Meeting Date: 25-Dec-2003

Participants: <u>Australia:</u> <u>USA:</u> T.H. Chiueh, C.J. Ma, Kyle <u>Taiwan:</u> Huei Wang, C.T. Li, Homin, Eugene Huang, Paul Shaw, Ted Huang 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:

 $\ensuremath{\mathsf{Huei}}\xspace/\ensuremath{\mathsf{Paul}}\xspace$ Shaw - Will remind Sun Kwok to check with RCUH about whether or not to re-do the administration.

Receiver:

Homin - We're preparing 1st production receiver for shipping to Hawaii and accessories, like Helium lines, for Hilo lab. 2nd receiver is also ready. The parts for the rest of 5 receivers the lab now. It will take about 6 to 8 weeks to assemble another 2 receivers, and do the col in Taipei. The LNAs have to be installed and tested in Hawaii.

Ming-Tang - Will take a look at the receiver next week. Have received some repaired amplifie: Todd.

LO/IF:

Homin - Mr. Tseng is coming after Chinese new year to take care of production of remaining 5 modules. Prof. Chu and his students were fixing the $2^{\rm rd}$ unit.

Paul Shaw - Will talk to Prof. Chu about this issue.

Correlator:

C.T. - West and I were testing the correlator modules. Since one of the synthesizers is degrading, we can only test up to 16.5 GHz, starting fr GHz, frequency spacing 0.5 GHz. Will circulate the results later on. Marl were modifying the phase switch and data acquisition circuits. Will hav fabricated soon.

C.T. - Went to EE department to test IF components. The power dividers work as we expect. Bu found some problems after assembling the Triquint IF amplifier with power dividers. We're del it right now. Also work on correlator computer a little. We got a 2rd quote for data acquisit board. We still need to modify the circuit. Mark Chen is on leave this week. We will work on modification after he gets back, and start the board processing. For the schedule, we probab receive data acquisition circuits till early January. We're still waiting for the delivery o electronic components from Digi-key. They will come sometime in January. Got Warwick's support up correlator control software. Johnson will go to Hilo for receiver testing. That will ouring this time.

Platform/Mount:

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Ted - Bob Romeo had agreed with us on the 2nd modification of platform, scheduled in early February, should be done in 2~3 weeks. We're still worl the final details. Philippe and I plan to do this part of modification (pl re-enforcement) in Hilo due to the time constraint. We haven't decided company will execute this modification.

Ted - Talked to Bob Romeo and Philippe. We have an agreement on the inside ring section - th enforcing part. We haven't agreed whether we should put the L brackets all along the platfor Romeo was concerned about the time to fabricate such large amount of material. He also though don't need the L brackets. Philippe will do some analysis on it.

Paul Ho - Philippe talked about putting the metal plates between the platform and mount if t platform is not perfectly fixed to secure things. Whether Bob Romeo can fix the platform in not, we should think of a backup plan since we must get going in January.

Paul Ho /Ming -Tang - Bob Romeo was discussing with Philippe about the re-modeling. Bob Rome get to Germany till the end of Jan. Romeo has done something to re-enforce the structure, wh not shown in Philippe's model. Bob Romeo agreed to give Philippe the information about the modifications he made. Have asked Philippe to circulate a weekly report.

Calibration System:

Kyle - Ferdinand gave us some equipment to inject CW signal into the rec for testing. We used a synthesizer to generate signals at 16 GHz, used multiplier to get signals at 96 GHz, injected thru the secondary of dis the receivers. We didn't see any signal. We used a W-band power sensor measure the output power of the multiplier. Since the power sensor can measure down to -30 dBm, we didn't see any correlated signal either. After Fei comes back, we will start to work on photonic noise injection system.

T.H. Chiueh - Ferdinand is back for a week. For gain calibration, Ferdinand still needs some work out the noise source.

Dish:

Ted - After discussing with Eugene, we decided to use Gortex for coveri dishes. At the moment, I will design some fixture to hold the film. The transmission loss of Gortex is about 0.1 dB.

Ted - We measured the transmission of various materials which we plan to use to cover the di with the network analyzer. We got Gortex with 2 different thickness and Zitex (G115 and A105 prefer to use Gortex since Zitex doesn't have the water-proof feature.

Site:

Paul Shaw - We got one preliminary quote. The price is much lower than the two companies. Now tried to figure out all the details. Have asked him to down each item.

Some correction from Ferdinand -Problem is that we have written site specifications, but corrections need to be made. The prospecifications are written for a bidding process, our new construction approach will be diff The new specification should reflect this. This is more legal issue than a technical specifi aspect.

Paul Shaw - Waiting for another possible quotation for the site and project consulting.

2-Element Prototype Testing:

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Kyle - We have tried to design and make a 21-GHz cavity filter. We test filter, and the result is not bad. Q factor is 350, which gave us about bandwidth around 21 GHz. That will suppress the spurious by we saw in LC dB. The spurious is about 300 MHz away from 21 GHz. However the insertic is about 4 dB. Then the LO power is not sufficient for receiver 2. We'r checking the relation between DC offset with delay right now.

T.H. Chiueh - We can try putting the filter along the LO path to receiver receiver 2 will still have enough LO power.

C.J. Ma - We got one quotation from K&L for the cavity filter.

T.H. Chiueh - In the 2^{nd} iteration, we should be able to make it. The Q vasto is about right, because if the Q value is too large, then the bandwi too sharp, any temperature variation may shift the response, then you mi 21 GHz. Right now the bandwidth is about 50 MHz, which is good enough. E current iteration, there is a room to improve the Q value by a factor of other words, to reach Q value of 1000 is probably not difficult. The wa couple signal in and out of cavity is not optimized.

T.H. Chiueh - Kyle tried to design a cavity filter to remove LO spurious, aiming for 10 or 1 bandwidth. In next week, alignment of two dishes has to be done. Ferdinand lent us the equip work on the gain calibration.

T.H. Chiueh et. al. - It is possible that part of DC offsets come from LO spurious. We could remove it by using some resonant cavity filters. We still have the AMing of LO during phase switching. We made a LO at 21 GHz. However it is susceptible to environment, or power line. 1 10.5 GHz LO has strong spurious. DC offsets is much larger than the original LO.

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