



GEPEA

Grupo de Estudos
sobre Planejamento
do Espaço Aéreo

ATCSMAC

REVISÃO E NOVOS CONCEITOS



Departamento
de Controle do Espaço Aéreo
Department of Airspace Control

1º Ten Esp CTA Ueiler de Queiros Silva

OBJETIVO

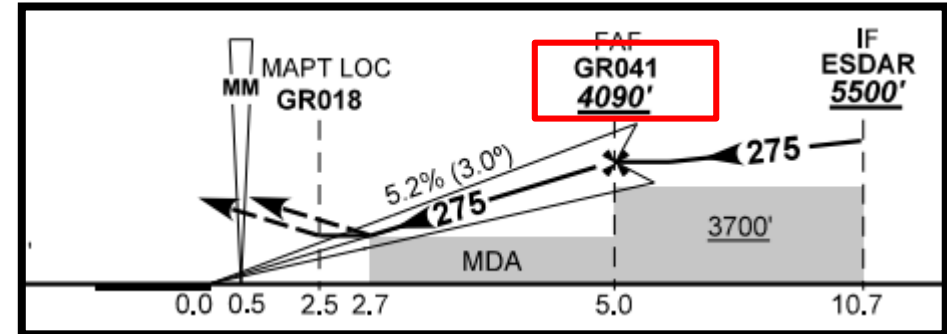
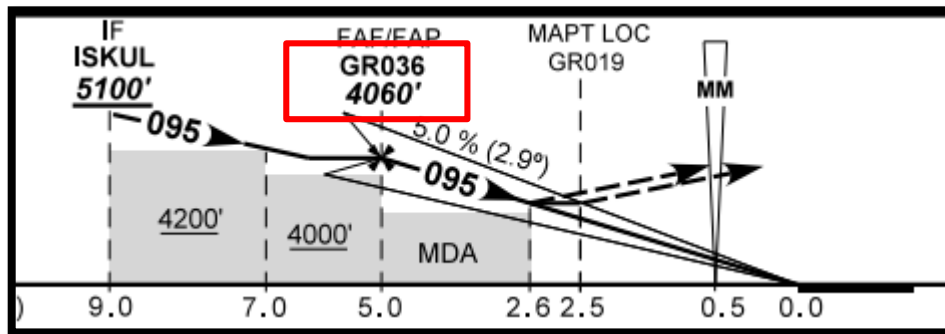
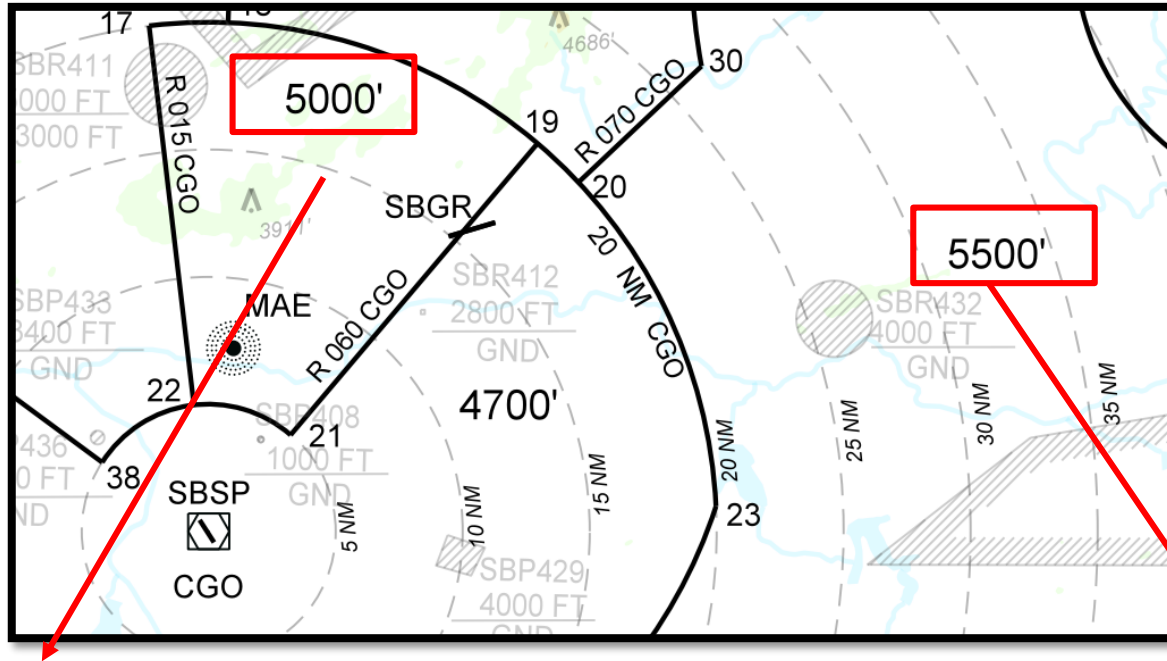
Conhecer o conceito de área de vetoração da aproximação final aplicado pelo REINO UNIDO e conhecer algumas propostas de inserção na norma (CIRCEA 100-54), relativas a ATCSMAC.

ROTEIRO

- **DEMANDA**
- **CRITÉRIOS DO REINO UNIDO - ATCSMAC**
- **CRITÉRIOS OACI – ATCSMAC**
- **COMPARATIVO OACI X REINO UNIDO**
- **PROPOSTAS PARA CIRCEA 100-54**

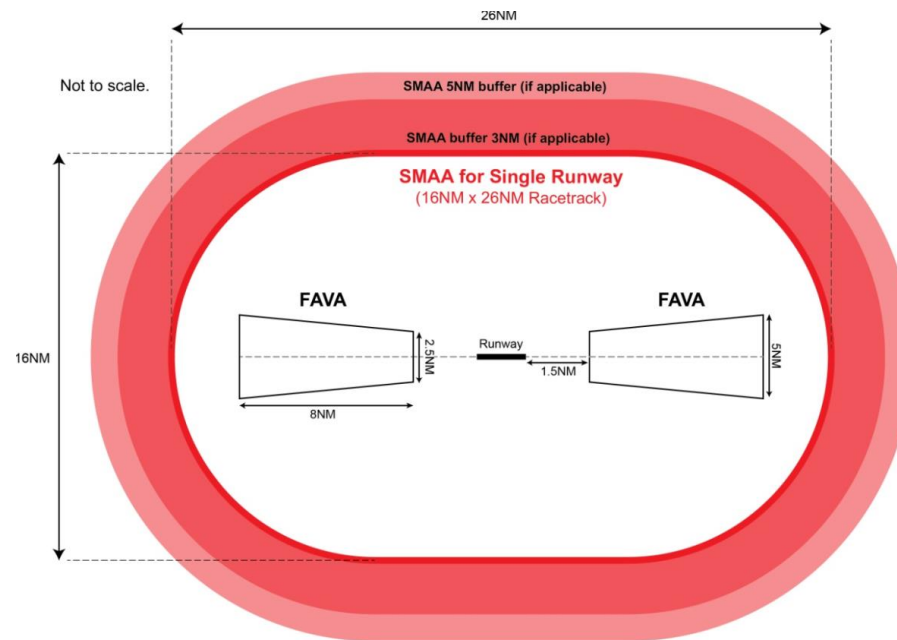
DEMANDA

Incompatibilidades entre as altitudes mínimas dos setores da ATCSMAC com as altitudes de passagem no FAF, em alguns aeródromos.



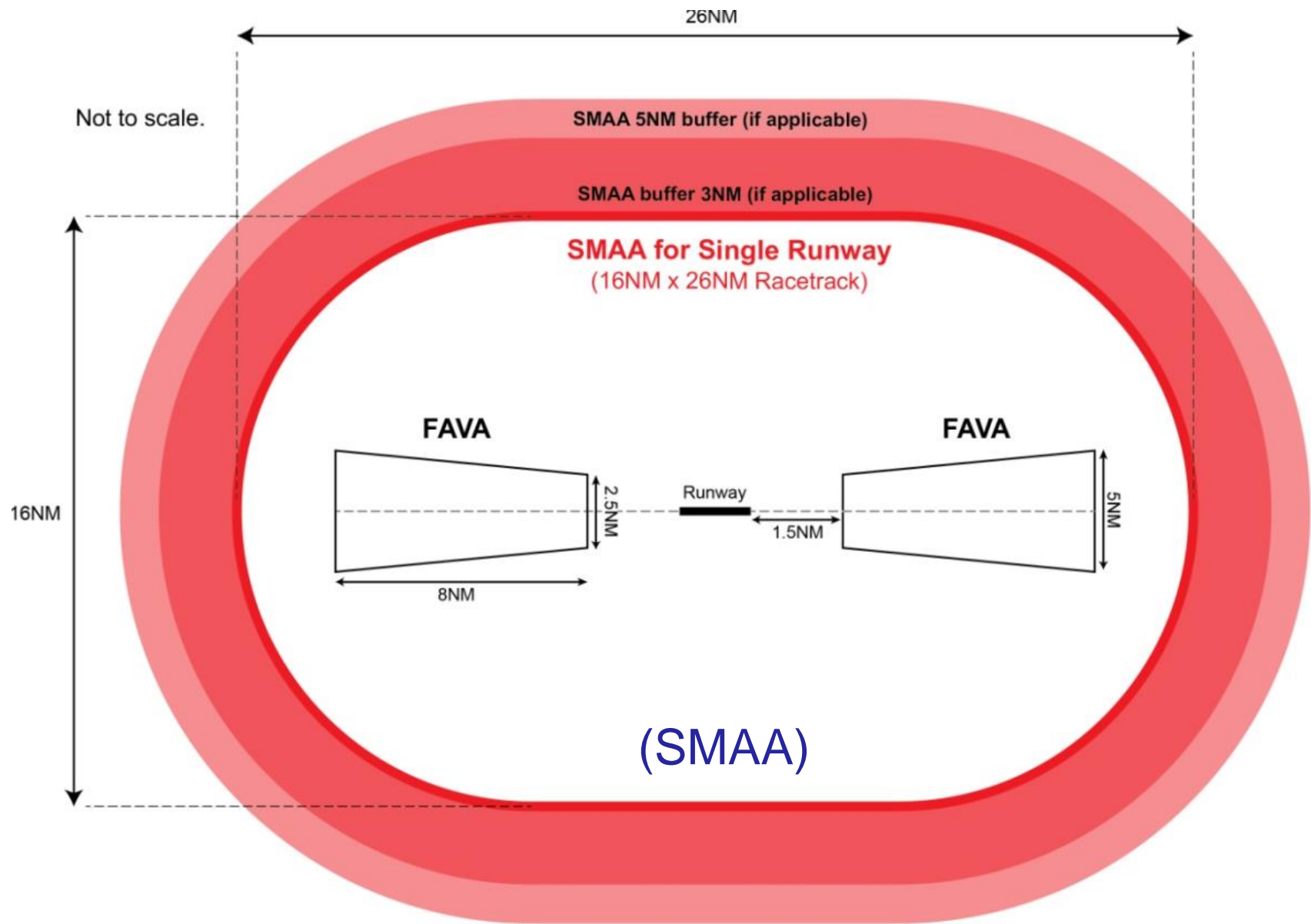
CRITÉRIOS REINO UNIDO

Surveillance Minimum Altitude Area (SMAA)
Final Approach Vectoring Area (FAVA)

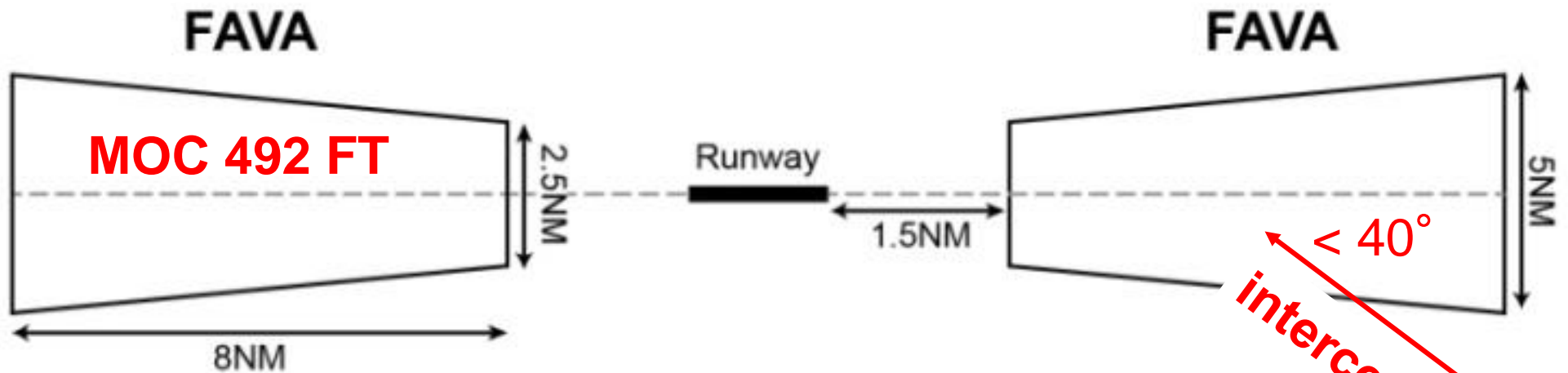
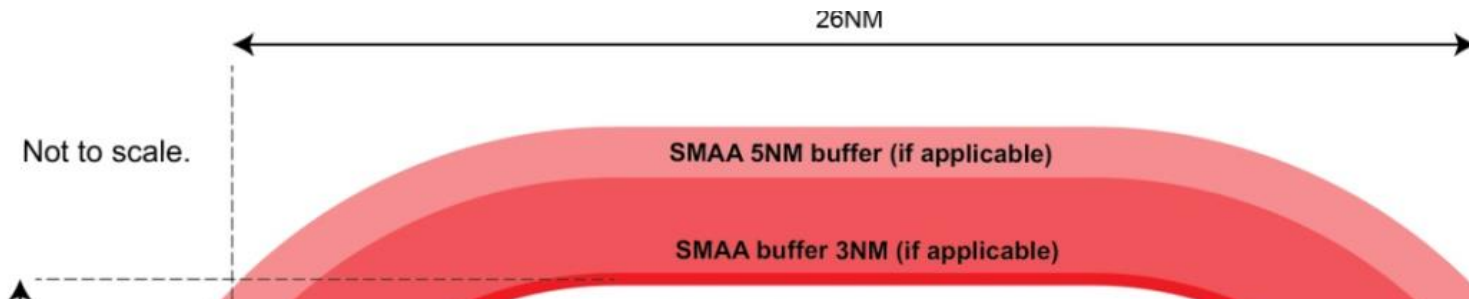


NATS AERONAUTICAL INFORMATION SERVICE

CRITÉRIOS REINO UNIDO



CRITÉRIOS REINO UNIDO



CRITÉRIOS REINO UNIDO

OUTSIDE THE DESIGNATED ATC SURVEILLANCE MINIMUM ALTITUDE AREA

The minimum altitude to be allocated by the approach surveillance controller will be either the Minimum Sector Altitude, or **1000** above any fixed obstacles:

- a) within 5NM of the aircraft, and
- b) within the sector 15NM ahead of and within 20° either side of the aircraft's track.

LOSS OF COMMUNICATION PROCEDURES

Initial Approach

Continue visually or by means of an appropriate approved final approach aid. If not possible proceed at **3000**, or last assigned level if higher to **BEL VOR†**.

Intermediate and Final Approach

Continue visually or by means of an appropriate final approach aid. If not possible follow the Missed Approach Procedure to **BEL VOR†**.

† In all cases where the aircraft returns to the holding facility the procedure to be adopted is the Radio Failure Procedure detailed at ENR 1.1.3.

GENERAL INFORMATION

1. Levels shown are based on QNH.
2. Only significant obstacles and dominant spot heights are shown.
3. The minimum levels shown within the ATC Surveillance Minimum Altitude Area are in conformance with the Standard European Rules of the Air - SERA.5015.
4. Minimum Sector Altitudes are based on obstacles and spot heights within 25NM of the Aerodrome Reference Point.
5. Controlled airspace with a base in excess of **5000** or FL55, as appropriate, is not shown.
- 6. This chart may only be used for cross-checking of altitudes assigned when in receipt of an ATC Surveillance service.**
- 7. When vectoring an aircraft within the Final Approach Vectoring Area descent clearance below the SMAA to the FAVA altitude may only be issued if the aircraft is either established on the final approach track or on an intercept of 40° or less, and in the case of instrument approaches other than SRA is cleared to intercept the final approach track.**
8. Detailed description of FIR, UIR, CTA and TMA see ENR 2.1.
9. Detailed description of ATS airspace organized at the aerodrome see AD 2.17.

CHANGE (1/19): NOTES 8 & 9 ADDED.

AERO INFO DATE 18 OCT 18

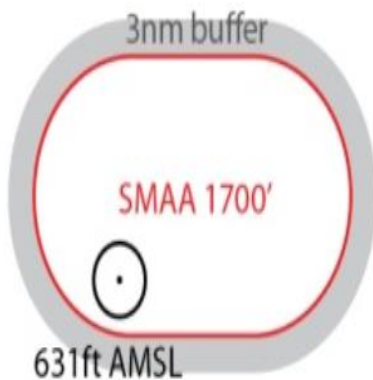
AD 2-EGAA-5-1

IVIL AVIATION AUTHORITY

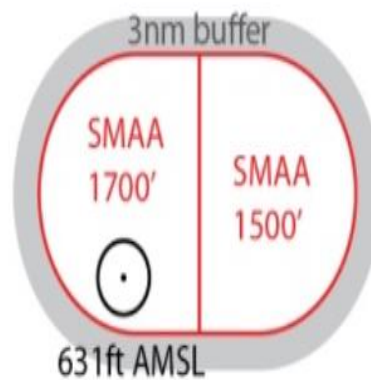
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CRITÉRIOS REINO UNIDO

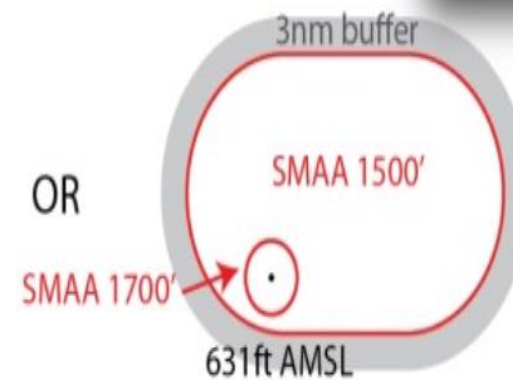
Plan



OR



OR

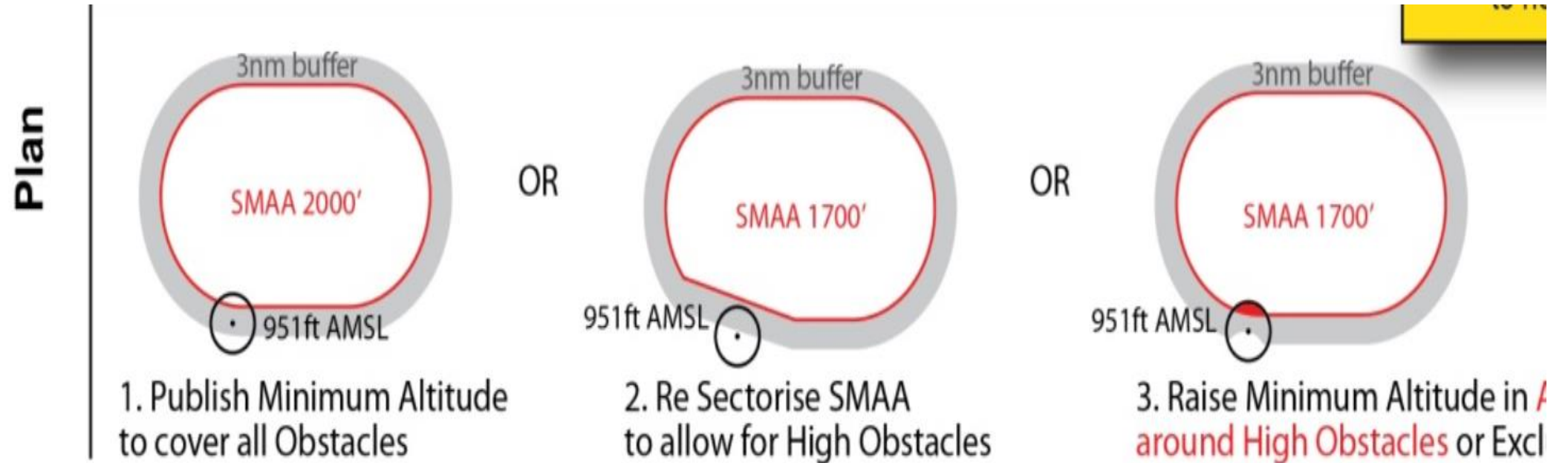


1. Publish Minimum Altitude to cover all Obstacles

2. Re Sectorise SMAA to allow for High Obstacles

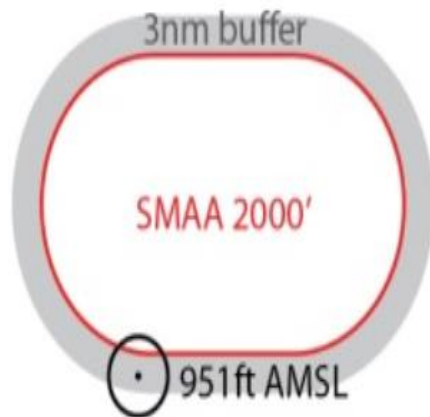
3. Raise Minimum Altitude in **Areas around High Obstacles** or Exclude Area

CRITÉRIOS REINO UNIDO

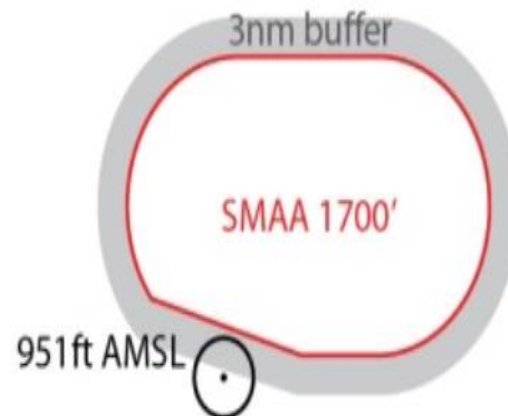


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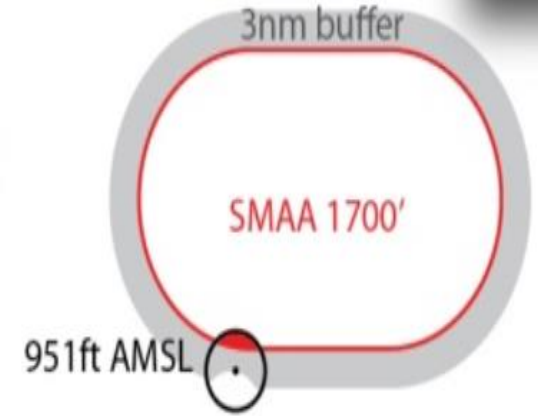
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OR



OR



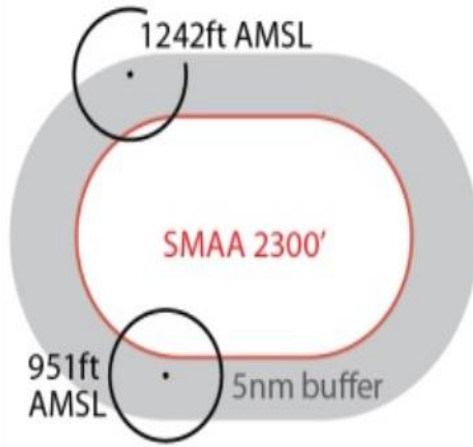
1. Publish Minimum Altitude to cover all Obstacles

2. Re Sectorise SMAA to allow for High Obstacles

3. Raise Minimum Altitude in / around High Obstacles or Excl

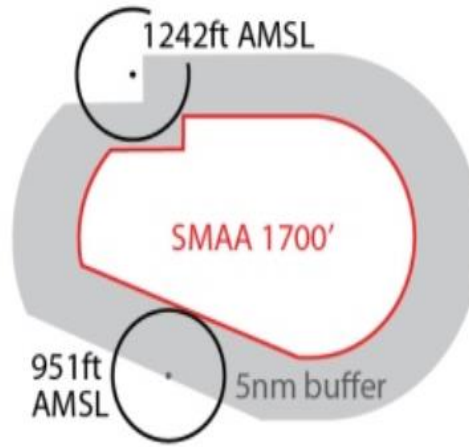
CRITÉRIOS REINO UNIDO

Plan



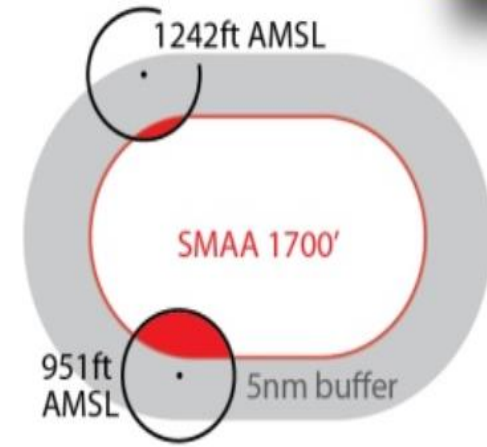
1. Publish Minimum Altitude to cover all Obstacles

OR



2. Re Sectorise SMAA to allow for High Obstacles

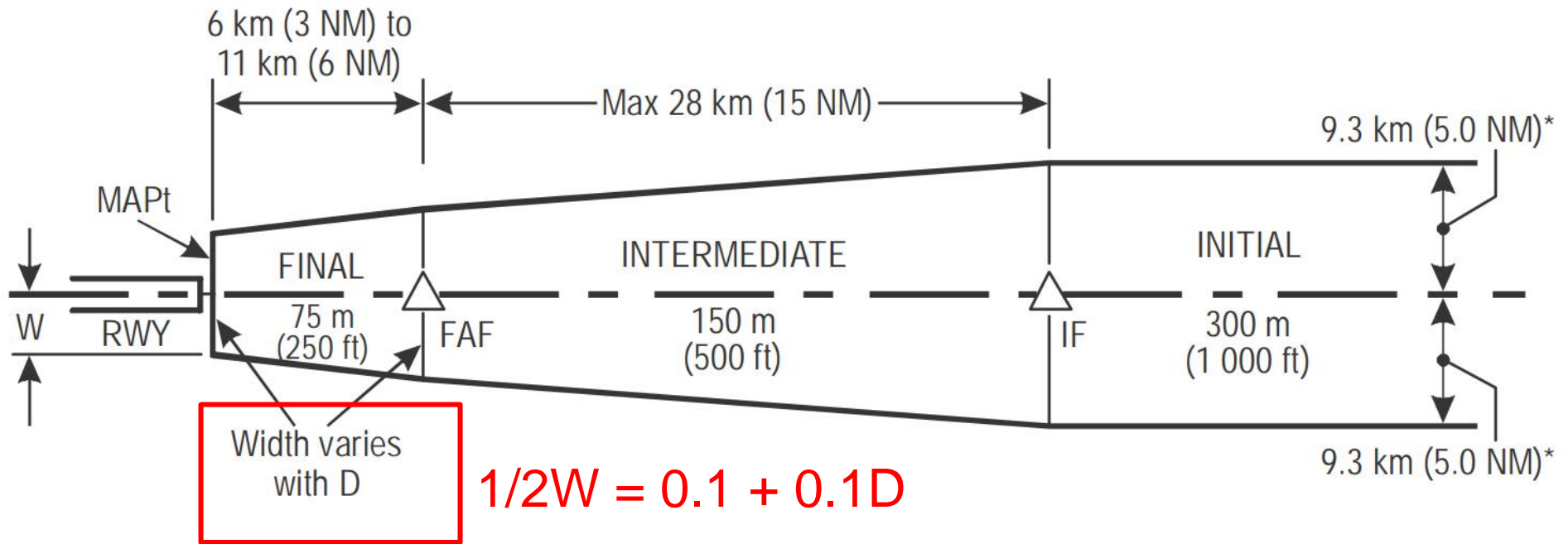
OR



3. Raise Minimum Altitude in **Areas around High Obstacles** or Exclude Ar

CRITÉRIOS OACI (SRE)

Surveillance Radar Equipment



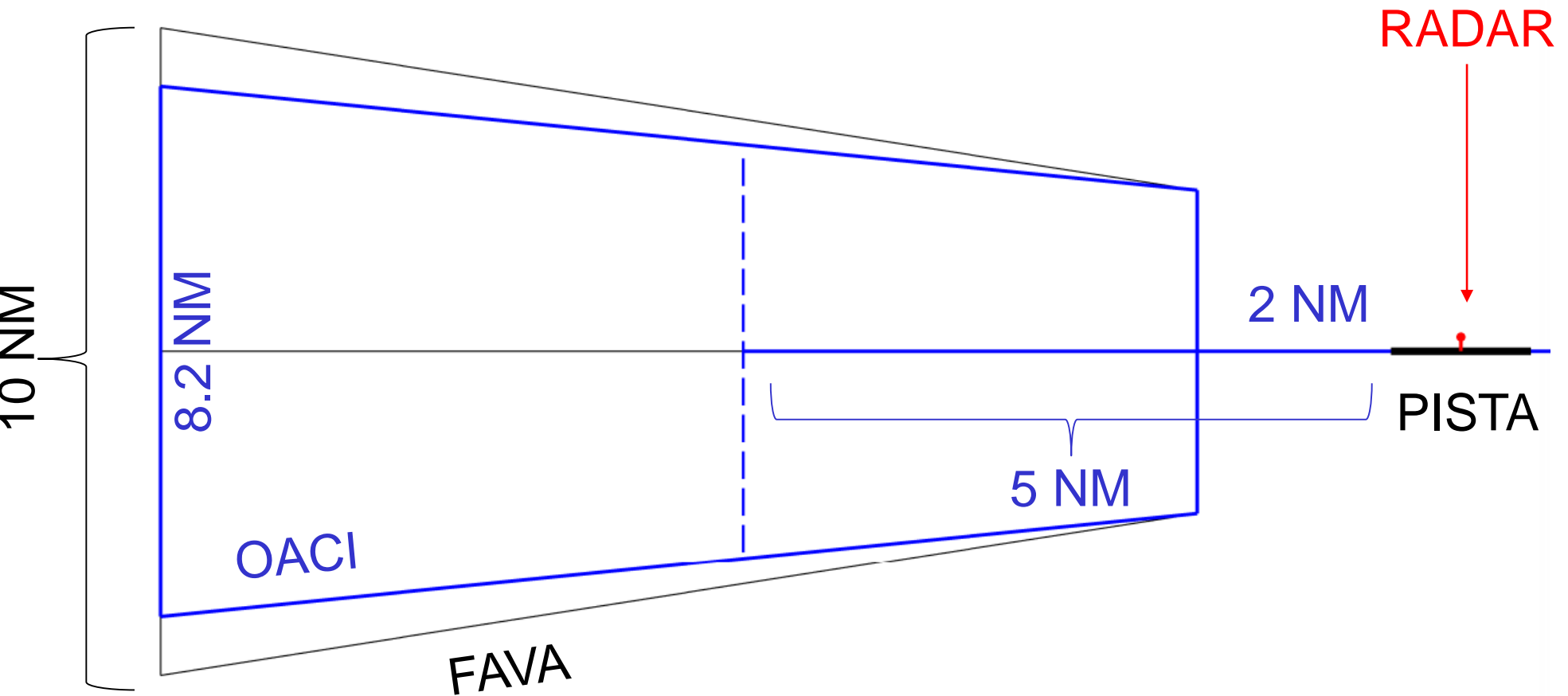
*Note.— The width of the area may be reduced to 5.6 km (3.0 NM) on each side of the track within 37 km (20 NM) of the radar antenna, depending upon the accuracy of the radar equipment, as determined by the appropriate authority. See PANS-ATM, Chapter 12.

MAPT 2NM TO THR

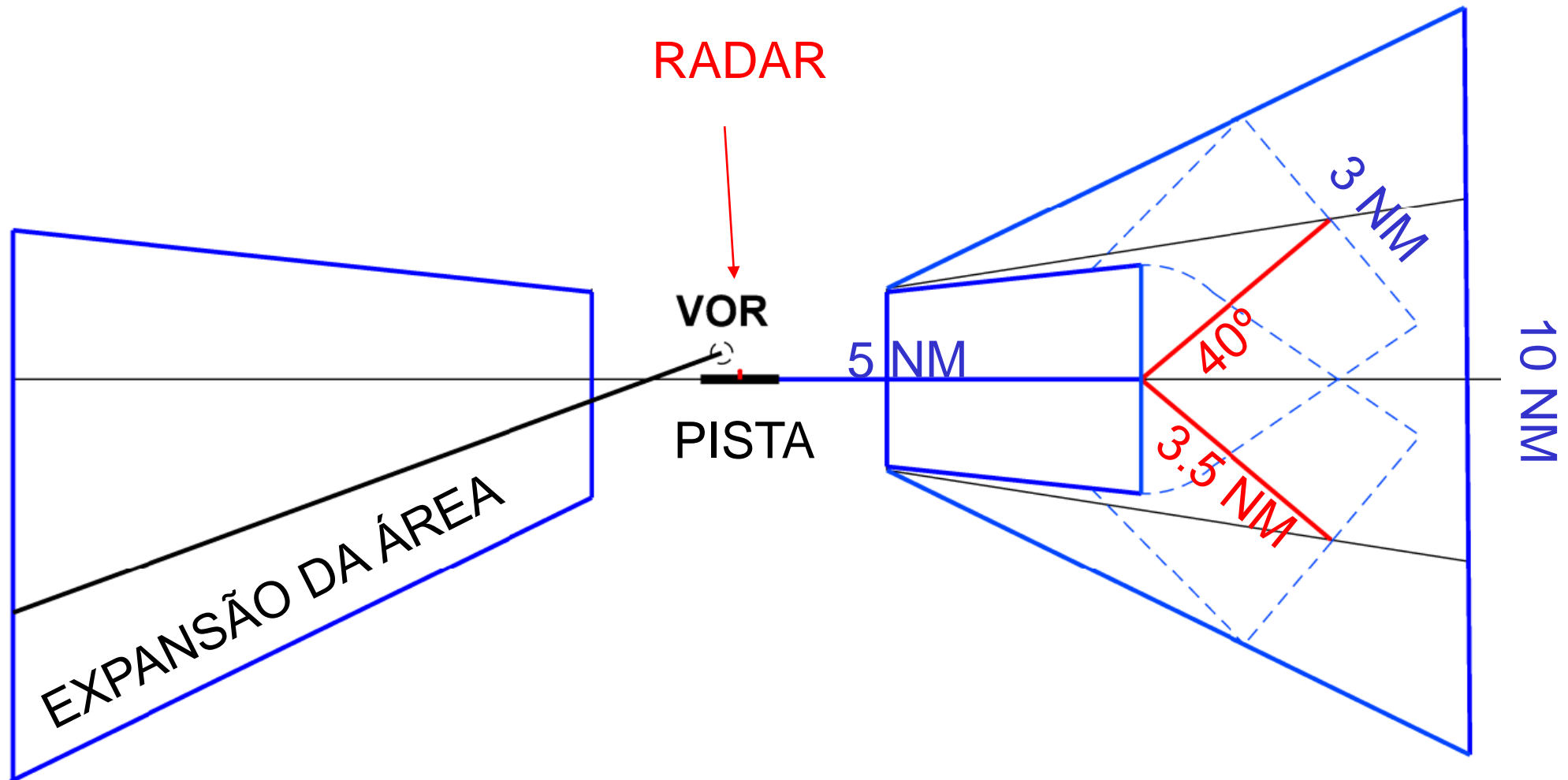
$$1/2 W = (1.9 + 0.1D) \text{ km } [(1 + 0.1D) \text{ NM}], \text{ where}$$

D = distance from antenna in km [NM]
(maximum 37 km [20 NM])

COMPARATIVO OACI X NATS



COMPARATIVO OACI X NATS



LIMITES da ATCSMAC

6.2.3 Procedures based on tactical vectoring

The following restrictions apply:

a) *Area*. The area considered for obstacle clearance shall be the **entire area within the operational coverage of the radar**.

This area may be subdivided to gain relief from obstacles which are clear of the area in which flight is to be conducted.

OBS: as altitudes mínimas devem ser compatibilizadas com a cobertura radar.

OBS: a ATCSMAC deve estar dentro do espaço aéreo onde se presta o serviço de vigilância ATS. **Compatibiliza as altitudes mínimas com os limites da Terminal ???**

LIMITES da ATCSMAC e MÉTODOS DE INSP EM VOO

16.9.10.2 MÉTODO DE INSPEÇÃO EM VOO

A inspeção em voo da Grade de Alerta de Altitude deverá ser realizada juntamente com a inspeção em voo da ATCSMAC.

O PI, utilizando-se de uma carta da região e de informações do órgão operacional, deverá determinar os setores críticos da TMA (densidade de tráfego, relevo, etc.) e, aí, concentrar a inspeção em voo.

LIMITES da ATCSMAC e MÉTODOS DE INSP EM VOO

MANINV-BRASIL/2017

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À medida que a ATCSMAC for sendo inspecionada, o PI deverá observar quais quadrículas da Grade de Alerta de Altitude está sobrevoando e verificar, com o controlador, se o sistema alarma para as altitudes previstas, utilizando o ajuste de altímetro local.

Adicionalmente, deverá ser verificado se as altitudes indicadas na Grade de Alerta de Altitude são compatíveis com as da ATCSMAC e se existe “clearance” de obstáculos nos referidos setores.

NOTA: Não havendo cobertura RADAR na área inspecionada, deverão ser inspecionados os pontos mais extremos dos setores, com o objetivo de se obter detecção RADAR e estabelecer o nível mínimo da cobertura em cada setor da ATCSMAC e da Grade de Alerta.

CORREÇÕES DE ALTÍMETRO ATCSMAC

Chapter 4 DOC 8168 V1 2006

ALTIMETER CORRECTIONS

*Note.— This chapter deals with altimeter corrections for pressure, temperature and, where appropriate, wind and terrain effects. **The pilot is responsible for these corrections, except when under radar vectoring.** In that case, the radar controller issues clearances such that the prescribed obstacle clearance will exist at all times, **taking the cold temperature correction into account.***

CORREÇÕES DE ALTÍMETRO ATCSMAC

CORREÇÃO DE TEMPERATURA

Na elaboração da ATCSMAC deverá ser considerada a correção do altímetro em função de baixas temperaturas.

Genericamente poderá ser considerada uma correção de 4% da altitude mínima calculada, para cada 10° C abaixo da temperatura padrão.

NOTA: Esse método é seguro para temperaturas acima de -15° C.

NOTA: As correções de temperatura podem ser desconsideradas quando os valores de correção forem menor que 20% da MOC associada.

DOC 8168 V2

4.3.6 Small corrections

For practical operational use, it is appropriate to apply a temperature correction when the value of the correction exceeds 20 per cent of the associated minimum obstacle clearance (MOC).

CORREÇÕES DE ALTÍMETRO ATCSMAC

CORREÇÃO DE PRESSÃO

- Para elaboração da ATCSMAC não deverão ser consideradas as correções de pressão quando as altitudes mínimas de segurança forem estabelecidas em Nível de Voo, sendo responsabilidade dos pilotos estabelecerem as correções no momento do voo.

DOC 8168 V2

4.2 PRESSURE CORRECTION

- *When flying at levels with the altimeter set to 1 013.2 hPa, the minimum safe altitude must be corrected for deviations in pressure when the pressure is lower than the standard atmosphere (1 013 hPa). An appropriate correction is 10 m (30 ft) per hPa below 1 013 hPa. Alternatively, the correction can be obtained from standard correction graphs or tables supplied by the operator.*

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