

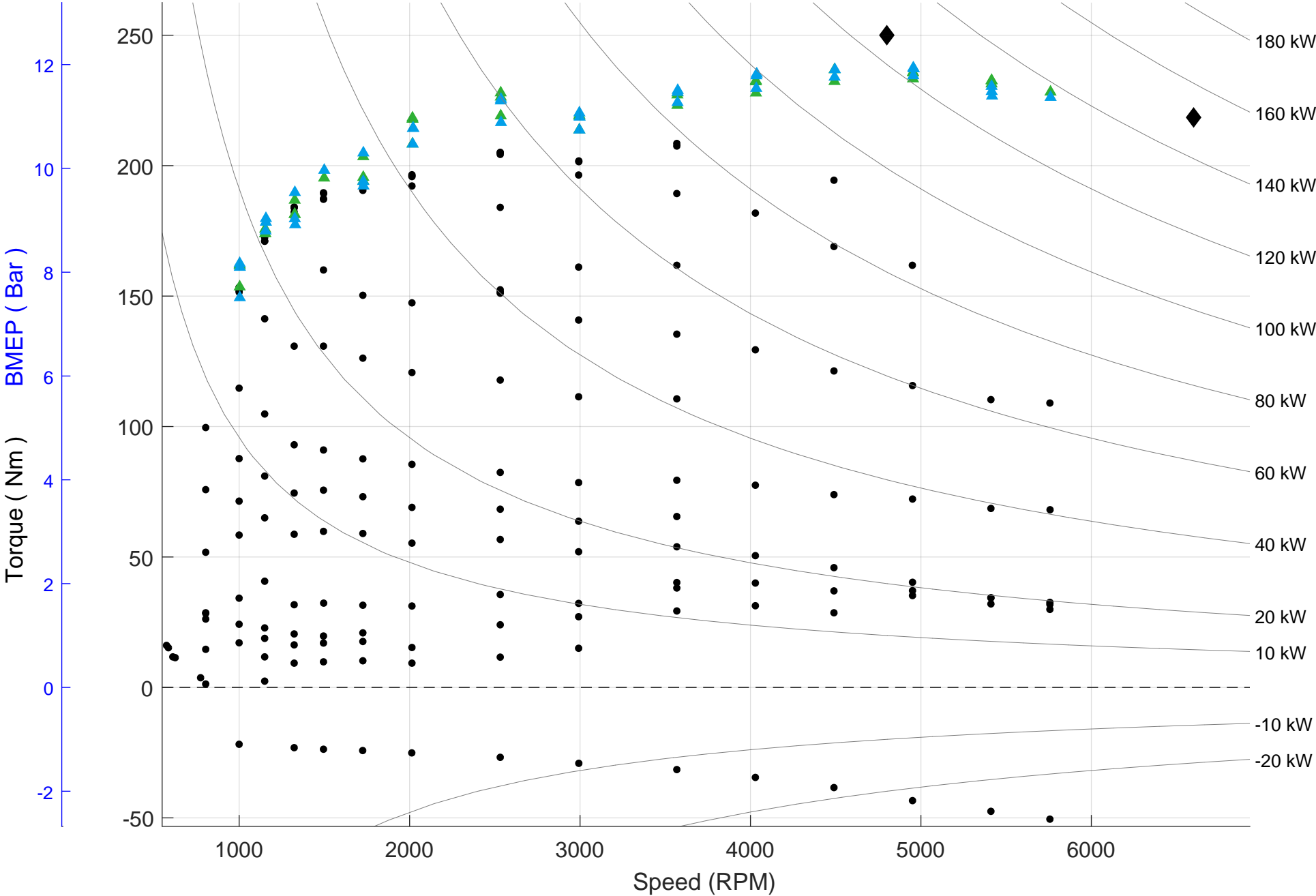
2018 Toyota 2.5L A25A-FKS Tier 2 Fuel - Test Data Plots

SUGGESTED CITATION: 2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Package. Version 2020-07. Ann Arbor, MI: US EPA, National Vehicle and Fuel Emissions Laboratory, National Center for Advanced Technology, 2020.

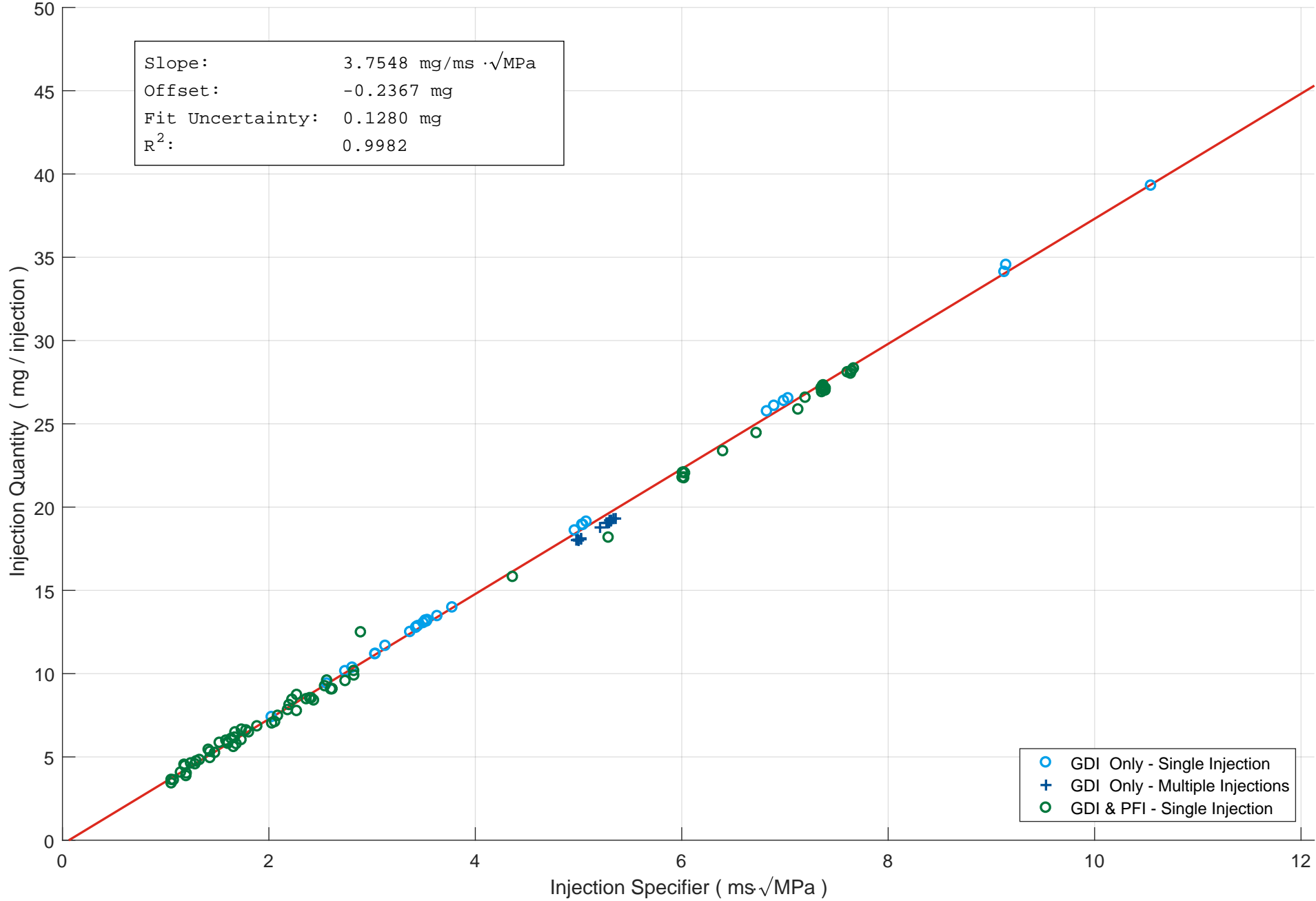
- ◆ Black diamonds indicate rated torque & power points advertised by the manufacturer
- Black dots indicate speed/load points at which steady state data was acquired
- △ Blue triangles indicate speed/load points at which initial data from the transient high load method was acquired
- ▲ Green triangles indicate speed/load points at which final data from the transient high load method 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.

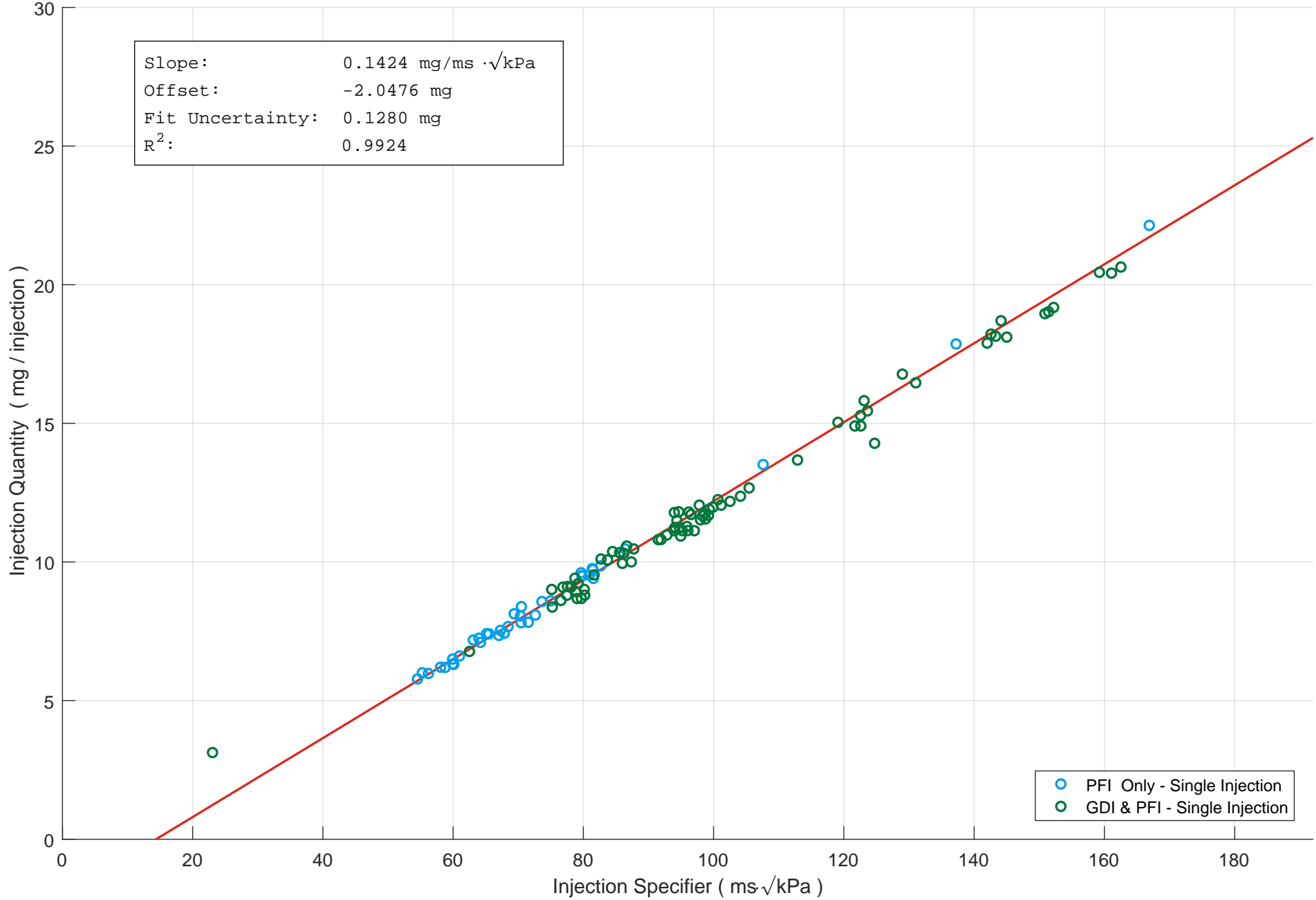
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Test Data Points



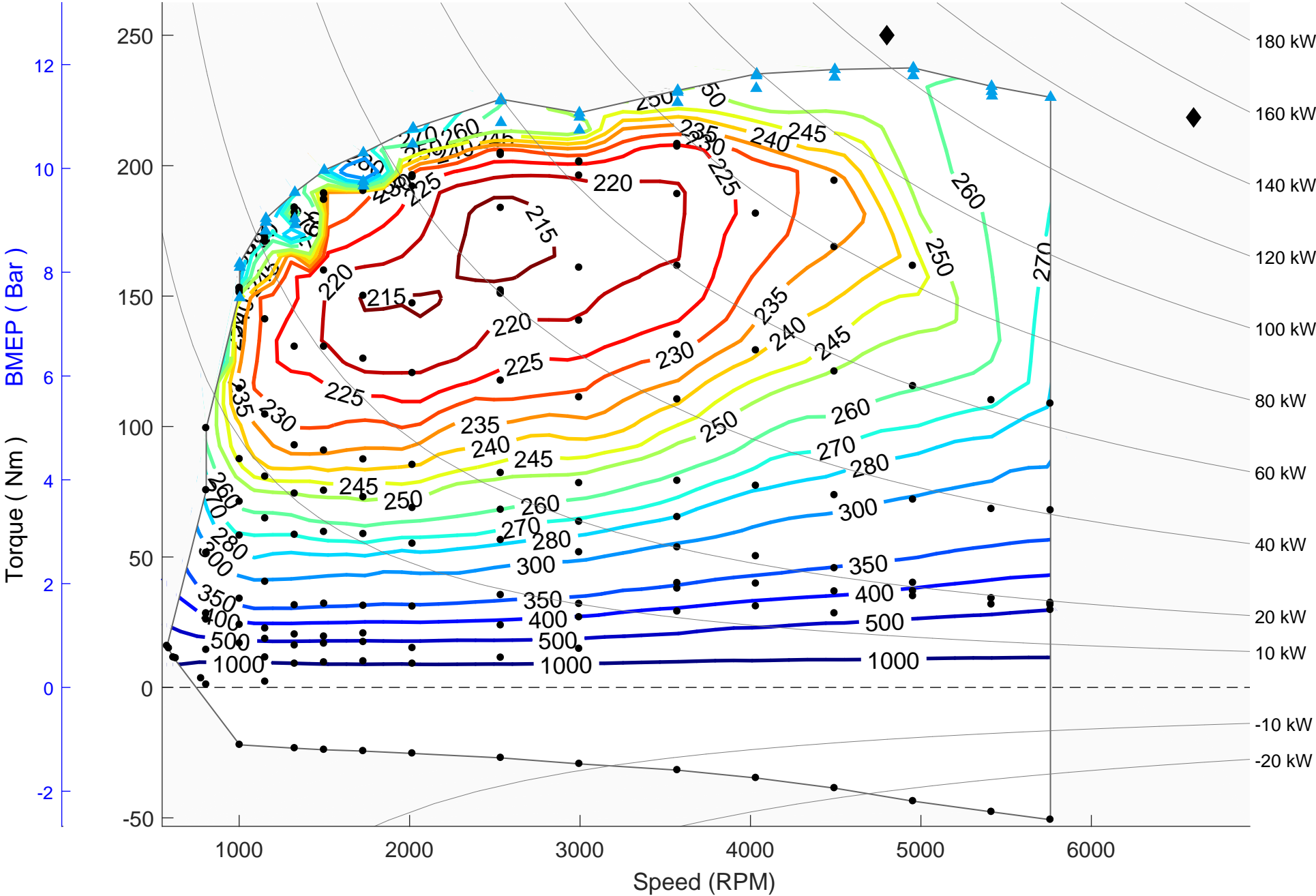
2018 Toyota 2.5L A25A-FKS Tier 2 Fuel - Test Data Plots
GDI Injector Calibration



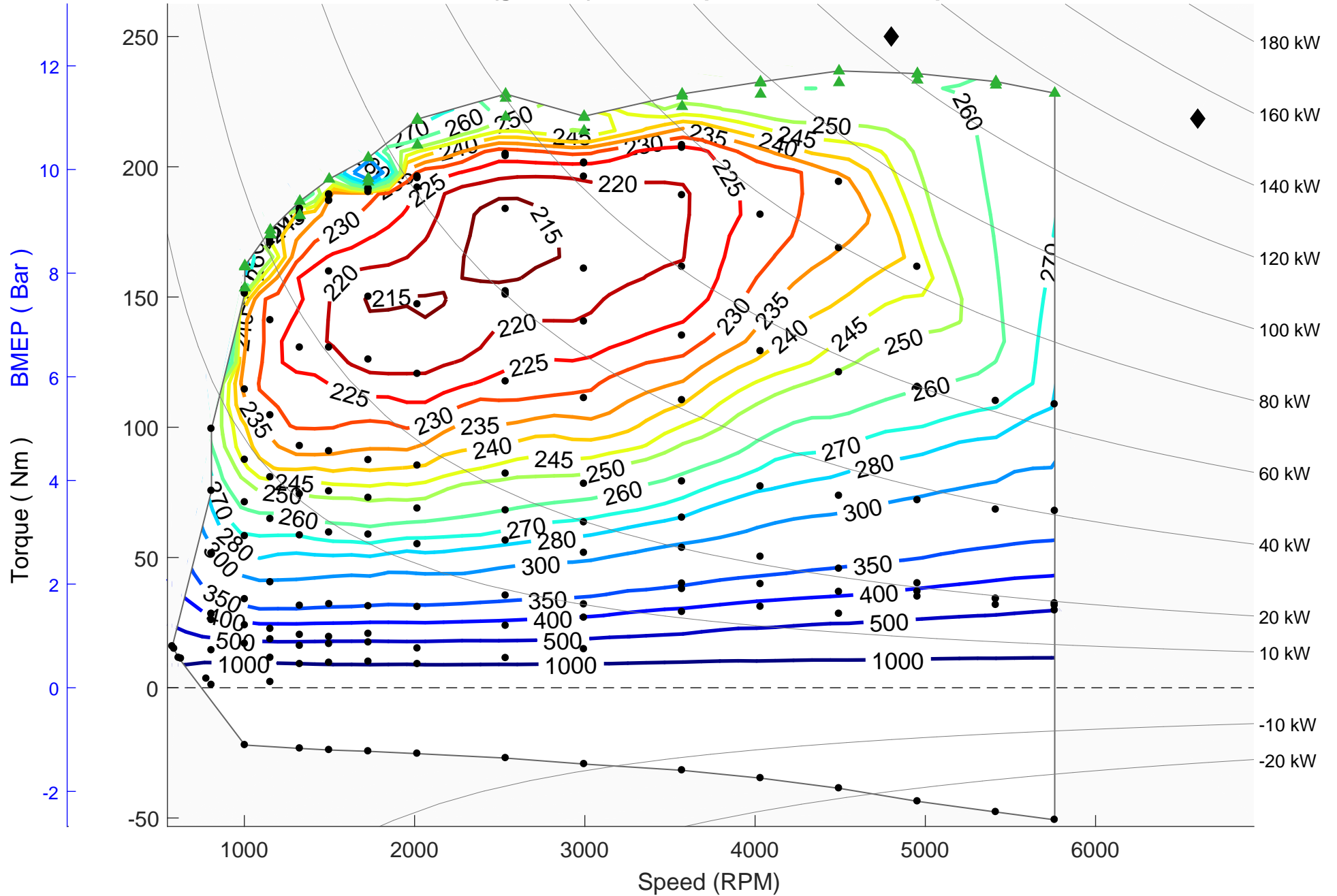
2018 Toyota 2.5L A25A-FKS Tier 2 Fuel - Test Data Plots
PFI Injector Calibration



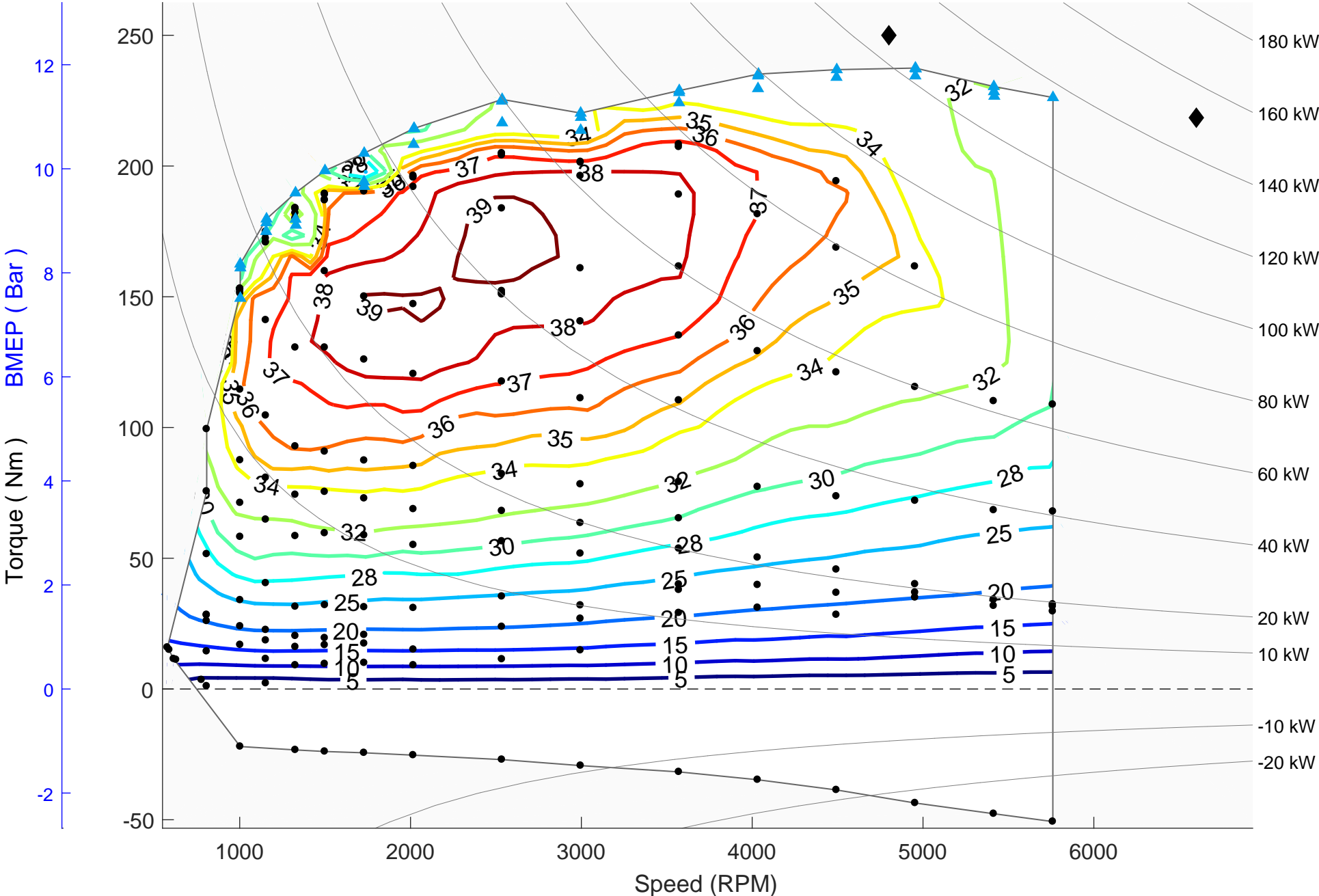
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
BSFC (g/kW-hr) - Brake Specific Fuel Consumption



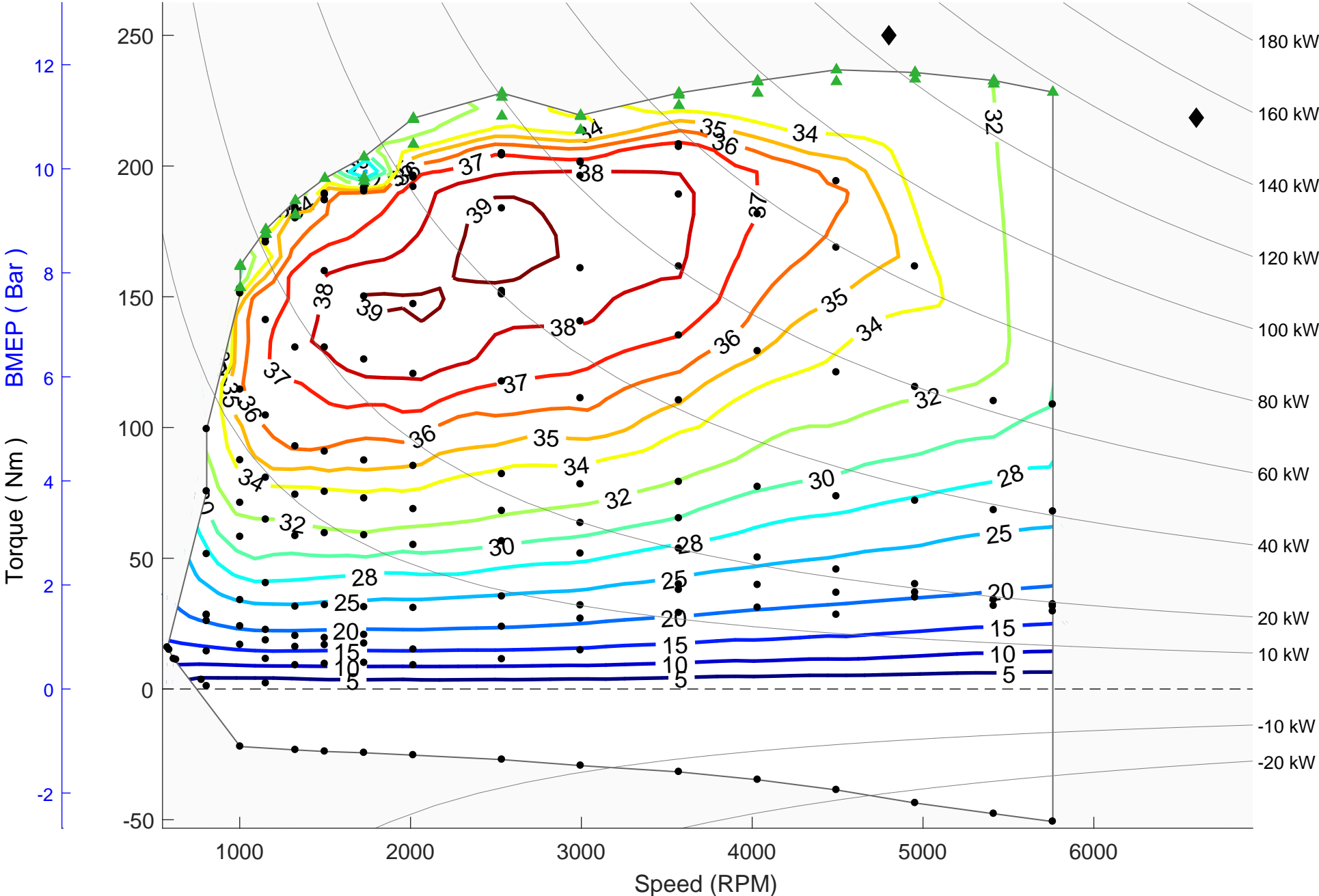
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
BSFC (g/kW-hr) - Brake Specific Fuel Consumption



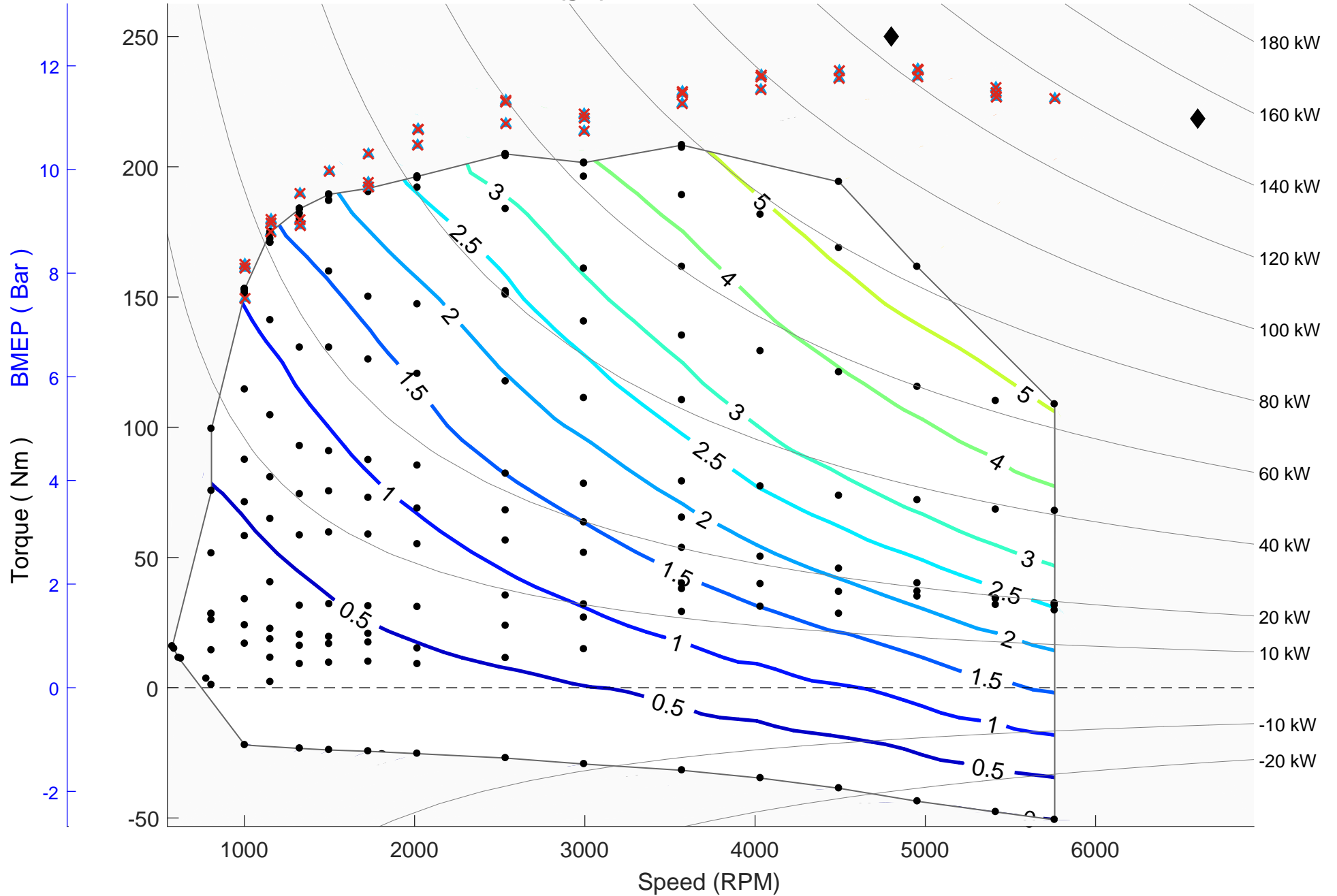
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
BTE (%) - Brake Thermal Efficiency



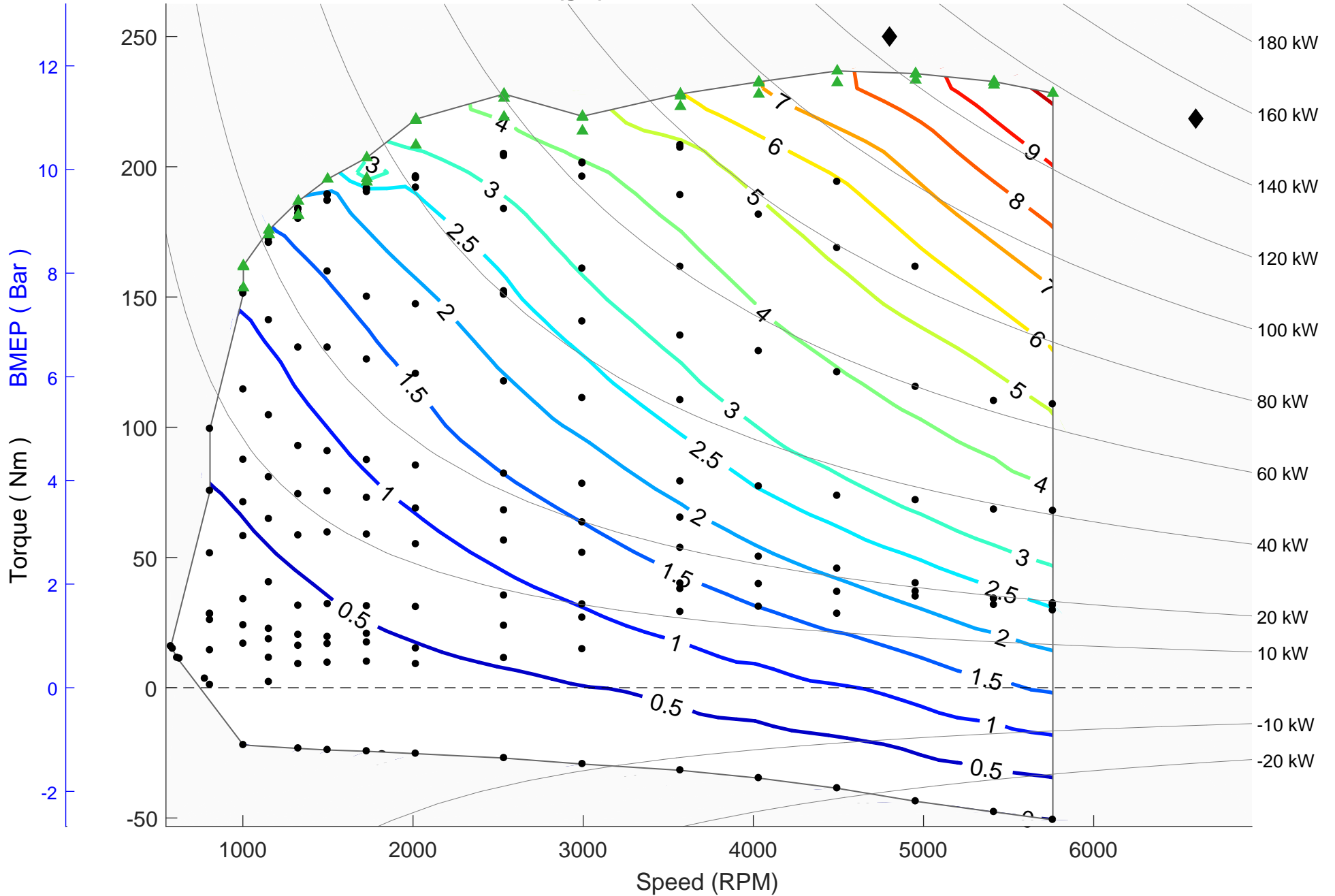
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
BTE (%) - Brake Thermal Efficiency



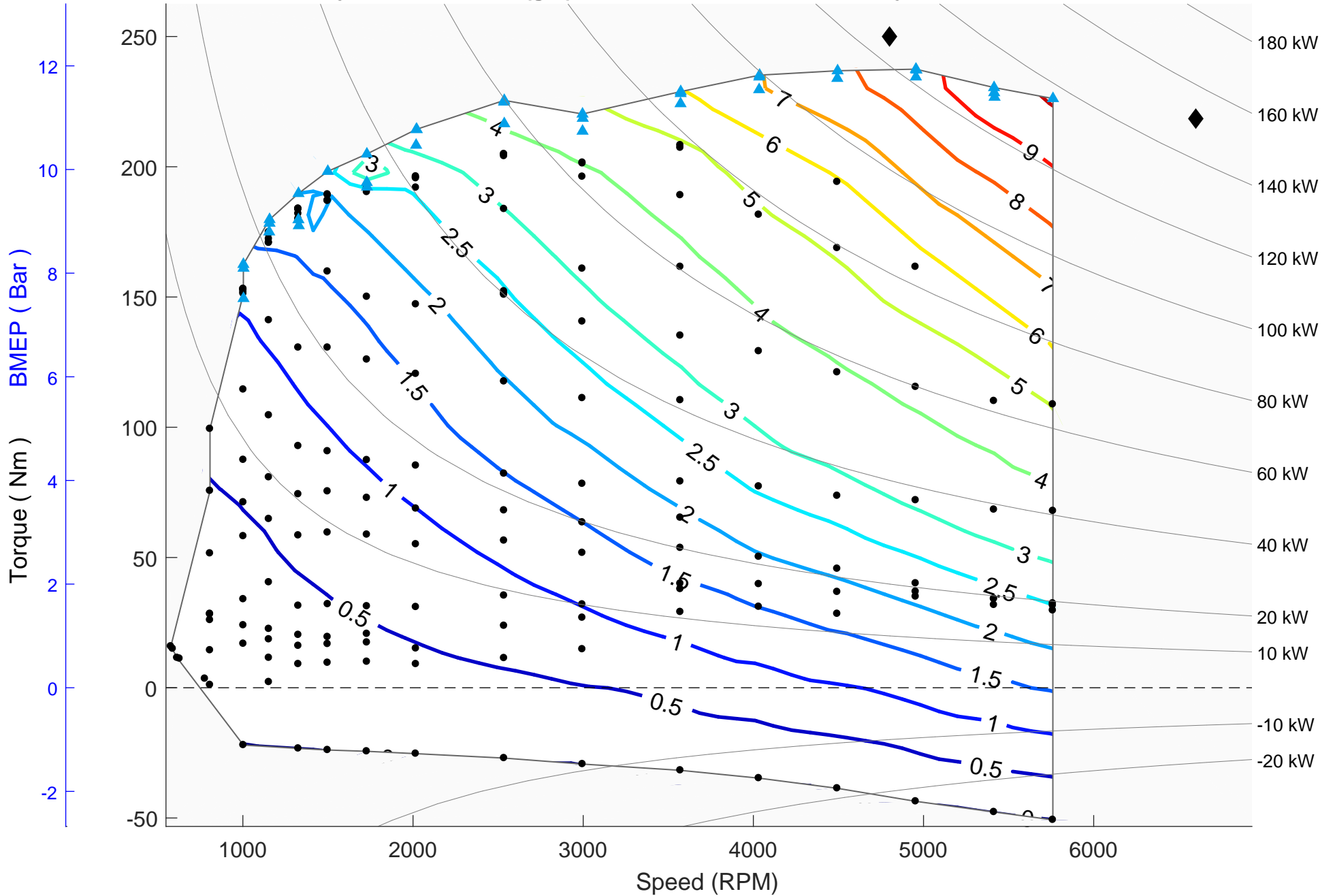
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Fuel Meter Flow (g/s) - Fuel Flow Measured with Flow Meter



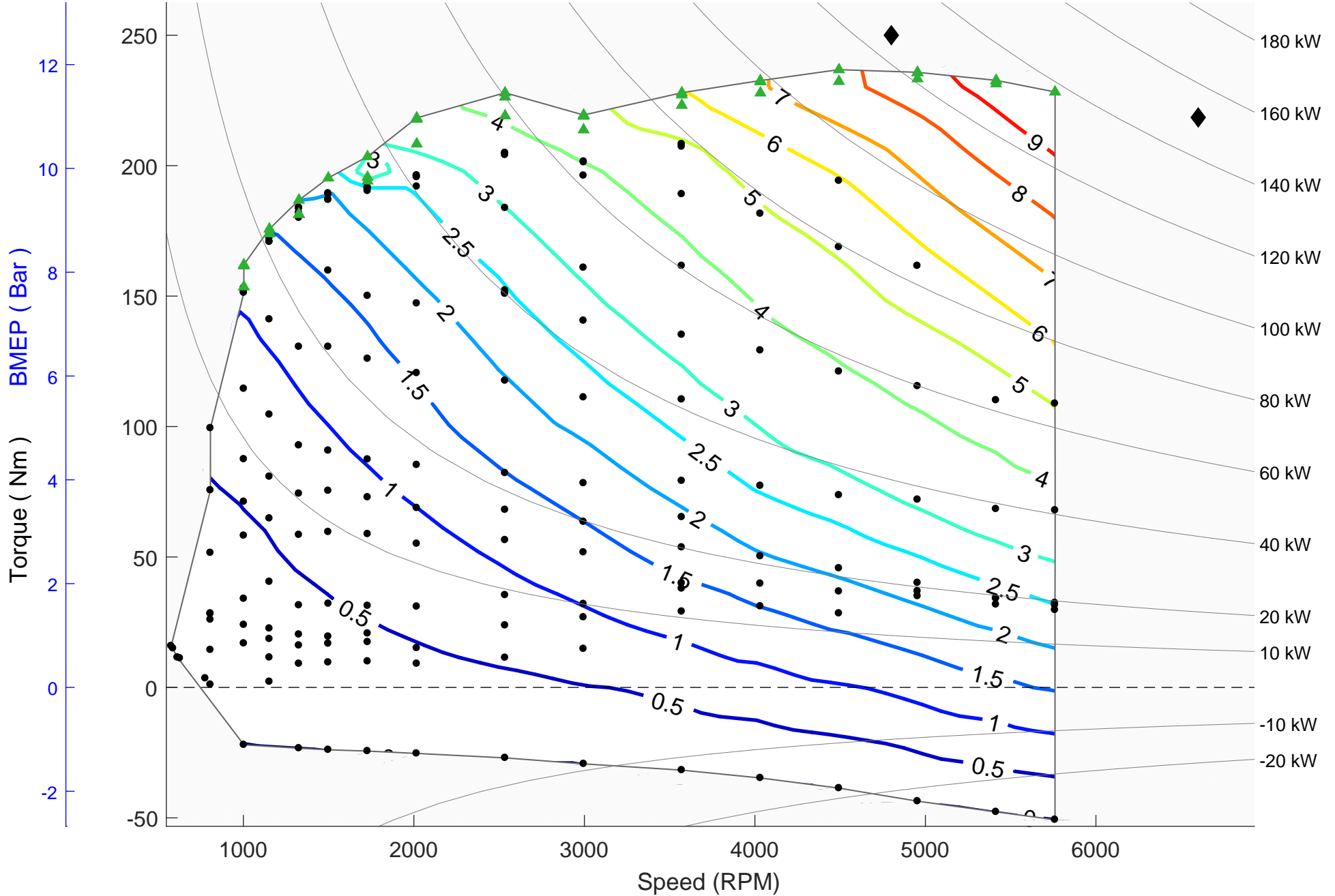
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Fuel Meter Flow (g/s) - Fuel Flow Measured with Flow Meter



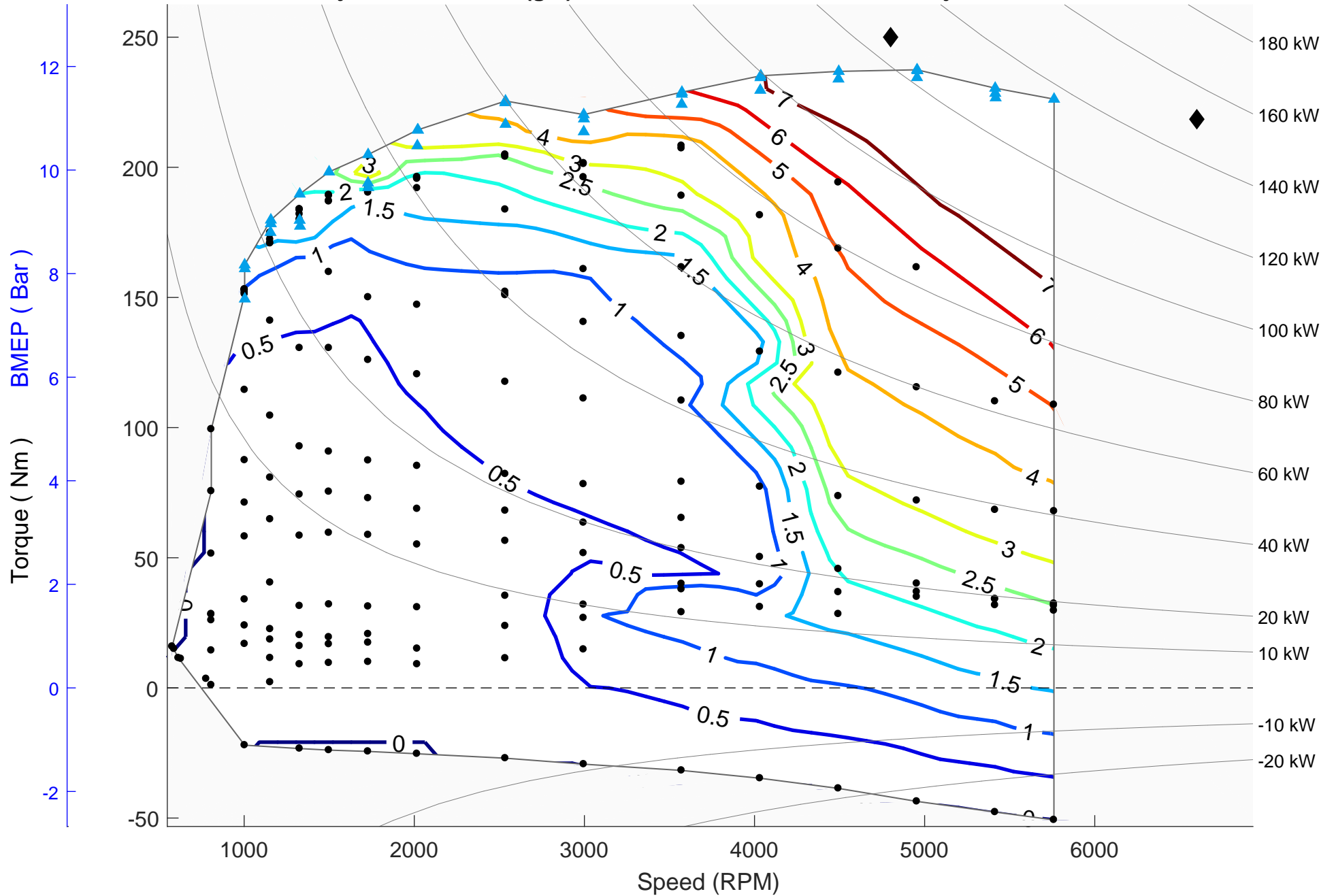
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Injector Fuel Flow (g/s) - Fuel Flow Estimate from Injector Calibration



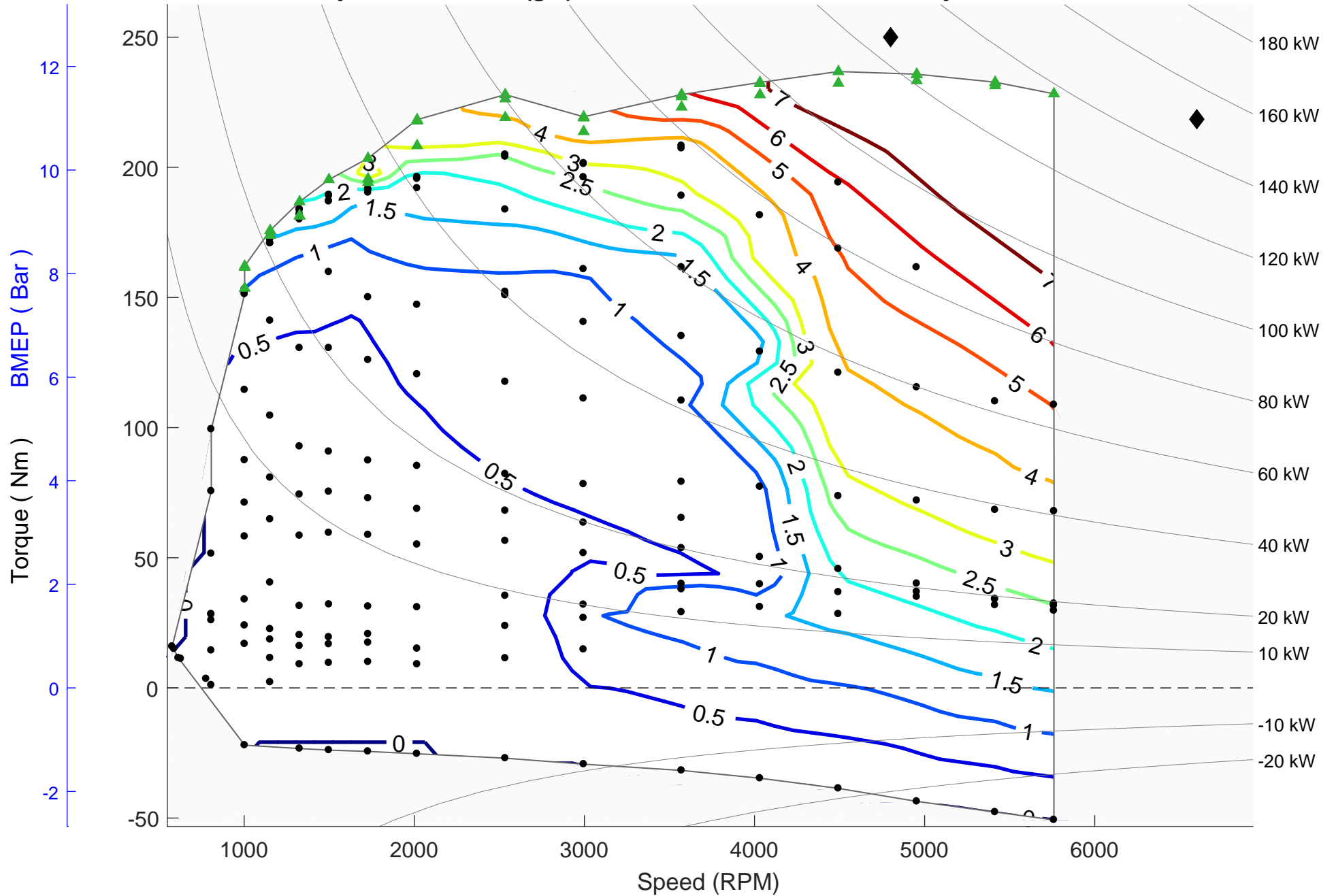
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Injector Fuel Flow (g/s) - Fuel Flow Estimate from Injector Calibration



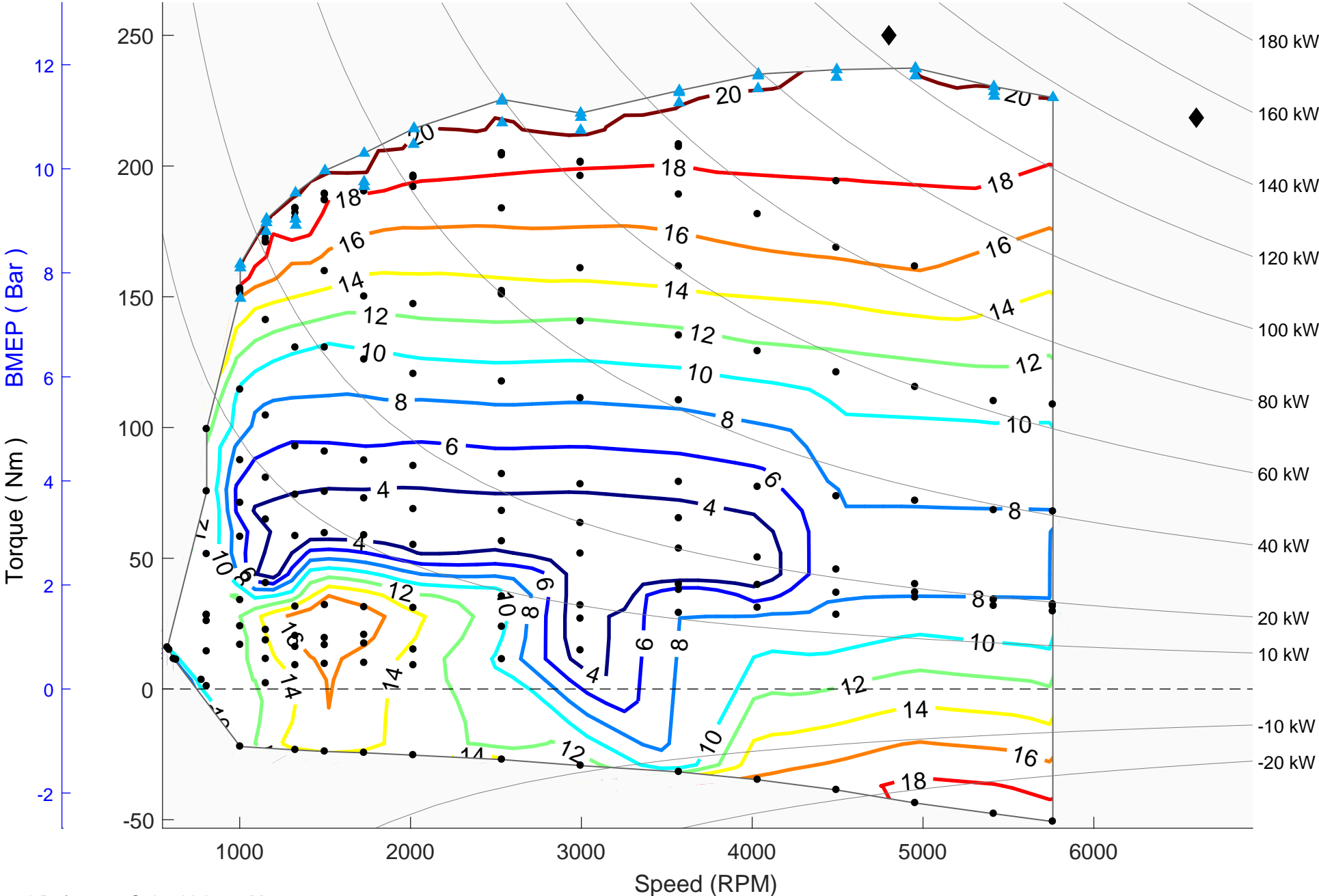
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
GDI Injector Fuel Flow (g/s) - Fuel Flow Estimate from GDI Injector Calibration



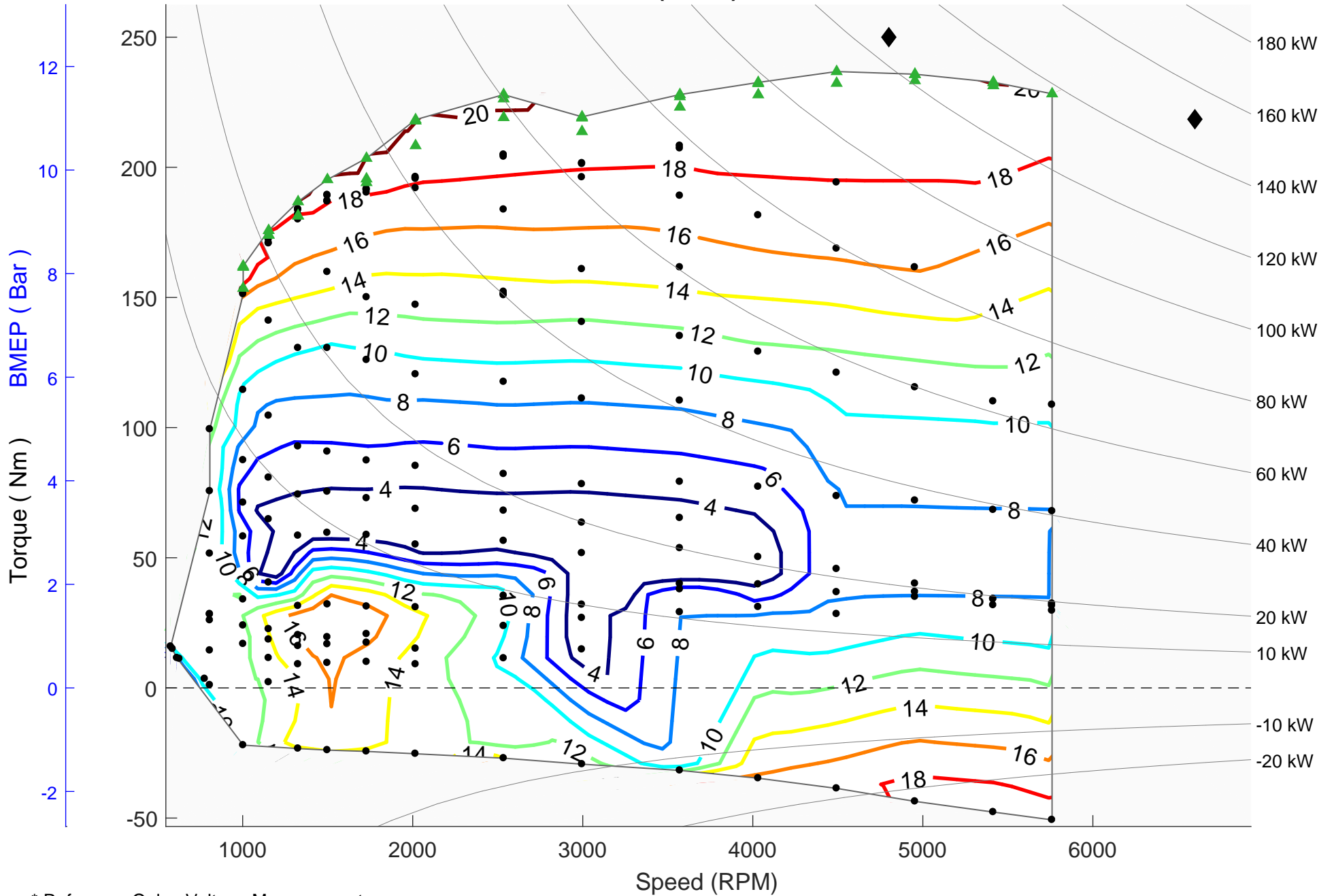
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
GDI Injector Fuel Flow (g/s) - Fuel Flow Estimate from GDI Injector Calibration



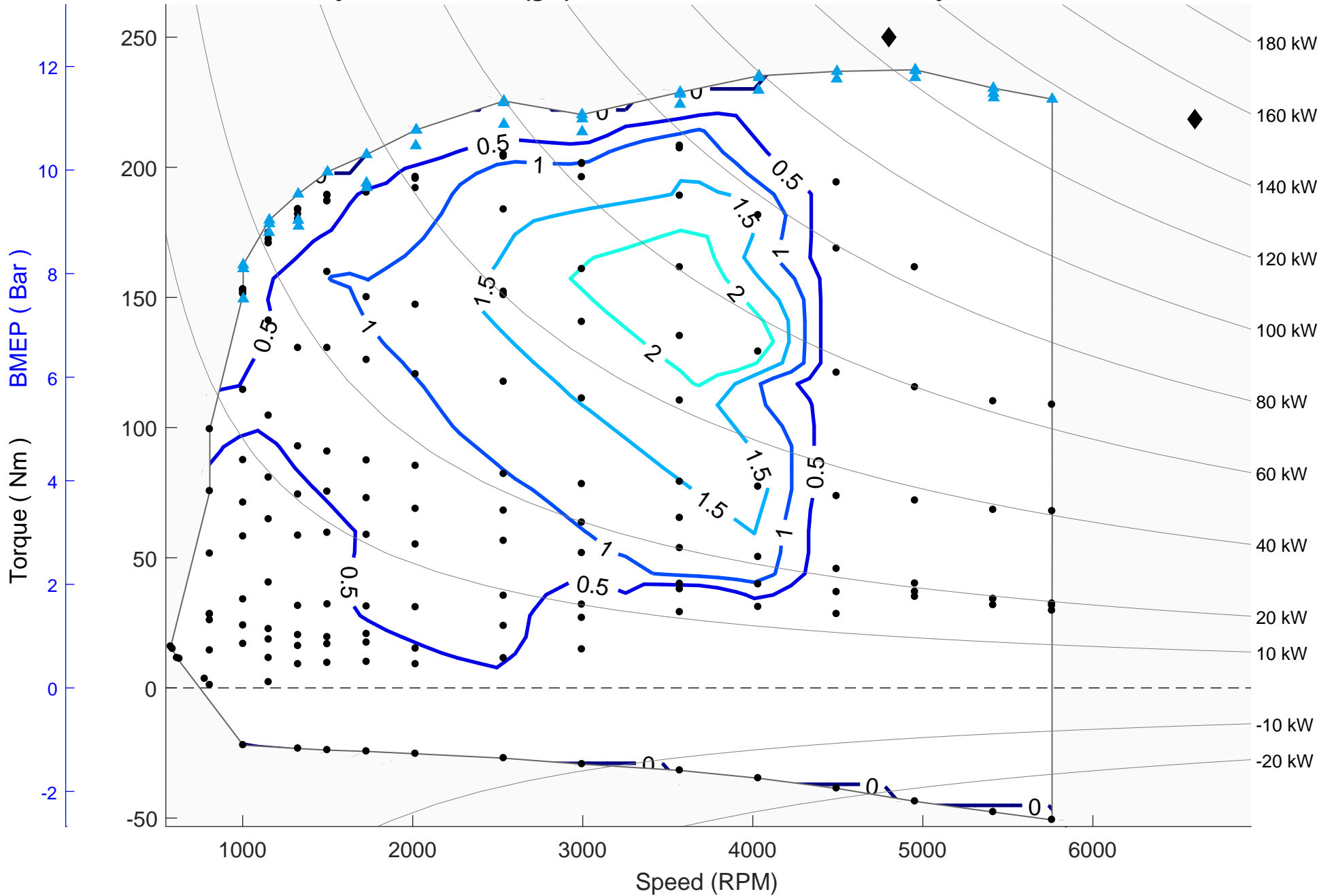
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
GDI Fuel Rail Press (MPaG) - Fuel Rail Pressure*



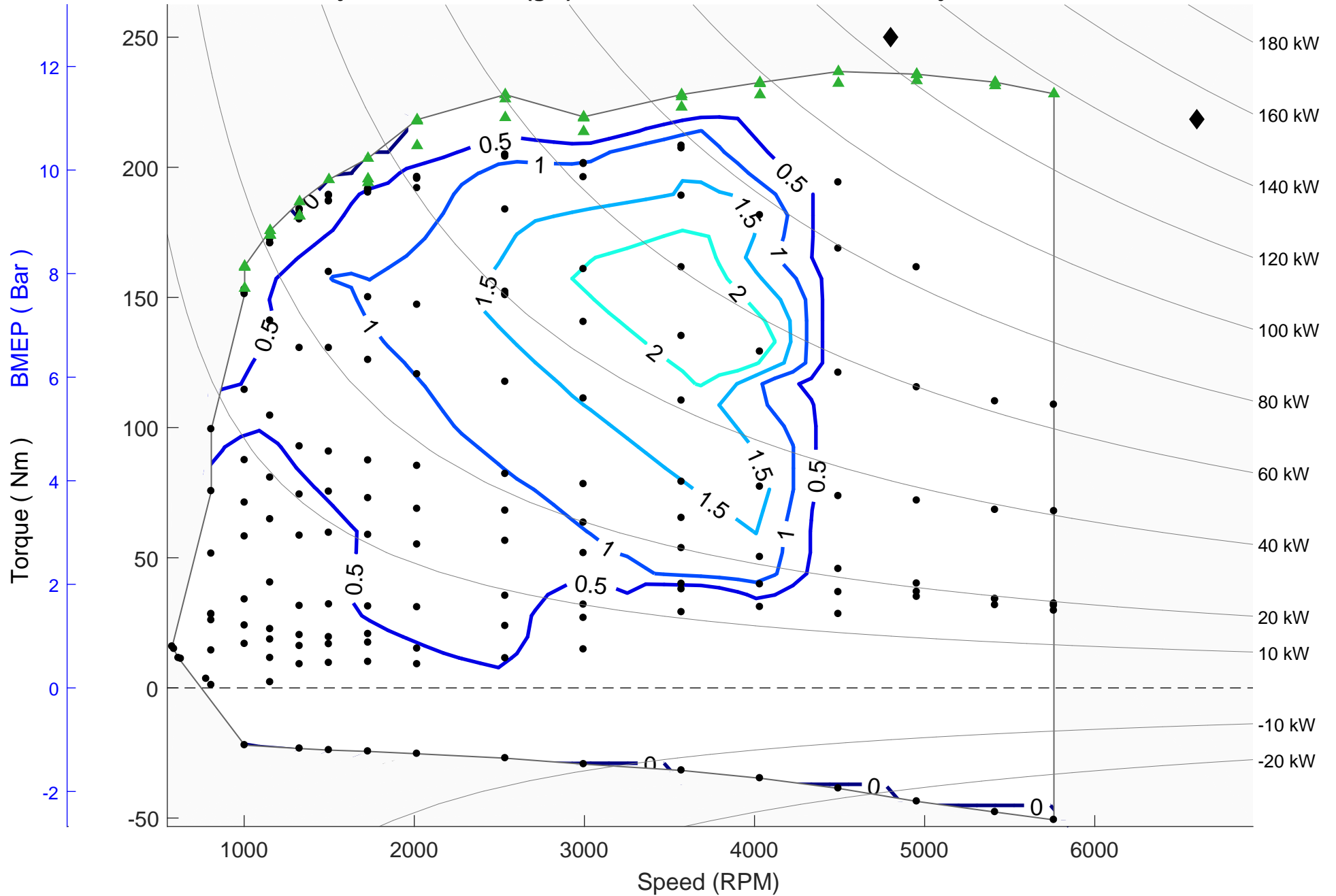
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
GDI Fuel Rail Press (MPaG) - Fuel Rail Pressure*



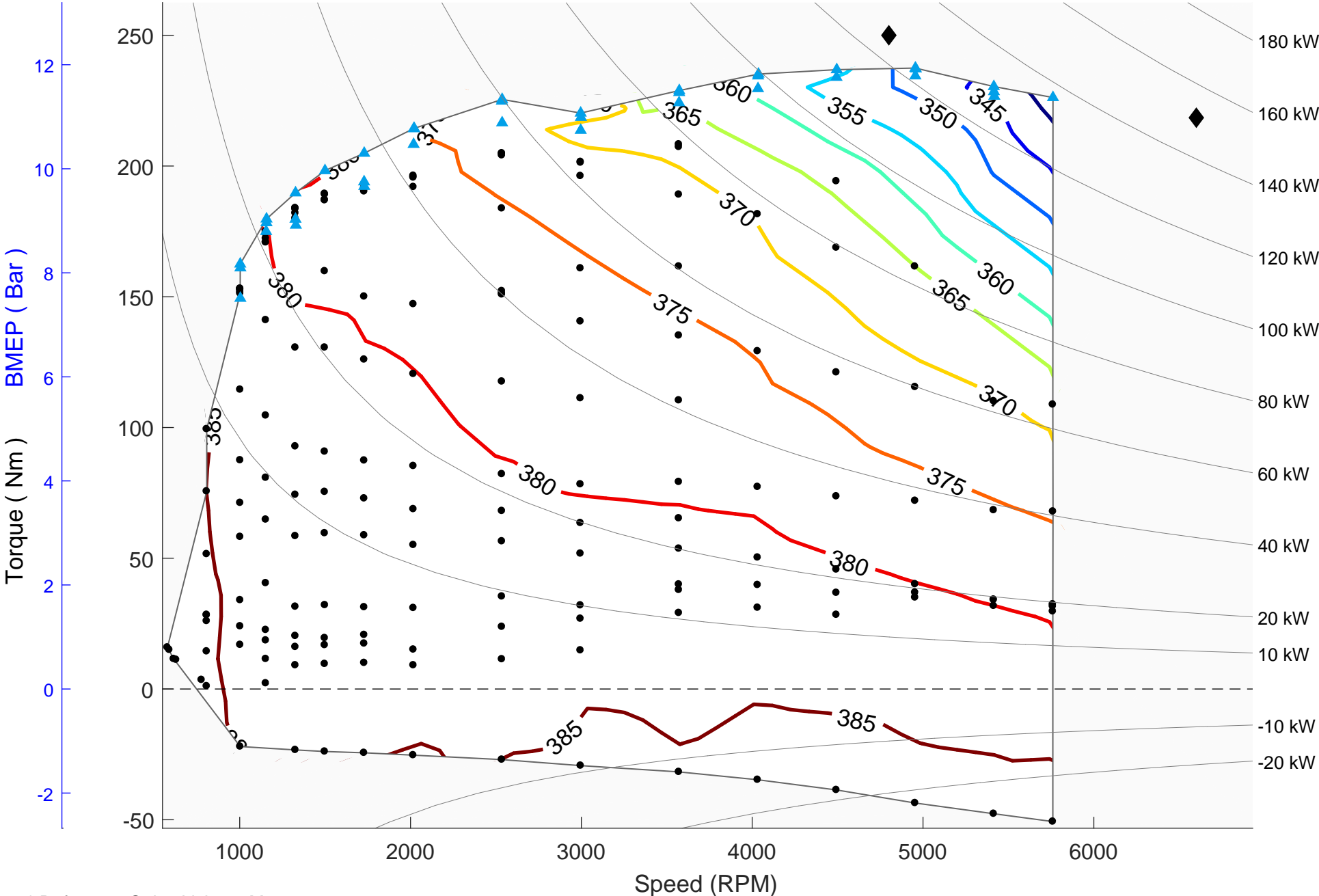
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
PFI Injector Fuel Flow (g/s) - Fuel Flow Estimate from PFI Injector Calibration



2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
PFI Injector Fuel Flow (g/s) - Fuel Flow Estimate from PFI Injector Calibration

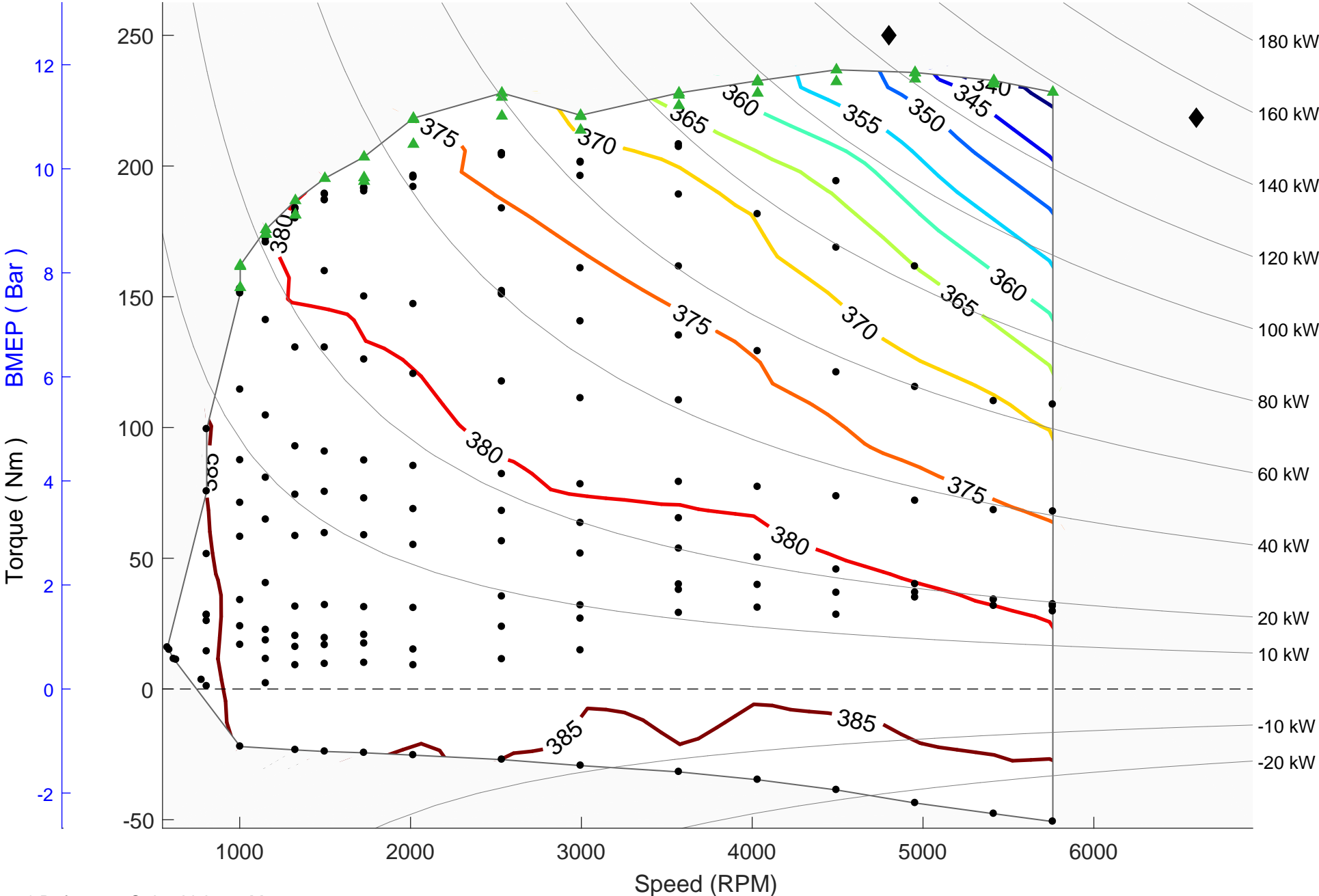


2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
PFI Fuel Rail Press (kPaG) - Fuel Rail Pressure*



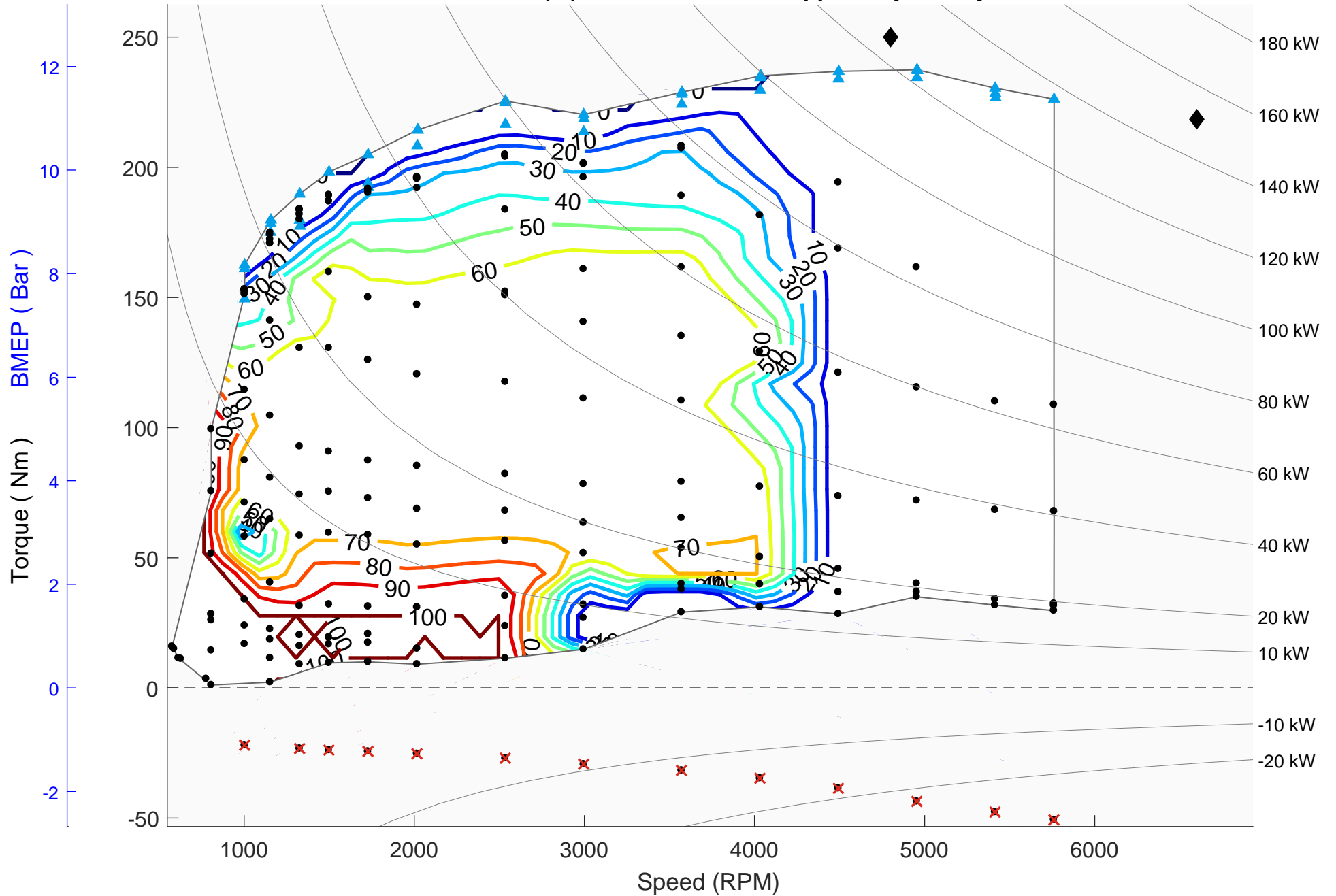
* Reference Only - Voltage Measurement

2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
PFI Fuel Rail Press (kPaG) - Fuel Rail Pressure*

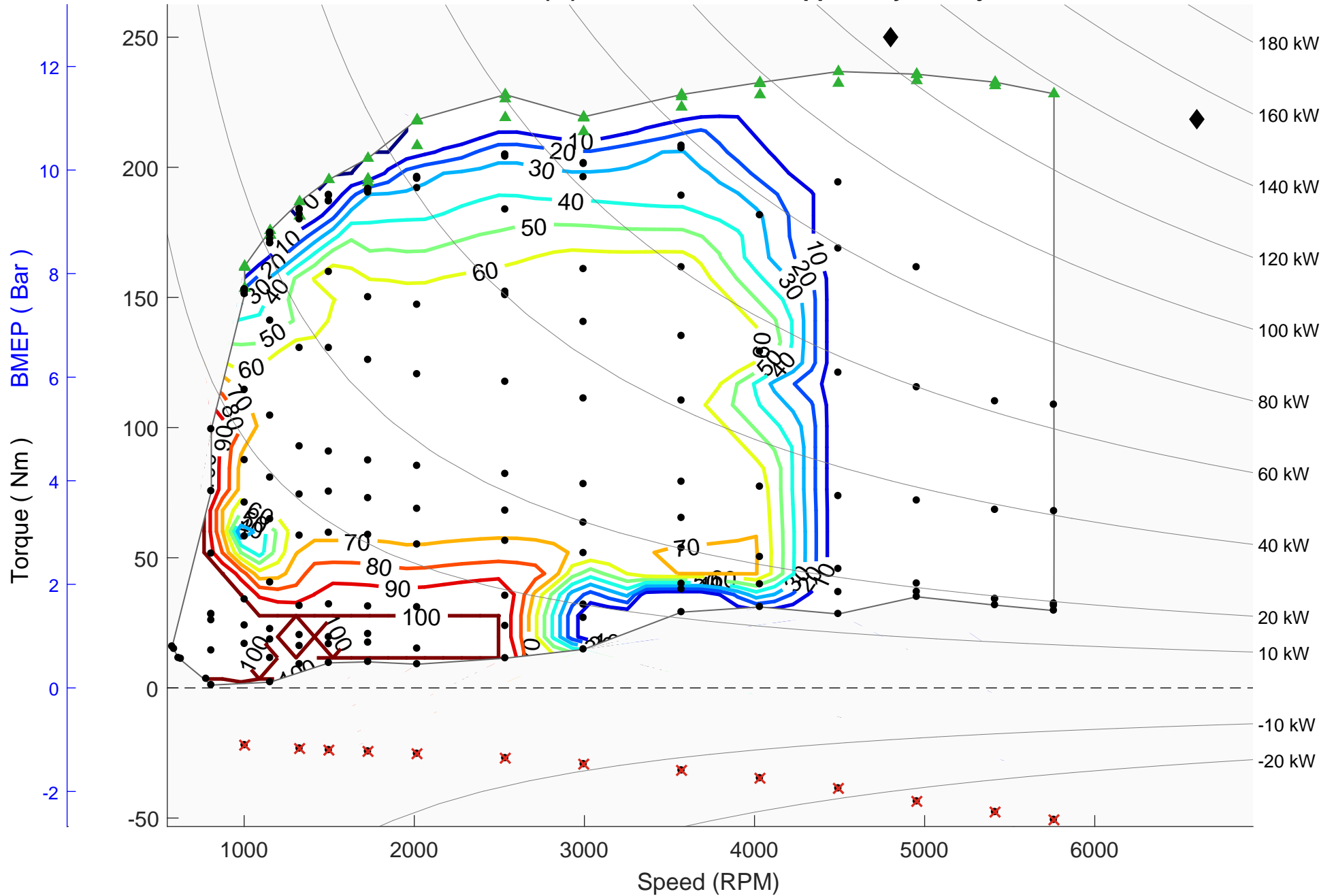


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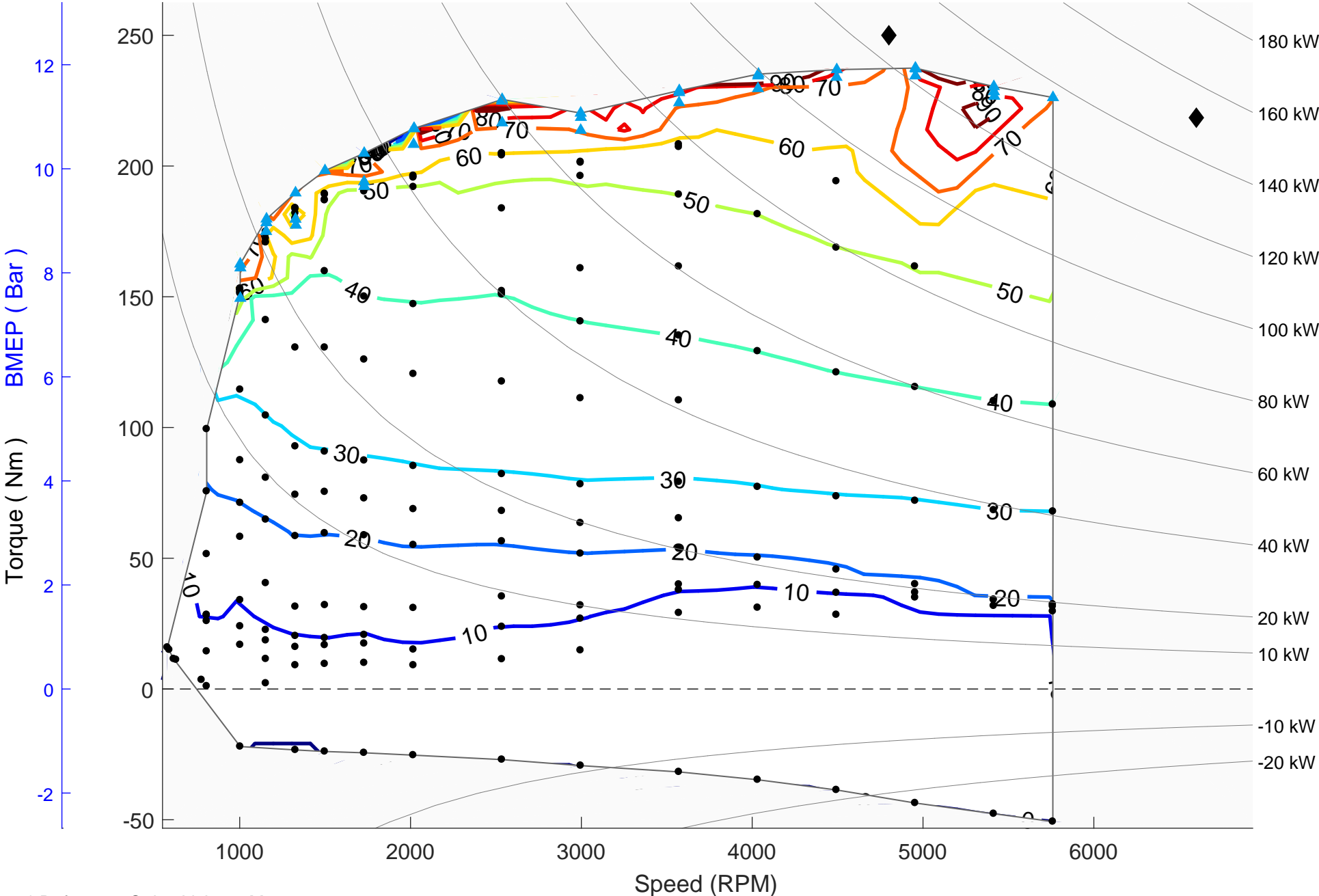
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
PFI Fuel Portion (%) - Portion of Fuel Supplied by PFI Injectors



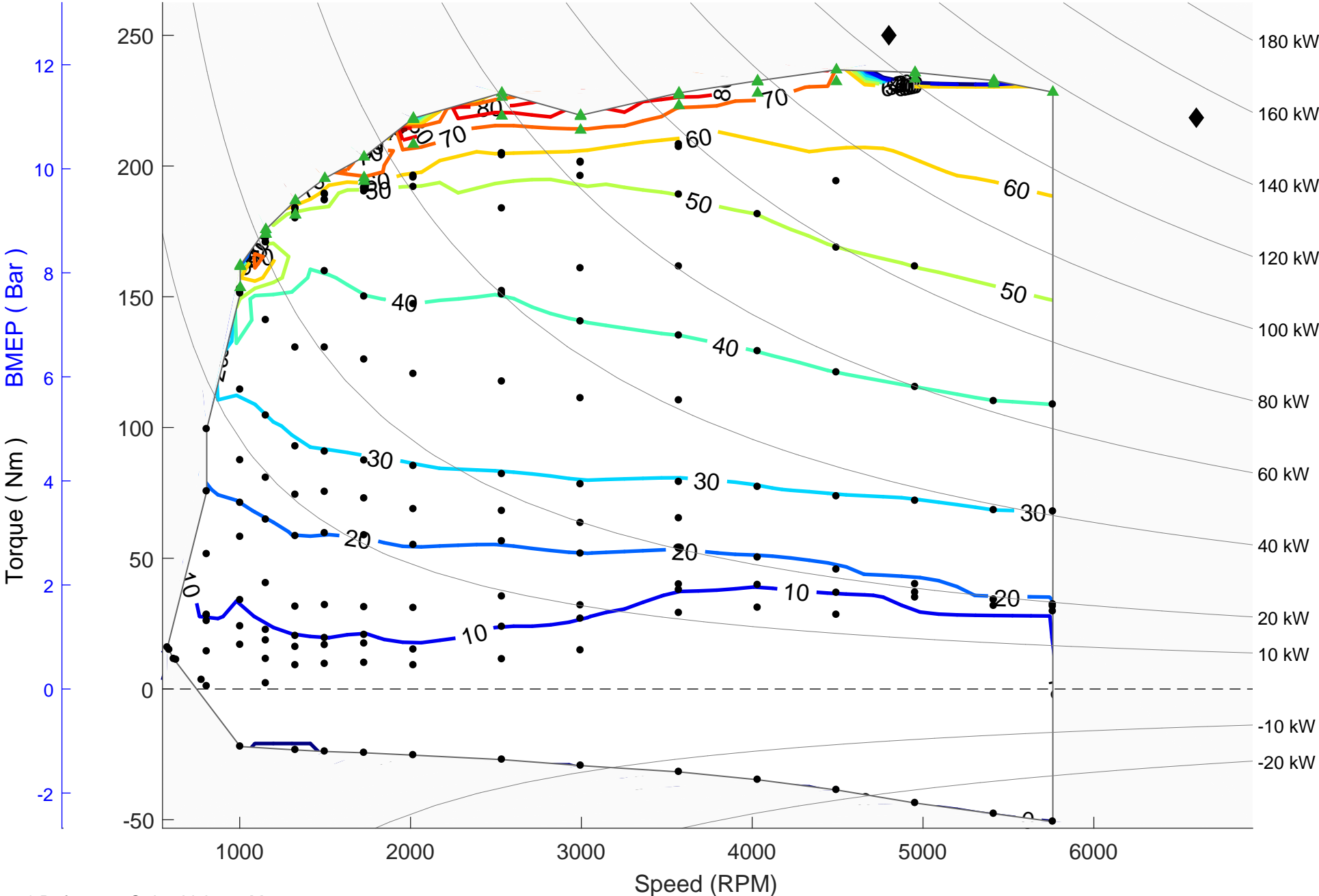
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
PFI Fuel Portion (%) - Portion of Fuel Supplied by PFI Injectors



2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Accelerator Pedal (%) - Accelerator Pedal Position*

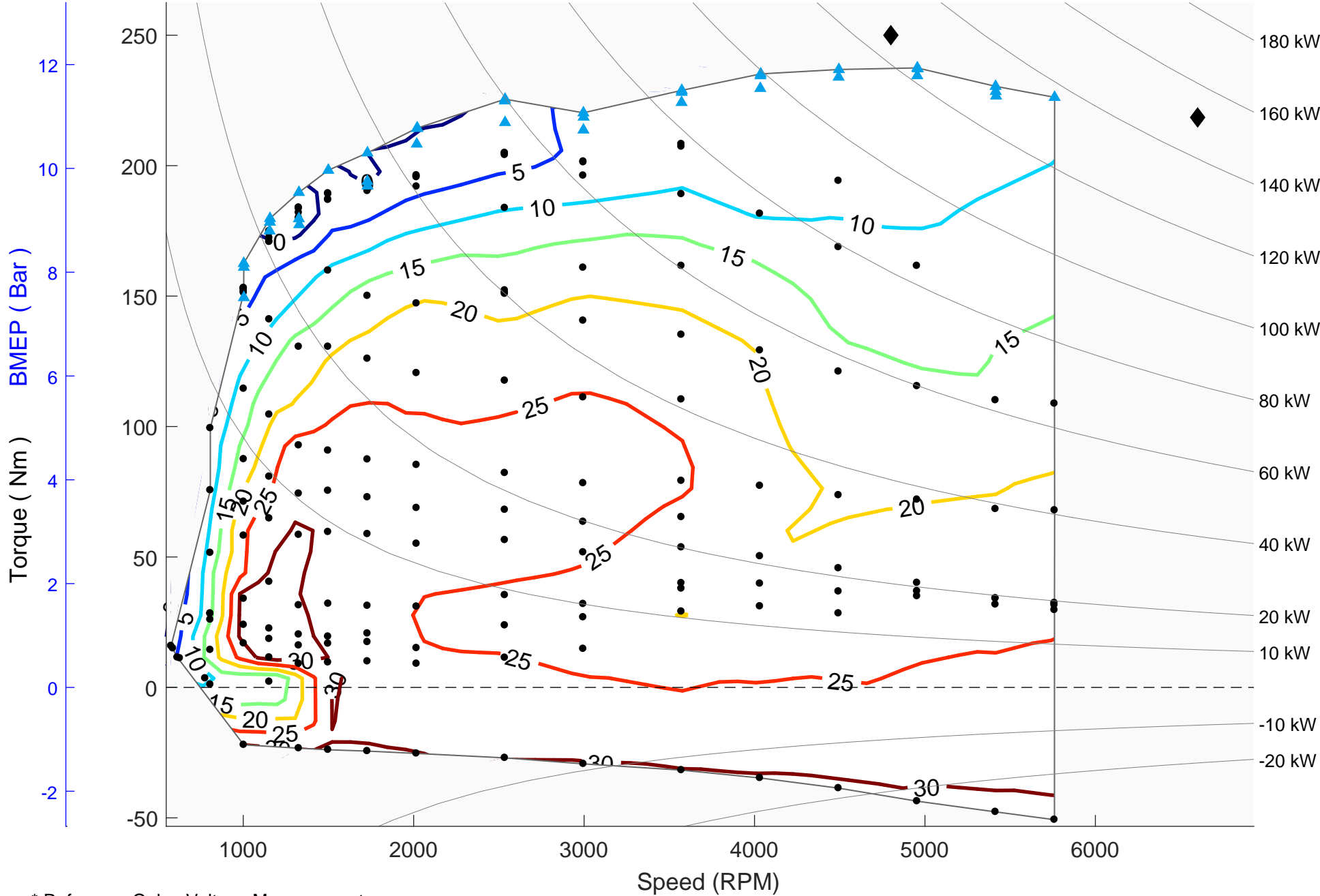


2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Accelerator Pedal (%) - Accelerator Pedal Position*

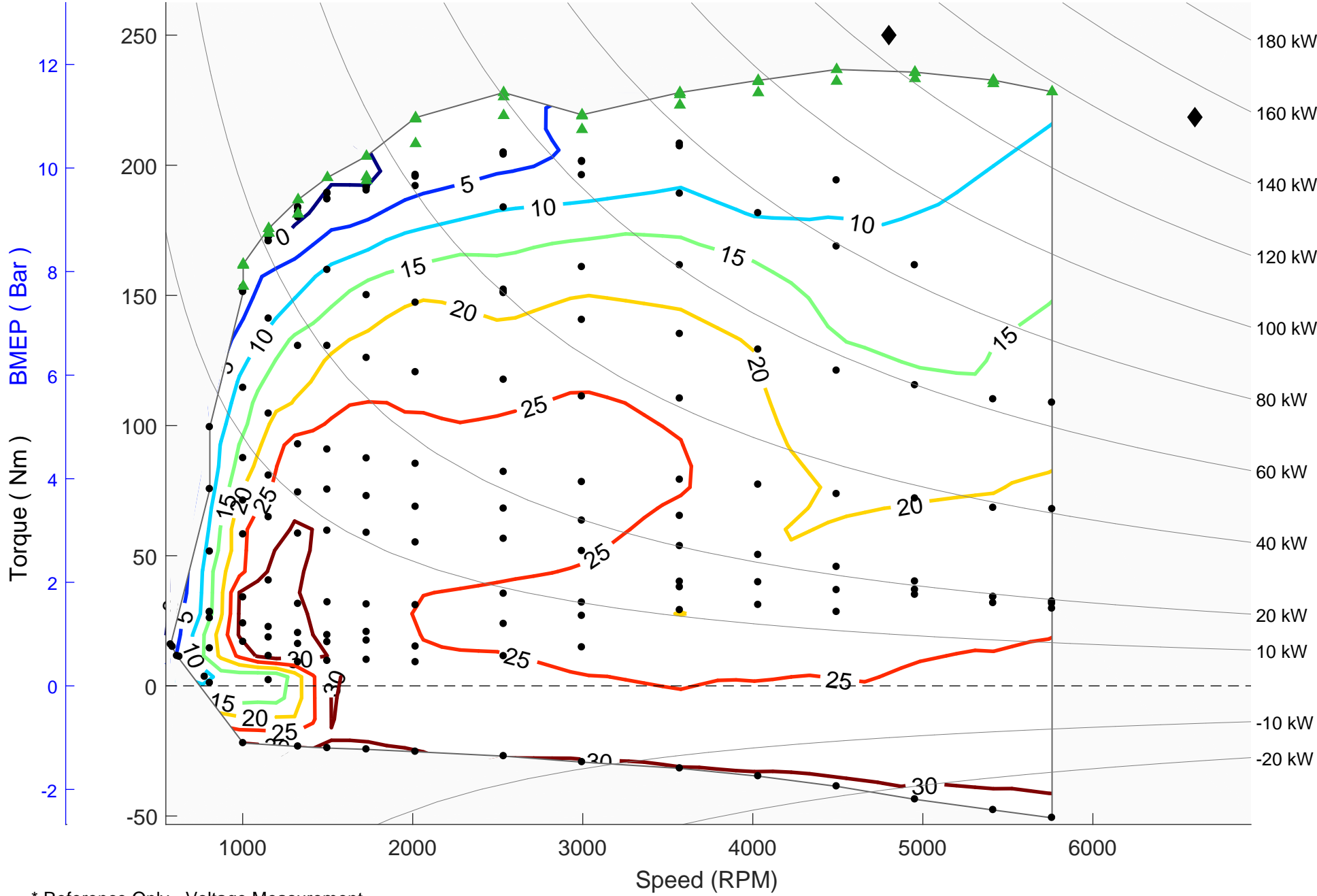


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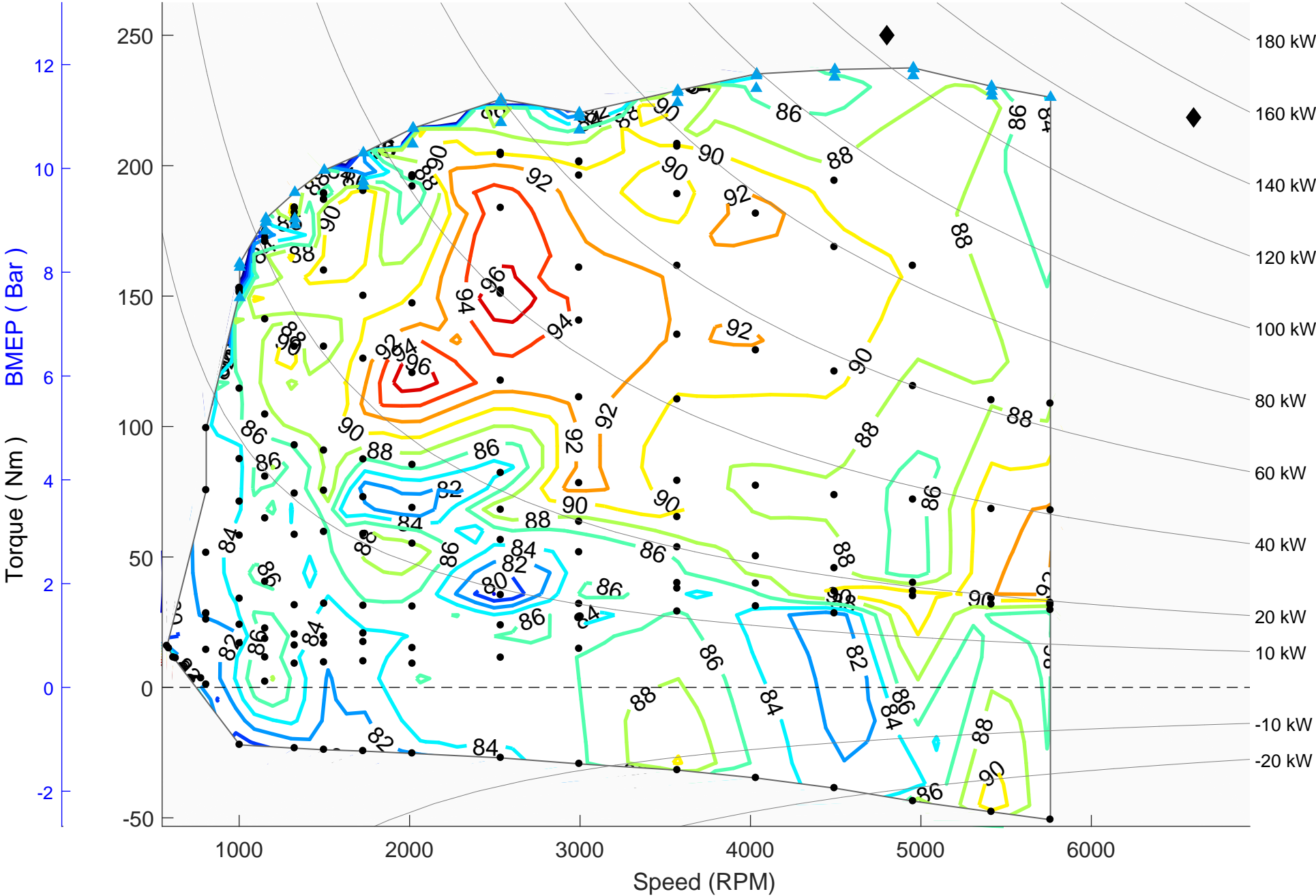
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Spark Timing (CAD BTDC) - Average Spark Timing Across all Cylinders*



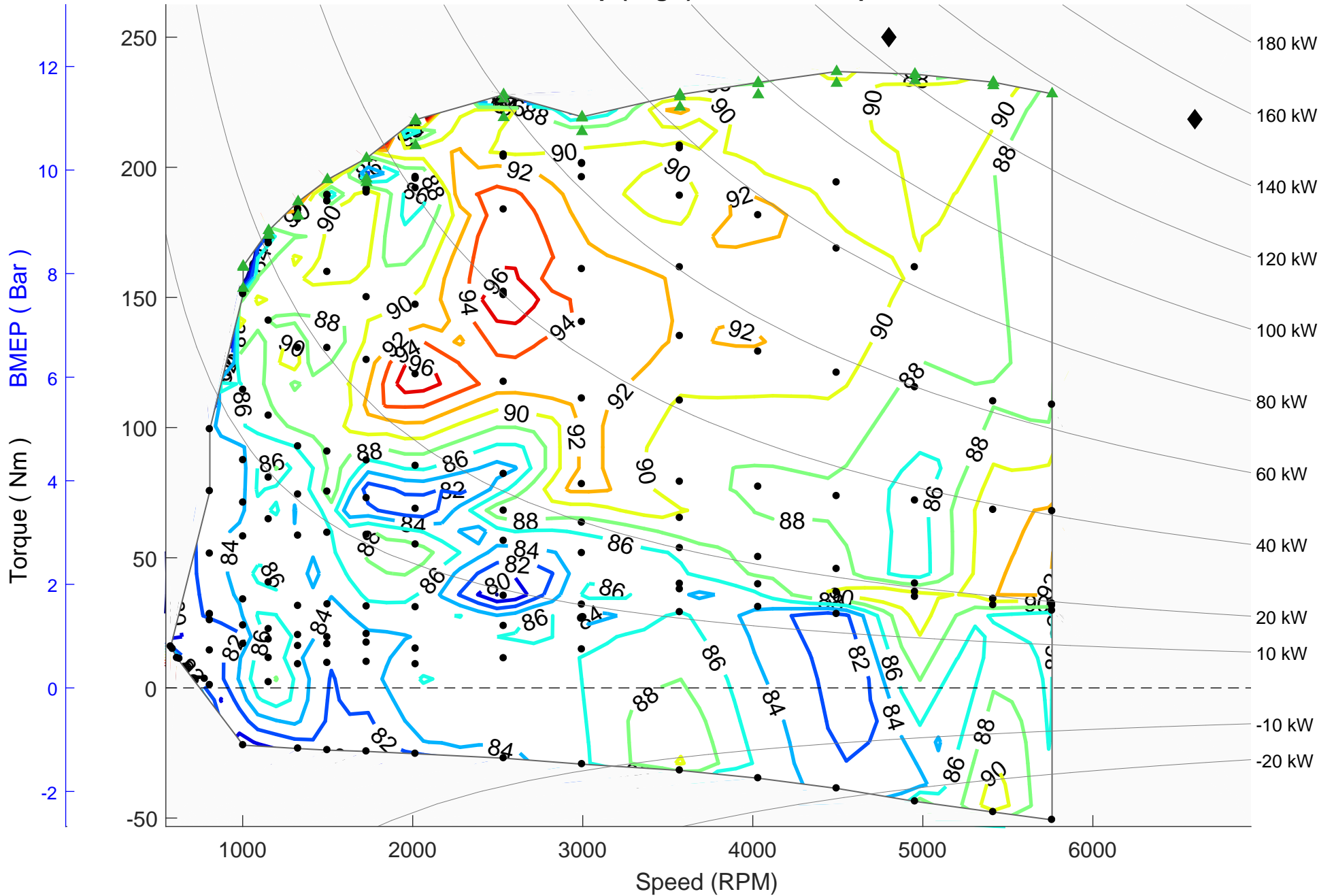
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Spark Timing (CAD BTDC) - Average Spark Timing Across all Cylinders*



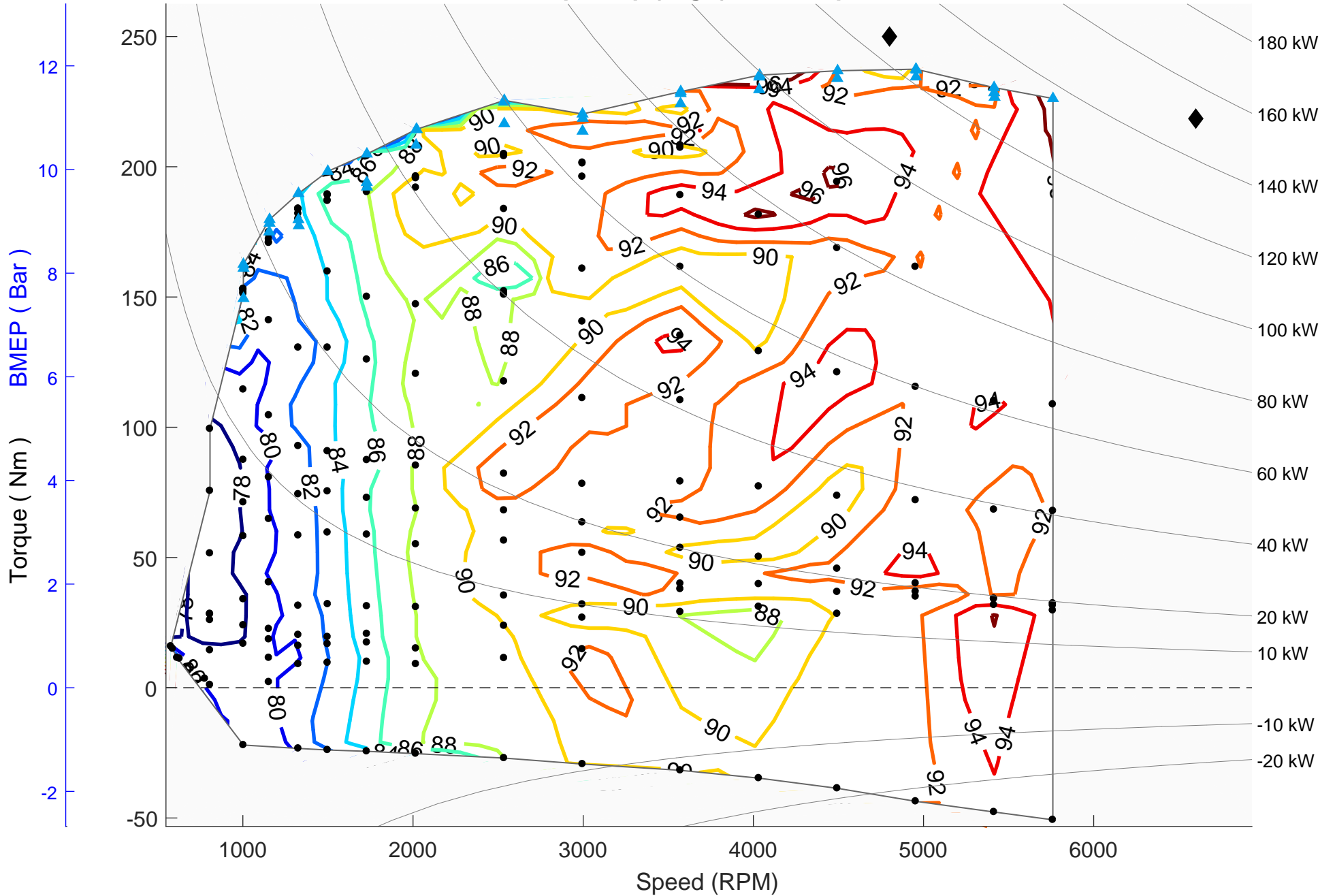
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Coolant Temp (degC) - Coolant Temperature



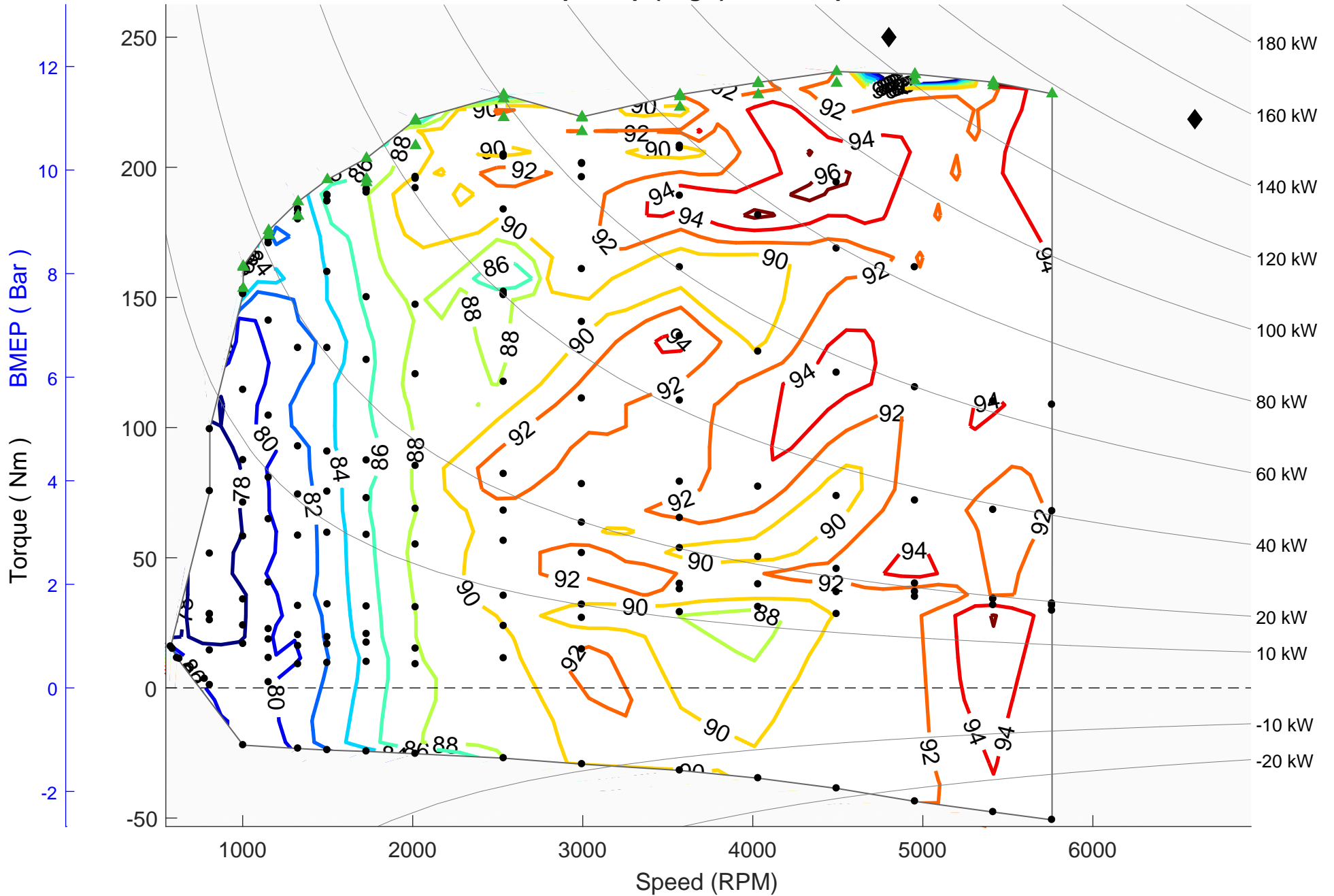
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Coolant Temp (degC) - Coolant Temperature



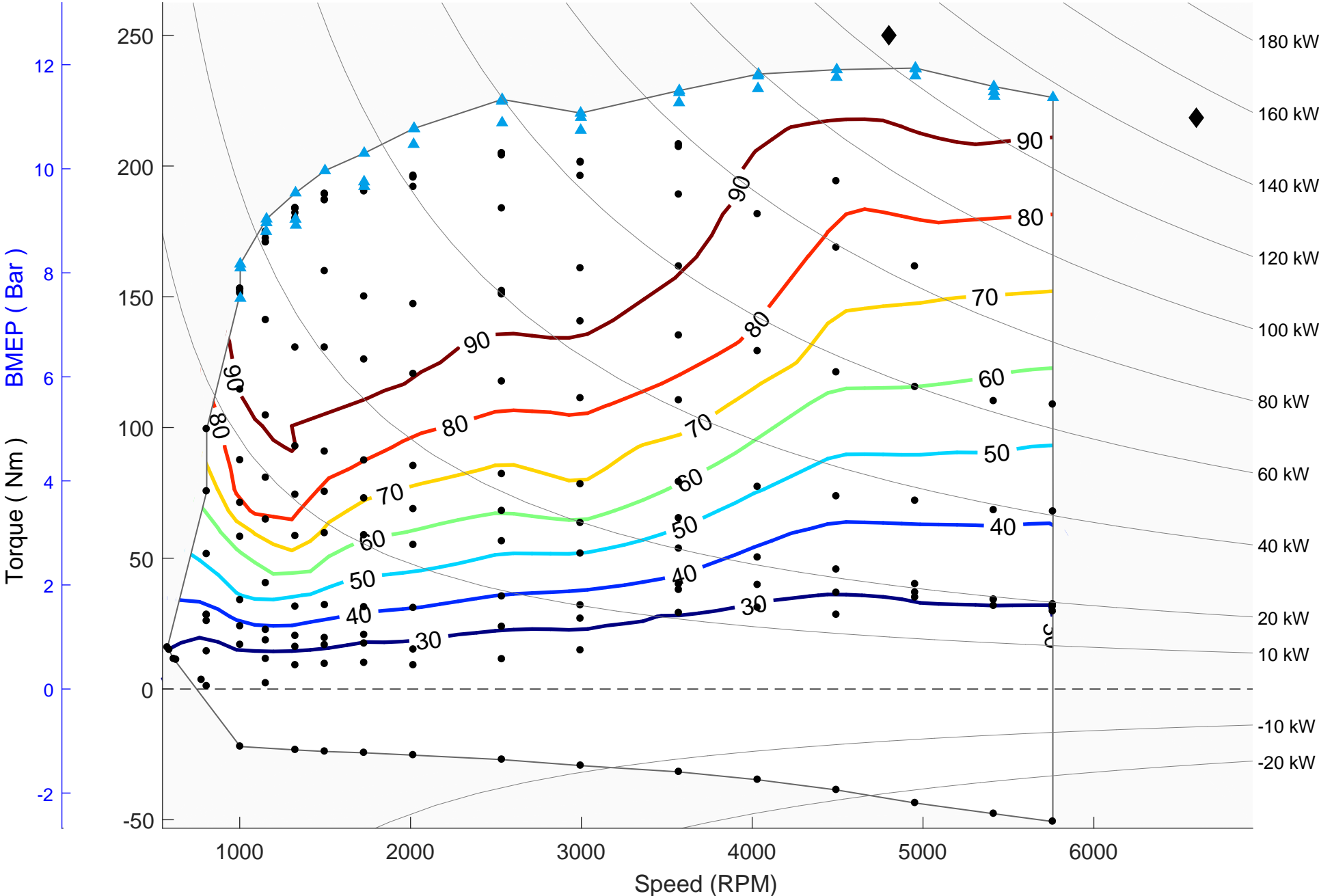
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Oil Sump Temp (degC) - Oil Temperature



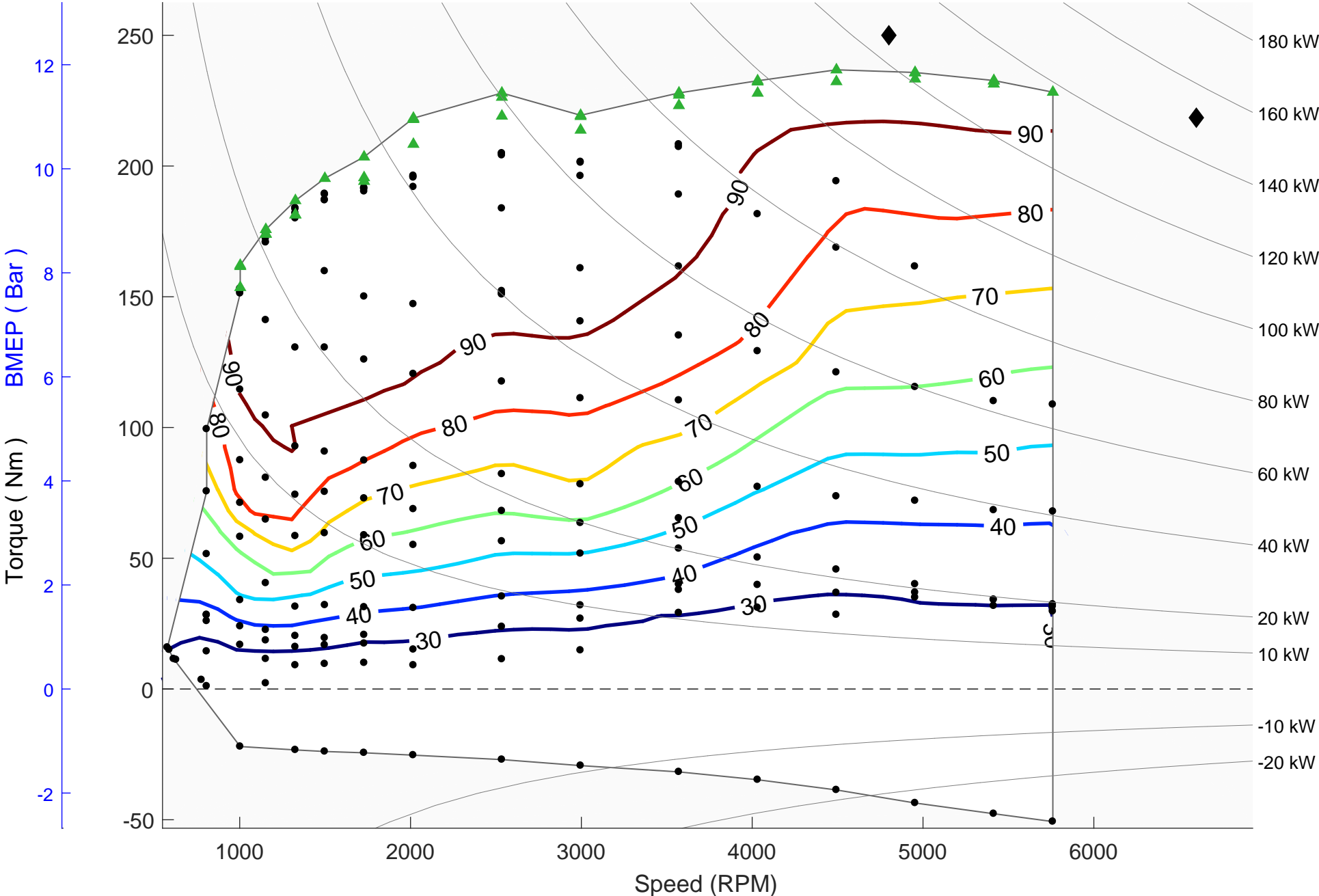
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Oil Sump Temp (degC) - Oil Temperature



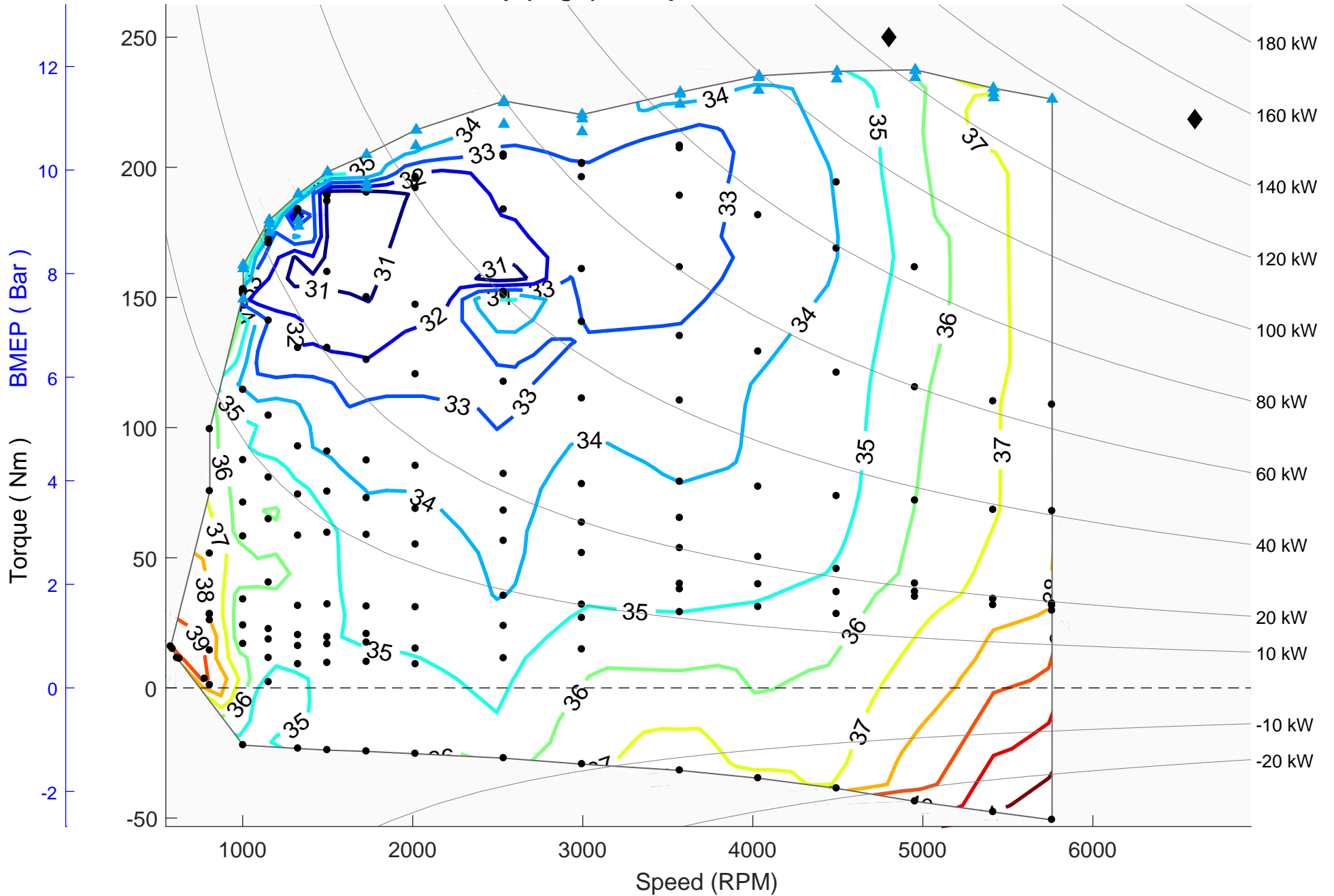
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Intake Manifold Press (kPaA) - Pressure Measured in the Intake Manifold



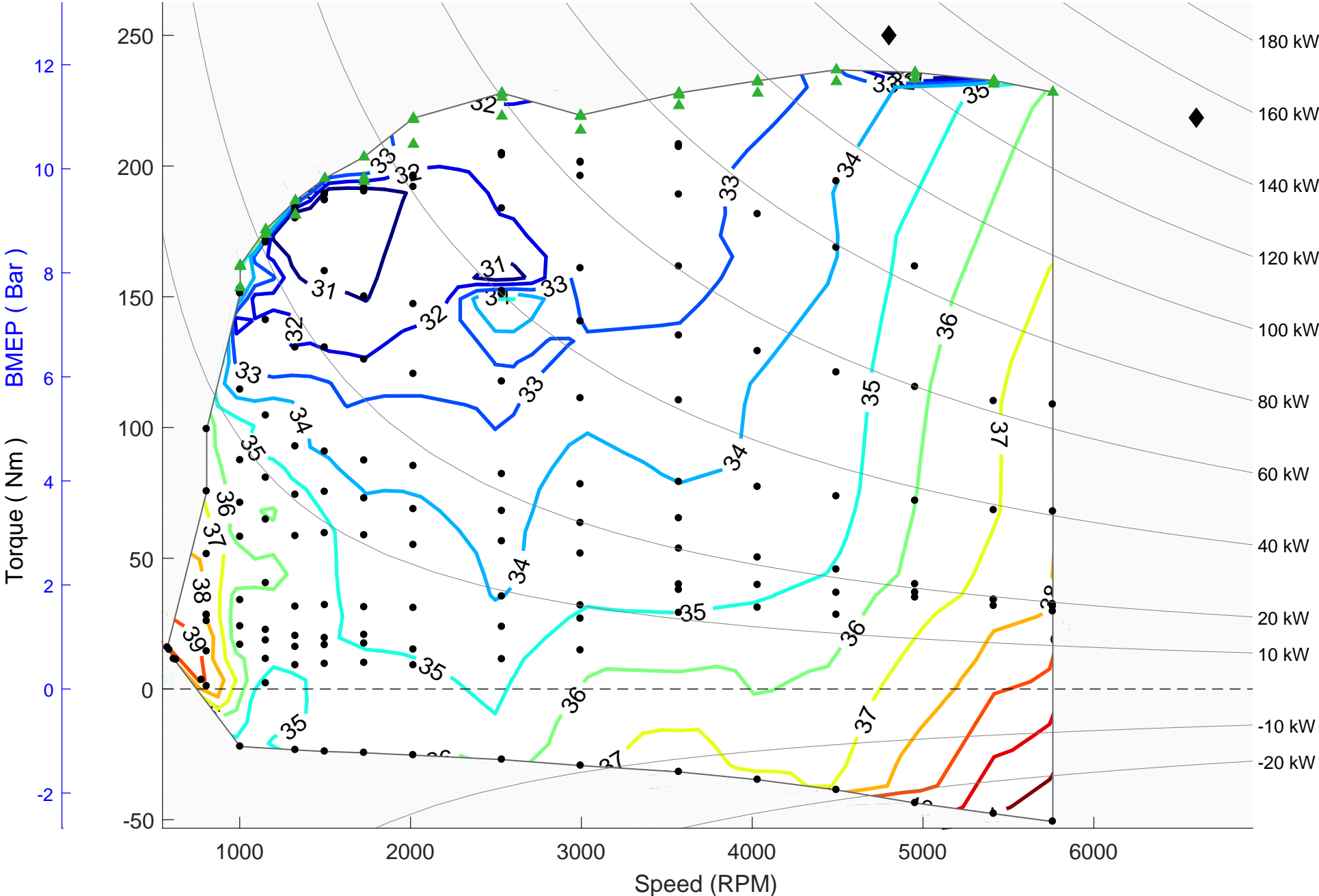
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Intake Manifold Press (kPaA) - Pressure Measured in the Intake Manifold



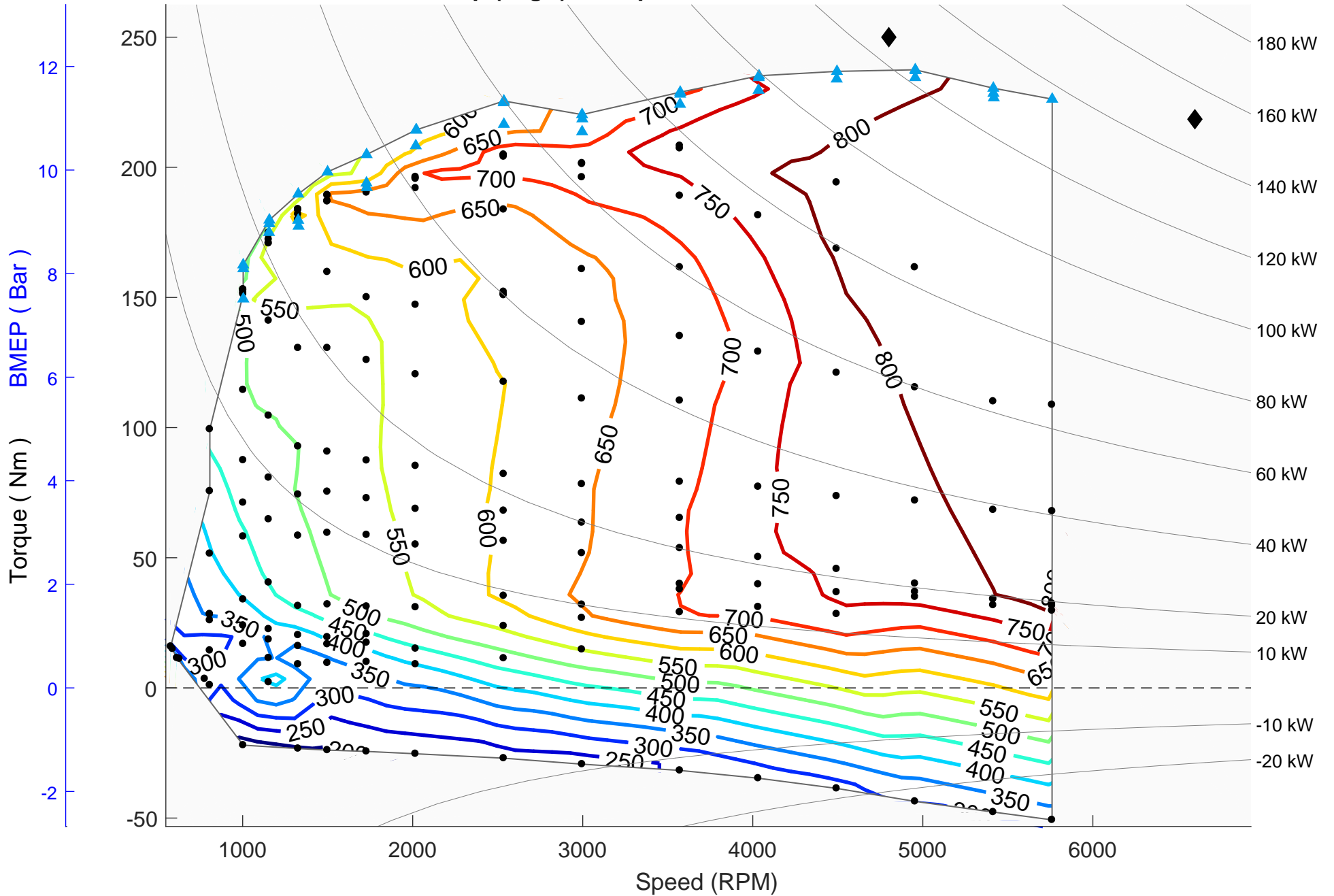
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Intake Manifold Temp (degC) - Temperature Measured in the Intake Manifold



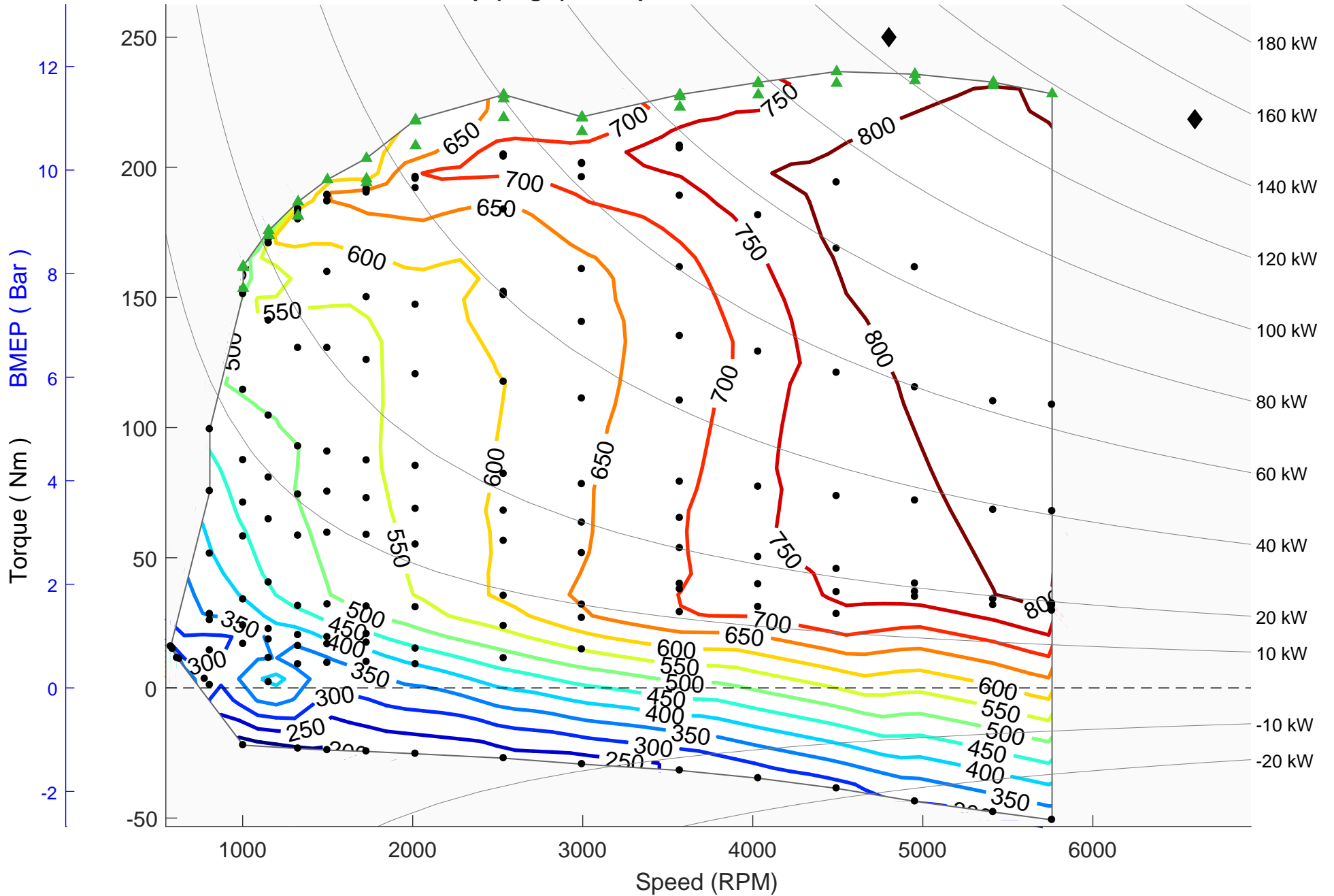
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Intake Manifold Temp (degC) - Temperature Measured in the Intake Manifold



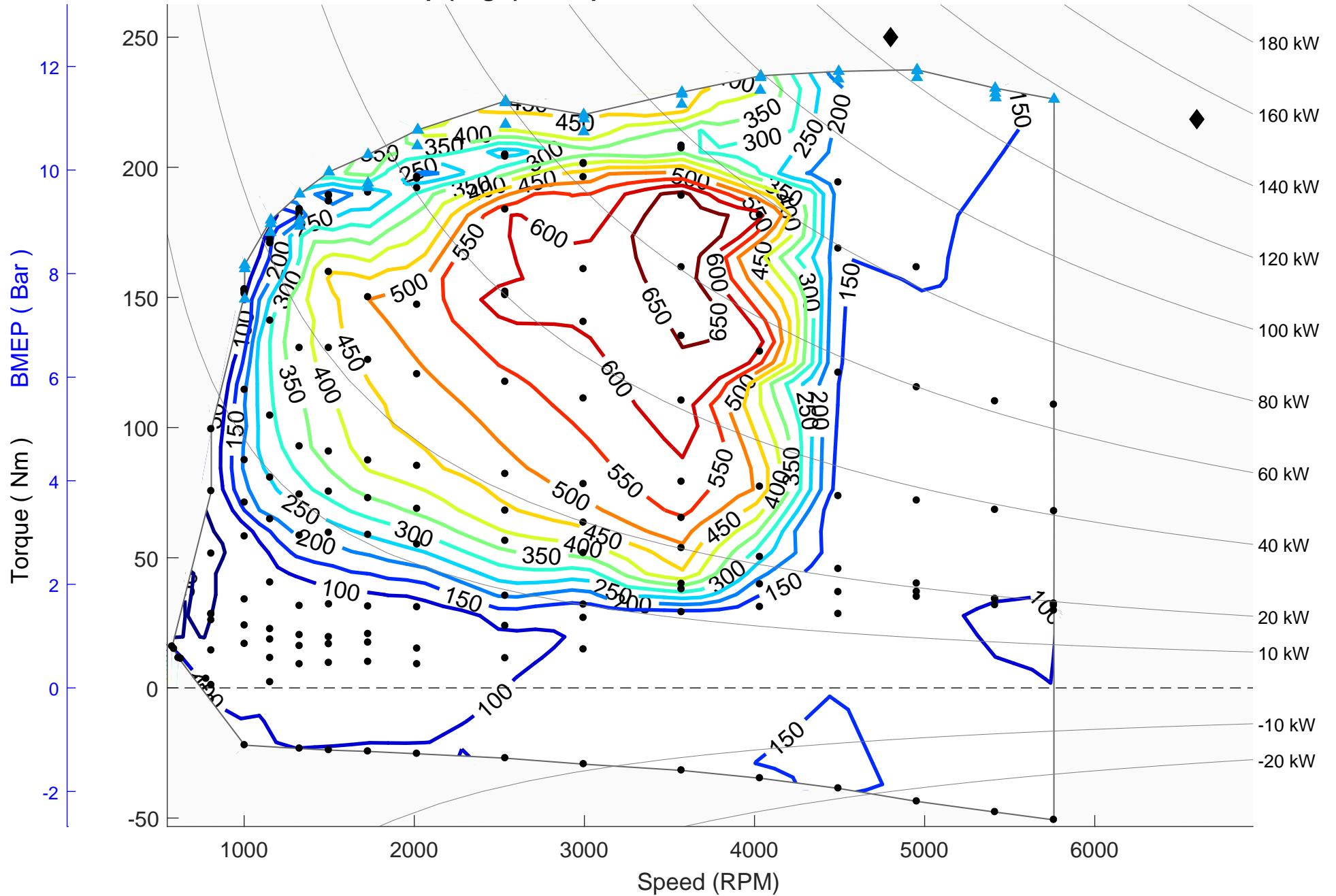
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Exhaust Port Temp (degC) - Temperature Measured in Exhaust Manifold Port



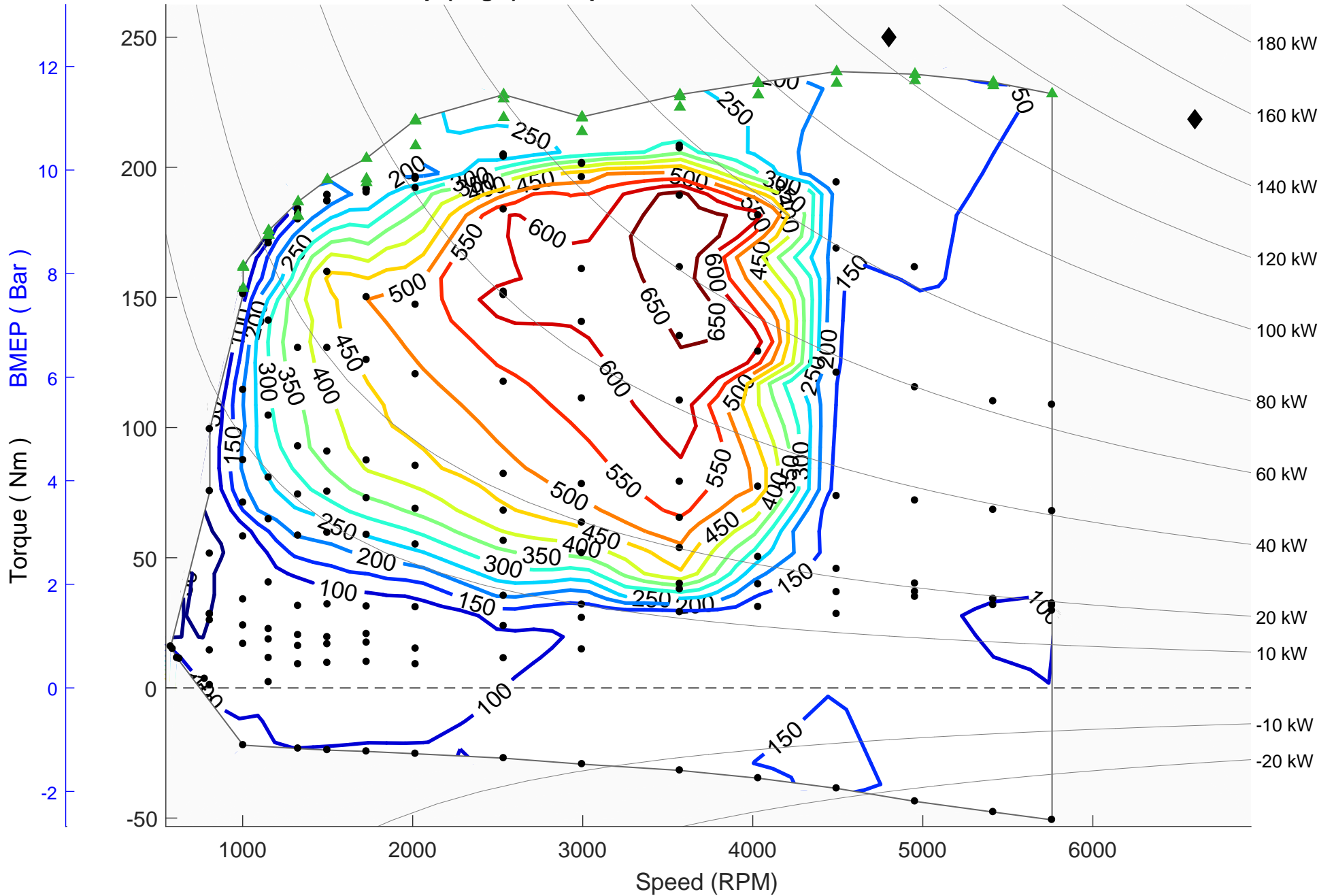
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Exhaust Port Temp (degC) - Temperature Measured in Exhaust Manifold Port



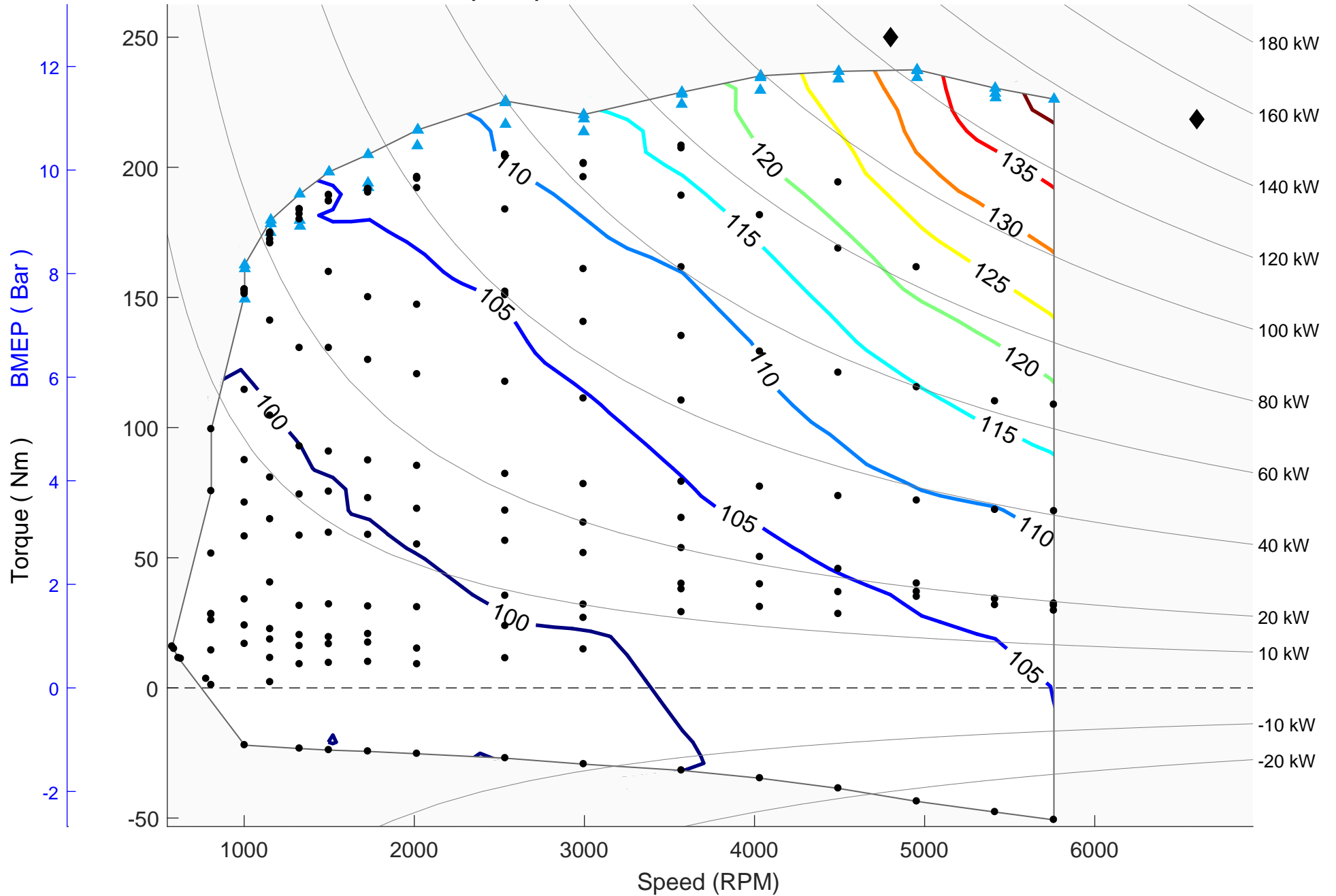
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
EGR Inlet Temp (degC) - Temperature Measured in Exhaust Manifold EGR Port



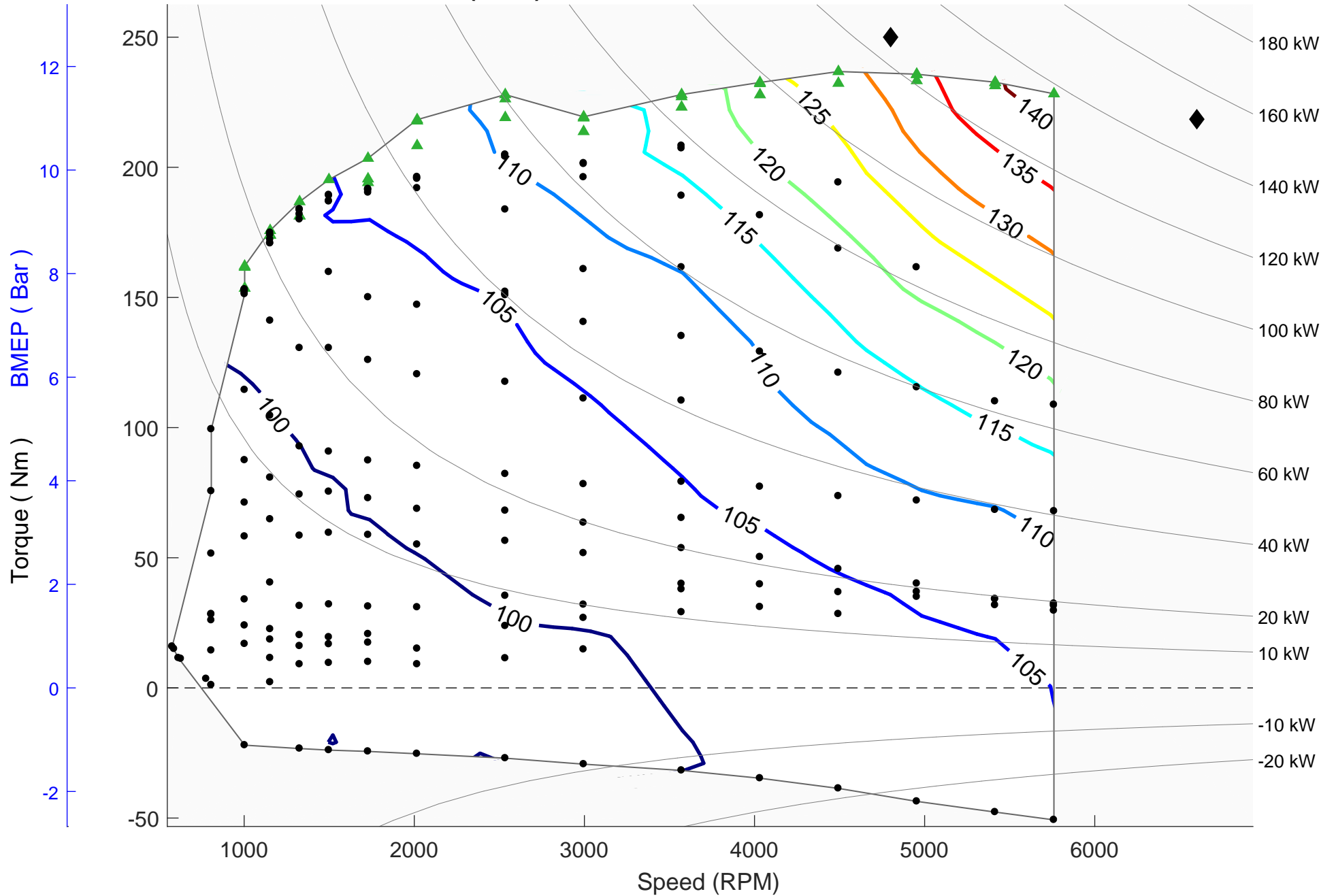
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
EGR Inlet Temp (degC) - Temperature Measured in Exhaust Manifold EGR Port



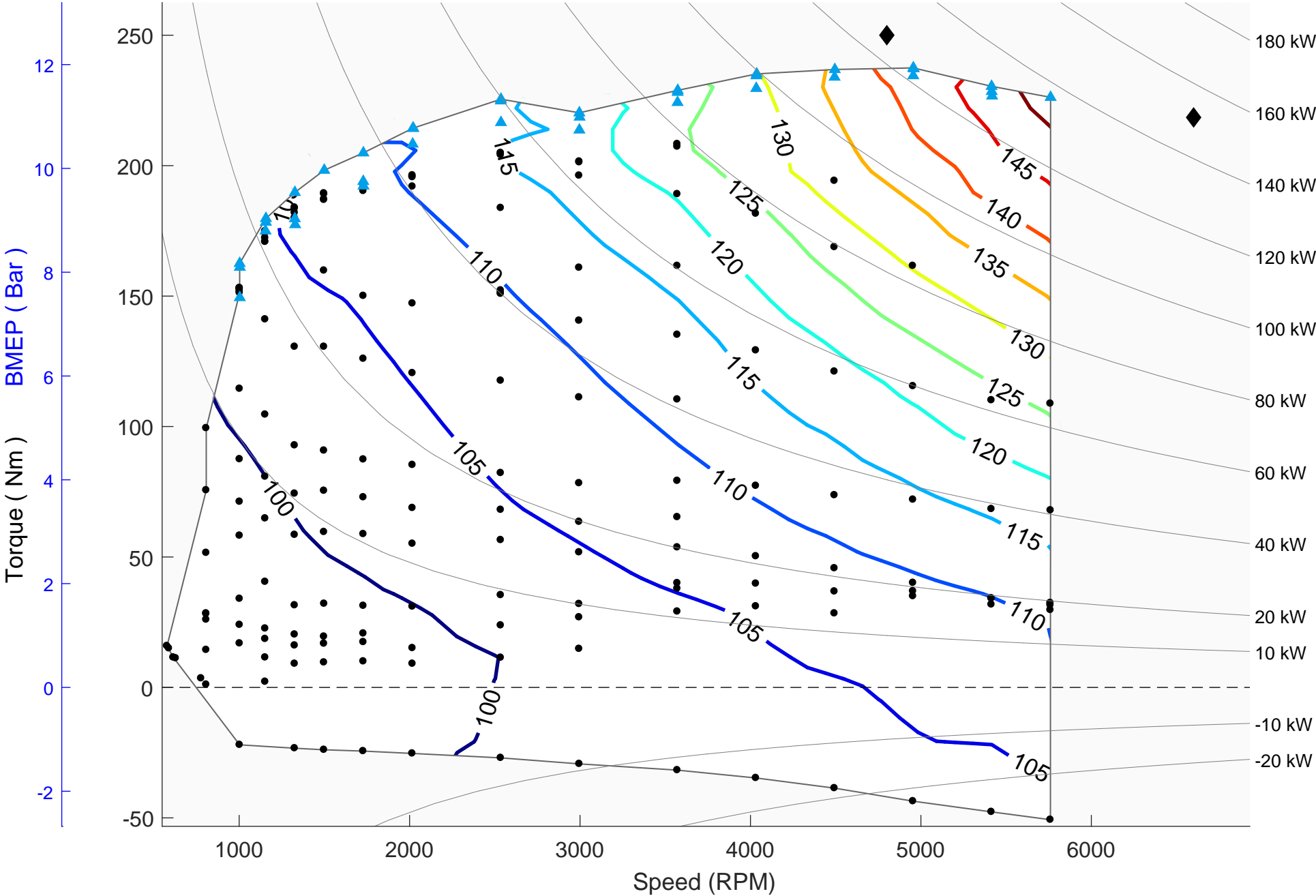
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
EGR Inlet Press (kPaA) - Pressure Measured in Exhaust Manifold EGR Port



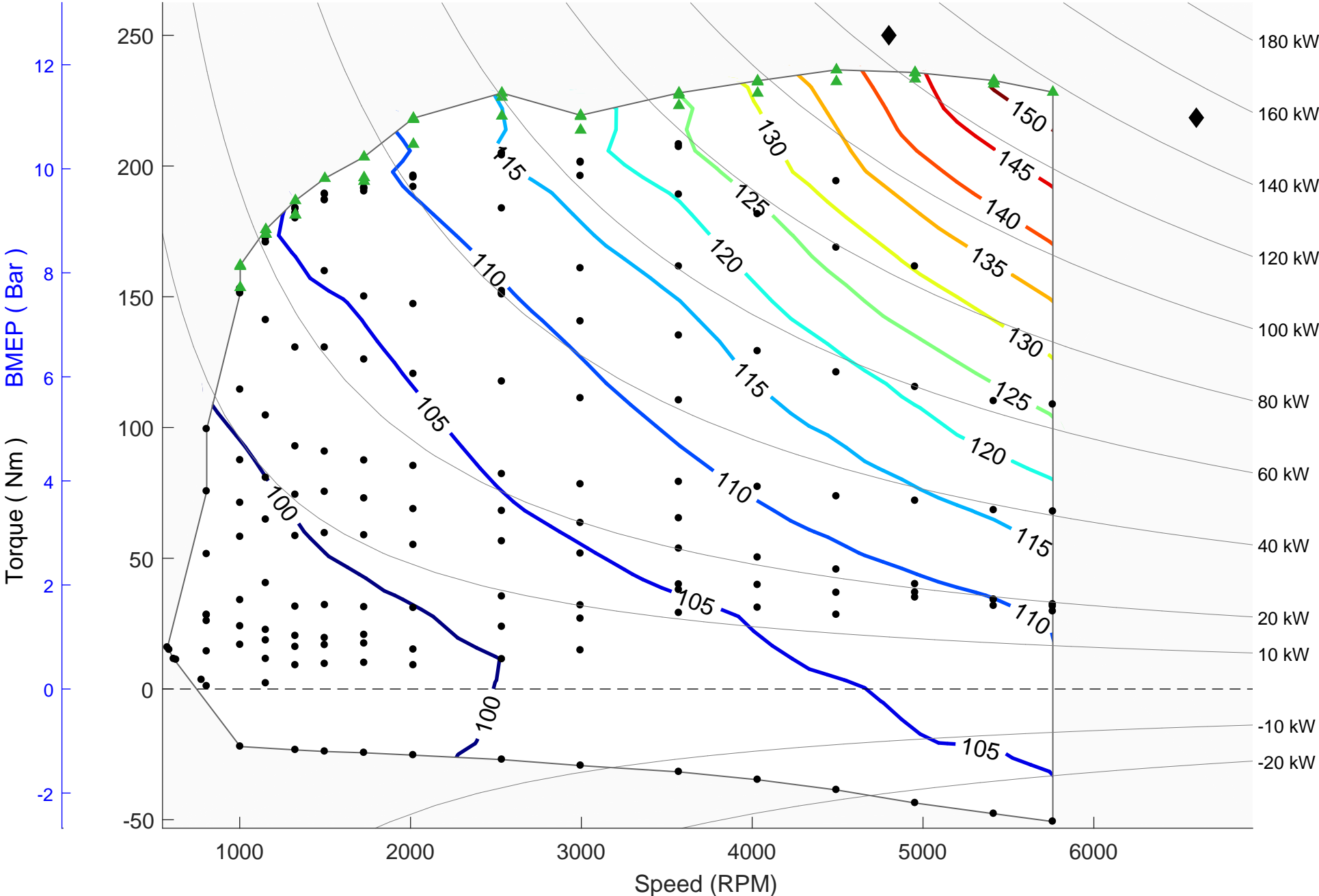
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
EGR Inlet Press (kPaA) - Pressure Measured in Exhaust Manifold EGR Port



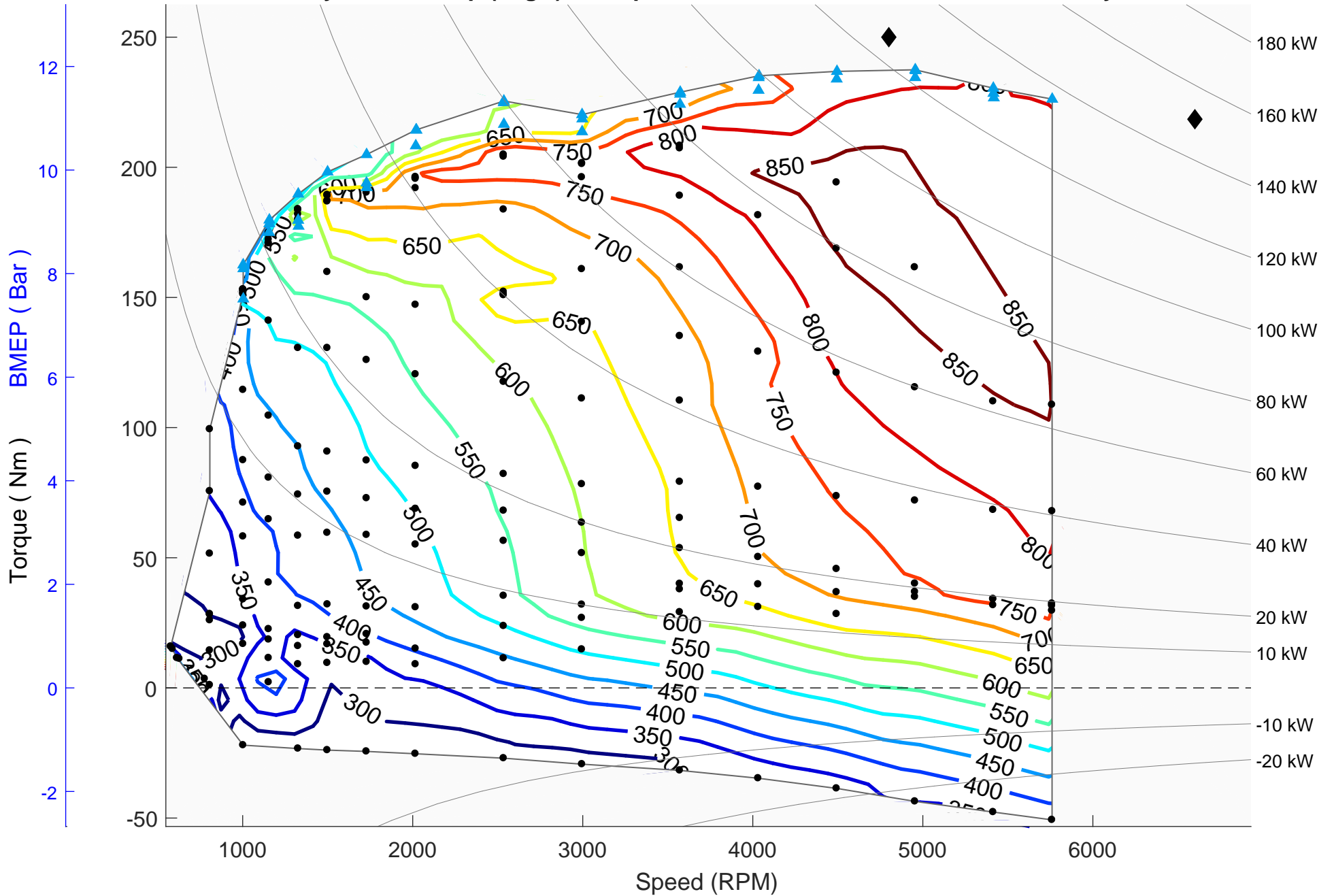
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Catalyst Inlet Press (kPaA) - Pressure Measured at the Inlet to the Catalyst



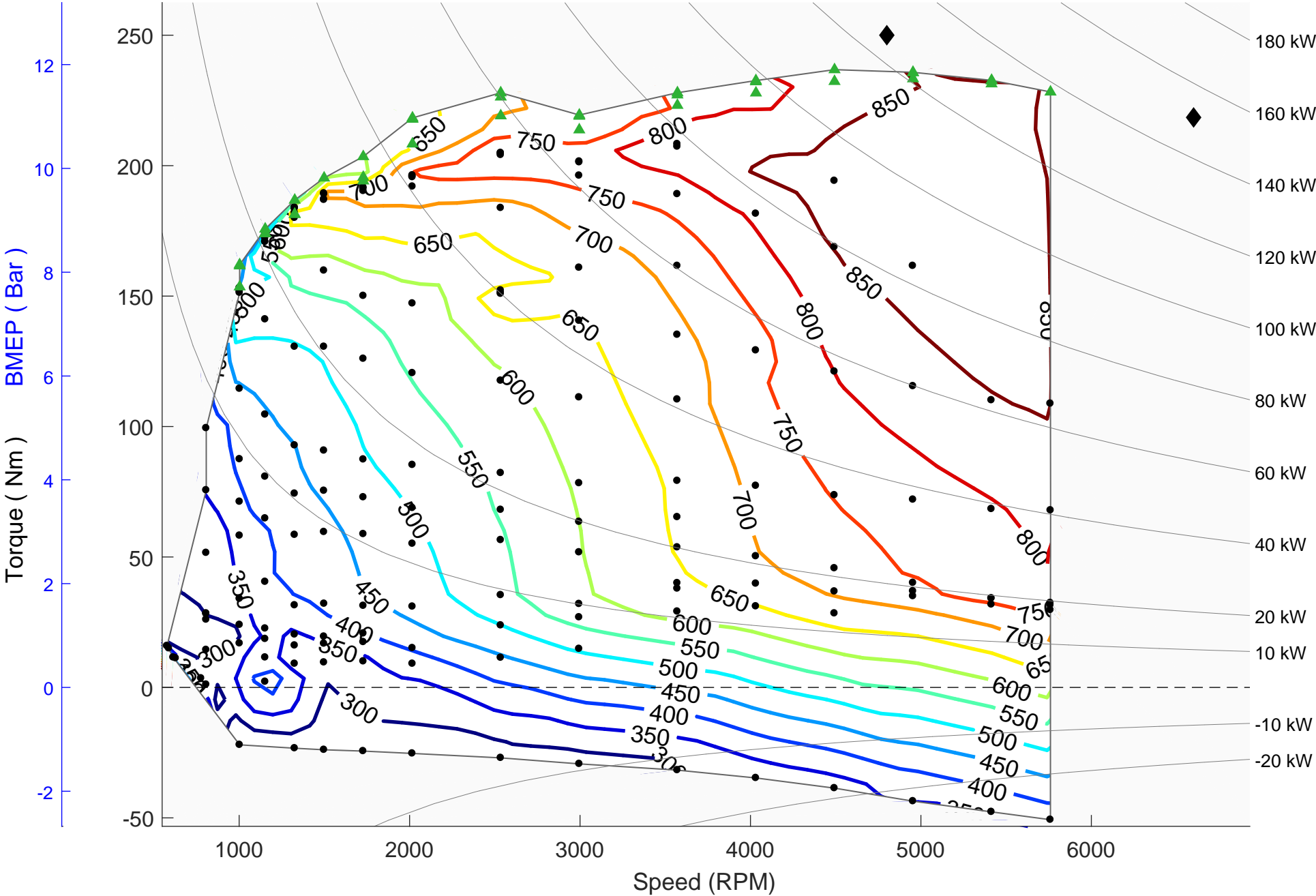
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Catalyst Inlet Press (kPaA) - Pressure Measured at the Inlet to the Catalyst



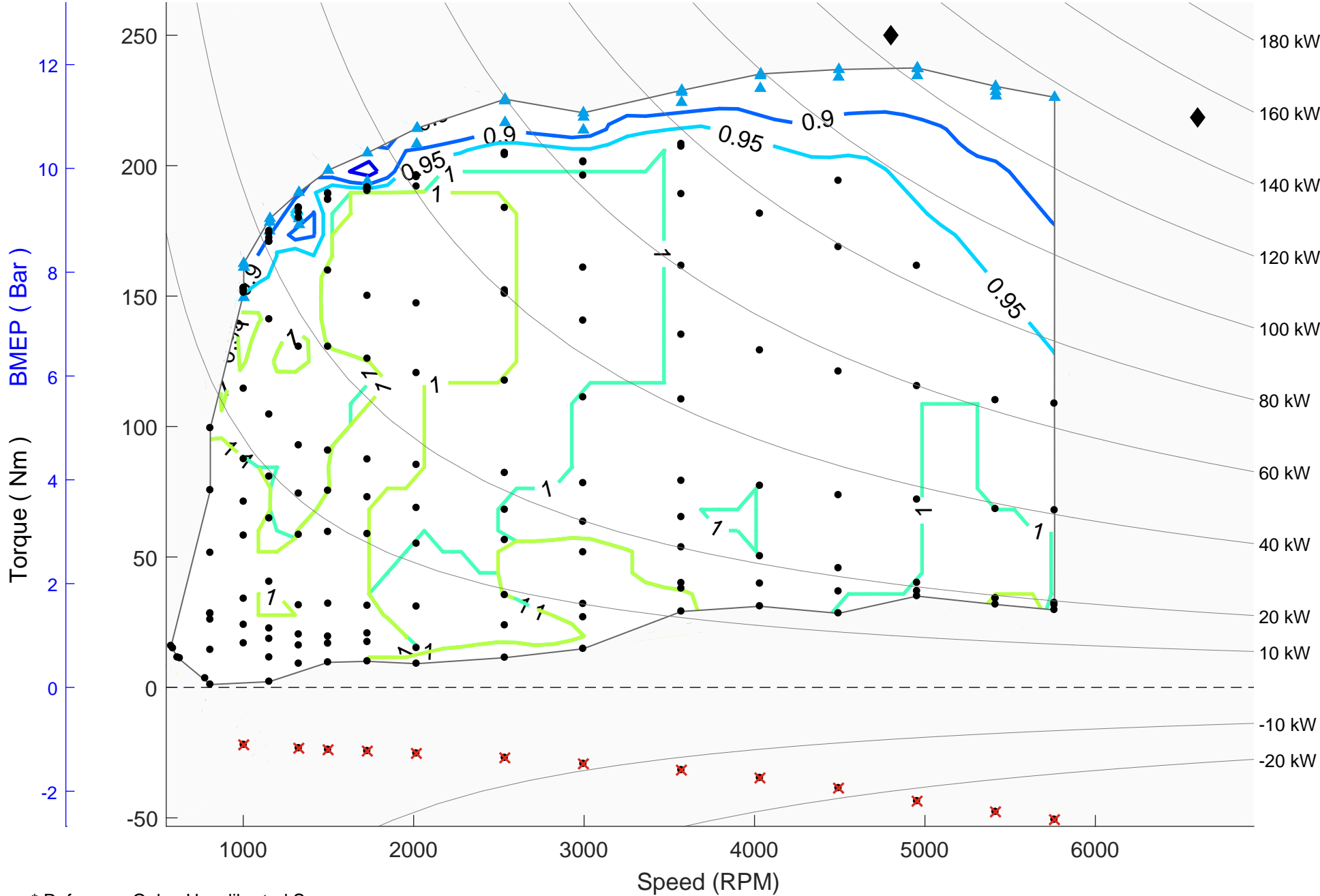
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Catalyst Inlet Temp (degC) - Temperature Measured at the Inlet to the Catalyst



2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Catalyst Inlet Temp (degC) - Temperature Measured at the Inlet to the Catalyst

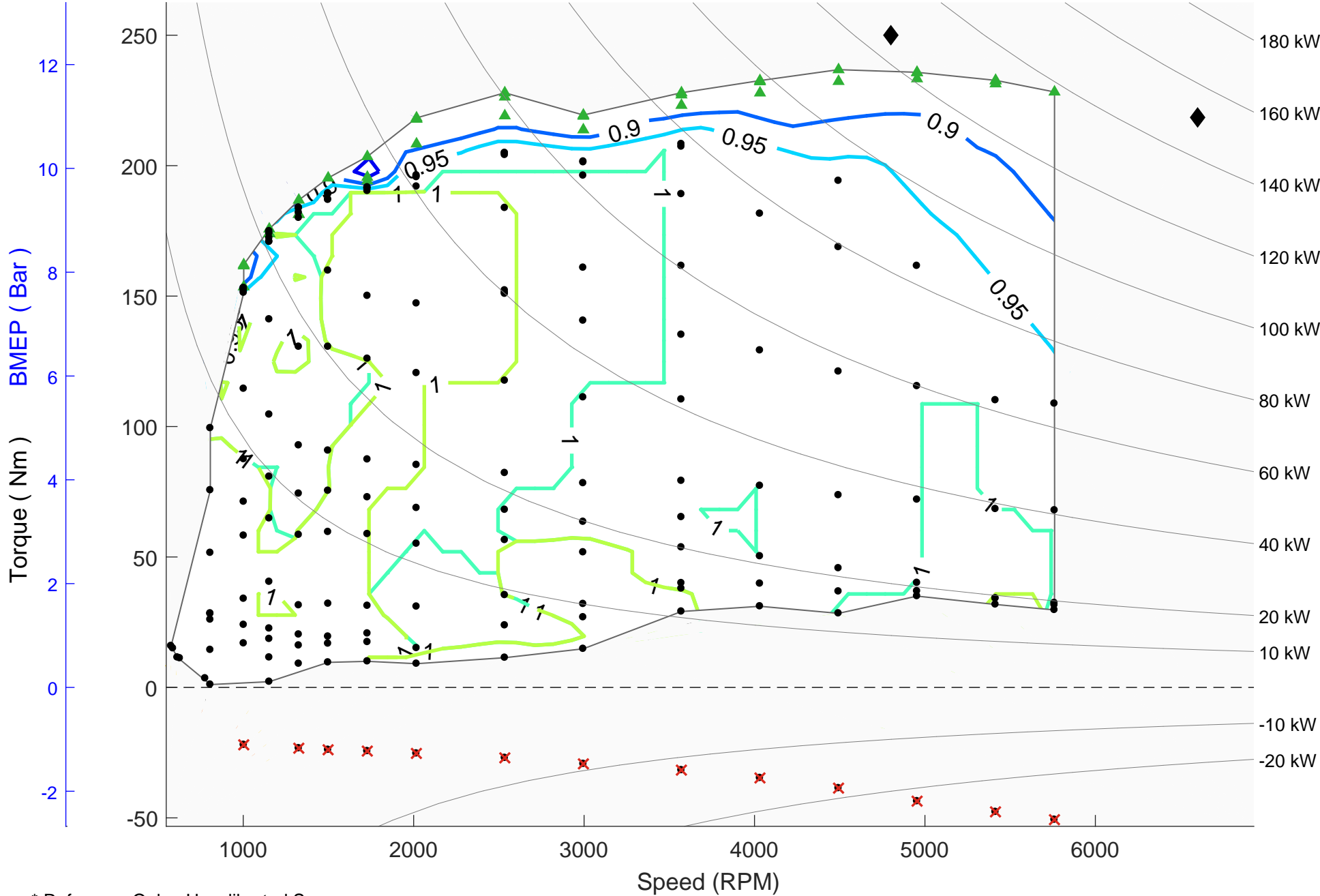


2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Exhaust Lambda (LAMBDA) - Measured via Wideband Exhaust Oxygen Sensor*

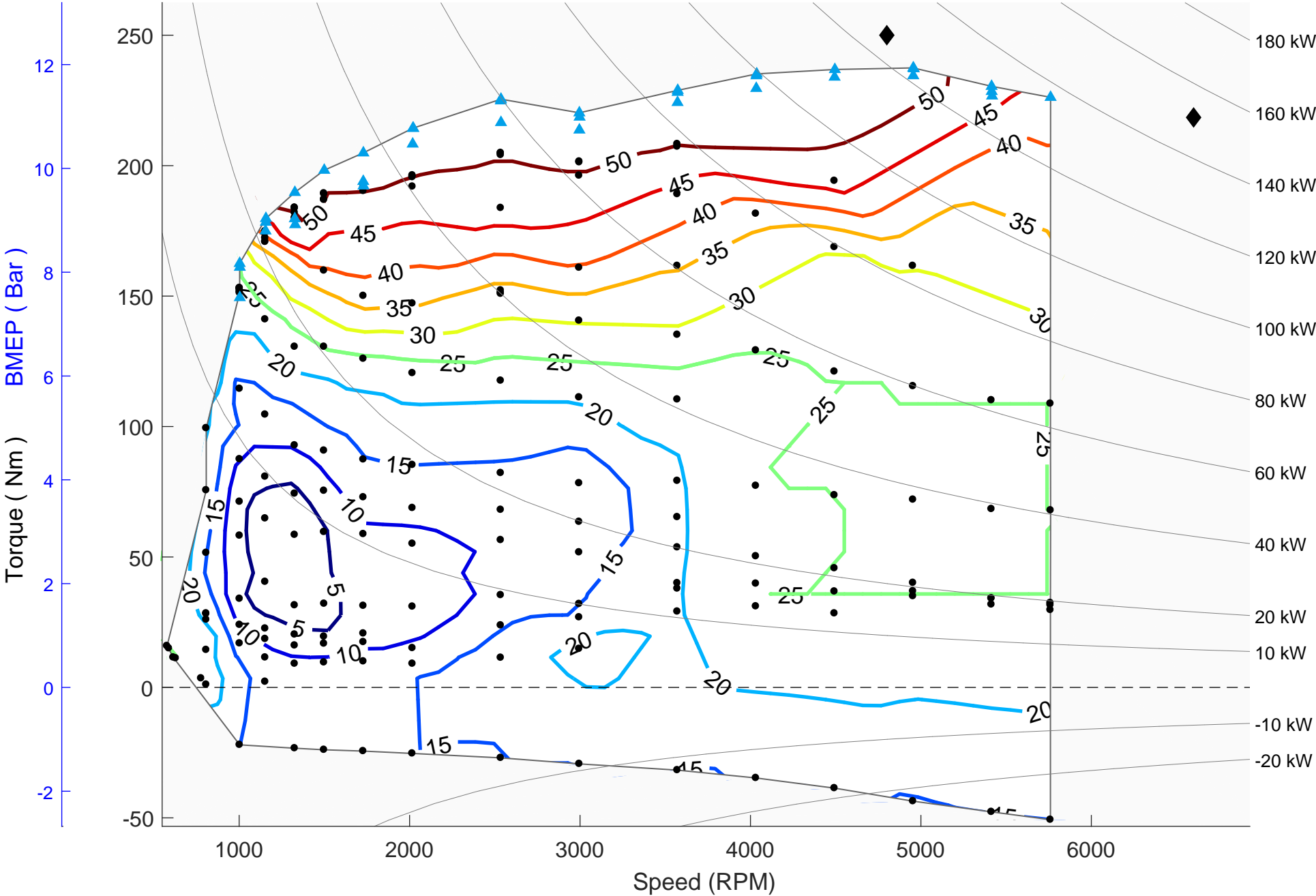


* Reference Only - Uncalibrated Sensor

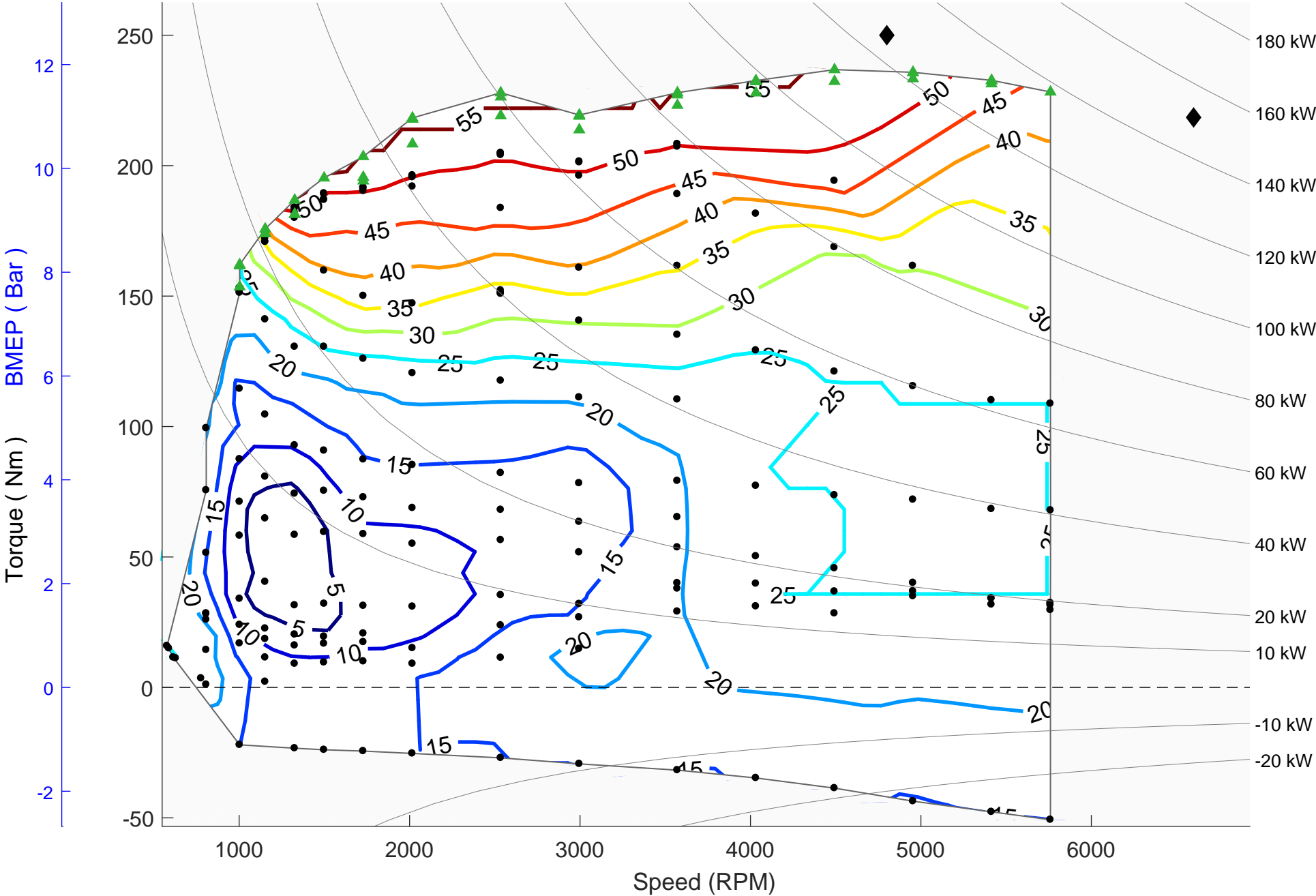
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Exhaust Lambda (LAMBDA) - Measured via Wideband Exhaust Oxygen Sensor*



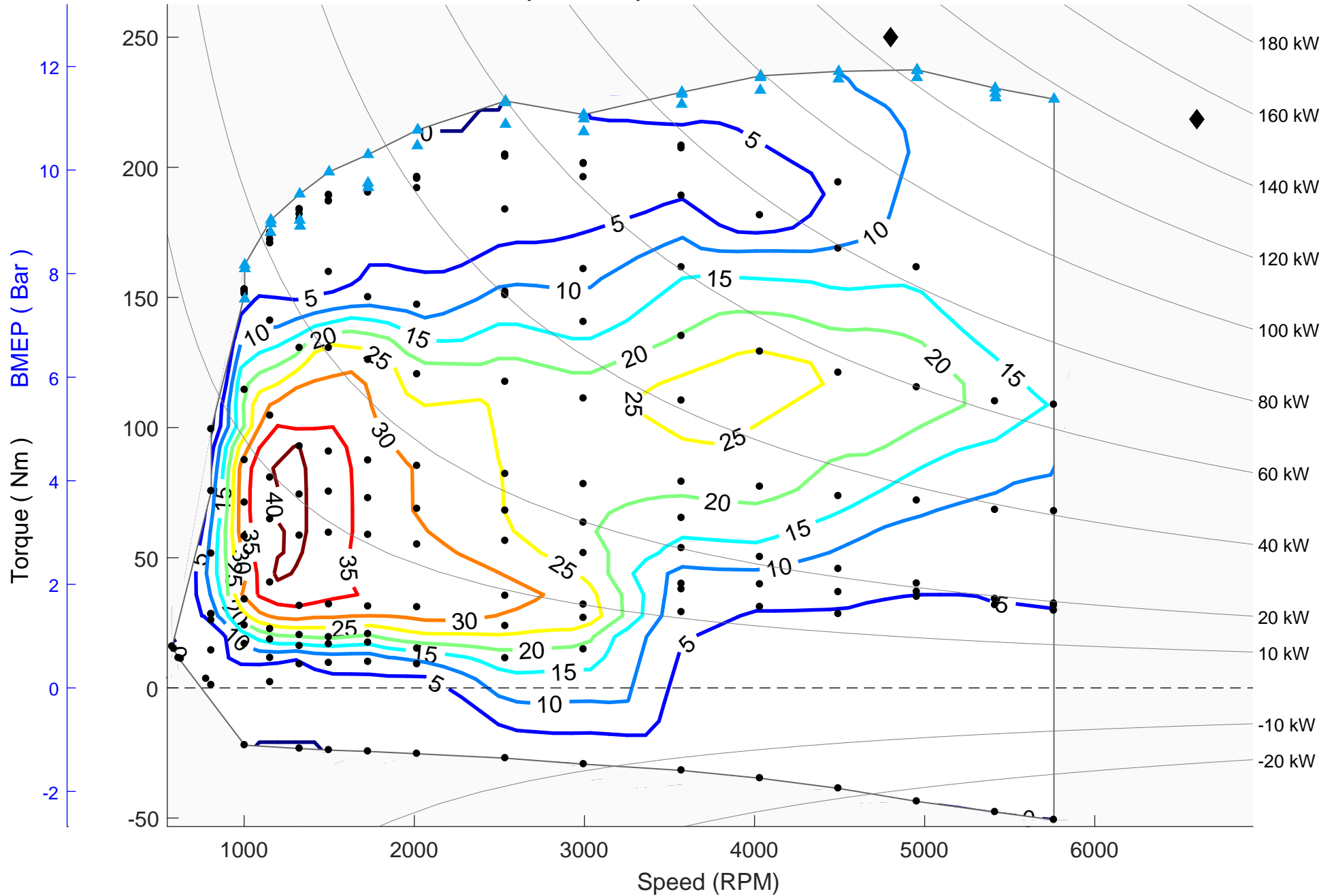
2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Intake Cam Phase (CAD ADV) - Intake Cam Phaser Advance @ 1mm Lift



2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Intake Cam Phase (CAD ADV) - Intake Cam Phaser Advance @ 1mm Lift



2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Initial
Exhaust Cam Phase (CAD RET) - Exhaust Cam Phaser Retard @ 1mm Lift



2018 Toyota 2.5L A25A-FKS Engine Tier 2 Fuel - Test Data Plots
Steady State and High Load Final
Exhaust Cam Phase (CAD RET) - Exhaust Cam Phaser Retard @ 1mm Lift

