

National Radio Astronomy Observatory

Charlottesville, Virginia

March 30, 1983

To: VLBA Electronics Group

From: M. Balister

Subject: Minutes of VLBA Electronics Group Meeting - March 28, 1983

A meeting of the VLBA Electronics Planning Group was held on March 28, 1983. Present were: S. Weinreb, H. Hvatum, L. D'Addario, M. Balister, C. Moore, W. Brundage, G. Behrens, K. Kellermann, R. Fisher, R. Lacasse, P. Napier, J. Campbell, D. Weber, A. Moffet, A. Rogers, and J. Carter.

It was proposed that the Electronics Group divide itself into four informal subgroups for the next couple of months so that the proposal update can be more efficiently worked on. The following groups were proposed:

FEEDS: Napier, FisherRECEIVERS: Weinreb, Moore, Carter, Moffet, CampbellIF/LO MASER: Moore, Weinreb, Thompson, BrundageMONITOR/CONTROL: D'Addario, Weber, Napier, Weinreb, Rogers,
Lacasse

These groups are informal and persons should let the leaders (underlined) know if they wish to participate in discussions, etc. Each group will work on updating their part of the system from that presented in the May 1982 proposal. An overall detailed block diagram is required and C. Moore will be responsible for making sure that all the parts are presented and will check that the interfaces are correctly specified. A fairly detailed program plan is required plus an updated cost estimate, including requirements for the first year (1984).

Napier described the feed arrangements for the Canadian and Australian proposed arrays. There was some discussion about the relative merits of the different approaches.

Weinreb reviewed the current state of the receivers; he mentioned that he was looking into the possibility of using a diplexer and two cooled GASFET amplifiers together with a relatively wide band feed horn in order to get good performance at 5 and 6 GHz. The same technique could be used to combine the 8.2 and 10.7 GHz receivers on a single feed horn. There may be a problem with compromising illumination and polarization due to the wide bandwidth requirements for the feed and circular polarizer. This will be looked into.

There was much discussion on monitor and control and the informal subgroup has the job of deciding what changes in philosophy/hardware will be included in the updated proposal.

The group was reassured by Kellermann that the 10 KHz minimum frequency step in array signal frequency would be satisfactory. The discussion about LO's centered on the possible inadvisability of using zero offset (DC) phase lock loops. Much concern also centered on the potential for self-interference from the many frequencies that are generated within the LO system. At lower frequencies, the computer equipment can also be a severe source of RFI; this is a problem that will need attention.

The video converters will be considered part of the recorder system in the soon-to-be prepared report. Four IF signals in the frequency range 300-500 MHz will be brought down the telescope from the front-end electronics to the data acquisition system (recorders) which will be in the telescope control building.

The next meeting of the VLBA Electronics Group will be May 18, 1330 EDT, (203) 797-9065.