Minutes for AMiBA Engineering Telecon

Meeting Date: 29-Sep-2005

Participants:
Australia:
USA: Joshua, Johnson, Ted, Chia-Hao, Patrick, Locutus, M.T., Pierre, Philippe, Hiroaki, Paul H.
Taiwan: Homin, C.T., Kyle, Po-I
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Minutes Recorder: Kyle

I. New Action Items:

(29/Sep/05)
Ted – Routing cable from ground up to platform.

II. Previous Action Items (still open):

(08/Sep/05)
Pierre – Interlocking mechanism between the hexapod and the shelter. (See Shelter)
(04/Aug/05)
Po-I/Ted – Design a sturdy optical telescope mount (including fixure of the CCD). (See Mount)
(07/Jul/05)
Pierre – Top priority to improve the shelter. (See Shelter)

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

(07/Jul/05)
Philippe – Photogrametry measurement preparation. Dummy load preparation. (See Platform)

IV. Miscellaneous Discussions:

Platform:
Philippe – Monday and Tuesday we installed the dummy weights. And yesterday we took pictures for the photogrametry when platform is at el=90deg. A few targets is not visible due to lighting problem. We will redo it because it is important to make sure the reference position has good accuracy.
Philippe – We plan to do el=30deg with two different az angle. Then we'll decide what orientation to do next. It could be either el=60deg with nonzero hexpol, or other intermediate el.
Philippe – It takes about 2 hr to take a set of pictures.
Paul – Please check the repeatability of the measurement.

Ted – In the past few weeks, we have tested several types of cable tray for both cables and He line to go up to platform but they did not work well. I have contacted a company and they will give us some suggestions once we give them the spec of our cable.
Ted – The problem is mainly because the j-screw has more freedom than the 1-dim cable tray can handle. There are lots of multi-dim cable trays and we need to do some study first.
Ted – In parallel, we'll also consider routing cables through the central hole on the platform.
Ted – Chia-Hao ordered cover for the receiver hole back in Taiwan. We can ship them to Hilo when they are finished. Safety nets still needs to be searched.
Ted – Currently when we go up to the platform, we anchor our harness on the cherry-picker and reach to whereever we want to go.
C.T. - Can we modify the receiver hole covers to be able to hook the harness?
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.
(22/Sep/05)
C.T. - Ted, what's the plan for cable tray on the platform (not from ground up to platform)? Joshua wants to install cables on the platform and cable tray is needed.

Ted – I think we can use standart products. The cables will just be mounted under the platform. I have some weight information and Joshua can order them directly.
(11/Aug/05)
Paul – Kyle, organize a separate meeting in Taipei with some engineers to sort out the issues with laser measurement system.

Shelter:
Pierre – Hardware needed is little. Software PlC is needed. I can send information to Vertex for improvement.
M.T. - Please summarise this issue and send to me.
Pierre – I have received most parts needed to work on shelter motor improvment. I will go to Hilo in Nov and implement the 3-button control box for the shelter (open, close and E.stop).
Pierre – Fabric is becoming more and more a problem.
Ted – New lift cable is not installed yet because the pulley and tower need to be modified. It will take 1 to 2 weeks.
(02/Sep/05)
M.T. - Pierre, please get a quote from the shelter expert.
(25/Aug/05)
Ted – I met the ARL people in Taichun and we discussed about our shelter. Two comments:
- Add more motors in case a cable failure happens. Add some structures to keep the fabric folded. Will study more and come up with a quote.
- Build a new shelter, like the desgin for TAOS, with carbon fiber material. Will propose this new shelter design.

Mount:
Po-I – I've added a triangular plate to make sure top plate and the vertical plate are perpendicular to each other.
M.T. - The bottom plate can also use a triangular plate. We can talk about it offline.
Patrick – Still like to emphasize that bottom screw holes of the 1.2m and 1.4m holes are not the same as the others and the new design of optical telescope mount can not be installed without modification.
C.T. - Po-I, please circulate a drawing showing how the telescope mount is mounted onto the platform, so other people can also check this issue.
Patrick – We can take a picture and illustrate the problem.

Patrick – We tested the mount after Stephan left. It's mostly ok. However, there's one instance the mount moved past all software limit and stopped at hardware pre.lim el=28.9deg (checked by HPC).
Patrick – We also tried to identify the error contributed by the optical telescope tilt. We took images at several azimuth angle at el=70deg. We'll analyze the result. The images were took with startrack on.
Patrick – We checked program track functions. Stephan found a problem and fixed it. We will further test it.
(08/Sep/05)
M.T. - I have placed an order for a new C8 telescope. SBIG discontinued ST-237 that we are using, and there are some thoughts about upgrading to a different CCD anyway. We can take this offline.
(25/Aug/05)
Patrick – Some temperature sensors have loose wires that need to be soldered. Someone onsite or in Hilo can do it.
Hiroaki – I have circulated some questions about initialization of the pointing schedule and got some comments back. I will implement them and send the subroutine to Michael and it will be integrated into "a_boss".

Site:

(11/Aug/05)
M.T. - Open issues in general on site:
(1)spare parts for the mount. Philippe will be in charge of it.
(2)helium lines and cables routing to the platform
(3)lightning protection

(4)emergency generator
(5)how do people access the platform. Cherry-picker, ladder?
(6)camping car, accomodation on site?

Receiver:
Johnson - no update.
Pierre – 1-to-4 cold head power distribution box is finished in the lab. Need to more receivers to be connected and tested if it really works to cool down four Rx. If it work, then we can ship it up to ML.
(15/Sep/05)
Eugene – The tests were done with noise coupler installed and seems to be higher than the earliest measurements done on Rx1 without a noise coupler. We need to repeat the test on Rx1 with noise coupler to see whether it increased the temperature or not.
(04/Aug/05)
M.T. - Todd Gier is working on our LAN. We will have complete 28 LNAs some time.
For spare LAN, as Prof. Huei Wang suggested, we may consider sending the chips to Wisewave for packaging.
(07/Jul/05)
Johnson – We expect to ship Rx5 and Rx6 in mid Aug after IF/LO is finished.
(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:
Johnson – Last week we found two PIN switches not working according to their current consumption. We need to send them back for repair.
(08/Sep/05)
Eugene – Johnson reported the modules in Hilo need two hours after switch on to reach stable performance. I think it indicated thermal isolation and the device need time to heat up and establish equilibrium. I think the thermal link should be improved to protect the devices.

Correlator:
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 stablize the correlator and IF

Homin – Software to control VGA is ready. Once we have the total power detector reading, we can close the loop.
M.T. - Our problem is that VGA has different gain and phase response under different control voltage. Can we really use it to do AGC?
C.T. - Derek suggested to put some temperature sensors in the correlator box. We will discuss about it in more detail.
(18/Aug/05)
C.T. - After bidding process, we just placed order for the bracket. It will take about three weeks. We will test it in the lab first.

Calibration System:
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.
(18/Aug/05)
Kyle – Pierre found a quote for the motion controller and the PC/104.
M.T. - We should discuss it offline. There should be another person to work on this part since Pierre will be working on the shelter part. There may be some changes to the design and so we should hold on the ordering.

1.2m dish:
Philippe – Paul S. Said he will organize a telecon with Along this week or next week.
Ted – We probably want to add some cover on the dish, so we need to ask Along to leave this possibility of the baffle.

Philippe – We can discuss it with Along in the telecon, but we need to specify more clearly what we need.

Misc: