

Zero Emission Bus Certificate

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|-----------------------------------------|--------------------------------------------------|-------------------------------------------|-----------------------------|----------------------------------------------|----------------------------|
| Customer: Mellor | | | DYNAMOMETER SETTINGS | | |
| Customer Address: | Miall Street, Rochdale, Gt. Manchester, OL11 1HY | Telematics Capability | Yes | Test Weight | 5681 kg |
| Test Purpose: | Zero Emission Bus Testing | Maximum Speed (km/h) | 75 km/h | F ⁰ | -164.54 N |
| Vehicle Manufacturer: | Mellor | Seated Capacity | 9 | F ¹ | -0.1658 N/kmh |
| Vehicle Model Name: | Sigma 7, SA9S1G07J21474001 | Passenger Capacity | 30 | F ² | 0.12896 N/kmh ² |
| Powertrain Technology: | Battery Electric | Declared Unladen Weight (kg) | 5700 | Equivalent test passengers | 7.5 passengers |
| Powertrain Configuration: | Direct Drive | Gross Weight (kg) | 8000 | Measured Unladen Weight | 5681 kg |
| Zero Emission Heating: | PTC Heaters | GVW Check | OK | Number of consecutive tests completed | 4 Tests |
| Battery Specification | | Charging and Refuelling Capability | | Hydrogen Specification | |
| Battery Manufacturer | CATL | Plug Type | DC CCS2 | Fuel Cell Manufacturer | N/A |
| Battery Chemistry | NMC | Max Charge Capability (kW) | Up to 100kW | Fuel Cell Power Rating (kW) | N/A |
| Battery Installed Capacity (kWh) | 142 | Charger Compatibility | DC | Hydrogen Storage Capacity (kg) | N/A |
| Battery Usable Capacity (kWh)* | 114 | Charge time from 20-80% SOC** | 2-4 hours | Hydrogen Storage Pressure (bar) | N/A |

* Recommended manufacturer guideline, subject to warranty

** Based on manufacturer estimate

Declared fuel, properties and source plus carbon conversion factors

| | | | | | | | |
|-----------------------------|--------------------|-------|--------------------------|--------------------------------------------|--------------------|----------------------------|---------------------|
| Well-to-Tank Factor: | Electricity | 80.92 | g CO ₂ e / MJ | Fuel Provider | UK market standard | WTT evidence | Zemo Calculated |
| Well-to-Tank Factor: | Hydrogen | N/A | g CO ₂ e / MJ | Capacity of Tanker (kg) | N/A | Fuel Type / Pathway | UK Grid Electricity |
| Energy Density | Hydrogen | N/A | MJ / kg | Transport Distance of Hydrogen (km) | N/A | Energy Source | UK Grid |

Emissions and Energy consumption results from approved test facility - Average 4 tests

| Test Phase | HC (g/km) | CO (g/km) | NOx (g/km) | PM (g/km) | CO ₂ (g/km) | CH ₄ (g/km)* | N ₂ O (g/km)* | Total Energy Consumption (kWh) | Vehicle Energy Consumption (kWh/km) | Grid Electrical Energy Consumption (kWh/100km) |
|-----------------------|-----------|-----------|------------|-----------|------------------------|-------------------------|--------------------------|--------------------------------|-------------------------------------|------------------------------------------------|
| Outer Urban | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 4.02 | 0.61 | 65.59 |
| Inner Urban | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2.07 | 0.81 | 88.78 |
| Rural | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 3.31 | 0.45 | 49.01 |
| LBC Average | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.10 | 0.67 | 73.57 |
| UK BUS Average | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 9.41 | 0.57 | 62.55 |

Zero Emissions (Z.E.) Range: Energy consumption and charging efficiency

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|-------------------------------------------|-------|--------------------------------------------------------------------|-------|--------------------------------------|-----|
| Test Charger Used | 22 kW | Total measured energy consumed on vehicle (kWh)¹ | 38.00 | Max ZE Range at 100% SOC (km) | 197 |
| Hydrogen Energy Over Test (kWh) | N/A | Measured grid energy during charging (kWh) | 41.00 | Max ZE Range at 80% SOC (km) | 158 |
| Hydrogen Delivered to Vehicle (kg) | N/A | Grid-to-Wheel efficiency (%)² | 93% | Test Distance Travelled (km) | 66 |

¹ Total measured energy may include energy used during the 23 minute warmup, this is needed for charge efficiency calculation.

² Grid to Wheel efficiency represents the total energy losses between the grid and the wheels of the bus.

Calculated total Well-to-Wheel GHG CO₂ equivalent emissions over test

| Test Phase | Fuel Energy (MJ / km) | Fuel WTT*GHG Emissions (g CO ₂ e / km) | Electrical Energy (MJ / km) | Electricity WTT* GHG Emissions (g CO ₂ e / km) |
|-----------------------|-----------------------|---------------------------------------------------|-----------------------------|-----------------------------------------------------------|
| Outer Urban | N/A | N/A | 2.43 | 196.90 |
| Inner Urban | N/A | N/A | 3.20 | 258.63 |
| Rural | N/A | N/A | 1.76 | 142.77 |
| LBC Average | N/A | N/A | 2.65 | 214.30 |
| UK BUS Average | N/A | N/A | 2.25 | 182.21 |

Data Generated by (On behalf of Test facility): _____ Date: _____
Data Approved by: _____ Date: _____

Zero Emission Bus Certificate Summary

| Test Vehicle | Average Euro VI Diesel Equivalent |
|------------------------------------------------------------------|------------------------------------------------------------------|
| Greenhouse Gas Emissions: Well-to-Wheel | Average Diesel GHG Emissions Equivalent |
| 182.2 g CO ₂ e / km | 763 g CO ₂ e / km |
| WTW CO₂ per passenger km (@ Max Pass Capacity) | WTW CO₂ per passenger km (@ Max Pass Capacity) |
| 6.1 g CO ₂ e/pass km | 25.4 g CO ₂ e/pass km |
| Overall Zero Emission Bus Performance | |
| WTW GHG saving | Maximum Theoretical Zero Emission Range (km) |
| 580.4 g CO ₂ e / km | 197.0 |
| % WTW GHG saving | Vehicle Energy Consumption (kWh/ km) |
| 76% g CO ₂ e / km | 0.57 |
| Approved as Zero Emission Bus? (50% GHG saving or more) | YES |

* WTT : Well-to-Tank

** TTW : Tank-to-Wheel

*** WTW : Well-to Wheel

| | | | | |
|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-------|--------------|--------------|
| COMMENTS: Emission results marked in red are below detection levels. LBC = London Bus Cycle - Inner & Outer Urban phases of UKBC only. | Heating Requirement | Cell | Lower Saloon | Upper Saloon |
| | Target Temperatures ±2 (°C) : | 10 | 17 | 17 |
| | Average Temperatures across testing (°C) | 10.00 | 21.68 | N/A |

Test Numbers: 20220315_1222, 20220315_1519, 20220315_1714, 20220315_2000

Certificate approved by:

On behalf of Bus manufacturer

Certificate Approved by:

On behalf of DfT / Zemo Partnership