ALMA Weekly Progress Report
20th June 2003

Name: John Effland
IPT: Front End

Gene Lauria and I measured the gain stability of the 2SB mixer-preamp and presented the data in Groningen. Prepared for and attended FE week at Groningen.

Alex Grichener is making fast progress and is now testing his code to synchronize the power meter coding with the chopper wheel. He is now optimizing timing.

Name: Jeff Mangum
ITP: *ATF*

(1) Holography: Re-started holography on VertexRSI antenna on 2003/06/11. Made measurements of the antenna surface stability over past 1.5 weeks.
(2) Moved ATF web page to a virtual server. New location is http://atf.nrao.edu.
(3) Gave several tours of the ATF, including Andrew Clegg, NSF Program Officer for NRAO.
(4) Fixed holes in the ATF trailer roof and the ATF bicycle's rear tire.

Name: Kamaljeet Saini
IPT: Front End (Local Oscillator)

(I.) ALMA Work Element Sheet WBS: 4.255.1800
(1) Received the USB based controllers ordered earlier from National Instruments. These are for the stand-alone evaluation system for the cold frequency multipliers. Verified that the hardware received is as ordered. To Do: Need to test functionality of the various units before incorporating into the evaluation system. Requested for LabView installation on a computer with USB ports.

(II.) Other/Miscellaneous Tasks:
(1) Working on contribution for the JAO Quarterly Report.
(2) Provided consultation to Porter (summer student) to help him develop a microprocessor based stand-alone controller for the ALMA first LO PLL and driver chain.

Name: Chip Scott
IPT: Computing

Parts:

I requisitioned long lead items required to support the 2004 integration test. Parts include: coaxial attenuators, isolators, mixers and power amplifiers. I also requisitioned YIG tuned oscillators (YTO). I decided to try the YTOs with digitally controlled course tuning at the suggestion of John Payne and Larry D'Addario. This will save on design and development of our own digital control board. The cost difference between analog and digital driver YTOs is only about $70.

I cancelled a power amplifier order with Cougar Components. They were scheduled to deliver the amplifiers by April 29. I had not heard anything from them. It turns out, through a comedy of errors, they did not even know they had an order. The PO had been Faxed to them but apparently not received. A hard copy of the PO was mailed to them at an address they had moved from a few years ago.

I also cancelled an order with Lorch microwave on some filters. They were asking for a waiver on the return loss performance and stop band requirements of the filters. They had quoted a return loss of –17 dB but had units with return loss as high as –9.8 dB. The stop band requirement was to hold –70 dB to 28 GHz. They had units with a stop band that broke up as low as 17 GHz! When I asked about the high return loss, their response was the return loss was typical for a filter with this number of sections, this bandwidth and at this frequency. So why didn't they quote it that way?

The cancellation of the power amplifier and filter order will add about $7k back into the budget. There are other vendors already supplying conforming parts.

TTE is one vendor supplying conforming parts. Their solution to the filtering problem is an eleven section combline filter. Previously, I had tuned an old four section 2nd LO Synthesizer filter from 9.5-13.9 GHz to the new requirement of 8-14 GHz. The four section filter worked well and should be significantly cheaper than the eleven section filter. I contacted TTE and asked them if they had a four section filter to cover this frequency range. I also told them that their previous design was tunable to the new frequency but would probably require small design changes to be optimized for the new requirement. TTE engineering manager contacted me and was stunned that anyone would retune one of their filters. He informed me that by retuning the filter I was voiding the warranty (no kidding?). Regarding the new filters, he again informed me that TTE did not make "tunable" filters. I said I knew that and that fixed frequency would be acceptable. All in all, TTE seemed rather agitated that we would were capable and would retune their filters.

Jim Muehlberg saw me retuning one of the filters and told me he could really use a 10-15 GHz filter. I was able to retune one of the TTE 9.5-13.9 GHz filters to his frequency range in a little over an hour.

I did some initial work on the packaging of the 2nd LO Synthesizer.

Name: D.L. "Skip" Thacker
IPT: Front End Local Oscillator

June 6, 2003: Testing LO noise stability in Green Bank with the GBT spectrometer
June 13, 2003 Continue testing in Green Bank then attended the MTT-S
June 20, 2003 FE All hands meeting in Groningen