International Amateur Radio Union Region 1
Europe, Middle East, Africa and Northern Asia Founded 1950

IARU formal response to the Questionnaire relating to the Draft Product Family Emission Standard for Telecommunication Networks

This paper is submitted on behalf of the International Amateur Radio Union (IARU), Region 1, a member of ETSI. Region 1 covers Europe, Middle East. Northern Asia and Africa.

IARU has been involved in the work of the JWG leading to the preparation of a single general emission standard serving as a deliverable for the EMC Mandate 313. In this forum, the radio users and the proponents of PLT have had difficulty in reaching a consensus on emission limits. The conflict between the protection requirements of radio users and the necessary launch power of PLT systems (and thus emission levels) to attempt to establish commercial viability has been very evident. Radio users have compromised significantly from their original stance (where the true protection requirement is an emission level of no more than 0dBuV/m at 3m in a 9 kHz bandwidth) to a position now, where they are being asked to select emission limits which are some 22 to 56dB above their true protection requirements. It is regrettable that the PLC proponents have not felt able to make similar degrees of compromise. It would be highly desirable if equipment for these new technologies were designed with EMC requirements in mind. One way by which small signal services could remain viable, if technologies such as PLT are to be rolled out, is to insist on the use of notches in all PLT systems of at least 30 dB for radio frequencies likely to be used in the domestic environment i.e. the Broadcasting and Amateur services.

CENELEC/ETSI JWG(03) 10_04 - comments

The Questionnaire raises important issues about the electromagnetic environment, and the future ability of radio services to operate as intended. Reflecting the requirements of the EMC Directive, and the experience of emissions from trials of cable-based systems to date, and the effect of cable-based systems on the true radio noise floor, the IARU makes the following response to the Questionnaire.

Question 1: ***Should radiated limits and measurement methods be specified …….in addition as an alternative to the conducted limits ……. below 30 MHz***

IARU Response:

There should be radiated limits as these are the practical test of whether systems represent a threat to radio services. They are also the practical, measurable, manifestation of the problem that the standard seeks to address. Also, the very different nature of power distribution networks across Europe means that standards based on a conducted limit will result in entirely different levels of emissions between different types of power network.

Also, simply to use conducted limits (and in particular the limits being suggested derived from CISPR 22) does not acknowledge the very different nature of emissions from cable-based systems. CISPR22 was originally drafted for products producing relatively narrow band emissions, for short periods of time. Cable networks (PLT in particular) emit continuously, are broad band, and can be adjusted to operate at or just below any limit specified. Therefore the use of CISPR22 as a basis for the standard is open to question.

Question 2: ***If radiated limits and measurement methods are to be included, which of the two options for limits given …. should be selected***

IARU Response:

Option 2 is a radiated limit, derived from the conducted limits in the existing product standard, but with assumptions which are open to significant challenge. Taking a different set of assumptions, the derived radiated limit would be dramatically less ! This is NOT a rigorous derivation of a radiated limit, and should not be contemplated. As it stands Option 2 equates to +56 dB uV/m which is 16 dB **above** the ITU-R lowest usable field strength for short-wave broadcast reception, and some 36 dB above the assumed background noise in broadcast reception modelling. As far as the Amateur Service is concerned, this would prevent reception of all but extremely strong radio signals. **This is simply an unacceptable option** for a small signal service.

Option 3 roughly equates to the German NB30 limit and, although better than anything else being proposed, still does not provide an entirely satisfactory level of protection to radio users. NB30 assumes a level of existing radio background noise which can be shown to be overstated, and appears to result from a misunderstanding of the effect of the inherent background noise in some measuring equipment.

In spite of this, IARU believes that Option 3 should be included in the final version of the Standard whilst acknowledging that this does not offer totally satisfactory protection to small signal services.

Other comments

The IARU seeks assurances that, whichever ONE limit is decided upon, it will be embodied in the text of the Standard and that it will NOT be a matter of choice as to whether conducted or radiated limits are selected by an operator to presume conformity.

Another issue which is relevant to the consideration of limits is that, whatever limit is selected, there will still be cases of interference to authorised radio services. It is, in the view of IARU, essential that the responsibility for resolution of such cases is clearly assigned and that the existence of a standard is not seen as a charter to avoid the responsibilities laid down in the EMC Directive.

It should be noted, in seeking to define an emission limit, that Mandate M313 states: “These harmonised standards shall lay down the limits and the test methods needed to allow presumption of conformity with the essential requirements of Directive 89/336/EEC”.

This Directive states, under “Protection Requirements”: “*Equipment shall be so designed and manufactured having regard to the state of the art, as to ensure that:*

a) The electromagnetic disturbance generated does not exceed the level above which radio and telecommunications equipment or other equipment cannot operate as intended…”

CENELEC/ETSI JWG (03) 10_05 – comments

IARU supports the wording of Section 8 of the Standard concerning safety of life frequencies and the protection levels stated. In particular, the frequencies allocated to the Amateur Radio Service listed in Annex C have been recognised by the ITU as being available for use in emergencies by international disaster relief organisations, as well as radio amateurs. At WRC 2003 a revised Article 25 of the Radio Regulations was agreed, including a clause:

"25.9A: Administrations are encouraged to take the necessary steps to allow amateur stations to prepare for and meet communication needs in support of disaster relief"

The importance of this service has been well documented over the years and IARU fully supports the retention of the frequencies allocated to the Amateur Radio Service in Annex C.

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