

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

May 1, 2019

Recoverable Data Module

Specialist's Factual Report
By Sean Payne

1. EVENT SUMMARY

Location: Aguila, Arizona
Date: June 19, 2018
Aircraft: Cirrus SR22
Registration: N764CT
Operator: Private
NTSB Number: WPR18LA174

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following device:

Device Manufacturer/Model:	Aerosance Recoverable Data Module (RDM)
Serial Number:	Unknown

3.1. Aerosance RDM Device Description

The RDM is designed to record airplane performance, configuration data, and navigation data, including parameters not available on the PFD or the MFD such as Cirrus Aircraft Protection System (CAPS) parachute deployment, ice protection status, flap angle, and stall warning. The flight data is stored on a compact flash card within the RDM. These parameters are sampled at 1 Hz.

3.2. Device Condition

Upon arrival at the Vehicle Recorder Laboratory, an examination revealed the unit had sustained extensive heat damage. The extent of the damage is shown in figure 1.



Figure 1. Photo of damaged unit

The unit was disassembled and an internal non-volatile¹ memory (NVM) chip was revealed. The internal memory chip is circled in figure 2. The memory component was extracted. The memory chip is shown in figure 3 after it had been extracted and cleaned. An orange reticle shows an area of crack propagation on the surface packaging of the chip. The chip was then x-rayed. The x-ray revealed no damage to the wiring of the chip. The x-ray was unable to image the chip's internal silicon die. Damage to the chip's internal silicon die was not observed but is likely. Figure 4 is an x-ray image of the chip which shows the internal wire bonds were not damaged.

The chip was attempted to be read with the appropriate software and hardware configuration but resulted in an unsuccessful download.

¹ Non-volatile memory is semiconductor memory that does not require external power for data retention.



Figure 2. Photo of damaged unit opened, the NVM chip is circled in orange.



Figure 3. Photo of internal memory chip after removal and cleaning. The photo was taken at an angle to highlight the damage to the packaging. A crack on the surface of the chip packaging is circled in orange.

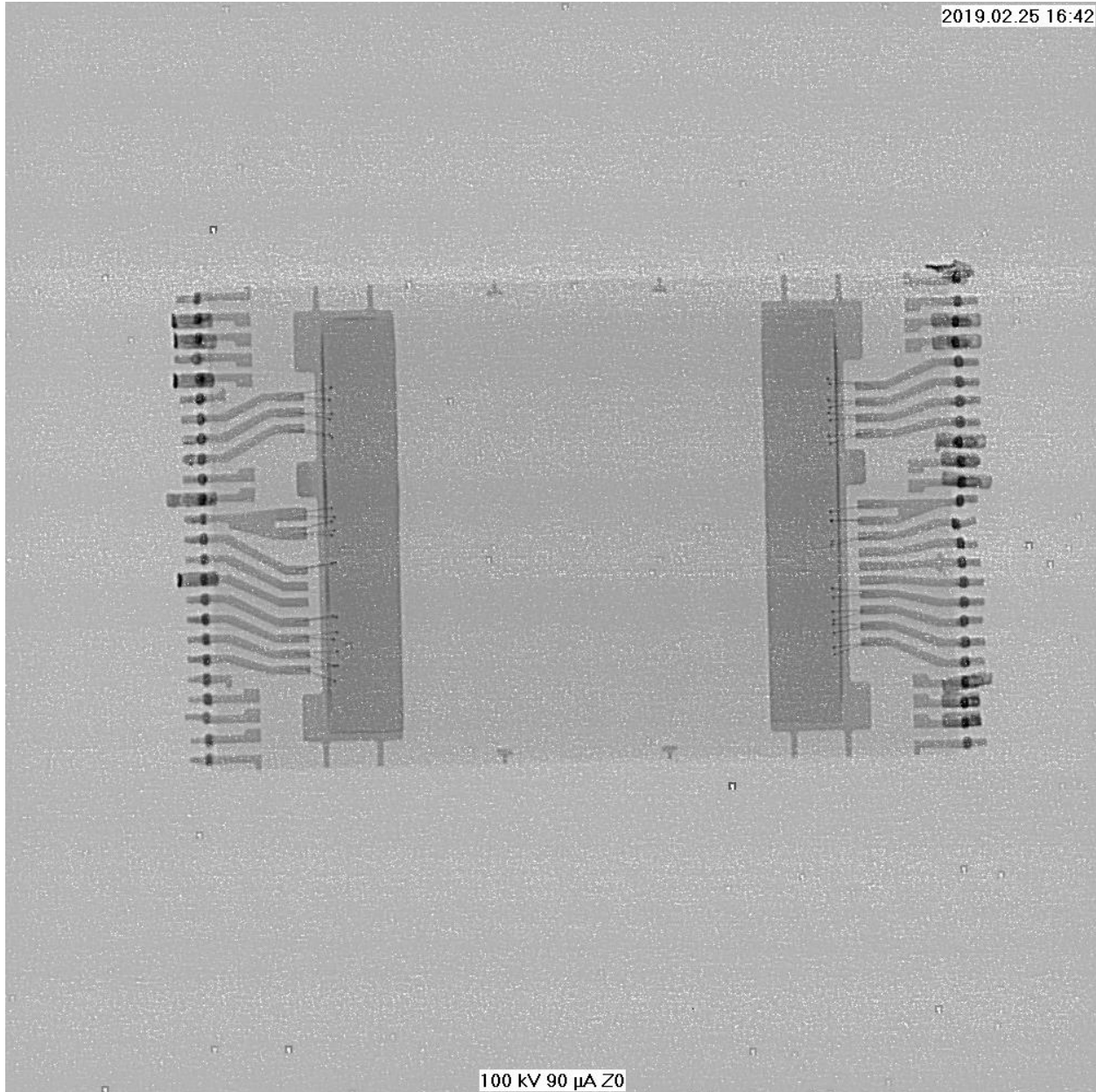


Figure 4. An x-ray image of the NVM chip.

3.3. Data Description

This device is capable of storing data in NVM. The extent of the damage precluded normal recovery procedures and additional attempts were unsuccessful in yielding usable data. Therefore, no data pertinent to the event were recovered.