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ERTMS/ATO GLOSSARY

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1 INTRODUCTION

1.1 Scope and purpose

This document defines the significant Terms and Abbreviations used in the ATO Operational Concept.

The purpose of this ATO Glossary is:

- to define all the terms and abbreviations that are used in the ATO Operational Principles [RD5], Requirements [RD6] and Scenarios [RD7] in order to facilitate the common understanding of terms and abbreviations
- to define all the terms and abbreviations that are used in the ATO system specifications
- to be used as the single reference for all ATO documents

The documents listed in the reference section were used to define the terms in this Glossary. All abbreviations, terms, and definitions relevant to ATO already defined in SUBSET-023 [RD10] are not repeated in this Glossary.

1.2 References

[RD1]	EN 14478:2018: Railway applications - Braking - Generic vocabulary
[RD2]	EN 13816:2002: Transportation - Logistics and services - Public passenger transport; Service quality definition, targeting and measurement
[RD3]	Commission Regulation (EU) No 1302/2014 of 18 November 2014 concerning a technical specification for interoperability relating to the rolling stock — locomotives and passenger rolling stock subsystem of the rail system in the European Union
[RD4]	Directive 2007/59/EC of the European Parliament and of the Council
[RD5]	12E108, ERTMS/ATO Operational Principles
[RD6]	13E137, ERTMS/ATO Operational Requirements
[RD7]	13E151, ERTMS/ATO Operational Scenarios
[RD8]	EN 16185-1:2014: Railway applications – Braking systems of multiple unit trains – Part 1: Requirements and definitions
[RD9]	EN 14198:2016: Railway applications - Braking - Requirements for the brake system of trains hauled by locomotives
[RD10]	SUBSET-023, ERTMS/ETCS Glossary of Terms and Abbreviations

2 ABBREVIATIONS

AD	ETCS Automatic Driving Mode
ARS	Automatic Route Setting
ASPM	Automatic Stopping Point Management
ASR	Additional Speed Restriction
ATO-OB	ATO On-board
ATO-TS	ATO Trackside
ATS	Automatic Train Supervision
ATSM	Automatic Train Stopping Management
AV	ATO Available
CBTC	Communication Based Train Control
CCTV	Closed Circuit Television
CO	ATO Configuration
DAS	Driving Advisory System
DE	ATO Disengaging
EG	ATO Engaged
EUG	ERTMS Users Group

FA	ATO Failure
GoA	Grade of Automation
HS	Handshake
HSAck	Handshake Acknowledgement
HSRej	Handshake Rejected
HSReq	Handshake Request
ID	Identity
IIS	Infrastructure [Passenger] Information System
JP	Journey Profile
JPAck	Journey Profile Acknowledgement
JPReq	Journey Profile Request
NA	ATO Not Available
NP	ATO No Power
OCC	Operation Control Centre
OIS	On-board [Passenger] Information System
ORD	On-board Recording Device
PDIU	Platform Door Interface Unit
PED	Platform Edge Doors
PG	Platform Gates
PIS	Passenger Information System
PSD	Platform Screen Doors
PTI	Platform / Train Interface
RE	ATO Ready
RST	Rolling Stock
SP	Segment Profile
SPReq	Segment Profile Request
SSEM	Supervised Speed Envelope Management
STR	Status Report
TBL	Traction/Brake Lever
TC	Temporary Constraint
TDO	Train Door Operation
TEN-T	Trans-European Transport Network
TMS	Traffic Management System
TP	Timing Point
TRN	Train Running Number
TS	Trackside
TSI	Technical Specification for Interoperability
TTSM	Timetable Speed Management

3 TERMS AND DEFINITIONS

3.1 ATO Area

The area where, for Grades of Automation (GoA) 2 to 4, Automatic Train Operation is possible, informed by real-time dynamic update of operational data via a telecommunications link between the ATO-OB and ATO-TS subsystems.

3.2 ATO Disengaged

The status of the ATO-OB when it is not in EG, nor in DE State.

3.3 ATO Engage Button

Input that permits the driver to request to start automatic driving when the ATO Engagement Conditions are fulfilled.

3.4 ATO Fitted Train

A train that is fitted with an ATO-OB subsystem.

3.5 ATO Inhibition Zone

The prevention of the ATO functionality over a defined area of the railway in the direction of travel. It may be in either or both directions of a bi-directional section of track.

3.6 ATO On-board

The subsystem and set of automated non-safety-related driver functions, depending on the grade of automation.

3.7 ATO Operated Train

A train that is fitted with an ATO-OB subsystem and this subsystem is operational.

3.8 ATO Operational Speed Profile

The most energy efficient speed profile calculated by the ATO-OB that fulfils the Journey Profile and respects the ETCS safe braking envelope.

3.9 ATO Trackside

A set of functions that interfaces with the necessary trackside systems which contain the operational data and infrastructure data that is required by the ATO-OB.

3.10 Automatic Joining

An automatic process to couple two or more train consists.

3.11 Automatic Splitting

An automatic process to separate a train into two or more individual consists.

3.12 Automatic Train Operation

A method of operation in which different train operation tasks are automated, according to the Grade of Automation (GoA) level present, up to GoA 4 level, where the train is automatically controlled without the presence of staff on board. In the context of ERTMS, the terms "ATO" and "ERTMS/ATO" have the same meaning.

3.13 Automatic Turnback

The functionality that allows trains to change direction for another journey which may include automatic unattended movement.

3.14 Awake Train

This function is intended to prepare a train for operation.

3.15 C-type Train

Vehicles with [c]ommon brake control in accordance with [RD8] (separate control of dynamic and train air brake is not possible for ATO-OB). Typically, this term includes EMUs, DMUs, railbuses or electric railcars.

3.16 DAS Inhibition Zone

The prevention of the DAS functionality over a defined area of the railway in the direction of travel. It may be in either or both directions of a bi-directional section of track.

3.17 Door Release

An external system command which permits the door open command. A release may include mechanical, electromechanical or electronic parts.

3.18 Dwell Time

Time during which a train is stopped at a Stopping Point, it means the time period between wheel stop and wheel start.

3.19 Grade of Automation

Automation level of train operation, in which a train can be operated, resulting from sharing responsibility for given basic functions of train operation between operations staff and system. [RD5]

Note: Modified to fit mainline (removed Urban Guided Transport).

3.20 Journey

Scheduled movement of a vehicle along a single route. [RD2]

3.21 Journey Profile

The Journey Profile describes the information needed by the train to be aware about the path the train should take, timetable information and temporary constraints.

3.22 Minimum Dwell Time

Minimum allowed value of dwell time, defined for each Stopping Point included in the Journey Profile, to be considered by the ATO-OB before departure. The minimum dwell time is applied during normal or degraded operation to aid service recovery.

3.23 Non-ATO Train

Non-ATO equipped trains and trains with inoperative ATO-OB equipment.

3.24 Passing Point

A Timing Point defined in the Segment Profile, where the train is planned to pass within a given time window defined in the Journey Profile.

3.25 Platform Barrier System

The system that keeps passengers at a safe distance from the platform edge, outside of boarding times.

3.26 Remaining Dwell Time

The amount of time left before a train resume moving.

3.27 S-type Train

Vehicles with independently ([s]eparately) controlled dynamic and train air brakes as an EN/UIC-brake system in accordance with [RD9], chapter 5.4. Typically, a locomotive hauling a train consisting of coaches.

3.28 Segment Profile

A Segment Profile is a one-dimensional object that describes a single and consecutive section of track and corresponds to the Track Centreline of that section of track. A Segment Profile has a Start Point and an End Point, which correspond to the boundary points of the section of Track Centreline of that Segment Profile.

3.29 Steep incline

Such incline in which the holding brake force is not sufficient to maintain the train stationary.

3.30 Steep slope

Such downward slope in which the holding brake force is not sufficient to maintain the train stationary.

3.31 Stopping Point

A Timing Point defined in the Segment Profile where the train is planned to stop within a given time window defined in the Journey Profile, usually to carry out a specific activity such as allowing passengers to enter and leave the train.

3.32 Stopping Point Skip

The functionality that enables a train to continue driving without stopping at a Timing Point that had previously been scheduled as a Stopping Point.

3.33 Timing Point

A location and stopping accuracy defined in the Segment Profile for which a type (Stopping or Passing Point) and specific time is identified in the Journey Profile. This time may be an arrival time, a departure time, or in the case of a train not scheduled to stop at that location, the passing time. A Timing Point represents either a Stopping Point or a Passing Point where control by TMS is needed for throughput maximisation.

3.34 Traction/Brake Lever

Lever(s) used by the driver to drive the train. It may be composed by one or more levers (e.g. traction lever, EDB lever, pneumatic brake lever, etc) but from the ATO-OB functional point of view it has only three different positions:

- a) Traction: when it is requesting the rolling stock to traction;
- b) Neutral: when it is requesting the rolling stock neither to traction nor braking;
- c) Braking: when it is requesting the rolling stock to brake.

3.35 Train at Standstill

A train is considered to be at standstill when its speed has decreased to 3 km/h or less. **[RD3]**

3.36 Train Driver

A person capable and authorised to drive trains, including locomotives, shunting locomotives, work trains, maintenance railway vehicles or trains for the carriage of passengers or goods by rail in an autonomous, responsible and safe manner. **[RD4]**

3.37 Train Hold

The functionality that allows trains to be held at a defined location for operational reasons.

3.38 Train Holding Brake

Function ensuring that the train will not move while it is at standstill. **[RD1]**

3.39 Train is Moving

A train is considered to be moving when its speed is not 0.

3.40 Train is Stopped

A train is considered to be stopped when its speed is 0.