

NOISE MAPPING STUDY

Proponent

CHENNAI AIRPORT

Meenambakkam, Chennai

Doc No: HECSL/NS/081



**AIRPORTS AUTHORITY
OF INDIA**

Hubert Enviro Care Systems Limited

(An ISO 9001: 2015 Company) (Accredited by

NABL, Recognized by MoEF)

**A-21, III Phase, Behind Lions Club School, Thiru-Vi-Ka
Industrial Estate, Guindy, Chennai - 600032.**

Phone: (044) – 3539 1255

Email –

labreports@hecs.in

CONTENTS

S.No.	Description	Page No.
	FOREWORD	i
1.0	INTRODUCTION	2
2.0	DESCRIPTION OF AIRPORT	2
3.0	SCOPE OF THE REPORT	4
4.0	OBJECTIVE OF STUDY	5
5.0	LMAX STUDY	5
5.1	Methodology for the Definition of Lmax	5
5.2	Input Data	5
5.3	Monitoring Locations	6
5.4	Determination of Lmax at Each Location	7
5.5	Proposed Lmax Limit	8
6.0	BOUNDARY NOISE STUDY	8
6.1	Methodology for Boundary Noise Study	9
6.2	Input Data for Boundary Noise Study	10
6.3	Flight Runway Data	16
6.4	Validation of Model Results with Measurements	18
7.0	NOISE ZONING STUDY	24
7.1	Methodology for Noise Zone study	25
8.0	NOISE CONTOUR STUDY	27
8.1	Definition of Noise Zones	29
9.0	CONCLUSION	30



Hubert Enviro Care Systems (P) Ltd.

FOREWORD

Noise pollution adversely affects the lives of millions of people and studies have shown that there are direct links between noise and health. The **Airport Authority of India**, Chennai, invited environmental agencies to conduct noise mapping study and entrusted the work to **Hubert Enviro Care Systems Limited.**, Chennai, an environmental consultant with CPCB/MoEF approved Environmental Testing Laboratory via work order No. AAM/CMD/901/A/5/2024/212 Dated 25.10.2024

A comprehensive noise mapping study to monitor noise levels in the Chennai Airport vicinity had been planned and executed. The findings have been presented in this report.

Our sincere thanks are due to the Airport Authority of India, Chennai, for awarding this work. Extensive thanks to the authorities for their kind cooperation during the study period.

Place: Chennai

Date: 13.4.2026



Authorized Signatory



Hubert Enviro Care Systems (P) Ltd.

1.0 INTRODUCTION

Chennai International Airport (previously known as Madras International Airport) is located in Tirusulam, a suburb 7km south of Chennai in the state of Tamil Nadu, India.

It was one of the first airports of India and served Air India flights from Mumbai during the 1950s. The airport is owned by the Government of India and is operated by the Airport Authority of India (AAI).

The airport's first passenger terminal was built at Meenambakkam town and now acts as a major cargo base. In 1988, a new terminal complex was built at Tirusulam, adjacent to Meenambakkam.

The terminal complex includes an international and a domestic terminal adjacent to each other. The airport has two runways.

2.0 DESCRIPTION OF AIRPORT

The airport served 2,24,11,290 passengers and handles 1,64,235 aircraft movements and 10,757 Cargo tonnage in the winter schedule period between November 2024 to October 2025. This airport falls under busy airport category.

In 2001, Chennai Airport became the first international airport in the country to receive ISO-9001-2000 certification.

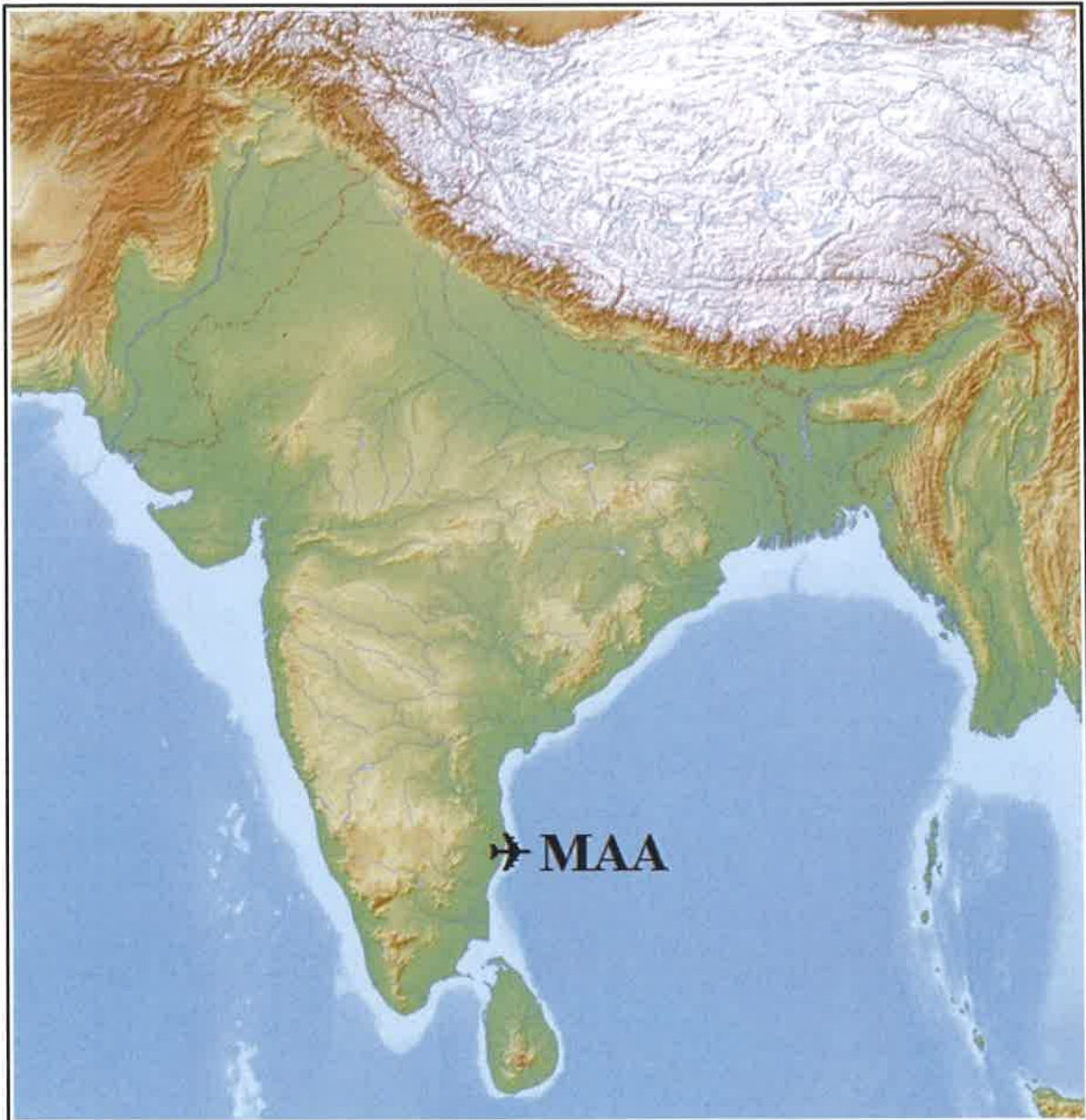
The domestic and the international terminals are named after former chief ministers of Tamil Nadu K. Kamaraj and C. N. Annadurai respectively. It is the first airport in India to have international and domestic terminals located adjacent to each other.

The airport serves as the regional headquarters of the Airports Authority of India (AAI) for the southern region of India comprising the states of Tamil Nadu, Andhra Pradesh, Telengana, Karnataka, and Kerala and the union territories of Pondicherry and Lakshadweep. About 6 domestic airlines and 32 international airlines connect 45 domestic and 25 international destinations from Chennai to the airport. The airport serves as the main hub for Spice Jet, Blue Dart Aviation and as a secondary hub for Air India. It also serves as focus city for Indigo. Blue Dart Aviation is an all-cargo airline based in Chennai International Airport. It operates scheduled night express cargo flights including domestic and regional charters. The terminal complexes have a flyover travelator connecting the domestic and



[Handwritten signature]
(D. Chinn)

international terminals for a distance of about 1 km. (ref AVIATION ENVIRONMENT CIRCULAR 01 OF 2024 Annexure I Phase 2 noise plan b).



(Signature)

3.0 SCOPE OF THE REPORT

The important objectives of Noise Mapping are to provide a common framework to avoid, prevent or reduce the harmful effects of exposure to noise Pollution includes:

Monitoring environmental noise pollution by requiring competent authorities like CPCB to draw up "strategic noise maps" for major roads, railways, airports and agglomerations, using harmonised noise indicators Lday (day-evening-night equivalent level) and Lnight (night equivalent level). These maps are to be used to assess the number of people annoyed and sleep-disturbed respectively in the study area.

Informing and consulting the public about noise exposure, its effects, and the measures to be considered to address noise problems.

Addressing local noise issues by requiring competent authorities to draw up action plans to reduce noise where necessary and maintain the environmental acoustic quality where it is good.



Figure 1 Chennai Airport

Handwritten signature

4.0 OBJECTIVE OF STUDY

The objective of the study to ensure that Airport Authority of India to meet the criteria Ambient Noise Monitoring Level due to Airfacts issued by the Central Pollution Control Board, Ministry of Environment & Forest (MOEF) in June 2008 to study the Lmax and boundary noise Study For CNMS as per the Environment Protection Amendment Rules, 2018 as per the requirement of AVIATION ENVIRONMENT CIRCULAR 01 OF 2024 to develop the Noise studies and Noise Management actions plans accordingly.

(Ref: Page No 2 of AVIATION ENVIRONMENT CIRCULAR 01 OF 2024, 3.1.4 Airport operators to establish a fully operational real-time permanent Noise Monitoring System (NMS) in accordance to the provisions of the 'Requirement and Procedure for Monitoring Ambient Noise Level due to Aircraft 'issued by the Central Pollution Control Board of Ministry of Environment & Forest (MoEF&CC) in June 2008 and the Minimum Technical Characteristics of the NMS as contained in Annexure II to this circular.)

5.0. LMAX STUDY

5.1. Methodology for the Definition of Lmax

Analyze Lmax single event data for each noise monitoring location filter out non-valid events to determine maximum noise level at each location to define the limit on Lmax for each location.

5.2. Input Data

In order to determine the Lmax¹ at two locations, the actual monitored data from the period between Nov-2024 to Oct-2025 was analyzed along with the following information:

Lmax of individual aircraft operations measured at the various noise monitoring locations

Information on operation (Aircraft type, runway/track used, distance to microphone, etc)

Data from the period between Nov-2024 to Oct-2025.



5.3. Monitoring Locations

The permanent Noise Monitoring Station were installed to monitor continuous noise coming from aircrafts at the two ends of main runway: The methodology use to identify the Locations of monitoring station based runway of the flight

(Ref Page No 6 of AVIATION ENVIRONMENT CIRCULAR 01 OF 2024 Annexure II b At least two permanent Noise Monitoring Terminals (NMTs) shall be installed per runway with more than 25,000 movements (where a movement is a take-off or a landing). The permanent NMTs shall be located on both sides of the runway, in the nearest residential area and, as far as possible, under the flight paths of the aircraft. At least one mobile NMT (e.g., portable/mobile) shall be used for measurements in the residential areas/silence zones and under the flight paths, where noise levels are expected to be high)

Location 1: CNMS1 – Andal Nagar at Cowl Bazzar, Near 07 end of Main Runway

Location 2: CNMS2 – HP Petrol Bunk, Adjacent to Radisson Blu Hotel, near 25 end of Main Runway



Figure-2: Location of permanent noise monitoring stations

5.4. Determination of Lmax at Each Location

The Noise monitoring data determined for every month from the November 2024 and October 2025 all the aircraft noise events were identified at Two different location and the Lmax level of each location event was determined (see Figure 3 & 4).

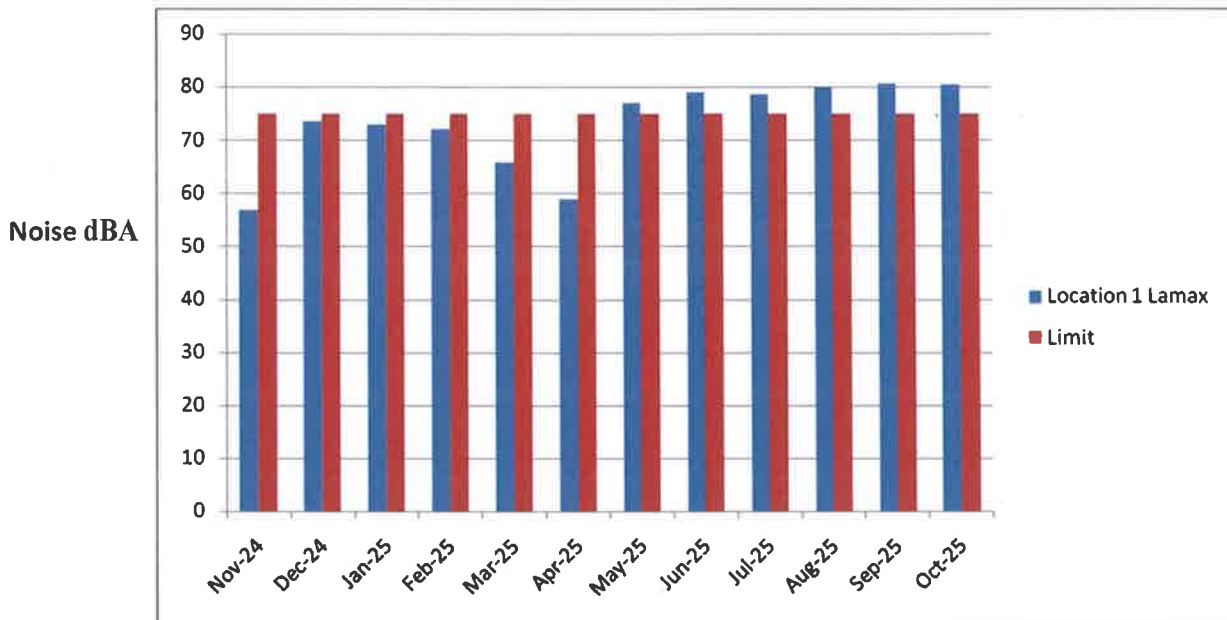


Figure-3: Definition of Lmax of an aircraft noise event at Location-1 from November 2024 to October 2025.

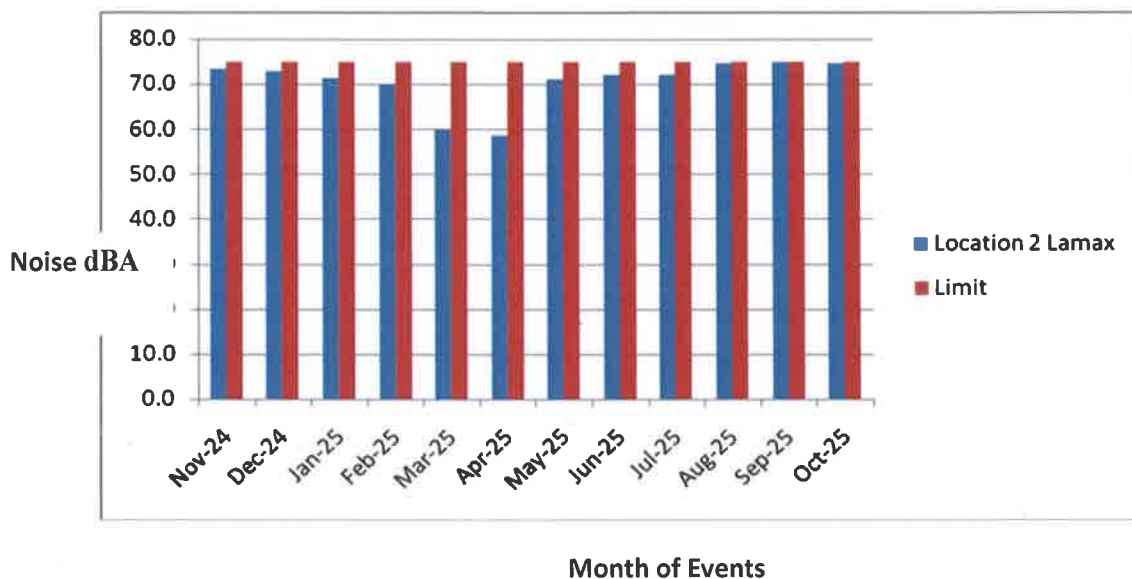


Figure-4: Definition of Lmax of an aircraft noise event at Location-2 from November 2024 to October 2025.

5.5. Proposed Lmax Limit

When establishing the limits for Lmax several considerations should be made:

- Should be sufficiently high to allow for the vast majority of operations to comply with
- Should be sufficiently low to avoid the (unnecessary) noisiest operations
- What to do with those events that exceed the limit

In order to avoid an arbitrary definition of the Lmax level, it is proposed to set the limit at each location such that the 10 highest noise events detected in the period From the period between **Nov-2024 and Oct-2025** should be considered excessive. **Figure 3&4** presents the highest noise levels detected at the two locations, in the total period From the period between **Nov-2024 and Oct-2025**, and independent of operation type (departure or arrival). From **Figure 3&4** it can be deduced that at Location 1 the 10 highest noise levels are above 80.7 dBA, whereas at Location 2 the 10 highest noise levels are above 74.8 dBA. Therefore, these levels are proposed as the limits for Lmax:

Location 1: 80.7 dBA

Location 2: 74.8 dBA

With these limits only few operations would have been in excess, whereas they will safeguard the currently existing noise climate at both locations.

6.0 BOUNDARY NOISE STUDY

As per the Environment Protection Amendment Rules, June 2018 the noise at the boundary of the airport premises needs to be determined.

The original plan to determine this level was to use a combination of noise contours and a measurement campaign to enhance the data.. Therefore it was decided to determine the boundary noise level by means of calculation by using CAUSTIC 3.2. as per (*Ref: AVIATION ENVIRONMENT CIRCULAR 01 OF 2024 Page No . 4 Annexure I Noise maps shall be developed with the use of specialized software (such as INM 7 or higher, CadnaA, IMMI, or others) The noise maps shall take into consideration actual air traffic data (e.g., types of*



aircraft, number of movements, distribution of runway use, landing and take-off paths), meteorological data, sensitive receptors, and (if necessary/possible) 3D terrain model and land uses).

6.1. Methodology for Boundary Noise Study

Methodology carried out to identify the location of noise monitoring station installed was based on the Runway pattern of the airport has considered. The following methodology was adopted to determine boundary noise study. The interpretation of Available different level of Noise data for the year From the period between Nov-2024 and Oct-2025 determined at airport boundary for airport operations.

The details of the boundary along with the points for noise level calculation are given in. total receptor points at an interval of 200m.

(Ref : Page No 6 AVIATION ENVIRONMENT CIRCULAR 01 OF 2024 Annexure II b At least two permanent Noise Monitoring Terminals (NMTs) shall be installed per runway with more than 25,000 movements (where a movement is a take-off or a landing). The permanent NMTs shall be located on both sides of the runway, in the nearest residential area and, as far as possible, under the flight paths of the aircraft. At least one mobile NMT (e.g., portable/mobile) shall be used for measurements in the residential areas/silence zones and under the flight paths, where noise levels are expected to be high.)



Figure-5: Definition of points on boundary, every 200m

6.2. Input Data for Boundary Noise Study

The following are the input data used to calculate the noise contours.

Existing tracks for both runways

Existing data from monitoring system for years From the period between Nov-2024 and Oct-2025

Forecast for Traffic

- ☐ Fleet mix
- ☐ N° movements, based on forecasted
- ☐ Distribution of flights
- ☐ Runway and track usage for main/secondary runway

The fleet mix is based on **the November'2024-October'2025** monitoring data, resulting in the following:

Aircraft	Arrivals	Departure
A320	39.73%	39.70%
A20N	12.94%	13.00%
AT72	8.53%	8.59%
A321	6.35%	6.35%
A21N	5.96%	5.94%
B38M	5.59%	5.57%
AT76	3.72%	3.73%
B738	2.83%	2.84%
Others	14.35%	14.28%
Total	100.00%	100.00%

Based the aircraft types is maintained, maximum A320 family is captured as per data analysis. (**AVIATION ENVIRONMENT CIRCULAR 01 OF 2024 Annexure III**
b Summary distribution of flight movements per aircraft type)

Results :

Boundary Noise Levels		
Description	L Day	L Night
Boundary(Average)	66.34	65.65
Limit	75	70
Margin	8.66	4.35

Considering the applicable limits of industrial zone as per noise pollution (Control and Regulation) Rules 2000, 75 and 70dbA are noise limits for Day and Night period respectively. Comparing with the applicable limits of 75 and 70 dbA for day and Night period respectively, it can be controlled that the boundary noise level as Far (4-8 dbA)) below the limit.





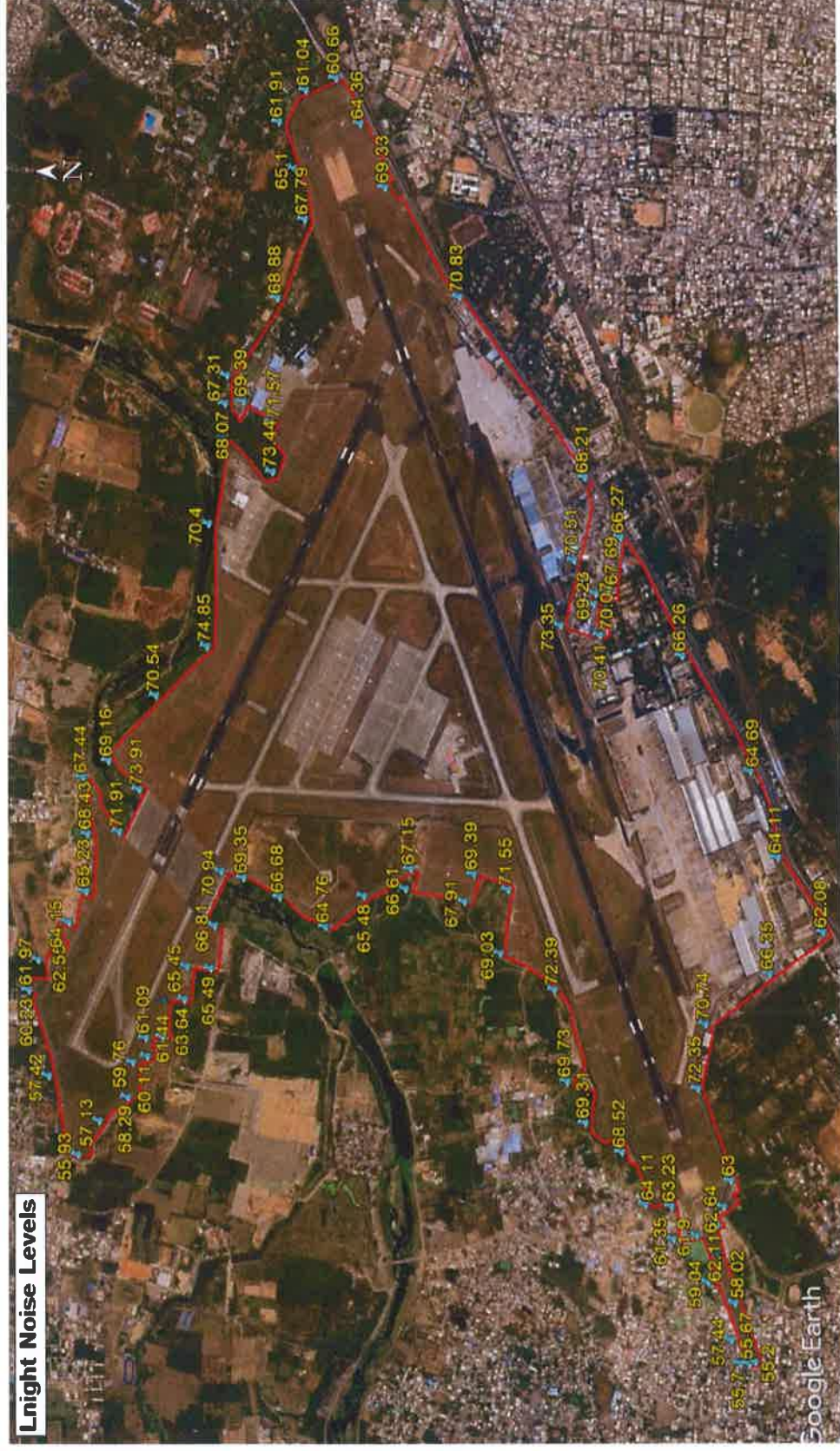


Figure-7: Lnight levels at boundary points

The following table is compiled as per Noise Levels (LDay & LNight) of Boundary Points



[Signature]

BOUNDARY NOISE LEVEL		
S.No	LDay	LNight
1	56.15	55.93
2	57.87	57.42
3	60.78	60.23
4	62.27	61.97
5	62.76	62.55
6	64.64	64.15
7	65.76	65.23
8	68.76	68.43
9	67.98	67.44
10	72.17	71.91
11	74.39	73.91
12	69.29	69.16
13	71.23	70.54
14	75.06	74.85
15	70.87	70.4
16	68.53	68.07
17	73.76	73.44
18	72.07	71.57
19	69.64	69.39
20	68.76	67.31
21	67.6	68.88
22	69.21	67.79
23	68.25	65.1
24	63.35	61.91
25	62.32	61.04
26	61.61	60.66
27	61.32	64.36
28	64.59	69.33
29	69.82	70.83
30	71.35	68.21
31	68.57	70.51
32	71.08	73.35
33	73.68	70.41
34	70.92	69.23
35	70.3	70.07
36	69.71	67.69
37	68.24	66.27
38	66.88	66.26
39	66.72	64.69
40	64.91	64.11
41	64.53	62.08
42	62.67	66.35
43	66.46	70.74



(Handwritten signature)

BOUNDARY NOISE LEVEL		
S.No	LDay	LNight
44	71.13	72.35
45	72.63	63
46	63.47	62.64
47	63.2	62.11
48	62.45	58.02
49	60.38	55.67
50	58.33	55.2
51	55.73	55.7
52	55.93	57.44
53	56.12	59.04
54	57.94	61.9
55	59.33	61.35
56	62.33	63.23
57	61.92	64.11
58	63.57	68.52
59	64.61	69.31
60	68.81	69.73
61	69.74	72.39
62	70.33	69.03
63	72.76	71.55
64	69.29	69.39
65	72.04	67.91
66	69.89	66.61
67	68.28	67.15
68	66.75	65.48
69	67.34	64.76
70	66.05	66.68
71	65.06	69.35
72	67.27	70.94
73	69.63	66.81
74	71.35	65.49
75	69.87	65.45
76	67.27	63.64
77	65.72	61.44
78	65.86	61.09
79	64.16	60.11
80	63.2	59.76
81	61.91	58.29
82	61.63	57.13



(Handwritten signature)

At present a 56% & 44% distribution between Day and Night operations is found. For the future scenario this same distribution is maintained.

The following table is compiled as per Traffic Distribution of Aircraft runway

Table: 1 Traffic Distribution of Aircraft runway

Direction	Run way	ARRIVAL						DEPARTURE						Total Movement	
		Day flow direction (Traffic)	% Day flow direction (Traffic)	% Day flow direction (Traffic)	Night flow direction (Traffic)	% Night flow direction (Traffic)	% Night flow direction (Traffic)	Day flow direction (Traffic)	% Day flow direction (Traffic)	% Day flow direction (Traffic)	Night flow direction (Traffic)	% Night flow direction (Traffic)	% Night flow direction (Traffic)		
West to East	25	20881	25.43%	47.53%	16586	20.20%	43.43%	23173	28.22%	49.23%	16460	20.04%	46.97%	164235	
East to West	7	20123	24.50%	45.80%	21563	26.26%	56.47%	21866	26.63%	46.45%	18556	22.60%	52.95%		
Northwest to Southeast	12	1657	2.02%	3.77%	17	0.02%	0.04%	983	1.20%	2.09%	20	0.02%	0.06%		
Southeast to Northwest	30	1271	1.55%	2.89%	21	0.03%	0.05%	1052	1.28%	2.23%	6	0.01%	0.02%		
Total		43932	53.50%	100.00%	38187	46.50%	100.00%	47074	57.33%	100.00%	35042	42.67%	100.00%		



(Signature)
D. Ramprasad

6.3. Flight Runway Data

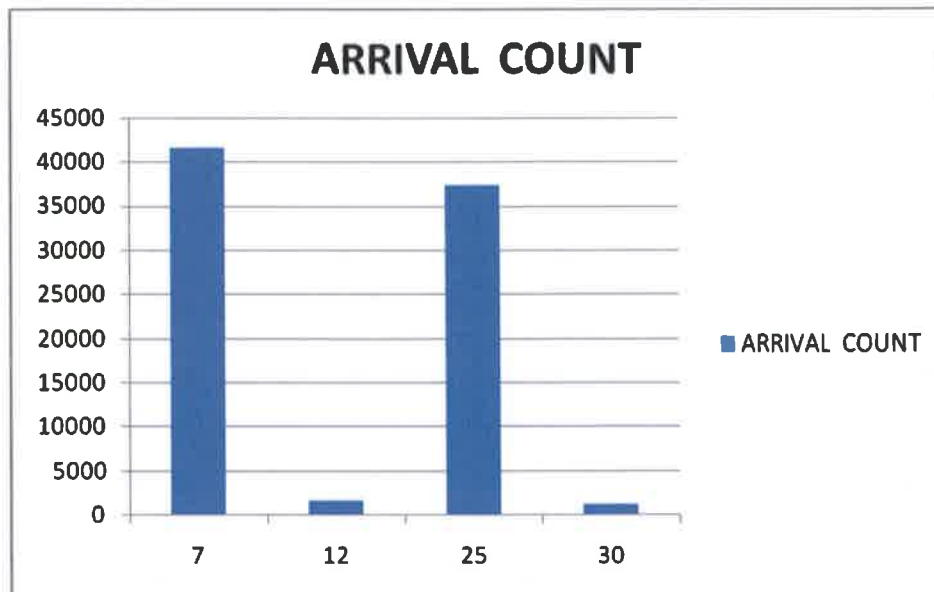


Figure-8: Definition of points on boundary, every 200m

ARRIVAL COUNT	
RWY	Grand Total
7	41686
12	1674
25	37467
30	1292
Grand Total	82119



(Signature)
S. S. Suresh

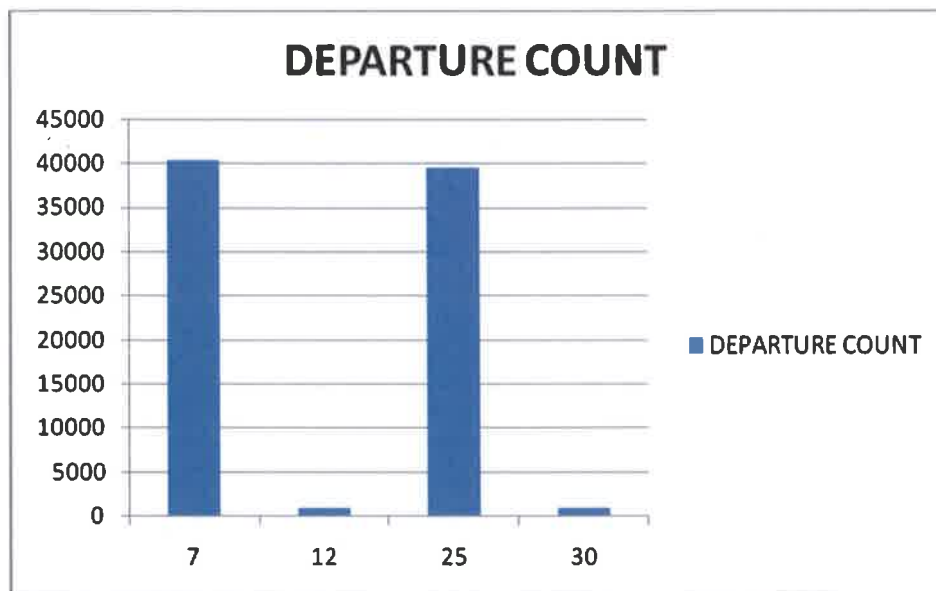


Figure-9: Definition of points on boundary, every 200m

DEPARTURE COUNT	
RWY	Grand Total
7	40422
12	1003
25	39633
30	1058
Grand Total	82116



(Signature)

6.4 Validation of Model Results with Measurements

The **Caustic 3.2** modeling software used to measure the results. In order to be able to validate the model results, use was made of data from measurements performed by **Caustic 3.2**.

The following tables present the comparison between the model results and the levels measured at the closest point, for Lday and Lnight respectively. Boundary Noise Maps Lday and Lnight Figure 10 .

*(Ref Page No .8 AVIATION ENVIRONMENT CIRCULAR 01 OF 2024Annexure II
(n) The NMS should have the capability to generate daily, weekly, monthly and annual reports for each and all of the stations for at least the following indicators (daily, monthly, annually): Lday (0600-1800), Levening (1800-2200), Lnight (2200- 0600), Lde (0600-2200), Lden (day: 0600-1800, evening: 1800-2200, night: 2200- 0600), LAmax, DNL, TDNL, EDNL, BDNL (as defined in the Requirement and Procedure for Monitoring Ambient Noise Level due to Aircrafts, CPCB, MOEF, 2008), Ln10, Ln90, Ln50, and Lmin.)*

Location 1: CNMS1 – Andal Nagar at Cowl Bazzar, Near 07 end of Main Runway

Parameter	Sound level dB(A)
Average LAeq(T)	69.1
Average LAmax(T)	73.0
Average LA90(T)	61.4
Average of LA50 (T)	64.4
Average LA10(T)	68.0
Average LCeq(T)	74.5
Average of LA(min) (T)	60.0
Average LCmax(T)	78.1
Average LC90(T)	68.8
Average of LC50 (T)	70.0
Average LC10(T)	71.3
Average of LC(min) (T)	65.1
Average Lday(T)	68.9
Average Leve(T)	68.6
Average L night(T)	69.7
Average Lde(T)	68.8
Average Lden(T)	69.1
Average DNL (T)	69.3
Average TDNL(T)	64.8
Average EDNL (T)	69.1
Average BTDNL(T)	64.8

Handwritten signature and date: 10.11.2024



Location 2: CNMS2 – HP Petrol Bunk, Adjacent to Radisson Blu Hotel, near 25 end of Main Runway.

Parameter	Sound level dB(A)
Average LAeq(T)	68.4
Average LAmax(T)	70.4
Average LA90(T)	62.5
Average of LA50 (T)	65.2
Average LA10(T)	67.9
Average LCeq(T)	73.4
Average of LA(min) (T)	61.2
Average LCmax(T)	75.3
Average LC90(T)	69.0
Average of LC50 (T)	70.5
Average LC10(T)	71.5
Average of LC(min) (T)	66.0
Average Lday(T)	68.6
Average Leve(T)	68.1
Average L night(T)	68.2
Average Lde(T)	68.5
Average Lden(T)	68.4
Average DNL (T)	68.4
Average TDNL(T)	64.2
Average EDNL (T)	68.4
Average BTDNL(T)	64.2



Handwritten signature and date: 10/07/2019

Table 2: Over all Noise Data for the year November 2024 to October 2025
(Location 1: CNMS1 – Andal Nagar at Cowl Bazzar, Near 07 end of Main Runway)

Parameter	Sound level dB(A)												Average
	Nov-2024	Dec-2024	Jan-2025	Feb-2025	Mar-2025	Apr-2025	May-2025	Jun-2025	Jul-2025	Aug-2025	Sep-2025	Oct-2025	
Average LAeq(T)	51.7	69.9	69.2	68.6	60	52.7	73.5	75.2	74.6	76.9	78.3	78.6	69.1
Average LMax(T)	56.9	73.6	72.8	72.1	65.7	58.8	76.9	79	78.5	80	80.7	80.5	73.0
Average LA90(T)	46.5	65.3	64.8	64.3	54.2	43	61.4	65.3	62.8	68.4	69.6	71.4	61.4
Average of LA50 (T)	48.3	68.8	68.3	67.7	56	47.6	66.3	68.2	66.9	70.3	71.7	72.7	64.4
Average LA10(T)	53.3	72.2	71.5	70.9	61	53.9	70.7	71.1	71	72.2	74	74.1	68.0
Average LCeq(T)	57.3	75.5	74.8	74.2	65.6	58.3	78.6	80.3	79.7	82.1	83.4	83.7	74.5
Average of LA(min) (T)	46	64.6	64.1	63.6	53.7	41.1	57.4	63.4	60.4	67.4	68.4	70.2	60.0
Average LCmax(T)	62.1	78.8	78	77.3	70.9	64	82	84.1	83.6	85.2	85.9	85.6	78.1
Average LC90(T)	52	70.8	70.2	69.7	59.7	48.5	66.5	76.2	75.9	77.4	79.1	79.2	68.8
Average of LC50 (T)	54.4	74.9	74.3	73.8	62.1	53.7	71.4	73.3	72	75.5	76.8	77.8	70.0
Average LC10(T)	59	77.9	77.2	76.6	66.6	59.6	75.8	70.4	68.1	73.6	74.8	76.5	71.3
Average of LC(min) (T)	51.1	69.8	69.2	68.7	58.9	46.2	62.5	68.5	65.5	72.5	73.5	75.3	65.1
Average Lday(T)	49.7	69.8	69.1	68.6	59.7	52.6	73.4	75.1	74.7	76.8	78.5	78.5	68.9
Average Leve(T)	50.1	70.2	69.6	69	58.7	52.1	73	74.2	73.3	76.8	77.4	78.9	68.6
Average L night(T)	55.5	70	69.2	68.5	61	53	74	75.8	75	77	78.4	78.6	69.7
Average Lde(T)	49.8	69.9	69.2	68.7	59.5	52.5	73.3	74.9	74.3	76.8	78.2	78.6	68.8
Average Lden(T)	51.7	69.9	69.2	68.6	60	52.7	73.5	75.2	74.6	76.9	78.3	78.6	69.1
Average DNL (T)	52.6	69.9	69.1	68.5	60.4	52.8	73.7	75.4	74.9	76.9	78.4	78.6	69.3
Average TDNL(T)	48.4	65.5	64.8	64.2	56.4	49.4	69	70.6	70.1	72.1	73.5	73.6	64.8
Average EDNL (T)	51.7	69.9	69.2	68.6	60	52.7	73.5	75.2	74.6	76.9	78.3	78.6	69.1
Average BTdNL(T)	48.4	65.5	64.8	64.2	56.4	49.4	69	70.6	70.1	72.1	73.5	73.6	64.8



Handwritten signature and date: 15/10/2024

Table 3: Over all Noise Data for the year November 2024 to October 2025

(Location 2: CNMS2 – HP Petrol Bunk, Adjacent to Radisson Blu Hotel, near 25 end of Main Runway)

Parameter	Sound level dB(A) - Yearly												Average
	Nov-2024	Dec-2024	Jan-2025	Feb-2025	Mar-2025	Apr-2025	May-2025	Jun-2025	Jul-2025	Aug-2025	Sep-2025	Oct-2025	
Average LAeq(T)	70.1	69.5	68.0	66.8	56.9	55.1	68.5	69.8	69.3	75.9	75.2	75.6	68.4
Average LAmax(T)	73.4	72.8	71.3	70.0	59.9	58.4	70.9	72.0	72.2	74.7	74.8	74.5	70.4
Average LA90(T)	65.7	65.2	63.8	62.6	54.2	51.9	56.8	63.0	59.7	69.4	68.2	69.6	62.5
Average of LA50 (T)	69.3	68.8	67.3	66.1	56.2	54.2	62.0	64.3	63.2	70.7	69.7	70.6	65.2
Average LA10(T)	72.5	72.0	70.5	69.2	58.8	57.3	66.1	66.3	66.5	72.1	71.6	71.7	67.9
Average LCeq(T)	75.4	74.8	73.3	72.1	62.2	60.4	73.3	74.6	74.2	80.7	80.0	80.4	73.4
Average of LA(min)(T)	65.0	64.5	63.1	61.9	53.2	50.9	53.4	61.8	56.5	68.3	66.8	68.6	61.2
Average LCmax(T)	78.3	77.7	76.2	74.9	64.8	63.3	75.8	76.8	77.0	79.5	79.6	79.4	75.3
Average LC90(T)	70.8	70.4	69.0	67.8	59.3	57.1	61.6	71.1	71.0	76.9	76.4	76.5	69.0
Average of LC50 (T)	75.1	74.5	73.1	71.9	61.8	59.9	66.9	69.1	68.0	75.6	74.5	75.4	70.5
Average LC10(T)	77.9	77.4	75.9	74.6	64.2	62.6	70.9	67.8	64.8	74.2	73.0	74.4	71.5
Average of LC(min)(T)	69.9	69.4	68.0	66.9	58.1	55.9	58.2	66.7	61.4	73.1	71.6	73.4	66.0
Average Lday(T)	70.2	69.6	68.1	66.9	57.5	55.5	68.9	70.1	69.6	76.2	75.4	75.7	68.6
Average Leve(T)	70.6	70.1	68.6	67.3	54.8	54.0	67.2	69.2	68.9	75.6	74.9	75.5	68.1
Average L night(T)	69.6	69.1	67.6	66.4	57.1	55.1	68.3	69.9	69.0	75.5	75.0	75.6	68.2
Average Lde(T)	70.3	69.7	68.2	67.0	56.8	55.1	68.5	69.8	69.4	76.0	75.3	75.6	68.5
Average Lden(T)	70.1	69.5	68.0	66.8	56.9	55.1	68.5	69.8	69.3	75.9	75.2	75.6	68.4
Average DNL (T)	69.9	69.3	67.9	66.6	57.3	55.3	68.6	70.0	69.3	75.9	75.2	75.6	68.4
Average TDNL(T)	65.6	65.1	63.7	62.5	53.8	51.9	64.4	65.6	65.1	71.2	70.6	70.9	64.2
Average EDNL (T)	70.1	69.5	68.0	66.8	56.9	55.1	68.5	69.8	69.3	75.9	75.2	75.6	68.4
Average BTDNL(T)	65.6	65.1	63.7	62.5	53.8	51.9	64.4	65.6	65.1	71.2	70.6	70.9	64.2

The following tables present the comparison between the model results and the levels measured at Boundary Noise Level for Lday and Lnight respectively.

S.NO	Measured Value		Model Value		Observation
	Lday	Lnight	Lday	Lnight	
1.	68.9	69.7	68.4	70.05	From CNMS1
2.	68.6	68.2			From CNMS2



(Signature)

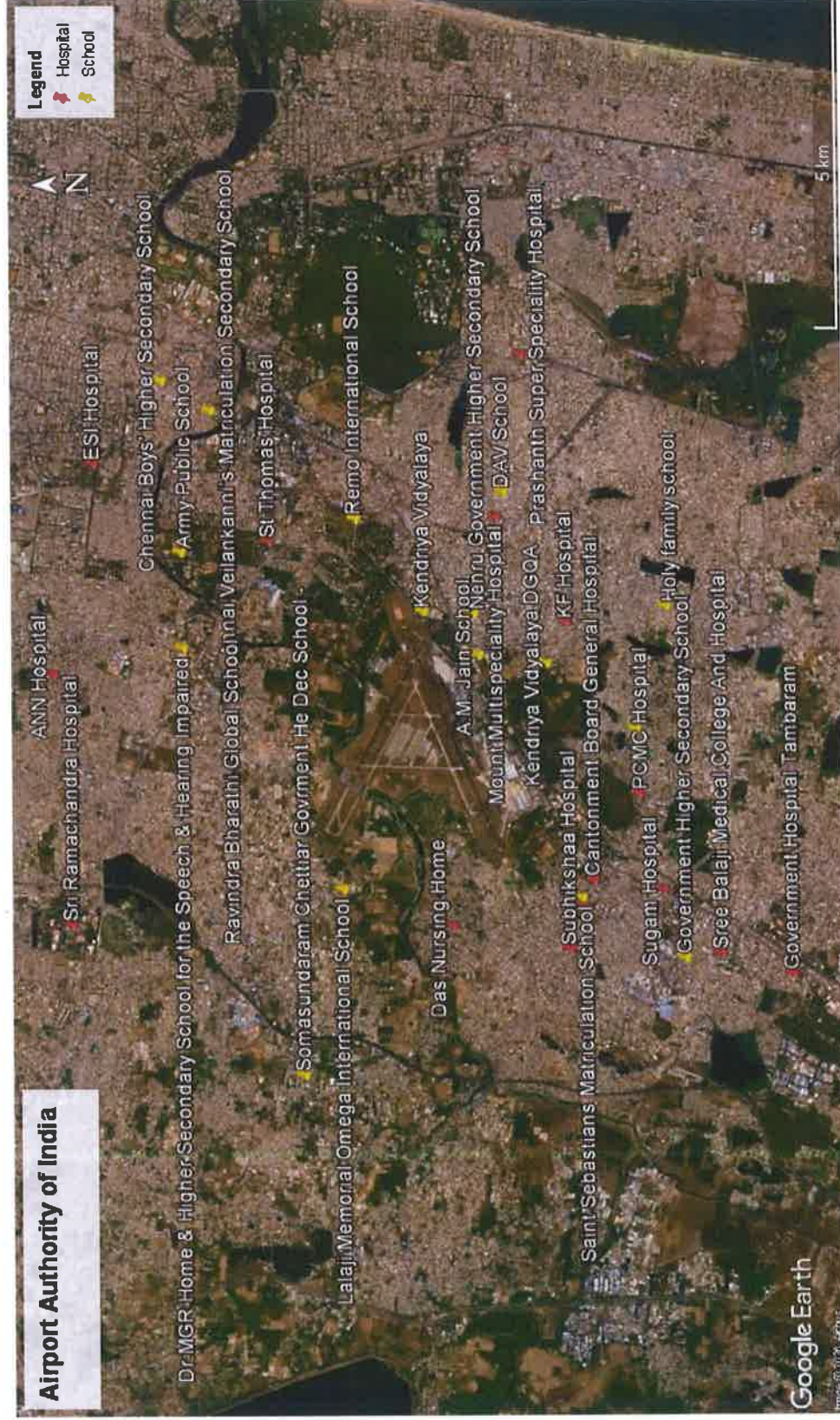


Boundary Noise Map Figure 10

Hubert Enviro Care Systems (P) Ltd.

Page 22

Airport Authority of India



Handwritten signature in blue ink.

7.0 NOISE ZONING STUDY

A third requirement of the Environment Protection Amendment Rules, 2018 is the establishment of noise zones. For this purpose the noise contours for a determined from the Lday and LNight noise covering the Location 1 and Location 2. Based on the noise zoning results from studies performed at two locations within 200m from CNMS airports, the Lday 68.9 and L night 69.7 of Location 1 and Lday 68.6 and L night 68.2 Location 2 noise contours shall be used as the airport noise zones for day and night period respectively as per the **Figure 10**. Meanwhile for the future fleet and Flight distribution and runway track usage noise contour study carried out as per **Figure 11** , **Figure 12** & **Figure 13**.



Figure-11: Lday & Lnight for Location 1 & Location 2



Handwritten signature and initials

7.1. Methodology for Noise Zone study

Methodology carried out to identify the location of noise monitoring station installed was based on the Runway pattern of the airport has considered. The proposed action plan based on the data for the period of **November 2024 to October 2025** and future forecast data of aircrafts movements and passenger's tendency figure of Airport authority. The following data Traffic Forecast for existing and forecast data future are following as **(Ref Page 5 AVIATION ENVIRONMENT CIRCULAR 01 OF 2024 Annexure I Phase 2 Action Plan)**.

TRAFFIC FORECAST - CHENNAI AIRPORT				
YEAR	AIRCRAFT MOVEMENTS (in Nos.)	PASSENGERS (in Nos.)	% Distribution	
			AIRCRAFT MOVEMENTS (in Nos.)	PASSENGERS (in Nos.)
2019-20	167982	22266722	121	126
2020-21	64590	5495707	56	45
2021-22	91602	9533301	79	71
2022-23	137693	18571393	104	107
2023-24	145790	21207262	118	121
2024-25	164235	22411290	122	130
Average	128649	16580946	100	100
FORECAST DATA				
2025-26	204897	28310908	177	193
2026-27	221824	30783108	192	211
2027-28	239043	33317829	207	228
2028-29	257602	36061862	223	248
2029-30	277608	39032540	240	269
2030-31	292343	41374492	253	285
2031-32	307862	43856962	267	302
2032-33	324204	46488379	281	320
2033-34	340678	48728746	298	334
2034-35	359724	50987054	310	352



(Signature)

Table 4 : Monitoring Noise Data for the year 2023 to 2025

Location 1: CNMS1 – Andal Nagar at Cowl Bazaar, Near 07 end of Main Runway		
Year	2023-2024 (Jan'2024 to Oct'2024)	2024-2025 (Nov'2024 to Oct'2025)
Average LAeq(T)	67.44	69.1
Average LMax(T)	89.27	73.0
Average LA90(T)	53.53	61.4
Average of LA50 (T)	56.13	64.4
Average LA10(T)	61.77	68.0
Average of LA(min) (T)	50.88	60.0
Average Lday(T)	68.1	68.9
Average L night(T)	80.0	69.7

Location 2: CNMS2 – HP Petrol Bunk, Adjacent to Radisson Blu Hotel, near 25 end of Main Runway		
Year	2023-2024 (Feb'2024 to Oct'2024)	2024-2025 (Nov'2024 to Oct'2025)
Average LAeq(T)	71.18	68.4
Average LMax(T)	85.53	70.4
Average LA90(T)	67.76	62.5
Average of LA50 (T)	69.56	65.2
Average LA10(T)	71.67	67.9
Average of LA(min) (T)	66.31	61.2
Average Lday(T)	71.64	68.6
Average L night(T)	80.96	68.2



(Signature)

8.0 NOISE CONTOUR STUDY

The noise contours for future scenario are calculated with Caustic 3.2 noise model software both Lday and Lnight based on noise monitoring data. **2024 to 2025.**

Noise Contours for Both Lday and Lnight are determined

- From 50 to 55 Db(A) in 1 dB Steps
- From 55 to 65 Db(A) in 5 dB Steps



Figure-12: Noise Contours for Lday 50 to 65 dBA

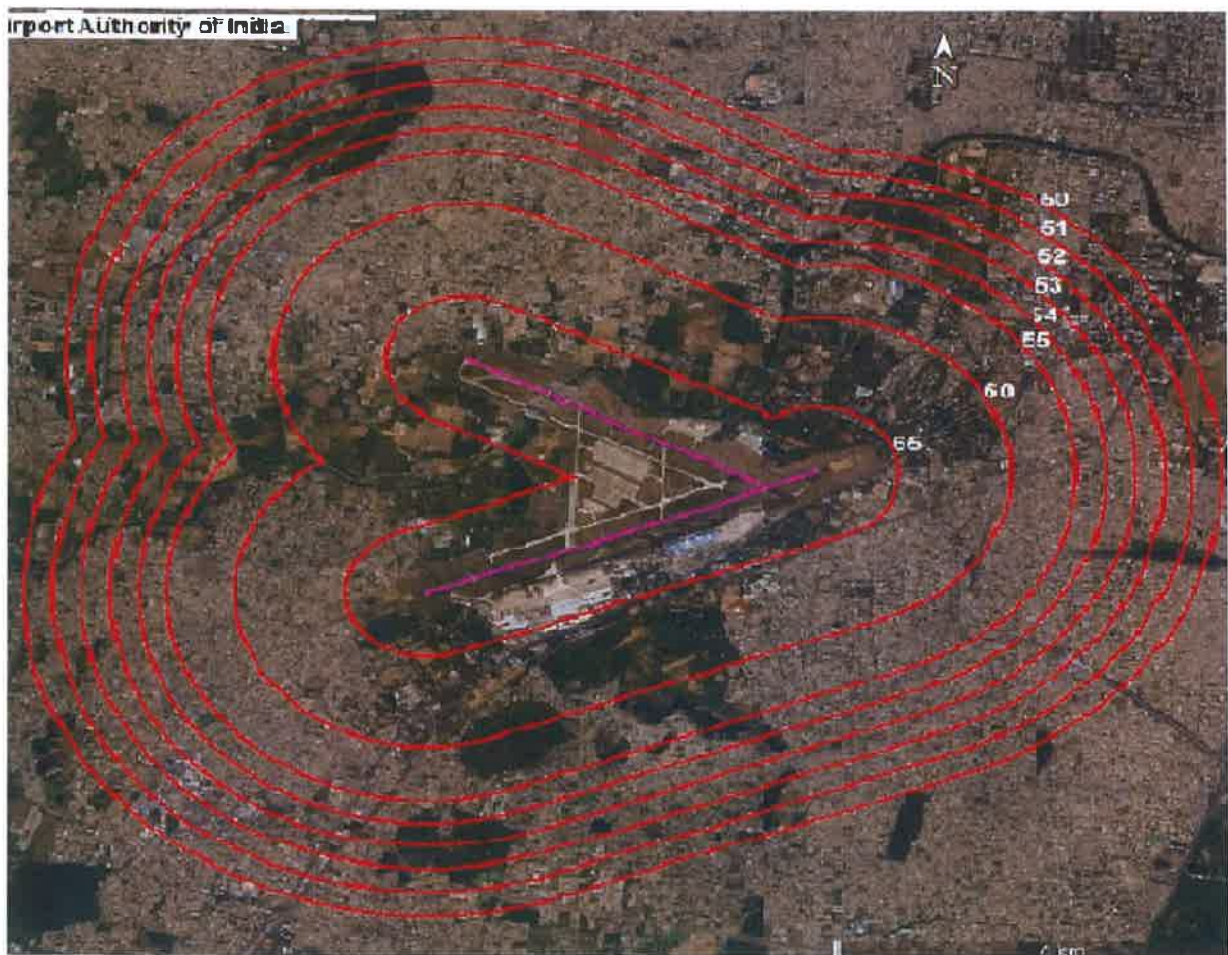


Figure-13: Noise Contours for Lnight 50 to 65 dBA



(Signature)
(b-Enviro)

8.1 Definition of Noise Zones

The noise study performed at Various Indian airports, DGCA concluded that the Lday 62 and Lnight 57 noise contours shall be used as the airport zones for day and night period respectively. **Figure 14** presents these contours for CNMS.



Figure-14: Airport Noise Zone for day and night time (Based on Lday 62 and Lnight 57 noise Contours)



Signature

9.0 Conclusion and Noise Action Plan

The Noise levels based on sound levels starts at **2024 to 2025**. Based on monitoring data analyzed Lday ranges from **2024 to 2025** for both **CNMS1** and **CNMS2 Average Lday 68.9 to 68.6 dB (A)** and **Average Lnight 69.7 to 68.2 dB (A)**. These values were within the limit as per noise (Regulation and Control) Rules 2000, 75 and 70dbA are noise limits for Day and Night. The incremental percentages of noise based on forecast will not much as per the contours study. As per the contour study it may be concluded that **the Lday 62** and **Lnight 57** noise contours shall be used as the airport zones for day and night. The following action plans to be follow the when the noise limits were exceeded.

1. Airport operators will have existing measures in place to mitigate noise impacts. This requirement can be met by describing the current noise control measures, including those set out in any existing noise Action Plan and updating them as appropriate.
2. Airport operators will primarily have two pieces of information available to them for action planning:
 - i. The current noise impact of their operations as shown by the results of the noise mapping; and
 - ii. The current noise control measures they have in place.

