

## **Exhibit 1 (Replacement)**

### **COMMERCIAL GPS PSEUDOLITE TEST PROGRAM**

#### **Technical Characteristics:**

The experimental program described in this application involves the use of terrestrial pseudolites that will operate at the L1 P(Y) Code null at 1565.19 MHz in accordance with the enclosed invitation from the DoD and DoT. This application involves the establishment of up to three terrestrial pseudolites that will operate at the L1 P(Y) Code null. This program will explore both C/A and P-Code signal structures within the allocated frequency band.

The applicant will use pulsed pseudolite(s) that adhere to the RTCA SC 159 standard. The duty cycle is 10%, and the transmit RF peak power will be under a watt. One objective of the program will be to investigate the required power levels with a view to minimizing power levels.

#### **Program Description/Objectives:**

In this application, experimental authority is requested to operate up to three pulsed pseudolites at as many as five different locations over the life of the experimental program. The first location is at the applicant's technical facility in Sunnyvale, California. The specific address is 671 North Mary Avenue, Santa Clara County, Sunnyvale, California (North Latitude: 37° 23' 32"; West Longitude: 122° 02' 16"). Operation at this facility will take place during the period immediately following grant of this application and continue into July 1998. Operation will be limited to systems checks and bench testing.

Beginning in late July 1998, and continuing through the balance of the license term, the proposed pseudolite(s) will be operationally tested from one of the following field locations:

1. Caterpillar Inc., Tuscon Proving Grounds  
Test and Development Facility  
6000 Caterpillar Trail  
Green Valley, Pima County, AZ 85614  
31° 49' 24" North Latitude; 111° 08' 05" West Longitude
2. Phelps-Dodge Morenci  
4521 U.S. Highway 191  
Morenci, Graham County, AZ 85540  
33° 05' 53" North Latitude; 109° 20' 45" West Longitude
3. Pacific Carbon  
Los Angeles Export Terminal (LAXT)  
750 Eldridge Street  
Terminal Island, Los Angeles County, CA 90731  
33° 44' 54" North Latitude; 118° 15' 32" West Longitude

4. Golden Sunlight Mine  
453 Montana Highway 2 E.  
Whitehall, Jefferson County, Montana 59759  
45° 53' 45" North Latitude; 112° 01' 10" West Longitude

The applicant's experimental program responds to an invitation from the Government 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 Exhibit 2 to this application, invited to test, document, and demonstrate prototypes that are developed using RTCA SC159 standards. The applicant recognizes that it is to bear its own costs of this program. If the tests prove successful in providing an augmented GPS service that meets current commercial market demand, the applicant envisions that application(s) for "permanent" -- i.e., non-experimental -- authority for such pseudolites at appropriate locations around the nation could be sought in the future.

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

The experimental program is based on 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 Exhibit 2. Pseudolites clearly have the ability to enhance aviation safety, and the objective of the instant program is to determine whether and to what extent they can also enhance other safety-of-life applications. They are a complementary use to GPS of the aeronautical radionavigation service/radionavigation-satellite service spectrum in the 1559-1610 MHz band, and increase the already substantial value of the dual-use GPS utility to the growing installed base.

DECLARATION

I, James M. Janky, hereby declare, under penalty of perjury, that:

1. I am a Vice President, Intellectual Property, of Trimble Navigation Limited ("Trimble"), applicant for an experimental radio services authorization, File No. \_\_\_\_\_ (filed May 22, 1998).

2. That Trimble now wishes to amend its above-referenced application by replacing Exhibit No. 1 to that application, as originally filed, with the attached replacement Exhibit No. 1.

3. That the attached replacement Exhibit No. 1 is true, complete, and correct to the best of my knowledge and belief, as is all remaining information in Trimble's pending application.

By: James M. Janky  
James M. Janky  
Vice President, Intellectual Property  
Trimble Navigation Limited

Dated: June 4, 1998

Attachment

State of California

County of Santa

On June 4, 1998 personally appeared

James M. Janky, before me, Mary F. Rothert,  
personally known to me. Signed of his  
own free will.

Witness my hand & seal.

Mary F. Rothert  
6/4/98

