

RF EXPOSURE REPORT

OF

Applicant: Z-Com, Inc.
5F, No.8, HSIN ANN RD., HSINCH SCIENCE PARK,
HSINCHU, 30078 TAIWAN

Product Name: 802.11ac Access Point

Brand Name: ZCOM

Marketing Name: SP220-C02

Model No.: SP220-C02

Model Difference: N/A

Report Number: E2/2019/50020

FCC ID: M4Y-SP220C02

FCC Rule Part Part 2.1091

Issue Date: Dec. 20, 2019

Date of Test: May 14, 2019 ~ Jul. 31, 2019

Date of EUT Received: May 14, 2019

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. The test data, data evaluation in this report is in compliance with FCC Rules Part 2.

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

Approved By:

John Teh

John Yeh / Asst. Manager

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Revision History

Revision	Description	Issue Date	Remark
Rev.00	Original.	Dec. 20, 2019	Revised By: Karen Huang

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Table of Contents

1	DESCRIPTION OF EQUIPMENT UNDER TEST (EUT).....	4
2	FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE)	6
2.1	FCC STANDARD APPLICABLE	6
2.2	POWER DENSITY CALCULATION (WORST CASE)	7

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

General:

Product Name:	802.11ac Access Point	
Brand Name:	ZCOM	
Marketing Name:	SP220-C02	
Model No.:	SP220-C02	
Model Difference:	N/A	
Hardware Version:	N/A	
Software Version:	N/A	
Power Supply:	48V by POE Injector	
	POE Injector:	Model No.: PSE301G, Supplier: N/A

WLAN 802.11	Frequency Range	Channels	Rated Power (Avg.) (dBm)	Modulation Technology
b	2412-2462	11	21.85	DSSS
g			17.98	OFDM
n_HT20			19.73 (MIMO)	
n_HT40	2422-2452	7	17.91 (MIMO)	
Antenna Designation:		Dipole Antenna, Gain: 4.91dBi		
Modulation type:		CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM		
Transition Rate:		802.11 b: 1/2/5.5/11 Mbps 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 144.4Mbps 802.11 n_40MHz: 13.5 – 300.0Mbps		

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WLAN 802.11	Frequency Range	Channels	Rated Power (Avg.) (dBm)	Modulation Technology
a	5150~5250	4	21.75	OFDM
	5725~5850	5	21.84	
n_HT ac_VHT 20M	5150~5250	4	HT: 23.72 (MIMO)	OFDM
	5725~5850	5	HT: 23.88 (MIMO)	
n_HT ac_VHT 40M	5150~5250	2	HT: 20.64 (MIMO)	OFDM
	5725~5850	2	HT: 20.82 (MIMO)	
ac_VHT 80M	5150~5250	1	17.55 (MIMO)	OFDM
	5725~5850	1	17.59 (MIMO)	
Antenna Designation:		Dipole Antenna, Gain: 5.34dBi (5150~5250) / 4.73dBi (5725~5850)		
Modulation type		64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 802.11ac only		
Transition Rate:		802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 144.4Mbps 802.11 n_40MHz: 13.5 – 300.0Mbps 802.11 ac_20MHz: 6.5 –173.3Mbps 802.11 ac_40MHz: 13.5 –400.0Mbps 802.11 ac_80MHz: 29.3 – 866.7Mbps		

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2 FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE)

2.1 FCC Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissive Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-15000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equipment power density

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2.2 Power Density Calculation (Worst Case)

Operation Mode	Evaluation Frequency (MHz)	Operation Distance (cm)	Max. output Power (dBm)	Antenna Gain (dBi)	Max. output Power EIRP (mW)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Pass / Fail
WLAN 2.4G	2462.00	20	21.85	4.91	474.24	0.094	1.000	Pass
WLAN 5G	5825.00	20	23.88	7.74	1452.11	0.289	1.000	Pass

2.3 Collocated Power Density Calculation

Operation Mode	Power Density (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit	Σ(E- Field Strength / Limit)
WLAN 2.4G	0.094	1.00	0.094	0.3834
WLAN 5G	0.289	1.00	0.289	

Note:

- Σ(E- Field Strength / Limit): This is a summation of [(E- Field Strength for each transmitter/antenna included in the simultaneous transmission) / (corresponding MPE limit)], for WLAN.
- Considering the WLAN 2.4G / 5G transmitter, the aggregated (E- Field Strength /limit) is smaller than 1, and MPE of 2 collocated transmitters is compliant.

~ End of Report ~

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