BRITISH STANDARD

BS EN 50121-3-1:2000

Railway applications — Electromagnetic compatibility —

Part 3-1: Rolling stock — Train and complete vehicle

The European Standard EN 50121-3-1:2000 has the status of a British Standard

ICS 29.280; 33.100.01; 45.060.01

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee GEL/9, Railway electrotechnical applications, which has the responsibility to:

— aid enquirers to understand the text;

— present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;

— monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled "International Standards Correspondence Index", or by using the "Find" facility of the BSI Standards Electronic Catalogue.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 14, an inside back cover and a back cover.

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English version

Railway applications - Electromagnetic compatibility - Part 3-1: Rolling stock - Train and complete vehicle

Applications ferroviaires - Compatibilité électromagnétique Partie 3-1: Matériel roulant - Trains et véhicules complets

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Standard was prepared by SC 9XB, Electromechanical material on board of rolling stock, of Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways, in accordance with the decisions taken by TC 9X.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50121-3-1 on 2000-04-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2001-04-01

- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2003-04-01

This European Standard is to be read in conjunction with EN 50121-1:2000.

This standard forms Part 3-1 of the European Standard series EN 50121, published under the general title Railway applications – Electromagnetic compatibility. The series consists of:

- Part 1: General;
- Part 2: Emission of the whole railway system to the outside world;
- Part 3-1: Rolling stock – Train and complete vehicle;
- Part 3-2: Rolling stock – Apparatus;
- Part 4: Emission and immunity of the signalling and telecommunications apparatus;
- Part 5: Emission and immunity of fixed power supply installations and apparatus.

Annexes designated “normative” are part of the body of the standard.

Annexes designated “informative” are given only for information.

In this standard, annex A is informative and annex B is normative.

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Introduction

High powered electronic equipment together with low power microcontrollers and other electronic devices are being installed on trains in great numbers. Electromagnetic compatibility has therefore become a critical issue for the design of train related apparatus as well as of the train as a whole.

This Product Standard for rolling stock sets limits for electromagnetic emission and immunity in order to ensure a well functioning system within its intended environment.

Immunity limits are not given for the complete vehicle. Part 3-2 of this standard defines requirements for the apparatus installed in the rolling stock, since it is impractical to test the complete unit. An EMC plan shall be established for equipment covered by this standard.

1 Scope

This European Standard specifies the emission and immunity requirements for all types of rolling stock. It covers traction stock and trainsets including urban vehicles for use on city streets.

The frequency range considered is from d.c. to 400 GHz. At present, testing is not defined for frequencies above 1 GHz.

The scope of this part of the standard ends at the interface of the stock with its respective energy inputs and outputs. In the case of locomotives, trainsets, trams, etc., this is the sliding contact (or the third rail); in case of hauled stock, this is the a.c. or d.c. auxiliary power connector. However, since the pantograph is part of the tractive stock, it is not entirely possible to exclude the effects of this interface.

The electromagnetic interference concerning the railway system as a whole is dealt with in EN 50121-2.

These specific provisions are additional to the general provisions in EN 50121-1.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 50121-1	Railway applications – Electromagnetic compatibility – Part 1: General.
EN 50121-2	Railway applications – Electromagnetic compatibility – Part 2: Emission of the whole railway system to the outside world.
EN 50121-3-2	Railway applications - Electromagnetic compatibility – Part 3-2: Rolling stock – Apparatus.
CISPR 16-1	Specification for radio disturbance and immunity measuring apparatus and methods – Part 1: Radio disturbance and immunity measuring apparatus.
ITU-T	Directive concerning the protection of telecommunication lines against harmful effects from electrical power and electrified railway lines – Volume VI: Danger and disturbances.

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