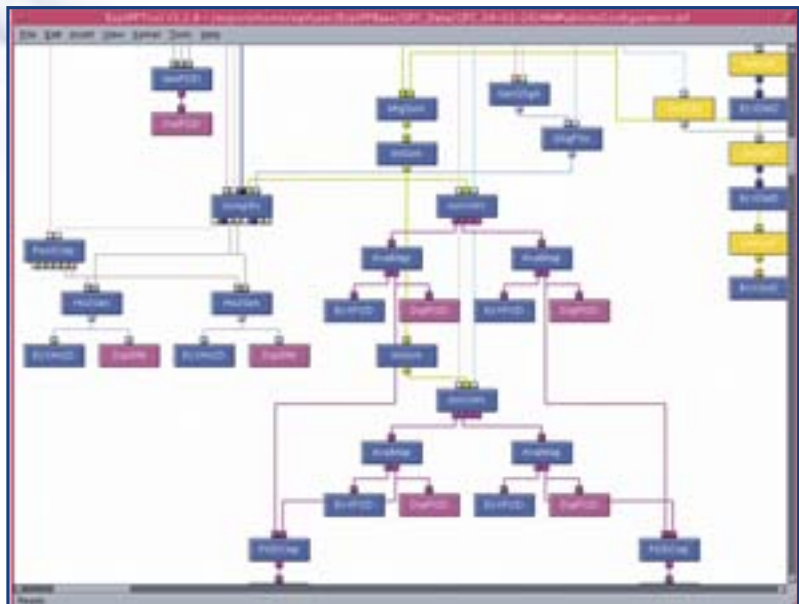


Galileo System Test Bed V1 Experimental Integrity Processing Facility (E-IPF)

The Experimental Integrity Processing Facility (E-IPF) is one of the core elements within the GSTB-V1 Processing Center. Its high flexibility allows integrity analyses at ground segment level as well as at user and system levels.

The task of the E-IPF is to allow experimentation with the goal of consolidating integrity approach and algorithms for Galileo. For this reason, not only all relevant candidate integrity algorithms are implemented, but a major focus has been put on the flexibility of the tool and its analysis capabilities.



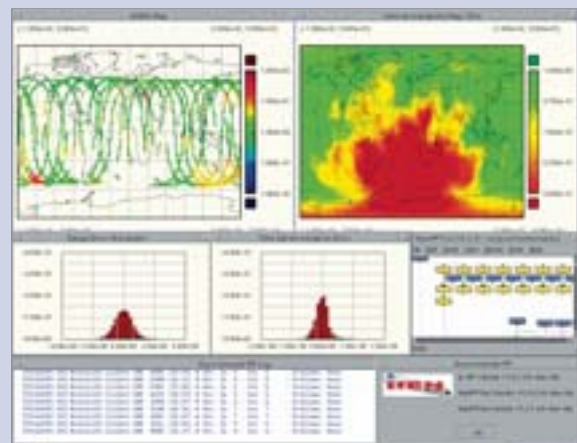
E-IPF Tool Screenshot



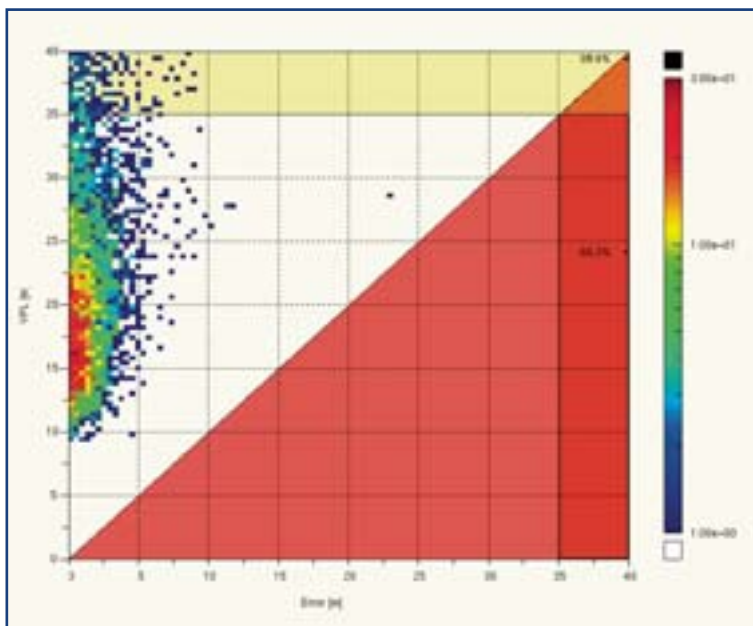
Experimentation Objectives:

As integrity in satellite navigation is very new, many open issues have to be analysed to consolidate the Galileo integrity system design. Trade-offs must be chosen and analyses must be performed on the following topics:

- Sensor stations network
- Pre-processing of measurements
- Clock synchronisation
- Signal In Space Error estimation
- Algorithmic and parameter fine-tuning
- User protection level computation
- End-to-end system performance



E-IPF Experimental Run Screenshot



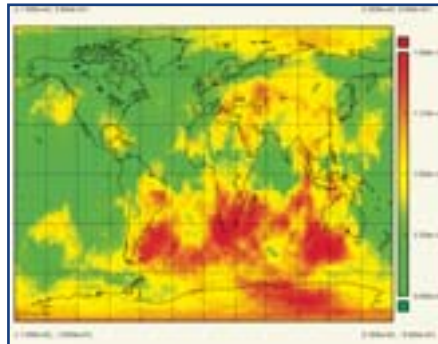
Integrity Stanford Plot (True Vertical Positioning Error Versus Vertical Protection Level)

Core Products

The E-IPF delivers a set of integrity-related core products on a regular daily basis. Among the products are the following:

- Signal-in-space monitoring accuracies
- Stanford integrity plots
- Availability plots
- Sensor stations synchronisation statistics
- Ranging accuracy statistics
- Time series of integrity flags per satellite

Degradation of Vertical Availability due to Integrity Monitoring



Coming soon:

The E-IPF is currently operational and running at the GSTB-V1 Processing Centre located at ESA ESTEC. An upgrade of the E-IPF is foreseen to allow to evolve from the processing of GPS measurements to Galileo simulated and first experimental satellite measurement data.

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