Minutes for AMiBA Engineering Telecon

Meeting Date: 29-Dec-2005

Participants:
Australia:
USA: Ted, Johnson, Bill, MT
Taiwan: Homin, Kyle, Edwin, Eugene, CT, Paul S., Chia-Hao
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Minutes Recorder: Kyle

I. New Action Items:
Bill/Ted/Pierre – Modification of shelter.

II. Previous Action Items (still open):

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

IV. Miscellaneous Discussions:
Platform:

(22/Dec/05)
Ted – Philippe is preparing the final report on photogrammetry. He will send it out before new year. As for the data, I have sent out to some people including Prof. Chiueh and Proty.
(29/Sep/05)
Philippe – I will spend some time to look into the safety issues of operation.
C.T. – I would like to ask the science team to finalize the configuration of 7-element receiver locations.

Shelter:
Bill – We need to modify the shelter structure. The shelter needs to be raised by at least 1.2m. We will evaluate how to do it and also discuss with Pierre when he comes back.
Ted – We heard some strange noise from the motor. I did some calculation and found that it can roughly support the shelter. Taking into account the imbalance problem and wind factor, the motors were probably overloaded. The noise might mean some damage to the reduction gear. We will study whether we need to replace both motors and the lifting cable.
(08/Dec/05)
Pierre – I rewire the motor control and it is working. Now I am working on software. Also waiting for some parts for hand panel and other things.
(13/Oct/05)
Pierre – One year ago we asked Manfred to add a few relays and software in PLC to indicate mount is in parking position. We need to test its function whether the relay is closed when the mount is parked when next time I am in Hilo.
Pierre – I have sent a mail to ASFI for calculations and detailed drawings.

Mount:
MT – We have a new version of software but there's no one to test it. Keiichi will arrive in early Jan to do testing.
(22/Dec/05)
Homin – We tried to find the problem of network timeout to ACU issue, but Michael does not have enough information. We need to start logging a fault report whenever tests are done and errors encountered. I have added a category in the blog.
MT – You should see what SMA test log looks like. No matter how boring it is, you note it down.
(16/Dec/05)
Michael – Repeatability needs to be checked. I think we can observe the same star several nights in a row. If they agree with each other, then it's probably good enough. For longer period, like a month, change in pointing model, we have to live with it. We will

change the interpolation table regularly. On the other hand, there aren't many factors to change the pointing.
Ted – Philippe sent an email of a list of spare parts for the hexapod. Pierre gave some comments.
Homin – I think we probably need some spare amplifiers (for motor) because they fail pretty often. Other things will mostly depend on budget.
(08/Dec/05)
Ted – We just received the optel bracket this morning. Should we install it?
(25/Aug/05)
Patrick – Some temperature sensors have loose wires that need to be soldered. Someone onsite or in Hilo can do it.

Site:
MT – In Mar we should have 7 element running and start troubleshooting.
Bill – We are doing some design for the large holes on the supporting cone. We'll discuss with Kevin when he comes back from vacation.
Johnson – Receiver installation on the platform encountered some mechanical interference. At some locations, the 42GHz variable attenuator sticks out of the receiver cylinder and interfere with structures under the platform. I think by modifying the LO module bracket, and shift the LO module by 3cm, the problem can be solved. Other ideas are welcome.
Johnson – Cable tray is now blocking the He line input. This also needs some modification.
Ted – Right now we are not using the 60cm dishes because of interference with fabric of shelter. Modification is under study. In order to operate the receivers, we still need to install two electronics boxes, two cold head power cords and the DRO. We can soon start to cool down the receivers, and the DRO is on its way to Hilo.
Ted – I am asking for quotation for the container from one of the companies.
(22/Dec/05)
Ted – I am working on the sleeping container and waiting for the 3rd quotation. The description of the container has been sent out for comments and everybody seems to agree. So we are just waiting for price competition.
Ted – I will visit the manufacturer when they are making the container to make sure it meets the requirement on our site.
(08/Dec/05)
Pierre – I got a quote for the 2ndhand generator. It's about 10k including shipping to site. I'll also look for some comparison.
(24/Nov/05)
Pierre – Is there a coax cable for 10MHz clock from GPS time server to correlator on the platform?
(27/Oct/05)
MT – As for a new car, we seem to have reach a consensus. We also need emergency generator and lightning protection.

(11/Aug/05)
M.T. - Open issues in general on site:
(1)spare parts for the mount. Philippe will be in charge of it.
(3)lightning protection
(4)emergency generator
(6)accommodation on site -> 2nd container for sleeping? Or visitor building for sleeping and 2nd container for office?
(7)a new car
(2)helium lines and cables routing to the platform
(5)how do people access the platform. Cherry-picker, ladder?

Receiver:
Johnson – We are testing Rx1 and Rx2 in the lab. Chia-Hao can send the Rx5 and Rx6 to Hilo. And I will summarize the report for Rx3 and Rx4 (on the platform).
Chia-Hao – I expect Rx5 and Rx6 to arrive Hilo after mid Jan.

Johnson – The LNA in Hilo can be used to assemble another two receivers.
Johnson – Another thing needed to operate receiver on the platform is the rxmon software. We need it to turn on bias and monitor the status.
Homin – We can temporarily pull a 30m rs-232 cable into the container and connect to the monitor pc. It should work.
(08/Dec/05)
Pierre – I found that the LNA bias comes from a 7805 regulator which is sensitive to temperature change. I ordered a 8588 chip which is programmable and more stable. I plan to use hair dryer to test it.
(10/Nov/05)
Kyle – The first two Rx on the platform can accept one polarization of calibration when the cal source is ready.
(09/Jun/2005)
Pierre – Two quick fixes to the LNA power supply card.

1. Reverse the protection diode instead of removing it should provide a protection at 3V.
2. The polarized capacitor at output is reversed and I suspect it is dead. They should be replaced.

LO/IF:
Eugene – We are modifying the thermal link in the LO module. And we will send out the DRO report.
(27/Oct/05)
Johnson – We also tested the phase switch in IF/LO5. The result is different from Steven's. I used 2.4mm cable but Steven used 3.5mm cable. 2.4mm should give the correct result. I will use 3.5mm to double check the consistency.

Correlator:
CT – We think the delay in system time is caused by mother board. We tried to use the external oscillator on another machine which has the same chip set, there's no such jump of system time.
Homin – The time is controlled by the BIOS. You can contact the vendor to see if there is an upgrade.
CT – Next time when I go to Hilo I will try the 300N gas spring on the correlator bracket. Other problems may show up and we will solve them together.
(22/Dec/05)
Po-I – I have made some modification to the translation stage mount design. The detail can also be discussed after meeting.
(10/Nov/05)
CT – I am looking into the backup plane of readout system. Simulation shows the FPGA should work. I will continue this after I get back from Hilo. I will depart next week.
(06/Oct/05)
C.T. - I want to test one baseline with electronically-tuned attenuator for LO to balance the power between phase states. One concern is if the control has some delay (like we found in prototype testing with a PIN attenuator in 21GHz LO), then the scheme would not work.
(29/Sep/05)
C.T. **-** We got three comments from the workshop:

1. automatic gain control (AGC) of IF power
2. LO power balance in phase switch
3. thermal stabilize the correlator and IF

Calibration System:

(22/Dec/05)
Kyle – We are finding information for the motion control modules to see if it can be operated under Linux or DOS. There are three sources who provides similar product and quotations will be asked.
(13/Oct/05)
Kyle – I will put together a schedule when the calibration should be online and when we should really push to finish the system.
(29/Sep/05)

Kyle – I will circulate the test results presented in the workshop for more comments. And we also need to discuss the next step of the calibration system.

Dish:

(22/Dec/05)
Ted – The mechanical structure to hold dish cover will come back in mid-Jan. However, the order of fabric to GORE is delayed in processing. We will test the structure using some other fabric.
(10/Nov/05)
Patrick – Locutus is designing the interface with beam pattern measurement setup.

Misc:

(22/Dec/05)
Kyle – Are we going to schedule a time to discuss the testing plan?
MT – Let's wait when Patrick is back, maybe early Jan.
Paul S. - Dr. Ong said the primary will be finished withing one month and sent to ITRI for surface measurement. A piece of coating sample will also be given to us.
MT – Does anyone have some idea about how to measure the coating?
(16/Dec/05)
Patrick – MT mentioned that we should have a place to collect all the important information and factors of the system, different from the everyday communication of problems.
CT – I think for what Patrick said, people can request such information in the weekly meeting and the responsible person will come up with the information and be collected somewhere. The important information does not change very often.
(24/Nov/05)
Kyle – We had a discussion here in Taipei before Philippe left. We discussed his FEM analysis and photogrammetry results. We further exchanged some ideas about the phase error induced by platform deformation and the correction in visibility. However, we should come up with a spec on the phase error and hence the platform error.