

V140a **Update on the ALMA band 2+3 receiver collaboration, and latest work at NAOJ**

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The ALMA band 2 (67-90 GHz) is the last frequency band to be implemented in the ALMA telescope. In recent years, a consortium led by ESO (European Southern Observatory) has carried out a study to assess the possibility to install an extended band 2+3 (67-116 GHz) receiver in the ALMA band 2 cartridge slot. This slot does not have a 4K stage, and the coldest temperature to be used is 15K. This forces band 2 or 2+3 to be based on HEMT amplifiers instead of SIS mixers. NAOJ has been part of the consortium for the development of the ALMA band 2+3 receiver, and has contributed optics component designs: dielectric lens, corrugated horns and OMTs. In this paper, we review the latest results of components designed at NAOJ, in particular, an OMT with state-of-the-art performance. In addition, we will update on the latest status of the ALMA band 2+3 project, including the results and most important comments during the Preliminary Design Review (PDR) held in Garching (Germany) on 29-30 Dec. 2017.