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**IEEE P802.11  
Wireless LANs**

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**Current status on received IPR letters**

**Date:** August 15, 1996

**Author:** Vic Hayes  
Lucent Technologies WCND B.V.  
Zadelstede 1-10  
3431 JZ Nieuwegein  
the Netherlands  
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Fax: +31 30 609 7556  
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**Abstract**

This document contains the current status of the responses on my letter of September 26, 1995 to the participants in IEEE P802.11. The text of the letter is annexed to this report.

The letter requested 802.11 participants to report any IP in the area of our draft standard and further asked for letters with an assurance of licensing and for forwarding the letter to the company's IP manager.

Looking through the database, I have found 65 companies that had people running for membership. Of these 16<sup>1</sup> submitted the requested statement, 5 indicated that they would not have IP and 1 submitted an indication that they would have IP, but did not submit the IP license-statement.

From those companies that have not yet responded, we assume that they have no IP. If they do, however, we kindly request that they submit the letter as given in annex 2.

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<sup>1</sup> One statement is applicable to 2 companies.

## List of Companies and the IP status re 802.11

Company	IP Status
3COM	
Air Access	
Aironet	IP statement available
AMD	IP statement available
AMI	
AMP Inc	
Andrew	
Apple Computer	IP statement available
AT&T	IP statement available
Breezecom	
Digital Equipment <sup>2</sup>	
Digital Ocean	IP statement available
ETSI Telecom	
Fujitsu	
Harris	
Hitachi	
IBM	IP statement available
Innovation on Demand	
Intermec	IP statement available
International Micro circuits	
JRC	IP statement available
Lace	
LANNEX	
Lucent Technologies	IP statement available (Same as AT&T)
LXE	
MACOM	
Matsushita Electric Works	"no IP" indication
Motorola	IP statement available
National Tsing Hua Uni	
NEC	
Neesus	
Networks and Comm Consulting	
No Wires Needed	
Norand	IP statement available
Nortel	
Novell	IP statement available
NTT	
OSIA(sponsored by Ministry of Information & Communication, KOREA)	"no IP" indication
Panasonic	
Philips Semiconductors	
Proxim	IP statement available
Pulse Engineering	
Raytheon	

Company	IP Status
RDC Comm	
RF Networks	
Rising Star REsearch	
RN Comm	
Samsung Electronics	"no IP" indication
Seattle Silicon Corp	
Sharp	"no IP" indication
Solectek	
Sonik Technologies	
Spectrix	IP statement available
Standard Microsystems Corp.	"no IP" indication
Symbionics	
Symbol Technologies	IP statement available
Tektronix	
Telia Research	
Texas Instruments	
The Boeing Company	
Toshiba America	incomplete IP statement
Universidade de Aveiro	
WINDATA	
WISE Comm.	
Xircom	IP statement available

<sup>2</sup> Digital Equipment did respond, but the response was relevant to 802.3 and 802.12, new letter requested

## Incomplete responses received

Listed below is the information about the patent that is currently held by Toshiba America Information Systems, Inc. related with wireless LAN:

Patent number: 5,467,341  
Date of Patent: 11/14/95  
Inventors: Edward Matsukane and Ryan H. Tze

It is about "Apparatus and Method for Alerting Computer Users in a Wireless LAN of a Service Area Transition"

## Letters received

On the following pages, you will find electronic versions of the letters we received.

Aironet	Motorola
AMD	Norand
Apple Computer	Novell
AT&T	Proxim
Digital Ocean	Symbol Technologies
IBM	Spectrix
Intermec	Xircom
JRC	

**Aironet**

December 8, 1995,

IEEE Computer Society  
1730 Massachusetts Avenue, N.W.  
Washington, DC 20036-1992

Re: IEEE 802.11 draft Standard

Dear Sirs

This letter is written in response to your letter of September 26, 1995, which requested that Aironet Wireless Communications Inc. ("Aironet") notify IEEE of any patents related to the technology described in the IEEE 802.11 draft Standard. In this regard, we wish to bring to the attention of the Committee, U.S. Patent No. 5,276,680, Canadian Patent Application No. 2,040,234 and PCT Application No. PCT/CA92/00149.

If the proposed Standard, in its draft form, is adopted, to the extent that the Standard cannot be practiced without infringing one or more claims of the above patents, Aironet agrees that upon written request, it will grant a non-exclusive license under such claims that are required by the terms of the Standard to any requesting party on reasonable terms and conditions but not to any other claims. Our present understanding is that implementation of the Standard would require a license under claims 1, 3, 4, 5 and 7 of the '680 patent, but not claims 2, 6, and 8-14. Thus, the license would not include the latter claims. Claim in the foreign applications corresponding to the latter claims also would not be licensed.

This letter does not grant any right to IEEE with respect to Aironet patents, copyrights or other intellectual property rights.

Any party interested in the license described above, may write to:

Mr. Roger J. Murphy, Jr.  
President  
Aironet Wireless Communications, Inc.  
P. O. Box 5292  
Fairlawn Ohio 44334^0292

Sincerely

Roger J Murphy, Jr.

**AMD**

**ADVANCED MICRO DEVICES INC**

One AMD Place P.O. Box 3453, Sunnyvale, CA 94088-3453. Phone +1 408 732 2400

March 1, 1996

Institute of Electrical and Electronics Engineers  
c/o Mr. Victor Hayes  
Chairman IEEE 802.11  
Lucent Technologies, Inc.  
Zadelstede 1-10  
3431 JZ Nieuwegein  
The Netherlands

Re: Patent Statement in Reference to IEEE 802.11

To Whom It May Concern:

At this time, Advanced Micro Devices, Inc. ("AMD") is unaware of any patents or pending patent applications held by AMD relating to IEEE's draft 802.11 Wireless LAN Medium Access Control and Physical Layer Specifications. However, if AMD finds in the future that the standard adopted by the IEEE 802.11 Working Group is covered by one or more of the claims of any AMD patents or of any patents maturing from pending or future applications, AMD agrees, upon written request, to negotiate a non-exclusive license under such patents or such patents maturing from such applications on a non-discriminatory basis and on terms and conditions which AMD deems reasonable. Such negotiations will be held with the parties concerned and will be performed outside the IEEE.

Yours very truly,

Robert Krueger  
Vice President  
I/O and Networks Division  
Advanced Micro Devices, Inc.



**Apple Computer**

June 24, 1996

*via facsimile*

Vic Hayes, Chair, IEEE P802. 11  
Lucent Technologies WCND B.V.  
Zadelstede 1-10  
3431 JZ Nieuwegein, the Netherlands  
Voice: +31 30 609 7528  
Fax: +31 30 609 7555

Dear Mr. Hayes:

This letter is written in response to your letter of May 15, 1996, which requested that Apple Computer, Inc. confirm to the IEEE that we will provide licenses under our U.S. Patent Nos. 4,689,786 and 4,661,902 with respect to the proposed IEEE P802. 11 standard. In that regard:

In the event the proposed standard is adopted and the standard cannot be practiced without the use of the above-referenced patents or without the use of any other patents in Apple's portfolio of patents (which have not been reviewed with respect to the standard), Apple agrees upon written request to grant a nonexclusive license under such patent or patents on a nondiscriminatory basis and on reasonable terms and conditions.

This letter does not grant any right to the IEEE with respect to Apple copyrights or other intellectual property rights that relate to the proposed standard. Any party interested in the license described above may write to Paul D. Carmichael, Director of Patents and Trademarks, at the address on the letterhead.

Sincerely,

V. Randall Gard  
Senior Patent Counsel  
APPLE COMPUTER, INC.

Apple Computer, Inc.  
1 Infinite Loop  
Cupertino, CA 95014-2084  
(408) 996 1010  
Telex: 171-576

**AT&T**

November 1, 1995

Mr. Victor Hayes  
Chair IEEE P802. 11  
AT&T WCND Utrecht  
Zadelstede 1-10  
3431 JZ Nieuwegein  
The Netherlands

Dear Mr. Hayes:

This letter is written in response to your letter of September 27, 1995, which requested that AT&T confirm to the IEEE that we will provide worldwide licenses for our patents with respect to the proposed IEEE P802. 11 standard. In this regard:

To the extent that AT&T has patents or may in the future obtain patents in this technology area which are essential to your recommendations, AT&T would be willing to negotiate licenses with other parties on a world-wide, non-discriminatory basis with reasonable terms and conditions. Such negotiations will be held with the parties concerned and will be performed outside of IEEE.

This letter does not grant any right to the IEEE with respect to AT&T's copyrights or other intellectual property rights that relate to the proposed standard. Any party interested in the license described above may contact Herb Winfield in writing at the address on the letterhead, by phone on 908-903-6256 or by facsimile on 908-903-6323.

Sincerely,  
Gene G. Partlow, Intellectual Property Vice President AT&T  
Suite 2000  
150 Allen Road  
Liberty Corner, NJ 07938



**Digital Ocean**

Vic Hayes  
Chair, IEEE P802.11  
Lucent Technology/WCND  
PO Box 492,3430 AL  
Nieuwegein, The Netherlands

Re: IP Letter

Dear Mr. Hayes:

This letter is written in response to your letter requesting that Digital Ocean, Inc. confirm to the IEEE 802 LMSC that should we have patents or pending patent applications that may be infringed by users of the IEEE P802.11 standard, we will provide licenses under them. In that regard:

In the event that proposed standard is adopted and the standard cannot be practiced without the use of material in one or more of Digital Ocean's patents, Digital Ocean agrees, upon written request, that it shall not refuse to grant a nonexclusive license under such patent for use in products conformant to the standard. Such nonexclusive licenses shall include reasonable and nondiscriminatory terms and conditions, including the company's then-current royalty rates.

This letter does not grant any right to the IEEE with respect to Digital Ocean's copyrights, trade or service marks or other intellectual property rights, whether or not they relate to the proposed standard. Any party interested in the license described above may write to Digital Ocean at the address shown at the bottom of this letterhead.

Regards,

Jeffery J. Alholm  
Chief Executive Officer  
Digital Ocean, Inc.

11206 Thompson Avenue • Lenexa, Kansas 66219-2303 • P.O. Box 14788 • Lenexa, Kansas 66285-4788  
913.888.3380 • FAX 913.888.3342 • AppleLink: DIGOCEAN.SYS



**IBM**

October 10, 1995

Vic Hayes  
Chairman, IEEE P802. 1  
c/o AT&T WCND Utrecht  
Zadelstede 1.10  
3431 JZ Nieuwegein, the Netherlands

Dear Mr. Hayes:

This letter is written in response to your letter to Ralph Yeager of IBM dated September 26, 1995, concerning the proposed IEEE P802. 11 standard.

At the present time, IBM is not aware of any IBM patents that relate to the proposed standard. IBM has not undertaken any study of this matter, however.

In the event the proposed standard is adopted and the standard cannot be practiced without the use of one or more issued patents, including design patents for type fonts but excluding other design patents, which are now or hereafter owned or controlled by IBM, IBM agrees upon request to grant a non-exclusive license under such patent or patents on a nondiscriminatory basis and on reasonable terms and conditions including its then current royalty rates and provided a similar grant under licensee's patents is made available to IBM.

Requests for information concerning IBM patent licenses should be directed in writing to:

IBM Director of Licensing  
IBM Corporation  
500 Columbus Avenue  
Thornwood, New York 10594  
USA

Sincerely,,

Walter L. Willigan  
Program Director, Licensing

## Intermec

October 26, 1995

Mr. Vic Hayes  
Chair, IEEE P802. 11  
AT&T WCND Utrecht  
Zadelstede 1-10  
3431 JZ Nieuwegein, the Netherlands

Dear Vic,

This letter is written in response to your letter of September 26, 1995, which requested that Intermec confirm to the IEEE that we will provide licenses for any patents or patents pending which we may hold which are relevant to the proposed IEEE 802.11 standard. In that regard:

Intermec does not believe that they currently hold any patents, nor have any pending patent applications, which conflict with any technologies outlined in the proposed standard, as of October 26, 1995. In the event that patents issue to, or are acquired by, Intermec in the future which Intermec believes will read on devices operating under the proposed IEEE 802.11 Standard, Intermec will (upon written request from any third party) grant a nonexclusive, nontransferable sole and personal license under any such issued patent on a nondiscriminatory basis, on terms and conditions which Intermec deems reasonable.

This letter does not grant any right to the IEEE with respect to Intermec copyrights or other intellectual property rights that relate to the proposed standard. Any party interested in the license described above may write to Mr. L. David Rish, Intermec's Intellectual Property law counsel, Attn: Legal Department, MS 530, at the address on this letterhead.

In a related issue, Intermec would like to know what the IEEE's official position is with regard to the P802. 11 committee's efforts to work around patents. It is our understanding that the IEEE requires that the 802.11 committee make a good faith effort to exclude patented technologies if possible. Since there has been virtually no early disclosure of patent issues, how is the committee to make a good faith effort to not include such technologies? We appreciate your timely response to this question.

Sincerely,

Glen Sherwood  
Engineering Manager

Intermec Corporation  
6001 36th Avenue West  
P.O. Box 4280  
Everett, Washington 98302-9280

**JRC**

**Japan Radio Co., Ltd. (JRC)**

NO. 5-1-1 SHIMORENJAKU MITAKA-SHI  
TOKYO JAPAN

phone: +81 422 45 9222  
FAX: +81 422 49 6297

Mr. Vic Hayes, Chair, IEEE P802.11  
AT&T WCND Utrecht  
Zadelstede 1-10  
3431 JZ Nieuwegein, the Netherlands

TOKYO February 6, 1996

**Patent response letter**

Dear Mr. Hayes:

This letter is written in response to your letter of September 26, 1995, which requested that JRC confirms to the IEEE that we will provide licenses under Japanese Patent Application Number and Title of the Invention (attached sheet) with respect to the proposed IEEE P802.11 standard. In that regard:

In the event the proposed standard is adopted and the standard cannot be practiced without the use of the patent referenced above, JRC agrees upon written request to grant a nonexclusive license under such patent on a nondiscriminatory basis and on reasonable terms and conditions including its then-current royalty rates.

This letter does not grant any right to the IEEE with respect to JRC's copyrights or other intellectual property rights that relate to the proposed standard. Any party interested in the license described above may write to Yoji Makishima at the address on the letterhead.

Sincerely,

Y. MAKISHIMA  
General Manager, R&D Dept  
Japan Radio Co.,Ltd.

Page 2 of 2  
Patent response letter

Attached sheet

No.	Patent Application Number	Title of the Invention
1	5-133090	Spread spectrum modulator-demodulator
2	5-133091	Spread spectrum receiver
3	5-183599	Wireless packet receiver
4	5-84386	Wired LAN to wireless LAN packet converter
5	5-46185	Wireless packet collision detection method
6	5-40944	Wireless LAN system
7	5-40819	Wireless packet error check method
8	5-288554	Wireless LAN repeater
9	5-275580	Wireless LAN hand-off method
10	6-1431	Spread spectrum modulator-demodulator
11	7-139580	Wireless LAN hand-off method
12	7-235748	Wireless LAN hand-off method

**Motorola**

November 2, 1995

Mr. Vic Hayes  
Chairman  
IEEE P802.11  
AT&T WCND Utrecht  
Zadelstede 1-10  
3431 JZ Nieuwegein  
The Netherlands

Dear Mr. Hayes:

I refer to your letter of 26 September 1995 addressed to our Mr. Mark Demange requesting a letter of assurance as to Motorola's willingness to license certain technology relating to the standard being developed by IEEE P802.11 Wireless LAN standard committee .

Motorola has already made a statement dated 1 March 1994 as to its willingness to license its essential patents, and I enclose a copy of that statement.<sup>3</sup>

We believe this statement fulfills your requirements and our obligations.

Sincerely,

Hugh C. Dunlop  
European Patent Attorney  
MOTOROLA, Inc.

Corporate Offices  
1303 E. Algonquin Road  
Schaumburg, IL 60195

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<sup>3</sup> Refer to doc.:94/36

**NORAND**

NORAND CORPORATION  
CORPORATE OFFICES  
550 SECOND STREET S.E.  
CEDAR RAPIDS, IOWA 52401  
PHONE (319) 369-3100  
EXECUTIVE FAX (319) 369-3630

March 1, 1996

Mr. Vic Hayes  
Chairman, IEEE P802.11  
AT&T  
Zadelstede 1-10  
3431 JZ Nieuwegein  
the Netherlands

Dear Mr. Hayes:

I am writing in response to correspondence which Norand Corporation has received from the IEEE P802. 11 working group concerning the identification and disclosure of intellectual property relevant to the proposed standard. Norand has several concerns relating to the procedures and policies of the committee and it would like the committee to address these concerns before Norand replies directly to the correspondence. Norand Corporation believes that the future acceptance and success of the standard will be furthered by resolving these issues prior to final approval. Further, Norand has, and continues to develop, intellectual property rights in the general area of wireless data communications. Given the issues cited below, Norand believes it is premature to assess the relevance that any of its patents may have to the proposed standard.

It is not clear which set of bylaws and operations manual rules are intended to govern the submission of patents and assurances relating to the P802.11 standard. Norand has received copies of amendments that have recently been made to the bylaws and to the operations manual. If the amendments are to govern the P802. 11 proceedings, the prior submitted "assurances" should be required to be resubmitted in a form consistent with the new rules. We have seen no such directive from the committee. Further, although the patent policy could be interpreted to require submission of a copy of a license showing the terms and conditions expected to be imposed, the responses received by the committee do not appear to contain any such documents.

The language of the patent policy of the amended IEEE Standards Board Bylaws is vague and should be clarified. For instance, it is not clear whether a letter, a copy of a license or both are being requested. In addition, the bylaws prohibit "the known use of patent's (sic), including patent applications" unless certain contingencies are satisfied. One contingency for use is that there be a "compelling technical justification in the opinion of the standards-developing committee." Obviously, before the committee can determine whether such a justification exists, it must have specific knowledge of the identity of the relevant patents and patent applications. It appears, however, that the responses of several participants have been accepted even though they do not specifically identify their patents and patent applications. A response has also apparently been accepted even though it states that no search of the company's patents has been performed.

If the IEEE patent policy is to perform a useful purpose, the committee must enforce it by refusing to accept responses such as those detailed above. If it fails to follow through with this enforcement role, it is rewarding those who profess ignorance of their own patents. Also, the future use of the standard is unnecessarily made more expensive by enabling collection of royalties for features included without a compelling technical justification.

It is also unclear who is to determine the reasonableness of a license's terms and conditions. If the known use of a patent by the standard is to be contingent upon a promise of offering a license having reasonable rates, terms and conditions, the procedure for determining reasonableness should be specified. Several responding entities appear to be indicating that they alone will define the boundaries of what is reasonable in regard to the licensing of their particular intellectual property. This is certainly not an interpretation that the participants as a group should be willing to accept. Norand suggests that the P802. 11 committee consider developing a set of rates, terms and conditions which would be considered reasonable for the P802. 11 standard. Such a step would provide a basis for determining whether the contingency has been satisfied. It could also help avoid the detrimental gamemanship that may result if the patent holders are left to their own devices.

The policy, as amended, states as follows:

IEEE standards may include the known use of patent's, including patent applications, if there is compelling technical justification in the opinion of the standards-developing committee and provided the IEEE receives assurance from the patent holder that it will license applicants under reasonable terms and conditions for the purpose of implementing the standard. This assurance shall be provided without coercion and prior to approval of the standard (or reaffirmation when a patent becomes known after initial approval of the standard). This assurance shall be a letter that is in the form either

- a) A general disclaimer to the effect that the patentee will not enforce any of its present or future patent(s) whose use would be required to implement the proposed IEEE standard against any person or entity using the patent(s) to comply with the standard or
- b) A license that will be made available to all applicants without compensation or under reasonable rates with terms and conditions that are demonstrably free of any unfair discrimination .

Norand feels that several entities may not have disclosed patents relating to the standard because either 1) they believe they are not required to do so, or 2) they cannot discern what criteria should be employed in determining whether a patent relates to the standard. Norand Corporation is not a member of the P802.11 standard committee. Norand employees attend working group meetings in their individual capacities. Given these circumstances, Norand Corporation and the other similarly situated entities would not appear to have an obligation to disclose potentially relevant patents to the committee. Norand requests that the committee clarify its policy on these matters.

As the committee is aware, patent holders may exist who cannot be charged with knowledge of the development of the P802.11 standard. In light of the described complexities, Norand suggests that the committee perform an independent search for patents related to the standard. The bylaws and the operating manual do not appear to prohibit such activity. The committee could conduct, for example, a search and general analysis for the purpose of identifying patent holders that should be approached for assurances. If such steps are not taken, it may be discovered after approval that a multitude of patents apply to the standard.

Further, some patents may exist which are application specific and which, therefore, do not literally read on the standard. A claim may, by way of a simplified example, contain several elements which are embodied in P802.11 and one element which specifies a particular type of generic communicating device such as a commercially available computer. Such a claim may not read on the P802.11 standard, but it would cover use of a P802.11 Wireless LAN by the described device. Norand suggests that the committee specifically request disclosure of such patents and perform its own search for this type of art.

Norand Corporation has previously disclosed to the committee patents which may apply to the P802.11 standard. A copy of the prior communication is attached. Norand has not determined if it has additional patents that relate to the proposed standard. Norand's legal department has not completed its analysis of this question. Further, due to the uncertainty of the committee's policies in this area, Norand does not feel comfortable in disclosing additional patents at this time. Hopefully, the committee will take action to alleviate our concerns. We look forward to your response to these matters.

Sincerely,

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Thomas O. Miller  
Senior Vice President  
Norand Corporation



attachment to Norand's letter

**IEEE P802. 11  
Wireless LANs**

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**Notice of Patent Applicability**

**Date:** November 8, 1993

**Author:** Ronald L Mahany  
Norand Corporation  
550 Second Street SE  
Cedar Rapids, Iowa 52402  
Phone(319)369-3100  
Fax (319)369-3453  
email: mahanyrL(4)norand.com

This paper is intended to inform the committee of patents held by Norand Corporation that are relevant to subject matter now under discussion by the committee These patents are:

US 4,910,794  
Mobile Radio Communications System and Method  
Ronald. L Mahany  
Issued March 20, 1990

US 5,070,536  
Mobile Radio Communications System and Method  
Ronald. L Mahany, Marvin L Sojka, Guy J West  
Issued: December 3. 1991

and the following international issues of the above:

Australia 632.055  
Canada 1,316.218  
Great Britain 2 223.914

The general subject matter of these patents is adaptive selection between higher and lower data radio link data rates.

**Novell**

October 20, 1995

Vic Hayes, Chair, IEEE P802.11  
AT&T WCND Utrecht  
Zadelstede 1-10  
3431 JZ Nieuwegein, the Netherlands

Re: Patent Response Letter

Dear Mr. Hayes:

This letter is written in response to your letter to Jon Walter Rosdahl of September 26, 1995, which requested that Novell, Inc., confirm to the IEEE that should we have patents or pending patent applications that may be infringed by users of the IEEE P802.11 standard, we will provide licenses under them. In that regard:

In the event the proposed standard is adopted and the standard cannot be practiced without the use of Novell's patents, Novell agrees upon written request to not refuse to grant a nonexclusive license under such patent and on reasonable terms and conditions including its then-current royalty rates.

This letter does not grant any right to the IEEE with respect to Novell's copyrights or other intellectual property rights that relate to the proposed standard. Any party interested in the license described above may write to:

Ernamarie Messenger  
Chief Patent Counsel  
Novell, Inc.  
Mail Stop A-232  
1555 N. Technology Way  
Orem, UT 84057-2399

David R. Bradford  
Senior Vice President and  
General Counsel

**proxim**

January 19, 1996

Mr. Vic Hayes, Chair, IEEE P802.11  
AT&T WCND Utrecht  
Zadelstede 1-10  
3431 JZ Nieuwegein, the Netherlands

Dear Mr. Hayes:

This letter is written in response to your letter dated September 26, 1995, which requested that Proxim confirm to the IEEE that we will provide licenses for any patents which we may hold which are relevant to the proposed IEEE P802.11 standard. In that regard, Proxim holds the following patents which may have relevance to the proposed IEEE P802.11 standard:

U.S. patent #5,077,753  
U.S. patent #5,231,634  
U.S. patent #5,412,687

In the event that the proposed standard is adopted and the standard cannot be practiced without the use of relevant Proxim patents, Proxim agrees upon written request to negotiate a nonexclusive license under such patents on a nondiscriminatory basis and on terms and conditions which Proxim deems reasonable. Such negotiations will be held with the parties concerned and will be performed outside the IEEE.

This letter does not grant any right to the IEEE with respect to Proxim copyrights or other intellectual property rights that relate to the proposed standard. Any party interested in the license described above may write to Mr. Keith B. Glover, Vice President of Finance and Administration, CFO, at the address on this letterhead.

Sincerely

David C. King  
Chairman, President and Chief Executive Officer

Proxim, Inc.  
295 North Bernardo Avenue  
Mountain View, CA 94043  
[415] 960 1630 Fax (415) 864 5181

**Symbol**

April 23, 1996

Mr. Victor Hayes  
Chair IEEE P802.11  
AT&T WCND Utrecht  
Zadelstede 1-10  
3431 JZ Nieuwegein  
The Netherlands

Dear Mr. Hayes:

This letter is written in response to your letter of September 27, 1995, which requested that Symbol Technologies, Inc. ("Symbol") confirm to the IEEE that it will provide worldwide licenses under certain of its patents related to the proposed IEEE 802.11 standard. In this regard:

In the event the proposed IEEE 802.11 standard is adopted, and the standard cannot be practiced without the use of one or more patents which are now or hereafter owned by Symbol, Symbol would upon request be willing to negotiate a non-exclusive, worldwide license, under the relevant claims of such patent or patents, on a nondiscriminatory basis and on reasonable terms and conditions including its then current royalty rates.

This letter does not grant to the IEEE or any other party any right with respect to Symbol's copyrights or other intellectual property rights (whether now or hereafter in existence) that relate to the proposed standard.

Very truly yours,

Richard Bravman  
Senior Vice President

SYMBOL TECHNOLOGIES, INC. One Symbol Plaza, Holtsville, NY 11742-1300 • 518 738-2400 Web site: <http://www.symbol.com>

## Spectrix

October 13, 1995

Mr. Vic Hayes, Chair, IEEE P802.11  
AT&T WCND Utrecht  
Zadelstede 1-10  
3431 JZ Nieuwegein, the Netherlands

Dear Vic,

This is a response to your letter of September 26, 1995, regarding patents.

Spectrix has previously written two letters to you on the subject of Spectrix's patents<sup>4</sup>. We believe that these letters responded to the subject adequately and there is no need to send new letters on the same subject. Spectrix has made patent applications since the last letter but there have been no pending numbers issued. When these numbers are issued Spectrix will write another letter using the format suggested in your letter.

Yours truly,

C. Thomas Baumgartner

Vice President of Marketing

Spectrix Corporation  
106 Wilmot Road, Suite 250  
Deerfield, IL 60015-5150

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<sup>4</sup> See doc.: 93/134, which mentions US Patent No 5,099,346, March 24, 1992. The second letter mentions US patent 5,247,380.

**Xircom**

October 12, 1995

Mr. Vic Hayes  
Chairperson, IEEE P802.11  
AT&T WCND Utrecht  
Zadelstede 1-10  
3431 JZ Nieuwegein, the Netherlands

Re: Patent Letter of Assurance

Dear Mr. Hayes:

This letter is written in response to your letter dated September 26, 1995 to Mr. Phil Belanger. You have requested, on behalf of the Standards Working Group IEEE P802.11, that Xircom, Inc. confirm to the IEEE that Xircom will provide licenses under applicable United States Patent Pending Serial Number 08/082,313, and any associated divisional applications or patents issued thereunder with respect to the proposed IEEE P802.11 standard.

In the event the proposed standard is adopted and the standard cannot be practiced without the use of the applicable patent(s) (if and when same is/are issued), Xircom agrees as follows. Upon written request, and upon consummation of negotiations (to include receipt by Xircom of appropriate assurances or other satisfactory confirmation of the requester's ability to perform and comply with all terms and conditions of licensing), to grant pursuant to written agreement a nonexclusive license under the applicable patent(s) on a nondiscriminatory basis and on reasonable terms and conditions, including Xircom's then current royalty rates and payment conditions.

This letter does not grant to the IEEE, nor to any other party on any theory of third party beneficiary status, any right in or to Xircom's copyrights or other intellectual property rights (whether current or future) that may relate to the proposed standard. Any party interested in a license as described above may write to Xircom, Inc., Attn: General Counsel, at the address noted above on our letterhead.

Sincerely,

Randall H. Holliday  
General Counsel

Note: Letterhead did not give the address

**Annex 1**  
**Cover letter**

Dear Working Group Participant:

Your assistance is needed to help our working group, the IEEE P802.11 Wireless LAN standard committee complete the development of this standard and bring it forward to the IEEE Standards Board for approval. As you know, the draft standard utilizes a comprehensive set of technologies and a number of patent related matters have been discussed during all phases of the development of this document. Part of the task of this committee is to disclose any patent issues that they are aware of.

The IEEE patent policy requires a letter of assurance such as the one attached. The letter indicates the patent holders willingness to license their technology on a non-discriminatory basis under fair and reasonable terms.

Please apprise me of any known patents related to technology described in the draft standard. We also ask that you forward this letter to the appropriate person in your organization who is responsible for intellectual property rights for their review and action.

We need your response by October 24th so that we may continue with the approval process in an efficient manner. Thank you for your assistance.

Sincerely,

Vic Hayes  
Chair

Att. (patent response letter from Guide)

**Annex 2**  
**Patent response letter**

Dear Mr. Hayes:

This letter is written in response to your letter of (date), which requested that (company) confirm to the IEEE that we will provide licenses under our (country) Patent # \_\_\_\_\_ or (country) Patent Pending # \_\_\_\_\_ with respect to the proposed IEEE P802.11 standard. In that regard:

In the event the proposed standard is adopted and the standard cannot be practiced without the use of the patent referenced above, (company) agrees upon written request to grant a nonexclusive license under such patent on a nondiscriminatory basis and on reasonable terms and conditions including its then-current royalty rates.

This letter does not grant any right to the IEEE with respect to (company) copyrights or other intellectual property rights that relate to the proposed standard. Any party interested in the license described above may write to (name of contact person) at the address on the letterhead.

Sincerely,

Jane Q. Company  
(company)