



## **FCC RF EXPOSURE REPORT**

*For*

**VEHICULAR GATE OPENER**

**MODEL NUMBER: SL1000UL, SL600UL**

**FCC ID: HBWN519**

**REPORT NUMBER: 4791357380-2**

**ISSUE DATE: September 5, 2024**

*Prepared for*

**Chamberlain Group LLC, The  
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*Prepared by*

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## Revision History

| Rev. | Issue Date        | Revisions     | Revised By |
|------|-------------------|---------------|------------|
| V0   | September 5, 2024 | Initial Issue |            |

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# 1. ATTESTATION OF TEST RESULTS

## Applicant Information

Company Name: Chamberlain Group LLC, The  
Address: 300 Windsor Dr Oak Brook Illinois 60523 United States

## Manufacturer Information

Company Name: Chamberlain Group LLC, The  
Address: 300 Windsor Dr Oak Brook Illinois 60523 United States

## EUT Information

EUT Name: VEHICULAR GATE OPENER  
Model: SL1000UL  
Series Model: SL600UL  
Model difference: Please refer to section 4.1  
Brand: LiftMaster  
Sample Received Date: August 16, 2024  
Sample Status: Normal  
Sample ID: 7522687-1  
Date of Tested: August 16, 2024~ September 5, 2024

| APPLICABLE STANDARDS                                |              |
|---|--------------|
| STANDARD  | TEST RESULTS |
| 447498 D04 Interim General RF Exposure Guidance v01 | PASS         |

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## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with 47 CFR FCC Part 1 Subpart I, section 1.1307 and KDB 447498 D04 Interim General RF Exposure Guidance v01.

## 3. FACILITIES AND ACCREDITATION

|                           |  |
|---------------------------|--|
| Accreditation Certificate | <p><b>A2LA (Certificate No.: 4102.01)</b><br/>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA.</p> <p><b>FCC (FCC Designation No.: CN1187)</b><br/>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules</p> <p><b>ISED (Company No.: 21320)</b><br/>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with ISED. The Company Number is 21320 and the test lab Conformity Assessment Body Identifier (CABID) is CN0046.</p> <p><b>VCCI (Registration No.: G-20192, C-20153, T-20155 and R-20202)</b><br/>UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793.<br/>Facility Name:<br/>Chamber D, the VCCI registration No. is G-20192 and R-20202<br/>Shielding Room B, the VCCI registration No. is C-20153 and T-20155</p> |
|---------------------------|--|

Note 1: All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, Song Shan Lake Hi tech Development Zone, Dongguan, 523808, China

Note 2: The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

Note 3: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30MHz had been correlated to measurements performed on an OFS.

#### 4. DESCRIPTION OF EUT

|                       |  |
|-----------------------|--|
| EUT Name              | VEHICULAR GATE OPENER  |
| Model                 | SL1000UL   |
| Series Model:         | SL600UL  |
| Model difference:     | SL600UL has the same technical construction including circuit diagram, PCB Layout, Product Appearance, components and component layout, all electrical construction and mechanical construction with SL1000UL (Main test model) . Differences between models are: different transformers, different motors and different model number, all these changes do not degrade the unwanted emissions of the certified product. |
| Frequency Range:      | 902.25 MHz to 926.75 MHz   |
| Modulation Technique: | Frequency Hopping Spread Spectrum(FHSS)  |
| Type of Modulation:   | FSK  |
| Data Rates:           | 96 kbps  |
| Normal Test Voltage:  | AC 120 V, 60 Hz  |

## 5. REQUIREMENT

### LIMIT AND CALCULATION METHOD

According to 447498 D04 Interim General RF Exposure Guidance v01,

#### 2.1.4 MPE-Based Exemption

An alternative to the SAR-based exemption is provided in § 1.1307(b)(3)(i)(C), for a much wider frequency range, from 300 kHz to 100 GHz, applicable for separation distances greater or equal to  $\lambda/2\pi$ , where  $\lambda$  is the free-space operating wavelength in meters. The MPE-based test exemption condition is in terms of ERP, defined as the product of the maximum antenna gain and the delivered maximum time-averaged power.<sup>10</sup> For this case, a RF source is an RF exempt device if its ERP (watts) is no more than a frequency-dependent value, as detailed tabular form in Appendix B. These limits have been derived based on the basic specifications on Maximum Permissible Exposure (MPE) considered for the FCC rules in § 1.1310(e)(1).

**MPE-based Exemption**

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

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}}(d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B.2})$$

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). The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

| Frequency (MHz) | Distance (mm) |    |    |     |     |     |     |     |     |     |
|-----------------|---------------|----|----|-----|-----|-----|-----|-----|-----|-----|
|                 | 5             | 10 | 15 | 20  | 25  | 30  | 35  | 40  | 45  | 50  |
| 300             | 39            | 65 | 88 | 110 | 129 | 148 | 166 | 184 | 201 | 217 |
| 450             | 22            | 44 | 67 | 89  | 112 | 135 | 158 | 180 | 203 | 226 |
| 835             | 9             | 25 | 44 | 66  | 90  | 116 | 145 | 175 | 207 | 240 |
| 1900            | 3             | 12 | 26 | 44  | 66  | 92  | 122 | 157 | 195 | 236 |
| 2450            | 3             | 10 | 22 | 38  | 59  | 83  | 111 | 143 | 179 | 219 |
| 3600            | 2             | 8  | 18 | 32  | 49  | 71  | 96  | 125 | 158 | 195 |
| 5800            | 1             | 6  | 14 | 25  | 40  | 58  | 80  | 106 | 136 | 169 |

**Fixed RF sources operating in the same time-averaging period- § 1.1307(b)(3)(ii)(B)**

Either SAR-based or MPE-based exemption may be considered for test exemption for fixed, mobile, or portable device exposure conditions; therefore, the contributions from each exemption in conjunction with the measured SAR (Evaluated<sub>k</sub> term) shall be used to determine exemption for simultaneous transmission according to Formula (C.1) [repeated from § 1.1307(b)(3)(ii)(B)].

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1 \quad (\text{C.1})$$



**CALCULATED RESULTS****For Single RF Source**

| Operating Mode | Max. Tune up Power | Max. Antenna Gain | EIRP  | ERP   | ERP    | Distance | Limit Threshold |
|----------------|--------------------|-------------------|-------|-------|--------|----------|-----------------|
|                | (dBm)              | (dBi)             | (dBm) | (dBm) | (mW)   | (cm)     | (mW)            |
| GFSK           | 14                 | 3                 | 17    | 14.85 | 30.549 | 20       | 1841            |

## Note:

1. The calculated distance is 20 cm.
2. The power comes from operation description.
3. The EUT does not support simultaneous operation.

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**END OF REPORT**