Exemption No. 10817

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98057-3356

In the matter of the petition of **Gogo, LLC** for an exemption from § 25.571(e)(1) of Title 14, Code of Federal Regulations	**Regulatory Docket No. FAA-2013-0562**

GRANT OF TIME-LIMITED EXEMPTION

By petition posted June 24, 2013 on the Regulations.gov website, Adnan Mazhar, Director for Aircraft Engineering and Certification for Gogo, LLC, 1250 N. Arlington Heights Road, Itasca, Illinois, 60143, petitioned the Federal Aviation Administration (FAA) for an exemption from the requirements of § 25.571(e)(1) of Title 14, Code of Federal Regulations (14 CFR), at amendment 25-96. This exemption, if granted, would grant a twelve month exemption from the FAA bird-strike damage-tolerance requirements to ensure that Gogo, LLC has time to design, fabricate, and install a means of full compliance with § 25.571(e)(1) for Boeing Model 767 airplanes.

The petitioner requests relief from the following regulation(s):

Section 25.571(e)(1) – Damage-tolerance (discrete source) evaluation. The airplane must be capable of successfully completing a flight during which likely structural damage occurs as a result of –

> (1) Impact with a 4-pound bird when the velocity of the airplane relative to the bird along the airplane's flight path is equal to V_c at sea level or 0.85 V_c at 8,000 feet, whichever is more critical.

This section defines required structural requirements for damage to the airframe from a bird strike.

The petitioner supports its request with the following information:

This section quotes the relevant information from the petitioner's request. The complete petition is available at the Department of Transportation's Federal Docket Management System, on the Internet at http://regulations.gov, in Docket No. FAA-2013-0562.

Safety and Public Interest

In 2009, EASA commissioned a study to evaluate the effects of bird strikes in an effort to determine the adequacy of the FAA's certification requirements for bird strikes.

In the report, it was found that 96% of all bird strikes (which were statistically 186 per million flight hours for transport category aircraft) occur in the takeoff, climb, approach and landing phase. These are the phases of flight that normally occur below 10,000, during which time all transport aircraft in the United States are operationally restricted to airspeeds of 250 KIAS or less.

The same report found that only 9% of all Part 25 bird strikes resulted in damage (including engines) and only 0.3% of the strikes involved kinetic energy above the required certification values.

Below is the data provided by Delta Air Lines for their 2012 fleet:

AIRCRAFT TYPE	A/C w/ LARGE ANT.	ACCUM. HOURS	ACCUM. CYCLES	BIRD STRIKES (total/radome)	APPROX. EXPOSURE TIME BELOW 10,000 FT
A330	32	143,353	18,105	35/0	7,242
767	95	391,632	57,067	176/0	22827

This is only one year's worth of data however the airline reports that they have never experienced a bird strike on a top fuselage mounted radome. In addition to the Airbus A330 and Boeing 767, they operate significant numbers of Boeing 737 and 757 aircraft with large antenna installations.

A review of the actual bird strike data provided by the airline shows that the overwhelming majority of bird strikes occurred in the landing and rollout phase of flight. It further shows that damage to the fuselage and wings is extremely rare. The data appears very consistent with the conclusions of the EASA study.

It is in the public interest for Gogo, LLC to provide satellite-based broadband communications for public safety purposes and to increase the productivity of airline passengers on international flights who otherwise are unable to communicate with their workplaces and other locations. A satellite-based broadband system provides a unique communications link for Federal Air Marshals and other public safety agencies to protect commercial airlines and their passengers. The air-ground system also enables airlines, including their on-board crew, to better communicate and manage operational information, while also providing important connectivity for passengers, which is of even greater value for longer international flights than on the shorter haul flights that already have service over the continental United States.

Radome Configuration

The design of the Ku Band radome is an aerodynamic shape, similar to previous designs, with minimal height. It is located on the crown of the fuselage and just forward of the wing spar to reduce the aerodynamic influence on the original airframe. This location ensures that a bird strike event will not occur throughout the aircraft's normal flight

operations due to aircraft's angle of attack (AOA). In addition to these physical characteristics the radome incorporates engineering advances in composite materials and lessons learned based on previous installations.

International operations

Per § 11.81(h), the applicant requests that the privileges of this Exemption be extended outside of the United States. This extension of privileges is necessary for operations based within foreign countries having bilateral agreements with the United States accepting FAA 14 CFR Part 25 as their airworthiness standards for transport category aircraft. This model airplane is intended for the global market place.

As the State of Registry for most of the aircraft on which the modification will be installed, the FAA will continue to be responsible for the airworthiness and continued airworthiness of these aircraft wherever they operate.

Good Cause Exists to Issue the Exemption without Notice and Comment

Gogo, LLC requests that the FAA issue the exemption without publication for comment in the Federal Register.

Section 11.87 lists four factors considered by the agency in deciding whether a petitioner has shown good cause for the FAA not to delay action on the petition. Those factors are set forth below in italics along with the company's response in plain text:

(a) Whether granting the petition would set a precedent:

According to the FAA's exemption database, fourteen exemptions have been granted to § 25.571(e)(1). Additionally, the FAA has permitted aircraft to operate for a limited period of time pending the installation of required modifications to address a compliance issue discovered late in the certification process.

(b) Whether the relief requested is identical to exemptions previously granted:

The relief requested in this petition is different from ten out of the 14 of the other grants of exemption from § 25.571(e)(1) in which applicants requested an exemption to use 0.85 V_c at 8,000 feet rather than V_c from sea level to 8,000 feet as the rule required at that time. The relief requested in this petition is identical to the remaining four exemptions in which the applicant requested an immediate exemption to the rule itself.

(c) Whether delaying action would adversely affect Gogo, LLC:

In light of the importance of the Ku band project to Gogo's core business, the rapidly changing technology involved in this modification, the project's advanced stage, and the disruptions to operators that have contracted for the Ku band system, delaying action on the petition would adversely affect Gogo, LLC.

(d) Whether the petition was filed in a timely manner:

The petition is filed timely. Gogo, LLC has had frequent discussions on this subject with the Chicago ACO and the Transport Airplane Directorate for the last several months.

In light of the above considerations Gogo, LLC submits that good cause exists not to delay action on this

Federal Register publication

The FAA has determined that good cause exists for waiving the requirement for Federal Register publication for public comment. While the request is not identical to previously granted requests, it will not set a precedent in the long term. The reason for the exemption petition is due to recent FAA clarification on the intent of the rule, and the fact that the affected STC is nearing completion. Since the FAA guidance has now been widely circulated, we do not expect there to be any need for exemption requests in the future, except on current projects that are in the final stages. In addition, the exemption request is limited to one year. Lastly, we agree that any delay in acting on this petition would be detrimental to Gogo, LLC, and that this petition was filed in a timely manner.

The FAA's analysis

The FAA recently became aware of the inconsistent application of bird strike requirement of § 25.571(e)(1) to radomes installed on airplanes. Section 25.571(e)(1) requires the bird strike assessment to be performed at V_c at sea level or $0.85V_c$ at 8,000 feet, whichever is more critical.

Some applicants had been limiting the speed at which bird strike is assessed to 'typical' operational speeds. By limiting speed, an applicant could show that the airplane is always at a positive-pitch attitude, and that the radome will always be effectively "shadowed" by the crown of the forward fuselage. The FAA recently reiterated to all applicants that the rule requires consideration up to the design speeds stated in the rule.

In support of its petition, Gogo LLC presented an analysis showing that the probability of a bird strike to the radome is very low. We accept that the probability of a bird strike is low. However, the requirement does not allow probability to be used to avoid assessment of the bird strike, and therefore, an exemption is necessary. Limiting the exemption to one year does further diminish the safety risk.

Probability cannot be applied to airspeed or to the probability of impact itself, because both the impact and the airspeed (V_c) are stated directly in the rule. The applicant must assume the bird strike will occur at V_c or $0.85V_c$ as stated in the rule, and then determine the likely structural damage that would result from that bird strike.

In consideration of the above, the FAA concludes that granting this exemption will not adversely affect safety. For the reasons stated earlier by the petitioner, the FAA concludes that granting this time-limited exemption would be in the public interest.

The FAA's decision

In consideration of the foregoing, I find that a grant of time-limited exemption is in the public interest. Therefore, pursuant to the authority contained in 49 U.S.C. 40113 and 44701, delegated to me by the Administrator, Gogo, LLC is hereby granted an exemption from 14 CFR 25.571(e)(1). The exemption is granted to the extent necessary to allow Gogo, LLC to install Radomes on Boeing Model 767 airplanes.

This exemption terminates one year from the date it is granted, unless sooner superseded or rescinded. On or prior to that date, Gogo, LLC must demonstrate full compliance to the bird-strike requirements of § 25.571(e)(1), or the affected STC becomes void.

Issued in Renton Washington, on July 9, 2013.

/s/ John Piccola

John Piccola
Acting Manager, Transport Airplane Directorate
Aircraft Certification Service