Dynamic Frequency Selection and Transmit Power Control

A potential project for the MAC Enhancement SG

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IEEE802.11a and Europe

- In the process to get 802.11a adopted as a European 'HiperLAN' standard, 802.11b should at least be conformant to European regulations

- Draft ERC Decision ERC DEC 99(NN) has been provisionally approved that covers both HIPERLAN/1 and HIPERLAN/2 and defines the revised frequency bands and power limits. Some requirements are not addressed in 802.11.

RF Power Limits

Frequency band	RF Power limit	Comments
5,150 GHz – 5,350 GHz	200 mW mean EIRP	Indoor use only and implementation of DFS and TPC.
5 470 GHz – 5,725 GHz	1 W mean EIRP	Indoor and outdoor use and implementation of DFS and TPC.

- The requirements are also addressed in the HiperLAN2 systems overview (TR 101 683 V1.1.2 (1999-06))

Dynamic Frequency Selection (DFS)

- share with radar systems, some of which are mobile

- requires dynamic adaptation (DFS) to local interference conditions

- required to spread their emissions over the available frequency channels

  – The requirement to spread is a statistical requirement that should be satisfied on a large scale rather than the scale of a single HIPERLAN system

  – Spread across a minimum of 330 MHz, or 255 MHz in the case of equipment used only in the band 5470 – 5725 MHz

    • Modem should work in the low and high 5 GHz band

  – Details of such a mechanism are to be decided.

Transmitter Power Control (TPC)

- The objective of the TPC mechanism is to reduce the large scale average RF output by at least 3 dB relative to the RF output of systems not implementing TPC.

- uplink and downlink

MAC enhancements

- 'hooks' to implement DFS and TCP available in 802.11a PHY (?)

- Mechanism in MAC required to control DFS and TCP

- Proposed as project for the MAC enhancement SG:

    – requirements

    – design mechanism

    – details for implementation