

Minutes and Actions of Site Qualification Task Force

Phone Conference – 21st of April 2005

Present: (J.-C. Clemens), G. Darbo, K. Einsweiler, M. Garcia-Sciveres, P. Gerlach, D. Giugni, (C. Glitza), F. Hugging, (V. Kostyukhin), (W. Ockenfels), (M. Zdrzil).

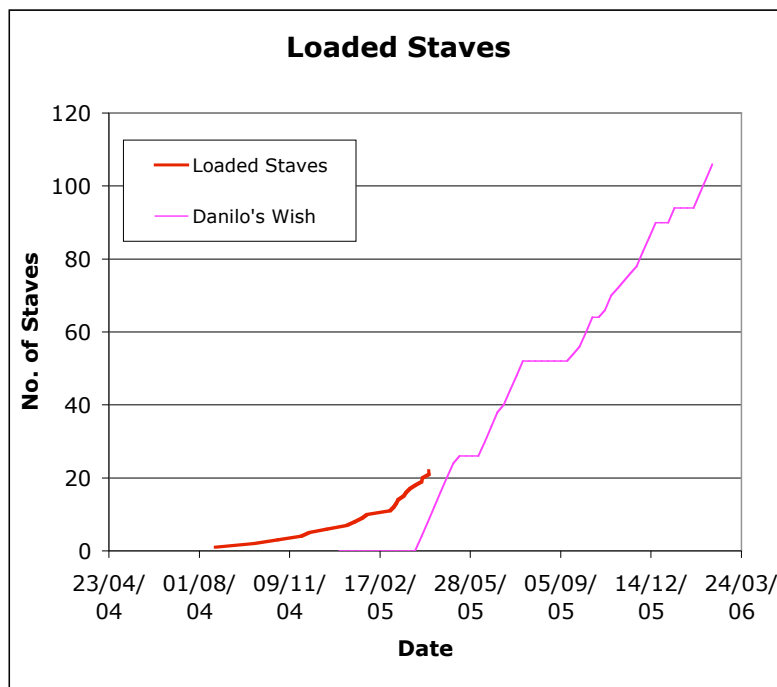
Excused: E. Vigeolas.

Agenda.

1. Round discussion on qualified staves for half-shell from CPPM/Genova/Wuppertal. Problems encountered in the labs.
1. LBL production status update (Marian/Maurice)
1. Stave shipping and packaging
1. SE4445 Glue.
1. Half-shell integration at CERN (Danilo)

Status of Stave Qualification.

Till to day, 22 staves have been loaded in the 3 sites (10 Genova, 8 Marseilles, 4 Wuppertal). The plot below shows the number of loaded staves w.r.t. time (red curve) and the planned need of staves at CERN for loading in the half shell (violet curve).



The loading slope, even if increased recently, is still not steep enough. The red curve corresponds to the staves initiated and not to the fully qualified ones. The number of staves fully qualified in the 3 sites is: 5 from CPPM, 2 from Genova, no one from Wuppertal. From the remaining staves there are a few that need some level of reworking: 2 from CPPM need MCC reworking (for a total of 3 modules); 1 from Genova needs gluing of one end of the omega; several modules of the last two staves from Wuppertal need to be removed and glued again because the glue thickness is far beyond the 100 μm . Summary status of the all 22 staves produced can be found in the tables:

http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/Staves_05-04-21.xls

Both Genova and CPPM are using the Vadim's survey analysis program and results of the measured quantities have been plotted.

For Genova:

http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/SummarySurvey_GE.pdf

for CPPM

http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/SummarySurvey_CPPM.pdf

Jean-Claude reported that they modified the head of the loading robot with the hope to reduce the significant bow that loaded modules show. The bow is slightly reduced (from 100 μm to 80 μm), but it doesn't seem possible to go below that. (see: http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/CPPM_status_Jean-Claude.rtf)

We have been informed that the two last staves loaded in Wuppertal had several modules with a distance from the staff much bigger than the nominal 100 μm . All those modules need reworking. The mistake was made by a new technician hired to speed up the production. The production is stopped until the loading procedure will be fixed to avoid the happening of such errors in future. Bonn will perform electrical and thermal tests on a part of the staves loaded in Wuppertal.

From the status reported by the 3 sites some conclusion can be taken:

1. Production rate is approaching the nominal of 1 staff per week in Genova and Marseilles, being still limited by modules availability.
2. The time passing from loading date to fully qualified staves is still too long, but good progress has been done by Marseilles and also Genova is catching up.
3. The situation in Wuppertal seems serious both for the recent problem encountered in the loading and to the delay in the full qualification of the loaded staves. It is still not clear if the required, one staff per week, can be reached soon in the site.
4. Both Genova and Marseilles have still to produce a qualification document after the 5 staves of the initial production. It is particularly important to have this soon since the initial production is over since some time.

The SQTF feels that is necessary, as a needed step in the site qualification, to have a visit, by some of its members, in the 4 sites. Giovanni said that he will organize a trip to Bonn/Wuppertal/Marseille/Genova next month of May and he will communicate the dates to the sites to get prepared. The sites must organize themselves to show how they perform the loading / survey / testing task on real parts.

LBL production status.

Marian reported that 22 sectors have been tested so far (the sector 9026 being the last loaded). Of those, 20 are with long type-0 cables (disks 1 or 3) and two (S9026 and S9028) with shorter cables. All the data is available on the Raw PDB server and also PDB is updated regularly. (see:

http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/LBL_status_Marian.rtf)

M a r i a n a l s o
http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/LBL20DiskSectors.pdf

the distribution of delta of bad pixels (LOAD-BURN, STAVE-FLEX), distribution of number of bad pixels measured in each test (BURN, FLEX, LOAD, STAVE), distribution of penalty points for all sectors tested (21 sectors, 126 modules) and finally a spreadsheet that shows their progress and which sector goes where (meaning its mounting of the disk 1c, 3c or 2c).

Maurice reported of a problem of broken wire that happened on the sensor wirebond (see: http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/510815_1.JPG). The bond broke up when some air for cooling the module during test was blown on it. The air went into the hole in the flex and pushed it up causing the wire to be pulled and finally break. It was decided to rework all the sectors adding multiple wirebonds with higher loop (see: http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/510346.JPG).

Marian has distributed the last version of the qualification document for sector production in LBL: ATL-IP-QA-0025 (see: http://www.ge.infn.it/ATLAS/SQTF/QA_Reports/ATL-IP-QA-0025.pdf). This version implements the few comments received for the draft. Danilo has to load it on EDMS, and thus the qualification for sector production in LBL is complete.

Stave shipping and packaging

This week 6 staves have been shipped to CERN for use in half-shell loading (2 from Genova and 4 from Marseilles). Transport has been done in both cases by car paying attention in handling. Genova used one of the blue container made in the past for the transport of bare staves (see: http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/Genova_Packaging.JPG) and it put inside the two staves contained in a box and

s e a l e d i n a p l a s t i c
http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/Genova_PackagingInside.JPG).

Marseilles placed the staves in the same blue boxes, s c r e w i n g t h e c r a d l e
http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/CPPM_Packaging.JPG).

This packaging was considered highly inadequate for the fragility of the content! Even if not everybody fully agrees, it seems that avoiding the pigtailed to be floating (as Marseille did) would be better. Genova placed a support fixed with the cradle to constrain the pigtailed.

After some discussion we agree that we can accept different solution for transporting staves, but we must fulfil some requirements:

1. Keep them in a dry and clean atmosphere;
2. Avoid strain or deformation to the support cradle coming from the transport box;
3. Have amortization of the vibration made by soft material;

4. Block the pigtail rigidly to the cradle.

The Marseille's shipment was done clearly without following the minimum of the above requirements. Marseille is not allowed to do any more transports before showing the way they will do it!

Also stave storage was matter of concern, the visit of the SQTF to the sites must verify that this is done correctly.

SE4445 glue

The glue tubes available in the 3 stave sites have expire date of 9/04/2005. Some more glue, ordered by Marseilles (10 or 20 tubes?), should be delivered by 29/04/2005 and will have expiration date 15/06/2005. Next production of glue will be available by 10/06/2005 and will last till 10/12/2005. For the moment we plan to use the already expired glue till 01/05/2005 (or to 15/05/2005 if shear test shows that is still usable). Marseilles will place immediately a new order of 60 tubes (4 tubes/month x 5 months x 3 sites) that have a cost of 70 €/each (cost that will be reimbursed to CPPM).

Half –shell integration

The setting up for half-shell loading is going on in the SR building, but still some crucial parts are missing. Amongst them the new far-end peek supports for assembly the bi-stave are missing (they will come on Tuesday next week from Genova) and the protection of half shell and of the loaded bi-stave on it is still in production. Also the test system is in development: a second setup for half-shell test and optimization of the programs are needed.

The visual inspection of the staves arrived from Marseilles shows some problems:

1. A white stuff near the MCC wirebonds. Was there before shipment? Or due to poor packaging? Should be easy to remove.
(http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/DSCN1157.jpg)
2. A pigtail is darker than all the other. Reason is unknown.
(http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/DSCN1165.jpg)
3. There is a scratch in a pigtail made by the wirebond tool hitting it when it moved back. This happened in Genova, the module was then inspected, tested and burned-in without showing problems in its performance. It was than accepted and qualified for loading. After a discussion Giovanni said that we must avoid any intervention: replace pigtail (not clear how to do) or module.
(http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_05-04-21_aux/DSCN1152.jpg)

Next phone-conference: Friday 6th of May.