

Comments to prEN50561-1

by ADDX e.V., Assoziation Deutschsprachiger Kurzwellenhörer
Scharsbergweg 14, 41189 Mönchengladbach
Joachim Gröger and Martin Hengemühle

General Comments

In considering this draft standard it is useful to remind oneself of the definition and purpose of standards. Helpful guidance can be obtained from ETSI which, while acknowledging that technical definition is never straightforward, laudably states: "Of crucial importance to our members is the quality of the standard itself and we pride ourselves on creating thorough, high quality, robust standards under a self-imposed regime of compromise avoidance".

CENELEC provides equally clear direction in its Primer on Standards. This document explains that CENELEC's Internal Regulations require that, "Standards should be based on consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits." (p.15)

And: "It [the standard] codifies best practice and is usually state of the art" (p.17).

And in a similar vein CENELEC claim that its standards, " are of the highest quality because all interested parties are invited to contribute to their development: manufacturers, consumers, environmentalists and anyone who has anything to say or is concerned by standards. " (p.18)

In its elucidation of the principles of the New Approach, CENELEC underlines the role that standards play in ensuring that products meet regulatory requirements and importantly stresses the fact that, "Application of harmonized standards or other technical specifications remains voluntary. Manufacturers are always free to choose any technical solution that provides compliance with the essential requirements set by the Directive". (p.32)

And further: "Only products fulfilling the essential requirements may be placed on the European market and put into service" (p.32)

The reader of the primer is repeatedly reminded of this overriding principle and that key is always "Applying a standard is voluntary, complying with the law is mandatory". (p.39, p.44)

The draft standard fails against any and all of the foregoing criteria and requirements:

It is not robust, does not avoid uneasy compromise, does not reflect the state-of-the art, is not based on consolidated results of science and technology and does not take account of experience. It is of questionable quality as it is not evident that all interested parties have been invited to contribute to its development or have indeed done so. In conclusion, therefore, it is highly doubtful that it will promote optimum community benefits.

It also puts at risk a key element of the EU's Sustainable Development Strategy, namely the conservation and management of natural resources (the electromagnetic spectrum).

The reasons for this assessment are most importantly that the standard seeks to codify a technology and associated apparatus that does not a priori meet the essential requirements of the EMC directive.

The draft standard acknowledges this fact because it necessarily prescribes radio interference mitigation measures (selective notching) that purport to bring the apparatus into compliance. Good engineering practice and the law dictate the need to avoid all interference in the first place. Interference mitigation should always be a last resort and should therefore not be an inherent component of a technical equipment specification.

However, even with the inclusion of such mitigation measures the draft standard does not robustly ensure compliance of the relevant apparatus. There are at least two reasons for this. Firstly, as the harmful interference is not avoided 'at source' it continues to exist, in clear contravention of the EMC directive on all frequencies that are not covered by the mitigation measure, i.e. not 'notched'. The draft standard wrongfully singles out certain frequencies 'worthy' of purported protection through notching while leaving a still significant portion of the HF spectrum exposed. This, incidentally, raises the question of where CENELEC

derives its authority to such rule making from?

Secondly, the authors of the draft standard ignore the widespread experience available which points to the inability of notching to provide adequate protection from emissions from the current generation of PLC devices.

It is widely known, and tacitly accepted by many administrations, that such devices operate at emission levels substantially (30-40dB) above EN55022 and that notching is failing to adequately protect radio services in these circumstances. This CENELEC draft proposal seeks to unacceptably establish such damagingly high emission levels as the new norm.

The draft standard envisages interference mitigation integral to the apparatus, such as static and adaptive notching facilities, whose reliability and efficacy is said to have been proven in a laboratory environment and limited field trials, albeit working only with comparatively strong broadcast signals, not attempting to protect the much lower signal levels customarily employed by other radio services, and using antennas that cannot be assumed to be representative of the receiving capabilities of all mains wiring systems in different localities. There is no real-life experience with such techniques in a multiple PLC apparatus environment but there are credible technical reasons to expect them to fail that test.

This draft standard represents yet another lamentable attempt at paving the way for interference causing powerline communication devices into the market place. It disregards the fundamental principles of interference control, ignores good engineering practice and, if adopted, would exclusively allow powerline communication apparatus to flout established emission limits designed to protect radio services from harmful interference. Solid arguments against the deployment of such apparatus have been presented repeatedly and often for over a decade. Ennobling this latest effort by reiterating these well known arguments would be futile and counterproductive.

From the foregoing it is beyond doubt that the draft standard would not achieve what it purports to do, which is to define the technical parameters for powerline communication apparatus that can operate in full compliance with the EMC directive, national legislation and relevant ITU regulations.

It is, therefore, unfit for purpose and should not be adopted.