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

WORKING PAPER

AIDC/TF/2 — WP/06
19/02/15

Second NAM/CAR Air Navigation Implementation Working Group Meeting (ANI/WG) Air Traffic Services Inter-facility Data Communication (AIDC) Task Force (AIDC/TF/2) Meeting
Mexico City, Mexico, 27 February 2015

Agenda Item 3 Implementation issues discussion
3.4 Mexico – USA implementation of AIDC

UNITED STATES AIDC INTERFACE AND IMPLEMENTATION UPDATE

(Presented by United States)

EXECUTIVE SUMMARY

Operations across international boundaries can be based on domestic en route radar separation procedures, as is the case along most of the United States border with Canada, Mexico, Cuba and the Caribbean. Oceanic operations within international airspace and international boundaries can be based on non-radar/procedural or Automatic Dependent Surveillance (ADS) separation, such as the oceanic operations at New York, Oakland and Anchorage ARTCCs. This paper and presentation updates the ongoing interface activities between the United States and adjacent ANSPs.

Action:	Request the meeting membership use the provided information to guide future AIDC Automated Data Exchange interface activities to include those goals outlined in the NAM/CAR Regional Performance-Based Air Navigation Implementation Plan.
Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency • Environmental Protection
References:	• Air Traffic Service (ATS) Interfacility Data Communications (AIDC), North American Common Coordination Interface Control Document (NAM ICD) • Pan Regional Interface Control Document (PAN ICD) for ATS Interfacility Data Communications (AIDC) • Doc. 4444 - *ATM — Air Traffic Management.*

1. Introduction

1.1 The AIDC application supports information exchanges between ATC application processes within automated ATS systems located at different ATSUs, as defined in PANS-ATM, Appendix 6. The United States uses both Air Traffic Service (ATS) Interfacility Data Communications (AIDC), North American Common Coordination Interface Control Document (NAM ICD) and the Pan Regional Interface Control Document (PAN ICD) for ATS Interfacility Data Communications (AIDC) based applications to support the Notification, Coordination, and Transfer of Control of automated data exchange functions between ATSUs in both the domestic and oceanic environments.

2. Discussion

2.1 The flight plan data interface provides interoperability among automated systems allowing data exchange between ATSUs that are harmonized to a common standard. The United States, Canada and Mexico created the North American Common Coordination Interface Control Document (NAM ICD) based on a 1998 Tri-lateral agreement using ICAO 4444 and AIDC messaging protocol. The NAM functionality is more adept at supporting radar and mixed domestic transition environments than the traditional AIDC message set which is more attuned to procedural oceanic operations where more controller interaction is required. In most NAM interoperability environments, radar/surveillance is the operational norm and non-radar/procedural the exception where in many traditional AIDC interfaces the opposite is true. Both the NAM and traditional AIDC protocols support the defined notification, coordination and the transfer of communications and control functions to different degrees between Air Traffic Service Units (ATSU). Full AIDC capability also supports extended equipment user capabilities such as ADS-C and CPDLC and employs time and distance based operations where different separation minima are being used in adjacent airspace. The NAM ICD has included automated radar handoff messaging and radar Point Out definitions within the document as a future goal of cross-border functionality evolution.

3. Conclusion

3.1 The attached presentation provides an update to US AIDC automated interface activities within the region and North America.

4. Action by the Meeting

4.1 The NACC AIDC Task Force is invited to.

a) note the content of this paper;

b) critically examine the ANSPs which utilize and plan to implement ATC interfaces;

c) work in a collaborative manner to provide the requisite expertise to plan for and implement regional AIDC interfaces

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APPENDIX

United States AIDC Interface and Implementation Update

Federal Aviation Administration

Presented To: NACC
By: Dan Eaves, FAA En Route Requirements & Validation
Date: Feb 2015

Introduction

- The FAA provides air navigation services to over 29 million miles of domestic and international airspace with approximately 43 million aircraft handled annually.
- Operations across international boundaries can be based on domestic en route radar separation procedures, as is the case along most of the U.S. border with Canada, Mexico, Cuba and the Caribbean.
- Oceanic operations within international airspace and international boundaries can be based on non-radar procedural or Automatic Dependent Surveillance (ADS) separation, such as the oceanic operations at New York, Oakland and Anchorage Center.

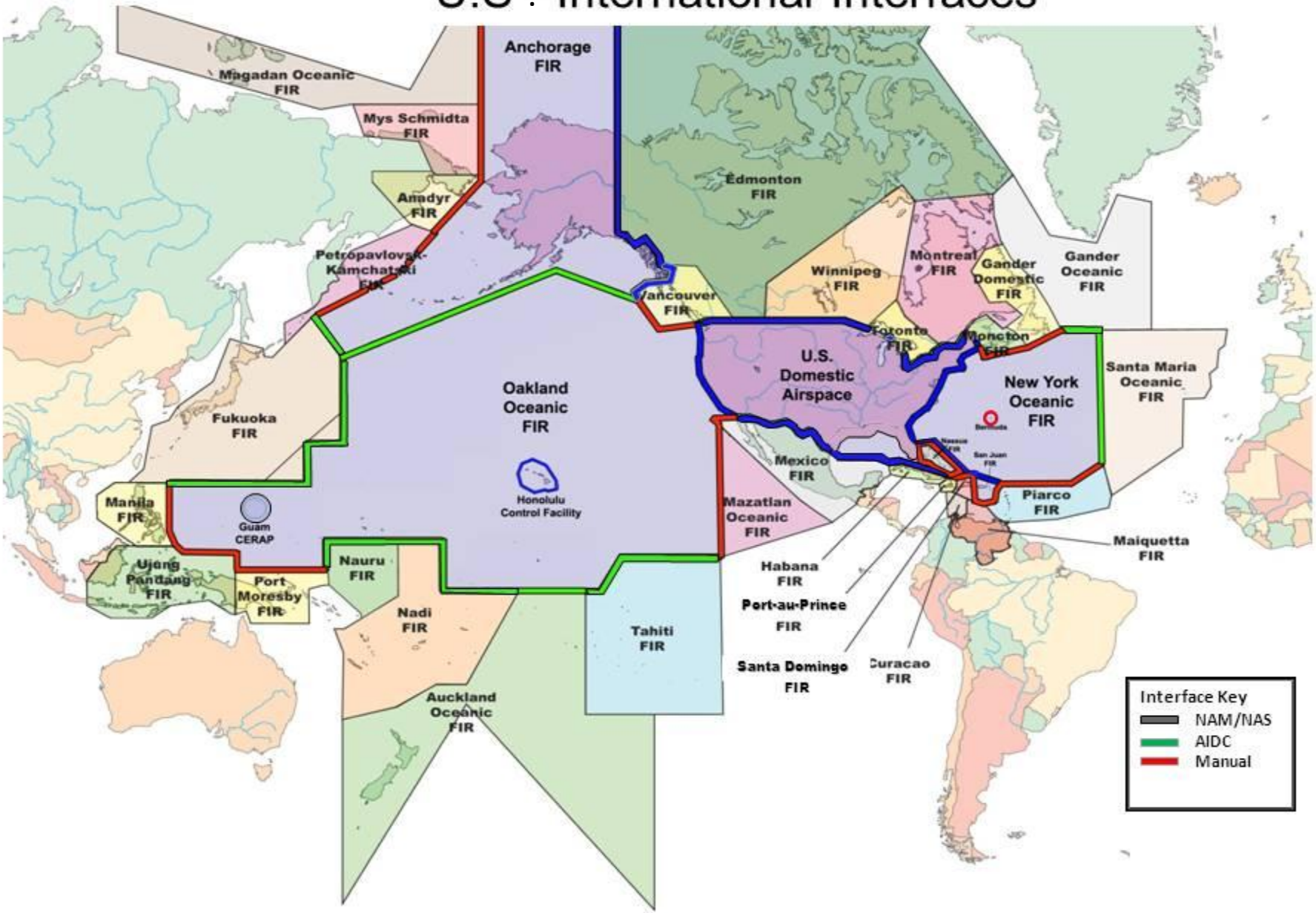
Harmonization is the Automation Goal

- Support for bilateral solutions & user collaboration needed to ensure automation compatibility as interface systems evolve
- Solutions must provide extensible compatibility with our North American & international neighbors
- Goal is to extend operational efficiencies through contiguous computer-to-computer coordination across country and system boundaries
- Direct benefit on our collective ability to integrate new technologies by providing ‘automation buyback’ for new controller tasks

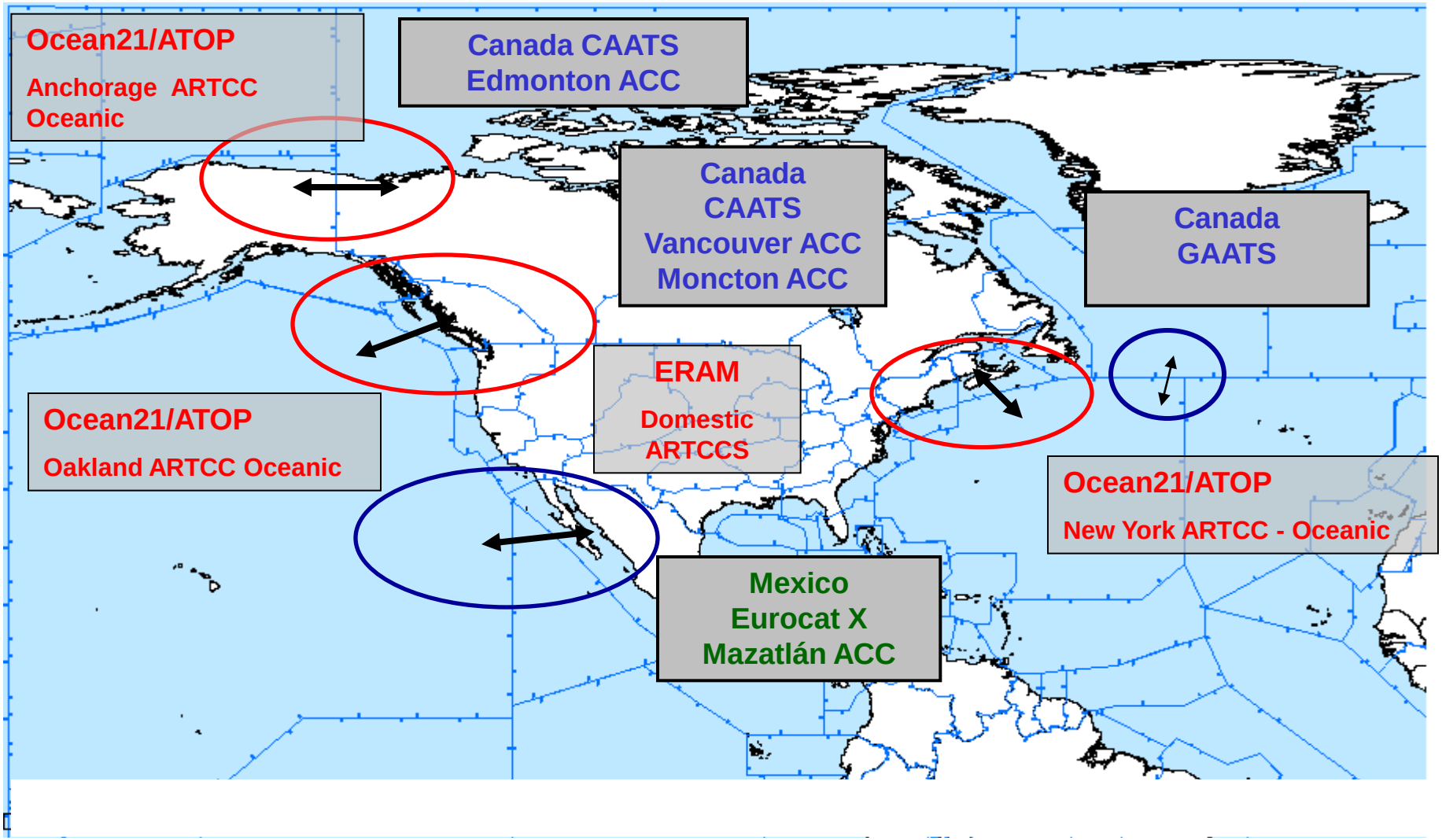
Automation Infrastructure

- Air Traffic Service (ATS) Interfacility Data Communications (AIDC), North American Common Coordination Interface Control Document (NAM ICD) and the custom NAS protocols provide the means for automated data exchange both domestically and internationally.
  - AIDC
  - NAM
  - NAS
- These three protocol sets utilize the contiguous automation infrastructure for ATS automated data exchange between adjacent FIRs.
- A communications and data interchange infrastructure significantly reduces the need for verbal coordination between Air Traffic Service Units (ATSUs) delivering more efficient and streamlined services.

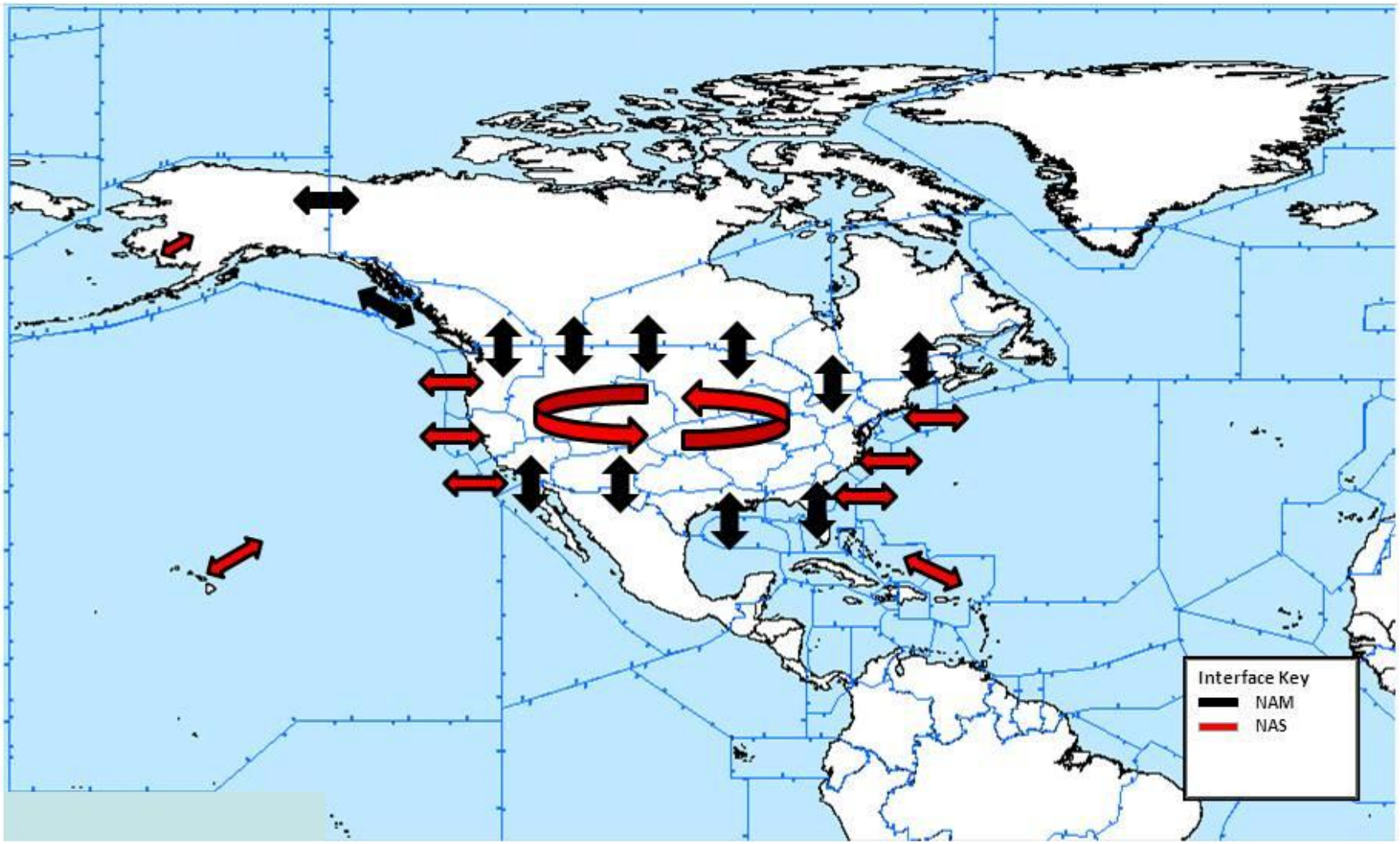
U.S - International Interfaces



Current Initiatives
En Route/Oceanic Systems

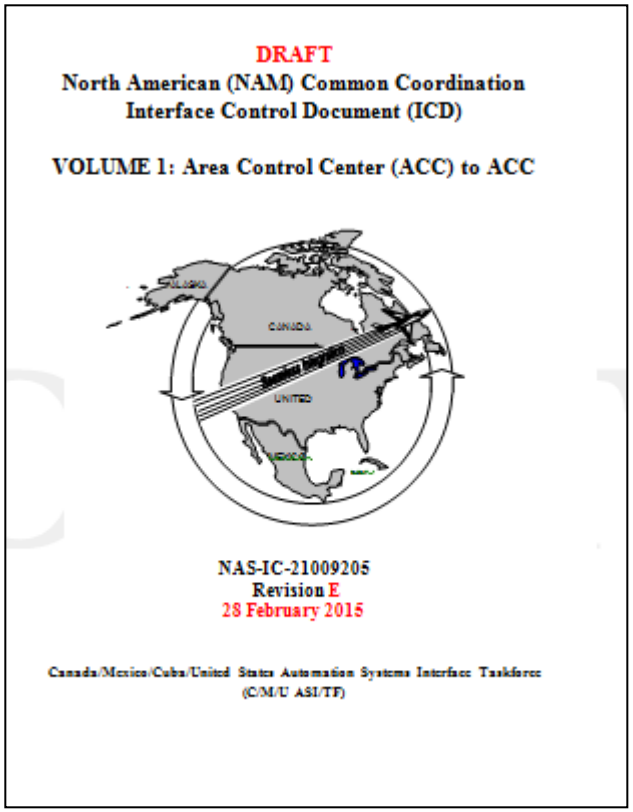


North American NAS/NAM Interfaces



Pending Canada – US NAM ICD Interfaces

- Oakland Oceanic - Vancouver ACC
  - Testing Complete
  - Operational Implementation Pending March 2015
- Anchorage Oceanic - Edmonton ACC
  - Testing Complete
  - Re-sectorization and implementation planned May- June 2015
- New York Oceanic – Moncton ACC
  - After Oakland Implementation -2015


DRAFT
North American (NAM) Common Coordination Interface Control Document (ICD)

VOLUME 1: Area Control Center (ACC) to ACC

NAS-IC-21009205
Revision E
28 February 2015

Canada/Mexico/Cuba/United States Automation Systems Interface Taskforce (C/M/U ASI/TF)

Pending AIDC Interfaces

- US - Mexico
- Oakland Oceanic – Mazatlán ACC
  - Tech Center Testing Complete
  - Operational Implementation Pending

- US – Canada
- New York Oceanic – Gander ACC
  - Full AIDC Message Implementation
  - Currently operational on basic messaging

AIDC vs NAM and Automated Data Exchange Procedural Vs Surveillance

- The AIDC functionality described in the **PAN ICD provides the needed guidance for procedural or non-radar messaging, coordination** and system non-radar functionality as is used in oceanic operations.
- The **NAM ICD is currently used in mostly domestic operations and within radar/surveillance coverage** and domestic/oceanic transition areas. Many times operations do not fit neatly into one or the other category. Many systems today will allow interface protocols to be tailored to a particular interface; NAM or AIDC.
  - It can be confusing when these primarily domestic environments are referred to as AIDC.
- A full set of messages may not be needed to achieve automated flight data exchange for a particular interface. Scalable interfaces which can support incremental levels of capabilities using a reduced set of interface messages provides for tremendous implementation flexibility.
- A **strategy which allows achieving benefits of the interface** while keeping the amount of ATC and technical training to a manageable size can be a project saviour.
  - A training regimen which could be overwhelming with a full interface implementation can be integrated into manageable phases
  - Additionally, the incremental approach provides the opportunity to learn the system after implementation making subsequent informed decisions based on operational need.
  - Both NAM and AIDC have been used in reduced message set implementations. Improper interface selection during the interface planning phase can cause issues which may prevent an interface from being implemented.

ICAO 4444 Coordination Environments
NAM ICD and AIDC

- ATC procedures vary significantly, depending on the surveillance capabilities of the coordinating ATS units in a given boundary environment. For the purpose of ICAO 4444 Appendix 6, the coordination environments are identified as **either surveillance or procedural**.
  In some instances the same type of message may require the inclusion of different or additional data to accommodate the demands of differing environments. Depending on the environment, the timing of the transmission of these messages may also vary. The environment may also affect whether the AIDC message is automatically processed, or displayed to the controller for manual processing.

- A **procedural environment** exists in those areas where surveillance coordination procedures are not available because at least one of the coordinating ATS units does not have a surveillance capability, or the surveillance capabilities differ. For example, surveillance in oceanic and remote areas is often achieved with ADS-C, CPDLC voice position reports; in such areas, coordination procedures differ from those used in a surveillance environment.
- A **surveillance environment** is an environment where an ATS surveillance system is in use, and allows controllers to positively identify the traffic. Radar and/or ADS-B are available to the controllers at sector positions on both sides of a common boundary, and traffic is identified by information presented on a situation display. Such facilities permit surveillance coordination procedures to be used.

Oakland Oceanic – Mazatlán ACC Pending Interface

Oakland Oceanic – Mazatlán ACC Pending Interface

- AIDC Messages
  - ABI – Advanced Boundary Information
  - EST – Coordination Estimate
  - ACP – Acceptance
  - REJ – Rejection
  - MAC - Cancellation of Notification and/or Coordination
  - LAM - Logical Acceptance Message

Oakland Oceanic – Mazatlán ACC
Draft Letter of Agreement (LOA)

Oakland Air Route Traffic Control Center (ARTCC) and
Mazatlan Area Control Center (ACC)

LETTER OF AGREEMENT

EFFECTIVE: **To Be Determined**

SUBJECT: Inter-facility Coordination

1. PURPOSE: This Letter of Agreement (LOA) details separation standards, flight level assignment and coordination procedures between Oakland ARTCC and Mazatlan ACC.

2. CANCELLATION: The LOA between Mazatlan ACC and Oakland ARTCC dated January 20, 2005 is cancelled.

3. SCOPE: The procedures contained in this operational letter of agreement supplement or detail those prescribed by ICAO Annexes 2, 10, and 11; PANS-RAC Document 4444; Regional Supplementary Procedures Document 7030; and local Aeronautical Information Publication (AIP) and ATS instructions.

4. DEVIATION: In the event of unusual circumstances, duty watch supervisors at Oakland ARTCC and Mazatlan ACC may, by mutual consent, modify the content of this letter of agreement on a real-time basis, for specific periods.

5. PROCEDURES:

Oakland Oceanic – Mazatlán ACC LOA

RVSM airspace.

(c) Approval for a non-RVSM aircraft to operate in the RVSM airspace only means being able to operate in the RVSM stratum and the aircraft's cruising level will still be subject to accepting facility's approval.

(5) Suspension of RVSM:

(a) The affected facility shall coordinate the suspension of RVSM with the transferring facility in advance.

(b) Whenever suspension of RVSM is declared by the affected facility, Oakland ARTCC and Mazatlan ACC shall provide 2000-foot separation in the affected area.

b. Longitudinal Separation. At the transfer of control point (TCP), the minimum longitudinal time separation of fifteen (15) minutes shall be applied unless Mach number technique is being utilized, at which time the minimum longitudinal separation may be reduced to ten (10) minutes provided that the aircraft follow the same route of flight crossing the common boundary

c. Lateral Separation. The Standard lateral separation minimum is 100NM.

d. Transfer of Control.

(1) The transfer of control point (TCP) shall be the common Flight Information Region (FIR) boundary, which shall also be the point of acceptance of primary communication guard and the point of assuming responsibility of alerting services.

(2) ATS Inter-facility Data Communications (AIDC) Coordination.

(a) AIDC shall be used as the primary means of transferring flight plan information, when operational.

1. An ABI message must be sent at least 60 minutes prior to the time the flight is estimated to enter the receiving control center's FIR.

2. A EST message must be sent at least 30 minutes prior to the time the flight is estimated to enter the receiving control center's FIR.

3. After the initial EST message is sent, a CDN message will be used to amend previously transmitted information; e.g., any revised TCP estimate that varies by 3 minutes or more, change in altitude or route of flight, etc.

4. An ACP message indicates controller approval for the aircraft to enter the receiving facility's airspace at the conditions specified in the EST or CDN message. This includes Non-Standard or Block altitudes, or any other items detailed in the transfer message.

Oakland Oceanic – Mazatlán ACC LOA

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3. After the initial EST message is sent, a CDN message will be used to amend previously transmitted information; e.g., any revised TCP estimate that varies by 3 minutes or more, change in altitude or route of flight, etc.

4. An ACP message indicates controller approval for the aircraft to enter the receiving facility's airspace at the conditions specified in the EST or CDN message. This includes Non-Standard or Block altitudes, or any other items detailed in the transfer message.

(3) Verbal Coordination.

(a) The following information must always be verbally coordinated:

1. Approval Request (APREQ) if aircraft is not RVSM equipped (if operating in the RVSM stratum).

2. Any pertinent remarks.

3. Emergency situations.

-ABI 60 min prior

-EST 30 min prior

-ACP approves transfer

(b) When AIDC is inoperative, verbal coordination of the transfer message shall be completed at least 30 minutes prior to the TCP and shall contain the following information:

1. Aircraft identification
2. Geographical point where the aircraft will cross the common boundary.
3. Estimated time of crossing the common boundary.
4. Last assigned flight level.
5. Mach number, if assigned.
6. All items listed in 6d(3)(a) above.

(c) Each facility shall advise the other facility of known equipment outages, which affect AIDC.

(4) In the case of an emergency, the controlling facility shall advise the receiving facility of any action(s) taken as soon as possible.

(5) In order to protect against airspace deviations, the receiving facility shall notify the controlling facility of any information received on flights that differ from the transfer of control information (e.g. flight levels, TCP, significant time differences). This includes information that may indicate an aircraft is about to enter the receiving facility's airspace without a transfer of control message from the controlling facility.

(6) The minimum oceanic flight level that may be assigned in the Oakland ARTCC is FL060.

e. Information Transfer.

(1) Significant details shall be relayed on any flight that is operating or intends to operate within 50NM of the common boundary.

(2) Information transfers shall be completed at least 30 minutes before the flight is estimated to be within 50NM of the common boundary.

(3) Except in an emergency, the flight level of aircraft operating within 50NM of the common boundary shall not be changed without prior approval of the adjacent facility. In the case of an emergency, the controlling facility shall advise the adjacent facility of any action(s) taken as soon as possible.

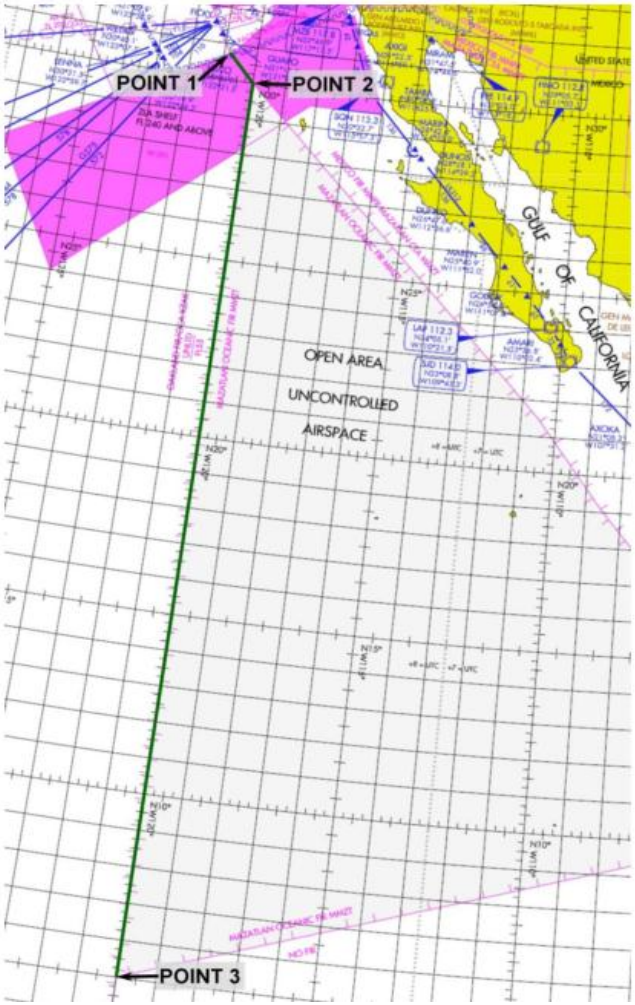
-Verbal 30 min prior

Oakland Oceanic – Mazatlán ACC LOA

Oakland ARTCC and Mazatlan ACC LOA
Subject: Inter-facility Coordination

Attachment 1
Effective: **TBD**

Description of FIR Common Boundary



The common boundary between Oakland ARTCC and Mazatlan ACC extends from 30°45'N/120°50'W (Point 1) to 30°00'N/120°00'W (Point 2) to 05°00'N/120°00'W (Point 3)

Between Point 1 and Point 2, Oakland FIR shares a common boundary with Mexico FIR/Mazatlan CTA.

Between Point 2 and Point 3, Oakland FIR shares a common boundary with Mazatlan Oceanic FIR.

Oakland Oceanic – Mazatlán ACC LOA

Oakland ARTCC and Mazatlan ACC LOA
Subject: Inter-facility Coordination

Attachment 2
Effective: **TBD**

AIDC Message Parameters

1. The following table details the AIDC parameters and messages to be used.

Message	Parameter	Notes
ABI	**Mazatlan ACC:** 5-60 minutes prior to COP **Oakland ARTCC:** 45-80 minutes prior to COP	**Mazatlan ACC/Oakland ARTCC:** ABI is sent automatically and is transparent to controller. A non-rejected ABI automatically updates flight plan.
EST	**Mazatlan ACC:** 40 minutes prior to COP **Oakland ARTCC:** Approximately 45 minutes prior to COP.	**Mazatlan ACC:** EST is sent automatically. On receipt, any EST that is not rejected automatically coordinates the FDR. EST is required for track generation. **Oakland ARTCC:** EST is sent automatically. Any EST that is accepted by the controller automatically coordinates the FDR.
ACP	**Mazatlan ACC:** Sends automatic ACP on receipt of EST **Oakland ARTCC:** Sent upon completion of processing and acceptance of the EST by the controller.	**Mazatlan ACC:** If ACP not received within four minutes, the sending controller is alerted. **Oakland ARTCC:** If ACP is not received within ten minutes, the sending controller is alerted.
MAC	**Mazatlan ACC:** Sent if the flight details change (after ABI) such that the flight no longer affects the receiving facility. **Oakland ARTCC:** Sent if the flight details change so that the flight no longer affects the receiving facility.	**Mazatlan ACC:** MAC is sent automatically and is transparent to the controller. There is no automated processing associated with receipt of a MAC. **Oakland ARTCC:** MAC is sent automatically and is transparent to the controller. The automated processing associated with receipt of a MAC causes a "coordinate cancel" message to be sent to the sector queue, the flight strip to be de-emphasized, and the flight's data block to be removed.

Oakland Oceanic – Mazatlán ACC
LOA

AFTN Message Format

AFTN EST messages shall contain the following, in the order shown:

- Aircraft identification as advised on the flight plan, or subsequent change (CHG) message;
- The FIR boundary position (TCP) and time;
- The assigned flight level;
- When applicable, the assigned Mach Number;
- Other significant information.

All EST messages shall be acknowledged by an Acceptance (ACP) message, or by specifying the change necessary for acceptance.

When an AFTN EST message is required, the following format shall be used:

EST-*call sign-departure point-fix/EST/altitude-destination*

EXAMPLE - *EST-UAL102-PHNL-25N/120W/0504F350-KDFW*

AFTN EST messages shall be transmitted at least one (1) hour prior to the common boundary estimate. The receiving unit shall transmit an ACP message or the change(s) necessary for acceptance at least twenty (20) minutes prior to the FIR boundary (TCP).

EXAMPLE - *ACP-UAL102-PHNL-KDFW-F350*

If the transferring unit does not receive an ACP message at least twenty (20) minutes prior to the boundary estimate, receipt of the EST message shall be verified by telephone.

Oakland Oceanic – Mazatlán ACC
Non-Operational Offline Test Plan

		Oakland - Mazatlan Draft Test Plan	
Origin	Destination	Message	Notes
QFA Ops	Mazatlan Oakland	(FPL-QFA7-IS -B744/H-SDE2E3FGHIJ3J5M1RWYZ/LB1D1 -YSSY0335 -M084F290 DCT DIPSO G595 WARTY 34S156E 3409S16301E 34S168E 34S169E 32S180E 31S176W 29S168W 26S160W 2426S15700W 21S151W 19S148W 14S143W 07S136W 00N130W 01N129W 0330N12652W 08N123W 1138N12000W 14N118W 21N112W 2155N11102W SJD UJ32 CUL UJ10 TRC UJ20 NLD J22 LRD J21 SAT J131 FUZ DCT -KDFW1432 -PBN/A1B1C1D1L1O2S2 NAV/GPSRNAV RNVD1A1 REG/VHOEI EET/YBBB0009 NZZO0117 NTTT0504 KZAK0848 MMFO0943 MMZT1025 MMTY1311 KZHU1346 SEL/MQJS PER/D RIF/EDNAS J131 SPURS CWK KAUS)	FPL for use in QFA7 AIDC message exchange
Oakland	Oakland	(AFP-QFA7/A1565-IS -B744/H-SDE2E3FGHIJ3J5M1RWYZ/LB1D1 -YSSY-0330N12652W/1917F350 -M084F310 0330N12652W 08N123W 1138N12000W 14N118W 21N112W 2155N11102W SJD UJ32 CUL UJ10 TRC UJ20 NLD J22 LRD J21 SAT J131 FUZ DCT -KDFW -PBN/A1B1C1D1L1O2S2 NAV/GPSRNAV RNVD1A1 DOF/130827 REG/VHOEI EET/NZZO0112 KZAK0941 SEL/MQJS PER/D RIF/EDNAS J131 SPURS CWK KAUS RMK/UPR)	Message injected by Oakland into their system to create the active flight plan for the AIDC Test.
Oakland	Mazatlan	(ABI-QFA7/A1565-YSSY-1138N12000W/2036F350-KDFW -8/IS -9/B744/H -10/SDE2E3FGHIJ3J5M1RWYZ/LB1D1 -15/M084F350 08N123W 1138N12000W 14N118W 21N112W 2155N11102W DCT SJD UJ32 CUL UJ10 TRC UJ20 NLD J22 LRD J21 SAT J131 FUZ DCT -18/PBN/A1B1C1D1L1O2S2 NAV/GPSRNAV RNVD1A1 REG/VHOEI EET/NZZO0112 KZAK0941 SEL/MQJS PER/D RIF/EDNAS J131 SPURS CWK KAUS RMK/UPR)	Expected ABI message that will be sent by Oakland to Mazatlan
Mazatlan	Oakland	(LAM)	LAM sent by Mazatlan in response to QFA7 initial ABI

Oakland Oceanic – Mazatlán ACC
Non-Operational Offline Test Plan

Oakland	Oakland	(AFP-QFA7B/A1554-IS -B744/H-SDE2E3FGHIJ3J5M1RWYZ/LB1D1 -YSSY-0330N14230W/1756F330 -M083F310 0330N14230W 09N137W 15N130W 21N122W 2223N12000W 25N116W 2543N11454W SRL V4 HMO J26 ELP J50 INK -KDFW -PBN/A1B1C1D1L1O2S2 NAV/GPSRNAV RNVD1A1 DOF/130828 REG/VHOEF EET/NZZO0115 SEL/MQBJ PER/D RIF/INK J15 JCT KAUS)	Message injected by Oakland into their system to create the active flight plan for the AIDC Test.
Oakland	Mazatlan	(ABI-QFA7B/A1554-YSSY-2223N12000W/2133F330-KDFW -8/IS -9/B744/H -10/SDE2E3FGHIJ3J5M1RWYZ/LB1D1 -15/M083F350 21N122W 2223N12000W 25N116W 2543N11454W DCT SRL V4 HMO J26 ELP J50 INK -18/PBN/A1B1C1D1L1O2S2 NAV/GPSRNAV RNVD1A1 REG/VHOEF EET/NZZO0115 SEL/MQBJ PER/D RIF/INK J15 JCT KAUS)	Expected ABI message that will be sent by Oakland to Mazatlan. The QFA7B test simulates an AIDC Transfer of control message sequence without an FPL received by Mazatlan.
Mazatlan	Oakland	(LAM)	LAM sent by Mazatlan in response to QFA7B initial ABI
Oakland	Mazatlan	(ABI-QFA7B/A1554-YSSY-2223N12000W/2133F350F330A-KDFW -8/IS -9/B744/H -10/SDE2E3FGHIJ3J5M1RWYZ/LB1D1 -15/M083F350 21N122W 2223N12000W 25N116W 2543N11454W DCT SRL V4 HMO J26 ELP J50 INK -18/PBN/A1B1C1D1L1O2S2 NAV/GPSRNAV RNVD1A1 REG/VHOEF EET/NZZO0115 SEL/MQBJ PER/D RIF/INK J15 JCT KAUS)	Expected ABI message that will be sent by Oakland to Mazatlan when QFA7B climbed to F350 prior to sending the EST message. The QFA7B test simulates an AIDC Transfer of control message sequence without an FPL received by Mazatlan.
Mazatlan	Oakland	(LAM)	LAM sent by Mazatlan in response to QFA7B second ABI
Oakland	Mazatlan	(ABI-QFA7B/A1554-YSSY-2223N12000W/2133F350-KDFW -8/IS -9/B744/H -10/SDE2E3FGHIJ3J5M1RWYZ/LB1D1 -15/M083F350 21N122W 2223N12000W 25N116W 2543N11454W DCT SRL V4 HMO J26 ELP J50 INK -18/PBN/A1B1C1D1L1O2S2 NAV/GPSRNAV RNVD1A1 REG/VHOEF EET/NZZO0115 SEL/MQBJ PER/D RIF/INK J15 JCT KAUS)	Expected ABI message that will be sent by Oakland to Mazatlan when QFA7B climbed to F350 prior to sending the EST message. The QFA7B test simulates an AIDC Transfer of control message sequence without an FPL received by Mazatlan.
Mazatlan	Oakland	(LAM)	LAM sent by Mazatlan in response to QFA7B second ABI

Oakland Oceanic – Mazatlán ACC
Non-Operational Offline Test Plan

Oakland	Mazatlan	(EST-QFA7B/A1554-YSSY-2223N12000W/2133F350-KDFW)	EST AIDC TOC message transmitted by Oakland
Mazatlan	Oakland	(LAM)	LAM sent by Mazatlan in response to QFA7B EST message
Mazatlan	Oakland	(ACP-QFA7B-YSSY -KDFW)	ACP message sent by Mazatlan in response EST TOC message
Oakland	Mazatlan	(LAM)	LAM sent by Oakland in response to ACP message
Oakland	Mazatlan	(CDN-QFA7B/A1554-YSSY-KDFW -14/2223N12000W/2136F350 -15/M083F350 21N122W 2223N12000W 25N116W 2543N11454W DCT SRL V4 HMO J26 ELP J50 INK)	CDN AIDC message sent by Oakland to revise transfer time in EST message.
Mazatlan	Oakland	(LAM)	LAM message in response to CDN message
Mazatlan	Oakland	(ACP-QFA7B-YSSY -KDFW)	ACP message sent by Mazatlan in response to CDN revised transfer time.
Oakland	Mazatlan	(LAM)	LAM sent by Oakland in response to ACP message
Mazatlan	Oakland	(ABI-QFA8-KDFW-2255N12000W/1403F340-YBBN -8/IS -9/B744/H -10/SDE2E3FGHIJ3J5M1RWYZ/LB1D1 -15/N0508F340 2633N11550W 2255N12000W 22N121W 19N125W 14N132W 10N138W 07N144W 03N152W 01S160W 05S168W 0655S17150W 07S172W 11S180E 15S172E 19S164E 1945S16300E 24S157E DCT FLATY DCT LUCAS UH402 BN DCT -18/PBN/A1B1C1D1L1O2S2 NAV/GPSRNAV RNVD1A1 REG/VHOEE EET/MMTY0101 MMZT0116 MMFO0210 KZAK0248 NZZO0908 NFFF0938 YBBB1308 SEL/MQBG PER/D RIF/24S157E 23S162E NWWW)	ABI AIDC message sent by Mazatlan on QFA8
Oakland	Mazatlan	(LAM)	LAM message in response to ABI message
Mazatlan	Oakland	(EST-QFA8-KDFW-2255N12000W/1403F340-YBBN)	EST AIDC TOC message transmitted by Mazatlan
Oakland	Mazatlan	(LAM)	LAM message in response to EST message
Oakland	Mazatlan	(ACP-QFA8-KDFW-YBBN)	ACP message sent by Oakland in response to EST message.
Mazatlan	Oakland	(LAM)	LAM message in response to ACP message

Conclusion

- Safety and efficiency interests extend beyond the borders of our airspace and systems. Operational efficiencies gained in our airspace should be continuous to the extent possible as aircraft travel into other regions and service providers.
- Taking a harmonized approach with our En Route and Oceanic systems extends our capabilities
- As our aircraft operators invest in aircraft technology, they expect it to be compatible with systems and procedures used by other air navigation service providers.

- Standardization of automated data exchange technologies and procedures is critical to cross-border, regional and multi-regional interoperability. This, in turn, drives the seamless operation of regional and global systems.

- Harmonization supports safety objectives through standardization and promotes economic efficiencies. A harmonized system cannot be built without developing partnerships with our international counterparts.