

ESTO Reporting Requirements as referenced in the NNH18ZDA001N-AIST solicitation, section 2.2.8.

There are a number of ESTO-specific reporting requirements that must be incorporated in the work plan of the proposal, among them a semi-annual, annual and final review presentations. These are in addition to the Agency reports for grants.

Proposals are required to acknowledge their understanding of the requirements and their inclusion in the work plan in the ROSES proposal submission process.

### 1. Technical Reporting Requirements

Proposers should be aware that technology programs require more extensive reporting than many other ROSES elements and these costs should be taken into account in submitted proposals.

Once awarded, submit all status information, presentation material, and report deliverables applicable to this AIST program element to the web-based ESTO Reporting System (ERS). A user account on the ESTO ERS will be provided to the PI upon award. Due to NASA IT security requirements, all PIs must register with the Identity Management and Account Exchange (IdMAX) system before a user account on ERS will be established. To create an IdMAX account, some personal information will be required.

The following deliverables are required of awarded proposals. In cases where subcontract arrangements exist, consolidated project reports are the responsibility of the PI. The proposed budget should provide for these reporting requirements. In this context, "Annual" refers to a twelve-month task effort that commences at award.

### 2. Initial Plans and Reports

Within 15 days of award, provide an updated Project Plan, initial Quad Chart, and initial TRL assessment. Also, provide a monthly cost plan for the entire period of performance. The project plan, initial (entry) Quad Chart, cost plan, and initial TRL assessment (and supporting data) should be created in the ESTO ERS.

The project plan shall identify plans for all technical, schedule, and resource activities for the proposed life of the project.

The initial quad chart shall follow the template and example:


General: Simply copy the format/fonts, etc. for each type of quad in the illustrations provided. Some brief comments on each of the four quads are also provided below. All Quads should have the **Title** of the task, in the first line, and the **PI Name: Institution** in the second line. Both of these are above the red and blue lines, in the area where the NASA "meatball" is. The font is "Comic Sans".

Entry Quad:

- Top Left Quadrant: The **Objective** ("what" the task will do) in bullet format.
- Top Right quadrant: A representative illustration of the technology, at the initial stage of the task.
- Bottom Right Quadrant: **Key Milestones** ("when") for accomplishment of the task in the format of "Month/Yr". (E.g.: 03/06 for the second milestone.)

- At the bottom, center of this quadrant, the entry TRL for the technology in the format **TRL<sub>in</sub> = m**
- Bottom Left Quadrant: **Approach** (“how”); in bullet form the task will be accomplished. This quadrant also lists any **Co-Is/Partners**.
- Provide the date (month/yr; e.g.: 10/05) the chart was created, in a small font, on the lower left of the slide, below the double blue lines. Place the date (month/year) for the quad in the lower left in a small font below the blue lines.

Example slide and page 3 contains a blank template.



## Adaptive Self-Correcting T/R Module

PI: Wendy Edelstein / JPL

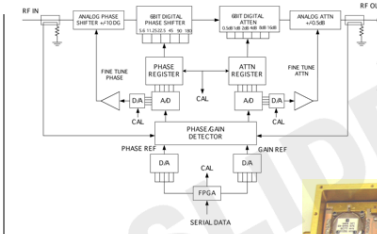
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**Objective**

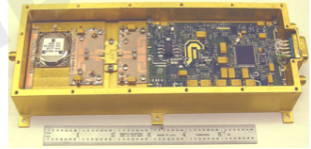
Develop a practical and low cost adaptive L-band T/R module with integrated calibrator for use in phase-stable array antennas for interferometric synthetic aperture radar (InSAR) applications.

Performance goals are <1 deg absolute phase stability and <0.1 dB absolute amplitude stability over temperature.

Technologies include high efficiency L-band T/R module; integrated phase/amplitude detector; closed-loop detection and correction circuitry.



**Closed-Loop Calibration Scheme**



High-Efficiency L-band T/R module to be modified with integrated calibrator

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**Approach:**

Modify an existing high-efficiency L-band T/R module with built-in calibrator by:

1. Developing a stable closed-loop amplitude and phase detector circuit.
2. Integrating the calibrator circuit into the L-band T/R module.
3. Characterizing performance over temperature to demonstrate ability to self-correct for variations in insertion phase or amplitude.


**Key Milestones**

• Requirements, architecture, design	7/06
• Breadboard demo (TRL 5)	1/07
• Build T/R with integrated calibrator	7/07
• Prototype validation (TRL 6)	1/08

**CoIs:** Constantine Andricos, Gregory Sadowy, JPL

04/07

**TRL<sub>in</sub> = 4**



Powerpoint blank template can be accessed at (page 3):  
[https://esto.nasa.gov/files/EntryQuad\\_instructions\\_template.ppt](https://esto.nasa.gov/files/EntryQuad_instructions_template.ppt)

Proposers are required to update the Quad Chart and TRL assessment at least annually and more often, if appropriate. This can be done on the ESTO ERS under the "Quad Chart" section and "TRL" section respectively.

### 3. Quarterly Technical Reports

The quarterly technical report shall focus on the preceding three months' efforts. Address the following in each report:

- A. Technical status: Summarize accomplishments for the preceding three months, including technical accomplishments (trade study results, requirements analysis, design, etc.), technology development results, and results of tests and/or demonstrations.
- B. Schedule status: Address the status of major tasks and the variance from planned versus actual schedule, including tasks completed, tasks in process, tasks expected to complete later than planned, and tasks that are delayed in starting, with rationale for each and recovery plans, as appropriate.

Upload the Quarterly Technical Reports to the appropriate location in the ESTO ERS at three-month intervals, starting on the third-month anniversary date of the start date specified in the award vehicle. In months for which the PI is providing interim or annual review, the requirement for a quarterly report is superseded by the interim or annual review requirements discussed in the next two sections.

Reports may be submitted in PDF, Microsoft Word, or Microsoft PowerPoint compatible file formats by the required due date, or by close of business of the first workday following the due date if the due date falls on a weekend or a holiday. A teleconference or brief meeting may be conducted between the ESTO and the PI to review and discuss each report.

#### 4. Interim Reviews

An Interim Review occurs at the end of the first six-month calendar period commencing from the date of award and at twelve-month intervals thereafter. The PI must provide a presentation summarizing the work accomplished and results leading up to this Interim Review and must:

- A. Describe the primary findings, technology development results, and technical status, e.g., status of design, construction of breadboards or prototype implementations, results of tests and/or proof-of-concept demonstrations, etc.;
- B. Describe the work planned for the remainder of the project and critical issues that need to be resolved to successfully complete the remaining planned work;
- C. Summarize the cost and schedule status of the project, including any schedule slippage/acceleration. Create and maintain a schedule milestone chart of all major task activities and show at all reviews. Also, create and main a cost data sheet that shows total project costs obligated and costed, along with a graphical representation of the project cost profile to completion;
- D. Provide a summary of anticipated results at the end of the task; and
- E. At the second review and subsequent reviews, address the comments and recommendations prepared by the reviewers participating in the most recent review.

The Interim Review will be conducted via teleconference and uploaded to the appropriate location in the ESTO ERS at least three (3) working days prior to the review. Following the review, the presentation, updated in accordance with comments and discussion resulting from the review, shall be uploaded to the appropriate location in the ESTO ERS within ten days after the review.

## 5. Annual Review

An Annual Review occurs at the end of the twelve-month calendar period commencing from the date of award. The Annual Review is similar to the Interim Reviews and include all of the products required at an Interim Review with the following exceptions:

- A. The review is held at the PI's facility or a mutually agreed to location.
- B. An independent technical reviewer from an organization separately funded by ESTO participates in the review.
- C. The PI may provide a laboratory demonstration, if appropriate, to show technical results and status.
- D. Report any educational and outreach components of the project, e.g., graduate degrees, educational activities; technology infusion or patents applied for or granted; journal or conference publications; presentations at professional conferences, seminars and symposia; demonstrations; media exposure; and, other activities that contributed to the overall success of the research project.
- E. The Annual Review should be comprehensive, and should cover the progress over the previous twelve months.

Upload the review package to the appropriate location in the ESTO ERS at least three (3) working days prior to the review. The presentation, updated in accordance with comments and discussion resulting from the review shall be uploaded to the appropriate location in the ESTO ERS within ten days after the review.

## 6. Final Review and Final Report

The Final Review occurs at the completion of the activity. The Final Review is similar to the Annual Review and includes all of the products required at an Annual Review. In addition, the final review must provide conclusions of the work performed and make recommendations for follow-on activities that should be pursued, with estimates of the cost and schedule to advance the TRL to the next level.

- A. Include the following in the written Final Report:
- B. Background of the project, including the science rationale for conducting this technology development;
- C. Results of all analyses, element, subsystem, or system designs, breadboards and/or prototyping implementations and designs;
- D. Performance analysis results of tests and/or demonstrations; estimation of reduction(s) in size, mass, power, volume and/or cost; improved performance; description of newly enabled capability; and documentation of technology dependencies;
- E. Tables, graphs, diagrams, curves, sketches, photographs, and drawings in sufficient detail to comprehensively explain the results achieved;
- F. An updated TRL assessment, including a rough order of magnitude cost and a description and estimate of the duration of the follow-on activities necessary to advance the TRL to next level;
- G. Updated Quad Chart; and
- H. At the end of the period of performance, the PI shall create a final Accomplishments Chart which contains the following information (a template is available in the ERS):
  - Upper Left: "Objective"

- Upper Right: A visual, graphic, or other pertinent information.
- Middle: "Accomplishments."
- Bottom: "Co-Is" (name and affiliation), "Entry TRL" and "Exit TRL."

The Final Report and updated Final Review presentation shall be uploaded to the appropriate locations in the ESTO ERS within thirty days of the final review. Also, update the Accomplishment Chart and TRL assessment on the ESTO ERS under the "Quad Chart" section and "TRL" section respectively.

#### 7. Earth Science Technology and Other Relevant Forums

The awardee is encouraged to make the community aware of their work by participating in relevant technology forums and other conferences and meetings related to Earth Sciences (please note slots are limited for NASA civil servant and contractor personnel for such events). Offerors must include travel costs in their proposals. The awardee should be prepared to make a presentation, provide a paper, or create a poster providing a description of the project, the objectives, approach, technical status, and schedule information. Such events may include, but are not limited to, the NASA discipline Science Team Meetings, the AGU Annual Meeting, the AMS Annual Meeting, relevant IEEE and ACM conferences, and the semi-annual ESIP Federation meetings.

PIs or their representatives are also expected to participate in the ESTO Earth Science Technology Forum to advance information sharing of their work. Follow-on efforts are envisioned to identify candidate Earth science scenarios that will benefit from information systems technology concepts, and approaches and that can be prototyped to demonstrate those benefits through collaboration and science participation.