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Special Crash Investigations: Remote Hyperthermia Fatality Investigation; Vehicle: 2013 Kia Optima; Location: California; Incident Date: July 2020

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15. Supplementary Notes Each crash represents a unique sequence of events and generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems. This report and associated case data are based on information available to the Special Crash Investigation team on the date this report was published.					
16. Abstract This report documents the remote investigation of the hyperthermia death of a 22-month-old male child who was left unattended in a parked 2013 Kia Optima for an extended period during the day. This incident occurred in the parking area of an apartment complex. The 2013 Kia Optima was parked in a parking space on the property on the north side of the complex facing east. The caregivers on the day of the incident were the child's 55-year-old grandmother and 28-year-old father. The grandmother, the child, the child's mother, and older sister live in the same apartment. The father of the child was visiting on this day but lives in a different city. On the day of the incident the child's mother asked the grandmother to take the child to daycare. The child was placed in the second row right seat of the Kia in a child restraint system (CRS) by his father. The family left the residence believing that the grandmother was going to take care of the child. The grandmother believed that the family had taken the child with them. Later that afternoon, the family returned to the apartment. The grandmother was either outside watering plants or was in a garage. The father went to the Kia, found the child, and brought him inside the apartment. EMS services were called. The police arrived first and began CPR. The fire department arrived shortly after that and took over resuscitative efforts. The child was placed on a cardiac monitor and was found to not have a heartbeat. The EMS base hospital was contacted and the child was pronounced deceased.					
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**Special Crash Investigations
Remote Hyperthermia Fatality Investigation
Case Number: DS20009
Vehicle: 2013 Kia Optima
Location: California
Incident Date: July 2020**

Background

This report documents the remote investigation of the hyperthermia death of a 22-month-old male child who was left unattended in a parked 2013 Kia Optima for an extended period of time during the day. The investigation was intended to determine the events leading up to the incident, the actions of the caregiver/guardian, the vehicle characteristics and equipment, the environment/scene conditions and layout, and the activities of the involved child. The incident was identified as part of a hyperthermia study by the National Highway Traffic Safety Administration and assigned to the Special Crash Investigations (SCI) team in July 2020. A general offense report, autopsy report, and EMS report were obtained.

Summary

Incident Site

This incident occurred in the parking area of an apartment complex. The parking area was east of a driveway leading into the apartment complex from an east/west urban roadway. The driveway provided access to additional apartment units. The involved two-story apartment was configured with four separate units, two on each level. The involved family resided in a first floor apartment with the front door facing west. The white Kia Optima was parked in a parking space on the north side of the complex facing east. The vehicle would have been partially in shadows at different points during the day. An incident site diagram and incident site satellite view are included at the end of this report.

Weather Data

On the day of the incident, the low temperature was 20 °C (69 °F) and the high temperature was 25 °C (77 °F). At 0945 hours, the solar azimuth angle was 92 degrees and the solar elevation angle was 46 degrees. At 1530 hours, the solar azimuth angle was 261 degrees and the solar elevation angle was 54 degrees. The table below documents the weather conditions for the duration of the incident.

Time (2400 hours)	Temperature°C (°F)	Humidity Percent	Heat Index °C (°F) (Calculated) ¹	Conditions
0953	21 (71)	68	22 (71)	Mostly cloudy
1053	22 (73)	66	23 (73)	Fair
1153	23 (75)	62	24 (75)	Fair
1253	23 (75)	60	24 (75)	Fair
1353	24 (76)	58	24 (76)	Fair
1453	24 (76)	58	24 (76)	Fair
1553	25 (77)	58	25 (77)	Fair

Vehicle Information

The 2013 Kia Optima 4-door sedan was identified by the Vehicle Identification Number 5XXGN4A71DGxxxxxx and was manufactured in August 2013. The Kia had a 2.4-liter, 4-cylinder, gasoline engine, a 6-speed automatic transmission, and front wheel drive.

Standard equipment included air conditioning and power windows. The vehicle's exterior color was Snow White Pearl (white) and the interior color was gray. The interior had two rows of seating for five occupants. The front row had bucket seats and the second row had a split-bench seat with folding back.

¹ <https://www.wpc.ncep.noaa.gov/html/heatindex.shtml>

The Kia had pull-out type exterior door handles with an “intelligent” key and a mechanical key in the intelligent key. The doors were closed during the incident. It is not known if the doors were locked.

The Kia had second-row child safety door locks to prevent occupants from opening the doors from the inside. The locks are located on the edge of the rear doors. When the child safety lock is in the lock position the rear door will not open even when the inner door handle is pulled. To open the rear door a person must pull the outside door handle. Even if the doors are unlocked the rear door will not open by pulling the inner door handle until the rear door safety lock is unlocked. The status of the child safety door locks during the incident was unknown.

Pre-Incident

The caregivers on the day of the incident were the child’s 55-year-old grandmother and the child’s 28-year-old father. The grandmother, the child, the child’s 27-year-old mother, and older sister live in the same apartment. The child’s father did not live at this address.

The events during the day of the incident had typical and atypical aspects. The grandmother regularly babysat the child. On a typical day when the mother worked the caregiver transports the child to daycare. The Kia belonged to the grandmother. The mother was not working on the day of the incident. The father arrived earlier in the morning to spend time with the family for his birthday.

The white Kia Optima was parked in a parking space on the property on the north side of the complex facing east. On the day of the incident between 0930-0945 hours, the child’s mother asked the grandmother to take the child to daycare.

Incident

The mother, father, and oldest child planned to go to gymnastics practice while the grandmother took the child to daycare. The mother, father, the child and oldest child exited the apartment. While the grandmother was still inside, the child’s father placed the child in the second row right seat of the grandmother’s Kia in a child restraint system (CRS). At approximately 0945 hours, the child’s mother and father took their oldest child to gymnastics practice in the mother’s vehicle, a different Kia SUV.

The grandmother’s account differed from the father’s. She reported that after finding her sandals she walked outside to the driveway and noticed that the Kia SUV had left and that all the doors to her white Kia were closed. The grandmother reported that she believed the non-motorist had left with the rest of the family in the other vehicle. She did not check inside her vehicle or communicate with her daughter. The windows and doors of the Kia were closed throughout the event. The temperature in the area at 0953 hours was 21 °C (71 °F).

After dropping off their daughter at gymnastics practice, the mother then took the father to his residence in a different city. The mother returned to her home alone at approximately 1100 hours. She did not see the grandmother or the child. Where the grandmother was at this time is not known. The mother entered the apartment, smoked marijuana, ate, took a shower, watched television, and took a half-hour nap. Between 1230 to 1245 hours she left the apartment to pick up her oldest child from gymnastics. After picking her up, she picked up the non-motorist’s father, and the three of them stayed together as a group. The mother stated that they just “hung out” at an unknown location during this time.

Post-Incident

At approximately 1530 hours the family returned to the apartment. The temperature at 1553 hours was 25 °C (77 °F). The father found the child in the Kia, and brought him inside the apartment.

The police were contacted at approximately 4 minutes after the family returned and arrived shortly thereafter. Upon their arrival they were directed to the apartment and found the child on a couch. Officers began manual CPR and attached an automated external defibrillator (AED). The AED indicated that no shock was advised. The fire department were notified 1 minute after the police and arrived 6 minutes later with one suppression unit and four personnel. The child was placed on a cardiac monitor and was found to be asystole. The child was also found to be cool to the touch and rigor had set in. The fire department contacted its base hospital and the child was pronounced deceased 12 minutes after the initial notification. The child was transported to the county medical examiner for an autopsy. The cause of death was reported as clinical hyperthermia.

Caregiver/Guardian Data

The primary caregiver on the day of the incident was a 55-year-old female. She was the caregiver's grandmother. The caregiver, the child's mother, and older sister live in the same apartment. The family used her as a babysitter approximately three times per week. She did not have a set schedule as to what days she would take the child to daycare. The frequency and days were dependent on the mother's work schedule.

The secondary caregiver on the day of the incident was the 28-year-old father of the child.

It is not known if either of the caregivers were aware of any specific information related to the dangers of leaving children in hot cars or of any government safety campaigns related to that topic.

Child Data

Age/sex:	22-month-old/male
Height:	84 cm (33 in)
Weight:	12 kg (27 lbs)
Seat type:	Split-bench seat with folding back
Restraint usage:	CRS with internal harness used
Transport from scene:	None
Type of medical treatment:	On-site lifesaving measures

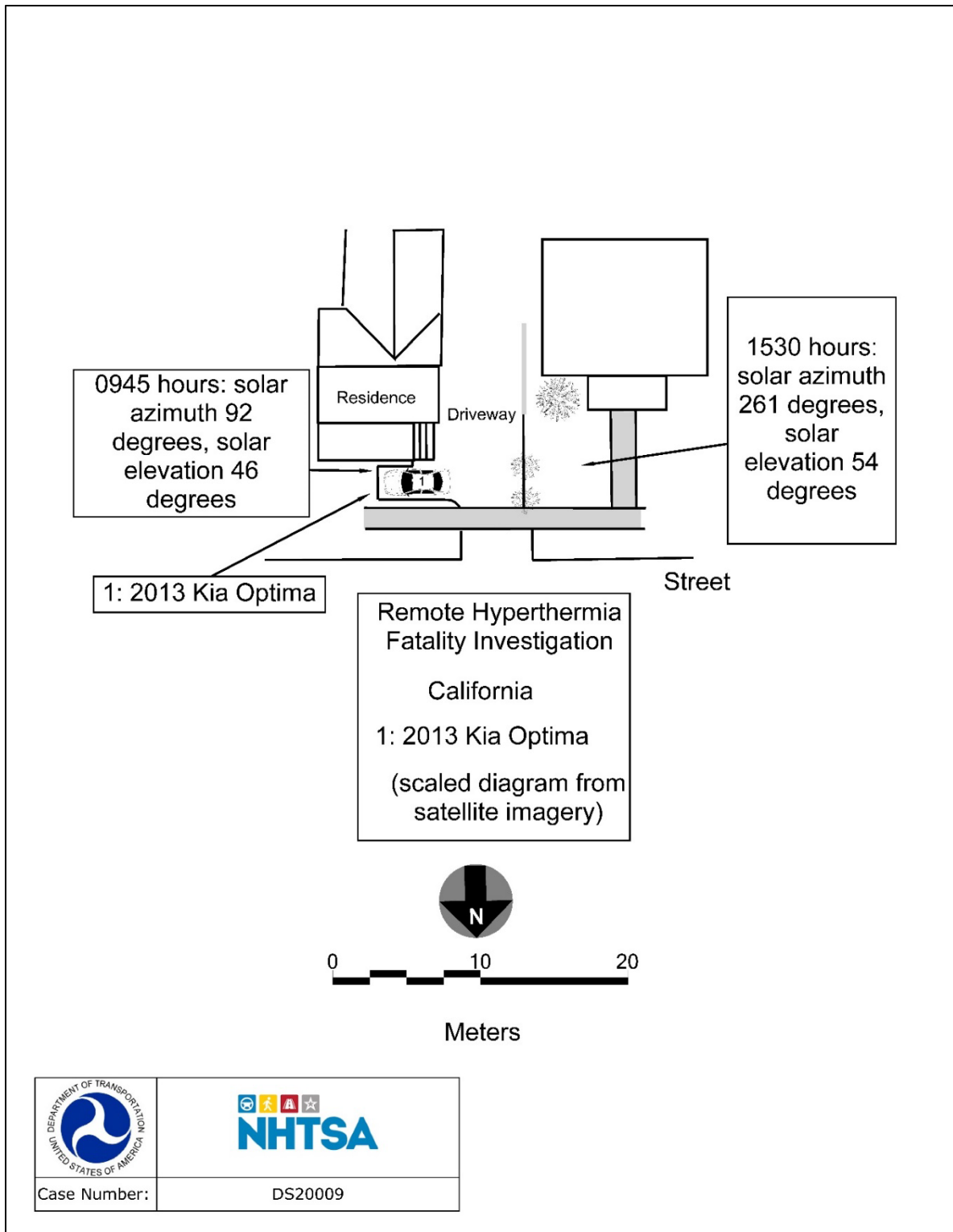
The child was seated in a forward-facing Graco Milestone 3-in-1 combination CRS positioned in the second row right position. It was not known how the CRS was anchored to the vehicle. He had been placed in the CRS by his father. The internal harness was buckled. He was wearing a blue shirt, blue/gray shorts, black/blue shoes, blue socks and a diaper.

Child Injuries

Injury No.	Injury	Injury Severity AIS 2015	Involved Physical Component (IPC)	IPC Confidence Level
1	Hyperthermia (core temperature not known)	010200.1	Non-contact	Certain

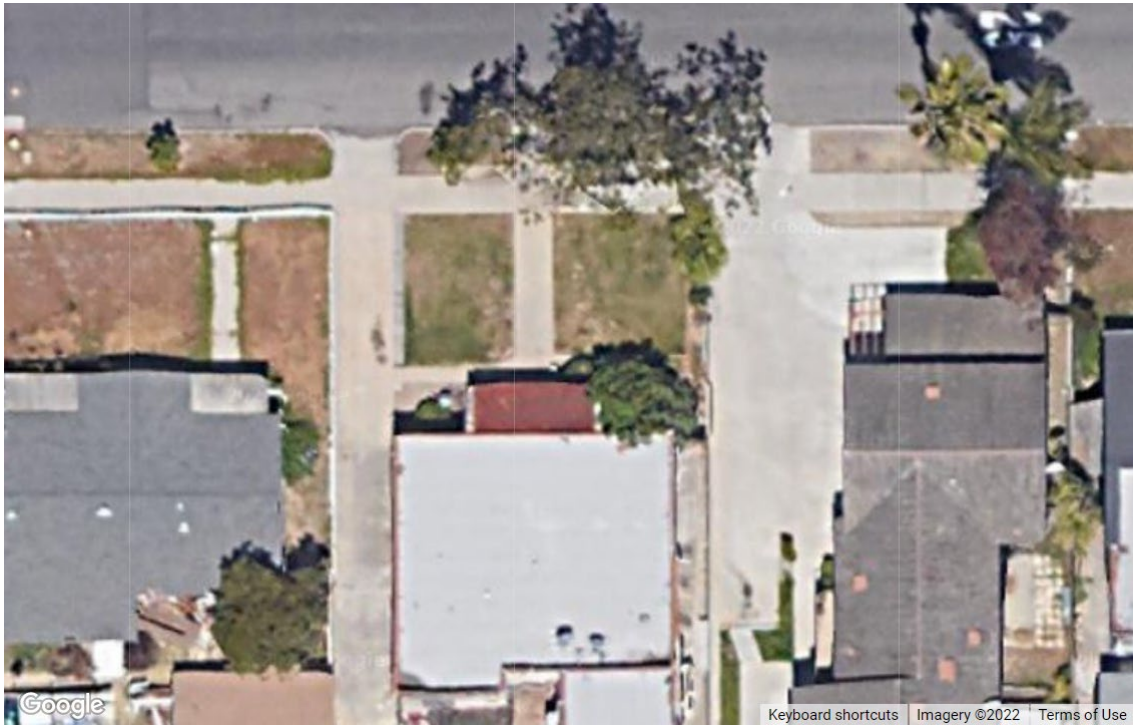
Source: autopsy report

Incident Site



Incident Site Satellite View

(Image source: Google Maps © 2022 Maxar Technologies)



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