

**IEEE 802.4L
THROUGH-THE-AIR TOKEN BUS PHYSICAL LAYER**

**Minutes of regular meeting of IEEE 802.4L on March 24, 1987
at the Royal Orleans Hotel, New Orleans, LA.**

Opening Matters

The meeting was called to order at 0830 by Chairman David Greenstein. All present identified themselves, and they were requested to sign the attendance log. The attendance list for this meeting is attached. The Chairman ruled that all those present were qualified to vote.

The Chairman appointed C. A. Rypinski Secretary of 802.4L noting that he has attended all prior meetings. There were no objections or other volunteers.

The Chairman called attention to the IEEE requirement that all participants in 802 have read the IEEE Standards Manual, and that they sign the form supplied verifying that they have done so—even if a such a form has been signed for a prior meeting.

The accomplishments the Chairman expected from this meeting were as follows:

1) Write the charter, 2) Write the objectives, 3) Discuss goals, and 4) Attract participation of more Companies. Some discussion of these plans followed.

Document Log

The Chairman opened a log for documents and submissions starting with a submission from C. Rypinski--Objectives for 802.4L-DRAFT Proposal--Nov 26, 87 assigned no. 87-001. (The OBJECTIVES documents had been distributed with the last minutes to participants of record at the end of November, 1986. 87-002 was distributed to all present at the start of the meeting.) 87-002 was assigned to the Report on IWP8/13. The Chairman provided copies of the minutes of the last meeting to those who had not received them in the mail, and he assigned Document No. 87-003. There was no objection to these minutes.

FCC LAN Frequency Allocation Petition

Discussing the Motorola request for a LAN frequency assignment, the Chairman noted that there were two letters of objection from government users of the frequency space and six letters in support. It was estimated that the FCC might reach a decision about June 30.

Charter

The first point in 87-001 was taken as a start and edited by the group resulting in a new CHARTER statement which was acceptable to all those present and which is shown below:

CHARTER: To provide an alternative physical medium for through-the-air communication for mobile equipments as part of a local area network using the 802.4 access technique. The system should use the special advantages of token bus: There is no possibility of two stations transmitting simultaneously, and there is no requirement for fixed equipment to resolve contention.

David Greenstein moved, R. Formeister seconded the following motion: "To submit Document 802.4L/87-001 (as edited in the meeting and shown above) to the 802.4 Group for public comment." The motion carried unanimously with 6 FOR and 0 AGAINST. (The Secretary has incorporated the text approved in a new document titled "CHARTER AND OBJECTIVES number 87-005)

Requested Submissions

In the course of discussion of relevant technology and the relative possibilities for radio and optics, the Chairman asked for specific contributions as follows:

1. FCC and other information on Spread Spectrum--from R. Formeister, Fairchild.
2. Selection of relevant portions of FCC Rules--from C. Rypinski
3. Data on optical propagation in rain and other attenuating meteorological conditions--T. Saito, NEC

The Chair described a need for a custodian of original documents and an alternate to chair meetings when he is unavailable. D. Greenstein moved and C. Thurwachter seconded the following Motion: "To appoint C. Rypinski Secretary and Co-Chairman of 802.4L, and for him to be the keeper of original papers and documents." The motion was carried with 8 FOR and 0 AGAINST.

Objectives

After a break, the Chairman took up the matter of Objectives which were the remaining points on 87-001. The submission Detail Supplement to Objectives for Radio Only was assigned number 87-004 and was discussed consecutively with 87-001.

It was possible to arrive at text, with no dissent, for OBJECTIVES and DETAIL OBJECTIVES applying only to radio. The text arrived at is now attached as Document 87-005 titled CHARTER AND OBJECTIVES."

It was accepted that a multi-base system could share a common head-end each having a dedicated path.

An interesting point came out as a result of a specific system description. Considering the case where the same transmission from a mobile unit is received at several places simultaneously, it was the sense of the group that it was acceptable to wait until after the final CRC sequence before retransmitting the packet selecting only packets with valid check. The group saw no need to commence retransmission within a small number of bits required to determine which received signal was most likely to be error free. This implies that a single frequency could be used for both inward and outward transmissions since that use is sequential.

Digital Radio Propagation and Technology

At the request of the Chair, C. Rypinski introduced Doc: 87-002 (which had been distributed to all present), a report on the recent meeting of CCIR IWP8/13 concerned with Future International Public Mobile Digital Radio Telephone Service. He reported that many of the technical submissions to this group were of high quality and great relevance. The trend is toward much smaller cells not much different in extents than those intended for LAN. He circulated the following:

Document US8/13-3 Rev. 1, 27 Jan 87, Original: English; "THE PORTABLE RADIO PROPAGATION ENVIRONMENT"; (Prepared by Bell Communication Research & Phil Porter); 34 pages, 17 figures, 43 references; "This document summarizes recently available propagation measurements an and around houses and buildings and proposes models for several characteristics of such radio channels."

C. Rypinski offered to provide copies of this document to individuals who have specific need.

Applications

The Chairman, in response to a request, described in somewhat greater detail potential applications for the Radio LAN particularly referring to factory Automatic Guided Vehicle applications but also noting requests from others concerned with hazardous environment. Possibilities in hospitals were also suggested.

There was further discussion of frequency matters without any specific conclusion.

A brief discussion exposed no need for an interim meeting before the next 802 Plenary. There being no further business, it was moved by D. Greenstein and seconded by C. Thurwachter that the meeting be adjourned. The motion carried unanimously.

Submitted by:

Chandos A. Rypinski

April 1, 1987

DOC: 802.4L/87-000

DOCUMENT AND SUBMISSION LIST--IEEE 802.4L

<u>Number</u>	<u>Description</u>	<u>Date</u>
802.4L/ 87-000	Document and Submission List	87-04-01
Items below were accepted as submissions:		86-03-24
87-001	OBJECTIVES FOR 802.4L--Through-the-AirToken Bus Physical Layer-- DRAFT-Proposal (C. Rypinski)	86-11-26
87-002	MEMORANDUM--TO: D. Greenstein & Members 802.4L. RE: Plenary Meeting of CCIR IWP 8/13, March 10-18; Melbourne, Australia; Future International Public Mobile Digital Radio Telephone Service. (C. Rypinski)	87-03-22
87-003	MINUTES of the meeting of IEEE 802.4L on November 20, 1986; Cardiff Room, Hotel Del Coronado, San Diego, CA. (Submitted but not approved or accepted--C. Rypinski)	86-11-24
87-004	DETAIL SUPPLEMENT TO OBJECTIVES FOR 802.4L--Proposals for Radio Only. (C. Rypinski)	86-11-26
87-005	CHARTER AND OBJECTIVES--IEEE 802.4L--THROUGH-THE-AIR TOKEN BUS PHYSICAL LAYER (Revision of-001 and -004 at meeting of March 24)	87-03-31

Items below will be offered as submissions at the next meeting of IEEE 802.4L

87-006	MINUTES of the meeting of IEEE 802.4L on March 24, 1987; Hotel Royal Orleans, New Orleans, LA. (Submitted but not approved--C. Rypinski)	87-04-01
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MAILING LIST FOR IEEE 802.4L AS OF MARCH 26, 1987

Mr. DAVID GREENSTEIN, Chmn 802.4L 313 947 0571 General Motors Technical Center Manufacturing Building A/MD-39 30300 Mound Road Warren, MI 48090-9040	Mr. ARIEL HENDEL 516 273 3100 Standard Microsystems Corporation New Product Development 35 Marcus Blvd Hauppauge, NY 11788
Mr. CHANDOS A. RYPINSKI 415 435 0642 Consultant-Secretary 802.4L 130 Stewart Drive Tiburon, CA 94920	Mr. MICHAEL A. BUSH 313 668 2500 Allen-Bradley Industrial Computer Group 555 Briarwood Circle Ann Arbor, MI 48104
Mr. CHARLES THURWACHTER 313 769 4292 Industrial Technology Institute Communications Network Laboratory POB 1485 Ann Arbor, MI 48106	Mr. MICHAEL T. KLEIN 313 668 2500 Allen-Bradley Industrial Computer Group 555 Briarwood Circle Ann Arbor, MI 48104
Mr. ROBERT M. CULLEN 617 364 2000 CODEX Corporation 20 Cabot Blvd. Mansfield, MA 02048	Mr. FRED P. RHINE 313 668 2500 Allen-Bradley Industrial Computer Group 555 Briarwood Circle Ann Arbor, MI 48104
Dr. R. A. BRUCE 714 752 3633 Hughes Aircraft Co. Microelectronic Systems Division 2601 Campus Drive Irvine, CA 92715	Mr. EDWARD LASOTA 716 477 1006 Eastman Kodak Kodak Park Division Rochester, NY 14650
Mr. MAX ALLEN 312 576 5924 Motorola Inc. Communications Sector 1301 E. Algonquin Road Schaumburg, Illinois 60196	Mr. YOSHIO SATO 213 973 2071 NEC America - Mobile Radio Division 4910 West Rosecrans Ave Hawthorne, CA 90250
Mr. CLYDE BOENKE 313 761 8818 American Broadband, Inc. POB 2144 Ann Arbor, MI 48106	Mr. TOSHIO SAITO (044) 433 1111 1st Development Dept, Transmission Division NEC Corporation 1753 Shimonumabe, Nakahara-Ku, KAWASAKI, KANAGAWA, 211 JAPAN
Mr. DANIEL LE BLAN 617 493 6045 DEC 146 Main St., MLO5-2/E50 Maynard, MA 01754	Mr. KENTA TAKUMI (03) 453 5511 C & C Systems Development NEC Corporation 33-7, SHIBA 5 - CHOME, MINATO-KU TOKYO 108, JAPAN
Mr. RICHARD FORMEISTER 602 941 0023 Fairchild Data Corporation 350 No. Hayden Road Scottsdale, AZ 85257	Mr. FUMIO AKASHI (044) 855 1111 NEC Corporation-C&C Research Laboratory 1-1, MIYAZAKI 4-CHOME MIYAMAE-KU, KAWASAKI KANAGAWA 213, JAPAN
Mr. HOWARD GAGE 408 748 2154 Tandem Computers, Inc 2550 Walsh Ave Santa Clara, CA 95051	
Mr. CURT BERG 408 748 2177 Tandem Computers, Inc 2550 Walsh Ave Santa Clara, CA 95051	

FCC RULES AND POSSIBLE LAN OPERATING FREQUENCIES

GENERAL

The source reference for FCC Rules is described, and then attention is called to some portions of the Rules which might have relevance to 802.4L.

REFERENCE

The FCC Rules are available from any Government Printing Office Bookstore, and consists of **five** volumes as follows:

CODE OF FEDERAL REGULATIONS (CFR)

TITLE 47 --- TELECOMMUNICATION --- October 1, 1986

Parts 0 to 19--Subchapter A **GENERAL**

Parts 20 to 39--Subchapter B **COMMON CARRIER SERVICES**

Parts 40 to 69--Subchapter B (Continued)

Parts 70 to 79--Subchapter C **BROADCAST RADIO SERVICES**

Parts 80 to END--Subchapter D **SAFETY AND SPECIAL RADIO SERVICES**

Three of these volumes are potentially relevant or important to a packet radio service: 0-19, 20-39 and 80 to END.

A large number of private and personal services are defined in the last volume. Low power communication is in Part 15 of the 1st volume.

CHANGES SINCE OCTOBER, 1986

These volumes are republished annually. The printed Rules may lag a year behind the actual situation. After the FCC makes a decision, it is a couple of months before there is a printed Report and Order. It is not incorporated until the next anniversary. The physical availability of the volumes will lag the closing date by months.

When action is contemplated, it is very important to involve Attorneys or other professionals who regularly track these matters. It is very risky to assume that there has been no material change in any particular section since the closing data for printing.

GENERAL INFORMATION

In Part 2.106, there is a general overall table of Frequency Allocations where pages 294-305 cover 821-4500 MHz. **CAUTION:** The Footnotes are part of this table, and sections cannot be understood without reading cited Footnotes. The right hand half is the detailed application to the USA within the International Allocations on the left hand half of the page.

Also, there is a great deal of detail and multiple use which is not shown at all--for example, spread spectrum at 2400-2500 MHz.

POSSIBLE SECTIONS FOR LICENSING OR CERTIFICATION

There is no existing section of the rules which covers wireless LAN as it is now conceived though there are a few places that are close enough to have potential for extension.

The normal decision tree for licensed transmitters would start with a choice between Common Carrier and Private System and then to a section or sections in Subpart D. An alternative for very low power short range systems is unlicensed but certified equipment under Part 15 (Radio Frequency Devices), but there is a possibility of extending some other part where there is a match in eligibility of the using entities. For example, many of the potential users of wireless LAN are also eligible as licensees in either Business or Special Industrial Radio Services.

A technical assumption is required on power and overall system bandwidth to evaluate any proposed alternative, or even to find a possibility.

Possible assumptions for spectrum allocation are 10, 40, 80 and 160 MHz. The system may be conceived as one radiating fixed site with greater range or many short-range sites with a "cellular" frequency reuse plan. The greater bandwidth requirements go with the many site frequency reuse plan.

Submission to IEEE 802.4L--Through-the-air Token Bus Physical Layer

CHANDOS A. RYPINSKI -- 130 STEWART DRIVE -- TIBURON, CA 94920 -- TEL: 415 435 0642