

Bias Circuit NCR cont'd

23 June

The four trays were subjected to TV tests at +55 °C chamber temperature. There is ~5°C difference between the chamber temperature and the tray panel.

24 June

Bumps in the trays were observed on two of the four trays.

It was decided between INFN/SLAC to perform another TV cycle exactly the same as the first one to see if continued exposure would cause the propagation of the defect.

25 June

The same two trays presented the defects however on one of them the original defect had disappeared and a new defect was noticed. These have been documented in detail.

It was decided (INFN/SLAC/NASA) to take the trays back to Pisa and perform further experiment on the Tungsten surface treatment prior to gluing of the Kapton.

The 3 initial trays were also transported to Pisa for investigations into the possibility of recovering the bare panels by stripping the Kapton.

29 June

Samples of the Tungsten were taken by INFN to a surface treatment company in Bologna for Aluminum oxide surface blasting. The blasting operation was performed for 4 different surface abrasion depths to a maximum of 1 micron. The samples were taken to Plyform to test the properties of the gluing of the kapton to these samples and to perform Lap-Shear tests of the sample.

Post Abrasion Tungsten Surface Treatment.

There has been various suggestions of the required surface cleaning & treatment of the Tungsten tiles after the abrasion. The final definition of this is awaiting the results of the Plyform tests.

Visual inspection of the surfaces after the treatment was exceptionally good and the surface was found to be contaminant free under microscopic inspection (was there any cleaning performed?)

The possibility of Tile surface oxidation is also under discussion and it is not clear at this time if there is any limitations that would require primer (BR127 type) treatment of the surface. The surface treatment company has agreed to deliver the treated tiles in separate plastic bags with a Nitrogen purge. If there is an exposure time related problem then the surface will have to be treated due to the fact that the tiles are glued on to the bare tray and allowed to cure for ~24 hours before the Kapton is glued on.

If the tests at Plyform are successful then the plan is to have all the tiles (surfaces) treated with the Aluminum oxide blasting in a single epoch and taken to Plyform for integration into the trays. There has been no discussion of any alternate causes for the observed defects as of this date.

Plyform has been instructed to stop the gluing of the Tungsten on to the bare trays till this issue has been resolved.

The test results from Plyform will be available on Friday 2 July.

All the trays including the ones already assembled will be TV cycled at +55°C as a screening process per the original baseline.