



INTERNATIONAL UNION  
OF RAILWAYS

WEBINAR  
**XBORDER - SECTIONS**  
**WORKSHOP 23 FEBRUARY 2021**  
**PRESENTING THE HANDBOOK ON IDEAL CROSS**  
**BORDER SECTIONS FROM AN RU PERSPECTIVE**





**Presenting the handbook on ideal Cross border sections from an RU perspective**

**TECHNICAL ASPECTS**

Steffen Weigelt, DB Cargo

In general, and in the interface area, the technical characteristics of



- a line (including stations) and
- the rolling stock the train is composed of



are the binding parameters that determine if a train is compatible with the line on which it is intended to be operated.

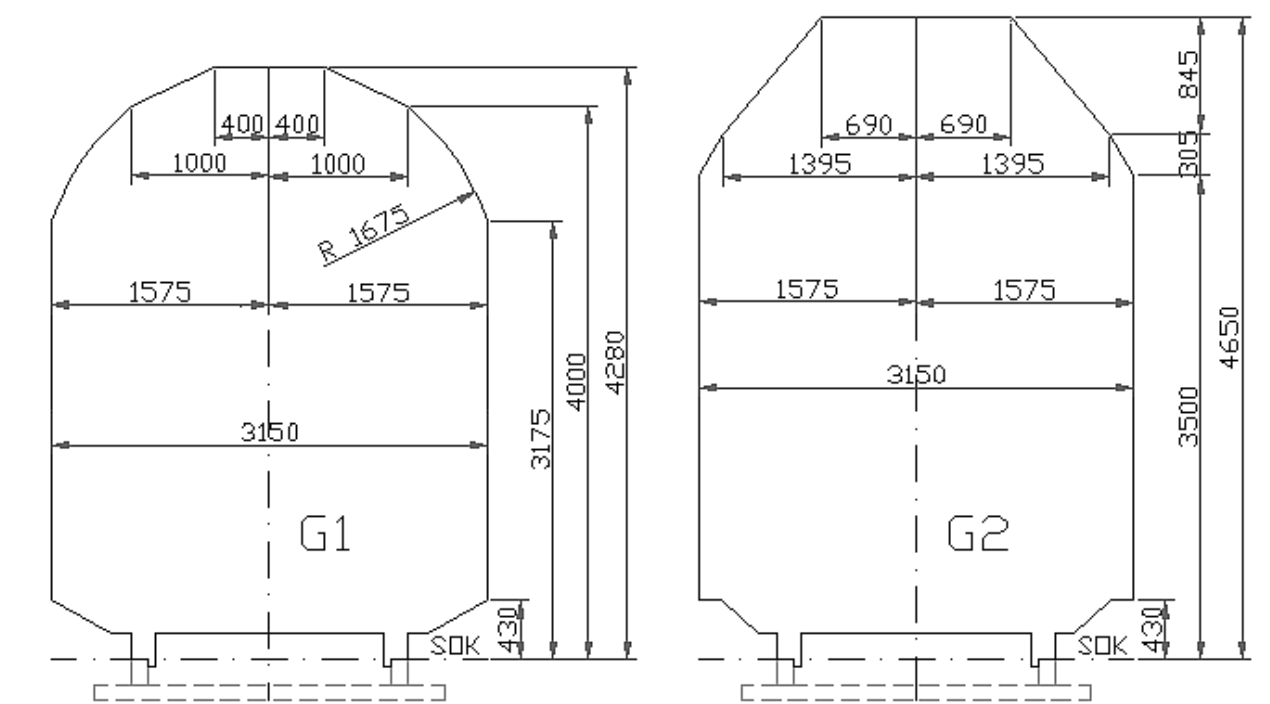
Crossing technical interfaces with multi system rolling stock is possible but expensive in acquisition and operation. Consequently, interfaces which also allow for the operation of single system rolling stock are preferable at least for ICM cases.

The main technical aspects to be considered are as follows:

- Loading gauge;
- Power supply;
- Design of overhead electrification;
- ATP system;
- Radio communication system;
- Track gauge (reference to best practice of borders to the 1 520-mm system).



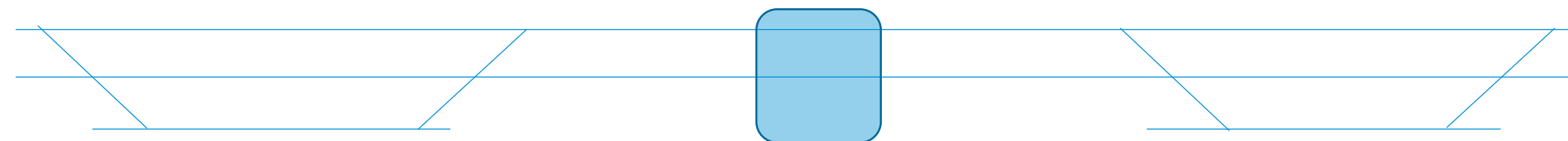
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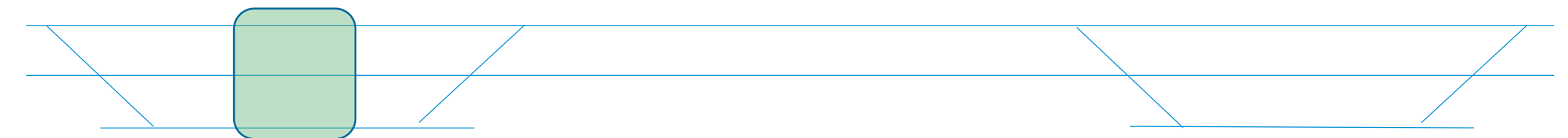
If the interface is not on the open line but connected with a state border, infrastructure components are installed which are not usually part of, or in use on, the national network.

The interface can be located at



An open line

Usage of single system locos possible: ❌



In a station / yard

With overlapping systems

With a switchable section

In an area (overlapping)

Usage of single system locos possible: ✅

Ideally the system interface locates in a station and designed such that:

- single system rolling stock that fulfils the technical standards on only one side of the interface can haul trains into/out of the interface area where the loco is changed and
- multi system rolling stock that fulfils the technical standards on both sides of the interface can pass through without stopping (requirement of matching transition concept).

Intermediate/existing solutions contain only some of the technical aspects and do not provide all the positive aspects of the ideal solution.

The power supply in country A and country B can be

➤ the same, i.e:

Country A:  
15 kV AC 16,6 Hz

Country B:  
15 kV AC 16,6 Hz

➤ different, i.e:

Country A:  
3 kV DC

Country B:  
15 kV AC 16,6 Hz

The best solution for RU operation is the same power supply and catenary on both sides. In this case, only the geometric aspects of the overhead electrification should be regarded. Where this is not possible, a shunting team to shunt locomotives and/or wagons should be organised in a non-discriminatory way by the infrastructure manager.



Actually, there are a number of different Train Protection Systems, Radio Systems and Signalling Systems, i.e.

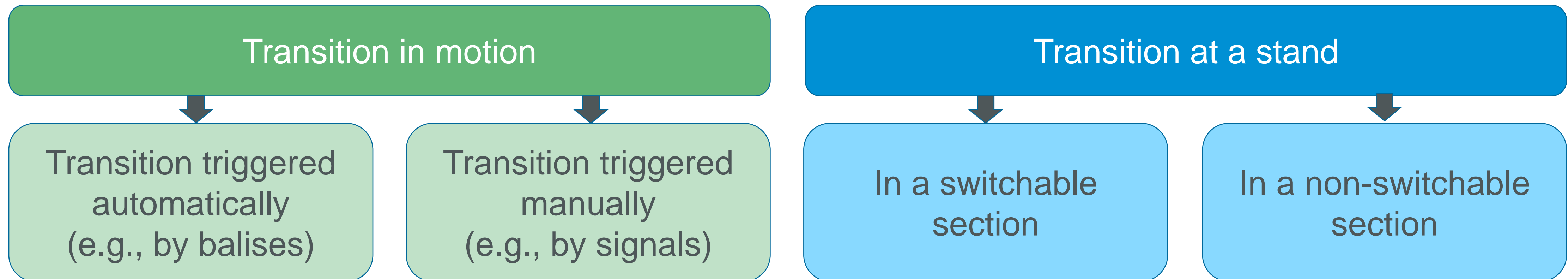
- ETCS on various levels
- class B ATP system, probably different on both sides
- GSM-R and analogue radio systems
- Several In-Cab-, semaphore- and light signalling systems

Ideally the border section is equipped with the same ETCS level (1 or higher), GSM-R communication system with a roaming agreement of the different providers.

- If different ETCS levels are installed, the IM must provide a technical solution to change the level without stopping the train on the open line.
- If conventional class B ATP systems are installed both systems should be installed on the section if possible, so single system locos can run to the border station in the neighboring country.
- If GSM-R standard is not archived on both sides the radio systems should be installed overlapping.

A clear and reliable time scheme for ETCS and GSM-R installation or upgrade must be published by the IMs.

In principle there are two forms of transitions:



Generally, an automatically triggered transition in motion is the best and safest way, but the most cost-effective way for both IM/RUs should be chosen by the design team, considering especially for the location of the transition:

- The time and way needed for transition (because actions are required from the locomotive driver)
- The (minimum) speed of the train to enter the transition section and the expected speed of the train after the successful transition
- Gradient of the transition section
- If more than one aspect is the subject of transition: the sequence of the transition.

The sequence of the transition should be the same at all interfaces between two networks.



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**LEGAL ASPECTS**

Götz Walther, VDV



## General aspects

### EU railway legislation

- Interoperability Directive and Safety Directive (Safety Certificate / Area of Operation)
- TSI OPE
- Directive 2005/47/EC: Working conditions of mobile workers engaged in interoperable services in the railway sector

### Non-railway legislation

- Working time and working conditions regulations
- Health protection laws/ health and safety at work
- Liability towards third parties (insurance)
- Dangerous goods and waste transport
- Other laws

## Demand

Interface area: *“The interface for legal aspects shall be designed so that an RU can reach any location in the interface area applying the law of only one of the two neighbouring Member States.”*

### types of interface defining the usability of the border section:

- a) Interface on open line:** operation on this section has to fulfil the legal aspects valid on each side of the border.
- b) Interface in a station:** Trains can reach (and leave) this area by fulfilling the law of only one country. Within the station overlapping legislation.
- c) Interface in an area (overlapping):** Trains can reach (and leave) this area by fulfilling the law of only one country. Within the station overlapping legislation.



**Players?** → Member States: bi-lateral agreements or (cross-) acceptance

## Safety Directive + Interoperability Directive

Dedicated provisions concern interface areas:

In the case of

- lines to “**stations in neighbouring Member States**”;
- with “**similar network characteristics and similar operating rules**”;
- “when those stations are **close to the border**”

an **area of operation**, respectively an **area of use**, defined to one Member State covers these sections in the neighbouring Member States as well.

Existing bilateral agreements provide practical and proven provisions for operation on these lines.



## TSI OPE

- Framework for staff and trains with special regard to cross-border sections.
- In general the provisions of TSI OPE support the idea of easy access to cross border sections.

## **Directive 2005/47/EC: Working conditions of mobile workers engaged in interoperable services in the railway sector**

- harmonisation of working time regulations all over the EU
- applies to drivers performing border-crossing work
- special provisions for cross border-areas
- no application at border with non-EU states

## **Working time and working conditions regulations – on the cross border section**

- single regime of working time conditions
- conditions of the employing RU should be applicable on the complete cross border section.
- working regime for ground staff
- no need for a separate work permit in the neighbouring country

## **Health protection laws/ health and safety at work – on the cross border section**

Within an RU only one set of regulations should be applicable.

## Liability towards third parties (insurance)

- Liability and insurance requirements should respect the principles of Art. 10 (8) of the Safety Directive.
- The liability and insurance requirements for an RU should not change on the cross border section

## Dangerous goods and waste transport

- If train composition is not changed no additional mandatory checks at the border section.
- Acceptance of paperless transports without any derogation will improve safety.
- transport documents for dangerous goods and waste: Check at the start & no additional checks or physical controls of documents at the border.
- responsibility for the complete rail transport should lie on the contractual carrier (COTIF).

## Other laws

- General principle: Only one set of regulations should be applicable within an RU.





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**COMMERCIAL ASPECTS**

Constantin Woronoff, Lineas

Commercial Aspects ? A two-fold approach :

- with regards to interaction between Railway Underakers & Infrastructure Managers
- between Railway Undertakers

Technical interface	Technical description	Network statement	Path allocation timetabling	Procurement of electrical energy	Language for commercial purposes
<b>Currently often observed</b>					
On open line, no overlapping	Two subsequent documents = one document for each IM		Split responsibilities between IMs make it difficult for RUs	Split responsibilities between IMs make it difficult for RUs	Each IM uses own language
In one station					
Overlapping					
<b>Required</b>					
On open line, no overlapping	One document		Principle of OSS: according to agreement between IMs	Principle of OSS: according to agreement between IMs	RUs should be able to use only one of the two neighbouring languages with both IMs
In one station					
Overlapping					
Remarks:	Particularities related to the border station should be described.				Alternative: use of English for commercial purposes

Facilitate Commercial interaction between RU's (customers) & IM's (Service Providers) by:

- easing **communication** (Documentation – language)
- Streamlining **railpath ordering & energy procurement processes** (OSS-minded)



**Between RU's** – let's look at ourself as well...

With regards to ***Commercial procedures***, we can still do better....

LESS PAPERS & PAPER-LESS

LESS INTERMEDIATE CHECKS

Let's have a **honest** look at our own current practices...

We can still achieve far better results with regards to simplifying the administrative consequences of our commercial agreements with RU's Partners.

Let's keep thinking *COTIF* and working towards a “**Less Papers** and on a **paperless**” way....”



When handing over a train to a substitute carrier (contractor) or when changing the driver, ***no additional compulsory physical check of transport documents*** should be necessary.

Electronic documents for all processes should exist and should be transferred electronically between the partners involved.

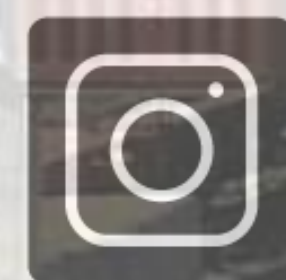
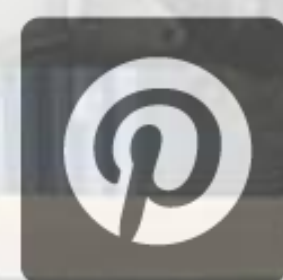




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**Thank you for your attention.**