CEN/CENELEC-EMC-Consultant
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Assessment on Document FprEN 50561-1:2012 - pr=23145 FINAL DRAFTF; August 2012; Powerline communication apparatus used in low voltage installations - Radio disturbance characteristics - Limits and methods of measurement - Part 1: Apparatus for in-home use.

The changes compared with the document distributed for the first vote are noted with great interest but no essential changes can be recognised.
Consequently the same questions of principle still occur as explained in the former assessments.
Questions concerning the functioning of broadcast signal identification could be clarified in the meantime.

The essential concerns mentioned in the former assessments are still valid. Therefore just the conclusion of the last assessment is mentioned below.

Conclusion

The proposed requirements can be broken down into three categories.

a) Well protected frequency bands
b) Partly protected frequency bands
c) Unprotected frequency bands

A Well protected Frequency Bands

Radio services within the so called ñpermanently excluded frequency rangesò (Table A1 of the draft) are well protected in accordance with the established requirements.
That means the protection requirements of the EMC-Directive are fulfilled in these frequency bands.

B Partly Protected Frequency Bands

Radio services within the so called ñpermanent or dynamically excluded frequency rangesò are well protected if these frequencies are permanently excluded from the PLT-Signals.

But the draft standard allows the so called ñdynamic frequency exclusionò. This approach is based on the idea:

A radio service not present can not be disturbed!

Actually that approach is proposed for Broadcasting Services only (see Table A2 of the draft).
The allowed disturbance level is up to 43 dB above the well established protection level if no broadcast service is identified in the dedicated frequency band. But nevertheless a radio reception is allowed to be disturbed up to 25 seconds after being present the first time!

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Such a new approach needs a broad acceptance by the parties concerned like CEPT/ECC, EBU, radio broadcast listener etc.

But actually the identification of broadcast signals is related to the noise level present on the low voltage powersupply network the PLC equipment is connected on. That means the relationship to the so called "validôradio broadcast service" is ignored. Because the field strength level to be protected is 40 dBε V/m corresponding to a voltage level of 15 dBµV on the powersupply network according to the draft standard.

Based on that procedure the following requirement is missing:
The broadcast frequencies shall be notched on frequencies where the noise level is above 15 dBµV.
Because the level of a broadcast station is independent from the man-made-noise produced by electric or electronic apparatus connected to the power-supply network.

C Unprotected Frequency Bands

A disturbance level up to 43 dB above the well established protection level is allowed in all the frequency bands not mentioned in Table A1 and A2 of the draft standard (see ANNEX B of the assessment).
43 dB means an increased level of disturbance voltage by factor 140, and an increased disturbance power by factor 20 thousand.
Consequently that means:
The protection requirements of the EMC-Directive are not fulfilled concerning radio services using these frequency bands.

Summing-up

Consequently the draft standard does not fulfil the protection requirements of the EMC-Directive as they are!

EMC-Forecast

Desirousness

If the draft will be voted positive and based on a political decision ratified by CENELEC and listed in the OJ under the EMC-Directive similar relaxed protection requirements will be requested for nearly all products intended to be connected to the public low voltage power supply network (**level playing field**).

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That means for example:

Unprotected frequency bands

An increased disturbance voltage level of 43 dB will be requested within the unprotected frequency bands. That means in linear scale a 140 times higher disturbance voltage or 20.000 times the disturbance power to be feed into the public low voltage power distribution network compared with the current scenario (valid protection requierments).

Clicks

An increased disturbance voltage level of 43 dB is allowed for 15 seconds within the broadcast bands.
That corresponds to a similar relaxation up to 44 dB in CISPR 14/EN55014 for clicks. But that relaxation is only allowed for one click in 5 minutes for duration less than 200 ms.
Consequently a longer duration will be requested at least within the broadcast bands and of course in the so called unprotected bands.

Machines equipped with motor controllers and starters

Motor controllers are often active during the starting phase of a motor or machine equipped with a motor only. That means increased emissions during the starting phase. Actually expensive mitigation measures are necessary in order to fulfil the current protection levels specified in Harmonised Standards.
Consequently higher levels will be requested for the starting phase of nearly all machines intended to be connected to the public low voltage distribution network.

Conclusion
A dramatic change of the electromagnetic environment can be expected!

Marked surveillance

If the proposed standard will be listed under the EMC-Directive that means:
The disturbance levels and conditions required in the standard fulfil the protection requirements of the EMC-Directive.
Consequently similar levels produced by any other apparatus can not be claimed by the marked surveillance authority any more!

I would like to invite CENELEC taking into account the comments above.

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