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Report Template Version: V04
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RF Exposure Evaluation Report

Report No.:	CQASZ20210600909E-02
Applicant:	Bravo Sports
Address of Applicant:	12801 Carmenita Road, Santa Fe Springs, CA 90670-4805 USA
Equipment Under Test (EUT):	
EUT Name:	Freewheel 200s E -scooter
Model No.:	Freewheel 200s
Brand Name:	Pulse Performance Products
FCC ID:	2ATZX-FWBT200
Standards:	47 CFR Part 1.1307 47 CFR Part 1.1310 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2021-6-24
Date of Test:	2021-6-24 to 2021-7-28
Date of Issue:	2021-9-3
Test Result:	**PASS***

***In the configuration tested, the EUT complied with the standards specified above**

Tested By: lewis zhou

(Lewis Zhou)

Reviewed By: Rock Huang

(Rock Huang)

Approved By:

(Jack Ai)

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20210600909E-02	Rev.01	Initial report	2021-9-3

2 Contents

3 General Information

3.1 Client Information

Applicant:	Bravo Sports
Address of Applicant:	12801 Carmenita Road, Santa Fe Springs, CA 90670-4805 USA
Manufacturer:	Zhejiang Easy Vehicle Co., Ltd
Address of Manufacturer:	No.123, Huajie East Road, West City New Area, Yongkang, Zhejiang

3.2 General Description of EUT

Product Name:	Freewheel 200s E -scooter
Model No.:	Freewheel 200s
Trade Mark:	Pulse Performance Products
Hardware Version:	V1.0
Software Version:	V1.0
EUT Power Supply:	Adapter: Mode NO:HAW030-060SSNP120 INPUT: 120V~ 50/60Hz 0.7A Out put: 12V⎓ 0.6A Rechargeable Valve Regulated Lead-Acid Battery:6.4V⎓ 5Ah/20Hr

3.3 General Description of BT Classic

Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	Bluetooth Spec 5.0
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channel:	79
Transfer Rate:	1Mbps/2Mbps/3Mbps
Hopping Channel Type:	Adaptive Frequency Hopping systems
Sample Type:	☒ Mobile ☐ Portable ☐ Fix Location
Antenna Type:	PCB antenna
Antenna Gain:	2dBi

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limitst

According to FCC Part1.1310: 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 part1.1307(b)

TABLE 1—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/Controlled 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
300–1500	.....	.....	f/300	6
1500–100,000	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
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
300–1500	.....	.....	f/1500	30
1500–100,000	.....	.....	1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4* Pi * R^2)

Where

Pd = power density in mW/cm2

Pout = 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

Pd id the limit of MPE, 1 mW/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.

4.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.1.3 EUT RF Exposure

1) For BT Classic

Antenna Gain: 0 dBi

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.58 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

Measurement Data

GFSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-4.070	-5±1	-4	0.398
Middle(2441MHz)	-3.350	-4±1	-3	0.501
Highest(2480MHz)	-2.860	-3.5±1	-2.5	0.562
π/4DQPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-3.290	-4±1	-3	0.501
Middle(2441MHz)	-2.500	-3.5±1	-2.5	0.562
Highest(2480MHz)	-2.090	-3±1	-2	0.631
8DPSK mode				
Test channel	Peak Output Power (dBm)	Tune up tolerance (dBm)	Maximum tune-up Power	
			(dBm)	(mW)
Lowest(2402MHz)	-2.920	-3.5±1	-2.5	0.562
Middle(2441MHz)	-2.170	-3±1	-2	0.631
Highest(2480MHz)	-1.680	-2.5±1	-1.5	0.708

The worst case:

Maximum tune-up Power (mW)	**Antenna Gain (dBi)**	**Power Density at R = 20 cm (mW/cm^2)**	**Limit**	**Result**
0.708	2	0.00022	1.0	PASS

Note: 1) Refer to report No. CQASZ20210600909E-01 for EUT test Max Conducted Peak Output Power value.
2) Pd = (Pout*G)/(4* Pi * R2)=(0.708*1.58)/(4*3.1416*202)=0.00022
3) EUT's Bluetooth module is more than 20cm away from the human body.