

**Memorandum of Agreement
for the
Digital Continuum Backend Receiver Project**

between

**California Institute of Technology
Pasadena, CA 91125**

and

**Associated Universities, Inc.
National Radio Astronomy Observatory
P.O. Box 2
Green Bank, WV 24944**

1. Introduction

The California Institute of Technology (Caltech) agrees to develop a digital continuum backend for the National Radio Astronomy Observatory (NRAO) Green Bank Telescope for operation in conjunction with the 1 cm and 3 mm receivers. AUI/NRAO will provide funding for this project through NSF Cooperative Agreement No. AST0223851. The technical, management, and budget details for this project are provided in the attached proposal (Appendix A). This project will be done on a best efforts basis.

2. Project Management

2.1 Principal Managers

The principal managers for this agreement are the Caltech Project Manager, Dr. Tim Pearson, and the NRAO Assistant Director for Green Bank Operations, Dr. Philip R. Jewell.

2.2 Project Reviews

This project will be governed by a series of project reviews that include a Preliminary Design Review, a Critical Design Review, a pre-delivery review, and a final review after astronomical commissioning. Upon agreement of the Caltech and NRAO project managers, the Critical Design Review may be replaced by a series of progress reviews. The purposes of the reviews are to promote communication between all elements of project at both Caltech and NRAO, to ensure that the instrument meets scientific and operational requirements, to monitor progress of the project, and to administer this agreement. The project reviews may take a variety of formats and may be held at Caltech or Green Bank, as appropriate and agreed. The scope of each review will be agreed by the NRAO and Caltech project managers. The Caltech Project Manager is responsible for producing required documentation for each major review, which includes, in general, a report on the status of the project, proposed designs, project plans with milestones, and budget status and projections. Reviews will be organized collaboratively by the NRAO Project Manager and the Caltech Project Manager.

3. Budget

The Caltech budget, as described in detail in the accompanying proposal, is summarized below.

Salaries & Benefits	\$139,880
Parts	\$ 37,370
Travel	\$ 13,000
Indirect Costs	\$ 34,970
Project Total	\$225,220

The distribution of the budget over the two-year duration of the project is as follows:

Year 1 (FY2002)	\$142,495
Year 2 (FY2003)	\$ 82,725

4. Period of Performance

The period of performance for this project will be January 1, 2002 through June 30, 2003, unless modified by written amendment to this Agreement.

5. Payments to Caltech

Payments will be made on a cost-reimbursement basis, upon receipt of invoices from Caltech.

6. Deliverables

On a best efforts basis, Caltech will deliver a digital continuum backend as described in the attached proposal. Deliverables also include engineering documentation in hardcopy form and all CAD files in electronic form. At the time of delivery, the backend becomes the permanent property of NRAO/NSF.

7. Conflict Arbitration

Every effort will be made to resolve all conflicts at the project level. Conflicts that cannot be resolved at the project level will be resolved by the Director of the NRAO. Irreconcilable conflicts may be cause for project termination.

8. Termination

Both institutions agree to make best efforts to conduct this project in the manner described in this MOA and attached proposal. The project can be terminated with 30 days written notice by either party for reasons of financial or project exigencies, lack of progress, or by the agreement of both parties. In case of termination, all project materials, components, work-to-date, and unspent funds should be delivered to the NRAO within 30 days of the date of termination.

9. Term of this Agreement

Unless otherwise terminated as described above, this agreement will expire at the successful completion of the final commissioning review, as certified by the NRAO Project Manager, or June 30, 2003.

Signed,

Nancy Daneau
Senior Contract and Grant Officer
Office of Sponsored Research
California Institute of Technology

Date:

James L. Desmond
Associate Director for Administration, NRAO

Date:

Attached Documents

Appendix A: Project Proposal