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WORKING PAPER

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NAM/CAR Air Traffic Services Inter-facility Data Communication (AIDC) and North American Interface Control Document (NAM/ICD) Implementation Follow-up Meeting (AIDC/NAM/ICD)
Mexico City, Mexico, from 8 to 11 April 2019

Agenda Item 4: Analysis of the availability and errors of flight plans in the NAM/CAR/SAM Regions

USING FLIGHT PLANNING AUTOMATION TO RESPOND TO FILED FLIGHT PLANS TO ACHIEVE QUALITY CONTROL IMPROVEMENTS IN THE NORTH AMERICAN, CENTRAL AMERICAN AND CARIBBEAN REGION

(Presented by the United States)

EXECUTIVE SUMMARY

This working paper and accompanying presentation provides information regarding the need to improve the quality of flight plan data through verification of filed flight plans back to the filer. The product of the regional ATC flight data systems is relayed through the enroute, oceanic and terminal Interfacility Data Communications systems in support of domestic and international airspace flight.

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| Action: | Suggested actions are presented in Section 4. |
| <i>Strategic Objectives:</i> | <ul style="list-style-type: none">• Safety• Air Navigation Capacity and Efficiency |
| <i>References:</i> | <ul style="list-style-type: none">• ICAO Doc 4444 |

1. Introduction

1.1 A communications and data interchange infrastructure significantly reduces the need for verbal coordination between Air Traffic Service Units (ATSUs). ATS Interfacility Data Communications (AIDC), or similar automation and can provide the means by which automated data exchange will be harmonized between ATSUs providing air traffic service and Flight Information Regions (FIR).

1.2 The United States (U.S.) implemented a flight plan response system back to registered Aeronautical Fixed Telecommunication Network (AFTN) flight plan filers, providing acceptance or rejection to the address or a designated other address. The accompanying presentation provides how the US responds to airline and other filers both domestically and internationally. The US has provided this service for over ten years.

1.3 The impetus of the automation requirement systems from the increasing traffic levels transiting between FIRs in many regions upgrading systems.

1.4 Within these efforts the acceptance of flight plan data which travels through the interfaced systems are often thought of in an ancillary manner since error checks are built into the processing of integrated systems. Data efficiency and integrity issues may be very far removed from the controller display and the cockpit, but these end users are dependent on the acceptance of flight plan filers and the accuracy of this filed critical information.

1.5 The U.S. and North American Common Coordination Interface Control Document (NAM ICD) member states have realized automation gains that provide significant safety and efficiency benefits. While the implementation of the automated data exchange capability provides significant benefits to the controller, there is one area of concern that potentially touches many regions. This issue depends on the quality of the flight plans being filed and the continuity of the data which follows a flight through international ATC systems.

1.6 Automated flight plan acknowledgement is intertwined with quality control. Flight plans received before the system was automated were processed manually. When flight plans are received by automation systems they are much less forgiving of format, syntax and errors which could be absorbed within a manual system. Many errors in filed flight plans which may have gone undetected for years within a manual system are now a challenge within automation. When filed information is in conflict from different flight plan versions, it requires manual intervention and correction else it erodes the benefits of automation.

2 Discussion

2.1 The first FPL Monitoring Group, formed out of the North American, Central American and Caribbean (NAAC) Air Traffic Services (ATS) AIDC Task Force, was assigned with implementing a Quality Improvement Initiative in March 2012 in response to a proliferation of flight plan errors and conflicting data which impacted safety of flight and integrity of flight data being introduced into interfaced ATC systems. The scope of the issue is currently recognized within the FPL Monitoring Group but perhaps demands a wider scope. The front end of the flight planning process provides a flight plan to the point of origin and along the route of flight to destination. Adopting the accept/reject automated flight plan capability to the filer is a key component of flight planning quality control. Without accept/reject a flight plan which may be unacceptable to route of Flight Information Regions may be unknown to the filer. The risk associated the adverse impact on quality of the data being input and processed by international ATC automation systems can nullify many of the benefits associated with automating.

2.2 Benefits include:

- Assurance to filers of flight plan on file
- Provides feedback to assist filers in correcting errors
- Incentivizes proper format and current routes
- Reduced workload on controllers because there is a flight plan on file
- Adapting a secondary address for the response message provides flexibility
- Responses can be sent to multiple addresses

2.3 The goal of FPL Monitoring Group is currently localized within the NACC but similar efforts within other regions including the South American Region serve to provide awareness and a more unified effort in identifying flight planning errors, correcting those errors at the source and mitigating the impact of problems associated with multiple flight plan submission. These problems span regions and solutions must also have like influence.

2.4 It is believed that the accept/reject capability provides a major benefit to the filers and receivers of the flight plans. The filers receive confirmation of FPL acceptance and the receivers are provided a better flight plan as errors.

2.5 The increasing traffic demand between Flight Information Regions (FIR) drives the need to improve efficiency and maintain the accuracy for the ATC providers. Developing harmonized processes within the AFTN and defining protocols for exchanging data between multiple States/Territories/International Organizations within and across regions is critical to achieving efficiency through automation. Neither the North American Interface Control Document for Common Coordination Data Communications (NAM ICD) between ATS Units in the Caribbean nor the data set for acknowledgement/rejection for FPLs was developed by ICAO. The Acknowledgment (ACK) and Rejection (REJ) fits well underneath the umbrella of the AIDC Task Force and the FPL Monitoring Group.

3 Conclusion

3.1 Currently the analysis of flight plans by ATC systems provides internal feedback to the users whom it serves but does not provide a response to those who filed the flight plan. Coupling automated detection of errors with regional standardization for the filer will serve the users well as implemented responses back to airlines, and flight plan filers provide a consistent and correct pass through the region.

3.2 Note the information presented in this paper and consider an automated initiative to examine data being processed within those ATC systems which consistently examines flight plan data with the intent of identifying the need for quality assurance. International flight plan filers are accustomed to the format and messaging of the US positive verification responses provided by ERAM and is a standard which users of the system have employed for years. In receiving ACKs, REJs with processing errors identified, airlines, flight planning services, ANSPs and flight planners within the NACC are provided a capability by which users may migrate to the single flight, single flight plan concept promoted by the region.

4. Suggested actions

4.1 The meeting is invited to:

- a) encourage individual NACC States to consider the current automated flight plan message verification and feedback system of acceptance and rejection of filed flight plans that has been implemented by the U. S. and other regional member states.
- b) Enhancement of NACC Regional quality control initiatives taking advantage of the flight planning tool that provides great benefit to the filer and the receiving facility for successful automation implementation.
