Alberding GmbH

Beacon.net

Modular software solution for AtoN service providers

System description

Alberding Beacon.net is a modular software solution for maritime and inland waterway DGNSS service providers. The service-based approach of Beacon.net supports the separation of information generation from its transmission via different broadcast channels.

Beacon.net has been adapted to the requirements of the AtoN service providers in several research projects. In addition to the basic system with web interface the following modules are available:

Modules

Generation of DGNSS correction data

- Correction data sources:
  - Local GNSS reference station → Generation of RTCM correction data from GNSS raw data
  - Multiple GNSS reference stations → DGNSS networking (VRS)
  - SBAS (e.g. EGNOS) → RTCA to RTCM conversion
  - RTCM correction data from external providers (e.g. RTK service operators) → Quality check and rebroadcast

Integrity check before correction data transmission:

- Pre-Broadcast Monitoring (PBM) with GNSS raw data streams
- Generation of RTCM integrity flags

Formatting for different transmission links:

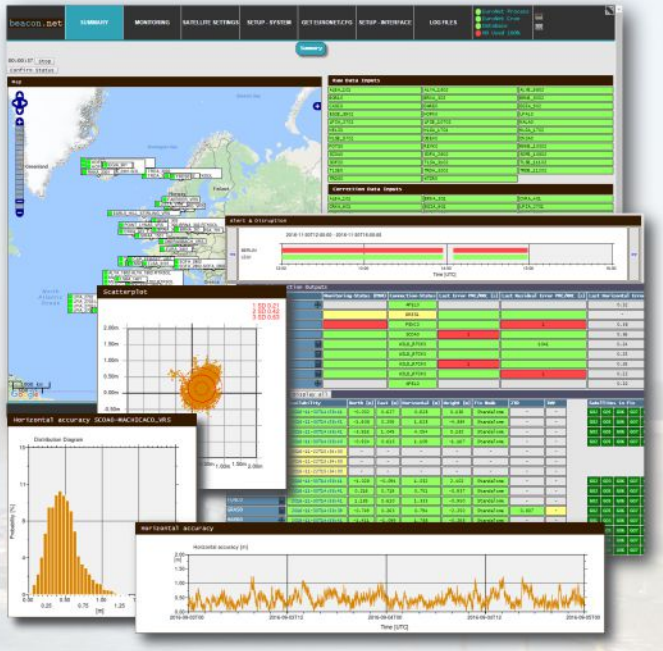
- Radiobeacon
- AIS/VDES (message #17, #8)
- Internet (Ntrip)
- Wireless data transmission

Generation of RTK correction data:

- Correction data from a local base station or an RTK service
- Integrity check before transmission
- AIS encoding with integrity flags via ASM (message #8)

Generation of waterway information (RIS):

- Active provision of Notices to Skippers (NtS) and water level information
- Transmission via AIS (message #8)
- Onboard decoding of messages in machine-readable format



Far Field Monitoring:

- Analysis of DGNSS positioning accuracy and radio signal quality via remote monitoring stations
- Automatic generation of alerts

BeaconSiteControl:

- Backup solution for the generation of correction data at the transmitter e.g. via SBAS (RTCA → RTCM conversion)
- Local pre-broadcast integrity monitoring

References

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