

[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 25

[Docket No. NM436; Special Conditions No. 25-421-SC]

Special Conditions: Boeing Model 747-8 Airplanes, Systems and Data Networks

Security – Isolation or Protection from Unauthorized Passenger Domain Systems Access

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final special conditions.

SUMMARY: These special conditions are issued for Boeing Model 747-8 airplanes.

This airplane will have novel or unusual design features associated with connectivity of the passenger domain computer systems to the airplane critical systems and data networks. The applicable airworthiness regulations do not contain adequate or appropriate safety standards for these design features. 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.

EFFECTIVE DATE: April 18, 2011

FOR FURTHER INFORMATION CONTACT: Will Struck, FAA, Airplane and Flight Crew Interface Branch, ANM-111, Transport Airplane Directorate, 1601 Lind Avenue SW, Renton, Washington 98057-3356; telephone (425) 227-2764; facsimile (425) 227-1149.

SUPPLEMENTARY INFORMATION:

Background

On November 4, 2005, The Boeing Company, PO Box 3707, Seattle, WA, 98124, applied for an amendment to Type Certificate Number A20WE to include the new Model 747-8 passenger airplane. The Model 747-8 is a derivative of the 747-400. The Model 747-8 is a four-engine jet transport airplane that will have a maximum takeoff weight of 970,000 pounds and new General Electric GEnx-2B67 engines. The Model 747-8 will have two flight crew and the capacity to carry 605 passengers.

Type Certification Basis

Under the provisions of Title 14 Code of Federal Regulations (14 CFR) 21.101, Boeing must show that the Model 747-8 (hereafter referred to as the 747-8) continues to meet the applicable provisions of 14 CFR part 25, as amended by Amendments 25-1 through 25-117, except for §§ 25.809 and 25.812, which will remain at Amendment 25-115. These regulations will be incorporated into Type Certificate No. A20WE after type certification approval of the 747-8.

If the Administrator finds that the applicable airworthiness regulations (i.e., part 25) do not contain adequate or appropriate safety standards for the 747-8 because of a novel or unusual design feature, special conditions are prescribed under the provisions of § 21.16.

Special conditions are initially applicable to the model for which they are issued. Should the type certificate for that model be amended later to include any other model that incorporates the same novel or unusual design feature, or should any other model

already included on the same type certificate be modified to incorporate the same novel or unusual design feature, the special conditions would also apply to the other model under § 21.101.

In addition to the applicable airworthiness regulations and special conditions, the 747-8 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 § 11.19, are issued under § 11.38, and become part of the type certification basis under § 21.101.

Novel or Unusual Design Features

The Boeing Model 747-8 airplane will incorporate the following novel or unusual design features: Digital systems architecture composed of several connected networks.

The network architecture would be used for a diverse set of functions, including:

1. Flight-safety related control, communication, and navigation systems (Aircraft Control Domain),
2. Airline business and administrative support (Airline Information Domain),
3. Passenger information and entertainment systems (Passenger Entertainment Domain), and
4. The capability to allow access to or by external network sources.

Discussion of Comments

Notice of proposed special conditions No. 25-10-01-SC for the Boeing Model 747-8 airplane was published in the Federal Register on December 9, 2010 (75 FR 76647). No comments were received and the special conditions are adopted as proposed.

Applicability

As discussed above, these special conditions are applicable to Boeing Model 747-8 airplanes. Should Boeing apply at a later date for a change to the type certificate to include another model incorporating the same novel or unusual design features, the special conditions would apply to that model as well.

Conclusion

This action affects only certain novel or unusual design features of the Boeing Model 747-8 airplane. It is not a rule of general applicability.

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 Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the type certification basis for the Boeing Model 747-8 airplane.

The design must prevent all inadvertent or malicious changes to, and

all adverse impacts upon, all systems, networks, hardware, software,
and data in the Aircraft Control Domain and in the Airline
Information Domain from all points within the Passenger
Information and Entertainment Domain.

Issued in Renton, Washington, on March 9, 2011.

Signed by Ali Bahrami

Ali Bahrami
Manager, Transport Airplane Directorate
Aircraft Certification Service