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Bât 709, p 220 (salle Godunov), CEA Saclay, Orme des Merisiers

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PERFORMANCE OF THE BAND 3 (84-116 GHZ) RECEIVER

1) Introduction à la détection hétérodyne, par Stephane Claude

2) Performance of the Band 3 (84-116 GHz) receiver for ALMA Presented by Stéphane Claude Band 3 covering 84 to 116 GHz is one of the ten bands that will form the Atacama Large Millimetre Array Front End Receiver. A Band 3 receiver prototype and one unit have been assembled and tested so far at the Herzberg Institute of Astrophysics, . This talk will give an overview of the Band 3 design and also present the performance of the first deliverable unit. The single sideband (SSB) system noise exceeds the specifications ($TSSB < 37K$) across the full RF band with a minimum TSSB of 26 K and a maximum of 34 K. In addition to details of the system noise performance other characteristics such as image rejection, cross polarization and amplitude stability will also be presented.

3) Low Noise Cryogenic Amplifier for Band 3 Presented by Frank Jiang The design of 4-8 GHz amplifiers will be given as well as performances. The amplifier design is using a hybrid circuit in order to provide maximum flexibility for optimizing the active and passive components. Low noise (less than 4 K when cooled at 12 K), low power consumption (less than 9 mW) and flat gain (± 1 dB) and bandwidth (4-8 GHz minimum) are the major drivers for the design of this 3 stage InP HEMT transistors.