



Accessing the growing market for e-bikes

SGS E-BIKE TESTING SERVICES

E-BIKE TESTED

The global market for e-bikes is growing. Manufacturers looking to build market share need to ensure their products conform to safety, quality and performance requirements relating to bicycles and electrically power assisted cycles (EPAC).

EPAC ARE DESIGNED FOR USE ON PUBLIC ROADS AND MUST MEET THE FOLLOWING REQUIREMENTS:

- Maximum continuous rated power of 0.25 kW
- Electric motor less than 750 watts (US)
- Maximum speed not exceeding 25 km/h (EU) or 32 km/h (US)
- Rated voltage up to and including 48V DC or integrated battery charger with a nominal 230V AC input
- Maximum saddle height – at least 635 mm

Most US states have adopted a three-tier classification system for e-bikes:

- Class 1 and Class 2 are defined as lower speed e-bikes and are regulated similarly to traditional bikes
- Class 3 e-bikes must cease power assistance at 45 km/h. Plus, all riders must wear helmets and persons under 16 years of age are prohibited from riding the e-bike (except as a passenger)

SGS E-BIKE TESTING SERVICES

We have developed a comprehensive range of physical and chemical testing services to help manufacturers deliver high-quality bicycles and e-bikes to markets around the world.

We provide a one-stop shop solution that covers traditional bicycles, e-bikes, accessories (locks, carriers, child seats), safety equipment (helmets, gloves, eye protectors, high visibility clothing) and bicycle components.

Our global network of state-of-the-art testing facilities and industry experts help manufacturers ensure their e-bikes conform to national and international regulations, including:

EUROPEAN UNION

- EN 15194 – Cycles – Electrically power assisted cycles, including electromagnetic compatibility (EMC), safety and mechanical strength
- Charger EMC: EN 55014, EN 61000-6, EN 61000-3
- Charger safety: IEC/EN 60335-2-29
- Battery safety: EN 50604-1 or EN 62133
- Functional safety: EN ISO 13849
- Risk assessment: EN ISO 12100

UNITED STATES

- UL 2849 – Standard for Electrical Systems for e-bikes
- Charger: UL/CSA 60950-1, UL/CSA 62368-1, UL 1310 or UL 1012
- Batteries: UL 2271
- Rotating electrical machines: UL 1004
- Radio frequency devices: 47 CFR 15
- Requirements for bicycles: 16 CFR 1512

Further added value services

SGS PERFORMANCE MARK

PROTOCOL ORIGIN

We work with clients to create tailored testing protocols.

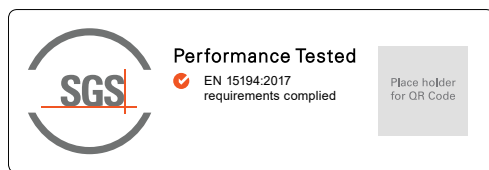
PREMIUM PERFORMANCE

- Protocol content: covers all product aspects as per market preference; or special new feature/design
- Certificate length: 3 years
- Yearly surveillance: yes
- Applicant control number: yes
- No annual fee



PERFORMANCE TESTED

- Protocol content: selected test(s); or claim validation
- Certificate length: 2 years
- Yearly surveillance: no
- No annual fee



NRTL MARK

UL 2849, updated by the American National Standards Institute (ANSI) and UL in 2022, places great emphasis on the electrical safety of e-bikes and aims to prevent hazards caused by electronic control system failure.

It does not cover the safety of mechanical structures or EMC.

SCOPE

The standard applies to e-bikes powered by rechargeable lithium batteries.

- Includes both EPAC and non-pedal assisted e-bikes
- The speed/power limit is not stated in UL 2849 but in 16 CFR 1512: speed < 20 mph, power < 750 watts
- People for Bikes classify e-bikes into three types:
 - Type 1: ≤ 20 mph, must pedal
 - Type 2: ≤ 20 mph, can throttle
 - Type 3: ≤ 28 mph, must pedal

SGS OFFERS ONE-STOP SERVICE

With the goal of ensuring safer products, UL 2849 also talks about the requirements for chargers, controllers and battery management system (BMS), batteries and assorted components.

Through our comprehensive certification program, manufacturers are able to confirm the compliance of their e-bikes and add the SGS North American Mark to their products. Brings safer, better quality products to market.



ADVANTAGES OF SGS NORTH AMERICA CERTIFICATION

- Experts experienced in the bike industry
- Reputable third party services
- Global regulation solutions
- Flexible factory inspection arrangements
- No annual fee

SGS IS THE FIRST ACCREDITED LAB

SGS North America Inc., the first lab awarded NRTL scope for personal mobility devices UL 2271, UL 2272, UL 2849, can provide you with complete testing services for personal light electric vehicles, allowing you to adapt to new requirements swiftly and gain early entry into the market.

WHY SGS?

We are SGS – the world's leading testing, inspection and certification company. We are recognized as the global benchmark for sustainability, quality and integrity.

Our innovative solutions employ the latest technology to create a seamless testing service that meet client and market demands. Leveraging our global network of industry experts and testing laboratories, we can ensure round-the-clock support, enabling our clients to successfully access target markets in an efficient and cost-effective manner.

CONTACT US

Contact the UK team today for details of technical support and to organize and arrange testing anywhere in the world.

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When you need to be sure