

Minutes for AMiBA Engineering Telecon

Meeting Date: 29-May-2003

Participants:

Australia:

USA: D. Kubo, B. Martin, J. Peterson, M.T. Chen

Taiwan: H. Jiang, J. Han, W. Ho, T. Huang, P. Shaw, C.J. Ma, K. Lin, H. Wang, C.T. Li, P. Ho

Minutes Recorder: D. Kubo

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

I. New Action Items:

AI-29May03-1: Bob - Close out NGC (TRW) MMIC issue.

AI-29May03-2: Paul S. - Integrate all individual schedule inputs onto a 1 sheet master schedule.

AI-29May03-3: Bob - Review Paul's master schedule to determine what are the leading schedule drivers.

II. Previous Action Items (still open):

AI-22May03-1: Derek - Update correlator schedule. Assume 75% availability of Peter O.

Derek - In process, will send out tomorrow.

AI-15May03-2: Paul S. - Obtain CTI cold head quote for 7 with the option of purchasing 13 more later. Specifically ask for a discount (in writing) for the follow-up order of 13.

Paul S. - Received verbal quote from Taiwan rep to match US quote of 10% discount on qty of 20 units, otherwise 5% discount on first 7 units. Need to get written quote but ran into some difficulty having the rep committing or defining this on paper.

Bob - If we do decide to purchase the cold heads from the US, should we try to add in the order for the compressors to obtain further discounts?

Paul Ho - Let's make sure to have a decision on this matter by next week.

Paul will call local rep and obtain WRITTEN quote for 7 units now, and 13 more later. MTC needs 1 cold head by late June or early July. For comparison purposes, Ferdinand obtained a US quote which provides a 5% discount for a total qty of 7 + 13.

AI-15May03-3: Derek - Provide Homin with DC-DC converter board quantities (and DC voltages).

AI-15May03-5: Derek - Provide Mark Chen with requirements for 1st Section backplane board.

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Derek - would like to add some extra signal traces in backplane to monitor temperature. MTC said he has several unused ADC channels for monitoring in his half of the 3U + 1U chassis. Derek can pass his transducer signals over to his half for processing.

Ferdinand asked if Derek if he really needs a backplane. Would separate connectors not mounted on a backplane suffice? Derek wanted a solid ground plane layer on the backplane to provide a stiff ground (I.e. to prevent ground bounce).

MTC - currently on version 3 of his half of the backplane (receiver half). Nearly done.

Homin - each DC-DC converter should be capable of providing 5A.

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

AI-22May03-1: Ming-Tang - Update receiver schedule. Add in projected shipping/custom durations between US and Taiwan.

MTC - distributed draft schedule via e-mail. First 2 receivers will be ready by end of July, last 2 (#6 & 7) ready mid Feb 2004.

AI-8May03-1: Chao-Te - Follow up with Ming-Tang on how to proceed with fixing the current phase shifter problem.

CTL - Received adapters yesterday. Plan to measure loss and delay for each polarization. Will feedback data to AT. CTL might work on this during his visit to AT (if he has time).

MTC - Phase shifter problem probably can be solved but a problem with the noise coupler could be difficult to solve.

Bob - Asked what alternatives were available if we do not succeed in fixing the phase shifter by June (for the 1st receiver). Is it OK to go with linear polarization? Can we get by without a noise coupler? Ferdinand suggested the option of adding the noise injection from the secondary (mix 2 opticals to generate W-band noise). Ferdinand ask whether the current noise coupler was designed for cryogenic applications. MTC answer = no. There could be a chance that it won't work as expected at cryo temperatures.

IV. Miscellaneous Discussions:

MMIC: Hwei - Have been waiting months trying to determine which way to go (for export issue?) and how much (cost?) for the NGC MMIC. Bob to contact NGC to close this matter (see new AI above).

Receiver: See closed AI-22May03-1 above.

MTC - In response to schedule question: a) will have partial delivery of waveguides in 5 weeks; b) have 1 cold head now but will need a 2nd by end of June; c) cabling is being worked on (?); d) chamber is being fabricated and will be ready in about a month. Plan is to have 2 receivers ready for cryo test by end of June (in Taipei), and shipped to Hilo by end of July. LO/IF from Prof. Chu will be ready at the end

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of July. Second phase will involve the construction of 5 more receivers in addition to the 2 described above.

Warm W-band amplifier tests will be done in Hilo.

LO/IF: MTC - Prof Chu is planning to deliver 2 LO/IF modules by end of July to mesh with the receiver delivery. Delivery of next 5 should not be a problem because parts are already ordered. Delivery of 21 GHz DRO module should not be a problem because it is very similar to existing prototype hardware with exception of power splitter.

Correlator: CTL - Mark is doing the layout for the readout board. Front power divider fabrication is proceeding. Modification of rear power divider connector spacing will require recalculation of trace lines to match delay of front power divider. Depth of rear power divider should be reduced as a consequence of making it taller.

Derek - Marki will ship 003 module tomorrow. He has tuned the IF lines to try to remove the suck out at 3.5 GHz. Derek will do a quick test here in Hilo then send it off to CT in Taipei for characterization and as a mechanical model. Will contact Marki about the verbally quoted 5% discount to offset the RCUH overhead (we're currently getting 3% discount).

Bob - Derek has been busy setting up the correlator box and network in Hilo. He's run into some network problems but this appears to be solved now. Goal is to solve the offset problem in Hilo (rather than go up/down to ML everyday).

Bob - In regard to the correlator PC for the final system, he asked whether the Linux OS (currently version 5.1) could be updated to something more modern.

Huei - 1/f noise for SiGe multipliers appears low (heard this news from Warwick?).

Derek - Almost ready to purchase 55 correlator modules from Marki. Derek still wants to try to have Ferenc fix the suckout at ~3.5 GHz. Paul S. will contact Ferenc about the final price and delivery.

Derek - CTL and Johnson requested that the correlator module spacing be increased to allow for connectors.

Platform/Mount: Bob - Had CMA platform meeting yesterday - discussed testing protocol. Schedule will be firmed up by end of this week. There are still some discussions on the mount to platform interfaces.

Ted is completing the updates for the cable wrap attachments (to the platform?).

Bob - Received an e-mail from Vertex mount which included an MS Project schedule which he could not open. The e-mail also mentioned something about trouble measuring/characterizing the offsets generated by the jack screws. Paul Ho asked Bob to find out what the major schedule drivers are for Vertex.

Mike brought up the issue of the computer for the Vertex test.

DC Power Distribution: Homin is waiting for spectrum analyzer.

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Homin - Most recent tests show DC-DC converter produces 1 LSB of noise (~3 mVpp) on the receiver bias lines. In comparison, the linear supply registers 0 LSB of noise. Ferdinand - once Taipei receives the spectrum analyzer they can find out where the switching noise is and add a tank circuit to further quiet the DC-DC supplies.

Site Issues/Network: Bob - Will have a (face to face) meeting with the architectural firm tomorrow in Boulder. Drawing is 90 - 95% complete. Ferdinand has started to get bids on this work from both Hilo and Kona contractors.

The correlator box and PC are now in the Casey building. Derek is performing the offset tests and CJM and Kyle are processing the data from Taipei.

2-Element Prototype Issues: Derek - Working on offset issue in Hilo. Will discuss details of tests in Science meeting following this meeting.

Schedule: See new AIs above.

Paul S. has distributed a master schedule and would like people to comment/add to this. Paul H. expressed that it is very important to put our schedule estimates down on paper because it is our tool for determining where we are and how much there is left to do. Schedule should be updated once per month. ^

Enclosures: MTC - Taipei office has received the chassis sent by Ferdinand.

Ferdinand - Received 3 chassis (3U + 1U) in Hilo last week. 1 chassis is in the process of being shipped to Taipei.