Data Level	Short Name	Description	Data reduction factor
Level 0 (DL0)	DAQ-RAW	Data from the Data Acquisition hardware/software.	
Level 1 (DL1)	CALIBRATED	Physical quantities measured in each separate camera: photons, arrival times, etc., and per-telescope parameters derived from those quantities.	1-0.2
Level 2 (DL2)	RECONSTRUCTED	Reconstructed shower parameters (per event, no longer per-telescope) such as energy, direction, particle ID, and related signal discrimination parameters.	10^{-1}
Level 3 (DL3)	REDUCED	Sets of selected (e.g. gamma-ray-candidate) events, along with associated instrumental response characterizations and any technical data needed for science analysis.	10^{-2}
Level 4 (DL4)	SCIENCE	High Level binned data products like spectra, sky maps, or light curves.	10^{-3}
Level 5 (DL5)	OBSERVATORY	Legacy observatory data, such as CTA survey sky maps or the CTA source catalog.	10^{-5} - 10^{-3}

Table 2.1 – Data levels foreseen in CTA.

2.1.1.1 Global design

The structure of the data will be centrally managed and should guarantee consistency and compatibility with the technical data archives for data processing and calibration purposes. These requirements will be fulfilled independently from the selected file format.

Due to the long life of ground-based observatories, like Cherenkov telescopes, the maintenance of all the data taken during the observatory life (30 years) will be ensured by a strict backwards compatibility policy and flexibility in the data model. Any recorded data will be associated with a version number to enable knowledge of what is inside the data and how it will be accessed.

Therefore the following criteria are applicable to all data types at all levels:

Parallelization The data model and format will be designed to allow flexibility in how its processing is parallelized in the data pipelines, and is represented within a hierarchical structure: pixel → telescope/camera → array/shower → event). One will be able to process a given sub-array event on a given Processing Unit, assign given telescope data to a specific unit and eventually process individual pixels also in parallel within the unit.

Self-containment In order to enable non-experts to use the data with little knowledge of the format, and enable long-term support, appropriate documentation regarding the physical layout of the data must be available with (or within) the data itself. This can be achieved either by documenting the file format extensively, by adding a description of the format in a header before the data itself (i.e by using a self-descriptive data format). The former separates the format description from the data, while the later puts a small overhead in each and every file written to disk. The final decision regarding how the file format information will be packaged will eventually depend on the etadata scheme that is adopted for CTA.