पोस्ट ऑपरेशन विश्लेषण रिपोर्ट

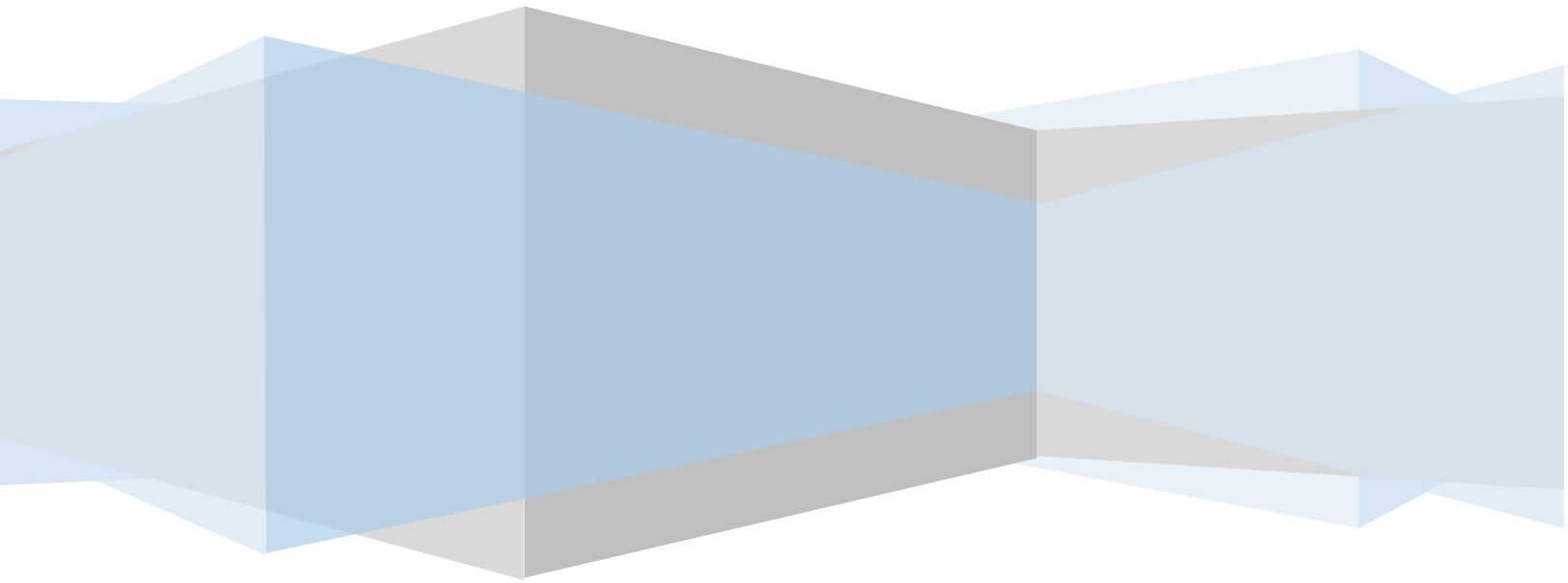
अगस्त, 2026

सेंट्रल कमांड सेंटर, सी ए टी एफ एम, दिल्ली

POST OPERATIONS ANALYSIS REPORT

August, 2026

CENTRAL COMMAND CENTER, C-ATFM, DELHI



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A. कार्यकारी सारांश / Executive Summary

Indian FIR recorded an increase in the total air traffic by 3.9% in August 2026 as compared to July 2026. Average Domestic air traffic (31 days) has recorded an increase of 4.8% whereas the average international air traffic has increased by 2.5% in the month of August 2026 as compared to July 2026. The overflying traffic increased by 2.8% in the month of August 2026 as compared to July 2026.

On average, the Indian Airports in the ATFM area saw 4465 IFR flights per day in the month of August 2026. The peak day was on 21st August 2026 (4680 IFR flights). Fridays were the busiest days throughout this month with an average of 4600 IFR flights per day.

Total Five (07) ATFM measures were applied this month during periods of congestion at Delhi and Mumbai Airport. In addition, Sixteen(16) ATFM measures through Cherry Picking were applied at Delhi, Mumbai and Chennai.

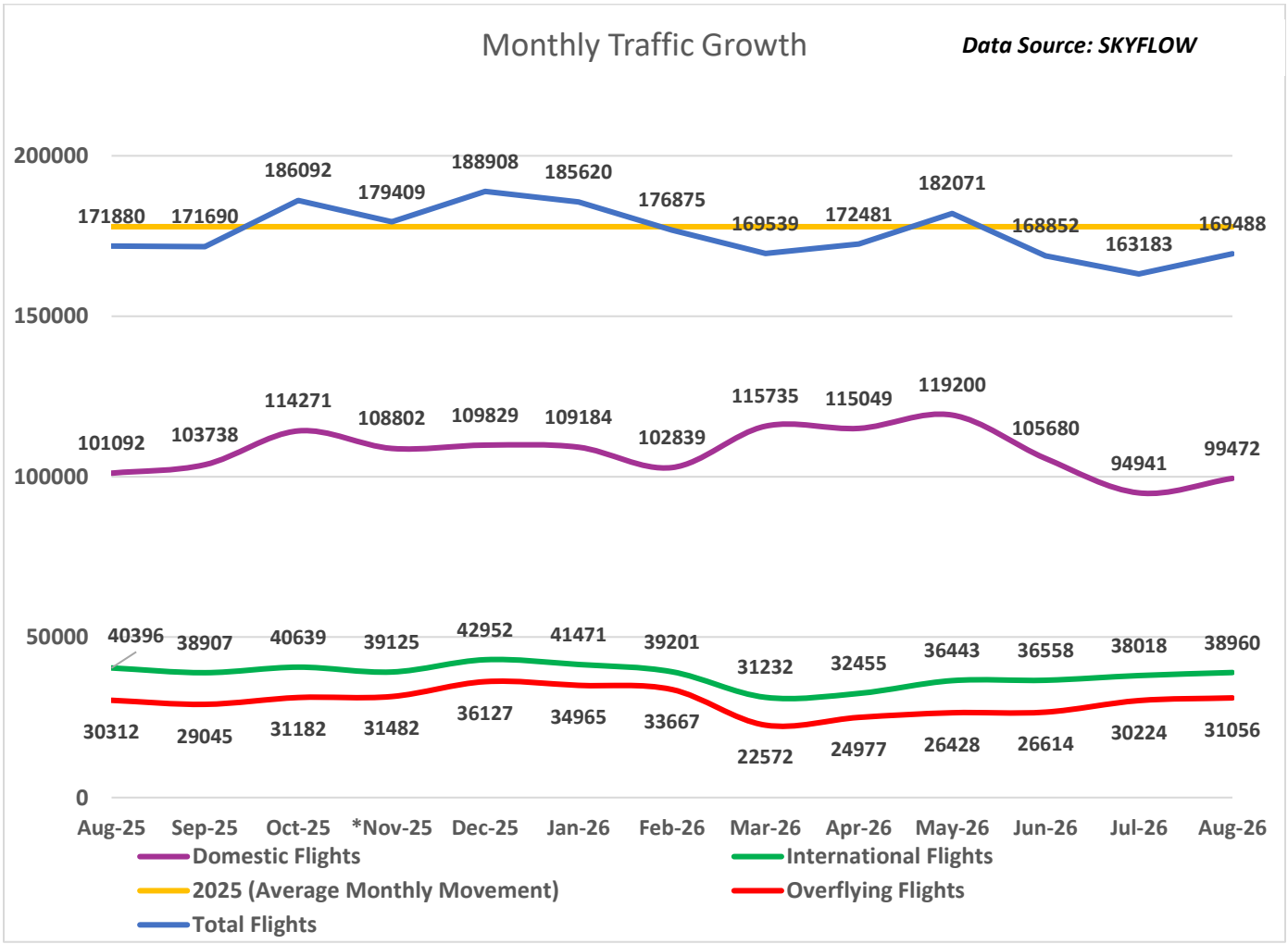

Figure 1: Monthly Traffic Growth

The graph above depicts the Domestic, International and Overflying Air traffic in Indian ATFM Area during the last 13 months (Aug'25 to Aug '26).

B. यातायात विश्लेषण/Traffic Analysis

I. भारत के प्रमुख हवाई अड्डों पर हवाई यातायात गतिविधि/ Air Traffic Movement at Major Airports in India

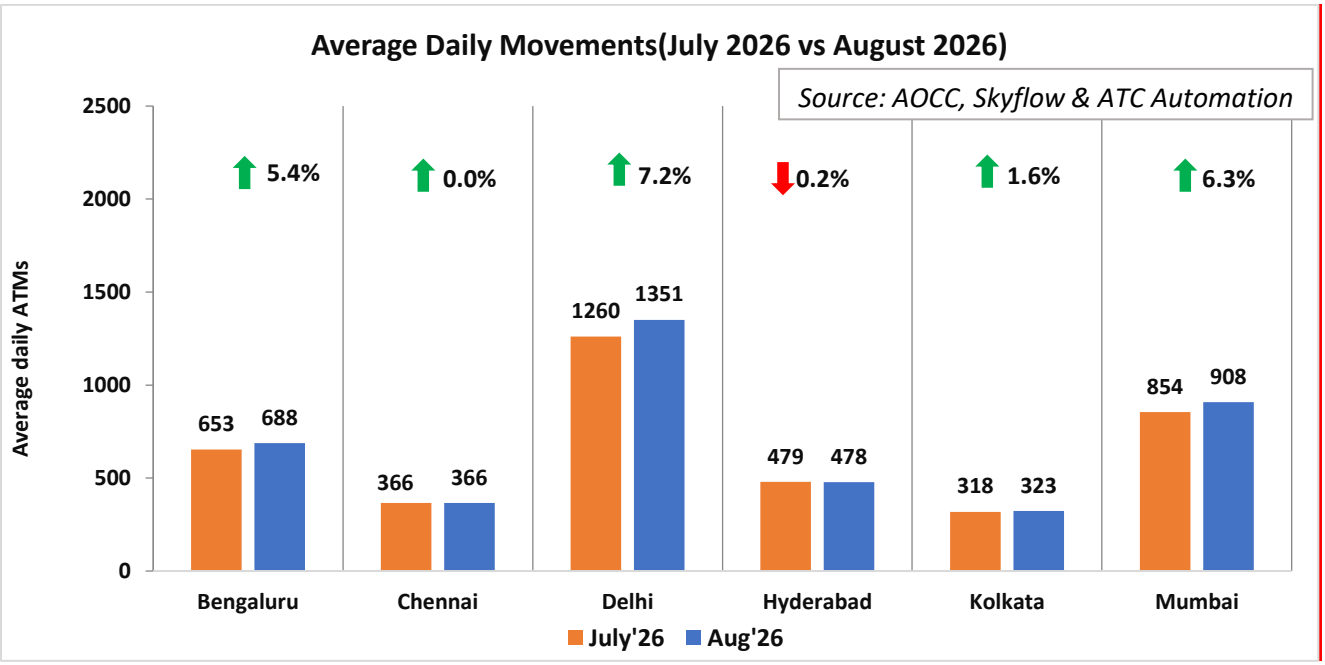

Figure 2: Average Daily Movements (July '26 vs Aug'26)

The above chart depicts the percentage change in average daily ATMs at six major Airports in August 2026 as compared to the previous month July 2026.

Airports\Year	Avg. Daily ATMs (YoY) for six major airports				
	Aug'22	Aug'23	Aug'24	Aug'25	Aug'26
Bengaluru	548	634	716	723	688
Chennai	349	397	416	431	366
Delhi	1179	1253	1328	1219	1351
Hyderabad	415	461	531	558	478
Kolkata	361	382	399	364	323
Mumbai	769	919	939	904	908

Air Traffic Movement for each day in August 2026 is plotted for Delhi, Mumbai, Bengaluru and Hyderabad Airport along with the percentage change w.r.t. Avg. Daily Movements for the same month.

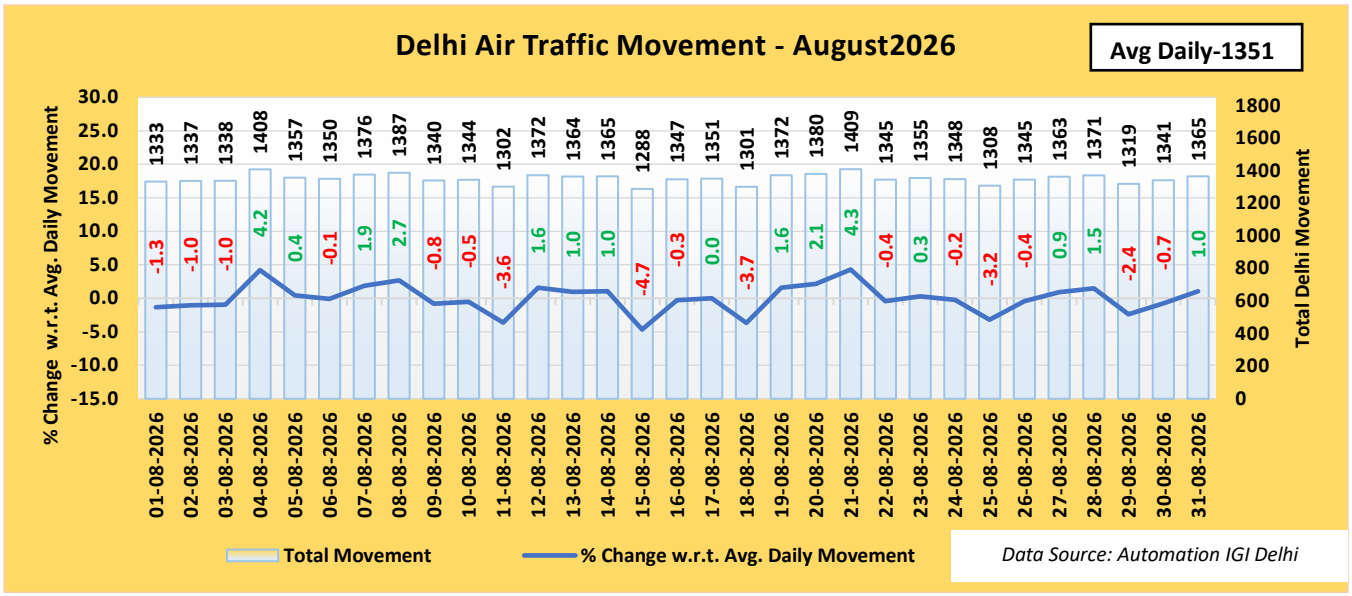

Figure 3: Air Traffic Movement for Delhi – Aug '26

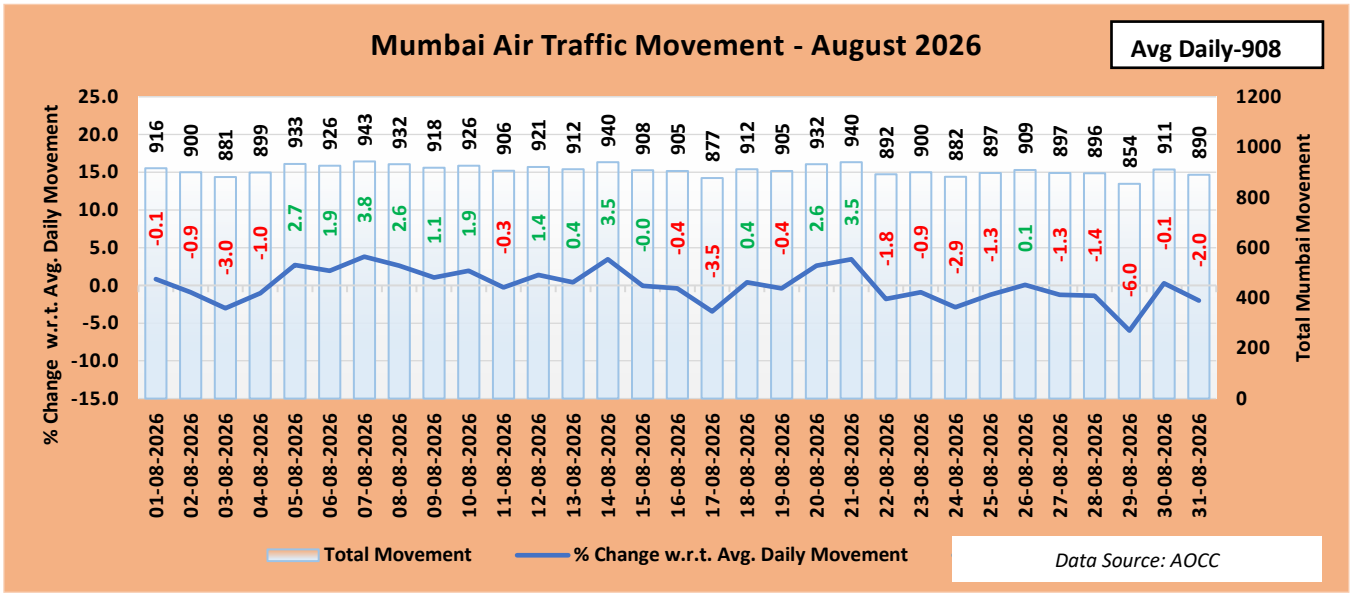

Figure 4: Air Traffic Movement for Mumbai – Aug '26

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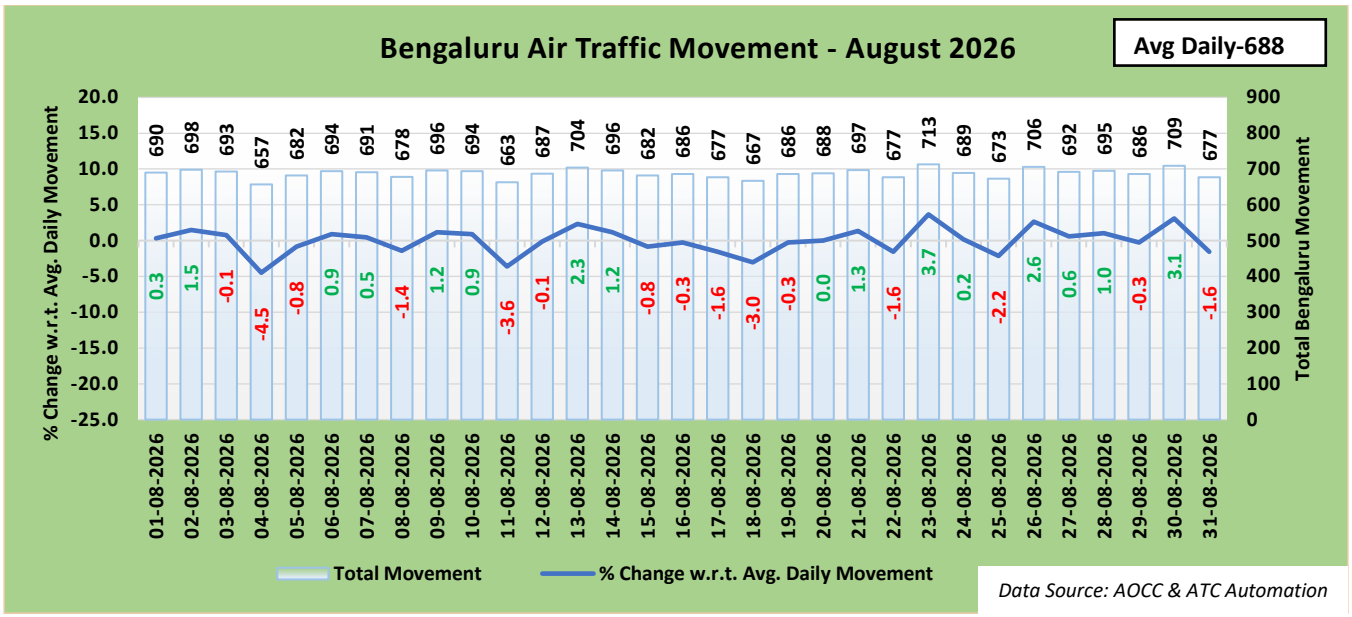


Figure 5: Air Traffic Movement for Bengaluru – Aug'26

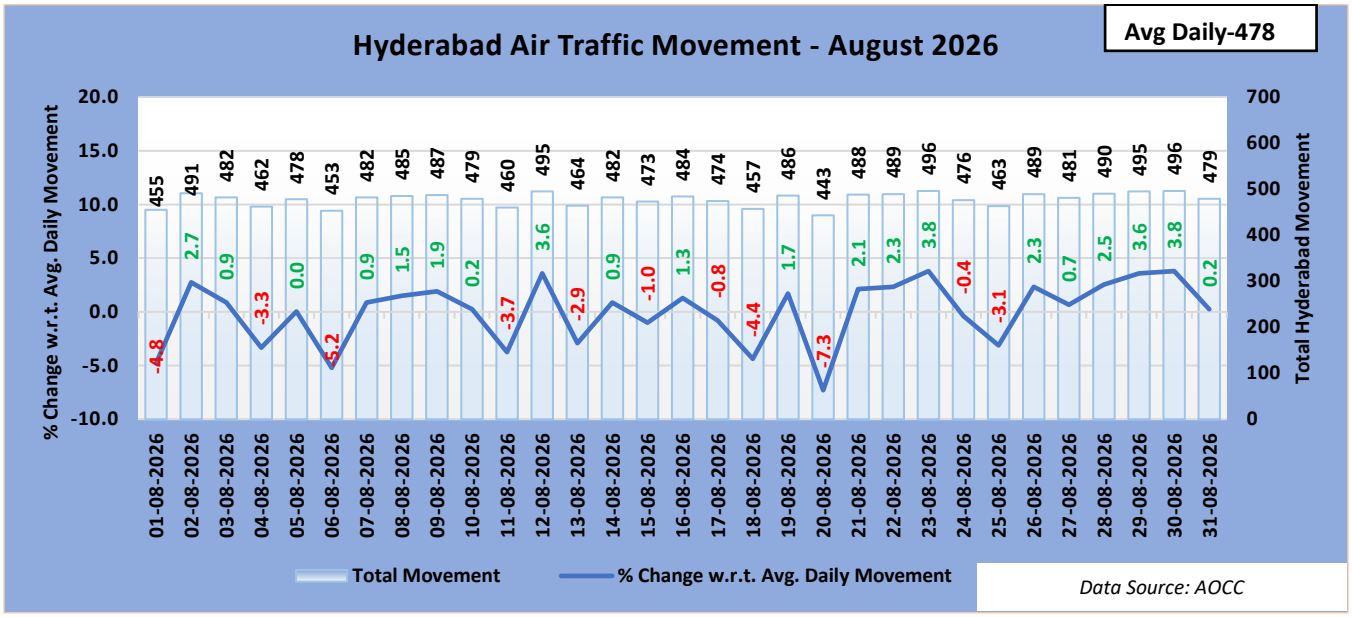


Figure 6: Air Traffic Movement for Hyderabad – Aug'26

It can be concluded from the above charts that the ATM at Delhi, Mumbai, Bengaluru and Hyderabad exceeds the average daily movement for 15 days, 14 days, 16 days and 20 days respectively in the month of August 2026.

II. एटीएम की वार्षिक व मासिक तुलना/Comparison of total ATMs (YoY) and Monthwise

The total Air traffic movement(ATMs) including Passenger and other flights such as 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 month of August for two consecutive years 2025 and 2026 respectively. Air Traffic movement is also plotted Airline wise for the last six months for the major Scheduled Operators.

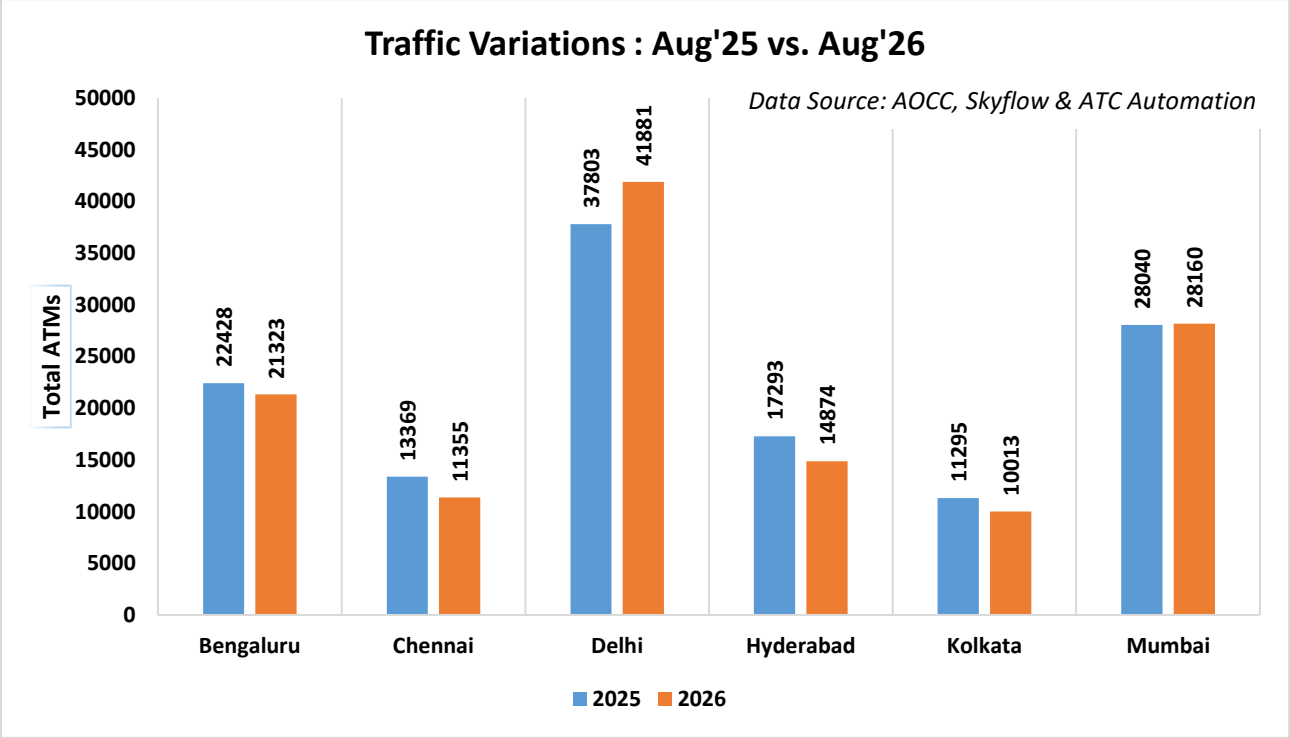


Figure 7: Traffic Variation (YoY)

III. उड़ान संचालन - एयरलाइन अनुसार/Flight Operations – Airlinewise

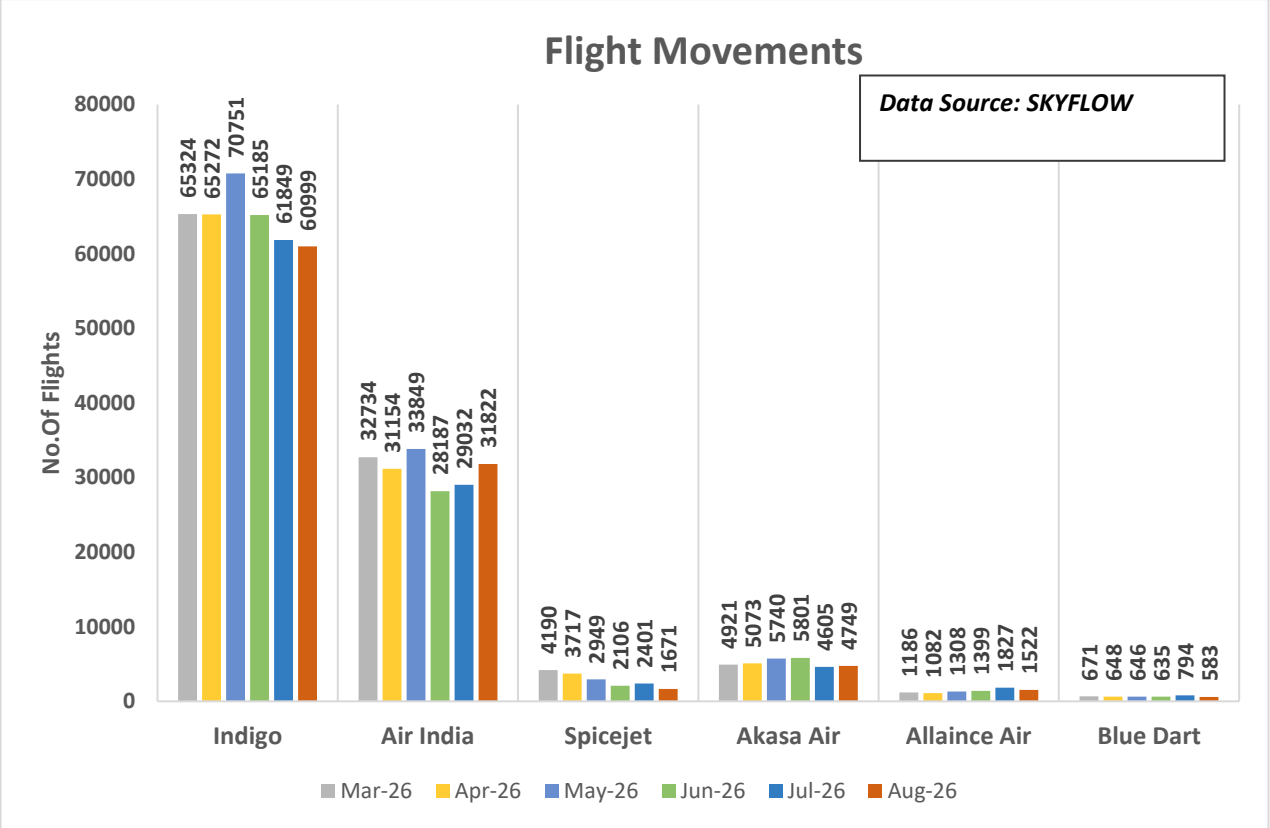


Figure 8: Flight Movements –Airlinewise

Inference:

1. Air India and Akasa Air have recorded an increase in the monthly average(31 days) whereas Indigo,SpiceJet, Alliance Air and BlueDart have recorded a decrease in flight movement in Aug '26 as compared to July '26.

C. सी.एटीएफएम पोस्ट ऑपरेशन - सीडीएम विश्लेषण

ATFM Post Operations – CDM Analysis

I. परिचय/Introduction

Analysis Period **1st – 31st August '26**

Back Ground During the above mentioned period**, Six (06)** ATFM measures were applied **for Delhi Airport, and One (01)** ATFM measure was applied **for Mumbai Airport** due to the following reasons as illustrated in the bar chart below:–

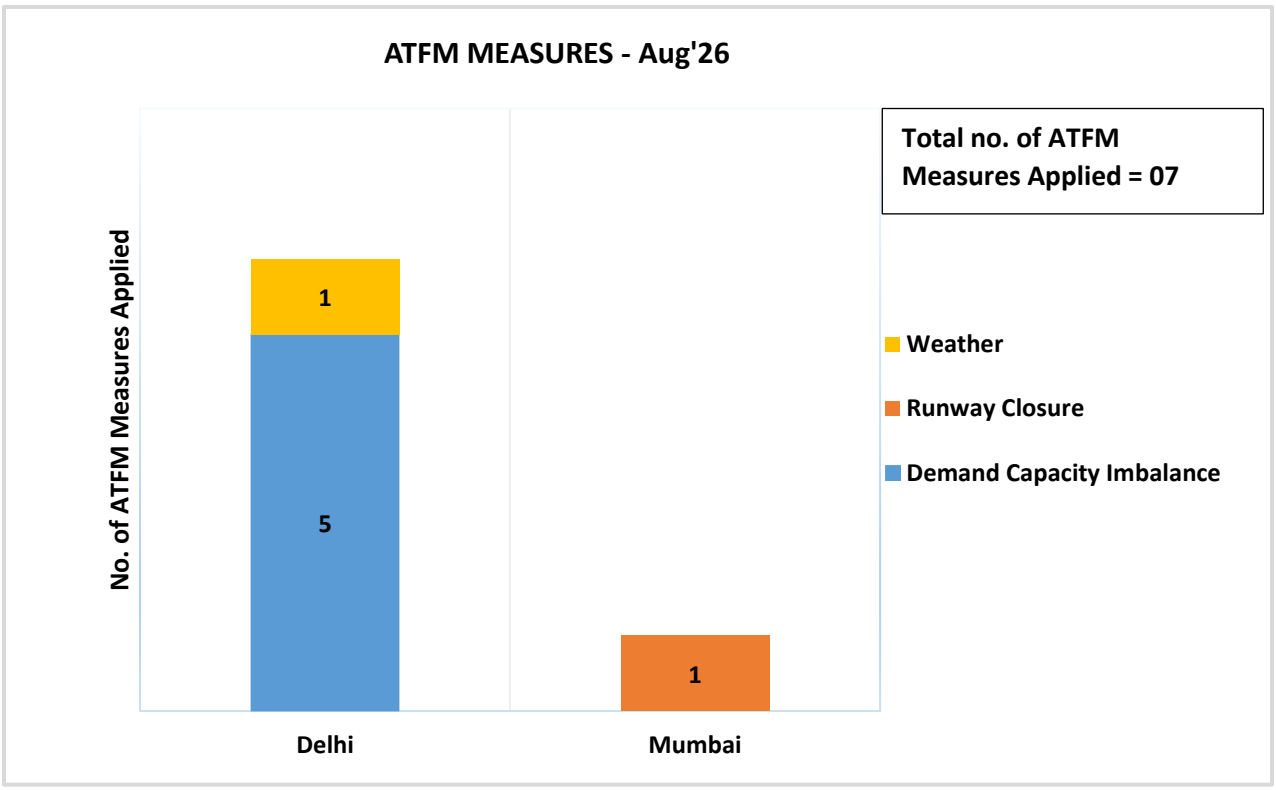


Figure 9: ATFM Measures –Aug'26

In addition, Sixteen (16) ATFM measures through cherry Picking method were applied at Delhi, Mumbai and Chennai. However such ATFM measures have not been included in the statistics.

II. एटीएफएम मेजर्स का अवलोकन/ATFM Measures Overview

Constrained Airport	Delhi	Mumbai
Number of ATFM measures applied	06	01
Average ATFM Ground delay(in min) due to measures*	12.7	7.6
Maximum ATFM Ground delay(in min) due to measures	29	24
% CTOT Compliance	98.1	95.7

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

Total Arrivals	693
Total International Arrivals(exempted)	139
Total affected flights in scenario (Domestic Arrivals)	554
Total Domestic Arrivals with zero ATFM delay	21
Total Domestic Arrivals with ATFM delay	533

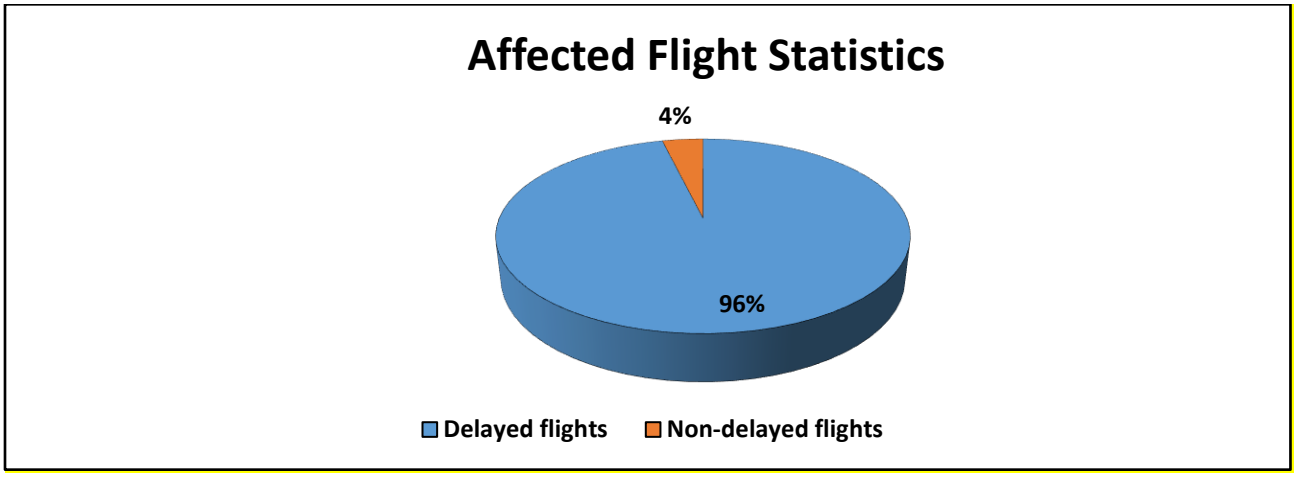


Figure 10: Affected Flight Statistics – Aug '26

III. **समग्र अनुपालन/**Overall Compliance

Total arrivals	693
Domestic arrivals	554
Flights with complete data (ATOT)	554
Flights with incomplete data	00
Flights Not Operated	00
Compliant*	543
Non-Compliant	11

*Total No. of Revised CTOTs issued = 139 (Compliance calculation for flights which were issued revised CTOT is w.r.t. new CTOT issued)

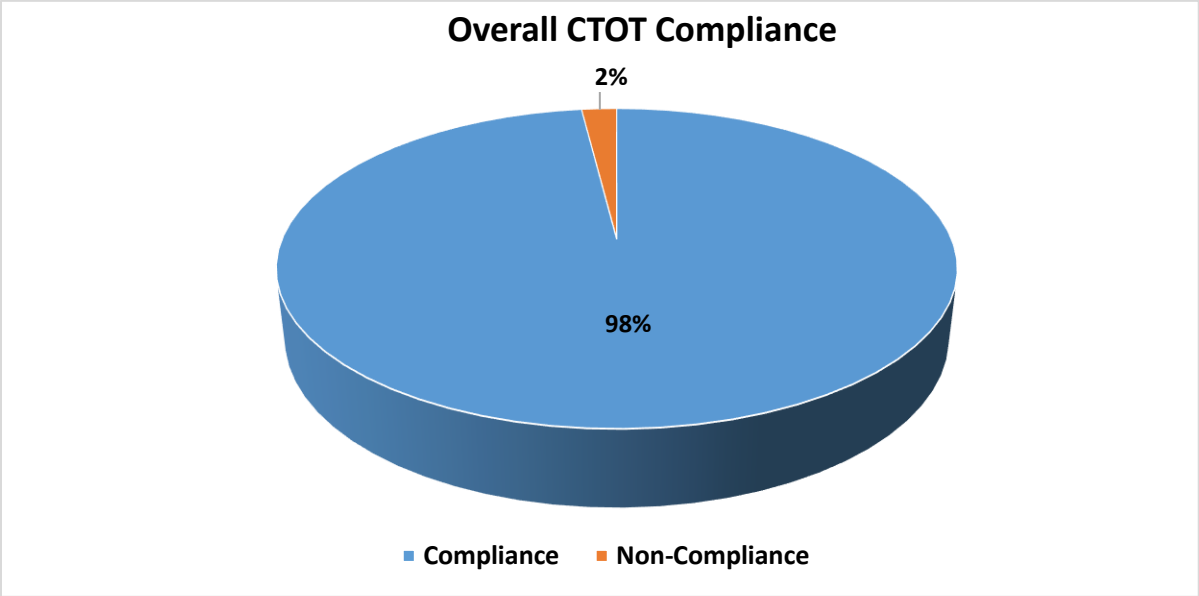


***Figure*: Overall CTOT Compliance – Aug'26**

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

Out of the total domestic arrivals with complete data in the CDM scenario, 98 % arrivals are CTOT compliant for the month of August 2026.

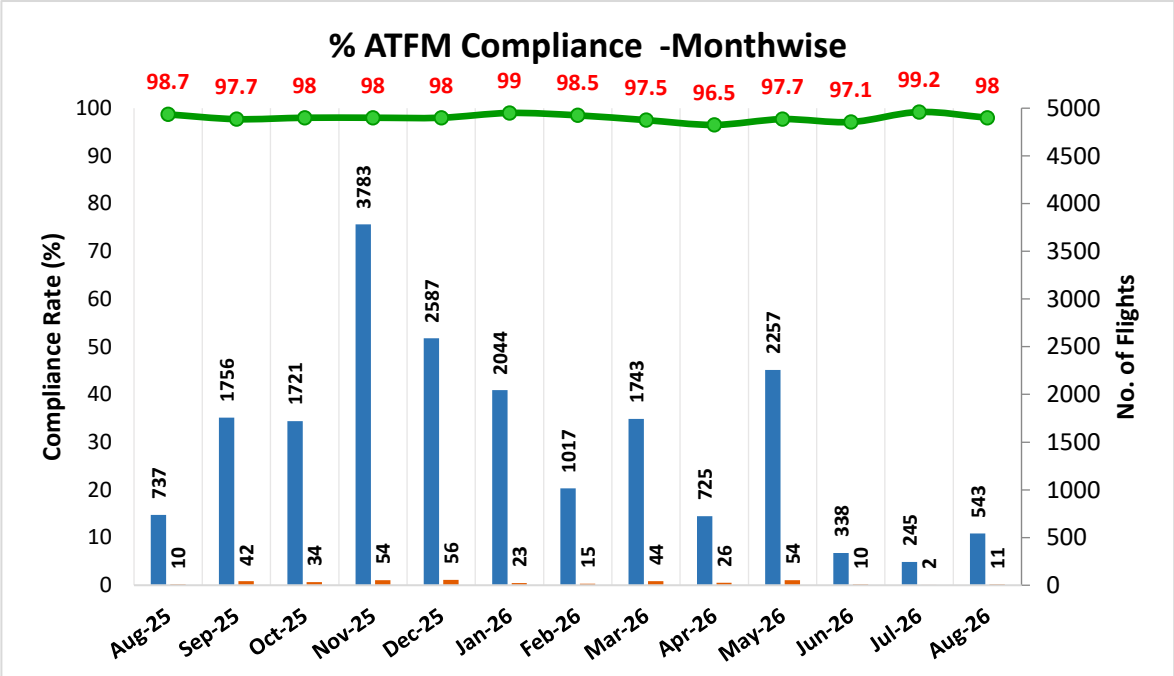


Figure 11: Compliance(Monthwise)

Inference

1. Out of the total arrivals captured(693 flights) during the CDM scenario for the constrained Airports, 79.9% of flights i.e. domestic arrivals(554 flights) were candidates for ground delay(participating).
2. Out of these Domestic Arrivals(554 flights), 96.2% (533 flights) are assigned ATFM ground delay.
3. Out of the total arrivals captured (693 flights) to the constrained Airport during the ATFM scenario, 76.9% of flights(533 flights) were assigned ATFM Ground Delay.

IV. **सीटीओटी अनुपालन दर -एयरपोर्टवाइज/**CTOT Compliance rate – Airportwise

MUMBAI FIR (99%)*	Compliant	Non Compliant	% Compliant
Ahmedabad	15	0	100%
Aurangabad	2	0	100%
Mumbai	59	0	100%
Bhuj	2	0	100%
Vadodara	6	0	100%
Bhopal	8	0	100%
Diu	1	0	100%
Hirasar, Rajkot	3	0	100%
Indore	8	0	100%
Jabalpur	4	0	100%
Jamnagar	1	0	100%
Kolhapur	1	0	100%
Navi Mumbai	2	0	100%
Pune	25	2	93%
Solapur	1	0	100%
Surat	6	0	100%
Udaipur	4	0	100%
KOLKATA FIR (99%)*	**Compliant**	**Non Compliant**	**% Compliant**
Ambikapur	1	0	100%
Agartala	2	0	100%
Ayodhya	4	0	100%
Siliguri	16	1	94%
Shillong	1	0	100%
Varanasi	13	0	100%
Bhubaneswar	14	0	100%
Kolkata	32	0	100%
Chakeri	1	0	100%
Darbhanga	3	0	100%
Gorakhpur	7	0	100%
Guwahati	7	1	88%
Gaya	1	0	100%

Hollongi	2	0	100%
Imphal	5	0	100%
Jharsuguda	2	0	100%
Jorhat	2	0	100%
Dibrugarh	7	0	100%
Dimapur	2	0	100%
Patna	14	0	100%
Ranchi	12	0	100%
Raigarh	1	0	100%
DELHI FIR (96%)*	Compliant	Non Compliant	% Compliant
Amritsar	4	0	100%
Bathinda	1	0	100%
Chandigarh	6	0	100%
Dehradun	12	1	92%
Delhi	3	0	100%
Kangra	6	0	100%
Jodhpur	3	0	100%
Jaipur	12	0	100%
Jammu	12	1	92%
Kishangarh	1	0	100%
Leh	14	0	100%
Lucknow	10	2	83%
Srinagar	21	0	100%
Uttarlai	1	0	100%
CHENNAI FIR (98%)*	Compliant	Non Compliant	% Compliant
Hal Bangalore	1	0	100%
Bangalore	27	1	96%
Belgaum	1	0	100%
Vijayawada	6	0	100%
Coimbatore	6	0	100%
Kochi	4	0	100%
MOPA Goa	9	0	100%
Goa	16	1	94%
Shamsabad, Hyderabad	27	0	100%
Madurai	2	0	100%

Chennai	25	0	100%
Bhogapuram	1	0	100%
Visakhapatnam	3	1	75%

**FIR wise compliance rate.*

Note: The above list contains only those airports which had flights to the Constrained Airport and are affected by ATFM measures.

Airports with % compliance less than the average compliance(98%) for the month are highlighted in red.

V. सीटीओटी अनुपालन दर- एयरलाइनवाइज़/CTOT Compliance rate – Airlinewise

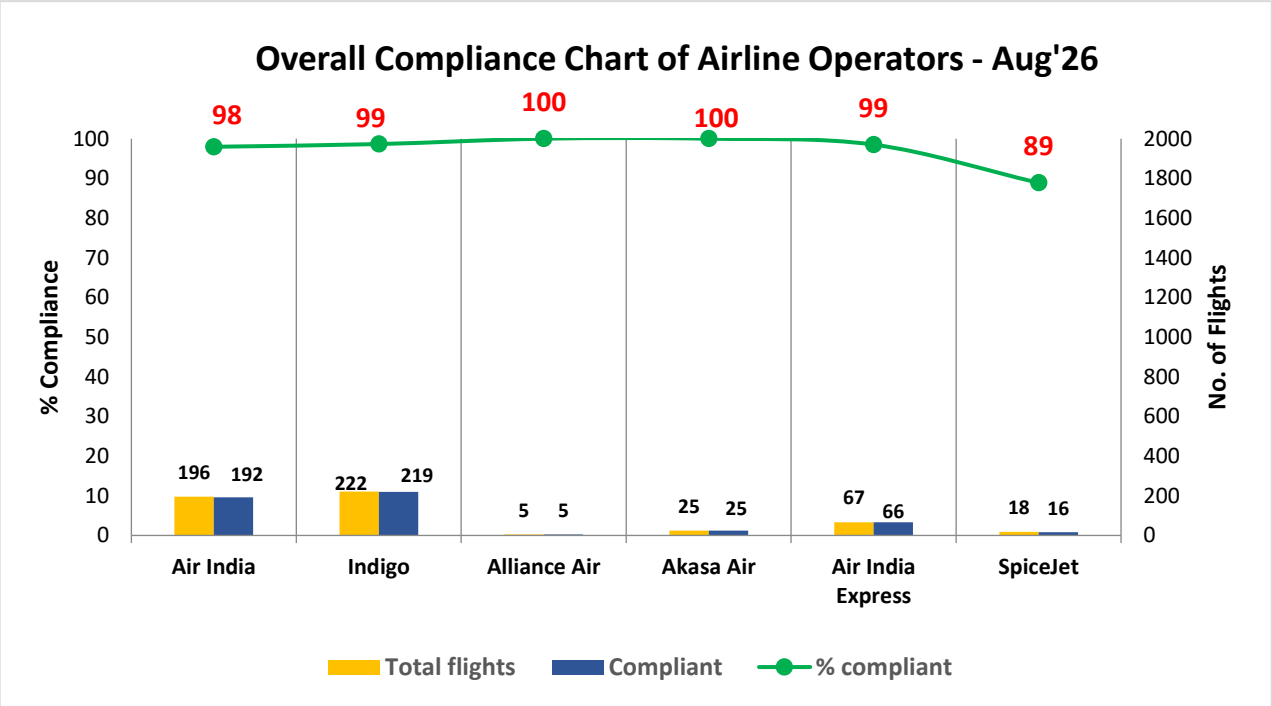


Figure 12: Airline wise Compliance – Aug'26

Inference

1. Mumbai and Kolkata region record the highest compliance of 99% whereas Delhi region has the lowest percentage compliance of 96%.
2. Indigo,Alliance Air, Akasa Air and Air India Express have a CTOT compliance higher than the average recorded compliance for the month of August 2026.

VI. गैर-अनुपालन का कारण/Reason For Non Compliance

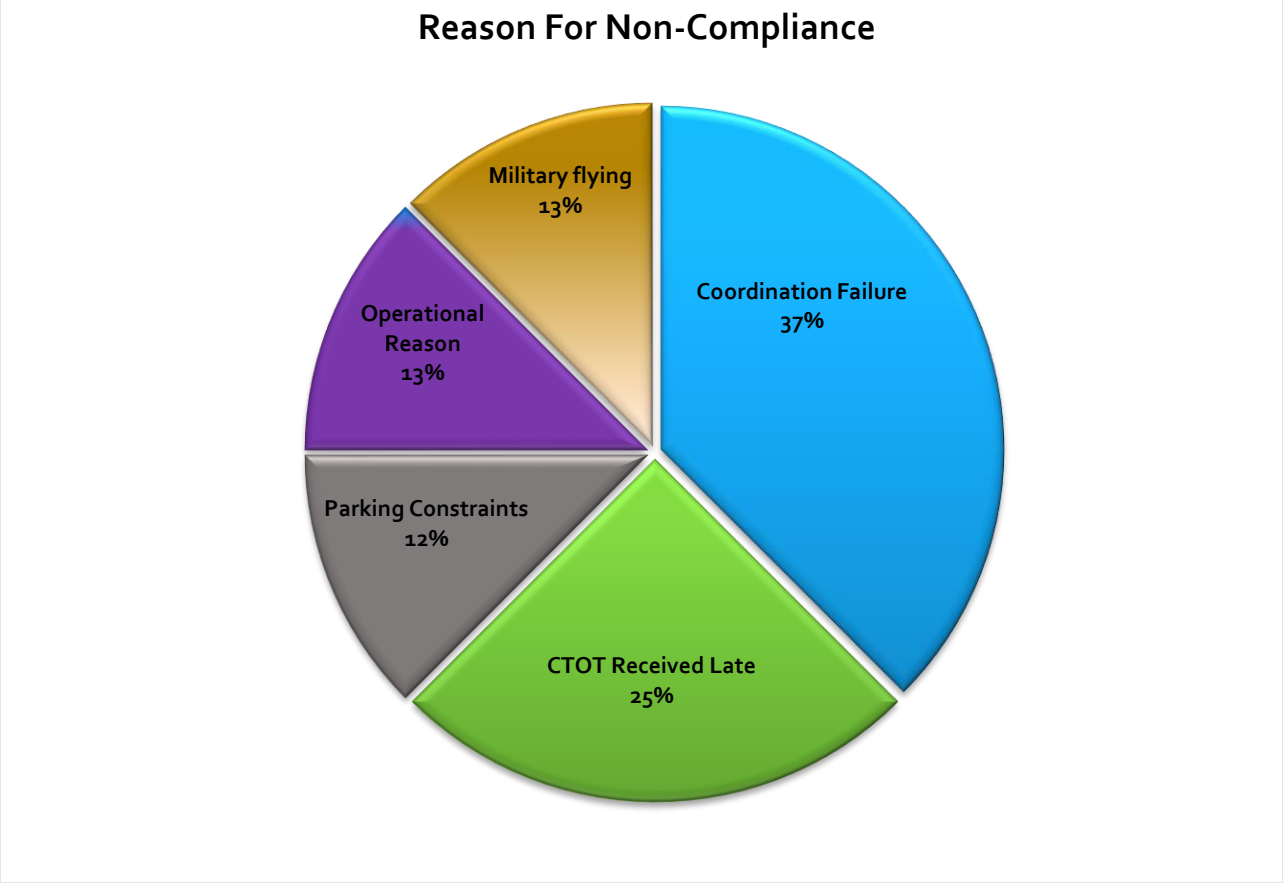


Figure 13: Reason for Non-Compliance as provided by FMPs

Inference:

1. 37 % of CTOT Non- Compliance was reported by concerned FMPs to be due to coordination failure between FMP and Station.
2. 25% of the CTOT Non- compliance was due to late receipt of CTOTs and by the time the aircraft had already initiated pushed back or start up.
3. 13 % of the CTOT Non- compliance was due to operational reasons (due to Bird Activity on Runway, ATC handling emergency, Change in runway etc) and 13% due to military flying at the concerned station.
4. 12 % of the CTOT Non- compliance was reported by concerned FMPs to be due parking constraints at the concerned station.

VII.सीडीएम परिदृश्य अवधि के दौरान वायु विलंब/Air Delay during the CDM Scenario period

Average Air Delay to domestic arrivals* within the CDM Scenario period for Delhi and Mumbai was 13.8 and 9.6 minutes respectively.

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

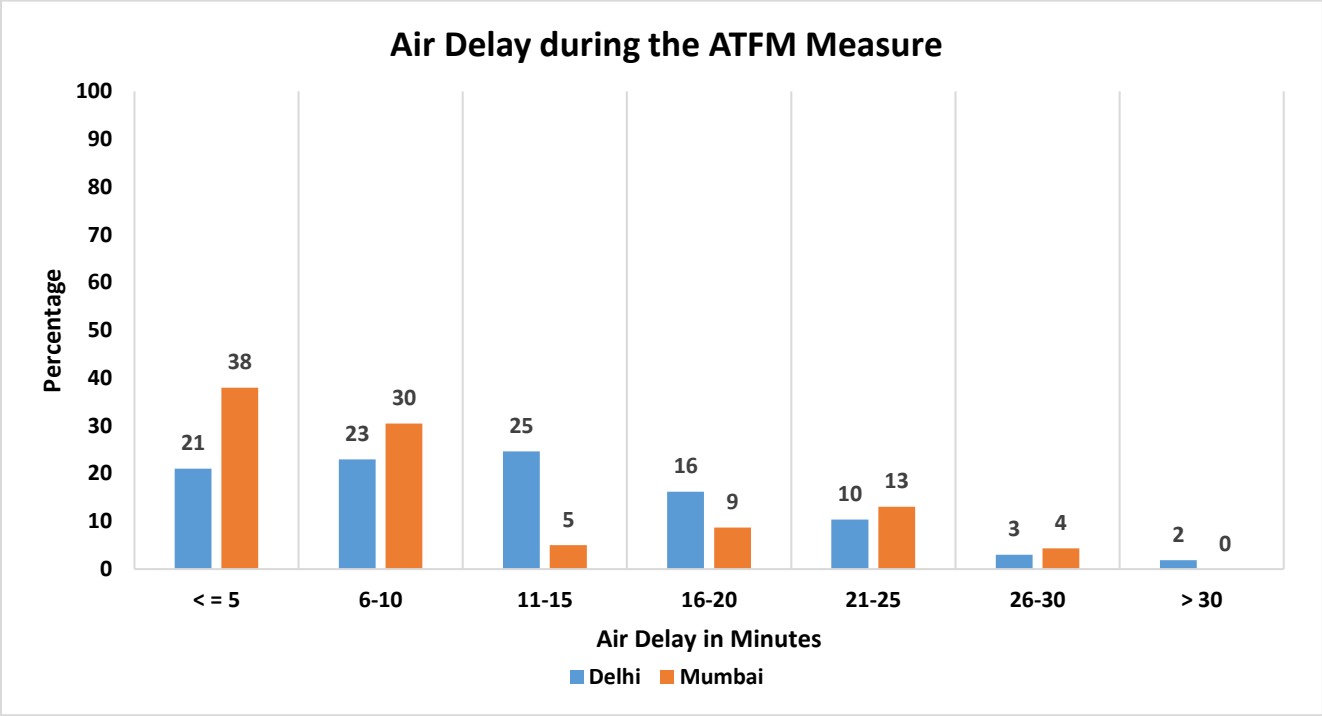


Figure 14: Air Delay distribution during the CDM period

Inference

1. 44% of domestic arriving flights to Delhi had an Air delay of equal to or less than 10 minutes during the CDM period.
2. 68% of domestic arriving flights to Mumbai had an Air delay of equal to or less than 10 minutes during the CDM period.

VIII. एटीएफएम उपायों के कारण मूर्त लाभ/Tangible Benefits due to ATFM Measures

A modest attempt is made to find out the tangible benefit of ATFM measures applied.

Assumptions:

•When ATFM measures are not in force, all flights take off at their ETOT where Estimated take off time(ETOT)= Estimated off block time(EOBT) + default taxi time

•All flights have an Estimated elapsed time(EET) as calculated by SKYFLOW using the Flight Plan information and Basic Aircraft data.

Methodology:

Air delay (with ATFM measures in force) is calculated during the period when ATFM measures are in force by summing the air delay for all the flights landing at constrained Airport.

i.e. **Total Air Delay = ∑ (Actual Flying time – SKYFLOW calculated EET)**

Air delay (with no ATFM measures) is calculated as the sum of Air delay for all the flights during the above said period with no ATFM measures in place and the air delay for each flight is the difference in its ideal landing time and its ideal estimated landing time.

Total Air Delay (with no ATFM measures) = **∑ (Ideal LDT - Ideal ELDT)**

*Ideal LDT is taken by assuming every flight is landing at a specified interval based on the Arrival acceptance rate(AAR) defined,

*Ideal ELDT = ETOT + SKYFLOW calculated Flying time

Fuel Saving Calculation :

Great Circle Distance(GCD)* was calculated for all the arrivals during the ATFM Measure from the point of origin to destination. Assuming Airbus 320 as reference aircraft for flights (flight distance equal to or less than 3000 nm) and B777 for international flights (flight distance more than 3000nm):

Fuel consumption (Kgs / nm) for each affected flight in the scenario was then calculated using the Reference document: ICAO Carbon emissions calculator methodology, version10, Appendix C: ICAO Fuel Consumption Table.

The Fuel consumed per minute(Kg/min) was calculated for each affected flight.

Total Air Delay(with ATFM Measures)= 8469 mins

Total Air Delay (with no ATFM measures) = 11099 mins

Reduction in Air delay due to ATFM measures= (11099-8469) = ***2630 mins***

Fuel Saving Calculation:

Total Fuel saved during the ATFM Measure: ***1,56,132.43 Kgs***

Total reduction in CO_2 emission : 3.16($KgCO_2$/kg fuel)* 1,56,132.43 Kgs = 4,93,378.48 Kgs

**GCD (Great Circle Distance): The distance between origin and destination airports is derived from latitude and longitude coordinates originally obtained from ICAO Location Indicators database.*

3.16 = constant representing the number of tonnes of CO2 produced by burning a tonne of aviation fuel.

D. शब्दकोश/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 regulated flights. 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

एयरलाइनों द्वारा सामान्य व्यावसायिक नियमों (सीबीआर) की उड़ान योजना आवश्यकताओं का अनुपालन - अगस्त 2026

Compliance by Airlines with Flight Planning Requirements of Common Business rules(CBR)- August 2026

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.

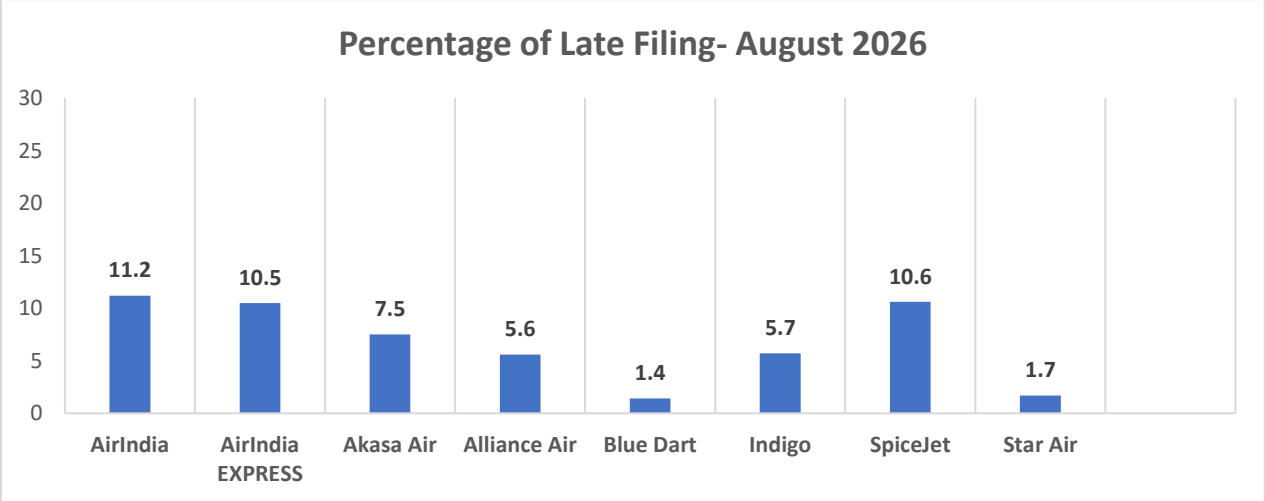
AIP India, ENR 1.9 section 4 on Flight Planning in the context of ATFM recommends Flight Planning requirements for all Airline Operators –

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 hence the requirement of ATFM measures can be identified early for better planning. 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 from 1st August 2026 to 31st August 2026.
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 context of the 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.



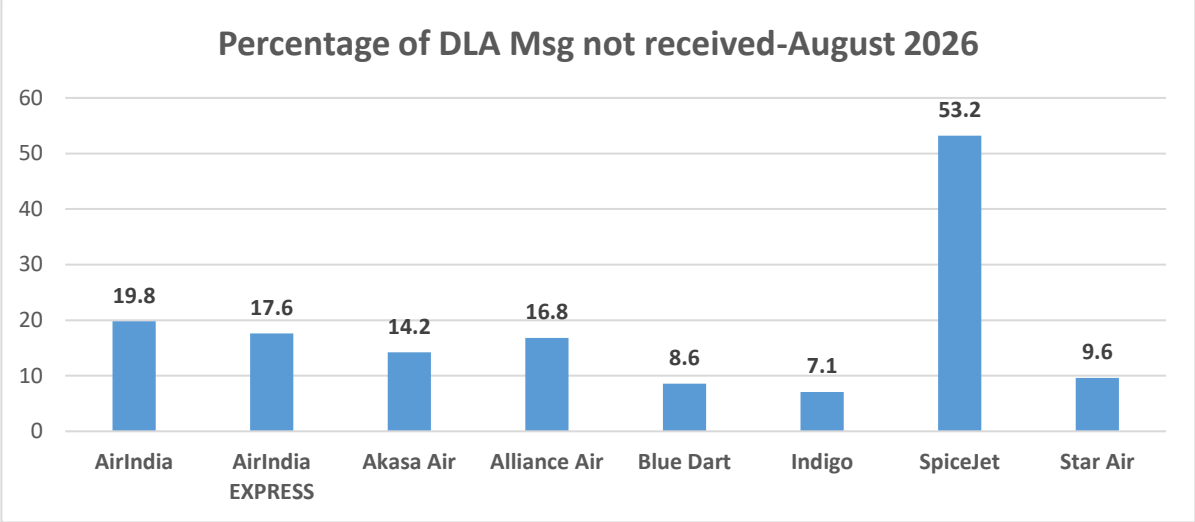
The table below lists number of filed flight plans (FPLs) with less than 3 Hours prior to EOBT:

Name of Airline	Late Filed FPL	Total No. Of FPL	% Delayed Filing
AirIndia	2094	18764	11.2
AirIndia EXPRESS	1465	13943	10.5
Akasa Air	375	5019	7.5
Alliance Air	85	1524	5.6
Blue Dart	8	590	1.4
Indigo	3514	61524	5.7
SpiceJet	215	2023	10.6
Star Air	26	1493	1.7
Total no. of FPLs for Scheduled Airlines	**7782**	**104880**	**7.4**

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 Table below lists number of flights for which no DLA message was received in August 2026. **{(EOBT of original FPL)- (ATOT received)} > 30 minutes)**

Name of Airline	DLA Message not received	Total No. of flights considered for analysis	% of flights for which no DLA message was received
AirIndia	2878	14523	19.8
AirIndia EXPRESS	1563	8851	17.6
Akasa Air	499	3518	14.2
Alliance Air	124	737	16.8
Blue Dart	44	508	8.6
Indigo	3276	46080	7.1
SpiceJet	272	511	53.2
Star Air	51	528	9.6



C. For analysis of non-receipt of CNL (cancel) messages for August 2026, 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 table below lists the number of Flights for which no CNL Msg. was received in August 2026:

Name of Airline	**CNL message not received**	**No. of flights annulled**
AirIndia	34	36
AirIndia EXPRESS	80	90
Akasa Air	5	6
Alliance Air	142	143
Blue Dart	1	1
Indigo	76	86
SpiceJet	36	46
Star Air	13	14

Annexure-B

बंगाल की खाड़ी सहयोगी वायु यातायात प्रवाह प्रबंधन (बीओबीसीएटी): अनुपालन रिपोर्ट अगस्त 2026

Bay of Bengal Co-operative Air Traffic Flow Management (BOBCAT): Compliance Report August 2026.

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.

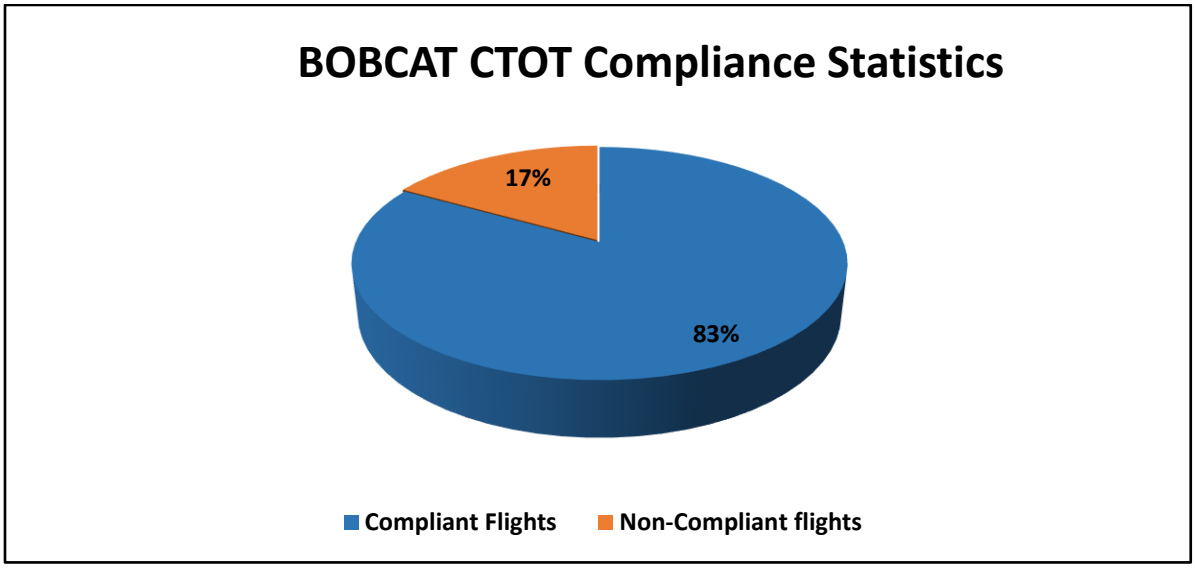
India is also part of BOBCAT reactivation group. Accordingly, AAI has also published AIP supplement 139 of 2025 effective from 04.09.2025 for the reactivation of Bay of Bengal Cooperative Air Traffic Flow Management (BOBCAT) Procedures and Implementation of BOBCAT Services. The cited AIP supplement contains 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:

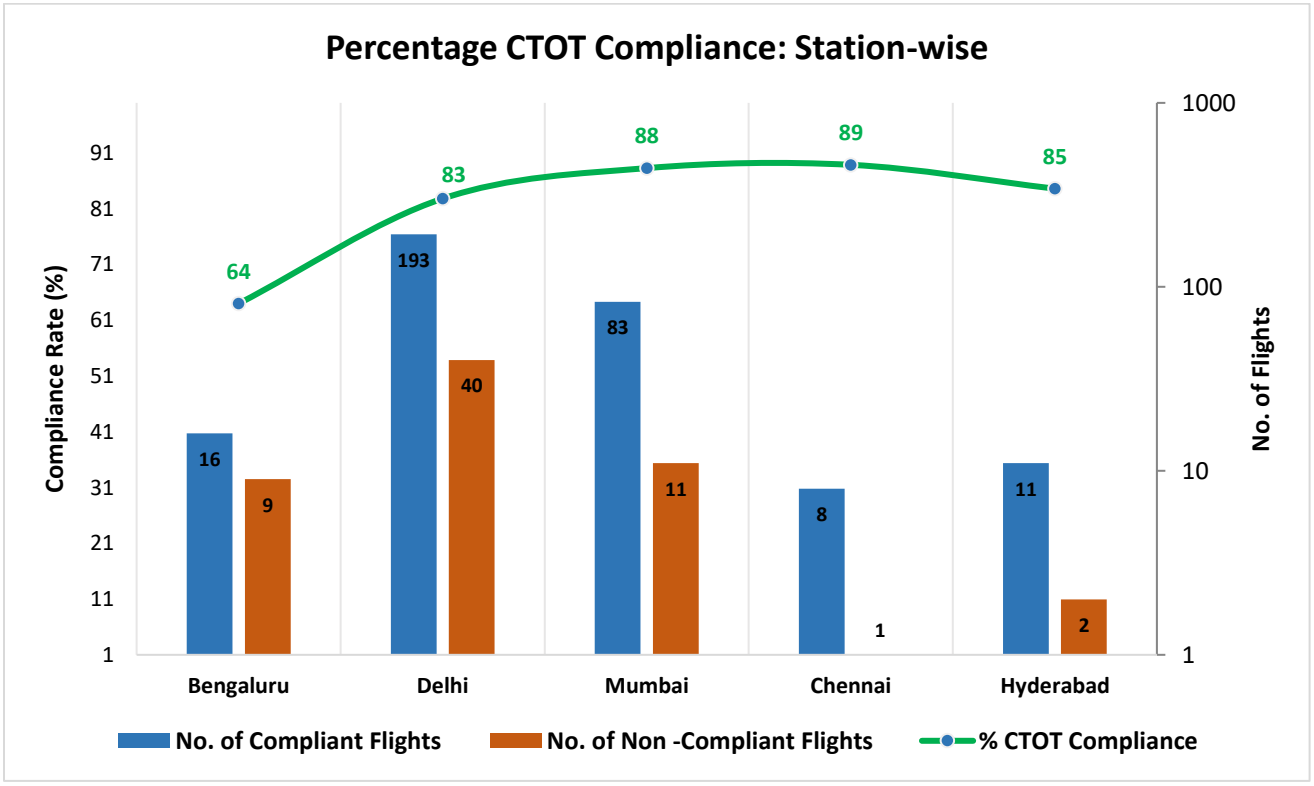
The compliance analysis is performed only for departures from India participating in the BOBCAT. As it is an airspace program the compliance window for the same is from -5 minutes to +5 minutes of the CTOTs issued.

No. of Compliant Flights	No. of Non- Compliant Flight	Total
311	63	374

A) BOBCAT Compliance Overview:

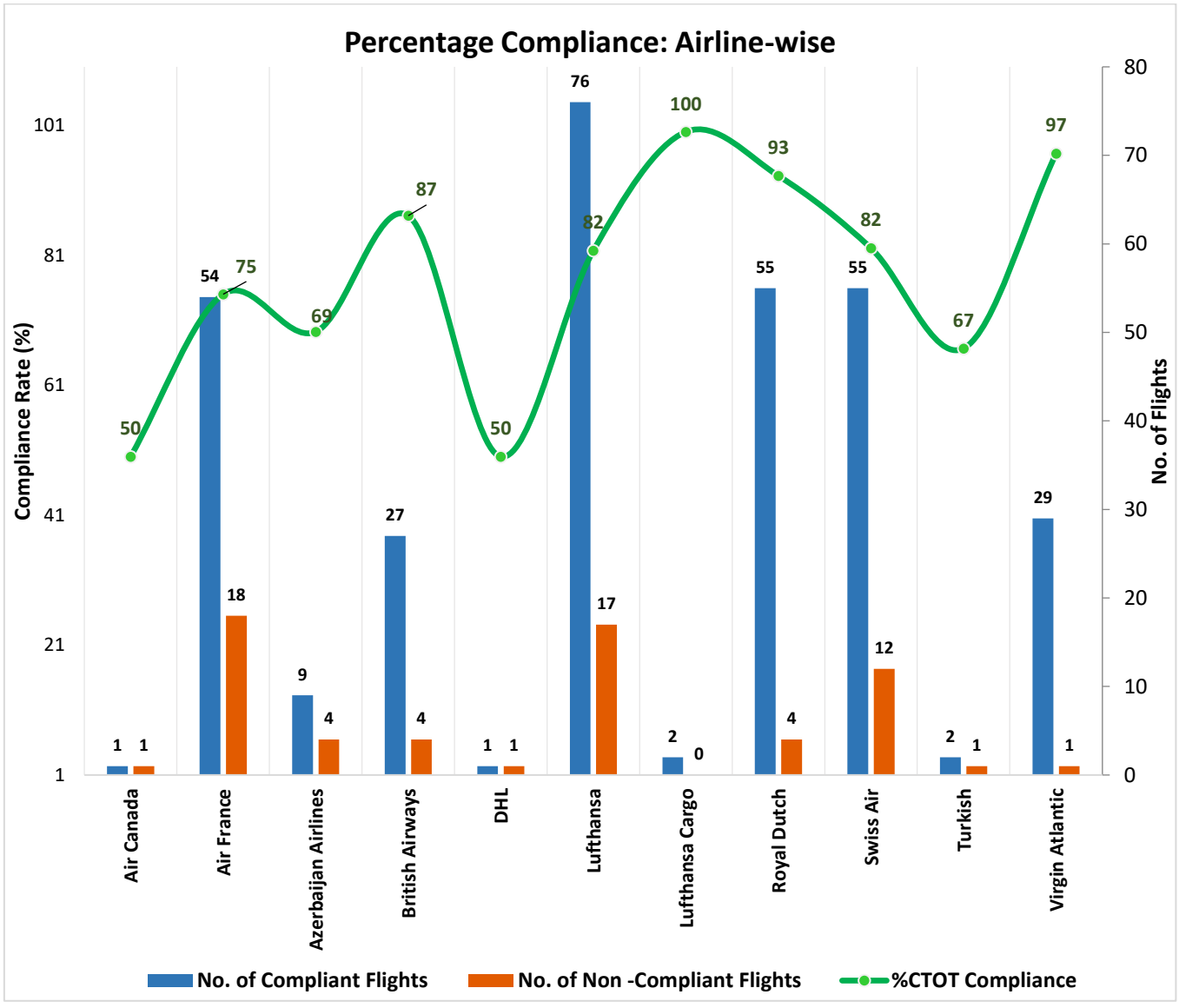


B) Station Wise Compliance:



	Bengaluru	Delhi	Mumbai	Chennai	Hyderabad
No. Of Compliant Flights	16	193	83	8	11
No. of Non-Compliant Flights	09	40	11	01	02
CTOT Compliance %	64	83	88	89	85

C) Airline wise Compliance:



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