International Civil Aviation Organization

Twelfth Meeting of the Asia/Pacific Air Traffic Flow Management Steering Group (ATFM/SG/12)

Video Teleconference, 13 – 16 September 2022

Agenda Item 4: Review of Current CDM/ATFM Operations and Problem Areas

ADDRESSING OF FLIGHT PLANS AND MISSING DEPARTURE (DEP) MESSAGES

(Presented by the Secretariat)

SUMMARY

This paper provides an update on the issue of missing departure messages, as discussed at multiple meetings of the Air Traffic Flow Management Steering Group (ATFM/SG) and ATM Sub-Group, since and including ATFM/SG/8 (2018) and ATM/SG/7 (2019/2021).

1.   INTRODUCTION

1.1   An analysis of missing DEP messages had been conducted in 2017, in response to the following APANPIRG Conclusion:

> ***Conclusion APANPIRG/27/12: Origination and Distribution of Departure (DEP) Messages***
> *That, recognizing the importance of AFTN departure (DEP) messages in the management and coordination of flight plans in both manual and automated ATM environments, ICAO be requested to:*
>   1. *Conduct an analysis of the incidence of non-receipt of DEP messages required by ICAO Doc 4444 Procedures for Air Navigation Services (PANS-ATM) Section 11.4.2.2;*
>   2. *Request that States failing to ensure correct transmission of DEP messages promptly take corrective action and report the   status of corrective actions to the ICAO APAC Regional Office by 30 April 2017; and*
>   3. *Raise APANPIRG Air Navigation Deficiencies against failure by States to comply with Doc 4444 Section 11.4.2.2, at APANPIRG/28.*

1.2   ATM/SG/5 in August 2017 had requested that ongoing analysis be expanded to include missing FPL messages. The March 2018 analysis presented to ATFM/SG/8 resulted in APANPIRG Air Navigation Deficiencies being raised against several Asia/Pacific Region States. An APAC State Letter was also sent to non-APAC States that were demonstrated by the analysis to be systemically failing to send DEP messages.

2. DISCUSSION

Addressing of FPL and Other Related ATS Messages

2.1   There are a number of factors that contribute to the non-receipt of ATS messages at affected ATS units. While this paper is mainly focused on the matter of missing DEP messages, the following information is provided in relation to general aspects of ATS message handling.

2.2   ICAO Doc 4444 Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM) specifies in section 11.2.1.1.1 that messages for ATS purposes (including FPL and associated ATS messages) shall be originated by the appropriate ATS units, except that, through special local arrangements, ATS units may delegate the responsibility for originating movement messages to the pilot, the operator, or its designated representative. Many airlines, accordingly, distribute FPL messages direct to concerned ATS units rather than submitting the flight plan to the air traffic services reporting office for onwards distribution (Doc 4444 section 4.4.2).

2.3   PANS-ATM 11.4.2.2.2 further specifies that a Filed Flight Plan (FPL) message shall be sent to, *inter alia*:

- The Area Control Centre (ACC) or flight information center serving the control area or FIR within which the departure aerodrome is situated;

- All centers in charge of each FIR or upper FIR along the route; and

- The aerodrome control tower at the destination aerodrome

2.4   PANS-ATM further specifies in section 11.2.1.2.3.3 that the following three letter designators (forming part of the AFTN address, together with the relevant ICAO four-letter location indicator and a supplementary letter, usually X) shall be used when addressing FPL and other ATS messages to ATS units:

If the message is relevant to an IFR flight	ZQZ(X)
If the message is relevant to a VFR flight	ZFZ(X)
Aerodrome control tower	ZTZ(X)
Air traffic services reporting office	ZPZ(X)

Other three-letter designators shall not be used for that purpose

2.5   There are multiple examples of States in the Asia/Pacific Region specifying in their Aeronautical Information Publication (AIP) Section ENR 1.11 that FPL be addressed other than in accordance with PANS-ATM.

2.6   The specification of non-compliant addressing requirements in State AIP (and, in some cases, in NOTAM) contributes to the non-receipt of FPL, DEP, and other related ATS messages.

2.7   There are also cases of States implementing the use of three-letter designators that are not assigned to them in ICAO Doc 8585 Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services, but are in fact assigned to other States, authorities, or aircraft operating agencies.

2.8   The specification of non-compliant addresses in AIP is a key factor in missing FPL and associated ATS messages. For example, ANSP responsible for aerodrome reporting offices and other ATS units in distant FIRs that transmit FPL, DEP and other ATS messages are entitled to depend on compliance with the provisions of PANS-ATM by all downstream FIRs, and address ATS messages accordingly.   They do not have any obligation to hold or read the AIP or NOTAMs promulgated by a far-distant State.

2.9   The meeting is reminded that the raising of APANPIRG Deficiencies had previously been considered for cases where non-compliant addresses were specified in State AIP, but this would only be the case if any State failed to correctly process messages that were correctly addressed to [FIR location indicator]ZQZX. It was noted that several States had amended their AIP Section ENR 1.11 to comply with the PANS-ATM provisions more closely.

2.10   The meeting is invited to note that ICAO APAC Office will continue to encourage improved compliance with the provisions of PANS-ATM through direct contact with States, and if necessary, through APANPIRG Air Navigation Deficiencies.

2.11   In this regard, the meeting is reminded of the following Conclusion agreed by ATM/SG/7 (2019):

> ### Conclusion ATM/SG/7-5: ATS Message Reception and Handling
>
> *Noting that incorrect flight plan addressing requirements published by States in AIP ENR 1.11 contribute to the non-reception of flight plans and associated ATS messages, and that simple technology solutions are readily available to permit redistribution of messages to all necessary internal units and organizations, States are urged to:*
>
> 1. *ensure that, in accordance with PANS-ATM 11.4.2.2.2 all FPL and associated ATS messages that are addressed in accordance with PANS-ATM to the centre in charge of each FIR along the route and the destination aerodrome control tower, are correctly received and redistributed to all necessary ATS units by the receiving State;*
>
> 2. *note that, as specified in PANS-ATM 11.2.1.2.3.3, the correct address for the centre in charge of the FIR is [FIR location indicator]ZQZX, and other indicators shall not be used;*
>
> 3. *remove flight plan addressing requirements that do not comply with the above PANS-ATM provisions from AIP ENR 1.11; and*
>
> 4. *ensure that all three letter designators used in addresses are correctly registered in ICAO Doc 8585.*

DEP Messages Not Received - Data Considerations

2.12   The data on missing FPL and DEP messages does not necessarily, in all cases, reflect failures at the aircraft operator or departure aerodrome ANSP. There may be a number of reasons these messages failed to reach one or more relevant ATS units, including such issues as, for example:

- non-compliant addressing requirements/handling at the reception end, as mentioned above;

- communication network failures;

- rejected message queues (format, syntax, semantic errors) not correctly actioned by the receiving ANSP;

- failure of the Centre in charge of the FIR to correctly re-distribute received messages to all relevant ATS units within the FIR; and/or

- Non-inclusion in FPL of Estimated Elapsed Times (EET) for all FIR boundaries crossed by the flight.

2.13   However, in many cases there are clear systemic issues that must be addressed by the Administration responsible for the aerodrome of departure.

DEP Messages Not Received – Follow-Up Actions

2.14   Following the analysis of missing DEP messages conducted in 2018, ATFM/SG/8 discussed steps to be to address the issue. State Letters were consequently sent by the ICAO Asia/Pacific Regional Office as follows:

- State Letters to APAC Administrations for which APANPIRG Air Navigation Deficiencies were proposed for non-compliance with the provisions of PANS-ATM (subsequently agreed by APANPIRG);

- A State Letter to all other APAC Administrations, and to non-APAC Administrations through their accredited ICAO Regional Offices, where the analysis indicated systemic failure to send DEP messages.

2.15   A further 24-hour data gathering activity was conducted on 14 June 2019. The planned data gathering and analysis from 2020 to 2022 has not been conducted due to the impact of the COVID-19 pandemic on traffic volumes.

Asia/Pacific State Analysis and Deficiencies

2.16   APANPIRG/31 (December 2021) endorsed the current list of States having ANS Deficiencies recorded for non-compliance with the requirements of PANS-ATM Section 11.4:

> Bangladesh, India, Malaysia, Maldives, Nepal, USA

2.17   The original criterion used for the ANS Deficiency was the failure to send DEP messages for 10 flights or more. This criterion did not adequately capture poor performance from States with low numbers of international departures. **It was therefore agreed by ATFM/SG and ATM/SG that the criteria will be five percent of flights.** However, States with very low numbers of international departures, i.e., less than 20 per month, should be excluded from the Deficiency List due to the small sample size, but will be formally contacted by ICAO, and monitored closely.

2.18   The meeting is invited to note that few Administrations achieved 100% of DEP messages transmitted to all relevant participating FIRs. All Administrations should examine their processes and system configuration in order to improve overall performance.

Thailand Update

2.19   Thailand continuously monitors the non-receipt of DEP messages for flights entering the Bangkok FIR, and kindly agreed to provide data for the information of the meeting.

2.20   For the month of August 2022, the following States were the most prominent originating States (more than ten flights per month) from which no DEP message was received by Thailand:

> Bahrain (100% DEP missing), Kuwait (100%) , Ethiopia (100%), Turkey (87%), Spain (95%),Switzerland (36.3%),Saudi Arabia (32%), Oman (18.3%)

2.21   **Table 2** summarizes non-receipt of DEP messages for flights originating in the FIRs of APAC Administrations and entering the Bangkok FIR for the eight months ending in August 2022 (missing DEP/Number of Flights).

Originating State	JAN 2022	FEB 2022	MAR 2022	APR 2022	MAY 2022	JUN 2022	JUL 2022	AUG 2022	TOT %
Afghanistan	-	-	-	-	-	-	-	-	-
Bangladesh	2/192	0/176	1/245	2/274	5/301	1/317	1/376	0/377	<1%
Bhutan	1/13	0/17	0/13	1/19	0/18	0/25	0/25	1/17	<1%
Brunei Darussalam	0/8	1/7	0/14	1/16	0/21	2/25	0/31	0/29	<1%
Cambodia	0/209	1/216	4/278	4/299	4/409	4/482	3/520	4/162	<1%
China	1/628	1/438	0/734	6/653	1/672	1/673	2/510	1/534	<1%
India	43/470	34/386	49/531	55/713	64/1059	69/1285	72/1423	50/1309	<6%
Indonesia	6/78	4/75	0/81	1/75	4/134	6/157	4/205	11/278	<3%
Lao PDR	1/48	1/41	0/42	0/65	10/112	15/184	85/264	44/320	<1%/<20%
Malaysia	32/363	29/343	25/426	24/518	35/695	31/876	27/1208	50/1357	<5%
Maldives	6/12	9/21	8/19	8/21	8/15	9/20	15/37	29/54	<50%
Myanmar	10/212	2/183	3/239	4/267	5/316	12/406	15/524	12/543	<2%
Nepal	0/91	1/78	5/101	2/127	3/148	4/155	1/225	3/262	<2%
Pakistan	5/17	0/17	3/32	4/43	0/67	2/69	2/98	1/97	<1%
Philippines	22/489	2/497	8/643	5/592	10/619	18/673	10/740	6/784	<2%
Republic of Korea	1/154	0/135	2/195	0/184	2/215	1/232	1/421	1/512	<1%
Singapore	2/1108	1/920	4/876	3/1076	3/1264	4/1275	0/1441	1/1420	<1%
Sri Lanka	1/69	0/44	0/52	1/49	1/70	0/44	1/44	0/49	<1%
USA	3/25	5/27	2/3	1/7	2/18	6/34	0/24	2/37	<12%
Viet Nam	1/454	1/305	7/424	6/444	2/617	5/791	3/991	9/1079	<2%

Table 2 -non receipt of DEP messages in Bangkok FIR

Ongoing Activities

2.22   The work on missing DEP messages was initially carried out as a result of ATFM/SG discussion, noting that DEP messages currently provide the first real-time information used to update demand calculations in most ATFM processes. However, DEP messages have a broader impact, also serving an important role in both manual and automated ATM systems. This work will therefore continue, with data examined by ATFM/SG under the oversight of ATM/SG.

2.23   The issue was also raised with ICAO Headquarters by the ICAO APAC Regional Office, and by Thailand with the ATM Operations Panel. The Secretariat and Thailand have also made separate direct approaches to relevant States and International Organizations.

2.24   Other States having the capability are requested to participate in data gathering activities to support ongoing monitoring.

COVID-19 Pandemic Impact

2.25   Due to the COVID-19 pandemic the planned further data gathering and analyses in 2020, 2021 and 2022 had not been conducted, as the significant reduction in air traffic was considered to render a data analysis of unrepresentative. However, noting the importance of this issue another regional analysis is being tentatively planned in early 2023.

2.26   The analysis of incorrect FPL addressing requirements mentioned in paragraphs 2.1 to 2.11 of this paper will continue. Participants are urged to ensure their Administration responds to any requests for further information by the ICAO Regional Office.

3.   ACTION BY THE MEETING

a)   The meeting is invited to:

b)   note the information contained in this paper;

c)   note and discuss:

   i)   note the ICAO Doc 4444 PANS-ATM procedures for the addressing of FPL and ATS messages;

   ii)   the contribution of incorrect addressing requirements published in AIP ENR 1.11, to missing FPL and associated ATS messages including DEP;

   iii)   the potential for APANPIRG Air Navigation Deficiencies, where appropriate, in cases where AIP ENR 1.11 does not comply with PANS-ATM

d)   comply with conclusion *ATM/SG/7-5: ATS Message Reception and Handling*;

e)   note the list of current ANS Deficiencies relating to non-compliance with PANS-ATM Section 11.4, as agreed by APANPIRG/31;

f)   take all steps to examine processes and system configuration, to improve performance in DEP message transmission;

g)   participate in future data gathering and analysis activities; and

h)   discuss any relevant matters as appropriate.

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