SETTING STANDARDS IN MOTION

PLC devices and product regulations in Europe

Gilles BARBERI   EMEA Product Regulations & Standards Manager

Agenda

- **R&TTE Directive 1999/05/EC**
- **EMC issue with EN 55022**
- **TCF with a competent body**
- **CISPR SC I PLT TG and a first proposal**
- **CISPR I 89 CD**
- **Conclusions**
- **Questions and answers**
- **Back up**

R&TTE Directive 1999/05/EC

Quick reminder:

The following *essential requirements* are applicable to all products:

- The protection of the health and the safety of the user, including the objectives with respect to safety requirements contained in Directive 73/23/EEC (LVD).
- The protection requirements with respect to electromagnetic compatibility contained in Directive 89/336/EEC (EMC)

Safety

- EN 60950

EMC

- EN 55022 A or B
- EN 55024
- EN 61000

EMC issue with EN 55022

- **Safety, immunity and harmonics are correct but almost all PLC devices pass over the CISPR 22 class A, B limits so failed the test and we could not generate (directly) the DoC (Declaration of Conformity) needed for Europe**
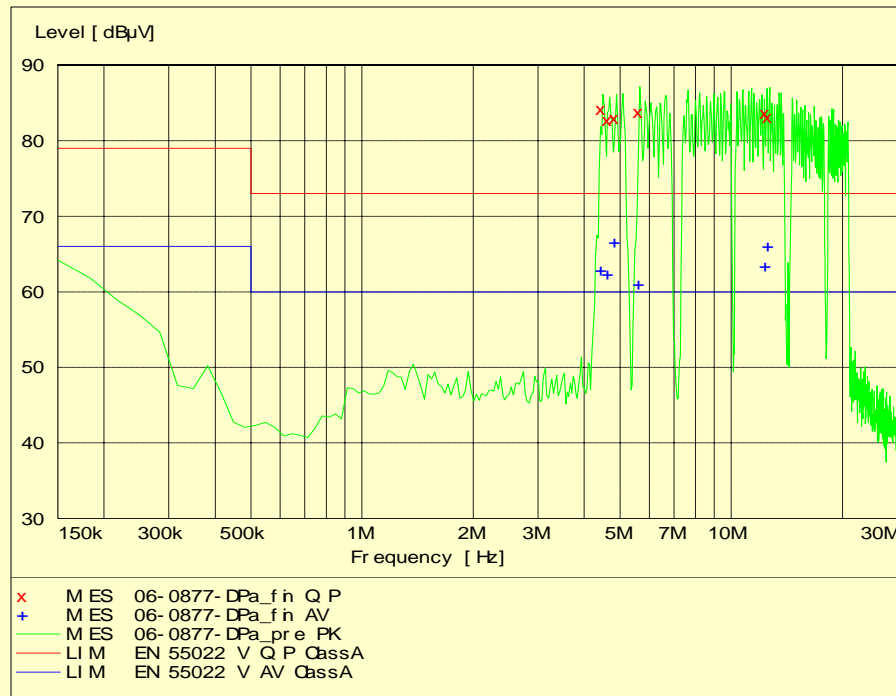
Sample of measurements on a HP AV device

TCF with a competent body

- **Several studies have been done on this current issue**
  - Some experts have demonstrated that the current interface used for the test was not accurate for the powerline and have proposed their own schematics (gaining up to 10 dB so passing class A and B)
- **Few competent bodies have proposed their own method**
  - They created their own measurement method and built for the manufacturer, the TCF (Technical Construction File: this is the second official way to gain the CE mark, specially when a unit do not follow at 100 % the harmonized standards)
  - So they demonstrated with their method that the unit will not harm the "network"
  - With this TCF, the CE mark could be affixed to the product so the PLC device could be sold in Europe

HOMEPLUG®
POWERLINE ALLIANCE

CISPR SC I PLT TG and a first proposal

- **A sub group of the CISPR was created to work on this issue**

  - The interface used to test the CISPR 22 test was developped a long time ago and is not fair for a measurement on the power line
  - CISPR SC I PLT TG is working to find a test method that will properly test power line communications ports.

- **Few years ago, in this working group, the representant of the German regulator has also proposed a "solution"**

  - This solution was more stringent than the regular CISPR A …
  - This proposal was rejected by the whole group

CISPR I 89 CD

- **This work item is based also on a new measurement interface and method to test**
  - A full proposal with schematics, methods was submitted to a vote several months ago but more study was requested (BUT NOT REJECTED)
  - Several Intel colleagues are participating to this work item and estimate a final document in 2009

- **Already used by several competent bodies in Europe**
  - As mentioned before several competent bodies used their method or this new draft standard to build their own construction file
  - Based on the fact that this is not yet an official standard, one country regulator in Europe today try to challenge and to ask more details on the TCF used

HOMEPLUG®
POWERLINE ALLIANCE

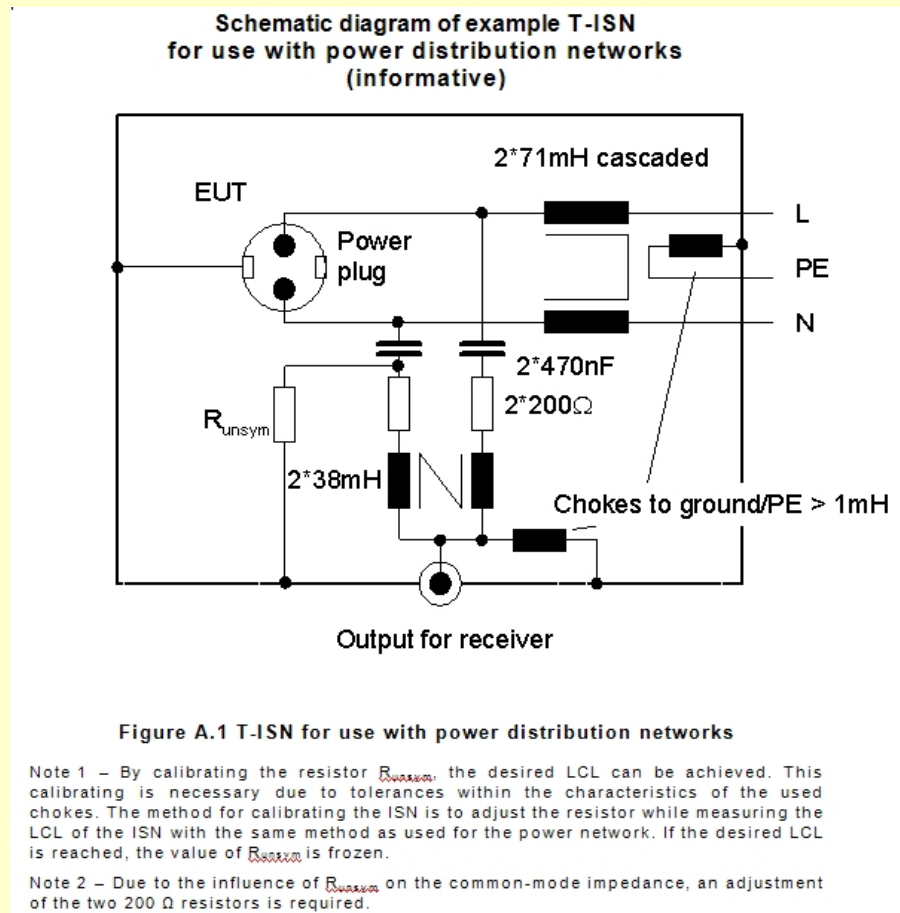# Conclusions

- **As of today the best case for this new CISPR I 89 standard is 2009**

- **ITU-R: We have also investigated the possibility to obtain a dedicated band for the PLC, it will take if accepted around 10 to 15 years…**

- **During this interim period the TCF will be always the best compromise but could be subject to discussion…**

HOMEPLUG®
POWERLINE ALLIANCE

Questions and answers

Back Up

- **Sample of measurement interface LISN (AMN)**

Schematic diagram of example T-ISN
for use with power distribution networks
(informative)

Figure A.1 T-ISN for use with power distribution networks

Note 1 – By calibrating the resistor R_{unsym}, the desired LCL can be achieved. This calibrating is necessary due to tolerances within the characteristics of the used chokes. The method for calibrating the ISN is to adjust the resistor while measuring the LCL of the ISN with the same method as used for the power network. If the desired LCL is reached, the value of R_{unsym} is frozen.

Note 2 – Due to the influence of R_{unsym} on the common-mode impedance, an adjustment of the two 200 Ω resistors is required.

Back Up

- **Homologation tools**
  - To fulfill all the world wide rules, we have started in the Homeplug strategy group a special homologation tools capable to adjust the level carrier by carrier or group of carriers to be ready in any cases

HOMEPLUG®
POWERLINE ALLIANCE