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**Evaluation on Catenary Static Quality and Catenary/pantograph
Dynamic Performance**



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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 harmonise 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 harmonisation 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.

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").
- recommendation indicates options that are favourable but not essential (usually "should").
- permission indicates options that are recognised but without consequence (usually "may").
- capacity indicates possibilities from a technical standpoint and not permissions or probabilities (usually "can").

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:

Project on static and dynamic performance of catenary

It integrates in full or in part the following UIC leaflets:

- none

It complements the following standards:

- none

The following IRSs constitute a complementary series:

- none

Executive summary

This IRS provides a quantitative methodology to describe the section quality of overhead contact lines (OCL). This methodology has been developed in order to provide data support for infrastructure managers to better understand the quality of OCL, define maintenance strategies and optimise maintenance resources.

The methodology can be applied to OCLs on newly built lines and operational lines which need adjustments and repair, or to describe the static state of the catenary and the interaction quality between catenary and pantograph.

This IRS is accompanied by software to apply the methodology described in it. This software is an integral part of this IRS and cannot be used separately. Details of its use are given in [Appendix A - page 18](#) of this document.

Field of application

This IRS sets out to quantify the section quality of OCLs to facilitate infrastructure maintenance and management.

The methodology provided in this document can be applied to all kinds of OCL (see [Abbreviations and Symbols - page 6](#)) and can also be used as a reference for the quantitative evaluation of overhead contact lines.

Reference documents

The following referenced documents are indispensable for the application of this IRS. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

1. International Railway Solution (IRS)

International Union of Railways (UIC)

- [1] *IRS 70015: Railway Application - Fixed Installations Diagnosis of OCL Conditions*

2. International Standards

International Electrotechnical Commission (IEC)

- [2] *IEC 62486: Railway applications - Current collection systems - Technical criteria for the interaction between pantograph and overhead line*