

## Ultra Low Emission Bus Scheme Certificate

|                         |  |                           |       |                             |                               |  |
|-------------------------|--|---------------------------|-------|-----------------------------|-------------------------------|--|
| Customer:               | Pelican Bus And Coach                                  |                           |       | <b>DYNAMOMETER SETTINGS</b> |                               |  |
| Customer Address:       | Wakefield Europort, Altofts Lane, Castleford, WF10 5UB |                           |       | Measured Kerb Weight (kg)   | 13885                         |  |
| Test Purpose:           | ULEB Testing   |                           |       | Equivalent test passengers  | 25                            |  |
| Vehicle Manufacturer:   | Yutong   | Seated Capacity           | 50    | Test Weight                 | 15585                         |  |
| Vehicle Type & Number:  | TCe12  | Passenger Capacity        | 50    | F°                          | 66.05 N                       |  |
| Engine:                 | EV   | Declared Kerb Weight (kg) | 13885 | F <sup>1</sup>              | -4.6295 N/kmh                 |  |
| Transmission:           | N/A  | Gross Vehicle Weight (kg) | 18500 | F <sup>2</sup>              | 0.40000 N/kmh <sup>2</sup>    |  |
| Euro VI certificate Y/N | Manufacturer Certified                                 | GVW CHECK                 | OK    | F <sup>3</sup>              | -0.0027480 N/kmh <sup>3</sup> |  |

### Declared fuel, properties and source plus carbon conversion factors

|                                  |       |                          |               |                               |
|----------------------------------|-------|--------------------------|---------------|-------------------------------|
| Net Heating Value: Diesel        | 36.00 | MJ / Litre               | Fuel Provider | UK market standard            |
| Well-to-Tank Factor: Diesel      | 17.02 | g CO <sub>2</sub> e / MJ | WTT evidence  | UK GHG reporting factors 2020 |
| Well-to-Tank Factor: Electricity | 80.04 | g CO <sub>2</sub> e / MJ | Fuel Type     | UK Grid Electricity           |

### 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 <sub>2</sub> (g/km) | CH <sub>4</sub> (g/km) | N <sub>2</sub> O (g/km) | Energy Consumption (kWh/km) | Energy Consumption (kWh) | Energy use inc. charging losses (kWh/100km) |
|---------------------|--------------|--------------|--------------|---------------|------------------------|------------------------|-------------------------|-----------------------------|--------------------------|---|
| Outer London        | 0.000        | 0.000        | 0.000        | 0.00          | 0.0                    | 0.000                  | 0.000                   | 0.97                        | 6.31                     | 134.727                                     |
| Inner London        | 0.000        | 0.000        | 0.000        | 0.00          | 0.0                    | 0.000                  | 0.000                   | 1.33                        | 3.36                     | 185.210                                     |
| Rural               | 0.000        | 0.000        | 0.000        | 0.00          | 0.0                    | 0.000                  | 0.000                   | 0.69                        | 5.12                     | 96.900                                      |
| LBC Average         | 0.000        | 0.000        | 0.000        | 0.00000       | 0.0                    | 0.000                  | 0.000                   | 1.07                        | 9.67                     | 148.816                                     |
| <b>UKBC Average</b> | <b>0.000</b> | <b>0.000</b> | <b>0.000</b> | <b>0.0000</b> | <b>0.0</b>             | <b>0.000</b>           | <b>0.000</b>            | <b>0.90</b>                 | <b>14.79</b>             | <b>125.539</b>                              |

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


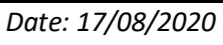
|   |     |                            |     |                                 |     |
|---|-----|----------------------------|-----|---------------------------------|-----|
| Total measured energy consumed on vehicle (kWh) | 108 | Distance in Z.E. mode (km) | 121 | Usable Battery Capacity (kWh)   | 281 |
| Measured grid energy during charging (kWh)*     | 151 | Charging efficiency (%)    | 72% | Max Theoretical Z.E. Range (km) | 312 |

### Total Tank-to-Wheel GHG CO<sub>2</sub> equivalent

| Test Phase          | CO <sub>2</sub> (g/km) | CH <sub>4</sub> (g/km x 25) | N <sub>2</sub> O (g/km x 298) | Fuel TTW** GHG (CO <sub>2</sub> Equivalent g/km) |
|---------------------|------------------------|-----------------------------|-------------------------------|--|
| Outer London        | 0.0                    | 0.000                       | 0.000                         | 0.0  |
| Inner London        | 0.0                    | 0.000                       | 0.000                         | 0.0  |
| Rural               | 0.0                    | 0.000                       | 0.000                         | 0.0  |
| LBC Average         | 0.0                    | 0.000                       | 0.000                         | 0.0  |
| <b>UKBC Average</b> | <b>0.0</b>             | <b>0.000</b>                | <b>0.000</b>                  | <b>0.0</b>                                       |

### Calculated total Well-to-Wheel GHG CO<sub>2</sub> equivalent emissions over test

| Test Phase          | Fuel Energy (MJ / km) | Fuel WTT*GHG Emissions (g CO <sub>2</sub> e / km) | Electrical Energy (MJ / km) | Electricity WTT* GHG Emissions (g CO <sub>2</sub> e / km) | Measured Fuel TTW** GHG Emissions (g CO <sub>2</sub> e / km) | Total WTW*** GHG Emissions (g CO <sub>2</sub> e / km) |
|---------------------|-----------------------|---|-----------------------------|---|--|---|
| Outer London        | N/A                   | N/A   | 4.85                        | 388.21  | 0.0  | 388.2   |
| Inner London        | N/A                   | N/A   | 6.67                        | 533.67  | 0.0  | 533.7   |
| Rural               | N/A                   | N/A   | 3.49                        | 279.21  | 0.0  | 279.2   |
| LBC Average         | N/A                   | N/A   | 5.36                        | 428.81  | 0.0  | 428.8   |
| <b>UKBC Average</b> | <b>N/A</b>            | <b>N/A</b>  | <b>4.52</b>                 | <b>361.73</b>   | <b>0.0</b>   | <b>361.7</b>  |

Data Generated by (On behalf of Test facility): P.P.  Date: 14/08/2020 Data Approved by:  Date: 17/08/2020

### Ultra Low Emission Bus Certificate Summary

|  |            |                             |
|--|------------|-----------------------------|
| GHG Well-to-Wheel  | 361.7      | g CO <sub>2</sub> e / km    |
| Euro VI Average Diesel Equivalent                          | 970.0      | g CO <sub>2</sub> e / km    |
| WTW GHG saving (compared with Euro VI diesel equivalent)   | 608.3      | g CO <sub>2</sub> e / km    |
| % WTW GHG saving (compared with Euro VI diesel equivalent) | 63%        | g CO <sub>2</sub> e / km    |
| Max Theoretical Zero Emission Operating Range (km)         | 312.5      | km                          |
| WTW CO <sub>2</sub> per passenger km (@ Max Pass Capacity) | 7.2        | g CO <sub>2</sub> e/pass km |
| Approved as Ultra-Low Emission Bus? (30% saving or more)   | <b>YES</b> |                             |

\* WTT : Well-to-Tank

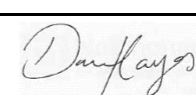
\*\* TTW : Tank-to-Wheel

\*\*\* WTW : Well-to Wheel

WTT Factors Published: 7th June 2019

|   |                               |              |              |
|---|-------------------------------|--------------|--------------|
| Comments: 8kW Demister was turned off during all testing. Windows could not be opened during testing. | Cell                          | Lower Saloon | Upper Saloon |
|   | Target Temperatures ±2 (°C) : |              |              |
|   | 10                            | 17           | 17           |
| Average Temperatures across testing (°C)  |                               | 9.58         | 16.72        |
|   |                               |              | N/A          |

**Test Numbers:** ML02019316 (13-Aug-20), ML02019317 (13-Aug-20), ML02019318 (13-Aug-20), ML02019319 (13-Aug-20).

Certificate approved by: On behalf of Bus manufacturer  Certificate Approved by: Daniel Hayes On behalf of LowCVP/DfT 20/08/2020