# Atomic Clock Ensemble in Space

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Operated on-board the International Space Station, the Atomic Clock Ensemble in Space (ACES) payload will distribute a clock signal with fractional frequency instability and inaccuracy of $1 \cdot 10^{-16}$. Space-to-ground and ground-to-ground comparisons of atomic frequency standards will be used to test Einstein's theory of general relativity including a precision measurement of the gravitational red-shift, a search for time variations of fundamental constants, and tests of the Standard Model Extension. ACES is scheduled for a launch to the ISS in the second half of 2016.

The ACES mission elements are now approaching flight maturity. Tests on the engineering models have been completed and the manufacturing of the flight models is ongoing. The active H-maser SHM and the science link MWL have recently been tested to evaluate their sensitivity to the ISS environment and flight dynamics. The flight model of the cold cesium clock PHARAO has been delivered by industry and it is presently under test in CNES laboratories. The ACES ground segment is close to completion, with the first two terminals of the ACES microwave link expected to be delivered before the end of 2014. The organization of the ACES science ground segment is being finalized.

This paper will present the progress achieved on the ACES mission. Recent test results on instruments and subsystems and the status of the ACES science ground segment will be discussed.