

## COMMISSION DECISION

of 21 October 2010

**amending Decisions 2006/920/EC and 2008/231/EC concerning the technical specifications of interoperability relating to the subsystem 'Traffic Operation and Management' of the trans-European conventional and high-speed rail systems**

*(notified under document C(2010) 7179)***(Text with EEA relevance)**

(2010/640/EU)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2008/57/EC of the European Parliament and of the Council of 17 June 2008 on the interoperability of the rail system within the Community <sup>(1)</sup>, and in particular Article 6(1) thereof,

Having regard to the recommendations of the European Railway Agency of 17 July 2009 on consistent ERTMS rules in Control-Command and Signalling and Traffic Operation and Management TSIs (ERA/REC/2009-02/INT), on revised Annex P of Traffic Operation and Management TSIs for high-speed and conventional rail (ERA/REC/2009-03/INT), on revised Annex T of Traffic Operation and Management TSI for conventional rail (ERA/REC/2009-04/INT) and on an amendment aiming to achieve consistency between Directive 2007/59/EC and Traffic Operation and Management TSIs in respect to train driver competence provisions (ERA/REC/2009-05/INT),

Whereas:

(1) Article 12 of Regulation (EC) No 881/2004 of the European Parliament and of the Council <sup>(2)</sup> requires that the European Rail Agency (hereinafter 'the Agency') shall ensure that the technical specifications for interoperability (hereinafter 'TSIs') are adapted to technical progress and market trends and to the social requirements and propose to the Commission the amendments to the TSIs which it considers necessary.

(2) By Decision C(2007) 3371 of 13 July 2007, the Commission gave a framework mandate to the Agency to perform certain activities under Council Directive

96/48/EC of 23 July 1996 on the interoperability of the trans-European high-speed rail system <sup>(3)</sup> and Directive 2001/16/EC of the European Parliament and the Council of 19 March 2001 on the interoperability of the trans-European conventional rail system <sup>(4)</sup>. Under the terms of this framework mandate, the Agency was requested to perform the revision of the conventional rail TSI on Traffic Operation and Management, adopted by Commission Decision 2006/920/EC <sup>(5)</sup>, and of the revised high-speed TSI on Traffic Operation and Management, adopted by Commission Decision 2008/231/EC <sup>(6)</sup>, as well as to provide technical opinions on critical errors and to publish a list of detected minor errors.

(3) A European Train Control System (hereinafter 'ETCS') and a Global System for Mobile communications — Railways (hereinafter 'GSM-R') are considered as important means on the way to a harmonised trans-European railway system. It is therefore necessary to harmonise the rules for these systems as early as possible. Following this principle, ETCS and GSM-R are specified in TSIs.

(4) It is vital that the requirements laid down in TSIs are coherent and unambiguous. This means also that different TSIs may not refer to technical requirements in different stages of development. All TSIs should therefore refer to identical technical requirements.

(5) In order to harmonise the relevant rules in the TSIs for the trans-European conventional and high-speed rail system, the rules regarding operational aspects should be published as a Technical Document on the website of the Agency.

<sup>(1)</sup> OJ L 191, 18.7.2008, p. 1.

<sup>(2)</sup> OJ L 164, 30.4.2004, p. 1.

<sup>(3)</sup> OJ L 235, 17.9.1996, p. 6.

<sup>(4)</sup> OJ L 110, 20.4.2001, p. 1.

<sup>(5)</sup> OJ L 359, 18.12.2006, p. 1.

<sup>(6)</sup> OJ L 84, 26.3.2008, p. 1.

- (6) The TSI on Traffic Operation and Management for conventional rail should contain the same reference as the revised TSI on Traffic Operation and Management for high speed.
- (7) The revision of the technical document 'Annex A of TSI OPE' should follow the 'Change Control Management process (CCM)' which is applied for validations of technical ERTMS specifications.
- (8) According to Article 32(1) of Directive 2008/57/EC, each vehicle must receive a European Vehicle Number (EVN) when the first authorisation for placing in service is granted. According to Commission Decision 2007/756/EC of 9 November 2007 adopting a common specification of the national vehicle register provided for under Articles 14(4) and (5) of Directives 96/48/EC and 2001/16/EC<sup>(1)</sup>, the EVN is registered in the national vehicle register which is kept and updated by the national body designated by the Member State concerned.
- (9) The requirements on Vehicle Identification stipulated in Annex P of the TSI on Traffic Operation and Management (for high speed and conventional rail) need to be revised, taking also into account the development of the legal frame given by Directive 2008/57/EC and Decision 2007/756/EC. As a number of technical codes are of an evolving nature due to technical progress, the Agency should be given the task of publishing and updating such lists of technical codes.
- (10) The requirements on braking performance are an open point in the TSI on Traffic Operation and Management for conventional rail. The operational aspects of braking performance should be harmonised.
- (11) Requirements on professional competence, physical and psychological fitness of train drivers are set out in Directive 2007/59/EC of the European Parliament and of the Council<sup>(2)</sup>. In order to avoid overlapping and duplication, the TSIs on Traffic Operation and Management should not include such requirements.
- (12) Decisions 2006/920/EC and 2008/231/EC should therefore be amended accordingly.
- (13) The measures provided for in this Decision are in accordance with the opinion of the Committee estab-

lished in accordance with Article 29(1) of Directive 2008/57/EC,

HAS ADOPTED THIS DECISION:

#### *Article 1*

#### **Amendment to Decision 2006/920/EC**

Decision 2006/920/EC is amended as follows:

- (a) the following Articles 1a and 1b are inserted:

#### *'Article 1a*

#### **Management of technical codes**

1. The European Railway Agency (ERA) shall publish on its website the lists of technical codes referred in Annexes P.9, P.10, P.11, P.12 and P.13.

2. The ERA shall keep the lists of codes referred to in paragraph 1 up to date and inform the Commission of their evolution. The Commission shall inform the Member States of the evolution of these technical codes through the Committee established under Article 29 of Directive 2008/57/EC.

#### *Article 1b*

Until 31 December 2013, if a vehicle is sold or rented for a continuous period exceeding 6 months and if all technical characteristics under which the vehicle has been authorised to be placed in service remain unchanged, its European Vehicle Number (EVN) may be changed through a new registration of the vehicle and withdrawal of the first registration.

If this new registration concerns a Member State which is different from that of the first registration, the registering entity competent for the new registration may require a copy of the documentation related to the former registration.

Such change of EVN is without prejudice to the application of Articles 21 to 26 of Directive 2008/57/EC as far as the authorisation procedures are concerned.

The administrative costs incurred to change the EVN shall be covered by the applicant requesting the change of EVN.;

- (b) the Annexes are amended as set out in Annex I.

<sup>(1)</sup> OJ L 305, 23.11.2007, p. 30.

<sup>(2)</sup> OJ L 315, 3.12.2007, p. 51.

*Article 2***Amendment to Decision 2008/231/EC**

Decision 2008/231/EC is amended as follows:

(a) the following Articles 1a and 1b are inserted:

*Article 1a***Management of technical codes**

1. The European Railway Agency (ERA) shall publish on its website the lists of technical codes referred in Annexes P.9, P.10, P.11, P.12 and P.13.

2. The ERA shall keep the lists of codes referred to in paragraph 1 up to date and inform the Commission of their evolution. The Commission shall inform the Member States of the evolution of these technical codes through the Committee established under Article 29 of Directive 2008/57/EC.

*Article 1b*

Until 31 December 2013, if a vehicle is sold or rented for a continuous period exceeding 6 months and if all technical characteristics under which the vehicle has been authorised to be placed in service remain unchanged, its European Vehicle Number (EVN) may be changed through a new registration of the vehicle and withdrawal of the first registration.

If this new registration concerns a Member State which is different from that of the first registration, the registering

entity competent for the new registration may require a copy of the documentation related to the former registration.

Such change of EVN is without prejudice to the application of Articles 21 to 26 of Directive 2008/57/EC as far as the authorisation procedures are concerned.

The administrative costs incurred to change the EVN shall be covered by the applicant requesting the change of EVN.;

(b) the Annexes are amended as set out in Annex II.

*Article 3*

This Decision shall apply from 25 October 2010.

However point 6 of Annex I and point 5 of Annex II shall apply from 1 January 2014.

*Article 4*

This Decision is addressed to the Member States.

Done at Brussels, 21 October 2010.

*For the Commission*

Siim KALLAS

*Vice-President*

## ANNEX I

The Annexes to Decision 2006/920/EC are amended as follows:

(1) the Annex is amended as follows:

(a) Section 2.2.1 is replaced by the following:

**‘2.2.1. STAFF AND TRAINS**

Sections 4.6 and 4.7 apply to those staff undertaking the safety critical tasks of accompanying a train, when this involves crossing a border(s) between states and working beyond any location(s) designated as the “frontier” in the Network Statement of an Infrastructure Manager and included in its safety authorisation.

Section “4.6.2 Linguistic Competency” applies additionally to train drivers as stipulated by Annex VI point 8 of Directive 2007/59/EC.

A staff member will not be considered as crossing a border if the activity only involves working as far as any “frontier” locations as described in the first paragraph of this section.

For those staff undertaking the safety critical tasks of despatching trains and authorising train movements, mutual recognition of professional qualifications and health and safety conditions between Member States will apply.

For those staff undertaking the safety critical tasks associated with the last preparation of a train before it is scheduled to cross a border(s) and work beyond any “frontier” location(s) as described in the first paragraph of this section, subsection 4.6 will apply with mutual recognition between Member States of health and safety conditions. A train will not be considered to be a cross border service, if all the vehicles of the train crossing the state border cross it only to the “frontier” location(s) as described in the first paragraph of this section.

This can be summarised in the following tables:

**Staff involved with the working of trains that will cross state borders and proceed beyond the frontier location**

Task	Professional Qualifications	Medical Requirements
Accompanying a train	4.6	4.7
Authorising Train Movements	Mutual recognition	Mutual recognition
Train Preparation	4.6	Mutual recognition
Train Despatch	Mutual recognition	Mutual recognition

**Staff working trains that do not cross state borders or do so as far as frontier locations**

Task	Professional Qualifications	Medical Requirements
Accompanying a train	Mutual recognition	Mutual recognition
Authorising Train Movements	Mutual recognition	Mutual recognition
Train Preparation	Mutual recognition	Mutual recognition
Train Despatch	Mutual recognition	Mutual recognition

(b) in Section 2.2.2, the fourth paragraph is replaced by the following:

‘Subsequently, detailed operating rules for the European Train Control System (ETCS) and the Global System for Mobile communication — Railways (GSM-R) are now specified in Annex A to this TSI’;

- (c) Section 4.2.2.6.2 is replaced by the following:

**‘4.2.2.6.2. Braking performance**

The Infrastructure Manager (IM) must provide the Railway Undertaking RU with the actual performance required. This data shall include, if necessary, the conditions of use of braking systems possibly affecting the infrastructure such as magnetic, regenerative and eddy-current brake.

The Railway Undertaking is responsible for ensuring that the train has sufficient braking performance by providing braking rules for its staff to be followed.

The rules concerning braking performance have to be managed within the IM's and RU's Safety Management System.

Further requirements are specified in Annex T.;

- (d) Section 4.3.2.6 is replaced by the following:

**‘4.3.2.6. Use of sanding. Minimum elements relevant to professional qualifications for the task of driving a train**

An interface exists between Annex B (Section C1) of this TSI on one hand, and subsection 4.2.11 (compatibility with track-side Train Detection Systems) and point 4.1 of appendix 1 of Annex A (as quoted in subsection 4.3.1.10) of the CR CCS TSI on the other hand, in respect to the use of sanding.;

- (e) Section 4.3.3.11 is replaced by the following:

**‘4.3.3.11. Train composition, Annex L**

There is an interface between subsection 4.2.2.5 and Annex L of this TSI and subsection 4.2.3.5 (Longitudinal compressive forces) of the CR RST (Freight Wagons) TSI in respect to running trains, train handling and distribution of vehicles in the train.

There will be an interface with future versions of the RST TSI when it deals with traction units and passenger vehicles.;

- (f) the last sentence of Section 4.6.1 is replaced by the following:

‘Minimum elements relevant to professional qualifications for individual tasks can be found in annexes J and L.;

- (g) points C and D of Section 4.6.3.1 are replaced by the following:

**‘C Initial assessment**

- basic conditions
- assessment programme, including practical demonstration
- qualification of the trainers
- issue of a certificate of competency

**D Competency retention**

- principles for retention of competency
- methods to be followed
- formalisation of the competency retention process
- assessment process.;

- (h) Section 4.6.3.2.3.1 is replaced by the following:

**‘4.6.3.2.3.1. Route knowledge**

The Railway Undertaking must define the process by which the train crew's knowledge of the routes worked over is acquired and maintained. This process must be:

- based upon the route information provided by the Infrastructure Manager, and

— in accordance with the process described in subsection 4.2.1 of this TSI;

(i) Section 4.7.5.4 is deleted;

(j) Section 4.7.6 is deleted;

(k) Section 7.3.2 is replaced by the following:

‘7.3.2 LIST OF SPECIFIC CASES

Left intentionally blank’;

(2) Annex A1 and Annex A2 are replaced by the following Annex A:

‘ANNEX A

### ERTMS/ETCS AND ERTMS/GSM-R OPERATING RULES

The operating rules for ERTMS/ETCS and ERTMS/GSM-R are specified in the Technical Document “ETCS and GSM-R rules and principles — version 1” published on the ERA website ([www.era.europa.eu](http://www.era.europa.eu)).

(3) in Annex G, the table is amended as follows:

(a) for the parameter ‘Health and safety conditions’, in the column ‘Elements to be verified for each parameter’, the item ‘pregnancy (drivers)’ is deleted;

(b) for the parameter ‘Health and safety conditions’, the line including ‘Special requirements for drivers: vision, hearing/speaking requirements, anthropometrics’ is deleted, together with the reference to Section 4.7.6;

(4) Annex H is deleted;

(5) in Annex N, the last line of the table (4.7.6 — Specific Requirements regarding the task of driving a train) is deleted;

(6) Annexes P, P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12 and P13 are replaced by the following:

‘ANNEX P

### VEHICLE IDENTIFICATION

#### 1. General remarks

This Annex describes the European Vehicle Number and linked marking applied in a visible manner on the vehicle to identify it uniquely and in a permanent manner during operation. It does not describe other numbers or markings eventually engraved or fixed in a permanent manner on the chassis or the main components of the vehicle during its construction.

#### 2. European Vehicle number and linked abbreviations

Each railway vehicle receives a number consisting of 12 figures (called European Vehicle Number (EVN)) with the following structure:

Rolling stock group	Interoperability capability and vehicle type [2 figures]	Country in which the vehicle is registered [2 figures]	Technical characteristics [4 figures]	Serial number [3 figures]	Check digit [1 figure]
Wagons	00 to 09 10 to 19 20 to 29 30 to 39 40 to 49 80 to 89 [details in Annex P.6]	01 to 99 [details in Annex P.4]	0000 to 9999 [details in Annex P.9]	000 to 999	0 to 9 [details in Annex P.3]
Hauled passenger vehicles	50 to 59 60 to 69 70 to 79 [details in Annex P.7]		0000 to 9999 [details in Annex P.10]	000 to 999	

Rolling stock group	Interoperability capability and vehicle type [2 figures]	Country in which the vehicle is registered [2 figures]	Technical characteristics [4 figures]	Serial number [3 figures]	Check digit [1 figure]
Tractive rolling stock and units in a trainset in fixed or pre-defined formation	90 to 99 [details in Annex P.8]		0000000 to 8999999 [the meaning of these figures is defined by the Member States, eventually by bilateral or multilateral agreement]		
Special vehicles			9000 to 9999 [details in Annex P.11]	000 to 999	

In a given country, the 7 digits of technical characteristics and serial number are sufficient to identify uniquely a vehicle inside the groups of hauled passenger vehicles and special vehicles <sup>(1)</sup>.

Alphabetical markings complete the number:

- (a) markings linked to the interoperability ability (details in Annex P.5);
- (b) abbreviation of the country in which the vehicle is registered (details in Annex P.4);
- (c) Vehicle Keeper Marking (details in Annex P.1);
- (d) abbreviations of the technical characteristics (details in Annex P.12 for the wagons, Annex P.13 for the hauled passenger vehicles).

### 3. Allocation of number

The European Vehicle Number has to be allocated according to the rules laid down in Commission Decision 2007/756/EC of 9 November 2007 adopting a common specification of the national vehicle register provided for under Articles 14(4) and (5) of Directives 96/48/EC and 2001/16/EC.

The European Vehicle Number shall be changed when it does not reflect the interoperability capability or technical characteristics according to this Annex due to technical modifications of the vehicle. Such technical modifications may require a new authorisation for placing in service according to Articles 20-25 of Interoperability Directive 2008/57/EC.

## ANNEX P.1

### VEHICLE KEEPER MARKING

#### 1. Definition of the Vehicle Keeper Marking (VKM)

A Vehicle Keeper Marking (VKM) is an alphabetic code, consisting of 2 to 5 letters <sup>(2)</sup>. A VKM is inscribed on each rail vehicle, near the European Vehicle Number. The VKM identifies the Vehicle Keeper as registered in a National Vehicle Register.

A VKM is unique and valid in all countries covered by this TSI and all countries that enter into an agreement that involves the application of the system of vehicle numbering and Vehicle Keeper Marking as described in this TSI.

#### 2. Format of the Vehicle Keeper Marking

The VKM is representation of the full name or abbreviation of the vehicle keeper, if possible in a recognisable manner. All 26 letters of the Latin alphabet may be used. The letters in the VKM are written in capitals. Letters that do not stand for first letters of words in the keeper's name may be written in lower case. For checking uniqueness, the letters written in lower case will be taken as written in capitals.

Letters may contain diacritical signs <sup>(3)</sup>. Diacritical signs used by these letters are ignored for checking uniqueness.

<sup>(1)</sup> For special vehicles, the number has to be unique in a given country with the first digit and the 5 last digits of the technical characteristics and serial number.

<sup>(2)</sup> For NMBS/SNCB, the use of an encircled single letter B can be continued.

<sup>(3)</sup> Diacritical marks are "accent-signs", such as in Å, Ç, Ö, Ć, Ž, Å etc. Special letters such as Ø and Æ will be represented by a single letter; in tests for uniqueness Ø is treated as O and Æ as A.

For vehicles kept by keepers that reside in a country that does not use the Latin alphabet, a translation of the VKM in its own alphabet may be applied behind the VKM separated from it by a slash-sign ("/"). This translated VKM is disregarded for data-processing purposes.

### 3. Provisions about allocation of Vehicle Keeper Markings

A vehicle keeper can be issued more than one VKM, in case:

- the vehicle keeper has a formal name in more than one language,
- a vehicle keeper has good cause to distinguish between separate vehicle fleets within his organisation.

A single VKM can be issued for a group of companies:

- that belong to single corporate structure (e.g. holding structure),
- that belong to a single corporate structure that has appointed and mandated one organisation within this structure to handle all issues on behalf of all others,
- that has mandated a separate, single legal entity for handling all issues on their behalf, in which event the legal entity is the keeper.

### 4. Register of Vehicle Keeper Markings and procedure for allocation

The register of VKM is public and updated on a real time basis.

An application for a VKM is filed with the applicant's competent national authority and forwarded to the ERA. A VKM can be used only after publication by the ERA.

The holder of a VKM must inform the competent national authority when he ends the use of a VKM, and the competent national authority will forward the information to the ERA. A VKM will then be revoked once the keeper has proved that the marking has been changed on all vehicles concerned. It will not be reissued for 10 years, unless it is reissued to the original holder or at his request to another holder.

A VKM can be transferred to another holder, which is the legal successor to the original holder. A VKM stays valid when the VKM's holder changes his name to a name that does not bear resemblance to the VKM.

## ANNEX P.2

### INSCRIPTION OF THE NUMBER AND LINKED ALPHABETICAL MARKING ON THE BODYWORK

#### 1. General arrangements for external markings

The capital letters and figures making up the marking inscriptions shall be at least 80 mm in height, in a sans serif font type of correspondence quality. A smaller height may only be used where there is no option but to place the marking on the sole bars.

The marking is put not higher than 2 metres above rail level.

#### 2. Wagons

The marking shall be inscribed on the wagon bodywork in the following manner:

23	TEN	31	TEN	33	TEN
80	<u>D</u> -RFC	80	<u>D</u> -DB	84	<u>NL</u> -ACTS
7369	553-4	0691	235-2	4796	100-8
Zcs		Tanoos		Slpss	



For wagons whose bodywork does not offer a large enough area for this type of arrangement, particularly in the case of flat wagons, the marking shall be arranged as follows:

01 87 3320 644-7

TEN E-SNCF Ks

When one or more index letters with a national definition are inscribed on a wagon, this national marking must be shown after the international letter marking and separated from it by a hyphen as follows:

01 87 3320 644-7

TEN E-SNCF Ks-xy

### 3. Coaches and hauled passenger stock

The number shall be applied to each sidewall of the vehicle in the following manner:

E-SNCF 61 87 20 - 72 021 - 7

B<sup>10</sup> tu

The marking of the country in which the vehicle is registered and of the technical characteristics are printed directly in front of, behind or under the European Vehicle number.

In case of coaches with driver's cabin, the European Vehicle number is also written inside the cabin.

### 4. Locomotives, power cars and special vehicles

The European Vehicle Number must be marked on each sidewall of the tractive stock in the following manner:

92 10 1108 062-6

The European Vehicle Number is also written inside each cabin of the tractive rolling stock.

The keeper can add, in letters of larger size than the European Vehicle Number, an own number marking (consisting generally of digits of the serial number supplemented by alphabetical coding) useful in operations. The place where the own number is marked is left to the choice of the keeper; however it must always be possible to identify easily the EVN from the keeper's own number marking.

## ANNEX P.3

### RULES FOR THE DETERMINATION OF THE CHECK-DIGIT (DIGIT 12)

The check-digit is determined in the following manner:

- the digits in the even positions of the basic number (counting from the right) are taken at their own decimal value,
- the digits in the odd positions of the basic number (counting from the right) are multiplied by 2,
- the sum formed by the digits in even position and by all the digits which constitute the partial products obtained from the odd positions is then established,
- the units digit of this sum is retained,
- the complement required to bring the units digit to 10 forms the check-digit; should this units digit be nought, then the check-digit will also be nought.

**Examples**

1 — Let the basic number be	3	3	8	4	4	7	9	6	1	0	0
Multiplication factor	2	1	2	1	2	1	2	1	2	1	2
	6	3	16	4	8	7	18	6	2	0	0

Sum:  $6 + 3 + 1 + 6 + 4 + 8 + 7 + 1 + 8 + 6 + 2 + 0 + 0 = 52$

The units digit of this sum is 2.

The check-digit number will therefore be 8 and the basic number thus becomes the registration number 33 84 4796 100 - 8.

2 — Let the basic number be	3	1	5	1	3	3	2	0	1	9	8
Multiplication factor	2	1	2	1	2	1	2	1	2	1	2
	6	1	10	1	6	3	4	0	2	9	16

Sum:  $6 + 1 + 1 + 0 + 1 + 6 + 3 + 4 + 0 + 2 + 9 + 1 + 6 = 40$

The units digit of this sum is 0.

The check-digit number will therefore be 0 and the basic number thus becomes the registration number 31 51 3320 198 - 0.

---

**ANNEX P.4**
**CODING OF THE COUNTRIES IN WHICH THE VEHICLES ARE REGISTERED (DIGITS 3-4 AND ABBREVIATION)**

The Information relating to third countries is given for information purposes only.

Countries	Alphabetical country code <sup>(1)</sup>	Numerical country code	Countries	Alphabetical country code <sup>(1)</sup>	Numerical country code
Albania	AL	41	Egypt	ET	90
Algeria	DZ	92	Estonia	EST	26
Armenia	AM	58	Finland	FIN	10
Austria	A	81	France	F	87
Azerbaijan	AZ	57	Georgia	GE	28
Belarus	BY	21	Germany	D	80
Belgium	B	88	Greece	GR	73
Bosnia-Herzegovina	BIH	49	Hungary	H	55
Bulgaria	BG	52	Iran	IR	96
China	RC	33	Iraq	IRQ <sup>(1)</sup>	99
Croatia	HR	78	Ireland	IRL	60
Cuba	CU <sup>(1)</sup>	40	Israel	IL	95
Cyprus	CY		Italy	I	83
Czech Republic	CZ	54	Japan	J	42
Denmark	DK	86	Kazakhstan	KZ	27

Countries	Alphabetical country code <sup>(1)</sup>	Numerical country code	Countries	Alphabetical country code <sup>(1)</sup>	Numerical country code
Kyrgyzstan	KS	59	Romania	RO	53
Latvia	LV	25	Russia	RUS	20
Lebanon	RL	98	Serbia	SRB	72
Liechtenstein	FL		Slovakia	SK	56
Lithuania	LT	24	Slovenia	SLO	79
Luxembourg	L	82	South Korea	ROK	61
Macedonia	MK	65	Spain	E	71
Malta	M		Sweden	SE	74
Moldova	MD <sup>(1)</sup>	23	Switzerland	CH	85
Monaco	MC		Syria	SYR	97
Mongolia	MGL	31	Tajikistan	TJ	66
Montenegro	ME	62	Tunisia	TN	91
Morocco	MA	93	Turkey	TR	75
Netherlands	NL	84	Turkmenistan	TM	67
North Korea	PRK <sup>(1)</sup>	30	Ukraine	UA	22
Norway	N	76	United Kingdom	GB	70
Poland	PL	51	Uzbekistan	UZ	29
Portugal	P	94	Vietnam	VN <sup>(1)</sup>	32

<sup>(1)</sup> According to the alphabetical coding system described in Appendix 4 to the 1949 convention and Article 45(4) of the 1968 convention on road traffic.

#### ANNEX P.5

#### ALPHABETICAL MARKING OF THE INTEROPERABILITY CAPABILITY

“TEN”: Vehicle which complies with the following conditions:

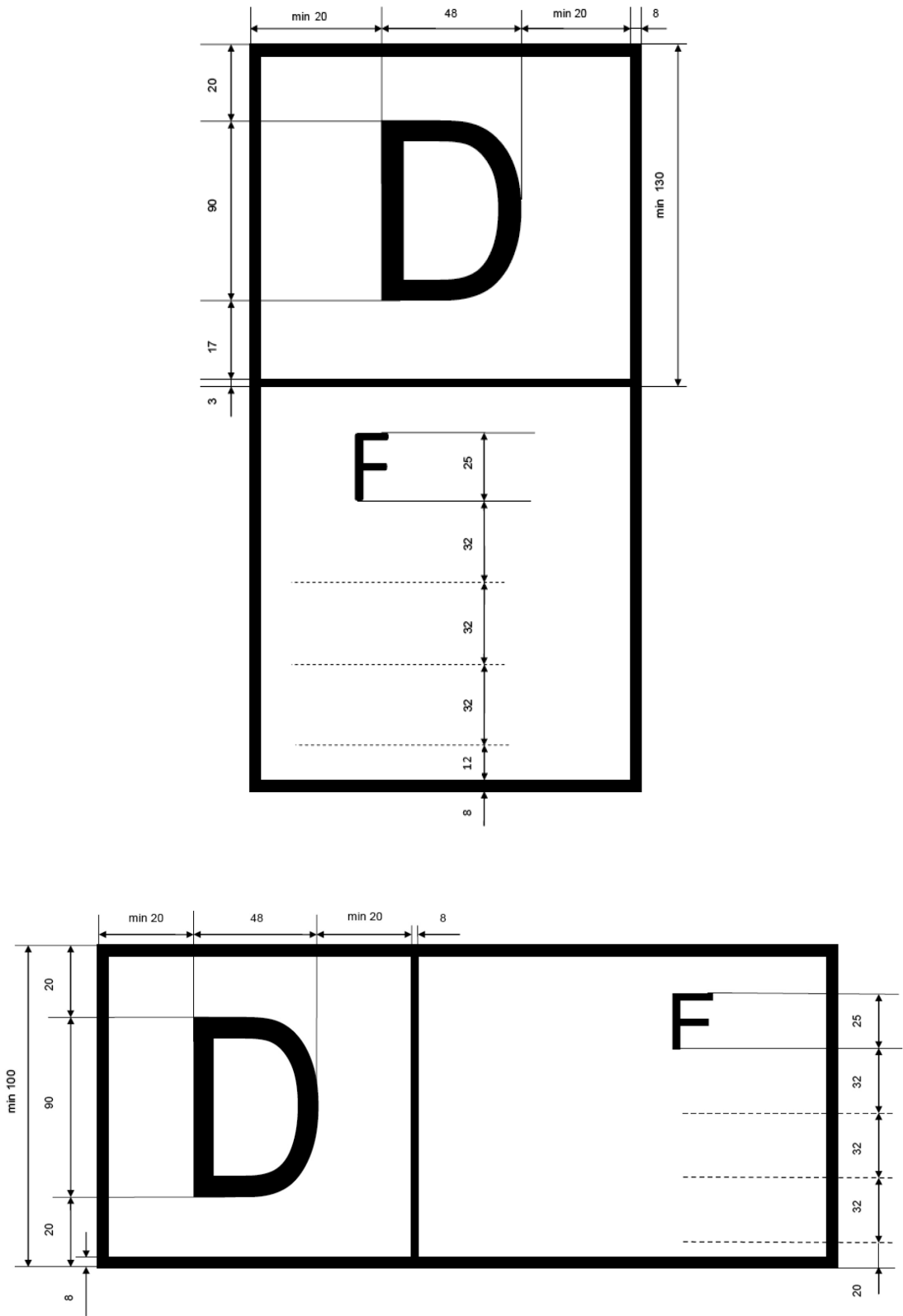
- it complies with all relevant TSIs which are in force at the moment of placing in service and has been authorised to be placed in service according to Article 22(1) of Directive 2008/57/EC;
- it is provided with an authorisation valid in all Member States in accordance with Article 23(1) of Directive 2008/57/EC, or, as an alternative, it has received individual authorisations by all Member States.

“PPV/PPW”: Vehicle which complies with PPV/PPW or PGW agreement (inside OSJD States)

(original: PPV/PPW: ППВ (Правила пользования вагонами в международном сообщении; PGW: Правила Пользования Грузовыми Вагонами)

Notes:

- Vehicles marked TEN correspond to coding 0 to 3 of the first digit in the vehicle number specified in Annex P.6.
- Vehicles which are not authorised for operation in all Member States need a marking indicating the Member States where they have been authorised. The list of authorising MS should be marked according to one of the following drawings, where D stands for the MS who has granted the first authorisation (in the given example, Germany) and F stands for the second authorising MS (in the given example, France). The MS are codified in accordance with Annex P.4. This may cover vehicles which are TSI compliant or which are not. These vehicles correspond to coding 4 or 8 of the first digit in the vehicle number specified in Annex P.6.



## INTEROPERABILITY CODES USED FOR WAGONS (DIGITS 1-2)

	2 <sup>nd</sup> digit		0	1	2	3	4	5	6	7	8	9	2 <sup>nd</sup> digit	1 <sup>st</sup> digit
	1 <sup>st</sup> digit	Track Gauge	fixed or variable	fixed	variable	fixed	variable	fixed	variable	fixed	variable	fixed or variable	Track Gauge	
TEN <sup>(a)</sup> and/or COTIF <sup>(b)</sup> and/or PPV/PPW	0	with axles	Not to be used	TEN <sup>(a)</sup> and/or COTIF wagons		not to be used <sup>(d)</sup>						PPV/PPW wagons (variable gauge)	with axles	0
	1	with bogies											with bogies	1
TEN <sup>(a)</sup> and/or COTIF <sup>(b)</sup> and/or PPV/PPW	2	with axles		TEN <sup>(a)</sup> and/or COTIF wagons						PPV/PPW wagons (fixed gauge)	with axles	2		
	3	with bogies									with bogies	3		
Other wagons	4	with axles <sup>(c)</sup>	maintenance related wagons	Other wagons						Wagons with special numbering for technical characteristics not placed in service inside EU	with axles	4		
	8	with bogies <sup>(c)</sup>									with bogies	8		
		Traffic	Domestic traffic or international traffic by special agreement											
	1 <sup>st</sup> digit	2 <sup>nd</sup> digit	0	1	2	3	4	5	6	7	8	9	2 <sup>nd</sup> digit	1 <sup>st</sup> digit

<sup>(a)</sup> Wagons permitted to carry the marking TEN, see Annex P.5.

<sup>(b)</sup> Including wagons, which according to existing regulations carry the digits defined in the present table. COTIF: vehicle compliant with COTIF regulation in force at the moment of placing in service.

<sup>(c)</sup> Fixed or variable gauge.

<sup>(d)</sup> Excepted for wagons in category I (temperature-controlled wagons), not to be used for new vehicles placed in service.

## INTERNATIONAL TRAFFIC ABILITY CODES USED FOR HAULED PASSENGER VEHICLES (DIGITS 1-2)

	Domestic traffic	TEN <sup>(a)</sup> and/or COTIF <sup>(b)</sup> and/or PPV/PPW				Domestic traffic or international traffic by special agreement	TEN <sup>(a)</sup> and/or COTIF <sup>(b)</sup>	PPV/PPW		
2 <sup>nd</sup> digit 1 <sup>st</sup> digit	0	1	2	3	4	5	6	7	8	9
5	Vehicles for domestic traffic	Fixed-gauge non air-conditioned vehicles (including car-carrying wagons)	Gauge-adjustable (1435/1520) non air-conditioned vehicles	Not to be used	Gauge-adjustable (1435/1668) non air-conditioned vehicles	Historical vehicles	Not to be used <sup>(c)</sup>	Fixed-gauge vehicles	Gauge-adjustable (1435/1520) vehicles with change bogies of	Gauge-adjustable (1435/1520) vehicles with gauge-adjustable axles
6	Service vehicles	Fixed-gauge air-conditioned vehicles	Gauge-adjustable (1435/1520) air-conditioned vehicles	Service vehicles	Gauge-adjustable (1435/1668) air-conditioned vehicles	Car-carrying wagons	Not to be used <sup>(c)</sup>			
7	Air-conditioned and pressure-tight vehicles	Not to be used	Not to be used	Pressure-tight fixed-gauge air-conditioned vehicles	Not to be used	Other vehicles	Not to be used	Not to be used	Not to be used	Not to be used

<sup>(a)</sup> Compliance with the applicable TSIs, see Annex P.5.

<sup>(b)</sup> Including vehicles, which according to existing regulations carry the digits defined in the present table. COTIF: vehicle compliant with COTIF regulation in force at the moment of placing in service.

<sup>(c)</sup> Excepted for coaches with fixed gauge (56) and adjustable gauge (66) already in service, not to be used for new vehicles.

## ANNEX P.8

**TYPES OF TRACTIVE ROLLING STOCK AND UNITS IN A TRAINSET IN FIXED OR PRE-DEFINED FORMATION (DIGITS 1-2)**

The first digit is “9”.

If the second digit describes the type of tractive stock, following coding is mandatory:

Code	General vehicle type
0	Miscellaneous
1	Electric locomotive
2	Diesel locomotive
3	Electric multiple-unit set (high speed) [power car or trailer]
4	Electric multiple-unit set (except high speed) [power car or trailer]
5	Diesel multiple-unit set [power car or trailer]
6	Specialised trailer,
7	Electric shunting engine
8	Diesel shunting engine
9	Special vehicle

## ANNEX P.9

**STANDARD NUMERICAL MARKING OF WAGONS (DIGITS 5 TO 8)**

This Annex indicates the numerical marking associated to the main technical characteristics of the wagon and it is published on the ERA website ([www.era.europa.eu](http://www.era.europa.eu)).

An application for a new code is filed with the registering entity (as referred to in Decision 2007/756/EC) and sent to the ERA. A new code can be used only after publication by the ERA.

## ANNEX P.10

**CODES FOR THE TECHNICAL CHARACTERISTICS OF THE HAULED PASSENGER STOCK (DIGITS 5-6)**

Annex P.10 is published on the ERA website ([www.era.europa.eu](http://www.era.europa.eu)).

An application for a new code is filed with the registering entity (as referred to in Decision 2007/756/EC) and sent to the ERA. A new code can be used only after publication by the ERA.

## ANNEX P.11

**CODES FOR THE TECHNICAL CHARACTERISTICS OF THE SPECIAL VEHICLES (DIGIT 6 TO 8)**

Annex P.11 is published on the ERA website ([www.era.europa.eu](http://www.era.europa.eu)).

An application for a new code is filed with the registering entity (as referred to in Decision 2007/756/EC) and sent to the ERA. A new code can be used only after publication by the ERA.

## ANNEX P.12

**LETTER MARKING FOR WAGONS EXCLUDING ARTICULATED AND MULTIPLE WAGONS**

Annex P.12 is published on the ERA website ([www.era.europa.eu](http://www.era.europa.eu)).

An application for a new code is filed with the registering entity (as referred to in Decision 2007/756/EC) and sent to the ERA. A new code can be used only after publication by the ERA.

## ANNEX P.13

**LETTER MARKING FOR HAULED PASSENGER STOCK**

Annex P.13 is published on the ERA website ([www.era.europa.eu](http://www.era.europa.eu)).

An application for a new code is filed with the registering entity (as referred to in Decision 2007/756/EC) and sent to the ERA. A new code can be used only after publication by the ERA.;

- (7) Annex P14 is repealed;
- (8) Annex T is replaced by the following:

‘ANNEX T

**BRAKING PERFORMANCE****IM's role**

The IM shall inform the RU about the braking performance required for each route and has to provide information about the route characteristics. The IM has to ensure that the impact of the route characteristics and track-side related margins are included in the required braking performance.

The required braking performance shall in principle be expressed in brake weight percentage unless the IM and RU have agreed on another unit to express the braking performance (e.g. braked tonnes, brake forces, deceleration values, deceleration profiles).

For train sets and fixed train compositions the IM shall deliver the braking performance requirements in deceleration values if so requested by the RU.

**RU's role**

The RU shall ensure that each train satisfies or exceeds the braking performance required by the IM. Therefore the RU shall calculate the braking performance of a train taking into account the train composition.

The RU must take into account the vehicle or train set braking performance determined when placed in service. Rolling Stock-related margins like reliability and availability of the brakes have to be considered. The RU must also take into account the information about route characteristics which affect the train behaviour when tuning the braking performance for stopping and securing a train.

The braking performance resulting from the checking of the actual train (like train composition, brake availability, brake settings) will be used as an input value for any operational rule to be subsequently applied to the train.

**Braking performance not achieved**

The IM has to set up rules to be used if a train does not reach the required braking performance and has to make these rules available to the RUs.

If a train does not reach the braking performance required for the routes the train shall run, the RU has to respect the resulting constraints like speed restriction.’



(9) Annex U is replaced by the following:

‘ANNEX U

**LIST OF OPEN POINTS**

Section 4.2.2 — Train Composition Document

Annex B (see subsection 4.4 of this TSI) — Other rules enabling a coherent operation of the new different structural subsystems

Annex R (see subsection 4.2.3.2 of this TSI) — Identification of trains

Annex S (see subsection 4.2.2.1.3 of this TSI) — Train Visibility — Rear End’

\_\_\_\_\_

## ANNEX II

The Annexes to Decision 2008/231/EC are amended as follows:

(1) the Annex is amended as follows:

(a) Section 2.2.1 is replaced by the following:

**‘2.2.1. Staff and trains**

Sections 4.6 and 4.7 apply to those staff undertaking the safety critical tasks of accompanying a train, when this involves crossing a border(s) between states and working beyond any location(s) designated as the “frontier” in the Network Statement of an Infrastructure Manager and included in his safety authorisation.

Section “4.6.2 Linguistic Competence” applies additionally to train drivers as stipulated by Annex VI point 8 of Directive 2007/59/EC.

A staff member will not be considered as crossing a border if the activity only involves working as far as any “frontier” locations as described in the first paragraph of this section.

For those staff undertaking the safety critical tasks of despatching trains and authorising train movements, mutual recognition of professional qualifications and health and safety conditions between Member States will apply.

For those staff undertaking the safety critical tasks associated with the last preparation of a train before it is scheduled to cross a border(s) and work beyond any “frontier” location(s) as described in the first paragraph of this section, subsection 4.6 will apply with mutual recognition between Member States of health and safety conditions. A train will not be considered to be a cross border service, if all the vehicles of the train crossing the state border cross it only to the “frontier” location(s) as described in the first paragraph of this section.

This can be summarised in the following tables:

**Staff involved with the working of trains that will cross-state borders and proceed beyond the frontier location**

Task	Professional Qualifications	Medical Requirements
Accompanying a train	4.6	4.7
Authorising Train Movements	Mutual recognition	Mutual recognition
Train Preparation	4.6	Mutual recognition
Train Despatch	Mutual recognition	Mutual recognition

**Staff working trains that do not cross state borders or do so as far as frontier locations**

Task	Professional Qualifications	Medical Requirements
Accompanying a train	Mutual recognition	Mutual recognition
Authorising Train Movements	Mutual recognition	Mutual recognition
Train Preparation	Mutual recognition	Mutual recognition
Train Despatch	Mutual recognition	Mutual recognition’

(b) in Section 4.2.2.1.2, the last sentence is replaced by the following:

‘The detailed specification can be found in subsection 4.3.3.3.1.’;

(c) Section 4.3.2.6 is replaced by the following:

‘4.3.2.6. Use of sanding. Minimum elements relevant to professional qualifications for the task of driving a train  
An interface exists between Annex B (Section C1) of this TSI on one hand, and subsection 4.2.11 (compatibility with track-side Train Detection Systems) and Section 4.1 of appendix 1 of Annex A (as quoted in subsection 4.3.1.10) of the HS CCS TSI on the other hand, in respect to the use of sanding.’;

(d) Section 4.3.3.2 is replaced by the following:

‘4.3.3.2. Requirements for passenger vehicles  
Interfaces exists between subsection 4.2.2.4 of this OPE TSI and subsections 4.2.2.4 (doors), 4.2.5.3 (alarms), 4.3.5.17 (passenger alarm) and 4.2.7.1 (emergency exits) of the HS RST TSI.’;

(e) Section 4.3.3.9 is replaced by the following:

‘4.3.3.9. Sanding  
An interface exists between Annex B (Section C1) of this TSI on one hand, and subsection 4.2.3.10 the HS RST TSI on the other hand, in respect to the use of sanding.’;

(f) Section 4.3.3.10 is replaced by the following:

‘4.3.3.10. Train composition, Annex J  
There is an interface between subsection 4.2.2.5 and Annex J of this TSI and subsection 4.2.1.2 (design of train) and 4.2.7.10 (Monitoring and diagnostic concept) of the HS RST TSI in respect to train crew knowledge of rolling stock functionality.’;

(g) Section 4.3.3.12 is replaced by the following:

‘4.3.3.12. Data recording  
There is an interface between subsection 4.2.3.5.2 (Recording of supervision data on-board the train) of this TSI and subsection 4.2.7.10 of the HS RST TSI (Monitoring and diagnostic concepts).’;

(h) in Section 4.6.1, the last sentence is replaced by the following:

‘Minimum elements relevant to professional qualification for individual tasks can be found in Annexes J and L.’;

(i) points C and D of Section 4.6.3.1 are replaced by the following:

- ‘C. Initial assessment
- basic conditions
  - assessment programme, including practical demonstration
  - qualification of the trainers
  - deliver a certificate of competence
- D. Competence retention
- principles for retention of competence
  - methods to be followed
  - formalisation of the competence retention process.
  - assessment process.’;

(j) Section 4.6.3.2.3.1 is replaced by the following:

‘4.6.3.2.3.1. Route knowledge  
The Railway Undertaking must define the process by which knowledge of train crew of the routes worked over is acquired and maintained. This process must be:

- based upon the route information provided by the Infrastructure Manager, and

— in accordance with the process described in subsection 4.2.1 of this TSI;

(k) Section 4.7.5.4 is deleted;

(l) Section 4.7.6 is deleted;

(m) Section 7.3.2 is replaced by the following:

‘7.3.2 List of specific cases

Left intentionally blank’;

(2) in Annex G, the table is amended as follows:

(a) for the parameter ‘Health and safety conditions’, in the column ‘Elements to be verified for each parameter’, the item ‘pregnancy (drivers)’ is deleted;

(b) for the parameter ‘Health and safety conditions’, the line including ‘Special requirements for drivers: vision, hearing/speaking requirements, anthropometrics’ is deleted, together with the reference to Section 4.7.6;

(3) Annex H is deleted;

(4) in Annex N, the last line of the table (4.7.6 — Specific Requirements regarding the task of driving a train) is deleted;

(5) Annexes P, P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12 and P13 are replaced by the following:

#### ‘ANNEX P

### VEHICLE IDENTIFICATION

#### 1. General remarks

This Annex describes the European Vehicle Number and linked marking applied in a visible manner on the vehicle to identify it uniquely and in a permanent manner during operation. It does not describe other numbers or markings eventually engraved or fixed in a permanent manner on the chassis or the main components of the vehicle during its construction.

#### 2. European Vehicle number and linked abbreviations

Each railway vehicle receives a number consisting of 12 figures (called European Vehicle Number (EVN)) with the following structure:

Rolling stock group	Interoperability capability and vehicle type [2 figures]	Country in which the vehicle is registered [2 figures]	Technical characteristics [4 figures]	Serial number [3 figures]	Check digit [1 figure]
Wagons	00 to 09 10 to 19 20 to 29 30 to 39 40 to 49 80 to 89 [details in Annex P.6]	01 to 99 [details in Annex P.4]	0000 to 9999 [details in Annex P.9]	000 to 999	0 to 9 [details in Annex P.3]
Hauled passenger vehicles	50 to 59 60 to 69 70 to 79 [details in Annex P.7]		0000 to 9999 [details in Annex P.10]	000 to 999	
Tractive rolling stock and units in a trainset in fixed or pre-defined formation	90 to 99 [details in Annex P.8]		0000000 to 8999999 [the meaning of these figures is defined by the Member States, eventually by bilateral or multilateral agreement]		
Special vehicles			9000 to 9999 [details in Annex P.11]	000 to 999	

In a given country, the 7 digits of technical characteristics and serial number are sufficient to identify uniquely a vehicle inside the groups of hauled passenger vehicles and special vehicles <sup>(1)</sup>.

Alphabetical markings complete the number:

- (a) markings linked to the interoperability ability (details in Annex P.5);
- (b) abbreviation of the country in which the vehicle is registered (details in Annex P.4);
- (c) Vehicle Keeper Marking (details in Annex P.1);
- (d) abbreviations of the technical characteristics (details in Annex P.12 for the wagons, Annex P.13 for the hauled passenger vehicles).

### 3. Allocation of number

The European Vehicle Number has to be allocated according to the rules laid down in Commission Decision 2007/756/EC of 9 November 2007 adopting a common specification of the national vehicle register provided for under Articles 14(4) and (5) of Directives 96/48/EC and 2001/16/EC.

The European Vehicle Number shall be changed when it does not reflect the interoperability capability or technical characteristics according to this Annex due to technical modifications of the vehicle. Such technical modifications may require a new authorisation for placing in service according to Articles 20-25 of Interoperability Directive 2008/57/EC.

---

## ANNEX P.1

### VEHICLE KEEPER MARKING

#### 1. Definition of the Vehicle Keeper Marking (VKM)

A Vehicle Keeper Marking (VKM) is an alphabetic code, consisting of 2 to 5 letters <sup>(2)</sup>. A VKM is inscribed on each rail vehicle, near the European Vehicle Number. The VKM identifies the Vehicle Keeper as registered in a National Vehicle Register.

A VKM is unique and valid in all countries covered by this TSI and all countries that enter into an agreement that involves the application of the system of vehicle numbering and Vehicle Keeper Marking as described in this TSI.

#### 2. Format of the Vehicle Keeper Marking

The VKM is representation of the full name or abbreviation of the vehicle keeper, if possible in a recognisable manner. All 26 letters of the Latin alphabet may be used. The letters in the VKM are written in capitals. Letters that do not stand for first letters of words in the keeper's name may be written in lower case. For checking uniqueness, the letters written in lower case will be taken as written in capitals.

Letters may contain diacritical signs <sup>(3)</sup>. Diacritical signs used by these letters are ignored for checking uniqueness.

For vehicles kept by keepers that reside in a country that does not use the Latin alphabet, a translation of the VKM in its own alphabet may be applied behind the VKM separated from it by a slash-sign ("/"). This translated VKM is disregarded for data-processing purposes.

#### 3. Provisions about allocation of Vehicle Keeper Markings

A vehicle keeper can be issued more than one VKM, in case:

- the vehicle keeper has a formal name in more than one language,
- a vehicle keeper has good cause to distinguish between separate vehicle fleets within his organisation.

A single VKM can be issued for a group of companies:

- that belong to single corporate structure (e.g. holding structure),

<sup>(1)</sup> For special vehicles, the number has to be unique in a given country with the first digit and the 5 last digits of the technical characteristics and serial number.

<sup>(2)</sup> For NMBS/SNCB, the use of an encircled single letter B can be continued.

<sup>(3)</sup> Diacritical marks are "accent-signs", such as in Å, Ç, Ö, Ć, Ž, Å etc. Special letters such as Ø and Æ will be represented by a single letter; in tests for uniqueness Ø is treated as O and Æ as A.

- that belong to a single corporate structure that has appointed and mandated one organisation within this structure to handle all issues on behalf of all others,
- that has mandated a separate, single legal entity for handling all issues on their behalf, in which event the legal entity is the keeper.

#### 4. Register of Vehicle Keeper Markings and procedure for allocation

The register of VKM is public and updated on a real time basis.

An application for a VKM is filed with the applicant's competent national authority and forwarded to the ERA. A VKM can be used only after publication by the ERA.

The holder of a VKM must inform the competent national authority when he ends the use of a VKM, and the competent national authority will forward the information to the ERA. A VKM will then be revoked once the keeper has proved that the marking has been changed on all vehicles concerned. It will not be reissued for 10 years, unless it is reissued to the original holder or at his request to another holder.

A VKM can be transferred to another holder, which is the legal successor to the original holder. A VKM stays valid when the VKM's holder changes his name to a name that does not bear resemblance to the VKM.

### ANNEX P.2

#### INSCRIPTION OF THE NUMBER AND LINKED ALPHABETICAL MARKING ON THE BODYWORK

##### 1. General arrangements for external markings

The capital letters and figures making up the marking inscriptions shall be at least 80 mm in height, in a sans serif font type of correspondence quality. A smaller height may only be used where there is no option but to place the marking on the sole bars.

The marking is put not higher than 2 metres above rail level.

##### 2. Wagons

The marking shall be inscribed on the wagon bodywork in the following manner:

23	TEN	31	TEN	33	TEN
80	<u>D</u> -RFC	80	<u>D</u> -DB	84	<u>NL</u> -ACTS
7369	553-4	0691	235-2	4796	100-8
Zcs		Tanoos		Slpss	

For wagons whose bodywork does not offer a large enough area for this type of arrangement, particularly in the case of flat wagons, the marking shall be arranged as follows:

01 87 3320 644-7

TEN E-SNCF Ks

When one or more index letters with a national definition are inscribed on a wagon, this national marking must be shown after the international letter marking and separated from it by a hyphen as follows:

01 87 3320 644-7

TEN E-SNCF Ks-xy

### 3. Coaches and hauled passenger stock

The number shall be applied to each sidewall of the vehicle in the following manner:

F-SNCF      61 87 20 - 72 021 - 7  
B<sup>10</sup> tu

The marking of the country in which the vehicle is registered and of the technical characteristics are printed directly in front of, behind or under the European Vehicle number.

In case of coaches with driver's cabin, the European Vehicle number is also written inside the cabin.

### 4. Locomotives, power cars and special vehicles

The European Vehicle Number must be marked on each sidewall of the tractive stock in the following manner:

92 10 1108 062-6

The European Vehicle Number is also written inside each cabin of the tractive rolling stock.

The keeper can add, in letters of larger size than the European Vehicle Number, an own number marking (consisting generally of digits of the serial number supplemented by alphabetical coding) useful in operations. The place where the own number is marked is left to the choice of the keeper; however it must always be possible to identify easily the EVN from the keeper's own number marking.

## ANNEX P.3

### RULES FOR THE DETERMINATION OF THE CHECK-DIGIT (DIGIT 12)

The check-digit is determined in the following manner:

- the digits in the even positions of the basic number (counting from the right) are taken at their own decimal value;
- the digits in the odd positions of the basic number (counting from the right) are multiplied by 2;
- the sum formed by the digits in even position and by all the digits which constitute the partial products obtained from the odd positions is then established;
- the units digit of this sum is retained;
- the complement required to bring the units digit to 10 forms the check-digit; should this units digit be nought, then the check-digit will also be nought.

#### Examples

- 1 — Let the basic number be  
Multiplication factor

3	3	8	4	4	7	9	6	1	0	0
2	1	2	1	2	1	2	1	2	1	2
6	3	16	4	8	7	18	6	2	0	0

Sum:  $6 + 3 + 1 + 6 + 4 + 8 + 7 + 1 + 8 + 6 + 2 + 0 + 0 = 52$

The units digit of this sum is 2.

The check-digit number will therefore be 8 and the basic number thus becomes the registration number 33 84 4796 100 - 8.

2 — Let the basic number be  
Multiplication factor

3	1	5	1	3	3	2	0	1	9	8
2	1	2	1	2	1	2	1	2	1	2
6	1	10	1	6	3	4	0	2	9	16

Sum:  $6 + 1 + 1 + 0 + 1 + 6 + 3 + 4 + 0 + 2 + 9 + 1 + 6 = 40$

The units digit of this sum is 0.

The check-digit number will therefore be 0 and the basic number thus becomes the registration number 31 51 3320 198 - 0.

#### ANNEX P.4

#### CODING OF THE COUNTRIES IN WHICH THE VEHICLES ARE REGISTERED (DIGITS 3-4 AND ABBREVIATION)

The Information relating to third countries is given for information purposes only.

Countries	Alphabetical country code <sup>(1)</sup>	Numerical country code
Albania	AL	41
Algeria	DZ	92
Armenia	AM	58
Austria	A	81
Azerbaijan	AZ	57
Belarus	BY	21
Belgium	B	88
Bosnia-Herzegovina	BIH	49
Bulgaria	BG	52
China	RC	33
Croatia	HR	78
Cuba	CU <sup>(1)</sup>	40
Cyprus	CY	
Czech Republic	CZ	54
Denmark	DK	86
Egypt	ET	90
Estonia	EST	26
Finland	FIN	10
France	F	87
Georgia	GE	28

Countries	Alphabetical country code <sup>(1)</sup>	Numerical country code
Germany	D	80
Greece	GR	73
Hungary	H	55
Iran	IR	96
Iraq	IRQ <sup>(1)</sup>	99
Ireland	IRL	60
Israel	IL	95
Italy	I	83
Japan	J	42
Kazakhstan	KZ	27
Kyrgyzstan	KS	59
Latvia	LV	25
Lebanon	RL	98
Liechtenstein	FL	
Lithuania	LT	24
Luxembourg	L	82
Macedonia	MK	65
Malta	M	
Moldova	MD <sup>(1)</sup>	23
Monaco	MC	



Countries	Alphabetical country code <sup>(1)</sup>	Numerical country code
Mongolia	MGL	31
Montenegro	ME	62
Morocco	MA	93
Netherlands	NL	84
North Korea	PRK <sup>(1)</sup>	30
Norway	N	76
Poland	PL	51
Portugal	P	94
Romania	RO	53
Russia	RUS	20
Serbia	SRB	72
Slovakia	SK	56
Slovenia	SLO	79

Countries	Alphabetical country code <sup>(1)</sup>	Numerical country code
South Korea	ROK	61
Spain	E	71
Sweden	SE	74
Switzerland	CH	85
Syria	SYR	97
Tajikistan	TJ	66
Tunisia	TN	91
Turkey	TR	75
Turkmenistan	TM	67
Ukraine	UA	22
United Kingdom	GB	70
Uzbekistan	UZ	29
Vietnam	VN <sup>(1)</sup>	32

<sup>(1)</sup> According to the alphabetical coding system described in Appendix 4 to the 1949 convention and Article 45(4) of the 1968 convention on road traffic.

#### ANNEX P.5

#### ALPHABETICAL MARKING OF THE INTEROPERABILITY CAPABILITY

“TEN”: Vehicle which complies with the following conditions:

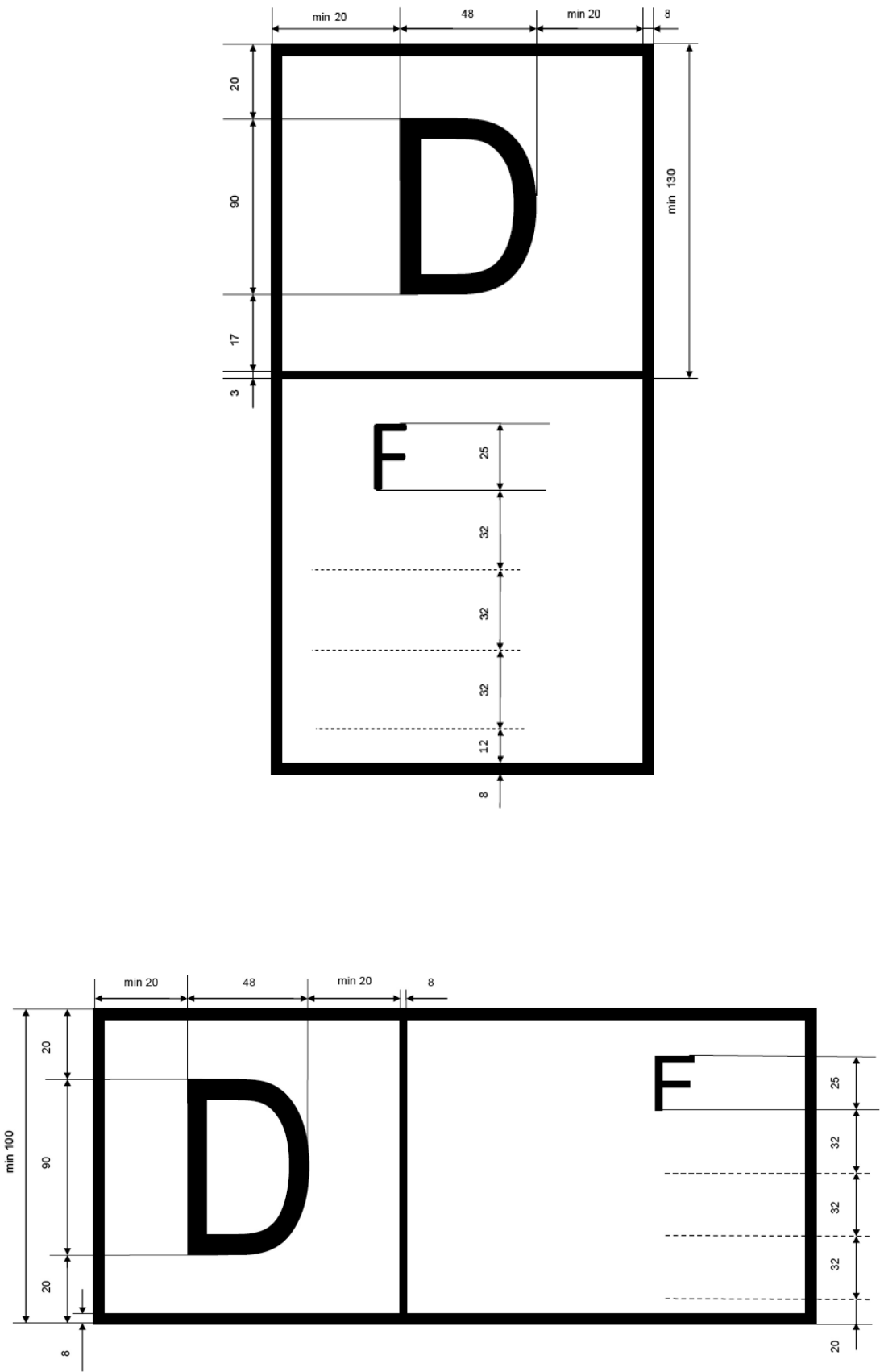
- it complies with all relevant TSIs which are in force at the moment of placing in service and has been authorised to be placed in service according to Article 22(1) of Directive 2008/57/EC,
- it is provided with an authorisation valid in all Member States in accordance with Article 23(1) of Directive 2008/57/EC, or, as an alternative, it has received individual authorisations by all Member States.

“PPV/PPW”: Vehicle which complies with PPV/PPW or PGW agreement (inside OSJD States)

(original: PPV/PPW:ППВ (Правила пользования вагонами в международном сообщении; PGW: Правила Пользования Грузовыми Вагонами)

Notes:

- Vehicles marked TEN correspond to coding 0 to 3 of the first digit in the vehicle number specified in Annex P.6.
- Vehicles which are not authorised for operation in all Member States need a marking indicating the Member States where they have been authorised. The list of authorising MS should be marked according to one of the following drawings, where D stands for the MS who has granted the first authorisation (in the given example, Germany) and F stands for the second authorising MS (in the given example, France). The MS are codified in accordance with Annex P.4. This may cover vehicles which are TSI compliant or which are not. These vehicles correspond to coding 4 or 8 of the first digit in the vehicle number specified in Annex P.6.



## INTEROPERABILITY CODES USED FOR WAGONS (DIGITS 1-2)

	2nd digit		0	1	2	3	4	5	6	7	8	9	2nd digit	
	1st digit												1st digit	
		Track Gauge	fixed or variable	fixed	variable	fixed	variable	fixed	variable	fixed	variable	fixed or variable	Track Gauge	
TEN <sup>(a)</sup> and/or COTIF <sup>(b)</sup> and/or PPV/PPW	0	with axles	Not to be used	TEN <sup>(a)</sup> and/or COTIF wagons		not to be used <sup>(d)</sup>						PPV/PPW wagons (variable gauge)	with axles	0
	1	with bogies											with bogies	1
TEN <sup>(a)</sup> and/or COTIF <sup>(b)</sup> and/or PPV/PPW	2	with axles		TEN <sup>(a)</sup> and/or COTIF wagons						PPV/PPW wagons (fixed gauge)	with axles	2		
	3	with bogies									with bogies	3		
Other wagons	4	with axles <sup>(c)</sup>	maintenance related wagons	Other wagons						Wagons with special numbering for technical characteristics not placed in service inside EU	with axles	4		
	8	with bogies <sup>(c)</sup>									with bogies	8		
		Traffic	Domestic traffic or international traffic by special agreement											
	1st digit	2nd digit	0	1	2	3	4	5	6	7	8	9	2nd digit	1st digit

<sup>(a)</sup> Wagons permitted to carry the marking TEN, see Annex P.5.

<sup>(b)</sup> Including wagons, which according to existing regulations carry the digits defined in the present table. COTIF: vehicle compliant with COTIF regulation in force at the moment of placing in service.

<sup>(c)</sup> Fixed or variable gauge.

<sup>(d)</sup> Excepted for wagons in category I (temperature-controlled wagons), not to be used for new vehicles placed in service.

## INTERNATIONAL TRAFFIC ABILITY CODES USED FOR HAULED PASSENGER VEHICLES (DIGITS 1-2)

	Domestic traffic	TEN <sup>(a)</sup> and/or COTIF <sup>(b)</sup> and/or PPV/PPW				Domestic traffic or international traffic by special agreement	TEN <sup>(a)</sup> and/or COTIF <sup>(b)</sup>	PPV/PPW		
2nd digit 1st digit	0	1	2	3	4	5	6	7	8	9
5	Vehicles for domestic traffic	Fixed-gauge non air-conditioned vehicles (including car-carrying wagons)	Gauge-adjustable (1435/1520) non air-conditioned vehicles	Not to be used	Gauge-adjustable (1435/1668) non air-conditioned vehicles	Historical vehicles	Not to be used <sup>(c)</sup>	Fixed-gauge vehicles	Gauge-adjustable (1435/1520) vehicles with change of bogies	Gauge-adjustable (1435/1520) vehicles with gauge-adjustable axles
6	Service vehicles	Fixed-gauge air-conditioned vehicles	Gauge-adjustable (1435/1520) air-conditioned vehicles	Service vehicles	Gauge-adjustable (1435/1668) air-conditioned vehicles	Car-carrying wagons	Not to be used <sup>(c)</sup>			
7	Air-conditioned and pressure-tight vehicles	Not to be used	Not to be used	Pressure-tight fixed-gauge air-conditioned vehicles	Not to be used	Other vehicles	Not to be used	Not to be used	Not to be used	Not to be used

<sup>(a)</sup> Compliance with the applicable TSIs, see Annex P.5.

<sup>(b)</sup> Including vehicles, which according to existing regulations carry the digits defined in the present table. COTIF: vehicle compliant with COTIF regulation in force at the moment of placing in service.

<sup>(c)</sup> Excepted for coaches with fixed gauge (56) and adjustable gauge (66) already in service, not to be used for new vehicles.

## ANNEX P.8

**TYPES OF TRACTIVE ROLLING STOCK AND UNITS IN A TRAINSET IN FIXED OR PRE-DEFINED FORMATION (DIGITS 1-2)**

The first digit is “9”.

If the second digit describes the type of tractive stock, following coding is mandatory:

Code	General vehicle type
0	Miscellaneous
1	Electric locomotive
2	Diesel locomotive
3	Electric multiple-unit set (high speed) [power car or trailer]
4	Electric multiple-unit set (except high speed) [power car or trailer]
5	Diesel multiple-unit set [power car or trailer]
6	Specialised trailer
7	Electric shunting engine
8	Diesel shunting engine
9	Special vehicle

## ANNEX P.9

**STANDARD NUMERICAL MARKING OF WAGONS (DIGITS 5 TO 8)**

This Annex indicates the numerical marking associated to the main technical characteristics of the wagon and it is published on the ERA website ([www.era.europa.eu](http://www.era.europa.eu)).

An application for a new code is filed with the registering entity (as referred to in Decision 2007/756/EC) and sent to the ERA. A new code can be used only after publication by the ERA.

## ANNEX P.10

**CODES FOR THE TECHNICAL CHARACTERISTICS OF THE HAULED PASSENGER STOCK (DIGITS 5-6)**

Annex P.10 is published on the ERA website ([www.era.europa.eu](http://www.era.europa.eu)).

An application for a new code is filed with the registering entity (as referred to in Decision 2007/756/EC) and sent to the ERA. A new code can be used only after publication by the ERA.

## ANNEX P.11

**CODES FOR THE TECHNICAL CHARACTERISTICS OF THE SPECIAL VEHICLES (DIGIT 6 TO 8)**

Annex P.11 is published on the ERA website ([www.era.europa.eu](http://www.era.europa.eu)).

An application for a new code is filed with the registering entity (as referred to in Decision 2007/756/EC) and sent to the ERA. A new code can be used only after publication by the ERA.

*ANNEX P.12***LETTER MARKING FOR WAGONS EXCLUDING ARTICULATED AND MULTIPLE WAGONS**

Annex P.12 is published on the ERA website ([www.era.europa.eu](http://www.era.europa.eu)).

An application for a new code is filed with the registering entity (as referred to in Decision 2007/756/EC) and sent to the ERA. A new code can be used only after publication by the ERA.

---

*ANNEX P.13***LETTER MARKING FOR HAULED PASSENGER STOCK**

Annex P.13 is published on the ERA website ([www.era.europa.eu](http://www.era.europa.eu)).

An application for a new code is filed with the registering entity (as referred to in Decision 2007/756/EC) and sent to the ERA. A new code can be used only after publication by the ERA.'

(6) Annex P14 is repealed.

---