Minutes for AMiBA Engineering Telecon

Meeting Date: 11-Mar-2004

Participants:
Australia:
USA: Paul Ho, Derek, T.H. Chiueh, Johnson, C.J. Ma, Jeff, Ferdinand
Taiwan: Huei, Paul Shaw, Kyle, C.T. Li, West, Homin, Steven

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Minutes Recorder: C.T. Li
previous weeks comments

I. New Action Items:

AI-11Mar04-1: Ming-Tang – To check the current status of LNAs for receivers.

AI-11Mar04-2: Ming-Tang *et. al.* – To check the delivery and shipping of receivers, IF/LO, and correlator.

AI-11Mar04-3: Ted – To check how or whether the sub-reflector of 60-cm dishes were aligned?

AI-11Mar04-4: Ted – To check the progress of dish cover design.

AI-11Mar04-5: Ming-Tang – To check out how the manpower will be deployed during AMiBA integration.

II. Previous Action Items (still open):

AI-04Mar04-1: Philippe – To discuss whether we should perform a full-load test (possibly with some dummy dewars) of platform on the mount with different orientation?

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

IV. Miscellaneous Discussions:

MMIC:
Huei – We have got the tax exemption document approved. Jackie has asked NJST to send out those chips.

Huei – Jackie has received the invoice information about the shipment. Have asked Paul Shaw to remind her to hurry up the application of tax exemption document, also ask NJST to send out the chips right away.

Receiver:
Johnson – For Rx#1 in Hilo, we're still waiting for the LNAs from Todd. In a few days we will set up all of helium lines in CSO office.

Ming-Tang – Tashun is checking the vacuum of receivers #2 and #3. For the alignment, we have some mechanical structure to align the feed horn along with the window holder. The components will move a little after several thermal cycles, but they're still within the alignment.

LO/IF:
T.H. Chiueh – If the LO is very pure, the only other contribution to the DC offset would be the power difference between different states of phase switching. We have one set of IF/LO module here with receiver #1. However, we still wait for the LNAs in order for receiver to work.

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Steven – Sent out the test report. Tried to define the optimum LO power.

Correlator:
C.T. – The data transfer from data acquisition board to correlator computer is working. The next step might be to connect to the readout chips.

T.H. Chiueh – One concern about the IF chain is if the phase drift or shift due to temperature variation or else, then the frequency envelop may drift away from the field center. Do we plan to have some phase shifters somewhere downstream in the IF chain that if the phase drifts away, we can correct it? Or to align the field center with the phase center?

Derek – We have done some measurement about the phase drift of IF amplifiers over a wide temperature range, also some calculation of thermal expansion of 6-meter long cables, the phase changes are quite small. The delay trimmers in the 2nd section are to equalize the delays of different paths.

C.T. – Have the control circuits connected with correlator computer to test the data transfer. We're still waiting for some electronic components. We got another quote for correlator frame. It will take the machine shop 4 to 6 weeks to fabricate it.

West – The cable company will ship 6 IF cables (3 modified from the 60" cables that we have, and another 3 brand new ones completely made by them) next week. Will contact them about the time scale to modify the rest of IF cables.

Platform/Mount:
Paul Ho – Platform is all assembled, and is going through the stress test today. Philippe has got those steel mounting plates to use between the platform and mount.

Ming-Tang – Bob Romeo is still working on the modification of the platform. Philippe likes to wait for the glue to cure, then assemble the platform and do the load test next Wednesday. Will ask Philippe to update the schedule according to the new development before next Wednesday.

Michael – Vertex was concerned that according to the previous test performed in CMA, platform seemed to deflect more than projected. That might affect the pointing accuracy.

Paul Ho – The previous concern was whether the platform would fall apart once mounted on the mount. Therefore we're going to implement the steel plates to interface between the platform and hexapod.

Michael – I think Vertex's working assumption was that they would produce a pointing model calibrated up to the universal joints of upper ring of platform. We essentially promised to provide a rigid ring to attach to. Anything above that is our problem. In concept, they can put optical telescopes on the universal joints. They can make sure they can calibrate it that any place in the sky we wanna place, they can point it within specs. The ring that universal joints attach to is the common territory.

Ming-Tang – We have asked a company to do a more complete finite analysis of the platform. We should have their report in two weeks.

Calibration System:
Ferdinand – Got the connector and bracket. Everything for photonic noise source is coming together.

Dish:
Kyle – We have some testing results coming out last night. Although we're still having trouble aligning the receiver and transmitter, the current result shows that the 60-cm dish beam pattern is quite asymmetric. After we rotated the dish later, the asymmetry is still the same.

C.J. – We plan to repeat the beam pattern test in MLO with the sun.

Site:

Ferdinand – We know quite well how the foundation looks like with the clam-shell shelter. We gave foundation a little bit more room in order to make the retractable shelter a little bit higher. Some more room inside too.

Paul Ho – We have to commit the money in this month because it's the end of grant.

Ming-Tang – So far we prefer Ferdinand's alternative site design in terms of cost and delivery. As Paul Shaw pointed out there's still some issue about the shelter. Once it's resolved, we can move on with the site.

2-Element Prototype Testing:

T.H. Chiueh – In the past week, we have been working in the stability of IF/LO by using translation stage. We kept the translation stage in motion for the past few days doing two kinds of fringes – one is to do the entire fringe from end to end, about 20min (or 30cm) that you can obtain the spectrum of IF, the other one is to move the translation stage by 1 cm, back and forth, to look into the short term variation of fringe. The 2nd test is mainly to test the phase stability of LO or RF components.

T.H. Chiueh – We didn't make much progress because of the storm. We went up to the mountain to rescue the prototype. Everything is back to normal now.