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Status Report
(LPI,Moscow)

Main point

In April-May the LPI group entered the phase of regular stable work on the EST board production.

This means, besides other things, that we can now reliably speak about average production rate per day, per month and make more realistic time-schedule for the future.

Working Parameters

Production rate reached now at LPI is 8 EST boards/day. That means -- 40 EST boards/week and theoretically 170-180 EST boards/month. That is close to the desirable rate and could give effectively 1700-1800 boards per year. Practically at the present moment productivity is lower (around 160 boards/month), because some members of the team from time to time should take part in other works: testing, measuring, packing and so on.

HV testing in the lab is now done at the HV stand, which allows us to test simultaneously ~120 EST boards. Capacitance of the HV stand corresponds roughly to the number of the boards for three rear modules or for two front modules.

These relations gave rise to the idea of the possible organization of the work on EST board production:
1) to produce EST boards for three rear modules (needs three weeks),

2) after that to put them on the HV stand for the two week testing,

3) to keep testing these boards while the press is switched to the production of EST boards for two front modules (another three weeks),

4) to put this new set of boards on the HV stand, which is by this time is freed from the previous load,

5) to return to the beginning of this procedure and repeat it several times until excess of rear modules becomes noticeable.

Then for some time to turn to the production of only front modules.

Overview of LPI Production

So far at LPI ~580 EST boards were produced.

Among them:
~540 boards were considered as "good" (part of them is not tested yet)
42 boards by various reasons were rejected.

Typical defects and dynamics of their changing in the course of the production process are shown in the Table.

TABLE: Defects in EST board production

Serial board number	Type of the defect				Total	Comments
	in gluing process	in cutting process	in HV testing	bowing effect		
1–100	6	4	5	2	17	Completely tested
101–200	1	2	7	0	10	Completely tested
201–300	1	1	5	0	7	Completely tested
301–400	0	1	3	0	4	Completely tested
401–500	0	1	1	0	2	13 EST without long HV test
501–582	0	1	1	0	2	80 EST – short HV tested 2 EST – long HV tested
Total	8	10	22	2	42	

It is clearly seen that number of defects decreases as experience of the personnel grows. Especially this relates to the defects occurring in the cutting and gluing processes.

Total number 540 of the manufactured EST boards consists of:

Boards for rear modules	**206**
Boards for front modules	**334**

From these boards following parties of boards were delivered:

MPI	**10+102**	**R**	**(3 rear modules)**
TRIUMF	**162**	**F**	**(3 front modules)**
JINR	**54**	**F**	**(1 front module)**
Total	**328**		

Shipping Problems

This spring the customs problems were rather acute in Moscow and a lot of efforts were spent to overcome the arising difficulties. But now we can say that elements of optimism start to appear.
Gradually we got accustomed to the customs requirements, found more optimal way of getting through the formalities and, last not least, type of the materials we present for customs control became more familiar to customs officials.
To summarize one can hope for the reduction of customs formalities to approximately two weeks.

I think also that time has come when we can speak of making shipping more rare, but having larger parcels.

Funding

Insufficient funding of LPI in 1999 can present in near future serious problems in buying kapton for further production.
The available amount of kapton at LPI will keep production active till the beginning of July.
We rely very much on the assistance of ATLAS management in procuring the necessary amount of kapton from the West companies, which will allow to continue production during coming 12 months.
The negotiations are in progress.