NVLAP LAB CODE 600341-0

MAXIMUM PERMISSIBLE EXPOSURE EVALUATION REPORT

Applicant:	**Autel Robotics Co., Ltd.**
Address:	**601,701,801,901, Block B1, Nanshan iPark, No. 1001 Xueyuan Avenue, Nanshan District, Shenzhen, Guangdong, 518055, China**
Product Name:	**EVO Max**
FCC ID:	**2AGNTMDX240958B**
Standard(s):	**47 CFR §1.1310, 47 CFR §2.1091, 47 CFR §15.247(i),47 CFR §15.407(f) 47 CFR §15.255(g)**
Report Number:	**SZ1240322-14909E-RF-00H**
Report Date:	**2024/6/22**

The above device has been tested and found compliant with the requirement of the relative standards by Bay Area Compliance Laboratories Corp. (Dongguan).

Reviewed By: Gavin Xu	**Approved By:** Ivan Cao
Title: RF Engineer	Title: EMC Manager

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	SZ1240322-14909E-RF-00H	Original Report	2024/6/22

1. GENERAL INFORMATION

1.1 General Description of Equipment under Test

EUT Name:	EVO Max
EUT Model:	MDX
Rated Input Voltage:	DC 14.88V from battery
Serial Number:	2J8R-1
EUT Received Date:	2024/3/29
EUT Received Status:	Good

1.2 EUT Parameters▲:

Operation Modes	Operation Frequency (MHz)	Max Conducted output power including Tune-up Tolerance (dBm)	Maximum Antenna Gain (dBi)
SRD 900MHz	904-926	28.0	0.3
SRD 2.4G	2403.5-2475.5	24.5	1.9
SRD 5.2G	5154-5246	20.0	0.7
SRD 5.8G	5728-5847	25.0	0.9
WiFi 2.4G	2412-2462	27.0	2.2
WiFi 5.2G	5180-5240	17.0	4.0
WiFi 5.8G	5745-5825	17.0	4.0
Radar 24G	24000-24250	-6.12	9.7
Radar 60G*3	60000-64000	12.57	7.29

Note:
1.For Radar 24G, E Field@3m is 98.82 dBuV/m =3.58dBm(EIRP),
Maximum Conducted Power=3.58-9.7=-6.12dBm
For Radar 60G, Radar EIRP is 19.86dBm, Maximum Conducted Power=19.86-7.29=12.57dBm

E[dBμV/m] = EIRP[dBm] + 95.2 for d = 3 m.
Maximum Conducted Power (dBm)=EIRP(dBm)-Gain(dBi)

2.The Above Parameters were provided by the manufacturer.

2 RF EXPOSURE EVALUATION (MPE)

2.1 RF Exposure Evaluation

2.1.1 Applicable Standard

According to subpart 15.247(i)& 15.407(f)& 15.225(g)and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f²)	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; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

2.1.2 Calculation formula:

Prediction of power density at the distance of the applicable MPE limit
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

2.1.3 Calculated Data:

Operation Modes	Frequency (MHz)	Antenna Gain		Conducted output power including Tune-up Tolerance		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
		(dBi)	(numeric)	(dBm)	(mW)			
SRD 900MHz	904-926	0.3	1.07	28	630.96	20.00	0.1346	0.6
SRD 2.4G	2403.5-2475.5	1.9	1.55	24.5	281.84	20.00	0.0869	1.0
SRD 5.2G	5154-5246	0.7	1.17	20	100.00	20.00	0.0234	1.0
SRD 5.8G	5728-5847	0.9	1.23	25	316.23	20.00	0.0774	1.0
WiFi 2.4G	2412-2462	2.2	1.66	27	501.19	20.00	0.1656	1.0
WiFi 5.2G	5180-5240	4	2.51	17	50.12	20.00	0.0251	1.0
WiFi 5.8G	5745-5825	4	2.51	17	50.12	20.00	0.0251	1.0
Radar 24G	24000-24250	9.7	9.33	-6.12	0.24	20.00	0.0005	1.0
Radar 60G*3	60000-64000	7.29	5.36	12.57	18.07	20.00	0.0193	1.0

For Simultaneous transmission:

SRD/ Radar can`t transmit simultaneously with WiFi,
SRD and 4 Radars can transmit simultaneously:

$$\sum_i \frac{S_i}{S_{Limit,i}} \le 1$$

$= S_{SRD} / S_{limit\text{-}SRD} + S_{Radar\ 60G} / S_{limit\text{-}Radar\ 60G} * 3 + S_{Radar\ 24G} / S_{limit\text{-}Radar\ 24G}$

$=0.1346/0.6+0.0193/1 * 3+0.0005/1$

$=0.28$

Result: Compliant. The device compliant Simultaneous transmission at 20cm distances.

******* END OF REPORT *******