

Comment				Comment summary	Suggested resolution	Comment is an observation or is a suggestion*	Comment is substantive or is an objection**	EASA comment disposition	EASA response
NR	Author	Section, table, figure	Page						
1	Embraer	1	2	<p>Although the proposed ESF is in accordance with the ARAC Subcommittee recommendation that Vertical Bunsen burner tests should only measure burn length, it seems that the current FAA PS-ANM-25.853-01-R02, Reference No. 23, Edge potting, Option #1 and #2, were not fully complied with as compensating factors for the ESF as discussed below.</p> <p>FAA PS-ANM-25.853-01-R02, Reference No. 23, Edge potting, Option #1 requires the testing of a plaque of edge fill material by itself per appendix F, part 1, (a)(1)(ii) (12-second). However, on reading proposed compensating factor number 1 (page 2), it is not clear which the test subject was: either a plaque of the edge fill material itself or a specific aluminum honeycomb sandwich panel filled with the edge potting material applied in the edges as installed configuration. Our understanding is that, depending on the test subject, the test results could be quite different, including the burn length.</p> <p>In the other hand, PS-ANM-25.853-01-R02, Reference No. 23, Edge potting, Option #2 requires the testing of a standard panel containing the edge fill material per appendix F, part I, (a)(1)(i) (60-second vertical burn Standard Panel 3” x 12” with 0.125” to 1” of the edge fill material), configured with the edge fill along the bottom and one vertical edge of the test samples (see Appendix Z of FAA report DOT/FAA/TC-12/10). However, on reading compensating factor number 3, it seems that the edge-filled panel was tested in the as-installed orientation, not with the edge fill along the bottom and one vertical edge of the test samples, which could yield different test results in terms of time for extinguishing and burn length.</p> <p>At last, regarding ESF compensating factor number 2, the “Foam Block” test according to DOT/FAA TC-12/10, Appendix Z, Item 33, Edge Potting tests, we have the following comment: the original TC-12/10 report shows foam block test pass results for some edge potting materials that failed in the 12-second test of the material plaque and also failed in the 60-second test of the edge filled honeycomb panel in the Appendix Z orientation. Therefore, we believe that it is not an acceptable means of compliance for this type of material.</p>	To describe the results of the potting material tested as prescribed in FAA PS-ANM-25.853-01-R02, Reference No. 23, Edge potting, Option #1 and #2 and disconsider foam block results.	yes	yes	rejected	<p>EASA disagrees with the change proposed by the Commenter. The Applicant has proposed to use the results of testing to DOT/FAA TC-12/10, Appendix Z, Item 33, Edge Potting tests [Ref 1], “Foam Block” test, as one of the compensating factors supporting the Equivalent Safety Finding (ESF). EASA has found acceptable the proposal made by the Applicant. The “Foam Block” test proposed by the applicant is not considered by EASA as an Acceptable Means of Compliance with CS 25.853(a). However, it contributes to support the determination that the panel constructions under discussion are equivalently safe to constructions meeting the requirements of CS 25.853(a). The reference to Appendix Z of FAA report DOT/FAA/TC-12/10 serves to the scope of defining the test method proposed by the Applicant, and does not intend to establish any link with the applications of the same test method that are outlined in FAA PS-ANM-25.853-01-R02.</p>
2	Airbus	General comment		<p>Airbus would like to know if the EASA has the intension to extend or to allow the use of this ESF to other materials or to other panel configurations.</p> <p>In addition, has this ESF been discussed or harmonized with FAA?</p>	Please clarify	Yes		noted	<p>The Equivalent Safety Finding published by EASA has been issued in the context of the validation of a FAA Type Certification project. The ESF is fully harmonized with the content of an Equivalent Level of Safety (ELOS) documented in an Issue Paper released by the FAA for that project.</p> <p>The ESF is specific to the panel constructions and materials that are part of the type design under certification. The application of the same ESF to other combinations of panel constructions and materials will be evaluated by EASA on a case-by-case basis.</p>

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3	Airbus	Bullet 1	2	<p>Bullet 1 states that:</p> <p>When using the test method provided in Appendix F, Part I, paragraph (a)(1)(ii), the results of the 12-second Vertical Bunsen Burner (VBB) tests of the edge-filled panel shows that the tested specimens are self-extinguishing (not later than 30 seconds after removal of the flame), that there are <i>minimal</i> to no measurable burn length, and that no flaming drips are observed;</p>	Could you please clarify the origin of the 30 seconds requirement?	Yes		noted	In compensating factor 1 the Applicant has proposed to extend the time limit for the panels to self-extinguish after the removal of the Bunsen burner flame from 15 s to 30 s. The 30 s limit s set arbitrarily to ensure that the specimens self extinguish, although this may take slightly longer than allowed by CS-25 Appendix F Part I requirements. This is compensated by allowing a very low, almost negligible burn length and no flaming drips.
4	Airbus	Bullet 1	2	<p>Bullet 1 states that:</p> <p>When using the test method provided in Appendix F, Part I, paragraph (a)(1)(ii), the results of the 12-second Vertical Bunsen Burner (VBB) tests of the edge-filled panel shows that the tested specimens are self-extinguishing (not later than 30 seconds after removal of the flame), that there are <i>minimal</i> to no measurable burn length, and that no flaming drips are observed;</p>	<p>In order to maintain standardization, the specimen to be tested for VBB should be more clearly defined. It should be clear that these VBB test must be done using specimens per Figure IV of DOT/FAA TC-12/10, Appendix Z, Item 33, Edge Potting tests [Ref 1]. Regarding the requirement to self-extinguish not later than 30 seconds after removal of the flame. This could be interpreted as an absolute maximum of 30 seconds for each specimen, or as the maximum average of all the specimens tested. Regarding the requirement for burn length and the use of the term minimal. This leaves room for interpretation of what would be the acceptable maximum burn length. Recommend revising the text as follows:</p> <p>When testing specimens made per Figure IV of DOT/FAA TC-12/10, Appendix Z, Item 33, Edge Potting tests [Ref 1] by using the test method provided in Appendix F, Part I, paragraph (a)(1)(ii), the results of the 12-second Vertical Bunsen Burner (VBB) tests of the edge-filled panel must show that each of the tested specimens self-extinguished not later than 30 seconds after removal of the flame, that the burn length on each specimen did not exceed 4 inches, and that no flaming drips were observed;</p> <p>[Note: the 4 inches burn length is just an arbitrary proposal based on the fact that is 50% of the maximum burn length allowed in the 12-second Vertical Bunsen Burner (VBB) test. EASA could propose a different value.]</p>	Yes		Partially accepted	<p>EASA agrees that the wording of compensating factor 1 is unclear regarding the applicability of the 30 s limit to the average of all test runs or to each test run. The ESF has been revised to clarify that each tested specimen must self extinguish not later than 30 s.</p> <p>As clarified in the answer to comment 2, the ESF is harmonized with an ELOS granted by the FAA, which includes a similar definition for the limit to the burn length. While the qualitative definition in question (‘minimal to no measurable burn length’) does not provide a clearly identified quantitative limit to the burn length, it provides an adequate and clear objective for the test and the pass-fail criteria are then assessed in the flammability test plans and reports, which are not published as part of the EASA ESF. Furthermore, EASA finds that a burn length meeting the definition currently given in compensating factor 1 of the ESF should be significantly below the 4” limit proposed by Airbus. The text of the ESF therefore remains unchanged in this respect.</p>

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5	Airbus	Bullet 2		<p>Bullet 2 states that:</p> <p>The result of testing to DOT/FAA TC-12/10, Appendix Z, Item 33, Edge Potting tests [Ref 1], “Foam Block” test, simulating an intermediate scale fire and testing edge-filled panel configurations (edge facedown/ horizontally, and edge face-out/vertically, and edge face-out at a 65-degree angle) with the panels edges exposed to the foam block fire threat, shows acceptable pass/fail results for the self-extinguishing time (not to exceed 30 seconds) and the burn length (no propagation beyond 2-inches from the area of direct flame impingement from the fire source);</p>	<p>The start of the paragraph states “The result of testing to DOT/FAA TC-12/10, Appendix Z, Item 33, Edge Potting tests [Ref 1], “Foam Block” test,....”. This seems to indicate that an applicant must follow the methodology used in DOT/FAA TC-12/10, Appendix Z, when testing edge fill/edge potting compounds using the foam block.</p> <p>That methodology only covers 2 positions, one “edge face-down/horizontally” and one “edge face-out at 65-degree angle”. However, the rest of the paragraph states that a 3rd position must be tested, the “edge face-out/vertically”.</p> <p>Since there is no methodology for this 3rd position in DOT/FAA TC-12/10, Appendix Z, Item 33, Edge Potting tests [Ref 1], it is assumed that the edge faceout/vertically position would require placing the edge filled panel with the edge filled side completely vertical, and the foam block placed under the corner of the panel where the edge fill starts, similarly to how the VBB specimens are tested in Figure IV of DOT/FAA TC-12/10, Appendix Z, Item 33, Edge Potting tests [Ref 1].</p> <p>Based on the above, it is recommended that EASA either:</p> <p>Remove the requirement for the 3rd position (“edge face-out/vertically”) from the ESF,</p> <p>Or</p> <p>Add the test methodology requirements for the 3rd position (“edge face-out/vertically”) to the ESF.</p>	Yes		Rejected	<p>EASA does not consider essential to the ESF definition the detailed description of each flammability test conducted by the Applicant. The text of compensating factor 2 is deemed sufficiently clear to outline the test methodology (foam block test), the number and type of test configurations to be evaluated and the applicable pass/fail criteria. The detailed description of the tests is given in the flammability test plans and reports, which are not published as part of the EASA ESF.</p>
6	Airbus	Bullet 3		<p>Bullet 3 states that:</p> <p>The results of testing of the edge-filled panel edge <i>in the as-installed orientation using a Vertical Bunsen Burner</i> applied for 60 seconds show that the specimens are self-extinguishing (0.0 seconds), that the burn-width is less than 1-inch wide post-ignition (<i>no horizontal propagation</i>), and that there is no flaming drips; and</p>	<p>When testing the edge-filled panel edge <i>in the as-installed orientation using a Vertical Bunsen Burner</i>, it is unclear how/where the flame of the Bunsen burner would be placed.</p> <p>Once the as-installed orientation of the specimen/panel and the position of the Bunsen burner flame re defined, there are various opinions regarding how to determine if there was any <i>horizontal propagation</i>.</p> <p>Recommend revising the text as follows:</p> <p>The results of testing of the edge-filled panel edge in the as-installed orientation using a Vertical Bunsen Burner applied for 60 seconds show that the specimens are self-extinguishing (0.0 seconds), that the <i>burn length post-ignition</i> is less than 1-inch <i>in any direction along the edge-filled panel edge</i>, and that there <i>are</i> no flaming drips (<i>Note: The VBB specimens must be made per Figure IV of DOT/FAA TC-12/10, Appendix Z, Item 33, Edge Potting tests [Ref 1]</i>); and</p>	Yes		Rejected	<p>The text of compensating factor 3 clarifies that the panels need to be tested in the as-installed configuration and that the application of a vertical flame on the edge of the sample must not result in any propagation of the flame away from the exposed edge. At the same time, the application of the flame must not result in post-test evidence of flame propagation along the edge, i.e. the length of the segment of the burnt segment of the edge must not exceed 1”. The changes proposed by the commenter will therefore not be implemented. However the text of compensating factor 3 will be revised to improve clarity and eliminate typos.</p>

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