

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

May 1, 2019

Electronic Devices – Security Cameras

Specialist's Factual Report By Sean Payne

1. EVENT SUMMARY

Location: Dallas, Texas
Date: February 23, 2018
NTSB Number: PLD18FR002

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: **Swann NVR-87400 DVR**
Serial Number: **29850091700848**

Device Manufacturer/Model: **Arris DCX3510-M**
Serial Number: **FG582556-001-00**

Device Manufacturer/Model: **Phillips CD-R**
Serial Number: **N/A**

Device Manufacturer/Model: **SanDisk Cruzer USB Thumb Drive (1)**
Serial Number: **N/A**

Device Manufacturer/Model: **SanDisk Cruzer USB Thumb Drive (2)**
Serial Number: **N/A**

3.1. Device Description

Swann NVR-87400 DVR

The Swann NVR-87400 is a network video recorder (NVR) marketed for home and small business applications. The device can record up to 8 channels in high resolution. The system can be configured with up to a 2 terabyte (TB) hard disk drive. The security NVR can be interacted with through its hardware interface or PC via an ethernet cable and Swann proprietary software.

Arris DCX3510-M

The Arris DCX3510-M is a set top cable box with a digital video recorder function that can be used to record television shows selected by the home user. This device does not record security video.

Phillips CD-R

Compact Disk-Recordable. A media format for interfacing with PCs and other peripheral devices with compact disk drives.

SanDisk Cruzer Thumb Drive

A USB media drive that offers a way to multiple peripheral devices.

3.2. Device Condition

Swann NVR-87400 DVR

The device was undamaged and powered normally. The device was password protected initially. See section 3.3 for additional details.

Arris DCX3510-M

The device does not record security camera information and was not evaluated.

Phillips CD-R

The device was undamaged and functioned normally.

SanDisk Cruzer Thumb Drive (1)

The device was provided in factory sealed packaging and was not evaluated.

SanDisk Cruzer Thumb Drive (2)

The device was found inserted to the front USB port of the Swann NVR-87400 DVR. The device was undamaged and functioned normally.

3.3. Data Description

Swann NVR-87400 DVR

This device is capable of storing data in the non-volatile memory (NVM)¹. There is an optional security feature that requires a user-password to unlock the device and access functions and stored data.

Power was applied to the device and the unit booted. The unit made a clicking noise from the area of the hard disk drive. When booted, it was evident that the user-password security feature was enabled and no menus could be selected without the password.

A number of possible passwords and user names were provided by an attorney who represents the owner of the equipment. None of the provided passwords, usernames, or combinations and variations of the provided login information worked.

The device's password was then reset as per the device's user manual via a PC and proprietary software available online from the manufacturer. The password was reset to Username: "Admin" and the password to "123456" using the software method. The NVR's menu could now be accessed².

The time and date setting of the device was explored. The device's time and date setting was within reasonable proximity of Central time, which was where the accident occurred.

Next, the device was interrogated for video events. A video event search for the month of February was conducted. Figure 1 is a photo of the month of February displayed on the video event search page, note that no specific day is selected in this photo. Each day was subsequently selected and no video evidence was discovered.

The NVR's hard drive status menu was explored. The NVR's hard drive status menu indicated that a hard disk drive was not detected by the system. Figure 2 is a photo of this menu, normally, a connected hard disk drive would populate this window.

The device was then powered off and disassembled. The device was found to contain a 2 TB hard disk drive. The hard disk drive was removed. The hard disk drive was attempted to be read on a forensic read out PC. Upon power up, the hard drive emitted a clicking noise. This clicking noise is generally associated with the hard drive's head continually searching for data and could be indicative of a failed hard disk drive.

Repair options are available for this type of hard drive condition, however, after consultation with the investigator-in-charge, repair options were not pursued.

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

² A discussion with the manufacturer of the NVR, Swann, confirmed that this procedure would not result in the loss of data.

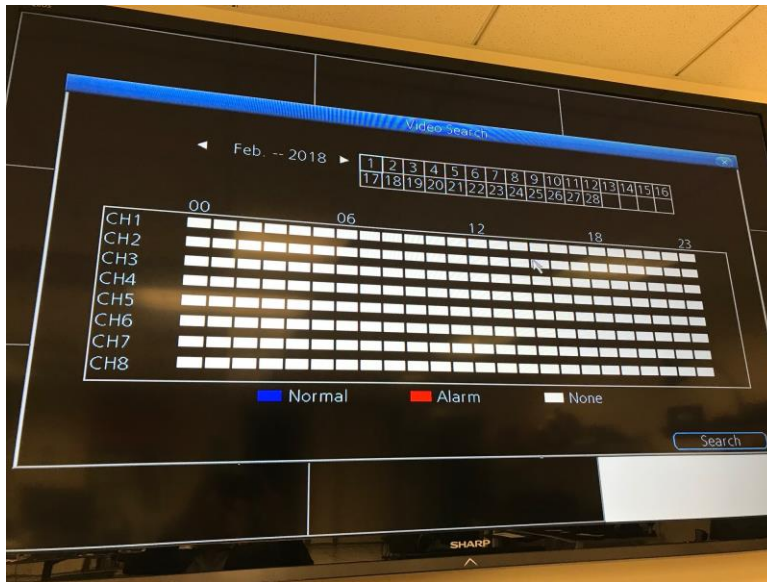


Figure 1: The NVR's video search menu for the month of February.

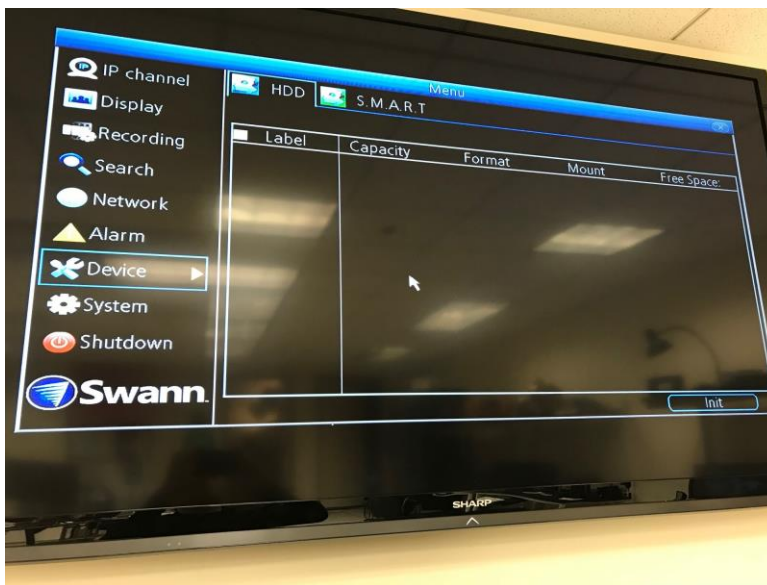


Figure 2: The NVR's hard drive status menu.

Arris DCX3510-M

The device is a set top cable box and does not record security video information. The device's hard drive was not accessed.

Phillips CD-R

The CD-R contained Spanish language music. Nothing pertinent to the investigation was recovered from the CD-R.

SanDisk Cruzer Thumb Drive (1)

The device was provided in factory sealed packaging. The device was not removed from the packaging.

SanDisk Cruzer Thumb Drive (2)

The device was read via a PC. The device contained only software loaded on the drive by the manufacturer. No relevant information to the accident was contained on the device.