



# **EAC**

# **No. 139-44**

---

**Table Of Contents**

<b><u>EAC139-44</u></b>	<b>SLOPES ON A RUNWAY</b>
<b><u>1.</u></b>	Distance between slope changes
<b><u>2.</u></b>	Consideration of longitudinal and transverse slopes
<b><u>3.</u></b>	Radio altimeter operating area

## SLOPES ON A RUNWAY

### **1 Distance between slope changes**

The following example illustrates how the distance between slope changes is to be determined (see Figure A-2):

D for a runway where the code number is 3 should be at least:

$$15\,000 (|x - y| + |y - z|) \text{ m}$$

$|x - y|$  being the absolute numerical value of  $x - y$

$|y - z|$  being the absolute numerical value of  $y - z$

Assuming  $x = +0.01$

$$y = -0.005$$

$$z = +0.005$$

Then  $|x - y| = 0.015$

$$|y - z| = 0.01$$

To comply with the specifications, D should be not less than:

$$15\,000 (0.015 + 0.01) \text{ m,}$$

That is,  $15\,000 \times 0.025 = 375 \text{ m}$

### **2 Consideration of longitudinal and transverse slopes**

When a runway is planned that will combine the extreme values for the slopes and changes in slope permitted under Subpart F, 139.309(a)(12) to 139.309(a)(18), a study should be made to ensure that the resulting surface profile will not hamper the operation of aeroplanes.

### **3 Radio altimeter operating area**

In order to accommodate aeroplanes making auto-coupled approaches and automatic landings (irrespective of weather conditions) it is desirable that slope changes be avoided or kept to a minimum, on a rectangular area at least 300 m long before the threshold of a precision approach runway. The area should be symmetrical about the extended centre line, 120 m wide. When special circumstances so warrant, the width may be reduced to no less than 60 m if an aeronautical study indicates that such reduction would not affect the safety of operations of aircraft. This is desirable because these aeroplanes are equipped with a radio altimeter for final height and flare guidance, and when the aeroplane is above the terrain immediately prior to the threshold, the radio altimeter will begin to provide information to the automatic pilot for autoflare. Where slope changes cannot be avoided, the rate of change between two consecutive slopes should not exceed 2 per cent per 30 m.