

## Low Emission Bus Scheme Certificate

Customer:	Alexander Dennis				
Customer Address:	Cameron House, East Pimbo, Lancashire, WN8 9QB				
Test Purpose:	LEB Testing			<b>DYNAMOMETER SETTINGS</b>	
Vehicle Manufacturer:	ADL Scania E400 CNG	Unladen weight (kg)	10746.0	Test Weight	14730 kg
Vehicle Type & Number:	DD16 GAS	Gross Weight (kg)	19500.0	F°	79.18 N
Engine:	Scania	Seated Capacity	74	F <sup>1</sup>	21.7700 N/kmh
Transmission:	Auto	Passenger Capacity	<b>86</b>	F <sup>2</sup>	-0.32737 N/kmh <sup>2</sup>
Euro VI certificate Y/N	Manufacturer Certified	GVW CHECK	<b>OK</b>	F <sup>3</sup>	0.0 N/kmh <sup>3</sup>

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

Net Heating Value:	<b>Biomethane</b>	<b>47.89</b>	MJ / Litre	Fuel Provider	Gas Bus Alliance
Well-to-Tank Factor:	<b>Biomethane</b>	<b>10.00</b>	g CO <sub>2</sub> e / MJ	WTT evidence	UK GHG reporting factors 2016
Tank-to-Wheel Factor:	<b>Biomethane</b>	<b>5.49</b>	g CO <sub>2</sub> e / kg	Fuel Type	Biomethane

### 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 (kg)	Fuel Consumption (kg/100 km)
Rural	0.010	1.42	0.22	N/A	890.35	0.000	0.000	2.41	32.54
Outer London	0.01	2.61	0.25	N/A	1237.94	0.000	0.000	2.94	45.27
Inner London	0.03	6.34	0.18	N/A	1840.60	0.007	0.000	1.69	67.45
MLTB Average	0.02	3.65	0.23	N/A	1406.51	0.002	0.000	4.63	51.51
<b>LUB Average</b>	<b>0.01</b>	<b>2.64</b>	<b>0.23</b>	<b>0.0202</b>	<b>1173.23</b>	<b>0.001</b>	<b>0.000</b>	<b>7.04</b>	<b>42.91</b>

### 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	1.79	0.000	0.00	1.79
Outer London	2.49	0.000	0.00	2.49
Inner London	3.70	0.000	0.00	3.70
MLTB	2.83	0.000	0.00	2.83
<b>LUB Total Average</b>	<b>2.36</b>	<b>0.000</b>	<b>0.00</b>	<b>2.36</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)
Rural	15.582	155.82	N/A	N/A	1.79	157.60
Outer London	21.681	216.81	N/A	N/A	2.49	219.30
Inner London	32.303	323.03	N/A	N/A	3.70	326.74
MLTB	24.668	246.68	N/A	N/A	2.83	249.51
<b>LUB Total Average</b>	<b>20.551</b>	<b>205.51</b>	<b>N/A</b>	<b>N/A</b>	<b>2.36</b>	<b>207.87</b>

Data Generated by (On behalf of Test facility):	29 Sept 2016	Data Approved by:	Insert Date
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### Low Emission Bus Certificate Summary

GHG Well-to-Wheel	<b>207.9</b>	g CO <sub>2</sub> e / km
Euro V Average Diesel Equivalent	<b>1290.1</b>	g CO <sub>2</sub> e / km
WTW GHG saving (compared with Euro V diesel equivalent)	<b>1082.3</b>	g CO <sub>2</sub> e / km
% WTW GHG saving (compared with Euro V diesel equivalent)	<b>84%</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>2.4</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. Tank-to-Wheel GHG CO<sub>2</sub> equivalent emissions are calculated by multiplying the Tank-to-Wheel factor by the mass of biomethane consumed over each cycle - they are not taken from the original (tailpipe) emissions results.

Test Numbers:	ML02015866 (9/27/2016), ML02015867 (9/27/2016), ML02015868 (9/27/2016).	WTT Factors Published:	6th June 2016
Certificate approved by: On behalf of Bus manufacturer	Certificate Approved by: On behalf of LowCVP/DfT		