



RF Exposure Evaluation Declaration

FCC ID: 2ALS8-KS0007
Applicant: Ninebot (Changzhou) Tech Co., Ltd.
Product: Segway KickScooter
Model No.: P65U
FCC Classification: Digital Transmission System (DTS)
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
2204RSU045-U3	Rev. 01	Initial Report	2022-06-07	Valid

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1. General Information

1.1. Applicant

Ninebot (Changzhou) Tech Co., Ltd.

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

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

<input checked="" type="checkbox"/>	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		CNAS: L10551			
FCC: CN1166		ISED: CN0001			
VCCI:		<input type="checkbox"/> R-20025	<input type="checkbox"/> G-20034	<input type="checkbox"/> C-20020	<input type="checkbox"/> T-20020
		<input type="checkbox"/> R-20141	<input type="checkbox"/> G-20134	<input type="checkbox"/> C-20103	<input type="checkbox"/> T-20104
<input type="checkbox"/>	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		CNAS: L10551		
	FCC: CN1284		ISED: CN0105		
<input type="checkbox"/>	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.	P65U
EUT Identification No.	20220424Sample#05 (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	
Battery	Model No.: NCAF4813A / NCAF4812D Nominal Voltage: 46.8VDC Max. Charging Voltage: 54.6VDC Nominal Energy: 561Wh Nominal Capacity: 12 Ah
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 Frequency	2402 ~ 2480MHz
Channel Number	40
Type of modulation	GFSK
Data Rate	1Mbps
Antenna Type	PCB Antenna
Antenna Gain	-1.26dBi

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	$0.0128 R^2f$
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	-0.17	-1.26	-1.43	0.0004	0.2	0.768	Pass

Note:

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

Test Mode	Frequency Band (MHz)	Max. EIRP (dBμV/m)@3m	Max. EIRP (dBm)	ERP (W)	Compliance Distance (R) (m)	Threshold ERP (W)	Result
NFC	13.56	53.482	-41.718	0.00000004	0.2	0.0008	Pass

Note:

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

The Bluetooth-LE can transmit simultaneously with NFC.

$$\text{Exposure Ratio} = 0.0004 / 0.768 + 0.00000004 / 0.0008 = 0.0006 < 1.$$

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.