

● SMD Meeting at NTC/IFIC VLC, October 17, 2014

Participants:

Juan, Carlos L., Marcel, Miguel, Nacho (IFIC)
Gianni, Jose... (NTC)
Christian, Hans-Guenther (MPP)
Carlos M. (Uni Bonn)
Laci (HLL)

Topics:

: - Discuss and review status of SMD assembly at NTC
: - Discuss rework procedure at IFIC

Schedule:

: - meeting at NTC, discussion and lab tour
: - meeting at IFIC, discussion, wrap-up and next steps

- Status at NTC

- :- installed equipment

- :- PacTech SB2 solder jet for "bumping", solder dispense

- :- ATV reflow oven for cleaning and reflow

- :- manuell Pactech pick-and-place machine for SMD placement

- :- tests of SMD successfully performed on EMCM samples

- :- results presented by Carlos L. at Pisa meeting

- :- initial problems with solder jetting resolved

- :- SMD procedure "in principle" okay

- :- tests to be repeated with final tooling and final solder (PbSn instead of SAC)

- Open SMD issues

- :- detailed definition of the final procedure (incl. all cleaning and inspection)
- :- procedures and handling instructions for the thinned modules
- :- jigs/adapters for vacuum plates on Pactech and Finetech (!!!)
- :- reliability tests and QA
- :- layout change request:
 - :- pads for 0201 caps seem to be too wide spaced → cross check

- Work plan till Feb. 2015 in three phases

Phase I: *now to Dec.15, 2014*

- Full population of dummy EMCM modules with final tooling, material and components
- Preparation of tooling for PXD9 assembly

- a. IFIC is preparing 1-2 samples of EMCM-3 with glued silicon slabs to emulate modules with bump-bonded ASICs
- b. MPG HLL will supply 5 bare prime grade samples from the EMCM-3
- c. NTC to install final tooling both on Pactech solder jet and Finetech pick-and-place machine
- d. NTC will assemble at least 3 bare prime grade EMCM from b. and 1 EMCM with ASIC dummies from a.

Qualification:

- a. Documented optical inspection
- b. X-ray survey of all SMDs
- c. Shear tests right after assembly on one EMCM
- d. Temperature cycling of 2 EMCMs and subsequent shear tests
 - Cycle 5x between -30 and 50 degC
- e. Report results by Dec. 15

Preparation of production phase (HLL, MPP, IFIC, NTC):

- a. Define PXD9 vacuum adapter plates for solder jetting and pick-and-place
- b. HLL to produce thinned dummies (including Cu) of all PXD module

- Work plan till Feb. 2015

Phase II: *Dec. 15, 2014 to Jan. 15, 2015*

- Assembly of 3 electrically active EMCs fully populated with AISCs at NTC
 - a. HLL to deliver 3 EMCs to NTC (after FC at IZM Berlin)
 - b. NTC assembles Modules
 - c. Subsequent testing to be defined ... (where – who – what ..)

Phase III: *Dec. 15, 2014 to Feb. 15, 2015*

- Production of assembly jigs/adaptor plates for PXD9
- Test assemblies on realistic PXD9
 - a. Adaptor plates to be produced (MPP, IFIC, HLL)
 - b. Definition and practicing of handling procedure at NTC
 - c. Assembly of 2 inner and 2 outer half ladders (modules) with SMDs

Monitor progress at bi-weekly regular seevogh meetings