



Airports Authority of India

Department of Aerodrome Safeguarding

Rajiv Gandhi Bhavan, New Delhi-110003

[File No. AAI/ATM/DoAS/ADSAC/72/2019]

AERODROME SAFEGUARDING CIRCULAR (ADSAC) 6 OF 2020

Subject: Processing of Airport Operators' Applications for CNS Simulation Study

1. Introduction

- 1.1 The Communication Navigation Surveillance (CNS) Simulation Study is a process of validated electromagnetic 3D computer modelling of obstacle environment including terrain, obstacles (existing or proposed/manmade or natural) interfering system, ground and airborne NAV-AID equipment characteristics in an airport scenario and to check the electromagnetic propagation signal-in-space, to find out any degradation or impact caused by the environment, as above, on the particular CNS (VOR, DME, ILS, RADAR, etc.) facility which may affect its continuity, integrity, coverage and Signal performance with reference to defined operational limits in ICAO Annex-10 Vol-I, Doc 8168 and DGCA CAR's.
- 1.2 As per GSR-751(E) Para 5.2 of Schedule II, *"in case any structure is required to be made within aerodrome premises (airside and city side) by the Aerodrome Operator which creates obstruction from CNS point of view, a simulation study could be carried out to study the impact of this structure on the performance of the relevant facility and in case the study confirms that the impact would not hamper the operability of the facility, such structure could be permitted within the aerodrome premises"*.
- 1.3 On the request of the concerned Airport Operator under the provision of GSR-751(E) as stated above, CNS Simulation Study is done by the CNS-OM Directorate of AAI CHQ in coordination with the Department of Aerodrome Safeguarding at AAI CHQ.



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2. Purpose

2.1 The purpose of this ADSAC is to standardize the procedure for applying CNS simulation study by the Airport Operators with the requisite information and documents.

This ADSAC will also detail the process to be followed by concerned AAI departments for evaluating the CNS Simulation study applications for their resolution.

3. Scope

3.1. This ADSAC is applicable to all the CNS simulation studies being carried out by AAI under the provisions of GSR751(E).

3.2. This ADSAC applies to all Airports and Sites under operational and management control of AAI and the other public and private use licenced civil airports for which AAI is responsible for issuance of NOC for height clearance under GSR751(E) or any other notification issued by GOI for the purpose under the Aircraft Act 1934 Section 9A.

3.3. This ADSAC also applies to the proposed airports or sites which needs CNS Simulation Study.

4. Cancellation

4.1 NIL

5. Effective date

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

6. Application for the Simulation Study

6.1 Need for a CNS Simulation study may arise if an airport project has received the NOC for restricted height from the Designated Officer of AAI and the restriction has been caused by one of the CNS facilities.



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- 6.2 Need for a CNS Simulation study may also arise for the siting of CNS Facilities at new airport or site, owned by AAI or other than AAI.
- 6.3 The CNS Simulation study shall not be done for the obstacles/matters which are out of scope of the present CNS Simulator EMACS.
- 6.4 Chief Executive Officer of a Private/JVC Airport or APD/CNS-Incharge of an AAI airport site may make a request for CNS Simulation study to Executive Director (ATM-DoAS) AAI CHQ in the following manner:
- 6.4.1 AAI Airports: Airport Director of the concerned airport shall initiate an e-file in e-office.aai.aero mentioning the circumstances and need for the simulation study in the noting side and by putting following docs in the file:
- a) NOC issued by the Designated Officer of AAI;
 - b) Latest Survey data of existing obstacles, CNS facilities and Runway(s) etc. of concerned airport. Further, any change/modification in the obstacle environment which have happened after latest survey shall also be provided. The RTE should clearly mentioned the level like: Roof level, Lighting arrester or Light level, Top antenna level etc.
 - c) Architectural Drawings of the proposed building or structure for which Assessment is required.
 - d) The coordinates (WGS-84), site elevation and top elevation of the proposed structure. If the RTE/Top Elevation of different points of structure is different, it should be mentioned accordingly.
 - e) Type of material of the proposed structure.
 - f) Approved Master Plan information, if any, of airport/site;
 - g) Any plan of trans-installation/relocation of CNS facility or proposed new CNS facility.
 - h) Any other information required for the CNS Simulation.
- 6.4.2 The applicant shall ensure the quality and accuracy of data to be supplied along with the request for CNS Simulation study.
- 6.4.3 The e-file shall be sent to concerned Regional/Station level DoAS office. The concerned Regional/Station level DoAS office will examine the file and put their observation for CNS Simulation study and place the verified NOCAS calculation sheets in the e-file.



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- 6.4.4 Joint Venture Company/Private Airports: CEO of the airport shall forward the soft-copies of the above docs to the concerned DoAS Office, who will create an e-file as given in 6.2.1. DoAS office should clearly mention the CNS facilities restricting the Requested Top Elevation.
- 6.4.5 The contact details of the Nodal Officer at the Airport should be clearly mentioned by the APD/CEO of the Airport. Nodal officer will be responsible for fulfilling any further airport specific requirements.
- 6.4.6 DoAS RHQ/Station level office shall forward the completed e-file as above to DoAS AAI CHQ for CNS simulation study.
- 6.4.7 AAI CHQ through CNS Simulation study will assess the feasibility to overcome the restrictions caused by the CNS facilities. Such revised permitted top elevation in respect of CNS, will be communicated through e-file to respective DoAS office. AGA & PANS-OPS criteria will not be assessed by AAI CHQ. DoAS RHQ/Station level office will continue to examine the same even for the simulation study cases through NOCAS.

7. Simulation study fee

- 7.1 CNS Simulation Study fee will be charged from the Private & Joint Venture Airports (other than AAI airports) as per CNS Circular 15 of 2019, copy enclosed as Annexure-
- 7.2 After receiving the e-file for CNS simulation study, CNS-OM Directorate will directly coordinate with the concerned airport, through its Nodal Officer, for invoicing, collecting the simulation study fee. The fee will be deposited by CNS Directorate to AAI accounts in coordination with Finance Directorate. The applicant shall also submit an Undertaking along with the Fees, as per attached Annex-II.
- 7.3 The CNS Simulation study shall start only after submission of requisite fee and undertaking by the applicant.



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8. Processing of CNS Simulation Study by CNS-OM Directorate

- 8.1 The CNS Directorate will appoint a nodal officer at CHQ who will be responsible for all communication with DoAS, ASM Directorate and Airport Operator for fulfilling the requirement of CNS Simulation study and will also keep the records of all the CNS Simulations Studies.
- 8.2 The e-file received by CNS Directorate will be examined for the simulation study. If any further information is required, CNS Directorate will coordinate directly with the Airport Nodal Officer. Such additional information, received through e-mails etc., may also be included in e-file.
- 8.3 A site visit may be made by CNS executive(s) carrying out simulation study to collect detailed information about the obstacles around the CNS facilities. Airport Operator shall assist the visiting CNS team in collecting this information within and outside the airport.
- 8.4 After the preparatory work of the simulation study is over, inputs from ASM Directorate should be taken as to at what levels/ altitudes and range CNS simulation study should be conducted, based on existing and proposed Instrument Flight procedures and air routes.
- 8.5 The obstacles considered in the CNS simulation study should include updated NOC data and latest survey data. The list of obstacles so considered should be made a part of the simulation study report.
- 8.6 CNS simulation study for new CNS sites for proposed navigation aids should also take the updated NOC data and latest survey data into consideration. Since change in the navigation aid site alters the obstacles environment.
- 8.7 The CNS simulation study report should clearly state if the level of deterioration of signals in space observed, if any, is within the permissible limits as per Annex 10, or not.
- 8.8 After the simulation study is carried out, the e-file containing the simulation study report along with the observations of the CNS Directorate in respect of the adverse impact, if any, of the proposed structure on the propagation of the electromagnetic signals in the space in respect of the examined CNS facilities, may be forwarded to DoAS CHQ for further processing.



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9 Impact Analysis by the ASM Directorate

9.1 After the conduct of CNS simulation study, the file may not be referred to the ASM Directorate, if

- a) The signal coverage meets the Annex 10 requirements as stated in the simulation study by the CNS directorate and;
- b) No adverse impact on the signal propagation on the examined CNS facilities was reported by the CNS directorate.

In case the above two conditions are not met, then the matter may be referred to ASM Directorate.

9.2 ASM Directorate will examine the impact of restricted coverage of CNS facility on the instrument flight procedures (IFP) and/or the air routes, before deciding on the acceptability or otherwise of the restricted coverage of CNS facility.

9.3 In case the restricted coverage of CNS facility does not adversely impact any IFP/route, the ASM Directorate, may accept the restricted coverage and forward the file to DoAS, CHQ for further processing.

9.4 In case the CNS facility coverage restriction is significant and/or affects any IFP/route, ASM Directorate may not accept the restricted coverage, highlighting the specific aspects and forward the file to DoAS CHQ so that appropriate decision may be taken by the Competent Authority.



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10 Resolution of CNS Simulation Study applications by DoAS CHQ and concerned DoAS office

10.1 Based on outcome of para 9.3, where the restricted coverage of CNS facility does not adversely impact any IFP/route and its acceptance by ASM Directorate, the removal of restriction on PTE, due to examined CNS facilities (i.e. facilities for which simulation study has been carried out), after approval of GM (ATM-DoAS), will be intimated by DoAS, CHQ to the concerned DoAS office through e-file.

10.2 Concerned DoAS office will issue revised NOC of height, based on its own assessment of AGA and PANS-OPS parameters through NOCAS and the communication of DoAS CHQ in respect of CNS facilities as provided through CNS Simulation study and its acceptance by ASM directorate on e-file. The copy of revised NOC shall also be marked to CNS Simulation Study Cell for adding that structure details in CNS Simulator system database.

10.3 The project Proponent, who has been issued revised NOC, as per para 10.1 and 10.2 above, shall conduct a Safety Assessment involving all concerned stakeholders in accordance with the provisions of AAI C-SMS manual or as per the airport SMS manual. Based on the safety assessment, suitable mitigation measures may be taken by the Project Proponent. A copy of the "Safety Assessment and the Proposed Mitigation Measures" should be sent to concerned Regional and Station Level DoAS office, for records (to be kept in concerned e-file).

11 Based on the outcome of para 9.4, where the CNS facility coverage restriction is significant and/or affects any IFP/route and the ASM Directorate did not accept the restricted coverage, DoAS CHQ, with the approval of ED (ATM-DoAS), will decline the removal of restriction on PTE, due to examined CNS facilities (i.e. facilities for which simulation study has been carried out). Concerned DoAS office may intimate the same to the concerned Airport Operator.



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- 12 All such e-files are to be kept up to date by the respective DoAS office and parked in e-office for further reference purpose including replying to RTI applications etc.
- 13 **Validity:** This ADSAC will remain valid till it is amended or withdrawn or incorporated in proposed the Aerodrome Safeguarding Manual.
- 14 **Document Control and feedback:** This ADSAC has been issued by the office of ED (ATM-DoAS) with the concurrence of Directorate of ASM and Directorate of CNS –OM, AAI. Any feedback, suggestion or the error in this document may be brought into the notice of GM (ATM-DoAS) at AAI CHQ at gmdoaschq@aai.aero.

(J.P. Alex)
Executive Director (ATM-DoAS)

Dated: 4th September 2020

Distribution:

1. All REDs/All APDs of AAI.
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.