



# Federal Aviation Administration

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## Memorandum

Date: August 7, 2007

To: Thomas Toula, Manager, Air Transportation Division, AFS-200

From: David A. Downey, Manager, Rotorcraft Directorate,  
Aircraft Certification Service, ASW-100

Prepared by: Matthew Rigsby, Safety Mgt. Group, ASW-112

Subject: Obstacle Collision Avoidance System Affirmation

*Original signed by  
David A. Downey*

This is in response to your memorandum dated July 31, 2007 regarding the Obstacle Collision Avoidance System (OCAS). The Rotorcraft Directorate **FULLY** supports the acceptance of OCAS and OCAS type systems, to improve the overall safety of the aviation community.

The vision of the Federal Aviation Administration (FAA) Administrators "Flight Plan 2004 – 2008" is to reduce the number of general aviation accidents. As such, the Southwest Region Rotorcraft Directorate is firmly committed to the acceptance of OCAS in the United States as way of reducing the general aviation accidents and saving lives. Just a few of the statistics:

- A review of FAA accident incident data shows that Wire and Obstruction strike accidents are the top operational cause of rotorcraft accidents for the period of 1996 to 2006, and 35% of those accidents are fatal.
- National Transportation Safety Board statistics show a total of 996 reported aviation accidents/collisions involved power lines from January 1, 1990 to October, 2003. Of the 996 accidents, 301 involved at least one fatality. (This is for power lines only and does not include guide wires, towers, and other elevated structures.)

It is our belief that the problem of obstacle collisions deserves a better solution than current conventional visual markings. *Saving Lives Through Collision Avoidance* is a Number One priority and the reason we have committed to an effective and comprehensive evaluation and ultimate acceptance of OCAS and OCAS type systems. The cost of wire strikes not only in lives, but in power interruptions and subsequent

re-routing and repairs, and the economic impact to the public is staggering. Utility experts report that a 500 Kva line can generate upwards of one million dollars per hour.

Our Safety Management Group, ASW-112, is the office that originally brought the OCAS system to the FAA's attention after communications with Helicopter Association International (HAI) and utility stake holders back in 2003. They began looking at reducing helicopter accidents due to wire strikes and have participated in successful flight tests of the OCAS field evaluations in both Norway and in the United States. The last successful flight test was conducted with the AFS-250 Flight Standards representative in August of 2005. Two helicopters (Jet Ranger and MD-500) and a general aviation Grumman, AA-5A Cheetah were used for test and demonstration purpose. The Jet Ranger with representatives from FAA and Transport Canada as observers on board was used and the MD-500 was used with representatives from the Norwegian Civil Aeronautics Authority (CAA). In addition, OCAS test members conducted additional flight test both the 29 and 31 August, including General Aviation (GA) aircraft, the Cheetah. Six flights with a total of 77 test runs were performed.

During the 77 test runs, including pretests, the helicopter and the Cheetah crossed the Milton power line river crossing at different altitudes and angles to the power lines in order to activate the OCAS warnings as well as flying to the side of, and above the obstacle warning zone to demonstrate that aircraft flying at a safe distance away from the obstacle would not activate (unnecessary) warning actions. Additionally, simulated float airplane landing patterns were flown into the warning zone for simulated landings on the river beyond the power lines with the objective to activate timely light and audio warnings.

This testing and evaluation was conducted with the participation of the Norwegian CAA and TC officials. Each of the countries have already accepted the OCAS as an equivalent and superior obstruction marking and lighting alternative to existing technology. Several other countries are in the process of obtaining this same acceptance. If the FAA is to remain one of the world leaders in aviation safety, acceptance of OCAS and/or OCAS type systems are imperative.

OCAS provides a 24/7 365 day/night "safety net" around obstructions. This proven system combines both the visual indications and an accompanying audio warning as well. Current FAA/FCC input has limited the audio broadcast to just the air-to-air for fixed wing and air-to-air for helicopters. This is seen as a SEVERE limitation and for OCAS to have the biggest positive impact on aviation safety the frequency bands need to be opened up to ensure the greatest opportunity to alerting an aircraft/pilot they are on a potentially life threatening course and to take appropriate action. The OCAS system is breakthrough technology which was developed through a joint effort involving the aviation community, aviation regulators and the utility industry in Norway. It was designed to engineer out all of the concerns and shortcomings of the

existing lighting and marking systems in use today. To date, it has found wide acceptance by all stakeholders in the wire and obstruction marking initiative as a replacement technology to existing systems. These stakeholders include the Aviation Regulators, the Aviation Community, and Obstruction Owners. In particular, OCAS's provides real time system status monitoring to immediately alarm multiple stakeholders the instant there is a lighting outage or other system failure. This is tremendous advantage over the current systems where failed lighting and marking systems can remain unlit for several years, for the simple fact that no one checks on it.

The Rotorcraft Directorate has been in close communications with aviation industry groups, aviation utility experts, and utility/obstruction owners. (See attached letter from Utility Aviation Specialist Inc.) OCAS provides to the wire and obstruction environment as well as the aviation community a tremendous improvement in safety at no cost to the flying public. OCAS type systems have the potential to save both lives and prevent critical utility infrastructure outages.

*Saving Lives Through Collision Avoidance!!*

Attachment



# Federal Aviation Administration

## Memorandum

Date:

JUL 31 2007

To:

Manager, Flight Standards Division, Southern Region, ASW-112  
Manager, Aeronautical Information Management Group, AJR-33  
Manager, Office of Spectrum Policy and Management, ASR-100  
Manager, Airport Safety and Operations Division, AAS-100

From:

Thomas K. Toula, Manager, Air Transportation Division, AFS-200

Prepared by:

Larry Buehler, Commuter, On Demand and Training Center, AFS-250

Subject:

Obstacle Collision Avoidance System

The Federal Aviation Administration Flight Standards Service's review and analysis indicates that the Obstacle Collision Avoidance System (OCAS) reflected in the attached documents provides an equivalent level of safety and a suitable alternative to the lighting and marking requirements of obstacles as recommended in Advisory Circular 70/7460-1.

The attached technical data, testing, and summary data is provided for your consideration. The demonstration observed by representatives of the FAA is enclosed at Tab 10.

Flight Standards Service requests your concurrence by August 17, 2007, so that the OCAS system may be used in lieu of local area lighting and marking of obstacles.

- Tab 1 - Concept of Operation
- Tab 2 - OCAS B+ System Description
- Tab 3 - OCAS B+ General Requirements
- Tab 4 - OCAS B+ System Requirement
- Tab 5 - Test Report No. 67721-2
- Tab 6 - Test Report No. 67721-5
- Tab 7 - Test Report No. 67721-9
- Tab 8 - Functionality and Risk Assessment of Collision, Avoidance Systems on manmade obstacles
- Tab 9 - Notified Body Opinion
- Tab 10 - Flight Test Report, Milton Kentucky
- Tab 11 - OCAS B+ Site Installation Checklist
- Tab 12 - OCAS B+ Installation Verification & Flight Test Specification