The ATLAS liquid argon (LAr) calorimeter system consists of an electromagnetic barrel calorimeter and two endcaps with electromagnetic, hadronic and forward calorimeters. The different parts of the LAr calorimeter have been installed inside the ATLAS cavern between October 2004 and April 2006.

The detector has been operated with liquid argon at nominal high voltage, and fully equipped with readout electronics. Since Oct 2006, cosmic muon data have been collected together with the scintillator/iron hadronic calorimeter that surrounds the LAr calorimeter, and with the rest of the ATLAS detector system as part of the ATLAS commissioning program. The status and experience of the detector operation will be presented. The performance of the whole electronics chain (noise, stability, linearity, etc...) will be shown. The reconstructed LAr signals from energy deposited by cosmic rays are compared to the prediction derived from measured detector parameters and calibration pulses.

In summer and fall 2008 we expect to record first data from LHC (single beams and collisions). These first LHC data seen in the LAr calorimeter will also be presented if available.

During the ATLAS combined test beam in summer 2004 a slice of the ATLAS barrel detector was exposed to particle beams (electrons, pions, photons, muons) with different energies (1 GeV to 350 GeV). Also in 2004, a setup reproducing the $\eta=3.2$ Atlas interface between EMEC, HEC and FCAL were tested in the H6 beam line at CERN.

Results of these various test beams will be presented at the conference. Test beam data offered the possibility to develop and test a strategy for the full calibration chain of both electromagnetic and hadronic deposits from the signal recorded in LAr to the best estimate of the energy of the physics object involved (electrons or pions). In particular, the study compares the data collected to detailed Geant4 simulation providing information on energy deposits in all parts of the ATLAS detector.

In the barrel EM calorimeter, after noise subtraction, a sampling term of less than 10% $\sqrt{E}$/GeV and a local constant term better than 0.3% have been obtained. The uniformity of the response to electrons over each module was measured to be better than 0.6%. The beam test results are in agreement with Monte Carlo simulations.

Results for the pion energy resolution of the combined EMEC/HEC calorimeter, using energy weighting techniques will be presented. The pion energy resolution of the combined EMEC/HEC calorimeter system has been determined with pion beams of up to 180 GeV. After noise subtraction, a sampling term of about 80% $\sqrt{E}$/GeV and a constant term compatible with zero have been obtained. The beam test results have been compared with Monte Carlo simulations.