



International Civil Aviation Organization

**The Sixth Meeting of the APANPIRG ATM Sub-Group
(ATM/SG/6)**

Hong Kong, China, 30 July – 03 August 2018

Agenda Item 4: ATM Systems (Modernization, Seamless ATM, CNS, ATFM)

BOBCAT ATFM OPERATIONS - DELHI FIR

(Presented by India)

SUMMARY

This paper presents the issues related to ATFM operations through BOBCAT system in the Delhi FIR and the Suggestions for improvement.

1. INTRODUCTION

1.1 Delhi Area Control Centre (ACC) being the second last ATS Unit, before Pakistan, to regulate the flow of Traffic as per BOBCAT allocation, is experiencing various problems during peak traffic time of westbound aircraft, which transit through Afghanistan.

1.2 On this issue, India presented a WP in the second meeting of the South Asia/Indian Ocean ATM Coordination Group (SAIOACG/2) held at Bangkok, Thailand between 22-25th May, 2012

2. DISCUSSION

Mitigation strategy in implementation of BOBCAT in Delhi FIR

2.1 Delhi ACC receives aircraft from five entry points (IBANI, KKJ, IGONA, LKN and GUGIP) and releases these aircraft to Lahore/ Karachi FIRs through four exit points (SULOM, GUGAL, MERUN and VIKIT). Aircraft following routes A589, L509 and M890 merge at SULOM and follow route L509 to LAJAK or A466 to DI and thereafter to DOBAT. There are some flights however which file SULOM-A466-DI-DOBAT.

2.2 Aircraft following M875 enter Lahore FIR at GUGAL and thereafter follow M875-JHANG to DI. After DI, majority of the flights file N644 to DOBAT while some flights file route A466 to SITAX or M881 to LAJAK.

2.3 Delhi has to provide separation between flights which are operating via SULOM-L509-LAJAK and SULOM-A466-DI-DOBAT, and is therefore unable to assign the BOBCAT level to one of these and a few following flights too. SULOM and GUGAL have maximum over flying traffic due to shorter route length. Even traffic entering Delhi FIR from south, cross many ATS routes and exit via SULOM/GUGAL.

2.4 BOBCAT assigns cruising levels to aircraft for entry into Kabul FIR, which is about 1 hour of flying time from Delhi FIR. Long haul aircraft are sometimes not able to attain their BOBCAT assigned levels in Delhi FIR due to performance limitations. One such non-compliance can have a Domino effect and may result in multiple non-compliances.

2.5 For example: an aircraft with BOBCAT assigned level of FL380 is unable to accept its BOBCAT assigned level in Delhi FIR, due to performance limitations and is maintaining FL 340, though the aircraft will be able to climb at a later stage before entering Kabul FIR, which is still one hour of flying time away. This would mean that an aircraft following 5 minutes behind at FL 320, with a BOBCAT assigned level of FL 340 cannot be given climb in Delhi FIR till the aircraft ahead vacates FL340 for its BOBCAT assigned level of FL380. In a tactical scenario, this will require dynamic level changes to other aircraft, which may further lead to multiple non-compliances.

2.6 Actual estimates of many participating aircraft significantly differ from the allocated ETO- DOBAT, LAJAK, BIROS and ASLUM.

2.7 Many flights are not following the Westbound ATFM measures and filing flight plans which involves cutting across parallel EMARSSH routes, which leads to additional conflicts in Delhi FIR. e.g.:

a) Aircraft enters Delhi FIR via KKJ and follows route: KKJ L759- AGG -L760 -DPN - A589- SULOM instead of following KKJ-L333-MERUN.

b) Aircraft enters at IGONA via M875 and follows route: IGONA- BUTOP- A589- SULOM instead of following IGONA-M875-GUGAL, leaving little room for Delhi to effect a level change, if required.

2.8 After the implementation of RVSM at F320 and above in Afghanistan, the number of flights using routes M875/L509/M890 has increased significantly, while traffic on P628 & L333 is reduced during the peak rush hour of 1930 UTC to 2200 UTC (in Delhi FIR), leaving Delhi with less flexibility of accommodating the flights which are either non participants of BOBCAT or whose estimates are significantly different from what has been assigned by BOBCAT.

2.9 In view of the above, it is not always possible for Delhi to release aircraft to Lahore/Karachi at the BOBCAT allocated levels, since the level restrictions are with respect to Entry points in Kabul FIR, which is almost one hour of flying time away.

Mitigation Measures to Improve Efficiency of Flight Operations under BOBCAT

2.10 As seen in the BOBCAT Operational Update paper presented by Thailand in March 2018(SAIOACG/8&SEACG/25), the Calculated Time Over (CTO) compliance is only 34 %. Even after ten years of implementation, the low level of compliance is a concern for India. Therefore, it is opined that the spacing between two successive flights entering Kabul FIR may be suitably increased and the airlines be advised to periodically review and improve their flight planning.

2.11 The slot allocation under BOBCAT should take into consideration the time/level restrictions over entry/exit points in Delhi FIR, considering the performance limitations and flight plan of the aircraft.

2.12 Aircraft routing via DOBAT into Kabul FIR should plan to exit Delhi FIR via GUGAL (M875) and not via SULOM (L509-A466) while aircraft routing via LAJAK into Kabul FIR should plan to exit Delhi FIR via SULOM and not GUGAL.

2.13 BOBCAT slot allocation should be made mandatory for scheduled flights transiting through Kabul FIR from 2000 to 2359 UTC. Though the ATFM User's handbook para 2.15 states as under:

“Flights that plan to enter the Kabul FIR without an AWUT and entry slot (comprising flight level, ATS route and entry fix name) will be accommodated only after flights with slots have been processed. Such flights should expect delayed pushback and start clearances, non-preferred routes and/or flight levels, en route holding and/or diversion around the Kabul FIR”

2.14 However, practically it is difficult to re-route/divert or hold a flight in-air, tactically and indefinitely by any ACC due to constant stream of flights incoming into their airspace.

Reserve FL280 for flights ex-Delhi and Pakistan.

2.15 The flights should be evenly distributed over the four exit points of Delhi FIR based on their entry points in Kabul FIR.

2.16 To streamline the flow, airlines should file flight plans as per ATFM flow control based on their entry points in Kabul FIR as under:

S.No	Entry point in Kabul FIR	Exit Point at Delhi/Lahore-Karachi FIR	Route to be followed as per ATFM
1.	LAJAK	SULOM	L509/A466-G796
2.	DOBAT	GUGAL	M875 – N644
3.	BIROS	MERUN	L333/G333-L750
4.	ASLUM	VIKIT	P628

2.17 The time and level restrictions should be calculated with respect to exit points in Delhi FIR. In other words, the slot allocation sheet should specify the time and level restrictions over the exit points in Delhi FIR, namely: SULOM, GUGAL, MERUN & VIKIT.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- note the information contained in this paper;
- discuss the request for a review of the BOBCAT procedures; and
- discuss any relevant matters as appropriate.

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