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*International Civil Aviation Organization***Sixth Meeting of the Asia/Pacific Aerodrome Assistance
Working Group (AP-AA/WG/6)***Bangkok, Thailand, 2 to 5 April 2024***Agenda Item 9: Any Other Business****METHODOLOGY FOR MARKING OF RUNWAY CENTERLINE USING
MINIMUM CONSUMPTION OF PAINT**

(Presented by India)

SUMMARY

This paper brings clarity to aerodrome operators for marking of Runway Centerline as per provisions of Annex 14 with least paint consumption.

1. INTRODUCTION

1.1 Annex 14 Para 5.2.3.3 on Runway Centre line Marking states that “A runway centre line marking shall consist of a line of uniformly spaced stripes and gaps. The length of a stripe plus a gap shall be not less than 50 m or more than 75 m. The length of each stripe shall be at least equal to the length of the gap or 30 m whichever is greater.”

1.2 Many Aerodrome operators have confusion on the above requirement and they tend to provide uniformly spaced stripes of length 30m and gaps of length 20m. However, in this case, all the strips and gaps could not be of same length and uniformly spaced. So, adjustments on the length of few stripes/gaps are made in the central portion of the RWY which leads to non-compliance of the Para 5.2.3.3 of Annex 14.

1.3 Further, as per Annex 14 Para 5.2.3.2, a runway centre line marking shall be located along the centre line of the runway between the runway designation markings as shown in Figure 5-2.

1.4 There are three types of marking pattern provided in Figure 5-2, Pattern A and B for Precision Approach and Non – Precision Approach Runways & Pattern C for Non- Precision Approach & Non Instrument Runways.

1.5 The runway centre line marking begins at a minimum distance of, 69m from the threshold in Pattern A, 84m in Pattern B and 66m in Pattern C by taking into account the location and size of runway threshold markings, runway designator markings and the standard spacing to be provided between threshold and runway designator marking and between runway designator marking and runway centre line marking.

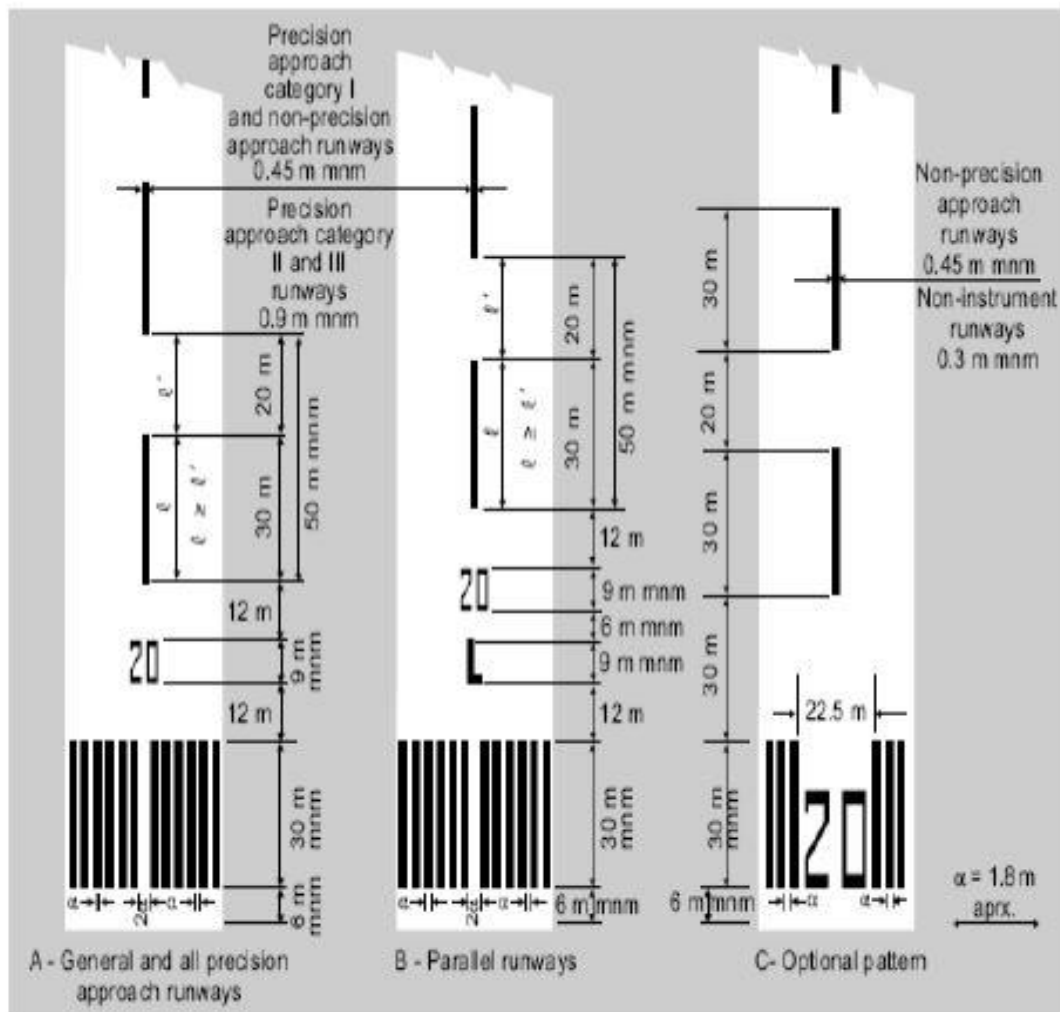
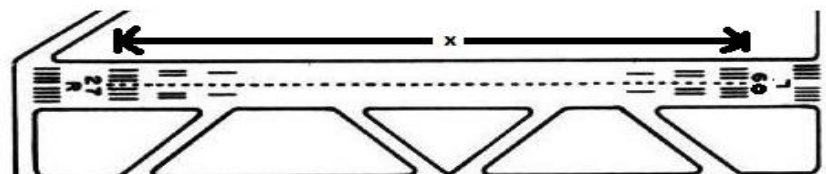


Figure 5-2. Runway designation, centre line and threshold markings

2. DISCUSSION



2.1 The portion of runway where center line needs to be marked is denoted as x meters in the above diagram. After dividing x by 30, if we get a number 'a.bc' where, 'a' is the interger part and 'bc' is the decimal part of the number then-

**Length of the stripe = Length of gap= x/a if 'a' is an odd number,
= $x/(a-1)$ if 'a' is an even number**

2.2 Let us take an example of a runway where centerline needs to be marked in 3062m portion for any of the patterns provided in Figure 5-2.

Calculation For Runway Center Line Marking with Least Paint Consumption:-

Step 1- Considering length of each stripe and each gap as 30m, after dividing 3062 by 30 we get 102.066. The integer part(a) is even number, so the portion of RWY where centerline needs to be marked should be divided by (a-1) i.e. 101.

Step 2- Therefore, the length of each stripe or each gap will be $3062/101 = 30.32\text{m}$, which is greater than 30m, hence meeting the standard.

Step 3- Since, number of stripes are to be greater than number of gaps hence, the total of 101 stripes + gaps may be bifurcated as 51 stripes and 50 gaps.

Step 4- Hence, the requirement of paint may be calculated as $51 \times 30.32\text{m} = \mathbf{1546.32\text{m}}$

2.3 There can be numerous combinations for determining the length of stripes and gaps of runway centre line in compliance to provisions of Annex 14. However, the method of calculating the consumption of paint for marking of runway centerline provided in para 2.2 above is the least quantity of paint which will be required to meet Annex 14 requirement.

2.4 Using the above methodology an aerodrome operator may save the paint during every marking/remarking/maintenance of runway centerline.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper; and
- b) discuss any relevant matters as appropriate.

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