



Report No.: PNS221109070 01001

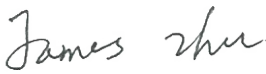
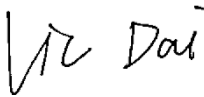
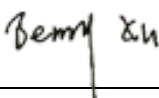
Test Report

UL 2849 Outline Of Investigation For Electric Bicycles,
Electrically Power Assisted Cycles (Epac Bicycles), Electric
Scooters, And Electric Motorcycles

Name of Products: Electric Bicycle

Applicant: Razor USA LLC

Factory: Zhejiang Feishen Vehicle Industry Co., Ltd

		
Tested: James Zhu Date: 2022-12-17	Checked: Vic Dai Date: 2022-12-17	Approved: Benny Xu Date: 2022-12-17

GUANGDONG UTL CO., LTD.



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UL 2849	
Outline Of Investigation For Electric Bicycles, Electrically Power Assisted Cycles (Epac Bicycles), Electric Scooters, And Electric Motorcycles	
Report Reference No.:	PNS221109070 01001
Date of issue:	2022-12-17
Total number of pages	13 pages
Testing laboratory.	GUANGDONG UTL CO., LTD.
Address.	Lianding Testing Building, No.18 Center Road of Yayuan Industrial Zone, Nancheng District, Dongguan, Guangdong, China
Applicant's name:	Razor USA LLC
Address.	12723 166th Street, Cerritos CA90703, USA,
Factory's name.	Zhejiang Feishen Vehicle Industry Co., Ltd.
Address.	No.98, North Lake Road, Science & Technological Hardware Industrial Zone, Yongkang, Zhejiang, P.R. China
Test specification	
Standard	ANSI/CAN/UL2849:2020
Test item.	See next page for details
Test result.	PASS
Non-standard test method	N/A
Date of receipt of sample.	2022-11-09
Date(s) of performance of test	2022-11-10 to 2022-12-07
Test item description.	
Trade Mark	Razor
Model/Type reference	Rambler 20
Ratings	Input Rating: 42V,1.5A
Sample No.	SLine-1-1, SLine-1-2, SLine-1-3



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The following test items were considered for this request and the test results were compliance.

No.	Test Items	Verdicts
1	Input Test	P
2	Temperature Test	P
3	Component fault tests	P
4	Locked rotor motor test	P
5	Running overload test	P
6	Impact Test	P
7	Flexing Test	P
8	Reverse Pedaling Test	P
9	Pedal Cessation Test for EPACs	P
10	Cutoff When Braking Test	P
11	Cutoff at Maximum Speed Test	P
12	Vibration Test	P
13	Water Exposure Test	P
14	Mold Stress Test	P
15	Permanence of Marking	P
Possible test case verdicts:		
- Test case does not apply to the test object:		N/A
- Test object does meet the requirement...:		P (Pass)
- Test object does not meet the requirement:		F (Fail)
Model difference and remark:		
Item number: 15128778		



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Appendix

1- Input Test					
Model No.	Condition	Voltage (V)	Frequency (Hz)	Rated Current (A)	Measured Current (A)
Rambler 20	Fully discharged battery	42	--	2.0A	1.96A
The measured current did did not exceed the rated output current of the external charger.					

2-TEMPERATURE TEST part B				
Sample: SLine-1-1				
Location	Condition B	Conversion to Max. Amb.	Specified Limit	Comments
1.Start-up button	29.2	42.6	70	A,C
2.Instrument display panel	33.6	47.0	80	
3.Front LED light cover	59.2	72.6	80	
4.Charge port	32.3	45.7	55	
5.External Part of Metal frame near battery and controller	30.2	43.6	70	
6.External part of Plastic enclosure near controller and battery	40.7	54.1	80	
7.Internal part of Plastic enclosure near controller and battery	46.9	60.3	80	
8.Power connector of the motor	46.9	60.3	80	
9.Motorwinding 1	88.6	102.0	105	
10.Motor winding 2	89.5	102.9	105	
11.Motor winding 3	89.4	102.8	105	
12.PCB near the motor winding	79.0	92.4	105	
13.Power wire of the motor	78.6	92.0	105	
14.PCB near IC (V5)	70.1	83.5	105	
15.PCB near main IC (U7)	61.7	75.1	105	
16.Electrolytic capacitor body (C63)	61.3	74.7	105	
17.Power wire for motor inside the controller	47.9	61.3	105	
18.Power wire for battery pack inside the controller	46.1	59.5	105	
19.Power connector of the controller for battery pack	36.3	49.7	105	
20.Ambient	26.6	40.0	--	
A- Temperatures measured did not exceed their specifications.				
B- Temperatures measured did exceed their specifications.				
C- There was no indication of fire, explosion, rupture, electrolyte leakage or electric shock.				
D- There was indication of fire, explosion, rupture, electrolyte leakage or electric shock.				



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3-Component fault tests					
Sample: SLine-1-1					
Component	Fault Type	From	To	Result	Comments
V5 Pin D-S	short	-	-	Unit protected, recoverable, no hazards.	A
C63	short	-	-	Unit protected, recoverable, no hazards.	A
A. There was no indication of burning, glowing, or charring of the tissue paper or cheesecloth. B. There was indication of burning, glowing, or charring of the tissue paper or cheesecloth.					

4-LOCKED ROTOR MOTOR TEST				
Sample: SLine-1-1				
Test: In eBike or on Bench	Location of Thermocouples	Maximum Temperature on Windings, °C		Ignition of combustibles? Y or N
In eBike	Motor winding	34.8		N
Insulation Check <input type="checkbox"/> Dielectric Strength Test <input type="checkbox"/> Isolation Resistance Test				
Model No.	Location	Dielectric Voltage Withstand Test Voltage, V	Dielectric Breakdown, Y or N?	Resistance Measured, Ohms
	Insulation between positive terminal and accessible parts			
	Insulation between negative terminal and accessible parts			
	Insulation between charging circuit and accessible parts			
	Insulation between discharging circuit and accessible parts			
Temperatures on windings did did not exceed the values noted in Table 32.1 for the class of insulation.				

5-RUNNING OVERLOAD TEST					
Sample: SLine-1-1					
Test: In Device or on Bench		Location of Thermocouples	Maximum Temperature on Windings, °C	Ignition of combustibles? Y or N	
In Device		Motor winding	128.5	N	
Insulation Check <input type="checkbox"/> Dielectric Strength Test <input type="checkbox"/> Isolation Resistance Test					
Model No.	Location		Dielectric Voltage Withstand Test Voltage, V	Dielectric Breakdown, Y or N?	Resistance Measured, Ohms
	Insulation between positive terminal and accessible parts				
	Insulation between negative terminal and accessible parts				
	Insulation between charging circuit and accessible parts				
	Insulation between discharging circuit and accessible parts				



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Temperatures on windings ~~[did]~~ [did not] exceed the values noted in Table 39.1 for the class of insulation.

6-IMPACT TEST

Sample: SLine-1-2

Part	Battery enclosure, Battery holder
------	-----------------------------------

Material	Plastic/Metal
----------	---------------

Conditioning Temperature, °C	71
------------------------------	----

Observation	No damaged
-------------	------------

[X] The sample ~~[did]~~ [did not] show signs of cracking or other deleterious effects from the oven conditioning.

[X] The sample ~~[did]~~ [did not] distorted so as to result in a risk of injury to persons.

The sample [withstood] ~~[did not withstand]~~ the impact without making any uninsulated live part or internal wiring accessible to contact by the articulated accessibility probe.

Chamber temperature: 60.3 °C +10K= 70.3 °C or 70°C, Select higher temperature.

7-FLEXING TEST

Sample: SLine-1-2

Insulation Check

Location	Dielectric Voltage Withstand Test Voltage, V	Dielectric Breakdown, Y or N?	Resistance Measured, Ohms	Resistance Less Than 50 000 ohms, Y or N
Before the bar	60Vdc	N	--	--
Center	60Vdc	N	--	--

There ~~[was]~~ [was no] evidence of dielectric breakdown.

8-REVERSE PEDALING TEST

Sample: SLine-1-3

Wind Speed, m/s	0
-----------------	---

No-load Current Point, A	0.11
--------------------------	------

Current during reverse pedaling, A	0.11
------------------------------------	------

When the pedals were operated in reverse there ~~[was]~~ [was no] power assist delivered to the driving wheel.

9-PEDAL CESSATION TEST FOR EPACS

Sample: SLine-1-3

Marked Maximum Assistance Speed, km/s	32
---------------------------------------	----

Wheel size, m	26inch
---------------	--------

Wind Speed, m/s	0
-----------------	---

No-load Current Point, A	0.12
--------------------------	------

Duration from cessation of pedaling to motor current at	0.22
---	------



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or below the no-load current point, s	
Distance traveled, m	1.76
After cessation of pedaling, there was [was no] more than 2 m before assistance was stopped.	

10-CUTOFF WHEN BRAKING TEST	
Sample: SLine-1-3	
Wind Speed, m/s	0
No-load Current Point, A	0.11
Current During Braking (Left), A	0.11
Current During Braking (Right), A	0.11
When actuating the brake device, there was [was no] power assist delivered to the driving wheel.	

11-CUTOFF AT MAXIMUM SPEED TEST	
Sample: SLine-1-3	
Marked Maximum Assistance Speed, km/s	32
Wind Speed, m/s	0
No-load Current Point, A	0.12
Maximum assistance speed, km/s	Handle:31.5km/h Foot pedal: 31.2km/h
The maximum speed where the motor provided assistance at was [was not] more than 25% from the marked maximum assistance speed.	
The maximum speed where the motor provided assistance at was [was not] more than 20 mph (32 kph).	

12-VIBRATION TEST	
Sample: SLine-1-2	Result
	A
A. The sample did not emit flame or molten metal or result in a risk of fire, electric shock, or injury to persons when subjected to the test.	
B. The sample did emit flame or molten metal or result in a risk of fire, electric shock, or injury to persons when subjected to the test.	



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13- WATER EXPOSURE TEST(IPX4)		
Sample	Results	Comments
SLine-1-2	N,O	A
<p>A. The sample did not catch on fire or explosion or there was no evidence of rupture or external leakage of electrolyte when subjected to cycling or no evidence of ingress of water into electrical compartments that could result in a hazard after the exposure.</p> <p>B. The sample did catch on fire or explosion or there was evidence of rupture or external leakage of electrolyte when subjected to cycling or evidence of ingress of water into electrical compartments that could result in a hazard after the exposure.</p> <p>E – Explosion L – Electrolyte Leakage (external to enclosure) F - Fire S – Electric shock (dielectric breakdown or resistance below isolation resistance limits) R – Rupture O – Operational after testing N - No evidence of noncompliant results</p>		

14-MOLD STRESS TEST		
Sample	Test Chamber Ambient, °C	Results
SLine-1-1	71	A
<p>A. After careful removal from the oven and return to room temperature, the sample did not show evidence of mechanical damage, such as cracking or warping of the enclosure or openings created that would allow access to cells and protection circuits with the test probes.</p> <p>B. After careful removal from the oven and return to room temperature, the sample did show evidence of mechanical damage, such as cracking or warping of the enclosure or openings created that would allow access to cells and protection circuits with the test probes.</p>		

15-PERMANENCE OF MARKING	
Sample	Results
SLine-1-2	A
<p>A. As a result of the conditioning the sample label did remain legible, and the sample label did not show no evidence of damage including curling.</p> <p>B. As a result of the conditioning the sample label did not remain legible, and the sample label did show no evidence of damage including curling.</p> <p>C. As a result of conditioning, the sample label was not able to be to be easily removed by hand from the adhered surface.</p> <p>D. As a result of conditioning, the sample label was able to be to be easily removed by hand from the adhered surface.</p>	



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List of samples BOM

Object/part no.	Manufacturer/ trademark	Type/model
Battery pack	Fujian SCUD Power Technology Co.,Ltd.	LS3675
Charger	Shenzhen Fuyuandian Power Co.,Ltd.	FY-4202000
Controller	Songzheng	B-WHB-3622-TZL
Motor	DAAO Electric (Jiangsu) Co., Ltd.	AMKG3-500



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ENCLOSURE

ID	Description
01	Sample photos of ELECTRIC BICYCLE
02	Marking Label



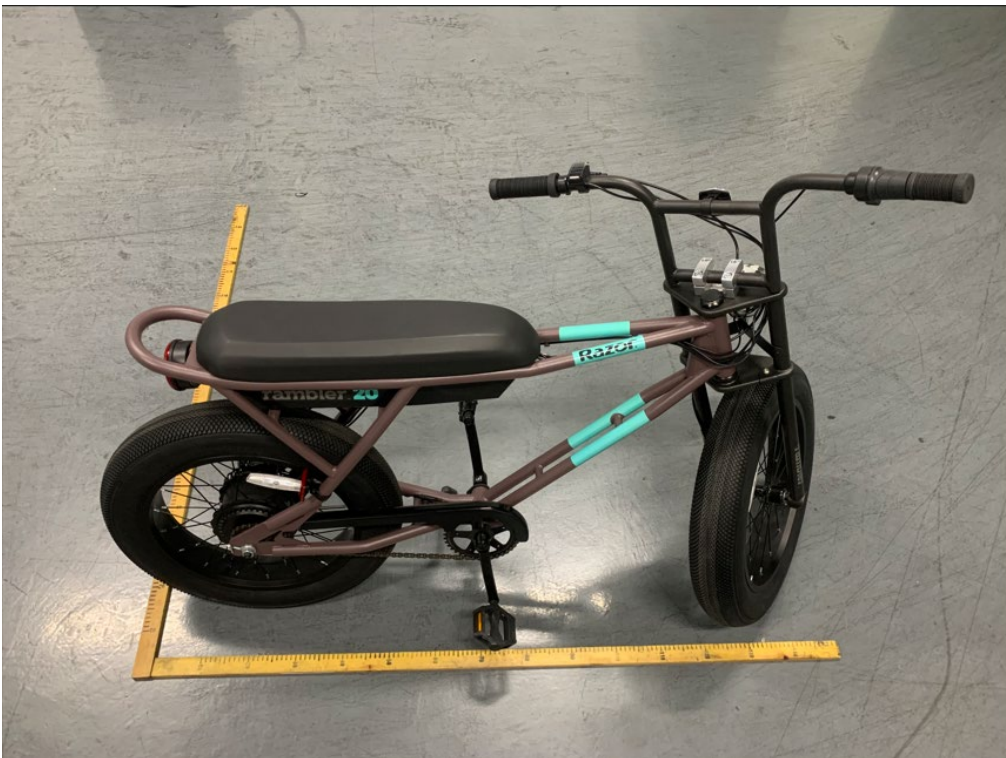
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Photos

ID 01 Sample photos of ELECTRIC BICYCLE ,Model: Rambler 20



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ID 02 Marking Label



SPECIFICATIONS

• Distance: Up to 13.3 miles (21.4 km) on a single charge	• Range: Up to 40 minutes of continuous use
• Speed: Up to 19.9 mph (32 km/h)	• Battery Pack: 37V lithium-ion
	• Battery Charge Time: 6 hours

WARNING

USING THIS PRODUCT MAY BE A DANGEROUS ACTIVITY AND MAY RESULT IN INJURY OR DEATH EVEN WHEN USED WITH PROPER SAFETY PRECAUTIONS. USE AT YOUR OWN RISK.

- This is not a toy for young children. Adjustable power modes must be controlled by parental/adult operation.
- Any parental decisions to allow a child to ride this product should depend on individual maturity, skill, and ability to follow rules. Read all warnings and instructions before riding.
- Recommended age 18+.
- For mature and responsible riders exercising caution, especially when used around motor vehicles or pedestrians.
- Obey local laws – One rider only.
- Wear a helmet / Wear conspicuous clothing when used in lower visibility conditions.
- Do not exceed 220 lb (100 kg) rider weight on this product.
- Battery life may be reduced in extreme temperatures.
- Brakes will get hot from continuous use. Do not touch after braking.
- Product decoration may vary.
- Specifications subject to change.
- Some assembly required.

Failure to use common sense and heed the above warnings presents and enhances risks of serious injury. Use at your own risk and with extreme caution.

California Proposition 65 Warning
WARNING: This product can expose you to chemicals including chromium, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.



Check local laws and regulations to see where and how you may use your Razor® Rambler 20 electric bike.

MADE IN YONGKANG, ZHEJIANG, CHINA.
RAZOR USA LLC
P.O. BOX 3610
CERRITOS, CA 90703
1-866-467-2967
WWW.RAZOR.COM
DATE OF MANUFACTURE:

ITEM NUMBER: 15126776



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WARNING

- Riding at night or in low visibility conditions increases risks of injury. Lights on this product may reduce, but cannot completely eliminate, such risks.
- Always wear a helmet. Use lights and conspicuous clothing when riding in lower visibility conditions.
- Always wear shoes.
- Intended for adult use only: 18+.
- Make sure all bolts are fastened securely and guards are in place.
- The battery must be charged at least 6 hours. Do not over charge.
- Tires must be inflated prior to use.
- 220 lb (100 kg) maximum rider weight limit. Heavier riders may cause damage not covered by warranty. Not designed for stunt riding.
- 19.9 mph (32 km/h) max speed.
- Use only Razor Rambler 20 charger.
- Rambler 20 battery capacity: 37V/7.5 Ah
- Store indoors when not in use.
- Check local laws and regulations to see where and how you may use this product legally.
- One rider only.

Rambler 20_US_221004

WARNING

THIS PRODUCT MOVES WHEN USED. EXERCISE CAUTION & COMMON SENSE WHEN RIDING.

- This is not a toy for use by young children.
- For mature and responsible riders exercising caution, especially when used around motor vehicles or pedestrians.
- Read the owner's manual and additional warnings before using.
- Check local laws and regulations to see where and how you may use this product legally.
- Recommended for adult use age 18+.

US_210605

WARNING

- Never modify the electrical system.
- Alteration could cause a fire.
- Use of wrong type of battery or charger could cause an explosion.



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Attachment-Certificate of participation



☆☆The test report is invalid without the signature of the approver and the company's seal.
The test results presented in this report relate only to the samples submitted. Partial reproduction is not allowed without the written approval of the laboratory. ☆☆

