

## Low Emission Bus Scheme Certificate

Customer:	Volvo Group UK Ltd				
Customer Address:	Wedgnoek Lane, Warwick, CV34 5YA				
Test Purpose:	LEB Testing	Test Type:	Certification	DYNAMOMETER SETTINGS	
Vehicle Manufacturer:	Volvo	Unladen weight (kg)	11643	Test Weight	13418 kg
Vehicle Type & Number:	Volvo B8RLE, BF65WKO	Gross Weight (kg)	19000	F <sup>0</sup>	139.68 N
Engine:	Volvo D8K VI	Seated Capacity	42	F <sup>1</sup>	0.7464 N/kmh
Transmission:	ZF 6AP1400B Auto	Passenger Capacity	100	F <sup>2</sup>	0.16022 N/kmh <sup>2</sup>
Euro VI certificate Y/N	Manufacturer Certified	GVW Check	OK	F <sup>3</sup>	0.000057 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 CO <sub>2</sub> e / MJ	WTT evidence	UK GHG reporting factors 2019
Well-to-Tank Factor: Electricity	87.77	g CO <sub>2</sub> e / MJ	Fuel Type	UK Grid Electricity

### Emissions and Energy consumption results from approved test facility - Average 3 tests

Test Phase	HC (g/km)	CO (g/km)	NO <sub>x</sub> (g/km)	PM (g/km)	CO <sub>2</sub> (g/km)	CH <sub>4</sub> (g/km)*	N <sub>2</sub> O (g/km)*	Fuel Consumption (l/100 km)	Fuel used over phase/cycle (litres)
Rural	0.000	0.017	0.299	N/A	747.0	0.076	0.516	28.21	2.065
Outer London	0.000	0.003	0.284	N/A	945.1	0.009	0.189	35.69	2.289
Inner London	0.000	0.112	0.847	N/A	1277.1	0.006	0.177	48.23	1.183
LBC Average	0.000	0.034	0.440	N/A	1036.9	0.000	0.186	39.16	3.471
LUB Average	0.000	0.026	0.376	0.0039	905.8	0.039	0.335	34.21	5.534

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

Total measured energy consumed on vehicle (kWh)	N/A	Distance in Z.E. mode (km)	N/A	Usable Battery Capacity (kWh)	N/A
Measured grid energy during charging (kWh)*	N/A	Charging efficiency (%)	N/A	Max Theoretical Z.E. Range (km)	N/A

### 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)
Rural	747.0	1.891	153.656	902.5
Outer London	945.1	0.233	56.334	1001.6
Inner London	1277.1	0.159	52.693	1330.0
LBC Average	1036.9	0.000	55.327	1092.2
LUB Average	905.8	0.972	99.829	1006.6

### 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)
Rural	10.15	175.0	N/A	N/A	902.5	1077.5
Outer London	12.85	221.4	N/A	N/A	1001.6	1223.0
Inner London	17.36	299.2	N/A	N/A	1330.0	1629.1
LBC Average	14.10	242.9	N/A	N/A	1092.2	1335.1
LUB Average	12.31	212.2	N/A	N/A	1006.6	1218.7

Data Generated by (On behalf of Test facility): P.P.	Date: 26/08/2020	Data Approved by:	Date: 26/08/2020
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### Low Emission Bus Certificate Summary

GHG Well-to-Wheel	1218.7	g CO <sub>2</sub> e / km
Euro V Average Diesel Equivalent	1450.4	g CO <sub>2</sub> e / km
WTW GHG saving (compared with Euro V diesel equivalent)	231.7	g CO <sub>2</sub> e / km
% WTW GHG saving (compared with Euro V diesel equivalent)	16%	g CO <sub>2</sub> e / km
Zero Emission operating range (km)	N/A	km
WTW CO <sub>2</sub> per passenger km (@ Max Pass Capacity)	12.2	g CO <sub>2</sub> e/pass km
Approved as Low Emission Bus? (15% 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.  
Air conditioning belt removed for testing.

<b>Test Numbers:</b> MLO2019116 (27-Feb-20), MLO2019117 (27-Feb-20), MLO2019118 (27-Feb-20).	
Certificate approved by: Adrian Felton	Certificate Approved by: Daniel Hayes
On behalf of Bus manufacturer: 26/08/2020	On behalf of LowCVP/DfT: 26/08/2020