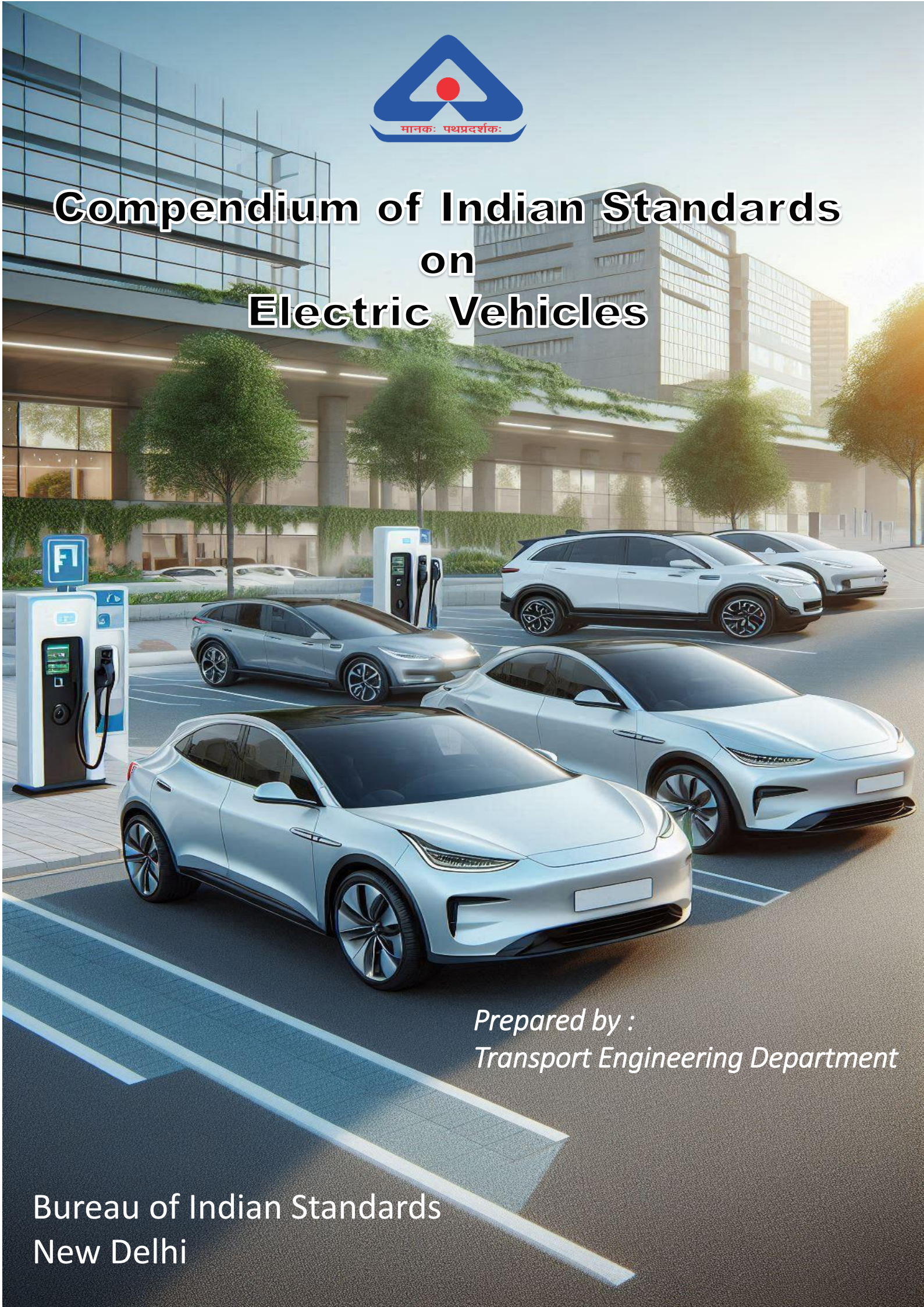

Compendium of Indian Standards on Electric Vehicles

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INTRODUCTION

An **Electric Vehicle (EV)** is a vehicle powered by an electric motor using energy stored in batteries, providing a cleaner alternative to petrol or diesel vehicles. EVs are essential for reducing air pollution and greenhouse gas emissions, decreasing dependence on fossil fuels, and enhancing energy security. Electric mobility stands as a critical pillar for sustainable development, energy independence, and long-term economic growth. In this transition, the formulation and implementation of structured standards are vital to ensure safety, performance, and consistency across the EV ecosystem.

The primary aim of this compendium is to serve as a single, authoritative source of key Indian Standards related to Electric Vehicles — excluding those specific to charging infrastructure and battery swapping. Developed by the Bureau of Indian Standards (BIS), it is designed to provide a clear, organized, and easily accessible reference for all stakeholders.

For detail of standards, stakeholders are encouraged to visit www.bis.gov.in.

List of Relevant Indian Standards

Product Specification

1. IS 18073: 2023 - Electric Traction Motor — Performance and Functional Requirements

2. IS 18294: 2023 – Electric Rickshaw/E-Kart — Construction and Functional Safety Requirements — Specification

3. IS 18590: 2024 – Electric Power Train of L Category Vehicles — Specific Requirements

4. IS 18606: 2024 - Electric Power Train of M and N Category Vehicles — Specific Requirements

Methods of tests

1. IS 17191 (Part 1): 2019 - Electric Power Train Vehicles Part 1 Measurement of Electrical Energy Consumption

2. IS 17191 (Part 2): 2019 - Electric Power Train Vehicles Part 2 Method of Measuring the Range

3. IS 17191 (Part 3): 2019 - Electric Power Train Vehicles Part 3 Measurement of Net Power and the Maximum 30 Minute Power

4. IS 17855: 2022/ISO 12405-4:2018 - Electrically Propelled Road Vehicles — Test Specification for Lithium-ion Traction Battery Packs and Systems — Performance Testing

Key Features of Product Specifications

- IS 18073: 2023 - Specifies performance and testing requirements for traction motors with controllers used in vehicles with pure electric propulsion. It addresses safety, performance, environmental suitability, EMC, and durability. It applies to all types of such motors.

- IS 18294: 2023 – Specifies requirements for the construction and functional safety of E-Rickshaw and E-Kart.

- IS 18590: 2024 – Outline safety requirements for electric powertrains and high-voltage components in L category vehicles with one or more traction motors not permanently connected to the grid. It also covers safety aspects of rechargeable electrical energy storage systems (REESS) used in such vehicles. REESS used only for engine starting, lighting, or auxiliary systems are excluded from Section 2.

- IS 18606: 2024 - Specifies safety requirements for electric powertrains in M and N category motor vehicles. It also covers safety aspects of rechargeable electrical energy storage systems (REESS) used in these vehicles. Batteries used primarily for starting the engine, lighting, or auxiliary systems are excluded from Section 2.

Key Features of Method of Tests

- IS 17191 (Part 1): 2019 - Specifies the method for measurement of electrical energy consumption expressed, in Wh/ km for L, M and N categories of electric power train vehicles.

- IS 17191 (Part 2): 2019 - Specifies the method for measurement of range expressed, in km for L, M and N categories of electric power train vehicles.

- IS 17191 (Part 3): 2019 - Prescribes the requirements for the measurement of net power and maximum 30 min power of electric power train vehicles

- IS 17855: 2022/ISO 12405-4:2018 - Outlines test procedures to assess the performance, reliability, and electrical functionality of battery packs and systems used in high-power and high-energy applications. It applies to both types unless stated otherwise. High-power applications include HEVs and some FCVs, while high-energy applications include BEVs, PHEVs, and certain FCVs.