

# Minutes for AMiBA Engineering Telecon

Meeting Date: 22-Dec-2005

Participants:

Australia:

USA: Ted, Joshua, Johnson, Bill, Paul H.

Taiwan: Homin, Kyle, Edwin, Po-I, Eugene, MT, CT, Paul S.

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Minutes Recorder: Kyle

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## I. New Action Items:

## II. Previous Action Items (still open):

(08/Sep/05)

**Pierre** - Top priority to improve the shelter. (See Shelter)

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

(01/Dec/05)

**Joshua** - Attachments on platform for cable routing (See Site)

## IV. Miscellaneous Discussions:

Platform:

**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 Protty.

(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:

**MT** - Ted and Bill are thinking about changing the current shelter setup, like raising it up.

**Bill** - After we have some schematic drawing of the concept, we will send out for comments.

(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:

**MT** - I will call Vertex today to follow up on the progress. Michael sent them his code recently. They promised to give us a new version of software by tomorrow.

**MT** - Keiichi is going to test the pointing in early Jan.

**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

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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:

**Ted** - Joshua finished cable routing, both on the platform and from ground to the platform. He used epoxy to fix the cable tray.

**MT** - We will install two receivers on the platform next week, but they will not be powered up until next Feb.

**Ted** - I am working on the sleeping container and waiting for the 3<sup>rd</sup> 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?

(03/Nov/05)

**Ted** - Last week I was informed by Protty 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** - 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** - I did a long term stability test from 4pm to 8am (in the lab). IF Power increased 0.1dB during that time. Chia-Hao is helping to monitor the ambient temperature change. I will need two more days to test the receivers before installation on the platform.

(16/Dec/05)

**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)

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**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** - DRO is already on its way to Hilo. Right now we are finishing the test 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 found the corrPC system time is drifting and oscillating. We tried an external clock, it stabilize the drift but still jumps backward 40ms every 30sec. I suspect probably the control IC or counter also have problems. I can modify the software to compensate for this jump if that is stable.

**CT** - For the correlator frame, I plan to use two 300N gas spring to hold it. We can discuss the details of the design after meeting.

**Po-I** - I have made some modification to the translation stage mount design. The detail can also be discussed after meeting.  
(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 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:

**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:

**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)

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**Patrick** - Locutus is designing the interface with beam pattern measurement setup.

### Misc:

**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.