

Attachments to FCC Form 442

Exhibit 1

Introduction

Sanders is actively developing technologies for use in the Personal Communications Services (PCS). Hardware, currently in early stages of development will link PCS microcells with existing fiber optic infrastructure. Sanders intends to establish itself as a hardware supplier to the major PCS system providers.

Hardware Description

The main hardware element being developed by Sanders is called the Remote RF Head (RRFH). The RRFH is designed solely for use by licensees of Broadband PCS per Part 24 of the Rules. It is a composite system, incorporating an RF transmitter, RF receiver, digital circuitry, fiber optic transmitter, and fiber optic receiver. It is installed at the base of a cellular tower, billboard, or other media used to support PCS communication antennas and "back-hauled" to the Base Transceiver Stations (BTS) via a fiber optic link.

The RRFH contains two antennas. One antenna transmits to the subscribers' low power mobile PCS device on a frequency within the 1930MHz-1990MHz band, and receives from the mobile(s) on a frequency within the 1850MHz-1910MHz band. The maximum output power of the RF transmitter is 20 watts average. The second antenna only receives a signal from the mobile(s) on a frequency within the 1850MHz-1910MHz band.

The receive signals are downconverted in frequency, then transported to a remote location via a fiber optic link. From the remote location the BTS signals are transported to the RRFH via the fiber optic link also. The RRFH upconverts this signal for transmission via the antenna on one of the assigned PCS frequencies mentioned above.

The RRFH is similar in design to the Sanders Cable Microcell Integrator (CMI), for which equipment authorization has already been granted (reference FCC identifier L5H94117V175). The main difference is the increase in the output power to 20 watts.

Test Objectives

Several PCS license holders (ie., Cox PCS) are currently conducting programs to determine optimal characteristics and critical parameters for CMIs in an integrated configuration. Sanders proposed tests for the RRFH are intended to demonstrate that production-type RRFHs are capable of meeting specific performance requirements established as a result of the license holder experiments. Many of these RRFH performance tests will be accomplished without intentionally radiating (the RRFH will be hard-wired to the mobile unit or dummy loaded). However, there are a few tests which require radiation from the RRFH antenna:

- Verify adequate coverage from the RRFH.
- Verify adequate received signal quality (at mobile)

These experiments are planned to be conducted beginning in March 1997. It is anticipated that the experiments will be conducted on an occasional basis over a period of two years.

Site Description

The proposed experimental site will be located at Sanders Manchester facility. The RRFH will be installed at ground level or in a laboratory environment. The RRFH will be attached to the antennas via an RF cable. The antenna locations will be placed on a solid housing fixture.