



RF Exposure Evaluation Declaration

FCC ID: 2ALS8-KS0011

Applicant: Ninebot (Changzhou) Tech Co., Ltd.

Product: Segway KickScooter

Model No.: P100SU

Brand Name: Segway

FCC Classification: Digital Transmission System (DTS)
Part 15 Low Power Communication Device Transmitter
(DXX)

FCC Rule Part(s) FCC Part 2.1091

Test Procedure KDB 447498 D04 Interim General RF Exposure
Guidance v01

Reviewed By:

Vincent Yu

Approved By:

Robin Wu



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

Report No.	Version	Description	Issue Date	Note
2205RSU039-U3	Rev. 01	Initial Report	2022-06-16	Valid

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1. General Information

1.1. Applicant

Ninebot (Changzhou) Tech Co., Ltd.

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1.2. Manufacturer

Ninebot (Changzhou) Tech Co., Ltd.

16F-17F, Block A, Building 3, Changwu Mid Road 18#, Wujin Dist., Changzhou, Jiangsu, China

1.3. Testing Facility

☒	Test Site – MRT Suzhou Laboratory
	Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
	Laboratory Location (Suzhou - SIP) 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China
	Laboratory Accreditations
	A2LA: 3628.01 FCC: CN1166 VCCI:
	CNAS: L10551 ISED: CN0001 ☐R-20025 ☐G-20034 ☐C-20020 ☐T-20020 ☐R-20141 ☐G-20134 ☐C-20103 ☐T-20104
☐	Test Site – MRT Shenzhen Laboratory
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China
	Laboratory Accreditations
	A2LA: 3628.02 FCC: CN1284
	CNAS: L10551 ISED: CN0105
☐	Test Site – MRT Taiwan Laboratory
	Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
	Laboratory Accreditations
	TAF: L3261-190725 FCC: 291082, TW3261
	ISED: TW3261

1.4. Product Information

Product Name	Segway KickScooter
Model No.	P100SU
EUT Identification No.	20220526Sample#09 (For Radiated Test) 20220424Sample#06 (For Conducted Test)
Bluetooth Specification	V4.1 single mode for BLE
NFC Specification	13.56MHz
Antenna Information	Refer to Section 1.5
Accessories	
Li-ion Battery Pack	Model No.: NCDF4825B Charging Voltage: 54.6VDC Capacity: 47.2VDC, 23Ah, 1086Wh
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Radio Specification

Bluetooth Specification	
Frequency Range	2402~2480MHz
Channel Number	40
Type of Modulation	GFSK
Data Rate	1Mbps
Antenna Type	PCB Antenna
Antenna Gain	-1.26dBi
NFC Specification	
Frequency Range	13.56MHz
Type of modulation	ASK
Antenna Type	Loop Antenna

1.6. Device Classification

According to the user manual, the antenna of this device is at least 20cm away from the body of the user, this device is classified as a **Mobile Device**. Therefore, the RF exposure evaluation requirements of FCC Part 2.1091 for mobile device exposure conditions subject to MPE limits.

2. RF Exposure Evaluation

2.1. Test Limits

According to FCC Part 2.1091, A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the RF source's radiating structure(s) and the body of the user or nearby persons.

According to FCC Part 1.1307(b)(3)(i)(C), for the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP 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.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source Frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1.920 R^2$
1.34-30	$3.450 R^2/f^2$
30-300	$3.83 R^2$
300-1500	$0.0128 R^2 f$
1500-100,000	$19.2 R^2$

f = frequency in MHz, R = minimum separation distance in meters.

According to FCC Part 1.1307(b)(3)(ii)(B), in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

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

2.2. Test Result

Product	Segway KickScooter
Test Item	RF Exposure Evaluation

Test Mode	Frequency Band (MHz)	Max. Conducted Power (dBm)	Max. Antenna Gain (dBi)	EIRP (dBm)	ERP (W)	Compliance Distance (R) (m)	Threshold ERP (W)	Result
BLE	2402 ~ 2480	-0.37	-1.26	-1.63	0.0004	0.2	0.768	Pass

Note:

1. $EIRP\ (dBm) = \text{Max. Conducted Power}\ (dBm) + \text{Max. Antenna Gain}\ (dBi)$
2. $ERP\ (W) = 10^{[ERP\ (dBm) - 30]/10} = 10^{[EIRP\ (dBm) - 2.15\ (dB) - 30]/10}$
3. $\text{Threshold ERP}\ (W) = 19.2 * R^2\ (W) = 19.2 * 0.2^2\ (W) = 0.768\ (W)$

Test Mode	Frequency Band (MHz)	E (dBμV/m) @3m	Max. EIRP (dBm)	ERP (W)	Compliance Distance (R) (m)	Threshold ERP (W)	Result
NFC	13.56	52.615	-42.585	0.00000003	0.2	0.0008	Pass

Note:

1. $\text{The Maximum EIRP}\ (dBm) = E\ (dB\mu V/m)@3m - 95.2 = (52.615 - 95.2)\ (dBm) = -42.585\ (dBm).$
2. $ERP\ (W) = 10^{[ERP\ (dBm) - 30]/10} = 10^{[EIRP\ (dBm) - 2.15\ (dB) - 30]/10}$
3. $\text{Threshold ERP}\ (W) = 3.45 * R^2 / f^2\ (W) = 3.45 * 0.2^2 / (13.56)^2\ (W) = 0.0008\ (W)$

The Bluetooth-LE can transmit simultaneously with NFC.

$$\text{Exposure Ratio} = 0.0004 / 0.768 + 0.00000003 / 0.0008 = 0.0006 < 1.$$

Therefore, this device meets the RF Exposure requirements when it is installed and operated with a minimum distance of 20cm between the radiator and user.