

2018 Mazda 2.5L Skyactiv-G Tier 3 Fuel - Test Data Plots

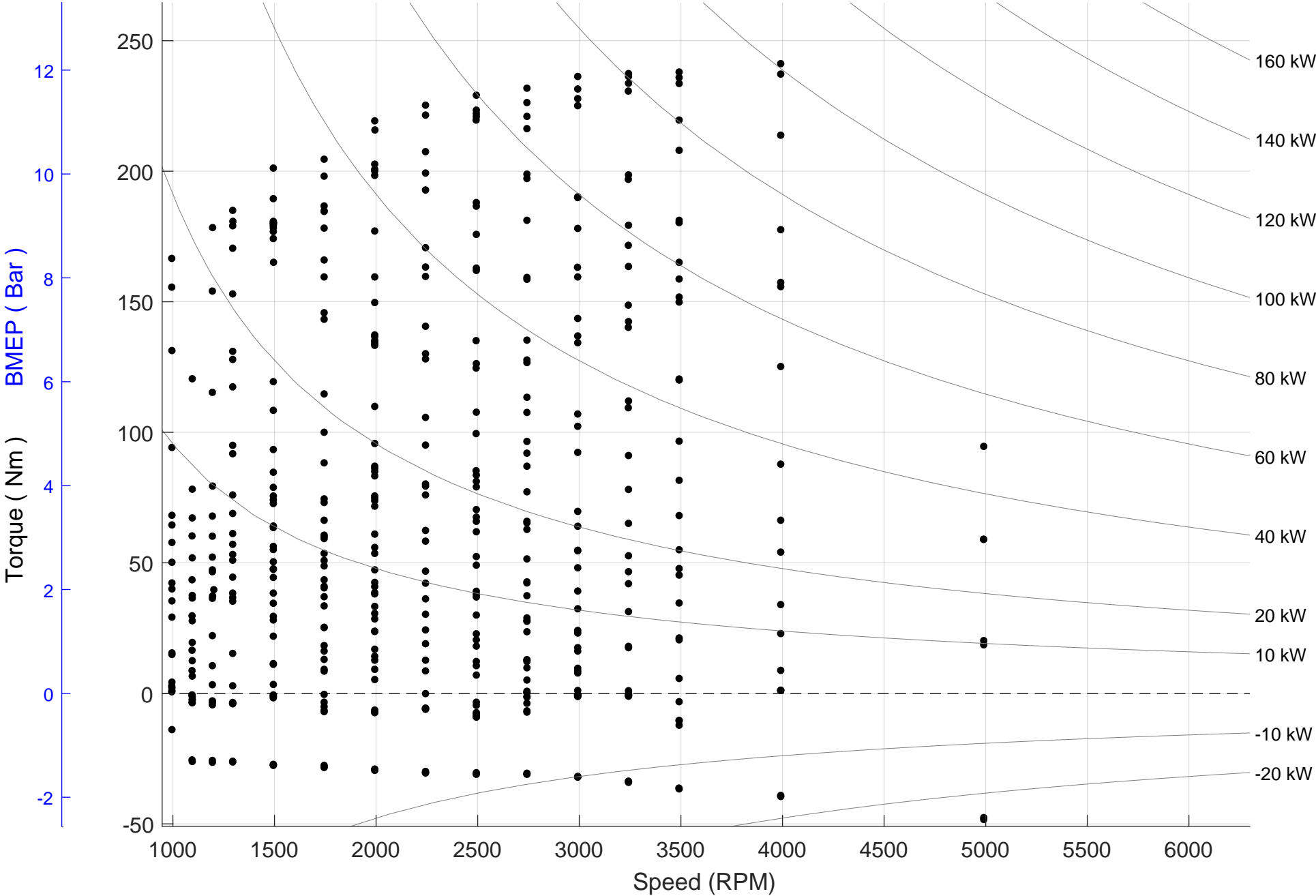
SUGGESTED CITATION: 2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Package. Version 2023-08. Ann Arbor, MI: US EPA, National Vehicle and Fuel Emissions Laboratory, National Center for Advanced Technology, 2023.

- — Dashed line indicates the maximum torque curve from published data
- Black dots indicate speed/load points at which steady state data was acquired
- ✗ Red Xs indicate speed/load points where data was not collected or did not meet quality standards

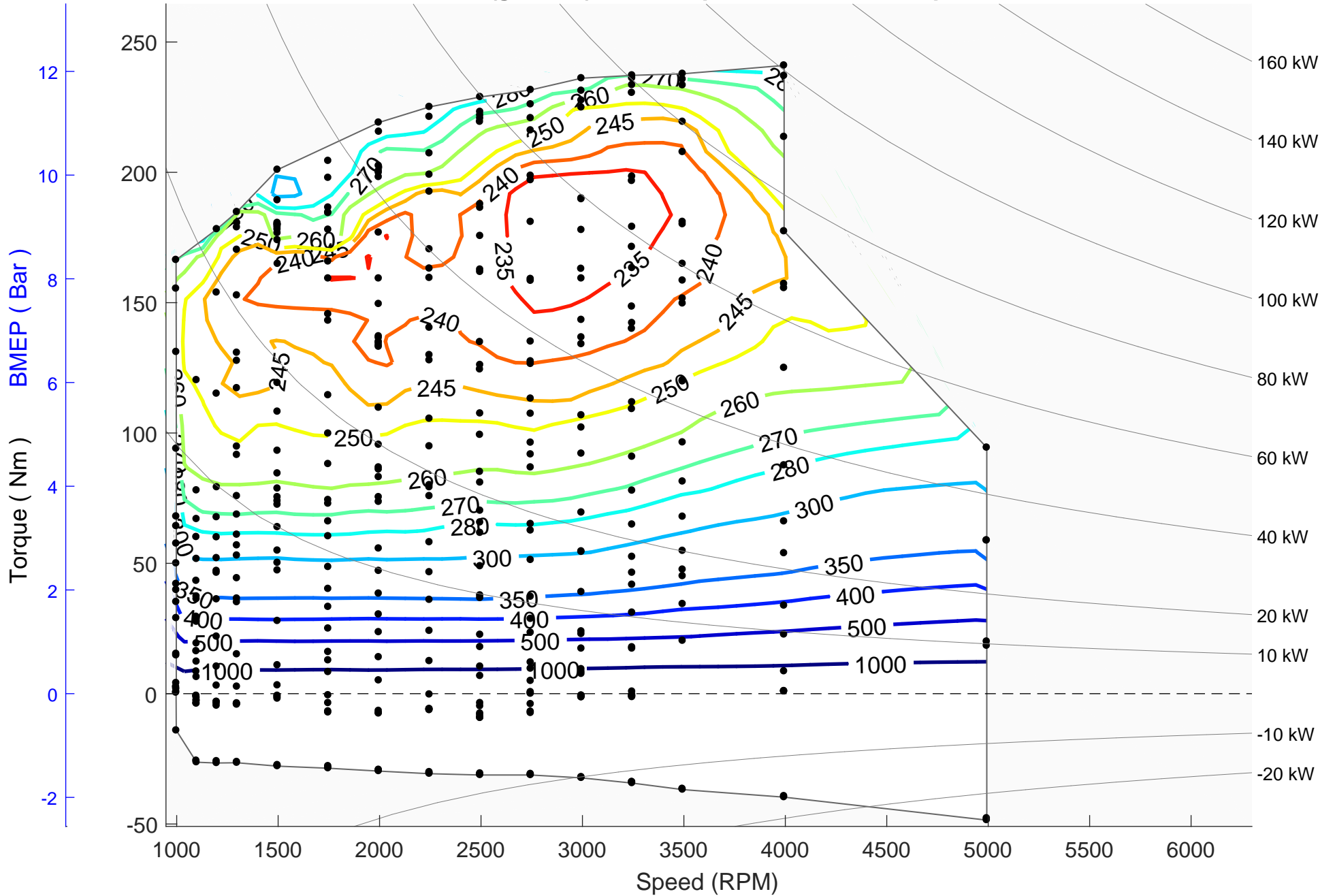
Note: In these contour plots, individual data points may be ignored or removed, using our best engineering judgment, to correct irregularities in the visual presentation of the contour lines; additional details are contained in the test report.

Note 2: All plots of engine parameters in this package with “Cylinder Deactivation Enabled” include y-axis scales for both “Torque (Nm)” and “BMEP (Bar)”, where “BMEP (Bar)” is calculated using the displacement of all 4 cylinders. If these plots were provided with “Effective BMEP (Bar)” on the y-axis (instead of “BMEP [Bar]”), the y-axis values would be effectively doubled (e.g. 8 bar instead of 4, etc) since displacement of the 2 firing cylinders is half that of the total of 4 cylinders of the engine.

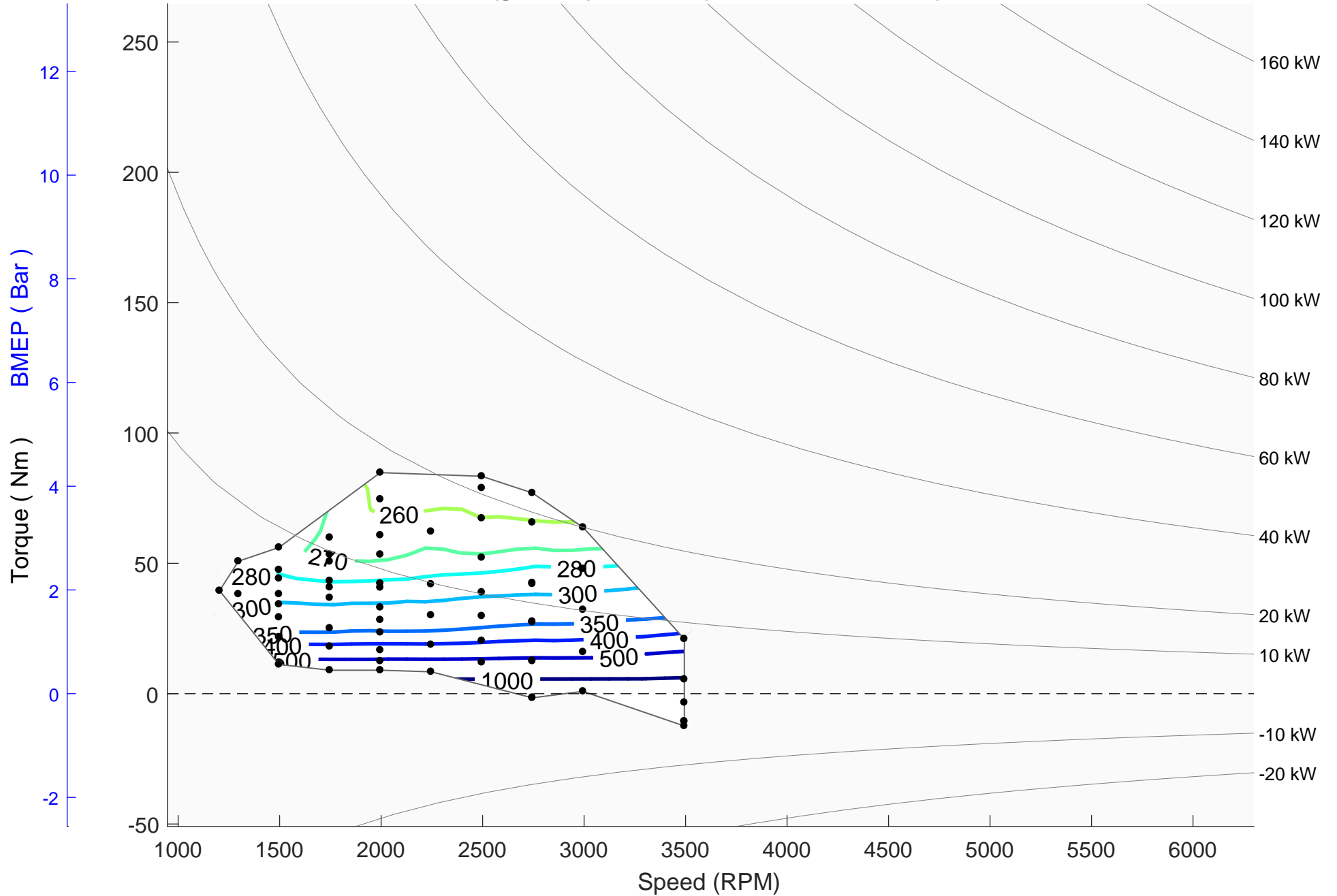
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Test Data Points



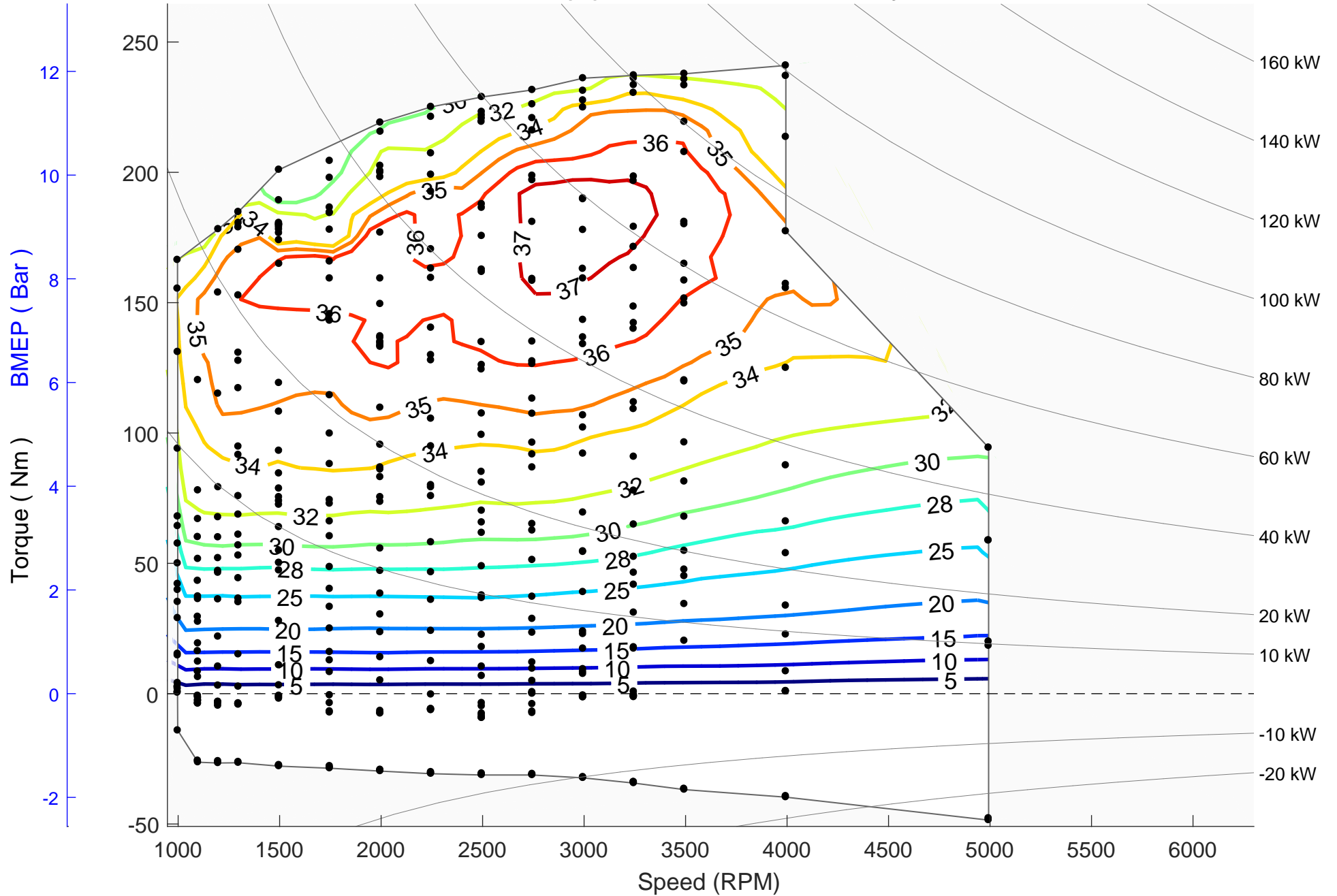
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
BSFC (g/kW-hr) - Brake Specific Fuel Consumption



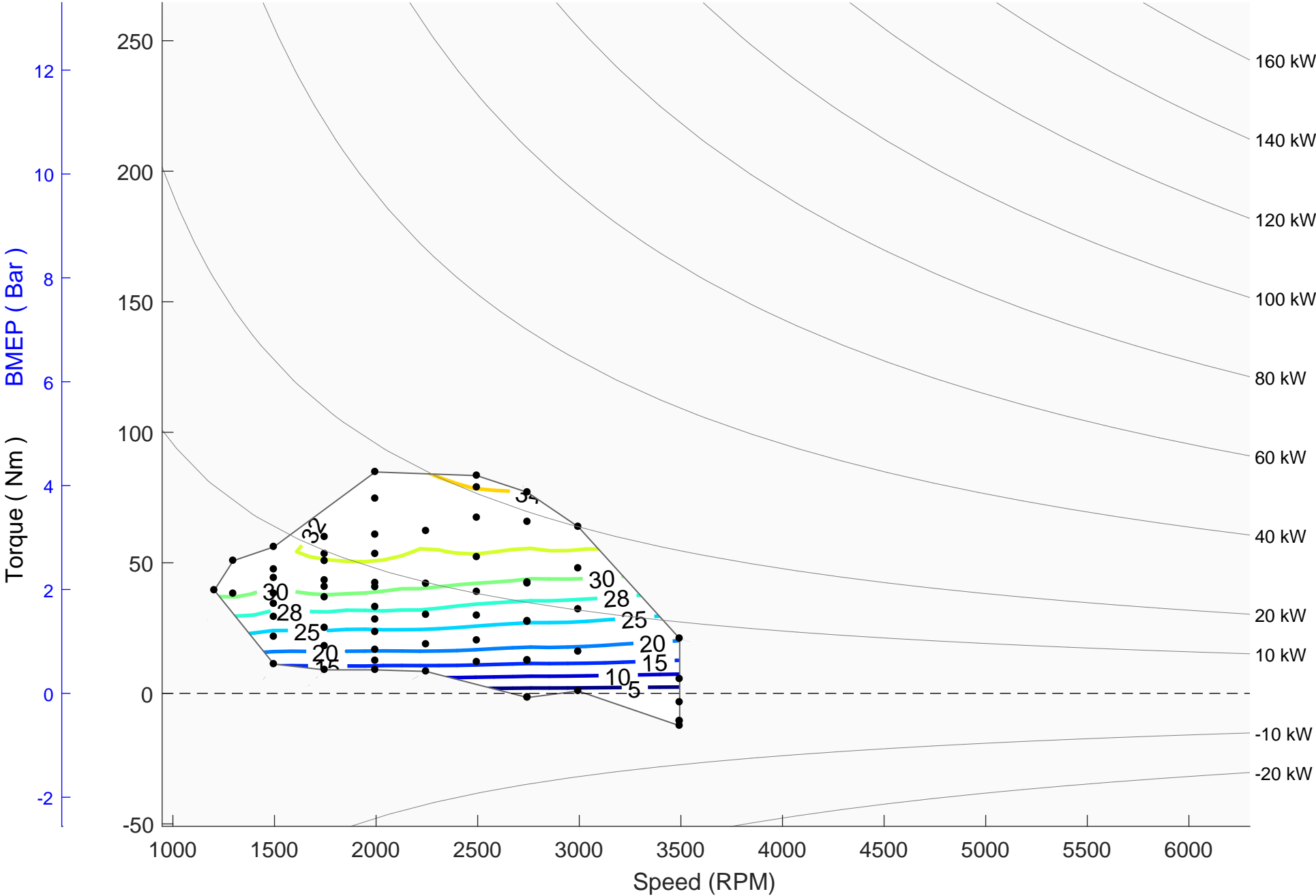
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
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BSFC (g/kW-hr) - Brake Specific Fuel Consumption



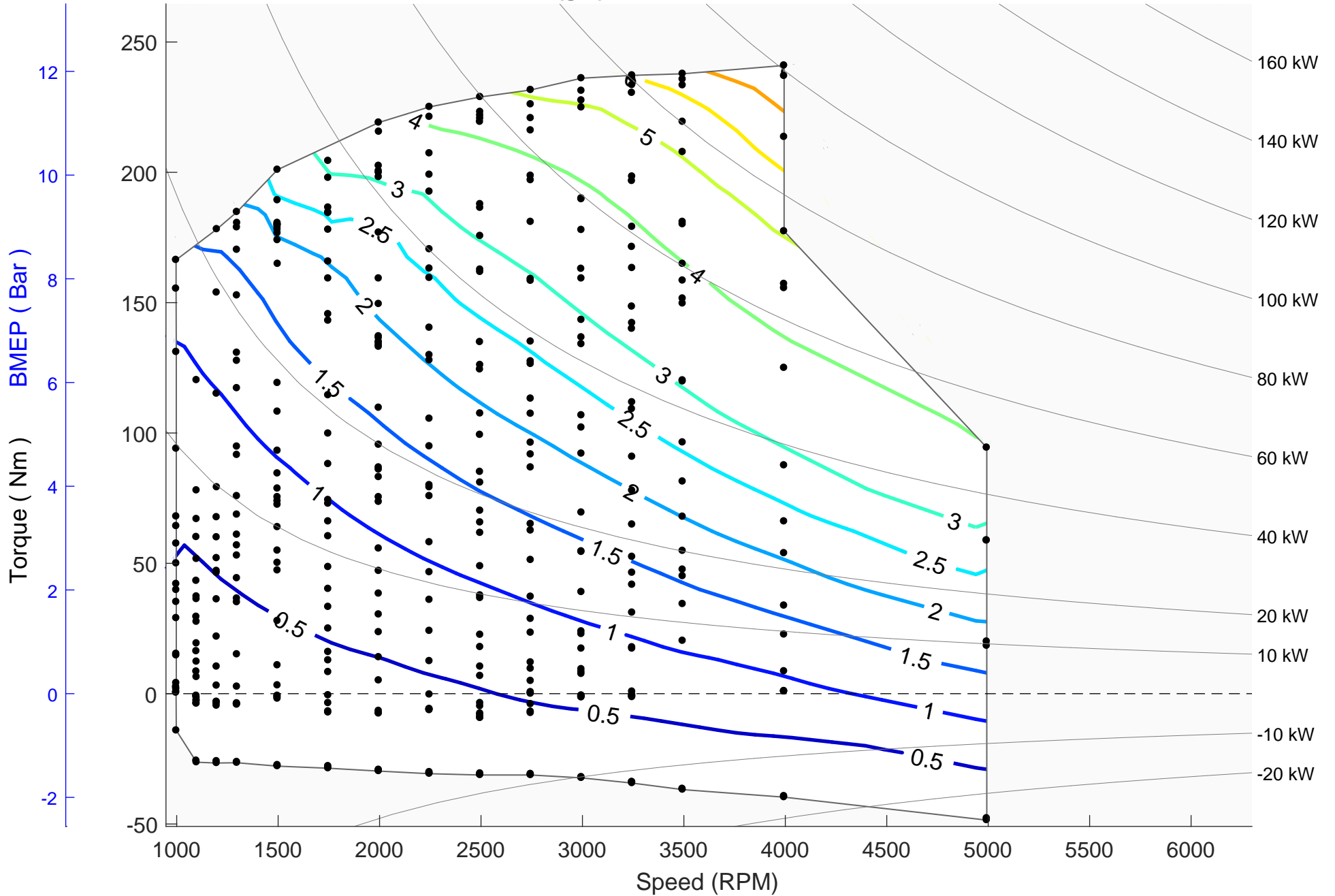
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
BTE (%) - Brake Thermal Efficiency



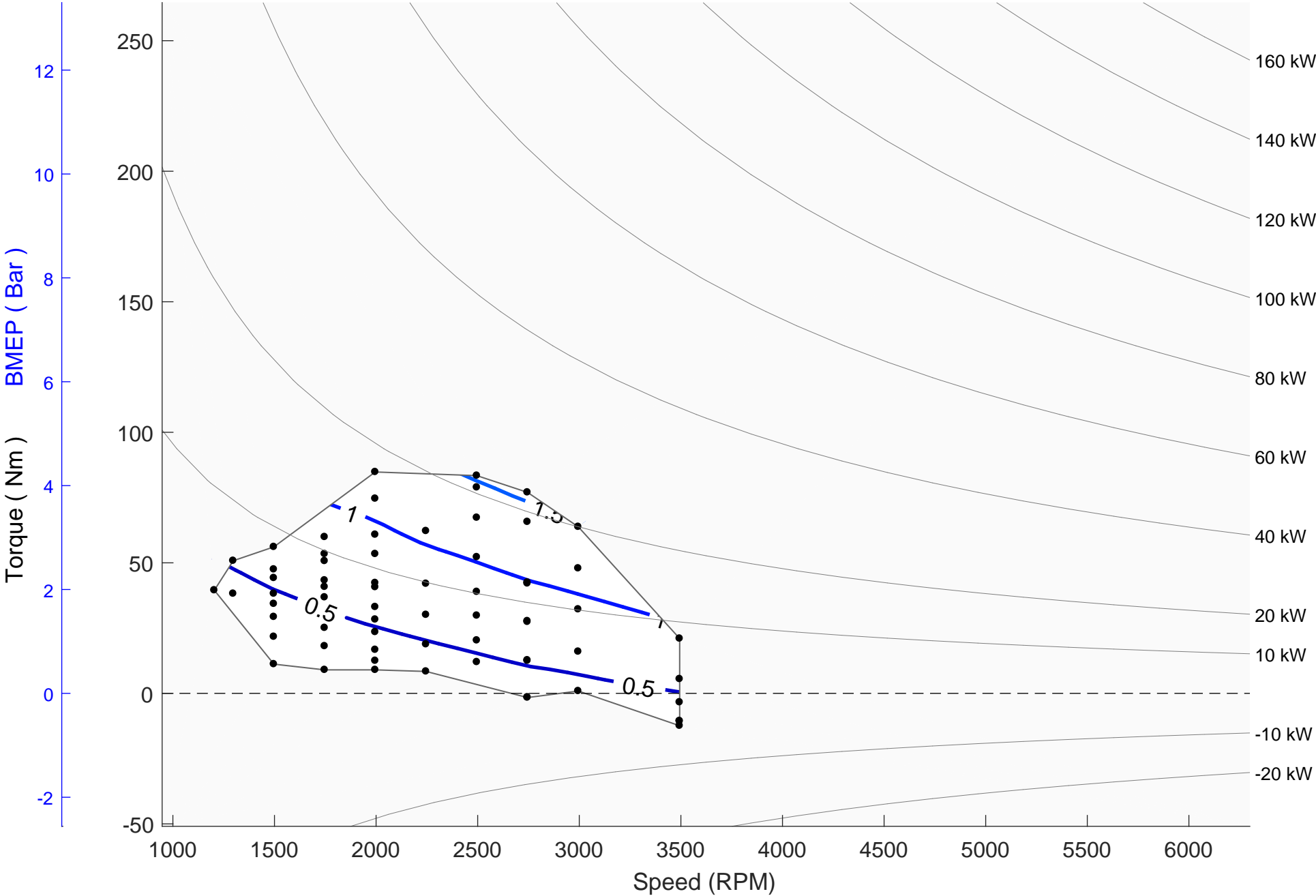
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Enabled
BTE (%) - Brake Thermal Efficiency



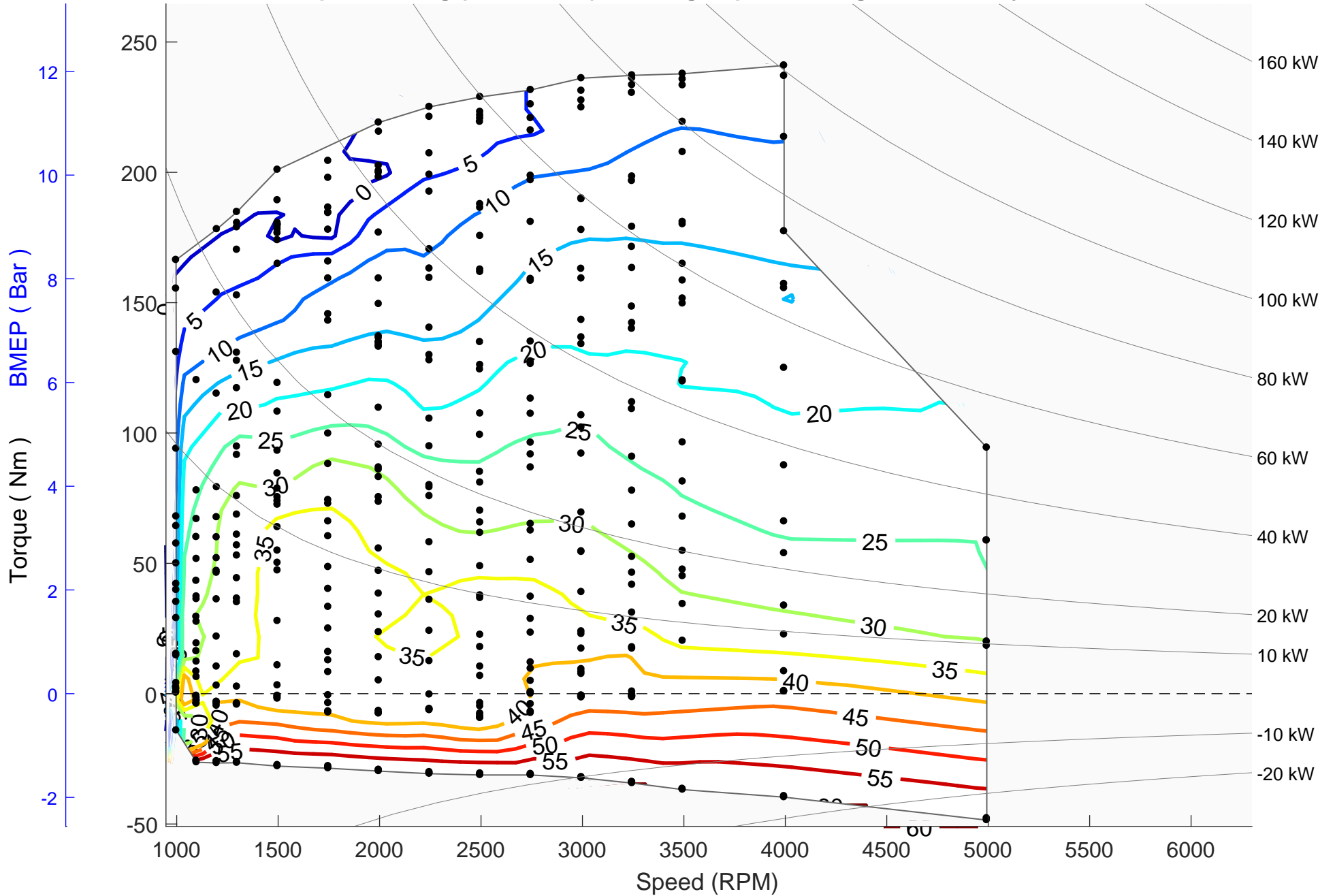
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Fuel Meter Flow (g/s) - Fuel Flow Measured with Flow Meter



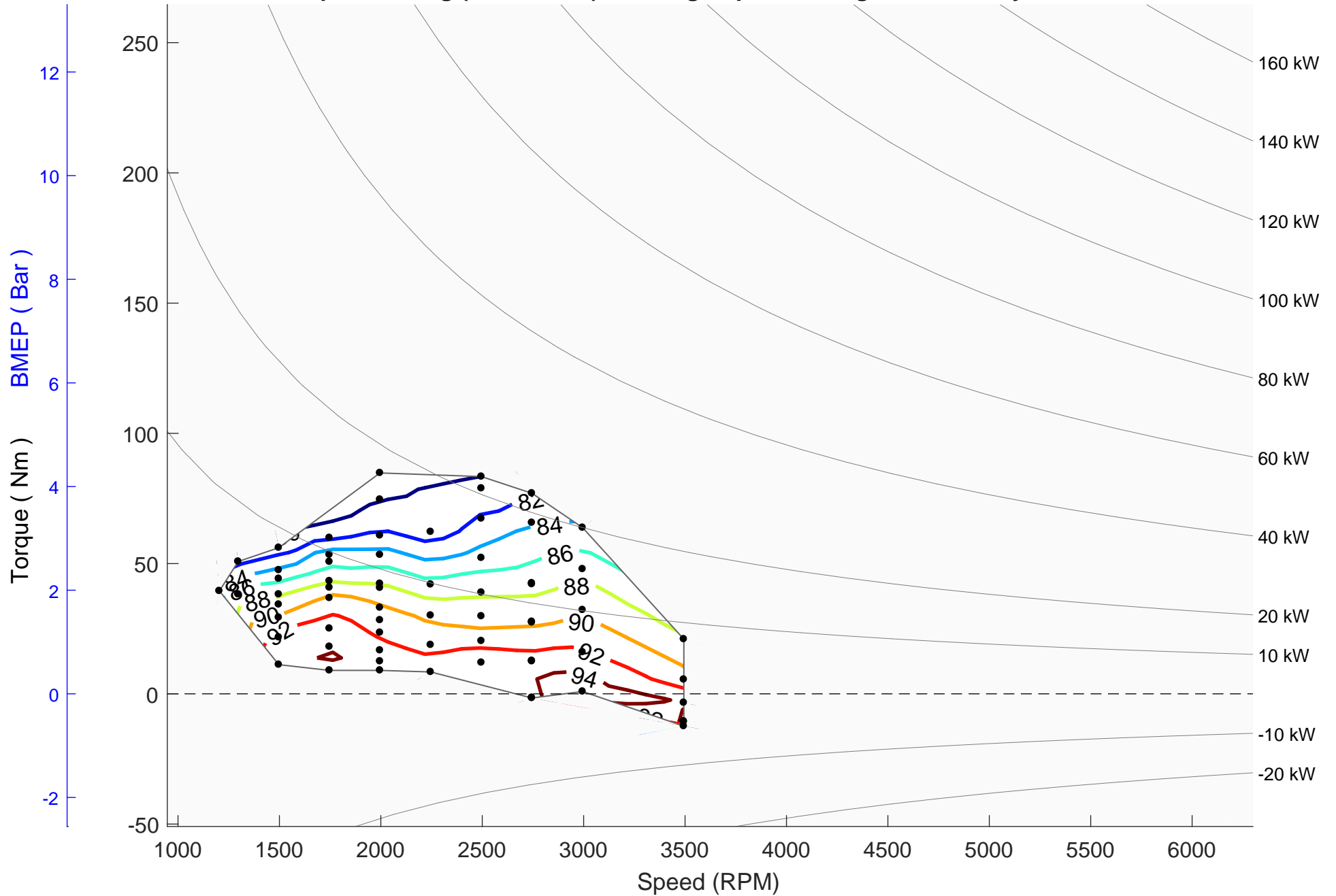
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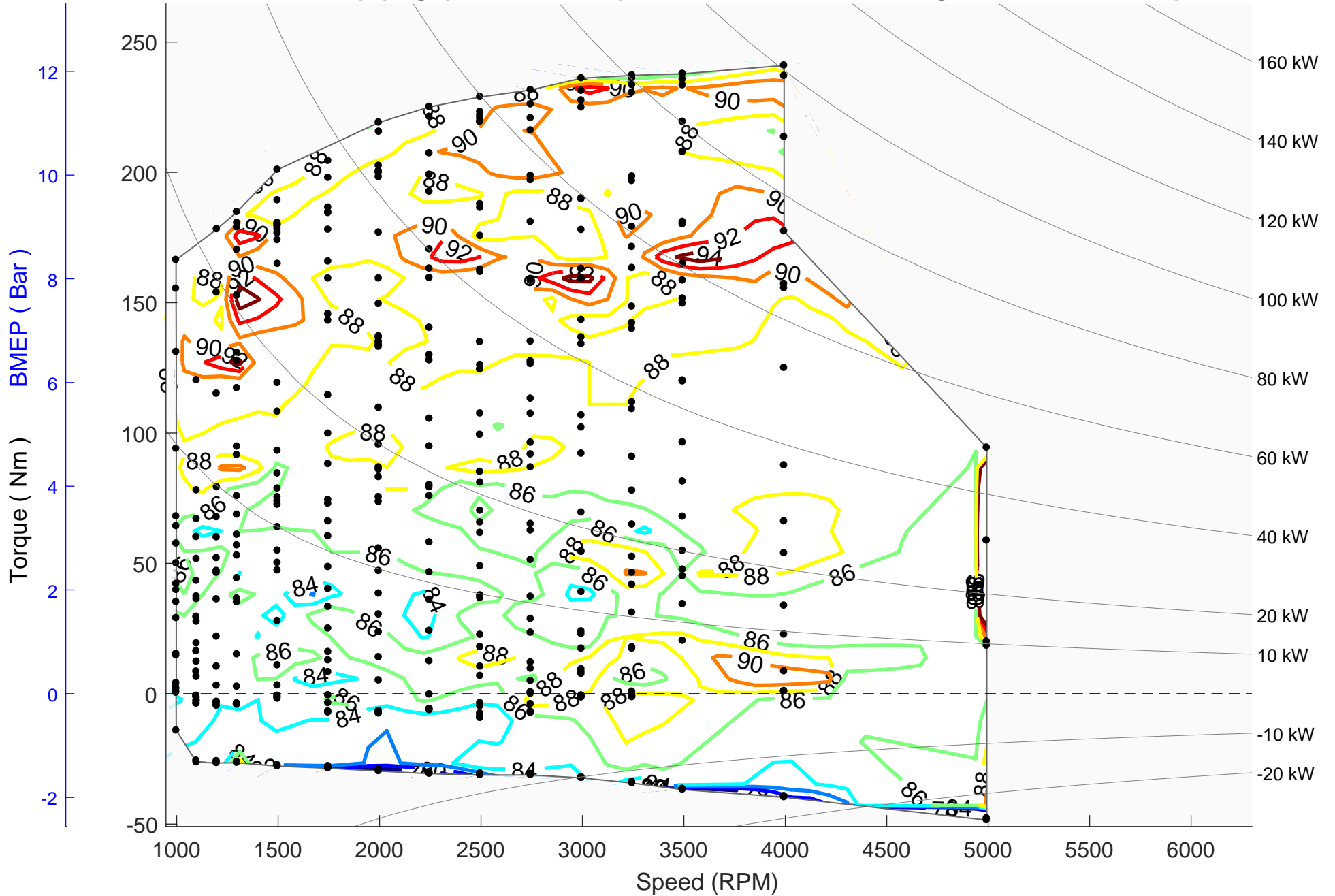
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Spark Timing (CAD BTDC) - Average Spark Timing Across all Cylinders



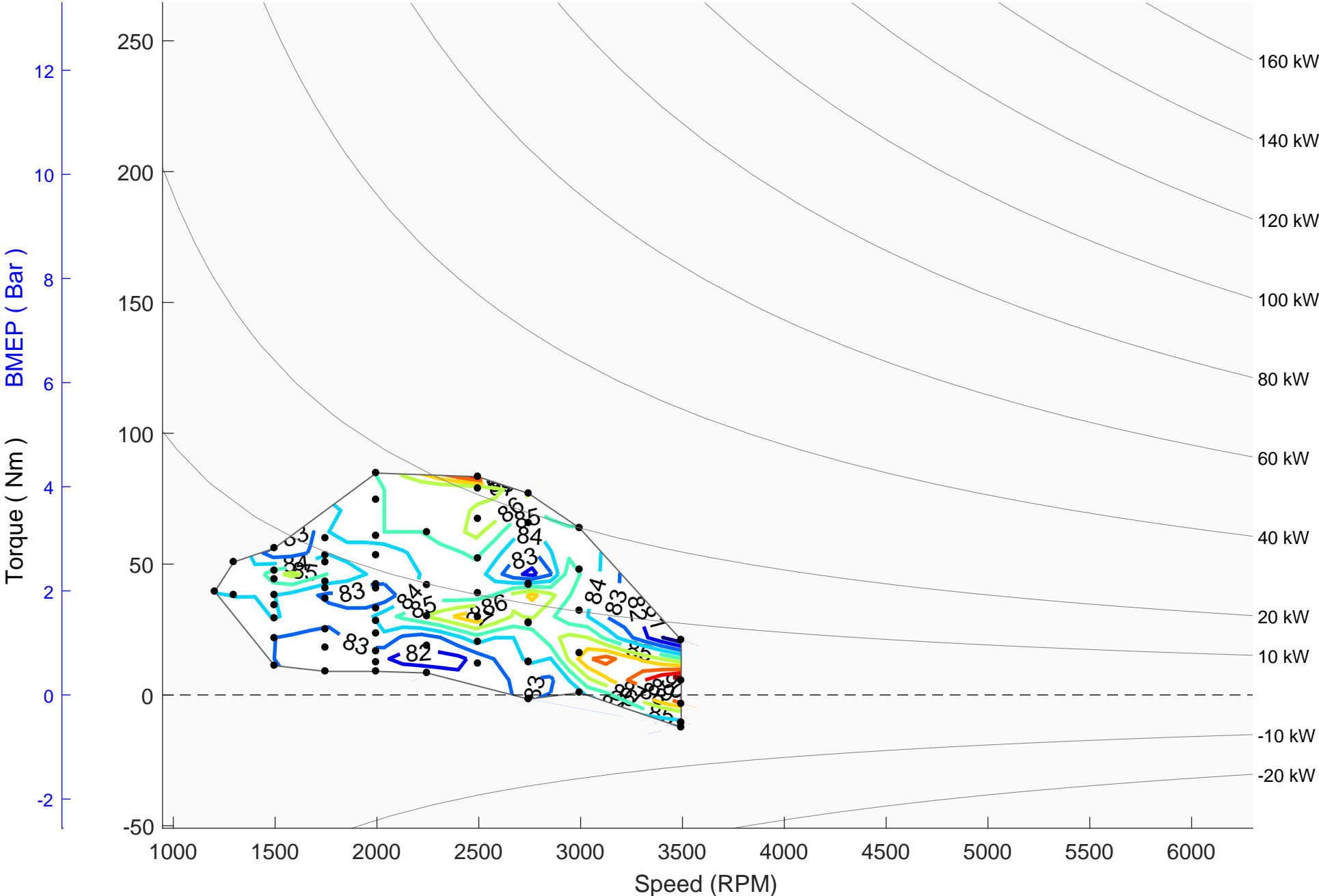
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
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Spark Timing (CAD BTDC) - Average Spark Timing Across all Cylinders



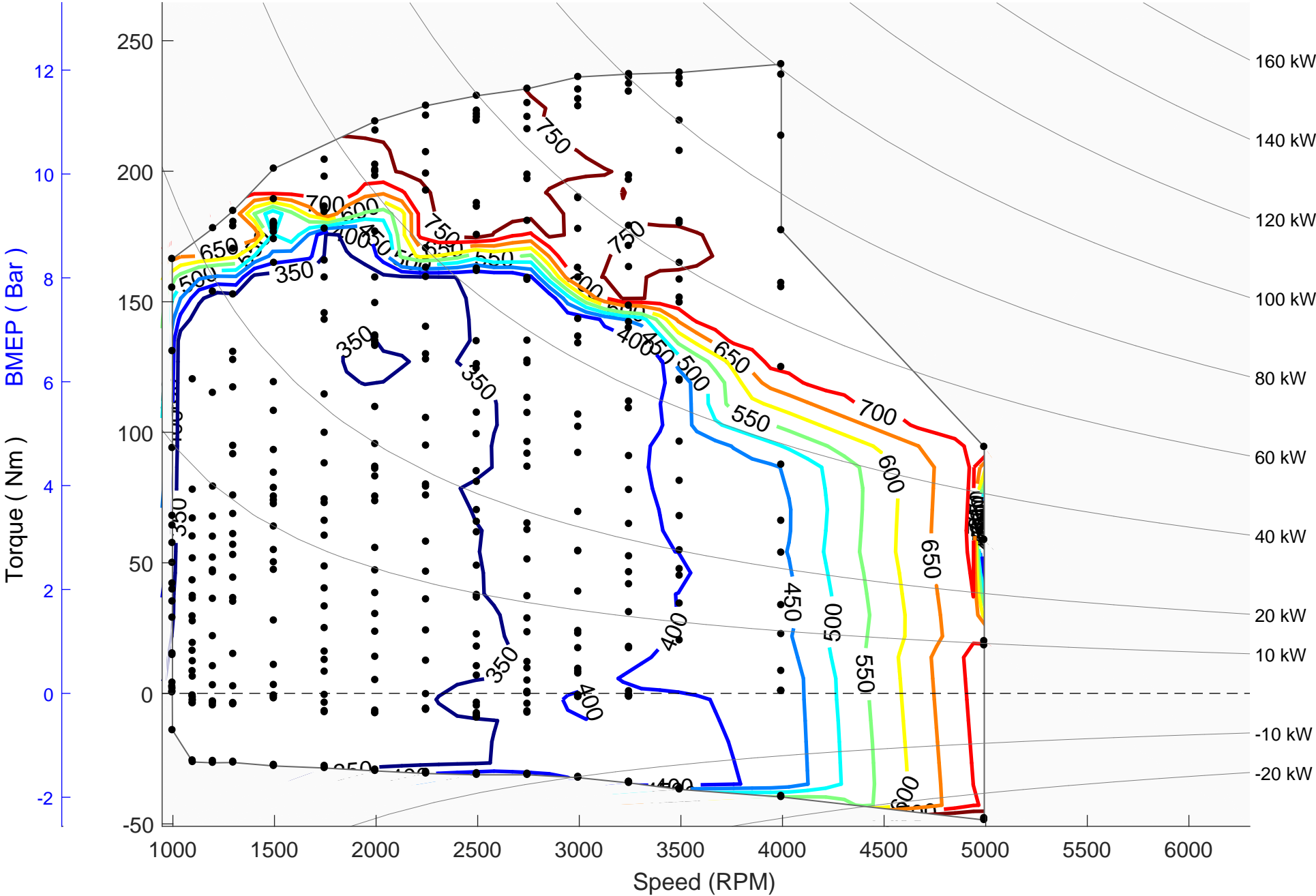
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Coolant Temp (degC) - Coolant Temperature Measured in the Engine Heater Core Loop



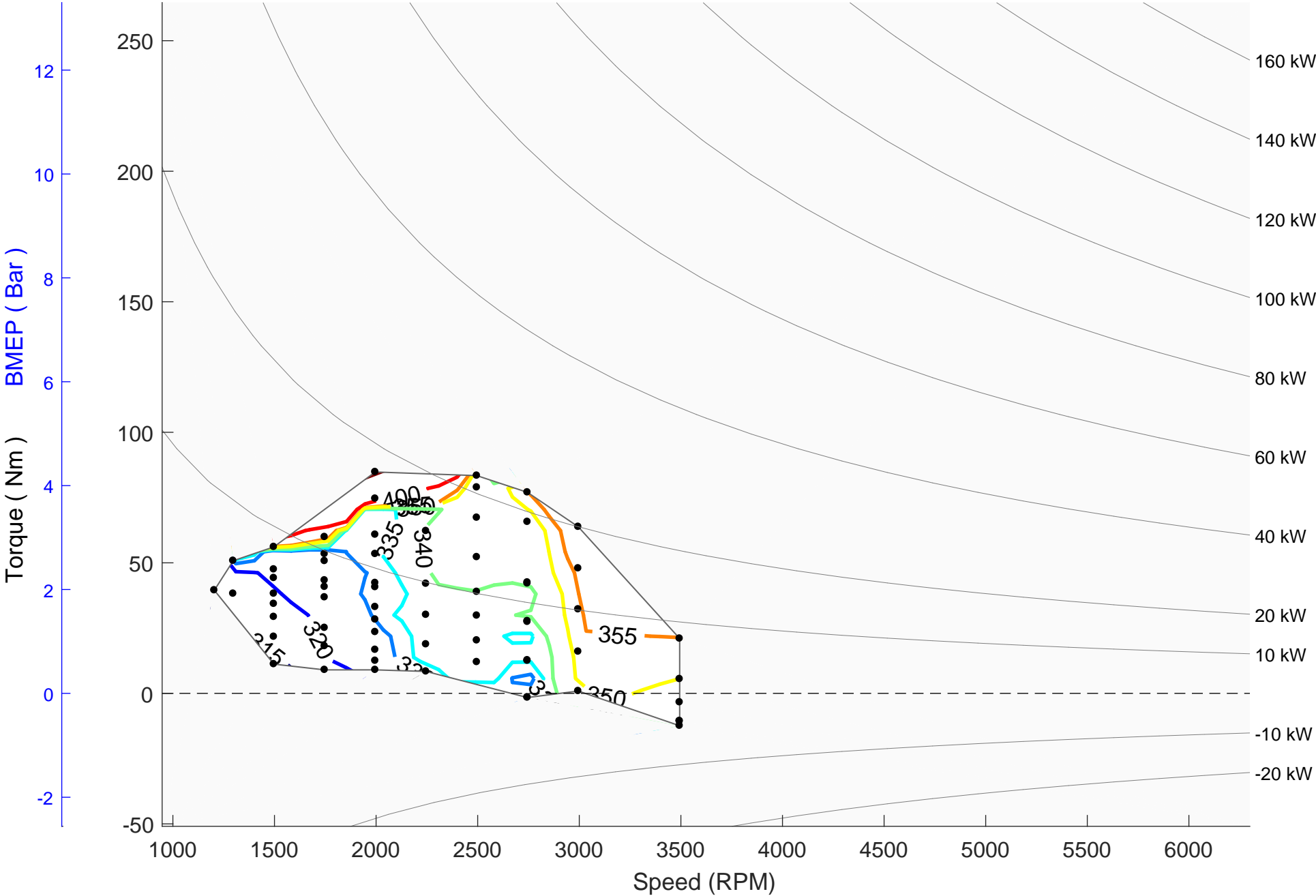
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Steady State - Cylinder Deactivation Enabled
Coolant Temp (degC) - Coolant Temperature Measured in the Engine Heater Core Loop



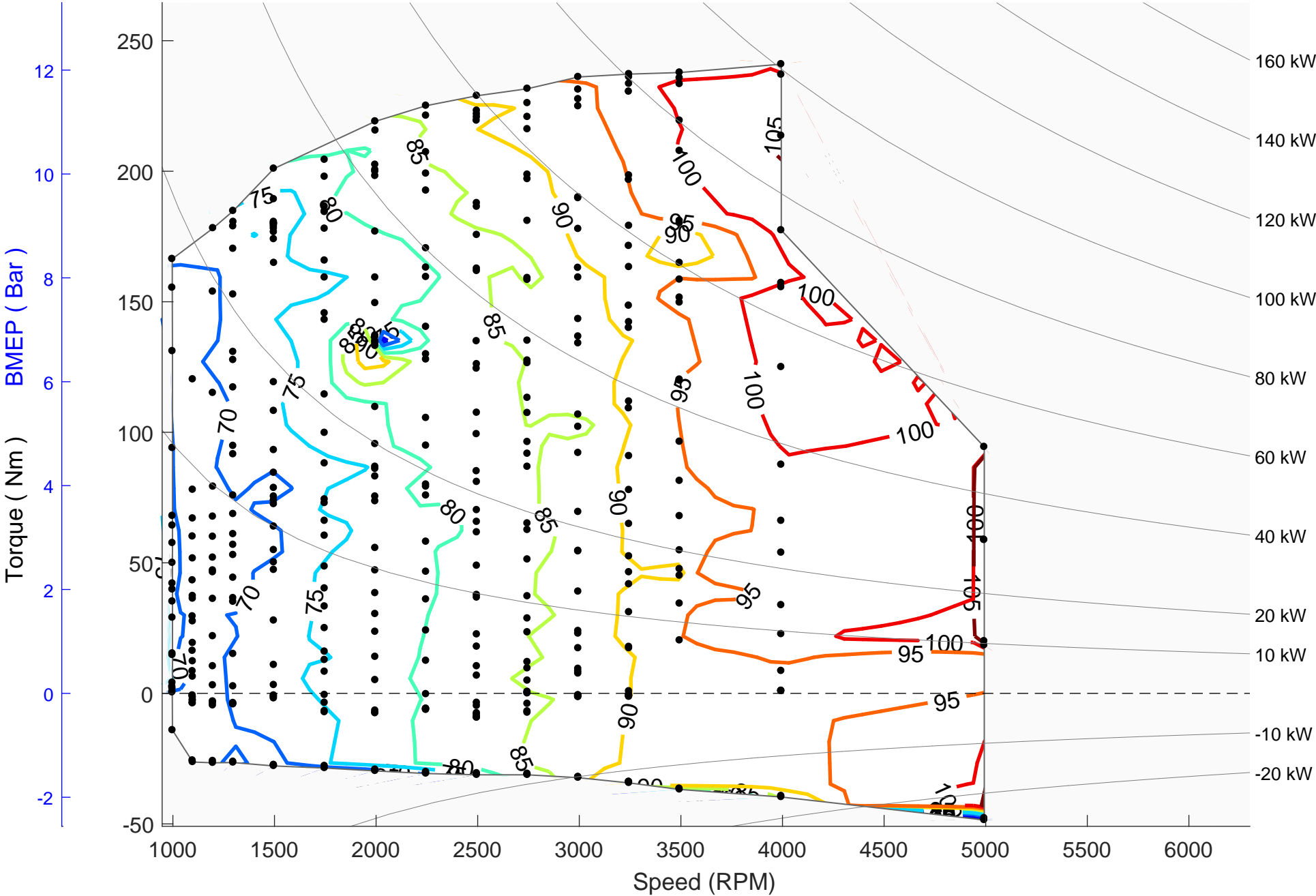
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Oil Pressure (kPaA) - Oil Pressure



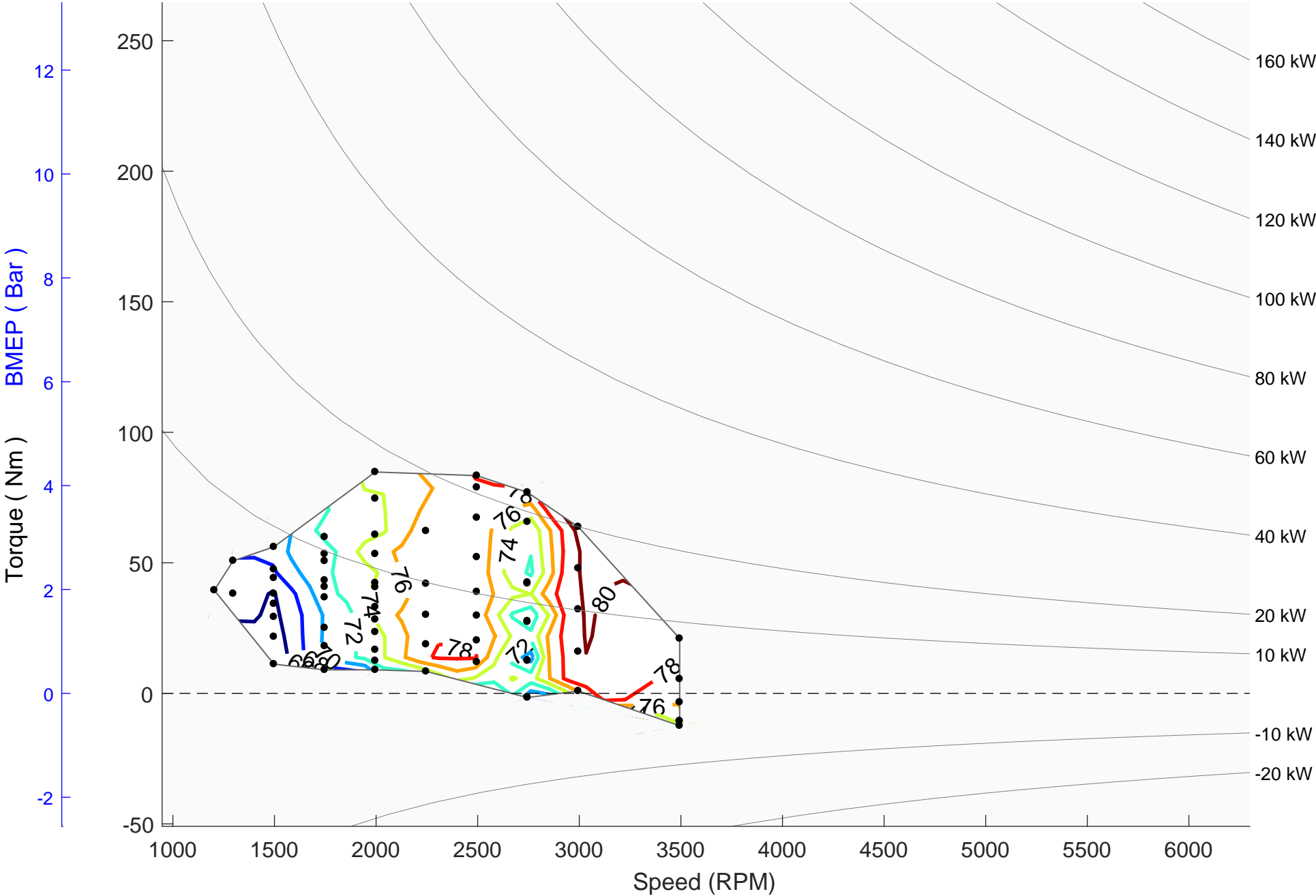
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Oil Pressure (kPaA) - Oil Pressure



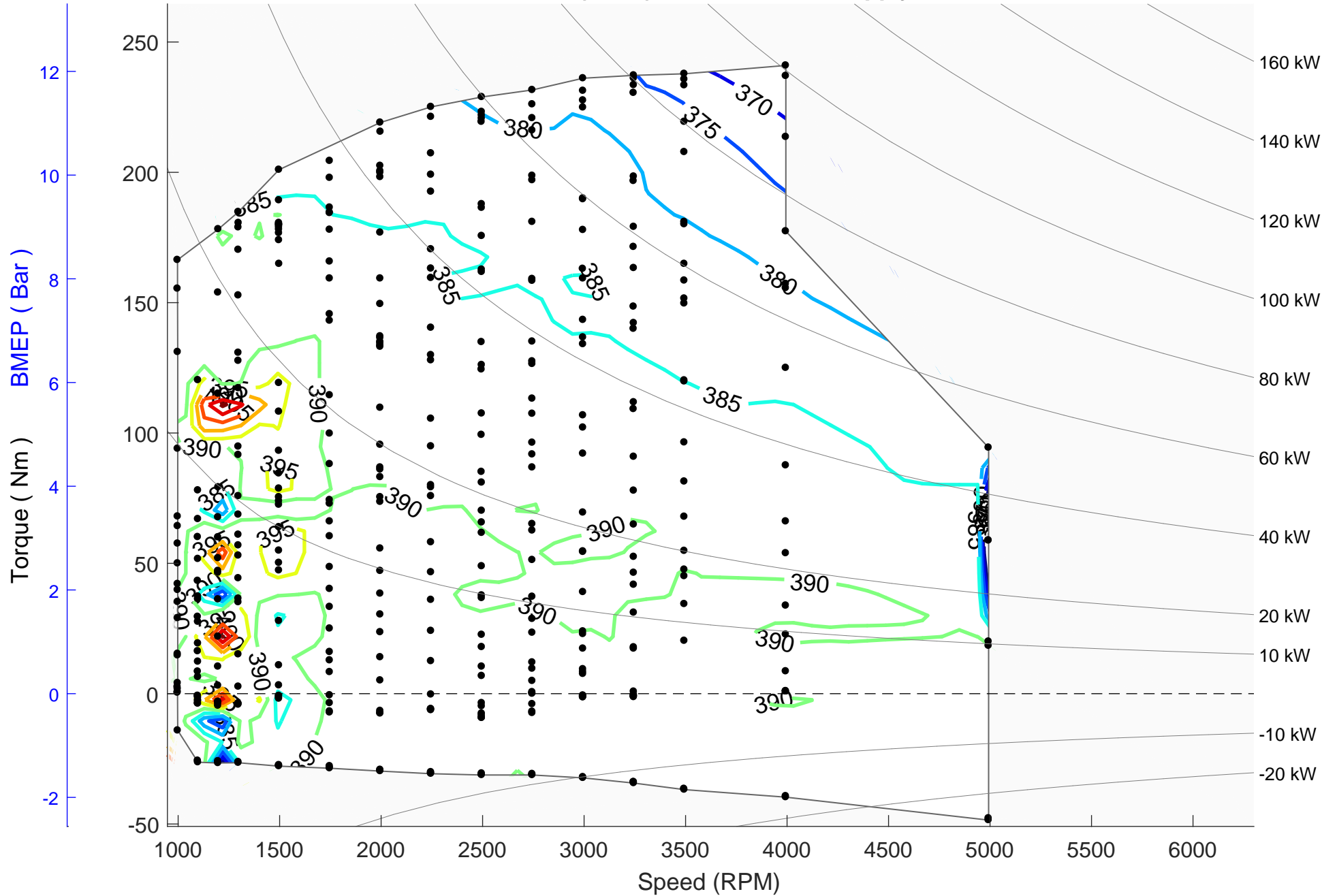
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Oil Temp (degC) - Oil Pan Temperature



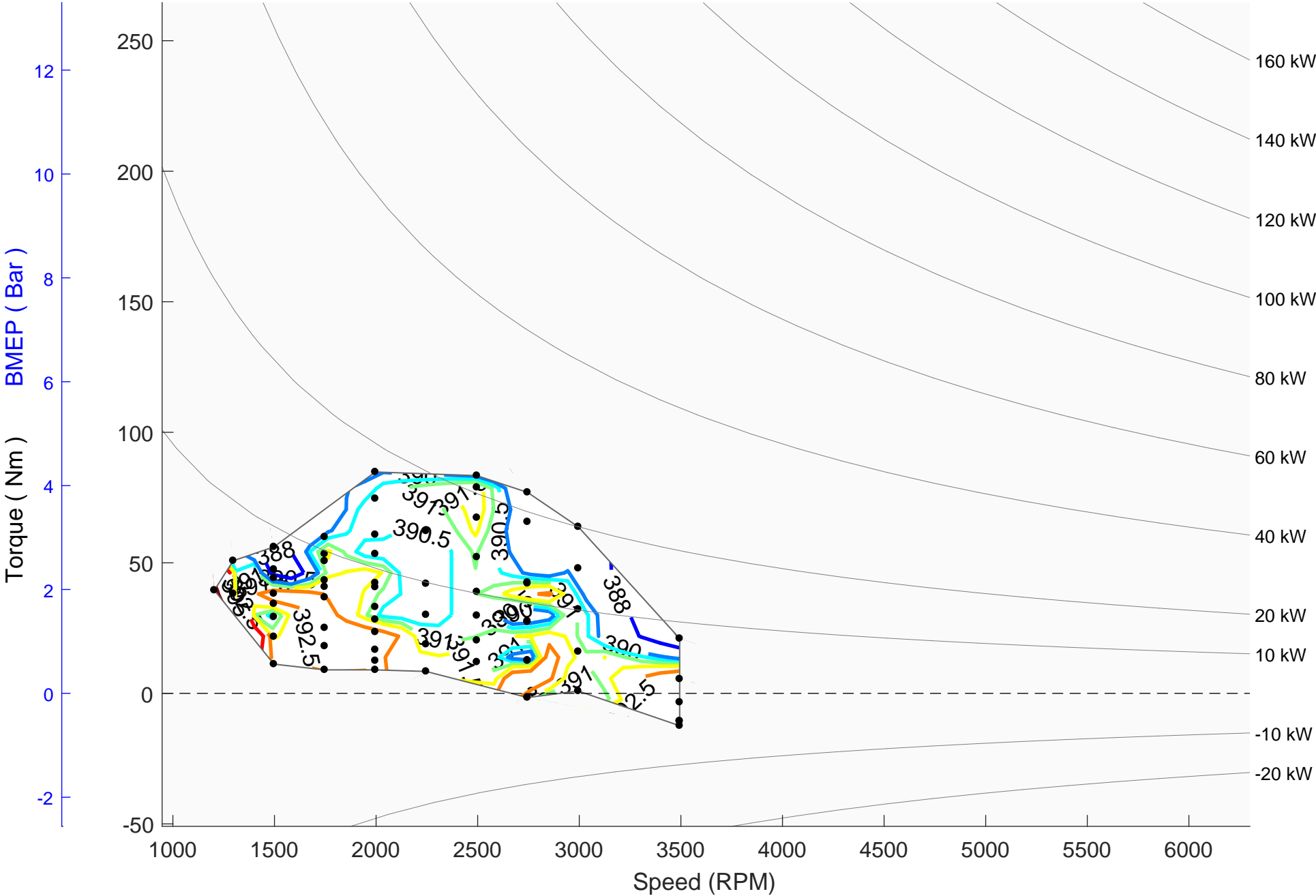
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Steady State - Cylinder Deactivation Enabled
Oil Temp (degC) - Oil Pan Temperature



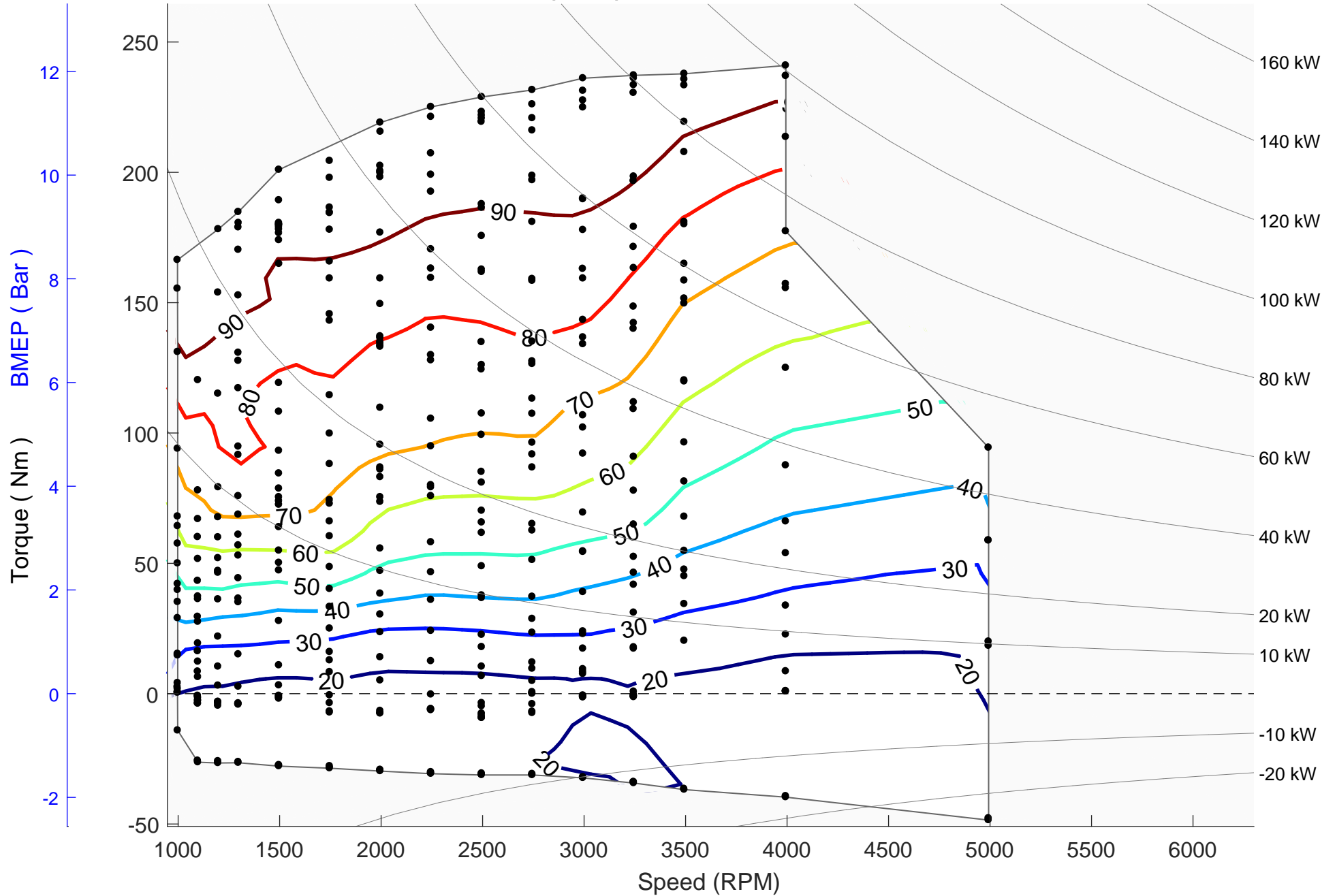
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Fuel Feed Press (kPaA) - Test Cell Fuel Supply Pressure



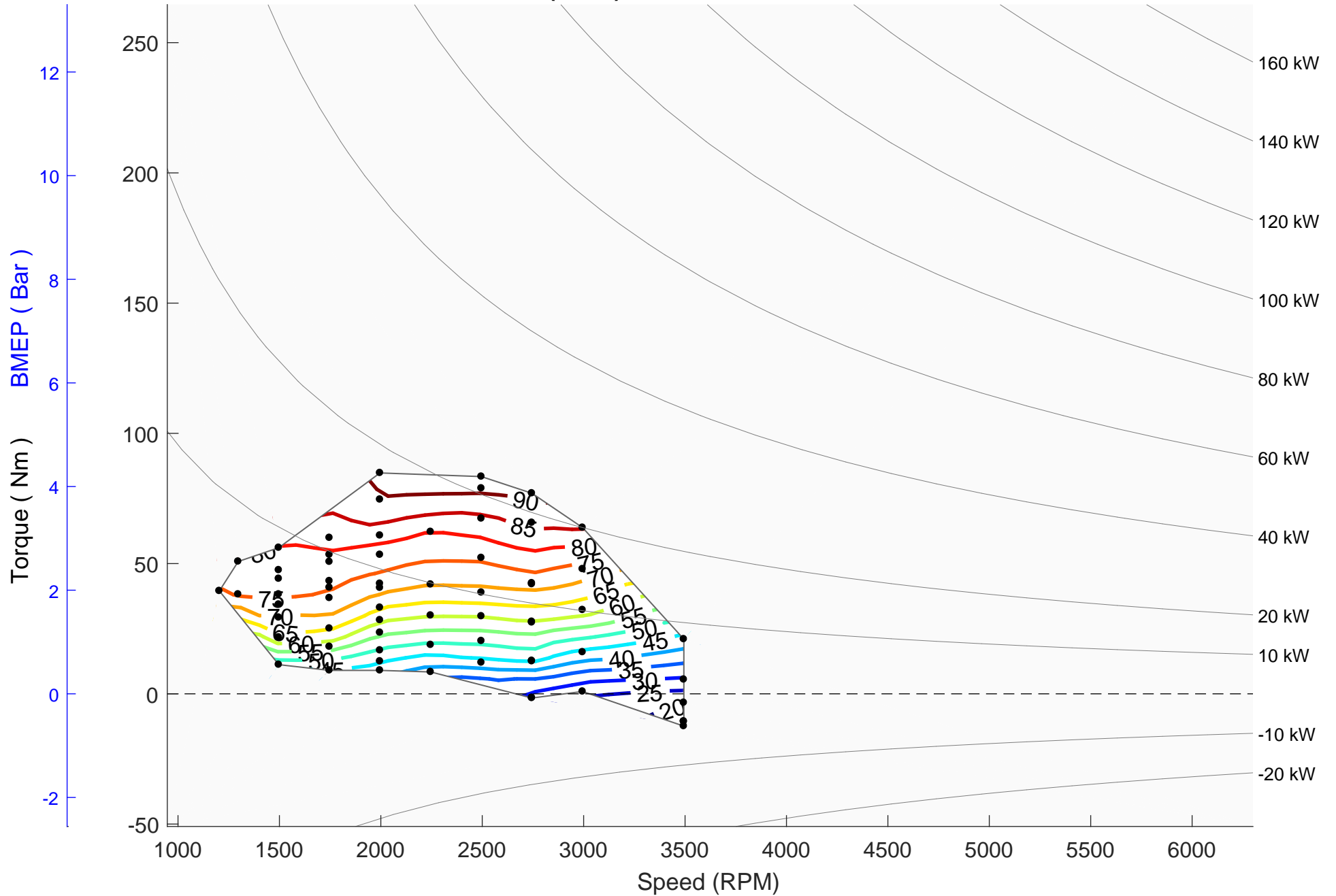
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Enabled
Fuel Feed Press (kPaA) - Test Cell Fuel Supply Pressure



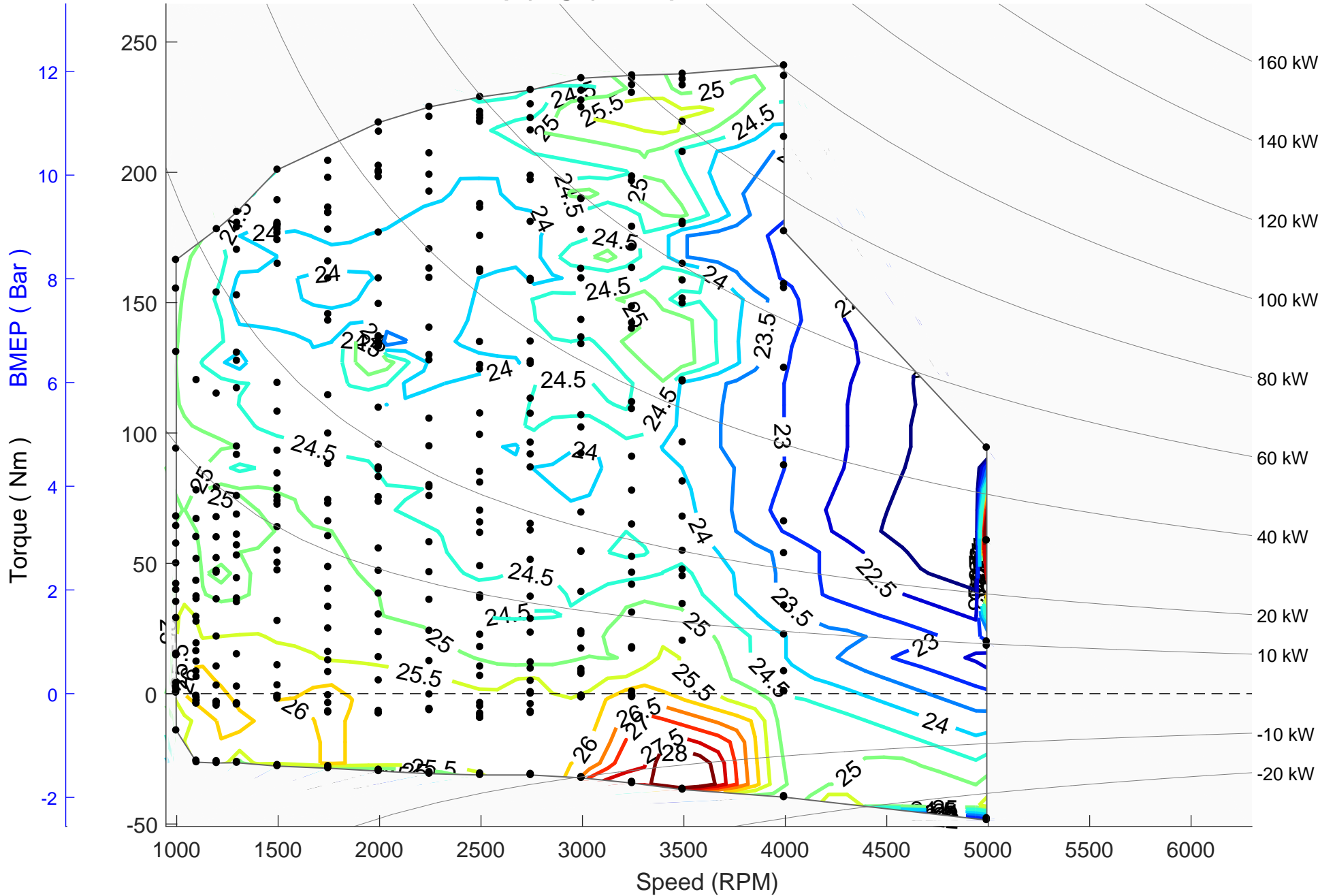
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Intake Manifold Press (kPaA) - Pressure Measured in the Intake Manifold

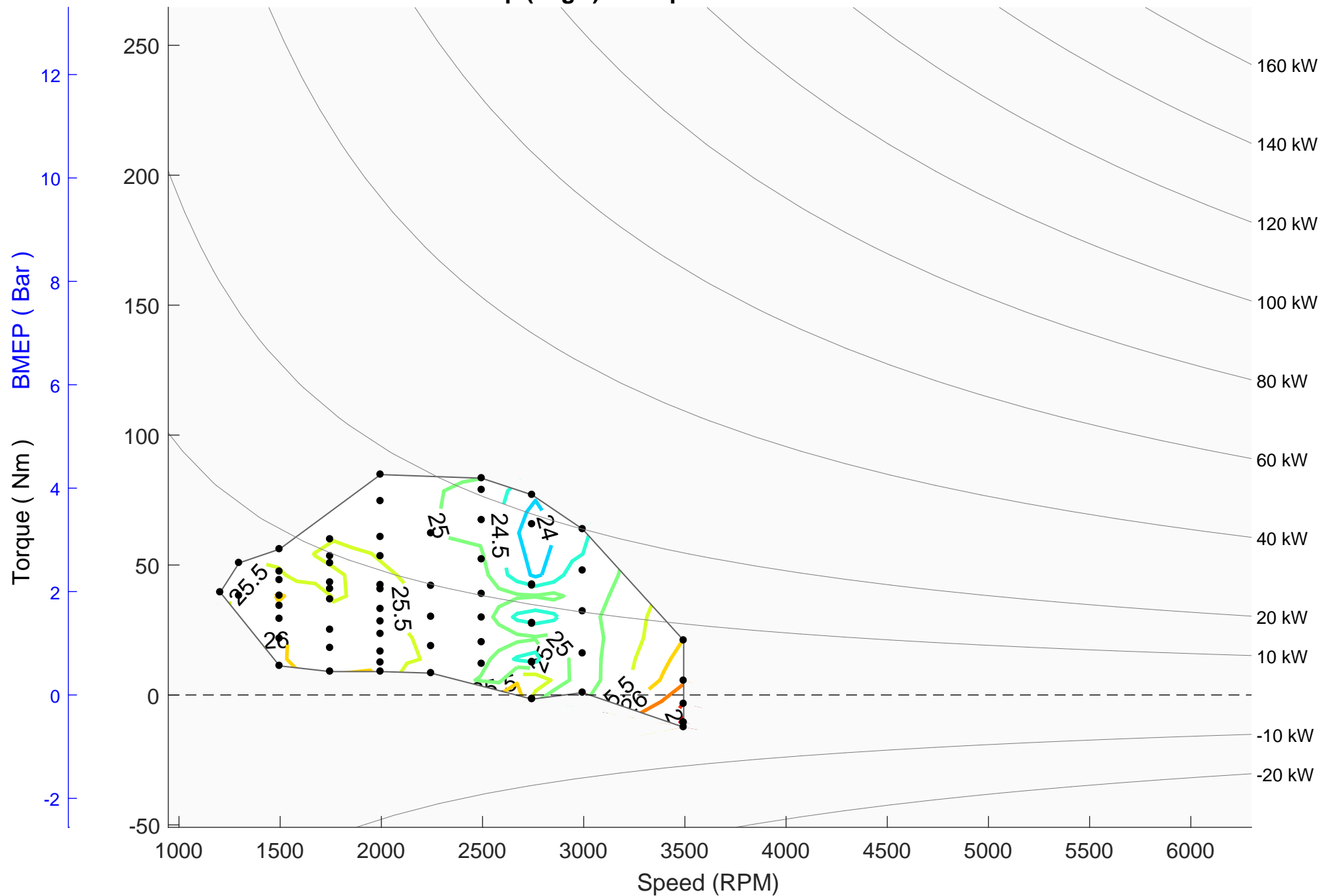


2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Enabled
Intake Manifold Press (kPaA) - Pressure Measured in the Intake Manifold



2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Intake Manifold Temp (degC) - Temperature Measured in the Intake Manifold

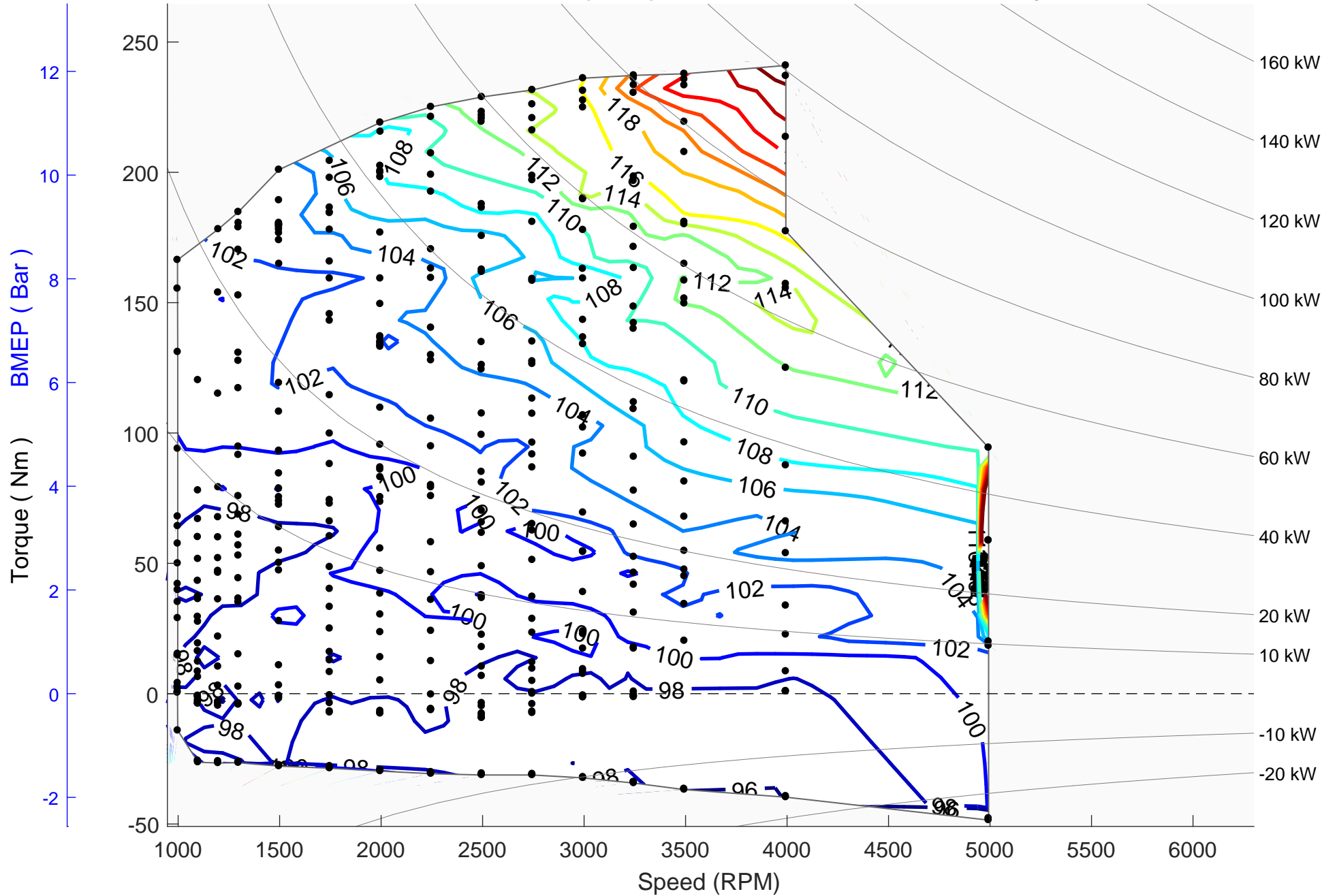




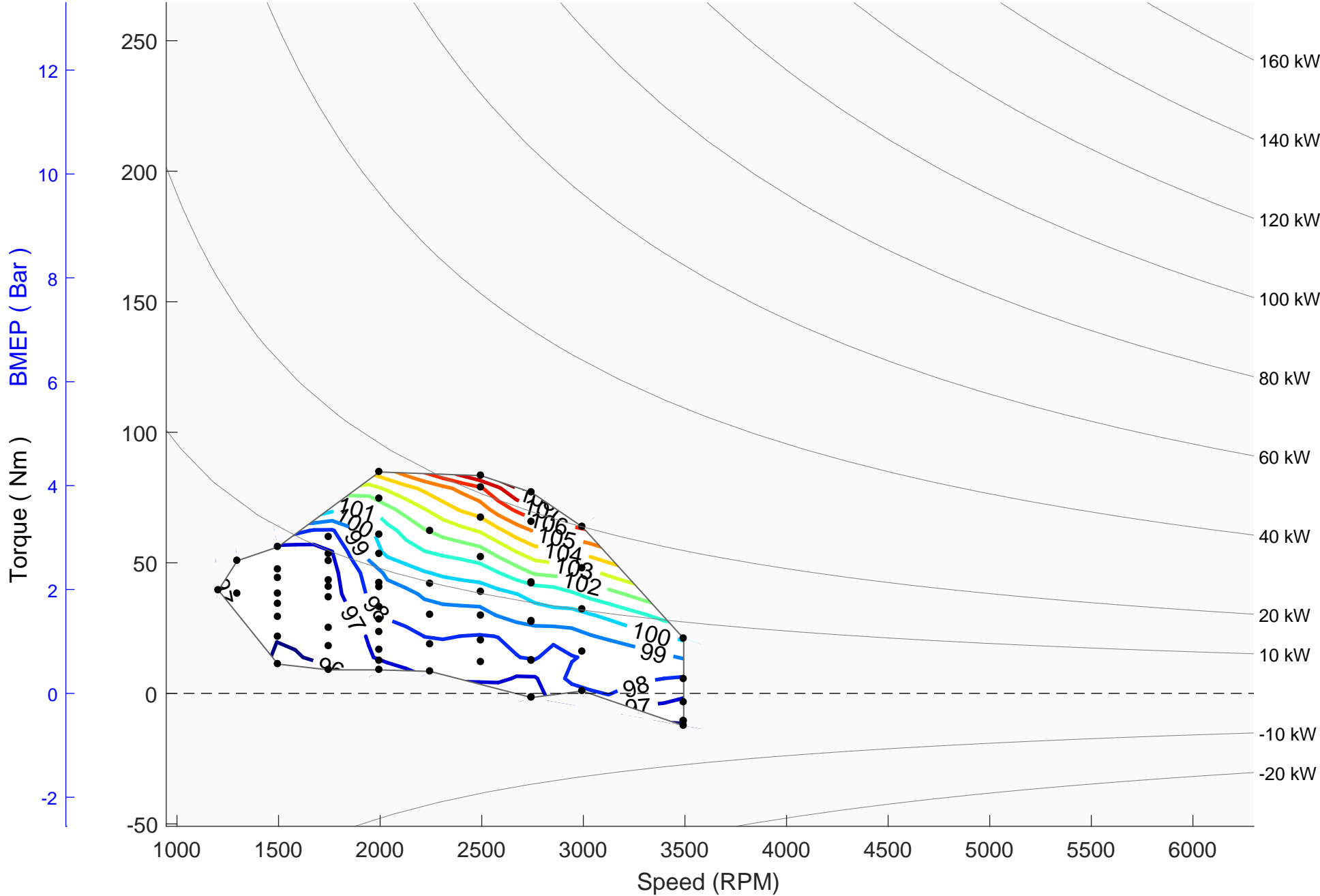
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots

Steady State - Cylinder Deactivation Disabled

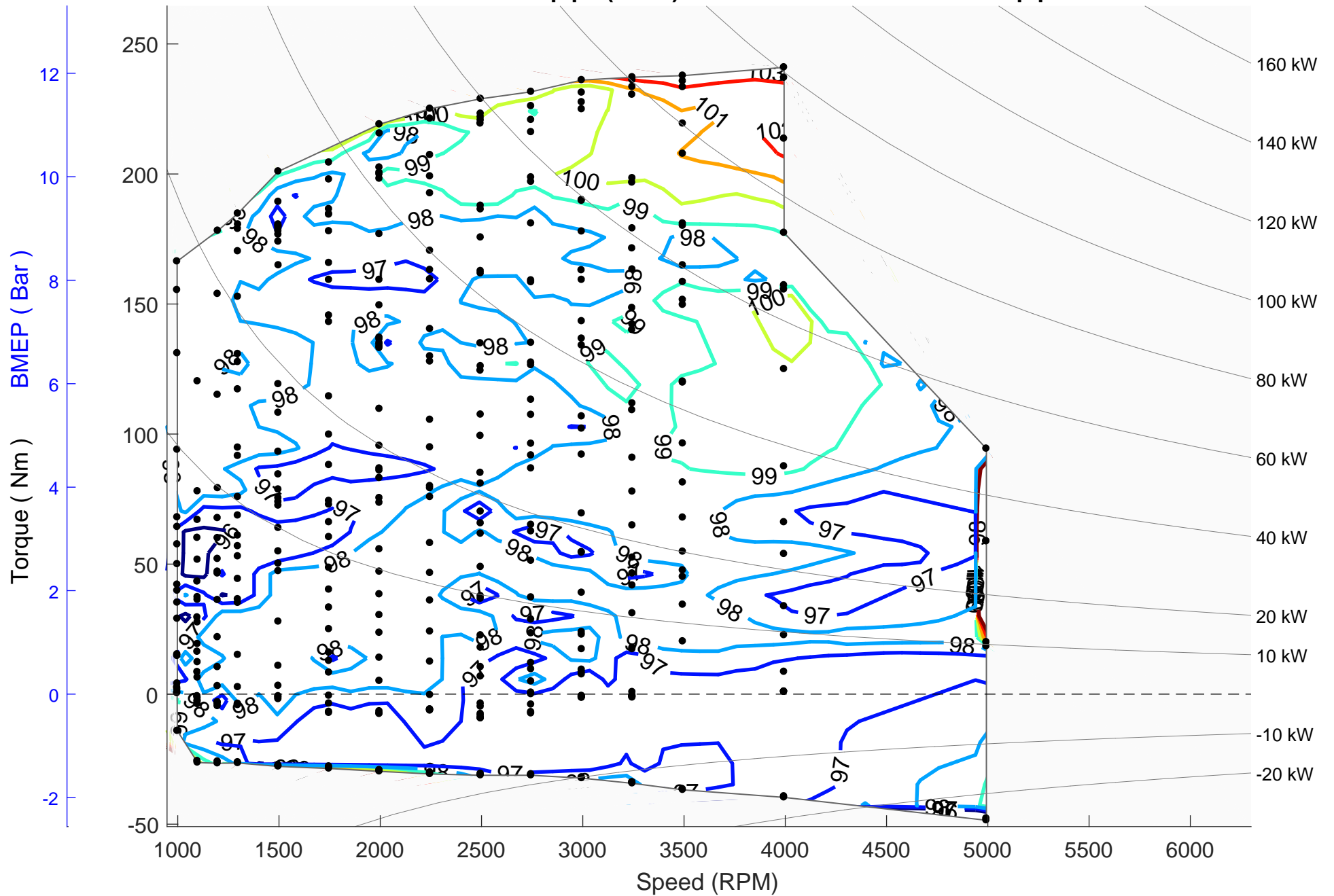
Exhaust Press Cat In (kPaA) - Exhaust Pressure into the Catalyst



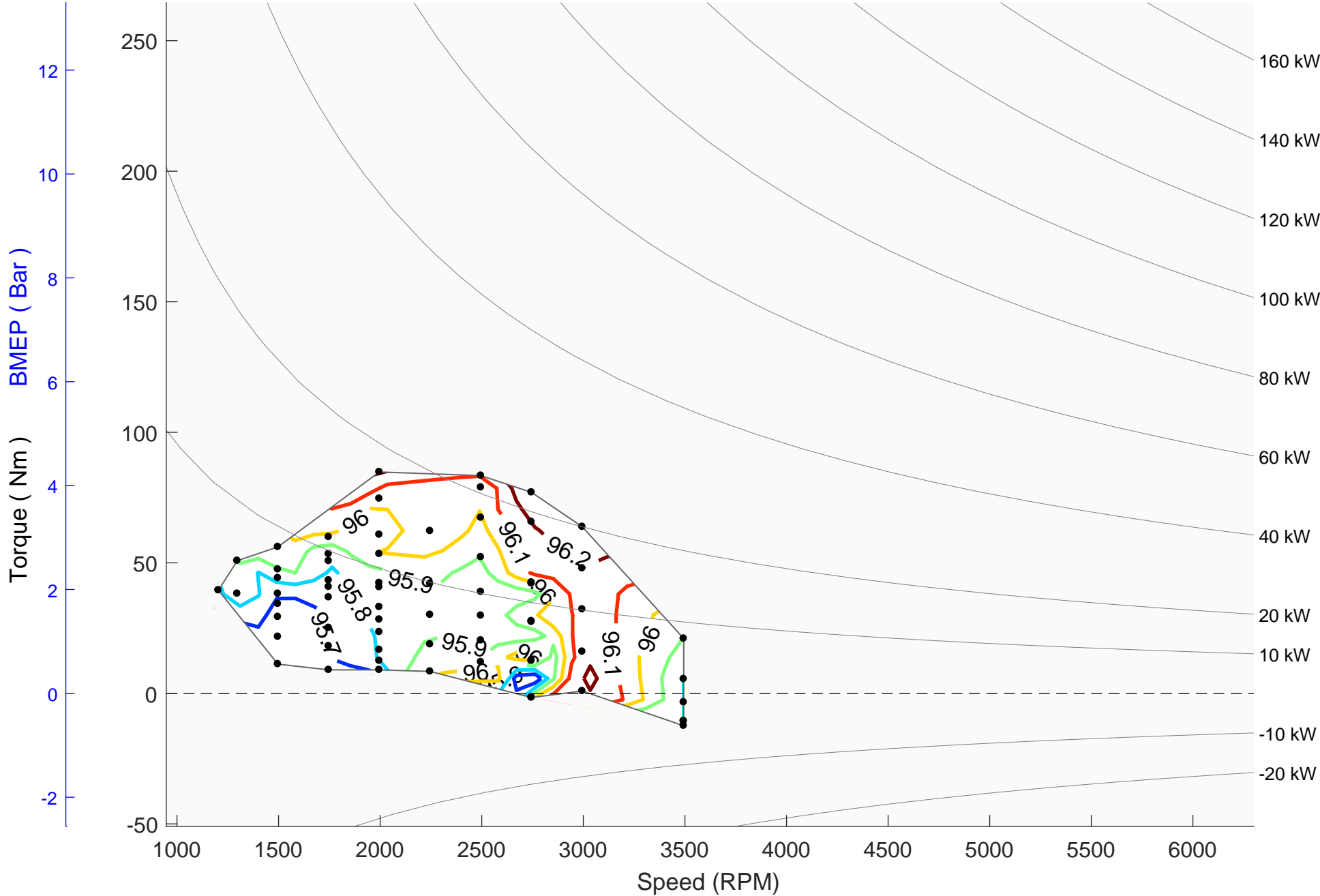
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Enabled
Exhaust Press Cat In (kPaA) - Exhaust Pressure into the Catalyst



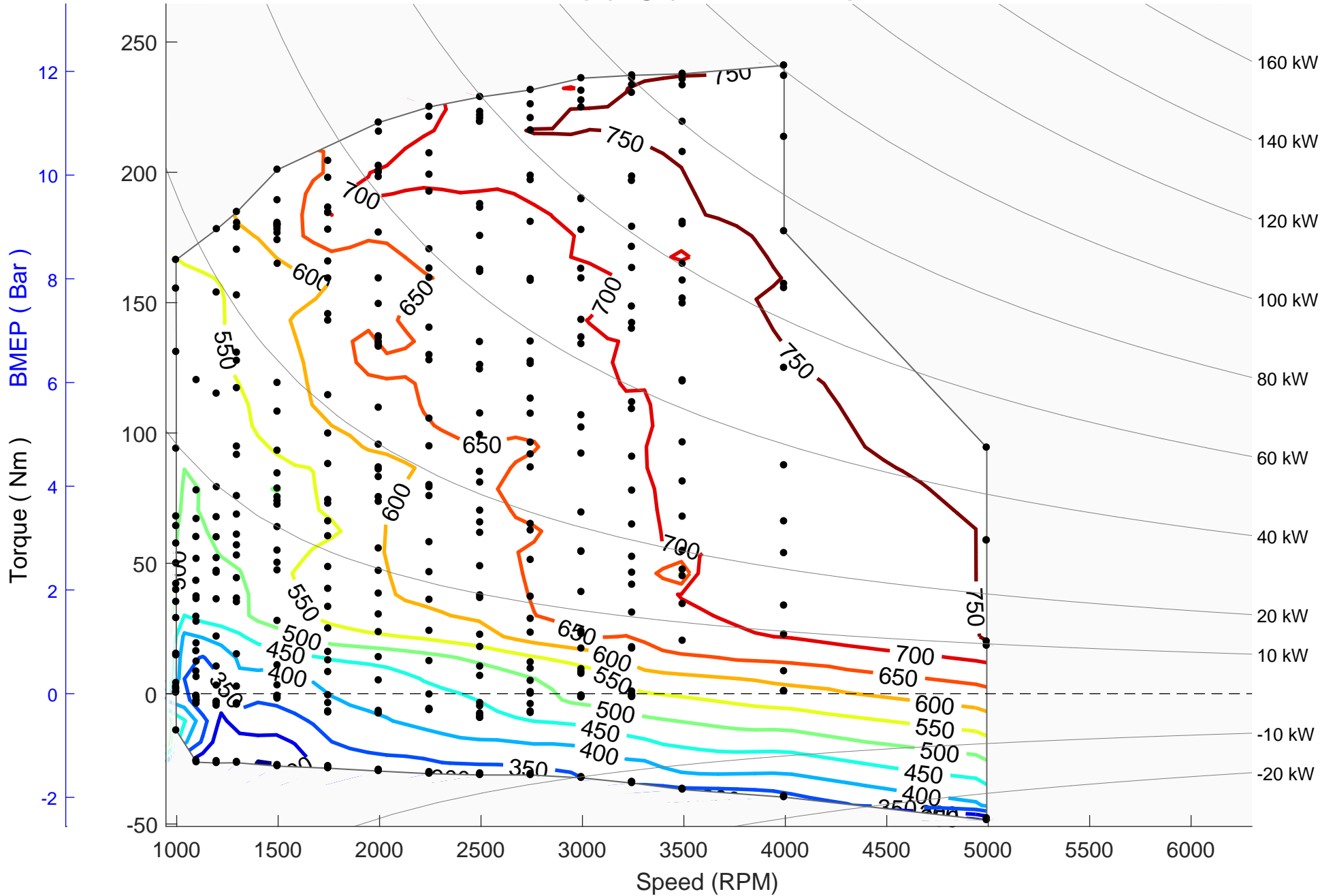
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Exhaust Press Tailpipe (kPaA) - Exhaust Pressure at the Tailpipe



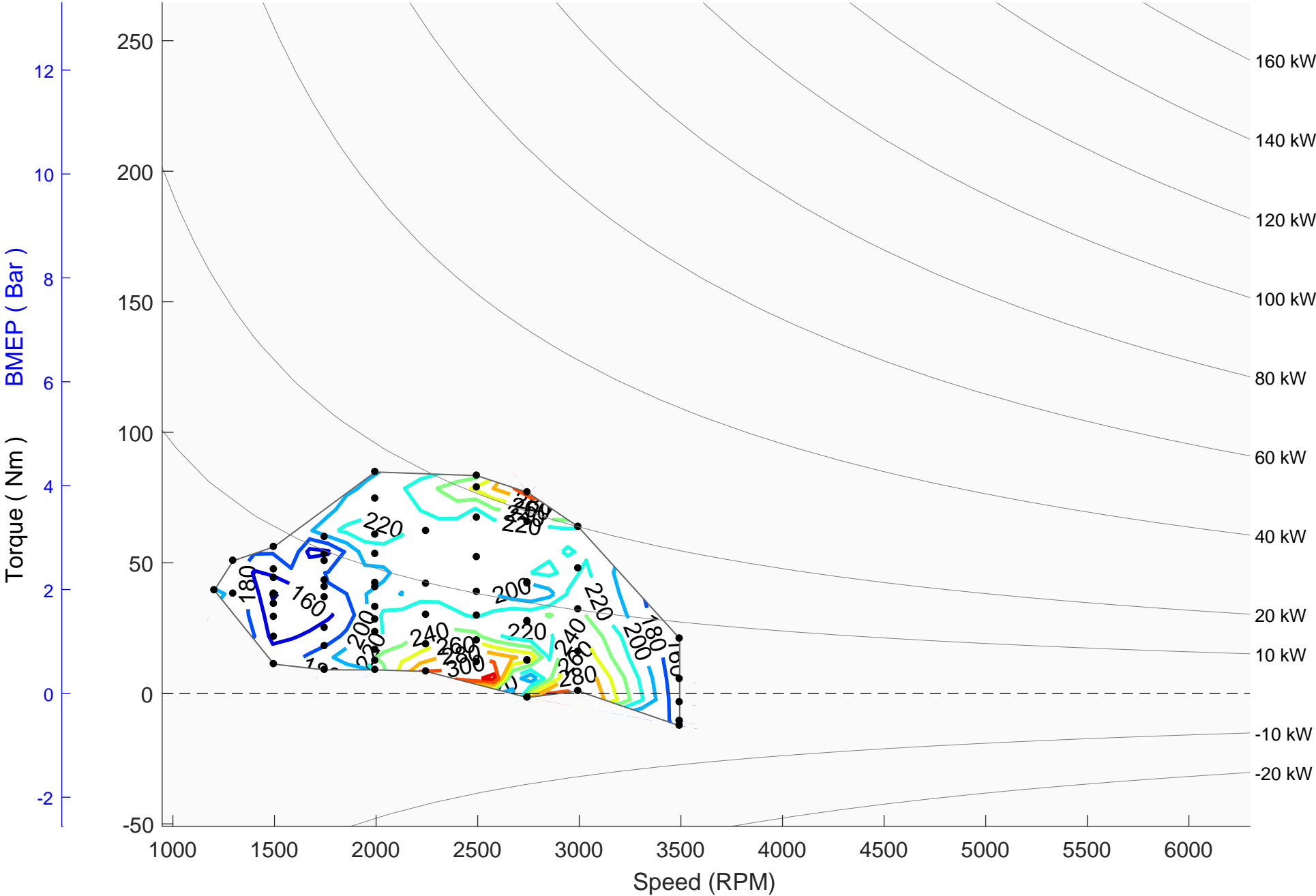
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Enabled
Exhaust Press Tailpipe (kPaA) - Exhaust Pressure at the Tailpipe



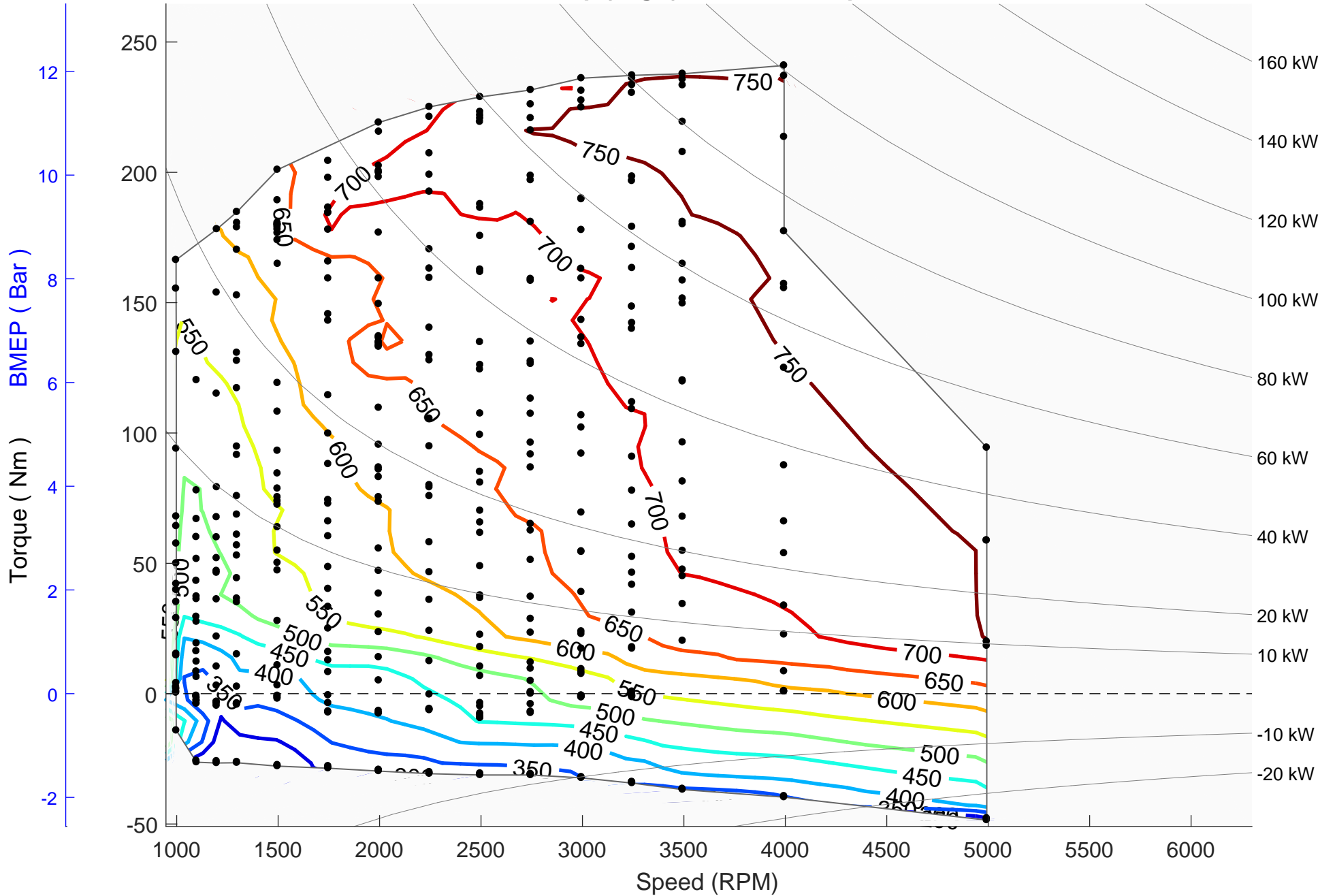
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Exhaust Port 1 Temp (degC) - Exhaust Temperature of Port 1



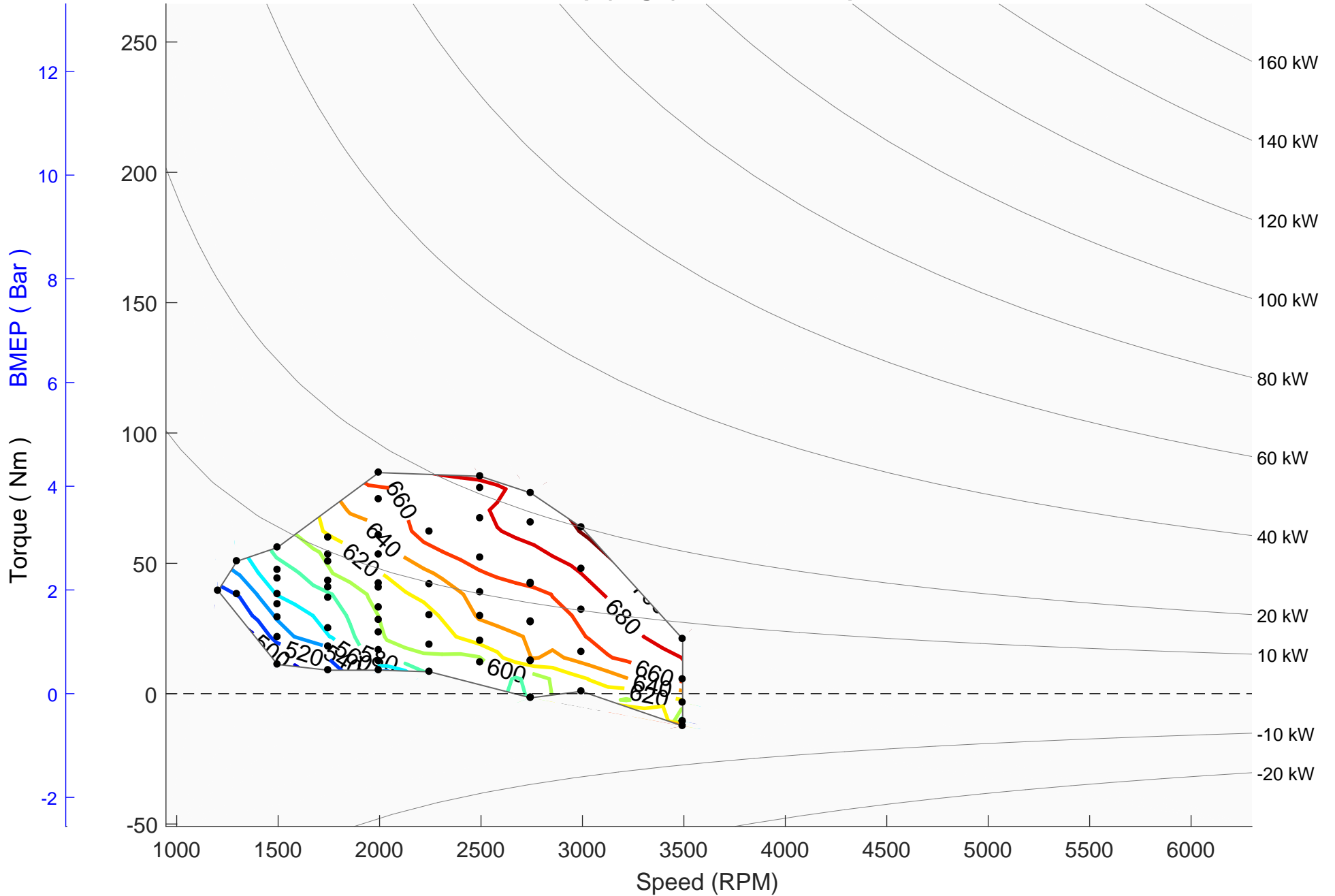
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Enabled
Exhaust Port 1 Temp (degC) - Exhaust Temperature of Port 1



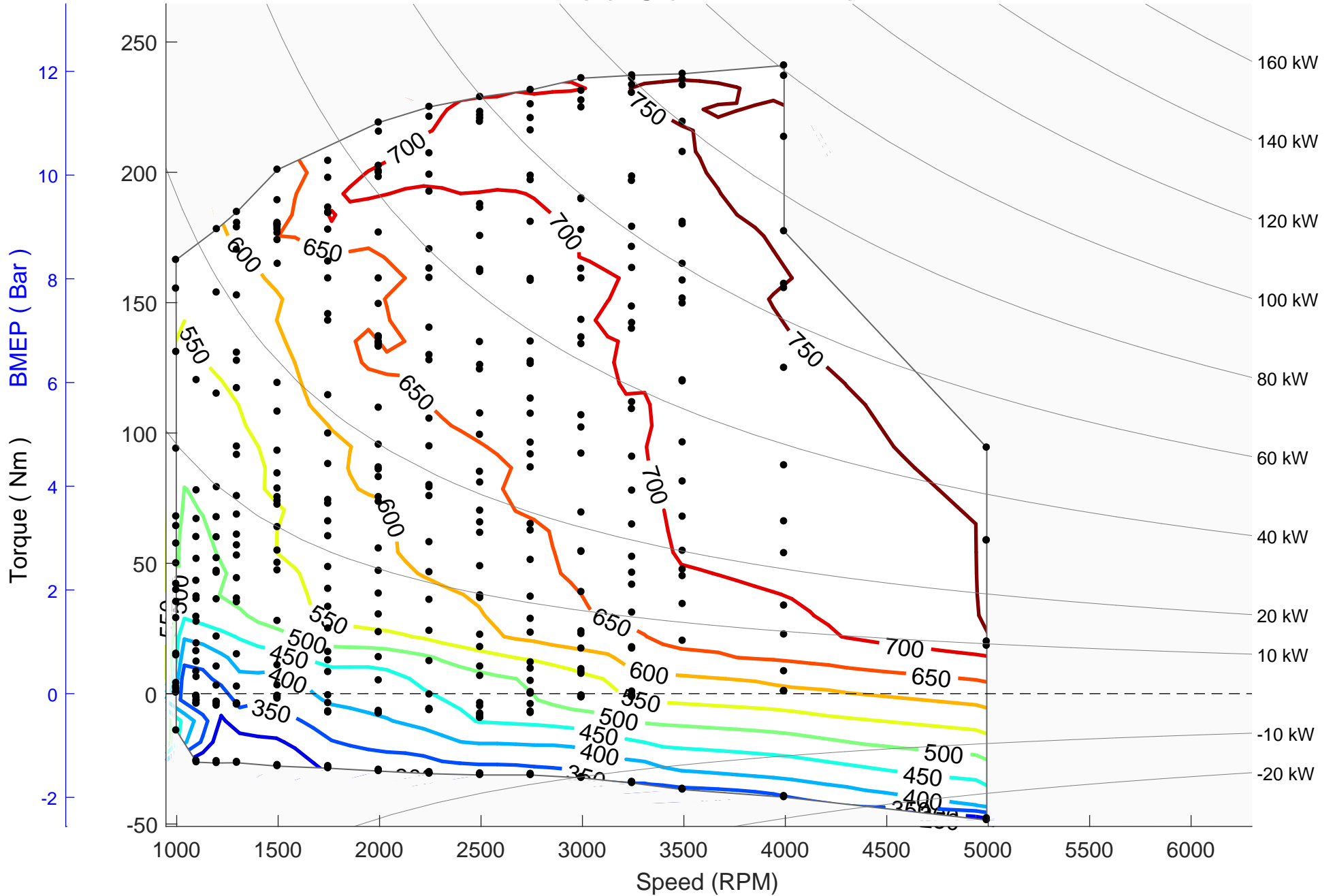
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Exhaust Port 2 Temp (degC) - Exhaust Temperature of Port 2



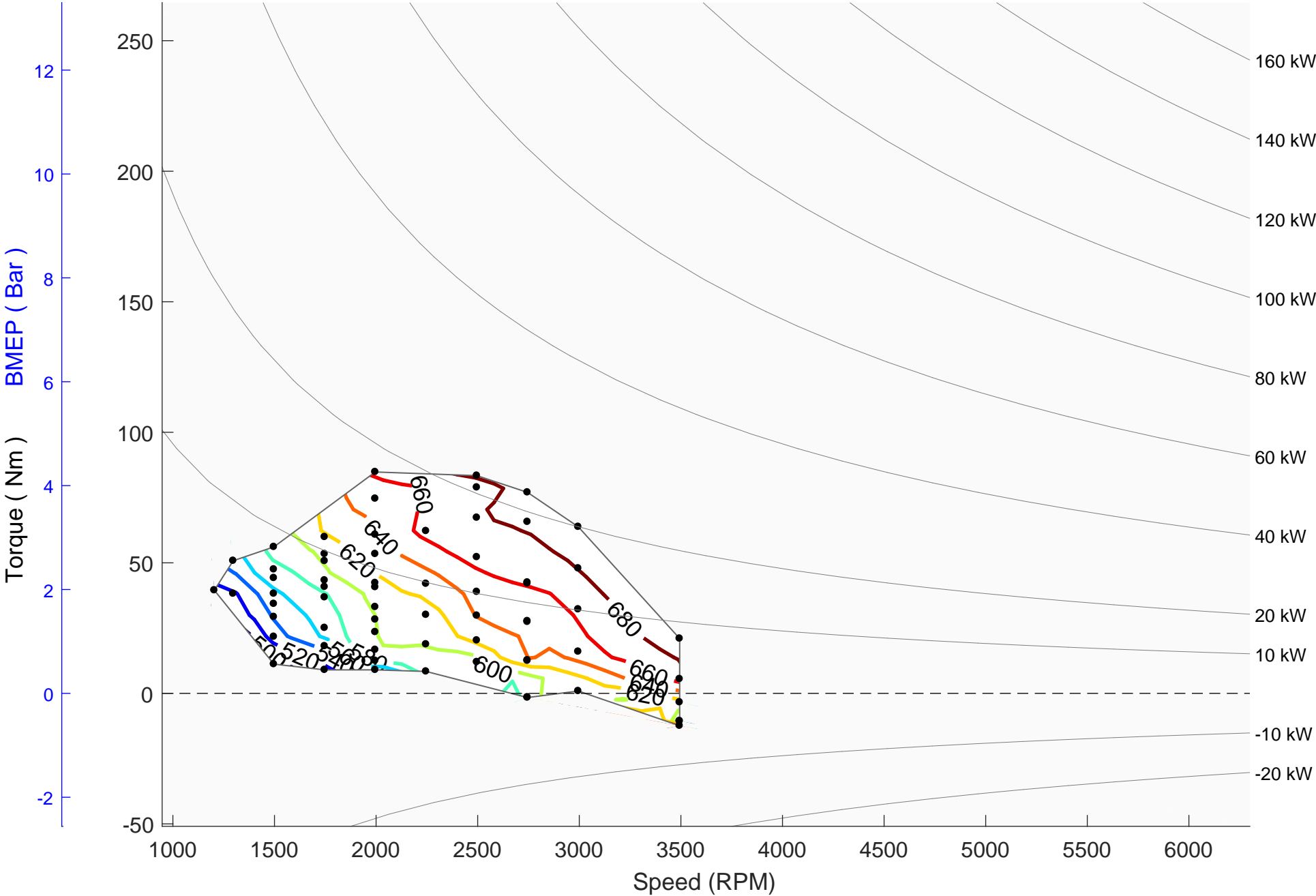
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Enabled
Exhaust Port 2 Temp (degC) - Exhaust Temperature of Port 2



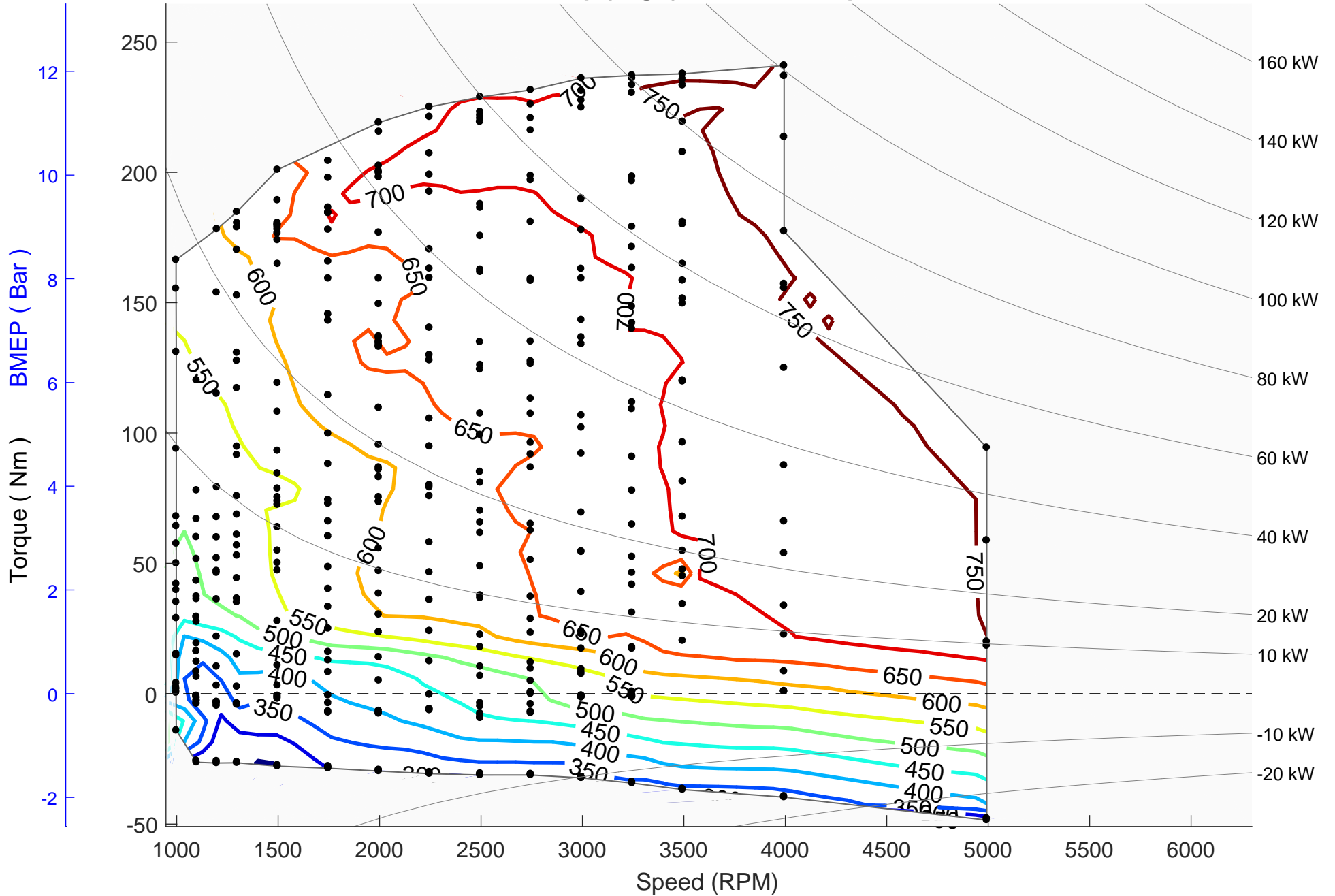
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Exhaust Port 3 Temp (degC) - Exhaust Temperature of Port 3



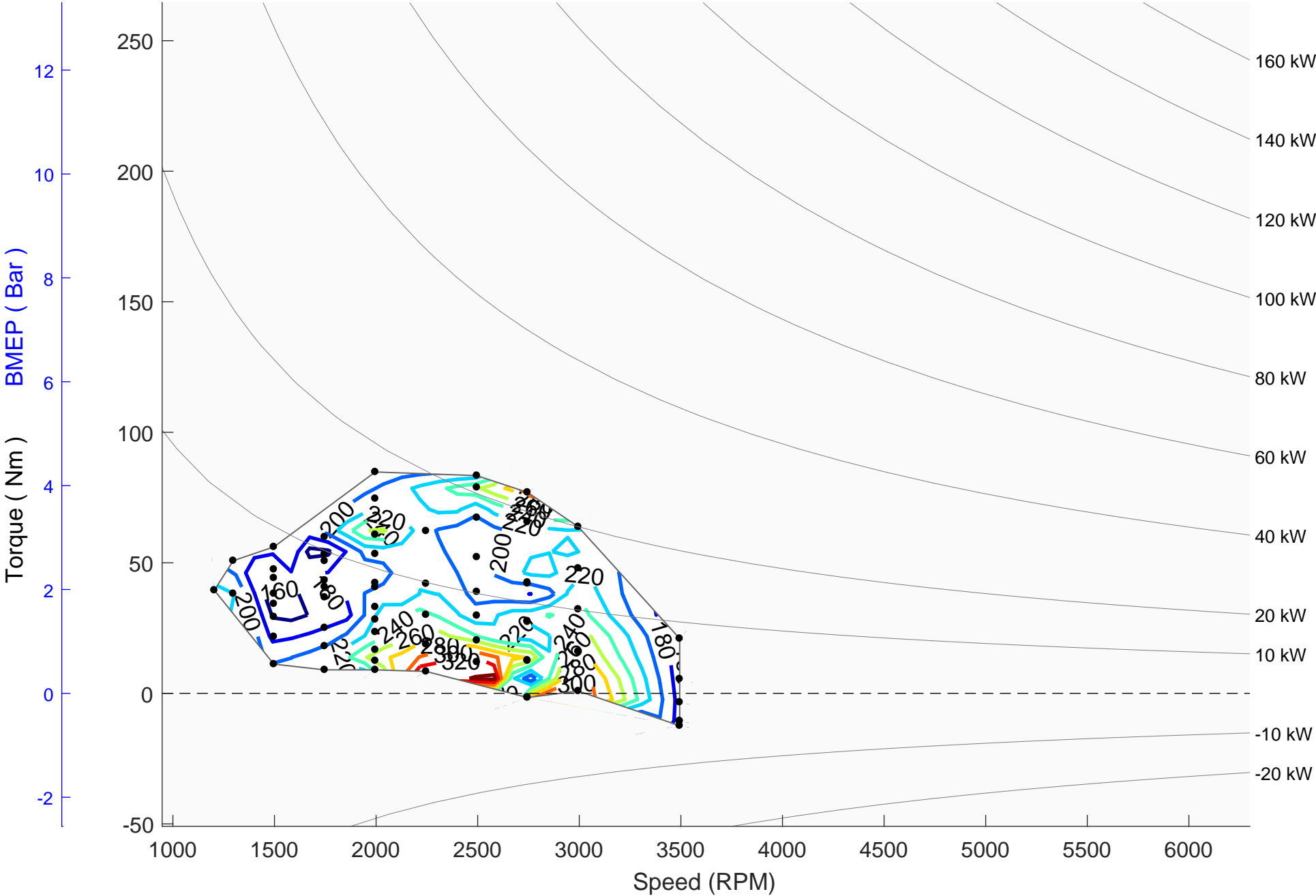
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Enabled
Exhaust Port 3 Temp (degC) - Exhaust Temperature of Port 3



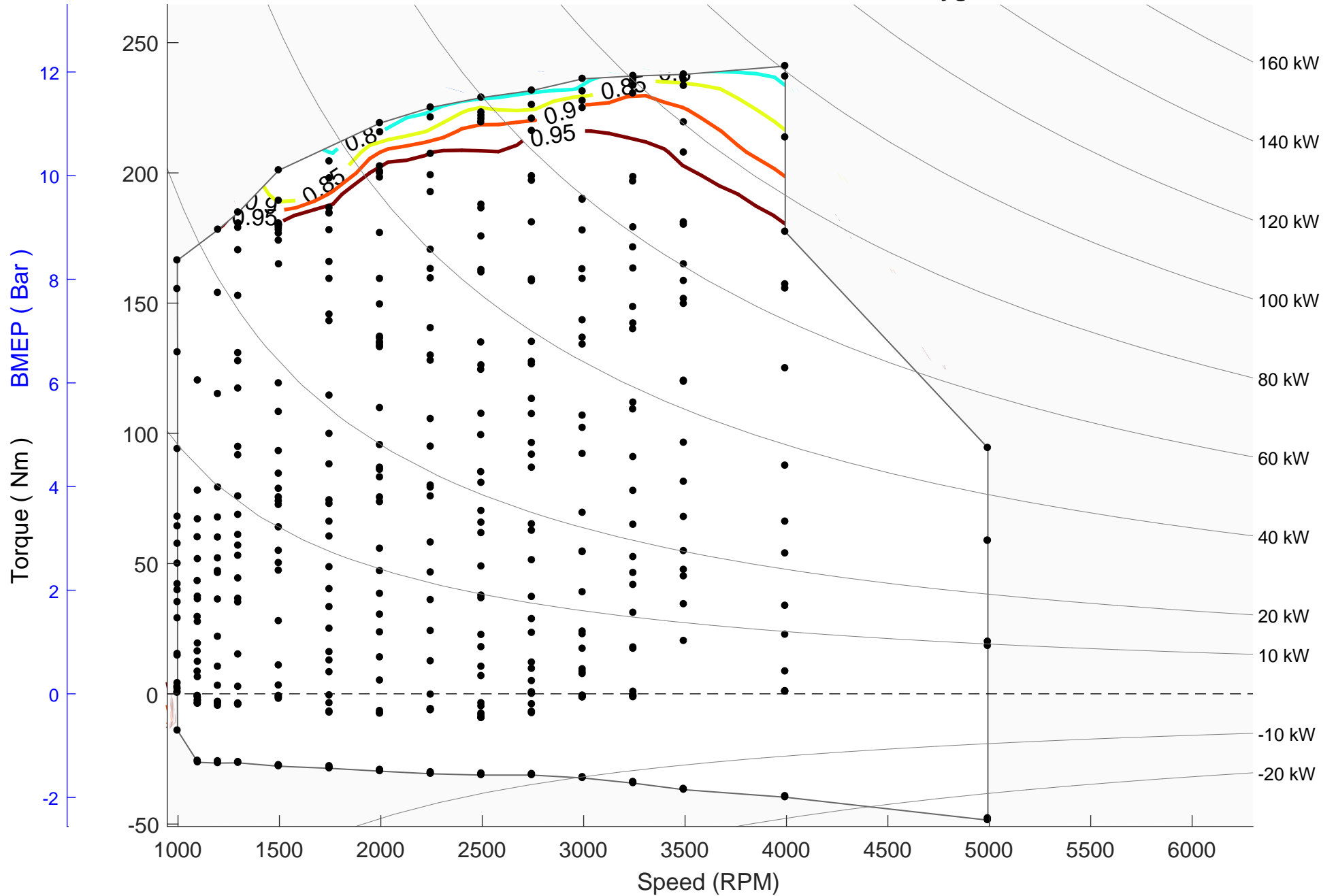
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Exhaust Port 4 Temp (degC) - Exhaust Temperature of Port 4



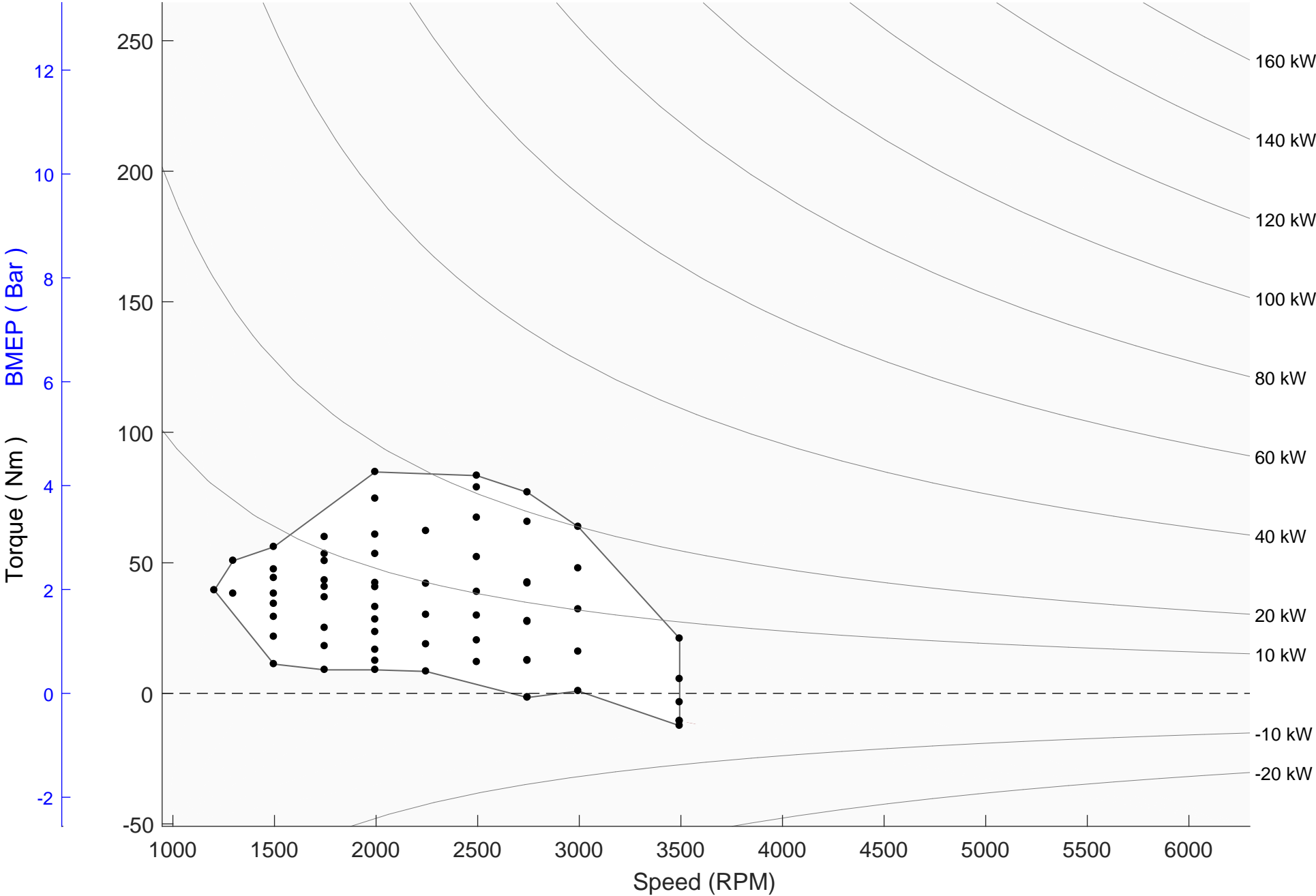
2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Enabled
Exhaust Port 4 Temp (degC) - Exhaust Temperature of Port 4

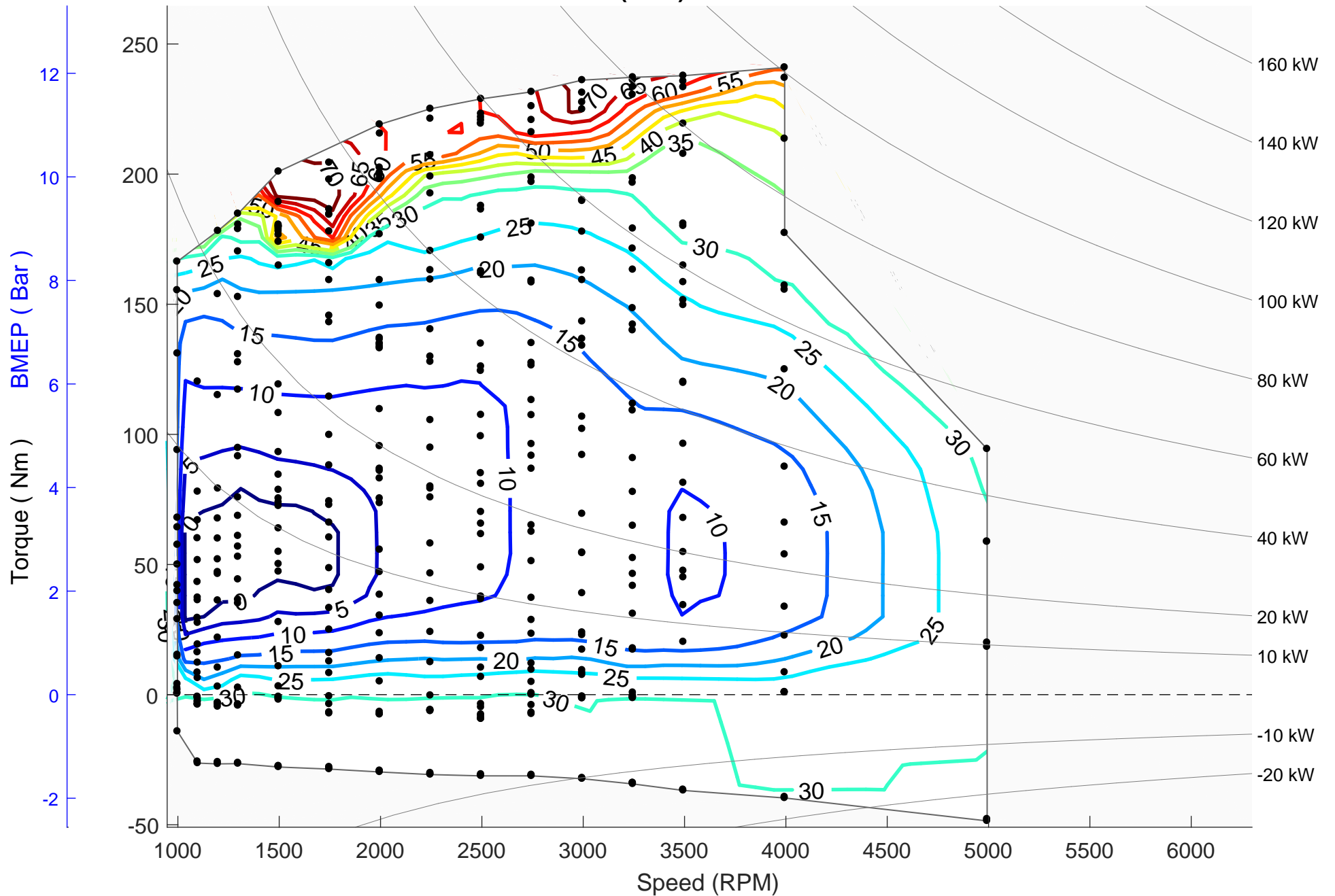


2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Exhaust Lambda - Measured via Wideband Exhaust Oxygen Sensor

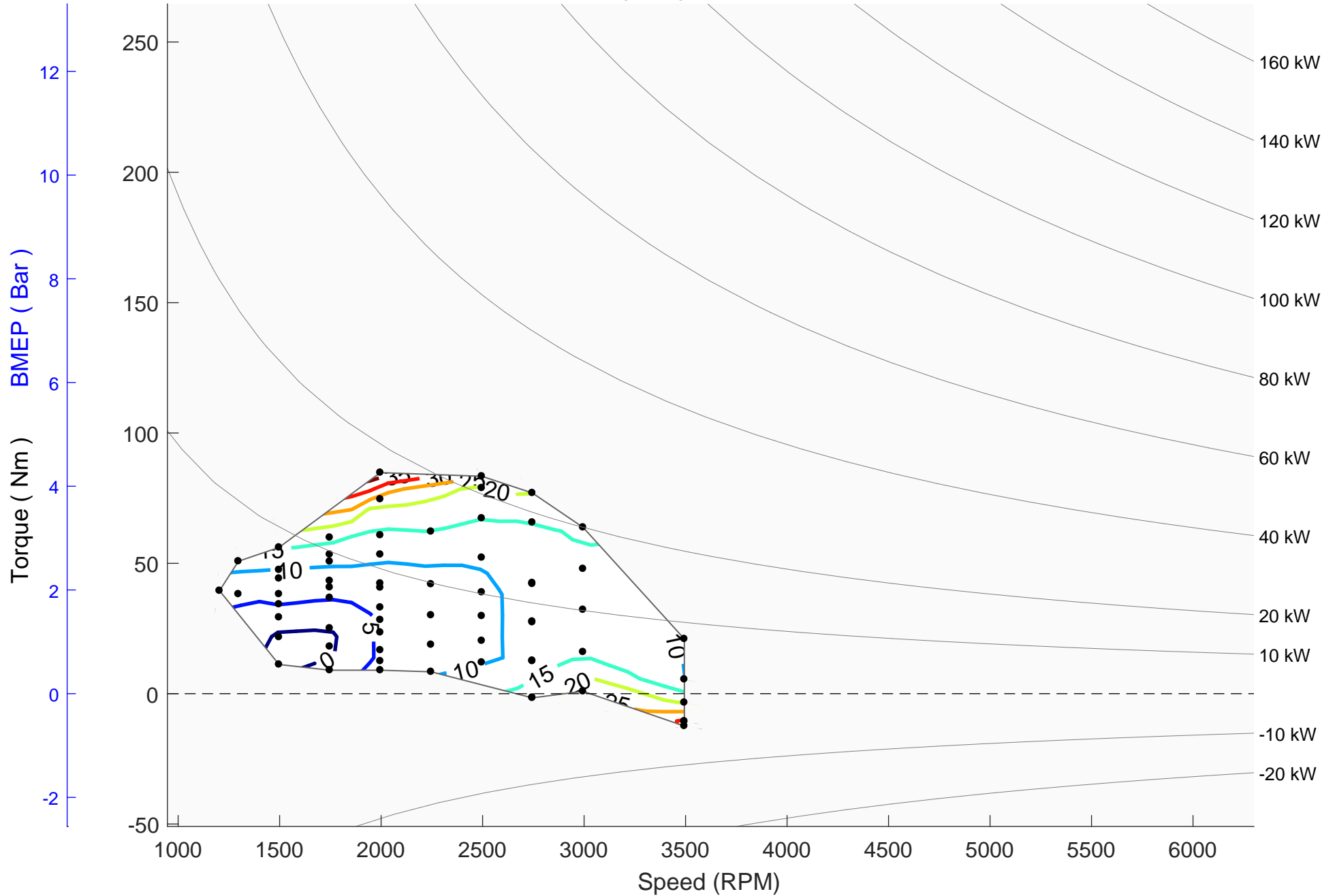


2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Enabled
Exhaust Lambda - Measured via Wideband Exhaust Oxygen Sensor

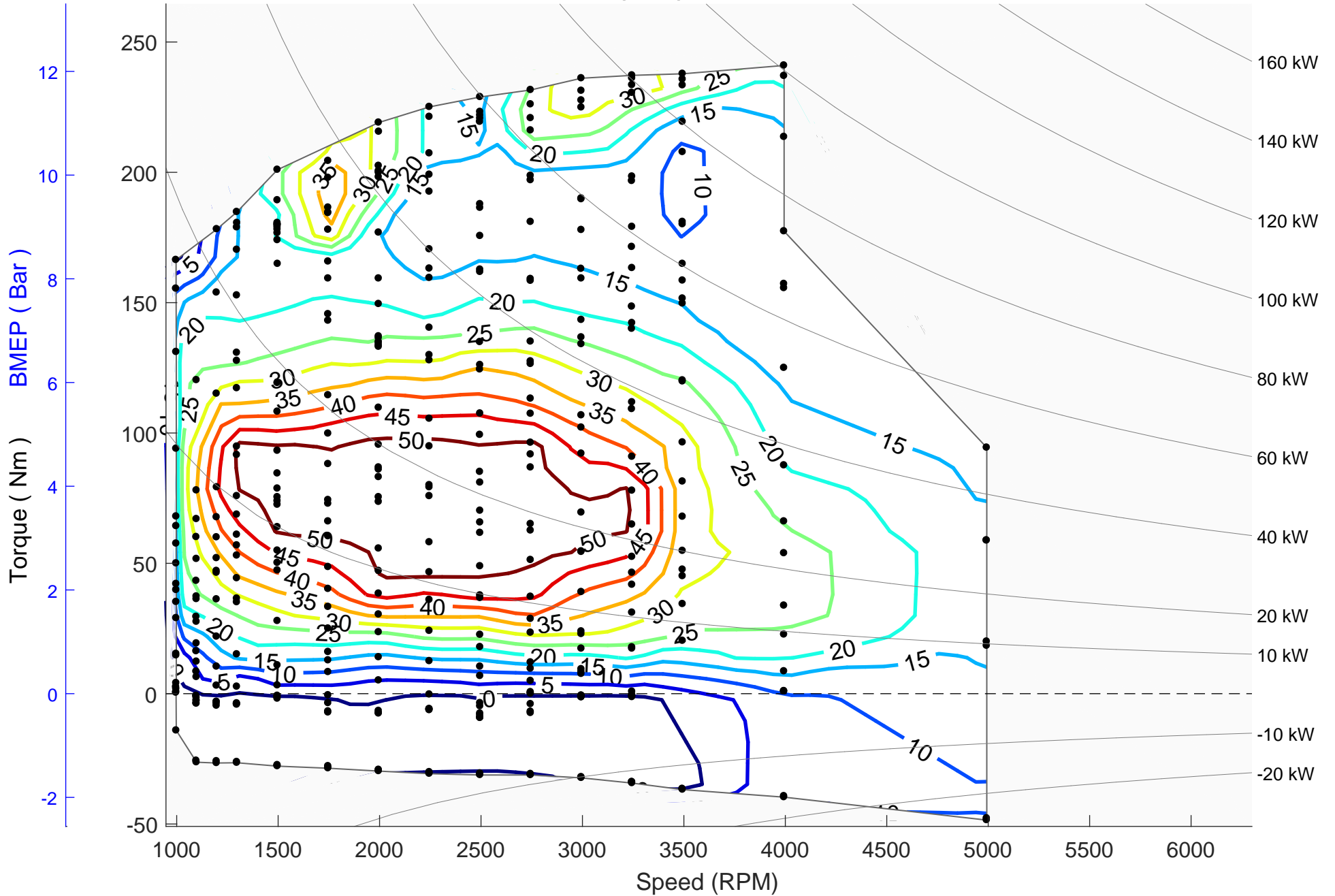




2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Enabled
Intake Cam Phase (CAD) - Intake Cam Phaser Retard



2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Disabled
Exhaust Cam Phase (CAD) - Exhaust Cam Phaser Retard



2018 Mazda 2.5L Skyactiv-G Engine Tier 3 Fuel - Test Data Plots
Steady State - Cylinder Deactivation Enabled
Exhaust Cam Phase (CAD) - Exhaust Cam Phaser Retard

