

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

March 15, 2012

## 17 – Non-Volatile Memory Factual Report

by Joe Gregor

**A. EVENT**

Location:	Las Vegas, Nevada
Date/Time:	December 7, 2011 / 1630 Pacific Standard Time (PST) <sup>1</sup>
Aircraft Type/ID:	Eurocopter AS350-B2 / N37SH
Operator/Flight:	Sundance Helicopters / Landmark 57
NTSB Number:	DCA12MA020

**B. GROUP - No Group**

**C. SUMMARY**

On December 7, 2011 at 1630 Pacific Standard Time, a Eurocopter AS350-B2, registration N37SH, operated by Sundance Helicopters as flight Landmark 57, crashed in mountainous terrain approximately 14 miles east of Las Vegas, Nevada.

**D. DETAILS OF INVESTIGATION**

On December 20, 2011 the NTSB Vehicle Recorder Laboratory received the following NVM<sup>2</sup> devices:

Device Manufacturer/Model:	Motorola
Serial Number:	unk
Device Manufacturer/Model:	Sony Cybershot 10.1 mp
Serial Number:	unk

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<sup>1</sup> All times are given in 1630 Pacific Standard Time (PST) unless otherwise noted.

<sup>2</sup> Non-volatile memory.

The laboratory also received two other unknown devices.

**NVM Description:**

Upon arrival at the Vehicle Recorder Laboratory, a preliminary examination indicated the remains of two to three smart-phone devices (based on battery-count), along with the remains of a Sony Cybershot series digital camera. All of the devices were severely burned to the point of carbonization. Figures 1 and 2 show the remains of two to three devices similar to smart-phones. The number of devices and their function is estimated by the number of battery packs, and the style and type of screens and controls as best can be discerned due to extreme heat damage. Figures 3 and 4 show the remains of the Sony Cybershot digital camera, identified by traces of the branding still visible in relief on the external skin of the device. Figures 5 and 6 show the remains of a FLASH memory-stick found inside the camera. The integrated circuits within the memory-stick were heat-damaged to the point of structural failure.

**NVM Data Description**

No data was recovered any of the devices.

Joe Gregor  
Electronic Engineer



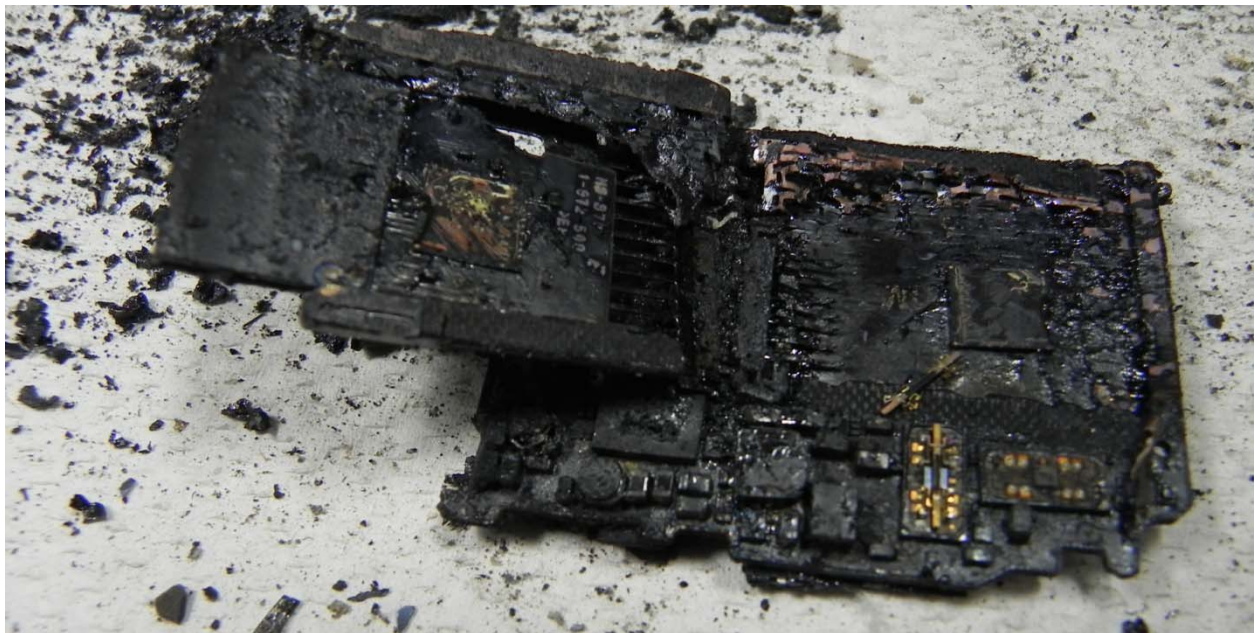
**Figure 1.** Remains of several smart-phone devices showing severe fire damage. One part shows traces of the Motorola logo.



**Figure 2.** Remains of a smart-phone device showing severe fire damage.



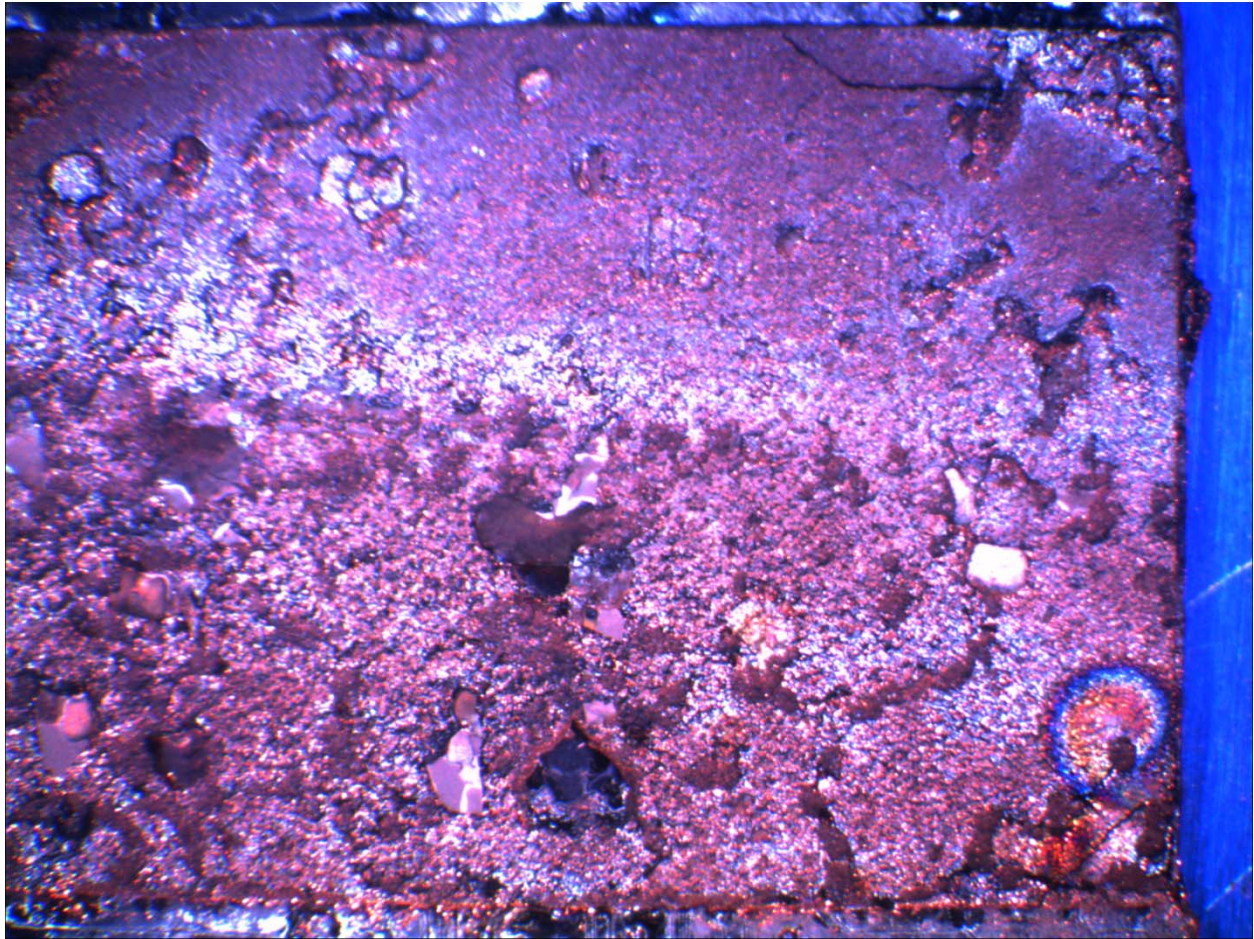
**Figure 3.** Remains of Sony Cybershot 10.1 mega-pixel digital camera showing severe fire damage.



**Figure 4.** Internal remains of Sony Cybershot 10.1 mega-pixel digital camera showing severe fire damage.



**Figure 5.** Internal view the of memory–stick controller integrated circuit from a Sony Cybershot 10.1 mega-pixel digital camera showing destruction due to fire.



**Figure 6.** Internal view of memory–stick FLASH memory integrated circuit from a Sony Cybershot 10.1 mega-pixel digital camera, prior to de-lamination, showing destruction due to fire.