

RF Exposure Evaluation Report

Product : UAV Automatic Docking Station
Trade mark : N/A
Model/Type reference : K01
Serial Number : N/A
Report Number : EED32Q80130803
FCC ID : 2A8WC-K01
Date of Issue : Mar. 25, 2024
Test Standards : 47 CFR Part 1.1307
47 CFR Part 1.1310
47 CFR Part 2.1091
47 CFR Part 2.1093
KDB 447498 D04 Interim General RF
Exposure Guidance v01
Test result : PASS

Prepared for:

GDU-Tech Co., Ltd.

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Prepared by:

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Mar. 25, 2024

Check No.: 4546171123

2 Version

Version No.	Date	Description
00	Mar. 25, 2024	Original

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4 General Information

4.1 Client Information

Applicant:	GDU-Tech Co., Ltd.
Address of Applicant:	Building 2, No.5, Huanglongshan South Road, Donghu New Technology Development Zone, Wuhan 430074, China
Manufacturer:	GDU-Tech Co., Ltd.
Address of Manufacturer:	Building 2, No.5, Huanglongshan South Road, Donghu New Technology Development Zone, Wuhan 430074, China

4.2 General Description of EUT

Product Name:	UAV Automatic Docking Station
Model No.(EUT):	K01
Trade Mark:	N/A

4.3 Product Specification subjective to this standard

Frequency Range:	2.4G Slot 10MHz: 2410-2465MHz; 2.4G Slot 20MHz: 2415-2460MHz; 2.4G Slot 40MHz: 2425-2450MHz; 5G Slot 10MHz: 5745MHz-5825MHz; 5G Slot 20MHz: 5745MHz-5825MHz; 5G Slot 40MHz: 5755MHz-5795MHz;
Modulation Type:	OFDM
Test Power Grade:	Default
Test Software of EUT:	ARSirisu Debug Tool
Antenna Type:	External Antenna
Antenna Gain:	2.4G: 5dBi; 5G: 5dBi;
Power Supply:	DC 24V
Sample Received Date:	Jan. 29, 2024
Sample tested Date:	Jan. 29, 2024 to Mar. 06, 2024
Remark:	Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

4.4 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

4.5 Deviation from Standards

None.

4.6 Abnormalities from Standard Conditions

None.

4.7 Other Information Requested by the Customer

None.

5 SAR Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1).

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

5.1.2 Test Procedure

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

5.1.3 EUT RF Exposure Evaluation

For Stand alone:

For 2.4G:

Frequency (MHz)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)	ERP (mW)	Limit (mW)	Ratio ₁	Result
2.4G	20.32	5	25.32	23.17	207.491	3060	0.0678	PASS

For 5.8G:

Frequency (MHz)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	ERP (dBm)	ERP (mW)	Limit (mW)	Ratio ₂	Result
5.8G	19.31	5	24.31	22.16	164.437	3060	0.0537	PASS

Note:

- ① EIRP=conducted power+antenna gain;
- ② ERP=EIRP-2.15;
- ③ $EIRP(dBm) = \text{Field strength of the fundamental signal}(dBuV/m@3m) - 95.23$;
- ④ $ERP(mW) = 10^{(ERP(dBm)/10)}$;
- ⑤ The estimation distance is 20cm
- ⑥ The test data please refer to the report of EED32Q80130801, EED32Q80130802 and only the worst case data was recorded in the report.

For co-launch:

co-launch=Ratio₁+Ratio₂=0.0678+0.0537=0.1215 < 1,

Result: Pass.

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*** End of Report ***