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A demonstration of absolute polarization angle calibration at 6 GHz using ATCA

We will demonstrate the polarization calibration for obtaining the absolute polarization angle from the continuum polarization calibrators at 6 GHz. The data including calibrators and maser sources were observed by the Long Baseline Array (LBA) under the project V452E which aims to study the magnetic field structure in high-mass star-forming regions (HMSFRs). In order to obtain the correct magnetic field orientations in HMSFR, the absolute polarization angle has to be known. We used the calibrator data only from Australia Telescope Compact Array (ATCA), the LBA station which provides the highest sensitivity and sufficient resolution for this purpose. Summary processes are as follows; (a) PKS 1934-638 is the unpolarized primary calibrator and will be used as the flux scale for other calibrators (b) gain, bandpass, and antenna leakages will be determined for all sources, and (c) the image cubes of 1921-293 will be created and absolute polarization angle will be measured at the peak of total intensity. The calibration was performed using the Common Astronomy Software Applications (CASA) package. This angle will be used as the reference value for the polarization calibration of the LBA under the same project code.

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