

DIME-2 LET-1 Spectrometer

Mission name: dsx-set_dime2_LET-1_2019213T200035_v01.csv

Instrument: DIME-2

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Data format: CSV

Data description (including how measurements were made): Read and record number and energy of radiation particles.

Time resolution/cadence: Readings taken every 15 minutes

Acknowledgement: Supported by NASA awards NNG04EE357C and 0978-204 2014361

Related publications: Most recent NSREC 2021 Conference

Data publishing time: October 2021

Paper DOI or DOI of dataset if available: N/A

Other relevant info:

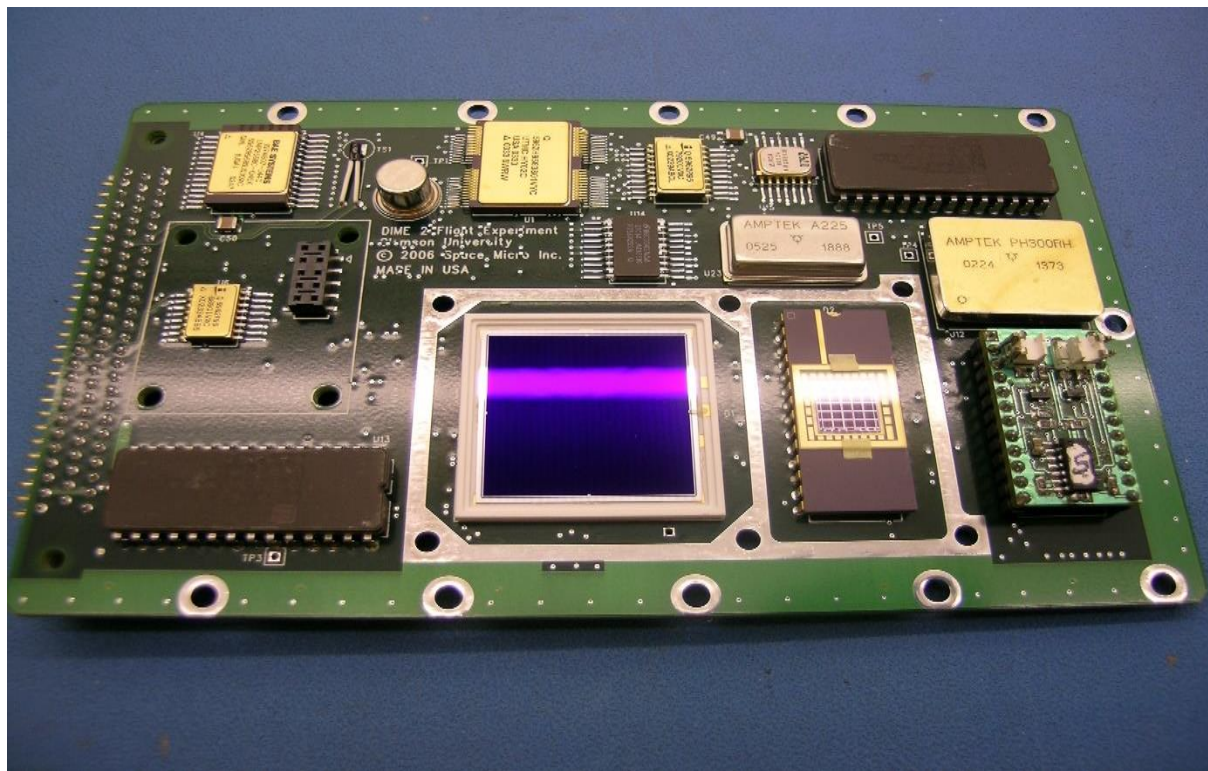


Figure 1 Shows the three instruments onboard DIME2. The OSF is located on the RHS bottom corner. Sitting next to the OSF are the two LET spectrometers without shields. The smaller array (LET-2) consists of an array of 25 p-i-n diodes, all with identical dimensions connected in parallel and is designed for high-flux environments. The larger array (LET-1) on the left consists of a single p-i-n diode designed to measure the energy-deposition events due to cosmic-ray traversals of the diode or spallation reactions with large energy depositions.

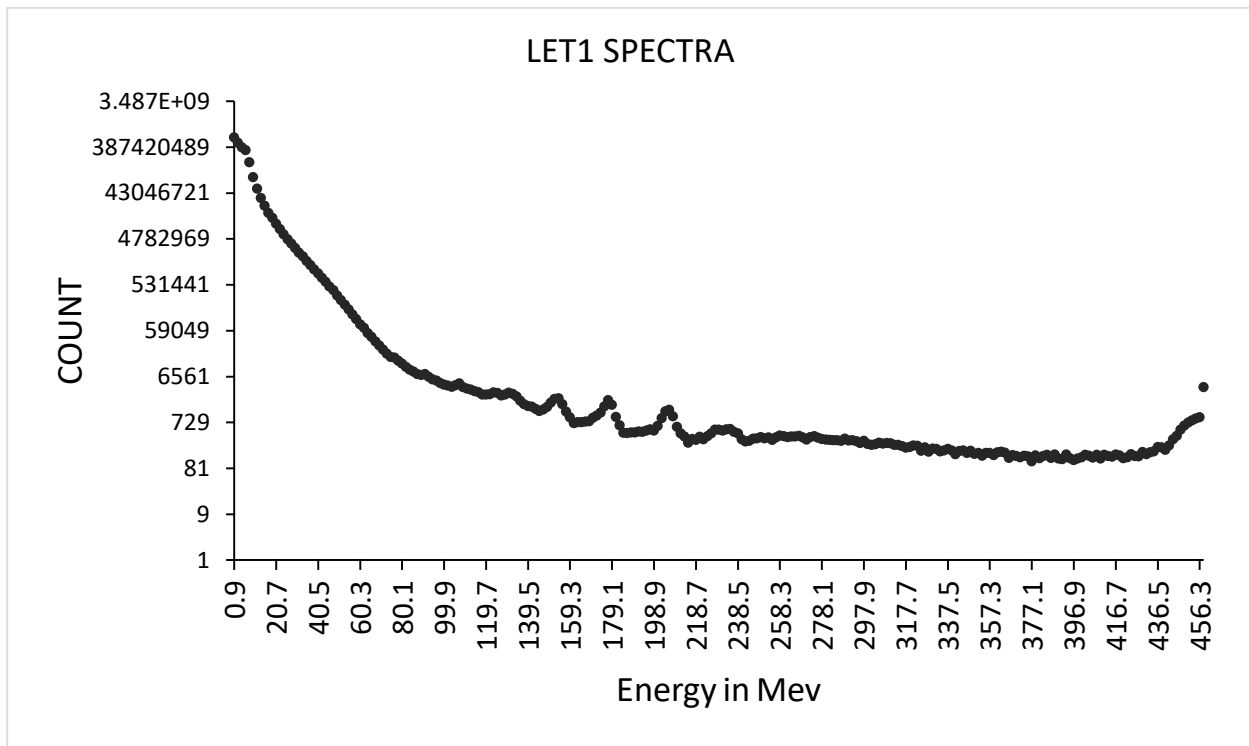
The board has a mass of 0.22 kg and requires 2.5 W to operate.

Experimental details LET spectrometers

During the 1.75yrs there were many random shut down events and some longer planned power downs. This causes disruptions in data collection and many files were corrupted on either the uncontrolled shut down or start up.

A second event corrupting data was caused by the different clocks running data collection on the board and the system clock being out of synch. This caused a minimal amount of data loss.

The figure shows the Mean Channel Energy vs count for LET-1



The DIME experiment telemetered data is stored at the Nasa Space Physics Data facility (SPDF)

REFERENCES:

1. P.J. McNulty, K.F. Poole, and J.O. Poole, DIME-2 Flying as Part of NASA's SET-1 Project on the DSX Satellite. Submitted to TNS for publication – Paper H-1 at NSREC 2021.
2. K.F. Poole, P.J. McNulty, and J.O. Poole, DIME-1 Experiment Flying as Part of NASA's SET-1 Project on the DSX Satellite. Submitted to TNS for publication – Poster H-1 at NSREC 2021.