

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



ERA22LA254

RECOVERABLE DATA MODULE

Specialist's Factual Report

November 30, 2022

A. EVENT SUMMARY

Location: Tredyffrin Township, Pennsylvania
Date: June 1, 2022
Time: 15:27 eastern daylight time (EDT)
Airplane: Cirrus SR22, N432CP

B. RECOVERABLE DATA MODULE SPECIALIST

Specialist: W. Deven Chen
Electrical Engineer – Recorder Specialist
National Transportation Safety Board (NTSB)

C. DETAILS OF THE INVESTIGATION

A recorder group was not convened. The NTSB Vehicle Recorder Division received the following recoverable data module (RDM):

Recorder Manufacturer/Model:	Heads Up Technologies RDM100-01
Recorder Serial Number:	900329002

1.0 Device Description

The Heads Up Technologies RDM is designed to record flight data in a crash and fire-resistant housing. The unit records flight, engine, and autopilot parameters. Depending on the recording software, over 75 parameters may be recorded. Data is logged once per second and stored internally on four thin small outline package (TSOP) memory chips inside the crash-hardened enclosure. When the storage limit of the memory device is reached, the oldest recording is overwritten.

1.1 Device Condition and Data Recovery

Upon arrival at the Vehicle Recorder Division, the Heads Up Technologies RDM was shown in fair condition, however the cable was severed from the device, as shown in figure 1. A new connector was attached using wiring diagrams provided by the manufacturer, however the device did not download. After consulting with the manufacturer, the NTSB traveled to the manufacturer with the device for download support.

After a download attempt at the manufacturer's lab failed, the manufacturer decided to perform chip-swap data recovery procedure on the accident RDM. A technician removed the four TSOP data chips from the accident RDM and placed them onto a working surrogate RDM. The surrogate RDM with data chips from the accident RDM downloaded successfully. Instead of performing a full download which

would take up to 7 hours, the engineer from the manufacturer downloaded the most recent recorded data, and the downloaded data indicated that the last recorded data were from May 30, 2012. The accident occurred on June 1, 2022. The engineer from the manufacturer explained that the accident RDM might have been damaged some time after May 30, 2012, thus no data beyond that time would have been recorded. The engineer also stated that there would not have been any indications in the aircraft cockpit to show the RDM was damaged.

With consent from the manufacturer, the surrogate RDM with data chips from the accident RDM was brought back to the NTSB's recorders lab at the headquarters, and a full download was performed. All data from the RDM were downloaded. A thorough examination of the data confirmed that all data were recorded between November 27, 2011, and May 30, 2012, and no data associated with the accident were recorded.



Figure 1. Heads Up Technologies RDM100-01 as received.