

Master Post Public Comment Log
TSO-C121b

#	Commenter	Page & Para. No.	Comment	Reason for Comment	Suggested Change	Comment Resolution
1.	Boeing Commercial Airplanes	Page 1; Para. 2	<p>The first sentence states of the proposed text states:</p> <p><i>This TSO affects new applications submitted after its effective date.</i></p>	<p>We recommend that FAA either delete this sentence or provide a concise definition of “new applications.”</p>	<p>To some applicants, this sentence may imply that only new TSO applicants are affected, and that existing holders of TSO-C121 and TSO-C121a can continue to manufacture 30-day duration ULDs. We do not believe that this is the intent of this TSO. Additionally, this sentence seems to conflict with paragraph 2.b. that states:</p> <p><i>Effective March 1, 2015 under ... 14 CFR §21.613(a), we are withdrawing each TSO authorization and LODA that lets the holder identify or mark</i></p>	<p>Not Accepted – Existing holders of TSO-C121, TSO-C121a or LODA can continue to manufacture 30 day duration ULDs until the authorization is revoked by the FAA effective March 1, 2015.</p> <p>New applications for a ULD TSO authorization must meet the requirements of TSO-C121b once published.</p>

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					<i>underwater locating devices (acoustic) (self-powered) with TSO-C121 or TSO-C121a.</i>	
2.	Boeing Commercial Airplanes	Page 1; Para. 3	The first sentence in paragraph 3 states: <i>New models of underwater locating devices (acoustic) (self-powered) identified and manufactured on or after the effective date of this TSO ...</i>	We suggest that this sentence be revised as follows: <i>New models <u>of high frequency (37.5 ± 1 kHz)</u> underwater locating devices (acoustic) (self-powered) identified and manufactured on or after the effective date of this TSO ...</i>	Our revision provides better clarity. As written the in the proposed TSO, the first sentence implies that even low frequency (8.8kHz) ULDs have to meet AS 8045A, which is not the case.	Partially Accepted – We accept the intent to clearly distinguish between the two TSOs. TSO-C121b states that the ULD must meet the minimum performance standards found in SAE AS8045a. A new SAE standard and separate TSO will be utilized for the low frequency ULD The new low frequency ULD TSO will have a unique title.

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3.	Filippo Tomasello (EASA)	Page 2, Par. 3.e.	In our knowledge RTCA has published DO-178C, replacing former B edition	New industry standard published	Refer to DO-178C instead than to DO-178B	Partially Concur – We recognize that DO-178C was published in December 2011. However, both the order 8150.1B TSO Program and AC20-115B Software still need to be revised to reflect DO-178C. Until that occurs we are not referencing DO-178C in this TSO. An applicant can request a deviation in order to utilize DO-178C if desired.
4.	Filippo Tomasello (EASA)	Page 2, par. 4.a	An alternate solution for marking could be to show the date of replacement of the water activated battery	Battery life may well be shorter than life of equipment	Insert requirement to show date of replacement of battery	Acknowledge – Acknowledge that the battery operating life needs to be

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						tracked and identified. TSO-C121b requires that the information in 14 CFR § 45.15(b) be marked on the article including maintenance limitations items. This TSO revision does not prevent additional markings.
5.	Jean-Luc Delamaide (EASA)	Page 2, Section 3	It may be relevant to add a subsection about Airborne Electronic Hardware (AEH-qualification)	Software qualification is done through the consideration of DO-178 B or C and AEH qualification through the consideration of DO-254	Add a subsection in section 3 which could reference DO-254 to qualify the Airborne Electronic Hardware	Not Accepted – The FAA does not require use of DO-254 for complex custom airborne electronic hardware when the failure condition classification is minor. This TSO does not preclude the use of DO-254.

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6.	Airbus	TSO 1st Page, Para 3.a. Functionality	Airbus refers to a CVR or DFDR as “Equipment”. The ULD is part of the equipment P/N and seen as Line Replaceable Unit (LRU). It is understood that this may be only one manufacturer specific philosophy.	Airbus suggests clarifying the Para. 3.a. to make sure that any ULD is covered.	Airbus proposes to revise para. 3.a. to read: “This TSO’s standards apply to equipment intended to assist in finding flight data recorders, cockpit voice recorders, or aircraft, <u>either installed separately or being part of a DFDR or CVR unit.</u> ” (<i>Additional language underlined</i>).	Not Accepted – TSOs generally do not address installation specific criteria.
7.	Airbus	TSO 2nd Page, Para. 3.b. Failure Condition Classification	Para 3.b. states that ULD malfunction or loss of the function is a “Minor” failure condition. However, if powered by nonrechargeable LI cells or batteries, those LI power sources need to comply with TSO C-142, in which a battery or cell failure is considered “Major”. As it is impossible to differentiate between reasons for ULD malfunctions or loss of functions, this should lead to classifying a ULD failure as	Airbus suggests clarifying the Para. 3.b. to make sure that ULD failures as a consequence of LI cell/battery overheat, and subsequent fire, is covered.	Airbus proposes to revise para.3.b. to read: b. Failure Condition Classifications. b.1. Malfunction or loss of the function defined in paragraph 3.a of this TSO is a minor failure condition. b.2. In case the ULD is powered by rechargeable LI	Not Accepted – We acknowledge that a rechargeable lithium battery manufactured to the requirements specified in TSO-C142a is a “major” failure classification. However, the major failure classification

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			"Major" for the aircraft.		cells or batteries approved under TSO-C142, malfunction or loss of function defined in 3.a. of this TSO has to be classified as Major. Design the system to at least these failure condition classifications.	does not specifically apply to the ULD.
8.	Airbus	TSO 2nd Page, Para. 3.d. Environmental Qualification	In para 3.d., compliance with RTCA DO-160 G is requested. If powered by non-rechargeable LI cells or batteries, environmental qualification requirements from TSO-C142, in particular RTCA DO-227, would also apply for the ULD unit with LI cells/batteries incorporated.	DO-227 environmental Qualification requirements differ from DO-160G. It should be made sure that the ULD with TSO-C142 cells/batteries incorporated complies with both sets of standards.	Airbus suggests renumbering para. d.(2) to d.(3) and introduce a new para d.(2) to read: <u>(2) In case the ULD is powered by rechargeable LI cells or batteries approved under TSO-C142, qualify the ULD system to comply with both RTCA DO-160G and DO-227. (Additional language underlined)</u>	Not Accepted – If using lithium batteries we acknowledge the additional requirement for TSO-C142a (DO-227) that includes unique testing requirements for the battery. However, the ULD must still meet the minimum performance standard SAE AS8045a which

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						includes environmental requirements contained in DO-160G. The proposed language would be redundant.
9.	Universal Avionics Systems Corporation		Universal Avionics reviewed the draft TSO-C121b for Underwater Locating Devices (Acoustic, Self-Powered). Universal Avionics does not have any comments.			Acknowledged
10.	Cessna Aircraft Company		Cessna Aircraft Company reviewed the draft TSO-C121b for Underwater Locating Devices (Acoustic, Self-Powered). Cessna Aircraft Company does not have any comments.			Acknowledged