

## Project Monitor Form

**Project:** CMS FED

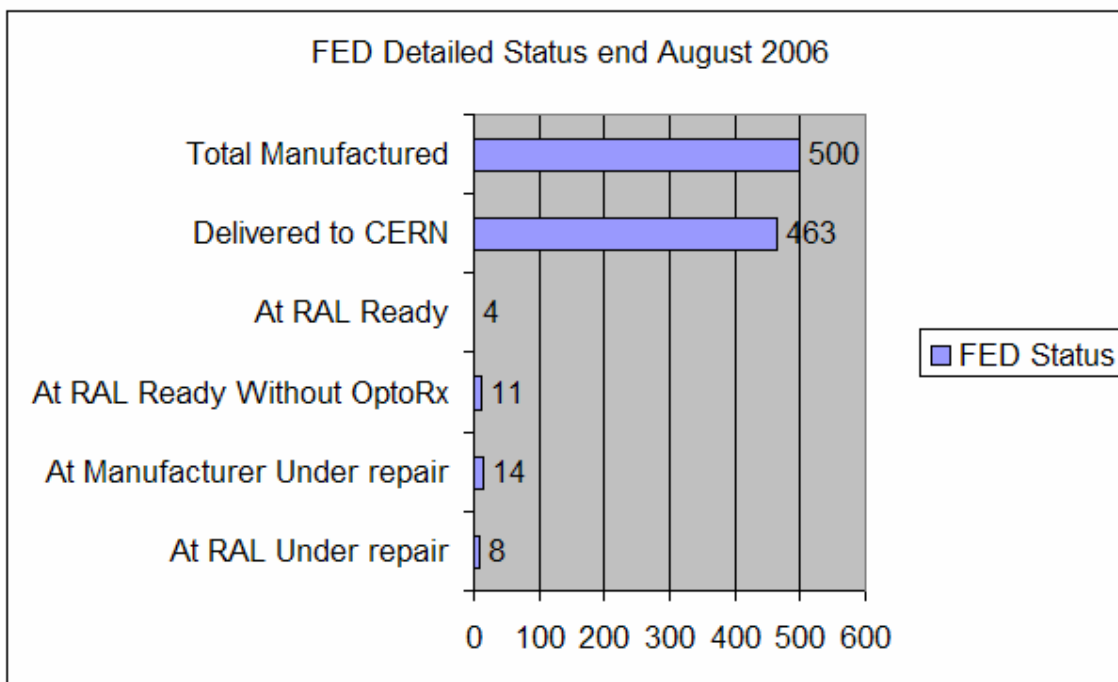
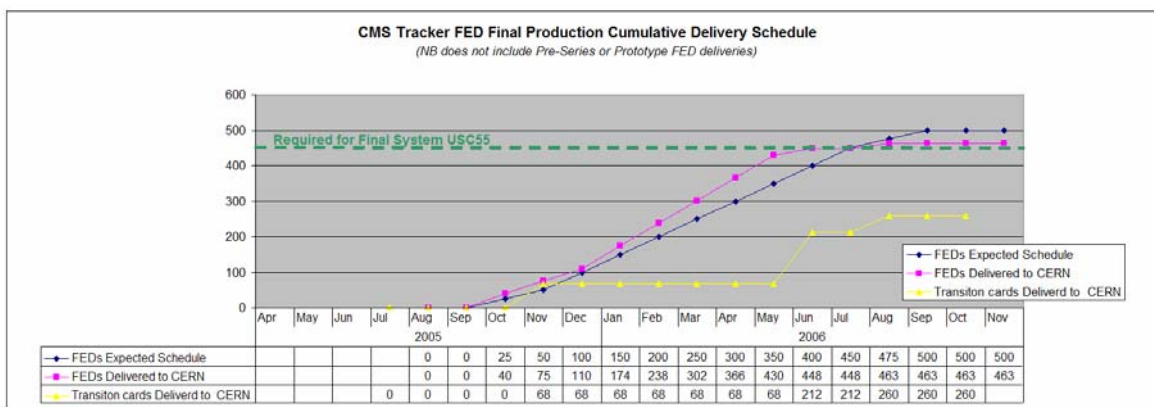
**Date:** Friday 8 September-2006

**PMF number:** 63

**Sheet:** 1 of 2

Project Implementation phase.

### FED Production


 further details in Production [spreadsheet](#).

Disk crash on RAL test lab PC. Took about 1 week to recover working test system with SBS bridge (with help from James Leaver)

But still haven't got the CAEN bridge working again.

We now have a RAL backup!

NB systems at assembly plant always had a backup disk.

Further 3 boards returned from CERN. 1 pre-series fixed. 2 under inspection.

### **SLINK Transition Card**

- All cards have been delivered to RAL.
- 260 tested cards have been sent to CERN.
- Yield very good. ~ 6 out of 280 have failed test. But expect most will be simple to repair.
- Expect to send 450 tested cards by beginning of November. Spares later.

Oz had mechanical problems fixing screws for CMCs on 3 of 260 delivered Transition cards. Put to one side.

### **CERN USC Installation and Commissioning :**

Oz has released a preliminary installation schedule.

Depends on availability of final crates. But should aim to install at least one existing crate of FEDs in USC by late Oct / early Nov if rack services and safety systems are all operational.

Will organize RAL engineer visits when installation dates are fixed.

Ivan has sent Oz requested equipment CERN for installation and has most of remaining parts, e.g. JTAG cards, ready at RAL.

Karl is coordinating cabling of Tracker. Propose Jo to act as single point of contact for FED.

Ivan has ordered 400 Front Blanking panels. Will be delivered direct from manufacturer to CERN. About 50 already received.

Ivan has updated Oz's crate list with RAL information.

### **System Integration Tests**

TIF : Status of optical cabling of FEDs to Tracker in B186 uncertain.

MTCC Reported issues :

Synchronisation problems when recovering from runs aborted by the DAQ (aborts for reasons unrelated to Tracker). Sometimes in the next run the DAQ FRL receives unexpected event number from the Tracker FED. Suspect this is due to FED buffers not been flushed correctly at the end of run. Saeed suggested a better mechanism for flushing. This had some success, but problems are still observed.

In order to diagnose this condition RAL has requested further information on FED counter status and event header contents during these problem runs.

The DAQ register which holds on the fly run status information in event header is not being updated as expected. Suspect Tracker DAQ is trying to change register during the run. This can lead to unspecified behaviour.

Mystery counter resets. These only seem to happen intermittently in 904 lab? Suspect TTC setup is different?

**Firmware :**

New SPY channel synchronized to Frames has been implemented in Delay chip. Ready to test with new FE next week.

NB This design needs updated software for finer resolution delay skews before it can be used with Tracker DAQ.

Software proposal to reorganise formats to match software processing.

Event format word swapping. Event formats in SLINK and VME readout appear different in software memory. However at the FED output the word ordering is the same. Suspect swapping is happening in VME bridge.

Pros: Faster offline processing of events, but the gain has not been quantified?

Cons: Probably difficult to implement in Firmware. Testing and bug fixing effort. Changing a standard working since 3 years. No guarantee that final SLINK chain won't upset ordering again.

Conclude: Proposal needs a lot more consideration.

**Software :**

Gareth Rogers has implemented many new features in online software. Updated version of relevant documentation is released.

CF Firmware loading for multi-FED system has been tested successfully. But need to improve speed. RAL to investigate.