



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

Email: ee.shenzhen@sgs.com

Report No.: SZEM170200097904

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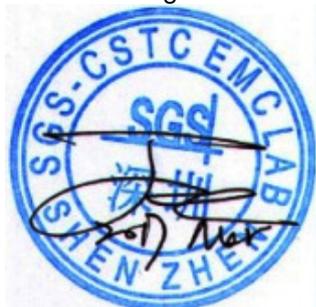
# RF Exposure Evaluation Report

**Application No.:** SZEM1702000979CR  
**Applicant:** SZ DJI TECHNOLOGY CO., LTD  
**Manufacturer:** SZ DJI TECHNOLOGY CO., LTD  
**Factory:** SZ DJI TECHNOLOGY CO., LTD  
**Product Name:** Phantom 4 Advanced  
**Model No.(EUT):** WM332A  
**Trade Mark:** DJI  
**FCC ID:** SS3-WM332A1702  
**Standards:** 47 CFR Part 1.1307 (2016)  
47 CFR Part 1.1310 (2016)  
KDB447498D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2017-02-23  
**Date of Test:** 2017-02-24 to 2017-03-09  
**Date of Issue:** 2017-03-14

<b>Test Result :</b>	<b>PASS*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Jack Zhang  
EMC Laboratory Manager

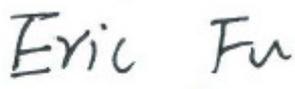
The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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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		2017-03-14		Original

<b>Authorized for issue by:</b>			
<b>Tested By</b>			2017-03-14
	<hr/>		<hr/>
	<b>(Hank Yan) /Project Engineer</b>		<b>Date</b>
<b>Checked By</b>			2017-03-14
	<hr/>		<hr/>
	<b>(Eric Fu) /Reviewer</b>		<b>Date</b>



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## 4 General Information

### 4.1 Client Information

Applicant:	SZ DJI TECHNOLOGY CO., LTD
Address of Applicant:	14th floor, West Wing, Skyworth Semiconductor Design Building NO.18 Gaoxin South 4th Ave, Nanshan District, Shenzhen, 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 District, Shenzhen, China
Factory:	SZ DJI TECHNOLOGY CO., LTD
Address of Factory:	14th floor, West Wing, Skyworth Semiconductor Design Building NO.18 Gaoxin South 4th Ave, Nanshan District, Shenzhen, China

### 4.2 General Description of EUT

Product Name:	Phantom 4 Advanced
Model No.:	WM332A
Trade Mark:	DJI
Sample Type:	Mobile production
Power Supply:	DC 15.2V Li-ion Battery
<b>2.4G DTS</b>	
Operation Frequency:	2406.5MHz~2476.5MHz
Modulation Type:	OFDM
Number of Channel:	8
Antenna Type:	Integral Antenna
Antenna Gain:	1.6dBi
<b>915M FHSS</b>	
Operation Frequency:	915.94MHz ~ 925.74MHz
Spread Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	2GFSK
Number of Channel:	50
Antenna Type:	Integral Antenna
Antenna Gain:	-0.46dBi

### 4.3 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.

### 4.4 Test Facility

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

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **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 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

- **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

### 4.5 Deviation from Standards

None.

### 4.6 Abnormalities from Standard Conditions

None.

### 4.7 Other Information Requested by the Customer

None.

## 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 <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposures</b>				
0.3–3.0 .....	614	1.63	*(100)	6
3.0–30 .....	1842/f	4.89/f	*(900/f <sup>2</sup> )	6
30–300 .....	61.4	0.163	1.0	6
300–1500 .....	.....	.....	f/300	6
1500–100,000 .....	.....	.....	5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
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
1500–100,000 .....	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $Pd = (Pout * G) / (4 * Pi * R^2)$

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

Pd is the limit of MPE, 1 mW/cm<sup>2</sup>. 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.



#### 4.1.3 EUT RF Exposure Evaluation

##### 1) exposure conditions for standalone operations

###### For 2.4G DTS

Antenna Gain: 1.6dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.445 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max. Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit	MPE Ratios	Result
Middle	2446.5	22.160	164.437	0.04729	1.0	0.047	PASS

Note: Refer to report No. SZEM170200097902 for EUT test Max Conducted Peak Output Power value.

The distancer (5th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

###### For 915M FHSS

Antenna Gain: -0.46dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 0.899 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max. Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit	MPE Ratios	Result
Highest	925.74	12.01	15.885	0.00284	0.617	0.005	PASS

Note: Refer to report No. SZEM170200097903 for EUT test Max Conducted Peak Output Power value.

The distancer (5th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

##### 2) exposure conditions for simultaneous transmission operations

Simultaneous transmission MPE test is not required, because the Max. sum of the MPE ratios for 2.4G DTS and 915M FHSS is  $0.047+0.005=0.052<1$