Minutes for AMiBA Engineering Telecon

Meeting Date: 16-September-2004

<u>Participants:</u> <u>Australia:</u> <u>USA:</u> Pierre, Kyle, Joshua, Ming-Tang <u>Taiwan:</u> Huei, C.T., Ted, West, Patrick, Johnson, Homin, Steven

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):

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

IV.Miscellaneous Discussions:

MMIC:

Huei - Wisewave will design the doubler housing for us to fabricate.

Receiver:

Johnson - Rx#4 has been cooled down to 10K since yesterday. Ming-Tang - We should keep it cold without pumping as a long-term test. Kyle - Rx#2 was cooled down. We closed the vacuum valve to check on it.

Ming-Tang - Both receivers in Hilo were warm up. Kyle has started to cool one down again yesterday. We will ship one spare cold head to Hilo.

LO/IF:

Steven - The problem of IF/LO #2 was caused by the bias circuit, which doesn't output normal voltages. I will use new version PCBs made by an out-sourcing vendor. Kyle - For IF/LO module in Hilo, one of channel has a large power difference (~ 2dB) when switching phase. In the previous report, the power difference is within 0.3 dB. Pierre - When we opened the module, quite a few things, e.g. SMA connectors, were loose, possibly due to the vibration of the cold head. I suggest using Loctai.

Steven - I will look for the problem with IF/LO #2 sent back from Hilo. I sent 2 PIN switches back to Millitech for repairing. I placed the PO for one 4-channel DAC module from Advantech.

Calibration System:

Kyle - Major components have been ordered. The lead-time is 6 to 8 weeks. I still need to order some directional couplers, isolators, terminators, and power detectors.

C.T. - If doublers cost less than the high-frequency cables, we may distribute the 10 GHz signal from YIG. The power amplifiers at lower frequencies should be much cheaper.

Kyle - We have ordered one YIG oscillator, used as a CW source. Then a doubler, a 4-way power divider, and power amplifiers will provide 24-dBm output power before the distribution cables. We also ordered some phase shifters and attenuators. The 20-foot flexible cable for higher frequencies will cost 2,000 US dollars each. The loss is about 1dB per meter. The harmonic generators will convert the signal up to W-band.

Correlator:

C.T. - In CCC, the hardware clock is quite precise, while the system clock in the operating system is drifting. We can use some command to adjust the clock

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rate in Linux, to bring the system clock up to speed. The computer hardware sends out interrupts at a nominal frequency of 100 Hz. Then the OS will increment the system time (normally 10,000 micro-seconds) based on it. However if the 100 Hz interrupt is a little bit off, then the system time will drift. For the total power detector circuit, we will ask the PCB company to modify the layout so that the digital and analog parts don't overlay.

C.T. - Advantech (the computer company) is still trying to find out the problem with the time drifting. I will try to get them to solve the problem within a week, or we have to find another solution. At least we can still use the prototype computer for the moment. I circulated the layout for the total power circuit for people's comment. Tashun has put together one frame. We will insert the components and work on the wiring next week.

Platform/Mount:

Ming-Tang - The hexapod is in Honolulu, waiting for custom clearance. The cone got stuck in L.A. Jackie *et. al.* were working on it. Finally we fixed the platform contract. Debbie will issue the PO soon. Ted - For the FEA, Along will send us their revised report every week.

Ming-Tang - Philippe has finished the discussion with CMA, and the scope of work is agreed between them. The P.O. for platform modification will be issued in next few days. Finite-element analysis is required to determine how to re-design the ring, where the U-joints connect to the platform. Jack-screws were in Honolulu, waiting for custom clearance. The cone was in L.A. Jackie will be working with Celia to get it cleared and shipped to Hilo.

Dish:

Ted - Along will send the 60-cm dish to ITRI for measurement. They will deliver the dish next week. Patrick - We are waiting for a good weather to test the dish outdoors.

Ted - We're waiting for ITRI to measure the modified 60-cm dish in next week. Patrick - We're preparing to test the dish outdoors.

Site:

Pierre - We'd like to finalize the power distribution, do the wiring, and then install the racks. We rent a truck to bring the racks, computers and other things up to MLO tomorrow. Debbie has contacted the phone company to pull an optical fiber for us (to visitor building?) Ted - Shelter was delayed for one more week because they found the central truss

isn't rigid enough. After the re-enforcement, the shelter will stay taller when it's open. For the cryogenic lines, we had a meeting with Helix yesterday. For electrical power, we'd like to control cryo-pump individually. We need to have switches close to the compressor. Helix suggested using 1-to-3 power splitters with relays to control each output, then using 7 power cables from the ground up to the platform. From compressor up to the platform, we may use 3/4" Helium lines. On the platform, we can use either hard Helium lines for light-weight and less press loss, or use 1/2" flexible lines.

Ming-Tang - Pierre circulated the updated wiring for the site. The Ethernet and telephone connections between visitor building and the container will use optic fiber.

Administration: