Report to EC-Meeting IARU Region 1 Oman April 2001 respectfully submitted by K.E.Vogele, DK9HU, member of EC.

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PLC and xDSL Situation in Germany

The regulating administration for telecommunications and posts (RegTP) in Germany has issued a limiting curve for the ”radiation of telecommunications services in and alongside of cables” (including CATV, xDSL, and PLC) for the frequency range 9 kHz to 3 GHz according to table 1:

Table 1
Limiting curve of german administration RegTP (NB30)

Frequency Range (MHz)	Limit of fieldstrength in 3 meter distance, measured in dB(µV/m); B = 9 kHz (10 kHz); peak detector
0.009 to 1	40 - 20 * $\log_{10}$(f/MHz)
>1 to 30	40 - 8.8 * $\log_{10}$(f/MHz)
>30 to 1000	27 (equivalent to radiated power of 20 dBpW)
>1000 to 3000	40 (equivalent to radiated power of 33 dBpW)

This curve is part of a plan for the frequency allocation in Germany and is called ”NB30”. In an hearing on this subject held in March 1999 in Bonn it became obvious that the limits of this table would please xDSL operators but not the PLC operators. All radio services, however, even the broadcasters, stated that these limits were to high and would cause interference to their services.

Present situation

The german administration (RegTP) had issued two questionnaires, the first asking all PLC operators to state their technical details, including the interference fieldstrength generated up to a distance of 1000 (!) meters. The answer to the general public was not entirely clear in this respect, but fieldstrengths between 15 dB(µV/m) and 80 dB(µV/m) were reported, ”depending on the distance”. The second questionnaire adressed all radio services to describe their details and how they expect to be interfered by PLC. 110 comments were received, many comments were criticizing the high NB30 levels, and the majority of them has declared their opposition to the introduction of PLC.

But the NB30 curve continues to be very stable, but still is just a proposal and not in force yet. PLC operators now can be divided in two groups, a ”high level group” favouring the chimney approach a and a ”low level group” trying (but so far not fully succeeding) to live with the NB30 proposal limits. The high level PLC approach was much weakened by the announcement of the SIEMENS A.G. just before the famous CEBIT exhibition that they have decided to leave the PLC business. Power companies which were due to use SIEMENS equipment will now be supplied by ASCOM.

First standardization work on the levels to be employed had been done within ETSI. A ”PLC System Reference Document” included PSD (power spectrum density) levels of –40 dBm/Hz necessary for high level PLC, capable of generating interference fieldstrengths of the order of 80 dB(µV/m), had been established. This draft has been rejected, however, by ETSI ERM RM (Radio Matters) before it could be put for voting. Another PLC draft about

”Access – Inhouse Coexistence” favouring a frequency separation at 10 MHz also failed the voting in ETSI. A similar ”Access – Inhouse Coexistence” draft had also been drafted in CENELEC SC205A but favouring a frequency separation at 13.5 MHz. This draft standard, containing the ETSI PLC System Reference Document in an annex, ”for information”, also failed the first voting.

Furthermore, the PLC forum had arranged a ”PLC Workshop” before the European Commission on March 5th, 2001. Radio users were also well represented, including RSGB, by Hilary Claytonsmith, G4JKS, explaining the sitation radio amateurs would be facing after an introduction of PLC. The Commission, looking for another way to cover the ”last mile”, still has a certain sympathy for PLC, but now is rather uncertain whom to believe. In general, however, the Commission still feels that a compromise between cable and radio services should be possible.

Deutsche Telekom is now introducing ADSL, in Germany called ”T-DSL”, employing a spectrum up to 1.1 MHz, the demand being much higher than industry can deliver equipment. German radio amateurs also operating T-DSL claim that they have not observed any interference so far. This seems to be in contrast to the situation in the U. K. where ADSL interference has even been discussed publicly in The Times. According to radio amateurs being employees of Deutsche Telekom in Germany shielded twisted pair (STP) cables and even cables developed further, with an increased wire diameter to reduce attenuation, are used whilst the British Telecom is said to employ standard unshielded twisted pair (UTP) telephone cable even for ADSL.

Furthermore Deutsche Telekom has published first plans to introduce VDSL with a bit rate of 14 Mbit/s. The first solution will cover a spectrum up to 12 MHz, using 64QAM modulation. But later plans are to reduce the spectrum to 5 MHz employing 256 QAM, maintaining the same bit rate. It is claimed that this technology will comply with the german NB30 proposal, but even this would mean a threat to radio amateurs if the distance to such a VDSL operated cable would be less than 200 meters. The second VDSL solution would have the advantage that at least the main broadcast bands above 5 MHz would not be interfered.

The german frequency allocation plan including the NB30 is again on the agenda of the german country council on March 30th, 2001. Radio amateurs still hope that the broadcasters of all german countries will object to this plan and ask to lower the radiation limits of the NB30 by 10 – 20 dB, but the needs of VDSL and low level PLC are standing against this.

The joint working group of the british Radiocomminications Agency and the german Regulating Administration for Telecommunications and Posts (RegTP) which has been set up to align their differing radiation limits curves (MPT1570 and NB30) has not come to an agreement yet. The group has already agreed, however, on a common measuring procedure to assess the radiation of telecommunications cables. In the U. K. the MPT1570 for the range 1.6 – 30 MHz is still under discussion. DARC has joined CEPT SE35 dealing with the radiation of all kinds of telecom cables.

Statement of the print-press from March 30. 2001

Powerline technology wins legal backing in Germany

FRANKFURT, March 30 (Reuters) - Germany's Bundesrat upper house of parliament on Friday cleared regulatory hurdles for the the so-called powerline technology for fast Internet access via electricity lines.

A statement issued by the economics ministry in Berlin said three laws setting out the conditions for powerline operations had been approved, clearing the way for nationwide implementation in the 16 states in due course.

"The three laws regulate the efficient and disturbance-free usage of frequencies," economics minister Werner Mueller said in the statement. This clears the way for the introduction of new technologies such as telecommunications via power lines."

The move gives powerline -- where Germany is the world's leading test Market -- the chance of competing with other established communications channels such as cable television and telephone networks.

Analysts say that by delivering high-speed Internet connections through residential wall sockets, utilities could break the phone companies' grip on Internet access while also offsetting recent losses due to shrinking retail power margins.

An economics ministry spokesman said postal and telecommunications Watchdog RegTP was expected to allocate applicable frequencies by the end of next month.

"Companies complying with the laws are given permission to install and operate the technology across the country," he said.

Among other stipulations, the laws ensure that a wide-spread powerline system does not interfere with electrical appliances or radio frequencies needed for emergency and military services.

German utilitiy MVV said the legal green light would allow it to roll out the technology in the south west city of Mannheim as early as May, rather than in the summer of 2001.

"We can go ahead now and move into the mass market," spokesman Heinz Egermann told Reuters.

MVV, which inititally plans to connect 3,000 private customers in what it says is the world's first commercial application of that size, had also agreed to supply the technology to five other utilities, he said.

It would be offered on a franchise basis via Power Plus Communications AG (PPC), a joint franchising venture between MVV and its Israeli partner firm Main.net.

"We also have many more interested parties since presenting our growth amibtions for powerline at the Cebit computer fair last week in Hanover," Egermann said.

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