PrimEx Beam June 2002 Beam Test: DAQ problems

The beam test had an extremely packed schedule which was to be completed in a 72 hour test period. The major components had been brought in in April/May during the down time, but access was limited in June to occasional maintenance days.

Prior to June 28th, a working configuration existed reading the TAGE crate. I don’t understand how this worked since the interrupt enable bits was not set in the TDC modules.

We had a working DAQ system with reasonable pedestals by 18:00 on June 29th. There were still enough problems with the monitoring to make it difficult to do anything useful however.

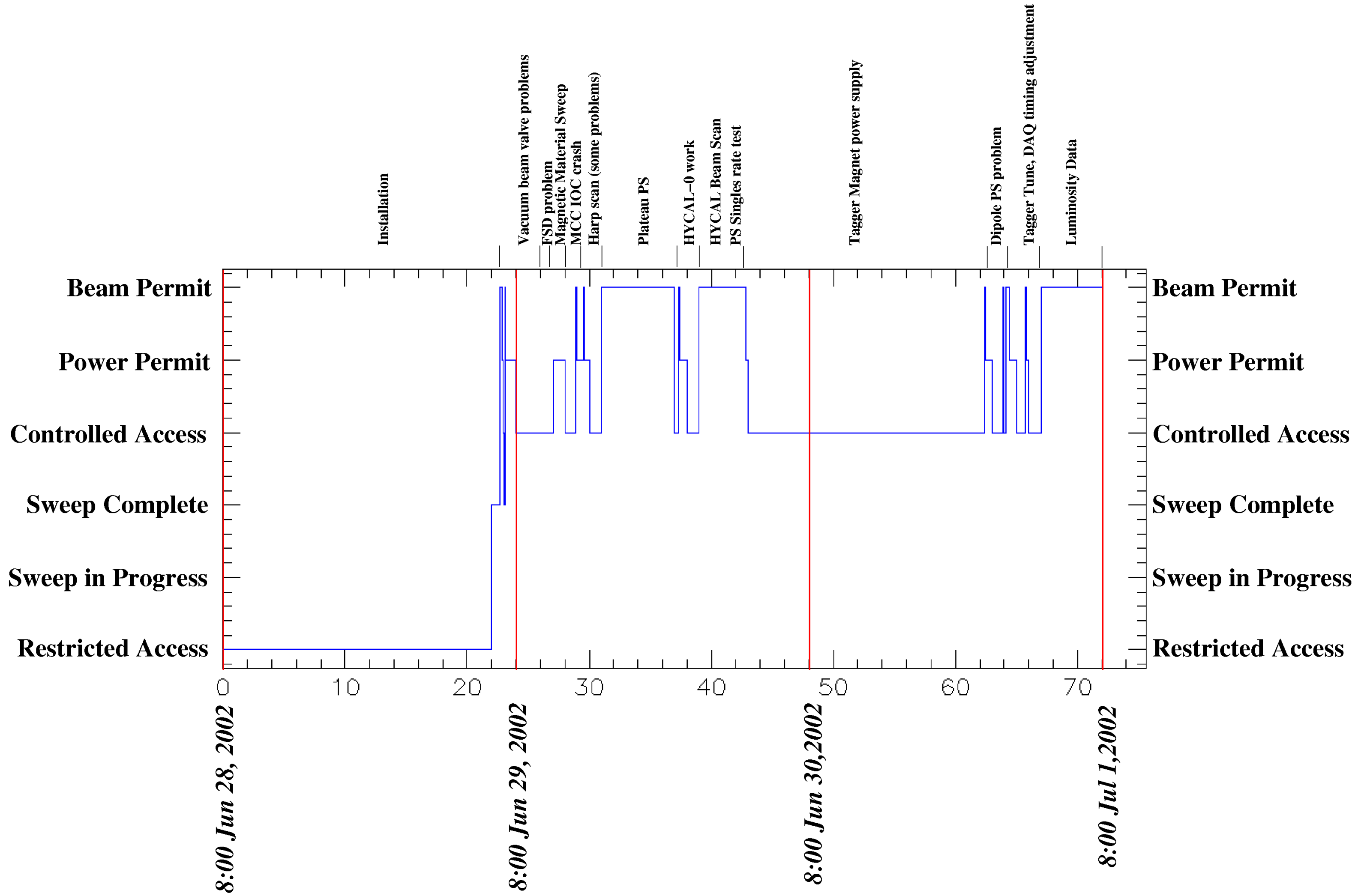
Here is a list of problems related to the PrimEx DAQ during the June 2002 beam test and their causes, if known.

Symptom	***Cause***
primexroc1 not acknowledging on branch	Misconfigured branch bit
No data from primexroc1	Gate from TR6 and CIP to TR7 not enabled in LRS1881M modules
Extra Data in front end	NIM–>ECL translator oscillating after detectors with different ground plugged in
TAGE crate locked up in trigger routine	"incr ii" mysteriously deleted from crl
Busy gate from primexroc1 250 μs	ROC lock mode with no sparsification
Occasionally, extra data in front end	Front end busy left unconnected

CODA format parsing code failing	LittleEndian –> BigEndian
	`typedef struct {`
	`    unsigned int length;`
	`/*  unsigned char num,data_type;`
	`    unsigned short tag;*/`
	`    unsigned short tag;`
	`    unsigned char data_type,num;`
	`}CODA_bank_t;`

DAQ system slowed/stopped by monitoring program	Non–blocking station had event cue equal to ET system’s
CAMAC crate controller not talking with modules	??Bad controller??
Bad Event type errors from primexroc1 spontaneously occurred	??Corrupted trigger configuration file??
Unable to read PS ADC module using CLAS DAQ system	Channels commented out of translation table with no permission to edit. (No response from CLAS DAQ pager.)
SPLITMB 2047 in "options" table doesn’t cause files to be split	??

PrimEx June 2002 Beam Test: Time Accounting



Summary of significant causes of data lost due to DAQ/monitoring system:

- Run Coordinator, Trigger electronics/DAQ expert, and data format expert (monitoring software) should NOT be the same person.

- Ground mismatch between detectors and trigger electronics led to unpredictable operation of NIM<−>ECL level translators.

- Conversion of *single crate, Linux based CODA system without Trigger supervisor* to *multi−crate, Sun based CODA system with Trigger supervisor* is non−trivial.

- Precise data format should have been established well in advance with test files so monitoring software development wasn't stifled.