1 Cover Page

RF Exposure Evaluation Report

Application No.:	KSCR2305000771AT
FCC ID:	SS3-RD241608RF
IC:	11805A-RD241608RF
Applicant:	SZ DJI TECHNOLOGY CO., LTD.
Address of Applicant:	Lobby of T2, DJI Sky City, No. 53 Xianyuan Road, Xili Community, Xili Street, Nanshan District, Shenzhen, China.
Manufacturer:	SZ DJI TECHNOLOGY CO., LTD.
Address of Manufacturer:	Lobby of T2, DJI Sky City, No. 53 Xianyuan Road, Xili Community, Xili Street, Nanshan District, Shenzhen, China.
Factory:	DJI Baiwang Technology Company Ltd.
Address of Factory:	Room 101, Building 12, Baiwangxin Industrial Park, 1002 Songbai Road, Sunshine Community, Xili Street, Nanshan District, Shenzhen
Equipment Under Test (EUT):	
EUT Name:	Forward Phased Array Radar
Model No.:	RD241608RF
Trade Mark:	DJI
Standard(s) :	FCC Rules 47 CFR §2.1091 KDB 447498 D01 interim General RF Exposure Guidance v06 RSS-102 Issue 5 Amendment 1 (February 2, 2021)
Date of Receipt:	2023-05-06
Date of Test:	2023-05-08 to 2023-05-19
Date of Issue:	2023-05-26
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Eric Lin
Laboratory Manager

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Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2023-05-26	/

Authorized for issue by:				
		Pawn Liu **Pawn Liu/Project Engineer**		
		Eric Lin **Eric Lin/Reviewer**		

2 Contents

3 General Information

3.1 General Description of E.U.T.

Power supply:	DC 15V

3.2 Details of E.U.T.

Operation Frequency Range:	24.05GHz to 24.25GHz
Channel Number:	1
Modulation:	FMCW
Antenna type:	Antenna for Omnidirectional radar: Linear Antenna Antenna for Upward radar: Linear Antenna
Antenna Gain:	Antenna Gain for Omnidirectional radar: 10dBi (Provided by the manufacturer) Antenna Gain for Upward radar:10dBi (Provided by the manufacturer)
SN:	63MDL34001X8EL
Firmware Version:	V00.00.00.01

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3.3 Test Location

All tests were performed at:
Compliance Certification Services (Kunshan) Inc.
No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.
Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.
Note:
1.SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc) is provided by the applicant. (if applicable).
2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).

3.4 Test Facility

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

• A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

• VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4 FCC Radiofrequency radiation exposure limits

According to§1.1310, the limit for general population/uncontrolled exposures

Frequency	Power density(mW/cm^2)	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

5 IC Radiofrequency radiation exposure limits:

According to RSS-102 section 2.5.2, RF exposure evaluation is required if the separation distance between the user and/or bystander 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 $4.49/f^{0.5}$ 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).

For 24G Band , the limit of worse case is 5W

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6 Measurement and Calculation

6.1 Maximum transmit power

The Power Data is based on the RF Test Report KSCR230500077102

For Omnidirectional radar:

Test Mode	Test Channel	dBuV/m@2m	AV E.I.R.P. [dBm]	AV E.I.R.P. [mW]
mmWave	24.15GHz	110.59	11.84	15.28

For Upward radar:

Test Mode	Test Channel	dBuV/m@2m	AV E.I.R.P. [dBm]	AV E.I.R.P. [mW]
mmWave	24.15GHz	109.98	11.23	13.28

Remark: Eirp(dBm)=E(dBuV/m) +20log[d(m)] - 104.77

For d=2m, Eirp(dBm)=E(dBuV/m) -98.75

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6.2 RF Exposure Calculation

For FCC:

According to the formula S=PG/4πR², we can calculate S which is MPE.

Note:

1) P (mW)
2) G (Antenna gain in numeric)
3) R = distance to the center of radiation of antenna (in meter) = 20cm
4) MPE limit = 1mW/cm²

For Omnidirectional radar:

$S=\frac{PG}{4R^2\pi}$ =15.28/(4x400x3.14)=0.00304mW/cm²＜1mW/cm²

For Upward radar:

$S=\frac{PG}{4R^2\pi}$ =13.28/(4x400x3.14)=0.00264mW/cm²＜1mW/cm²

For Omnidirectional radar and Upward radar can transmit simultaneously, but the maximum rate of MPE is

0.00304+0.00264=0.00568≤1.

So, the device is to qualify for SAR test exemption, the exemption report is in lieu of the SAR report

For IC:

For Omnidirectional radar:

E.I.R.P.= 0.01528W<5W

For Upward radar:

E.I.R.P.=0.01328W<5W

For Omnidirectional radar and Upward radar can transmit simultaneously, but the maximum rate of MPE is

0.01528/5+0.01328/5=0.0057≤1. So the device is exclusion from SAR test.

--End of the Report--

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