



Transmission of GNSS Real-Time Data via Mobile Internet

Networked

Transport of

RTCM via

Internet

Protocol

RTCM-SC-104 Standard

DGNSS via Mobile Internet

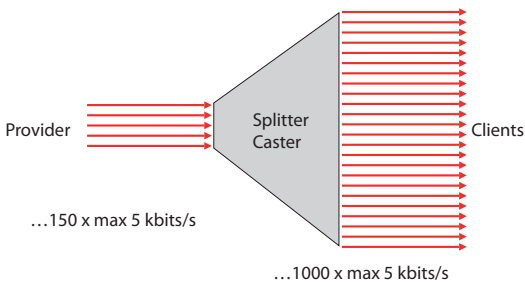
The Bundesamt für Kartographie und Geodäsie (Federal Agency for Cartography and Geodesy, BKG) is responsible for the realization and provision of standard geodetic reference networks for the territory of the Federal Republic of Germany.

To provide real-time users access to a uniform three-dimensional reference system BKG performs the following tasks:

- Operation of the Geodetic Reference Network GREF as a real-time data acquisition system
- Further development of the Internet transport technique NTRIP for the transmission of GNSS real-time data to the respective users
- Standardization of NTRIP within the frame of the Radio Technical Commission for Maritime Services (RTCM)
- Participation in the development of internet-based real-time positioning services
- Embedding of the activities into the context of a European and world-wide distribution of data of Global Navigation Satellite System (GNSS) via Internet (EUREF-IP and Real-time IGS)

NTRIP Internet Broadcaster

- Modified “Internet Radio” Technology under Linux operating system
- Simultaneous distribution of many GNSS real-time data streams in support of simultaneously listening clients



- Standard TCP/IP/HTTP protocol for data dissemination
- Remote operation and maintenance via TELNET, FTP and HTTP
- Modern client-server architecture with maximum operational reliability and security
- Interruption-free configuration during the operation
- Complex authentication, authorization and billing procedures

NTRIP Real-Time Services

- Positioning in real-time with meter accuracy up to centimetre accuracy
- Correction data reception, e.g. by means of pocket PC and mobile telephone



- GNSS correction data reception and user application on one device
- Use of GPRS/UMTS mobile radio technology
- Use of satellite clock corrections estimated from large-scale networks

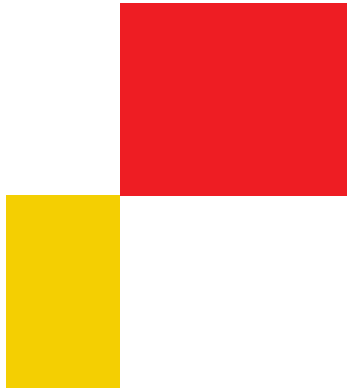
NTRIP Data Streams

- Presently approximately 2000 real-time GNSS globally available data streams
- Different data formats: RTCM, RTCA, raw data, et al.
- Contributions from different networks: IGS, EUREF, GREF, SAPOS, ascos, et al.

*Real-Time GNSS
Network EUREF,
Status 24.08.2007*



- Reception of the data by means of the program “GNSS Internet Radio” (Linux, Windows 2000/NT/XP, Windows CE)
- Decoding, conversion and synchronization by means of the programs (Linux, Windows, Solaris, Mac)



Information

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