International Civil Aviation Organization
North American, Central American and Caribbean Office

WORKING PAPER

ANI/WG/5 — WP/ 04
16/05/19

Fifth NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG/5)
Mexico City, Mexico, 27 to 31 May, 2019

Agenda Item 3: Global and Regional Air Navigation Developments
3.3 Other Global and Regional Air Navigation developments

IMPLEMENTATION OF AUTOMATIZED PROTOCOLS IN NAM/CAR REGIONS

(Presented by the Secretariat)

EXECUTIVE SUMMARY	
This Working paper present a summary of the discussions, decisions and conclusions carried out in the NAM/CAR Air Traffic Services Inter-facility Data Communication (AIDC) and North American Interface Control Document (NAM/IDC) Implementation Follow-up Meeting (AIDC/NAM/ICD), held in Mexico City from 8 to 11 April 2019.	
Action:	Suggested actions are presented in Section 3.
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Environmental Protection
References:	• NAM/CAR Air Traffic Services Inter-facility Data Communication (AIDC) and North American Interface Control Document (NAM/IDC) Implementation Follow-up Meeting (AIDC/NAM/ICD) final report.

1. Introduction

1.1 The NAM/CAR Air Traffic Services Inter-facility Data Communication (AIDC) and North American Interface Control Document (NAM/IDC) Implementation Follow-up Meeting (AIDC/NAM/ICD) discussed on the most important factors that States must take into account to carry out a successful implementation of automatized protocols, and the way to face the issue related with the implementation and operation of the protocols (NAM/ICD and AIDC) presented by the States that have been working in this implementation in the last years.

1.2 In this regard, it was recommended to the States to take into account the lesson learnt importation and the generated knowledge by the most experienced States and Organizations in the implementation, such as Cuba, Mexico, United States and COCESNA, as well as the industry recommendations when developing terms of reference of their systems, improving clarity and specifications of their requirements and their personalization, including clear requirements of the operations with adjacent States. The States were also invited to work closely with the adjacent States to boost the standardization and make the connection of its automated channels in shorter times.

2. Analysis of the results of the meeting

2.1 The AIDC/NAM/ICD Meeting also agreed a series of decisions/conclusions that will be developed independently by some States that committed to its realization, and by the AIDC/FPL Task Force. The Meeting also found the necessity of sharing with the other ANI/WG groups some of the requirements in the development of activities related to their expertise.

2.2 Taking into account the regional strategic objectives, the necessity to homologate the infrastructure, to boost AIDC and NAM/ICD connections that will serve to support the PBN implementation and increase by this the efficiency of our air space, the commitment of the States is necessary in:

1. The States that are in the process of developing aeronautical projects, to include detailed requirements, operative and technical, of their systems, and detailed requirements for the connection with adjacent States.
2. The States that are in protocol implementation process, to take advantage of the experience and knowledge of those States that already finished that process.
3. The States that have implemented the NAM/ICD initial phase, to promote the phases II and III implementation.

2.3 In this regard, the ICAO NACC Regional Office proposes to measure the implementation of the AIDC and NAM/ICD protocols by State, taking into account the following information:

1. Number of necessary connections per each State.
2. In the case of the NAM/ICD protocol implementation, it will be considered 100% implemented when completing the three implementation phases.
3. In the case of the AIDC/PAC protocols, it will be considered 100% implemented when the connections are operated completely automatized, without any alternate mechanism. The **Appendix A** to this Working Paper shows an example of the measurements of the implementation and the ICAO NACC Regional Office will update the regional air navigation objectives accordingly with these goals (https://www.icao.int/NACC/Pages/Implementation-Targets.aspx).

2.4 The Secretariat presented its considerations regarding the radar data sharing, due that the redundant radar coverage is an essential requirement of the automatized protocols. On this regard the **Appendix B** to this Working Paper proposes a draft that can be used as base for the States to develop their agreements for sharing surveillance data.

2.5 The Secretariat invites to discuss the proposal of the AIDC/FPL Task Force leaded by Dominican Republic to include shared tasks between the different task forces that are part of the ANI/WG in order to work jointly in the standardization of the region and to reach the regional objectives in less time.

3. Suggested actions

3.1 The Meeting is invited to:

a) approve the presented proposals in this Working Paper;
b) approve the regional measurement mechanisms for the implementation of the NAM/ICD and AIDC protocols;
c) approve the use of the proposed document by the Secretariat as the base for the regional agreements for surveillance data sharing; and
d) support the proposed actions of the AIDC/FPL Task Force to boost a successful AIDC and NAM/ICD implementation.

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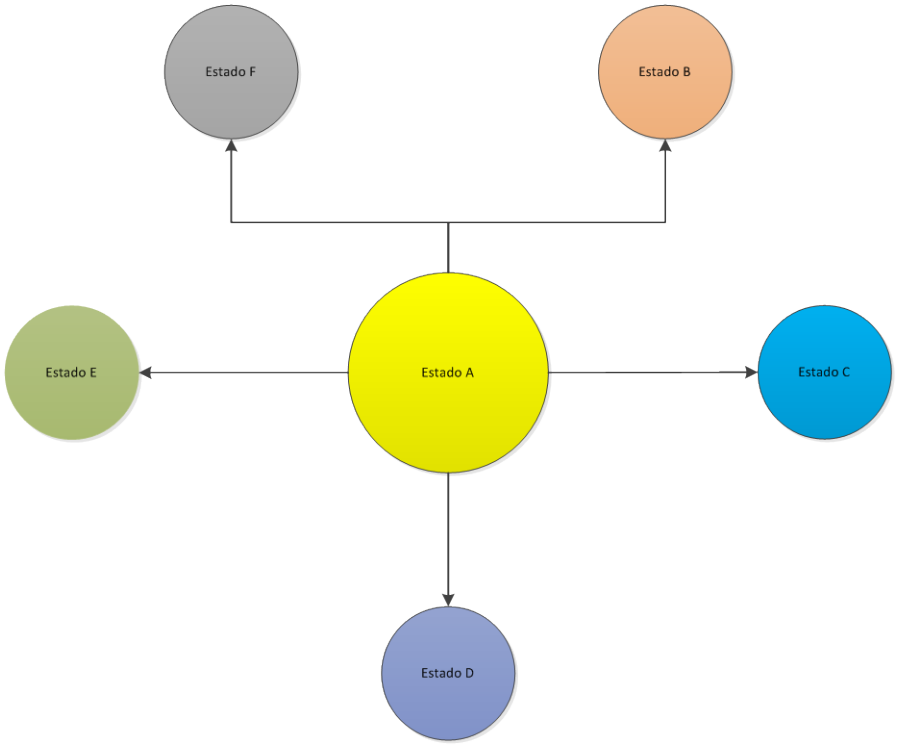
APPENDIX A



Connections	Protocol	Implementation Status	Phase I	Phase II	Phase III	All Phases	Implementation Percentage of the canal
State B	AIDC/PAC	Operational	N/A	N/A	N/A	100%	100%
State C	NAM/ICD	Phase I Operating	33%	0%	0%	33%	33%
State D	NAM/ICD	Phase II Operating	33%	33%	0%	66%	66%
State E	ASIA/PAC	In Trial	N/A	N/A	N/A	0%	0
State F	ASIC/PAC	Operating with confirmation of an alternate mechanism	N/A	N/A	N/A	50%	50%
Total Implementation Percentage by State A							**62%**

100%	25%
33%	8.25%
66%	16.50%
0%	0%
50%	12.5%

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APPENDIX B

RADAR DATA EXCHANGE AGREEMENT BETWEEN [ ] AND [ ]

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Contents

1. Background
2. 2.
3.

Background

This section provides a brief description of each of the services and features of the States involved.

On the other hand, conclusion 10/33 of the Tenth GREPECAS Meeting of the International Civil Aviation Organization (ICAO), offers the following guidelines and considerations for the exchange of radar data between institutions and member states in the same: in compliance with the regional guidance on radar data exchange in the CAR/SAM Regions, and ICAO Standards and Recommended Practices (SARPs).

Radar data sharing between States supports: a) the implementation of the AIDC/PAC and NAM/ICD automation protocols of the NAM/CAR region, b) promotes safety, and c) supports operational and contingency procedures.

Taking into account the benefit of sharing surveillance data, and States agree to implement the exchange of radar information, among other aspects, in accordance with the following clauses.

Clause 1: Establishment of the agreement

State through the (It can be GDCA, CAA or any other responsible organization) and State through the (It can be GDCA, CAA or any other responsible organization) agree to carry out the exchange of radar data information among the radars under their charge in order to improve the availability of radar data coverage in the State air space under their corresponding responsibility, according to the radar coverage diagrams stipulated in Annex A of this document.

and States also agree to implement all those actions that allow the quality improvement of air navigation services provided by their States by integrating the data onto their respective air control centres of the radars stipulated in Annex B of this document.

Clause 2: Criteria for the use of data

and **States** commit to make use of the data stipulated in this agreement to:

1. Support air traffic control services.

2. Make the respective confidentiality agreements between the States so that the data is not relayed to third parties. In addition, States undertake:

a) Not to transfer (give away, lend, rent, sell or other type of transfer) or allow in any way the use of the information in question by third parties.
b) Not to initiate actions that could damage the interests of the programs and applications.
c) Not to use the information for purposes and activities different from those defined in this document.

3. Each State will be responsible for the hardware and software necessary for the integration and visualization in their own Air traffic surveillance system respectively.

4. Each State undertakes to deliver the Information according to the technical parameters stipulated in Annex B of this document.

5. States shall maintain all the intellectual property rights of the programs and applications that operate in the respective data delivery system.

6. The delivery of radar data information will be done through the means established in Annex C of this document.

Clause 3: Operational Agreements

1. Both parties shall inform of any updates made to the radar detection systems that are of operational interest for the control of air traffic in the airspace under their respective responsibility.

2. The parties agree to meet as many times as necessary to jointly review the work program and analyse possible changes or new procedures or requirements.

This space can include the operational agreements and coordination letter agreements, if applicable.

Clause 4: Operational and Technical procedures

States will coordinate and apply technical and operational procedures that ensure the correct communication among States in order to ensure the correct and continuous exchange of radar data:

1. Implement communication mechanisms that allow interested parties to know the status of the operation of their radar systems.

2. Implement mechanisms to coordinate system maintenance and lack of data in specific periods.

3. Implement mechanisms that ensure the quality of the data. Annex D of this document provides the initial technical and operational data by signing this agreement.

Clause 4: Improvement and analysis of data

Fifth

Procedures for improvement and analysis of information:

1. The State must ensure and stipulate the mechanisms implemented to analyse the data and to continuously verify the information received.

2. Mechanisms to ensure the detection of faults and the coordination procedures to solve them.

3. Implementation of operational procedures that indicate the steps to follow if the reception of the information is interrupted.

States must ensure continuous monitoring of the information received and develop the necessary mechanisms for the continuous improvement of their operations.

Clause 5: Responsibility for the use of the Data.

States must define the responsibility of each State, both for sharing the data and for the use that the State that receives it and gives to it.

Clause 6: Termination of the agreement

The following are grounds for termination of this agreement:

1. By mutual agreement of both parties.
2. For non-compliance with the conditions expressed in the same.
3. Unilaterally, as long as the other party is notified at least 60 days in advance.

Clause 8: Discrepancies

Discrepancies

and States declare by means of this "Agreement" made through their organizations and , that they have the power to enter into this agreement under the laws of their States, which enables them to establish the present agreement of

Clause 9: Validity of the Agreement

Validity of the Agreement

Ninth

Signatories of the Agreement.

State A	State B

	Usually, contact information of the representatives authorized by law to sign the current agreement is included here.

State 1

Director xxxxx

Director xxx

ANNEX A

Radars Information

1. Manufacturer information
2. Radar technical data
3. Technical information of the protocols used by the radar to export data
4. Characteristics of the physical location of the radar
5. Radar coverage diagrams at different levels.

Annex B

1. Each State indicates the Technical Information of the Control Center in which the radar signal will be integrated
2. Technical specifications
3. Air navigation services provided
4. Improvements to their services with the implementation of a new radar signal.

Important: It is important that State A performs a technical/operational analysis of the information provided in Annex A.

Annex C

Media.

- Establish the means of communication that will be established for sending and receiving data
- Teams involved
- Block diagrams and the systems involved
- Diagramas de bloque e los sistemas que intervienen
- Declare the necessary mechanisms to establish coordination in case communication signals fail.
- Other matters.

Annex D

Procedures to ensure the quality of the information.

1. Mechanisms for data monitoring
2. Periodical review of data integration
3. Others

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