



**WORKING PAPER**

**ASSEMBLY — 41ST SESSION**

**TECHNICAL COMMISSION**

**Agenda Item 31: Aviation Safety and Air Navigation Standardization**

**DEVELOPMENT OF STANDARDIZED GUIDANCE PROCEDURES ON MANAGING  
AIRCRAFT PASSENGER EVACUATION AT AIRPORTS**

(Presented by the United Arab Emirates)

**EXECUTIVE SUMMARY**

A large passenger aircraft evacuation poses serious safety concerns to airport operators. Annex 14 — *Aerodromes*, Volume I — *Aerodrome Design and Operations*, Chapter 9.1 states that the objective of aerodrome emergency planning is to minimize the effects of an emergency, particularly in respect of saving lives and maintaining aircraft operations. The *Airport Services Manual*, Part 7 – *Airport Emergency Planning* (Doc 9137), Chapter 10.1 details the collective responsibilities of airport operators, together with aircraft operators and its stakeholders, in selecting most suitable safe holding area, providing transportation of the ambulatory survivors to emergency facilities and arranging that these survivors received appropriate medical care. There is a lack of detailed guidance for airport operators in developing standardised procedures in dealing with mass casualty event specifically in managing evacuated aircraft passengers and crew during aircraft accident. Without suitable guidance in managing evacuated passengers and crew during an aircraft accident, they will be wandering and straying around operational aircraft movement areas, hence endangering their lives and causing serious safety hazards at the airports. In this working paper, the United Arab Emirates is proposing suitable guidance procedures should be developed for airport operators to implement appropriate safety measures when managing aircraft passenger evacuation at airports.

**Action:** The Assembly is invited to:

- a) note the contents of this working paper; and
- b) develop standardized guidance procedures for airport operators to safely manage evacuated passengers and crew during aircraft accident.

<i>Strategic Objectives:</i>	This working paper relates to Strategic Objectives.
<i>Financial implications:</i>	This working paper has no financial implications.
<i>References:</i>	Annex 14 — <i>Aerodromes</i> , Volume I — <i>Aerodrome Design and Operations</i> , Chapter 9.1 Doc 9137, <i>Airport Services Manual</i> , Part 7 – <i>Airport Emergency Planning</i>

## 1. INTRODUCTION

1.1 This working paper describes the potential hazards to straying aircraft passengers after evacuation at aircraft movement areas and the need to establish standard guidance procedures to safely manage these evacuating passengers. Most risks to passengers on the movement area arise from the fact that the passengers are usually unfamiliar with the airport environment. Therefore, internationally acceptable guidance procedures are required for airport operators, where necessary including its stakeholders, to ensure these evacuating passengers are properly guided and assembled at a safe area as quickly as possible. The main motivation for this working paper was based on the recommendation raised during the United Arab Emirates National Airports and Airlines Emergency Planning Technical Committee on the need to establish guidance for all UAE airports to implement aircraft passenger evacuation management system (PEMS) procedures.

1.2 In accordance with Annex 14 — *Aerodromes*, Volume I — *Aerodrome Design and Operations*, Chapter 9.1, the principal objective of aerodrome emergency planning, is to minimize the effects of an emergency, particularly in respect of saving lives and maintaining aircraft operations. The aerodrome emergency plan sets forth the procedures for coordinating the response of different aerodrome agencies (or services) and of those agencies in the surrounding community that could be of assistance in responding to the emergency. Currently, the *Airport Services Manual, Part 7 — Airport Emergency Planning* (Doc 9137) did not contain any recommended practices on the safe management of evacuated aircraft passengers at airports.

1.3 Based on case studies of past aircraft incidents such as Asiana Airlines Flight 214, Emirates Airlines Flight 521, Gulf Air Flight 215, etc, had shown that evacuating passengers straying into active aircraft movement areas. Responsibility for ensuring that passengers are safeguarded between the aircraft and airport facilities/building is shared between the airline, aerodrome operator and other aerodrome agencies/stakeholders. It is vital that it is clear who is responsible for providing staff to supervise and/or escort passengers across the apron, and that sufficient numbers of staff are provided. Failure to supervise passengers properly may lead to accidents with serious consequences for all involved. Main hazards to aircraft passengers wandering at live aircraft operational areas include, but not limited to:

- a) passengers getting lost;
- b) passengers getting hit by a vehicle/aircraft;
- c) passengers getting injured by aircraft propeller/jet blast/excessive engine noise;
- d) passengers falling into airport drains, canals, water catchment areas; and
- e) passengers struck by airport construction equipment, etc.

## 2. THE NEED FOR A PASSENGER EVACUATION MANAGEMENT SYSTEM AT AIRPORTS

2.1 The primary responsibility of the aircraft crew during an evacuation is to direct passengers to evacuate the aircraft using all of the usable exits. The aim of an evacuation is to ensure that passengers and crew members leave the aircraft as rapidly and as safely as possible. Once evacuating passengers leave the aircraft, if left unmanaged, this may expose the passengers to hazards such as

moving aircrafts and vehicles. The risks of injury are increased as passengers are in the state of panic and generally unaware of the obvious dangers around them. They can also get lost (e.g. due to dark conditions, poor visibility, ambiguous or improper markings). This greatly increases the chance they get into a hazardous situation (e.g. a passenger might approach an aircraft undergoing engine checks, the engineering personnel will most likely not be aware of their presence and therefore may not divert them soon enough).

2.2 Passengers evacuating a crashed aircraft using evacuation slides may be barefoot or without proper clothing. Where the aircraft accident occurred in inclement weather, these passengers may be wet and uncomfortable. These problems should be anticipated by having supplies of clothing, footwear, and blankets readily available. It may be necessary to establish a safe assembly area away from the aircraft, which can supply warmth and clothing and be used for examination purposes, before these persons are transported to the designated casualty holding area. In the aftermath of an aircraft accident, many lives may be lost and many injuries aggravated if immediate medical attention is not provided by trained rescue personnel. Injured passengers should be triaged, given available emergency medical aid as required, and then promptly evacuated to appropriate medical facilities.

2.3 The main responsibility of managing the evacuating passengers at the movement areas should fall under the aerodrome operator. The aerodrome operator, the aircraft operator, ground handlers and airside operations personnel all have collective responsibility for ensuring that the movement of passengers at the movement areas is strictly supervised and controlled. It is therefore proposed that standardised guidance procedures on passenger evacuation management system is established at airports to ensure health and safety of evacuated aircraft passengers on aircraft movement areas are managed safely and effectively, which include, at least, the following measures:

- a) a universally designed passenger evacuation assembly area (PEMS) sign;
- b) PEMS signs should be visual and audible in all directions and weather conditions;
- c) PEMS sign can be mounted or carried on the rear of selected aerodrome rescue and firefighting services and/or airfield operations vehicles;
- d) develop procedures for PEMS signs to be erected in a safe location outside the inner cordon and within the outer cordon, up wind and uphill from the aircraft incident scene;
- e) develop procedures for passengers evacuating the aircraft to be directed towards these PEMS vehicles; and
- f) develop procedures for passengers who require medical treatment to be assisted or carried to this location for triage by the responding medical or ambulance personnel.

### 3. ACTION

3.1 The ICAO Assembly is invited to:

- a) take note of the contents of this working paper to include in Doc 9137, Part 7;

- b) develop a universally agreed passenger evacuation management assembly area (PEMS) sign that is both visual and audible in all directions and weather conditions; able to be mounted or carried on the rear of selected aerodrome rescue and firefighting services and/or airfield operations vehicles;
- c) develop procedures for PEMS signs to be erected in a safe location outside the inner cordon and within the outer cordon, up wind and uphill from the aircraft incident scene;
- d) develop procedures for passengers evacuating the aircraft to be directed towards these PEMS vehicles; and
- e) develop procedures for passengers who require medical treatment to be assisted or carried to this location for triage by the responding medical or ambulance personnel.

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