



# Airports Authority of India

## Department of Aerodrome Safeguarding

Rajiv Gandhi Bhavan, New Delhi-110003

[File No. AAI/ATM/DoAS/31/2018]

### AERODROME SAFEGUARDING CIRCULAR (ADSAC) 05 OF 2020

**Subject: - Guidelines for the conduct of Aeronautical Study**

(Short Title: Aeronautical Study Guidelines)

#### **1. Background**

- 1.1. Director General of Civil Aviation Civil Aviation Requirement (CAR) on Aerodrome Design and Operations Section 4 (Series 'B' Part 1), Chapter 4 and GSR 751(E) mandate the establishment and safeguarding of Obstacle Limitation Surfaces (OLS) at an airport, to permit safe aircraft operations and to prevent the airport from becoming unusable by the growth of obstacles around it.
- 1.2. As per the CAR paras 4.2.4, 4.2.5 and GSR 751 E schedule II para 5.1, penetration of some of the obstacle Limitation surfaces may be allowed, if in the opinion of the Appropriate Authority, after the conduct of aeronautical study it is determined that the object would not adversely affect the safety or significantly affect the regularity of the aircraft operations. As per rule 11 of the GSR751(E), Appellate Committee has been constituted which acts as the Appropriate Authority for considering the recommendations for the higher height through the aeronautical study report for a suitable decision.
- 1.3. The rapid economic growth in India has resulted in a vertical growth of real estate, especially in Mumbai and a few other metro cities. Consequently, there has been a consistent industry demand for conducting Aeronautical Study to permit constructions with Top Elevations penetrating the Obstacle Limitation Surfaces (OLS) established for that airport.
- 1.4. Based on the recommendations of a duly appointed Expert Committee, the Appellate Committee of MoCA approved the "Guidelines on Allowable Penetration of Obstacle Limitation Surfaces", vide publication dated 26.03.2015. These guidelines, along with their implementation by AAI, were validated by the ICAO, along with certain

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3<sup>rd</sup> July 2020

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recommendations, to elaborate the calculation methodologies with drawings and figures.

## **2. Purpose**

- 2.1. This ADSAC contains the guidelines to be followed by the AAI technical experts and officers of the Department of Aerodrome Safeguarding of AAI while carrying out the Aeronautical Studies in purview of GSR 751(E), duly approved by Member (ANS), AAI.
- 2.2. Besides incorporating the current Guidelines for the Aeronautical Study, it elaborates the Standard Methodology and Calculations to determine the Maximum Allowable Penetration of the Obstacle Limitation Surfaces (OLS) through the Aeronautical Study in view of the recommendations of ICAO, given while evaluation of the guidelines.

## **3. Scope / Applicability**

- 3.1 This ADSAC is applicable to all the Aeronautical Studies being carried out by AAI under the provisions of GSR751(E).
- 3.2 The scope of this Aerodrome safeguarding circular (ADSAC) extends to all the civil airports being safeguarded by AAI, the personnel posted at these airports and AAI personnel at AAI CHQ and Regional Offices, or any other personnel duly authorised, dealing with the preparation of Aeronautical Study reports to be presented to the Appellate Committee.

## **4. Cancellation**

- 4.1. Nil

## **5. Effective date**

- 5.1. This ADSAC will be effective from the date of its issue.



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**6. Approval of conduct of Aeronautical Study**

6.1. In the appeal cases to the Appellate Committee, Member (ANS), AAI may approve the conduct of Aeronautical Study as per the procedure laid out in this circular and subject to the following:

- 6.1.1. Prescribed aeronautical study fee of Rs. 20,00,000/- + applicable GST is paid to AAI. For a plot exceeding 2000 Sq. Meters, building/s co-ordinates shall also be provided. A maximum of four buildings shall be covered in one aeronautical study.
- 6.1.2. A structure for which higher elevation is recommended through an Aeronautical Study penetrate the Obstacle Limitation Surfaces (OLS), thereby creating an Obstacle for the Aircraft Operations. Therefore, the appellant undertakes to implement the safety risk mitigation measures prescribed in the NOC letter in co-ordination with the Airport Operator concerned.
- 6.1.3. The Aeronautical Study is conducted on a "Case to Case" basis and shall not serve as a precedence or parallel to evaluate other cases.
- 6.1.4. Appellant provides the correct plot and building co-ordinates and site elevations in reference to MSL/EGM08 datum of the required accuracy.

6.2. The appeal for the aeronautical study shall not be considered under the following circumstances:

- 6.2.1. The appellant has violated any of the terms and conditions of the duly issued NOC, including the permitted top elevation.
- 6.2.2. The NOC was not duly issued i.e. the data provided by the applicant for the issuance of NOC was incorrect.
- 6.2.3. The appellant has not applied for issuance of NOC, to the concerned Designated Officer of AAI.
- 6.2.4. Building or the structure has already been constructed above the permitted top elevation or the same has already identified as an obstacle by the airport operator.
- 6.2.5. Any other circumstance, not considered appropriate by the Member (ANS) AAI or the Chairperson of the Appellate Committee.

6.3. Processing of Appeals for Multiple Aeronautical Studies



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- 6.3.1. Normally appellant request for the first aeronautical study is considered through the process of Appeal. The subsequent appeal for the conduct of aeronautical study shall not be considered unless;
- 6.3.1.1. Request for the revised height is justified by the concerned Local Body or the architect, based on the change(s) in building byelaws including the provisions of Floor Area Ratio/Floor Space Index (FAR/FSI), or
- 6.3.1.2. In the past the aeronautical study was conducted for the plot but now the appellant makes a request for the specific building/ set of buildings, or
- 6.3.1.3. The appellant requests aeronautical study for a building/ a set of buildings, whose foot print and/or location in the plot, have altered as compared to the previous aeronautical study.
- 6.3.1.4. A change in the Aerodrome Ground Aids, CNS facilities or in the PANS-OPS has taken effect which permits higher height or;
- 6.3.1.5. Any other reason provided by the appellant duly accepted by the Member (ANS) or the Chairperson of the Appellate Committee.
7. Guidelines on the constitution of the aeronautical study team and site visit are given in **Annexure-1**, duly endorsed by the Appellate Committee on 11<sup>th</sup> July 2014. However, Annexure -1 may be read with following changes:
- 7.1. SO84 (E) has been replaced by GSR751(E) published on 30<sup>th</sup> September 2015.
- 7.2. GSR751(E) para 5.1.1 of Schedule 2 states that the request for the aeronautical study shall be considered by the Member (ANS) AAI, on cases to case basis. Therefore, the para 1.8 and 5.1 etc. of the Annexure-1 stand revised accordingly.
- 7.3. Through Aeronautical study process, the extent of penetration of Obstacle Limitation surfaces is examined as per these guidelines so as that the object would not adversely affect the safety or significantly affect the regularity of aircraft operations.
- 7.4. PANS-OPS procedures and the propagation of CNS signals are fully protected i.e. no deviation from the standards as defined in the GSR751 (E) is made. Para 5.2.1 of Annexure-1 is read accordingly.
- 7.5. Existing Objects include (a) those structures which have been duly constructed as per No Objection Certificate already issued or (b) those structures which existed before grant of approval of the master plan for the airport (including greenfield airport) or (c) those structures which existed before the addition of new area to an existing airport by the competent authority.



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**8. Guidelines on Allowable Penetration of OLS in Aeronautical Study Reports**

8.1. Based on the recommendations of a duly appointed Expert Committee, the Appellate Committee of MoCA approved the "Guidelines on Allowable Penetration of Obstacle Limitation Surfaces" on 26<sup>th</sup> March 2015 enclosed as **Annexe-2**.

8.2. These guidelines, along with their implementation by AAI, were also validated by the ICAO, along with certain recommendations, for the purpose of aligning some of the terminologies with the ICAO standards and also to elaborate the calculation methodologies with drawings and figures. On the basis of the ICAO recommendations, the following elaborations are provided:

8.2.1. The higher Top Elevations granted by Aeronautical Study needs to be gradual and uniform as the distance of the structure increases from the Upper Edge of the Transitional Surface.

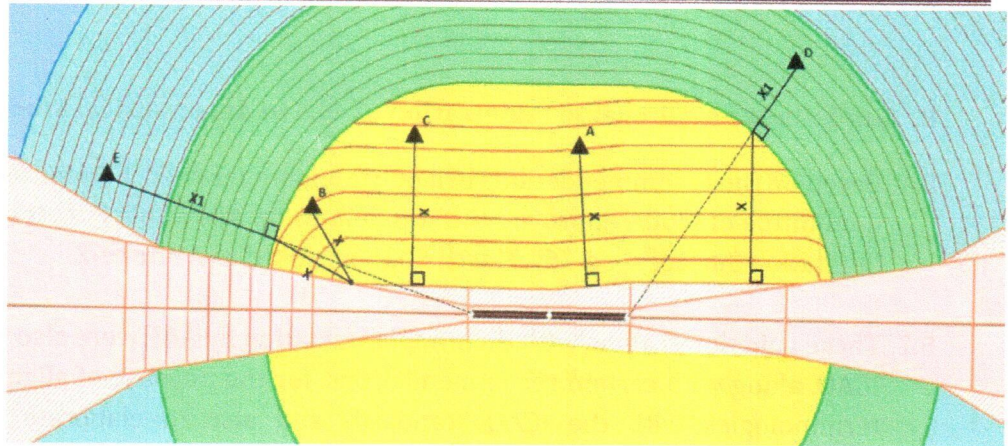
8.2.2. The following guidelines for the restricted penetration of the OLS by the structures, which are granted higher height through aeronautical studies, shall apply:

8.2.2.1. In IHS, higher heights penetrating the OLS to be restricted in the slope of 1.27 % **from the upper edge of transitional surface**, up to the maximum height of 90 m above the aerodrome elevation.

8.2.2.2. In continuation there to, in the conical surface including outer conical surface the heights penetrating the OLS to be restricted in the slope of 4.11 % from the outer edge of the IHS up to the maximum height of 300 above aerodrome elevation.

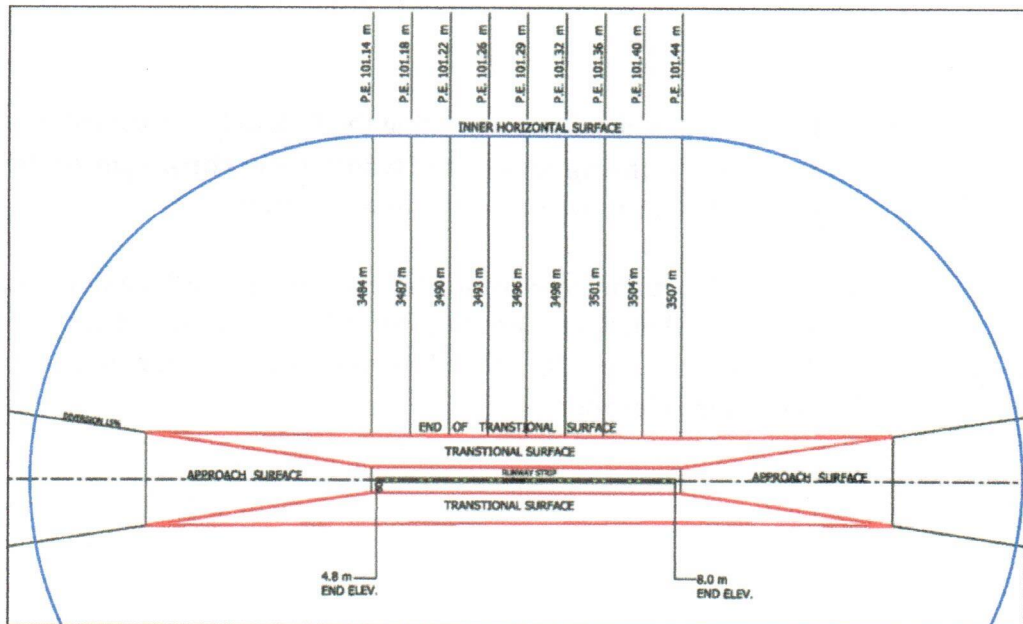


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**Figure 1: Shortest distance from Upper Edge of the Transitional Surface**

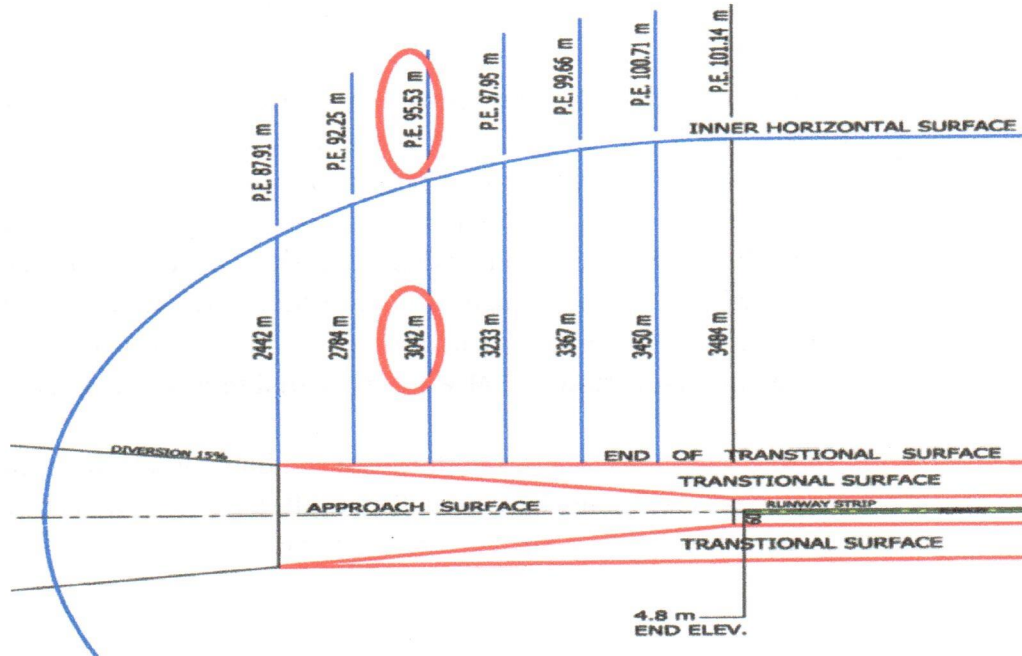
8.2.3. **Maximum allowable penetration of Inner Horizontal Surface:** Refer figure 1, the formula used to calculate the allowable penetration of Inner Horizontal Surface is **Aerodrome Elevation + 45M + 1.27% of distance X**. By using the formula, allowable penetration has been calculated for the different portions of the IHS of the Mumbai Airport for the indicated in the figure 2, figure 3 and figure 4.



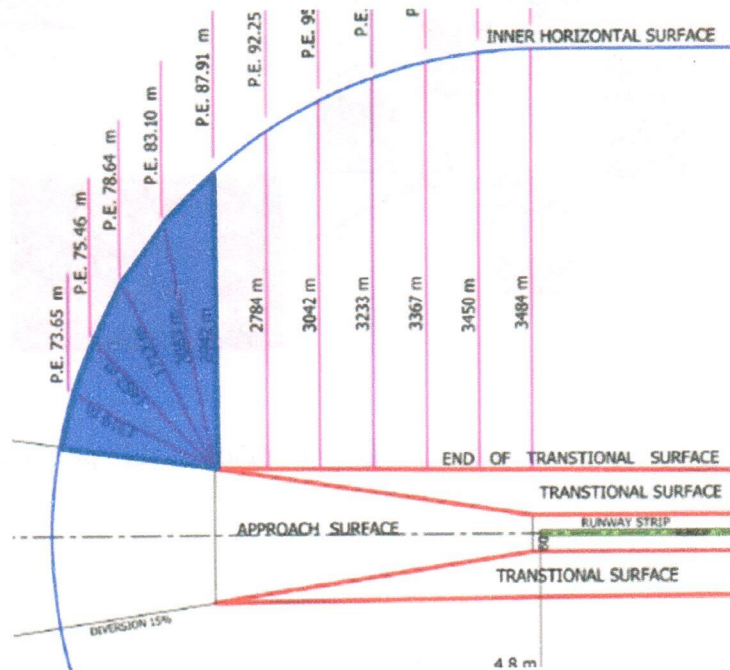
**Figure 2: Distance Measurement between the Upper Edge of Transition Surface and IHS Outer Edge (Central Portion)**



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**Figure3: Distance Measurement between the Upper Edge of Transition Surface and IHS Outer Edge (Approach Portion)**



**Figure4: Distance Measurement between the Upper Edge of Transition Surface and IHS Outer Edge (other area)**

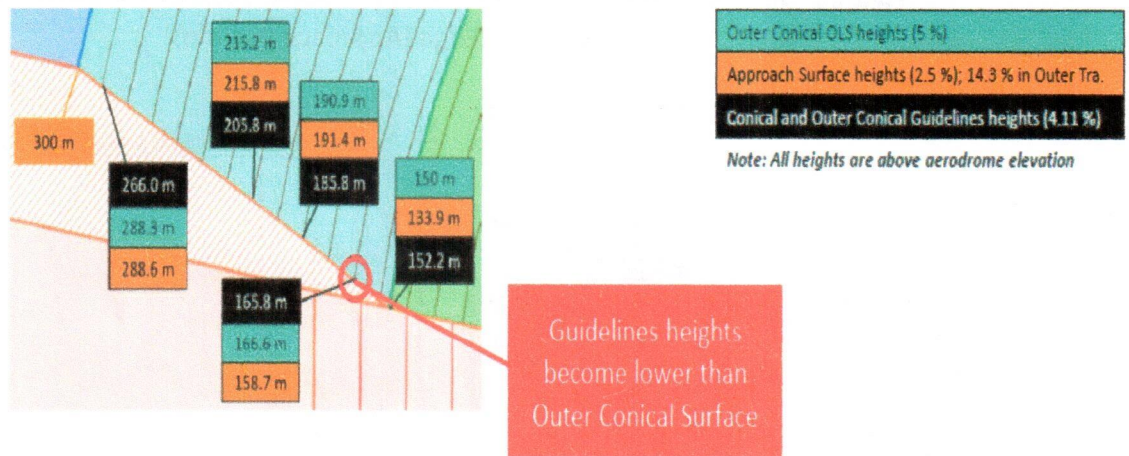


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8.2.4. **Maximum allowable penetration of OLS in Conical and Outer conical surface:** Refer figure 1, if the site lies in the conical surface, first the distance X1 is calculated by drawing a perpendicular from the proposed structure site to the IHS outer edge. Then the distance X is found out by drawing a perpendicular from the point, where the previous line X1 meets the outer edge of IHS, to the upper edge of the transition surface. The formula used to calculate the allowable penetration of Inner Horizontal Surface is **Aerodrome Elevation + 45M + 1.27% of distance X + 4.11% of the X1.**

8.2.5. In the situations where the above calculations of allowable penetration yield lesser elevations than the OLS, permitted top elevations from the AGA OLS will prevail as indicated in figure 5 and 6.

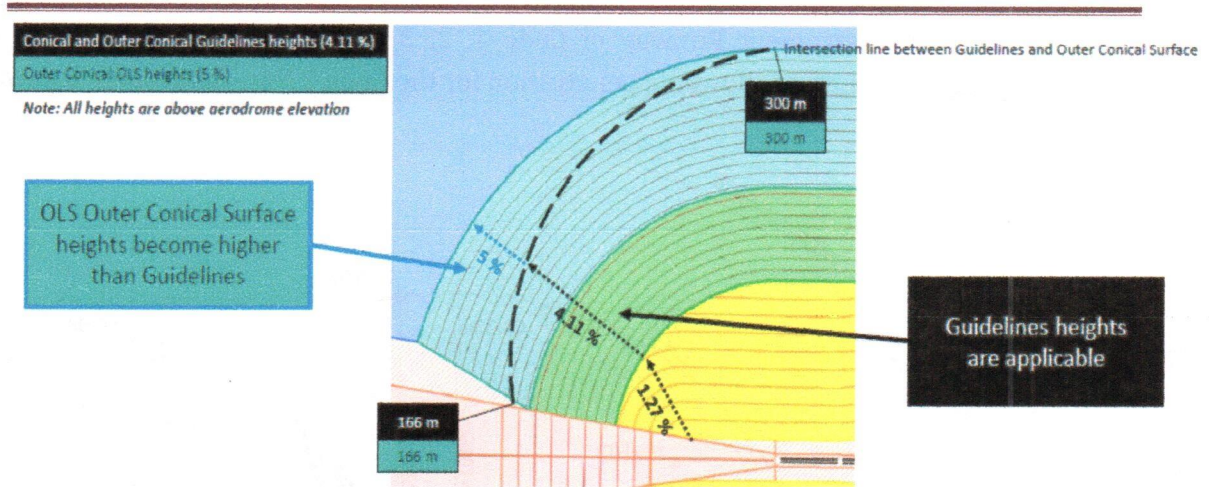


**Figure 5: OLS elevations higher than allowable penetration**



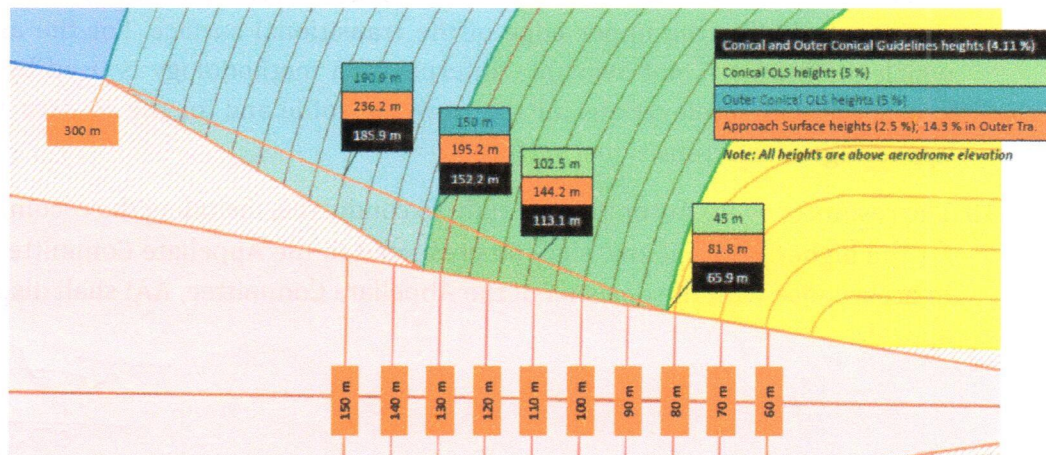


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**Figure 6: OLS outer conical surface elevations higher than allowable penetration**

8.2.6. To ensure the gradual increase of the elevations laterally from the Approach surface so as not to exceed 14.3% of the approach surface elevations, Outer Transition Surface (OTS) is extended up to the IHS, as depicted in the figure 7. The extension of the Outer Transitional Surface (14.3%) could avoid abrupt vertical changes in the vicinity of approach surface. This extension of OTS concerns the Guidelines only and, has no bearing on the G.S.R. 751 (E) surfaces.



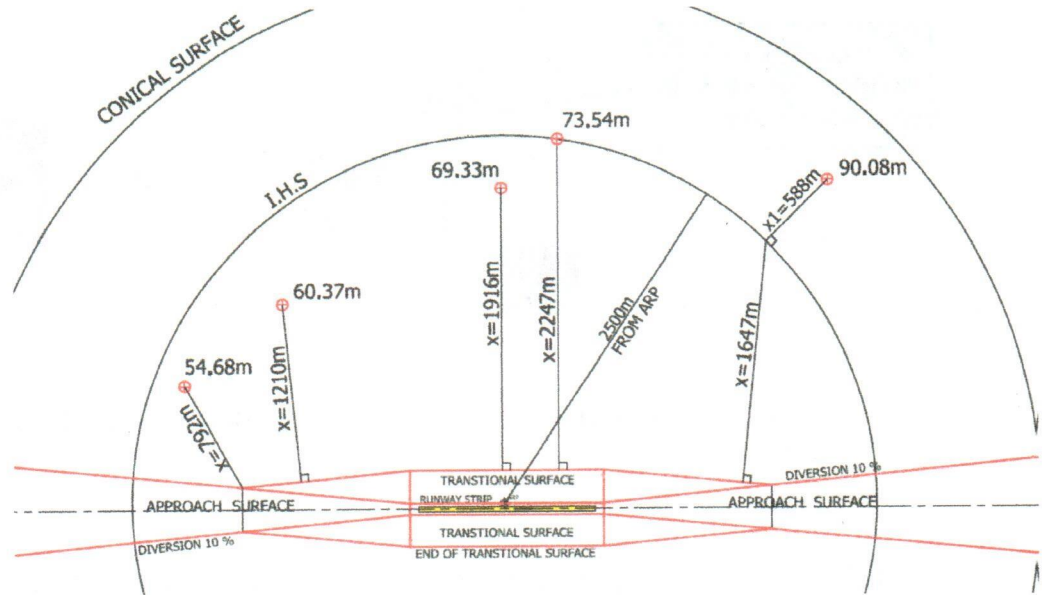
**Figure 7: Extension of OTS to avoid abrupt elevation changes due to allowable penetration.**

8.2.7. The above guidelines i.e. the allowable penetration of OLS through Aeronautical Study shall be applicable for Instrument Runways as well as



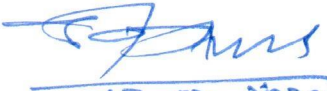
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Non-Instrument Runway of Code 1, 2, 3 and 4. Figure 8 indicates the calculation of allowable penetration for the Code 2 Non-Instrument Runway.



**Figure 8: Allowable penetration of OLS for Code 2 Non- Instrument Runway**

9. Runway longitudinal profile is currently provided by the Airport Operators for every 30 Meters on the runway, same is incorporated in NOCAS for the construction of OLS surfaces including the upper edge of the transitional surface. For the airports for which the profile is not available, interpolation methodology is used by using the runway beginning elevations for the runway profile and for the construction of the upper edge of the transitional surface.
10. The results of every Aeronautical Study so conducted, including the recommendation for the higher height if any, shall be presented to the Appellate Committee of MoCA. In accordance with the decision of the Appellate Committee, AAI shall dispose of the appeal.

  
07-07-2020  
(J.P. Alex)

**Executive Director (ATM-DoAS)**

Dated: 3<sup>rd</sup> July 2020

Distribution:

1. All REDs/All APDs of AAI.



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2. Chief Executive Officers of all Joint Venture Airports.
3. In-Charge of all licensed Private and State Govt. Airports including RCS Airports.
4. AAI website/nocas2.aai.aero/nocas
5. AIMS website.
6. File No. AAI/ATM/DoAS/72/2019



## GUIDELINES FOR AERONAUTICAL STUDY

(For the purpose of evaluating the Existing or the Proposed Structures, penetrating the Obstacle Limitation Surfaces)

### 1. INTRODUCTION

- 1.1 Detailed procedures for assessing and issuing No Objection Certificate for height clearance to proposed structures are given in SO84 E, issued by Govt. of India in Jan. 2010, as revised or amended.
- 1.2 AAI has established five Regional Offices, one each at Delhi, Mumbai, Chennai, Kolkata, Guwahati, and four Station Level offices at Ahmedabad, Nagpur, Hyderabad and Bengaluru for receiving, processing of the applications and issue of NOC for height clearance.
- 1.3 Applicants are required to submit online application through NOCAS to the Designated Officers at Regional/Station Level offices of Airports Authority of India (AAI).
- 1.4 These NOC offices examine the height clearance request as per the Obstacle limitation Surfaces (OLS), CNS and PANS-OPS criteria as specified in SO 84E.
- 1.5 Objective of regulating the build environment around airport is to protect obstacle limitation surfaces of the airport so that Safety, Efficiency and Regularity of flight operations are maintained and also to prevent the aerodrome from becoming unusable by the growth of obstacles.
- 1.6 Applicants, who are not satisfied with the height granted by the NOC office, may appeal to the Chairman, Appellate Committee, Ministry of Civil Aviation, Rajiv Gandhi Bhawan Safadarjung airport, New Delhi – 110003 for seeking redressal.
- 1.7 Appeal Procedure is available in the Guidelines, provided at NOCAS Link at [www.aai.aero](http://www.aai.aero).
- 1.8 Appellate Committee, after considering the request of the applicant for carrying out the Aeronautical Study, may order for an Aeronautical Study.
- 1.9 Aeronautical Study shall be carried out by Airports Authority of India or ICAO or any other agency, duly approved for this purpose, by Ministry of Civil Aviation.

## GUIDELINES FOR AERONAUTICAL STUDY

(For the purpose of evaluating the Existing or the Proposed Structures,  
penetrating the Obstacle Limitation Surfaces)

### **2. PROCEDURE FOR CARRYING OUT AERONAUTICAL STUDY**

- 2.1 Once an aeronautical study is ordered by the Appellate Committee, AGA / NOC section of AAI CHQ, New Delhi will collect all the relevant documents, including WGS-84 coordinates up to 100<sup>th</sup> of seconds (ddmmss.ss format) of the plot and/or buildings, elevation of the site from the applicant. In case of multiple buildings in the plot, co-ordinates of each building needs to be obtained.
- 2.2 AGA/NOC Section of AAI, CHQ, New Delhi to ensure that the applicant has signed all the relevant documents and deposited the applicable fees along with applicable taxes.
- 2.3 Airports Authority of India will constitute a team of three experts, one each from Aerodrome and Ground Aids (AGA) section, Flight Procedure Design section and Communication, Navigation and Surveillance (CNS) section for carrying out the Aeronautical study.
- 2.4 The AGA/NOC Section of AAI, CHQ, New Delhi, will carry out necessary coordination with the experts and the applicant.
- 2.5 The team will visit the site for verifying the details of the proposed structure, and if required additional information may be obtained from the applicant. In addition to above, team shall verify nearby structures and any other structure which has reference to the study.
- 2.6 The Team, if so desired, may ask the concerned Airport Operator to physically verify the site elevation and site co-ordinate data.
- 2.7 The team shall carry aeronautical study maximum of 4 cases in a single visit in order to complete the report within a period of 30 days.
- 2.8 Charting accuracy and MOC criteria specified in FPD manual of AAI shall be considered while examining the structures in respect to PANS-OPS criteria.

### **3. THE PRIME OBJECTIVE OF THE STUDY IS TO ENSURE:-**

- 3.1 The safety of air navigation, efficient utilization of airspace and airport by the aircraft, based on the instrument/visual flight procedures in operation and planned instrument flight procedures during normal aircraft operations and;

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(For the purpose of Evaluating the Existing or the Proposed Structures, penetrating the Obstacle Limitation Surfaces)

- 3.2. To protect the service volume of CNS facilities and their performance from either electromagnetic interference or due to physical hindrance/restriction.

### 4. SCOPE OF AERONAUTICAL STUDY

- 4.1 An existing or proposed structure, penetrating or expected to penetrate the obstacle limitation surfaces as detailed in ICAO Annex 14, resulting in deviation from the Standards, is presumed to be a hazard to air navigation unless the Aeronautical Study determines that safety and regularity of aircraft operations is not adversely affected during the normal aircraft operations.
- 4.2 An Aeronautical study must identify the effects of the proposed structure:
- 4.2.1 On the existing and the proposed instrument flight procedures, PBN procedures, departure & arrival procedures, and the minimum flight altitudes of the air- routes, OCA, MSA and Radar Vectoring Altitudes, during normal aircraft operations.
- 4.2.2 Regarding physical, electromagnetic, or line-of-sight interference on the existing and the proposed, Communications, Navigation and Surveillance (CNS) facilities.
- 4.2.3 Whether marking and/or lighting of the structure is necessary.
- 4.3 However, safety impact on the aircraft operations in degraded operational performance mode is not analysed.

### 5. RESPONSIBILITY

- 5.1 **Appellate Committee**, if deemed fit, will order for conducting the Aeronautical Study to examine the feasibility of desired height for the existing or the proposed structure.
- 5.2 **Airports Authority of India** will conduct Aeronautical study through the designated experts.
- 5.2.1 Designated AAI experts are responsible for examining the proposed deviation from the Standards, considering SO84E, DGCA CAR on Aerodrome Design and Operations, ICAO Annex 14, PANS-OPS DOC 8168 Vol. II and Annex 10 and any other guidelines issued from

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## **GUIDELINES FOR AERONAUTICAL STUDY**

### **(For the purpose of evaluating the Existing or the Proposed Structures penetrating the Obstacle Limitation Surfaces)**

time to time by appropriate authority, to the extent and as per the frame work, defined in these guidelines.

- 5.2.2 Flight Procedure Design expert will examine the effect of proposed structure on existing and proposed Instrument and PBN procedures as per the criteria given in ICAO DOC 8168 Vol. II to identify the effect on Obstacle Clearance Altitudes (OCA); minimum vectoring altitudes (MVA); minimum holding altitudes (MHA); Minimum Sector Altitude (MSA); STARs/SIDs procedures altitudes; turning areas & termination areas.
- 5.2.3 CNS expert will examine the effect of proposed structure on the existing and the proposed CNS facilities as per Annex 10 to determine the electromagnetic interference, if any, with any of air navigation facilities.
- 5.2.4 CNS expert will also examine the effect on the performance of ground-based surveillance equipment such as primary and secondary radars; ASMCGS, SMR and ADS etc
- 5.2.5 CNS expert will also examine the effect on the performance of other CNS facilities.

## **6. SAFEGUARDING PLANNED DEVELOPMENT AND FUTURE UPGRADATION OF AERODROMES**

- 6.1 All planned developments at the existing airports and approved proposed Greenfield airports shall be considered as per the guidelines.
- 6.2 Future Development of Existing Airports like extension of runway, proposed installation & relocation of CNS facility shall be taken into account.
- 6.3 Proposed procedures for Air Navigation Service Operations (PANS-OPS) shall also be considered.
- 6.4 New Airport Development. – Obstacle limitation surfaces (OLS), Procedure Design areas and area for proposed CNS facility shall be considered.

## **7. FORMAT OF AERONAUTICAL STUDY REPORT**

Aeronautical Study report will comprise of three sections,

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## **GUIDELINES FOR AERONAUTICAL STUDY**

### **(For the purpose of evaluating the Existing or the Proposed Structures, penetrating the Obstacle Limitation Surfaces)**

- 7.1 First section will be compiled by AGA / NOC section which will contain details of the proposed project, e.g. Address, WGS-84 coordinates up to 100<sup>th</sup> of seconds, site elevation and location of the proposed site with reference to OLS, height requested by applicant, CHQ as well as regional or station level NOC office references, etc. The Appellate Committee directions for the conduct of Aeronautical Study will also be mentioned.
- 7.2 Second section will be compiled by PANS-OPS expert containing examination of the existing and the proposed Instrument Approach/PBN Procedures etc.
- 7.3 Third section will be compiled by CNS expert containing examination and effect of the proposed structure on existing and proposed CNS facilities.
- 7.4 At the end of the report a Summary of the Study report will be provided, enumerating the adverse impact of the structure w.r.t. AGA surfaces, PANS-OPS criteria and CNS facilities.

## **8. SUBMISSION OF AERONAUTICAL STUDY REPORT**

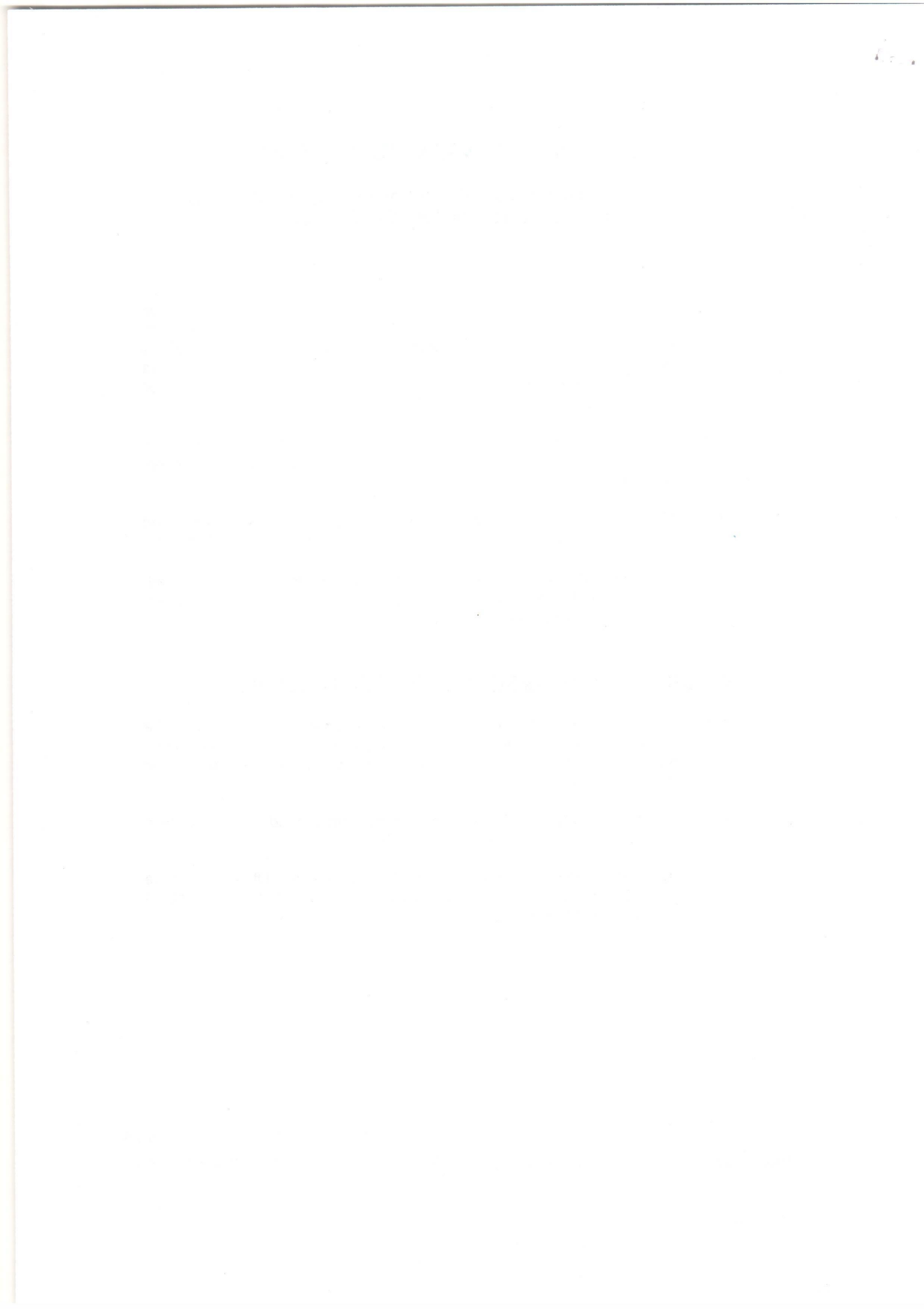
- 8.1 Aeronautical study team shall submit the report within 30 days from the date of site visit or from the date of receipt of additional information / documents from the applicant as requested by the AAI team during their site visit, whichever is later.
- 8.2 Appellate committee will consider the observations made in Aeronautical study report and take appropriate decision.
- 8.3 Appellate committee may direct AAI Corporate Office to issue Authorization letter to the concerned regional /station level designated officer for issuance of NOC.

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**Ministry of Civil Aviation**  
**Rajiv Gandhi Bhawan, New Delhi-110003**

**GUIDELINES ON ALLOWABLE PENETRATION OF OLS IN AERONAUTICAL**  
**STUDY REPORTS**

An Expert Committee was constituted in MoCA to examine the reports of the Aeronautical Study and submit their recommendations to facilitate decision on the Aeronautical Study reports by the Appellate Committee.

The Expert Committee in their meeting held on 9<sup>th</sup> February, 2015 desired that there should be guidelines by the Competent Authority to accept the percentage of penetration of the AGA surfaces indicated in the Aeronautical Study reports. Earlier the Appellate Committee in its meeting of 24<sup>th</sup> September, 2013 had also taken a decision with regard to processing of the cases and minuted as follows:

*"Permitting construction of a large numbers buildings penetrating AGA surfaces through Aeronautical Studies may lead to a cluster of buildings. The Committee is of the opinion that extent of penetration of AGA surfaces may be restricted to ensure certain uniformity and symmetry in permitting such penetration in the overall interest of safety of operations."*

Subsequent to the above meeting of Expert Committee another meeting of the Expert Committee was held in which members of the Appellate Committee were also present wherein a consensus view was taken that the increased height penetrating OLS even though permitted from Aeronautical Study needs to be gradual and uniform as the distance of the object from the Airport Runway End increases.


The Airports Authority of India has conducted a study to check the deterioration in performance of the NAV AIDS particularly at Mumbai Airport due to terrain in its close proximity and also due obstacles penetrating the OLS of that airport. The study report reflects that:-

*"1) AAI is finding it difficult to meet the standard siting criteria for installation of CNS facilities due to existence of several hills very near to airport and the airport being in the midst of the city.*

*2) The performance of navigational aids is also being affected, for example:*

- a) ILS runway 09 coverage is restricted at lower levels.*
- b) ILS Glidepath 14 is not meeting coverage requirement at lower levels.*
- c) DVOR, Mumbai abrupt change of Radial observed between 110 Deg. to 150 Deg."*

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The deficiency in the coverage as reflected in the report has been attributed to terrain profile and obstacles around the airport where the terrain profile is of permanent nature.

The above study report of AAI has suggested following actions:

"1) With the existing obstacles and terrain profile, situation in and around Mumbai airport has already become difficult any further deterioration in obstacle profile in and around the airport is likely to aggravate the situation. It is therefore essential that obstacle profile in and around airport is maintained so that further deterioration in performance of Navaids facilities is avoided.

2) NOC cases for new constructions in and around Mumbai airport need to be examined carefully and no relaxation should be given for height clearance.

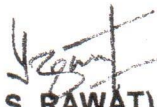
The Appellate Committee in its meeting on 26<sup>th</sup> March, 2015 considered the above views of the Expert Committee, Airports Authority of India 'study report' with regard to performance of Nav-aids at Mumbai Airport, the observations made in Aeronautical Study report regarding degraded operational performance of aircraft and adopted the following guidelines for restricting penetration above OLSs by objects which are granted higher heights through Aeronautical Study as follows:

- 1) In IHS higher heights penetrating OLS to be restricted in the slope of 1.27% from end of the Transitional surface upto the maximum height of 90 m above Aerodrome Elevation
- 2) In continuation thereto in the conical surface including outer conical surface the heights penetrating OLS to be restricted in the slope of 4.11% from the end of the IHS upto the maximum height of 300 m above Aerodrome Elevation

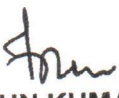
The above guidelines shall apply to all cases except for structures needed for specific operational aviation requirement at all airports and shall be included in the guidelines for Aeronautical Study which was already issued with regard to the decisions taken in the Appellate Committee meeting of 11<sup>th</sup> July, 2014.

The Expert Committee may finalise the Aeronautical Study reports accordingly as per the guidelines at (1) and (2) above.

  
(V.SOMASUNDARAM)  
MEMBER (ANS), AAI

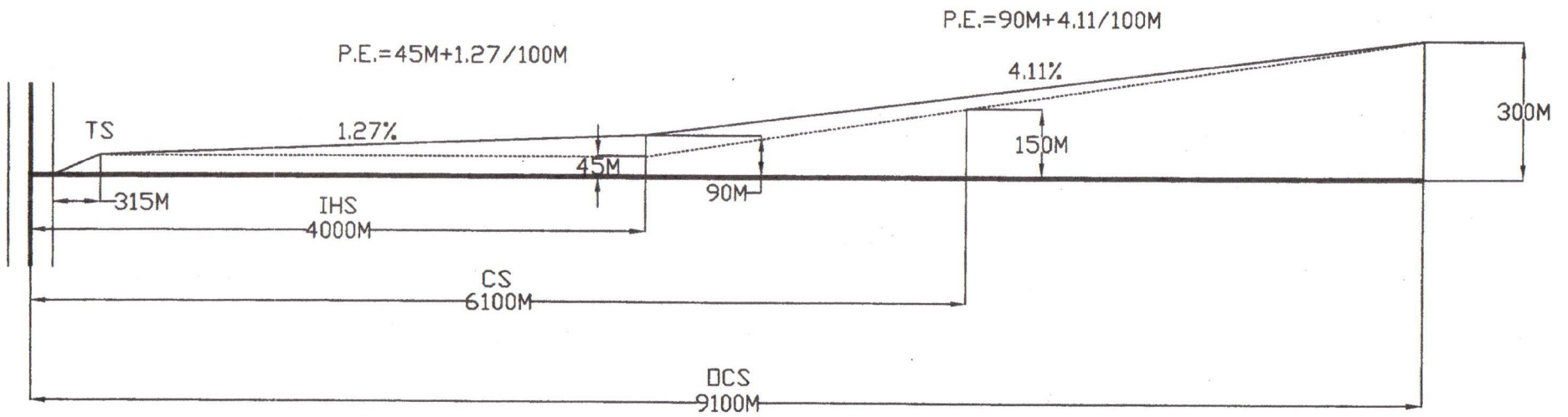
  
(J.S. RAWAT)  
JT. DGCA

  
(K.GOHAIN)  
TECHNICAL EXPERT

  
(ARUN KUMAR)  
JT. SECY, MOCA  
CHAIRMAN, APPELLATE COMMITTEE

Place: New Delhi  
Date: 26<sup>th</sup> March, 2015





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