

NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division
Washington, D.C. 20594

May 22, 2020

Personal Electronic Devices

Specialist's Factual Report By W. Deven Chen

1. EVENT SUMMARY

Location: Calabasas, California
Date: January 26, 2020
Aircraft: Sikorsky S76-B
Registration: N72EX
Operator: Island Express Holding Corp.
NTSB Number: DCA20MA059

On January 26, 2020, about 0945 PST, a Sikorsky S76-B helicopter, N72EX, was destroyed when it was involved in an accident near Calabasas, California. The pilot and eight passengers were fatally injured. The helicopter was operated as a Title *14 Code of Federal Regulations* Part 135 charter flight.

2. GROUP

A group was not convened.

3. DETAILS OF INVESTIGATION

The National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following 8 personal electronic devices (PEDs):

Device Manufacturer/Model: Serial Number:	Apple iPad Mini 5 DMPY812LLMV8
Device Manufacturer/Model: IMEI Number:	Apple iPhone 11 Pro Max 353887100857534
Device Manufacturer/Model: IMEI Number:	Apple iPhone XS Max 357272092018872
Device Manufacturer/Model: IMEI Number:	Apple iPhone XR 357333095376699
Device Manufacturer/Model:	Apple iPhone 7 Plus

IMEI Number: 356567080670969

Device Manufacturer/Model: Apple iPhone XS
IMEI Number: 356167093948047

Device Manufacturer/Model: Samsung Galaxy S8
IMEI Number: 357721080576770

Device Manufacturer/Model: Apple Watch Series 5
Serial Number: G99ZF3DTMLDK

3.1. Device Description

PED is 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 memory¹ (NVM) and can be accessed through manufacturer-provided interfaces.

3.2. Data Recovery

3.2.1 Apple iPad Mini 5

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the device had severe damage, as shown in Figure 1. The device's motherboard was removed and examined revealing that the NVM was missing from the motherboard, as shown in Figure 2. The extent of the damage and missing NVM precluded recovery procedures. Thus, no data were recovered from this device.

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



Figure 1: Front and back of Apple iPad Mini 5 as received.



Figure 2: Location of the missing NVM on the motherboard of Apple iPad Mini 5.

3.2.2 Apple iPhone 11 Pro Max

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the device had severe damage, as shown in Figure 3. The device's motherboard was removed and a crack was found on the printed circuit board (PCB), as shown in Figure 4. The motherboard was installed in a surrogate device and it did not power up. The extent of the damage precluded normal and advanced recovery procedures at the lab. Thus, no data were recovered from this device.



Figure 3: Front and back of Apple iPhone 11 Pro Max as received.

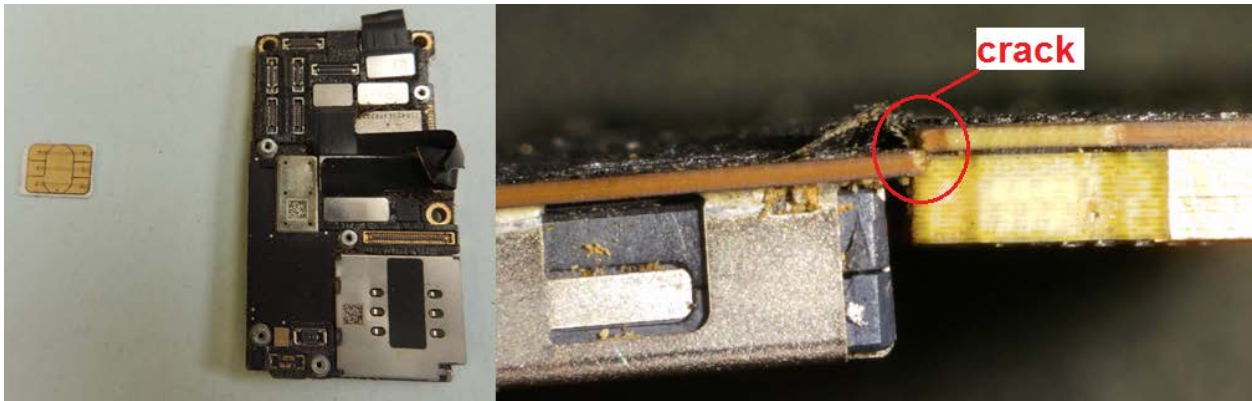


Figure 4: Motherboard of Apple iPhone 11 Pro Max with a crack on the PCB.

3.2.3 Apple iPhone XS Max

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the device had severe impact damage, as shown in Figure 5. The device's motherboard was removed and was bent, as shown in Figure 6. The motherboard was tested revealing short circuits and open circuits at various locations. The extent of the damage precluded normal and advanced recovery procedures at the lab. Thus, no data were recovered from this device.



Figure 5: Front and back of Apple iPhone XS Max as received.

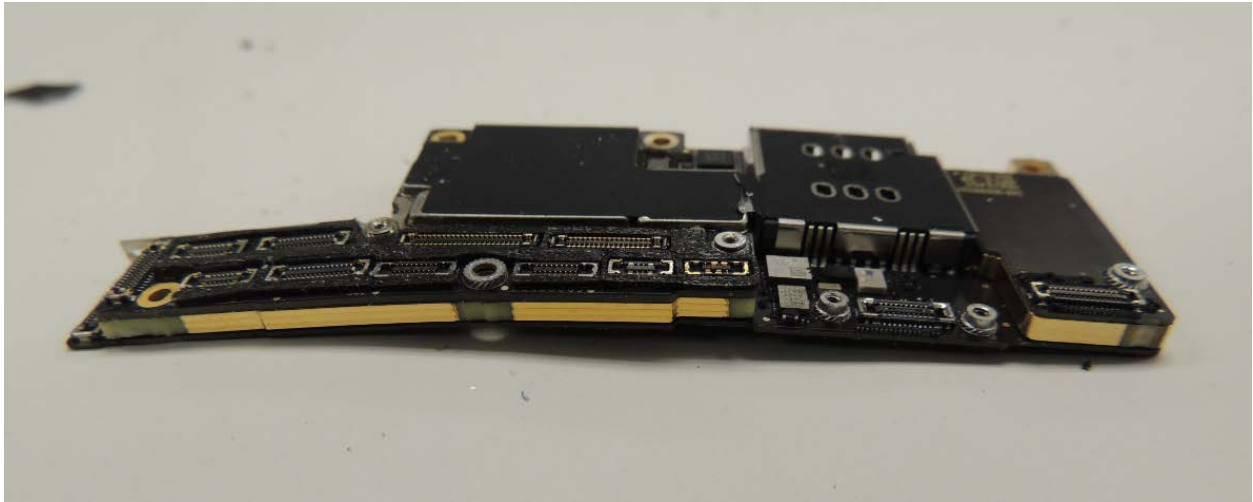


Figure 6: Bent motherboard of Apple iPhone XS Max.

3.2.4 Apple iPhone XR

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the device had impact damage, as shown in Figure 7. The device's motherboard was removed and installed in a surrogate device. The device powered up and was locked with a 6-digit passcode, as shown in Figure 8. In a discussion with the investigator in charge (IIC), attempts to obtain the passcode to unlock the phone were not pursued. Thus, no data were recovered from this device.



Figure 7: Front and back of Apple iPhone XR as received.



Figure 8: Motherboard of Apple iPhone XR powered up in a surrogate device.

3.2.5 Apple iPhone 7 Plus

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the device had impact damage, as shown in Figure 9. The device's motherboard was removed and installed in a surrogate device. The device powered up normally, and was read out using forensic evidence recovery software for PEDs. The reading indicated that the phone was last used in the day before the accident date. Thus, no accident related data were recovered from this device.



Figure 9: Front and back of Apple iPhone 7 Plus as received.

3.2.6 Apple iPhone XS

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the device had minor damage, as shown in Figure 10. The device was slightly bent. An internal examination showed no obvious damage. The device powered up normally in a Faraday box and was found being locked with a 6-digit passcode. In a discussion with the IIC, attempts to obtain the passcode to unlock the phone were not pursued. Thus, no data were recovered from this device.



Figure 10: Front and back of Apple iPhone XS as received.

3.2.7 Samsung Galaxy S8

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the device had severe impact damage, as shown in Figure 11. The motherboard was removed from the device. The motherboard was bent, was missing a component, and had a crack on the printed circuit board, as shown in Figure 12. The motherboard was installed in a surrogate device and it did not power up. The extent of the damage precluded normal and advanced recovery procedures at the lab. Thus, no data were recovered from this device.



Figure 11: Front and back of Samsung Galaxy S8 as received.

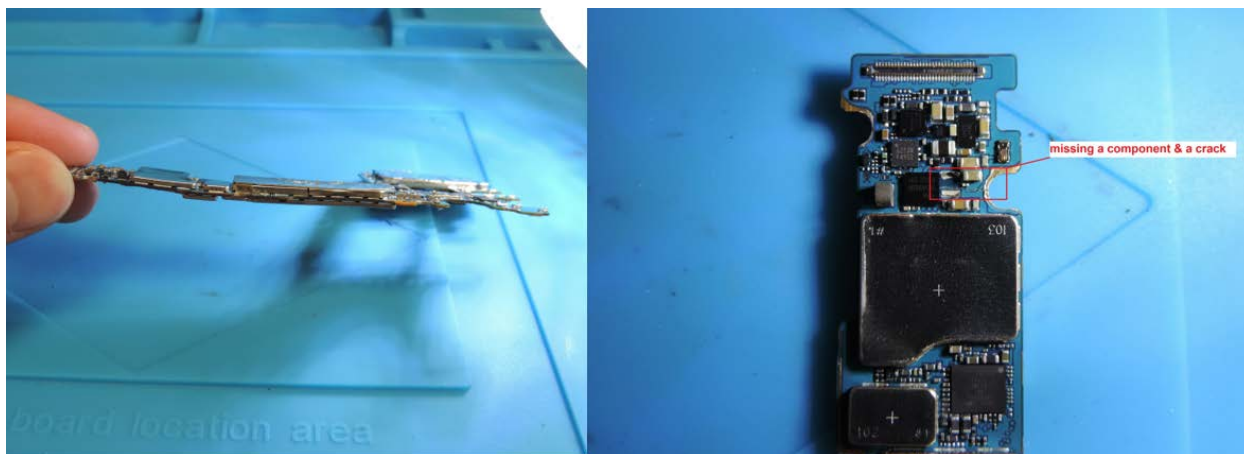


Figure 12: Motherboard of Samsung Galaxy S8 was in bent condition, missing a component and with a crack on the PCB.

3.2.8 Apple Watch Series 5

Upon arrival at the Vehicle Recorder Division, an exterior examination revealed the device had impact damage, as shown in Figure 13. The device did not power up. This device and the Apple iPhone XS from section 3.2.6 belonged to the same passenger on the

accident aircraft. It is typically that the data stored in this device were synced with the data stored in the Apple iPhone XS. Since no data recovery was pursued on the Apple iPhone XS, no data recovery was attempted on this device as well.



Figure 13: Front and back of Apple Watch Series 5 as received.