
**IEEE P802.11
Wireless LANs**

IPR letters received for IEEE P802.11

Date: May 15, 1997

Author: Vic Hayes
Lucent Technologies WCND B.V.
Zadelstede 1-10
3431 JZ Nieuwegein
the Netherlands
Phone: +31 30 609 7528
Fax: +31 30 609 7556
e-Mail: v.hayes@ieee.org

Abstract

This document contains the responses on my letter of September 26, 1995 to the participants in IEEE P802.11 as well as to the notices given in various plenary meetings of the working group.

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.

List of Companies or individuals responding

| Company | IP Status |
|---------------------------|---------------------------------------|
| Aironet | IP statement available |
| AMD | IP statement available |
| Apple Computer | IP statement available |
| AT&T | IP statement available |
| Digital Ocean | IP statement available |
| IBM | IP statement available |
| Intermec | IP statement available |
| JRC | IP statement available |
| Lucent Technologies | IP statement available (Same as AT&T) |
| Matsushita Electric Works | "no IP" indication |
| Motorola | IP statement available |

| | |
|---|-------------------------|
| Norand | IP statement available |
| Novell | IP statement available |
| OSIA(sponsored by Ministry of Information & Communication, KOREA) | "no IP" indication |
| Proxim | IP statement available |
| Samsung Electronics | "no IP" indication |
| Sharp | "no IP" indication |
| Spectrix | IP statement available |
| Standard Microsystems Corp. | "no IP" indication |
| Symbol Technologies | IP statement available |
| Toshiba America | incomplete IP statement |
| Xircom | IP statement available |

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"

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, 1 99S

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 |

Lucent Technologies

December 18, 1996

| | |
|---|--|
| Gene G. Partlow Intellectual Property Vice President | Lucent Technologies Inc. Suite 2000 150 Allen Road Liberty Corner, NJ 07938-1995 Telephone 908 903 6222 Facsimile 908 903 6321 E-Mail !gpartlow@mail.att.net |
|---|--|

Mr. Victor Hayes
Chair IEEE P802. 11
Lucent Technologies Inc. WCND Utrecht
Zadelstede 1-10
3431 JZ Nieuwegein
The Netherlands

Dear Mr. Hayes:

This letter is written in response to your request that Lucent Technologies Inc. will provide worldwide licenses for our patents with respect to the proposed IEEE P802. 11 standard. In this regard:

To the extent that Lucent has patents or may in the future obtain patents in this technology area which are essential to your recommendations, Lucent 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 Eric Crefeld in writing at the address on the letterhead, by phone on 908-903-6262 or by facsimile on 908-903-6323.

Sincerely.

Was signed by
Gene G. Partlow,

**MATSUSHITA ELECTRONICS WORKS
RESEARCH & DEVELOPMENT LABORATORY, INC.**
401 River Oaks Parkway
San Jose, CA 95134
Phone: (408) 433 - 3386
Facsimile: (408) 433 - 3387

December 11, 1995

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

Dear Vic Hayes,

I would like to apologize for this late response. In reference to your letter dated September 16, 1995, in regards to any known patents (please see attached). At this time we have no patents relating to the IEEE P802.11 Wireless LAN standard.

Sincerely,

Nobuo Matsuo
Manager

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.¹

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

¹ 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,

Thomas O. Miller
Senior Vice President
Norand Corporation

attachment to Norand's letter

**IEEE P802. 11
Wireless LANs**

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

OSIA(sponsored by Ministry of Information & Communication, KOREA).

Date: Thu, 14 Dec 95 09:04:47 KST
From: yhyun@sunchon.sunchon.ac.kr (yoe hyun)
Message-Id: <9512140004.AA14199@sunchon.sunchon.ac.kr>
To: VHAYES@wcd.nl.att.com
X-Mailer: Microsoft Mail V3.0
Content-Type: text
Content-Length: 405

Hi, Vic!

I am sorry that I did not response your letter of Sep. 26th.
I am a professor and so no problem of intellectual property.
And I am a member of OSIA(sponsored by Ministry of Information & Communication, KOREA). And no problem there too(there were no opinion about draft standard, every member was interested in the context of it.)

I am much sorry that I did not inform you.

Bye!

From Yoe, Hyun

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

Inc RSA Data Security, Inc
100 Marine Parkway
Redwood City
CA 94065
USA

RSA Data Security,

June 14, 1995

Cheryl Rowden
Administrator- Intellectual Property
IEEE Standards Department
455 Hoes Lane
P.O. Box 1331
Piscataway, NJ 08855-1331

Dear Cheryl,

Please accept this letter of assurance that RSA will do the following in support of the IEEE 802.11 standard:

1. RSA will provide access to a reference implementation of RC4. A software license, for implementation in software or hardware, will be made available to applicants under fair, equitable and nondiscriminatory term for the purpose of using the RC4 stream cipher in IEEE 802.11 LAN devices. The license terms will be according to RSA Data Security, Inc.'s standard OEM license agreement and will be offered to all applicants.

2. RSA would grant the right for IEEE 802.11 to incorporate any portion of RSA's publicly available documentation into the 802.11 standards publications provided appropriate acknowledgment is given to RSA Data Security, Inc.'s ownership of the copyright. This grant of rights would allow IEEE 802.11 to permit others to reproduce the resulting IEEE 802.11 standards publications.

3. RSA will offer the following royalty schedule to 802.11 implementors:

| | |
|---|-----------------|
| \$ 5,000 prepaid license fees: | \$1.00 per unit |
| \$ 15,000 prepaid license fees: | \$0.75 per unit |
| \$ 35,000 prepaid license fees: | \$0.50 per unit |
| \$ 70,000 prepaid license fees: | \$0.25 per unit |
| \$125,000 one time, per company, license fee. | no royalties |

RSA looks forward to working with IEEE and helping to deliver a secure 802.11 standard to the marketplace.

Sincerely,

Paul Cordon
Director of Sales

Enclosures:

| |
|---|
| TEL 415 595 8782 FAX 415 595 1873 THE KEYS TO PRIVACY AND AUTHENTICATION |
|---|

Samsung Electronics in Cypress, Ca

From: ig2.att.att.com!slhc.com!hnguyen@att

Date: December 8, 1995

My name is Huy Nguyen from Samsung Electronics in Cypress, Ca. Currently I am a Product Manager for the WLAN product. So far we do not have any Intellectual Properties in the IEEE 802.11 Draft Standard. Please let me know if we can help you in other matters.

Best regards,

Huy Nguyen

Sharp

To: VHAYES@wcnd.ns-nl.att.com
In-Reply-To: Your message of "Mon, 11 Dec 95 08:15:07 EST."
<9512111315.AA12715@ig1.att.att.com>
Date: Tue, 12 Dec 95 12:04:36 +0900
From: WAKAI Hirohisa <wakai@nyanta.shpcsl.sharp.co.jp>
X-Mailer: Microsoft Mail V3.0
Content-Type: text
Content-Length: 1134

Dear Vic,

Thank you for your email with the documents regarding IP issue.
I could get the two files successfully and forwarded the message to IP
section of Sharp.

At this point of time I do not think Sharp does not have any patent
that needs to implement the 802.11 specification. I ask the IP section
if they agree the IP policy of IEEE committee.

I guess I have to respond at latest by beginning of the next meeting,
right? Do I need a formal letter with a signature of the person who is
responsible to that issue? Or can I send the response letter without
signature as a response to the investigation by email?

Regards,
Hiro

--

From: Hirohisa WAKAI
SUPERVISOR
ITRL-1, R & D Group,
(Research Dept. 1
Information Technology Research Laboratories
Corporate Research and Development Group)
SHARP Corporation
2613-1 Ichinomoto-Cho, Tenri, NARA 632 JAPAN
Fax;+81(7436)5-2163, Voice;+81(7436)5-2466
E-Mail; wakai@shpcsl.sharp.co.jp

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 patents². 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

² See doc.: 93/134, which mentions US Patent No 5,099,346, March 24, 1992. The second letter mentions US patent 5,247,380.

Standard Microsystems Corp

From: ig4.att.att.com!smc.com!Bradley.Herrin@att

Date: December ,1995

Vic-

To date, Standard Microsystems Corp has no intellectual property that to my knowledge that would be violated via anything in the 802.11 spec. version 2.1.

Cheers-

Brad Herrin
Manager Portable Systems
Standard Microsystems Corp.

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>

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