

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



CEN23FA045

ELECTRONIC DEVICES

Specialist's Factual Report

March 24, 2023

A. EVENT SUMMARY

Location: Mount Comfort, Indiana
Date: November 25, 2022
Time: 0800 eastern standard time (EST)
Airplane: Cirrus SF50, N15VJ

B. ELECTRONIC DEVICES 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 electronic devices:

Manufacturer/Model:	Appareo RDM-300
Serial Number:	001137
Manufacturer/Model:	Garmin GDU 1450W
Serial Number:	4VS305165
Manufacturer/Model:	Garmin GDU 1450W
Serial Number:	4VS305196

1.0 Appareo RDM-300 Description

The Appareo recoverable data module (RDM) is a memory unit fitted to some Cirrus aircraft. The unit records flight, engine, and autopilot data in a crash and fire-resistant housing. Depending on the software, over 75 parameters may be recorded. Data is logged up to five times 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 data is overwritten.

1.1 Appareo RDM-300 Condition and Data Recovery

The Appareo RDM-300 was in good condition upon arrival at the Vehicle Recorder Division. According to the investigator-in-charge (IIC), the RDM had been downloaded by Cirrus Aircraft. Cirrus Aircraft converted the raw RDM data to engineering units data and provided the information to the IIC. No further work was requested.

2.0 Garmin GDU 1450W Description

The GDU 1450W is an Electronic Flight Instrument System (EFIS) that can serve as a primary flight display (PFD), Multi-Function Display (MFD), Engine Information System (EIS), or a combination of all, depending on configuration. The unit comes with a 14-inch LCD display. It contains an Attitude Heading Reference System (AHRS) device and is capable of providing attitude information and air data information. The unit interfaces with a number of other compatible products and can display navigation, terrain, engine, weather, traffic and other parametric data streams. The unit is synthetic vision capable.

Depending on the display unit software, the system may include a data logging feature. The data logging feature must be enabled by the aircraft operator and an SD card has to be installed in the upper SD card slot of the unit to record data. Depending on the airframe and engine combination, as many as 64 parameters can be stored at a rate of one sample per second (1Hz). According to the manufacturer of the display unit, one flight hour can be stored in approximately 2 MB. With a 2 GB SD card, over 1,000 flight hours can be stored.

2.1 Garmin GDU 1450W Condition and Data Recovery

The two Garmin GUD 1450W units were in good condition upon arrival at the Vehicle Recorder Division. Per the IIC's request, the central maintenance computer (CMC) data¹ stored in unit's internal micro-SD cards were downloaded and provided to the IIC electronically. No further work was requested.

¹CMC data is OEM configurable data.