Irish Standard Recommendation
S.R. CLC/TR 50083-2-2:2014

Cable networks for television signals, sound signals and interactive services - Part 2-2: Interference issues for DVB-T reception in the presence of LTE base station signals

S.R. CLC/TR 50083-2-2:2014

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NSAI	T +353 1 807 3800	Sales:
1 Swift Square,	F +353 1 807 3838	T +353 1 857 6730
Northwood, Santry	E standards@nsai.ie	F +353 1 857 6729
Dublin 9	W NSAI.ie	W standards.ie

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Cable networks for television signals, sound signals and interactive services - Part 2-2: Interference issues for DVB-T reception in the presence of LTE base station signals

Réseaux de distribution par câbles pour signaux de télévision, signaux de radiodiffusion sonore et services interactifs - Partie 2-2: Problèmes de perturbations concernant la réception de signaux DVB-T en présence de signaux émis par les stations de base LTE

Kabelnetze für Fernsehsignale, Tonsignale und interaktive Dienste - Teil 2-2: Störaspekte für den DVB-T-Empfang unter Einwirkung von LTE-Basisstations-Signalen

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European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

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

Contents

Foreword

This document (CLC/TR 50083-2-2:2014) has been prepared by CLC/TC 209 “Cable networks for television signals, sound signals and interactive services”.

This document is currently submitted to voting in accordance with the Internal Regulations, Part 2, Subclause 11.4.3.3 (simple majority) for acceptance as a CENELEC Technical Report.

1 Scope

1.1 General

Standards and deliverables of EN 50083 (all parts) and EN 60728 (all parts) deal with cable networks including equipment and associated methods of measurement for headend reception, processing and distribution of television and sound signals and for processing, interfacing and transmitting all kinds of data signals for interactive services using all applicable transmission media. These signals are typically transmitted in networks by frequency-multiplexing techniques.

For instance, this includes

a) regional and local broadband cable networks,

b) extended satellite and terrestrial television distribution systems,

c) individual satellite and terrestrial television receiving systems,

and all kinds of equipment, systems and installations used in such cable networks, distribution and receiving systems.

The extent of this standardization work is from the antennas and/or special signal source inputs to the headend or other interface points to the network up to the terminal input of the customer premises equipment.

The standardization work will consider coexistence with users of the RF spectrum in wired and wireless transmission systems.

The standardization of any user terminals (i.e. tuners, receivers, decoders, multimedia terminals etc.) as well as of any coaxial, balanced and optical cables and accessories thereof is excluded.

1.2 Specific scope of CLC/TR 50083-2-2

The radiated fields produced by LTE Base Stations (LTE-BS) need special and careful attention when received by individual or community antenna television systems because of high level signals injected at the input port of wideband amplifiers placed on the antenna mast or in the headend. These high level disturbing signals in the 800 MHz band are able to cause interference problems by producing overload and/or strong intermodulation products in wide band amplifiers and to disturb or even prevent the reception of digital television signals (DVB-T) broadcast in VHF/UHF bands.

This interference problem, in a frequency band previously assigned to terrestrial television broadcasting and now to broadband telecommunication services, can be avoided or reduced both with an appropriate suitable screening efficiency of cable network and equipment and by using an appropriate and suitable filter (LTE filter) to attenuate the 800 MHz band signals received by the television antenna system and injected (conducted interference) at the input port of wideband amplifiers.

Some examples of EMC requirements relating to LTE-BS disturbing signals are described (see Clause 7) and the main characteristics of a typical LTE filter (see Clause 8) are indicated.

These additional EMC requirements for cable networks and equipment, resulting from the assignment of the 800 MHz band to LTE services, are based on:

a) the expected field strengths in the 800 MHz band due to both LTE User Equipment (LTE-UE) and LTE Base Station (LTE-BS), considered as disturbing signals;

b) the field strengths planned for terrestrial television broadcasting in the UHF band, up to 790 MHz (e.g. ch. 60),

c) the required protection of television signals with respect to both LTE-UE and LTE-BS disturbing fields.