Einstein@Home search for continuous gravitational waves from Vela Jr, Cassiopeia A and G347.3

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We report the observational results of a broad frequency search for periodic gravitational waves from three supernova remnants: Cassiopeia A (Cas A), Vela Jr. and G347.3. This search investigates the frequency range of O1 Advanced LIGO data, between 20 and 1500 Hz. The search was made possible by about 4 months computing power provided by the volunteers of Einstein@Home project. We find no significant signal candidate and set the most stringent upper limits to date on the amplitude of gravitational wave signals from these three targets, corresponding to a sensitivity depth up to 82.4. At the frequency of best strain sensitivity, near 170 Hz, we set 90% confidence upper limits of $h_0^{90\%} = 1.30 \times 10^{-25}$, 1.03×10^{-25} and 0.96×10^{-25} for Cas A, Vela Jr. and G347.3 respectively. These is the most sentisitive search for these three targets up to date. At 200 Hz we can exclude ellipticities of Cas A, Vela Jr.(200 pc) and G347.3 great than 1.09×10^{-5}, 4.94×10^{-7} and 2.94×10^{-6} respectively with fiducial value of the principal moment of inertia of 10^{38}kg m^2.