

Attachments to FCC Form 442

Exhibit 1

Introduction

Sanders is actively developing technologies for use in the Personal Communications Services (PCS) and cellular bands. Hardware currently in early stages of development will link PCS microcells or conventional cells with existing fiber optic, cable TV, and microwave infrastructure. Sanders is currently a hardware supplier to PCS system providers.

This application covers several different PCS product families called PCS-over-Cable, PCS-over-Fiber, and PCS-over-Microwave. It also covers similar products designed to operate in the cellular band. This application is similar to file number 5465-EX-ML-97.

Sanders is not a PCS spectrum licenseholder or cellular radio provider. We seek this experimental license in order to evaluate the system prior to tests at end-use field sites. These experiments are planned to be conducted beginning in July 1999, and will be conducted on an occasional basis over a period of three years. As Sanders has done with all previous development efforts, permission to operate will be obtained from the local PCS licenseholder or cellular provider prior to conducting any experiment.

Hardware Description

Sanders currently manufactures a Part 24-compliant PCS-over-Cable system (FCC IDs L5H94117V190A, L5H94117V190B, and L5H94117V190C). The system is designed solely for use by licensees of Broadband PCS under Part 24. The RF transceiver associated with the production system is called CMI (Cable Microcell Integrator). It is installed onto the existing CATV strand, in a manner similar to that for existing line amplifiers, and taps into the coaxial cable.

The CMI is connected to three colocated antennas that are affixed to the strand. One antenna transmits to the subscriber's low power mobile PCS device. The other two antennas receive signals from the mobile device in the corresponding receive band. The received signals are converted to an existing cable channel and are sent upstream (to the head end) over the cable. RF signals from the head end are sent on another existing cable channel, which is upconverted by the CMI for transmission. The CMI, as currently authorized, transmits over the 1930-1990 band, and has a maximum output of 2.5 watts average.

Sanders experimental programs would expand frequency coverage to the cellular band (869-894 MHz) and would increase the RF output power to 18 watts average. The new products would be suitable for CATV as well as other applications. One such application adapts the PCS-over-cable system to a fiber optic infrastructure. It would be installed at the base of an existing cellular tower, billboard, or other media used to support PCS communication antennas and "back-hauled" to the Base Transceiver Station (BTS) via a fiber optic link. The RF transceiver in this case would be similar to the existing CMI design, but with increased output power.

Test Objectives

Sanders proposed tests are mainly intended to demonstrate that production-type RF transceivers are capable of meeting specific performance requirements, as specified by prospective customers. Most system performance tests will be accomplished without intentionally radiating (the RF transceiver will be hard-wired to the mobile unit or dummy loaded). However, there are a few tests which require radiation from the system antenna, for example:

- verify adequate coverage from a single RF transceiver
- verify adequate received signal quality (at mobile)

Site Description

The proposed experimental site will be located at a site in or near Manchester, NH. The RF transceiver will be installed either inside the building, or on an existing structure (utility pole, billboard, or tower). In no case will the transmitter or antenna extend above the existing structure.