

National Radio Astronomy Observatory  
Tucson, Arizona

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MEMORANDUM

TO: D. Emerson

FROM: John Payne *J.P.*

SUBJECT: High Frequency Performance

The attached curves show the performance of the available NRAO receivers over the frequency range 230-370 GHz. The frequency ranges are covered in the following manner.

1) 230-270 GHz

The dual channel cooled mixer receiver is used with 2 pairs of mixers. The low frequency pair covers 200-240 GHz and the high frequency pair 240-270 GHz.

2) 270-305 GHz

This frequency range is covered by installing a specially optimized mixer in the 345 GHz receiver. The LO is a modified tripler powered by a Gunn oscillator. The optics of the receiver is non optimum for this frequency band. The LO power is marginal and this solution must be regarded as temporary.

3) 325-370 GHz

The single channel 345 GHz receiver is used for this band. The LO consists of a Millitech quadrupler driven by a Gunn Oscillator.

Comments On Performance

- 1) The 230-270 GHz band seems ok.
- 2) The 270-305 GHz performance is poor for reasons that need investigating.
- 3) The performance at 345 GHz is worse than last year, 2000K SSB, as against 1600K SSB. I don't know why.
- 4) The Millitech quadrupler performance was superb. It meets all the specifications and is very easy to tune.

JMP:mt

Drawing included

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