

EUROPEAN STANDARD

EN 50121-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2017

ICS 29.280; 33.100.10; 45.020

Supersedes EN 50121-2:2015

English Version

Railway applications - Electromagnetic compatibility - Part 2: Emission of the whole railway system to the outside world

Applications ferroviaires - Compatibilité électromagnétique -
Partie 2: Emission du système ferroviaire dans son
ensemble vers le monde extérieur

Bahnwendungen - Elektromagnetische Verträglichkeit -
Teil 2: Störaussendungen des gesamten Bahnsystems in
die Außenwelt

This European Standard was approved by CENELEC on 2016-11-07. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword.....	4
1 Scope.....	5
2 Normative references.....	5
3 Terms, definitions and abbreviations	5
3.1 Terms and definitions.....	5
3.2 Abbreviations	6
4 Emission limits	6
4.1 Emission from the open railway system during train operation	6
4.2 Radio frequency emission from railway substations	6
5 Method of measurement of emission from moving rolling stock and substations	7
5.1 General and specific measurement parameters	7
5.1.1 General measurement parameters.....	7
5.1.2 Measurement parameter for moving trains.....	9
5.1.3 Measurement parameter for railway substations	10
5.2 Acquisition methods.....	10
5.2.1 General.....	10
5.2.2 Fixed frequency method	11
5.2.3 Frequency sweeping method	11
5.3 Transients	11
5.4 Measuring conditions	11
5.4.1 Weather conditions.....	11
5.4.2 Railway system operating modes	12
5.4.3 Multiple sources from remote trains.....	12
5.5 Test report	12
Annex A (informative) Background to the method of measurement.....	18
A.1 Introduction	18
A.2 Requirement for a special method of measurement	18
A.3 Justification for a special method of measurement	18
A.4 Frequency range	19
A.5 Antenna positions	19
A.6 Conversion of results if not measured at 10 m.....	19
A.7 Measuring scales	19
A.8 Repeatability of results.....	19
A.9 Railway system conditions	20
A.9.1 Weather.....	20

A.9.2	Speed, traction power	20
A.9.3	Multiple sources from remote trains.....	20
A.10	Number of traction vehicles per train.....	20
Annex B (informative)	Cartography — Electric and Magnetic fields at traction frequencies	21
Annex C (informative)	Emission values for lower frequency range.....	22
Bibliography	25