NATIONAL TRANSPORTATION SAFETY BOARD
Vehicle Recorder Division
Washington, D.C. 20594

September 28, 2015

Personal Electronic Devices

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

1. EVENT SUMMARY

Location:	Chamblee, Georgia
Date:	May 8, 2015
Aircraft:	Piper PA-32R-300
Registration:	N5802V
Operator:	TLT and GGBB LLC.
NTSB Number:	ERA15FA208

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

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

Device Manufacturer/Model:	**ThinkPad Laptop Computer**
Serial Number:	**Unknown**
Device Manufacturer/Model:	**Apple iPhone 6**
Serial Number:	**Unknown (device intact)**
Device Manufacturer/Model:	**Apple iPad 4**
Serial Number:	**DMPJNGPF18P**
Device Manufacturer/Model:	**Apple iPhone 6**
Serial Number:	**Unknown (device significantly damaged)**

3.1. Device Descriptions

PEDs are a category of devices comprised primarily of portable computing devices and mobile phones. Portable computing devices are typically capable of internet access, email, messaging services, and can run user-installed applications to perform specific

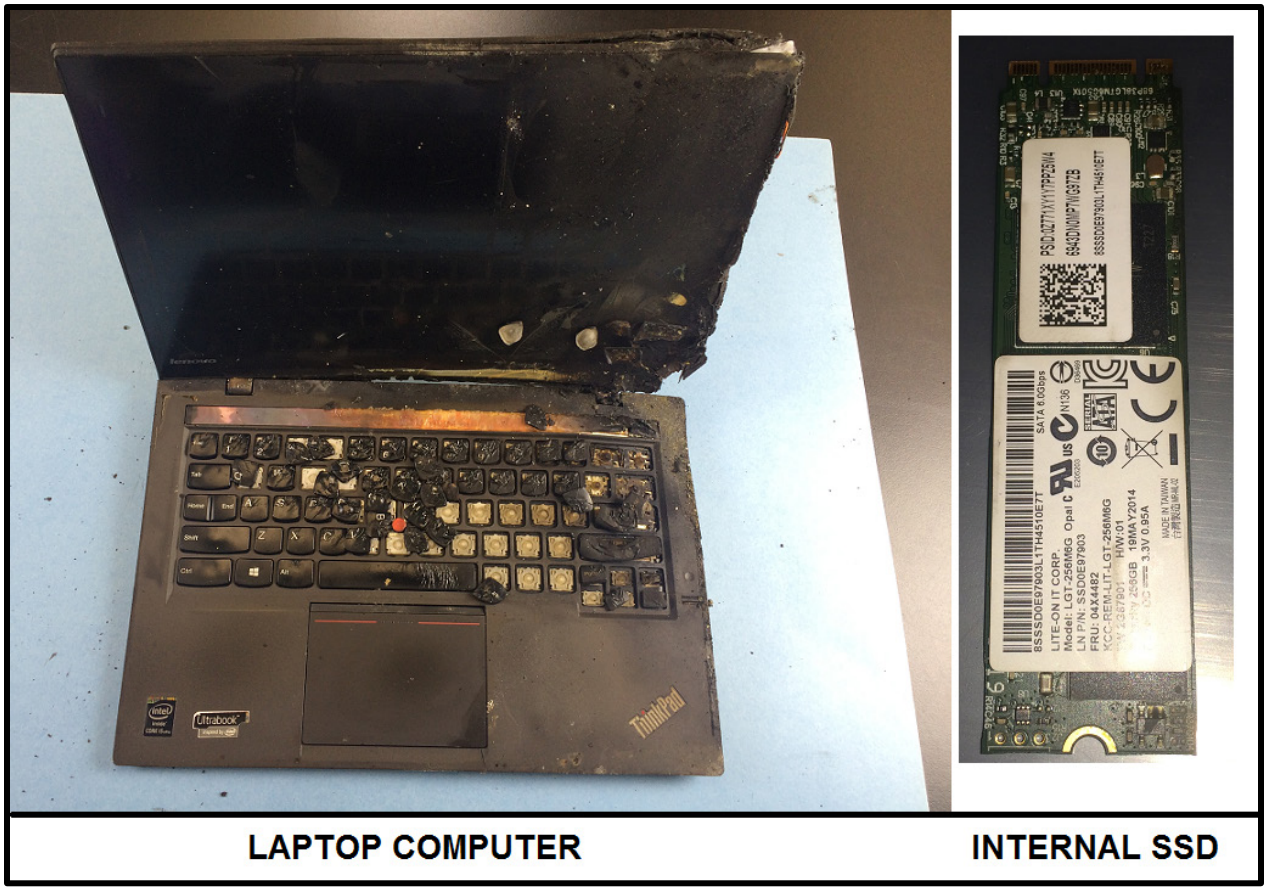
tasks. Depending on the model, mobile phones can perform many of the same tasks as portable computing devices, plus have voice call and text messaging capabilities. PED user and system data is typically stored on non-volatile memory[1] and can be accessed through manufacturer-provided interfaces.

Laptop computers provide mobile computing capability. The recovered ThinkPad computer had a solid state, M2 SATA hard drive (SSD) for permanent storage of information.

3.2. Device Condition

Upon arrival at the Vehicle Recorder Laboratory, an examination revealed all units had sustained significant exposure to heat and water. Figures 1 through 4 show the condition of each device as received.

Figure 1. ThinkPad laptop computer and internal SSD.

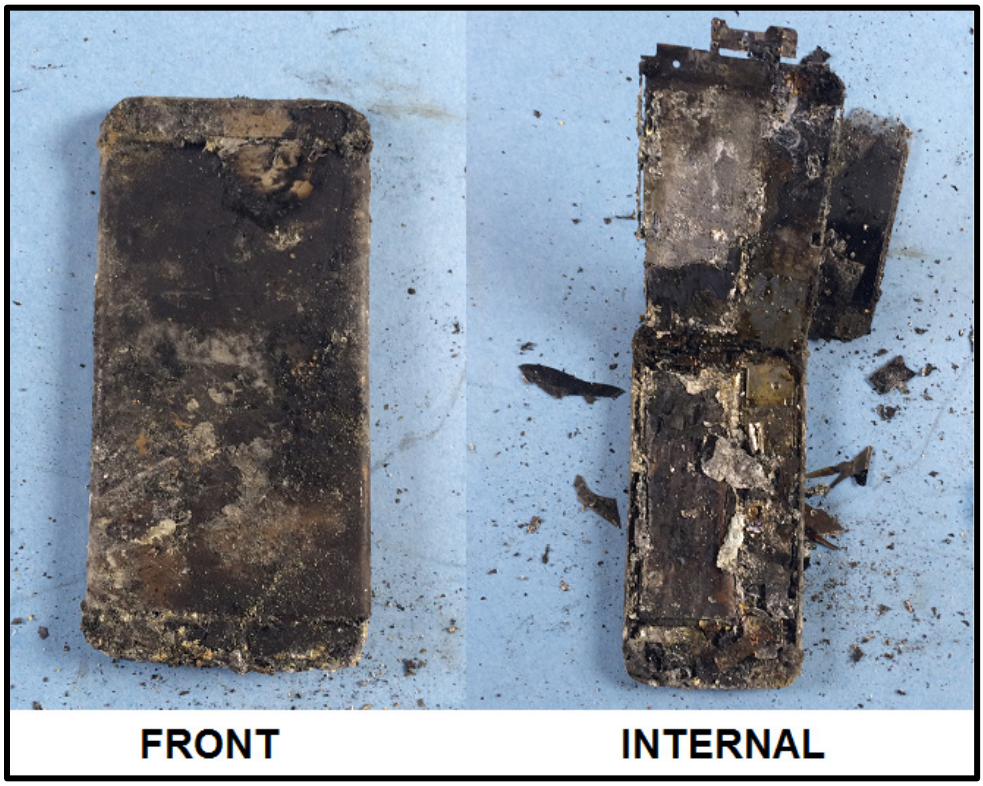


[1] Non-volatile memory is semiconductor memory that does not require external power for data retention.

Figure 2. Apple iPhone 6 (intact).

Figure 3. Apple iPad 4.

Figure 4. Apple iPhone 6 (significantly damaged).



3.3. Data Description

3.3.1. ThinkPad Laptop Computer

The internal, M2 SATA SSD contained information; however, the SSD was protected by encryption. According to the Investigator-in-charge (IIC), the recovery key was not obtainable so the device's functions and any stored data were not accessible. It is unknown whether there were any stored data pertinent to the event. No further attempts were made to access the data.

3.3.2. Apple iPhone 6 (intact)

This device is capable of storing data in the non-volatile memory. There is an optional security feature that requires a user-password to unlock the device and access functions and stored data.

After repair, power was applied to the device and it was evident that the user-password security feature was enabled. According to the IIC, the password was not obtainable so the device's functions and any stored data were not accessible. In agreement with the IIC, commonly used passcodes were guessed and, after 11 attempts, the device became disabled. It is unknown whether there were any stored data pertinent to the event. No further attempts were made to access the data.

3.3.3. Apple iPad 4

This device is capable of storing data in the non-volatile memory. Power was applied to the device and the information were downloaded using forensic tools. The download and user interface screens were examined and no information pertinent to the investigation were discovered.

3.3.4. Apple iPhone 6 (significantly damaged)

This device is capable of storing data in the non-volatile memory. The extent of the damage precluded any recovery. Therefore, no data pertinent to the event were recovered.