



DGPS/RTK positioning and navigation system using teletransmission via GSM /GPRS for public service

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The paper describes the structure of GPRS transmission system used in DGPS/RTK precise positioning and navigation. The primary results of DGPS and RTK accuracy and availability of positioning using GPRS transmission will be presented in the paper. The system consists of a network of GPS reference stations connected to the system's main server using IPSEC tunnels. The system's server collects data from all existing GPS reference stations, manages data and distributes data to users in real time. Distribution of corrections is possible using different GSM operators in Poland, which makes the system fully independent. Each mobile receiver is connected to the main system server via GSM network and has pre-defined primary GPS reference station located in Poland. In case of failure of primary reference station (ex. internet breakdown), server detects emergency and automatically switches the user to another - nearest GPS station. Each GPS reference station can be remotely controlled from any place all over the world. The system can increase accuracy up to 10 times even with the cheapest GPS receivers. System is fully compatible with all GPS receivers having RTCM option. The only need for a user is the GPRS modem with an active SIM card dedicated to server application. DGPS/GPRS system can be also an interesting supplement to the European EGNOS system for positioning and navigation in the severe observation conditions.