मानकः पथप्रदर्शकः

COMPENDIUM OF INDIAN STANDARDS ON

Intelligent Transport System

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Introduction

The rapid growth of urbanization, motorization, and technological advancement in India has highlighted the urgent need for a smarter, safer, and more efficient transportation ecosystem. Intelligent Transport Systems (ITS) gives innovative solutions by integrating information and communication technologies with transportation infrastructure and vehicles. These systems aim to enhance mobility, improve road safety, reduce environmental impact, and streamline traffic management.

Recognizing the importance of standardization in enabling interoperability, scalability, and the adoption of global best practices, national efforts are underway to develop comprehensive ITS standards tailored to India's unique transportation challenges and policy objectives. These standards are pivotal in guiding the design, implementation, and evaluation of intelligent transport solutions across domains such as traffic control, public transit, electronic tolling, vehicle tracking, and smart mobility services.

By fostering technological innovation and ensuring uniformity across regions and systems, the standardization of ITS also plays a crucial role in supporting broader national initiatives like the Smart Cities Mission, Digital India, and Atmanirbhar Bharat. This document provides an overview of the Indian Standards relevant to the ITS landscape.

Table of content

1. IS/ISO/TR 12859: 2009—Intelligent transport systems - System architecture - Privacy aspects in its standards and systems.

This Technical Report provides guidelines for incorporating data privacy into Intelligent Transport Systems (ITS), ensuring lawful, fair, and secure handling of personal data in line with international privacy frameworks.

2. IS/ISO 17573: 2010—Electronic fee collection - Systems architecture for vehicle - Related tolling

This standard defines an interoperable electronic toll system architecture enabling single-contract vehicle use across multiple toll domains, focusing on toll charging and enforcement while excluding payment collection.

3. IS/ISO 24014-1: 2007—Public transport - Interoperable fare management system: Part 1 architecture

This standard defines a reference architecture for Interoperable Fare Management Systems (IFMS), enabling secure, seamless electronic ticketing across multiple operators with standardized roles, interfaces, and security protocols.

4. IS/ISO/TS 17574: 2009—Electronic fee collection - Guidelines for security protection profiles

This standard provides guidelines for developing Protection Profiles to specify and evaluate security requirements for Electronic Fee Collection systems, ensuring consistent, traceable, and robust security measures.

5. IS/ISO/TS 17575-1: 2010—Electronic fee collection - Application interface definition for autonomous systems: Part 1 charging

This standard defines the data format and communication semantics between on-board units and back-end systems for autonomous toll collection, enabling secure, flexible, and interoperable charge reporting across various toll regimes.

6. IS/ISO/TS 17575-2: 2010)—Electronic fee collection - Application interface definition for autonomous systems: Part 2 communication and connection to the lower layers

This standard defines an abstract communication API for secure, session-based data exchange between on-board units and back-end systems in electronic toll collection, supporting media-independent interoperability over mobile and wired networks.

7. IS/ISO/TS 17575-4: 2011—Electronic Fee Collection - Application Interface Definition for Autonomous Systems Part 4 Roaming

This standard defines data elements and rules that enable Front End units to operate seamlessly across multiple overlapping or consecutive Electronic Fee Collection (EFC) regimes, ensuring interoperable and secure roaming across jurisdictions.

8. IS 16722: 2018—Radio Frequency Identification (RFID) System for Automotive Applications —Specification

This standard defines design, performance, and test requirements for UHF RFID systems in ETC applications, ensuring secure, tamper-proof, and interoperable tags and transceivers with robust environmental durability.

9. IS/ISO/TS 13143-1: 2011—Electronic fee collection - Evaluation of on - Board and roadside equipment for conformity to ISO/TS 12813: Part 1 test suite structure and test purposes.

This standard defines test suite structures and purposes to verify DSRC-based OBUs and RSEs for conformity to ISO/TS 12813, ensuring secure and interoperable compliance check communications in electronic tolling systems.

10. IS/ISO/TS 13143-2: 2011—Electronic fee collection - Evaluation of on - Board and roadside equipment for conformity to ISOTS 12813: Part 2 abstract test suite.

This standard specifies a TTCN-based Abstract Test Suite (ATS) for verifying DSRC-based OBUs and RSEs against ISO/TS 12813, ensuring interoperability and conformance in electronic fee collection systems.

11. IS/ISO/TS 14904: 2002—Road transport and traffic telematics - Electronic fee collection (Efc) - Interface specification for clearing between operators.

This standard defines interface specifications for clearing between operators in EFC systems, enabling secure, interoperable data exchange across various payment modes and transport services.

12. IS/ISO/TS 13140-1: 2011—Electronic fee collection - Evaluation of on - Board and roadside equipment for conformity to ISO/TS 13141: Part 1 test suite structure and test purposes.

This standard defines test structures and purposes to ensure conformity of OBUs and RSEs with ISO/TS 13141, supporting interoperability and secure DSRC-based electronic tolling systems.

13. IS/ISO/TS 13140-2: 2012 —Electronic fee collection - Evaluation of on - Board and roadside equipment for conformity to ISO/TS 13141: Part 2 abstract test suite

This standard specifies an Abstract Test Suite (ATS) using TTCN to verify the conformity of DSRC-based on-board and roadside equipment to ISO/TS 13141, ensuring interoperability in electronic tolling systems.

14. IS/ISO/TS 17575-3: 2011—Electronic Fee Collection - Application Interface Definition for Autonomous Systems Part 3 Context Data

This standard covers the data structure and semantics for transmitting toll context details from Back End to Front End in autonomous toll systems, enabling interoperable, configurable operation across multiple toll domains.

15. IS 17270: 2019—Intelligent Transport Systems (ITS) : Reverse Parking Alert System (RPAS)

This standard defines design, performance, and testing requirements for sensor- and camera-based Reverse Parking Alert Systems in M and N category vehicles, ensuring accurate obstacle detection and compliance with durability and EMC standards.

16. IS 16490: 2016—LED Destination Board System for Buses - Specification

This standard defines the design, performance, and testing requirements for LED Destination Board Systems in buses, ensuring multilingual display, GPS sync, durability, and compliance with environmental and EMC standards.

17. IS 16833: 2018 —Automotive Tracking Device (ATD) and Integrated Systems

This standard specifies technical and performance requirements for Automotive Tracking Devices (ATDs) with integrated emergency, fare meter, and CCTV systems, ensuring GNSS/GPRS-based tracking, secure communication, and robust environmental compliance.

18. IS 15754 : 2006 Intelligent transport systems—Continuous air interface, long and medium range (CALM) - Infra - Red systems.

This standard defines protocols for infra-red-based wireless communication in ITS, enabling high-speed, medium-to-long-range data exchange for services like traffic updates and safety messaging.

19. IS/ISO 39001: 2012—Road traffic safety (Rts) management systems - Requirements with guidance for use

This standard specifies requirements for a Road Traffic Safety (RTS) management system to help organizations reduce road crash deaths and injuries through policy, risk management, and continual improvement, applicable to any organization impacting road safety.