

NATIONAL RADIO ASTRONOMY OBSERVATORY  
Charlottesville, Virginia

October 25, 1984

TO: VLBA Electronics Group  
FROM: Dick Thompson  
SUBJ: Meeting on Vertex Room Planning, Oct 24, 1984

Attendees: Balister, Campbell, D'Addario, Dill, King, Napier,  
Schlecht, Thompson, Weinreb.

The following decisions were made.

1. Feeds for the bands 1.5, 2.3, 4.8, 8.4, 15, 23, and 43 GHz will be installed in the feed cone. Space will be left for two more feeds. Possible candidates for these spaces include feeds for the optional bands 6 and 10.7 GHz and for the future addition of the 84 GHz band. However, to allow sufficient access for maintenance, no more than nine cryogenic front ends will be mounted simultaneously. The two spare positions will include one on the elevation axis (desirable for the highest frequency bands), and both will be large enough to accommodate a frequency of no less than 6 GHz.
2. A prototype feed cone of the final design (not a wooden mockup) will be obtained as early as possible, and set up on a wooden structure at the VLA site to simulate the vertex room situation. The goal is to have this cone available by April 1986, that is, six months ahead of the acceptance date for the first antenna. During this period the cone will be outfitted with available feeds and front ends, and possibly with wooden models of others. Design of the mounting for feeds, front ends, helium and vacuum lines, etc. will be largely finished at this time. Prior to April 1986 preliminary design will be based on drawings and simple models, and work in this area should begin as soon as possible. There is no plan to have a permanent vertex room simulation at the VLA site, and the feed cone will probably be installed on the Pie Town antenna.
3. Starting in early 1986, VLBA project funds will be used to provide manpower at the VLA site for the feed cone installation and subsequent antenna outfitting.

4. A design in which the elevation axis runs through the vertex room is to be avoided if possible, since this would involve a steel tube of diameter 24 inches. This could be a serious obstruction, depending upon its location relative to the floor.

5. The following recommendation for mounting of the feeds was made by Peter Napier. For frequencies of 10.7 GHz and lower the feeds should be attached to the feed cone, and will then provide at least partial support for the front ends. For higher frequencies the feeds should be mounted on the front ends, which will be supported by brackets from the feed cone.