

Minutes for AMiBA Engineering Telecon

Meeting Date: 24-July-2003

Participants:

Australia:

USA: D. Kubo, B. Martin, J. Peterson, C.J. Ma, K.Y. Lin

Taiwan: H. Jiang, J. Han, W. Ho, T. Huang, P. Shaw, H. Wang, C.T. Li, M.T. Chen, P. Ho

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Minutes Recorder: D. Kubo

[comments from this week](#), [previous weeks comments](#)

I. New Action Items:

AI-24July03-1: Bob: Inquire with Ferdinand/John Payne's about their noise generation approach and the possible integration with Ming-Tang's 2 new receivers sometime in middle to late September.

II. Previous Action Items (still open):

AI-17July03-1: Chao-Te/Derek: Finalize the backplane details for the 1st Section and begin detailed design.

CT - Planning to modify Homin's backplane board for the correlator. Derek - wanted to stay involved with the electrical/mechanical details. Bob suggested that Derek, Homin (presently in Hilo for SMA) and Ferdinand discuss these details before the next meeting.

III. Closed Action Items (as of this meeting):

AI-09July03-1: Chao-Te: The readout chips (140) will be delivered in September. Bob asked "how are these chips going to be tested in Taipei".

Derek - plan is to thoroughly test the 1st few (maybe 3 or 4) new readout chips using the prototype equipment. This should adequately exercise the design. Since all the remaining chips will be of the same design/wafer Chao-Te and company can focus on providing only a subset of tests to verify functionality. (Also please note that we plan to fully integrate/test the full 7-element correlator in Taipei).

C.T. - Readout die are ready now, packages will be available ~Aug 9th, and finished chips will be available around the end of August. New 7-element readout boards will be ready (assembled) at around the same time (end of Aug) for testing of the readout chips. Bob asked that C.T. provide a method/approach to verify the functionality of each chip before installation into the prototype.

Derek suggested that the 1st few chips be installed into the prototype for thorough exercising. C.T. also suggested that the 1st Readout board be installed into the prototype (will require modification of Xylinx FPGA in Data Acquisition board).

IV. Miscellaneous Discussions:

MMIC: Bob - Has arranged for a weekly status to be sent (by NG?) on Tue or Wed. Had to cancel the TRW PO and reissue a new one to NG because too much time has passed by.

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Receiver: Ming-Tang - Status - problem with plating (of cryo chambers?), waveguide parts have been in customs since Monday. Noise injection - tried Warwick's suggestion but ran into a problem with the physical orientation. Need to make another custom waveguide for the VNA (and receiver).

Schedule - current estimate is provide 2 new receivers with new noise injection scheme approx 2 months from now (late Sept). Should not bother with trying to upgrade the 2 prototype receivers. These 2 receivers will be installed into the prototype and Bob will try to mesh this with Ferdinand/John Payne's noise sources.

Paul S. - Received e-mail from John Payne about the shipment of 10 OMTs from NRAO this week. This should bring the total number of OMTs to 14 (13+1 spare). Should we ask John about the possibility of them making 6 more for the 19-element system?

Ming-Tang - Still waiting for parts to conduct cold tests (on phase shifter). Will attempt to install the new (see AI-02July03-2 above) noise injection hardware into the prototype (x2) in September.

Cold heads - 2 were received, 1 has been tested, the other is being tested right now. Waiting for waveguide delivery. Also waiting for backend parts (after mixer). Currently not predicting any slips in the final schedule but can't be certain. The integration of the first 2 units will be the determining factor for the schedule. The following units are a replication of these 2.

LO/IF: none

Correlator: Kyle/Cheng-Jiun presently debugging a new problem with the Data Acquisition board which began sometime last Friday after departed the mountain. This issue has stopped all planned tests for now. Cheng-Jiun, Kyle, and Derek will try to resolve this with the remote assistance of Chao-Te (and hopefully Warwick).

Derek - Finally was able to sweep the first 4 1st Section IF Distribution modules last Thursday. Distributed the data via e-mail. Confirmed with Jeff P. that large parabolic phase (smile down) is not a concern since they are all the same. Also swept our first prototype 2nd Section assembly. Response looks good as well.

Derek - Lost Peter's help to the SMA again this week. This continues to hurt the correlator schedule. Derek stuffing the 1st final DC amp board before subcontracting the rest.

Derek - Received 100 DC Amp boards yesterday. Cost was about \$8USD each. Also received the 55 aluminum modules today. Test fit between the board module and correlator module looks good. Plan to hand stuff 2 boards and subcontract the rest.

4x4 quad-pack frame is approximately 75% complete. Last 2 pieces will be fabricated next week. This model will be passed onto to Ted in Taipei so that he can base his final design on it. Derek will send out photos once it is assembled.

Peter has finished assembling all 16 1st Section IF modules, minus 5 slope EQs and 1 Krytar detector, both of which are on order. We are planning to use the CSO VNA tomorrow to sweep the modules.

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Chao-Te - 3rd Section power divider - Waiting for the design of the slope EQ (for XY-module) so that they can process everything together. Plan to process next week. IF amplifier design is finalized. Planning to make 4 spares each for the front and rear power dividers.

Platform/Mount: Bob - summarized status and distributed via e-mail. Estimates that CMA will ship platform to Germany Aug 4 (slipped from July 22) but this shouldn't affect the integration with Vertex (because they slipped too). Platform should arrive in Germany on Aug 29. The Vertex mount schedule has slipped by 3 weeks. Bob thinks that the mount (and platform) will ship from Germany sometime in early November (originally early Oct). Paul S. believes it will be closer to the end of the year. Paul Ho EXPRESSED his concern about these slips, in particular with Vertex.

Bob - Ferdinand is at Vertex today. Paul Ho asked again whether the mount/platform could be shipped earlier.

DC Power Distribution: none

Homin - Sent out another package this week. Noise level and switching frequency changes with load. Currently measuring a switching noise of -80 dBm.

Enclosures: none

Site Issues/Network: none

Dishes: Ted - Alone (Dr. Ong's company) started the 5 60cm dishes and will send the schedule to him next week. The 2 dishes will be shipped to Hilo next week after he receives the boxes.

Dr. Ong will send more measurement data to Ted today. Ted has received 4 test coupons from CMA and has forwarded them to Dr. Ong. He will provide a proposal for testing the coupons.

2-Element Prototype Issues: Ran into a major problem last Friday evening. See discussion under correlator section.

Cheng-Jiun - Offset has a strong relation to diurnal cycle and is consistent from day to day. Daytime offset is smaller than night time. Attempting to detect the galactic plane. Detailed discussions deferred for the science meeting.

Schedule: Paul S. - Will be sending out a formal proposal (to NSC?) in late August for the expansion of AMiBA. Need to show: a) that we can control our budget; and b) how much progress was made. Paul will be distributing the current draft proposal for review by others. Paul wants others to provide an accurate budget estimate (for expansion) and photos to show progress.