

Attachments to FCC Form 442

Exhibit 1

Introduction

Sanders, a Lockheed Martin company, is actively developing technologies for use in the Personal Communications Services (PCS). Hardware now in early stages of development will link PCS microcells with existing CATV distribution infrastructure. Sanders intends to establish itself as a hardware supplier to the major PCS vendors and system developers.

Hardware Description

The main hardware element being developed by Sanders is called CMI (Cable Microcell Integrator). The CMI 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, receiver, and digital control circuitry. 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 on a frequency within the 1930-1990 MHz band. The maximum transmitter power is 2.5 watts average. The other two antennas receive signals from the mobile device in the range of 1850-1910 MHz. (Two receive antennas are used to provide spatial diversity). The received signals are converted to an existing cable channel within the 5-42 MHz band and are sent upstream (to the head end) over the cable. RF signals from the head end are sent on an existing cable channel in the 450-750 MHz range. The CMI upconverts this signal for transmission via the antenna on one of the assigned PCS frequencies mentioned above.

Test Objectives

Sanders proposed tests are intended to demonstrate that production-type CMIs are capable of meeting specific performance requirements established by these PCS vendors. Many of the CMI performance tests will be accomplished without intentionally radiating (the CMI will be hard-wired to the mobile unit or dummy loaded). However, there are a few tests which require radiation from the CMI antenna, for example:

- verify adequate coverage from a CMI
- verify adequate received signal quality (at mobile)

These experiments are planned to be conducted beginning in August 1996. 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 a site at or near Sanders facilities in Manchester, NH. The CMI will be installed either inside the building, or on an existing CATV strand adjacent to an existing utility pole.

The CMI is similar to the RAD (Remote Antenna Driver), for which an experimental license has already been granted. (reference KS2XEL, file number 4896-EX-PL-95). The main difference is in the output power, which increased to 2.5 watts.

Exhibit 2

Refer to the diagram below. The CMI and antennas will be more than 6 meters above the ground, since the CATV strand is nominally 23 feet (7 m) above ground level. However, in no case will any part of the CMI extend beyond the top of the existing utility pole.

