

10 things you need to know about...



Power Line Telecommunications (PLT)

1 PLT is

Power line telecommunications (PLT) is a technology that uses electrical power lines for the distribution of high data rate telecommunication services.

2 There are two main types of PLT systems

One is "access PLT" that covers the "last mile" between the electricity supply sub-station and the user. The other is called "indoor PLT" - which aims to distribute data (coming for example from access PLT or DSL) within building via the electricity sockets

3 And there are two generations of PLT systems

Initial PLT systems, using frequencies up to 80 MHz and offering less than 100 Mb/s bitrate and new high speed PLT systems, using frequencies up to 300 MHz and offering up to 1 Gb/s bitrate.

4 But power lines used by PLT systems weren't designed for it

The electrical power lines used by PLT systems are not designed for Data communications and consequently not shielded, therefore part of the energy injected by the PLT system into the electrical network is radiated by this latter which behaves as a huge mesh antenna.

5 PLT systems can cause interference to licensed radio broadcast reception

If a Radio receiver is located a short distance away from the power lines carrying PLT; or connected to the mains and receiving a Radio broadcast at the same time; the signal falling in the frequency band used by the PLT system, the Radio receiver might be interfered with by the PLT system.

6 What radio services do PLT systems potentially interfere with?

The PLT systems using frequencies less than 80 MHz might interfere with radio services in the LF (Low-Frequency), MF (Medium-Frequency) and HF (High-Frequency), where AM radio is received. The high-speed PLT systems using up to 300 MHz might interfere with radio services in Bands II (87.5-108 MHz) and III (174-230 MHz) where mainstream FM and DAB radio services are located.



7 What are the possible solutions to improve the compatibility ?

Limiting the power used by the PLT system is the first means to reduce its outgoing interference. However, this will result in limiting the applications of PLT reducing its attractiveness. One could use power control where the power is adjusted according to the need. Another solution is to introduce notches in the spectrum used by PLT at the frequency bands used by Radio services to be protected.

8 Lack of standardisation for PLT

Despite attempts over years in ETSI and CISPR to finalise and approve PLT standards, there are still no approved specifications or standards. This means that PLT equipment appearing on the market does not take into account the protection required for broadcasting.

9 Standardisation work is reactivated on the European and the international levels

On the European level, the European Commission has tasked CENELEC to issue a standard by end of 2010. Internationally, ITU is developing Recommendations to set radiation limits for PLT systems. The CISPR is also likely to work on the subject. As several countries become aware of the potential interference impact of PLT, technical solutions like power control and spectrum notching could be included in these standards.

10 EBU's work is vital in understand the real-world impact of PLT on those broadcasting radio services

EBU and some of its Member Organisations are monitoring and contributing to this PLT standardization work both on the European and the international levels. Information could be found on www.ebu.ch/technical.