Technical Annex of Application Guide for the European register of authorised types of railway vehicles (ERATV)

In accordance with Commission Implementing Decision 2011/665/EU as amended by Commission Implementing Regulation (EU) 2019/776 and Commission Implementing Decision (EU) 2021/701.

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1. Revision History

Revision	Date	Created By	Changes
3.2.0	20-03-2026	ERA	• Merged ERATV extension classes, properties, and SHACL shapes into the main ERA ontology. • Introduced era:compatibleWithLineCategory for ERATV VehicleType and updated ERATV SHACL shapes accordingly. • Clarified era:lineCategory as a RINF-only infrastructure property and removed ERATV-specific metadata. • Added the new DocStates concept scheme and updated era:state and its SHACL shapes to reference it.

2. Scope of This Guide

2.1. Scope of this guide

The present document represents the views of the European Union Agency for Railways and is a non-legally binding document.
It does not represent the view of other EU institutions and bodies. Furthermore, a binding interpretation of EU law is the sole competence of the Court of Justice of the European Union.
These guidelines provide explanations to facilitate the implementation and usage of the Commission
Implementing Decision 2011/665/EU as amended by Commission Implementing Regulation (EU) 2019/776 and Commission Implementing Decision (EU) 2021/701.
These guidelines are publicly available and will be kept updated.
The reader should refer to the website of the European Union Agency for railways for information about their latest available edition.

Table 1: Namespaces used in the document

cc	http://creativecommons.org/ns#
dcterms	http://purl.org/dc/terms/
era	http://data.europa.eu/949/
foaf	http://xmlns.com/foaf/0.1/
gsp	http://www.opengis.net/ont/geosparql#
org	http://www.w3.org/ns/org#
owl	http://www.w3.org/2002/07/owl#
prov	http://www.w3.org/ns/prov#
rdf	http://www.w3.org/1999/02/22-rdf-syntax-ns#
rdfs	http://www.w3.org/2000/01/rdf-schema#
sf	http://www.opengis.net/ont/sf#
skos	http://www.w3.org/2004/02/skos/core#
time	http://www.w3.org/2006/time#
unit	http://qudt.org/vocab/unit/
vpa	https://w3id.org/vpa#
vs	http://www.w3.org/2003/06/sw-vocab-status/ns#
xml	http://www.w3.org/XML/1998/namespace
xsd	http://www.w3.org/2001/XMLSchema#

3. ERATV Parameter Groups Hierarchy

- Type number (0.1)
- Vehicle Type platform (0.1)
- Vehicle Type - Alternative name (1.2)
- Vehicle category (1.4)
- Vehicle type category. (1.4)
- Vehicle subcategory (1.5)
- Member State of authorisation (3.1.1)
- Condition based restriction of use (3.1.2.3)
- Gauging (3.1.2.3 | 4.2.1)
- Strictly local, historical or tourist use (3.1.2.3)
- Time based restriction of use (3.1.2.3)
- Driving cabs (4.1.1)
- Maximum design speed (4.1.2.1)
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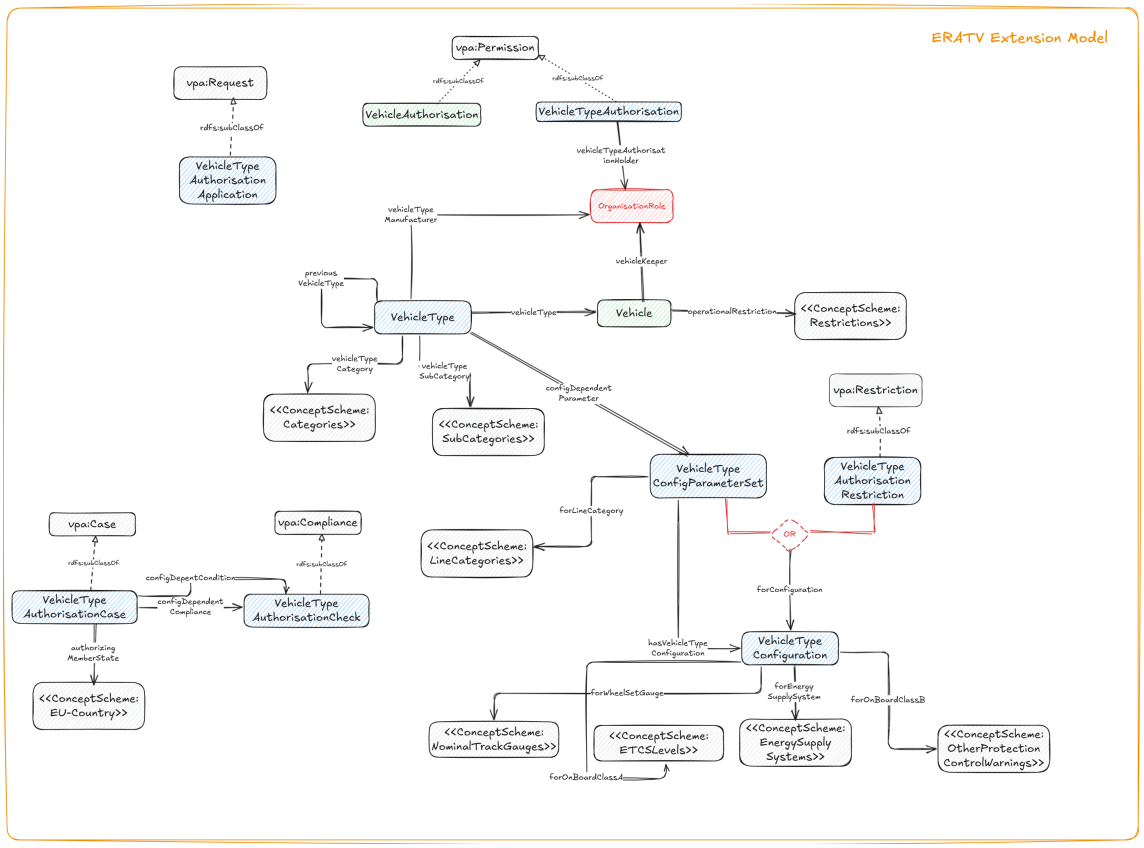
- Type version number
- Other CCS radio systems onboard
- Manufactured by
- Non coded restrictions



4. ERATV Ontology Classes

Application Document Set [C]

A collection of documents belonging together, as they contain - as a set - evidence in an ERA process like registration or authorisation.

IRI: *http://data.europa.eu/949/DocumentSet*

Is subclass of

Evidence

Axle spacing [C]

Stub class for axle spacing

IRI: *http://data.europa.eu/949/AxleSpacing*

Has Properties

Axle spacing, distance a
Axle spacing, distance b
Axle spacing, distance c

Axle spacing, explanation for a, b, c

Validation

Validation Rules:
Axle Spacing Shape

Braking performance C

Stub class for braking performance expressed as (lambda) brake weight/braked mass percentage, or braked mass

IRI: *http://data.europa.eu/949/BrakingPerformance*

Has ERATV parameters

Braked mass (4.7.6)
Braked mass percentage (4.7.6)

Has Properties

Maximum service braking

Validation

Validation Rules:
Braking Performance Shape

Braking profile C

Stub class for braking profile under applicable load condition, stopping distance, deceleration and initial speed

IRI: *http://data.europa.eu/949/BrakingProfile*

Has ERATV parameters

Max deceleration for braking profile at max speed (4.7.5 | 4.7.7)
Max train stopping distance for braking profile at max speed (4.7.5 | 4.7.7)
Profile defining load condition (4.7.5 | 4.7.7)

Validation

Validation Rules:
Braking Profile Shape

Certification Level Document [C]

Certification Level Document, as issued by a NoBo in the process of its certification/verification activities [RFU-STR-001]. The class can be reused as well for DeBo and AsBo certificates.

IRI: *http://data.europa.eu/949/CLD*

Is subclass of
Evidence Document

Has Properties
State

Additional Information

General explanation:
Every CLD is the result of a process by a recognised/accredited body (`vpa:AppropriateBody`) which is allowed to issue it to a `vpa:RequestingBody` needing it for a specific purpose,
as defined in the IOD or SD. Several CLDs can support EC Declarations.

See also:
https://nb-rail.eu/official-documents

Compliance [C]

A Compliance result, having its origin in a railway verification/certification/assessment process.

IRI: *http://data.europa.eu/949/Compliance*

Is subclass of
Compliance

Is superclass of
Vehicle Type Authorisation Compliance Check

Contact Line System [C]

System that is used to transmit electrical energy to road or rail vehicles.

IRI: *http://data.europa.eu/949/ContactLineSystem*

Has ERATV parameters
Energy supply system (Voltage and frequency) (4.10.1)
Maximum current at standstill per pantograph (4.10.4)
Maximum contact wire height (4.10.5)

Minimum contact wire height (4.10.5)

Validation

Validation Rules:

Contact Line System Shape

Message: contactLineSystemType (1.1.1.2.2.1.1): The Contact Line System {$this} ({?clsLabel}), has a 'Not electrified' type, and at least one of its parameters has values for at least one of the range of parameters between 1.1.1.2.2.1.2 and 1.1.1.2.5.3. This happens at least with property {?p} (RINF index {?index}).

EC Declaration of Verification/Conformity C

EC Declaration of Verification/Conformity/Suitability for Use, as issued by an Applicant in the process of certification/verification activities for IC's or subsystems.

IRI: *http://data.europa.eu/949/ECDeclaration*

Is subclass of

Evidence Document

Has Properties

State

Additional Information

General explanation:

Every EC Declaration is the outcome of a process assisted by a recognised/accredited body (`vpa:AppropriateBody`) which is allowed to issue the supporting
CLD's to the `vpa:RequestingBody` needing it for a specific purpose, as defined in the IOD or SD.
EC Declarations MUST refer to the required CLDs using `dcterms:requires` which can be grouped as `vpa:Evidence` in authorisation/registration processes.

See also:

https://nb-rail.eu/official-documents

References:

https://eur-lex.europa.eu/eli/dir/2016/797/2020-05-28#art_15
https://eur-lex.europa.eu/eli/dir/2016/797/2020-05-28#art_10
https://eur-lex.europa.eu/eli/dir/2016/797/2020-05-28#art_9

ETCS C

TSI compliant train protection system ERTMS / ETCS application level and baseline related to the track side equipment.

IRI: *http://data.europa.eu/949/ETCS*

Has ERATV parameters

ETCS infill installed line-side (4.13.1.3)
ETCS system compatibility (4.13.1.8)

Has Properties

ETCS baseline

Validation

Validation Rules:

Etcsshape

Message: etcsSystemCompatibility (1.1.1.3.2.9, 1.2.1.1.1.9): The ETCS {$this} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/etcs-system-compatibilities/ETCSSystemCompatibilities.

Maximum speed and cant deficiency C

Combination of maximum speed and maximum cant deficiency for which the vehicle was assessed.

IRI: *http://data.europa.eu/949/MaximumSpeedAndCantDeficiency*

Has ERATV parameters

Vehicle type maximum cant deficiency (4.6.4)
Vehicle type maximum speed (4.6.4)

Permissible Payload C

IRI: *http://data.europa.eu/949/PermissiblePayload*

Has ERATV parameters

Permissible payload mass (4.5.1.1)

Has Properties

For line category

Validation

Validation Rules:

Permissible Payload Shape

Restriction C

A restriction, condition of use, having its origin in a railway verification/certification/permission process.

IRI: *http://data.europa.eu/949/Restriction*

Is subclass of

Restriction

Is superclass of

Vehicle Registration Restriction
Vehicle Type Authorisation Restriction

Has ERATV parameters

Condition based restriction of use (3.1.2.3)
Gauging (3.1.2.3 | 4.2.1)
Time based restriction of use (3.1.2.3)
Nominal track gauge (4.1.3)
ETCS equipment level (4.13.1.1)
Train protection legacy system (4.13.1.5)
Class B or other radio systems installed (Radio Legacy Systems) (4.13.2.3)
Type of train detection system (4.14.1)
Other CCS radio systems onboard
Non coded restrictions
For Configuration
Other CCS systems onboard

Validation

Validation Rules:

Restriction Shape

Message: wheelSetGauge: The VehicleType {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Running track C

A running track means any track used for train service movements; passing loops and meeting loops on plain line or track connections only required for train operation are not published

IRI: *http://data.europa.eu/949/RunningTrack*

Is subclass of

Track

Has ERATV parameters

Gauging (3.1.2.3 | 4.2.1)
Nominal track gauge (4.1.3)
Rail inclination (4.6.5)
Minimum wheel diameter for fixed obtuse crossings (4.8.2)

Minimum radius of horizontal curve (4.8.4)
Permitted contact strip material (4.10.10)
Train protection legacy system (4.13.1.5)
GSM-R version (4.13.2.1)
Class B or other radio systems installed (Radio Legacy Systems) (4.13.2.3)
Radio system compatibility voice (4.13.2.5)
Radio system compatibility data (4.13.2.8)

Has Properties

ATO communication system
ATO System version
GSM-R use of group 555
Safe consist length information from on-board necessary for access the line and SIL
Temperature range

Validation

Validation Rules:

Running Track Shape

Message: permittedContactForce (1.1.1.2.5.2): This error is due to the track {?trackLabel} , violating the rule: This parameter is applicable ('Y') only if “Overhead contact line (OCL)” is selected for 1.1.1.2.2.1.1.

Additional Information

General explanation:

There might be more than one track within the Section of Line, so then the whole set of data for track has to be repeated for each track within the SoL.

Siding C

IRI: *http://data.europa.eu/949/Siding*

Is subclass of

Track

Has ERATV parameters

Maximum current at standstill per pantograph (4.10.4)
Maximum contact wire height (4.10.5)

Validation

Validation Rules:

Siding Shape

Message: TEN classification (1.1.1.1.2.1, 1.2.1.0.2.1, 1.2.1.0.6.3, 1.2.2.0.0.3): The siding {$this} with label {?sidingLabel} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/ten-classifications/TENClassifications.

Additional Information

General explanation:

Sidings are all those tracks where running trains in service movements ends and which are not used for operational routing of a train.

References:
http://data.europa.eu/eli/reg_impl/2019/773/2020-06-16

Subset with common characteristics C

A set of different infrastructure objects sharing the same common technical characteristics. The parameters may not be restricted to only one railway subsystem, but it can include common characteristics from each one of them (infrastructure, energy, track-side CCS)

IRI: *http://data.europa.eu/949/CommonCharacteristicsSubset*

Is subclass of
ERA Feature

Has ERATV parameters
Gauging (3.1.2.3 | 4.2.1)
Nominal track gauge (4.1.3)
Rail inclination (4.6.5)
Minimum wheel diameter for fixed obtuse crossings (4.8.2)
Minimum radius of horizontal curve (4.8.4)
Permitted contact strip material (4.10.10)
Train protection legacy system (4.13.1.5)
GSM-R version (4.13.2.1)
Class B or other radio systems installed (Radio Legacy Systems) (4.13.2.3)
Radio system compatibility voice (4.13.2.5)
Radio system compatibility data (4.13.2.8)

Has Properties
ATO communication system
ATO System version
GSM-R use of group 555
Safe consist length information from on-board necessary for access the line and SIL
Temperature range

Validation

Validation Rules:
Common Characteristics Subset Shape

Message: Indication whether the line is designated to a Railway Freight Corridor (1.1.1.1.2.3, 1.2.1.0.2.3): The National Line {$this} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/freight-corridor/FreightCorridors.

Train Detection System C

Safety system used to detect the presence of vehicles on the railway track.

IRI: *http://data.europa.eu/949/TrainDetectionSystem*

Has ERATV parameters

Type of train detection system (4.14.1)

Has Properties

Vehicle impedance

Validation

Validation Rules:

Train Detection System Shape

Message: Indication of types of train detection system installed (1.1.1.3.7.1.1, 1.2.1.1.3.1.1): The train detection system {$this} (label {?tdsLabel}) has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/train-detection/TrainDetectionSystems.

Vehicle C

A specific vehicle or wagon able and allowed to operate over railway infrastructure.

IRI: *http://data.europa.eu/949/Vehicle*

Has ERATV parameters

Manufacturing country

Has Properties

Composite brake block retrofitted
Operational restriction
Vehicle keeper
Vehicle number
Vehicle series
Vehicle type

Validation

Validation Rules:

Vehicle Shape

Message: manufacturingCountry: The Vehicle/VehicleType {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Vehicle APIS Case C

The process allowing the vehicle authorisation for placing in service (APIS).

This authorisation case supported a Vehicle Application for APIS and was determined by exactly one set of Vehicles and if available a VehicleType.

For the Authorisation as per EU 2018/545, use era:VehicleTypeAuthorisationCase, which covers all authorisations types under that legislation.

IRI: *http://data.europa.eu/949/VehicleAuthorisationCase*

Is subclass of
Case

Has ERATV parameters
Member State of authorisation (3.1.1)
Type registration method

Has Properties
Area of Use
Configuration dependent conditions of use and other restrictions

Validation

Validation Rules:
Vehicle Type Authorisation Case Shape

Message: areaOfUse: The VehicleTypeAuthorisationCase {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Additional Information

See also:
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02008L0057-20150101#tocId27

References:
http://data.europa.eu/eli/dir/2008/57/2015-01-01

Vehicle Authorisation for Placing on the Market C

(15) the decision issued by the authorising entity based on a reasonable assurance that the applicant and the entities involved in the design, manufacture, verification and validation of the vehicle have fulfilled their respective obligations and responsibilities in order to ensure conformity with essential
requirements of the applicable legislation or to ensure conformity with the authorised type enabling that the vehicle may be placed on the market and may be used safely in the
area of use according to the conditions for use and other restrictions, when applicable, specified in the vehicle authorisation and in the vehicle type authorisation;

IRI: *http://data.europa.eu/949/VehicleAuthorisation*

Is subclass of
Permission

Additional Information

References:
https://data.europa.eu/eli/reg/2018/545/art_2/oj/eng#

Vehicle Authorisation Notification C

The notification, as submitted by the Applicant in line with (EU)2018/545, informs the authorising entity of the vehicle(s set) to be updated according to Article 16.
The notification consists of one case as described in Art. 16 of (EU)2018/545, containing the vehicle type and EVNs, and linking to the required Evidence.

The outcome of the notification process is an added comment in the `era:VehicleAuthorisation`, if accepted by the Authorising Entity.

IRI: *http://data.europa.eu/949/VehicleAuthorisationNotification*

Is subclass of
Request

Additional Information

References:
https://data.europa.eu/eli/reg/2018/545/art_16/oj/eng#

Vehicle Registration Restriction C

An `era:Restriction` which originates from a compliance check during the Vehicle's Registration.

IRI: *http://data.europa.eu/949/VehicleRegistrationRestriction*

Is subclass of
Restriction

Validation

Validation Rules:
Vehicle Registration Restriction Shape

Vehicle Type [C]

A vehicle type that has been authorized to operate on the EU railway infrastructure. Type means a vehicle type defining the basic design characteristics of the vehicle as covered by a type or design examination certificate described in the relevant verification module.

Basic design characteristics means the parameters that are used to identify the vehicle type as specified in the issued vehicle type authorisation and recorded in the European Register of Authorised Vehicle Types ('ERATV').

The above mentioned certificate should be documented using era:certificate.

IRI: *http://data.europa.eu/949/VehicleType*

Is subclass of

Scope

Has ERATV parameters

Vehicle Type platform (0.1)
Type number (0.2 | 0.4)
Vehicle Type - Alternative name (1.2)
Vehicle category (1.4)
Vehicle type category. (1.4)
Vehicle subcategory (1.5)
Gauging (3.1.2.3 | 4.2.1)
Driving cabs (4.1.1)
Maximum design speed (4.1.2.1)
Nominal track gauge (4.1.3)
Wheel set gauge transformation method (4.1.3.b)
Maximum locomotives coupled (4.1.5)
Dangerous goods tank code (4.1.9)
Wheelset gauge changeover facility (4.1.11)
Vehicles composing fixed formation (4.1.12)
Altitude range (4.3.2)
Altitude range detail (4.3.2.1)
Snow ice hail conditions (4.3.3)
Fire safety category (4.4.1)
Design mass in working order (4.5.2.1)
Design mass under normal payload (4.5.2.2)
Design mass under exceptional payload (4.5.2.3)
Operational mass in working order (4.5.2.4)
Operational mass under normal payload (4.5.2.5)
Static axle load in working order (4.5.3.1)
Static axle load under normal payload (4.5.3.2)
Static axle load under exceptional payload (4.5.3.3)
Axle spacing (4.5.3.4)
Total vehicle mass (4.5.5)
Mass per wheel (4.5.6)
Assessed Cant Deficiency (4.6.1)
Has cant deficiency compensation (4.6.2)
Rail inclination (4.6.5)
Maximum average deceleration (4.7.1)
Thermal capacity TSI reference (4.7.2.1.1)
Thermal capacity speed (4.7.2.1.2)
Thermal capacity gradient (4.7.2.1.3)

Thermal capacity distance (4.7.2.1.4)
Thermal capacity time (4.7.2.1.5)
Maximum brake thermal energy capacity (4.7.2.1.6)
Parking brake mandatory (4.7.3.1)
Parking brake maximum gradient (4.7.3.3)
Has parking brake (4.7.3.4)
Eddy current braking fitted (4.7.4.1.1)
Eddy current brake prevention (4.7.4.1.2)
Magnetic braking fitted (4.7.4.2.1)
Magnetic brake prevention (4.7.4.2.2)
Permission for regenerative braking (4.7.4.3.1)
Prevent regenerative brake use (4.7.4.3.2)
Brake weight percentage (4.7.6)
Has wheel slide protection system (4.7.8)
Vehicle length (4.8.1)
Minimum wheel diameter for fixed obtuse crossings (4.8.2)
Has shunting restrictions (4.8.3)
Minimum radius of horizontal curve (4.8.4)
Minimum convex vertical radius (4.8.5)
Minimum concave vertical radius (4.8.6)
Loading platform height (4.8.7)
Transportable on ferry (4.8.8)
End coupling type (4.9.1)
Axle bearing condition monitoring (4.9.2)
Flange lubrication fitted (4.9.3.1)
Has lubrication device prevention (4.9.3.2)
Energy supply system (Voltage and frequency) (4.10.1)
Maximum contact wire height (4.10.5)
Has current limitation (4.10.14)
Contact force formula (4.10.15)
Mean contact force (4.10.15)
Pass-by noise level (4.11.1)
Reference pass-by noise level (4.11.2)
Stationary noise level (4.11.3)
Starting noise level (4.11.4)
Fixed seats (4.12.1.1)
Number of toilets (4.12.1.2)
Sleeping places (4.12.1.3)
Priority seats (4.12.2.1)
Wheelchair spaces (4.12.2.2)
Prm accessible toilets (4.12.2.3)
Wheelchair sleeping spaces (4.12.2.4)
Supported platform height (4.12.3.1)
Boarding aids (4.12.3.2)
Portable boarding aids (4.12.3.3)
ETCS equipment level (4.13.1.1)
ETCS baseline (4.13.1.2)
ETCS infill installed line-side (4.13.1.3)
ETCS national applications (4.13.1.4)
Additional comments on Class B / Legacy train protection, control and warning systems installed (4.13.1.5)
Train protection legacy system (4.13.1.5)
Train control switch over special conditions (4.13.1.6)
ETCS on-board implementation (4.13.1.7)
ETCS system compatibility (4.13.1.8)
Has train completeness information (4.13.1.9)
Onboard system versions (4.13.1.11)
GSM-R version (4.13.2.1)
GSM-R sets in driving cab (4.13.2.2)
Additional comments on Class B / Legacy Radio Systems installed (4.13.2.3)

Class B or other radio systems installed (Radio Legacy Systems) (4.13.2.3)
Radio switch over special conditions (4.13.2.4)
Radio system compatibility voice (4.13.2.5)
Voice operational communication implementation (4.13.2.6)
GSM-R radio data communication (4.13.2.7)
Radio system compatibility data (4.13.2.8)
ETCS data communication application (4.13.2.9)
Voice GSM-R network (4.13.2.10)
Data GSM-R network (4.13.2.11)
ATO on-board implementation (4.13.3.2)
Type of train detection system (4.14.1)
Maximum permitted distance between two consecutive axles in case of TSI non-compliance (4.14.2.1)
Minimum (permitted) distance between two consecutive axles (4.14.2.2)
Minimum permitted distance between first and last axle (4.14.2.3)
Maximum length vehicle nose (4.14.2.4)
Minimum width of the rim (4.14.2.5)
Minimum wheel diameter (4.14.2.6)
Minimum thickness of the flange (4.14.2.7)
Minimum height of the flange (4.14.2.8)
Maximum height of the flange (4.14.2.9)
Ferromagnetic wheel material (4.14.2.12)
Vehicle max sanding output (4.14.2.13)
Has sanding prevention (4.14.2.14)
Freight Wagon DDF/DPF (4.15.1)
Has onboard DDF/DPF (4.15.2)
Manufactured by
Type version number
Type version id
Non coded restrictions
Previous vehicle type
Manufacturing country

Has Properties

ATO communication system
ATO System version
Axle spacing
Compatible with line category
Configuration dependent parameter
ETCS baseline
GSM-R use of group 555
Has braking performance
Has cant deficiency compensation
Has onboard DDF/DPF
Minimum (permitted) axle load
Permissible payload
Safe consist length information from on-board necessary for access the line and SIL
Temperature range
Type number
Type or Design Examination Certificate, supporting the Vehicle Type's authorisation process.
Vehicle subcategory

Validation

Validation Rules:

Vehicle Type Shape

Message: temperatureRange: The VehicleType {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Vehicle Type Authorisation C

(16) the decision issued by the authorising entity based on reasonable assurance that the applicant and the entities involved in the design, manufacture, verification and validation of the vehicle type have fulfilled their obligations and responsibilities in order to ensure conformity with the essential
requirements of the applicable legislation enabling that a vehicle manufactured according to this design may be placed on the market and may be used safely in the
area of use of the vehicle type according to the conditions for use of the vehicle and other restrictions, when applicable, specified in the vehicle type authorisation
and to be applied to all vehicle authorised in conformity to this type;

IRI: *http://data.europa.eu/949/VehicleTypeAuthorisation*

Is subclass of
Permission

Has Properties
Vehicle type authorisation holder

Validation

Validation Rules:
Vehicle Type Authorisation Shape

Additional Information

References:
https://data.europa.eu/eli/reg/2018/545/art_2/oj/eng#

Vehicle Type Authorisation Case C

The process, as selected by the Applicant in line with (EU)2018/545, allowing the vehicle type authorisation and/or the vehicle authorisation for placing on the market.
The type of authorisation cases are described in Art. 14 of (EU)2018/545, and for authorisations before the Fourth Railway Package, a HistoricalAuthorisationCase must be used.

Each authorisation case supports a VehicleTypeAuthorisationApplication and is determined by exactly one VehicleType, and a set of Vehicles, which can be empty in some cases.

For authorisations before the (EU)2018/545 legislation, use `era:VehicleAuthorisationCase.

IRI: *http://data.europa.eu/949/VehicleTypeAuthorisationCase*

Is subclass of
Case

Has ERATV parameters
Member State of authorisation (3.1.1)
Type registration method

Has Properties
Area of Use
Configuration dependent conditions of use and other restrictions
Configuration dependent conformities/compliances
CSM-REA Safety Declaration

Validation

Validation Rules:
Vehicle Type Authorisation Case Shape

Message: areaOfUse: The VehicleTypeAuthorisationCase {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Additional Information

References:
https://data.europa.eu/eli/reg/2018/545/art_14/oj/eng#

Vehicle Type Authorisation Case C

The request, as submitted by the Applicant in line with (EU)2018/545, to allow the vehicle type authorisation and/or the vehicle authorisation for placing on the market.
The application consists of one or more authorisation cases as described in Art. 14 of (EU)2018/545, and for authorisations before the Fourth Railway Package, a HistoricalAuthorisationCase must be used.

The outcome of the application process is a `era:VehicleAuthorisation` or `era:VehicleTypeAuthorisation`.

IRI: *http://data.europa.eu/949/VehicleTypeAuthorisationApplication*

Is subclass of
Request

Has Properties
Is pre-engagement application

Pre-engagement baseline

Validation

Validation Rules:

Pava Cc I 11 B

Vehicle Type Authorisation Application Shape

Message: VA Applications contain a valid authorisation case. Valid combinations are not checked.

Additional Information

References:

https://data.europa.eu/eli/reg/2018/545/art_14/oj/eng#

Vehicle Type Authorisation Compliance Check C

A verification result as executed by a competent body on a section of a legal reference. The check can be positive or negative, and in the latter case, a restriction is expected.

This Class is used to improve the link between verification outcomes and the verified scope of that process, and support its structured documentation.

IRI: *http://data.europa.eu/949/VehicleTypeAuthorisationCheck*

Is subclass of

Compliance

Additional Information

See also:

https://eur-lex.europa.eu/eli/dir/2016/797/oj/eng#anx_IV

Vehicle Type Authorisation Restriction C

Restrictions, like coded and non-coded conditions for use, to be taken into account in the context of a Vehicle (Type) Authorisation.

The restrictions are recorded by the Authorising Entities, possibly deduced during underlying verification and certification processes by competent bodies, and if possible are documented with a link to the legal reference and sections therein.

In most cases, the Restriction will be dependent of a VehicleTypeConfiguration.

IRI: *http://data.europa.eu/949/VehicleTypeAuthorisationRestriction*

Is subclass of
Restriction

Has ERATV parameters
Strictly local, historical or tourist use (3.1.2.3)
Maximum design speed (4.1.2.1)
Maximum locomotives coupled (4.1.5)
Minimum radius of horizontal curve (4.8.4)

Has Properties
Onboard equipment - recording device
Quieter route exempted country
Quieter route exempted country
Temperature range

Validation

Validation Rules:
Vehicle Type Authorisation Restriction Shape

Message: quieterRoutesExemptedCountry: The Vehicle {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Additional Information

References:
https://data.europa.eu/eli/reg/2018/545/art_14/oj/eng#

Vehicle type configuration C

The combination of supported Gauge, Energy Systems and/or CCO Systems for a vehicle type

IRI: *http://data.europa.eu/949/VehicleTypeConfiguration*

Has Properties
For energy supply system
For onboard class A
For onboard class B
For wheel set gauge

Validation

Validation Rules:
Vehicle Type Configuration Shape

Message: forEnergySupplySystem: The VehicleTypeConfiguration {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Additional Information

Example:
1435mm / DC 3kV / Implementing Regulation (EU) 2019/776 Set_1

Vehicle type configuration parameter set C

Stub class linking a VehicleTypeConfiguration (`era:forConfiguration`) with parameters of the VehicleType that depend on that configuration.

IRI: *http://data.europa.eu/949/VehicleTypeConfigParameterSet*

Has ERATV parameters

- Maximum design speed (4.1.2.1)
- Maximum locomotives coupled (4.1.5)
- Quasi static guiding force (4.5.4)
- Total vehicle mass (4.5.5)
- Mass per wheel (4.5.6)
- Assessed Cant Deficiency (4.6.1)
- Vehicle type maximum speed and cant deficiency (4.6.4)
- Rail inclination (4.6.5)
- Maximum brake thermal energy capacity (4.7.2.1.6)
- Has parking brake (4.7.3.4)
- Has wheel slide protection system (4.7.8)
- Energy supply max power (4.10.2)
- Catenary max rated current (4.10.3)
- Maximum current at standstill per pantograph (4.10.4)
- Minimum contact wire height (4.10.5)
- Number of pantographs in contact with OCL (4.10.7)
- Shortest distance between pantographs in contact with OCL (4.10.8)
- Permitted contact strip material (4.10.10)
- Has automatic dropping device (4.10.11)
- Energy meter installed (4.10.12)
- Has current limitation (4.10.14)
- Contact force formula (4.10.15)
- Mean contact force (4.10.15)
- Has OCL-chargeable onboard storage system for traction (4.10.16)
- ETCS baseline (4.13.1.2)
- For Configuration

Has Properties

- Axle spacing
- Emergency braking
- Has braking performance
- Has vehicle type configuration
- Vehicle impedance
- Vehicle pantograph head

Validation

Validation Rules:

Vehicle Type Config Parameter Set Shape

Message: OCL type ({?oclType}) is not applicable when numberOfPantographsInContactWithOCL (value: {?numPanto}) is less than 2.

Vehicles Set [C]

A set of vehicles together forming the Scope of a registration/authorisation case or involved as on whole in another process.

IRI: *http://data.europa.eu/949/VehiclesSet*

Is subclass of
Bag
Scope

5. ERATV Parameters

Vehicle Type platform [DP]

The Type Holder's name for the Type's Family/Platform, as encoded in the first set of 3 numbers in the `dcterms:identifier` of the Type.

IRI: *http://data.europa.eu/949/vehicleTypePlatform*

Parameter of
Vehicle Type

General Information

Number:
0.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Vehicle Type Platform
Comment: Validation for vehicleTypePlatform property. Platform for which the vehicle type is designed.
Message: vehicleTypePlatform: The value must be a string.

Additional Information

See also:
https://eur-lex.europa.eu/eli/dec_impl/2011/665/2023-09-08#anx_III

Type number DP

Reserved for VehicleTypes authorised under the Fourth Railway Package (Since 2018/545).

Complementing the vehicleTypeNumber of 10 characters, is a combination of maximally two 3-digit groups ('ZZZ[-VVV]'), which represent
the type's evolution after creation, as versions (of variants), variants (of variants), be it never as variants of versions.

IRI: *http://data.europa.eu/949/includedVersionsVariant*

Parameter of
Vehicle Type

General Information

Number:
0.2
0.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Included Versions Variant
Comment: Validation for includedVersionsVariant property.
Message: The includedVersionsVariant value must be exactly three alphanumeric characters (e.g., 'A1B', 'XYZ', '012').

Additional Information

See also:
https://eur-lex.europa.eu/eli/dec_impl/2011/665/2023-09-08#anx_III

References:
http://data.europa.eu/eli/dec_impl/2011/665/2019-06-16

Vehicle Type - Alternative name DP

Alternative name of a vehicle type.
For the type name, use `rdfs:label`.

IRI: *http://data.europa.eu/949/alternativeTypeName*

Parameter of

Vehicle Type

General Information

Number:
1.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Alternative Type Name
Comment: Validation for alternativeTypeName property.
Message: The alternativeTypeName value must be a character string with a maximum length of 256 characters.

Vehicle category OP

Indicates the core purpose of a railway vehicle: delivering traction, transporting goods or passengers or serving as a special vehicle.

IRI: *http://data.europa.eu/949/vehicleCategory*

Parameter of
Vehicle Type

General Information

Number:
1.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Vehicle Categories

Values :

Code	Value
1X	Traction Vehicles
3X-4X	Hauled Vehicles
5X	Freight wagons (hauled)
7X	Special Vehicles

Validation

Validation Rules:

Vehicle Category
Comment: Validation for the vehicleCategory property for VehicleType.
Message: vehicleCategory: The value must be an IRI.
Vehicle Category Skos
Comment: Ensures that the value of vehicleCategory is a valid SKOS concept from the linked concept scheme.
Message: vehicleCategory: The VehicleType {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Additional Information

See also:

https://eur-lex.europa.eu/eli/dec_impl/2011/665/2023-09-08#anx_III

Vehicle type category. OP

IRI: *http://data.europa.eu/949/vehicleTypeCategory*

Parameter of

Vehicle Type

General Information

Number:

1.4

Belongs to parameters group

Vehicle type technical characteristic

Data Format

Data Presentation

Concept

Taxonomy Reference:

Vehicle Categories

Values :

Code	Value
1X	Traction Vehicles
3X-4X	Hauled Vehicles
5X	Freight wagons (hauled)
7X	Special Vehicles

Validation

Validation Rules:

Vehicle Type Category
Comment: Validation for vehicleTypeCategory property.
Message: era:vehicleTypeCategory: its value must be an IRI.
Vehicle Type Category Skos
Comment: Ensures that the value of vehicleTypeCategory is a valid SKOS concept from the linked concept scheme.
Message: vehicleTypeCategory: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Additional Information

See also:

https://eur-lex.europa.eu/eli/dec_impl/2011/665/2023-09-08#anx_III

Vehicle subcategory OP

Indicates the further classification (but not any family/platform) of vehicles within a vehicle category.

IRI: *http://data.europa.eu/949/vehicleTypeSubCategory*

Parameter of

Vehicle Type

General Information

Number:

1.5

Belongs to parameters group

Vehicle type technical characteristic

Data Format

Data Presentation

Concept

Taxonomy Reference:

Vehicle Sub Categories

Values :

Code	Value	Also Known As
CarCarrier	Car Carrier	
Coach	Coach	Passenger Coach (incl. sleeping cars, restaurant, etc.)
DrivingCoach	Driving Coach	
DrivingVan	Driving Van	
EmergencyVehicles	Emergency vehicles	
EnvrionmentVehicles	Environment vehicles	
FixedRakeOfCoaches	Fixed rake of coaches	
FreightTrainset	Self-propelled freight trainset (incl. railbuses)	
FreightWagon	Freight wagon	
FreightWagonsRake	Fixed rake of freight wagons	
HauledSpecialVehicle	Hauled special vehicle	
InfraInspectionVehicles	Infrastructure inspection vehicles	
Locomotive	Locomotive	
OnTrackMachines	On track Machines	OTMs
OtherHauledPassenger	Other hauled vehicles	
OtherTractionVehicles	Other (tramways, light rail vehicles, etc)	
PassengerTrainset	Self-propelled passenger trainset	
PersonnelCarriage	Personnel carriage	
PowerUnit	Power Unit (or power car)	
Railcar	Railcar	
RoadRailVehicles	Road-Rail vehicles	

Code	Value	Also Known As
SelfPropelledSpecialVehicle	Self-propelled special vehicle	
SeparateRailBogies	Separate rail bogies connected to compatible road vehicle(s)	
Shunter	Shunter	
TramTrain	Tram-Train	
Van	Van	

Validation

Validation Rules:

Vehicle Type Sub Category Skos
Comment: Ensures that the value of vehicleTypeSubCategory is a valid SKOS concept from the linked concept scheme.
Message: vehicleTypeSubCategory: The VehicleType/Certificate {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Vehicle Type Sub Category
Comment: Validation for vehicleTypeSubCategory property.
Message: era:vehicleTypeSubCategory: its value must be an IRI.

Additional Information

See also:

https://eur-lex.europa.eu/eli/dec_impl/2011/665/2023-09-08#anx_III

Member State of authorisation OP

Indicates the member state where a vehicle type has been authorized. Not to be confused with Area Of Use.

IRI: *http://data.europa.eu/949/authorisingMemberState*

Parameter of

Vehicle APIS Case
Vehicle Type Authorisation Case

General Information

Number:
3.1.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Validation

Validation Rules:
Authorising Member State
Comment: Indicates the member state where a vehicle type has been authorized. Not to be confused with Area Of Use.
Message: authorisingMemberState (3.1.1): The value must be an IRI.
Authorising Member State Skos
Comment: Ensures that the value of authorisingMemberState is a valid SKOS concept from the countries concept scheme.
Message: authorisingMemberState: The VehicleTypeAuthorisationCase {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Condition based restriction of use DP

The values to be mentioned are the ones defined in the issued vehicle type authorisation and/or vehicle authorisation for placing on the market.

IRI: *http://data.europa.eu/949/isConditionBasedRestriction*

Parameter of
Restriction

General Information

Number:
3.1.2.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Is Condition Based Restriction
Comment: Validation for isConditionBasedRestriction property.
Message: isConditionBasedRestriction: The value must be a boolean.

Additional Information

General explanation:
The details of any specified condition is to be specified within a non-coded restriction (e.g. concerned constituents where CV modules apply).

See also:

https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

Gauging OP

Gauges as defined in European standard or other local gauges, including lower or upper part.

IRI: *http://data.europa.eu/949/gaugingProfile*

Also Known As:
[ERATV] Reference profile

Parameter of
Restriction
Running track
Subset with common characteristics
Vehicle Type

General Information

Number:
3.1.2.3
4.2.1

XML Name:
ILL_Gauging

Deadline:
16 January 2020

Belongs to parameters group
Line layout
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Gauging Profiles

Values :

Code	Value	Also Known As
10	GA	
20	GB	
30	GC	
40	G1	
50	DE3	DE3 (German network)
60	G2	
70	GB1	
80	GB2	
90	BE1	BE1 (Belgian network)
100	BE2	BE2 (Belgian network)
110	BE3	
120	FR-3.3	3.3 (French network), Gauge 3.3
130	PTb	
140	PTb+	
150	PTc	
160	FIN1	FIN1 (Specific case Finland)
170	SEa	Sea, SEa (Swedish network), SEa (Specific case Sweden)
180	SEc	Sec
190	DE1	
200	DE2	DE2 (German network)
210	Z-GCD	
220	UK1	UK1 (UK network)
230	UK1[D]	
240	W6	

Code	Value	Also Known As
250	FS	
260	S	
270	GHE16	GHE16 (Specific case Spain – upper parts)
280	GEA16	
290	GEB16	
300	GEC16	
310	IRL1	
320	IRL2	
330	IRL3	
340	GI1	GI1 (Specific case Spain – lower parts)
341	FR-3.4.1	
342	FR-3.4.2	
350	GI2	GI2 - lower parts, GI2 (Specific case Spain – lower parts), GI2 (lower part), GI2 according EN 15273-2
360	GI3	
370	GEE10	GEE10 (Specific case Spain - METRIC - lower parts)
380	GED10	GED10 (Specific case Spain - METRIC - upper parts)
389	AFG	
390	AFM 423	
400	NL1	NL1 (Dutch network), NL1 (Specific case the Netherlands)
410	NL2	

Code	Value	Also Known As
411	M30	
412	M80	
413	Tram-train 2.40	
414	Tram-train 2.65	
415	Métrique BA	
416	Métrique SGV	
417	Métrique Cerd.	
418	GB:GČD	
419	GCZ3	
420	GČD	
421	GEI1	
422	GEI2	
423	GEI3	
424	GEI14	
425	AFM 425	
426	EBV2_reduziert	
427	AFM 427	
428	EBV3_reduziert	
429	EBV3	
430	EBV4	
431	EBV1	
432	EBV2	
433	AF4.0 – EP	
434	AF4.1 – EP	
435	AF4.2 – EP	
436	AF4.0 – IP	
437	AF4.1 – IP	
438	AF4.2 – IP	

Code	Value	Also Known As
510	AI4.0-E	
520	AI4.0-I	
530	GE14	
540	GEC14	
csn-28-0312	ČSN 28 0312	
de3-lower-parts-gi2	DE3 (Lower parts GI2)	
dk1	DK1	
g1-gi1	G1+GI1	
g1-gi2	G1/GI2	
g1-gl1	G1/Gl1	
g1-up-and-gi2-down	G1 up and GI2 down	
g1-with-gic2-upper-parts	G1 with GIC2 upper parts	
g2-gl1-with-timber-casette-20-feet	G2/Gl1 (with timber cassette 20 feet)	
galibo-renfe-01-10-86	Galibo Renfe 01/10/86	
gb-gi2	GB/GI2	
gb-m6	GB-M6	
gc-gl1	GC/Gl1	
gl1	Gl1	
n01	NO1	
nl-dutch-network	NL (Dutch network)	
nntr-bek-1465-bilag-3	NNTR BEK 1465 Bilag 3	
ocf-02	OCF-02	
per-altesse-greater-3250-mm-previsto-505-1	Per altezze > a 3250 mm eccede il profilo max di costruzione previsto dalla fiche 505-1	

Code	Value	Also Known As
per-altesse-less-3250-mm-rispetta-uic-505-1	Per altezze <= a 3250 mm rispetta la fiche UIC 505-1	
uic-505-1	UIC 505-1	
uic-505-1-excluding-doorsteps	UIC 505-1 excluding the doorsteps.	
w6a-uk-network	W6a (UK network)	
w6a-upper-lower-sectors-uk-network	W6a upper and lower sectors (UK network)	

Flags

Applicability Flags:

Y

Validation

Validation Rules:

Gauging Profile Skos
Comment: Ensures that the value of gaugingProfile is a valid SKOS concept from the linked concept scheme.
Message: gaugingProfile: The VehicleType/Restriction {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Gauging Profile
Comment: Validation for gaugingProfile property.
Message: era:gaugingProfile: its value must be an IRI.
Gauging Profile Skos
Comment: Indication of the gauging profile of track.
Message: Gauging profile (1.1.1.1.3.1.1, 1.2.1.0.3.4): The track {$this} (label {?label}) has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/gaugings/GaugingProfiles.
Gauging Profile
Comment: Gauges as defined in European standard or other local gauges, including lower or upper part.
Message: gaugingProfile (1.1.1.1.3.1.1, 1.2.1.0.3.4): The track must define a value that is an IRI. The error is due to having a value that is not an IRI.

OPE TSI References

Part of RCC Algorithm:

true

Additional Information

General explanation:

[ERATV] It is possible to include other values than the already identified and included in the concept scheme. They will be introduced by the Agency on request via a process of change request
EN15273-3: (2013)+A1:2016: Annex C and Annex D
INF TSI: 4.2.3.1

It is possible to include additional values than the already identified and included in the concept scheme. They will be introduced by the Agency on request via a process of change request.

UK in respect of the Northern Ireland have a reference profile, but defined based on national rule: 7.3.2.2 Specific case Ireland and UK for Northern Ireland ('P')
It is permissible for the reference profile of the upper and the lower part of the unit to be established in accordance with the national technical rules notified for this purpose.

See also:
- Annex D1 OPE TSI
- INF TSI: 4.2.3.1, 4.2.3.2

See also:
https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

References:
https://data.europa.eu/eli/reg/2014/1302/2023-09-28
https://data.europa.eu/eli/reg/2014/1299/2023-09-28

Strictly local, historical or tourist use DP

Strictly local, historical or tourist use

IRI: *http://data.europa.eu/949/hasStrictLocalHistoricalTouristUse*

Parameter of
Vehicle Type Authorisation Restriction

General Information

Number:
3.1.2.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Strict Local Historical Tourist Use
Comment: Validation for hasStrictLocalHistoricalTouristUse property. Indicates if the restriction applies to strictly local, historical or tourist use.
Message: hasStrictLocalHistoricalTouristUse: The value must be a boolean (true/false).

Additional Information

See also:
https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

Time based restriction of use DP

Some issued authorisation can include time-limited conditions for use. Time limitation is not a data provided by the applicant but a consequence of an authorisation decision (see Art 46(6) or regulation 2018/545)

IRI: *http://data.europa.eu/949/isTimeBasedRestriction*

Parameter of
Restriction

General Information

Number:
3.1.2.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Is Time Based Restriction
Comment: Validation for isTimeBasedRestriction property. Indicates if the restriction is time-based.
Message: isTimeBasedRestriction: The value must be a boolean (true/false).

Additional Information

See also:
https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

Driving cabs DP

Number of driving cabs.

For vehicle types without driving cabs, this property should not be used, or the number of driving cabs is to be set to zero (0).

IRI: *http://data.europa.eu/949/drivingCabs*

Parameter of
Vehicle Type

General Information

Number:

4.1.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Validation

Validation Rules:
Driving Cabs
Comment: Validation for drivingCabs property.
Message: The drivingCabs value must be 0, 1, or 2.

Maximum design speed DP

Maximum design speed.

IRI: *http://data.europa.eu/949/maximumDesignSpeed*

Parameter of
Vehicle Type
Vehicle Type Authorisation Restriction
Vehicle type configuration parameter set

General Information

Number:
4.1.2.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Kilometre per Hour

Validation

Validation Rules:
Maximum Design Speed
Comment: Validation for maximumDesignSpeed property.
Message: The maximumDesignSpeed value must be an integer.

Additional Information

See also:

https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

Nominal track gauge OP

A single value expressed in millimetres that identifies the track gauge.

IRI: *http://data.europa.eu/949/wheelSetGauge*

Parameter of

Restriction
Running track
Subset with common characteristics
Vehicle Type

General Information

Number:
4.1.3

XML Name:
ITP_NomGauge

Deadline:
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest

Belongs to parameters group
Track parameters
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Nominal Track Gauges

Values :

Code	Value	Also Known As	Explanation
10	750	750	
20	1000	1000mm	
30	1435	1435mm	
40	1520	1520mm	
50	1524	1524mm	
60	1600	1600mm	
70	1668	1668mm	
unknown	Unknown		Track gauge type not known

Flags

Applicability Flags:
Y

Has Characteristics:
Functional property (unique value)

Validation

Validation Rules:
Wheel Set Gauge Skos
Comment: A single value expressed in millimeters that identifies The track gauge.
Message: Nominal track gauge (1.1.1.1.4.1, 1.2.1.0.4.1): The track {$this} (label {?label}) has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/nominal-track-gauges/NominalTrackGauges.
Wheel Set Gauge
Comment: Validation for wheelSetGauge property.
Message: era:wheelSetGauge: its value must be an IRI.
Wheel Set Gauge Skos
Comment: Ensures that the value of wheelSetGauge is a valid SKOS concept from the linked concept scheme.
Message: wheelSetGauge: The VehicleType {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Wheel Set Gauge
Comment: A single value expressed in millimeters that identifies the track gauge.
Message: wheelSetGauge (1.1.1.1.4.1, 1.2.1.0.4.1): The track must have at most one wheel set gauge value that is an IRI.

OPE TSI References

Part of RCC Algorithm:
true

Additional Information

General explanation:
In case of multi-rail track, a set of data is to be published separately to each pair of rails to be operated as separate track (the whole set of parameters for the separate track has to be delivered be careful then with the track identification). Nominal track gauges provided by the INF TSI are only 1435, 1520, 1524, 1600 and 1668.

See also:

INF TSI: 4.2.4.1
https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

References:
http://data.europa.eu/eli/reg/2014/1299/2023-09-28

Wheel set gauge transformation method DP

Wheel gauge transformation method. Defined if more than one wheel gauges have been selected.

IRI: *http://data.europa.eu/949/wheelSetGaugeTransformationMethod*

Parameter of
Vehicle Type

General Information

Number:
4.1.3.b

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Wheel Set Gauge Transformation Method
Comment: Validation for wheelSetGaugeTransformationMethod property.
Message: The wheelSetGaugeTransformationMethod value must be a character string.

Maximum locomotives coupled DP

Maximum number of trainsets or locomotives coupled together in multiple operation.

IRI: *http://data.europa.eu/949/maximumLocomotivesCoupled*

Parameter of
Vehicle Type
Vehicle Type Authorisation Restriction
Vehicle type configuration parameter set

General Information

Number:
4.1.5

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Validation

Validation Rules:
Maximum Locomotives Coupled
Comment: Validation for maximumLocomotivesCoupled property.
Message: The maximumLocomotivesCoupled must be an integer value.

Additional Information

See also:
https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

Dangerous goods tank code DP

Dangerous goods for which the vehicle is suitable (tank code).

IRI: *http://data.europa.eu/949/dangerousGoodsTankCode*

Parameter of
Vehicle Type

General Information

Number:
4.1.9

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Dangerous Goods Tank Code
Comment: Validation for dangerousGoodsTankCode property.
Message: dangerousGoodsTankCode (4.1.9): The value must be a string.

Wheelset gauge changeover facility OP

Wheelset gauge changeover facility. The allowed values for this property belong to the SKOS Concept Scheme http://data.europa.eu/949/concepts/gauge-changeover-facilities/GaugeChangeoverFacilities

IRI: *http://data.europa.eu/949/wheelSetGaugeChangeoverFacility*

Parameter of

Vehicle Type

General Information

Number:
4.1.11

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Gauge Changeover Facilities

Values :

Code	Value	Also Known As
1-435mm_1-668mm	1.435mm / 1.668mm	
1435_1668mm_bogie_axle_change	1435/1668mm bogie/axle change	
Bogie_axle_change	Bogie/axle change	Bogie / axle change
change_of_wheelsets_at_the_border_line	Change of wheelsets at the border line	
exchange_of_bogie_1-435mm_1-668mm_incl_CFCB	Exchange of bogie 1.435mm / 1.668mm (incl. CFCB)	
Exchange_of_the_wheelset	Exchange of the wheelset	Exchange of the wheelsets
Manual_change_of_wheelsets	Manual change of wheelsets	
NA	N/A	
SEMIAUTOMATICO	SEMIAUTOMATICO	
TSI_WAG_7_1_2_c_The_unit_must_not_be_equipped_with_variable_gauge_wheelsets	TSI WAG, 7.1.2 (c) The unit must not be equipped with variable gauge wheelsets	

Validation

Validation Rules:

Wheel Set Gauge Changeover Facility
Comment: Validation for wheelSetGaugeChangeoverFacility property.
Message: era:wheelSetGaugeChangeoverFacility: its value must be an IRI.
Wheel Set Gauge Changeover Facility Skos
Comment: Ensures that the value of wheelSetGaugeChangeoverFacility is a valid SKOS concept from the linked concept scheme.
Message: wheelSetGaugeChangeoverFacility: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Vehicles composing fixed formation DP

Number of vehicles composing the fixed formation (for fixed formation only). Note: the value is mandatory for all vehicle categories. If the vehicle is composed of only one car, the indicated value shall be '1'.

IRI: *http://data.europa.eu/949/vehiclesComposingFixedFormation*

Parameter of
Vehicle Type

General Information

Number:
4.1.12

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Validation

Validation Rules:
Vehicles Composing Fixed Formation
Comment: Validation for vehiclesComposingFixedFormation property.
Message: The vehiclesComposingFixedFormation value must be an integer.

Altitude range DP

Altitude range A1, A2 or A<integer> (integer era:altitudeRangeDetail).

IRI: *http://data.europa.eu/949/altitudeRange*

Parameter of
Vehicle Type

General Information

Number:
4.3.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Altitude Range
Comment: Validation for altitudeRange property.
Message: The altitudeRange value must be a character string.

Altitude range detail DP

Altitude range value for 'X' if value 'AX' is selected in altitude range.

IRI: *http://data.europa.eu/949/altitudeRangeDetail*

Parameter of
Vehicle Type

General Information

Number:
4.3.2.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Validation

Validation Rules:
Altitude Range Detail
Comment: Validation for altitudeRangeDetail property.
Message: The altitudeRangeDetail value must be an integer.

Snow ice hail conditions OP

Snow, ice and hail conditions.

IRI: *http://data.europa.eu/949/snowIceHailConditions*

Parameter of
Vehicle Type

General Information

Number:
4.3.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Ice Conditions

Values :

Code	Value	Also Known As
Nominal	Nominal	
S1	S1	T1S1 (0 to 250)
S2	S2	S2 (250 to 400)
S3	S3	S3 (400 to 800)
Severe	Severe	

Validation

Validation Rules:

Snow Ice Hail Conditions Skos
Comment: Ensures that the value of snowIceHailConditions is a valid SKOS concept from the linked concept scheme.
Message: snowIceHailConditions: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Snow Ice Hail Conditions
Comment: Validation for snowIceHailConditions property.
Message: era:snowIceHailConditions: its value must be an IRI.

Fire safety category OP

Fire safety category for tunnels.

IRI: *http://data.europa.eu/949/fireSafetyCategory*

Parameter of

Vehicle Type

General Information

Number:
4.4.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Rolling Stock Fire Categories

Values :

Code	Value	Also Known As	Explanation
10	A		Rolling stock which is designed and built to operate on underground sections and tunnels of not more than 5 km in length, with side evacuation available is defined as category A
20	B		Rolling stock which is designed and built to operate in all tunnels of the trans-European Network is defined as category B
30	None	None	None of rolling stock fire categories A or B shall be applied on a tunnel
no-category-acceptable-in-unnels-shorter-then-1km	No category, acceptable in tunnels shorter then 1km		
not-applicable	Not applicable		
otm	OTM		
srt-tsi	SRT TSI Freight Locomotive		

Validation

Validation Rules:

Fire Safety Category
Comment: Validation for fireSafetyCategory property.
Message: era:fireSafetyCategory: its value must be an IRI.
Fire Safety Category Skos
Comment: Ensures that the value of fireSafetyCategory is a valid SKOS concept from the linked concept scheme.
Message: fireSafetyCategory: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Permissible payload mass DP

IRI: *http://data.europa.eu/949/permissiblePayloadMass*

Parameter of

Permissible Payload

General Information

Number:
4.5.1.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Tonne

Validation

Validation Rules:
Permissible Payload Mass
Comment: Validation for permissiblePayloadMass property.
Message: The permissiblePayloadMass value must be a decimal

Design mass in working order DP

Design mass in working order.

IRI: *http://data.europa.eu/949/designMassWorkingOrder*

Parameter of
Vehicle Type

General Information

Number:
4.5.2.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Kilogram

Validation

Validation Rules:
Design Mass Working Order
Comment: Validation for designMassWorkingOrder property.
Message: The designMassWorkingOrder value must be an integer.

Design mass under normal payload DP

Design mass under normal payload.

IRI: *http://data.europa.eu/949/designMassNormalPayload*

Parameter of
Vehicle Type

General Information

Number:
4.5.2.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Kilogram

Validation

Validation Rules:
Design Mass Normal Payload
Comment: Validation for designMassNormalPayload property.
Message: The designMassNormalPayload value must be an integer.

Design mass under exceptional payload DP

Design mass under exceptional payload.

IRI: *http://data.europa.eu/949/designMassExceptionalPayload*

Parameter of
Vehicle Type

General Information

Number:
4.5.2.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Kilogram

Validation

Validation Rules:
Design Mass Exceptional Payload
Comment: Validation for designMassExceptionalPayload property.
Message: The designMassExceptionalPayload value must be an integer.

Operational mass in working order DP

Operational mass in working order.

IRI: *http://data.europa.eu/949/operationalMassWorkingOrder*

Parameter of
Vehicle Type

General Information

Number:
4.5.2.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Kilogram

Validation

Validation Rules:
Operational Mass Working Order
Comment: Validation for operationalMassWorkingOrder property.
Message: The operationalMassWorkingOrder value must be an integer.

Additional Information

References:
http://data.europa.eu/eli/dec_impl/2011/665/2023-09-08

Operational mass under normal payload DP

Operational mass under normal payload.

IRI: *http://data.europa.eu/949/operationalMassNormalPayload*

Parameter of
Vehicle Type

General Information

Number:
4.5.2.5

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Kilogram

Validation

Validation Rules:
Operational Mass Normal Payload
Comment: Validation for operationalMassNormalPayload property.
Message: The operationalMassNormalPayload value must be an integer.

Additional Information

References:
http://data.europa.eu/eli/dec_impl/2011/665/2023-09-08

Static axle load in working order DP

Static axle load in working order.

IRI: *http://data.europa.eu/949/staticAxleLoadWorkingOrder*

Parameter of
Vehicle Type

General Information

Number:
4.5.3.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Kilogram

Validation

Validation Rules:
Static Axle Load Working Order
Comment: Validation for staticAxleLoadWorkingOrder property.
Message: The staticAxleLoadWorkingOrder value must be a decimal.

Static axle load under normal payload DP

Static axle load under normal payload.

IRI: *http://data.europa.eu/949/staticAxleLoadNormalPayload*

Parameter of
Vehicle Type

General Information

Number:
4.5.3.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Kilogram

Validation

Validation Rules:
Static Axle Load Normal Payload
Comment: Validation for staticAxleLoadNormalPayload property.
Message: The staticAxleLoadNormalPayload value must be a decimal.

Static axle load under exceptional payload DP

Static axle load under exceptional payload.

IRI: *http://data.europa.eu/949/staticAxleLoadExceptionalPayload*

Parameter of
Vehicle Type

General Information

Number:
4.5.3.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Kilogram

Validation

Validation Rules:
Static Axle Load Exceptional Payload
Comment: Validation for staticAxleLoadExceptionalPayload property.
Message: The staticAxleLoadExceptionalPayload value must be a decimal.

Axle spacing DP

Position of the axles along the unit. a: Distance between axles; b: Distance from end axle to the end of the nearest coupling plane; c: distance between two inside axles.

IRI: *http://data.europa.eu/949/axleSpacing*

Parameter of
Vehicle Type

General Information

Number:
4.5.3.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Axle Spacing
Comment: Validation for axleSpacing property. Position of the axles along the unit.
Message: axleSpacing: The value must be a string describing the position of axles along the unit.

Quasi static guiding force DP

Quasi-static guiding force (if exceeds the limit defined in TSI or not defined in the TSI), given in kN.

IRI: *http://data.europa.eu/949/quasiStaticGuidingForce*

Parameter of
Vehicle type configuration parameter set

General Information

Number:
4.5.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:

Validation

Validation Rules:
Quasi Static Guiding Force
Comment: Validation for quasiStaticGuidingForce property.
Message: The quasiStaticGuidingForce must be a decimal value.

Additional Information

General explanation:
Value to be provided per supported track gauge.

Total vehicle mass DP

Total vehicle mass (for each vehicle of the unit), given in kg.

IRI: *http://data.europa.eu/949/totalVehicleMass*

Parameter of
Vehicle Type
Vehicle type configuration parameter set

General Information

Number:
4.5.5

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Kilogram

Validation

Validation Rules:
Total Vehicle Mass
Comment: Validation for totalVehicleMass property.
Message: The totalVehicleMass must be an integer value.

Additional Information

General explanation:
The parameter should currently be considered independent of a Vehicle Configuration.

Mass per wheel DP

Mass per wheel, given in kg.

IRI: *http://data.europa.eu/949/massPerWheel*

Parameter of
Vehicle Type
Vehicle type configuration parameter set

General Information

Number:
4.5.6

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Kilogram

Validation

Validation Rules:
Mass Per Wheel
Comment: Validation for massPerWheel property.
Message: The massPerWheel value must be an decimal.

Additional Information

General explanation:

The parameter should currently be considered independent of a Vehicle Configuration.

Assessed Cant Deficiency DP

Cant deficiency (maximum uncompensated lateral acceleration) for which the vehicle has been assessed. For dual gauge vehicles values for each gauge have to be indicated.

IRI: *http://data.europa.eu/949/assessedCantDeficiency*

Parameter of

Vehicle Type
Vehicle type configuration parameter set

General Information

Number:
4.6.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Millimetre

Validation

Validation Rules:
Assessed Cant Deficiency
Comment: Validation for assessedCantDeficiency property. Cant deficiency (maximum uncompensated lateral acceleration) for which the vehicle has been assessed.
Message: assessedCantDeficiency: The value must be an integer representing cant deficiency in millimeters.

Additional Information

General explanation:
For dual gauge vehicles, values for each gauge shall be indicated.

Has cant deficiency compensation DP

Vehicle equipped with a cant deficiency compensation system (tilting vehicle).

IRI: *http://data.europa.eu/949/hasCantDeficiencyCompensation*

Parameter of
Vehicle Type

General Information

Number:
4.6.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Cant Deficiency Compensation
Comment: Validation for hasCantDeficiencyCompensation property.
Message: The hasCantDeficiencyCompensation value must be a boolean (true/false).

Vehicle type maximum cant deficiency DP

Part of the combination of maximum speed and maximum cant deficiency for which the vehicle was assessed. Corresponds to the maximum cant deficiency.

IRI: *http://data.europa.eu/949/vehicleTypeMaximumCantDeficiency*

Parameter of
Maximum speed and cant deficiency

General Information

Number:
4.6.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Millimetre

Validation

Validation Rules:

Vehicle Type Maximum Cant Deficiency
Comment: Validation for vehicleTypeMaximumCantDeficiency property. Maximum cant deficiency for which the vehicle type has been assessed.
Message: vehicleTypeMaximumCantDeficiency: The value must be an integer representing cant deficiency in millimeters.

Additional Information

General explanation:
The parameter depended on the [INF, ENE, CCS]-configuration, but should currently be considered dependent only of the INF Vehicle Configuration.

Vehicle type maximum speed DP

Part of the combination of maximum speed and maximum cant deficiency for which the vehicle was assessed. Corresponds to the maximum speed.

IRI: *http://data.europa.eu/949/vehicleTypeMaximumSpeed*

Parameter of

Maximum speed and cant deficiency

General Information

Number:
4.6.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Kilometre per Hour

Validation

Validation Rules:
Vehicle Type Maximum Speed
Comment: Validation for vehicleTypeMaximumSpeed property. Maximum speed for which the vehicle type has been assessed with the corresponding cant deficiency.
Message: vehicleTypeMaximumSpeed: The value must be an integer representing speed in km/h.

Additional Information

General explanation:
The parameter depended on the [INF, ENE, CCS]-configuration, but should currently be considered dependent only of the INF Vehicle Configuration.

Vehicle type maximum speed and cant deficiency OP

Relates the vehicle type with its values of maximum speed and cant deficiency.

IRI: *http://data.europa.eu/949/vehicleTypeMaximumSpeedAndCantDeficiency*

Parameter of

Vehicle type configuration parameter set

General Information

Number:
4.6.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Maximum speed and cant deficiency

Validation

Validation Rules:
Vehicle Type Maximum Speed And Cant Deficiency
Comment: Validation for vehicleTypeMaximumSpeedAndCantDeficiency property.
Message: era:vehicleTypeMaximumSpeedAndCantDeficiency: its value must be an IRI pointing to a MaximumSpeedAndCantDeficiency.

Additional Information

General explanation:
The parameter depended on the [INF, ENE, CCS]-configuration, but should currently be considered dependent only of the INF Configuration.

Rail inclination OP

An angle defining the inclination of the head of a rail relative to the running surface.

IRI: *http://data.europa.eu/949/railInclination*

Parameter of

Running track
Subset with common characteristics
Vehicle Type
Vehicle type configuration parameter set

General Information

Number:
4.6.5

XML Name:
ITP_RailInclination

Deadline:
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest

Belongs to parameters group
Track parameters
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Format:
In XML the accepted value is NN, where N is a digit from 0 to 9.

Taxonomy Reference:
Rail Inclinations

Values :

Code	Value	Also Known As
0	No inclination	0
10	1/10	1:10
20	1/20	1:20
25	1/25	1:25
30	1/30	1:30
40	1/40	1:40
50	1/50	1:50
60	1/60	1:60
70	1/70	1:70
80	1/80	1:80
100	All	
110	All (assessment against EN14363:2005)	
120	Combination not provided	
130	N/A	NA, Sans objet
140	None	NINGUNO
150	RIV	
160	Tutte	
170	Undetermined	
180	All rail inclination	All rail inclinations
20-30-40	1/20, 1/30, 1/40	1/20, 1/30. 1/40, 1:20 and 1:40, 1:20, 1:30, 1:40, 1/20, 1/30, 1/40, 1/20; 1/30; 1/40, 1/20 1/30 1/40
20-40	1/20,1/40	1:20, 1:40, 1/20 and 1/40, 1/40 and 1/20, 1/20. 1/40, 1/40, 1/20, 1/20: 1/40, 1/20; 1/40, 1/20 & 1/40, 1/20, 1/40, 1/20 - 1/40, 1:20 & 1:40, 1:20 , 1:40

Code	Value	Also Known As
40-20	1/40 (Ligne CFF Genève La Plaine) 1/20 (réseau ferré Français)	1/40 (Ligne CFF Genève La Plaine) ou 1/20 (réseau ferré français)

Flags

Applicability Flags:
Y

Has Characteristics:
Functional property (unique value)

Validation

Validation Rules:
Rail Inclination
Comment: Validation for railInclination property.
Message: era:railInclination: its value must be an IRI.
Rail Inclination Skos
Comment: Ensures that the value of railInclination is a valid SKOS concept from the linked concept scheme.
Message: railInclination: The VehicleType/VehicleTypeConfigParameterSet {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Rail Inclination
Comment: An angle defining the inclination of the head of a rail relatie to the running surface.
Message: railInclination (1.1.1.1.4.3): The track must have at most one rail inclination measurement value that is an IRI. This error may be due to the track having more than one rail inclination measurement value or to having a value that is not an IRI.
Rail Inclination Skos
Comment: An angle defining the inclination of the head of a rail relatie to the running surface.
Message: Indication of the rail inclination (1.1.1.1.4.3):): The track {$this} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/rail-inclinations/RailInclinations.

OPE TSI References

Part of RCC Algorithm:
true

Additional Information

General explanation:
[ERATV] This inclination is in most cases expressed for MS RINF globally, but anyway it requires presentation for the specific track, when in one SoL more values occur.

An angle defining the inclination of the head of a rail when installed in the track relative to the plane of the rails (running surface), equal to the angle between the axis of symmetry of the rail (or of an equivalent symmetrical rail having the same rail head profile) and the perpendicular to the plane of the rails. [NN] represents the denominator of the rail inclination expressed as 1/NN. The typical values are 1:20, 1:30, 1:40.

For a VehicleType, the value should currently be considered independent of a Vehicle Configuration.

This inclination is in most cases expressed for MS globally, but anyway it requires presentation for the specific track, when in one SoL more values occur.
An angle defining the inclination of the head of a rail when installed in the track relative to the plane of the rails (running surface), equal to the angle between the axis of symmetry of the rail (or of an equivalent symmetrical rail having the same rail head profile) and the perpendicular to the plane of the rails. The typical values for the railway inclination are 1:20, 1:30, 1:40.

See also:
INF TSI:4.2.4.7

References:
http://data.europa.eu/eli/reg/2014/1299/2023-09-28

Maximum average deceleration DP

Maximum train deceleration given in m/s².

IRI: *http://data.europa.eu/949/maximumAverageDeceleration*

Also Known As:
Maximum train deceleration

Parameter of
Vehicle Type

General Information

Number:
4.7.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Metre per Square Second

Validation

Validation Rules:
Maximum Average Deceleration
Comment: Validation for maximumAverageDeceleration property.
Message: The maximumAverageDeceleration value must be a decimal.

Thermal capacity TSI reference OP

Reference case of a TSI thermal capacity.

IRI: *http://data.europa.eu/949/thermalCapacityTSIReference*

Parameter of

Vehicle Type

General Information

Number:
4.7.2.1.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Thermal Capacity TSI References

Values :

Code	Value
Reference_case_60_km_h_21_mm_m_45_min	Reference case (60 km/h, 21‰ (mm/m), 45 min)
Reference_case_70_km_h_21_mm_m_40_km	Reference case (70 km/h, 21‰ (mm/m), 40 km)
Reference_case_90_of_design_speed_Category_1_of_HS_INF_TSI_Dec_2008_217_EC	Reference case (90% of design speed, Category 1 of HS INF TSI Dec 2008/217/EC)
Reference_case_of_80_km_h_21_mm_m_46_km	Reference case of (80 km/h, 21‰ (mm/m), 46 km)

Validation

Validation Rules:
Thermal Capacity Tsireference Skos
Comment: Ensures that the value of thermalCapacityTSIReference is a valid SKOS concept from the linked concept scheme.
Message: thermalCapacityTSIReference: The VehicleType {$this} with label {?label} has a value {?value} is not one of the predefined values and cannot be converted into a SKOS concept on this list:.
Thermal Capacity Tsireference
Comment: Validation for thermalCapacityTSIReference property.
Message: era:thermalCapacityTSIReference: its value must be an IRI.

Thermal capacity speed DP

Thermal capacity speed (If no reference case is indicated)

IRI: *http://data.europa.eu/949/thermalCapacitySpeed*

Parameter of
Vehicle Type

General Information

Number:
4.7.2.1.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Kilometre per Hour

Validation

Validation Rules:
Thermal Capacity Speed
Comment: Validation for thermalCapacitySpeed property.
Message: The thermalCapacitySpeed value must be a decimal.

Thermal capacity gradient DP

Thermal capacity gradient (If no reference case is indicated)

IRI: *http://data.europa.eu/949/thermalCapacityGradient*

Parameter of
Vehicle Type

General Information

Number:
4.7.2.1.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:

Validation

Validation Rules:
Thermal Capacity Gradient
Comment: Validation for thermalCapacityGradient property.
Message: The thermalCapacityGradient value must be a decimal.

Thermal capacity distance DP

Thermal capacity distance. If no reference case is indicated.

IRI: *http://data.europa.eu/949/thermalCapacityDistance*

Parameter of
Vehicle Type

General Information

Number:
4.7.2.1.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Kilometre

Validation

Validation Rules:
Thermal Capacity Distance
Comment: Validation for thermalCapacityDistance property.
Message: The thermalCapacityDistance value must be a decimal.

Thermal capacity time DP

Thermal capacity time (If no reference case is indicated)

IRI: *http://data.europa.eu/949/thermalCapacityTime*

Parameter of
Vehicle Type

General Information

Number:
4.7.2.1.5

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:

Validation

Validation Rules:
Thermal Capacity Time
Comment: Validation for thermalCapacityTime property.
Message: The thermalCapacityTime value must be a decimal.

Maximum brake thermal energy capacity DP

Maximum brake thermal energy capacity given in kJ

IRI: *http://data.europa.eu/949/maximumBrakeThermalEnergyCapacity*

Parameter of
Vehicle Type
Vehicle type configuration parameter set

General Information

Number:
4.7.2.1.6

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Kilojoule

Validation

Validation Rules:
Maximum Brake Thermal Energy Capacity
Comment: Validation for maximumBrakeThermalEnergyCapacity property.
Message: The maximumBrakeThermalEnergyCapacity value must be a decimal.

Parking brake mandatory DP

All vehicles of this type must be equipped with a parking brake (parking brake mandatory for vehicles of this type).

IRI: *http://data.europa.eu/949/hasMandatoryParkingBrake*

Parameter of
Vehicle Type

General Information

Number:
4.7.3.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Mandatory Parking Brake
Comment: Validation for hasMandatoryParkingBrake property.
Message: The hasMandatoryParkingBrake value must be a boolean (true/false).

Additional Information

References:
http://data.europa.eu/eli/dec_impl/2011/665

Parking brake maximum gradient DP

Maximum gradient on which the unit is kept immobilised by the parking brake alone (if the vehicle is fitted with it).

IRI: *http://data.europa.eu/949/parkingBrakeMaximumGradient*

Parameter of
Vehicle Type

General Information

Number:
4.7.3.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:

Validation

Validation Rules:
Parking Brake Maximum Gradient
Comment: Validation for parkingBrakeMaximumGradient property.
Message: The parkingBrakeMaximumGradient value must be a decimal.

Has parking brake DP

Indicates whether all vehicles of this type are equipped with a parking brake.

IRI: *http://data.europa.eu/949/hasParkingBrake*

Parameter of
Vehicle Type
Vehicle type configuration parameter set

General Information

Number:
4.7.3.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Parking Brake
Comment: Validation for hasParkingBrake property.
Message: The hasParkingBrake must be a boolean value.

Eddy current braking fitted DP

Eddy current track brake fitted. New property defined to distinguish it from eddyCurrentBraking which is a RINF SKOS property.

IRI: *http://data.europa.eu/949/hasEddyCurrentBrake*

Parameter of

Vehicle Type

General Information

Number:
4.7.4.1.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Eddy Current Brake
Comment: Validation for hasEddyCurrentBrake property.
Message: The hasEddyCurrentBrake value must be a boolean (true/false).

Eddy current brake prevention DP

Possibility of preventing the use of the eddy current track brake (only if fitted with eddy current brake)

IRI: *http://data.europa.eu/949/hasEddyCurrentBrakePrevention*

Parameter of
Vehicle Type

General Information

Number:
4.7.4.1.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Eddy Current Brake Prevention
Comment: Validation for hasEddyCurrentBrakePrevention property.
Message: hasEddyCurrentBrakePrevention (4.7.4.1.2): The value must be a boolean.

Magnetic braking fitted DP

Magnetic track brake fitted. New property defined to distinguish it from magneticBraking which is a RINF SKOS property.

IRI: *http://data.europa.eu/949/hasMagneticBrake*

Parameter of
Vehicle Type

General Information

Number:
4.7.4.2.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Magnetic Brake
Comment: Validation for hasMagneticBrake property.
Message: The hasMagneticBrake value must be a boolean (true/false).

Additional Information

References:
http://data.europa.eu/eli/dec_impl/2011/665/2025-04-27

Magnetic brake prevention DP

Possibility of preventing the use of the magnetic track brake (only if fitted with magnetic brake)

IRI: *http://data.europa.eu/949/hasMagneticBrakePrevention*

Parameter of
Vehicle Type

General Information

Number:
4.7.4.2.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Magnetic Brake Prevention
Comment: Validation for hasMagneticBrakePrevention property.
Message: The hasMagneticBrakePrevention value must be a boolean (true/false).

Additional Information

References:
http://data.europa.eu/eli/dec_impl/2011/665/2025-04-27

Permission for regenerative braking DP

Indication whether regenerative braking is permitted or not.

IRI: *http://data.europa.eu/949/hasRegenerativeBrake*

Parameter of
Vehicle Type

General Information

Number:
4.7.4.3.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Regenerative Brake
Comment: Validation for hasRegenerativeBrake property.
Message: The hasRegenerativeBrake value must be a boolean (true/false).

Prevent regenerative brake use DP

Possibility of preventing the use of the regenerative brake (only if fitted with regenerative brake).

IRI: *http://data.europa.eu/949/hasRegenerativeBrakePrevention*

Parameter of
Vehicle Type

General Information

Number:
4.7.4.3.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Regenerative Brake Prevention
Comment: Validation for hasRegenerativeBrakePrevention property.
Message: The hasRegenerativeBrakePrevention value must be a boolean (true/false).

Additional Information

References:
http://data.europa.eu/eli/dec_impl/2011/665/2025-04-27

Max deceleration for braking profile at max speed DP

Maximum train deceleration given in m/s² for a certain braking profile, at design maximum speed.

IRI: *http://data.europa.eu/949/profileDeceleration*

Parameter of
Braking profile

General Information

Number:
4.7.5
4.7.7

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Metre per Square Second

Validation

Validation Rules:

Profile Deceleration

Comment: Validation for profileDeceleration property. Maximum train deceleration for a braking profile at design maximum speed.

Message: profileDeceleration: The value must be a decimal representing maximum deceleration in m/s².

Max train stopping distance for braking profile at max speed DP

Maximum train stopping distance given in m for a certain braking profile, at design maximum speed.

IRI: *http://data.europa.eu/949/profileStoppingDistance*

Parameter of

Braking profile

General Information

Number:

4.7.5
4.7.7

Belongs to parameters group

Vehicle type technical characteristic

Data Format

Data Presentation

Integer

Unit of Measure:

Metre

Validation

Validation Rules:

Profile Stopping Distance

Comment: Validation for profileStoppingDistance property. Maximum train stopping distance for a braking profile at design maximum speed.

Message: profileStoppingDistance: The value must be an integer representing stopping distance in meters.

Profile defining load condition DP

Load Condition mass defining the braking profile, at design maximum speed.

IRI: *http://data.europa.eu/949/profileLoadConditionMass*

Parameter of
Braking profile

General Information

Number:
4.7.5
4.7.7

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Kilogram

Validation

Validation Rules:
Profile Load Condition Mass
Comment: Validation for profileLoadConditionMass property. Load condition mass for which the braking profile applies.
Message: profileLoadConditionMass: The value must be an integer representing the load condition mass.

Additional Information

General explanation:
The mass, defined by the load condition, as under
- era:designMassExceptionalPayload
- era:designMassNormalPayload
- era:designMassWorkingOrder.

Brake weight percentage DP

Brake weight percentage (lambda) or Braked mass.

IRI: *http://data.europa.eu/949/brakeWeightPercentage*

Parameter of
Vehicle Type

General Information

Number:
4.7.6

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Brake Weight Percentage
Comment: Validation for brakeWeightPercentage property. Brake weight percentage (lambda) or Braked mass.
Message: brakeWeightPercentage: The value must be a string.

Braked mass DP

Braked mass.

IRI: *http://data.europa.eu/949/withBrakedMass*

Parameter of
Braking performance

General Information

Number:
4.7.6

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Tonne

Validation

Validation Rules:
With Braked Mass
Comment: Validation for withBrakedMass property. Braked mass value.
Message: withBrakedMass: The value must be a decimal representing braked mass.

Braked mass percentage DP

Braked mass percentage (lambda).

IRI: *http://data.europa.eu/949/withBrakedMassPercentage*

Parameter of

Braking performance

General Information

Number:
4.7.6

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Validation

Validation Rules:
With Braked Mass Percentage
Comment: Validation for withBrakedMassPercentage property. Braked mass percentage value.
Message: withBrakedMassPercentage: The value must be a decimal representing braked mass percentage.

Has wheel slide protection system DP

Indicates the presence of a wheel slide protection system.

IRI: *http://data.europa.eu/949/hasWheelSlideProtectionSystem*

Parameter of
Vehicle Type
Vehicle type configuration parameter set

General Information

Number:
4.7.8

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Wheel Slide Protection System
Comment: Validation for hasWheelSlideProtectionSystem property.
Message: The hasWheelSlideProtectionSystem must be a boolean value.

Vehicle length DP

IRI: *http://data.europa.eu/949/lengthOfVehicle*

Parameter of
Vehicle Type

General Information

Number:
4.8.1

Belongs to parameters group
Length
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Metre

Flags

Has Characteristics:
Functional property (unique value)

Validation

Validation Rules:
Length Of Vehicle
Comment: Validation for lengthOfVehicle property.
Message: The lengthOfVehicle value must be a decimal.

Additional Information

General explanation:
Length of individual Vehicles must use the `era:length` property.

Minimum wheel diameter for fixed obtuse crossings DP

Maximum unguided length of fixed obtuse crossings is based on a minimum wheel diameter in service expressed in millimetres.

IRI: *http://data.europa.eu/949/minimumWheelDiameter*

Parameter of
Running track
Subset with common characteristics
Vehicle Type

General Information

Number:
4.8.2

XML Name:
ISC_MinWheelDiaFixObtuseCrossings

Deadline:
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest

Belongs to parameters group
Switches and crossings
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Format:
NNN

Unit of Measure:
Millimetre

Flags

Applicability Flags:
Y

Has Characteristics:
Functional property (unique value)

Validation

Validation Rules:
Minimum Wheel Diameter
Comment: Maximum unguided length of fixed obtuse crossings is based on a minimum wheel diameter in service expressed in millimiters.
Message: minimumWheelDiameter (1.1.1.1.5.2): The track must have at most one minimum wheel diameter value that is an integer. This error may be due to the track having more than one minimum wheel diameter value or to having a value that is not an integer. If the value of the wheel diameter is bigger than 330 mm, it has to be specified.
Minimum Wheel Diameter
Comment: Validation for minimumWheelDiameter property.
Message: The minimumWheelDiameter value must be an integer.

OPE TSI References

Part of RCC Algorithm:
true

Additional Information

General explanation:
The minimum TSI value is 330 mm and this shall be used as a default value unless advised otherwise. If the value of the wheel diameter is bigger than 330 mm, it has to be specified.
New lines are assumed to be compliant with the TSI INF. When the line is compliant to TSI the default value of 330 mm has to be presented.

See also:

INF TSI: 4.2.5.3

References:
http://data.europa.eu/eli/reg/2014/1299/2023-09-28

Has shunting restrictions DP

Indicates the presence of shunting restrictions.

IRI: *http://data.europa.eu/949/hasShuntingRestrictions*

Parameter of
Vehicle Type

General Information

Number:
4.8.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Shunting Restrictions
Comment: Validation for hasShuntingRestrictions property.
Message: The hasShuntingRestrictions value must be a boolean (true/false).

Minimum radius of horizontal curve DP

Radius of the smallest horizontal curve of the track in metres.

IRI: *http://data.europa.eu/949/minimumHorizontalRadius*

Also Known As:
ERATV: Radius of the smallest horizontal curve capability of the vehicle, expressed in metres.

Parameter of
Running track
Subset with common characteristics
Vehicle Type
Vehicle Type Authorisation Restriction

General Information

Number:
4.8.4

XML Name:
ILL_MinRadHorzCurve

Deadline:
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest

Belongs to parameters group
Line layout
Siding
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal
Integer

Format:
NNNNN

Unit of Measure:
Metre

Flags

Applicability Flags:
Y/N

Has Characteristics:
Functional property (unique value)

Validation

Validation Rules:
Minimum Horizontal Radius
Comment: Radius of the smallest horizontal curve of The track in metres.
Message: minimumHorizontalRadius (1.1.1.1.3.7, 1.2.2.0.3.2): The track defines a minimum radius of horizontal curve. This error is due to having more than one value, having a value that is not an integer or having an integer that does not follow the pattern [NNNNNN].

OPE TSI References

Part of RCC Algorithm:
true

Additional Information

General explanation:
To describe a straight section of line value " 99999" shall be used.

See also:
INF TSI: 4.2.3.4
EN 13803:2017, Tables N.A and N.2
https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

References:
http://data.europa.eu/eli/reg/2014/1299/2023-09-28

Minimum convex vertical radius DP

Minimum vertical convex curve radius capability.

IRI: *http://data.europa.eu/949/minimumConvexVerticalRadius*

Parameter of
Vehicle Type

General Information

Number:
4.8.5

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Metre

Validation

Validation Rules:
Minimum Convex Vertical Radius
Comment: Validation for minimumConvexVerticalRadius property.
Message: The minimumConvexVerticalRadius value must be a decimal.

Minimum concave vertical radius DP

Minimum vertical concave curve radius capability.

IRI: *http://data.europa.eu/949/minimumConcaveVerticalRadius*

Parameter of
Vehicle Type

General Information

Number:
4.8.6

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Metre

Validation

Validation Rules:
Minimum Concave Vertical Radius
Comment: Validation for minimumConcaveVerticalRadius property.
Message: The minimumConcaveVerticalRadius value must be a decimal.

Loading platform height DP

Height of loading platform (for flat wagons and combined transport), given in mm.

IRI: *http://data.europa.eu/949/loadingPlatformHeight*

Parameter of
Vehicle Type

General Information

Number:
4.8.7

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Millimetre

Validation

Validation Rules:
Loading Platform Height
Comment: Validation for loadingPlatformHeight property.
Message: The loadingPlatformHeight value must be an integer.

Transportable on ferry DP

Indicates the suitability for transport on ferries.

IRI: *http://data.europa.eu/949/isTransportableOnFerry*

Parameter of
Vehicle Type

General Information

Number:
4.8.8

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Is Transportable On Ferry
Comment: Validation for isTransportableOnFerry property.
Message: isTransportableOnFerry (4.8.8): The value must be a boolean.

Additional Information

References:
http://data.europa.eu/eli/dec_impl/2011/665

End coupling type OP

Type of end coupling (indicating tensile and compressive forces).

IRI: *http://data.europa.eu/949/endCouplingType*

Parameter of
Vehicle Type

General Information

Number:
4.9.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
End Coupling Type

Values :

Code	Value	Also Known As
1-mn-according-to-en-15566-a1-article-4-1	(1 MN according to EN 15566+A1, article 4.1)	
1000_kN_850_kN	1000 kN / 850 kN	
100kN_draw_hook_850_kN_coupler	100kN draw hook 850 kN coupler	
1350_1500_kN	1350 / 1500 kN	
1350kN_screw_coupling_and_1500kN_draw_hook	1350kN screw coupling and 1500kN draw hook	
1_side_manual_-_UIC_1_side_GF	1 side manual - UIC / 1 side GF	
850_Kn_screw_coupling	850 Kn screw coupling	
Alternative_manual_end_coupling	Alternative manual end coupling	
Automatic	Automatic	
Automatic_coupler_DELLNER_Typ_12	Automatic coupler DELLNER Typ 12	
Automatic_coupler_with_integrated_screw_coupler	Automatic coupler with integrated screw coupler	
Automatic_Type_10	Automatic Type 10	
Automatic_Type_10_Dellner_Nordic_variant	Automatic Type 10 / Dellner Nordic variant	
Automatic_Type_10_Scharfenberg	Automatic Type 10 / Scharfenberg	
Automatic_Type_10_Schwab	Automatic Type 10 / Schwab	
Automatic_Type_10_tensile_force1000_kN_compressive_force_1500_kN_yield	Automatic Type 10; tensile force1000 kN, compressive force 1500 kN (yield)	
Automatic_Type_12	Automatic Type 12	
Automatic_Type_12_Scharfenberg	Automatic Type 12 / Scharfenberg	

Code	Value	Also Known As
Automatic_Type_35_Scharfenberg	Automatic Type 35 / Scharfenberg	
buffer_1500_kN_draw_gear_1000_kN_screw_coupling_850_kN	Buffer:1500 kN / draw gear:1000 kN / screw coupling: 850 kN	
buffer_1500_kN_draw_gear_1000_kN_screw_coupling_KL_850_kN_screw_coupling_KL2_1350_kN	Buffer:1500 kN / draw gear:1000 kN / screw coupling KL: 850 kN / screw coupling KL2: 1350 kN	
C	C	
C_according_to_UIC_520_app._8	C according to UIC 520 app. 8	
Coupleur_inter-caisse_manuel_UIC_520	Coupleur inter-caisse manuel UIC 520	
Crochet_1500_kN_tendeur_dattelage_1350_kN	Crochet : 1500 kN - tendeur d'attelage : 1350 kN	
crochet_de_traction	Crochet de traction	
crochet_de_traction_pas_de_tendeur	Crochet de traction (pas de tendeur)	
Dellner_Type_12_Autocoupler	Dellner Type 12 Autocoupler	
Draw_gear_and_hook_1000kN_Screw_coupler_850kN	Draw gear and hook 1000kN, Screw coupler 850kN	
draw_gear_Stabeg_KN_5019_buffer	Draw gear/Stabeg KN 5019 buffer	
Drawhook	Drawhook	
Ext_1_Coupleur_automatique_FKG-15-10-59R-EL	Ext 1 : Coupleur automatique : FKG-15-10-59R-EL (Force de traction (sans déformation permanente) MIN 1000 kN et force de poussée (sans déformation permanente) (sauf élément à froisser) MIN 1500 kN) et Ext	

Code	Value	Also Known As
	2 : UIC 520 (La résistance à la rupture est de 1000 kN pour le crochet et 850 kN pour le tendeur)	
FK-15-8-5-200H_EL_Schwab	FK-15-8.5-200H_EL(Schwab)	
GF_Coupling_on_drivers_cab_side_manual_UIC_on_other_side	GF Coupling on drivers' cab side / manual (UIC) on other side	
Inter_machine_coupling_acc_to_EN_15746-1_with_towing_rod	Inter machine coupling acc. to EN 15746-1 with towing rod	
Manual	Manual	
manual_1-000kN_tensile_300kN_Buffer_coupler_compressive_force	Manual (1.000kN tensile; 300kN/Buffer coupler compressive force)	
manual_and_automatic	Manual and automatic	
Manual_coupling_SA3	Manual coupling SA3	
Manual_semi-permament	Manual/semi-permament	
Manual_Tensile_force_850_kN	Manual - Tensile force 850 kN	
Manual_UIC_135_100_t	Manual (UIC 135 / 100 t)	
Manual_UIC_135_150t	Manual (UIC 135 - 150t)	
Manual_UIC_85_100_t	Manual (UIC 85 - 100 t)	Manual UIC (85 - 100 t)
Manual_UIC_type_1_buffer_1500_k_Fdraw_gear	Manual, UIC type: 1 - buffer 1500 kN/draw gear 1000 kN/screw coupling 850 kN; 2 - buffer 1500 kN/draw gear 1500 kN/screw coupling 1350 kN	

Code	Value	Also Known As
mechanically_and_pneumatically_COUPLING	Mechanically and pneumatically COUPLING	
No_standard	No standard	
None	None	
Other	Other	
Other_specify	Other (specify)	
pouze_pro_nouzove_odtazeni	Pouze pro nouzové odtažení	
RG_15_1000kN	RG 15(1000kN)	
Ringfeder_86_G_145_Ringfeder_4040_G145	Ringfeder 86 G 145 / Ringfeder 4040/G145	
RK900	RK900	
Rockinger_RO841B4	Rockinger RO841B4	
SA-3_coupler_with_integrated_screw_coupler	SA-3 coupler with integrated screw coupler	
SA-3_Couplers	SA-3 Couplers	
SA-3_Couplers_Automatic_coupler_with_integrated_screw_coupler	SA-3 Couplers Automatic coupler with integrated screw coupler	
Scharfenberg	Scharfenberg	
Scharfenberg_Typ_20	Scharfenberg (Typ 20)	
Scharfenberg_type_GF_traction_1000_N_compression_1500_N	Scharfenberg type GF (traction 1000 N, compression 1500 N)	
Schwab	Schwab	
Schwab_FK-15-8-5-200_H-EL	Schwab (FK-15-8.5-200 H-EL)	
screw_coupling	Screw coupling	
Screw_coupling_850_kN	Screw coupling 850 kN	

Code	Value	Also Known As
Semi-Automatic	Semi-Automatic	
semi-permanent_coupler	Semi-permanent coupler	
Tensile_1000_kN_compressive_1500_kN	(Tensile 1000 kN - compressive 1500 kN)	
Type_10_Nordic	Type 10 Nordic	
type_330	Type 330	
UIC	UIC	
UIC_520	UIC 520	
UIC_850_kN	UIC 850 kN	
UIC_hook_crew_coupling_122t_ultimate_force	UIC hook / screw coupling, 122t ultimate force.	
UIC_skruvkoppel	UIC skruvkoppel	
Vapiti	Vapiti	
with_screw	With screw	

Validation

Validation Rules:

End Coupling Type Skos
Comment: Ensures that the value of endCouplingType is a valid SKOS concept from the linked concept scheme.
Message: endCouplingType: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

End Coupling Type
Comment: Validation for endCouplingType property.
Message: era:endCouplingType: its value must be an IRI.

Axle bearing condition monitoring OP

Axle bearing condition monitoring.

IRI: *http://data.europa.eu/949/axleBearingConditionMonitoring*

Parameter of

Vehicle Type

General Information

Number:
4.9.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Axle Bearing Condition Monitoring

Values :

Code	Value
Not_applicable_due_to_low_travelling_speed_acc_to_iDeBo_Assessment	Not applicable due to low travelling speed (acc. to iDeBo-Assessment)
Onboard	Onboard equipped (OP)
SpecificCase	Other (to be provided)
Trackside	Detectable by line side

Validation

Validation Rules:
Axle Bearing Condition Monitoring Skos
Comment: Ensures that the value of axleBearingConditionMonitoring is a valid SKOS concept from the linked concept scheme.
Message: axleBearingConditionMonitoring: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Axle Bearing Condition Monitoring
Comment: Validation for axleBearingConditionMonitoring property.
Message: era:axleBearingConditionMonitoring: its value must be an IRI.

Flange lubrication fitted DP

Indicates if the vehicle type is fitted for flange lubrication.

IRI: *http://data.europa.eu/949/hasFlangeLubrication*

Parameter of
Vehicle Type

General Information

Number:
4.9.3.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Flange Lubrication
Comment: Validation for hasFlangeLubrication property.
Message: hasFlangeLubrication (4.9.3.1): The value must be a boolean.

Additional Information

References:
http://data.europa.eu/eli/reg/2014/1302/2025-04-27
http://data.europa.eu/eli/dec_impl/2011/665/2023-09-08
http://data.europa.eu/eli/dec_impl/2011/665/oj

Has lubrication device prevention DP

Possibility of preventing the use of the lubrication device (only if fitted with flange lubrication).

IRI: *http://data.europa.eu/949/hasLubricationDevicePrevention*

Parameter of
Vehicle Type

General Information

Number:
4.9.3.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Lubrication Device Prevention
Comment: Validation for hasLubricationDevicePrevention property.
Message: The hasLubricationDevicePrevention value must be a boolean (true/false).

Additional Information

References:
http://data.europa.eu/eli/dec_impl/2011/665/oj
http://data.europa.eu/eli/dec_impl/2011/665/2023-09-08

Energy supply system (Voltage and frequency) OP

Indication of the traction supply system (nominal voltage and frequency).

IRI: *http://data.europa.eu/949/energySupplySystem*

Parameter of

Contact Line System
Vehicle Type

General Information

Number:
4.10.1

XML Name:
ECS_VoltFreq

Deadline:
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest

Belongs to parameters group
Contact line system
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Energy Supply Systems

Values :

Code	Value	Also Known As	Explanation
1-2kv	1.2kV		
1000V-ac-16-2-3hz	1000V AC 16 2/3Hz		
1000v-ac-50hz	1000V AC 50Hz		
1500v-ac-50hz	1500V AC 50Hz		
3x400v-50hz	3x400V 50Hz	3X400 V, 50 Hz	
AC10	AC 25kV-50Hz		
AC20	AC 15kV-16.7Hz	15kV-16 2/3Hz : 2646 kW , 1kV-16 2/3 Hz or 50 Hz	
autonomous	Autonomous		
dc-1-5kv-specific-case-fr	DC 1.5kV (Specific Case FR)		
DC30	DC 3kV	3000V DC, 3kV (PL, CZ, SK)	
DC40	DC 1.5kV	1.5kV Specific Case IE, 1.5kV (Specific Case IE), 1500	
DC60	DC 750V	DC 750V third rail, Vía Urbana e Interurbana 750 Vdc, 750V, DC750V	
DC70	DC 650V		
DC80	DC 600 V		
DC90	DC 850V		
hybrid	Hybrid		
none-for-hauled-passenger-vehicles-and-special-vehicles	None (for hauled passenger vehicles and special vehicles)		

Code	Value	Also Known As	Explanation
notFitted	Not Fitted		Line not fitted (not electrified) with any traction system
other	Other	Others (specify nominal voltage and frequency and ranges), Others (The User must also specify nominal voltage, frequency, ranges and current type AC or DC), Others	
three-phase	Three-phase alternator 28V 100A, 2 Accumulators in series connection, 24V Vehicle electrical system voltage		

Flags

Applicability Flags:
Y/N

Has Characteristics:
Functional property (unique value)

Validation

Dependencies:
When `not electrified` is chosen in parameter 1.1.1.2.2.1.1, then this parameter is not applicable.

Validation Rules:
Energy Supply System Skos
Comment: Ensures that the value of energySupplySystem is a valid SKOS concept from the linked concept scheme.
Message: energySupplySystem: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Energy Supply System
Comment: Validation for energySupplySystem property.
Message: era:energySupplySystem: its value must be an IRI.
Energy Supply System
Comment: Indication of the traction supply system
Message: energySupplySystem (1.1.1.2.2.1.2): The contact line system defines the energy supply system.This error is due to a contact line system having more than one value for this property or having a value that is not an IRI.
Energy Supply System Skos
Comment: Indication of the traction supply system
Message: energySupplySystem (1.1.1.2.2.1.2): The contact line system {$this} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/energy-supply-systems/EnergySupplySystems.

OPE TSI References

Part of RCC Algorithm:

true

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3.3.1

Additional Information

General explanation:
If the real values exceed range of the EN 50163:2004+A1:2007+A2:2020+A3:2022, they could be introduced by the Agency on request via a process of change request.
See: ENE TSI: 4.2.3 and EN 50163:2004: clause 4

For RINF XML data sets:
As long as the data provision through XML data sets is allowed, an XML attribute called “Set” will be used to link the value of this parameter to the parameter 1.1.1.2.2.1.1 / ECS_SystemType

See also:
EN 50163:2004+A1:2007+A2:2020+A3:2022: clause 4
ENE TSI:4.2.3
ENE TSI: 4.2.3 and EN 50163:2004: clause 4

References:
http://data.europa.eu/eli/reg/2014/1301/2023-09-28
http://data.europa.eu/eli/reg_impl/2019/773/oj

Energy supply max power DP

Maximum power (to be indicated for each energy supply system the vehicle is equipped for), given in kW.

IRI: *http://data.europa.eu/949/energySupplyMaxPower*

Parameter of
Vehicle type configuration parameter set

General Information

Number:
4.10.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:

Validation

Validation Rules:
Energy Supply Max Power
Comment: Validation for energySupplyMaxPower property.
Message: The energySupplyMaxPower must be a decimal value.

Additional Information

General explanation:
The parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration
at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter `era:energySupplyMaxPower`.

Catenary max rated current DP

Maximum rated current from the catenary (to be indicated for each electrical energy supply system the vehicle is equipped for), given in A.

IRI: *http://data.europa.eu/949/catenaryMaxRatedCurrent*

Parameter of
Vehicle type configuration parameter set

General Information

Number:
4.10.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Ampere

Validation

Validation Rules:
Catenary Max Rated Current
Comment: Validation for catenaryMaxRatedCurrent property.
Message: The catenaryMaxRatedCurrent must be an integer value.

Additional Information

General explanation:
The parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration
at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter `era:catenaryMaxRatedCurrent`.

Maximum current at standstill per pantograph DP

Indication of the maximum allowable train current at standstill expressed in amperes.

IRI: *http://data.europa.eu/949/maxCurrentStandstillPantograph*

Parameter of

Contact Line System
Siding
Vehicle type configuration parameter set

General Information

Number:
4.10.4

XML Name:
ECS_MaxStandstillCurrent

Deadline:
In accordance with Implementing Decision 2014/880/EU and
- by 16 March 2019 at the latest for DC systems;
- by 30 June 2024 for AC systems.

Belongs to parameters group
Contact line system
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal
Integer

Unit of Measure:
Ampere

Flags

Applicability Flags:
Y/N

Has Characteristics:
Functional property (unique value)

Validation

Dependencies:
This parameter is applicable only the type of contact line system is 'Overhead contact line (OCL)'
In sidings, it may be not applicable, in the following cases:
- siding is not electrified
- Siding is destined to freight traffic, whose trains have a low consumption in stationary (the maximum demand of energy is due to air conditioning systems, which is not significant in these trains).
- Siding is used in access to depots or workshops.
[ERATV] This parameter is applicable only if Overhead contact line (OCL) is selected for parameter 1.1.1.2.2.1.1.

Validation Rules:

Max Current Standstill Pantograph Applicability
Comment: This parameter is applicable (“Y”) only if “Overhead contact line (OCL)” is selected for parameter 1.1.1.2.2.1.1.
Message: maxCurrentStandstillPantograph (1.1.1.2.2.3, 1.2.2.0.6.1):The Contact Line System {$this} ({?clsLabel}), has a 'Overhead contact line (OCL)' type which makes the maxCurrentStandstillPantograph parameter applicable. This error is due to {$this} not having a value for such a parameter.
Max Current Standstill Pantograph
Comment: Validation for maxCurrentStandstillPantograph property.
Message: The maxCurrentStandstillPantograph must be a decimal value.
Max Current Standstill Pantograph
Comment: Indication of the maximum allowable current at standstill per pantograph
Message: maxCurrentStandstillPantograph (1.1.1.2.2.3, 1.2.2.0.6.1): Defines the maximum allowable current at standstill per pantograph for the contact line system. This error is due to having more than one value for this property, having a value that is not an integer, or having an integer that does not follow the pattern [NNN].
Max Current Standstill Pantograph S
Comment: Indication of the maximum allowable train current at standstill for DC systems expressed in amperes
Message: maxCurrentStandstillPantograph (1.1.1.2.2.3, 1.2.2.0.6.1): Each siding may define the maximum allowable train current at standstill for DC systems expressed in amperes. This error is due to having a max current standstill pantograph value that is not a double (real) number.

OPE TSI References

Part of RCC Algorithm:

true

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3.3.8

Additional Information

General explanation:

Parameter related to current taken by the vehicle when it is not in a traction or regenerative mode, e.g. preheating, air-condition, etc.
Due to operational reasons, trains can get stuck on SoL for hours, and in some cases, this parameter is even the reason the air-condition is shut down
[ERATV] Parameter related to current taken by the vehicle when it is not in a traction or regenerative mode, e.g. preheating, air-condition, etc.
When used for VehicleType, the parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter `era:maxCurrentStandstillPantograph`.

See also:

ENE TSI: 4.2.5, LOC&PAS TSI: 4.2.8.2.5

References:

http://data.europa.eu/eli/reg_impl/2019/773/oj

Maximum contact wire height DP

Indication of the maximum contact wire height expressed in metres.

IRI: *http://data.europa.eu/949/maximumContactWireHeight*

Parameter of

Contact Line System
Siding
Vehicle Type

General Information

Number:
4.10.5

XML Name:
ECS_MaxWireHeight

Deadline:
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest

Belongs to parameters group
Contact line system
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Format:
N.NN

Unit of Measure:
Metre

Flags

Applicability Flags:
Y/N

Has Characteristics:
Functional property (unique value)

Validation

Dependencies:
Mandatory only if “Overhead contact line (OCL)” is selected in 1.1.1.2.2.1.1, otherwise the parameter is not applicable.

Validation Rules:
Maximum Contact Wire Height
Comment: Indication of the maximum contact wire height expressed in metres
Message: maximumContactWireHeight (1.1.1.2.2.5): The contact line system defines a maximum contact wire height expressed in metres. This error is due to having more than one value for this property, having a value that is not a double (real) number, or having a number that does not follow the pattern [N.NN] (with up to 2 decimals).

Maximum Contact Wire Height
Comment: Validation for maximumContactWireHeight property.
Message: The maximumContactWireHeight value must be a decimal.
Maximum Contact Wire Height Applicability
Comment: This parameter is applicable ("Y") only if "Overhead contact line (OCL)" is selected for parameter 1.1.1.2.2.1.1.
Message: maximumContactWireHeight (1.1.1.2.2.6):The Contact Line System {$this} ({?clsLabel}), has a 'Overhead contact line (OCL)' type which makes the maximumContactWireHeight parameter applicable. This error is due to {$this} not having a value for such a parameter.

OPE TSI References

Part of RCC Algorithm:
true

Additional Information

General explanation:
The value given can be design value or the last known measured value. If there is no change in height, nominal value will be given.

Values shall be given in metres with precision of 0.01 m.
When used for VehicleType, the parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter `era:maximumContactWireHeight`.

Minimum contact wire height DP

Indication of the minimum contact wire height expressed in metres.

IRI: *http://data.europa.eu/949/minimumContactWireHeight*

Parameter of

Contact Line System
Vehicle type configuration parameter set

General Information

Number:
4.10.5

XML Name:
ECS_MinWireHeight

Deadline:
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest

Belongs to parameters group
Contact line system
Vehicle type technical characteristic

Data Format

Data Presentation
Double

Unit of Measure:
Metre

Flags

Applicability Flags:
Y/N

Has Characteristics:
Functional property (unique value)

Validation

Dependencies:
When `not electrified` is chosen in parameter 1.1.1.2.2.1.1, then this parameter is not applicable.

Validation Rules:
Minimum Contact Wire Height
Comment: Indication of the minimum minimum contact wire height expressed in metres
Message: minimumContactWireHeight (1.1.1.2.2.6): The contact line system defines a minimum contact wire height expressed in metres. This error is due to having more than one value for this property, having a value that is not a double (real) number, or having a number that does not follow the pattern [N.NN] (with up to 2 decimals).
Minimum Contact Wire Height Applicability
Comment: This parameter is applicable (“Y”) only if “Overhead contact line (OCL)” is selected for parameter 1.1.1.2.2.1.1.
Message: minimumContactWireHeight (1.1.1.2.2.6):The Contact Line System {$this} ({?clsLabel}), has a 'Overhead contact line (OCL)' type which makes the minimumContactWireHeight parameter applicable. This error is due to {$this} not having a value for such a parameter.

OPE TSI References

Part of RCC Algorithm:
true

Additional Information

General explanation:
When used for VehicleType, the parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter `era:minimumContactWireHeight`.
The value given can be design value or the last known measured value. If there is no change in height, nominal value will be given.

Values shall be given in metres with precision of 0.01 m.

Number of pantographs in contact with OCL DP

Number of pantographs in contact with the overhead contact line (OCL) (to be indicated for each energy supply system the vehicle is equipped for).

IRI: *http://data.europa.eu/949/numberOfPantographsInContactWithOCL*

Parameter of

Vehicle type configuration parameter set

General Information

Number:
4.10.7

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Validation

Validation Rules:
Number Of Pantographs In Contact With Ocl
Comment: Validation for numberOfPantographsInContactWithOCL property.
Message: The numberOfPantographsInContactWithOCL must be an integer value.

Additional Information

General explanation:
The parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration
at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter
`era:numberOfPantographsInContactWithOCL`.

Shortest distance between pantographs in contact with OCL DP

Shortest distance between two pantographs in contact with the OCL (to be indicated for each energy supply system the vehicle is equipped for; to be indicated for single and, if applicable, multiple operation) (only if number of raised pantographs is more than 1).

IRI:
http://data.europa.eu/949/shortestDistanceBetweenPantographsInContactWithOCL

Parameter of

Vehicle type configuration parameter set

General Information

Number:
4.10.8

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Unit of Measure:
Metre

Validation

Validation Rules:
Shortest Distance Between Pantographs In Contact With Ocl
Comment: Validation for shortestDistanceBetweenPantographsInContactWithOCL property.
Message: The shortestDistanceBetweenPantographsInContactWithOCL must be a string with the following format: 'Single: ___(; Multiple: ___)'.

Additional Information

General explanation:
The parameter is not applicable if `era:numberOfPantographsInContactWithOCL` < 2.

The parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration
at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter `era:shortestDistanceBetweenPantographsInContactWithOCL`.

Parameter must be given also for multiple operation, if `era:maximumLocomotivesCoupled` > 1.

Permitted contact strip material OP

Indication of which contact strip materials are permitted to be used on the infrastructure or with which the vehicles (of the VehicleType) may be equipped with.

IRI: *http://data.europa.eu/949/contactStripMaterial*

Parameter of

Running track
Subset with common characteristics
Vehicle type configuration parameter set

General Information

Number:
4.10.10

XML Name:
EPA_StripMaterial

Deadline:
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest

Belongs to parameters group
Pantograph
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Contact strip materials

Values :

Code	Value	Also Known As
10	Copper	
20	Plain carbon	
30	Copper steel	
40	Copper alloy	
50	Impregnated carbon (% of metallic content)	
60	Carbon with additive material	
70	Carbon with cladded copper	
80	Sintered copper	
90	Other	
1950-mm-sk-carbon-with-additive-material-1450-mm-it-si-carbon-with-additive-material-and-coated-with-copper	1950 mm (SK): Carbon with additive material / 1450 mm (IT/SI): Carbon with additive material and coated with copper	
1950-mm-sk-carbon-with-additive-material-1450-mm-si-carbon-with-additive-material-and-coated-with-copper	1950 mm (SK): Carbon with additive material / 1450 mm (SI): Carbon with additive material and coated with copper	
and-coated-with-copper	And coated with copper	
carbon	Carbon	
carbon-and-copper-kasperowsy-type	Carbon and copper (Kasperowsy type)	
carbon-and-steel	Carbon and Steel	
carbon-bh424c	CARBON BH424C	
carbon-loaded-copper-called-high-intensity	Carbon loaded copper called "high intensity"	
carbon-sk-85-cu	Carbón SK 85 Cu	
carbon-steel-grease	Carbon, steel, grease	

Code	Value	Also Known As
carbon-with-additive-material	Carbon with additive material	
carbon-with-additive-material-and-coated-with-copper	Carbon with additive material and coated with copper	
carbon-with-additive-material-sk01acu	Carbon with additive material SK01ACu	
carbon-with-cladded-copper	Carbon with cladded copper	
carbon-with-cladded-copper-kasperowski-type-	Carbon with cladded copper (Kasperowski type)	
carbon-with-cladded-copper-steel-winter	Carbon with cladded copper, Steel (winter)	
carbon-with-copper-inserts	Carbon with copper inserts	
carbon-with-metal	Carbon with metal	
carbone-con-inserti-in-rame	Carbone con inserti in rame	
composite-carbon	Composite Carbon	
copper	Copper	
copper-and-steel	Copper and steel	Copper, steel, Copper & steel
copper-steel	Copper - steel	Steel and copper
copper-the-locomotive-shall-be-equipped-with-carbon-contact-strips-before-13-06-2021	Copper. The locomotive shall be equipped with carbon contact strips before 13/06/2021	
copper-with-additive-material	Copper with additive material	
en-gjl-200	EN-GJL-200	
gemetalliseerd-kool	Gemetalliseerd kool	
graphite	Graphite	
graphite-carbon	Graphite carbon	

Code	Value	Also Known As
impregnated-carbon-with-additive-material	Impregnated carbon with additive material	
metalized-carbon	Metalized carbon	
metallised-carbon-sk85-cu	Metallised carbon SK85 Cu	
metallized-carbon	Metallized carbon	
mixed-material-kasperosky-type-	Mixed material (Kasperosky type)	
n-a-shoegear	N/A - shoegear	
n-a-third-rail-shoegear	N/A Third Rail shoegear	
none	None	
not-applicable	Not applicable	
plain-carbon	Plain carbon	
rh85m6	RH85M6	
sk85acu	SK85ACu	
spheroidal-graphite-cast-iron	Spheroidal graphite cast iron	
steel-winter-	Steel (winter)	

Flags

Applicability Flags:
Y/N

Has Characteristics:
Functional property (unique value)

Validation

Dependencies:
Mandatory only if “Overhead contact line (OCL)” is selected in 1.1.1.2.2.1.1, otherwise the parameter is not applicable.

Validation Rules:
Contact Strip Material
Comment: Validation for contactStripMaterial property.
Message: era:contactStripMaterial: its value must be an IRI.
Contact Strip Material Skos
Comment: Indication of the material of the contact strip.
Message: Indication of the contactStripMaterial (1.1.1.2.3.4):): The track {$this} has a value {? concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/contact-strip-materials/ContactStripMaterials.

Contact Strip Material Applicability
Comment: Indication of which contact strip materials are permitted to be used.
Message: contactStripMaterial (1.1.1.2.3.4): This error is due to the track {?trackLabel} , violating the rule: This parameter is applicable ('Y') only if “Overhead contact line (OCL)” is selected for 1.1.1.2.2.1.1.

OPE TSI References

Part of RCC Algorithm:
true

Additional Information

General explanation:
[ERATV] When used for VehicleType, the parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter must have a value for this parameter `era:contactStripMaterial`.
[NN] for impregnated carbon concern the metallic content in %. In case of selection of this option, the respective value of the metallic content has to be added. [NN] is the maximum percentage allowed. In case of permitted material different than specified in predefined list, the option other shall be selected.
[NN] for impregnated carbon concern the metallic content in %. In case of selection of this option, the respective value of the metallic content has to be added. [NN] is the maximum percentage allowed.

In case of permitted material different than specified in predefined list, send ERA a change request.

When more than one value of the parameter has to be published, then parameter will to be repeated as many times as the number of values.

See also:
LOC&PAS TSI: 4.2.8.2.9.4.2

Has automatic dropping device DP

Automatic dropping device (ADD) fitted (to be indicated for each energy supply system the vehicle is equipped for).

IRI: *http://data.europa.eu/949/hasAutomaticDroppingDevice*

Parameter of
Vehicle type configuration parameter set

General Information

Number:
4.10.11

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:

Has Automatic Dropping Device
Comment: Validation for hasAutomaticDroppingDevice property.
Message: The hasAutomaticDroppingDevice must be a boolean value.

Additional Information

General explanation:

The parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration
at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter `era:hasAutomaticDroppingDevice`.

Energy meter installed DP

TSI conform energy meter for billing purposes installed on board.

IRI: *http://data.europa.eu/949/hasOnboardEnergyMeasurement*

Parameter of

Vehicle type configuration parameter set

General Information

Number:

4.10.12

Belongs to parameters group

Vehicle type technical characteristic

Data Format

Data Presentation

Boolean

Validation

Validation Rules:

Has Onboard Energy Measurement
Comment: Validation for hasOnboardEnergyMeasurement property.
Message: hasOnboardEnergyMeasurement (4.10.12): The value must be a boolean.

Additional Information

General explanation:

The parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration
at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter `era:energyMeterInstalled`.

References:

http://data.europa.eu/eli/reg/2014/1302/2025-04-27

Has current limitation DP

Electric units equipped with power or current limitation function.

IRI: *http://data.europa.eu/949/hasCurrentLimitation*

Parameter of

Vehicle Type
Vehicle type configuration parameter set

General Information

Number:
4.10.14

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Current Limitation
Comment: Validation for hasCurrentLimitation property.
Message: The hasCurrentLimitation value must be a boolean (true/false).

Additional Information

General explanation:
The parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration
at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter `era:hasCurrentLimitation`.

Older VehicleTypes did not distinguish between the onboard energy supply systems.

Contact force formula DP

Contact force formula.

IRI: *http://data.europa.eu/949/vehicleContactForceFormula*

Parameter of

Vehicle Type
Vehicle type configuration parameter set

General Information

Number:
4.10.15

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Format:
The force is given as a formula with a function of the speed. The value of the static force and of the maximum force expressed in newtons must be given with `era:vehicleContactForce`

Flags

Has Characteristics:
Functional property (unique value)

Validation

Validation Rules:
Vehicle Contact Force Formula
Comment: Validation for vehicleContactForceFormula property.
Message: vehicleContactForceFormula: The value must be a string.

OPE TSI References

Part of RCC Algorithm:
false

Additional Information

General explanation:
The formula of the function shall represent the curve describing the value of the contact force in relation to the speed.
Static and maximum forces are given only for the maximum permitted line speed (see parameter number 1.1.1.1.2.5).

See also:
LOC&PAS TSI: 4.2.8.2.9.6
ENE TSI: 4.2.11
EN 50367:2020+A1:2022 Table 6

Mean contact force DP

Mean contact force.

IRI: *http://data.europa.eu/949/vehicleContactForce*

Parameter of

Vehicle Type
Vehicle type configuration parameter set

General Information

Number:
4.10.15

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Newton

Validation

Validation Rules:
Vehicle Contact Force
Comment: Validation for vehicleContactForce property.
Message: The vehicleContactForce must be a decimal value.

Additional Information

General explanation:
The parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration
at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter `era:vehicleContactForce`.

Older VehicleTypes did not distinguish between the onboard energy supply systems.

Has OCL-chargeable onboard storage system for traction DP

Vehicle equipped with electric energy storage for traction purposes and with the function of charging with OCL at standstill.

IRI: *http://data.europa.eu/949/hasOCLChargeableTractionStorage*

Parameter of

Vehicle type configuration parameter set

General Information

Number:
4.10.16

Belongs to parameters group

Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Oclchargeable Traction Storage
Comment: Validation for hasOCLChargeableTractionStorage property.
Message: The hasOCLChargeableTractionStorage must be a boolean value.

Additional Information

General explanation:
The parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration
at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`. Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter `era:hasOCLChargeableTractionStorage`.

Pass-by noise level DP

Pass-by noise level given in dB(A).

IRI: *http://data.europa.eu/949/passByNoiseLevel*

Parameter of
Vehicle Type

General Information

Number:
4.11.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:

Validation

Validation Rules:
Pass By Noise Level
Comment: Validation for passByNoiseLevel property.
Message: The passByNoiseLevel value must be a decimal.

Reference pass-by noise level DP

Pass-by noise level was measured under reference conditions.

IRI:
http://data.europa.eu/949/isPassByNoiseMeasuredUnderReferenceConditions

Parameter of
Vehicle Type

General Information

Number:
4.11.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Is Pass By Noise Measured Under Reference Conditions
Comment: Validation for isPassByNoiseMeasuredUnderReferenceConditions property.
Message: The isPassByNoiseMeasuredUnderReferenceConditions value must be a boolean (true/false).

Additional Information

References:
http://data.europa.eu/eli/dec_impl/2011/665

Stationary noise level DP

stationary noise level given in dB(A).

IRI: *http://data.europa.eu/949/stationaryNoiseLevel*

Parameter of
Vehicle Type

General Information

Number:
4.11.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:

Validation

Validation Rules:
Stationary Noise Level
Comment: Validation for stationaryNoiseLevel property.
Message: The stationaryNoiseLevel value must be a decimal.

Starting noise level DP

starting noise level given in dB(A).

IRI: *http://data.europa.eu/949/startingNoiseLevel*

Parameter of
Vehicle Type

General Information

Number:
4.11.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:

Validation

Validation Rules:
Starting Noise Level
Comment: Validation for startingNoiseLevel property.
Message: The startingNoiseLevel value must be a decimal.

Fixed seats DP

Number of fixed seats (min to max number).

IRI: *http://data.europa.eu/949/fixedSeats*

Parameter of
Vehicle Type

General Information

Number:
4.12.1.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Fixed Seats
Comment: Validation for fixedSeats property.
Message: The fixedSeats value must be a character string.

Number of toilets DP

Number of toilets.

IRI: *http://data.europa.eu/949/numberOfToilet*

Parameter of
Vehicle Type

General Information

Number:
4.12.1.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Validation

Validation Rules:
Number Of Toilet
Comment: Validation for numberOfToilet property.
Message: The numberOfToilet value must be an integer.

Sleeping places DP

Number of sleeping places (min to max number)

IRI: *http://data.europa.eu/949/sleepingPlace*

Parameter of
Vehicle Type

General Information

Number:
4.12.1.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Sleeping Place
Comment: Validation for sleepingPlace property.
Message: The sleepingPlace value must be a character string.

Priority seats DP

Number of priority seats (min to max number).

IRI: *http://data.europa.eu/949/prioritySeat*

Parameter of
Vehicle Type

General Information

Number:
4.12.2.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Priority Seat
Comment: Validation for prioritySeat property.
Message: The prioritySeat value must be a character string.

Additional Information

References:
http://data.europa.eu/eli/reg/2014/1300/2023-09-28

Wheelchair spaces DP

Number of wheelchair spaces (min to max number).

IRI: *http://data.europa.eu/949/wheelchairSpace*

Parameter of
Vehicle Type

General Information

Number:
4.12.2.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Wheelchair Space
Comment: Validation for wheelchairSpace property.
Message: The wheelchairSpace value must be a character string.

Prm accessible toilets DP

Number of PRM accessible toilets.

IRI: *http://data.europa.eu/949/prmAccessibleToilet*

Parameter of
Vehicle Type

General Information

Number:
4.12.2.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Validation

Validation Rules:
Prm Accessible Toilet
Comment: Validation for prmAccessibleToilet property.
Message: prmAccessibleToilet (4.12.2.3): The value must be an integer.

Additional Information

References:
http://data.europa.eu/eli/reg/2014/1300/2023-09-28

Wheelchair sleeping spaces DP

Number of wheelchair accessible sleeping places (min to max number).

IRI: *http://data.europa.eu/949/wheelchairSleepingPlace*

Parameter of
Vehicle Type

General Information

Number:
4.12.2.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Wheelchair Sleeping Place
Comment: Validation for wheelchairSleepingPlace property.
Message: The wheelchairSleepingPlace value must be a character string.

Supported platform height OP

Platform height for which the vehicle is designed.

IRI: *http://data.europa.eu/949/supportedPlatformHeight*

Parameter of

Vehicle Type

General Information

Number:
4.12.3.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Platform Heights

Values :

Code	Value	Also Known As
10	250	250 mm, 250mm
20	280	280 mm, 280mm
30	550	
40	760	760 mm
50	150	150 mm
60	200	200 mm
70	580	
80	680	680 mm
90	685	
100	730	
110	840	840 mm
120	900	
130	915	915mm (UK specific case)
140	920	920 mm
150	960	960 mm
160	1100	
220	220	220 mm
265	265	265 mm
270	270 mm	
290	290 mm	
300	300	300 mm (with dual moveable step), 300 mm, 300mm
320	320 mm	
350	350	350 mm
360	360 mm	
380	380	380 mm
385	385	

Code	Value	Also Known As
500	500 mm	
530	530 mm	
585	585	Remorque : 585 mm
600	600	
650	650 mm	
700	700	
750	750	
790	790	
800	800 mm	
830	830 mm	
860	860 mm	Motrice : 860 mm
1030	1030 mm	
1080	1080 mm	
1-47m	1,47m	1470 mm
1070_1150	1070-1150	From 1070 to 1150 mm (RER/RATP)
1190_mm	1190 mm	
1_060	1 060 mm	
200-550	200-550	200-550 mm
250-350	250 - 350	250 - 350 mm
250-550_mm	250 - 550 mm	From 250 mm to 550 mm
250_300	250 - 300	
300-1000	300-1000 mm	
300-900mm	300-900mm	
300_to_1000_mm	300 to 1000 mm	
350_550	350-550	
350_mm	350 mm	350mm
350_mm_to_760_mm	350 mm to 760 mm	

Code	Value	Also Known As
380_550	380-550	
385-750	385-750	385 - 750
385-760	385 - 760	
540_760	540 mm to 760 mm	
550_1150	550-1150	From 550 to 1150 mm (on RFN part)
550_760	550 - 760	From 550 to 760 mm
70_550	70-550 mm (specific case Germany)	
760_840	760 mm - 840 mm	760 tot 840, Platform height 760 tot 840 +BS mm, 760 tot 840 mm
915_1100	915 mm to 1100 mm	
915_to_1100mm	915-1100	915 to 1100mm standard UK platform height as per GE/RT8029 Appendix C
from_300_to_1000_mm	From 300 to 1000 mm	
from_300_to_900_mm	From 300 to 900 mm	
Over_than_900mm_until_1150mm	Over than 900mm until 1150mm	

Validation

Validation Rules:

Supported Platform Height Skos
Comment: Ensures that the value of supportedPlatformHeight is a valid SKOS concept from the linked concept scheme.
Message: supportedPlatformHeight: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Supported Platform Height
Comment: Validation for supportedPlatformHeight property.
Message: era:supportedPlatformHeight: its value must be an IRI.

Boarding aids DP

Description of any integrated boarding aids (if provided).

IRI: *http://data.europa.eu/949/boardingAids*

Parameter of
Vehicle Type

General Information

Number:
4.12.3.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Boarding Aids
Comment: Validation for boardingAids property.
Message: The boardingAids value must be a character string.

Portable boarding aids DP

Description of any portable boarding aids if considered in the design of the vehicle for meeting the PRM TSI requirements.

IRI: *http://data.europa.eu/949/portableBoardingAids*

Parameter of
Vehicle Type

General Information

Number:
4.12.3.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:

Portable Boarding Aids
Comment: Validation for portableBoardingAids property.
Message: The portableBoardingAids value must be a character string.

Additional Information

References:

http://data.europa.eu/eli/reg/2014/1300/2023-09-28

ETCS equipment level OP

ETCS equipment on-board and its level.

IRI: *http://data.europa.eu/949/etcsEquipmentOnBoardLevel*

Parameter of

Restriction
Vehicle Type

General Information

Number:

4.13.1.1

Belongs to parameters group

Vehicle type technical characteristic

Data Format

Data Presentation

Concept

Taxonomy Reference:

ETCS Equipment Levels

Values :

Code	Value
Decision_2006_679_EC_Set_1	Decision 2006/679/EC Set 1
Decision_2006_860_EC_Set_1	Decision 2006/860/EC Set 1
Decision_2008_386_EC_Set_1	Decision 2008/386/EC Set_1
Decision_2012_463_EU_Set_1	Decision 2012/463/EU Set_1
Decision_2012_696_EU_Set_1	Decision 2012/696/EU Set_1
Decision_2012_696_EU_Set_2	Decision 2012/696/EU Set_2
Decision_2015_14_Set_1	Decision 2015/14 Set_1
Decision_2015_14_Set_2	Decision 2015/14 Set_2
Implementing_Regulation__EU_2020_387_Set_2	Implementing Regulation (EU) 2020/387 Set_2
Implementing_Regulation_EU_2019_776_Set_1	Implementing Regulation (EU) 2019/776 Set_1
Implementing_Regulation_EU_2019_776_Set_2	Implementing Regulation (EU) 2019/776 Set_2
Implementing_Regulation_EU_2020_420_Only_German_Set_2	Implementing Regulation (EU) 2020/420 (Only German) Set_2
Implementing_Regulation_EU_2020_420_Only_German_Set_3	Implementing Regulation (EU) 2020/420 (Only German) Set_3
Level_1	Level 1
Level_2	Level 2
Level_3	Level 3
None	None
Regulation_2016_919_Set_1	Regulation 2016/919 Set_1

Code	Value
Regulation_2016_919_Set_2	Regulation 2016/919 Set_2
Regulation_2016_919_Set_3	Regulation 2016/919 Set_3
Regulation_2020_387_Set_3	Implementing Regulation (EU) 2020/387 Set_3

Validation

Validation Rules:

Etcs Equipment On Board Level Skos
Comment: Ensures that the value of etcsEquipmentOnBoardLevel is a valid SKOS concept from the linked concept scheme.
Message: etcsEquipmentOnBoardLevel: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Etcs Equipment On Board Level
Comment: Validation for etcsEquipmentOnBoardLevel property.
Message: era:EtcsEquipmentOnBoardLevel: its value must be an IRI.

Additional Information

See also:

https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

ETCS baseline OP

If the ETCS Baseline.Version is not fully compatible, it shall be indicated (use era:etcsBaselineIncompleteCompatibility for textual).

IRI: *http://data.europa.eu/949/etcsBaselineCompatibility*

Parameter of

Vehicle Type
Vehicle type configuration parameter set

General Information

Number:

4.13.1.2

Belongs to parameters group

TSI compliant train protection system (ETCS)
Vehicle type technical characteristic

Data Format

Data Presentation

Concept

Flags

Has Characteristics:
Functional property (unique value)

Validation

Validation Rules:
Etcsbaseline Compatibility
Comment: Validation for the etcsBaselineCompatibility property for VehicleType and VehicleTypeConfigParameterSet.
Message: etcsBaselineCompatibility: The value must be an IRI.
Etcsbaseline Compatibility Skos
Comment: Ensures that the value of etcsBaselineCompatibility is a valid SKOS concept from the linked concept scheme.
Message: etcsBaselineCompatibility: The VehicleType/VehicleTypeConfigParameterSet {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Additional Information

General explanation:

References:
http://data.europa.eu/eli/reg_impl/2023/1695/oj

ETCS baseline incompatibility indication OP

If the version is not fully compatible it shall be indicated in brackets.

IRI: *http://data.europa.eu/949/etcsBaselineIncompleteCompatibility*

General Information

Number:
4.13.1.2

Belongs to parameters group
TSI compliant train protection system (ETCS)
Vehicle type technical characteristic

Data Format

Data Presentation
String

Flags

Has Characteristics:
Functional property (unique value)

Validation

Validation Rules:

Etcs Baseline Incomplete Compatibility
Comment: Validation for etcsBaselineIncompleteCompatibility property.
Message: etcsBaselineIncompleteCompatibility (4.13.1.2): The value must be a string.

Additional Information

References:
http://data.europa.eu/eli/reg_impl/2023/1695/oj

ETCS infill installed line-side OP

Information about installed trackside equipment capable to transmit infill information by loop or Global System for Mobile communications for Railways (GSM-R) for level 1 installations.

IRI: *http://data.europa.eu/949/etcsInfill*

Parameter of

ETCS
Vehicle Type

General Information

Number:
4.13.1.3

XML Name:
CPE_InfillLineSide

Deadline:
12 months after publication of Article 7 Guide for OP tracks
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest

Belongs to parameters group
TSI compliant train protection system (ETCS)
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
ETCS Infills

Values :

Code	Value	Also Known As
10	None	
20	Euroloop	Euroloop infill
30	Radio infill	Radio, GSM-R
40	Euroloop & Radio	Euroloop & Radio infill

Flags

Applicability Flags:
Y/N/NYA

Has Characteristics:
Functional property (unique value)

Validation

Dependencies:
Mandatory in case of ETCS level 1 and infill device(s) are installed. Otherwise it is not applicable.

Validation Rules:
Etcs Infill Skos
Comment: Ensures that the value of etcsInfill is a valid SKOS concept from the linked concept scheme.
Message: etcsInfill: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Etcs Infill Skos
Comment: Information about installed trackside equipment capable of transmitting infill information by loop or Global System for Mobile communications for Railways (GSM-R) for level 1 installations.
Message: etcsInfill (1.1.1.3.2.4, 1.2.1.1.1.4): The ETCS {$this} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/etcs-infills/.
Etcs Infill
Comment: Information about installed trackside equipment capable of transmitting infill information by loop or Global System for Mobile communications for Railways (GSM-R) for level 1 installations.
Message: etcsInfill (1.1.1.3.2.4, 1.2.1.1.1.4): The ETCS may have an ETCS infill, and its value must be an IRI. This error is due to the ETCS instance having more than one value or having a value that is not an IRI.
Etcs Infill
Comment: Validation for etcsInfill property.
Message: era:etcsInfill: its value must be an IRI.
Etcs Infill Applicability
Comment: Only applicable when selected value for 1.1.1.3.2.1 contains 1. Related to rule for etcsLevelType
Message: etcsInfill (1.1.1.3.2.4, 1.2.1.1.1.4): The ETCS {$this} ({?thisLabel}), has a ETCS level type value of 1 which makes the etcsInfill parameter applicable. This error is due to {$this} not having a value for such a parameter.

Additional Information

General explanation:
TSI CCS (4.2.2 & 4.3.3)

References:
http://data.europa.eu/eli/reg_impl/2023/1695/oj

ETCS national applications DP

ETCS national applications implemented (NID_XUSER of Packet 44).

IRI: *http://data.europa.eu/949/etcsNationalApplications*

Parameter of

Vehicle Type

General Information

Number:
4.13.1.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Etcs National Applications
Comment: Validation for etcsNationalApplications property.
Message: The etcsNationalApplications value must be a character string.

Additional comments on Class B / Legacy train protection, control and warning systems installed OP

ADDITIONAL COMMENTS ON: Class B or other train protection, control and warning systems installed

IRI: *http://data.europa.eu/949/protectionLegacySystemComment*

Parameter of
Vehicle Type

General Information

Number:
4.13.1.5

Belongs to parameters group
Radio Legacy Systems

Data Format

Data Presentation
String

Validation

Validation Rules:
Protection Legacy System Comment
Comment: Additional comments on Class B / Legacy train protection, control and warning systems installed.
Message: protectionLegacySystemComment (4.13.1.5): The value must be a string.

Train protection legacy system OP

Indication of which class B system is installed.

IRI: *http://data.europa.eu/949/protectionLegacySystem*

Parameter of

Restriction
Running track
Subset with common characteristics
Vehicle Type

General Information

Number:
4.13.1.5

XML Name:
CPO_LegacyTrainProtection

Deadline:
12 months after publication of Article 7 Guide for OP tracks
16 January 2020

Belongs to parameters group
Train protection legacy systems
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Other Protection Control and Warnings

Values :

Code	Value
01	ALSN
02	ASFA
04	ATB First generation
05	ATB new generation
07	ATC v2
09	ATC vR
10	ATP
11	ATP-VR/RHK
13	CAWS
14	Chiltern-ATP
15	Crocodile
16	DAAT
17	EBICAB 700 BU
18	EBICAB 700 PT (CONVEL)
19	EBICAB 900 ES
21	EuroSIGNUM
23	EuroZUB
25	EVM
26	GNT (Geschwindigkeitsüberwachung für NeiTech-Züge)
27	GW ATP
28	INDUSI I60
29	KCVB
30	KCVP
31	KVB
32	KVBP
33	LS

Code	Value
34	LZB (LZB L72, LZB L72 CE I and LZB L72 CE II)
35	LZB ES
36	Mechanical Trainstops
38	NEXTEO
39	PKP radio system with Radiostop function
40	PZB 90
41	RETB
43	SHP
44	SSC
45	TBL 1
46	TBL 2
47	TBL1+
48	TPWS/AWS
49	TVM 300
50	TVM 430
51	ZUB 123
100	None
scmt	SCMT
scmt-rsc	SCMT + RSC

Flags

Applicability Flags:

Y/N/NYA

Validation

Validation Rules:

Protection Legacy System
Comment: Validation for protectionLegacySystem property.
Message: era:protectionLegacySystem: its value must be an IRI.

Protection Legacy System Skos
Comment: Ensures that the value of protectionLegacySystem is a valid SKOS concept from the linked concept scheme.
Message: protectionLegacySystem: The VehicleType/Restriction {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

OPE TSI References

Part of RCC Algorithm:
true

Additional Information

General explanation:
The list is in line with ERA/TD/2011-09/INT (v1.17), Table 3, and is now in 3.3 of the annex II of TSI CCS.

See also:
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1695&qid=1694158367331#d1295e32-554-1
https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

References:
http://data.europa.eu/eli/reg_impl/2023/1695/oj
http://data.europa.eu/eli/reg_impl/2019/773/oj

Train control switch over special conditions DP

Special conditions implemented on-board to switch over between different train protection control and warning systems. Given as combination of systems installed on board ('System XX'_'System YY').

IRI: *http://data.europa.eu/949/trainControlSwitchOverSpecialCondition*

Parameter of
Vehicle Type

General Information

Number:
4.13.1.6

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:

Train Control Switch Over Special Condition
Comment: Validation for trainControlSwitchOverSpecialCondition property.
Message: The trainControlSwitchOverSpecialCondition value must be a character string.

ETCS on-board implementation DP

ETCS on-board implementation.

IRI: *http://data.europa.eu/949/etcsOnBoardImplementation*

Parameter of
Vehicle Type

General Information

Number:
4.13.1.7

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Etcs On Board Implementation
Comment: Validation for etcsOnBoardImplementation property.
Message: The etcsOnBoardImplementation value must be a character string.

ETCS system compatibility OP

ETCS requirements used for demonstrating technical compatibility.

IRI: *http://data.europa.eu/949/etcsSystemCompatibility*

Parameter of
ETCS
Vehicle Type

General Information

Number:
4.13.1.8

XML Name:
CPE_SystemCompatibility

Deadline:

12 months after publication of Article 7 Guide for OP tracks
16 January 2020

Belongs to parameters group

TSI compliant train protection system (ETCS)
Vehicle type technical characteristic

Data Format

Data Presentation

Concept

Taxonomy Reference:

ETCS System Compatibilities

Values :

Code	Value
10	Not Defined
20	ESC-EU-0
30	ESC-SE-01-HiL2
50	ESC-SE-03-L3
60	ESC-SE-04-HiL2B3
70	ESC-SE-05-BoL2B3
71	ESC-ES-211
72	ESC-ES-221
73	ESC-ES-231
74	ESC-ES-232
75	ESC-ES-241
76	ESC-ES-251
77	ESC-ES-262
78	ESC-ES-271
79	ESC-ES-281
80	ESC-ES-292
81	ESC-ES-311
82	ESC-ES-312
83	ESC-ES-321
84	ESC-ES-332
85	ESC-ES-341
86	ESC-ES-351
87	ESC-ES-381
88	ESC-ES-412
89	ESC-ES-422
90	ESC-ES-432
91	ESC-ES-441
92	ESC-ES-511

Code	Value
93	ESC-ES-521
94	ESC-ES-541
95	ESC-SE-07
96	ESC-ES-442
101	ESC-NL-01
102	ESC-NL-02
103	ESC-NL-03
105	ESC-NL-05
106	ESC-NL-06
107	ESC-NL-07
108	ESC-NL-08
109	ESC-NL-09
110	ESC-NL-10
111	ESC-NL-11
112	ESC-NL-12
113	ESC-NL-13
114	ESC-NL-14
115	ESC-NL-15
116	ESC-NL-16
117	ESC-NL-17
118	ESC-NL-18
119	ESC-NL-19
120	ESC-NL-20
121	ESC-NL-21
122	ESC-NL-22
123	ESC-NL-23
124	ESC-NL-24
125	ESC-NL-25

Code	Value
126	ESC-NL-26
127	ESC-NL-27
128	ESC-NL-28
201	ESC-FR-01-LB
202	ESC-FR-02-LB
203	ESC-FR-03-LB
204	ESC-FR-04-LB
205	ESC-FR-05-LB
206	ESC-FR-06-LB
207	ESC-FR-07-SF
208	ESC-FR-08-SF
209	ESC-FR-09-SF
210	ESC-FR-10-SF
211	ESC-FR-11-SF
212	ESC-FR-12-SF
213	ESC-FR-13-SF
214	ESC-FR-14-SF
215	ESC-FR-15-SF
216	ESC-FR-16-SF
217	ESC-FR-17-SF
218	ESC-FR-18-SF
219	ESC-FR-19-SF
220	ESC-FR-20-SF
221	ESC-FR-21-SF
222	ESC-FR-22-LB
223	ESC-FR-23-LB
224	ESC-FR-27-LGVEE
225	ESC-FR-28-LGVEE

Code	Value
226	ESC-FR-29-LGVEE
227	ESC-FR-30-LGVEE
228	ESC-FR-31-LGVEE
229	ESC-FR-32-LGVEE
230	ESC-BE-02-L2FS
231	ESC-BE-03-L1LS
237	ESC-IT-06-RFI-1.0_L2_AVp_DD_01
239	ESC-PL-01-L1
240	ESC-PL-02-L1LS
241	ESC-PL-03-L2
242	ESC-PL-04-L2
243	ESC-NO-01
245	ESC-IT-09-RFI-2.0_L1_Cs_CHIASSO_01
246	ESC-IT-10-RFI-2.1_L2_Cs_NOPD_01
247	ESC-IT-11-RFI-2.0_L1_Cs_PTLU_01
248	ESC-BE-01-L1FS
249	ESC-BE-04-LGV3_4
250	ESC-DK-01-East
251	ESC-DK-02-West
252	ESC-AT-01
253	ESC-FR-24-AA
254	ESC-FR-25-AD
255	ESC-FR-26-AE
256	ESC-FR-33-SEA
257	ESC-FR-34-SEA

Code	Value
258	ESC-FR-35-BPL
259	ESC-FR-36-BPL
260	ESC-IT-12-RFI-2.0_L1_Cs_ISDO_CH_01
261	ESC-IT-13-RFI-2.0_L1_Cs_PTLU_CH_01
263	ESC-IT-15-RFI_2.1_L1_Cs_VENTIMIGLIA_FR_01
266	ESC-PL-05-L2
267	ESC-PL-06-L2
268	ESC-CZ-01
269	ESC-CZ-02
270	ESC-RO-01
271	ESC-DE-01-B2_L2
272	ESC-DE-02-B3_L2
273	ESC-NO-02
280	ESC-CH-01-L1LS
281	ESC-CH-02-L2
282	ESC-CH-03-L1LSL2
283	ESC-LU-01-RFN
284	ESC-LU-02-MSM
285	ESC-LU-03-IG
286	ESC-DE-03-B3_L1LS
287	ESC-DE-05-B3-L2
288	ESC-DE-08-B3-L2
289	ESC-IT-24-RFI_B2_L2AV_AF_01

Code	Value
290	ESC-IT-25-RFI_B2_L2AV_HR_01
291	ESC-IT-26-RFI_B3_L2s_HR_01
292	ESC-IT-27-RFI_B3_L2s_AF_01
293	ESC-IT-28-RFI_2.1_L1_Cs_VENTIMIGLIA_IT_01
294	ESC-IT-29-RFI_B3_L1LS_NAZIONALE_01
295	ESC-IT-30-RFI_B3_L1RI_NAZIONALE_01
296	ESC-IT-31-RFI_2.0_L1_Cs_ISDO_IT_01
297	ESC-IT-32-RFI_2.0_L1_Cs_PTLU_IT_01
298	ESC-SI-01
ESC-NP-CCS7-4a	ESC-NP-CCS7.4a
Not-applicable	Not applicable

Flags

Applicability Flags:

Y/N/NYA

Validation

Dependencies:

A value has to be provided when ETCS is present (a value is provided on 1.1.1.3.2.1).

Validation Rules:

Etcs System Compatibility Applicability
Comment: Only applicable when selected value for 1.1.1.3.2.1 (ETCS present).
Message: etcsSystemCompatibility (1.1.1.3.2.9, 1.2.1.1.1.9): The ETCS {$this} ({?thisLabel}), has a ETCS level type which makes the etcsSystemCompatibility parameter applicable. This error is due to {$this} not having a value for such a parameter.
Etcs System Compatibility Skos
Comment: ETCS requirements used for demonstrating technical compatibility.
Message: etcsSystemCompatibility (1.1.1.3.2.9, 1.2.1.1.1.9): The ETCS {$this} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/etcs-system-compatibilities/ETCSSystemCompatibilities.

Etcs System Compatibility
Comment: Validation for etcsSystemCompatibility property.
Message: era:etcsSystemCompatibility: its value must be an IRI.
Etcs System Compatibility Skos
Comment: Ensures that the value of etcsSystemCompatibility is a valid SKOS concept from the linked concept scheme.
Message: etcsSystemCompatibility: The VehicleType {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Etcs System Compatibility
Comment: ETCS requirements used for demonstrating technical compatibility.
Message: etcsSystemCompatibility (1.1.1.3.2.9, 1.2.1.1.1.9): The ETCS has a etcsSystemCompatibility value that must be an IRI. This error is due to the ETCS having a value that is not an IRI.

OPE TSI References

Part of RCC Algorithm:

true

Additional Information

General explanation:

The Values "Not defined" or "ESC-EU-0" should not be combined with other values.

For application in CCS Onboard:
The vehicles are considered compatible with the infrastructure for this parameter, if their parameter value matches any of the values declared on the trackside.

For application in CCS Trackside:
The Infrastructure Manager is responsible for defining the ESC type(s). All sections of the Union network which require the same set of checks for the demonstration of ESC shall have the same ESC type.

See: TSI CCS, Appendix A, Table A 1, 4.2.17 a.
The list of ESC Types is published and maintained by the European Union Agency for Railways in the technical document "ESC/RSC technical document, TD/011REC1028".
The Agency shall assess the checks unless they have been assessed by a NoBo as required in Table 6.3 row 10.
The assessment by the Agency shall be done within 2 months of receipt thereof, unless a longer period is agreed between the Agency and the Infrastructure Manager but not exceeding 4 months in total.
The technical document will be updated within 10 working days after positive assessment.

The ESC Types shall only be used when published with status "Valid" in the Agency Technical document referred above.

See also:

TSI CCS, Appendix A, Table A 1, 4.2.17 a.
https://www.era.europa.eu/system/files/2023-05/esc-rsc_technical_document_en.pdf
https://www.era.europa.eu/domains/technical-specifications-interoperability/control-command-and-signalling-tsi_en#oe-content-paragraph-1632

References:

http://data.europa.eu/eli/reg_impl/2023/1695/oj

Has train completeness information DP

Managing information about the completeness of the train

IRI: *http://data.europa.eu/949/hasTrainIntegrityConfirmation*

Parameter of
Vehicle Type

General Information

Number:
4.13.1.9

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Train Integrity Confirmation
Comment: Validation for hasTrainIntegrityConfirmation property.
Message: The hasTrainIntegrityConfirmation value must be a boolean (true/false).

Onboard system versions OP

Envelope of legally operated ETCS system versions

IRI: *http://data.europa.eu/949/etcsOnboardSystemVersions*

Parameter of
Vehicle Type

General Information

Number:
4.13.1.11

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
ETCS M Versions

Values :

Code	Value
00	Previous
10	1.0
11	1.1
20	2.0
21	2.1
22	2.2
23	2.3
30	3.0

Flags

Has Characteristics:
Functional property (unique value)

Validation

Validation Rules:
Etcs Onboard System Versions Skos
Comment: Ensures that the value of etcsOnboardSystemVersions is a valid SKOS concept from the linked concept scheme.
Message: etcsOnboardSystemVersions: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Etcs Onboard System Versions
Comment: Validation for etcsOnboardSystemVersions property.
Message: era:etcsOnboardSystemVersions: its value must be an IRI.

OPE TSI References

Part of RCC Algorithm:
true

Additional Information

General explanation:
See: TSI CCS (Subset-026, Chapter 7, 7.5.1.79 M_VERSION, and 7.5.1.9.)

See also:
https://www.era.europa.eu/domains/technical-specifications-interoperability/control-command-and-signalling-tsi_en#oe-content-paragraph-1632

References:
http://data.europa.eu/eli/dec_impl/2011/665/2023-09-08

GSM-R version OP

GSM-R functional requirements specification (FRS) and system requirements specification (SRS) in accordance with the specification respectively referenced in Appendix A-1, index [E] and index [F], version number or baseline installed.

IRI: *http://data.europa.eu/949/gsmRVersion*

Parameter of

Running track
Subset with common characteristics
Vehicle Type

General Information

Number:
4.13.2.1

XML Name:
CRG_Version

Deadline:
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest 12 months after publication of Article 7 Guide for OP tracks

Belongs to parameters group
TSI compliant radio (RMR)
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
GSM-R Versions

Values :

Code	Value	Also Known As
00	Baseline 0	
50	Baseline 1	
6-14	6/14	Before decision 2012/88
7-15	7/15 (Decision 2012/88/EU)	Decision 2012/88/EU
7-3-0_15-3-0-Decision-2012-696-EU_Set_1	7.3.0/15.3.0 (Decision 2012/696/EU Set_1)	Decision 2012/696/EU Set_1 (GSMR-baseline 0)
7-3-0_15-3-0-Decision-2012-696-EU_Set_2	7.3.0/15.3.0 (Decision 2012/696/EU Set_2)	Decision 2012/696/EU Set_2 (GSMR-baseline 0)
7-4-0_15-4-0-Decision-2015-14_Set_1	7.4.0/15.4.0 (Decision 2015/14 Set_1)	Decision 2015/14 Set_1 (GSMR-baseline 0, MR1)
7-4-0_15-4-0-Decision-2015-14_Set_2	7.4.0/15.4.0 (Decision 2015/14 Set_2)	Decision 2015/14 Set_2 (GSMR-baseline 0, MR1)
8-0-0_16-0-0-Regulation-2016-919_Set_1	8.0.0/16.0.0 (Regulation 2016/919 Set_1)	Regulation 2016/919 Set_1 (GSM-R baseline 1)
8-0-0_16-0-0-Regulation-2016-919_Set_2	8.0.0/16.0.0 (Regulation 2016/919 Set_2)	Regulation 2016/919 Set_2 (GSM-R baseline 1)
8-0-0_16-0-0-Regulation-2016-919_Set_3	8.0.0/16.0.0 (Regulation 2016/919 Set_3)	Regulation 2016/919 Set_3 (GSM-R baseline 1)
8-1-0_16-1-0	8.1.0/16.1.0 (Regulation 2023/1695)	Regulation 2023/1695 (GSM-R Baseline 1 Maintenance Release 1)
Implementing_Regulation_EU_2023-1695_B1MR1	Implementing Regulation (EU) 2023/1695 B1MR1	

Flags

Applicability Flags:

Y/N/NYA

Validation

Dependencies:

GSM-R must be installed for this parameter to be applicable and a value to be provided. If this property is not used, all GSM-R related properties should not be used either.

Validation Rules:

Gsm Rversion
Comment: GSM-R functional requirements specification and system requirements specification in accordance with the specification respectively referenced in TSI CCS (Annex), version number installed lineside.
Message: gsmRVersion (1.1.1.3.3.1, 1.2.1.1.2.1): The track must have a GSM-R version value that is an IRI.

Gsm Rversion Skos
Comment: GSM-R functional requirements specification and system requirements specification in accordance with the specification respectively referenced in TSI CCS (Annex), version number installed lineside.
Message: gsmRVersion (1.1.1.3.3.1, 1.2.1.1.2.1): The track {$this} (label {?label}) has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/gsmr-versions/GSMRVersions.

Gsm Rversion
Comment: Validation for gsmRVersion property.
Message: era:gsmRVersion: its value must be an IRI.

Gsm Rversion Skos
Comment: Ensures that the value of gsmRVersion is a valid SKOS concept from the linked concept scheme.
Message: gsmRVersion: The VehicleType {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

OPE TSI References

Appendix D2 Index

3.1.7

Additional Information

General explanation:

GSM-R functional requirements specification and system requirements specification in accordance with the specification respectively referenced in TSI CCS (Annex), version number installed lineside.

Since more than one version may be installed in different areas, this property can have multiple values.
In case there is no GSM-R network available, this property shall be flagged as not applicable and all other GSM-R parameters ('Number of active GSM-R mobiles (EDOR) or simultaneous communication session on-board for ETCS Level 2 needed to perform radio block centre handovers without having an operational disruption' and 'Optional GSM-R functions') shall be flagged as not applicable.

See also:

Referenced in Appendix A-1, index [E] and index [F]

References:

http://data.europa.eu/eli/reg_impl/2023/1695/oj

GSM-R sets in driving cab DP

Number of GSM-R mobile sets in driving cab for data transmission.

IRI: *http://data.europa.eu/949/gsmRSetsInDrivingCab*

Parameter of
Vehicle Type

General Information

Number:
4.13.2.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Validation

Validation Rules:
Gsm Rsets In Driving Cab
Comment: Validation for gsmRSetsInDrivingCab property.
Message: The gsmRSetsInDrivingCab value must be 0, 1, 2 or 3.

Additional Information

General explanation:
Allowed values: 1, 2, 3. Parameter not used when no GSM-R sets are in the cab.

Additional comments on Class B / Legacy Radio Systems installed OP

ADDITIONAL COMMENTS ON: Class B or other radio systems installed

IRI: *http://data.europa.eu/949/legacyRadioSystemComment*

Parameter of
Vehicle Type

General Information

Number:
4.13.2.3

Belongs to parameters group
Radio Legacy Systems

Data Format

Data Presentation
String

Validation

Validation Rules:

Legacy Radio System Comment
Comment: Validation for legacyRadioSystemComment property.
Message: legacyRadioSystemComment (4.13.2.3): The value must be a string.

Class B or other radio systems installed (Radio Legacy Systems) OP

Indication of radio legacy systems installed.

IRI: *http://data.europa.eu/949/legacyRadioSystem*

Parameter of

Restriction
Running track
Subset with common characteristics
Vehicle Type

General Information

Number:
4.13.2.3

XML Name:
CRS_Installed

Deadline:
12 months after publication of Article 7 Guide for OP tracks
16 January 2020

Belongs to parameters group
Radio Legacy Systems

Data Format

Data Presentation
Concept

Taxonomy Reference:
Legacy Radio Systems

Values :

Code	Value	Also Known As
01	UIC Radio Chapter 1-4	
02	UIC Radio Chapter 1-4+6	
03	UIC Radio Chapter 1-4 + 6 (Irish system)	
04	UIC Radio Chapter 1-4 (TTT radio system installed at Cascais line)	
05	TTT radio system CP_N (RSC - Radio Solo-Comboio)	TTT Radio System CP_N
06	PKP radio system	
07	LDZ radio system	TRS — The Czech Railways radio system
08	CH — Greek Railways radio system (VHF)	
09	UIC Radio Chapter Bulgaria	
10	The Estonian radio system	
11	The Lithuanian radio system	
12	450 Mhz UIC (kanál C)	
13	Analogue Radio Germany - UIC 751	
14	BOSCH (160 MHz)	
15	GSM-P	
16	Multikom (160 MHz and 450 MHz)	
17	OMEGA (160 MHz)	
18	RDZ - in compliance with UIC 751-3	

Code	Value	Also Known As
19	RETB (voice)	
20	Radio Network of CFR	
21	SRO (160 MHz)	
22	Shunting Radio Communication System	
23	Analogue railway radio system (RDU) - in compliance with UIC 751-3	
24	SRD	
25	DMR	
26	380-430 MHz	
27	Analog Radio Mesa 23 UIC 751 (Dual-mode system)	
28	Analog Radio System according UIC 751-3 (Dual-mode system)	
29	Analoger Zugbahnfunk Deutschland	
30	ARB 1MT	
31	ARM 26/7	
32	AVG Betriebsfunk	
33	Cab Radio ARB di Selex Versione SW ARB 1.1.1.0	
34	Cab Secure Radio	
35	CAB-RADIO ALSTOM-FUNKWERK	
36	CM 340-Motorola	
37	CR_SW 04.09.05	

Code	Value	Also Known As
38	DB Analog Radio system	
39	DB Analogue Radio System	
40	DB Analogue Radio System ((MTRS 1 + A RSH))	
41	DB Analogue Radio System ((MTRS 1+A RSH))	
42	EADS	
43	EADS - ZFM21	
44	EMR RAM	
45	FRS 7.4.0 and SRS 15.4.0	
46	Funkwerk MESA 23	
47	Funkwerk MESA 23 (FM 2-70)	
48	Funkwerk MESA 23 Koliber	
49	Funkwerk Mesa 23, Koliber, FM 2-70	
50	GSM-R	
51	GSM-R 900MHz	
52	GSM-R voice cab radio	
53	Handheld GSM-R	
54	HFWK - MESA23	
55	Koliber FM 2-70	
56	La dotación del vehículo incluirá dispositivos de comunicación tipo 'walkie talkie' de largo alcance	
57	MESA 23	

Code	Value	Also Known As
58	MESA 23 dual Mode	
59	MESA 23 dual mode including radio stop function	
60	MESA 23 dual Mode including Radio stop-function	
61	MESA 23 DUAL MODE INCLUDING RADIO STOP-FUNCTION	
62	MESA 23 dualmode included emercency call interruption function	
63	MESA 23 fra Funkwerk er installert, med SW versjon 04.09.05	
64	MESA 23 including MT5E-Card (Dual Mode system GSMR/analogue radio)	
65	Mesa 23 radio station	
66	MESA 23-03	
67	MESA 26	
68	Mesa 26 radio station	
69	MESA23	
70	Mesa23 dualmode	
71	MESA23 dualmode	
72	Mesa23 dual-mode	
73	Mesa23 dualmode included emergency call interruption function	
74	Mode analogique (Bi- mode)	

Code	Value	Also Known As
75	MTR450 Analog	
76	MTR450 Analog (SW 04.09.03)	
77	National Radio Network	
78	National Radio Network (NRN)	
79	National Radio Network (UK)	
80	National Radio Network Radio (UK)	
81	NRN	
82	NRN Radio	
83	Radio Mesa 23 dual-mode	
84	Radio Sol Train analogique - SNCF	
85	Radio Sol Train Analogique SNCF	
86	Radiotelefon Koliber VHF/GSM-R	
87	RST / UIC sans mode td	
88	RST/UIC sans mode td	
89	RV-1.1 MK	
90	RV-4KV2 for trains, Motorolla GM-360, 350 for shuntings	
91	SELEX CRE 2300	
92	SELEX CRE 2300 (SW 1.1.0.0)	
93	SHP	
94	Spanish Analogic Radio System (Tren-Tierra)	

Code	Value	Also Known As
95	Statie radio tip CM 340-Motorola	
96	SWEG Bündelfunk	
97	T-CZ	
98	TETRA	
99	TETRA Motorola MTM5500	
100	None	
101	TETRA/URCA Terrestrial Trunked Radio -Unified Railway Communication and Application System)	
102	Tetra/Virve	
103	Tetra/VIRVE	
104	Tetra/Virve (Airbus TH9)	
105	Tetra/Virve Teltronic	
106	Tren Tierra	Tren-Tierra
107	TREN TIERRA ADIF	
108	TREN TIERRA CONSOLA P. MOVIL	
109	Tren-Tierra ALACATEL TR-100E/2	
110	Tren-Tierra ALCATEL TR-100E/2	
111	TRS (6000)	
112	UIC 751-3	
113	UIC 751-3 Funkwerk Mesa 24B-R2	
114	UIC 751-3 Funkwerk Mesa24B-R1	

Code	Value	Also Known As
115	UIC 751-3 Funkwerk Mesa24B-R2	
116	UIC Chapitres 1 à 5 - Système utilisé uniquement sur RFN	
117	UIC-A; UIC-C; UIC-C*; MÁV-V	
118	VIRVE TETRA Radio	
119	VS 67	
120	VS67 a VO67	
121	Walkie talkie Motorola VX-261 UHF de 16 canales	
122	ZFM21	
123	TRS	
124	UIC Radio Chapter 1-4 + 6 + 7	
125	VR Train Radio	

Flags

Applicability Flags:

Y/N/NYA

Validation

Validation Rules:

Legacy Radio System
Comment: Indication of radio legacy systems installed.
Message: legacyRadioSystem (1.1.1.3.6.1, 1.2.1.1.5.1): The track may have other radio systems installed (Radio Legacy Systems) value that is an IRI. This error is due to having a value that is not an IRI

Legacy Radio System
Comment: Validation for legacyRadioSystem property.
Message: era:legacyRadioSystem: its value must be an IRI.

Legacy Radio System Skos
Comment: Ensures that the value of legacyRadioSystem is a valid SKOS concept from the linked concept scheme.
Message: legacyRadioSystem: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Legacy Radio System Skos
Comment: Indication of radio legacy systems installed.
Message: legacyRadioSystem (1.1.1.3.6.1, 1.2.1.1.5.1): The track {$this} (label {?label}) has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/legacy-radio-systems/LegacyRadioSystems.

OPE TSI References

Part of RCC Algorithm:
true

Appendix D2 Index
3.1.7

Additional Information

General explanation:
The list is in line with ERA/TD/2011-09/INT (v1.17), Table 4, and is now in 3.4 of the annex II of TSI CCS.

See also:
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32023R1695&qid=1694158367331#d1295e32-554-1
https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

References:
http://data.europa.eu/eli/reg_impl/2023/1695/oj
http://data.europa.eu/eli/reg_impl/2019/773/oj

Radio switch over special conditions DP

Special conditions implemented on-board to switch over between different radio systems. Given as combination of systems installed on board ('System XX'_'System YY').

IRI: *http://data.europa.eu/949/radioSwitchOverSpecialCondition*

Parameter of
Vehicle Type

General Information

Number:
4.13.2.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Radio Switch Over Special Condition
Comment: Validation for radioSwitchOverSpecialCondition property.
Message: radioSwitchOverSpecialCondition (4.13.2.4): The value must be a string.

Radio system compatibility voice OP

Radio requirements used for demonstrating technical compatibility voice.

IRI: *http://data.europa.eu/949/voiceRadioCompatible*

Parameter of

Running track
Subset with common characteristics
Vehicle Type

General Information

Number:
4.13.2.5

XML Name:
CRG_RadioCompVoice

Deadline:
12 months after publication of Article 7 Guide for OP tracks
16 January 2020

Belongs to parameters group
TSI compliant radio (RMR)
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Radio System Compatibilities Voice

Values :

Code	Value
10	Not Defined
20	RSC-EU-0
50	RSC-ES-03-V
60	RSC-ES-04-V
70	RSC-SE-01-V
80	RSC-FR-01-V
100	RSC-AT-01-V
110	RSC-BE-01-V
120	RSC-RO-01-V
130	RSC-ES-05-V
140	RSC-DE-01-V
150	RSC-LU-01-V
160	RSC-CH-01-V
180	RSC-PT-02-V
190	RSC-PL-01-V
200	RSC-NP-CCS7.4a
210	Not applicable

Flags

Applicability Flags:

Y/N/NYA

Validation

Dependencies:

GSM-R must be installed for this parameter to be applicable.
In case of RSC-EU-0 or None, no other values are allowed.

Validation Rules:

Voice Radio Compatible
Comment: Validation for voiceRadioCompatible property.
Message: era:voiceRadioCompatible: its value must be an IRI.
Voice Radio Compatible Skos
Comment: Radio requirements used for demonstrating technical compatibility voice.
Message: voiceRadioCompatible (1.1.1.3.3.9, 1.2.1.1.2.9): The track {$this} (label {?label}) has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/radio-system-compatibilities-voice/RadioSystemCompatibilitiesVoice.

Voice Radio Compatible Skos
Comment: Ensures that the value of voiceRadioCompatible is a valid SKOS concept from the linked concept scheme.
Message: voiceRadioCompatible: The VehicleType {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Voice Radio Compatible
Comment: Radio requirements used for demonstrating technical compatibility voice.
Message: voiceRadioCompatible (1.1.1.3.3.9, 1.2.1.1.2.9): The track may have a radio system compatibility voice value that is an IRI. This error is due to having a value that is not an IRI.
Voice Radio Compatible Applicability
Comment: GSM-R (parameter 1.1.1.3.3.1) must be installed for this parameter to be applicable.
Message: voiceRadioCompatible (1.1.1.3.3.9, 1.2.1.1.2.9):The track {$this} ({?label}), has a 'GSM-R version' defined which makes the voiceRadioCompatible parameter applicable. This error is due to {$this} not having a value for such a parameter.

Additional Information

General explanation:

Information on RSC voice requirements per country is given in the referred document.

Vehicles are considered compatible with the infrastructure regarding this parameter, if any of the values declared matches.
In case the value “Not Defined” or “RSC-EU-0” is used, repetitions with additional values are not expected.

See also:

https://www.era.europa.eu/system/files/2023-05/esc-rsc_technical_document_en.pdf
https://www.era.europa.eu/era-folder/radio-system-compatibility-rsc-voice-and-data-documents
https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

Voice operational communication implementation DP

Voice and operational communication implementation.

IRI: *http://data.europa.eu/949/voiceOperationalCommImpl*

Parameter of

Vehicle Type

General Information

Number:
4.13.2.6

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:

Voice Operational Comm Impl
Comment: Validation for voiceOperationalCommImpl property.
Message: The voiceOperationalCommImpl value must be a character string.

GSM-R radio data communication OP

GSM-R Radio Data communication on board and its Baseline.

IRI: *http://data.europa.eu/949/gsmRRadioDataCommunication*

Parameter of
Vehicle Type

General Information

Number:
4.13.2.7

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
GSM-R Radio Data Communications

Values :

Code	Value
Decision_2006_860_EC_Set_1	Decision 2006/860/EC Set 1
Decision_2012_463_EU_Set_1	Decision 2012/463/EU Set_1
Decision_2012_696_EU_Set_1	Decision 2012/696/EU Set_1
Decision_2012_696_EU_Set_2	Decision 2012/696/EU Set_2
Decision_2012_88_EU_Set_1	Decision 2012/88/EU Set_1
Decision_2015_14_Set_1	Decision 2015/14 Set_1
Implementing_Regulation_EU_2019_776_Set_1	Implementing Regulation (EU) 2019/776 Set_1
Implementing_Regulation_EU_2019_776_Set_2	Implementing Regulation (EU) 2019/776 Set_2
Implementing_Regulation_EU_2020420_Only_German_Set_2	Implementing Regulation (EU) 2020/420 (Only German) Set_2
Implementing_Regulation_EU_2020_420_Only_German_Set_1	Implementing Regulation (EU) 2020/420 (Only German) Set_1
Implementing_Regulation_EU_2020_420_Only_German_Set_3	Implementing Regulation (EU) 2020/420 (Only German) Set_3
None	None
Regulation_2016_919_Set_1	Regulation 2016/919 Set_1
Regulation_2016_919_Set_2	Regulation 2016/919 Set_2

Validation

Validation Rules:

Gsm Rradio Data Communication Skos
Comment: Ensures that the value of gsmRRadioDataCommunication is a valid SKOS concept from the linked concept scheme.
Message: gsmRRadioDataCommunication: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Gsm Rradio Data Communication
Comment: Validation for gsmRRadioDataCommunication property.
Message: era:gsmRRadioDataCommunication: its value must be an IRI.

Additional Information

See also:
https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

Radio system compatibility data OP

Radio requirements used for demonstrating technical compatibility data.

IRI: *http://data.europa.eu/949/dataRadioCompatible*

Parameter of

Running track
Subset with common characteristics
Vehicle Type

General Information

Number:
4.13.2.8

XML Name:
CRG_RadioCompData

Deadline:
12 months after publication of Article 7 Guide for OP tracks
16 January 2020

Belongs to parameters group
TSI compliant radio (RMR)
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Radio System Compatibilities Data

Values :

Code	Value
10	Not Defined
20	RSC-EU-0
50	RSC-ES-03-D
60	RSC-ES-04-D
61	RSC-ES-04.LAXAVA-D
62	RSC-ES-04.ORESAN-D
63	RSC-ES-04.ARAVIL-D
64	RSC-ES-04.GENERAL-D
70	RSC-SE-01-D
80	RSC-FR-01-D
90	RSC-AT-01-D
100	RSC-PL-01-D
110	RSC-ES-05-D
111	RSC-ES-05.LEOPOL-D
112	RSC-ES-05.PEDORE-D
113	RSC-ES-05.GENERAL-D
114	RSC-ES-03.GENERAL-D
115	RSC-ES-03.SPECIFIC-D
160	RSC-CH-01-D
501	RSC-ES-03.ALBALI-D
502	RSC-ES-03.ANTGRA-D
503	RSC-ES-03.CHATO-D

Code	Value
504	RSC-ES-03.BAFI-D
505	RSC-ES-03.CORMAL-D
506	RSC-ES-03.SAGTOL-D
507	RSC-ES-03.MADBCN-D
508	RSC-ES-03.MADVLL-D
509	RSC-ES-03.MONMUR-D
510	RSC-ES-03.MOTVLCALB-D
511	RSC-ES-03.OLMPED-D
512	RSC-ES-05.PLACACBAD-D
513	RSC-ES-03.TORMOT-D
514	RSC-ES-03.VALLEOBUR-D
515	RSC-ES-03.VILTAR-D
516	RSC-ES-05.HOSMAT-D
not-applicable	Not applicable
RSC-NP-CCS7-4a	RSC-NP-CCS7.4a

Flags

Applicability Flags:

Y/N/NYA

Validation

Dependencies:

GSM-R and ETCS L2 must be installed for this parameter to be applicable.

Validation Rules:

Data Radio Compatible Applicability
Comment: GSM-R (parameter 1.1.1.3.3.1) and ETCS L2 (parameter 1.1.1.3.2.1) must be installed for this parameter to be applicable.
Message: dataRadioCompatible (1.1.1.3.3.10, 1.2.1.1.2.10):The track {$this} ({?label}), has a 'GSM-R version' defined and a 'ETCS level' type selected which makes the dataRadioCompatible parameter applicable. This error is due to {$this} not having a value for such a parameter.
Data Radio Compatible Skos
Comment: Radio requirements used for demonstrating technical compatibility data.
Message: dataRadioCompatible (1.1.1.3.3.10, 1.2.1.1.2.10): The track {$this} (label {?label}) has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/radio-system-compatibilities-data/RadioSystemCompatibilitiesData.
Data Radio Compatible
Comment: Validation for dataRadioCompatible property.
Message: era:dataRadioCompatible: its value must be an IRI.
Data Radio Compatible
Comment: Radio requirements used for demonstrating technical compatibility data.
Message: dataRadioCompatible (1.1.1.3.3.10, 1.2.1.1.2.10): The track may have a radio system compatibility data value that is an IRI. This error is due to having a value that is not an IRI.
Data Radio Compatible Skos
Comment: Ensures that the value of dataRadioCompatible is a valid SKOS concept from the linked concept scheme.
Message: dataRadioCompatible: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Additional Information

General explanation:
Information on RSC data requirements per country.

Vehicles are considered compatible with the infrastructure regarding this parameter, if any of the values declared matches.
In case the value “Not Defined” or “RSC-EU-0” is used, repetitions with additional values are not expected.

See also:
https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf
https://www.era.europa.eu/system/files/2023-05/esc-rsc_technical_document_en.pdf
https://www.era.europa.eu/era-folder/radio-system-compatibility-rsc-voice-and-data-documents

References:
http://data.europa.eu/eli/reg_impl/2023/1695/oj

ETCS data communication application DP

Data communication application for ETCS implementation.

IRI: *http://data.europa.eu/949/etcsDataCommApp*

Parameter of
Vehicle Type

General Information

Number:
4.13.2.9

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Etcs Baseline Incomplete Compatibility
Comment: Validation for etcsBaselineIncompleteCompatibility property.
Message: etcsBaselineIncompleteCompatibility (4.13.1.2): The value must be a string.
Etcs Data Comm App
Comment: Validation for etcsDataCommApp property.
Message: The etcsDataCommApp value must be a character string.

Additional Information

General explanation:
For ATO communication application, use 'era:atoCommunicationSystem'

Voice GSM-R network OP

Voice SIM Card GSM-R Home Network

IRI: *http://data.europa.eu/949/voiceGSMRNetwork*

Parameter of
Vehicle Type

General Information

Number:
4.13.2.10

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
GSM-R Networks

Values :

Code	Value
10	GSM-R A (Austria)
20	GSM-R AL (Albania)
30	GSM-R B (Belgium)
40	GSM-R BA (Bosnia Herzegovina)
50	GSM-R BG (Bulgaria)
60	GSM-R BY (Belarus)
70	GSM-R CH (Switzerland)
80	GSM-R CZ (Czech Rep.)
90	GSM-R D (Germany)
100	GSM-R DK (Denmark)
110	GSM-R E (Spain)
120	GSM-R EE (Estonia)
130	GSM-R F (France)
140	GSM-R FI (Finland)
150	GSM-R GB (UK (Great Britain))
160	GSM-R GR (Greece)
170	GSM-R HR (Croatia)
180	GSM-R HU (Hungary)
190	GSM-R I (Italy)
200	GSM-R IE (Ireland)
210	GSM-R IS (Iceland)
220	GSM-R KO (Kosovo)
230	GSM-R L (Luxembourg)

Code	Value
240	GSM-R LT (Lithuania)
250	GSM-R LV (Latvia)
260	GSM-R MD (Moldova)
270	GSM-R ME (Montenegro)
280	GSM-R MK (Macedonia)
290	GSM-R N (Norway)
300	GSM-R NL (Netherlands)
310	GSM-R P (Portugal)
320	GSM-R PL (Poland)
330	GSM-R RO (Romania)
340	GSM-R RU (Russia)
350	GSM-R S (Sweden)
360	GSM-R SI (Slovenia)
370	GSM-R SK (Slovakia)
380	GSM-R SR (Serbia)
390	GSM-R TR (Turkey)
400	GSM-R UA (Ukraine)

Validation

Validation Rules:

Voice Gsmrnetwork Skos
Comment: Ensures that the value of voiceGSMRNetwork is a valid SKOS concept from the linked concept scheme.
Message: voiceGSMRNetwork: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Voice Gsmrnetwork
Comment: Validation for voiceGSMRNetwork property.
Message: era:voiceGSMRNetwork: its value must be an IRI.

Additional Information

General explanation:

The allowed values for this property belong to the SKOS Concept Scheme http://data.europa.eu/949/concepts/gsmr-networks/GSMRNetworks

Data GSM-R network OP

Data SIM Card GSM-R Home Network.

IRI: *http://data.europa.eu/949/dataGSMRNetwork*

Parameter of

Vehicle Type

General Information

Number:
4.13.2.11

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
GSM-R Networks

Values :

Code	Value
10	GSM-R A (Austria)
20	GSM-R AL (Albania)
30	GSM-R B (Belgium)
40	GSM-R BA (Bosnia Herzegovina)
50	GSM-R BG (Bulgaria)
60	GSM-R BY (Belarus)
70	GSM-R CH (Switzerland)
80	GSM-R CZ (Czech Rep.)
90	GSM-R D (Germany)
100	GSM-R DK (Denmark)
110	GSM-R E (Spain)
120	GSM-R EE (Estonia)
130	GSM-R F (France)
140	GSM-R FI (Finland)
150	GSM-R GB (UK (Great Britain))
160	GSM-R GR (Greece)
170	GSM-R HR (Croatia)
180	GSM-R HU (Hungary)
190	GSM-R I (Italy)
200	GSM-R IE (Ireland)
210	GSM-R IS (Iceland)
220	GSM-R KO (Kosovo)
230	GSM-R L (Luxembourg)

Code	Value
240	GSM-R LT (Lithuania)
250	GSM-R LV (Latvia)
260	GSM-R MD (Moldova)
270	GSM-R ME (Montenegro)
280	GSM-R MK (Macedonia)
290	GSM-R N (Norway)
300	GSM-R NL (Netherlands)
310	GSM-R P (Portugal)
320	GSM-R PL (Poland)
330	GSM-R RO (Romania)
340	GSM-R RU (Russia)
350	GSM-R S (Sweden)
360	GSM-R SI (Slovenia)
370	GSM-R SK (Slovakia)
380	GSM-R SR (Serbia)
390	GSM-R TR (Turkey)
400	GSM-R UA (Ukraine)

Validation

Validation Rules:

Data Gsmrnetwork Skos
Comment: Ensures that the value of dataGSMRNetwork is a valid SKOS concept from the linked concept scheme.
Message: dataGSMRNetwork: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Data Gsmrnetwork
Comment: Validation for dataGSMRNetwork property.
Message: era:dataGSMRNetwork: its value must be an IRI.

ATO on-board implementation DP

ATO on-board implementation.

IRI: *http://data.europa.eu/949/atoOnBoardImplementation*

Parameter of
Vehicle Type

General Information

Number:
4.13.3.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Ato On Board Implementation
Comment: Validation for atoOnBoardImplementation property.
Message: The atoOnBoardImplementation value must be a character string.

Type of train detection system OP

Indication of types of train detection systems installed.

IRI: *http://data.europa.eu/949/trainDetectionSystemType*

Parameter of
Restriction
Train Detection System
Vehicle Type

General Information

Number:
4.14.1

XML Name:
CTD_DetectionSystem

Deadline:
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest 12 months after publication of Article 7 Guide for OP tracks

Belongs to parameters group
Other train detection systems

Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Train Detection Systems

Values :

Code	Value	Also Known As
10	Track circuit	Track circuits
20	Wheel detector	
30	Loop	Loops
axle-counters	Axle counters	

Flags

Applicability Flags:
Y/N/NYA

Has Characteristics:
Functional property (unique value)

Validation

Dependencies:
Not all parameters are applicable to all types of train detection systems; it depends on the applicability condition.

Validation Rules:
Train Detection System Type Skos
Comment: Indication of types of train detection system installed.
Message: Indication of types of train detection system installed (1.1.1.3.7.1.1, 1.2.1.1.3.1.1): The train detection system {$this} (label {?tdsLabel}) has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/train-detection/TrainDetectionSystems.
Train Detection System Type
Comment: Validation for trainDetectionSystemType property.
Message: era:trainDetectionSystemType: its value must be an IRI.
Train Detection System Type Skos
Comment: Ensures that the value of trainDetectionSystemType is a valid SKOS concept from the linked concept scheme.
Message: trainDetectionSystemType: The VehicleType/Restriction {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Train Detection System Type
Comment: Indication of types of train detection system installed.
Message: trainDetectionSystemType (1.1.1.3.7.1.1, 1.2.1.1.3.1.1): The train detection system has a train detection system type that must be a single IRI. This error may be due to having more than one value or having a value that is not an IRI.

OPE TSI References

Part of RCC Algorithm:

true

Additional Information

General explanation:

Verification of compliance with TSI includes application of notified national rules (when they exist).

Explanation on data presentation:
The option of "wheel detector" has to be also selected for: wheel sensor for axle counter, pedal or treadle.

If there is no train detection system (if this parameters is not applicable) it has an impact on parameters "Type of track circuits or axle counter to which specific checks are needed" and "Document with the procedure(s) related to the type of train detection systems declared in 1.1.1.3.7.1.2 (1.2.1.1.6.1, if in OP)", making them also not applicable.
Explanation on data presentation:
The option of "wheel detector" has to be also selected for: wheel sensor for axle counter, pedal or treadle.

See also:

https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

Maximum permitted distance between two consecutive axles in case of TSI non-compliance DP

Indication of maximum permitted distance between two consecutive axles in case of TSI non-compliance, given in millimetres.

IRI: *http://data.europa.eu/949/maxDistConsecutiveAxle*

Parameter of

Vehicle Type

General Information

Number:
4.14.2.1

XML Name:
CTD_MaxDistConsecutiveAxles

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Millimetre

Validation

Validation Rules:

Max Dist Consecutive Axle
Comment: Validation for maxDistConsecutiveAxle property.
Message: The maxDistConsecutiveAxle value must be an integer.

Minimum (permitted) distance between two consecutive axles DP

IRI: *http://data.europa.eu/949/minDistConsecutiveAxle*

Parameter of
Vehicle Type

General Information

Number:
4.14.2.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Millimetre

Validation

Validation Rules:
Min Dist Consecutive Axle
Comment: Validation for minDistConsecutiveAxle property.
Message: The minDistConsecutiveAxle value must be an integer.

Additional Information

General explanation:
Indication of minimum permitted distance between two consecutive axles, given in millimetres.

Minimum permitted distance between first and last axle DP

IRI: *http://data.europa.eu/949/minDistFirstLastAxle*

Parameter of
Vehicle Type

General Information

Number:
4.14.2.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Millimetre

Validation

Validation Rules:
Min Dist First Last Axle
Comment: Validation for minDistFirstLastAxle property.
Message: The minDistFirstLastAxle value must be an integer.

Additional Information

General explanation:
Indication of minimum permitted distance between first and last axles, given in millimetres.

Maximum length vehicle nose DP

Maximum length of the vehicle nose.

IRI: *http://data.europa.eu/949/maxLengthVehicleNose*

Parameter of
Vehicle Type

General Information

Number:
4.14.2.4

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Millimetre

Validation

Validation Rules:

Max Length Vehicle Nose
Comment: Validation for maxLengthVehicleNose property.
Message: The maxLengthVehicleNose value must be an integer.

Minimum width of the rim DP

Minimum wheel rim width

IRI: *http://data.europa.eu/949/minRimWidth*

Parameter of
Vehicle Type

General Information

Number:
4.14.2.5

Belongs to parameters group
Other train detection systems

Data Format

Data Presentation
Decimal

Unit of Measure:
Millimetre

Validation

Validation Rules:
Min Rim Width
Comment: Validation for minRimWidth property.
Message: The minRimWidth value must be a decimal.

Minimum wheel diameter DP

IRI: *http://data.europa.eu/949/minWheelDiameter*

Parameter of
Vehicle Type

General Information

Number:
4.14.2.6

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Integer

Unit of Measure:
Millimetre

Validation

Validation Rules:
Min Wheel Diameter
Comment: Validation for minWheelDiameter property.
Message: The minWheelDiameter value must be an integer.

Additional Information

General explanation:
Minimum wheel diameter, given in millimiters.

Minimum thickness of the flange DP

IRI: *http://data.europa.eu/949/minFlangeThickness*

Parameter of
Vehicle Type

General Information

Number:
4.14.2.7

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Millimetre

Validation

Validation Rules:
Min Flange Thickness
Comment: Validation for minFlangeThickness property.
Message: The minFlangeThickness value must be a decimal.

Additional Information

General explanation:
Minimum flange thickness, given in millimiters.

Minimum height of the flange DP

IRI: *http://data.europa.eu/949/minFlangeHeight*

Parameter of
Vehicle Type

General Information

Number:
4.14.2.8

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Millimetre

Validation

Validation Rules:
Min Flange Height
Comment: Validation for minFlangeHeight property.
Message: The minFlangeHeight value must be a decimal.

Additional Information

General explanation:
Minimum flange height, given in millimiters.

Maximum height of the flange DP

Deprecated according to the amendment to the Regulation (EU) 2019/777. However, the parameter remains as it is also an ERATV parameter. Maximum flange height, given in millimetres.

IRI: *http://data.europa.eu/949/maxFlangeHeight*

Parameter of
Vehicle Type

General Information

Number:
4.14.2.9

XML Name:
CTD_MaxFlangeHeight

Belongs to parameters group

Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:
Millimetre

Validation

Validation Rules:
Max Flange Height
Comment: Validation for maxFlangeHeight property.
Message: The maxFlangeHeight value must be a decimal.

Ferromagnetic wheel material DP

Wheel material is ferromagnetic.

IRI: *http://data.europa.eu/949/hasFerromagneticWheelMaterial*

Parameter of
Vehicle Type

General Information

Number:
4.14.2.12

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Ferromagnetic Wheel Material
Comment: Validation for hasFerromagneticWheelMaterial property.
Message: The hasFerromagneticWheelMaterial value must be a boolean (true/false).

Additional Information

References:
http://data.europa.eu/eli/dec_impl/2011/665/oj
http://data.europa.eu/eli/reg/2014/1302/2025-04-27

Vehicle max sanding output DP

Vehicle Maximum sanding output, given in grams per second.

IRI: *http://data.europa.eu/949/vehicleMaxSandingOutput*

Parameter of
Vehicle Type

General Information

Number:
4.14.2.13

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Decimal

Unit of Measure:

Validation

Validation Rules:
Vehicle Max Sanding Output
Comment: Validation for vehicleMaxSandingOutput property.
Message: The vehicleMaxSandingOutput value must be a decimal indicating the grams per second value. If you provide value as a string in the format '[1st decimal] g per [2nd decimal] s' the 2nd decimal needs to be different than 0.

Has sanding prevention DP

Possibility of preventing the use of sanding.

IRI: *http://data.europa.eu/949/hasSandingPrevention*

Parameter of
Vehicle Type

General Information

Number:
4.14.2.14

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:

Has Sanding Prevention
Comment: Validation for hasSandingPrevention property.
Message: The hasSandingPrevention value must be a boolean (true/false).

Freight Wagon DDF/DPF OP

Presence and type of derailment detection and prevention function(s).

IRI: *http://data.europa.eu/949/wagonDerailmentFunction*

Parameter of

Vehicle Type

General Information

Number:
4.15.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Wagon Derailment Protection/Warning Functions

Values :

Code	Value	Also Known As
00	No Function installed	No Function installed
01	Derailment Prevention	Derailment Prevention
10	Derailment detection	Derailment detection
11	Derailment detection and actuation	

Flags

Has Characteristics:
Functional property (unique value)

Validation

Validation Rules:

Wagon Derailment Function
Comment: Validation for wagonDerailmentFunction property.
Message: era:wagonDerailmentFunction: its value must be an IRI.
Wagon Derailment Function Skos
Comment: Ensures that the value of wagonDerailmentFunction is a valid SKOS concept from the linked concept scheme.
Message: wagonDerailmentFunction: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

OPE TSI References

Part of RCC Algorithm:
false

Additional Information

General explanation:
The parameter is only applicable for VehicleTypes with the FreightWagon category.

References:
http://data.europa.eu/949/

Has onboard DDF/DPF DP

Presence of derailment prevention and detection function.

IRI: *http://data.europa.eu/949/hasOnboardDerailmentFunction*

Parameter of
Vehicle Type

General Information

Number:
4.15.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Onboard Derailment Function
Comment: Validation for hasOnboardDerailmentFunction property.
Message: The hasOnboardDerailmentFunction value must be a boolean (true/false).

Additional Information

General explanation:

Only applicable for Traction Locomotives, which are intended to detect derailments or precursors to derailments in freight wagons hauled by the locomotive, with equipment fulfilling this function shall be located entirely on board the locomotive.

References:

http://data.europa.eu/eli/reg_impl/2023/1694/oj
http://data.europa.eu/eli/reg/2014/1302/2023-09-28

Vehicle type technical characteristic DP OP

General Information

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Type number (0.1)
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Radio Legacy Systems
Type registration method
Type version id
Type version number

Previous vehicle type OP

Denotes a previous VehicleType.

IRI: *http://data.europa.eu/949/previousVehicleType*

Parameter of
Vehicle Type

General Information

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Vehicle Type

Validation

Validation Rules:
Previous Vehicle Type
Comment: Validation for previousVehicleType property.
Message: era:previousVehicleType: its value must be an IRI pointing to a VehicleType.

Type version id OP

Indicates the registrationVersion with Ids 10, 20 and 30 indicating registration according to Directive 2008/57/EC and implementing Decision 2011/665/EU, and 40 and 50 indicating registration according to regime described in Directive 2008/57/EC.
The allowed values for this property belong to the SKOS Concept Scheme http://data.europa.eu/949/concepts/type-version-ids/TypeVersionIds.

IRI: *http://data.europa.eu/949/typeVersionId*

Parameter of
Vehicle Type

General Information

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Vehicle Type Version Ids

Values :

Code	Value
10	Before 2010
20	Directive 2008/57/EC
30	Directive 2008/57/EC - Exceptional Mode
40	Directive (EU) 2016/797
50	Directive (EU) 2016/797 - Exceptional Mode

Validation

Validation Rules:

Type Version Id Skos
Comment: Ensures that the value of typeVersionId is a valid SKOS concept from the linked concept scheme.
Message: typeVersionId: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Type Version Id
Comment: Validation for typeVersionId property.
Message: era:typeVersionId: its value must be an IRI.

Manufacturing country OP

Indicates the country in which a vehicle or vehicle type is manufactured.

IRI: *http://data.europa.eu/949/manufacturingCountry*

Parameter of

Vehicle
Vehicle Type

General Information

Belongs to parameters group

Vehicle technical characteristic
Vehicle type technical characteristic

Data Format

Data Presentation

Concept

Validation

Validation Rules:

Manufacturing Country Skos
Comment: Ensures that the value of manufacturingCountry is a valid SKOS concept from the linked concept scheme.
Message: manufacturingCountry: The Vehicle/VehicleType {$this} with label {? label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Manufacturing Country
Comment: Validation for manufacturingCountry property.
Message: era:manufacturingCountry: its value must be an IRI.

Other CCS systems onboard OP

Other CCS systems onboard

IRI: *http://data.europa.eu/949/otherCCSSystemOnboard*

Parameter of

Restriction

General Information

Belongs to parameters group

Vehicle type technical characteristic

Data Format

Data Presentation

Concept

Flags

Has Characteristics:

Functional property (unique value)

Validation

Validation Rules:

Other Ccssystem Onboard
Comment: Validation for otherCCSSystemOnboard property.
Message: otherCCSSystemOnboard: The value must be an IRI.

Additional Information

General explanation:

Selected value shall answer the question whether any other CCS system than ETCS exists for the vehicle (type). The list is in line with ERA/TD/2011-09/INT (v1.17), Table 5.

See also:

https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

References:

https://data.europa.eu/eli/reg_impl/2019/773/2023-09-28
https://data.europa.eu/eli/reg_impl/2023/1695/oj

Radio Legacy Systems OP

General Information

Belongs to parameters group

Control-command and signalling subsystem
Vehicle type technical characteristic

Related parameters

Additional comments on Class B / Legacy train protection, control and warning systems installed (4.13.1.5)
Additional comments on Class B / Legacy Radio Systems installed (4.13.2.3)
Class B or other radio systems installed (Radio Legacy Systems) (4.13.2.3)

For Configuration OP

The configuration for which the ParameterSet or Restriction is valid.

IRI: *http://data.europa.eu/949/forConfiguration*

Parameter of

Restriction
Vehicle type configuration parameter set

General Information

Belongs to parameters group

Vehicle type technical characteristic

Data Format

Data Presentation

Vehicle type configuration

Validation

Validation Rules:

For Configuration
Comment: Validation for forConfiguration property.
Message: era:forConfiguration: its value must be an IRI pointing to a VehicleTypeConfiguration.

Other train detection systems DP

General Information

Belongs to parameters group

Vehicle type technical characteristic

Related parameters

Minimum width of the rim (4.14.2.5)

Type registration method OP

The registration method which was used in the vehicle type authorisation process.

IRI: *http://data.europa.eu/949/typeRegistrationMethod*

Parameter of

Vehicle APIS Case
Vehicle Type Authorisation Case

General Information

Belongs to parameters group

Vehicle type technical characteristic

Data Format

Data Presentation

Concept

Taxonomy Reference:

Vehicle Type Registration Methods

Values :

Code	Value
NCM	New configuration/mode of a registered version
NT	New Type
NTFNP	New Type of a new Platform
NTFRP	New Type of a registered Platform
NTFT2008	New Type from a registered Type Directive 2008/57/EC
NTFT2016	New Type from a registered Type
NVAR	New Variant of a registered Type
NVARFT2008	New Variant from a registered Type Directive 2008/57/EC
NVER	New Version of a registered Type
NVERFRP	New Version of a registered Platform
NVERFT2008	New Version from a registered Type Directive 2008/57/EC
NVERFVAR	New Version of a registered Variant

Validation

Validation Rules:

Type Registration Method
Comment: Validation for typeRegistrationMethod property.
Message: typeRegistrationMethod: The value must be an IRI.

Type version number DP

Serial number that identifies a vehicle type.

IRI: *http://data.europa.eu/949/typeVersionNumber*

Parameter of
Vehicle Type

General Information

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Type Version Number
Comment: Validation for typeVersionNumber property.
Message: typeVersionNumber: The value must be a string.

Other CCS radio systems onboard OP

Other CCS radio systems onboard

IRI: *http://data.europa.eu/949/otherCCSRadioSystemOnboard*

Parameter of
Restriction

General Information

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Flags

Has Characteristics:
Functional property (unique value)

Validation

Validation Rules:

Other Ccsradio System Onboard
Comment: Validation for otherCCSRadioSystemOnboard property.
Message: otherCCSRadioSystemOnboard: The value must be an IRI.

Additional Information

General explanation:
Selected value shall answer the question whether any other CCS system than ETCS exists for the vehicle (type). The list is in line with ERA/TD/2011-09/INT (v1.17), Table 6.

See also:
https://www.era.europa.eu/system/files/2022-11/list_harmonised_national_restriction_codes_en.pdf

References:
https://data.europa.eu/eli/reg_impl/2019/773/2023-09-28
https://data.europa.eu/eli/reg_impl/2023/1695/oj

Manufactured by OP

VehicleType Manufacturer identification and contact data

IRI: *http://data.europa.eu/949/vehicleTypeManufacturer*

Parameter of
Vehicle Type

General Information

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Organisation Role

Validation

Validation Rules:
Vehicle Type Manufacturer
Comment: Validation for vehicleTypeManufacturer property.
Message: era:vehicleTypeManufacturer: its value must be an IRI pointing to an OrganisationRole.

Non coded restrictions DP

Groups the non-coded restrictions, as a set of sentences. Can be used for any subClassOf `era:Restriction`.

IRI: *http://data.europa.eu/949/nonCodedRestrictions*

Parameter of

Restriction
Vehicle Type

General Information

Belongs to parameters group

Vehicle type technical characteristic

Data Format

Data Presentation

String

Validation

Validation Rules:

Non Coded Restrictions
Comment: Validation for nonCodedRestrictions property.
Message: The nonCodedRestrictions value must be a character string.

6. Auxiliary Properties for ERATV Parameters

Area of Use OP

(32) ‘area of use of a vehicle’ means a network or networks within a Member State or a group of Member States in which a vehicle is intended to be used;

IRI: *http://data.europa.eu/949/areaOfUse*

Parameter of

Vehicle APIS Case
Vehicle Type Authorisation Case

General Information

Number:

3.0

Data Format

Data Presentation

Concept

Validation

Validation Rules:

Area Of Use
Comment: Validation for areaOfUse property.
Message: areaOfUse: The value must be an IRI.

Area Of Use Skos
Comment: Ensures that the value of areaOfUse is a valid SKOS concept from the countries concept scheme.
Message: areaOfUse: The VehicleTypeAuthorisationCase {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

Additional Information

General explanation:
Not applicable for Authorisation Cases of `vpa:permissionType era-va-authcase:PRE4RP`.

ATO communication system OP

Supported ATO communication systems from trackside.

IRI: *http://data.europa.eu/949/atoCommunicationSystem*

Parameter of

Running track
Subset with common characteristics
Vehicle Type

General Information

Number:
4.13.2.9

XML Name:
CAO_ATOCommSystem

Deadline:
12 months after publication of Article 7 Guide

Belongs to parameters group
Automated Train Operation (ATO)

Data Format

Data Presentation
Concept

Taxonomy Reference:
ATO Communication System

Values :

Code	Value
gsmr	Gsmr
public	Public

Flags

Applicability Flags:

Y/N/NYA

Validation

Dependencies:
Parameter only applicable when ETCS Baseline > 4 MR1 and ATO is implemented

Validation Rules:
Ato Communication System
Comment: Validation for atoCommunicationSystem property.
Message: era:atoCommunicationSystem: its value must be an IRI.
Ato Communication System Skos
Comment: Ensures that the value of atoCommunicationSystem is a valid SKOS concept from the linked concept scheme.
Message: atoCommunicationSystem: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Ato Communication System Skos
Comment: Supported ATO communication systems from trackside.
Message: atoCommunicationSystem (1.1.1.3.13.3, 1.2.1.1.10.3): The track {$this} (label {?label}) has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/ato-commsys/ATOCommSystem.
Ato Communication System
Comment: Supported ATO communication systems from trackside.
Message: atoCommunicationSystem (1.1.1.3.13.3, 1.2.1.1.10.3): The track must have a ATO communication system value that is an IRI.

OPE TSI References

Appendix D2 Index
3.4.9

Additional Information

General explanation:
ATO system communication system to the specification referenced in TSI CCS (4.2.4 & 4.2.19).
Parameter only applicable when ETCS Baseline > 4 MR1 and ATO is implemented

ATO System version OP

ATO system version according to the specification referenced in TSI CCS 2023/1695

IRI: *http://data.europa.eu/949/atoSystemVersion*

Parameter of

Running track
Subset with common characteristics
Vehicle Type

General Information

Number:
4.13.3.1

XML Name:
CAO_ATOSystemvers

Deadline:
12 months after publication of Article 7 Guide

Belongs to parameters group
Automated Train Operation (ATO)

Data Format

Data Presentation
Concept

Taxonomy Reference:
ATO System Versions

Values :

Code	Value
0	Non-harmonised
1	1.0

Flags

Applicability Flags:
Y/N/NYA

Validation

Dependencies:
Parameter only applicable when ETCS Baseline > 4 MR1 and ATO is implemented

Validation Rules:
Ato System Version Skos
Comment: Ensures that the value of atoSystemVersion is a valid SKOS concept from the linked concept scheme.
Message: atoSystemVersion: The VehicleType {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Ato System Version
Comment: ATO system version according to the specification referenced in TSI CCS (4.2.19).
Message: atoSystemVersion (1.1.1.3.13.1, 1.2.1.1.10.1): The track must have a ATO system version value that is an IRI.
Ato System Version Skos
Comment: ATO system version according to the specification referenced in TSI CCS (4.2.19).
Message: atoSystemVersion (1.1.1.3.13.1, 1.2.1.1.10.1): The track {$this} (label {?label}) has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/ato-s-versions/ATOSystemVersions.
Ato System Version
Comment: Validation for atoSystemVersion property.
Message: era:atoSystemVersion: its value must be an IRI.

OPE TSI References

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3.4.8

Additional Information

General explanation:
ATO is an optional function added in ETCS B4, only available under L2. See: TSI CCS, 4.2.4 & 4.2.19.

Parameter only applicable when ETCS Baseline > 4 MR1 and ATO is implemented

Axle spacing OP

Position of the axles along the unit. a: Distance between axles; b: Distance from end axle to the end of the nearest coupling plane; c: distance between two inside axles.

IRI: *http://data.europa.eu/949/axleSpacingDistance*

Parameter of

Vehicle Type
Vehicle type configuration parameter set

General Information

Number:
4.5.3.4

Data Format

Data Presentation
Axle spacing

Validation

Validation Rules:
Axle Spacing Distance
Comment: Validation for axleSpacingDistance property.
Message: era:axleSpacingDistance: its value must be an IRI.

Additional Information

General explanation:
The parameter should currently be considered independent of a Vehicle Configuration.

Axle spacing, distance a DP

Position of the axles along the unit: a: Distance between axles

IRI: *http://data.europa.eu/949/axleSpacingDistanceA*

Parameter of

Axle spacing

General Information

Number:
4.5.3.4

Data Format

Data Presentation

Decimal

Unit of Measure:
Metre

Validation

Validation Rules:
Axle Spacing Distance A
Comment: Validation for axleSpacingDistanceA property. Position of the axles along the unit: a: Distance between axles.
Message: axleSpacingDistanceA: The value must be a decimal representing the distance between axles.

Additional Information

General explanation:
The parameter should currently be considered independent of a Vehicle Configuration.

Axle spacing, distance b DP

Position of the axles along the unit: b: Distance from end axle to the end of the nearest coupling plane

IRI: *http://data.europa.eu/949/axleSpacingDistanceB*

Parameter of
Axle spacing

General Information

Number:
4.5.3.4

Data Format

Data Presentation
Decimal

Unit of Measure:
Metre

Validation

Validation Rules:
Axle Spacing Distance B
Comment: Validation for axleSpacingDistanceB property. Position of the axles along the unit: b: Distance from end axle to the end of the nearest coupling plane.
Message: axleSpacingDistanceB: The value must be a decimal representing the distance from end axle to the end of the nearest coupling plane.

Additional Information

General explanation:

The parameter should currently be considered independent of a Vehicle Configuration.

Axle spacing, distance c DP

Position of the axles along the unit: c: distance between two inside axles.

IRI: *http://data.europa.eu/949/axleSpacingDistanceC*

Parameter of
Axle spacing

General Information

Number:
4.5.3.4

Data Format

Data Presentation
Decimal

Unit of Measure:
Metre

Validation

Validation Rules:
Axle Spacing Distance C
Comment: Validation for axleSpacingDistanceC property. Position of the axles along the unit: c: distance between two inside axles.
Message: axleSpacingDistanceC: The value must be a decimal representing the distance between two inside axles.

Additional Information

General explanation:
The parameter should currently be considered independent of a Vehicle Configuration.

Axle spacing, explanation for a, b, c DP

Explanation of the values for a, b and c

IRI: *http://data.europa.eu/949/axleSpacingExplanation*

Parameter of
Axle spacing

General Information

Number:

4.5.3.4

Data Format

Data Presentation
String

Validation

Validation Rules:
Axle Spacing Explanation
Comment: Validation for axleSpacingExplanation property.
Message: axleSpacingExplanation (4.5.3.4): The value must be a string.
Axle Spacing Distance C
Comment: Validation for axleSpacingDistanceC property. Position of the axles along the unit: c: distance between two inside axles.
Message: axleSpacingDistanceC: The value must be a decimal representing the distance between two inside axles.

Additional Information

General explanation:
The parameter should currently be considered independent of a Vehicle Configuration.

Compatible with line category OP

Indicates the EN line categories with which a vehicle type is compatible.

IRI: *http://data.europa.eu/949/compatibleWithLineCategory*

Parameter of
Vehicle Type

General Information

Number:
4.5.1.1

Belongs to parameters group
Performance parameter

Data Format

Data Presentation
Concept

Taxonomy Reference:
Line Categories

Values :

Code	Value
10	P1
20	P2
30	P3
40	P4
50	P5
60	P6
70	P1520
80	P1600
90	F1
100	F2
110	F3
120	F4
130	F1520
140	F1600

Flags

Applicability Flags:

Y/N

Validation

Validation Rules:

Compatible With Line Category Skos
Comment: Ensures that the value of compatibleWithLineCategory is a valid SKOS concept from the linked concept scheme.
Message: compatibleWithLineCategory: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Compatible With Line Category
Comment: Validation for compatibleWithLineCategory property.
Message: era:compatibleWithLineCategory: its value must be an IRI.

Additional Information

General explanation:

The EN line categories upon which the type can operate.

Composite brake block retrofitted DP

Indicates if a vehicle's composite brake block is retrofitted

IRI: *http://data.europa.eu/949/hasCompositeBrakeBlockRetrofitted*

Parameter of
Vehicle

General Information

Belongs to parameters group
Vehicle technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Composite Brake Block Retrofitted
Comment: Validation for hasCompositeBrakeBlockRetrofitted property.
Message: hasCompositeBrakeBlockRetrofitted: The value must be a boolean.

Configuration dependent conditions of use and other restrictions OP

This property is used to link a vehicle type with its restrictions, through the authorisation case(s)

IRI: *http://data.europa.eu/949/configDependentCondition*

Parameter of
Vehicle APIS Case
Vehicle Type Authorisation Case

Data Format

Data Presentation
Vehicle Type Authorisation Compliance Check

Validation

Validation Rules:
Config Dependent Condition
Comment: Validation for configDependentCondition property.
Message: configDependentCondition: The value must be an IRI pointing to a VehicleTypeAuthorisationCheck.

Additional Information

Example:

```
eratv:vac-uuid(type) a era:VehicleTypeAuthorisationCase ;
  era:configDependentCondition [
    a era:VehicleTypeAuthorisationCheck ;
    vpa:checkedSection <URI-to-TSI-Section checked> ; # if
available
    vpa:checkedRequirement <URI-to-TSI> ; # if available
    vpa:withRestriction eratv:nccfu-uuid(type) ;
  ] .

eratv:nccfu-uuid(type) a
era:VehicleTypeAuthorisationRestriction ;
  era:forConfiguration <URI-to-Configuration-1> , <URI-to-
Configuration-2> ; # all configs sharing the same
restrictions
  era:nonCodedRestrictions ""{{Text of the non-coded
restrictions}}""@en ;
  era:minimumHorizontalRadius 150^^xsd:integer ;
  era:maximumDesignSpeed 200^^xsd:integer ;
  era:temperatureRange <URI-climatic zone> ;
  # other coded CfU.

```

Configuration dependent conformities/compliances
OP

This property is used to link a vehicle type with its conformity checks, through the authorisation case(s)

IRI: *http://data.europa.eu/949/configDependentCompliance*

Parameter of
Vehicle Type Authorisation Case

Data Format

Data Presentation
Vehicle Type Authorisation Compliance Check

Validation

Validation Rules:

Config Dependent Compliance
Comment: Validation for configDependentCompliance property.
Message: configDependentCompliance: The value must be an IRI pointing to a VehicleTypeAuthorisationCheck.

Additional Information

Example:

```
eratv:vac-uuid(type) a era:VehicleTypeAuthorisationCase ;
  era:configDependentCompliance [
    a era:VehicleTypeAuthorisationCheck ;
    vpa:checkedSection <URI-to-TSI-Section checked> ; # always available
    vpa:checkedRequirement <URI-to-TSI> ; # always available
    vpa:withRestriction eratv:nccfu-uuid(type) ;
  ] .

eratv:nccfu-uuid(type) a era:VehicleTypeAuthorisationRestriction ;
  era:forConfiguration <URI-to-Configuration-1> , <URI-to-Configuration-2> ; # all configs sharing the same conformity result
  # if any conditions result from this check, they can be added here.
```

Configuration dependent parameter OP

This property is used to link a vehicle type with a configuration parameter set, which is a group of parameters which depend on a VehicleTypeConfiguration.

IRI: *http://data.europa.eu/949/configDependentParameter*

Parameter of

Vehicle Type

Data Format

Data Presentation

Vehicle type configuration parameter set

Validation

Validation Rules:

Config Dependent Parameter
Comment: Validation for configDependentParameter property.
Message: era:configDependentParameter: its value must be an IRI pointing to a VehicleTypeConfigParameterSet.

CSM-REA Safety Declaration DP

Reference to the written declaration by the proposer referred to in Article 3(11) of Regulation (EU) No 402/2013

IRI: *http://data.europa.eu/949/safetyDeclaration*

Parameter of

Vehicle Type Authorisation Case

General Information

Number:

3.1.3.1.7
3.1.3.2.8
3.1.3.3.8
3.1.3.4.8
3.1.3.5.8
3.1.3.6.8

Data Format

Data Presentation

Any Uri

Validation

Validation Rules:

Safety Declaration
Comment: Validation for safetyDeclaration property. CSM-REA Safety Declaration.
Message: safetyDeclaration: The value must be an anyURI.

Emergency braking OP

Emergency Brake: Stopping distance and deceleration profile for each load condition per design maximum speed.

IRI: *http://data.europa.eu/949/emergencyBrakeProfile*

Parameter of

Vehicle type configuration parameter set

General Information

Number:

4.7.5

Data Format

Data Presentation
Braking profile

Validation

Validation Rules:
Emergency Brake Profile
Comment: Validation that the value of emergencyBrakeProfile points to an instance of BrakingProfile.
Message: emergencyBrakeProfile: its value must be an IRI of type BrakingProfile.

ETCS baseline OP

ETCS baseline installed lineside.

IRI: *http://data.europa.eu/949/etcsBaseline*

Parameter of
ETCS
Vehicle Type

General Information

Number:
4.13.1.2

XML Name:
CPE_Baseline

Deadline:
12 months after publication of Article 7 Guide for OP tracks
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest

Belongs to parameters group
TSI compliant train protection system (ETCS)
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
ETCS Baselines

Values :

Code	Value
00	Pre-baseline 2 - SRS < 2.2.2
10	Pre-baseline 2 - SRS 2.2.2
20	Baseline 2 - SRS 2.3.0d
30	Baseline 3 - SRS 3.3.0
40	Baseline 3 maintenance release 1 - SRS 3.4.0
50	Baseline 3 release 2 - SRS 3.6.0
60	Baseline 4 (release 1) - SRS 4.0.0

Flags

Applicability Flags:

Y/N/NYA

Validation

Dependencies:

A value has to be provided when ETCS is present (a value is provided on 1.1.1.3.2.1).

Validation Rules:

Etcs Baseline
Comment: ETCS baseline installed lineside
Message: etcsBaseline (1.1.1.3.2.2, 1.2.1.1.1.2): The ETCS may have an ETCS baseline, and its value must be an IRI. This error is due to the ETCS instance having more than one value or having a value that is not an IRI.
Etcs Baseline
Comment: Validation for etcsBaseline property.
Message: era:EtcsBaseline: its value must be an IRI.
Etcs Baseline Skos
Comment: ETCS baseline installed lineside
Message: etcsBaseline (1.1.1.3.2.2, 1.2.1.1.1.2): The ETCS {$this} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/etcs-baselines/.
Etcs Baseline Skos
Comment: Ensures that the value of etcsBaseline is a valid SKOS concept from the linked concept scheme.
Message: etcsBaseline: The VehicleType {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Etcs Baseline Applicability
Comment: Only applicable when selected value for 1.1.1.3.2.1 (ETCS present).
Message: etcsBaseline (1.1.1.3.2.2, 1.2.1.1.1.2): The ETCS {$this} ({?thisLabel}), has a ETCS level type which makes the etcsBaseline parameter applicable. This error is due to {$this} not having a value for such a parameter.

OPE TSI References

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3.2.7

Additional Information

General explanation:
The ETCS baseline needs to be provided for each available ETCS Level. See: TSI CCS (Table A2)

For energy supply system OP

Configuration corresponding to the rinf concept in energy supply system.

IRI: *http://data.europa.eu/949/forEnergySupplySystem*

Parameter of
Vehicle type configuration

Data Format

Data Presentation
Concept

Taxonomy Reference:
Energy Supply Systems

Values :

Code	Value	Also Known As	Explanation
1-2kv	1.2kV		
1000V-ac-16-2-3hz	1000V AC 16 2/3Hz		
1000v-ac-50hz	1000V AC 50Hz		
1500v-ac-50hz	1500V AC 50Hz		
3x400v-50hz	3x400V 50Hz	3X400 V, 50 Hz	
AC10	AC 25kV-50Hz		
AC20	AC 15kV-16.7Hz	15kV-16 2/3Hz : 2646 kW , 1kV-16 2/3 Hz or 50 Hz	
autonomous	Autonomous		
dc-1-5kv-specific-case-fr	DC 1.5kV (Specific Case FR)		
DC30	DC 3kV	3000V DC, 3kV (PL, CZ, SK)	
DC40	DC 1.5kV	1.5kV Specific Case IE, 1.5kV (Specific Case IE), 1500	
DC60	DC 750V	DC 750V third rail, Vía Urbana e Interurbana 750 Vdc, 750V, DC750V	
DC70	DC 650V		
DC80	DC 600 V		
DC90	DC 850V		
hybrid	Hybrid		
none-for-hauled-passenger-vehicles-and-special-vehicles	None (for hauled passenger vehicles and special vehicles)		

Code	Value	Also Known As	Explanation
notFitted	Not Fitted		Line not fitted (not electrified) with any traction system
other	Other	Others (specify nominal voltage and frequency and ranges), Others (The User must also specify nominal voltage, frequency, ranges and current type AC or DC), Others	
three-phase	Three-phase alternator 28V 100A, 2 Accumulators in series connection, 24V Vehicle electrical system voltage		

Validation

Validation Rules:

For Energy Supply System Skos
Comment: Ensures that the value of forEnergySupplySystem is a valid SKOS concept from the linked concept scheme.
Message: forEnergySupplySystem: The VehicleTypeConfiguration {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
For Energy Supply System
Comment: Validation for forEnergySupplySystem property.
Message: forEnergySupplySystem: The value must be an IRI.

For line category OP

Allows to link a configuration parameter set to a line category

IRI: *http://data.europa.eu/949/forLineCategory*

Parameter of

Permissible Payload

General Information

Number:
4.5.1.1

Data Format

Data Presentation
Concept

Taxonomy Reference:
Line Categories

Values :

Code	Value
10	P1
20	P2
30	P3
40	P4
50	P5
60	P6
70	P1520
80	P1600
90	F1
100	F2
110	F3
120	F4
130	F1520
140	F1600

Validation

Validation Rules:
For Line Category
Comment: Validation for forLineCategory property.
Message: The forLineCategory value must be an IRI
In Skos Concept Scheme

Message: Instance {$this} of class {?class} has enumerated property {?property} with value {?value} that is not in the list {?scheme}.

For onboard class A [OP]

Configuration corresponding to the rinf concept in ETC CCS.

IRI: *http://data.europa.eu/949/forOnBoardClassA*

Parameter of

Vehicle type configuration

Data Format

Data Presentation

Concept

Taxonomy Reference:

ETCS Equipment Levels

Values :

Code	Value
Decision_2006_679_EC_Set_1	Decision 2006/679/EC Set 1
Decision_2006_860_EC_Set_1	Decision 2006/860/EC Set 1
Decision_2008_386_EC_Set_1	Decision 2008/386/EC Set_1
Decision_2012_463_EU_Set_1	Decision 2012/463/EU Set_1
Decision_2012_696_EU_Set_1	Decision 2012/696/EU Set_1
Decision_2012_696_EU_Set_2	Decision 2012/696/EU Set_2
Decision_2015_14_Set_1	Decision 2015/14 Set_1
Decision_2015_14_Set_2	Decision 2015/14 Set_2
Implementing_Regulation__EU_2020_387_Set_2	Implementing Regulation (EU) 2020/387 Set_2
Implementing_Regulation_EU_2019_776_Set_1	Implementing Regulation (EU) 2019/776 Set_1
Implementing_Regulation_EU_2019_776_Set_2	Implementing Regulation (EU) 2019/776 Set_2
Implementing_Regulation_EU_2020_420_Only_German_Set_2	Implementing Regulation (EU) 2020/420 (Only German) Set_2
Implementing_Regulation_EU_2020_420_Only_German_Set_3	Implementing Regulation (EU) 2020/420 (Only German) Set_3
Level_1	Level 1
Level_2	Level 2
Level_3	Level 3
None	None
Regulation_2016_919_Set_1	Regulation 2016/919 Set_1

Code	Value
Regulation_2016_919_Set_2	Regulation 2016/919 Set_2
Regulation_2016_919_Set_3	Regulation 2016/919 Set_3
Regulation_2020_387_Set_3	Implementing Regulation (EU) 2020/387 Set_3

Validation

Validation Rules:

For On Board Class Askos
Comment: Ensures that the value of forOnBoardClassA is a valid SKOS concept from the linked concept scheme.
Message: forOnBoardClassA: The VehicleTypeConfiguration {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
For On Board Class A
Comment: Validation of the forOnBoardClassA property for VehicleTypeConfiguration.
Message: forOnBoardClassA: The value must be an IRI.

For onboard class B OP

Configuration corresponding to the rinf concept in "Other Protection Control and Warnings concepts.

IRI: *http://data.europa.eu/949/forOnBoardClassB*

Parameter of

Vehicle type configuration

Data Format

Data Presentation

Concept

Taxonomy Reference:

Other Protection Control and Warnings

Values :

Code	Value
01	ALSN
02	ASFA
04	ATB First generation
05	ATB new generation
07	ATC v2
09	ATC vR
10	ATP
11	ATP-VR/RHK
13	CAWS
14	Chiltern-ATP
15	Crocodile
16	DAAT
17	EBICAB 700 BU
18	EBICAB 700 PT (CONVEL)
19	EBICAB 900 ES
21	EuroSIGNUM
23	EuroZUB
25	EVM
26	GNT (Geschwindigkeitsüberwachung für NeiTech-Züge)
27	GW ATP
28	INDUSI I60
29	KCVB
30	KCVP
31	KVB
32	KVBP
33	LS

Code	Value
34	LZB (LZB L72, LZB L72 CE I and LZB L72 CE II)
35	LZB ES
36	Mechanical Trainstops
38	NEXTEO
39	PKP radio system with Radiostop function
40	PZB 90
41	RETB
43	SHP
44	SSC
45	TBL 1
46	TBL 2
47	TBL1+
48	TPWS/AWS
49	TVM 300
50	TVM 430
51	ZUB 123
100	None
scmt	SCMT
scmt-rsc	SCMT + RSC

Validation

Validation Rules:

For On Board Class Bskos

Comment: Ensures that the value of forOnBoardClassB is a valid SKOS concept from the linked concept scheme.

Message: forOnBoardClassB: The VehicleTypeConfiguration {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

For On Board Class B
Comment: Validation of the forOnBoardClassB property for VehicleTypeConfiguration.
Message: forOnBoardClassB: The value must be an IRI.

For wheel set gauge OP

Configuration corresponding to the rinf concept in wheel set gauge concepts

IRI: *http://data.europa.eu/949/forWheelSetGauge*

Parameter of
Vehicle type configuration

Data Format

Data Presentation
Concept

Taxonomy Reference:
Nominal Track Gauges

Values :

Code	Value	Also Known As	Explanation
10	750	750	
20	1000	1000mm	
30	1435	1435mm	
40	1520	1520mm	
50	1524	1524mm	
60	1600	1600mm	
70	1668	1668mm	
unknown	Unknown		Track gauge type not known

Validation

Validation Rules:
For Wheel Set Gauge Skos
Comment: Ensures that the value of forWheelSetGauge is a valid SKOS concept from the linked concept scheme.
Message: forWheelSetGauge: The VehicleTypeConfiguration {$this} with label {?label} has a value {?value} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
For Wheel Set Gauge
Comment: Validation for forWheelSetGauge property.
Message: forWheelSetGauge: The value must be an IRI.

GSM-R use of group 555 DP

Indication if group 555 is used trackside or whether onboard has Voice SIM Card support for Group ID 555.

IRI: *http://data.europa.eu/949/usesGroup555*

Parameter of

Running track
Subset with common characteristics
Vehicle Type

General Information

Number:
4.13.2.12

Deadline:
12 months after publication of Article 7 Guide for OP tracks
16 January 2020

Belongs to parameters group
TSI compliant radio (RMR)

Data Format

Data Presentation
Boolean

Flags

Applicability Flags:
Y/N/NYA

Validation

Dependencies:
GSM-R and ETCS L2 must be installed for this parameter to be applicable.

Validation Rules:
Uses Group555
Comment: Indication if group 555 is used.
Message: usesGroup555 (1.1.1.3.3.4, 1.2.1.1.2.4): Each track may define the existence of GSM-R use of group 555. This error is due to having more than one value or having a value that is not Y/N (boolean).
Uses Group555applicability
Comment: GSM-R (parameter 1.1.1.3.3.1) and ETCS L2 (parameter 1.1.1.3.2.1) must be installed for this parameter to be applicable.
Message: usesGroup555 (1.1.1.3.3.4, 1.2.1.1.2.4):The track {$this} ({?label}), has a 'GSM-R version' defined and a 'ETCS level' type selected which makes the usesGroup555 parameter applicable. This error is due to {$this} not having a value for such a parameter.

OPE TSI References

Part of RCC Algorithm:
true

Additional Information

General explanation:
Sections of EIRENE not covered by references in TSI. GSM-R (parameter 1.1.1.3.3.1) and ETCS L2 (parameter 1.1.1.3.2.1) must be installed for this parameter to be applicable.

Has braking performance OP

Braking performance of a vehicle type (configuration).

IRI: *http://data.europa.eu/949/hasBrakingPerformance*

Parameter of
Vehicle Type
Vehicle type configuration parameter set

General Information

Number:
4.7

Data Format

Data Presentation
Braking performance

Validation

Validation Rules:
Has Braking Performance
Comment: Validation for hasBrakingPerformance property.
Message: era:hasBrakingPerformance: its value must be an IRI pointing to a BrakingPerformance.

Has cant deficiency compensation DP

Vehicle equipped with a cant deficiency compensation system (tilting vehicle).

IRI: *http://data.europa.eu/949/hasCantDefficiencyCompensation*

Parameter of
Vehicle Type

General Information

Number:
4.6.2

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Cant Defficiency Compensation
Comment: Validation for hasCantDefficiencyCompensation property.
Message: hasCantDefficiencyCompensation (4.6.2): The value must be a boolean.

Has onboard DDF/DPF [DP]

Presence of derailment prevention and detection by signal processing.

IRI: *http://data.europa.eu/949/hasSignalProcessingDerailmentFunction*

Parameter of
Vehicle Type

General Information

Number:
4.15.3

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Has Signal Processing Derailment Function
Comment: Validation for hasSignalProcessingDerailmentFunction property.
Message: The hasSignalProcessingDerailmentFunction value must be a boolean (true/false).

Additional Information

General explanation:
Only applicable for Traction Locomotives, intended to process signals emitted by freight wagons, if provided with Derailment Prevention Function (‘DPF’) or Derailment Detection Function (‘DDF’) as defined in point 4.2.3.5.3 of TSI WAG.

Has vehicle type configuration OP

It is used to link a vehicle type configuration set with a vehicle type configuration

IRI: *http://data.europa.eu/949/hasVehicleTypeConfiguration*

Parameter of
Vehicle type configuration parameter set

Data Format

Data Presentation
Vehicle type configuration

Validation

Validation Rules:
Has Vehicle Type Configuration
Comment: Validation for hasVehicleTypeConfiguration property.
Message: era:hasVehicleTypeConfiguration: its value must be an IRI pointing to a VehicleTypeConfiguration.

Is pre-engagement application DP

Determines if the Application for Vehicle (Type) Authorisation is determining a preEngagementBaseline, and not yet the authorisation itself.

IRI: *http://data.europa.eu/949/isPreEngagementApplication*

Also Known As:
is about pre-engagement

Parameter of
Vehicle Type Authorisation Case

Data Format

Data Presentation
Boolean

Validation

Validation Rules:
Is Pre Engagement Application
Comment: Validation for isPreEngagementApplication property.
Message: isPreEngagementApplication: The value must be a boolean.

Maximum service braking OP

Service Brake: Stopping distance and deceleration profile for specific load condition at design maximum speed.

IRI: *http://data.europa.eu/949/serviceBrakingProfile*

Parameter of

Braking performance

General Information

Number:
4.7.7

Data Format

Data Presentation
Braking profile

Validation

Validation Rules:
Service Braking Profile
Comment: Validation for serviceBrakingProfile property. Links to the maximum service braking profile.
Message: serviceBrakingProfile: The value must be an IRI pointing to a BrakingProfile.

Minimum (permitted) axle load DP

Minimum (permitted) axle load, given in tonnes.

IRI: *http://data.europa.eu/949/minAxleLoad*

Parameter of

Vehicle Type

General Information

Number:
4.14.2.10

Data Format

Data Presentation
Decimal

Unit of Measure:
Tonne

Validation

Validation Rules:

Min Axle Load

Comment: Validation for minAxleLoad property.

Message: The minAxleLoad value must be a decimal.

Additional Information

General explanation:

In RINF, it is Deprecated as a RINF-parameter according to the amendment to the Regulation (EU) 2019/777 and in ERATV with (EU) 2019/776, but was used before that amendment.

Onboard equipment - recording device OP

Onboard equipment - recording device

IRI: *http://data.europa.eu/949/onboardRecordingDevice*

Parameter of

Vehicle Type Authorisation Restriction

Data Format

Data Presentation

Concept

Taxonomy Reference:

Onboard equipment - recording device

Values :

Code	Value
01	Registratore cronologico d'eventi computerizzato (RCEC) according to specification RFI/DTC/CSI/SR/OR/10/002/B of 11/02/2008
02	Acquisition et Traitement des Evénements se Sécurité en Statique (ATESS)
03	TELOC
04	Trainborne Recorder Units (TRU) NG

Validation

Validation Rules:

Onboard Recording Device
Comment: Validation for onboardRecordingDevice property.
Message: onboardRecordingDevice: The value must be an IRI.

Additional Information

General explanation:

The list is in line with ERA/TD/2011-09/INT (v1.17), Table 7, and is now in 3.4 of the annex II of TSI CCS.

Operational restriction OP

Indicates an operational restriction of vehicle or wagon. Parking brake type (if the vehicle is fitted with it).

IRI: *http://data.europa.eu/949/operationalRestriction*

Parameter of

Vehicle

General Information

Belongs to parameters group

Vehicle technical characteristic

Data Format

Data Presentation

Concept

Taxonomy Reference:

Restrictions

Values :

Code	Value	Also Known As	Explanation
2-7-1	Silent (retrofitted without testing)	2.7.1	Can be used in all quieter routes – TSI Noise compliant – Silent (retrofitted without testing)
2-7-2	Silent (tested against a TSI NOI)	2.7.2	Can be used in all quieter routes – TSI Noise compliant – Silent (tested against a TSI NOI)
2-7-3	Very quiet (tested against a TSI NOI)	2.7.3	Can be used in all quieter routes – TSI Noise compliant – Very quiet (tested against a TSI NOI)
2-7-4	Exempted in accordance with TSI Noise	2.7.4	Can be used in all quieter routes – TSI Noise not compliant – Exempted in accordance with TSI Noise
2-7-5	Covered by specific case	2.7.5	Can be used in quieter routes only in this MS – Covered by specific case
2-7-6	Fitted with 'historic' CBBs	2.7.6	Can be used in quieter routes only in this MS – Fitted with 'historic' CBBs
2-7-7	Can't be used in quieter routes	2.7.7	Can't be used in quieter routes

Validation

Validation Rules:

Operational Restriction

Comment: Validation for operationalRestriction property.

Message: operationalRestriction: The value must be an IRI.

Permissible payload OP

Permissible payload for different line categories.

IRI: *http://data.europa.eu/949/permissiblePayloadForLineCategory*

Parameter of

Vehicle Type

General Information

Number:

4.5.1

Data Format

Data Presentation

Permissible Payload

Validation

Validation Rules:

Permissible Payload For Line Category
Comment: Validation for permissiblePayloadForLineCategory property.
Message: era:permissiblePayloadForLineCategory: its value must be an IRI pointing to a PermissiblePayload.

Additional Information

General explanation:

The parameter should currently be considered independent of a Vehicle Configuration.

Pre-engagement baseline OP

Denotes the opinion on the approach proposed by the applicant in the pre-engagement application, including a determination of the version of the TSIs and national rules that are to be applied for the subsequent application for authorisation

IRI: *http://data.europa.eu/949/preEngagementBaseline*

Parameter of

Vehicle Type Authorisation Case

Data Format

Data Presentation

ERA Document

Validation

Validation Rules:

Pre Engagement Baseline
Comment: Validation for preEngagementBaseline property.
Message: preEngagementBaseline: The value must be an IRI pointing to a Document.

Quieter route exempted country OP

Country where a vehicle may operate without noise restrictions.

IRI: *http://data.europa.eu/949/quieterRoutesExemptedCountry*

Parameter of

Vehicle Type Authorisation Restriction

General Information

Belongs to parameters group
Vehicle technical characteristic

Data Format

Data Presentation
Concept

Validation

Validation Rules:
Quieter Routes Exempted Country
Comment: Validation for quieterRoutesExemptedCountry property.
Message: quieterRoutesExemptedCountry: The value must be an IRI.

Quieter route exempted country OP

The quieter routes apply only to wagons in the scope of the Wagon TSI (refer to Article 5a of the Noise TSI).

IRI: *http://data.europa.eu/949/quieterRoutesNoiseCategory*

Parameter of
Vehicle Type Authorisation Restriction

General Information

Belongs to parameters group
Vehicle technical characteristic

Data Format

Data Presentation
Concept

Validation

Validation Rules:
Quieter Routes Noise Category
Comment: Validation for quieterRoutesNoiseCategory property.
Message: quieterRoutesNoiseCategory: The value must be an IRI.

Safe consist length information from on-board necessary for access the line and SIL OP

Indication whether safe consist train length information from on-board is required to access the line for safety reasons and the required safety integrity level.

IRI: *http://data.europa.eu/949/safeConsistLengthInformationNecessary*

Parameter of

Running track
Subset with common characteristics
Vehicle Type

General Information

Number:
4.13.1.10

XML Name:
CPE_SafeLenghtInf

Deadline:
12 months after publication of Article 7 Guide

Belongs to parameters group
TSI compliant train protection system (ETCS)

Data Format

Data Presentation
Concept

Taxonomy Reference:
Safe Consistent Length required with SIL

Values :

Code	Value
00	N
02	Y+2
04	Y+4

Flags

Applicability Flags:
Y/N/NYA

Validation

Dependencies:
A value has to be provided when ETCS is present (a value is provided on 1.1.1.3.2.1).

Validation Rules:
Safe Consist Length Information Necessary Skos
Comment: Ensures that the value of safeConsistLengthInformationNecessary is a valid SKOS concept from the linked concept scheme.
Message: safeConsistLengthInformationNecessary: The VehicleType {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .
Safe Consist Length Information Necessary Skos
Comment: Indication whether safe consist train length information from on-board is required to access the line for safety reasons and the required safety integrity level.
Message: safeConsistLengthInformationNecessary (1.1.1.3.2.11, 1.2.1.1.1.11): The ETCS or subset {$this} (label {?label}) has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/safe-consist-length/SafeConsistLengthNecessary.

Safe Consist Length Information Necessary
Comment: Validation for safeConsistLengthInformationNecessary property.
Message: era:safeConsistLengthInformationNecessary: its value must be an IRI.
Safe Consist Length Information Necessary
Comment: Indication whether safe consist train length information from on-board is required to access the line for safety reasons and the required safety integrity level.
Message: safeConsistLengthInformationNecessary (1.1.1.3.2.11, 1.2.1.1.1.11): The ETCS or subset must have a single Safe consist length information from on-board necessary for access the line and SIL value that is an IRI. This error is due to having more than one value or having a value that is not an IRI.
Safe Consist Length Information Necessary Applicability
Comment: Only applicable when parameter 1.1.1.3.2.1 is applicable (its Applicable: 'Y').
Message: safeConsistLengthInformationNecessary (1.1.1.3.2.11, 1.2.1.1.1.11):The ETCS or subset {$this} ({?thisLabel}), has an 'ETCS Level Type' defined which makes the safeConsistLengthInformationNecessary parameter applicable. This error is due to {$this} not having a value for such a parameter.

State OP

Denoting the state of the certificate/declaration. Can be in one of the following: Amended, New, Suspended, Withdrawn.

IRI: *http://data.europa.eu/949/state*

Parameter of

Certification Level Document
EC Declaration of Verification/Conformity

Data Format

Data Presentation

Concept

Taxonomy Reference:

Evidence Document States

Values :

Code	Value	Also Known As
amended	Amended	
expired	Expired	
inForce	In force	
invalid	Invalid	Inactive
new	New	
rejected	Rejected	
renewed	Renewed	
revoked	Revoked	
submitted	Submitted	Draft
suspended	Suspended	
updated	Updated	
valid	Valid	Published
withdrawn	Withdrawn	

Validation

Validation Rules:

Doc State
Comment: State of the Evidence Document.
Message: state: The value must be an IRI and a SKOS concept.

Temperature range OP

Temperature range for unrestricted access to the line.

IRI: *http://data.europa.eu/949/temperatureRange*

Parameter of

Running track
Subset with common characteristics
Vehicle Type
Vehicle Type Authorisation Restriction

General Information

Number:
4.3.1

XML Name:
IPP_TempRange

Deadline:
In accordance with Implementing Decision 2014/880/EU and by 16 March 2019 at the latest

Belongs to parameters group
Performance parameter

Data Format

Data Presentation
Concept

Taxonomy Reference:
Temperature ranges

Values :

Code	Value	Also Known As
10	T1	T1 (-25 to +40)
20	T2	T2 (-40 to +35)
30	T3	T3 (-25 to +45)
40	Tx	Tx (-40 to +50)

Flags

Applicability Flags:
Y/N

Validation

Validation Rules:
Temperature Range Skos
Comment: Indication of the temperature range of track.
Message: Indication of the temperature range (1.1.1.1.2.6):): The track {$this} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: http://data.europa.eu/949/concepts/temperature-ranges/TemperatureRanges.
Temperature Range
Comment: Indication of the temperature range of track.
Message: temperatureRange (1.1.1.1.2.6): Each track may have exactly one temperature range value that must be an IRI. This error may be due to the track not having a temperature range, or having more than one temperature range.
Temperature Range
Comment: Validation for temperatureRange property.
Message: era:temperatureRange: its value must be an IRI.
Temperature Range Skos
Comment: Ensures that the value of temperatureRange is a valid SKOS concept from the linked concept scheme.
Message: temperatureRange: The VehicleType {$this} with label {?label} has a value {?concept} that is not one of the predefined values and cannot be converted into a SKOS concept on this list: .

OPE TSI References

Part of RCC Algorithm:
true

Additional Information

General explanation:

T1 (-25 to +40) - 3.1.1
T2 (-40 to +35) - 3.1.2
T3 (-25 to +45) - 3.1.3
Tx (-40 to +50) - 3.1.4

Type number DP

Each type of vehicle shall receive a number consisting of 10 digits with the structure as in Annex III of the ERATV Decision.

For the full Vehicle Identifier, use `dcterms:identifier`.
For the complement before Fourth Railway package, use `era:includedVersions`.
For the complements after the Fourth Railway Package, use `era:includedVersionsVariant`.

IRI: *http://data.europa.eu/949/vehicleTypeNumber*

Parameter of
Vehicle Type

General Information

Number:
0.1

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Vehicle Type Number
Comment: Validation for vehicleTypeNumber property.
Message: The vehicleTypeNumber value must be exactly 10 digits in the format 'XX-XXX-XXXX-X' (dashes optional).

Type or Design Examination Certificate, supporting the Vehicle Type's authorisation process. OP

For this Vehicle Type, the type or design examination certificate described in the relevant verification module as issued by
Notified Bodies, supporting the EC Declaration(s) of Verification for the subsystems in scope of the type's authorisation by an authorizing entity.

Use only if no link can be made with the underlying authorisation and its presented certificates.

IRI: *http://data.europa.eu/949/certificate*

Parameter of
Vehicle Type

Data Format

Data Presentation
Certification Level Document

Validation

Validation Rules:
Certificate
Comment: Type or Design Examination Certificate.
Message: certificate: The value must be an IRI pointing to a CLD.

Vehicle impedance OP

Impedance as defined in the specification referenced in Appendix A-1, index [D]

IRI: *http://data.europa.eu/949/minVehicleImpedance*

Parameter of
Train Detection System
Vehicle type configuration parameter set

General Information

Number:
4.14.2.17

XML Name:
CCD_VehicleImpedance

Deadline:
For train detection system compliant with TSIs, 12 months after publication of Article 7 Guide.
For train detection system not TSI compliant: in relation to article 13 of TSI CCS 12 months after publication of Article 7 Guide for OP tracks

Belongs to parameters group
Train detection systems defined based on frequency bands

Data Format

Data Presentation
Minimum Vehicle Impedance

Format:
The values is an instance of era:MinVehicleImpedance class with its 2 properties. Per voltage : input Capacitance (Cin) and Input Impedance (Zin)

Flags

Applicability Flags:
Y/N/NYA

Validation

Dependencies:
Mandatory only for track circuits

Validation Rules:
Min Vehicle Impedance

Message: minVehicleImpedance (1.1.1.3.4.2.2): The train detection system has a minimum vehicle impedance reference that must be a minimum vehicle impedance. This error may be due to having more than one value or having a value that is not an instance of a MinVehicleImpedance.
Min Vehicle Impedance Applicability
Comment: The parameter minVehicleImpedance is applicable for track circuits.
Message: minVehicleImpedance (1.1.1.3.4.2.2):The Train Detection System {$this} ({?tdsLabel}), has a 'track circuit' type that makes the minVehicleImpedance parameter applicable. This error is due to not having a value for such a parameter.

OPE TSI References

Part of RCC Algorithm:
true

Additional Information

General explanation:
Compatibility with track circuits. A track circuit is only able to detect rolling stock if the impedance between rails does not exceed a certain value.

Vehicle keeper OP

Indicates the organization that owns/operated a vehicle or wagon.

IRI: *http://data.europa.eu/949/vehicleKeeper*

Parameter of
Vehicle

General Information

Belongs to parameters group
Vehicle technical characteristic

Data Format

Data Presentation
Organisation Role

Validation

Validation Rules:

Vehicle Keeper
Comment: Validation for vehicleKeeper property.
Message: vehicleKeeper: The value must be an IRI pointing to an OrganisationRole.

Vehicle number DP

Identification number of a vehicle or wagon.

IRI: *http://data.europa.eu/949/vehicleNumber*

Parameter of
Vehicle

General Information

Belongs to parameters group
Vehicle technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Vehicle Number
Comment: Validation for vehicleNumber property.
Message: vehicleNumber: The value must be a string. At most one value is allowed.

Vehicle pantograph head OP

Pantograph head geometry (to be indicated for each energy supply system the vehicle is equipped for).

IRI: *http://data.europa.eu/949/vehiclePantographHead*

Parameter of
Vehicle type configuration parameter set

General Information

Number:
4.10.6

Data Format

Data Presentation
Concept

Taxonomy Reference:
Other Pantograph Heads

Values :

Code	Value
10	1950 mm (Type2)
20	1950 mm (PL)
30	1800 mm (NO,SE)
40	1760 mm (BE)
70	1450 mm
80	Other
90	None
100	1700 mm (ES)
110	1700 mm with insulated horns (ES)

Validation

Validation Rules:
Vehicle Pantograph Head
Comment: Validation for vehiclePantographHead property.
Message: era:vehiclePantographHead: its value must be an IRI.

Additional Information

General explanation:
The parameter must have as range a VehicleTypeConfigParameterSet, of which the VehicleTypeConfiguration
at least contains one EnergySystem, from the ones recorded under `era:energySupplySystem`.
Further, all of the ENE supply systems mentioned under that parameter
must have a value for this parameter `era:vehiclePantographHead`.

Vehicle series DP

Manufacturing series of a vehicle.

IRI: *http://data.europa.eu/949/vehicleSeries*

Parameter of
Vehicle

General Information

Belongs to parameters group
Vehicle technical characteristic

Data Format

Data Presentation
String

Validation

Validation Rules:
Vehicle Series
Comment: Validation for vehicleSeries property.
Message: vehicleSeries: The value must be a string.

Vehicle subcategory OP

Indicates the further classification (but not any family/platform) of vehicles within a vehicle category.

IRI: *http://data.europa.eu/949/vehicleSubCategory*

Parameter of
Vehicle Type

General Information

Number:
1.5

Belongs to parameters group
Vehicle type technical characteristic

Data Format

Data Presentation
Concept

Taxonomy Reference:
Vehicle Categories

Values :

Code	Value
1X	Traction Vehicles
3X-4X	Hauled Vehicles
5X	Freight wagons (hauled)
7X	Special Vehicles

Validation

Validation Rules:

Vehicle Sub Category
Comment: Validation for vehicleSubCategory property.
Message: vehicleSubCategory (1.5): The value must be an IRI.

Vehicle type OP

Indicates the vehicle type of a specific vehicle or wagon.

IRI: *http://data.europa.eu/949/vehicleType*

Parameter of
Vehicle

General Information

Belongs to parameters group
Vehicle technical characteristic

Data Format

Data Presentation
Vehicle Type

Validation

Validation Rules:
Vehicle Type
Comment: Validation for vehicleType property.
Message: vehicleType: The value must be an IRI pointing to a VehicleType.

Vehicle type authorisation holder OP

Indicates the vehicle type authorisation holder.

IRI: *http://data.europa.eu/949/vehicleTypeAuthorisationHolder*

Parameter of
Vehicle Type Authorisation

General Information

Number:
3.1.3.1.2
3.1.3.2.3
3.1.3.3.3
3.1.3.4.3
3.1.3.5.3
3.1.3.6.3
3.1.3.7.3
3.1.3.8.3

Belongs to parameters group

Vehicle technical characteristic

Data Format

Data Presentation

Organisation Role

Validation

Validation Rules:

Vehicle Type Authorisation Holder
Comment: Validation for vehicleTypeAuthorisationHolder property. Indicates the vehicle type authorisation holder.
Message: vehicleTypeAuthorisationHolder: The value must be an IRI pointing to an OrganisationRole.

c: Classes
op: Object Properties
op: Data Properties
ep: External Properties