CORRECTED COPY

This is a correction to the Row 44 Grant of Time-Limited Exemption, docket no. FAA-2013-1046, issued February 20, 2014. The initial release of this exemption listed an incorrect Exemption No. 10944. The correct exemption number is applied to this document. The FAA has made these changes in our records as of March 13, 2014. Please file this with the originally signed Grant of Time-Limited Exemption.

Exemption No. 10956

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

In the matter of the petition of **Row 44** for an exemption from § 25.571(e)(1) of Title 14, Code of Federal Regulations	**Regulatory Docket No. FAA-2013-1046**

GRANT OF TIME-LIMITED EXEMPTION

By petition posted December 16, 2013 on the Regulations.gov website, Kreg Doerr, Manager, Aircraft Installation Design and Certification, Row 44, 820 Springer Drive, Lombard, Illinois, 60148, 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 Row 44 has time to design, fabricate, and install a means of full compliance with § 25.571(e)(1) for Boeing Model 767-300 series 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-2013-1046.

Safety and Public Interest

This petition for exemption would not adversely affect safety because of two primary factors. First, there have never been any documented bird strikes for large fuselage mounted satellite antenna radomes installed on Part 25 Transport Category Aircraft. Secondly, in the normal operational flight envelope, the fuselage shadows the radome and a bird strike is not possible due to the positive angle of attack of the airplane.

Row 44 currently has approximately 440 satellite antenna radomes installed on Southwest's 737 aircraft fleet. These aircraft are accumulating over one million flight hours per year with no reported bird strikes to the radome. Additionally, the following table below lists all the exemptions granted for § 25.571(e)(1) for calendar year 2013.

Exemption No.	Applicant	Aircraft type	Regulatory Docket No.
10760	Live TV	Airbus A321 Series	FAA-2013-0373
10761	Live TV	Boeing 757-300 Series	FAA-2013-0372
10762	Live TV	Airbus A320 Series	FAA-2013-0336
10763	Live TV	Boeing 737-100 thru -900 Series	FAA-2013-0338
10814	Plane Antennas & Security Systems	Boeing 737-900 Series	FAA-2013-0433
10817	Gogo LLC	Boeing 767-200 thru -400 Series	FAA-2013-0562
10845	Standard Aero	Airbus A330 Series	FAA-2013-0563
10847	Standard Aero	Boeing 757-200, -300 Series	FAA-2013-0564
10848	Gogo LLC	Boeing 767-200 thru -400 Series	FAA-2013-0567
10849	Gogo LLC	Boeing 777-200, -300, F Series	FAA-2013-0569
10850	DRB Aviation Consultants	Boeing 777-200, -300, F Series	FAA-2013-0660
10851	Star Aviation	Airbus A320 Series	FAA-2013-0570

In each exemption case listed above, the applicant has presented data that indicates on satellite antenna radome installations, which are similar to the satellite radome installed by Row 44 in both size and installation location, there has never been a documented bird strike to the radome. This includes over 10 million flight hours with satellite antenna radomes installed on all types of Part 25 Transport Category Aircraft.

In previous efforts to substantiate the Row 44 satellite antenna radome installation for bird strike, it was shown analytically that for normal flight operations below 10,000 feet, the fuselage shadows the radome and a bird strike was not possible. Per Title 14 Code of Federal Regulations (CFR) 91.117(a), aircraft are not to fly beyond 250 Knots at an altitude below 10,000 feet. This project expected to use this "normal flight envelope" velocity when showing compliance to § 25.571(e)(1). It has recently been clarified by the FAA that the cruise velocity should be used for the flight envelope when investigating the potential for bird strike. This increased the speed used in the analysis from 250 Knots to 360 Knots. This clarification changes the attitude of the aircraft when investigating the radome for bird strike potential. Under the operational rule for maximum velocity below 10,000 feet (§ 91.117(a)), the aircraft would fly in a "nose up" attitude thus shielding the satellite antenna radome from a bird strike. However, under the language of § 25.571(e)(1), the aircraft design speed at sea level is used. This changes the attitude of the aircraft to level thus exposing the satellite antenna radome to a potential bird strike. This modification is expected to be complete in January 2014 and the updated analysis and/or testing or design changes required to show compliance to § 25.571(e)(1) may not be in place.

The public interest is served in granting this exemption for the following reasons. There is keen interest, by the flying public, in having connectivity services while flying, particularly on long domestic and international flights. These services enable business travelers to remain engaged in their trade while flying, thus enhancing efficiency and productivity. The connectivity services are also of great benefit to the leisure traveler by providing valuable connectivity and entertainment options.

Row 44 has been reviewing § 25.571(e)(1) compliance options with the Chicago Aircraft Certification Office (ACO) and the Transport Aircraft Directorate (TAD) for the past two months. A coordination meeting held in early November 2013 resulted in a method of showing compliance to § 25.571(e)(1) that was tentatively agreed to by all parties present and is summarized below.

Row 44 is developing an analytical model to predict the effects of bird strikes on our satellite antenna radome and antenna installation methodology. The model will be developed by creating a modeled (digital simulation) and performing an actual bird strike test on a satellite antenna radome and antenna installed on a rigid instrumented test fixture. After testing, the digital model response will be updated to incorporate the results obtained from the physical test. Next, the updated model will be validated by performing a bird strike analysis on a second (simulated) satellite antenna radome and antenna installation (different from the initial testing) and comparing this result with actual results of a second physical test of the actual structure with the satellite antenna radome and antenna mounted.

Once the model is validated, the simulation data will be used in the future to show compliance to § 25.571(e)(1) on new FAA Supplemental Type Certificat (STC) projects employing this particular satellite antenna radome and antenna installation methodology.

International operations

Per § 11.81(h), Row 44 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. The Boeing 767-300 aircraft is intended for the global marketplace.

The initial airplane to be modified is Irish registered. However, the airplanes are American owned and the leasing company insists that the United States airworthiness standards along with the EASA airworthiness standards be followed for all modifications.

Good Cause Exists to Issue the Exemption without Notice and Comment

Row 44 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, 12 exemptions have been granted to § 25.571(e)(1) in calendar year 2013 which allows aircraft to operate for a limited period of time pending the successful resolution of a compliance issue discovered late in the certification process.

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

The majority of the exemptions granted in 2013 were for the same reason as stated in requesting this exemption. The applicant, Row 44, needs additional time to analyze and/or test and/or modify the existing radome to be fully compliant with the provisions of § 25.571(e)(1).

(c) Whether delaying action would adversely affect Row 44:

The importance of the Satellite Communications (SATCOM) Antenna radome installation to Row 44's core business cannot be overstated. Due to the rapidly changing technology involved in this modification, coupled with the project's advanced stage and the disruption to operators that have contracted for the Row 44 system, any delay would adversely affect Row 44.

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

The petition is timely filed. Row 44 has had discussions on this subject with the Chicago ACO and is planning additional discussions with the Transport Airplane Directorate over the next several months.

In light of the above considerations, Row 44 submits that good cause exists not to delay action on this request.

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 Row 44, 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, Row 44 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 rule 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, Row 44 is hereby granted an exemption from 14 CFR 25.571(e)(1). The exemption is granted to the extent necessary to allow Row 44 to install Radomes on Boeing Model 767-300 series airplanes.

This exemption terminates one year from the date it is granted, unless sooner superseded or rescinded. On or prior to that date, Row 44 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 February 20, 2014.

/s/ John P. Piccola, Jr.

John P. Piccola, Jr.
Acting Manager, Transport Airplane Directorate
Aircraft Certification Service