

SPITFIRE EXPERIMENTAL PROGRAM NARRATIVE

TRW's experimental program (the "Spitfire" program) is a wireless local loop concept that operates in unlicensed spectrum at 5.8 GHz using direct-sequence spread spectrum signals. It is intended to provide low-cost broadband access to residential and business customers as an alternative to wire or cable modems.

The purpose of the experimental program is to verify the function of the Spitfire operational system, user transceivers, and base station (hub) transceivers, and to assure that adequate margins have been designed into the system to cope with varying environmental conditions. The proposed tests will focus on user links, between the user transceivers and the base station and between two user transceivers, and the base station link, between two base stations and between the base station and the network control center.

The Spitfire program design has been tested in the laboratory environment and shown to meet the emissions levels required in the unlicensed U-NII band. TRW now proposes to test the Spitfire design in a residential environment, thereby necessitating the instant application for an experimental authorization.

The specific objectives of the Spitfire experimental program include the following:

- Validation of the Code Division Multiple Access (CDMA) spread spectrum modulation technique as the basic communication system approach for Spitfire.
- Validation of the Time Division Duplex (TDD) technique as the basic communication system approach for Spitfire.
- Validation of the predicted performance of the user's RAKE receivers.
- Validation of the predicted capacity of a given cell via representative loading of the other cells.
- Demonstration of the system's ability to assign different transmit data rates to: (1) different frequency channels, in accordance with the user's propagation condition and location; and (2) different frequency channels, codes, forward error correction (FEC), in accordance with the variations in user density in the same cell and the surrounding cells.
- Demonstration of the operation of the user terminal transceiver with respect to setup and takedown, data rate, as well as its performance during the transmission.

- Demonstration of the operation of the base station with respect to: 1) interaction with the user terminals in support of setup, takedown, assign frequency channels; 2) interaction with other base stations; and 3) interaction with the network control center.
- Validation of the predicted required link margin for the realistic indoor and outdoor environment conditions (e.g. building shielding, surrounding vegetation, other buildings).

The experiment proposed by TRW will allow characterization and demonstration of the key components of the Spitfire system prior to commercial development.

Spitfire System Deployment

The following figures illustrate a typical Spitfire system deployment.

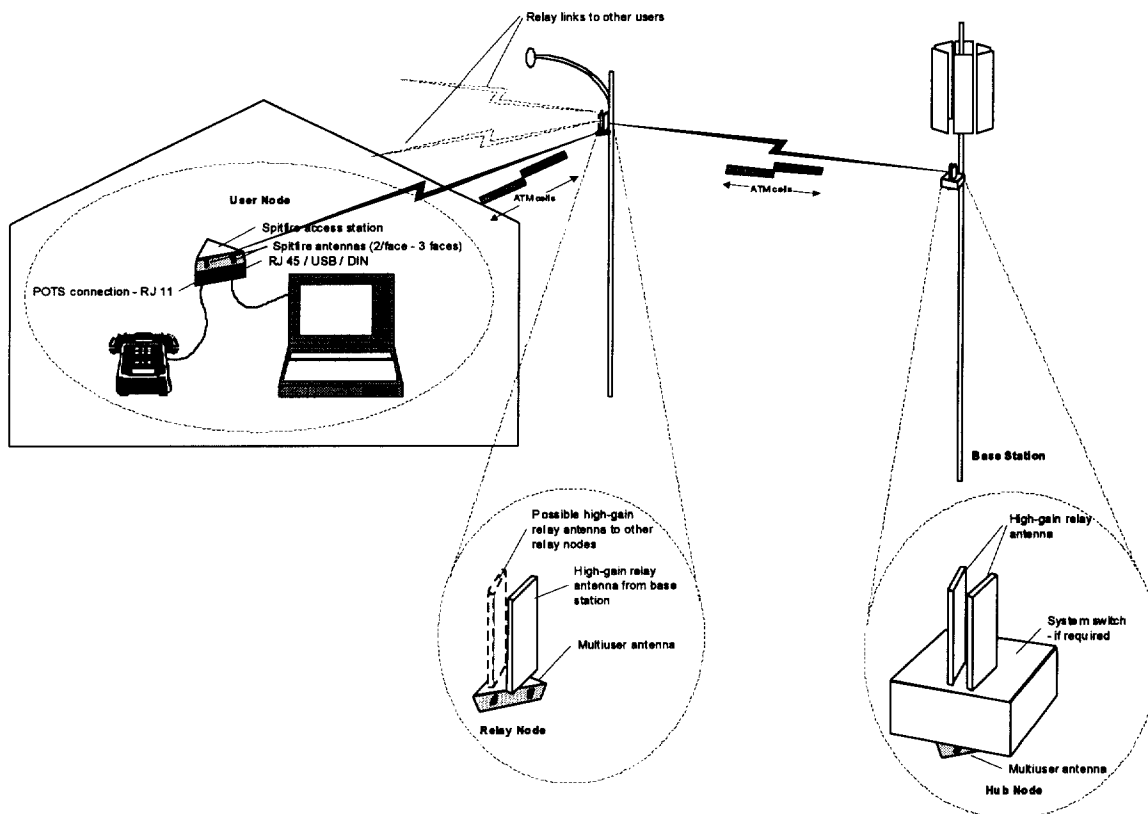


Figure 1: Spitfire Equipment

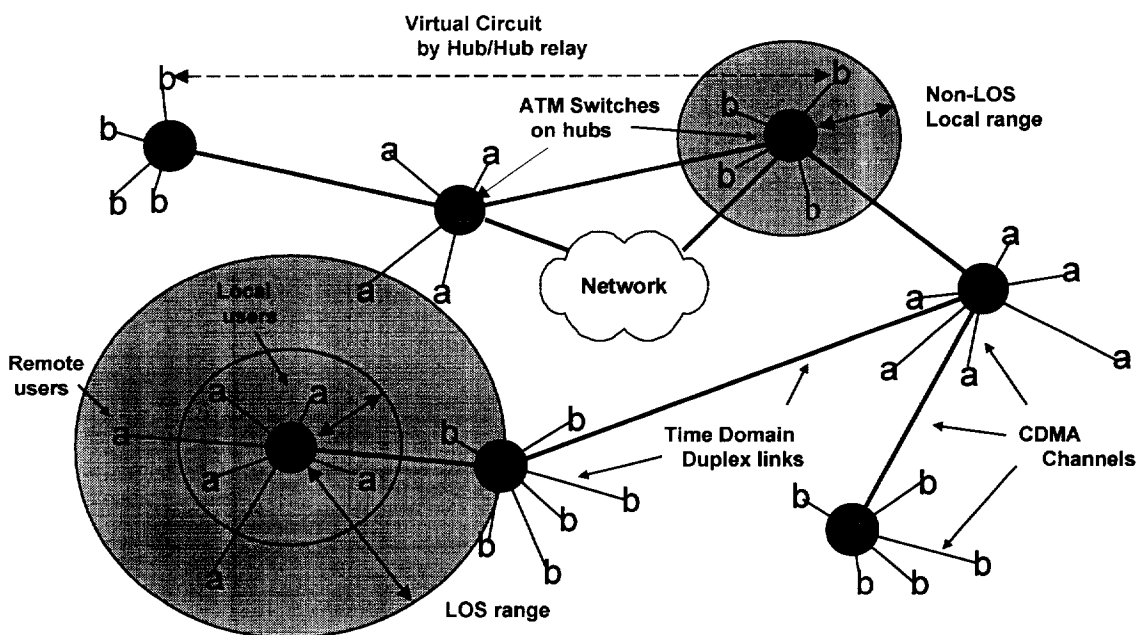


Figure 2: Architecture Overview