

INTERNATIONAL STANDARD



Railway applications – Current collection systems – Validation of simulation of the dynamic interaction between pantograph and overhead contact line



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CONTENTS

FOREWORD.....	6
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	9
4 Symbols and abbreviated terms.....	13
5 General	14
5.1 Overview of the validation process.....	14
5.2 Typical application	17
6 Modelling of the pantograph	17
6.1 General requirements	17
6.2 Input data requirements	17
6.2.1 General	17
6.2.2 Mass – spring – damper models (lumped parameter models).....	18
6.2.3 Multi-body models	18
6.2.4 Transfer function models	18
6.2.5 Hardware in the loop	18
6.3 Validation of pantograph models.....	18
7 Modelling of the overhead contact line.....	20
7.1 General requirements	20
7.2 Data requirements	20
7.3 Static check of overhead contact line model.....	21
8 Parameters of simulation	21
9 Output	22
9.1 General.....	22
9.2 Contact force	22
9.3 Contact wire displacement	23
9.4 Pantograph displacement.....	23
10 Validation with measured values.....	23
10.1 General.....	23
10.2 Comparison values	24
10.3 Limits of validation.....	25
10.3.1 Application of simulation tool to other conditions	25
10.3.2 Permissible changes of pantograph characteristics.....	25
10.3.3 Permissible changes of overhead contact line parameters	25
10.3.4 Permissible changes of the simulation parameters.....	25
11 Reference model	26
11.1 Purpose of reference model	26
11.2 Reference model data.....	26
11.3 Parameters of simulation	26
11.4 Reference model results	27
Annex A (normative) Reference model specification	28
A.1 General.....	28
A.2 Overhead contact line data	28
A.2.1 General data.....	28
A.2.2 Special data for the overhead contact line reference model – AC – Simple.....	30

A.2.3	Special data for the reference model of overhead contact line AC – Stitched	31
A.2.4	Special data for the reference model of overhead contact line DC – Simple	32
A.3	Pantograph data	33
A.4	Results of simulations for reference models	34
Annex B (normative)	Model specifications and measurement results for validation	37
B.1	Measurement results of simple AC high speed overhead contact line	37
B.1.1	Simulation data for overhead contact line model	37
B.1.2	Pantograph model	47
B.1.3	Measured data of dynamic interaction for validation	47
B.2	Measurement results of a stitched AC high speed overhead contact line	48
B.2.1	General	48
B.2.2	Simulation data for overhead contact line model	48
B.2.3	Pantograph data	59
B.2.4	Calculated and measured data of OCL-rest position for validation	60
B.2.5	Measuring data of dynamic interaction for validation	60
B.3	Measurement results of simple DC high speed overhead contact line	61
B.3.1	General	61
B.3.2	Simulation data for overhead contact line model	61
B.3.3	Pantograph data	75
B.3.4	Measured data of dynamic interaction for validation	75
Annex C (informative)	Assessment process example for dynamic interaction between "new" OCL design or "new" pantograph design for interoperability purpose	77
Annex D (informative)	National annex for Japan – Permissible changes of the simulation parameters	81
	Bibliography	82
	Figure 1 – Evaluation process	16
	Figure A.1 – AC – Simple – Overhead contact line model	30
	Figure A.2 – AC – Stitched catenary overhead contact line model	31
	Figure A.3 – DC – Simple catenary overhead contact line model	32
	Figure A.4 – Pantograph model	33
	Figure B.1 – Cantilever model elements in Table B.2, Table B.42 and Table B.49	38
	Figure B.2 – Basic dropper arrangement span type ST1	54
	Figure B.3 – Basic dropper arrangement span type ST2	54
	Figure B.4 – Basic dropper arrangement span type ST3	54
	Figure B.5 – Basic dropper arrangement span type ST4	55
	Figure B.6 – Basic dropper arrangement span type ST5	55
	Figure B.7 – Basic dropper arrangement span type ST6	55
	Figure B.8 – Basic dropper arrangement span type ST7	56
	Figure B.9 – Basic support arrangement Mast Type MT1 (pull-off)	58
	Figure B.10 – Basic support arrangement Mast Type MT2 (push-off)	59
	Figure B.11 – Basic support arrangement mast type MT3 (tube steady arm)	59
	Figure C.1 – Method of OCL assessment	79
	Figure C.2 – Method of pantograph assessment	80

Table 1 – Required accuracy of simulated static values	21
Table 2 – Required accuracy of simulated dynamic values.....	24
Table 3 – Combinations of OCL and pantograph reference models	26
Table A.1 – Data for reference overhead contact lines	29
Table A.2 – AC – Simple – Overhead contact line model – Geometry and elasticity of droppers	31
Table A.3 – AC – Stitched catenary overhead contact line model – Geometry and elasticity of droppers.....	32
Table A.4 – DC – Simple catenary overhead contact line model – Geometry and elasticity of overhead contact line	33
Table A.5 – Pantograph model parameters	34
Table A.6 – Ranges of results from reference model AC simple	35
Table A.7 – Ranges of results from reference model AC stitched	35
Table A.8 – Ranges of results from reference model DC simple	36
Table B.1 – Mechanical values of wires	37
Table B.2 – Mechanical values of clamps and other OCL-components.....	37
Table B.3 – Pre-sag information in open route and overlap	38
Table B.4 – Cantilever information in open route and overlap: steady arm geometry	38
Table B.5 – Span definition of tension length 1	39
Table B.6 – Span definition of tension length 2	39
Table B.7 – Span definition of tension length 3	39
Table B.8 – Support definition of tension length 1	40
Table B.9 – Support definition of tension length 2	41
Table B.10 – Support definition of tension length 3	42
Table B.11 – Span length = 44,7 m	42
Table B.12 – Span length = 45,3 m	43
Table B.13 – Span length = 45,5 m	43
Table B.14 – Span length = 45,5 m	43
Table B.15 – Span length = 45,5 m	43
Table B.16 – Span length = 50 m	43
Table B.17 – Span length = 49,8 m	43
Table B.18 – Span length = 49,2 m	43
Table B.19 – Span length = 49,2 m	44
Table B.20 – Span length = 49,8 m	44
Table B.21 – Span length = 50 m	44
Table B.22 – Span length = 48,5 m	44
Table B.23 – Span length = 49,5 m	44
Table B.24 – Span length = 54 m	44
Table B.25 – Span length = 50 m	45
Table B.26 – Span length = 49,8 m	45
Table B.27 – Span length = 49,2 m	45
Table B.28 – Span length = 49,2 m	45
Table B.29 – Span length = 49,8 m	45
Table B.30 – Span length = 41 m	45

Table B.31 – Span length = 38 m	46
Table B.32 – Span length = 45 m	46
Table B.33 – Span length = 40 m	46
Table B.34 – Span length = 47,5 m	46
Table B.35 – Span length = 49,5 m	46
Table B.36 – Span length = 54 m	46
Table B.37 – Span length = 49,8 m	46
Table B.38 – Span length = 49,2 m	47
Table B.39 – Pantograph model parameters	47
Table B.40 – Measurement result from line test	47
Table B.41 – Mechanical values of wires and tubes	48
Table B.42 – Mechanical values of clamps and other OCL-components	49
Table B.43 – Position of droppers and CW-height at dropper	50
Table B.44 – Data of supports	56
Table B.45 – Pantograph model parameters	60
Table B.46 – Dropper length and system elasticity	60
Table B.47 – Measurement result from line test	61
Table B.48 – Mechanical values of wires	62
Table B.49 – Mechanical values of clamps and other OCL components	62
Table B.50 – Position of droppers and CW-height at dropper	63
Table B.51 – Data of supports	73
Table B.52 – Pantograph model parameters	75
Table B.53 – Measurement result from line test	76

INTERNATIONAL ELECTROTECHNICAL COMMISSION

RAILWAY APPLICATIONS – CURRENT COLLECTION SYSTEMS – VALIDATION OF SIMULATION OF THE DYNAMIC INTERACTION BETWEEN PANTOGRAPH AND OVERHEAD CONTACT LINE

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Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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RAILWAY APPLICATIONS – CURRENT COLLECTION SYSTEMS – VALIDATION OF SIMULATION OF THE DYNAMIC INTERACTION BETWEEN PANTOGRAPH AND OVERHEAD CONTACT LINE

1 Scope

Simulation techniques are used to assess the dynamic interaction between overhead contact lines and pantographs, as part of the prediction of current collection quality. This document specifies functional requirements for the validation of such simulation tools to ensure confidence in, and mutual acceptance of the results of the simulations.

This document deals with:

- input and output parameters of the simulation;
- comparison with line test measurements, and the characteristics of those line tests;
- validation of pantograph models;
- comparison between different simulation tools;
- limits of application of validated methods to assessments of pantographs and overhead contact lines.

This document applies to the current collection from an overhead contact line by pantographs mounted on railway vehicles. It does not apply to trolleybus systems.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60494-1:2013, *Railway applications – Rolling stock – Pantographs – Characteristics and tests – Part 1: Pantographs for main line vehicles*

IEC 60913:2024, *Railway applications – Fixed installations – Electric traction overhead contact line systems*

IEC 62846:2016, *Railway applications – Current collection systems – Requirements for and validation of measurements of the dynamic interaction between pantograph and overhead contact line*

IEC 62480:2017, *Railway applications – Current collection systems – Technical criteria for the interaction between pantograph and overhead contactline (to achieve free access)*