

## ANNEX IV

### MODEL OF THE MANUFACTURER'S RECORDS FILE AND OF THE CUSTOMER INFORMATION FILE

#### PART I

##### Vehicle CO<sub>2</sub> emissions and fuel consumption – Manufacturer's records file

The manufacturer's records file will be produced by the simulation tool and shall at least contain the following information:

1. Vehicle, component, separate technical unit and systems data
  - 1.1. Vehicle data
    - 1.1.1. Name and address of manufacturer
    - 1.1.2. Vehicle model
    - 1.1.3. Vehicle identification number (VIN) ...
    - 1.1.4. Vehicle category (N1 N2, N3, M1, M2, M3) ...
    - 1.1.5. Axle configuration ...
    - 1.1.6. Max. gross vehicle weight (t) ...
    - 1.1.7. Vehicle group in accordance with Table 1 ...
    - 1.1.8. Corrected actual curb mass (kg) ...
  - 1.2. Main engine specifications
    - 1.2.1. Engine model
    - 1.2.2. Engine certification number ...
    - 1.2.3. Engine rated power (kW) ...
    - 1.2.4. Engine idling speed (1/min) ...
    - 1.2.5. Engine rated speed (1/min) ...
    - 1.2.6. Engine capacity (ltr) ...
    - 1.2.7. Engine reference fuel type (diesel/LPG/CNG ...) ...
    - 1.2.8. Hash of the fuel map file/document ...
  - 1.3. Main transmission specifications
    - 1.3.1. Transmission model
    - 1.3.2. Transmission certification number ...
    - 1.3.3. Main option used for generation of loss maps (Option1/Option2/Option3/Standard values) ...:
    - 1.3.4. Transmission type (SMT, AMT, APT-S, APT-P) ...

- 1.3.5. Nr. of gears ...
- 1.3.6. Transmission ratio final gear ...
- 1.3.7. Retarder type ...
- 1.3.8. Power take off (yes/no) ...
- 1.3.9. Hash of the efficiency map file/document ...
- 1.4. Retarder specifications
  - 1.4.1. Retarder model
  - 1.4.2. Retarder certification number ...
  - 1.4.3. Certification option used for generation of a loss map (standard values/measurement) ...
  - 1.4.4. Hash of the efficiency map file/document ...
- 1.5. Torque converter specification
  - 1.5.1. Torque converter model
  - 1.5.2. Torque converter certification number ...
  - 1.5.3. Certification option used for generation of a loss map (standard values/measurement) ...
  - 1.5.4. Hash of the efficiency map file/document ...
- 1.6. Angle drive specifications
  - 1.6.1. Angle drive model
  - 1.6.2. Axle certification number ...
  - 1.6.3. Certification option used for generation of a loss map (standard values/measurement) ...
  - 1.6.4. Angle drive ratio ...
  - 1.6.5. Hash of the efficiency map file/document ...
- 1.7. Axle specifications
  - 1.7.1. Axle model ...
  - 1.7.2. Axle certification number ...
  - 1.7.3. Certification option used for generation of a loss map (standard values/measurement) ...
  - 1.7.4. Axle type (e.g. standard single driven axle) ...
  - 1.7.5. Axle ratio ...
  - 1.7.6. Hash of the efficiency map file/document ...
- 1.8. Aerodynamics

- 1.8.1. Model
- 1.8.2. Certification option used for generation of CdxA (standard values /measurement) ...
- 1.8.3. CdxA Certification number (if applicable) ...
- 1.8.4. CdxA value ...
- 1.8.5. Hash of the efficiency map file/document ...
- 1.9. Main tyre specifications
  - 1.9.1. Tyre dimension axle 1 ...
  - 1.9.2. Tyre certification number ...
  - 1.9.3. Specific RRC of all tyres on axle 1 ...
  - 1.9.4. Tyre dimension axle 2 ...
  - 1.9.5. Twin axle (yes/no) axle 2 ...
  - 1.9.6. Tyre certification number ...
  - 1.9.7. Specific RRC of all tyres on axle 2 ...
  - 1.9.8. Tyre dimension axle 3 ...
  - 1.9.9. Twin axle (yes/no) axle 3 ...
  - 1.9.10. Tyre certification number ...
  - 1.9.11. Specific RRC of all tyres on axle 3 ...
  - 1.9.12. Tyre dimension axle 4 ...
  - 1.9.13. Twin axle (yes/no) axle 4 ...
  - 1.9.14. Tyre certification number ...
  - 1.9.15. Specific RRC of all tyres on axle 4 ...
- 1.10. Main auxiliary specifications
  - 1.10.1. Engine cooling fan technology ...
  - 1.10.2. Steering pump technology ...
  - 1.10.3. Electric system technology ...
  - 1.10.4. Pneumatic system technology ...
- 1.11. Engine torque limitations
  - 1.11.1. Engine torque limit at gear 1 (% of max engine torque) ...
  - 1.11.2. Engine torque limit at gear 2 (% of max engine torque) ...
  - 1.11.3. Engine torque limit at gear 3 (% of max engine torque) ...
  - 1.11.4. Engine torque limit at gear ... (% of max engine torque)

2. Mission profile and loading dependent values
  - 2.1. Simulation parameters (for each profile/load/fuel combination)
    - 2.1.1. Mission profile (long haul/regional/urban/municipal/construction) ...
    - 2.1.2. Load (as defined in the simulation tool) (kg) ...
    - 2.1.3. Fuel (diesel/petrol/LPG/CNG/...) ...
    - 2.1.4. Total vehicle mass in simulation (kg) ...
  - 2.2. Vehicle driving performance and information for simulation quality check
    - 2.2.1. Average speed (km/h) ...
    - 2.2.2. Minimum instantaneous speed (km/h) ...
    - 2.2.3. Maximum instantaneous speed (km/h) ...
    - 2.2.4. Maximum deceleration ( $\text{m/s}^2$ ) ...
    - 2.2.5. Maximum acceleration ( $\text{m/s}^2$ ) ...
    - 2.2.6. Full load percentage on driving time ...
    - 2.2.7. Total number of gear shifts ...
    - 2.2.8. Total driven distance (km) ...
  - 2.3. Fuel and CO<sub>2</sub> results
    - 2.3.1. Fuel consumption (g/km) ...
    - 2.3.2. Fuel consumption (g/t-km) ...
    - 2.3.3. Fuel consumption (g/p-km) ...
    - 2.3.4. Fuel consumption ( $\text{g/m}^3\text{-km}$ ) ...
    - 2.3.5. Fuel consumption (l/100km) ...
    - 2.3.6. Fuel consumption (l/t-km) ...
    - 2.3.7. Fuel consumption (l/p-km) ...
    - 2.3.8. Fuel consumption ( $\text{l/m}^3\text{-km}$ ) ...
    - 2.3.9. Fuel consumption (MJ/km) ...
    - 2.3.10. Fuel consumption (MJ/t-km) ...
    - 2.3.11. Fuel consumption (MJ/p-km) ...
    - 2.3.12. Fuel consumption ( $\text{MJ/m}^3\text{-km}$ ) ...
    - 2.3.13. CO<sub>2</sub> (g/km) ...
    - 2.3.14. CO<sub>2</sub> (g/t-km) ...
    - 2.3.15. CO<sub>2</sub> (g/p-km) ...

- 2.3.16. CO<sub>2</sub> (g/m<sup>3</sup>-km) ...
- 3. Software and user information
  - 3.1. Software and user information
    - 3.1.1. Simulation tool version (X.X.X) ...
    - 3.1.2. Date and time of the simulation
    - 3.1.3. Hash of simulation tool input information and input data ...
    - 3.1.4. Hash of simulation tool result ...

## PART II

### **Vehicle CO<sub>2</sub> emissions and fuel consumption - Customer information file**

- 1. Vehicle, component, separate technical unit and systems data
  - 1.1. Vehicle data
    - 1.1.1. Vehicle identification number (VIN) ...
    - 1.1.2. Vehicle category (N<sub>1</sub> N<sub>2</sub>, N<sub>3</sub>, M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub>) ...
    - 1.1.3. Axle configuration ...
    - 1.1.4. Max. gross vehicle weight (t) ...
    - 1.1.5. Vehicle's group ...
    - 1.1.6. Name and address of manufacturer ...
    - 1.1.7. Make (trade name of manufacturer) ...
    - 1.1.8. Corrected actual curb mass (kg) ...
  - 1.2. Component, separate technical unit and systems data
    - 1.2.1. Engine rated power (kW) ...
    - 1.2.2. Engine capacity (ltr) ...
    - 1.2.3. Engine reference fuel type (diesel/LPG/CNG...) ...
    - 1.2.4. Transmission values (measured/standard) ...
    - 1.2.5. Transmission type (SMT, AMT, AT-S, AT-S) ...
    - 1.2.6. Nr. of gears ...
    - 1.2.7. Retarder (yes/no) ...
    - 1.2.8. Axle ratio ...
    - 1.2.9. Average rolling resistance coefficient (RRC) of all tyres:

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*Status: This is the original version (as it was originally adopted).*

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## PART III

**CO<sub>2</sub> emissions and fuel consumption of the vehicle (for each payload/fuel combination)**

Payload low [kg]:

	Average vehicle speed	CO <sub>2</sub> emissions			Fuel consumption		
		... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Long haul</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Long haul (EMS)</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Regional delivery</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Regional delivery (EMS)</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Urban delivery</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Municipal utility</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Construction</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km

Payload representative [kg]:

	Average vehicle speed	CO <sub>2</sub> emissions			Fuel consumption		
		... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Long haul</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Long haul (EMS)</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Regional delivery</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Regional delivery (EMS)</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Urban delivery</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km
<b>Municipal utility</b>	... km/h	... g/km	... g/t-km	... g/m <sup>3</sup> -km	... l/100 km	... l/t-km	... l/m <sup>3</sup> -km

**Status:** This is the original version (as it was originally adopted).

<b>Construction</b>	km/h	... g/km	... g/t-km	... g/m <sup>3</sup> - km	... l/100 km	... l/t-km	... l/m <sup>3</sup> - km
Software and user information	Simulation tool version		[X.X.X]				
	Date and time of the simulation		[-]				

Cryptographic hash of the output file: