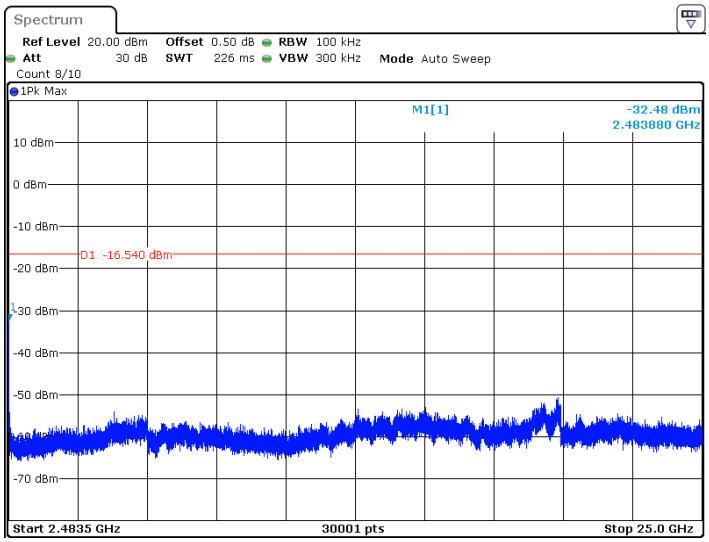


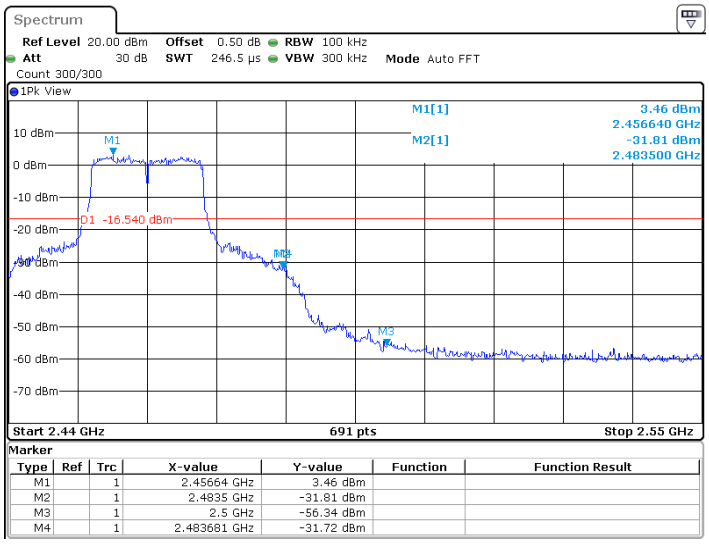


Channel 11 (2462MHz) Reference Level: 3.46dBm



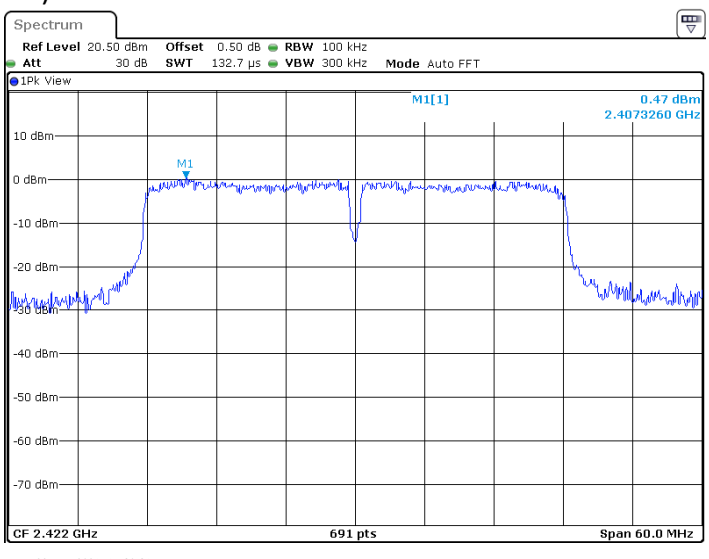


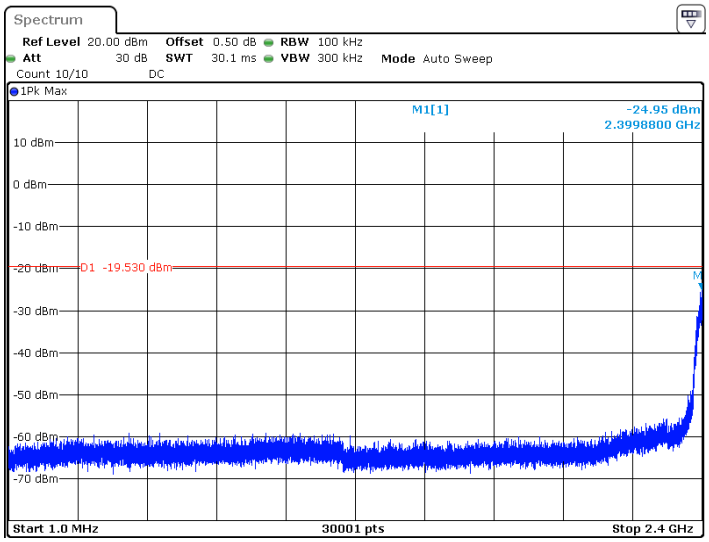


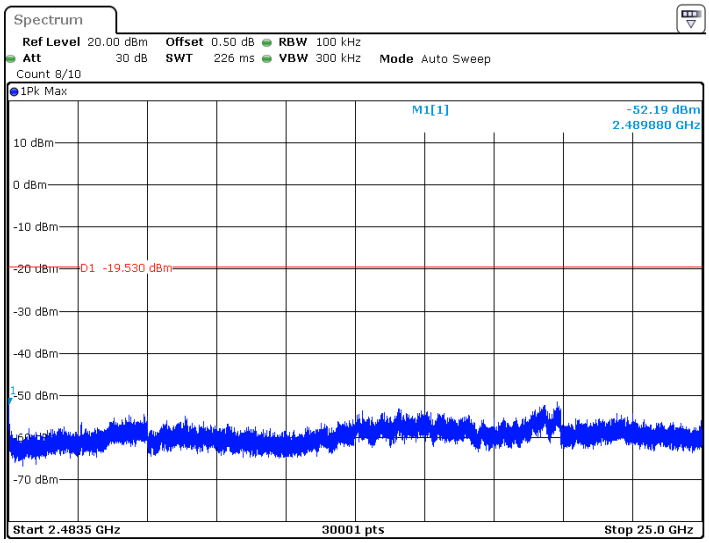


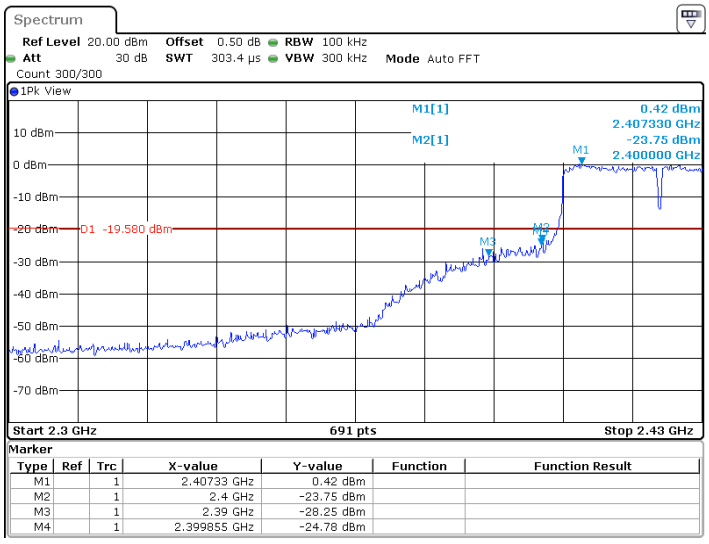
802.11n-HT40

Channel 01 (2422MHz) Reference Level: 0.47dBm





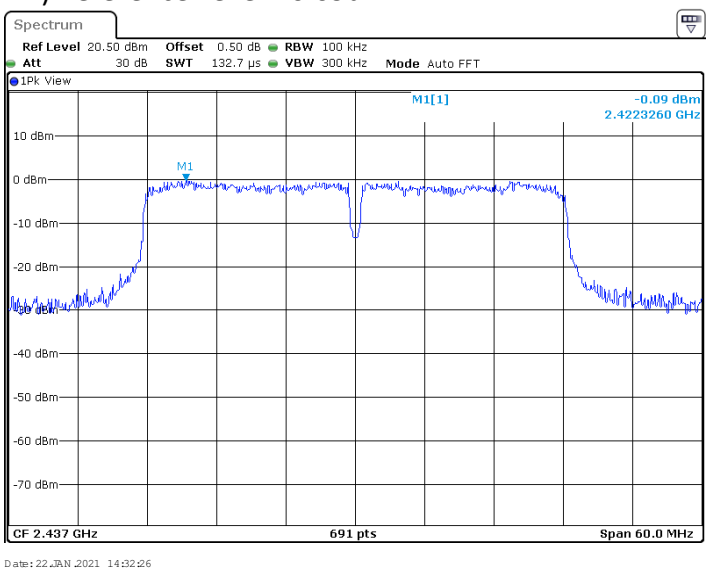


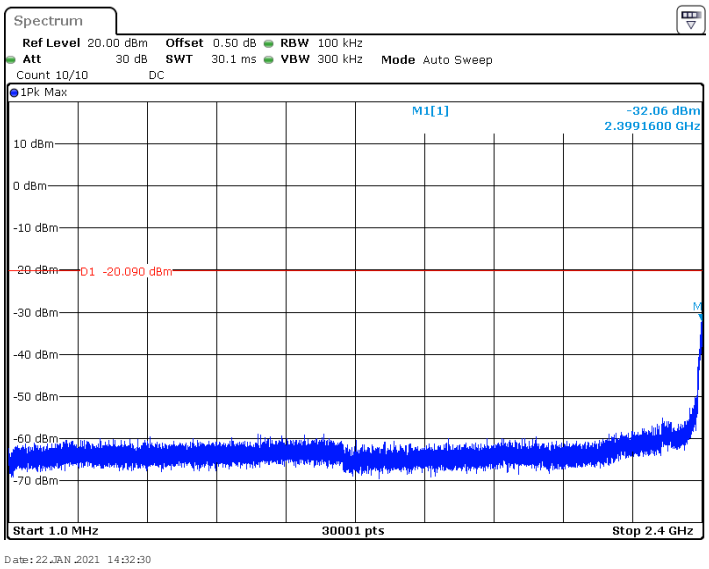


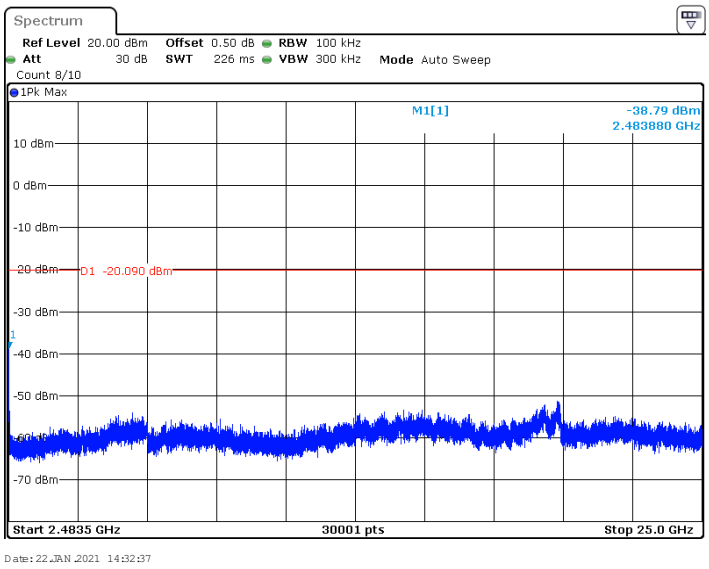
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40733 GHz	0.42 dBm		
M2		1	2.4 GHz	-23.75 dBm		
M3		1	2.39 GHz	-28.25 dBm		
M4		1	2.399855 GHz	-24.78 dBm		

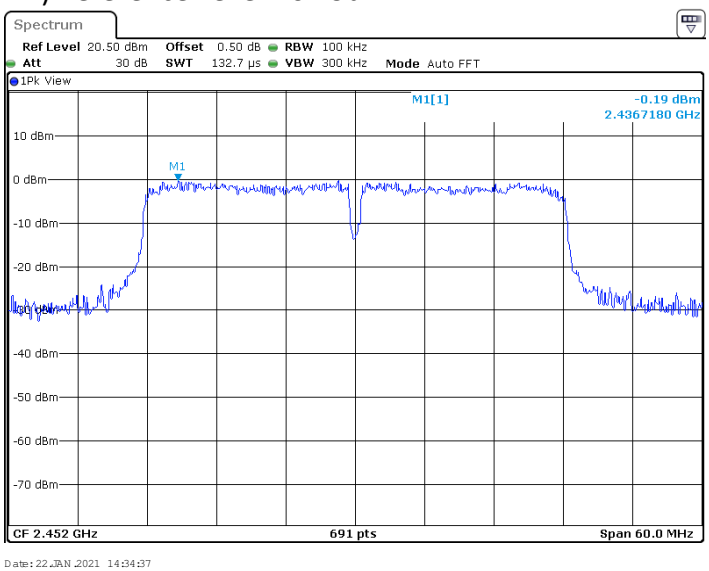
Channel 06 (2437MHz) Reference Level: -0.09dBm

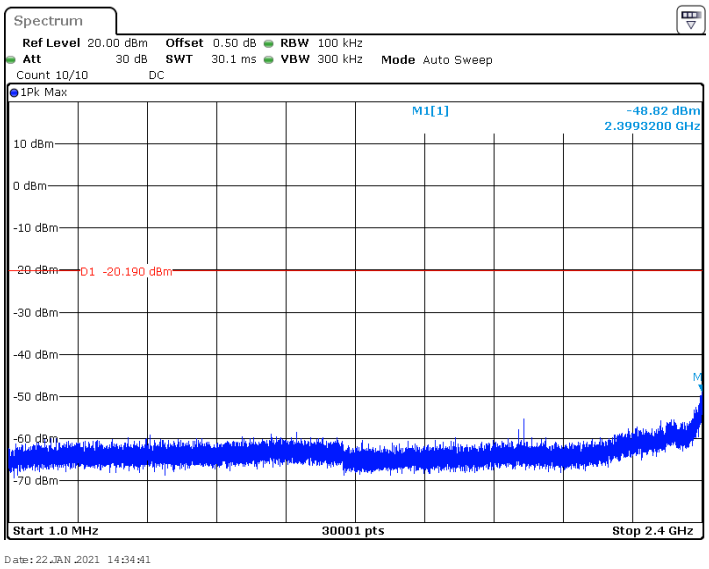


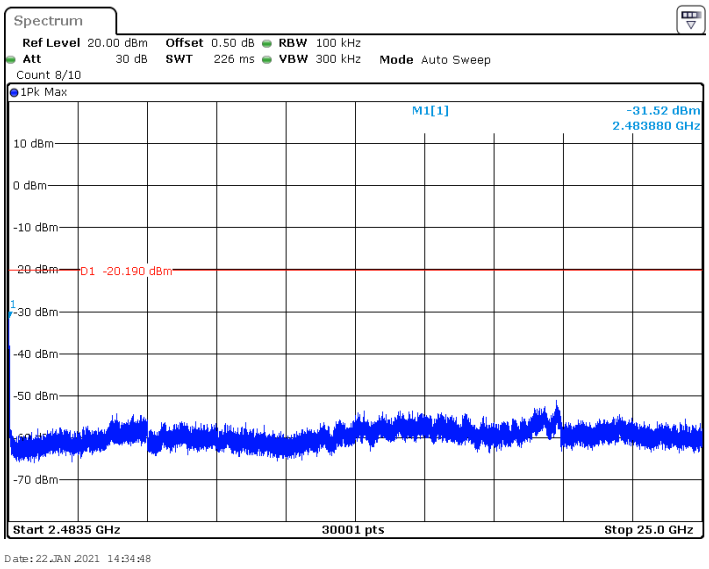


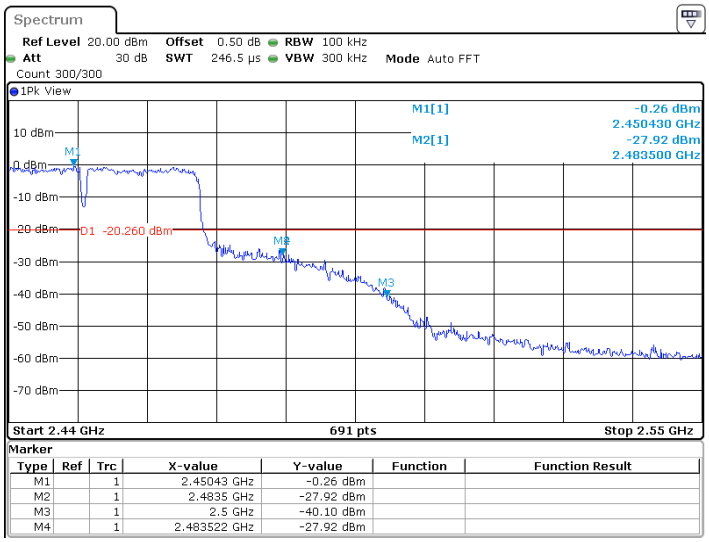


Channel 11 (2452MHz) Reference Level: -0.19dBm









Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45043 GHz	-0.26 dBm		
M2		1	2.4835 GHz	-27.92 dBm		
M3		1	2.5 GHz	-40.10 dBm		
M4		1	2.483522 GHz	-27.92 dBm		

Date: 22.JAN.2021 14:34:20

4.5 Out of Band Radiated Emissions (for emissions in 4.4 above that are less than 20dB below carrier), FCC Rule 15.247(d):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

[×] Not required, since all emissions are more than 20dB below fundamental
[ ] See attached data sheet

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646
Companion Device: Adapter 2+ Micro USB cable 2+ HDMI cable 2

4.6 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b) (c):

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646
Companion Device: Adapter 2+ Micro USB cable 2+ HDMI cable 2

4.7 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

FS = RA + AF + CF - AG + PD

Where FS = Field Strength in dBµV/m
RA = Receiver Amplitude (including preamplifier) in dBµV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD

Example
Assume a receiver reading of 62.0 dBµV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 42 dBµV/m. This value in dBµV/m was converted to its corresponding level in µV/m.

RA = 62.0 dBµV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0 dB
FS = 62 + 7.4 + 1.6 - 29 + 0 = 42 dBµV/m

Level in mV/m = Common Antilogarithm [(42 dBµV/m)/20] = 125.9 µV/m

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646
Companion Device: Adapter 2+ Micro USB cable 2+ HDMI cable 2

4.8 Radiated Spurious Emission

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit. Simultaneous transmission was considered during the test, only the worst case data is recorded in this report.

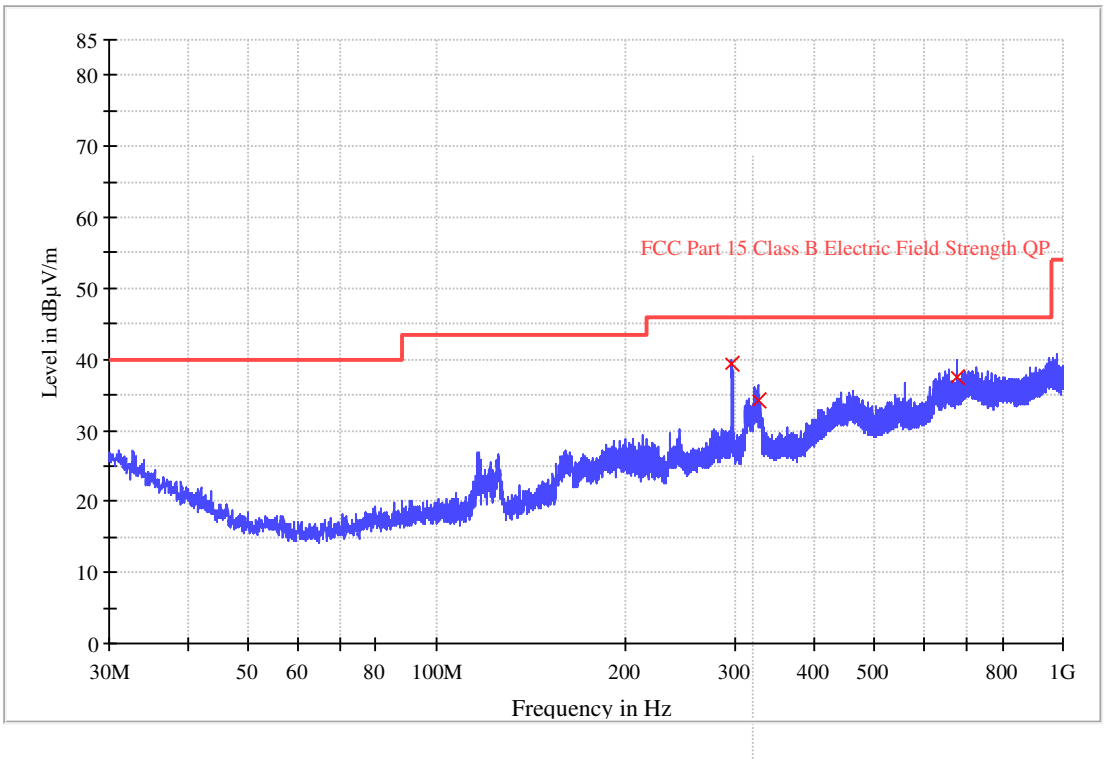
Worst Case Radiated Spurious Emission
at 2483.5MHz
is passed by 2.7dB margin.

For the electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646
Worst Case Operating Mode: Simultaneous transmission
Companion Device: Adapter 2+ Micro USB cable 2+ HDMI cable 2

ANT Polarity: Horizontal

FCC Part 15



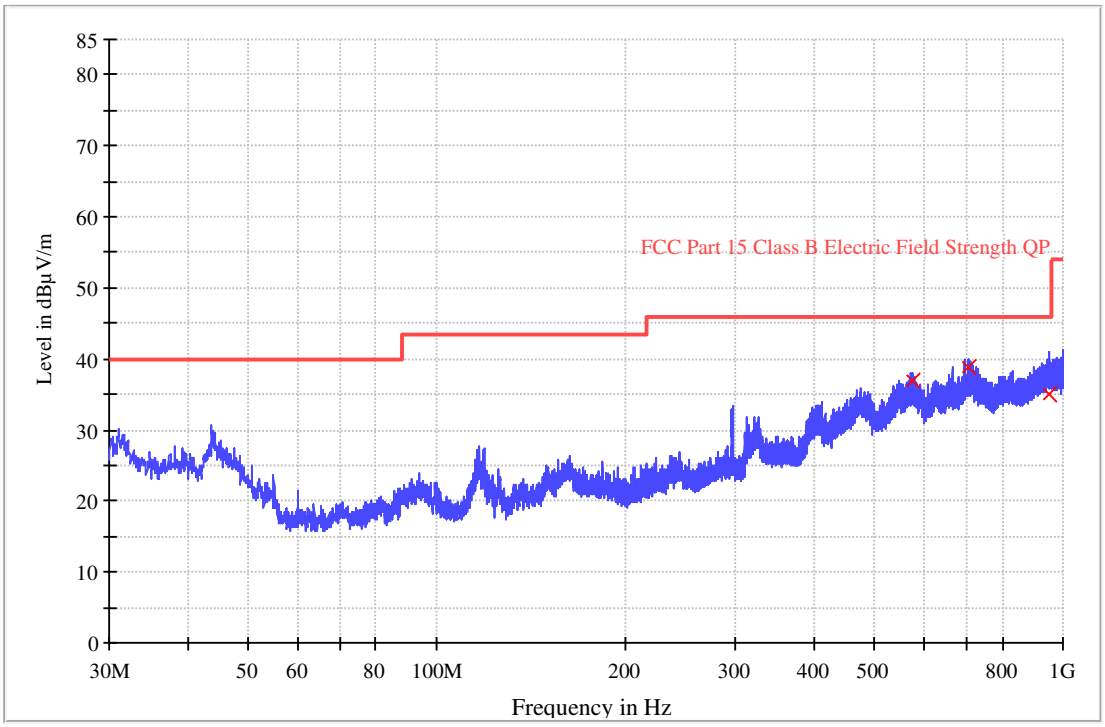
Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
296.588333	39.3	1000.0	120.000	H	15.3	6.7	46.0
325.397333	34.2	1000.0	120.000	H	16.2	11.8	46.0
675.826000	37.6	1000.0	120.000	H	24.6	8.4	46.0

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
3. Margin (dB) = Limit Line(dBµV/m) – Level (dBµV/m)

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646
Worst Case Operating Mode: Simultaneous transmission
Companion Device: Adapter 2+ Micro USB cable 2+ HDMI cable 2

ANT Polarity: Vertical

FCC Part 15



Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
576.433333	36.9	1000.0	120.000	V	21.8	9.1	46.0
708.127000	38.8	1000.0	120.000	V	25.3	7.2	46.0
949.010333	35.1	1000.0	120.000	V	28.2	10.9	46.0

Remark:
1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
3. Margin (dB) = Limit Line(dBµV/m) – Level (dBµV/m)

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646
Companion Device: Adapter 2+ Micro USB cable 2+ HDMI cable 2

Radiated Emissions (above 1GHz)

Worst Case Operating Mode: Transmitting (802.11b-Channel 01)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4824.000	48.0	36.8	33.5	44.7	74.0	-29.3
Horizontal	*2390.000	70.6	36.4	29.1	63.3	74.0	-10.7

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4824.000	38.7	36.8	33.5	35.4	54.0	-18.6
Horizontal	*2390.000	57.5	36.4	29.1	50.2	54.0	-3.8

Worst Case Operating Mode: Transmitting (802.11b-Channel 06)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	46.7	36.7	33.4	43.4	74.0	-30.6
Horizontal	*7311.000	48.3	36.6	35.8	47.5	74.0	-26.5

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	36.3	36.7	33.4	33.0	54.0	-21.0
Horizontal	*7311.000	39.6	36.6	35.8	38.8	54.0	-15.2

Worst Case Operating Mode: Transmitting (802.11b-Channel 11)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	57.5	36.8	33.3	54.0	74.0	-20.0
Horizontal	*2483.500	69.4	36.5	29.3	62.2	74.0	-11.8

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	48.1	36.8	33.3	44.6	54.0	-9.4
Horizontal	*2483.500	57.7	36.5	29.3	50.5	54.0	-3.5

Worst Case Operating Mode: Transmitting (802.11g-Channel 01)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4824.000	41.6	36.8	33.5	38.3	74.0	-35.7
Horizontal	*2390.000	69.9	36.4	29.1	62.6	74.0	-11.4

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4824.000	35.6	36.8	33.5	32.3	54.0	-21.7
Horizontal	*2390.000	56.7	36.4	29.1	49.4	54.0	-4.6

Worst Case Operating Mode: Transmitting (802.11g-Channel 06)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	36.3	36.7	33.4	33.0	74.0	-41.0
Horizontal	*7311.000	45.2	36.6	35.8	44.4	74.0	-29.6

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	31.1	36.7	33.4	27.8	54.0	-26.2
Horizontal	*7311.000	35.7	36.6	35.8	34.9	54.0	-19.1

Worst Case Operating Mode: Transmitting (802.11g-Channel 11)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	41.9	36.8	33.3	38.4	74.0	-35.6
Horizontal	*2483.500	71.5	36.5	29.3	64.3	74.0	-9.7

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	36.7	36.8	33.3	33.2	54.0	-20.8
Horizontal	*2483.500	58.5	36.5	29.3	51.3	54.0	-2.7

Worst Case Operating Mode: Transmitting (802.11n20-Channel 01)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4824.000	41.6	36.8	33.5	38.3	74.0	-35.7
Horizontal	*2390.000	74.0	36.4	29.1	66.7	74.0	-7.3

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4824.000	35.6	36.8	33.5	32.3	54.0	-21.7
Horizontal	*2390.000	58.0	36.4	29.1	50.7	54.0	-3.3

Worst Case Operating Mode: Transmitting (802.11n20-Channel 06)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	39.7	36.7	33.4	36.4	74.0	-37.6
Horizontal	*7311.000	42.1	36.6	35.8	41.3	74.0	-32.7

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	35.1	36.7	33.4	31.8	54.0	-22.2
Horizontal	*7311.000	34.7	36.6	35.8	33.9	54.0	-20.1

Worst Case Operating Mode: Transmitting (802.11n20-Channel 11)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	40.8	36.8	33.3	37.3	74.0	-36.7
Horizontal	*2483.500	68.0	36.5	29.3	60.8	74.0	-13.2

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4924.000	34.3	36.8	33.3	30.8	54.0	-23.2
Horizontal	*2483.500	57.7	36.5	29.3	50.5	54.0	-3.5

Worst Case Operating Mode: Transmitting (802.11n40-Channel 03)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4844.000	43.7	36.8	33.5	40.4	74.0	-33.6
Horizontal	*2390.000	71.9	36.4	29.1	64.6	74.0	-9.4

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4844.000	37.8	36.8	33.5	34.5	54.0	-19.5
Horizontal	*2390.000	58.3	36.4	29.1	51.0	54.0	-3.0

Worst Case Operating Mode: Transmitting (802.11n40-Channel 06)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	41.7	36.7	33.4	38.4	74.0	-35.6
Horizontal	*7311.000	42.8	36.6	35.8	42.0	74.0	-32.0

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4874.000	35.4	36.7	33.4	32.1	54.0	-21.9
Horizontal	*7311.000	39.0	36.6	35.8	38.2	54.0	-15.8

Worst Case Operating Mode: Transmitting (802.11n40-Channel 09)

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Peak Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4904.000	43.7	36.8	33.3	40.2	74.0	-33.8
Horizontal	*2483.500	67.8	36.5	29.3	60.6	74.0	-13.4

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Average Limit at 3m (dBµV/m)	Margin (dB)
Horizontal	*4904.000	39.4	36.8	33.3	35.9	54.0	-18.1
Horizontal	*2483.500	57.0	36.5	29.3	49.8	54.0	-4.2

NOTES: 1. Peak detector is used, RBW=1MHz/VBW=3MHz for peak value and RBW=1MHz/VBW=10Hz for average value.

2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative value in the margin column shows emission below limit.

4. Horn antenna used for the emission over 1000MHz.

* Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646
Companion Device: Adapter 2+ Micro USB cable 2+ HDMI cable 2

4.9 Conducted Emission

Simultaneous transmission was considered during the test, only the worst case data is recorded in this report.

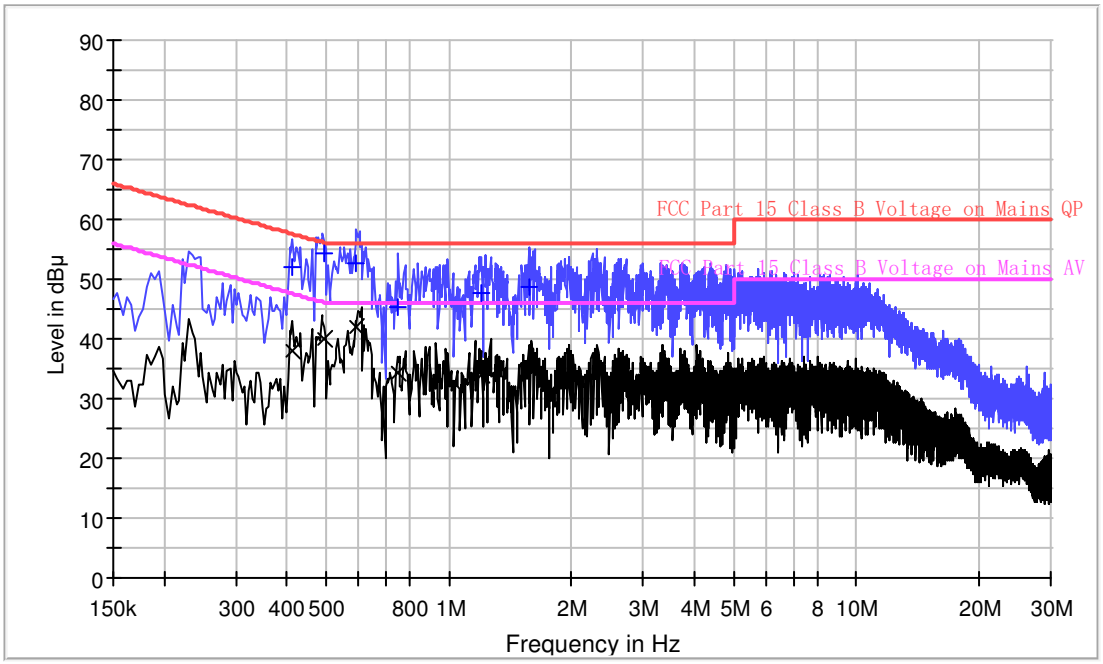
Worst Case Conducted Emission
at 0.492MHz
is passed by 1.8dB margin.

For the electronic filing, the worst case radiated emission configuration photographs are saved with filename: conducted photos.pdf.

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646
Worst Case Operating Mode: Simultaneous transmission
Companion Device: Adapter 2+ Micro USB cable 2+ HDMI cable 2
Phase: Live

Graphic / Data Table

Conducted Emissions
Pursuant to FCC 15.207: Emissions Requirement



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.414000	52.0	9.000	L1	9.6	5.6	57.6
0.492000	54.3	9.000	L1	9.6	1.8	56.1
0.594000	52.5	9.000	L1	9.7	3.5	56.0
0.750000	45.3	9.000	L1	9.7	10.7	56.0
1.198000	47.8	9.000	L1	9.7	8.2	56.0
1.566000	48.6	9.000	L1	9.7	7.4	56.0

Limit and Margin AV

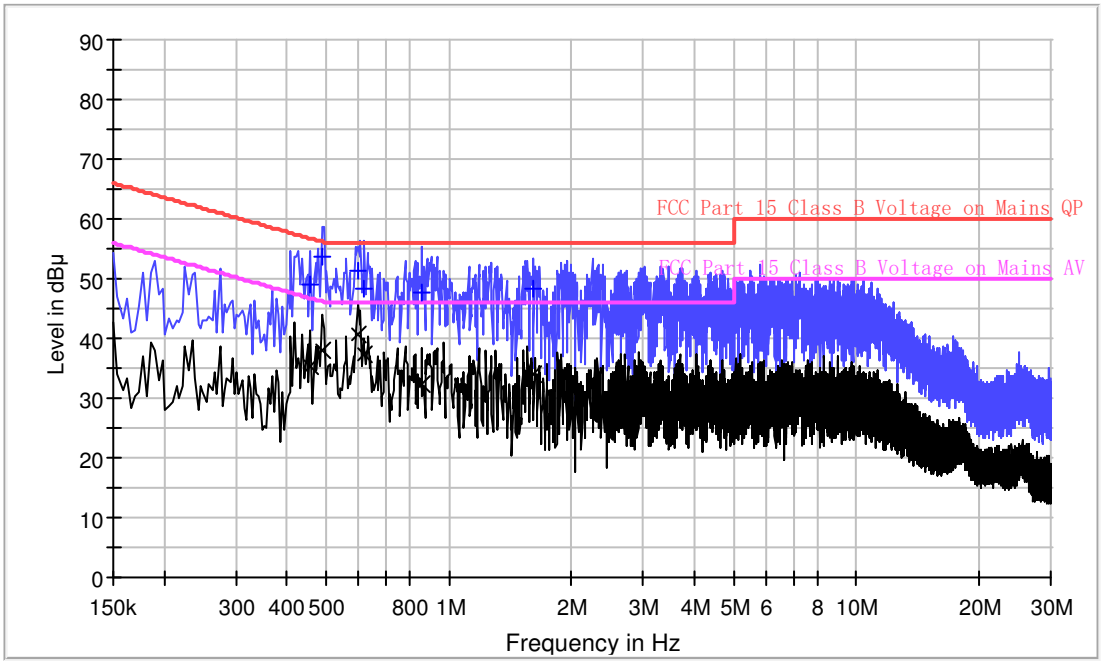
Frequency (MHz)	Average (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.414000	37.9	9.000	L1	9.6	9.7	47.6
0.492000	39.9	9.000	L1	9.6	6.2	46.1
0.594000	42.0	9.000	L1	9.7	4.0	46.0
0.750000	34.3	9.000	L1	9.7	11.7	46.0
1.198000	34.1	9.000	L1	9.7	11.9	46.0
1.566000	35.2	9.000	L1	9.7	10.8	46.0

Remark:
1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Limit (dBuV) – Level (dBuV)

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646
Worst Case Operating Mode: Simultaneous transmission
Companion Device: Adapter 2+ Micro USB cable 2+ HDMI cable 2
Phase: Neutral

Graphic / Data Table

Conducted Emissions
Pursuant to FCC 15.207: Emissions Requirement



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.458000	48.9	9.000	N	9.7	7.8	56.7
0.487500	53.6	9.000	N	9.7	2.6	56.2
0.598000	51.3	9.000	N	9.7	4.7	56.0
0.622000	48.5	9.000	N	9.7	7.5	56.0
0.858000	47.6	9.000	N	9.7	8.4	56.0
1.606000	48.3	9.000	N	9.7	7.7	56.0

Limit and Margin AV

Frequency (MHz)	Average (dBuV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.458000	35.5	9.000	N	9.7	11.2	46.7
0.487500	38.1	9.000	N	9.7	8.1	46.2
0.598000	40.8	9.000	N	9.7	5.2	46.0
0.622000	37.3	9.000	N	9.7	8.7	46.0
0.858000	32.4	9.000	N	9.7	13.6	46.0
1.606000	33.8	9.000	N	9.7	12.2	46.0

Remark:
1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Limit (dBuV) – Level (dBuV)

Applicant: ASKEY COMPUTER COOPERATION
Date of Test: 22 January 2021 Model: VSN: 100024646

4.10 Radiated Emissions from Digital Section of Transceiver, FCC Ref: 15.109

[ ] Not required - No digital part

[ ] Test results are attached

[x] Included in the separated report.

4.11 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

	See attached spectrum analyzer chart (s) for Transmitter timing
	See Transmitter timing diagram provided by manufacturer
x	Not applicable, duty cycle was not used.

5.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.pdf & internal photos.pdf.

6.0 Product Labeling

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf.

7.0 Technical Specifications

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

8.0 Instruction Manual

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

9.0 Confidentiality Request

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

10.0 Discussion of Pulse Desensitization

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF.*

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.

11.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ182-02	RF Power Meter	Anritsu	ML2496A	1302005	2020-05-27	2021-05-27
SZ182-02-01	Power Sensor	Anritsu	MA2411B	1207429	2020-05-27	2021-05-27
SZ061-13	BiConiLog Antenna	ETS	3142E	00217919	2019-06-10	2021-06-10
SZ185-01	EMI Receiver	R&S	ESCI	100547	2020-12-22	2021-12-22
SZ061-08	Horn Antenna	ETS	3115	00092346	2019-09-07	2021-09-07
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	2019-05-24	2021-05-24
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	2020-05-27	2021-05-27
SZ056-08	Signal Analyzer	R&S	FSV 40	101430	2020-12-22	2021-12-22
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	2020-05-27	2021-05-27
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	2018-12-15	2021-12-15
SZ062-02	RF Cable	RADIALL	RG 213U	--	2020-12-12	2021-06-12
SZ062-05	RF Cable	RADIALL	0.04-26.5GHz	--	2020-08-24	2021-02-24
SZ062-12	RF Cable	RADIALL	0.04-26.5GHz	--	2020-08-24	2021-02-24
SZ067-04	Notch Filter	Micro-Tronics	BRM50702-02	--	2020-05-27	2021-05-27
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	2020-10-27	2021-10-27
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	2020-05-27	2021-05-27
SZ188-03	Shielding Room	ETS	RFD-100	4100	2018-12-15	2021-12-15

********** End of Report**********