Minutes for AMiBA Telecon 20071025, UTC 2:00

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

- Platform crack:
 - Ted demonstrated a FEA of platform, showing the highest stress is on the region of upper joints, which agrees with where the current cracks are.
 - In the "July incident" the epoxy layer upon jack5 suffered 2 times stress of its spec limit, and for current 7-dish the normal operation already reaches its 60% capability (el. 30deg). However, refined analysis and more accurate numbers are required.

• Pointing and deformation may change if there exist cracks. Need to check obs. data.

- Pablo found new cracks this week, and old cracks seems to become larger.
- For safety reason, all mount operation is suspended till further notice.
- Dr. Ong will go to Hilo for assessment. We are also contacting CMA for consultation.
 Philippe will ask Vertex about the abnormal jack length incident in July.
- Mount operation:
 - General:
 - Vertex has just sent us a new version software which should solve the skypol-lock issue. Testing of the software will be done soon.
 - Vertex does not think modifying the TCP parameter is helpful. Patrick will discuss with Guillaume on how to reply.
 - Problem lists :Vertex issue (PK summary)
 - ACU latency problem seems to be resolved. Guillaume found one TCP parameter should be modified.
 - Problem lists: Our side (PK summary)
 - improvements on control software: change in polarization pointing to save time
 user-friendly input for tracking with defined hexpol. Not very pressing items.
- Testing on site:
 - ∘ Lab
 - Rx8 noise temperature shows two spikes near 6GHz and 13GHz. Johnson swapped the batch of LNA with Rx9 but noise persisted. OMT is the next suspect.
 - Coupling LO AM-ing due to phase switch was investigated. Inserting an isolator after the hybrid can remove the coupling.
 - Rx status
 - CT: VGA doesn't have much attenuation below 3V (adam readout, 5 times of the actual control VGA voltage); S/N increased from 5V to 3V (adam) but didn't from 7V to 5V.
 - CH will compare IF power variation with and without temperature control.
 - Pablo suggests to use the AS (Austin Scientific) compressor with three coldheads only.
 - o Correlator
 - No signal was seen with etd 1, 3 (LR, RL) because Jupiter doesn't have much polarization. (Signal shows with an artificial noise source.)
 - Ant7 TP was fixed by a replacement of a spare 1st section.
 - 2R7R shows constant high counts, probably due to its RO IC since the demodulation doesn't work. Check later.
 - Broken 2nd mirror of Ant2:
 - With the damaged mirror, we will lose efficiency and increase noise and also change the beam pattern. However, for on-axis observation, the problem is not very obvious.

• 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:

- Pointing taken simultaneously by both OTs is proposed.
- Combined result of two OT's shows there is 0.3' to 0.5' discrepancy, probably due to local effect. Polarization pointing: being worked on.

• Observations:

 RR first row now uses new RO boards, which is counting about four times slower than the old one. The "counts" of data will be roughly four times smaller.

• General site issue:

- 13 element:
 - o Rx
 - MT reported the NRAO design phase shifter is in progress.
 - We have got three bonded mixers and they look good. Eugene will measure the performance.
 - o IF/LO
 - Single stage the new IF/LO module is testing and going to integrate chips (by 10/29). 1st module is expected to come in one month.
 - SW has order two sets of the current IF/LO module. Longest lead time for components is 3 months.
 - RO and correlator
 - CT: various RO boards have similar performance, probably because we are operating in the IF noise dominating regime.
 - Next will work on another iteration of RO board and 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.

3rd section

- 3rd section packaging is finished and being sent back to us.
- 1.2m dish
 - 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

- 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
 - No update

Traveling Schedule to Hilo:

ASIAA Hawaii: http://pmo.asiaa.sinica.edu.tw/Hilo%20office/ AMiBA Website: http://amiba.asiaa.sinica.edu.tw/ Distribution List: kylin@asiaa.sinica.edu.tw, ctli@asiaa.sinica.edu.tw, dkubo@sma.hawaii.edu, homin@asiaa.sinica.edu.tw, cchan@asiaa.sinica.edu.tw, shchang@asiaa.sinica.edu.tw, pmkoch@asiaa.sinica.edu.tw, pierre@asiaa.sinica.edu.tw, ydhuang@asiaa.sinica.edu.tw, chiuehth@phys.ntu.edu.tw, hyhuang@asiaa.sinica.edu.tw, nishioka@asiaa.sinica.edu.tw, jhpw@phys.ntu.edu.tw, keiichi@asiaa.sinica.edu.tw, blog.locutus@gmail.com, mkesteve@atnf.csiro.au, raffin@asiaa.sinica.edu.tw, hueiwang@ew.ee.ntu.edu.tw, pshaw@asiaa.sinica.edu.tw, yjhwang@asiaa.sinica.edu.tw, f87026@ew.ee.ntu.edu.tw, ho@cfa.harvard.edu, jbp@cmu.edu, swchang@asiaa.sinica.edu.tw, thc@ew.ee.ntu.edu.tw, chchang@asiaa.sinica.edu.tw, ken@asiaa.sinica.edu.tw, fabi@asiaa.sinica.edu.tw, poshiro@asiaa.sinica.edu.tw, jlim@asiaa.sinica.edu.tw, wwilson@atnf.CSIRO.AU, pablo@asiaa.sinica.edu.tw, r91222045@ntu.edu.tw, skyjadel@gmail.com, sandor@asiaa.sinica.edu.tw, wyhwang@phys.ntu.edu.tw Please contact MTC for managing this mailing list