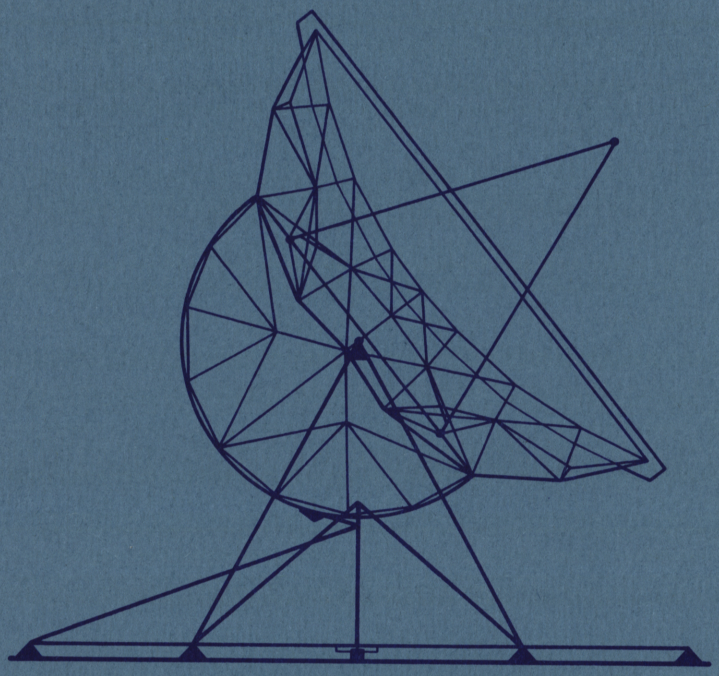
A 300 FOOT HIGH-PRECISION RADIO TELESCOPE

Appendix 2



May, 1969

National Radio Astronomy Observatory *
Green Bank, West Virginia

* OPERATED BY ASSOCIATED UNIVERSITIES, INC., UNDER CONTRACT WITH THE NATIONAL SCIENCE FOUNDATION.

Appendix 2

INTRODUCTION

In July 1968, Systems Development Laboratory was assigned the task of determining the feasibility of and preparing a conceptual design of a position reference system. This assignment was expanded in October 1968 to include the conceptual design of the antenna towers, the azimuth drives, the elevation and pintle bearing arrangements, and an investigation and evaluation of member design from a fabrication and economic viewpoint. Appendix 2 contains the engineering reports prepared by this Company.

CONTENTS

Appendix 2

Reference Platform for Homology Telescope

Design Concept Study of 300-ft Diameter Homology Radio Telescope

CONCEPT STUDY

OF

POSITION REFERENCE PLATFORM FOR

300 FT. DIAMETER HOMOLOGY RADIO TELESCOPE

FOR

NATIONAL RADIO ASTRONOMY OBSERVATORY

GREEN BANK, WEST VIRGINIA

BY

SYSTEMS DEVELOPMENT LABORATORY

SUBCONTRACT: RAP-79

DATE : November 1968

S.D.L. REPORT: H79-7

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 A OF
DATE Nov. 1968

PROJECT: 300 FT. DIA. HOMOLOGY RADIO TELESCOPE

SUBJECT: POSITION REFERENCE PLATFORM

ABSTRACT

This report presents the results of a study performed by Systems Development Laboratory, for the National Radio Astronomy Observatory, Green Bank, West Virginia, to investigate the feasibility and furthermore to determine the cost of a two axis reference platform and angular position and readout system for a 300 ft. dia., fully steerable, V. Hoerner - homology type, AZ-EL radio telescope. Drs. V. Hoerner and J. Findlay of N.R.A.O. initiated the idea of this concept for application on the 300 ft. dia. homology radio telescope and S.D.L. was subsequently given the assignment to investigate the feasibility of the system which is outlined herein.

The results of this study indicate that the concept is feasible and sound and it is furthermore believed that it might provide an advantageous method of angular position reference for any other large radio telescope.

In this report, design details, analyses, data, conclusions and recommendations are presented for the various system components along with discussions of possible problem areas and recommendations for further development efforts, which should lead to the successful design and production of a prototype reference platform system.

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

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