

	DISPOSITION OF PUBLIC COMMENTS ON DRAFT POLICY STATEMENT ANM-03-115-31, CONDUCTING COMPONENT LEVEL TESTS TO DEMONSTRATE COMPLIANCE WITH 25.785(B) AND (D)	
Commenter	Comment	Disposition
Transport Canada (TCAA)	TCAA is fully supportive of this FAA action to formally adopt these aspects of the harmonized guidance material developed in the ARAC SHWG.	Concur – no change required.
TCAA	The FAA is encouraged to process the formal adoption of the remaining material from the group’s Task 3 product.	Concur - The FAA plans to continue to address the remaining issues associated with the Task 3 project.
TCAA	The policy memorandum excludes the continued use of the comparative bowling ball test for demonstrating compliance with § 25.785(b),(d). The rationale for this position is detailed in the policy memorandum and is supported by TCAA	Concur – no change required.
TCAA	The use of surrogate test articles in lieu of production quality accessories for blunt trauma tests was not considered in the ARAC discussions. TCAA supports the use of compliance methods, which minimize the burden on applicants, while ensuring that the applicable standards are properly addressed.	Concur – no change required.
TCAA	In the section under “Sharp and Injurious Edges,” TCAA	Concur –the words have been revised according to the TCAA

	suggests that the words be changed to “it may be advantageous to more accurately represent the energy-absorbing characteristics of the seat and seatback accessory...”	recommendation.
TCAA	Attachment 1: In the left hand text box, replace “bunt” with “blunt”.	Concur –the words have been revised according to the TCAA recommendation.
TCAA	Attachment 2: The HCT illustration does not include all of the information from the ARAC Concept Paper regarding positioning of the HCT. TCAA recommends including verbiage allowing the HCT to be positioned to “most closely mimic the intended trajectory of the occupant at the point of impact” to ensure consistency in the energy level used in the test.	The FAA disagrees. The ARAC criteria regarding positioning of the HCT unnecessarily complicates the test setup, and limits the applicability of the resulting compliance data. During past meetings, Industry has stressed the importance of developing simple compliance tests. Although the ARAC Concept Paper specifies that the head trajectory should be positioned to most closely mimic the intended trajectory of the occupant, this requires consideration of the seat pan height and seat pitch ranges and will not ensure that the data is valid if the seats are later reconfigured. Instead, the test should be configured to contact the center of the potentially injurious feature, with the ATD forehead, with the direction of motion as close to perpendicular as practical. This will preclude the need to re-investigate for other seat pitches.
TCAA	The policy memorandum should be revised to clarify that at the applicant’s option, a complete seat assembly may be used, in lieu of a seat back attached to a rigid mounting fixture.	Concur – the policy memorandum (attachments) has been revised accordingly.
TCAA	The policy memorandum should be revised to clarify that the FMH can also be used to evaluate sharp edges.	Concur – the policy memorandum (attachments) has been revised accordingly.
United Kingdom – Civil	This policy introduces some usable and reasonable criteria for determining whether or	Concur – no change required

Aviation Authority (UK CAA)	not blunt trauma and/or sharp edge injury testing is necessary.	
UK CAA	A test should not be required for “normal” installations, but the option of a test should be available. The criteria of a three pounds weight limit for the installed accessories and one inch of permanent seat deformation limit are appropriate, and form a suitable basis for requiring tests.	Concur – no change required
UK CAA	The decision to require a specific test should be based on engineering judgment. The option should also be available to require testing for any installation for which a confident engineering judgment cannot be made.	Concur – The FAA also notes that this policy memorandum provides criteria that represents one acceptable method of compliance, but not necessarily the only acceptable method of compliance.
UK CAA	The UK CAA reiterated their long-standing policy that demonstrations of compliance with § 25.562(c)(5) is not sufficient for demonstrating compliance with §§ 25.785(b)(d).	The FAA concurs – no change required.
General Aviation Manufacturer’s Association (GAMA)	The intent of the regulation is vague, and due to the age of the regulatory wording, there is little available documentation as to the intent of the words in question.	The FAA disagrees. Although the rule and the preamble do not specifically define the term “serious,” the rule does prescribe that a person should not suffer serious injury as a result of the emergency landing inertia forces. The rule also requires the elimination of any injurious objects within striking radius of the head. This policy memorandum provides a number of acceptable methods by which to assess whether any item is injurious in order to meet the requirement specified by the regulation. The rule was specifically referred to the Aviation Rulemaking Advisory Committee (ARAC) at the request of industry so that suitable guidance could

		<p>be developed, given the general wording in the rule. This policy reflects the harmonized ARAC recommendation. In order to be clear regarding the requirements of § 25.785, the ARAC working group chose to characterize two types of injury mechanisms of concern “blunt trauma” and injury from sharp objects. Blunt trauma is the same concern as has always existed and can be addressed by padding. Injuries from sharp objects have always been a concern also, but with the increase in items that could potentially shatter (e.g., video monitors) placed in seatbacks was highlighted by the working group.</p>
GAMA	<p>The draft policy does not meet the seat streamlining objectives.</p>	<p>The FAA disagrees. This policy does not create any additional requirements over and above the regulations, nor are these the only acceptable methods for finding compliance with the regulation. The methods of compliance contained within this policy memorandum provide clear methods for meeting the requirements of the regulation, and therefore, promote up-front planning and consistent evaluations by the FAA. All of these considerations promote a streamlined certification process. This policy memorandum also simplifies the test plan and test setup requirements by eliminating the need for installer DER participation in the testing, and by allowing the conformity process to be conducted under the seat manufacturer’s TSO system.</p>
GAMA	<p>The proposed policy will result in expending resources unnecessarily on a compliance method where the safety benefit is unsubstantiated.</p>	<p>The policy should reduce the effort previously expended by eliminating certain testing for items 3 lbs or less, and by addressing the article at the component supplier for sharp edges. The FAA disagrees that the safety benefit is unsubstantiated. The safety benefits provided by the test methodologies described in this memorandum are within the bounds</p>

		provided by the regulation. Experience indicates that there are designs that result in unacceptable blunt trauma acceleration levels and the creation of sharp/injurious features (including uncontained glass shards) following impact testing. This type of a design would not meet the requirements of §§ 25.785(b) & (d).
GAMA	There is no need to investigate §§ 25.785(b),(d) compliance for seats that have been found to meet the requirements of § 25.562(c)(5).	The FAA disagrees. Although § 25.562(c)(5) can be used to demonstrate compliance with the blunt trauma aspects of §§ 25.785(b) and (d), it does not necessarily investigate all aspects of seat and seatback mounted components with regarding to the other injury mechanism of concern, i.e., sharp and injurious features created as a result of impact. As noted in the policy, however, it is possible to address the sharp edge concern at the supplier of the component and these data can be used to support multiple installation approvals.
GAMA	GAMA has proposed the following alternate compliance criteria: 1. Design seat and seatback mounted accessories to have rounded edges and corners. 2. Ensure protrusions from the aft face of the seatback do not present a hazard to the occupant. 3. Cover injurious features with a minimum of 1 inch of protective padding material. 4. Consider the deformation/deflection caused by seatback breakover under a 9G forward static load when determining whether a seat back feature is within the head strike zone.	The FAA does not disagree with the criteria proposed by GAMA, and this is essentially what is included in the policy for items less than 3lbs. However, these criteria by themselves are insufficient to ensure that occupants will not suffer serious injury, as required by the regulation when items exceed 3 lbs.. The simplest evaluation would be an inspection of the seat as designed, but this inspection is insufficient in evaluating injury resulting from inertia forces. Blunt trauma impacts and sharp/injurious features created by an impact can result in debilitating injuries, thereby preventing rapid escape from an aircraft following a survivable accident. 1. Designs that incorporate rounded corners may help prevent injury. This however does not sufficiently investigate blunt trauma injury potential

		<p>or the potential creation of sharp/injurious features as a result of impacts.</p> <p>2. Injurious protrusions should not be a part of seatback design features. The elimination of injurious protrusions however, does not address blunt trauma injuries, or the propensity of a feature to create sharp/injurious features or protrusions as a result of impact.</p> <p>3. Although covering injurious features with a minimum of 1” of protective padding has been, and will continue to be, accepted by the FAA for certain certification bases, this isn’t a practical option for many designs. For example, covering an LCD video monitor with 1” of padding negates the intended function of the video monitor, i.e., to provide an ability to view video programming. As such, other methods of demonstrating compliance are needed.</p> <p>4. Consideration of static deflection helps to remove potentially injurious features further away from seated occupants. As such certain items can be removed from consideration for injury potential if they translate out of the headstrike zone. However, for those items left within the headstrike zone, it is still necessary to address blunt trauma injuries and the propensity of a seatback component to create sharp/injurious features or protrusions as a result of impact.</p>
<p>Seattle Aircraft Certification Office (SACO)</p>	<p>The draft policy memorandum criteria was utilized during a recent certification program conducted by the SACO. Confusion was caused by the pictures in Appendices 2 and 3. These Appendices show the test device impacting face first, and as close to perpendicular as possible into</p>	<p>Concur – the intent is to have the test device contact the seatback mounted accessory (or any other item being investigated such as an escape slide bustle, etc.) with a direction of motion that is as close to perpendicular as possible. At the same time, the test setup should be adjusted to have the test device forehead be the initial point of contact.</p>

	the seatback mounted component. The figure should be revised to show that the forehead is the initial point of contact, not the nose.	
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