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Conditions to be complied with for the pantographs of tractive units used in international services

International Railway Solution to be classified in volumes of UIC

V - Rolling Stock

VI - Traction

VII - Way and Works

Application:

With effect from 1st July 2019

All members of the International Union of Railways

Record of updates:

July 2019

First issue.

This IRS integrates in full the content of former UIC Leaflet 608, 3rd edition, dated April 2003.

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The International Railway Solution

The International Railway Solutions (IRS) are structured in a General Part and in some eventual Application Parts.

The General Part is valid worldwide, while the Application Parts are valid for a specific railway application, based on a geographical or on a service implementation.

The eventual Application Parts may thus be added according to the current needs of the Railway Community.

Structure of the International Railway Solution:

IRS 60608: Conditions to be complied with for the pantographs of tractive units used in international services

General Part

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Foreword

An International Railway Solution (IRS) is a document drawn up by consensus and applied on a voluntary basis which aims to facilitate and harmonize railway operation. IRSs are gradually replacing UIC leaflets.

Members of the International Union of Railways (UIC) participate in the creation of IRSs, of which they benefit in full. Furthermore, marketing to railway stakeholders contributes to the sharing and harmonization of good practices, in accordance with UIC's primary goal.

While IRSs do not have the force of law, they are created and published in a professional manner and with technical approval on the basis of UIC procedures, and have full technical legitimacy in the railway sector.

The "General application" section constitutes the heart of the IRS and contains the working group's expertise applicable in the broadest manner. The addition of a "Specific application" aims to cover factors specific to a region, a type of service, etc.

While the application of this IRS is optional, some provisions shall be implemented in all cases to ensure correct application and maintain the system's cohesiveness. Certain operational circumstances require that specific provisions be systematically applied by all users of the document.

For the purposes of understanding, the user acknowledges that the expression of:

- obligation indicates requirements to be respected in order to comply with the expertise expressed in the document (usually "shall" in the present);
- recommendation indicates options that are favourable but not essential (usually "should" in the present);
- permission indicates options that are recognized but without consequence (usually "may", "need not" in the present);
- capacity indicates possibilities from a technical standpoint and not permissions or probabilities (usually "can" in the present).

Obligation, recommendation and capacity can be expressed in the negative to indicate prohibiting, non-recommendation and incapacity.

If applicable, notably for the purposes of compliance with a UIC approval, passages that are recommended or mandatory for the cohesiveness of the system will be accompanied by the letters "R" and "MCS" respectively.

This IRS reflects the following UIC working group expertise:
UIC Energy and Electric Traction Expert Group

It integrates in full or in part the following UIC leaflets:
- Leaflet 608, 3rd edition, April 2003

It complements the following standards:
- none

The following IRSs constitute a complementary series:
- none

Summary

This IRS sets out the general characteristics of the pantographs of the various railways, which apply to lines carrying or suitable for carrying international traffic.

This IRS also covers motive power units that may be worked on high-speed lines.

Normative references

The following referenced documents are indispensable for the application of this document.

For dated references, only the edition cited applies.

For undated references, the latest edition of the referenced document (including any amendments) applies.

1. UIC Leaflets

International Union of Railways (UIC)

UIC Leaflet 505-1: Railway transport stock - Rolling stock construction gauge, 10th edition, May 2006

UIC Leaflet 505-5: History, justification and commentaries on the elaboration and development of UIC leaflets of the series 505 and 506 on gauges, 3rd edition, October 2010

UIC Leaflet 606-1: Consequences of the application of the kinematic gauge defined by UIC Leaflets in the 505 series on the design of the contact lines, 1st edition, January 1987

UIC Leaflet 611: Regulations governing acceptance of electric locomotives, power cars and multiple-unit sets for running on international services, 6th edition, February 2001

UIC Leaflet 820: Technical specification for the supply of spring steel flat bars for parallel leaf or volute springs, 6th edition, December 2003

2. European Standards

European Committee for Standardization (CEN)

EN 50367: Railway applications - Current collection systems - Technical criteria for the interaction between pantograph and overhead line (to achieve free access), August 2006

Association Française de Normalisation (AFNOR)

A53-301: Semi-worked non-ferrous products. Copper bars and sections, withdrawn 20/07/1989

3. International Standards

International Electrotechnical Commission (IEC)

IEC 62486:2017: Railway applications - Current collection systems - Technical criteria for the interaction between pantograph and overhead contactline (to achieve free access)

Conditions to be complied with for the pantographs of tractive units used in international services

General Part

1 - General - Field of application

1.1 - The essential regulations to be observed in the construction of tractive units to enable them to run on international services are laid down in *UIC Leaflet 611* (see [Normative references - page 4](#)).

Nevertheless, the question of current collection requires special attention in view of the diversity of the contact lines on each railway or each traction system.

1.2 - This IRS sets out the general characteristics of the pantographs of the various railways, which apply to lines carrying or suitable for carrying international traffic.

1.3 - This IRS also covers motive power units that may be worked on high-speed lines.