

INTEGRINAUTICS
Experimental License Application
Southern Alameda County Radio
Control Flying Club Model Airfield
Fremont, California

EXHIBIT 3

Explanation of the Project

Technical Characteristics:

The experimental program described in this application involves the establishment of terrestrial GPS pseudolites operating at the standard GPS L1, L2, and L5 frequencies as described in Exhibit 1. The pseudolites will transmit various combinations of the signal formats and pulse formats described in Exhibit 2. These combinations cannot be completely specified in advance, because the object of this experimentation is to determine the optimum combinations. The starting point for these experiments will be the signal format and pulse format defined by the RTCA SC-159 committee. Emissions will be confined to the bands previously allocated for GPS signals (bands 24 MHz wide, centered on the L1, L2, and L5 frequencies).

In general, the pseudolite signals will be transmitted in pulses less than fifteen percent duty cycle, to minimize interference with existing GPS receivers. The peak transmitted power (EIRP) will be 2 Watts or less. Continuous (non-pulsed) transmissions may occasionally be made at greatly reduced power, to calibrate the receiving instruments. One objective of the program is to investigate the required power levels and pulse patterns with the purpose of minimizing power used.

Program Description/Objectives:

In this application, IntegriNautics is seeking experimental authority to operate pseudolites at this location. There are three applications filed simultaneously to engage in similar tests at the following three locations: the IntegriNautics laboratory/factory - 250 Cambridge Avenue, Palo Alto, CA 94306, the IntegriNautics flight test facility, and the location of the annual GPS industry convention in Nashville, Tennessee (during the convention only, for demonstration purposes). Operations at these facilities will take place during the period immediately following grant of this application.

The applicant's experimental program responds to an invitation from the federal agencies responsible for administration of the GPS system to companies that are interested in producing pseudolite systems that augment basic GPS satellite services. Such companies were, as shown in Attachment A to this applications invited to test, document and demonstrate prototypes that have been developed using RTCA SC-159 standards. Integrinautics recognizes that it is to bear its

own costs in this program. If the tests prove successful, however, and many applications could be discovered for this technology.

Contribution to the Development, Extension, Expansion or Utilization of the Radio Art:

The experimental program is based upon the precept that the use of pseudolites at the GPS L1 P(Y) code nulls is an augmentation of GPS that will lead to an improvement of GPS services. See Attachment A. Pseudolites clearly have the ability to support aviation, particularly aviation safety in low visibility conditions. The objective of this experiment is to determine whether and to what extent pseudolites can also support other safety of life applications, including improved safety in mining operations. They are a complementary use to GPS of the aeronautical radio-navigation service/radio-navigation satellite service spectrum in the 1559-1610 MHz band and they enhance the already substantial value of the dual-use GPS utility.