

Report: EVLA Fiber Optics Subsystem CDR Review Panel

This is a report on the findings of the EVLA Fiber Optics Subsystem CDR Review Panel based on a top level presentation of the acquisition plans conducted on December 5 at Socorro. The purpose of the review was to answer three principal questions:

1. Are the detailed requirements for the subsystem complete and adequate?
2. Will the design selected for implementation meet the requirements?
3. Are interfaces to other subsystems defined adequately and completely?

Members of the Review Panel attending were the following:

John Dreher, Allen Telescope Array
Richard Prestage, GBT Project
Dick Thompson, NRAO CDL
Steve White, GBT Project
Anthony Willis, Herzberg Institute
Rick Perley, Project Scientist
Jim Jackson, Hardware Systems Engineer
Gareth Hunt, Software Systems Engineer
Brent Carlson, Correlator Task Leader
Terry Cotter, LO/IF Task Leader
Steve Durand, Fiber Optics Task Leader
Paul Lilie substituting for Dan Mertely, Receivers/Feeds Task Leader
Bill Sahr, Monitor and Control Task Leader

The Review report is divided into three parts: I) Comments from the Panel Review, II) Comments during the open meeting presentation, and III) Conclusions.

Part I. Comments from the Panel Review

- Additional fiber performance tests may be in order before procurement.
- Impact of lightning hits and immersion in water for extended periods should be understood before procurement.
- Construct request for bid on requirements rather than on part number to get best pricing.

Part II. Comments from the open meeting

- Specifications for BER should be by antenna, not overall. 1% overall might be construed as 10% for a single antenna, which would be unacceptable.
- Will 20 year life specified for connectors be 1/2 gone by completion of the project in 2010? Should connector choices be tested?
- Consider impact of dispersion on LO transmission fiber and select equipment that permits use

close to the zero dispersion frequency.

III. Conclusions:

The detailed requirements for the EVLA Fiber Optics Subsystem CDR are adequate and complete as long as it is accepted that the broadband data are to be transmitted digitally.

The design selected for implementation needs further testing and study on issues such as patch panel location, 6 vs. 12 fiber, cable housings to reduce temperature effects, performance of cable under adverse conditions before the design selected can be said to be adequate and complete.

Interfaces to other subsystems such as frame format, frequencies, and number of fibers may need further definition before being called complete and adequate.

For the panel,

Clint