

China Electric Vehicles Fire Safety Index

Management Regulation

Version 2026



中国电动汽车火灾安全指数
CHINA ELECTRIC VEHICLE FIRE SAFETY INDEX

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Foreword

Adhering to the development of electric vehicles is a fundamental strategic concept for China's automotive industry. After years of progress, China's electric vehicle industry has achieved global leadership in scale, production/sales volume and technological advancement. A comprehensive R&D system has been established covering electric vehicles and their component products. However, in recent years, frequent incidents of electric vehicle fires have drawn significant public attention. These accidents involve various types of electric vehicles (battery electric vehicles, off-vehicle-chargeable hybrid electric vehicles and range extended electric vehicles). The unpredictability of electric vehicle fires, their potential for severe damage, and the challenges in firefighting have made them the third major issue hindering the sustainable and healthy development of the electric vehicle industry, following range anxiety and charging anxiety. According to historical statistics on electric vehicle fire accidents, three primary vehicle-related contributors to such incidents are battery system failure, high voltage system failure, and electronic/electrical component failure. To ensure the development of electric vehicles with higher quality, safety and stability, it is imperative to research on fire safety of electric vehicles.

Therefore, China Merchants Testing Vehicle Technology Research Institute Co., Ltd. (hereinafter referred to as CMVR) has taken the lead in developing China Electric Vehicles Fire Safety Index Management Regulation (C-EVFI), which is designed, based on the safety protection of drivers and passengers, to independently, objectively and impartially evaluate the overall safety performance of vehicles in case of fire, providing clear and quantitative evaluation criteria combining qualitative and quantitative analysis and giving a reference for vehicle R&D and consumers' vehicle purchase and use, so as to continuously promote the technical progress of electric vehicles in China and promote the high-quality development of the electric vehicle industry.

The Electric Vehicle Safety Evaluation Management Center (hereinafter referred to as the "Management Center") reserves all rights over C-EVFI. Without the permission of the Management Center, other organizations are strictly prohibited from using C-EVFI to carry out open or commercial tests or evaluations on electric vehicle products, except for the technology development tests carried out by enterprises themselves. The C-EVFI evaluation results and scores are only valid for the evaluated product model. All parties using C-EVFI evaluation results shall be responsible for the authenticity, completeness and accuracy of the results. The Management Center reserves all rights to pursue legal action.

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Chapter 1 General

1 Purpose

C-EVFI was developed after extensive research across multiple dimensions, with the aim of offering an intuitive and quantitative evaluation method that takes into account both performance and safety risks associated with the real-world usage of electric vehicles. C-EVFI aims to build a fire safety testing and evaluation system for electric vehicles in the full life cycle, independently, objectively and impartially test and evaluate electric vehicles, reflect the overall technical level and development trend of electric vehicle fire protection in China, provide technical support for the safety supervision and product R&D of electric vehicle products, provide a reference for consumers' vehicle purchase and use decision, and guide the industry in continuous technical improvement.

2 Management Organization

The management organization of C-EVFI is the Electric Vehicle Safety Evaluation Management Center jointly established by CMVR, National Engineering Research Center of Electric Vehicles under Beijing Institute of Technology, Automobile Working Committee of China Association for Consumer Products Quality and Safety Promotion, Fire Protection Working Committee of China Association for Consumer Products Quality and Safety Promotion and OneConnect Smart Technology Co., Ltd. (Shenzhen). The Management Center is responsible for the organization and implementation of C-EVFI. The Management Center consists of a work leading group, an integrated management group and a test research group. The main responsibilities of these groups are as follows:

(1) Work leading group

Be responsible for the top-level design, resource coordination and promotion of C-EVFI.

(2) Integrated management group

Formulate annual work plans and financial budgets; review the testing and evaluation schemes; supervise the testing and evaluation process; examine, approve and release the testing and evaluation results; manage external communication and publicity, etc.

(3) Test research group

Analyze the industry development trend and product installation information; draw up a list of products to be tested and evaluated; formulate and revise the testing and evaluation schemes; implement the testing and evaluation; manage and organize process assets; conduct external technical exchanges, etc.

3 Testing and Evaluation Items

C-EVFI Version 2026 evaluates the safety of electric vehicles from five dimensions: thermal propagation protection performance, bottom protection performance, charging safety performance, material flame retardant performance and vehicle air tightness. They are detailed in *China Electric Vehicles Fire Safety Index - Testing and Evaluation Protocol Version 2026*.

4 Marking

The following fonts and logos have been applied for C-EVFI:

5 Statement

The Management Center reserves all rights to the C-EVFI. Without the permission of the Management Center, other organizations are strictly prohibited from using C-EVFI to carry out open or commercial tests or evaluations on electric vehicle products, except for the technology development tests carried out by enterprises themselves.

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The C-EVFI evaluation results and scores are only valid for the evaluated product model. All parties using C-EVFI evaluation results shall be responsible for the authenticity, completeness and accuracy of the results.

The Management Center reserves the right to improve test items, test methods and scoring methods, and reserves the right of final interpretation to C-EVFI.

The Management Center reserves all rights to pursue legal action.



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Chapter 2 Operation Management

1 Workflow

The C-EVFI testing and evaluation workflow is detailed in Appendix 1 *C-EVFI Testing and Evaluation Workflow Chart*.

2 Vehicle selection

2.1 Principles of selection

M₁ battery electric vehicles and hybrid electric vehicles (excluding fuel cell electric vehicles) sold and used in China are all the objects to be tested and evaluated under C-EVFI. The selection of vehicle types and their configurations for testing and evaluation shall take into account different brands and price levels, as well as market share, annual sales volume, market attention, fire accident rate, new technology application, etc.

2.2 Methods of selection

The vehicle types to be tested and evaluated are mainly selected randomly, and voluntary applications by vehicle manufacturers are also accepted.

2.3 Vehicle acquisition

The vehicles to be tested and evaluated are independently and randomly purchased from the market by the Management Center through formal channels.

2.4 Voluntary application by manufacturers

When a vehicle manufacturer voluntarily applies for C-EVFI testing and evaluation, it shall submit the Voluntary Application of Manufacturer (see Appendix 2 for details) and relevant information (see Appendix 3 for details) to the Management Center. The Management Center assesses the voluntary applications received from manufacturers, accepts the eligible applications and sends the *Acceptance Letter of C-EVFI Voluntary Application* to the applicants (see Appendix 4 for details).

The vehicles to be tested and evaluated shall be independently and randomly purchased from the market through formal channels by the Management Center, and the testing and evaluation results shall be publicly released by the Management Center.

2.5 Publicity of vehicle types to be tested and evaluated

After the vehicle type to be tested and evaluated is determined, the Management Center shall publicly release the announcement sheet of the vehicle type to be tested and evaluated through designated channels.

3 Testing and Evaluation Management

3.1 Notification of testing and evaluation

After the vehicle arrives at the testing and evaluation site, the Management Center sends a *C-EVFI Testing and Evaluation Notice Letter* (see Appendix 4 for details) to the vehicle manufacturer, informing it of relevant testing and evaluation information. The manufacturer shall confirm the vehicle parameters and the testing and evaluation scheme with the Management Center within 5 working days after receiving the notice letter. If no reply is given within 5 working days, it shall be deemed that the manufacturer agrees with the testing and evaluation scheme. If a recall occurs, the manufacturer may provide relevant materials and then dispose of defects according to the recall notice.

3.2 Preparation for testing and evaluation

The test research group of the Management Center shall be responsible for all preparations before testing and evaluation, including VUT preparation, test equipment and site preparation, test condition confirmation and vehicle status confirmation. Other personnel are not allowed to carry out any operations.

3.3 Implementation of testing and evaluation

Testing and evaluation, data processing and report preparation shall be completed by professionals from the test research group of the Management Center in accordance with the testing and evaluation protocol.

4 Testing and Evaluation Result Management

4.1 Testing and evaluation items and indicators

The testing and evaluation items and their weight proportions are shown in Table 1.

Table 1 Testing and Evaluation Items and Their Weights

S/N	Item	Score	Weight
1	Thermal propagation protection performance	S_1	55%
2	Bottom protection performance	S_2	25%
3	Charging safety performance	S_3	10%
4	Material flame retardant performance	S_4	8%
5	Vehicle sealing performance	S_5	2%

4.2 Calculation method of comprehensive score

The comprehensive score is the weighted sum of the scores of 5 testing and evaluation items: thermal propagation protection performance, bottom protection performance, charging safety performance, material flame retardant performance, and vehicle sealing performance, represented by S .

$$S = \sum_{i=1}^5 (S_i \times w_i)$$

Where,

S - comprehensive score;

S_i - score of the i^{th} item;

w_i - weight of the i^{th} item.

4.3 Testing and evaluation results

The testing and evaluation results are divided into five levels, as shown in Table 2. The Management Center releases the testing and evaluation results of each single testing and evaluation item while releasing the total testing and evaluation results.

Table 2 Testing and Evaluation Results and Their Score Distribution

Testing and Evaluation Results	Score
★★★★★	$S \geq 90$
★★★★	$80 \leq S < 90$
★★★	$70 \leq S < 80$
★★	$60 \leq S < 70$
★	$S < 60$

4.4 Result approval

The integrated management group under the Management Center shall supervise and manage the testing and evaluation process, and examine and approve the testing and evaluation results.

In the process of reviewing the testing and evaluation process and examining and approving the results, if any operation affecting the validity of the results is found, the testing and evaluation may be reorganized, and relevant information shall be explained in the results.

4.5 Result release

The Management Center will publicly release the testing and evaluation results through a dedicated website, official account and mini-program, and regularly organize press conferences to summarize the historical testing and evaluation results.

4.6 Use of results

The testing and evaluation results released under C-EVFI are allowed to be used by interested parties free of charge, and the information source shall be indicated. However, the user must explain the place and form of use to the Management Center in advance for commercial purposes, and the Management Center has the right to impose restrictions on it.

5 Fund Management

The Management Center shall set up special funds every year for testing and evaluation and operation management to ensure the long-term independent operation of C-EVFI.

6 Management of External Personnel during Test

(1) If the personnel of vehicle manufacturers need to witness the test process, they shall apply to the Management Center 5 working days in advance. After being approved, they shall wear a "Manufacturer Visit Pass" to enter the testing and evaluation site, and strictly abide by the on-site management regulations during witness.

(2) The media for interviewing shall submit the application and personnel list to the Management Center 5 working days in advance. After being approved, they can enter the testing and evaluation site. The personnel from the media must wear a "Media Visit Pass" when entering the site, and can only take pictures or shoot videos in the time and area specified by the Management Center.

(3) If other personnel need to witness the test process, they shall apply to the Management Center 5 working days in advance. After being approved, they shall wear a "Temporary Visit Pass" to enter the testing and evaluation site, and strictly abide by the on-site management regulations during witness.

7 Appeal and Handling of Objections

If the vehicle manufacturer has any objection against the testing and evaluation results, it may submit an *Appeal of Objections against C-EVFI Testing and Evaluation Results* (see Appendix 5 for

details) to the Management Center within 10 working days after the results are released; if no written appeal is submitted within 10 working days, it shall be deemed as no objection. The Management Center shall give a reply within 30 working days after receiving the appeal from the manufacturer, and the reply is only for the compliance of the test process. When the objection continues to exist, the Management Center will organize a formal meeting for discussion between the appellant and technical experts.

8 Processing of Test Data

All data and images in the C-EVFI testing and evaluation process can be provided on a paid basis. If there is a purchase demand, an application shall be submitted to the Management Center and corresponding fees shall be paid as required.

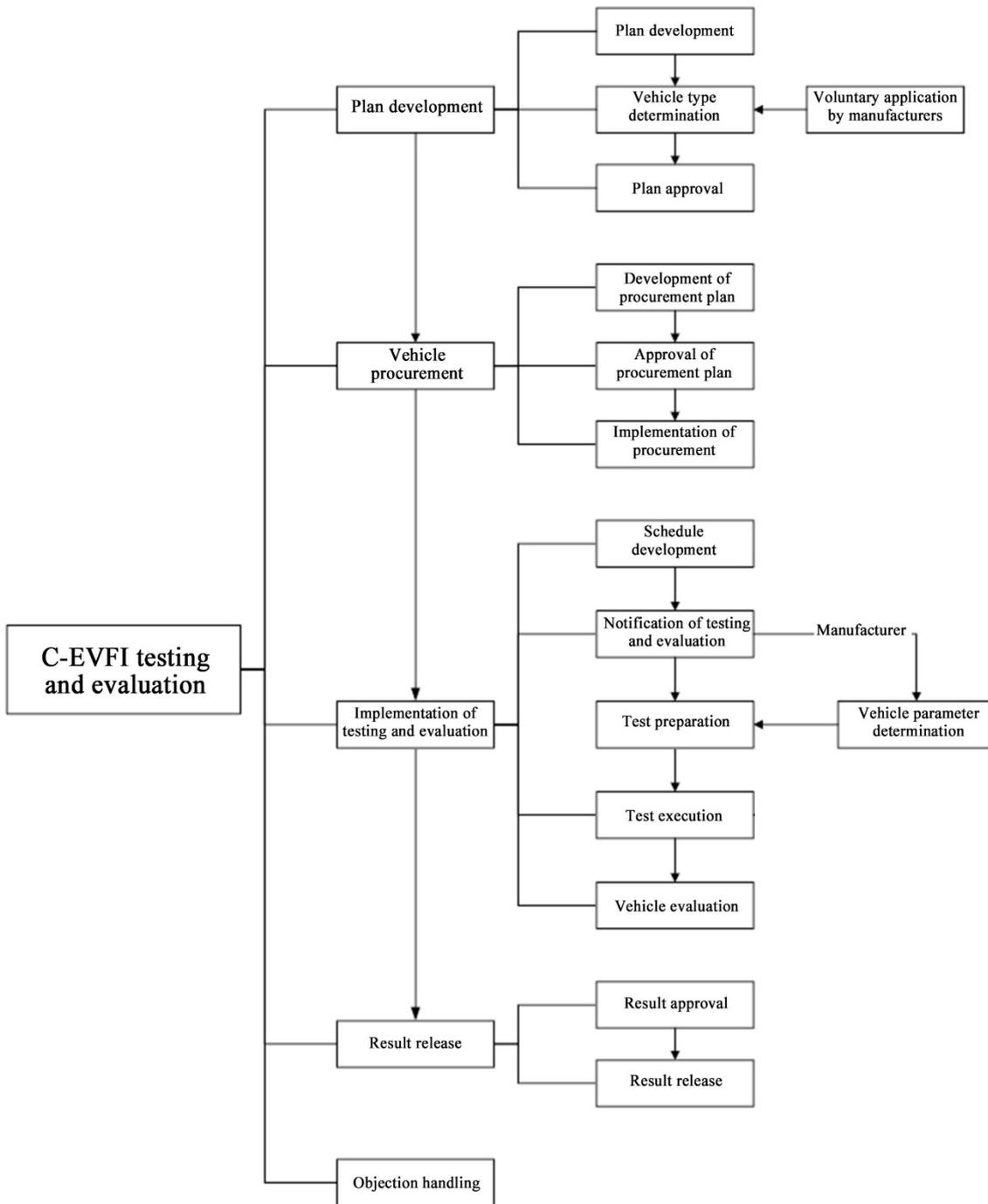
9 Communication and Publicity Activities

At least once a year, the Management Center shall hold a C-EVFI seminar and technical exchange activity. Such activity may also be combined with the release of evaluation results. Vehicle manufacturers and related organizations may carry out various forms of communication and cooperation with the Management Center.

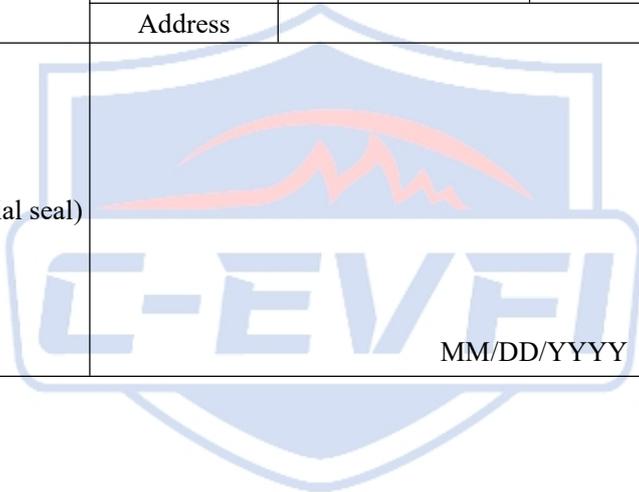


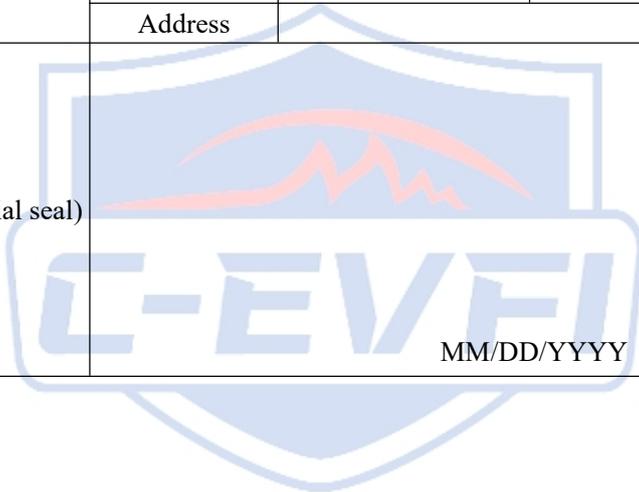
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Appendix 1: C-EVFI Testing and Evaluation Workflow Chart



Appendix 2: Voluntary Application of Manufacturer

Vehicle manufacturer			
Vehicle model/name/model year			
Configuration/sales volume/vehicle ranking by sales volume among counterparts			
Vehicle type notification No.			
Launch time			
Other configurations/sales volume/vehicle ranking by sales volume among counterparts			
Contact information of manufacturer	Contact		Tel./mobile
	Postal code		Fax
	Address		
Manufacturer opinions (official seal)	 <p>MM/DD/YYYY</p>		



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Appendix 3: Vehicle Parameter Information

Vehicle Manufacturer Information		
Manufacturer name (seal)		
Manufacturer address		
Brand in Chinese/model		
Vehicle type		
Technical Parameters of Vehicle		
Technical parameters of complete vehicle	Overall dimensions	
	Curb mass	
	Total mass	
	Rated passenger capacity	
Cell of energy storage device	Product model	
	Manufacturer	
	Type of energy storage device	
	Nominal voltage/nominal capacity (V/Ah)	
Energy storage device assembly	Product model	
	Manufacturer	
	Nominal voltage/nominal capacity (V/Ah)	
	Energy density/(Wh/kg)	
	Combination type	
Electric propulsion system	Manufacturer	
	Model	
	Type	
	Voltage (V)	
	Rated power (kW)	
	Peak power (kW)	
	Maximum torque (N·m)	

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Appendix 4: C-EVFI Testing and Evaluation Notice Letter

Vehicle manufacturer			
Vehicle model/name			
Testing and evaluation time			
Information on vehicle under testing and evaluation	Vehicle model	Vehicle identification number (VIN)	Test item
Contact	Tel.	E-mail	Testing and evaluation site
Note	<p>The vehicle fire safety testing and evaluation of the above-mentioned vehicle will be carried out soon. Please confirm the vehicle parameters within 5 working days after receiving this letter, and return the stamped Vehicle Parameter Information to the Management Center of China Electric Vehicles Fire Safety Index; if there is no reply within the time limit, the vehicle will be tested and evaluated based on its actual parameters.</p>		



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Appendix 5: Appeal of Objections against C-EVFI Testing and Evaluation Results

Manufacturer name		Vehicle model	
Appealing item		Test time	
Contact person for appeal		Tel./Address	
Contents of appeal/suggestion:			
Appellant (official seal): MM/DD/YYYY			
Comments of the testing and evaluation director:			
Signature: MM/DD/YYYY			
Handling result:			
Responsible person of the Department: MM/DD/YYYY			
Follow-up result:			
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Satisfaction of the appellant with the handling results: <input type="checkbox"/> Satisfied <input type="checkbox"/> Dissatisfied			
Follow-up person: MM/DD/YYYY			