

Beam Test Analysis Memo

IMPORTANT: we should come up with this memo for collaboration use within the next month

This is now a list of the most important checks we have made. We need to review and complete it, assign names to each section, provide a list of plots we want to (re)make. We also need to provide final, critical view on the status and things we think we should complete.

Introduction

The main goal of the BT was to validate the MC simulation of the LAT, therefore comparing data and MC of basic quantities over the largest possible phase space. Derived, more complex quantities, such as CTB* variables, are harder to compare due to differences in the LAT and CU geometries. Great attention was paid to generate systematics comparison plots over the phase space for most variables.

Discrepancies of $O(0.1)$ were found since the very beginning of the analysis, mostly for the number of TKR hits and the CAL energy scale.

Many cross-checks and updates on the geometry, simulation package, digitization algorithms, hardware calibrations were performed, and the status of discrepancies was monitored after each change.

In this note we want to document all this activity, state the current status of analysis, list open issues and lessons learned, draw our conclusions on the LAT MC fidelity and on the potential impact of MC imperfections on the LAT analysis strategy.

[Beam Test Analysis Memo - Outline](#)

[Beam Test Analysis Memo - List of plots](#)

[Beam Test Analysis Memo - data source](#)