



**NATIONAL TRANSPORTATION SAFETY BOARD  
OFFICE OF HIGHWAY SAFETY  
WASHINGTON, D.C.**

**HUMAN PERFORMANCE FACTORS GROUP CHAIRMAN'S  
FACTUAL REPORT**

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**A. CRASH INFORMATION**

Location: 1300 block of Seabreeze Boulevard, Fort Lauderdale, Broward County, Florida

Vehicle #1: 2014 Tesla Model S P85D

Date: Tuesday, May 8, 2018

Time: 6:46 p.m. local time

NTSB #: **HWY18FH013**

**B. HUMAN PERFORMANCE FACTORS GROUP**

Dennis Collins, Senior Human Performance Factors Investigator, Group Chairman  
NTSB Office of Highway Safety  
490 L'Enfant Plaza East, S.W., Washington, DC 20594

**C. CRASH SUMMARY**

For a summary of the crash, refer to the *Crash Summary Report* in the docket for this investigation.

**D. DETAILS OF THE HUMAN PERFORMANCE FACTORS INVESTIGATION**

The Human Performance factual investigation focused on the behavioral, medical, operational, and environmental factors associated with the driver of the 2014 Tesla Model S (hereafter the Tesla).

**1. Driver of the Tesla**

At the time of the crash, Tesla was being operated by an 18-year-old male, who held a Class "E" Florida driver's license issued in May of 2016 and expiring in June of 2023. The driver

first obtained a driver's license in April of 2015.<sup>1</sup> The driver was killed in the crash, as was one of his two passengers.

### 1.1. Driver Activities Prior to the Crash

Based on cellular telephone records<sup>2</sup> and NTSB interviews with the surviving passenger and the fatally injured passenger's father,<sup>3</sup> the following table of activities for the driver was created.

Table 1. Summary of Driver Activities Prior to the Crash

Saturday, May 5, 2018		
<i>Time</i>	<i>Description</i>	<i>Source</i>
5:23 a.m.	Driver receives incoming text message (first activity of day)	Cell records
10:24 p.m.	Driver makes outgoing call (last activity of day)	Cell records
Sunday, May 6, 2018		
<i>Time</i>	<i>Description</i>	<i>Source</i>
5:43 a.m.	Driver receives incoming text message (first activity of day)	Cell records
8:38 p.m.	Driver makes outgoing call (last activity of day)	Cell records
Monday, May 7, 2018		
<i>Time</i>	<i>Description</i>	<i>Source</i>
5:59 a.m.	Driver receives incoming text message (first activity of day)	Cell records
5:54 p.m.	Driver receives incoming call (last activity of day)	Cell records
Tuesday, May 8, 2018		
<i>Time</i>	<i>Description</i>	<i>Source</i>
5:16 a.m.	Driver receives incoming text message (first activity of day)	Cell records
~4:00 p.m.	Friend arrives at driver's home	Interviews
unknown	Driver eats with friends at Houston's	Interviews
unknown	Driver and friends go to Galleria, 2414 East Sunrise Blvd	Interviews
unknown	Driver and friends depart Galleria for driver's home	Interviews
6:12 p.m.	Driver receives incoming call (last activity before crash)	Cell records
6:46 p.m.	<b>ESTIMATED TIME OF CRASH</b>	

### 1.2. Driver Health

#### 1.2.1. Medical Providers

Investigators located one physician who had treated the driver, an allergist who saw the driver once in 2016. Investigators were unable to locate any additional providers who had treated the driver during the period from January 1, 2015 to the day of the crash.

<sup>1</sup> Human Performance Attachment – State of Florida DAVID record.

<sup>2</sup> Human Performance Attachment – Driver Cellular Telephone Records.

<sup>3</sup> Available as an attachment to the Survival Factors Group Chairman's Factual Report.

### 1.2.2. Driver's Family

When interviewed by NTSB investigators, the driver's father did not provide any information on the driver's health.

### 1.2.3. Medications (Prescription, Over-the-Counter, Other)

A canvas of local pharmacies revealed one prescription for the driver filled in August of 2017; the medication was prescribed by the allergist mentioned in section 1.2.1 of this report. No additional prescription records in the name of the driver were located. When interviewed by police,<sup>4</sup> the surviving passenger stated he was unaware of the driver taking any medications on the day of the crash.

### 1.2.4. Drugs and Alcohol

It could not be determined from an interview with the driver's father if the driver used alcohol or illicit drugs. The surviving passenger denied seeing the driver consume any alcohol or take any drugs prior to the crash.

### 1.2.5. Post-Crash Toxicology

Following the crash, an autopsy of the driver was performed by the Broward County Medical Center, including toxicological testing.<sup>5</sup> The testing indicated a carboxyhemoglobin saturation level of 11%. The driver's blood sample tested negative for prescription, over-the-counter, or illicit drugs and ethanol (alcohol).<sup>6</sup>

## 1.3. Psychological Factors

No information on the driver's psychological state was gathered.

## 1.4. Sleep Habits

No information on the driver's sleep habits, or the quality and quantity of that sleep, was gathered from his family. Investigators used cellular telephone records and interviews to create the following table of opportunity to rest:

Table 2. Driver's Opportunity to Rest

From		To		Time Available
Date	Time	Date	Time	
May 5, 2018	10:24 p.m.	May 6, 2018	5:42 a.m.	7 hours 18 minutes
May 6, 2018	8:38 p.m.	May 7, 2018	5:59 a.m.	9 hours 21 minutes
May 7, 2018	5:54 p.m.	May 8, 2018	5:16 a.m.	11 hours 38 minutes

<sup>4</sup> See transcript of police interview, available in the docket.

<sup>5</sup> Human Performance Attachment – Post-mortem Toxicology Results.

<sup>6</sup> The Chief Toxicologist of Broward County, Florida indicated the testing performed on this sample covered approximately 140 drugs.

## 1.5. Training/Experience/Driving History

As stated above, the driver had held a driver's license for approximately three years. The driver's father told investigators he gave the Tesla to the driver to use at the end of 2017.<sup>7</sup> The surviving passenger told investigators the driver used the Tesla daily and was familiar with the roadway in the vicinity of the crash.

Records from the Florida Department of Highway Safety and Motor Vehicles, the driver of the Tesla received a traffic citation for driving 112 miles per hour (mph) in an area with a 50-mph speed limit on March 3, 2018.<sup>8</sup> On April 6, 2018, a judge held punishment in abeyance in exchange for driver attending a driver improvement course and paying a fine. According to the driver's father, the driver had not the course at the time of this crash.<sup>9</sup> This was the only violation on his record.

Following the citation, the driver's father grounded the driver, forbidding him to drive, and contacted Tesla to place restrictions on the vehicle. Tesla indicated they could place the vehicle in "valet mode", which would restrict the car to 25-50% of its normal acceleration and a top speed of 70 mph. However, this would also prevent access to the glove compartment and front trunk. Finding this inconvenient in a family car, the driver's father spoke to Tesla again, who placed the vehicle in "loaner mode". In this mode, the vehicle is restricted to a maximum speed of 85 mph. With the restrictions in place, the driver's father allowed him to resume driving. Vehicle data suggests this mode was activated on March 6, 2018. The vehicle developed a fault and was in for service from March 8, 2018 to April 3, 2018. Tesla advised "loaner mode" was deactivated at the request of the driver (who had been given the authority to make service decisions for the vehicle by his father) on April 4, 2018. In further discussions with NTSB investigators, Tesla employees stated that "loaner mode" was intended for service or fleet vehicles and should not have been activated on this vehicle.<sup>10</sup>

Maximum speed data from the vehicle was obtained by NTSB investigators and examined. Data was available for 93 of the 124 days from January 1, 2018 through May 8, 2018. In those 93 days, the Tesla recorded a top daily speed between 90 and 99 miles per hour (mph) 19 times and a top daily speed of 100 mph or higher 29 times. Following the court appearance on the speeding citation (April 6, 2018), the vehicle reached a top daily speed between 90 and 99 mph 3 times over 25 days and a top daily speed of 100 mph or higher 8 times over 25 days. The highest maximum daily speed in the data was 133.4 mph, recorded on April 7, 2018, the day following the driver's court appearance.

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<sup>7</sup> See the attachments to the Survival Factors Group Chairman's Factual Report.

<sup>8</sup> Human Performance Attachment – Traffic Citation and Adjudication.

<sup>9</sup> The interview of the driver's father is available in the docket as an attachment to the Survival Factors Group Chairman's Factual Report.

<sup>10</sup> See attachments to the Survival Factors Group Chairman's Factual Report in the docket.

## **1.6. Distractions Inside the Vehicle**

Records from the driver's cellular service provider were obtained and examined. The driver's last voice or texting activity was approximately 30 minutes prior to the crash.

## **1.7. Distractions Outside the Vehicle**

Investigators conducted an examination of the scene under time of day, weather, and illumination conditions similar to those at the time of the crash. No reflections, large reflective surfaces, or unusual roadside features or signage was present.

## **1.8. Crash Trip**

At the time of the crash, the driver was going from the Fort Lauderdale Galleria mall to his residence, approximately 4.3 miles. When the crash occurred, the driver had gone approximately 3.1 miles, with 1.2 miles remaining in the trip. The surviving passenger told NTSB investigators that just prior to the crash, he observed the Tesla's speedometer and the vehicle was traveling at approximately 100 mph and that as the driver steered into the turn at the crash location, the vehicle's tires "squealed".

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## **2. Other Factors**

### **2.1. Global Positioning System Location**

NTSB investigators used the Compass application on an iPhone running version 11.3 of the operating system to record the following coordinates for the crash scene:

Latitude: 26° 6' 26" N

Longitude: 80° 6' 29" W

### **2.2. Weather**

Data from weather station KFLL in Fort Lauderdale, for May 8, 2018 was downloaded from the Weather Underground, <http://www.weatherunderground.com>.<sup>11</sup> Data for the observation closest to the time of the crash are shown below.

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<sup>11</sup> Human Performance Attachment – Weather Data, Station KFLL.

Table 2. Weather Data from KFLI for May 8, 2018.

<b>Time (EDT)</b>	6:53 p.m.
<b>Temperature</b>	79.0° F
<b>Heat Index</b>	-
<b>Dew Point</b>	66.0° F
<b>Humidity</b>	64%
<b>Pressure</b>	29.98 in
<b>Visibility</b>	10 mi
<b>Wind Dir.</b>	NNE
<b>Wind Speed</b>	10.4 mph
<b>Wind Gust Speed</b>	23 mph
<b>Precipitation</b>	N/A

### 2.3. Illumination

According to the U.S. Naval Observatory Astronomical Applications Department,<sup>12</sup> for the accident location on May 8, 2018, sun transit was at 1:17 p.m. and sunset occurred at 7:56 p.m. At the time of the crash, at the crash location, the sun was 14.3 degrees above the horizon at an azimuth of 282.5 degrees east of true north. The sun’s position is depicted graphically in figure 1.

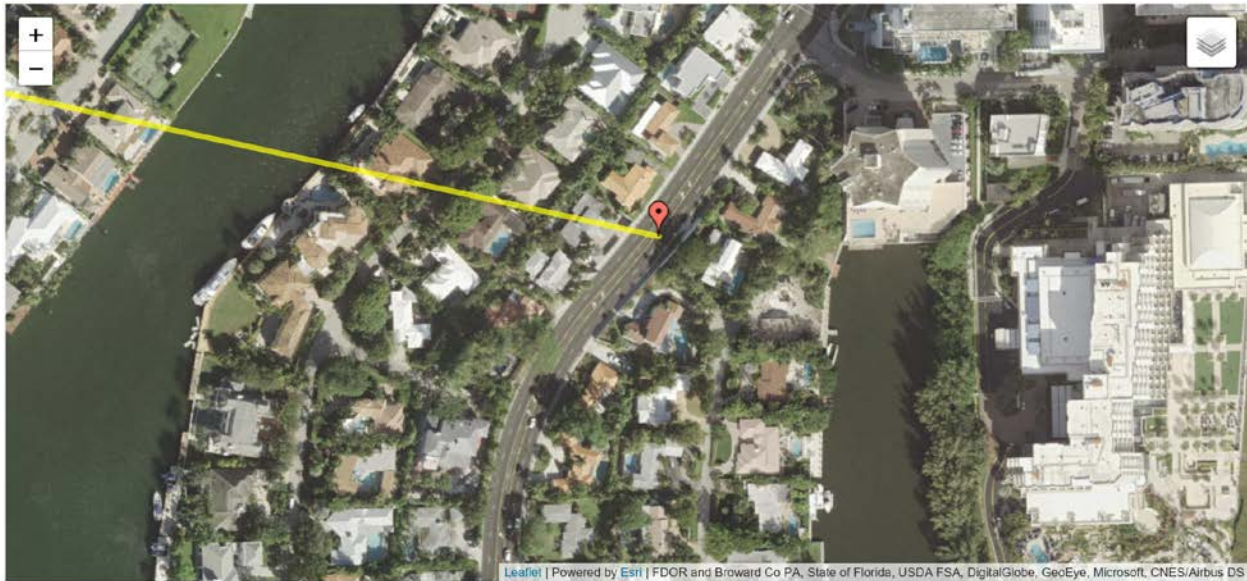


Figure 1. Sun’s position at the time and place of the crash.

<sup>12</sup> Human Performance Attachment – Astronomical Data.

**E. DOCKET MATERIAL**

The following attachments and photographs are included in the docket for this investigation:

LIST OF ATTACHMENTS

Human Performance Factual Report Attachment - State of Florida DAVID Record

Human Performance Factual Report Attachment - Driver Cellular Telephone Records

Human Performance Factual Report Attachment - Post-mortem Toxicology Results

Human Performance Factual Report Attachment - Traffic Citation and Adjudication

Human Performance Factual Report Attachment - Weather data, Station KFLI

Human Performance Factual Report Attachment – Astronomical Data

LIST OF PHOTOGRAPHS

NONE

END OF REPORT

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Dennis J. Collins  
Senior Highway Investigator (Human Performance)