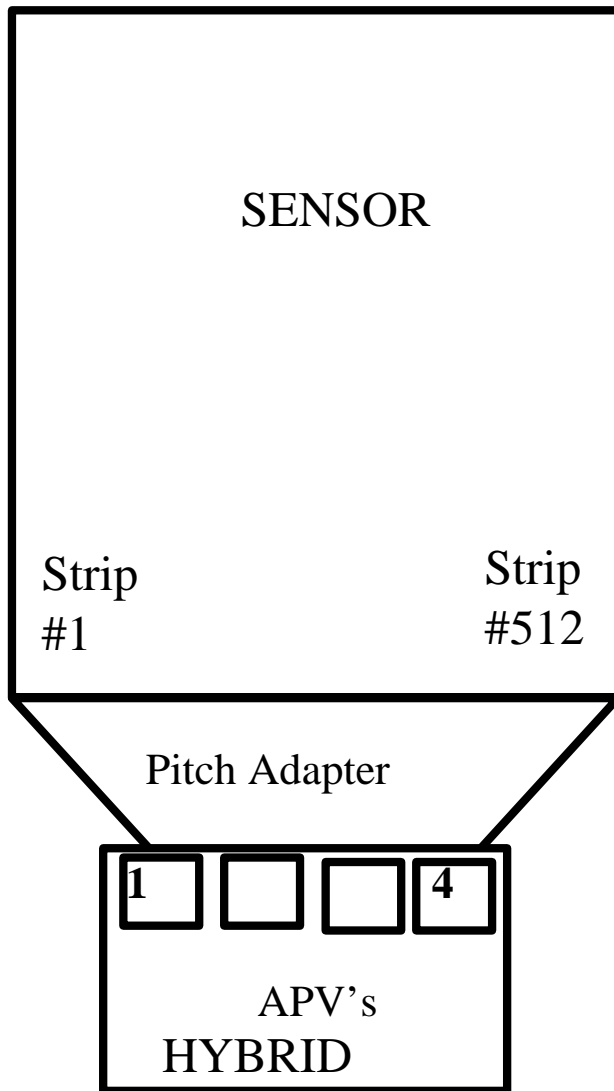


Introduction

- A restricted number of people has been working during last 2 months and has produced a Document on Test Procedures: a quasi-final version has been circulated and it is on web
http://hep.fi.infn.it/CMS/moduletest/procedures_2002/Test-procedures-draft1.pdf
- In the document you can find definitions of:
 - all the variables, useful to characterize the module, to be logged to DB
 - tests to be performed
 - settings
- This document will evolve with M200 experience

Express Line Procedures

- There is also **another document** I circulated by mid February on the procedures to be used ~NOW with hybrids and modules coming out from express line; I called it doc on **Temporary Procedures**, it is in
http://hep.fi.infn.it/CMS/moduletest/procedures_2002/testsheet.pdf
- It is intended to be used as a "quick and dirty" reference for present step of production
- A few (important) modifications to my first draft will be introduced according to the comments I received up to now, keeping in mind it is not meant for a deep understanding of modules, but only as a first reference (well, not THAT shallow !)



Numbering

This numbering scheme is OK (it corresponds to strip number as marked on the sensor mask) for TOB and TIB , which have implant resistors away from P.A., but is reversed for (most of) TEC modules.

This solution is anyway satisfactory for the majority of tracker modules.

APV-25 Settings

- First stage: 2 sets of APV parameters:
 - Bare Hybrids use APV GUIDE 2.2, internal current reference, as in doc on temporary procedures
 - Hybrids bonded to a detector use a "standard" set optimized for about 20 pF detector capacitance (only ISHA and VFS changed, it's ready and will be distributed)
- Common to both sets:
 - set baseline to about 25% of full range (digital header)
 - for calibration use ICAL 40
 - use at least 1000 events for pedestals
 - inverter always ON
- Second stage: separate sets of parameters optimized for TIB, TOB, TEC

APV-MUX and PLL Testing

MUX test: possible by setting different baseline (VPSP) to a single APV and checking for pedestal variations; also analog bias OFF should work. No automated procedures available yet, check "by hand"

PLL test more delicate, wait for more info and experience

DCU Testing

The DCU will NOT:

- Measure LV currents
- Measure HV
- Measure HV return currents below 20 microA: in current hybrid configuration it reads voltage drop on 1 Kohm resistor, and it has a threshold of 20 mV

It can measure hybrid temperature ONLY if it is calibrated, or if it is connected to external thermistors; it needs dedicated measurements for calibration (volunteers?)

The DCU will measure the LV; we can thus also verify I2C response, but not more than that for the time being

Temperature and Humidity

T and H are important parameters to be recorded, but where have to be measured ? Many possibilities: sensor, hybrid, frame, heat sink, cooling fluid, clean room, lab, outer...

Are all groups ready to make a precise, meaningful measurement ?

Discussions are going on:

As starting point record the room H and T, then, if possible, T on the heat sink of the module (or of the hybrid before gantry)

Summary File

- The Summary file contains the basic, minimal info and results on the hybrid or the module. Lino Demaria will show SW tools to write data on summary file.
- Beyond what is already described in the document it was suggested to add:
 - Hybrid ID
 - Construction step
 - Comments regarding known problems, pinholes, bad channels and strips. This will avoid repeating the same investigations on "items" already seen as problematic in previous stages of testing

Cold Box

- We decided to go on testing with 3 Vienna cold boxes, for TIB, TEC, TOB
- Torino has put into operation 1 box and they started a pilot project for TIB
- Others...

Standardize Cables for CMS Setup

25 cables 1 m long, for trigger and ck from TSC to FED,
2*small lemo 4 pins;

70 an. cables, 2 m long, analog out from Vutri to fed (special
small cable), 2 pins lemo small/big, for single module tests (6
apv's);

100 an. cables, 2 m long, analog out from Vutri to Multiplexer
(standard cern cable), 2 pins lemo big/solder on pcb, to
equip the first 3 cold boxes with Karlsruhe MUX;

15 an. cables, 1.5 m long, analog out from Multiplexer to fed
(special small cable) 2 pins lemo small/solder on pcb, to equip
the first 3 cold boxes with Karlsruhe MUX.

Big Lemo

Cables for CMS Setup (2)

- These quantities are foreseen for about 20 single module test setups and 3 Vienna cold boxes; they already require a large amount of work
- Before launching this production we need to be sure about:
 - quality of signal transmission (cable length could be critical for noise)
 - cable length suited for fitting in our setups and boxes

Who is going to investigate these problems?