

NATIONAL RADIO ASTRONOMY OBSERVATORY
Charlottesville, Virginia

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MEMORANDUM:

TO: D. Hogg J. Payne
P. Jewell B. Turner
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FROM: A. R. Kerr

SUBJECT: Choice of Bands for Future SIS Mixers
in the 70-170 GHz Range

ARK

We are starting to think about an improved SIS mixer for operation primarily at 115 GHz. Various possibilities exist for the waveguide band and mixer tuning range, which should obviously be chosen to minimize the amount of receiver changing while giving the best possible performance at the 115.3 GHz CO line.

One possibility is to have separate mixers for 70-100 GHz and 100-120 GHz. An alternative, but probably less practical, scheme would be to have 70-110 GHz and 110-170 GHz mixers. The latter would cover the 130-170 band as well as the CO line.

It would be helpful to have your comments on:

- (i) What lines might be of interest in the range from 70 to 170 GHz?
- (ii) The relative importance of these lines.
- (iii) Where the band breaks should be; i.e., are there some groups of lines which should be able to be covered without changing receivers?