

# JJG

## INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

### JJG 1149-2022

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#### Off-board Chargers for Electric Vehicles(for Trial Implementation) (English Translation)

Issued on: June 28, 2022

Implemented on: December 28, 2022

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Issued by: State Administration for Market Regulation Administrative  
organization

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### 1 Scope

This Regulation applies to the first verification, follow-up verification and in-use inspection for off-board chargers for electric vehicles.

The verification of off-board chargers for electric vehicles based on statistical sampling methods can be carried out in accordance with this Regulation.

### 2 Normative references

This Regulation refers to the following documents.

JJG 842-2017, Electronic Meters for Measuring Direct-current Electrical Energy

JJF 1139, Principle and method for determination verification period of measuring instruments

NB/T 33001-2018, Specification for electric vehicle off-board conductive charger

For the dated documents, only the versions with the dates indicated are applicable to this Regulation; for the undated documents, only the latest version (including all the amendments) is applicable to this Regulation.

### **3 Terms**

The following terms and definitions apply to this document.

#### **3.1**

off-board charger

A special device that is fixedly connected to an AC or DC power source, converts its electrical energy into DC electrical energy, charges the power battery of an electric vehicle by means of conduction, and has the functions of measuring, storing, and providing results to users.

#### **3.2**

connection point

A connection point that the off-board charger is connected to the electric vehicle.

#### **3.3**

real load test method

A method of verification using the actual operating load.

#### **3.4**

virtual load test method

A method that uses the virtual load provided by the charger verification device to verify.

### **4 Overview**

An off-board chargers for electric vehicles (hereinafter referred to as charger) is a metrology device that provides DC power for electric vehicles. It is mainly composed of rectification and chopper control unit, display interface or data transmission interface, metrology module, connection device for conductive charging and other parts. The schematic diagram of the charger is shown in Figure 1.

## 5.1 Operate error

The operate error of the charger is expressed by relative error. Under the verification conditions specified in 7.2.1, the operate error of the charger shall meet the requirements in Table 1. See Table 2 for the value of the average temperature coefficient of the electric energy measurement of the charger.

## 5.2 Clock time error

For the charger with time-sharing charging function, the error of the clock time of the charger shall not exceed 5s at the first verification. In the follow-up verification, it shall not exceed 3min.

## 6.1 Identification

The nameplate shall have the following identification.

The technical indicators of the test output and communication interface of the charger used for verification shall meet the requirements of relevant standards.

## 6.3 Constant

The charger shall have a pulse output corresponding to the measured DC energy. It shall be consistent with the constant marked on the nameplate.

## 6.4 Minimum power variable

The minimum electric energy variable shall be 0.001kW·h.

## 7.1 First verification, follow-up verification and in-use inspection

The first verification is for a charger that has not been verified. The follow-up verification is any verification after the first verification.

### 7.2.1 Ambient conditions for verification

When verifying the charger, the following conditions shall be met.

### 7.4.2 Rounding off method for measurement data

#### 7.4.2.1

Rounding off method when the rounding off interval is 1. The right side of the reserved digit is for the reserved digit 1. If it is greater than 0.5, add 1 to the reserved digit. If it is less than 0.5, the reserved digit remains unchanged. If it is equal to 0.5, the reserved digit remains unchanged when it is an even number. Add 1 when the reserved digit is odd.

7.4.3 If all items meet the requirements, it is judged as qualified, otherwise it is judged as unqualified. Chargers that pass the verification will be issued with a verification certificate (see Annexes B and C for the format of the verification certificate) and a verification-pass mark.

7.4.4 A verification-pass charger must be sealed at the position of the electric energy meter or metrology module used inside it. Splitters that are used separately also need to be sealed.

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