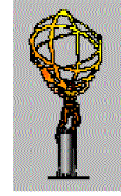10th November 2001

Slice Test Organisation.

C .N .P .Gee

Rutherford Appleton Laboratory

Coverage

- **Use CPROD as an example. Many detailed tests have been done:**
  - Does it smoke when plugged in?
  - Does VME access work? Do the LEDs flash?
  - Are the output S-Link packets correct?
  - How fast will it go?
- **We now have to PROVE that the module (hardware & firmware) is faultless:**
  - Needs a SYSTEMATIC check of features
  - All data bits, all timing regimes, all error codes…
   - *to make sure nothing has been missed*

Institute-based Tests
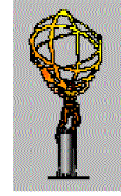
- **Clear list of tests for individual modules (Test Plan).**
  - Checklist of tests
  - Describe test environment (identify what's missing).
    - *E.g. are any other modules or hardware to be bought or borrowed*
  - Everyone to read & comment.
  - Bring module documentation up-to-date during the module tests.
    - *Testers to write user guides if not already available*
- **Keep the list of test start dates and progress up-to-date so that we can plan**
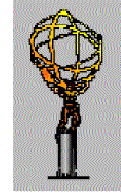 - On the web?

Software
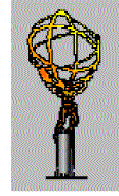
- **Need to collect & store the test vectors and software.**
  - Ideally as a "library" of scripts and test data with some description
  - The list of tests gradually grows
    - *And can be run from the beginning at any time.*
- **The first modules to be tested (CPROD, CMM?) could set a pattern if one is needed.**
 - E.g. Scheme to handle test vectors, calibration, timing...

Integrated Tests

- **Our most recent experience is the ROD test**
  - We had a list of more-or-less agreed objectives
    - *Some that we hadn't agreed could not be done*
  - There was no attempt at integrated software
  - And we found faults that couldn't be cured instantly.
- **How to do integrated tests?**
  - An agreed overall list of tests
  - Probably in "runs" like SPS runs, with agreed aims per run
    - *intense period of activity with relevant people present*
    - *then go home to mend modules, fix firmware, sort software…*
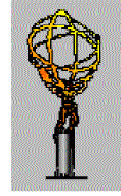 - Each burst to start by repeating all previous tests to check all known bugs have been fixed.

Some recommended Actions
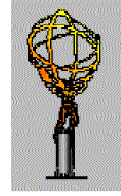
- **Bring all specifications up-to-date;**

- **Develop user guides for modules;**

- **Define response of modules to all known error conditions**

    – and specify recovery procedure (ideally automatic).

- **Start developing test plans**

    – for each module

    – for subsystem tests

    – and for slice test.

End

The End