

Minutes of Teleconference on ALMA ATF & OSF Holography Planning

Thursday, December 21st 2006, 16:30 UTC.

Minutes by DTE, last changed 2007-01-05

Participants: DuVall, Emerson, Glendenning, Lucas, Mangum, Murowinski, Perfetto, Ramirez, Ridgeway, Shepherd, Sramek, Wootten

All future meetings will use the same call-in details:

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Minutes of our last (2006-11-30) meeting are at:

http://www.tuc.nrao.edu/~demerson/osfholo/mins2006-11-30_1.pdf

AGENDA.

I. Status Report

II. Schedule

III. Action Items

I. Status at the ATF

Darrel reported on results in the past week from the ATF.

There had been some success in reducing or eliminating most of the strong ripples that appeared at the edge of the dish on holography maps. These had been caused primarily by irregularities (gaps and steps) in the absorber behind the prime focus holography feed, within about 3 cm of the feed. The latest holography antenna surface maps still showed

ripples, but these are now thought to be genuine dish surface features, which had been set into the surface using earlier (2005) holography measurements.

There are still some lower-level ripples present at the edge of the dish. These are suspected to result from reflections off the feed legs and feed leg covers; measurements continuing this week will try to confirm and reduce these reflections. The configuration of absorber around the transmitter feed and the top of the tower will be improved, in particular removing the temporary duct tape holding some absorber pieces in place; the tape itself may be responsible for some reflections.

A quick measurement of transmitter and receiver polarization will be made, using wire grids on loan from the University of Arizona. [This was done, with no surprises in the result.]

After allowing for large scale astigmatic deformations, the weighted dish surface error was now measured to be about 21 microns, which puts the antenna and the holographic measurement system within specification.

The list of hardware issues that need attention include: frequency stability of tx/rx, power stability of the tx, provision of spare feeds.

The software system is much more stable following its update (ACS6, Archive, etc). It had a disk crash on Sunday, thereafter it did not crash at all, although the system was taken down about once a day to insert various patches.

There was some discussion on whether the surface could have been set to its current incorrect shape in the earlier (2005) holography campaign. No possible mechanisms for this have been identified. For example, the same software was used for the AEC antenna in 2005, and current photogrammetry do not show the surface defect seen in the Vertex antenna.

II Schedule

The next holography session, intended to be a final checkout, is currently scheduled for the week of January 8th 2007. **[Shortly after the meeting, this was changed to be the week of *January 2nd*, to avoid a conflict with a Vertex antenna inspection scheduled for the week of January 8th.]**

The holography acceptance tests currently scheduled for January 22nd will be moved to late February or early March, with shipment to Chile now to be mid-March. The 2nd (new) transmitter would be used in March, with thermal insulation to be added to the tx rf cable at the OSF.

The holography receiver will be removed from the Vertex antenna in mid-January to allow astronomical interferometry to proceed. It will be reinstalled in early March for final user and acceptance testing.

III Action Items

1. Antonio hoped to have a summary of the holography DSP system available next week. *Still needed.* Antonio will provide the remaining hardware user manuals and a template of the Users' Manual. *This is still pending.*

[Shortly after this meeting, we experienced a failure of the holography transmitter. Lack of availability of reliable documentation hampered the repair. DTE]

Details of the DSP algorithms need to be disseminated. *Still pending: promised the week of 2006-11-20.*

Continuing AI: ICD update on temperature monitors, no later than one month before shipment of receiver #2. Some minor items from Ralph to be corrected in the next ICD issue. *Still pending.*

2. Feeds. We do need duplicate sets of holography feeds, to the current design – this was discussed in our meeting of 2006-09-07: see the minutes of that meeting at .

http://www.tuc.nrao.edu/~demerson/osfholo/mins2006-09-07_1a.pdf

*Pending, but **long-term feed redesign** agreed previously to be of low priority.* Duplicate feed sets (a total of 9 feeds) to the existing design of **very high priority**. Delivery expected Jan 2007, to be followed by 1 month of testing. Antonio confirmed that he expected delivery of *tested and measured feeds* by the end of February 2007.

3. The list of hardware issues that need attention include: frequency stability of tx/rx, power stability of the tx and receiver temperature stabilization.

4. The holography receiver will be removed from the Vertex antenna in mid-January to allow astronomical interferometry to proceed. It will be reinstalled in early March for final user and acceptance testing.

5. Next Meeting

Darrel will organize the next teleconference for **January 11th at 16:30 UTC.**