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

April 28, 2022

Mobile Phone Records

Specialist's Factual Report
By Michael Portman

1. EVENT

Location: Brookline, Massachusetts
Date: July 30, 2021
Operator: Massachusetts Bay Transportation Authority (MBTA)
NTSB Number: RRD21FR013

2. DETAILS OF DEVICE INVESTIGATION

The NTSB's Vehicle Recorder Division received mobile phone records associated with the following on-site personnel:

User: **MBTA Light Rail Operator**
Service Provider: **Verizon Wireless**

The mobile phone records were received electronically. The records contained mobile phone activity history between 00:01 on July 28, 2021, and 23:59 on July 31, 2021 Coordinated Universal Time (UTC). The event occurred around 18:03 eastern daylight time (EDT) on July 30, 2021. Timestamps of the mobile phone records were converted to EDT, as needed, for rest of the report. The difference between EDT and UTC is 4 hours.

2.1. Mobile Phone Records Description

Mobile phone records are produced by a telecommunications service provider documenting the details of telephone calls, text messages, picture/video messages, data usage, and other transactions. The exact information provided varies depending on the provider.

Some notes for the phone records in this report are listed below:

- A phone call marked "Yes" as "Forwarded" indicates that the user did not answer the call, and the call was forwarded to a different number (e.g. voice mail box).

- For the review of text messages, it was noted that there were several "pairs" of outgoing and incoming text messages. Upon consultation with the service provider, it was noted that the user likely made use of a Verizon automatic text forwarding application, which would auto-forward text messages from the phone to another platform. The text messages were filtered so only the verified incoming text messages are included, and the outgoing auto-forwarded messages are not included, for readability. No outgoing messages were noted that were not auto-forwarded messages. The text messages which had an auto-forwarding pair are denoted in *italics*, and the two text messages that did not have an obvious pair are denoted in **bold**.

- The messaging records included are only for short message service (SMS), multimedia messaging service (MMS), and rich communication services (RCS) messages, which are standard text messages. App based messaging services, such as Facebook Messenger, WhatsApp, Instagram direct message, etc., are sent via internet connection, and are thus not reflected in the records below.

- For the data usage information received, it is not possible to distinguish between user-initiated data activity and automatic background data activity by the device's operating system or installed applications.

2.2. Phone Records

2.2.1. Phone Call Activity

Table 1. Phone Call Activity.

Date & Time (EDT)	Duration (mm:ss)	Direction	Forwarded
7/28/2021 03:22:32	02:48	Incoming	No
7/28/2021 03:44:03	07:58	Incoming	No
7/28/2021 09:17:44	00:04	Outgoing	No
7/28/2021 09:27:16	04:26	Incoming	No
7/28/2021 12:42:37	00:14	Incoming	Yes
7/28/2021 13:33:55	12:42	Incoming	No
7/28/2021 15:51:56	00:58	Incoming	Yes
7/28/2021 18:59:32	04:40	Outgoing	No
7/28/2021 19:21:38	00:03	Incoming	Yes
7/29/2021 07:30:11	02:56	Outgoing	No
7/29/2021 07:40:09	05:23	Outgoing	No
7/29/2021 14:36:03	00:49	Incoming	No
7/29/2021 14:54:00	00:12	Incoming	No
7/29/2021 19:01:19	02:28	Outgoing	No
7/30/2021 14:53:01	00:53	Incoming	Yes

2.2.2. Text and Picture/Video Message Activity

No picture/video message activities were noted in the period of records provided. Standard SMS text message activity is noted below.

Table 2. Text message activity.

Date & Time (EDT)	Direction
7/28/2021 10:42:03	*Incoming*
7/28/2021 12:04:18	*Incoming*
7/28/2021 15:46:48	*Incoming*
7/28/2021 15:52:54	**Incoming**
7/29/2021 00:21:28	*Incoming*
7/29/2021 12:04:17	*Incoming*
7/29/2021 12:25:38	*Incoming*
7/29/2021 14:35:23	*Incoming*
7/30/2021 06:00:13	*Incoming*
7/30/2021 11:56:32	*Incoming*
7/30/2021 14:52:29	*Incoming*
7/30/2021 14:53:54	**Incoming**
7/30/2021 14:55:02	*Incoming*
7/30/2021 18:01:59	*Incoming*
7/30/2021 20:34:15	*Incoming*
7/30/2021 21:23:50	*Incoming*

2.2.3. Internet Connection Activity

Table 3. Internet connection activity over TDR2.

Start Date & Time (EDT)	End Date & Time	Total MB
7/28/2021 00:24:36	7/28/2021 06:24:21	0.192
7/28/2021 00:26:50	7/28/2021 06:26:50	2.577
7/28/2021 06:24:21	7/28/2021 12:24:06	0.947
7/28/2021 06:26:50	7/28/2021 12:26:50	1.083
7/28/2021 12:24:06	7/28/2021 18:23:51	175.322
7/28/2021 12:26:50	7/28/2021 18:26:50	5.193
7/28/2021 18:23:51	7/29/2021 00:23:36	182.899
7/28/2021 18:26:50	7/29/2021 00:26:50	1.219
7/28/2021 18:34:13	7/28/2021 18:48:58	0.007
7/29/2021 00:23:36	7/29/2021 06:23:21	0.141
7/29/2021 00:26:50	7/29/2021 06:26:50	0.01
7/29/2021 06:23:21	7/29/2021 12:23:06	0.418
7/29/2021 06:26:50	7/29/2021 12:26:50	1.975
7/29/2021 12:23:06	7/29/2021 18:22:51	309.088
7/29/2021 12:26:50	7/29/2021 18:26:50	0.318

Start Date & Time (EDT)	End Date & Time	Total MB
7/29/2021 18:22:51	7/30/2021 00:22:36	124.045
7/29/2021 18:26:50	7/30/2021 00:26:50	0.671
7/30/2021 00:22:36	7/30/2021 06:22:21	0.212
7/30/2021 00:26:50	7/30/2021 06:26:50	0.012
7/30/2021 06:22:21	7/30/2021 12:22:06	329.063
7/30/2021 06:26:50	7/30/2021 12:26:50	0.016
7/30/2021 12:22:06	7/30/2021 14:31:59	158.526
7/30/2021 12:26:50	7/30/2021 14:31:59	0.003
7/30/2021 14:31:59	7/30/2021 20:31:59	0.039
7/30/2021 14:32:00	7/30/2021 14:32:14	0.012
7/30/2021 14:32:17	7/30/2021 20:32:02	83.562
7/30/2021 20:31:59	7/31/2021 02:31:59	0.044
7/30/2021 20:32:02	7/31/2021 02:31:47	3.173

Table 4. Internet connection activity over BDR-3G.

Port Alloc Date & Time (EDT)	Port Dealloc Date & Time	Block Start	Block End
7/30/2021 14:23:04	7/30/2021 15:38:13	19360	19391
7/30/2021 14:24:55	7/30/2021 15:30:55	53664	53695

Table 5. Internet connection activity over BDR-4G.

Port Alloc Date & Time (EDT)	Port Dealloc Date & Time	Block Start	Block End
7/27/2021 22:54:49	7/27/2021 23:25:31	9856	9887
7/28/2021 03:28:18	7/28/2021 04:26:40	10624	10655
7/28/2021 05:04:15	7/28/2021 05:34:47	10976	11007
7/28/2021 07:47:13	7/28/2021 10:03:36	6400	6431
7/28/2021 12:42:56	7/29/2021 00:13:34	35776	35807
7/28/2021 18:34:13	7/28/2021 18:48:58	12960	12991
7/29/2021 01:50:51	7/29/2021 02:38:55	8320	8351
7/29/2021 03:28:37	7/29/2021 04:00:49	6816	6847
7/29/2021 06:28:34	7/29/2021 06:59:01	60800	60831
7/29/2021 07:29:49	7/29/2021 08:04:46	10720	10751
7/29/2021 10:19:21	7/29/2021 10:54:31	58528	58559
7/29/2021 11:05:31	7/29/2021 11:39:19	4896	4927
7/29/2021 12:30:40	7/29/2021 20:19:45	10560	10591
7/29/2021 14:29:54	7/29/2021 15:06:25	4480	4511
7/29/2021 18:43:41	7/29/2021 19:31:30	5696	5727
7/29/2021 18:43:49	7/29/2021 19:14:32	6848	6879
7/29/2021 20:27:28	7/30/2021 01:03:04	9472	9503
7/30/2021 01:13:46	7/30/2021 01:48:37	58720	58751
7/30/2021 01:57:21	7/30/2021 02:47:28	4640	4671

Port Alloc Date & Time (EDT)	Port Dealloc Date & Time	Block Start	Block End
7/30/2021 03:16:05	7/30/2021 04:14:21	8768	8799
7/30/2021 08:39:55	7/30/2021 09:11:24	53344	53375
7/30/2021 09:20:55	7/30/2021 14:31:59	38432	38463
7/30/2021 09:34:16	7/30/2021 10:38:03	5280	5311
7/30/2021 09:35:42	7/30/2021 10:06:05	4736	4767
7/30/2021 14:32:03	7/30/2021 14:32:14	4480	4511
7/30/2021 14:32:19	7/31/2021 06:19:58	11840	11871
7/30/2021 14:34:18	7/30/2021 15:21:21	4416	4447
7/30/2021 14:34:31	7/30/2021 15:05:47	12640	12671
7/30/2021 14:35:20	7/30/2021 15:07:24	10720	10751

Total MB: Total megabytes of data transferred.

Block Start: Starting number of port allocation range.

Block End: Ending number of port allocation range.

Note: TDR2, BDR-3G, and BDR-4G are Verizon terms for LTE data session. LTE stands for Long Term Evolution; it's a term used for the particular type of 4G that delivers the fastest mobile Internet experience.