

Results from the latest Indium modules

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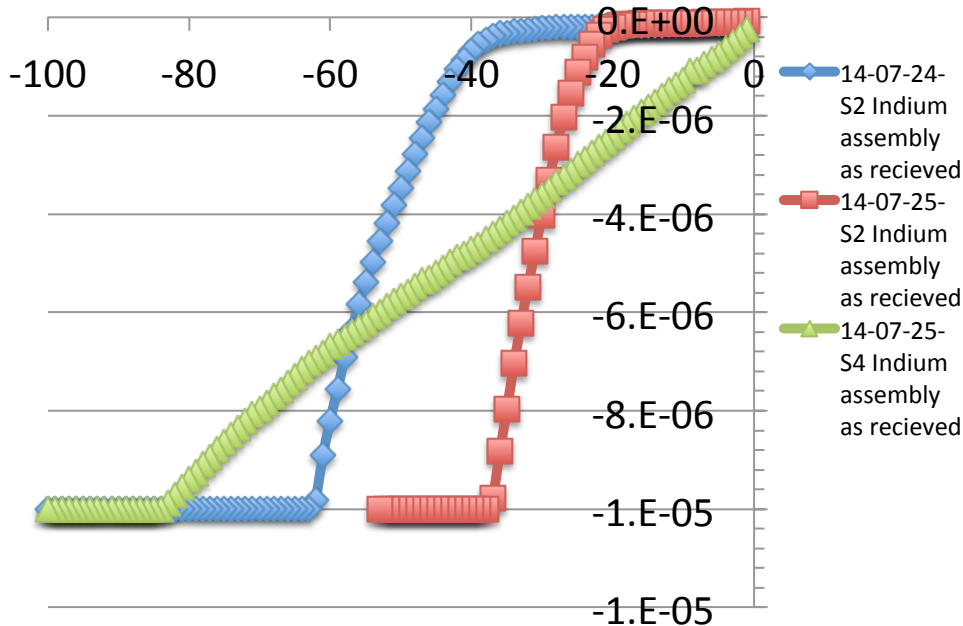
Indium bumps

- 3 assemblies arrive Glasgow July 2014

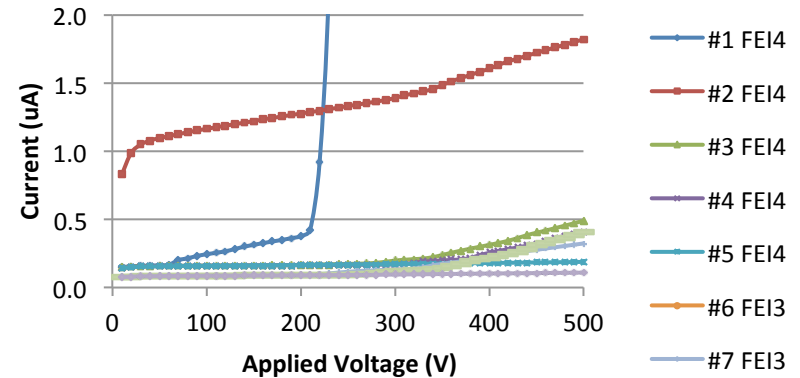
Hybrid ID	Bond force on flip-chip machine	Sensor
14-07-24-S2	20kg	2873-8-F4 LIVE FE-I4 MPI GUARD IBL GANGED PIXELS MS/10. looks good
14-07-25-S2	10kg	2873-8-D2 LIVE FE-I4 RD50 GUARD IBL GANGED PIXELS MS/10. looks OK (a few places where there are specks, possibly incomplete L/O)
14-07-25-S4	5kg	2873-8-E2 LIVE FE-I4 RD50 GUARD IBL GANGED PIXELS. looks OK scratch across first 20 cols, approx mid row. Small cluster of damaged indium to SE of that.

IV characteristics before bonding

Assemblies IV



On wafer IV. Current against Voltage for Wafer 2873-8 (300um, N in P type).



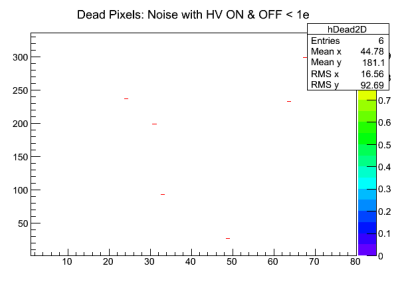
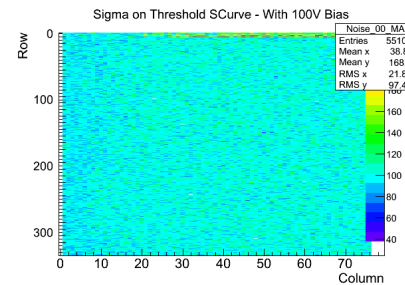
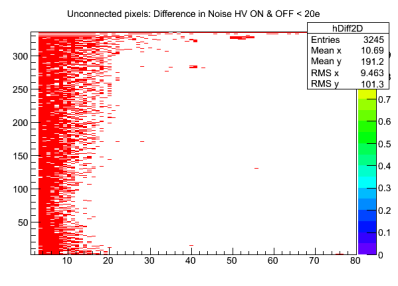
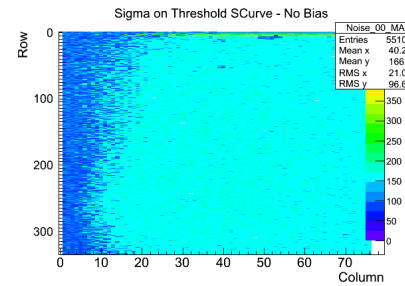
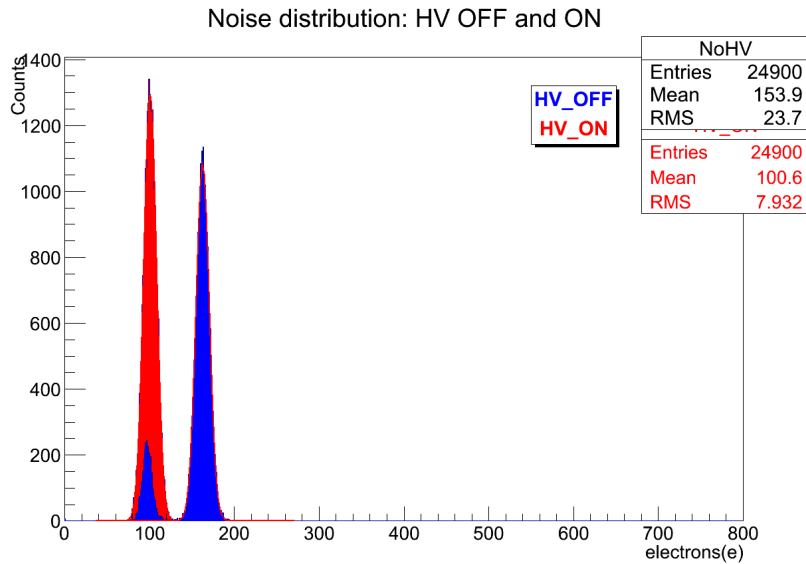
- IV characteristics not matched up
- But obviously much worse
- Something to worry about regarding scratches on sensors during processing

Device	I Plateau	Vbk
14-07-24-S2	2uA	40V
14-07-25-S2	1uA	20V
14-07-25-S4	4.4uA @ 40V	Linear increase

Testing of assemblies with USBPix and STControl v4.3

- 14-07-24-S2 – biased to 40V
- 14-07-25-S2 – issue with the assembly
 - To date still a short on the VDDA line – hum!
- 14-07-25-S4 – biased to 40V

14-07-24-S2



20kg Bond force

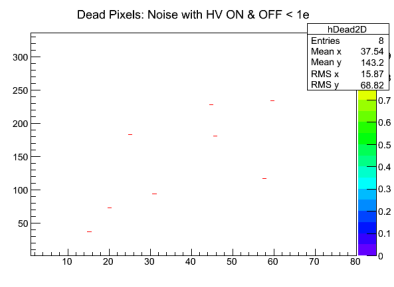
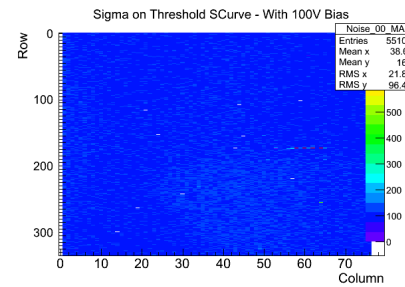
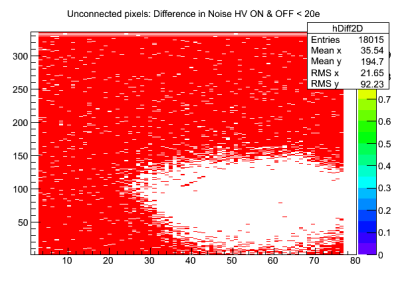
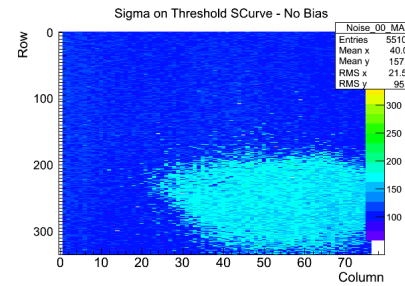
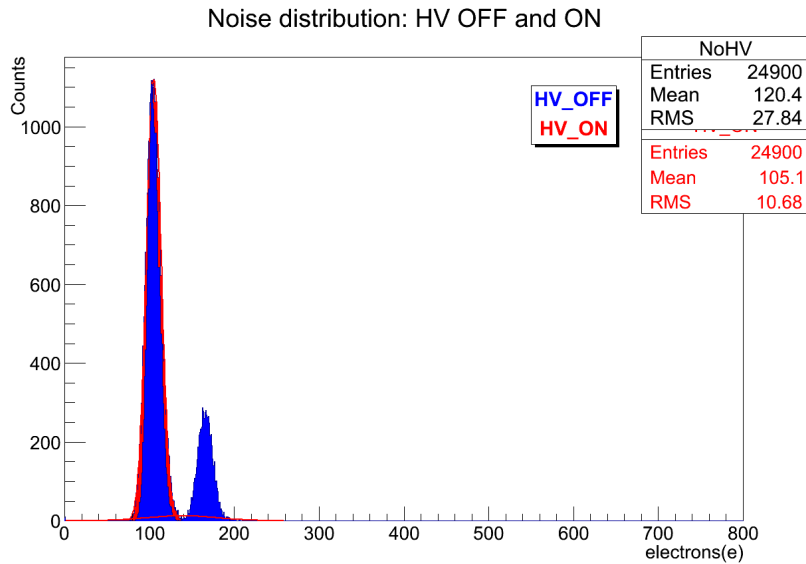
Significant number of unbonded channels, 3245

Zero cross talk, HV on -> no merged bumps

Am-241 gams source test on RCE showed the same un-bonded channels

- sorry no plot

14-07-25-S4



5kg Bond force
Very Significant number of unbonded channels, 18015
Zero cross talk, HV on -> no merged bumps