

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

EXHIBIT 1

In this Exhibit, IntegriNautics presents an explanation of the spectrum proposed to be used under this experimental license.

Technical Description of Radiolocation System:

The equipment to be utilized consists of four to six ground-based transmitters distributed around an area of less than ten square miles. This application is two such systems centered at the IntegriNautics headquarters location. During developmental operation at the IntegriNautics facility in Menlo Park, California, the area will be even smaller, less than one square mile, in the immediate vicinity of the company's developmental laboratory at 1350 Willow Road, Menlo Park, CA.

The radiolocation service will test the use of spectrum in the following bands:

3.1 to 3.3 gigahertz
5.25 to 5.35 gigahertz
8.5 to 9.0 gigahertz
13.4 to 14.0 gigahertz
15.7 to 16.6 gigahertz
33.4 to 36 gigahertz

The signals generated will be low power, no more than 5 watts, and possibly as low as 2 watts.

The signal broadcast will be a direct sequence spread spectrum signal, which will use most of the width of the band, or up to 400 megahertz of spectrum in the bands wider than 400 MHz. For wider frequency bands, the experiments would be used to see what portion of the spectrum is best used for this radiolocation application, but the proposed use would be limited to a wideband spread spectrum technology, utilizing only 400 megahertz of spectrum.

The transmitters have been designed to minimize any interference to other operations in the bands being tested and to withstand any potential harmful interference from other operations in the band. The use of wideband signals helps preclude potential interference problems. For this radiolocation system to be fully effective, the receiver must be able to receive location information from four to six distinct sources, which is why we propose

to have that many transmitters in temporarily fixed locations around a fixed center of operation.

The pseudolite transmitters will provide a GPS-like ranging signal by which a user receiver can navigate. The user receiver is completely passive and does not intentionally transmit any signal. The user receiver may navigate using satellite signals, pseudolite signals, or a combination of both. When pseudolite signals are available, the receiver will be able to navigate using fewer than the usual minimum four GPS satellites.

These frequencies are designed for spread spectrum transmissions, lowering potential interference concerns. In an experimental license application filed in 1999, file number 0197-EX-PL-1999, IntegriNautics applied for experimental use in the GPS spectrum to begin testing the development of this precision location technology.

The proposed experimentation on the frequencies noted is intended to allow IntegriNautics to determine the spectrum characteristics in each band to determine what would be best suited to the long-term development of this type of technology. Another goal of the experimentation is to determine the minimum transmitter power required for reliable navigation in each band.