SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Space-Based Navigation Systems and Services (4)

Author: Mr. Petr Bares
IGUASSU Software Systems, Czech Republic

SBAS PERFORMANCE MONITORING AND SIMULATING TOOLS

Abstract

Iguassu Software Systems has developed quite a series of SBAS tools under ESA contracts. The two most successful are EVORA and SBAS Simulator.

EVORA is multi-constellation and multi-frequency real-time processor. It measures performance of Satellite Based Augmentation Systems (SBAS) in real time. Moreover, the software is qualified to make sure it gives highly reliable results. The tool is used by the ESA EGNOS Project Office, Thales Alenia Space France and other major aviation end-users.

EVORA works with real, simulated or offline data. Real data is read from RTCM streams broadcast over the NTRIP network. An example of a source of simulated data is the Support Platform for EGNOS Evolution and Demonstration (SPEED). EVORA provides users with performance analysis over specific region or station. At any moment the user can see protection levels, availability, continuity, position error, ESA Stanford diagrams and ARAIM results.

EVORA users can subscribe for events occurring during the processing. Such an event can be the loss of SBAS signal, misleading information, etc. Event notifications can also be sent to users by email. EVORA creates automated HTML daily reports that include summary, statistics and graphs for all computed analysis.

SBAS Simulator is a GNSS System Volume Simulator performing various analysis related to satellite navigation. The focus is on the simulation of SBAS performance using customisable definition of GNSS constellations, as well as to configure almost any parameter of each system and see resulting changes. SBAS Simulator has two main parts: the configuration section and the analysis section.

The configuration section provides settings related to space, ground and user segments. By default it is possible to select satellites from GEO, GPS, GLONASS and Galileo. The simulator has multi-frequency support and can run either in single or dual frequency mode. Ground segment reflects the network of RIMS stations (EGNOS, WAAS, Africa, etc.).

Analysis panel contains several simulation modules. Geometry conditions are reflected in DOP analysis. Accuracy also supports the LPV200 service and stores the 95