

## Ultra Low Emission Bus Scheme Certificate

|                         |  |                           |       |                             |                        |       |
|-------------------------|--|---------------------------|-------|-----------------------------|------------------------|-------|
| Customer:               | Belkommunmash  |                           |       | <b>DYNAMOMETER SETTINGS</b> |                        |       |
| Customer Address:       | Belkommunmash (OJSC Holding Management Company), Str. Perekhodnaya 64, Building 64B-2, Minsk |                           |       | Measured Kerb Weight (kg)   |                        | 12080 |
| Test Purpose:           | BKM LCEB Test  |                           |       | Equivalent test passengers  |                        | 21.75 |
| Vehicle Manufacturer:   | BKM  | Seated Capacity           | 25    | Test Weight                 |                        | 13770 |
| Vehicle Type & Number:  | Bus Single Decker M3   | Passenger Capacity        | 87    | F°                          | N/A N                  |       |
| Engine:                 | N/A  | Declared Kerb Weight (kg) | 12080 | F <sup>1</sup>              | N/A N/kmh              |       |
| Transmission:           | N/A  | Gross Vehicle Weight (kg) | 18000 | F <sup>2</sup>              | N/A N/kmh <sup>2</sup> |       |
| Euro VI certificate Y/N | Manufacturer Certified   | GVW CHECK                 | OK    | F <sup>3</sup>              | N/A 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      | 17.23 | g CO2e / MJ | WTT evidence  | UK GHG reporting factors 2019 |
| Well-to-Tank Factor: Electricity | 80.04 | g CO2e / 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 used over phase/cycle (kWh/100km) |
|---------------------|--------------|--------------|--------------|---------------|--------------------------|------------------------|-------------------------|-----------------------------|--------------------------|--|
| Outer London        | 0.000        | 0.000        | 0.000        | 0.00          | 0.0                      | 0.000                  | 0.000                   | 0.97                        | 6.23                     | 106.809                                  |
| Inner London        | 0.000        | 0.000        | 0.000        | 0.00          | 0.0                      | 0.000                  | 0.000                   | 1.16                        | 3.13                     | 126.631                                  |
| Rural               | 0.000        | 0.000        | 0.000        | 0.00          | 0.0                      | 0.000                  | 0.000                   | 0.99                        | 7.05                     | 108.531                                  |
| LBC Average         | 0.000        | 0.000        | 0.000        | 0.00000       | 0.0                      | 0.000                  | 0.000                   | 1.03                        | 9.36                     | 93.281                                   |
| <b>UKBC Average</b> | <b>0.000</b> | <b>0.000</b> | <b>0.000</b> | <b>0.0000</b> | <b>170.5</b>             | <b>0.000</b>           | <b>0.000</b>            | <b>1.01</b>                 | <b>16.41</b>             | <b>110.946</b>                           |

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

|   |    |                            |     |                                 |    |
|---|----|----------------------------|-----|---------------------------------|----|
| Total measured energy consumed on vehicle (kWh) | 66 | Distance in Z.E. mode (km) | 65  | Usable Battery Capacity (kWh)   | 29 |
| Measured grid energy during charging (kWh)*     | 72 | Charging efficiency (%)    | 91% | Max Theoretical Z.E. Range (km) | 29 |

### 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>170.5</b>             | <b>0.000</b>                | <b>0.000</b>                  | <b>170.5</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   | 3.85                        | 307.76  | 0.0  | 307.8   |
| Inner London        | N/A                   | N/A   | 4.56                        | 364.88  | 0.0  | 364.9   |
| Rural               | N/A                   | N/A   | 3.91                        | 312.72  | 0.0  | 312.7   |
| LBC Average         | N/A                   | N/A   | 3.36                        | 268.78  | 0.0  | 268.8   |
| <b>UKBC Average</b> | <b>N/A</b>            | <b>N/A</b>  | <b>3.99</b>                 | <b>319.69</b>   | <b>170.5</b>   | <b>490.2</b>  |

|   |                |                   |                |
|---|----------------|-------------------|----------------|
| Data Generated by (On behalf of Test facility): | Date: 14-01-20 | Data Approved by: | Date: 14-01-20 |
|---|----------------|-------------------|----------------|

### Ultra Low Emission Bus Certificate Summary

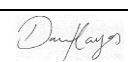
|  |               |                             |
|--|---------------|-----------------------------|
| GHG Well-to-Wheel  | <b>490.2</b>  | g CO <sub>2</sub> e / km    |
| Euro VI Average Diesel Equivalent                          | <b>1325.5</b> | g CO <sub>2</sub> e / km    |
| WTW GHG saving (compared with Euro VI diesel equivalent)   | <b>835.3</b>  | g CO <sub>2</sub> e / km    |
| % WTW GHG saving (compared with Euro VI diesel equivalent) | <b>63%</b>    | g CO <sub>2</sub> e / km    |
| Max Theoretical Zero Emission Operating Range (km)         | <b>29.2</b>   | km                          |
| WTW CO <sub>2</sub> per passenger km (@ Max Pass Capacity) | <b>5.6</b>    | 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:<br>4 Tests carried out on 11/12/19.<br>*HVAC Not installed. Diesel Heater factor (170.5 g CO <sub>2</sub> e / km) added to final test results.<br>**All testing performed on Millbrook's High Speed Circuit track facility. |  | Cell  | Lower Saloon | Upper Saloon |
|   | Target Temperatures ±2 (°C) :            | 10    | 17           | 17           |
|   | Average Temperatures across testing (°C) | 6.3** | 13.6*        | -            |

**Test Numbers:** PTT000547/549/550/552

|                               |                          |              |   |
|-------------------------------|--------------------------|--------------|---|
| Certificate approved by:      | Certificate Approved by: | Daniel Hayes |   |
| On behalf of Bus manufacturer | On behalf of LowCVP/DfT  | 21/01/2020   |  |