

Making the railway system  
work better for society.

## Impact Assessment

### Light Impact Assessment

*LOC&PAS TSI 1302/2014 potential deficiency – Evacuation tests*

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## 1. Context and problem definition

<p><b>1.1. Problem and problem drivers</b></p>	<p>Clause 4.2.10.5.1 (12) of LOC&amp;PAS TSI specifies that a physical evacuation test under normal operating conditions should be performed to verify that a complete evacuation can occur within three minutes.</p> <p>The sanitary measures against the spread of SARS-CoV-2 that are imposed by governments across Europe limit the possibilities to and suitability of physical testing. Since no alternative verification procedure is detailed in the TSI, vehicle authorisations risk delays.</p> <p>In response to this the Agency issued a clarification note, stating that when acting as a an authorising entity, it will consider alternative evidence to physical tests while sanitary measures are in place.</p> <p>Importantly, already prior to the Covid-19 outbreak, the European Commission asked the Agency to investigate cost-efficient alternatives to physical evacuation testing (see Change Request TSI_C00000245).</p> <p>But while there are temporary and long term benefits to allow alternative evidence, it is of great importance that the verification of evidence is accurate because longer real evacuation times can have catastrophic consequences.</p> <p>It is therefore important to assess the impact of accepting alternatives to physical evacuation tests.</p>						
<p><b>1.2. Main assumptions</b></p>	<p>The following assumptions guide the analysis:</p> <ul style="list-style-type: none"> <li>- Sanitary measures against the spread of SARS-CoV-2 will remain in place for an undefined period.</li> <li>- There are accurate alternative sources of evidence to determine evacuation times.</li> <li>- The verification and validation of evidence is possible and relatively efficient.</li> </ul>						
<p><b>1.3. Stakeholders affected</b></p>	<table border="1" data-bbox="564 1581 1426 1742"> <thead> <tr> <th><i>Category of stakeholder</i></th> <th><i>Importance of the problem</i></th> </tr> </thead> <tbody> <tr> <td>Applicants</td> <td>5</td> </tr> <tr> <td>Authorising entities</td> <td>5</td> </tr> </tbody> </table> <p>The applicants can be a railway undertaking or train manufacturer. The authorising entities concern ERA and NSAs.</p>	<i>Category of stakeholder</i>	<i>Importance of the problem</i>	Applicants	5	Authorising entities	5
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<p><b>1.4. Evidence and magnitude of the problem</b></p>	<p>While it is unclear how many passenger vehicles would require authorisation during the yet unknown duration of the sanitary measures, it is reasonable to assert that authorisations would be delayed if no alternatives to physical evacuation tests are allowed.</p>						

<b>1.5. Baseline scenario</b>	Without alternatives to physical tests, there will be delays in vehicle authorisations. Additionally, requiring physical testing in the foreseeable future could result in the further spread of SARS-CoV-2.
<b>1.6. Subsidiarity and proportionality</b>	As the evacuation test requirements are specified in LOC&PAS TSI, this issue is addressed by the Agency.

## 2. Objectives

<b>2.1. Strategic and specific objectives</b>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Europe becoming the world leader in railway safety</li> <li><input type="checkbox"/> Promoting rail transport to enhance its market share</li> <li><input checked="" type="checkbox"/> Improving the efficiency and coherence of the railway legal framework</li> <li><input type="checkbox"/> Optimising the Agency's capabilities</li> <li><input type="checkbox"/> Transparency, monitoring and evaluation</li> <li><input type="checkbox"/> Improve economic efficiency and societal benefits in railways</li> <li><input type="checkbox"/> Fostering the Agency's reputation in the world</li> </ul> <p>Specific objective:</p> <p>Enable the continued authorisation of vehicles while sanitary measures are kept in place by allowing alternative evidence to physical evacuation tests.</p>
<b>2.2. Link with Railway Indicators</b>	B-12 Vehicle authorisations

## 3. Options

<b>3.1. List of options</b>	<p>Note: <i>In the case of <b>opinions with a very narrow technical focus (e. g. clarification of legal texts)</b>, where multiple options cannot be identified, fill in Chapters 3 and 4 only with one option, demonstrating that no alternative options could be analysed. Do not fill in Chapter 5.</i></p> <p><i>Option 0: Baseline</i></p> <p><i>Option 1: Allow alternatives to physical evacuation tests</i></p>
<b>3.2. Description of options</b>	<p>The alternatives under option 1 that are proposed in the Agency's Opinion are:</p> <ul style="list-style-type: none"> <li><i>a) Evidence by analogy with a reference subsystem having past successfully the physical test</i></li> <li><i>b) Evidence by application of numerical simulations</i></li> </ul>

	<p>Under alternative a), the subsystem under evaluation needs to share the following characteristics with the reference subsystem:</p> <ul style="list-style-type: none"> <li>- <i>Intended type of operation</i></li> <li>- <i>Number of bogies per vehicle</i></li> <li>- <i>Number of decks</i></li> </ul> <p>If the characteristics are shared, the evacuation analogy shall be determined by comparing several parameters (passenger capacity, number of doors, etc.). The subsystem can be considered compliant if the applicant demonstrates that the subsystem under evaluation scores equal to or better than the reference subsystem on the relevant parameters.</p> <p>A Notified Body shall validate the demonstration of conformity by analogy in case some parameters score more favourable and others less.</p> <p>Under alternative b) the simulation (tool and models) need to be verified and validated. Evidence of verification and validation needs to be part of a simulation report.</p> <p>Evacuation simulation tools are common practice in other industries, and evidence on the accuracy of simulation models in the railway sector has been provided, suggesting that it would be a cost-efficient and acceptable alternative to physical tests.</p> <p>These alternatives would be additional options besides physical tests.</p>
<p><b>3.3. Uncertainties/risks</b></p>	<p>The main uncertainty affecting the baseline and option 1 is how long sanitary measures and health risks will continue to exist.</p>

**4. Impacts of the options**

<p><b>4.1. Impacts of the options (qualitative analysis)</b></p>			
	<p><i>Category of stakeholder</i></p>	<p><i>Type of impacts</i></p>	<p><i>Option 0 (baseline)</i></p>
	<p>Applicants</p>	<p>Positive</p>	<p>/</p>
		<p>Negative</p>	<p>- The vehicle authorisation process is delayed, which will have a negative financial impact on the applicant. - Need to continue with physical tests, with potentially adversal health impacts.</p>
	<p>Authorising entities</p>	<p>Positive</p>	<p>/</p>
		<p>Negative</p>	<p>- The vehicle authorisation process is delayed, which will have negative economic consequences for the sector and may lead to an accumulation of cases when sanitary measures are lifted.</p>
	<p><b>Overall assessment</b></p>	<p>Positive</p>	<p>- There are no positive impacts noted.</p>
<p>Negative</p>		<p>- Stakeholders will experience a strong delay in authorisation activities, which will have negative financial consequences for applicants and an adverse economic impact on the railway sector.</p>	

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<b>4.2. Impacts of the options (quantitative analysis)</b>	<p>As no significant costs can be linked to option 1 (provided that the accuracy of alternative evidence is high), while strong benefits are linked to the continuation of the authorisation process, it is accepted that the financial impact will be positive.</p> <p>Additionally, the possibility to allow for alternative evidence enables applicants to select the most cost-efficient option, thus contributing to a lowering of administrative costs.</p> <p>Both the benefit-cost ratio and NPV of option 1 are therefore considered to be favourable, whereas option 0 would impose considerable costs on stakeholders and therefore scores negatively.</p>																			

**5. Comparison of options and preferred option**

<b>5.1. Effectiveness criterion (options' response to specific objectives)</b>	In line with section 3.1, chapter 5 is not filled in.
<b>5.2. Efficiency (NPV and B/C ratio) criterion</b>	/
<b>5.3. Summary of the comparison</b>	/
<b>5.4. Preferred option(s)</b>	/
<b>5.5. Further work required</b>	/

## 6. Monitoring and evaluation

<b>6.1. Monitoring indicators</b>	As indicated under section 2.2, the number of vehicle authorisations can be monitored to show a continued progress despite the sanitary measures.
<b>6.2. Future evaluations</b>	The experiences while the sanitary measures are in place, can be used when considering to include alternative evidence in the regulation in light of the 2022 TSI revision package.