International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)
Eighth Meeting of the GREPECAS Aerodromes and Ground Aids/Aerodrome Operational Planning Subgroup (AGA/AOP/SG/8)
Mexico City, México, 19 to 21 July 2011

Agenda Item 5: Other Business

REVIEW TO ANNEX 14 VOLUME I

(Presented by the Dominican Republic)

SUMMARY

The purpose of this working paper is to propose a review of Annex 14, Vol. 1, aimed at studying the feasibility of specifying the radius of the Conical Surface, as it is for the inner horizontal surface in order to clarify the meaning of the real altitude that this conical surface must reach, from its definition and content in Table 4-1, on Dimensions and slopes of Obstacle Limitation Surfaces

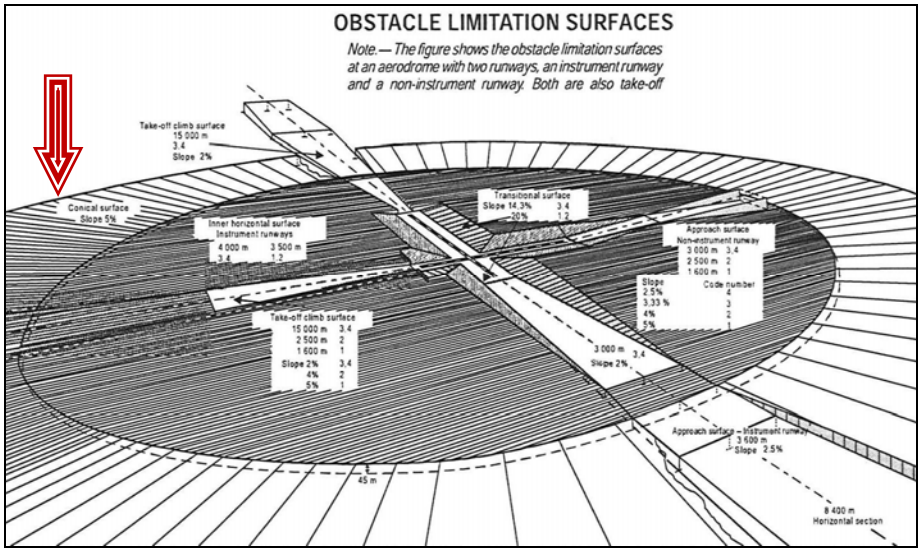
Referencias:

- Annex 14, Volume 1, Aerodrome Design and Operations, Chapter 4, Obstacle Restriction and Removal, Conical Surface, 4.1.1, 4.1.2 b)
- Annex 14, Volume 1, Aerodrome Design and Operations, Chapter 4, Table 4-1.

Strategic Objectives:	*A- Safety*

1. Introducción

1.1 Annex 14, Volume 1, in Chapter 4, Obstacle Restriction and Removal, defines the airspace around airports that should be maintained free from obstacles so as to permit the intended airplane operations at the aerodromes to be conducted safely and to prevent the aerodromes from becoming unusable by the growth of obstacles around the aerodromes. In 4.1.1 it is established that the Conical Surface is a surface with upwards slope from the periphery of the inner horizontal surface, but does not define its radius. Taking into consideration Table 4-1, Dimensions and slopes of obstacle limitation surfaces, where parameters are established for determining these dimensions and slopes when determining the height to which the Conical Surface will reach, some confusion arises from where to measure the values shown in the Table. In order to verify if it is only a miss-interpretation, in various meetings it was discussed this issue with AGA members from different countries in the region, resulting in different interpretations giving different results regarding the height and dimensions that the Conical Surface should reach.



2. Analysis

2.1 The description of the Conical Surface that appears in Annex 14, Volume 1, establishes that it is “a surface with upwards and outwards slope that extends from the periphery of the inner horizontal surface”. Further on it defines the characteristics of this surface, as established in para. 4.1.2. “b) an upper edge located at a specified height above the inner horizontal surface”. Table 4-1 establishes the heights, but does not specify in a precise manner if the 35, 55, 75, 100 and 60 m that appear as the conical surface height of different runways will be considered as from the 45 m of the internal horizontal surface (including the 45m) or will be calculated from the point, over the sea level, in which the slop of 5% will intersect the abovementioned height specified in Table 4-1 for Conical Surface.

2.2 The lack of a value for the radius that will cover the Conical Surface for the aerodrome categories specified in Table 4-1 leads to the following confusion in its calculation:

a) If the 55, 75, 100 and 60 m. height established for the conical surface as indicated in Table 4-1 were considered from the ground level and already including the 45 m height established for the Inner Horizontal Surface, it is observed that the radius of the conical surface, until it cuts the 100m of height, will be extended to 1,100 m beyond the Inner Horizontal Surface. The total radius of the aerodrome obstacle limitation surface will be extended to 5,100 m. **The surface to be protected will be less extensive but more restrictive as approaching the aerodrome**, as we will have constructions restricted in height up to 5,100 m., from which heights from 150 m and on should be allowed, unless an aeronautical study shows the opposite.

b) If the 55, 75, 100 and 60 m. height established for the conical surface as indicated in Table 4-1 were considered from the Inner Horizontal Surface, excluding the 45 m height already established, it may consider adding to the 45m, the 55, 75, 100 and 60m, as the case may be, and the radius of the conical surface, where the slope of 5% intersects 100 m above the Inner Horizontal Surface, it may intend in distance up to 2000 m beyond the inner horizontal surface, for the highest reference code. The aerodrome limitation surface it may then extend up to 6,000 m. **The surface to be protected would be more extensive but less restrictive when approaching the aerodrome**, as we can allow constructions with higher heights closer to the runway, but limitations will extend up to 6000 m. from the aerodrome, from which heights of 150 m. and on may be allowed, unless an aeronautical study shows the opposite.

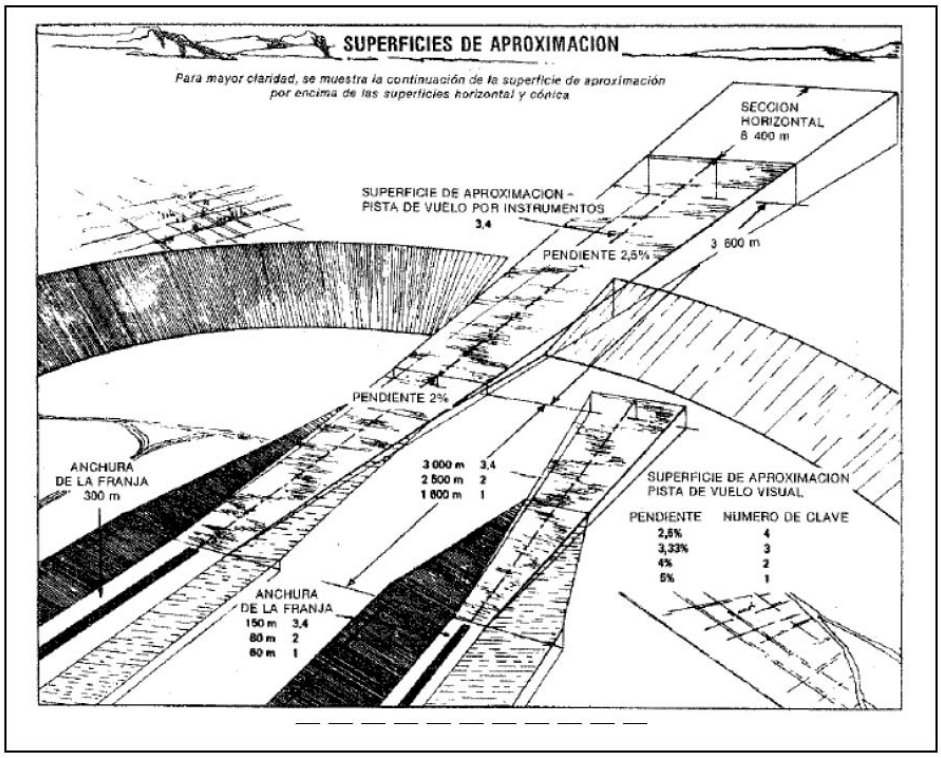
3. Conclusion

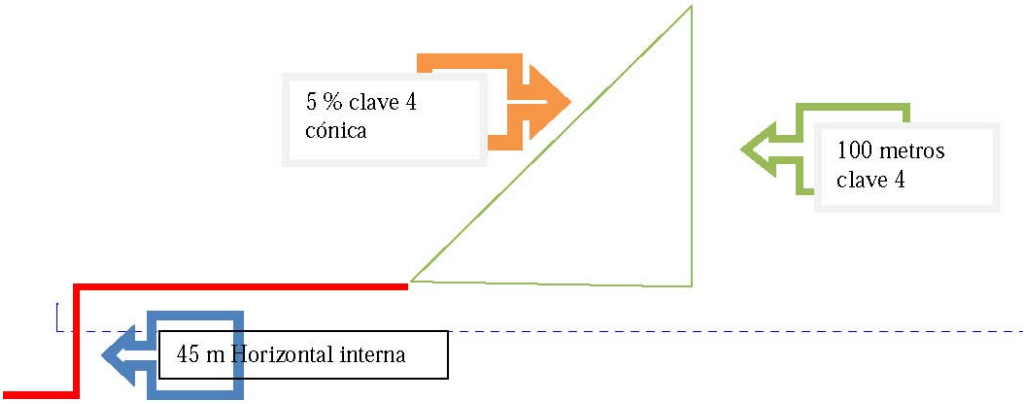
a) The feasibility of specifying a radius for the Conical Surface should be considered, as with the Inner Horizontal Surface.

b) In absence of and trying to avoid possible confusion, consider replacing part 4.1.2, b) as follows:

   a) If the Inner Horizontal Surface is not included in the 100 m height it may say: “b) an upper edge located at a specified height established in Table 4-1 should be calculated from the Inner Horizontal Surface, and intersecting the height specified for each case.

   b) If the 45 m. of the Inner Horizontal Surface is included in the 100 m height it may say: “b) an upper edge located at a specified height established in Table 4-1 should be calculated including the 45m of the Inner Horizontal Surface, where intersecting the height specified in each case.


SUPERFICIES DE APROXIMACION
Para mayor claridad, se muestra la continuación de la superficie de aproximación por encima de las superficies horizontal y cónica
SECCION HORIZONTAL
SUPERFICIE DE APROXIMACION - PISTA DE VUELO POR INSTRUMENTOS
3,4
PENDIENTE 2,5%
3 600 m
PENDIENTE 2%
ANCHURA DE LA FRANJA
300 m
3 000 m 3,4
2 500 m 2
1 800 m 1
SUPERFICIE DE APROXIMACION
PISTA DE VUELO VISUAL
PENDIENTE
NUMERO DE CLAVE
2,5% 4
3,33% 3
4% 2
5% 1
ANCHURA DE LA FRANJA
150 m 3,4
80 m 2
60 m 1


5 % clave 4
cónica
100 metros
clave 4
45 m Horizontal interna

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