

Additional Information for Frequency Application File 0238-EX-PL-2008
Avionics Engineering Center, Ohio University
Rev. 27 May 2008; DCB

This frequency application requests approval to use a single frequency in the civil aviation navigation band (108-118 MHz) for research on the Local Area Augmentation System (LAAS). The Federal Aviation Administration has sponsored LAAS research at Ohio University's Avionics Engineering Center for more than 10 years. The goal of the LAAS project is to provide high-integrity differential GPS signals to enable civil aircraft to execute precision approaches to airports in the U.S. National Airspace (NAS).

Additional details relating to FCC Form 442 are listed below:

- FAA Information. The FAA has already engineered a frequency in this band for this request, and has filed this information under **FAA NG T number T080317** awaiting word from the FCC. Questions about this file number may be directed to Mr. Nguyen Ly, Program Implementation Manager, FAA, ATO CSA Service Center, Planning and Requirements, AJO-2C3, Nguyen.Ly@faa.gov, 817-222-4291.
- Government Contract. This work is performed under FAA Cooperative Agreement 98-G-002, entitled "Local Area Augmentation System (LAAS) Research and Development" under the direction of Ohio University Principal Investigator Dr. Frank van Graas. The Cooperative Agreement functions in effect as a contract from the FAA to Ohio University, with a total dollar value to date of \$13,318,177.00. The current Appropriation Number is 1207WA3411.00.WB3030.WAG5310000.41040.03/28/2007.12982A0070.2D03A0. Questions regarding this Cooperative Agreement may be directed to Ms. Zofia Starzyk, Assistant Director for Administration, Avionics Engineering Center, Room 245 Stocker Center, Ohio University, Athens, OH 45701, starzyk@ohio.edu, 740-593-1512.
- Research Project. Project requirements include flight tests of the LAAS differential GPS system while using the data link specified in the *GPS Based Precision Approach Local Area Augmentation System (LAAS) Interface Control Document (ICD)*, RTCA DO-246C, April 7, 2005. This document specifies that LAAS data be transmitted from the ground station to aircraft over a VHF data link using D8PSK modulation with bandwidth of and channel spacing of 25 kHz, in the aviation navigation band 108 – 118 MHz. The data is time division multiplexed using 8 slots every half second. Testing of the LAAS system requires use of at least two adjacent slots on a given frequency. Without access to a test frequency as described in this paragraph, Ohio University cannot complete LAAS tests for the FAA. The FAA has already engineered a test frequency in this band, but according to FAA policy, specific technical details regarding the frequency are not released to the applicant until approved. Ohio University has all equipment needed to implement this data link, but cannot use it until use of the frequency is approved.
- Estimated Duration. LAAS testing at Ohio University is expected to continue for at least five years.

- Manufacturer. The LAAS VHF Data Link (VDL) transmitter to be used is the Harris VDR-2125, which is similar to the newer Honeywell 3000. A single dipole array will be used with a height above ground of 10 feet, where the site elevation is 767.7 feet above mean sea level. The maximum radiated power of this elliptically polarized signal will be 50W horizontally polarized and 20W vertically polarized. Additional descriptions of the antenna and its elevation pattern are attached. This equipment has been used in prior LAAS tests, and the FAA is familiar with the equipment and its radiation pattern.
- Applicant Type. The applicant is the Avionics Engineering Center (AEC), a research organization within the Department of Electrical and Computer Engineering at Ohio University's Russ College of Engineering and Technology. The AEC is an element of the government of the State of Ohio.