

**Minimum Performance Standard for Underwater Locating Devices (Acoustic)  
(Self-Powered)**

**RATIONALE**

Technology exists to increase the minimum Underwater Locating Devices (ULD) operating life without changes to the form, fit or function of an installed ULD. For aircraft search and recovery in extremely remote areas, a ULD operating for 30 days may not be sufficient. This revision includes an increase of the minimum operating life in paragraph 4.7 from 30 days to 90 days and updates to the environmental testing.

**1. PURPOSE**

This SAE Aerospace Standard (AS) specifies minimum performance standards for Acoustic Underwater Locating Devices which are primarily intended for use with both fixed and rotary wing civil aircraft.

**2. SCOPE**

This AS covers ULD utilized in finding flight data recorders, cockpit voice recorders or aircraft. Such ULDs are installed adjacent to the recorders in a manner that they are unlikely to become separated during crash conditions.

**2.1 Applicable Documents**

The following publications form a part of this document only to the extent they are explicitly invoked by the requirements within this Aerospace Standard. The latest issue of SAE publications shall apply. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

**2.1.1 SAE Documents**

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

AS8039 Minimum Performance Standard for Flight Recorders.

**2.1.2 ASTM Documents**

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, [www.astm.org](http://www.astm.org).

D 1141-98 Standard Practice for the Preparation of Substitute Ocean Water.

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on this Technical Report, please visit  
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### 2.1.3 RTCA, Inc. Documents

Available from RTCA Inc., 1828 L Street, NW, Suite 805, Washington, DC 20036, Tel: 202-833-9339, [www.rtca.org](http://www.rtca.org).

RTCA/DO-160G Environmental Conditions and Test Procedures for Airborne Equipment.

## 2.2 Definitions

The word “shall” is used to express an essential requirement where compliance is mandatory.

## 3. GENERAL STANDARDS

- 3.1 **Material:** Material shall be of a quality which experience or tests, or both, have demonstrated to be suitable and dependable for use in aircraft. The correct functioning of the ULD shall not be impaired by any change of material properties arising from the tests defined in Sections 5 and 6.
- 3.2 **Workmanship:** Workmanship shall be consistent with high grade aircraft instrument manufacturing practice.
- 3.3 **Compatibility:** If components are individually acceptable but require matching for proper operation, they shall be identified in a manner that shall ensure performance to the requirements of this AS.
- 3.4 **Interchangeability:** Components or systems which are identified with the same manufacturer’s part or model number shall be physically and functionally interchangeable.
- 3.5 **Flammability & Fire Test:** The exposed surfaces of the ULD and mounting shall be non-flammable. The ULD shall be incapable of sustaining or initiating a fire or rupturing, or both, with or without fragmentation, due to a dead short of the power source.
- 3.6 **Power Source:** Means shall be provided to enable the ULD power source to be checked for voltage and longevity in its installed position. Such checks shall be defined in the ULD manufacturer’s instruction manual.
- 3.7 **Identification:** The following information shall be legible and, with the exception of battery replacement date, be indelibly marked on the ULD or on the nameplate attached. Markings on the ULD are to be as large as is practical.
  - a. Name of instrument.
  - b. Manufacturer’s part number.
  - c. Manufacturer’s serial number.
  - d. Federal Aviation Administration (FAA) Technical Standard Order (TSO) number, for example, FAA TSO-C121b if applicable (or SAE AS number or equivalent approval identification).
  - e. Manufacturer’s name or trademark.
  - f. Battery replacement information.

## 4. MINIMUM PERFORMANCE STANDARDS

The manufacturer shall conduct sufficient tests to prove compliance with this Aerospace Standard.

- 4.1 **Actuation:** Automatically by both fresh and salt water at all depths from 0.15 m (0.5 ft) to 6096 m (20 000 ft) within 4 hours after immersion.

NOTE: If the ULD is subjected to negligent or accidental contamination with water, either immersed or sprayed, (that is, other than in its operational mode) it shall, on drying out, revert to its original dormant state.