

# The first cross-calibration of Imaging Atmospheric Cherenkov Telescopes with a UAV-based airborne calibration platform – Executive summary

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A novel unmanned aerial vehicle (UAV)-based cross-calibration method has been tested on the H.E.S.S. Cherenkov telescope array using an LED-based 4 ns pulsed light source mounted on an UAV whose light was recorded by the four 12 m dish diameter HESS-I telescopes. Indeed, the unprecedented accuracy and sensitivity of the next generation array, CTA, will introduce new calibration challenges, among other for the wavelength dependent characterisation of the optical efficiencies of the individual telescopes and its evolution with time. Using the UAV events recorded in two successful runs, the relative optical efficiencies of the HESS-I telescopes were determined at a given wavelength in order to overcome this challenge. The obtained relative efficiencies for the four telescopes only deviate by 3.1 % between the two runs and by 5.5 % and 6.3 % respectively from the previously used muon calibration, and the recorded UAV data allows, in addition, to verify the H.E.S.S. pointing corrections.