

## Minutes for AMiBA Telecon 20071115, UTC 2:00

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Regular Meeting Time: UTC 2:00 Every Thursday

USA Dial-in = 1-877-505-6247; passcode 8339148 #; mod\_code 2917771 #

Outside USA Dial-in = 1 630 693 3224

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- Platform crack:
  - Both Cotech and CMA agreed that platform crack can be fixed without removing the platform from the mount. We should get reply or quotations from them within 1 or 2 weeks. In the mean time, Philippe is working on the conceptual design of the new platform. 1.4m baselines seem to be preferred (compared to 1.2m ones).
  - Dr. Ong (Cotech) has visited AMiBA site and Bob Romeo (CMA) is visiting now. Update on evaluation to come later.
  - Ted discussed with ARL and Dr. Ong and they all concerned about the epoxy used. Will ask CMA when get together in Hilo.
  - Pointing and deformation may change if there exist cracks. Need to check obs. data.
  - In the “July incident” the epoxy layer suffered 2 times stress of its spec limit, and for current 7-dish the normal operation already reaches its 60% capability (el. 30deg).
  - For safety reason, all mount operation is suspended till further notice.
- Mount operation:
  - General:
    - Guillaume will include more features into his mount visualization program – simhexapod.
    - Guillaume made a visualization software for postprocessing va\_amiba.log. Comments and feature requests are welcome.
    - Vertex has just sent us a new version software which should solve the skypol-lock issue. Testing of the software is suspended.
  - Problem lists :Vertex issue
    - MT will discuss with Vertex about the incident – how did it happen? How to prevent it from happening again? Unfortunately there is no log about this event.
    - ACU latency problem seems to be resolved. Guillaume found one TCP parameter should be modified.
  - Problem lists: Our side
    - Michael has changed the polarization sequencing in CCD code. Also removed temporary code in aBoss related to skypol/hexpol issue assuming Stephan's new code works.
    - user-friendly input for tracking with defined hexpol. Not very pressing items.
- Testing on site:
  - Lab
    - Johnson will swap the OMT to see if the noise spikes seen with Rx8 can be removed next time he goes to Hilo.
    - Rx8 noise temp shows two spikes near 6GHz and 13GHz. Investigation continues.
  - Rx status
    - IF/LO on Ant2 was brought down to be swapped with #8. Temp control sensor need to be removed and reinstalled.
    - S/N increased from VGA 5V to 3V (adam) but didn't from 7V to 5V.
    - CH will compare IF power variation with and without temperature control
  - Correlator
    - 2R7R shows constant high counts, probably due to its RO IC since the demodulation doesn't work. Check later.
  - Broken 2nd mirror of Ant2
  - IF power:
    - LL baselines show IF noise dominate. RR baselines show IF noise is only marginally stronger than the backend noise (dcamp and RO). Suggest to increase RR IF power.
    - Investigation of dc-offset and 2R abnormal pattern continues.
    - Ant3IF2 TP shows zero counts and is not changing with input power under etd 2.
    - Jupiter fringe first taken after RR input power was raised from -12dBm to -8dBm. SN ratio will be analyzed.
  - DC offset:
    - After tuning the LO power during day time, only a few baselines show increased offset toward the end of night as expected. LO for two LO need fine-tuning later.
  - Pointing:
    - Two OT's are ready for pointing. Suspended.
  - Observations:
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- General site issue:

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- 13 element:
  - **Review schedule next week.** Are there intermediate steps between 7x0.6m array and 13x1.2m array?
  - Rx
    - First three mixer module test results seems good. Proceed with the rest packaging.
    - We have got three bonded mixers and they look good. Eugene will measure the performance.
  - IF/LO
    - Single stage testing continues. Two chips were found to have problem. The doubler has spurs and the phase switch will switch 110deg instead of 90.
    - SW has order two sets of the current IF/LO module. Longest lead time for components is 3 months.
  - RO and correlator
    - Shen-Hsin is working on revising the correlator board.
    - Next will work on the correlator electric box. Estimated time to finish in two months.
    - We will find a machine shop to manufacture the correlator frame using drawings from ARL. It should be done in two months.
  - 3<sup>rd</sup> section
    - 3rd section packaging is finished and being sent back to us.
  - 1.2m dish
    - Cotech has got 10 dishes finished. One dish surface was found to be damaged or corroded by some liquid or drink after beam pattern measurements.
    - #2 is in EE for near-field measurement. #3 and #4 are sitting in Cotech. Need to prepare for next far-field beam pattern measurements.
    - Cotech is starting to produce the #5 and #6 dish.
    - Dashun and Eugene are working on the near field measurement and may have result in this week.
    - Cross-talk between two dishes with baffles is expected to be -110dB (-80dB without baffle). We need higher gain in the measurement system to measure it.
  - Platform modification
    - Science team's consensus is to keep 1.4m baselines. It has lower sensitivity for CMB observation but can be solved by longer integration. For 1.2m baselines on SZ observation, CMB primary contamination is too severe to be accepted.
    - Philippe has come up with a new design and Ted is going to help verify it. Cosmology team should make a decision whether 1.2m separation is necessary given that we will have 1.4m separation.
    - Total weight of 1.2m 13-element is about 4.5tons. It is 800kg over the spec of hexapod but still within safety margin.
  - Calibration system
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Traveling Schedule to Hilo:

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ASIAA Hawaii: <http://pmo.asiaa.sinica.edu.tw/Hilo%20office/>

AMiBA Website: <http://amiba.asiaa.sinica.edu.tw/>

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