Minutes for AMiBA Engineering Telecon

Meeting Date: 16-Dec-2005

Participants:
Australia: Michael
USA: CT, Ted, Joshua, Johnson
Taiwan: Homin, Kyle, Patrick, Edwin, Po-I, Eugene, Hiroaki
USA Dial-in = 1-800-653-5390, 6668081#
Outside USA Dial-in = 1 847 330 4361
Minutes Recorder: Kyle

_____

I. New Action Items:

II. Previous Action Items (still open):
(01/Dec/05)
Joshua – Attachments on platform for cable routing (See Site)
(08/Sep/05)
Pierre – Top priority to improve the shelter. (See Shelter)

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

IV. Miscellaneous Discussions:
Platform:

(24/Nov/05)
MT – Philippe is away now. We need him to finish the analysis on the photogrammetry asap.
(17/Nov/05)
Philippe – I used FEM to simulate the platform deformation. I can not reproduce the saddle pattern seen by photogrammetry. The FEM shows comparable deformation in magnitude but the pattern is like bending from one end, not a saddle shape. Taking Patrick's and Kyle's suggestion, I applied a 'thermal load' to the upper u-joint so that it adds about 100um to the original upper u-joints plane. The pattern changes but still not quite the same as real data. I will keep trying on this direction.
(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:

(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.
(29/Sep/05)
Pierre – Fabric is becoming more and more a problem.

Mount:
Patrick – I talked to Klaus and Stephan and they will try to come up with a working software version before X'mas. Now they are convinced we have the three major problems.
Patrick – For pointing, we only have the 48 stars results. It indicates the optical telescope tilt error, but the repeatability problem makes further interpretation difficult. In January when the platform is not used we should do some more pointing tests.
Patrick – Another factor is that we now have two correlator frame on the platform and we should get some estimation of how that would change the

pointing. In any case, comparing new pointing data with old data will be difficult.

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.

Michael – For the timeout issue, I need people to help gather information, the sequence of commands and etc. Also I will work with Hiroaki to modify the TCS so we can restart a automatic sequence to resume a stopped run. It would be nice to adjust the optel so the correction needed is very small and we will be able to do pointing with optical telescope correction off.

Ted – In the coming weeks we will add another 10kg box and another 10kg of He line on the platform.

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?
Patrick – Basically ok, but let me think about it and let you know.
Patrick – Hiroaki reported that he had done an automatic pointing run with 100 stars. It was stopped with timeout problem. He wanted to check log file whether all information is correctly logged.
(25/Aug/05)
Patrick – Some temperature sensors have loose wires that need to be soldered. Someone onsite or in Hilo can do it.

<u>Site:</u>
Ted – We finished testing the He line and are ready to send the compressor and He line to site and install. Joshua is doing cable routing.
(08/Dec/05)
Ted – For schedule, we expect the DRO to ship out from Taipei at end of Dec. And then we'll use it to test IF/LO after it arrives Hilo. However, by that time, many people are leaving Hilo. So I'm not sure about the schedule after mid-Jan.
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?
(03/Nov/05)
Ted – Last week I was informed by Proty and Kyle that the central hole is still needed to install a receiver. I am now redesigning the fixture. It will block some holes next to the central hole. If any of the six holes next to the central one is needed, please let me know soon.
(27/Oct/05)
MT – We are going to place another container in the site and make it into two sleeping quarters.
(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.
(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) accomodation on site -> 2nd container for sleeping? Or visitor building for sleeping and 2nd container for office?

(7) a new car

Receiver:

Johnson – The first two receiver now has Trx about 60K to 70K. Their IF power variation due to phase switching was measured and less than 0.04dB. Next I will monitor the stability.

Kyle – Could you take correlation data while monitoring stability?

CT – The correlator PC is being brought back to Taipei to solve the synchronization issue. Therefore we will not be able to do correlation for some time.

(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.

(03/Nov/05)

Kyle – Have we bought some temperature sensors for the correlator and IF system?

CT – This part is on-going.

(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 finishing the DRO revision. We got the mechanical parts and will reassemble. DRO can be sent out before next Monday.

Ted – When DRO arrives Hilo, Johnson will probably not be here. We'll store the DRO in the office.

Johnson – Do we still need to put the 21GHz cavity filter?

Eugene – The drifting and spur is fixed for this module and I think it is not important now. It's up to you.

(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 measure the ref clock in the computer and the freq drifts from 14.2MHz to 14.5MHz. This is not good. We are going to see whether the control IC is stable and maybe use an external clock and see if it can work.

(17/Nov/05)

MT – We should find another time to discuss about the test plan. What to test first and what's second.

(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 eletronically-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 stablize the correlator and IF

Minutes for AMiBA Engineering Telecon

Calibration System:

(10/Nov/05)
Kyle – Pierre is going to order the computer and motion control components.
(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:
Ted – I am working on 60cm dish cover. The design was sent to machine shop and will come back in mid-Jan.
(10/Nov/05)
Patrick – Locutus is designing the interface with beam pattern measurement setup.

Misc:
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.
Michael – Another thing I would like to see is a fault report. People just report what problem happened at what time. They don't need to diagnose the problem right away. Keeping a log like this would help very much in future debugging. The format should be as simple as possible.
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.
(08/Dec/05)
Paul S. - Yuan Lee confirmed that he approved NT 20M for 13 element expansion, almost enough. Please proceed with purchasing and send me a schedule. Major items should be ordered before end of June. CT, please check with MT about the LNA and OMT because these items should go through him.
(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.