TOYOTA MK5 SUPRA

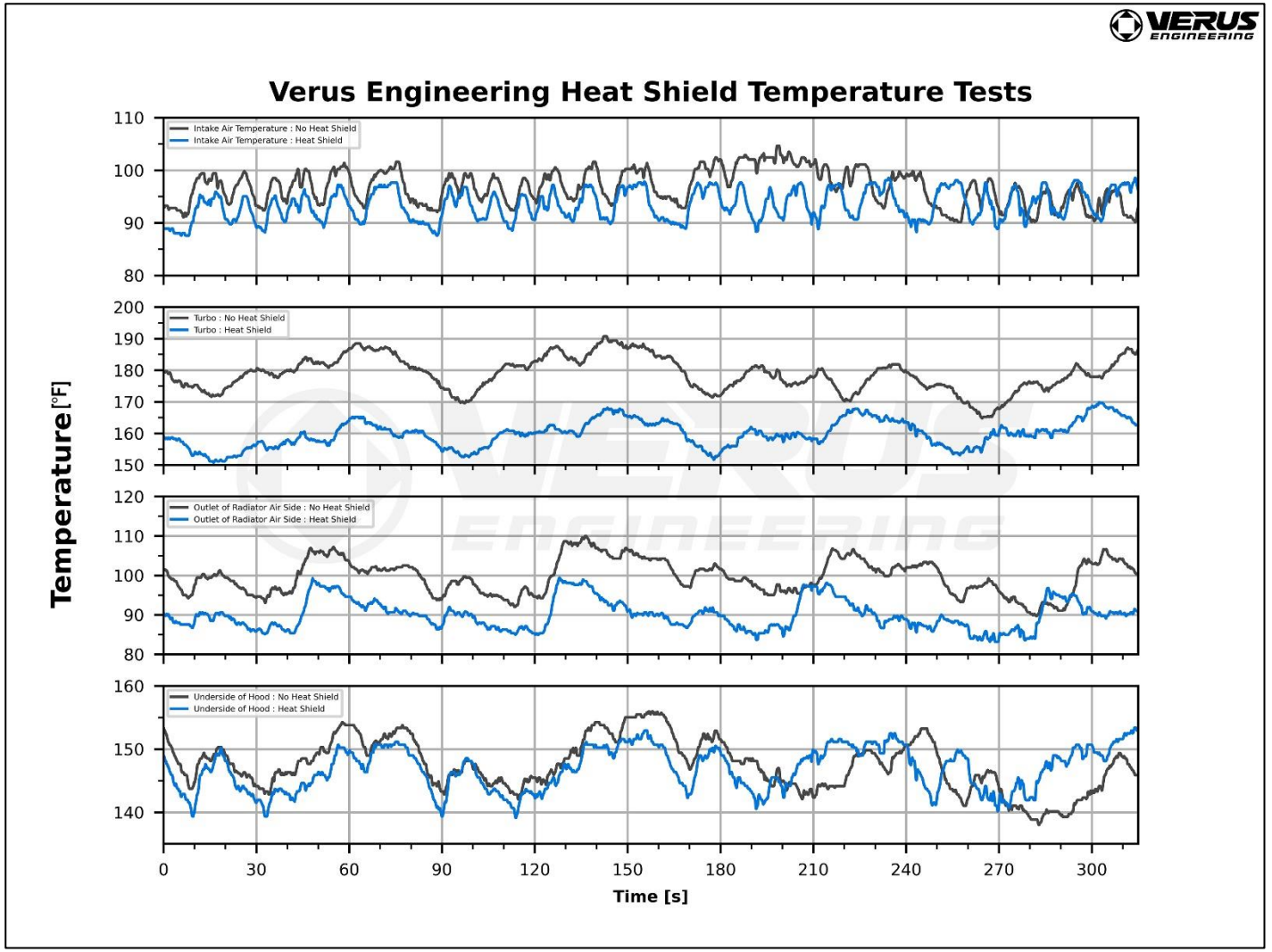
VERUS ENGINEERING HEAT SHIELD TESTING & DATA

OVERVIEW

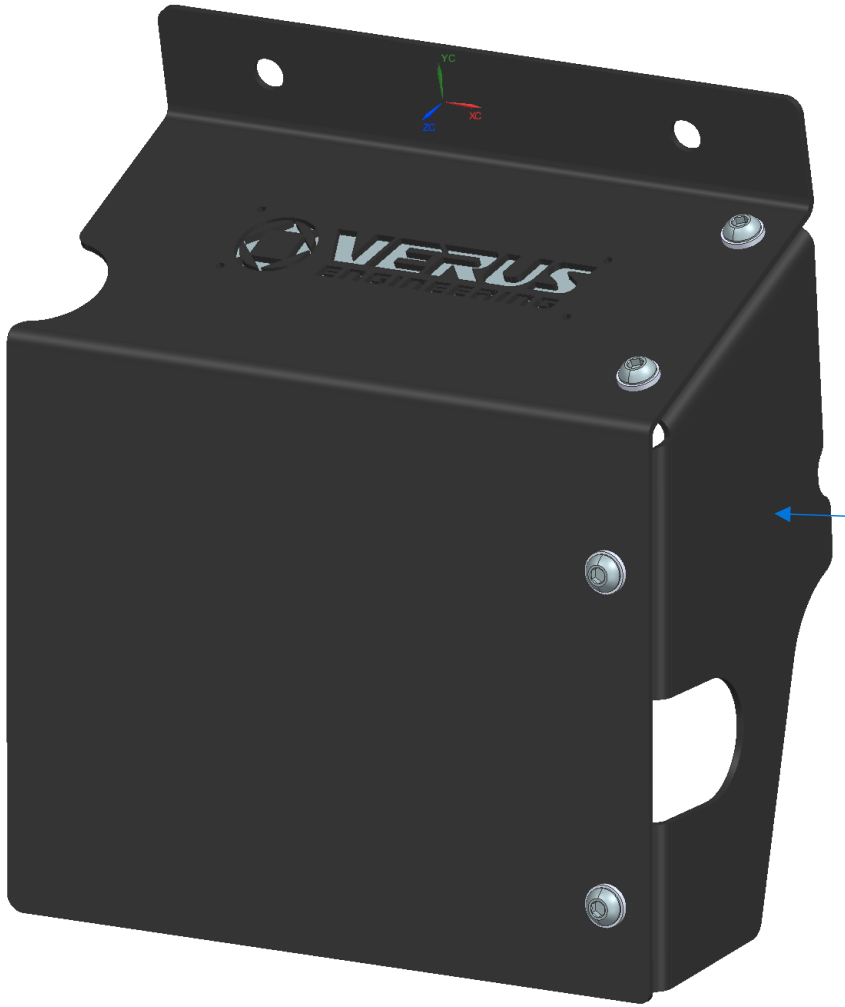
SUMMARY : OVERALL TESTING DATA

The temperature data is taken from 4 consecutive laps around Putnam Park Road Course. We installed 4 thermocouples in the engine bay (see page 5) to capture this temperature data using the AIM EVO5 data acquisition system.

The testing was done on the same day, with the same driver, same ambient temperature, similar lap times, and no traffic on track.



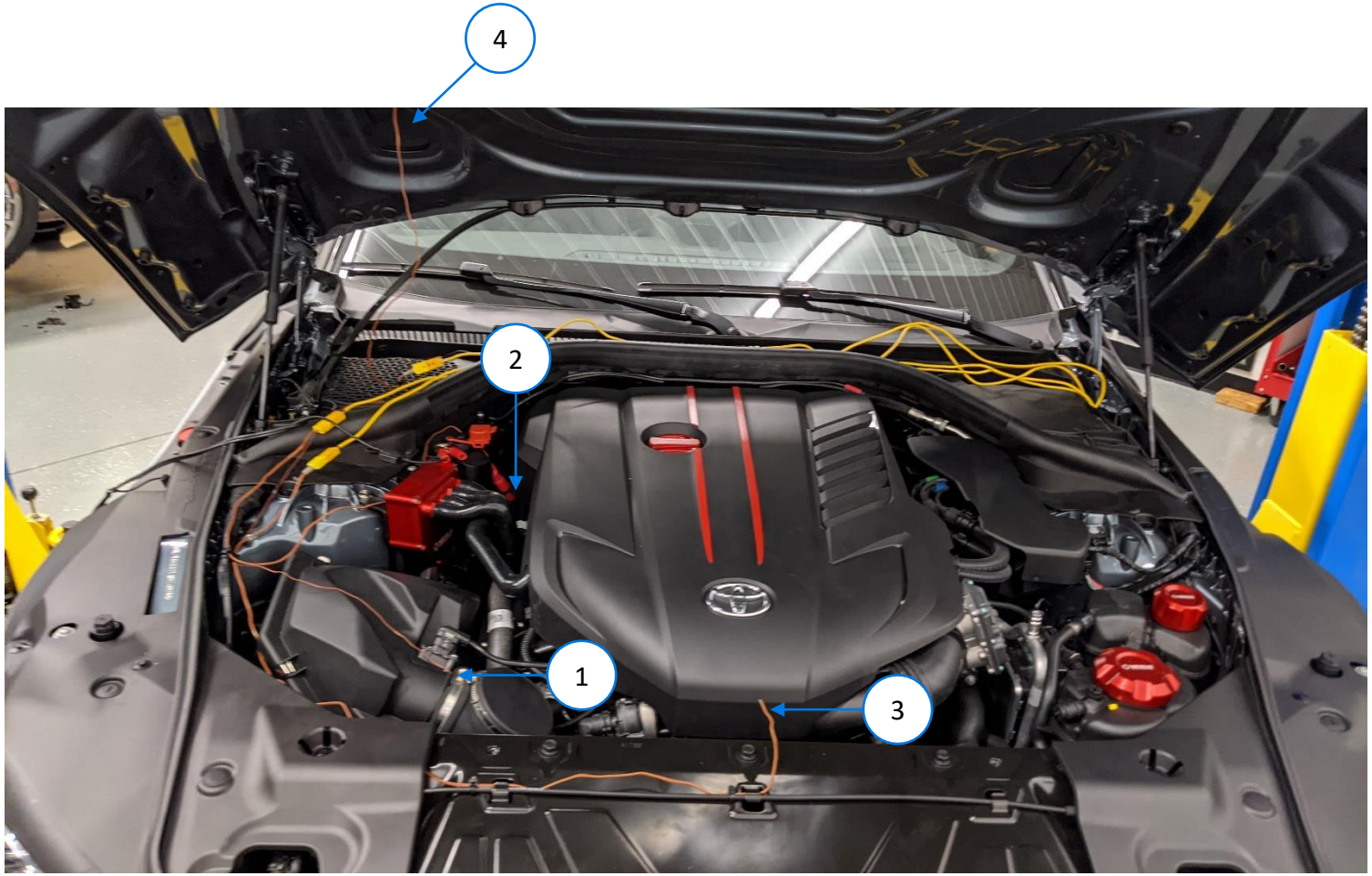
DEVELOPMENT



SENSOR LOCATIONS

Individual thermocouples connected to an AIM EVO5

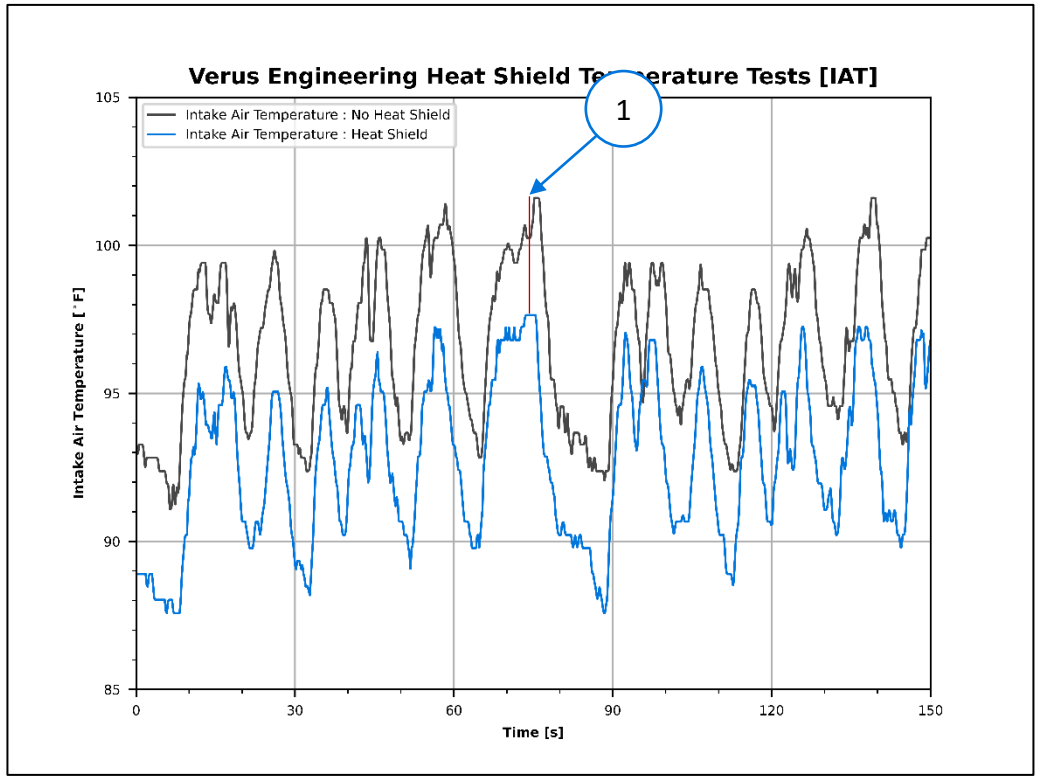
1. Intake Air Temperature (Inside intake tube, just after air filter)
2. Turbo Heat Shield (6” in proximity to the exhaust)
3. Radiator air outlet side
4. Underside of hood

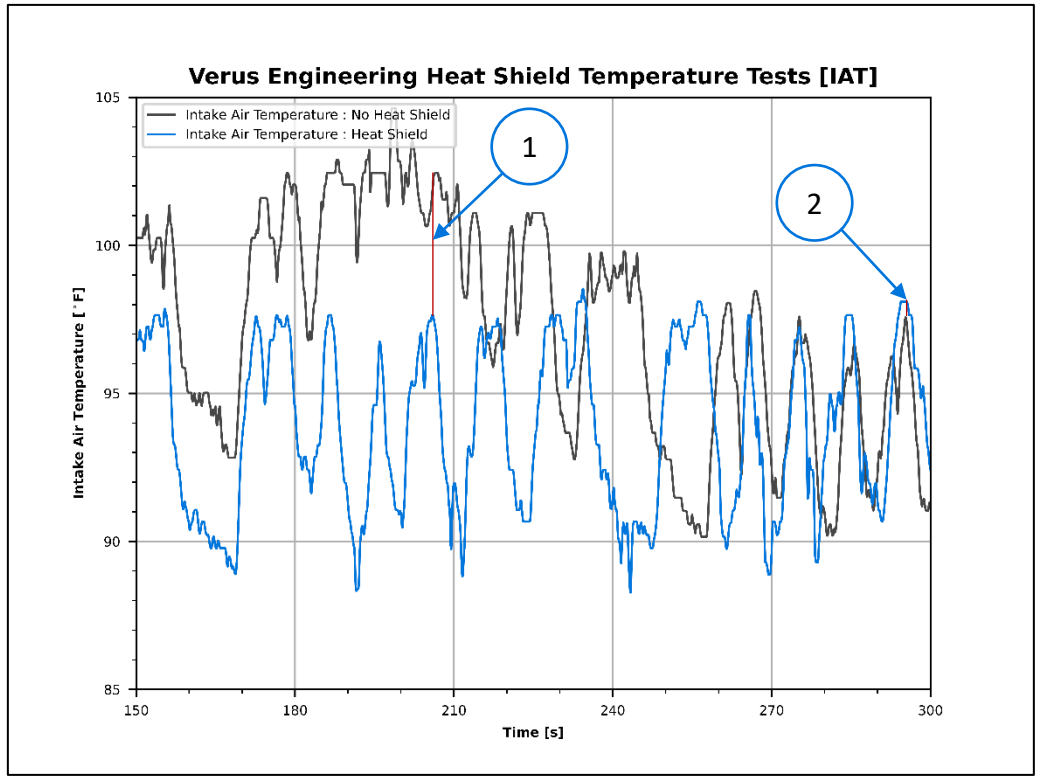


HEAT SHIELD TEST

Test Results

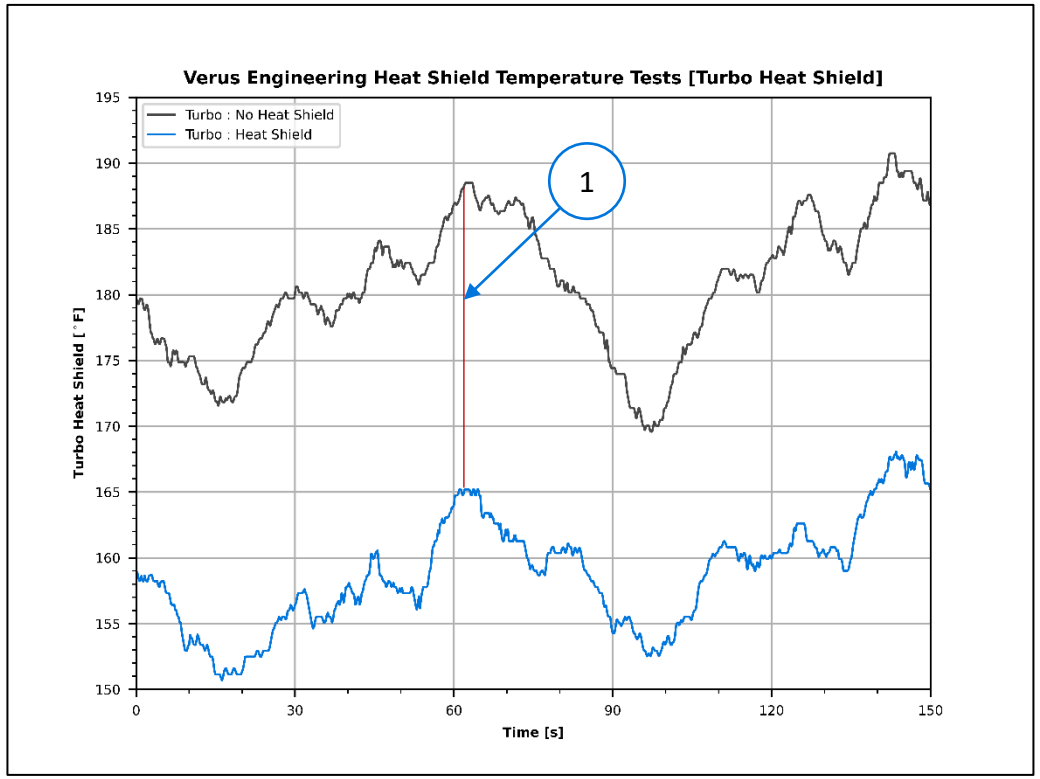
INTAKE AIR TEMPERATURE

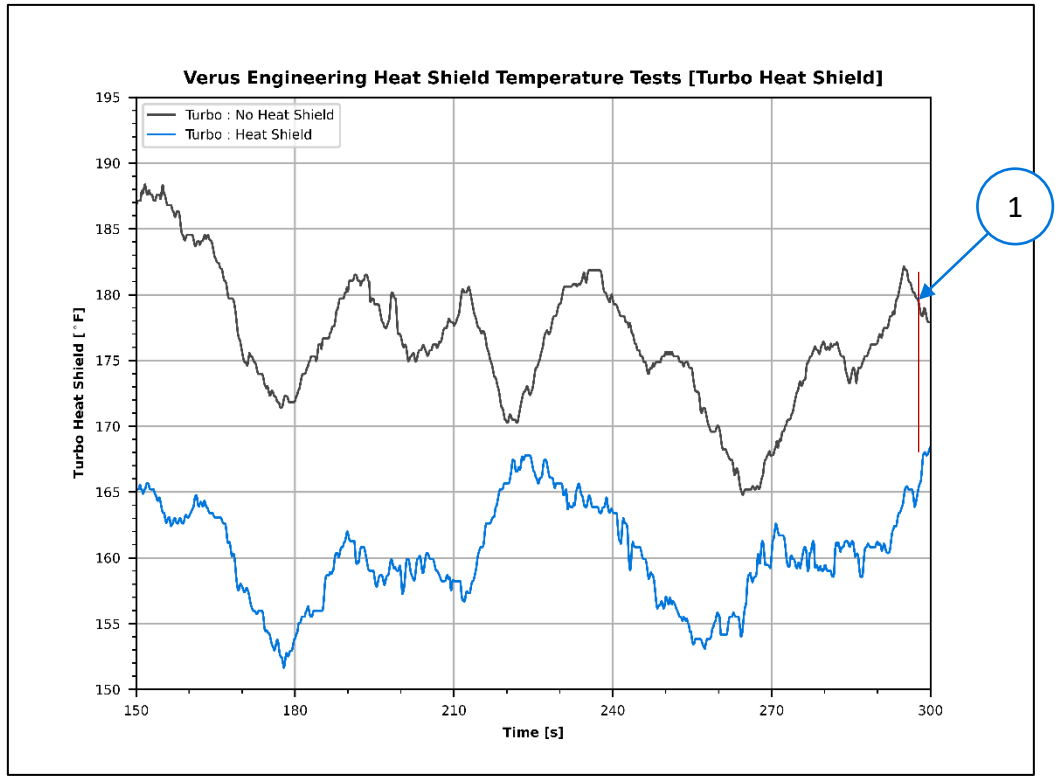




The intake air temperature is around 4-5 °F lower with the Verus Engineering Turbo Heat Shield (#1 arrows). The heat shield helps keep the higher temperatures contained to the area around the turbo and exhaust manifold, which helps decrease the intake air temperature. However, this improvement seems to be temporary, as on the 4th lap, the temperature in the engine bay began to reach equilibrium between tests (#2 arrow).

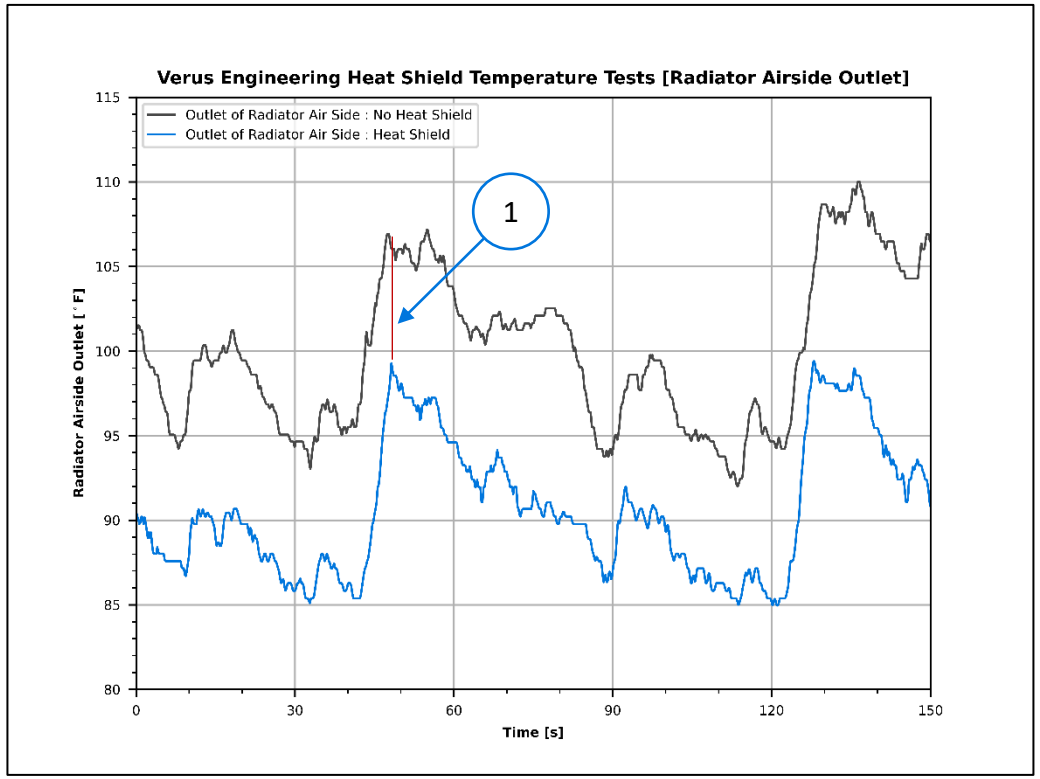
TURBO HEAT SHIELD

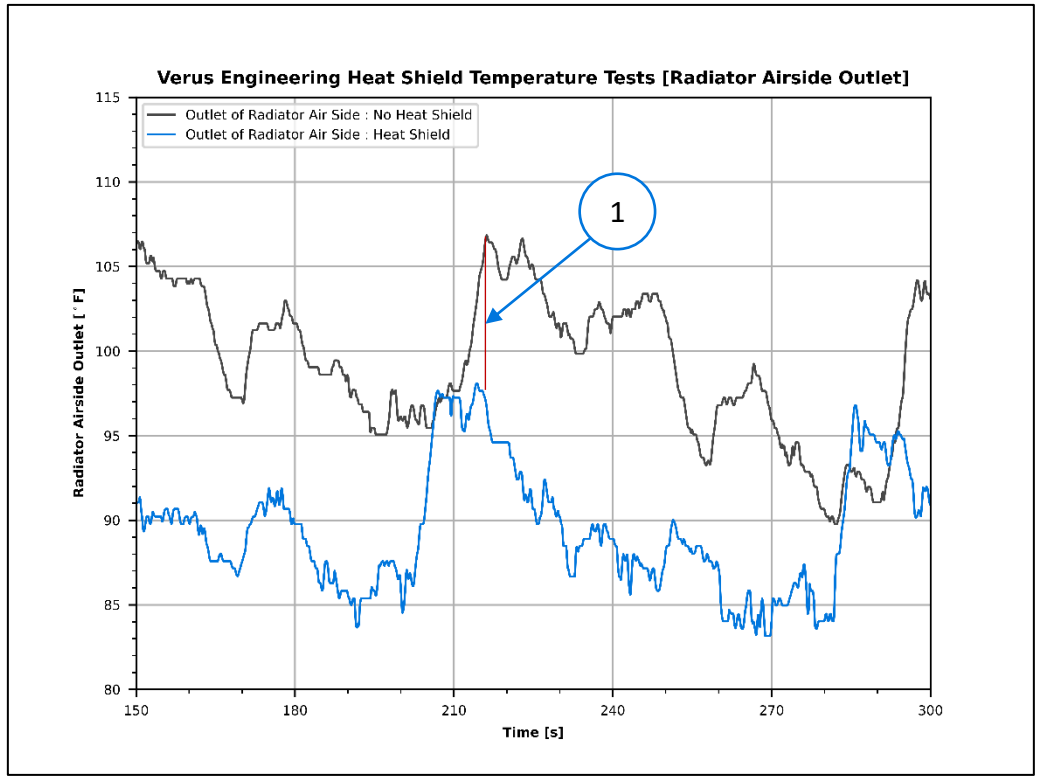




The air temperature near the turbo heat shield is around 15-23°F lower with the Verus Engineering Turbo Heat Shield. The turbo heat shield helps isolate the higher temperatures from the rest of the engine bay.

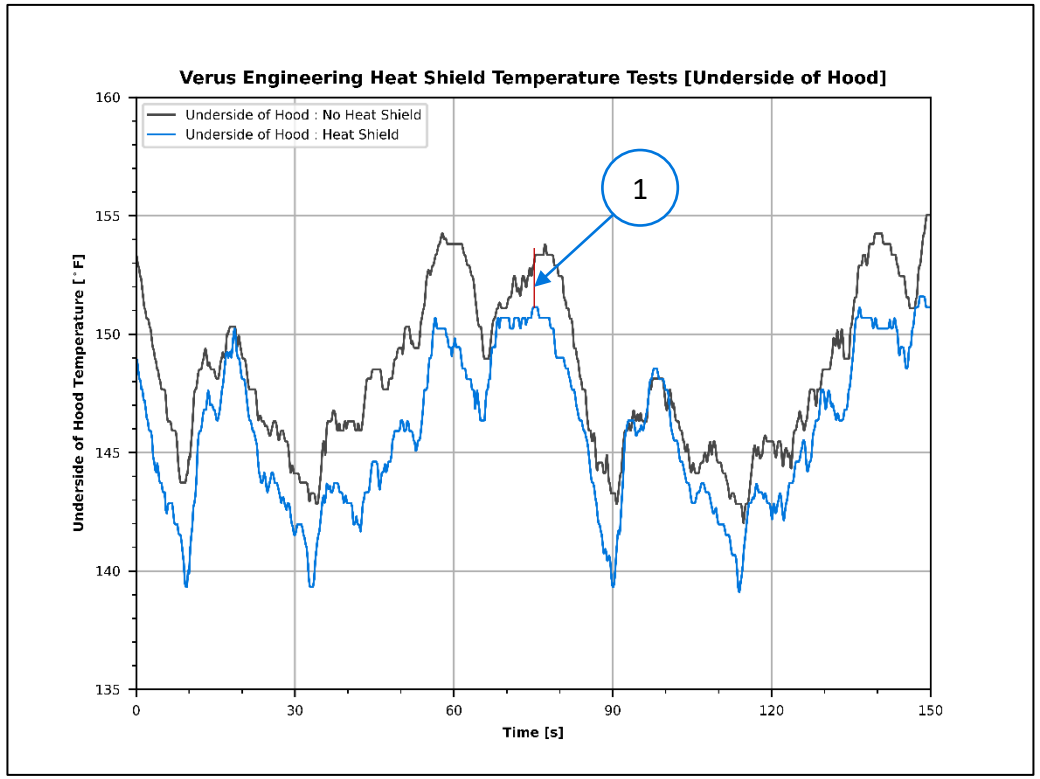
RADIATOR AIR OUTLET SIDE

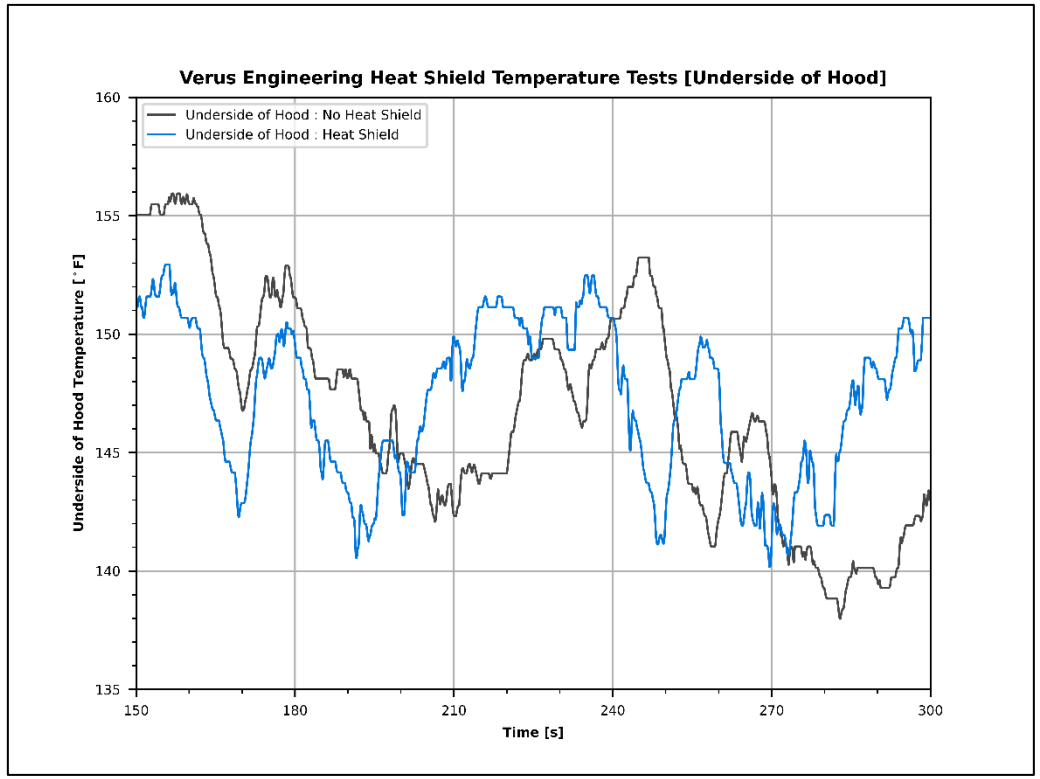




The radiator air outlet side temperature is around 8-9°F lower with the Verus Engineering Turbo Heat Shield. This validates the notion that the heat shield is reducing the air temperature within the engine bay itself.

UNDERSIDE OF HOOD





The Underside of hood temperature decreased around 3°F with the Verus Engineering Turbo Heat Shield.

CONCLUSION

- We saw temperature decreases in all (4) sensor locations when installing the heat shield over the turbo while on track.
- Containing the heat around the turbo improves performance by limiting thermal transfer and focusing the energy into spooling the turbo.
- Reducing the overall engine bay temperature allows all of the components to remain cooler, improving longevity and reliability.