RF Exposure Evaluation Declaration

FCC ID: 2ALS8-OR0001

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

Application Type: Certification

Product: T-BOX

Model No.: NB-ORBOXC12

Brand Name: Segway

FCC Rule(s): FCC Part 2.1091
KDB 447498 D01 General RF Exposure Guidance v06

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(Sunny Sun)

Approved By: Robin Wu
(Robin Wu)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

Revision History

Report No.	Version	Description	Issue Date	Note
2009RSU050-U2	Rev. 01	Initial Report	10-14-2020	Valid

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General Information

Applicant:	Ninebot (Changzhou) Tech Co., Ltd.
Applicant Address:	16F-17F, Block A, Building 3, Changwu Mid Road 18#, Wujin Dist., Changzhou, Jiangsu, China
Manufacturer:	Segway Technology Co., Ltd.
Manufacturer Address:	No. 395, Xiacheng South Road, Wujin National High-tech Industrial Development Zone, Changzhou, Jiangsu, China. 213161
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- **MRT facility is an FCC accredited testing laboratory (MRT Designation No. CN1166) on the FCC website.**
- **MRT facility is an ISED recognized testing laboratory (MRT Reg. No. CN0001) on the ISED website.**
- **MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.**
- **MRT Lab is accredited to ISO 17025 by the A2LA under the A2LA Program (Cert. No. 3628.01) and CNAS under the CNAS Program (Cert. No. L10551) in EMC, Safety, Radio, Telecommunications and SAR testing.**

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	T-BOX
Model No.	NB-ORBOXC12
Brand Name	Segway
Bluetooth Version	v4.1 (BLE Only)
Bluetooth Frequency	2402 ~ 2480MHz
Type of modulation	GFSK
Data Rate	1Mbps
Antenna Type	PCB Antenna
Antenna Gain	-1.26dBi
S/N:	C3B2S20GWC0020

1.2. Working Frequencies for this report

Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz
03	2408 MHz	04	2410 MHz	05	2412 MHz
06	2414 MHz	07	2416 MHz	08	2418 MHz
09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz
15	2432 MHz	16	2434 MHz	17	2436 MHz
18	2438 MHz	19	2440 MHz	20	2442 MHz
21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz
27	2456 MHz	28	2458 MHz	29	2460 MHz
30	2462 MHz	31	2464 MHz	32	2466 MHz
33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz
39	2480 MHz	--	--	--	--

2. RF Exposure Evaluation

2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
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
300-1,500	--	--	f/1500	30
1,500-100,000	--	--	1.0	30

f= Frequency in MHz

* = Plane-wave equivalent power density

Calculation Formula: $P_d = (P_{out}*G)/(4*Pi*r^2)$

Where

P_d = power density in mW/cm^2

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

P_d is the limit of MPE, $1mW/cm^2$. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.2. Test Result of RF Exposure Evaluation

Product	T-BOX
Test Item	RF Exposure Evaluation

Test Mode	Frequency Band (MHz)	Maximum Conducted Output Power (dBm)	Power Density at R = 20 cm (mW/cm^2)	Limit (mW/cm^2)
BLE	2402 ~ 2480	-1.39	0.0001	1.00
WCDMA Band II	1850 ~ 1910	25.00	0.1370	1.00
WCDMA Band IV	1710 ~ 1755	25.00	0.1370	1.00
WCDMA Band V	824 ~ 849	25.00	0.1370	0.55
LTE Band 2	1850 ~ 1910	25.00	0.1370	1.00
LTE Band 4	1710 ~ 1755	25.00	0.1370	1.00
LTE Band 5	824 ~ 849	25.00	0.1370	0.55
LTE Band 12	699 ~ 716	25.00	0.1370	0.47
LTE Band 13	777 ~ 787	25.00	0.1370	0.52
LTE Band 14	788 ~ 798	25.00	0.1370	0.53
LTE Band 66	1710 ~ 1780	25.00	0.1370	1.00
LTE Band 71	663 ~ 698	25.00	0.1370	0.44

Note 1: The Max. Declared Conducted Output Power of the WCDMA/LTE refer to the MPE report of FCC ID: XMR201909EC25AFX.

Note 2: The max antenna gain of WCDMA/LTE is 3.38dBi as declared by manufacturer.

Summary of Test Result

The calculations of above situations as below table

Configuration	Power Density (mW/cm^2)	Limit of Power Density (mW/cm^2)	CPD1/ LPD1 + CPD2/ LPD2	Limit	Result
BLE	0.0001	1.00	0.3115	1	Pass
LTE Band 71	0.1370	0.44			

Note: CPD = Calculation Power Density; LPD = Limit of Power Density

The End

Appendix - EUT Photograph

Refer to “2009RSU050-UE” file.