

ALMA Science

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Suzanna Randall - 2020-09-21 - ALMA Observing Tool (OT)

ALMA is capable of receiving two orthogonal polarizations (X and Y) simultaneously, each of which detects half of the radiation from an unpolarized source; the frequencies detected by each polarization are identical. Therefore, if both X and Y are detected (as is the case for dual or full polarisation observations), the sensitivity is increased compared to the single polarization case as the "effective bandwidth" is doubled compared to the "bandwidth per polarisation" (for Single_X observations the effective bandwidth and the bandwidth per polarisation are the same). To calculate the effective bandwidth, the ALMA Sensitivity Calculator requires that you enter both the number of polarizations and the "bandwidth per polarization" i.e. the summed frequency range of interest that would be detected by either of the polarizations individually.