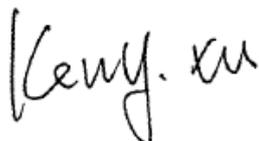


RF Exposure Evaluation Report

Application No.: SZEM1912021060CR
Applicant: SZ DJI TECHNOLOGY CO., LTD.
Address of Applicant: 14th floor, West Wing, Skyworth Semiconductor Design Building NO.18
 Gaoxin South 4th Ave, Nanshan, Shenzhen, Guangdong, China
Manufacturer: SZ DJI TECHNOLOGY CO., LTD.
Address of Manufacturer: 14th floor, West Wing, Skyworth Semiconductor Design Building NO.18
 Gaoxin South 4th Ave, Nanshan, Shenzhen, Guangdong, China
Equipment Under Test (EUT):
Product Name: MAVIC AIR 2
Model No.: MA2UE1N, MA2UE3W♣
 ♣ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
 ♣ DJI
FCC ID: SS3-MA2UE1N1911
IC: 11805A-MA2UE1N1911
Standards: 47 CFR PART 1.1310
 47 CFR PART 2.1091
 RSS102 Issue 5 March 2015
Date of Receipt: 2019-12-10
Date of Test: 2019-12-15 to 2019-12-30
Date of Issue: 2020-01-09

Test Result:	PASS*
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* In the configuration tested, the EUT complied with the standards specified above.



Keny Xu
 EMC Laboratory Manager



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2 Version

<i>Revision Record</i>				
<i>Version</i>	<i>Chapter</i>	<i>Date</i>	<i>Modifier</i>	<i>Remark</i>
01		2020-01-09		Original

Authorized for issue by:			
			
		<hr/> Calvin Weng /Project Engineer	
			
		<hr/> Eric Fu /Reviewer	





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4 General Information

4.1 General Description of EUT

Power Supply:	DC11.55V by lithium-ion Polymer battery(3500mAh)
Cable:	USB type A to C cable: 0.5m shielded cable without ferrite core Power Adapter cable: 1m unshielded cable without ferrite core
For 2.4G:	
Operation Frequency:	1.4MHz BW: 2407.5MHz ~ 2465.5MHz 1.4MHz BW CA: 2409.12MHz ~ 2467.12MHz 3MHz BW: 2417.5MHz to 2456.5MHz 10MHz BW: 2405.5MHz to 2476.5MHz 20MHz BW: 2410.5MHz to 2472.5MHz
Modulation Type:	1.4MHz BW: OFDM 1.4MHz BW CA: OFDM 3MHz BW: OFDM 10MHz BW: OFDM 20MHz BW: OFDM
Number of Channels:	1.4MHz BW: 30 1.4MHz BW CA: 30 3MHz BW: 14 10MHz BW: 72 20MHz BW:63
Channel Spacing:	1.4MHz BW: 2MHz 1.4MHz BW CA: 2MHz 3MHz BW: 3MHz 10MHz BW: 1MHz 20MHz BW: 1MHz
Antenna Type:	PCB antenna
Antenna Gain:	1.5dBi
For 5G:	
Operation Frequency:	1.4MHz BW: 5728.5MHz ~ 5844.5MHz; 1.4MHz BW CA: 5730.12MHz ~ 5846.12MHz; 3MHz BW: 5730.5MHz ~ 5844.5MHz; 10MHz BW: 5732.5MHz ~ 5844.5MHz; 20MHz BW: 5735.5MHz ~ 5839.5MHz
Number of Channels:	1.4MHz BW: 59; 1.4MHz BW CA: 59; 3MHz BW: 39; 10MHz BW: 113;



	20MHz BW: 105
Modulation Type:	OFDM
Channel Spacing:	1.4MHz BW: 2MHz; 1.4MHz BW CA: 2MHz; 3MHz BW: 3MHz; 10MHz BW: 1MHz; 20MHz BW: 1MHz
Antenna Gain:	2dBi
Antenna Type:	PCB antenna



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4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China
518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

4.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.4 Deviation from Standards

None.

4.5 Abnormalities from Standard Conditions

None.

4.6 Other Information Requested by the Customer

None.



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5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in part1.1307(b)

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*(900/f ²)	6
30–300	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
(B) 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
1500–100,000 .....	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.



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According to RSS-102 Issue 5, section 2.5.2 Exemption.

RF exposure evaluation is required if the separation distance between the user and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $22.48/f^{0.5}W$ (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834} W$ (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit data at lowest, middle and highest channel individually.

5.1.3 EUT RF Exposure Evaluation



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FCC Part:

For 2.4G band:

Antenna Gain: 1.5dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.41 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Average Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	Result
Middle	2441.5	19.77	94.84	0.0267	1.0	PASS

Note: Refer to report No. SZEM191202106002 for EUT test Max Conducted Peak Output Power value. The distance r (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

For 5G band:

Antenna Gain: 2dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.58 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Average Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)	Result
Middle	5787.5	23.43	94.84	0.0695	1.0	PASS

Note: Refer to report No. SZEM191202106003 for EUT test Max Conducted Peak Output Power value. The distance r (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.



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IC Part:

For 2.4G band:

Antenna Gain: 1.5dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.41 in linear scale.

For 1.4MHz BW

Test Channel	Conduct power (including Tune-up tolerance) (dBm)	E.I.R.P. (mW)	Limit (mW)	Result
2407.5	16.22	59.16	2680.61	Pass
2441.5	16.59	64.42	2706.42	Pass
2465.5	16.57	64.12	2724.58	Pass

For 1.4MHz BW CA

Test Channel	Conduct power (including Tune-up tolerance) (dBm)	E.I.R.P. (mW)	Limit (mW)	Result
2409.12	15.22	46.99	2681.84	Pass
2443.12	16.27	59.84	2707.65	Pass
2467.12	15.98	55.98	2725.80	Pass

For 3MHz BW

Test Channel	Conduct power (including Tune-up tolerance) (dBm)	E.I.R.P. (mW)	Limit (mW)	Result
2417.5	16.85	68.39	2688.21	Pass
2441.5	17.01	70.96	2706.42	Pass
2456.5	16.95	69.98	2717.78	Pass

For 10MHz BW

Test Channel	Conduct power (including Tune-up tolerance) (dBm)	E.I.R.P. (mW)	Limit (mW)	Result
2417.5	19.08	114.29	2688.21	Pass
2441.5	19.77	133.97	2706.42	Pass
2455.5	19.65	130.32	2717.02	Pass

For 20MHz BW

Test Channel	Conduct power (including Tune-up tolerance) (dBm)	E.I.R.P. (mW)	Limit (mW)	Result
2434.5	19.53	126.77	2701.12	Pass
2441.5	19.63	129.72	2706.42	Pass
2443.5	18.85	108.39	2707.94	Pass

Note: Refer to report No. SZEM191202106002 for EUT test EIRP value.

For 10MHz BW and 20MHz BW, RF exposure was evaluated for the maximum power level and the correspondent channel.



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For 5G:

Antenna Gain: 2dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.58 in linear scale.

For 1.4MHz BW

Test Channel	Conduct power (including Tune-up tolerance) (dBm)	E.I.R.P. (mW)	Limit (mW)	Result
5728.5	14.83	48.19	4847.48	Pass
5784.5	13.87	38.64	4879.82	Pass
5844.5	13.13	32.58	4914.35	Pass

For 1.4MHz BW CA

Test Channel	Conduct power (including Tune-up tolerance) (dBm)	E.I.R.P. (mW)	Limit (mW)	Result
5730.12	14.67	46.45	4848.42	Pass
5788.12	13.96	39.45	4881.91	Pass
5846.12	14.05	40.27	4915.28	Pass

For 3MHz BW

Test Channel	Conduct power (including Tune-up tolerance) (dBm)	E.I.R.P. (mW)	Limit (mW)	Result
5730.5	14.85	48.42	4848.64	Pass
5787.5	13.76	37.67	4881.55	Pass
5844.5	13.00	31.62	4914.35	Pass

For 10MHz BW

Test Channel	Conduct power (including Tune-up tolerance) (dBm)	E.I.R.P. (mW)	Limit (mW)	Result
5732.5	23.05	319.89	4849.80	Pass
5787.5	23.43	349.14	4881.55	Pass
5844.5	22.73	297.17	4914.35	Pass

For 20MHz BW

Test Channel	Conduct power (including Tune-up tolerance) (dBm)	E.I.R.P. (mW)	Limit (mW)	Result
5735.5	23.27	336.51	4851.53	Pass
5787.5	22.32	270.40	4881.55	Pass
5839.5	20.65	184.08	4911.48	Pass

Note: Refer to report No. SZEM191202106003 for EUT test EIRP value.

- End of the Report -

