Irish Standard Recommendation
S.R. CLC/TR 50659:2017

Electromagnetic characteristics of linear cable management systems (CMS)

S.R. CLC/TR 50659:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

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National Foreword

S.R. CLC/TR 50659:2017 is the adopted Irish version of the European Document CLC/TR 50659:2017, Electromagnetic characteristics of linear cable management systems (CMS)

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TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

CLC/TR 50659

March 2017

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English Version

Electromagnetic characteristics of linear cable management systems (CMS)

Rapport Technique - Caractéristiques électromagnétiques des systèmes linéaires de câblage

Elektromagnetische Eigenschaften von linearen Kabelführungssystemen

This Technical Report was approved by CENELEC on 2017-03-06.

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.

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European foreword

This document (CLC/TR 50659:2017) has been prepared by CLC/TC 213, “Cable management systems”.

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

This Technical Report provides test methods for the measurement of electromagnetic characteristics of linear Cable Management Systems (CMS).

This is a European Technical Report for cable management products used for electro-technical purposes. It relates to the Council Directives on the approximation of laws, regulations and administrative provisions of the Member States relating to Low Voltage Directive 2014/35/EU through consideration of the essential requirements of this Directive.

This European Technical Report is supported by separate standards to which references are made.

1 Scope

This Technical Report provides test methods for the measurement of the following electromagnetic characteristics of lengthwise cable management systems like conduit systems according to EN 61386 series, cable trunking systems and cable ducting systems (CTS/CDS) according to EN 50085 series and cable tray and cable ladder systems according to EN 61537:

— shielding effectiveness of magnetic field,

— transfer impedance.

This Technical Report also provides guidance on how these characteristics can be declared and may be used.

Powertrack systems covered by EN 61534 series are not covered by this edition of the Technical Report and may be considered in a new edition.

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 61000-4-5, *Electromagnetic Compatibility (EMC) — Part 4-5: Testing and measurement techniques — Surge immunity test (IEC 61000-4-5)*

EN 61000-5-7, *Electromagnetic compatibility (EMC) - Part 5-7: Installation and mitigation guidelines - Degrees of protection by enclosures against electromagnetic disturbances (EM code)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
shielding effectiveness
SE
ability of a cable management system to attenuate an electromagnetic signal as it enters or exits the CMS, quantified as the ratio of a signal received (from a transmitter) without the shield, to the signal received with the shield in place

3.2
magnetic field
constituent of an electromagnetic field which is characterized by the magnetic field strength H together with the magnetic flux density B

Note 1 to entry: In French, the term “champ magnétique” is also used for the quantity magnetic field strength.

[SOURCE: IEV 121-11-69]

3.3
signal to noise ratio
SNR
ratio in dB between the measured peak current $I_{1,max}$ in the current loop when the current probe is connected to the current loop and the measured peak current $I_{N,max}$ when the current probe is not connected to the current loop but in a narrow position of the current loop. Both peak currents measured at the same excitation current in the excitation winding

$$SNR\ (dB) = 20 \times \log\left(\frac{I_{1,\max}}{I_{N,\max}}\right)$$

Note 1 to entry: $I_{1,max}$ and $I_{N,max}$ show their maxima at different time.