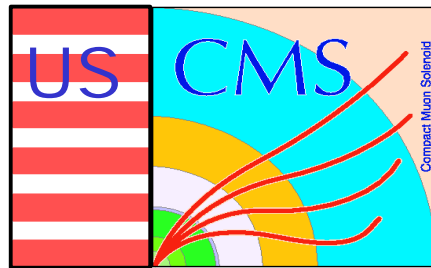


UF Beam Test 2002



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CMS-EMU Meeting, Houston
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Test Goals

- **Goals**

- **Simultaneous operation of 3 CSCs**
 - Common gas, cooling, HV, LV, Slow Control and DAQ systems
 - Production versions of on-chamber electronics
- **Synchronization, calibrations, continuous slow control monitoring**
- **Two crate operation modes**
 - All CSCs readout on one full backplane
 - CSCs readout on 3 individual small backplanes
 - Simulates multi-crate operation
- **Final pre-production versions of crate electronics**
- **Trigger and data quality analysis**

- **Test categories**

- **System Integration tests**
- **Performance tests**



System Integration Tests

- **Basic operation**
 - HV tuning, LV operation tests, on-chamber cooling
- **Trigger timing/tuning**
 - Cosmics and calibration pulse timing
 - pattern generation/testing
- **Slow Control, configuration and monitoring**
 - Board initialization
 - hard/soft resets, load constants (DAC, masks, etc)
 - Calibration setup and pulsing
 - LVDB, crate and HV(?) power on/off control
 - Status monitoring
 - board errors & temperature/voltage/current
- **DAQ/Run Control**
 - Trigger control (TTC/CCB communication)
 - Event readout (CAMAC/VME/PCI), storage and display
 - Communicate with Slow Control



Performance Tests

- **What can be done at UF?**
 - **Calibration tests**
 - **Readout rate capabilities**
 - **Pulse pattern generation for trigger testing**
 - **Cosmic ray testing**
 - **Scintillator trigger mode**
 - **Self-trigger mode**
 - **A/CLCT trigger threshold/efficiency tests**
 - **ALCT.and.CLCT & ALCT.or.CLCT operation tests**
 - **ALCT/CLCT/TDC BX timing variance**
 - **HV threshold effects on efficiency**
 - **Position resolution studies?**
 - **Continuous Slow Control monitoring**
 - **Includes FMM functionality too? (just for now via VME)**



Equipment Needs

digital oscilloscope with probes		UF
pulse generator for random trigger		UF
BNC/Lemo cables, tees, terminators and BNC-Lemo adapters		UF
scintillator trigger system		UF
3 CSCs and gas system		UF
HV supplies and cables	UF/PNPI	
cooling and tubing		UF/UW
Instrumentation for 3 CSCs**:		
AFEBs	CMU	
AFEB-ALCT cables	CMU	
15 CFEBs	OSU	
15 CFEB-DMB cables	OSU	
3 DMBs	OSU	
3 fiber spools to DDU	OSU	
3 TMBs	UCLA	
15 CFEB-TMB cables	UCLA	
3 ALCTs	UCLA	
ALCT-TMB cables	UCLA	
3 LVDBs	UW	
power cables to LVDB	UW	
power cables from LVDB	UW	
LV power (400 Hz source?)	UW	
3 LVMBs	UCD	



Equipment Needs

Crate equipment**:

VME peripheral crate	UF
full and 3 partial VME backplanes	UF
Dynatem (slow control VME computer) OSU	
1 10-base-T switch, cables/Tees/terminators	UF
3 CCBs	RICE
1 DDU with fiber spools for DMB readout OSU	
1 Linux PC with gigabit/S-Link to readout DDU (2-4 fast hard drives, dual CPU for 64-bit 66MHz PCI)	UF/OSU
TTCvi/vx and support, for 3 CCBs	Rice?
NIM crates & Modules (delays, logic, etc) UF	
CAMAC crate & controller, TDCs, etc UF	
signal cables, short and long (Lemo/BNC)	UF

Software:

Slow Control (Dynatem/VME/JTAG routines)	Bob Clare
Trigger/Run Control	UF
DAQ (CAMAC/VME/G-bit readout & storage)	UF

****Some equipment may already be present at UF FAST site.**



Proposed Schedule

- **All equipment delivered to UF by April 26**
 - Before then if possible, especially for critical items
 - About 3 months away!
- **April 27 – May 5: Assembly and Setup**
 - Over 1 full week to ramp up
 - Experts needed on-site for smooth startup!
- **May 6 – May 19: Integration Tests**
 - 2 full weeks to work out any bugs
- **May 20 – June 2: Performance Tests**
 - 2 full weeks
 - One week for each crate readout mode
- **June 3 – June 16**
 - Additional testing possible?