

Low Emission Bus Scheme Certificate

Customer:	Alexander Dennis				
Customer Address:	Cameron House, East Pimbo, Lancashire, WN8 9QB				
Test Purpose:	LEB Testing			DYNAMOMETER SETTINGS	
Vehicle Manufacturer:	ADL Scania E400 CNG	Unladen weight (kg)	12107.0	Test Weight	14730 kg
Vehicle Type & Number:	DD16 GAS	Gross Weight (kg)	19500.0	F°	79.18 N
Engine:	Scania	Seated Capacity	74	F ¹	21.7700 N/kmh
Transmission:	Auto	Max Passenger Capacity	82	F ²	-0.32737 N/kmh ²
Euro VI certificate Y/N	Manufacturer Certified	GVW CHECK	OK	F ³	0.0 N/kmh ³

Declared fuel, properties and source plus carbon conversion factors

Net Heating Value:	Biomethane	47.89	MJ / Litre	Fuel Provider	Gas Bus Alliance
Well-to-Tank Factor:	Biomethane	10.00	g CO ₂ e / MJ	WTT evidence	UK GHG reporting factors 2016
Tank-to-Wheel Factor:	Biomethane	5.49	g CO ₂ 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 ₂ (g/km)	CH ₄ (g/km)*	N ₂ 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
LUB Average	0.01	2.64	0.23	0.0202	1173.23	0.001	0.000	7.04	42.91

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 CO₂ equivalent

Test Phase	CO ₂ (g/km)	CH ₄ (g/km x 25)*	N ₂ O (g/km x 298)*	Fuel TTW** GHG (CO ₂ 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
LUB Total Average	2.36	0.000	0.00	2.36

Calculated total Well-to-Wheel GHG CO₂ equivalent emissions over test

Test Phase	Fuel Energy (MJ / km)	Fuel WTT* GHG Emissions (g CO ₂ e / km)	Electrical Energy (MJ / km)	Electricity WTT* GHG Emissions (g CO ₂ e / km)	Measured Fuel TTW** GHG Emissions (g CO ₂ e / km)	Total WTW*** GHG Emissions (g CO ₂ 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
LUB Total Average	20.551	205.51	N/A	N/A	2.36	207.87

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	207.9	g CO ₂ e / km
Euro V Average Diesel Equivalent	1252.4	g CO ₂ e / km
WTW GHG saving (compared with Euro V diesel equivalent)	1044.6	g CO ₂ e / km
% WTW GHG saving (compared with Euro V diesel equivalent)	83%	g CO ₂ e / km
Zero Emission operating range (km)	N/A	km
WTW CO ₂ per passenger km (@ Max Pass Capacity)	2.5	g CO ₂ 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. Tank-to-Wheel GHG CO₂ 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. Note Vehicle is available with specifications from 79Pax (70seat+Whchair+8 stand) to 82pax. All variants are covered by this certificate - (Reissued 14/7/17)

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	