Minutes for AMiBA Engineering Telecon

Meeting Date: 23-September-2004

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

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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 – C.T. will follow up with Wisewave about the housing design.

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

Receiver:
Homin – Rx#4 has been cooled down for one week. Temperature is kept cold and monitored.
Ming-Tang – We should have some kind of monitoring system to send out alarm when temperature is off the range. Receivers in Hilo are also cooled down and behave quite normally.

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.

LO/IF:
Homin – Steven is making more new version bias circuits.

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.

Calibration System:
Kyle – The 7-meter IF cables cost around 150 US dollars, 10 times cheaper than the high-frequency cables. Since we're worried about the phase drift in the calibration system, we're discussing phase detection of calibration signals into the harmonic generators. We need to find sub-harmonic mixers when we distribute calibration signals at around 13 GHz. Phase drifting along the long cables from receivers back to the calibration source is another concern.
Jeff – For the calibration system, phase closure between receivers may provide some redundant information (N signals, ~N^2 correlations) to figure out the phase errors or drifting.

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.

Correlator:

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C.T. – Wiring of corr 2nd & 3rd sections, including the 48V DC-DC converter module, is still on going. Mark should be able to complete it by this week.

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 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.

Platform/Mount:

Ming-Tang – The custom clearance document for the cone is available now, while the cone still stays in L.A. Philippe is in Hilo right now to take care of this issue.

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.

Dish:

Patrick – We did the measurement of the 60-cm dish outdoors on Monday night with the source set up on top of the building. We're still limited by the mount to do vertical scan, not the horizontal one when using the tracking mode of the mount. The setup is quite stable over hours. The resulting pattern is quite asymmetric.

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.

Site:

Pierre – We are purchasing components to finish the power distribution and network.
Ming-Tang – Due to the hurricane and design change, the shipment of the shelter is delayed. The company has dissembled it and plan to ship it on this Friday. We will have a technician from the company to help on the installation.
West – Helix will provide the specs and documents for the compressor junction boxes.

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.

Administration: