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## Economic Commission for Europe

Inland Transport Committee

**Working Party on Road Traffic Safety**

**Group of Experts on Improving Safety at Level Crossings**

**Fourth session**

Geneva, 29-30 January 2015

Item 2 (d) of the provisional agenda

### **A survey of prevailing national legislation and/or legal arrangements at level crossings**

**Submitted by the Russian Federation, European Railway Agency (ERA) and Instytut Kolejnictwa (Poland)**

This informal document submitted by the Russian Federation, European Railway Agency (ERA) and Instytut Kolejnictwa summarizes the actions undertaken by this subgroup prior to the fourth session of the Group of Experts.

## I. Background

1. Following the third session, the sub-group updated the results of the survey with the replies of Lithuania and the UK. These inputs provided further valuable evidence and overall they contributed to the richness of the findings. The overview of survey findings is available in the Annex I to this report.

## II. Follow up of actions defined at the third session

2. The sub-group has reviewed the limited available information on the **national requirements on protecting different types of level crossings** (action 1) and concluded that those aspects are usually governed by internal operational rules, standards and procedures, as opposed to national laws and requirements. Since such requirements essentially stem from the risk analysis and are function of available resources, they should continue to be regarded as of the merit of the infrastructure managers.

3. No new additional information has been identified and gathered in respect of the **national provisions enabling to claim costs incurred by level crossing accidents** (action 2). These may, in theory, range from various incentives (arrangements between the IM and RUs) to general national legal requirements on the obligation to reimburse the costs of accidents. The group has information that in some countries all significant accidents at LC would automatically be subject of investigation by judicial authorities, but would welcome to have confirmation and further information on this from concerned countries. Depending on the discussion at the fourth session, the sub-group will consider whether to collect the information in a more systematic way.

4. The sub-group has not yet followed up with the five countries that indicated that the **St Andrew cross sign** (action 3) is not used in practice. It may be appropriate to investigate the motivation for that directly during the 4<sup>th</sup> session.

5. There has a rough common understanding of the **different regulatory options** (action 4) available to reduce the risk at level crossings through regulatory approaches. Several survey respondents pointed to some positive specific gaps in the existing regulatory frameworks that may need to be addressed at either national or international level.

## III. Conclusions

6. The group should put the Vienna convention on road traffic (1968) under scrutiny and make a recommendation on eventual need to introduce therein new additional requirements. The major issues are as follows:

- No requirements/recommendations on sound levels and light intensity of warning available in the Convention
- No requirements on warning and guidance messages (and symbols) placed on the barriers (to avoid being trapped between closed gates) and those helping to assure timely identification of the level crossing.
- No requirements/recommendations on traffic calming (road infrastructure) measures at the approach to (un-) protected level crossings is present in the Convention. (see also Article 19).
- No (sufficient) requirements on horizontal marking (painting) at the approach to level crossing, in particular in urban areas.

- Traffic signs defined in Vienna convention are not consistently used in practice and there is not a good understanding of the underlying reasons. Moreover, some traffic signs, in particular the Danger Signal (triangle traffic sign) displaying a steam locomotive may need to be updated.
  - The use of tricolor lights at level crossings is felt as possibly confusing. Similarly, the use of non-flashing versus flashing one or two lights remains an issue (prevailing inconsistency).
7. The sub-group recognizes that some of these issues may be better addressed outside of the Vienna convention and a better adherence to the Convention has a merit of its own.

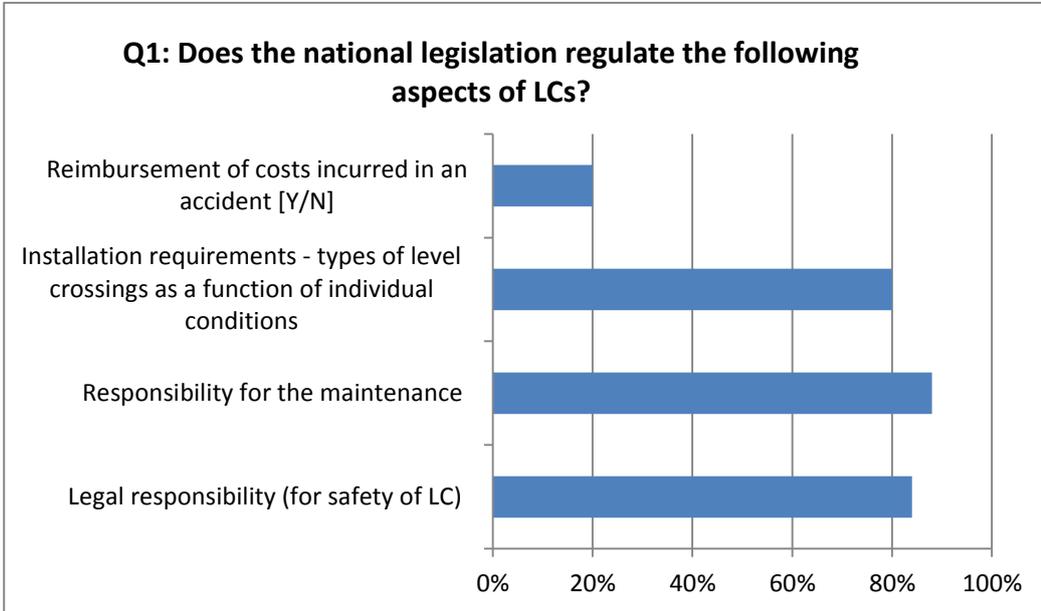
#### **IV. Next steps**

8. The subgroup seeks further inputs from the group to help identify gaps and opportunities in managing risk at level crossings through legislation/standards/recommendations. Furthermore, the subgroup would like to solicit other experts to notify about any good legal practice that has positive impact on level crossing safety.

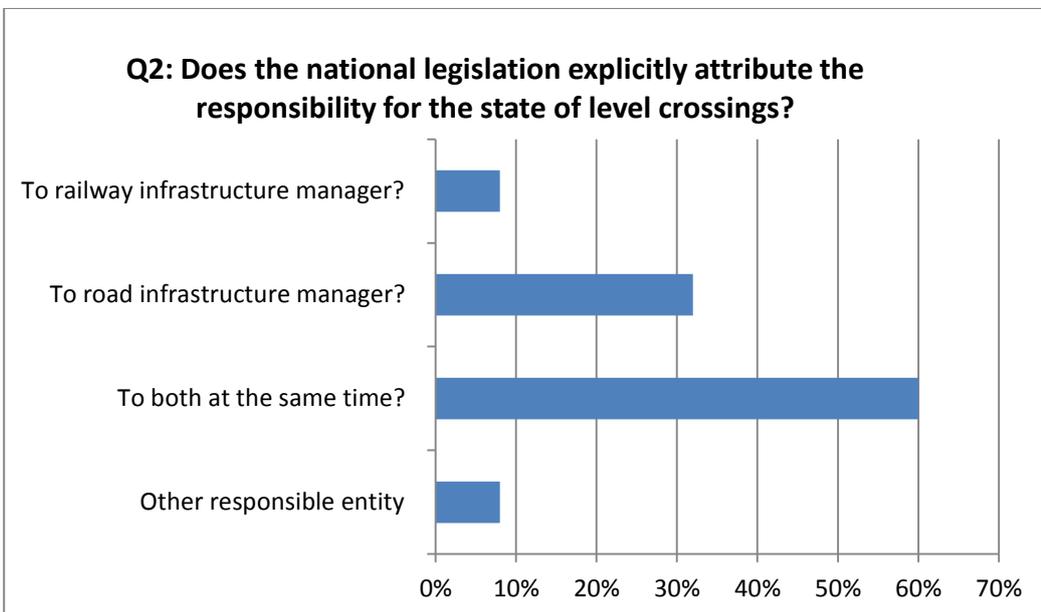
## I. Annex

We hereby summarize the answers to the common survey delivered to the secretariat so far (as by end 2014). The replies were available for 25 countries in total.

### Aspects regulated by national legal acts:



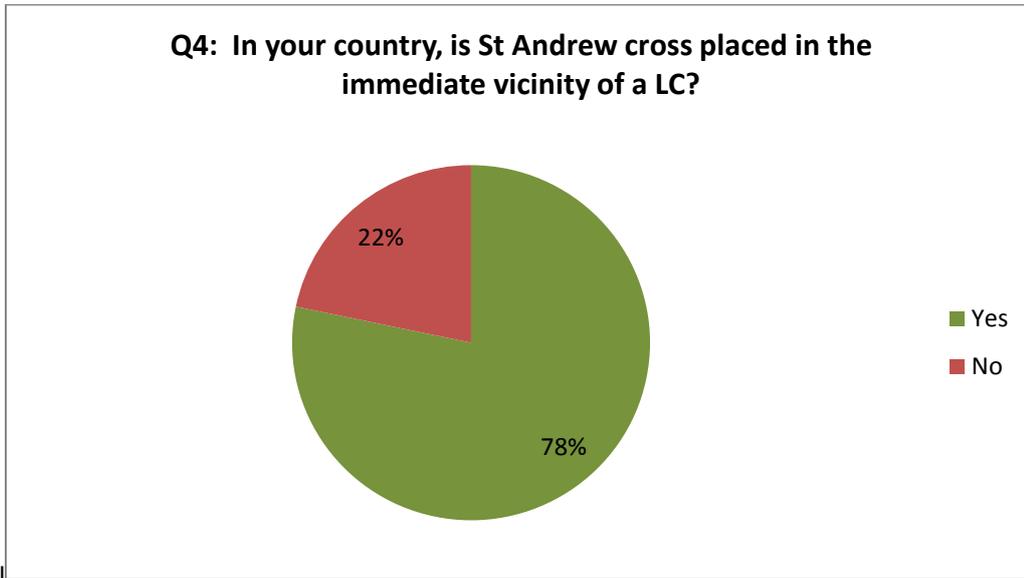
### Explicit attribution of legal responsibility



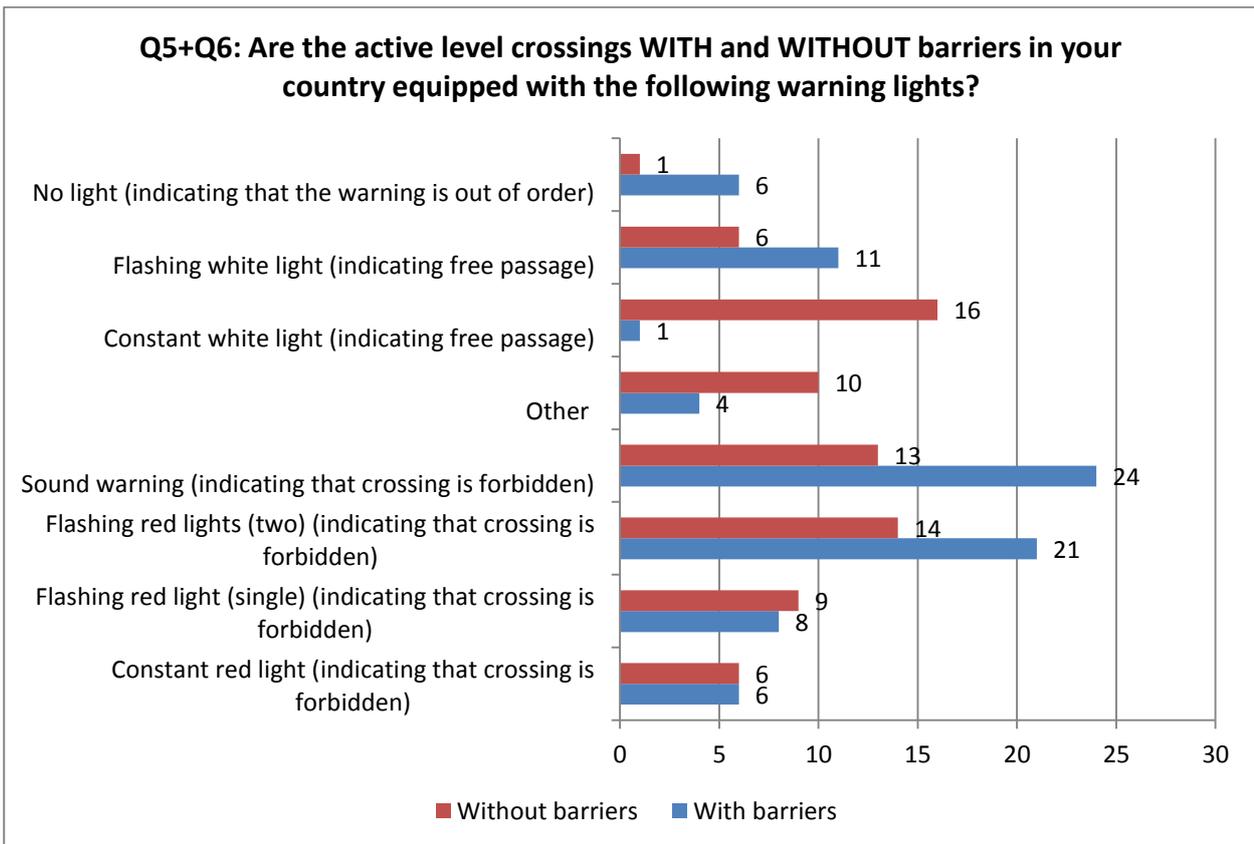
### Use of traffic signs (Vienna convention):

- In practically all 25 countries, one of the traffic signs as defined in the Vienna convention is used and placed ahead of level crossings regardless whether equipped with barriers or not. (Exception is Lithuania.)

- The divergences exist in the use of St Andrew’s cross use:



Use of light/sound warning signals on LC with (without) barriers respectively:



**Miscellaneous: (Are there any aspects of level crossings that should be regulated at an international level (not already specified in the 1968 Conventions on Road Traffic, and Road Signs and Signals?):**

**India:** It should be impressed upon that all countries associated with United Nations shall install Pre-Warning Device on all Unmanned Level Crossing so that the Road User shall have idea of any incoming train.

**Hungary:** It would be practical to standardize the level crossing signalling device and their meaning. (e.g. In Austria and Hungary (two neighbour countries) the light signals and their meaning are totally different.)

**Ireland:** Set down principles and guidance for road traffic calming and road traffic signage systems at passive and open level crossings which put into practice Article 19 of the 1968 Convention. Such systems should:

- slow down road traffic approaching the crossing,
- focus drivers' attention on the railway hazard ahead,
- encourage drivers to: - stop and look both ways before crossing, and give way to trains, - cross quickly when way ahead is clear.

**Germany:** Flashing / blinking red lights should be banned. In many countries flashing lights are used as warnings, but not as a command to stop. This leads to confusion. It becomes especially problematic if two different lighting systems for level crossings exist in a country, like in Germany (either yellow + permanent red or flashing red).

**Russia:** At the international level should be governed by the rules of crossing railroad crossings transport equipment, cyclists and pedestrians.

**Italy:** - obligation of a status of the road light signal to notice in advance the closure (e.g. amber lights)

- repetition of the light signal even in the approach roads different from that one perpendicularly directed to the LCs

- obligation for road drivers to break down the barriers when trapped

**Belgium:** Sound level for sound warning.

**Belarus, Georgia, Switzerland:** No

**UK:** The UK Government did not implement the 1968 Convention.

**Lithuania:** We would propose to include a uniform level crossing signalling and audio warning system.

## II. Annex Background

According to the Terms of Reference of the Group of Experts on Safety at Level Crossings, the EG **shall conduct, in a coordinated manner, a cross-country survey of prevailing national legislation and/or legal arrangements at level crossings.**

The evidence and knowledge acquired through such a survey should be used to identify good practices and identify any gaps in the international/national legal frameworks.

The focus of the analysis should be on the strategic level; however technical requirements that are subject to international agreements are of interest as well.

## III. Summary of issues

National legal frameworks may attribute the **overall responsibility** for safe operation at level crossings to specific governmental agency (e.g. railway/road infrastructure manager). As a consequence, this legal responsibility may be subject of a judicial investigation or of an independent accident investigation. (Whether the responsibility is attributed directly to one accountable agency, or is deemed to be a shared responsibility may have an immense impact on how the single agencies assume the responsibility in practice.)

It is of interest to understand the **national court practices and decisions**, in respect to responsibility in accidents at level crossings, in view of the existing national legal requirements.

Furthermore, prevailing **insurance practices and arrangements** could arise from the national legal framework and may contribute to the overall approach to securing level crossings at a country level. Therefore, the availability and use of insurance instruments is of a secondary interest.

Specific national legislation may contain requirements on proactive (preventive) and reactive (remedial) aspects. It is notably of interest to understand how is the **learning from accidents** assured at a country level and to what extent the **systematic preventive measures** were put in place (e.g. through requirements on periodical safety inspections).

At a strategic level, the IM may have a contract with the state that may cover the maximum allowable number of safety disruption events at level crossings, and/or be required to systematically pursue level crossing safety improvement programmes. These arrangements may also be of a particular interest of the EG as potentially contributing to safety at level crossings.

For almost 50 years were the **road traffic signs including those on level crossings**, subject to the international agreement under the UN (UN 1968 Conventions on Road Traffic, and Road Signs and Signals). Not only the road signs and signals, but also their use in respect to the protective devices in use continues to show discrepancies in use across the Convention contracting parties. Some model traffic signs were replaced in some countries with a new one, so the situation shows some signs of aggravation. Yet, the international cross-border traffic has been increasing substantially in recent years.

The main harmonized traffic signs for LCs are the following:

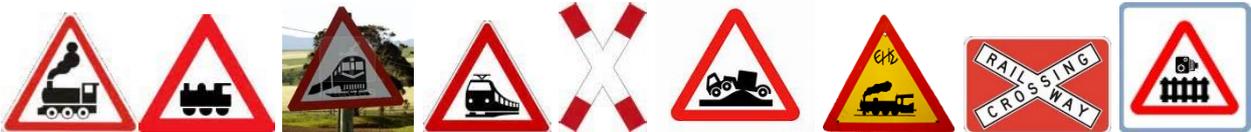
- Danger signals (traffic signs) placed at the approach section of a LC (\*Art.36. 1.a Vienna Convention) Art.17 of the European Agreement Art.II. 2.1. 2.1.1. UIC Code)



- Traffic signs placed in the immediate vicinity of the railway line (\*\*Art.35.2 of Vienna Convention / Art. 2.4.1 of UIC Code)



Several countries that are contracting party to Vienna Convention, used additional/other traffic signs as well, such as the following:



Besides - the warning (sound and light) signals - are not subject to Vienna agreement, leading to varying practices and thus different meanings of signals used.

For LCs without and with barriers, the signals are used to indicate the following situations: Crossing forbidden, Crossing allowed, Free passage, Out of order. While the red light signal is generally used to indicate danger (coming trains), there are differences in the type of signal (single, double) and its aspects (flashing or not, color, intensity, length). In some countries, white light signal is used.

**Road traffic regulations** contained in national traffic acts usually prescribe the maximum allowed speed of road traffic on a LC and its vicinity, ban overtaking, contains obligation to stop and ban parking in the vicinity. These regulations also show considerable differences between countries.

There are numerous other aspects of level crossing that may be subject to regulation (see a draft list in Annex A).

### III. Annex LC aspects addressed by national/international legal requirements

Aspects that are nowadays addressed by either national or international requirements

<i>Area</i>	<i>Sub-area</i>	<i>Aspects</i>	<i>Where addressed</i>
	Stop signals and ETCS block markers		<b>TSI CCS</b>
	Delayed clearance of signals, delayed display of driver's LC indicators and delayed issue of ETCS movement authorities		National rules
	Operating sequences	Sequence, timing	National rules
1. Control, command, signalling	Wrong-direction train movement and bi-directional control	Resetting times	National rules
	Shunting movements over level crossings		National rules
	Automatic LC locally monitored by train drivers	Indication of correct operation, permissible crossing speeds, LC signboards, LC warning signs	National rules
	Identification	Names, signs, information at signal boxes	National rules
	Risk management	Risk model application	<i>CSM on monitoring and supervision</i>
	Operational procedures	Rules for failure management	TSI OPE
2. SMS-related requirements	Safety monitoring	Data collection, tools, database, analysis	<i>CSM on monitoring and supervision</i>
	Investigation (process /template)	Process/template	<i>Annex V – RSD / ERA Guidance</i>
	Inspection (process/template)	Process/template	<i>CSM on supervision</i>
	Protection level minimum requirements	Rules for new / upgraded LCs	National rules
	Lay-out and conditions	Design, illumination	National rules
3. Infrastructure requirements	Road design and conditions	Slopes, sight distance	National rules

<i>Area</i>	<i>Sub-area</i>	<i>Aspects</i>	<i>Where addressed</i>
4. Road-side protection operations	<b>Horizontal / vertical signing</b>	<b>Type, size, place, ...</b>	<b>UNECE &amp; National rules</b>
	Light and audible devices	Type, colour, intensity, sequence, sound characteristics	National rules
	Barriers	Type, marking, signs, message, functional requirements	National rules
	Clearance (obstacle detection) devices	Technical requirements	National rules
	Rules for des-/activation	Times, functioning	TSI OPE
	Failure / acceptable risk	...	RAC-TS

## IV. Annex Common questionnaire

1. Does the national legislation (Acts, Regulations, Decrees, ...) regulate the following aspects of LCs?

- Legal responsibility (for safety of LC) [Y/N]
- Responsibility for the maintenance [Y/N]
- Installation requirements - types of level crossings as a function of individual conditions [Y/N]
- Reimbursement of costs incurred in an accident [Y/N]

2. Does the national legislation explicitly attribute the responsibility for the state of level crossings?

- To railway infrastructure manager? [Y/N]
- To road infrastructure manager? [Y/N]
- To both at the same time? [Y/N]
- Other responsible entity [Y/N] [Who?]
- Comments [ ]

3. In your country, are level crossings provided with one of these danger signals\*?



[Y/N]



[Y/N]



[Y/N]

Any other?

[which?]

(\*Art.36. 1.a Vienna Convention) Art.17 of the European Agreement Art.II. 2.1. 2.1.1. UIC Code)

4. In your country, is one of the warning signs below placed in the immediate vicinity of a LC?



[Y/N]



[Y/N]

Any other?

[which?]

(\*\*Art.35.2 of Vienna Convention / Art. 2.4.1 of UIC Code)

5. Are the active level crossings WITH barriers in your country equipped with the following warning lights?

- Constant red light (indicating that crossing is forbidden)
- Flashing red light (single) (indicating that crossing is forbidden)
- Flashing red lights (two) (indicating that crossing is forbidden)
- Other [Which?] (indicating that crossing is forbidden)
- Sound warning (indicating that crossing is forbidden)
- Constant white light (indicating free passage)
- Flashing white light (indicating free passage)
- No light (indicating that the warning is out of order)
- Other (indicating free passage)

6. Are the active level crossings WITHOUT barriers in your country equipped with the following warning lights?

- Constant red light (indicating that crossing is forbidden)
- Flashing red light (single) (indicating that crossing is forbidden)
- Flashing red lights (two) (indicating that crossing is forbidden)
- Other [Which?] (indicating that crossing is forbidden)
- Sound warning (indicating that crossing is forbidden)
- Constant white light (indicating free passage)
- Flashing white light (indicating free passage)
- No light (indicating that the warning is out of order)
- Other (indicating free passage)

7. Are there any aspects of level crossings that should be regulated at an internal level (not already specified in the 1968 Conventions on Road Traffic, and Road Signs and Signals)?

## V. Annex Questionnaire responses

### Aspects regulated by national legal acts:

<i>Country</i>	<i>Legal responsibility (for safety of level crossings)</i>	<i>Responsibility for maintenance</i>	<i>Protection requirements for the different types of level crossings</i>	<i>Reimbursement of costs incurred in accidents</i>
Belgium	X	X	X	
BULGARIA				
Estonia	X	X	X	
France				
Georgia	X	X	X	
Germany	X	X	X	
Germany	X	X	X	X
GREECE/GREECE	X	X	X	X
Hungary	X	X	X	
India	X	X	X	
Ireland	X	X	X	
ITALY	X	X	X	
Lithuania	X	X	X	
Norway	X	X	X	
Poland	X	X	X	
Portugal	X	X	X	X
Moldova		X	X	
Romania	X	X	X	X
Russia	X	X		X
SPAIN		X	X	
Sweden	X			
Switzerland	X	X	X	
Belarus	X	X		X
Turkey	X	X	X	
TURKEY	X	X	X	
United Kingdom	X	X	X	

**Explicit attribution of legal responsibility**

<i>Country:</i>	<i>Road IM</i>	<i>Rail IM</i>	<i>Road and Rail IMs</i>	<i>Others</i>
Belgium		X		
Bulgaria			X	
Estonia		X		
France			X	
Georgia				Responsibility is based on "blamed" party
Germany			X	
Germany		X		
Greece			X	
Hungary				
India			X	
Ireland		X		
Italy		X	X	
Lithuania	X		X	
Norway			X	
Poland		X		
Portugal		X		Private at Private LCs
Moldova			X	
Romania			X	
Russia			X	
Spain			X	
Sweden			X	
Switzerland			X	
Belarus				
Turkey			X	Municipalities and Provincial Special Administrations
United Kingdom	X	X		

**Use of traffic signs (Vienna Convention)**

<i>Country</i>	<i>Warning sign placed in advance of LC equipped with gates/barriers?</i>	<i>Warning sign below placed in advance of LC NOT equipped with gates/barriers?</i>	<i>Warning signs placed in the immediate vicinity of a LC?</i>
Belgium	Yes	Yes	Yes
Bulgaria	Yes	Yes	Yes
Estonia	Yes	Yes	Yes
France	Yes	Yes	Yes
Georgia	Yes	Yes	Yes
Germany	Yes	Yes	No
Germany	Yes	Yes	No
Greece	Yes	Yes	Yes
Hungary	Yes	Yes	Yes
India	Yes	Yes	No
Ireland	Yes	Yes	No
Italy	Yes	Yes	Yes
Lithuania	Yes	No	Yes
Norway	Yes	Yes	No
Poland	Yes	Yes	Yes
Portugal	Yes	Yes	Yes
Republic of Moldova	Yes	Yes	Yes
Romania	Yes	Yes	Yes
Russia	Yes	Yes	Yes
SPAIN	Yes	Yes	Yes
Sweden	Yes	Yes	Yes
Switzerland	Yes	Yes	Yes
The Republic of Belarus	Yes	Yes	Yes
Turkey	Yes	Yes	Yes
United Kingdom	Yes	Yes	No

Use of light signals

Country	Passage forbidden indication					Free passage indication			
	Constant red light	Flashing one red light	Flashing two red lights	Sound warning	Other	Constant white light	Flashing white light	No light (out of order)	Other
Belgium			X	X			X		
Bulgaria			X	X			X	X	
Estonia	X		X	X			X	X	
France			X	X					
Georgia	X	X		X				X	
Germany	X	X		X/O					
Greece			X	X					
Hungary			X	X			X	X	
India					X				
Ireland			X	X					
Italy	X		X	X					
Lithuania			X	X		X	X		
Norway		X		X			X		
Poland		X		X			X		X
Portugal	X	X		X					
Moldova		X		X			X		
Romania			X	X			X	X	
Russia			X	X					
Spain			X	X					
Sweden			X	X			X		
Switzerland		X	X	X					X
Belarus			X	X					X
United Kingdom			X	X					