




## **Emergency Evacuation Demonstration**

December  
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Air Operators Certification and Surveillance  
Directorate

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## 1. Purpose

- 1.1. The purpose of this Advisory Circular is to advise operators or prospective operators on the principles of planning, conducting and evaluating Emergency Evacuation and Ditching Demonstrations performed by an applicant for an AOC as required by ECARAS part 9.

## 2. Reference Material


- 2.1 Regulatory Requirements
  - 2.1.1. ECARAS Part 9.

## 3. GENERAL

- 3.1. When a cabin crew is trained in emergency evacuation and ditching procedures, there will be a significant reduction in casualties if the aircraft were involved in a survivable accident.
- 3.2. Each AOC holder shall conduct a partial emergency evacuation and ditching evacuation, observed by the Authority, which demonstrates the effectiveness of its crew member emergency training and evacuation procedures
- 3.3. The purpose of an emergency evacuation demonstrations is to:
  - 3.3.1 Test the basic aeroplane design and the efficiency with which passengers can be safely evacuated from it.
  - 3.3.2 Test the emergency evacuation systems on the aeroplane.
  - 3.3.3 Verify the manufacturer's / operator's approved emergency evacuation procedures.
- 3.4. There are two types of Emergency Evacuation Demonstrations:
  - 3.4.1. Full-capacity demonstrations (which are not within the scope of this AC)
  - 3.4.2 Partial demonstrations

## 4. FULL CAPACITY DEMONSTRATION

- 4.1 ECARAS part 9 states that an aircraft type and model in commercial air transport passenger-carrying operations utilizing more than 44 passenger seats requires an actual full capacity emergency evacuation demonstration for the configuration in 90 seconds or less.

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4.2 This demonstration typically is conducted by the aircraft manufacturer during type certification in a manner acceptable to the CAA authority of the State of aircraft design.

4.3 Should a manufacturer of a transport category aircraft not conduct such a demonstration prior to the Civil Aviation Authority’s issuance of type certification:

4.3.1 The first intended operator of the aircraft would have to accomplish the full-capacity emergency evacuation in 90 seconds or less before the aircraft could be used in passenger-carrying operations under an AOC.

4.3.2 Criteria for full-capacity emergency evacuations are not within the scope of this Advisory Circular.

4.4 The following situations require an AOC holder / applicant to conduct a partial Emergency Evacuation Demonstration that is observed by the CAA Inspectors.

4.4.1 When an AOC holder / applicant intends to operate a specific make and model aircraft for the first time. This would apply to initial operation certification.

4.4.2. When an operator proposes to significantly change the number of cabin attendants, their seating location, duties or emergency procedures.

4.4.2.1. When a change in seating configuration requires the addition of a cabin attendant.

4.4.2.2. When an operator changes a cabin attendant seating location that results in new procedures.

4.4.2.3. Changes to duties or procedures that have not previously been required or demonstrated.


4.4.3. When an operator proposes to change the number location, type of emergency exits or opening mechanisms on the emergency exits.

**5. PARTIAL DEMONSTRATION**

5.1 ECARAS part 9 states that the full-capacity actual demonstration may not be required, if the AOC holder provides a written petition for deviation with evidence that:-

5.1.1. A satisfactory full-capacity emergency evacuation for the aircraft to be operated was demonstrated during the aircraft type certification or during the certification of another air operator; and

5.1.2 There is an engineering analysis, which shows that an evacuation is still possible within the 90-second standard, if the AOC holder’s aircraft

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configuration differs with regard to number of exits or exit type or number of cabin attendants or location of the attendants.

5.2 If a full-capacity demonstration is not required, the AOC holder shall demonstrate to the Authority that its available personnel, procedures and equipment could provide sufficient open exits for evacuation in 15 seconds or less.

5.3. If the applicant's petition satisfies the conditions above, the CAA Inspector may grant a deviation from a full-capacity demonstration.

5.3.1. This type of demonstration is called a partial emergency evacuation demonstration.

5.3.2 Requirements for partial demonstrations will be discussed in this Circular.

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## 6. DITCHING DEMONSTRATION

- 6.1 ECARAS part 9 requires that an applicant for an AOC shall demonstrate to the Authority that it has the ability and equipment to efficiently carry out its ditching procedures.
- 6.2 The purpose of this demonstration is to evaluate an applicant’s ability to safely prepare the passengers, aeroplane, and ditching equipment for a planned water landing.

## 7. DEMONSTRATION REQUIREMENTS

- 7.1 Prior to conducting an emergency evacuation demonstration, the AOC holder shall apply for and obtain approval from the Authority.
- 7.1.1 The applicant should submit its plan to the CAA no less than 15 working days in advance of the demonstration.
- 7.1.2 The applicant’s Letter of Request shall contain the following information:
- 7.1.2.1. The regulation that identifies the demonstration to be covered.
  - 7.1.2.2. The subject aeroplane type model and full seating capacity including crew members.
  - 7.1.2.3. The number of cabin attendants and their duty assignment positions.
  - 7.1.2.4. Proposed date, time and location.
  - 7.1.2.5. Name and telephone number of the company coordinator.
  - 7.1.2.6. A plan showing how the applicant intends to initiate the demonstration.
- 7.2 The applicant’s demonstration plan must explain:
- 7.2.1 The signal to be used for initiating the demonstration.
  - 7.2.2 How the applicant will block aircraft exits that are not to be used.
  - 7.2.3 How the aircraft will be positioned to allow for unobstructed deployment of slides and emergency equipment.
  - 7.2.4 How dark-of-the-night conditions will be maintained if artificial means of illumination are used.


A description must be in the plan of how the operator will ensure the demonstration is conducted in the “dark of the night,” or in conditions which simulate the “dark of the night.” The regulations do not define “dark of the night.” For the purpose of emergency evacuation demonstrations, “dark of the night” means a level of illumination that approximates the natural illumination that occurs

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15 minutes after official sunset under clear sky conditions. This lower level of illumination is needed to properly evaluate the airplane's emergency lighting system and passenger and crewmember performance in darkened conditions. Levels of illumination significantly darker can interfere with a proper evaluation of the demonstration. Therefore, this approximate level of illumination should be maintained by natural or artificial means. The most effective way of controlling the level of illumination is to conduct the demonstration in a darkened hangar. It is CAA policy that such conditions are required for evaluating the aircraft's emergency lighting system and the performance of the crewmembers in a darkened environment. The use of window shades in the down or partially lowered position could also be effective in achieving the objective of "dark of the night" in the cabin by preventing exterior lighting from entering the cabin.

- 7.2.5 The aircraft diagram which must include:-
- 7.2.5.1. The location and designation of all exits by type and exit pairs.
  - 7.2.5.2. The assigned seating location of each required crew member during takeoff.
  - 7.2.5.3. The interior cabin configuration showing the location of:-
    - 7.2.5.3.1 Each passenger seat
    - 7.2.5.3.2 Galleys
    - 7.2.5.3.3 Aisles
    - 7.2.5.3.4 Lavatories
    - 7.2.5.3.5 Passenger compartment partitions and bulkheads
  - 7.2.5.4. Location and type of emergency equipment on the aircraft(LOPA).
- 7.2.6 A copy of the passenger information card used on the aircraft must be attached to the applicant's plan.
- 7.2.7 A list of all flight deck and cabin crewmembers that are qualified to participate in the demonstration must be attached to the applicant's plan:
- 7.2.7.1 The flight crew must be qualified in the aircraft to be used.
  - 7.2.7.2 Cabin attendants must have completed the approved CAA training program and have passed the required drills and competency checks on the aircraft to be used.
  - 7.2.7.3 The CAA inspection team will select from this list the crew members who will actually participate in the demonstration.

7.3 Cabin crew members used in the emergency evacuation demonstrations shall:-

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7.3.1 Be selected at random by the Authority.

7.3.2 Have completed the AOC holder's Authority- approved training programme for the type and model of aircraft; and

7.3.3 Have passed the drills and competence check on the emergency equipment and procedures.

7.4 To conduct the partial emergency evacuation demonstration, the AOC holder's assigned cabin crew members shall, using the AOC holder's line operating procedures:-

7.4.1 Demonstrate the opening of 50 percent of the required floor-level emergency exits and 50 percent of the required non-floor-level emergency exits (whose opening by a cabin crew member is defined as an emergency evacuation duty) and deployment of 50 percent of the exit slides, selected by the Authority; and

7.4.2 Prepare for use those exits and slides within 15 seconds.

7.5 Ditching demonstrations are normally conducted after the successful completion of the AOC applicant's emergency evacuation demonstration:-

7.5.1 During daylight hours or

7.5.2 In a lighted hanger

7.6 To conduct the ditching evacuation demonstration, the AOC holder's assigned cabin crew members shall:-

7.6.1 Demonstrate their knowledge and use of each item of required emergency equipment.


7.6.2 Prepare the cabin for ditching within 6 minutes after the intention to ditch is announced.

7.6.3 Remove each life raft from storage (one life raft, selected by the Authority, shall be launched and properly inflated or one slide life raft properly inflated); and

7.6.4 Enter the raft (the raft shall include all required emergency equipment) and completely set it up for extended occupancy.

## **8. EMERGENCY EVACUATION SEQUENCE OF EVENTS**

8.1. Cabin attendants shall prepare for normal departure in accordance with the applicant's procedures.


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- 8.2. Cabin attendants shall conduct a passenger briefing in accordance with the applicant’s procedures.
- 8.3. Cabin attendants shall be seated at their assigned positions with restraint systems fastened.
- 8.4. CAA Inspection team ensures that external exits and internal doors/curtains are in position for takeoff.
- 8.5. The flight crew accomplishes all pre-takeoff actions.
- 8.6. The CAAI team leader issues a warning signal (air horn blast) followed in approximately 30 seconds by the initiation signal.
- 8.7. At the 15-second point, the team leader issues a signal to stop the demonstration.
- 8.8. . The following items and conditions constitute an unsatisfactory demonstration:-
  - 8.8.1 Exits, slides or slide-rafts not prepared for use before the termination signal.
  - 8.8.2 Equipment malfunctions even if time limit was met.
  - 8.8.3 Deficiencies in crew member effectiveness.

## 9. DITCHING DEMONSTATION SEQUENCE OF EVENTS

- 9.1. The captain initiates the demonstration by ordering the crew members to Prepare for ditching.
- 9.2. The following areas will be evaluated during the demonstration:-
  - 9.2.1. The AOC applicant’s emergency training program.
  - 9.2.2 Ditching procedures.
  - 9.2.3 Crew member competency.
  - 9.2.4 Equipment reliability and capability.
- 9.3 At the end of the 6 minute planned ditching period, the crew must be prepared for a simulated water landing.
- 9.4 Actions accomplished by the cabin crew during the 6-minute period include.
  - 9.4.1 Correctly putting on their life preservers.
  - 9.4.2 Briefing the passengers.
  - 9.4.3 Securing the cabin.



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- 9.5 For a partial demonstration, one slideraft selected by the CAA inspector will be launched and inflated.
- 9.6 After the simulated water landing, all life rafts / slide rafts must be removed from stowage and placed on the cabin floor for inspection.
- 9.6.1 This action is NOT timed.
- 9.7 A launched life raft will be removed from the aircraft and positioned on the ground before inflation.
- 9.8 A launched slide-raft will be inflated on deployment:-
- 9.8.1 This will be removed from its door mounting by company personnel and positioned on the ground.
- 9.9 Crewmembers are questioned about launch procedures, and once inside the raft, locate and describe the use of each item of emergency equipment within the raft.
- 9.10. Grounds for disqualification for ditching demonstrations:-
- 9.10.1 Failing to meet a specified time limit.
- 9.10.2 Equipment malfunctions (even when a time limit is met).
- 9.10.3 Deficiencies in crew member effectiveness.

