**1- Package Content & Revision History**

**2012 Hyundai Sonata 8.5kW 270V BISG**

The following is a listing of the contents of this ALPHA Map Data Package along with the suggested citation format and revision history of the material. Use of any NCAT documents listed below, included as part of the complete test data package, should reference the suggested citation provided. Note that SAE Papers included in the package should utilize the designated SAE CITATION format.

**SUGGESTED CITATION:**

*2012 Hyundai Sonata 8.5kW 270V BISG – ALPHA Map Package*. Version 2023-03. Ann Arbor, MI: US EPA, National Vehicle and Fuel Emissions Laboratory, National Center for Advanced Technology, 2023.

**TEST PACKAGE CONTENTS:**

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| 1– Package Content & Revision History.docx | Brief overview document listing the contents, revision history & suggested citation format of the package |
| 2– Related NCAT Packages.docx | Listing of related NCAT Test Data and ALPHA Engine Map Packages |
| 3a– 2012 Hyundai Sonata 8.5kW 270V BISG – ALPHA Generation Process.html | NCAT summary report describing the process followed to generate full efficiency and power loss maps |
| 3b– 2012 Hyundai Sonata 8.5kW 270V BISG – NCAT Test Report.docx | NCAT report outlining the test method and results for mapping the electric motor |
| 3c– 2012 Hyundai Sonata 8.5kW 270V BISG – ORNL Test Data File.xlsx | A variable file containing data collected during testing; parameters include speeds, loads, temperatures, and pressures |
| 3d– Benchmarking State-of-the-Art Technologies Presentation by ORNL May 2013.pdf [1] | Final presentation prepared by ORNL describing the test procedures and featured aspects of this system - Reference [1] in the NCAT Test Report |
| 3e– FY2013 DOE Annual Progress Report Advanced Power Electronics and Electric Motors Program.pdf [2] | Report provided to DOE outlining the status update by ORNL for the testing and featured aspects of this system - Reference [2] in the NCAT Test Report |
| 3f– Evaluation of the 2010 Toyota Prius Hybrid Synergy Drive System by ORNL March 2011.pdf [3] | Paper prepared by ORNL describing the specific overall testing approach utilized when testing electric motors and hybrid systems - Reference [3] in the NCAT Test Report |
| 4a– 2012 Hyundai Sonata 8.5kW 270V BISG – Efficiency.pdf | Contour plot of the Efficiency results of the mapping over the full operational area |
| 5a– 2012 Hyundai Sonata 8.5kW 270V BISG – Power Loss.pdf | Contour plot of the Power Loss results of the mapping over the full operational area |
| 6– 2012 Hyundai Sonata 8.5kW 270V BISG – Electrical Power Consumption Data.xlsx | Electrical power consumption and efficiency data over the operating range of the emotor extracted from the NCAT generated final power loss and efficiency contour plots (Package Contents 4a and 5a) |
| 7– emachine\_2012\_Hyundai\_Sonata\_  8p5kW\_270V\_BISG.m | ALPHA output result text file |

**REVISION HISTORY:**

Version 2023-03: Initial release