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Development Upgrades of the Atacama Large Millimeter/submillimeter Array (ALMA)

NRAO Study Plan -Template

Prepared by	Organization	Date
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Change Record

Version	Date	Reason
0.0	01 May 2013	Initial Release

Delete this entire page from your submitted Study Proposal.



North American
ALMA Science
Center



Development Upgrades of the Atacama Large Millimeter/submillimeter Array (ALMA)

NRAO STUDY PLAN

*Insert **TITLE** here*

PRINCIPAL INVESTIGATOR:

INSTITUTION:

ADDRESS:

PI CONTACT INFORMATION:

Telephone Number

Email address

ABSTRACT

Present a one page (or less) description of the work scope and objectives of the proposed Study.

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1.0 SCIENCE CASE

Present the scientific rationale for the proposed Study and the significance for ALMA.

2.0 STUDY DELIVERABLES

Describe the products that will be delivered at the conclusion of the proposed Study.

2.1 Hardware:

2.2 Software:

2.3 Services:

2.4 Documents:

- Monthly “4-square” Progress Reports
- Final Report
- Outcomes Report

3.0 INTERFACES TO ALMA

Note the ALMA hardware and/or software control interfaces that may be affected if the proposed design or control scheme is implemented.

4.0 SITE LOCATION IMPACT STATEMENT (if applicable)

Describe any new facilities, significant modifications to existing facilities, or use of NRAO facilities that are required. Also indicate when these facilities and/or modification are required.

5.0 PROGRAM OPERATING PLAN IMPACT

Describe impact(s) in terms of reduced labor and/or facilities capacity within the proposed period of performance.

6.0 PERIOD OF PERFORMANCE

*Define the anticipated period of performance (**twelve months maximum**).*

7.0 STAFFING

Estimate the level of effort (unit of measure = Full Time Equivalent) to be deployed by the NRAO until completion of the proposed Study. Identify essential (key) NRAO personnel required to ensure success. If two, or more, persons of equivalent labor grade are capable of performing any given task, leave the corresponding Key Personnel cell blank and note the FTE level of effort only.

7.1 NRAO Staffing:

Complete Table 1.0, below.

Table 1.0; NRAO Labor Estimate.

Title	Key Personnel (leave blank if inapplicable)	FTE	Duration (Months)
Principal Investigator			
Scientific Lead			
Engineering Lead			
Sr. Research Engineer			
Research Engineer			
Sr. Engineer			
Engineer 1			
Engineer 2			
Engineer 3			
Technician 1			
Technician 2			
Technician 3			
Machinist			
Other			
TOTAL FTEs		0.00	

7.2 External Staffing:

Complete Table 2.0, below.

Table 2.0; External Staffing and Contact Information.

Title	Name	Institution	Email	Telephone
Co-Investigator				
Vendor point of contact				
Customer tech. point of contact				

8.0 COST BREAKDOWN

The total Award Pool for the FY2014 Call for Development Study Proposals is \$1.0M. The total Award Pool amount (\$1.0M) will fund all NA ALMA Partnership Study Proposals. **The maximum cost allowance for an individual Study Proposal is \$200K.**

8.1 NRAO Cost:

Complete Table 3.0, below. Work Breakdown Structure (WBS) Number should correspond to Level 1 tasks/activities in the Study schedule. Insert additional rows as required.

Table 3.0; **NRAO Cost Breakdown.**

WBS No.	Task Description	Labor (\$)	Materials & Services (\$)	Travel (\$)
1.0				
2.0				
3.0				
4.0				
5.0				
6.0				
7.0				
8.0				
9.0				
10.0				
n.0				
SubTotals (\$)		0.00	0.00	0.00
		TOTAL COST (\$)		0.00

8.2 Collaborating Institution / Subcontractor Cost:

Complete Table 4.0, below. Insert additional rows as required. Note the value of any In-Kind Contributions.

Table 4.0; Collaborating Institution / Subcontractor Cost.

Collaborating Institution / Subcontractor	USD (\$)	In-Kind Contribution Value in USD (\$)
TOTAL COST (\$)	0.00	
TOTAL VALUE of IN-KIND CONTRIBUTIONS (\$)		0.00

8.3 Total Cost:

Complete Table 5.0, below.

Table 5.0; Total Study Cost.

Study Participants	USD (\$)
NRAO Total Cost (Table 3.0)	
Collaborating Institution / Subcontractor Total Cost (Table 4.0)	
NRAO Study Contingency (reference Table 7.0)	
Total Cost of Study (\$)	0.00

8.4 Total Value:

Complete Table 6.0, below.

Table 6.0; Total Study Value.

Category	USD (\$)
Total Cost of Study (Table 5.0)	
Total Value of In-Kind Contributions (Table 4.0)	
Total Value of Study (\$)	0.00

9.0 SCHEDULE

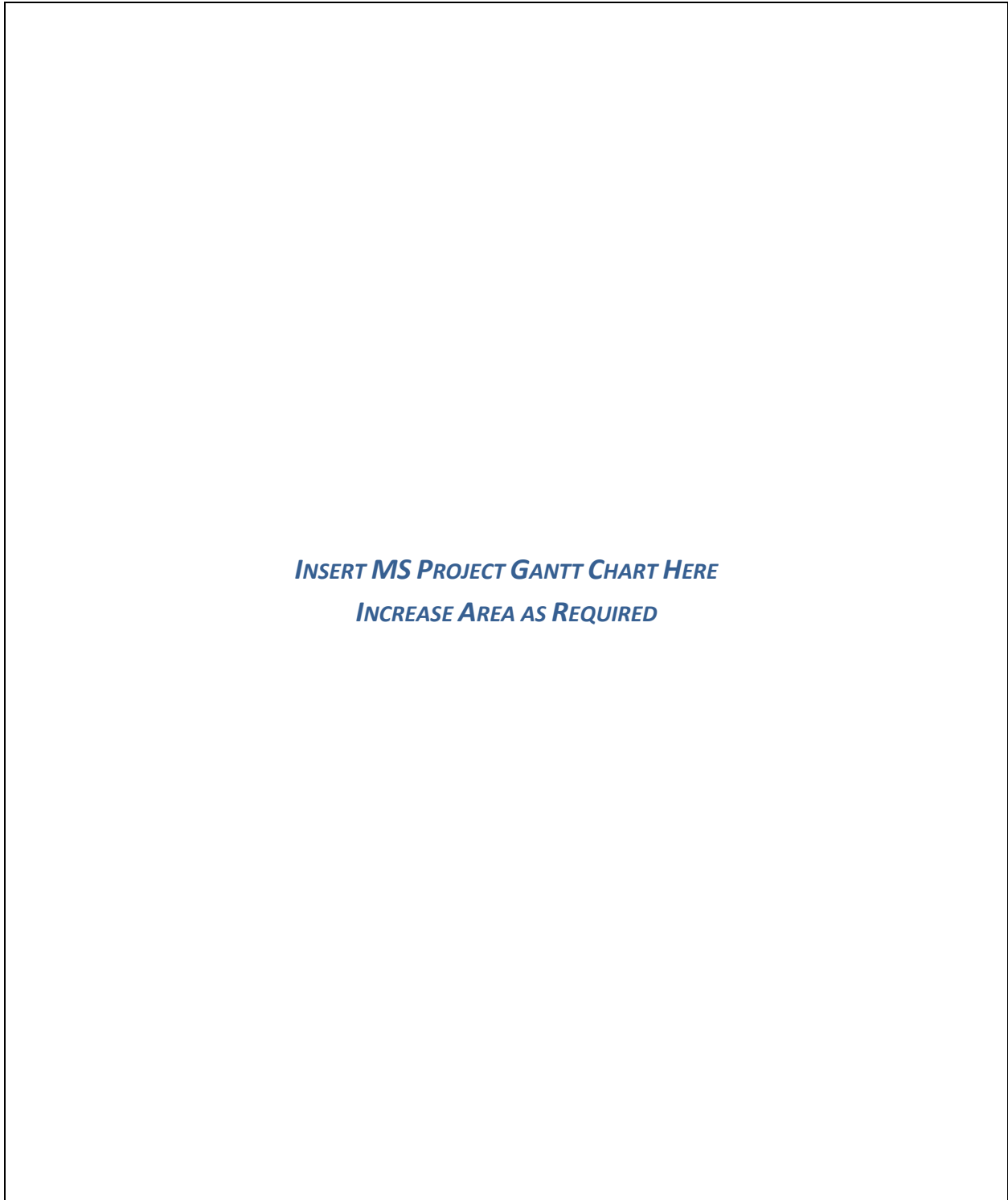


Figure 1.0; Study Schedule.

10.0 STUDY MANAGEMENT

10.1 Systems/Configuration Control

10.1.1 Systems Requirement and Specification Control

Development engineering and design activities will be conducted in accord with established ALMA Systems Engineering policies, practices and procedures.

10.1.2 Documentation Control

All shared documents will be dated and bear a revision level number.

10.1.3 Product & Quality Assurance Control

Development engineering and design activities will be conducted in accord with established ALMA PA/QA policies, practices and procedures. A unique Product Assurance Plan is unnecessary.

10.2 Performance to Schedule

The Principal Investigator has primary responsibility for schedule development and performance to schedule. The NA ALMA Development Program office will provide support to the PI in establishment of a revision-controlled Study schedule and monthly preparation of performance to schedule status. In the event of a schedule variance, the PI and the NA ALMA Development Program Manager will assess the impact and develop the appropriate recovery action(s).

10.3 Performance to Budget

The Principal Investigator has primary responsibility for intra-study budget allocation and cost performance. The NA ALMA Development Program office will provide support to the PI in establishment of cost accounts, budget load, and the preparation of a revision-controlled, monthly Budget Status Report. In the event of a cost variance, the PI and the NA ALMA Development Program Manager will assess the impact and develop the appropriate recovery action(s).

10.4 Measures of Success

Describe the measures of success (performance metrics and outcomes) for this Study. Describe the process that will be used to address experiment prioritization, evaluate experiment results, and to modify the approach/redirect experiments.

10.5 Risk Management

*Identify the primary areas of uncertainty (risk) foreseen at the outset of the Study. Estimate the probability of occurrence and associated cost impact of each identified risk. Total estimated cost impact should guide the Proposers' calculation of contingency funds (reference Table 5.0, **Total Study Cost**). Also, briefly note the means by which each primary risk may be mitigated or retired altogether.*

Table 7.0; Study Risk Assessment.

No.	Primary Risk(s)	Prob. (%)	Impact (\$)	Mitigation
1				
2				
3				
Total Cost Impact (\$)			0.00	

10.6 Communication Plan and Progress Reporting

A monthly, “four-square” progress report will be prepared by the Principal Investigator in accord with Observatory Program Management practices and procedures. Informal reviews will be conducted by the NA ALMA Development Program Manager upon the completion of Level I milestones.

11.0 STUDY CLOSEOUT

Upon conclusion of this Study, the NA ALMA Development Program Office will coordinate the orderly closeout of activities; or, the transition of activities to a continuing Study or Project. At a minimum, this will include the following:

- verification of compliance with established procurement policies and procedures;
- verification of Purchase Order final payments;
- verification of compliance with established labor charging practices;
- verification of labor charging accuracy;
- cost and schedule variance analysis;
- resolution of any inventory and/or property control issues;
- inactivation of cost accounts;
- preparation of a Final Report;
- preparation of an Outcome Report; and
- archiving of Study records.

APPENDIX A - REFERENCE DOCUMENTS

APPENDIX B – CURRICULUM VITAE OF KEY PERSONNEL