DIME-2 LET-2 Spectrometer

Mission name: dsx-set_dime2_LET-2_2019213T200035_v01.csv
Instrument: DIME-2
PI/Provider name: Dr Peter McNulty
Institute: Clemson University
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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:

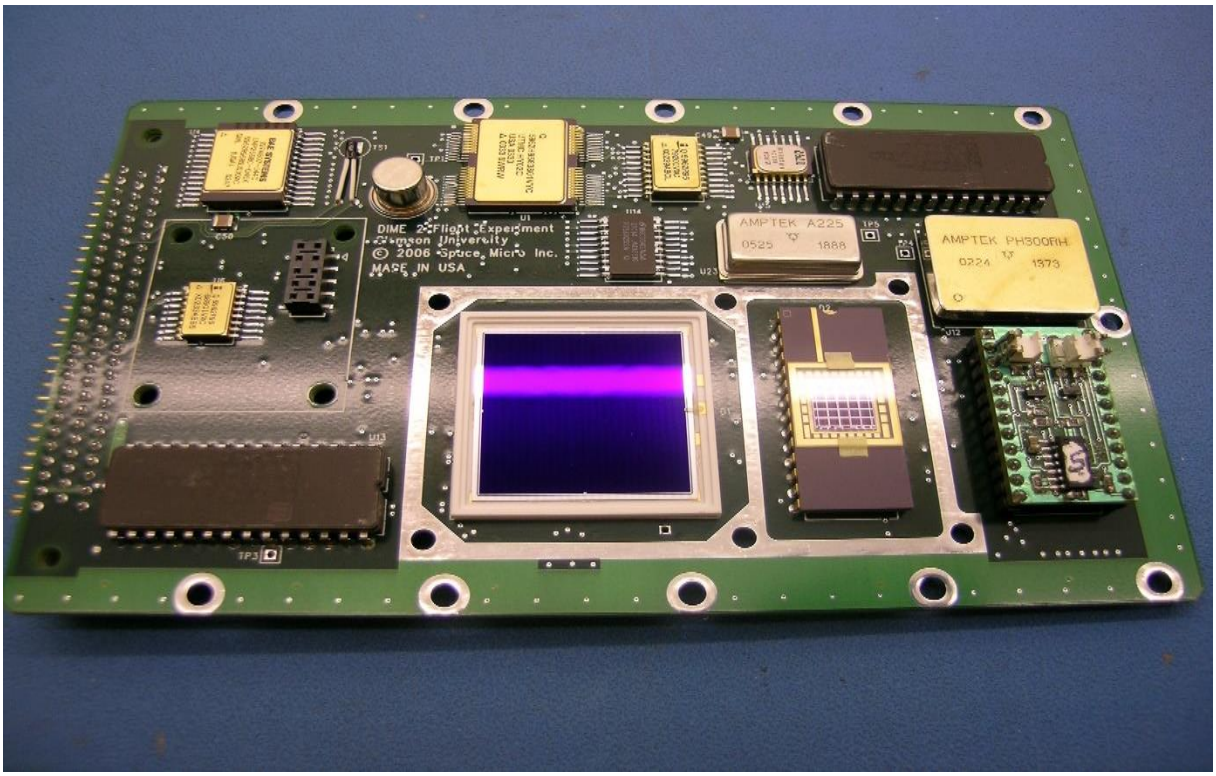


Figure 1 Shows the three instruments onboard DIME2. The OSL is located on the RHS bottom corner. Sitting next to the OSL are the two LET spectrometers without shields. The smaller array (LET-1) consists of an array of 25 p-i-n diodes, all with identical dimensions connected in parallel and is designed for high-flux environments. The larger array (LET-2) 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.

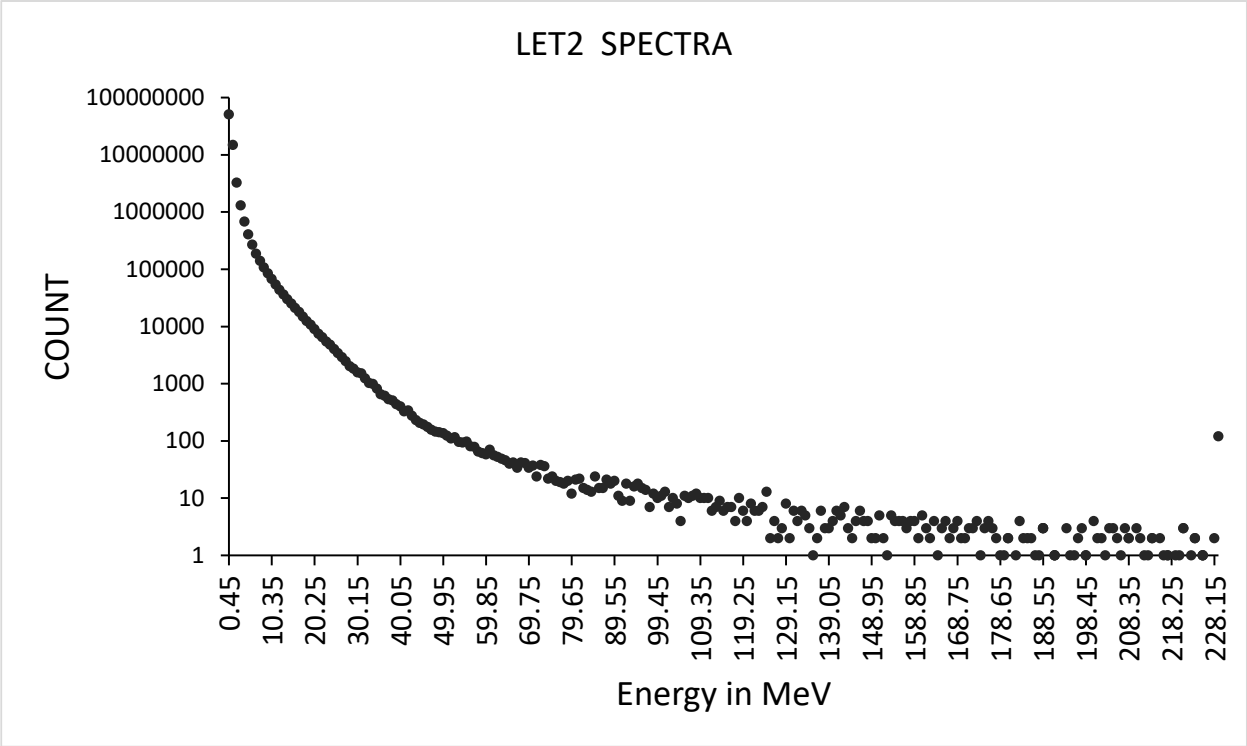
The board has a mass of 0.22 kg and requires 2.5 W to operate.

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

Experimental details LET spectrometers

During the 1.75yrs there were many often random shut down events and some planned shut 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.



REFERENCES

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2. P.J. McNulty, K.F. Poole, M. Crissler, J. Reneau, G. Cellere, A. Paccagnalla, A. Visconti, M. Bonanomi, D. Strobel, M. Fennell, and R. Perez, Radiation Protection Dosimetry, 122, No. 1-4, pp 460-462 (2007).
3. P.J. McNulty, J.D. Kinnison, R. H. Maurer, D.R. Roth, R.A. Reed, and W.G. Abdel-Kader, IEEE Trans. Nucl. Sci, 51, 3381-3388 (2004).
4.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.
5.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.