

Low Emission Bus Scheme Certificate

Customer:	Optare Group Ltd				
Customer Address:	Hurricane Way, Sherburn Ind. Estate, Sherburn-in-Elmet				
Test Purpose:	LEB Testing	DYNAMOMETER SETTINGS			
Vehicle Manufacturer:	Optare	Unladen weight (kg)	7830	Test Weight	9142 kg
Vehicle Type & Number:	MetroCity, VIN: SAB5HK2A9GS400103	Gross Weight (kg)	13000	F°	68.73 N
Engine:	Mercedes Euro VI	Seated Capacity	39	F ¹	4.4274 N/kmh
Transmission:	Automatic	Passenger Capacity	64	F ²	0.02719 N/kmh ²
Euro VI certificate Y/N	Manufacturer Certified	GVW Check	OK	F ³	0.000098 N/kmh ³

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 ₂ e / MJ	WTT evidence	UK GHG reporting factors 2016
Well-to-Tank Factor: Electricity	143.50	g CO ₂ e / MJ	Fuel Type	UK Pump Diesel, UK Grid Electricity

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

Test Phase	HC (g/km)	CO (g/km)	NO _x (g/km)	PM (g/km)	CO ₂ (g/km)	CH ₄ (g/km)*	N ₂ O (g/km)**	Fuel Consumption (l/100 km)	Fuel used over cycle (litres/km)
Rural	0.005	0.006	0.066	N/A	572.8	0.000	0.037	21.63	0.216
Outer London	0.009	0.011	0.028	N/A	730.9	0.000	0.045	27.60	0.276
Inner London	0.012	0.032	0.068	N/A	1073.1	0.000	0.061	40.53	0.405
MLTB Average	0.010	0.017	0.039	N/A	826.1	0.000	0.049	31.20	0.312
LUB Average	0.007	0.012	0.051	0.0033	711.2	0.000	0.044	26.86	0.269

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	572.8	0.000	10.918	583.7
Outer London	730.9	0.000	13.320	744.3
Inner London	1073.1	0.000	18.109	1091.2
MLTB Average	826.1	0.000	14.656	840.8
LUB Average	711.2	0.000	12.966	724.1

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	7.79	120.1	N/A	N/A	583.7	703.8
Outer London	9.94	153.2	N/A	N/A	744.3	897.5
Inner London	14.59	225.0	N/A	N/A	1091.2	1316.2
MLTB Average	11.23	173.2	N/A	N/A	840.8	1013.9
LUB Average	9.67	149.1	N/A	N/A	724.1	873.2

Data Generated by (On behalf of Test facility):		Date: 18.07.2017	Data Approved by:		Date: 18/07/2017
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Low Emission Bus Certificate Summary

GHG Well-to-Wheel	873.2	g CO ₂ e / km
Euro V Average Diesel Equivalent	1082.9	g CO ₂ e / km
WTW GHG saving (compared with Euro V diesel equivalent)	209.7	g CO ₂ e / km
% WTW GHG saving (compared with Euro V diesel equivalent)	19%	g CO ₂ e / km
Zero Emission operating range (km)	N/A	km
WTW CO ₂ per passenger km (@ Max Pass Capacity)	13.6	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.	
**No N ₂ O Result for ML02016638 due to equipment failure	
<u>Test Numbers:</u> ML02016635 (17 July 2017), ML02016636 (17 July 2017), ML02016638 (17 July 2017).	
Certificate approved by: On behalf of Bus manufacturer	Certificate Approved by: On behalf of LowCVP/DfT