

AMiBA PROJECT WEEKLY MEETING MINUTES

Date: 8 February 2001

Participants: K.Y. Lo(part time), J. Payne(part time), B. Martin, H. Wang, W. Warwick, M.Kesteven, M.T. Chen, H.C. Lu, Y. J. Hwang, W. Ho, Homing Jiang, Ray Wei, P. Shaw, Jackie Wang, Jean Cheng

Issues and Description		Action by	Output
MMIC			
1.	Mal & Bob think the specification for the HPF is OK, so Leo will contact the supplier and tell them we would like to purchase the first 5 units for prototype, and we will purchase 35 units more once the first 5 units is accepted by testing. And ask the supplier for what is the best price they could offer us. Leo will talk this further with Paul after meeting.	H.C. Lu	ASAP
2.	We got the export license approval for the InP activities, and now we need to sort out whom we should deal with for the design, fabrication, testing and packaging the required chips. And to find out a partner to share the cost, that is our target to reduce our cost, ATNF and JPL are possible to cooperate with us. Now we need to figure out the realistic cost and time frame for MMIC wafer run. Huei will contact TRW to get the quotation, and contact JPL as well to see if they are willing to cooperate with us. In the mean time, Mal will investigate in AT to see what they can do on the MMIC wafer run for us. Paul will set up a separate meeting to review the work plan with Huei and Bob.	H. Wang	Ongoing
		H. Wang M. Sinclair P. Shaw	Ongoing Ongoing
3.	Since we got approval for the InP export license, so Todd thinks they probably could ship the units through TRW on the export license. Huei will talk with TRW people to see whether they could do this service on us.	M.T. Chen	Ongoing
4.	Jean already sent a copy of the WSHM3 mixer measurement result from NRAO to everyone to look, and in the mean time Mingtang inputs two plots of the Trx VS Frequency for the NRAO LNA on web site as well. He will talk with the designer when he visit NRAO by next week, and see if they could make the rest of 2 units better.	M. Sinclair	Ongoing
5.	T.H. says he already sent an amplifier back to Spacek, and didn't anything back from them, and he found the major difference probably comes from the measurement set up; they measure using a power meter, and we using an analogue analyzer. They use a coupler to measure the input power, and it will be a little bit higher, because they didn't count the return loss for the input. And for the output, probably also a little bit higher, because of using a power meter will integrate everything into a reading value. So T.H. asked Spacek if they could use the same set up as we use to measure the amplifiers. But they said they don't have such analogue analyzer by them selves, T.H. hopes they could find that instrument around. The input & output return loss of the amplifier looks fine, and Mal thinks using an analogue analyzer may not change the results much. As an alternative, Mal has contacted a source, which can sell the MMIC chips to us. Mal will collect the test data as well as the quotation and send to Mingtang. But for machining & packaging, Mal suggests Mingtang to do it in Taiwan, since the workshop in ATNF is fully occupied this year. Mal will provide design drawings to Mingtang, then after Mingtang will contact Chungshang Institute to see if they do that work.	M. Sinclair	Ongoing
		T.H. Chu	Ongoing
6.	Eugene tested the Spacek W-band diode mixers, the first one shows the conversion loss is 11 ~ 23 dB, And the second is better, but is still not meet the test data provided by Spacek ; its conversion loss is 7~18 dB, which is also different with the Spacek test data ; 5.8~11.5 dB, and the required specification is less than 10 dB. T.H will send the worse one back to Spacek to verify the test result. Since the first one is close with the specification, so probably we could accept it. Mal has received a copy of noise source of Russian firm from Eugene, and he notices that firm also supply very good mixer; its conversion loss is only 8 dB. He suggests Eugene to take a look on the web site, may be he can find alternative.	Y.J. Hwang	Ongoing
		M.T. Chen Y.J. Hwang	Ongoing
7.	Russell has sent the test results data of Sub-harmonic mixer chips back to Mingtang & Eugene. Test result is quite good and even better than what Eugene is expecting. In a long term consideration, Mal, Huei and Bob all agree we should try to do the packaging in Taiwan. So Mingtang and Eugene will go ahead to discuss the packaging issue with The Chungshang Institute.	H. Wang	Ongoing
8.	Regarding the GaAs HEMT chips design, right now is at the final layout stage, and probably we could get the chips back from TRW in June time frame if everything goes right; which including the gain amplifier and sub-harmonic mixer also. And the next design phase is heavily depending on what the test result comes out, Huei says.		
Lag Correlator Hybrid			

1. Warwick says both parties will sign the NBA for providing a model of GaAs HBT from CIC /Taida to ATNF/Paul Robert. Huei will follow up to get things done.	H.Wang	Ongoing
2. Regarding the InP HBT multipliers, Warwick says the packaging test will be done in this week.	W.Warwick	Ongoing
3. Regarding the LTC module fabrication for lag correlator using HBT multipliers, Warwick sent out some technical questions to the engineer of ACX in Taiwan ten days ago, and now waiting for the response. Paul asks Warwick forward a copy of that email to him and Eugene, so they could follow up for Warwick.	W.Warwick	ongoing
4. Ray says the IC chips will be back from CIC in March, and before that he is working on another chip design of voltage converter, it will be completed in March also. Regarding the LNA, it is difficult to find that chip in die form; Ray will keep on looking for that.	R. Wei	Ongoing
5. For the prototype, we need 75 multipliers chip to produce 4 lag correlators, but Warwick says probably they don't have that much chips to build 4 correlators if we use just the HBT circuit, and he don't know whether Jeff comes out a good result with the mixers as well. But he thinks people need to be aware if we rely on the HBT multiplier along, then we have problem to build 4 correlators.	W. Warwick	Ongoing
6. Warwick says for their own purposes, they will build a 12 GHz band width correlator, and that will be much easier than to manufacture a 20 GHz one; they probably would use the standard print circuit board technique without having integrating resistors and high frequency substance. So that might be something we can go a lot quicker, say the 12 GHz design, and that might be useful study point to make as well. This will be an option if we can't get the 20 GHz on going after.	W. Warwick	Ongoing
7. Regarding the 16-element correlator basis on mixer using power divider circuit, Jeff says they are continuing to test the individual mixer using noise source. now they are going to measure the stability of the output, but they don't have sensitive enough equipment to see the fluctuation of the output. So they will add the LNA to the output, and see if they can measure on that. In mean while, he is still waiting for out put of the producer for lag correlator, he will keep on pushing them. Jeff will be gone in the next two weeks to south pole, so he hopes something comes out when he backs.	J. Peterson	ongoing
Receiver		
1. Mingtang tested the window material, which supplied by Jeff in the last week, he found that material is very good. Besides its cost is much cheaper than the commercial one. He will finish the test on that material and send the results to everyone to look. Mal also will send a sample to Mingtang as well.	M.T. Chen	Ongoing
2. As per request, Mal will provide a temperature sensor board to Mingtang. The cost is under \$ 1,000AUD for each one, it is about half price of commercial one.	M. Sinclair	Ongoing
3. CIC suggests Mingtang to use the CIC 350 model instead of the CIC 22 model.		
4. Jean will resent the work plan in PDF file without Chinese characteristics to Mal, Michael and Warwick.	J. Cheng	ASAP
5. Paul and Jean will keep on organizing an area on web for placing the drawings.	J. Cheng	Ongoing
6. Regarding the circular polarization issue, Mal has read the information from Jeff. and he will be modeling on that. He will let us know what is going on afterward.	M. Sinclair	Ongoing
7. Mal gives Mingtang some comments on the feed horn design, he will collect the cost and supplier's information of feed horn and sends to Mingtang as well.	M. Sinclair	Ongoing
8. Mingtang is continuing to prepare a lay out in detail to show the space and location for the MMIC components.	M.T. Chen	Ongoing
IF/LO		
1. Warwick has received the technical data of fiber laser system from Eugene, and he agrees to buy one from IAA. Eugene will talk with Warwick about the purchasing procedure in detail afterward.	Y.J.Hwang.	ongoing
2. As to the optical fiber, The Sumitomo in Tokyo informed Eugene that they don't have fiber in there stock and they will not produce it any more. Eugene will check with the Smithsonian Institution to see if they have extra fiber to provide us, and in the mean time he will continue to survey on the fiber products from other companies. Bob will be in Hawaii tomorrow, he will check it with the Smithsonian people in there.	Y.J. Hwang B. Martin	ASAP Ongoing
3. Eugene is starting to design a Q band sub harmonic mixer, which will be integrated with the photo mixer chips to photonic phase lock in phase shifter. His aim is to meet the TRW 0.1um GaAs fabrication run in this summer. He is also looking for a commercial available MMIC chips on that mixer.	Y.J.Hwang	Ongoing

Platform/Mount/Dishes		
1. Bob got some drawings on the small dishes and gave them to Philippe to review.	P. Raffin	Ongoing
2. With Vertex, we are still revising the specification that he needed. And we try to put together the update specification, drawings for the interface, platform to make it easier for all of this manufacture, and to guess how to do the mount, that's work is going on.	B. Martin	
3. The general overview on the prototype system including time schedule in a regular basis is necessary: Paul will place the work plan of each sub-system in prototype as well as the time schedule on the web site, so everyone could take a look. We will talk on those work plans in detail by next week.	ALL	Next week
4. Due to the problem of the Specek amplifier, we need to find an optional post amplifier for receiver. Mal says they have the GaAs MMIC chips, but without testing and packaging. Mal thinks this could be An option for post amplifier. Mingtang will follow up this issue with Mal. For ensuring all MMICs We need for prototype are under control, Mingtang, Eugene and Leo will review the overall system of prototype.	M.T.Chen H.C. Lu Y.J.Hwang	ASAP
5. Paul will revise and update the project schedule, and forward it to everyone to look at by next week.	P.Shaw	Next week
Next Meeting		
7:30pm EDT, 8:30am Taiwan, 10:30 Australia, 4:30pm Tucson/Thursday/Feb. 15, 2001		