Minutes for AMiBA Engineering Telecon

Meeting Date: 04-Dec-2003

Participants:
Australia: Michael Kesteven, Warwick Wilson
USA: Paul Ho, M.T. Chen, T.H. Chiueh, Ted Huang, C.J. Ma, Derek
Taiwan: Huei Wang, C.T. Li, Eugene Huang, Paul Shaw

USA Dial-in = 1-800-653-5390, 6668081#
Outside USA Dial-in = 1 773 843 6301
Minutes Recorder: C.T. Li
previous weeks comments

I. New Action Items:

II. Previous Action Items (still open):

AI-27Nov03-1: Derek/T.H. Chiueh – Layout a testing plan for correlator system with 2 receivers

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

IV. Miscellaneous Discussions:

MMIC:

Huei/Paul Shaw – For the updated contract, we can have all the documents signed and send them back. Will need to transmit the amendment documents to RCUH.

Huei – NGST sent us the revised contract for us to sign.

Receiver:

Ming-Tang – We're ready to ship one receiver. Would like to check on it in Taipei before shipping. Start assembling the 3rd and 4th receivers. Will proceed on making of phase shifters when receiving Warwick's message. Will receive the gold-plated coupler and test it then. Will do some further tests on the "oscillation" problem of receiver noise temperature, which is probably due to some mis-matching along the signal paths.

Ming-Tang – Since we've solved the lab space in Hilo, we're ready to ship our 1st receiver.

LO/IF:

Correlator:

Derek – Will send one set of 2nd section to Taipei for figuring out cable routing between 2nd and 3rd section.

C.T. – There will be two PCBs for data acquisition – one as phase switch /demod signal generator, the other for data acquisition. We should have them fabricated by end of this month. Have received AT's correlator control cards. Warwick will send me the control software that we can start working on correlator computer during this month. Hopefully we can do some initial tests on data acquisition with readout boards and readout chips. We can start integration and testing of correlator system in Feb. if all the components were delivered.

Derek – Sent out 16 correlator modules to Taipei. Will send 2 of 1st section IF modules later.

C.T. – Received power divider and equalizer boards from Compunetics, and started to put together custom power divider modules. Finished data acquisition board designs, will have the PCB company layout and manufacture them. Warwick sent out AT's control PCBs. Once we received them, we can start setting up the correlator computer.

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Platform/Mount:

Paul Ho – We had a meeting with Philippe and CMA. Philippe wanted CMA to do more modifications. Philippe and CMA will discuss more and CMA has to make additional plates, hopefully to be done in Jan. If CMA can't fix the platform in Jan., we still have to go with the dummy ring for testing the mount. Another possibility is to use some metal plates between the platform and the mount.

Ming-Tang – There were two issues needed to be resolved – 1. Whether Philippe and Bob Romeo have agreed on the list of modifications they're going to do on platform? 2. Whether 5 days are long enough to finish those tasks?

Paul Ho – We should arrange a telecon with Philippe and Bob Romeo to discuss these issues. If we can't fix the platform in time, we have to consider the dummy ring for testing the mount.

Calibration System:

Ming-Tang – The 2nd 60-cm dish has arrived, which is suitable for mounting the calibration system.

Ferdinand – Wait for the 2nd 60-cm dish, then we will install the calibration system and test it. We also talked about the phase calibration.

Site:

Paul Shaw – Have contact the local Taisei branch. They asked us to contact the Taisei Honolulu. Has contact one architect in Hilo, who was immigrated from Taiwan. He would like to help us find a construction company or contractor. Ming-Tang will give some site drawings and specifications to him that he can provide us some quotation.

Ming-Tang – Have talked to him and gave him some drawings. He is a civil engineer. We probably can hire him as a project engineer to oversee the construction. Also talked to another general contractor introduced by Tzihong. Problem is that we don't have written site specifications yet. We should come up with one.

Paul Ho – People in Hawaii prefer to go with Taisei. Paul (Shaw) has the concern about the price differential between two firms (Taisei and Ludwig).

Ferdinand – Got a phone call from Ludwig. They will go on with another contract, and will be available in mid January next year.

Ming-Tang – In Hilo we don't have enough man power and contract management skill, maybe Paul Shaw can come over to with Ferdinand?

T.H. Chiueh – Found another contractor, introduced by neighbor.

2-Element Prototype Testing:

T.H. Chiueh – Haven't had much progress due to the rain on the summit. There is a sidelobe at 21.5 GHz of LO output. It's possible that this 21.5 GHz sideband leads to some DC offset. This week we plan to create a clean 21 GHz signal to replace the LO. Derek and I were discussing whether to rent for borrow one signal generator. Will generate the weekly testing plan for prototype.

T.H. Chiueh – We observed that DC offsets follow a sinusoidal form with respect to path difference, which indicated that there is some signal common even when receivers were covered by absorbers. We also found that there is a small peak of LO output at 20.5 GHz. The power is 70dB down compared with the carrier(21GHz).

Ming-Tang – To verify that, we need to locate a cleaner LO or a synthesizer to do the test again.

Eugene – The LO performance should meet the specs. The DRO output should be 20dBm, with spurious of power level –70 dBm, the –90dBc should be within the specs of DRO. Actually the fundamental frequency of the DRO unit is 10.5 GHz, with a doubler. Maybe we can replace the 10.5 GHz unit with a synthesizer to check the spectrum output at 21 GHz.

Ming-Tang – Is it possible to have the testing team to write a regular testing item list or a plan to let people know what is going on?