HUAK TESTING

TEST REPORT

Prepared for:

Pingxiang Tong Pai children's toy factory

Dong Jiazhuang, Hegumiao Town, Pingxiang County, Xingtai City, Hebei Province, China

Product Name:	**Children's bicycle**
Model Name:	**14, 12, 16, 18**
Trade Name:	**N/A**
Date of Test:	**From June 02, 2023 to June 07, 2023**
Date of Report:	**June 07, 2023**
Report Number:	**HK2306025594-1RR**

Prepared by:

Shenzhen HUAK Testing Technology Co., LTD.

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TEST REPORT

Applicant:	**Pingxiang Tong Pai children's toy factory**
Address:	**Dong Jiazhuang, Hegumiao Town, Pingxiang County, Xingtai City, Hebei Province, China**
Manufacturer:	**Pingxiang Tong Pai children's toy factory**
Address:	**Dong Jiazhuang, Hegumiao Town, Pingxiang County, Xingtai City, Hebei Province, China**

The following sample was submitted and identified by/on behalf of the client as:

Sample Name:	Children's bicycle
Model No.:	14, 12, 16, 18
Trade Name:	N/A
Tested Age Grade:	3+ years old
Labeled Age Grading:	3+ years old
Appropriate Age Grade:	3+ years old
Sample Receiving Date:	June 02, 2023
Testing Period:	From June 02, 2023 to June 07, 2023
Results:	Please refer to next page(s).

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Signed for and on behalf of HUAK

Approved by: Jason Hu

Lab Manager

HUAK TESTING CERTIFICATION HKTC APPROVAL

Remark: Only selected materials were tested as per client's requirement.

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Information of the Test Laboratory

Shenzhen HUAK Testing Technology Co., Ltd.

Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Testing Laboratory Authorization：

A2LA Accreditation Code is 4781.01.

FCC Designation Number is CN1229.

Canada IC CAB identifier is CN0045.

CNAS Registration Number is L9589.

CPSC Certification Number is 1710.

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TEST REPORT

Summary of Test Results:

	TEST REQUEST	CONCLUSION
A	As specified in title 16, code of federal regulations, chapter II- consumer products safety commission of U.S.A	
	16 CFR 1500.50.51.52.53 Simulating use and abuse of toys	PASS
B	16 CFR Part 1512 Requirements For Bicycles	PASS
C	- USA 16 CFR Part 1303 Ban of Lead Containing Paint and Certain Consumer Products Bearing Lead- Containing Paint	PASS
D	- USA Consumer Product Safety Improvement Act (CPSIA) Sec.101 Children´s products containing Lead; Lead paint rule	PASS
E	- USA Consumer Product Safety Improvement Act (CPSIA) Sec.108 Prohibition on sale of certain products containing specified phthalates - USA 16 CFR Part 1307 Prohibition of Children's Toys and Child Care Articles Containing Specified Phthalates	PASS
F	-CPSA Section 14(a) (5) Tracking Labels for Children's Products (15 USC §2063(a)(5) (CPSA))	PASS

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Results:

A.1 As specified in title 16, code of federal regulations, chapter II- consumer products Safety commission of U.S.A

Applicable Section	Description	Result
16 CFR 1500.50.51.52.53	Normal use testing	Pass
	Abuse testing	
	Impact test(53b)	Pass
	Bite test	Pass
	Flexure test	Pass
	Torque test (53e)	Pass
	Tension test (53f)	Pass
	Compression test(53g)	Pass

- NA = Not Applicable

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B. 16 CFR Part 1512 Requirements for Bicycles

Applicable Section	Description	Result
1512.3	**Requirements in general.**	
	Any bicycle subject to the regulations in this part shall meet the requirements of this part in the condition to which it is offered for sale to consumers; any bicycle offered for sale to consumers in disassembled or partially assembled condition shall meet these requirements after assembly according to the manufacturer's instructions. For the purpose of compliance with this part, where the metric and English units are not equal due to the conversion process the less stringent requirement will prevail.	Pass
1512.4	**Mechanical requirements.**	
(a)	Assembly. Bicycles shall be manufactured such that mechanical skills required of the consumer for assembly shall not exceed those possessed by an adult of normal intelligence and ability.	Pass
(b)	Sharp edges. There shall be no unfinished sheared metal edges or other sharp parts on assembled bicycles that are, or may be, exposed to hands or legs; sheared metal edges that are not rolled shall be finished so as to remove any feathering of edges, or any burs or spurs caused during the shearing process.	Pass
(c)	Integrity. There shall be no visible fracture of the frame or of any steering, wheel, pedal, crank, or brake system component resulting from testing in accordance with: The handbrake loading and performance test, 8 1512.18(d); the foot brake force and performance test, S 1512.18(e); and the road test, 1512. 18(p) (or the sidewalk bicycle proof test, S 1512.18(q)).	Pass
(d)	Attachment hardware. All screws, bolts, or nuts used to attach or secure components shall not fracture, loosen, or otherwise fail their intended function during the tests required in this part. All threaded hardware shall be of sufficient quality to allow adjustments and maintenance. Recommended quality thread form is specified in Handbook H28, “Screw Thread Standards for Federal Service,”[1] issued by the National Bureau of Standards, Department of Commerce; recommended mechanical properties are specified in ISO Recommendation R898, “Mechanical Properties of Fasteners,” and in ISO Recommendations 68, 262, and 263, “General Purpose Screw Threads.”[2]	Pass
(e)-(f)	[Reserved]	NA
(g)	Excluded area. There shall be no protrusions located within the area bounded by (1) a line 89 mm (31/2 in) to the rear of and parallel to the handlebar stem; (2) a line tangent to the front tip of the seat and intersecting the seat mast at the top rear stay;(3) the top surface of the top tube; and (4) a line connecting the front of the seat (when adjusted to its highest position) to the junction where the handlebar is attached to the handlebar stem. The top tube on a female bicycle model shall be the seat mast and the down tube or tubes that are nearest the rider in the normal riding position. Control cables no greater than 6.4 mm (1/4 in) in diameter and cable clamps made from material not thicker than 4.8 mm (3/16 in) may be attached to the top tube.	Pass

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Applicable Section	Description	Result
(h)	[Reserved]	NA
(i)	Control cable ends. Ends of all accessible control cables shall be provided with protective caps or otherwise treated to prevent unraveling. Protective caps shall be tested in accordance with the protective cap and end-mounted devices test, § 1512.18(c), and shall withstand a pull of 8.9 N (2.0 lbf).	Pass
(j)	Control cable abrasion. Control cables shall not abrade over fixed parts and shall enter and exit cable sheaths in a direction in line with the sheath entrance and exit so as to prevent abrading.	Pass
1512.5	**Requirements for braking system.**	
(a)	Braking system. Bicycles shall be equipped with front- and rear-wheel brakes or rear-wheel brakes only.	Pass
(b)	Handbrakes. Handbrakes shall be tested at least ten times by applying a force sufficient to cause the hand lever to contact the handlebar, or a maximum of 445 N (100 lbf), in accordance with the loading test, § 1512.18(d)(2), and shall be rocked back and forth with the weight of a 68.1 kg (150 lb) rider on the seat with the same handbrake force applied in accordance with the rocking test, § 1512.18(d)(2)(iii); there shall be no visible fractures, failures, movement of clamps, or misalignment of brake components.	Pass
(1)	Stopping distance. A bicycle equipped with only handbrakes shall be tested for stopping distance by a rider of at least 68.1 kg (150 lb) weight in accordance with the performance test, § 1512.18(d)(2) (v) and (vi), and shall have a stopping distance of no greater than 4.57 m (15 ft) from the actual test speed as determined by the equivalent ground speed specified in § 1512.18(d)(2)(vi).	Pass
(2)	Hand lever access. Hand lever mechanisms shall be located on the handlebars in a position that is readily accessible to the rider when in a normal riding position.	Pass
(3)	Grip dimension. The grip dimension (maximum outside dimension between the brake hand lever and the handlebars in the plane containing the centerlines of the handgrip and the hand brake lever) shall not exceed 89 mm (31/2 in) at any point between the pivot point of the lever and lever midpoint; the grip dimension for sidewalk bicycles shall not exceed 76 mm (3 in). The grip dimension may increase toward the open end of the lever but shall not increase by more than 12.7 mm (1/2 in) except for the last 12.7 mm (1/2 in) of the lever. (See figure 5 of this part 1512.)	Pass
(4)	Attachment. Brake assemblies shall be securely attached to the frame by means of fasteners with locking devices such as a lock washer, locknut, or equivalent and shall not loosen during the rocking test, § 1512.18(d)- (2)(iii). The cable anchor bolt shall not cut any of the cable strands.	Pass
(5)	Operating force. A force of less than 44.5 N (10 lbf) shall cause the brake pads to contact the braking surface of the wheel when applied to the hand lever at a point 25 mm (1.0 in) from the open end of the hand lever.	Pass
(6)	Pad and pad holders. Caliper brake pad shall be replaceable and adjustable to engage the braking surface without contacting the tire or spokes and the pad holders shall be securely attached to the caliper assembly. The brake pad material shall be retained in its holder without movement when the bicycle is loaded with a rider of at least 68.1 kg (150 lb) weight and is rocked forward and backward as specified in the rocking test, § 1512.18(d)(2)(iii).	Pass

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Applicable Section	Description	Result
(7)	[Reserved]	NA
(8)	Hand lever location. The rear brake shall be actuated by a control located on the right handlebar and the front brake shall be actuated by a control located on the left handlebar. The left-hand/right-hand locations may be reversed in accordance with an individual customer order. If a single hand lever is used to actuate both front and rear brakes, it shall meet all applicable requirements for hand levers and shall be located on either the right or left handlebar in accordance with the customer's preference.	Pass
(9)	Hand lever extensions. Bicycles equipped with hand lever extensions shall be tested with the extension levers in place and the hand lever extensions shall also be considered to be hand levers.	Pass
(c)	Footbrakes. All footbrakes shall be tested in accordance with the force test, § 1512.18(e)(2), and the measured braking force shall not be less than 178 N (40 lbf) for an applied pedal force of 310 N (70 lbf).	Pass
(1)	Stopping distance. Bicycles equipped with footbrakes (except sidewalk bicycles) shall be tested in accordance with the performance test, § 1512.18(e)(3), by a rider of at least 68.1 kg (150 lb) weight and shall have a stopping distance of no greater than 4.57 m (15 ft) from an actual test speed of at least 16 km/h (10 mph). If the bicycle has a footbrake only and the equivalent groundspeed of the bicycle is in excess of 24 km/h (15 mph) (in its highest gear ratio at a pedal crank rate of 60 revolutions per minute),[3] the stopping distance shall be 4.57 m (15 ft) from an actual test speed of 24 km/h (15 mph) or greater.	Pass
(2)	Operating force. Footbrakes shall be actuated by a force applied to the pedal in a direction opposite to that of the drive force, except where brakes are separate from the drive pedals and the applied force is in the same direction as the drive force.	Pass
(3)	Crank differential. The differential between the drive and brake positions of the crank shall be not more than 60° with the crank held against each position under a torque of no less than 13.6 N-m (10 ft-lb).	Pass
(4)	Independent operation. The brake mechanism shall function independently of any drive-gear positions or adjustments.	Pass
(d)	Footbrakes and handbrakes in combination. Bicycles equipped with footbrakes and handbrakes shall meet all the requirements for footbrakes in § 1512.5(c), including the tests specified. In addition, if the equivalent ground speed of the bicycle is 24 km/h (15 mph) or greater (in its highest gear ratio at a pedal crank rate of 60 revolutions per minute),3 the actual test speed specified in § 1512.18(e)(3) shall be increased to 24 km/h (15 mph) and both braking systems may be actuated to achieve the required stopping distance of 4.57 m (15 ft).	Pass
(e)	Sidewalk bicycles. (1) Sidewalk bicycles shall not have handbrakes only.(2) Sidewalk bicycles with a seat height of 560 mm (22 in) or greater (with seat height adjusted to its lowest position) shall be equipped with a footbrake meeting all the footbrake requirements of § 1512.5(c), including the specified tests except that the braking force transmitted to the rear wheel shall be in accordance with the sidewalk bicycle footbrake force tests, § 1512.18(f).(3) Sidewalk bicycles with a seat height less than 560 mm (22 in) (with seat height adjusted to its lowest position) and not equipped with a brake shall not	Pass

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Applicable Section	Description	Result
	have a freewheel feature. Such sidewalk bicycles equipped with a footbrake shall be tested for brake force in accordance with the sidewalk bicycle footbrake force test, § 1512.18(f). Such sidewalk bicycles not equipped with brakes shall be identified with a permanent label clearly visible from a distance of 3.1 m (10 ft) in daylight conditions and promotional display material and shipping cartons shall prominently display the words “No Brakes.”	
1512.6	**Requirements for steering system.**	
(a)	Handlebar stem insertion mark. Quill-type handlebar stems shall contain a permanent ring or mark which clearly indicates the minimum insertion depth of the handlebar stem into the fork assembly. The insertion mark shall not affect the structural integrity of the stem and shall not be less than 21/2 times the stem diameter from the lowest point of the stem. The stem strength shall be maintained for at least a length of one shaft diameter below the mark.	Pass
(b)	Handlebar stem strength. The handlebar stem shall be tested for strength in accordance with the handlebar stem test, § 1512.18(g), and shall withstand a force of 2000 N (450 lbf) for bicycles and 1000 N (225 lbf) for sidewalk bicycles.	Pass
(c)	Handlebar. Handlebars shall allow comfortable and safe control of the bicycle. Handlebar ends shall be symmetrically located with respect to the longitudinal axis of the bicycle and no more than 406 mm (16 in) above the seat surface when the seat is in its lowest position and the handlebar ends are in their highest position. This requirement does not apply to recumbent bicycles.	Pass
(d)	Handlebar ends. The ends of the handlebars shall be capped or otherwise covered. Handgrips, end plugs, control shifters, or other end-mounted devices shall be secure against a removal force of no less than 66.8 N (15 lbf) in accordance with the protective cap and end-mounted devices test, § 1512.18(c).	Pass
(e)	Handlebar and clamps. The handlebar and clamps shall be tested in accordance with the handlebar test, § 1512.18(h). Directions for assembly of the bicycle required in the instruction manual by § 1512.19(a)(2) shall include an explicit warning about the danger of damaging the stem-to-fork assembly and the risk of injury to the rider that can result from over tightening the stem bolt or other clamping device. The directions for assembly shall also contain a simple, clear, and precise statement of the procedure to be followed to avoid damaging the stem-to-fork assembly when tightening the stem bolt or other clamping device.	Pass
1512.7	**Requirements for pedals.**	
(a)	Construction. Pedals shall have right-hand/left-hand symmetry. The tread surface shall be present on both top and bottom surfaces of the pedal except that if the pedal has a definite preferred position, the tread surface need only be on the surface presented to the rider's foot.	Pass
(b)	Toe clips. Pedals intended to be used only with toe clips shall have toe clips securely attached to them and need not have tread surfaces. Pedals designed for optional use of toe clips shall have tread surfaces.	Pass
(c)	Pedal reflectors. Pedals for bicycles other than sidewalk bicycles shall have reflectors in accordance with § 1512.16(e). Pedals for sidewalk bicycles are not required to have reflectors.	Pass

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Applicable Section	Description	Result
1512.8	**Requirements for drive chain**. The drive chain shall operate over the sprockets without catching or binding. The tensile stength of the drive chain shall be no less than 8010 N (1,800 lbf) or 6230 N (1,400 lbf) for sidewalk bicycles.	Pass
1512.9	**Requirements for protective guards.**	
(a)	Chain guard. Bicycles having a single front sprocket and a single rear sprocket shall have a chain guard that shall cover the top strand of the chain and at least 90° of the perimeter where the drive chain contacts the drive sprocket as shown in figure 7. The chain guard shall extend rearward to a point at least 8 cm (3.2 in.) forward of the centerline of the rear axle. The minimum width of the top area of the chain guard shall be twice the width of the chain in that portion forward of the rear wheel rim. The rear part of the top area may be tapered. The minimum width at the rear of the guard shall be one-half the chain width. Such chain guard shall prevent a rod of 9.4 mm (3/8 in.) diameter and 76 mm (3.0 in.) length from entrapment between the upper junction of the chain and the sprocket when introduced from the chain side of the bicycle in any direction within 45° from a line normal to the sprocket.	Pass
(b)	Derailleur guard. Derailleurs shall be guarded to prevent the drive chain from interfering with or stopping the rotation of the wheel through improper adjustments or damage.	Pass
1512.10	**Requirements for tires**. The manufacturer's recommended inflation pressure shall be molded into or onto the sidewall of the tire in lettering no less than 3.2 mm (1/8 in.) in height. The statement of recommended inflation pressure shall be in the English language utilizing Arabic numerals. (The following language is suggested to indicate recommended inflation pressure: “Inflate to __ PSI.”) After inflation to 110 percent of the recommended inflation pressure, the tire shall remain intact on the rim, including while being tested under a load of 2,000 N (450 lbf) in accordance with the rim test, § 1512.18(j). Tubular sew-up tires, nonpneumatic tires, and nonmolded wired-on tires are exempt from this section.	Pass
1512.11	**Requirements for wheels.**	
(a)	Spokes. There shall be no missing spokes.	Pass
(b)	Alignment. The wheel assembly shall be aligned such that no less than 1.6 mm (1/16 in.) clearance exists between the tire and fork or any frame member when the wheel is rotated to any position.	Pass
(c)	Rims. Rims shall retain the spokes and tire when side-loaded with 2000 N (450 lbf) and tested in accordance with the rim test, § 1512.18(j). Sidewalk bicycles need not meet this requirement.	Pass
1512.12	**Requirements for wheel hubs.** All bicycles (other than sidewalk bicycles) shall meet the following requirements:	
(a)	Locking devices. Wheels shall be secured to the bicycle frame with a positive lock device. Locking devices on threaded axles shall be tightened to the manufacturer's specifications.	Pass
(1)	Rear wheels. There shall be no relative motion between the axle and the frame when a force of 1,780 N (400 lbf) is applied symmetrically to the axle for a period of 30 seconds in the direction of wheel removal.	Pass
(2)	Front wheels. Locking devices, except quick-release devices, shall withstand	Pass

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Applicable Section	Description	Result
	application of a torque in the direction of removal of 17 N-m (12.5 ft-lb).	
(b)	Quick-release devices. Lever-operated, quick-release devices shall be adjustable to allow setting the lever position for tightness. Quick-release levers shall be clearly visible to the rider and shall indicate whether the levers are in a locked or unlocked position. Quick-release clamp action shall emboss the frame or fork when locked, except on fiber reinforced plastics.	Pass
(c)	Front hubs. Front hubs not equipped with lever-operated quick-release devices shall have a positive retention feature that shall be tested in accordance with the front hub retention test, § 1512.18(j)(3), to assure that when the locking devices are released the wheel will not separate from the fork.	Pass
1512.13	**Requirements for front fork.** The front fork shall be tested for strength by application of at least 39.5 J (350 in-lb) of energy in accordance with the fork test, § 1512.18(k)(1), without visible evidence of fracture. Sidewalk bicycles need not meet this requirement.	Pass
1512.14	**Requirements for fork and frame assembly.** The fork and frame assembly shall be tested for strength by application of a load of 890 N (200 lbf) or at least 39.5 J (350 in-lb) of energy, whichever results in the greater force, in accordance with the frame test, § 1512.18(k)(2), without visible evidence of fracture or frame deformation that significantly limits the steering angle over which the wheel can be turned. Sidewalk bicycles are exempt from this section.	Pass
1512.15	**Requirements for seat.**	
(a)	Seat limitations. No part of the seat, seat supports, or accessories attached to the seat shall be more than 125 mm (5.0 in) above the top of the seat surface at the point where the seat surface is intersected by the seat post axis. This requirement does not apply to recumbent bicycles.	Pass
(b)	Seat post. The seat post shall contain a permanent mark or ring that clearly indicates the minimum insertion depth (maximum seat-height adjustment); the mark shall not affect the structural integrity of the seat post. This mark shall be located no less than two seat-post diameters from the lowest point on the post shaft, and the post strength shall be maintained for at least a length of one shaft diameter below the mark. This requirement does not apply to bicycles with integrated seat masts, however, a permanent mark or other means to clearly indicate that the seat or seat posts is safely installed shall be provided.	Pass
(c)	Adjustment clamps. The seat adjustment clamps shall be capable of securing the seat in any position to which it can be adjusted and preventing movement of the seat in any direction under normal conditions of use. Following the road test, § 1512.18(p) (or the sidewalk bicycle proof test, § 1512.18(q), as applicable), the seat clamps shall be tested in accordance with the seat adjustment clamps and load test, § 1512.18(l).	Pass
1512.16	**Requirements for reflectors.** Bicycles shall be equipped with reflective devices to permit recognition and identification under illumination from motor vehicle headlamps. The use of reflector combinations off the center plane of the bicycle (defined in § 1512.18(m)(2)) is acceptable if each reflector meets the requirements of this section and of § 1512.18 (m) and (n) and the combination of reflectors has a clear field of view of ±10° vertically and ±50° horizontally. Sidewalk bicycles are not required to have reflectors.	

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Applicable Section	Description	Result
(a)	Front, rear, and pedal reflectors. There shall be an essentially colorless front-facing reflector, essentially colorless or amber pedal reflectors, and a red rear-facing reflector.	Pass
(b)	Side reflectors. There shall be retroreflective tire sidewalls or, alternatively, reflectors mounted on the spokes of each wheel, or, for non-caliper rim brake bicycles, retroreflective wheel rims. The center of spoke-mounted reflectors shall be within 76 mm (3.0 in.) of the inside of the rim. Side reflective devices shall be visible on each side of the wheel.	Pass
(c)	Front reflector. The reflector or mount shall not contact the ground plane when the bicycle is resting on that plane in any orientation. The optical axis of the reflector shall be directed forward within 5° of the horizontal-vertical alignment of the bicycle when the wheels are tracking in a straight line, as defined in § 1512.18(m)(2). The reflectors and/or mounts shall incorporate a distinct, preferred assembly method that shall insure that the reflector meets the optical requirements of this paragraph (c) when the reflector is attached to the bicycle. The front reflector shall be tested in accordance with the reflector mount and alignment test, § 1512.18(m).	Pass
(d)	Rear reflector. The reflector or mount shall not contact the ground plane when the bicycle is resting on that plane in any orientation. The reflector shall be mounted such that it is to the rear of the seat mast with the top of the reflector at least 76 mm (3.0 in) below the point on the seat surface that is intersected by the line of the seat post. The optical axis of the reflector shall be directed rearward within 5° of the horizontal-vertical alignment of the bicycle when the wheels are traveling in a straight line, as defined in § 1512.18(m)(2). The reflectors and/or mounts shall incorporate a distinct, preferred assembly method that shall insure that the reflector meets the optical requirements of this paragraph (d) when the reflector is attached to the bicycle. The rear reflector shall be tested in accordance with the reflector mount and alignment test, § 1512.18(m).	Pass
(e)	Pedal reflectors. Each pedal shall have reflectors located on the front and rear surfaces of the pedal. The reflector elements may be either integral with the construction of the pedal or mechanically attached, but shall be sufficiently recessed from the edge of the pedal, or of the reflector housing, to prevent contact of the reflector element with a flat surface placed in contact with the edge of the pedal.	Pass
(f)	Side reflectors. Reflectors affixed to the wheel spokes shall be mounted either flat on the spokes or within the spoke cage such that the angle between the optical axis and the normal to the plane of the wheel shall not exceed the angle of the spokes with the plane of the wheel. The reflectors shall not interfere with any wheel adjustments. The side-mounted reflector devices shall be essentially colorless or amber on the front wheel and essentially colorless or red on the rear wheel.	Pass
(g)	Reflector tests. The pedal, front-mount, rear-mount, and side-mount reflectors shall be tested in accordance with the reflector test, § 1512.18(n), to assure the reflectance values over the angles given in tables 1 and 2.	Pass
(h)	Retro reflective tire sidewalls. When retro reflective tire sidewalls are used in lieu of spoke-mounted reflectors, the reflecting material shall meet the following requirements:(1) The retro reflective material shall form a continuous circle on the sidewall. (2) The retro reflective material shall adhere to the tire	Pass

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Applicable Section	Description	Result
	such that after the tire has been subjected to a temperature of 50° ±3 °C (122° ±5.4 °F) for 30 minutes, the retro reflective material cannot be peeled or scraped away without removal of tire material. (3) The retroreflective material shall be as resistant to abrasion as is the adjacent sidewall material so that when retroreflective material is removed from the inflated tire by abrasion with a wet, steel bristle brush, tire material will be removed along with the retroreflective material. (4)The retroreflective material shall be tested for performance in accordance with the retroreflective tire test, § 1512.18(o), to assure the reflectance properties over the angles given in table 3. When a portion of the retroreflective material is selected (and the remainder is masked as specified in § 1512.18(o)(2)(i)), the selected portion shall not contact the ground plane when the assembled bicycle is resting on that plane in any orientation.	
(i)	Retro reflective rims. When retroreflective rims are used in lieu of spoke-mounted reflectors or retroreflective tire sidewalls, the reflecting material shall meet the following requirements(1) The retroreflective material shall form a continuous circle on the rim. (2) If the retroreflective material is applied to the rim in the form of a self-adhesive tape, the following requirement must be met: Use a sharp knife, razor blade, or similar instrument to carefully release an end of the tape material sufficient to be grasped between the thumb and finger. Grasp the freed tape end and gradually pull in a direction 90° to the plane of the rim. The tape material must break before additional separation (peeling) from the rim is observed. (3) After the retroreflective material is abraded in accordance with the abrasion test for retroreflective rims at § 1512.18(r), the rim must then be tested for performance in accordance with the retroreflective tire and rim test at § 1512.18(o), to assure the reflectance properties over the angles given in table 3.	Pass
1512.17	**Other requirements.**	
(a)	Road test. Bicycles, other than sidewalk bicycles, shall be ridden at least 6.4 km (4.0 mi.) by a rider weighing at least 68.1kg (150 lb.) and travel five times over a 30.5 m (100 ft.) cleated course in accordance with the road test, § 1512.18(p), and shall exhibit stable handling, turning, and steering characteristics without difficulty of operation. There shall be no system or component failure of the structure, brakes, or tires, and there shall be no loosening or misalignment of the seat, handlebars, controls, or reflectors during or resulting from this test.	Pass
(b)	Sidewalk bicycle proof test. Sidewalk bicycles shall be dropped a distance of at least 300 mm (1.0 ft.) three times onto a paved surface with weights attached in accordance with the sidewalk bicycle proof test, § 1512.18(q). There shall be no fracture of wheels, frame, seat, handlebars, or fork during or resulting from this test.	Pass
(c)	Ground clearance. With the pedal horizontal and the pedal crank in its lowest position and any training wheels removed, it shall be possible to tilt the bicycle at least 25° from the vertical without the pedal or any other part (other than tires) contacting the ground plane.	Pass
(d)	Toe clearance. Bicycles not equipped with positive foot-retaining devices (such as toe clips) shall have at least 89 mm (31/2 in) clearance between the pedal and the front tire or fender (when turned to any position). The clearance	Pass

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	shall be measured forward and parallel to the longitudinal axis of the bicycle from the center of either pedal to the arc swept by the tire or fender, whichever results in the least clearance. (See figure 6 of this part 1512.)	
1512.18	**Tests and test procedures.**	
(a)	Sharp edge test. [Reserved]	Pass
(b)	[Reserved]	NA
(c)	Protective cap and end-mounted devices test. (Ref. § 1512.4(i), § 1512.6(d).) Any device suitable for exerting a removal force of at least 67 N (15 lbf) for protective caps and 8.9 N (2.0 lbf) for end caps at any point and in any direction may be used. All protective caps and end-mounted handlebar devices shall be tested to determine that they cannot be removed by application of the specified forces.	Pass
(d)	Handbrake loading and performance test: (Ref .§1512. 5(b)).	Pass
(1)	Apparatus. A spring scale or other suitable device for measuring the specified forces on the handbrake levers and a dry, clean, level, paved surface of adequate length.	Pass
(2)	Procedure. The loading test, § 1512.18(d)(2)(i), and the rocking test, § 1512.18(d)(2)(iii), shall be performed before the performance test, § 1512.18(d)(2)(v), is performed and no adjustments shall be made between these tests.	Pass
(i)	Loading test procedure. The hand levers shall be actuated with a force applied at a point no more than 25 mm (1.0 in) from the open end of the lever. If the hand lever contacts the handlebar (bottoms) before a force of 445 N (100 lbf) is reached, the loading may be stopped at that point, otherwise the loading shall be increased to at least 445 N (100 lbf).[4] Application of the loading force shall be repeated for a total of 10 times and all brake components shall be inspected.	Pass
(ii)	Loading test criteria. There shall be no visible fractures, failures, misalignments, and clearances not in compliance with applicable parts of § 1512.5.	Pass
(iii)	Rocking test procedure. A weight of at least 68.1 kg (150 lb) shall be placed on the seat; the force required for the hand levers to contact the handlebars or 445 N (100 lbf), as determined in § 1512.18(d)(2), shall be applied to the hand levers;4 and the bicycle shall be rocked forward and backward over a dry, clean, level, paved surface at least six times and for a distance of at least 76 mm (3 in) in each direction.	Pass
(iv)	Rocking test criteria. There shall be no loosening of the brake pads, pad holders, or cable and hand-lever securing devices or any other functional brake component.	Pass
(v)	Performance test procedure. The following test conditions, unless otherwise specified in this part 1512, shall be followed (A) The bicycle shall be ridden over a dry, clean, smooth paved test course free from protruding aggregate. The test course shall provide a coefficient of friction of less then 1.0 and shall have a slope of less than 1 percent.(B) The wind velocity shall be less than 11 km/h (7 mph). (C) Only the brake system under test shall be actuated.(D) The bicycle shall attain the specified ground speed while the rider is in the normal riding position.(E) The rider shall remain in the normal riding position	Pass

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	throughout the test. (F) The bicycle must be moving in a straight line at the start of brake application. (G) Corrections for velocity at the initiation of braking may be made. The corrected braking distance shall be computed as follow: S_c = (Vs / Vm)2Sm where: S_c = Corrected braking distance, V_s = Specified test velocity. V_m = Measured test velocity, S_m = Measured braking distance. The test run is invalid if at the commencement of the test, the measured test speed of the bicycle is not less than nor greater than the test speed required by this part 1512 by 1.5 km/h (0.9 mph).(H) Four test runs are required. The stopping distance shall be determined by averaging the results of the four test runs. (I) The stopping distances specified are based on a rider weight of at least 68.1 kg (150 lb) and a maximum rider and weight combination of 91 kg (200 lb). Greater stopping distances are allowable for heavier riders and test equipment weights at the rate of 0.30 m per 4.5 kg (1.0 ft per 10 lb).(J) A test run is invalid if front-wheel lockup occurs.(vi) Performance test criteria. The stopping force applied to the hand lever at a point no closer than 25 mm (1.0 in) from the open end shall not exceed 178 N (40 lbf). Bicycles with an equivalent ground speed in excess of 24 km/h (15 mph) (in its highest gear ratio at a pedal crank rate of 60 revolutions per minute)[3] shall stop from an actual test speed of 24 km/h (15 mph) or greater within a distance of 4.57 m (15 ft); when the equivalent ground speed is less than 24 km/h (15 mph) under the same conditions, the bicycle shall stop from an actual test speed of 16 km/h (10 mph) or greater within a distance of 4.57 m (15 ft).	
(e)	Footbrake force and performance test. (Ref . §1512.5(c)(1)and(2))	Pass
(1)	Apparatus. Suitable devices for exerting and measuring the required forces and a dry, clean, level, paved surface of adequate length.	Pass
(2)	Force test. The braking force shall be measured as the wheel is rotated in a direction of forward motion, and the braking force is measured in a direction tangential to the tire during a steady pull after the wheel completes one-half revolution but before the wheel completes one revolution. The brake shall be capable of producing a linearly proportional brake force for a gradually applied pedal force from 89 N to 310 N (20 to 70 lbf) and shall not be less than 178 N (40 lbf) for an applied pedal force of 310 N (70 lbf). All data points must fall within plus or minus 20 percent of the brake force, based on the measured brake load using the least square method of obtaining the best straight line curve.	Pass
(3)	Performance test. The procedure of § 1512.18(d)(2)(v) shall be followed to test the footbrake performance. The stopping distance shall be less than 4.57 m (15 ft) from an actual test speed of 16 km/h (10 mph). In addition, if the equivalent ground speed of the bicycle is in excess of 24 km/h (15 mph) (in its highest gear ratio at a pedal crank rate of 60 revolutions per minute),3 the stopping distance shall be 4.57 m (15 ft) from an actual test speed of 24 km/h (15 mph) or greater.	Pass
(f)	Sidewalk bicycle footbrake force test. For sidewalk bicycles, the footbrake	Pass

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	force test is the same as for bicycles except; the brake force transmitted to the rear wheel shall continually increase as the pedal force is increased from 44.5 N to 225 N (10 to 50 lbf). The ratio of applied pedal force to braking force shall not be greater than two-to-one.	
(g)	Handlebar stem test.	Pass
(1)	Procedure. The handlebar stem shall be tested for strength by applying a force of 2000 N (450 lbf), in a forward direction, for bicycles, or 1000 N (225 lbf) for sidewalk bicycles, at a point in line with the handlbar attachment point and at an angle of 45° from the stem centerline (See fig. 2).	Pass
(2)	Criteria. No visible fractures shall result from this test.	Pass
(h)	Handlebar test. (Ref . § 1512.6(e))	Pass
(1)	Stem-to-fork clamp test-(i)Procedure. The handlebar and handlebar stem shall be assembled to the bicycle in accordance with the manufacturer's instructions. The handlebar-fork assembly shall be subjected to a torque applied about the axis of the stem, and shall then be disassembled and examined for signs of structural damage including cracking, splitting, stripping of threads, bearing damage, and bulging of the stem and fork structures. The handlebar and handlebar stem components shall be inspected for visible signs of galling, gouging, and scoring not due to normal assembly and disassembly operations. (ii) Criteria. There shall be no visible movement between the stem and fork when a torque of 47 + 3, −0 N-m (35 + 2, −0 ft = lb) for bicycles and 20 + 3, −0 N-m (15 + 2, − 0 ft = lb) for sidewalk bicycles is applied to the handlebar about the stem-to-fork axis. There shall be no visible signs of damage to the stem-to-fork assembly or any component part thereof.	Pass
(2)	Handlebar strength and clamp test -(i) Procedure. The stem shall be in place on the bicycle or in an equivalent test fixture and secured according to manufacturer's instructions. A load shall be applied equally to each handlebar end in a direction to cause the greatest torque about the handlebar-to-stem clamp; deflection shall be measured along the line of applied force.(ii) Criteria. The handlebars shall support a force of no less than 445 N (100 lbf) or absorb no less than 22.6 J (200 in-lb) of energy through a maximum deflection of no more than 76 mm (3.0 in.); the handlebar clamp shall prevent rotational movement of the handlebars relative to the clamp, and there shall be no visible fractures.	Pass
(i)	Pedal slip test. [Reserved]	Pass
(j)	Rim test. (Ref . §§ 1512.10 and 1512.11(c))	Pass
(1)	Procedure. Only one wheel need be tested if the front and rear wheel are of identical construction. The wheel to be tested shall be removed from the bicycle and be supported circumferentially around the tire sidewall. A load of 2000 N (450 lbf) shall be applied to the axle and normal to the plane of the wheel for at least 30 seconds. If the wheel hub is offset, the load shall be applied in the direction of the offset.	Pass
(2)	Criteria. The wheel and tire assembly shall be inspected for compliance with the requirements of § 1512.11(a) and shall be remounted on the bicycle according to the manufacturer's instructions and shall turn freely without	Pass

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	roughness and shall comply with the requirement of § 1512.11(b).	
(3)	Front hub retention test.(Ref . § 1512.12(c)) (i) Procedures. Front hub locking devices shall be released. When threaded nuts and axles are used, the nuts shall be open at least 360° from a finger tight condition. A separation force of at least 111 N (25 lb) shall be applied to the hub on a line along the slots in the fork ends.(ii) Criteria. The front hub shall not separate from the fork; fenders, mudguards, struts, and brakes shall not be allowed to restrain the separation.	Pass
(k)	Fork and frame test. (Ref . §§ 1512.13 and 1512.14)	Pass
(1)	Fork test.-(i) Procedure. With the fork stem supported in a 76 mm (3.0 in) vee block and secured by the method illustrated in figure 1 of this part 1512, a load shall be applied at the axle attachment in a direction perpendicular to the centerline of the stem and against the direction of the rake. Load and deflection readings shall be recorded and plotted at the point of loading.(ii) Criteria. Energy of at least 39.5 J (350 in-lb) shall be absorbed with a deflection in the direction of the force of no more than 64 mm (21/2 in.).	Pass
(2)	Fork and frame assembly test.(i) Procedure. The fork, or one identical to that tested in accordance with the fork test, § 1512.18(k)(1), shall be replaced on the bicycle in accordance with the manufacturer's instructions; and a load of 890 N (200 lbf), or an energy of at least 39.5 J (350 in-lb), whichever results in the greater force, shall be applied to the fork at the axle attachment point against the direction of the rake in line with the rear wheel axle. The test load shall be counteracted by a force applied at the location of the rear axle during this test. (ii) Criteria. There shall be no visible evidence of fracture and no deformation of frame that significantly limits the steering angle over which the front wheel can be turned.	Pass
(l)	Seat adjustment clamps and load test. (Ref . § 1512.15(c)).	Pass
(1)	Procedure. A force of at least 668 N (150 lbf) shall be applied vertically downward (334 N (75 lbf) for sidewalk bicycles) to a point within 25 mm (1.0 in.) from either the front or rear of the seat, whichever produces the greatest torque on the seat clamp. After removal of this force, a force of 222 N (50 lbf) shall then be applied horizontally (111 N (25 lbf) for sidewalk bicycles) to a point within 25 mm (1.0 in.) from either the front or rear of the seat, whichever produces the greatest torque on the clamp.	Pass
(2)	Criteria. No movement of the seat with respect to the seat post, or of the seat post with respect to the bicycle frame, shall have resulted from application of the forces specified.	Pass
(m)	Reflector mount and alignment test. (Ref . § 1512.16 (c)and(d))	Pass
(1)	Procedure. A force of 89 N (20 lbf) shall be applied to the reflector mount in at least three directions selected as most likely to affect its alignment. At least one of those directions shall be selected to represent a force that would be expected in lifting the bicycle by grasping the reflector.	Pass
(2)	Criteria.	Pass
(i)	During test. The optical axis of the reflector shall remain parallel within 15° to the line or intersection of the ground plane and the center plane of the bicycle defined as a plane containing both wheels and the centerlines of the down	Pass

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	tube and seat mast.	
(ii)	Post test. The optical axis of the reflector shall remain parallel within 5° to the line or intersection of the ground plane and the center plane of the bicycle defined as a plane containing both wheels and the centerlines of the down tube and seat mast.	Pass
(n)	Reflector test (Ref. §1512.16(g))	Pass
(1)	Conditioning. The following conditioning in the order given shall be performed prior to testing for performance.	Pass
(i)	Warp age conditioning. The reflector shall be held in a preheated oven for at least one hour at 50° ±5 °C (122±5.4 °F). A pedal reflector may be conditioned integrally with its pedal.	Pass
(ii)	Mechanical impact conditioning. The reflector shall be mounted faceup in a manner similar to the way in which it is mounted on the bicycle. A 13 mm (1/2 in.) diameter polished steel ball shall be dropped normal to the center of the face of the reflector from a height of 0.76 m (30 in.). The ball may be guided by a tube with holes, but not restricted in free fall. Pedal reflectors are exempt from this impact conditioning.	Pass
(iii)	Moisture conditioning. The reflector shall be submerged in tap water in a suitable container. The container shall be pressurized in 17.2 kN/m2 (2.5 psi) (equivalent to 1.7 m (53/4 ft.)) of water for 15 minutes and then released.	Pass
(2)	Reflector performance test.(i) Arrangements for the reflector performance test shall be as shown in figure 3 and the distance D between the light source and the reflector shall be 30.5 m (100 ft.). The source of illumination shall be a lamp with a 51 mm (2.0 in.) effective diameter and a filament operating at 2,856±10 percent color temperature. The observation point shall be colocated (as close as practicable) with the source of illumination. The reflector shall be mounted with the center of the reflector at the center of rotation and at the same horizontal level as the source of illumination. Photometric measurements shall be made at the observation angles and entrance angles given in tables 1 and 2. (ii) The observation angle is the angle formed by a line from the point of observation to the center of the reflector with a second line from the center of the reflector to the source of illumination. The entrance angle is the angle between the optical axis of the reflector and a line from the center of the reflector to the source of illumination. The entrance angle shall be designated left, right, up, and down in accordance with the position of the source of illumination with respect to the axis of the reflector as viewed from behind the reflector when the plane of the observation angle is vertical and the receiver is above the source.(iii) Photometric measurements shall be made either visually or photoelectrically. With either method, the light reflected to the observation point shall be determined. Also, the illumination on the reflector from the source shall be measured.(iv) For visual measurements a comparison lamp, emitting light similar in spectral quality to the reflector, shall be located adjacent to the reflector (at an angle not to exceed1/2°) and arranged so that the candlepower can be varied from 0.01 to 0.25 to make the intensity duplicate that of the reflector under test. The candlepower of the source of the illumination of the reflector under test shall be known or determined for this test. Means shall be provided to change the intensity of the source of	Pass

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	illumination without changing the filament color temperature. The comparison lamp shall be designed to avoid reflection from the source of illumination back in the direction of the observer. It shall be of such size and so diffused that when viewed by the observer (through a 21/2 × reducing monocular), the candlepower can be readily compared and adjusted to that of the reflector. The observer shall have at least 10 minutes of dark adaption before making observations. For photoelectric measurements, the opening to the photocell shall not be more than1/2 inch vertical by 1 inch horizontal.(v) Reflectors that mount on the bicycle in a fixed rotational position with respect to the bicycle, or the bicycle component on which they are mounted (such as pedals or spokes), shall be tested with a single orientation. Reflectors that do not mount on the bicycle in a fixed rotational position with respect to the bicycle shall be rotated about their axis through 360° to find the minimum candlepower per footcandle for each test point. If the measurement falls below the minimum requirement at any test point, the reflector shall be rotated ±5° about its axis from the angle where the minimum occurs, and the maximum candlepower per footcandle within this angle shall be the measured value.(vi) Should uncolored reflections from the front surface interfere with photometric readings at any test point the lowest reading and location within 1° above, below, right, and left of the test point shall meet the minimum requirement for the test point.(vii) A recommended coordinate system for definition of color is the “Internationale de l'Eclairage (CIE 1931)” system. In the coordinate system and when illuminated by the source defined in table 4 of this part 1512, a reflector will be considered to be red if its color falls within the region bounded by the red spectrum locus and the lines y = 0.980−x and y = 0.335; a reflector will be considered to be amber if its color falls within the region bounded by the yellow spectrum locus and the lines y = 0.382, y = 0.790−0.667x, and y = x−0.120.	
(o)	Reflective tire and rim test(Ref. § 1512.16(h)and (i))	Pass
(1)	Apparatus. Arrangements for the reflective intensity measurement shall be as shown in figure 3 of this part 1512. A light projector (having a maximum effective lens diameter of D/500, where D is the distance from the source to the retroreflective surface being measured) capable of projecting light of uniform intensity shall be used to illuminate the sample. The light falling on the sample shall have a color temperature of 2856°K + 10% (equivalent to a tungsten filament lamp operated at a color temperature of 2856°K + 10% having approximately the relative energy distribution given in table 4 of this part 1512). The light reflected from the test surface shall be measured with a photoelectric receiver, the response of which has been corrected for the spectral sensitivity of the average photopic human eye. The dimensions of the active area of the receiver shall be such that no point on the perimeter of the receiver is more than D/100 from its center (where d is the distance from the receiver to the retroreflective surface). Wheels used for the measurement of retroreflective tires or rims shall have all exposed metallic surfaces, including spokes, masked in flat black so that when measured these surfaces indicate no appreciable reflectance. The tire shall be mounted and fully inflated. Distances shall be measured from the plane of the wheel and the center of the hub. For the tests, the distance D between the projector and the center of the	Pass

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	wheel and distance d between the center of the wheel and the receiver shall each be at least 15 m (50 ft.).	
(2)	Procedure	Pass
(i)	Masking. The reflecting strip to be tested shall be within two concentric circles, the larger of which is no more than 0.02 m (0.79 in.) greater in radius than the smaller. While additional reflecting material is permitted outside such boundaries, such additional material shall not be counted in determining the average width of the reflecting strip and shall be masked off with opaque, matte black tape in testing the reflecting material.	Pass
(ii)	Orientation. Every position of the reflecting strip on the rim or the mounted and fully inflated tire to be tested shall be oriented so that the normal to this portion is within 40° of parallel to the axis of rotation of the wheel.	Pass
(iii)	Measurement. Measure the distance d from the receiver to the center of the wheel and the minimum distance r from the axis of rotation of the wheel to the unmasked portion of the reflective strip. Measure the illumination incident on the reflective strip at uniform intervals of no more than 45° around the wheel, with the receiver oriented in the direction of the incident radiation. The average of such readings will be the mean illumination of the sample E. If any one of such readings differs by more than 10 percent from the mean illumination, then a more uniform source must be obtained. Measure the illumination of the receiver due to reflection from the retroreflective surface for each entrance angle and each observation angle given in table 3 of this part 1512. The entrance angle and the observation angle shall be in the same plane. A negative entrance angle (figure 3 of this part 1512) is specified when the entrance angle is small because the location of the receiver with respect to the direction of illumination becomes important for distinguishing between ordinary mirror-like reflection and retroreflection. The illumination incident on the test surface and the receiver shall be measured in the same units on a linear scale. Compute the ratio A for each combination of entrance angle and observation angle listed in table 3 as follows: A = [(Er / Es)(d2 / r)] Where: A = Ratio in meters, Er = Illumination incident upon the receiver, Es = Illumination incident upon a plane perpendicular to the incident ray at the specimen position (see instructions above in this paragraph (o)(2)(iii) for averaging), measured in the same units as Er, d = The distance in meters from the receiver to the center of the wheel, r = The minimum radius in meters of the boundary circles of the retroreflective strip. The minimum value of A shall be that listed in table 3 of this part 1512 for each combination of entrance angle and observation angle. The plane containing the entrance angle and the plane containing the observation angle shall coincide. In table 3, a positive entrance angle corresponds to the case in which the line of sight to the receiver lies between the line of incidence and the optic axis of the reflector, and a negative entrance angle corresponds to the case in which the line of incidence lies between the line of sight of the receiver and optic axis of the reflector.	Pass

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(iv)	Criteria. The ratio A as defined in § 1512.18(o)(2)(iii) shall not be less than: $A = 4Cos2\theta/[1 + (\Phi/0.225)3/2]$ where A is ratio in meters, θ is the entrance angle in degrees, and Φ is the observation angle in degrees. The criterion applies only for entrance angles from 0° to 40° and observation angles from 0.2° to 1.5°, and performance is not specified beyond this range. The values of A in table 3 are obtained from the above formula by rounding up to two significant figures. Except in cases in which the performance of the reflector is seriously questionable, a reflector with A at least the value given in table 3 at each of the six combinations of entrance and observation angles will be considered to satisfy this criteria.	Pass
(b)	A bicycle less than fully assembled and fully. adjusted shall have clearly displayed on any promotional display material and on the outside surface of the shipping carton the following: (1) A list of tools necessary to properly accomplish assembly and adjustment, (2) a drawing illustrating the minimum leg-length dimension of a rider and a method of measurement of this dimension.	Pass
(p)	Road test.(1) Procedure. The bicycle shall be ridden at least 6.4 km (4.0 mi.) by a rider weighing at least 68.1 kg (150 lb.) with the tires inflated to maximum recommended pressure. Travel shall include riding the bicycle five times over a 30 m (100 ft.) course of wooden cleats fastened to a paved surface. The cleats shall be a full 25 mm (1.0 in.) high by 51 mm (2.0 in.) wide lumber with a 12 mm by 12 mm (1/2 in. by1/2 in.) chamfer of 45° on the corners contacting the tires. The cleats shall be spaced every 1.8 m (6.0 ft.) over the 30 m (100 ft.) course. The bicycle shall be ridden over the cleated course at a speed of at least 24 km/hr (15 mph) with the rider firmly seated.(2) Criteria. The bicycle shall exhibit stable handling, turning, and steering characteristics without difficulty of operation. There shall be no system or component failure of the structure, brakes, or tires and there shall be no loosening or misalignment of the seat, handlebars, controls, or reflectors.	Pass
q	Sidewalk bicycle proof test. (Ref. §§ 1512.15(c) and 1512.17(b)):	Pass
(1)	Procedure. The bicycle shall be loaded with weights of 13.6 kg (30 lb.) on the seat surface and 4.5 kg (10 lb.) attached to the end of each handle grip for a total load of 22.7 kg (50 lb.). The bicycle shall be lifted a distance of 0.3 m (1.0 ft.) and dropped (while maintaining an upright position) three times onto a paved surface. Following this and with weight removed, it shall be allowed to fall in any configuration and attitude from an upright position to the paved surface three times on each side.	Pass
(r)	Abrasion test for retroreflective rims.	Pass
(1)	This test consists of a steel wire cup brush rotating at a constant velocity of 60 rpm that is applied at a force of 2 N (0.45 lbf) to the retroreflective material on one side of a bicycle wheel rim. The rim is rotated about the axle at a linear velocity of 0.23 m/sec (9 in./sec). The test is complete when the wheel has completed 1000 revolutions.	Pass
(2)	Apparatus. Figure 8 of this part 1512 illustrates the following test fixture arrangement that is suitable to perform this abrasion test (i) Test fixture. The test fixture contains a clamp to hold the axle of a bicycle wheel so that the wheel can rotate freely about the axle. The axis of rotation is capable of being inclined from the vertical to bring that portion of the side of the wheel rim	Pass

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Applicable Section	Description	Result
	containing the retroreflective material into a horizontal plane as it passes beneath the abrading brush. A drive mechanism to rotate the bicycle wheel contains a means to adjust the rotational velocity to obtain the specified linear velocity measured at a point on the wheel rim on the axis of the abrading brush. (ii) Abrader. The abrader is a cup brush meeting the specification in paragraph (r)(3)(v) of this section. It is mounted in a chuck attached to a motor that rotates about a vertical axis at the specified rotational velocity. A means is provided to apply the rotating cup brush at the specified force against the retroreflective material on the bicycle wheel rim. The axis of the abrading brush is positioned on the midpoint in the width of the retroreflective material. The force is produced by deadweights applied to a pan on the axis of the counterbalanced motor/brush assembly.	
(3)	Specifications.	Pass
(i)	The linear velocity of the reflective band on wheel rim shall be 0.23 m/sec (9 in./sec) measured at a point on the axis of the abrading brush.	Pass
(ii)	The rotational velocity of the abrading brush shall be 60 rpm.	Pass
(iii)	The force normal to the plane of the retroreflective material at which the abrading brush is to be applied shall be 2 N (0.45 lbf).	Pass
(iv)	The bicycle wheel shall make 1000 complete revolutions per test.	Pass
(v)	The abrader shall be a cup brush having bristles that are 0.005 in. (approx. 0.13mm) diameter low carbon steel wire; an outside diameter of 0.5 inch (aprox. .13mm); a wire bristle length of 0.25 inch (approx. 6.4mm); and a cup diameter of 0.405 inch (approx. 10.29mm)	Pass
(vi)	The abrasion test shall be conducted at an ambient temperature of between 16 °C (60 °F) and 27 °C (80 °F).	Pass
(4)	Procedure. (i)The retroreflective bicycle rim to be tested shall be an unused sample free from grit, grime and grease. Prior to beginning the test, remove, according to instructions supplied with the bicycle, any protective coating or material used to prevent damage in shipping.(ii) Test the wheel in a suitable test fixture, according to the specifications in paragraph (r)(3) of this section.(iii) Clamp the wheel by its axle in the test fixture and align the axis of rotation so that the portion of the reflective material below the axis of the abrading brush is horizontal.(iv) Shape the cup brush by hand to the specified 0.5 (approx. 13mm) diameter. Any stray wire bristles projecting more than1/32 in. (approx. 1 mm) beyond the tip of the bulk of the bristles should be clipped off. Adjust the position of the brush so that its axis is centered over the mid-point in the width of the retroreflective material.(v) Adjust the rotational velocity of the bicycle wheel to obtain a linear velocity of 0.23 m/sec (9 in./sec) measured at the mid-point in the width of the retroreflective material. Adjust the force to obtain a force normal to the surface under the brush of 2 N (0.45 lbf).(vi) Apply the abrading brush to the retroreflective material on the wheel rim, and continue the test for 1000 complete revolutions of the bicycle wheel.	Pass
1512.19	**Instructions and labeling.** A bicycle shall have an instruction manual attached to its frame or included with the packaged unit.	
(a)	The instruction manual shall include at least the following:	Pass

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Applicable Section	Description	Result
	(1) Operations and safety instructions describing operation of the brakes and gears, cautions concerning wet weather and night-time operation, and a guide for safe on-and-off road operation.(2) Assembly instructions for accomplishing complete and proper assembly.(3) Maintenance instructions for proper maintenance of brakes, control cables, bearing adjustments, wheel adjustments, lubrication, reflectors, tires and handlebar and seat adjustments; should the manufacturer determine that such maintenance is beyond the capability of the consumer, specifics regarding locations where such maintenance service can be obtained shall be included.	
(b)	A bicycle less than fully assembled and fully adjusted shall have clearly displayed on any promotional display material and on the outside surface of the shipping carton the following(1) A list of tools necessary to properly accomplish assembly and adjustment,(2) a drawing illustrating the minimum leg-length dimension of a rider and a method of measurement of this dimension.	Pass
(c)	The minimum leg-length dimension shall be readily understandable and shall be based on allowing no less than one inch of clearance between (1)the top tube of the bicycle and the ground plane and (2) the crotch measurement of the rider. A girl's style frame shall be specified in the same way using a corresponding boys' model as a basis.	Pass
(d)	(Reserved]	NA
(e)	Every bicycle subject to the requirements of this part 1512 shall bear a marking or label that is securely affixed on or to the frame of the bicycle in such a manner that the marking or label cannot be removed without being defaced or destroyed. The marking or label shall identify the name of the manufacturer or private l a bear and shall also bear some form of marking from which the manufacturer can identify the month and year of manufacture or from which the private labeler can identify the manufacturer and the month and year of manufacture. For purposes of this paragraph, the term manufacture means the completion by the manufacturer of a bicycle of those construction or assembly operations that are performed by the manufacturer before the bicycle is shipped from the manufacturer's place of production for sale to distributors, retailers, or consumers.	Pass
1512.20	**Separability.**	Pass

--NA= Not Applicable

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Tested part(s):

Seq. no	Part(s) name
1	Red coating

C. USA 16 CFR Part 1303 Ban of Lead Containing Paint and Certain Consumer Products Bearing Lead- Containing Paint

Test method: Lead in paint and other similar surface coatings: With reference to CPSC-CH-E1003-09.1, sample was digested with acid mixture and analyzed by inductively coupled plasma atomic emission spectrometer (ICP-AES)

Item	Unit	MDL	Results	Limit
			1	
Lead Content (Pb)	mg/kg	5	N.D.	90
Conclusion	/	/	**Pass**	/

D. USA Consumer Product Safety Improvement Act (CPSIA) Sec.101 Children´s products containing Lead; Lead paint rule

(1) Substrate Materials

Test method: With reference toCPSC-CH-E1001-08.3; CPSC-CH-E1002-08.3, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-AES).

Item	Unit	MDL	Results	Limit
			NA	
Lead Content (Pb)	mg/kg	5	NA	100
Conclusion	/	/	NA	/

(2) Paint and similar surface coating material

Test method: Lead in paint and other similar surface coatings: With reference to CPSC-CH-E1003-09.1, sample was digested with acid mixture and analyzed by inductively coupled plasma atomic emission spectrometer (ICP-AES)

Item	Unit	MDL	Results	Limit
			1	
Lead Content (Pb)	mg/kg	5	N.D.	90
Conclusion	/	/	**Pass**	/

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E. USA Consumer Product Safety Improvement Act (CPSIA) Sec.108 Prohibition on sale of certain products containing specified phthalates

USA 16 CFR Part 1307 Prohibition of Children's Toys and Child Care Articles Containing Specified Phthalates

Test method: With reference to CPSC-CH-C1001-09.4, by sol vent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS).

Item	Unit	MDL	Results	Limit
			1	
Dibutyl Phthalate (DBP)	mg/kg	30	N.D.	1000
Benzylbutyl Phthalate (BBP)	mg/kg	30	N.D.	1000
Bis-(2-ethylhexyl) Phthalate(DEHP)	mg/kg	30	N.D.	1000
Diisononyl Phthalate (DINP)	mg/kg	100	N.D.	1000
Di-isobutyl Phthalate (DIBP)	mg/kg	100	N.D.	1000
Dicyclohexyl Phthalate (DCHP)	mg/kg	100	N.D.	1000
Di-n-hexyl Phthalate (DHEXP)	mg/kg	100	N.D.	1000
Di-n-pentyl Phthalates (DPENP)	mg/kg	100	N.D.	1000
Conclusion	/	/	**Pass**	/

Note:

- N.D. =Not Detected or less than MDL.
- MDL=Method Detection Limit.
- NA= Not Applicable
- %=Percentage by weight.
- 0.1%=1000mg/kg, mg/kg=ppm.
- The selection of test portions is strongly recommended by the client and the conclusion of chemical test is only for the selected portion.

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F. CPSA Section 14(a) (5) Tracking Labels for Children's Products (15 USC §2063(a)(5) (CPSA))

Applicable Section	Description	Result
(a)(5) (A)	Effective 1 year after the date of enactment of the Consumer Product Safety Improvement Act of 2008, the manufacturer of a children's product shall place permanent, distinguishing marks on the product and its packaging, to the extent practicable, that will enable—	Pass
(i)	the manufacturer to ascertain the location and date of production of the product, cohort information (including the batch, run number, or other identifying characteristic), and any other information determined by the manufacturer to facilitate ascertaining the specific source of the product by reference to those marks; and	Pass
(ii)	the ultimate purchaser to ascertain the manufacturer or private labeler, location and date of production of the product, and cohort information (including the batch, run number, or other identifying characteristic).	Pass
(B)	The Commission may, by regulation, exclude a specific product or class of products from the requirements in subparagraph (A) if the Commission determines that it is not practicable for such product or class of products to bear the marks required by such subparagraph. The Commission may establish alternative requirements for any product or class of products excluded under the preceding sentence consistent with the purposes described in clauses (i) and (ii) of subparagraph (A).	NA
(b)	The Commission may by rule prescribe reasonable testing programs for any product which is subject to a consumer product safety rule under this Act, or a similar rule, regulation, standard, or ban under any other Act enforced by the Commission, and for which a certificate is required under subsection (a). Any test or testing program on the basis of which a certificate is issued under subsection (a) may, at the option of the person required to certify the product, be conducted by an independent third party qualified to perform such tests, unless the Commission, by rule, requires testing by an independent third party for a particular rule, regulation, standard, or ban, or for a particular class of products.	Pass
(c)	The Commission may by rule require the use and prescribe the form and content of labels which contain the following information (or that portion of it specified in the rule) —	Pass
(1)	The date and place of manufacture of any consumer product.	Pass
(2)	The cohort information (including the batch, run number, or other identifying characteristic) of the product.	Pass
(3)	A suitable identification of the manufacturer of the consumer product, unless the product bears a private label in which case it shall identify the private labeler and shall also contain a code mark which will permit the seller of such product to identify the manufacturer thereof to the purchaser upon his request.	Pass
(4)	In the case of a consumer product subject to a consumer product safety rule, a certification that the product meets all applicable consumer product safety standards and a specification of the standards which are applicable. Such labels, where practicable, may be required by the Commission to be permanently marked on or affixed to any such consumer product. The Commission may, in appropriate cases, permit information required under	Pass

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Applicable Section	Description	Result
	paragraphs (1) and (2) of this subsection to be coded.	
(d)	REQUIREMENT FOR ADVERTISEMENTS.—No advertisement for a consumer product or label or packaging of such product may contain a reference to a consumer product safety rule or a voluntary consumer product safety standard unless such product conforms with the applicable safety requirements of such rule or standard.	Pass
(e)	WITHDRAWAL OF ACCREDITATION-	Pass
(f)	DEFINITIONS.--In this section	Pass
(g)	REQUIREMENTS FOR CERTIFICATES.-- (1) IDENTIFICATION OF ISSUER AND CONFORMITY ASSESSMENT BODY.--Every certificate required under this section shall identify the manufacturer or private labeler issuing the certificate and any third party conformity assessment body on whose testing the certificate depends. The certificate shall include, at a minimum, the date and place of manufacture, the date and place where the product was tested, each party's name, full mailing address, telephone number, and contact information for the individual responsible for maintaining records of test results.	Pass
(h)	RULE OF CONSTRUCTION.	Pass
(i)	ADDITIONAL REGULATIONS FOR THIRD PARTY TESTING	Pass

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**** Modified History ****

Revision	Description	Issued Data	Remark
Revision 1.0	Initial Test Report Release	2023/06/07	Jason Zhou

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Photograph of Sample





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***** End of Report *****

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