



RF Exposure Evaluation Declaration

FCC ID: 2ALS8-SS0001

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

Application Type: Certification

Product: Ninebot Telematics Box

Model No.: N-D-W75NL-U

FCC Rule(s): FCC Part 2.1091

KDB 447498 D01 General RF Exposure Guidance v06

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
2106RSU025-U2	Rev. 01	Initial Report	10-12-2021	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: R-20025, G-20034, C-20020, T-20020
<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 2 nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
	Laboratory Accreditations
	TAF: L3261-190725
	FCC: 291082, TW3261 ISED: TW3261

2. Product Information

2.1. Equipment Description

Product Name	Ninebot Telematics Box
Model No.	N-D-W75NL-U
Brand Name	Ninebot
Bluetooth Specification	V5.1 (BLE Only)

Note: Above information is declared by the manufacturer.

2.2. Antenna Information

Test Mode	Frequency Band (MHz)	Antenna Type	Antenna Gain (dBi)
BLE	2402 ~ 2480	PCB Antenna	-1.26
Wi-Fi	2412 ~ 2462	Spring Antenna	2.23
WCDMA Band II	1850 ~ 1910	FPCB Antenna	-1.73
WCDMA Band IV	1710 ~ 1755		2.23
WCDMA Band V	824 ~ 849		-2.91
LTE Band 2	1850 ~ 1910		-1.73
LTE Band 4	1710 ~ 1755		2.23
LTE Band 5	824 ~ 849		-2.91
LTE Band 12	699 ~ 716		-2.91
LTE Band 13	777 ~ 787		-2.91
LTE Band 14	788 ~ 798		-2.91
LTE Band 66	1710 ~ 1780		2.23
LTE Band 71	663 ~ 698		-2.91

3. RF Exposure Evaluation

3.1. 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/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is the limit of MPE, 1mW/cm². 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.

3.2. Conclusion

Product	Ninebot Telematics 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	-0.27	0.00014	1.00
Wi-Fi	2412 ~ 2462	16.66	0.01541	1.00
WCDMA Band II	1850 ~ 1910	25.00	0.04224	1.00
WCDMA Band IV	1710 ~ 1755	25.00	0.10513	1.00
WCDMA Band V	824 ~ 849	25.00	0.03219	0.55
LTE Band 2	1850 ~ 1910	25.00	0.04224	1.00
LTE Band 4	1710 ~ 1755	25.00	0.10513	1.00
LTE Band 5	824 ~ 849	25.00	0.03219	0.55
LTE Band 12	699 ~ 716	25.00	0.03219	0.47
LTE Band 13	777 ~ 787	25.00	0.03219	0.52
LTE Band 14	788 ~ 798	25.00	0.03219	0.53
LTE Band 66	1710 ~ 1780	25.00	0.10513	1.00
LTE Band 71	663 ~ 698	25.00	0.03219	0.44

Note 1: The Maximum Conducted Output Power of the 2.4GHz Wi-Fi refer to the MPE report of FCC ID: 2AHMR-ESP01F.

Note 2: The Maximum Conducted Output Power of the WCDMA/LTE refer to the MPE report of FCC ID: XMR201909EC25AFX.

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	0.00014	1.00	0.12068	1	Pass
Wi-Fi	0.01541	1.00			
WCDMA Band IV	0.10513	1.00			

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

So, the compliance distance is 20cm for this device installed without any other radio equipment.

Appendix - EUT Photograph

Refer to "2106RSU025-UE" file.