

**Supplemental Exhibit**

Novariant, Inc. has been experimenting with the use of pseudolites for more than six years. Pseudolites are pseudo-satellites used for ground-based augmentation of the GPS navigational system. Because of their unique application, they were conceived to operate on the same frequencies as the GPS signal.

Novariant develops and uses pseudolites to develop precision positioning equipment that has been used in aviation, farming, and mining. Novariant's pseudolite technology has been used previously to develop precision aircraft landing systems to improve aviation safety for the Department of Defense and the Federal Aviation Administration. These precision landing systems have been tested and used by both agencies. Research into these and other defense applications is ongoing, which is why Novariant has filed an application to renew its experimental license. The next series of experiments with precision positioning using pseudolites is expected to lead to development of novel applications being requested by the defense and national security communities.

Since Novariant's first experimental license application was filed in 1999, 0097-EX-PL-1999, Novariant has developed products and enhanced technology offerings. It has renewed this application twice previously, to continue product development. In February 2006, Novariant filed to renew its license again, to continue its experimentation in the radio navigation and radiolocation fields.

The current license is for the use of pseudolites operating on 1575.42 MHz at 2 watts at four locations. The renewal application is requesting that the license be renewed for two locations at a power level of 100 milliwatts.

Pseudolites are not re-radiation systems. A re-radiator receives, amplifies, and rebroadcasts existing signals from existing GPS satellites, without changing the signals in any way other than increasing their power. An existing GPS receiver receiving both the satellite and reradiated signal might become confused by the re-radiated signals and produce false navigation results. Novariant recognizes the serious nature of this application, and is prepared to cooperate fully with regulators as it seeks this license renewal.

Pseudolites, on the other hand, create brand-new signals just as a GPS satellite does. Novariant designs these new signals to be similar to GPS satellite signals, but different enough that they will not confuse existing GPS receivers. Current production GPS receiver hardware can be used to receive pseudolite signals, but only with extensive software modifications. Pseudolite signals are transmitted with different spreading codes ("C/A codes") which ordinary GPS receivers are not aware of and cannot track.

Pseudolite signals contain unusual data modulation which is deliberately constructed to cause ordinary GPS receivers to reject the data as erroneous, even if they could somehow track a pseudolite signal. Finally, pseudolite signals are transmitted in short pulses rather than the continuous beams of the GPS satellites. The short pulses greatly reduce the level of interference observed by ordinary GPS receivers in the vicinity of a pseudolite and reduce even further the chance that an ordinary GPS receiver will attempt to track a pseudolite signal.

In 2005, NTIA issued criteria for the use of GPS re-radiation systems. Novariant's pseudolites are not re-radiation systems, but they do transmit an experimental radio signal on the GPS L1 frequency 1575.42 MHz. The title of the NTIA rule section is "Use of Fixed Devices that Re-radiate Signals Received from the Global Positioning System." Pseudolites do not re-radiate the GPS signal. As a different type of radio transmitter, the criteria do not appear to apply to this situation. To facilitate the processing of this application, we are nevertheless submitting the following information to address some of the requirements of the criteria set out in section 8.3.28 of NTIA's manual.

1. Individual authorization is for indoor use at a specific site: Novariant is seeking to renew this experimental license for use of pseudolites at sites specifically designated in the license application. Those sites are at Novariant's headquarters and at the model airpark in San Jose, CA, where Novariant tested its positioning system on a custom-built 11 foot wingspan aircraft. Novariant's headquarters is situated in an office park with little pedestrian traffic and its offices and labs have controlled access. The company holds the lease for all of the space on the floor of the building where it is located. This application is for specific sites, but it is not limited for indoor use, because that would defeat the purpose of the experiments.
2. Applications should be for an XT station and which will be used as an experimental RNSS test device: This application is for use of an experimental pseudolite. It is an RNSS device, but it is used for experimentation rather than testing of GPS receivers or GPS receivers that are part of equipment under test. The pseudolites are used to generate position information that is integrated by GPS receivers to provide precise position location down to the centimeter. Novariant's experiments are aimed at developing greater precision in positioning technology that can be used for aviation, military, safety of life, and security purposes.
3. Approved applications for frequency assignment will be entered in the GMF: As a commercial entity, Novariant requests the assistance of the FCC and NTIA in entering its authorizations in the government master file.
4. The maximum length of the assignment will be two years, with possible renewal: Novariant is seeking to renew its experimental license for two years. If its research continues to prove fruitful, at the end of two years, it might seek an additional license term.

5. The area of potential interference to GPS reception has to be under the control of the user: Novariant will be operating at its headquarters, which is a location it controls. The nature of the pseudolite operation is such that it does not cause interference to GPS receivers, even in the same location. There is no interference because pseudolites were designed to generate signals that avoid interfering with GPS receivers. The pseudolites generate a signal that is pulsed in nature. Pseudolites use a signal coding that is different from the coding that a GPS receiver is using. The information on a pseudolite signal is not usable for position calculation by the standard GPS receiver; it is usable only by a pseudolite receiver. Further, the standard GPS signal is not a pulsed signal. Pseudolites are arrayed around an area to produce a hemisphere in which precise positioning is possible. Novariant's array contains (5?) pseudolites, each of which has only a (3%?) duty cycle. Thus, the full complement of pseudolites is only in operation 15% of the time, as specified in Novariant's license, that the system is in use. This limited duty cycling further helps preclude interference.

6. The maximum equivalent isotropically radiated power must be such that the calculated emissions are no greater than -140dBm/24MHz at a distance of 100 feet (30 meters) from the building where the test is being conducted: As noted, this application is for an experimental radio system to be used in accordance with Part 5 of the Commission's Rules. The experiments require that a pseudolite system operate using a signal strength of 100 milliwatts. Without a signal strength of 100 milliwatts, it is not possible to create the hemisphere of signal coverage that allows for experimentation with precision positioning. In 6 ½ years of experimentation, Novariant has never had any complaints of interference to the use of GPS in the vicinity of its operations.

The standard GPS signal is a spread spectrum signal that is constantly available from the satellites in view. The information each satellite transmits provides almanac data that allows a GPS receiver to process data and determine its position. GPS receivers are built allowing for reception of and processing of a signal strength that is -130 dbm. The pseudolite signals being used by Novariant are of such a different character that the pseudolite signals are ignored or discarded by standard GPS receivers.

7. GPS users in the area of potential interference to GPS reception must be notified that GPS information may be impacted for periods of time: Novariant is willing to print and post signs in and around its lab when the pseudolite system is in use.

8. The use is limited to activity for the purpose of testing RNSS Equipment/systems: Because pseudolites are not re-radiation systems, this criterion seems inapplicable to the experimentation proposed. We request that

this requirement be waived with respect to Novariant's application for use of pseudolites.

9. A Stop Buzzer point of contact for the authorized device must be identified and available at all times during GPS re-radiation operation of the device under any condition: Although pseudolites are not re-radiation systems, Novariant has appointed Stewart Cobb as the stop buzzer point of contact who will be available when the pseudolites are in use. Dr. Cobb can be reached by telephone at 650-644-1418. The existing license already contains specific limitations regarding the use of pseudolites, and Novariant has complied with all of those limitations. Further, since this license was granted in November 1999, Novariant has never had a complaint of interference from its use of pseudolites.

As noted, Novariant's pseudolites are not GPS re-radiation systems. They are experimental radio devices that were developed to advance the field of radionavigation. Novariant's work with pseudolites has led to the development of advanced technologies used in farming, mining, and construction, and the company is continuing to develop other applications of precision positioning radiolocation technologies. Novariant's engineers would be glad to answer any technical questions about the pseudolites they have developed and the safeguards they have taken to ensure that using pseudolites protects the integrity of the GPS system.