

# TSI revision 2022

## Digital Rail and Green Freight

### Changes proposed to the parameters of ERATV

Based on the Commission Implementing Decision 2011/665/EU

<i>Version</i>	<i>Date</i>	<i>Comments</i>
1.0	18 March 2022	Version for consultation. The table lists the proposed evolution of the Annex II of the (consolidated) ERATV Decision.

### Parameters of ERATV

Parameter	Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of use
		1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles	
<b>0</b>	<b>Identification of the type</b>	<b>Heading (no data)</b>				
0.1	Type number (in accordance with Annex III)	[number] XX-Y XXX-XXXX-X	Y	Y	Y	
0.2	Variant included in this type (in accordance with Article 2(13) of Regulation (EU) 2018/545)	[alphanumeric] ZZZ	Y	Y	Y	
0.4	Versions included in this type. (in accordance with Article 2(14) of Regulation (EU) 2018/545)	[alphanumeric] VVV	Y	Y	Y	
0.3	Date of record in ERATV	[date] YYYYMMDD	Y	Y	Y	
<b>1</b>	<b>General information</b>	<b>Heading (no data)</b>				
1.1	Type name	[character string] (max 256 characters)	0	0	0	
1.2	Alternative type name	[character string] (max 256 characters)	0	0	0	
<b>1.3</b>	<b>Manufacturer's name</b>	<b>Heading (no data)</b>				
<b>1.3.1</b>	<b>Manufacturer identification data</b>	<b>Heading (no data)</b>				
1.3.1.1	Name of organisation	[character string] (max 256 characters) Selection from a predefined list, possibility to add new organisations	Y	Y	Y	
1.3.1.2	Registered business number	Text	0	0	0	

Parameter	Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of use	
		1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
1.3.1.3	Organisation code	Alphanumeric code	0	0	0	0	
<b>1.3.2</b>	<b>Manufacturer contact data</b>	<b>Heading (no data)</b>					
1.3.2.1	Address of organisation, street and number	Text	0	0	0	0	
1.3.2.2	Town	Text	0	0	0	0	
1.3.2.3	Country code	Code as in EU interinstitutional style guide	0	0	0	0	
1.3.2.4	Post code	Alphanumeric code	0	0	0	0	
1.3.2.5	Email address	Email	0	0	0	0	
1.4	Category	[character string] Selection from a predefined list (according to Annex III)	Y	Y	Y	Y	
1.5	Subcategory	[character string] Selection from a predefined list (according to Annex III)	Y	Y	Y	Y	
<b>2</b>	<b>Conformity with TSIs</b>	<b>Heading (no data)</b>					
2.1	Conformity with TSI	For each TSI: [character string] Y/N/Partial/Not applicable Selection from a predefined list of vehicle related TSIs (both in force and those that were previously in force) (multiple selection possible)	Y	Y	Y	Y	
2.2	EC certificate of verification:	[character string]	Y	Y	Y	Y	

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		1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles	
	Reference of 'EC type examination certificates' (if module SB applied) and/or 'EC design examination certificates' (if module SH1 applied)	(possibility to indicate several certificates, e.g. certificate for rolling stock subsystem, certificate for CCS, etc.)				
2.3	Applicable specific cases (specific cases conformity with which has been assessed)	[character string] Selection from a predefined list (multiple selection possible) based on TSIs (for each TSI marked as Y or P)	Y	Y	Y	Y
2.4	Sections of TSI not complied with	[character string] Selection from a predefined list (multiple selection possible) based on TSIs (for each TSI marked as P)	Y	Y	Y	Y
<b>3</b>	<b>Authorisations</b>	<b>Heading (no data)</b>				
3.0	Area of use	[character string] Selection from a predefined list (multiple selection): MS — Network	Y	Y	Y	Y
<b>3.1</b>	<b>Authorisation in</b>	<b>Heading (no data)</b>				
3.1.1	Member State of authorisation	[character string] Selection from a predefined list (multiple selection)	Y	Y	Y	Y
<b>3.1.2</b>	<b>Current status</b>	<b>Heading (no data)</b>				

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			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles	
3.1.2.1	Status	[character string] + [date] Possible options: Valid, Suspended YYYYMMDD, Revoked YYYYMMDD, to be renewed YYYYMMDD	Y	Y	Y	Y	
3.1.2.2	Validity of authorisation (if defined)	[date] YYYYMMDD	Y	Y	Y	Y	
3.1.2.3	Coded conditions for use and other restrictions	[character string] Code assigned by the Agency	Y	Y	Y	Y	
3.1.2.4	Non-coded conditions for use and other restrictions	[character string]	Y	Y	Y	Y	
<b>3.1.3</b>	<b>Historical</b>	<b>Heading (no data)</b>					
<b>3.1.3.1</b>	<b>Original authorisation</b>	<b>Heading (no data)</b>					
3.1.3.1.1	Date of the original authorisation	[date] YYYYMMDD	Y	Y	Y	Y	
<b>3.1.3.1.2</b>	<b>Authorisation holder</b>	<b>Heading (no data)</b>					
<b>3.1.3.1.2.1</b>	<b>Authorisation holder identification data</b>	<b>Heading (no data)</b>					
3.1.3.1.2.1.1	Name of organisation	[character string] (max 256 characters) Selection from a predefined list, possibility to add new organisations	Y	Y	Y	Y	
3.1.3.1.2.1.2	Registered business number	Text	Y	Y	Y	Y	
3.1.3.1.2.1.3	Organisation code	Alphanumeric code	O	O	O	O	

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of use
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles	
<b>3.1.3.1.2.2</b>	<b>Authorisation holder contact data</b>	<b>Heading (no data)</b>					
3.1.3.1.2.2.1	Address of organisation, street and number	Text	Y	Y	Y	Y	
3.1.3.1.2.2.2	Town	Text	Y	Y	Y	Y	
3.1.3.1.2.2.3	Country code	Code as in EU interinstitutional style guide	Y	Y	Y	Y	
3.1.3.1.2.2.4	Post code	Alphanumeric code	Y	Y	Y	Y	
3.1.3.1.2.2.5	Email address	Email	Y	Y	Y	Y	
3.1.3.1.3	Authorisation document reference	[character string] (EIN)	Y	Y	Y	Y	
3.1.3.1.4	Certificate of verification: Reference of type examination or design examination type	[character string] (Possibility to indicate several certificates, e.g. certificate for rolling stock subsystem, certificate for Control, command and signalling subsystem, etc.)	Y	Y	Y	Y	
3.1.3.1.5	Parameters for which conformity to applicable national rules has been assessed	[character string] Selection from a predefined list (multiple selection possible) based on Commission Decision 2015/2299/EU	Y	Y	Y	Y	
3.1.3.1.6	Comments	[character string] (max 1 024 characters)	0	0	0	0	

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of use
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles	
3.1.3.1.7	Reference to the written declaration by the proposer referred to in Article 3(11) of Regulation (EU) No 402/2013	[character string]	Y	Y	Y	Y	
<b>3.1.3.X</b>	<b>Modification of authorisation</b>	<b>Heading (no data) (X is progressive from 2 onwards, as many times as modifications of the authorisation of type have been issued)</b>	Y	Y	Y	Y	
3.1.3.X.1	Type of modification	[character string] Text from a predefined list	Y	Y	Y	Y	
3.1.3.X.2	Date	[date] YYYYMMDD	Y	Y	Y	Y	
3.1.3.X.3	Authorisation holder (if applicable)	[character string] (max 256 characters) Selection from a predefined list, possibility to add new organisations	Y	Y	Y	Y	
<b>3.1.3.X.3.1</b>	<b>Authorisation holder identification data</b>	<b>Heading (no data)</b>					
3.1.3.X.3.1.1	Name of organisation	[character string] (max 256 characters) Selection from a predefined list, possibility to add new organisations	Y	Y	Y	Y	
3.1.3.X.3.1.2	Registered business number	Text	Y	Y	Y	Y	
3.1.3.X.3.1.3	Organisation code	Alphanumeric code	0	0	0	0	

Parameter	Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of use
		1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles	
<b>3.1.3.X.3.2</b>	<b>Authorisation holder contact data</b>	<b>Heading (no data)</b>				
3.1.3.X.3.2.1	Address of organisation, street and number	Text	Y	Y	Y	Y
3.1.3.X.3.2.2	Town	Text	Y	Y	Y	Y
3.1.3.X.3.2.3	Country code	Code as in EU interinstitutional style guide	Y	Y	Y	Y
3.1.3.X.3.2.4	Post code	Alphanumeric code	Y	Y	Y	Y
3.1.3.X.3.2.5	Email address	Email	Y	Y	Y	Y
3.1.3.X.4	Authorisation modification document reference	[character string]	Y	Y	Y	Y
3.1.3.X.5	Certificate of verification: Reference of type examination or design examination type	[character string] (possibility to indicate several certificates, e.g. certificate for rolling stock subsystem, certificate for CCS, etc.)	Y	Y	Y	Y
3.1.3.X.6	Applicable national rules (if applicable)	[character string] Selection from a predefined list (multiple selection possible) based on Commission Decision 2015/2299/EU	Y	Y	Y	Y
3.1.3.X.7	Comments	[character string] (max 1 024 characters)	0	0	0	0
3.1.3.X.8	Reference to the written declaration by the	[character string]	Y	Y	Y	Y



Parameter	Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of use	
		1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
	proposer referred to in Article 3(11) of Regulation (EU) No 402/2013						
<b>3.X</b>	<b>Authorisation in</b>	<b>Heading (no data) (X is progressive incremented by one unit from 2 onwards each time an authorisation for this type has been granted). This Section contains same fields as 3.1</b>	Y	Y	Y	Y	
<b>4</b>	<b>Technical characteristics of the vehicle</b>	<b>Heading (no data)</b>					
<b>4.1</b>	<b>General technical characteristics</b>	<b>Heading (no data)</b>					
4.1.1	Number of driving cabs	[Number] 0/1/2	Y	Y	Y	Y	N
<b>4.1.2</b>	<b>Speed</b>	<b>Heading (no data)</b>					
4.1.2.1	Maximum design speed	[Number] km/h	Y	Y	Y	Y	N
4.1.3	Wheel set gauge	[character string] Selection from predefined list	Y	Y	Y	Y	Y
4.1.5	Maximum number of trainsets or locomotives coupled together in multiple operation.	[number]	Y	N	N	N	N
4.1.11	Wheelset gauge changeover facility	[character string] Selection from predefined list	Y	Y	Y	Y	Y
4.1.12	Number of vehicles	[number]	Y	Y	Y	Y	N

Parameter	Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of use	
		1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
	composing the fixed formation (for fixed formation only)						
<b>4.2</b>	<b>Vehicle gauge</b>	<b>Heading (no data)</b>					
4.2.1	Reference profile	[character string] Selection from predefined list (more than one possible) (the list will be different for different categories depending on the applicable TSI)	Y	Y	Y	Y	Y
<b>4.3</b>	<b>Environmental conditions</b>	<b>Heading (no data)</b>					
4.3.1	Temperature range	[character string] Selection from a predefined list (more than one possible)	Y	Y	Y	Y	N
4.3.3	Snow, ice and hail conditions	[character string] Selection from a predefined list	Y	Y	Y	Y	N
<b>4.4</b>	<b>Fire safety</b>	<b>Heading (no data)</b>					
4.4.1	Fire safety category	[character string] Selection from a predefined list	Y	Y	N	Y	Y
<b>4.5</b>	<b>Design mass and loads</b>	<b>Heading (no data)</b>					
4.5.1	Permissible payload for different line categories	[number] t for line category [character string]	<del>NO</del>	<del>NO</del>	Y	<del>NO</del>	Y
<a href="#">4.5.1.1</a>	<a href="#">Categorisation of the unit into EN line categories</a>	<a href="#">[character string] from a predefined list</a>	<a href="#">Y</a>	<a href="#">Y</a>	<a href="#">N</a>	<a href="#">Y</a>	<a href="#">Y</a>

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		1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
	<a href="#">(more than one option possible)</a>						
<b>▼M2</b>							
<b>4.5.2</b>	<b>Design mass</b>	<b>Heading (no data)</b>					
4.5.2.1	Design mass in working order	[number] kg	Y	Y	N	Y	Y
4.5.2.2	Design mass under normal payload	[number] kg	Y	Y	N	Y	Y
4.5.2.3	Design mass under exceptional payload	[number] kg	Y	Y	N	Y	Y
<a href="#">4.5.2.4</a>	<a href="#">Operational mass in working order</a>	<a href="#">[number] kg</a>	<a href="#">Y</a>	<a href="#">Y</a>	<a href="#">N</a>	<a href="#">N</a>	<a href="#">Y</a>
<a href="#">4.5.2.5</a>	<a href="#">Operational mass under normal payload</a>	<a href="#">[number] kg</a>	<a href="#">Y</a>	<a href="#">Y</a>	<a href="#">N</a>	<a href="#">N</a>	<a href="#">Y</a>
<b>4.5.3</b>	<b>Static axle load</b>	<b>Heading (no data)</b>					
4.5.3.1	Static axle load in working order	[number] kg	Y	Y	N	Y	Y
4.5.3.2	Static axle load under normal payload	[number] kg	Y	Y	N	Y	Y
4.5.3.3	Static axle load under exceptional payload	[number] kg	Y	Y	N	Y	Y
4.5.3.4	Position of the axles along the unit (axle spacing): a: Distance between axles b: Distance from end axle to the end of the nearest coupling plane c: distance between two inside axles	a [number] m b [number] m c [number] m Explanation of the values for a, b and c [character string]	Y	Y	N	Y	Y
4.5.5	Total vehicle mass (for each vehicle of the unit)	[number] kg	Y	Y	N	Y	Y

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of use
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles	
4.5.6	Mass per wheel	[number] kg	Y	Y	N	Y	Y
<b>4.6</b>	<b>Rolling stock dynamic behaviour</b>	<b>Heading (no data)</b>					
4.6.4	Combination of maximum speed and maximum cant deficiency for which the vehicle was assessed	[number] km/h - [number] mm	Y	Y	Y	Y	Y
4.6.5	Rail inclination	[character string] from a predefined list	Y	Y	Y	Y	Y
<b>4.7</b>	<b>Braking</b>	<b>Heading (no data)</b>					
4.7.1	Maximum average deceleration	[number] m/s <sup>2</sup>	Y	N	N	Y	N
<b>4.7.2</b>	<b>Thermal capacity</b>	<b>Heading (no data)</b>					
<b>4.7.2.1</b>	<b>Brake performance on steep gradients with normal payload</b>	<b>Heading (no data)</b>					
4.7.2.1.1	Reference case of TSI	[character string] from a predefined list	Y	Y	Y	Y	N
4.7.2.1.2	Speed (if no reference case is indicated)	[number] km/h	Y	Y	Y	Y	N
4.7.2.1.3	Gradient (if no reference case is indicated)	[number] ‰ (mm/m)	Y	Y	Y	Y	N
4.7.2.1.4	Distance (if no reference case is indicated)	[number] km	Y	Y	Y	Y	N
4.7.2.1.5	Time (if distance is not indicated) (if no reference case is indicated)	[number] min	Y	Y	Y	Y	N
4.7.2.1.6	Maximum brake thermal energy capacity	[number] kJ	Y	Y	Y	Y	N

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			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles	
<b>4.7.3</b>	<b>Parking brake</b>	<b>Heading (no data)</b>					
4.7.3.3	Maximum gradient on which the unit is kept immobilised by the parking brake alone (if the vehicle is fitted with it)	[number] % (mm/m)	Y	Y	N	Y	N
4.7.3.4	Parking brake	[Boolean] Y/N	N	N	Y	N	N
<a href="#">4.7.3.5</a>	<a href="#">Minimum brake force</a>	[number] kN	<a href="#">N</a>	<a href="#">N</a>	<a href="#">Y</a>	<a href="#">N</a>	<a href="#">N</a>
<a href="#">4.7.3.6</a>	<a href="#">Maximum brake force</a>	[number] kN	<a href="#">N</a>	<a href="#">N</a>	<a href="#">Y</a>	<a href="#">N</a>	<a href="#">N</a>
<a href="#">4.7.3.7</a>	<a href="#">Breakover loading mass for maximum brake force</a>	[number] Kg	<a href="#">N</a>	<a href="#">N</a>	<a href="#">Y</a>	<a href="#">N</a>	<a href="#">N</a>
<a href="#">4.7.3.8</a>	<a href="#">Number of axles where the parking brake is applied</a>	[number]	<a href="#">N</a>	<a href="#">N</a>	<a href="#">Y</a>	<a href="#">N</a>	<a href="#">N</a>
<b>4.7.4</b>	<b>Braking systems fitted on the vehicle</b>	<b>Heading (no data)</b>					
<b>4.7.4.1</b>	<b>Eddy current brake</b>	<b>Heading (no data)</b>					
4.7.4.1.1	Eddy current track brake fitted	[Boolean] Y/N	Y	Y	N	Y	Y
4.7.4.1.2	Possibility of preventing the use of the eddy current track brake (only if fitted with eddy current track brake)	[Boolean] Y/N	Y	Y	N	Y	Y
<b>4.7.4.2</b>	<b>Magnetic brake</b>	<b>Heading (no data)</b>					
4.7.4.2.1	Magnetic track brake fitted	[Boolean] Y/N	Y	Y	N	Y	Y
4.7.4.2.2	Possibility of preventing the use of the magnetic track brake (only if	[Boolean] Y/N	Y	Y	N	Y	Y

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		1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
	fitted with (magnetic brake)						
<b>4.7.4.3</b>	<b>Regenerative brake (only for vehicles with electrical traction)</b>	<b>Heading (no data)</b>					
4.7.4.3.1	Regenerative brake fitted	[Boolean] Y/N	Y	N	N	Y	Y
4.7.4.3.2	Possibility of preventing the use of the regenerative brake (only if fitted with regenerative brake)	[Boolean] Y/N	Y	N	N	Y	Y
4.7.5	Emergency brake: Stopping distance and deceleration profile for each load condition per design maximum speed	[number] m [number] m/s <sup>2</sup>	Y	Y	N	Y	N
4.7.6	For general operation: Brake weight percentage (lambda) or Braked mass	Lambda (%) [number] tonnes	Y	Y	Y	Y	N
4.7.7	Service brake: At maximum service brake: Stopping distance, Maximum deceleration, for the load condition 'design mass under normal payload' at the design maximum speed.	[number] m [number] m/s <sup>2</sup>	Y	Y	Y	Y	N
4.7.8	Wheel slide protection system	[Boolean] Y/N	Y	Y	Y	Y	N
<b>4.8</b>	<b>Geometrical characteristics</b>	<b>Heading (no data)</b>					
4.8.1	Vehicle length	[number] m	Y	Y	N	Y	N

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			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles	
4.8.2	Minimum in-service wheel diameter	[number] mm	Y	Y	Y	Y	Y
4.8.4	Minimum horizontal curve radius capability	[number] m	Y	Y	N	Y	Y
4.8.5	Minimum vertical convex curve radius capability	[number] m	Y	Y	Y	Y	N
4.8.6	Minimum vertical concave curve radius capability	[number] m	Y	Y	Y	Y	N
<b>▼M1</b>							
<b>4.9</b>	<b>Equipment</b>	<b>Heading (no data)</b>					
4.9.1	Type of end coupling	[Character string] From a predefined list (multiple selection possible)	Y	Y	Y	Y	N
4.9.2	Axle bearing condition monitoring (hot axles box detection)	[Character string] From a predefined list (multiple selection possible)	Y	Y	Y	Y	Y
<b>4.10</b>	<b>Energy supply</b>	<b>Heading (no data)</b>					
4.10.1	Energy supply system (voltage and frequency)	[Character string] From a predefined list (multiple selection possible)	Y	Y	N	Y	Y
4.10.4	Maximum current at standstill per pantograph (to be indicated for each DC systems the vehicle is equipped for)	[Number] A for [Voltage automatically prefilled in]	Y	Y	N	Y	N
4.10.5	Height of interaction of pantograph with contact wires	[Number] From [m] to [m] (with two decimals)	Y	Y	N	Y	Y

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		1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
	(over top of rail) (to be indicated for each energy supply system the vehicle is equipped for)						
4.10.6	Pantograph head geometry (to be indicated for each energy supply system the vehicle is equipped for)	[Character string] for [energy supply system automatically prefilled in] From a predefined list (multiple selection possible)	Y	Y	N	Y	Y
4.10.7	Number of pantographs in contact with the overhead contact line (OCL) (to be indicated for each energy supply system the vehicle is equipped for)	[Number]	Y	Y	N	Y	Y
4.10.8	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)	[Number] [m]	Y	Y	N	Y	Y
4.10.10	Material of pantograph contact strip the vehicle may be equipped with (to be indicated for each energy	[Character string] for [energy supply system automatically prefilled in]	Y	Y	N	Y	Y



Parameter	Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of use	
		1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
	supply system the vehicle is equipped for)	From a predefined list (multiple selection possible)					
4.10.11	Automatic dropping device (ADD) fitted (to be indicated for each energy supply system the vehicle is equipped for)	[Boolean] Y/N	Y	Y	N	Y	Y
4.10.14	Electric units equipped with power or current limitation function	[Boolean] Y/N	Y	N	N	Y	Y
4.10.15	Mean contact force	[Number] [N]	Y	Y	N	Y	Y
<b>4.12</b>	<b>Passenger related characteristics</b>	<b>Heading (no data)</b>					
4.12.3.1	Platform heights for which the vehicle is designed.	[Number] from a predefined list (multiple selection possible)	Y	Y	N	N	Y
<b>4.13</b>	<b>On-board CCS equipment (for vehicles with a driving cab only)</b>	<b>Heading (no data)</b>					
<b>4.13.1</b>	<b>Signalling</b>	<b>Heading (no data)</b>					
4.13.1.1	ETCS equipment on-board and the set of specifications <a href="#">or supported system versions</a> from CCS TSI Annex A	[Character string] From a predefined list	Y	<del>N</del> Y	N	Y	Y
4.13.1.5	Class B or other train protection, control and warning systems installed (system and, if applicable, version)	[Character string] From a predefined list (more than one option possible)	Y	<del>N</del> Y	N	Y	Y

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of use
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles	
4.13.1.7	ETCS on-board implementation	[Character string]	Y	<del>N</del> Y	N	Y	<del>N</del> Y
4.13.1.8	ETCS System Compatibility	[Character string] From a predefined list (more than one option possible)	Y	<del>N</del> Y	N	Y	<del>Y</del> N
4.13.1.9	Managing information about the completeness of the train	[Boolean] Y/N	Y	<del>N</del> Y	N	Y	Y
<b>4.13.2</b>	<b>Radio</b>	<b>Heading (no data)</b>					
4.13.2.1	GSM-R Radio voice on board and its Baseline	[Character string] From a predefined list	Y	<del>N</del> Y	N	Y	Y
4.13.2.3	Class B or other radio systems installed (system and, if applicable, version)	[Character string] From a predefined list (more than one option possible)	Y	<del>N</del> Y	N	Y	Y
4.13.2.5	Radio Voice System Compatibility	[Character string] From a predefined list (more than one option possible)	Y	<del>N</del> Y	N	Y	<del>N</del> Y
4.13.2.6	<u>GSM-R</u> Voice and operational communication implementation	[Character string]	Y	<del>N</del> Y	N	Y	<del>Y</del> N
4.13.2.7	GSM-R Radio Data communication on board and its Baseline	[Character string] From a predefined list	Y	<del>N</del> Y	N	Y	Y
4.13.2.8	Radio Data System Compatibility	[Character string] From a predefined list (more than one option possible)	Y	<del>N</del> Y	N	Y	<del>N</del> Y
4.13.2.9	<u>GSM-R</u> Data communication application for ETCS and ATO implementation	[Character string]	Y	<del>N</del> Y	N	Y	<del>N</del> Y

Parameter	Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of use	
		1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles		
4.13.2.10	Voice SIM Card GSM-R Home Network	[Character string] From a predefined list	Y	<del>NY</del>	N	Y	<del>YN</del>
4.13.2.11	Data SIM Card GSM-R Home Network	[Character string] From a predefined list	Y	<del>NY</del>	N	Y	<del>YN</del>
4.13.2.12	<u>GSM-R</u> Voice SIM Card support of Group ID 555	[Boolean] Y/N	Y	<del>NY</del>	N	Y	<del>YN</del>
<del>4.13.2.13</del>	<del>FRMCS on-board and its Baseline</del>	<del>[Character string] From a predefined list</del>	<del>Y</del>	<del>N</del>	<del>N</del>	<del>Y</del>	<del>Y</del>
<del>4.13.2.14</del>	<del>FRMCS Voice and operational communication implementation</del>	<del>[Character string]</del>	<del>Y</del>	<del>N</del>	<del>N</del>	<del>Y</del>	<del>N</del>
<del>4.13.2.15</del>	<del>FRMCS Data communication for ETCS and ATO implementation</del>	<del>[Character string]</del>	<del>Y</del>	<del>N</del>	<del>N</del>	<del>Y</del>	<del>N</del>
<del>4.13.2.16</del>	<del>SIM Card FRMCS Home Network</del>	<del>[Character string] From a predefined list</del>	<del>Y</del>	<del>N</del>	<del>N</del>	<del>Y</del>	<del>Y</del>
<b>4.13.3</b>	<b>ATO</b>	<b>Heading (no data)</b>					
<a href="#">4.3.13.1</a>	<a href="#">On-board ATO system version</a>	[Character string] From a predefined list	Y	<del>NY</del>	N	Y	N
<a href="#">4.3.13.2</a>	<a href="#">On-board ATO implementation functional identifier</a>	[Character string]	Y	<del>NY</del>	N	Y	N
<a href="#">4.3.13.3</a>	<a href="#">On-board ATO communication system</a>	[Character string] From a predefined list	Y	<del>NY</del>	N	Y	N
<b>4.14</b>	<b>Compatibility with train detection systems</b>	<b>Heading (no data)</b>					
4.14.1	Type of train detection systems for which the vehicle has been designed and assessed	[Character string] From a predefined list (more than one option possible)	Y	Y	Y	Y	Y

Parameter		Data format	Applicability to vehicle categories (Yes, No, Optional, Open Point)				Parameters for technical compatibility between Vehicle and the network(s) of area of use
			1. Traction vehicles	2. Hauled passenger vehicles	3. Freight wagons	4. Special vehicles	
<a href="#">4.15</a>	<a href="#">Derailment detection and prevention functions</a>	<a href="#">Heading (no data)</a>					
<a href="#">4.15.1</a>	<a href="#">Presence of derailment prevention and detection devices</a>	<a href="#">[Boolean] Y/N</a>	<a href="#">N</a>	<a href="#">N</a>	<a href="#">Y</a>	<a href="#">N</a>	<a href="#">N</a>
<a href="#">4.15.2</a>	<a href="#">List of the prevention and detection functions available</a>	<a href="#">[Character string] From a predefined list (more than one option possible)</a>	<a href="#">N</a>	<a href="#">N</a>	<a href="#">Y</a>	<a href="#">N</a>	<a href="#">N</a>
<a href="#">4.15.3</a>	<a href="#">Available functions of prevention and detection signal processing</a>	<a href="#">[Character string] From a predefined list (more than one option possible)</a>	<a href="#">Y</a>	<a href="#">N</a>	<a href="#">N</a>	<a href="#">N</a>	<a href="#">N</a>

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