



Agenda Item 5: Operational implementation of new ATM automated systems and integration of the existing ones

ANALYSIS OF FLIGHT PLAN AVAILABILITY IN THE SAM REGION
 (Presented by the Secretariat)

SUMMARY	
<p>As a follow-up to action taken to mitigate flight plan errors and duplication/multiplicity, this working paper presents the status of implementation of automated systems for the filing, delivery, and processing of the flight plan format introduced through Amendment 1 to Edition 15 of ICAO Doc 4444, identifies possible sources of flight planning errors, and recommendations to mitigate such errors.</p>	
REFERENCES:	
<ul style="list-style-type: none"> • Amendment 1 to the <i>Procedures for air navigation services – Air traffic management (PANS-ATM)</i>, 15th edition, ICAO Doc 4444. • Report of the First meeting on AIDC implementation (Lima, Peru, 28-30 March 2016). • Seventeenth workshop/meeting of the SAM implementation group (SAM/IG/17 Lima, Peru, 9-13 May 2016). • AIDC implementation follow-up teleconferences (May to September 2016) • Report of the Second meeting on AIDC implementation (Lima, Peru, 21-23 September 2016). 	
ICAO strategic objectives:	<p><i>A – Safety</i> <i>C – Environmental protection and sustainable development of air transport</i></p>

1. Introduction

1.1 The First meeting on AIDC implementation (AIDC/1), upon analysing flight plan availability in the SAM Region, went on to update the status of automation of flight plan processors (FDP) and the status of implementation of templates at AMHS/AFTN terminals, pursuant to the amendment to the flight plan format FPL/12, analysing how the flight plan was generated and processed.

1.2 AIDC/1 urged those SAM States that had not completed the FDP automation process and the implementation of templates at AMHS/AFTN terminals to accept and implement the FPL/12 as soon as possible in order to mitigate errors in the generation and processing of flight plans.

1.3 The AIDC/1 meeting took note that some SAM States, although they had already installed the FPL template for initial control of flight plan filing in their AMHS terminals, generated the flight plan in free text format, thus introducing possible errors in its content. Accordingly, the meeting made an appeal to discard the use of free text when generating the flight plan.

1.4 The meeting also felt that a feasibility study should be conducted for the implementation of automated FPL filing systems and FPL transmission *via* AMHS, AFTN and/or the Internet, interconnected with the automated ATC systems, within the regulatory framework established by each State, for a more efficient management of FPLs during all flight phases, allowing for the implementation and efficient operation of AIDC in the SAM Region.

1.5 In this regard, and taking into account the aforementioned aspects, the AIDC/1 meeting formulated Conclusion AIDC/1-3 *Action to mitigate flight plan filing and processing errors.*

1.6 Upon reviewing the progress made in the analysis of flight plan availability, the SAM/IG/17 meeting considered that the AIDC group should continue analysing actions taken to mitigate flight plan errors and duplication/multiplicity, as well as the feasibility of including automated FPL filing systems interconnected with ATC automation systems within the regulatory framework of each State, and present the results at the second meeting on AIDC implementation.

2. Discussion

Status of implementation of FPL 2012

2.1 Regarding the status of implementation of automated systems in the Region, pursuant to Amendment 1 to Edition 15 of Doc 4444 (FPL 2012), 62% of all ACCs in the SAM Region have updated the flight plan processors (FDP), 23% continues using converters, and the remainder continues applying the manual solution, in view of the fact that the ACCs have automated systems that do not comply with FPL 2012 or lack automated systems.

2.2 Regarding the implementation of AMHS/AFTN terminals that have FPL 2012 templates capable of detecting completion errors, 85% of the States already comply.

2.3 In this regard, there has been a 16% increase with respect to that reported at the SAM/IG/17 meeting (46% implementation), due to the implementation of new automated systems at the Comodoro Rivadavia, Mendoza, Resistencia, and Punta Arenas ACCs, which have FDP systems that accept the FPL 2012. There were no changes in those States that had a converter installed, or in the templates at the AMHS/AFTN terminals for transcribing the flight plan. **Appendix A** contains an updated chart of the status of implementation of automation in compliance with Amendment 1 to Edition 75 of Doc 4444.

2.4 Regarding the action to be taken by some States for completing automation for FPL2012, the AIDC/2 meeting in Brazil noted that, by the first half of 2017, the FDPs of their ACCs would be capable of processing the FPL 2012, thus eliminating the converters currently installed.

2.5 Peru informed that the FDP of its automated system complied with FPL 2012, but had problems with Item 10, since this Item only accepted 20 characters and that was not enough if all the equipment and navigation capabilities were used for a flight plan. The software of the Lima ACC automation system was expected to be updated by the end of 2016.

2.6 Paraguay informed that, by the end of 2016, they expected to have a software version of the automated system at the Asunción ACC that accepted the FPL 2012, and Venezuela informed that it had started a process to modernise the Maiquetia ACC, which would start operating in early 2018, thus eliminating the converter that was currently installed.

Actions to mitigate flight plan errors and duplication/multiplicity

2.7 At the AIDC/2 meeting, the participating States provided information on the procedure used for filing flight plans, as shown in **Appendix B** to this working paper.

2.8 The AIDC/2 meeting also reviewed a guide prepared by Ecuador on how to avoid errors in the FPL and the associated ATS messages, which appears in **Appendix C** to this working paper.

2.9 In this regard, upon analysing the status of implementation of automation to comply with FPL 2012, the procedures used by the States of the Region for filing flight plans, and the content of the guide on possible sources of flight planning errors, the meeting identified the most common errors in flight planning and made recommendations to mitigate flight plan errors and duplication/multiplicity.

2.10 The flight plan errors identified were as follows:

- Lack of quality and consistency in flight plans
- Inappropriate use of repetitive flight plans (RPLs)
- Conversion due to non-compliance with the ICAO 2012 flight plan format
- Lack of verification of flight plan data by the aircraft operator prior to flight plan filing
- Manual entry and processing of FPLs and associated messages
- Similar errors and multiplicity of flight plans
- Omission of standard ATS messages associated to the flight plan (CHG, CNL....)
- Incorrect addressing of flight plan and associated messages
- Lack of agreement between the user and the flight information service provider regarding the direct delivery to the FDP of flight plans and associated messages by the operators.

2.11 The recommendations for mitigating flight plan errors and duplication/multiplicity are shown in **Appendix D** to this working paper.

3 Suggested action

3.1 The Meeting is invited to:

- a) take note of the information presented herein;
- b) analyse the action described in Section 2 and its appendices;
- c) review and complete the information contained in Appendix A regarding the flight plan filing procedure;
- d) update the status of implementation of automation for FPL 2012 shown in Appendix B;

- e) approve the guide to avoid errors in the FPL and ATS messages, shown in Appendix C, to be used as a reference by the States of the Region;
- f) approve the recommendations contained in Appendix D for their adoption in the Region;
- g) discuss any other matter it may deem appropriate.

APPENDIX A / APENDICE A

STATUS OF THE AUTOMATION IMPLEMENTATION TO GIVE EFFECT TO THE
AMENDMENT TO THE FLIGHT PLAN FORMAT/ESTADO DE IMPLANTACION DE LA AUTOMATIZACIÓN PARA DAR CUMPLIMIENTO
DE LA ENMIENDA EN EL FORMATO DEL PLAN DE VUELO

STATE/ ESTADO	ACC	AFTN/AMHS	FDP
Argentina	Comodoro Rivadavia	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated/Automatización Implemented June 2016/Implementado Junio 2016
	Cordoba	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated / Automatizado
	Ezeiza	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated / Automatizado
	Mendoza	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated/Automatización Implemented June 2016/Implementado Junio 2016
	Resistencia	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated/Automatización Implemented June 2016/Implementado Junio 2016

STATE/ ESTADO	ACC	AFTN/AMHS	FDP
Bolivia	La Paz	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Manual It is foreseen by third quarter 2016 an ATM automated system with AIDC in the La Paz ACC/ Se tiene previsto para finales del tercer trimestre de 2016 un sistema automatizado ATM en el ACC de La Paz con AIDC.
Brazil / Brasil	Amazónico	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated /Automatizado (use of converter) / (uso de convertidor centralizado)
	Atlántico	Implemented (AMHS terminal) / Implantado (terminal AMHS)	An update in Sagitario ATM automated system (from ATECH Brazil) which includes the new FPL/12 flight plan format to deactivate the centralized inverter is scheduled for the first semester of 2017 in the AAC Amazonico, Atlantico, Brasilia, Curitiba and Recife./ Para el primer semestre del 2017 está prevista una actualización en Sagitario (sistema automatizado ATM de Brasil de la empresa ATECH) que incluye el nuevo formato de plan de vuelo FPL/12 y desactivar el convertidor centralizado.
	Brasilia	Implemented (AMHS terminal) / Implantado (terminal AMHS)	
	Curitiba	Implemented (AMHS terminal) / Implantado (terminal AMHS)	
	Recife	Implemented (AMHS terminal) / Implantado (terminal AMHS)	

STATE/ ESTADO	ACC	AFTN/AMHS	FDP
Chile	Iquique	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated /Automatizado
	Punta Arena	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automatizado / May 2016 Automated May 2016
	Puerto Montt	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated /Automatizado
	Santiago	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated/Automatizado
Colombia	Barranquilla	Not implemented (AMHS terminal) No implantado (terminal AMHS)	Automated /Automatizado
	Bogotá	Not implemented (AMHS terminal) No implantado (terminal AMHS)	Automated /Automatizado
Ecuador	Guayaquil	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated /Automatizado
French Guiana (France) Guyana Francesa (Francia)	Rochambeau	No Implemented (AMHS terminal) / No Implantado (terminal AMHS)	Automated / Automatizado
Guyana	Timehri	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated / Automatizado
Panama	Panama	Implemented / implantado (AMHS terminal)	Automated /Automatizado
Paraguay	Asunción	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Manual
Peru	Lima	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated /Automatizado It fails since in box 10 only 20 characters are allowed. / No cumple en su totalidad en vista que en la casilla 10 acepta solamente 20 caracteres. /

STATE/ ESTADO	ACC	AFTN/AMHS	FDP
Surinam/Suriname	Paramaribo	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated (out of service, working manually) / Automatizado (fuera de servicio, trabajando manualmente)
Uruguay	Montevideo	Not implemented / No implantado	Automated / Automatizado
Venezuela	Maiquetia	Implemented (AMHS terminal) / Implantado (terminal AMHS)	Automated /Automatizado (use of converter) / (uso de convertidor)

APPENDIX B

FLIGHT PLAN FILING PROCEDURES IN THE SAM REGION

ARGENTINA

Regarding the processing of FPLs in accordance with national regulations, paper forms can be initially filed at an ARO-AIS office and transmitted *via* AMHS to the units involved, or by phone or in flight through the A/G frequency.

The filing of RPLs is also regulated, as published in the AIP of Argentina. It should be noted that the filing of RPLs is not being used.

Additionally, the ACCs of Argentina have a flight data position, where an air traffic controller receives and controls FPLs through an AMHS channel.

In 2015, coordination started between the service provider and the operators LATAM Argentina and Aerolíneas Argentinas to study the possibility of using the information digitally produced by the flight planning systems hired by said operators, in the communication systems of the service provider, which produced the FPLs of all planned flights, which were then submitted by the operators in hard copy to the ARO/AIS offices involved.

To this end, coordination meetings were held between the aeronautical authority, ANAC, and the aforementioned actors. Personnel of the service provider and the operator conducted tests in early 2016 using the AMHS channel, with the inclusion of the ARO/AIS units of Aeroparque, Ezeiza and the INDRA automated centre at the EZE ACC.

These tests were successful, and use was extended to all ARO/AIS units in charge of planning the flights of the aforementioned companies.

This procedure permits reception of flight plans by the LIDO or JEPPESEN systems up to 4 hours before, with the advantage that they contain the data of the flight that will be actually conducted, significantly reducing errors in the data contained therein.

It should be noted that the aforementioned provision on FPL processing continues to be applied, and the control function of the ARO/AIS operator is not replaced by the systems hired by the operators.

BRAZIL

At present, Brazil accepts flight plans through the Internet all over the national territory, as established in AIC -. 9N of 15 May 2016 - ENTREGA DE PLANO DE VOO POR MEIO DA INTERNET. In this process, the plan goes through an automated system called SIGMA, which validates the syntax, based on the analysis of the content of each field of the flight plan form (FPL) and in accordance with MCA 100-11- *Preenchimento dos Formulários de Plano de Voo*. It also validates the semantics, which refers to the consistency among FPL boxes, based on the specifications of each flight, such as preferred routes, restricted aerodromes, enabled and activated airspaces, and others.

All this automated process starts with the completion of the flight plan and ends when clicking on the VALIDATE button. If there is any inconsistency, the user will be informed in order to make corrections as needed. Accordingly, Brazil uses an automated system to create the FPLs instead of using the FPL completion form at the AMHS terminals, which are used only as backup in case of communication failure between the application and the SIGMA system.

Under Brazilian regulations, flight plans can also be received by phone, by fax, or in person, at the AIS offices. The AIS operator uses the PLNA module, connected to the SIGMA system, which does the automatic validation of the plans filed through the Internet.

In this process adopted by Brazil, the validated plans are analysed from a flow management perspective (demand vs. capacity) and, if approved, are directly transmitted to the ACCs, which relay them to the TWRs and APPs involved.

Regarding the repetitive flight plan (RPL), Brazil applies this type of procedure for scheduled, charter, and postal flights authorised by ANAC, and is reproduced with the same basic characteristics for at least 10 (ten) flights, for a minimum period of 2 (two) months. RPLs are standardised through ICA 100-11 – Plano de Voo.

A basic requirement for using RPLs is that data must be highly stable, so any changes can be easily made.

The RPL is filed using electronic media, the Internet, and, alternatively, by fax, or in person at the repetitive flight plan centre. Non-repetitive flight data, such as an alternate, range, and number of people on board, shall be sent prior to take-off, by radiotelephone, to the control tower, aerodrome of departure, or aeronautical telecommunication station.

Airlines must request the repetitive flight plan at least ten (10) days before the beginning of each of the periods described below:

- a) from the first to the tenth day of the month;
- b) from the eleventh to the twentieth day of the month; and
- c) from the twenty-first to the last day of each month.

Changes, delays, and temporary cancellations can be made to a flight in a planned RPL series. Permanent modifications that involve the addition of new flights, the deletion or modification of flights, in the RPL lists will be presented in the form of a new flight plan with the same advance notice.

ECUADOR

Based on the implementation of Amendment 1 to the Procedures for air navigation services – Air traffic management (PANS ATM - Doc 4444, 15th edition) of the International Civil Aviation Organization (ICAO), the implementation of new procedures and the content of the flight plan and its associated messages in Ecuador are defined as follows:

Procedures for filing a flight plan

- Flight plans will be physically filed at the AIS-AD room of the air navigation services at the aerodrome of departure.
- Filing of flight plans within Ecuadorian territory through the Internet flight information system (IFIS), whether by the pilot-in-command or his/her authorised representative, based on national technical aeronautical regulations on the filing of flight plans within Ecuadorian territory.
- When the operations office of the aircraft operator at the aerodrome of departure uses e-mail as the means to communicate with the AIS-AD room, the filing of the referential flight plan using this medium will be permitted, after which the original forms shall be filed on the same day, no later than 2300 UTC.
- The filing of the flight plan by telephone will not be accepted, nor its submission by individuals other than the pilot-in-command or his/her duly accredited and authorised representative.

PANAMA

Panama has the THALES ANAIS system for flight plan processing.

In accordance with the AIP of Panama (ENR1.10-1), all users must file a flight plan in accordance with the flight plan format contained in Doc 4444, at least one hour before departure.

The user must notify ATN units of any changes (amendments) to the FPL, on a timely basis.

Users that have dispatch offices with a service capable of linking to the AMHS network shall transmit the FPL to the appropriate ATM units once approved by the authority.

Every AIS-AD unit that receives an FPL will immediately transmit it to the ATM services, addressed to MPZLZQZX and the airports and ACCs involved.

PARAGUAY

The operator files the flight plan in writing to the AIS unit.

The AIS unit transcribes the flight plan, which is addressed and transmitted *via* AMHS.

The flight plan is entered in the AMHS and, in turn, addressed to the automated system through a point-to-point connection to the FDP.

The FDP does the processing and sends the flight plan to the flight plan generation and correction position.

Obs: All flight plans entered in the automated system are sent *via* the AMHS.

PERU

The AIS expert in charge receives the FPL, whether in hard copy, *via* AMHS, mail, fax, or telephone, and analyses and verifies its content.

The AIS expert determines if it is authorised (permit from the DGAC).

The authorisation number is recorded in the FPL.

He/she verifies if aeronautical services have been paid for.

He/she stamps the original and the copies to indicate the office, day, and time when the FPL was received.

He/she transmits the FPL to the ATS units involved, using an FDP station. A user agent (AMHS) will send the FPLs in case of failure of the FDP.

The FDP workstation is part of the INDRA AIRCON 2100 system.

VENEZUELA

Every aircraft that files a domestic or international flight plan, whether civilian, commercial, or military, must complete the physical flight plan format established to that end.

This flight plan must be presented to the appropriate AIS authority or unit, which will validate and authorise the flight plan.

Once the flight plan is authorised, the communications office will arrange for the entry of the flight plan into the AMHS or AFTN system so that it will reach the FDP.

Repetitive flight plans also exist in the automated system of the ACC. These flight plans are the commercial itineraries. However, these flight plans are also received by the AIS office (although not obligatory) and, when processed, generate duplication in the FDP system. Venezuela has incorporated Amendment 1 to Edition 15 of Doc 4444 into its flight plan.

APPENDIX C

GUIDE TO AVOID ERRORS IN FPLs AND ASSOCIATED ATS MESSAGES

1. EFFECTIVE FILING OF FPLs

1.1 An effective and homogeneous air traffic flow through FIR boundaries is achieved, in part, by securing the flight plans, and transmitting, processing, and transferring the associated messages between FIRs in a homogeneous, efficient, and consistent manner.

1.2 The methods and procedures used for filing and/or originating flight plans have a residual effect on the quality of the air traffic services provided. The introduction of duplicated or multiple flight plans, or of flight plans containing erroneous information has a direct impact on flight safety and efficiency within the global airspace system.

1.3 The sources of flight plan errors that have been identified include:

- Lack of quality and consistency in the filing of flight plans
- Inappropriate management in the use of repetitive flight plans (RPLs)
- Utilization of converters to comply with the ICAO 2012 flight plan format due to non-permanent conversion process availability
- Manual entry and processing of FPLs and associated messages

2. DIRECT DELIVERY OF FLIGHT PLAN MESSAGES

2.1. In order to reduce the risk of manual errors, the ANSP, pursuant to Doc 4444, paragraph 11.2.1.1.1, can implement local arrangements to delegate to the operators the responsibility for direct transmission of movement messages *via* the Aeronautical fixed telecommunication network (AFTN) or the air traffic service message handling system (ATS AMHS). Movement messages include FPLs, modification (CHG), delay (DLA), and cancellation of the flight plan.

2.2. If ANSPs have delegated to the airlines the responsibility of originating flight plan messages, then, in accordance with Doc 4444 Appendix 2, page A2-3, part 2.1, airlines will have the responsibility of correctly transmitting the initial FPL, as well as the associated messages to all the ATS units involved, in accordance with Doc 4444, 11.2.1.1.3.

2.3. Before delegating the responsibility for direct filing of flight plan messages, ANSPs must consider conducting a test with new operators, using a central AFTN/AMHS address to receive the messages for an initial manual validation.

2.4. The ANSPs must also specify in local arrangements or in the AIP the deadlines for completing the delivery of movement messages (DLA and CHG) for individual flights, for example, using a time parameter before the estimated off-block time (EOBT).

2.5. It is better to use a CNL and file the FPL again as an alternative to the delivery of multiple modification messages concerning the same FPL or several modifications within the same message.

3. SIMILAR AND MULTIPLE FLIGHT PLAN ERRORS

Similar errors

3.1 Inadequate completion procedures, sending the modified plan to the originator instead of using CHG or DLA, generate similar flight plans for the same flight. This creates confusion among the different ATS units, which will have to select the flight plan (not necessarily the last one considered valid by the airline) to update it with the surveillance information and/or in flight transfer processes.

Multiple errors

3.2 Multiple FPLs are a cause of error when there are 2 different originators of the FPL (whether airlines or ANSPs).

3.3 In order to avoid multiple FPLs in the AFTN/AMHS, airlines will only originate and transmit the FPL if the ANSP has delegated this responsibility in accordance with chapter 2 of this guide.

4. DELAY MESSAGES (DLA)

4.1. The originator will only consider sending the DLA message if the flight is expected to be delayed by more than 30 minutes after the EOBT contained in the previous FPL (refer to Doc 4444, 11.4.2.2.3).

4.2. If the originator does not send a DLA message 30 minutes after the EOBT specified in the FPL, then the FPL will be automatically cancelled.

5. MODIFICATION MESSAGES (CHG)

5.1. If the originator is an airline and needs to send a CHG in less time than that specified in item 2.3 of this guide, then it shall first contact the TWR or the designated ATS unit that will coordinate the proposed changes with the TWR involved.

5.2. Modifications concerning aircraft type and wake turbulence category, cruising speed and/or level shall be notified for each individual flight as soon as possible and no later than 30 minutes after take-off to:

- a) the air traffic services reporting office of the departure aerodrome, and
- b) only if the responsibility for originating the FPL has been delegated as mentioned in paragraph 2.1, the originator of the FPL shall also send the CHG message to the other ATS units considered in the initial FPL.

5.3. If the originator of the FPL wishes to modify the ATS route or the flight level en route, then the CHG message shall contain the whole portion of the route and the different FLs.

5.4. CHG messages shall include a completed field 15, containing the information of the FPL that changes to avoid an incorrect modification.

5.5. If the CHG message has a new ATS route with FIRs that were not considered in the original FPL, then the FPL shall be cancelled with a CNL message and a new FPL sent.

6. AFTN ADDRESSES

6.1 In order to reduce FPL filing discrepancies resulting from incorrect addressing of aeronautical messages, ANSPs must list their AFTN addressing requirements in their aeronautical information publication (AIP). Guidance on the addressing of AFTN messages can also be found in ICAO Annex 10, Volume II, chapter 4, in ICAO Docs 7910 and 8585, and in ICAO regional AFTN routing directories.

7. CENTRAL FLIGHT PLAN PROCESSING UNIT

7.1 ANSPs with multiple ATS centres may consider the installation of a central flight-planning unit for the processing and initial distribution of FPLs. An example of central flight planning is provided in the specifications of the Initial Flight Plan of EUROCONTROL.

7.2 Studies conducted by EUROCONTROL and the European Commission determined that inconsistencies in flight data content in hands of different parties for the processing of the same flight have a negative impact on the efficiency of operations within the European air traffic management system.

7.3 According to the EUROCONTROL website (see the References section), the IFPL specification defines the procedures and requirements for the provision, processing, and distribution of flight plans in the pre-flight phase. Improved consistency in flight plan data has enabled more homogeneous operations, enhanced safety, and has also permitted the definition of the new operational concepts for air traffic flow management (AFTM).

8. PROCEDURES FOR MITIGATING ERRORS

8.1 Appropriate procedures are required for resolving issues derived from messages that are not received. Part of the solution involves ensuring that duplicated or erroneous messages are not fed into the system. For example, if a movement message is received for an unknown FPL, the receiving unit must use the flight plan request message (RQP) to request the FPL from the sending unit instead of creating its own FPL.

8.2 Where the ANSPs provide the possibility of filing FPLs through the Internet, a validation process should be established to prevent the introduction of wrong data from movement messages. NAV CANADA is an example of web-based flight plan filing, using its Collaborative Flight Planning System (CFPA). The application permits direct filing of the flight plan by pilots and/or flight plan filing agencies, and is in full compliance with Flight Plan 2012, verifying errors in full as required by FPL filers in order to correct discrepancies before the flight plan is accepted for processing.

9. REVISION OF STATE REGULATIONS

9.1 The ANSPs are encouraged to cooperate with State regulators in the revision and alignment of existing regulations with emerging technologies. In those cases in which State regulations require that the FPL be delivered personally, together with the electronic FPL, the modification of such regulations may reduce man-induced discrepancies in the filing process.

9.2 If after a revision, State regulations still require operators to personally deliver the filed flight plans, the ANSPs must introduce appropriate quality control measures to reduce the possibility of disparity between electronic and personally delivered FLPs.

10. REPETITIVE FLIGHT PLANS (RPLs)

10.1 The use of the RPL is known to be an important contributor to duplicated flight plans and may result in the provision of less-than-optimal services and erroneous separation by the ANSP.

10.2 The flight plan information contained in the RPL may differ from the actual details considered by the operator for a given day, for example, the type of aircraft to be flown. This type of changes may have an impact on the services provided and on the integrity of the separation or wake turbulence standards applied.

10.3 Consequently, the direct filing of flight plan messages through the AFTN/AMHS must be the method of choice of the operators for filing the flight plan.

11. ALTERNATE AERODROMES

11.1 Some automated ground systems will reject flight plans that do not contain an alternate aerodrome as destination, even if an alternate does not need to be filed for the specific destination. Consequently, some operators file alternate aerodromes where an alternate is not required in order to avoid the rejection of the flight plan, which results in a financial burden, since additional and unnecessary fuel must be carried on board.

11.2 *ICAO Annex 6, Operation of aircraft, Part 2* establishes exceptions to the requirement of filing an alternate aerodrome. The ANSP should make sure that the alternate field is not a mandatory field for automated flight plan processing, especially for flights in transit to a destination in another FIR.

12. DESIGNATION OF DEPARTURE/ARRIVAL PROCEDURES

12.1 The ANSPs should make sure that the name of any published standard instrument departure (SID) or standard instrument arrival (STAR) procedure filed in the flight plan meets the designation requirements of *ICAO Annex 11, Air Traffic Services, Appendix 3*, in order to reduce the number of rejected flight plans.

12.2 The ANSPs should make sure that ATM systems are capable of duly processing filed flight plans that include SIDs and STARs as part of the route.

13. SUPPLEMENTARY FLIGHT PLAN INFORMATION (FPL ITEM 19)

13.1 Supplementary flight plan information should not be considered for transmission for each FPL.

13.2 If, for SAR reasons, this information is required by any ANSP (in accordance with Annex 11, part 5.2.2.1), the sequence for acquiring the information would be as follows:

- a) *via VHF*, requested from the flight crew, if the event is considered by ATC as an appropriate action; or
- b) *by telephone*, contacting the designated 24/7 flight operation/dispatch unit of the airline (specified in the FLP delegation agreement); or
- c) *via the AFTN/AMHS*, from the designated 24/7 flight operation/dispatch unit of the airline (specified in the FLP delegation agreement)

14. CONVERSIONS OF THE ICAO FPL 2012 FORMAT

14.1 During the transition to the ICAO FPL 2012 format, some ANSPs used converters to convert the existing flight plans to the new format.

14.2 The following issues were associated to the continuous use of converters:

- a) The benefits of Amendment 1 are not fully realised; especially, it reduces separation standards associated to performance-based navigation (PBN), and the provision of ADS-B services;
- b) Interoperability in the delivery of AIDC messages would be restricted when using the converter solution.

14.3 Other known issues related to the ICAO FPL 2012 include:

- a) The RVR/ indicator in FPL Item 18. This indicator must be either accepted without processing, or eliminated without rejection by ATM systems;
- b) FPL rejects occur when RMK/unexpected information is entered in Item 18.

14.4 In order to reduce the origin of erroneous messages and maximise the benefits of the new flight plan format, the ANSPs must fully comply with the provisions of ICAO FPL 2012 concerning automation and support systems.

15. FEEDBACK TO THE OPERATOR

15.1 The ANSPs shall consider establishing a reporting mechanism to provide constant feedback to the operators as to the number and causes of rejects and flight plan errors.

15.2 Furthermore, the ANSPs must consider holding periodic user/operator forums to discuss recurrent discrepancies.

16. REFERENCES

- ICAO Annex 6, Operation of aircraft, Part 2 (paragraph 2.2.2.3.5)
- ICAO Annex 10, Aeronautical telecommunications, Volume II, Chapter 4
- ICAO Annex 11, Air traffic services, Chapter 2, Appendix 3 and Appendix 4
- ICAO location indicators (Doc 7910)
- Designators for aircraft operating agencies (Doc 8585)
- ICAO AFTN routing guide, Asia/Pacific Regions, 27th Edition, August 2007
- ICAO PANS ATM (Doc 4444) (paragraph 11.2.1.1.1)

EUROCONTROL IFPL specification:

- <https://www.eurocontrol.int/articles/initial-flight-plan-ifpl-specification>
- <http://www.acac.org.ma/ar/Workshop%20Presentation/IFPS%20in%20Flight%20PlanningV4.pdf>

17. List of acronyms

Abbreviations

ACI	Airports Council International
ADS	Automatic dependent surveillance
ADS-B	Automatic dependent surveillance – Broadcast
ADS-C	Automatic dependent surveillance – Contract
AFTN	Aeronautical fixed telecommunication network
AIDC	ATS interfacility data communication
AIP	Aeronautical information publication
ANSP	Air navigation service provider
AMHS	Air traffic services (ATS) message handling system
APAC	Asia/Pacific
APANPIRG	Asia/Pacific air navigation planning and implementation regional group
ASBU	Aviation system block upgrades
ASIOACG	Arabian Sea/Indian Ocean ATS coordination group
ATFM	Air traffic flow management
ATM	Air traffic management
ATS	Air traffic service(s)
AUSEP	Australian air navigation operations
CHG	Modification
CNL	Flight plan cancellation message
CPDLC	Controller-pilot data link communications
CPL	Current flight plan
DARP	Dynamic air route planning
DLA	Delay message
EOBT	Estimated off-block time
FAA	United States Federal Aviation Administration
FIR	Flight information region
FIRBX	FIR boundary crossing
FPL	Filed flight plan
GANP	Global air navigation plan
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IFPL	Specification for the initial flight plan (EUROCONTROL)
ISPACG	Informal South Pacific Air Traffic Services Co-ordinating Group
LOA	Letter of agreement
RPL	Repetitive flight plan
RQP	Request flight plan
SID	Standard instrument departure
SMS	Safety management system
STAR	Standard instrument arrival
UPR	User preferred route

APPENDIX D**RECOMMENDATIONS TO MITIGATE FLIGHT PLAN GENERATION ERRORS**

- Train and inform all ARO/AIS personnel on the importance of the flight plan in the AIDC coordination process and ATS systems.
- Review the databases of automated systems, which should be in accordance with the amendments published in each AIP.
- Perform the proper addressing of the flight plans to automated control centres, listing AFTN addressing requirements in the aeronautical information publication (AIP).
- Conduct a complete analysis to determine if the existing automated ATM systems comply with flight plan 2012, especially with regards to the correlation between Items 10 and 18.
- Establish letters of agreement with the operators for the filing of repetitive flight plans (RPLs) for their proper processing and transmission.
- Establish a reporting mechanism to give feedback to operators on the number and cause of flight plan rejects and errors, prior to the establishment of agreements or direct delivery of FPLs to the ARO/AIS office.
- Use as a reference the procedures applied in Brazil and Lima for repetitive flight plans (RPLs) that are properly processed and transmitted, avoiding errors in the distribution to automated systems. These procedures are based on letters of agreement with the airlines, which must strictly follow the established procedures.
- Conduct an analysis in each unit to see the feasibility of concentrating flight data in flight plan distribution centres, based on available systems.
- If air navigation service providers offer the capability of filing FPLs *via* Internet, a validation process shall be implemented to prevent the introduction of inaccurate movement message data.
- Before delegating the responsibility for direct filing of flight plan messages, air navigation service providers must consider conducting a trial with the new operators, the ARO/AIS office, using a central AFTN/AMHS address for receiving messages for initial manual validation.
- Report to the representatives of aircraft operators and IATA at the next SAMI/IG meeting (SAM/IG/18) those aspects involved in the filing of an erroneous flight plan, which disrupt the AIDC coordination process.
