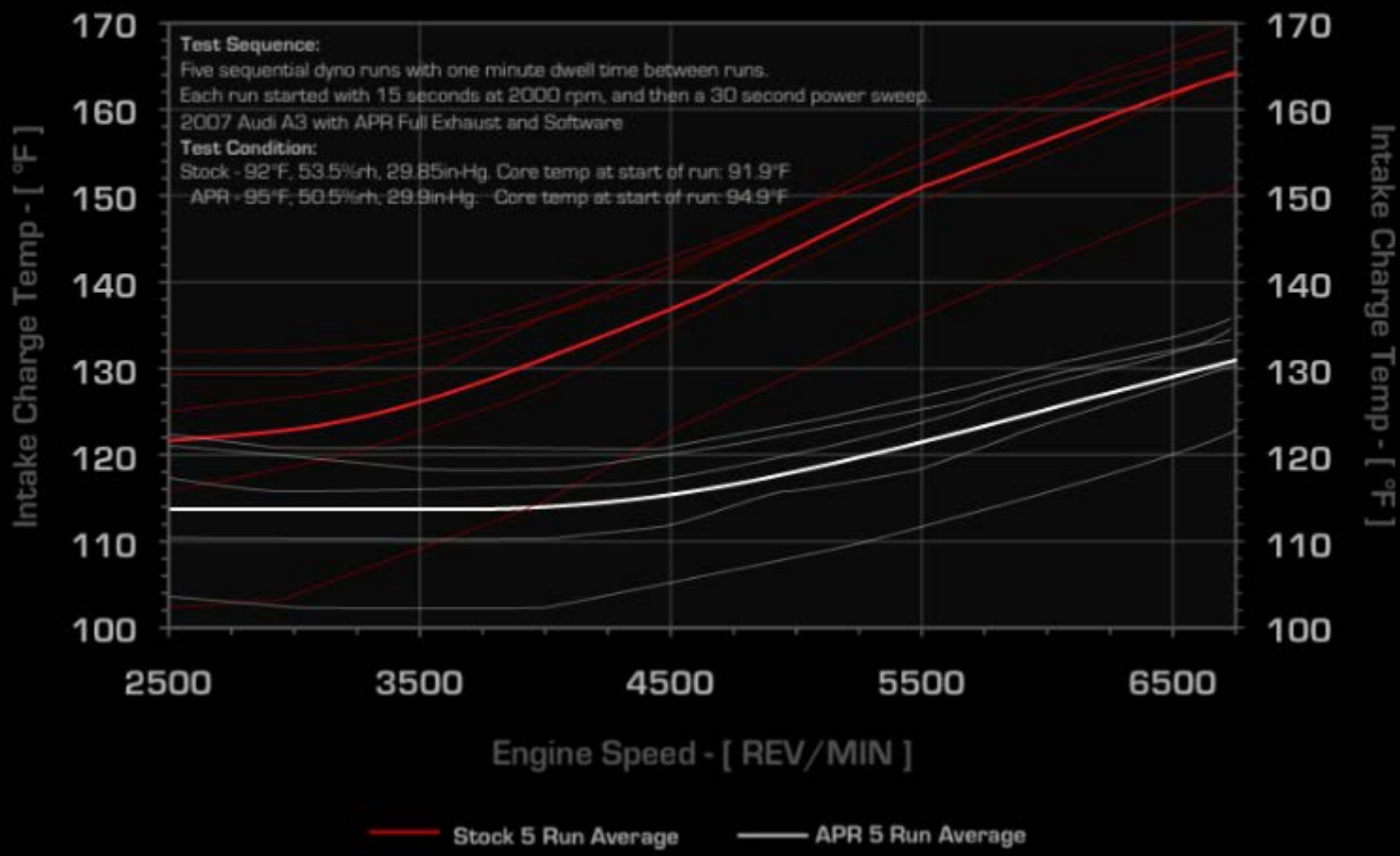


Testing Data

Several tests were done in order to prove the differences between the stock intercooler and the APR one. One test for thermal effectiveness involved placing the car on the dyno with our normal assortment and arrangement of cooling fans. The car was then run through a rigorous testing procedure that involved allowing it to idle to a normal operating temperature, and then running it through five power runs.

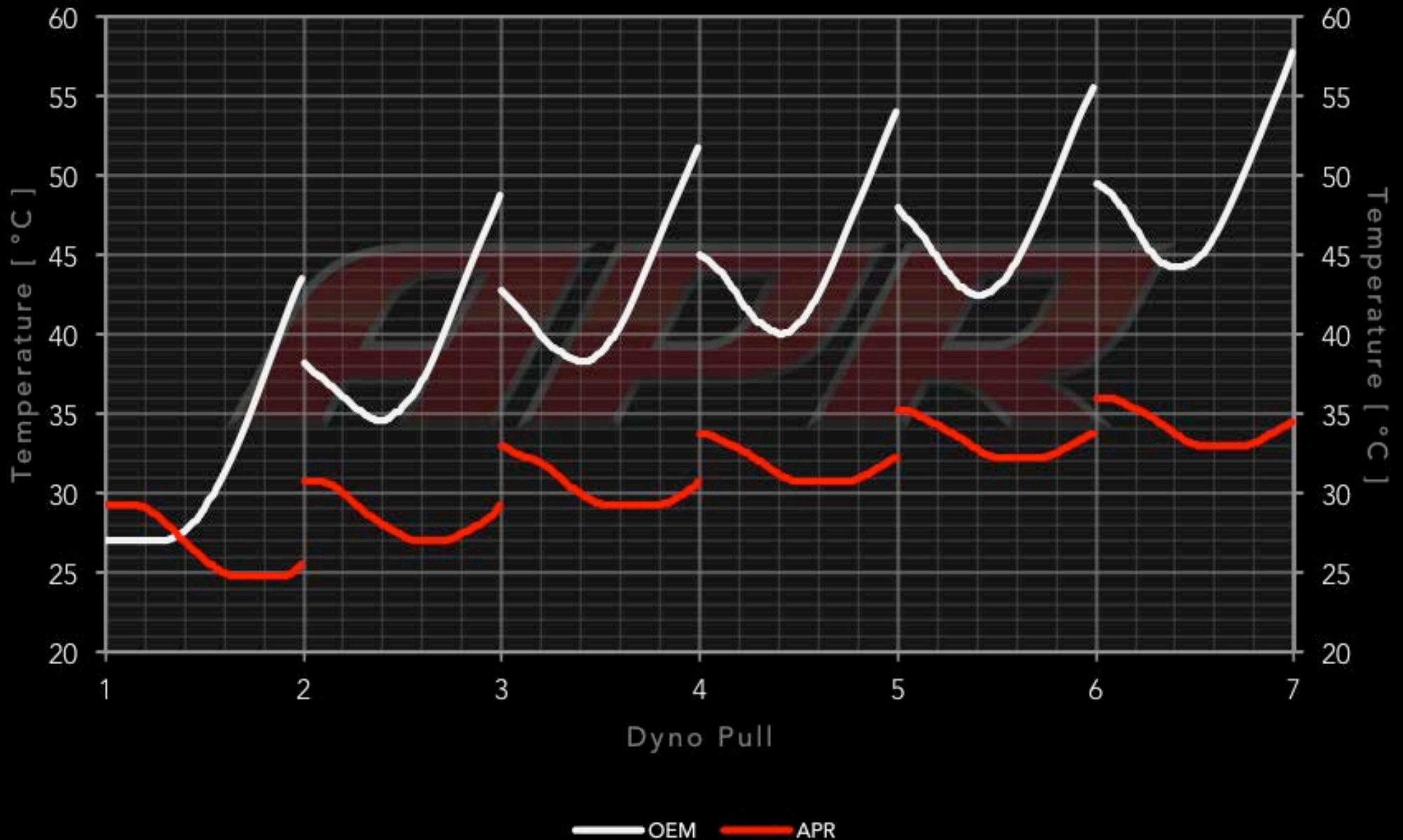
During each run, the engine speed was brought to 2000 rpm for fifteen seconds. This allows the air to run throughout the system and allows the intake air temperature to normalize and negate heat soak from the car sitting at idle. The car was then taken from 2000rpm to 6800rpm at full throttle under load over the next thirty seconds. The car was then allowed to idle for one minute before the next run was started. Each lighter line on the graph above represents each power run, and the darker line represents the average over five runs.

APR FSI Intercooler vs Stock Intercooler Transversal 2.0T FSI with APR Stage II Setup

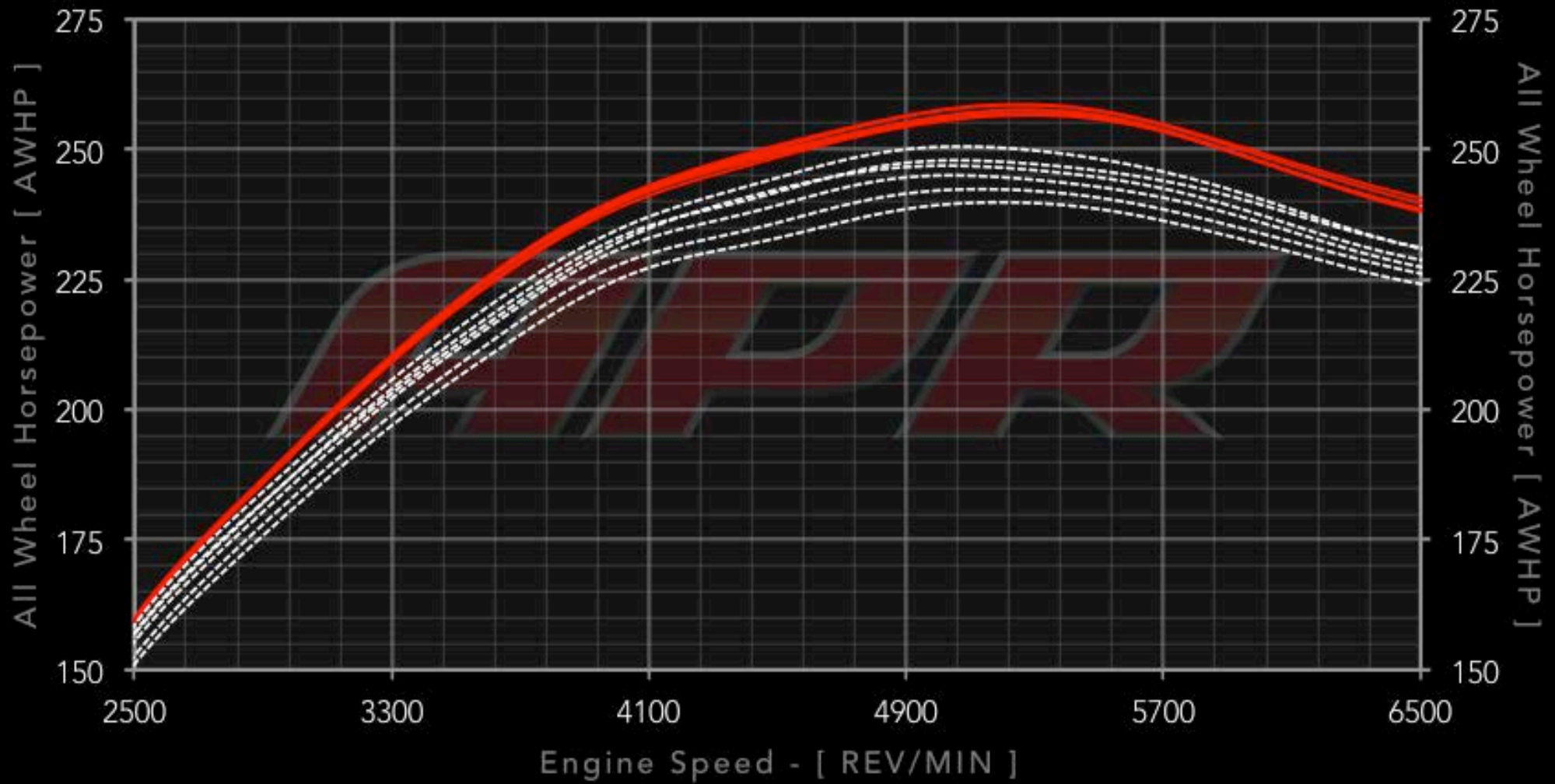


The stock intercooler was tested on one day, the APR intercooler was installed, and the testing repeated the next day. The conditions were very similar on both days, but it was slightly hotter (3°F) on the day the APR intercooler was tested. Most alarming about this entire test was the fact that during the third run with the stock intercooler, the car began to pull boost and timing in order to protect itself from the high intake temperatures. The car also exhibited this protective behavior in both the fourth and fifth runs as well. The APR intercooler performed as we expected, keeping the intake charge temps almost 40°F lower by the end of the fifth run.

2.0 TFSI B8 A4 Intercooler Testing APR vs Stock - 6 Back-to-Back Dyno Pulls



B8 A4 2.0T - APR Stage II - 93 Octane (R+M)/2 - Six Back-to-Back Dyno Pulls APR Intercooler vs Stock Intercooler



- APR IC 1
- APR IC 2
- APR IC 3
- APR IC 4
- APR IC 5
- APR IC 6
- Stock IC 1
- Stock IC 2
- Stock IC 3
- Stock IC 4
- Stock IC 5
- Stock IC 6

Testing

Internally APR conducted a multitude of tests both on the street and on the dyno with thermocouples and pressure transducers placed at the inlet and outlet of the intercooler during the design phase. Data from these tests were used to choose the intercooler core available today. With the intercooler in its final production form, tests were conducted against the factory to measure the effectiveness of each system.

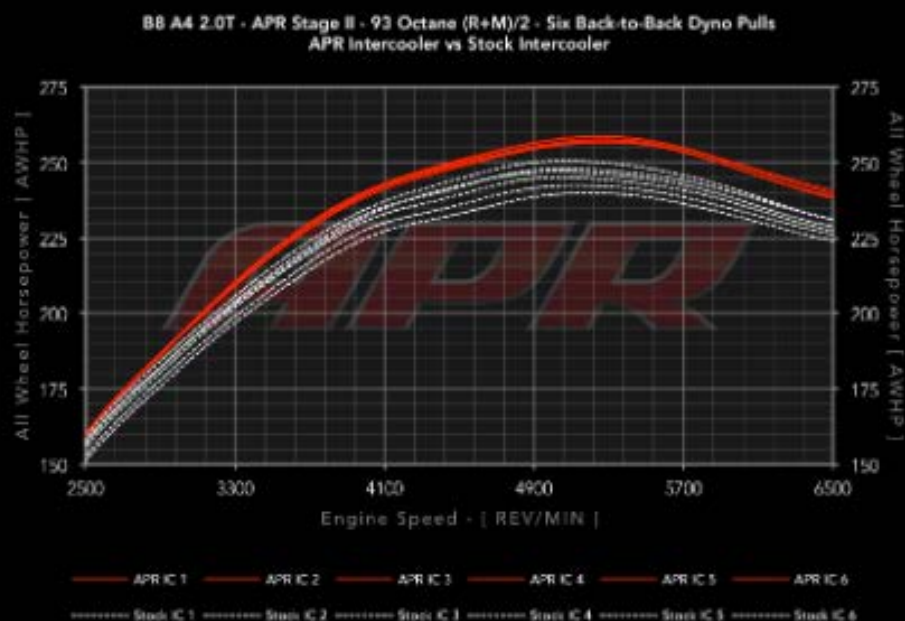
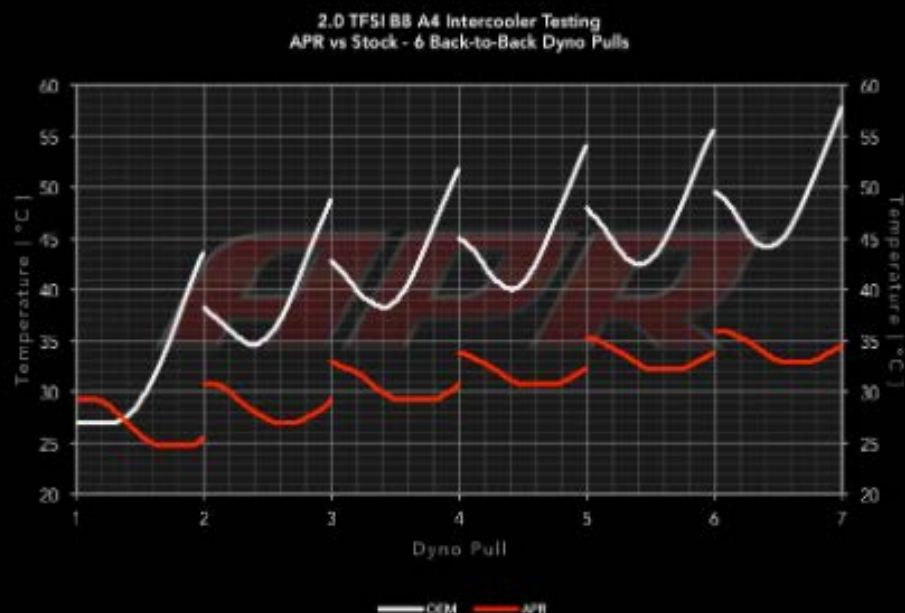
Testing conducted on the dyno provided a semi controlled environment for back-to-back stress testing the two systems. Utilizing a B8 A4 2.0T 6MT at APR Stage II power levels, six back-to-back twelve second dyno pulls were conducted with only 5 seconds of cool down times between runs. APR's ECU Explorer high resolution datalogging system was used for raw sensor data collection.

The APR intercooler saw a beginning IAT of 29.25 °C that quickly dropped to 25.50 °C by the end of the first run and settled at only 34.50 °C by the end of the sixth run. The system effectively rejected heat soak and produced consistent dyno results. In stark contrast, the factory intercooler system did far worse. With a cooler beginning IAT of 27 °C, temperature rose to a staggering 42.5 °C after only the first run, already resulting in a poorer IAT than the APR intercooler after six back-to-back runs! As testing continued, it was clear the factory intercooler system was not built with performance in mind. IAT's continued to rise, ending at 57.75 °C; an additional 23.25 °C higher than the APR system! **This translated to a final gain of 17 AWhp over the factory intercooler by the sixth run while the power only varied by under 3 AWhp across all six runs with the APR Intercooler.**

Testing Data Report

	Start	Run 1	Run 2	Run 3	Run 4	Run 5	Run 6
OEM	27.00 °C	43.50 °C	48.75 °C	51.75 °C	54.00 °C	55.50 °C	57.75 °C
APR	29.25 °C	25.50 °C	29.25 °C	30.75 °C	32.25 °C	33.75 °C	34.50 °C
Delta	+2.25 °C	-18.00 °C	-19.50 °C	-21.00 °C	-21.75 °C	-21.75 °C	-23.25 °C

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