Minutes for AMiBA Engineering Telecon

Meeting Date: 22-August-2002

<u>Participants:</u> <u>Australia:</u> W. Wilson <u>USA:</u> D. Kubo <u>Taiwan:</u> C.T. Li, H.M. Jiang, W. Ho, C.C. Han, P. Shaw, P. Wu, T. Huang, K.Y. Lin

A number of people were attending the URSI conference and could not attend this telecon. Next week will be the SPIE conference in Kona, Hawaii. This conference is held in Hawaii once every 4 years.

I.<u>New Action Items:</u>

1) Chao-Te: 4-lag readout chip >> Verify with Professor Chiueh the input voltage range for the new readout chip. Also obtain the new pinout definition.

II. Previous Action Items (open):

<u>15aug02-1:</u> Platform >> Bob/Philippe: Complete bidding package for the platform. Bob has circulated 1st draft to Philippe, Ted and Paul(?) for comments. This action item will be closed when it is agreed that the bidding package is complete.

Bob has circulated the RFP spec package for review. So far he has received feedback from Philippe, Paul S., and Derek. Bob will arrange for discussions on the various matters to finalize the RFP.

<u>15aug02-2: Antenna Coupling</u> >> C.J. Ma/K.Y. Lin: Generate a test plan to characterize the antenna coupling. This test involves injecting a signal into one antenna and measuring the coupled output on an adjacent antenna. Ideas discussed:

- a) Need to identify and acquire feedhorn (85-105 GHz) to inject signal into dish
 b) Can use existing Milliwave Gunn oscillator for CW source (mechanical tune), +13 dBm
- c) Probably best to use receiver to see coupled signal
- d) Coupled signal will be down by an expected 100 \widetilde{dB}
- e) Use 2 receiver test stand or use prototype mount?
- f) Best place to test will likely be Mauna Loa

This action item will be close when a test plan has been generated and distributed for review. This item has been deemed lower priority than activities involving the prototype on Mauna Loa.

No input/discussion.

<u>15auq02-3:</u> Prototype Schedule >> Bob: Bob has generated and distributed a schedule of activities. Proty asked that network activities be added to this schedule. Ming-Tang also added that names be added to each task. I suspect this schedule will be an on-going item but I will close it out as soon it has been revised with the 2 requests.

It was discussed that Bob has suggested to add Ted to support this activity for approximately 3 months. Bob will make these minor updates to the list of activities and distribute.

<u>15auq02-4:</u> Prototype Mount >> Bob, Philippe, Ted, Ferdinand: The modification to the mount is presently in process at Jackson Machine works in Hilo. It is expected to be completed at the end of August. Open items:

a) Ted/Philippe to update drawings to match modifications

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b) Ferdinand/Ted/Ming-Tang to investigate and solve "loose worm gear" issue.

c) Bob/Ming-Tang to determine where to mount the various components on the mount (should not be a problem).

This action item will be closed when items a), b), and c) are completed.

Proty asked whether the addition of the motor drive is still in the plans. Paul S. and Ted said yes.

<u>15auq02-5: 60 cm Dish</u> >> Bob/Mike K./Jeff P: Assignees need to discuss and resolve the following issues first via e-mail, then followed by a face-to-face meeting during URSI conference:

- a) Modify design for focus adjustment
- b) Discuss shield issue, look at report on shield describing worse ground pickup with cylindrical shield

This action item will be closed when items a), b), are completed

Bob, Mike, and Jeff were absent.

<u>15auq02-6: Mauna Loa Network</u> >> C.J./K.Y. Lin: The network connection in the visitors building is up but drops out about 2 times per minute. Darryl of Mauna Loa is aware of this and will fix the problem on his end. The following items still need to be resolved:

a) Generate a list of tasks and hardware items to get the prototype computers networked properly.

No input/discussion.

III. Summaries and Other Inputs:

From Bob Martin, 16-Aug-02

Hi all,

Attached is a pdf file for the platform RFP. Please read and respond asap. Let me know what I have missed.

Philippe: could you please check if this document details the weights clearly enough.

Ted: could you please supply figure 4. If you can send it to me as a jpg, or tiff file that would be best. In the next week, I'll be reading emails by modem down load, so compact file structure would be appreciated.

Ming-Tang and Derek: Please jump up and scream if ${\tt I}$ have the electronics sizes and locations wrong.

Paul S: I've listed you as the central contact. Please check the due dates and comment if this is reasonable.

Regards,

Bob

From Derek Kubo:

Correlator Status as of 8/21/02:

1) Reviewed the Platform design specs and provided feedback to Bob in regard to the physical Correlator frame space allocation. Bob will talk to CT and Derek about this offline.

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2) Meridian Microwave: Will deliver a packaged mixer to us by Sept 13. As previously mentioned, this mixer will have the exact same mixer and balum as what's in the current prototype correlator. After talking this over a bit with Jeff, we have decided that it would be most informative to integrate the 6 dB pads into this assembly. This is because the 6 dB pad will be an asymmetrical "T" (higher resistor value on mixer side). Screwing on an external 6 dB pad will not be the same. In regard to the module development, Jeff is planning to send me the final module outline drawing this week.

3) Schematic for DC amplifier is nearly complete. Still need to ID some small SMD regulators for +/-5V, and ID a suitable connector to interface with the Interface board. Board layout will be our next step. We are designing around the OPA627 package which allows us to use either that op-amp or the less expensive OPA350UA. Since we moved the readout chip out of the module we don't have any space issues regarding whether the circuitry will fit within the allocated board space. We are currently mulling over whether to go out-of-house or do the layout ourselves. Doing it ourselves will allow us to easily change the board in the future but we are a bit short on staffing.

4) Ordered small quantity of BMA connectors for both the 3rd section "push-on" power divider (male) and Correlator module (female). Also ordered BMA terminations (female), and BMA to SMA adapters. In speaking to CW Swift (supplier of connectors), he felt that the BMA connector was the best selection for our application, so this is good news.

5) CT is presently working on the transform matrix to recover the spectrum from the correlation function. He is working with Warwick on this matter. It looks as if our present prototype correlators have too much amplitude and phase distortion to obtain useful spectral information. We may have to wait for the 2 new 4-lag correlators.

6) Near term plans: a) identify and order 2-18 GHz SPDT switch; b) research other phase shifters for delay matching issue; c) repackage 1^{st} section into 3U high Eurochassis to make sure it fits; d) determine V and I power consumption for 1^{st} , 2^{nd} , and 3^{rd} sections.

7) Received 45 Triquint MMIC amps. Sending to CT tomorrow.

8) Correlator RFQ: Miteq and TRW responded to me that they have received the RFQ but have not submitted a bid. Have not heard from Marki.

Regards,

Derek
