

# NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division  
Washington, D.C. 20594

October 2, 2017

## Electronic Devices

Specialist's Factual Report  
By Bill Tuccio, Ph.D.

### 1. EVENT SUMMARY

Location: Huntsville, Texas  
Date: April 25, 2017  
Aircraft: Cessna 421C  
Registration: N421TK  
Operator: Klass Enterprises, LLC  
NTSB Number: CEN17FA167

### 2. GROUP

A group was not convened.

### 3. DETAILS OF INVESTIGATION

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

Device Manufacturer/Model:	<b>Apple iPad 3</b>
Serial Number:	<b>DMPLMTRPFKYC</b>

Device Manufacturer/Model:	<b>Appareo Stratus 2S</b>
SSID:	<b>Stratus2s013643</b>

#### 3.1. Device Descriptions

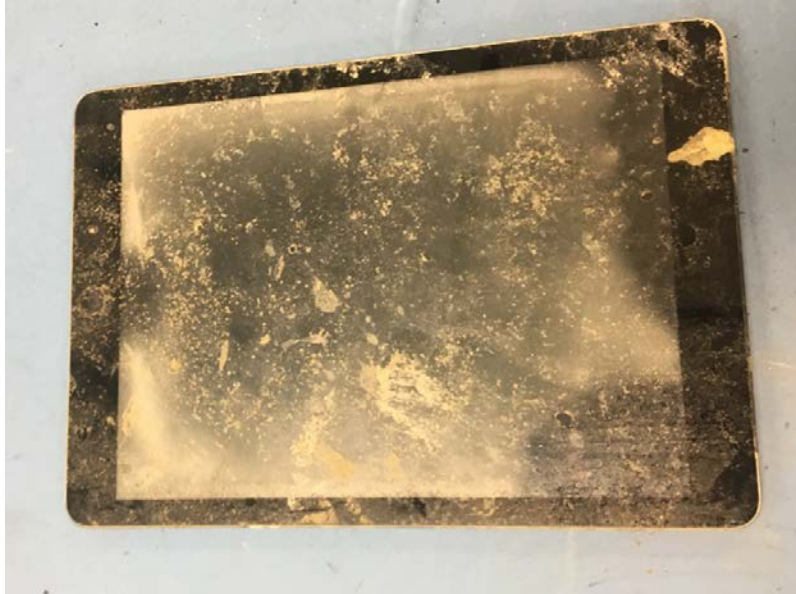
The Apple iPad 3 is a personal electronic device. The Appareo Stratus 2S is a portable global positioning system and automatic dependent surveillance - broadcast receiver. Both devices are capable of recording a track history (the iPad has additional capabilities).

#### 3.2. Device Condition

Upon arrival at the Vehicle Recorder Laboratory, an examination revealed the iPad suffered water damage, as shown in figure 1. The iPad was repaired and when started and it prompted for a passcode.

The Stratus 2S likewise suffered water damage, as shown in figure 2. The non-volatile memory<sup>1</sup> chip was identified (figure 3) and removed from the device using a hot air rework station; figure 4 shows a photo of the chip. The chip was readout using an EEPROM programmer and then decoded.

**Figure 1. Apple iPad 3 as received.**



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<sup>1</sup> on-volatile memory is semiconductor memory that does not require external power for data retention.

Figure 2. Stratus 2S, front and back.



Figure 3. Stratus 2S non-volatile memory chip.

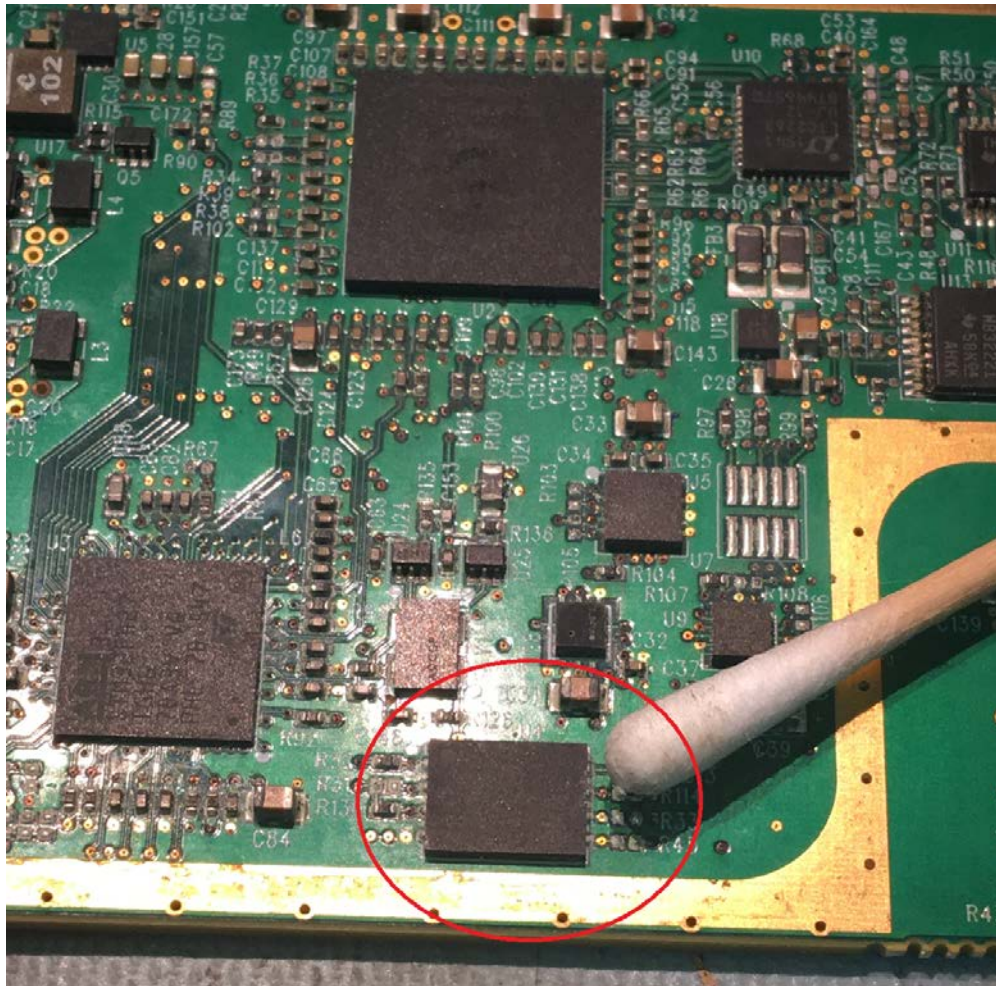
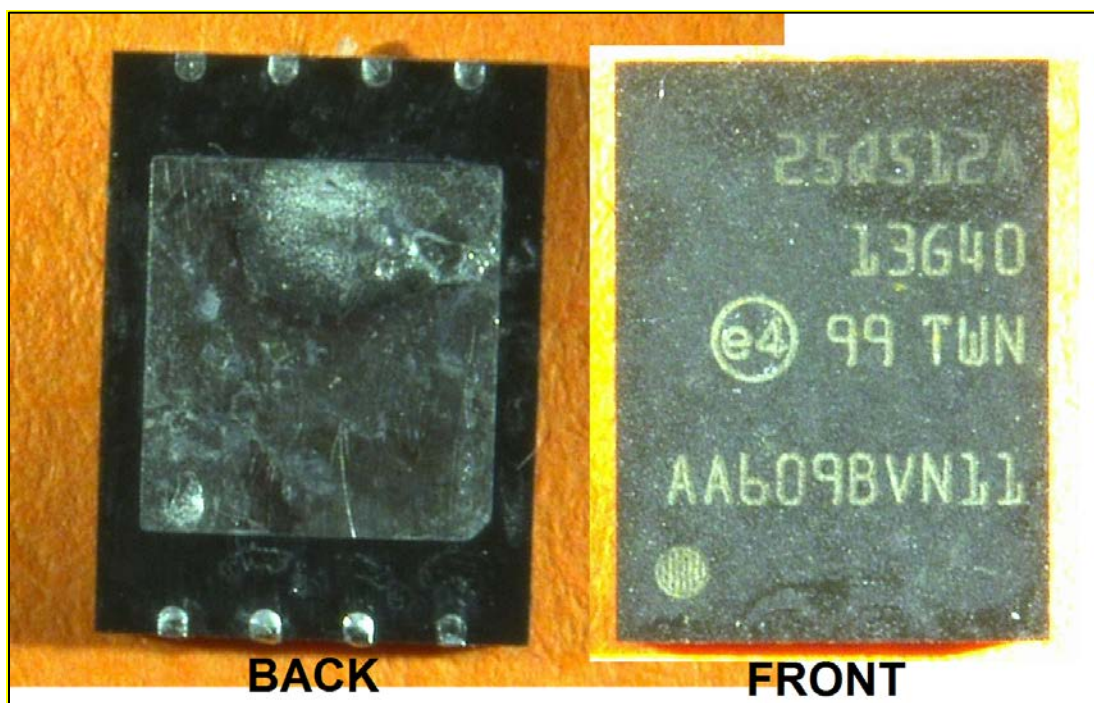




Figure 4. Stratus 2S non-volatile memory chips, back and front.



### 3.3. Data Description

In agreement with the Investigator-in-Charge, it was decided not to attempt to bypass the iPad passcode. Accordingly, no data was recovered from the iPad.

The data extracted from the Stratus 2S included data from October 2016, through April 17, 2017, which was about one week before the accident. Therefore, the accident flight was not recorded.