

V120a **The Most Sensitive Millimeter and Submillimeter Heterodyne Receiver System in the Northern Hemisphere LMT-FINER IX: Development Status of FINER Band 6+7 Receiver**

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To efficiently identify high-redshift galaxy candidates at $z > 8$, the LMT-FINER project is developing two wideband, dual-polarization, sideband-separating (2SB) heterodyne receivers covering 120–210 GHz and 210–360 GHz frequency ranges for the Large Millimeter Telescope (LMT) in Mexico. These receivers are designed to provide an intermediate frequency (IF) of 3–21 GHz per sideband and per polarization. With 40% of ALMA’s light-collecting area and a similar atmospheric transmission of LMT, they will offer the highest spectral scanning capability in the northern hemisphere. For the 210–360 GHz receiver, key components such as SIS mixer, corrugated horn, orthomode transducer, and 2SB unit have been developed and characterized. Currently, the sideband-separating receiver has been tested with single-polarization and LO frequencies up to around 310 GHz. The measured receiver noise temperature is approximately 100 K, but the analog sideband rejection ratio is still limited to below 10 dB at some frequencies, indicating the need for further optimization. In this presentation, we report recent progress focusing on the 210–360 GHz receiver test for LMT-FINER.