

Minutes and Actions of Site Qualification Task Force

Phone Conference – 28th of October 2004

Present: G. Darbo, M. Garcia-Sciveres, P. Gerlach, (G. Gilchriese), D. Giugni, F. Huegging, (V. Kostioukhine), E. Vigeolas.
Excused: L. Rossi.

CPPM.

Eric reported on stave S4031 survey results (see: http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_04-10-28_aux/Stave4031AssemblyAnalysis.pdf).

From the survey of the loaded modules resulted that the Z position of module centre is in the tolerances (-40 / +15 μm), while the Z value is out of tolerance for several module and in particular 4 modules are off for more than 100 μm (between -100 μm and -180 μm). Eric explained that the source of error is an operator error that corrected the placement coordinates obtained from the CMM with wrong values in the Robot. There is no interface between CMM and Robot and several hand operations are needed for each module placement. Eric is proposing to add several procedure changes/additions to avoid the repeat of errors in future:

- Have two persons doing independently the calculation from CMM measures to typed Robot loading coordinates.
- Add warning in the robot program in case the operator wants to load modules in a position off from loading table for more than 100 μm .
- The CMM has only 50 cm in Z and this is not enough to have a direct measurement of both ruby balls to obtain the reference system, and this complicates a lot the extraction of the X axis from measurements. A 50 μm wire will be fixed on the cradle along the stave border. This will help in seeing if a module has a bigger gap from the wire while it is loaded.
- CPPM is currently loading 13 dummy sensors on a stave to verify once again the robot precision.

Unfortunately the experience from CPPM and Genova shows that the 50 μm tolerance in X, Z is not easy to reach.

Other bad news from stave S4031 concerns the electrical test after thermal cycles (burn-in) of the stave. Three modules do not work properly after thermal cycles:

- *Module 1 (510750-M6A):* No chip works on scan tests, but source scan shows hits except for FE chip #8. All MCC features work, all registers work for all FE chips, power consumption is OK
- *Module 2 (510575-M5A):* 10 FE chips stop working for scan test (FE# 0,1,2,3,4,5,6,10,11,13). Source scan shows hits from all chips. Again all MCC features and FE chip registers are OK, power consumption is OK

- *Module 4 (510829-M3A)*: 15 FE chips stop working for scan tests (FE chip #10 only). Source scan shows hits from all chips. Again all MCC features and FE chip registers are OK, power consumption is OK.

More understanding is needed to see if the modules are really broken or the setup is malfunctioning.

LBL

LBL loaded on S9008 a module that was not fully characterized and did not pass the burn-in. The wrong picked up module on sector has now passed the ASSY and BURN tests. It is now under FLEX test, once fully characterized the sector will be completed by adding the 4 missing modules.

After the problems encountered with the heat exchanger for the secondary circuit of the chilling system: pollution and C₆F₁₄ leak, a new heat exchanger has been redesigned.

Genova

The chiller used to cool the stave is still on repair. The old FE-I2 stave (S4008) has been put in the cold box and is currently used for system test. Seven modules have been powered through PP0 with a regulator board and a 16-channels ISEG. A ROD is used for R/O. Concurrent operation of several modules is working.

The second FE-I3 stave (S4028) is currently under loading: 5 modules loaded.

Wuppertal

The stave with 4-FE-I3 modules (S4020) is still in Wuppertal and is used for R/O test. It is foreseen to send it to CPPM next week for cross-survey. This is the last needed step before starting pre-production in LBL.

Peter informed that they found the reason for the large thermal resistance of module M6A of S4001 (see thermal image:

http://www.ge.infn.it/ATLAS/SQTF/DataSummaryTables/pre-qualification/S4001_IR/pictures/m6a.html).

The reason is omega delaminating from carbon-carbon. This is evident in the photo:

http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_04-10-28_aux/DSC02949.JPG.

A.o.B.

Provisional cooling pipe fitting. After the damage occurred to the Wuppertal stave it is even clearer that the provisional pipe connections to the stave or sector under test must be made in a safe way. It is also mandatory the use of a qualified tool to tight the stave pipe to the cooling pipe. Some old designs exist: Eric and Danilo will distribute information to discuss at the next meeting.

For the sector, Maurice sent a photo: http://www.ge.infn.it/ATLAS/SQTF/Minutes/Minutes_04-10-28_aux/DSC02949.JPG.

In the picture are shown the clamps that hold the fittings for the sector. You can see on the left an o-ring on the fitting. A plastic block with an hole is pushed against this o-ring to make a seal, by clamping the block onto the aluminum arm seen in the picture.

Templates for data summary tables. A new version of the template for the data summary tables has been proposed by Giovanni (stave) and Maurice (sector).

They are:

- Stave:
<http://www.ge.infn.it/ATLAS/SQTF/DataSummaryTables/initial-qualification/StaveInitQualTemplate.v1.3.xls>
- Sector:
<http://www.ge.infn.it/ATLAS/SQTF/DataSummaryTables/initial-qualification/SectorInitQualTemplate.v1.3.xls>

PDB and ranking. The data that will be loaded in the PDB for sector and stave is still not in a stable status. For the time being we will continue to record information in the Data Summary Tables, that will be uploaded in Raw Data Base (a directory can be generated for it, for instance 'SUMMARY'). To define ranking is premature, too.

Next phone conference: Friday 5th of November 2004 at 17:30