

SporTVision
Experimental License Application
California Speedway
File No. 0173-EX-PL-2000

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 frequency 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 in a three kilohertz version of the RTCM-104 pattern. Emissions will be confined to the bands previously allocated for GPS signals (bands 24 MHz wide, centered on the L1 frequency).

In general, the pseudolite signals will be transmitted in pulses of five percent duty cycle per pseudolite, to minimize interference with existing GPS receivers, with the pseudolites not all pulsing simultaneously. Generally, these transmitters are not •directionalized• because the emission pattern is hemispherical. Further, the placement of the pseudolites is such that they will be pointed down toward the California Speedway track to test vehicle monitoring in a closed track. As a result, the placement of the pseudolites will be such that the signals will be focused in a discrete area. The peak transmitted power (EIRP) will be 100 milliwatts or less. One objective of the program is to investigate the required power levels and pulse patterns with the purpose of minimizing power transmitted.

Program Description/Objectives:

In this application, SporTVision is seeking experimental authority to operate pseudolites at the California speedway. There are six transmitters which will cover the location, all of which are filed in this application to engage in testing of the pseudolites applicability for vehicle monitoring and intelligent transportation systems. Operations at this facility will take place during the period immediately following grant of this application.

In part, this 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. SporTVision 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. Specifically, SporTVision hopes to learn scientifically valid information that will lead to more effective system design for intelligent transportation systems and location determination technologies.

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 ITS, traffic monitoring, vehicle location and other location applications. These applications 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.