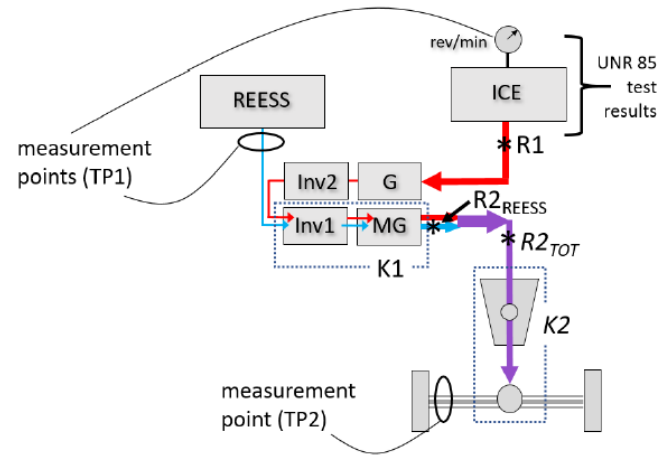


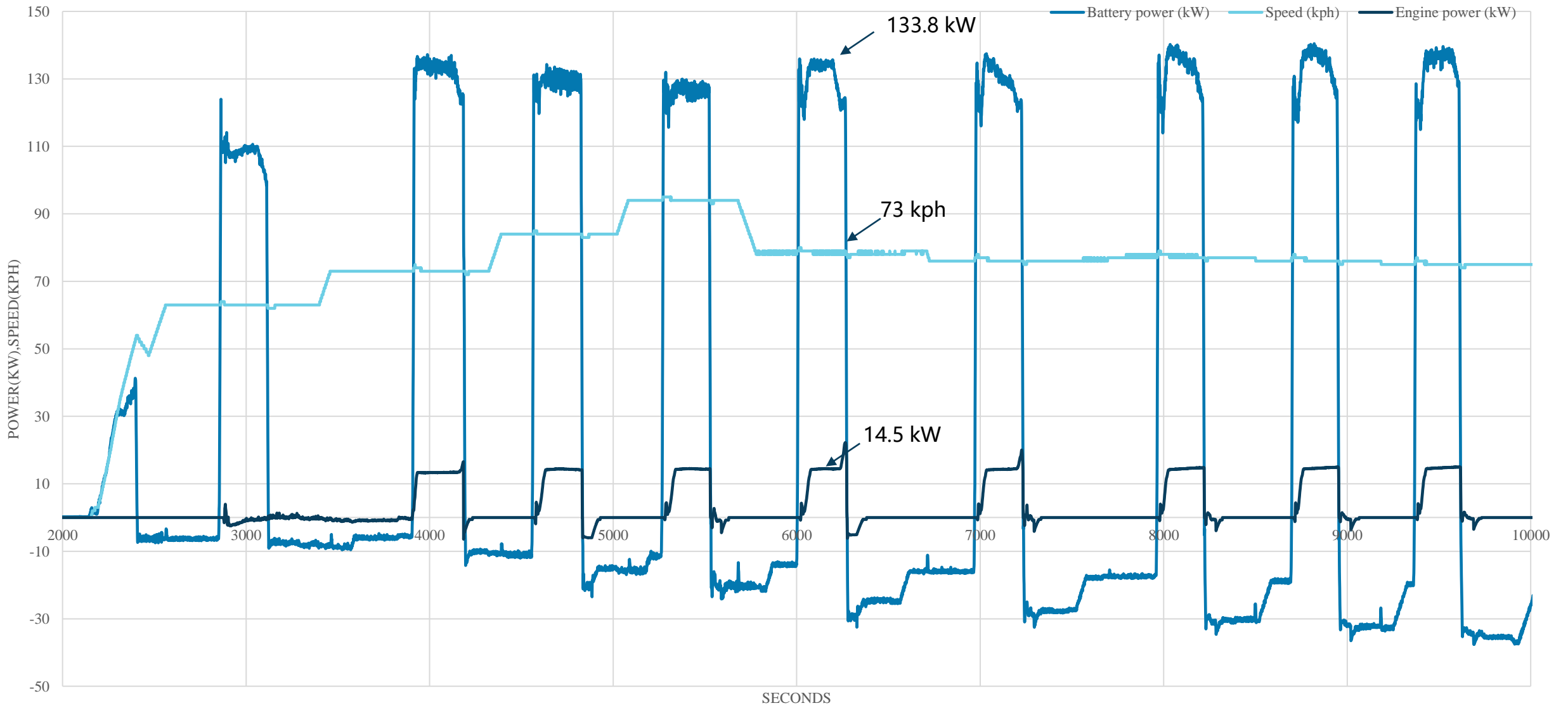
Introduction

- A validation test was performed on range extending hybrid vehicle (series type) by following the test procedure defined in GTR 21;
- The engine rated power is 66 kW (GB/T 17692, equivalent to ECE R85/00), while the rated power for the motor is 160 kW (GB/T 18488);
- Given that TP1 is applicable for pure series hybrid vehicle.



- TP1:
- 1、 Reference points R1,R2 shown in Figure above;
 - 2、 The Voltage, current, P_{DCDC} , engine speed, fuel flow rate and inlet manifold pressure obtained according to onboard CAN data;
 - 3、 The electrical energy conversion efficiency (K1): 90% (tested according to GB/T 18488);

- Identifying speed of maximum power and test at 73 kph.



Results

- The maximum vehicle power occurred at 73 km/h vehicle speed (engine speed 1950 rpm);
- The indicated maximum vehicle power from TP1 was 135 kW (2% discrepancy compared to simulation) .

Fuel Flow and Intake Manifold Pressure

| | Measured fuel flow rate (kg/h) | Certificated fuel flow rate (kg/h) | Deviation | Measured gauge pressure(kPa) | Certificated gauge pressure(kPa) | Deviation |
|----------------------------|--------------------------------|------------------------------------|-----------|------------------------------|----------------------------------|-----------|
| 2 nd Repetition | 3.51 | 5.14 | -32% | 83.1 | 95.1 | -12.6% |
| 3 rd Repetition | 3.69 | | -28% | 83.2 | | -12.5% |
| 4 th Repetition | 3.53 | | -31% | 82.9 | | -12.8% |
| 5 th Repetition | 3.76 | | -27% | 83.1 | | -12.6% |
| Average | 3.62 | | -30% | 83.1 | | -12.6% |

Engine Power Map

| Speed (rpm) | Torque (Nm) | Power (kW) | Fuel flow (kg/h) | Pressure (kPa) |
|-------------|-------------|------------|------------------|----------------|
| 1950 | 9.4 | 2.0 | 1.07 | 35.4 |
| 1950 | 37.5 | 7.9 | 2.19 | 65.7 |
| 1950 | 51.7 | 10.8 | 2.78 | 71.4 |
| 1950 | 72.1 | 15.1 | 3.65 | 85.9 |
| 1950 | 94.2 | 19.7 | 4.53 | 94.8 |
| 1950 | 103.5 | 21.7 | 5.14 | 95.1 |

Note: 1) the difference between measured and certificated values in fuel flow rate and inlet manifold pressure higher than 2%,
 2) use the measured pressure and fuel flow at given engine speed to indicate the power.

Indicated Maximum Power

| | Max Battery Power | K1 | R2 (kW) | R1 (kW) | R1+R2 (kW) |
|----------------------------|-------------------|-----|---------|---------|------------|
| 2 nd Repetition | 133.51 | 0.9 | 120.16 | 14.38 | 134.54 |
| 3 rd Repetition | 134.14 | | 120.73 | 14.47 | 135.20 |
| 4 th Repetition | 134.60 | | 121.14 | 14.45 | 135.59 |
| 5 th Repetition | 133.01 | | 119.71 | 14.51 | 134.22 |
| Average | 133.82 | | 120.43 | 14.45 | 134.89 |