

ORIGINAL
FILE

ANNE GOODWIN CRUMP
VINCENT J. CURTIS, JR.
THOMAS J. DOUGHERTY, JR.
JAMES G. ENNIS
PAUL J. FELDMAN
RICHARD HILDRETH
EDWARD W. HUMMERS, JR.
FRANK R. JAZZO
BARRY LAMBERGMAN
PATRICIA A. MAHONEY
GEORGE PETRUTSAS
LEONARD R. RAISH
JAMES P. RILEY
MARVIN ROSENBERG
LONNA M. THOMPSON
KATHLEEN VICTORY
HOWARD M. WEISS

FLETCHER, HEALD & HILDRETH

ATTORNEYS AT LAW

SUITE 400, 1225 CONNECTICUT AVENUE, N.W.

WASHINGTON, D.C. 20036-2679

P. O. BOX 33847

WASHINGTON, D.C. 20033-0847

(202) 828-5700

TELECOPIER NUMBER

(202) 828-5786

November 17, 1992

PAUL D.P. SPEARMAN
(1936-1982)
FRANK ROBERSON
(1936-1981)

RETIRED
RUSSELL ROWELL
EDWARD F. KENEHAN
ROBERT L. HEALD
FRANK U. FLETCHER

OF COUNSEL
EDWARD A. CAINE

TELECOMMUNICATIONS CONSULTANT
HON. ROBERT E. LEE

WRITER'S NUMBER
(202) 828-

5780

RECEIVED

NOV 17 1992

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Ms. Donna R. Searcy
Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Ref: General Docket No. 90-314
ET Docket No. 92-100

Dear Ms. Searcy:

Submitted herewith on behalf of Pulse Engineering Inc. are an original and seven (7) copies of (1) a Motion for Acceptance of late filed comments in the referenced dockets and (2) Text of Comments for filing.

Do not hesitate to contact the undersigned at (202) 828-5780 if there are any questions.

Sincerely

FLETCHER, HEALD & HILDRETH



Leonard Robert Raish
Counsel for Pulse
Engineering Inc.

LRR:cej
Enclosures

No. of Copies rec'd
List A B C D E

017

ORIGINAL
RECEIVED

BEFORE THE

Federal Communications Commission

NOV 17 1992

WASHINGTON, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the matter of)	Gen. Docket No. 90-514
)	
Amendment of the Commission's)	ET Docket No. 92-100
Rules to Establish New Personal)	
Communications Services)	

To: The Commission

**MOTION TO ACCEPT LATE
FILED COMMENTS**

It is respectfully requested the attached Comments on behalf of Pulse Engineering Inc. responding to the above cited proceeding be accepted for filing. Comments in response to the Commission's Notice of Proposed Rulemaking (NPRM) were due on November 9, 1992. Pulse ordinarily is not concerned with Rulemaking actions such as the one involved herein. The NPRM in this proceeding came to the attention of Pulse just as the comment period closed. On review Pulse noticed the matter of technical standards for Rf sub-systems and certain other technical issues in unlicensed operation of PCS systems were not addressed. The attached Comments identifies and addresses those issues. It is submitted that this additional information will benefit the Commission in its deliberations in this proceeding and will serve the public interest.

Noting the foregoing, it is requested this Motion be granted and the attached Comments be accepted for filing.

Respectfully submitted,

PULSE ENGINEERING INC.

By: Leonard Robert Raish
Leonard Robert Raish

Its Attorney

FLETCHER, HEALD & HILDRETH
1225 Connecticut Avenue, N.W.
Suite 400
Washington, D.C. 20036
(202) 828-5700

Date: November 17, 1992

CEJ/LRR/LRR#11/PULSE.MP

BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In the matter of)	Gen. Docket No. 90-314
)	
Amendment of the Commission's)	ET Docket No. 92-100
Rules to Establish New Personal)	
Communications Services)	

COMMENTS OF PULSE ENGINEERING, INC.

Pulse Engineering Inc. (Pulse) respectfully submits its comments in the above cited proceeding. Pulse applauds the Commission's action in this proceeding to implement unlicensed PCS, including the wireless Local Area Networks (LANs). In the comments below Pulse takes little issue with most of the proposals set forth in the Notice of Proposed Rulemaking (NPRM). On the other hand, Pulse is of the opinion that the public interest would best be served by requesting the Commission to consider and act upon some items not mentioned in the NPRM.

I. BACKGROUND

Pulse Engineering, Inc. is a U.S.-based international electronics company with more than 2,800 employees worldwide. Pulse is recognized throughout the world for its standard products which support standardized communications protocols. Pulse's charter is to develop products for local and wide area networks that provide information transfer among computers at data rates of 64 kilobits per second up to 300 megabits per second more, on wire or radio media. Pulse has previously worked on standards, such as "Ethernet" (IEEE 802.3), "Token Bus" (IEEE 802.4) and the "Token Ring" (IEEE 802.5), all of which have been adopted worldwide.

Pulse is working on developing subsystems required by wireless LANs and MANs for transmission of digital information among computing devices. These networks bring the benefits of such communications to a growing number of users of mobile and portable computers, as well as enabling immediate, flexible, interconnection of personal digital assistance and desktop devices. Wireless communication equipment can be placed into operation as quickly as regulations are implemented, and Rf type approved transceiver circuits are available.

II. INTEREST OF PULSE

Pulse has a vital interest in the Commission's proposal to establish emerging technologies bands in the 2 GHz region of the radio spectrum. For over thirty-five years Pulse has served hundreds of companies who have delivered wired Local Area Network (LAN) equipment to users worldwide.

III. STANDARDS NEEDED FOR Rf SUBSYSTEMS IN UNLICENSED OPERATION OF PCS SYSTEMS

As seen by Pulse, manufacturers of PCS user devices will have difficulty achieving high frequency performance for the Rf transceiver circuitry without some type of input from subsystem manufacturers (such as Pulse). Pulse recommends that transceiver subsystem circuitry should be certifiable so that systems OEMs will be set for speedy implementation. Without certification vendors will wait until orders are available prior to investing in designs which require state-of-the-art devices and new manufacturing processes. (Without such an incentive there could be inordinate

delays in production of equipment.)

Noting the above, Pulse recommends establishing standards in its Rules, for Rf transceiver circuitry. Further, the Commission should agree to certify such sub-system. The product could be configured for test in such a way that a standard port on a standard PC could be used. The product would logically be pursuant to a standard similar to the WIN Forum Etiquette now under development for recommendation to the FCC.

IV. WIDER BANDWIDTH NEEDED

As seen by Pulse, the spectrum being made available for user PCS is not sufficient for cost effective frequency hopping. Allocation of broader bands needs to be considered. The Commission has proposed that only 20 MHz be allocated in the 1850-1990 MHz Emerging Technologies Bands for all unlicensed PCS applications, including cordless telephones, wireless PBXs and wireless data communications between computers within local areas (LANs). Yet the Commission has proposed to allocate 90 MHz for carrier-provided PCS to provide only telco-type voice and very low-speed data services to an equivalent population in similar areas. As seen by Pulse, the Commission has underestimated the extent of the spectrum requirements for user PCS. An additional 70 MHz should be identified to meet this requirement.

V. TRANSMITTER FREQUENCY STABILITY

Section 99.419, Notice at page 81, refers to "transmitter frequency stability to be maintained within +1-0.0001 percent of the center frequency over temperatures of -30 to +50C....."

It is our opinion that this tolerance requirement is neither realistic nor necessary, and adds unnecessary cost for the PCS market. Furthermore, the size required to achieve this tolerance in portable units would deter OEMs from actively marketing products and thus reduce market acceptance. Finally, it is believed that frequency stability of 50-100 ppm, rather than the 1 ppm proposed, is achievable with conventional electronics. Vendors who can produce circuits meeting the 1 ppm requirement are not available at high volumes and at economic prices. Our analysis indicates that for user PCS, 50-100 ppm should be sufficient accuracy.

VI. CONCLUSIONS

In sum, (a) The Commission is urged to advance the implementation of unlicensed PCS in this proceeding and implement unlicensed services immediately, while the more troublesome issues pertaining to licensed PCS are being resolved.

(b) Standards are needed for Rf subsystems intended for unlicensed PCS systems and should be included in rules adopted by the Commission. These sub-systems should be type approved by the Commission.

(c) The Commission's proposed allocation for unlicensed PCS does not fulfill the numerous compelling demands for such services. The initial designation of only 20 MHz - 1910 to 1930 MHz - for

both voice and data services should be expanded for the expected mixture of services described in the NPRM.

Respectfully submitted,

PULSE ENGINEERING INC.

By: Leonard Robert Raish
Leonard Robert Raish

Its Attorney

FLETCHER, HEALD & HILDRETH
1225 Connecticut Avenue, N.W.
Suite 400
Washington, D.C. 20036
(202) 828-5700

Date: November 17, 1992

CEJ/LRR/LRR#11/PULSE.P