भारतीय विमानपत्तन प्राधिकरण
AIRPORTS AUTHORITY OF INDIA

ANNUAL SAFETY MANAGEMENT SYSTEM (SMS) PERFORMANCE
CALENDER YEAR **2022**

AVIATION SAFETY DIRECTORATE, CHQ, NEW DELHI

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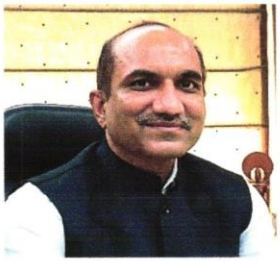
भारतीय विमानपत्तन प्राधिकरण
AIRPORTS AUTHORITY OF INDIA
राजीव गाँधी भवन
Rajiv Gandhi Bhawan
सफदरजंग हवाई अड्डा, नई दिल्ली-110 003
Safdarjung Airport, New Delhi-110 003

No. AAI/CHMN/2023

March 17th, 2023



FOREWORD

Founding block of aviation sector is safety, which is paramount in all the action, decisions of aviation sector. Millions of people rely on air transportation every day, and it is the responsibility of everyone involved in aviation to ensure that they reach their destinations safely. Airports Authority of India (AAI) has come a long way in terms of safety, with continuous improvements in process and procedures and use of latest technology.

In adapting, best aviation safety related practices, Safety Performance Indicators (SPIs) play a crucial role in managing and improving safety. SPIs are a set of measurable parameters that provide information about the safety performance of an aviation service providing organization, such as an air traffic service provider or an airport operator.

Though continuously aviation safety has been improved by leaps & bounds, sometimes accidents and incidents do happen. It is crucial to remember that even one accident cause immense setback to aviation sector, and thus we all should continue to strive for zero accident. To do this, we at AAI must instill a culture of safety in all facets.

Overall, safety performance indicators are an essential part of ensuring the continued safety health of our organisation. By using this annual safety performance booklet, which includes SPIs and their corresponding Safety Performance Targets (SPTs), we can track and enhance our safety performance, as well as contribute to the prevention of incidents and accidents, thus ensuring air travel continues to be one of the safest modes of transportation available.

Sanjiv Kumar

(Sanjeev Kumar)
Chairman

Introduction

The Safety Performance Indicator (SPI) package of Airports Authority of India (AAI) for the year **2022** (1st January to 31st December) is drawn from two mainstream operational sectors of AAI. These safety-critical sectors are Aerodrome Operations and Air Traffic Management (ATM).

Safety critical elements from these sectors are identified and established as AAI's Safety Performance Indicators (SPI). These SPIs are congruent with State's National Aviation Safety Plan (2018-2022).

Safety Performance Targets (SPTs) of corresponding Safety Performance Indicator (SPIs), of which historical data is available is set. Safety Performance Targets (SPTs) are based on the percentage of improvement over last year's safety performance (average), as agreed upon by respective directorates. Three Alert levels are also established based on the preceding period's (i.e. **2022**) performance, namely average and standard deviation (SD). Three Alert lines are average + 1SD / 2SD / 3SD. An alert trigger (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2023**):

- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert level 1 line

Source of Data

Traffic data is derived from Airport Information Management System (AIMS). This includes the total number of Arrivals, departures, and over flights. An over flight means an aircraft entering Indian airspace, overflying Indian airspace, and exiting Indian airspace.

Incident data is derived from the AAI control room messages, reports of pilots, controllers, WSOs, Airport-In charges, Airlines, AFTN messages and various reporting forms of DGCA / AAI. The overall data has been provided by Aerodrome Operations Department CHQ and Air Traffic Management (ATM-SQMS) Department CHQ.

Annual SMS performance summary

Annual SMS performance summary shall be compiled at the end of each monitoring period i.e. by 31st December of every year. Summary will be based on respective Target & Alert level outcomes annotated. At the end of current year **2023**, if the average rate for the current year is at least equal to or lower than the set Target, then the set Target of improvement is deemed to have been achieved.

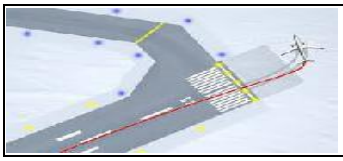
O S Ekka
Executive Director (Aviation Safety)

AAI SMS Performance Summary – 2022					
SPI Description	**Alert Level breached in 2022 [Yes/ No]**	**Target Achieved in 2022 [Yes/No]**	**SPI Alert Level Criteria (for 2023)**	**SPI Target Level Criteria (for 2023)**	**Target as per NASP [Achieved/ Not Achieved]**
Aerodrome Operations					
Number of 'near' runway excursions per 10,000 approaches	--	--	AL1 = **0.07** AL2 = **0.12** AL3 = **0.17**	0.019	Not defined in NASP
Number of runway excursions per 10,000 approaches	No	Yes	AL1 = **0.07** AL2 = **0.12** AL3 = **0.17**	0.046	Not defined in NASP
Number of reported bird strikes at all AAI airports per 10,000 movements	Yes	No	AL1 = **6.66** AL2 = **8.26** AL3 = **9.86**	**4.93***	Not defined in NASP
Number of reported wildlife strikes at all AAI airports per 10,000 movements	No	Yes	AL1 = **0.29** AL2 = **0.40** AL3 = **0.51**	0.198	Not defined in NASP
Number of runway incursions by wildlife at all AAI airports per 10,000 movements	Yes	No	AL1 = **0.07** AL2 = **0.12** AL3 = **0.17**	**0.019***	Not defined in NASP
Number of ramp incidents that result in damage to aircraft, vehicles or loss of life/ serious injury to personnel per 10,00,000 movements	No	Yes	AL1 = **6.78** AL2 = **11.99** AL3 = **17.20**	4.976	Not defined in NASP
Air Traffic Services (ATS)					
Number of risk-bearing AIRPROX per 10,00,000 flights over Indian airspace	No	Yes	AL1 = **3.57** AL2 = **5.67** AL3 = **7.77**	2.22	Not defined in NASP
Number of aircraft not or incorrectly complying with ATC instructions (including level bust) per 10,00,000 flights over Indian airspace	Yes	No	AL1 = **3.64** AL2 = **4.63** AL3 = **5.62**	**3.05***	Not defined in NASP
Number of AIRPROX attributable to ATC/System failure per 10,00,000 flights over Indian airspace	Yes	Yes	AL1 = 15.82 AL2 = 22.18 AL3 = 28.54	9.74	Not defined in NASP

Communication Errors	No	Yes	AL1 = **1.82** AL2 = **2.81** AL3 = **3.8**	15.46	Not defined in NASP
Number of Laser interferences per 10,000 movements	--	--	AL1 = **0.03** AL2 = **0.05** AL3 = **0.07**	0.00689	Not defined in NASP
Number of runway incursions (aircraft) per 10,00,000 movements	Yes	No	AL1 = **11.89** AL2 = **14.23** AL3 = **16.57**	**10.55***	Not defined in NASP
Number of runway incursions (vehicle) per 10,00,000 movements	No	No	AL1 = **7.12** AL2 = **11.63** AL3 = **16.14**	**1.33***	Not defined in NASP
Number of runway incursions (person) per 10,00,000 movements	Yes	No	AL1 = **2.84** AL2 = **3.93** AL3 = **5.02**	**1.52***	Not defined in NASP

*** As the target set for 2022 in 2021 was not achieved in 2022. It has been decided that the target and alert levels for 2023 are the same as the target for 2022.**

SAFETY PERFORMANCE INDICATORS (SPIs) FOR AERODROME OPERATIONS (OPS)



Number of Runway excursions per 10,000 approaches

1.1 Definition

A runway excursion is **a veer-off or overrun from the runway surface** (ICAO). These surface events occur while an aircraft is taking off or landing, and involve many factors ranging from unstable approaches to the condition of the runway

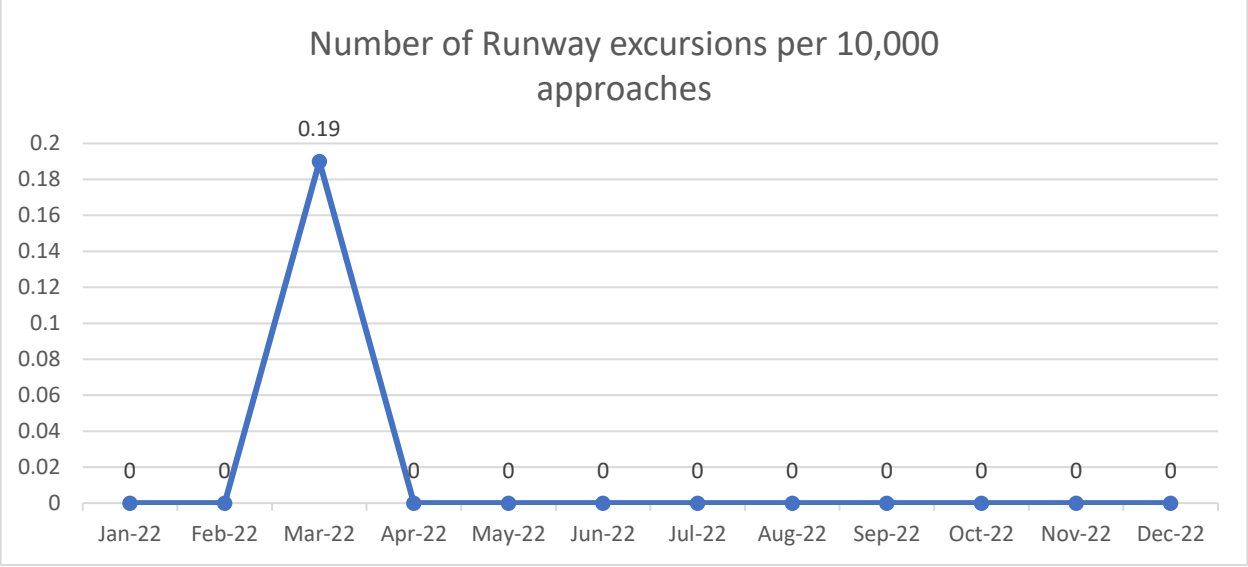
1.2 Source of Data

a) Traffic data is derived from Airport Information Management System (AIMS) database

b) Reports of runway excursion are extracted from the source of AAI control room messages, which includes reports of pilots, controllers, WSOs, Airport-in-charges, Airlines, and AFTN messages.

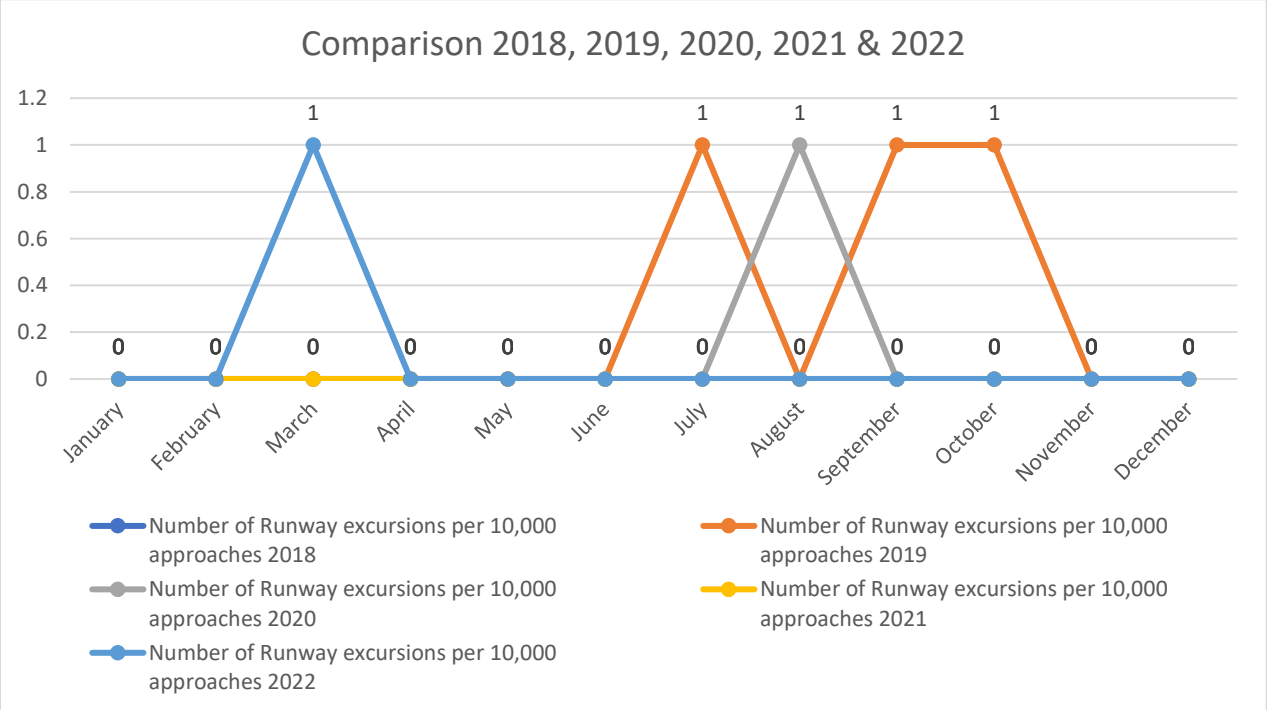
1.3 Data Analysis:

Number of Runway excursions per 10,000 approaches during last year i.e. **2022** and detailed analysis is appended below

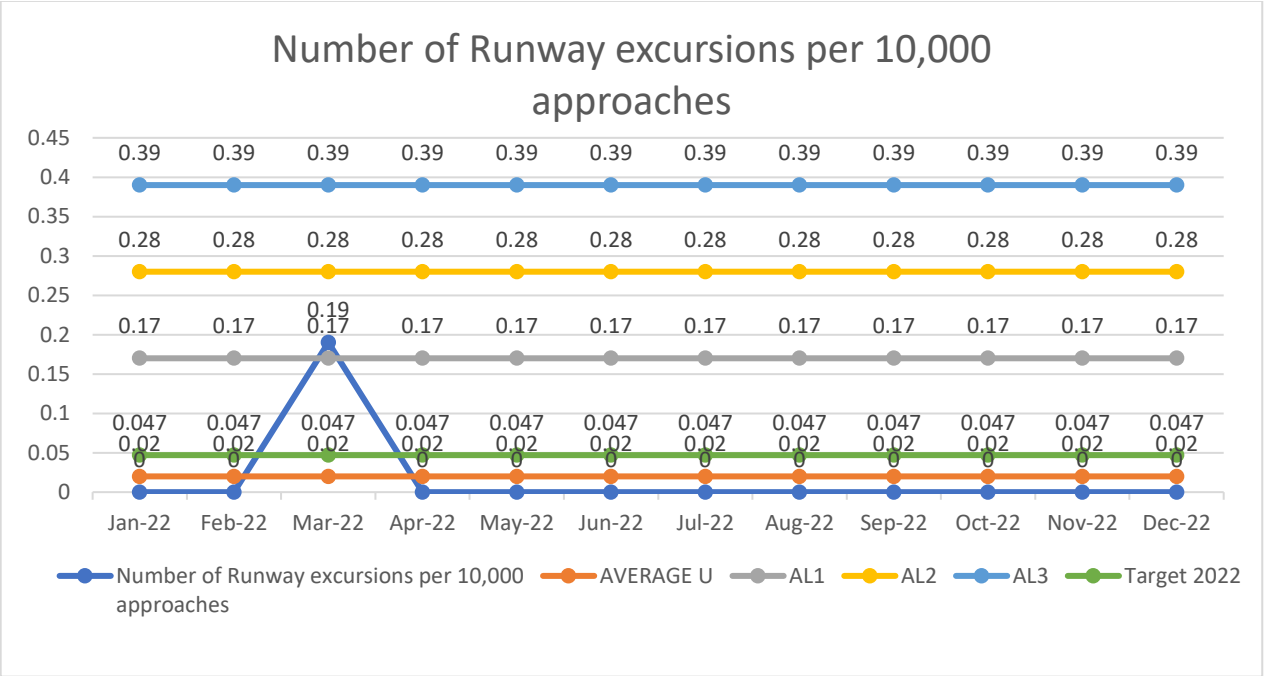


Month	Total Approaches	Number of runway excursions	Number of Runway excursions per 10,000 approaches
January	44133	0	0
February	40771	0	0
March	51723	1	0.19
April	49226	0	0
May	53055	0	0
June	51282	0	0
July	46231	0	0
August	47510	0	0
September	48155	0	0
October	49964	0	0
November	49831	0	0
December	53178	0	0
Total	**585055**	**1**	**0.02**

Comparison between Number of Runway excursions per 10,000 approaches during year **2018, 2019**, **2020, 2021 & 2022** is shown below:



1.4 **Safety Performance Target (SPT):**



As the target set for **2022** (**0.047**) has been achieved, it has been decided that the target for **2023** is kept as **0.046** (i.e. reduction of 3%).

1.5 Alert Level:

a) **Alert level setting:** -

Alert level for **2023** is as below -

- Alert level 1 - Avg.+1SD = 0.07
- Alert level 2 - Avg.+2SD = 0.12
- Alert level 3 - Avg.+3SD = 0.17

b) **Alert Level Trigger:** -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2023**):

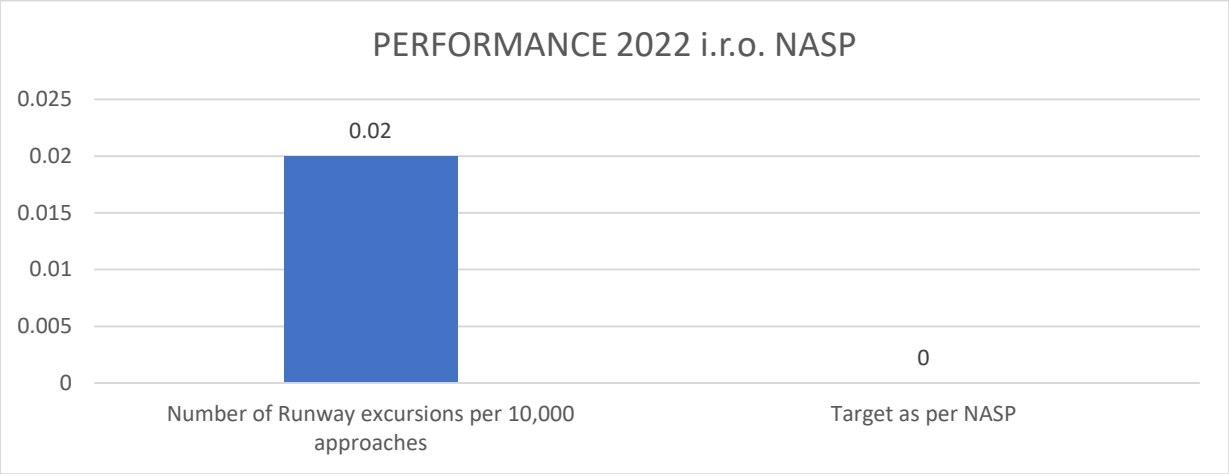
- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert Level 1 line

When an Alert is triggered (potential high risk or out-of-control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

1.6 Target Achievement at the end of the monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

1.7 Comparison with National Aviation Safety Plan



1.8 Safety Action Plan

<u>Safety Measures Already in Place</u>

Operations Directorate references	Safety Measures already in place
DGCA Aerodrome Advisory Circular 01 of 2019	Assessment and Measurement of Runway Surface Friction Characteristics at Aerodromes.
DGCA Aerodrome Advisory Circular 01 of 2021	Runway Surface Condition Reporting format using Standard Runway Condition Report
Operational Circular 05 of 2011	Procedure of inspection runways,
Operational Circular 05 of 2019	Pre-monsoon checks in Ops area at airports

Operational Circular 09 of 2019	Maintenance of Airside Facilities at airports.
Operational Circular 05 of 2021	Frangible object (AGL) are installed

Safety Action Plan

Safety Objective(s)	Action
Reduce the number of Runway Excursions.	1. Standard RWY markings and lights with proper maintenance schedule. 2. Maintenance and corrective action for RWY Rubber Removal. 3. Ensure proper slope on runway.

Number of reported bird strikes at all AAI airports per 10,000 movements

2.1 Definition

A bird strike is a collision between a bird and an aircraft which is in flight or on a take-off or landing roll.

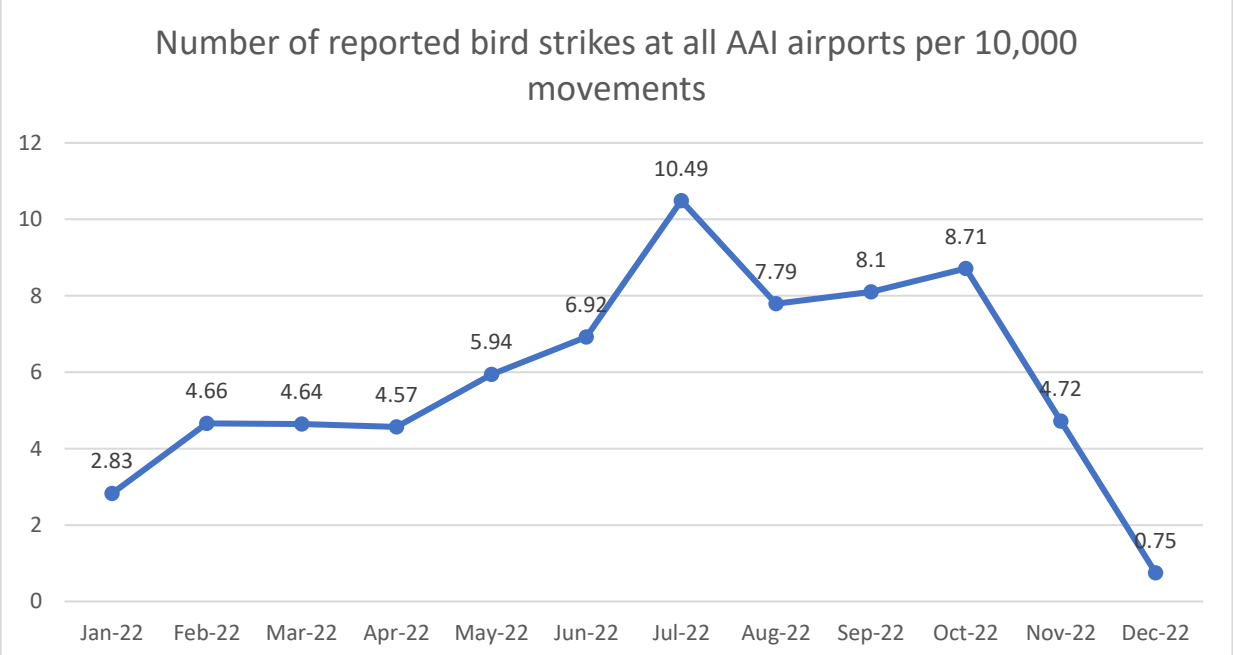
2.2 Source of Data

a) Traffic data is derived from Airport Information Management System (AIMS) database

b) Reports of bird strike are extracted from the source of AAI control room messages, which includes reports of pilots, controllers, WSOs, Airport-in-charges, Airlines, AFTN messages, and Wildlife (Bird/Animal strike forms).

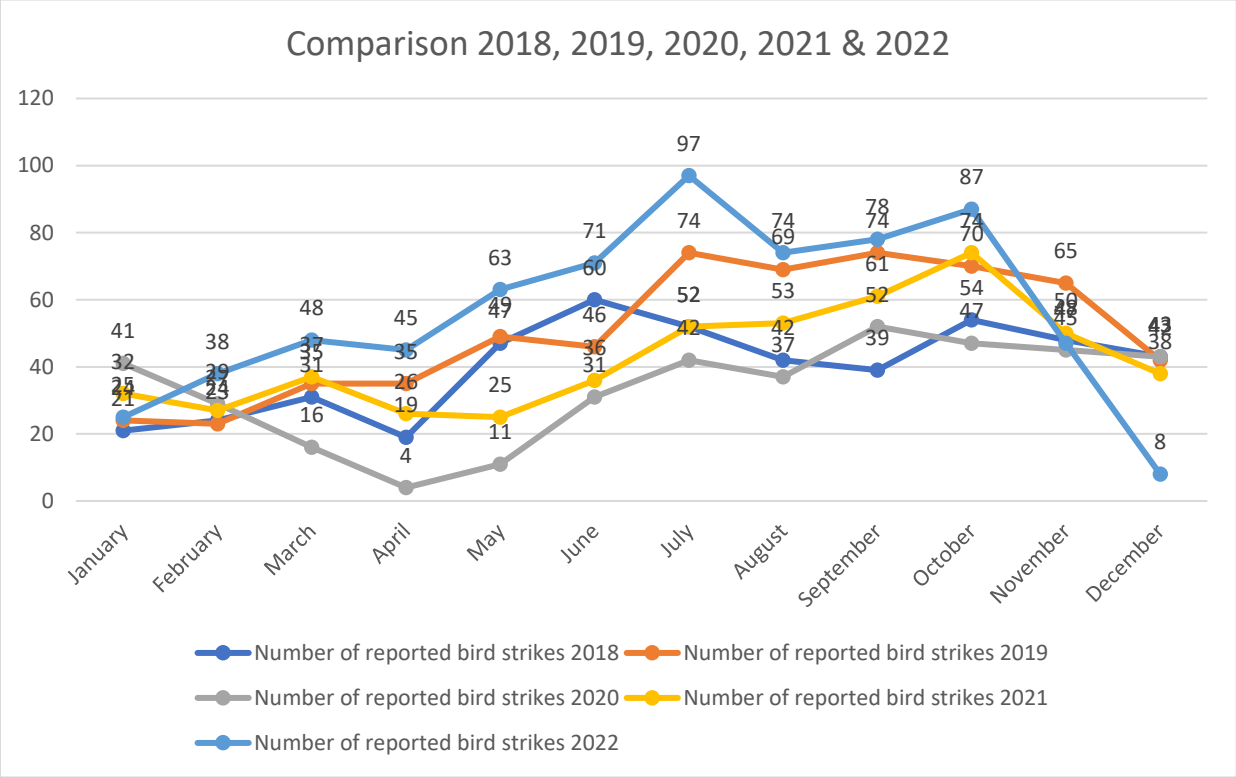
2.3 Data Analysis:

Number of bird strike per 10,000 approaches during last year i.e. **2022** and detailed analysis is appended below

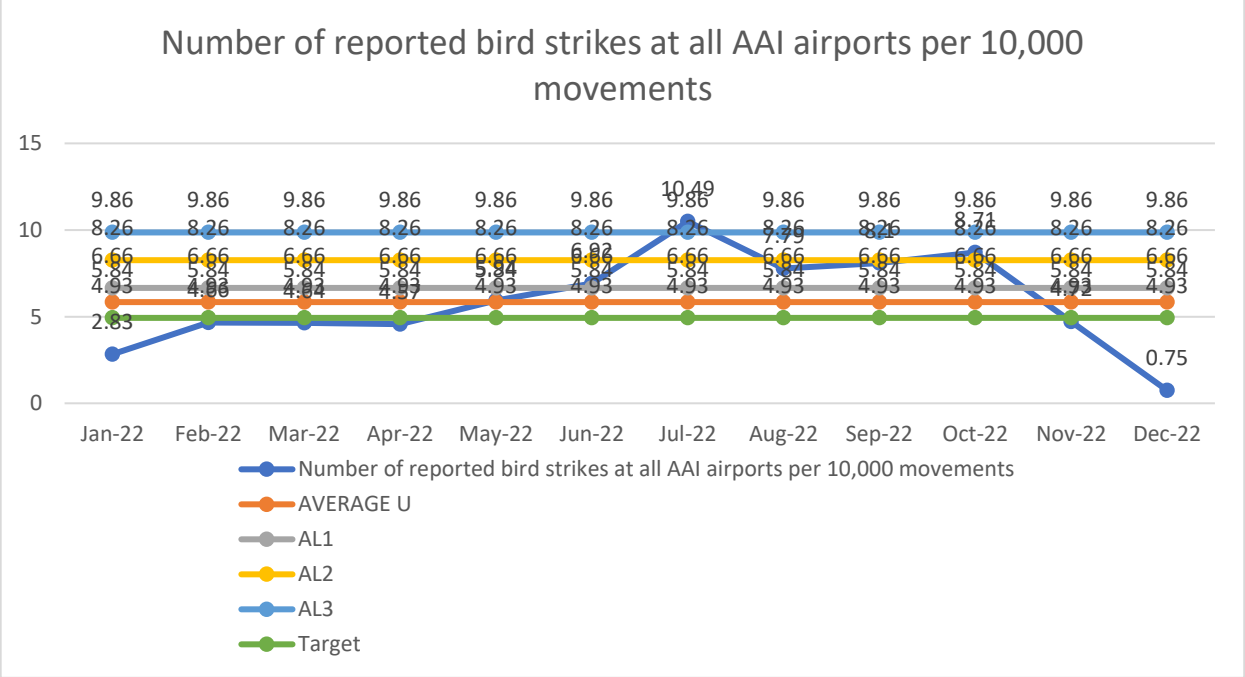


Month	Total Aircraft Movements (Arrival + Departure)	Number of reported bird strikes	Number of reported bird strikes at all AAI airports per 10,000 movements
January	88265	25	2.83
February	81541	38	4.66
March	103445	48	4.64
April	98452	45	4.57
May	106109	63	5.94
June	102564	71	6.92
July	92462	97	10.49
August	95019	74	7.79
September	96310	78	8.1
October	99927	87	8.71
November	99661	47	4.72
December	106355	8	0.75
Total	**1170110**	**681**	**5.82**

Comparison between Number of bird strike per 10,000 approaches during year **2018**, **2019, 2020**, **2021 & 2022** is shown below:



2.4 Safety Performance Target (SPT):



As the target set for **2022** (**4.93**) has not been achieved, it has been decided that the target for **2023** is kept same as was for **2022** i.e. **4.93**.

2.5 Alert Level:

a) **Alert level setting:** -

Alert level for **2023** is as below -

- Alert level 1 - Avg.+1SD = 6.66
- Alert level 2 - Avg.+2SD = 8.26
- Alert level 3 - Avg.+3SD = 9.86

b) **Alert Level Trigger:** -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2023**):

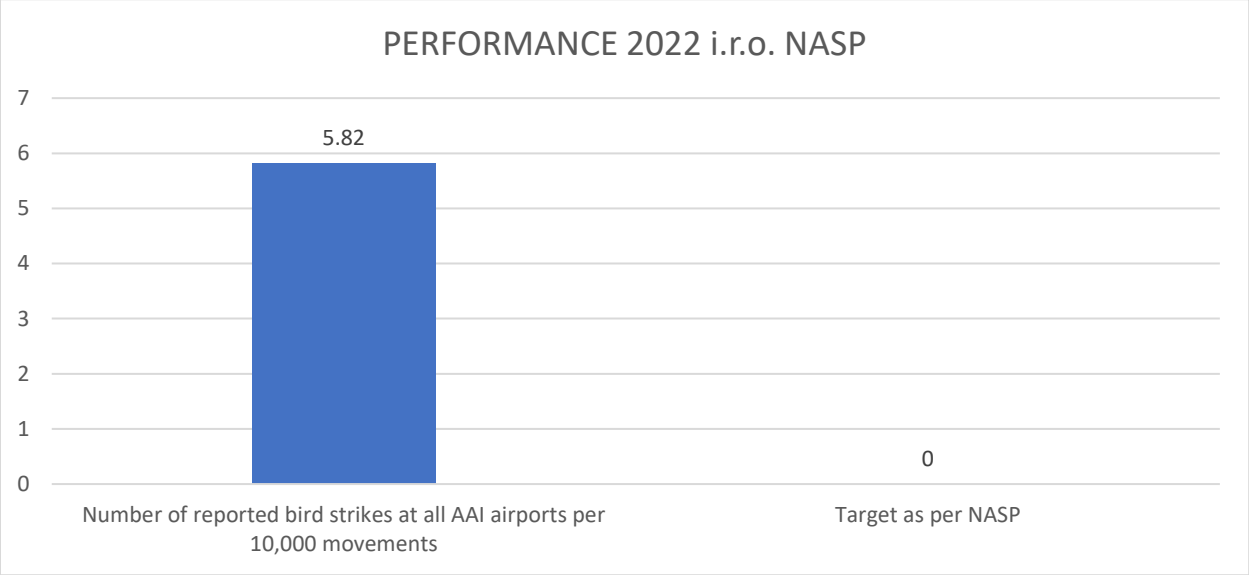
- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert Level 1 line

When an Alert is triggered (potential high-risk or out-of-control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

2.6 Target Achievement at the end of the monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

2.7 Comparison with National Aviation Safety Plan



2.8 Safety Action Plan

<u>Safety Measures Already in Place</u>

Operations Directorate references	Safety Measures already in place
Operational circular 2 of 2014 dated 24th December 2014	Constitution of Airfield Environment Management Committees to check bird strike hazard near the airfields
Operational circular 2 of 2014 dated 3rd February 2015	Primary legislation (Aircraft Rules) preventing dumping of garbage and de-skinning of animals within a 10 km radius around airport

Rule 91, Aircraft Rules 1937	National Bird Control Committee
DGCA Order No. AV-15023/1/2009-AS (NBCC) dated 02.12.2013	Education and outreach programs
Recommendation of NBCC (National Bird Control committee)	Extensive audits and inspections
Recommendation of NBCC (National Bird Control committee)	Wildlife Hazard Management
DGCA Aerodrome Advisory Circular 06 of 2017	Management of Potential Wildlife Hazards at Licensed Aerodromes.

Safety Action Plan

Safety Objective(s)	**Action**
Reduce the number of bird strikes	1. Discuss with local administration of the State Govt. in AEMC meeting on the issues related to reduce Bird strike within vicinity of airport and ensure establishment of Garbage & Slaughter house beyond 10 Km from ARP. 2. Deployment of mechanized Bird/ Animal scaring equipment 3. Grading & Levelling of runway strip

Number of reported wildlife strikes at all AAI airports per 10,000 movements

3.1 Definition

A wildlife strike is a collision between wildlife and an aircraft that is on a take-off or landing roll.

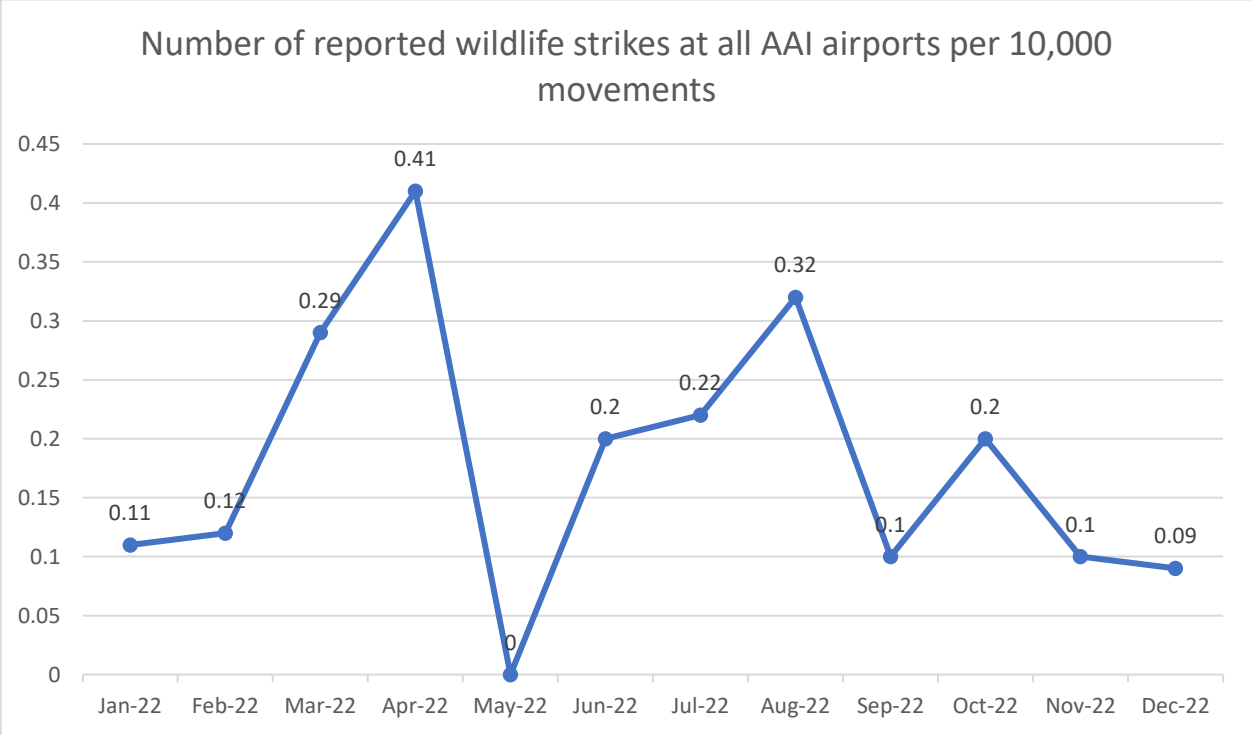
3.2 Source of Data

a) Traffic data is derived from Airport Information Management System (AIMS) database

b) Reports of runway excursion are extracted from the source of AAI control room messages, which include reports of pilots, controllers, WSOs, Airport-in-charges, Airlines, AFTN messages, and Wildlife (Bird/Animal strike forms).

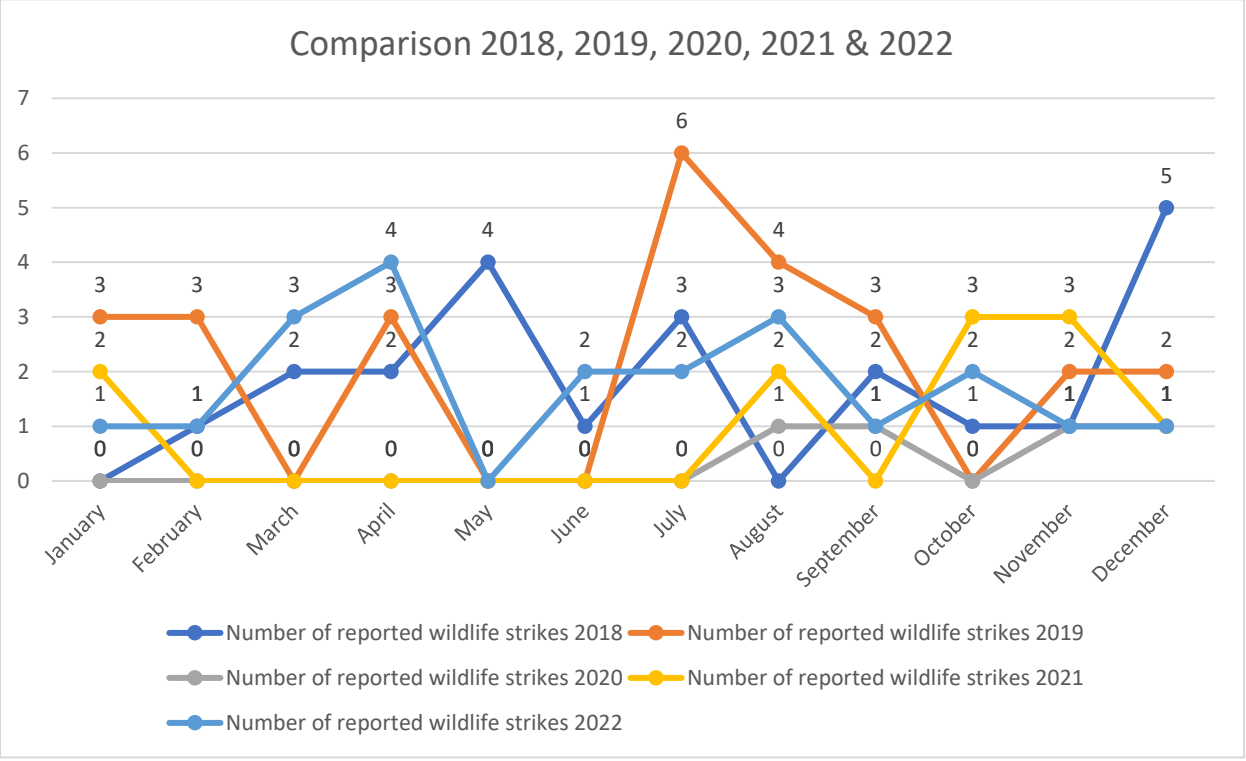
3.3 Data Analysis:

Number of reported wildlife strikes at all AAI airports per 10,000 movements during last year i.e. **2022** and detailed analysis is appended below

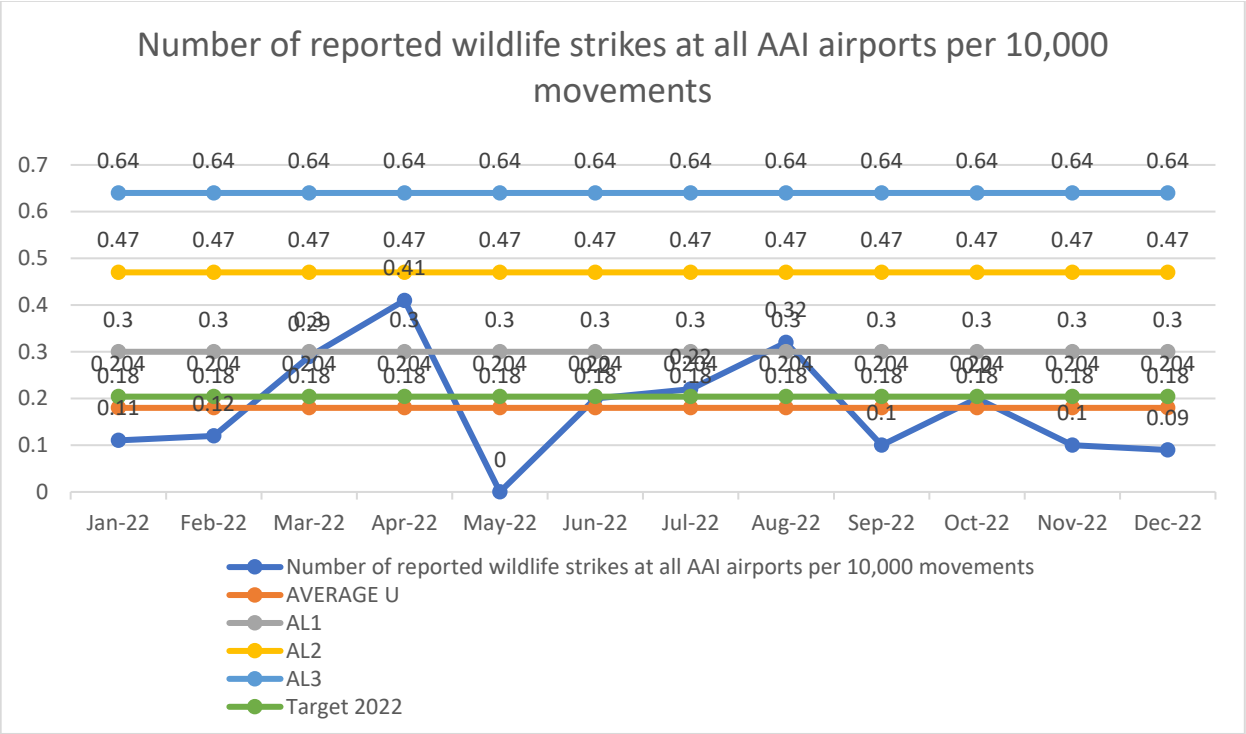


Month	Total Aircraft Movements (Arrival + Departure)	Number of reported wildlife strikes	Number of reported wildlife strikes at all AAI airports per 10,000 movements
January	88265	1	0.11
February	81541	1	0.12
March	103445	3	0.29
April	98452	4	0.41
May	106109	0	0
June	102564	2	0.2
July	92462	2	0.22
August	95019	3	0.32
September	96310	1	0.1
October	99927	2	0.2
November	99661	1	0.1
December	106355	1	0.09
Total	**1170110**	**21**	**0.18**

Comparison between Number of reported wildlife strikes at all AAI airports per 10,000 movements during year **2018**, **2019, 2020 2021** and **2022** is shown below:



3.4 Safety Performance Target (SPT):



As the target set for **2022** (**0.204**) is achieved, it has been decided that the target for **2023** is kept as **0..198** (i.e. after deduction of 3%).

3.5 Alert Level:

a) **Alert level setting:** -

Alert level for **2023** is as below -

- Alert level 1 - Avg.+1SD = 0.29
- Alert level 2 - Avg.+2SD = 0.40
- Alert level 3 - Avg.+3SD = 0.51

b) **Alert Level Trigger:** -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2023**):

- Any single point is above the Alert level 3 line

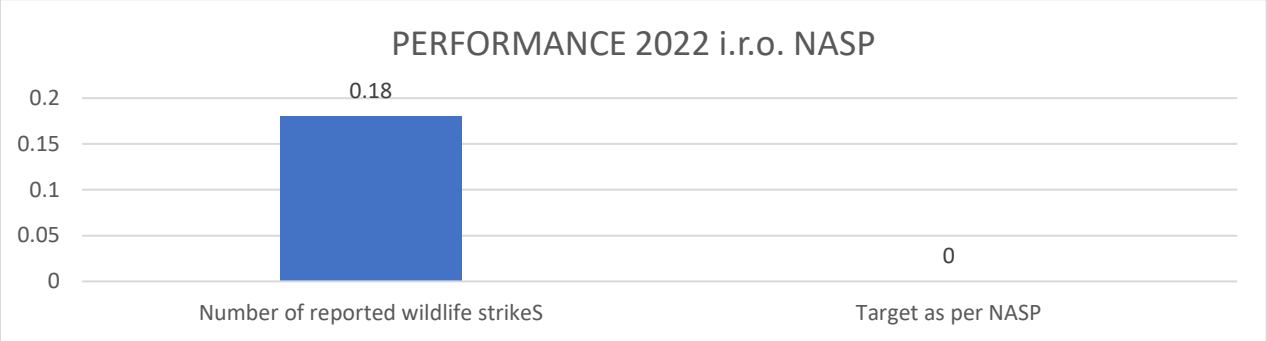
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert Level 1 line

When an Alert is triggered (potential high risk or out-of-control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

3.6 Target Achievement at the end of the monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

3.7 Comparison with National Aviation Safety Plan



3.8 Safety Action Plan

Safety Measures Already in Place

Operations Directorate references	Safety Measures already in place
Operational circular 2 of 2014 dated 24th December 2014	Constitution of Airfield Environment Management Committees
Operational circular 2 of 2014 dated 3rd February 2015	Perimeter wall / Fencing check
Rule 91, Aircraft Rules 1937	Primary legislation (Aircraft Rules) preventing dumping of garbage and de-skinning of animals within a 10 km radius around airport

DGCA Order No. AV-15023/1/2009-AS (NBCC) dated 02.12.2013	Wildlife Hazard Management
Recommendation of NBCC (National Bird Control committee)	Education and outreach programs
DGCA Aerodrome Advisory Circular 06 of 2017	Management of Potential Wildlife Hazards at Licensed Aerodromes.

Safety Action Plan

Safety Objective(s)	**Action**
Reduce the number of wildlife strikes (ground)	1. Deployment of mechanized Bird/ Animal scaring equipment 2. Placement of cages to trap the wild life and agreement with State Forest Department for removal of same. 3. Grading & Levelling of runway strip.

Number of runway incursions by wildlife at all AAI airports per 10,000 movements

4.1. Scope:

Runway Incursion by wildlife means any occurrence at an aerodrome involving the incorrect presence of wildlife on the protected area of a surface designated for the landing and take-off of aircraft.

4.2 Source of Data:

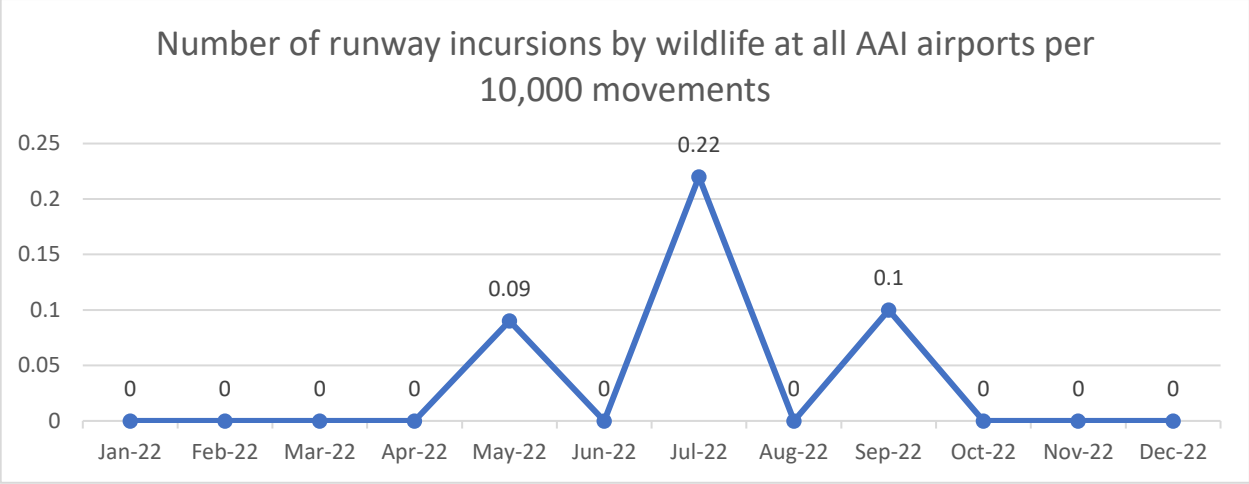
a) Traffic data will be derived from AIMS data base.

b) For total number of arrivals and departures, only those airports would be considered where ATC is provided by AAI.

c) Reports of Runway Incursions by wildlife are received from sources such as pilots, controllers, Airlines, ATS Incharge, DGCA, aerodrome operators, Air Safety Reports, AAI Control Room messages, AFTN messages. Only those RIs will be accounted which have been validated either by ATM Directorate of AAI or Runway Safety Team.

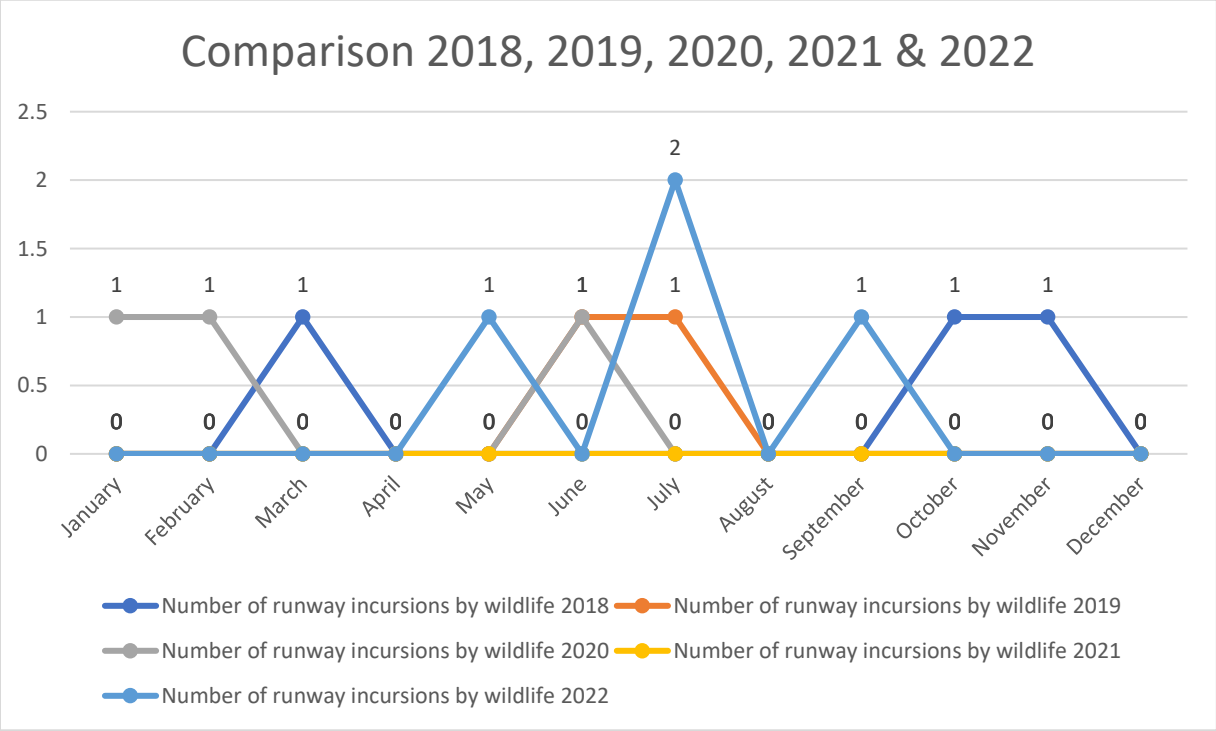
4.3 Analysis of Data:

Number of runway incursions by wildlife per 10,000 movements during last year i.e. **2022** and detailed analysis is appended below

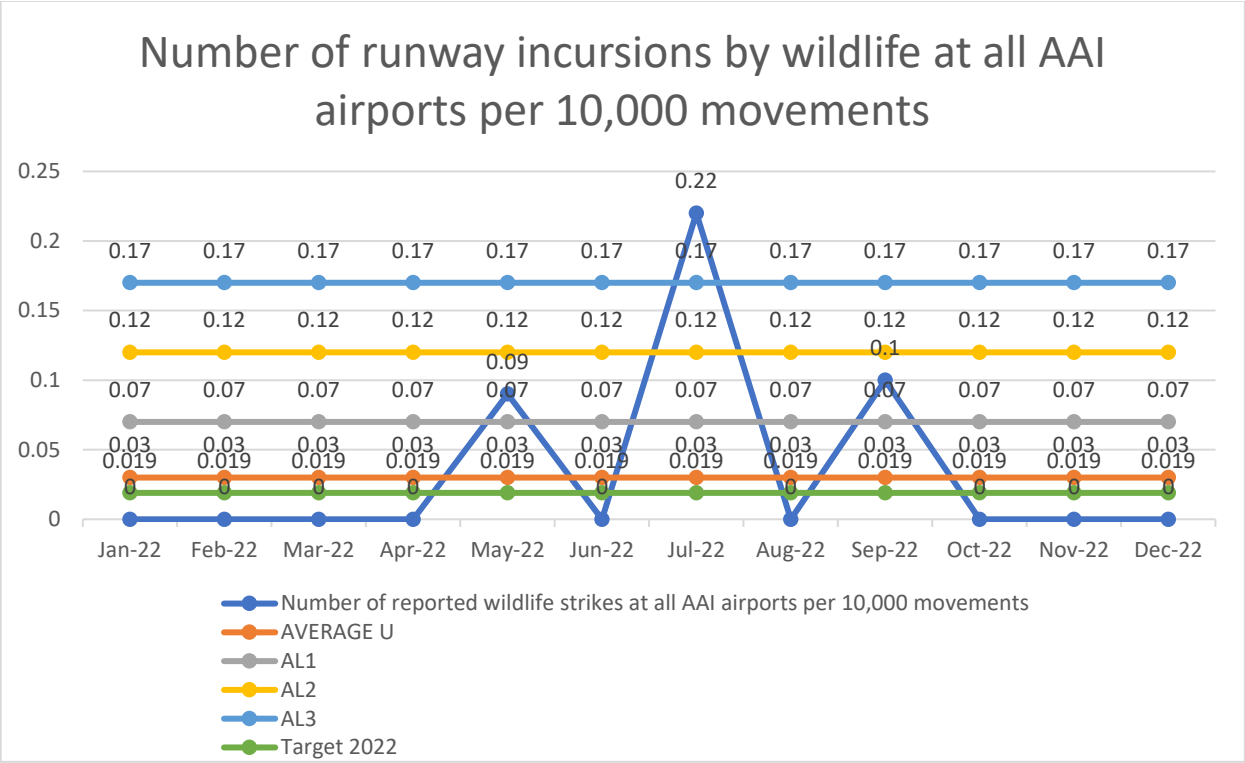


Month	Total Aircraft Movements (Arrival + Departure)	Number of runway incursions by wildlife	Number of runway incursions by wildlife at all AAI airports per 10,000 movements
January	88265	0	0
February	81541	0	0
March	103445	0	0
April	98452	0	0
May	106109	1	0.09
June	102564	0	0
July	92462	2	0.22
August	95019	0	0
September	96310	1	0.1
October	99927	0	0
November	99661	0	0
December	106355	0	0
Total	**1170110**	**4**	**0.03**

Comparison between Number of runway incursions by wildlife per 10,000 movements during year **2018**, **2019, 2020**, **2021** and **2022** is shown below:



4.4 Safety Performance Target (SPT):



As the target set for **2022** (**0.019**) is not achieved, it has been decided that the target for **2023** is kept same as that of 2022 i.e. **0.019.**

4.5 Alert Level:

a) **Alert level setting:** -

Alert level for **2023** is as below -

- Alert level 1 - Avg.+1SD = 0.07
- Alert level 2 - Avg.+2SD = 0.12
- Alert level 3 - Avg.+3SD = 0.17

b) **Alert Level Trigger:** -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2023**):

- Any single point is above the Alert level 3 line

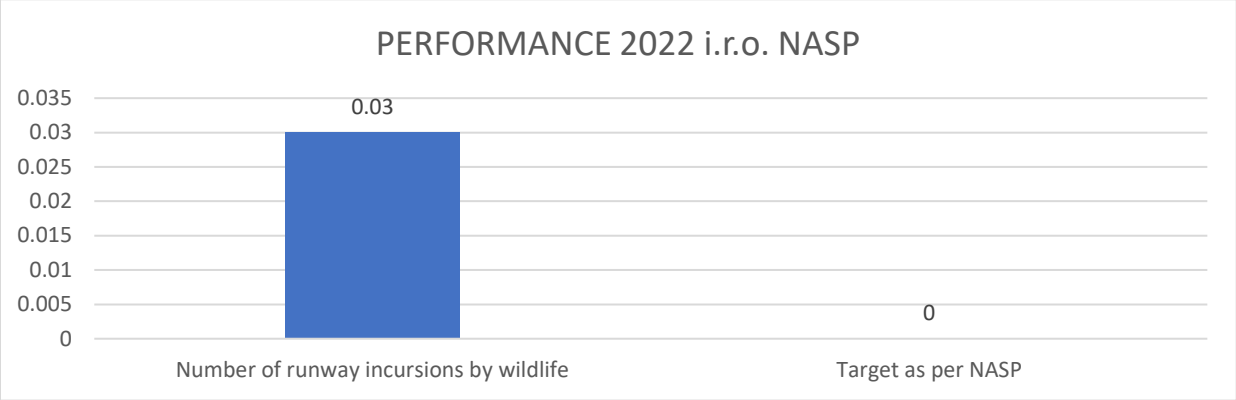
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert Level 1 line

When an Alert is triggered (potential high risk or out-of-control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

4.6 Target Achievement at the end of the monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

4.7 Comparison with National Aviation Safety Plan



4.8 Safety Action Plan

Safety Measures Already in Place

Operations Directorate references	Safety Measures already in place
Operational circular 2 of 2014 dated 3rd February 2015	Perimeter wall / Fencing check
Rule 91, Aircraft Rules 1937	Primary legislation (Aircraft Rules) preventing dumping of garbage and de-skinning of animals within a 10 km radius around airport

DGCA Aerodrome Advisory Circular 06 of 2017	Wildlife Hazard Management
DGCA Aerodrome Advisory Circular 01 of 2012	Management of Potential Wildlife Hazards at Licensed Aerodromes.

Safety Action Plan

Safety Objective(s)	**Action**
Reduce the number of Runway incursions by wildlife.	1. Implementation of suitable plan for collection and disposal of Garbage from airside. 2. Proper Fencing and perimeter wall all around the airport. 3. Placement of cages to trap the wild life and agreement with State Forest Department for removal of same.

Number of ramp incidents that result in damage to aircraft, vehicles or loss of life/ serious injury to personnel per 10,00,000 movements

5.1 Definition

Ramp events are those that occur during, or as a result of, ground handling operations. Examples include loading, pushback, refuelling, etc. The most common types of ramp accidents and serious incidents involve collisions with other aircraft, ground objects, and with vehicle/equipment operations.

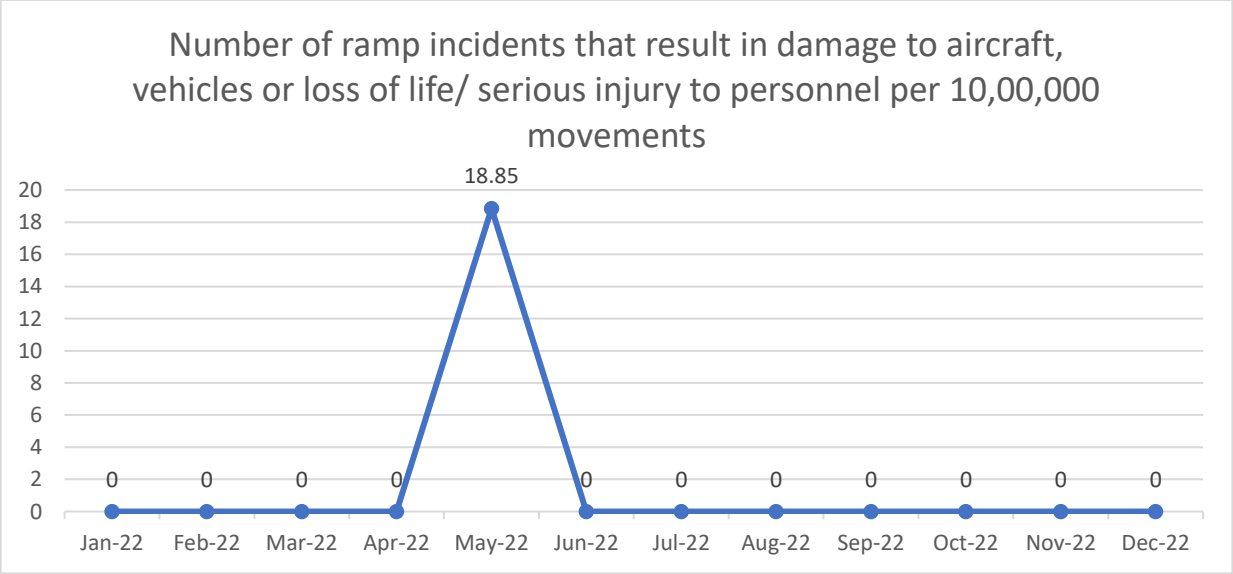
5.2 Source of Data

a) Traffic data is derived from Airport Information Management System (AIMS) database

b) Reports of ramp incidents that result in damage to aircraft, vehicles or loss of life/ serious injury to personnel are extracted from the source of AAI control room messages, which includes reports of pilots, controllers, WSOs, Airport-in-charges, Airlines, Ops Control room and AFTN messages.

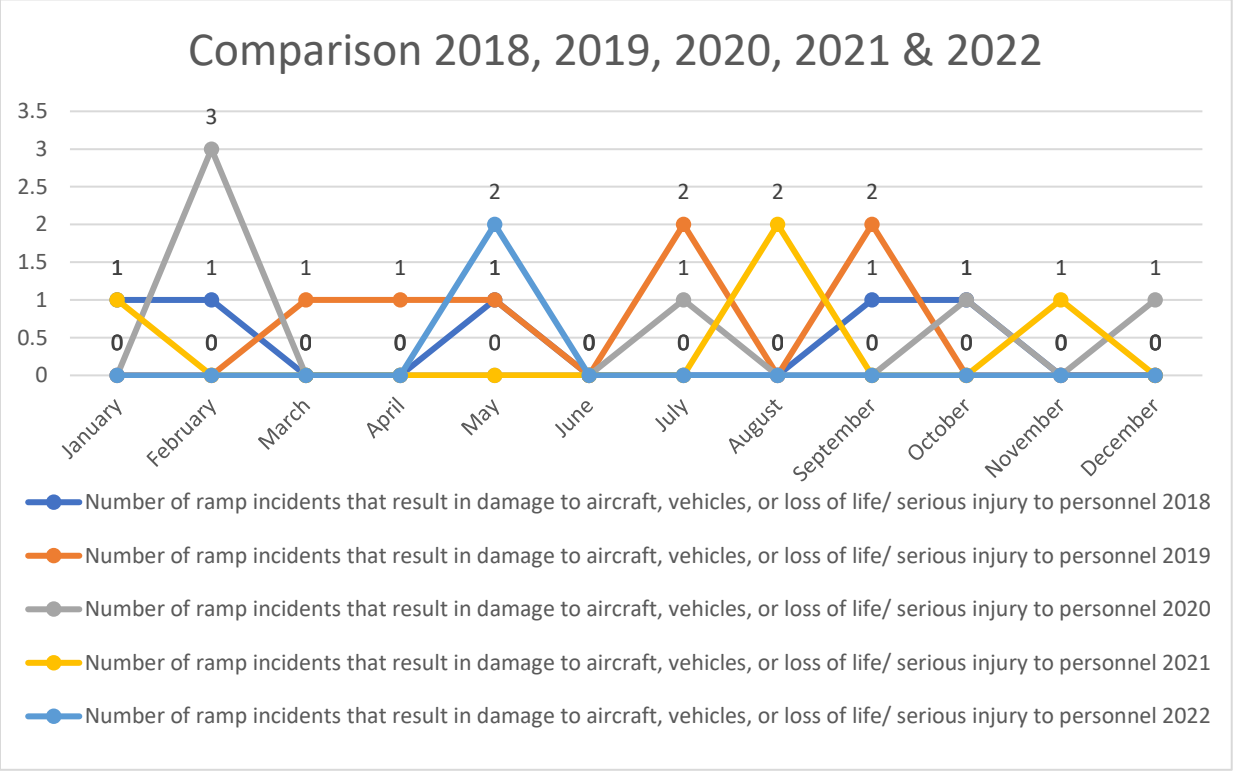
5.3 Data Analysis:

Number of ramp incidents that result in damage to aircraft, vehicles or loss of life/ serious injury to personnel per 10,00,000 movements during last year i.e. **2022** and detailed analysis is appended below

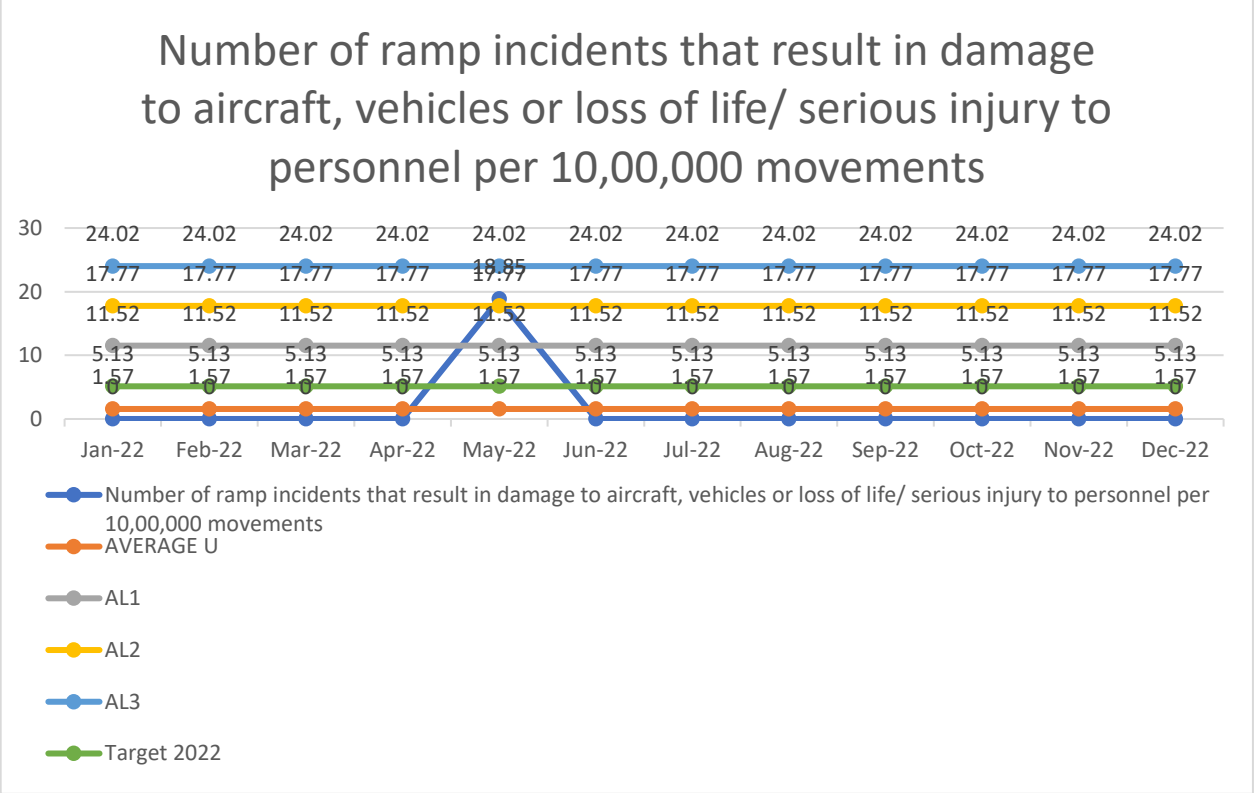


Month	Total Aircraft Movements (Arrival + Departure)	Number of ramp incidents that result in damage to aircraft, vehicles, or loss of life/ serious injury to personnel	Number of ramp incidents that result in damage to aircraft, vehicles or loss of life/ serious injury to personnel per 10,00,000 movements
January	88265	0	0
February	81541	0	0
March	103445	0	0
April	98452	0	0
May	106109	2	18.85
June	102564	0	0
July	92462	0	0
August	95019	0	0
September	96310	0	0
October	99927	0	0
November	99661	0	0
December	106355	0	0
Total	**1170110**	**2**	**1.71**

Comparison between Number of ramp incidents that result in damage to aircraft, vehicles or loss of life/ serious injury to personnel per 10,00,000 movements during year **2018**, **2019, 2020, 2021** and **2022** is shown below:



5.4 Safety Performance Target (SPT):



As the target set for **2022** (**5.13**) has been achieved, it has been decided that the target for **2023** is as **4.976** (i.e. after 3% reduction).

5.5 Alert Level:

a) **Alert level setting:** -

Alert level for **2023** is as below -

- Alert level 1 - Avg.+1SD = **6.78**
- Alert level 2 - Avg.+2SD = **11.99**
- Alert level 3 - Avg.+3SD = **17.2**

b) **Alert Level Trigger:** -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2023**):

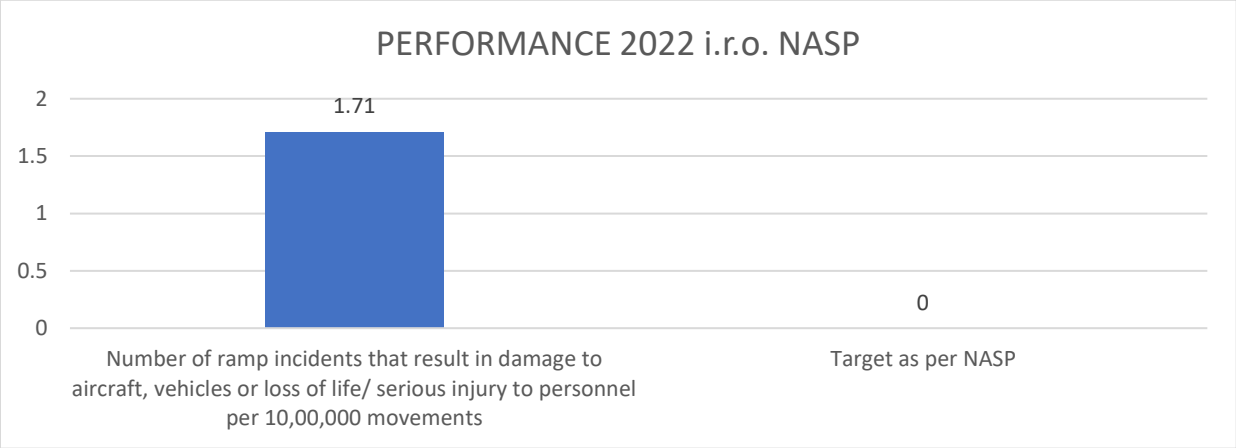
- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert Level 1 line

When an Alert is triggered (potential high risk or out-of-control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

5.6 Target Achievement at the end of the monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

5.7 Comparison with National Aviation Safety Plan



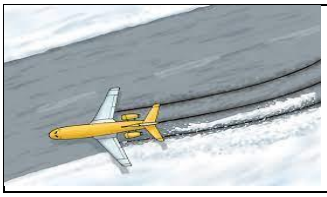
5.8 Safety Action Plan

<u>Safety Measures Already in Place</u>

Operations Directorate references	Safety Measures already in place
Operational circular 3 of 2015	Training of airfield personnel in Apron Safety Regulations. Issue of "Airfield Driving Permit" and control on Vehicles permit.
Operational circular 3 of 2022	Removal of Unserviceable/ Junk equipment from airport premises.
Operational Circular 05 of 2020	Penalty on violators not following apron rules

Safety Action Plan

Safety Objective(s)	Action
To minimize the No. of RAMP incidents	1. Proper training to all the drivers involved in Airside Operations. 2. Removal of Unserviceable/ junk equipment from the airport. 3. Proper locking system of all the equipment near the parked aircraft. 4. Marking of Safety Line and following the SOP for RAMP servicing. 5. Designated vehicular lane for movement of ground support vehicles.



Number of 'near' runway excursions per 10,000 approaches

6.1 Definition

'Near' Runway Excursion is an occurrence where aircraft is not able to maintain the directional stability on the runway which may result in damage to the runway edge/end lights. However, aircraft continues to remain on the paved surface.

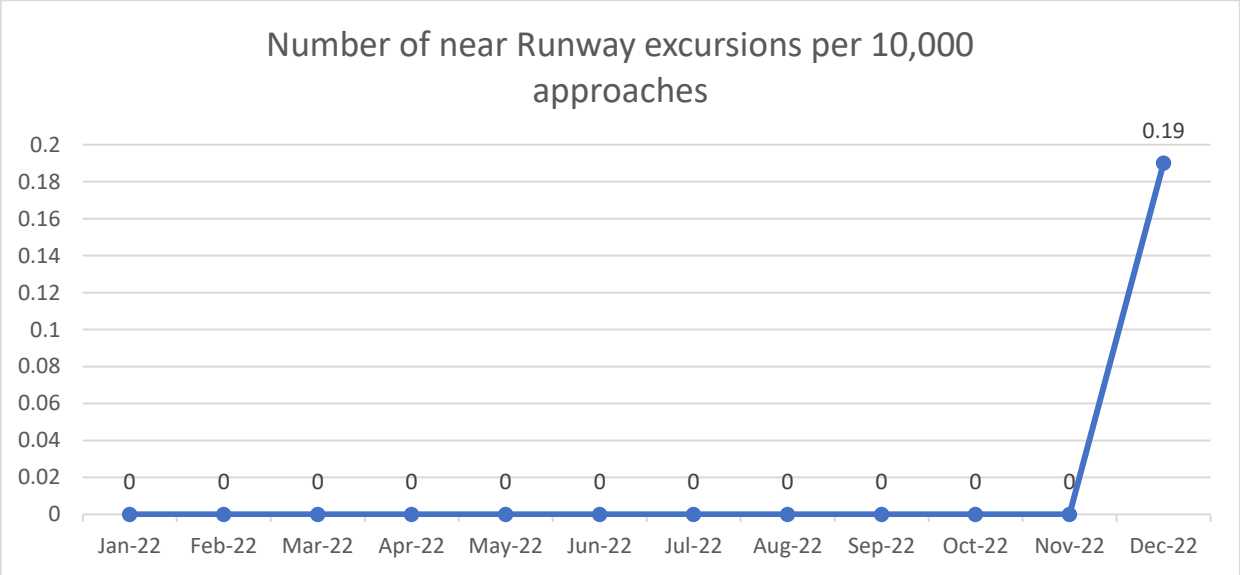
6.2 Source of Data

c) Traffic data is derived from Airport Information Management System (AIMS) database

d) Reports of 'Near' Runway Excursion are extracted from the source of AAI control room messages, which includes reports of pilots, controllers, WSOs, Airport-in-charges, Airlines, Ops Control room and AFTN messages.

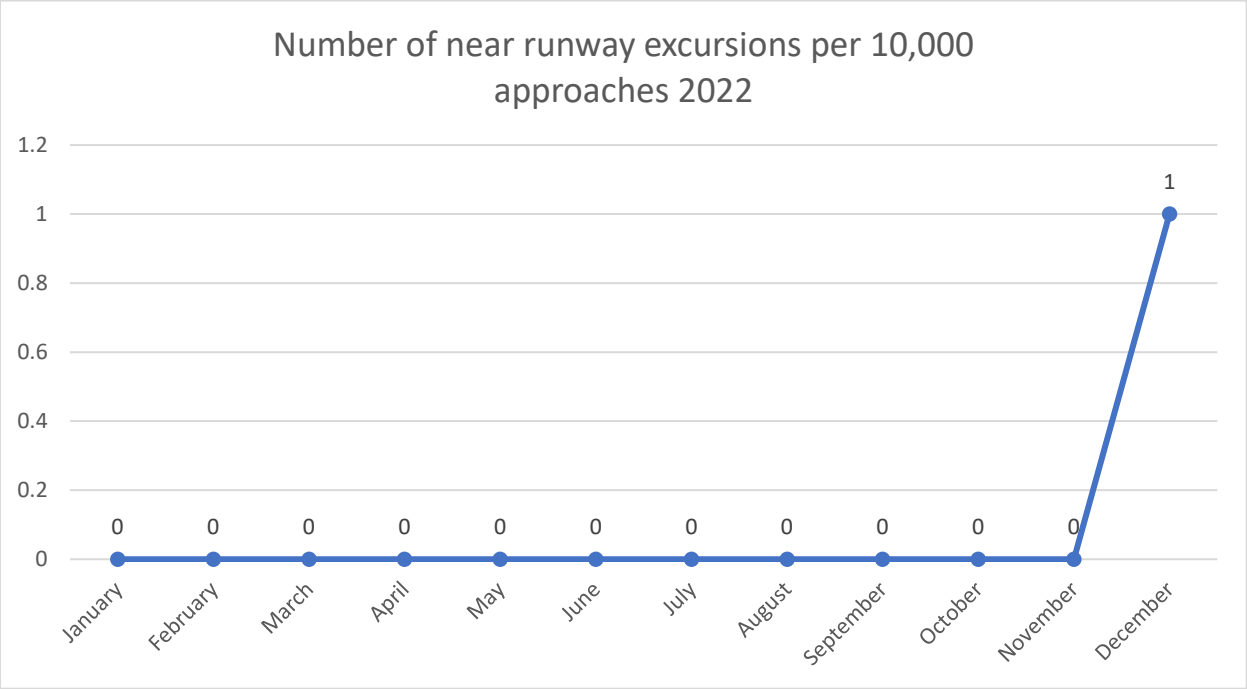
6.3 Data Analysis:

Number of 'Near' Runway Excursion per 10,000 approaches during last year i.e. **2022** and detailed analysis is appended below

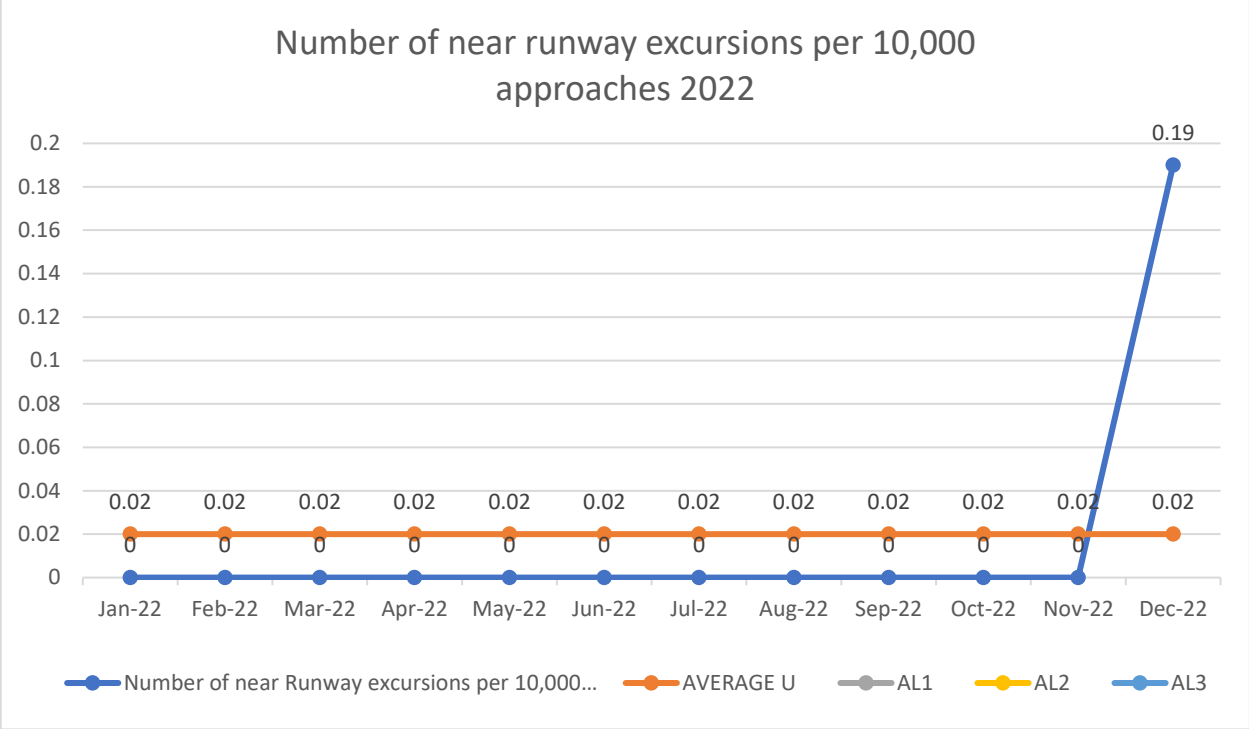


Month	Total Approaches	Number of near runway excursions	Number of near Runway excursions per 10,000 approaches
January	44133	0	0
February	40771	0	0
March	51723	0	0
April	49226	0	0
May	53055	0	0
June	51282	0	0
July	46231	0	0
August	47510	0	0
September	48155	0	0
October	49964	0	0
November	49831	0	0
December	53178	1	0.19
Total	**585055**	**1**	**0.02**

Month wise Number of near Runway excursions during year **2022** is shown below:



6.4 Safety Performance Target (SPT):



Performance towards SPI Number of near Runway excursions per 10,000 approaches during **2022 is 0.02.** Accordingly, it has been decided that the target for **2023** is set as **0.019** (i.e. after 3% reduction).

6.5 Alert Level:

c) **Alert level setting:** -

Alert level for **2023** is as below -

- Alert level 1 - Avg.+1SD = 0.07
- Alert level 2 - Avg.+2SD = 0.12
- Alert level 3 - Avg.+3SD = 0.17

d) **Alert Level Trigger:** -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2023**):

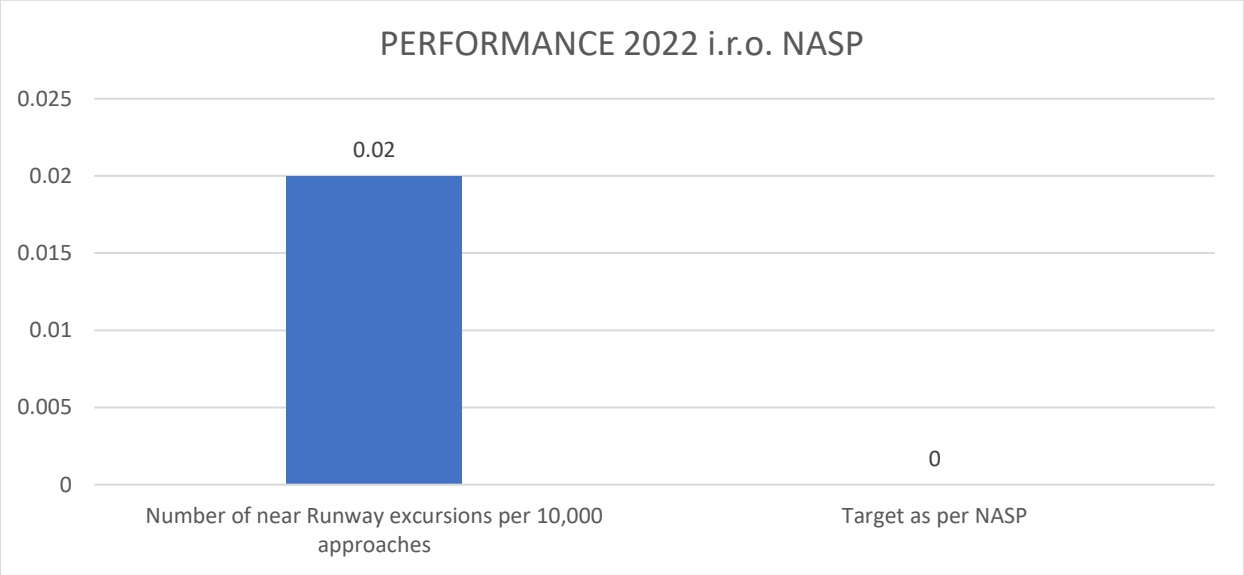
- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert Level 1 line

When an Alert is triggered (potential high risk or out-of-control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

6.6 Target Achievement at the end of the monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

6.7 Comparison with National Aviation Safety Plan



6.8 Safety Action Plan

<u>Safety Measures Already in Place</u>

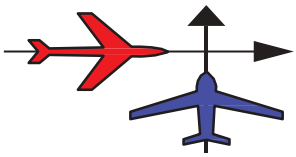
Operations Directorate references	Safety Measures already in place
DGCA Aerodrome Advisory Circular 01 of 2019	Assessment and Measurement of Runway Surface Friction Characteristics at Aerodromes.
DGCA Aerodrome Advisory Circular 01 of 2021	Runway Surface Condition Reporting format using Standard Runway Condition Report

Operational Circular 05 of 2011	Procedure of inspection runways,
Operational Circular 05 of 2019	Pre-monsoon checks in Ops area at airports
Operational Circular 09 of 2019	Maintenance of Airside Facilities at airports.
Operational Circular 05 of 2021	Frangible object (AGL) are installed

Safety Action Plan

Safety Objective(s)	**Action**
Reduce the number of Near Runway Excursions.	1. Standard RWY markings and lights with proper maintenance schedule. 2. Maintenance and corrective action for RWY Rubber Removal. 3. Ensure proper slope on runway.

SAFETY PERFORMANCE INDICATORS (SPIs) FOR AIR TRAFFIC SERVICES (ATS)



Number of risk-bearing AIRPROX (Category A & B as per Air Safety Circular 05 of 2009) per 10,00,000 flights over Indian airspace

1.1 Definition

AIRPROX. The code word used in an air traffic incident report to designate aircraft proximity.

Aircraft proximity. A situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised.

Aircraft proximity is classified as follows:

Cat A- Risk of collision. The risk classification of an aircraft proximity in which serious risk of collision has existed.
Cat B- Safety not assured. The risk classification of an aircraft proximity in which the safety of the aircraft may have been compromised.
Cat C- No risk of collision. The risk classification of an aircraft proximity in which no risk of collision has existed
Cat D- Risk not determined. The risk classification of an aircraft proximity in which insufficient information was available to determine the risk involved, or inconclusive or conflicting evidence precluded such determination.

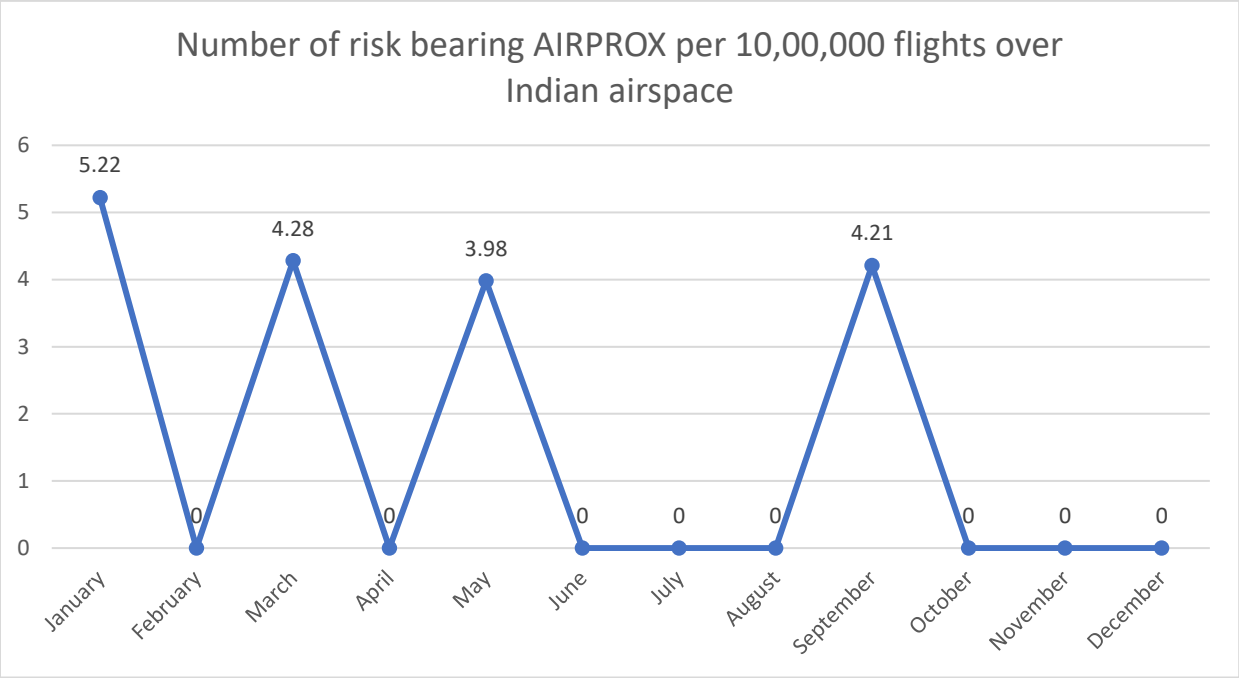
1.2 Source of Data

a) Traffic data is derived from Airport Information Management System (AIMS) database

b) Reports of risk-bearing AIRPROX are extracted from the source of AAI control room messages, which includes reports of pilots, controllers, WSOs, Airport-in-charges, Airlines, and AFTN messages.

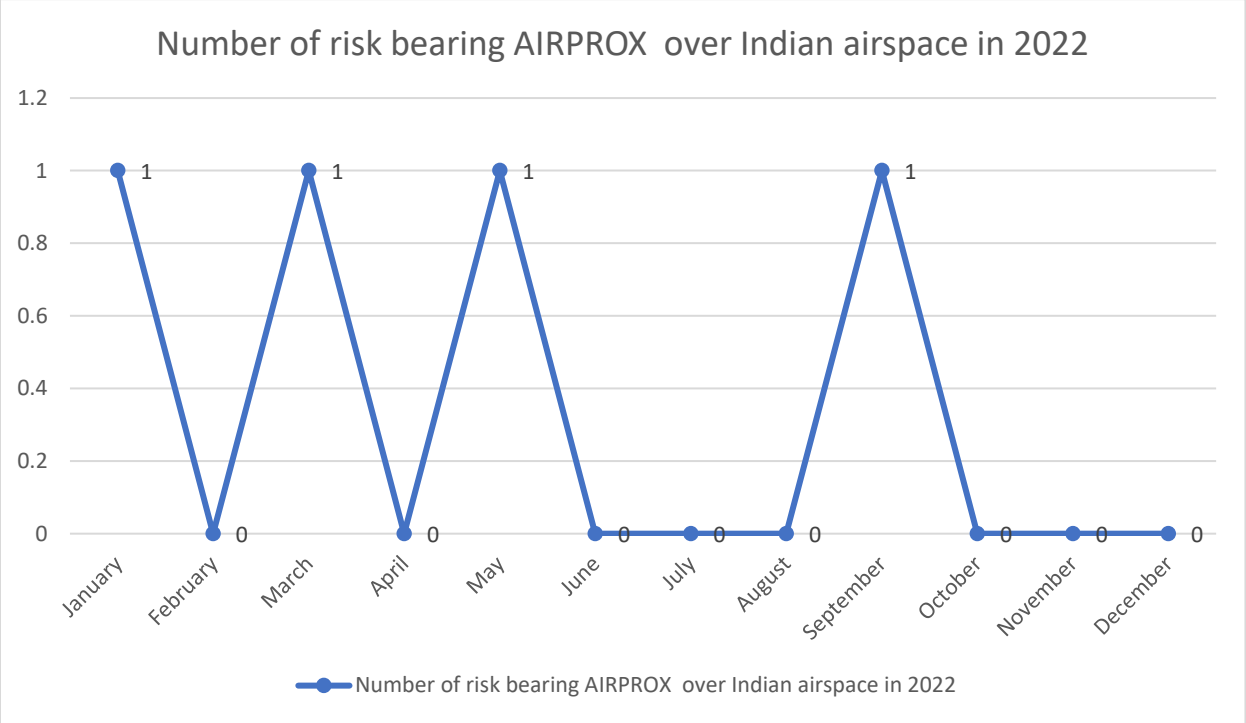
1.3 Data Analysis:

Number of reported risk-bearing AIRPROX per 10,00,000 flights during last year i.e. **2022** and detailed analysis is appended below:

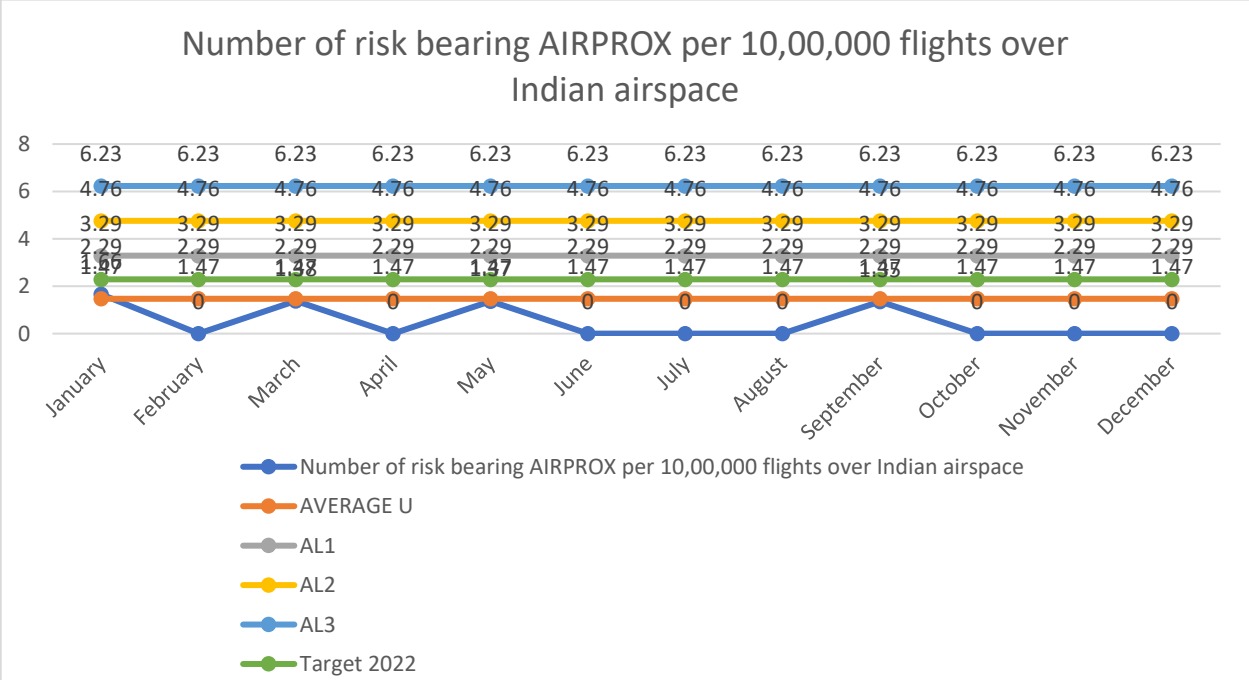


Month	Total Aircraft Movements (Arrival+ Departure + Overflying)	Number of risk-bearing AIRPROX (Category A & B as per Air Safety Circular 05 of 2009)	Number of risk bearing AIRPROX per 10,00,000 flights over Indian airspace
January	191432	1	5.22
February	175748	0	0
March	233893	1	4.28
April	239194	0	0
May	251374	1	3.98
June	243803	0	0
July	233112	0	0
August	238956	0	0
September	237726	1	4.21
October	253888	0	0
November	251747	0	0
December	267210	0	0
Total	**2818083**	**4**	**1.42**

Month wise Number of risk bearing AIRPROX over Indian airspace in 2022 is shown below:



1.4 Safety Performance Target (SPT):



As the target set for **2022** (**2.29**) has been achieved, it has been decided that the target for **2023** is set as **2.22** (i.e. reduction of 3%)

1.5 Alert Level:

a) Alert level setting: -

Alert level for **2023** is as below -

- Alert level 1 - 3.57
- Alert level 2 - 5.67
- Alert level 3 - 7.77

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2023**):

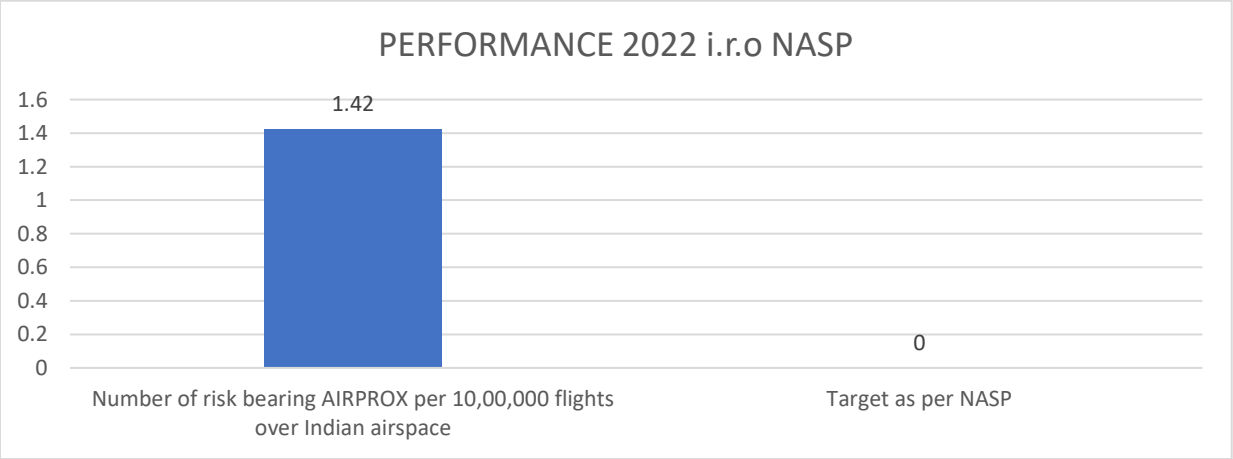
- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert Level 1 line

When an Alert is triggered (potential high risk or out-of-control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

1.6 Target Achievement at the end of the monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

1.7 Comparison with National Aviation Safety Plan

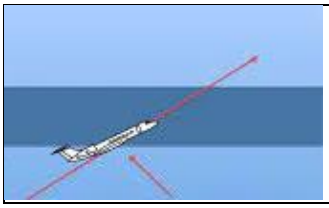


1.8 Safety Action Plan

Safety Measures Already in Place
1. All Airprox Incidents were examined for steps taken to minimize the incidents. 2. ATS In-charges were instructed, as appropriate for follow-up actions and measures to minimize the cause to prevent future incidents. 3. Regular meetings were held with DGCA on the safety concerns arising out of the incidents and finalization of safety recommendations to prevent future incidents. 4. Corrective action plans were implemented for the training of controllers and any systemic issues identified in the investigation of incidents. 5. The Manual of Air Traffic Services (MATS) - Part 1 is published for the use and guidance of air traffic controllers to provide processes, procedures and instructions that are essential for the provision of safe and efficient air traffic services within the jurisdiction of AAI and at airports where air traffic services are provided by AAI. This manual is published in conformance to Organizational Requirements and compliance with National Regulations and Standards & Recommended practices of ICAO ANNEX 11, PANS - ATM DOC 4444 and other ICAO documents relevant to the provisions of Air Traffic Services that are uniformly applicable to all the airports. 6. Air Traffic Management Circulars (ATMCs) are issued as appropriate to address safety concerns and introduction of new procedures in the ATS System. 7. Airport Information Management System (AIMS) has been established for reporting of serious incidents/ incidents and reportable occurrences. Controllers are encouraged to report any safety issues without fear of punitive action. 8. Yearly refresher training sessions are conducted at all the stations on ATM procedures, separation standards, operational procedure, handling of emergency situations and situational awareness etc. 9. Yearly proficiency checks are conducted for each controller for all the ratings held to assess their proficiency. 10. An adequate pool of Instructors and Examiners is maintained at stations to train the ATCOs, impart training as required and carry out proficiency checks. 11. Safety workshops were conducted at Delhi and Chennai respectively on reporting of incidents, just culture, case studies and analysis of incidents for factual reporting and minimizing safety occurrences. 12. Half yearly VC meetings were conducted to share identified safety issues, causal factors with the GM ATMs (NR/WR/SR/ER/NER) or their representatives/ ATS In-charges/ SQMS In-charges and Training In-charges of major stations. 13. Quarterly VC Meetings were convened to discuss steps to minimize safety occurrences and share safety issues of the airports with the GM ATMs of airports/ SQMS In-charges and Training In-charges of major stations. 14. Evidence Based Training (EBT) on controller proficiency related common causal/ contributory factors identified through investigation of airprox/ serious incidents/ incidents/ internal investigations were conducted for the surveillance controllers at all the stations having ATC simulators.

Safety Action Plan

Safety objectives	Action
Reduce the Number of risk bearing AIRPROX per 10,00,000 flights over Indian airspace.	1. All Airprox Incidents will be examined for steps taken to minimize the incidents. 2. ATS In-charges will be advised, as appropriate for follow-up actions and measures to minimize the cause to prevent future incidents. 3. Regular meetings will be held with DGCA on the safety concerns arising out of the incidents and finalization of safety recommendations to prevent future incidents. 4. Corrective action plan will be implemented for the training of controllers and any systemic issues identified in the investigation of incidents. 5. Air Traffic Management Circulars (ATMCs) will be issued as appropriate to address safety concerns and introduction of new procedures in the ATS System. 6. Reporting of occurrences and incidents will be monitored through Airport Information Management System (AIMS). Controllers will be encouraged to report any safety issues without fear of punitive action. 7. Yearly refresher training sessions will be conducted at all the stations on ATM procedures, separation standards, operational procedure, handling of emergency situations and situational awareness etc. 8. Yearly proficiency checks will be conducted for each controller for all the ratings held to assess their proficiency. 9. Instructors and Examiners will train the ATCOs and impart training as required, and carry out proficiency checks. 10. Safety workshops will be conducted at various stations on prevention of incidents, reporting of incidents, case studies, analysis of incidents for factual reporting and minimizing safety occurrences. 11. Half yearly VC meetings will be convened to share identified safety issues, causal factors with the Regional GM ATMs (NR/WR/SR/ER/NER)/ ATS In-charges/ SQMS In-charges and Training In-charges of major stations. 12. Quarterly VC Meetings will be convened to discuss steps to minimize safety occurrences and share safety issues of the airports with the GM ATMs of airports/ SQMS In-charges and Training In-charges of major stations. 13. Performance Monitoring and Safety Review of ATS systems at various ATS stations will be conducted as per the provisions of ATMC No. 5 of 2019. 14. Evidence Based Training (EBT) on controller proficiency related common causal/ contributory factors identified through investigation of airprox/ serious incidents/ incidents/ internal investigations will be conducted for the surveillance controllers at all the stations having ATC simulators.



Number of aircraft not or incorrectly complying with ATC instructions (including level bust) per 10,00,000 flights over Indian airspace

2.1 Scope

A level bust is defined as an unauthorized deviation from the ATC assigned altitude (or flight level) equal to or greater than 300 FT in Non-RVSM airspace and 200 ft in RVSM airspace. Occurrences in which ATC gave the aircraft clearance for an incorrect altitude are not included.

All such Level Busts which occurred in AAI-administered airspace will be considered. However, this will not include those Level Busts which were caused by the ANSPs other than AAI. This also does not include those Level Busts caused by Military ATC Units e.g. IAF and Indian Navy.

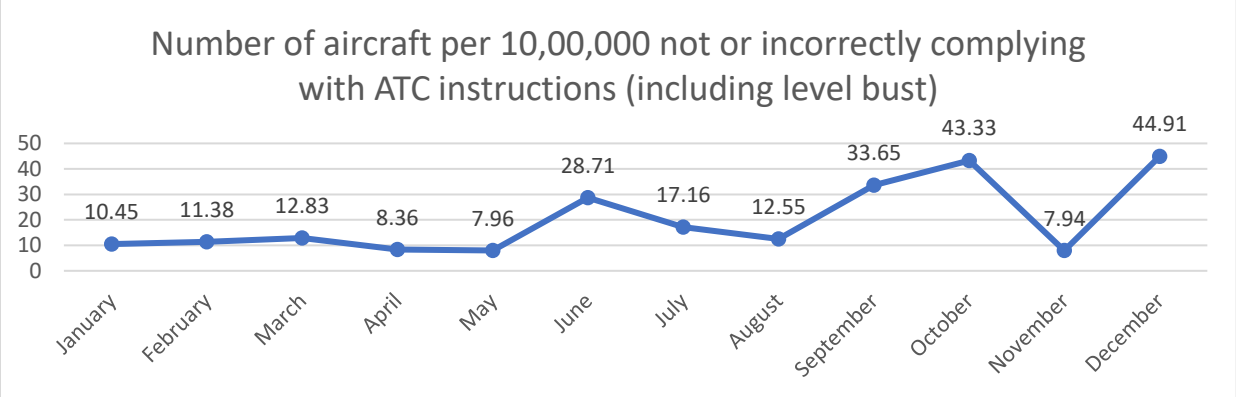
2.2 Source of Data

a) Traffic data is derived from Airport Information Management System (AIMS) Data Base.

b) Reports of bird strikes are extracted from the source of AAI control room messages, which include Reports of pilots, controllers, WSOs, Airport-in-charges, Airlines, and AFTN messages.

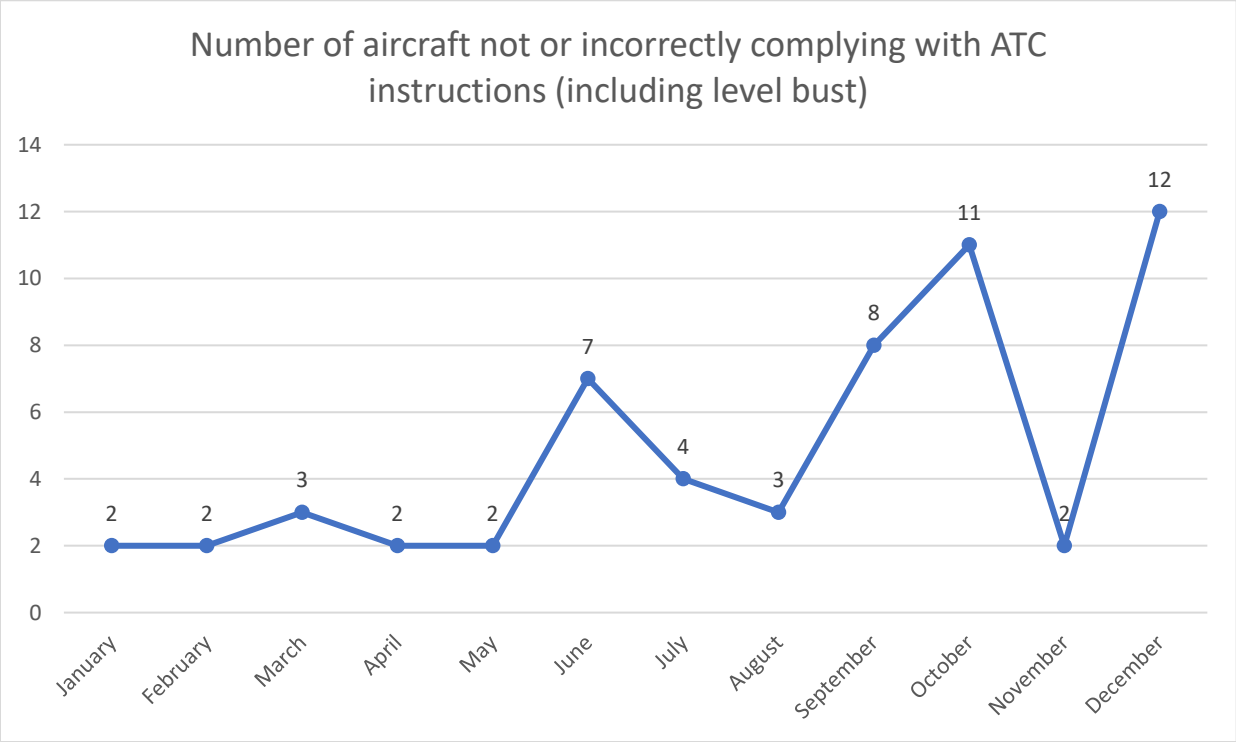
2.3 Data Analysis

Number of aircraft per 10,00,000 not or incorrectly complying with ATC instructions (including level bust) during last year i.e. **2021** and detailed analysis is appended below

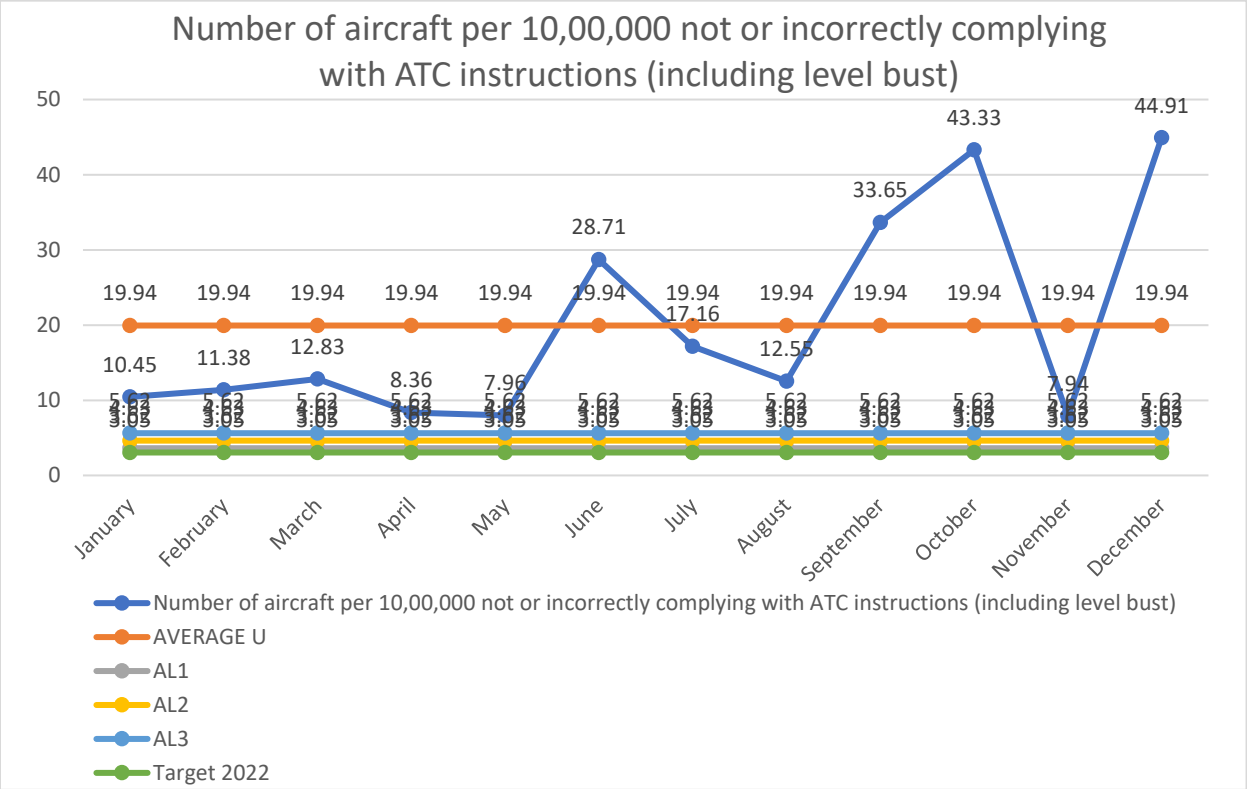


Month	Total Aircraft Movements (Arrival+ Departure + Overflying)	Number of aircraft not or incorrectly complying with ATC instructions (including level bust)	Number of aircraft per 10,00,000 not or incorrectly complying with ATC instructions (including level bust)
January	191432	2	10.45
February	175748	2	11.38
March	233893	3	12.83
April	239194	2	8.36
May	251374	2	7.96
June	243803	7	28.71
July	233112	4	17.16
August	238956	3	12.55
September	237726	8	33.65
October	253888	11	43.33
November	251747	2	7.94
December	267210	12	44.91
Total	**2818083**	**58**	**20.58**

Month wise Number of aircraft not or incorrectly complying with ATC instructions (including level bust) is shown below:



2.4 Safety Performance Target (SPT)



As the target set for **2022** (**3.05**) is not achieved, it has been decided that the target for **2023** is set the same as that of **2022** i.e. **3.05**.

2.5 Alert Level

a) Alert level setting: -

Alert levels for **2023** are set as-

Alert level 1 - 3.64
Alert level 2 - 4.63
Alert level 3 - 5.62

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2023**):

- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line

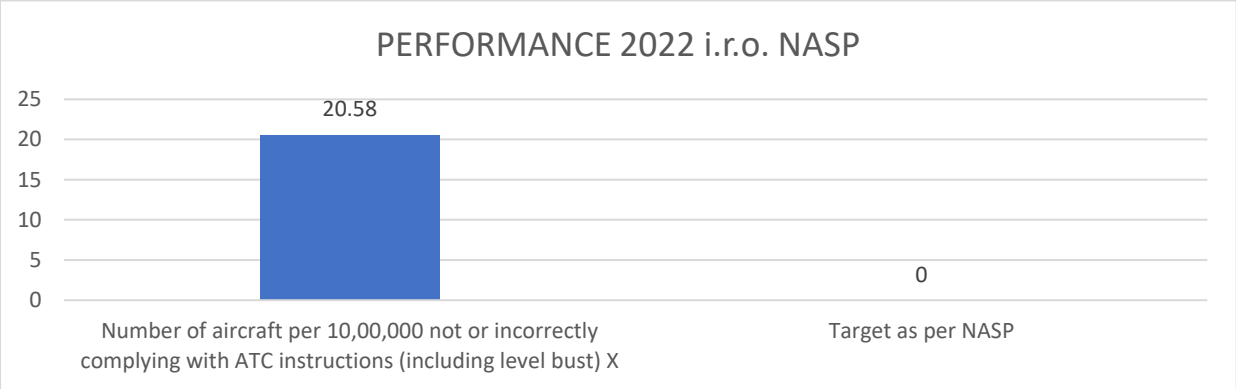
- 3 consecutive points are above the Alert Level 1 line

When Alert is triggered (potential high risk or out of control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

2.6 Target Achievement at the end of monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

2.7 Comparison with National Aviation Safety Plan

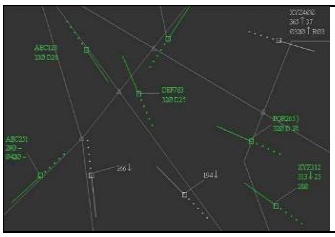


2.8 Safety Action Plan

Safety Measures Already in Place
1. Non-compliance to ATC instructions including level bust were examined for steps taken to minimize the incidents. 2. Non-compliance to ATC instructions including level bust reports were shared with DGCA for further necessary actions. 3. Whenever Non-compliance to ATC instructions led to an incident, the same was discussed with DGCA during the regular meetings on the safety concerns arising out of the non-compliance and finalization of safety recommendations to prevent future incidents. 4. Reporting of occurrences and incidents are monitored through Airport Information Management System (AIMS). Controllers are encouraged to report any safety issues without fear of punitive action.

Safety Action Plan

Safety objectives	Action
Reduce the Number of aircraft not or incorrectly complying with ATC instructions (including level bust) per 10,00,000 flights over Indian airspace.	1. Non-compliance to ATC instructions including level bust will be examined for steps taken to minimize the incidents. 2. Non-compliance to ATC instructions including level bust reports are shared with DGCA for further necessary actions. 3. Whenever Non-compliance to ATC instructions lead to an incident, the same will be discussed with DGCA during the regular meetings on the safety concerns arising out of the non-compliance and finalization of safety recommendations to prevent future incidents. 4. Reporting of occurrences and incidents will be monitored through Airport Information Management System (AIMS). Controllers will be encouraged to report any safety issues without fear of punitive action.



Number of AIRPROX attributable to ATC/ system failure per 10,00,000 movements

3.1. Scope

Separation minima infringement is an infringement of applicable separation minima between two IFR flights in AAI-administered airspace. Applicable separation minima are as given in Chapters 5, 6, 7, and 8 of Manual of Air Traffic Services-Part1.

Only those occurrences of separation minima infringements will be considered in which ATC has directly or indirectly contributed to the incident which has occurred in AAI-administered airspace. However, this does not include those occurrences of separation minima infringements that were caused by the ANSPs other than AAI, pilots, Military ATC Units, or any other agency.

3.2 Source of Data

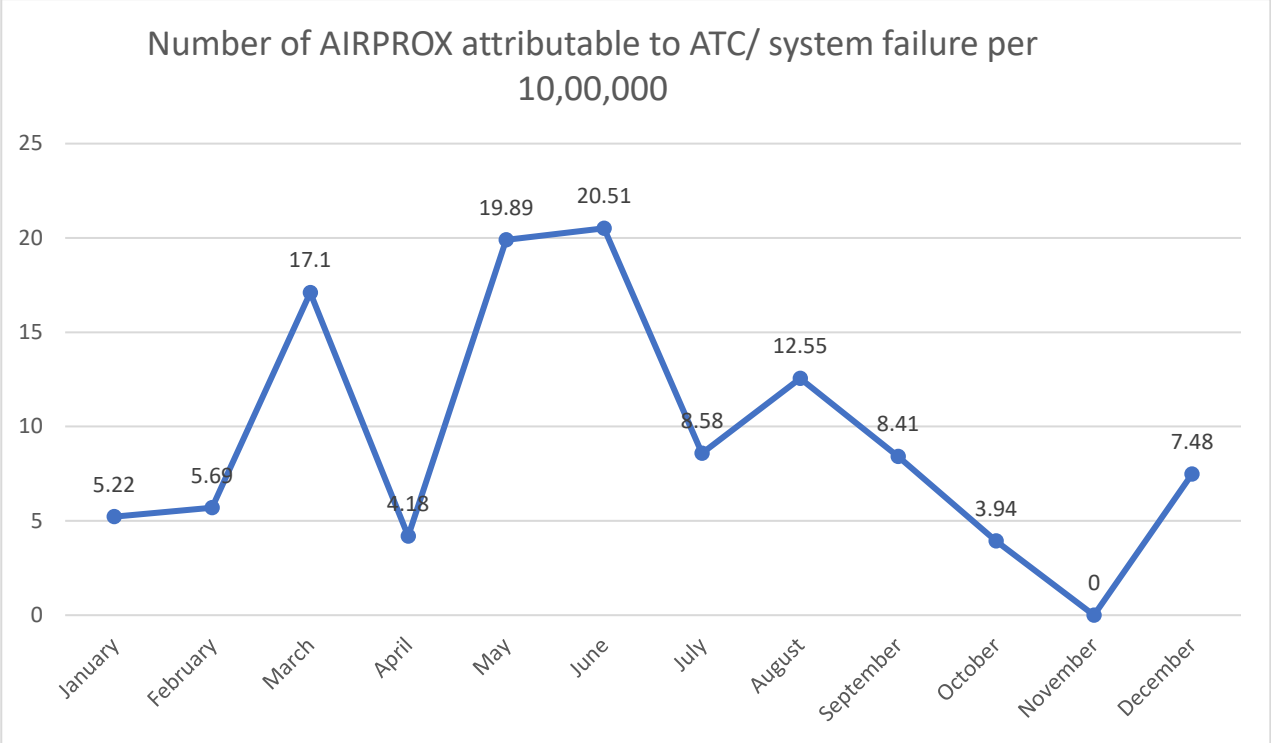
a) Traffic data will be derived from AIMS data base

b) Number of aircraft movements means total number of arrivals, departures and overflights. Number of overflights will not be counted based on number of Indian FIRs, it has flown. An over-flight means an aircraft entering Indian airspace, over-flying Indian-airspace and existing Indian airspace.

c) Reports of AIRPROX attributable to ATC/ system failure are received from sources such as pilots, controllers, WSOs, ATS InCharge, DGCA, other ANSPs, Airlines, ATS InCharge, Air Safety Reports, AAI Control Room messages, AFTN messages. Only those separation minima infringements will be accounted which have been validated by ATM Directorate of AAI.

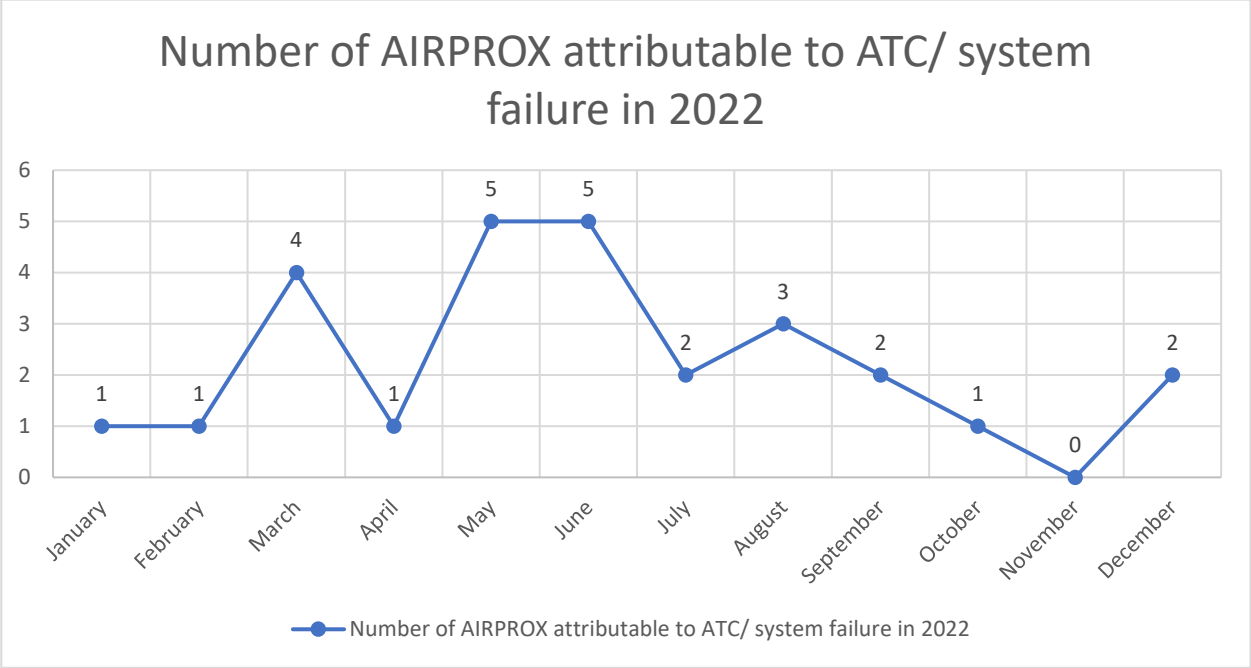
3.3 Analysis of Data

Number of AIRPROX attributable to ATC/ system failure per 10,00,000 movements during last year i.e. **2022** and detailed analysis is appended below

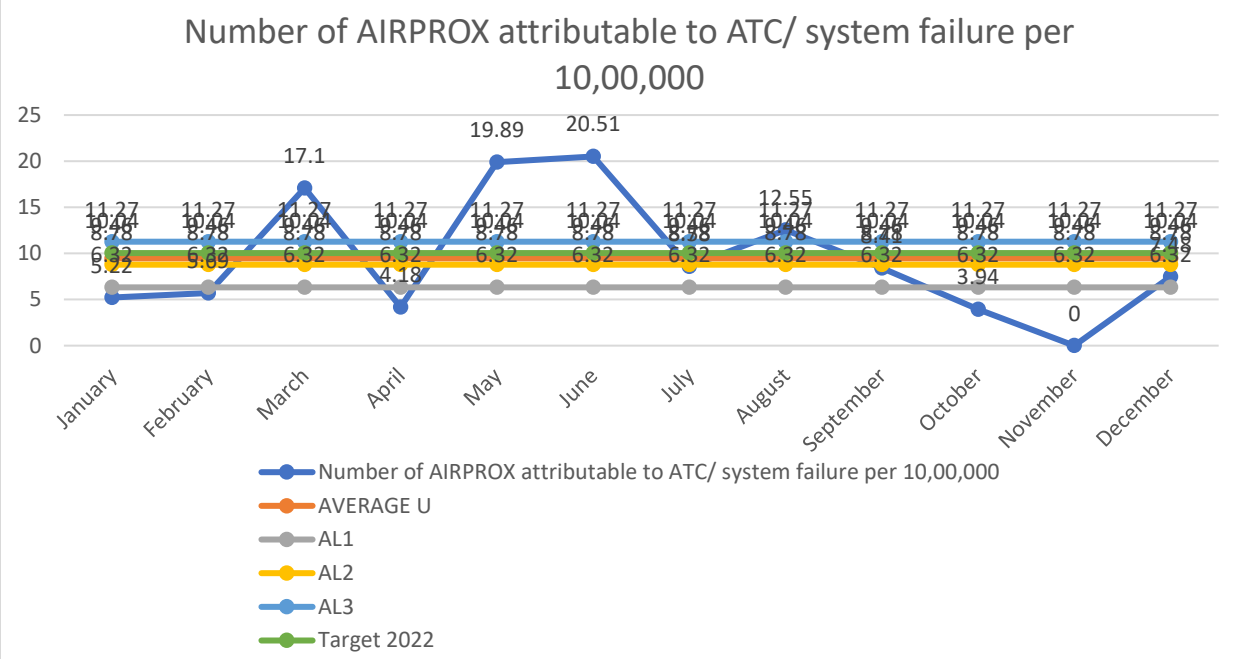


Month	Total Aircraft Movements (Arrival + Departure + Overflying)	Number of AIRPROX attributable to ATC/ system failure	Number of AIRPROX attributable to ATC/ system failure per 10,00,000
January	191432	1	5.22
February	175748	1	5.69
March	233893	4	17.1
April	239194	1	4.18
May	251374	5	19.89
June	243803	5	20.51
July	233112	2	8.58
August	238956	3	12.55
September	237726	2	8.41
October	253888	1	3.94
November	251747	0	0
December	267210	2	7.48
Total	**2818083**	**27**	**9.58**

Month wise Number of AIRPROX attributable to ATC/ system failure during year **2022** is shown below:



3.4 Safety Performance Target:



As the target set for **2022** (**10.04**) has been achieved, it has been decided that the target for **2023** is set as 9**.74** (i.e. reduction of 3%)

3.5 Alert Level:

a) Alert level setting: -

Alert level for **2023** is set as-

Alert level 1	- 15.82
Alert level 2	- 22.18
Alert level 3	- 28.54

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for current monitoring period (**2023**):

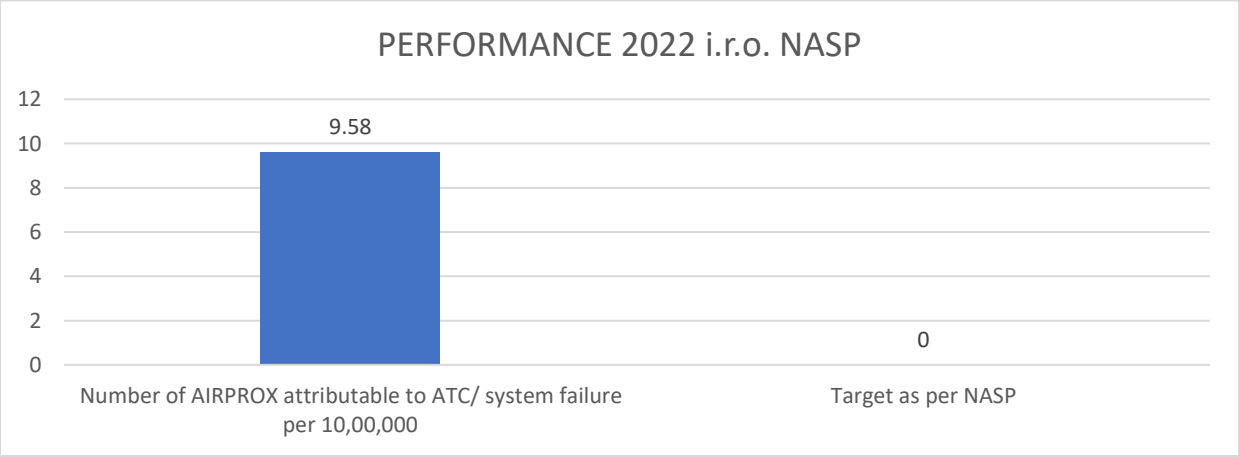
- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert Level 1 line

When Alert is triggered (potential high risk or out of control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

3.6 Target Achievement at the end of monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

3.7 Comparison with National Aviation Safety Plan



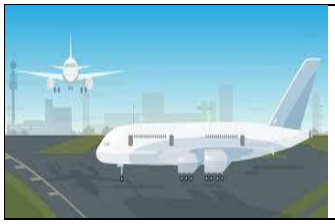
3.8 Safety Action Plan

Safety Measures Already in Place
1. All Airprox Incidents will be examined for steps taken to minimize the incidents. 2. ATS In-charges will be advised, as appropriate for follow-up actions and measures to minimize the cause to prevent future incidents. 3. Regular meetings will be held with DGCA on the safety concerns arising out of the incidents and finalization of safety recommendations to prevent future incidents. 4. Corrective action plan will be implemented for the training of controllers and any systemic issues identified in the investigation of incidents. 5. Air Traffic Management Circulars (ATMCs) will be issued as appropriate to address safety concerns and introduction of new procedures in the ATS System. 6. Reporting of occurrences and incidents will be monitored through Airport Information Management System (AIMS). Controllers will be encouraged to report any safety issues without fear of punitive action. 7. Yearly refresher training sessions will be conducted at all the stations on ATM procedures, separation standards, operational procedure, handling of emergency situations and situational awareness etc. 8. Yearly proficiency checks will be conducted for each controller for all the ratings held to assess their proficiency. 9. Instructors and Examiners will train the ATCOs and impart training as required, and carry out proficiency checks. 10. Safety workshops will be conducted at various stations on prevention of incidents, reporting of incidents, case studies, analysis of incidents for factual reporting and minimizing safety occurrences. 11. Half yearly VC meetings will be convened to share identified safety issues, causal factors with the Regional GM ATMs (NR/WR/SR/ER/NER)/ ATS In-charges/ SQMS In-charges and Training In-charges of major stations. 12. Quarterly VC Meetings will be convened to discuss steps to minimize safety occurrences and share safety issues of the airports with the GM ATMs of airports/ SQMS In-charges and Training In-charges of major stations. 13. Performance Monitoring and Safety Review of ATS systems at various ATS stations will be conducted as per the provisions of ATMC No. 5 of 2019. 14. Evidence Based Training (EBT) on controller proficiency related common causal/ contributory factors identified through investigation of airprox/ serious incidents/ incidents/ internal investigations will be conducted for the surveillance controllers at all the stations having ATC simulators.

Safety Action Plan

Safety objectives	Action
Reduce the Number of AIRPROX attributable to	1. All Airprox Incidents were examined for steps taken to minimize the incidents. 2. ATS In-charges were instructed, as appropriate for follow-up actions and measures to minimize the cause to prevent future incidents. 3. Regular meetings were held with DGCA on the safety concerns arising out of the incidents and finalization of safety

ATC*/* system failure.	recommendations to prevent future incidents. 4. Corrective action plans were implemented for the training of controllers and any systemic issues identified in the investigation of incidents. 5. The Manual of Air Traffic Services (MATS) - Part 1 is published for the use and guidance of air traffic controllers to provide processes, procedures and instructions that are essential for the provision of safe and efficient air traffic services within the jurisdiction of AAI and at airports where air traffic services are provided by AAI. This manual is published in conformance to Organizational Requirements and compliance with National Regulations and Standards & Recommended practices of ICAO ANNEX 11, PANS - ATM DOC 4444 and other ICAO documents relevant to the provisions of Air Traffic Services that are uniformly applicable to all the airports. 6. Air Traffic Management Circulars (ATMCs) are issued as appropriate to address safety concerns and introduction of new procedures in the ATS System. 7. Airport Information Management System (AIMS) has been established for reporting of serious incidents/ incidents and reportable occurrences. Controllers are encouraged to report any safety issues without fear of punitive action. 8. Yearly refresher training sessions are conducted at all the stations on ATM procedures, separation standards, operational procedure, handling of emergency situations and situational awareness etc. 9. Yearly proficiency checks are conducted for each controller for all the ratings held to assess their proficiency. 10. An adequate pool of Instructors and Examiners is maintained at stations to train the ATCOs, impart training as required and carry out proficiency checks. 11. Safety workshops were conducted at Delhi and Chennai respectively on reporting of incidents, just culture, case studies and analysis of incidents for factual reporting and minimizing safety occurrences. 12. Half yearly VC meetings were conducted to share identified safety issues, causal factors with the GM ATMs (NR/WR/SR/ER/NER) or their representatives/ ATS In-charges/ SQMS In-charges and Training In-charges of major stations. 13. Quarterly VC Meetings were convened to discuss steps to minimize safety occurrences and share safety issues of the airports with the GM ATMs of airports/ SQMS In-charges and Training In-charges of major stations. 14. Evidence Based Training (EBT) on controller proficiency related common causal/ contributory factors identified through investigation of airprox/ serious incidents/ incidents/ internal investigations were conducted for the surveillance controllers at all the stations having ATC simulators.



Number of runway incursions (aircraft) per 10,00,000 movements

4.1. Scope:

Runway Incursion means any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

4.2 Source of Data

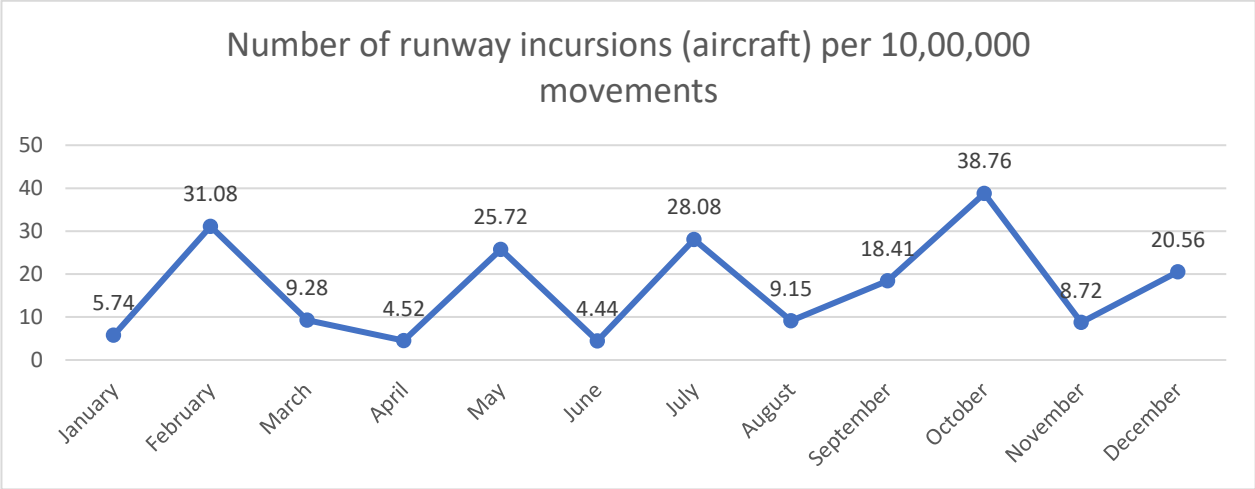
a) Traffic data will be derived from AIMS data base.

b) For total number of arrivals and departures, only those airports would be considered where ATC is provided by AAI.

c) Reports of RIs are received from sources such as pilots, controllers, Airlines, ATS Incharge, DGCA, aerodrome operators, Air Safety Reports, AAI Control Room messages, AFTN messages. Only those RIs will be accounted which have been validated either by ATM Directorate of AAI or Runway Safety Team.

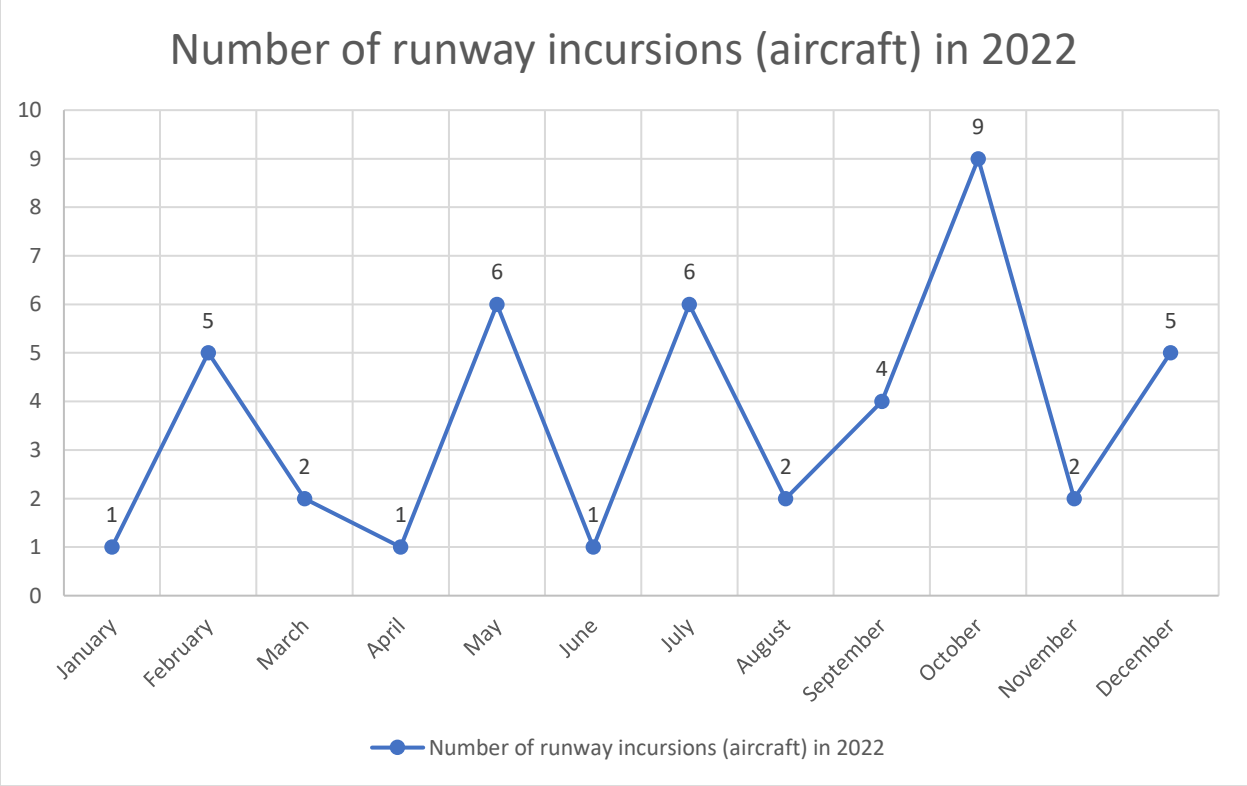
4.3 Analysis of Data

Number of runway incursions (aircraft) per 10,00,000 movements during last year i.e. **2022** and detailed analysis is appended below

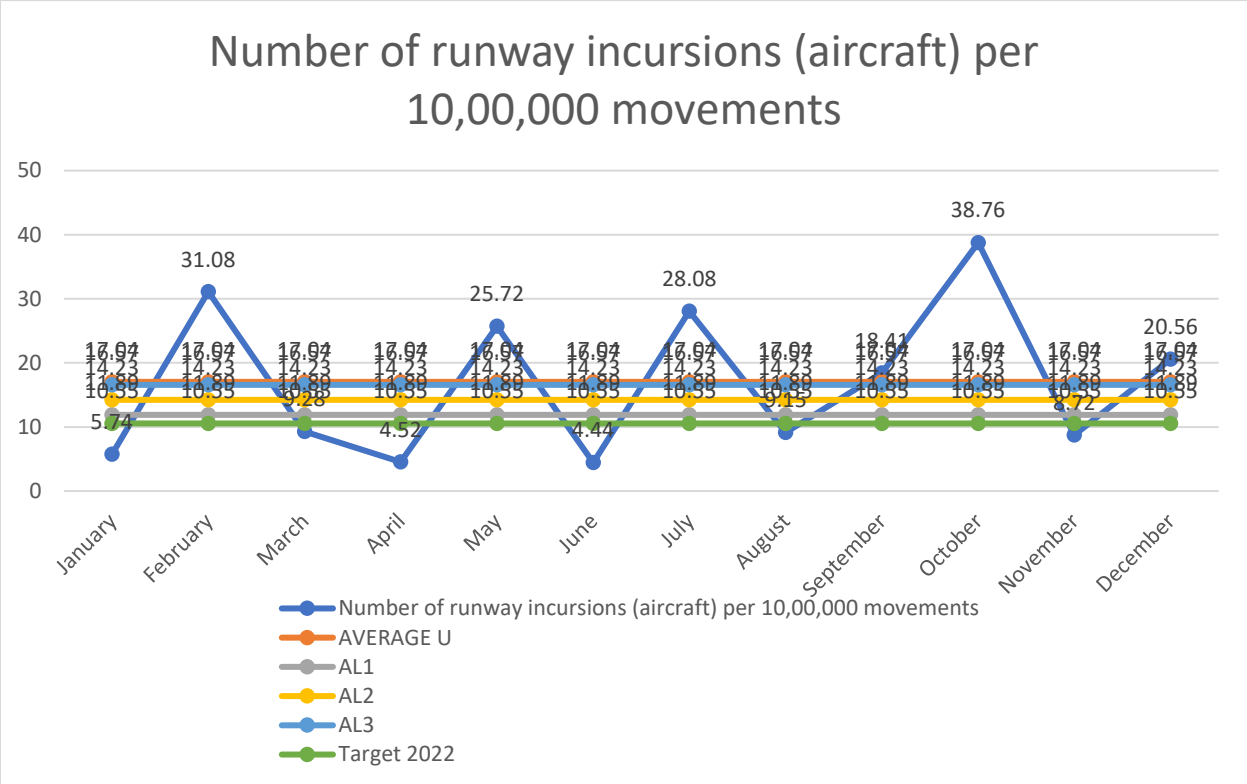


Month	Total Aircraft Movements (Arrival + Departure)	Number of runway incursions (aircraft)	Number of runway incursions (aircraft) per 10,00,000 movements
January	174229	1	5.74
February	160857	5	31.08
March	215589	2	9.28
April	221180	1	4.52
May	233323	6	25.72
June	225092	1	4.44
July	213669	6	28.08
August	218671	2	9.15
September	217253	4	18.41
October	232221	9	38.76
November	229227	2	8.72
December	243230	5	20.56
Total	**2584541**	**44**	**17.02**

Month wise Number of runway incursions (aircraft) during year **2022** is shown below:



4.4 Safety Performance Target:



As the target set for **2022** (10**.55**) is not achieved, it has been decided that the target for **2023** is set the same as that of **2022** i.e. **10.55.**

4.5 Alert Level:

a) Alert level setting: -

Alert level for **2023** is set as-

Alert level 1 - 11.89
Alert level 2 - 14.23
Alert level 3 - 16.57

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for current monitoring period (**2023**):

- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line

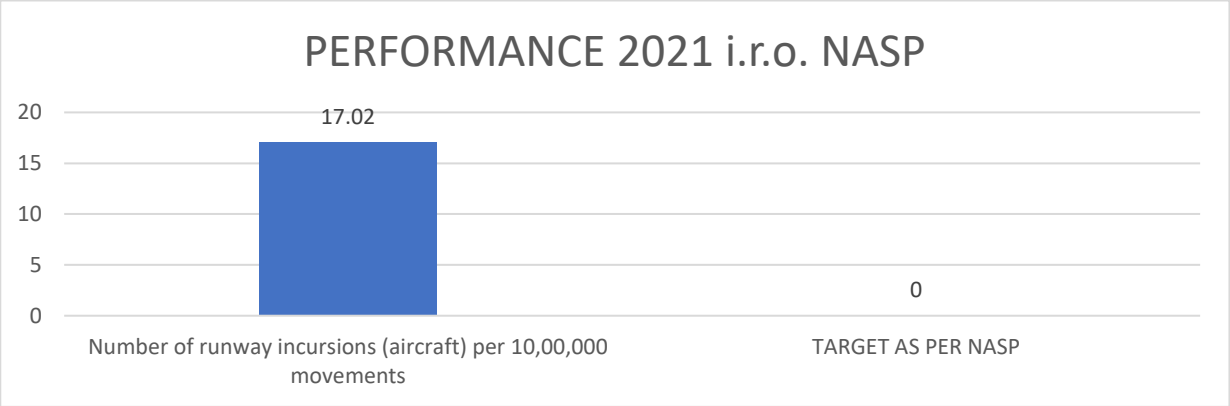
- 3 consecutive points are above the Alert Level 1 line

When Alert is triggered (potential high risk or out of control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

4.6 Target Achievement at the end of the monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

4.7 Comparison with National Aviation Safety Plan



4.8 Safety Action Plan

Safety Measures Already in Place
1. All runway incursions were examined and steps taken to minimize the incidents. ATS In-charges were instructed for follow-up actions as envisaged and appropriate to minimize the cause to prevent future incidents. 2. Regular meetings were held with DGCA on the safety concerns arising out of the incidents and finalization of safety recommendations/ corrective actions to prevent future incidents. 3. Corrective action plans were implemented for the training of controllers and any systemic issues identified in the investigation of incidents. 4. The Manual of Air Traffic Services (MATS) - Part 1 is published for the use and guidance of air traffic controllers to provide processes, procedures and instructions that are essential for the provision of safe and efficient air traffic services within the jurisdiction of AAI and at airports where air traffic services are provided by AAI. This manual is published in conformance to Organizational Requirements and compliance with National Regulations and Standards & Recommended practices of ICAO ANNEX 11, PANS - ATM DOC 4444 and other ICAO documents relevant to the provisions of Air Traffic Services that are uniformly applicable to all the

airports.
5. Air Traffic Management Circulars (ATMCs) are issued to address safety concerns and new procedures in the ATS System.
6. Airport Information Management System (AIMS) has been established for reporting of accidents/ serious incidents/ incidents and reportable occurrences.
7. Surface Movement Ground Control System is established to improve situational awareness and reduce the risk of human error.
8. Yearly refresher training sessions are conducted at stations on operational procedure, handling of emergency situations and situational awareness improvement etc.
9. Yearly proficiency checks are conducted for each controller for all the ratings held to assess their proficiency.
10. An adequate pool of Instructors and Examiners is maintained at stations to train the ATCOs, impart training as required and carry out proficiency checks.
11. Safety workshops were conducted at Delhi and Chennai respectively on reporting of incidents, just culture and analysis of incidents for factual reporting and minimizing safety occurrences.
12. Half yearly VC meetings were conducted to share identified safety issues, causal factors with the GM ATMs (NR/WR/SR/ER/NER) or their representatives/ ATS In-charges/ SQMS In-charges and Training In-charges of major stations.
13. Quarterly VC Meetings were convened/ chaired by the GM (ATM-SQMS) to discuss steps to minimize safety occurrences and share safety issues of the airports with the GM ATMs of airports/ SQMS In-charges and Training In-charges of major stations.

Safety Action Plan

Safety objectives	Action
Reduce the Number of runway incursions (aircraft) per 10,00,000 movements.	1. All Runway Incursions will be examined for steps taken to minimize the incidents. 2. ATS In-charges will be advised, as appropriate for follow-up actions and measures to minimize the cause to prevent future incidents. 3. Regular meetings will be held with DGCA on the safety concerns arising out of the incidents and finalization of safety recommendations to prevent future incidents. 4. Corrective action plan will be implemented for the training of controllers and any systemic issues identified in the investigation of incidents. 5. Air Traffic Management Circulars (ATMCs) will be issued as appropriate to address safety concerns and introduction of new procedures in the ATS System. 6. Reporting of occurrences and incidents will be monitored through Airport Information Management System (AIMS). Controllers will be encouraged to report any safety issues without fear of punitive

	action. 7. Surface Movement Ground Control System, wherever installed will be used to improve situational awareness and reduce the risk of human error. 8. Yearly refresher training sessions will be conducted at all the stations on ATM procedures, prevention of runway incursions, ground infrastructure, taxi & parking procedure, operational procedure and situational awareness etc. 9. Yearly proficiency checks will be conducted for each controller for all the ratings held to assess their proficiency. 10. Instructors and Examiners will train the ATCOs and impart training as required, and carry out proficiency checks. 11. Safety workshops will be conducted at various stations on prevention of incidents, reporting of incidents, case studies, analysis of incidents for factual reporting and minimizing safety occurrences. 12. Half yearly VC meetings will be convened to share identified safety issues, causal factors with the Regional GM ATMs (NR/WR/SR/ER/NER)/ ATS In-charges/ SQMS In-charges and Training In-charges of major stations. 13. Quarterly VC Meetings will be convened to discuss steps to minimize safety occurrences and share safety issues of the airports with the GM ATMs of airports/ SQMS In-charges and Training In-charges of major stations. 14. Performance Monitoring and Safety Review of ATS systems at various ATS stations will be conducted as per the provisions of ATMC No. 5 of 2019.

Number of runway incursions (vehicle) per 10,00,000 movements

5.1. Scope:

Runway Incursion means any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

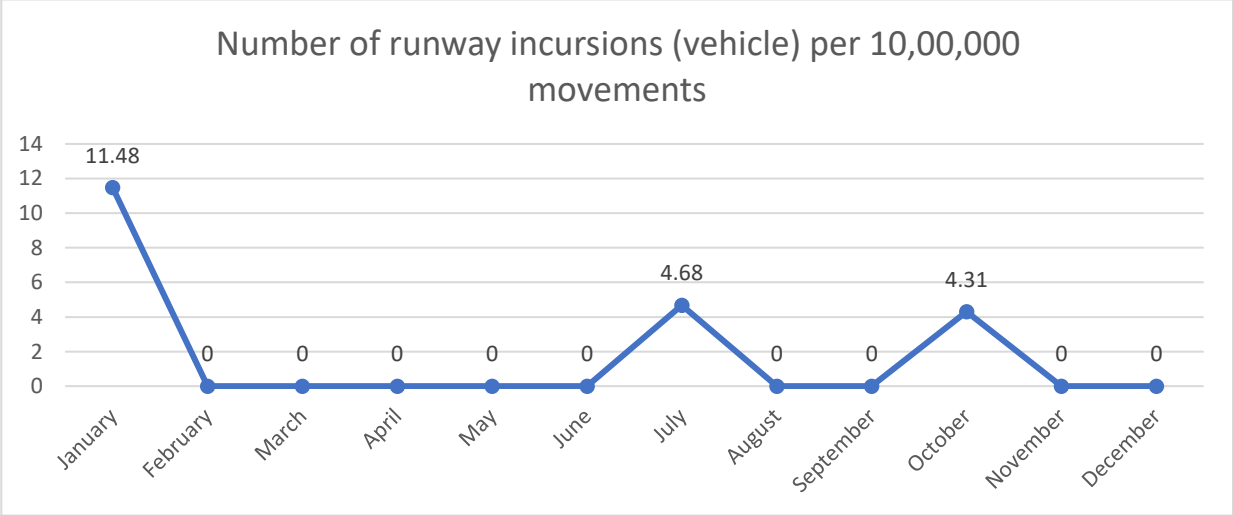
5.2 Source of Data:

a) Traffic data will be derived from AIMS data base. Number of aircraft movements means total number of arrivals, departures and over-flights.

b) Reports of RIs are received from pilots, controllers, WSOs, ATS Incharge, DGCA, Air Safety Reports, voluntarily reports, Proficiency Assessors, analysis of random tape transcripts, AAI Control Room messages, AFTN messages. Only those RIs will be accounted which have been validated by ATM Dte of AAI.

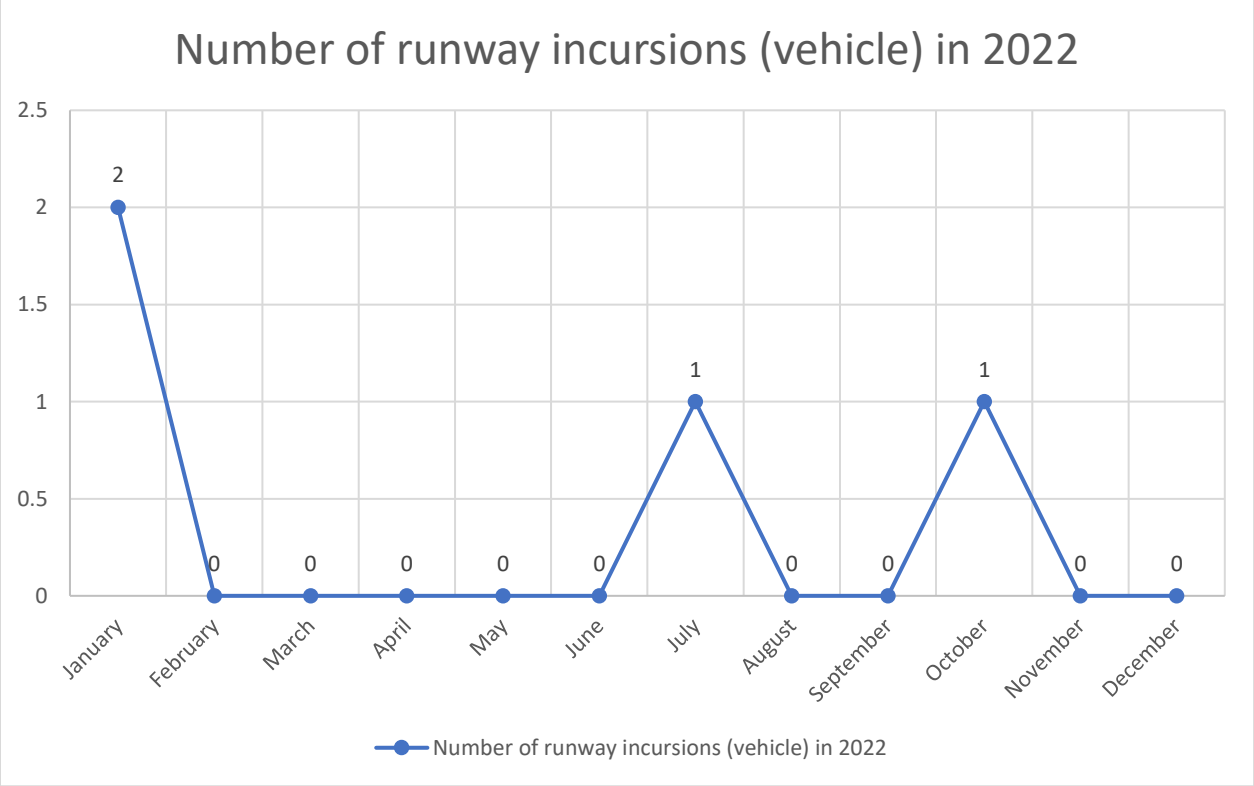
5.3 Analysis of Data:

Number of runway incursions (vehicle) per 10,00,000 movements during last year i.e. **2021** and detailed analysis is appended below

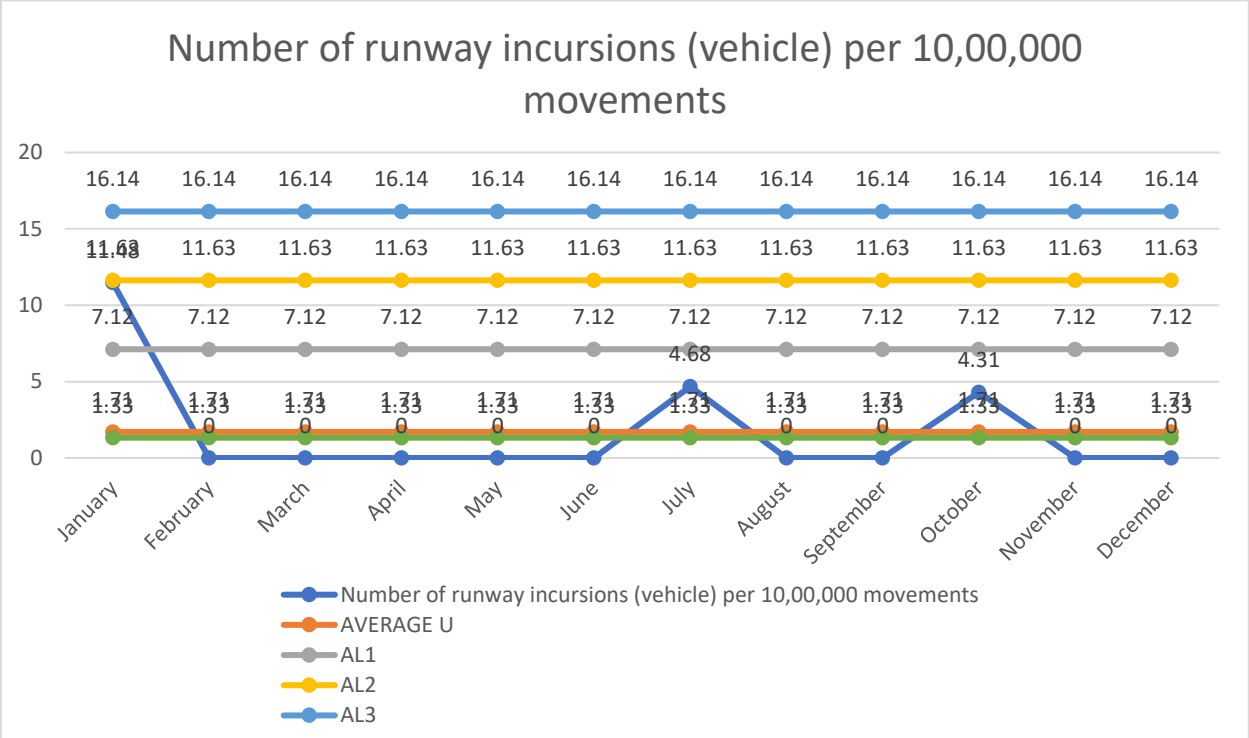


Month	Total Aircraft Movements (Arrival + Departure)	Number of runway incursions (vehicle)	Number of runway incursions (vehicle) per 10,00,000 movements
January	174229	2	11.48
February	160857	0	0
March	215589	0	0
April	221180	0	0
May	233323	0	0
June	225092	0	0
July	213669	1	4.68
August	218671	0	0
September	217253	0	0
October	232221	1	4.31
November	229227	0	0
December	243230	0	0
Total	**2584541**	**4**	**1.55**

Month wise Number of runway incursions (vehicle) during year **2022** is shown below:



5.4 Safety Performance Target:



As the target set for **2022** (**1.33**) is not achieved, it has been decided that the target for **2023** is set same as that of **2022** i.e. **1.33**

5.5 Alert Level:

a) Alert level setting: -

Alert level for **2023** is set as-

Alert level 1 - 7.12
Alert level 2 - 11.63
Alert level 3 - 16.14

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for current monitoring period (**2023**):

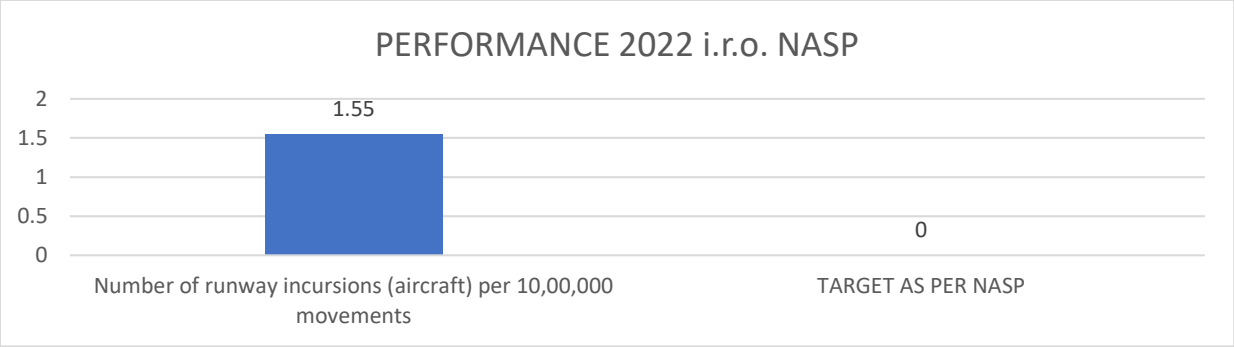
- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert Level 1 line

When Alert is triggered (potential high risk or out of control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

5.6 Target Achievement at the end of monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

5.7 Comparison with National Aviation Safety Plan



5.8 Safety Action Plan

Safety Measures Already in Place
1. All runway incursions were examined and steps taken to minimize the incidents. ATS In-charges were instructed for follow-up actions as envisaged and appropriate to minimize the cause to prevent future incidents. 2. Regular meetings were held with DGCA on the safety concerns arising out of the incidents and finalization of safety recommendations/ corrective actions to prevent future incidents. 3. Corrective action plans were implemented for the training of controllers and any systemic issues identified in the investigation of incidents. 4. The Manual of Air Traffic Services (MATS) - Part 1 is published for the use and guidance of air traffic controllers to provide processes, procedures and instructions that are essential for the provision of safe and efficient air traffic services within the jurisdiction of AAI and at airports where air traffic services are provided by AAI. This manual is published in conformance to Organizational Requirements and compliance with National Regulations and Standards & Recommended practices of ICAO ANNEX 11, PANS - ATM DOC 4444 and other ICAO documents relevant to the provisions of Air Traffic Services that are uniformly applicable to all the airports. 5. Air Traffic Management Circulars (ATMCs) are issued to address safety concerns

and new procedures in the ATS System.

6. Airport Information Management System (AIMS) has been established for reporting of accidents/ serious incidents/ incidents and reportable occurrences.
7. Surface Movement Ground Control System is established to improve situational awareness and reduce the risk of human error.
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13. Quarterly VC Meetings were convened/ chaired by the GM (ATM-SQMS) to discuss steps to minimize safety occurrences and share safety issues of the airports with the GM ATMs of airports/ SQMS In-charges and Training In-charges of major stations.

Safety Action Plan

Safety objectives	Action
Reduce the Number of runway incursions (vehicle) per 10,00,000 movements.	1. All Runway Incursions will be examined for steps taken to minimize the incidents. 2. ATS In-charges will be advised, as appropriate for follow-up actions and measures to minimize the cause to prevent future incidents. 3. Regular meetings will be held with DGCA on the safety concerns arising out of the incidents and finalization of safety recommendations to prevent future incidents. 4. Corrective action plan will be implemented for the training of controllers and any systemic issues identified in the investigation of incidents. 5. Air Traffic Management Circulars (ATMCs) will be issued as appropriate to address safety concerns and introduction of new procedures in the ATS System. 6. Reporting of occurrences and incidents will be monitored through Airport Information Management System (AIMS). Controllers will be encouraged to report any safety issues without fear of punitive action.

	7. Surface Movement Ground Control System, wherever installed will be used to improve situational awareness and reduce the risk of human error. 8. Yearly refresher training sessions will be conducted at all the stations on ATM procedures, prevention of runway incursions, ground infrastructure, taxi & parking procedure, operational procedure and situational awareness etc. 9. Yearly proficiency checks will be conducted for each controller for all the ratings held to assess their proficiency. 10. Instructors and Examiners will train the ATCOs and impart training as required, and carry out proficiency checks. 11. Safety workshops will be conducted at various stations on prevention of incidents, reporting of incidents, case studies, analysis of incidents for factual reporting and minimizing safety occurrences. 12. Half yearly VC meetings will be convened to share identified safety issues, causal factors with the Regional GM ATMs (NR/WR/SR/ER/NER)/ ATS In-charges/ SQMS In-charges and Training In-charges of major stations. 13. Quarterly VC Meetings will be convened to discuss steps to minimize safety occurrences and share safety issues of the airports with the GM ATMs of airports/ SQMS In-charges and Training In-charges of major stations. 14. Performance Monitoring and Safety Review of ATS systems at various ATS stations will be conducted as per the provisions of ATMC No. 5 of 2019.

Number of runway incursions (person) per 10,00,000 movements

6.1. Scope:

Runway Incursion means any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

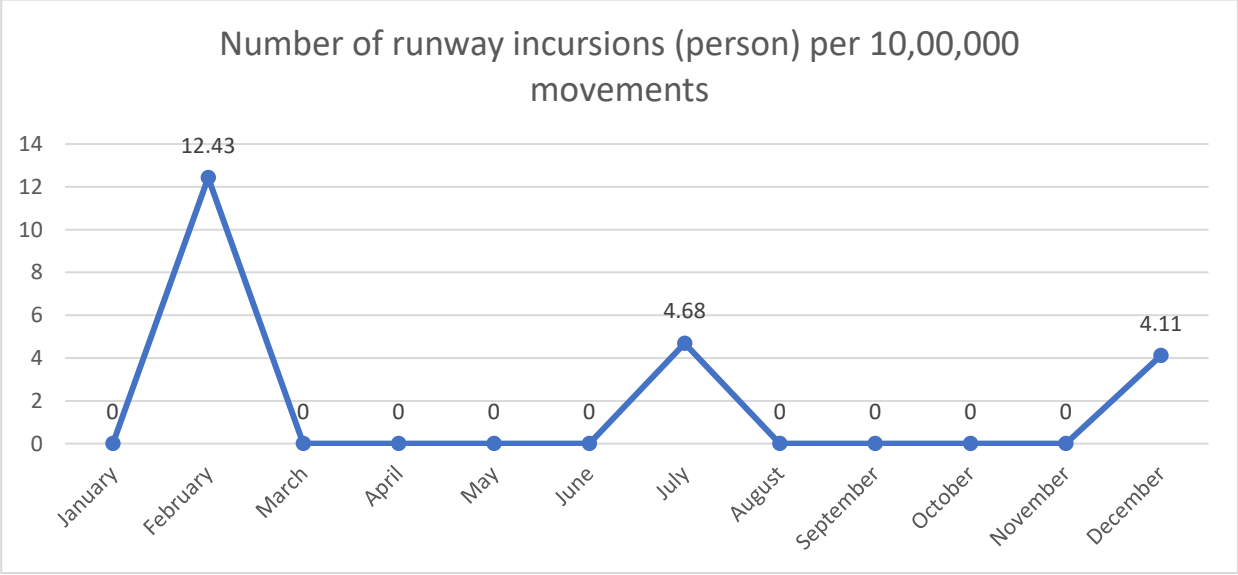
6.2 Source of Data:

a) Traffic data will be derived from AIMS data base. Number of aircraft movements means total number of arrivals, departures and over-flights.

b) Reports of RIs are received from pilots, controllers, WSOs, ATS Incharge, DGCA, Air Safety Reports, voluntarily reports, Proficiency Assessors, analysis of random tape transcripts, AAI Control Room messages, AFTN messages. Only those RIs will be accounted which have been validated by ATM Dte of AAI.

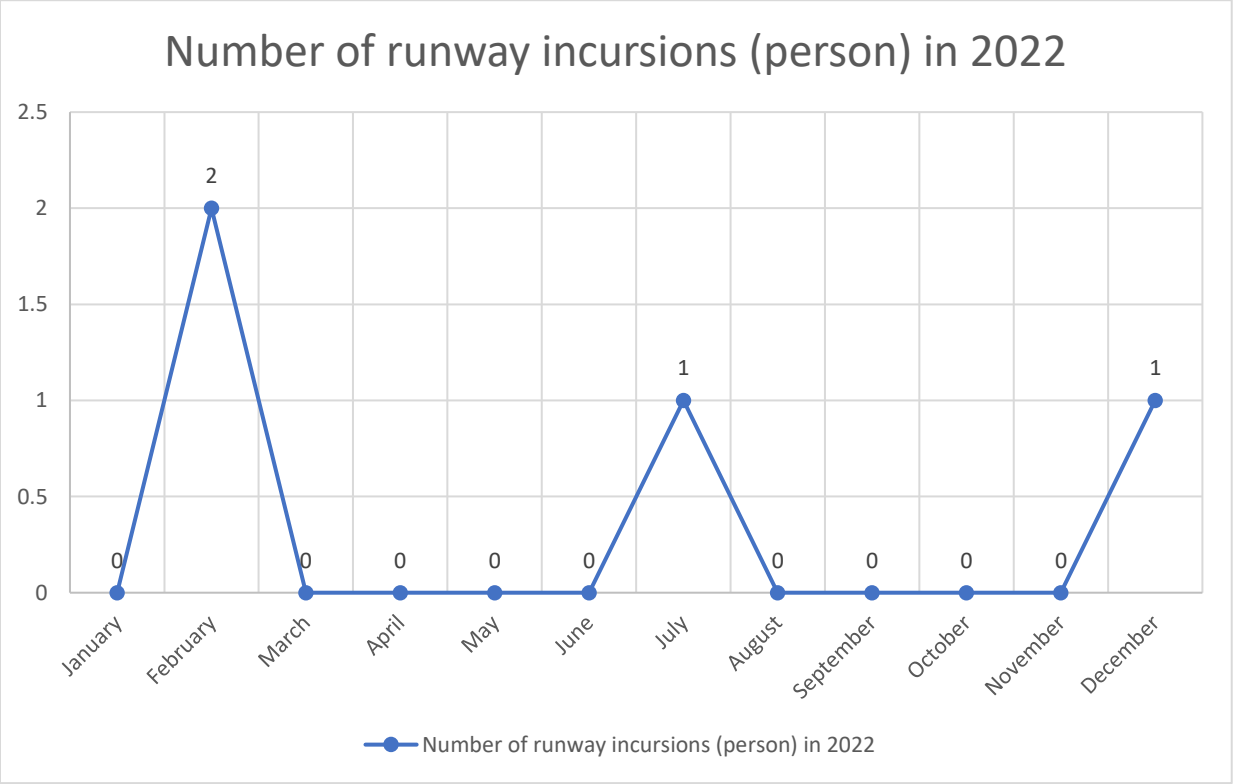
6.3 Analysis of Data:

Number of runway incursions (person) per 10,00,000 movements during last year i.e. **2022** and detailed analysis is appended below

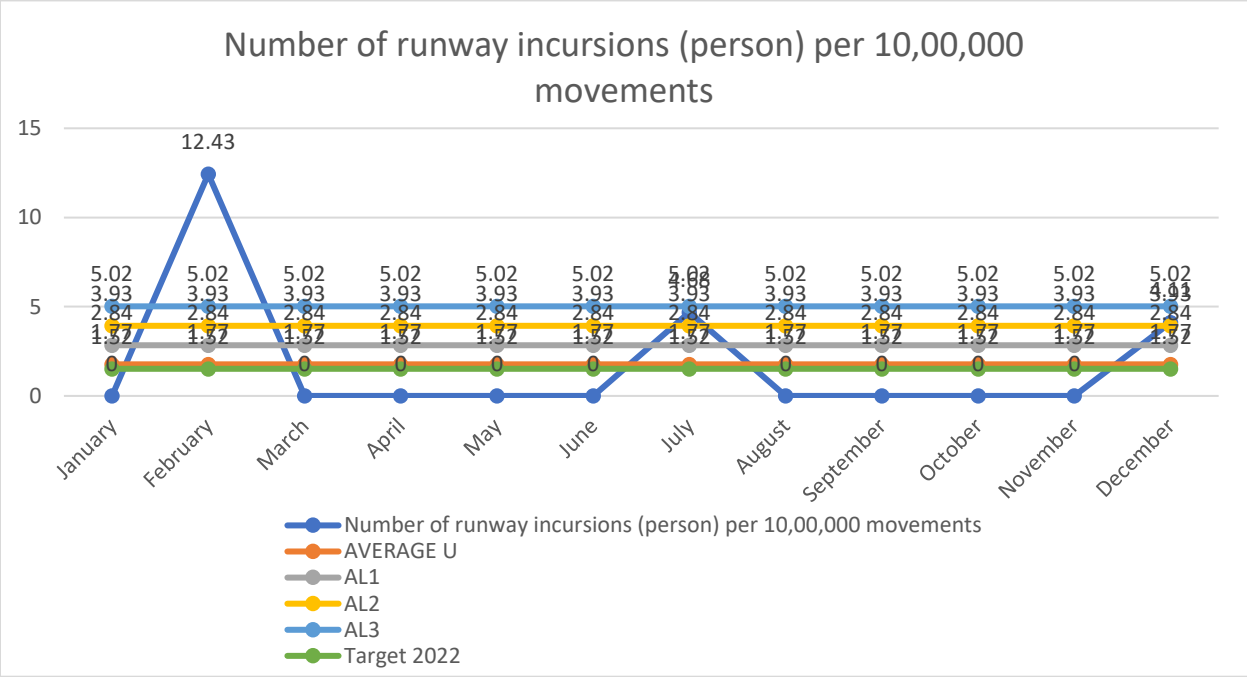


Month	Total Aircraft Movements (Arrival + Departure)	Number of runway incursions (person)	Number of runway incursions (person) per 10,00,000 movements
January	174229	0	0
February	160857	2	12.43
March	215589	0	0
April	221180	0	0
May	233323	0	0
June	225092	0	0
July	213669	1	4.68
August	218671	0	0
September	217253	0	0
October	232221	0	0
November	229227	0	0
December	243230	1	4.11
Total	**2584541**	**4**	**1.55**

Month wise Number of runway incursions (person) during year **2022** is shown below:



6.4 Safety Performance Target:



As the target set for **2022** (**1.52**) is not achieved, it has been decided that the target for **2023** is set same as was of 2022 i.e. **1.52.**

6.5 Alert Level:

a) Alert level setting: -

Alert level for **2023** is set as-

Alert level 1 - **2.84**
Alert level 2 - **3.93**
Alert level 3 - **5.02**

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for current monitoring period (**2023**):

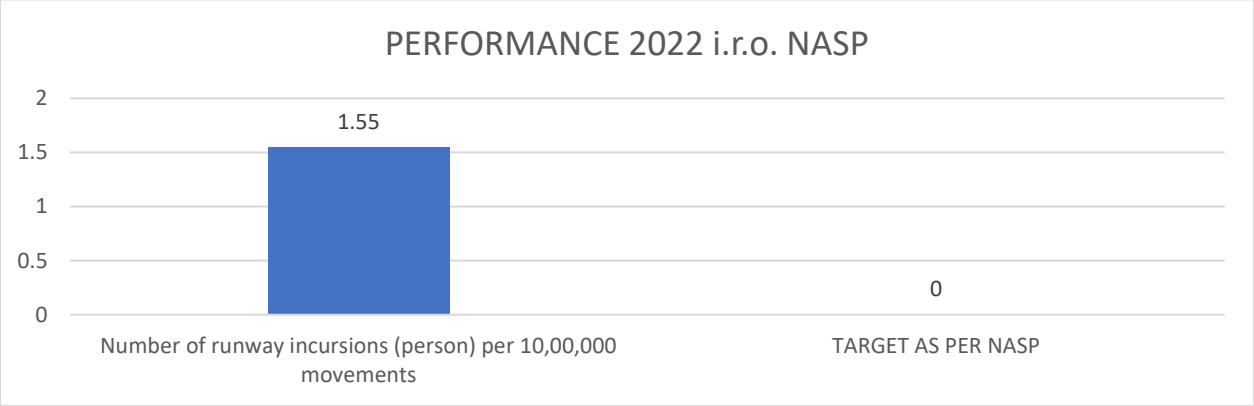
- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert Level 1 line

When Alert is triggered (potential high risk or out of control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

6.6 Target Achievement at the end of monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

6.7 Comparison with National Aviation Safety Plan



6.8 Safety Action Plan

Safety Measures Already in Place
1. All runway incursions were examined and steps taken to minimize the incidents. ATS In-charges were instructed for follow-up actions as envisaged and appropriate to minimize the cause to prevent future incidents. 2. Regular meetings were held with DGCA on the safety concerns arising out of the incidents and finalization of safety recommendations/ corrective actions to prevent future incidents. 3. Corrective action plans were implemented for the training of controllers and any systemic issues identified in the investigation of incidents. 4. The Manual of Air Traffic Services (MATS) - Part 1 is published for the use and guidance of air traffic controllers to provide processes, procedures and instructions that are essential for the provision of safe and efficient air traffic services within the jurisdiction of AAI and at airports where air traffic services are provided by AAI. This manual is published in conformance to Organizational Requirements and compliance with National Regulations and Standards & Recommended practices of ICAO ANNEX 11, PANS - ATM DOC 4444 and other ICAO documents relevant to the provisions of Air Traffic Services that are uniformly applicable to all the airports. 5. Air Traffic Management Circulars (ATMCs) are issued to address safety concerns

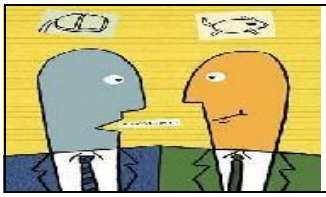
and new procedures in the ATS System.

6. Airport Information Management System (AIMS) has been established for reporting of accidents/ serious incidents/ incidents and reportable occurrences.
7. Surface Movement Ground Control System is established to improve situational awareness and reduce the risk of human error.
8. Yearly refresher training sessions are conducted at stations on operational procedure, handling of emergency situations and situational awareness improvement etc.
9. Yearly proficiency checks are conducted for each controller for all the ratings held to assess their proficiency.
10. An adequate pool of Instructors and Examiners is maintained at stations to train the ATCOs, impart training as required and carry out proficiency checks.
11. Safety workshops were conducted at Delhi and Chennai respectively on reporting of incidents, just culture and analysis of incidents for factual reporting and minimizing safety occurrences.
12. Half yearly VC meetings were conducted to share identified safety issues, causal factors with the GM ATMs (NR/WR/SR/ER/NER) or their representatives/ ATS In-charges/ SQMS In-charges and Training In-charges of major stations.
13. Quarterly VC Meetings were convened/ chaired by the GM (ATM-SQMS) to discuss steps to minimize safety occurrences and share safety issues of the airports with the GM ATMs of airports/ SQMS In-charges and Training In-charges of major stations.

Safety Action Plan

Safety objectives	Action
Reduce the Number of runway incursions (vehicle) per 10,00,000 movements.	1. All Runway Incursions will be examined for steps taken to minimize the incidents. 2. ATS In-charges will be advised, as appropriate for follow-up actions and measures to minimize the cause to prevent future incidents. 3. Regular meetings will be held with DGCA on the safety concerns arising out of the incidents and finalization of safety recommendations to prevent future incidents. 4. Corrective action plan will be implemented for the training of controllers and any systemic issues identified in the investigation of incidents. 5. Air Traffic Management Circulars (ATMCs) will be issued as appropriate to address safety concerns and introduction of new procedures in the ATS System. 6. Reporting of occurrences and incidents will be monitored through Airport Information Management System (AIMS). Controllers will be encouraged to report any safety issues without fear of punitive action.

	7. Surface Movement Ground Control System, wherever installed will be used to improve situational awareness and reduce the risk of human error. 8. Yearly refresher training sessions will be conducted at all the stations on ATM procedures, prevention of runway incursions, ground infrastructure, taxi & parking procedure, operational procedure and situational awareness etc. 9. Yearly proficiency checks will be conducted for each controller for all the ratings held to assess their proficiency. 10. Instructors and Examiners will train the ATCOs and impart training as required, and carry out proficiency checks. 11. Safety workshops will be conducted at various stations on prevention of incidents, reporting of incidents, case studies, analysis of incidents for factual reporting and minimizing safety occurrences. 12. Half yearly VC meetings will be convened to share identified safety issues, causal factors with the Regional GM ATMs (NR/WR/SR/ER/NER)/ ATS In-charges/ SQMS In-charges and Training In-charges of major stations. 13. Quarterly VC Meetings will be convened to discuss steps to minimize safety occurrences and share safety issues of the airports with the GM ATMs of airports/ SQMS In-charges and Training In-charges of major stations. 14. Performance Monitoring and Safety Review of ATS systems at various ATS stations will be conducted as per the provisions of ATMC No. 5 of 2019.



Communication Errors

7.1 Definition

Communication errors mean errors due to miscommunication in ATC on account of absent-mindedness and complacency; incorrect phraseologies or inappropriate use of plain English that results in ambiguity; call sign confusion due to call sign similarity; improper enunciation and articulation of voice; hearing expectancy; not hearing a transmission at all; confused instructions due to the similarity in SIDs/STARs or waypoints; High rate of speech or unnecessary pauses; read back/hear back error etc.

7.2 Source of Data

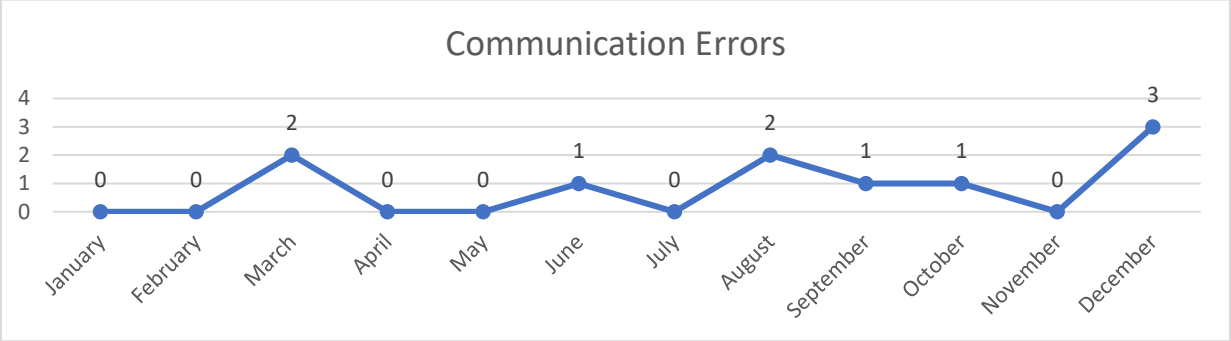
a) Traffic data will be derived from AIMS data base

b) Number of aircraft movements means total number of arrivals, departures and overflights. Number of over flights will not be counted based on number of Indian FIRs, it has flown. An over-flight means an aircraft entering Indian airspace, over-flying Indian-airspace and existing Indian airspace.

c) Reports of Communication errors are received from sources such as pilots, controllers, WSOs, ATS In charges, DGCA, Air Safety Reports, voluntarily reports, Proficiency Assessors, analysis of random tape transcripts, AAI Control Room messages, AFTN messages. Only those Communication errors will be accounted which have been validated by ATM Dte of AAI

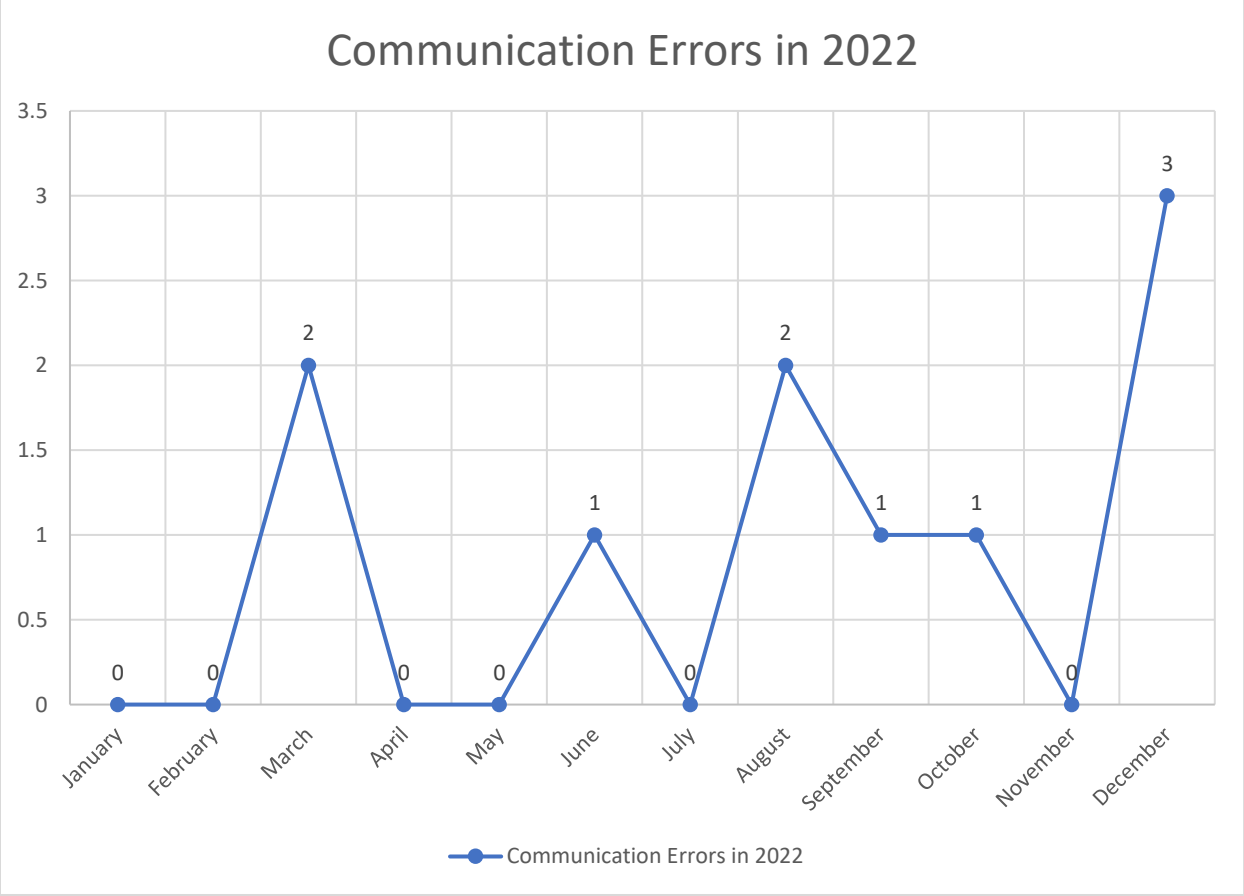
7.3 Analysis of Data

Communication errors during last year i.e. **2021** and detailed analysis is appended below

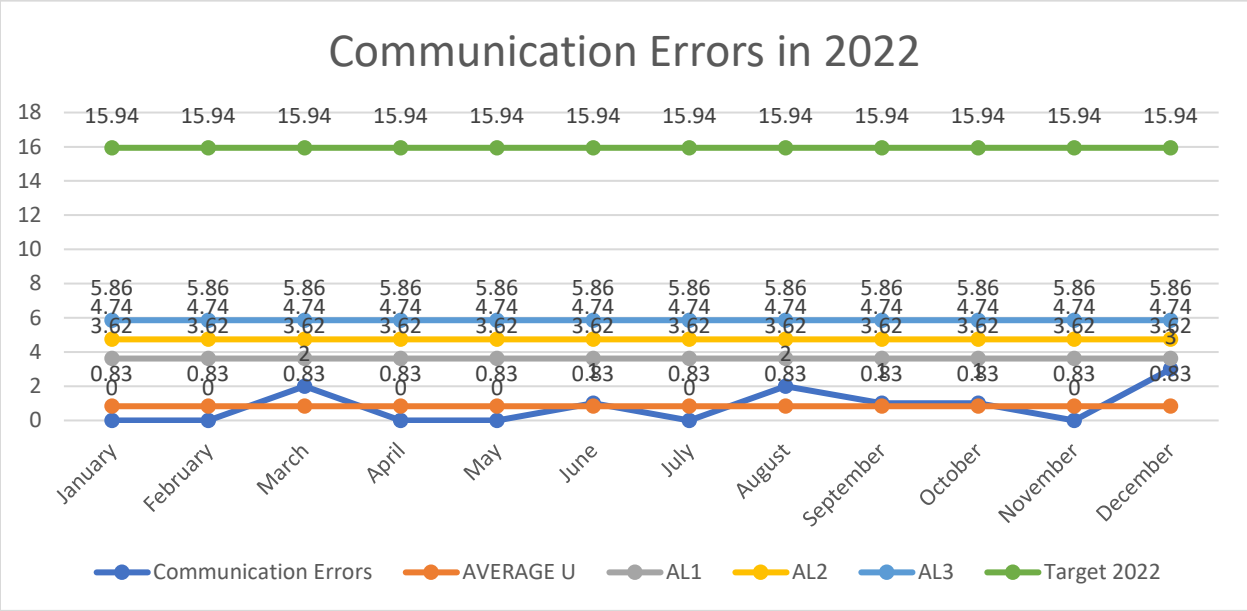


Month	Total Aircraft Movements (Arrival + Departure + Overflying)	Communication Errors
January	191432	0
February	175748	0
March	233893	2
April	239194	0
May	251374	0
June	243803	1
July	233112	0
August	238956	2
September	237726	1
October	253888	1
November	251747	0
December	267210	3
Total	**2818083**	**10**

Month wise Communication errors during year **2022** is shown below:



7.4 Safety Performance Target:



As the target set for **2022** (**15.94**) has been achieved, it has been decided that the target for **2023** is set as **15.46** (i.e. reduction of 3%)

7.5 Alert Level:

a) Alert level setting: -

Alert level for **2023** is set as-

Alert level 1 - 1.82
Alert level 2 - 2.81
Alert level 3 - 3.8

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for current monitoring period (**2023**):

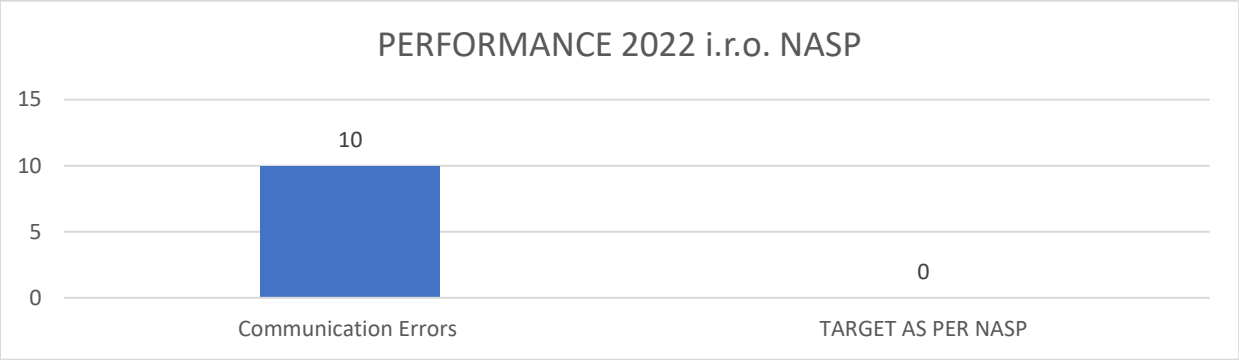
- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert Level 1 line

When Alert is triggered (potential high risk or out of control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause of the abnormal incident rate and any necessary action to address the unacceptable trend.

7.6 Target Achievement at the end of monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

7.7 Comparison with National Aviation Safety Plan



7.8 Safety Action Plan

Safety Measures Already in Place
1. All Communication Errors were examined for steps taken to minimize the incidents. 2. ATS In-charges were advised, as appropriate for follow-up actions and measures to minimize the cause to prevent future incidents. 3. Whenever the Communication Errors led to an incident, the same was discussed with DGCA during the regular meetings on the safety concerns arising out of the error and finalization of safety recommendations to prevent future incidents. 4. Corrective action plan was implemented for the training of controllers and any systemic issues identified in the investigation of incidents. 5. Reporting of occurrences and incidents are monitored through Airport Information Management System (AIMS). Controllers are encouraged to report any safety issues without fear of punitive action. 6. Yearly refresher training sessions were conducted at the ATC centers on Communication Errors and prevention of Communication Errors, Readback-Hearback errors. 7. An adequate pool of Instructors and Examiners are maintained at stations to train the ATCOs, impart training as required and sensitize the controllers on communication errors, readback-hearback errors etc.

8. Half yearly VC meetings were conducted to share identified safety issues, causal factors with the Regional GM ATMs (NR/WR/SR/ER/NER)/ ATS In-charges/ SQMS In-charges and Training In-charges of major stations.
9. Quarterly VC Meetings were convened to discuss steps to minimize safety occurrences and share safety issues of the airports with the GM ATMs of airports/ SQMS In-charges and Training In-charges of major stations.

Safety Action Plan

Safety objectives	Action
Reduce the number of Communication Errors.	1. All Communication Errors will be examined for steps taken to minimize the incidents. 2. ATS In-charges will be advised, as appropriate for follow-up actions and measures to minimize the cause to prevent future incidents. 3. Whenever the Communication Errors lead to an incident, the same will be discussed with DGCA during the regular meetings on the safety concerns arising out of the error and finalization of safety recommendations to prevent future incidents. 4. Corrective action plan will be implemented for the training of controllers and any systemic issues identified in the investigation of incidents. 5. Reporting of occurrences and incidents will be monitored through Airport Information Management System (AIMS). Controllers will be encouraged to report any safety issues without fear of punitive action. 6. Yearly refresher training sessions will be conducted at the ATC centers on Communication Errors and prevention of Communication Errors, Readback-Hearback errors. 7. Instructors and Examiners will train the ATCOs and impart training as required, and sensitize the controllers on communication errors, readback-hearback errors etc. 8. Half yearly VC meetings will be convened to share identified safety issues, causal factors with the Regional GM ATMs (NR/WR/SR/ER/NER)/ ATS In-charges/ SQMS In-charges and Training In-charges of major stations. 9. Quarterly VC Meetings will be convened to discuss steps to minimize safety occurrences and share safety issues of the airports with the GM ATMs of airports/ SQMS In-charges and Training In-charges of major stations.

Number of Laser interferences per 10,000 movements

8.1 Scope

The potentially hazardous visual effects of lasers are generally only visible during night time. The lasers produce an intense, coherent directional beam of light with wave lengths covering the visual spectrum of 400-700nm.

The main visual effects are:
Distraction and Startle: This occurs when an unexpected laser (or other bright light) can distract a pilot during a night time take-off or approach/landing.
Glare and Disruption: This occurs as the intensity of the laser light increases such that it starts to interfere with vision; night vision starts to deteriorate.
Temporary Flash blindness: This effect is similar to that experienced when looking at a bright camera flash. There is no injury, but a portion of the visual field is temporarily knocked out. Sometimes there are 'afterimages'.

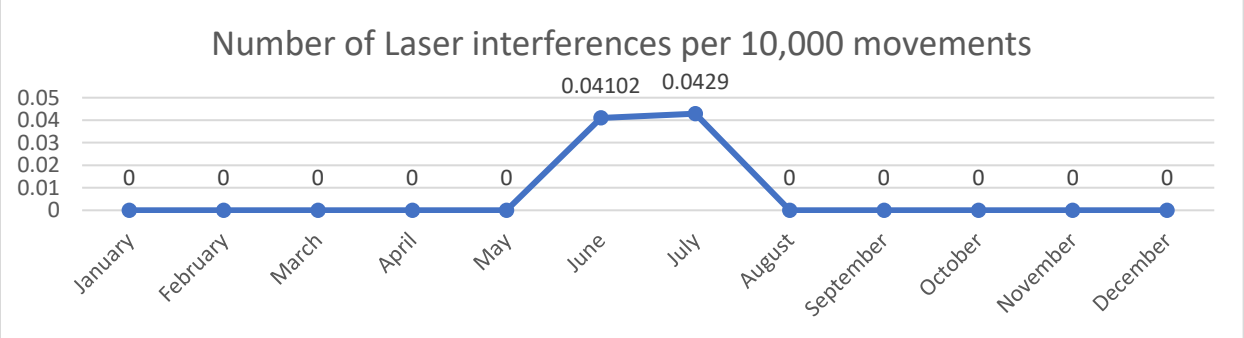
8.2 Source of Data

a) Traffic data is derived from Airport Information Management System (AIMS) Data Base.

b) Reports of bird strikes are extracted from the source of AAI control room messages, which include Reports of pilots, controllers, WSOs, Airport-in-charges, Airlines, and AFTN messages.

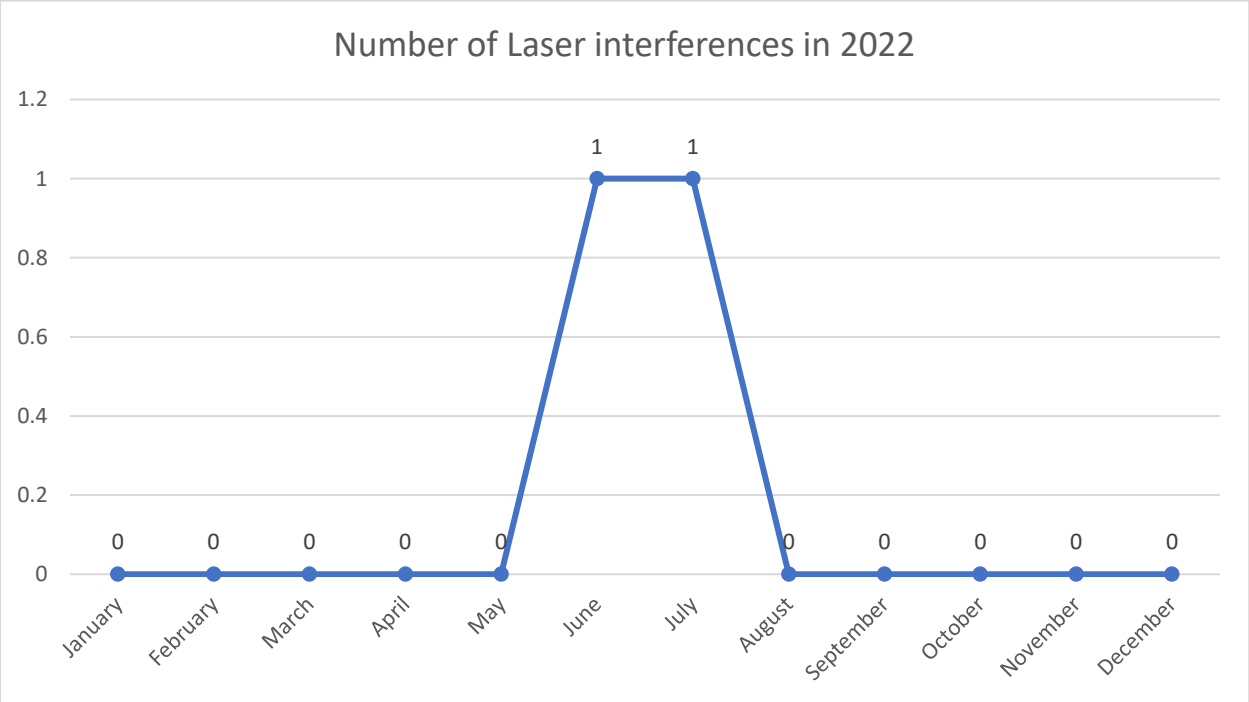
8.3 Data Analysis

Number of Laser interferences per 10,000 movements during last year i.e. **2022** and detailed analysis is appended below

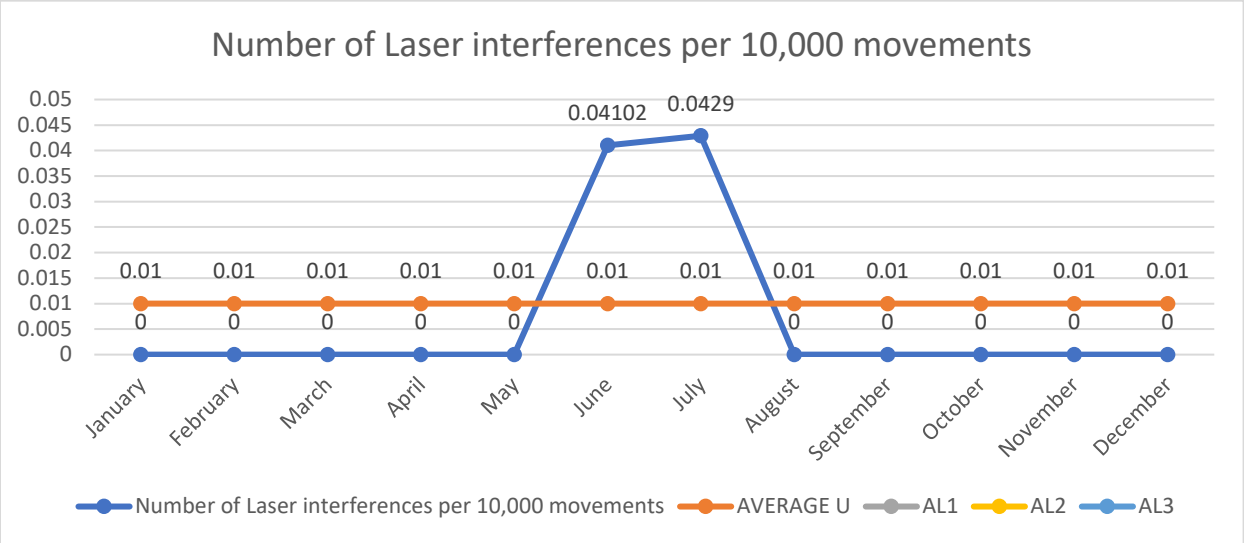


Month	Total Aircraft Movements (Arrival+ Departure + Overflying)	Number of Laser interferences	Number of Laser interferences per 10,000 movements
January	191432	0	0
February	175748	0	0
March	233893	0	0
April	239194	0	0
May	251374	0	0
June	243803	1	0.04102
July	233112	1	0.0429
August	238956	0	0
September	237726	0	0
October	253888	0	0
November	251747	0	0
December	267210	0	0
Total	**2818083**	**2**	**0.0071**

Month wise Number of Laser interferences per 10,000 movements is shown below:



8.4 Safety Performance Target (SPT)



Performance towards SPI Number of Laser interferences per 10,000 movements during **2022 is 0.0071.** Accordingly, it has been decided that the target for **2023** is set as **0.00689** (i.e. after 3% reduction).

8.5 Alert Level

a) Alert level setting: -

Alert levels for **2023** are set as-

Alert level 1 - 0.03
Alert level 2 - 0.05
Alert level 3 - 0.07

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2023**):

- Any single point is above the Alert level 3 line
- 2 consecutive points are above the Alert Level 2 line
- 3 consecutive points are above the Alert Level 1 line

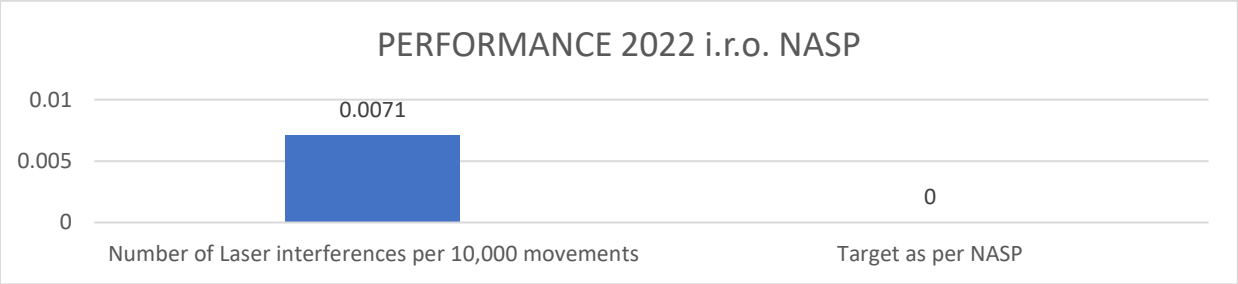
When Alert is triggered (potential high risk or out of control situation), appropriate follow-up action is expected, such as further analysis to determine the source and root cause

of the abnormal incident rate and any necessary action to address the unacceptable trend.

8.6 Target Achievement at the end of monitoring period (i.e. 2023)

At the end of the current year **2023**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

8.7 Comparison with National Aviation Safety Plan



8.8 Safety Action Plan

Safety Measures Already in Place
1. Laser interference reports were shared with Aerodrome operator/ AOCC/ APD as the case may be, to take necessary actions in coordination with local administration. 2. Laser interference reports were shared with DGCA for further necessary actions. 3. Reporting of occurrences and incidents was monitored through Airport Information Management System (AIMS) and other sources. 4. Refresher course/ sensitization classes were conducted to sensitize the controllers on the hazards due to laser interference.

Safety Action Plan

Safety objectives	Action
Reduce the Number of Laser interferences.	1. Laser interference reports will be shared with Aerodrome operator/ AOCC/ APD as the case may be, to take necessary actions in coordination with local administration. 2. Laser interference reports are shared with DGCA for further necessary actions. 3. Reporting of occurrences and incidents will be monitored through Airport Information Management System (AIMS) and other sources. 4. Refresher course/ sensitization classes will be conducted to sensitize the controllers on the hazards due to laser interference.