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ETSI EP BRAN #4 *WG3 Temporary document 70*

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Source: Chairman IEEE P802.11Task Group A
Title: IEEE P802.11 Tga Overview
Agenda item: Joint ETSI-IEEE meeting
Decision
Discussion
Information
Document for:

Decision/action requested
For information

IEEE P802.11 - ETSI BRAN WG3 meeting - September 1997 - 802.11 and TGa Overview

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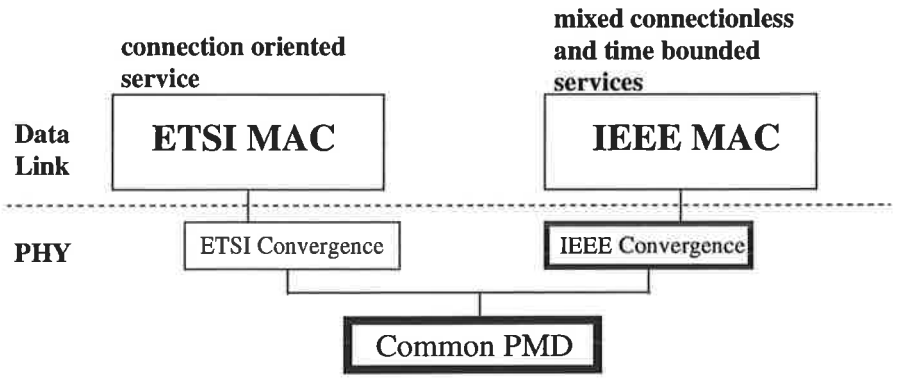
Task Group A Chair

Long Term Goals for 802.11/BRAN Collaboration

- Common PHY, different MACs
  - Try having a common PHY sublayer
    - to improve coexistence
    - economy of scale
  - cross-fertilization
- Allow 802.11 MAC devices in Europe

Preliminary MAC/PHY Models



802.11 Overview - Topology

- Peer-to-peer (Ad-Hoc) networks supported
- Infrastructure based networks supported
  - Access Points connect to a backbone
  - Cells may overlap for continuity of service or increased capacity
- 802.11 assumes connectionless services

802.11 PHYs Today

- 2.4 GHz Radio and IR
- At 2.4 GHz, both DS and FH Spread Spectrum systems, as per ISM band regulations
- Rates of 1 Mbit/s and 2 Mbit/s supported
  - Task Group examines higher speeds at 2.4 GHz band

802.11 MAC principles

- CSMA/CA + Ack
- Optional RTS/CTS before Data/ACK sequence
- CCA and Virtual Carrier Sense as a medium sharing mechanism
- Distributed Coordination Function (DCF) and Point Coordination Function (PCF)
  - Time bounded services are provided by PCF (Point coordination function)

802.11 Medium Sharing

- Both Physical and Virtual Carrier Sense are implemented.
- Virtual Carrier Sense
  - Each packet in a transaction advertises the time at which transaction will end
  - A Station hearing either of the sides will not transmit until the advertised time passes

Task Group A - 5 GHz PHY

- Started work in September 1997
- Intends to produce and approve a supplement to 802.11 standard by July 1999
- Focuses on US U-NII and European bands in 5 GHz (which overlap)
- speeds about 20 Mbit/s

TGa - Schedule

- Requirements & Criteria Nov97
- Text for all modulation proposals by (skeleton by Nov97/ Full text by Jan98)
  - Deadline for modulation proposals (Nov97)
- Modulation method selection - March98
- Text finalization - March98+May98
- Preapproval in March98 to send WG LB
- Releasing Draft for WG LB from May98

Modulation method proposals

- GMSK/OQAM
- M-ary Orth. Keying (MOK)
- BiOrthogonal waveform sets
- OFDM
- GFSK

Data rates and types of traffic

- primary data rate about 20 Mbit/s + fallback rate? + highspeed?
- Asynchronous data packets + Time bounded services
- Asynch packets may be 4095 bytes long
- Control packets (RTS,CTS, ACK etc..) are typically 20 bytes long

Criteria for Comparison

- multipath robustness
  - The project focuses on indoor environments, but needs to maintain robustness at longer multipath
- Sensitivity
  - Sensitivity is defined for a flat channel at packet loss rate derived from a 10^{-5} BER

Criteria for Comparison (cont.)

- Overhead
  - preamble
  - backoff slot size
- Channel width
  - Number of channels available
  - Adjacent channel interference
- Power consumption, complexity, sensitivity to implementation

Questions to ETSI

- Coexistence with other systems (in particular, how will different HIPERLANs coexist?)
- Does ETSI consider PHYs with multiple rates?
- Does ETSI consider both long and short preambles?
- Does ETSI have a position on use of directional antennae? (Power vs. EIRP; multipath reduction)
- Information on availability of extra 50 MHz in Europe.