

MPE Report

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| Test Report Number | NSC-22100853-L-FCC-IC-MPE |
| FCC ID | 2A8IP-efuseA9X |
| Applicant | Nice North America LLC |
| Applicant Address | 5919 Sea Otter Place, Suite 100, Carlsbad, CA 92010 |
| Product Name | Residential Garage Door Opener |
| Model (s) | LINEAR600 |
| Date of Receipt | 03/16/2023 |
| Date of Test | 03/16/2023 – 03/24/2023 |
| Report Issue Date | 07/20/2022 |
| Test Standards | 47 CFR §1.1307(b), 47 CFR §1.1310 RSS-102 Issue 5 Amendment 1 (February 2, 2021) |
| Test Result | PASS |
|  | <p>Issued by:</p> <p>Vista Compliance Laboratories 1261 Puerta Del Sol, San Clemente, CA 92673 USA www.vista-compliance.com</p> |
| <p><i>Zach Peng</i></p> <hr/> <p>Zach Peng (Test Technician)</p> | <p><i>David Zhang</i></p> <hr/> <p>David Zhang (Technical Manager)</p> |
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REVISION HISTORY

| Report Number | Version | Description | Issued Date |
|---------------------------|----------------|--------------------|--------------------|
| NSC-22100853-L-FCC-IC-MPE | 01 | Initial report | 03/24/2023 |
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1 General Information

1.1 Applicant

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|-----------------------------|---|
| Applicant | Nice North America LLC |
| Applicant Address | 5919 Sea Otter Place, Suite 100, Carlsbad, CA 92010 |
| Manufacturer | Nice North America LLC |
| Manufacturer Address | 5919 Sea Otter Place, Suite 100, Carlsbad, CA 92010 |

1.2 Product information

| | |
|--------------------------------------|--|
| Product Name | Residential Garage Door Opener |
| Model Number | LINEAR600 |
| Family Model Number | N/A |
| Serial Number | 230214B04190 |
| Operational Frequency | 2402-2480MHz (BLE), 318 MHz (Receiver) |
| Type of Modulation | GFSK (BLE) |
| Equipment Class | Emission Class B |
| Antenna Information | Internal PCB trace antenna, 0.95 dBi peak gain |
| Clock Frequencies | N/A |
| Port/Connectors | N/A |
| Input Power | 19V DC |
| Power Adapter Manu/Model | Model: MKS-1902000H |
| Power Adapter SN | N/A |
| Hardware version | N/A |
| Software version | N/A |
| Simultaneous Transmission | N/A |
| Additional Info | N/A |

1.3 Test standard and method

| | |
|----------------------|---|
| Test standard | 47 CFR §1.1307(b), 47 CFR §1.1310 47 CFR §2.1093 |
| Test method | 47 CFR §1.1307(b), 47 CFR §1.1310 47 CFR §2.1093 |

2 Test Site Information

| | |
|-----------------------------|---|
| Lab performing tests | Vista Laboratories, Inc. |
| Lab Address | 1261 Puerta Del Sol, San Clemente, CA 92673 USA |
| Phone Number | +1 (949) 393-1123 |
| Website | www.vista-compliance.com |

| Test Condition | Temperature | Humidity | Atmospheric Pressure |
|---------------------------|-------------|----------|----------------------|
| RF Testing | 23.2°C | 57.5% | 996 mbar |
| Radiated Emission Testing | 23.2°C | 57.5% | 996 mbar |

3 FCC RF Exposure

3.1 Limits for Maximum Permissible Exposure (MPE)

| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm ²) | Average Time (minutes) |
|---|-------------------------------|-------------------------------|-------------------------------------|------------------------|
| 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 |

f = Frequency in MHz; *Plane-wave equivalent power density

3.2 MPE Calculation Formula

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

3.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as Mobile Device.

3.4 Antenna Gain

The antenna type is Internal PCB trace antenna, 0.95 dBi peak gain

3.5 Test Results

| Mode | Max Power (dBm) | Max Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density (mW/cm ²) | Limit (mW/cm ²) |
|------|-----------------|----------------|--------------------|---------------|-------------------------------------|-----------------------------|
| BLE | 7.62 | 5.781 | 0.95 | 20 | 0.0014 | 1 |

Conclusion:

The worst-case power density of 0.0014 mW/cm² is less than the limit of 1 mW/cm².

The above results show that the device complies with the MPE requirement.

4 ISED RF Exposure

4.1 Limits for Maximum Permissible Exposure (MPE)

Per RSS-102 issue 5, section 2.5.2 as reproduced below:

2.5.2 Exemption from Routine Evaluation Limits – RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- Below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- At or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $22.48/f^{0.5}W$ (adjusted for tune-up tolerance), where f is in MHz;
- At or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- At or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834} W$ (adjusted for tune-up tolerance), where f is in MHz;
- At or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

| Frequency Range (MHz) | Electric Field Strength (V/m rms) | Magnetic Field Strength (A/m rms) | Power Density (W/m ²) | Reference Period (minutes) |
|---|-----------------------------------|-----------------------------------|-----------------------------------|----------------------------|
| Limits For General Population / Uncontrolled Exposure | | | | |
| 0.003-10 ²¹ | 83 | 90 | - | Instantaneous* |
| 0.1-10 | - | 0.73/ f | - | 6** |
| 1.1-10 | 87/ $f^{0.5}$ | - | - | 6** |
| 10-20 | 27.46 | 0.0728 | 2 | 6 |
| 20-48 | 58.07/ $f^{0.25}$ | 0.1540/ $f^{0.25}$ | 8.944/ $f^{0.5}$ | 6 |
| 48-300 | 22.06 | 0.05852 | 1.291 | 6 |
| 300-6000 | 3.142 $f^{0.3417}$ | 0.008335 $f^{0.3417}$ | 0.02619 $f^{0.6834}$ | 6 |
| 6000-15000 | 61.4 | 0.163 | 10 | 6 |
| 15000-150000 | 61.4 | 0.163 | 10 | 616000/ $f^{1.2}$ |
| 150000-300000 | 0.158 $f^{0.5}$ | 4.21 x 10 ⁻⁴ $f^{0.5}$ | 6.67 x 10 ⁻⁵ f | 616000/ $f^{1.2}$ |
| <p>Note: f is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).</p> | | | | |

4.2 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as Mobile Device.

4.3 Antenna Gain

The antenna type is Internal PCB trace antenna, 0.95 dBi peak gain

5 Test Results

| Radio | Frequency (MHz) | Max EIRP (dBm) | Separation distance (cm) | Maximum e.i.r.p. (W) | Exemption Limits (W) |
|-------|-----------------|----------------|--------------------------|----------------------|----------------------|
| BLE | 2402-2480MHz | 8.57 | 20 | 0.0072 | 2.676 |

The above results show that the device complies with the RF evaluation exemption requirement.

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