

## RF EXPOSURE REPORT

OF

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

**Product Name:** 5GHz 11ac Wireless Bridge

**Brand Name:** ZCOM

**Marketing Name:** SP220-C03

**Model No.:** SP220-C03

**Model Difference:** N/A

**Report Number:** E2/2019/50025

**FCC ID:** M4Y-SP220C03

**FCC Rule Part** Part 2.1091

**Issue Date:** Jan. 03, 2020

**Date of Test:** May 20, 2019 ~ Jul. 22, 2019

**Date of EUT Received:** May 20, 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.

**Tested By:**

Hone Hsieh

**Hone Hsieh / Engineer****Approved By:**

John Teh

**John Yeh / Asst. Manager**

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.  
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## Revision History

Revision	Description	Issue Date	Remark
Rev.00	Original	Jan. 03, 2020	Revised by Stefanie Yu

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# 1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

General:

Product Name:	5GHz 11ac Wireless Bridge
Brand Name:	ZCOM
Marketing Name:	SP220-C03
Model No.:	SP220-C03
Model Difference:	N/A
Hardware Version:	N/A
Software Version:	N/A
Power Supply:	48Vdc from POE

Wi-Fi 802.11	Frequency Range	Channels	Rated Power (Avg.) (dBm)	Modulation Technology
a	5150~5250	4	23.98	OFDM
	5725-5850	5	23.99	
n_HT ac_VHT 20M	5150~5250	4	HT: 25.34	OFDM
	5725-5850	5	HT: 26.78	
n_HT ac_VHT 40M	5150~5250	2	HT: 25.15	OFDM
	5725-5850	2	HT: 26.99	
ac_VHT 80M	5150~5250	1	13.13	OFDM
	5725~5850	1	16.47	
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 – 216.7Mbps 802.11 n_40MHz: 13.5 – 450.0Mbps 802.11 ac_20MHz: 6.5 –288.9Mbps 802.11 ac_40MHz: 13.5 –600.0Mbps 802.11 ac_80MHz: 29.3 – 1300.0Mbps		

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## Antenna Designation

Antenna Type	Supplier	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)	Worst Antenna Gain
Patch Array	ZWA	TDJ-5800-2xPNF	5150~5250	23.80	V
			5725~5850	25.13	V
Dual Polarization Directional	SmartAnt	SAA08-200140	5150~5250	20	
			5725~5850	20	
Directional	SmartAnt	SAA12-200090	5150~5250	15.5	
			5725~5850	15.5	

Note: Pre-scanned was done on the above 3 antennas, the TDJ-5800-2xPNF results higher emission at 5GHz. Therefore, the completed set of measurement was done on the antenna to be presented on this test report.

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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 <sup>2</sup> )	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 <sup>2</sup> )	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

Prediction of MPE limit at a given distance

$$S = PG / 4\pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

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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 <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Pass / Fail
WLAN 5G	5795.00	114	26.99	25.13	162929.60	0.998	1.000	Pass

~ End of Report ~

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