

EV and battery

1. Onboard inverters

UL 458A

Outline of investigation for power converters/inverters for electric land vehicles

UL 1741 SC

2. Onboard motors

UL 1004-1

The standard for rotating electrical machines

3. Onboard batteries

UL 2580

The standard for batteries for use in electric vehicles

ISO 26262

ISO/SEA 21434

ECE R100/GB 38031/LV 124/OEM

Design validation (DV) testing product verification (PV) testing

4. Onboard chargers

UL 2202

The standard for electric vehicle (EV) charging system equipment

UL 9741

The standard for electric vehicle power export equipment (EVPE)

ISO 17409

ISO 26262

ISO/SAE 21434

5. EV relay

UL 61810-20

Outline for electric vehicle electrical mechanical relays

6. Onboard wire and tubing

UL 2733

Outline of investigation for surface vehicle on-board cable

7. Vehicle inlets

UL 2251

The standard for plugs, receptacles, and couplers for electric vehicles

IEC 62196-1

IEC 62196-2

IEC 62196-3

8. Onboard connectors

UL 2734

Outline of investigation for connectors and service plugs for use with on-board electric vehicle (EV) charging systems

EV supply equipment

9. EV charging adapter

UL 2252

The standard for adapters for use with electric vehicle couplers

10. Vehicle connector

UL 2251

The standard for plugs, receptacles and couplers for electric vehicles

UL 2278

The standard for megawatt charging configured electric vehicle couplers

11. Offboard cable

UL 2263

The standard for electric vehicle cable

IEC 62893-1

IEC 62893-2

IEC 62893-4-1

IEC 62893-4-2

DIN EN 50620

12. Cordset

UL 2594

The standard for electric vehicle supply equipment

ISA/IEC 62443

IEC 62752

IEC 61851-1

13. Personal protection equipment

UL 2231-1 and UL 2231-2

The standard for personal protection systems for electric vehicle (EV) supply circuits

IEC 61008-1

IEC 61009-1

IEC 62955

IEC 62423

14. Wireless charging

UL 2750

The standard for wireless power transfer equipment for electrical vehicles

ISA/IEC 62443

15. AC charging station

UL 2594

The standard for electric vehicle supply equipment

IEC 61851-1

IEC 61851-1-21-2

IEC 61439-7

IEC 62752

ISA/IEC 62443

IEC 61508

16. DC charging station

UL 2202

The standard for electric vehicle (EV) charging system equipment

IEC 61851-1

IEC 61851-23

IEC 61851-21-2

IEC 61851-24

IEC 61439-7

ISA/IEC 62443

IEC 61508

17. Bidirectional charging station

UL 9741

The standard for electric vehicle power export equipment (EVPE)

ISA/IEC 62443

Energy storage

18. Energy storage battery

UL 1973

The standard for batteries for use in stationary and motive auxiliary power applications

IEC 62619

IEC 62485-5

ISA/IEC 62443

IEC 61508

19. Power conversion equipment

UL 1741

The standard for inverters, converters, controllers and interconnection system equipment for use with distributed energy resources

IEC 62109

ISA/IEC 62443

IEC 61508

20. Energy storage systems

UL 9540

The standard for energy storage system and equipment

UL 9540A

The standard for test method for evaluating thermal runaway fire propagation in battery energy storage systems

IEC 62933

ISA/IEC 62443

IEC 61508

Supporting safety and reliability throughout the Electric Vehicle (EV) and Electric Vehicle Supply Equipment (EVSE) Chain

Applicable Standards and Certifications for EV and EVSE

