



Agenda Item 6 Review of other technical matters

**HOMOLOGATED CRITERIA FOR ANNEX 14 STANDARDS AND RECOMMENDED
PRACTICES INTERPRETATION**

(Presented by Mexico)

SUMMARY

The Mexican Government is carrying out an aerodrome certification program, and for that purpose it has formed an interdisciplinary task force to review and update Laws, Rules and Standards.

The Task force has found some concepts that are not easy to understand in Annex 14 texts; these concepts should be clarified through the certification process, to guarantee homologated criteria when they have to be used.

References:

- ICAO, Annex 14 volume I, International Civil Aviation Convention

1. Introduction

1.1 The Mexican Government is carrying out an aerodrome certification program, and for that purpose has formed an interdisciplinary task force to review and update aerodromes Laws, Rules and Standards.

1.2 The Task force has found some concepts that are not easy to understand in Annex 14 texts; these concepts should be clarified through the certification process, to guarantee homologated criteria when they have to be used.

2. Objective.

2.1 Achieve homologated technical an operational criteria to interpret Annex 14's standards and recommended practices, on behalf of civil aviation authorities, to guarantee a properly supported certification process both technically and legally, and prevent possible user's dissatisfactions.

3. Proposed items.

3.1. Wind direction indicator. Ref. Annex 14, Vol. 1, 5.1.1.1. *“An aerodrome shall be equipped with at least one wind direction indicator.”* Ref. 5.1.1.2 *“A wind direction indicator shall be located so as to be visible from aircraft in flight or on the movement area and in such a way as to be free from the effects of air disturbances caused by nearby objects.”*

3.1.1 The text in Annex 14 is not precise in defining the placement of wind direction indicator(s) in the movement area.

3.1.2 The Task force has suggested the following text:

Wind direction indicators must be placed according to the following table:

<i>Placement of wind direction indicator(s)</i>		
<i>Aiming point</i>	<i>Distance from threshold</i>	<i>Distance perpendicular to runway center line</i>
<i>300 m from threshold</i>	<i>350 - 450 m.</i>	<i>60 – 80 m.</i>
<i>400 m from threshold</i>	<i>450 - 550 m.</i>	<i>60 – 80 m.</i>

For runways with 1200 m or less distance between thresholds, a minimum of one WDI must be placed, between 60 – 80 m perpendicular to the runway center line, at half the length of the runway, preferably on the left side of the most used approach direction, avoiding to suffer the effects of air perturbations produced by neighboring objects“.

3.2. Landing direction indicator. Ref. Annex 14, Vol. 1, 5.1.2.1. *“Where provided, a landing direction indicator shall be located in a conspicuous place on the aerodrome.”*

3.2.1 Annex 14 is not clear and precise to indicate: in what cases it is necessary to install a landing direction indicator, or the placement of this device in the movement area.

3.2.2 The task force suggested the following text:

“A landing direction indicator shall be provided in non controlled aerodromes; it should be placed next to the wind direction indicator.”

3.3. Displaced threshold markings (temporarily and permanently). Ref. Annex 14, Vol. 1:

5.2.4.9 *“Where a runway threshold is permanently displaced, arrows conforming to Figure 5-4 (B) shall be provided on the portion of the runway before the displaced threshold.”*

5.2.4.10 *“When a runway threshold is temporarily displaced from the normal position, it shall be marked as shown in Figure 5-4 (A) or 5-4 (B) and all markings prior to the displaced threshold shall be obscured except the runway centre line marking, which shall be converted to arrows.*

3.3.1 Annex 14 leads to confusion in the use of permanent and temporarily displaced threshold markings, because, in the text, it is clearly indicated to use figure 5-4 (B) configuration for permanent displacements, and figure 5-4 (A) for temporarily ones; but when you see the figure, 5-4 (B) is indicated for both cases.

3.3.2 The task force suggestion is changing the indication of figure 5-4 (B) exclusively for temporarily displacement applications, and complement it with the following text:

“5.2.4.9 When a runway threshold is permanently displaced, the markings should be in accordance with Figure 5-4 (B).”

“5.2.4.10 When a runway threshold is temporarily displaced of its normal position, the markings should be in accordance with Figure 5-4 (A), and all markings preceding the displaced threshold should be covered, except centerline markings, that will become arrows.”

3.4 Touchdown zone marking, *Ref. Annex 14, Vol. 1, 5.2.6*

3.4.1 The using of the touchdown marking is confusing in the case of distance coded configuration (Fig. 5-5 B) in runways with length under 2,400 m, because some interpretations delete the markings from the center towards the thresholds, and there are other different configurations derived from the lack of information in the text.

3.4.2 Mexican task force prepared a suggestion that is already under analysis, but there is a concern to clarify the proper use of these markings.

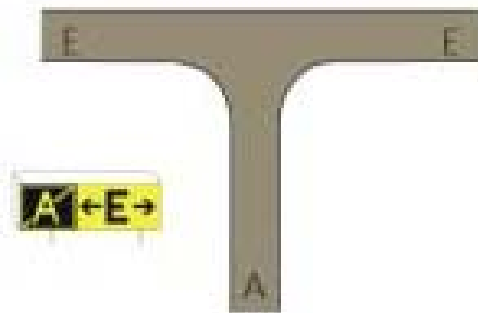
3.5. Aiming point marking versus location of the PAPI system. *Ref. Annex 14, Vol. 1, 5.2.5.1/ 5.3.5.1*

3.5.1 Those values in table 5-1 “Aiming point marking placement and dimensions”, regarding the distance between the threshold and the marking, in some cases are not coincident with the values obtained from the calculation of the distance to locate the precision approach path indicator system (PAPI).

3.5.2 For this reason, the Task Force has suggested to change the text in 5.2.5.4 and table, for the following: *“Aiming point markings should begin its location with a distance from the threshold indicated in the proper column of Table 5-1, except in the case of a runway equipped with a precision approach path indicator, in which the beginning of the markings location should be coincident with the visual approach slope initiation.”* This means that the aiming point should be placed where the PAPI location has been calculated for the most critical aircraft that uses the runway.

3.6. Sign location. *Ref. Annex 14, Vol. 1, 5.4*

3.6.1 The task force studied several cases where a taxiway ends in a “T” intersection, and does not continue; in Annex 14 there is no specific sign for such a situation, so the suggestion is to adopt the UK practice, using a direction sign that should be placed in front of the taxiway the aircraft is using, crossing its designation, as showed in the following figure:



(f) Taxiway ending sign

3.7. Pre threshold area markings. *Ref. Annex 14, Vol. 1, 7.3.1*

3.7.1 Paragraph 7.3.3, in Annex 14, is not clear in defining the characteristics of this marking; the suggestion is as follows:

“A chevron marking should be of conspicuous colour, preferably yellow, to contrast with the colour used for runway markings; it should have an overall width of at least 0,9 m”

3.8. Lights to visualize vehicles circulating in movement area.

3.8.1 Annex 14 does not include standards or recommended practices regarding means to visualize vehicles carrying out actions in the movement areas in aerodromes.

3.8.2 For that purpose, the suggestion for night operating aerodromes is to equip all vehicles to be used in the movement area with flashing lights in different colours, according to their mission, to be clearly conspicuous and thus reduce the risk of accidents/incidents. Service vehicles should use amber colored lighting; authorities vehicles, blue lighting; emergency vehicles, red lighting when in duty, amber when off duty.

3.8.3 In daytime operations, vehicles should carry an orange and white (other colours should be used if these are confusing with surroundings) checkered flag; 90 cm by side, 30 cm checkered squares; the darker color should be used in corners.

3.8.4 Vehicle lighting should be adjusted to the following characteristics:

- a) Revolving flashing lights, placed on top of the vehicles, to be seen from any Azimuth (360°) in a horizontal plane.
- b) The light beam should cover 10° above horizontal and up to 15° under it.
- c) Flashing frequency should be between 60 and 90 flashes per minute.

4. Suggested action

4.1 The Meeting is invited to analyze and comment on this working paper, and to support the AGA headquarters in any action considered necessary to clarify the concepts for its proper usage.