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USWEST

Elridge A. Stafford
Executive Director-
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December 16, 1994

PC 5

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,
3306-EX-ML-92, 3630-EX-ML-93, 3630-EX-R-93,
4064-EX-ML-93
Eleventh Quarterly Report
PCS Experimental License for Boulder, CO

Dear Mr. Wright:

Enclosed please find U S WEST Communications eleventh 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 Stafford

Enclosure

U S WEST
Wireless Personal Communications
Experiments

Quarterly Progress Report #11
FCC Experimental License
KK2XCC

December 16, 1994

Submitted to

Federal Communications Commission
Frequency Liaison Branch
Room 7326
Washington, DC 20554

Prepared by

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

1. Introduction and Summary

This quarterly report summarizes field testing conducted by U S WEST in the Boulder Industry Test Bed (BITB). The period covered by this report is from September 4, 1994 through December 3, 1994. During this quarter, tests involving emissions in the 1850 MHz to 1990 MHz band were conducted on four systems. Additional data was gathered on WACS8 prototype hardware. PHS Handiphone hardware was tested using twelve outdoor sites in Boulder. PCS 1900 (GSM) was tested using three high-tier outdoor cell sites in Boulder. These three sites were constructed during the quarter. Finally, testing was continued using radio beacons located at test bed base station sites.

Plans for the next quarter include the start of one technology field test of CDMA in conjunction with the Joint Technical Committee (JTC).

2. Progress on Boulder Industry Test Bed Expansion

Three high-tier cell sites were constructed in Boulder during this quarter. No further expansion of the BITB is planned.

3. FCC License Amendment

An application to the FCC to amend the power limit of the BITB experimental license from the current 100 Watts ERP (approximately 160 Watts EIRP) to 1000 Watts EIRP is still pending. This increase in radiated power 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

Testing has continued on the WACS8 prototype hardware consisting of two base stations and one mobile unit. Coverage data was gathered in downtown Boulder (light urban). Parameters measured were: Received Signal Strength, Word Error Rate, and Voice Quality. Further testing is planned for next quarter.

Testing continues on the radio frequency beacons that were placed at the eight base station sites. The goal is to measure propagation data from several sites simultaneously. Because of equipment problems, testing will be extended into the next quarter.

Testing was conducted on a PHS system. Twelve outdoor base stations were fully characterized for coverage and functionality. High-speed hand-off tests were conducted at speeds up to 50 miles per hour. Signal strength, bit error rate, and voice quality were measured. A draft report has been shared with the JTC. The final report will be submitted at the next JTC meeting on January 30, 1995.

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Testing was conducted on a PCS 1900 (GSM) system. Three high tier cell sites were fully characterized for coverage, functionality, adjacent channel interference, and co-channel interference. First-wall penetration loss was measured for 354 public buildings in Boulder with all three sites operating. A final report will be submitted at the JTC meeting on January 30, 1995.

Industry visitor days were held on November 21, 22, and 23, 1994. Visitors were received from eighteen other companies and organizations, as well as from several U S WEST groups.

5. Future Research

As indicated in the last four reports, the BITB facility has been offered to the JTC as a facility for technology field testing. U S WEST issued a press release to this effect in May, 1994. A draft test plan was submitted as a contribution to the JTC in June, 1994. Four technologies have committed to field testing at the BITB. The PCS1900 TAG has completed testing. CDMA is scheduled for early February, 1995, followed immediately by B-CDMA. IS-54 has also committed to BITB testing, but a date has not yet been set.