



Module Test A Few Remarks



High LV Current Modules

- A very small fraction of modules has been found with an increase in LV current consumption after bonding
- Cristiano's talk: those modules behave same way as others, no problem -20°C $+60^{\circ}\text{C}$, statistics low
- ESTIMATE TOTAL NUMBER: TIB (≥ 7), TOB, TEC?
- My proposal: do not discard those modules but send them to repair centres for deeper investigations
- Involve Imperial College APV experts (stability? long term failure?)
- Is it safe to consider modules as "good" ones?



Cuts Proposal as presented last July



6 APV modules

- $I_{250} < 0.780 \text{ A}$
- $I_{125} < 0.370 \text{ A}$

4 APV modules

- $I_{250} < 0.550 \text{ A}$
- $I_{125} < 0.260 \text{ A}$

Those values should hold for all module types

Can be used only with ARCS > 7.2 online

I had only very few comments on this proposal !

To catch small defects we need very accurate cuts

Do it in data analysis for xml creation? → xFLAG and DefAna

How to do it?



LV Results in TIB from ARC Fast Test Log



PADOVA	I25 (A)	I125 (A)
4-AVG	0.502	0.225
STDEV	0.006	0.005
6-AVG	0.709	0.326
STDEV	0.006	0.006
BARI	I25	I125
4-AVG	0.525	0.230
STDEV	0.009	0.006
6-AVG	0.735	0.335
STDEV	0.011	0.008

Measured St Dev and average central value are different from lab to lab.....



Possible strategies to find LV current anomalies



- The user defines the average LV current for his test setup
- The sw (xFLAG and DefAna) cuts at 40mA above the mean, the same for I250 and I125
- New search to be added in sw: look for low noise and zero calibration → suspicious channel → anomalous LV?
- Introduce a new flag for "broken APV channel"

Please send me comments on this proposal



Pinholes (Unbonded)

- Rules for well identified pinholes if they are detected only after bonding (ARC or LT):
- Pull the bond
- Redo the test with ARC
- Upload the result of this last test to DB (Pinhole will appear in DB as "open")



Noise Cuts in TIB



- The “official” cuts for noise in TIB changed slightly (July proposal from Lino's studies)

High noise new cuts:

- in PEAK mode 1.5 ADC counts
- in DEC mode 2.1 ADC counts



What I said in July

- Results on cuts shown by TOB and TEC cannot be considered completely conclusive
- *A new iteration will be necessary*
- Since time is now really short I propose to
 - start using the values shown this week (ex. 5σ cut for TEC)
 - put more manpower in the cut optimization work
 - revise the results and how module get graded, during the September CMS week

And NOW?

Is everybody in TEC and TOB satisfied with cuts presented last summer?



Data Analysis in TOB and TEC



- All TIB is using xFLAG
- ETHZ is using xFLAG

- Which centres are using xFLAG?
- Which centres are using DefAna?

- What about results with 5 sigma cuts in TEC?