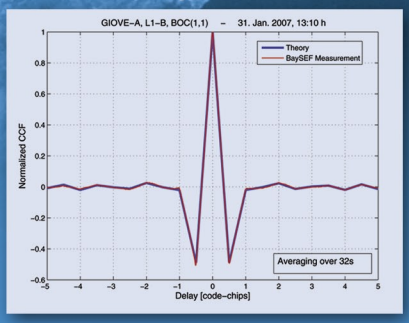
BayNavTech™

Signal Evaluation Facility (BaySEF™)



The BaySEF is a high performance wideband and flexible GNSS receiver and signal performance evaluation platform.

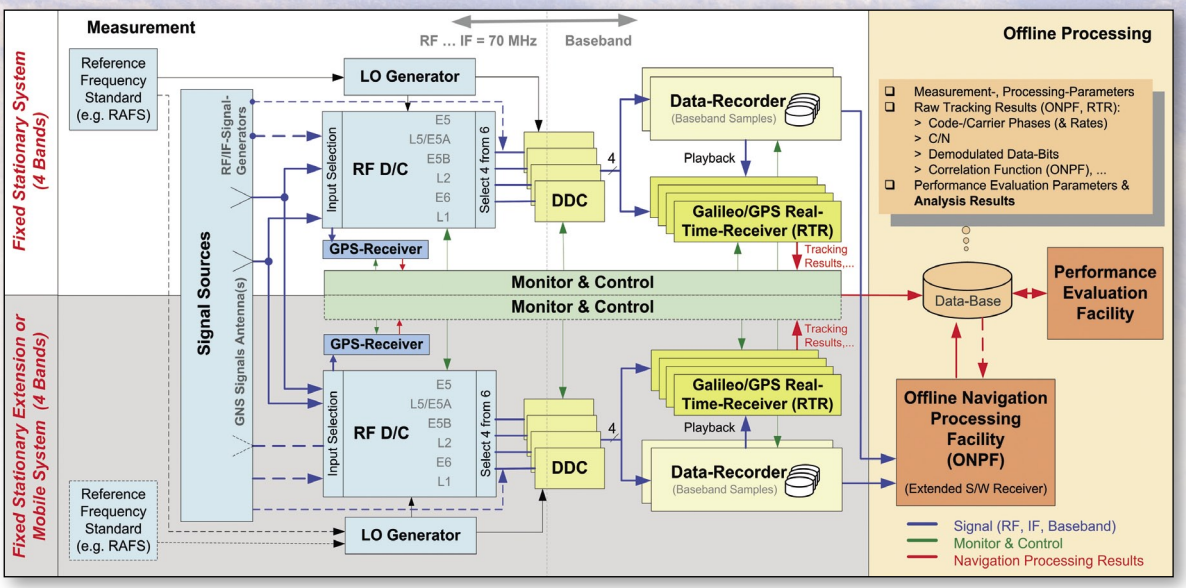
- Focus on tracking performance analysis
- Adjustable parameters (covering "high-end" to "low-end" receivers)

Applications

- Verification and monitoring of GNSS SIS
- Support for application design

BayNavTech™

EADS astrium



Specification

Two identical measurement systems (stationary and mobile), each for simultaneous processing and recording of 4 navigation frequency bands selectable from E5, E5a, E5b, E6, L1 and L2.

Signal Interfaces

- Antennas
  - Omni-directional antenna (950 – 1650 MHz)
  - 3 m parabolic dish (steerable)
- Signal generators at RF and IF for individual / all frequency bands
- RF / IF monitor (e.g. for spectrum analyser)

RF Front-Ends

- Bandwidth (3 dB)
  - E5a, E5b, E6, L1, L2 ≥ 50 MHz
  - E5 ≥ 100 MHz
- Output-IF (for each band) 71.61 MHz
- Output-IF power control -3 dBm
- External / internal reference 10 MHz
- Sample-clock generation 460 MHz

DDC

- Input bandwidth 400 kHz - 150 MHz
- Sample-rate 460 MHz
- Adjustable NCO 0 - 130 MHz
- Adjustable quantization 2, 4, 8, 16 bits
- Bandlimitation (& data rate) to any bandwidth
- Equalization of BaySEF amplitude and phase distortions (programmable complex-FIR-filter)
- Synchronized processing in-between all DDCs

Data-Recorder

- Max. recording rate ≥ 120 MByte / s per band
- Recording capacity ≥ 80 minutes / band
- Playback with realtime-rate to Galileo* / GPS receivers
- Readback to PC via Ethernet / fiber-channel

Navigation Receivers (Acquisition & Tracking)

- Offline Navigation Processing Facility (ONPF)
  - Flexible and accurate software receiver in C
  - Adjustable processing parameters, tracking modes and evaluations
  - Additional features (e.g. precise correlation functions)
  - Investigation based adaptation
- Real-time Galileo* / GPS receivers
  - FPGA with GNSS-core & LEON-processor (navigation software)
  - Tracking of up to 12 satellites / band each with up to 5 correlators simultaneously
  - Flexible processing parameters

Typical BaySEF Investigations

- Code- / carrier tracking error dependencies on signal characteristics and receiver parameters
- Extraction of e.g. multipath and interference by comparison with theory
- Optimization of tracking parameters and algorithms
- Derivation of wideband transfer-characteristics of e.g. satellite transmissions

* Galileo is a trademark of the European Commission and the space programme Galileo is a joint initiative of the European Commission and the European Space Agency.

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