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**Free-fall performance for the LISA gravitational wave observatory: new results from LISA Pathfinder**

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The European Space Agency mission LISA Pathfinder operated from March 2016 until July 2017 with the aim of demonstrating the purity of free-fall required for a gravitational wave observatory in space. Since the publication of the initial results from the mission in 2016, a number of factors have contributed to an improvement in the noise level. Furthermore repeated, longer duration measurements have allowed us to improve the precision and frequency range of the noise measurement as well as investigate noise stationarity. We present the final estimate of the differential acceleration between the free-falling test masses on-board LISA Pathfinder, discuss some of the noise sources responsible and the implications for the sensitivity of LISA to low-frequency gravitational wave sources.