

September 27, 2023

Peter Kivett, Chief
Vehicle Defects Division C
Office of Defects Investigation
National Highway Traffic Safety Administration
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

RE: PE23-011 – Response to Agency Information Request

Dear Mr. Kivett:

Enclosed is Hyundai Motor America (“HMA” or “Hyundai”)’s response to the Office of Defects Investigation (“ODI”) June 28, 2023 Information Request with regard to PE23-011 to investigate allegations of reduced or complete loss of motive power and failure of the Integrated Charging Control Unit (“ICCU”) in certain model year (“MY”) 2022 and 2023 Hyundai IONIQ 5 electric vehicles manufactured by Hyundai.

I. Freedom of Information Act Protections

Please note that this response contains confidential business information for which HMA requests confidential treatment. HMA has provided a redacted version of all documents that contain confidential information along with this response and is submitting a request for confidential treatment pursuant to 49 C.F.R. Part 512 in conjunction with this response.

In addition, HMA believes NHTSA’s policy is to protect the privacy of individuals under exemption 6 of the Freedom of Information Act, 5 U.S.C. Section 552(b)(6). The names, addresses, and other personal information of owners or other individuals, including HMA personnel, contained in this response or any of its attachments should not be made available to the public. Therefore, HMA asserts that any private information concerning individuals should not be made public.

II. General Objections

The General Objections set forth below are incorporated by reference into HMA’s responses to the Information Request. These General Objections are deemed continuing as to each subpart of the Information Request, and are not waived, nor in any way limited, by the specific responses to a subpart, nor should the failure to specifically incorporate the General Objections be construed as a waiver. Moreover, any applicable, good faith objection not raised in this section shall not be interpreted as a waiver.

The information provided in this response reflects HMA’s best understanding of the data as of this date. HMA has made a good faith effort to collect the information necessary to respond to

the Information Request and reserves the right to amend and/or supplement this response, as appropriate. HMA reserves the right to recapture privileged or otherwise protected or exempted documents that may have been inadvertently produced in response to this Information Request. Any inadvertent production of privileged material is not, and should not be interpreted as, a waiver of any applicable privilege.

In accordance with this request, HMA has conducted reasonable, good faith searches of corporate records available from those departments knowledgeable about the subject matter of this inquiry. However, the definition of “document(s)” in the Information Request is unreasonably broad and ambiguous in the context of the information sought by this Information Request.

HMA’s response to this Information Request was based on good faith searches of locations where documents determined to be responsive to the Information Request would normally be found and in consultation with current personnel knowledgeable about the information requested.

III. Specific Responses

1. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, “actions”) that relate to, or may relate to, the alleged defect in the subject vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for, Hyundai. For each such action, provide the following information:

- a. Action title or identifier;**
- b. The actual or planned start date;**
- c. The actual or expected end date;**
- d. Brief summary of the subject and objective of the action;**
- e. Engineering group(s)/supplier(s) responsible for designing and for conducting the action; and**
- f. A brief summary of the findings and/or conclusions resulting from the action.**

For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

Response to Request 1

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The information provided in this response was obtained from HMC. Information responsive to this Request was last gathered in September 2023.

2. **Describe all modifications or changes made by, or on behalf of, Hyundai in the design, material composition, manufacture, quality control, supply, or installation of the subject component, from the start of production to date, which relate to, or may relate to, the alleged defect in the subject vehicles. For each such modification or change, provide the following information:**
 - a. **The date or approximate date on which the modification or change was incorporated into vehicle production;**
 - b. **A detailed description of the modification or change;**
 - c. **The reason(s) for the modification or change;**
 - d. **The part number(s) (service and engineering) of the original component;**
 - e. **The part number(s) (service and engineering) of the modified component;**
 - f. **Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;**
 - g. **When the modified component was made available as a service component; and**
 - h. **Whether the modified component can be interchanged with earlier production components.**

Also, provide the above information for any modification or change that Hyundai is aware of which may be incorporated into vehicle production within the next 120 days.

Response to Request 2

Modifications to the subject component that relate to, or may relate to, the alleged defect in the subject vehicles are described in *Attachment PE23-011 – Req. 2-001, Part Modifications and Attachment PE23-011 – Req. 2-002, Spec Change Detail*.

The information provided in this response was obtained from HMC. Information responsive to this Request was last gathered in August 2023.

3. **State the number of each of the following that Hyundai has sold that may be used in the subject vehicles by component name, part number (both service and engineering/production), model and model year of the vehicle in which it is used and month/year of sale (including the cut-off date for sales, if applicable):**
 - a. **Subject component;**
 - b. **Any kits that have been released, or developed, by Hyundai for use in service repairs to the subject component/assembly.**

For each component part number, provide the supplier's name, address, and appropriate point of contact (name, title, and telephone number). Also identify by make, model and model year, any other vehicles of which Hyundai is aware that contain

the identical component, whether installed in production or in service, and state the applicable dates of production or service usage.

Response to Request 3

The part sales information responsive to Request 3 is provided in *Attachment PE23-011 – Req. 3-001, Part Sales*.

An identical component with revised software was released in July 2023, but there were no sales of this component as of the date information was collected for this response.

The supplier contact information is:

Hyundai Mobis Corp.

Address : 203 Teheran-ro, Gangnam-gu, Seoul 06141

Contact: Seungrae Kim, Team Leader, +82-2-2018-6654, holican@mobis.co.kr

There are no other Hyundai vehicles that contain the identical component.

The information provided in this response was obtained from HMA's Parts Department and from HMC. Information responsive to this Request was last gathered in July 2023.

4. Furnish Hyundai's assessment of the alleged defect in the subject vehicles, including:

- a. The causal or contributory factor(s);**
- b. The failure mechanism(s);**
- c. The failure mode(s);**
- d. The risk to motor vehicle safety that it poses;**
- e. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring, or subject component was malfunctioning; and**
- f. The reports included in our first information request letter dated June 23, 2023.**

Response to Request 4

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The information provided in this response was obtained from HMA’s North American Safety Office (NASO) and from HMC’s Korea Automotive Safety Office (“KASO”). Information responsive to this Request was last gathered in September 2023.

5. Provide responses to each item below and all related design and/or test documents:

- a. Detailed description of the design, function, logic, and principles of operation of the subject components.**
- b. Detailed description of the parameters and logic that trigger Diagnostic Trouble Code P1A9096 – DC/DC Converter Input Voltage Sensor Fault.**
- c. Detailed description of the design and function of the DC/DC Converter Input Voltage Sensor.**
- d. Design specification for the DC/DC Converter Input Voltage Sensor, ICCU Fuse, all Field Effect Transistors (FET), and 12V auxiliary battery**
- e. Manufacturing first article test records and production lot test records for the DC/DC Converter Input Voltage Sensor, ICCU Fuse, all Field Effect Transistors (FET), and 12V auxiliary battery.**
- f. A complete list with a detailed description including the range of voltage draw from the 12V battery, for all items, components, and accessories, that draw a load from the 12V battery.¹**
- g. Provide a detailed description and test results for any and all vehicle safety systems that have diminished functionality at any point during the sequence of ICCU and 12V battery failure.²**

Response to Request 5

- a. A detailed description of the design, function, logic and principles of operation of the subject component is provided in *Attachment PE23-011 – Req. 5a - 001*.
- b. A detailed description of the parameters and logic that trigger Diagnostic Trouble Code P1A9096 – DC/DC Converter Input Voltage Sensor Fault is provided in *Attachment PE23-011 – Req. 5b - 002*.
- c. A detailed description of the design and function of the DC/DC Converter Input Voltage Sensor is provided in *Attachment PE23-011 – Req. 5c - 003*.

¹ Request 5.f was revised pursuant to ODI’s July 26, 2023 memorandum.

² Request 5.g was added pursuant to ODI’s July 26, 2023 memorandum.

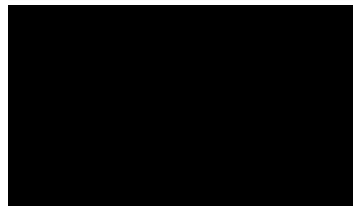
- d. Design specifications for the DC/DC Converter Input Voltage Sensor, ICCU Fuse, all Field Effect Transistors (FET), and 12V auxiliary battery are provided in *Attachment PE23-011 – Req. 5d - 004*.
- e. Manufacturing first article test records and production lot test records for the DC/DC Converter Input Voltage Sensor, ICCU Fuse, all Field Effect Transistors (FET), and 12V auxiliary battery are provided in *Attachments PE23-011 – Req. 5e – 005 through Req. 5e - 042*.
- f. A list of items, components, and accessories that draw a load from the 12V battery, with descriptions including the range of voltage draw from the 12V battery, is provided in *Attachments PE23-011 – Req. 5f - 043 through Req. 5f - 044*.
- g. Descriptions and test results for vehicle safety systems that have diminished functionality due to ICCU and 12V battery failure are provided in *Attachments PE23-011 – Req. 5g - 045 through Req. 5g - 048*.

The information provided in this response was obtained from HMC. Information responsive to this Request was last gathered in September 2023.

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Please let us know if you have any questions about this submission.

Sincerely,



Cole Stutz
Executive Director
Vehicle Safety Investigations
Hyundai Motor North America