

Subject: [allemploy] Biweekly Calendar of the ALMA Project at NRAO

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BIWEEKLY CALENDAR OF THE ALMA PROJECT at NRAO
July 19 - August 2, 2004

***** THIS BIWEEK *****

As of 28 June, K. Y. Lo has assumed the role of Interim NA ALMA Project Manager, until the new Project Manager is in place. Other personnel changes were detailed in an announcement dated 2004 July 20.

The Japan Negotiating Team, a committee of the ALMA Board, and representatives of the Japanese NINS have reached a draft Agreement concerning the construction of the Enhanced ALMA, between ESO and the National Science Foundation, and The National Institutes of Natural Science of Japan (NINS).

European Project Management has established a Fiber Optic Management Group to investigate fiber optic design and specification; the Group is led by the project office and will work with commercial companies to provide detailed system design. A Review panel will make recommendations by 2004 July 26.

Past issues of this Calendar may be viewed at <http://www.cv.nrao.edu/~awootten/mmaimcal/ALMACalendars.html>

General Happenings

Chile ALMA Camp at OSF site now complete except for paint and gravel around the camp. The ALMA Board will hold its face-to-face meeting at the ALMA Camp 2004 Nov 2-3.

TUC The critical functions of the laser synthesizer are being tested prior to final wiring and assembly. Construction of the photonic distribution module for the SI test is in progress. The completed RF Simulator is undergoing detailed tests. Both First LO Driver assemblies have been locked to an optical reference and have been under reliable computer control.

NAASC Detailed planning for ALMA Operations and NAASC staffing continues.

NTC A revised specification for the correlator, incorporating the Tunable Filter Bank features, has been written and submitted as ALMA-60.00.00.00-001-B-SPE. Excluding the TFB cards, 59% of the assembled printed circuit boards needed for the first quadrant have been received. 300 boards, or 53% of the total needed for the first quadrant, have been successfully bench tested and are ready for installation.

AOC Computing CDR#2 was held in Denver. Written report will be submitted in early August. One set of populated prototype antenna racks delivered to SI for test. The path through the DTS Transmitter and DTS Receivers into the correlator has been tested satisfactorily with data generated inside the DTS Transmitter. Delivery of the preliminary Downconverter module set #1 is expected by July 16.

DAILY CALENDAR (Times EDT)

Mon 19 July
 All day event: System Engineering Planning Meeting
 10:30 AM-12:00 PM: JAO/IPT Teleconference
 Tue 20
 10:30 AM-11:00 AM: Science IPT Telecon
 Wed 21
 Thu 22
 8:30 AM-10:00 AM: JAO Teleconference
 Fri 23
 Sat 24
 Sun 25
 Mon 26
 1:00 PM-2:30 PM: NA DH Teleconference
 Tue 27
 All day event: Back End Planning
 Wed 28
 All day event: Back End Planning
 Thu 29
 All day event: Back End Planning
 8:30 AM-10:00 AM: JAO Teleconference
 Fri 30
 8:00 AM-1:05 PM: Back End Planning
 Sat 31
 Sun 01 August

***** UPCOMING EVENTS

ALMA Calendar

- * 5 August -- ALMA Board Telecon
- * 24 September -- ALMA/EU Meeting, Garching
- * 27-28 September -- ASAC face-to-face meeting, Charlottesville
- * 28-30 September (TBC) -- face-to-face IPT Leads Meeting, Charlottesville
- * 11-12 Oct -- AMAC Meeting, Florence, Italy

* 2-3 Nov -- ALMA Board Face-to-face Meeting, OSF, near San Pedro de Atacama

***** TECHNICAL NEWS *****

ALMA Memo # 484 A New Configuration for the ALMA Laser Synthesizer
Bill Shillue and Larry D'Addario National Radio Astronomy Observatory

This memo describes the results of a test of a new configuration of laser synthesizer for ALMA. The ALMA laser synthesizer is the source of the 1st LO photonic reference, in which a two-wavelength optical beatnote is transmitted by optical fiber from the ALMA AOS technical building to each of the array antennas. It is then used at the antenna as the reference for the first local oscillator, after a photomixer converts the beatnote into a radio frequency in the range 27-142 GHz. This report is a condensed version of a more detailed test report available on ALMAEDM.

In this new configuration, a slave DFB fiber laser (DFB-FL) is phase-locked to a master laser using an external fiber frequency shifter (FFS). The use of an FFS as an external tuning element removes the requirement for fast modulation response from the slave laser that had heretofore been an obstacle in finding a suitable tunable slave laser. This technique has been implemented previously for very low phase-noise applications.

The relatively wide modulation bandwidth allows for a wide bandwidth phase-lock loop. Coupled with the intrinsically low phase noise of the DFB-FL, the resulting beatnote is shown to have very low phase noise.

View a pdf version of ALMA Memo #484.
<http://www.alma.nrao.edu/memos/html-memos/alma484/memo484.pdf>

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ALMA Memo # 495 Estimated Performance of the Water Vapour Radiometers
Richard Hills (Cavendish Laboratory, Cambridge, UK)

The sensitivity and accuracy to be expected from the ALMA water vapour radiometers is estimated. Even with quite pessimistic assumptions about noise temperature and gain stability, it appears that the sensitivity of the present design is at least a factor of 2 better than the specifications.

It is more difficult to predict the medium term stability and accuracy that will be achieved, but the indications are that these will not be a limiting factor in using the data from the radiometers. An estimate of the errors that would occur in correcting the single-dish pointing for the effects of water vapour gradients is also given.

View a pdf version of ALMA Memo #495.
<http://www.alma.nrao.edu/memos/html-memos/alma495/memo495.pdf>

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ALMA Memo # 502 ALMA Band 6 Prototype Cartridge: Design and Performance
G. A. Ediss, M. Carter (IRAM), J. Cheng, J. E. Effland, W. Grammer,
N. Horner, Jr., A. R. Kerr, D. Koller, E. F. Lauria, G. Morris,
S-K. Pan, G. Reiland and M. Sullivan National Radio Astronomy Observatory

This paper describes the design and performance of the initial Band 6 (211-275 GHz) ALMA cartridges. The incoming beam is coupled by 4-K reflecting optics to a scalar horn followed by an orthomode transducer. Each polarization is down-converted in a sideband-separating SIS mixer integrated with a pair of 4-12 GHz IF preamplifiers. Stringent thermal management and LO loss requirements are satisfied by using an overmoded stainless-steel waveguide between the LO triplers on the 100-K stage and the 4-K mixers. For ease of maintenance, all connections into the vacuum vessel are "blind mating."

View a pdf version of ALMA Memo #502.=20

<http://www.alma.nrao.edu/memos/html-memos/alma502/memo502.pdf>

Errata: The last issue referred to an Integration Center at the NTC; the correct term is Front End Integration Center.

Please send information for upcoming calendars by Friday evening of the preceding biweekly period to Janet Bauer or Al Wootten via e-mail (jbauer@nrao.edu or awootten@nrao.edu).

The calendar will be issued between late Friday and sometime on Monday by e-mail to all NRAO scientific staff members and anyone else interested. A specific mailing list, alma-info, has been created for anyone wishing to receive it. Past issues are now available at <http://www.cv.nrao.edu/~awootten/mmaimcal/ALMACalendars.html>

Allemploy mailing list

Allemploy@listmgr.cv.nrao.edu

<http://listmgr.cv.nrao.edu/mailman/listinfo/allemploy>

— Attachments: —

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