

**Docket No. SA-538**

**Exhibit No. 17-A,  
17-B, 17-C, 17-D,  
17-E, 17-F, 17-G,  
17-H, 17-I, 17-J,  
17-K, 17-L, 17-M,  
17-N, 17-O, 17-P,  
17-Q, 17-R, 17-S,  
17-T**

**NATIONAL TRANSPORTATION SAFETY BOARD**

**Washington, D.C.**

Mobile Devices  
Specialist's Factual Report

(10 Pages)

<b>Exhibit</b>	<b>Attachment</b>	<b>Description</b>
B	1	Captain Galaxy - Emails
C	2	Captain Galaxy - Internet
D	3	Captain iPhone - Calls
E	4	Captain iPhone - Emails
F	5	Captain iPhone - Internet
G	6	Captain iPhone - Text Messages
H	7	Captain iPhone - Photos and Videos
I	8	Captain iPhone - Wifi Connections
J	9	Captain Kindle - Photos
K	10	First Officer iPad Mini - Emails
L	11	First Officer iPad Mini - Facebook Messages
M	12	First Officer iPad Mini - Facebook Downloader
N	13	First Officer iPad Mini - Wifi Connections
O	14	First Officer iPhone - Calls
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T	19	First Officer iPhone - Text Messages

# NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division  
Washington, D.C. 20594

January 28, 2014

## Mobile Devices Factual Report - 17

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

### 1. EVENT

Location: Birmingham, Alabama  
Date: August 14, 2013  
Aircraft: Airbus A300-600  
Registration: N155UP, Flight 1354  
Operator: United Parcel Service  
NTSB Number: DCA13MA133

On August, 14, 2013, at about 0447 central daylight time (CDT), United Parcel Service (UPS) flight 1354, an Airbus A300-600, N155UP, crashed short of runway 18 while on approach to Birmingham-Shuttlesworth International Airport (BHM), Birmingham, Alabama. The captain and first officer were fatally injured and the airplane was destroyed. The scheduled cargo flight was operating under the provisions of 14 *Code of Federal Regulations* (CFR) Part 121 and originated from Louisville International-Standiford Field Airport (SDF), Louisville, Kentucky.

### 2. DETAILS OF DEVICE INVESTIGATION

The Safety Board's Vehicle Recorder Division received the following devices:

Device 1: Apple iPhone 4  
Device 1 Serial Number: 871275RXA4S  
Device 1 Owner: Captain

Device 2: Amazon Kindle  
Device 2 Serial Number: D025A0A0244208LP  
Device 2 Owner: Captain

Device 3: Samsung Galaxy Tab 10.1  
Device 3 Serial Number: R29BC23513B  
Device 3 Owner: Captain

Device 4: Samsung SCH-U430 Cell Phone  
Device 4 Serial Number: A1000001767446  
Device 4 Owner: Captain

Device 5: Apple iPhone 5  
Device 5 Serial Number: C39KC9Y7F8H4  
Device 5 Owner: First Officer

Device 6: Apple iPad Mini  
Device 6 Serial Number: F4MK13CZF196  
Device 6 Owner: First Officer

## 2.1. Device Descriptions

The Apple iPhone is a touch-screen operated smart-phone capable of voice calling, text messaging, email, photo/video recording, audio (music) playback, and numerous other specialized functions depending on configuration. The unit is capable of accessing wireless networks using the IEEE 801.11n protocol (wifi) and other wireless devices supporting Bluetooth<sup>1</sup>. Specialized functions are supported by additional user-installed program applications (Apps). Application data is stored in non-volatile memory<sup>2</sup> and may include call logs, text messaging logs, image, video, and position location information. In addition, specialized application data may be stored in a proprietary file structure using numerous file formats including: binary, ASCII, HTML, SQL, etc. The amount and type of data stored varies based on the software version and configuration of the specific device.

The Apple iPad Mini is a tablet computer with a high-resolution color touch-screen interface. All iPad devices support WiFi and Bluetooth connectivity, and use either 16, 32, or 64 GB of non-volatile memory for storage (depending on model). Some devices also support data connectivity via existing cell-phone networks. The operating architecture of the iPad Mini is similar to that of the Apple iPhone, except the iPad Mini does not have voice calling capability.

The Samsung Galaxy Tab 10.1 is a tablet computer with a high-resolution color touch-screen interface. The device supports WiFi and Bluetooth connectivity, and uses varying amounts of non-volatile memory for storage (depending on model). Some devices also support data connectivity via existing cell-phone networks. Specialized functions are supported by additional user-installed applications based on the Android operating system.

The Amazon Kindle is a tablet computer with a high-resolution color touch-screen interface. The device supports WiFi and Bluetooth connectivity, and uses varying amounts of non-volatile memory for storage (depending on model). Similar to the Samsung Galaxy, the specialized functions are implemented through user-installed applications based on the Android operating system.

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<sup>1</sup> A short-range, low bandwidth wireless protocol used in consumer electronics used mostly for low-overhead functions.

<sup>2</sup> Non-volatile memory is semiconductor memory that does not require external power for data retention.

The Samsung SCH-U430 cell phone is a basic cell phone with voice dialing, camera, and text messaging capability.

None of the devices received sustained any damage and all started normally. The captain's Apple iPhone 4 is shown in figure 1, Amazon Kindle in figure 2, Samsung Galaxy Tab 10.1 in figure 3, and Samsung SCH-U430 cell phone in figure 4. The first officer's Apple iPhone 5 is shown in figure 5 and the Apple iPad Mini is shown in figure 6.

**Figure 1. Captain's Apple iPhone 4.**



**Figure 2. Captain's Amazon Kindle.**



**Figure 3. Captain's Samsung Galaxy Tab 10.1.**



**Figure 4. Captain's Samsung SCH-U430 cell phone.**



**Figure 5. First Officer's Apple iPhone 5.**



**Figure 6. First Officer's Apple iPad Mini.**



## 2.2. Activity/Category Data Recovery

Electronic device activity was examined and downloaded from each device. Activity was categorized as calls, internet history, text messages, wifi, photos, Facebook messages, Facebook Image Downloader<sup>3</sup>, Skype, and email. The categorized activity was then assembled into tabular data for the time period from August 9, 2013 at 23:00 CDT until the time of the accident. Tabular activity/category data is included as Attachments 1 through 19 to this report in comma delimited value (CSV) format, as detailed in table 1. These attachments are compressed into one ZIP file format.

**Table 1. Attachment detail.**

Attachment	Description	Filename
1	Captain Galaxy - Emails	ca_galaxy_email.csv
2	Captain Galaxy - Internet	ca_galaxy_internet.history_csv.csv
3	Captain iPhone - Calls	ca_iphone_call_csv.csv
4	Captain iPhone - Emails	ca_iphone_email.csv
5	Captain iPhone - Internet	ca_iphone_internet.history_csv.csv
6	Captain iPhone - Text Messages	ca_iphone_message_csv.csv
7	Captain iPhone - Photos and Videos	ca_iphone_photos_videos_csv.csv
8	Captain iPhone - Wifi Connections	ca_iphone_wifi_csv.csv
9	Captain Kindle - Photos	ca_kindle_timeline_photo_csv.csv
10	First Officer iPad Mini - Emails	fo_ipad_mini_email.csv
11	First Officer iPad Mini - Facebook Messages	fo_ipad_mini_facebook.message_csv.csv

<sup>3</sup> Facebook Image Downloader is a mobile component of Facebook that downloads images as the user actively browses through Facebook content.

Attachment	Description	Filename
12	First Officer iPad Mini - Facebook Downloader	fo_ipad_mini_fbImageDownloader_csv.csv
13	First Officer iPad Mini - Wifi Connections	fo_ipad_mini_wifi_csv.csv
14	First Officer iPhone - Calls	fo_iphone_call_csv.csv
15	First Officer iPhone - Emails	fo_iphone_email.csv
16	First Officer iPhone - Facebook Messages	fo_iphone_facebook.message_csv.csv
17	First Officer iPhone - Facebook Downloader	fo_iphone_fbimagedownloader_csv.csv
18	First Officer iPhone - Internet History	fo_iphone_internet.history_csv.csv
19	First Officer iPhone - Text Messages	fo_iphone_message_csv.csv

Absence of an activity category for a device means no activity was discovered for that activity category in the time period examined; across all devices, there was no Skype activity in the time period examined. Table 2 shows the parameters included for each activity type.

**Table 2. Parameters by activity type.**

Activity Type	Parameters
Calls	Date/Time <sup>4</sup> , Status, Duration
Internet History	Date/Time, Visit Count
SMS/MMS Messaging	Date/Time, Recovered, Attachment, State, Direction
Photos/Videos	Date/Time, Filename
Wifi	Date/Time, Event, SSID, Security
Facebook Downloader	Date/Time, Download Code
Facebook Messaging	Date/Time, Direction
Email	Date/Time <sup>5</sup> , Direction

The captain's Samsung SCH-U430 cell phone activity was not downloaded for this report; instead, cell phone company records were used to determine activity<sup>6</sup>.

### 2.3. Text Messages and Documents

Information on the mobile devices was examined with the Human Performance and Operations Group Chairmen to determine content details pertinent to the investigation. The following content was found to be pertinent.

<sup>4</sup> Date/Time is provided in Universal Coordinated Time (UTC/Zulu) and CDT.

<sup>5</sup> The timezone of the email activity could not be reliably determined.


<sup>6</sup> See the Human Performance Factual report in the docket for this accident for the captain's Samsung SCH-U430 activity.



### 2.3.1. First Officer's iPhone Text Messages

Select text messages from the first officer's iPhone are shown in table 3.

**Table 3. Select text message content from first officer's iPhone.**

CDT	Direction	Content
8/10/13 6:45:07	outgoing	On 715 am flt
8/10/13 6:45:46	incoming	Awesome. Be there to pick u up
8/10/13 6:47:27	outgoing	Ok waiting to board now- n cockpit full # flt
8/10/13 6:49:34	incoming	Of course...they are always full. At least it's a short flt
8/10/13 6:49:45	outgoing	Yea no #
8/10/13 16:51:04	outgoing	Girl my jig is slow whew done fell asleep, but will get my big # up
8/12/13 19:29:38	outgoing	Im getting sooo tired
8/12/13 19:35:30	outgoing	And its time i get ready
8/12/13 21:22:58	outgoing	 Hey, bak in the ol office, and im sleepy as a # :)
8/13/13 0:26:48	outgoing	Waitin on van
8/13/13 11:06:56	outgoing	Hey just dual fmc <sup>7</sup> failure last nite, thats always nice on ur ' first' nite ;)
8/13/13 11:07:09	outgoing	Just ol school navin
8/13/13 11:16:36	incoming	Oh yeah...that's great when ur tired as hell. I was snoozing by 830 but up at 5 to come to work. I'm still tired today. We are to old for that #. Lmao
8/13/13 11:18:26	outgoing	U got that rite, i fell asleep on every damn leg last nite- n rfd now, got here at 6 am n bed by 645 ish , now # <sup>8</sup> up, slept like 4 # hrs.... Van isnt till 8 tonite so hoping i will nap again this afternoon
8/13/13 11:19:29	incoming	Yeah u can get a nap in this afternoon. Grab some lunch and hit the bed again
8/13/13 11:20:31	outgoing	Thats da plan: sleep eat sleep eat sleep eat- works nice diet wise ha

<sup>7</sup> "fmc" is a common abbreviation for "Flight Management Computer."

<sup>8</sup> # is a replacement for an expletive.

### 2.3.2. Captain's Samsung Galaxy Tab 10.1 Documents

Five documents pertinent to the investigation were retrieved from the captain's Samsung Galaxy Tab 10.1. The document descriptions are shown in table 4.

**Table 4. Documents from Captain's Galaxy Tab 10.1.**

<b>Description</b>
"CQ 2013" training syllabus, including classroom and line operational simulation
A300 FMC/database frequently asked questions
A300 Advanced Qualification Program (AQP) initial/transition student guide
A300 "CQ 2013" student guide
A300 Aircraft Operating Manual (AOM) Revision 27