



สำนักงานการบินพลเรือนแห่งประเทศไทย  
The Civil Aviation Authority of Thailand

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## Emergency Evacuation and Ditching Demonstration Guidance Material

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Approved by



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Director General of the Civil Aviation Authority of Thailand

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## Abbreviations

Abbreviations		Meaning
<b>A</b>	ABPs	Able-Bodied Passengers
	AFM	Aircraft Flight Manual
	AOC	Air Operator Certificate
	AOCR	Air Operator Certificate Requirements
	APU	Auxiliary Power Unit
	ASI	Aviation Safety Inspector
	ATC	Air Traffic Control
<b>C</b>	CAAT	The Civil Aviation Authority of Thailand
	CCM	Cabin Crew Manual
	CCTM	Cabin Crew Training Manual
	CRM	Crew Resource Management
	CRS	Child Restraint Systems
	CSI	Cabin Safety Inspector
	CVR	Cockpit Voice Recorder
<b>D</b>	DRMS	Document and Records Management System
	DV	Direct View
<b>E</b>	EDTO	Extended Diversion Time Operations
	EES	Emergency Evacuation System
	ELT	Emergency Locator Transmitter
	ETOPS	Extended Range Operations by Aeroplanes with Two Turbine Engines
<b>F</b>	FOI	Flight Operations Inspector
<b>I</b>	ICAO	International Civil Aviation Organization
<b>M</b>	MEL	Minimum Equipment List
<b>O</b>	OM	Operations Manual
	OMI	Operations Management Inspector
<b>P</b>	PA	Public Address
	PBE	Protective Breathing Equipment
	PED	Portable Electronic Device
	POI	Principal Operations Inspector
<b>Q</b>	QRH	Quick Reference Handbook
<b>R</b>	RFFS	Rescue and Fire Fighting Service
<b>S</b>	SOP	Standard Operating Procedure
<b>T</b>		

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Abbreviations	Meaning
TC	Type Certificate
TCDS	Type Certificate Data Sheet

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## 0 Introduction

### 0.1 Background

Past accident investigations have stated that the performance of cabin crew members was a significant factor in the successful evacuation of aircraft, especially when time is a critical factor in the survivability of occupants. The number of cabin crew members on board can impact the outcome of an evacuation. Their performance significantly influences the speed at which passengers are able to evacuate.

In addition to their role in an emergency evacuation, cabin crew members play an important proactive role in managing safety during normal operations, which can also contribute to the prevention of incidents or accidents. This role has become increasingly challenging and includes, but is not limited to:

- (a) Applying safety procedures, including continuous surveillance of the cabin;
- (b) Managing and assisting passengers;
- (c) Preventing and managing incidents from escalating in the cabin, such as smoke or fire; and
- (d) Informing the flight crew of abnormal situations observed in the cabin or relating to the aircraft, such as pressurization problems, engine anomalies, and contamination of critical surfaces.

The assignment of cabin crew members for emergency duties on board commercial passenger aircraft is a requirement of Annex 6 — Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes, which states that an operator must establish, to the satisfaction of the State of the Operator, the minimum number of cabin crew members required for each aircraft type in its fleet, based on seating capacity or the number of passengers carried. This requirement is based on the need for cabin crew members to be present on board in order to conduct safe and expeditious evacuation of an aircraft, and perform the necessary functions in an emergency or in a situation requiring an evacuation.

### 0.2 Purpose

Effective emergency evacuation procedures have significantly reduced the number of casualties in survivable aircraft accidents. The Emergency Evacuation and Ditching Demonstration Guidance Material (GM) has been developed in order to provide guidance on provisions in Annex 6 — Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes related to the assignment of emergency duties and responsibilities, with the objective of enabling the AOC applicants or operators to ensure standards safe operating practices and procedures required to be complied during the operational inspection phase of the certification process and the CAAT for planning, conducting and evaluating operators' evacuation and ditching demonstrations.

In this manual, the term “State” refers to the basic authority that normally establishes a CAAT which has a Director General of Civil Aviation (DGCA) with power to exercise authority over civil aviation matters. The “operator” is considered to be an organization or enterprise engaged in civil commercial air transport operations.

### 0.3 Applicability

This GM is applicable to AOC applicants, operators and CAAT relevant Aviation Safety Inspectors (ASI).

## 0.4 References

- (a) ICAO DOC 10072 Manual on the Establishment of Minimum Cabin Crew Requirements
- (b) FAA Order 8900.1 Volume 3, General Technical Administration
- (c) Air Operator Certificate Requirements
- (d) CAAT Flight Operations Inspector Manual Volume 2



# 1 Emergency Evacuation Demonstration

## 1.1 General and Specific Requirements<sup>1</sup>

### 1.1.1 General Evacuation Information: Full-scale and Partial Emergency Evacuation and Ditching Demonstration (without slide/raft inflation)

- 1.1.1.1 Aircraft certification specifications/standards require that before an aircraft type and model can be used in commercial air transport passenger-carrying operations, an actual full capacity emergency evacuation demonstration has been conducted to check the suitability of the emergency equipment and to determine the maximum number of persons on board. All passengers must be evacuated from the aircraft within 90 seconds or less, by using not more than 50 percent of the available floor-level emergency exits.
- 1.1.1.2 Subsequently, engineering analysis and historical data can be used to validate other passenger seating configurations. Prior to the import of an aircraft into Thailand and issue of a Certificate of Airworthiness, the Airworthiness and Engineering Department shall conduct an interior inspection to ensure conformity to an approved interior configuration, emergency and safety equipment, and that there is documentation to confirm that the full capacity emergency evacuation has been completed satisfactorily. The Type Certification Data Sheet (TCDS) and Aircraft Flight Manual (AFM) will normally provide this information and the CAAT uses and checks Type Certificate Data Sheet indicating certification basis of 14 CFR 25.801 and 25.803 (CS 25.801 and 25.803) as a source of documents of a previous demonstration of ditching and evacuation by aircraft manufacturer refer to Appendix B of this document.
- 1.1.1.3 For issuance of an AOC or variation to an AOC, the applicant is required to establish, to the satisfaction of the CAAT, procedures to be followed, assignment of duties, qualifications of crew members and equipment to be used that will permit an emergency evacuation in 90 seconds or less, of the maximum number of persons, including crew members, authorized to be carried on each type of aircraft used in commercial air transport operations.
- 1.1.1.4 In addition, emergency evacuation training and competency requirements for crew members are established in AOCR Chapter 6. As part of the document evaluation, CAAT inspectors will determine that the applicant has established a training programme that ensures the crew members are competent in executing those safety duties and functions to be performed in the event of an emergency evacuation.
- 1.1.1.5 If reliable analytical methods or previous demonstrations by the aircraft manufacturer or other operators of the same type and model of aircraft **are available** to satisfy the Authority of the applicant's emergency evacuation capability, a partial evacuation demonstration (without slide inflation) is required in the certification inspection to verify the adequacy of applicant's emergency procedures and crew competency in an emergency evacuation.

If reliable analytical methods or previous demonstrations by the aircraft manufacturer or other operators of the same type and model of aircraft **are not available** to satisfy the Authority of the applicant's emergency evacuation capability, a full evacuation demonstration is required.

- 1.1.1.6 An evacuation demonstration is usually required for each aircraft type with a seating capacity of more than 44 seats. A current AOC holder (i.e. an existing operator) may be required to conduct an evacuation demonstration under specific circumstances, such as the introduction of a new aircraft type into its fleet or other changes *listed in section 1.2.1.2*. An applicant may also be required to conduct a ditching demonstration as part of the demonstration phase of the certification process

<sup>1</sup> Ref. DOC 10072 Item 3.2 and FOIM Vol.2

for each aircraft type which will be operated on flights over water. A current AOC holder may be required to conduct a ditching demonstration under specific circumstances (*refer to section 2.2.1*).

- 1.1.1.7 The goal of the demonstration is to satisfy CAAT that, in any of the circumstances, an operator's cabin crew are able to achieve an evacuation and ditching capability equivalent to that achieved for the same aircraft type by the manufacturer during the TC process. The performance of cabin crew is a significant factor in the successful evacuation of the aircraft, especially when time is a critical factor in the survivability of occupants. The number of cabin crew on board can impact the outcome of an evacuation. Their performance significantly influences the speed at which passengers are able to evacuate.
- 1.1.1.8 For an operator, the evacuation demonstration evaluates the following aspects:
  - (a) Cabin crew training programme and crew members competency in a new or modified design;
  - (b) The operator's emergency evacuation and ditching procedures; and
  - (c) The reliability and capabilities of the safety and emergency equipment on board the aircraft.
- 1.1.1.9 If CAAT requires an operator to conduct an evacuation demonstration, the number of cabin crew used by the operator to successfully complete the demonstration should be used to establish the minimum cabin crew required on that aircraft type for that particular operator. If the number of cabin crew used by the operator in the demonstration is higher to that used by the manufacturer to achieve the TC requirements, this higher number should become the operator's minimum cabin crew required for that aircraft type.
- 1.1.1.10 Emergency evacuation and ditching demonstrations conducted by the operator are divided into the following categories:
  - (a) Full-scale (land) evacuation demonstration;
  - (b) Partial (land) evacuation demonstration (without slide inflation); and
  - (c) Simulated Ditching evacuation demonstration (without slide/raft inflation).

### 1.1.2 Criteria for a Full and Partial Evacuation Demonstration (Without Slide Inflation)<sup>2</sup>

- 1.1.2.1 A full-scale (land) evacuation demonstration involves any scenario where the aircraft remains in the normal ground attitude, landing gear extended, and one of each pair of emergency exits in the sides of the fuselage remains usable. The applicant (manufacturer or operator) must prove that all of the aircraft's occupants (passengers and crew members) can evacuate to the ground within an appropriate time (typically a timeframe of 90 seconds), when at full passenger seating capacity.
- 1.1.2.2 A partial (land) evacuation demonstration (without slide inflation) involves any scenario where the aircraft remains in the normal ground attitude, landing gear extended, and 50 percent of the emergency exits in the sides of the fuselage remain usable. Cabin crew must demonstrate, to CAAT, that the emergency evacuation procedures have been accomplished within an appropriate time (typically a timeframe of 15 seconds).
- 1.1.2.3 Passengers are generally not required for a partial evacuation demonstration (without slide inflation), only flight crew and cabin crew. However, in some situations passengers are required to perform duties in an evacuation (e.g. open over-wing exits). In those instances, passengers should be included in the demonstration to carry out these duties during the exercise. All efforts should be made to minimize injury to passenger participants.

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<sup>2</sup> Ref. Doc 10072

1.1.2.4 The specific conditions that the operator shall meet as part of the exercise. These conditions fall under the following categories:

(a) Environmental conditions

The demonstration should be conducted with exterior ambient light levels of no greater than 0.3 foot-candles prior to the activation of the aircraft emergency lighting system. However, the demonstration may be carried out during daylight with simulated darkness so as to recreate night-time conditions. If the demonstration takes place during daylight hours, all windows of the aircraft should be covered and all exits should be closed to minimize the effect of daylight in the cabin. This lower level of illumination is needed to properly evaluate the aircraft's emergency lighting system and passenger and crew members performance in darkened conditions. Levels of illumination significantly darker may interfere with a proper evaluation of the demonstration, adversely affect safety, and/or test logistics. 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. Although it should not shine against the aircraft exits or windows.

(b) Aircraft conditions

Aircraft conditions typically involve the following:

- (i) The aircraft should be of the type (i.e. make, model, series and cabin configuration) for which approval is sought;
- (ii) The aircraft should be at normal ground attitude with its landing gear extended;
- (iii) During the steps leading to the commencement of the timing of the evacuation, the aircraft's electrical systems should be fully powered (either by an external power unit or by the auxiliary power unit);
- (iv) All exits and any internal doors and curtains should be in the take-off position;
- (v) All the safety and emergency equipment required should be installed in accordance with the operator's manual; and
- (vi) Fifty per cent of the floor-level exits should be used. Exits that are not to be used in the exercise should have the exit handle deactivated. Red lights, red tape, or other means placed outside the exits may be used to indicate fire or other reasons that render the exits unusable during the exercise. The exits to be used during the demonstration should be representative of all exits on the aircraft and should be designated by the CAAT. At least one floor-level exit should be used.

(c) Crew conditions

- (i) Flight crew and Cabin crew involved in the demonstration should be qualified, regularly scheduled line operations, i.e. persons that have been trained by the operator in accordance with the standards detailed in the approved training syllabus. No additional training in evacuation procedures or techniques should be provided to those assigned responsibility for the exit operation. Since crew members may have additional knowledge from past experience with demonstrations, which can influence how they perform in the evacuation, every effort should be made to ensure that they have not participated in a demonstration in the past. Cabin crew to be used in the demonstration should not be instructors, supervisory personnel, safety representatives from worker

organizations, or anyone else who may be expected to have knowledge of evacuation demonstrations beyond that of an average cabin crew member. When the demonstration is conducted for the purpose of a TC issuance, the cabin crew should be trained to the standards in the manufacturer’s certification test requirement document. When the demonstration is conducted as part of the process to issue an AOC, or other operational requirements, the cabin crew should be trained to the standards in the operator’s approved training programme.

- (ii) Flight crew who are not regularly scheduled line crew members may be allow to participate in the exercise (as flight crew), provided they are knowledgeable on the aircraft type.
- (iii) A new (start-up) operator may not have regularly scheduled line cabin crew members. In such instances, the operator would need to utilize the first trained group of cabin crew members. It is possible that this initial group of cabin crew members will include instructors. Nevertheless, this group should not be given any additional instruction or experience that will not be given to other cabin crew members expected to operate the aircraft type on the line. For example, instructors should only receive “train the trainer” training after their participation in the evacuation demonstration. Persons who are responsible for the operator’s overall cabin crew programmes should not be used as cabin crew members during demonstrations, unless no other cabin crew have been hired.
- (iv) Smaller operators may also lack sufficient personnel to meet some of the restrictions noted in this section. In those instances, CAAT may need to work with the operator to address restrictions and establish necessary criteria, such as a specified time period within which cabin crew are prohibited from participating in the exercise.

(d) Confidentiality of information

The confidential information, which should not be disclosed to participants, to ensure unbiased results. The following points should be covered:

- (i) No crew member or passenger should be given knowledge of the exits available for the demonstration (i.e. exits that have been chosen as usable);
- (ii) Passengers may be told to follow crew member instructions, as part of the pre-flight safety briefing, but should not be instructed on the procedures to be followed in the demonstration;
- (iii) The operator should be prohibited from practicing, rehearsing, or describing in detail the demonstration for the participants; and
- (iv) Persons having recently participated in this type of demonstration should be prohibited from participating in the exercise.

(e) Scenario conditions

Conditions regarding the scenario should include the following:

- (i) The minimum number of crew members required (flight crew and cabin crew) should be on board;

- (ii) Cabin crew should conduct pre-flight safety checks, door arming procedures, cabin compliance checks, the passenger pre-flight safety briefing, and take their assigned jump seats as part of the normal departure preparations process;
- (iii) Cabin crew should be seated in their assigned jump seats for take-off with safety harness fastened, confirm “cabin readiness” for take-off and pass on the notification to the flight crew, as per operator procedures;
- (iv) Flight crew should be seated in their normal positions with restraints fastened;
- (v) Once the flight crew advise the CAAT Team Leader that the cabin is prepared, the CAAT Team Leader decides when to initiate the evacuation;
- (vi) Cabin crew should remain seated with safety harnesses fastened until the initiation signal for the commencement of the evacuation is given;
- (vii) With the exception of the crew members involved in the demonstration, any employee of the operator is not allowed to be seated at an emergency exit;
- (viii) The aircraft’s normal electrical power sources should be interrupted. This action provides a clear initiation signal in the following ways:
  1. Outside, the aircraft’s external lights (e.g. taxi lights, anti-collision lights) should extinguish; and
  2. Inside, normal cabin lighting should extinguish and the emergency lighting system should illuminate;
- (ix) Other options of signaling the commencement of the evacuation may be available to the operator, as approved by the CAAT Team Leader (e.g. command from the flight deck or other established operator signals). If alternative initiation signals are used, the emergency lighting system must still be activated;
- (x) Upon receiving the initiation signal, cabin crew should follow the approved emergency procedures and initiate the evacuation as follows:
  1. Shouting of commands;
  2. Unfastening of safety harnesses;
  3. Leaving the assigned jump seats;
  4. Assessing exits for usability (before opening);
  5. Opening usable floor-level exits. (after initiation signal, door shall be fully opened within 9 seconds for exits equipped with slide and 15 seconds for exits not equipped with slide); and
  6. Simulated deploying the slides, if fitted.
- (xi) Upon receiving the signal from the cabin crew, passengers assigned to exits (if present) should open them as commanded; and
- (xii) Flight crew should be prohibited from taking an active role in assisting the cabin crew or others inside the cabin during the demonstration

*Note: If cabin crew are required to open and manage more than one exit, as per the operator's procedures, this aspect should be included and assessed as part of the demonstration*

The evacuation time period is completed when the last slide has simulated a fully deployed and is ready for use. (Within 15 seconds after evacuation command is initiated, the cabin crew shall give a signal of slide ready for use according to operator's procedures). For aircraft not equipped with slides, the evacuation time period is completed when usable exits are opened. In order for the demonstration to be considered successful, the total time which elapses between the interruption of electrical power (or other initiation signal used to indicate that the demonstration has commenced) until simulated full deployment of all activated slides should not exceed an appropriate time (typically a timeframe of 15 seconds)

*Note: Term of ready for use are as follows;*

- a) *Floor level exits with slides are defined as "ready for use" when the exit is fully opened and the emergency exit slides are completely simulated deployed or inflated and properly positioned in a manner which would not impede passenger or crew member egress. The inflation cylinder may still be making a hissing sound and the slide may not actually touch the ground until the first passenger uses the slide. Neither one of these situations would prevent the slide from being "ready for use."*
- b) *Floor level exits with stairs are defined as "ready for use" when the exit is fully opened, the stairs are fully extended, and the bottom of the stairs is within six inches of the ground.*

## 1.2 Procedures for Emergency Evacuation Demonstration<sup>3</sup>

### 1.2.1 Determine the Need for an Emergency Evacuation Demonstration

The POI in coordination with the CSI (if applicable) shall determine if a demonstration is required.

#### 1.2.1.1 A full-scale demonstration is required when:

- (a) The aircraft type, model, and proposed seating capacity have not been previously demonstrated either by a manufacturer or by another operator; or
- (b) The aircraft has undergone a change in its exit configuration and/or design (as determined by the State of the Operator); or
- (c) Whenever significant changes have been made to the cabin configuration layout which may alter the evacuation capabilities as initially demonstrated in the successful evacuation demonstration conducted by the aircraft manufacturer as part of the TC process.

#### 1.2.1.2 A partial evacuation demonstration (without slide inflation) is required when:

- (a) A new operator as part of the certification process;
- (b) The operator introduces a new aircraft type into its fleet, which has previously had a full-scale demonstration conducted by an AOC holder or by a manufacturer, for the maximum passenger seating capacity to be used by the operator acquiring the aircraft. This would apply even if the aircraft type is already being operated by other national operators within the State;
- (c) A significant change has occurred, determined by the State of the Operator, such as:
  - (i) Aircraft conversion (e.g. passenger to combi);
  - (ii) Change in number or type of exits;
  - (iii) Changes in the type of opening mechanism of emergency exits;

<sup>3</sup> Ref. ICAO DOC 10072, FAA 8900.1 and AOCR Chapter 1 item 13.1

- (iv) Reduction in the number of cabin crew required on board;
- (v) Change in cabin configuration;
- (vi) Change in cabin crew evacuation duties or procedures; and/or
- (vii) Increased capacity.

*Note1: If an operator proposes to operate an aircraft configured with less than 44 seats, even though the aircraft may have been previously TC'd with more than 44 seats, no demonstration is required.*

*Note2: Not all cabin configuration changes will drive the need for an evacuation demonstration. However, if the changes could alter/impepe the evacuation capability, the State should require the operator to prove that an acceptable level of safety can be maintained.*

## 1.2.2 Notify the Operator of Requirement

1.2.2.1 The POI will advise the operator in writing that an emergency evacuation demonstration is required. The operator shall submit a plan for conducting the demonstration at least 30 business-days in advance of a full or partial evacuation demonstration (without slide inflation).

1.2.2.2 The operator's plan shall contain a letter of request which states the following:

- (a) The applicable regulation which requires that a full-scale or partial emergency evacuation demonstration (without slide inflation) be conducted;
- (b) The aircraft type and model, specifying the full seating capacity (including crewmembers) to be demonstrated;
- (c) The number of cabin crew to be used during the demonstration;
- (d) The proposed date, time, and location of the evacuation demonstration;
- (e) The name, telephone number and email of the operator's evacuation demonstration coordinator;
- (f) A statement that the representative passenger complement (applicable to full-scale) meets the requirements in FAR part 121 appendix D(a)(7);

*Note: A representative passenger load of persons in normal health must be used. At least 40 percent of the passenger load must be females. At least 35 percent of the passenger load must be over 50 years of age. At least 15 percent of the passenger load must be female and over 50 year of age. Three life-size dolls, not included as part of the total passenger load, must be carried by passengers to simulate live infants 2 years old or younger. Crew members, mechanics, and training personnel, who maintain or operate the airplane in the normal course of their duties, may not be used as passengers.*

- (g) A description of how the operator proposes to initiate the demonstration;
- (h) A description of the timing signal; and
- (i) A description of how the operator intends to block exits.

1.2.2.3 A diagram shall be included in the plan, representing the aircraft to be demonstrated. The diagram must show the following:

- (a) The location and designation of all exits by type and the designated exit pairs.
- (b) The assigned seating location of each required crew member during takeoff.
- (c) The interior cabin configuration, showing the location of individual passenger seats, galleys, aisles, lavatories, and passenger compartment partitions and bulkheads.
- (d) The location and type of safety and emergency equipment on the aircraft, including:
  - (i) Fire extinguishers;

- (ii) Portable Breathing Equipment (PBE);
- (iii) Portable oxygen bottles/masks;
- (iv) Megaphones;
- (v) Crash axes, gloves;
- (vi) Emergency flashlights;
- (vii) Emergency ropes/tapes;
- (viii) First aid and medical kits;
- (ix) Life rafts/slide rafts (for ditching only);
- (x) Survival kits (for ditching only);
- (xi) Individual flotation devices or life jackets (for ditching only);
- (xii) Portable emergency signaling equipment; and
- (xiii) Equipment for making pyrotechnic distress signals.

1.2.2.4 The plan shall contain copies of the following documents:

- (a) The appropriate crew member manual pages describing emergency evacuation duties and responsibilities; and
- (b) A copy of the passenger safety card to be used on the aircraft during revenue operations.

1.2.2.5 The operator's plan shall include the following additional information:

- (a) A description of the safety and emergency equipment installed on the aircraft, including the type and model of each item and the preflight requirements, as applicable;
- (b) A list of all crew members qualified to participate in the demonstration;
- (c) A description of how the operator will ensure that the demonstration is conducted in the dark of the night or in conditions simulating the dark of the night; and
- (d) A description of how the operator will ensure that the aircraft is positioned in a location, either indoors or outdoors, which will allow the unobstructed deployment of all emergency evacuation slides or slide rafts, as applicable.

### 1.2.3 Evaluate Operator's Plan and Letter of Request

1.2.3.1 The POI and/or CSI will ensure that all necessary information is included in the submission and respond to the operator's plan in a timely manner. Any minor omissions or discrepancies shall be corrected by contacting the operator's evacuation demonstration coordinator.

1.2.3.2 If the operator's plan has a significant number of required items or documents missing, the CAAT will return the entire submission to the operator with a written explanation as to why it is unacceptable. The operator will be advised that the CAAT will take no further action until an acceptable plan is submitted.

1.2.3.3 Once all required elements have been submitted, the POI and/or CSI will analyze and evaluate the operator's plan. The CAAT team will ensure that the information is acceptable and consistent with the proposed type of demonstration.

1.2.3.4 The POI and/or CSI should ensure that:

- (a) The operator's emergency training program has been observed and approved by the CAAT;



- (b) Evacuation procedures in the operator’s manuals, including crew members' assignments are realistic and practical;
- (c) The passenger safety card is understandable and consistent with the type and model of aircraft to be demonstrated; and
- (d) The safety and emergency equipment is acceptable for the type of operation proposed.

1.2.3.5 Conduct Necessary Onsite Evaluation, when required. Certain items in the proposal may require onsite evaluation. Determine if the operator is making provisions for participant safety, including the use of safety observers, stands, padding, mats, and other appropriate measures.

1.2.3.6 Document Discrepancies. Resolve discrepancies with the operator’s evacuation demonstration coordinator:

- (a) If major discrepancies are found, or if the CAAT and the operator are unable to resolve significant issues, return the operator's plan with a letter of explanation. Inform the operator that the discrepancies outlined in the letter shall be corrected and a plan resubmitted before the CAAT takes further action.
- (b) If the submission is acceptable, a letter will be sent to the certificate holder’s evacuation demonstration coordinator informing them that the plan has been accepted by the CAAT.

**1.2.4 Assemble CAAT Team Members**

1.2.4.1 For an initial certification, the POI may serve as the CAAT demonstration Team Leader or he/she may delegate the role of Team Leader to a CSI. For an existing operator, the Flight Operations Standards Manager will assign either the operator’s respective POI or CSI to serve as demonstration Team Leader.

*Note: The CAAT team members should include qualified Cabin Safety, Operations (FOI) and relevant personnel. Additional Team Members may be assigned as needed.*

**1.2.5 Conduct CAAT Team Meeting**

1.2.5.1 Approximately **15** business-days prior to the demonstration, the CAAT Team Leader will:

- (a) Provide specific team member assignments for the demonstration. Including the following:
  - (i) Timekeeping;
  - (ii) Position (inside or outside the aircraft); and
  - (iii) Inspecting the aircraft, emergency equipment, and any applicable documents.
- (b) Distribute an aircraft diagram to each Aviation Safety Inspector (ASI) showing assigned locations for the demonstration.
- (c) Determine which emergency exits shall be opened. Review the operator’s proposal for blocking the remaining exits.
- (d) Select typical crew members (at least 2 full sets of crew members, flight crew and cabin crew) to be used in the demonstration from the list provided and submit to the operator. Do not select the following:
  - (i) Persons used in previous demonstrations;
  - (ii) Instructors;
  - (iii) Supervisors;

- (iv) Check airmen;
- (v) Union safety representatives; or
- (vi) Others that may have an above average level of competency or experience.
- (e) Review regulatory requirements and demonstration criteria:
  - (i) Select exits and approve blocking method. Carefully review the operator's emergency evacuation procedures. Determine the number of usable exits;
  - (ii) One from each pair of exits should be selected;
  - (iii) After selecting exits to be used, the team members shall ensure that the operator does not obtain that information; and
  - (iv) Once a method of blocking exits has been determined, notify the operator's evacuation demonstration coordinator of CAAT concurrence with the method.
- (f) Test and approve the initiation signal. Ensure that all team members are aware of the initiation signal and can hear it from their assigned positions.

### 1.2.6 Conduct Pre-Demonstration Meeting with Operator

1.2.6.1 CAAT meets with the operator's evacuation demonstration coordinator and appropriate operator personnel in order to carry out the following tasks:

- (a) Review the demonstration plan and ensure that the operator's evacuation demonstration coordinator is thoroughly familiar with the criteria to be used during the demonstration;
- (b) Review the training methods, the timing criteria, and the method and signals for initiating the demonstration;
- (c) With the operator, determine the signal to be used to terminate the demonstration, such as an air horn or other clear and distinguishable audible signal. Agree upon a suitable device and test it to ensure its adequacy; and
- (d) Resolve any open questions or issues the operator's evacuation demonstration coordinator may have before conducting the demonstration.

### 1.2.7 Perform a Pre-Demonstration Inspection

1.2.7.1 The CAAT team members will ensure that the aircraft is configured and equipped for takeoff according to the operator's manuals and procedures:

- (a) The aircraft shall include the proposed full passenger seating configuration;
- (b) All appropriate emergency equipment shall be installed and in good working order in accordance with the operator's manuals; and
- (c) Inspect each of the safety and emergency equipment to ensure regulatory requirements.

### 1.2.8 Pre-Demonstration Briefings

1.2.8.1 Pre-demonstration brief with the CAAT team members. The CAAT Team Leader will remind the CAAT team members not to discuss the results of observations with persons other than the CAAT Team Leader. Review the following items before conducting the demonstration:

- (a) The objectives of the demonstration;

- (b) The initiation signal;
- (c) Observer assignments with regard to exits to be used or blocked; and
- (d) The signal to stop the demonstration.

1.2.8.2 The operator's evacuation demonstration coordinator and the CAAT Team Leader provide briefing to crew members with specific information regarding the demonstration.

1.2.8.3 The CAAT Team Leader shall ensure that the following items are discussed:

- (a) The purpose of the demonstration;
- (b) The initiation signal which begins the demonstration;
- (c) The significance of the 90 second time limit for full-scale evacuation demonstrations or the 9 or 15 second time limit for partial evacuation demonstrations (without slide inflation);
- (d) The signal to be used for stopping the demonstration; and
- (e) The importance of safety during the demonstration, including crew members responsibilities and safety observer duties and limitations.

1.2.8.4 The CAAT Team Leader will ensure that the crew members understand that any evacuation activity in progress shall immediately cease with a "stop" signal.

1.2.8.5 Attend the Operator's passenger briefing. Ensure that prior to the demonstration, the operator's evacuation demonstration coordinator and the CAAT Team Leader provides the passengers (when required) the following information:

- (a) The purpose of the demonstration is to evaluate how quickly the aircraft can be safely evacuated;
- (b) Passengers shall pay attention to the cabin crew's instructions;
- (c) Individual safety is not to be compromised at any time during the demonstration.

### **1.2.9 Conduct the Demonstration**

1.2.9.1 Advise the operator's evacuation demonstration coordinator to board the passengers (when required) as routinely as possible and prepare for departure. No passenger may be assigned a specific seat unless a CAAT team member determines such assignments are in accordance with the operator's normal boarding procedures.

1.2.9.2 For both full-scale and partial evacuation demonstrations (without slide inflation), ensure that the cabin crew accomplish the following:

- (a) Prepare for a normal departure according to the operator's procedures, including all announcements and briefings, closing and arming doors, securing galleys and cabin for takeoff;
- (b) Conduct a passenger briefing in accordance with operator procedures; and
- (c) Sit at their assigned jump seat position with restraint systems fastened.

- 1.2.9.3 For a full-scale evacuation demonstration, distribute a reasonable amount of carry-on baggage, blankets, pillows, and clothing in the aisles and emergency exit access ways to create minor obstructions:
- (a) Carry-on luggage that will fit under a passenger seat, such as small suitcases, gym bags, aircraft flight bags, and briefcases, should be filled with clothes or newspapers and placed in the main aisles;
  - (b) There shall be one bag per seat row for each aisle;
  - (c) Some bags should be placed in the aisles and passageways; and
  - (d) Pillows and blankets should be scattered in the main aisles.
- 1.2.9.4 Ensure that each external door and exit and each internal door or curtain is in position for a normal takeoff.
- 1.2.9.5 The Operations ASI (such as POI, FOI, etc.) will ensure that the flight crew accomplishes all tasks on appropriate checklists and configures the aircraft for a normal takeoff before the initiation signal is given. He or she will also ensure that the flight crew are seated in their normal positions with restraint systems fastened.
- 1.2.9.6 Before a full-scale evacuation demonstration, the Operations ASI will ensure that the aircraft's wing flaps are fully extended, if required by the operator's emergency evacuation procedures:
- (a) Stands or ramps (if used) should be positioned accordingly; and
  - (b) Wing flaps shall not be repositioned until after the demonstration.
- 1.2.9.7 For a full-scale evacuation demonstration, ensure that after completing all required pre-takeoff actions, the PIC informs the CAAT ASI (positioned forward of the nose of the aircraft) by ground interphone that the aircraft is ready for takeoff.
- 1.2.9.8 For a full-scale evacuation demonstration, the CAAT ASI (positioned forward of the nose of the aircraft) will ensure that all CAAT team members and operator safety observers (if used) are ready and in position.
- 1.2.9.9 For a full-scale evacuation demonstration, the CAAT ASI should issue a warning signal, which should precede the initiation signal by approximately 30 seconds.
- 1.2.9.10 The Operations ASI will instruct the operator evacuation demonstration coordinator to initiate the demonstration.
- 1.2.9.11 For a full-scale evacuation demonstration, the CAAT ASI stationed at the nose of the aircraft will begin timing with two stopwatches (a primary and a backup) when the external aircraft lights extinguish.
- 1.2.9.12 For a full-scale demonstration, each CAAT observer assigned to an opened exit will count the passengers as they exit. After the termination signal, each observer will ensure that no passenger or crew members remain on the aircraft or uses the exits. Should any passenger or crew members remain on board or use an exit after the termination signal, the demonstration will be declared unsatisfactory.
- 1.2.9.13 For a partial evacuation demonstration (without slide inflation), each CAAT observer assigned to an exit to be used will determine if the assigned exit was opened and each slide or slide raft (if fitted) was simulated ready for use before the specified time limit.
- 1.2.9.14 The CAAT team members assigned to the cabin shall ensure that all required equipment worked properly during the demonstration.

1.2.9.15 At the end of the appropriate time period, CAAT team member will give a clear signal terminating the demonstration.

Note1: *The Specific points to be noted during an evacuation demonstration are:*

- i. *Cabin crew assignment and positioning;*
- ii. *Boarding and other related cabin crew duties and responsibilities while the aircraft is on the ground, (e.g. cabin crew remaining in the vicinity of exits);*
- iii. *Briefing of ABPs at unstaffed exit (if scenario required);*
- iv. *Arming/disarming procedures (including cross-check of door arming status);*
- v. *Shouted commands;*
- vi. *Operation of emergency lighting and evacuation alarm system (if applicable);*
- vii. *Assessment of exit conditions inside and outside the aircraft;*
- viii. *Opening of exits;*
- ix. *Assessment of simulated slide inflation;*
- x. *Movement of passengers from one exit to another;*
- xi. *Protective position while commanding the evacuation;*
- xii. *Passenger management (e.g. egress flow, crowd control, compliance with crew instructions);*
- xiii. *Management of carry-on baggage;*
- xiv. *Responsibility for safety and emergency equipment; and*
- xv. *Conduct of post-evacuation duties.*

Note2: *In making the report on the demonstration, CAAT will record the time to open each approved exit from the time of the evacuation demonstration begins.*

Note3: *If the applicant cannot satisfactorily demonstrate emergency evacuation for each particular type, model and configuration of aircraft within the time limit specified by CAAT, the applicant should be required to take steps to correct the deficiency which could include the following:*

- i. *Revising evacuation procedures;*
- ii. *Improving crew members training;*
- iii. *Modifying or changing the equipment used;*
- iv. *Changing the passenger compartment arrangement; and*
- v. *Reducing total passenger seating capacity.*

### 1.3 Emergency Evacuation Sequence Flows

- (a) Cabin crew shall prepare for normal departure in accordance with the applicant's procedures.
- (b) Cabin crew shall conduct a passenger briefing in accordance with the applicant's procedures.
- (c) Cabin crew shall be seated at their assigned positions with restraint systems fastened.
- (d) The CAAT team members ensure that external exits and internal doors/curtains are in position for takeoff.
- (e) The flight crew accomplishes all pre-takeoff actions.
- (f) The CAAT Team Leader gives a signal to initiate the evacuation.
- (g) The CAAT Team Leader gives a signal to stop the demonstration.
- (h) The following items and conditions constitute an unsatisfactory demonstration:
  - (i) Exits not ready for use before the specified time limit. (regardless of the cause by equipment, procedure or crew competency)
  - (ii) Equipment malfunctions even if the time limit was met.
  - (iii) Deficiencies in crew member effectiveness.

## 2 Ditching Demonstration

### 2.1 General and Specific Requirements

#### 2.1.1 General Ditching Information

- 2.1.1.1 For issuance of an AOC or variation to an AOC, an applicant or operator intending to use an aircraft in extended flights overwater (on any route which passes more than 50 nautical miles from land) is required to demonstrate to CAAT that the aircraft has the ability and equipment to carry out emergency ditching procedures. Airworthiness and Engineering Department will first determine whether the aircraft has an airworthiness certification covering ditching. If the aircraft is not certificated for ditching, extended flights over water should not be authorized. CAAT airworthiness inspector will review the aircraft documentation to ensure that an aircraft intended to be used for extended flights overwater is certificated for ditching.
- 2.1.1.2 In addition, ditching training and competency requirements for crew members are established in AOCC Chapter 6. CAAT inspectors will determine that the applicant has established a training programme that ensures the crew members are competent in executing those safety duties and functions to be performed in the event of a situation requiring ditching.
- 2.1.1.3 The applicant will be required to provide a simulated ditching demonstration (without slide inflation) during the operational inspection phase of the certification process for each aircraft type, model and configuration which will be operated on extended flights over water. The purpose of the demonstration is to evaluate the operator's ability to safely prepare passengers, airplane, and ditching equipment for a planned water landing.

#### 2.1.2 Criteria for a Simulated Ditching Demonstration (Without Slide/Raft Inflation)

- 2.1.2.1 A ditching demonstration (without slide/raft inflation) involves a scenario where cabin crew should demonstrate, to the CAAT, their ability to efficiently carry out the operator's ditching procedures specific to the aircraft type. Flight crew and cabin crew must take part in the exercise. If the operator's procedures require the use of passengers to assist in launching life-rafts, the needed passengers must be on board and participate in the demonstration.
- 2.1.2.2 The operator shall meet the specific conditions as part of the demonstration as the following categories:
  - (a) Environmental conditions

The demonstration should assume that daylight hours exist outside the aircraft. It should be conducted during daylight hours, or in a lighted hangar.
  - (b) Aircraft conditions

A ditching demonstration may be carried out using an aircraft or cabin training device. If an actual aircraft is used, it should be the type for which approval is sought. If the use of a cabin training device, the following points should be considered:

    - (i) The cabin training device should be a representative of the aircraft type currently used by the operator;
    - (ii) The cabin training device should contain adequate seats for use by the participants;
    - (iii) The operation of the emergency exits should simulate those on the aircraft; and

- (iv) The cabin training device should be equipped with all the required safety and emergency equipment, in accordance with the operator’s manual.
- (vii) At least one floor-level exit should be used.
- (c) Crew conditions
  - (i) Flight crew and Cabin crew involved in the demonstration should be qualified, regularly scheduled line operations, i.e. persons that have been trained by the operator in accordance with the standards detailed in the approved training syllabus. No additional training in evacuation procedures or techniques should be provided to those assigned responsibility for the exit operation. Since crew members may have additional knowledge from past experience with demonstrations, which can influence how they perform in the evacuation, every effort should be made to ensure that they have not participated in a demonstration in the past. Cabin crew to be used in the demonstration should not be instructors, supervisory personnel, safety representatives from worker organizations, or anyone else who may be expected to have knowledge of evacuation demonstrations beyond that of an average cabin crew member. When the demonstration is conducted for the purpose of a TC issuance, the cabin crew should be trained to the standards in the manufacturer’s certification test requirement document. When the demonstration is conducted as part of the process to issue an AOC, or other operational requirements, the cabin crew should be trained to the standards in the operator’s approved training programme.
  - (ii) Flight crew who are not regularly scheduled line crew members may be allow to participate in the exercise (as flight crew), provided they are knowledgeable on the aircraft type.
  - (iii) A new (start-up) operator may not have regularly scheduled line cabin crew members. In such instances, the operator would need to utilize the first trained group of cabin crew members. It is possible that this initial group of cabin crew members will include instructors. Nevertheless, this group should not be given any additional instruction or experience that will not be given to other cabin crew members expected to operate the aircraft type on the line. For example, instructors should only receive “train the trainer” training after their participation in the evacuation demonstration. Persons who are responsible for the operator’s overall cabin crew programmes should not be used as cabin crew members during demonstrations, unless no other cabin crew have been hired.
  - (iv) Smaller operators may also lack sufficient personnel to meet some of the restrictions noted in this section. In those instances, CAAT may need to work with the operator to address restrictions and establish necessary criteria, such as a specified time period within which cabin crew are prohibited from participating in the exercise.
- (d) Confidentiality of information
 

The confidential information, which should not be disclosed to participants, to ensure unbiased results. The following points should be covered:

  - (i) No crew member or passenger should be given knowledge of the exits available for

- the demonstration (i.e. exits that have been chosen as usable);
  - (ii) Passengers may be told to follow crew member instructions, as part of the pre-flight safety briefing, but should not be instructed on the procedures to be followed in the demonstration;
  - (iii) The operator should be prohibited from practicing, rehearsing, or describing in detail the demonstration for the participants; and
  - (iv) Persons having recently participated in this type of demonstration should be prohibited from participating in the exercise.
- (e) Scenario conditions
- Conditions regarding the scenario should include the following:
- (i) The minimum number crew members required (flight crew and cabin crew) should be on board;
  - (ii) If the operator's procedures require the use of passengers to assist in the launching of life-rafts, the needed number of passengers should be on board;
  - (iii) Cabin crew should conduct pre-flight safety checks, door arming procedures, cabin compliance checks, the passenger pre-flight safety briefing (if passengers are part of the exercise), and take their assigned jump seats as part of the normal departure preparations process;
  - (iv) A stand should be placed at each emergency exit and wing, with the top of the platform at a height simulating the water level of the aircraft following a ditching;
  - (v) Flight crew should be seated in their normal positions with restraints fastened;
  - (vi) Cabin crew should be seated in their assigned jump seats for take-off with safety harness fastened, confirm "cabin readiness" for take-off and pass on the notification to the flight crew, as per operator procedures;
  - (vii) Once the flight crew advise the CAAT Team Leader that the cabin is prepared, the CAAT Team Leader decides when to initiate the ditching;
  - (viii) Cabin crew should remain seated with safety harnesses fastened until the initiation signal for the commencement of the ditching preparation is given;
  - (ix) Flight crew should inform cabin crew of an emergency situation that will end in a ditching; the "prepare-for-ditching" order is the clear signal to all involved that the demonstration has commenced;
  - (x) Once the ditching order has been given by the PIC, cabin crew should carry out all procedures as per the operations manual (e.g. make passenger announcements, don life jackets, brief able-bodied passengers (ABPs), take brace position, shout brace commands, etc.);
  - (xi) Upon receiving the order to initiate the evacuation:
    1. for the slide-raft, cabin crew should simulate the demonstration of the deployed, inflated, disconnected and check its readiness.
    2. for the life-raft, cabin crew should demonstrate the life-raft removal from its stowage location, transport it to the exit and simulated secure it to the aircraft.



- (xii) If a cabin configuration and/or operator procedure specifies that one exit would be utilized to launch two types of devices (slide-raft and life-raft), the sequence of the launching should be demonstrated at the same time through the applicable exit and conducted during one test and not as separate tests;
  - (xiii) If a cabin configuration and/or operator procedure specifies that an over-wing exit would be utilized to launch a life-raft, that action should be simulated;
  - (xiv) Cabin crew should retrieve all other required safety and emergency equipment and place them in the slide-raft or life-raft; and
  - (xv) The cabin crew assigned to each slide-raft/life-raft should indicate the location of emergency equipment on board the raft and describe its use by Q&A
- (c) The specified timing

In addition to the items noted in section ‘Scenario conditions’, the CAAT establishes the maximum time acceptable for crew members to prepare for ditching, **calculated from the moment the flight crew gives the “prepare-for-ditching” order to the cabin crew, up to the simulated water landing.** The intent of a time limit is to assess cabin crew efficiency and ability to perform in the time period between the decision to ditch and the actual water landing. The CAAT provides a 15 minutes’ timeframe for the completion of the following ditching preparation activities based on an earlier review of the operator procedures. Cabin crew should, at a minimum, accomplish the following:

- (i) Correctly don life jackets;
- (ii) Brief passengers;
- (iii) Secure the cabin;
- (iv) Complete all required checklists;
- (v) Advise the flight crew that the cabin is prepared for ditching;
- (vi) Be prepared to evacuate; and
- (vii) React to the flight crew signal by adopting the brace position.

### 2.1.3 Launch a Life Raft

- (a) Phase I - Fifteen-Minute Flight Deck/Cabin Preparation for Ditching Timing starts with the ditching notification from the PIC to the cabin crew. The CAAT Team Leader signals the end of Phase I after 15 minutes.
- (b) Phase II - Demonstrate Launching Life raft.
  - (i) Remove a life raft from storage, position it at the launching location on the aircraft and simulated secure (then pause).
  - (ii) Operator personnel will move the life raft to the position on the ground, designated stand, or ramp before inflation (when required).

*Note: The CAAT Team Leader communicates to the relevant team members the end of Phase II of the ditching demonstration.*

- (iii) The CAAT Team Leader communicates to the relevant team members to begin Phase III once the life raft is positioned and simulated secured with crew members and/or able-bodied helpers.

- (c) Phase III - Demonstrate Water Survival Procedures. The demonstration resumes with the boarding of survivors in life vests. The CAAT Team Leader presents survival questions in accordance with training (Q&A).

#### 2.1.4 Launch a Slide Raft<sup>4</sup>

- (a) Phase I – Fifteen-Minute Flight Deck/Cabin Preparation for Ditching. Timing starts with the ditching notification from the PIC to the cabin crew. The CAAT Team Leader signals the end of Phase I after 15 minutes.
- (b) Phase II - Simulate Launching Slide Raft.

*Note 1: Frequently, this demonstration is conducted immediately following the emergency evacuation demonstration.*

*Note 2: The CAAT Team Leader communicates to the POI that this signals the end of Phase II of the demonstration.*

- (c) Phase III - Demonstrate Water Survival Procedures. The demonstration resumes with the boarding of survivors in life vests. The CAAT Team Leader presents survival questions in accordance with training (Q&A).

## 2.2 Procedure for Simulated Ditching Demonstrations (Without Slide/Raft Inflation)<sup>5</sup>

### 2.2.1 Determine the Need for a Ditching Demonstration (without slide/raft inflation)

A ditching demonstration (without slide inflation) should be conducted by an operator intending to use an aircraft in extended flights overwater in the following circumstances:

- (a) New operator (as part of the certification process to issue an AOC), even if the aircraft type(s) that makes up the new operator's fleet is already being operated by other operators in the State;
- (b) New aircraft type for the operator.

### 2.2.2 Notify the Operator of the Requirement

2.2.2.1 CAAT will advise the operator's demonstration coordinator in writing that a ditching demonstration (without slide/raft inflation) is required. The operator shall submit a plan for conducting the demonstration. The POI and CSI (if applicable) shall ensure that the operator's demonstration coordinator understands which information and documents are required for the plan to be accepted for evaluation.

2.2.2.2 If the operator plans to conduct the ditching demonstration in conjunction with an emergency evacuation demonstration, the operator's demonstration plan shall include the following additional information:

- (a) Copies of the operator's manual relating to crew members' ditching duties and responsibilities; and
- (b) A description of applicable emergency equipment used for ditching, including the type and model.

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<sup>4</sup> Ref. FAA 8900.1

<sup>5</sup> Ref. FAA 8900.1 and AOCR Chapter 1 Item 13.2

- 2.2.2.3 If the ditching demonstration is not conducted in conjunction with an emergency evacuation demonstration, the plan should be submitted at least 30 business-days before the actual demonstration. The plan shall include the information listed above and the following additional information:
- (a) The aircraft model and type;
  - (b) A list of all crew members who are trained and able to participate in the demonstration;
  - (c) The number of passengers, as required by the operators' procedures to locate, reposition, and launch life rafts (if applicable);
  - (d) The proposed date, time, and location of the demonstration; and
  - (e) The name and telephone number of the operator's ditching demonstration coordinator.
- 2.2.2.4 A diagram shall be included in the plan, representing the aircraft to be demonstrated. The diagram shall show the following:
- (a) The location and designation of all exits by type and the designated exit pairs, and
  - (b) The location of emergency ditching equipment, including:
    - (i) Life rafts and/or slide rafts;
    - (ii) Survival kit;
    - (iii) Emergency Location Transmitters (ELT);
    - (iv) Pyrotechnic signaling devices; and
    - (v) Passenger/crew member life preservers and individual flotation devices, if applicable.

### **2.2.3 Evaluate the Operator's Plan**

- 2.2.3.1.1 The CAAT will review the proposal to ensure the following:
- (a) The proposed demonstration will meet the criteria of AOCR;
  - (b) The emergency training programme and ditching procedures in the operator's manual have been approved; and
  - (c) The operator's training programme and ditching procedures provide for safe operating practices.

### **2.2.4 Assemble the CAAT Team**

- (a) If The ditching demonstration is conducted in conjunction with an emergency evacuation demonstration, the same team will observe and evaluate both demonstrations.
  - (b) If the ditching demonstration is conducted alone, the Flight Operations Standards Manager will appoint a CAAT ditching demonstration team and Team Leader.
- 2.2.4.1 Once a CAAT team has been assembled and designated, the CAAT team will accomplish the following:
- (a) Provide specific team members assignments for the demonstration;
  - (b) Distribute an aircraft diagram to all team members showing their assigned locations for the demonstration;

- (c) Determine which emergency exits shall be opened and the manner in which other exits shall be blocked;
- (d) Select typical crew members to be used in the demonstration from the list provided by the operator. At least two sets of crews (flight crew and cabin crew) should be selected;
- (e) Determine a signal to be used to initiate the demonstration;
- (f) Determine the signal to be used to terminate the demonstration;
- (g) Review the regulatory criteria; and
- (h) Assign report writing requirements to members of the team.

## **2.2.5 Perform Pre-Demonstration Inspection**

2.2.5.1 Before the ditching demonstration begins, the CAAT team members shall inspect each item of emergency ditching equipment for compliance with appropriate airworthiness and other directives. Stands should be placed at each emergency exit and wing (as required).

## **2.2.6 Pre-Demonstration Briefings**

2.2.6.1 Pre-demonstration Briefing of the CAAT team members. The CAAT Team Leader shall brief team members on the following items:

- (a) The objectives of the demonstration;
- (b) The initiation signal;
- (c) Assignments with regard to exits to be used or blocked;
- (d) The signal that stops the demonstration; and
- (e) The importance of not discussing the results of their observations with anyone other than the CAAT Team Leader.

2.2.6.2 Operator's Pre-Demonstration Crew Member Briefing

- (a) The CAAT Team Leader and the operator's demonstration project coordinator will include the following items in the crew member briefing:
  - (i) The purpose of the demonstration;
  - (ii) The initiation signal;
  - (iii) The significance of the time limits for ditching demonstration, as applicable;
  - (iv) The signal to be used by the CAAT for stopping the demonstration. Any evacuation or ditching activity in progress shall cease immediately with a stop signal; and
  - (v) The importance of safety during the demonstration, including crew member responsibilities and safety observer duties and limitations.
- (b) After the briefing, proceed with the ditching demonstration, as applicable.

## 2.2.7 Conduct the Demonstration

2.2.7.1 The demonstration shall be conducted during daylight hours or in a lighted hangar as following:

- (a) Ensure that the CAAT team members, crew members, and passengers, if required, are at their assigned positions. All required crew members shall be available and used during the demonstration;
- (b) Instruct the PIC to commence the demonstration. The PIC will initiate the demonstration by ordering the crew members to prepare for ditching;
- (c) Begin timing when the PIC notifies cabin crew to prepare for ditching;
- (d) Observe crew members' preparation activities. Within 15 minutes of the ditching announcement, cabin crew shall, at a minimum, accomplish the following:
  - (i) Correctly put on life preservers;
  - (ii) Brief passengers;
  - (iii) Secure the cabin;
  - (iv) Complete all required checklists;
  - (v) Advise the flight crew that the cabin is prepared for ditching;
  - (vi) Be prepared to evacuate; and
  - (vii) React to the flight crew signal by adopting the brace position.
- (e) At the end of 15 minutes, advise the PIC to announce that the aircraft is in the water. At this time the crew members shall be prepared for a simulated water landing;
- (f) Observe the simulated deployment of the rafts. If applicable, ensure that all life rafts are removed from stowage, placed on the cabin floor and simulated secured within a reasonable period of time;
- (g) Inspect each slide raft for readiness to be used; (Q&A)
- (h) Ensure that each evacuee enters a life raft or slide raft (when required);
- (i) Ensure that cabin crew adequately locate and describe the use of each piece of emergency equipment in their assigned rafts (Q&A); and
- (j) Question cabin crew about actual launching procedures (Q&A).

*Note 1: The following are specific points to be noted and evaluated during a ditching demonstration:*

- i. Adequate preparation of the passengers and aircraft for a planned ditching.*
- ii. Adequate items of emergency equipment, e.g. life rafts, inflatable slides, life jackets, medical kits, first aid kits and emergency locator transmitter (ELT), carried on board. (Q&A)*
- iii. Emergency equipment properly stowed and be readily removed or ejected from the aircraft (as required) (Q&A)*
- iv. Select and utilize the emergency exits to be used, and ensure exits can be opened readily.*
- v. Emergency procedures and related checklists are adequate, and properly used by the crew members.*
- vi. Crew members are properly trained.*
- vii. Crew members are familiar and adhere to the timely execution of their assigned duties and responsibilities.*

*Remark: Any items which are unable to be conducted, or for any reason could not be covered during the ditching demonstration (without slide/raft inflation), may be substituted by the Q&A or observing practical wet drill training to ensure cabin crew's knowledge and competency.*

*Note 2: In the observation of the demonstration, to assist in the assessment of the ditching demonstration, CAAT will record the time from the ditching demonstration starts until each emergency exit has been opened.*

## 2.3 Ditching Demonstration Sequence Flows

The following descriptions will be considered when determining the ditching demonstration (without slide/raft inflation) requirements:

- (a) The PIC initiates the demonstration by ordering the cabin crew to prepare for ditching. The following areas will be evaluated during the demonstration:
  - (i) The AOC applicant's emergency training programme;
  - (ii) Ditching procedures;
  - (iii) Crew members competency; and
  - (iv) Equipment reliability and capability.
- (b) Actions prepared and accomplished by the cabin crew during the planned ditching period include but not limit to the following:
  - (i) Correctly putting on their life preservers;
  - (ii) Briefing the passengers;
  - (iii) Securing the cabin;
  - (iv) Completing all required checklists;
  - (v) Advising the flight crew that the cabin is prepared for ditching;
  - (vi) Being prepared to evacuate; and
  - (vii) Reacting to the flight crew signal by adopting the brace position.
- (c) After the simulated water landing, life raft(s) should be removed from stowage and placed on the cabin floor and simulated secured;
- (d) A launched life raft will be removed from the aircraft and positioned on the ground; (if required.)
- (e) Cabin Crew are questioned about launching procedures, how to disconnect the slide raft, and once inside the raft, locate and describe the use of each item of emergency equipment within the raft; and
- (f) The following items and conditions constitute an unsatisfactory ditching demonstration:
  - (i) Exits not ready for use before the specified time limit. (regardless of the cause by equipment, procedure or crew competency)
  - (ii) Equipment malfunctions even if the time limit was met.
  - (iii) Deficiencies in crew member effectiveness.

### 3 Evaluating Emergency Evacuations and Ditching Demonstrations<sup>6</sup>

#### 3.1 Evaluate the Demonstration

After the demonstration, the CAAT Team Leader will have the demonstration crew members separated. Assemble and confer with the CAAT team members in an area away from the operator's personnel. The CAAT team members will reach an agreement on the results before the CAAT Team Leader discusses the demonstration results with the operator's ditching demonstration coordinator and appropriate personnel.

Evaluate the following areas of the demonstration:

- (a) Cabin crew compliance and effectiveness in performing assigned duties and responsibilities;
- (b) Flight crew effectiveness in exercising command responsibilities;
- (c) The coordination and communication between the flight crew and cabin crew; and
- (d) The operation and reliability of emergency equipment. Note any deficiencies or delays caused by the emergency equipment.

Ensure that each designated exit and simulated slide was opened, and ready for use within specified time limit. Ensure that the following occurred:

- (a) For full-scale emergency evacuation demonstrations, designated exits and slides were properly operated and, if applicable, all passengers and crew members evacuated within 90 seconds.
- (b) For a partial emergency evacuation demonstration (without slide inflation), designated exits with slide were opened within 9 seconds and all exits were ready for use within 15 seconds from the initiation of the evacuation.
- (c) For ditching demonstrations (without slide/raft inflation), the cabin, passengers (if applicable), and cabin crew were ready for a simulated water landing within 15 minutes. Life rafts were efficiently removed from stowage.

#### 3.2 Determine if Demonstration was Unsatisfactory

A demonstration shall be declared unsatisfactory if the operator fails to meet the specified time limit.

A demonstration may be declared unsatisfactory for the following reasons:

- (a) Crew members ineffectiveness or equipment malfunctions, or
- (b) The occurrence of a relatively severe deficiency due to improper operator training, procedures, or maintenance.

If the inspection of the aircraft and emergency equipment is unsatisfactory, determine if the problem can be corrected immediately:

- (a) If the problem cannot be corrected immediately, reschedule the demonstration; or
- (b) If the problem can be corrected immediately, ensure that corrective action is taken.

<sup>6</sup> Ref. FAA 8900.1

### **3.3 Advise the Operator of the Results of the Demonstration**

Once an agreement on the demonstration results has been reached, advise the applicant or operator's ditching demonstration coordinator and appropriate personnel of the results.

- (a) If the results are unsatisfactory, issue a letter of disapproval to the applicant or operator.
- (b) If the results are satisfactory, issue a letter of approval to the applicant or operator.

### **3.4 Complete Emergency Evacuation Demonstration Report**

The CAAT Team Leader is responsible for preparation and distribution of the demonstration report. The report shall include the following:

- (a) The CAAT Emergency Evacuation and Ditching Demonstration Report. One form is required for each demonstration attempt. For example, if two demonstrations are unsuccessful and a third is satisfactory, three forms shall be completed and submitted as part of the demonstration report package.
- (b) The passenger safety card.
- (c) A diagram of the aircraft, including safety and emergency equipment, exits, exits used, the number of approved passenger seats, and the location of seats which were used by cabin crew.

Report shall be retained in the safety oversight system with the AOC package in terms of the attached evidence for the respective activity.



#### 4 Appendix A: Criteria for Assessing Cabin Crew Assigned to an Exit for Emergency Evacuation/Ditching Demonstration (Without Slide/Raft Inflation)

Scenario	Evacuation Assessment Criteria
<p>Cabin Crew responsible at <b>usable exit</b> after receive “EMERGENCY EVACUATION” signal</p>	<p>Ability of the cabin crew to demonstrate:</p> <ul style="list-style-type: none"> <li>• use of assertive evacuation commands</li> <li>• assess inside and outside conditions for the assigned primary exit (check water level for ditching)</li> <li>• check door mode in proper position</li> <li>• open assigned primary exit</li> <li>• pull MIH (if applicable and required)</li> <li>• relocate life raft to the launching position and simulated secure</li> <li>• take protective position (hold assist handle, take dedicated assist space)</li> <li>• start the flow of passengers at the exit</li> <li>• monitor the constant flow of passenger (exit bypass, dry up exit)</li> <li>• manage crowd control in the cabin</li> <li>• manage cabin baggage at the exit</li> <li>• conduct cabin check</li> <li>• remove safety and emergency equipment from aircraft, as per assigned station</li> <li>• leave the aircraft from nearest exit (if required)</li> <li>• conduct crowd control on ground (safe distance, head count, no smoking, administer first aid, and etc.) (Q&amp;A)</li> </ul>
<p>Cabin Crew responsible at <b>unusable exit</b> after receive “EMERGENCY EVACUATION” signal</p>	<p>Ability of the cabin crew to demonstrate:</p> <ul style="list-style-type: none"> <li>• use of assertive evacuation commands</li> <li>• assess inside and outside conditions</li> <li>• block and direct passengers away from unusable exit</li> <li>• prevent passengers from opening unusable exit</li> <li>• redirect passengers to usable exits</li> <li>• monitor the flow of passengers at usable exit</li> <li>• manage cabin baggage</li> </ul>

Scenario	Evacuation Assessment Criteria
	<ul style="list-style-type: none"> <li>• monitor continuing serviceability at the exit</li> <li>• conduct cabin check</li> <li>• remove safety and emergency equipment from aircraft, as per assigned station</li> <li>• leave the aircraft from nearest exit (if required)</li> <li>• conduct crowd control on ground (safe distance, head count, no smoking, administer first aid, and etc.) (Q&amp;A)</li> </ul>

*Remark 1: Additional Items to assess cabin crew's competency may refer to the 'Partial Emergency Evacuation and Ditching Demonstration Checklist (without slide/raft inflation)'.*

*Remark 2: The significance of the appropriate time limit (typically a time frame of 15 seconds or less) for partial evacuation demonstrations (without slide inflation) has the main objective of assessing crew member's competency, which does not include the ability of the aircraft and its equipment. The time record in the checklist will consequently exclude the duration of the slide or slide-raft inflation, by referring to the previous demonstration by aircraft manufacturer and/or other reliable information, together with the operator's maintenance programme.*

## 5 Appendix B: List of Checklist and Form

No.	Documents Number	Documents Name
1	OPS-CLFOI-406	OPS - Type Certificate Data Sheet
2	OPS-AOCFM-142	Emergency Evacuation and Ditching Demonstration Report
3	OPS-CLCSI-406	Partial Emergency Evacuation and Ditching Demonstration Checklist (without slide/raft inflation)

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