The Tile Calorimeter (TileCal) is the central section of the hadronic calorimeter of the ATLAS experiment. The TileCal provides important information for reconstruction of hadrons, jets, hadronic decays of tau leptons and missing transverse energy. This sampling calorimeter uses iron plates as absorber and scintillating tiles as active medium. The light produced by the passage of charged particles is transmitted by means of wavelength shifting fibers to photomultiplier tubes (PMTs). The TileCal readout is segmented into about 5000 cells (longitudinally and transversally), each of them being read by two PMTs.

A brief description of the individual calibration systems (Cs radioactive source, laser, charge injection, minimum bias) is provided. Their combination allows to calibrate each part of the data acquisition chain (optical part, photomultiplier, readout electronics) and to monitor its stability to better than 1%. The procedure for setting and preserving the electromagnetic energy scale during Run 1 data taking is discussed. The issues of linearity and stability of the response, as well as the timing adjustment are also shown.

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