Spin parameters of LARES spectrally determined from SLR data

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Satellite Laser Ranging is a powerful technique able to measure spin rate and spin axis orientation of the fully passive, geodetic satellites. This work presents results of the spin determination of LARES - a new satellite for testing General Relativity. 529 SLR passes measured between February 17 and June 9, 2012, were spectrally analyzed. Our results indicate that the initial spin frequency of LARES is f0=86.906 mHz (RMS=0.539 mHz). A new method for the spin axis determination gives orientation of the axis at RA=12h22m48s (RMS=49m), Dec=-70.4º (RMS=5.2º) (J2000.0 celestial reference frame), and the clockwise (CW) spin direction. The half-life period of the satellite's spin is 214.924 days and indicates fast slowing down of the spacecraft.