



Federal Aviation Administration

Memorandum

Date:

To: Michel Hovan, PhD, Manager, Airport Technology R&D Branch, ANG-E26

From: John Dermody, Director of Airport Safety and Standards, AAS-1

Prepared by: Marc Tonnacliff, ARFF Specialist, Airport Safety and Operations Division, AAS-300

Subject: Request for Research and Development Support: Aircraft Rescue and Fire Fighting (ARFF) Vehicle Design and Acceptance Testing Criteria

Purpose:

The Federal Aviation Administration (FAA) currently does require third party certification testing for many of the performance requirements for its Aircraft Rescue and Fire Fighting (ARFF) vehicles. as identified in Advisory Circular 150/5220-10E; Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles and National Fire Protection Association (NFPA) 414 Standard for Aircraft Rescue and Fire Fighting Vehicles; there is operational testing and prototype testing and no specific written procedures for accomplishing these tests.

There are several test requirements which can be accomplished with various test methods and may produce inconsistent test performance data. In order to verify that airport improvement grant funding is being properly expended on vehicles and equipment that meet the FAA requirements, it is important to identify the variations in testing performance procedures amongst the ARFF vehicle manufacturers. Identifying these variations will allow the FAA to determine if additional performance requirements will be needed to be performed under third party test protocols. This research and development effort should support the needs of ARFF at part 139 Airports which are required to provide ARFF services protecting the general flying public.

Related Documents:

1. Advisory Circular 150/5220-10E, Guide Specification for Aircraft and Fire Fighting (ARFF) Vehicles.
2. National Fire Protection Association 414 Standard for Aircraft Rescue and Fire Fighting (ARFF), 2007 Ed.
3. NFPA® 1901 Standard for Automotive Fire Apparatus 2009 Edition.
4. NFPA® 1912 Standard for Fire Apparatus Refurbishing, 2011 Edition.

5. ARFF vehicle manufacturer operational and prototype testing protocol.

Scope of Work:

The three objectives which should be considered for this research and development project are:

1. Work with ARFF vehicle manufacturers to obtain documentation of prior prototype and production/operational vehicle testing data, and component manufacturers' certifications of testing being conducted and accomplished. This may include written documentation, certificates, photography, and video of actual testing being performed.
2. Visit ARFF vehicle manufactures while they are conducting actual prototype and operational testing of new ARFF vehicles and document the test methods which are being used. This will include testing conducted at the manufacturers' production facility and the location(s) they use or have under contract to perform prototype and production/operational vehicle testing. Compile a database of test requirements which have proven to have high variability in the performance of the testing between the different manufacturers.
3. Continue working current and future ARFF vehicle manufactures in obtaining the vehicle testing data on future prototype vehicles. This will also include when ARFF vehicle manufactures make major changes to existing production/operational models which could affect previous prototype model vehicle testing.

Final Report:

At a minimum, the final report should include:

1. Analysis of the database of test requirements which have proven to have high variability in the performance of the testing between manufacturers.
2. Recommendations for potential third party testing requirements for those vehicle performance tests which show the greatest variability between manufacturers.
3. Identify whether third party testing is necessary to verify the validity of the variations in testing performance amongst the ARFF vehicle manufacturers.
4. Provide vehicle acceptance testing protocol of new ARFF vehicles prior to delivery.

Headquarters Project Officer:

The project officer for this task is Marc Tonnacliff (202-267-8732, marc.tonnacliff@faa.gov).

Requested Action:

Please provide the assigned project officer a project plan, including milestone schedules and funding to accomplish the study.