Application for Certification - Part 1

Test Group (CBI)

- **Model Year:** 2027
- **Manufacturer Name:** Hyundai Motor Company
- **Test Group:** VHYXT00.0400
- **Test Group Description:** Battery Electric Vehicle
- **Durability Group:** VHYXEEENN400
- **Durability Group Description:** N/A
- **Vehicle Class:** LDT4
- **Applicable Standards:** FED: Tier-4 Bin 0
CAL: ACC2 ZEV
- **Vehicles Tested:** ME1-AU5EPER061A/0 (USA model)
ME1-KU5EPER060A/0 (CANADA model)
- **Carlines Covered by Certificate**: Ioniq 9 AWD Performance
- **EPA Response Requested by:** March 31, 2026
- **For Questions, Contact**: Stephanie Wright
734-273-1904
E-mail: swright@hatci.com

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01.00 Correspondence and Communications

Please refer to Common Section 01.00.

For questions, call Stephanie Wright (734-273-1904).

02.00 Durability Group Description

1. Durability Group Name : THYXEEENN400
2. Engine Type : Motor
3. Fuel Used : Electricity
4. Battery Capacity(s) : 180.9 Ah
5. Battery Chemistry(s) : NCM[*1]
6. Battery Duty Cycle Usage(s) : 10 years / 200,000km
7. Battery Manufacturer : Hyundai Mobis (SKON Chem.)
8. Battery Construction : 42 modules (504 cells in total)
9. Battery Self-Discharge Information : < 5% @ SOC 65%, RT for 6months
10. Description of the Thermal Management System : Coolant cooling system
11. Battery Disposal Plan : See Common Section 02.00

(Note) [*1] : Nickel Cobalt Manganese

02.01 List of Vehicles in Durability Groups

Please refer to Common Section 02.01.

02.02 Catalyst Information : Not Applicable

03.00 Evaporative/Refueling Family Description: Not Applicable

04.00 Durability Procedure Description: Not Applicable

05.00 Test Group Description

Test Group Name	:	VHYXT00.0400
Vehicle Class(s) Covered	:	FED – LDT4 CAL – PC
Sales Location/Emission Standard	:	FED - Tier-4 Bin 0 CAL - ACC2 ZEV See CSI report for emission standard levels

06.00 Test Vehicle Description

Durability Data Vehicle: Not Applicable

Emission Data Vehicle: Please refer to CSI report in 07.00

07.00 Test Results

07.01 EV-CIS Certification Summary Information

Certification Summary Information Report submitted to EV-CIS.
See 18.00

07.02 GHG CREE In-Use Emission Standard

Items \ T/M			Fixed Single Speed
ETW			6500
Tire			285/45R21 (Michelin*1)/Hankook/Goodyear*2))
Single Roll	Elec. Dyno. Target Coefficient	A	42.550
		B	0.13241
		C	0.025578
GHG CREE Cert. data (120K) (Sub-Configuration)			0
GHG CREE In-use Emission Standard (Sub-Configuration)			0.0
Tested Driver Select Shift / Multimode			Normal
SIL Equipped (Apply weight factor)			N/A
Optional CREE			N/A
Engine Code Equivalency			N/A
ADFE			N/A

*1) Tested tire
*2) This tire is unique for CANADA market.

08.00 Emission Compliance Statement: Not Applicable

09.00 OBD System Description

Battery electric vehicles are exempt from OBD requirements because they do not use emission control systems and/or components.

10.00 Description of Alternate-Fueled Vehicles: Not Applicable

11.00 AECD Description: Not Applicable

12.00 Description of Vehicles Covered by Certificate and Test Parameters

12.01 Vehicle Parameters

Carline		362
Model Name		Ioniq 9 AWD Performance
Vehicle Classification		LDT4
Emission Control System Description		N/A
Engine Code (Motor)		EM34
Number of Valves Per Cylinder		N/A
Engine Displacement (L)		N/A
Sales Area		50-State
Transmission and Overdrive		Fixed Single Speed
SIL		N/A
Tire Size		285/45R21 (Michelin*1)/Hankook/Goodyear*2))
N/V Ratios		147.2(Michelin) / 146.4(Hankook for USA) 147.6(Hankook for CANADA) / 146.7 (Good year)
ETW(lb)		6500
Elec. Dyno. Target Coefficient	A	Please refer to 12.02.01.
	B	
	C	
Motor	Type	PMSM*3)
	Max. Power (kW)	157.3kW (front motor) / 157.3kW (rear motor)
Battery	Type	Lithium ion
	Rated Voltage (V)	610
	Weight (kg)	625.4

(Note) *1) : Tested tire

*2) : This tire is unique for CANADA market.

*3) : Permanent Magnet Synchronous Motor

12.02 Test Parameters

12.02.01 Test Parameters

Items \ T/M			Fixed Single Speed
Model			Ioniq 9 AWD Performance
ETW			6500
Tire			285/45R21 (Michelin*1)/Hankook/Goodyear*2))
Single Roll	Elec. Dyno. Target Coefficient	A	42.550
		B	0.13241
		C	0.025578
Shift Schedule IDs			N/A
Evap. Code			N/A
Canister Loading	Flow Rate(g/hr)		N/A
	Capacity (g)		N/A
Running Loss Fuel Tank Temp.			N/A
Transmission Test Mode(s)			Normal
Advanced Technology System Test Mode(s)			N/A

*1) Tested tire
*2) This tire is unique for CANADA market.

12.02.02 Engine Starting Procedures

Please refer to Common Section 12.02.02.

12.02.03 Shift Schedules: Not Applicable

12.02.04 Transmission / Advanced Technology System Test Modes

Please refer to Common Section 12.02.04.

12.02.05 Running Loss Fuel Tank Temperature Profile: Not Applicable

13.00 Projected Sales

Please refer to Common Section 13.00.

14.00 Request for Certification

Ms. Kathryn Kochunas
Certification Division
Mobile Source Pollution Control
U.S. Environmental Protection Agency
2000 Traverwood Drive
Ann Arbor, Michigan

Subject: Request for Certificate of Conformity for 2027 Model Year Test Group VHYXT00.0400 / Evaporative Family N/A

Dear Ms. Kathryn Kochunas:

Hyundai Motor Company requests that EPA issue a Certificate of Conformity for the test group subjected above.

All vehicles within the test group mentioned above comply with the applicable regulations contained in 40 CFR 86.1844-01(d)(14) including the provisions of 40 CFR Parts 85, 86 and 600. This test group also complies with California Air Resources Board, Final Regulation Order, Sections 1961.4 and 1961.3 (1962.4 and 1962.3 for zero-emission vehicles) Title 13, California Code of Regulations.

The Part 1 Application for Certification has been prepared in accordance with the standardized format recommended by EPA via its guidance document CD-14-19 (LDV/LDT/OCO/LIMO) Subject: Certification Application Reporting Guidance, dated November 24, 2014.

If you have any questions in regard to the Certificate of Conformity do not hesitate to contact Stephanie Wright at swright@hatci.com or (734) 273-1904.

Sincerely,

C. H. Ji
General Manager
Regulation & Certification Team2
Hyundai Motor Company

Ms. Robin U. Lang, Chief
Emissions Certification and Compliance Division
California Air Resources Board
4001 Iowa Ave.
Riverside, California 92507

Subject: Request for Executive Order for 2027 Model Year Test Group VHYXT00.0400 / Evaporative Family N/A

Dear Ms. Robin U. Lang:

Hyundai Motor Company requests that California Air Resources Board (CARB) issue an Executive Order for the test group subjected above.

All vehicles within the test group mentioned above comply with the applicable regulations contained in 40 CFR 86.1844-01(d)(14) including the provisions of 40 CFR Parts 85, 86 and 600. This test group also complies with California Air Resources Board, Final Regulation Order, Sections 1961.4 and 1961.3 (1962.4 and 1962.3 for zero-emission vehicles) Title 13, California Code of Regulations.

The Part 1 Application for Certification has been prepared in accordance with the standardized format recommended by EPA via its guidance document CD-14-19 (LDV/LDT/OCO/LIMO) Subject: Certification Application Reporting Guidance, dated November 24, 2014.

If you have any questions in regard to the Executive Order do not hesitate to contact Stephanie Wright at swright@hatci.com or (734) 273-1904.

Sincerely,

C. H. Ji
General Manager
Regulation & Certification Team2
Hyundai Motor Company

15.00 Other Information

15.01 Certification Fee Filing Form

US EPA Fee Form

Help and EPA Instructions

* Required Field

General Information

Date: 11/07/2025

Process Code *

Submit New Fee Filing Form

Manufacturer Code *

HYX

Manufacturer Name *

Hyundai

Contact Name *

Jennifer Cherry

Contact Email Address *

jcherry@hatci.com

Contact Phone *

7343372259

Calendar Year complete application submitted to EPA *

2026

PLEASE NOTE: These fees apply to complete certification applications received by EPA from January 1, 2026, through December 31, 2026. The applicable fee is determined by the

calendar year in which the complete certification application is received, not the model year.

Engine Family / Evaporative Family / Test Group *

VHYXT00.0400

Certificate Request Type (Industry Sector Code)

Certificate Request Type *

- (●) On-Highway LDV, LTD, MDVPV, HDV Chassis Cert (Federal) (A, B, D, J, T, V)
- ( ) On-Highway HDE Dyno Cert (Federal) (E, H)
- ( ) On-Highway LD ICI, MDPV ICI, HDV ICI (A, B, D, J, T, V)
- ( ) On-Highway Motorcycle (C)
- ( ) On-Highway HDV Evap (F)
- ( ) On-Highway LDV, LTD, MDVPV, HDV Chassis Cert (California-Only) (A, B, D, J, T, V)
- ( ) On-Highway HDE Dyno Cert (California-Only) (E, H)
- ( ) Nonroad CI (L)
- ( ) Nonroad SI (B, S)
- ( ) Locomotive (G, K)
- ( ) All Nonroad Recreational, excluding Marine engines (X, Y)
- ( ) All Marine (Including IMO) (M, N, W)
- ( ) Component Certification for Evaporative Emissions (P)

IMO Name (Required for dual US/IMO Marine Only)

ICI VIN Number (Required for ICIs Only)

Do you qualify for a Reduced Fee? *

No

Payment Information

Amount Owed

$32,317.00

Payment Type *

Offline Wire

Comments

EPA Form Number 3520-29
OMB Control No. 2060-0545
Approval expires 7/31/2027

The public reporting and recordkeeping burden for this collection of information is estimated to average 12 minutes per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed forms to this address.

15.02 Vehicle Emission Control Information (VECI) Label

	HYUNDAI MOTOR COMPANY VEHICLE EMISSION CONTROL INFORMATION	
Conforms to regulations:	2027 MY	
U.S.EPA: T4B0 LDT	OBD: N/A	Fuel: Electricity
California: ZEV PC	OBD: N/A	Fuel: Electricity
No adjustments needed.	This vehicle is certified to operate on electricity.	
Group: VHYXT00.0400 Evap.: N/A		32410-1XFD6

15.03 ORVR Safety Statement: Not Applicable

15.04 New Technology System Description

Please refer to Common Section 15.04.

15.05 Engine Oil Information : Not Applicable

16.00 California ARB Information

16.01 Exhaust Emission Control System (Tune-up label)

Test Group Name	Model	Exhaust Emission Control System
VHYXT00.0400	Ioniq 9 AWD Performance	N/A

16.02 Test Procedures

Please refer to Common Section 16.02.03

16.03 Fill Pipe Access Zones Statement and Specifications: Not Applicable

16.04 Request for Certification

Please refer to 14.00.

16.04.01 Statement of Compliance

Please refer to Common Section 16.04.01.

16.04.02 Supplemental Data Sheet

Please refer to E-cert data.

16.05 Emission Testing Waiver Statement : Not Applicable

16.06 Projected Sales

Please refer to Common Section 13.00.

16.07 OBD-II System Description : Not Applicable

16.08 New Technology System Description

Please refer to Common Section 15.04

16.09 Environmental Performance Label

Pursuant to CALIFORNIA ENVIRONMENTAL PERFORMANCE LABEL SPECIFICATIONS FOR 2009 AND SUBSEQUENT MODEL YEAR PASSENGER CARS, LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY PASSENGER VEHICLES (adopted May 2, 2008, last amended September 2, 2015), 2012, HYUNDAI-KIA complies Environmental Performance Label requirement by affixing the Federal Fuel Economy and Environment Label in accordance to 40 CFR Parts 85, 86, and 600 as promulgated on July 6, 2011.

16.10 AECD General Statements: Not Applicable

16.11 California Warranty Compliance

Please refer to Common Section 16.11.00.

16.12 Description of the Propulsion System

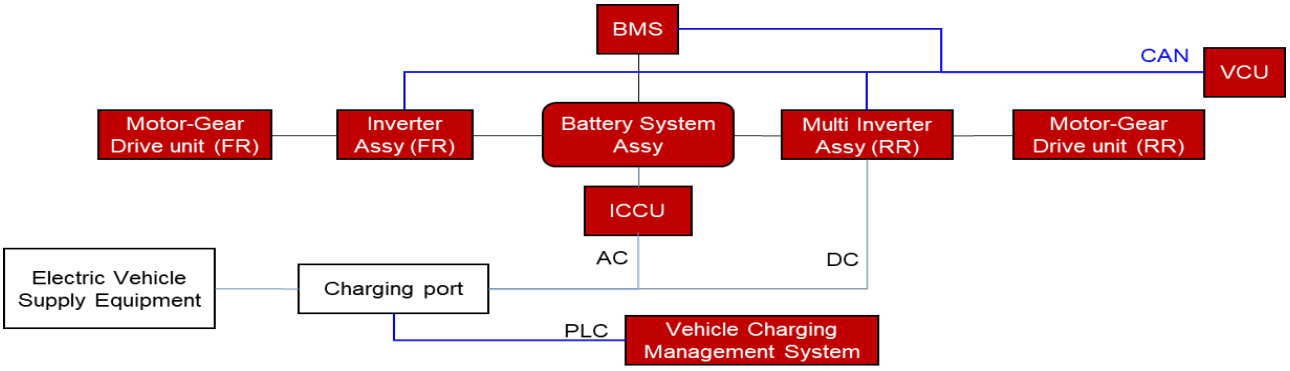
This electric vehicle uses electric motor(s) for propulsion.

1) Motor Specification

Motor	Type	PMSM*1
	Max. Power (kW)	157.3 (front motor) / 157.3 (rear motor)

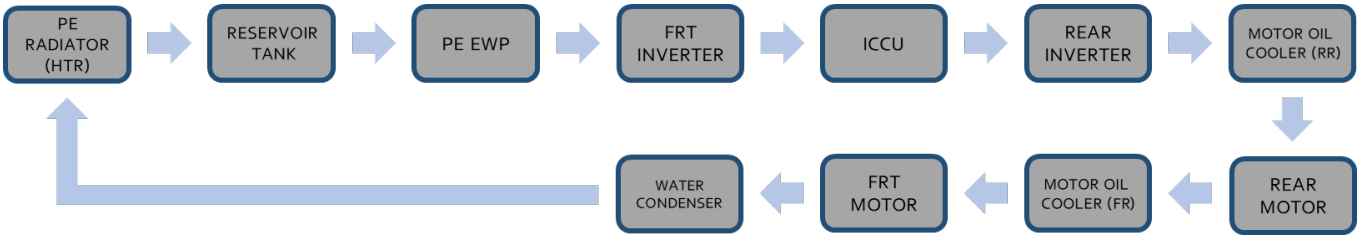
(Note) *1 : Permanent Magnet Synchronous Motor

2) Propulsion System Diagram

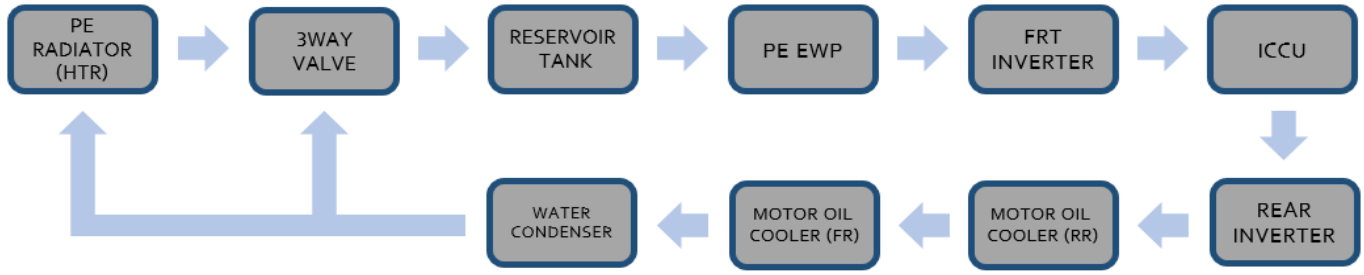


3) Propulsion System Heating Diagram

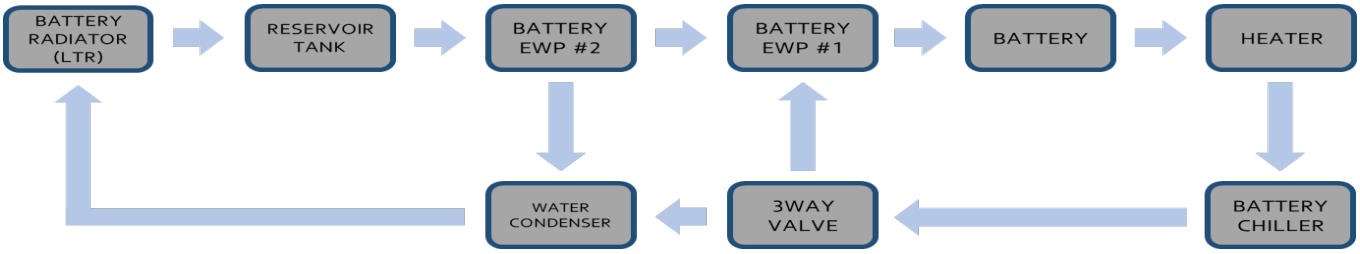
- Non Heat Pump



- Heat Pump



- Battery Cooling



16.12.01 Description of the Energy Storage System

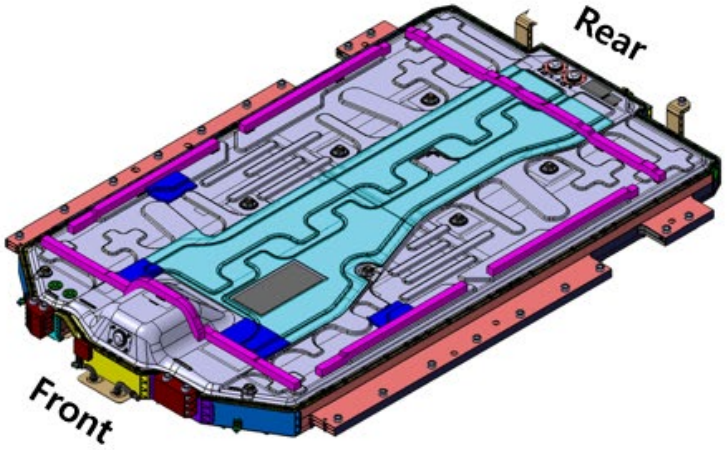
This electric vehicle uses a battery to store electrical energy.

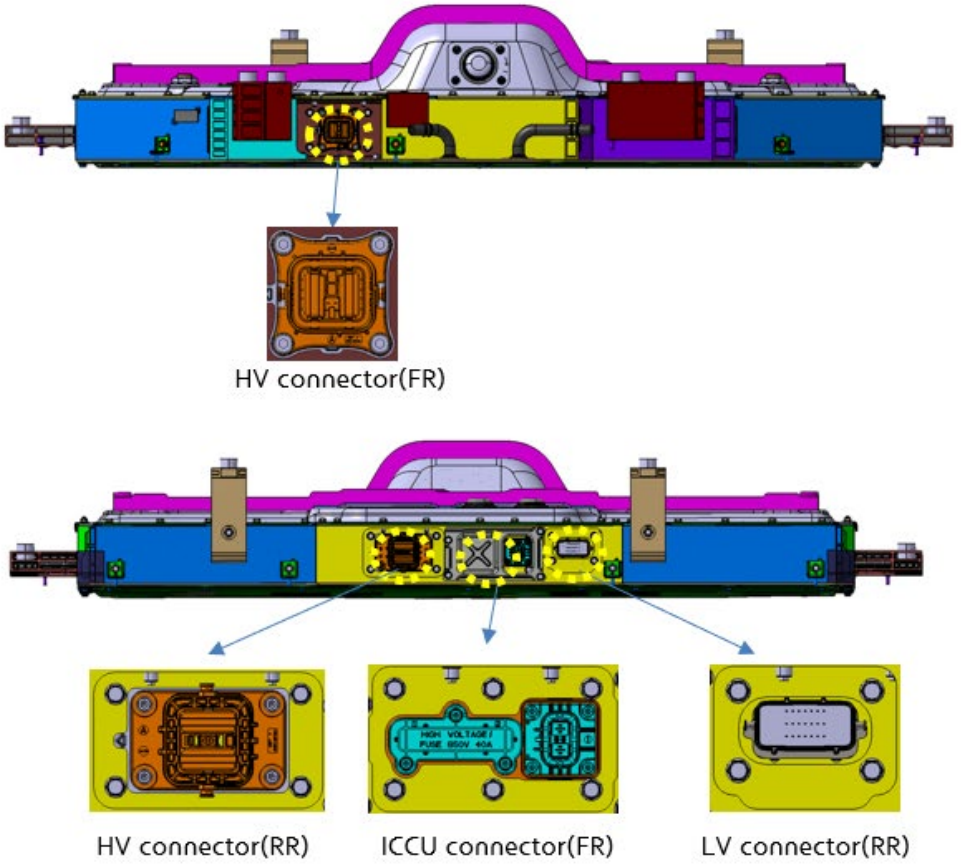
1) Battery Specification

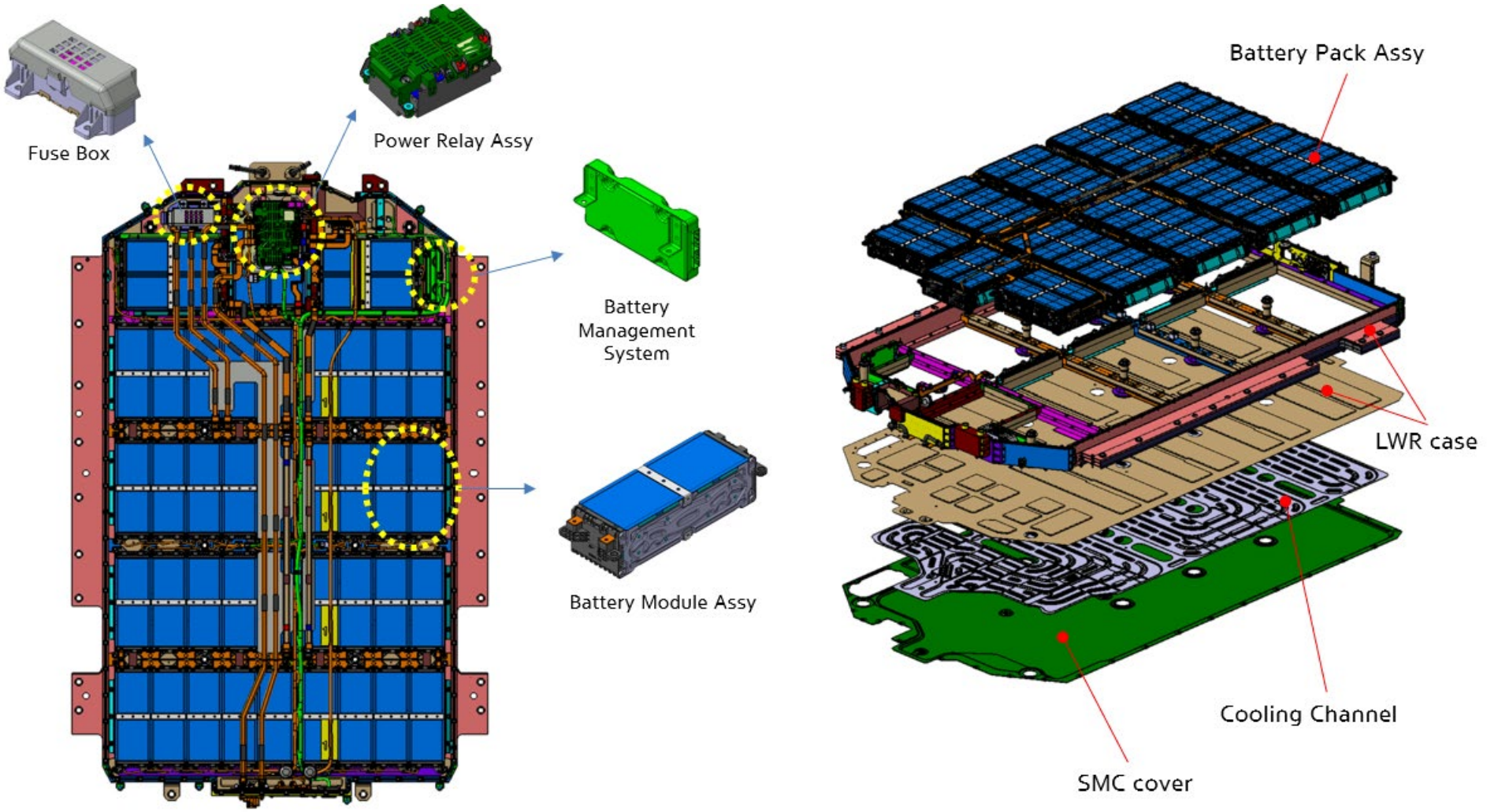
Battery	Type	Lithium ion
	Rated Voltage (V)	610
	Weight (kg)	625.4

For details, please refer to 02.00.

2) Battery Pack Layout



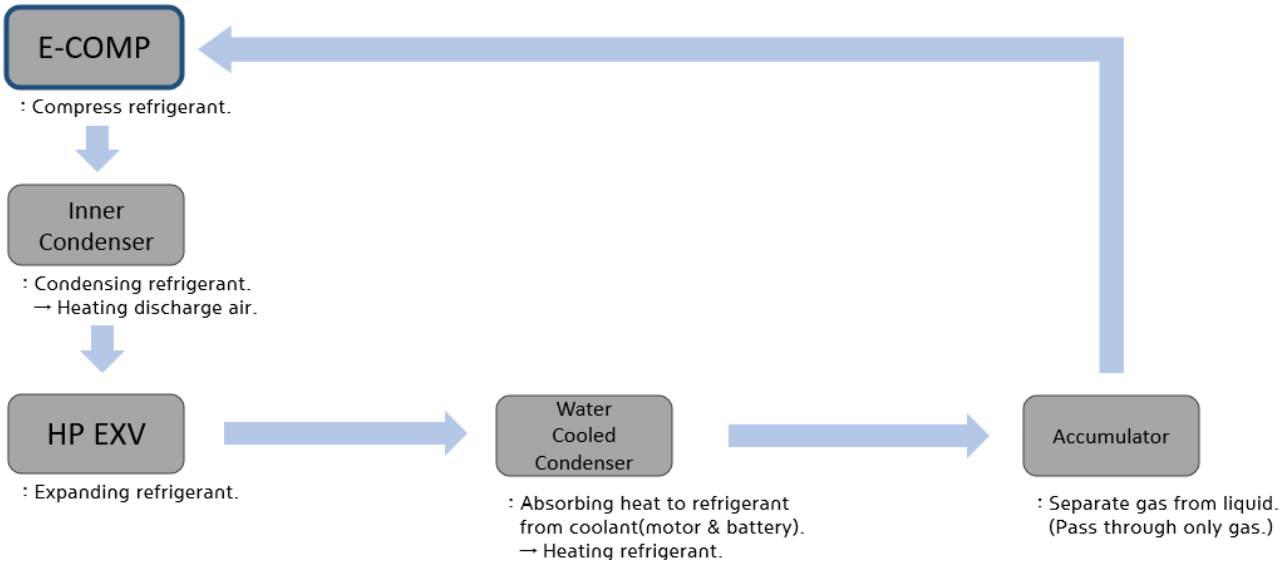



Fuse Box
Power Relay Assy
Battery Management System
Battery Module Assy
Battery Pack Assy
LWR case
Cooling Channel
SMC cover

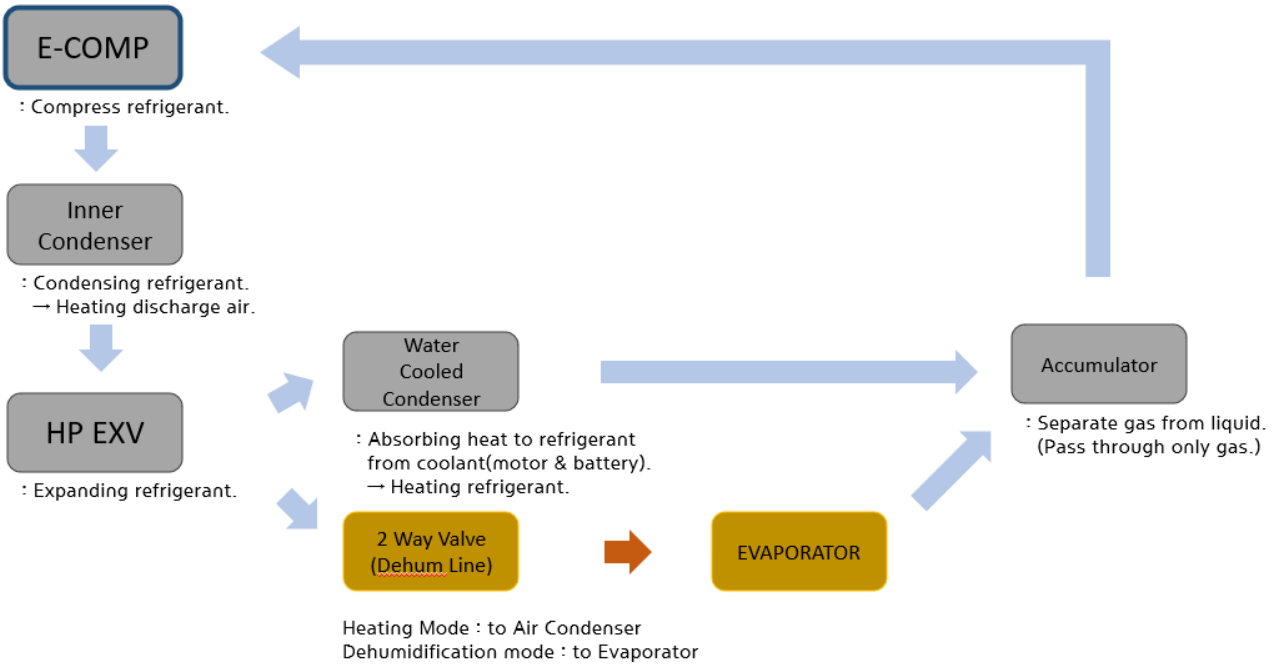
16.12.02 Description of the Climate Control System

<Schematic Layout of Heating System (Heat pump type)>

1) Only Heating Mode

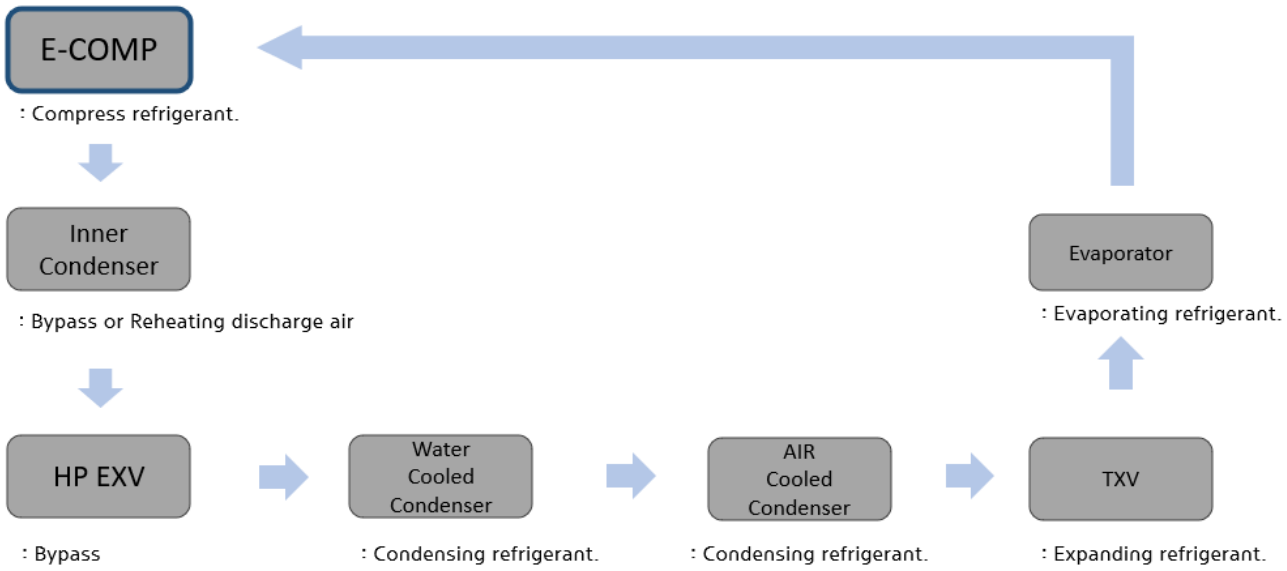


2) Heating + Dehumidification Mode



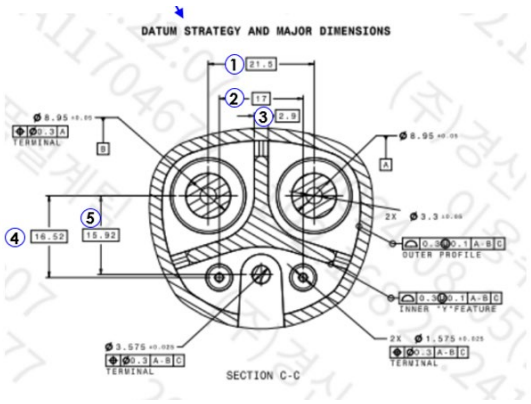
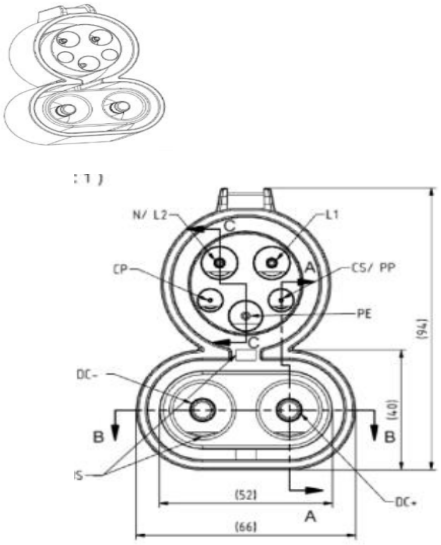
<Schematic Layout of Heating System (Non-Heat Pump Type)>

1) Dehumidification Mode



16.12.03 Description of the Charging System

1. Onboard charger capability : 11.5kW
2. Maximum allowable direct current fast charge capability : 341A
3. Vehicle connector specification **:**

NACS	CCS (SAE J1772)
	

This electric vehicle uses an NACS type charger.

For vehicles supplied with NACS type chargers, an adapter(s) will be provided to comply with section 1962.3.

4. A charging cord will be provided pursuant to CCR, title 13, section 1962.3.

- Make of charging cord : Kyungshin Corporation

Requirements		Specification
Length of the cord	Minimum of 20 feet in length	20.37 ft.
Dual amperage capability	AC Level 1 – Minimum 12A	Selectable(6A, 8A, 10A, 12A)
	AC Level 2 – Minimum 24A or sufficient power to enable charging from a state of discharge to a full charge in less than 4 hours, whichever is lower	Selectable(16A, 20A, 24A, 30A)
	Configurable, Without the use of tools, to facilitate a plug connection for Level 1 and 2	Cords can be changed without the use of tools.
Downgrade the amperage during charging	AC Level 1 – Selectable to charge at 12A or 8A	Selectable(6A, 8A, 10A, 12A)
	AC Level 2 – Selectable to charge at 24A or 16A	Selectable(16A, 20A, 24A, 30A)
	User selection feature is integrated into the cord or in the vehicle itself	Integrated into the cord
Tested and listed by a NRTL, (UL)2594		Certificate Number: 80231735 **(see attachment below)**

- Make of charging cord : Webasto Charging Systems Inc. dba Ampure

Requirements		Specification
Length of the cord	Minimum of 20 feet in length	20 ft.
Dual amperage capability	AC Level 1 – Minimum 12A	Yes. (12A)
	AC Level 2 – Minimum 24A or sufficient power to enable charging from a state of discharge to a full charge in less than 4 hours, whichever is lower	Yes. (24A)
	Configurable, Without the use of tools, to facilitate a plug connection for Level 1 and 2	Cords can be changed without the use of tools.
Downgrade the amperage during charging	AC Level 1 – Selectable to charge at 12A or 8A	8A and 12A plugs are provided separately.
	AC Level 2 – Selectable to charge at 24A or 16A	16A and 24A plugs are provided separately.
	User selection feature is integrated into the cord or in the vehicle itself	AC Level 1 and 2 cords can be changed without the use of tools.
Tested and listed by a NRTL, (UL)2594		Certificate Number: UL-US-2347109-3 (see attachment below)

Certificate of Compliance

Certificate: 80231735 **Master Contract:** 301412

Project: 80231735 **Date Issued:** November 4, 2025

Issued To: **Kyungshin Corporation**
98, Gaetbeol-ro
Yeonsu-gu, Incheon, 21999
South Korea

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Issued by: Wayne Wang
Wayne Wang

PRODUCTS

CLASS - C531112 - POWER SUPPLIES Systems Equipment for Electric Vehicles
CLASS - C531192 - POWER SUPPLIES Electric Vehicle Chargers/Systems - Certified to US Standards

Electric Vehicle Supply Equipment (EVSE)				
Model (function box):	91996-XAAB0		91996-XAAG0	
Model (Adapter/Cord set):	HC-EVUX	HC-EVU2X	HC-EVUX	HC-EVU2X
NEMA Plug Config. For Adapte:	5-15P	14-50P	5-15P	14-50P
Nominal Input / Output voltage (Vac):	120 Vac	240 Vac	120 Vac	240 Vac
Nominal input frequency (Hz):	60 Hz			
Max. continuous input/ output current (A):	12 A	30 A	12 A	30 A

Max. continuous input/ output power (kW):	1.44 kW	7.2 kW	1.44 kW	7.2 kW
Supported Charging connector Types:	J1772	J1772	NACS	NACS
Length of EV cable (m):	Max. 6.1 m			
Overcurrent protection associated with the branch circuit for field installation	15 A, 2P	37.5 A, 2P	15 A, 2P	37.5 A, 2P
Operating ambient temperatures:	-40 ˚C to +50 ˚C			
Enclosure type:	Type 6			
*Note:				
1. This product is in same family with the models listed on 91996-GI020. Report number 80061004. The components and construction are similar if not specified.				

APPLICABLE REQUIREMENTS

*UL 2594	-	Electric Vehicle Supply Equipment (Third Edition, Dated December 15, 2022)
*CSA C22.2 No. 280-22	-	Electric vehicle supply equipment
*Note:		
(1)	Conformity to UL 2594 (Third Edition, Dated December 15, 2022), includes compliance with applicable requirements of UL 2231-1 (Second Edition, Dated September 16, 2021) and UL 2231-2 (Second Edition, Dated December 15, 2020);	
(2)	Conformity to CSA C22.2 No. 280-22, includes compliance with applicable requirements of CSA C22.2 No. 281.1-12 (reaffirmed 2022) and CSA C22.2 No. 281.2-12 (reaffirmed 2017);	
(3)	The functional safety has been evaluated according to applicable requirements of UL 1998 (Edition 3), UL 991 (Edition 3) and CSA C22.2 No. 0.8:19 as required by the end product standards.	

Notes:

Products certified under Class C531112 have been certified under CSA's ISO/IEC 17065 accreditation with the Standards Council of Canada (SCC). www.scc.ca	

Supplement to Certificate of Compliance

Certificate: 80231735 **Master Contract:** 301412

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80231735	November 4, 2025	Original cCSAus Certification. Electric Vehicle Supply Equipment, cord set, intended for indoor or outdoor use, Model: 91996-XAAG0 and 91996-XAAB0 (Two models are the same except for the type of supported charging connector.) APT Qualification Assessed

Certificate of Compliance

Certificate Number:
UL-US-2347109-3

Report Reference:
E336193-20231206

Issue Date:
2024-09-09

Issued to:

Webasto Charging Systems Inc. dba Ampure
1333 S Mayflower Ave, Suite 100 Monrovia, CA 91016
United States

This certificate confirms that representative samples of:
FFWA - Electric Vehicle Supply Equipment

See Addendum Page for Product Designation(s).

Have been evaluated by UL in accordance with the Standard(s) indicated on this Certificate.

UL 2594, 3rd Ed., Issue Date: 2022-12-15

Additional Information:
See UL Product iQ® at https://iq.ulprospector.com for additional information.

This Certificate of Compliance indicates that representative samples of the product described in the certification report have met the requirements for UL certification. It does not provide authorization to apply the UL Mark. Only the Authorization Page that references the Follow-Up Services Procedure for ongoing surveillance provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

David Piecuch
UL Mark Certification Program Owner

Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact UL Solutions Customer Service at https://www.ul.com/contact-us.

16.13 ZEV Compliance

Subconfiguration	Certification Range Value (Combined, unadjusted)	ZEV value
Ioniq 9 AWD Performance	458.214 mi	1.00

16.13.01 Battery Specific Energy

Total Battery System Specific Energy Density (Whr/Kg)

= Total Battery System Voltage * C/3 discharge rate / Total Weight of Battery System

= 610 (V) * 180.9 (Ah) / 625.4 (Kg)

= 176.4 (Whr/Kg)

16.14 ZEV/PHEV Test Methodology and Test Results

For details of intermediate and final measured or calculated values used per the 2026+ ZEV and PHEV Test Procedures to calculate cycle specific emissions, energy consumption, and range values,
Please refer to Certification Summary Information in 07.01.

BEV:

- Test methodology used: Multi-cycle test (SAE J1634 2021 version)
- Constant speed cycle

<AWD 20inch>

	CSCm	**CSCe**
Speed(mph)	65	65
Time(h:m)	4:05	0:30
Distance(mi)	264.627	30.753

16.14.01 Vehicle, Fuel Cell, and Battery Break-in Periods Used Prior to Testing

Vehicle, fuel cell, and battery break-ins were performed on the actual vehicle in SRC mode on a dynamometer at over 2000 miles.

ME1-AU5EPER061A : 2004 miles
ME1-KU5EPER060A : 2002 miles

16.15.00 Battery State of Health and Usable Battery Energy

1. Cycle Testing Method

Cycle testing evaluates the degradation and lifespan of a battery through repeated charge and discharge processes.

1) Cycle Test : Charging and discharging to reach the mileage corresponding to the development goal under the specified test conditions. Driving distance is derived from the amount of discharge energy used(kwh) and the MPGe of the vehicle

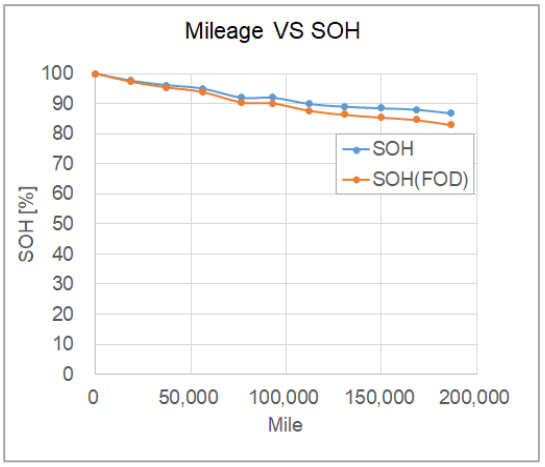
2) SOH degradation Test : Degradation calculated by measuring capacity through charging/discharging of 1/3C at each specified mileage point

Test Procedure

1) Charge and discharge the battery within a specified SOC/voltage range.
2) Allow a rest period after each cycle.
3) Periodically conduct capacity test (e.g., every 100 cycles).

2. Expected degradation: State of health

Mile	Year*	SOH(%)[1)]	UBE(kWh)	SOH(%), FOD[2)]	UBE(kWh) FOD
0	0.0	100.0	109.4**	100.0	109.4**
18,000	1.2	97.7		97.3	
37,000	2.5	96.2		95.4	
56,000	3.7	95.1		93.9	
76,000	5.1	92.1		90.5	
93,000	6.2	92.1		90.2	
112,000	7.5	90.0		87.7	
130,000	8.7	89.1		86.4	
150,000	10.0	88.6		85.5	
168,000	11.2	88.2		84.7	
186,000	12.4	86.9	96.6***	83.0	92.3***



*The year converted from mile using a factor of 1 year / 15k mile.
** Certified UBE tested with the IONIQ 9
*** UBE value has been calculated by using EV9 long range's UBE-SOH ratio

1) SOH

Test result from IONIQ9 Battery Pack Assembly

*The mile converted from the accumulative energy in charge/discharge cycle life test results using a factor of 126.4MPGe

Specification	**AWD [21inch]**
MPGe (Multi-Cycle Test)	126.4

2) FOD (Features Of Demand)

The SOH(FOD) values are estimated based on the standalone test result (following table) of the GV60 battery. (SOH deterioration rate due to boost = 0.21%/10,000mile)

Mile	General SOH(%)	acceleration boost SOH(%)
0	100.0	100.0
188,570	89.8	85.9

Number of acceleration boost operations: 2,193 (average of Korea's user)

3. Correlation between Usable Battery Energy (UBE) and State of Health (SOH)

Usable battery energy and state of health have the following correlation.

$$\frac{Expected\ UBE}{Certified\ UBE\ \times\ SOH} \approx 1.0165$$

This ratio has been derived from MV (EV9 long range)'s UBE test results.

16.16 Propulsion-related Parts and Battery Warranty

All propulsion-related parts and batteries of Hyundai/Kia meet the warranty requirements of CCR, title 13, section 1962.8.

For details, please refer to the Warranty Booklet in the Common Section.

16.17 Battery Label

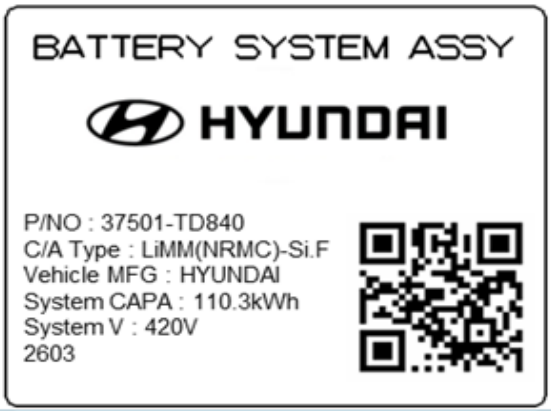
1. Label Size and Location

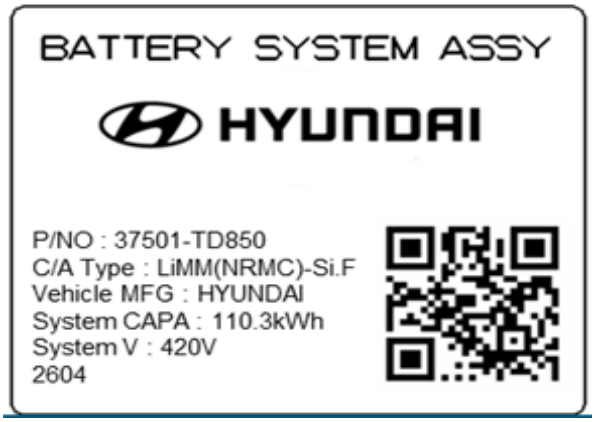
- PE room / Battery pack : 50 x 40 mm
- Battery module : 30 x 45 mm

2. Label Sample

Vehicle label (PE room)

Battery pack label





Battery module label

16.18 Instructions and Information Provided to the Vehicle Owners

Please refer to Common Section 16.18.00

16.19 Data Standardization Requirements (ZEV only)

Please refer to Common Section 16.19.00

16.20 Communication Protocol to an Off-board Tool (ZEV only)

For communication of the required standardized data to an off-board tool, per CCR, title 13, section 1962.5., UDSonCAN protocol is used to report all required messages. .

17.00 Service of Process

Please refer to Common Section 01.00.

18.00 Attachment

1. CSI Report

Certification Summary Information Report

Manufacturer	Hyundai Motor Company	**Manufacturer Code**	HYX
Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--
Certificate Number	--	**CARB Executive Order #**	--
Certificate Issue Date	--	**Certificate Revision Date**	--
Certificate Effective Date	--	**Conditional Certificate**	--
CSI Revision #	--	**CSI Submission/Revision Date**	01/26/2026 08:42:21 PM
Model Year	2027		

Test Group Information

CSI Type	New	**Running Change Reference Number**	--
GHG Exempt Status	Not Exempt		

Drive Sources and Fuel(s)

Drive Source #1: Electric Motor

Fuel	Basic Fuel Metering System	Lean Burn Strategy Indicator
Electricity	--	--

Hybrid Indicator	No		
Multiple Fuel Storage	--	**Rechargeable Energy Storage System Indicator**	Yes
Multiple Fuel Combustion	--	**Off-board Charge Capable Indicator**	Yes
Fuel Cell Indicator	No	**EPA Vehicle Class**	LDT4
Federal Clean Fuel Vehicle	No	**Federal Clean Fuel Vehicle Standard**	--
Federal Clean Fuel Vehicle ILEV	--	**California Partial Zero Emissions Vehicle Indicator**	No
Durability Group Name	VHYXEEENN400	**Durability Group Equivalency Factor**	1.0
Reduced Fee Test Group	No	**Certification Region Code(s)**	FA, CA
Complies with HD GHG 2b/3 regulations?	No		
Introduction into Commerce Date	--	**CAP2000 Conditional Certificate?**	N/A
Independent Commercial Importer?	--	**Alternative Fuel Converter Certificate?**	--
SFTP Federal Composite Compliance Identifier	Not Applicable	**SFTP Tier 2 Composite CO Option**	No
SFTP LEV-III Composite Compliance Indicator	No		
OBD Compliance Type	CARB	**OBD Demonstration Vehicle Test Group**	VHYXT00.0400
Test Group OBD Compliance Level	Full - no deficiencies	**Number of Test Group OBD Deficiencies**	0
OBD Deficiencies Comments	Battery Electric Vehicle is exempted from OBD compliance.		
Mfr Test Group Comments	This vehicle complies with the Tier4 Bin 0 emission standards for the 2027 model year.		
Mfr Exhaust / Evap Standards Comments	--		

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Models Covered by this Certificate

Carline Manufacturer	Division	Carline	Certification Region Code(s)	Drive System	Trans - Type	- # of Gears	Trans - Lockup
Hyundai Motor Company	1 - HYUNDAI MOTOR COMPANY	362 - Ioniq 9 AWD Performance	Federal	All Wheel Drive	Automatic	1	No
Hyundai Motor Company	1 - HYUNDAI MOTOR COMPANY	362 - Ioniq 9 AWD Performance	California + CAA Section 177 states	All Wheel Drive	Automatic	1	No

Engine Description

Hybrid Type	--	**Hybrid Description**	--
Engine Type	--	**Mfr Engine Description**	--
Engine Block Arrangement	--	**Mfr Engine Block Arrangement Description**	--
Camless Valvetrain Indicator	--	**Oil Viscosity/Classification**	
Number of Cylinders/Rotors	--	**Mechanically Variable Compression Ratio Indicator**	--

After Treatment Device(s) (ATD)

Mfr After Treatment Device (ATD) Comments	--
Direct Ozone Reduction (DOR) Device	--
Mfr Emission Control Device Comments	--

Official Test Numbers

Test Group Fuel	FTP	US06	SC03	Cold CO	Highway	EPA City Litmus Value	EPA City Litmus Threshold	EPA Highway Litmus Value	EPA Highway Litmus Threshold	CREE Weighting Factor
Electricity	--	--	--	--	--	--	--	--	--	--

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Hybrid Electric Vehicle And Fuel Cell Information

Rechargable Energy Storage System	Battery(s)	**Rechargable Energy Storage System, if Other**	--
Battery Type	Lithium Ion	**Number of Battery Packs**	1
Total Voltage of Battery Packs	610	**Battery Energy Capacity**	180.9
Battery Specific Energy	176.4	**Battery Charger Type**	Both
Number of Capacitors	--	**Capacitor Rating (In Farads)**	--
Mfr Capacitor Comments	--		
Hydraulic System Description	--		
Regenerative Braking Type	Electrical Regen Brake		
Regenerative Braking Source	Both	**Driver Controlled Regenerative Braking**	Yes
Mfr Regenerative Braking Description	--		
Drive Motor(s)/Generator(s)	2		
Motor/Generator Type 1	PMSM	**Rated Motor/Generator Power**	157
Motor/Generator Type 2	PMSM	**Rated Motor/Generator Power**	157
Mfr Fuel Cell Description	--		
Fuel Cell On-Board H2 Storage Capacity (kg)	--	**Usable H2 Fill Capacity (kg)**	--
Mfr Hybrid Electric/ Electric Vehicle Comments	PMSM : Permanent Magnet Synchronous Motor		

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Emission Data Vehicle Information

Vehicle ID / Configuration	ME1-AU5EPER061A / 0	**Manufacturer Vehicle Configuration Number**	0
Original Test Group Name	THYXV00.0400	**Original Evaporative/Refueling Family**	--
Original Test Vehicle Model Year	2026		

Vehicle Model

Represented Test Vehicle Make	Hyundai	**Represented Test Vehicle Model**	Ioniq 9 AWD Performance

Leak Family Details

Leak Family Identifier	--	**Leak Family Name**	--

Drive Sources and Fuel System Details

Drive Source and Fuel#	Drive Source	Fuel
1	Electric Motor	Electricity

Hybrid Indicator	No		
Multiple Fuel Storage	--	**Multiple Fuel Combustion**	--
Fuel Cell Indicator	No	**Rechargeable Energy Storage System Indicator**	Yes
Rechargeable Energy Storage System	Battery(s)	**Rechargeable Energy Storage System, if 'Other'**	--
Off-board charge Capable Indicator	Yes		
Odometer Correction -- Initial	0	**Odometer Correction Factor**	0.9983
Odometer Correction Sign	+ = System Miles is equal to (Test odometer reading * Correction factor) + Initial system miles		
Odometer Correction Units	Miles		
Engine Code	EM34	**Rated Horsepower**	422
Displacement (liters)	0.001		
Air Aspiration Method	Naturally Aspirated	**Air Aspiration Method, if 'Other'**	
Number of Air Aspiration Devices	--	**Air Aspiration Device Configuration**	--
Charge Air Cooler Type	--	**Drive Mode While Testing**	All Wheel Drive
Shift Indicator Light Usage	Not eqipped	**Aged Emission Components**	4,000 (mi)
Curb Weight (lbs)	6008	**Equivalent Test Weight (pounds)**	6500
GVWR (lbs)	7319	**N/V Ratio**	147.2
Axle Ratio	4.68		
Transmission Type	Automatic	**# of Transmission Gears**	1
Transmission Lockup	No	**Creeper Gear**	No

Dynamometer Coefficients:

	Target Coefficients			Set Coefficients			
Coefficient Category	**A (lbf)**	**B (lbf/mph)**	**C (lbf/mph**2)**	**A (lbf)**	**B (lbf/mph)**	**C (lbf/mph**2)**	**EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients**
City/Highway/Evap	42.55	0.13241	0.025578	-3.532	-0.35953	0.027584	15.1

Emission Control Device Comments This vehicle have two motors (front : 211hp / rear : 211hp)

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Manufacturer Test Vehicle Comments

Ioniq 9 AWD Performance 21in. This vehicle have two different gear ration for front motors and rear motors. (front 2.263, Rear 2.810). NV ration was calculated by Rear motor ration. TYPO of NV Ratio is corrected. Vehicle model name was updated.

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Test #	**THYX10087865**	**Test Procedure**	**77 - Multi-Cycle Test (MCT)**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	08/22/2024	**Fuel**	Electricity
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	LDT4 (ALVW > 5750, LVW 0-3750, GVW > 6000)	**DF Type**	Mfr. Determined
Verify Test Lab ID	772-1, Jangduck-Dong		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	2137	**Odometer Units**	M
4WD Test Dyno	Yes	**Diesel Adjustment Factor Usage**	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	**Road Speed Fan Usage**	Yes

PHEV/EV Charge Depleting Test Information

Recharge Event Voltage	220	**Recharge Event Energy (kiloWatt-hours)**	121.577
Charge Depleting Range (Calculated miles)	487.261	**Charge Depleting Range (Actual miles)**	487.261
Charge Depleting Range Highway (Calculated miles)	422.712	**Derived 5-Cycle Coefficient Model Year**	--
All Electric Range Unadjusted (miles)	--	**Equivalent All Electric Range (miles)**	487.261
Number of Charge Depleting Bags/Phases Conducted	8	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase #1

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.442
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	0.11
Drive Trace Energy Economy Rating	-1.27
Drive Trace Inertia Work Ratio Rating	-1.59
Integrated DC KW-HRS	1.82167
Manufacturer Fuel Economy	24.478218

Charge Depleting Bag/Phase #2

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	10.252
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	0.96
Drive Trace Energy Economy Rating	-0.24
Drive Trace Inertia Work Ratio Rating	0.97
Integrated DC KW-HRS	2.70333
Manufacturer Fuel Economy	26.368777

Charge Depleting Bag/Phase #3

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.45
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	0.2
Drive Trace Energy Economy Rating	-1.34
Drive Trace Inertia Work Ratio Rating	-1.53
Integrated DC KW-HRS	1.73222
Manufacturer Fuel Economy	23.251235

Charge Depleting Bag/Phase #4

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	264.627
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	25.9
Drive Trace Energy Economy Rating	-0.04
Drive Trace Inertia Work Ratio Rating	41.83
Integrated DC KW-HRS	87.11357
Manufacturer Fuel Economy	32.91938

Charge Depleting Bag/Phase #5

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.459
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	1.19
Drive Trace Energy Economy Rating	-1.43
Drive Trace Inertia Work Ratio Rating	-1.41
Integrated DC KW-HRS	1.61993
Manufacturer Fuel Economy	21.717804

Charge Depleting Bag/Phase #6

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	10.251
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	1.17
Drive Trace Energy Economy Rating	-0.16
Drive Trace Inertia Work Ratio Rating	1.05
Integrated DC KW-HRS	2.60127
Manufacturer Fuel Economy	25.375807

Charge Depleting Bag/Phase #7

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.445
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	0.33
Drive Trace Energy Economy Rating	-1.62
Drive Trace Inertia Work Ratio Rating	-1.73
Integrated DC KW-HRS	1.65743
Manufacturer Fuel Economy	22.262364

Charge Depleting Bag/Phase #8

Certification Summary Information Report

Test Group VHYXT00.0400 **Evaporative/Refueling Family** --

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	30.753
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	25.9
Drive Trace Energy Economy Rating	0.12
Drive Trace Inertia Work Ratio Rating	41.83
Integrated DC KW-HRS	10.11588
Manufacturer Fuel Economy	32.893962

Manufacturer Test Comments Ioniq 9 AWD Performance 21in MCT

Certification Summary Information Report

Test Group	VHYXT00.0400	Evaporative/Refueling Family	--

Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NMHC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Emission Data Vehicle Information

Vehicle ID / Configuration	ME1-KU5EPER060A / 0	**Manufacturer Vehicle Configuration Number**	0
Original Test Group Name	THYXV00.0400	**Original Evaporative/Refueling Family**	--
Original Test Vehicle Model Year	2026		

Vehicle Model

Represented Test Vehicle Make	Hyundai	**Represented Test Vehicle Model**	Ioniq 9 AWD Performance

Leak Family Details

Leak Family Identifier	--	**Leak Family Name**	--

Drive Sources and Fuel System Details

Drive Source and Fuel#	Drive Source	Fuel
1	Electric Motor	Electricity

Hybrid Indicator	No		
Multiple Fuel Storage	--	**Multiple Fuel Combustion**	--
Fuel Cell Indicator	No	**Rechargeable Energy Storage System Indicator**	Yes
Rechargeable Energy Storage System	Battery(s)	**Rechargeable Energy Storage System, if 'Other'**	--
Off-board charge Capable Indicator	Yes		
Odometer Correction -- Initial	0	**Odometer Correction Factor**	0.9984
Odometer Correction Sign	+ = System Miles is equal to (Test odometer reading * Correction factor) + Initial system miles		
Odometer Correction Units	Miles		
Engine Code	EM34	**Rated Horsepower**	422
Displacement (liters)	0.001		
Air Aspiration Method	Naturally Aspirated	**Air Aspiration Method, if 'Other'**	
Number of Air Aspiration Devices	--	**Air Aspiration Device Configuration**	--
Charge Air Cooler Type	--	**Drive Mode While Testing**	All Wheel Drive
Shift Indicator Light Usage	Not eqipped	**Aged Emission Components**	4,000 (mi)
Curb Weight (lbs)	6016	**Equivalent Test Weight (pounds)**	6500
GVWR (lbs)	7319	**N/V Ratio**	147.6
Axle Ratio	4.68		
Transmission Type	Automatic	**# of Transmission Gears**	1
Transmission Lockup	No	**Creeper Gear**	No

Dynamometer Coefficients:

	Target Coefficients			Set Coefficients			
Coefficient Category	**A (lbf)**	**B (lbf/mph)**	**C (lbf/mph**2)**	**A (lbf)**	**B (lbf/mph)**	**C (lbf/mph**2)**	**EPA Calculated Total Road Load Horse Power for City/Highway/Evap Coefficients**
City/Highway/Evap	44.087	0.25209	0.023769	1.208	-0.10086	0.023819	15.5

Emission Control Device Comments This vehicle have two motors (front : 211hp / rear : 211hp)

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Manufacturer Test Vehicle Comments

Only for CANADA market (Ioniq 9 AWD Performance 21in.) This vehicle have two different gear ratio for front and rear motors. (front 2.263, Rear 2.810). NV ratio was calculated by Rear motor ratio.

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Test #	**THYX10088302**	**Test Procedure**	**77 - Multi-Cycle Test (MCT)**
Exhaust Test # for this Evap Test	--	**Test Fuel Type**	62 - Electricity
Test Date	11/03/2024	**Fuel**	Electricity
Fuel Batch ID	--	**Fuel Calibration Number**	--
Vehicle Class	LDT4 (ALVW > 5750, LVW 0-3750, GVW > 6000)	**DF Type**	Mfr. Determined
Verify Test Lab ID	772-1, Jangduck-Dong		
E10 Evaporative Test Measurement Method	--		
Test Start Odometer Reading	2843	**Odometer Units**	M
4WD Test Dyno	Yes	**Diesel Adjustment Factor Usage**	--
State of Charge Delta	Yes		
Drive Cycle Speed Tolerance Criteria	Used Part 1066 (+/- 2.0 mph, +/- 1.0 sec)	**Road Speed Fan Usage**	Yes

PHEV/EV Charge Depleting Test Information

Recharge Event Voltage	220	**Recharge Event Energy (kiloWatt-hours)**	124.25
Charge Depleting Range (Calculated miles)	475.468	**Charge Depleting Range (Actual miles)**	475.468
Charge Depleting Range Highway (Calculated miles)	415.481	**Derived 5-Cycle Coefficient Model Year**	--
All Electric Range Unadjusted (miles)	--	**Equivalent All Electric Range (miles)**	475.468
Number of Charge Depleting Bags/Phases Conducted	8	**Transition Bag/Phase Number**	--

Charge Depleting Bag/Phase #1

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.451
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-4.06
Drive Trace Energy Economy Rating	-1.25
Drive Trace Inertia Work Ratio Rating	-5.07
Integrated DC KW-HRS	1.85016
Manufacturer Fuel Economy	24.831

Charge Depleting Bag/Phase #2

Certification Summary Information Report

Test Group	VHYXT00.0400	Evaporative/Refueling Family	--

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	10.258
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-3.09
Drive Trace Energy Economy Rating	-0.04
Drive Trace Inertia Work Ratio Rating	-3.49
Integrated DC KW-HRS	2.79917
Manufacturer Fuel Economy	27.2877

Charge Depleting Bag/Phase #3

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.453
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-4.12
Drive Trace Energy Economy Rating	-1.23
Drive Trace Inertia Work Ratio Rating	-4.78
Integrated DC KW-HRS	1.773
Manufacturer Fuel Economy	23.7891

Charge Depleting Bag/Phase #4

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	269.091
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	99.99
Drive Trace Energy Economy Rating	0.05
Drive Trace Inertia Work Ratio Rating	99.99
Integrated DC KW-HRS	91.28012
Manufacturer Fuel Economy	33.9217

Charge Depleting Bag/Phase #5

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.446
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-1.5
Drive Trace Energy Economy Rating	-0.4
Drive Trace Inertia Work Ratio Rating	-0.96
Integrated DC KW-HRS	1.72845
Manufacturer Fuel Economy	23.2132

Charge Depleting Bag/Phase #6

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	10.255
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	1.91
Drive Trace Energy Economy Rating	-0.04
Drive Trace Inertia Work Ratio Rating	2.56
Integrated DC KW-HRS	2.69316
Manufacturer Fuel Economy	26.2619

Charge Depleting Bag/Phase #7

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	7.441
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	-1.82
Drive Trace Energy Economy Rating	-0.42
Drive Trace Inertia Work Ratio Rating	-1.32
Integrated DC KW-HRS	1.72001
Manufacturer Fuel Economy	23.1153

Charge Depleting Bag/Phase #8

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Test Result/Emission Name	Unrounded Test Result
Actual Distance Driven (miles)	21.56
Carbon Monoxide	0
Carbon-Related Exhaust Emissions	0
Drive Trace Absolute Speed Change Rating	10.22
Drive Trace Energy Economy Rating	0.08
Drive Trace Inertia Work Ratio Rating	20.42
Integrated DC KW-HRS	7.40002
Manufacturer Fuel Economy	34.3229

Manufacturer Test Comments This test results only for CANADA marekt vehicle of Ioniq 9 AWD Performance 21in MCT. Data over '99.99' have been set as '99.99' due to technical restrictions, but have actually obtained the following results: -> Charge Depleting Bag / Phase #4 DT-ASCR = 114.72, DT-IWRR = 229.42

Certification Summary Information Report

Test Group	VHYXT00.0400	Evaporative/Refueling Family	--

Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CO	0.0	--	--	--	0	--	0	0	Pass
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
Fed	150,000 miles	Federal Tier 3 Bin 0	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CO	0.0	--	--	--	0	--	0	0	Pass
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Certification Region	Useful Life	Standard Level	Emission Name	Rounded Result	RAF	NMOG/NM HC Ratio	Diesel Adjustment Factor	Add DF	Mult DF	Certification Level	Standard	Pass/Fail
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--
CA	150,000 miles	California ZEV	CREE	0	--	--	--	0	--	0	--	--

Fuel Properties

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Consolidated List of Standards

Exhaust Standards

Cert Region	Federal	**Cert/In-Use Code**	Cert
Vehicle Class	LDT4 (ALVW > 5750, LVW 0-3750, GVW > 6000)	**Standard Level**	Federal Tier 3 Bin 0
Fuel	Electricity	**Test Procedure**	Multi-Cycle Test (MCT)

Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0	0
150,000 miles	CREE	--	--	--	--	--	--	0	0

Cert Region	California + CAA Section 177 states	**Cert/In-Use Code**	Cert
Vehicle Class	LDT4 (ALVW > 5750, LVW 0-3750, GVW > 6000)	**Standard Level**	California ZEV
Fuel	Electricity	**Test Procedure**	Multi-Cycle Test (MCT)

Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0	0
150,000 miles	CREE	--	--	--	--	--	--	0	0

Cert Region	California + CAA Section 177 states	**Cert/In-Use Code**	Cert
Vehicle Class	LDT4 (ALVW > 5750, LVW 0-3750, GVW > 6000)	**Standard Level**	California ZEV
Fuel	Electricity	**Test Procedure**	CVS 75 and later (w/o can. load)

Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0	0

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--
Cert Region	Federal	**Cert/In-Use Code**	Cert
Vehicle Class	LDT4 (ALVW > 5750, LVW 0-3750, GVW > 6000)	**Standard Level**	Federal Tier 3 Bin 0
Fuel	Electricity	**Test Procedure**	CVS 75 and later (w/o can. load)

Useful Life	Emission Name	Rounded Result	RAF	NMOG / NMHC	Upward Diesel Adjustment Factor	Downward Diesel Adjustment Factor	Mult DF	Add DF	Std
150,000 miles	CO	--	--	--	--	--	--	0	0

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--

Glossary

Useful Life

4	4,000 miles	120	120,000 miles
50	50,000 miles	150	150,000 miles
100	100,000 miles		

Emission Name

HC-TOTAL	Total Hydrocarbon	AS-VOLT	Average System Voltage
CO	Carbon Monoxide	CO2 BAG 1	Bag 1 Carbon Dioxide
CO2	Carbon dioxide	CO2 BAG 2	Bag 2 Carbon Dioxide
CREE	Carbon-Related Exhaust Emissions	CO2 BAG 3	Bag 3 Carbon Dioxide
OPT-CREE	Optional Carbon-Related Exhaust Emissions	CO2 BAG 4	Bag 4 Carbon Dioxide
NOX	Nitrogen Oxide	NMOG+NOX	Non-methane organic gases plus Nitrogen Oxides
PM	Particulate Matter	NMOG+NOX-COMP	SFTP Composite Non-methane Organic Gases + Nitrogen Oxides
PM-COMP	SFTP Composite Particulate Matter	DT-IWRR	Drive Trace Inertia Work Ratio Rating
HC-NM	Non-methane Hydrocarbon	DT-ASCR	Drive Trace Absolute Speed Change Rating
OMHCE	Organic material Hydrocarbon Equivalent	DT-EER	Drive Trace Energy Economy Rating
OMNMHCE	Organic material non-methane HC equivalent	COMB-CREE	Combined Carbon-Related Exhaust Emissions
NMOG	Non-methane organic gases	COMB-OPT-CREE	Combined Optional Carbon-Related Exhaust Emissions
HCHO	Formaldehyde	HC-TOTAL-EQUIV	Total Hydrocarbon equivalent - Evap only
H3C2HO	Acetaldehyde	METHANE-COMB	Combined CH4 for HD 2b/3 vehicles only
HC-NM+NOX	SFTP Non-methane Hydrocarbon + Nitrogen Oxides for US06 or SC03	N2O-COMB	Combined Nitrous Oxide for HD 2b/3 vehicles only
HC-NM+NOX-COMP	SFTP Composite Non-methane Hydrocarbon + Nitrogen Oxides	LEAK-DIA	Effective Leak Diameter (inches)
CO-COMP	SFTP Composite Carbon Monoxide	LEAK-GAS CAP	Gas Cap Leakage (cc/min)
ETHANOL	C2H5OH - Ethanol	CO2-COMB	Combined Carbon Dioxide for HD 2b/3 Vehicles Only
FE BAG 1	Bag 1 Fuel Economy	KW-HRS	Integrated DC KW-HRS
FE BAG 2	Bag 2 Fuel Economy	CH4 BAG 1	Bag 1 Methane
FE BAG 3	Bag 3 Fuel Economy	CH4 BAG 2	Bag 2 Methane
FE BAG 4	Bag 4 Fuel Economy	CH4 BAG 3	Bag 3 Methane
MFR FE	Manufacturer Fuel Economy	CH4 BAG 4	Bag 4 Methane
HC	Hydrocarbon for Running Loss and ORVR	CO BAG 1	Bag 1 Carbon Monoxide
METHANE	CH4 - Methane	CO BAG 2	Bag 2 Carbon Monoxide
METHANOL	CH3OH - Methanol	CO BAG 3	Bag 3 Carbon Monoxide
N2O	Nitrous Oxide	CO BAG 4	Bag 4 Carbon Monoxide
SPITBACK	Spitback Hydrocarbon in grams	NMOG BAG 1	Bag 1 Non-methane organic gases
AMP-HRS	Integrated Amp-hours	NMOG BAG 2	Bag 2 Non-methane organic gases
START-SOC	System Start State of Charge Watt-hours	NMOG BAG 3	Bag 3 Non-methane organic gases
END-SOC	System End State of Charge Watt-hours	NMOG BAG 4	Bag 4 Non-methane organic gases
ACT-DISTANCE	Actual Distance Driven (miles)		

Certification Region

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--
CA	California + CAA Section 177 states	FA	Federal

Exhaust Emission Standard Level			
B1	Federal Tier 2 Bin 1	T3B160	Federal Tier 3 Bin 160
B2	Federal Tier 2 Bin 2	T3B125	Federal Tier 3 Bin 125
B3	Federal Tier 2 Bin 3	T3B110	Federal Tier 3 Transitional Bin 110
B4	Federal Tier 2 Bin 4	T3B85	Federal Tier 3 Transitional Bin 85
B5	Federal Tier 2 Bin 5	T3SULEV30	Federal Tier 3 Transitional LEV-II SULEV30 Carryover
B6	Federal Tier 2 Bin 6	T3B70	Federal Tier 3 Bin 70
B7	Federal Tier 2 Bin 7	T3B50	Federal Tier 3 Bin 50
B8	Federal Tier 2 Bin 8	T3B30	Federal Tier 3 Bin 30
B9	Federal Tier 2 Bin 9	T3B20	Federal Tier 3 Bin 20
B10	Federal Tier 2 Bin 10	T3B0	Federal Tier 3 Bin 0
B11	Federal Tier 2 Bin 11	HDV2B395	Federal Tier 3 HD Class 2b Transitional Bin 395
HDV1	HDV1 (Federal HD chassis Class 2b GVW 8501-10000)	HDV2B340	Federal Tier 3 HD Class 2b Transitional Bin 340
HDV2	HDV2 (Federal HD chassis Class 3 GVW 10001-14000)	HDV2B250	Federal Tier 3 HD Class 2b Bin 250
L2	California LEV-II LEV	HDV2B200	Federal Tier 3 HD Class 2b Bin 200
L2OP	California LEV-II LEV Optional	HDV2B170	Federal Tier 3 HD Class 2b Bin 170
U2	California LEV-II ULEV	HDV2B150	Federal Tier 3 HD Class 2b Bin 150
S2	California LEV-II SULEV	HDV2B0	Federal Tier 3 HD Class 2b Bin 0
ZEV	California ZEV	HDV3B630	Federal Tier 3 HD Class 3 Transitional Bin 630
OT	Other	HDV3B570	Federal Tier 3 HD Class 3 Transitional Bin 570
T1	Federal Tier 1	HDV3B400	Federal Tier 3 HD Class 3 Bin 400
PZEV	California PZEV	HDV3B270	Federal Tier 3 HD Class 3 Bin 270
L2LEV160	California LEV-II LEV160	HDV3B230	Federal Tier 3 HD Class 3 Bin 230
L2ULEV125	California LEV-II ULEV125	HDV3B200	Federal Tier 3 HD Class 3 Bin 200
L2SULEV30	California LEV-II SULEV30	HDV3B0	Federal Tier 3 HD Class 3 Bin 0
L2LEV395	California LEV-II LEV395	L4SULEV100	California LEV-IV SULEV100
L2ULEV340	California LEV-II ULEV340	L4SULEV125	California LEV-IV SULEV125
L2LEV630	California LEV-II LEV630	L4SULEV15	California LEV-IV SULEV15
L2ULEV570	California LEV-II ULEV570	L4SULEV150	California LEV-IV SULEV150
L3LEV160	California LEV-III LEV160	L4SULEV170	California LEV-IV SULEV170
L3ULEV125	California LEV-III ULEV125	L4SULEV175	California LEV-IV SULEV175
L3ULEV70	California LEV-III ULEV70	L4SULEV20	California LEV-IV SULEV20
L3ULEV50	California LEV-III ULEV50	L4SULEV200	California LEV-IV SULEV200
L3SULEV30	California LEV-III SULEV30	L4SULEV230	California LEV-IV SULEV230
L3SULEV20	California LEV-III SULEV20	L4SULEV25	California LEV-IV SULEV25
L3LEV395	California LEV-III LEV395	L4SULEV30	California LEV-IV SULEV30
L3ULEV340	California LEV-III ULEV340	L4SULEV75	California LEV-IV SULEV75
L3ULEV250	California LEV-III ULEV250	L4SULEV85	California LEV-IV SULEV85
L3ULEV200	California LEV-III ULEV200	L4ULEV125	California LEV-IV ULEV125

Certification Summary Information Report

Test Group	VHYXT00.0400	**Evaporative/Refueling Family**	--
L3SULEV170	California LEV-III SULEV170	L4ULEV200	California LEV-IV ULEV200
L3SULEV150	California LEV-III SULEV150	L4ULEV250	California LEV-IV ULEV250
L3LEV630	California LEV-III LEV630	L4ULEV270	California LEV-IV ULEV270
L3ULEV570	California LEV-III ULEV570	L4ULEV40	California LEV-IV ULEV40
L3ULEV400	California LEV-III ULEV400	L4ULEV400	California LEV-IV ULEV400
L3ULEV270	California LEV-III ULEV270	L4ULEV50	California LEV-IV ULEV50
L3SULEV230	California LEV-III SULEV230	L4ULEV60	California LEV-IV ULEV60
L3SULEV200	California LEV-III SULEV200	L4ULEV70	California LEV-IV ULEV70

Transmission Type Code			
AMS	Automated Manual- Selectable (e.g. Automated Manual with paddles)	M	Manual
A	Automatic	OT	Other
AM	Automated Manual	SA	Semi-Automatic
CVT	Continuously Variable	SCV	Selectable Continuously Variable (e.g. CVT with paddles)

Drive System Code			
4	4-Wheel Drive	P	Part-time 4-Wheel Drive
F	2-Wheel Drive, Front	A	All Wheel Drive
R	2-Wheel Drive, Rear		

Additional Terms and Acronyms			
AFC	Alternative Fuel Converter	ICI	Independent Commercial Importer
CSI	Certificate Summary Information	ORVR	Onboard Refueling Vapor Recovery
DF	Deterioration Factor	SIL	Shift Indicator Light
Evap	Evaporation, Evaporative	Trans	Transmission