The use and application of Intermediate Statements of Verification

Guidance on the use of Intermediate Statements of Verification during the movement or testing of vehicles
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1 Background

1.1. After the design, construction, upgrade or renewal of a vehicle, some project entities obtain an Intermediate Statement of Verification (ISV) to demonstrate that the vehicle conforms to the relevant Technical Specifications for Interoperability (TSI) and/or applicable Notified National Technical Rules (NNTR) before moving onto the final testing stage of the verification assessment procedure. In relation to a project, the Railways (Interoperability) Regulations 2011 (as amended) (RIR 2011) defines a ‘project entity’ as either:

- a contracting entity (a person who contracts or intends to contract with another person for that other person to design, construct, renew, or upgrade a subsystem);
- a manufacturer; or
- the authorised representative established in the EU of a contracting entity or manufacturer.

1.2. Whenever a project entity engages a railway undertaking (RU) to carry out a transit move to support or undertake testing of a vehicle (which is yet to gain an authorisation for placing in service from the Office of Rail and Road [ORR]), there are sometimes different views between the project entity and the RU on the role of the ISV. One party may assert that the ISV is enough to introduce the vehicle for the limited purpose of transit or testing, because it provides evidence of conforming to applicable requirements in the relevant TSIs or NNTRs. The other party may assert that, despite having an ISV, further evidence or risk assessment will also be needed to demonstrate that the risks when undertaking transit/testing operations are adequately managed. This could include:

- compliance with other NNTRs or TSIs not covered by the ISV;
- technical compatibility and safe integration with the specific route, which may include applying relevant Rail Industry Standards;
- engineering judgement that sufficient, although not complete, compliance with relevant standards has been achieved;
- operational and testing procedures and risk controls have been put in place; and
- compatibility and safe integration with an RU’s operational procedures.

1.3. The parties may also need clarification from each other about who is responsible for providing, and if necessary, assessing, which pieces of evidence if additional evidence is necessary.
2 Purpose of this document

2.1. The purpose of this document is to:

- clarify what an ISV is and its role during the vehicle assessment, assurance and testing process;
- explain the legal framework concerning ISVs;
- make recommendations on how project entities and RUs should interpret the use of ISVs during the final testing stage of the verification assessment procedure; and
- give some examples of practical situations in which an ISV has been issued and what else needs to be done.

2.2. This document has been developed by RSSB in consultation with the Rolling Stock Standards Committee, the UK forum for notified bodies and ORR.

3 The role of an Intermediate Statement of Verification in gaining a Certificate of Verification

3.1. Under RIR 2011 (regulation 16), the project entity is responsible for engaging a notified body (NoBo) to carry out the verification assessment procedure. The project entity must engage the NoBo either:

a) before completion of the design stage of the project subsystem; or
b) before commencement of the manufacture stage of the project subsystem, whichever is the earlier.

3.2. If there are applicable NNTRs, the project entity is also responsible for engaging a designated body (DeBo) to carry out the verification assessment procedure in relation to NNTRs.

3.3. The ‘verification assessment procedure’ is:

- in relation to a NoBo,
  - the procedures specified in the TSI; and
  - the procedure set out in Annex VI of Directive 2008/57/EC (as amended); and
- in relation to a DeBo, the applicable procedure set out in Annex VI of Directive 2008/57/EC.

3.4. Under the verification assessment procedure,

- the NoBo checks the subsystem against the relevant TSI(s) and issues a Certificate of Verification if the subsystem conforms to the TSI(s); and
the DeBo checks the subsystem against applicable NNTRs for each Member State in which the subsystem is intended to be authorised for placing into service and issues a Certificate of Verification if the subsystem complies with those NNTRs.

3.5. RIR 2011 (regulation 32[4]) defines an ISV as an intermediate statement of verification issued by:

- a NoBo in relation to the design stage or the production stage of a subsystem in accordance with section 2 of Annex VI of Directive 2008/57/EC; or
- a NoBo or DeBo at an intermediate stage of the verification procedure referred to in section 3 of Annex VI of Directive 2008/57/EC.

**Certificate of Verification from a NoBo**

3.6. The verification assessment procedure for TSIs can be broken down into these three stages:

a) overall design;

b) production (i.e. construction, including, in particular, civil engineering activities, manufacturing, constituent assembly and overall adjustment); and

c) final testing.

3.7. If it so chooses, the project entity can apply to the NoBo for an ISV at any point in time during the overall design stage or the production stage before it moves to the final testing stage. This will demonstrate how the design and construction of the subsystem meets the requirements of the TSI.

3.8. The ISV can cover the different parts that the subsystem has been split into, or the whole subsystem. The project entity may decide to subject the whole subsystem to the verification assessment procedure, or it may decide to split it into different parts. For example, in the case of a vehicle:

- the interior could be one part and the exterior another;
- mechanical and electrical systems could be considered separately;
- the bogies may be assessed separately from the car bodies;
- on-board signalling equipment may be assessed separately due to the associated trackside equipment not yet being commissioned.

3.9. Where an ISV has been issued, the NoBo responsible for the final verification of the subsystem takes these ISVs into account, and, before issuing its Certificate of Verification, the NoBo will:
• take the issued ISVs into account and verify that they correctly cover the relevant TSI(s);
• check all aspects that are not covered by the ISVs; and
• check the results of final testing of the whole subsystem for evidence of compliance to specific standards requirements.

**Certificate of Verification from a DeBo**

3.10. In cases where NNTRs are applicable, a Certificate of Verification is issued by a DeBo after checking that the subsystem complies with NNTRs.

3.11. There is no specific procedure for issuing a certificate (ISV) during the intermediate stage of checking compliance with NNTRs. However, in practice, as the NoBo and DeBo is usually the same organisation in Great Britain, ISVs are issued covering both the TSIs and the NNTRs at the same time. Although the individual certificates are issued under the different accreditations (that is, the NoBo for the TSIs and the DeBo for NNTRs) the supporting technical file is common in both cases. In Great Britain, an attestation statement can be issued when a DeBo is engaged as an Assessment Party under RIS-2700-RST. The attestation statement provides a level of verification against relevant NNTRs that is equivalent to an ISV.

3.12. All the relevant Certificates of Verification and declarations form part of the technical file which is submitted to the ORR to gain authorisation for placing into service of the vehicle. However, this authorisation does not equate to ‘this vehicle can be safely operated on the mainline railway without further assessments’.

4 Roles and responsibilities for safe integration of a vehicle into operations for testing

4.1. In accordance with regulation 4 of RIR 2011, ORR must issue an authorisation for placing in service that subsystem before a structural subsystem is ‘put into use’. ‘Put into use’ has the meaning given in regulation 4(2) which says that a structural subsystem is put into use when, having been constructed, upgraded or renewed, it is first used on or as part of the rail system in the United Kingdom for the transportation of passengers or freight or for the purpose for which it was designed.
4.2. As a vehicle undergoing testing or trials is not ‘put into use’, an authorisation for placing in service is not required from the ORR.

4.3. However, a project entity may have obligations outside RIR 2011, specifically in relation to technical compatibility or safe integration of a new or modified vehicle with the specific route or operations.

4.4. When an RU takes responsibility of operating a vehicle for the purposes of movement or testing, it is working under its Safety Management System (SMS) and has obligations under the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (as amended) (ROGS).

4.5. ROGS sets out that the SMS must contain procedures for when there is a change in the way an operation is carried out or where any new asset is used in operation (including any testing, transit, not limited to service operation). RUs (and Infrastructure Managers) are required to:

- carry out a risk assessment;
- implement risk control measures to ensure any change is implemented safely (including those related to the supply of maintenance of a vehicle); and
- consult with other affected parties when implementing any such change.

4.6. Regulation 19 of ROGS requires a transport operator to:

“(1) (a)…make a suitable and sufficient assessment of the risks to the safety of any persons for the purpose of identifying the measures he needs to take to ensure safe operation of the transport system in question insofar as this is affected by his operation; and

(b) implement the measures referred to in sub-paragraph (a).

(2) When carrying out an assessment or a review […], a transport operator shall apply the CSMs to the extent that the operation is carried out on the mainline railway.”

4.7. Under the common safety method for risk evaluation and assessment (Commission Regulation (EU) 402/2013) (CSM RA) a manufacturer or a contracting entity is a ‘proposer’ when it engages a NoBo to carry out the verification assessment procedure and only if it is required by a TSI.

4.8. Once the project entity engages an RU to carry out either a transit-move of a vehicle or the track testing, then for that element of the operation the RU will become a proposer of a change to the railway system under CSM RA. The RU will then have to assess if the change is ‘significant’ or not. If the change is significant then the risk management process under the CSM RA applies. If the
change is not significant, the RU will still need to carry out a ‘suitable and sufficient’ risk assessment.

4.9. The RU’s risk assessment will focus on the risk/methodology for undertaking the transit move and/or testing. This may include

- all relevant matters for which no assurance evidence (for example an ISV) has been provided;
- route-specific technical compatibility using RIS-8270-RST (including issuing a Statement of Compatibility (SOCAT) following consultation with affected parties);
- the vehicle registration process using RIS-2453-RST (including issuing a Statement of Vehicle Configuration); and
- assessment of safe integration with all remaining and relevant aspects such as operations (see ORR’s guidance\(^1\) on the CSM RA paragraphs 2.17 to 2.18).

4.10. It is important that vehicles undergoing testing/commissioning are correctly maintained. The RU undertaking the test/hauling should satisfy itself that the necessary maintenance arrangements are in place. The organisation responsible for this maintenance during testing/commissioning should be identified as the entity in charge of maintenance (ECM) for the testing/commissioning phase only.

4.11. Since the ISV only documents the results of verification of conformity to certain TSI s (or NNTRs), it does not cover the RU’s risk assessment and other safety obligations and there may be other risk controls that need to be implemented, which might include assessing other applicable TSI s or NNTRs and applying relevant Rail Industry Standards. Therefore, it cannot be relied on as the sole piece of evidence necessary to operate/transit the vehicle when conducting tests and trials.

5 Using an ISV

5.1. An ISV can be used to show that a vehicle meets certain standards and technical requirements after it has been constructed, upgraded or renewed. It will have a specific scope based on the subsystem (or parts of it) and requirements that have been assessed. Therefore, when relying on an ISV, the RU will need to be clear about what remaining requirements and parts of the subsystem require assessment of conformity. The RU can use an ISV as part of a wider body of evidence around the ability of the vehicle to be compatible when operated or moved. Therefore, it must be satisfied of the limits and capability

of the vehicle and that any risks to safe operation are managed and controlled through its SMS. This will include risks relating to aspects covered by the ISV and those that are not.

5.2. Table 1 shows three scenarios in which an RU might be asked to move or operate the vehicle and an ISV has been issued, what might transpire that has not been covered by the ISV (through discussions with the project entity) and what the RU will need to do as a result.

5.3. In addition to the three specific scenarios in Table 1, the most common scenario encountered by an RU is when

- elements of design compliance evidence have not been assessed and are therefore not included within the ISV (either because the evidence was not supplied, or it was not enough to demonstrate compliance); or
- initial test results, such as static tests, are similarly not assessed.

In this case, the RU must determine whether, when supplemented by testing and operational controls, there is enough evidence to manage the risk, which will usually require significant engineering judgement. If deemed insufficient, the RU would then need to determine what further evidence it requires and then agree with the project entity how to obtain that evidence, which might be through a further ISV.

5.4. An example of an ISV is in Appendix E of the ATOC Approved Code of Practice ACOP/EC/01009.2

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2 https://www.rssb.co.uk/rgs/oodocs/ATOCACOPEC01009%20Iss%202.pdf
**Table 1: Examples of what must be done by an RU in addition to an ISV**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>(a) Example of what an RU might be asked to do</th>
<th>(b) What might transpire that has not been covered by the ISV</th>
<th>(c) What the RU will need to do as a result of (b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Haul a new vehicle from the manufacturer’s site to the operator’s site (the RU doing the hauling may not subsequently be the one that operates the vehicle after an authorisation for placing in service has been issued).</td>
<td>The vehicle has been demonstrated to meet the essential requirements for physical interfaces with the track and other vehicles (but has not yet been shown to be compatible with overhead lines or signalling systems).</td>
<td>Dead-haul the vehicle in a freight train and assess the braking capacity in accordance with GMGN2607 to control the risks associated with dead-hauling the multiple unit in a freight train.</td>
</tr>
<tr>
<td>2</td>
<td>Carry out limited on-track testing of the new vehicles (i.e. to verify their performance on the mainline infrastructure in Great Britain).</td>
<td>The vehicle has not yet been brake-tested at speeds above 100mph.</td>
<td>The risk of unverified braking performance above 100mph is controlled in two ways by the RU: (a) By conducting all trials up to a maximum speed of 100mph. (b) If the braking performance needs to be verified at speeds greater than 100 mph, the RU must conduct a variety of trials and tests such as • stopping distance trials in a track possession; • thermal assessment of braking components; and • Wheel Slide Protection capacity functionality.</td>
</tr>
<tr>
<td>3</td>
<td>Operate a train either in non-passenger service (such as operating for the purpose of training drivers) or for mileage accumulation to gather reliability data.</td>
<td>The vehicle has not yet been demonstrated to comply with the requirements of EN 13749 for bogie fatigue.</td>
<td>Ensure that the project entity defines and implements any inspections required to control the risks of premature fatigue failure.</td>
</tr>
</tbody>
</table>
6 Conclusions

6.1. Based on the interpretation proposed in this document, the following conclusions can be derived:

- An ISV provides documentary evidence that a vehicle conforms to the relevant TSIs (or NNTRs) that it has been assessed against. It does not provide evidence that a vehicle can operate safely during testing. Therefore, it cannot be relied on as the sole piece of evidence before introduction of vehicle to operations for testing.

- The RU is responsible for assessing the risks associated with safe operation of a train under its safety management system and can use the ISV as evidence of conformity with the relevant TSIs (or NNTRs) as part of its risk assessment.

- The additional aspects that may need to be covered (that are not covered by the ISV) are evidence of
  - conformity to other TSIs and NNTRs not already assessed (obligation on the project entity – verification done by the NoBo for TSIs and the DeBo for NNTRs);
  - any relevant conditions of use and operation associated with the vehicle and with the transit of the vehicle being tested (obligations on the project entity);
  - any additional operational controls or testing methodologies determined by the RU as part of its risk assessment (obligation on the RU)
  - route-specific technical compatibility using RIS-8270-RST (obligation on the RU, although a project entity is free to use RIS-8270-RST to get evidence for route compatibility on behalf of the RU or another party);
  - vehicle registration in R2 using RIS-2453-RST (can be done by the project entity or the RU – see RIS-2453-RST clause 2.2 for GB mainline network specific requirements. The organisation responsible for maintenance during testing or commissioning should be identified as the ECM for that phase only.); and
  - assessment of safety integration with all remaining and relevant aspects such as operations, including any training and competence needs of staff (obligation on the RU).

- An RU should follow the relevant procedures in its SMS around safe operation for such purposes (including assessing route compatibility). This may address the additional aspects identified. A project entity, on the other hand, is highly likely to possess evidence for other aspects such as conditions of use. Therefore, provision/identification of the additional information should not be onerous.
• The RU and the project entity are free to agree how this evidence is provided and who provides it (as the other party or a third party could do this on their behalf) to meet their respective assurance obligations; however, the legal obligations do not shift from one party to the other.

• If an RU or a project entity is in any doubt about its role and responsibilities it should consult with ORR before carrying out testing or transit moves.