

## Low Emission Bus Scheme Certificate

Customer:	Alexander Dennis Ltd.				
Customer Address:	Plaxton, Cayton Low Road, Eastfield, Scarborough, YO11 3BY				
Test Purpose:	LEB Testing			<b>DYNAMOMETER SETTINGS</b>	
Vehicle Manufacturer:	Alexander Dennis Ltd.	Unladen weight (kg)	8150.0	Test Weight	9537 kg
Vehicle Type & Number:	E200 LEB specification	Gross Weight (kg)	13200.0	F°	248.26 N
Engine:	Diesel Euro 6	Seated Capacity	38	F <sup>1</sup>	-4.0198 N/kmh
Transmission:	Auto	Passenger Capacity	72	F <sup>2</sup>	0.16008 N/kmh <sup>2</sup>
Euro VI certificate Y/N	Manufacturer Certified	GVW Check	OK	F <sup>3</sup>	0.000427 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	15.42	g CO <sub>2</sub> e / MJ	WTT evidence	UK GHG reporting factors 2016
Well-to-Tank Factor: Electricity	143.50	g CO <sub>2</sub> e / MJ	Fuel Type	UK Pump Diesel

### Emissions and Energy consumption results from approved test facility - Average 3 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)*	Fuel Consumption (l/100 km)	Fuel Consumption (Litres)
Rural	0.002	0.011	0.179	N/A	584.0	0.000	0.086	22.05	1.63
Outer London	0.000	0.018	0.174	N/A	716.1	0.000	0.114	27.04	1.75
Inner London	0.000	0.025	0.499	N/A	1000.5	0.000	0.122	37.78	0.95
MLTB Average	0.000	0.020	0.265	N/A	795.9	0.000	0.116	30.06	2.70
LUB Average	0.001	0.016	0.227	0.0075	700.3	0.000	0.103	26.45	4.34

### 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	584.0	0.000	25.577	609.6
Outer London	716.1	0.000	33.941	750.0
Inner London	1000.5	0.000	36.397	1036.9
MLTB Average	795.9	0.000	34.630	830.5
LUB Average	700.3	0.000	30.546	730.8

### 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	7.94	122.4	N/A	N/A	609.6	732.0
Outer London	9.74	150.1	N/A	N/A	750.0	900.1
Inner London	13.60	209.7	N/A	N/A	1036.9	1246.7
MLTB Average	10.82	166.8	N/A	N/A	830.5	997.4
LUB Average	9.52	146.8	N/A	N/A	730.8	877.6

Data Generated by (On behalf of Test facility): *M. Adams* Date: 26/05/17 Data Approved by: *[Signature]* Date: 31/05/17

### Low Emission Bus Certificate Summary

GHG Well-to-Wheel	<b>877.6</b>	g CO <sub>2</sub> e / km
Euro V Average Diesel Equivalent	<b>1158.2</b>	g CO <sub>2</sub> e / km
WTW GHG saving (compared with Euro V diesel equivalent)	<b>280.6</b>	g CO <sub>2</sub> e / km
% WTW GHG saving (compared with Euro V diesel equivalent)	<b>24%</b>	g CO <sub>2</sub> e / km
Zero Emission operating range (km)	<b>N/A</b>	km
WTW CO <sub>2</sub> per passenger km (@ Max Pass Capacity)	<b>12.2</b>	g CO <sub>2</sub> e/pass km
Approved as Low Emission Bus? (15% saving or more)	<b>YES</b>	

\* WTT : Well-to-Tank      \*\* TTW : Tank-to-Wheel      \*\*\* WTW : Well-to Wheel

**COMMENTS:**

Emission results marked in red are below detection levels. Updated 6 June 2016 with latest DECC carbon emission factors.

**Test Numbers:** ML02016509 (25/05/2017), ML02016510 (25/05/2017), ML02016511 (25/05/2017).

Certificate approved by:  
On behalf of Bus manufacturer

Certificate Approved by:  
On behalf of LowCVP/DfT