भारतीय विमानपत्तन प्राधिकरण
AIRPORTS AUTHORITY OF INDIA

ANNUAL SMS PERFORMANCE CALENDER YEAR **2023**

AVIATION SAFETY DIRECTORATE, CHQ, NEW DELHI

Introduction

The Safety Performance Indicator (SPI) package of Airports Authority of India (AAI) for the year **2023** (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 (2019-2023).

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. **2023**) 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 (**2024**):

- 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 **2024**, 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.

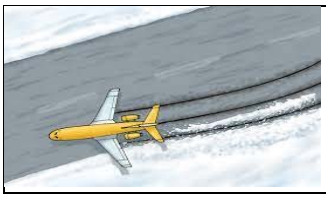
(A.K MEENA)
Executive Director (Aviation Safety)

AAI SMS Performance Summary – 2023						
SPI Description	**Target Achieved in 2022 [Yes/No]**	**SPI Target Level Criteria (for 2023)**	**Alert Level breached in 2023 [Yes/ No]**	**Target Achieved in 2023 [Yes/No]**	**SPI Alert Level Criteria (for 2024)**	**SPI Target Level Criteria (for 2024)**
Aerodrome Operations						
(1) Number of 'near' runway excursions per 10,000 approaches	Yes	0.019	No	Yes	AL1 = 0.00 AL2 = 0.00 AL3 = 0.00	0.018
(2) Number of runway excursions per 10,000 approaches	Yes	0.046	Yes	Yes	AL1 = 0.062 AL2 = 0.105 AL3 = 0.148	0.045
(3) Number of reported birds strikes at all Indian airports per 10,000 movements	No	**4.93***	Yes	No	**AL1 = 6.66** **AL2 = 8.26** **AL3= 9.86**	**4.93***
(4) Number of reported wildlife strikes at all Indian airports per 10,000 movements	Yes	0.198	No	Yes	AL1 = 0.318 AL2 = 0.445 AL3 = 0.572	0.198
(5) Number of runway incursions by wildlife at all Indian airports per 10,000 movements	No	**0.019***	Yes	No	**AL1 = 0.07** **AL2 = 0.12** **AL3 = 0.17**	**0.019***
(6) Number of ramp incidents that result in damage to aircraft, vehicles or loss of life/ serious injury to personnel per 10,00,000 movements	Yes	4.976	Yes	Yes	AL1 = 4.17 AL2 = 7.74 AL3= 10.96	4.83
Air Traffic Services (ATS)						
(7) Number of risk-bearing AIRPROX per 10,00,000 flights over Indian airspace	Yes	2.22	Yes	Yes	AL1 = 4.06 AL2 = 7.18 AL3= 10.30	2.15
(8) Number of aircraft not or incorrectly complying with ATC	No	**3.05***	Yes	No	**AL1 = 39.56** **AL2 = 51.77** **AL3= 63.98**	**3.05***

instructions (including level bust) per 10,00,000 flights over Indian airspace						
(9) Number of AIRPROX attributable to ATC/System failure per 10,00,000 flights over Indian airspace	No	9.74	Yes	No	**AL1 = 15.82** **AL2 = 22.18** **AL3= 28.54**	**9.74***
(10) Communication Errors per 10,00,000	Yes	15.46	Yes	Yes	AL1 = 8.96 AL2 = 12.99 AL3 = 17.02	15.00
(11) Number of Laser interferences per 10,000 movements	--	0.0069	Yes	No	**AL1= 0.03** **AL2=0.05** **AL3=0.07**	**0.0069***
(12) Number of runway incursions (aircraft) per 10,00,000 movements	No	**10.55***	Yes	No	**AL1 = 11.89** **AL2 = 14.23** **AL3 = 16.57**	**10.55***
(13) Number of runway incursions (vehicle) per 10,00,000 movements	No	**1.33***	Yes	No	**AL1 = 7.12** **AL2 = 11.63** **AL3 = 16.14**	**1.33***
(14) Number of runway incursions (person) per 10,00,000 movements	No	**1.52***	Yes	Yes	AL1 = 3.01 AL2 = 4.91 AL3 = 6.82	1.47

*** As the target set for 2023 was not achieved, hence it has been decided that the target and alert levels for 2024 shall be same as for 2023.**

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



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

1.1 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.

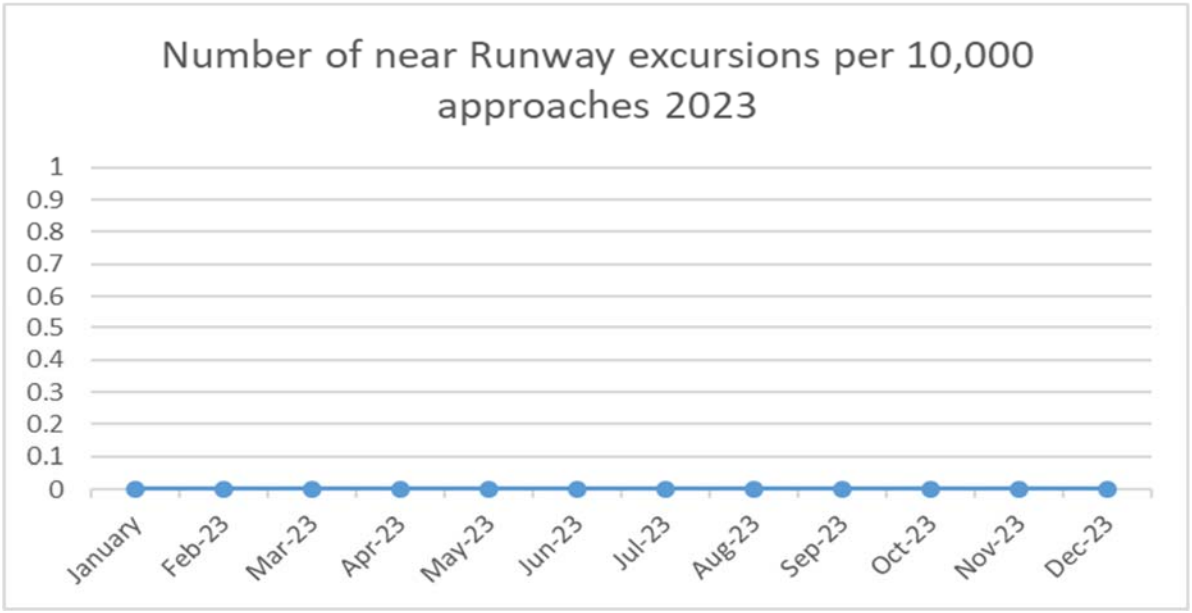
1.2 Source of Data

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

b) 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.

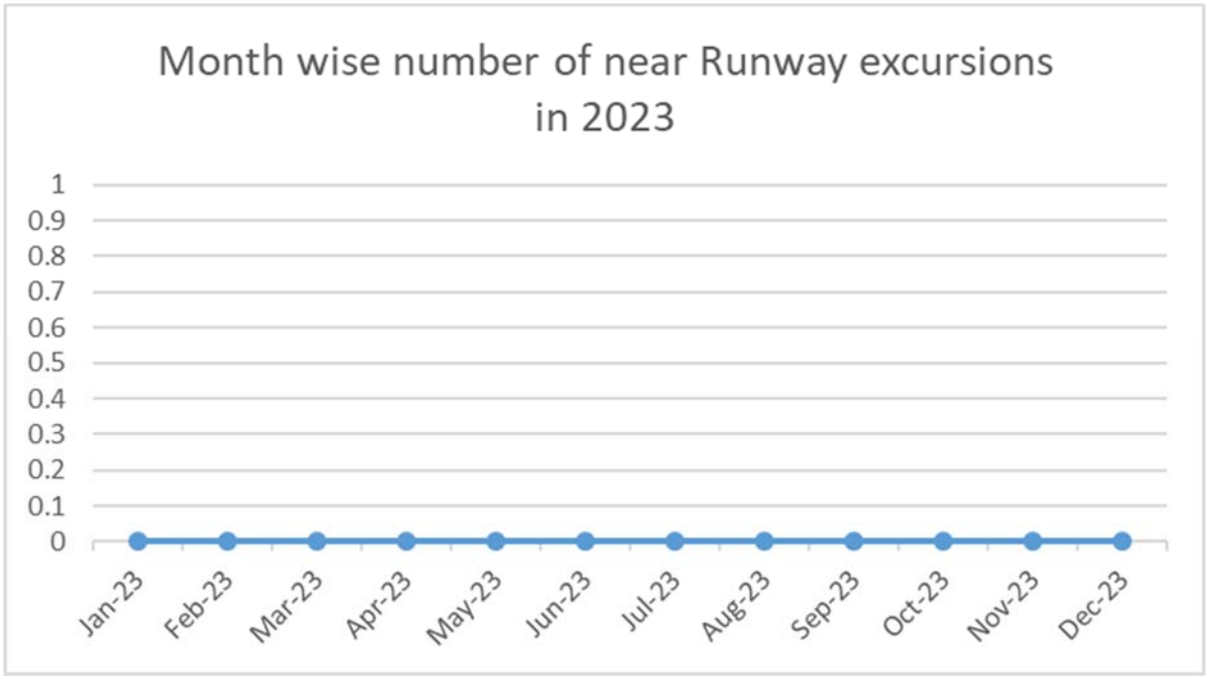
1.3 Data Analysis:

Number of 'Near' Runway Excursion per 10,000 approaches during year **2023** and detailed analysis is appended below

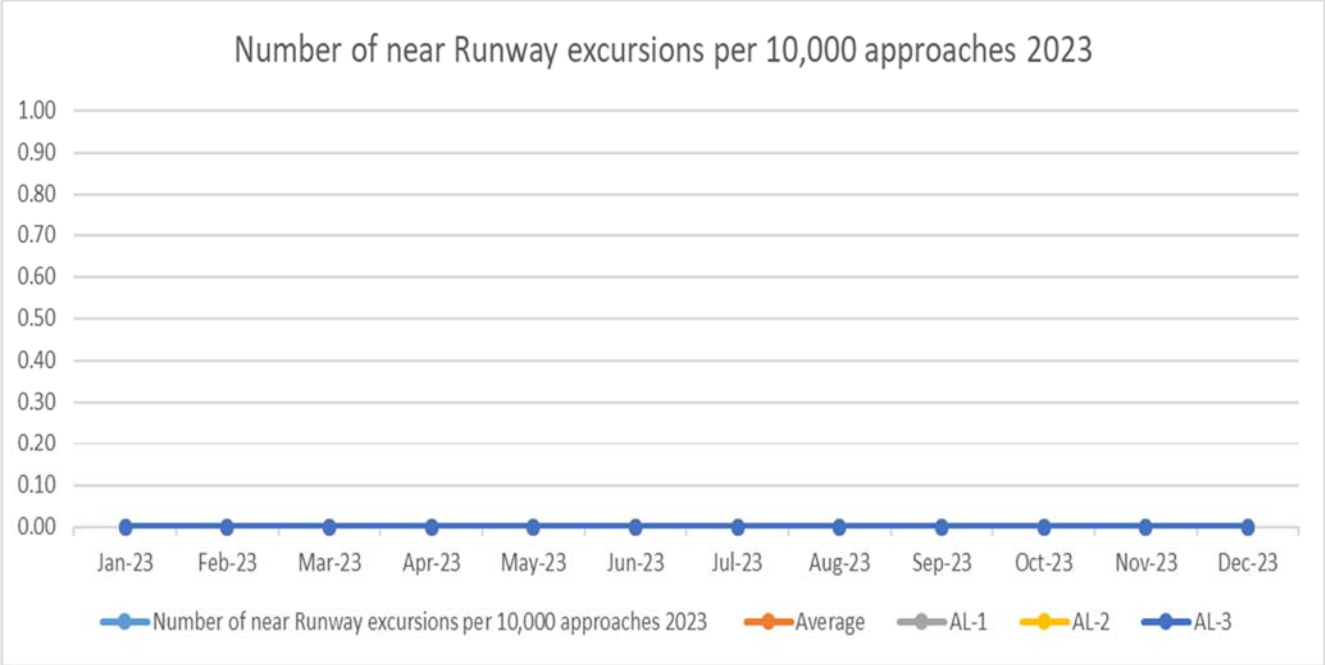


Month	Total Approaches	Number of runway excursions	Number of Near Runway excursions per 10,000 approaches	Incident Rate(per 10,000) approaches X	Average (u)	(x-u)	(x-u)^2	u+ 1SD	u+ 2 SD	u+3 SD
January	90213	0	0.000							
February	83020	0	0.000							
March	90462	0	0.000							
April	87687	0	0.000							
May	88236	0	0.000							
June	84416	0	0.000							
July	85613	0	0.000							
August	86892	0	0.000							
September	86246	0	0.000							
October	91381	0	0.000							
November	89315	0	0.000							
December	88920	0	0.000							
TOTAL	1052401	0								

Month wise Number of near Runway excursions during year **2023** is shown below:



1.4 Safety Performance Target (SPT):



Average =0	Target for 2023=0.019 **Achieved**	Target for 2024= 0.018 (reduction of 3%)

The Average performance for the year 2023 has been 0 and Alert level no Alert level has breached.

As the target of **0.019** for year **2023** has been achieved hence it has been decided that the target for year **2024** shall be **0.018** (i.e. reduction of 3%).

1.5 Alert Level:

a) **Alert level setting:** -

Alert Level for 2024 is set as below		
Alert Level -1 -	AVG +1 SD	0
Alert Levael-2 -	AVG +2 SD	0
Alert Level-3 -	AVG+ 3SD	0

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2024**):

- 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 (2024)

At the end of the current year **2024**, 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.

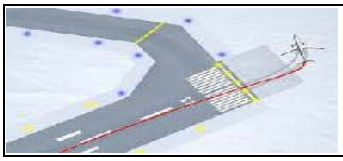
1.7 Safety Action Plan

Safety Measures Already in Place

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
Operational Circular 01 of 2022	Guidance on Maintenance of Visual Aids at Aerodrome

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.



Number of Runway excursions per 10,000 approaches

2.1 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

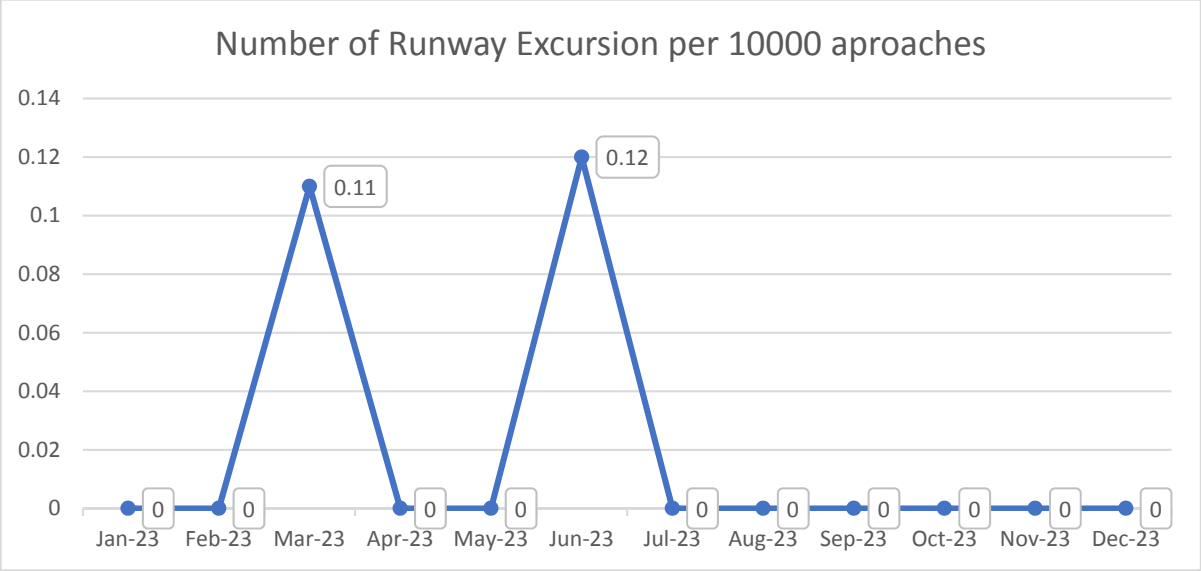
2.2 Source of Data

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.

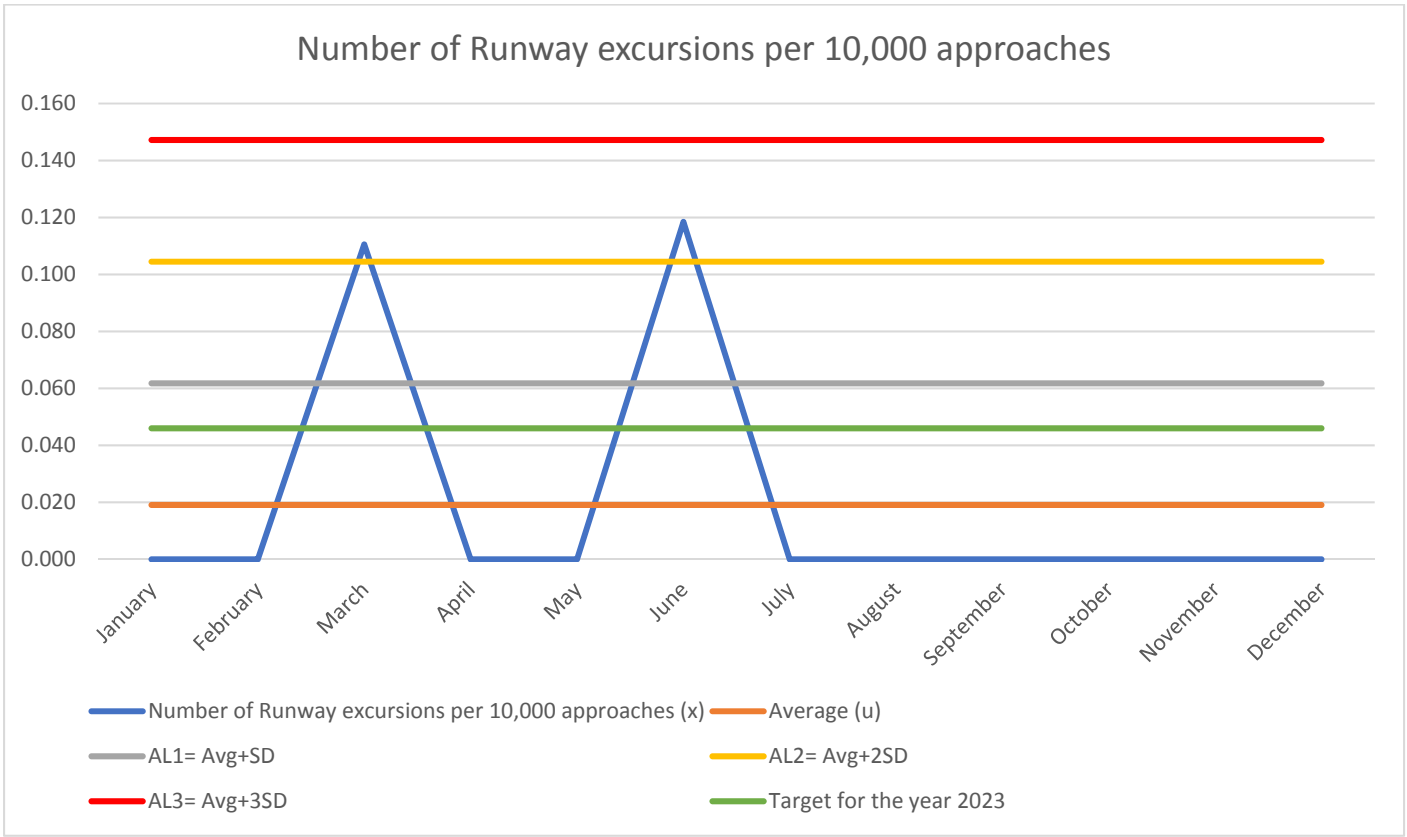
2.3 Data Analysis:

Number of Runway excursions per 10,000 approaches during the year. **2023** and detailed analysis is appended below



Year	Month	Total Aircraft Movements (Arrival + Departure)	Number of runway excursions	Incident Rate (per 10,000) X	Average (u)	(x-u)	(x-u) ^2	u+ 1SD	u+ 2 SD	u+3 SD
2023	**January**	90213	0	0	0.019	-0.019	0.000361	0.062	0.105	0.148
	February	83020	0	0	0.019	-0.019	0.000361	0.062	0.105	0.148
	March	90462	1	0.111	0.019	0.092	0.008380241	0.062	0.105	0.148
	April	87687	0	0.000	0.019	-0.019	0.000361	0.062	0.105	0.148
	May	88236	0	0.000	0.019	-0.019	0.000361	0.062	0.105	0.148
	June	84416	1	0.118	0.019	0.099	0.009892482	0.062	0.105	0.148
	July	85613	0	0.000	0.019	-0.019	0.000361	0.062	0.105	0.148
	August	86892	0	0.000	0.019	-0.019	0.000361	0.062	0.105	0.148
	September	86246	0	0.000	0.019	-0.019	0.000361	0.062	0.105	0.148
	October	91381	0	0.000	0.019	-0.019	0.000361	0.062	0.105	0.148
	November	89315	0	0.000	0.019	-0.019	0.000361	0.062	0.105	0.148
	December	88920	0	0.000	0.019	-0.019	0.000361	0.062	0.105	0.148
TOTAL		1052401	2	0.019	0.019	0.001	0.022			
							0.00182356			
						SD	0.043			

2.4 Safety Performance Target (SPT):



Average = 0.019	Target for 2023=0.046 **Achieved**	Target for 2024= 0.045 (reduction of 3%)

The Average performance for the year 2023 has been 0.019 and Alert level AL-2 has been breached twice.

As the target of **0.046 for** year **2023** has been achieved hence it has been decided that the target for **2024** shall be 0.045 (i.e. reduction of 3%)

2.5 Alert Level:

a) Alert level setting: -

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

Alert Level for 2024 is set as below			
Alert Level -1 -	AVG +1 SD	0.019 +1 X 0.043 =	0.062
Alert Levael-2 -	AVG +2 SD	0.019+ 2x 0.043 =	0.105
Alert Level-3 -	AVG+ 3SD	0.019+ 3X 0.043 =	0.148

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2024**):

- 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 (2024)

At the end of the current year **2024**, 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 Safety Action Plan

Safety Measures Already in Place

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
Operational Circular 01 of 2022	Guidance on Maintenance of Visual Aids at Aerodrome

Number of reported birds strikes at all Indian airports per 10,000 movements

3.1 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.

3.2 Source of Data

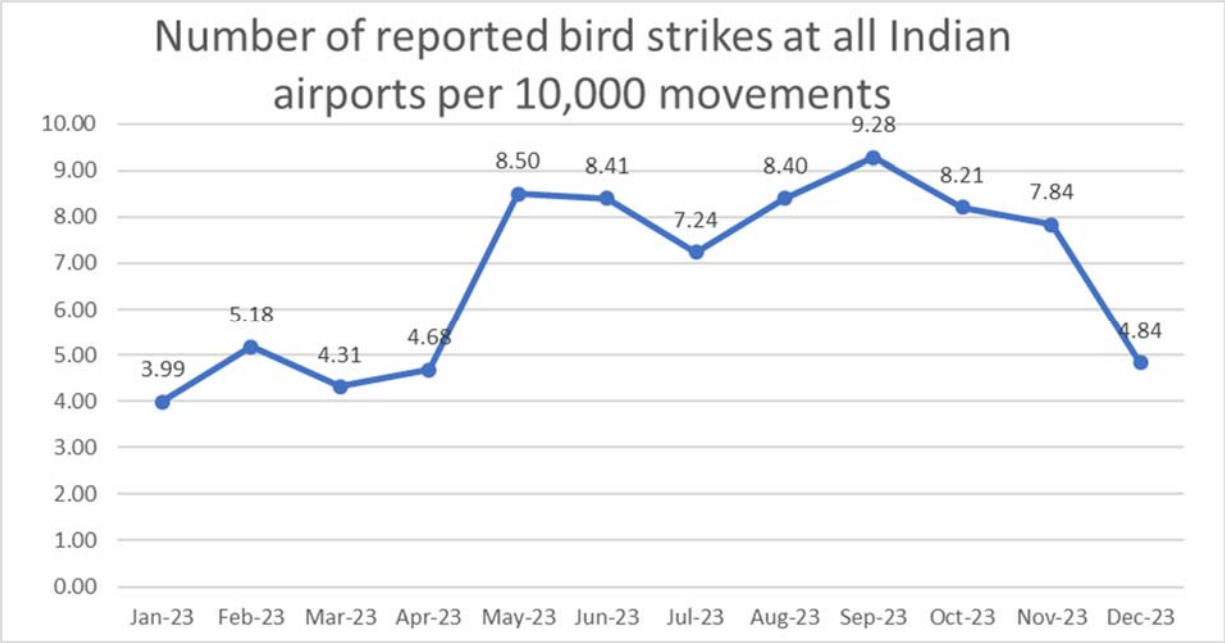
a) Traffic data is derived from Airport Information Management System (AIMS) database

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).

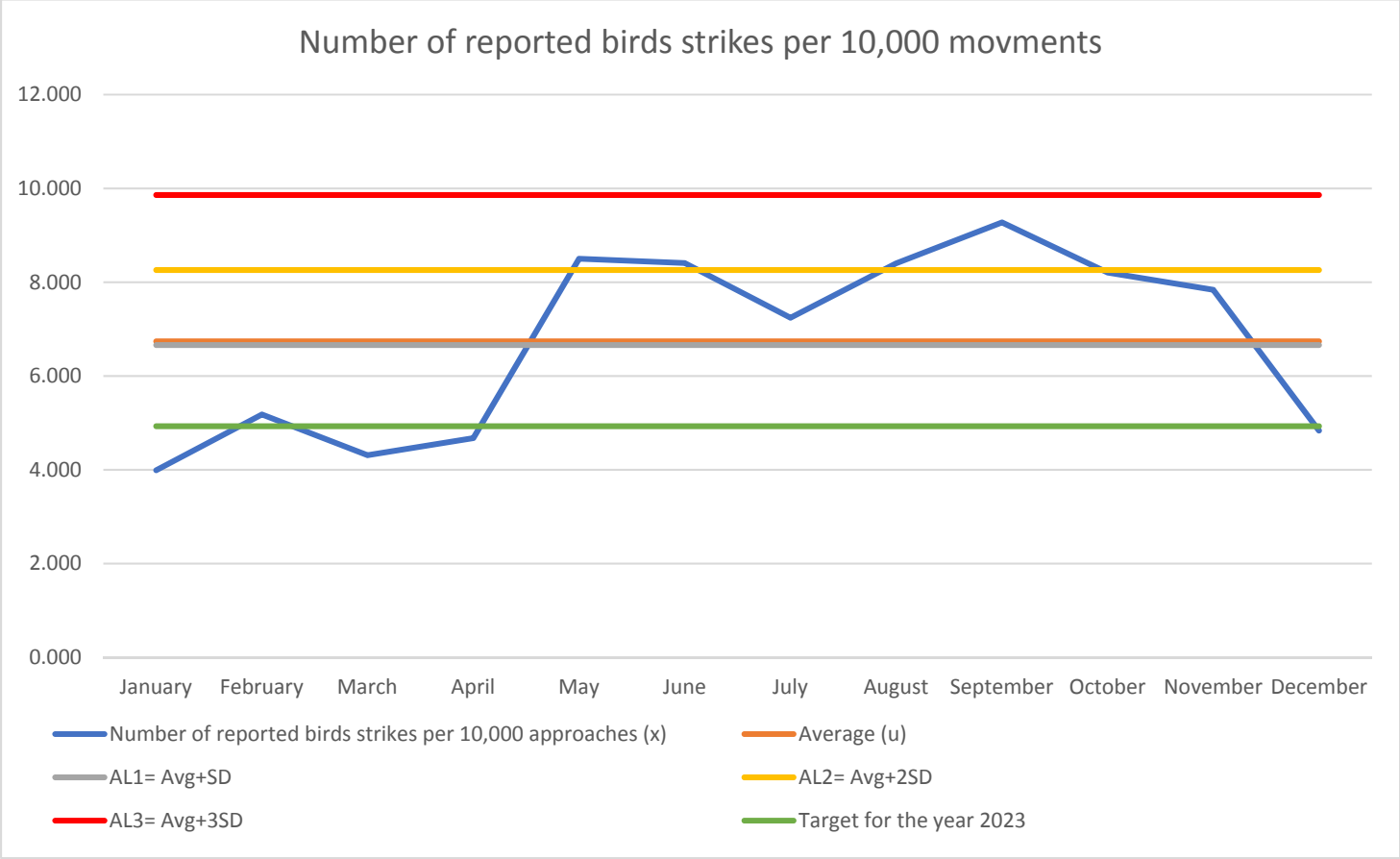
3.3 Data Analysis:

Year	Month	Total Aircraft Movements (Arrival + Departure)	Number of reported bird strikes	Incident Rate(per 10,000) X	Average (u)	(x-u)	(x-u)^2	u+ 1SD	u+ 2 SD	u+3 SD
2023	**January**	90213	36	3.991	6.727	-2.736	7.488	8.608	10.489	12.370
	February	83020	43	5.179	6.727	-1.548	2.395	8.608	10.489	12.370
	March	90462	39	4.311	6.727	-2.416	5.836	8.608	10.489	12.370
	April	87687	41	4.676	6.727	-2.051	4.208	8.608	10.489	12.370
	May	88236	75	8.500	6.727	1.773	3.143	8.608	10.489	12.370
	June	84416	71	8.411	6.727	1.684	2.835	8.608	10.489	12.370
	July	85613	62	7.242	6.727	0.515	0.265	8.608	10.489	12.370
	August	86892	73	8.401	6.727	1.674	2.803	8.608	10.489	12.370
	September	86246	80	9.276	6.727	2.549	6.496	8.608	10.489	12.370
	October	91381	75	8.207	6.727	1.480	2.192	8.608	10.489	12.370
	November	89315	70	7.837	6.727	1.110	1.233	8.608	10.489	12.370
	December	88920	43	4.836	6.727	-1.891	3.577	8.608	10.489	12.370
	TOTAL	1052401	708				42.471			
							3.539			

Approaches during last year i.e. **2023** and detailed analysis is appended below



3.4 Safety Performance Target (SPT):



Average = 6.727	Target for 2023=4.93 **Not Achieved**	Target for 2024= 4.93

The Average performance for the year 2023 has been 6.727 and Alert level AL-2 has been breached twice consecutively in May-June and August, September and October.

As the target of **4.93 for** year **2023** has not been achieved, hence it has been decided that the target for **2024** shall be same as **4.93.**

3.5 Alert Level:

a) Alert level setting:

Alert Level for 2024 is same as for 2023 shown below		
Alert Level -1 -	AVG +1 SD =	6.66
Alert Levael-2 -	AVG +2 SD =	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 (**2024**):

- 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 (2024)

At the end of the current year **2024**, 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 Safety Action Plan

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 01 of 2022	Management of Potential Wildlife Hazards at Licensed Aerodromes.
Operational circular 02 of 2023	Wildlife Hazard Management

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 Indian airports per 10,000 movements

4.1 Definition

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

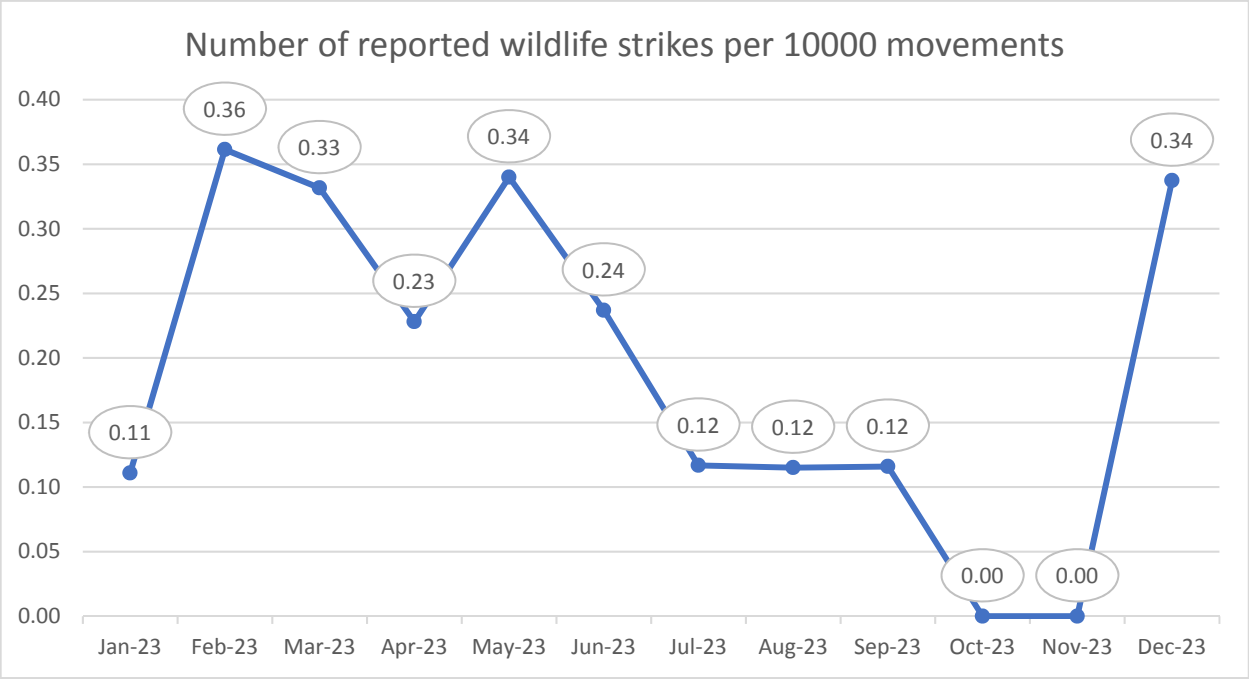
4.2 Source of Data

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).

4.3 Data Analysis:

Number of reported wildlife strikes at all Indian airports per 10,000 movements during year **2023** and detailed analysis is appended below

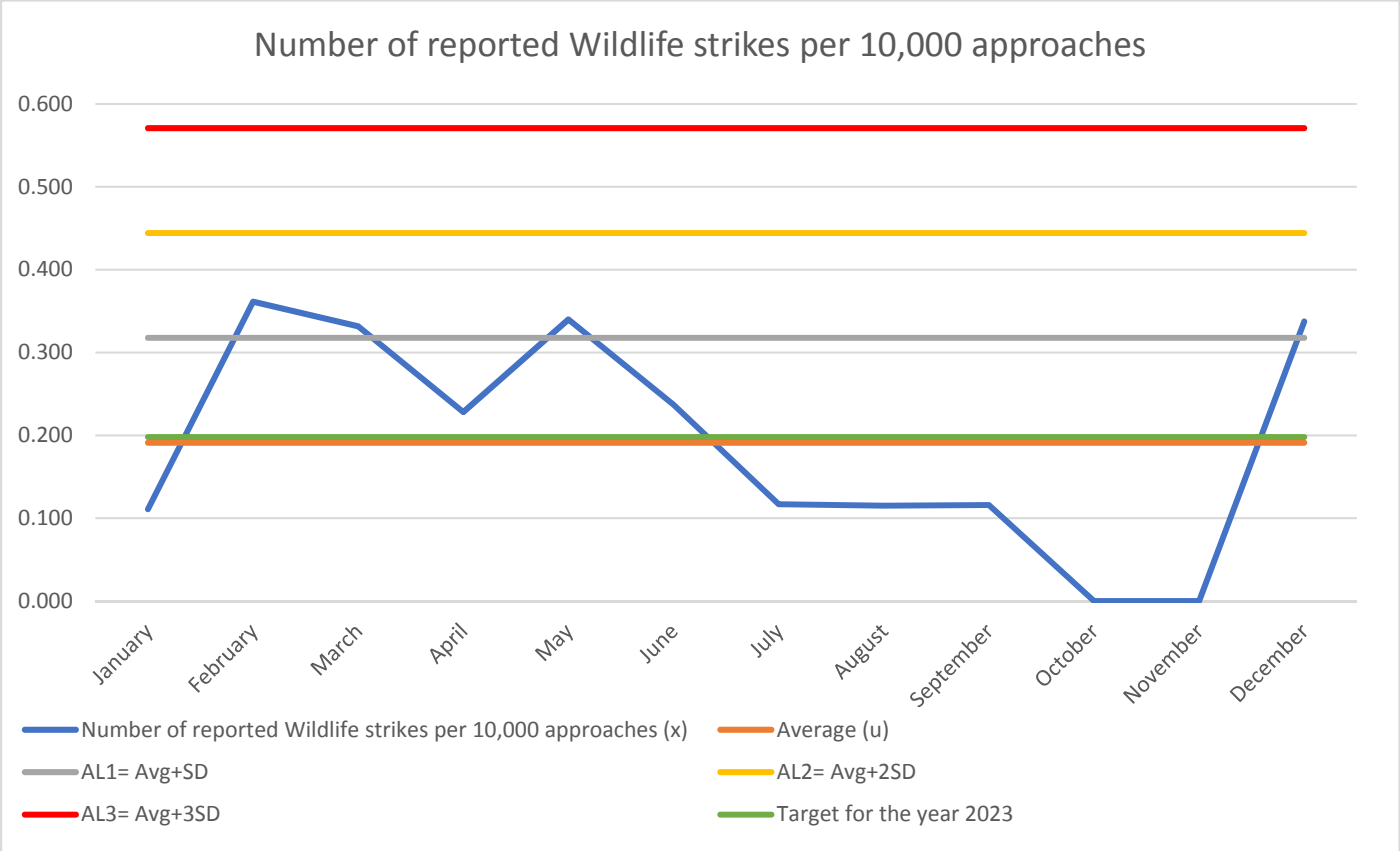


Year	Month	Total Aircraft Movements (Arrival + Departure)	Number of reported wildlife strikes	Incident Rate(per 10,000) X	Average (u)	(x-u)	(x-u)^2	u+ 1SD	u+ 2 SD	u+3 SD
2023	**January**	90213	1	0.111	0.191	-0.080	0.006	0.318	0.445	0.572
	February	83020	3	0.361	0.191	0.170	0.029			
	March	90462	3	0.332	0.191	0.141	0.020			
	April	87687	2	0.228	0.191	0.037	0.001			
	May	88236	3	0.340	0.191	0.149	0.022			
	June	84416	2	0.237	0.191	0.046	0.002			
	July	85613	1	0.117	0.191	-0.074	0.006			
	August	86892	1	0.115	0.191	-0.076	0.006			
	September	86246	1	0.116	0.191	-0.075	0.006			
	October	91381	0	0.000	0.191	-0.191	0.036			
	November	89315	0	0.000	0.191	-0.191	0.036			
	December	88920	3	0.337	0.191	0.146	0.021			
	TOTAL	1052401	20	2.294			0.192			

SD	0.127

Average =	0.191	Target for 2023=	0.198
Alert Level for 2024 is set as below			
Alert Level -1 -	AVG +1 SD =	0.191 +1 X 0.127 =	0.318
Alert Levael-2 -	AVG +2 SD =	0.191+ 2x 0.127 =	0.445
Alert Level-3 -	AVG+ 3SD =	0.191+ 3X 0.127 =	0.572

4.4 Safety Performance Target (SPT):



Average = 0.191	Target for 2023=0.198 **Achieved**	Target for 2024= 0.192 (reduction of 3%)

The Average performance for the year 2023 has been 0.191 and Alert level AL-1 has been breached thrice but not consecutively.

As the target of **0.198** for year **2023** has been achieved hence it has been decided that the target for **2024** shall be same as **0.192** (i.e. reduction of 3%)

4.5 Alert Level:

a) Alert level setting:

Alert Level for 2024 is set as below			
Alert Level -1 -	AVG +1 SD =	0.191 +1 X 0.127 =	0.318
Alert Levael-2 -	AVG +2 SD =	0.191+ 2x 0.127 =	0.445
Alert Level-3 -	AVG+ 3SD =	0.191+ 3X 0.127 =	0.572

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2024**):

- 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 (2024)

At the end of the current year **2024**, 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 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 01 of 2022	Management of Potential Wildlife Hazards at Licensed Aerodromes.
Operational circular 02 of 2023	Wildlife Hazard Management

Safety Action Plan

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

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

5.1. 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.

5.2 Source of Data:

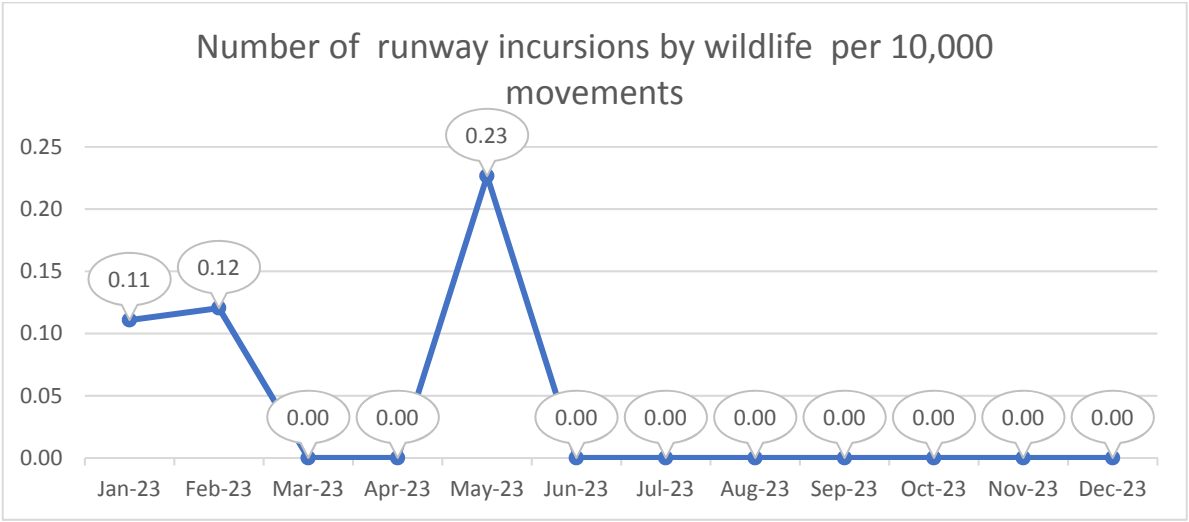
a) Traffic data will be derived from AIMS data base.

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.

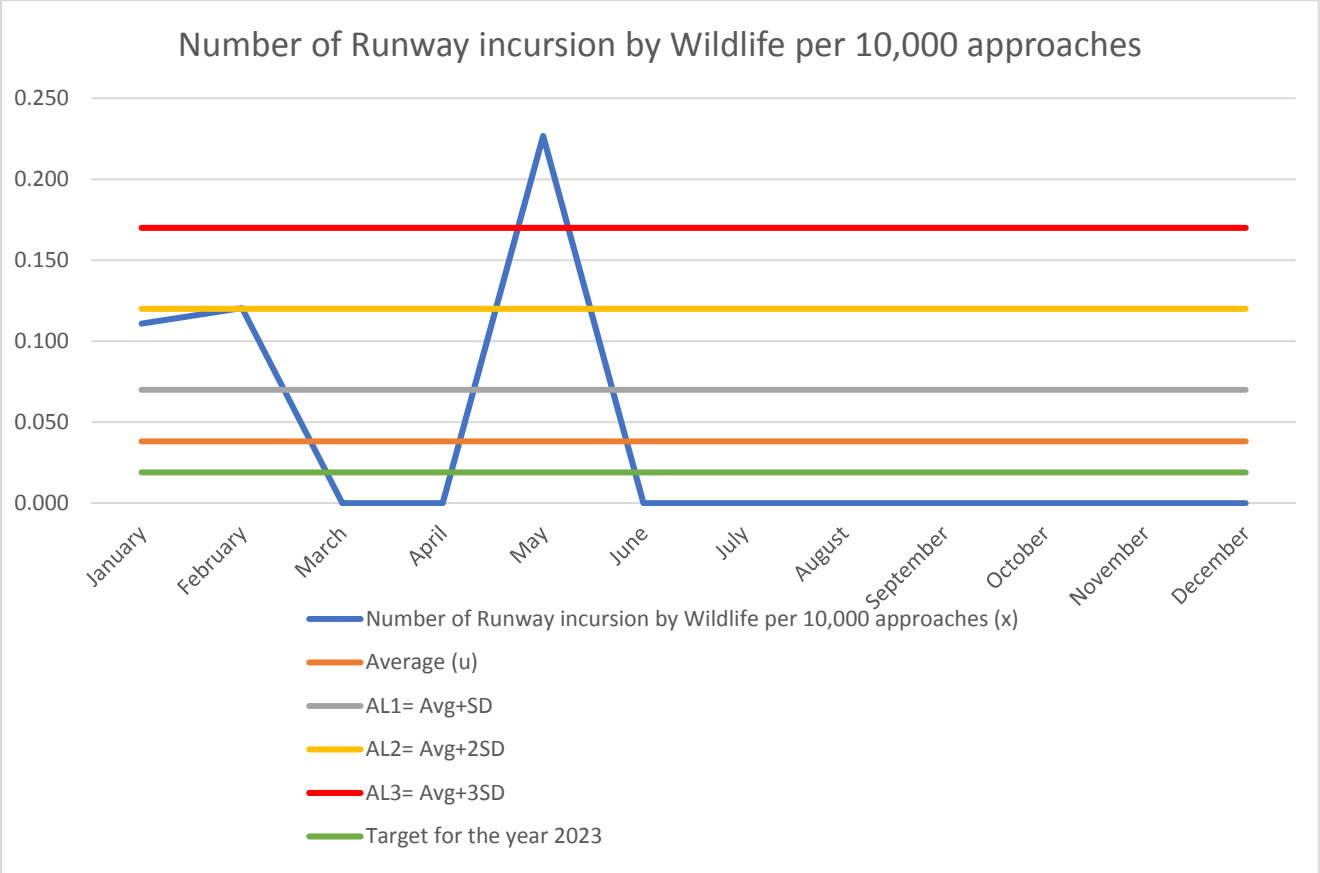
5.3 Analysis of Data:

Number of runway incursions by wildlife per 10,000 movements during year **2023** and detailed analysis is appended below



Year	Month	Total Aircraft Movements (Arrival + Departure)	Number of runway incursion by wildlife strikes	Incident Rate (per 10,000) X	Average (u)	(x-u)	(x-u) ^2	u+ 1SD	u+ 2 SD	u+3 SD
2023	**January**	90213	1	0.110	0.038	0.072	0.005184	0.109	0.180	0.251
	February	83020	1	0.120	0.038	0.082	0.006724			
	March	90462	0	0.000	0.038	-0.038	0.001444			
	April	87687	0	0.000	0.038	-0.038	0.001444			
	May	88236	2	0.226	0.038	0.188	0.035344			
	June	84416	0	0.000	0.038	-0.038	0.001444			
	July	85613	0	0.000	0.038	-0.038	0.001444			
	August	86892	0	0.000	0.038	-0.038	0.001444			
	September	86246	0	0.000	0.038	-0.038	0.001444			
	October	91381	0	0.000	0.038	-0.038	0.001444			
	November	89315	0	0.000	0.038	-0.038	0.001444			
	December	88920	0	0.000	0.038	-0.038	0.001444			
	TOTAL	1052401	4	0.456			0.060248			
							0.005021			
					SD		0.071			

5.4 Safety Performance Target (SPT):



Average = 0.038	Target for 2023=0.019 **Not Achieved**	Target for 2024= 0.019

The Average performance for the year 2023 has been 0.038 and Alert level AL-3 has been breached once in May.

As the target of **0.019** for year **2023** has not been achieved hence it has been decided that the target for year **2024** shall be same as **0.019.**

5.5 Alert Level:

a) **Alert level setting:**

Alert Level for 2024 is same as for 2023		
Alert Level -1 -	AVG +1 SD =	0.07
Alert Levael-2 -	AVG +2 SD =	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 (**2024**):

- 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 (2024)

At the end of the current year **2024**, 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 Safety Action Plan

Operations Directorate references	**Safety Measures already in place**
Operational circular 02 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 2022	Management of Potential Wildlife Hazards at Licensed Aerodromes.
Operational circular 02 of 2023	Wildlife Hazard Management

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

6.1 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.

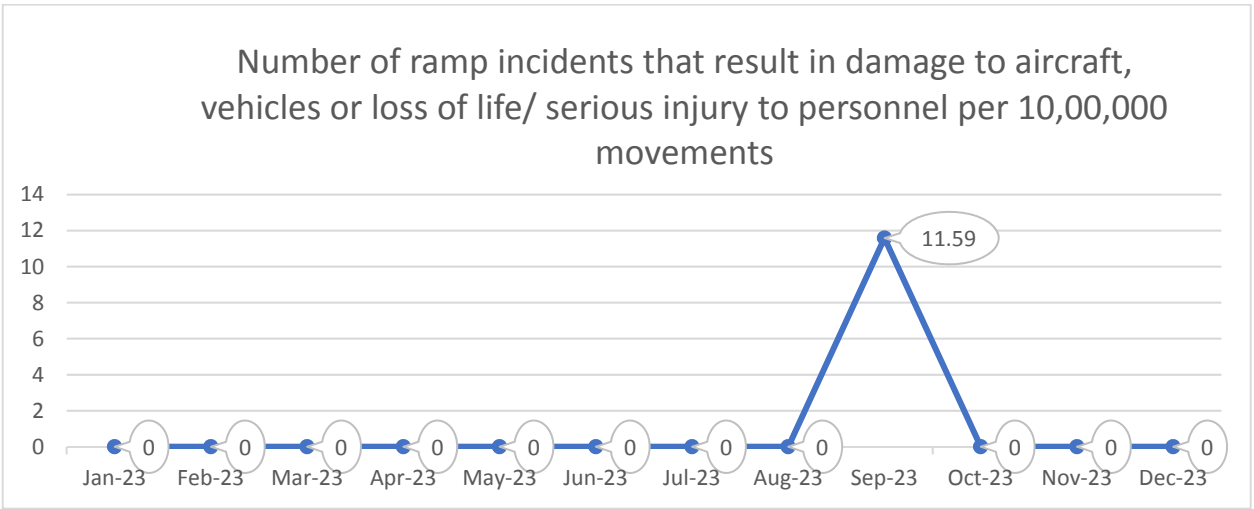
6.2 Source of Data

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.

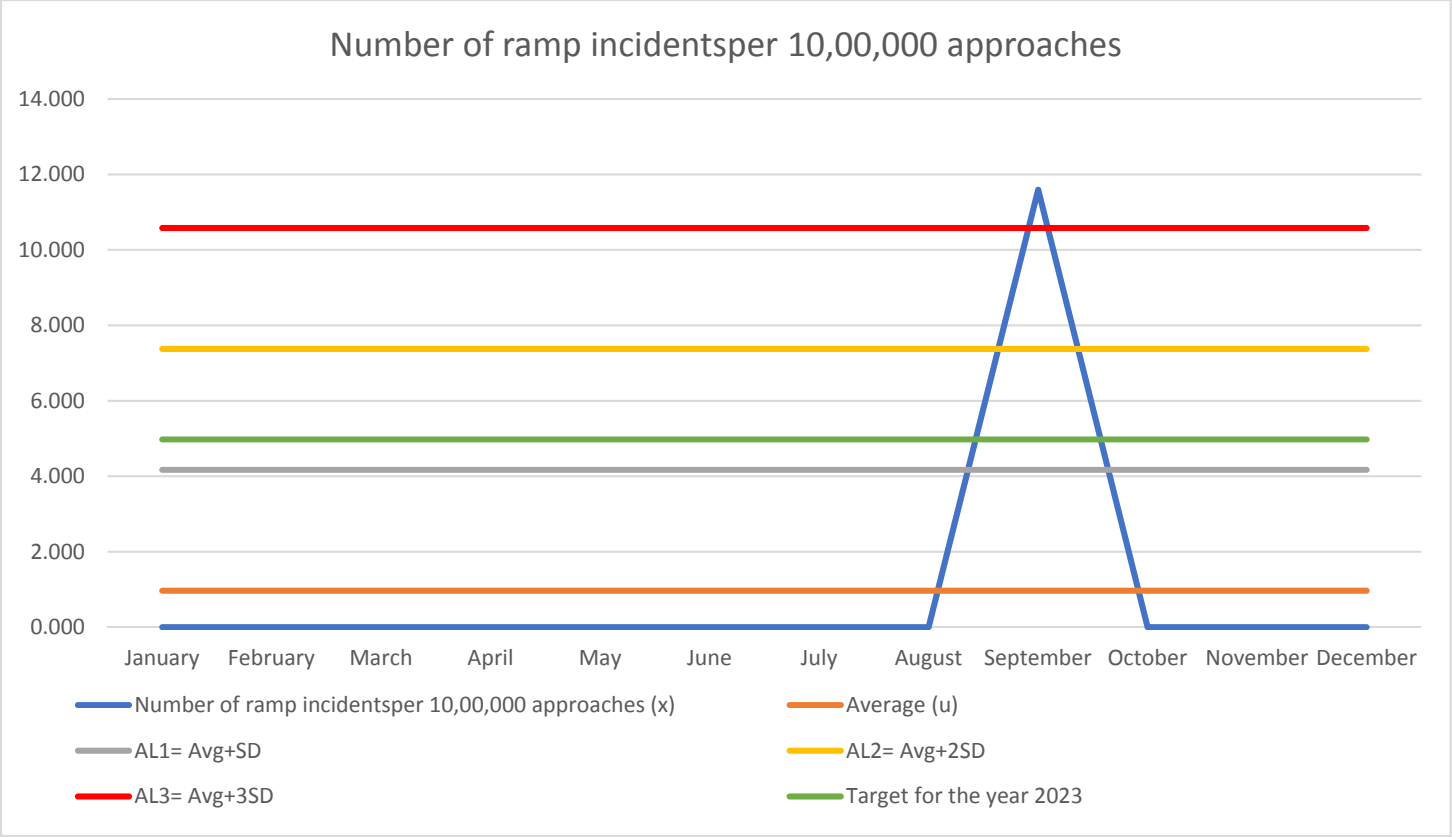
6.3 Data Analysis:

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. **2023** and detailed analysis is appended below



Year	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	Incident Rate(per 10,00,000) X	Average (u)	(x-u)	(x-u)^2	u+ 1SD	u+ 2 SD	u+3 SD
2023	**January**	90213	0	0.000	0.966	-0.966	0.933	4.170	7.375	10.579
	February	83020	0	0.000	0.966	-0.966	0.933			
	March	90462	0	0.000	0.966	-0.966	0.933			
	April	87687	0	0.000	0.966	-0.966	0.933			
	May	88236	0	0.000	0.966	-0.966	0.933			
	June	84416	0	0.000	0.966	-0.966	0.933			
	July	85613	0	0.000	0.966	-0.966	0.933			
	August	86892	0	0.000	0.966	-0.966	0.933			
	September	86246	1	11.594	0.966	10.628	112.954			
	October	91381	0	0.000	0.966	-0.966	0.933			
	November	89315	0	0.000	0.966	-0.966	0.933			
	December	88920	0	0.000	0.966	-0.966	0.933			
	TOTAL	1052401	1				123.219			
							10.268			
						SD=	3.204			

6.4 Safety Performance Target (SPT):



Average = 0.966	Target for 2023= 4.976 **Achieved**	Target for 2024= 4.83

The Average performance for the year 2023 has been 0.966 and Alert level AL-3 has been breached once in September.

As the target of **4.976** for **2023** has been achieved, it has been decided that the target for year **2024** shall be same as **4.83** (i.e. reduction of 3%)

6.5 Alert Level:

a) **Alert level setting:**

Alert Level for 2024 is set as below			
Alert Level -1 -	AVG +1 SD =	0.966 +1 X 3.204 =	4.17
Alert Levael-2 -	AVG +2 SD =	0.966+ 2x 3.204 =	7.74
Alert Level-3 -	AVG+ 3SD =	0.966+ 3X 3.204 =	10.5

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2024**):

- 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 (2024)

At the end of the current year **2024**, 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 Safety Action Plan

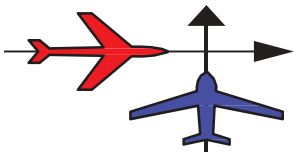
Safety Measures Already in Place

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.

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

7.1 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.

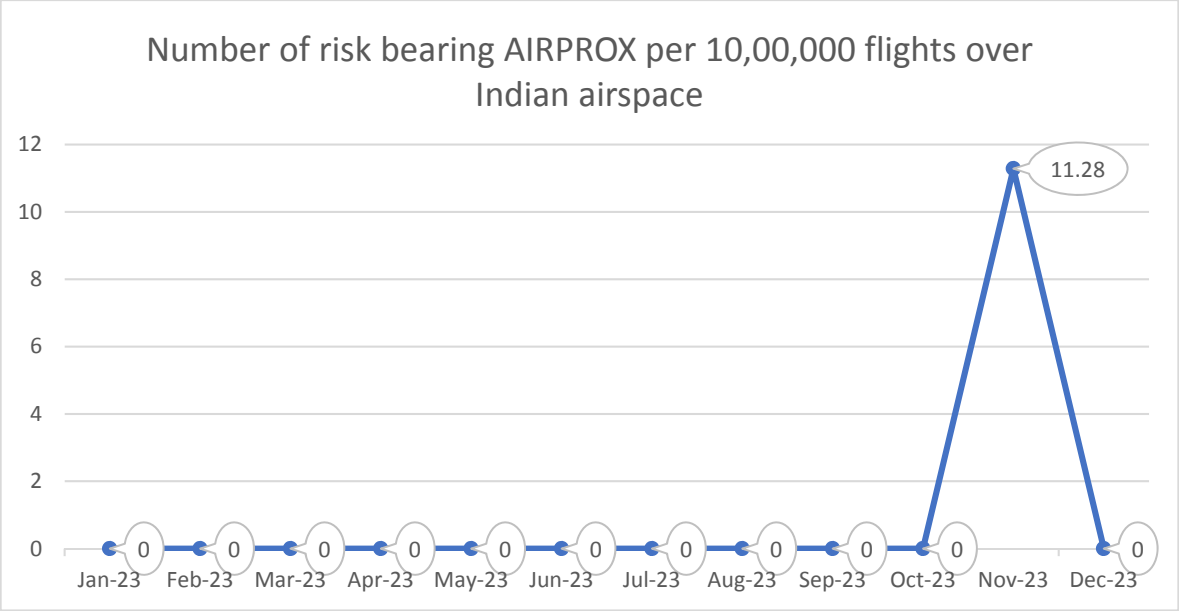
7.2 Source of Data

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.

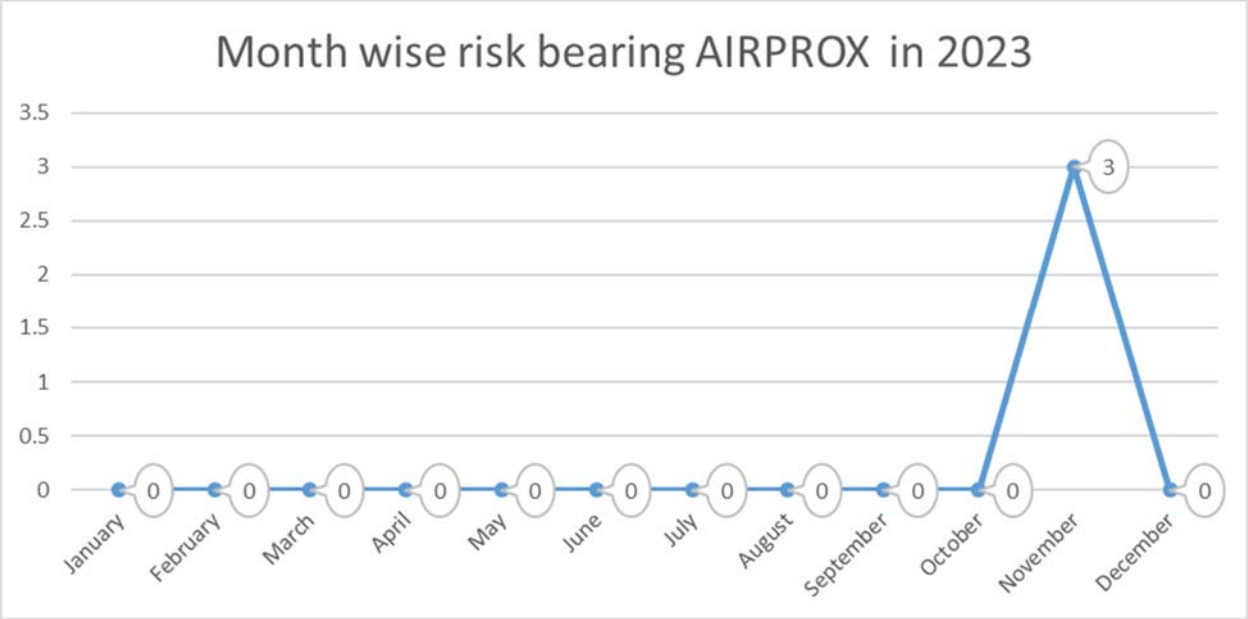
7.3 Data Analysis:

Number of reported risk-bearing AIRPROX per 10,00,000 flights during year **2023** and detailed analysis is appended below:

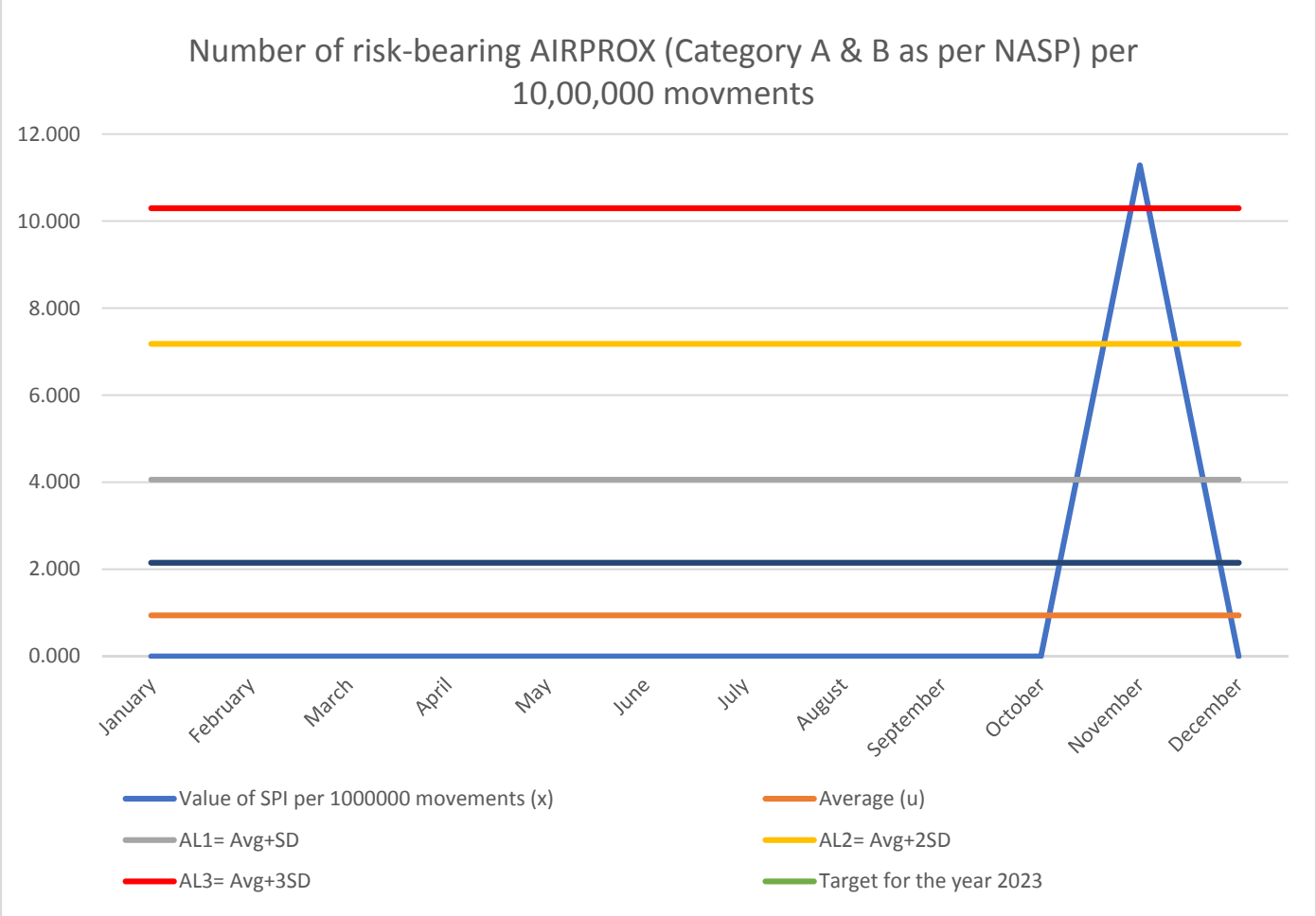


Month	Total Aircraft Movement (Arr.+ Dep. + Overflying)	Number of risk-bearing AIRPROX (Category A & B as per NASP)	Airprox incident rate per 10,00,000 flights over indian airspace(X)	Average (u)	(x-u)	(x-u)^2	u+ 1SD	u+ 2 SD	u+3 SD
January	258456	0	0.000	0.94	-0.940	0.884	4.059	7.177	10.296
February	241452	0	0.000	0.94	-0.940	0.884			
March	263165	0	0.000	0.94	-0.940	0.884			
April	252735	0	0.000	0.94	-0.940	0.884			
May	246585	0	0.000	0.94	-0.940	0.884			
June	241122	0	0.000	0.94	-0.940	0.884			
July	249385	0	0.000	0.94	-0.940	0.884			
August	255834	0	0.000	0.94	-0.940	0.884			
September	254571	0	0.000	0.94	-0.940	0.884			
October	270623	0	0.000	0.94	-0.940	0.884			
November	265872	3	11.284	0.94	10.344	106.991			
December	272030	0	0.000	0.94	-0.940	0.884			
TOTAL	**3071830**	**3**	11.284			116.710			
						9.726			
					SD =	3.119			

Month wise Number of risk bearing AIRPROX over Indian airspace in 2023 is shown below:



7.4 Safety Performance Target (SPT):



Average = 0.940	Target for 2023=2.22 **Achieved**	Target for 2024= 2.15 (reduction of 3%)

The Average performance for the year 2023 has been 0.940 and Alert level AL-3 has been breached once in November.

As the target of **2.22** for year **2023** has been achieved, it has been decided that the target for **2024** shall be **2.15** (i.e. reduction of 3%)

7.5 Alert Level:

a) Alert level setting:

Alert Level for 2024 is set as below			
Alert Level -1 -	AVG +1 SD =	0.940 +1 X 3.119 =	4.06
Alert Levael-2 -	AVG +2 SD =	0.940+ 2x 3.119 =	7.18
Alert Level-3 -	AVG+ 3SD =	0.940+ 3X 3.119=	10.30

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2024**):

- 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.

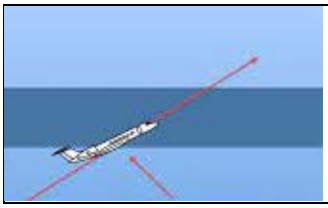
7.6 Target Achievement at the end of the monitoring period (2024)

At the end of the current year **2024**, 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 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 objectives	Action
Reduce the Number ofrisk 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

8.1 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.

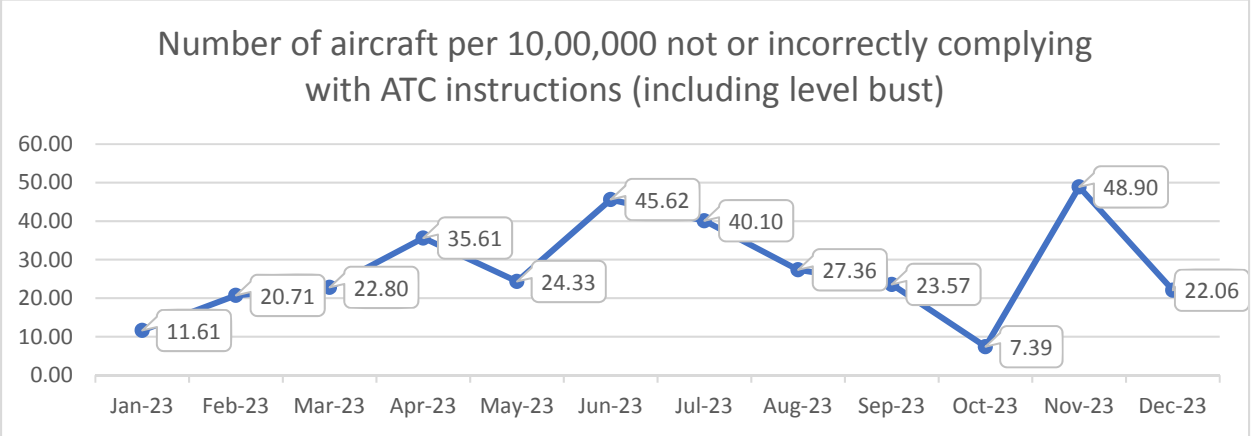
8.2 Source of Data

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.

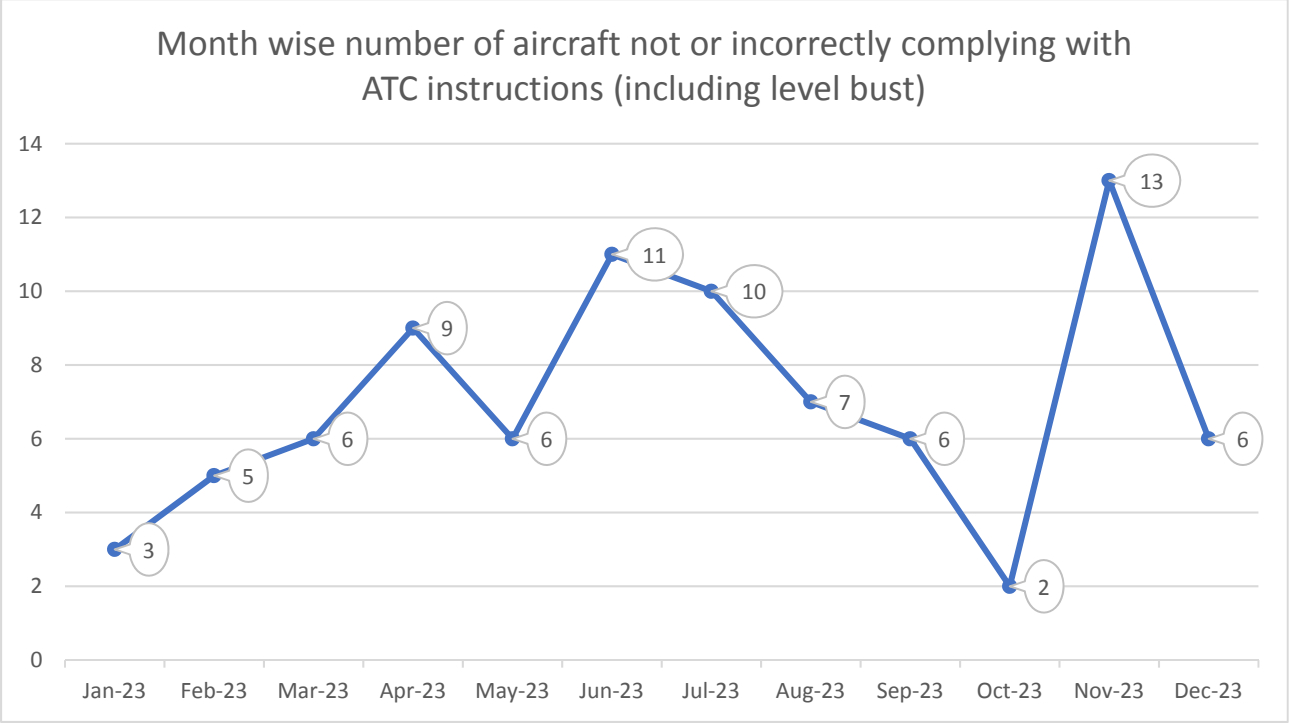
8.3 Data Analysis

Number of aircraft per 10,00,000 not or incorrectly complying with ATC instructions (including level bust) during last year i.e. **2023** and detailed analysis is appended below

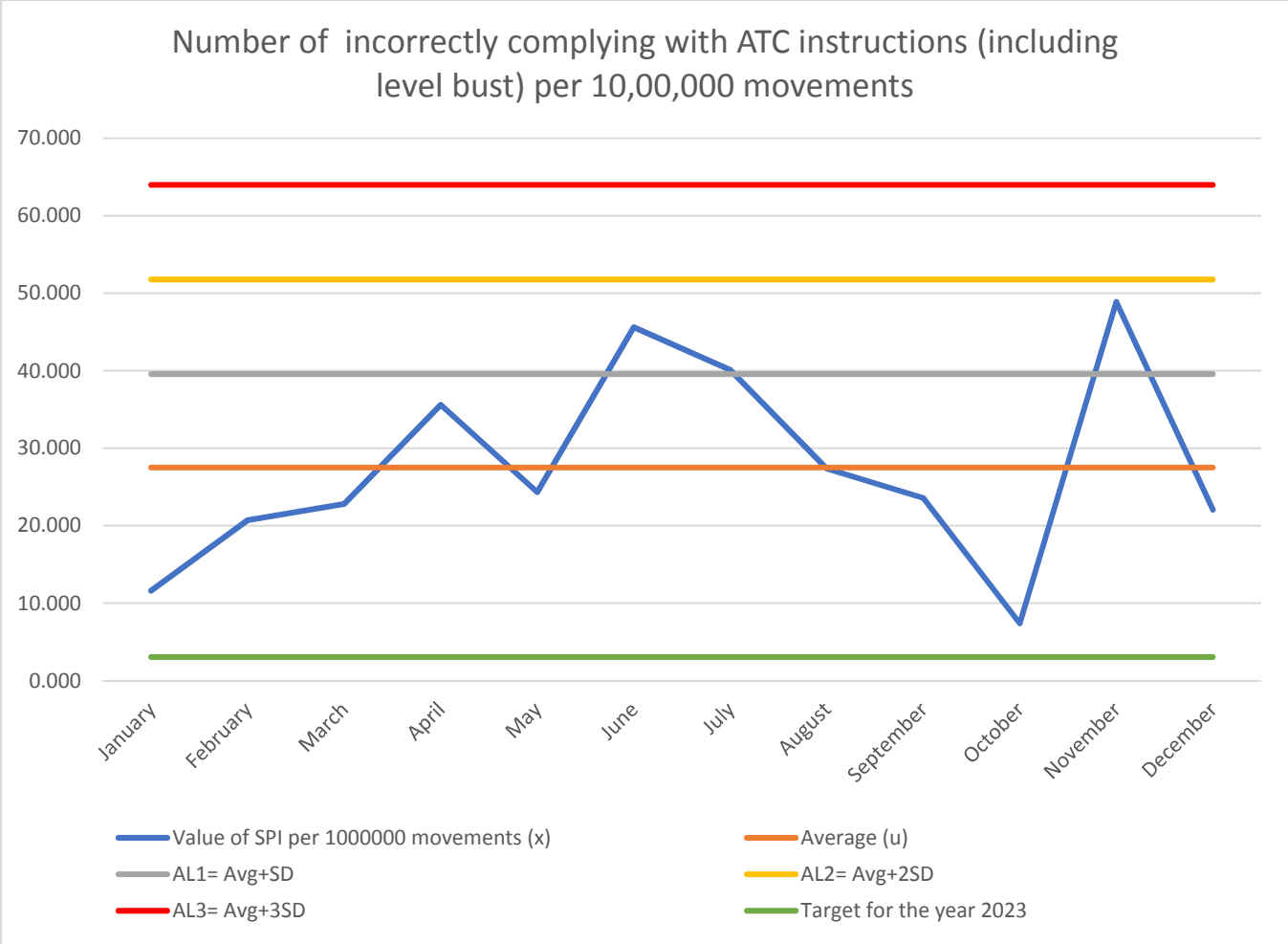


Month	Total Aircraft Movement (Arr.+ Dep. + Overflying)	Number of aircraft not or incorrectly complying with ATC instructions (including level bust)	incident rate per 10,00,000 flights over indian airspace(X)	Average (u)	(x-u)	(x-u)^2	u+ 1SD	u+ 2 SD	u+3 SD
January	258456	3	11.607	27.504	-15.897	252.702	39.721	51.937	64.154
February	241452	5	20.708	27.504	-6.796	46.185			
March	263165	6	22.799	27.504	-4.705	22.133			
April	252735	9	35.610	27.504	8.106	65.714			
May	246585	6	24.332	27.504	-3.172	10.059			
June	241122	11	45.620	27.504	18.116	328.192			
July	249385	10	40.099	27.504	12.595	158.625			
August	255834	7	27.361	27.504	-0.143	0.020			
September	254571	6	23.569	27.504	-3.935	15.484			
October	270623	2	7.390	27.504	-20.114	404.559			
November	265872	13	48.896	27.504	21.392	457.605			
December	272030	6	22.056	27.504	-5.448	29.676			
Total	**3071830**	**84**	330.049			1790.955			
						149.246			
					SD =	12.217			

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



8.4 Safety Performance Target (SPT)



Average = 27.504	Target for 2023=3.05 **Not Achieved**	Target for 2024= 3.05

The Average performance for the year 2023 has been 27.504 and Alert levels AL-1 has been breached thrice in June, July and November.

As the target of **3.05** for year **2023** has not been achieved, it has been decided that the target for **2024** shall be same as **3.05.**

8.5 Alert Level:

a) Alert level setting:

Alert Level for 2024 is same as for 2023 and is shown below		
Alert Level -1 -	AVG +1 SD =	39.56
Alert Levael-2 -	AVG +2 SD =	51.77
Alert Level-3 -	AVG+ 3SD =	63.98

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for the current monitoring period (**2024**):

- 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 (2024)

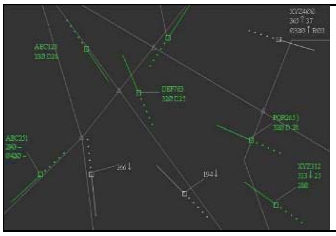
At the end of the current year **2024**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

8.7 <u>Safety Action Plan</u>

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

9.1. 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.

9.2 Source of Data

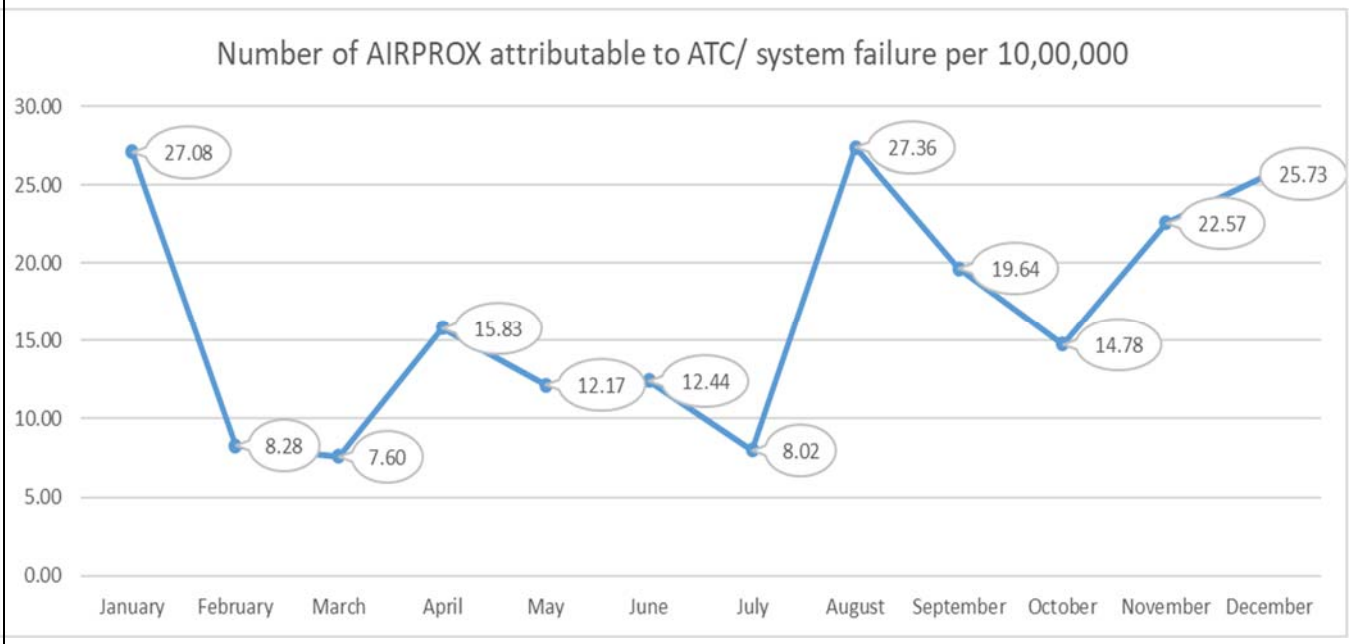
a) Traffic data will be derived from AIMS data base

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.

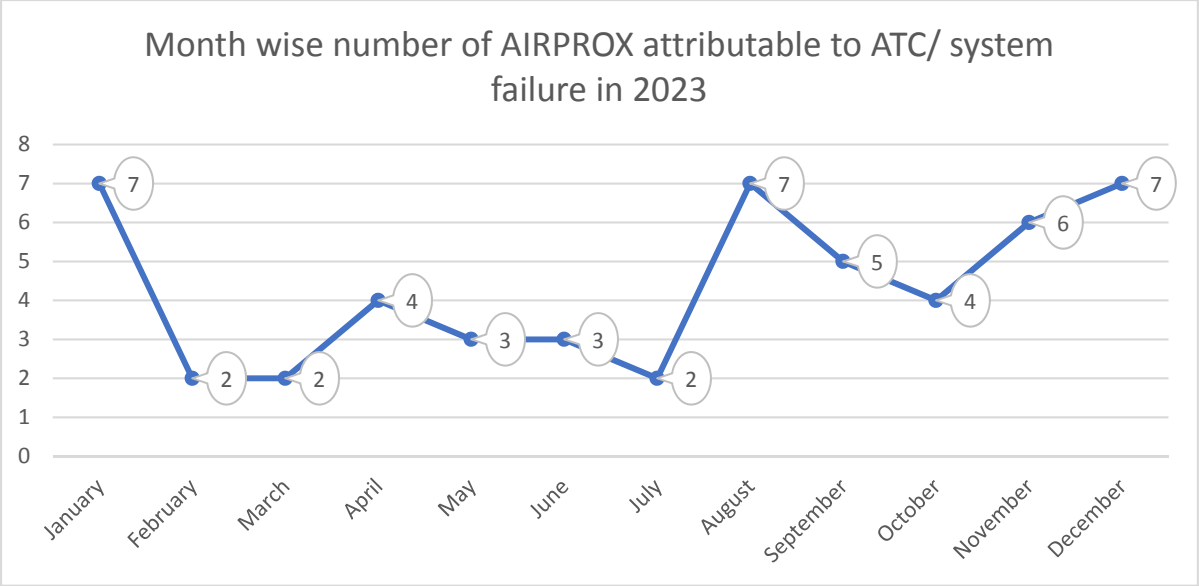
9.3 Analysis of Data

Number of AIRPROX attributable to ATC/ system failure per 10,00,000 movements during last year i.e. **2023** and detailed analysis is appended below

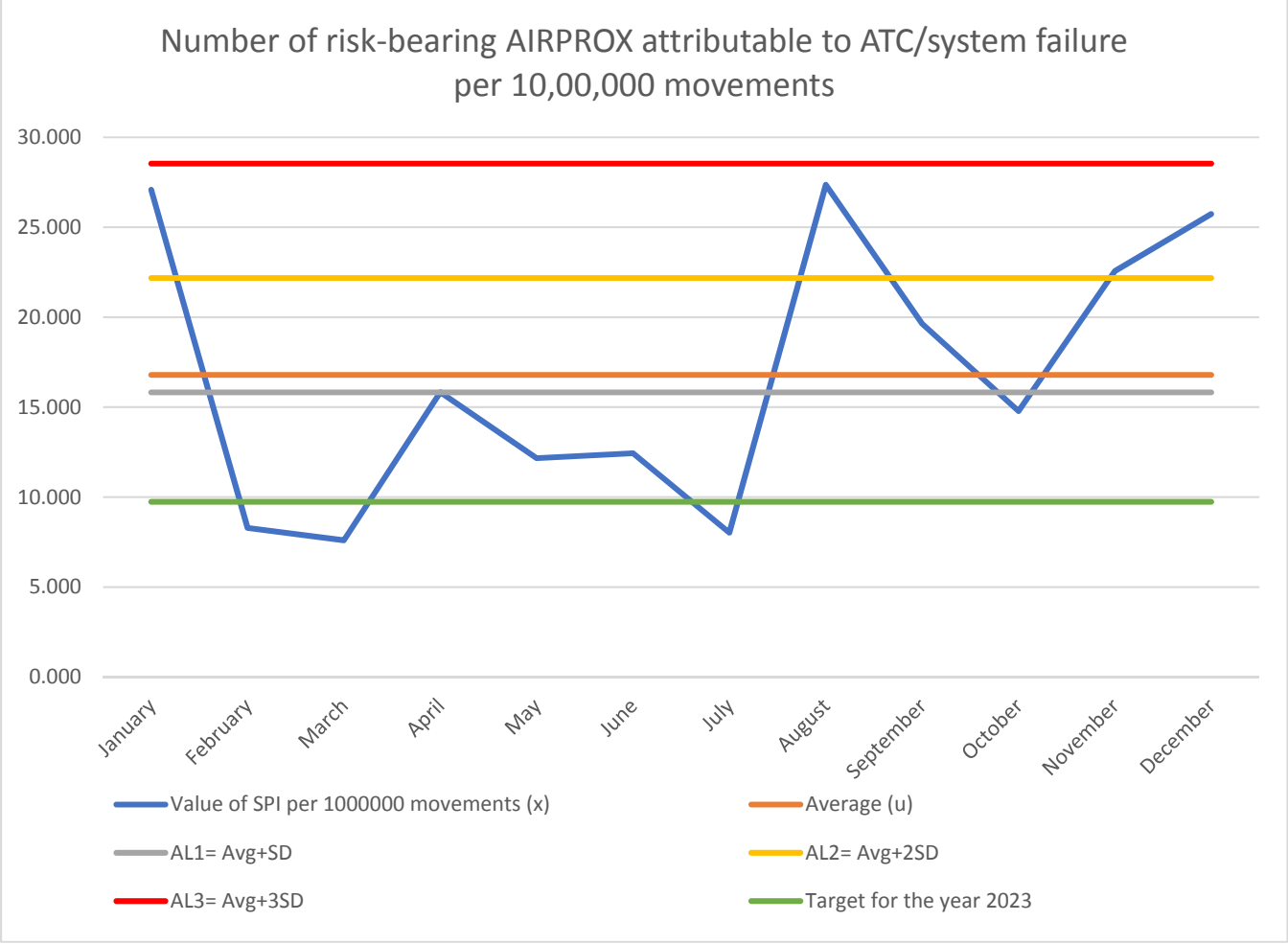


Month	Total Aircraft Movement (Arr.+ Dep. + Overflying)	Number of AIRPROX attributable to ATC/ system failure	incident rate per 10,00,000 flights over indian airspace(X)	Average (u)	(x-u)	(x-u)^2	u+ 1SD	u+ 2 SD	u+3 SD
January	258456	7	27.084	16.792	10.292	105.923	23.969	31.147	38.324
February	241452	2	8.283	16.792	-8.509	72.399			
March	263165	2	7.600	16.792	-9.192	84.497			
April	252735	4	15.827	16.792	-0.965	0.932			
May	246585	3	12.166	16.792	-4.626	21.398			
June	241122	3	12.442	16.792	-4.350	18.924			
July	249385	2	8.020	16.792	-8.772	76.953			
August	255834	7	27.361	16.792	10.569	111.714			
September	254571	5	19.641	16.792	2.849	8.116			
October	270623	4	14.781	16.792	-2.011	4.045			
November	265872	6	22.567	16.792	5.775	33.354			
December	272030	7	25.732	16.792	8.940	79.932			
Total	**3071830**	**52**	201.504			618.187			
						51.516			
					SD =	7.177			

Month wise Number of AIRPROX attributable to ATC/ system failure during year **2023** is shown below:



9.4 Safety Performance Target:



Average = 16.79	Target for 2023=9.74 **Not Achieved**	Target for 2024= 9.74

The Average performance for the year 2023 has been 16.792 and Alert level AL-2 has been breached in Jan, August and twice successively in Nov and Dec.

As the target of **9.74 for** year **2023** has not been achieved, it has been decided that the target for year **2024** shall be same as **9.74.**

9.5 Alert Level:

a) Alert level setting:

Alert Level for 2024 is same as for 2023 and as shown below		
Alert Level -1 -	AVG +1 SD =	15.82
Alert Levael-2 -	AVG +2 SD	22.18
Alert Level-3	AVG+3SD	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 (**2024**):

- 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.

9.6 Target Achievement at the end of monitoring period (2024)

At the end of the current year **2024**, 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.

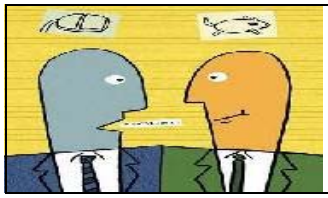
9.7 Safety Action Plan

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.



Communication Errors

10.1 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.

10.2 Source of Data

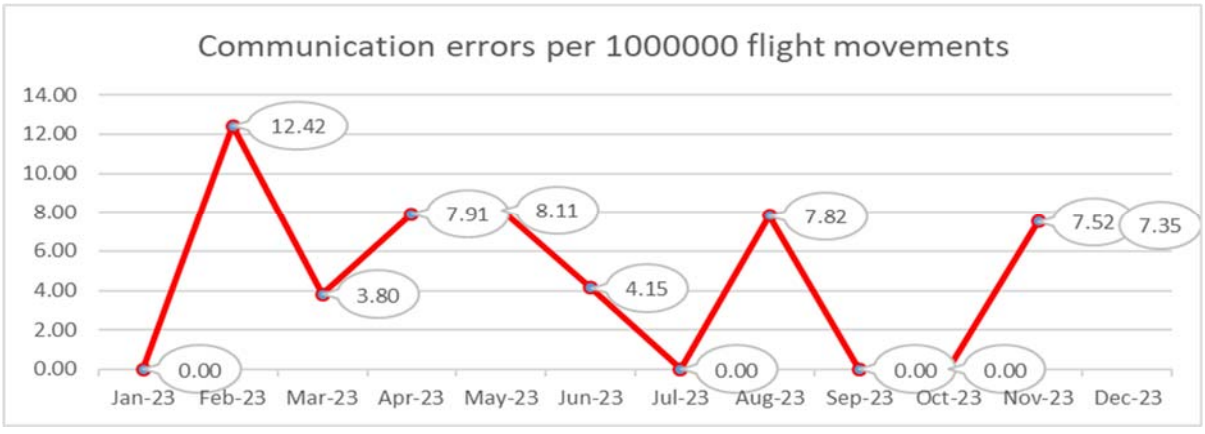
a) Traffic data will be derived from AIMS data base

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

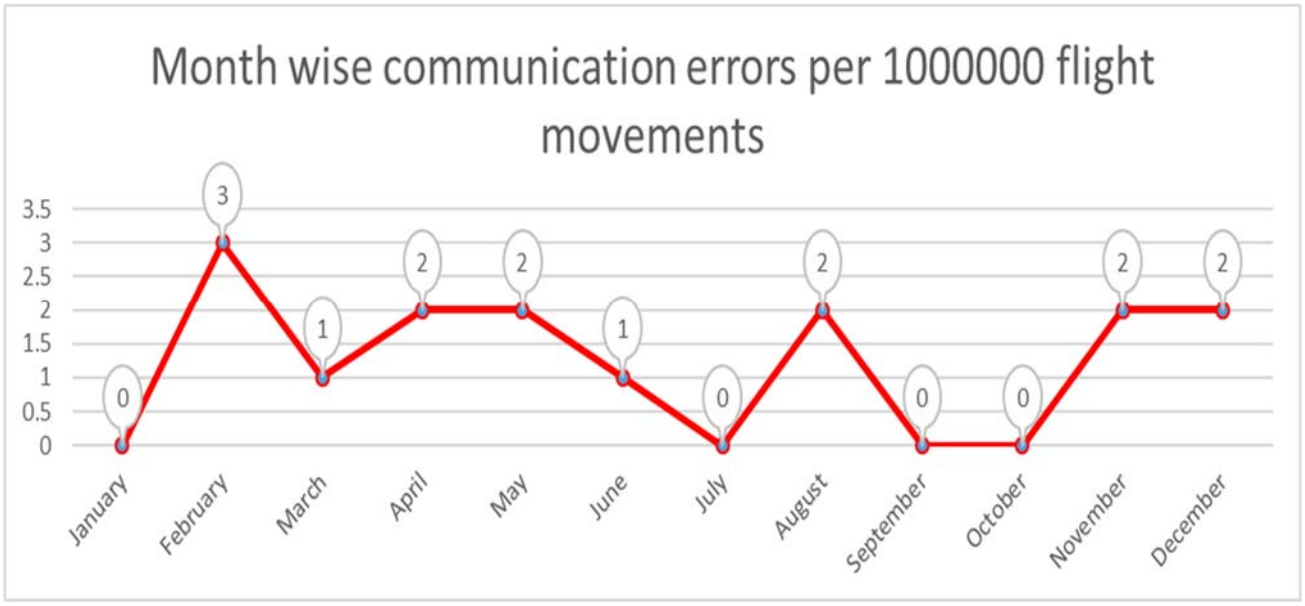
10.3 Analysis of Data

Communication errors during year **2023** and detailed analysis is appended below

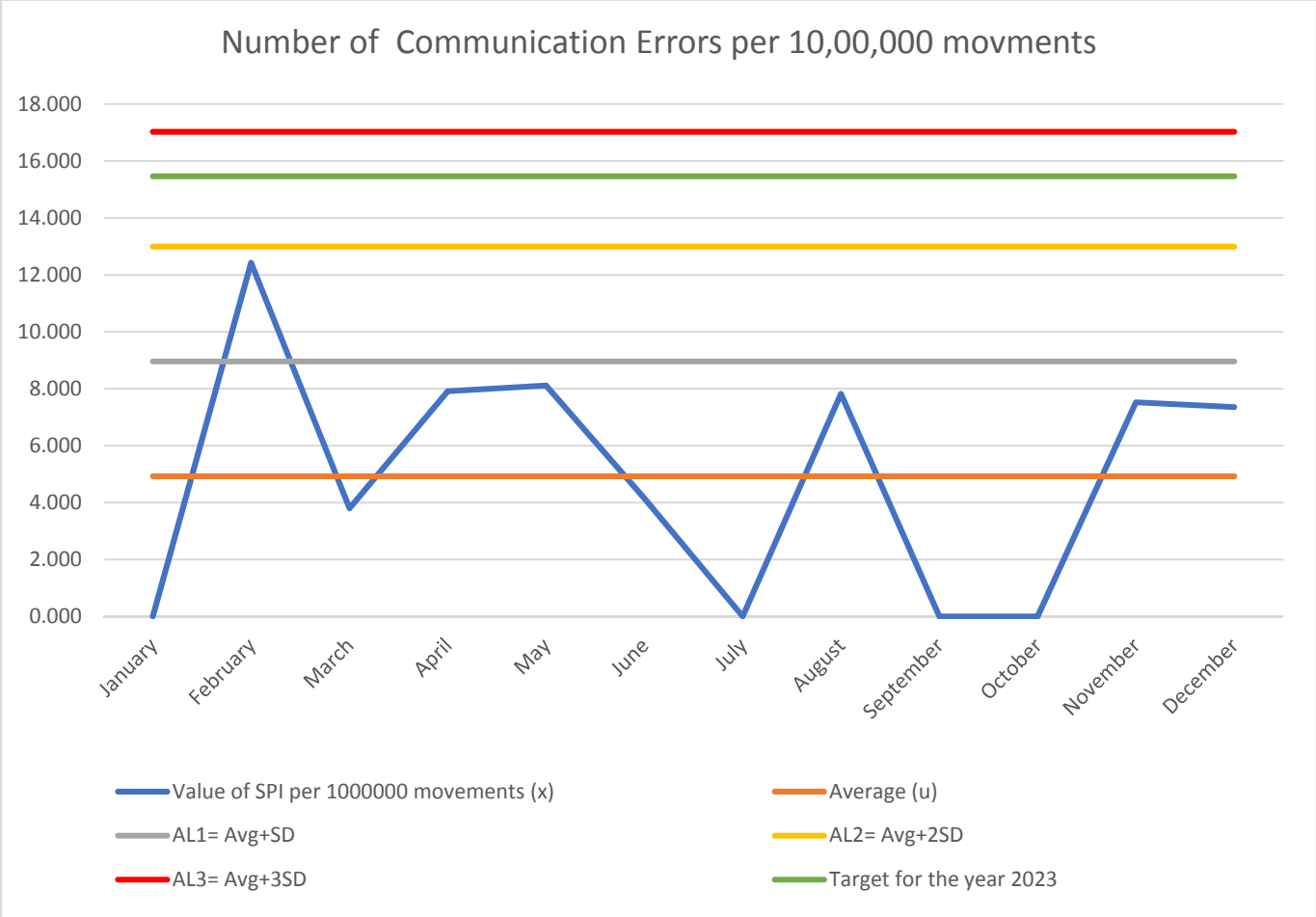


Month	Total Aircraft Movement (Arr.+ Dep. + Overflying)	Communication Errors	incident rate per 10,00,000 flights over indian airspace(X)	Average (u)	(x-u)	(x-u)^2	u+ 1SD	u+ 2 SD	u+3 SD
January	258456	0	0.000	4.924	-4.924	24.246	8.957	12.991	17.024
February	241452	3	12.425	4.924	7.501	56.262			
March	263165	1	3.800	4.924	-1.124	1.264			
April	252735	2	7.913	4.924	2.989	8.937			
May	246585	2	8.111	4.924	3.187	10.156			
June	241122	1	4.147	4.924	-0.777	0.603			
July	249385	0	0.000	4.924	-4.924	24.246			
August	255834	2	7.818	4.924	2.894	8.373			
September	254571	0	0.000	4.924	-4.924	24.246			
October	270623	0	0.000	4.924	-4.924	24.246			
November	265872	2	7.522	4.924	2.598	6.752			
December	272030	2	7.352	4.924	2.428	5.896			
Total	**3071830**	**15**	59.088			195.225			
						16.269			
					SD =	4.033			

Month wise Communication errors during year **2023** is shown below:



10.4 Safety Performance Target:



Average = 4.92	Target for 2023=15.46 **Achieved**	Target for 2024= 15.00 (reduction of 3%)

The Average performance for the year 2023 has been 4.92 and Alert level AL-1 has been breached once.

As the target of **15.46** for year **2023** has been achieved hence it has been decided that the target for year **2024** shall be **15.00** (i.e. reduction of 3%)

10.5 Alert Level:

a) Alert level setting: -

Alert Level for 2024 is set as below			
Alert Level -1 -	AVG +1 SD	4.924+1 X 4.033	8.96
Alert Levael-2 -	AVG +2 SD	4.924+ 2x 4.033=	12.99
Alert Level-3 -	AVG+ 3SD	4.924+ 3X 4.033=	17.02

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for current monitoring period (**2024**):

- 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.

10.6 Target Achievement at the end of monitoring period (2024)

At the end of the current year **2024**, 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.

10.7 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 10,00,000 movements

11.1 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 'after images'.

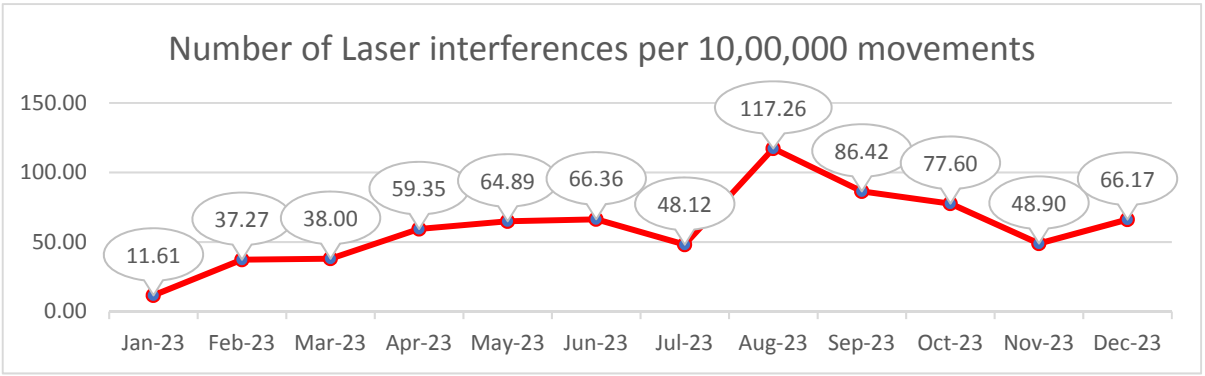
11.2 Source of Data

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.

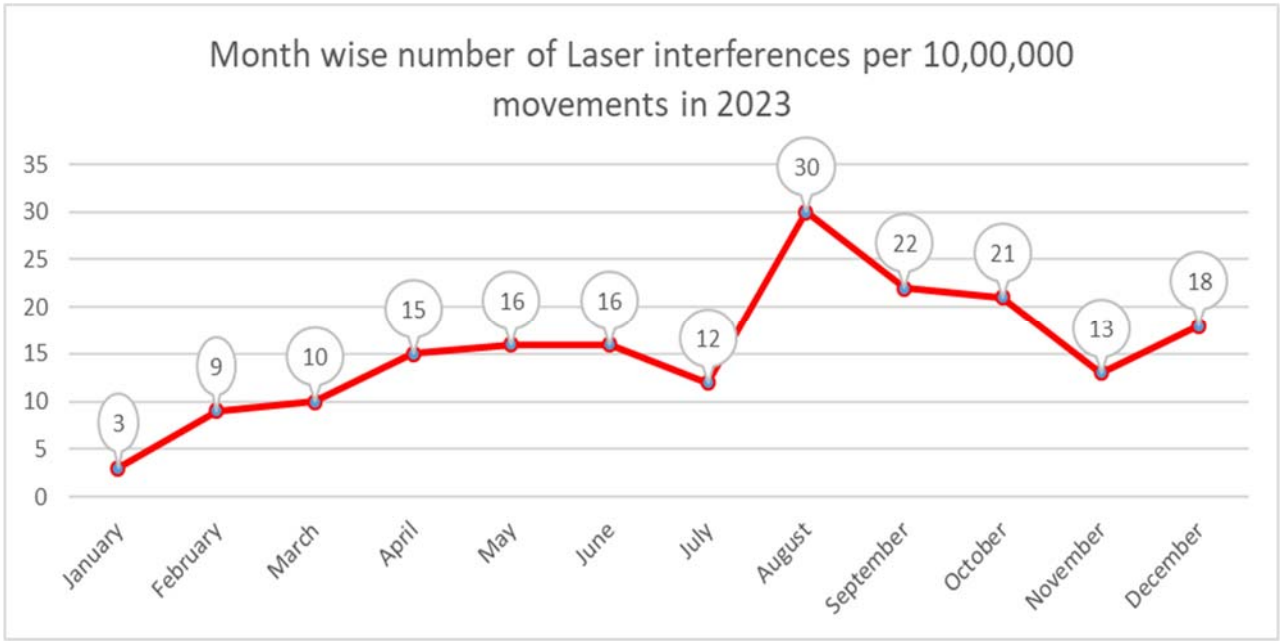
11.3 Data Analysis

Number of Laser interferences per 10,00,000 movements during year **2024** and detailed analysis is appended below

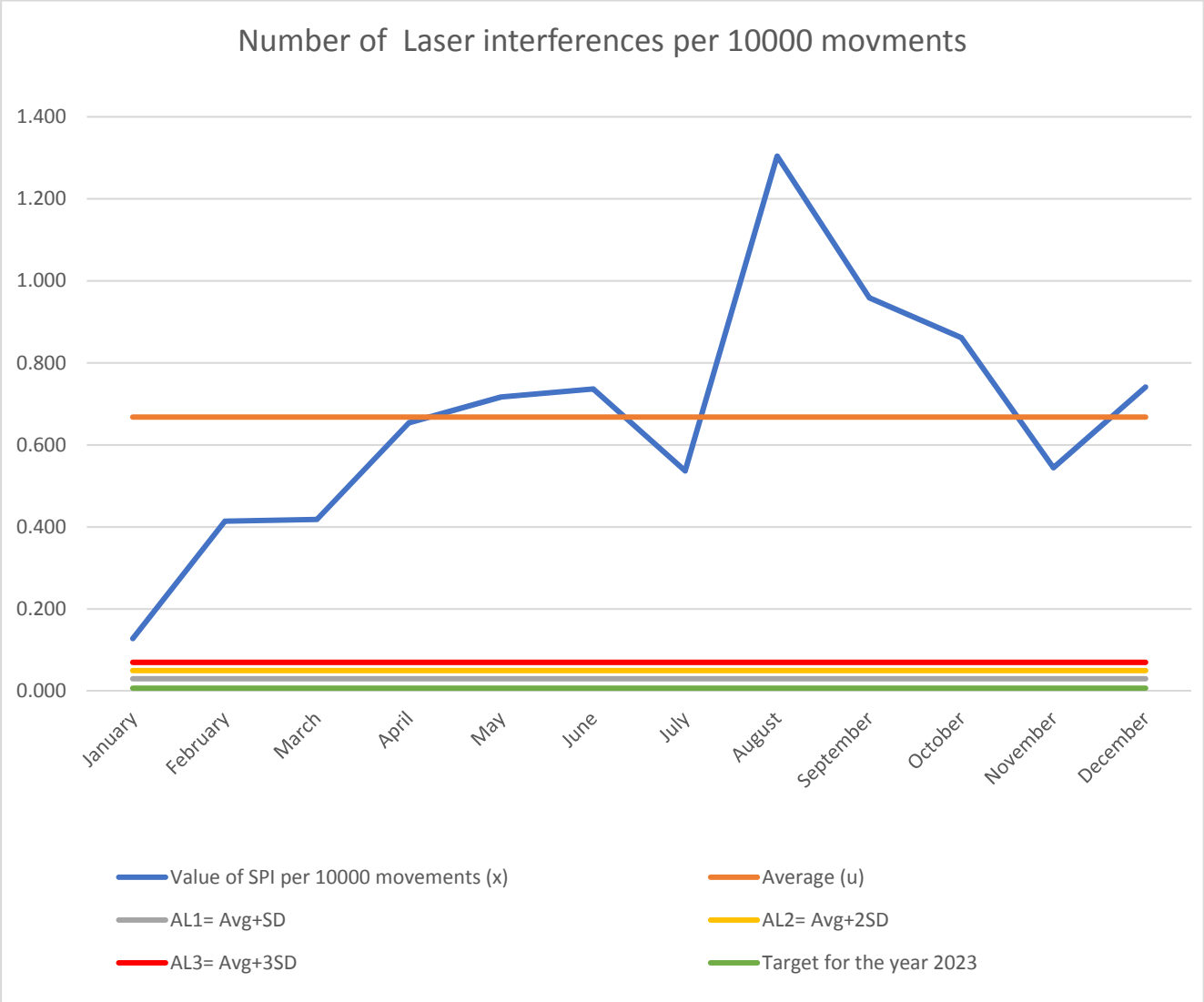


Month	Total Aircraft Movements (Arrival + Departure)	Number of Laser interferences	incident rate per 10,000 flights over indian airspace(X)	Average (u)	(x-u)	(x-u)^2	u+ 1SD	u+ 2 SD	u+3 SD
January	234271	3	0.128	0.668	-0.540	0.292	0.955	1.242	1.530
February	217267	9	0.414	0.668	-0.254	0.064			
March	238980	10	0.418	0.668	-0.250	0.062			
April	229274	15	0.654	0.668	-0.014	0.000			
May	223121	16	0.717	0.668	0.049	0.002			
June	217231	16	0.737	0.668	0.069	0.005			
July	223538	12	0.537	0.668	-0.131	0.017			
August	230026	30	1.304	0.668	0.636	0.405			
September	229439	22	0.959	0.668	0.291	0.085			
October	243757	21	0.862	0.668	0.194	0.037			
November	238724	13	0.545	0.668	-0.123	0.015			
December	242870	18	0.741	0.668	0.073	0.005			
Total	**2768498**	**185**	8.016			0.990			
						0.083			
					SD =	0.287			

Month wise Number of Laser interferences per 10,00,000 movements is shown below:



11.4 Safety Performance Target (SPT)



Average = 0.668	Target for 2023=0.0069 **Not Achieved**	Target for 2024= 0.0069

The Average performance for the year 2023 has been 0.668 and Alert level AL-3 has been breached throughout the year.

As the target of **0.0069** for year **2023** has not been achieved, hence it has been decided that the target for year **2024** shall be same as **0.0069**.

11.5 Alert Level:

a) Alert level setting:

Alert Level for 2024 is same as for 2023-		
Alert Level -1 -	AVG +1 SD	0.03
Alert Levael-2 -	AVG +2 SD	0.05
Alert Level-3 -	AVG+ 3SD	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 (**2024**):

- 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.

11.6 Target Achievement at the end of monitoring period (2024)

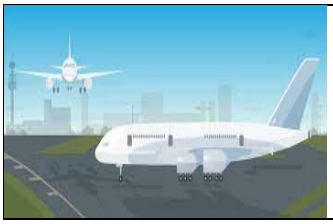
At the end of the current year **2024**, if the average rate for the current year is equal to or less than the target set for the year, then the set target is deemed to have been achieved.

11.7 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 othersources. 4. Refresher course/ sensitization classes will be conducted to sensitize the controllers on the hazards due to laser interference.



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

12.1. 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.

12.2 Source of Data

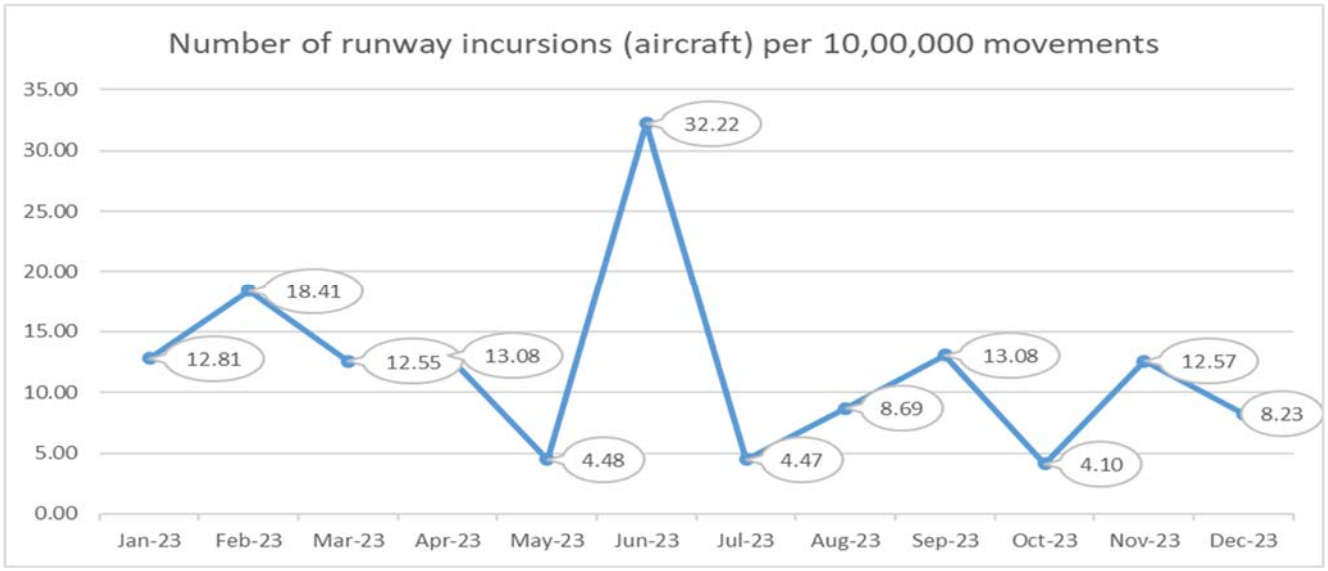
a) Traffic data will be derived from AIMS data base.

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.

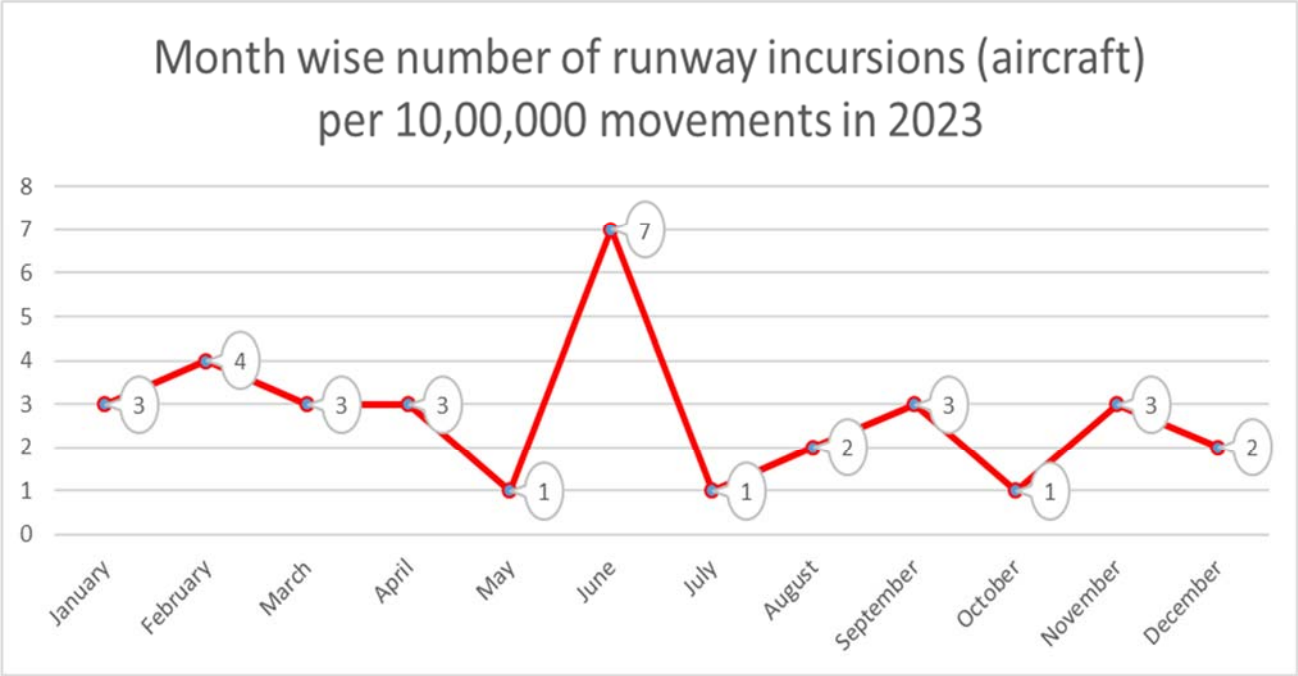
12.3 Analysis of Data

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

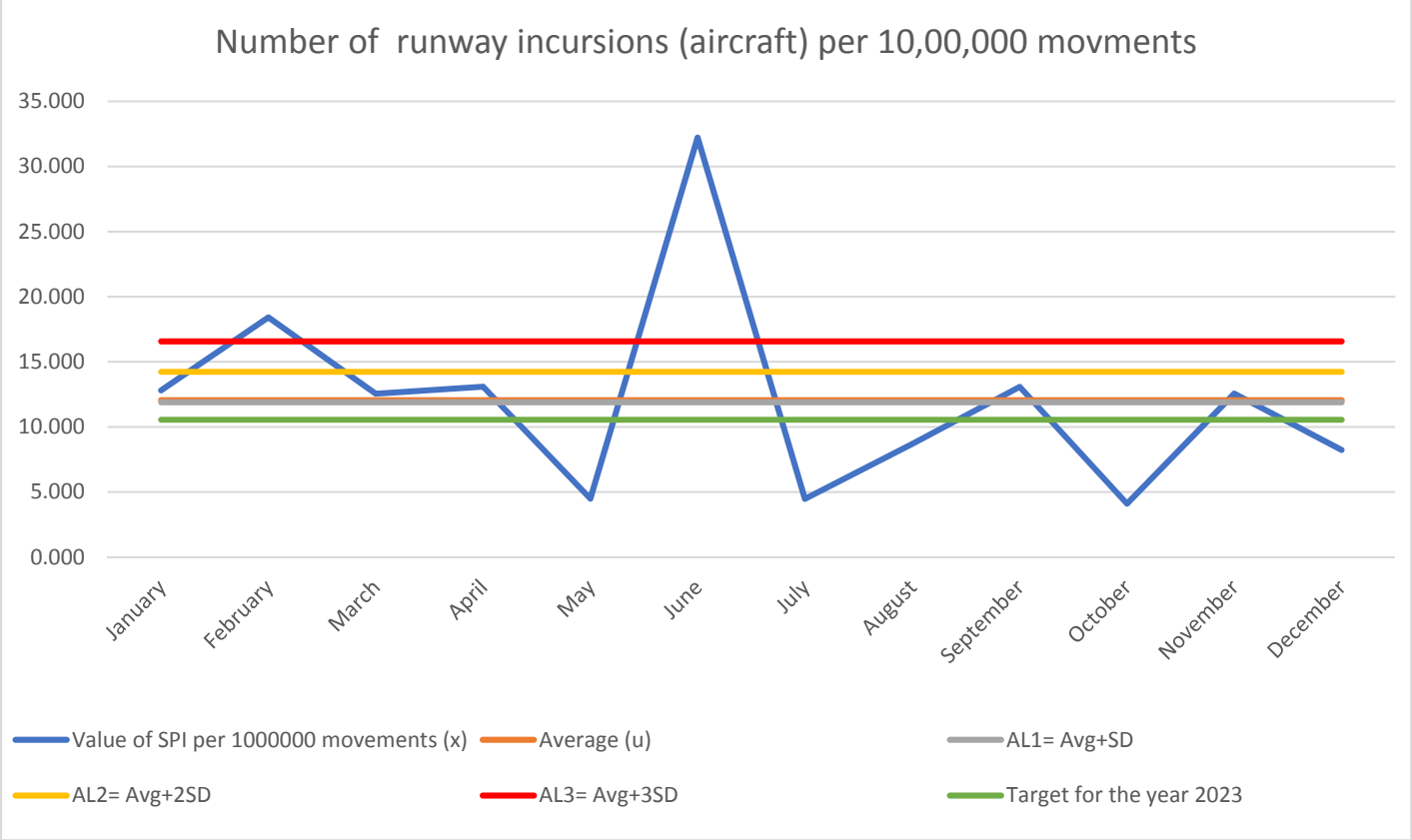


Month	Total Aircraft Movement (Arr.+ Dep.)	Number of runway incursions (aircraft)	Value of SPI per 1000000 movements (x)	Average (u)	(x-u)^2	L1= Avg+SD	L2= Avg+2SD	L3= Avg+3SD
January	234271	3	12.806	12.059	0.558	19.30	26.68	34.06
February	217267	4	18.411	12.059	40.342	19.30	26.68	34.06
March	238980	3	12.553	12.059	0.244	19.30	26.68	34.06
April	229274	3	13.085	12.059	1.052	19.30	26.68	34.06
May	223121	1	4.482	12.059	57.412	19.30	26.68	34.06
June	217231	7	32.224	12.059	406.619	19.30	26.68	34.06
July	223538	1	4.474	12.059	57.539	19.30	26.68	34.06
August	230026	2	8.695	12.059	11.319	19.30	26.68	34.06
September	229439	3	13.075	12.059	1.033	19.30	26.68	34.06
October	243757	1	4.102	12.059	63.306	19.30	26.68	34.06
November	238724	3	12.567	12.059	0.258	19.30	26.68	34.06
December	242870	2	8.235	12.059	14.624	19.30	26.68	34.06
Total	**2768498**	**33**	**144.708**		**654.307**			
SD=	**7.384**							

Month wise Number of runway incursions (aircraft) during year **2023** is shown below:



12.4 Safety Performance Target:



Average = 12.06	Target for 2023=10.55 **Not Achieved**	Target for 2024= 10.55

The Average performance for the year 2023 has been 12.06 and Alert level AL-3 has been breached twice in February and June.

As the target of **10.55** for year **2023** has not been achieved, it has been decided that the target for year **2024** shall be same as 10.55.

12.5 Alert Level:

a) Alert level setting:

Alert Level for 2024 is same as for year 2023 shown below		
Alert Level -1 -	AVG +1 SD =	11.89
Alert Levael-2 -	AVG +2 SD =	14.23
Alert Level-3 -	AVG+ 3SD =	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 (**2024**):

- 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.

12.6 Target Achievement at the end of the monitoring period (2024)

At the end of the current year **2024**, 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.

12.7 Safety Action Plan

Safety Measures Already in Place
1. All runway incursions were examined and steps were taken to minimize the incidents. ATS In-charges were instructed for follow-up actions as envisaged and appropriateto 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

13.1 Scope:

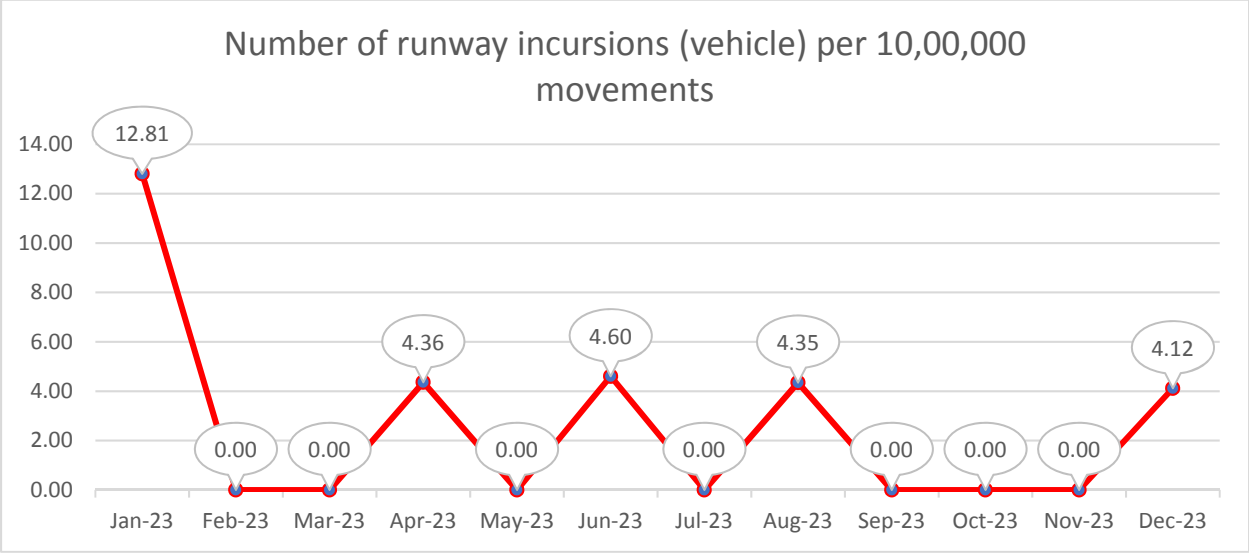
Runway Incursion means any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

13.2 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.

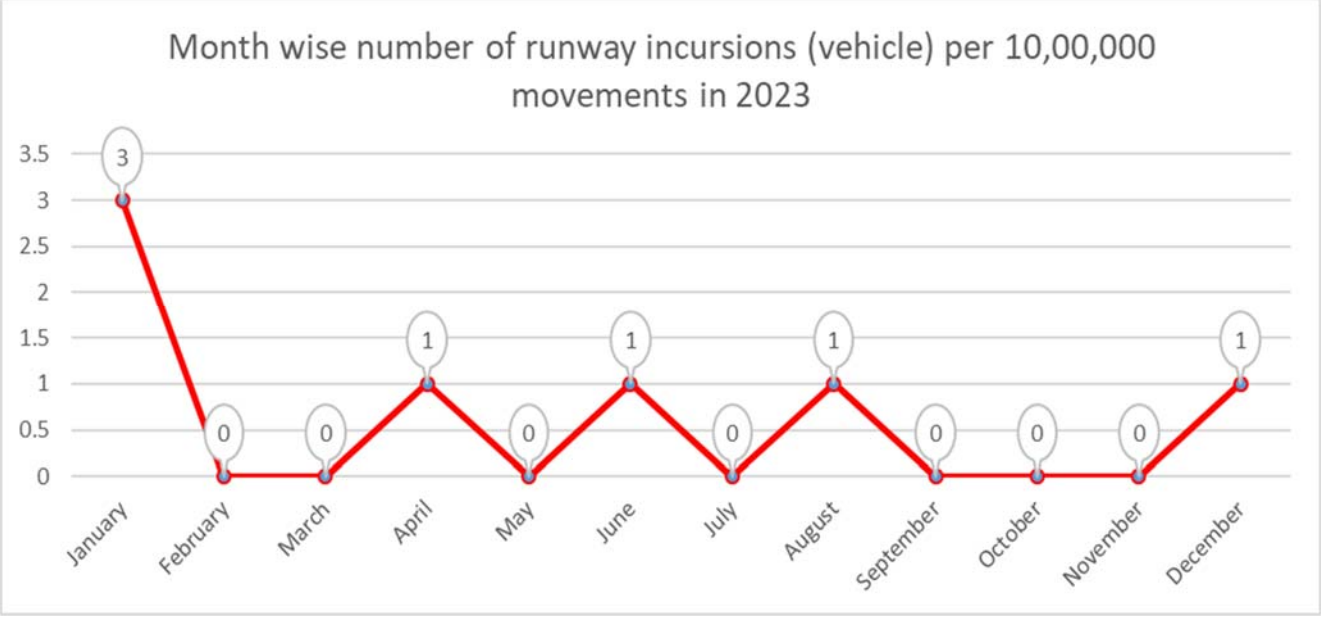
13.3 Analysis of Data:

Number of runway incursions (vehicle) per 10,00,000 movements during year **2023** and detailed analysis is appended below

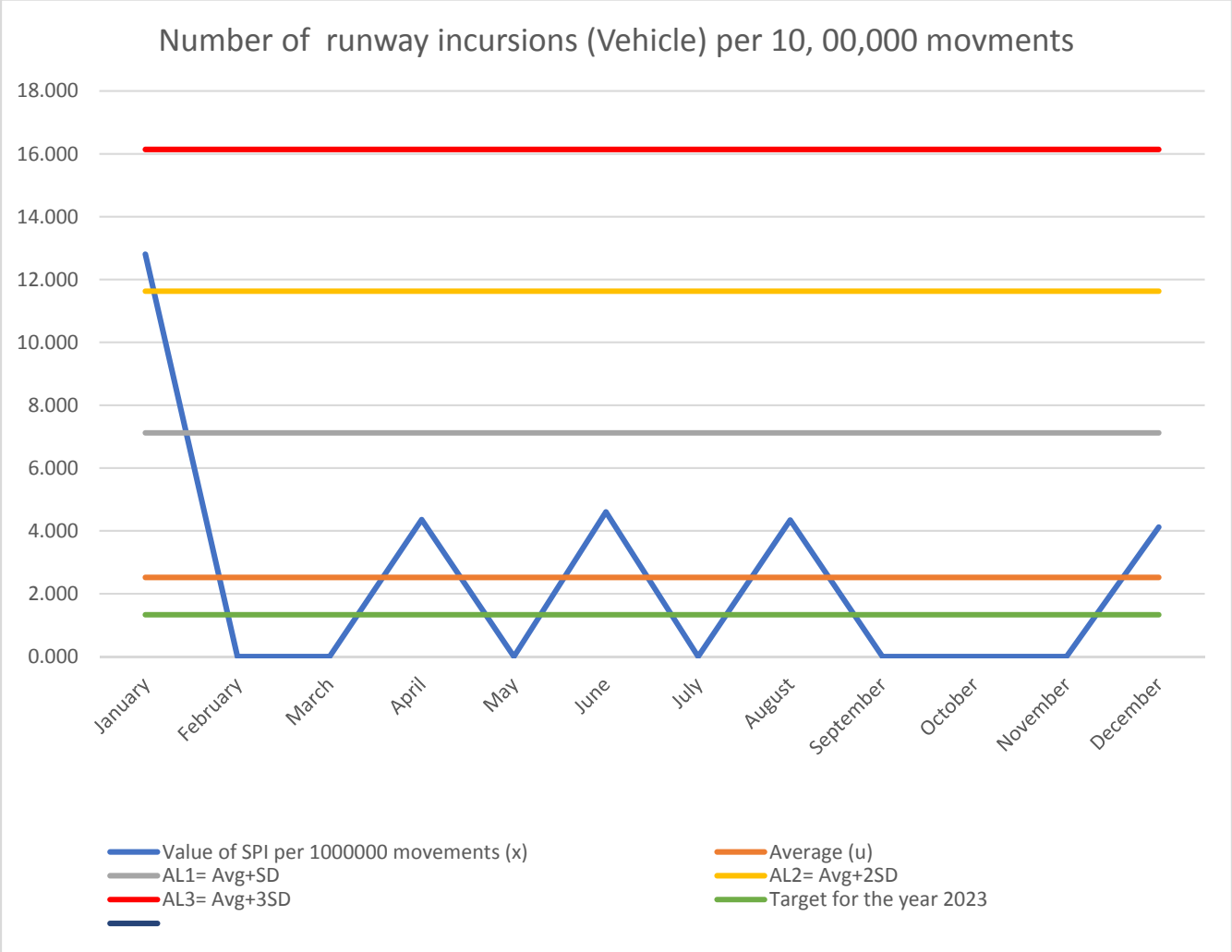


Month	Total Aircraft Movement (Arr.+ Dep.)	Number of runway incursions (Vehicle)	Value of SPI per 1000000 movements (x)	Average (u)	(x-u)^2	L1= Avg+SD	L2= Avg+2SD	L3= Avg+3SD
January	234271	3	12.806	2.520	105.803	6.22	9.91	13.60
February	217267	0	0.000	2.520	6.348	6.22	9.91	13.60
March	238980	0	0.000	2.520	6.348	6.22	9.91	13.60
April	229274	1	4.362	2.520	3.393	6.22	9.91	13.60
May	223121	0	0.000	2.520	6.348	6.22	9.91	13.60
June	217231	1	4.603	2.520	4.342	6.22	9.91	13.60
July	223538	0	0.000	2.520	6.348	6.22	9.91	13.60
August	230026	1	4.347	2.520	3.341	6.22	9.91	13.60
September	229439	0	0.000	2.520	6.348	6.22	9.91	13.60
October	243757	0	0.000	2.520	6.348	6.22	9.91	13.60
November	238724	0	0.000	2.520	6.348	6.22	9.91	13.60
December	242870	1	4.117	2.520	2.553	6.22	9.91	13.60
Total	**2768498**	**7**	**30.235**		**163.871**			
SD=	**3.695**							

Month wise Number of runway incursions (vehicle) during year **2023** is shown below:



13.4 Safety Performance Target:



Average = 2.52	Target for 2023=1.33 **Not Achieved**	Target for 2024= 1.33

The Average performance for the year 2023 has been 2.52 and Alert level AL-2 has been breached once.

As the target of **1.33** for year **2023** has not been achieved, it has been decided that the target for year **2024** shall be same as **1.33.**

13.5 Alert Level:

a) Alert level setting:

Alert Level for 2024 is set same as for 2022		
Alert Level -1 -	AVG +1 SD =	7.12
Alert Levael-2 -	AVG +2 SD =	11.63
Alert Level-3	AVG+3SD	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 (**2024**):

- 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.

13.6 Target Achievement at the end of monitoring period (2024)

At the end of the current year **2024**, 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.

13.7 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.

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

14.1. 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.

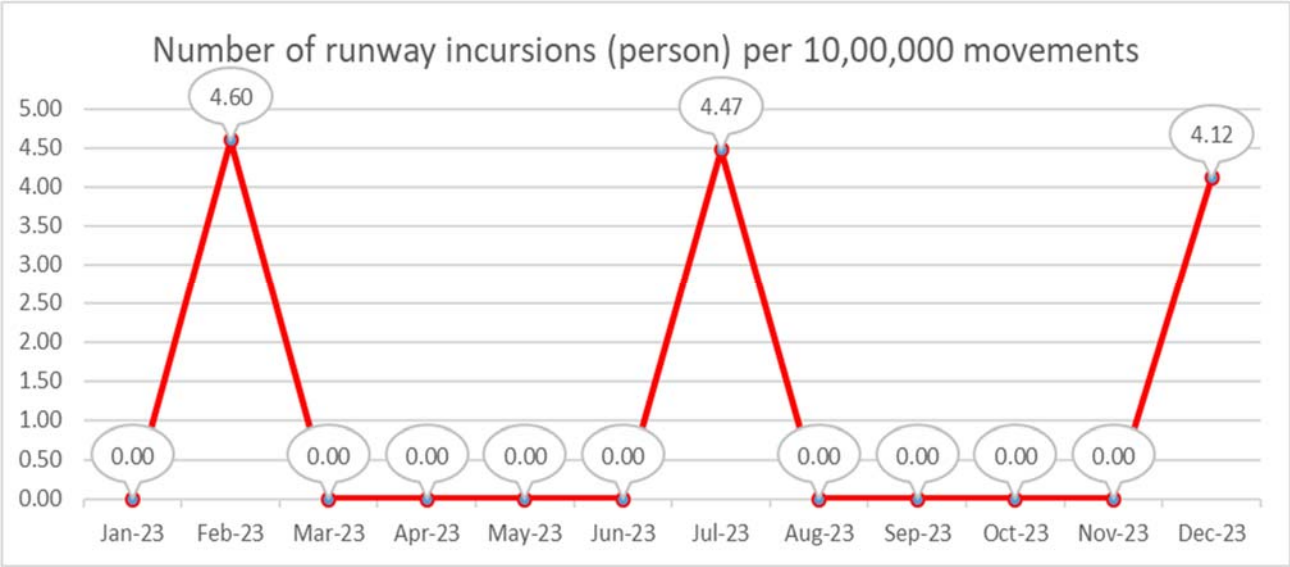
14.2 Source of Data:

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.

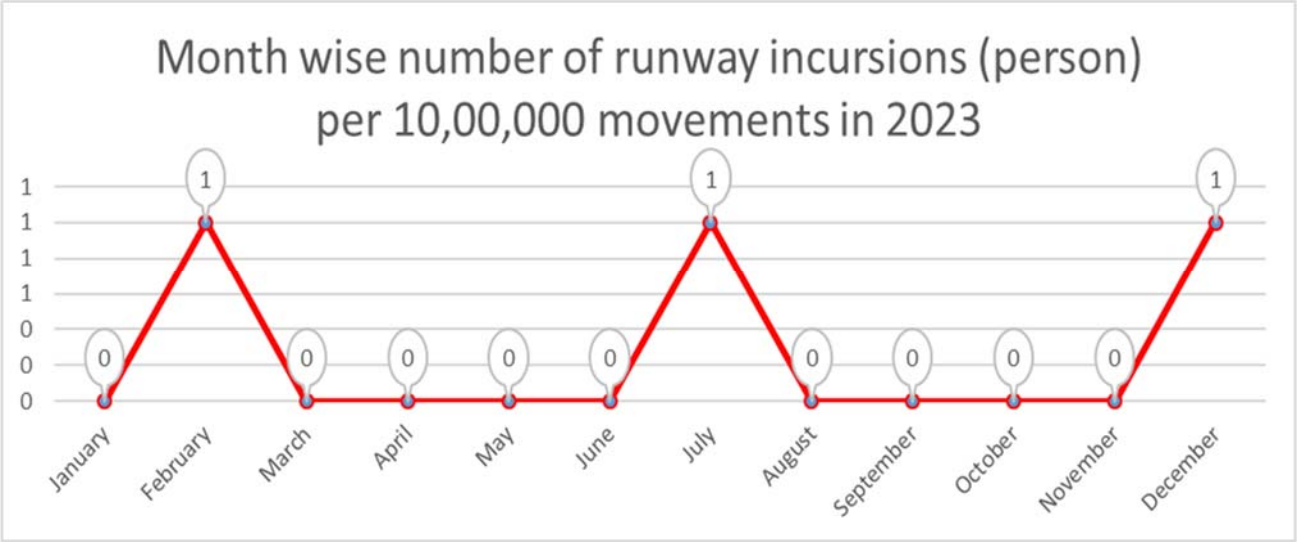
14.3 Analysis of Data:

Number of runway incursions (person) per 10,00,000 movements during year **2023** and detailed analysis is appended below

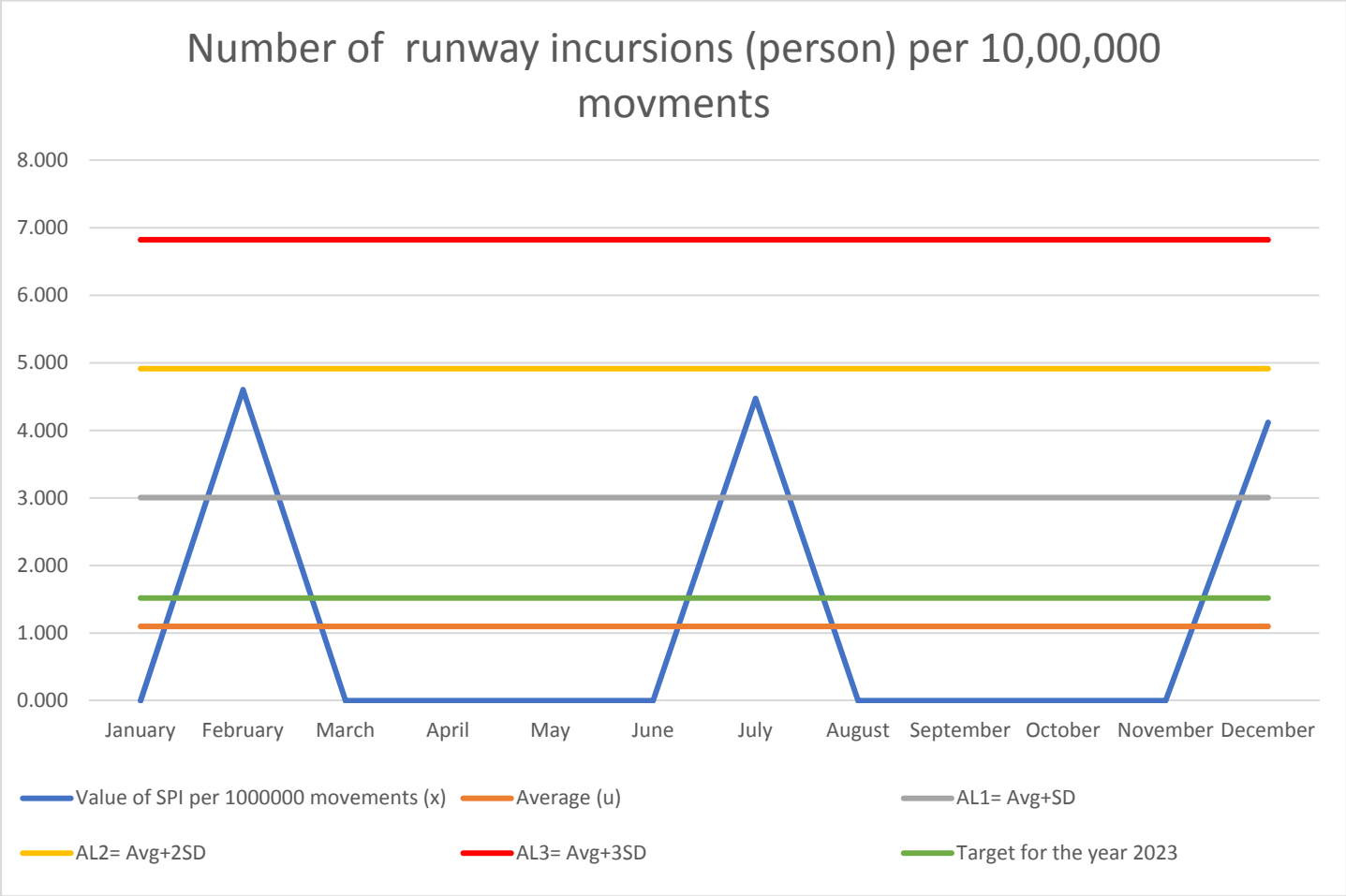


Month	Total Aircraft Movement (Arr.+ Dep.)	Number of runway incursions (person)	Value of SPI per 1000000 movements (x)	Average (u)	(x-u)^2	L1= Avg+SD	L2= Avg+2SD	L3= Avg+3SD
January	234271	0	0.000	1.099	1.209	3.01	4.91	6.82
February	217267	1	4.603	1.099	12.272	3.01	4.91	6.82
March	238980	0	0.000	1.099	1.209	3.01	4.91	6.82
April	229274	0	0.000	1.099	1.209	3.01	4.91	6.82
May	223121	0	0.000	1.099	1.209	3.01	4.91	6.82
June	217231	0	0.000	1.099	1.209	3.01	4.91	6.82
July	223538	1	4.474	1.099	11.384	3.01	4.91	6.82
August	230026	0	0.000	1.099	1.209	3.01	4.91	6.82
September	229439	0	0.000	1.099	1.209	3.01	4.91	6.82
October	243757	0	0.000	1.099	1.209	3.01	4.91	6.82
November	238724	0	0.000	1.099	1.209	3.01	4.91	6.82
December	242870	1	4.117	1.099	9.108	3.01	4.91	6.82
Total	**2768498**	**3**	**13.194**		**43.644**			
SD=	**1.907**							

Month wise Number of runway incursions (person) during year **2023** is shown below:



14.4 Safety Performance Target:



Average = 1.10	Target for 2023=1.52 **Achieved**	Target for 2024= 1.47 (reduction of 3%)

The Average performance for the year 2023 has been 1.10 and Alert level AL-1 has been breached thrice Feb, July and Dec.

As the target of **1.52** for year **2023** has been achieved, it has been decided that the target for year **2024** shall be **1.47**(i.e. reduction of 3%)

14.5 Alert Level:

a) Alert level setting: -

Alert Level for 2024 is set as below			
Alert Level -1 -	AVG +1 SD =	1.099 +1 X 1.907 =	3.01
Alert Levael-2 -	AVG +2 SD =	1.099 + 2x 1.907=	4.91
Alert Level-3 -	AVG+ 3SD =	1.099 + 3X 1.907=	6.82

b) Alert Level Trigger: -

An alert (abnormal/ unacceptable trend) is indicated if any of the conditions below are met for current monitoring period (**2024**):

- 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.

14.6 Target Achievement at the end of monitoring period (2024)

At the end of the current year **2024**, 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.

14.7 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.