NVLAP LAB CODE 600341-0

MAXIMUM PERMISSIBLE EXPOSURE EVALUATION REPORT

Applicant:	**FJ Dynamics Technology Academy (Changzhou)Co., Ltd. Shenzhen Branch**
Address:	**Room 401, Building 2, Nangang Second Industrial Park, Nanshan District, Shenzhen, China**
Product Name:	**FJDynamics AT2 Max Auto Steer System**
FCC ID:	**2BLLH-AT2MAX**
Standard(s):	**47 CFR §1.1310, 47 CFR §2.1091, 47 CFR §15.247(i), 47 CFR §15.407(f)**
Report Number:	**2402A108252E-RF-00E**
Report Date:	**2025/1/16**

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:	**Pedro Yun**
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Title:	RF Supervisor

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	2402A108252E-RF-00E	Original Report	2025/1/16

1. GENERAL INFORMATION

1.1 General Description of Equipment under Test

EUT Name:	FJDynamics AT2 Max Auto Steer System
Trade Name:	FJDynamics
EUT Model:	AT2 Max
Rated Input Voltage:	DC 9-36V, Typical Voltage: DC 12V
EUT Received Date:	2024/12/3
EUT Received Status:	Good

1.2 Accessory Information

Accessory Description	Manufacturer	Model	Parameters
Control Terminal	FJDynamics	AT2 Max	Power Supply: 9~36VDC
GNSS Receiver	FJDynamics	/	Operating Voltage: 9~36VDC
Electric Steering Wheel	FJDynamics	/	Power Supply: 12VDC or 24VDC
Power Wiring Harness (With Switch Key)	FJDynamics	/	Unshielded without ferrite, 4.5Meter
Main Wiring Harness	FJDynamics	/	Unshielded without ferrite, 2.0Meter
Spare Main Wiring Harness	FJDynamics	/	Unshielded without ferrite, 2.5Meter
GNSS Receiver Wiring Harness	FJDynamics	/	Unshielded without ferrite, 4.0Meter
Attitude Sensor (With Wiring Harness)	FJDynamics	/	Unshielded without ferrite, 3.0Meter
Attitude Sensor Extension Wiring Harness	FJDynamics	/	Unshielded without ferrite, 2.0Meter
Radio Antenna (With Coaxial Harness)	FJDynamics	/	Unshielded without ferrite, 4.0Meter

1.3 Output Power and Antenna Gain Information

Operation Modes	Frequency (MHz)	Antenna Gain (dBi)	Conducted output power including Tune-up Tolerance▲ (dBm)	EIRP/ERP (dBm)	Limit (dBm)
GSM 850	824-849	1.5	25.81	25.16	38.45
GSM 1900	1850-1910	2.9	22.81	25.71	33
WCDMA B2	1850-1910	2.9	25	27.90	33
WCDMA B4	1710-1755	2.9	25	27.90	30
WCDMA B5	824-849	1.5	25	24.35	38.45
LTE B2	1850-1910	2.9	25	27.90	33
LTE B4	1710-1755	2.9	25	27.90	30
LTE B5	824-849	1.5	25	24.35	38.45
LTE B7	2500-2570	2.9	25	27.90	33
LTE B12	699-716	-1.4	25	21.45	34.77
LTE B13	777-787	1.3	25	24.15	34.77
LTE B25	1850-1915	2.9	25	27.90	30
LTE B26	814-824	1.5	25	24.35	50
LTE B26	824-849	1.5	25	24.35	38.45
LTE B38	2570-2620	2.8	25	27.80	33
LTE B41	2496-2690	2.9	25	27.90	33

Note:
1. ERP is for operation below 1 GHz and EIRP for above 1 GHz.
2. The device contains a certified WWAN module, FCC ID: XMR201903EG25G, certified on 03/29/2019.
3. The Conducted output power including Tune-up Tolerance provided by manufacturer. The Max Conducted Output Power for each WWAN band please refer to the report of the certified RF module in the device, report No.: HR/2019/1001601▲, issued on 2019/2/28, which was released by SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch.
4. The “Tune-up average conducted power” of GSM was time-based Tune-up conducted power which was corrected by duty factor.

2. RF EXPOSURE EVALUATION (MPE)

2.1 RF Exposure Evaluation

2.1.1 Applicable Standard

According to subpart 15.247(i) 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

Mode	Frequency Range (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)			
BT	2402-2480	4.3	2.692	4.0	2.51	20	0.0013	1.00
BLE	2402-2480	4.3	2.692	6.0	3.98	20	0.0021	1.00
2.4GHz WIFI	2412-2462	6.3	4.266	28.0	630.96	20	0.5357	1.00
GSM 850	824-849	1.5	1.413	25.81	381.07	20	0.1071	0.55
GSM 1900	1850-1910	2.9	1.950	22.81	190.99	20	0.0741	1.00
WCDMA B2	1850-1910	2.9	1.950	25	316.23	20	0.1227	1.00
WCDMA B4	1710-1755	2.9	1.950	25	316.23	20	0.1227	1.00
WCDMA B5	824-849	1.5	1.413	25	316.23	20	0.0889	0.55
LTE B2	1850-1910	2.9	1.950	25	316.23	20	0.1227	1.00
LTE B4	1710-1755	2.9	1.950	25	316.23	20	0.1227	1.00
LTE B5	824-849	1.5	1.413	25	316.23	20	0.0889	0.55
LTE B7	2500-2570	2.9	1.950	25	316.23	20	0.1227	1.00
LTE B12	699-716	-1.4	0.724	25	316.23	20	0.0456	0.47
LTE B13	777-787	1.3	1.349	25	316.23	20	0.0849	0.52
LTE B25	1850-1915	2.9	1.950	25	316.23	20	0.1227	1.00
LTE B26	814-824	1.5	1.413	25	316.23	20	0.0889	0.54
LTE B26	824-849	1.5	1.413	25	316.23	20	0.0889	0.55
LTE B38	2570-2620	2.8	1.905	25	316.23	20	0.1199	1.00
LTE B41	2496-2690	2.9	1.950	25	316.23	20	0.1227	1.00

Note:
1. The Conducted output power including Tune-up Tolerance provided by manufacturer.
2. The device contains a certified WWAN module, FCC ID: XMR201903EG25G, certified on 03/29/2019.
3. The "Tune-up average conducted power" of GSM was time-based Tune-up conducted power which was corrected by duty factor.

Simultaneous transmission:

BT/BLE and 2.4G WIFI can transmit simultaneously with WWAN:

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

$S_{BT}/S_{limit\text{-}BT} + S_{2.4G\ WIFI}/S_{limit\text{-}2.4G\ WIFI} + S_{WWAN}/S_{limit\text{-}WWAN}$

=0.733

< 1.0

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

EXHIBIT A - EUT PHOTOGRAPHS

Please refer to the attachment 2402A108252E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2402A108252E-RF-INP EUT INTERNAL PHOTOGRAPHS.

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