## Sideband Separating Mixer for ALMA Band 9 Upgrade: operational aspects.

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*Abstract*—We have built a Sideband Separating mixer (2SB), which has demonstrated a sideband rejection ratio as high as 15 dB over the full RF band, well within the ALMA specifications of 10 dB. The SSB noise temperature is also within the ALMA requirements of 336 K over 80% of the band, and 500 K over the entire band.

The algorithms and testing procedures for Dual Sideband (DSB) Band 9 mixer were developed and successfully implemented few years ago. The DSB mixer contains only one SIS junction, whereas for 2SB mixer two SIS junctions are required. That makes an essential difference in the procedures of the receiver testing and operation.

In our report we present low time consuming procedures for 2SB receiver testing. We additionally focus on the measurements of Noise Temperature and Sideband Rejection Ratio, which both sufficiently depends on the bias voltages of both SIS junctions. The possibilities to implement "old" DSB procedures to operate 2SB mixer, which simplify the Band 9 upgrade, were also studied.