

U S WEST, Inc.
Suite 700
1020 Nineteenth Street, NW
Washington, DC 20036
202 429-3134
FAX 202 296-5157

Elridge A. Stafford
Executive Director-
Federal Regulatory

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SPECTRUM EXPERIMENTAL
DIVISION

PCS
USWEST

September 20, 1994

Mr. H. Franklin Wright
Office of Engineering and Technology
Frequency Liaison Branch
2025 M Street, N.W., Room 7326
Washington, D.C. 20554

RE: U S WEST Communications, Inc.
Call Sign KK2XCC; File Numbers; 2148-EX-PL-91, 2148-EX-PL-93,
3306-EX-ML-92, 3630-EX-ML-93, ~~3630-EX-R-93~~,
4064-EX-ML-93
Tenth Quarterly Report
PCS Experimental License for Boulder, CO

Dear Mr. Wright:

Enclosed please find U S WEST Communications tenth quarterly report
addressing the above referenced authorization for PCS field trials in
Boulder, Colorado.

Should you have any questions or require additional information, please
call me.

Sincerely,

Elridge A. Stafford

Enclosure

U S WEST
Wireless Personal Communications
Experiments

Quarterly Progress Report #10
FCC Experimental License
KK2XCC

September 3, 1994

Federal Communications Commission
Frequency Liaison Branch
Room 7326
Washington, D.C. 20554

Prepared by

U S WEST Technologies
Wireless Communications Services
4001 Discovery Drive
Boulder, CO 80303

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Executive Summary

This quarterly report summarizes field testing conducted by U S WEST Technologies in the Boulder Industry Test Bed from June 4, 1994 through September 3, 1994. During this quarter tests involving emissions in the 1850 MHz to 1990MHz band were conducted on three systems. Extensive coverage data was gathered on WACS8 prototype hardware. Delay spread characteristics were measured in cooperation with NTIA. And initial propagation testing was conducted using radio beacons located at test bed base station sites.

Plans for the next quarter include two technology field tests done in conjunction with the JTC. These technologies are PHS and DCS1900.

1 Introduction

This report summarizes field testing conducted by U S WEST Technologies in the Boulder Industry Test Bed under FCC Experimental License KK2XCC. The period covered by this quarterly report is from June 4, 1994 through September 3, 1994.

2 Progress on Boulder Industry Test Bed Expansion

The current phase of construction of the BITB is complete. In order to accommodate high tier PCS testing of DCS1900 technology, three more base station sites are being planned. These are in Boulder, and are spaced approximately two miles apart.

3. FCC License Amendment

An application is in process to amend the power limit of the BITB experimental license from the current 100 Watts ERP (approximately 160 Watts EIRP) to 1000 Watts EIRP. This increase in radiated is needed to test high tier PCS technologies, especially those using higher gain or smart antennas. The proposed new limit for BITB is still well under the new FCC PCS limit of 1640 Watts EIRP.

4 Field Testing

WACS8 prototype hardware consisting of one base station and one mobile unit was tested extensively during the quarter. Coverage data was taken in downtown Boulder (light urban), north Boulder (residential), and downtown Denver (dense urban.) Parameters measured were Received Signal Strength, Word Error Rate, and Voice Quality. Further testing is planned for next quarter.

In downtown Boulder, delay spread measurements were made working with NTIA. Data gathering is complete..

Also in downtown Boulder, radio frequency beacons were placed at eight base station sites. The goal is to measure propagation data from several sites simultaneously. The test was halted due to equipment problems, and will be continues next quarter.

4 Future Research

As indicated in the last three quarterly reports, the BITB facility has been offered to the PCS standards bodies (e.g. Joint Technical Committee, PCS Technology Advocacy Group). In fact, U S WEST made a press release to this effect in May, 1994. A draft test plan was submitted as a contribution to JTC in June. Two technologies have committed to field testing at the BITB. PHS testing has begun setting up, and will be completed next quarter. This test is a precursor to a possible PACS test next year. The DCS1900 TAG will to field testing at the BITB next quarter. Other TAGS have expressed interest, but have made no commitments.