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IEEE Standards Board: Project Authorization Reques (PAR) Form

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1. **Sponsor Date of Request:** **1997-07-10** **2.** **Assigned Project Number:** **802.11a** **3.** **PAR Approval Date:**

</P>4. **Project Title, Copyright Agreement, and Working Group for this Project**

I will write/revise a Standards Publication with the following TITLE: **Supplement to STANDARD FOR Telecommunications and Information Exchange Between Systems – LAN/MAN Specific Requirements – Part 11: Wireless Medium Access Control (MAC) and physical layer (PHY) specifications: High Speed Physical Layer in the 5 GHz band**</P>

I hereby acknowledge my appointment as Official Reporter (usually the W.G. Chair) to the **P802.11 Working Group for Wireless Local Area Networks** </P>

In consideration of my appointment and the publication of the Standards Publication identifying me, at my option, as an Official Reporter, I agree to avoid knowingly incorporating in the Standards Publication any copyrighted or proprietary material of another without such other's consent and acknowledge that the Standards Publication shall constitute a "work made for hire" as defined by the Copyright Act, and, that as to any work not so defined, I agree to and do hereby transfer any right or interest I may have in the copyright to said Standards Publication to the IEEE</P>

Signature of Official Reporter: _____ Date: _____</P> *

Name of Working Group Chair: **Vic Hayes**
Title: **802.11 Chair**
IEEE Member No: **01550144**

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</P>5. **Describe This Project:**

1. Update an existing PAR Yes **X** No
   (*Indicate PAR Number/Approval Date.*)
   Is this project in ballot now? Yes No
2. NEW STANDARD
   REVISION of an existing standard. (Indicate Standard Number and Year):
   X SUPPLEMENT to an existing standard (Indicate Standard Number and Year): **802.11-1997**
3. **X** FULL USE *(5-year life cycle)*
   TRIAL USE *(2-year life cycle)*
4. TARGET COMPLETION DATE for submittal to IEEE Standards Review Committee (REVCOM): **1999-07-31**

</P>6. Scope of Proposed Project: To develop a High Speed (about 20 Mbit/s) PHY for use in fixed, moving or portable Wireless Local Area Networks. The PHY will be used in conjunction with the 802.11 Medium Access Control (MAC). The 802.11 MAC will be reviewed to assure its capability to operate at the speeds targeted by the project.

See supplement for Radio Spectrum availability and compatibility with current MAC</P>

</P>7. Purpose of Proposed Project: To create a high speed wireless access technology suitable for data, voice and image information services. This technology should be beneficial for improved access to fixed network LAN and internetwork infrastructure (including access to other wireless LANs) via a network of base stations, as well as creation of high performance ad hoc networks. The project will focus on communication techniques which use the spectrum efficiently and enable a high aggregate throughput, as well as high speed for an individual network.

</P>8. Sponsor: LAN MAN Standards Committee

Society/Committee: Computer Society/LMSC

9.

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* *(a.1) Are you aware of any patents relevant to this project? Yes (Attach Expl.) **X** No

* *(a.2) Are you aware of any copyrights relevant to this project? Yes (Attach Expl.) **X** No

* *(a.3) Are you aware of any trademarks relevant to this project? Yes (Attach Expl.) **X** No

* *(b) Are you aware of any other standards or projects with a similar scope?

X Yes (Attach Expl.)
No

* *(c) Is this standard intended to form the basis of an international project?

X Yes
No (Attach Expl.)
Do not know

* *(d) Is this project intended to focus on health, safety or environmental issues?

Yes (Attach Expl.)
X No
Do not know

</P>10. Proposed Coordination/Recommended Method of Coordination

1. **Mandatory Coordination**
   SCC 10 (IEEE Dictionary) and IEEE Staff Editorial Review by Circulation of Drafts
   SCC 14 (Quantities, Units and Letter symbols) by Circulation of Drafts
2. **IEEE Coordination requested by Sponsor:** *

COORDINATION	METHOD OF COORDINATION		
US TAG to JTC1/SC6	X Circ./drfts	liais. memb.	com. memb.
ETSI Project Broadband Radio Access Networks	Circ./drfts	X liais. memb.	com. memb.

- **Additional Coordination Requested by Others:**
  Leave Blank -- to be completed by staff *

COORDINATION	METHOD OF COORDINATION		
_____	Circ./drfts	liais. memb.	com. memb.
_____	Circ./drfts	liais. memb.	com. memb.
_____	Circ./drfts	liais. memb.	com. memb.
_____	Circ./drfts	liais. memb.	com. memb.
_____	Circ./drfts	liais. memb.	com. memb.

</P>11. Submitted By:

*

Signature of Submitter:_____ Date: _____

IEEE Member No: **05572953**

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DO NOT WRITE BELOW THIS LINE</P>

Signature IEEE Officer:_____ Date:_____

Title:_____ </P>

</P>Revised:</P>

</P>Supplement to a High Speed Wireless LAN PHY PAR

6. Scope of the Project

Radio Spectrum Availability

Currently 802.11 supports rates of 1 and 2 Mbit/s rates in the 2.4 GHz ISM band. Since the inception of 802.11 things have changed both in a regulatory arena and regarding the needs for higher transfer rates.</P>

Specifically, in the US, FCC released 300 MHz in three 100 MHz subbands in the 5 GHz region (ET Docket 96-102) for an unlicensed use with high speed Local Area Network communication services. The structure of the new regulations encourages communication at speeds of about 20 Mbit/s. These rulemakings are evidenced by subpart E - Unlicensed National Information Infrastructure Devices in Part 15.4xx. In Europe, the CEPT has recommended the use of spectrum in the 5150-5250 MHz band for so called HIPERLAN devices in CEPT Recommendation T/R 22-06.</P>

Given the regulatory changes (as opposed to 15.247 which was the basis for 802.11's work), it becomes feasible to develop efficient high speed modulation methods to address the 20 Mbit/s speed range. The scope of the proposed PAR is to propose such modem technology and methods as to take advantage of the new regulations. The modem technology will be examined with respect to propagation impairments typical of both indoor and reasonable range outdoor environments. The tradeoffs between spectral efficiency, immunity to interference and implementation complexity will be taken into account to address the need for high aggregate throughput in densely populated environments. </P>

IEEE P802.11 has actively corresponded with regulatory bodies worldwide in the past in order to encourage spectrum allocations to allow its standards to be applicable geographically as widely as possible and plans to continue these activities.</P>

Compatibility with current 802.11 MAC

The intent of the effort of this PAR is to examine rates beyond the 20 Mbit/s range. The 802.11 MAC will be reviewed for its capability to support such rates. In addition, the MAC will be reviewed to examine its capability to support the data, voice and image services intended in the rulemaking. </P>

The 802.11 MAC relies on a Clear Channel Assessment (CCA) mechanism in the Physical Layer for avoiding collisions with other transmissions. The CCA for the new Physical Layer will be developed to ensure fairness with respect to participating stations and ensure operation in presence of other types of radio devices operating in the environment, according to the spirit of the FCC rulemaking.</P>

The proposed PHY with 802.11 MAC will meet Quality of Service as detailed in 802.11 PAR.</P>

9b. Other standards with similar scope

European HIPERLAN Type 1, developed by ETSI,</P>

European HIPERLAN Type 2,3 (Wireless ATM oriented) being developed by ETSI,</P>

"Magic WAND", a Wireless ATM Network Demonstrator, being developed by a consortium of European companies under the auspices of ACTS (Advanced Communications Technologies and Services).</P>

The above standards do not use the 802.11 MAC.</P>