



Federal Aviation Administration

Memorandum

Date: March 27, 2008

To: Manager, Small Airplane Directorate, ACE-100

From: Manager, Wichita Aircraft Certification Office

Prepared by: T.N. Baktha

Subject: Equivalent Level of Safety to § 23.815; Cessna Aircraft Company
Model 525C; Finding No. ACE-08-04

This memorandum requests your office to review and provide concurrence with the proposed finding of equivalent level of safety to the Width of Aisle requirements of § 23.815 of 14 CFR part 23.

BACKGROUND:

The Cessna Model 525C is a 16,650 pound, 11 place (9 passengers and 2 crew), airplane powered by two Williams FJ-44-4 Turbo Fan Engines (1920 lb. thrust).

14 CFR 23.815(b) requires an aisle width of 12 inches from the floor and an aisle width of 15 inches at a level 25 inches and above, for passenger capacities up to 10. Cessna requests an aisle width of 9 inches at levels below 25 inches from the floor and an aisle width of 13 inches at levels 25 inches from the floor and above for passenger capacities up to 9. Cessna did a successful evacuation test on its Model 525B which has the same configuration as that of Model 525C except that Model 525C cabin is 21 inches longer. The test was completed in 74 seconds, which is within the allowable 90 seconds. Therefore, Cessna requests the FAA give them credit for the system by accepting the test results of Model 525B as equivalent to § 23.815, Width of Aisle requirements.

APPLICABLE REGULATIONS:

Section 23.815 requires that a commuter category airplane must demonstrate compliance with 23.815(b) "Width of Aisle".

REGULATIONS REQUIRING AN ELOS:

In considering the current design, the applicant has requested an ELOS to allow an aisle width of 9 inches at levels below 25 inches from the floor and an aisle width of 13 inches at levels 25 inches from the floor and above for passenger capacities up to 9, since a successful evacuation test was done on a Cessna Model 525B that has the same configuration as that of Model 525C except the Model 525C cabin is 21 inches longer. The test was completed in 74 seconds, which is within the allowable 90 seconds. On the basis of this test, the FAA has determined that an appropriate level of safety can be provided by the issuance of an ELOS, in accordance with the provisions of 14 CFR, part 21, § 21.21(b)(1).

DESCRIPTION OF COMPENSATING FEATURES:

14 CFR 23.815(b) requires an aisle width of 12 inches from the floor and an aisle width of 15 inches at a level 25 inches and above, for passenger capacities up to 10. The Cessna Model 525C has an aisle width of 9 inches at levels below 25 inches from the floor and an aisle width of 13 inches at levels 25 inches from the floor and above for passenger capacities up to 9. Cessna did a successful evacuation test on its Model 525B which has the same configuration as that of the Model 525C except that Model 525C cabin is 21 inches longer. The test was completed in 74 seconds, which is within the allowable 90 seconds.

EXPLANATION OF COMPENSATING FEATURES:

Cessna requests the FAA give them credit for the tests it has done on Model 525B by accepting the test results as equivalent to the requirements of § 23.815, Width of Aisle. Cessna has also provided the test results of the Model 525B Cabin Egress Evaluation Test it conducted on February 2004.

The fuselages of the Model 525B and Model 525C are almost identical and the only significant difference is that the Model 525C fuselage is stretched by an additional 21 inches. Even with this stretch, Model 525C will easily pass the evacuation test since the test on the Model 525B was accomplished in 74 seconds, which is well with the allowable 90 seconds and it had another 16 seconds to spare. Considering the results of this test, Wichita ACO considers the equivalent level of safety is established and, therefore, recommends approval of the ELOS.

ACO RECOMMENDATION:

Wichita ACO considers the equivalent level of safety is established and, therefore, recommends approval of the ELOS.

RECOMMENDATION:

The FAA notes that Cessna's request for equivalent level of safety is based on data and rationale developed previously for other Cessna models that have already been granted an equivalent level of safety finding. These data have demonstrated that the egress time is less than 74 seconds. This is less than the 90 second allowance that is permitted by 14 CFR § 23.803(a). In this case, the data indicate that, in the particular exit arrangement used on the Cessna 525C, the overall effect on egress due to the aisle width is insignificant. Since all of the factors considered in granting the previous equivalent level of safety findings for Cessna 500 series airplanes continue to apply, the FAA hereby grants an equivalent level of safety for 14 CFR § 23.815(b) on the Model 525C under the provisions of § 21.21(b)(1).

Concurred by:

Margaret Kline	03/27/08
Manager, Wichita Aircraft Certification Office, ACE-115W	Date
John Colomy	03/27/08
Manager, Standards Office, ACE-110	Date
John Colomy	03/27/08
Acting Manager, Small Airplane Directorate, Aircraft Certification Service, ACE-100	Date