Minutes for AMiBA Engineering Telecon

Meeting Date: 15-Apr-2004

Participants:
Australia: Michael
USA: Derek, Johnson, Ferdinand, T.H. Chiueh
Taiwan: C.J., Paul Shaw, Kyle, C.T., Ted, Homin, Steven

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Minutes Recorder: C.T. Li
previous weeks comments

I. New Action Items:

II. Previous Action Items (still open):

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

IV. Miscellaneous Discussions:

MMIC:
Homin – MMICs have arrived. We spent 2 to 3 hours to count them (thousands of them) last week. All the chips were stored in the desiccator.
Ming-Tang – Will ask Prof. Wang to come out a (rough) test plan for those chips.

Huei – We will get the chips on Friday according to Jackie's email. Then we can start testing.

Receiver:
Homin – Rx #2 was cooled down again yesterday. We're taking the temperature data. 3rd iteration of noise coupler has arrived (from ITRI). It looks pretty good. Ted or Johnson is going to test it.

Johnson /Ming-Tang – After calibration, the big power level jump of receiver output around 14 GHz became smaller. For receiver #1 at room temperature, from 2 to 12 GHz, the output power density varies about 3 dB. After 13 GHz, there is a drop about 2 dB. Beyond 14 GHz, the power is further down by 3 dB. The spectrum could change after we cool it down.

Ming-Tang – For the open issues on the receiver, please have Jackie check on the delivery of OMTs. We still need 4 more sub-harmonic mixers that Johnson will package them after he gets back to Taipei. We also miss 4 – 5 LNAs. I will ask Todd to provide them.

Homin – We will ship out Rx #2 with IF/LO by the end of this month.
Ming-Tang – The flange for a valve is broken that we can't pump down and cool down the receiver. We are waiting for metallic flanges from Taipei. Johnson will test the receiver in room temperature first.

LO/IF:
Homin – Steven has tested the IF/LO cables used for prototype (2m long). The loss is about 2dB at higher frequencies. We will wait for his more complete report.

Homin – All the components for IF/LO have arrived. Steven and others are doing the acceptance tests. Then they will integrate the modules.
Steven – We found some problem when testing some components. I will check with Prof. Chu and his students about it. For IF/LO cables, Andrew has assigned another contact window. We need to check with them about the exact delivery time. I will start to test the cables again in Prof. Chu's lab.

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Correlator:
C.T. – The circuit has been tested up to readout. It seems to work so far. I will modify the circuit inside the FPGA to simulate the entire process and check on the data transfer. Still need to work on it for few weeks.

C.T. – Having a problem at the connection between readout and datacq.

Platform/Mount:
Ted – We have asked Bob Romeo about the de-lamination. He is going to fix this problem. We will talk to him again about how to fix it in details. Though he hasn't answered other issues, e.g. weld-nuts, end-fitting. Along finished the platform analysis yesterday. In their simulation with full load, the deformation would be 4 times larger than our specs. They will come up with some suggestions in next few days.

Ming-Tang – Philippe sent out a list of items for platform and mount installation in Hawaii. (attached below)

Michael – The most pressing issue is when Vertex delivers the mount, we will have to make pointing observation in order to provide them with data for generating the pointing model. What we always plan is to use the optical telescope to observe various bright stars, distributed uniformly over the sky. We will catch image of each star in the optical telescope. Then pointing error can be derived for that particular observation. We will need to integrate several software packages (optical telescope software and the observing program)

Ming-Tang – Philippe sent out a telecon minutes as attached. We're going to have an in-plant test procedure by April 19th. So far everything in the schedule is slipped by one week. We have decided not to put on the cable wrap cone during the in-plant tests. After Along's result, Philippe needs to figure out how to modify the platform in Hilo. The acceptance test is scheduled on May 21st.

Michael – For the calibration, it's important for us to prepare as much as we can to provide Vertex immediately with the pointing data they're asking for. What is amounted to is getting the optical telescope installed on the platform and then running a set of observations on a variety of stars to get representative measure of error as a function of right ascension and elevation. We need to check if we can embark the pointing check once the platform and mount are handed to us. For the preparation, we have the observing program that Homin is working with me and get it to run on the machines in Taipei. We should ensure that will run on the schedule mode. On the other side, we need to be able to process the image catured by the optical telescope in terms of RA, HA or declination… pointing error. C.J. and Proty were doing that in the early date of observation of prototype. We should make sure that is working in the form that can quickly capture the data. Finally there will be a link to the observing program that everything is synchronized.

Calibration System:
Ferdinand – On 2nd of May, We will have John Payne here in Hawaii to run a week long test on photonic calibration.

Ferdinand – Went up the mountain to check out the CW calibration system. However, the current synthesizer is generating too much spurious. They in turn showed up in the IF band, which interfered with our testing. With a proper synthesizer, we should be able to generate lines moving across our IF band.

Dish:

Site:
Ferdinand – We had a pre-construction meeting with the contractor, the architect, and the inspector. On Friday, we will have the ground breaking. On next Monday, Ludwig will start the work. The construction period is 45 days. Around end of May, all of major concrete work should be finished.

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Ferdinand – We got the final drawing for Neil Harrison. Also got the drawing for electrical. We will have a construction meeting tomorrow. We will go over to Mauna Loa Laboratory to explain to them what we're doing over there. Ground breaking is aimed for next Friday (April 16th), before the excavation.

2-Element Prototype Testing:

T.H. Chiueh – According to fringe data from translation stage, C.T. calculated the single-band effective bandwidth from 13 to 14 GHz. If we put some equalizers to suppress the low frequency band, Keichi found that the single-band effective bandwidth can be enhanced to be about 17 GHz.

Administration:

Ming-Tang – Ludwig talked to me about the payment, which should be ready month ago according to the contract.

From Philippe:
The first list of items for the platform and hexapod installation in Hawaii -

1) platform modifications
- we need define the modifications asap
- send bid & sign contract/ order material for modifications
- find hall in Hilo: to unpack platform, and implement modifications (grinding and gluing necessary)
- work to be done: 2 weeks?, 2 people & supervision ASIAA (8/2004)
- tools: need to apply pressure for curing (cushions) + small crane needed (at least 300 kg)
- platform needs to painted again
- organize transport of the dismounted platform to MLO

2) platform assembly at MLO site
- flat and clean area needed
- scaffolding is needed
- mobile crane (1,500 kg) + operator
- 4 people (1 week)

3) supporting cone
- leveling and aligning tools - see with Vertex
- crane (mobile crane) & operator. See documentation provided by VA on Liebherr Mobile Crane LTM 1030/2 and email by Volker Leschick.
- VA mechanical engineer + ASIAA supervision & 4p (1-2 weeks)

4) hexapod assembly
- all assembly tools used at VA are required (get list from VA)
- install wooden platform on top of cone
- crane (2,000 kg) & operator
- VA mechanical engineer & ASIAA supervision & 1-2p (1-2 weeks)

5) cable wrap modifications (in Hilo)
- define modifications to do asap
- find hall or workshop for modifications if welding is required

6) cable wrap assembly on platform – on the ground (1 day, ASIAA supervision & 2p)

7) platform integration
- crane & operator
- 4 people (2 days)

8) receiver & electronics installation
- small crane (300 kg?)

From Ming-Tang:

Milestone

April 16, 2004, Ground Breaking

May 21, 2004, Platform Acceptance (shipped from Duisburg @ 6/10/2004)

June 30, 2004, Site construction completed

July 30, 2004, Site enclosure completed

Aug. 27, 2004, Platform modification finished

Oct. 2004: Re-commissioning of platform and mount

Nov. 2004: Telescope infrastructure completed

Dec. 2004: Two-element testing on telescope begins

Mar. 2005: 7-element testing on telescope on going

Travel Plan

To Hilo:
Ted Huang: 4/18/04 -- 5/31/04 (?)
John Payne: 4/26/ -- 4/30/04 (TBD)
Joshua Chang: 5/9/04 -- 6/30/04 (?)
Johnson Han: 5/30/04 -- ??

To Taipei:
Ferdinand Patt: 4/26/04 -- 5/1/04 (SMA) (TBD)
Derek Kubo: 5/10/04 -- 5/15/04 (TBD)
MT Chen: 5/28/04 -- 6/4/04

To Duisburg, Germany:
Michael Kesteven: 5/3/04 --5/5/04
Philippe Raffin: 5/3/04 -- 5/5/04
Philippe Raffin: 5/18/04 --5/23/04 (TBD)
MT Chen: 5/18/04 -- 5/23/04 (TBD)
Ferdinand Patt: 5/18/04 -- 5/23/04 (TBD)