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SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA has determined that notice and opportunity for prior public comment is impracticable because these procedures would significantly delay certification of the airplane and thus delivery of the affected aircraft. In addition, 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 written 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 received.

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 December 31, 2002, Raytheon Aircraft Services Inc., applied to the FAA, Fort Worth Special Certification Office, for a supplemental type certificate (STC) to modify certain Raytheon Aircraft Company Model HS 125 Series 700A and 700B airplanes. These airplanes are two flightcrew, two-engine airplanes, each with a maximum takeoff weight of up to 25,500 lbs. The proposed modification incorporates the installation of an Electronic Flight

Instrument System (EFIS). The equipment originally installed in these airplanes presented the required information in the form of analog displays. The information presented is flight critical. The EFIS as a digital system is vulnerable to HIRF external to the airplane. 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, Amendment 21-69, effective September 16, 1991, Raytheon Aircraft Services, Inc. must show that the modified Raytheon Aircraft Company Model HS 125 Series 700A and 700B airplanes, as changed, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. A3EU, or the applicable regulations in effect on the date of application for the change.

Subsequent changes have been made to 14 CFR 21.101 as part of Amendment 21-77, but those changes do not become effective until June 10, 2003. The regulations incorporated by reference in the type certificate are commonly referred to as the "original type certification basis."

The regulations incorporated by reference in Type Certificate No. A3EU include Part 10 of the Civil Air Regulations (CAR). This certification is equivalent to CAR 4b dated December 1953, as amended by Amendment 4b-1 through Amendment 4b-11, exclusive of CAR 4b 350(e), and includes Special Regulation SR 422B. In addition, the certification basis includes certain later amendments to 14 CFR part 25 that are not relevant to these special conditions.

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 modified Raytheon Aircraft Company Model HS 125 Series 700A and 700B airplanes modified by Raytheon Aircraft Services Inc. because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Model HS 125 Series 700A and 700B airplanes must comply with the fuel vent and exhaust emission requirements of 14 CFR part 34 and the noise certification requirements of 14 CFR 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(b)(2), Amendment 21-69, effective September 16, 1991.

Special conditions are initially applicable to the model for which they are issued. Should Raytheon Aircraft Services Inc. apply at a later date for a supplemental type certificate to modify any other model included on the same type certificate to incorporate the same novel or unusual design feature, these special conditions would also apply to the other model under the provisions of § 21.101(a)(1), Amendment 21-69, effective September 16, 1991.

Novel or Unusual Design Features

The modified Raytheon Aircraft Company Model HS 125 Series 700A and 700B airplanes will incorporate brand new avionics/electronics and electrical systems that will perform critical functions. These systems may be vulnerable to HIRF external to the airplane.

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 the Raytheon Aircraft Company Model HS 125 Series 700A and 700B airplanes. 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 digital 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