Table of Contents

Atlas.TileCal Commissioning: offline software and analysis

ATLAS Releases

As of October 1st 2006 Release 12.0.3 + some extra tags should be used for the reconstruction of commissioning data. Working setup with all aditional packages can be found in **/afs/cern.ch/uset/t/tilebeam/commissioning/reco-12.0.3**. See TileStandaloneReconstruction page for more information about releases and packages to use.

Detector Description

We are using full ATLAS Detector Description for simulation and reconstruction of the commissioning data. Atlas.GeoModel tag ATLAS-DC3-02 is good enough, but any newer tag can be used.

Simulation

will be updated soon

Calibration constants

CIS calibration constants can be calculated inside Athena snd stored in POOL file (see UsingTileCalibAlgs). After that the POOL file can be registered in COOL database with TileC tool. For the moment we are using **pcata007** as the database server and will migrate to **coolpro** soon. Reading of these constants back is possible with current release (12.0.X), one can activate reading from COOL by adding two lines in jobOptions:
tileUseCOOL = True
include("TileCOOL_jobOptions.py")
The latest COOL database setup with all calibration constants can be always found in **/afs/cern.ch/user/t/tilebeam/online/conditions**. For the moment only very few calibration constants are stored in COOL. Once we have CIS data for all modules, we'll put constants in the database. Remember that Cesium calibration constants are not available for Cosmics runs, so GeV scale for TileCells can not be set and energy in Atlas.TileCell objects will be the same as in TileRawChannels, namely pCb (factor 0.5 - 2 from GeV).

When reading from COOL database is switched off, default CIS calibration is applied (which is 1023/800 ADC counts/pCb for low gain and 1023/12.5 ADC counts/pCb for high gain). Those defaults for any channel in any drawer can be overwriten in simple ASCII file. The name of this ASCII file is **Tile2006.fit** for CIS calibration constants for fit method and it should be placed in the directory where Athena is running. Example of this file is available in share directory of TileCalorimeter/Atlas.TileConditions package. Another important file is **Tile2006.las** which contains LED time corrections for all the modules in the pit. This file is also available from Atlas.TileConditions package. For all drawers which are not listed in the file time correction is equal to zero.

Reconstruction

If you know how to run Athena and how to edit jobOptions file, all you need to know is the name of jobOptions file, it is **jobOptions_TileMobiComm.py** and **jobOptions_TileMobiCosmic.py** from **TileCalorimeter/TileExample/TileRecEx** package. The first one is tuned for calibration runs like CIS, Ped, LED, MonoCIS. The second one is used for reconstruction of cosmic data. There are a lot of comments in these jobOptions files. It's enough to provide run number and run type at the command line and you'll have ROOT ntuple and/or monitoring histograms as output. If something is not clear, read detailed instructions at TileStandaloneReconstruction page.

Ntuple created with **jobOptions_TileMobiCosmic.py** is identical to the Atlas.TileCal testbeam ntuple which we had in the past. The only difference is in the naming of the drawers: at the testbeam we had A0, A1, A2, C0, C1, C2, E0, E1, E2 and in commissioning ntuples we should have A13, A14, A45 A46, C13, C14, C45, C46. And if arrays in ntuple are ordered according to channel number instead of PMT number (convenient for CIS analysis), name of the arrays will contain hex fragment ID (e.g. 100, 101, 102, 200, 201, 202) as it was before.

Event Filter Monitoring

TileMonitoring package in Athena contains several algorithms which can be used at the Event Filter to create monitoring histograms. The same package has special algorithms to create Level 1 commissioning histograms Instructions how to setup this package are given at separate page.

Analysis

List of runs taken in the pit as well as list of available ntuples is given at TileMobiDAQAnalysis page

---

Major updates:
-- SanyaSolodkov - 15 Jun 2005 -- SanyaSolodkov - 25 Oct 2006

%RESPONSIBLE% Main.unknown
%REVIEW%

This topic: AtlasArchive > TileCommissioningAnalysisPre2009
Topic revision: r8 - 2009-05-29 - unknown