



[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 23

[Docket No. FAA-2020-0798; Notice No. 23-20-01-NOA]

Accepted Means of Compliance; Airworthiness Standards: Normal Category

Airplanes

AGENCY: Federal Aviation Administration, DOT

ACTION: Notification of availability

SUMMARY: This document announces the availability of means of compliance to the applicable airworthiness standards for normal category airplanes. The Administrator finds these means of compliance to be an acceptable means, but not the only means, of showing compliance to the applicable airworthiness standards for normal category airplanes and that they provide an appropriate level of safety.

DATES: Effective [INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER].

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SUPPLEMENTARY INFORMATION:

BACKGROUND: Under the provisions of the National Technology Transfer and Advancement Act of 1995¹ and Office of Management and Budget (OMB) Circular A-119, “Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities,” effective January 27, 2016, the FAA participates in the development of consensus standards and uses consensus standards as a means of carrying out its policy objectives where appropriate.

Consistent with the Small Airplane Revitalization Act of 2013², the FAA has been working with industry and other stakeholders through ASTM International (ASTM) F44 Committee on General Aviation Aircraft to develop consensus standards for use as a means of compliance in certificating small airplanes under Title 14, Code of Federal Regulations (14 CFR) part 23. In promulgating part 23, amendment 23-64³ (81 FR 96572, December 30, 2016), the FAA explained that if it determined such consensus standards were acceptable means of compliance to part 23, it would publish a notice of availability of those consensus standards in the *Federal Register*.

Pursuant to FAA Advisory Circular 23.2010-14⁴, “FAA Accepted Means of Compliance Process for 14 CFR part 23,” section 3.1.1, this notice serves as a formal acceptance by the Administrator of means of compliance based on consensus standards developed by ASTM. The means of compliance accepted by this notice are one means, but not the only means of complying with part 23 regulatory requirements.

¹ *Ref* Pub. L. 104-113 as amended by Pub. L. 107-107.

² *Ref* Pub. L. 113-53.

³ *See* <https://www.federalregister.gov/documents/2016/12/30/2016-30246/revision-of-airworthiness-standards-for-normal-utility-acrobatic-and-commuter-category-airplanes>

⁴ *See* <https://rgl.faa.gov/>.

The FAA reviewed 35 published ASTM consensus standards, developed by ASTM Committee F44, as the basis for means of compliance to 65 sections of part 23, amendment 23-64. In some cases, the Administrator finds sections of ASTM Standard F3264-19, “Standard Specification for Normal Category Aeroplanes Certification,” without changes, are accepted as means of complying with the airworthiness requirements of amendment 23-64, within the scope and applicability of the consensus standards. In other cases, the means of compliance, while based on ASTM consensus standards, include additional FAA provisions necessary to comply with the airworthiness requirements of amendment 23-64.

This document accepts only the revisions of standards referenced in ASTM Standard F3264-19, “Standard Specification for Normal Category Aeroplanes Certification.” Applicants who desire to use means of compliance reflected by other revisions to ASTM standards not previously accepted may seek guidance and possible acceptance from FAA for the use of those means of compliance on a case-by-case basis. Applicants may also propose alternative means of compliance for FAA review and possible acceptance.

Amendment 23-64 established airworthiness requirements based on the level of safety of amendment 23-63 regulations, except for areas addressing loss of control and icing where the safety level was increased. Achieving this level of safety through compliance with amendment 23-64—for a given certification project—may require use of additional means of compliance beyond those accepted by this notice, depending on the details of the specific design. For example, applicants with novel designs, such as unmanned airplanes or vertical takeoff and landing airplanes that are outside the scope

and applicability of these consensus standards must propose alternative means of compliance, applicable to their designs, to be accepted under § 23.2010.

Further information on supplemental means of compliance is provided in a part 23 means of compliance summary table and in the Small Airplanes Issues List, which are available on the Small Airplanes—Regulations, Policies & Guidance website⁵.

MEANS OF COMPLIANCE ACCEPTED IN THIS POLICY: The following is a list of part 23, amendment 23-64, sections followed by their corresponding means of compliance accepted by this notice. However, for means of compliance identified in the following list, Aircraft Type Code compliance matrix tables, which define applicability of the individual requirements of given standards, are not accepted in any ASTM F44 standard. Due to errors identified in the Aircraft Type Code compliance matrix tables, applicability of individual requirements of standards must be established with the Small Airplane Standards Branch.

23.1457: ASTM F3264-19, section 9.12

23.1459: ASTM F3264-19, section 9.13

23.1529: ASTM F3264-19, section 10.6

Subpart B—Flight

23.2100: ASTM F3264-19, section 5.1

23.2105: ASTM F3264-19, section 5.2

23.2110: ASTM F3264-19, section 5.3

23.2115: ASTM F3264-19, section 5.4

23.2120: ASTM F3264-19, section 5.5

⁵ See https://www.faa.gov/aircraft/air_cert/design_approvals/small_airplanes/small_airplanes_regs/.

23.2125: ASTM F3264-19, section 5.6

23.2130: ASTM F3264-19, section 5.7

23.2135: ASTM F3264-19, section 5.8, combined with the changes in the following table:

Replace:	With:
ASTM F3173/F3173M-18, Section 4.3.2	FAA Section 4.3.2 “Unless otherwise required, it shall be possible to carry out the following maneuvers without requiring the application of temporary one-hand control forces exceeding those specified in Table 1, appropriate for the type of control. The trimming controls shall not be adjusted during the maneuvers.”
ASTM F3173/F3173M-18, Section 4.3.2.3	FAA Section 4.3.2.3 “With landing gear and flaps extended, power necessary to maintain level flight at 1.1 V_{S0} , and the airplane as nearly as possible in trim, it shall be possible to maintain approximately level flight while retracting the flaps as rapidly as possible with simultaneous application of maximum continuous power. If the level acceleration will result in exceeding V_{FE} of the initial flap configuration prior to the flaps reaching their selected setting, power may be reduced after achieving 1.3 V_{FE} of the initial flap configuration. The maneuver continues until the flaps reach the selected setting and the airplane achieves V_{FE} of the initial flap configuration. If gated flap positions are provided, the flap retraction may be demonstrated in stages with power and trim reset for level flight at 1.1 V_{S1} , in the initial configuration for each stage: (1) From the fully extended position to the most extended gated position; (2) Between intermediate gated positions, if applicable; and (3) From the least extended gated position to the fully retracted position.”
ASTM F3173/F3173M-18, Section 4.7	FAA Section 4.7 “It shall be possible, while in the landing configuration, to complete a landing without causing substantial damage or serious injury, and without exceeding the temporary one-hand control force limits specified in Table 1, appropriate for the type of control, following an approach to land under the following conditions;”
ASTM F3173/F3173M-18 Section 5.3.1.3	FAA Section 5.3.1.3 “In a descent with idle power at a speed of 1.3 V_{S0} with landing gear extended and wing flaps in the landing position.”
ASTM F3173/F3173M-18 Section 9.3.4	FAA Section 9.3.4 “If the procedure set forth in 9.3.3.2 is used to demonstrate compliance and marginal conditions existing during flight test with regard to reversal of primary longitudinal control force, flight tests shall be accomplished from the normal acceleration at which a marginal stick force per g condition is found to exist to the applicable limit specified in 9.3.2.1.”

23.2140: ASTM F3264-19, section 5.9

23.2145: ASTM F3264-19, section 5.10

23.2150: ASTM F3264-19, section 5.11, after replacing ASTM F3180/F3180M-19 with ASTM F3180/F3180M-16

23.2155: ASTM F3264-19, section 5.12

23.2160: ASTM F3264-19, section 5.13

23.2165: ASTM F3264-19, section 5.14

Subpart C—Structures

23.2200: ASTM F3264-19, section 6.1

23.2205: ASTM F3264-19, section 6.2, combined with the changes to ASTM F3254-19, Figures 2, 3, and 4 shown in the following table:

Replace:	With:
“Remote”	“10 ⁻⁵ ”
“Extremely Improbable”	“10 ⁻⁸ ” for Level 1, 2 and 3 airplanes and with “10 ⁻⁹ ” for Level 4 airplanes”

23.2210: ASTM F3264-19, section 6.3

23.2215: ASTM F3264-19, section 6.4, combined with the changes in the following table:

Replace:	With:
ASTM F3116/F3116M-18, Section 4.1.4	FAA Section 4.1.4 “Appendix X1 through Appendix X4 provides, within the limitations specified within the appendix, a simplified means of compliance with several of the requirements set forth in sections 4.2 to 4.26 and 7.1 to 7.9 that can be applied as one (but not the only) means to comply. If the simplified methods in appendix X1 through X3 are used, they must be used together in their entirety.”
ASTM F3116/F3116M-18, Section X1.1.1	FAA Section X1.1.1 “The methods provided in this appendix provide one possible means (but not the only possible means) of compliance and can only be applied to level 1 and level 2 low speed airplanes.”

23.2220: ASTM F3264-19, section 6.5

23.2225: ASTM F3264-19, section 6.6, combined with the changes in the following table:

Replace:	With:
ASTM F3116/F3116M-18, Section X2.1.1	FAA X2.1.1 “The methods provided in this appendix provide one possible means (but not the only possible means) of compliance and can only be applied to level 1 and level 2 low speed airplanes.”
ASTM F3116/F3116M-18, Section X3.1.1	FAA X3.1.1 “The methods provided in this appendix provide one possible means (but not the only possible means) of compliance and can only be applied to level 1 and level 2 low speed airplanes.”
ASTM F3116/F3116M-18, Section X4.1.1	FAA X4.1.1 “The methods provided in this appendix provide one possible means (but not the only possible means) of compliance and can only be applied to level 1 low speed airplanes.”

23.2230: ASTM F3264-19, section 6.7

23.2235: ASTM F3264-19, section 6.8

23.2240: ASTM F3264-19, section 6.9, after replacing ASTM F3115/F3115M-19 with ASTM F3115/F3115M-15 and making the changes in the following table:

Replace:	With:
ASTM F3115/F3115M-15, Section 4.4.1	FAA 4.4.1 “For metallic (aluminum), unpressurized, non-aerobatic, low-speed, level 1 airplanes, applicants can demonstrate a 10,000 hour safe-life by limiting the '1g' gross stress, at maximum takeoff weight, to no more than 5.5 ksi. The applicant must show effective stress concentration factors of 4 or less in highly loaded joints and use materials or material systems for which the physical and mechanical properties are well established.”
ASTM F3115/F3115M-15, Section 6.1	FAA 6.1 “For bonded airframe structure, the residual strength of bonded joints shall be addressed as follows: for any bonded joint, the failure of which would result in catastrophic loss of the airplane, the limit load capacity must be substantiated by one of the following methods.”

23.2245: ASTM F3264-19, section 6.10

23.2250: ASTM F3264-19, section 6.11

23.2255: ASTM F3264-19, section 6.12

23.2260: ASTM F3264-19, section 6.13

23.2265: ASTM F3264-19, section 6.14

23.2270: ASTM F3264-19, section 6.15, combined with the changes in the following table:

Replace:	With:
ASTM F3083/F3083M-19 Section 4.1.6	FAA Section 4.1.6 “Engine mount and supporting structure must withstand 18.0 g forward for engines installed behind and above the seating compartment.”

Subpart D—Design and Construction

23.2300: ASTM F3264-19, section 7.1

23.2305: ASTM F3264-19, section 7.2

23.2310: ASTM F3264-19, section 7.3

23.2315: ASTM F3264-19, section 7.4

23.2320: ASTM F3264-19, section 7.5

23.2325: ASTM F3264-19, section 7.6, except delete ASTM F3264-19, section 7.6.1.3

23.2330: ASTM F3264-19, section 7.7

23.2335: ASTM F3264-19, section 7.8

Subpart E—Powerplant

23.2400: ASTM F3264-19, section 8.1, except delete ASTM F3264-19, section 8.1.6

23.2405: ASTM F3264-19, section 8.2, except delete ASTM F3264-19, section 8.2.4

23.2410: ASTM F3264-19, section 8.3, except delete ASTM F3264-19, section 8.3.8

23.2415: ASTM F3264-19, section 8.4, combined with the following changes:

1. Delete ASTM F3264-19, section 8.4.4
2. Add: An FAA accepted means of compliance for the turbine engine installation ice protection requirement of § 23.2415, on airplanes not approved for flight into known icing, such as the provisions of F3120/F3120M-19 section 7.2 and 7.3 (regardless of the operation requirements in F3120/F3120M-19 Table 1).

23.2420: ASTM F3264-19, section 8.5, except delete ASTM F3264-19, section 8.5.3

23.2425: ASTM F3264-19, section 8.6, except delete ASTM F3264-19, section 8.6.6

23.2430: ASTM F3264-19, section 8.7, except delete ASTM F3264-19, section 8.7.6

23.2435: ASTM F3264-19, section 8.8, except delete ASTM F3264-19, section 8.8.2

23.2440: ASTM F3264-19, section 8.9, except delete ASTM F3264-19, section 8.9.5

Subpart F—Equipment

23.2500: ASTM F3264-19, section 9.1, combined with the following changes:

1. Delete ASTM F3264-19, section 9.1.1.2(a)
2. Delete ASTM F3264-19, section 9.1.1.5
3. As shown in the following table:

Replace:	With:
ASTM F3230-17 Section 3.2.1	FAA Section 3.2.1 “aircraft type code, n—an Aircraft Type Code (ATC) is defined by considering both the technical considerations regarding the design of the aircraft and the aeroplane certification level established based upon risk-based criteria; the method of defining an ATC applicable to this practice is defined in Specification F3061/F3061M.”
ASTM F3230-17 Section 4 Example	FAA Section 4 Example “Example—An aircraft with an ATC of 1SRLLDLN is being considered. Since all applicable columns are empty for 4.1, that subsection is applicable to the aircraft. Since the "1" aeroplane certification level column, the "L" stall speed column, and the "D" meteorological column for 4.2.1 all contain white circles, then that subsection is not applicable; however, for an aircraft with an ATC of 1SRMLDLN, 4.2.1 would be applicable since the "M" stall speed column does not contain a white circle.”
ASTM F3230-17 Table 1 Column header “Airworthiness Level”	FAA Table 1 Column header “Aeroplane Certification Level”
ASTM F3230-17 Table 3 Column header “Airworthiness Level”	FAA Table 3 Column header “Aeroplane Certification Level”

23.2505: ASTM F3264-19, section 9.2, combined with the following changes:

1. Delete ASTM F3264-19, section 9.2.1.1(a)
2. Delete ASTM F3264-19, section 9.2.1.4

23.2510: ASTM F3264-19, section 9.3, combined with the following changes:

1. Delete ASTM F3264-19, section 9.3.1.2
2. As shown in the following table:

Replace:	With:
ASTM F3230-17 Section 3.2.1	FAA Section 3.2.1 “aircraft type code, n—an Aircraft Type Code (ATC) is defined by considering both the technical considerations regarding the design of the aircraft and the aeroplane certification level established based upon risk-based criteria; the method of defining an ATC applicable to this practice is defined in Specification F3061/F3061M.”
ASTM F3230-17 Section 4 Example	FAA Section 4 Example “Example—An aircraft with an ATC of 1SRLLDLN is being considered. Since all applicable columns are empty for 4.1, that subsection is applicable to the aircraft. Since the "1" aeroplane certification level column, the "L" stall speed column, and the "D" meteorological column for 4.2.1 all contain white circles, then that subsection is not applicable; however, for an aircraft with an ATC of 1SRMLDLN, 4.2.1 would be applicable since the "M" stall speed column does not contain a white circle.”
ASTM F3230-17 Table 1 Column header “Airworthiness Level”	FAA Table 1 Column header “Aeroplane Certification Level”
ASTM F3230-17 Table 3 Column header “Airworthiness Level”	FAA Table 3 Column header “Aeroplane Certification Level”

23.2515: ASTM F3264-19, section 9.4

23.2520: ASTM F3264-19, section 9.5, combined with the changes in the following table:

Replace:	With:
ASTM F3236-17 Table 2 entry 400 to 700 Mhz frequency range field strength average value: “100 volts/meter”	FAA Table 2 entry 400 to 700 Mhz frequency range field strength average value: “50 volts/meter”
ASTM F3236-17 Section 4.2.3.3	FAA Section 4.2.3.3 “From 40 to 400 MHz, use conducted susceptibility tests, starting at a minimum of 30 mA at 40 MHz, decreasing 20 dB per frequency decade to a minimum of 3 mA at 400 MHz.”

23.2525: ASTM F3264-19, section 9.6, except delete ASTM F3264-19, section 9.6.2.3

23.2530: ASTM F3264-19, section 9.7

23.2535: ASTM F3264-19, section 9.8, except delete ASTM F3264-19, section 9.8.1

23.2540: ASTM F3264-19, section 9.9

23.2545: ASTM F3264-19, section 9.10

23.2550: ASTM F3264-19, section 9.11

Subpart G—Flightcrew Interface and Other Information

23.2600: ASTM F3264-19, section 10.1, combined with the following changes:

1. Add an FAA-accepted means of compliance for the windshield luminous transmittance aspects of § 23.2600, such as the provisions of § 23.775(e), amendment 23-49.
2. Add an FAA-accepted means of compliance for the pilot compartment view with formation of fog or frost aspects of § 23.2600, such as the provisions of § 23.773(b), amendment 23-45.

23.2605: ASTM F3264-19, section 10.2

23.2610: ASTM F3264-19, section 10.3

23.2615: ASTM F3264-19, section 10.4, combined with the changes in the following table:

Replace:	With:
ASTM F3064/F3064M-19, Section 6	An FAA-accepted means of compliance for the powerplant instruments aspects of § 23.2615, such as the provisions of § 23.1305, amendment 23-52.

23.2620: ASTM F3264-19, sections 5.15 AND 10.5

EDITORIAL, REAPPROVAL, REVISION OR WITHDRAWAL: The FAA expects a suitable consensus standard to be reviewed periodically. ASTM policy is that a consensus standard should be reviewed in its entirety by the responsible subcommittee and must be balloted for reapproval, revision, or withdrawal, within five years of its last approval date. ASTM reapproves a standard—denoted by the year of reapproval in parentheses (e.g., F2427-05a(2013))—to indicate completion of a review cycle with no technical changes made to the standard. ASTM issues editorial changes—denoted by a superscript epsilon in the standard designation (e.g., F3235-17^{ε1})—to correct information

that does not change the meaning or intent of a standard. Any means of compliance accepted by this notice that is based on a standard later reapproved or editorially changed is also considered accepted without the need for a NOA. ASTM revises a standard to make changes to its technical content. Revisions to consensus standards serving as the basis for means of compliance accepted by this notice will not be automatically accepted and will require further FAA acceptance in order for the revisions to be an accepted means of compliance.

AVAILABILITY

ASTM Standard F3264-19, “Standard Specification for Normal Category Aeroplanes Certification,” is available for online reading at <https://www.astm.org/READINGLIBRARY/>. ASTM International copyrights these consensus standards and charges the public a fee for service. Individual downloads or reprints of a standard (single or multiple copies, or special compilations and other related technical information) may be obtained through www.astm.org or contacting ASTM at (610) 832-9585 (phone), (610) 832-9555 (fax), or through service@astm.org (email). To inquire about consensus standard content and/or membership or about ASTM Offices abroad, contact Joe Koury, Staff Manager for Committee F44 on General Aviation Aircraft: (610) 832-9804, jkoury@astm.org.

The FAA maintains a list of accepted means of compliance on the FAA website at https://www.faa.gov/aircraft/air_cert/design_approvals/small_airplanes/small_airplanes_regs/.

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Policy and Innovation Division

Aircraft Certification Service

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