

DIME-1 27C64

Mission name: dsx-set_dime1_27C64_2019213T200035_v01.csv

Instrument: DIME-1

PI/Provider name: Dr Peter McNulty

Institute: Clemson University

Contact info: email: mpeter@g.clemson.edu

Data format: CSV

Data description (including how measurements were made): Read the standard memory devices and record Total number of 1's. Transmitted as HEX code.

Time resolution/cadence: Readings taken every 15 minutes

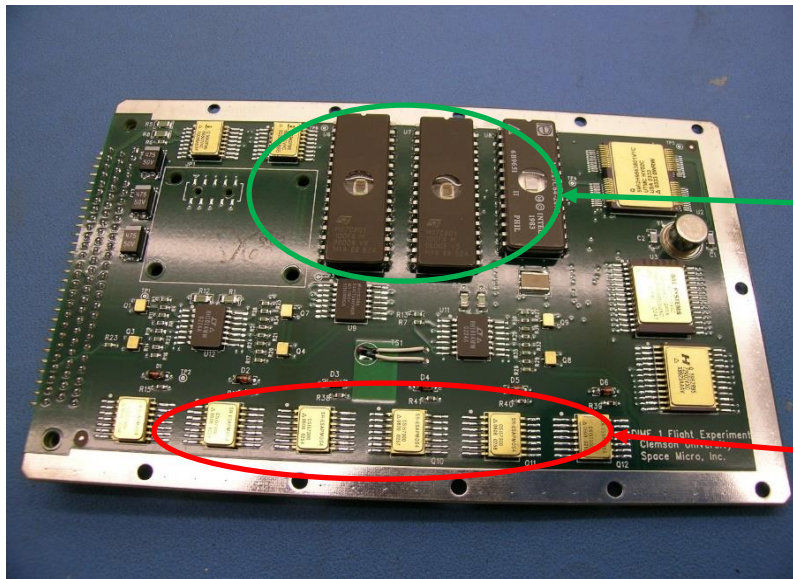
Acknowledgement: Supported by NASA awards NNG04EE357C and 0978-204 2014361

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:



Two STMicro 27C801 UVPROMs and one Intel 27C64 (right) programmed as dosimeters with different amounts of charge in individual FG MOS transistors

Five RadFETs shown without hemispherical shields attached.

DIME1 is shown with five operating RadFETs along the bottom of the board and three UVPROM dosimeters. The board has a mass of 0.2 kg and requires < 0.5 W to read the sensors. The 27C64 is on the RHS and is the shorter of the three FG MOS memories. 27C801-1 is on the LHS of the group and the 27C801-2 lies in the middle in the above picture.

Experimental details 27C64

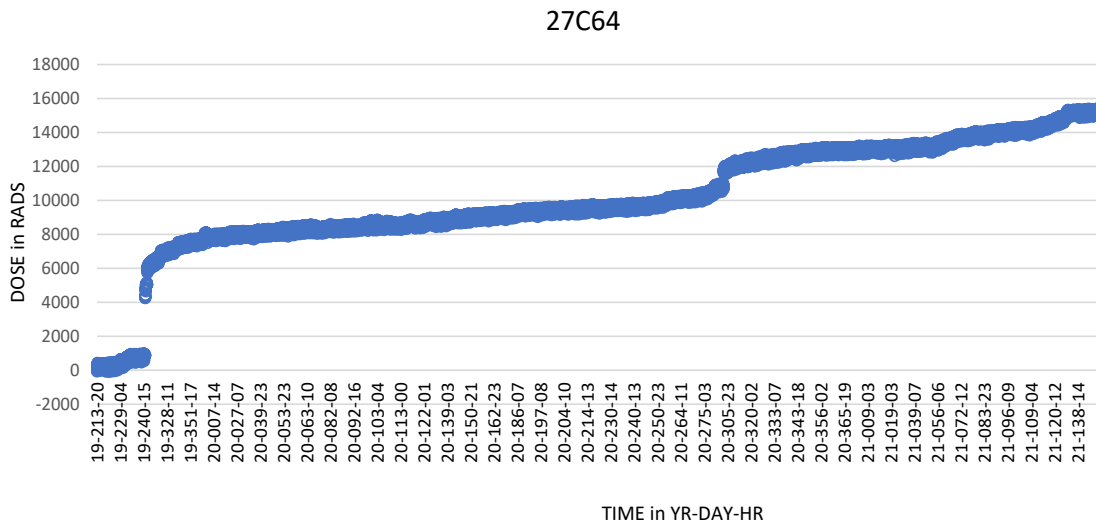
A standard PROM programmed as a dosimeter. The dosimeter is passive and only requires power to read.

An analysis of temperature effect yielded 20 flips per degree. At doses above 1000Rad the temperature effect was below the variation in readings and no adjustments were made for temperature. The raw data is provided for archiving.

The .sequent files (mainly for the RADFET data) are available to the interested reader, the board temperature is logged every second in COL H should this information be required.

During the 1.75yrs there were many random shut down events and some longer planned power downs. This causes disruptions in data collection and some individual APPS data was 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.



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

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.