

CN413 GNSS RAIM
September 21, 2009, 6:45 pm - 9:30 pm, CEU: 2.5
GNSS Solutions® Tutorials prior to ION GNSS 2009, September 21-22, 2009
Marriott Savannah Riverfront, Savannah, GA

Instructor: Dr. Christophe Macabiau, ENAC (Ecole Nationale de l'Aviation Civile)

Prerequisite: Some knowledge of mathematics and computer science will be useful.

Intended Audience: Engineers, scientists, and managers interested in the area of GNSS using GPS, Galileo, Glonass, and/or other satellite navigation systems. The course provides information on the concept of integrity for GNSS and will focus on the details of the Receiver Autonomous Integrity Monitor (RAIM) approach.

Notes Provided: Slides presented will be professionally spiral bound, with clear plastic cover, including color to add clarity where needed.

Reference List: A reference list will be provided as part of the note package for completeness and to allow the interested attendee to obtain additional information.

Course Overview: This course provides information on obtaining integrity in GNSS applications. An overview of the different ways to obtain GNSS integrity for civil aviation will be discussed followed by details on receiver autonomous integrity monitoring (RAIM) approach. The course concludes with several practical examples.

Course Content: The main topics to be covered by this course are:

GNSS Integrity for integrity aviation:

- Requirements for civil aviation applications
- Integrity monitoring techniques: ABAS, GBAS, SBAS, Galileo, GIC
- RAIM Fault detection, Fault Exclusion

RAIM:

- Algorithm specifications from high level requirements
- Measurement model, threat model
- Detection criterion (fault detection, fault exclusion)
- Horizontal, Vertical, and other Protection Level (PL) computation
- Assumptions for RAIM performance evaluation
- Practical examples

Future of RAIM:

- GPS/Galileo RAIM for civil aviation
- RAIM for other applications

Course Outcomes: At the completion of this course, the attendee should have a good understand the fundamental concepts of GNSS integrity, how to attain it for various applications, and knowledge of RAIM. For additional knowledge on the integrity using differential GNSS techniques, CN410 Fundamentals of DGNSS is recommended.