

Far-sidelobe and Polarization Angle Measurement of LiteBIRD Low Frequency Telescope using a 1/4-Scaled Model

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- We evaluated far-sidelobes and polarization angles in the $18^\circ \times 9^\circ$ -FoV of the LiteBIRD LFT, using a 1/4-scaled LFT antenna at correspondingly scaled wavelengths.
- **Far-sidelobe Measurements**
 - Some far-sidelobe features are identified to be due to stray light and are reduced by the hood, as designed; other far-sidelobe components are less than -56 dB.
 - Sidelobes for Pol-X and Pol-Y are consistent to each other down to < -40 dB level.

[H. Takakura et al, IEEE Trans THz Sci Tech, 9, 6, 598, 2019](#)

- **Polarization Angle Measurements**

- The polarization angle at the edges of the focal plane varies from that at the center by up to $\sim 1^\circ$.
- The variation in the focal plane shows an opposite trend for the polarization rotation direction of Pol-X and Pol-Y.
- The angles measured by rotating the polarization direction in the aperture and in the focal plane are consistent to each other with the differences of mostly $< 10''$.

[H. Takakura et al, Proc SPIE 11443-211, 2020](#)

