United nations/United Arab Emirates/United States of America

Work shop on the applications of Global Navigation Satellite Systems

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Planned Differential GPS System at Yangon International Airport

Presented By
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Outlines

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1. **Background**

- In Yangon International Airport, (DCA) Myanmar is currently commissioning instrument landing system (ILS) comprising the following components (i) localizer (ii) glide path and (iii) distance measuring equipment (DME).

- Conventional methods are expensive, tedious and have some limitation.

- Signals from GPS have proven to be fast, accurate and cheaper alternative to conventional methods. Recognized growing importance of DGPS, a new landing aid system based on GPS will be implemented soon.

- According the standard and recommended practices from ICAO, Myanmar DCA is now planning Differential GPS landing system for Yangon International Airport
2. Introduction

- Since the implementation of GNSS operations requires to be considered a number of elements, Myanmar DCA will establish the GNSS implementation team (GIT).
- GPS systems’ accuracy, availability and reliability are subjected to numerous biases or errors. To meet the operational requirement, augmentation system is required.
- After setting up team, goals and objectives, Myanmar DCA will move GNSS forward on step by step basis.
- Priority will be necessary GNSS ground infrastructure and local area ground-based augmentation system to enhance accuracy.
2. Introduction (continued)

- In order to provide CAT-1 precision instrument approach and landing, GBAS will be installed in Yangon International Airport.
- For wide area, SBAS and GRAS will be the future consideration.
3. Initial Phase

- GNSS implementation team was set up.
- Fully coordinate within ICAO planning and implementation regional groups.
- Myanmar DCA is frequently sending its staffs to abroad training in order to be able to cope with knowledge regarding to GNSS.
- GNSS master plan will be established to facilitate the smooth implementation of GNSS infrastructure and support the aviation industry.
3. Initial Phase (continued)

- GIT will foster a cooperative approach to developing the standards, systems, procedures and the terms and conditions of regulatory approvals that respond to the needs of the aviation community.

- GNSS will be implemented through active participation of regulatory, service provider organizations, and user representatives.
4. Steps to Implementation

- Organization of GNSS implementation team
- Feasibility studying
- Establishing master plan
- Training, workshop, seminar
- Establishing infrastructure
- Augmentation system enhancement
- Technology development
- International collaboration
5. Proposed GBAS architecture
In order to make sure that aircraft receive the benefits of GNSS technology in a timely and effective fashion, while maintaining high standards of safety.

- Provide precision approach capacity CAT-I at Yangon International Airport.
- Focuses its service on the airport area (approximately a 30 km radius).
- Provide area navigation (RNAV) capacity, instrumental departures, and surface movement to operations in the terminal area.
- Carry out new advanced instrumental procedures to allow for a more flexible use of the air space.
In order to meet ICAO GNSS performance requirements, GBAS project will be a great help in improving accuracy horizontally, accuracy vertically, integrity, continuity, and availability.

For safety-critical GPS applications, Receiver Autonomous Integrity Monitoring (RAIM) technology will be introduced to provide integrity monitoring of GPS for aviation applications.
### 6. PBN implementation schedule

<table>
<thead>
<tr>
<th>Implementation Activities Starts</th>
<th>Terminal Areas</th>
<th>Target Navigation Specifications</th>
<th>Expected Operation Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>VYYY (Yangon Intl Airport)</td>
<td>Approach RNP APCH (Baro VNAV)</td>
<td>2012</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SID RNAV1 (DME/DME/IRU) or GNSS</td>
<td>2012</td>
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<tr>
<td></td>
<td></td>
<td>STAR RNAV1 (DME/DME/IRU) or GNSS</td>
<td>2012</td>
</tr>
</tbody>
</table>
Thank you very much

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