

FAA's Determination as to Need for Public Process

The FAA has determined that notice and opportunity for prior public comment is unnecessary because the substance of these special conditions has been subject to the public comment process in several prior instances with no substantive comments received. The FAA, therefore, finds that good cause exists for making these special conditions effective upon issuance; however, the FAA invites interested persons to participate in this rulemaking by submitting comments, data, or views. The most helpful comments reference a specific portion of the special conditions, explain the reason for any recommended change, and include supporting data. We ask that you send us two copies of written comments.

We will file in the docket all comments we receive, as well as a report summarizing each substantive public contact with FAA personnel concerning these special conditions. The docket is available for public inspection before and after the comment closing date. If you wish to review the docket in person, go to the address in the **ADDRESSES** section of this preamble between 7:30 a.m. and 4 p.m., Monday through Friday, except Federal holidays.

We will consider all comments we receive on or before the closing date for comments. We will consider comments filed late if it is possible to do so without incurring expense or delay. We may change these special conditions based on the comments we receive.

If you want the FAA to acknowledge receipt of your comments on these special conditions, include with your comments a pre-addressed, stamped postcard on which the docket number appears. We will stamp the date on the postcard and mail it back to you.

Background

On February 25, 2003, Elliott Aviation Technical Products Development, Inc., PO Box 100, Quad City Airport, Moline, Illinois 61266-0100, applied for a Supplemental Type Certificate (STC) to modify Avions Marcel Dassault-Breguet Aviation Model Falcon 10 series airplanes. This model series is currently approved under Type Certificate No. A33EU. The Avions Marcel Dassault-Breguet Aviation Model Falcon 10 series airplanes are a small category airplane powered by two Airesearch Manufacturing Company TFE731-2-1C turbofan engines, and have a maximum takeoff weight of 18,300 pounds. This airplane operates with a 2-pilot crew and can hold up to 9 passengers. The modification incorporates the

installation of Innovative Solutions & Support (IS&S) Air Data Display Units (ADDU) with an IS&S Air Data Sensor and Analog Interface Unit (AIU). The ADDU replaces the existing analog flight instrumentation and provides additional functional capability and redundancy in the system. The AIU is a digital-to-analog adapter used to adapt signals driving the existing Sperry Flight Guidance Computer. The avionics/electronics and electrical systems installed in this airplane have the potential to be vulnerable to HIRF external to the airplane.

Type Certification Basis

Under the provisions of 14 CFR 21.101, Elliott Aviation Technical Products Development, Inc. must show that the Avions Marcel Dassault-Breguet Aviation Model Falcon 10 series airplanes, as changed, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. A33EU, or the applicable regulations in effect on the date of application for the change. The regulations incorporated by reference in the type certificate are commonly referred to as the "original type certification basis." The certification basis for the Avions Marcel Dassault-Breguet Aviation Model Falcon 10 series airplanes includes 14 CFR part 25 as amended by Amendments 25-1 through 25-20, dated February 1, 1964, except for special conditions and exceptions noted in Type Certificate Data Sheet (TDCS) No. A33EU.

If the Administrator finds that the applicable airworthiness regulations (*i.e.*, part 25, as amended) do not contain adequate or appropriate safety standards for the Avions Marcel Dassault-Breguet Aviation Model Falcon 10 series airplanes because of novel or unusual design features, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Avions Marcel Dassault-Breguet Aviation Model Falcon 10 series airplanes must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirement of part 36.

Special conditions, as defined in 14 CFR 11.19, are issued in accordance with § 11.38 and become part of the type certification basis in accordance with § 21.101.

Special conditions are initially applicable to the model for which they are issued. Should Elliott Aviation Technical Products Development, Inc. apply at a later date for a supplemental type certificate to modify any other

model included on Type Certificate No. A33EU to incorporate the same or similar novel or unusual design feature, these special conditions would also apply to the other model.

Novel or Unusual Design Features

As noted earlier, the Avions Marcel Dassault-Breguet Aviation Model Falcon 10 series airplanes modified by Elliott Aviation Technical Products Development, Inc. will incorporate systems comprised of dual Air Data Display Units and an analog interface unit that will perform critical functions. These systems may be vulnerable to high-intensity radiated fields external to the airplane. The current airworthiness standards of part 25 do not contain adequate or appropriate safety standards for the protection of this equipment from the adverse effects of HIRF. Accordingly, this system is considered to be a novel or unusual design feature.

Discussion

There is no specific regulation that addresses protection requirements for electrical and electronic systems from HIRF. Increased power levels from ground-based radio transmitters and the growing use of sensitive avionics/electronics and electrical systems to command and control airplanes have made it necessary to provide adequate protection.

To ensure that a level of safety is achieved equivalent to that intended by the regulations incorporated by reference, special conditions are needed for Avions Marcel Dassault-Breguet Aviation Model Falcon 10 series airplanes modified by Elliott Aviation Technical Products Development, Inc. These special conditions require that new avionics/electronics and electrical systems that perform critical functions be designed and installed to preclude component damage and interruption of function due to both the direct and indirect effects of HIRF.

High-Intensity Radiated Fields (HIRF)

With the trend toward increased power levels from ground-based transmitters, and the advent of space and satellite communications coupled with electronic command and control of the airplane, the immunity of critical avionics/electronics and electrical systems to HIRF must be established.

It is not possible to precisely define the HIRF to which the airplane will be exposed in service. There is also uncertainty concerning the effectiveness of airframe shielding for HIRF. Furthermore, coupling of electromagnetic energy to cockpit-installed equipment through the cockpit