

# FCC Test Report

Product Name : Wireless-AC2900 Dual Band Gigabit Router  
ROG Rapture GT-AC2900 Dual-band Gaming Router  
Trade Name : ASUS  
Model No. : RT-AC86U, RT-AC68U Extreme, RT-AC86A, RT-AC86P,  
RT-AC86R, RT-AC86X, RT-AC2900, AC2900, GT-AC2900  
FCC ID. : MSQ-RTACHN00

Applicant : ASUSTeK COMPUTER INC.  
Address : 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan

Date of Receipt : Oct. 12, 2018~ Dec. 05, 2018  
Issued Date : Dec. 14, 2018  
Report No. : 18A0006R-RFUSP26V00  
Report Version : V1.0



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# Test Report Certification

Issued Date : Dec. 14, 2018

Report No. : 18A0006R-RFUSP26V00



Product Name : Wireless-AC2900 Dual Band Gigabit Router  
 ROG Rapture GT-AC2900 Dual-band Gaming Router

Applicant : ASUSTeK COMPUTER INC.

Address : 4F, No. 150, Li-Te Rd., Peitou, Taipei, Taiwan

Manufacturer : ASUSTeK COMPUTER INC.

Model No. : RT-AC86U, RT-AC68U Extreme, RT-AC86A, RT-AC86P,  
 RT-AC86R, RT-AC86X, RT-AC2900, AC2900, GT-AC2900

Trade Name : ASUS

FCC ID. : MSQ-RTACHN00

EUT Test Voltage : AC 100-240V, 50-60Hz

Testing Voltage : AC 120V/60Hz

Applicable Standard : FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2017  
 ANSI C63.10: 2013  
 KDB 558074 D01 V04 / KDB 662911 D01 V02r01

Laboratory Name : Hsin Chu Laboratory

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Test Result : Complied

Documented By : Lyla Yang  
 ( Lyla Yang / Engineering Adm. Specialist )

Tested By : Scott Chang  
 ( Scott Chang / Engineer )

Approved By : Roy Wang  
 ( Roy Wang / Director )

## Revision History

Report No.	Version	Description	Issued Date
1720225R-RFUSP28V00	V1.0	Initial issue of report	Apr. 11, 2017
1720225R-RFUSP28V00	V2.0	Add LAN Cable (Black flat wire), and verify Radiated Emission(Under 1GHz) tested.	Jun. 19, 2017
1770027R-RFUSP28V00	V1.0	Change the regulator from PCB board (PCB board version R1.50), and verify Conducted Emission, Radiated Emission (Under 1GHz) tested.	Jul. 25, 2017
1890171R-RFUSP28V00	V1.0	Add Power Adapter 4 & 5 (DELTA, ADP-33AW Y / PI, AD2088320), and verify Conducted Emission and Radiated Emission (Under 1GHz) tests. Update WLAN 2.4G standard 15.247 from 2015 to 2017.	Oct. 05, 2018
18A0006R-RFUSP26V00	V1.0	<ol style="list-style-type: none"> <li>1. Add one product name and one model name: ROG Rapture GT-AC2900 Dual-band Gaming Router / GT-AC2900.</li> <li>2. Change the housing and add LED light for Aura sync.</li> <li>3. Add two antenna and change the housing: (1) WHA YU, C660-510456-A (2) Walsin, ASC_RFDPA141500SBLB801</li> <li>4. Add 80+80MHz function (for 5G band 1/2) and add 160MHz function (for 5G band 3).</li> <li>5. Add NSS2 data for BF mode and replace CDD mode of 802.11a, BF mode of 802.11n/ac data by customers' requirements.</li> </ol> Verify Conducted Emission and Radiated Emission (Under 1GHz) test, and update test photo, EUT photo.	Dec. 14, 2018

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## 1. General Information

### 1.1. EUT Description

Product Name	Wireless-AC2900 Dual Band Gigabit Router ROG Rapture GT-AC2900 Dual-band Gaming Router	
Trade Name	ASUS	
Model No.	RT-AC86U, RT-AC68U Extreme, RT-AC86A, RT-AC86P, RT-AC86R, RT-AC86X, RT-AC2900, AC2900, GT-AC2900	
Frequency Range/ Channel Number	IEEE 802.11b/g/ IEEE 802.11n (20MHz)	2412~2462MHz / 11 Channels
	IEEE 802.11n (40MHz)	2422~2452MHz / 7 Channels
Type of Modulation	IEEE 802.11b	Direct Sequence Spread Spectrum
	IEEE 802.11g/n	Orthogonal Frequency Division Multiplexing
Data Speed	IEEE 802.11b	1, 2, 5.5, 11Mbps
	IEEE 802.11g	6, 9, 18, 24, 36, 48, 54Mbps
	IEEE 802.11n	Support a subset of the combination of GI, MCS0~MCS23 and bandwidth defined in 802.11n

Antenna Information			
Manufacturer	Model No.	Antenna Type	Effective Peak Gain Per Chain [dBi]
WHA YU	C660-510389-A	Dipole antenna	2.4GHz Gain: 1.33 dBi
	C660-510397-A (Without ASUS logo)		
Beamforming Gain	4.77 dBi		

Antenna Model No.	Brand	2G Gain
C660-510389-A C660-510397-A (Without ASUS logo)	WHA YU	1.33
ASC_RFDPA161300SBLB804 ASC_RFDPA161300SBLB805 ASC_RFDPA161300SBLB806 (Without ASUS logo)	Walsin	1.32
C660-510456-A	WHA YU	1.25
ASC_RFDPA141500SBLB801	Walsin	1.29

Note:

- All of Dipole antenna with an ASUS logo, except the C660-510397-A and ASC\_RFDPA161300SBLB806 antenna. Please find the antenna photograph in attachment.

Accessories Information	
LAN Cable (Round wire)	Non-Shielded, 1.5m
LAN Cable (Flat wire)	Non-Shielded, 2m
Power Adapter 1 (Level 6)	ASUS, AD890326010-2LF I/P : 100-240V~ 50/60Hz 0.8A O/P : 19V $\overline{=}$ 1.75A Cable Out: Non-Shielded, 2.4m
Power Adapter 2 (Level 6)	ASUS, AD890M26010-3LF I/P : 100-240V~ 50/60Hz 0.8A O/P : 19V $\overline{=}$ 1.75A Cable Out: Non-Shielded, 2.4m
Power Adapter 3 (Level 6)	ASUS, ADP-33AW I/P : 100-240V~1A 50-60Hz O/P : 19V $\overline{=}$ 1.75A Cable Out: Non-shielded, 2.2m
Power Adapter 4 (Level 6)	DELTA, ADP-33AW Y I/P : 100-240V~1A 50-60Hz O/P : 19V $\overline{=}$ 1.75A Cable Out: Non-shielded, 2.2m
Power Adapter 5 (Level 6)	PI, AD2088320 I/P : 100-240V~ 50/60Hz 0.8A O/P : 19V $\overline{=}$ 1.75A Cable Out: Non-Shielded, 2.2m

## Note:

1. Adapter 1 and adapter 2 have the same PCB layout, and adapter 1 has been tested.

**ANT-TX / RX & Bandwidth**

ANT-TX / RX	TX		RX	
	20MHz	40MHz	20MHz	40MHz
IEEE802.11b	✓		✓	
IEEE802.11g	✓		✓	
IEEE802.11n	✓	✓	✓	✓

**IEEE 802.11n**

MCS Index	Modulation	R	N <sub>BPSCS</sub>	N <sub>CBPS</sub>		N <sub>DBPS</sub>		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
0	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.2	15.0
1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.4	30.0
2	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.7	45.0
3	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.9	60.0
4	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.3	90.0
5	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.8	120.0
6	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.0	135.0
7	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.2	150.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 1 – MCS parameters for TX Antenna number = 1

MCS Index	Modulation	R	N <sub>BPSCS</sub>	N <sub>CBPS</sub>		N <sub>DBPS</sub>		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
8	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.4	30.0
9	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.9	60.0
10	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.3	90.0
11	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.8	120.0
12	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.7	180.0
13	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.6	240.0
14	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.0	270.0
15	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.4	300.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 2 – MCS parameters for TX Antenna number = 2

MCS Index	Modulation	R	N <sub>BPSCS</sub>	N <sub>CBPS</sub>		N <sub>DBPS</sub>		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
16	BPSK	1/2	1	156	324	78	162	19.5	40.5	21.7	45.0
17	QPSK	1/2	2	312	648	156	324	39.0	81.0	43.3	90.0
18	QPSK	3/4	2	312	648	234	486	58.5	121.5	65.0	135.0
19	16-QAM	1/2	4	624	1296	312	648	78.0	162.0	86.7	180.0
20	16-QAM	3/4	4	624	1296	468	972	117.0	243.0	130.0	270.0
21	64-QAM	2/3	6	936	1944	624	1296	156.0	324.0	173.3	360.0
22	64-QAM	3/4	6	936	1944	702	1458	175.5	364.5	195.0	405.0
23	64-QAM	5/6	6	936	1944	780	1620	195.0	405.0	216.7	450.0

Note 1: Support of 400ns GI is optional on transmit and receive.

Table 3 – MCS parameters for TX Antenna number = 3

Symbol	Explanation
R	Code rate
N <sub>BPSCS</sub>	Number of coded bits per single carrier
N <sub>CBPS</sub>	Number of coded bits per symbol
N <sub>DBPS</sub>	Number of data bits per symbol
GI	guard interval

## IEEE 802.11b/g &amp; IEEE 802.11n (20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
001	2412 MHz	002	2417 MHz	003	2422 MHz	004	2427 MHz
005	2432 MHz	006	2437 MHz	007	2442 MHz	008	2447 MHz
009	2452 MHz	010	2457 MHz	011	2462 MHz		

## IEEE 802.11n (40MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
003	2422 MHz	004	2427 MHz	005	2432 MHz	006	2437 MHz
007	2442 MHz	008	2447 MHz	009	2452 MHz		

## Note:

1. This device is a Wireless-AC2900 Dual Band Gigabit Router, ROG Rapture GT-AC2900 Dual-band Gaming Router including 2.4GHz b/g/n (3x3) and 5GHz a/n/ac (4x4) transmitting and receiving function.
2. The variation of model number is for different strategy of marketing.
3. The different of the each model is shown as below:

Equipment Name	Wireless-AC2900 Dual Band Gigabit Router	ROG Rapture GT-AC2900 Dual-band Gaming Router
Model Name	RT-AC86U, RT-AC68U Extreme, RT-AC86A, RT-AC86P, RT-AC86R, RT-AC86X, RT-AC2900, AC2900	GT-AC2900
Difference	Housing without LED light.	Housing add LED light for Aura sync.

4. These test results on a sample of the device are for the purpose of demonstrating Compliance with Part 15 Subpart C Paragraph 15.247.
5. Regards to the frequency band operation; the lowest, middle and highest frequency of channel were selected to perform the test, and then shown on this report.
6. The GT-AC2900 PCB board have two connector type, the information as below:

Connector	Brand/ Model	
Type A	SUYIN/800163FA080S100ZR	SUYIN/800130MA080S100ZR
Type B	ACES/60325-01471-001	ACES/60326-01471-001

## 1.2. Test Mode

DEKRA has verified the construction and function in typical operation. The preliminary tests were performed in different data rate, and to find the worst condition, which was shown in this test report. The following table is the final test mode.

Test Mode
Mode 1: Transmit_AD P1
Mode 2: Transmit_AD P3
Mode 3: Transmit_AD P4
Mode 4: Transmit_AD P5

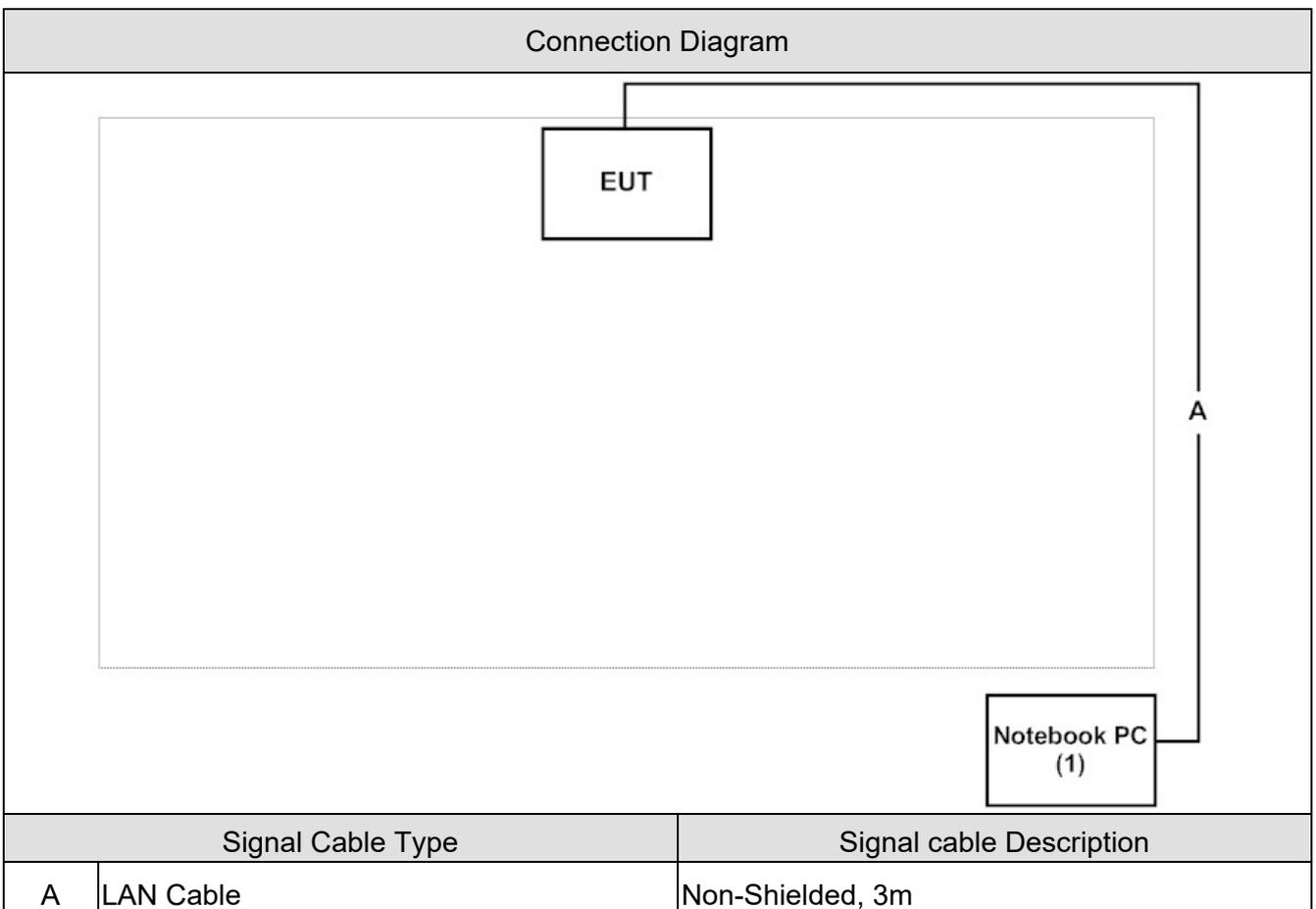
Test Items	Modulation	Channel	Antenna	Result
Conducted Emission	11n (40MHz)	6	0+1+2	Complies
Radiated Emission (Under 1GHz)	11b/g	1/6/11	0+1+2	Complies
	11n (20MHz)	1/6/11	0+1+2	Complies
	11n (40MHz)	3/6/9	0+1+2	Complies

### 1.3. Tested System Details

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

	Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Notebook PC	Lenovo	B590	WB15330091	DoC	Non-Shielded, 1.8m, one ferrite core bonded

### 1.4. Configuration of tested System



### 1.5. EUT Exercise Software

1	Setup the EUT as shown in Section 1.4.
2	Execute the "MTool 2.0.0.7" on the EUT.
3	Configure the test mode, the test channel, and the data rate.
4	Press "Start RX" to start the continuous transmitting.
5	Verify that the EUT works properly.

## 1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual	Test site
Temperature (°C)	FCC PART 15 C 15.207 Conducted Emission	15 - 35	20	3
Humidity (%RH)		25 - 75	50	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	FCC PART 15 C 15.247 Radiated Emission	15 - 35	25	2
Humidity (%RH)		25 - 75	65	
Barometric pressure (mbar)		860 - 1060	950-1000	

Note: Test site information refers to Laboratory Information.

## Laboratory Information

**USA** : **FCC Registration Number: TW3024**  
**Canada** **IC Registration Number: 22397-1 / 22397-2 / 22397-3**

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: [http://www.dekra.com.tw/index\\_en.aspx](http://www.dekra.com.tw/index_en.aspx)

If you have any comments, Please don't hesitate to contact us. Our test sites as below:

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## 1.7. List of Test Equipment

### Conducted Emission / SR2-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	2018/01/22	2019/01/21
Test Receiver	R&S	ESCS 30	836858/022	2018/03/30	2019/03/29
LISN	R&S	ENV216	100092	2018/07/23	2019/07/22

### Radiated Emission / CB4-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Signal Analyzer	R&S	FSVA40	101455	2018/11/05	2019/11/04
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/10	2019/01/09
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/05	2019/03/04
Bilog Antenna	Teseq	CBL6112D	23191	2018/06/26	2019/06/25
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2018/06/01	2019/05/31
Horn Antenna	Schwarzbeck	BBHA 9170	202	2018/01/31	2019/01/30
Pre-Amplifier	Dekra	AP-025C	201801236	2018/02/26	2019/02/25
Pre-Amplifier	EMCI	EMC11830I	980366	2018/01/08	2019/01/07
Pre-Amplifier	Dekra	AP-400C	201801231	2017/12/13	2018/12/12
Horn Antenna	Schwarzbeck	BBHA 9120D	01656	2018/10/17	2019/10/16
Band Reject Filter	Micro-Tronics	BRM50702	G192	2018/04/11	2019/04/10
Signal Analyzer	R&S	FSV40	101435	2018/07/19	2019/07/18
Coaxial Cable	Suhner	SF104_SF106_SF104_SF102(23.5m)	CB4_1	2018/08/21	2019/08/20

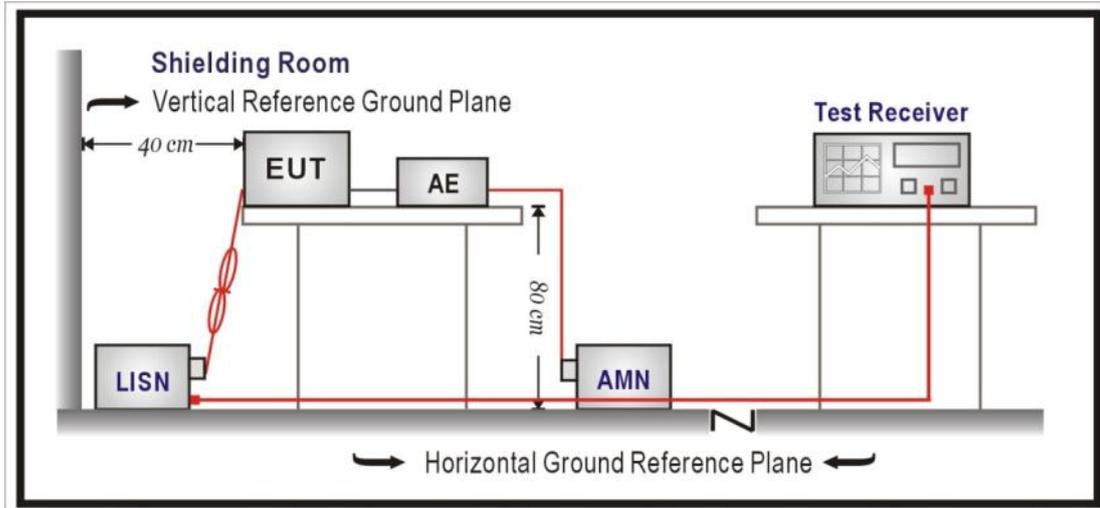
Note: All equipment upon which need to calibrated are with calibration period of 1 year.

## 1.8. Uncertainty

Test item	Uncertainty
Conducted Emission	$\pm 2.26$ dB.
Radiated Emission	30MHz ~ 1GHz as $\pm 3.43$ dB 1GHz ~ 26.5GHz as $\pm 3.65$ dB

## 2. Conducted Emission

### 2.1. Test Setup



### 2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	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.

### **2.3. Test Procedure**

The EUT was setup according to ANSI C63.4: 2013 and tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

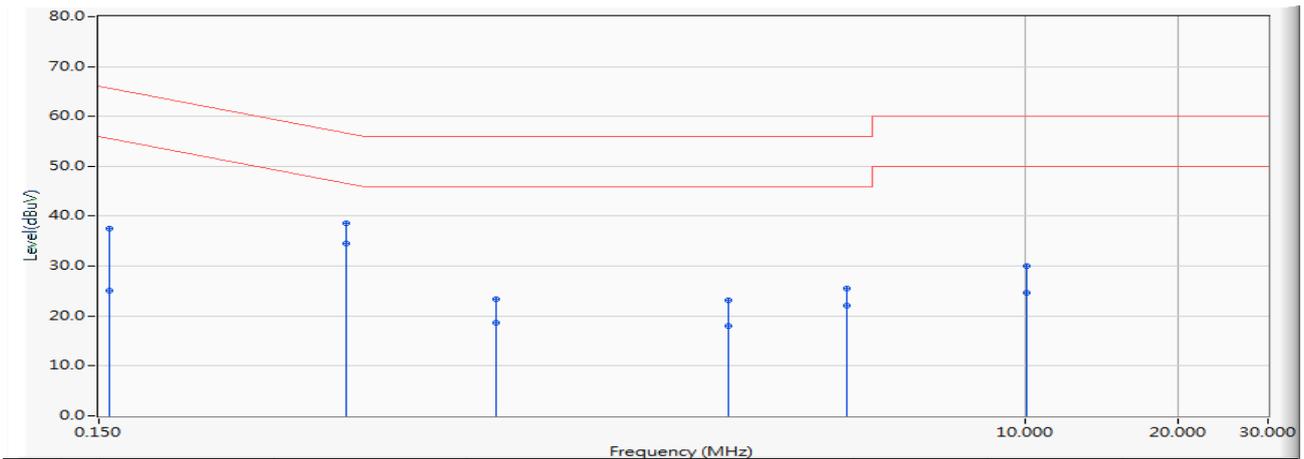
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

### **2.4. Test Specification**

According to FCC Part 15 Subpart C Paragraph 15.207: 2017

## 2.5. Test Result

Site : SR2-H	Time : 2018/10/12
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-B127_LISN(16A)-8 - Line1	Power : AC 120V/60Hz
EUT : Wireless-AC2900 Dual Band Gigabit Router ROG Rapture GT-AC2900 Dual-band Gaming Router	Note : Mode 1: Transmit_ADP1_802.11n(40M)_2437MHz

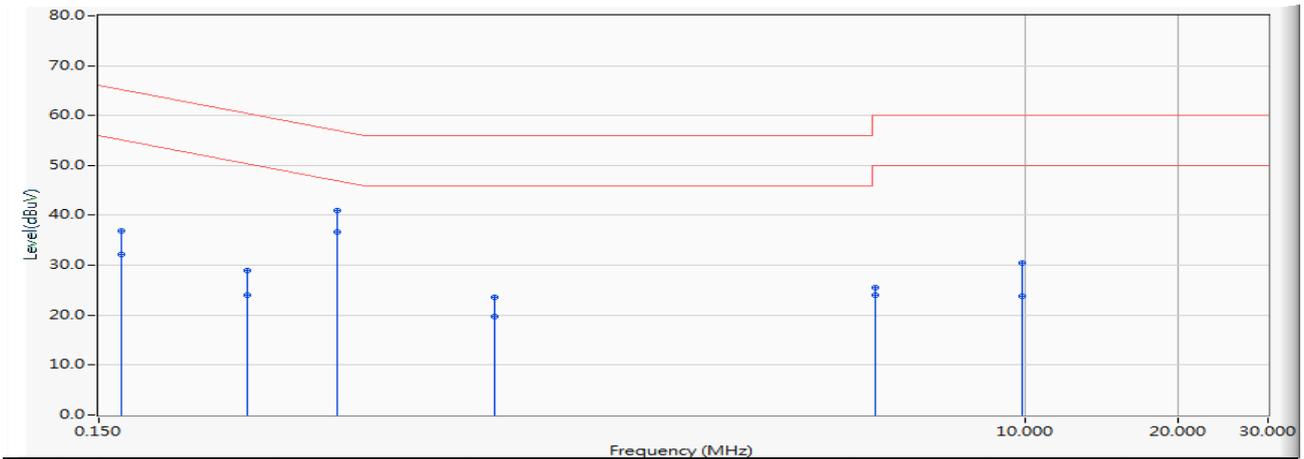


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.158	9.680	27.920	37.600	-27.978	65.578	QUASIPeAK
2	0.158	9.680	15.430	25.110	-30.468	55.578	AVERAGE
3	0.459	9.681	29.010	38.691	-18.027	56.718	QUASIPeAK
4	* 0.459	9.681	24.810	34.491	-12.227	46.718	AVERAGE
5	0.908	9.769	13.660	23.430	-32.570	56.000	QUASIPeAK
6	0.908	9.769	8.990	18.760	-27.240	46.000	AVERAGE
7	2.599	9.803	13.350	23.153	-32.847	56.000	QUASIPeAK
8	2.599	9.803	8.200	18.003	-27.997	46.000	AVERAGE
9	4.451	9.816	15.800	25.616	-30.384	56.000	QUASIPeAK
10	4.451	9.816	12.190	22.006	-23.994	46.000	AVERAGE
11	10.068	10.094	20.040	30.133	-29.867	60.000	QUASIPeAK
12	10.068	10.094	14.650	24.743	-25.257	50.000	AVERAGE

Note:

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

<b>Site : SR2-H</b>	<b>Time : 2018/10/12</b>
<b>Limit : CISPR_B_00M_QP</b>	<b>Margin : 10</b>
<b>Probe : SR2-B127_LISN(16A)-8 - Line2</b>	<b>Power : AC 120V/60Hz</b>
<b>EUT : Wireless-AC2900 Dual Band Gigabit Router ROG Rapture GT-AC2900 Dual-band Gaming Router</b>	<b>Note : Mode 1: Transmit_ADP1_802.11n(40M)_2437MHz</b>

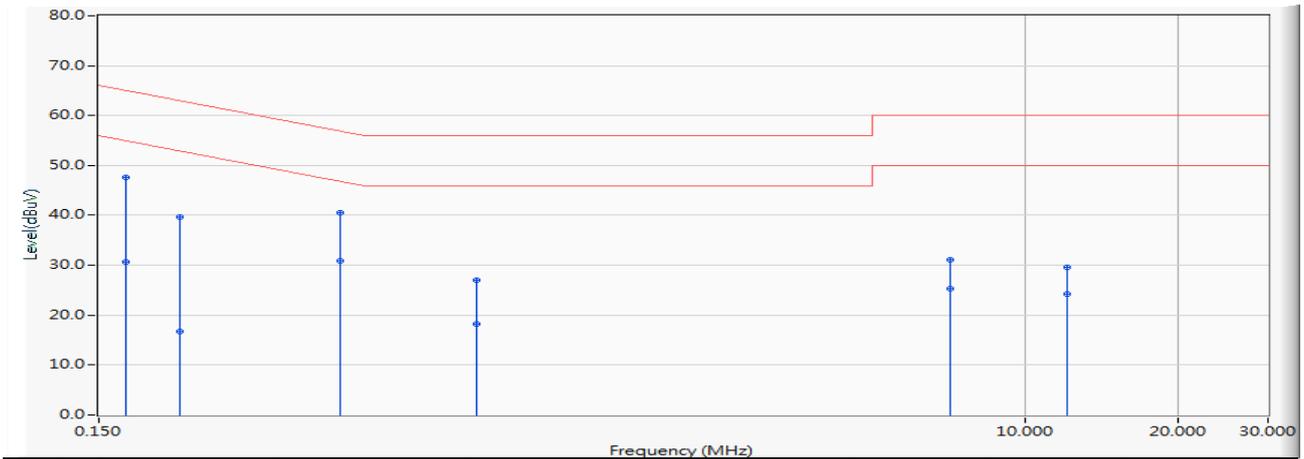


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.166	9.680	27.120	36.800	-28.377	65.177	QUASPEAK
2	0.166	9.680	22.470	32.150	-23.027	55.177	AVERAGE
3	0.295	9.680	19.260	28.940	-31.456	60.396	QUASPEAK
4	0.295	9.680	14.240	23.920	-26.476	50.396	AVERAGE
5	0.443	9.681	31.200	40.881	-16.125	57.006	QUASPEAK
6	* 0.443	9.681	26.980	36.661	-10.345	47.006	AVERAGE
7	0.904	9.769	13.800	23.569	-32.431	56.000	QUASPEAK
8	0.904	9.769	9.920	19.689	-26.311	46.000	AVERAGE
9	5.072	9.834	15.770	25.604	-34.396	60.000	QUASPEAK
10	5.072	9.834	14.230	24.064	-25.936	50.000	AVERAGE
11	9.880	10.074	20.430	30.504	-29.496	60.000	QUASPEAK
12	9.880	10.074	13.800	23.874	-26.126	50.000	AVERAGE

**Note:**

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

<b>Site : SR2-H</b>	<b>Time : 2018/10/12</b>
<b>Limit : CISPR_B_00M_QP</b>	<b>Margin : 10</b>
<b>Probe : SR2-B127_LISN(16A)-8 - Line1</b>	<b>Power : AC 120V/60Hz</b>
<b>EUT : Wireless-AC2900 Dual Band Gigabit Router ROG Rapture GT-AC2900 Dual-band Gaming Router</b>	<b>Note : Mode 2: Transmit_ADP3_802.11n(40M)_2437MHz</b>

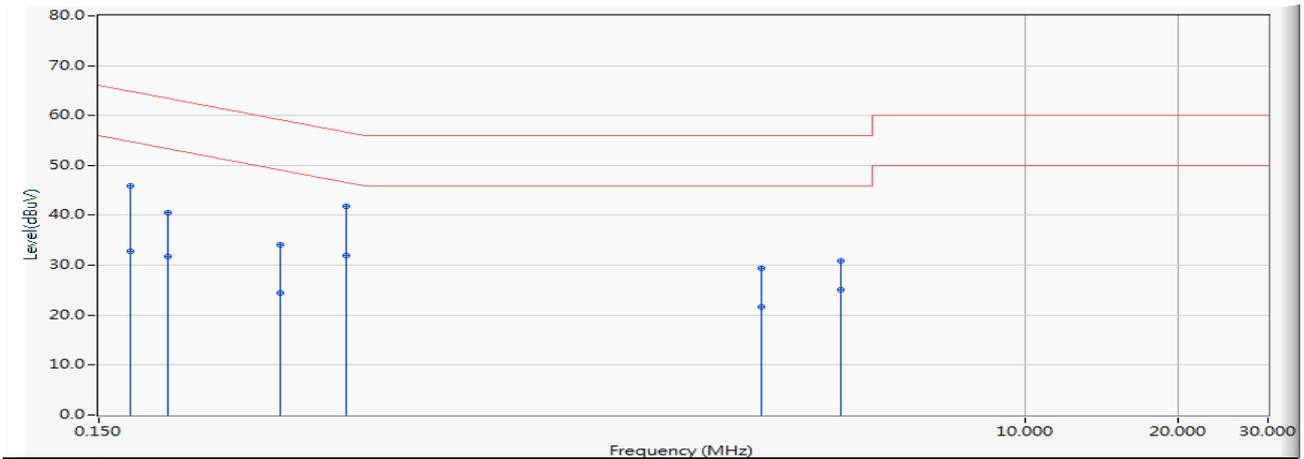


		<b>Frequency (MHz)</b>	<b>Correct Factor (dB)</b>	<b>Reading Level (dBuV)</b>	<b>Measure Level (dBuV)</b>	<b>Margin (dB)</b>	<b>Limit (dBuV)</b>	<b>Detector Type</b>
1		0.170	9.680	37.950	47.630	-17.353	64.983	QUASPEAK
2		0.170	9.680	21.060	30.740	-24.243	54.983	AVERAGE
3		0.216	9.680	29.990	39.670	-23.286	62.956	QUASPEAK
4		0.216	9.680	7.140	16.820	-36.136	52.956	AVERAGE
5		0.447	9.681	30.870	40.551	-16.382	56.933	QUASPEAK
6	*	0.447	9.681	21.180	30.861	-16.072	46.933	AVERAGE
7		0.830	9.753	17.300	27.053	-28.947	56.000	QUASPEAK
8		0.830	9.753	8.430	18.183	-27.817	46.000	AVERAGE
9		7.084	9.934	21.270	31.204	-28.796	60.000	QUASPEAK
10		7.084	9.934	15.410	25.344	-24.656	50.000	AVERAGE
11		12.068	10.198	19.380	29.577	-30.423	60.000	QUASPEAK
12		12.068	10.198	14.020	24.217	-25.783	50.000	AVERAGE

**Note:**

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

<b>Site : SR2-H</b>	<b>Time : 2018/10/12</b>
<b>Limit : CISPR_B_00M_QP</b>	<b>Margin : 10</b>
<b>Probe : SR2-B127_LISN(16A)-8 - Line2</b>	<b>Power : AC 120V/60Hz</b>
<b>EUT : Wireless-AC2900 Dual Band Gigabit Router ROG Rapture GT-AC2900 Dual-band Gaming Router</b>	<b>Note : Mode 2: Transmit_ADP3_802.11n(40M)_2437MHz</b>

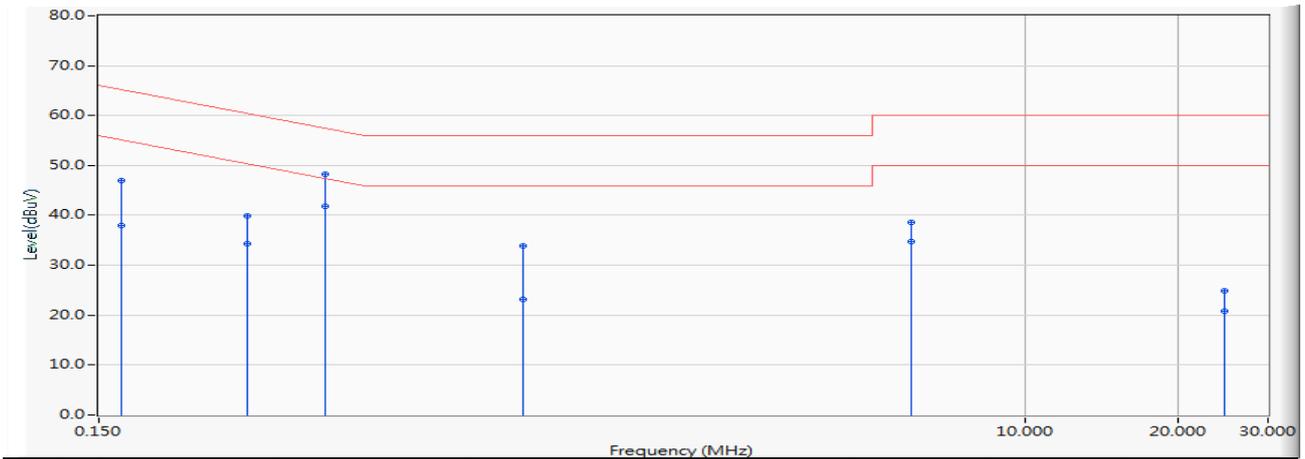


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.173	9.680	36.220	45.900	-18.894	64.794	QUASPEAK
2	0.173	9.680	23.180	32.860	-21.934	54.794	AVERAGE
3	0.205	9.680	30.950	40.630	-22.788	63.418	QUASPEAK
4	0.205	9.680	22.070	31.750	-21.668	53.418	AVERAGE
5	0.341	9.680	24.500	34.180	-24.989	59.169	QUASPEAK
6	0.341	9.680	14.710	24.390	-24.779	49.169	AVERAGE
7	0.459	9.681	32.100	41.781	-14.937	56.718	QUASPEAK
8	* 0.459	9.681	22.380	32.061	-14.657	46.718	AVERAGE
9	3.029	9.810	19.530	29.340	-26.660	56.000	QUASPEAK
10	3.029	9.810	11.950	21.760	-24.240	46.000	AVERAGE
11	4.341	9.823	21.060	30.883	-25.117	56.000	QUASPEAK
12	4.341	9.823	15.370	25.193	-20.807	46.000	AVERAGE

**Note:**

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

<b>Site : SR2-H</b>	<b>Time : 2018/12/05</b>
<b>Limit : CISPR_B_00M_QP</b>	<b>Margin : 10</b>
<b>Probe : SR2-B127_LISN(16A)-8 - Line1</b>	<b>Power : AC 120V/60Hz</b>
<b>EUT : Wireless-AC2900 Dual Band Gigabit Router ROG Rapture GT-AC2900 Dual-band Gaming Router</b>	<b>Note : Mode 3: Transmit_ADP4_ 802.11n(40M)_2437MHz</b>

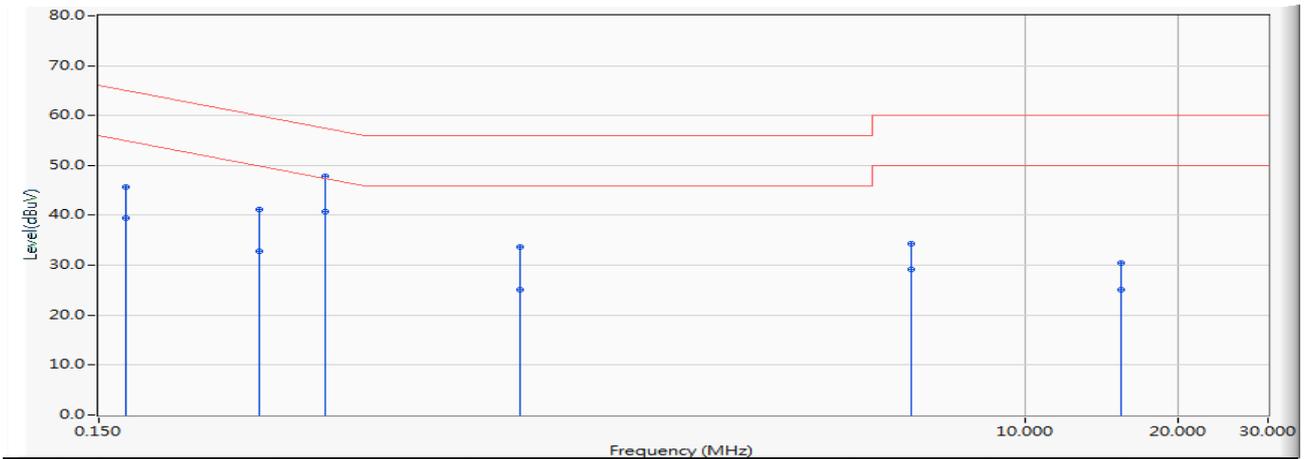


		<b>Frequency (MHz)</b>	<b>Correct Factor (dB)</b>	<b>Reading Level (dBuV)</b>	<b>Measure Level (dBuV)</b>	<b>Margin (dB)</b>	<b>Limit (dBuV)</b>	<b>Detector Type</b>
1		0.166	9.680	37.260	46.940	-18.237	65.177	QUASPEAK
2		0.166	9.680	28.380	38.060	-17.117	55.177	AVERAGE
3		0.295	9.680	30.300	39.980	-20.416	60.396	QUASPEAK
4		0.295	9.680	24.560	34.240	-16.156	50.396	AVERAGE
5		0.420	9.680	38.610	48.290	-9.167	57.457	QUASPEAK
6	*	0.420	9.680	32.100	41.780	-5.677	47.457	AVERAGE
7		1.025	9.790	24.130	33.920	-22.080	56.000	QUASPEAK
8		1.025	9.790	13.300	23.090	-22.910	46.000	AVERAGE
9		5.943	9.874	28.730	38.604	-21.396	60.000	QUASPEAK
10		5.943	9.874	24.910	34.784	-15.216	50.000	AVERAGE
11		24.689	10.443	14.450	24.893	-35.107	60.000	QUASPEAK
12		24.689	10.443	10.320	20.763	-29.237	50.000	AVERAGE

**Note:**

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

Site : SR2-H	Time : 2018/12/05
Limit : CISPR_B_00M_QP	Margin : 10
Probe : SR2-B127_LISN(16A)-8 - Line2	Power : AC 120V/60Hz
EUT : Wireless-AC2900 Dual Band Gigabit Router ROG Rapture GT-AC2900 Dual-band Gaming Router	Note : Mode 3: Transmit_ADP4_802.11n(40M)_2437MHz

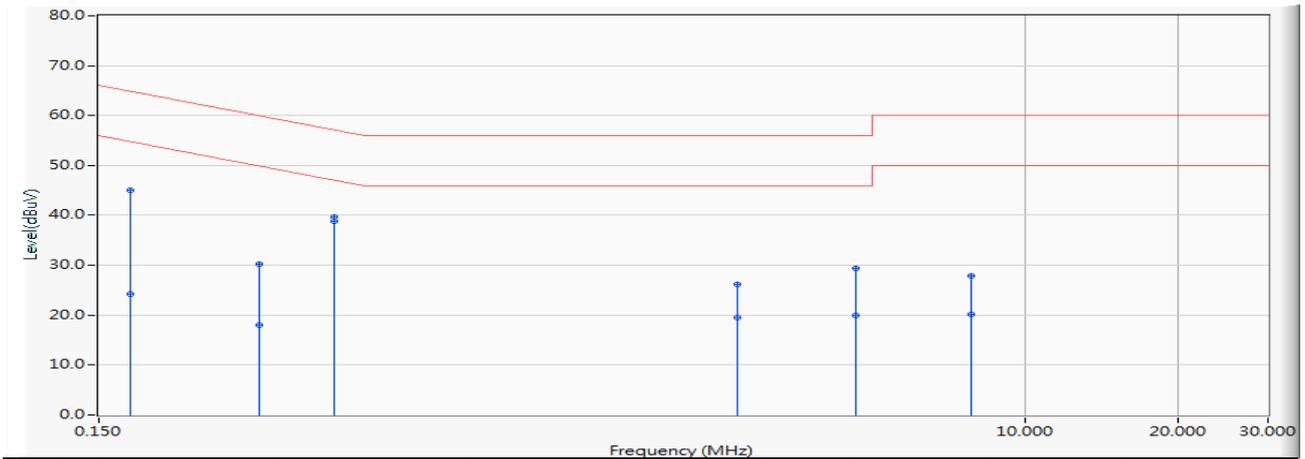


	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	0.170	9.680	36.040	45.720	-19.263	64.983	QUASIPeAK
2	0.170	9.680	29.840	39.520	-15.463	54.983	AVERAGE
3	0.310	9.680	31.470	41.150	-18.816	59.966	QUASIPeAK
4	0.310	9.680	23.050	32.730	-17.236	49.966	AVERAGE
5	0.420	9.680	38.070	47.750	-9.707	57.457	QUASIPeAK
6	* 0.420	9.680	31.100	40.780	-6.677	47.457	AVERAGE
7	1.013	9.790	23.870	33.660	-22.340	56.000	QUASIPeAK
8	1.013	9.790	15.240	25.030	-20.970	46.000	AVERAGE
9	5.939	9.877	24.450	34.327	-25.673	60.000	QUASIPeAK
10	5.939	9.877	19.250	29.127	-20.873	50.000	AVERAGE
11	15.408	10.323	20.080	30.403	-29.597	60.000	QUASIPeAK
12	15.408	10.323	14.710	25.033	-24.967	50.000	AVERAGE

Note:

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

<b>Site : SR2-H</b>	<b>Time : 2018/12/05</b>
<b>Limit : CISPR_B_00M_QP</b>	<b>Margin : 10</b>
<b>Probe : SR2-B127_LISN(16A)-8 - Line1</b>	<b>Power : AC 120V/60Hz</b>
<b>EUT : Wireless-AC2900 Dual Band Gigabit Router ROG Rapture GT-AC2900 Dual-band Gaming Router</b>	<b>Note : Mode 4: Transmit_ADP5_802.11n(40M)_2437MHz</b>

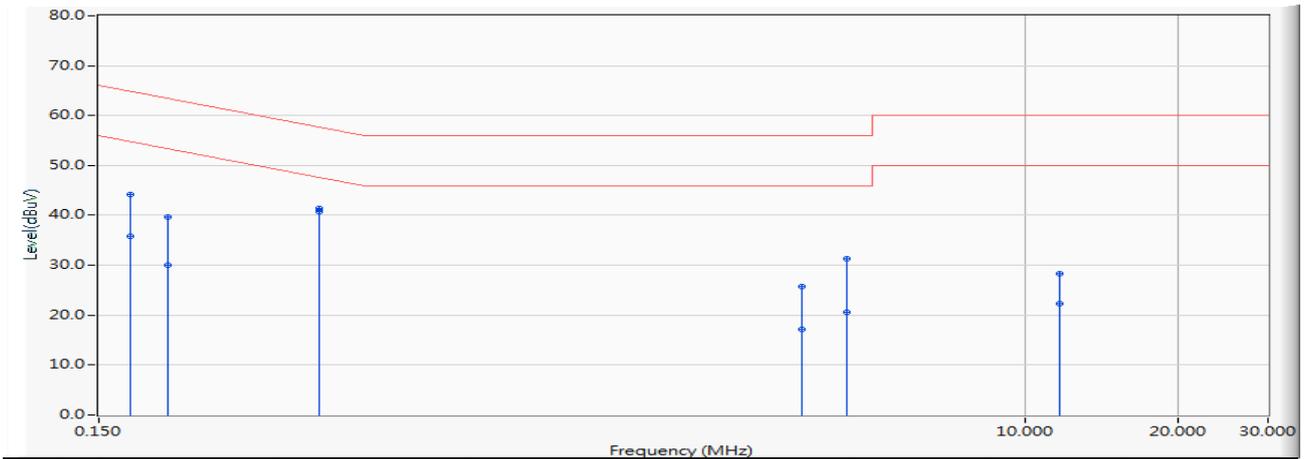


		<b>Frequency (MHz)</b>	<b>Correct Factor (dB)</b>	<b>Reading Level (dBuV)</b>	<b>Measure Level (dBuV)</b>	<b>Margin (dB)</b>	<b>Limit (dBuV)</b>	<b>Detector Type</b>
1		0.173	9.680	35.400	45.080	-19.714	64.794	QUASPEAK
2		0.173	9.680	14.600	24.280	-30.514	54.794	AVERAGE
3		0.310	9.680	20.570	30.250	-29.716	59.966	QUASPEAK
4		0.310	9.680	8.400	18.080	-31.886	49.966	AVERAGE
5		0.435	9.681	29.900	39.581	-17.573	57.154	QUASPEAK
6	*	0.435	9.681	29.090	38.771	-8.383	47.154	AVERAGE
7		2.705	9.803	16.380	26.183	-29.817	56.000	QUASPEAK
8		2.705	9.803	9.610	19.413	-26.587	46.000	AVERAGE
9		4.630	9.818	19.540	29.358	-26.642	56.000	QUASPEAK
10		4.630	9.818	10.030	19.848	-26.152	46.000	AVERAGE
11		7.810	9.973	18.010	27.983	-32.017	60.000	QUASPEAK
12		7.810	9.973	10.290	20.263	-29.737	50.000	AVERAGE

**Note:**

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

<b>Site : SR2-H</b>	<b>Time : 2018/12/05</b>
<b>Limit : CISPR_B_00M_QP</b>	<b>Margin : 10</b>
<b>Probe : SR2-B127_LISN(16A)-8 - Line2</b>	<b>Power : AC 120V/60Hz</b>
<b>EUT : Wireless-AC2900 Dual Band Gigabit Router ROG Rapture GT-AC2900 Dual-band Gaming Router</b>	<b>Note : Mode 4: Transmit_ADP5_802.11n(40M)_2437MHz</b>



		<b>Frequency (MHz)</b>	<b>Correct Factor (dB)</b>	<b>Reading Level (dBuV)</b>	<b>Measure Level (dBuV)</b>	<b>Margin (dB)</b>	<b>Limit (dBuV)</b>	<b>Detector Type</b>
1		0.173	9.680	34.520	44.200	-20.594	64.794	QUASPEAK
2		0.173	9.680	26.110	35.790	-19.004	54.794	AVERAGE
3		0.205	9.680	29.940	39.620	-23.798	63.418	QUASPEAK
4		0.205	9.680	20.280	29.960	-23.458	53.418	AVERAGE
5		0.408	9.680	31.750	41.430	-16.263	57.693	QUASPEAK
6	*	0.408	9.680	31.160	40.840	-6.853	47.693	AVERAGE
7		3.623	9.816	15.930	25.746	-30.254	56.000	QUASPEAK
8		3.623	9.816	7.330	17.146	-28.854	46.000	AVERAGE
9		4.459	9.825	21.440	31.265	-24.735	56.000	QUASPEAK
10		4.459	9.825	10.670	20.495	-25.505	46.000	AVERAGE
11		11.685	10.160	18.180	28.341	-31.659	60.000	QUASPEAK
12		11.685	10.160	12.090	22.251	-27.749	50.000	AVERAGE

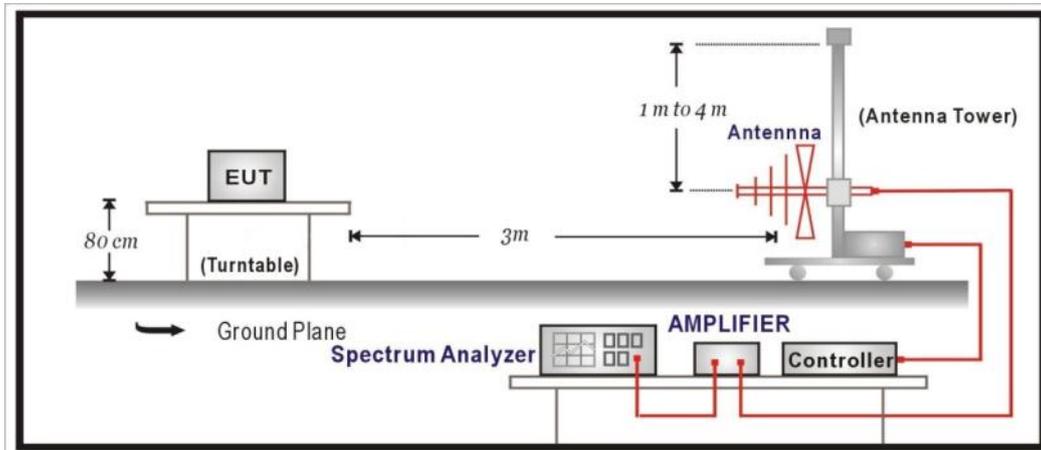
**Note:**

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

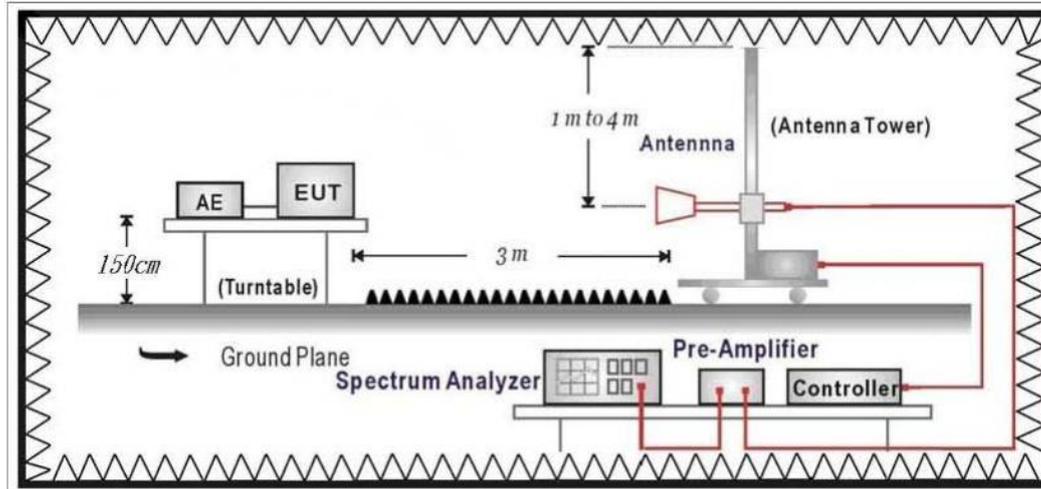
### 3. Radiated Emission

#### 3.1. Test Setup

Under 1GHz Test Setup:



Above 1GHz Test Setup:



### 3.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

<b>FCC Part 15 Subpart C Paragraph 15.209 Limits</b>		
Frequency MHz	dBuV/m	dBuV/m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

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

### 3.3. Test Procedure

The EUT was setup according to ANSI C63.10:2013 and tested according to DTS test procedure of KDB 558074 v03r05 for compliance to FCC 47CFR 15.247 requirements. The EUT and its simulators are placed on a turn table which is 1.5 meter above ground (under 1GHz) or 1.5 meter above ground (above 1GHz). The turn table can rotate 360 degrees to determine the position of the maximum emission level.

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.

On any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The bandwidth Under 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

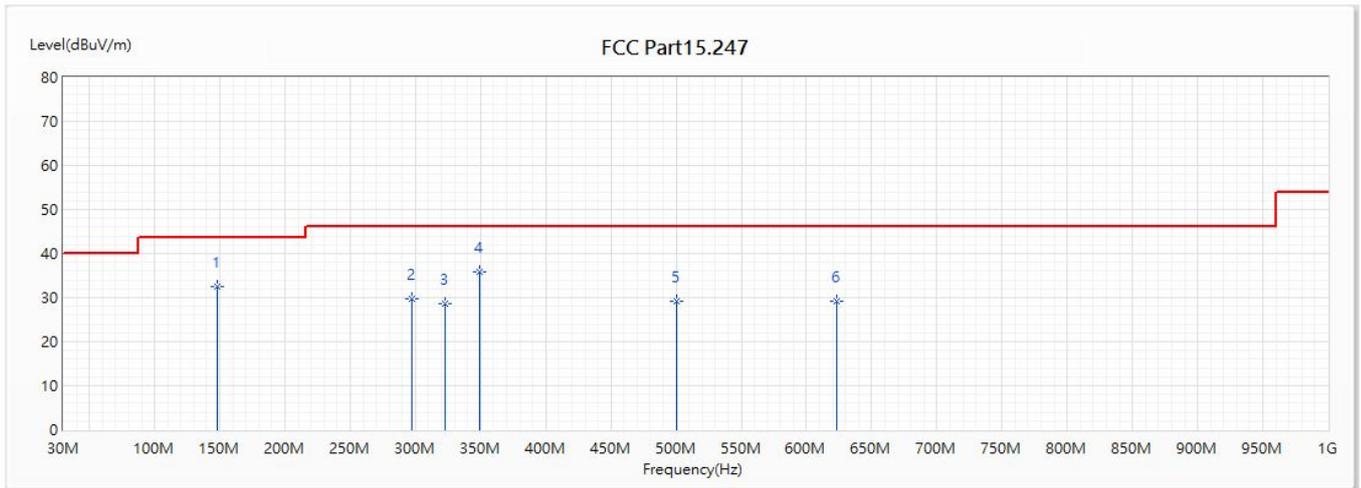
### 3.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2017

### 3.5. Test Result

#### 30MHz-1GHz Spurious

Site :	CB4-H	Engineer :	Carter
Model No :	RT-AC86U	Test Date :	2018/10/25
Test Voltage :	AC 120V/60Hz	Polarity :	Horizontal
Test Mode :	Mode 1: Transmit_ADP1		
Note :	802.11n(40M)_2437MHz		

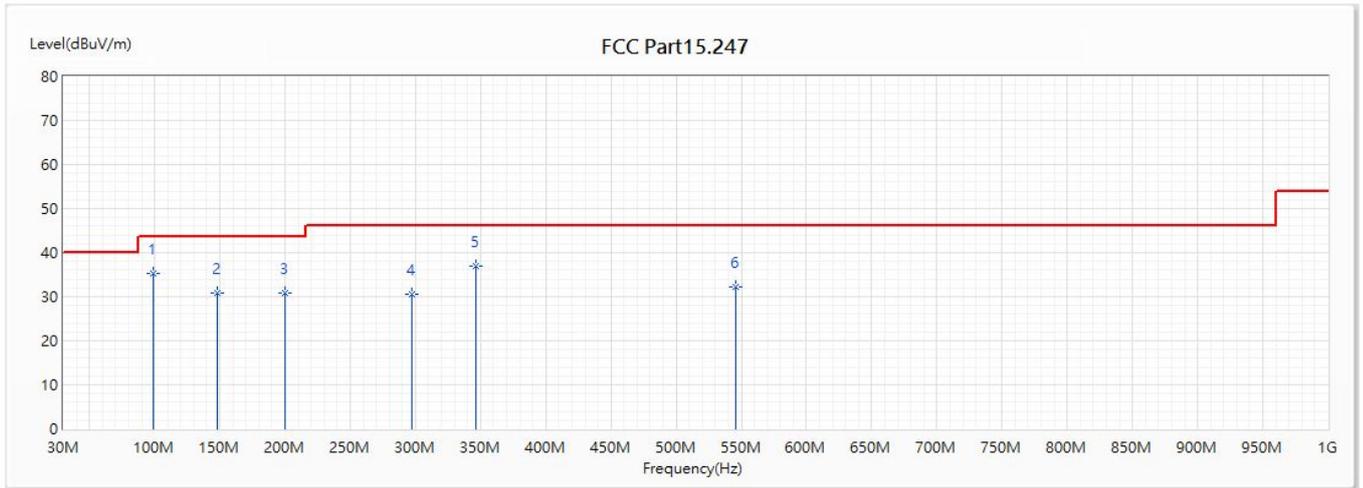


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	148.461	32.39	43.50	-11.11	54.25	-21.86	QP
2	296.993	29.61	46.00	-16.39	48.91	-19.30	QP
3	322.698	28.65	46.00	-17.35	47.15	-18.50	QP
* 4	349.251	35.74	46.00	-10.26	53.21	-17.47	QP
5	499.965	29.30	46.00	-16.70	43.95	-14.65	QP
6	623.519	29.18	46.00	-16.82	42.57	-13.39	QP

Note:

1. All Reading Levels is Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Correct Factor.
4. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line.

Site :	CB4-H	Engineer :	Carter
Model No :	RT-AC86U	Test Date :	2018/10/25
Test Voltage :	AC 120V/60Hz	Polarity :	Vertical
Test Mode :	Mode 1: Transmit ADP1		
Note :	802.11n(40M)_2437MHz		

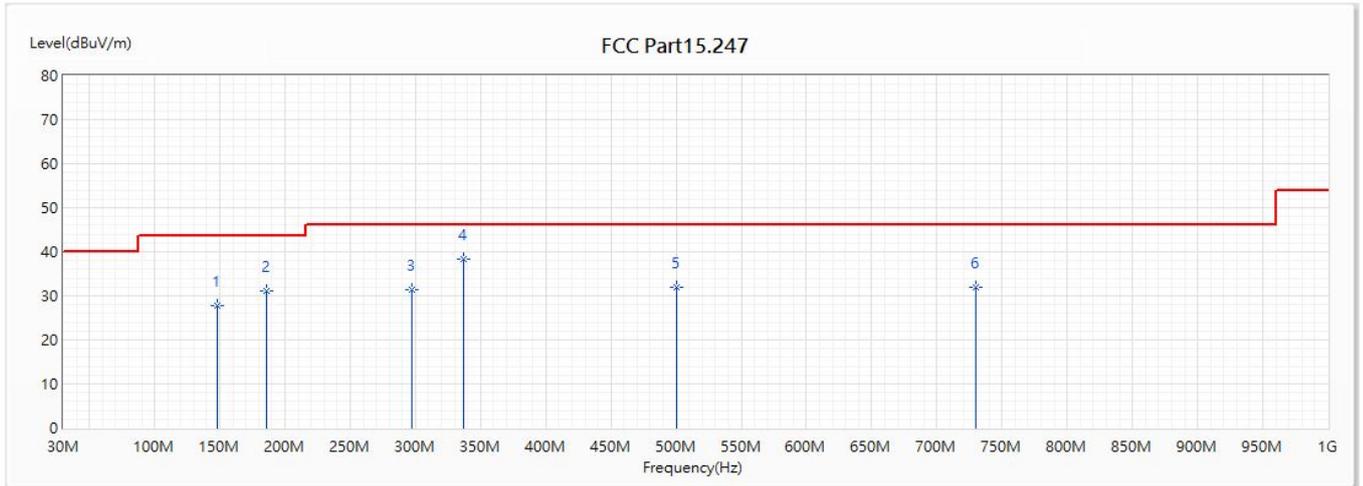


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	99.355	35.19	43.50	-8.31	57.22	-22.03	QP
2	148.461	30.80	43.50	-12.70	52.66	-21.86	QP
3	199.993	30.97	43.50	-12.53	53.08	-22.11	QP
4	296.993	30.58	46.00	-15.42	49.88	-19.30	QP
5	346.22	36.83	46.00	-9.17	54.61	-17.78	QP
6	545.919	32.16	46.00	-13.84	44.90	-12.74	QP

Note:

1. All Reading Levels is Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Correct Factor.
4. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line.

Site :	CB4-H	Engineer :	Carter
Model No :	RT-AC86U	Test Date :	2018/10/25
Test Voltage :	AC 120V/60Hz	Polarity :	Horizontal
Test Mode :	Mode 2: Transmit ADP3		
Note :	802.11n(40M)_2437MHz		

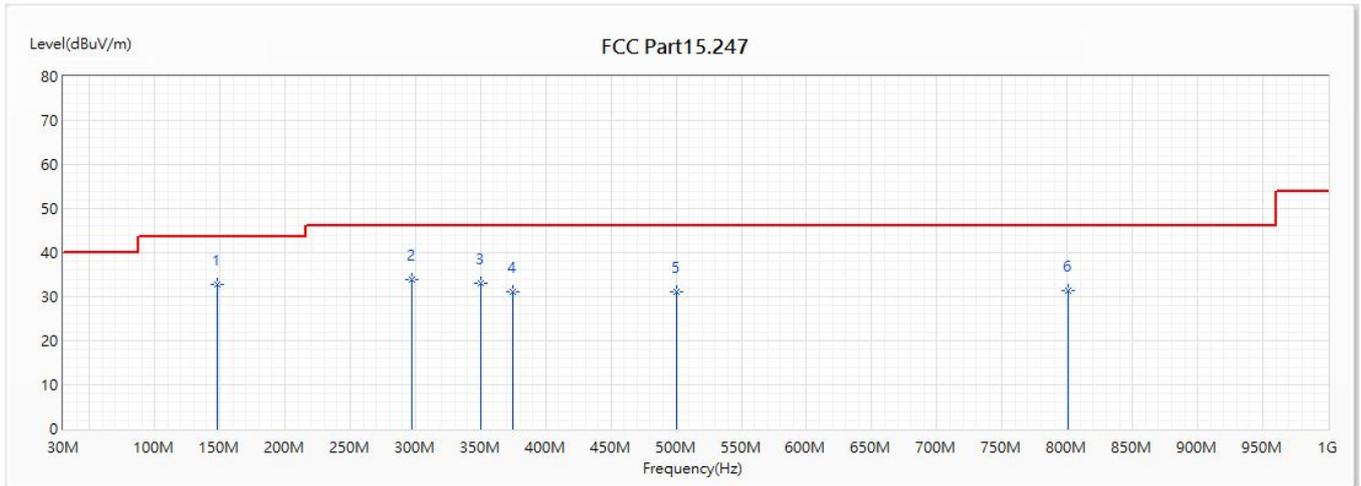


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	148.461	27.70	43.50	-15.80	49.56	-21.86	QP
2	186.291	31.19	43.50	-12.31	53.72	-22.53	QP
3	296.993	31.33	46.00	-14.67	50.63	-19.30	QP
* 4	337.126	38.37	46.00	-7.63	56.89	-18.52	QP
5	500.208	31.98	46.00	-14.02	46.62	-14.64	QP
6	729.734	32.01	46.00	-13.99	43.17	-11.16	QP

Note:

1. All Reading Levels is Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Correct Factor.
4. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line.

Site :	CB4-H	Engineer :	Carter
Model No :	RT-AC86U	Test Date :	2018/10/25
Test Voltage :	AC 120V/60Hz	Polarity :	Vertical
Test Mode :	Mode 2: Transmit ADP3		
Note :	802.11n(40M)_2437MHz		

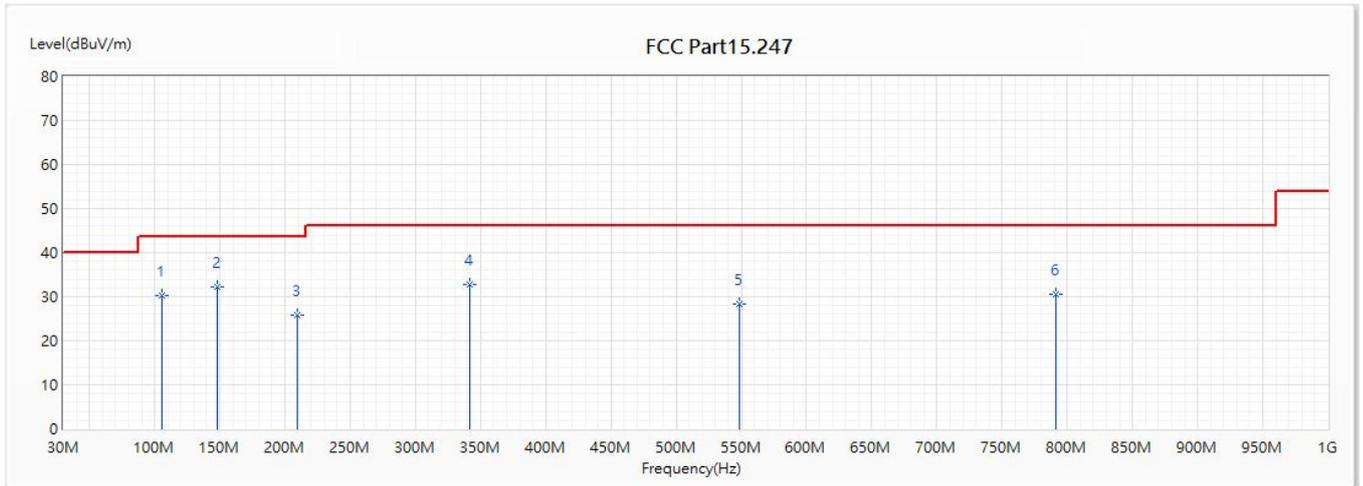


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
* 1	148.461	32.68	43.50	-10.82	54.54	-21.86	QP
2	296.993	33.91	46.00	-12.09	53.21	-19.30	QP
3	349.979	33.06	46.00	-12.94	50.46	-17.40	QP
4	374.956	31.08	46.00	-14.92	48.20	-17.12	QP
5	499.965	31.13	46.00	-14.87	45.78	-14.65	QP
6	801.15	31.41	46.00	-14.59	41.91	-10.50	QP

Note:

1. All Reading Levels is Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Correct Factor.
4. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line.

Site :	CB4-H	Engineer :	Carter
Model No :	RT-AC86U	Test Date :	2018/11/28
Test Voltage :	AC 120V/60Hz	Polarity :	Horizontal
Test Mode :	Mode 3: Transmit_ADP4		
Note :	802.11n(40M)_2437MHz		

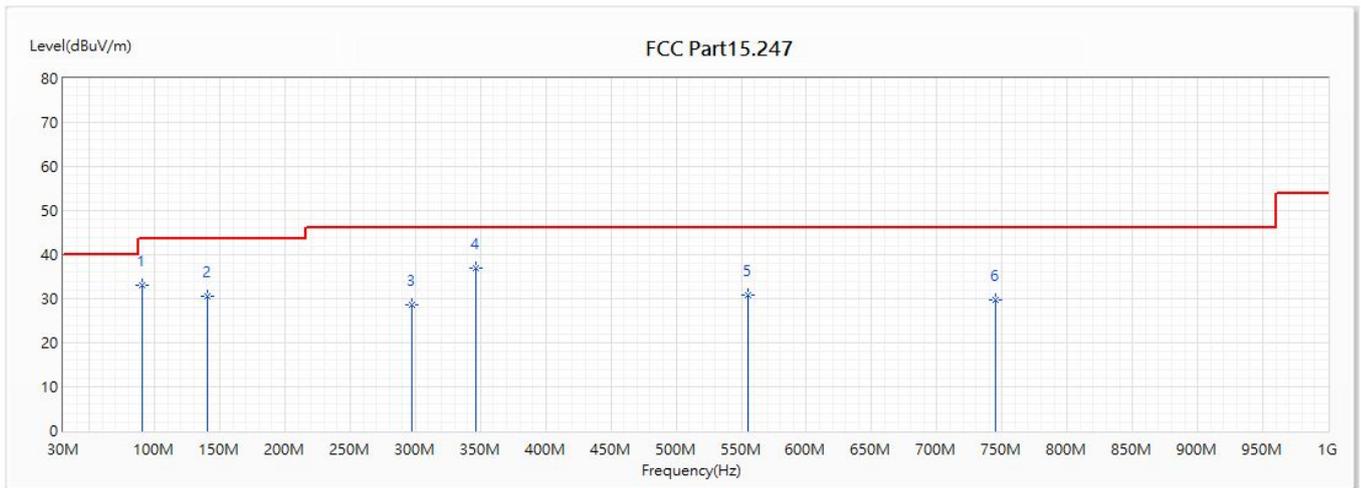


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	105.66	30.23	43.50	-13.27	52.49	-22.26	QP
* 2	148.461	32.22	43.50	-11.28	54.15	-21.93	QP
3	209.086	25.90	43.50	-17.60	48.41	-22.51	QP
4	342.098	32.68	46.00	-13.32	50.69	-18.01	QP
5	548.586	28.22	46.00	-17.78	40.59	-12.37	QP
6	791.329	30.57	46.00	-15.43	40.78	-10.21	QP

Note:

1. All Reading Levels is Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Correct Factor.
4. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line.

Site :	CB4-H	Engineer :	Carter
Model No :	RT-AC86U	Test Date :	2018/11/28
Test Voltage :	AC 120V/60Hz	Polarity :	Vertical
Test Mode :	Mode 3: Transmit_ADP4		
Note :	802.11n(40M)_2437MHz		

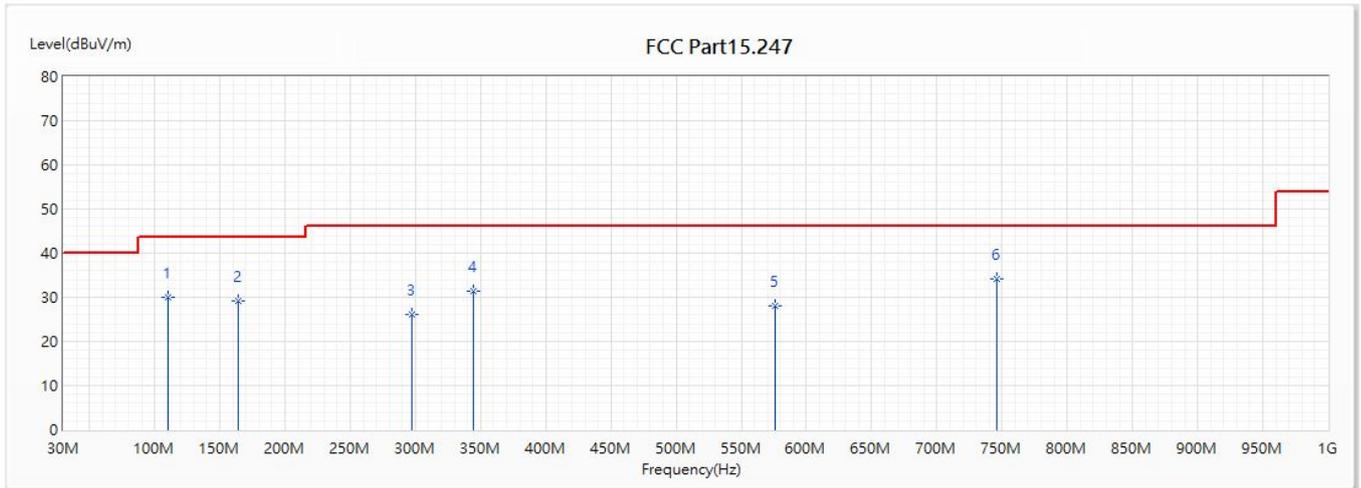


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	90.261	33.05	43.50	-10.45	58.11	-25.06	QP
2	140.338	30.55	43.50	-12.95	52.43	-21.88	QP
3	297.114	28.50	46.00	-17.50	47.33	-18.83	QP
* 4	346.22	36.81	46.00	-9.19	54.23	-17.42	QP
5	555.134	30.90	46.00	-15.10	44.02	-13.12	QP
6	745.375	29.77	46.00	-16.23	40.91	-11.14	QP

Note:

1. All Reading Levels is Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Correct Factor.
4. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line.

Site :	CB4-H	Engineer :	Carter
Model No :	RT-AC86U	Test Date :	2018/11/28
Test Voltage :	AC 120V/60Hz	Polarity :	Horizontal
Test Mode :	Mode 4: Transmit_ADP5		
Note :	802.11n(40M)_2437MHz		

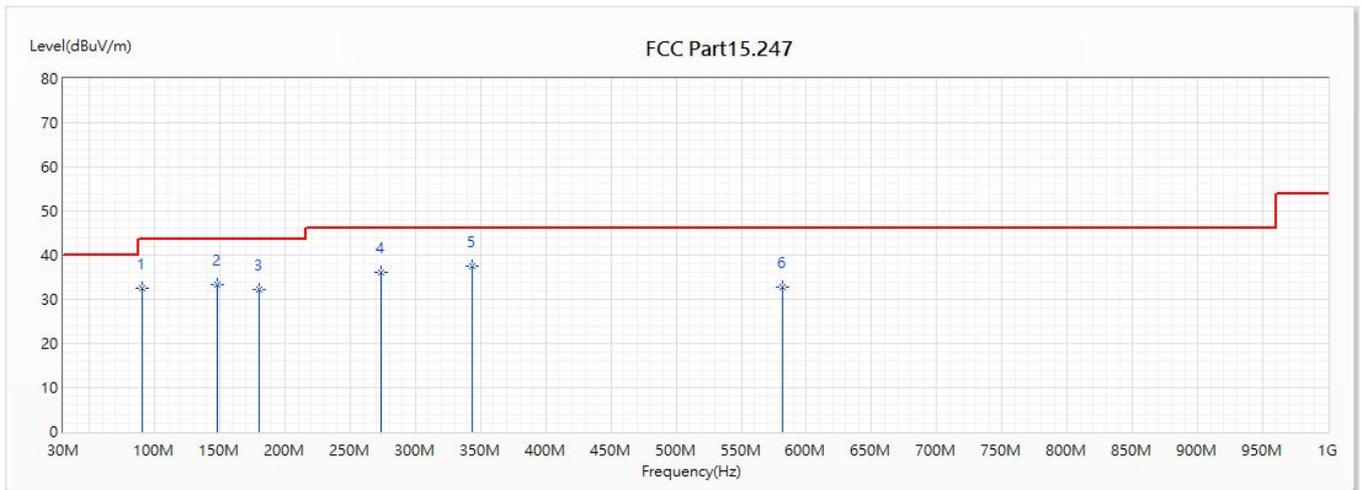


No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	110.389	30.07	43.50	-13.43	52.27	-22.20	QP
2	163.739	29.25	43.50	-14.25	51.02	-21.77	QP
3	297.114	26.00	46.00	-20.00	44.83	-18.83	QP
4	344.886	31.29	46.00	-14.71	48.86	-17.57	QP
5	575.625	27.96	46.00	-18.04	40.63	-12.67	QP
* 6	746.224	34.30	46.00	-11.70	45.41	-11.11	QP

Note:

1. All Reading Levels is Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Correct Factor.
4. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line.

Site :	CB4-H	Engineer :	Carter
Model No :	RT-AC86U	Test Date :	2018/11/28
Test Voltage :	AC 120V/60Hz	Polarity :	Vertical
Test Mode :	Mode 4: Transmit_ADP5		
Note :	802.11n(40M)_2437MHz		



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	90.261	32.44	43.50	-11.06	57.50	-25.06	QP
2	148.461	33.36	43.50	-10.14	55.29	-21.93	QP
3	180.593	32.25	43.50	-11.25	54.82	-22.57	QP
4	273.228	36.00	46.00	-10.00	55.71	-19.71	QP
* 5	343.553	37.60	46.00	-8.40	55.38	-17.78	QP
6	581.93	32.69	46.00	-13.31	45.61	-12.92	QP

Note:

1. All Reading Levels is Quasi-Peak value.
2. “ \* ”, means this data is the worst emission level.
3. Emission Level = Reading Level + Correct Factor.
4. The emission form 9KHz to 30MHz Radiated emission were not show in the test report, because Pre-scan lower than the limit line.