

ICS 27.180
CCS F 19



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 36545-2023

Replacing GB/T 36545-2018

**Technical specification of mobile electrochemical energy
storage system**

移动式电化学储能系统技术规范

Issued on: December 28, 2023

Implemented on: July 1, 2024

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

Table of Contents

Preface	III
1 Scope	1
2 Normative references	1
3 Terms and Definitions	2
4 Classification and Coding	3
5 Normal operating conditions	4
6 Technical requirements	4
7 Test methods	12
8 Inspection Rules	30
9 Marking, transport and storage	34
Appendix A (informative) Mobile electrochemical energy storage system structure	34
Appendix B (Normative) Clearances and Creepage Distances	35
Appendix C (Informative) Inspection Report	39

Foreword

This document complies with the provisions of GB/T 1:1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

This document replaces GB/T 36545-2018 "Technical Requirements for Mobile Electrochemical Energy Storage Systems" and is consistent with GB/T 36545-2018:

In addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) Added "classification and coding" of products (see Chapter 4);
- b) Changed the altitude requirements in "Environmental Conditions" and added ground bearing requirements (see 5:1, 4:3:2:1 of the:2018 version);
- c) Added general requirements for "batteries of electrochemical energy storage systems", "battery management systems", "energy storage converters" and "monitoring systems" (see 6:1:1);
- d) Changed the requirements for "safety signs" (see 6:1:2, 4:3:10 of the:2018 version);
- e) Added functional requirements for "starting and stopping", "operation information monitoring", "data statistics" and "data display and storage" (see 6:2:1, 6:2:8,6:2:9,6:2:10);

- f) Added the requirements for "protection", including "no charging and no discharging protection, over-temperature protection, over-voltage and under-voltage protection, over-current protection, AC phase sequence protection, Information fault protection, fire alarm and protection, temperature control system fault protection" (see 6:2:6);
- g) Changed the switching time requirements for "conversion from grid-connected operation mode to off-grid operation mode" (see 6:3:2:1, 5:5:1 of the:2018 version);
- h) Added the switching time requirements for "conversion from off-grid operation mode to grid-connected operation mode" (see 6:3:2:2);
- i) The requirements for "grid-connected power quality" have been changed, and the requirements for "harmonic voltage", "voltage imbalance" and "voltage deviation" have been added (see 6:3:4, :2018 version of 5:1);
- j) Added functional requirements for "off-grid parallel connection" (see 6:3:5);
- k) Added the requirement for "rated energy" (see 6:3:6);
- l) Added the requirement of "energy conversion efficiency" (see 6:3:7);
- m) Changed the requirements for "electromagnetic compatibility" (see 6:4, 4:3:6 of the:2018 version);
- n) Changed the requirements for "insulation" (see 6:5:2, 4:3:8 of the:2018 edition);
- o) Changed the requirements for "equipotential bonding and protective grounding" (see 6:5:3, 4:3:9 of the:2018 version);
- p) Added the requirement of "structural stability" (see 6:6:3);
- q) Changed the requirements for "anti-vibration" (see 6:6:4, 4:2:2 of the:2018 edition);
- r) The requirements for "interface" have been changed, and the requirements for "DC charging interface" and "with remote monitoring wireless communication interface" have been added (see 6:7);
- s) Added the requirements for "vehicle compartment and auxiliary systems" (see 6:8);
- t) Added Chapter 7 "Test Methods" (see Chapter 7);
- u) The content of the test item table in the "Inspection Rules" has been changed (see Chapter 8, Chapter 6 of the:2018 edition);
- v) Added the content of "Appendix B Electrical Clearances and Creepage Distances" (see Appendix B):

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents:

This document is proposed by the China Electricity Council:

This document is under the jurisdiction of the National Electric Power Storage Standardization Technical Committee (SAC/TC550):

This document was drafted by: China Electric Power Research Institute Co., Ltd., State Grid Shanghai Energy Internet Research Institute Co., Ltd., State Grid Jiangsu Provincial Electric Power Co., Ltd. Electric Power Research Institute, State Grid Zhejiang Electric Power Co., Ltd., State Grid Fujian Electric Power Co., Ltd., State Grid Shandong Electric Power Co., Ltd.:

Li Company Electric Power Research Institute, Guangdong Product Quality Supervision and Inspection Research Institute, Longyan Haideixin Automobile Co., Ltd.:

The main drafters of this document: Wu Fubao, Tao Yibin, Yang Bo, Wang Deshun, Li Guanjun, Zhou Chen, Yang Qingbin, Sang Bingyu, Yu Haojie, Fan Yuanliang, Shi Mingming, Wang Xiangjin, He Dongsheng, Li Haoyuan, Zhuang Jun, Liu Weiliang, Li Kecheng, Feng Xinzhen, Sun Tiankui, Sun Bo, Zhu Shaojie, Huang Xinghua, Fu Jian, Xue Jinhua, Li Chong, Sun Jian, Yang Fan, Tu Xiaodong, Ji Liantao, Wei Lingfeng:

The previous versions of this document and the documents it replaces are as follows:

- First published in: 2018 as GB/T 36545-2018;
- This is the first revision:

Technical specifications for mobile electrochemical energy storage systems

1 Scope

This document specifies the basic functions, electrical performance, electromagnetic compatibility, safety performance, appearance and mechanical requirements of mobile electrochemical energy storage systems:

Technical requirements such as requirements, interfaces, vehicle compartments and auxiliary systems are described, the corresponding test methods are described, and the coding, normal working environment, inspection regulations are specified:

regulations, marking, transportation and storage requirements:

This document is applicable to lithium-ion batteries, lead-carbon batteries, and flow batteries as electrical energy storage media, with a three-phase AC port voltage level of 10kV:

Design, manufacturing, testing, inspection, operation, maintenance and overhaul of mobile electrochemical energy storage systems of Chemical energy storage systems can be implemented as a reference:

2 Normative reference documents

GB/T 1413

GB 1589

GB/T 2423

GB/T 2423

GB/T 2424

GB 2894

GB/T 4208

GB 4824

GB/T 5273

GB/T 5338

GB 7258

GB/T 11918

GB/T 12325

GB/T 12326

GB/T 14549

GB/T 15543

GB/T 15945

GB 16806

GB/T 16935

GB/T 17382

GB/T 17626

GB/T 17626

GB/T 17626

GB/T 17626