

**MONITORING OF THE ORBITAL POSITION OF A
GEOSTATIONARY SATELLITE BY THE SPATIALLY
SEPARATED RECEPTION OF SIGNALS
OF DIGITAL SATELLITE TELEVISION**

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The report presents results of the determination of the orbital position of geostationary satellite «Eutelsat-13B», obtained during 2015-2016 years by the results of operation of European network of stations of reception of DVB-S signals, incoming from the satellite. The network consists of 5 stations located in Ukraine and Latvia. The distances between the stations along latitude and longitude are about 1000 km. The stations are equipped with a radio engineering complex developed by the RI “MAO”. The measured parameter is a time difference of arrival (TDOA) of the DVB-S signals to the stations of the network. The measurements of TDOA are synchronized by GPS time marks. The determination errors of TDOA and satellite coordinates, obtained by the measured values of TDOA and using the method of multilateration and a numerical model of satellite motion, are equal 2.6 m, 1500 m and 100 m respectively. The method of multilateration is used to calculate Cartesian coordinates of the satellite in the WGS84 coordinate system. The numerical model is used to determine radial, tangential and normal coordinates of the satellite in a local orbital frame. Software implementation of the model is taken from the free space dynamics library OREKIT.