ANNUAL REPORT- 2025
ATFM OPERATIONS
(JANUARY 2025 TO DECEMBER 2025)

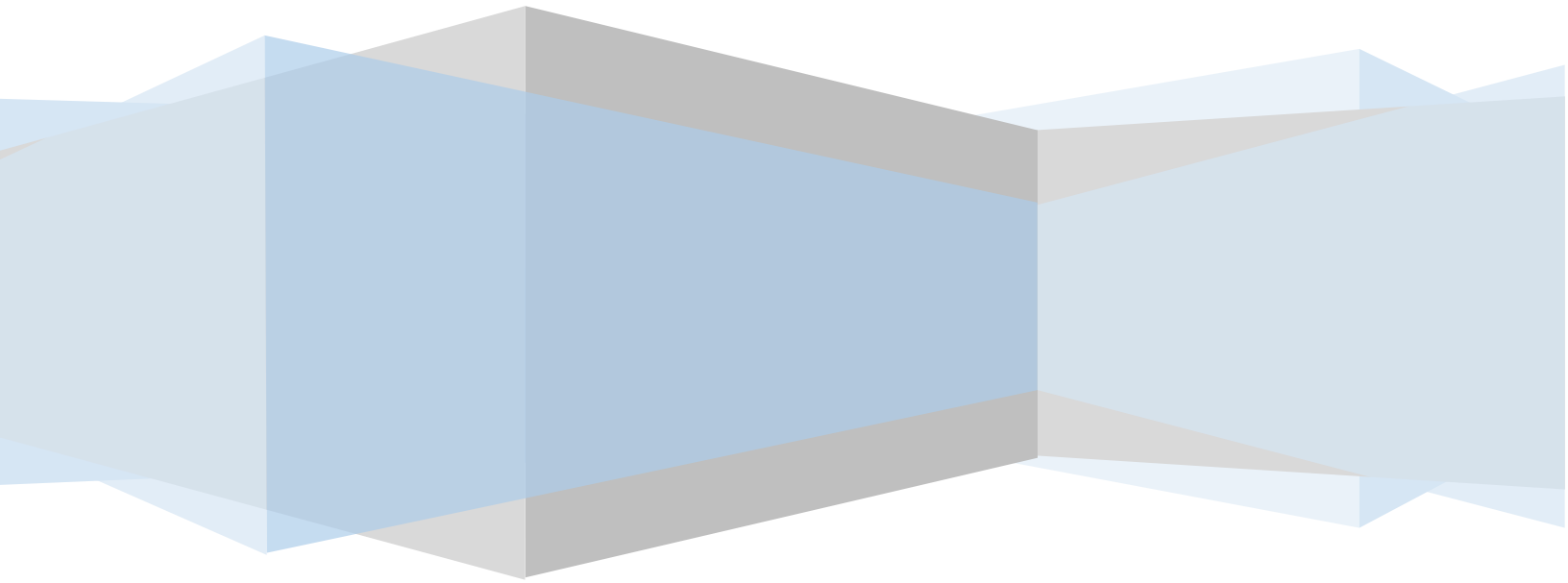
CENTRAL COMMAND CENTER

CENTRAL AIR TRAFFIC FLOW MANAGEMENT

AIRPORTS AUTHORITY OF INDIA

VASANT KUNJ, NEW DELHI

INDIA



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A. Preface

ATFM (Air Traffic Flow Management) refers to the system and procedures implemented to manage air traffic in a safe and efficient manner. ATFM is a key component of air traffic management, helping to balance the demand for air traffic services with the available capacity of the airspace and airports.

The primary goals of ATFM include:

- **Optimizing Air Traffic Flows**: ATFM aims to optimize the use of available airspace and airport capacity, ensuring that air traffic can move efficiently and safely.
- **Minimizing Delays**: By managing and regulating air traffic flows, ATFM helps minimize delays for both airlines and passengers.
- **Enhancing Safety**: ATFM contributes to the overall safety of air travel by preventing congestion and ensuring that air traffic controllers can effectively manage and communicate with aircraft.

Air Traffic Flow Management is being implemented in phased manner in India.

- Phase-I implementation included activation of 36 Flow Management positions in different ATS units including 8 units at joint user Airports and application of Ground Delay Program (GDP) and Ground Stop Program (GSP) to regulate traffic (resolve Demand Capacity imbalance) at constrained airports.
- Phase –II implementation process included the integration of ATFM and Airport CDM of 3 Airports namely Mumbai, Delhi, Shamshabad with the ATFM SKYFLOW system to increase the operation efficiency and situation awareness of all the stakeholders. In view of increased traffic demand, five additional flow management positions have been operationalized, such positions include Dehradun, Surat, Vadodara, Vijayawada and Rajahmundry leading to total 41 flow management positions across India to support ATFM operations. Phase-II also includes addressing the demand capacity imbalance in Airspace through Airspace Flow Program such as Miles/Minutes in trail, Sequencing Programs (Arrival, Departure, En-route), Fix Balancing, Re-routing etc.
- Phase-III implementation is planned to include capability for cross border ATFM, enhanced post ops analysis tools and capabilities and closer integration with Airspace Management.

The operational structure comprises of Central Command Centre (CCC) established in Delhi, at the helm of affairs, supported by Flow Management positions (FMPs) at designated Air Traffic Control Towers, Approach and Area Control Centers.

AAI plans to pursue an aggressive ACDM implementation roadmap, enabling 36 airports in India to become part of the ACDM-ATFM network, thus providing all CDM stakeholders with real time situational awareness.

Despite continuous efforts, the presence of correct and timely flight plan intent in SKYFLOW has been a challenging task. To resolve this constraint, an integrated Initial Flight Plan Processing System is being implemented as a part of the ATFM system. The IFPS system comprises the process of receiving flight plans and associated messages, validating this information against syntactic and semantic rules, identifying the destination addresses based on the aerodromes and route provided and distributing the information to all identified and informed addresses. This centralization of the Flight Plan processing system also ensures that each key player in the ATM process receives the same Flight Plan information. The full integration of the Integrated Initial Flight Plan Processing system (IFPS) and the upcoming ATS Message Handling System (AMHS) is where the true benefits of IFPS can be realized. Currently the ATS messages are disseminated over AFTN network through an indigenous Automatic Message Switching System (AMSS). The proposed IFPS-AMHS system will also support B2B APIs. The AMHS/UAs/web Services of AMHS will be ADEXP compatible. The network architecture will serve as the foundation for future SWIM services. In addition, collaborative efforts have been initiated with stakeholders so as to progressively bring improvement in the provision of updated flight intent. All such issues have been made part of the monthly and annual post operation report, wherein all such data is being published for appropriate action by the stakeholders to ensure continual improvement.

Airlines and airport operators are committed to collaborative ATFM process through the Common Business Rules (CBR) document that defines the roles and responsibilities of all stakeholders for collaborative decision-making, as well as a membership agreement for data exchange to support ATFM operations.

To enhance the infrastructure for Surveillance over Oceanic Airspace, India has engaged into a contract with a service provider for Space-based ADS-B services over Oceanic Airspace. Integration of Space-based ADS-B surveillance into the automation system of Mumbai, Chennai and Kolkata has provided the flight coverage over the Arabian Sea and Bay of Bengal. The ATFM System uses the processed CAT-62 data from these automation systems to constantly update the current position of the flights. This integration of space-based ADS-B has improved the accuracy of demand prediction in the ATFM System.

The C-ATFM system is a user-friendly internet-based system providing access to various categories of stakeholders. Thus, C-ATFM system can be accessed across the India and also from any part of the world. Additionally, the system design has taken into consideration the future needs to provide access to C-ATFM information to adjacent states, ensuring its readiness for expansion.

The Central Command Center (CCC) will act as the ATFM node for India in Cross Border ATFM process. All communications pertaining to Cross Border ATFM will be exchanged through CCC and distributed to relevant stakeholders.

B. Executive Summary

We are entering into exciting era of aviation where speed of change and rate of innovation will be high. In such scenario, AAI believe that collaboration will be the lynchpin of the success. Collaborative decision making is also the cornerstone process of air traffic flow management (ATFM).

In year 2025, AAI continued to pursue the harmonization of air traffic services procedures with the provision of ATFM, to enhance the efficient and effective provision of air traffic management. AAI included quintessential provision of ATFM in the manual of air traffic service procedures (MATS 1)) such as startup procedures, strip marking procedures, and ATFM phraseologies. Owing to such procedural changes and active collaboration with stakeholders, the important Key performance indicator such as calculated take off time (CTOT) rose from yearly average of 78% in 2023 to 85% in 2024 and further to 97% in calendar year 2025. This has been the best CTOT compliance rate achieved by the ATFM stakeholders so far. This has been possible due to active collaboration and contribution by the stakeholders. AAI also presented a working paper in ICAO APAC ATFM SG meeting in year 2025, on the subject matter sharing India's experience, with international stakeholders that such procedural change along with follow up can develop as an effective means for improving the CTOT compliances.

The year 2025 was marked by rising number of aircraft movements and passenger traffic all over India. IFR traffic witnessed a year on year growth of 6.7 % for 2025 as compared to 2024(*data source SKYFLOW*). Overall it was a tremendous year for Indian aviation sector witnessing higher YoY growth.

During the unprecedent geo-political developments along India's north western frontier in May 2025, both India and Pakistan imposed airspace restrictions, resulting in increased flight movements between India and Oman over Arabian airspace. The ATFM Directorate, in collaboration with the ASM Directorate, Mumbai, Ahmedabad, and Nagpur ATMs, as well as airlines, proactively analysed traffic data patterns and its changes thereof regularly; and accordingly develop strategies pre-tactically to regulate and streamline traffic flow over Arabian airspace. These data sets are being continuously prepared, monitored, analysed and shared with the concerned stakeholders to ensure the safe, efficient, and expeditious flow of air traffic flow at tactical level.

Enroute ATS services in Afghanistan, Kabul FIR continues to remain unavailable. In collaboration with all stakeholders, AAI reactivated Bay of Bengal Cooperative Air Traffic Flow Management (BOBCAT) wef September 2025 to regulate westbound traffic during night hours through Kabul FIR. AAI continuously monitors the data and shares it with stakeholders. The ATFM Directorate has actively coordinated with all stakeholders to ensure the effective reactivation of BOBCAT procedures and services.

ATFM also changed its AFTN address from VIDPCTFM to VIDPZDZX in accordance with ICAO DOC 8585, in 2025.

ATFM played an important role this year and implemented flow measures on **513 occasions** to ease out congestion in Indian airspace observed at Bengaluru, Chennai, Delhi, Hyderabad, Mumbai and Raipur Airport during the calendar year 2025. This resulted in **fuel savings of 15650.3 tonnes** amounting to the reduction in **CO2 emissions of approximately 49454.9 tonnes.**

C. Introduction

This report provides an overview of the ATM network in India and its performance for the year 2024 in the areas of traffic, ATFM delays in the network and ground operations.

The report analyses the annual results in light of the main events that took place in the course of the year based on the key performance metrics defined.

The document is structured as follows:

Section 1: Preface

Section 2: Executive Summary.

Section 3:Introduction

Section 4:Traffic Overview insights on the annual traffic growth in the network and categorically in the metro airports year on year

Section 4: ATFM Post Operations – CDM Analysis assesses the effectiveness of the ATFM measures applied on the basis of the key performance indices(KPIs) defined.

Section 5: Glossary explains the KPIs

Annexure A: Flight Plan Analysis highlights non-compliance to the CBR requirement to assess the percentage of flight plans filed late(within 3 hours of their EOBT) etc.

Annexure B: Bay of Bengal Cooperative Air Traffic Flow Management (BOBCAT).

D. Traffic Overview

I. Total IFR flight movements on monthly basis in 2025

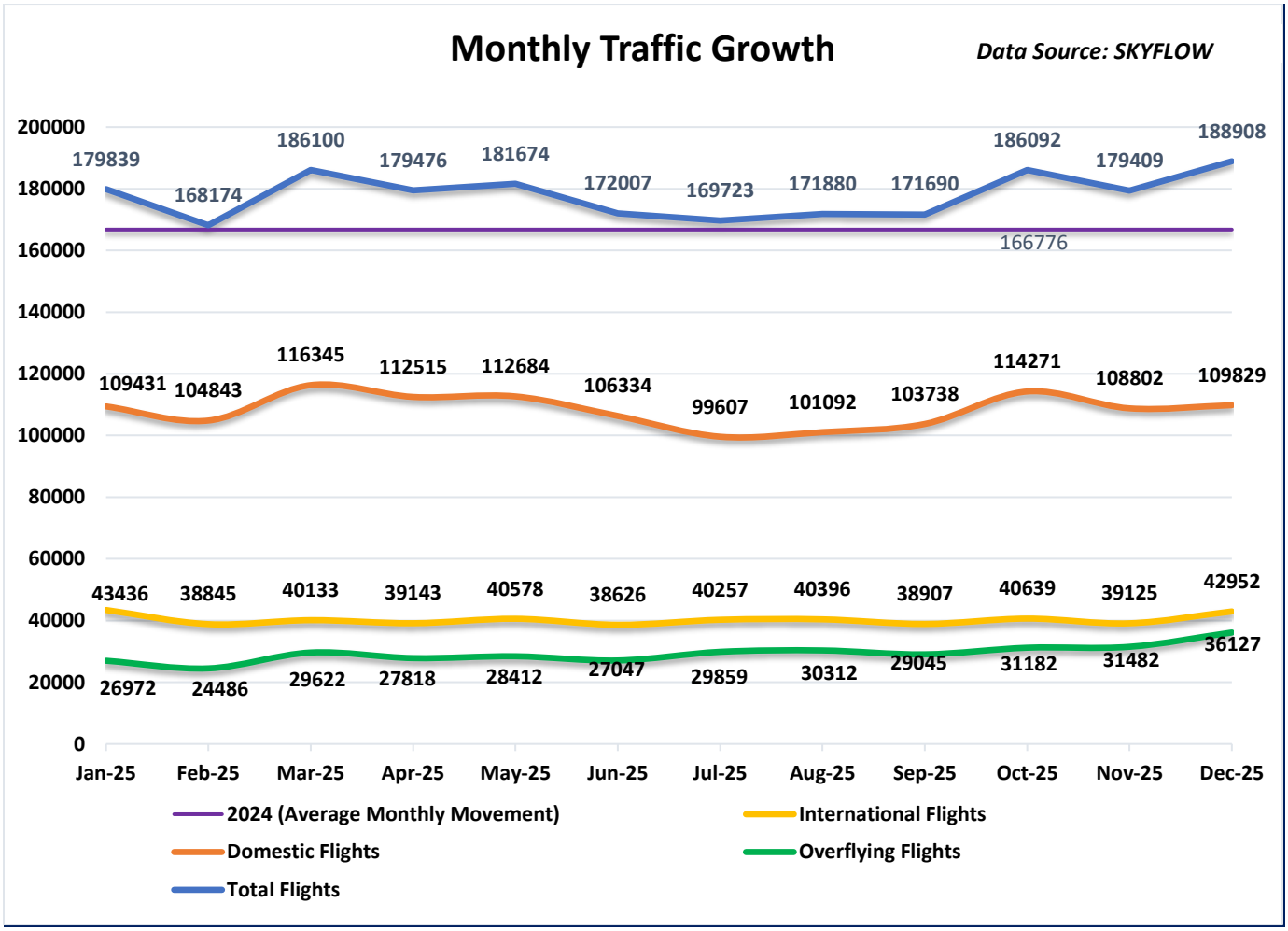


Figure 1:Monthly Traffic evolution

The graph above depicts the IFR Domestic and international Air traffic landing and taking off in the Indian ATFCM Area for the year 2025.The average monthly traffic grew by 6.7% year on year for the year 2025. Domestic IFR traffic witnessed an average growth of 0.19% month on month from January 2025 to December 2025 whereas international flights recorded an average increase of 0.05 % month on month from January 2025 to December 2025 (data source SKYFLOW).

II. Comparison of total IFR traffic in the network (YoY)

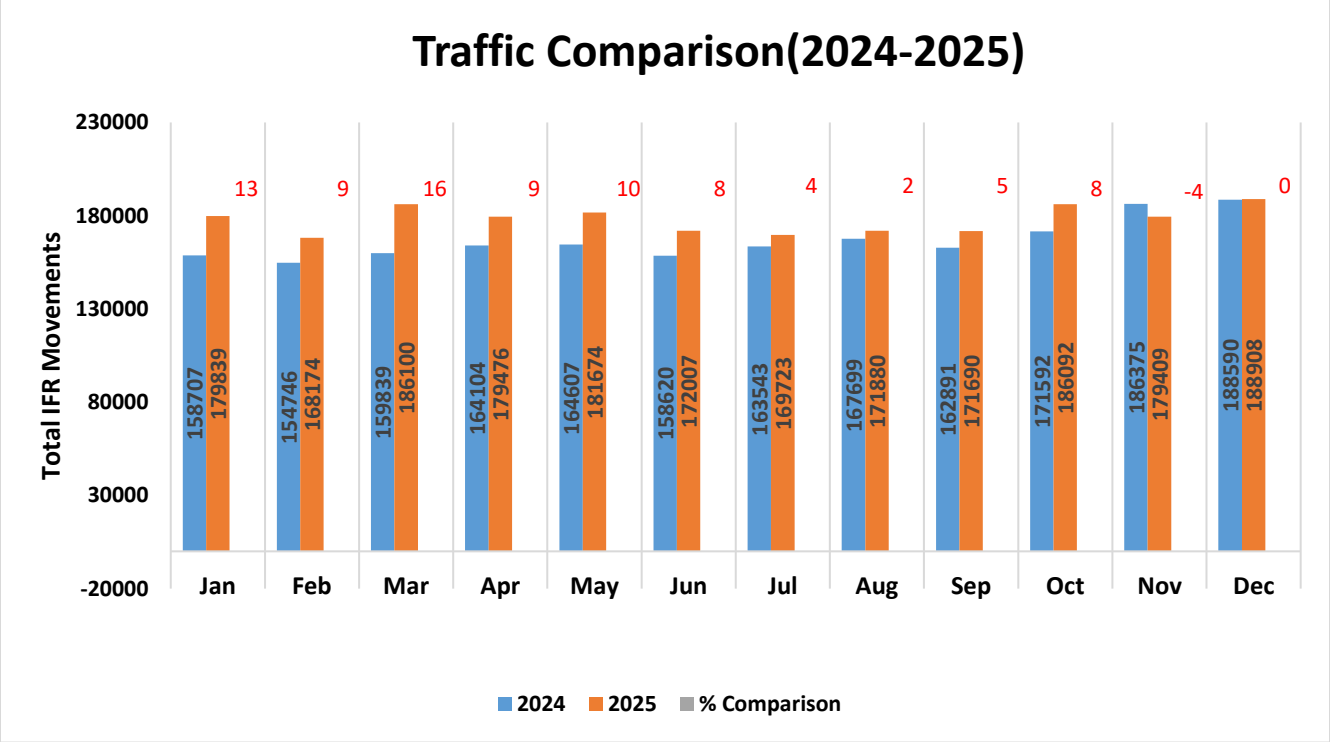


Figure 2: Traffic comparison 2024 vs 2025

Indian airspace witnessed highest growth metric compared to year 2024 in the month of Jan'25 and Mar'25. Although the traffic grew by 6.7% on average the least monthly growth as compared to last year was for Nov'25.

III. Comparison of total ATMs at Six metro Airports (Year-wise)

The total Air traffic movement including Passenger and Combination of other flights i.e. All-Cargo flights, International scheduled, International non-scheduled, Domestic scheduled, Domestic non-scheduled, Air taxi & commercial business flights at six major Indian Airports namely Delhi, Mumbai, Bengaluru, Hyderabad, Kolkata and Chennai is plotted for the year 2021,2022,2023,2024 & 2025.

Metro Airports namely Bengaluru, Chennai, Delhi, Hyderabad, and Kolkata have witnessed a rise in Air Traffic movement in year 2025 of 5.0%, 7.3%, 2.1%, 9.1% and 1.2% respectively whereas Mumbai Airport has witnessed a decrease in Air Traffic movement in year 2025 of 1.1% as compared to the ATMs in the year 2024.

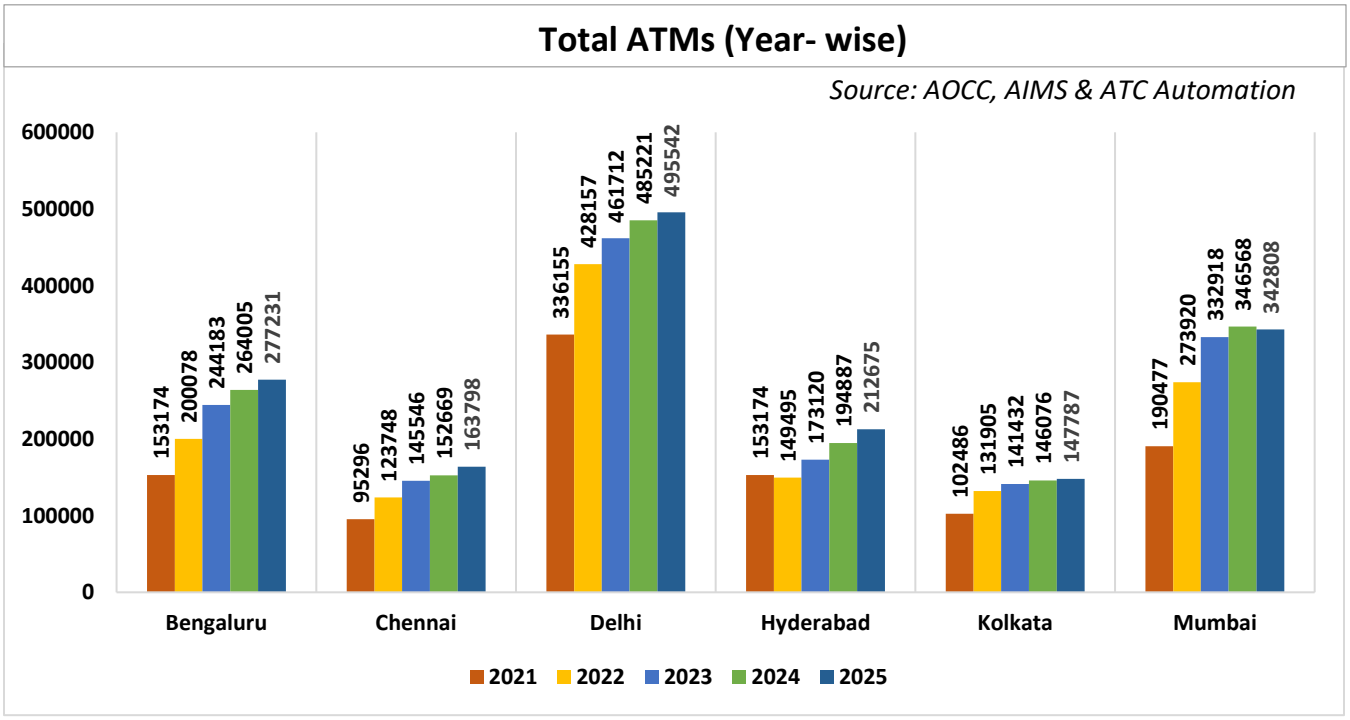
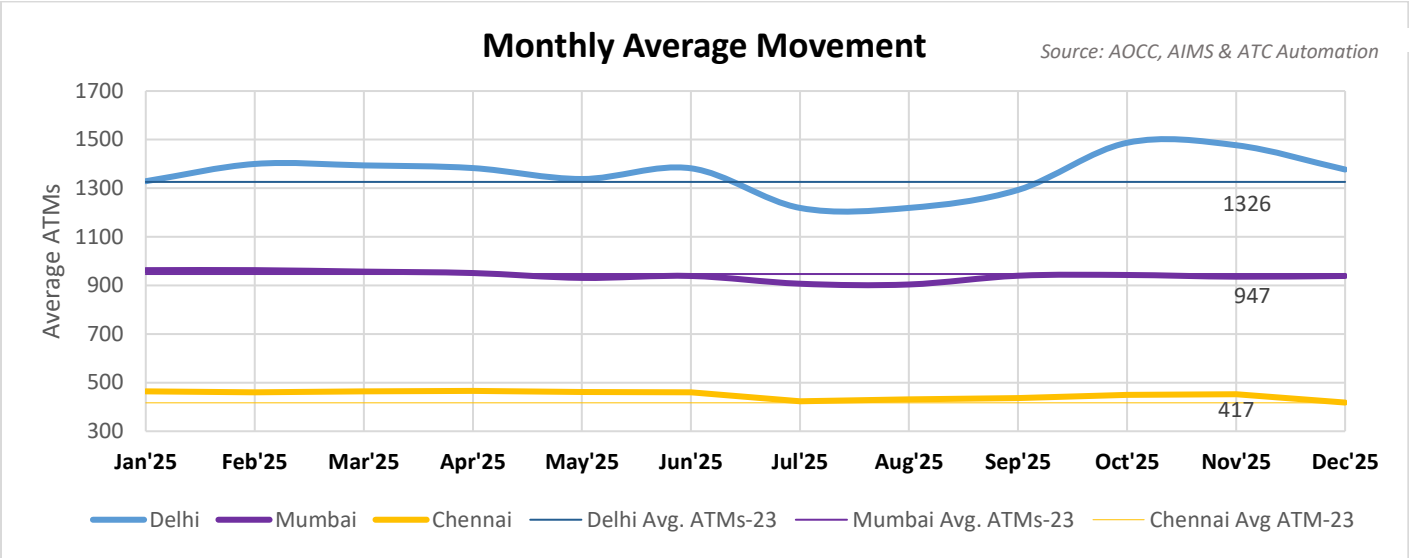


Figure 3: Percentage Traffic Variation (YoY)

IV. Monthly Average Air Traffic Movement for Six Major Airports



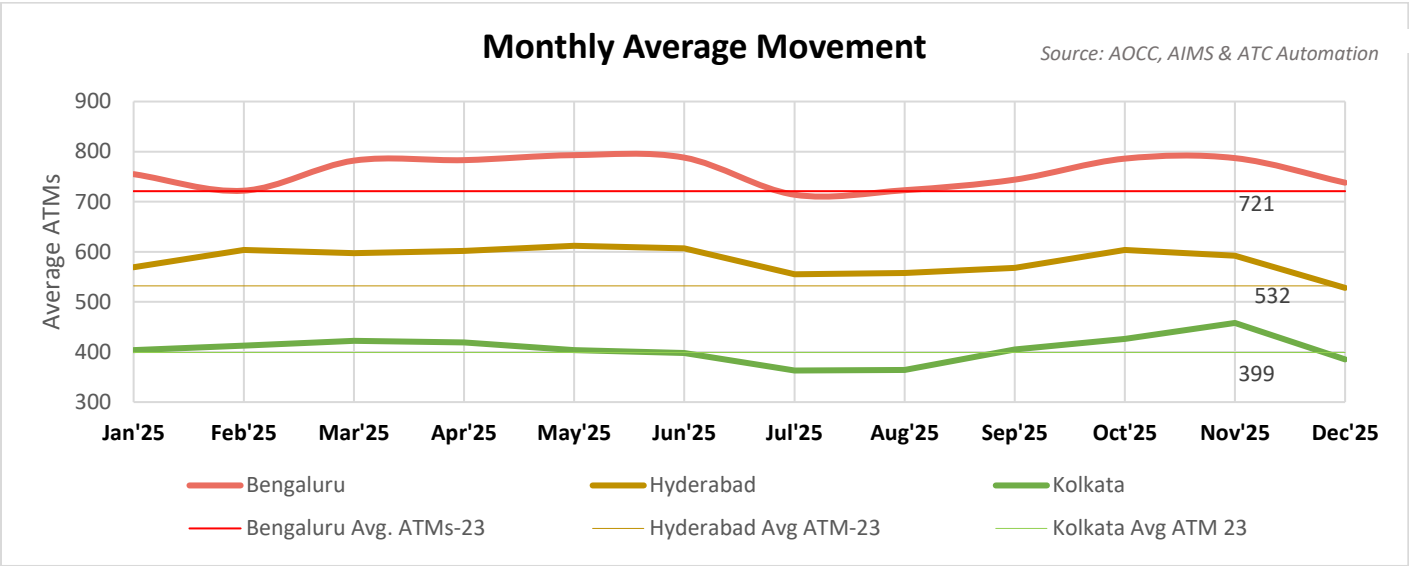


Figure 4:Monthly Average Air Traffic Movement For Six Major Airports

Monthly average Air Traffic Movements for Six major Airports- Delhi, Mumbai, Bengaluru, Chennai, Hyderabad and Kolkata in India for the year 2025 is depicted in the above graph. The Average Monthly ATMs in Bengaluru, Chennai, Delhi, Hyderabad and Kolkata recorded an increment of 5.4%, 7.6%, 2.4%, 9.6% and 1.5% respectively and Average Monthly ATMs in Mumbai have recorded a decrease of 0.8% than the Average Monthly ATM recorded in the year 2024 for the same Airports.

V. Top city pairs India:

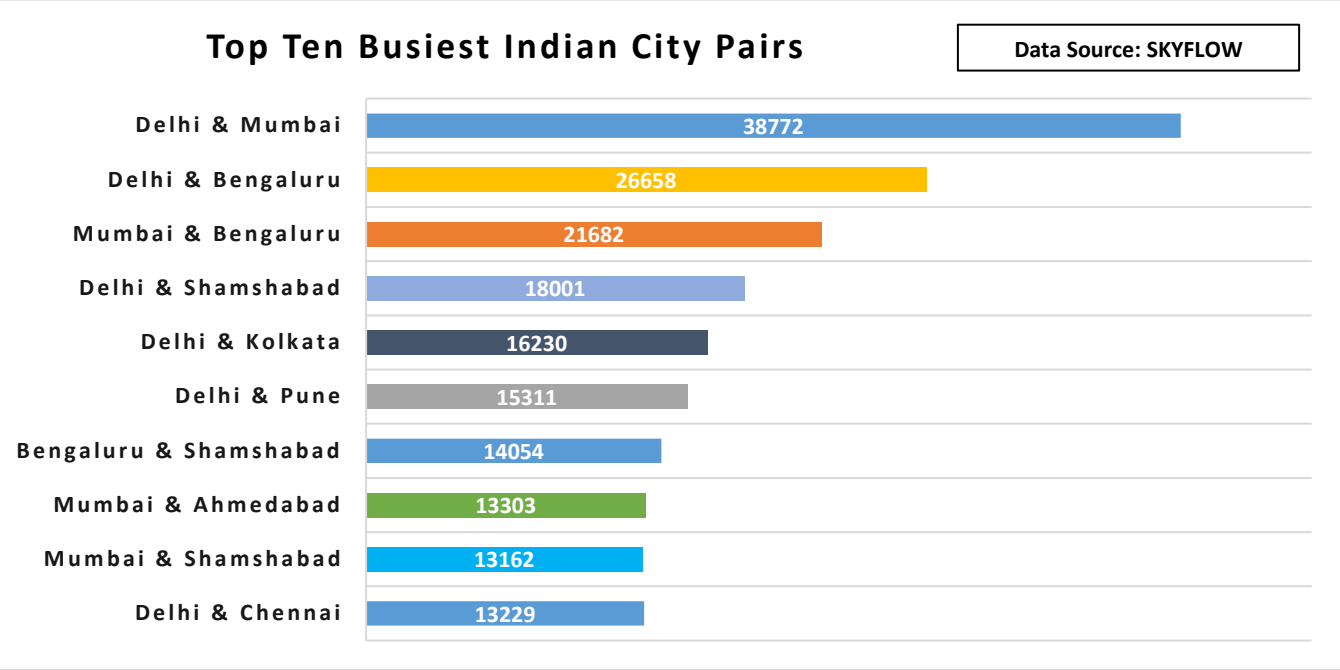


Figure 5: Busiest Domestic City Pairs

The above graph shows the ten busiest Indian city pairs as per the movement data received from SKYFLOW system:

Inference

i. For the year 2025,Delhi and Mumbai are the top most busiest city pair with a total of 38772 flights.
ii. Delhi-Pune is the top most busiest major to non major city pair with 15311 filghts operating to/from these airports.

VI. International Traffic :

International Traffic Flow to/from India:

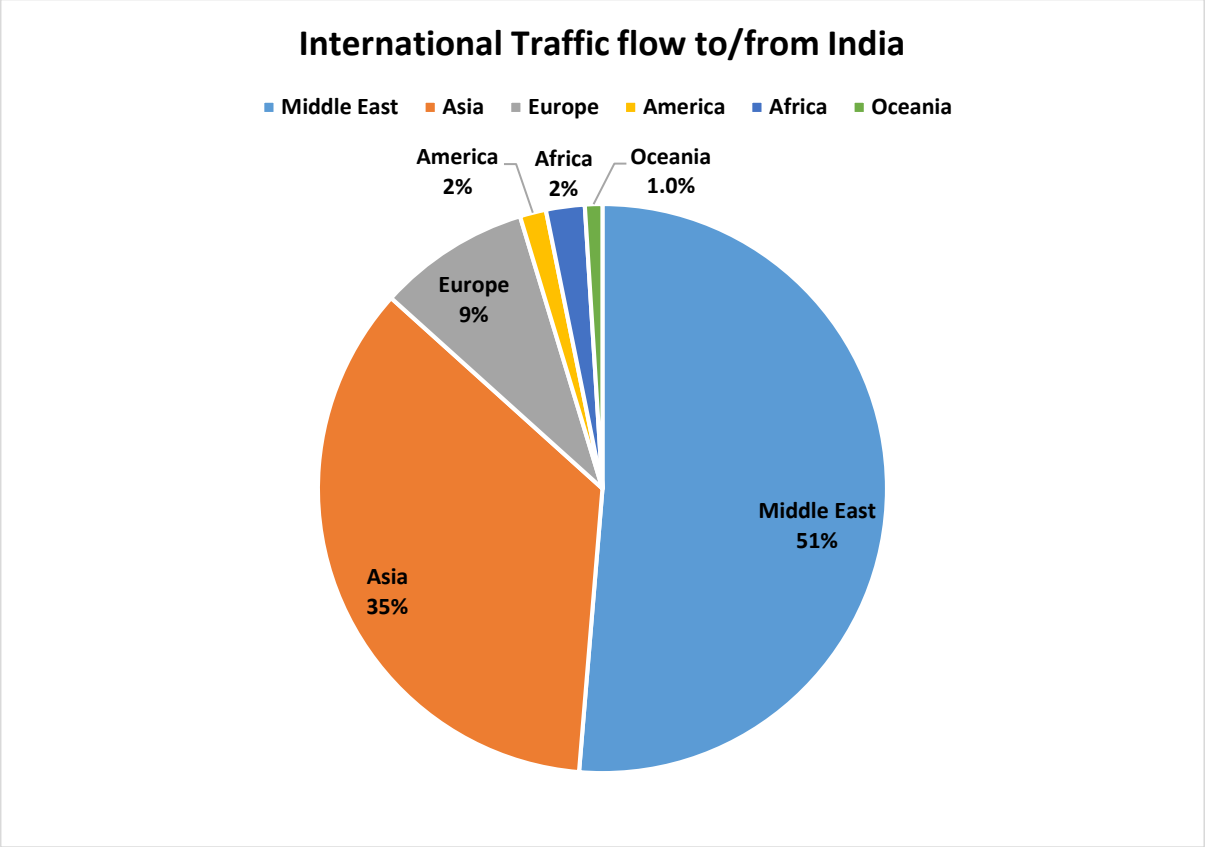


Figure 6: International traffic to and from India

The above graph shows the international Traffic flow data received from SKYFLOW System:

Inference:

i. Middle east region accounts for the maximum (51%) international traffic flow to/from India.
ii. Oceania region accounts for the least (1%) international traffic flow to/from India.

VII. Top International city pairs :

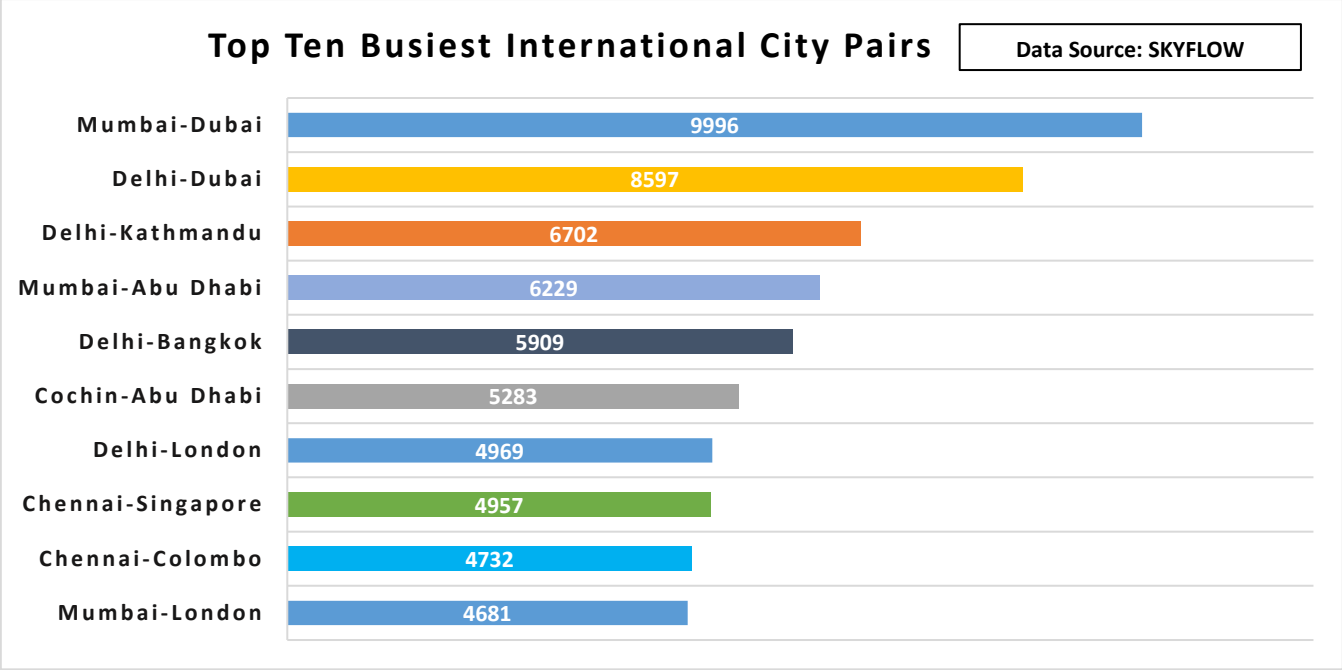


Figure 7: Busiest International City Pairs

The above graph shows the ten busiest International city pairs movement data received from SKYFLOW System:

Inference:

i. Dubai and Mumbai are the top most busiest city pair with a total of 9996 flights operating for the year 2025.
ii. Cochin and Abu-Dhabi is the top most busiest major to non major international city pair with 5283 filghts operating for the year 2025.

VIII. Flight Operations – Airlinewise

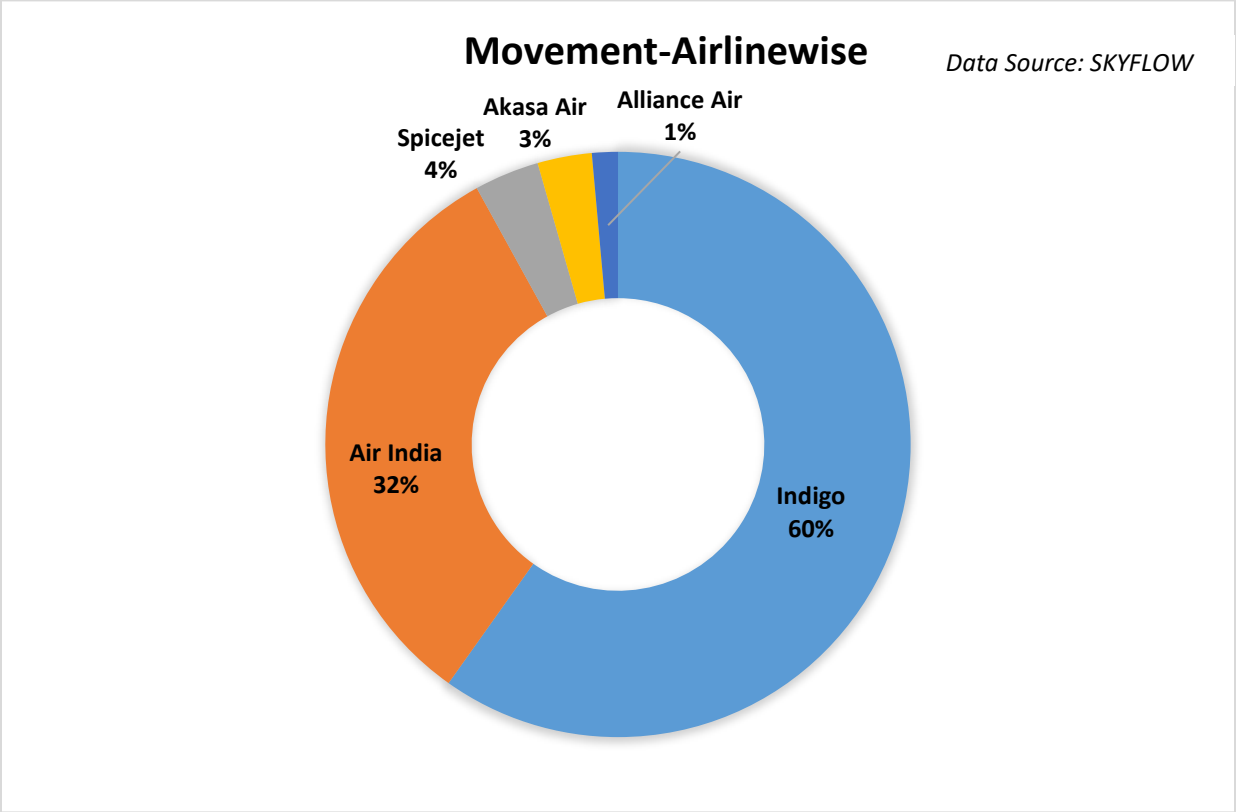


Figure 8: Flight Movements –Airlinewise

Indigo Airlines constitutes the maximum 60 % of the total scheduled aircraft movements for the Year 2025 followed by Air India at 32%. Alliance Airlines has the least recorded air traffic movement.

E. ATFM Post Operations – CDM Analysis

I. Introduction

Analysis Period: **1st January'25– 31st December'25**

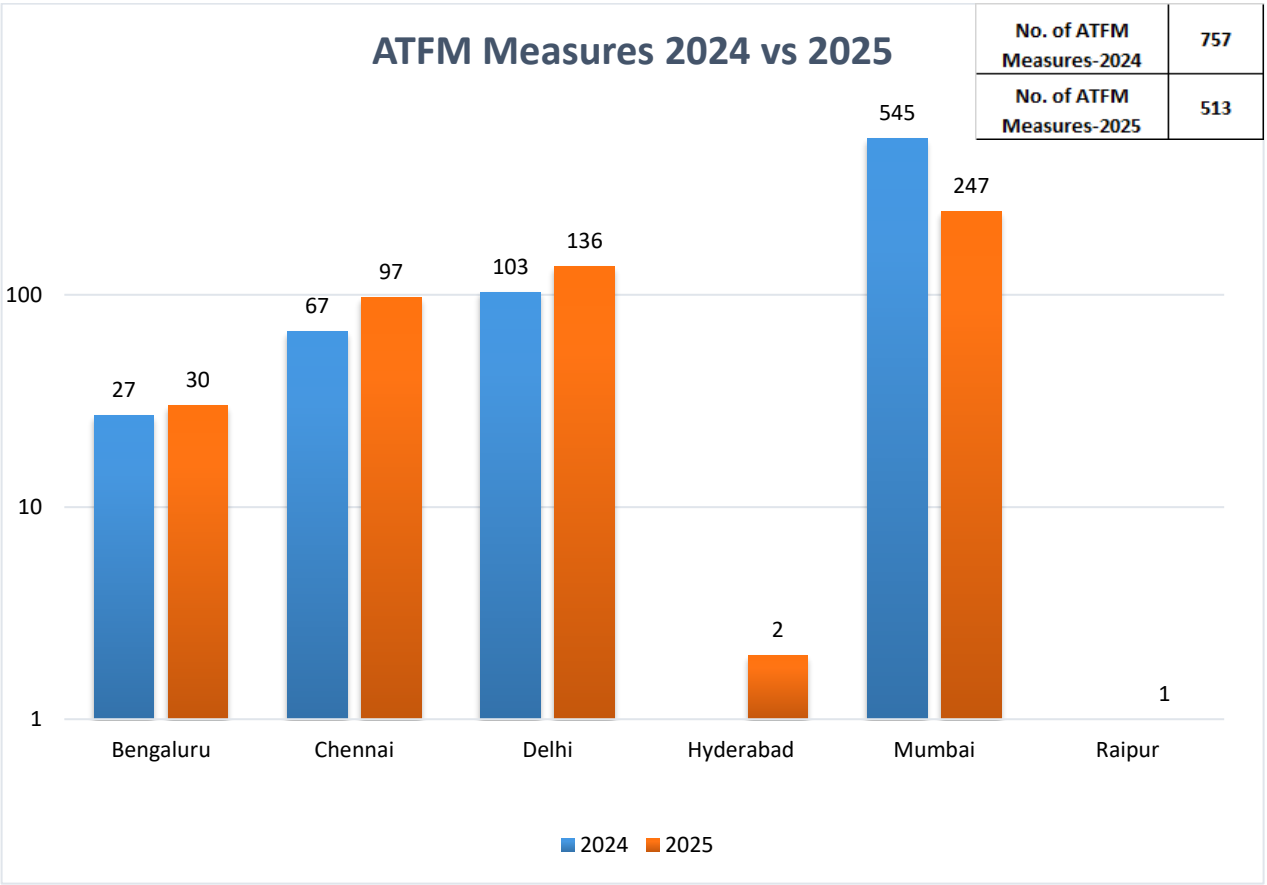
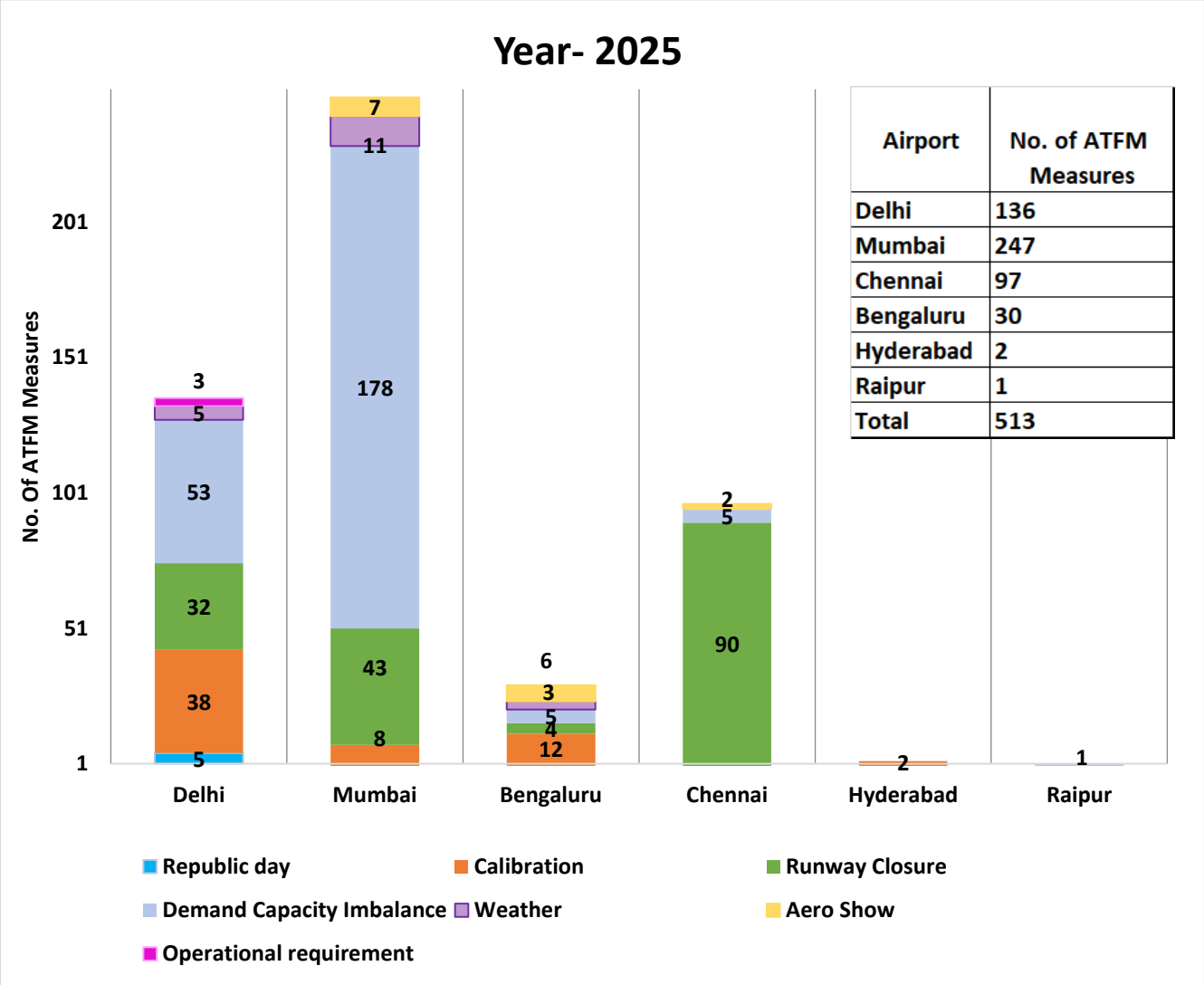


Figure 9: ATFM measures 2024 vs 2025

A total of **513 ATFM measures were applied in 2025** for Bengaluru,Chennai, Delhi, Hyderabad, Mumbai and Raipur whereas 757 ATFM measures were applied for Ayodhya,Bengaluru, Chennai, Delhi, Mumbai and Pune in the year 2024. There has been a decrease of 32% in the number of ATFM measures applied on the arrivals within ATM network.

During the year 2025, **Thirty (30)** ATFM measures were applied for **Bengaluru Airport, Ninty seven (97)** for **Chennai airport, One Hundred thirty six (136)** for **Delhi Airport**, **Two (02)** for **Hyderabad Airport**, **Two Hundred and forty seven (247)** for **Mumbai airport and One** (**01**) ATFM measures was applied for **Raipur Airport**, due to the following reasons as illustrated in the bar chart below:–



Airport	No. of ATFM Measures
Delhi	136
Mumbai	247
Chennai	97
Bengaluru	30
Hyderabad	2
Raipur	1
Total	513

Figure 10: ATFM regulation Reasons-2025

ATFM Measures Overview

	Bengaluru	Chennai	Delhi	Hyderabad	Mumbai	Raipur
Number of ATFM measures applied	30	97	136	2	247	1
Average ATFM Ground delay due to measures	29.2	28.0	28.8	23.1	26.5	7
Maximum ATFM Ground delay due to measures	110	65	137	51	194	22
% Compliance	97.1	97.8	97.4	100	98.3	100

Note: $*Average\ ATFM\ Delay = \frac{Total\ ATFM\ Delay}{Total\ Domestic\ Arrivals}$

Total affected flights in scenario (Domestic Arrivals)	36947
Total Domestic Arrivals with zero ATFM delay	1997
Total Domestic Arrivals with ATFM delay	26779

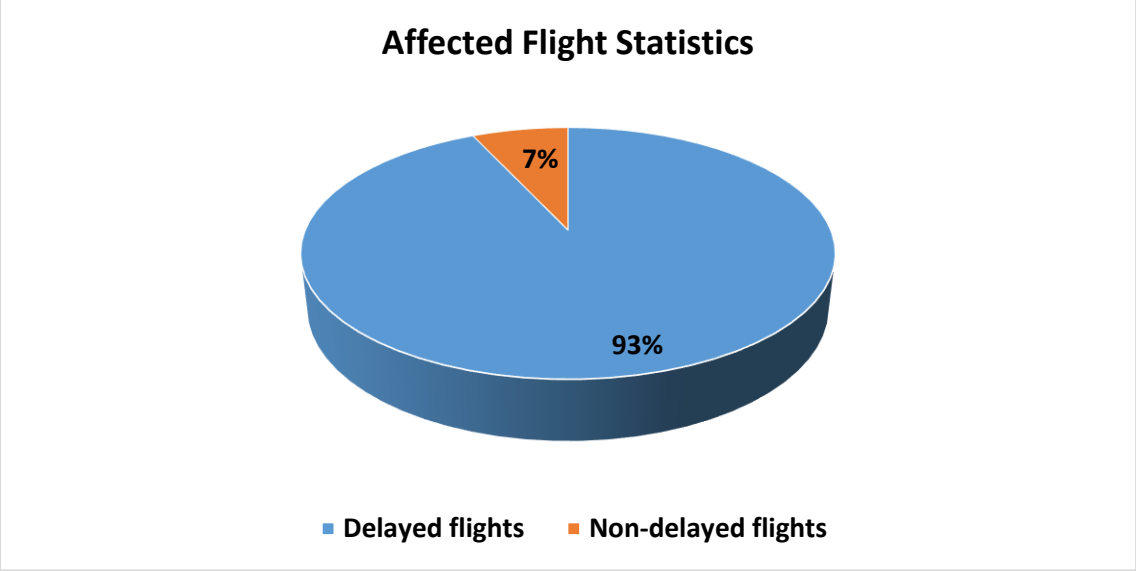


Figure 11: Affected Flight Statistics

II. Overall Compliance

Total Arrivals	36947
Domestic arrivals	28776
Flights with complete data (ATOT)	28317
Flights with incomplete data	108
Flights Not Operated	351
Compliant*	27702
Non-Compliant	615

Total No. of Revised CTOTs issued = 8970 (Compliance of flights which were issued revised CTOT is measured w.r.t. new CTOT issued).

Average CTOT compliance for the year 2025 has been 97.8%.

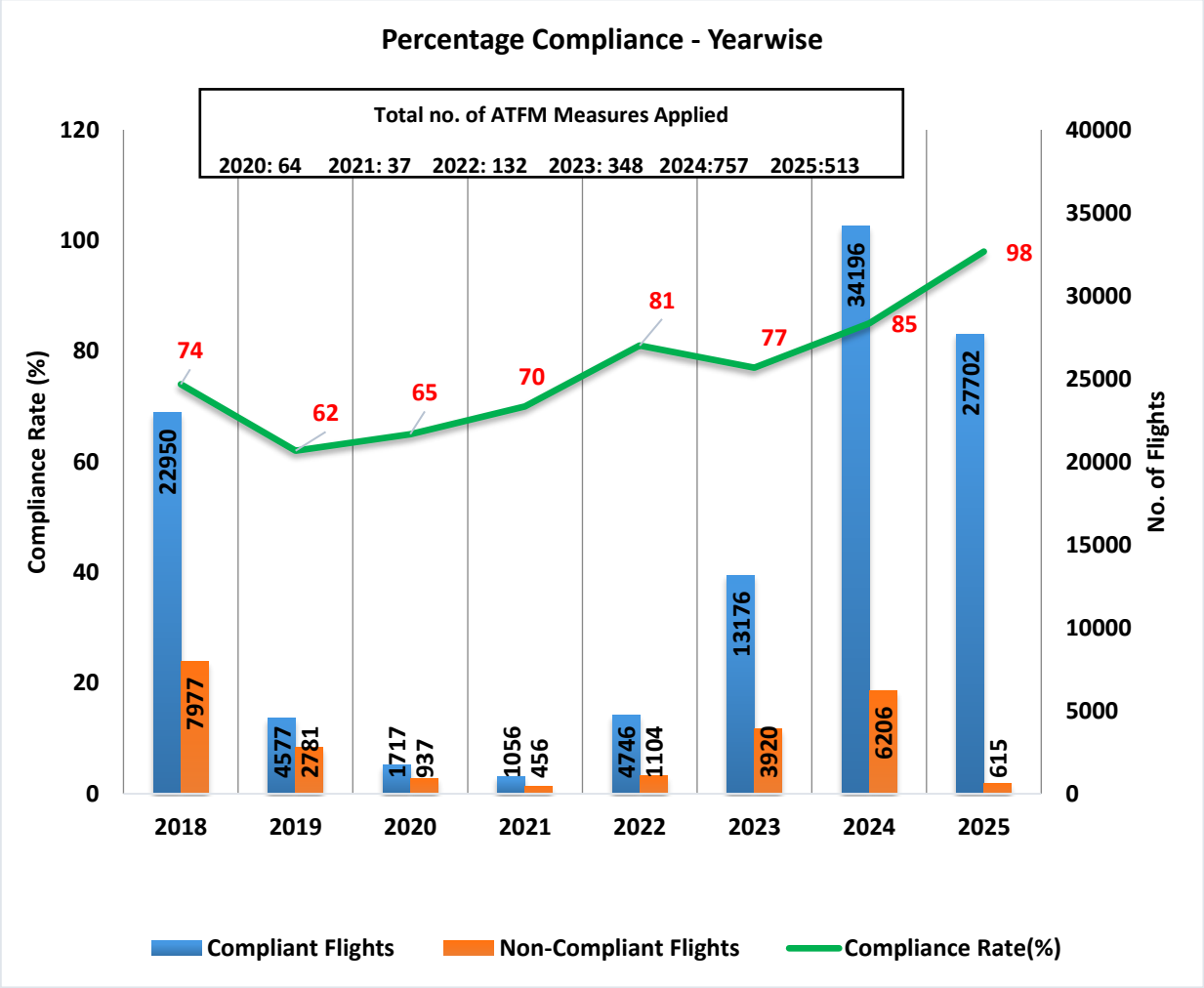


Figure 12:Overall Compliance

NOTE: Flights with required data i.e. ATOT are only considered for compliance measurement

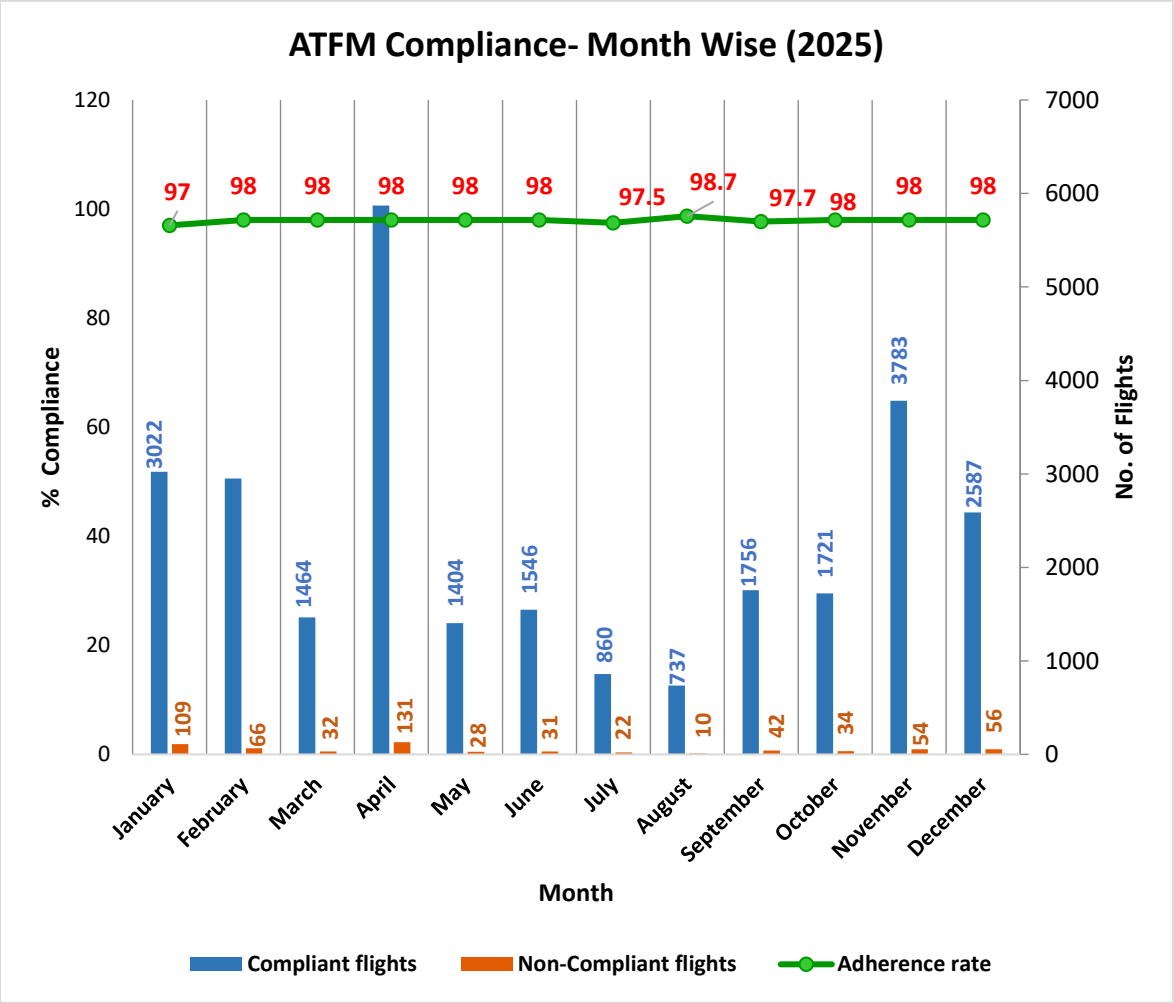


Figure 13: ATFM Compliance –Monthwise

Inference

1. Out of the total arrivals(36947) captured for the constrained Airports during the CDM speriod in the year 2025,77.9% of flights i.e. Domestic arrivals, are participating.

2. Out of these Domestic Arrivals(28776), 93% of arrivals(26779) are assigned ATFM ground delay & 7% of flights are without any ATFM ground delay.

3. For the year 2025, therefore,out of the total arrivals(36947) captured to the constrained Airports during the period when ATFM measures were in force, 72.5% of flights(26779) are assigned ATFM Ground Delay.

III. CTOT Compliance rate –Airportwise

MUMBAI FIR (98%)	Compliant	Non compliant	% Compliant
Ahmedabad	1069	5	100%
Amravati	3	0	100%
Aurangabad	131	0	100%
Mumbai	1441	32	98%
Bhuj	42	11	79%
Vadodara	190	3	98%
Bhopal	288	1	100%
Bhavnagar	5	1	83%
Diu	31	0	100%
Gondia	2	0	100%
Hirasar, rajkot	206	3	99%
Indore	475	4	99%
Jabalpur	110	2	98%
Jalgaon	50	0	100%
Jamnagar	131	8	94%
Kandla	47	1	98%
Kolhapur	42	1	98%
Keshod	9	0	100%
Mundra	3	0	100%
Nagpur	383	3	99%
Nasik	39	3	93%
Pune	382	22	95%
Porbandar	5	0	100%
Ratnagiri	0	1	0%
Shirdi	89	0	100%
Solapur	8	0	100%
Surat	142	0	100%
Udaipur	340	2	99%
KOLKATA FIR (98%)			
Prayagraj	189	14	93%
Agartala	41	0	100%

Ayodhya	198	4	98%
Siliguri	480	3	99%
Shillong	6	2	75%
Varanasi	572	8	99%
Bhubaneswar	548	5	99%
Bilaspur	8	0	100%
Chabua	0	1	0%
Kolkata	1461	19	99%
Chakeri	54	3	95%
Durgapur	91	1	99%
Darbhanga	169	5	97%
Deoghar	46	2	96%
Kalaikunda Air Force Station	1	0	100%
Gorakhpur	213	3	99%
Guwahati	520	19	96%
Gaya	46	1	98%
Hollongi	22	0	100%
Imphal	51	0	100%
Jharsuguda	72	1	99%
Jagdalpur	2	0	100%
Jorhat	4	1	80%
Khajuraho	9	0	100%
Aizawl	32	6	84%
Dibrugarh	61	3	95%
Dimapur	23	1	96%
Patna	608	9	99%
Purnea	2	0	100%
Ranchi	333	7	98%
Raigarh	1	0	100%
Raipur	329	2	99%
DELHI FIR (96%)			
Agra	12	2	86%
Amritsar	334	16	95%
Awantipur Air Force Station	2	0	100%
Adampur	24	1	96%

Bikaner	37	2	95%
Bakshi Ka Talab	2	0	100%
Bhuntar	24	0	100%
Beas	1	2	33%
Bathinda	16	4	80%
Bareilly	21	2	91%
Chandigarh	416	25	94%
Safdarjung, New Delhi	0	1	0%
Dehradun	286	8	97%
Delhi	2556	86	97%
Hindon	39	6	87%
Kangra	100	3	97%
Gwalior	60	6	91%
Haryana	3	1	75%
Jodhpur	144	14	91%
Jaipur	584	5	99%
Jaisalmer	32	3	91%
Jammu	193	15	93%
Kishangarh	4	0	100%
Kota	1	0	100%
Ludhiana	1	0	100%
Leh	218	25	90%
Lucknow	535	7	99%
Noida	1	0	100%
Pithorgarh	2	2	50%
Pathankot	2	0	100%
Pantnagar	30	2	94%
Suratgarh	1	0	100%
Shimla	18	0	100%
Sarsawa Air Force Station	6	1	86%
Srinagar	512	23	96%
Sirsa	3	0	100%
Thoise	3	1	75%
Uttarlai	3	1	75%
Udhampur	0	1	0%

CHENNAI FIR (98%)			
Agatti	4	1	80%
Hal Bangalore	47	9	84%
Baldota Koppal, karnataka	2	1	67%
Bangalore	2215	24	99%
Belgaum	35	1	97%
Bidar	1	1	50%
Vijayawada	288	3	99%
Coimbatore	497	1	100%
INS GARUDA	2	0	100%
Kochi	778	18	98%
Calicut	66	2	97%
Kadapa	1	0	100%
MOPA Goa	565	1	100%
Gulbarga	4	0	100%
Goa	882	19	98%
Hubli	36	1	97%
Shamsabad, Hyderabad	1479	13	99%
Begumpet Hyderabad	19	1	95%
Vijaynagar	7	3	70%
Kannur	80	1	99%
Madurai	276	0	100%
Mangalore	248	4	98%
Chennai	1140	4	100%
Mysore	3	0	100%
Nanded	7	1	88%
Port Blair	175	6	97%
Pondicherry	10	0	100%
Rajahmundry	81	1	99%
Shivamogga	15	0	100%
Salem	9	0	100%
Tuticorin	100	0	100%
Tirupati	69	1	99%
Tiruchirappally	77	1	99%

Thiruvananthapuram	261	2	99%
Visakhapatnam	133	13	91%

**FIR wise compliance rate.*

Inference

1. Out of the total domestic arrivals in the CDM scenario**, 98% arrivals are compliant for the year 2025**.
2. For the year 2025Chennai, Mumbai and Kolkata region have the compliance rate of 98% where as Delhi region has the compliance rate of 96%.

IV. Reason For Non-Compliance (2025)

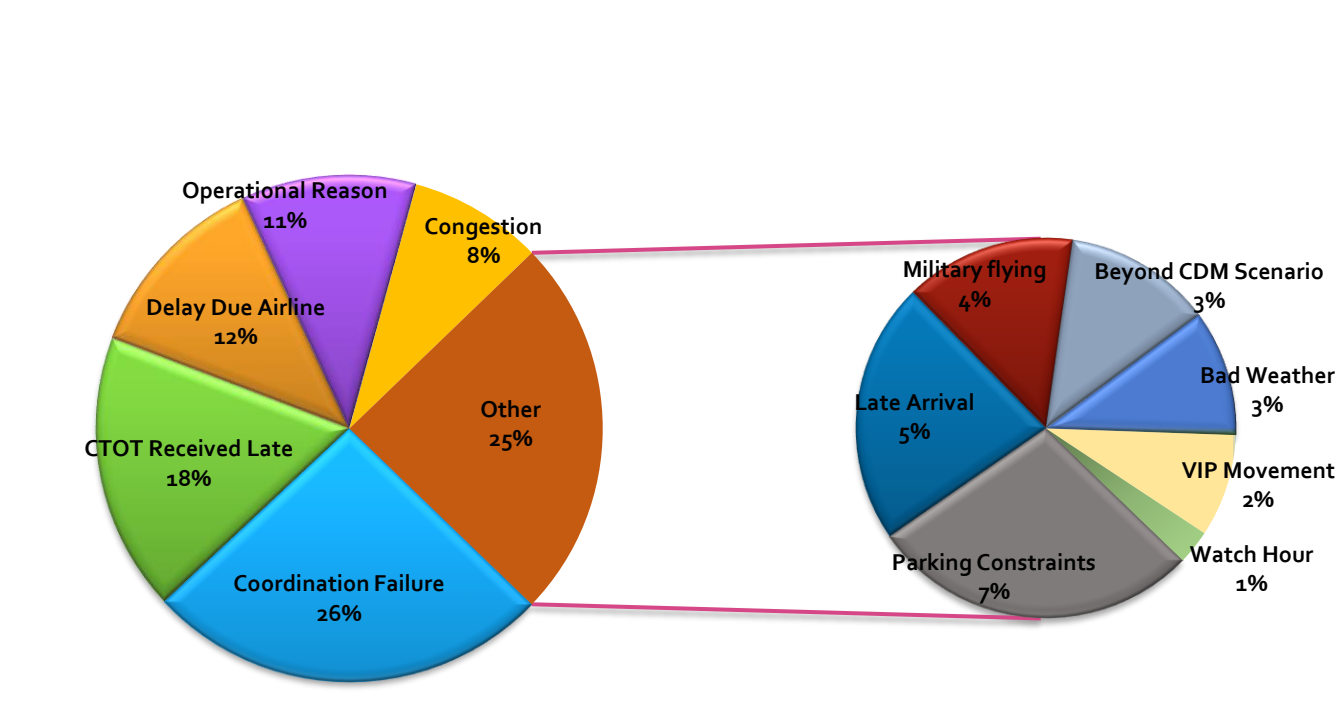


Figure 14: **Reason for Non-Compliance**

Inference

1. 26 % of CTOT Non- Compliance was reported by concerned FMPs to be due to coordination failure.
2. 18 % of the CTOT Non- compliance was reported by concerned FMPs to be due to late receipt of CTOTs and by the time the aircraft had already initiated pushed back or startup.
3. 12 % of the CTOT Non- compliance was due to airline delay. Updated EOBTs of such flights was not available to ATFM unit leading to wastage of unused slots.
4. 11% of the CTOT Non- compliance was due operqtional reasons and 8% due to traffic congestion at the departure airport leading to delay and non compliance.

V. CTOT Compliance rate – Airlinewise

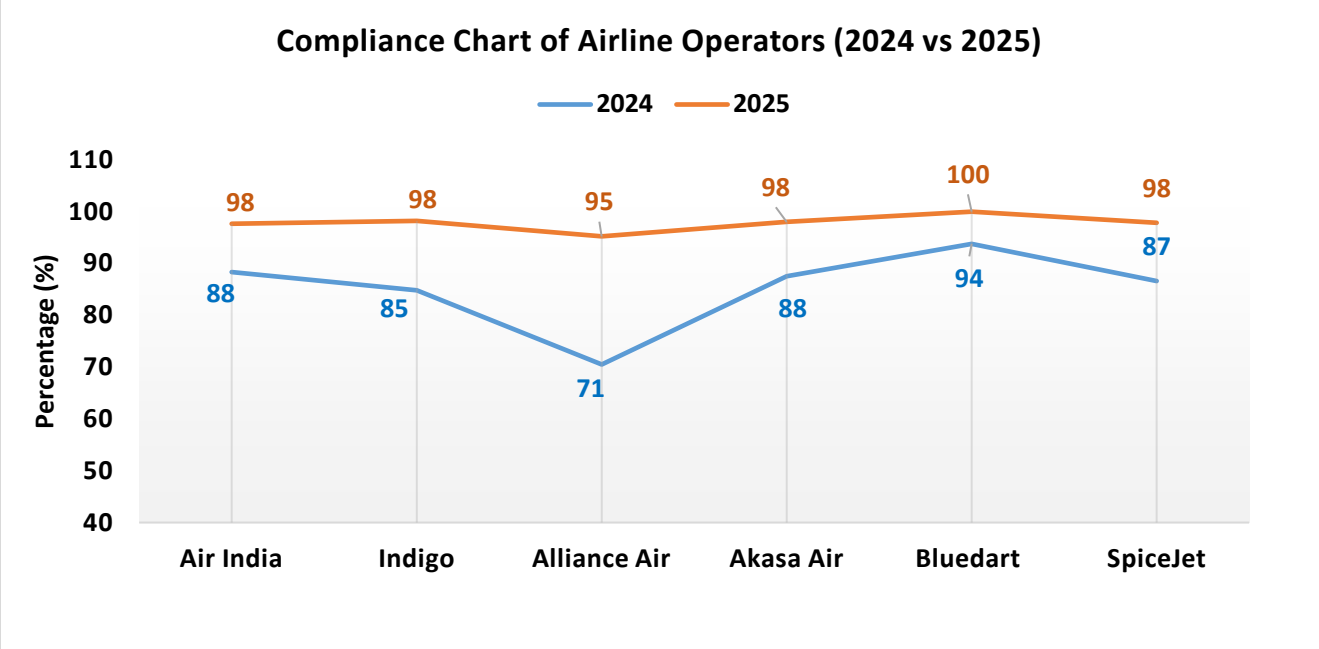


***Figure 15: CTOT* Compliance-Airlinewise**

Inference

5. Out of the total domestic arrivals with complete data in the CDM scenario, 98% arrivals are compliant.
6. Indigo, Air India, Akasa Air, Blue dart and Spicejet Airlines have a compliance rate above the average recorded 98% compliance for the year.

VI. Air Delay during the CDM Scenario period

In the year 2025, the Average Air Delay to domestic arrivals* during the period when ATFM measures were in force for Delhi, Mumbai,Chennai, Bengaluru, Hyderabad and Raipur are 14.39 min, 11.4 min, 9.4 min,7.6 min, 19 min and 14 min respectively.

**Note: Only calculated for domestic arrivals with both ATOT and ALDT information.*

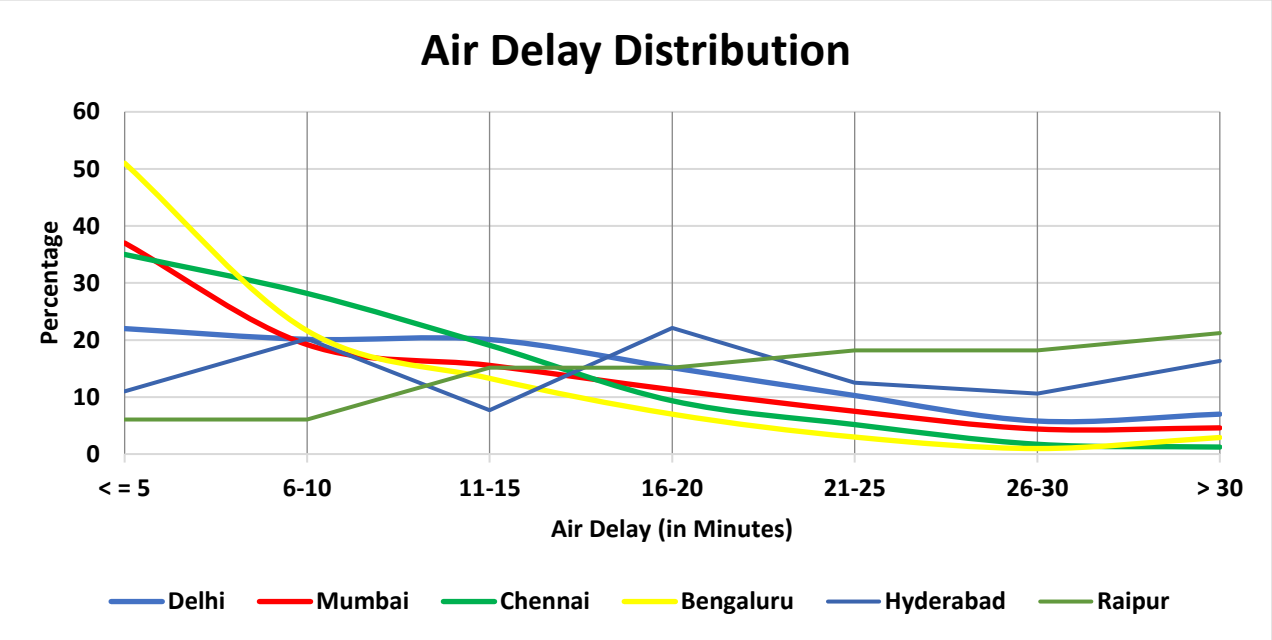


Figure 16: Air Delay during CDM Period

Inference

i. 62% of arriving flights to Delhi had an Air delay equal to or less than 15 minutes during the CDM period.
ii. 72% of arriving flights to Mumbai had an Air delay equal to or less than 15 minutes during the CDM period.
iii. 82% of arriving flights to Chennai had an Air delay equal to or less than 15 minutes during the CDM period.
iv. 86% of arriving flights to Bengaluru had an Air delay equal to or less than 15 minutes during the CDM period.
v. 39% of arriving flights to Hyderabad had an Air delay equal to or less than 15 minutes during the CDM period.
vi. 27% of arriving flights to Raipur had an Air delay equal to or less than 15 minutes during the CDM period.

VII. Fuel Saving & Reduction in Emissions per flight during the CDM Scenario period

The chart below shows fuel saved per flight and reduction in CO_2 emissions per flight due to ATFM measures in CDM Scenarios on monthly basis for the year 2025.

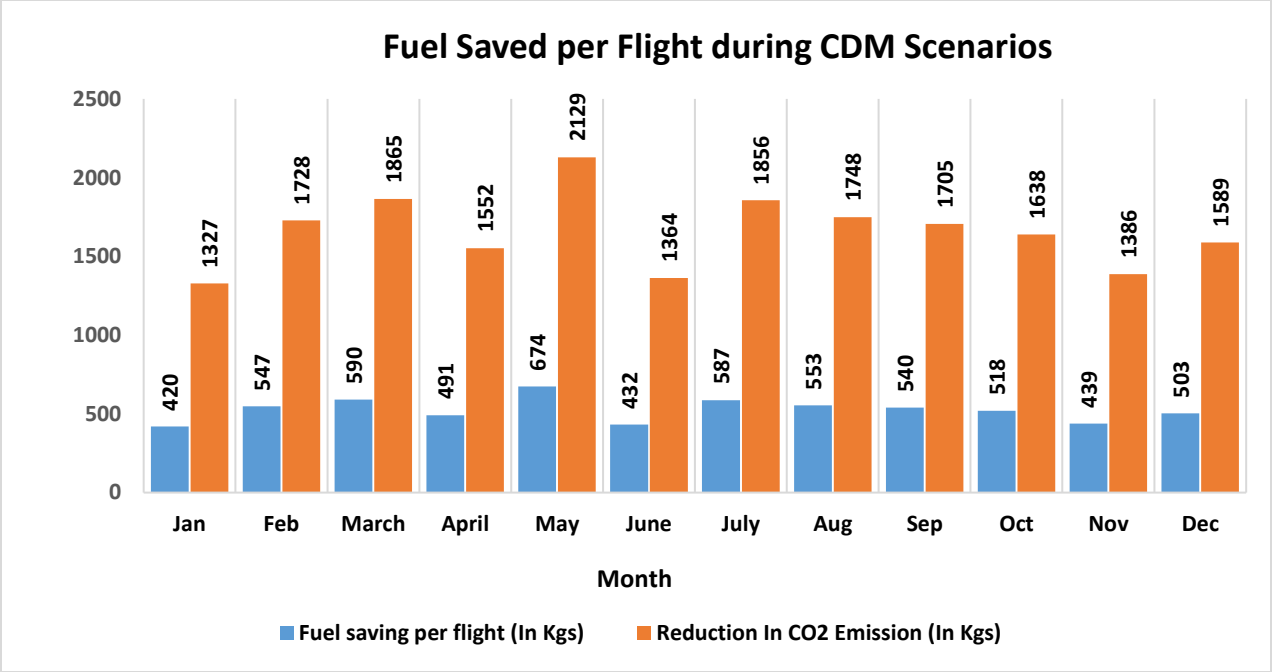


Figure 17: Fuel Savings & CO_2 Emissions reduction

Inference

1. May 2025 recorded the maximum Fuel savings per flight of 674 Kg and maximum reduction in emissions of 2129 Kg of CO_2 per flight
2. ATFM measures applied in the year 2025 resulted in total fuel savings of 15650.29 tonnes amounting to the reduction in CO_2 emissions of approximately 49454.91 tonnes.

VIII. Tangible benefits of ATFM measures applied(2025)

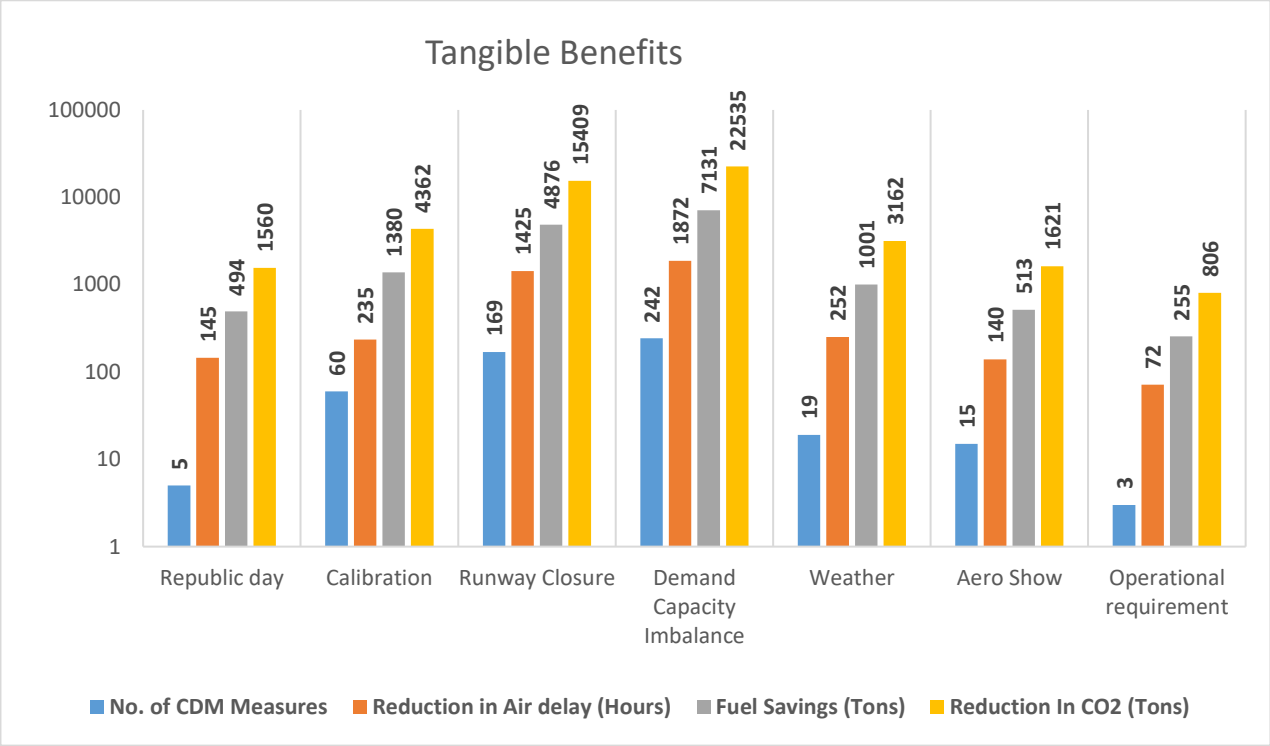


Figure 18: Tangible benefits(2025)

ATFM played a greater role this year and implemented Ground delay measures **on 513 occasions** to ease out congestion in Indian airspace observed at **Bengaluru, Chennai, Delhi, Mumbai, Hyderabad and Raipur** Airport during the calendar year 2025. This resulted in **fuel savings of 15650.29 tonnes** amounting to the **reduction in CO_2 emissions of approximately 49454.91 tonnes** in **2025** compared to fuel savings of 32653.7 tonnes and reduction in CO_2 emissions of 103185.8 tonnes in the year 2024.

F. Glossary

ATFM Parameters	**Definition**
Affected Flight statistics	An insight of participating traffic in the scenario i.e. ratio of the domestic arrivals to the constrained airport affected by ATFM measures (assigned delay by the Ground Delay Program) to the domestic arrivals not affected by ATFM measures (not assigned any delay) within the CDM scenario.
ATFM Ground delay	ATFM ground delay defined as CTOT-ETOT (Calculated take off time – Estimated take off time)
Average ATFM delay	$\frac{\boldsymbol{Total\ monthly\ ATFM\ delay\ (in\ minutes)}}{\boldsymbol{Total\ Domestic\ Arrivals}}$
Maximum ATFM delay	Maximum ATFM delay (in minutes) assigned in the month
Overall compliance rate	Defined as monthly ATFM departure slot adherence rate of regulatedflights. Flights having ATOT within theATFM Slot Tolerance Window (STW) of minus 5 to plus 10 minutes of CTOTs, are considered as compliant flights
CTOT Compliance rate of Airline operators	An overview of CTOT compliance rate of various Airline operators
CTOT Compliance rate of Airports within different Regions	An overview of CTOT compliance rate of Airports within 4 FIRs
Air delay statistics	Air delay defined as difference between AET & EET, whereAET(actual elapsed time) can be obtained from (ALDT-ATOT) and estimated elapsed time(EET)can be obtained from FPL/RPL or (CLDT-CTOT). **Therefore, Air delay = AET-EET** Average Air Delay is calculated as: $\boldsymbol{Average\ Air\ Delay} = \frac{\boldsymbol{Total\ Air\ Delay\ to\ domestic\ arrivals\ (with\ values\ greater\ than\ zero)}}{\boldsymbol{Total\ Domestic\ Arrivals}}$ *CLDT: Calculated Landing Time* *CTOT: Calculated Take off Time* *ALDT: Actual Landing Time* *ATOT: Actual Take off Time*

Annexure A- Flight Plan Analysis (1st Jan'25 to 31st Dec'25)

I. Introduction:

Accurate and timely input in respect of flight intent is paramount to the correct traffic demand projection and eventually effective ATFM implementation. FPLs remain the main source of tactical demand prediction for ATFM systems. Early filing of error free FPL helps in improving the lead time required for ATFM measures and reduces the number of unexpected flights(pop-up). This in turn helps in improving the accuracy of demand-capacity imbalance prediction and optimizes slot utilization.

AIP India, ENR 1.9 section 4 on Flight Planning in the context of ATFM recommends Flight Planning requirements for all Airline Operators –

"a) Flight plans shall be submitted at least 3 hours before the estimated off block time (EOBT);
b) The window for filing FPL is between 3 Hours and 120 Hours (Five days) before the EOBT. Earlier filing of FPL will give a realistic demand data to the CCC and for better planning .Hence, the requirement of ATFM measures can be identified early. Late filing of a flight plan will lead to inaccuracies in predicting the demand and may lead to undesirable delay;"

II. Analysis

A. An analysis has been conducted to find out the difference between the flight plan filing time and filed EOBT for all the FPLs received at ATFM system monthwise for the year 2025.
The purpose of the analysis is to monitor the compliance with provisions of AIP India, section 4, ENR 1.9 regarding Flight Planning requirements in the context of ATFM.

This flight plan filing requirement has been reiterated through the recently agreed ATFM common business rules (CBR) document and is recognized as a metrics to be monitored regularly for any improvement.

The above data is shown in the following graph which shows the percentage of FPLs filed late for the year 2025.The table below shows the no. of flights which is filed within 3hrs of their EOBT and their percentage.

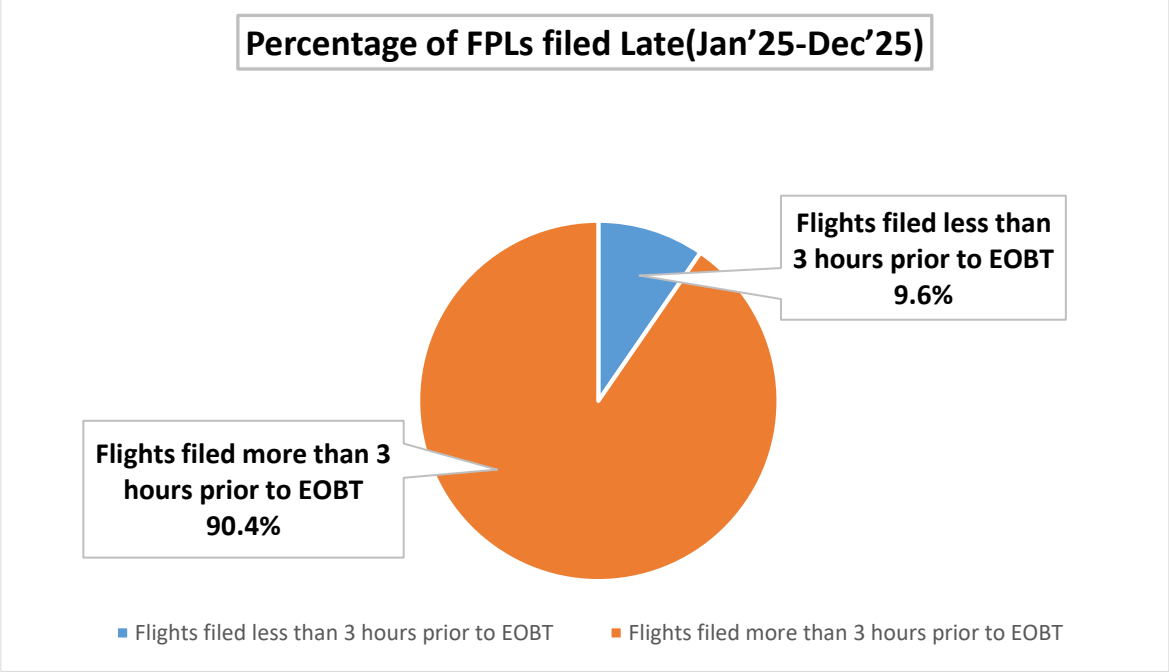


Figure 19:Percentage of flight filling FPL within 3 Hrs of EOBT

Major Domestic Airlines Wise Analysis(Jan'25-Dec'25)

Airlines	Number of Flight plans filed less than 3 Hours prior to EOBT	Total no. of filed Flight Plans	Percentage
AirIndia	19922	254699	7.8
AirIndia EXPRESS	26144	181259	14.4
Akasa Air	782	54772	1.4
Alliance Air	1633	18728	8.7
Blue Dart	240	7769	3.1
Indigo	80070	800991	10
SpiceJet	4044	49447	8.1
Star Air	667	16917	3.9

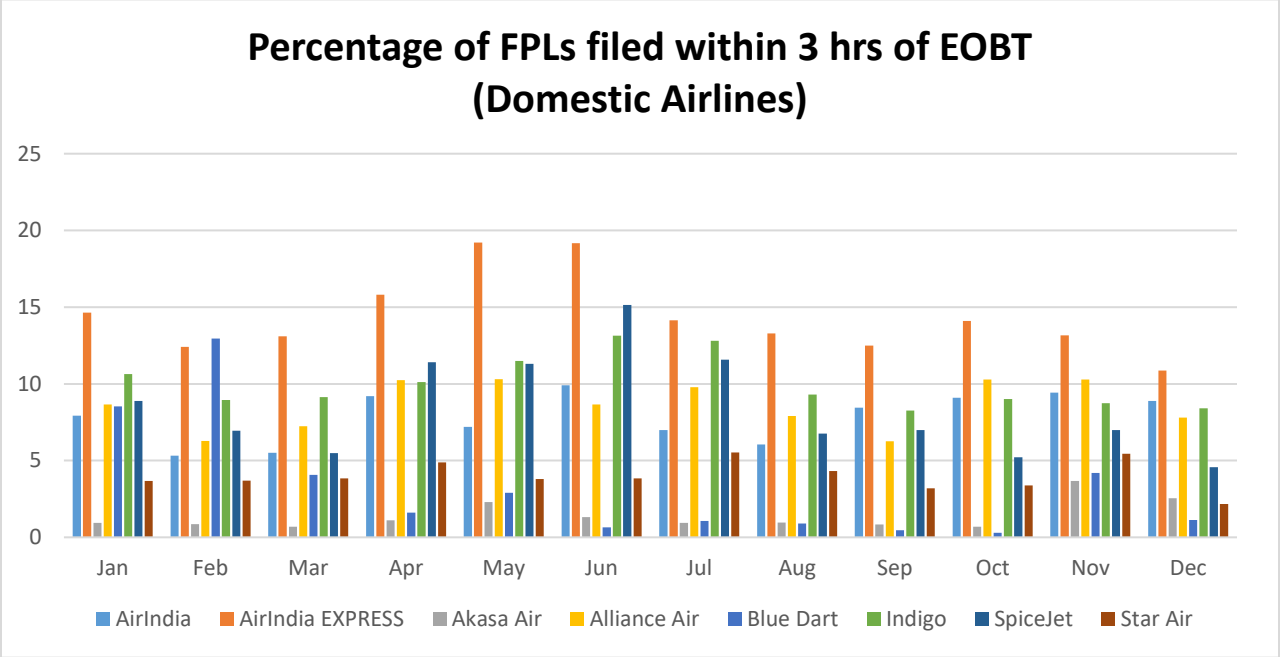


Figure 20:Percentage of late flight plan filling -Airlines wise

B. For the analysis of non-receipt of DLA (Delay) messages for flight plans filed, the EOBT of FPL received has been compared with Actual Take off time (ATOT)received through DEP(Departure)messages.Thus, only those FPLs were considered for analysis for which DEP messages were available and no associated DLA messages was received.

The graph and Table below shows the number/percentage of flights for which no DLA message was received for the year 2025.**{(EOBT of original FPL)- (ATOT received)} > 30 minutes).**

Percentage of FPLs for which DLA message not received (Jan'25-Dec'25): **17.6%**

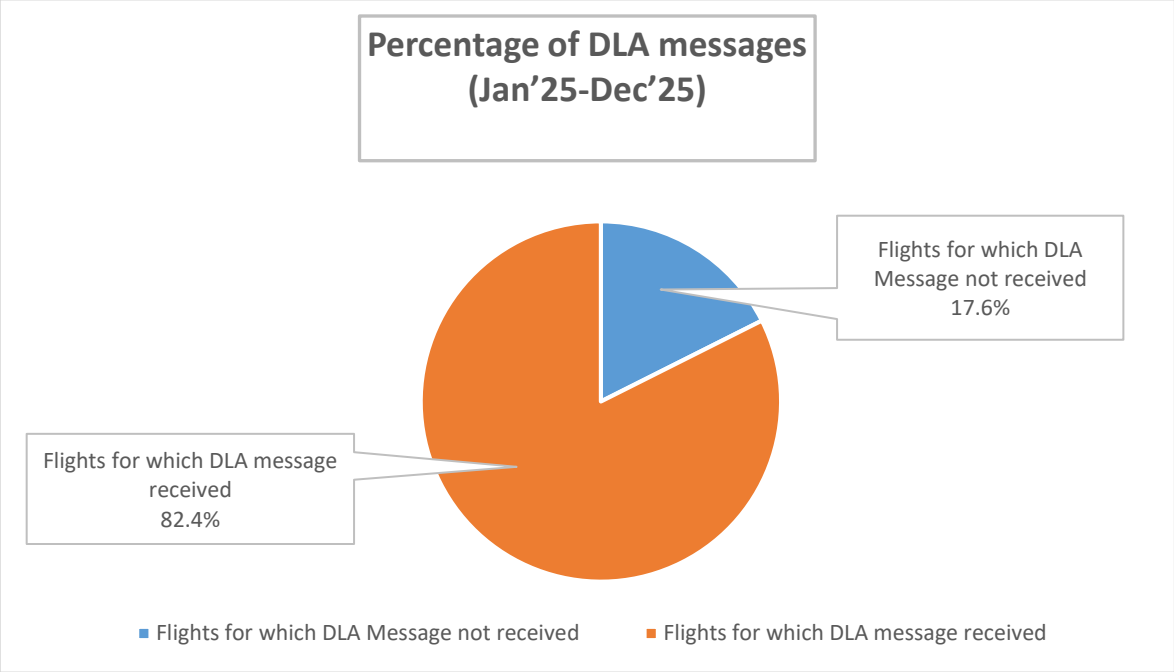


Figure 21:Percentage of flight for which DLA msg not received.

Major Domestic Airlines Wise Analysis(Jan'25-Dec'25)

Airlines	Number of Flights for which DLA Message not received	Total No. of flights considered for analysis	Percentage
AirIndia	53612	202156	26.5
AirIndia EXPRESS	26973	123838	21.7
Akasa Air	8140	41967	19.4
Alliance Air	2146	9341	22.9
Blue Dart	1527	6282	24.3
Indigo	79367	606966	13.1
SpiceJet	8022	31502	25.4
Star Air	1102	6258	17.6

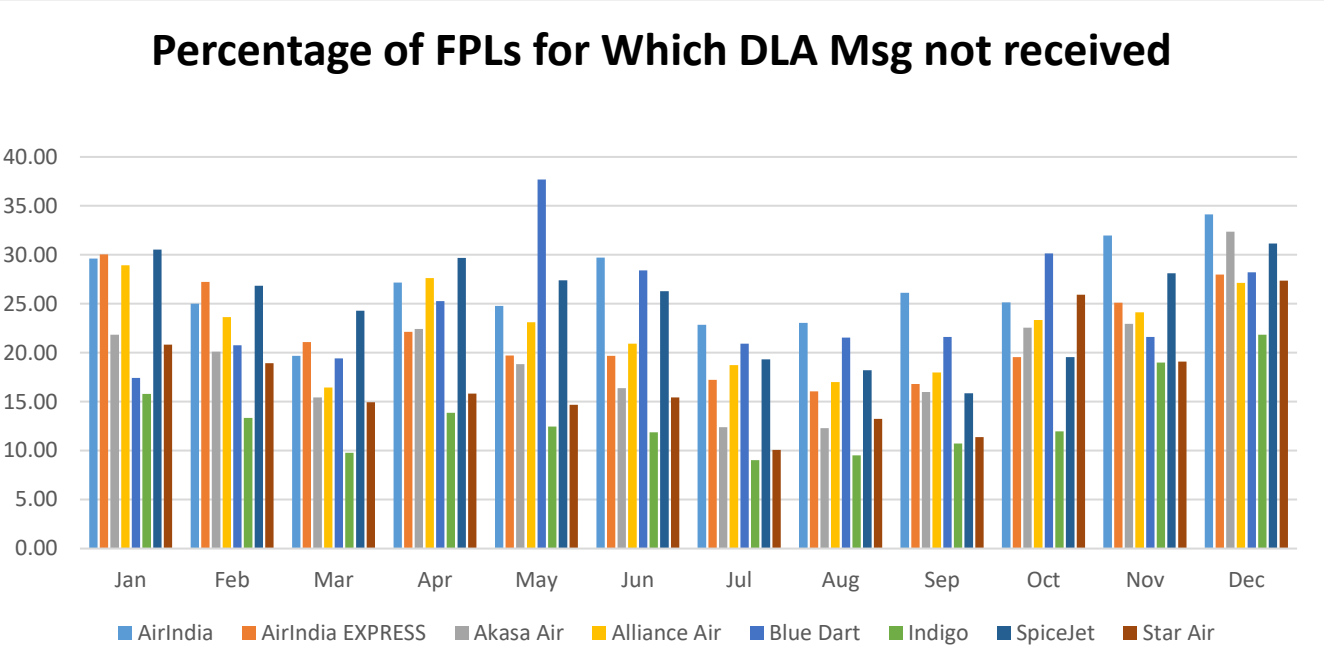


Figure 22:Percentage of flight plan for which DLA Msg not received -Airlines wise

C. For analysis of non-receipt of CNL (cancel) messages for the year 2025, annulled FPLs were considered for which no CNL/DEP/DLA messages were received. A FPL gets annulled in SKYFLOW system, if it doesn't get activated through Dep message /surveillance data/ manual activation by FMP within a defined system parameter.

The graph and table given below shows/lists the number/percentage of Flights for which no CNL Msg. was received in the year 2025:

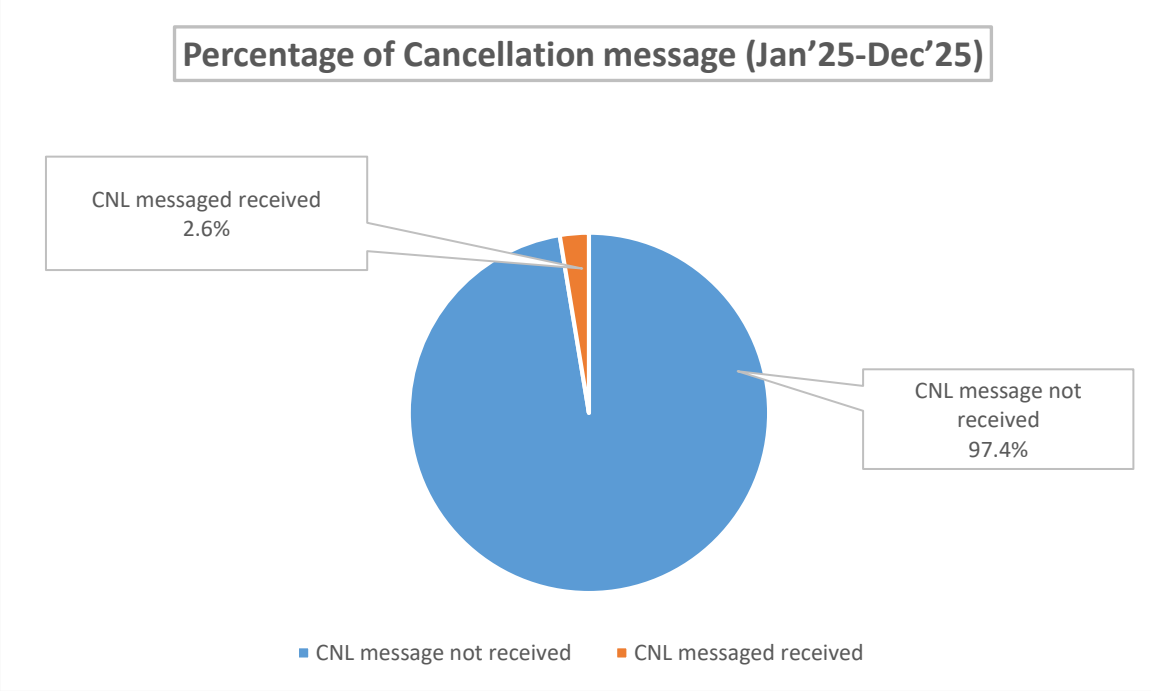


Figure 23:Percentage of flight for which CNL msg not received (* refer Para C above).

Airlines	CNL message not received	No. of flights annulled	Percentage
AirIndia	1171	1230	95.2
AirIndia EXPRESS	1378	1464	94.1
Akasa Air	243	247	98.3
Alliance Air	1724	1733	99.5
Blue Dart	74	75	98.6
Indigo	4624	4691	98.5
SpiceJet	887	917	96.7
Star Air	269	287	93.7

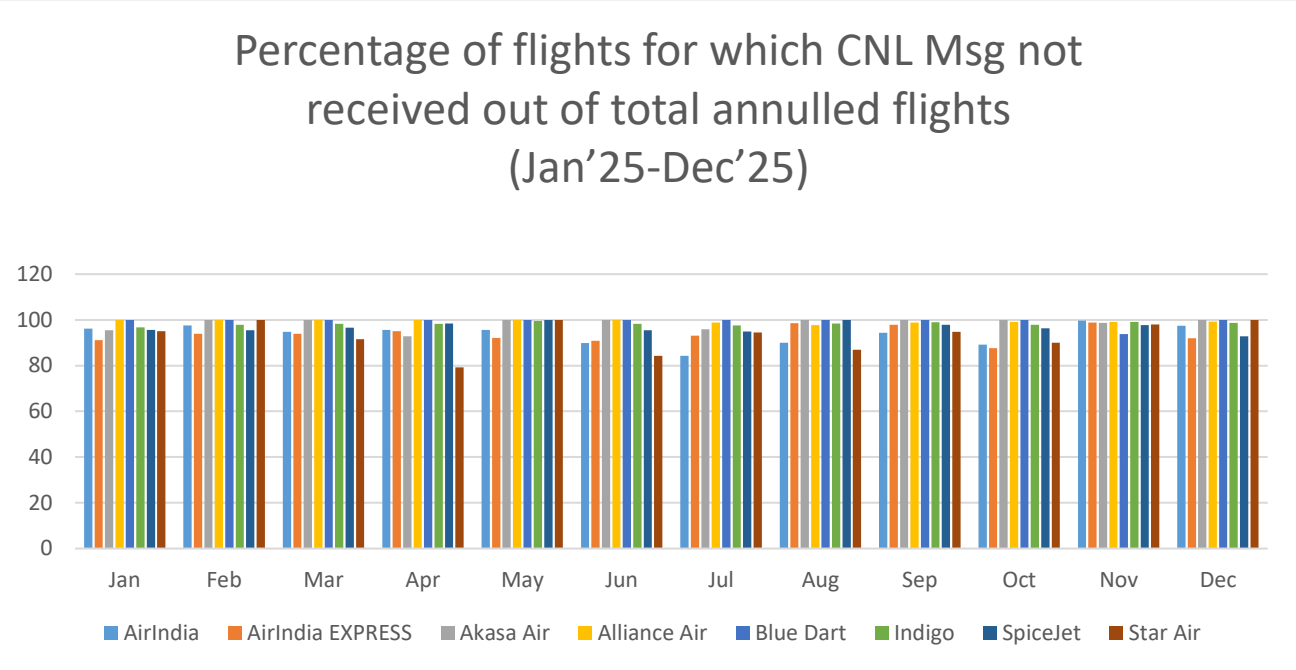


Figure 24:Percentage of Annulled flight plans for which CNL Msg not received -Airlines wise

Inference:

i. Percentage of late filing of flight plan has been consistently less for Akasa Air and Bluedart whereas Air India express has a high percentage of late FPL filing.
ii. Spicejet and Indigo Airlines have improved their FPL filing time over the period of last six months.

Annexure B- Bay of Bengal Co-operative Air Traffic Flow Management (BOBCAT): (Sep'25 to Dec'25)

I. Introduction:

On 24 July 2006, the States of the ICAO Asia/Pacific Region within the Bay of Bengal, South Asia and Pakistan airspace implemented an operational trial of an automated Air Traffic Flow Management (ATFM) service under the auspices of the ICAO Bay of Bengal ATS Coordination Group - ATFM Task Force. Pursuant to comprehensive reviews of the performance of the operational trial by the ATFM Task Force, ATFM procedures were permanently implemented.
Bay of Bengal cooperative ATFM system (BOBCAT), services were temporarily suspended since 08th September 2021, due to the absence of Enroute overflight Air Traffic Service (ATS) in Afghanistan airspace (Kabul FIR) and lack of traffic demand to operate through the Kabul FIR.

The States of the ICAO Asia/Pacific Region, which have westbound night time flights operating through the Kabul FIR between 2000 UTC to 2359 UTC, re-activated the integrated Air Traffic Flow Management (ATFM) service using the BOBCAT wef 04 September 2025. However, enroute ATS service in the Kabul FIR remain unavailable. Aircraft's are operating through Kabul airspace via designated routes using Traffic information broadcast by aircrafts (TIBA) with larger longitudinal separation of 15 minutes.

India is also part of BOBCAT reactivation group. Accordingly, AAI has also published AIP supplement 139 of 2025 effective from 04.09.2025 for the reactivation of Bay of Bengal Cooperative Air Traffic Flow Management (BOBCAT) Procedures and Implementation of BOBCAT Services. The cited AIP supplement contains the detailed processes, procedure, and duties and responsibilities of the stakeholders.
The cited AIP supplement is complimented by NOTAM G-325 issued by Kabul FIR OAKX and/or any subsequent relevant NOTAM issued by Kabul FIR OAKX.

II. Analysis:

The compliance analysis is performed only for departures from India participating in the BOBCAT. As it is an airspace program the compliance window for the same is from -5 minutes to +5 minutes of the CTOTs issued.

No. of Compliant Flights	No. of Non- Compliant Flight	Total
722	238	960

A) BOBCAT Compliance Overview:

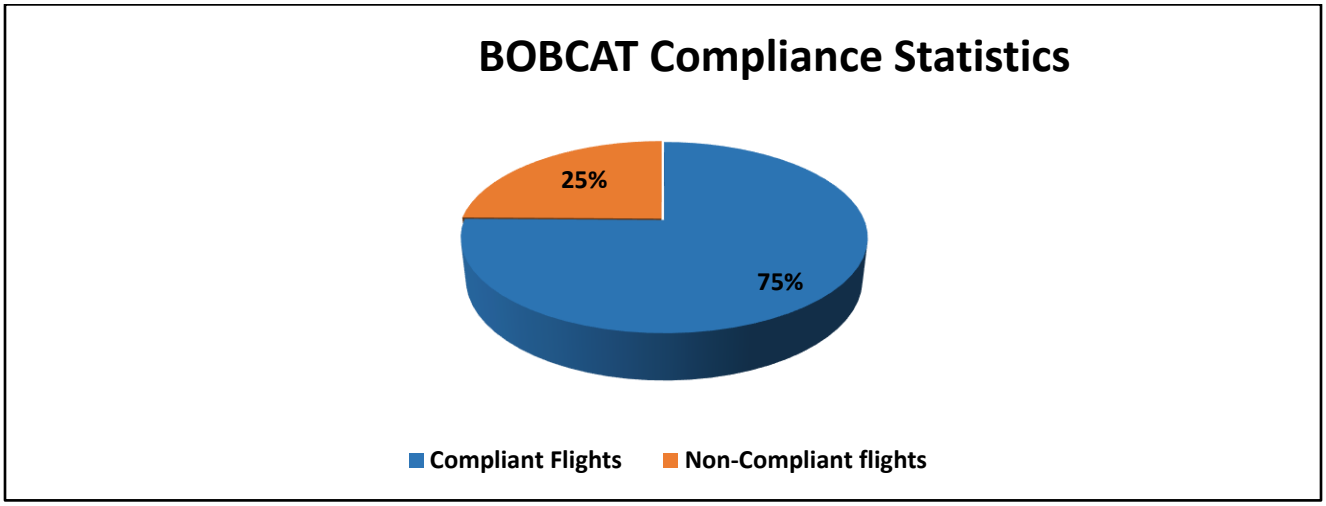


Figure 25: BOBCAT Compliance Statistics

Inference:

Bay of Bengal Co-operative Air Traffic Flow Management achieved a compliance rate of 75% for the period of Sep'25 to Dec'25.

B) Station Wise Compliance:

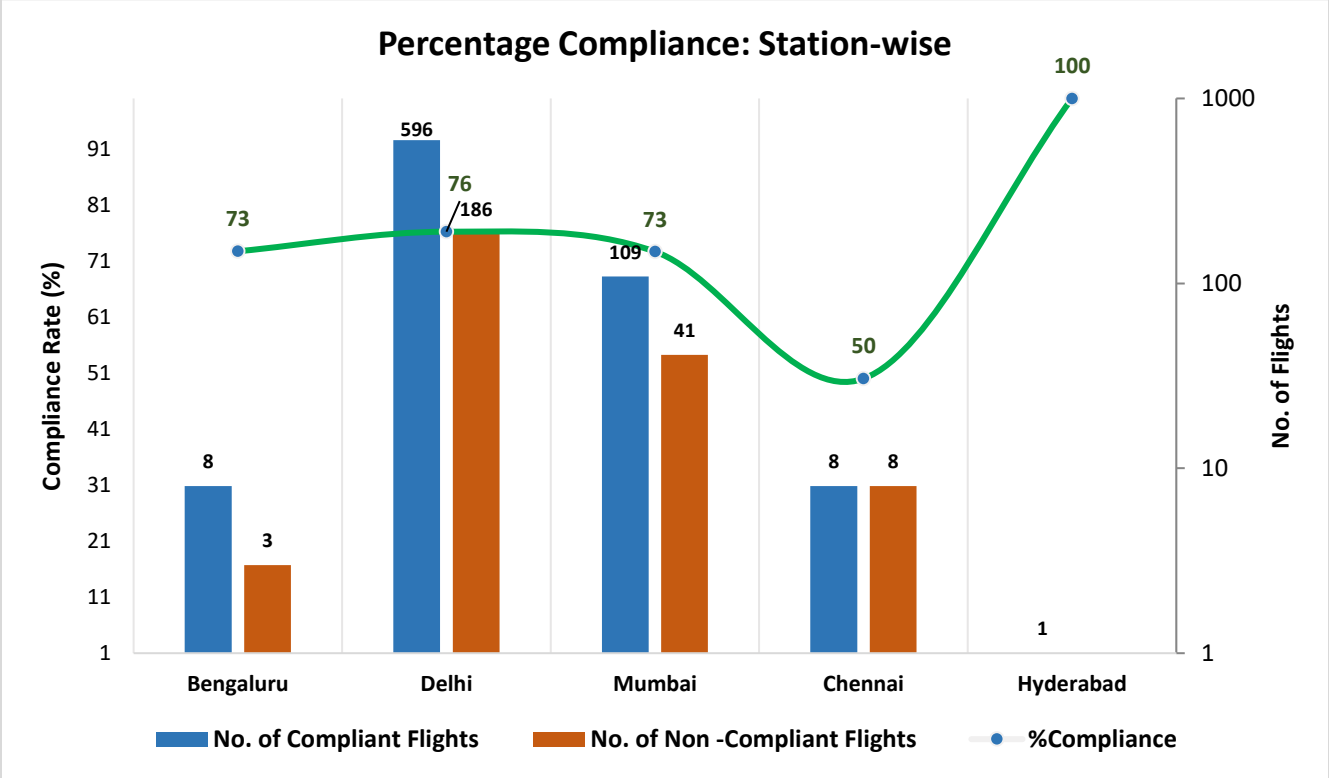


Figure 26: BOBCAT Compliance station-wise

	Bengaluru	Delhi	Mumbai	Chennai	Hyderabad
No. Of Compliant Flights	8	596	109	8	1
No. of Non-Compliant Flights	3	186	41	8	0
Compliance %	73	76	73	50	100

C) Airline wise Compliance:

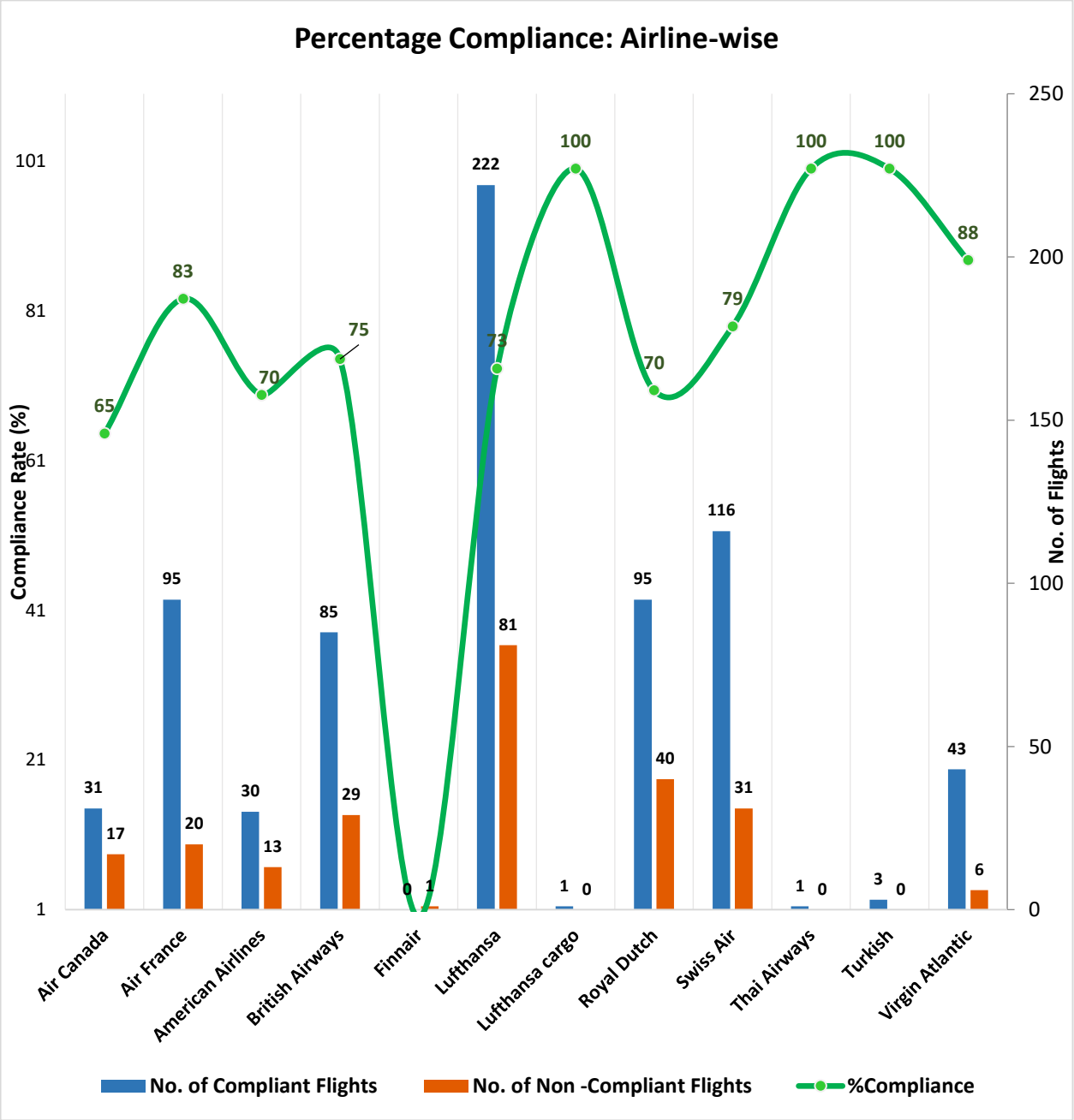


Figure 27: BOBCAT compliance Airline-wise

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