

Novariant
Experimental License Application
1350 Willow Road
Menlo Park, CA 94025

EXHIBIT 1

In this Exhibit, Novariant presents an explanation of what is proposed under this experimental license.

Spectrum:

The GPS L1 frequencies centered around 1575.42 are being used in this on-going experiment to use GPS to develop precision positioning technologies. These frequencies are phase shifted for pulsed, spread spectrum transmissions, lowering potential interference concerns. These experiments began after IntegriNautics (the former name of Novariant) was granted an experimental license on Nov. 11, 1999 – application number 0097-EX-PL-1999.

The emission designator on this spectrum is G1D. The frequencies will be used consistent with all previous applications, licenses, and limitations.

Technical Characteristics:

The experimental program described in this application involves the establishment of a terrestrial C/A code pseudolite that will operate at the L1 P(Y) Code null at 1565.19 MHz.

A pulsed pseudolite that adheres to the RTCA SC 159 standard will be used. The duty cycle is 15% and the transmit RF peak power will be under 2 watts. These tests will be conducted indoors at the Novariant test lab. One objective of the program is to investigate the required power levels with the purpose of minimizing power used.

Program Description/Objectives:

In this application, Novariant is seeking experimental authority to operate several pseudolites separately at its headquarters test lab. Operations at these facilities will continue 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. Novariant recognizes that it is to bear its own costs in this program. If the ongoing tests prove successful, however, 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. 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, shipping and container operations at ports, and other areas where precision positioning technology can be used to enhance safety. They are a complementary use to GPS of the aeronautical radionavigation service/radionavigation-satellite service spectrum in the 1559-1610 MHz band and they enhance the already substantial value of the dual-use GPS utility.

This request to renew the experimental license is filed to allow Novariant to continue its ongoing work in precision positioning technology. These experiments have already aided in further examination of the use of this technology to help in navigation on Mars, they are assisting in saving resources in mining, and other safety applications are under development.