

|   |  |  |   |   |
|---|--|--|---|---|
| <b>Prüfbericht-Nr.:</b><br><i>Test report no.:</i>  | CN225Q81 (FCC-RFEXP)<br>001  | <b>Auftrags-Nr.:</b><br><i>Order no.:</i>  | 238545426                                 | Seite 1 von 10<br>Page 1 of 10          |
| <b>Kunden-Referenz-Nr.:</b><br><i>Client reference no.:</i>   | N/A  | <b>Auftragsdatum:</b><br><i>Order date:</i>  | 2022-07-11                                |   |
| <b>Auftraggeber:</b><br><i>Client:</i>  | Vecos Europe B.V.<br>Esp 237, 5633 AD Eindhoven, The Netherlands     |  |   |   |
| <b>Prüfgegenstand:</b><br><i>Test item:</i>   | Locker Lock V3+ and Locker Lock V3+HID                               |  |   |   |
| <b>Bezeichnung / Typ-Nr.:</b><br><i>Identification / Type no.:</i>  | V3+ and V3+HID   |  |   |   |
| <b>Auftrags-Inhalt:</b><br><i>Order content:</i>  | FCC Certification  |  |   |   |
| <b>Prüfgrundlage:</b><br><i>Test specification:</i>   | IEEE Std C95.1<br>47 CFR §2.1093<br>47 CFR §1.1310<br>KDB 447498 D04 |  |   |   |
| <b>Wareneingangsdatum:</b><br><i>Date of sample receipt:</i>  | 2022-07-13   |  |   |   |
| <b>Prüfmuster-Nr.:</b><br><i>Test sample no.:</i>   | A003299983-011<br>A003299983-013                                     |  |   |   |
| <b>Prüfzeitraum:</b><br><i>Testing period:</i>  | 2022-08-20 - 2022-11-11  |  |   |   |
| <b>Ort der Prüfung:</b><br><i>Place of testing:</i>   | EMC/RF Taipei Testing Site   |  |   |   |
| <b>Prüflaboratorium:</b><br><i>Testing laboratory:</i>  | Taipei Testing Laboratories  |  |   |   |
| <b>Prüfergebnis*:</b><br><i>Test result*:</i>   | Pass   |  |   |   |
| <b>zusammengestellt von:</b><br><i>compiled by:</i>   |  | <b>genehmigt von:</b><br><i>authorized by:</i>                                     |   |   |
| <b>Datum:</b><br><i>Date:</i>   | 2022-12-06   | <b>Ausstellungsdatum:</b><br><i>Issue date:</i>                                    | 2022-12-06                                |   |
| <b>Stellung / Position:</b>   | Jack Wang<br>Project Manager   | <b>Stellung / Position:</b>  | Brenda Chen<br>Senior Project Manager     |   |
| <b>Sonstiges / Other:</b>   |  |  |   |   |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br><i>Condition of the test item at delivery:</i>  |  | Prüfmuster vollständig und unbeschädigt<br><i>Test item complete and undamaged</i> |   |   |
| * Legende:  | 1 = sehr gut<br>P(ass) = entspricht o.g. Prüfgrundlage(n)            | 2 = gut<br>F(ail) = entspricht nicht o.g. Prüfgrundlage(n)                         | 3 = befriedigend<br>N/A = nicht anwendbar | 4 = ausreichend<br>N/T = nicht getestet |
| * Legend:   | 1 = very good<br>P(ass) = passed a.m. test specification(s)          | 2 = good<br>F(ail) = failed a.m. test specification(s)                             | 3 = satisfactory<br>N/A = not applicable  | 4 = sufficient<br>N/T = not tested      |
| <p><b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br/> <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i></p> |  |  |   |   |

## Contents

|  |           |
|--|-----------|
| <b>HISTORY OF THIS TEST REPORT .....</b>                       | <b>3</b>  |
| <b>1 GENERAL REMARKS .....</b>                                 | <b>4</b>  |
| <b>1.1 COMPLEMENTARY MATERIALS.....</b>                        | <b>4</b>  |
| <b>1.2 DECISION RULE OF CONFORMITY .....</b>                   | <b>4</b>  |
| <b>2 TEST SITES .....</b>                                      | <b>5</b>  |
| <b>2.1 TEST FACILITIES .....</b>                               | <b>5</b>  |
| <b>2.2 TEST FACILITY.....</b>                                  | <b>5</b>  |
| <b>3 GENERAL PRODUCT INFORMATION.....</b>                      | <b>6</b>  |
| <b>3.1 PRODUCT FUNCTION AND INTENDED USE .....</b>             | <b>6</b>  |
| <b>3.2 RATINGS AND SYSTEM DETAILS.....</b>                     | <b>6</b>  |
| <b>4 RF EXPOSURE EVALUATION .....</b>                          | <b>7</b>  |
| <b>4.1 FCC RADIO FREQUENCY RADIATION EXPOSURE LIMITS .....</b> | <b>7</b>  |
| 4.1.1 <i>Blanket 1 mW Blanket Exemption.....</i>               | <i>7</i>  |
| 4.1.2 <i>MPE-based Exemption .....</i>                         | <i>8</i>  |
| 4.1.3 <i>SAR-based Exemption.....</i>                          | <i>9</i>  |
| <b>5 EVALUATION RESULTS .....</b>                              | <b>10</b> |
| <b>5.1 CONCLUSION.....</b>                                     | <b>10</b> |

### APPENDIX EP - PHOTOGRAPHS OF EUT

**Prüfbericht - Nr.:** CN225Q81 (FCC-RFEXP) 001  
*Test Report No.*

**Seite 3 von 10**  
*Page 3 of 10*

## HISTORY OF THIS TEST REPORT

| Report No.               | Description      | Date Issued |
|--------------------------|------------------|-------------|
| CN225Q81 (FCC-RFEXP) 001 | Original Release | 2022-12-06  |

## 1 General Remarks

### 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:  
**Appendix EP - Photographs of EUT**

### 1.2 Decision Rule of Conformity

The decision rule of conformity of this test report is following the requirements of the requested standard in the quotation, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty, unless it is required by the specific standard.

## 2 Test Sites

### 2.1 Test Facilities

Taipei Testing Laboratories

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.  
Taipei City 105  
Taiwan (R.O.C.)

### 2.2 Test Facility

Taipei Testing Laboratories

No.458-18, Sec. 2, Fenliao Rd., Linkou Dist.,  
New Taipei City 244  
Taiwan (R.O.C.)

## 3 General Product Information

### 3.1 Product Function and Intended Use

The EUT is a Locker Lock V3+ and Locker Lock V3+HID with RFID function.  
For details refer to the User Guide, Data Sheet and Circuit Diagram.

### 3.2 Ratings and System Details

#### Basic Information of EUT

| Item                        | EUT Information                        |
|-----------------------------|--|
| Kind of Equipment/Test Item | Locker Lock V3+ and Locker Lock V3+HID |
| Type Identification         | V3+ and V3+HID                         |
| FCC ID                      | 2ACYAV3NXP1                            |

#### Technical Specification of EUT

| Item                | EUT Information       |
|---------------------|-----------------------|
| Operating Frequency | 13.56 MHz             |
| Modulation          | ASK                   |
| Operation Voltage   | 120Vac (27Vdc to EUT) |
| Antenna Type        | Loop                  |
| Antenna Gain        | 0 dBi                 |

## 4 RF Exposure Evaluation

### 4.1 FCC Radio Frequency Radiation Exposure Limits

Test exemptions apply for devices used in general population/uncontrolled exposure environments, based on descriptions in FCC 19-126 and KDB 447498 D04.

#### 4.1.1 Blanket 1 mW Blanket Exemption

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

The 1 mW blanket exemption applies at separation distances less than 0.5 cm, including where there is no separation. This exemption shall not be used in conjunction with other exemption criteria other than those for multiple RF sources in paragraph § 1.1307(b)(3)(ii)(A).

The 1 mW exemption is independent of service type and covers the full range of 100 kHz to 100 GHz, but it shall not be used in conjunction with other exemption criteria or in devices with higher-power transmitters operating in the same time-averaging period. Exposure from such higher-power transmitters would invalidate the underlying assumption that exposure from the lower-power transmitter is the only contributor to SAR in the relevant volume of tissue.

## 4.1.2 MPE-based Exemption

General frequency and separation-distance dependent MPE-based effective radiated power (ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

**TABLE B.1—  
THRESHOLDS FOR SINGLE RF SOURCES SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION**

| RF Source Frequency |   |           | Minimum Distance   |   |                    | Threshold ERP                        |
|---------------------|---|-----------|--------------------|---|--------------------|--------------------------------------|
| $f_L$ MHz           |   | $f_H$ MHz | $\lambda_L / 2\pi$ |   | $\lambda_H / 2\pi$ | W                                    |
| 0.3                 | – | 1.34      | 159 m              | – | 35.6 m             | 1,920 R <sup>2</sup>                 |
| 1.34                | – | 30        | 35.6 m             | – | 1.6 m              | 3,450 R <sup>2</sup> /f <sup>2</sup> |
| 30                  | – | 300       | 1.6 m              | – | 159 mm             | 3.83 R <sup>2</sup>                  |
| 300                 | – | 1,500     | 159 mm             | – | 31.8 mm            | 0.0128 R <sup>2</sup> f              |
| 1,500               | – | 100,000   | 31.8 mm            | – | 0.5 mm             | 19.2R <sup>2</sup>                   |

Subscripts L and H are low and high;  $\lambda$  is wavelength.  
 From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.

The table applies to any RF source (i.e., single fixed, mobile, and portable transmitters) and specifies power and distance criteria for each of the five frequency ranges used for the MPE limits. These criteria apply at separation distances from any part of the radiating structure of at least  $\lambda/2\pi$ . The thresholds are based on the general population MPE limits with a single perfect reflection, outside of the reactive near-field, and in the main beam of the radiator.

For mobile devices that are not exempt per Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] at distances from 20 cm to 40 cm and in 0.3 GHz to 6 GHz, evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than ERP<sub>20cm</sub> in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

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

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i.e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of  $\lambda/4$  or if the antenna gain is less than that of a half-wave dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.



### 4.1.3 SAR-based Exemption

SAR-based thresholds are derived based on frequency, power, and separation distance of the RF source. The formula defines the thresholds in general for either available maximum time-averaged power or maximum time-averaged ERP, whichever is greater.

If the ERP of a device is not easily determined, such as for a portable device with a small form factor, the applicant may use the available maximum time-averaged power exclusively if the device antenna or radiating structure does not exceed an electrical length of  $\lambda/4$ .

As for devices with antennas of length greater than  $\lambda/4$  where the gain is not well defined, but always less than that of a half-wave dipole (length  $\lambda/2$ ), the available maximum time-averaged power generated by the device may be used in place of the maximum time-averaged ERP, where that value is not known.

The separation distance is the smallest distance from any part of the antenna or radiating structure for all persons, during operation at the applicable ERP. In the case of mobile or portable devices, the separation distance is from the outer housing of the device where it is closest to the antenna.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold  $P_{th}$  (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive).  $P_{th}$  is given by Formula (B.2).

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

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 |

## 5 Evaluation Results

| Frequency (MHz) | Maximum Average Power (dBm) | Maximum Average Power (mW) | EIRP Power (mW) | Low-Power Exemption Level (mW) | Pass / Fail |
|-----------------|-----------------------------|----------------------------|-----------------|--------------------------------|-------------|
| 13.56           | -29.42                      | 0.0011                     | 0.0011          | 1                              | Pass        |

### 5.1 Conclusion

The device complies with the FCC exposure requirements since the maximum time-averaged power is lower than the exemption threshold.