Comment Disposition
AC 25-17A, Transport Airplane Cabin Interiors Crashworthiness Handbook

Published for Comment 3/15/2006, Comment Period Closed 5/1/2006
(71 FR 13444)

GENERAL COMMENTS:

1. Weber Aircraft:

Weber stated that the draft AC was well organized and they believe it will be a valuable guidance for industry and FAA.

FAA comment: We concur with the comment.

2. Transport Canada:

Transport Canada agreed with the Federal Aviation Administration (FAA) regarding the re-formatting of the document and believe it would be helpful, and that it would improve consistency in the application of the guidance material.

FAA comment: We concur with the comment.

3. Boeing:

Boeing recommended that the pertinent rule section be repeated at the top of each page.

FAA comment: We concur with the comment; however, this is not allowed by the regulations controlling the format of Advisory Circulars (AC). The AC remains as proposed.

SPECIFIC COMMENTS:

4. Weber Aircraft and Gulfstream:

Section 25.561, Emergency Landing Conditions General, § 25.561(d) Amendment 25-64 – the commenters stated that AC 25.562-1B should be referenced rather than AC 25.652-1A.

FAA comment: The FAA agrees with the comment to reference AC 25.562-1B and the AC will be revised. At the time of publication of draft AC 25-17A, AC 25.562-1B had not been issued.

All locations: paragraphs 13, 14, 22, 86, 87, 88, Appendix 3, and Appendix 6

5. Weber Aircraft:

Section 25.561, Emergency Landing Conditions General, § 25.561(d) Amendment 25-64 – the commenter recommended that policy below be rewritten for clarification. They recommend that "load sharing need not be considered between an article under § 25.561 and an article under § 25.562."

> Deformations and load sharing between § 25.561 and § 25.562 (9g to 16g & 16g to 9g) need not be considered.

FAA comment: The FAA agrees with the comment. The guidance will be rewritten as follows:

> Deformations and possible load sharing between articles need only be considered for a common load case (e.g., 9g to 9g & 16g to 16g). The dynamic deflections of seats in particular do not have to be considered in conjunction with the static deflections of other articles when assessing possible load sharing. That is, when a seat substantiated under § 25.562 has interaction with another article substantiated under § 25.561, the assessment of load sharing is done using the § 25.561 deflections/reactions for both articles.

All locations: paragraphs 13, and 14

6. Boeing:

Section 25.561, Emergency Landing Conditions General, § 25.561(d) Amendment 25-64 – the commenter recommended that the policy below be rewritten for clarification as follows:

> The permanent deformations of items of mass, such as galleys and closets, located near exits should not interfere with the opening of those exits. Also, shared loading (loads imposed by the deformation of one furnishing onto an adjacent furnishing) between adjacent items of mass should be considered when determining maximum deformations. **Seat allowable encroachment into required aisles and passageways under permanent deformation are defined in** AC 25.562-1A, Appendix 2 ~~for policy concerning seat deformations~~ for both §§ 25.561(d) and 25.562(c)(8). **These same encroachments should be followed for monument permanent deformations into required aisles and passageways.** Deformations and load sharing between § 25.561 and § 25.562 (9g to 16 G & 16g to 9g) need not be considered.

FAA comment: The commenter's first proposed change limits the scope of the policy to aisle and passageways under permanent deformation; whereas the policy addresses all forward, rearward, and sideward deformations. The intent of the policy is to address deformations in all directions. The AC remains as proposed. The second change the commenter proposed was to apply the AC 25.562-1A seat deformations limits to monument deformations limits. This is beyond the scope of that AC. The AC remains as proposed.

7. Boeing:

Section 25.561, Emergency Landing Conditions General, and § 25.561(d) Amendment 25-64 – the commenter recommended that the policy below be rewritten to include reference to the load sharing requirements of § 25.301.

> Deformations and load sharing between § 25.561 and § 25.562 (9g to 16 G & 16g to 9g) need not be considered.

FAA comment: The guidance as proposed by the FAA was the result of incorrect and inconsistent application of the requirements in the field. The guidance is intended to clarify which deformations and possible load sharing cases need to be considered during certification. One example of the incorrect application was the deformation of a seat under § 25.562 loading contacting a galley, and that loading was required to be considered in the static loading case for the galley. The proposed addition of a reference to § 25.301 does not provide any additional clarification of the guidance. The AC remains as proposed.

8. Weber Aircraft:

Section 25.561, Emergency Landing Conditions General, and § 25.561(d) Amendment 25-64 – the commenter is concerned the reference to the use of AC 25.562-1B, Appendix 2 for guidance for seat deformations for § 25.561(d) could be confusing because the guidance does not identify which of the deformations are applicable to static testing. For example, the "C/B" ratio not used for static testing and is only intended for dynamic test testing (§ 25.562(c)(8)).

FAA comment: The FAA agrees with the comment. The guidance will be rewritten as follows:

> See AC 25.562-1B dated 1/10/2006, Appendix 2 for policy concerning seat deformations for both §§ 25.561(d) and 25.562(c)(8). For § 25.561(d) only the forward, rearward, and sideward deformations are applicable.

All locations: paragraphs 13 and 14

9. Weber Aircraft:

Section 25.561, Emergency Landing Conditions General, § 25.561(d) Amendment 25-64 – the commenter is concerned that there is a lack of standardization on the application of production part manufacturing tolerances being added to static and dynamic deformation measurements for determining installation limitations.

FAA comment: We agree with the commenter. When conducting the certification testing, the test is conducted with a seat that conforms to the design drawing for the seat. The deformation measurements are a delta measurement (pre-test vs. post test measurements) and the tolerance on the seat design does not need to be considered. However, when determining the compliance with the regulations for the seats installed in the airplane the following basic approach applies: all resulting configurations from all of the conforming parts need to result in compliant configurations. In other words, the conforming production tolerances need to be considered for deformations. This basic approach is applicable to all parts in the airplane and is a standard industry practice. The AC remains as proposed.

10. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, and § 25.785(a) and (c) Amendment 25-0 – the commenter recommended that the policy be revised to reference the three methods of head injury protection as follows:

The types of tests that are conducted for blunt trauma assessments are dependant on the certification basis of the airplane. Typically, airplanes which do not have § 25.562(c)(5) in their certification basis, must still comply with the more general occupant protection requirements of §§ 25.785(a) and (c). Section 25.785(a) ~~and (c~~requires that a seat be designed so that an occupant would not suffer "serious injury" in an emergency landing**. Section 25.785 (c) outlines three methods of head injury protection for occupants seated in a forward or aft facing seat, one of which is the elimination of** ~~and that~~ injurious objects within the striking radius of the head ~~be eliminated.~~

FAA comment: The commenter proposes revising this policy to include reference to the three current methods of compliance for § 25.785(c). All of the methods of compliance are already discussed in the guidance for § 25.785(c) in this AC. This paragraph already has a reference that compliance with §§ 25.785(a) and (c) is required. This states that additional regulations need to be addressed. When the AC refers to those sections, the additional guidance is provided. Also, adding these types of additional references would increase the size of this AC. The AC remains as proposed.

11. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(a) and (c) Amendment 25-0 – the commenter recommended that the policy be revised to eliminate the policy addressing the case when the accessory is more rigid than the surrogate part.

They contended that overall severity of the headstrike with the more rigid accessory would be negligible compared to the headstrike with the surrogate part.

The FAA has determined that it is acceptable to use a surrogate test article made of 6061-T4 aluminum which meets the criteria below in lieu of an accessory for demonstrating compliance with §§ 25.785(a) and (c) for blunt trauma assessments. ~~An exception to the use of the surrogate test article occurs when the accessory is more rigid (deflects less and absorbs less energy during impact) than the plate defined in this AC. In that case, the accessory should be used in the test(s) and not a surrogate test article.~~

FAA comment: The policy is intended to address all cases. The commenter did not provide any data to deem the effect negligible. In some cases the effect maybe negligible and that section may not be applicable. However, there may be some cases where the effect should be considered and that section of the policy would be applicable. The intent of the policy is to provide general applicable guidance. The AC remains as proposed.

12. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(a) and (c) Amendment 25-0 – the commenter recommended that the policy be revised to change the exposed surface of the accessory guidance as follows:

> The exposed surface of the surrogate part that will be impacted should be flat. That is, it is not required to have the contour of the accessory's exposed surface represented by the surrogate part. Note that this is based on typical accessory installations which are essentially mounted flush with the seatback and have a generally homogeneous contact area. ~~Small variations in the surface due to the contour of plastic parts may be ignored. Designs that differ from this (e.g., a design with an exposed structural protrusion) might require the exposed surface of the actual part to be represented in order to adequately assess head injury potential.~~ **Where the accessory's exposed surface has features that could significantly affect the impact of the headform on the seatback (such as large structural protrusions), those features must be represented by the surrogate part.**

FAA comment: The proposed change uses terms such as "significantly affect the impact" and "large structural protrusions" that would allow larger variations to the surface that were not envisioned by the policy. This change would require additional consideration and data before the FAA could consider the change. Therefore, the proposed change is beyond the scope of this revision to the AC. The AC remains as proposed.

13. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(a) and (c) Amendment 25-0 – the commenter recommended that the policy be revised to add the word nominal when referring to the thickness of the surrogate part.

> A surrogate part made of a material and thickness other than 6061-T4 aluminum in a **nominal** thickness of 0.25-inch may be used if an FAA Aircraft Certification Office finds that it is at least as rigid.

FAA comment: The FAA agrees with the comment and has added the word "nominal" where appropriate.

All locations: paragraphs 81, 82, 83, 84, 85, 86, 87, and 88

14. Weber Aircraft:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c) Amendment 25-0 – the commenter requested that the term "injurious object" be defined. They recommend the ARAC Task 3 be used for this purpose.

FAA comment: The FAA is currently working a separate policy statement on "injurious object" that may be published separately from this AC at a later date.

15. Weber Aircraft:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c) Amendment 25-0 – the commenter requested that analysis be added to the Policy Statement on Use of Surrogate Parts When Evaluating Seatbacks and Seatback Mounted Accessories for Compliance with §§ 25.562(c)(5) and 25.785(b) and (d) specifically in the paragraph below after the tests in the second sentence.

> In many row-to-row seat configurations, seatback mounted accessories are installed within the head paths of forward facing seated occupants. In order to demonstrate compliance with the aforementioned requirements, tests are conducted to assess the injury potential of these seatbacks and accessories. This policy only addresses head injury caused by blunt trauma. It does not address parts that become loose or sharp projections that are formed that may be injurious to a seated occupant during a head impact.

FAA comment: The policy is based on the need to conduct a test to demonstrate compliance with §§ 25.562(c)(5) and 25.785(b) and (d) and the policy provides a method to demonstrate compliance by using surrogate parts. Therefore, if the policy provided the addition of analysis, it would not appropriate. However, this does not preclude the use of analysis for demonstrating compliance for seatbacks and seatback mounted accessories outside of the surrogate part testing. The AC remains as proposed.

16. Weber Aircraft and Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c) Amendment 25-0 – the commenter requested that FAA policy memo ANM-03-115-31 be added as a reference to this AC.

FAA comment: The FAA agrees that FAA policy memo ANM-03-115-31, "Policy Statement on Conducting Component Level Tests to Demonstrate Compliance with §§ 25.785(b) and (d)" dated May 9, 2005, should be added as a reference. This policy memo was released after the cut off date for inclusion in the draft AC that was published for comment. Since the policy statement has been through the public comment period, it can be added to the final version of the AC without any additional comment period. The policy memo is included in Appendix 13 of the AC.

All locations: paragraphs 81, 82, 83, 84, 85, 86, 87, and 88

17. Weber Aircraft and Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c) Amendment 25-0 – the commenter recommended using the guidance provided by the Seattle Aircraft Certification Office (SACO) to an applicant concerning the measurement of the headstrike zone to extend between the inner surfaces of the armrests in place of the guidance provided in AC 25-17. In AC 25-17 the headstrike zone extends between the centerline of the armrests.

FAA comment: The rationale for the FAA position that the headstrike zone extend between the centerline of the armrests is included in the FAA policy 02-115-15 "New Policy with respect to compliance with § 25.785(d), Amendment 25-88, for certification of passenger seat armrests." The policy memorandum does identify a letter from the SACO to Boeing stating that the head strike zone is between the inside of the armrest BUT this is not FAA policy. That policy statement (number 02-115-15) has already addressed the commenter's request in the disposition of comments to that policy statement. The AC remains as proposed.

18. Weber Aircraft and Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c) Amendment 25-0 – the commenter identified a typographic error in the reference to the FAA policy 02-115-15 "New Policy with respect to compliance with § 25.785(d), Amendment 25-88, for certification of passenger seat armrests." The AC states 02-115-5 rather than 02-115-15.

FAA comment: The FAA agrees with the comment and will correct the typographical error.

All locations: paragraphs 81, 82, 83, 84, 85, 86, 87, and 88

19. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c)(2) Amendment 25-0 – the commenter contended that there is confusion concerning the guidance provided in FAA policy memorandum 02-115-15 and the width of the headstrike zone. Also, they recommended the entire policy for FAA policy memorandum 02-115-15 be included in the AC.

FAA comment: The policy for width of the head strike zone in this AC has not changed and has always been the centerline of the armrest. The policy memorandum does identify a letter from the Seattle Aircraft Certification Office (SACO) to Boeing stating that the head strike zone is between the inside of the armrest BUT this is not FAA policy. The FAA agrees that all of the new policy provided in the FAA policy memorandum 02-115-15 should be included in the AC. It was already included in the AC as drafted with minor wording changes to address the format of the AC. The rationale for the FAA position that the headstrike zone extends between the centerline of the armrests was included in the FAA policy 02-115-15 "New Policy with respect to compliance with § 25.785(d), Amendment 25-88, for certification of passenger seat armrests." That policy statement already addresses the commenter's request in the disposition of comments to that policy statement. No other changes are made to this AC.

20. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c)(2) Amendment 25-0 – the commenter recommended the guidance concerning the pointed corners or sharp edges be deleted from the policy because it is their position that it is not applicable to the requirement. Alternatively, if this guidance is applicable, it should be clarified to remove subjectivity by noting that the pointed corner/sharp edge evaluation is done pretest and some criteria given to determine what is "pointed" and what is "sharp".

FAA comment: The FAA is currently working on a separate guidance memo on "injurious objects" that may be published separately from this AC at a later date. The AC remains as proposed.

21. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c)(2) Amendment 25-0 – the commenter recommended that the guidance be rewritten as shown below to avoid confusion for when delethalization is required. They also stated that the rewrite would be consistent with the original intent of the guidance.

> Armrests that are offset can be within the headstrike path of an occupant to the rear. Armrests **that fall within the 35 inch headstrike path** should be delethalized if**: A)** they are **bounded on both sides of the armrest by the seat back and** offset more than 2-inches from the armrests of the seat to the rear, or **B)** if there is an additional (exposed) seat in the row behind it, such that the forward armrest is bounded on one side only. Armrests that are bounded only

on one side and not offset from the armrest of the seat in the rear need not be ~~padded~~ **delethalized**.

FAA comment: The FAA partially agrees with the commenter. The addition of "that fall within the 35" headstrike path" is not needed, because it is already stated in the rule that we are addressing items within the striking radius of the head. We do agree with the change in language of "are bounded on both sides of the armrest by the seat back" and the other changes to this part of the guidance. The regulatory text states "…protected from head injury by" and "…elimination of any injurious object within the striking radius of the head" while the guidance uses the term "delethalized," which only technically addresses the most severe case. The guidance is rewritten as follows to address the requirement in the regulation.

Armrests that are offset can be within the headstrike path of an occupant to the rear. Armrests **within the striking radius of the head that are: A) bounded on both sides of the armrest by seat backs** ~~should be delethalized if they~~ **and** are offset more than 2-inches from the armrests of the seat to the rear, or **B)** ~~if there is~~ **forward of** an additional (exposed) seat in the row behind it, such that the forward armrest is bounded on one side only **are considered to be injurious objects**. **The head must be protected from these injurious objects by some additional means such as padding.** Armrests that are bounded only on one side and not offset from the armrest of the seat in the rear **are not considered to be injurious objects** ~~need not be padded~~. "

All locations: paragraphs 81, 82, 83, 84, 85, 86, 87, and 88

22. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c)(2) Amendment 25-0 – the commenter recommended that the statement of policy in memorandum 02-115-15 is an acceptable method of compliance in lieu of paragraph (6)(ii) when used to demonstrate compliance with § 25.785(c)(2) but is not the required method of compliance.

FAA comment: The FAA agrees with the comment that guidance provided in memorandum 02-115-15 is an acceptable method of compliance for § 25.785(c)(2). The purpose of the AC is to provide acceptable certification methods of compliance, but not necessarily the only acceptable methods. Therefore, the addition of the statement "…but is not the required method of compliance…" does not need to be added. The AC remains as proposed.

23. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c)(2) Amendment 25-0 – the commenter identified that the references in paragraph 81b(7)(iv)(A) to the

paragraphs 81b(3) and 81b(5) are not correct. They should be paragraphs 81b(4) and 81b(6).

FAA comment: The FAA agrees with the comment and will make the change. In the final version they are changed to paragraphs 81b(5) and 81b(7).

All locations: paragraphs 81, 82, 83, 84, 85, 86, 87, and 88

24. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c)(2) Amendment 25-0 – the commenter recommended that the guidance in paragraphs 81b(7)(iv)(E) and (F) be rewritten by replacing the word padding with delethalization.

FAA comment: In review of the regulation, the text states "…protected from head injury by" and "…elimination of any injurious object within the striking radius of the head." The commenter's proposed change from padding to "delethalized" would technically only address the most severe case and would not address the injury cases. The AC remains as proposed.

25. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c)(2) Amendment 25-0 – the commenter identified that the reference in paragraph 81b(7)(iv)(G) to paragraph 81b(3) is not correct. It should be paragraph 81b(4).

FAA comment: The FAA agrees with the comment and will make the change. In the final version it is changed to paragraph 81b(5). Based on other comments received to the draft AC, paragraph 81b(7)(iv)(G) has been deleted from the final version of the AC.

All locations: paragraphs 81, 82, 83, 84, 85, 86, 87, and 88

26. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c)(2) Amendment 25-0 – the commenter proposed that the following sentence be added to the guidance provided in paragraph 81b(7)(iv)(H)

> This guidance may be used in lieu of guidance in paragraph 81(b)(6) *(or 7 in subsequent amendments)* for finding compliance.

FAA comment: The commenter proposed that this language needed to be added at this location for clarification. The purpose of the AC is to provide acceptable certification methods of compliance, but not necessarily the only acceptable methods. This paragraph

as written does provide additional guidance that is an acceptable method of compliance for § 25.785(c)(2). The AC remains as proposed.

27. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c)(2) Amendments 25-0 – the commenter proposed that the guidance provided in paragraph 81b(10) be rewritten as follows:

> Flight attendant seats that are provided for the airplane configuration should be installed near the approved floor level emergency exits. This should not be interpreted as a requirement to install flight attendant seats at each floor level exit. "Near" is defined in AC 25.785-1A.

FAA comment: The FAA agrees with the comment and will make the change. In the final version this paragraph is changed to 81b(11).

All locations: paragraphs 81, 82, 83, 84, 85, 86, 87, and 88

28. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(c)(2) Amendment 25-15 – the commenter contended that Ensolite Type AH does not provide the energy absorbing properties as originally thought and should be removed.

FAA comment: The FAA has requested that the commenter submit data to support this position. At this time they have not submitted any data to support this position. Therefore, the FAA does not have any data to support the removal of long standing guidance accepting Ensolite Type AH. The AC remains as proposed.

29. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(a) Amendment 25-64 – the commenter proposed some wording changes as follows:

> For this reason, simply showing that an object is outside the headstrike envelope produced in a dynamic test in accordance with § 25.562 ~~is~~ **may** not **be** sufficient to show compliance with § 25.785(a).

FAA comment: All of the inertia loads/directions of § 25.561 need to be addressed when demonstrating compliance with § 25.785(a). Just considering the § 25.562(b) test case does not address all of the inertia loads/directions of § 25.561. Therefore, just considering the § 25.562 loading case is not sufficient. The AC remains as proposed.

30. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(a) Amendment 25-64 – the commenter proposed some wording changes as follows:

> Paragraph 86b(4) states:
>
> "(4) Note that a conservative representation of the attachment hardware for determining HIC may not adequately represent the attachment hardware for substantiating it to § 25.562 loads. However, if the attachment hardware is adequately represented for substantiating it to § 25.562 loads, a test using a surrogate part ~~may also be used~~ **is sufficient** to demonstrate that the attachment hardware will retain the actual accessory under § 25.562 loads.

FAA comment: The existing wording provides the ability to use the testing for demonstrating compliance. The proposed wording change is not needed. The AC remains as proposed.

31. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(j) Amendment 25-88 – the commenter proposed that additional guidance be included in the AC as follows:

> Only headrests that travel 3"or greater above the seat back should be evaluated as a handhold. A headrest with 25 lbs resistance could rotate in the forward direction and could allow ears to travel to 45 degrees from the vertical plane with less resistance. A headrest limited to 30 degrees of rotation in the forward direction, and 30 degrees of rotation for the ears would have no resistance requirement.

FAA comment: The proposed new guidance may have some merit but it has not been through the public process for policy; therefore, it will not be included in this AC. An applicant may, however, propose this approach as part of their method of compliance. The AC remains as proposed.

32. Boeing:

Section 25.785, Seats, Berths, Safety Belts, and Harnesses, § 25.785(j) Amendment 25-88 – the commenter proposed that additional guidance be included in the AC as follows:

> When handholds on either side of the aisle are staggered, the handhold distance measurement may be taken as parallel to the airplane centerline provided the width of the aisle is judged narrow enough to allow persons to reach both the left or the right handhold while standing in the aisle. Thus allowing a seat pitch greater than 65

inches, but still providing handholds spaced no greater than 65 inches (on alternating sides of the aisle.)

FAA comment: The proposed new guidance may have some merit but it has not been through the public process for policy; therefore, it will not be included in this AC. An applicant may, however, propose this approach as part of their method of compliance. The AC remains as proposed.

33. Boeing:

Section 25.787, Stowage Compartments, § 25.787 Amendment 25-0 – the commenter proposed that the method of compliance found in SACO letter 91-120S-525, § 25.787 Stowage Compartment Completely Enclosed Requirement Guidance, dated 6/24/92 be included in the AC as FAA policy. Below is the text of the referenced letter:

a. That the completely enclosed requirement was not intended to apply to seat back pockets, literature pockets or small magazine racks, but applies to all equipment compartments.
b. That a gap of 0.125 inch or less around the compartment door/drawer for operation of the compartment and manufacturing is acceptable.
c. Galley carts, meal boxes, and tray carriers with their own doors are considered to be the enclosure. Therefore, if a stowage area in a galley does not have a door installed, however the galley cart, meal carrier, or tray carrier that is installed in that stowage area does have a door, the compartment is considered to be completely enclosed.
d. Fixed items such as ovens, coffee makers, and video equipment need not be installed in enclosed compartments.
e. Emergency equipment is not required to be stowed in a compartment. If emergency equipment is installed in a compartment, it must be completely enclosed. However, if emergency equipment is installed in overhead compartments (stowage bins) these compartments need not be completely enclosed but, the equipment must be restrained to the loads in § 25.561 for the airplane. The overhead compartments (stowage bins) for passenger convenience are exempted from the rule. When these overhead compartments are used for stowage of emergency equipment no changes need to be made to make them completely enclosed.
f. Stowage compartments dedicated for folding trolleys need not be completely enclosed. Dedicated for this application means that the stowage area must be limited by placarding to only the folding trolley.
g. Closets and other stowage units that are installed against the airplane sidewall may have a gap of up to one inch between the unit and the sidewall and still be considered enclosed.

h. Stowage compartments with sliding doors that can be mislatched that result in a gap greater than 0.125 inch are not considered completely enclosed.

FAA comment: The referenced SACO method of compliance may have some merit as policy but it has not been through the public process for policy; therefore, it will not be included in this AC. An applicant may, however, propose this approach as part of their method of compliance. The AC remains as proposed.

34. Boeing:

Section 25.787, Stowage Compartments, § 25.787 Amendment 25-0 – the commenter proposed that the method of compliance accepted by the SACO that established that galley compartment doors and galley inserts doors that do not exceed a max deflection of 2.0" at ultimate load are acceptable be included in the AC as FAA policy.

FAA comment: The referenced SACO method of compliance may have some merit as policy but it has not been through the public process for policy; therefore, it will not be included in this AC. An applicant may, however, propose this approach as part of their method of compliance. The AC remains as proposed.

35. Boeing:

Section 25.787, Stowage Compartments, § 25.787 Amendment 25-0 – the commenter proposed changing the wording of the guidance as follows:

Compartments placarded 'No stowage' ~~need not have a weight limit placard~~ **are acceptable with and without a weight limit placard installed**.

FAA comment: The guidance as written does allow "No stowage" compartments without a weight limit placard but does note the preference is to have the weight limit placard. The AC remains as proposed.

36. Boeing:

Section 25.787, Stowage Compartments, § 25.787 Amendment 25-0 – the commenter proposed that the method of compliance (documented in CPR2-25.787-1) accepted by the SACO that established guidance for weight limit placarding be included in the AC as FAA policy.

Below is the text of CPR2-25.787-1:

Weight limit placards may be omitted on dedicated stowage compartments, except galley inserts (e.g. carts, standard carriers, ovens, coffee makers, etc.) provided compartment usage is placarded. (e.g. emergency equipment, wheel chairs, folding trolleys)

FAA comment: The referenced SACO method of compliance may have some merit as policy but it has not been through the public process for policy; therefore, it will not be included in this AC. An applicant may, however, propose this approach as part of their method of compliance. The AC remains as proposed.

37. Embraer:

Section 25.787, Stowage Compartments, § 25.787(a) Amendment 25-32 – the commenter proposed that stowage compartments within the passenger compartment that are limited to "CREW ONLY" not be required to comply with the completely enclosed requirement. They propose the tiedown straps or webbing (with or without curtain) be acceptable.

FAA comment: The tiedown straps or webbing (with or without curtain) may not retain all of the items. Items smaller than the webbing for example may not be retained by the webbing, therefore, they would not be retained. The AC remains as proposed.

38. Boeing:

Section 25.789, Retention of Items of Mass, § 25.789(a) Amendment 25-32 – the commenter proposed that the policy included in FAA policy memo ANM-115-05-001, "Policy Statement on the Installation of "No Stowage" Placards on Surfaces Not Designed or Intended to be Used for Stowage" be include in the AC.

FAA comment: The FAA agrees that FAA policy memo ANM-115-05-001, "Policy Statement on the Installation of 'No Stowage' Placards on Surfaces Not Designed or Intended to be Used for Stowage" dated October 28, 2004, should be added as a reference. This policy memo was release after the cut off date for inclusion in the draft AC that was published for comment. Since the policy statement has been through the public comment period it can be added to the final version of the AC without any additional comment period. The policy memo is included in Appendix 14 of the AC

All locations: paragraph 122 and 123

39. Boeing:

Section 25.789, Retention of Items of Mass, § 25.789(a) Amendment 25-32 – the commenter proposed that the method of compliance (documented in CPR2-25.789-3) accepted by the SACO that established guidance for completely enclosed compartments be included in the AC as FAA policy.

Below is the text of CPR2-25.789-3:

> The "maximum allowable total galley compartment gap" for carts and containers in order to limit transient stresses in compartment configurations with gaps as follows:
>
> For all installations of carts and carrier units (excepted as noted below) the maximum allowable gap is 0.75 inch.

> Unique to compartments designed to accommodate both full and half carts, the maximum allowable gap is 1.25 inch.

FAA comment: The referenced SACO method of compliance may have some merit as policy but it has not been through the public process for policy therefore, it will not be included in this AC. An applicant may, however, propose this approach as part of their method of compliance. The AC remains as proposed.

40. Boeing:

Section 25.791, Passenger Information Signs, § 25.791 Amendment 25-32 – the commenter is concerned with the addition of the word 'read' in the guidance and the limitation of not allowing the head to be rotated backwards (tilted) as follows:

> To read the sign, the head may be moved about to normal positions, but not rotated backwards (tilted).

The commenter proposed the following revised wording of the guidance:

> To observe the sign, the head may be moved about using normal side to side and up and down movements without movement of the trunk of the body.

FAA comment: The regulation requires that the sign be legible, i.e., capable of being read. "Observing" the sign only indicates that the sign is noticed, not necessarily capable of being read. Therefore that proposal is not adopted. With respect to the proposal to allow the head to be tilted up and down, the FAA does not consider this motion to be in the normal visual range of the seated passenger. Therefore, that proposal is also not adopted. The AC remains as proposed.

41. KLM Airlines:

Section 25.791, Passenger Information Signs, § 25.791 Amendment 25-32 and § 25.853, Compartment Interiors, § 25.853(c) Amendment 25-0 – the commenter is concerned that the guidance provided for § 25.853(c) concerning the hardwiring on lighted "no smoking" signs is confusing when § 25.791 requires the signs be able to be turned on and off.

FAA comment: The FAA agrees with the comment and is currently working on a revision to this guidance and may publish the revised guidance in a separate policy memorandum at a later date. The AC remains as proposed.

42. Embraer:

Section 25.791, Passenger Information Signs, § 25.791 Amendment 25-32 – the commenter questioned if the evaluation should be conducted with 5^{th} percentile female to 95^{th} percentile male occupants or if testing the two extremes would be acceptable.

FAA comment: The FAA agrees that in most cases an evaluation using only the 5th percentile female and the 95th percentile male subjects will be acceptable. Nonetheless, the intent of the guidance is to ensure that the entire range of occupants between the two extremes can read the sign. It is up to the person doing the evaluation to ensure that no unusual design feature might block the sign from being read by someone inside the range, while allowing visibility at the extremes of the range. The AC remains as proposed.

43. Boeing:

Section 25.793, Floor Surfaces, § 25.793 Amendment 25-51 – the commenter recommended that the word minimum be added to the guidance for clarification that 0.45 or higher coefficient of friction is acceptable as follows:

> "… and provide an acceptable standard when a **minimum** dynamic coefficient of friction of 0.45 is measured."

FAA comment: The FAA agrees with the comment and will make the change as proposed.

All locations: paragraphs 162, 273, 274, 275, 276, 277, 372, and 373

44. Embraer:

Section 25.793, Floor Surfaces, § 25.793 Amendment 25-51 – the commenter stated that Military Specification Mil-W-5044C referenced in the guidance was cancelled many years ago and it is very difficult to find the specification. They recommend that either a new standard be found or the appropriate sections of the standard are included in the AC as an appendix.

FAA comment: The FAA has requested that the SAE S-9 consider accepting a new project to develop a new standard for slip resistant floor surfaces for both inside and outside the airplane. The AC remains as proposed.

45. Northwest Airlines:

Section 25.793, Floor Surfaces, § 25.793 Amendment 25-51 – the commenter stated that Military Specification Mil-W-5044C referenced in the guidance was cancelled in 1998 and is therefore no longer valid. They recommended that either it be removed from the AC, or state that a dynamic coefficient of friction of 0.45 is an acceptable measure for this section and § 25.803.

FAA comment: We agree that Military Specification Mil-W-5044C was cancelled but it is still a valid test specification. Also, listing a dynamic coefficient of friction without a specific test including the environmental conditions is not acceptable guidance because it is unknown what a dynamic coefficient of friction of 0.45 would mean. For example is that surface dry, wetted with water, or oiled? The AC remains as proposed.

46. Gulfstream:

Section 25.793, Floor Surfaces, § 25.793 Amendment 25-51 – the commenter stated that Military Specification Mil-W-5044C referenced in the guidance was cancelled in 1998 and recommend that we refer to Commercial Item Descriptions (CID) A-A-59166 and A-A-59124.

FAA comment: The FAA has requested that the SAE S-9 committee consider accepting a new project to develop a new standard for slip resistant floor surfaces for both inside and outside the airplane. The referenced CIDs were forwarded to the SAE S-9 committee for consideration. The AC remains as proposed.

47. Boeing:

Section 25.795, Security Considerations, § 25.795(a) Amendment 25-106 – the commenter recommended that we include the operating regulations requirements for the installation of flight deck doors in this AC.

FAA comment: The operating regulation requirements for the installation of flight deck doors should not be included in this AC because those operating rules can change and then the guidance in the AC would not be correct. It is better for the applicant to check the latest version of the operating rules when considering this regulation and guidance. The AC remains as proposed.

48. Boeing:

Section 25.795, Security Considerations, § 25.795(a)(2) Amendment 25-106 – the commenter recommended additional guidance concerning the type of .44 caliber bullet be included in this AC.

FAA comment: Including the additional guidance concerning the type of .44 caliber bullet in AC 25-17A is not appropriate since there is another AC, AC 25.795-2, specifically written for this subject. The AC remains as proposed.

49. KLM Airlines:

Section 25.803, Emergency Evacuation, § 25.803(a) Amendment 25-0 – the commenter raised concern with the guidance for retractable video monitors that hang from the ceiling in the main aisle or cross aisle area that when deployed are less than 73 inches above the floor. In these cases the guidance states the monitors should be placarded to be retracted during taxi, takeoff, and landing (TT&L). The commenter agrees with the takeoff, and landing part of the requirement but proposes that monitor could be deployed for part of the taxi out phase to allow the use of the monitors for the preflight safety briefings. The commenter stated there are some designs that automatically retract if the monitor is hit and some automatically retract when the briefing is completed or terminated. They would like to see some flexibility be provided for this requirement.

FAA comment: The FAA agrees with the comment that there are some designs that could be found acceptable for use during the taxi out phase. These could be approved via an equivalent level of safety finding or a method of compliance issue paper depending on their characteristics. The AC remains as proposed.

50. Boeing:

Section 25.803, Emergency Evacuation, § 25.803(a) Amendment 25-0 – the commenter recommended changing the term "passenger egress paths" to "main aisles or cross aisle" in several locations in the guidance. Also, the commenter proposed adding the following additional guidance:

> When installed above passenger exits, any features that hang (signs, video monitors etc.) from the ceiling or span across passenger exit (e.g., stowage bins, class dividers and curtain headers) should be at least the height of the exit unless they are retractable and are placarded to be retracted for taxi, takeoff and landing (TT&L) or are located outside the required passageway. (ex. Type III exits on 737 with stowage bins above passageway).

FAA comment: The term "passenger egress paths" is more general and covers more than the main aisle and cross aisle. However, the FAA agrees that the guidance could be improved and will change "passenger egress paths" to "passenger cabin egress paths" The additional guidance proposed by the commenter relating to the height of the exit may have some merit as policy; however, it has not been through the public process for policy. Therefore, it will not be included in this AC.

All Locations: Paragraphs 271, 272, 273, 274, 275, 276, 277, and 278

51. Gulfstream:

Section 25.803, Emergency Evacuation, § 25.803(a) Amendment 25-0 – the commenter raised concern with the guidance for items that hang from the ceiling in the main aisle or cross aisle area in smaller airplanes that the ceiling panels are less than 73 inches above the floor. They asked how far below the fuselage the ceiling panels (headliner) can be hung in the airplane. Also, they asked questions concerning the mid-cabin door headers that are below the 73 inch criteria.

FAA comment: At this time there is no minimum aisle height specified, however, this could be a consideration in the evacuation/approval of the evacuation capability of an airplane. With respect to the headers over mid-cabin doors, the FAA takes this to be a reference to interior cabin doors, which are prohibited between passenger compartments. While such doors may be installed if an exemption is granted, the FAA does not see the need to provide guidance for an installation prohibited by the regulations. The AC remains as proposed.

52. Boeing:

Section 25.807, Passenger Emergency Exits, § 25.807 Amendment 25-0 – the commenter recommended that an example needs to be provided for clarification to the following guidance:

> "(2) a pair need not be the two exits that are physically closest to each other."

FAA comment: The following guidance in paragraph 321b(4) of the AC provides an example of a pair of Type I and a pair of Type III exits for this:

> (4) Paragraph (c). An airplane with a pair of exits forward in the fuselage with the left one Type I sized and the right one Type III sized, and a pair of exits in the aft end of the fuselage with the left one Type III sized and the right one Type I sized may be approved for passenger seating capacities up to 79. If an emergency evacuation demonstration is required, then either the left-side or right-side exits should be selected so as not to unduly penalize this well-balanced arrangement or to make a radical departure from all previous demonstrations.

The AC remains as proposed.

53. Embraer:

Section 25.807, Passenger Emergency Exits, § 25.807(c)(8) Amendment 25-15 – the commenter requested that the approval method for deactivation be changed from Amended Type Certificate (ATC) to amendment to type certificate. The commenter states that an ATC creates a new airplane model.

FAA comment: The FAA agrees with commenter and will make the change to the text as follows.

> The modification which deactivates and obscures the exits must be approved through issuance of an amendment to the ~~Amended~~ Type Certificate (~~A~~TC) or Supplemental Type Certificate (STC) by the Manager, Aircraft Certification Office having jurisdiction over the project, and the airplane cabin, as modified, must remain in compliance with the certification basis of the model.

All locations: paragraphs 322, 323, 324, 325, 326, 327, 328, 329, and 330

54. Embraer:

Section 25.807, Passenger Emergency Exits, § 25.807(i) Amendment 25-94 – the commenter stated that there is no need to show evacuation capability for unplanned ditching when the passenger credit requested is below the ditching passenger credit for the exits available.

FAA comment: The applicant must demonstrate either by test or analysis that under probable water conditions the flotation time and trim of the airplane will allow the occupants to leave the airplane. The FAA has provided additional guidance in Appendix 12 of this AC. The AC remains as proposed.

55. Gulfstream:

Section 25.809, Emergency Exit Arrangement, § 25.809(b) Amendment 25-0 – the commenter recommended clarification if seats in the most adverse condition should include seat swivel and floor tracking of the seat. This is in the context of demonstrating the exit is openable when the seats adjacent to the exit are in the most adverse condition allowed for take-off and landing.

FAA comment: Yes, the seat adjacent to the exit should be in the most adverse position permitted by the design. This includes seat back recline, seat back breakover, seat rotation, seat tracking, etc. The FAA is also currently working a separate guidance memo for emergency exit egress for interior configurations of 19 passengers or less that may be published separately from this AC. The guidance in this AC is revised to read as follows:

When conducting the evaluation that an exit is openable from both inside and outside of the airplane, the adjacent seats must be positioned in the most adverse position of the seat including seat translation, seat rotation, seat back recline, seat back breakover, and seat tracking.

All locations: paragraphs 351, 352, 353, 354, 355, 356, 357, 358, and 359

56. Boeing:

Section 25.810, Emergency Egress Assist Means and Escape Routes, § 25.810(a)(1) Amendment 25-88 – the commenter pointed out a typographical error in the regulations text as printed in this AC as follows:

(1) ... in the case of Type A exits, it must be .."

This should read

(1) ... in the case of Type A or Type B exits, it must be ..

FAA comment: The FAA agrees with the comment and will make the change.

All locations: paragraph 373

57. Boeing:

Section 25.810, Emergency Egress Assist Means and Escape Routes, § 25.810(a)(1) Amendment 25-88 – the commenter recommended adding guidance defining the start of deployment. The definition of deployment used following the rule change at Amendment 25-88 has been based on Designated Engineering Representative (DER) conference discussions and ARAC committee review of § 25.810 and is provided as follows:

> Deployment, as first used in paragraph (a)(1)(i) of the proposed regulation is defined as the release of the assist means from its stored positions. For example if the assist means is a slide that is mounted on the inside of the passenger door, deployment starts when the slide is released from the door and falls free from the door.

FAA comment: The FAA has a regulatory project to revise § 25.810 to consider the ARAC recommendation to change the timing requirements for all non-type C exits. The additional guidance to address the current method of inflation timing does have some merit however, it has not been through the public process for the development of policy; therefore, it cannot be included in this AC. The AC remains as proposed.

58. Boeing:

Section 25.810, Emergency Egress Assist Means and Escape Routes, § 25.810(a)(1)(v) Amendment 25-88 – the commenter recommended adding guidance for the intent of the inertia loading portion of § 25.810(a)(1)(v) based on ARAC committee activity related to § 25.810 as follows:

> It is not required that each deployment in the repeatability [program] have an assist means that has been subjected to one for more of the inertia forces specified in § 25.561(b). The intent was that all of the inertia forces must be applied to an assist means that is used for the repeatability testing. It is acceptable to combine inertia forces specified into resultant vector forces in order to reduce the number of inertia loading tests. For example a test that combines the forward, downward and inward inertia forces specified in § 25.561 into a resultant forces would be acceptable. The remaining inertia forces would be combined into a second resultant vector inertia force that could be tested.

FAA comment: The FAA has a regulatory project to revise § 25.810 to consider the ARAC recommendation on this subject. The additional guidance to address the current regulations does have some merit; however, it has not been through the public process for the development of policy. Therefore, it cannot be included in this AC. The AC remains as proposed.

59. Boeing:

Section 25.810, Emergency Egress Assist Means and Escape Routes, § 25.810(a)(2) Amendment 25-88 – the commenter recommended providing guidance for the term "at or above the top of the emergency exit opening" as it applies to a top hatch.

FAA comment: The additional guidance to address the regulatory language "at or above the top of the emergency exit opening" does have some merit, however, it has not been through the public process for the development of policy. Therefore, it cannot be included in this AC. The AC remains as proposed.

60. Gulfstream:

Section 25.811, Emergency Exit marking, § 25.811(d) Amendment 25-32 – the commenter requested guidance concerning the possibility of a signal sign serving both the functions of §§ 25.811(d)(1) and (d)(3) for small airplanes.

FAA comment: The guidance is already provided in the AC starting with Amendment 25-32 as follows:

> (3) Paragraph (d). The signs required by paragraphs (d)(1), (2) and (3) are intended to be independent and serve different functions. However, certain cabin arrangements might permit a single sign to serve the functions of both paragraph (d)(1) and (3). If such an arrangement were presented, the sign should meet the contrast and brightness requirements of § 25.812(b)(1)(i) and should be in close proximity to the exits concerned. Compliance with both §§ 25.811(d)(1) and (3) is required regardless of the number of signs employed.

The AC remains as proposed.

61. Boeing:

Section 25.811, Emergency Exit marking, § 25.811(d), Amendment 25-32 – the commenter proposed some new guidance as follows:

> Evaluation of exit sign visibility should consider the range of occupants (5^{th} percentile female to 95^{th} percentile male) If the exit sign is partially blocked, the full text of the exit sign should be visible when moving laterally in the area between the nearest seat backs or moves one step in the direction of the exit sign.

FAA comment: The additional guidance to address the regulatory language "a sign be visible to occupants approaching along the main passenger aisle (or aisles)" does have some merit, however, it has not been through the public process for the development of policy. Therefore, it cannot be included in this AC. The AC remains as proposed.

62. Boeing:

Section 25.811, Emergency Exit marking, § 25.811(g) Amendment 25-32 – the commenter requested additional clarification for the use of the word "EXIT" versus "EMERGENCY EXIT." This especially relates to CAR 4b.362-5, which specifically differentiated between the two usages. The preamble to the Amendment 25-32 states that "the FAA considers that the word 'EXIT' is more appropriate." Guidance in this Advisory Circular would serve to eliminate confusion in the field as it relates to prior certification bases.

FAA comment: The guidance is already provided in the AC starting with Amendment 25-0 as follows:

> (2) Paragraph (g). The word "EXIT" may be used to mark all emergency exits in the airplane including emergency exits used solely for emergency evacuation of the airplane. The emergency exits used solely for emergency evacuation of the airplane may also use the words "EMERGENCY EXIT."

The AC remains as proposed.

63. Boeing:

Section 25.813, Emergency Exit Access, § 25.813(a) Amendment 25-0 – the commenter proposed new guidance concerning compartment doors with keyed locks as follows:

Compartment doors with keyed locks that may obstruct the required passageway or interfere with the opening of an emergency exit must meet one or more of the following criteria:

a. The compartment with a lock can be latched closed regardless of lock position
b. The compartment with a lock that allows the key to be removed without locking and can be closed and latched
c. For compartment doors with locks that can be locked with the door in the open position, but the door could not be locked in the open position without intentional action by someone using the key, do not need to be reviewed in the open position. If, however, the door would default or could be changed to the locked configuration without the use of a key and could not then be shut and latched, the compartment had to be reviewed for the following criteria.

    - All items stowed in the compartment must be able to be relocated to a secure position for TT &L.
    - The door, in the open position, must not become an impediment to evacuation.

> Note: compartments with keyed locks must not contain emergency equipment.

FAA comment: The additional guidance to address the compartment doors with keyed locks does have some merit, however, it has not been through the public process for the development of policy. Therefore, it cannot be included in this AC. The AC remains as proposed.

64. Boeing:

Section 25.813, Emergency Exit Access, § 25.813(a) Amendment 25-0 – the commenter requested that the following guidance be deleted or changed to directly address evacuation and include all the options provided in § 25.785(d).

> (E) Passenger Injuries and Head Strike Considerations. Regardless of handset usage for TT&L or the cord retraction mechanism type, all installations within the passenger head strike arc must exhibit acceptable head strike characteristic, i.e., § 25.562(a) and § 25.785(d)(2), Amendment 25-72, or § 25.785(c)(2), Amendment 25-64. If they fail to meet acceptable norms, they must be redesigned as appropriate.

FAA comment: The FAA inserted the entire policy memorandum 02-115-20, dated November 21, 2002, titled "Policy Statement on Corded Electrical Devices Used in the Passenger Cabin" in the AC at this point since the majority of the policy was applicable to this regulation. The FAA agrees that the subject paragraph does not directly relate to § 25.813 and agrees it should be deleted from this AC.

All locations: Paragraphs 411, 412, 413, 414, 415, 416, 417, 418, and 419

65. Boeing:

Section 25.813, Emergency Exit Access, § 25.813(a) Amendment 25-0 – the commenter requested that the following guidance be deleted or changed to directly address evacuation and include all the options provided in § 25.785(d).

> (1) The telephone handset installation should not contain any pointed corners or sharp edges that can be touched or struck within the passenger head strike arc. Additionally, it is important to ensure that a seat back with a telephone complies with § 25.785(b), i.e., a passenger's head striking the telephone under the minor crash conditions appropriate for the type certification basis of the airplane in which the telephone is installed will not suffer a serious injury.

FAA comment: The FAA inserted the entire policy memorandum 02-115-20, dated November 21, 2002, titled "Policy Statement on Corded Electrical Devices Used in the Passenger Cabin" in the AC at this point since the majority of the policy was applicable

to this regulation. The FAA agrees that the subject paragraph does not directly relate to § 25.813 and agrees it should be deleted from this AC.

All locations: Paragraphs 411, 412, 413, 414, 415, 416, 417, 418, and 419

66. Boeing:

Section 25.813, Emergency Exit Access, § 25.813(a) Amendment 25-0 – the commenter is requesting that the following guidance be deleted or changed to directly address evacuation and include all the options provided in § 25. 785(d).

> (2) For handset installations in airplanes which do not have § 25.562, Amendment 25-64, in their type certification basis, it would be sufficient to show that the telephone installation does not make it more hazardous to strike the seat back. This can be shown by using the bowling ball test described in this AC, Transport Airplane Cabin Interiors Crashworthiness Handbook, for doing comparison tests of the seat back with and without the telephone installed. As noted in a memorandum from ANM-100, dated July 13, 1994, testing done at the Civil Aeromedical Institute (CAMI) indicates that the bowling ball test should not be used as an absolute pass-or-fail test for passenger head strike. In the case of the plain seat back, the ball should be dropped on a typical hard surface within the head strike area, such as the top of the food tray. If the telephone installation rebound energy and deceleration are essentially equal to or lower than the plain seat back, the installation would be acceptable. The weight of the ball used in these comparison tests should be approximately 13 pounds, as noted in the previously referenced (July 1994) memorandum.

FAA comment: The FAA inserted the entire policy memorandum 02-115-20, dated November 21, 2002, titled "Policy Statement on Corded Electrical Devices Used in the Passenger Cabin" in the AC at this point since the majority of the policy was applicable to this regulation. The FAA agrees that the subject paragraph does not directly relate to § 25.813 and agrees it should be deleted from this AC.

All locations: Paragraphs 411, 412, 413, 414, 415, 416, 417, 418, and 419

67. Boeing:

Section 25.813, Emergency Exit Access, § 25.813(a) Amendment 25-0 – the commenter requested that the FAA explain extrapolation to the 95% male as it applies to the guidance below. The commenter stated that typically 3 inches has been used for row-to-row seating configuration.

> (4) ... To show that the telephone handset installation is outside the head strike arc of the passenger, the arc generated by the dummy used in the HIC test, extrapolated to a 95th percentile male, is satisfactory.

FAA comment: The additional guidance for extrapolation of test data to address to a 95th percentile male has already been included in AC 25.562-1B. However, this paragraph has been removed from the final version of the AC 25-17A in response to comment number 64.

All locations: Paragraphs 411, 412, 413, 414, 415, 416, 417, 418, and 419

68. Embraer:

Section 25.813, Emergency Exit Access, § 25.813(b) Amendment 25-0 – the commenter stated that guidance at this amendment level states that there is no specific requirement to require a flight attendant assist handle but Amendment 25-116 does have a requirement for flight attendant assist handles.

FAA comment: The FAA agrees with the comment. However, the guidance at this amendment level is correct. The AC remains as proposed.

69. KLM Airlines:

Section 25.813, Emergency Exit Access, § 25.813(c) Amendment 25-15 – the commenter requested that the FAA consider the use of crew procedure as an adequate means to maintain proper access to the exit under certain conditions.

FAA comment: The FAA is currently working on a revision to this guidance and may publish the revised guidance in a separate policy memorandum at a later date. The AC remains as proposed.

70. KLM Airlines:

Section 25.813, Emergency Exit Access, § 25.813(a) Amendment 25-88 – the commenter requested that the FAA consider the addition of some sketches to clarify the requirements for Type A and B exits with respect to projected aisle, cross aisles and passageways.

FAA comment: See Appendix 15. New figures have been added to the AC in Appendix 15.

71. Boeing:

Section 25.813, Emergency Exit Access, § 25.813(c) Amendment 25-88 – the commenter requested that method of compliance for movable partition lock-out zones be included in this guidance material. The method of compliance is documented in SACO letter 97-120S-814, dated 12/10/97.

FAA comment: The referenced SACO approved method of compliance may have some merit as policy, however, it has not been through the public process for policy. Therefore, it will not be included in this AC. An applicant may, however, propose this approach as part of their method of compliance. The AC remains as proposed.

72. Boeing:

Section 25.815, Width of Main Aisle, § 25.815 Amendment 25-0 – the commenter recommended that the phrase "top of the floor covering" be removed from the guidance below. They stated that this would be consistent with a SACO method of compliance document in SACO letter 92-120S-601, dated 6/9/92.

> (5) The main aisle widths, as defined by the regulation, should be maintained from floor level to a height of at least 73-inches above the floor **(top of the floor covering).** For airplanes that do not have 73-inches between the floor and the ceiling panels, the aisle width should be maintained from the floor to the height of the ceiling panels. Any features that hang (signs, video monitors etc.) from the ceiling or span across main aisle (i.e., class dividers and curtain headers) should be at least 73-inches above the floor, unless they are retractable and are placarded to be retracted for taxi, takeoff and landing (TT&L). …

FAA comment: The referenced SACO method of compliance may have some merit as policy, however, it has not been through the public process for policy. Therefore, it will not be included in this AC. The AC remains as proposed.

73. Embraer:

Section 25.815, Width of Main Aisle, § 25.815 Amendment 25-0 – the commenter questioned the guidance that identifies past approvals for inflight width of aisle concerns on private use airplanes (not operated for hire or offered for common carriage). The commenter states that these airplanes are commonly operated in on-demand charter operations governed by 14 CFR part 135 and believes that rulemaking is required to stop the operation of these airplanes in part 135.

FAA comment: The FAA partially agrees with the comment that this limitation for inflight width of aisle concerns on private use airplanes (not operated for hire or offered for common carriage) can not be used in part 135 operations. The FAA agrees this provision does not preclude the operator from receiving remuneration to the extent consistent with 14 CFR parts 125 and 91, subpart F, as applicable. The FAA agrees that the policy should be clarified to include this provision as follows:

The private use provision does not preclude the operator from receiving remuneration to the extent consistent with 14 CFR parts 125 and 91, subpart F, as applicable.

This guidance is consistent with the recently published Notice of Proposed Rulemaking (NPRM) for special requirements for private use transport category airplanes on this same subject.

All locations: paragraphs 441, 442, and 443.

74. Gulfstream:

Section 25.851, Fire Extinguishers, § 25.851(a)(2) Amendment 25-0 – the commenter contended that for small airplanes carrying a Halon fire extinguisher and a water fire extinguisher is redundant because of the type of fires likely to occur on this size of airplane. They also contended that a single 2.5 pound Halon fire extinguisher is sufficient to flight a Type A fires on these airplane because the Type A rating is based on a UL test that isn't representative of the airplane type fire. Also, they are concerned with the toxicity level of the Halon in the small airplanes.

FAA comment: The FAA is currently working on a new guidance memorandum to address many of these issues. That guidance may be published separately from this AC. No change is made to the AC. The AC remains as proposed.

75. Agusta:

Section 25.851, Fire Extinguishers, § 25.851(a)(2) Amendment 25-0 – the commenter recommended that we include Class D fires and type of fire extinguisher used to fight Class D fires.

FAA comment: The FAA agrees with the comment and will add the following paragraphs to address the comment. The material added is from AC 20-42C.

> Class D fires. Fires which involve combustible metals, such as magnesium, titanium, zirconium, sodium, lithium, and potassium, and require extinguishing agents of the dry powder types.
>
> Specialized Dry Powder extinguishers for Class D fires. Solid materials in powder or granular form designed to extinguish Class D combustible metal fires by crusting, smothering, or heat-transferring means. The recommendations of the manufacturer for use of those extinguishers should be followed because of the possible chemical reaction between the burning metal and the extinguishing agent.

All locations: paragraphs 601, 602, 603, and 604

76. Agusta:

Section 25.851, Fire Extinguishers, § 25.851(a)(5) Amendment 25-54 – the commenter recommended that additional information be included in this AC on the selection criteria of the fire extinguisher agents and the class of fires that should be considered when determining the fire extinguishers that should be included on the airplane. What does the following statement mean "…kinds of fires likely to occur…"

FAA comment: The FAA agrees with the comment that additional guidance is needed on this subject. However, we need to develop this new guidance and ask for public comment on the new policy before we could add the policy to this document. We will

add this to the list of items that additional policy has been requested. No change is made to the AC. The AC remains as proposed.

77. Boeing:

Section 25.853, Compartment Interiors, § 25.853 Amendment 25-0 through 25-83 – the commenter stated that the fire containment guidance provided in each amendment states: "Appendix 8 contains methodology for substantiating compliance with fire containment criteria."

Over the years, the fire containment rule is written in Part 25 as follows:

§ 25.853(d) at Amdt. 25-0,-15,-17,-23,-32,-51
§ 25.853(e) at Amdt. 25-59,-61,-66
§ 25.853(f) at Amdt. 25-72, -83

A content change occurred in § 25.853(d) at Amendment 25-51 which added the wear, misalignment, etc., requirements. A content change occurred in § 25.853(f) at Amendment 25-72 which moved marking requirements to § 25.791(c), but Amendment 25-72 really didn't change the overall content of the rule. All other changes to the rule were administrative in nature.

Appendix 8 in numerous places only refers to § 25.853(d) without reference to an amendment. It also is not clear if appendix 8 accounts for the requirements added at Amendment 25-51.

The Aircraft Fire Test Handbook's fire containment test in Chapter 10 states in the scope that it is for § 25.853(e) through Amendment 25-51. The fire containment rule is written in § 25.853(d) at Amendment 25-51 not § 25.853(e). Additionally Chapter 10 contains a supplement that addresses misalignment giving the impression that the rule change at Amendment 25-51 is accounted for.

Lastly, Technical Standard Order (TSO) C-175/AS8056 (sections 3.2.3 & 4.6) describe conditions to account for the rule change at Amendment 25-51 that currently are not included in AC 25-17, Appendix 8.

The commenter requested that the FAA clarify AC 25-17, Appendix 8, and the Aircraft Fire Test Handbook, Chapter 10, per the above.

FAA comment: The commenter is concerned with the Appendix 8 fire containment reference to § 25.853(d). As the § 25.853 regulation was amended, the fire containment requirements have moved to four different paragraphs including (a) at Amendment 25-83. To avoid confusion, we will remove the reference to § 25.853(d) in appendix 8 and replace it with the fire containment requirements of § 25.853.

The commenter is concerned whether Appendix 8 accounts for the requirements added at Amendment 25-51. The § 25.853 section for fire containment guidance of the AC

identifies Appendix 8 as applicable at every amendment level and is clear in that regard. Appendix 8 identifies fire containment test methods and applies to any amendment level. Amendment 25-51 added, "The ability of the disposal receptacle to contain those fires under all probable conditions of wear, misalignment, and ventilation expected in service must be demonstrated by test." The requirements added at Amendment 25-51 do not change the test method or the pass/fail criteria. The Amendment 25-51 changes affect the test article (now the article must be tested taking into account probable conditions of wear, misalignment, and ventilation expected in service). Again, to avoid confusion, we will remove the paragraph reference in Appendix 8 as noted above.

The commenter is concerned that the Report # DOT/FAA/CT-99/15 titled, "Aircraft Fire Test Handbook" regulatory reference in chapter 10 is incorrect and should be changed from § 25.853(e) to § 25.853(d). Although referenced by this AC, the Aircraft fire test handbook is a separate document that is not open for public comment. The AC states, "The FAA Memorandum 00-115-16, dated September 12, 2000, titled, 'Use of the Aircraft Fire Test Handbook' provides guidance for the use of the Report # DOT/FAA/CT-99/15 titled, 'Aircraft Fire Test Handbook' that may be used to show compliance with, or demonstrate an equivalent level of safety to, the applicable regulations." The memorandum states, "Chapter 10 – The Fire Containment Test of Waste Stowage Compartments to demonstrate compliance with § 25.853(e)". At the time the memo and the report were released, the fire containment requirements of § 25.853 were relocated to paragraph (h) by Amendment 25-83. Because the fire containment requirements have resided in four different paragraphs of § 25.853, we will remove the paragraph reference in Appendix 8 as noted above. As the memorandum and the report are not open for comment, no changes will be made to those documents at this time.

The commenter is concerned that Appendix 8 does not include conditions that were put in SAE AS8056 (basis for TSO C-175). The TSO C-175 effective date is November 4, 2005. Advisory Circular 25-17A is applicable through Amendment 25-112, effective September 4, 2003. Requirements of TSO C-175 are thus not germane to AC 25-17A. No changes will be made to AC 25-17A to address this comment.

All Locations: Appendix 8

78. Boeing:

Section 25.853, Compartment Interiors, § 25.853(d) Amendment 25-0 – the commenter stated that the guidance provided below is unclear and has the following questions:

1. It is unclear what type of receptacles the FAA is providing an exemption. Used towel/linen disposals are "special purpose disposal receptacles" found in lavatories. Boeing does not think the FAA is exempting these types of receptacles but the words in the AC are not clear. Boeing requests clarification be provided.

2. The last part of the guidance states: " *... which are in addition to the normal waste disposal receptacles found in lavatories."* It is not understood why the exemption only

applies to special purpose disposals in lavatories. Boeing requests the FAA apply this guidance at any location in the passenger cabin.

Paragraph 621b(7): The guidance was revised to add:

> *Fire containment testing is not required for special purpose disposal receptacles (for such items as used air sickness bags and sanitary napkins), which are in addition to the normal waste disposal receptacles found in lavatories.*

FAA comment: The special purpose waste containers are in the lavatories and are less than half a cubic foot in volume and they contain specific waste that is of a relatively non-flammable nature. The commenter did not include much detail concerning what additional receptacles they propose should be included in this guidance. The commenter should submit specific details concerning additional receptacles they are proposing as special purpose receptacles and why they should not need to meet required the fire containment testing. The FAA would evaluate any proposal on a case by case basis. The AC remains as proposed.

79. Weber Aircraft:

Section 25.853, Compartment Interiors, § 25.853(d) Amendment 25-0 – the commenter recommended that policy be included that seat armrest cavities are no longer deemed to be a potential fire hazard based on testing the FAA conducted and documented in FAA Tech Note DOT/FAA/AR-TN02/105, dated September 2002.

FAA comment: The FAA agrees with the comment that the armrest are no longer deemed to be a potential fire hazard based on testing the FAA conducted and documented in FAA Tech Note DOT/FAA/AR-TN02/105, dated September 2002. The FAA published policy memo PS-ANM100-2003-10019, "Policy Statement on Evaluating a Seat Armrest Cavity for a Potential Fire Hazard" dated July 14, 2004. This policy statement sited § 25.601 as the regulatory reference for the policy. This AC does not include § 25.601. The AC remains as proposed.

80. Boeing:

Section 25.853, Compartment Interiors, § 25.853(d) Amendment 25-0 – the commenter requested that the FAA specify that beverage and sales trolleys are acceptable without fire containment testing provided they are placarded "No waste stowage". They state that the SACO has accepted this as an acceptable method of compliance.

FAA comment: The referenced SACO method of compliance may have some merit as policy; however, it has not been through the public process for policy. Therefore, it will not be included in this AC. The AC remains as proposed.

81. Boeing:

Section 25.853, Compartment Interiors, § 25.853(a-1) Amendment 25-61 – the commenter stated that the draft AC references FAA memorandum *"Compliance with amendments 25-61 & 121-89, dated July 8, 1988,* and identifies that galley carts and other rotatable equipment do not need to comply with the heat release and smoke density requirements of appendix F, parts IV and V of Part 25 until Amendment 25-83. The draft AC is in direct conflict with FAA letter 120S-01-1133, dated March 13, 2002, which states that the heat release and smoke density requirements of appendix F, parts IV and V of Part 25 are applicable to carts and containers beginning at Amendment 25-66.

FAA comment: The guidance included in the draft AC 25-17A, noted below, is not correct on this subject and will be removed.

> (8) Paragraph (a-1). Galley carts and other rotatable equipment need not meet the new flammability standards. (Amendment 25-61) {FAA Memorandum "Compliance with Amendment 25-61 and 121-189" dated July 8, 1988.}

All locations: Paragraphs 629, 630, and 631

82. Weber Aircraft:

Section 25.853, Compartment Interiors, § 25.853(a-1) Amendment 25-61 – the commenter requested that the FAA clarify exposed and non-exposed area for shell type elements surrounding business or first class seats.

FAA comment: The policy provided in the referenced section does not include the terms exposed and non-exposed area for shell type elements surrounding business or first class seats. Therefore, no clarification is needed. The AC remains as proposed.

83. Boeing:

Section 25.853, Compartment Interiors, § 25.853(a-1) Amendment 25-61 – the commenter suggested that application of policy listed below should be deferred until such time as the associated Issue Paper process is complete and appropriate policy can be applied.

Paragraph 629b(4) states:

> (4) Paragraph (a-1). Some first or business class seats incorporate large panel assemblies, either in the form of consoles, or hard shells, or both. From the standpoint of surface area, each seat/console assembly constitutes a significant amount of material, on the order of a galley or closet. All components that make up an affected part (for example, several small panels that make up a large ceiling panel) are required to comply with the standard applicable to the larger part. Therefore, the outer shell of the seat itself, including panel assemblies

> of consoles, is required to comply with Appendix F, part IV of part 25.

FAA comment: The FAA partially agrees with the comment that the policy needs to be revised to explain what is required to comply with the requirements of § 25.853(a-1). Therefore, the policy is revised as follows:

Paragraph 629b(4) states:

> (4) Paragraph (a-1). Some first or business class seats incorporate large panel assemblies, in the form of wall panels, partitions, large cabinets, or stowage compartments. The surface areas of these components are significant and therefore these components of the seat are subject to this requirement, just as regular wall panels, partitions, cabinets, and stowage compartments in the cabin. All components that make up an affected part (for example, several small panels that make up a large ceiling panel) are required to comply with the standard applicable to the larger part. Therefore, the wall panels, partitions, large cabinets, and stowage compartments of the seat itself, are required to comply with Appendix F, part IV of part 25.

All locations: paragraphs 629, 630, 631, and 632.

84. Boeing:

Section 25.853, Compartment Interiors, § 25.853(a-1) Amendment 25-61 – the commenter suggested that application of the policy listed below should be deferred until such time as the associated Issue Paper process is complete and appropriate policy can be applied.

Paragraph 629b(9) states:

> (9) Paragraph (a-1). As a general guidance, components with surface areas of one square foot or less may be considered small enough that they do not have to meet the new flammability standards. Components with surface areas greater than two square feet may be considered large enough that they do have to meet the new standards. Those with surface areas greater than on square foot, but less than two square feet, would have to be considered in conjunction with the areas of the cabin in which they are installed before a determination could be made.

FAA comment: The FAA partially agrees with comment that the policy needs to be revised to extent of what is required to comply with the requirements of § 25.853(a-1). In the final version the paragraph number is changed to (8) as the result of other changes. Therefore, the policy is revised as follows:

Paragraph 629b(8) states:

> (8) Paragraph (a-1). As a general guidance, components identified in § 25.853(a-1) with surface areas of one square foot or less may be considered small enough that they do not have to meet the new flammability standards. Components with surface areas greater than two square feet may be considered large enough that they do have to meet the new standards. Those with surface areas greater than on square foot, but less than two square feet, would have to be considered in conjunction with the areas of the cabin in which they are installed before a determination could be made.

All locations: paragraphs 629, 630, 631, and 632.

85. KLM Airlines:

Section 25.853, Compartment Interiors, § 25.853(a-1) Amendment 25-61 – the commenter requests that the FAA clarifies shell type elements surrounding business or first class seats and economy class seatbacks that are not the traditional foam and fabric construction.

FAA comment: The referenced policy has been revised to remove the subject word. Therefore, the policy is revised as follows:

Paragraph 629b(4) states:

> (4) Paragraph (a-1). Some first or business class seats incorporate large panel assemblies, in the form of wall panels, partitions, large cabinets, or stowage compartments. The surface areas of these components are significant and therefore these components of the seat are subject to this requirement, just as regular wall panels, partitions, cabinets, and stowage compartments in the cabin. All components that make up an affected part (for example, several small panels that make up a large ceiling panel) are required to comply with the standard applicable to the larger part. Therefore, the wall panels, partitions, large cabinets, and stowage compartments of the seat itself, are required to comply with Appendix F, part IV of part 25.

All locations: paragraphs 629, 630, 631, and 632.

86. Weber Aircraft:

Section 25.853, Compartment Interiors, § 25.853(a-1) Amendment 25-66 – the commenter requested that the FAA clarify the policy below to address the policy to first class seating per seat place or per seat.

As general guidance for compliance with Appendix F, parts IV and V, of part 25, components with surface areas of one square foot or less may be considered small enough

that they do not have to meet the new flammability standards. Components with surface areas greater than two square feet may be considered large enough that they do have to meet the new standards. Those with surface areas greater than on square foot, but less than two square feet, would have to be considered in conjunction with the areas of the cabin in which they are installed before a determination could be made.

FAA comment: For items directly addressed in the regulation see guidance provided in item numbers 83 and 84 above. The surface area is for the part itself in question. The guidance is not affected by the per seat place or per seat question. The FAA is currently working on Special Conditions concerning this issue that may be published separately from AC 25-17A to address items that are not directly addressed in the regulation. The AC remains as proposed.

87. Gulfstream:

Section 25.853, Compartment Interiors, § 25.853 Amendment 25-83 – the commenter contended that the guidance material in AC 25-10 is insufficient to determine the method of compliance for material contained within black boxes and requests additional guidance.

FAA comment: The FAA is currently working on a separate guidance memo concerning this issue that may be published separately from AC 25-17A.

88. Boeing:

Section 25.855, Cargo and Baggage Compartments, § 25.855(c) Amendment 25-60 – the commenter contends that the guidance material provided below is detailed design requirement and unnecessary, as it is already encompassed by the system-level compartment ceiling criteria specified in § 25.855 and it should be removed from the AC.

Paragraph 655. b.(3) states:

> (3) Paragraph (c) – Holes in ceiling panels used to provide access for smoke detector sampling ports should not be larger than 3/8-inch in diameter. (Amendment 25-60)

FAA comment: The guidance allows the testing of a ceiling panel with no holes to justify a ceiling panel with holes up to 3/8 inch in diameter (e.g., smoke detector sampling ports0 without further testing or analysis. The AC remains as proposed.

89. Boeing:

Section 25.1411, Safety Equipment – General, § 25.1411(a) Amendment 25- 0 – the commenter recommended that the phrase “no stowage” be added to the guidance below. They commentary stated that this would be consistent with a SACO method of compliance document in SACO CPR 2-25.1411-1.

(ii) Stowage compartments for safety equipment which are large enough to accommodate additional items that could damage the equipment should be placarded for "soft article only," or, if the safety equipment could be obscured by soft articles, the compartment should be placarded ~~for stowage of~~ **"emergency equipment only", " no stowage.**

FAA comment: The referenced SACO method of compliance may have some merit as policy; however, it has not been through the public process for policy. Therefore, it will not be included in this AC. An applicant may, however, propose this approach as part of their method of compliance. The AC remains as proposed.

90. Boeing:

Section 25.1411, Safety Equipment – General, § 25.1411(d) Amendment 25- 0 – the commenter recommended that "near" be defined as used in the guidance listed below. They state that a SACO method of compliance document in SACO letter ANM-120S:JBC, dated August 30, 1990, provided a definition of 150 inches or less from the centerline of the exit door through which it is intended to be deployed was considered "near" for this regulation.

Paragraph 801.a. - The text of the regulation states

Life rafts must be stowed near exits through which the rafts can be launched….

FAA comment: The referenced SACO method of compliance may have some merit as policy; however, it has not been through the public process for policy. Therefore, it will not be included in this AC. The AC remains as proposed.

91. Embraer:

Section 25.1411, Safety Equipment – General, § 25.1411(d)(2) Amendment 25-0 – the commenter is concerned the regulation requires that liferafts be located near exits though which they can be launched during an unplanned ditching. They contend that this requirement ignores the possibility that the airplane may pitch over while it is sinking and the initially higher forward exits (and the only exits available during unplanned ditching) will in fact be the first to be flooded. The commenter believes the FAA should develop a means to address this issue through a finding of equivalent safety.

FAA comment: This request is beyond the scope of this AC because the requirement is written in the regulation. This AC addresses general means of compliance. Specific findings are made through the issue paper and equivalent level of safety process. The AC remains as proposed.

92. KLM Airlines:

Section 25.1411, Safety Equipment – General, § 25.1411(f) Amendment 25-0 – the commenter raised a concern that the guidance provided for the access to the lifevest should be expanded to include the demonstration must also include a 95th percentile male because in recent years the concern has been with the tall test subject.

FAA comment: The FAA partially agrees with the comment. The FAA conducted a study concerning life preserver retrieval and published the results of that study in document DOT/FAA/AM-03/9 "Human Factors Associated With the Certification of Airplane Passenger Seats: Life Preserver Retrieval," dated May 2003. This study concluded that ease of retrieval should focus primarily on larger size passengers. Therefore, the requirement will be changed from the smaller test subject to the taller test subject. The guidance will be revised as follows:

Each life preserver must be within easy reach of each seated and belted occupant. The reach requirements should be accomplished by demonstration using a ~~5th percentile female~~ 95th percentile male.

All locations: paragraphs 801, 802, 803, 804, 805, and 806.

93. Boeing:

Section 25.1411, Safety Equipment – General, § 25.1411(a)(2) Amendment 25-46 and Section 25.1423 Public Address System, § 25.1423(g) – the commenter identified that the guidance in §§ 25.1411(a)(2) and 25.1423(g) are inconsistent. Section 25.1411 calls for the microphone to be accessible to a 5th percentile female, while § 25.1423 calls for accessibility for both a 5th percentile female and a 95th percentile male flight attendant.

FAA comment: We agree with the commenter and will revise the guidance provided in § 25.1423(g) to read as follows:

> (2) "Readily accessible to the seated flight attendant" means that ~~a~~ the range of flight attendants between 5th percentile female and 95th percentile male ~~flight attendant~~ can reach the microphone while seated and belted. A demonstration using a 5th percentile female accessing the microphone while seated and belted would be acceptable for the range of flight attendants for this requirement. (Amendment 25-79)

All locations: paragraph 903

94. Boeing:

Section 25.1411, Safety Equipment – General, § 25.1411(a) Amendment 25-79 – the commenter recommended that the phrase "readily accessible" be defined. They

recommended using SACO method of compliance document in SACO letter 95-120S-1168, dated 11/30/95.

FAA comment: "Readily Accessible" is a term that has had longstanding use in the regulations but does not lend itself to a simple definition because it is dependent on context. The referenced SACO method of compliance may have some merit as policy; however, it has not been through the public process for policy. Therefore, it will not be included in this AC. An applicant may, however, propose this approach as part of their method of compliance. The AC remains as proposed.

95. KLM Airlines:

Section 25.1415, Ditching Equipment, § 25.1415 Amendment 25-52 – the commenter questioned why at this amendment level does the guidance state that an equivalent level of safety finding is required to use TSO-C91a equipment in lieu of TSO-C91 equipment to meet this regulation when a later amendment to the regulation approves the later version.

FAA comment: The regulation at Amendments 25-52 and 25-72 specifically requires TSO-C91 equipment. Until the regulation is updated, one method for accepting the later approved equipment is the use of the equivalent level of safety finding. The AC remains as proposed.

96. Boeing:

Section 25.1439, Protective Breathing Equipment (PBE), § 25.1439(a) Amendments 25-38 and 25-115 – the commenter stated that PBEs are routinely installed on most production airplanes delivered from the Boeing company. Interior DERs have been using verbal guidance and guidance from FAA/JAA technical meeting minutes for the location and number of PBEs. The guidance has been to use requirements identified in § 121. 337 (one PBE for every fire extinguisher required by§ 121.309, to be located within 3 feet of each required fire extinguisher).

With the incorporation of Amendment 25-115 into the 787 certification basis, the need for written approved Transport Airplane Directorate guidance in this area is required.

An engineer from the Transport Standards Staff provided the following guidance for the number and location of PBEs based on a Boeing inquiry in February of 2005 for the 787 program. *"One PBE should be installed by each fire extinguisher. Whether or not the fire extinguisher is 'required' should not be relevant."*

Boeing considers the amount of PBEs required should be based on the required number of attendants and not on the number of fire extinguisher installed. Section 25.1439(a) states, in part, *" .. In addition portable protective breathing equipment must be installed for the use of appropriate crewmembers for fighting fires in compartments accessible in flight other than the flight deck."*

Although the requirement for the installation of PBEs for use by appropriate crewmembers does not occur until Amendment 25-115, Boeing requested that the FAA provide guidance on location requirements for the installation of protective breathing equipment and the definition of appropriate crewmembers.

FAA comment: The FAA agrees that some additional guidance may have some merit as policy; however, it has not been through the public process for policy. Therefore, it will not be included in this AC. The AC remains as proposed.

97. Boeing:

Section 25.1541, Markings and Placards – General, § 25.1541 Amendment 25-0 – the commenter requested the guidance described under the heading of policy in the following Certification Policy Records (CPR) be incorporated in the AC revision. CPR 2-25.1541-5, Stowage table abuse loads; 2-25.1541-2, Rod load limits; 2-25.1541-4, double deep compartments; 2-25.1541-6, nested doors. Ref D6-56700.

Below is the text of CPR 2-25-1541-5:

> Stowable tables (any type) that could potentially hinder evacuation must be substantiated to withstand a 300 lb abuse load and retain their ability to be stowed. If not, a load limit placard shall be required. This placard must be conspicuous when table is deployed.

Below is the text of CPR 2-25-1541-2:

1. Coat closets shall be placarded in one of the following ways:
   Each coat rod will have a "Rod Load Limit XX lbs (and/or kg) or a single placard can be used to cover multiple rod load limits and must specify "XX lbs (and/or kg) per rod," or a single placard specifying "total rod limit XX lbs (and/or kg)" can be used if each rod is substantiated for the placarded rod load.
   In addition, a "Floor Load Limit XX lbs (and/or kg)" placard will be added to the closet such that it will not be obscured by stowed items (and is specific and adjacent to the area that it controls).
   Compartment door must be substantiated for total load (i.e., sum of rod and floor load limits).
2. One "Compartment Load Limit xx lbs (and/or kg)," placard shall be placarded on the inside or outside of the compartment door. The placard shall be located such that it can not be obscured by stowed items. The preferred location is on the inside of the door. Other locations may be acceptable provided that the placard is visible during compartment loading (and is specific and adjacent to the area that it controls). If this method is used then each load bearing component (i.e., rod, floor, and compartment door) must be substantiated for the total load limit.

The placard should be visible without additional movement beyond that required for loading the compartment.

Below is the text of CPR 2-25.1541-4:

Double depth compartments shall be placarded in one of the following ways:

1. One load limit placard (for the entire compartment load) shall be located in the compartment sidewall near the work-face of the galley.

Or

2. Two load limit placards (the sum of which equals the entire compartment load) shall be located as follows:
   a. One on the compartment sidewall near the galley work-face, and
   b. The second on the compartment sidewall or on the back wall of the compartment. If this placard is located on the sidewall, it shall be located in the back half of the compartment but as close to the galley work-face as possible. The placard will be obscured by the first cart and/or standard carrier stowed.

The placard should be visible without additional movement beyond that required for loading the compartment. When both items are installed, placards do not have to be visible.

FAA comment: The referenced SACO methods of compliance may have some merit as policy; however, they have not been through the public process for policy. Therefore, they will not be included in this AC. The AC remains as proposed.

98. Boeing:

Section 25.1541, Markings and Placards – General, § 25.1541Amendment 25-0 – the commenter questioned the term "turbulence" in the guidance below and stated that it is conflicting with guidance in Appendix 6, Item (17)(f) where takeoff is used rather than turbulence.

Paragraph 1041b(12) states:

(12) When a compartment is designed to contain more than one cart with side restraint dependent upon adjacent cart(s), a placard must be installed requiring installation of the adjacent cart(s) or no carts, as applicable, to assure adequate restraint during ***taxi, turbulence and landing****. The placard must be specific and located adjacent to the*

applicable compartment and must be visible during compartment loading.

FAA comment: The FAA agrees with the commenter that there is a conflict in the guidance provided. The term turbulence should be replaced with the word takeoff. The FAA considers this a typographic error and will make the change without additional comment.

All Locations: Paragraph 1041

99. Boeing:

Section 25.1541, Markings and Placards – General, § 25.1541Amendment 25-0 – the commenter recommended that the SACO method of compliance pertaining to placarding of coat hooks be included in this AC. This method of compliance is documented in SACO letter 97-120S-814, dated 12/10/97.

FAA comment: The referenced SACO method of compliance may have some merit as policy; however, it has not been through the public process for policy. Therefore, it will not be included in this AC. The AC remains as proposed.

100. Boeing:

Section 25.1541, Markings and Placards – General, § 25.1541Amendment 25-0 – the commenter stated that in practice, only doors are spring loaded closed. Boeing cannot recall a spring loaded drawer and it probably would not result in a practical installation. The commenter suggested that spring loading be changed to self-closing.

1. Boeing requested that the term "spring loaded" closed be changed to "self-closing." When typical doors of stowage units or galleys are spring loaded closed, the spring will not generate enough force to cause a typical slam type latch to engage the catch. (Slam shut to the latched position). A spring setting that will slam and latch the door is potentially hazardous. The guidance should clarify whether spring loaded closed means the door, drawer, etc., needs to close and latch or just close so that the exit interference is eliminated. It would seem that closing to eliminate the exit interference without latching meets this guidance because there is no requirement that doors have integral slam latches. The door may have no integral latches (the latches are on the stowage unit wall) or the integral latches are dead-bolt type. In either case an additional action is required to latch the door. What has happened in the past during certification is a special emphasis placard was necessary in addition to a spring loaded closed door because this spring loaded closed guidance has been interpreted to mean latched.

2. Based on the above, please clarify if "spring loaded closed" or "self-closing" means that the door, drawer, etc must latch with the catch or just eliminate the potential exit interference.

FAA comment: With respect to replacing "spring-loaded" with "self-closing," the policy proposal may have some merit, but has not been through the public process for policy.

Therefore, the AC text will remain as proposed on that issue. With respect to the requested clarification of whether "spring loaded closed" means closed and latched, the intent of the guidance is to ensure that the doors and drawers of the galley or stowage unit do not interfere with the opening on an emergency exit. If the applicant can demonstrate that the design of the door or drawer prevents this interference per the evacuation scenario contained in the guidance, then the intent of the guidance has been achieved. The AC remains as proposed.

101. Boeing:

Section 25.1541, Markings and Placards – General, § 25.1541Amendment 25-0 – the commenter identified a typographical error in the reference paragraph callout in the guidance below. They state the correct callout should be 412(b)(2)(ii).

FAA comment: The FAA agrees that there is a typographical error in the reference paragraph but notes that the callout proposed by the commenter is also incorrect. The correct callout should be 411(b)(2)(ii).

All Locations: Paragraph 1041

102. Boeing:

Section 25.1541, Markings and Placards – General, § 25.1541Amendment 25-0 – the commenter proposed changing the guidance below to limit it to rotable equipment and not apply the guidance to fixed equipment.

Paragraph 1041b(11) states:

> All compartments should be placarded in such a way that the placards are visible to the individual loading the compartment prior to the installation of **rotable equipment** ~~dedicated items~~ (e.g., carts, standard meal containers, ~~coffee makers,~~ etc) or during the loading of loose items. The placard should be visible without additional movement of articles beyond that required for the loading the compartment.

FAA comment: The intent of the guidance is to ensure that equipment that can be removed and replaced in compartments does not exceed the weight limit of the compartment. Although coffee makers will not be removed and replaced very often, operators may do so on occasion. Having a weight limit placard in the compartment will allow the operator to install a different coffee maker in the compartment and be aware of the compartment's weight limit. The AC remains as proposed.

103. Boeing:

Section 25.1541, Markings and Placards – General, § 25.1541Amendment 25-0 – the commenter requested that guidance be developed to allow partially blocked placards in galley general areas.

FAA comment: The placarding should remain visible so that it can be complied with. The AC remains as proposed.

104. Boeing:

Section 25.1541, Markings and Placards – General, § 25.1541(a) Amendment 25-0 – the commenter requested the FAA revise guidance in b(1) to allow an exception for eye level placarding for attendant specific emergency equipment (i.e., life vests, flashlights, etc.) located in attendant seats. General usage emergency equipment (i.e., PBE, extinguisher, etc.) installed in attendant seats would still require eye level placarding per the AC.

FAA comment: The proposed revision to the AC may have some merit as policy, however, it has not been through the public process for policy. The FAA also notes that, although some equipment, e.g., flashlights, is generally intended for use by trained flight attendants, there may be occasions when other persons may need to access that equipment. Additionally, not all flight attendant seats on all airplanes are identical. A flight attendant assigned to a particular station may desire to access equipment at another station (with a different seat and equipment layout). The AC remains as proposed.

105. Gulfstream:

Appendix F to Part 25 – the commenter contended that the guidance material in the AC is insufficient to determine what is considered a small part and request additional guidance.

FAA comment: The FAA is currently working on a separate guidance material concerning this issue that may be published separately from AC 25-17A. The AC remains as proposed.

106. Boeing:

Appendix 6, Special Areas of Attention Galleys – the commenter contended that neither § 25.1541 nor the guidance section for § 25.1541 in this AC provide guidance stating that open compartment doors that block this placard are unacceptable, or discuss how this could create an unsafe condition. They recommend removing the following words from the guidance "…even when compartment doors are open."

Boeing considered that this placard, when blocked by compartment doors that are designed to "retain" the open position (hold open device), creates an unacceptable condition. However, we considered that this placard, when blocked by compartment doors such as an oven door only temporarily, is still compliant with § 25.1541.

Item 17 f. states:

> *f. Are the load limits and "Close for Taxi, Takeoff and Landing" placards conspicuous, even when compartment doors are open.*

FAA comment: The FAA notes that § 25.1541(b)(1) requires the placarding conspicuous and § 25.1541(b)(2) requires they may not be easily erased, disfigured, or obscured. These regulations define the requirement. The placarding should remain visible when the doors are open or closed for the "Close for Taxi, Takeoff and Landing" placards. The load limit placards only need to be visible when the compartment doors are open. The guidance will be revised to read as follows:

> f. Are the "close for taxi, takeoff, and landing" placards conspicuous, even when compartment doors are open? Are the load limit placards conspicuous when the compartment doors are open?