



MAXIMUM PERMISSIBLE EXPOSURE EVALUATION REPORT

Applicant: Sveaverken Software Development (Shanghai) Co., Ltd.

Address: Room 1408-1, No. 758, Nanjing West Road, Jing'an District, Shanghai, China

Product Name: Auto Steer System

FCC ID: 2BOPT-F200MAX

Standard(s): 47 CFR §1.1310, 47 CFR §2.1091,
47 CFR §15.247(i), 47 CFR §15.407(f)

Report Number: 2502S52446E-RF-00E

Report Date: 2025/6/5

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

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DOCUMENT REVISION HISTORY

| Revision Number | Report Number | Description of Revision | Date of Revision |
|-----------------|--------------------|-------------------------|------------------|
| 1.0 | 2502S52446E-RF-00E | Original Report | 2025/6/5 |

1. GENERAL INFORMATION

1.1 General Description of Equipment under Test

| | |
|-----------------------------|---------------------------------|
| EUT Name: | Auto Steer System |
| Trade Name: | Sveaverken |
| EUT Model: | F200 Max |
| Rated Input Voltage: | DC9-36V Typical voltage: DC 12V |
| Serial Number: | 314Y-2 |
| EUT Received Date: | 2025/4/9 |
| EUT Received Status: | Good |

1.2 Accessory Information

| Accessory Description | Manufacturer | Model | Parameters |
|---------------------------------------|--------------|-------|--------------------------------------|
| Control Terminal | Sveaverken | T3 | Supply Voltage: 9-36VDC |
| GNSS Receiver | Sveaverken | G2 | Operating Voltage: 9-36VDC |
| Electric Steering Wheel | Sveaverken | M2 | Power Supply: 12VDC or 24VDC |
| Main Power Cable | Sveaverken | / | Unshielded without ferrite, 4.5Meter |
| Main Wiring Harness (With Switch Key) | Sveaverken | / | Unshielded without ferrite, 6.0Meter |
| Spare Main Wiring Harness | Sveaverken | / | Unshielded without ferrite, 2.0Meter |
| GNSS Receiver Wiring Harness | Sveaverken | / | Unshielded without ferrite, 4.5Meter |
| Angle Sensor (With Wiring Harness) | Sveaverken | / | Unshielded without ferrite, 3.0Meter |
| Radio Antenna (With Coaxial Harness) | Sveaverken | / | Unshielded without ferrite, 4.5Meter |
| Camera #1 (With Wiring Harness) | Sveaverken | WC02 | Unshielded without ferrite, 3.0Meter |
| Camera #2 (With Wiring Harness) | Sveaverken | WC03 | Unshielded without ferrite, 3.0Meter |

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 | 2.6 | 22.81 | 25.41 | 33 |
| WCDMA B2 | 1850-1910 | 2.6 | 25 | 27.60 | 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 | 2.6 | 25 | 27.60 | 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 | 2.0 | 25 | 27.00 | 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 | 2.6 | 25 | 27.60 | 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 | 1.8 | 25 | 26.80 | 33 |
| LTE B41 | 2496-2690 | 2.0 | 25 | 27.00 | 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/f ²) | 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/cm²);

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 | 7.0 | 5.01 | 20 | 0.0027 | 1.00 |
| BLE | 2402-2480 | 4.3 | 2.692 | 4.0 | 2.51 | 20 | 0.0013 | 1.00 |
| 2.4GHz WIFI | 2412-2462 | 6.3 | 4.266 | 25.0 | 316.23 | 20 | 0.2685 | 1.00 |
| GSM 850 | 824-849 | 1.5 | 1.413 | 25.81 | 381.07 | 20 | 0.1071 | 0.55 |
| GSM 1900 | 1850-1910 | 2.6 | 1.820 | 22.81 | 190.99 | 20 | 0.0692 | 1.00 |
| WCDMA B2 | 1850-1910 | 2.6 | 1.820 | 25 | 316.23 | 20 | 0.1145 | 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 | 2.6 | 1.820 | 25 | 316.23 | 20 | 0.1145 | 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 | 2.0 | 1.585 | 25 | 316.23 | 20 | 0.0998 | 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 | 2.6 | 1.820 | 25 | 316.23 | 20 | 0.1145 | 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 | 1.8 | 1.514 | 25 | 316.23 | 20 | 0.0953 | 1.00 |
| LTE B41 | 2496-2690 | 2.0 | 1.585 | 25 | 316.23 | 20 | 0.0998 | 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:

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

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

$$=0.466$$

$$< 1.0$$

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

EXHIBIT A - EUT PHOTOGRAPHS

Please refer to the attachment 2502S52446E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2502S52446E-RF-INP EUT INTERNAL PHOTOGRAPHS.

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