



FCC RADIO TEST REPORT

FCC ID : S9GR850
Equipment : Wireless Access Point
Brand Name : RUCKUS
Model Name : R850
Applicant : Ruckus Wireless Inc.
350 W. Java Dr., Sunnyvale CA 94089 USA
Manufacturer : Ruckus Wireless Inc.
350 W. Java Dr., Sunnyvale CA 94089 USA
Standard : FCC Part 15 Subpart C §15.247

The product was received on Jan. 13, 2020 and testing was started from Mar. 13, 2020 and completed on Mar. 13, 2020. We, Sporton International (USA) Inc., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by A2LA or any agency of government.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval of Sporton International (USA) Inc, the test report shall not be reproduced except in full.

Approved by: Ken Chen

Sporton International (USA) Inc.
1175 Montague Expressway, Milpitas, CA 95035



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Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.207	AC Conducted Emission	Pass	Under limit 13.71 dB at 0.471 MHz

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



1 General Description

1.1 Product Feature of Equipment Under Test

Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n/ax, Wi-Fi 5GHz 802.11a/n/ac/ax, and Zigbee.

Product Specification subjective to this standard	
Antenna Type	WLAN: <Ant. 1>: Internal Omni PCB Antenna <Ant. 2>: Internal Omni PCB Antenna <Ant. 3>: Internal Omni PCB Antenna <Ant. 4>: Internal Omni PCB Antenna <Ant. 5>: Internal Omni PCB Antenna <Ant. 6>: Internal Omni PCB Antenna <Ant. 7>: Internal Omni PCB Antenna <Ant. 8>: Internal Omni PCB Antenna Bluetooth: Internal Omni PCB Antenna Zigbee: Internal Omni PCB Antenna

1.2 Modification of EUT

No modifications are made to the EUT during all test items.

1.3 Testing Location

Test Site	Sporton International (USA) Inc.
Test Site Location	1175 Montague Expressway, Milpitas, CA 95035 TEL : 408 9043300
Test Site No.	Sporton Site No.
	CO01-CA

Note: The test site complies with ANSI C63.4 2014 requirement.

1.4 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v05r02
- ♦ ANSI C63.10-2013

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.



2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	11	2405	19	2445
	12	2410	20	2450
	13	2415	21	2455
	14	2420	22	2460
	15	2425	23	2465
	16	2430	24	2470
	17	2435	25	2475
	18	2440	26	2480

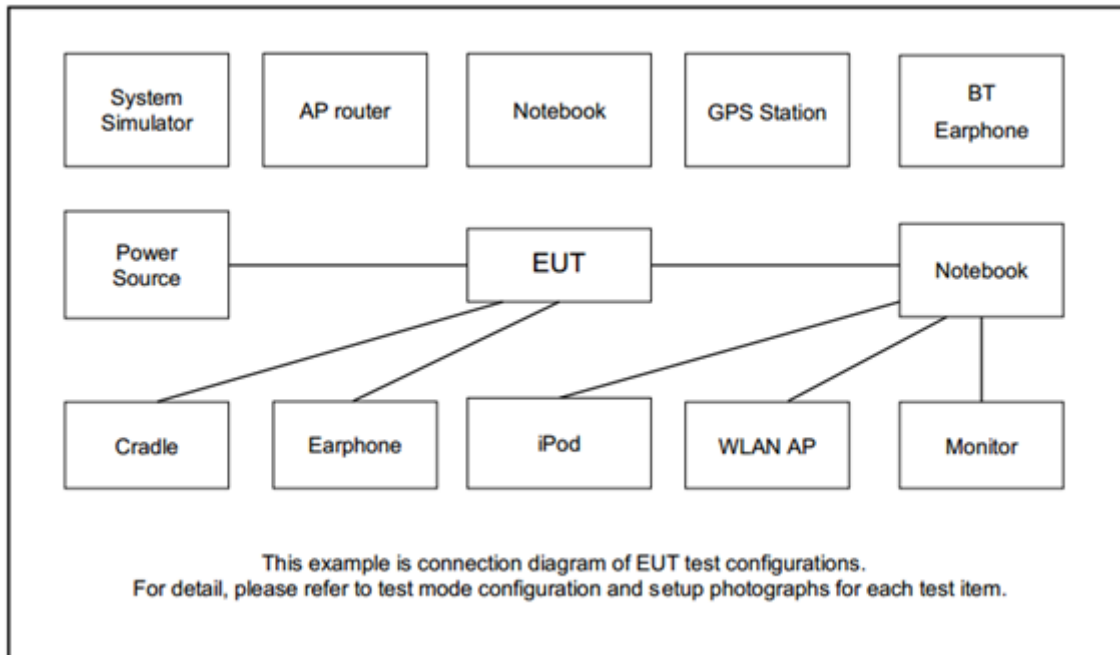
2.2 Test Mode

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz).
- b. AC power line Conducted Emission was tested under maximum output power.

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases	
Test Item	Data Rate / Modulation
	250 kbps / OQPSK
AC Conducted Emission	Mode 1: Zigbee TX + Charging from PoE + LAN Link

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Laptop	DELL	P79G	FCC DoC	N/A	N/A
2.	USB Flash drive	R&S	N/A	N/A	N/A	N/A
3.	PoE Adapter	Ruckus Wireless Inc.	N/A	N/A	N/A	N/A



3 Test Result

3.1 AC Conducted Emission Measurement

3.1.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

3.1.4 Test Setup



3.1.5 Test Result of AC Conducted Emission

Please refer to Appendix A.



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
LISN	TESEQ	NNB51	47407	N/A	Jun. 26, 2019	Mar. 13, 2020	Jun. 25, 2020	Conduction (CO01-CA)
EMI Test Receiver	R&S	ESR7	102177	9KHz~7GHz	Jun. 27, 2019	Mar. 13, 2020	Jun. 26, 2020	Conduction (CO01-CA)
Pulse limiter with 10dB attenuation	R&S	VTSD 9561-F N	9561-F- N00412	N/A	Jun. 11, 2019	Mar. 13, 2020	Jun. 10, 2020	Conduction (CO01-CA)
Test Software	EMC32	N/A	N/A	N/A	N/A	Mar. 13, 2020	N/A	Conduction (CO01-CA)



5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	1.7
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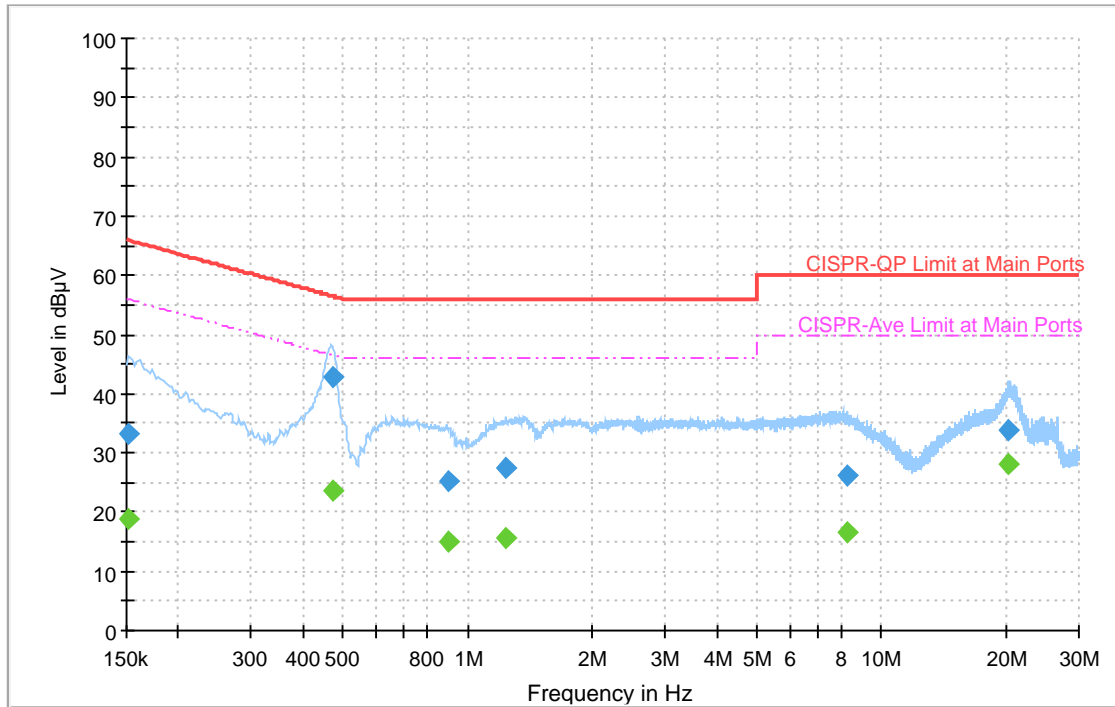
Appendix A. AC Conducted Emission Test Results

Test Engineer : Leo Liu	Temperature :	19~20°C
	Relative Humidity :	30~35%

EUT Information

Site: CO01-CA
 Project: 200130001
 Power: 120Vac/60Hz
 Mode: 1
 Zigbee TX

Full Spectrum



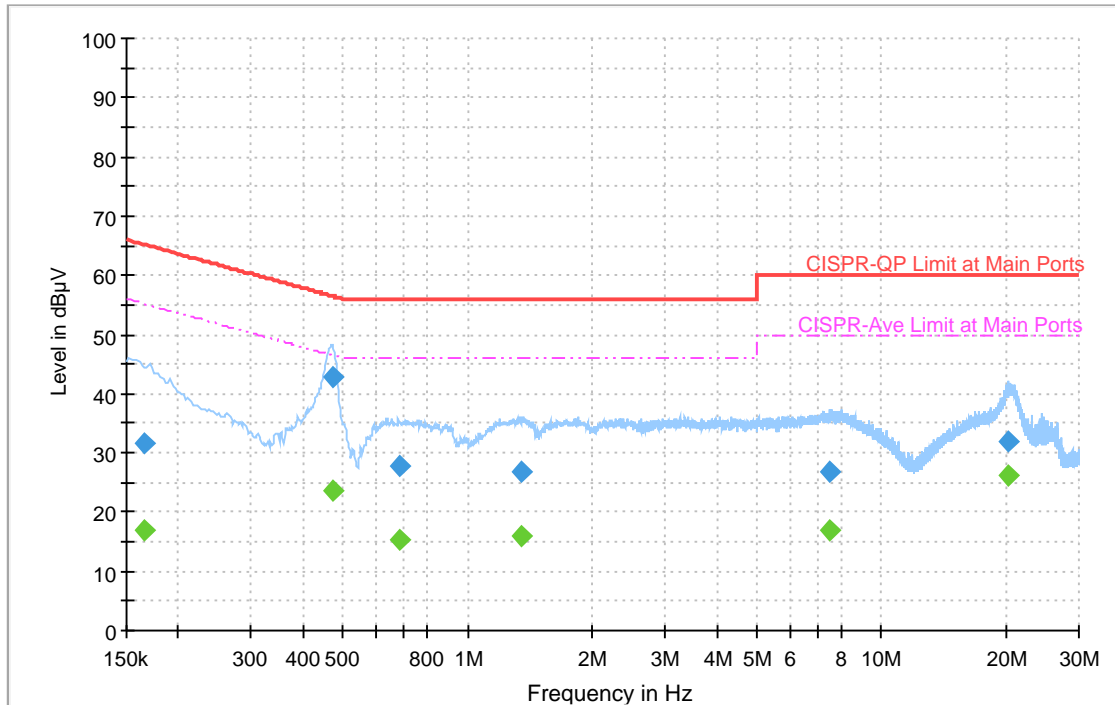
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.151080	---	18.82	55.94	37.12	L1	OFF	20.3
0.151080	33.10	---	65.94	32.84	L1	OFF	20.3
0.471210	---	23.69	46.49	22.80	L1	OFF	20.4
0.471210	42.68	---	56.49	13.81	L1	OFF	20.4
0.897000	---	15.07	46.00	30.93	L1	OFF	20.4
0.897000	25.28	---	56.00	30.72	L1	OFF	20.4
1.232520	---	15.60	46.00	30.40	L1	OFF	20.4
1.232520	27.53	---	56.00	28.47	L1	OFF	20.4
8.290500	---	16.77	50.00	33.23	L1	OFF	20.5
8.290500	26.31	---	60.00	33.69	L1	OFF	20.5
20.319630	---	28.01	50.00	21.99	L1	OFF	20.7
20.319630	33.72	---	60.00	26.28	L1	OFF	20.7

EUT Information

Site: CO01-CA
 Project: 200130001
 Power: 120Vac/60Hz
 Mode: 1
 Zigbee TX

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.165750	---	17.02	55.17	38.15	N	OFF	20.3
0.165750	31.64	---	65.17	33.53	N	OFF	20.3
0.471390	---	23.68	46.49	22.81	N	OFF	20.4
0.471390	42.78	---	56.49	13.71	N	OFF	20.4
0.685500	---	15.47	46.00	30.53	N	OFF	20.4
0.685500	27.83	---	56.00	28.17	N	OFF	20.4
1.353750	---	15.85	46.00	30.15	N	OFF	20.4
1.353750	26.75	---	56.00	29.25	N	OFF	20.4
7.500480	---	16.86	50.00	33.14	N	OFF	20.5
7.500480	26.70	---	60.00	33.30	N	OFF	20.5
20.319270	---	26.17	50.00	23.83	N	OFF	20.7
20.319270	32.06	---	60.00	27.94	N	OFF	20.7