

FCC Form 442 – Exhibit 1

GPS Re-Radiation System Description & Proposed Use

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A: Cessna Aircraft Company uses GPS Re-radiation systems in aircraft hangars and production buildings to allow testing of aircraft GPS navigation systems inside the buildings. Our buildings are made of metal, which attenuates the already low power GPS signals to a level below the useable threshold of our navigation systems. The systems we use are not experimental, and have been widely used for years. They receive the GPS L1 and/or L1/L2 signals via an active antenna mounted on the roof of the building/hangar, pass the signal through coax to attenuators/amplifiers and re-radiate the signal inside the building/hangar. In order for the system to work, the signal strength of the re-radiated signal must be very close to the strength of the signal outside, approximately 72 pW. The systems used by Cessna are manufactured by GPS Source, GPS Networking and Sensor Systems. Technical information for the systems is attached as an Exhibit to this application. In some cases, it appears that the components used in the systems by various manufacturers are similar, if not identical.

B: Re-radiators allow us to verify proper installation and operation of the navigation systems without taking the aircraft outside the hangar, an operation requiring a tug, tug driver, and a walker for each wing. In some cases during servicing and on production lines, multiple systems and components are being serviced or installed concurrently. At our service centers, it is sometimes necessary to relocate one or more aircraft to allow sufficient space to move another aircraft. Under such circumstances, it is very costly in terms of time and man-hours to interrupt the processes and take the aircraft outside to test the GPS navigation systems.

C: Cessna has been using GPS Re-radiators since the 1990's, and the manufacturers had previously stated that no license was required. Cessna was recently informed that a requirement and procedure for licensing of GPS re-radiators has been implemented by the FCC. We are conducting surveys of our facilities nation-wide in order to determine the number and locations of these devices, and submit applications to become compliant ASAP.