Minutes for AMiBA Engineering Telecon

Meeting Date: 18-Mar-2004

Participants:
Australia:
USA: Paul Ho, T.H. Chiueh, Johnson, C.J. Ma, Jeff, Ferdinand
Taiwan: Huei, Philippe, 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:

II. Previous Action Items (still open):

AI-11Mar04-2: Ming-Tang *et. al.* – To check the delivery and shipping of receivers, IF/LO, and correlator.
Steven – For IF/LO, we're still waiting for 3 components. One of the IF amplifiers will be shipped this week. Vendors can't give us a certain time when the LO multipliers (from 21 to 42 GHz) and 42 GHz amplifiers will be delivered.

AI-11Mar04-4: Ted – To check the progress of dish cover design.
Ted – I have the design to hold the material. Gortex's Taiwan branch can't find the same material. Will contact Gortex in the states.

AI-11Mar04-5: Ming-Tang – To check out how the manpower will be deployed during AMiBA integration.
Ming-Tang – It's not easy to predict at this moment. On receiver side, I expect one person to stay in Hilo for testing. C.T. should plan to stay longer in Hilo when the correlator system arrives to be tested with receivers. Ted and Philippe should consider coming to Hilo during platform and mount assembly and installation.

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

AI-11Mar04-1: Ming-Tang – To check the current status of LNAs for receivers.
Ming-Tang – Todd has sent out the LNAs on Wed.

AI-11Mar04-3: Ted – To check how or whether the sub-reflector of 60-cm dishes were aligned?
Ted – According to Along's testing data, the sub-reflectors were aligned.
T.H. Chiueh – In the last 3 pages of Along's report, the measurement of 3 dishes out of 6 showed that the orientation error is within 0.03 degree, which means almost within one arc-min.

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?
Philippe – We can do the full-load test on the ground to measure the deflection. With laser trackers, we can do a full-load test of platform mounted on the hexapod. But it's a costly operation. In the mean time, Vertex will test the platform at different elevation, not with load though.

IV. Miscellaneous Discussions:

MMIC:
Huei – We're still waiting for them to ship those chips. Have Talked to Ming-Tang to send them an email again.

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

Receiver:

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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.

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.

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.

Platform/Mount:

Philippe – Platform was mounted again on the Hexapod after being tested a week ago. The load test is more thorough this time. We repeated the load condition all around the platform. Stiffness has improved. Deflections were different around the end fitting. We have to shim few gaps with carbon fiber wedges. This time the platform was assembled very carefully. Vertex is doing some wiring this week. Everything should be ready by the end of this week to start testing. They will do all the basic testing till end of next month to do the servo testing. We gave Along a specimen of platform to test.

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 the mount.

Calibration System:

Ferdinand – I put the photonic calibration system together, did a couple of tests over the past few days. Stability looks better than a percent over a week. After talking to John Payne, we plan to test the waveguide photonic detectors by the end of April on the prototype.

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:

Ming-Tang – We are still concerned about wording of contract. We will discuss it further with Paul Shaw.

2-Element Prototype Testing:

T.H. Chiueh – We did the translation stage measurement. The overall spectrum of IF can be seen as two bands. The bandwidths, locations and amplitudes of the bands have been analyzed. The phase stability has been analyzed. But the result is not conclusive yet. Our guess of the effective bandwidth is less than 10 GHz.

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.