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## ANNEX I

### Rules on data to be monitored and reported

#### PART A: DATA TO BE MONITORED AND REPORTED BY MEMBER STATES

- (a) vehicle identification numbers of all new heavy-duty vehicles as referred to in points (a) and (b) of the second paragraph of Article 2 that are registered in the Member State territory;
- (b) manufacturer name;
- (c) make (trade name of manufacturer);
- (d) the code for the bodywork as specified in entry 38 of the certificate of conformity, where available;
- (e) in the case of the heavy-duty vehicles referred to in point (a) of the second paragraph of Article 2, the information on the powerplant specified in entries 23, 23.1 and 26 of the certificate of conformity.

#### PART B: DATA TO BE MONITORED AND REPORTED BY MANUFACTURERS OF HEAVY-DUTY VEHICLES

1. Starting years for the monitoring and reporting of data for the heavy-duty vehicle categories set out in points (a) and (b) of the second paragraph of Article 2:

Category of heavy-duty vehicles	Vehicle group in vehicle category (as referred to in Annex I to Regulation (EU) 2017/2400)	Starting yearMonitoring	Starting yearReporting
N <sub>1</sub>	—	—	—
N <sub>2</sub>	1 and 2	2020	2021
N <sub>3</sub>	3	2020	2021
	4, 5, 9 and 10	2019	2020
	11, 12 and 16	2020	2021
M <sub>1</sub>	—	—	—
M <sub>2</sub>	—	—	—
M <sub>3</sub>	—	—	—
O <sub>3</sub>	—	—	—
O <sub>4</sub>	—	—	—

2. Data to be monitored and reported:

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<b>No</b>	<b>Monitoring parameters</b>	<b>Source Part I of Annex IV to Regulation (EU) 2017/2400, unless otherwise specified</b>	<b>Description</b>
1	Vehicle identification number (VIN)	1.1.3	Vehicle and component identification
2	Engine certification number	1.2.2	
3	CdxA <sup>a</sup> certification number (if applicable)	1.8.3	
4	Transmission certification number	1.3.2	
5	Axle certification number	1.6.2	
6	Tyre certification number, axle 1	1.9.2	
7	Tyre certification number, axle 2	1.9.6	
8	Tyre certification number, axle 3	1.9.10	
9	Tyre certification number, axle 4	1.9.14	
10	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> )	1.1.4	
11	Axle configuration	1.1.5	
12	Maximum gross vehicle weight (t)	1.1.6	
13	Vehicle group	1.1.7	

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14	Name and address of manufacturer	1.1.1	Vehicle and chassis specification
15	Make (trade name of manufacturer)	1.1.7 Part II of Annex IV to Regulation (EU) 2017/2400	
16	Corrected actual curb mass (kg)	1.1.8	
17	Engine rated power (kW)	1.2.3	
18	Engine idling speed (1/min)	1.2.4	
19	Engine rated speed (1/min)	1.2.5	
20	Engine capacity (ltr)	1.2.6	
21	Engine reference fuel type (diesel/LPG/CNG...)	1.2.7	
22	Certification option used for generation of CdxA (standard values/measurement)	1.8.2	Aerodynamics
23	CdxA value (air drag value)	1.8.4	Main transmission specifications
24	Name and address of transmission manufacturer	—	
25	Make (trade name of transmission manufacturer)	—	
26	Certification option used for the generation of	1.3.3	

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	simulation tool loss maps (Option 1/ Option 2/Option 3/ Standard values)		
27	Transmission type (SMT <sup>b</sup> , AMT <sup>c</sup> , APT <sup>d</sup> -S <sup>e</sup> , APT-P <sup>f</sup> )	1.3.4	
28	Number of gears	1.3.5	
29	Transmission ratio final gear	1.3.6	
30	Retarder type	1.3.7	
31	Power take off (yes/no)	1.3.8	
32	Name and address of axle manufacturer	—	Main axle specifications
33	Make (trade name of axle manufacturer)	—	
34	Certification option used for the generation of a simulation tool loss map (standard values/measurement)	1.7.3	
35	Axle type (e.g. standard single driven axle)	1.7.4	
36	Axle ratio	1.7.5	
37	Certification option used for the generation of a simulation tool loss	1.6.3	Angle drive specifications

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	map (standard values/ measurement)		
38	Angle drive ratio	1.6.4	
39	Name and address of tyre manufacturer	—	Main tyre specifications
40	Make (trade name of tyre manufacturer)	—	
41	Tyre dimension axle 1	1.9.1	
42	Specific rolling resistance coefficient (RRC) of all tyres on axle 1	1.9.3	
43	Tyre dimension axle 2	1.9.4	
44	Twin axle (yes/no) axle 2	1.9.5	
45	Specific RRC of all tyres on axle 2	1.9.7	
46	Tyre dimension axle 3	1.9.8	
47	Twin axle (yes/no) axle 3	1.9.9	
48	Specific RRC of all tyres on axle 3	1.9.11	
49	Tyre dimension axle 4	1.9.12	
50	Twin axle (yes/no) axle 4	1.9.13	
51	Specific RRC of all tyres on axle 4	1.9.15	

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52	Engine cooling fan technology	1.10.1	Main auxiliary specifications
53	Steering pump technology	1.10.2	
54	Electric system technology	1.10.3	
55	Pneumatic system technology	1.10.4	
56	Mission profile (long haul, long haul (EMS <sup>a</sup> ), regional, regional (EMS), urban, municipal, construction)	2.1.1	Simulation parameters (for each mission profile/load/fuel combination)
57	Load (as defined in the simulation tool) (kg)	2.1.2	
58	Fuel type (diesel/petrol/LPG/CNG/...)	2.1.3	
59	Total vehicle mass in simulation (kg)	2.1.4	
60	Average speed (km/h)	2.2.1	Vehicle driving performance (for each mission profile/load/fuel combination)
61	Minimum instantaneous speed (km/h)	2.2.2	
62	Maximum instantaneous speed (km/h)	2.2.3	
63	Maximum deceleration (m/s <sup>2</sup> )	2.2.4	

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64	Maximum acceleration (m/s <sup>2</sup> )	2.2.5	
65	Full load percentage on driving time	2.2.6	
66	Total number of gear shifts	2.2.7	
67	Total driven distance (km)	2.2.8	
68	CO <sub>2</sub> emissions (expressed in g/km, g/t-km, g/p-km, g/m <sup>3</sup> -km)	2.3.13-2.3.16	CO <sub>2</sub> emissions and fuel consumption (for each mission profile/load/fuel combination)
69	Fuel consumption (expressed in g/km, g/t-km, g/p-km, g/m <sup>3</sup> -km, l/100km, l/t-km, l/p-km, l/m <sup>3</sup> -km, MJ/km, MJ/t-km, MJ/p-km, MJ/m <sup>3</sup> -km)	2.3.1-2.3.12	
70	Simulation tool version (X.X.X.)	3.1.1	Software and user information
71	Date and time of the simulation	3.1.2	
72	Number of licence to operate the simulation tool	—	
73	Cryptographic hash of simulation tool result	3.1.4	
74	Advanced CO <sub>2</sub> reducing technologies	—	Vehicle CO <sub>2</sub> reducing technologies

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75	CO <sub>2</sub> mass emission of the engine over WHTC <sup>b</sup> (g/kWh)	Point 1.4.2 of the addendum to Appendix 5, or point 1.4.2 of the addendum to Appendix 7, to Annex I to Regulation (EU) No 582/2011, whichever is applicable	Engine CO <sub>2</sub> emission and specific fuel consumption
76	Fuel consumption of the engine over WHTC (g/kWh)	Point 1.4.2 of the addendum to Appendix 5, or point 1.4.2 of the addendum to Appendix 7, to Annex I to Regulation (EU) No 582/2011, whichever is applicable	
77	CO <sub>2</sub> mass emission of the engine over WHSC <sup>i</sup> (g/kWh)	Point 1.4.1 of the addendum to Appendix 5, or point 1.4.1 of the addendum to Appendix 7, to Annex I to Regulation (EU) No 582/2011, whichever is applicable	
78	Fuel consumption of the engine over WHSC (g/kWh)	Point 1.4.1 of the addendum to Appendix 5, or point 1.4.1 of the addendum to Appendix 7, to Annex I to	

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#### PART C: AIR DRAG VALUE (CDXA) RANGES FOR THE PURPOSE OF PUBLICATION IN ACCORDANCE WITH ARTICLE 6

For the purpose of making publicly available the CdxA value specified in data entry 23 in accordance with Article 6, the Commission shall use the ranges defined in the following table containing the corresponding range for each CdxA value:

Range	CdxA value [m <sup>2</sup> ]	
	Min CdxA (CdxA ≥ min CdxA)	Max CdxA (CdxA < MaxCdxA)
A1	0,0	3,0
A2	3,0	3,15
A3	3,15	3,31
A4	3,31	3,48
A5	3,48	3,65
A6	3,65	3,83
A7	3,83	4,02
A8	4,02	4,22
A9	4,22	4,43
A10	4,43	4,65
A11	4,65	4,88
A12	4,88	5,12
A13	5,12	5,38
A14	5,38	5,65
A15	5,65	5,93

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A16	5,93	6,23
A17	6,23	6,54
A18	6,54	6,87
A19	6,87	7,21
A20	7,21	7,57
A21	7,57	7,95
A22	7,95	8,35
A23	8,35	8,77
A24	8,77	9,21