SERVICIOS A LA NAVEGACIÓN EN EL ESPACIO AÉREO MEXICANO
MEXICO ADS-B PROJECT PREVIEW
Syllabus

1. Previous

2. SENEAM ADS-B Program

3. SENEAM-FAA ADS-B Program

4. SENEAM ADS-B Schedule

5. SENEAM ADS-B 2014-2018
Syllabus:

6. SENEAM ADS-B Sites.

7. ADS-B Track Symbols. Mexico’s ATM System.
Mexico as member of ICAO and in accordance with the 2013 – 2016 Activities. Plan of the Regional Technical Cooperation Project for the Caribbean Region – implementation of the Performance Based Air Navigation Systems for the CAR Region, have designed an implementation plan to install a first set of 10 ADS-B radio stations on strategic sites, to feed with ADS-B data meet DO-260 and DO-260A and Asterix Cat 21 forward to four ATM systems in FDRG through our country.

The four ATM systems are being updated for accepting and processing ADS-B data and fusing them with ATC radar sensors.

The implementation plan, obeys the need of increasing safety and efficiency of air / ground operations, mainly about surveillance, separation, coverage redundancy and getting surveillance data in non radar areas.
Also, in parallel, SENEAM is working together with FAA to develop and deploy of Automatic Dependent Surveillance – Broadcast (ADS-B) as a means of providing satellite based surveillance for air traffic control (ATC) systems that serve the Gulf of Mexico region. New ADS-B services will be beneficial to both parties in areas where radar coverage may be nonexistent or can be enhanced by ADS-B sensors.
The joint use of ADS-B will enhance the development and performance of air traffic control and pilot applications. Safety levels, efficiency, and capacity will also be enhanced by providing new and expanded surveillance coverage for the airspace in the United States and Mexico.
SENEAM ADS-B Program
Up to date, SENEAM has installed 10 ADS-B stations at the following sites:

- 5 in Mexico’s City Valley (Toluca’s Airport, Cerro Peñón, Cerro Catedral, Cerro Gordo & Mexico’s ATC TWR Control)
- 1 in Radar Station of Cerro Los Gallos, Aguascalientes (LGS), at Central of Mexico
- 1 in Southeast of Mexico at Ciudad del Carmen (CME)
- 2 in Northeast of Mexico at Monterrey’s Terminal Airport (MTY) & in Radar station of Cerro de Potosi (CPT)
- 1 in Radar station of Puerto Peñasco Sonora (PPE), at the Northwest of México
SENEAM ADS-B Program

SENEAM is also executing a software updating all four main ATM systems based on each ACC:

Mérida:
The ATM system has been updated since Dec 4 2013, full ADS-B capable. One ADS-B station at Ciudad del Carmen, Campeche has been installed.

México:
Five ADS-B stations are working and they are integrated to T&E platform Data gathering is taking place to begin the evaluation for data integration on ATM systems (Radars and ADS-B sensors).

Monterrey & Mazatlán:
The ATM system has been updated last year, full ADS-B capable. ADS-B stations at Puerto Peñasco, Sonora, Cerro de los Gallos, Ags., Cerro del Potosí and Monterrey, NL. have been installed. FAA ADS-B stations on Tampico, Mérida and Cancún will be installed on 2015 and will be operative until 2016.
Coverage of SENEAM ADS-B 2015
Needs to be covered

- Surveillance of México Valley
- Air Traffic Control of Mexico City Airport Terminal Area
- Air Traffic Control of Helicopters flying over Mexico Valley
- Air Traffic Control of Monterrey Airport Terminal Area
- Surveillance redundancy on Puerto Peñasco station
- Air Traffic Control Area of Merida
- Surveillance of Helicopters flying from/to Oil Platform on Gulf of México
3 SENEAM-FAA ADS-B Program
FAA-SENEAM Agreement ADS-B Stations

FAA-SENEAM Agreement considers the installation of ADS-B stations at:

• Tampico
• Mérida
• Cancún

FAA and SENEAM are working together to install the Radio Station and equipment for Service Delivering Point at the station mentioned above and 3 of 4 ACC (MEX, MID and MTY) before end of 2015. The data will be shared to feed ACC in Mexico and USA (Houston)
FAA ADS-B current coverage on GOM
FAA-SENEAM ADS-B forecasted coverage
SENEAM-FAA ADS-B Program

Coverage of SENEAM-FAA ADS-B 2015
Needs to be covered

• Air Traffic Control Area of Merida, Cancún

• Complete surveillance of Helicopters flying from/to Oil Platform on Gulf of México

• Sharing data with FAA to have complete surveillance of Gulf of Mexico in order to enhance the Air Traffic Management between FDRG of both countries.
4

SENEAM ADS-B Schedule
<table>
<thead>
<tr>
<th>Date</th>
<th>Site</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 2014</td>
<td>Cerro Gordo</td>
<td>CGO</td>
</tr>
<tr>
<td>May 2014</td>
<td>Cerro Peñón</td>
<td>PEN</td>
</tr>
<tr>
<td>May 2014</td>
<td>AICM</td>
<td>MEX</td>
</tr>
<tr>
<td>May 2014</td>
<td>Toluca</td>
<td>TLC</td>
</tr>
<tr>
<td>May 2014</td>
<td>Cerro Catedral</td>
<td>CCD</td>
</tr>
</tbody>
</table>
Theoretical coverage on Mexico Valley

ADS-B coverage area of all 5 selected ADS-B ground stations within Mexico Valley and Toluca Valley at 40000 ft AMSL for aircraft ADS-B transponders Tx power of 250 W
SENEAM ADS-B Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Site</th>
<th>ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 2015</td>
<td>Puerto Peñasco</td>
<td>PPE</td>
</tr>
<tr>
<td>Jan. 2015</td>
<td>Monterrey</td>
<td>MTY</td>
</tr>
<tr>
<td>Jan. 2015</td>
<td>Cerro Potosí</td>
<td>CPT</td>
</tr>
<tr>
<td>Jan. 2015</td>
<td>Cd. Carmen</td>
<td>CME</td>
</tr>
<tr>
<td>Jan. 2015</td>
<td>Los Gallos</td>
<td>LGS</td>
</tr>
</tbody>
</table>
SENEAM ADS-B
2014-2018
## ADS-B 2014-2018

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>Total 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>5</td>
<td>5 + 3</td>
<td>13</td>
<td>12</td>
<td>35+3</td>
</tr>
<tr>
<td>CGO, PEN, MEX, TLC, CCD</td>
<td>PPE, MTY, CPT, CME, LGS TAM, CUN, MID</td>
<td>TRC, CUU, SEU, ZIH, PVR, TGZ, ACA, MZT, CUL, SLP, BJX, GDL, SJD</td>
<td>LAP, CAB, LPD, PTE, CCL, LRS, VER, VSA, ZIJ, HUA, TIJ, HMO</td>
<td>35+3</td>
<td></td>
</tr>
</tbody>
</table>

**SENEAM ADS-B 2014-2018**
SENEAM ADS-B Sites.
SENEAM ADS-B Sites

TWR MEX
CERRO GORDO
SENEMADS-B Sites

CERRO GORDO
CERRO CATEDRAL, EDO. DE MEXICO
SENEAM ADS-B Sites

LOS GALLOS, AGUASCALIENTES
MONTERREY, NUEVO LEON
SENEAM ADS-B Sites

CIUDAD DEL CARMEN, CAMPECHE
7 ADS-B Track Symbols on ACC Mexico System & ADS-B Labels from other sites.
ADS-B Only (MEX)
ADS-B + SSR (MEX)
ADS-B + SSR + PSR (MEX)
ADS-B LGS
SERVICIOS A LA NAVEGACIÓN EN EL ESPACIO AÉREO MEXICANO

MEXICO ADS-B PROJECT PREVIEW

THANK YOU!

Mexico City. April 27, 2015