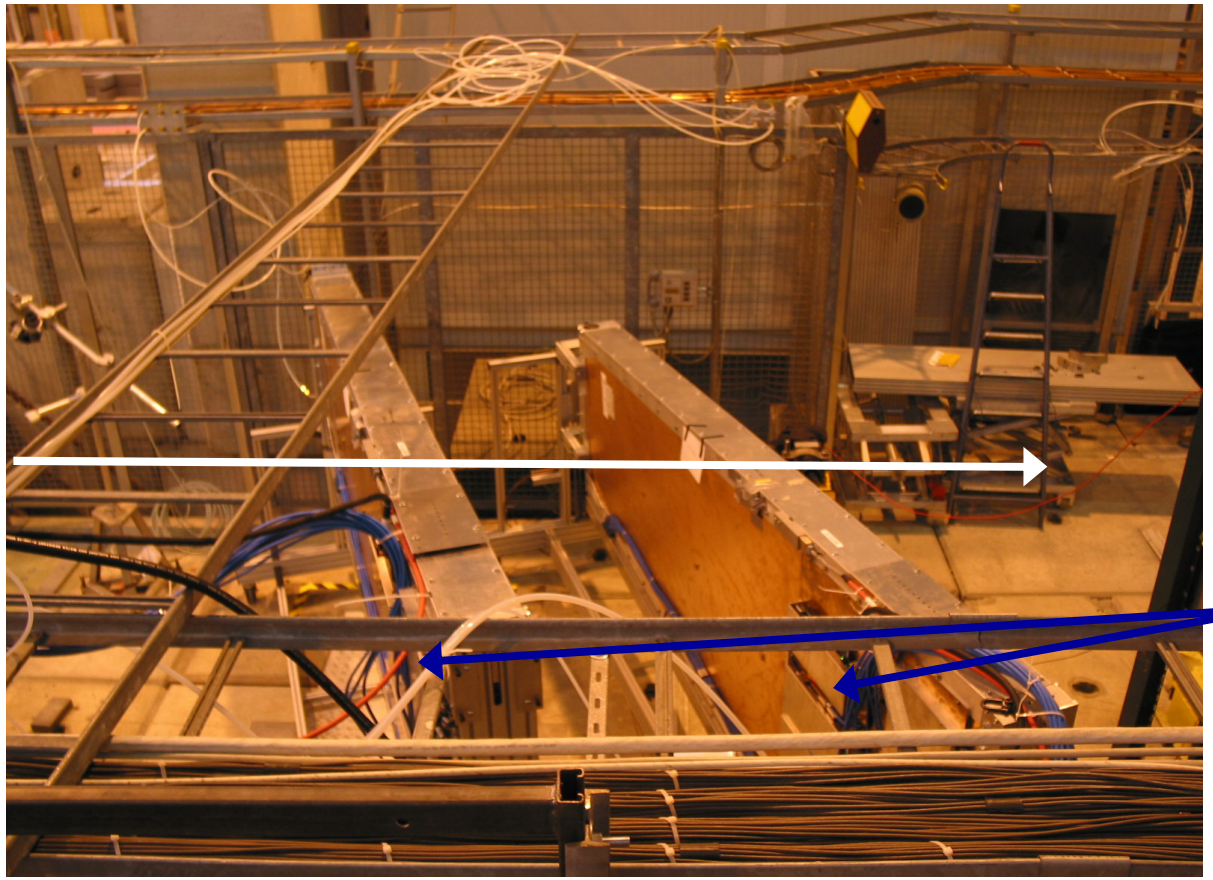
Preliminary CSC Trigger Results from September Testbeam

CSC Endcap Muon and
CSC Trigger Electronics groups

Beam Test of 2 CSCís at X5a



Goal: complete electronic chain test of data transmission from CSC front-end electronics to the Track-Finder trigger, all operating synchronously at the 40 MHz structured beam

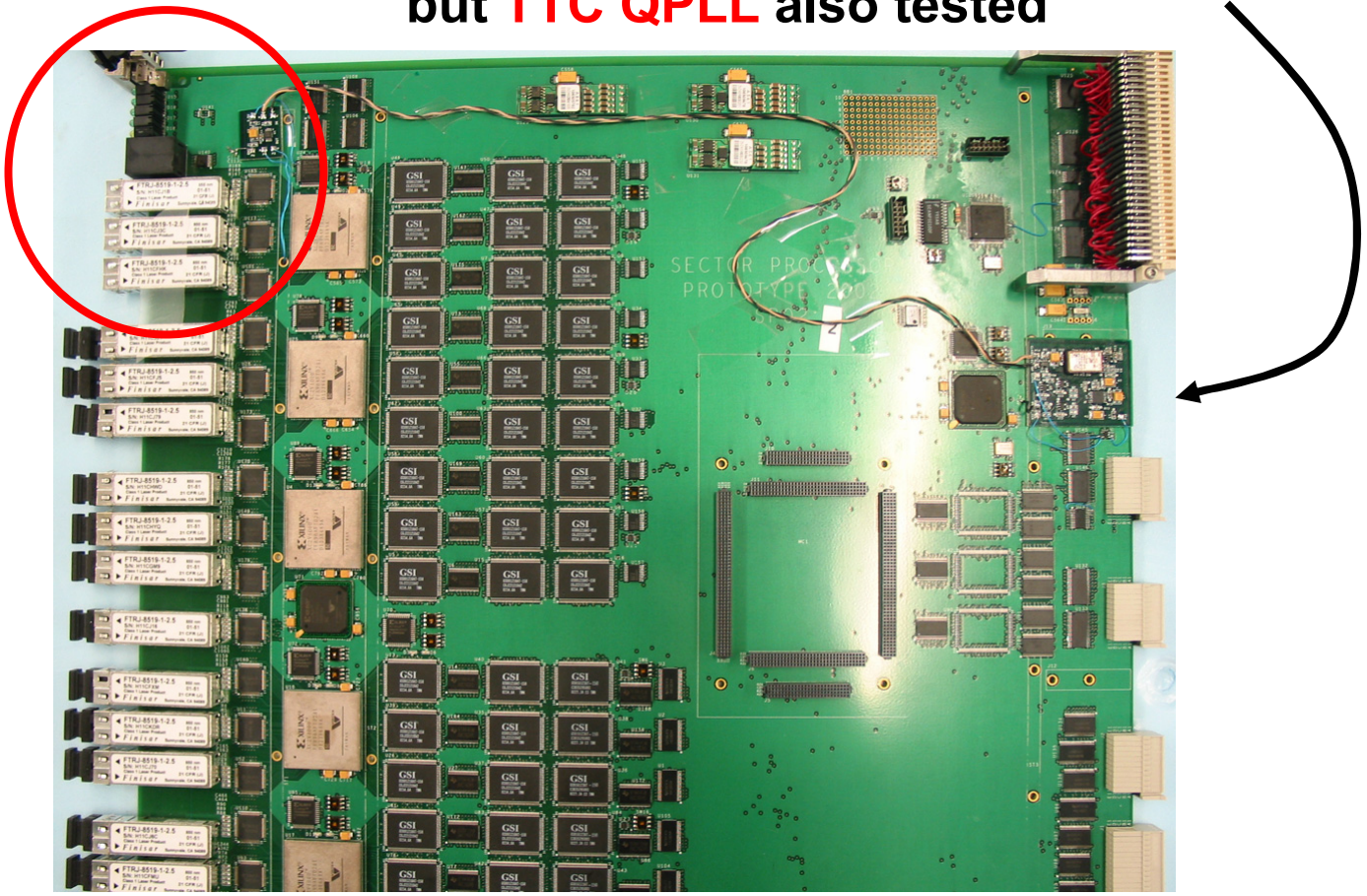
CSC Track Finder Trigger

Test 3 ◊ 1.6 Gb/s optical link connections from CSC electronics

Uses TLK2501 chipset

Requires very stable reference clock for error-free operation

Home-built PLL clock patch added to clean incoming TTC clock for links, but TTC QPLL also tested

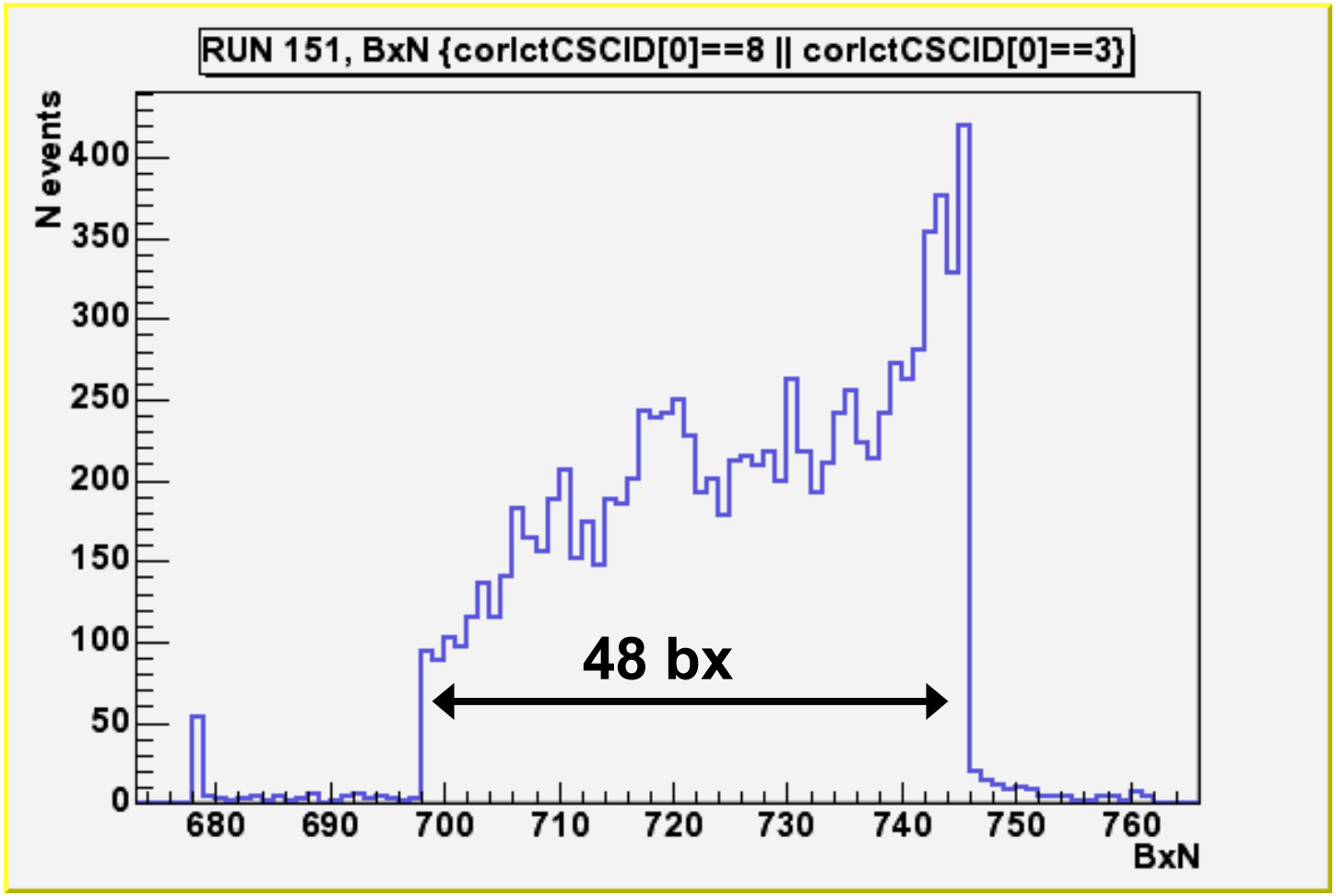


TTC QPLL Mezzanine card

Three made available to CSC group for testing at this monthís structured beam test

Provides stable clock signals at 40, 80, and 160 MHz

BX Structure Seen by Track-Finder



Test Results

Using home-built PLL solution, or newest TTC QPLL solution for 80 MHz clock:

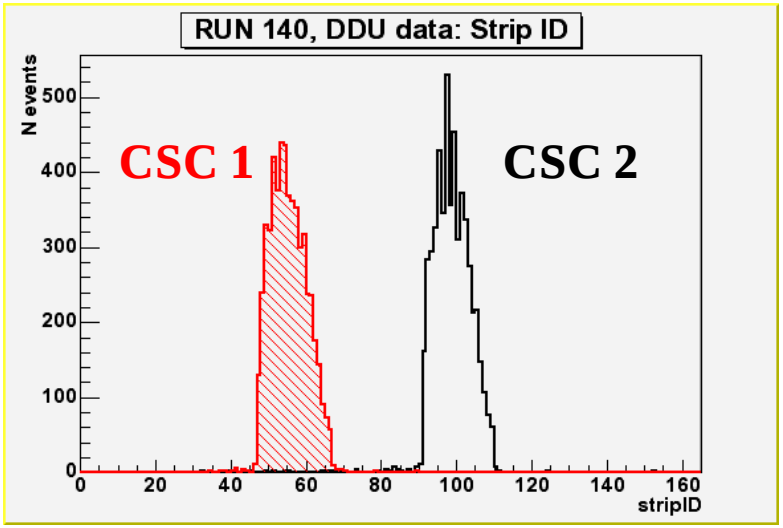
- PLLís lock to incoming machine clock
  - 40.078893 MHz
- no errors on optical links reported over many hours

Data successfully logged by both CSC DAQ and CSC Track-Finder readout

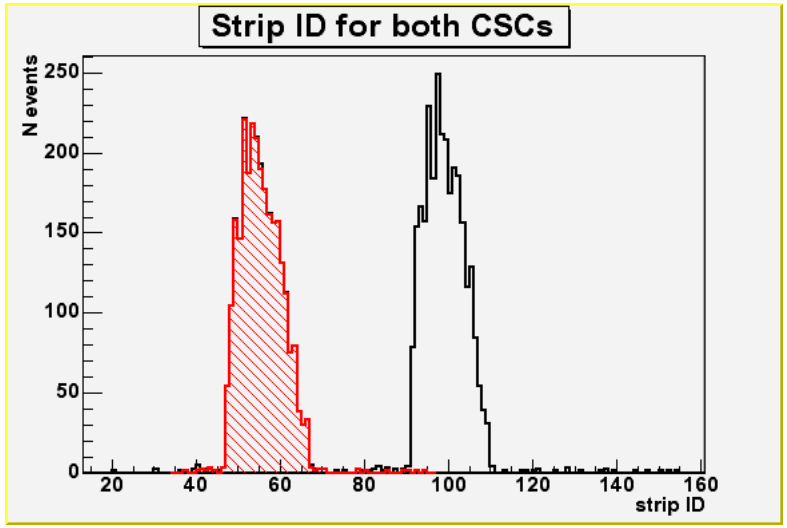
- Very preliminary inspection shows 95% exact agreement in data sent and received over optical links (15K events)
- The remaining 5% are likely OK as well, but the simple analysis must be refined to handle data on multiple BX

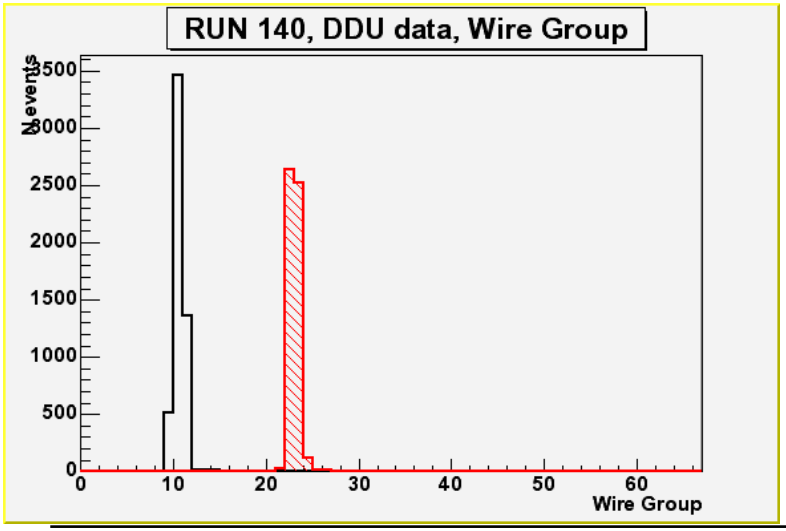
Comparison of TF Data with DAQ

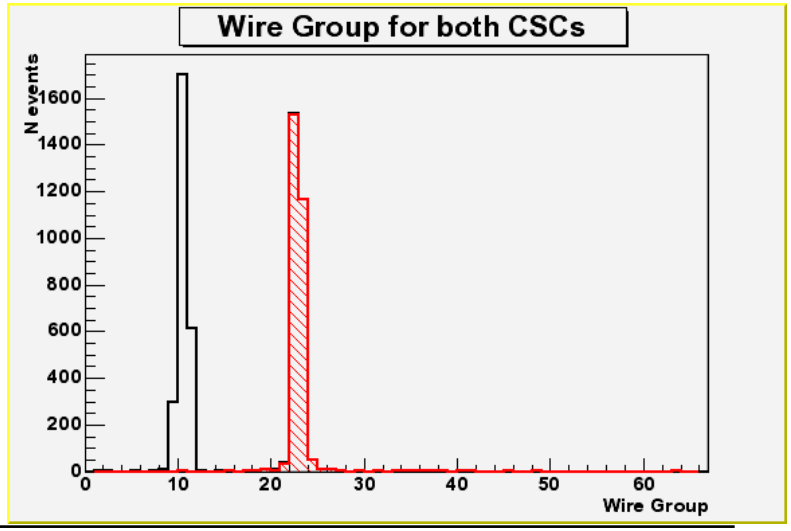
CSC Data from DAQ



CSC Track-Finder Data







The Happy Track-Finder Group