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Incorporating corrigendum July 2016



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Railway applications — Compatibility between rolling stock and train detection systems

Part 2: Compatibility with track circuits

bsi.

National foreword

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Bahnanwendungen - Kompatibilität zwischen Fahrzeugen und Gleisfreimeldesystemen - Teil 2: Kompatibilität mit Gleisstromkreisen

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Contents

Foreword	5
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms, definitions and abbreviations	8
3.1 Terms and definitions	8
3.2 Abbreviations	9
4 General aspects of interference current limits for RST	10
4.1 Derivation of interference current limits for RST	10
4.2 Application of Interference current limits to RST design	11
4.3 System definition	11
Annex A (normative) Interference current limits for RST	14
A.1 Definitions	14
A.2 Preferred track circuits for DC traction	14
A.3 Preferred track circuits for RST for 16,7 Hz traction	15
A.4 Preferred track circuits for RST for 50 Hz traction	15
A.5 UGSK3	16
A.6 UGSK95	16
A.7 FTGS 46 / FTGS 917/TCM100	16
A.8 GRS	17
A.9 Jade	17
A.10 Coded track circuits for DC traction	18
A.11 Digicode	18
A.12 CoRTo	18
A.13 CBDAC	19
A.14 Preferred track circuit in Czech Republic	19
A.15 All kind of UM71 equipment with RENUM receptor and UC 9500	20
A.16 DC track circuits in UK	20
A.17 EBI Track 200 (TIZ)	21
A.18 EBI Track 400	21
A.19 FS3000	22
A.20 FS2000 / FS 2500 / FS 2550 / FS 5000	23
A.21 Track circuits of 95 Hz and 105 Hz in Norway	23
A.22 PK 10470	24
Annex B (normative) Rolling Stock Interference Evaluation methods	25
B.1 General	25
B.2 Selected evaluation method	25
B.3 Derivation of the interference current limits for RST	26
B.4 Criteria for compatibility	27
B.4.1 Location	27
B.4.2 Criteria 27	27

B.4.3 Safety and availability.....	27
B.5 Defined interference current limits for RST: for use under interoperability regulation.....	27
B.6 Test specifications for RST interference measurements.....	27
B.6.1 General.....	27
B.6.2 Purpose of compatibility tests.....	28
B.7 Test equipment requirements (hardware)	31
B.8 Train interference analysis and evaluation methods	31
B.8.1 Evaluation method.....	31
B.8.2 Summation rules	32
B.9 Requirements for on-train interference monitoring and control.....	33
B.10 Documentation	34
Annex C (informative) Infrastructure data	35
C.1 Supply frequency	35
C.2 Infrastructure characterization	35
C.3 Power supply impedance	36
C.4 Approximate calculation of the lowest power supply resonance frequency.....	36
C.5 Simplified method to handle resonance effects with roof cables	37
C.6 Return current transfer function.....	39
Annex D (informative) Typical voltage resonance graphs.....	40
D.1 General	40
D.2 Interface voltage/current measurement.....	40
D.3 Voltage resonance graphs for 15 kV 16,7 Hz network.....	40
D.4 Voltage resonance graphs for 25 kV, 50 Hz network.....	41
D.5 Voltage resonance graphs for 1 500 V DC network.....	41
D.6 Voltage resonance graphs for 3 000 V DC network.....	42
Bibliography.....	43
Figures	
Figure 1 — Examples of IUs	9
Figure 2 — System configuration considered for interference.....	12
Figure B.1 — Time domain method	26
Figure B.2 — Superposition factors.....	33
Figure C.1 — Infrastructure characterization	35
Figure C.2 — Power supply admittance	36
Figure C.3 — Resonance effects for various RST positions.....	38
Figure C.4 — Resonance effects for various RST input capacitance.....	39
Figure D.1 — Voltage resonance graph for 15 kV 16,7 Hz network.....	41
Figure D.2 — Voltage resonance graphs for 25 kV 50 Hz network.....	41
Figure D.3 — Voltage resonance graphs for 1 500 V DC network.....	42
Figure D.4 — Impedance graphs for 3 000 V DC network.....	42

Tables

Table A.1 — UGSK3	16
Table A.2 — UGSK95	16
Table A.3 — FTGS/TCM100	16
Table A.4 — GRS	17
Table A.5 — GRS - limits due to rectifying traction supply	17
Table A.6 — Jade 25 kV, 50 Hz lines	17
Table A.7 — Jade DC lines	18
Table A.8 — Limits for BACC and CDB 83,3 Hz	18
Table A.9 — Digicode	18
Table A.10 — CoRTo	18
Table A.11 — CBDAC	19
Table A.12 — 50 Hz AC and DC Traction	19
Table A.13 — UM71 C, UM71 CB, UM71C TVM and UC9500	20
Table A.14 — DC track circuits in UK	20
Table A.15 — EBI Track 200 (TI-21) Double Rail Limit for in-band frequencies — AC traction only	21
Table A.16 — EBI Track 200 (TI-21) Double Rail Limit for in-band frequencies — DC traction or non-electrified lines	21
Table A.17 — EBI Track 400 Open Line Frequency Double Rail Track Circuit Limit for in-band frequencies	21
Table A.18 — EBI Track 400 Open Line Frequency Double Rail Track Circuit Limit for out of band frequencies	22
Table A.19 — EBI Track 400 Station Area Frequency Double Rail Track Circuit Limit	22
Table A.20 — FS3000 3 kV, DC lines	22
Table A.21 — FS3000 25 kV, 50 Hz lines	23
Table A.22 — FS2000 / FS 2500 / FS 2550 / FS 5000 3 kV, DC lines	23
Table A.23 — Track circuits of 60 Hz and 105 Hz in Norway	23
Table A.24 — JRK 10470	24
Table B.1 — Reduction factors for capacitive input impedance	30
Table B.2 — Summation categories	32
Table B.3 — K factor values	33
Table C.1 — Supply frequency	35
Table C.2 — Capacitance parameters for electrified lines	37
Table C.3 — No-load supply voltage levels	37
Table D.1 — Measurement parameters	40
Table D.2 — Measurement frequencies	40

Foreword

This document (CLC/TS 50238-2:2015) has been prepared by CLC/SC 9XA "Communication, signalling and processing systems" of Technical Committee CLC/TC 9X, "Electrical and electronic applications for railways".

This document supersedes CLC/TS 50238-2:2010.

CLC/TS 50238-2:2015 includes the following significant technical changes with respect to CLC/TS 50238-2:2010:

- The interference current limits for RST have been updated in the normative Annex A.
- The measurement and evaluation methods for verifying conformity of rolling stock to the limits for interference current emissions have been moved to the new normative Annex B.

This Technical Specification is intended to become Part 2 of the EN 50238 series published under the title *Railway applications — Compatibility between rolling stock and train detection systems*. This series consists of:

- *Part 1: General*¹⁾;
- *Part 2: Compatibility with track circuits* [this document];
- *Part 3: Compatibility with axle counters*.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

1) The existing EN 50238:2003 was renumbered EN 50238-1 when the voting procedure on Parts 2 and 3 was closed.

Introduction

This Technical Specification is being developed to permit compliance with the Interoperability Directives (High Speed and Conventional).

This Part 2 of the series defines:

- a set of interference current limits for rolling stock based on defined track circuits,
- measurement and evaluation methods to verify rolling stock interference current emissions and demonstrate compatibility with the track circuits;
- traceability of compatibility requirements (types of track circuit and associated limits).

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1 Scope

This Technical Specification defines, for the purpose of ensuring compatibility between rolling stock and track circuits, the limits for interference current emissions from rolling stock. The measurement and evaluation methods for verifying conformity of rolling stock to these limits are presented in a dedicated annex.

The interference limits are only applicable to interoperable rolling stock which is intended to run on lines exclusively equipped with preferred track circuits listed in this Technical Specification. National Notified Technical Rules are still to be used in all cases, where the line over which the rolling stock is intended to run is equipped with any type of older version or non-preferred track circuits that are not listed in this Technical Specification. However, the rolling stock test methodology (infrastructure conditions, test configurations, operational conditions, etc.) presented in this Technical Specification is also applicable to establish compatibility with non-preferred track circuits.

This Technical Specification gives guidance on the derivation of interference current limits specified for rolling stock and defines measurement methods and evaluation criteria in a dedicated annex.

This Technical Specification defines:

- a) a set of interference current limits for RST (Rolling Stock) applicable for each of the following types of traction system:
 - 1) DC (750 V, 1,5 kV and 3 kV);
 - 2) 16,7 Hz AC;
 - 3) 50 Hz AC;
- b) methodology for the demonstration of compatibility between rolling stock and track circuits;
- c) measurement method to verify interference current limits and evaluation criteria.

NOTE 1 The basic parameters of track circuits associated with the interference current limits for RST are not in the scope of this Technical Specification.

NOTE 2 Any phenomena linked to traction power supply and associated protection (over voltage, short-circuit current, under- and over-voltage if regenerative brakes are used) is part of the track circuit design and outside the scope of this Technical Specification.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50126 (all parts), *Railway applications — The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS)*

EN 50128, *Railway applications — Communication, signalling and processing systems — Software for railway control and protection systems*

EN 50129, *Railway applications — Communication, signalling and processing systems — Safety related electronic systems for signalling*

EN 50238-1:2003, *Railway applications — Compatibility between rolling stock and train detection systems — Part 1: General*

CLC/TS 50238-3:2013, *Railway applications — Compatibility between rolling stock and train detection systems — Part 3: Compatibility with axle counters*

EN 50388, *Railway Applications — Power supply and rolling stock — Technical criteria for the coordination between power supply (substation) and rolling stock to achieve interoperability*

CLC/TR 50507, *Railway applications — Interference limits of existing track circuits used on European railways*