March 29, 2011

Shim-Drive
Hiroshi Shimizu, President

Succeeded to achieve 333km of range per charge with the Advanced Development Model

Firstly, we would express our regret and sympathy to whom suffered from the disaster experienced in Tohoku Pacific Ocean Earthquake.

SIM-Drive has developed the Advance Development Model No. 1 for the period between January 19, 2010 and March 31, 2011. We would report that we completed the construction of the vehicle developed under the project. We named the model "SIM-LEI" as its nickname. LEI stands for the initial letters of "**L**eading **E**fficiency **I**n-Wheel motor".

At first, we planned to place the press presentation on March 29, 2011, however, considering those who suffered from the disaster this time, we decided to simply announce the completion of the model by this press release only.

The object of this project is to develop a prototype of the advanced development model aiming to start mass-production in 2013. This project collected 34 establishments and organizations who intend to enter in the electrical vehicle business in the future.

The target performance of SIM-LEI was to achieve over 300km of range per charge, which is generally pointed as the major concern for the electrical vehicle to promote in the market. The prototype achieved this target by 333km of range per charge by JC-08 mode, which represents general urban traffic condition in Japan. The battery capacity to achieve this target is 24.5kWh as almost the same level as other electrical vehicles presented in the market. Alternating Current electrical power consumption rate is 77Wh/km. This is equivalent to 70km/L of the fuel efficiency rate with gasoline as the energy consumption rate.

The fundamental technologies to achieve this performance are the SIM-Drive original technologies, such as in-wheel motor and component built-in frame. Other than these two, the following technologies contribute a lot. All steel monocoque body contributes to reduce body weight. High power density battery provides highly efficient energy re-generation. Super low rolling friction resistance tire reduces friction resistance. The super low air drag body reduced the drag drastically.

The general specification and the performance achieved are shown on the table 1, below.
As is indicated, SIM-LEI is as long as medium size sedan, and as wide as a compact car. It has a roomy leg space and large trunk space.
The acceleration performance, which is one of the feature of the electrical vehicle presented by SIM-Drive, achieved by 4.8 seconds for 0-100km/h standing start acceleration. This is the performance equivalent to the prestige sport cars.

34 bodies, who participated in this project are listed on the table 2.

On completion of the development and construction, SIM-LEI proved to be able to drive in long range, and the energy consumption rate is quite favorable. This achievement indicates that if we use mid-night surplus electricity, no additional power generation plant is required even when all vehicles in operation are replaced with the electrical vehicles. The part of the petroleum, which is used for internal combustion engine vehicles, can manage to charge all electrical vehicles. Using battery on board of the electrical vehicle as the energy storage, electricity charged at mid-night could be used at daytime for domestic household. With electrical vehicle, we can solve the lack of the electricity at the peak-time.

Considering the exterior dimensions, the cabin is quite wide and long. This wide interior is also a feature of the SIM-LEI.

Table 1; General Specification of SIM-LEI

Overall Length / Width / Height	4700mm/1600mm/1550mm
Number of seat places	4
Vehicle Weight	1650kg
Drive System	Outer rotor direct drive in-wheel motor
Drive	4WD
Range per charge by JC-08 mode: at 100km/h constant:	 333km 305km
Driving energy consumption By JC-08 mode: at 100km/h constant:	 77Wh/km 84Wh/km
Standing start acceleration; 0→100km/h	4.8 sec.
Maximum speed	150km/h

Table 2, 34 establishments and organizations participated **(Alphabetical order)**

[Organizations who permitted the announcement of their participation]

Benesse Holdings, Inc. (Education)	**Nippon Telegraph and Telephone East Corp**
Dynax Corporation (P)	**Nishimikawa Development Inc. (E)**
IHI Corporation (H)	**Okayama Prefectural Government**
Inoue Manufacturing Co., Ltd. (Machinery)	**Olympus Corporation (Precision)**
Iriso Electronics Co., Ltd. (P)	**Pioneer Corporation (Electrical)**
Isuzu Motors Limited (A)	**Sanden Corporation (P)**
Japan Aviation Electronics Industry, Ltd. (P)	**Serio Corporation (Software)**
Kureha Corporation (Material)	**Tanaka Kikinzoku Group (Material)**
Mitsubishi Corporation (Trading)	**TECO Electric & Machinery Co., Ltd.**
Mitsubishi Motors Corporation (A)	**Teikoku Piston Ring Co., Ltd. (P)**
Mitsui & Co., Ltd. (Trading)	**THK Co., Ltd. (P)**
Mitsuiwa Corporation (Trading)	**Tokyo Electric Power Company (Energy)**
Nano-Optonics Energy, Inc. (E&E))	**Totoku Toryo Co., Ltd. (M, Paint)**
Nikkan Industries Co., Ltd. (Material)	**Tottori Prefectural Government**

(A: Automobile manufacturer, E: Environment, E & E: Environment & Energy, P: Auto parts,)

SIM-LEI

Interior

Contact

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