From akerr Mon Aug 19 17:16:02 1996
Subject: 2-mm mixers
To: page@PUPGG.PRINCETON.EDU (Lyman Page)
Date: Mon, 19 Aug 1996 17:14:39 -0400 (EDT)
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Dear Lyman,

John Webber has asked me to enlarge on his reply to your letter of August 7th. There are three main factors which will affect our production of 2-mm mixers on your two-year time scale: the supply of junctions, getting the hardware made in the shop, and NRAO telescope support and development requirements.

We are now near the end of the UVA wafer from which all the present 150 GHz mixers came. We have another wafer which has not been tested at 150 GHz yet, but contains some good 68-90 GHz mixers. We hope to test this wafer before the end of the year and, if necessary, obtain another from UVA (which will be needed for future NRAO work, anyway). If all goes well, we should have a proven wafer (old or new) in hand by the end of this year.

We are now out of 2-mm mixer blocks and backshort drives, and will need to have more made. To make four will take about 1 man month of shop time. At present our shop is down to two men following Garnett's retirement, and there is a growing backlog of CDL, GBT and Tucson work -- and soon MAP will be a major player! One way around this might be to get the hardware made elsewhere, perhaps Custom Microwave. Having this kind of work done by outsiders not familiar with our needs can cause complications (by engineering standards our drawings are only dimensioned sketches), but I have worked with Custom Microwave before and I am reasonably confident they, or their recent offshoot Hi-Tech Microwave, could do the work. I'll discuss this possibility with John when he returns next week.

There are also the LO couplers, bias-T's, and amplifiers: will you need four each of these? They will require (for 4) about another man month of shop time. Again, we could think about using an outside shop.

Telescope support is highly unpredictable. We must plan for a steady flow of replacement and new mixers and front-end components, and hope there are no catastrophes. At present our mixer assembly and testing line is near full capacity, but adding in four 2-mm mixers over two years should not make too much difference.

Schedules: After getting the hardware made, we would probably want to do the labor intensive assembly and testing over the full two years. Does one mixer every five or six months fit in with your plans?

Pan and I look forward to working with you on this project.

Best regards.

--Tony.