

Progress on 2006 Committee Recommendations

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Report Format



- The 2006 EVLA Advisory Committee report was arranged in four sections:
 - Management
 - Hardware
 - Software
 - Operations & Commissioning
- This status report is organized similarly.
- In what follows, committee recommendations are given in regular font, and progress/current status is in italics.



Management



- Develop metrics for project performance for review by NRAO and external stakeholders. Examine descope options to understand real savings.
 - *Project approach to earned value documented. (McKinnon)*
 - *Performance metrics computed on a periodic basis.*
 - *Cost savings of viable descope options are understood.*
 - *No need to implement descope options at this time; user community will be consulted before options are implemented.*
- Develop more detailed risk and contingency analyses. Schedule risks for correlator, software, and commissioning seem high; quantify via DOE formalism.
 - *Risk management plan developed and implemented in accordance with guidelines of the Project Management Institute. (McKinnon)*



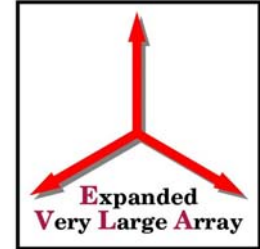
Management



- Develop formal test, verification, and integration plans.
 - *Plan for integrating the correlator into the EVLA M&C system is under development by the EVLA Computing Division.*
 - *Test and verification plan for prototype correlator has been written by DRAO staff.*
 - *Reviewed and under revision by NRAO. (Rupen)*
 - *Hardware acceptance test and operational checkout procedure implemented for antenna return to array.*
 - *Module quality assurance procedures developed to verify performance. (Durand)*
 - *Correlator installation plan developed.*
 - *Will develop additional plans as needs arise.*



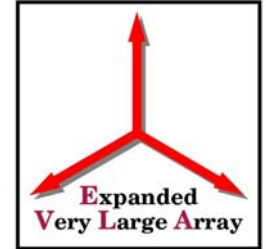
Management



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- Define scope and terms of reference for EVLA science advisory group.
 - *Terms of reference developed for Science Advisory Group for EVLA (SAGE). Include:*
 - *Make recommendations regarding definition and implementation of observing modes and first science programs.*
 - *Dissemination of information pertaining to project status.*
 - *First meeting held on May 22-23, 2007. (Lo)*
 - Develop and review a clearer statement of software deliverables and priorities.
 - *Of the priorities discussed at last year's meeting, only those designated as "priority 1" are EVLA project requirements.*
 - *All priority 1 requirements can be achieved.*



Hardware



- Monitor correlator situation closely and add schedule contingency in commissioning. Success-driven schedule of correlator team is beginning to compress.
 - *Correlator situation much improved: Problems identified in board fabrication and chip testing have been resolved.*
 - *Canadian partner has taken steps to expedite schedule by merging production stages. (Dewdney)*
 - *Adoption of new connectivity scheme provides contingency to Canadian partner that potentially could be used to expedite schedule further.*
 - *Progress monitored through semi-annual face-to-face meetings, weekly teleconferences, and numerous design reviews.*
 - *May need to develop plans for extended transition-mode observing.*



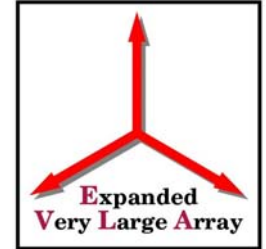
Hardware



- More clearly define the role of correlator on-the-sky testing.
 - *Prototype correlator is now a 10, instead of 4, station correlator that is a subset of the final correlator.*
 - *Role of on-the-sky tests, in priority order (Rupen):*
 1. *Test correlator hardware prior to committing to full production.*
 2. *Integration and testing of EVLA M&C software.*
 3. *Investigate issues in RFI excision and wideband calibration.*
 4. *Earlier science capability.*



Hardware



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- Implement well-documented interface control to address concern regarding data handling and throughput at correlator.
 - *Network Traffic Performance Analysis (S. Vrcic, NRC-EVLA memo 27).*
 - *Companion study by EVLA M&C is underway.*
 - Complete OMT refinements to avoid impact on schedule.
 - *Cool-down problems resolved and fabrication method selected for L-band OMT. (Hayward)*
 - *Good progress on C-band OMT.*
 - *RF design of S-band OMT is complete.*
 - *Prolonged development and staffing shortage have delayed installation of last, new, X-band receiver.*
 - *Still have observing capability with interim, narrowband, X-band receiver.*



Hardware



- Verify performance of round trip phase (RTP) system with additional testing.
 - *Concern originally arose over phase instabilities detected in visibility data.*
 - *Laboratory and on-antenna tests conducted in January 2007.*
 - *Phase instabilities attributed to thermal instabilities in a few local oscillator modules and the antenna vertex room, not the RTP system.*
 - *Resolution of thermal and phase instability issues is underway, and final refinements to RTP design are being made. (Jackson)*
 - *In the meantime, phase instability can be addressed observationally with close calibration.*
- Develop a plan for digitizer comparison and selection.
 - *Original project plan called for adoption of ALMA sampler design.*
 - *Cost and technical concerns forced investigation of alternatives as a risk mitigation measure.*
 - *Investigated designs based upon commercially-available digitizer chips.*
 - *Chip vendor selected and recently approved by NSF. (Jackson)*



Software



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- E2E/EVLA explore collaboration with ALMA computing group to address apparent staffing shortfall in Scientific Support Systems.
 - *In addition to apparent staffing shortfall, NRAO management recognized needs to provide common “look & feel” of software to users of EVLA and ALMA and to minimize long term software maintenance and development costs.*
 - *General outline developed for joint development of software tools by EVLA, E2E Operations Division (EOD), and ALMA. (Butler)*
 - *Proposal and archive tools managed/developed by EOD.*
 - *Observation preparation tool managed/developed by ALMA.*
 - *Observation scheduling tool managed/developed by EVLA.*
 - *Implementation plan is underway.*



Software



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- Management structure and interaction between E2E, EVLA Scientific Support Systems (SSS), and Operations is not clear.
 - *EVLA Computing reorganized under leadership of Bryan Butler.*
 - *Organization chart developed showing interaction between E2E Operations Division (EOD), SSS, and Operations. (Butler & Radziwill)*
 - E2E must bring new resources to cover budget shortfall in SSS. Existing EVLA project contingency should be left to address broader project/hardware issues.
 - *EOD is providing support for proposal submission tool, data processing pipeline, data archive, and algorithm development. (Radziwill)*
 - *Contingency is reserved for broader project issues, which could include software development.*
 - *Most change board requests to date are hardware-specific.*
 - *Additional requirement to provide common look & feel software increases project scope and poses additional risk that will be jointly addressed by EOD, EVLA, and NRAO Operations.*



Software



- NRAO should invest more in algorithm development.
 - *Overall approach to Observatory-wide algorithm development outlined in memorandum dated June 2007. (Fomalont)*
 - *Algorithm development carried out by scientific staff and collaborations. Facilitated by the EOD.*
 - *EOD is contributing \$180K to algorithm development and seeking external funding on behalf of EVLA. (Radziwill)*
 - *External collaborations:*
 - *Multi-frequency synthesis and wide bandwidth imaging with ATNF.*
 - *Others include University of New Mexico, Naval Research Laboratory, Long Wavelength Array, and Radionet.*
 - *National and regional computing facilities. (Radziwill)*



Software



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- Fully document M&C design and interfaces before further development begins.
 - *Top level design document for EVLA M&C system was completed in preparation for the M&C design review in December 2006.*
 - *Interface control documents exist for all EVLA hardware modules, module interface service and data ports, and module interface software framework.*
 - *M&C interfaces to the correlator are being documented in a correlator test and integration plan.*
 - *Virtual correlator interface is well-defined; current focus is on its implementation.*
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Software



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- Raise visibility of RFI technical development and update status in the near future.
 - *RFI technical developments in progress:*
 - *Routine measurement and suppression of RFI from electronics modules.*
 - *Modifications to receiver designs.*
 - *Numerous technical memoranda on post-correlation RFI excision techniques.*
 - *Correlator RFI capabilities include detection of time-variable RFI and post-correlation RFI excision in correlator backend computer.*



Software



- Involve more external testing and user feedback on CASA. Demonstration at next meeting.
 - *Extensive internal and external testing of CASA is underway. (McMullin)*
 - *Internal, EVLA-specific, CASA test conducted in December 2006.*
 - *Staged release of CASA is planned.*
 - *Allows ALMA and EVLA staff to gain experience.*
 - *Ensures CASA staff can make progress on completing suite of basic functionality and critical algorithm development without being overly distracted by CASA user support.*
 - *Beta release on September 30, 2007.*
 - *CASA demonstration at this meeting.*



Operations & Commissioning



- Review operations plans more closely within NRAO.
 - *Draft EVLA operations plan written.*
 - *Discussed at NRAO User's Committee meeting.*
 - *Details of current status to be presented by Ulvestad.*
- Hire a postdoctoral fellow to perform antenna performance checkouts.
 - *Done. Brigette Hesman joined the staff on July 2, 2007.*
- Develop a hiring plan for additional staff for EVLA commissioning.
 - *Plan developed by NRAO-NM AD.*
 - *Offers extended to, and recently accepted by, two new scientists. (Chandler)*



Operations & Commissioning



- Create EVLA postdoctoral fellowships to get astronomers involved with the instrument as soon as possible.
 - *A special EVLA postdoctoral fellowship program has not been established.*
 - *NRAO has, and will continue to, hire postdoctoral fellows with explicit functional duties.*
 - *Candidates can be identified through the Jansky fellowship program.*
 - *Look for scientists with EVLA-specific research interests.*
- Aggressively engage the user community in test observations in support of commissioning activities.
 - *Preliminary plan developed for outside users to participate in commissioning. (Chandler)*
 - *SAGE suggested a program of long-term visits by community experts, to include time allocation in exchange for participation in onsite commissioning.*