FCC Test Report

Product Name	ROG Strix Wireless
Model No.	ROG Strix Wireless
FCC ID	BJM-ROGSTRIXWL

Applicant	Tatung Company
Address	22 Chungshan N Road Sec 3 , Taipei, Taiwan 10451

Date of Receipt	Apr. 20, 2016
Issued Date	May 10, 2016
Report No.	1640421R-RFUSP15V00
Report Version	V1.0

Testing Laboratory
3023

Test Report

Issued Date: May 10, 2016
Report No.: 1640421R-RFUSP15V00

Product Name	ROG Strix Wireless
Applicant	Tatung Company
Address	22 Chungshan N Road Sec 3 , Taipei, Taiwan 10451
Manufacturer	DONG GUAN YI XING ELECTRONICS CO., LTD.
Model No.	ROG Strix Wireless
EUT Rated Voltage	DC 3.7V (Power by Battery) or DC 5V (Power by USB)
EUT Test Voltage	DC 3.7V (Power by Battery)
Trade Name	ASUS
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2015 ANSI C63.4: 2014, ANSI C63.10: 2013
Test Result	Complied

Documented By : Joanne Lin

(Senior Adm. Specialist / Joanne Lin)

Tested By : Vic Chen

(Engineer / Vic Chen)

Approved By :

(Director / Vincent Lin)

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	ROG Strix Wireless
Trade Name	ASUS
Model No.	ROG Strix Wireless
FCC ID	BJM-ROGSTRIXWL
Frequency Range	2405.35-2477.35MHz
Channel Control	Auto
Channel Separation	2MHz
Channel Number	37
Type of Modulation	Pi/4 DQPSK
Antenna Type	Printed on PCB
Antenna Gain	Refer to the table “Antenna List”
USB Cable	Non-Shielded, 1.5m
Audio Cable	Non-Shielded, 1.5m

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	TATUNG	051-044R, 048-056R (Ant 1) 051-044R, 048-056R (Ant 2)	Printed on PCB	5.48dBi for 2.4 GHz

Note: The antenna of EUT is conform to FCC 15.203

Center Frequency of Each Channel

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	2405.35 MHz	Channel 11:	2425.35 MHz	Channel 21:	2445.35 MHz	Channel 31:	2465.35 MHz
Channel 2:	2407.35 MHz	Channel 12:	2427.35 MHz	Channel 22:	2447.35 MHz	Channel 32:	2467.35 MHz
Channel 3:	2409.35 MHz	Channel 13:	2429.35 MHz	Channel 23:	2449.35 MHz	Channel 33:	2469.35 MHz
Channel 4:	2411.35 MHz	Channel 14:	2431.35 MHz	Channel 24:	2451.35 MHz	Channel 34:	2471.35 MHz
Channel 5:	2413.35 MHz	Channel 15:	2433.35 MHz	Channel 25:	2453.35 MHz	Channel 35:	2473.35 MHz
Channel 6:	2415.35 MHz	Channel 16:	2435.35 MHz	Channel 26:	2455.35 MHz	Channel 36:	2475.35 MHz
Channel 7:	2417.35 MHz	Channel 17:	2437.35 MHz	Channel 27:	2457.35 MHz	Channel 37:	2477.35 MHz
Channel 8:	2419.35 MHz	Channel 18:	2439.35 MHz	Channel 28:	2459.35 MHz		
Channel 9:	2421.35 MHz	Channel 19:	2441.35 MHz	Channel 29:	2461.35 MHz		
Channel 10:	2423.35 MHz	Channel 20:	2443.35 MHz	Channel 30:	2463.35 MHz		

Note:

1. The EUT is a ROG Strix Wireless with a built-in 2.4GHz wireless transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
4. The EUT is using dual-antennas(Ant1&Ant2) and only the worst case(Ant1) is shown in the report.

Test Mode	Mode 1: Transmit

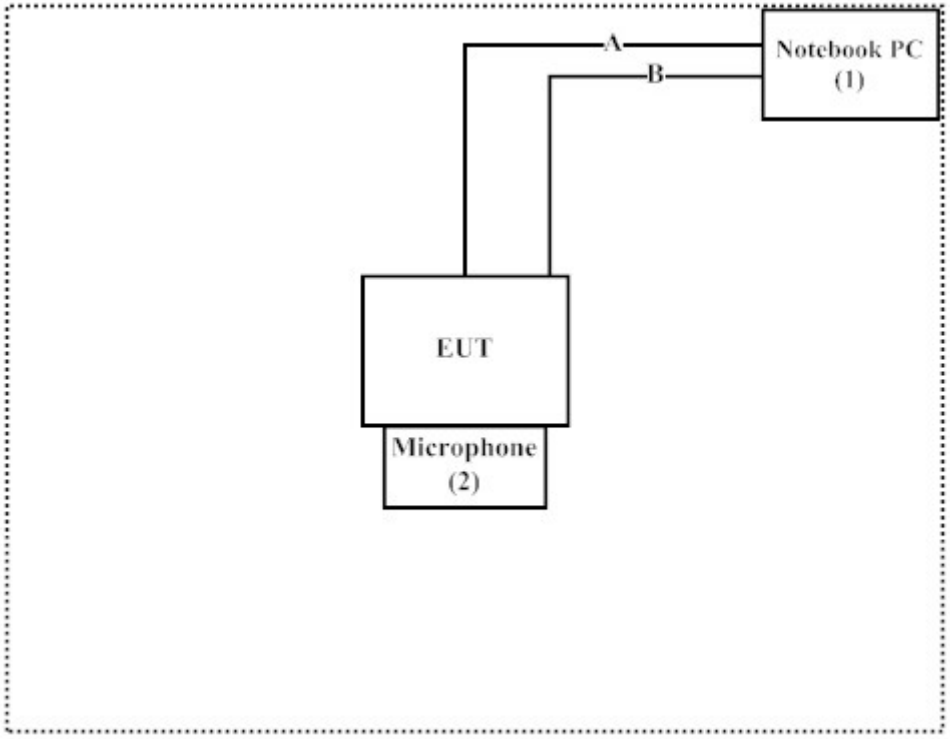
1.3. Tested System Datails

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	Latitude E5440	FS9TK32	Non-Shielded, 0.8m
2	Microphone	ASUS	N/A	N/A	N/A

Signal Cable Type		Signal cable Description
A	USB Cable	Non-Shielded, 1.5m
B	Audio Cable	Non-Shielded, 1.5m

1.4. Configuration of Test System



1.5. EUT Exercise Software

(1) Setup the EUT as shown in Section 1.4.
(2) Execute “Avnera(v 2016.2.22.1)” program on the Notebook.
(3) Configure the test mode and the test channel
(4) Start the continuous Transmit.
(5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site: http://www.quietek.com/chinese/about/certificates.aspx?bval=5
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site: http://www.quietek.com/

Site Description: File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 92195

Site Name: Quietek Corporation
Site Address: No.5-22, Ruishukeng,
Linkou Dist. New Taipei City 24451,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

2. Conducted Emission

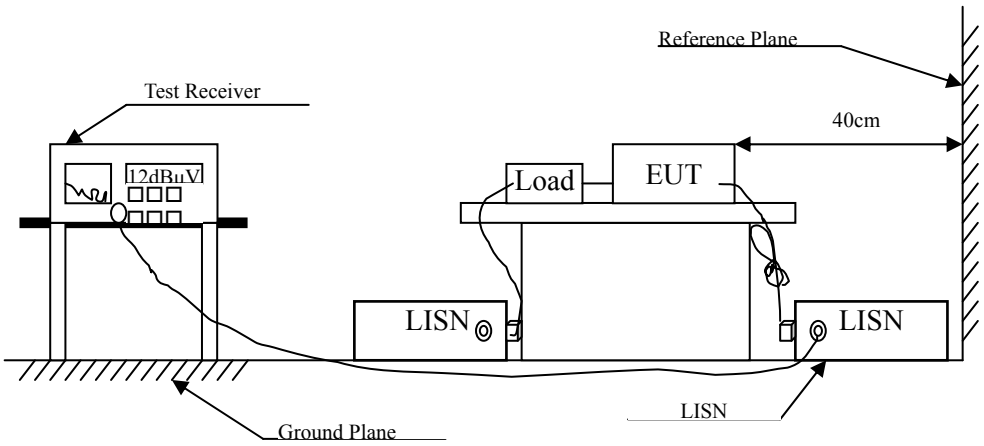
2.1. Test Equipment

	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.	Remark
X	Test Receiver	R & S	ESCS 30 / 825442/018	Sep., 2015	
X	Artificial Mains Network	R & S	ENV4200 / 848411/10	Feb., 2016	Peripherals
X	LISN	R & S	ESH3-Z5 / 825562/002	Feb., 2016	EUT
	DC LISN	Schwarzbeck	8226 / 176	Mar., 2016	EUT
X	Pulse Limiter	R & S	ESH3-Z2 / 357.8810.52	Feb., 2016	
	No.1 Shielded Room				

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked by "X" are used to measure the final test results.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBμV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)
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 C63.4: 2014 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : ROG Strix Wireless
Test Item : Conducted Emission Test
Power Line : Line 1
Test Mode : Mode 1: Transmit (2441.35MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 1					
Quasi-Peak					
0.154	9.783	31.130	40.913	-24.973	65.886
0.236	9.778	32.690	42.468	-21.075	63.543
0.322	9.774	28.770	38.544	-22.542	61.086
0.486	9.787	25.380	35.167	-21.233	56.400
1.759	9.905	21.230	31.135	-24.865	56.000
8.920	10.071	27.520	37.591	-22.409	60.000
Average					
0.154	9.783	15.650	25.433	-30.453	55.886
0.236	9.778	17.500	27.278	-26.265	53.543
0.322	9.774	16.060	25.834	-25.252	51.086
0.486	9.787	13.530	23.317	-23.083	46.400
1.759	9.905	12.790	22.695	-23.305	46.000
8.920	10.071	22.140	32.211	-17.789	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : ROG Strix Wireless
Test Item : Conducted Emission Test
Power Line : Line 2
Test Mode : Mode 1: Transmit (2441.35MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBµV	dBµV	dB	dBµV
LINE 2					
Quasi-Peak					
0.185	9.834	37.960	47.794	-17.206	65.000
0.248	9.838	33.520	43.358	-19.842	63.200
0.373	9.848	27.140	36.988	-22.641	59.629
1.744	9.964	21.950	31.914	-24.086	56.000
2.685	10.019	20.800	30.819	-25.181	56.000
8.795	10.160	21.350	31.510	-28.490	60.000
Average					
0.185	9.834	27.800	37.634	-17.366	55.000
0.248	9.838	23.550	33.388	-19.812	53.200
0.373	9.848	17.090	26.938	-22.691	49.629
1.744	9.964	13.970	23.934	-22.066	46.000
2.685	10.019	10.800	20.819	-25.181	46.000
8.795	10.160	14.410	24.570	-25.430	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " " means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Radiated Emission

3.1. Test Equipment

The following test equipments are used during the radiated emission test:

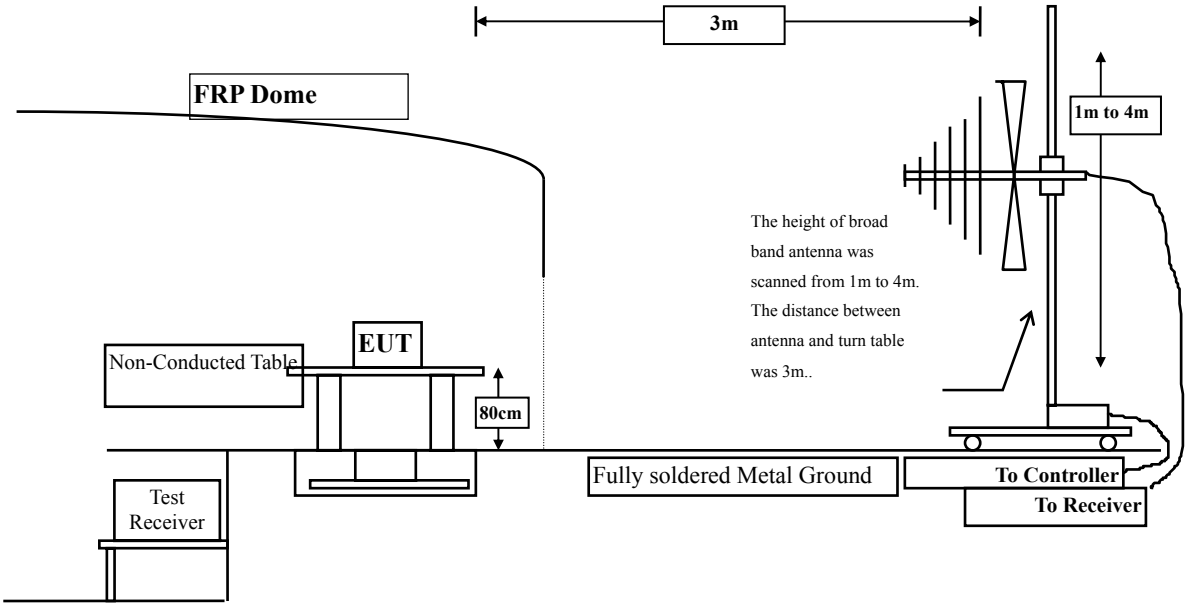
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Magnetic Loop Antenna	Teseq	HLA6121/ 37133	Sep., 2015
	X	Bilog Antenna	Schaffner Chase	CBL6112B/ 2707	Jun., 2015
	X	EMI Test Receiver	R&S	ESCS 30/838251/ 001	Jun., 2015
	X	Coaxial Cable	QTK(Arnist)	RG 214/ LC003-RG	Jun., 2015
	X	Coaxial signal switch	Arnist	MP59B/ 6200798682	Jun., 2015

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒CB # 8	X	Spectrum Analyzer	R&S	FSP40/ 100339	Oct., 2015
	X	Horn Antenna	ETS-Lindgren	3117/ 35205	Mar., 2016
	X	Horn Antenna	Schwarzbeck	BBHA9170/209	Jan., 2016
	X	Horn Antenna	TRC	AH-0801/95051	Aug., 2015
	X	Pre-Amplifier	EMCI	EMC012630SE/980210	Jan., 2016
	X	Pre-Amplifier	MITEQ	JS41-001040000-58-5P/153945	Jul., 2015
	X	Pre-Amplifier	NARDA	DBL-1840N506/013	Jul., 2015

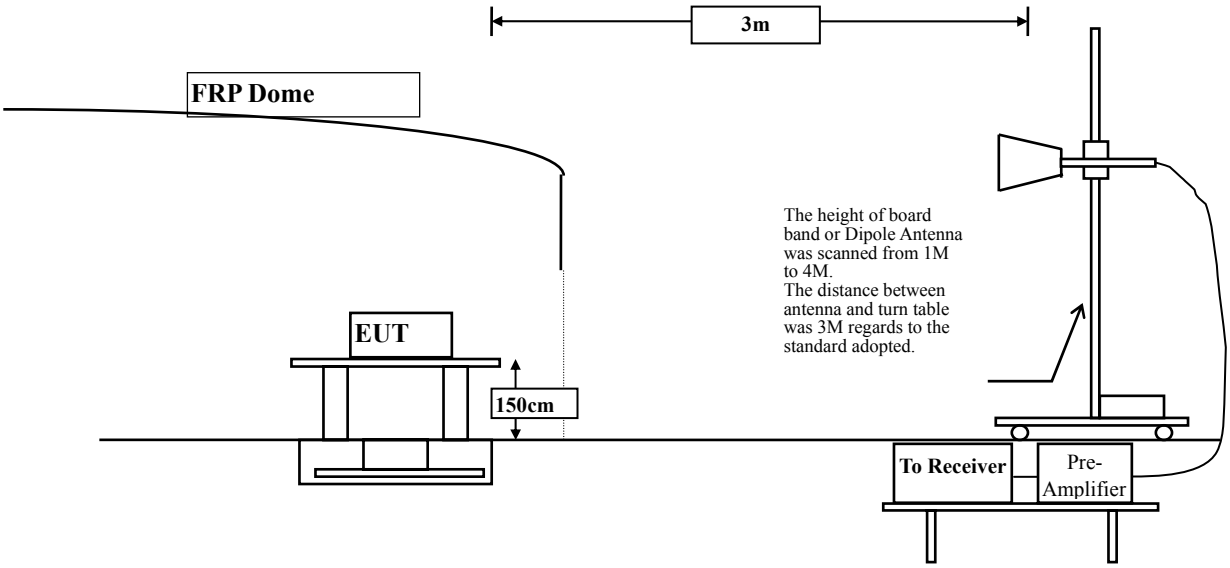
Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
2. The test instruments marked with "X" are used to measure the final test results.

3.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



3.3. Limits

➢ **Fundamental and Harmonics Emission Limits**

FCC Part 15 Subpart C Paragraph 15.249 Limits				
Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	(mV/m @3m)	(dBμV /m @3m)	(uV/m @3m)	(dBμV /m @3m)
902-928	50	94	500	54
2400-2483.5	50	94	500	54
5725-5875	50	94	500	54

Remarks : 1. RF Voltage (dBμV /m) = 20 log RF Voltage (uV/m)

2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

➢ **General Radiated Emission Limits**

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
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

Remarks: E field strength (dBμV /m) = 20 log E field strength (uV/m)

3.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested compliance to FCC 47CFR 15.249 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground,when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.
The turn table is rotated 360 degrees to determine the position of the maximum emission level.
The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level.
This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.
The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.
Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.
The measurement is divided into the Preliminary Measurement and the Final Measurement.
The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.
The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.
The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.

3.5. Uncertainty

± 3.9 dB above 1GHz
± 3.8 dB below 1GHz

3.6. Test Result of Radiated Emission

Product : ROG Strix Wireless
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmit

X-Axis

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV /m	Margin dB	Limit dBμV /m
Horizontal Peak Detector:					
2405.350	-1.054	90.819	89.765	-24.235	114.000
2441.350	-0.828	89.787	88.960	-25.040	114.000
2477.350	-0.598	90.179	89.582	-24.418	114.000
Average Detector:					
2405.350	-1.054	88.749	87.695	-6.305	94.000
2441.350	-0.828	87.478	86.651	-7.349	94.000
2477.350	-0.598	87.969	87.372	-6.628	94.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.

Product : ROG Strix Wireless
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmit

X-Axis

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV /m	Margin dB	Limit dBμV /m
Vertical					
Peak Detector:					
2405.350	-1.722	91.121	89.399	-24.601	114.000
2441.350	-1.542	91.614	90.073	-23.927	114.000
2477.350	-1.339	90.248	88.909	-25.091	114.000
Average					
Detector:					
2405.350	-1.722	89.791	88.069	-5.931	94.000
2441.350	-1.542	89.395	87.854	-6.146	94.000
2477.350	-1.339	87.675	86.336	-7.664	94.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.

Product : ROG Strix Wireless
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmit

Y-Axis

Frequency MHz	Correct Factor dB	Reading Level dBµV	Measurement Level dBµV /m	Margin dB	Limit dBµV /m
Horizontal					
Peak Detector:					
2405.350	-1.054	92.392	91.338	-22.662	114.000
2441.350	-0.828	92.717	91.890	-22.110	114.000
2477.350	-0.598	91.885	91.288	-22.712	114.000
Average					
Detector:					
2405.350	-1.054	89.971	88.917	-5.083	94.000
2441.350	-0.828	89.755	88.928	-5.072	94.000
2477.350	-0.598	89.546	88.949	-5.051	94.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.

Product : ROG Strix Wireless
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmit

Y-Axis

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV /m	Margin dB	Limit dBμV /m
Vertical					
Peak Detector:					
2405.350	-1.722	86.064	84.342	-29.658	114.000
2441.350	-1.542	85.366	83.825	-30.175	114.000
2477.350	-1.339	84.647	83.308	-30.692	114.000
Average					
Detector:					
2405.350	-1.722	83.457	81.735	-12.265	94.000
2441.350	-1.542	83.103	81.562	-12.438	94.000
2477.350	-1.339	82.054	80.715	-13.285	94.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.

Product : ROG Strix Wireless
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmit

Z-Axis

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV /m	Margin dB	Limit dBμV /m
Horizontal					
Peak Detector:					
2405.350	-1.054	88.355	87.301	-26.699	114.000
2441.350	-0.828	89.675	88.848	-25.152	114.000
2477.350	-0.598	88.363	87.766	-26.234	114.000
Average					
Detector:					
2405.350	-1.054	85.838	84.784	-9.216	94.000
2441.350	-0.828	87.231	86.404	-7.596	94.000
2477.350	-0.598	85.976	85.379	-8.621	94.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.

Product : ROG Strix Wireless
Test Item : Fundamental Radiated Emission
Test Site : No.3OATS
Test Mode : Mode 1: Transmit

Z-Axis

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV /m	Margin dB	Limit dBμV /m
Vertical					
Peak Detector:					
2405.350	-1.722	90.421	88.699	-25.301	114.000
2441.350	-1.542	91.730	90.189	-23.811	114.000
2477.350	-1.339	91.774	90.435	-23.565	114.000
Average Detector:					
2405.350	-1.722	87.876	86.154	-7.846	94.000
2441.350	-1.542	89.466	87.925	-6.075	94.000
2477.350	-1.339	89.034	87.695	-6.305	94.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.

Product : ROG Strix Wireless
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2405.35MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV /m	dB	dBμV /m
Horizontal					
Peak Detector:					
4810.700	3.319	35.160	38.480	-35.520	74.000
7216.050	10.308	31.260	41.568	-32.432	74.000
9621.400	13.583	33.110	46.693	-27.307	74.000
Average Detector:					
--					54.000
Vertical					
Peak Detector:					
4810.700	6.583	36.060	42.643	-31.357	74.000
7216.050	11.169	32.530	43.699	-30.301	74.000
9621.400	14.004	32.450	46.454	-27.546	74.000
Average Detector:					
--					54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : ROG Strix Wireless
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2441.35MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV /m	Margin dB	Peak Limit dBμV /m
Horizontal					
Peak Detector:					
4882.700	2.999	37.120	40.118	-33.882	74.000
7324.050	11.851	33.580	45.431	-28.569	74.000
9765.400	12.556	33.040	45.596	-28.404	74.000
Average Detector					
--					54.000
Vertical					
Peak Detector:					
4882.700	5.706	36.650	42.355	-31.645	74.000
7324.050	12.736	33.280	46.017	-27.983	74.000
9765.400	13.019	33.430	46.449	-27.551	74.000
Average Detector					
--					54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : ROG Strix Wireless
Test Item : Harmonic Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2477.35MHz)

Frequency MHz	Correct Factor dB	Reading Level dBμV	Measurement Level dBμV /m	Margin dB	Peak Limit dBμV /m
Horizontal					
Peak Detector:					
4954.700	2.775	36.030	38.805	-35.195	74.000
7432.050	12.492	33.200	45.691	-28.309	74.000
9909.400	13.396	33.500	46.897	-27.103	74.000
Average Detector					
--					54.000
Vertical					
Peak Detector:					
4954.700	5.552	34.920	40.472	-33.528	74.000
7432.050	13.415	32.750	46.164	-27.836	74.000
9909.400	13.966	33.020	46.987	-27.013	74.000
Average Detector					
--					54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : ROG Strix Wireless
Test Item : General Radiated Emission Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2441.35MHz)

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBμV	dBμV /m	dB	dBμV /m
Horizontal					
104.507	-6.647	25.006	18.359	-25.141	43.500
245.087	-6.360	25.870	19.510	-26.490	46.000
371.609	-1.104	23.341	22.237	-23.763	46.000
550.145	2.913	17.894	20.807	-25.193	46.000
832.710	5.750	19.200	24.951	-21.049	46.000
887.536	6.207	19.143	25.350	-20.650	46.000
Vertical					
105.913	-0.261	17.505	17.244	-26.256	43.500
204.319	-7.674	20.989	13.315	-30.185	43.500
381.449	-1.656	19.452	17.796	-28.204	46.000
499.536	-0.848	20.411	19.563	-26.437	46.000
832.710	2.333	23.014	25.348	-20.652	46.000
963.449	7.661	19.059	26.720	-27.280	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. Measurement Level = Reading Level + Correct Factor.
5. Correct Factor = Antenna factor + Cable loss –Amplifier gain.
6. The average measurement was not performed when the peak measured data under the limit of average detection.
7. The emission levels of other frequencies are very lower than the limit and not show in test report.
8. No emission found between lowest internal used/generated frequency to 30MHz.

4. Band Edge

4.1. Test Equipment

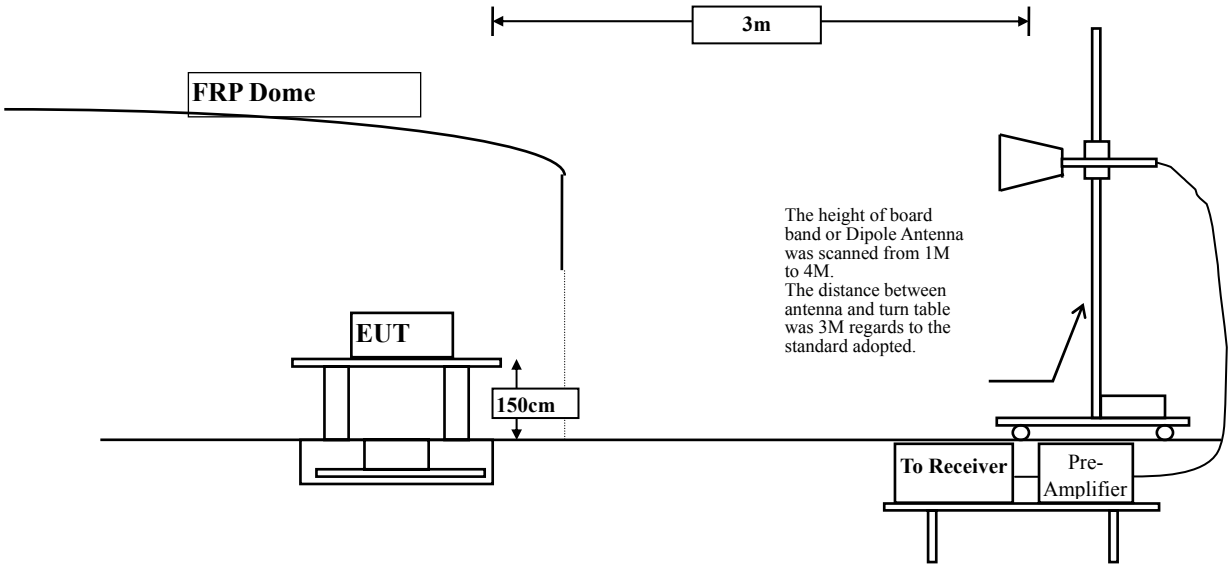
The following test equipments are used during the band edge tests:

Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒CB # 8	X	Spectrum Analyzer	R&S	FSP40/ 100339	Oct., 2015
	X	Horn Antenna	ETS-Lindgren	3117/ 35205	Mar., 2016
	X	Horn Antenna	Schwarzbeck	BBHA9170/209	Jan., 2016
	X	Horn Antenna	TRC	AH-0801/95051	Aug., 2015
	X	Pre-Amplifier	EMCI	EMC012630SE/980210	Jan., 2016
	X	Pre-Amplifier	MITEQ	JS41-001040000-58-5P/153945	Jul., 2015
	X	Pre-Amplifier	NARDA	DBL-1840N506/013	Jul., 2015

Note: 1. All equipments are calibrated every one year.

2. The test equipments marked by "X" are used to measure the final test results.

4.2. Test Setup



4.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 50 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, 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) (see Section 15.205(c)).

4.4. Test Procedure

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.
Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.
The bandwidth setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.

4.5. Uncertainty

Conducted is ± 1.27 dB
Radiated is ± 3.9 dB

4.6. Test Result of Band Edge

Product : ROG Strix Wireless
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2405.35MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV /m)	Peak Limit (dBμV /m)	Average Limit (dBμV /m)	Result
2 (Peak)	2390.000	-6.204	47.696	41.492	74.00	54.00	Pass
2 (Peak)	2400.000	-6.124	50.599	44.474	--	--	--
2 (Peak)	2405.600	-6.117	92.273	86.157	--	--	--
2 (Average)	2377.700	-6.309	31.137	24.828	74.00	54.00	Pass
2 (Average)	2390.000	-6.204	30.257	24.053	74.00	54.00	Pass
2 (Average)	2400.000	-6.124	37.992	31.867	--	--	--
2 (Average)	2405.400	-6.116	88.868	82.752	--	--	--

Figure Channel 2: Horizontal (Peak)

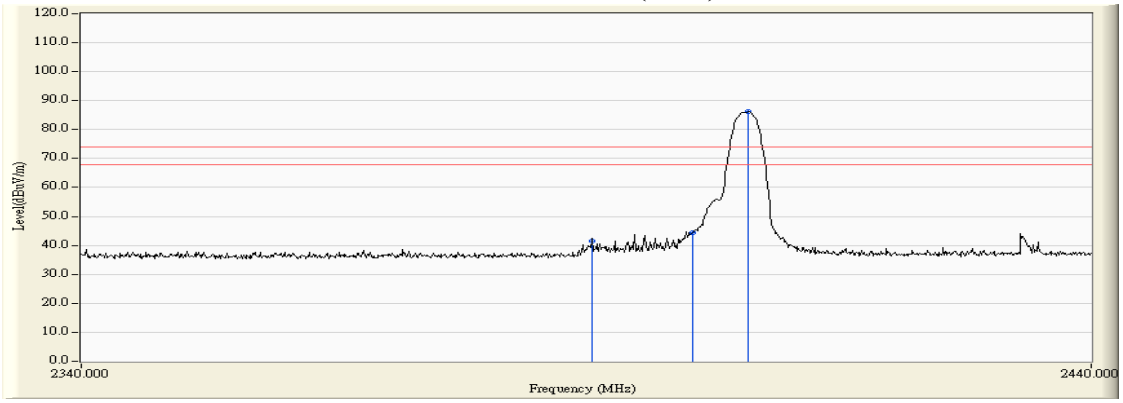
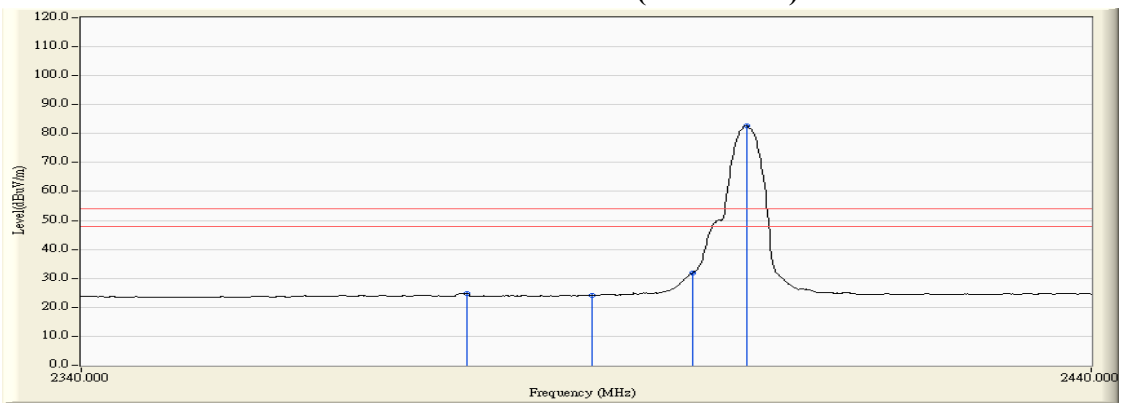


Figure Channel 2: Horizontal (AVERAGE)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.

Product : ROG Strix Wireless
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2405.35MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV /m)	Peak Limit (dBμV /m)	Average Limit (dBμV /m)	Result
2 (Peak)	2378.300	4.334	44.447	48.781	74.00	54.00	Pass
2 (Peak)	2390.000	4.426	41.340	45.766	74.00	54.00	Pass
2 (Peak)	2400.000	4.497	43.615	48.112	--	--	--
2 (Peak)	2405.600	4.500	84.030	88.531	--	--	--
2 (Average)	2390.000	4.426	29.837	34.263	74.00	54.00	Pass
2 (Average)	2400.000	4.497	32.435	36.932	--	--	--
2 (Average)	2405.400	4.501	80.622	85.123	--	--	--

Figure Channel 2: Vertical (Peak)

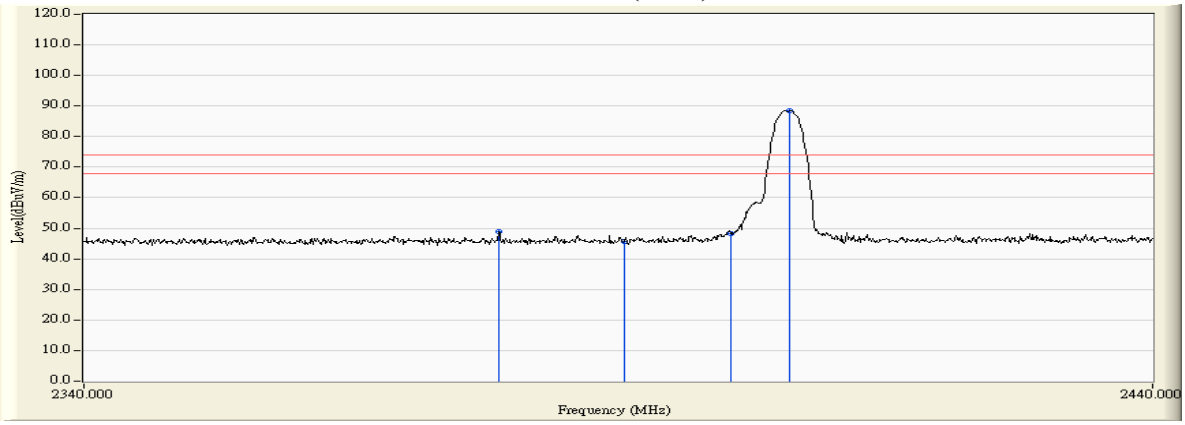
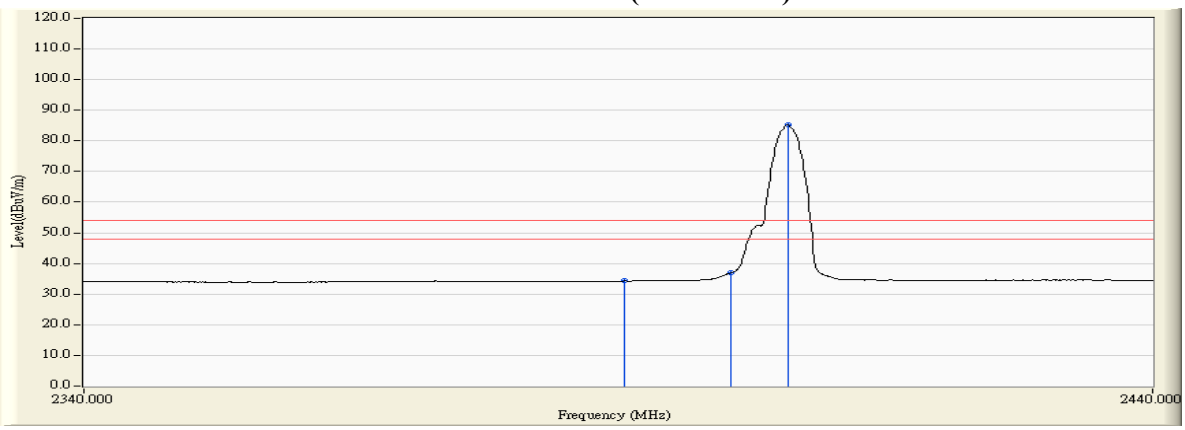


Figure Channel 2: Vertical (AVERAGE)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.

Product : ROG Strix Wireless
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2477.35MHz)

RF Radiated Measurement (Horizontal):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV /m)	Peak Limit (dBμV /m)	Average Limit (dBμV /m)	Result
38 (Peak)	2477.700	-6.281	92.703	86.422	--	--	--
38 (Peak)	2483.500	-6.296	44.290	37.994	74.00	54.00	Pass
38 (Average)	2477.400	-6.281	89.377	83.097	--	--	--
38 (Average)	2483.500	-6.296	32.326	26.030	74.00	54.00	Pass

Figure Channel 38: Horizontal (Peak)

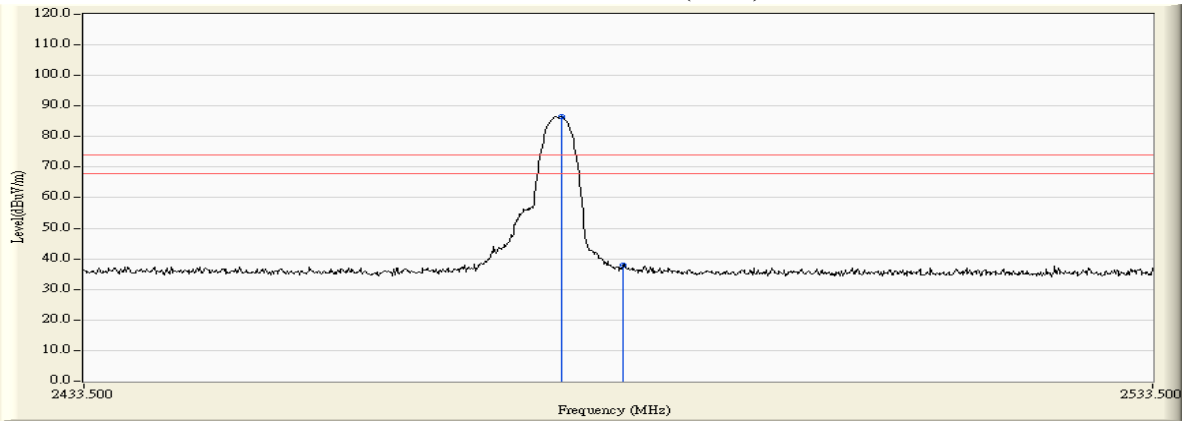
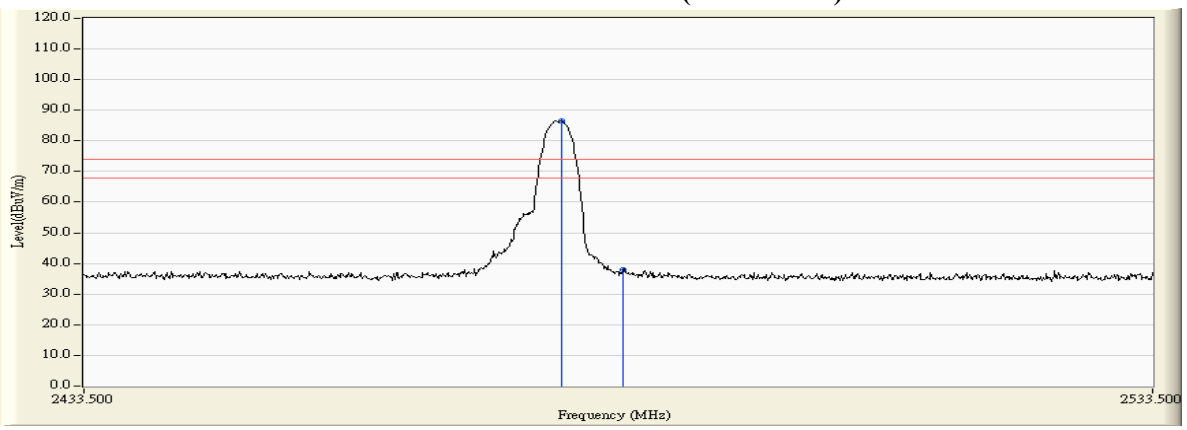


Figure Channel 38: Horizontal (AVERAGE)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.

Product : ROG Strix Wireless
Test Item : Band Edge Data
Test Site : No.3 OATS
Test Mode : Mode 1: Transmit (2477.35MHz)

RF Radiated Measurement (Vertical):

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBμV)	Emission Level (dBμV /m)	Peak Limit (dBμV /m)	Average Limit (dBμV /m)	Result
38 (Peak)	2477.100	4.282	83.268	87.549	--	--	--
38 (Peak)	2483.500	4.260	41.125	45.385	74.00	54.00	Pass
38 (Peak)	2488.600	-6.308	53.099	46.790	74.00	54.00	Pass
38 (Average)	2477.400	4.280	79.925	84.205	--	--	--
38 (Average)	2483.500	4.260	30.093	34.353	74.00	54.00	Pass

Figure Channel 38: Vertical (Peak)

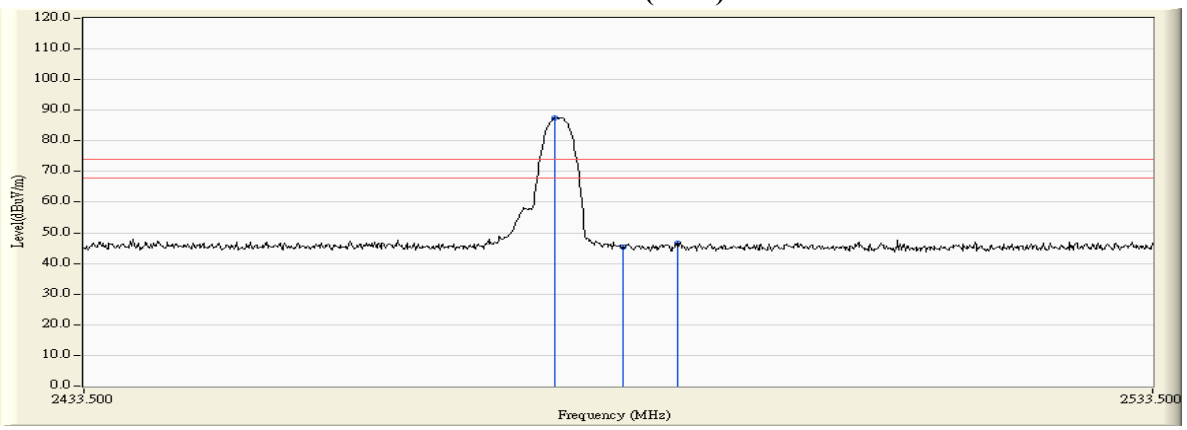
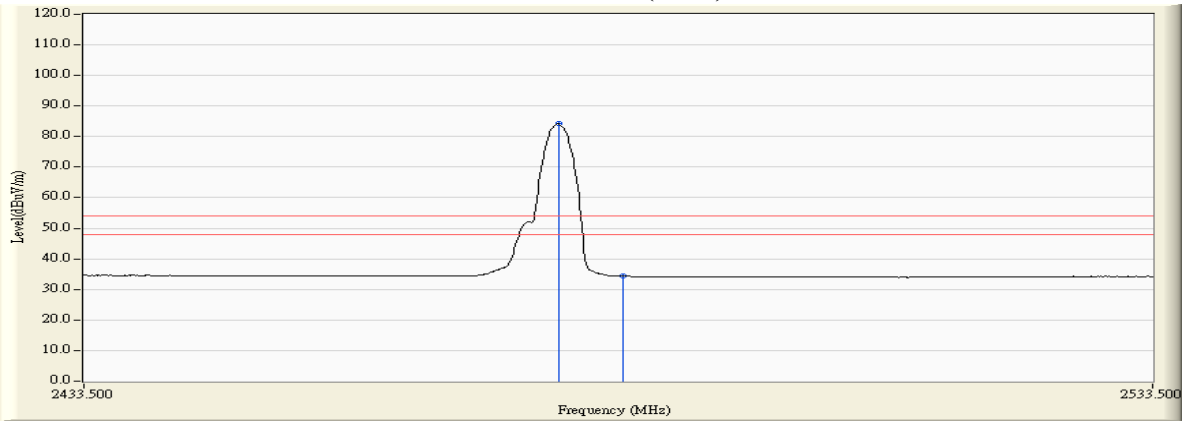


Figure Channel 38: Vertical (Peak)



Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
4. " * ", means this data is the worst emission level.
5. Measurement Level = Reading Level + Correct Factor.

5. EMI Reduction Method During Compliance Testing

No modification was made during testing.

Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs