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CISPR/I/269/DC

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INTERNATIONAL SPECIAL COMMITTEE ON RADIO INTERFERENCE (CISPR)

SUB-COMMITTEE I: INTERFERENCE RELATING TO RECEIVERS AND INFORMATION TECHNOLOGY EQUIPMENT

Title: Proposed Approach on EMC emission requirements for PLT

Ref: CISPR 22 PLT Requirements

The CISPR/I PLT project team was formed in 2005 to produce an amendment to CISPR 22 to cover the requirements for PLT equipment. This project team issued its first CD in 2008 (I/257/CD) and received National Committee comments (see I/266/CC). Given the complex and contentious nature of the topic, these NC comments reflected a variety of potential approaches and options.

The PLT project team discussed these NC comments at its meeting in Fort Worth in 2008 and has produced a potential way forward as described below. This was the broad consensus view of the project team in Fort Worth. At this stage no alternative approach has been produced which the project team believes would have a reasonable chance of success.

The National Committees are invited to submit their comments and suggestions on the proposed way forward. The input, to be submitted through the IEC voting system, is requested by:

2008-08-15

This date has been chosen to allow the project team to discuss the NC comments on the DC at its next meeting in Berlin on 8 and 9 September 2008.

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Secretary CISPR/I

Background

CISPR/I has been exploring the options to specify requirements for PLT equipment for about 7 years and has struggled to come to an agreement on the requirements. The basic contentious issue is the chance that the emissions from the wanted signal from the PLT modems will interfere with Radio services in the HF band.

In order to resolve this dichotomy CISPR/I has explored the characteristics of the power wiring around the world since PLT signals are driven from a balanced source. The issue in CISPR/I has resolved into the question of the balance of this power network and how much radiation will be produced by PLT operating over this network.

Over the last few years significant data has been captured on mains network performance which has been converted into an LCL value for the mains which can be used to predict interference. This estimation has been extremely contentious.

It is clear that the measured LCL values show significant variation and the distribution of these LCL values give National committees significant opportunity to draw their own conclusion as to the applicable LCL. Values proposed have varied from 0-40dB for this parameter.

In I/257/CD the PLT PT came to a consensus within the group (based on at least 66% support) that a value of 24 dB should be used for this LCL value.

The NC comments showed that this consensus did not extend to the National committees themselves. The following shows the chairman's view of the NC comments (see I/266/CC) and was the basis of the discussions in the PLT group

“Summary of the positions of the 22 P members who sent comments:

- 6 “supports the CD”: BE, CH, ES, FR, IL, IT
- 4 “no opposition to the CD”: CA, CN, CZ, KR (PT observer in CIS/I)
- 1 “adjustment required on important parameters”: JP
- 2 “other methods proposed”: NL (DM filter+AMN), GB (AMN+relaxation+notch)
- 8 “strong opposition (AMN or LCL of 6 dB required)”: AT, AU, CY, DK, FI, ZA, SE, US
- 1 “no consensus”: DE”

Against this background there was deemed to be insufficient support for the selected approach and the group came up with an alternative approach based on a 6dB ISN.

The group recognized that the basic requirement that PLT be able to operate sets a basic limit on the wanted signal which effectively produces a need for somewhat higher limits than are given in CISPR 22.

The proposal given below gives detail of the proposal from the Project Team.

Proposal

1. Protection of Radio Services

From its first inception, this project team has worked to produce requirements for PLT which will offer the same level of protection to radio services as currently offered by CISPR 22. Some NC's seem to have the view that I/257/CD would not offer this equivalent level of protection.

At its meeting in Fort Worth the PLT PT agreed that the level of Power Spectral Density implied by I/257/CD is necessary for the appropriate operation of the PLT systems. It accepted that it has not been able to find emission requirements which combine the operation of PLT systems with the existing limits in CISPR 22.

The PLT PT proposes to write a further CD offering enhanced protection for some sensitive services while elsewhere offering the same basic level of protection as was the basis of I/257/CD. This CD will use the measurement methods, limits and notching as described below in order to take into account the concerns raised by NCs.

2. Measurement Method

The PLT PT proposes the use of an ISN with an LCL of 6dB, as a compromise, in response to several NC comments. It has established a task force to design this ISN. The task force is expected to report progress by August 15th 2008. Progress is dependent on the success of this task force.

3. Limits

The limit is affected by the specified test method and by the use of notching.

Against this background the PLT PT proposes the specification of Average and Quasi Peak limits which comprise a nominal 18 dB relaxation on the mains port limit.

This relaxation is only applicable to the wanted signal and to PLT equipment using Notches as described below.

Note: NCs are advised that the current measurement method specified in I/257/CD will produce somewhat different results than the voltage measurement. The size of this difference is determined by the common mode impedance of the EUT and should potentially be considered as a further source of relaxation. Consensus has not been reached within the Project team on the issue of current measurement but this may produce a further relaxation (on the order of 6dB).

4. Notching

The PLT project team is proposing to include fixed notching in the radio amateur and CB bands with an average emission level at the bottom of the notch between 1.8 and 30MHz not to exceed 44dBuV.

Note: Consideration may be given to providing further protection to other radio services through the use of static or dynamic notching.