Proposed Rules

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This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM395; Notice No. 25–08–07–SC]

Special Conditions: Dassault Falcon 2000 Series Airplanes; Aircell Airborne Satcom Equipment Consisting of a Wireless Handset and Associated Base Station, With Lithium Battery Installations

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed special conditions.

SUMMARY: This action proposes special conditions for the Dassault Falcon 2000 series airplanes. These airplanes, as modified by Aircell LLC, will have a novel or unusual design feature associated with the Aircell airborne satcom equipment (ASE) which use lithium battery technology. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These proposed special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

DATES: We must receive your comments by January 5, 2009.

ADDRESSES: You must mail two copies of your comments to: Federal Aviation Administration, Transport Airplane Directorate, Attention: Rules Docket (ANM–113), Docket No. NM395, 1601 Lind Avenue, SW., Renton, Washington 98057–3356. You may deliver two copies to the Transport Airplane Directorate at the above address. You must mark your comments: Docket No. NM395. You can inspect comments in the Rules Docket weekdays, except federal holidays, between 7:30 a.m. and 4 p.m.

FOR FURTHER INFORMATION CONTACT: Nazih Khaouly, FAA, Airplane and Flight Crew Interface Branch, ANM–111, Transport Airplane Directorate, Aircraft Certification Service, 1601 Lind Avenue, SW., Renton, Washington 98057–3356; telephone (425) 227–2432; facsimile (425) 227–1149.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite interested people to take part in this rulemaking by sending 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 about these special conditions. You can inspect the docket 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 by 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 us to let you know we received your comments on this proposal, send us 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 March 15, 2007, Aircell LLC, applied for a type design change to an existing STC (ST01388WI–D), to install additional equipment on Dassault Falcon 2000 series airplanes. This installation adds components to the existing airplane installation to include a low power Wi-Fi handset containing a single cell lithium polymer rechargeable battery. The battery identified for application in this design is a low capacity, single cell lithium polymer rechargeable battery, with a nominal capacity of 1400mAh and a nominal voltage of 3.7V. The battery has a weight of 26.5 grams. The battery has been Underwriters Laboratories, Inc. (UL) tested and qualified by DO–160E in the Aircell handset (P12857). The design is supported by a System Safety Assessment/Functional Hazard Assessment (SSA/FHA) analysis. The Aircell Wi-Fi handset, which is a component of the Aircell ASE, consists of a wireless handset and associated base station (cradle and charging unit), both with protective circuits and fuse devices which provide multiple levels of redundant protection from hazards, such as overcharging or discharging. The lithium battery is installed in the handset.

A lithium battery has certain failure, operational, and maintenance characteristics that differ significantly from those of the nickel-cadmium and lead-acid rechargeable batteries currently approved for installation on large transport category airplanes. The FAA is proposing these special conditions to require that (1) all characteristics of the lithium batteries and their installations that could affect safe operation of the Dassault Falcon 2000 are addressed, and (2) appropriate continued airworthiness instructions, which include maintenance requirements, are established to ensure the availability of electrical power from the batteries when needed.

At present, there is limited experience with use of rechargeable lithium batteries in applications involving commercial aviation. However, other users of this technology, ranging from wireless telephone manufacturers to the electric vehicle industry, have noted safety problems with lithium batteries. These problems include overcharging, over-discharging, and flammability of cell components.

1. Overcharging

In general, lithium batteries are significantly more susceptible to internal failures that can result in self-sustaining increases in temperature and pressure (*i.e.*, thermal runaway) than their nickel-cadmium or lead-acid counterparts. This is especially true for overcharging that causes heating and destabilization of the components of the cell, leading to the formation (by plating) of highly unstable metallic lithium. The metallic lithium can ignite, resulting in a self-sustaining fire or explosion. Finally, the severity of thermal runaway due to overcharging

increases with increasing battery capacity due to the higher amount of electrolyte in large batteries.

2. Over-Discharging

Discharge of some types of lithium batteries beyond a certain voltage (typically 2.4 volts) can cause corrosion of the electrodes of the cell, resulting in loss of battery capacity that cannot be reversed by recharging. This loss of capacity may not be detected by the simple voltage measurements commonly available to flightcrews as a means of checking battery status—a problem shared with nickel-cadmium batteries.

3. Flammability of Cell Components

Unlike nickel-cadmium and lead-acid batteries, some types of lithium batteries use liquid electrolytes that are flammable. The electrolyte can serve as a source of fuel for an external fire, if there is a breach of the battery container.

These problems experienced by users of lithium batteries raise concern about the use of these batteries in commercial aviation. Accordingly, the proposed use of lithium batteries in the Aircell ASE on Dassault Falcon 2000 series aircraft has prompted the FAA to review the adequacy of existing regulations in Title 14 Code of Federal Regulations (14 CFR) part 25. Our review indicates that the existing regulations do not adequately address several failure, operational, and maintenance characteristics of lithium batteries that could affect the safety and reliability of lithium battery installations.

The intent of these special conditions is to establish appropriate airworthiness standards for lithium batteries in Dassault Falcon 2000 series aircraft, modified Aircell LLC, and to ensure, as required by § 25.601, that these battery installations are not hazardous or unreliable. Accordingly, these special conditions include the following requirements:

- Those provisions of § 25.1353 which are applicable to lithium batteries.
- The flammable fluid fire protection provisions of § 25.863.

In the past, this regulation was not applied to batteries of transport category airplanes, since the electrolytes used in lead-acid and nickel-cadmium batteries are not flammable.

- New requirements to address the hazards of overcharging and over-discharging that are unique to lithium batteries.
- New Instructions for Continuous Airworthiness that include maintenance requirements to ensure that batteries used as spares are maintained in an appropriate state of charge.

Type Certification Basis

Under the provisions of 14 CFR 21.101, Aircell LLC must show that the Dassault Falcon 2000 series airplanes, as changed, continue to meet the applicable provisions of the regulations incorporated by reference in Type Certificate No. Type Certificate A50NM, Revision 3, 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 Dassault Falcon 2000 is listed in Type Certificate A50NM, Revision 3, dated September 21, 2004. In addition, the certification basis includes certain special conditions and exemptions that are not relevant to these special conditions. Also, if the regulations incorporated by reference do not provide adequate standards with respect to the change, the applicant must comply with certain regulations in effect on the date of application for the change.

If the Administrator finds that the applicable airworthiness regulations (*i.e.*, part 25, as amended) do not contain adequate or appropriate safety standards for Dassault Aviation Falcon 2000 series airplanes because of a novel or unusual design feature, special conditions are prescribed under the provisions of 14 CFR 21.16.

In addition to the applicable airworthiness regulations and special conditions, the Dassault Falcon 2000 series 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.

The FAA issues special conditions, as defined in 14 CFR 11.19, under § 11.38, and they become part of the type certification basis in accordance with § 21.101.

Special conditions are initially applicable to the models for which they are issued. Should Aircell LLC apply for a supplemental type certificate to modify any other model included on Type Certificate No. A50NM 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

The Dassault Aviation Falcon 2000 series airplanes, as modified by Aircell LLC, to include the Aircell ASE which will use lithium battery technology, will incorporate a novel or unusual design feature. Because of rapid improvements in airplane technology, the applicable airworthiness regulations do not contain adequate or appropriate safety standards for this design feature. These special conditions contain the additional safety standards that the Administrator considers necessary to establish a level of safety equivalent to that established by the existing airworthiness standards.

The Aircell Access system will include lithium battery installations. The application of a rechargeable lithium battery is a novel or unusual design feature in transport category airplanes. This type of battery has certain failure, operational, and maintenance characteristics that differ significantly from those of the nickel-cadmium and lead-acid rechargeable batteries currently approved for installation on large transport category airplanes. The FAA issues these special conditions to require that (1) all characteristics of the lithium battery and its installation that could affect safe operation of the satellite communication system are addressed, and (2) appropriate maintenance requirements are established to ensure that electrical power is available from the batteries when it is needed.

Applicability

As discussed above, these special conditions are applicable to the Dassault Aviation 2000 series airplanes as modified by Aircell LLC. Should Aircell LLC apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate No. A28NM to incorporate the same novel or unusual design feature, these special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features of the Dassault Aviation 2000 series airplanes as modified by Aircell LLC. It is not a rule of general applicability and affects only the applicant which applied to the FAA for approval of these features on the airplane.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

The Proposed Special Conditions

Accordingly, the Federal Aviation Administration (FAA) proposes the following special conditions as part of the type certification basis for the

Dassault Aviation 2000 series airplanes, modified by Aircell LLC in lieu of the requirements of § 25.1353(c)(1) through (c)(4), Amendment 25–113.

Lithium batteries and battery installations on Dassault Aviation 2000 series airplanes must be designed and installed as follows:

1. Safe cell temperatures and pressures must be maintained during any foreseeable charging or discharging condition and during any failure of the charging or battery monitoring system not shown to be extremely remote. The lithium battery installation must preclude explosion in the event of those failures.

2. Design of the lithium batteries must preclude the occurrence of self-sustaining, uncontrolled increases in temperature or pressure.

3. No explosive or toxic gases emitted by any lithium battery in normal operation or as the result of any failure of the battery charging system, monitoring system, or battery installation which is not shown to be extremely remote may accumulate in hazardous quantities within the airplane.

4. Installations of lithium batteries must meet the requirements of § 25.863(a) through (d).

5. No corrosive fluids or gases that may escape from any lithium battery may damage surrounding structure or any adjacent systems, equipment, or electrical wiring of the airplane in such a way as to cause a major or more severe failure condition, in accordance with § 25.1309(b) and applicable regulatory guidance.

6. Each lithium battery installation must have provisions to prevent any hazardous effect on structure or essential systems caused by the maximum amount of heat the battery can generate during a short circuit of the battery or of its individual cells.

7. Lithium battery installations must have a system to control the charging rate of the battery automatically, so as to prevent battery overheating or overcharging, and,

(a) A battery temperature sensing and over-temperature warning system with a means for automatically disconnecting the battery from its charging source in the event of an over-temperature condition, or

(b) A battery failure sensing and warning system with a means for automatically disconnecting the battery from its charging source in the event of battery failure.

8. Any lithium battery installation whose function is required for safe operation of the airplane must incorporate a monitoring and warning feature that will provide an indication to the appropriate flight crewmembers whenever the state-of-charge of the batteries has fallen below levels considered acceptable for dispatch of the airplane.

9. The Instructions for Continued Airworthiness required by § 25.1529 must contain maintenance requirements to assure that the lithium battery is sufficiently charged at appropriate intervals specified by the battery manufacturer. The Instructions for Continued Airworthiness must also contain procedures for the maintenance of lithium batteries in spares storage to prevent the replacement of batteries whose function is required for safe operation of the airplane with batteries that have experienced degraded charge retention ability or other damage due to prolonged storage at a low state of charge. Precautions should be included in the Instructions for Continued Airworthiness maintenance instructions to prevent mishandling of the lithium battery which could result in short-circuit or other unintentional damage that could result in personal injury or property damage.

Note 1: The term ''sufficiently charged'' means that the battery will retain enough of a charge, expressed in ampere-hours, to ensure that the battery cells will not be damaged. A battery cell may be damaged by lowering the charge below a point where there is a reduction in the ability to charge and retain a full charge. This reduction would be greater than the reduction that may result from normal operational degradation.

Note 2: These special conditions are not intended to replace § 25.1353(c), Amendment 25–113 in the certification basis of the Aircell LLC supplemental type certificate. These special conditions apply only to lithium batteries and their installations. The requirements of § 25.1353(c), Amendment 25–113 remain in effect for batteries and battery installations on the Aircell LLC supplemental type certificate that do not use lithium batteries.

Compliance with the requirements of these special conditions must be shown by test or analysis, with the concurrence of the Fort Worth Special Certification Office.

Ali Bahrami,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. E8–27538 Filed 11–19–08; 8:45 am]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 71

[Docket No. FAA–2008–1102; Airspace Docket No. 08–AGL–8]

Proposed Establishment of Class D Airspace; Branson, MO

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: This action proposes to establish Class D airspace at Branson Airport, Branson, MO. The establishment of an air traffic control tower has made this action necessary for the safety of Instrument Flight Rule (IFR) operations at Branson Airport.

DATES: 0901 UTC. Comments must be received on or before January 5, 2009.

ADDRESSES: Send comments on this proposal to the U.S. Department of Transportation, Docket Operations, 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12–140, Washington, DC 20590–0001. You must identify the docket number FAA–2008–1102/Airspace Docket No. 08–AGL–8, at the beginning of your comments. You may also submit comments through the Internet at *http://www.regulations.gov*. You may review the public docket containing the proposal, any comments received, and any final disposition in person in the Dockets Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone 1–800–647–5527) is on the ground floor of the building at the above address.

FOR FURTHER INFORMATION CONTACT: Scott Enander, Central Service Area, Operations Support Group, Federal Aviation Administration, Southwest Region, 2601 Meacham Blvd., Fort Worth, TX 76193–0530; telephone: (817) 222–5582.

SUPPLEMENTARY INFORMATION:

Comments Invited

Interested parties are invited to participate in this proposed rulemaking by submitting such written data, views, or arguments, as they may desire. Comments that provide the factual basis supporting the views and suggestions presented are particularly helpful in developing reasoned regulatory decisions on the proposal. Comments are specifically invited on the overall regulatory, aeronautical, economic, environmental, and energy-related aspects of the proposal. Communications should identify both