

NATIONAL RADIO ASTRONOMY OBSERVATORY

POST OFFICE BOX 2
 GREEN BANK, WEST VIRGINIA 24944
 TELEPHONE ARBOVALE 456-2011

REPORT NO. H79-7
 CONTRACT NO. RAO-79
 PAGE 2.2 OF 3
 DATE Nov. 1968

PROJECT: 300 FT. DIA. HOMOLGY RADIO TELESCOPE

SUBJECT: POSITION REFERENCE PLATFORM RECOMMENDATIONS

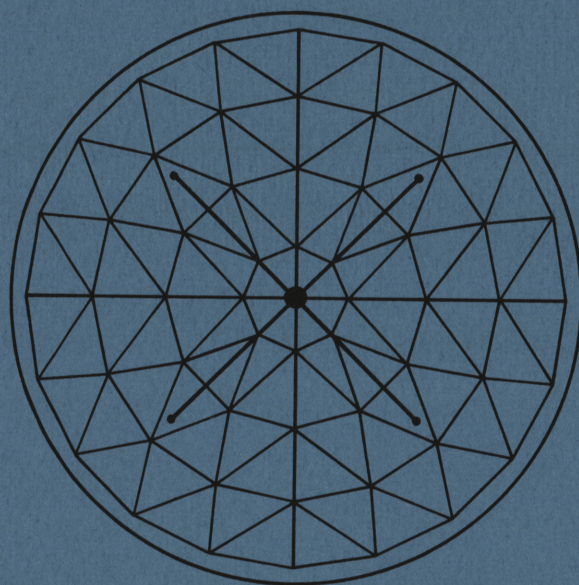
Systems Development Laboratory is also interested in the development, fabrication and checkout of the position reference platform and would consider either to take on the entire project or to perform the design only, with N.R.A.O. procuring, integrating and testing the system in Green Bank. In this case, substantial cost savings would be possible since the mark-up on the material could be eliminated. It is recommended that N.R.A.O. consider this approach, which would additionally accelerate the development schedule.

In any event, the most critical subsystem, which is the K&E laser auto collimator, should possibly be checked for performance under severe environmental conditions (fog, rain, snow, etc.). A simplified test set-up could be devised, which would permit the testing of a single laser collimator/mirror arrangement under the above environmental conditions.

This test set-up would require the purchase of the following items:

- | | | | |
|----|---|------------|--------------------|
| 1) | 1 - K&E laser auto collimating alignment system Cat. #71-2605 consisting of 1 auto collimation alignment laser with power supply, 2 displacement readout units and 1 quad cell detector assembly. | at | \$6,600.00 |
| 2) | 1 - Single reflecting mirror | at approx. | \$1,000.00 |
| 3) | 2 - Housings with quartz windows | at approx. | \$2,000.00 |
| 4) | 1 - Temperature controlled dynamic test stand for excitation purpose to check response | at approx. | \$3,000.00 |
| 5) | 1 - Temperature controlled support for the laser tube/collimator | at approx. | \$2,400.00 |
| 6) | Miscall. electronic equipment such as amplifiers, etc. | estd. | \$5,000.00 |
| 7) | Engineering, test procedure, evaluation, etc. | at approx. | <u>\$10,000.00</u> |
| | Estimated total cost of test | | <u>\$30,000.00</u> |

PREPARED BY O. R. Heine APPROVED BY _____ SUBMITTED BY S.D.L.



SECTION 2.0

NATIONAL RADIO ASTRONOMY OBSERVATORY

Post Office Box 2
GREEN BANK, WEST VIRGINIA 24944
TELEPHONE ARBOVALE 456-2011

REPORT NO. H79-7
CONTRACT NO. RAP-79
PAGE 2.1 OF 3
DATE Nov. 1968

PROJECT: 300 FT. DIA. HOMOLGY RADIO TELESCOPE

SUBJECT: POSITION REFERENCE PLATFORM RECOMMENDATIONS

2.0 RECOMMENDATIONS

Since the achievement of the best attainable performance of the 300 ft. diameter homology radio telescope depends to a great extent upon the successful development and application of the position reference platform, it seems logical that this system should be developed, built and tested prior to the final design and construction of the telescope.

For this reason, it is recommended that the development of the platform be initiated at the earliest possible date commencing the authorization of funds for the proposed project. It may, in fact, be advisable to obtain funds for the development, fabrication and checkout of the platform system prior to the final promotion of the radio telescope, since a less successful than expected platform performance could greatly influence the final design and cost requirements for the total system.

In order to be prepared in the event that sufficient funds will become available, it will be desirable to develop a design specification for the envisioned optical reference platform ahead of time.

There are several companies in the U.S. that would be qualified to design and build the reference platform in accordance with a finalized specification. They are as follows (but are not limited to):

- 1) TRW Systems
One Space Park
Redondo Beach, Calif.
- 2) Lear Siegler, Inc.
Astronics Division
3171 South Bundy Drive
Santa Monica, Calif. 90403
- 3) Conrac Corporation
Datex Division
1600 S. Mountain Avenue
Duarte, Calif. 91010

PREPARED BY O. R. Heine APPROVED BY _____ SUBMITTED BY S.D.L.

NATIONAL RADIO ASTRONOMY OBSERVATORY

POST OFFICE BOX 2
GREEN BANK, WEST VIRGINIA 24944
TELEPHONE ARBOVALE 456-2011

REPORT NO. H79-7
CONTRACT NO. RAP-79
PAGE 2.3 OF 3
DATE Nov. 1968

PROJECT: 300 FT. DIA. HOMOLGY RADIO TELESCOPE

SUBJECT: POSITION REFERENCE PLATFORM RECOMMENDATIONS

This test should preferably be performed at Green Bank under the supervision of N.R.A.O. and S.D.L. personnel.

It is recommended that this test be performed as a minimum, if sufficient funds for the development of the complete platform cannot be obtained.

PREPARED BY O. R. Heine APPROVED BY _____ SUBMITTED BY S.D.L.