RF Exposure Evaluation Report

Applicant:	Autel Robotics Co., Ltd.
Address of Applicant:	18th Floor, Block C1, Nanshan iPark, No. 1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong, 518055, China

Equipment Under Test (EUT)

Product Name:	Autel Tracker
Model No.:	DFAT-1
Trade mark:	AUTEL ROBOTICS
FCC ID:	2AGNTDFAT240958A
Applicable standards:	FCC CFR Title 47 Part 2 (§2.1091)
Date of sample receipt:	06 Sep., 2022
Date of Test:	07 Sep., to 28 Sep., 2022
Date of report issue:	15 Nov., 2022
Test Result:	PASS

Tested by:	Mike.ou ***Test Engineer***	***Date:***	15 Nov., 2022
Reviewed by:	Aimer Zhang ***Project Engineer***	***Date:***	15 Nov., 2022
Approved by:	***Manager***	***Date:***	15 Nov., 2022

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in above the application standard version. Test results reported herein relate only to the item(s) tested.

1 Version

Version No.	Date	Description
00	*29 Sep., 2022*	*Original*
01	16 Nov., 2022	Update page 4 and page 7

2 Contents

3 General Information

3.1 Client Information

Applicant:	Autel Robotics Co., Ltd.
Address:	18th Floor, Block C1, Nanshan iPark, No. 1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong, 518055, China
Manufacturer:	Autel Robotics Co., Ltd.
Address:	18th Floor, Block C1, Nanshan iPark, No. 1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong, 518055, China
Factory:	Autel Robotics Co., Ltd.Guangming Branch
Address:	No.701, Jixie Factory, Building 4, Yanxiang Technology Industrial Park, Gaoxin Road, Dongzhou Community, Guangming street, Guangming district, Shenzhen, Guangdong, China

3.2 General Description of E.U.T.

Product Name:	Autel Tracker
Model No.:	DFAT-1
Operation Frequency:	904.0MHz~926.0MHz: 23 for 1.4MHz Bandwidth 13 for 10 MHz Bandwidth 3 for 20 MHz Bandwidth 2403.5MHz~2475.5MHz: 71 for 1.4MHz Bandwidth 65 for 10 MHz Bandwidth 51 for 20 MHz Bandwidth 5728.0MHz~5847.0MHz 120 for 1.4MHz Bandwidth 110 for 10 MHz Bandwidth 102 for 20 MHz Bandwidth WiFi: 5725MHz-5825MHz
Modulation technology:	802.11a/n: OFDM QPSK and 16QAM
Antenna Type:	Wi-Fi ANT1/ANT2: Internal antenna ANT1: Directional antenna ANT2: Omnidirectional antenna
Antenna gain:	Wi-Fi ANT1/ANT2: 7.3 dBi 904.0MHz~926.0MHz: ANT1: 11.2 dBi; ANT2: 1.77 dBi (declare by applicant) 2403.5MHz~2475.5MHz: ANT1: 10.8 dBi; ANT2: 2.59 dBi (declare by applicant) 5728.0MHz~5847.0MHz: ANT1: 10.9 dBi; ANT2: 2.89 dBi (declare by applicant)
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

3.3 Operating Modes

Operating mode	Detail description
5G WIFI mode	Keep the EUT in continuously transmitting in 5G WIFI mode
5GHz mode	Keep the EUT in continuously transmitting in 5GHz mode
900MHz mode	Keep the EUT in continuously transmitting in 900MHz mode
2.4GHz mode	Keep the EUT in continuously transmitting in 2.4GHz mode

3.4 Additions to, deviations, or exclusions from the method

No

3.5 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber and 10m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L15527**

JianYan Testing Group Shenzhen Co., Ltd. is accredited to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L15527.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

3.6 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info-JYTee@lets.com, Website: http://jyt.lets.com

4 Technical Requirements Specification

4.1 Limits

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 1.1307(b)

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

4.2 Test Procedure

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

4.3 Result

Frequency (MHz)	Maximum Output power (dBm)	Maximum Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	Distance (cm)	Result (mW/cm^2)	Limits for General Population/ Uncontrolled Exposure (mW/cm^2)
900MHz							
921	25.238	334.04	11.2	13.18	50.00	0.14	0.61
2.4G							
2439.5	23.597	228.93	10.8	12.02	50.00	0.09	1.0
5.8G Wi-Fi							
5745	22.105	162.37	7.3	5.37	50.00	0.03	1.0
5.8G							
5788	25.168	328.70	10.9	12.30	50.00	0.13	1.0

Simultaneous Transmission Evaluation:

Simultaneous Transmission Mode	Band	Result (mW/cm2)	Result Ratio	Total Ratio	Simultaneous Transmission Ratio Limit
900MHz& 5.8GHz Wi-Fi	900MHz	0.14	0.23	0.26	1.0
	5.8GHz Wi-Fi	0.03	0.03		
2.4GHz& 5.8GHz Wi-Fi	2.4GHz	0.09	0.09	0.12	
	5.8GHz Wi-Fi	0.03	0.03		
5.8GHz& 5.8GHz Wi-Fi	5.8GHz	0.13	0.13	0.16	
	5.8GHz Wi-Fi	0.03	0.03		

Note: Just the worst case mode was shown in report.

4.4 Conclusion

The device is exempt from the SAR test and satisfies RF exposure evaluation.

------End of report------