RF Exposure Evaluation Declaration

FCC ID:	2A64C-SY0001
Applicant:	Ninebot Commercial (Beijing) Technology Co., LTD.
Product:	Segway ServeBot S1
Model No.:	S1D
Brand Name:	Segway
FCC Rule Part(s):	FCC Part 2.1091
Test Procedure	KDB 447498 D04 Interim General RF Exposure Guidance v01
Result:	Complies

Reviewed By: Vincent Yu

Approved By: Robin Wu

Revision History

Report No.	Version	Description	Issue Date	Note
2205RSU027-U3	Rev. 01	Initial Report	2022-07-12	Valid

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1. General Information

1.1. Applicant

Ninebot Commercial (Beijing) Technology Co., LTD.

Room A301,302, A1 Bldg., Zhongguancun Dongsheng Technology Park (Northern Territory), No. 66, Xixiaokou Rd, Haidian Dist., Beijing, China.

1.2. Manufacturer

Ninebot Commercial (Beijing) Technology Co., LTD.

Room A301,302, A1 Bldg., Zhongguancun Dongsheng Technology Park (Northern Territory), No. 66, Xixiaokou Rd, Haidian Dist., Beijing, 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		CNAS: L10551		
	FCC: CN1166		ISED: CN0001		
	VCCI:	☐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		CNAS: L10551		
	FCC: CN1284		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 ServeBot S1
Model No.	S1D
Serial No.	20220523Sample#02(Conducted) 20220513Sample#02(Radiated)
Wi-Fi Specification	802.11a/b/g/n/ac
Accessories	
Adapter	Model No.: NBW28D806D5D Input Power: 100 - 240V ~ 50/60Hz, 2.5A Output Power: 27.7V, 6.5A
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. Device Classification

According to the user manual, the antenna of this device is at least 22cm 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 λ/2π, 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 λ/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.

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

2.2. Test Result

Product	Segway ServeBot S1
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)
802.11b/g/n	2412 ~ 2462	16.65	3.89	20.54	0.0690	0.22	0.929
802.11a/n/ac	5725 ~ 5825	14.08	3.72	17.80	0.0367	0.22	0.929
802.11b (Note 3)	2412 ~ 2462	24.50	2.00	26.50	0.2723	0.22	0.929
GSM850	824 ~ 849	25.81	0.95	26.76	0.2891	0.22	0.510
GSM1900	1850 ~ 1910	22.81	3.00	25.81	0.2323	0.22	0.929
WCDMA B2	1850 ~ 1910	25.00	3.00	28.00	0.3846	0.22	0.929
WCDMA B4	1710 ~ 1755	25.00	1.84	26.84	0.2944	0.22	0.929
WCDMA B5	824 ~ 849	25.00	0.95	25.95	0.2399	0.22	0.510
LTE B2	1850 ~ 1910	25.00	3.00	28.00	0.3846	0.22	0.929
LTE B4	1710 ~ 1755	25.00	1.84	26.84	0.2944	0.22	0.929
LTE B5	824 ~ 849	25.00	0.95	25.95	0.2399	0.22	0.510
LTE B7	2500 ~ 2570	25.00	3.31	28.31	0.4130	0.22	0.929
LTE B12	699 ~ 716	25.00	0.00	25.00	0.1928	0.22	0.433
LTE B13	777 ~ 787	25.00	0.41	25.41	0.2118	0.22	0.481
LTE B25	1850 ~ 1915	25.00	3.00	28.00	0.3846	0.22	0.929
LTE B26	814 ~ 849	25.00	1.62	26.62	0.2799	0.22	0.504
LTE B38	2570 ~ 2620	25.00	2.23	27.23	0.3221	0.22	0.929
LTE B41	2496 ~ 2690	25.00	3.31	28.31	0.4130	0.22	0.929

Note:

1. EIRP (dBm) = Max. Conducted Power (dBm) + Max. Antenna Gain (dBi)
2. ERP (W) = $10^{[ERP\ (dBm) - 30)]/10}$ = $10^{[EIRP\ (dBm) - 2.15\ (dB) - 30]/10}$
3. The Max. Conducted Power of 802.11b refer to the MPE report of FCC ID: 2AC7Z-ESPWROOM32UE.
4. The Max. Conducted Power of GSM/WCDMA/LTE refer to the MPE report of FCC ID: XMR201903EG25G.

Conclusion:

Exposure Ratio = 0.069 / 0.929 + 0.2723 / 0.929 + 0.2891 / 0.510 = 0.9342 < 1.

Therefore, this device meets the RF Exposure requirements when it is installed and operated with a minimum distance of 22cm between the radiator and user.

The End