

The ALMA Band 1 receiver: building the lower frequency end of ALMA

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The ALMA Band 1 receiver development project is the East Asia contribution to ALMA development. The project is led by ASIAA (Academia Sinica Institute of Astronomy & Astrophysics) in Taiwan, in collaboration with NAOJ (Japan) and the University of Chile, and with contribution from HIA (Canada) and NRAO (USA). The development of the ALMA Band 1 receiver will allow ALMA to use the 35–50 GHz frequency range, and will open up access to a wide range of compelling scientific cases, as shown in the ALMA Band 1 Science case. The two main scientific goals of ALMA Band 1 are also two Level One ALMA goals: the study of dust around protoplanetary disks, and the follow-up of dust grain growth to cm-sizes; and the observation of molecular gas in galaxies at high redshift, up to the era of reionization, through the observation of several transitions of CO. The ALMA Band 1 receiver is expected to provide similar or improved sensitivity and substantially better imaging and mosaicking capabilities compared to the JVLA. Currently, we are entering the production phase of the Band 1 receiver: the three initial pre-production cartridges and several production cartridges are already assembled and tested in Taiwan. We are expecting to start deploying the cartridges in Chile during 2018. In my talk, I will show the latest status of the production phase and the plans for the upcoming Band 1 Science Verification observations.