

## RF Exposure report

Report No.: HQ191231EL07-FE

FCC ID: 2AWK4SR200615

Applicant: Suirui Group Co., Ltd.

Address: Buildings 18/19, North Olympic Sci.&Tech. Park, 1st Baosheng S.  
Rd., Haidian, Beijing, P.R.C.

Product: Zhumu Cloud Video Conferencing Collaboration Kit

Brand:  SUIRUI

Test Model(s): ZM-3100

Series Model(s): ZM-\*\*00 (The "\*\*\*" can be "31" to "69" for market use)

Test Date: Mar. 24, 2020 ~Aug. 19, 2020

Issued By: Hwa-Hsing (Dongguan) Testing Co., Ltd.

Lab Address: No.101, Bld N1, Yuyuan 2Rd, Yuyuan Industrial Park, HuangJiang  
Town, Dongguan, China

FCC Designation Number: CN1255

Standards: FCC Part 2 (Section 2.1091); KDB 447498 D01; IEEE C95.1

The above equipment has been tested by **Hwa-Hsing (Dongguan) Testing Co., Ltd.**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Scott He Date: Jul. 31, 2020  
Scott He/Engineer

Approved by : Harry Li Date: Aug. 24, 2020  
Harry Li/ Supervisor

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**Release control record**

Issue No.	Reason for change	Date issued
HQ191231EL07-FE	Original release	Aug. 24, 2020

## 1 General information of EUT

Product	Zhumu Cloud Video Conferencing Collaboration Kit
Brand	 <b>SUIRUI</b>
Test Model(s)	ZM-3100
Series Model(s)	ZM-**00 (The "*" can be "31" to "69" for market use)
Models difference	Only difference for model name
Power supply	DC19V from Adapter
Status of EUT	Engineering prototype
Modulation technology	DSSS; OFDM
Modulation type	2412~2462MHz: CCK, DQPSK,DBPSK for DSSS 5180~5825MHz: 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Transfer rate	2412~2462MHz: 802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps 5180~5825MHz: 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps 802.11ac: up to 867Mbps
Operating frequency	2412~2462MHz 5180~5240MHz, 5260~5320MHz 5500~5700MHz, 5745~5825MHz
Conducted output power (Maximum AVG Power)	19.44dBm for 2412~2462MHz 7.40dBm for 5150 ~ 5250MHz 12.24dBm for 5250 ~ 5350MHz 12.55dBm for 5470 ~ 5725MHz 9.72dBm for 5725 ~ 5850MHz
Antenna type& Antenna Gain	2412~2462MHz: PCB antenna with 6.03dBi gain 5180~5825MHz: PCB antenna with 6.55dBi gain
Antenna connector	I-PEX
Accessory Device	N/A
EUT Category	Mobile and Portable client device


### Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
- Please refer to the EUT photo document for detailed product photo (Reference No.: HQ191231EL07).
- The UUT power supply the adapter as below:

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Co., Ltd.

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Web.: [www.hwa-hsing.com](http://www.hwa-hsing.com)  
E-Mail: [customerservice.dg@hwa-hsing.com](mailto:customerservice.dg@hwa-hsing.com)

Brand name:	
Model name:	HKA09019047-6U
Input:	AC100-240V~50/60Hz, 1.5A
Output:	DC19V 4.74A

5. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitter and 2 receiver.

Support mode	Transmit and receive mode	Transmit and Receive Chain
802.11a	MIMO	2TX,2RX
802.11n HT20	MIMO	2TX,2RX
802.11n HT40	MIMO	2TX,2RX
802.11ac VHT20	MIMO	2TX,2RX
802.11ac VHT40	MIMO	2TX,2RX
802.11ac VHT80	MIMO	2TX,2RX

\*The modulation and bandwidth are similar for 802.11h mode for 20MHz / 40MHz and 802.11ac mode for 20MHz/ 40MHz, therefore investigated worst case to representative mode in test report.

## 2 RF exposure limit

Limits for maximum permissible exposure (MPE)

Limits for general population / uncontrolled exposure				
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Average time (minutes)
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

Note: F = Frequency in MHz

## 3 MPE calculation formula

$$Pd = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

Where:

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

### Classification:

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.

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#### 4 Calculation result of maximum conducted power

The antennas provided to the EUT, please refer to the following table:

Antenna No.	Frequency Band	Antenna Gain (dBi)	Antenna Type	Transmit and Receive Chain	Maximum AVG Power(dBm)
1	2400~2483.5MHz	6.03	FPCB Antenna	2TX,2RX	19.44
2	5150 ~ 5250MHz	6.55		2TX,2RX	12.08
	5250 ~ 5350 MHz	6.55		2TX,2RX	12.24
	5470 ~ 5725MHz	6.55		2TX,2RX	12.55
	5725 ~ 5850 MHz	6.55		2TX,2RX	9.72

2400~2483.5MHz: Directional gain = 6.03dBi + 10log (2) = 9.04dBi

5150 ~ 5850MHz: Directional gain = 6.55dBi + 10log (2) = 9.56dBi

Frequency band (MHz)	Max power (mW)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2400~2483.5MHz	87.902	6.03	20	0.0701018	1.0
5150 ~ 5250MHz	5.490	6.55	20	0.0049400	1.0
5250 ~ 5350 MHz	16.749	6.55	20	0.0150567	1.0
5470 ~ 5725MHz	17.989	6.55	20	0.0161707	1.0
5725 ~ 5850 MHz	9.376	6.55	20	0.0084281	1.0

**Note:** These bands cannot transmit simultaneously at 2.4G and 5GHz band.

#### Conclusion:

Therefore, the worst-case situation is **0.0701018**mW/cm<sup>2</sup>, which is less than “1”. This confirmed that the device compliance with FCC 1.1310 MPE limit.

## 5 Appendix – Information on the Testing Laboratories

We, [Hwa-Hsing \(Dongguan\) Co., Ltd.](#), A global provider of TESTING and CERTIFICATION services for consumer products, electronic products and wireless information technology products. Adhering to the core values “HONEST and TRUSTWORTHY, OBJECTIVE and IMPARTIALITY, RIGOROUS and AFFICIENT”, commitment to provide professional, perfect and efficient comprehensive ONE-STOP solution of TESTING and CERTIFICATION services for Manufacturers, Buyers, Traders, Brands, Retailers. Assist client to better manage risk, protect their brands, reduce costs and cut time to over 150 markets in global. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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