

V102a ALMA: frineg phase calibration (4): high frequency long baseline capability

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The focus of the high frequency (HF) long baseline (LB) imaging capability test in ALMA is to investigate the feasibility and accuracy of imaging target sources in Band 7 to 10 with 16 km baselines. Band 7 LB user observations have already been opened, started Cycle 7, while Bands 8 to 10 have a forward look towards being opened in Cycle 9 (starting October 2021).

In the feasibility study, Band-to-Band (B2B) technique has been extensively tested for the phase correction: phase solutions are obtained from lower frequency phase calibrator phases and applied to correct HF phase errors of the target source by multiplying with the frequency scaling ratio. In 2017, we initiated the HF-LB B2B feasibility study in Bands 7 to 10, and in 2019, 13 observations were made in Bands 9 and 10 with the long baseline configuration. We have successfully made synthesis images with the angular resolutions higher than 10 milli arcsecs in Bands 9 and 10. We will present results of those feasibility tests, the current status, and the next study plan achieved in 2020.