



EUROPEAN COMMISSION

DIRECTORATE-GENERAL FOR MOBILITY AND TRANSPORT

Directorate C – Land

C.1 – Road Transport

Directive 1999/62/EC on the charging of vehicles for the use of road infrastructures

Thresholds of CO₂ emission classes

Disclaimer

This informative note is intended to assist the competent authorities, toll chargers, toll service providers, road transport undertakings and other relevant stakeholders in the application of Directive 1999/62/EC (in the document, "the Directive"). It has no legal effect and is intended for use as documentation only.

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Legend

The table below is designed to present the thresholds for CO₂ emission classes per year (Y) in grams of CO₂ per tonne kilometre (g/tkm) for one (sub-)group (sg).

Y		
R-ET _Y		
ET _{Y,sg}		
class 2 th. -5%		
class 3 th. -8%		
class 4 th. rCO ₂ *50%		
class 5 ZEV		



Y 'reporting period of the year Y' as defined as defined in point 36 of Article 2(1) of the Directive



R-ET_Y Annual CO₂ emissions reduction factor, in accordance with point 5.1 of Annex I to Regulation (EU) 2019/1242, as laid down in the 'emission reduction trajectory' definition of the Directive (see ET_{Y,sg} below)



rCO_{2sg} 'reference CO₂ emissions of a vehicle group', as defined in point 38 of Article 2(1) of the Directive



ET_{Y,sg} 'emission reduction trajectory' of a vehicle group, as defined in point 37 of Article 2(1) of the Directive



Cl. 2 and 3 thresholds Thresholds of CO₂ emission classes 2 and 3, as defined in Article 7ga(2)(b) and (c) of the Directive



LEV 'low-emission heavy-duty vehicle' as defined in point 30 of Article 2(1) of the Directive



ZEV 'zero-emission vehicle' as defined in point 29 of Article 2(1)(a) of the Directive

Further explanatory notes to this legend are provided in the Annex I at the end of this document

Sub-group 4-UD

Y		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
R-ET _Y		100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	82.0%	79.0%	76.0%	73.0%	70.0%
ET _{Y,sg}		307.23	299.549	291.869	284.188	276.507	268.826	261.146	251.929	242.712	233.495	224.278	215.061
class2 th.	-5%	291.869	284.572	277.275	269.978	262.682	255.385	248.088	239.332	230.576	221.8201	213.064	204.308
class 3 th.	-8%	282.652	275.585	268.519	261.453	254.386	247.3202	240.254	231.774	223.295	214.815	206.336	197.856
class 4 th.	rCO ₂ *50%	153.615	153.615	153.615	153.615	153.615	153.615	153.615	153.615	153.615	153.615	153.615	153.615
class 5	ZEV	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Sub-group 4-RD

Y		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
R-ET _Y		100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	82.0%	79.0%	76.0%	73.0%	70.0%
ET _{Y,sg}		197.16	192.231	187.302	182.373	177.444	172.515	167.586	161.671	155.756	149.842	143.927	138.012
class2 th.	-5%	187.302	182.619	177.937	173.254	168.572	163.889	159.207	153.588	147.969	142.3495	136.7305	131.111
class 3 th.	-8%	181.387	176.853	172.318	167.783	163.248	158.714	154.179	148.738	143.296	137.854	132.413	126.971
class 4 th.	rCO ₂ *50%	98.580	98.580	98.580	98.580	98.580	98.580	98.580	98.580	98.580	98.580	98.580	98.580
class 5	ZEV	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Sub-group 4-LH

Y		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
R-ET _Y		100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	82.0%	79.0%	76.0%	73.0%	70.0%
ET _{Y,sg}		105.96	103.311	100.662	98.013	95.364	92.715	90.066	86.887	83.708	80.5296	77.351	74.172
class2 th.	-5%	100.662	98.145	95.629	93.112	90.596	88.079	85.563	82.543	79.523	76.503	73.483	70.463
class 3 th.	-8%	97.483	95.046	92.609	90.172	87.735	85.298	82.861	79.936	77.012	74.087	71.163	68.238
class 4 th.	rCO ₂ *50%	52.980	52.980	52.980	52.980	52.980	52.980	52.980	52.980	52.980	52.980	52.980	52.980
class 5	ZEV	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Sub-group 5-RD

Y		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
R-ET _Y		100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	82.0%	79.0%	76.0%	73.0%	70.0%
ET _{Y,sg}		84.00	81.900	79.800	77.700	75.600	73.500	71.400	68.880	66.360	63.840	61.320	58.800
class2 th.	-5%	79.800	77.805	75.810	73.815	71.820	69.825	67.830	65.436	63.042	60.648	58.254	55.860
class 3 th.	-8%	77.280	75.348	73.416	71.484	69.552	67.620	65.688	63.3696	61.051	58.733	56.414	54.096
class 4 th.	rCO ₂ *50%	42.000	42.000	42.000	42.000	42.000	42.000	42.000	42.000	42.000	42.000	42.000	42.000
class 5	ZEV	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Sub-group 5-LH

Y		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
R-ET _Y		100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	82.0%	79.0%	76.0%	73.0%	70.0%
ET _{Y,sg}		56.60	55.185	53.770	52.355	50.940	49.525	48.110	46.412	44.714	43.016	41.318	39.620
class2 th.	-5%	53.770	52.426	51.082	49.737	48.393	47.049	45.705	44.091	42.478	40.865	39.252	37.639
class 3 th.	-8%	52.072	50.7702	49.468	48.167	46.865	45.563	44.261	42.699	41.137	39.575	38.013	36.4504
class 4 th.	rCO ₂ *50%	28.300	28.300	28.300	28.300	28.300	28.300	28.300	28.300	28.300	28.300	28.300	28.300
class 5	ZEV	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Sub-group 9-RD

Y		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
R-ET _Y		100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	82.0%	79.0%	76.0%	73.0%	70.0%
ET _{Y,sg}		110.98	108.206	105.431	102.657	99.882	97.108	94.333	91.004	87.674	84.345	81.015	77.686
class2 th.	-5%	105.431	102.795	100.159	97.524	94.888	92.252	89.616	86.453	83.2905	80.128	76.965	73.802
class 3 th.	-8%	102.102	99.549	96.997	94.444	91.891	89.339	86.786	83.723	80.6603	77.597	74.534	71.471
class 4 th.	rCO ₂ *50%	55.490	55.490	55.490	55.490	55.490	55.490	55.490	55.490	55.490	55.490	55.490	55.490
class 5	ZEV	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Sub-group 9-LH

Y		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
R-ET _Y		100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	82.0%	79.0%	76.0%	73.0%	70.0%
ET _{Y,sg}		65.16	63.531	61.902	60.273	58.644	57.015	55.386	53.431	51.476	49.522	47.567	45.612
class2 th.	-5%	61.902	60.354	58.807	57.259	55.712	54.164	52.617	50.7596	48.903	47.046	45.188	43.331
class 3 th.	-8%	59.947	58.449	56.9498	55.451	53.952	52.454	50.955	49.157	47.358	45.5599	43.761	41.963
class 4 th.	rCO ₂ *50%	32.580	32.580	32.580	32.580	32.580	32.580	32.580	32.580	32.580	32.580	32.580	32.580
class 5	ZEV	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Sub-group 10-RD

Y		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
R-ET _Y		100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	82.0%	79.0%	76.0%	73.0%	70.0%
ET _{Y,sg}		83.26	81.179	79.097	77.016	74.934	72.853	70.771	68.273	65.775	63.278	60.7798	58.282
class2 th.	-5%	79.097	77.1196	75.142	73.165	71.187	69.2099	67.232	64.8595	62.487	60.114	57.741	55.368
class 3 th.	-8%	76.599	74.684	72.769	70.854	68.939	67.024	65.109	62.811	60.513	58.215	55.917	53.619
class 4 th.	rCO ₂ *50%	41.630	41.630	41.630	41.630	41.630	41.630	41.630	41.630	41.630	41.630	41.630	41.630
class 5	ZEV	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Sub-group 10-LH

Y		2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
R-ET _Y		100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	82.0%	79.0%	76.0%	73.0%	70.0%
ET _{Y,sg}		58.26	56.804	55.347	53.891	52.434	50.978	49.521	47.773	46.025	44.278	42.5298	40.782
class2 th.	-5%	55.347	53.963	52.5797	51.196	49.812	48.429	47.045	45.385	43.724	42.064	40.403	38.743
class 3 th.	-8%	53.599	52.259	50.919	49.579	48.239	46.899	45.559	43.951	42.343	40.735	39.127	37.519
class 4 th.	rCO ₂ *50%	29.130	29.130	29.130	29.130	29.130	29.130	29.130	29.130	29.130	29.130	29.130	29.130
class 5	ZEV	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)

Annex I

This annex provides additional explanation of the items listed in the legend at the beginning of the document

Y 'Reporting period of the year Y' means the period from 1 July of the year Y to 30 June of the year Y+1

R-ET_Y for the reporting periods of the years Y from 2019 to 2025 is defined as: $R-ET_Y = (1 - rf_{2025}) + rf_{2025} \times (2025 - Y) / 6$
for the reporting periods of the years Y from 2026 to 2030 is defined as: $R-ET_Y = (1 - rf_{2030}) + (rf_{2030} - rf_{2025}) \times (2030 - Y) / 5$
for the reporting periods of the years Y > 2030 is defined as: $R-ET_Y = 0,70$
 rf_{2025} and rf_{2030} are the CO₂ emissions reduction targets (in %) applicable for the reporting periods of the years 2025 and 2030, respectively. Article 1 of Regulation (EU) 2019/1242 sets rf_{2025} and rf_{2030} at 15% and 30%, respectively.

rCO_{2sg} The reference CO₂ emissions (rCO_{2sg}) for vehicle groups 4, 5, 9, 10 are laid down in Annex II to Commission Implementing Decision (EU) 2021/781

Sub-group (sg)	rCO _{2sg} in g/tkm
4-UD	307.23
4-RD	197.16
4-LH	105.96
5-RD	84
5-LH	56.6
9-RD	110.98
9-LH	65.16
10-RD	83.26
10-LH	58.26

ET_{Y,sg} is defined in point 37 of Article 2(1) of the Directive as: $ET_{Y,sg} = R-ET_Y \times rCO_{2sg}$

CI 2 and 3 thresholds Thresholds of CO₂ emission classes 2 and 3 are respectively 5% and 8% below ET_{Y,sg}, as laid down in Article 7ga(2)(b) and (c) of the Directive

- LEV** 'low-emission heavy-duty vehicle' is defined in point 30 of Article 2(1) of the Directive as: 'low-emission heavy-duty vehicle' means: (a) a low emission heavy-duty vehicle as defined in Article 3, point 12 of Regulation (EU) 2019/1242; or (b) a heavy-duty vehicle not covered by Article 2(1), points (a) to(d), of that Regulation, with CO2 emissions lower than 50 % of the reference CO2 emissions of its vehicle group, other than a zero-emission vehicle'. Article 3, point 12 of Regulation (EU) 2019/1242 defines 'low-emission heavy-duty vehicle' as: 'low-emission heavy-duty vehicle' means a heavy-duty vehicle, other than a zero-emission heavy-duty vehicle, with specific CO2 emissions of less than half of the reference CO2 emissions of all vehicles in the vehicle sub-group to which the heavy-duty vehicle belongs, as determined in accordance with point 2.3.3 of Annex I'
- ZEV** 'zero-emission vehicle' is defined in point 29 of Article 2(1)(a) of the Directive as: 'a zero-emission heavy-duty vehicle as defined in Article 3, point 11, of Regulation (EU) 2019/1242 of the European Parliament and of the Council'. Article 3, point 11 of Regulation (EU) 2019/1242 defines 'zero-emission heavy-duty vehicle' as: 'zero-emission heavy-duty vehicle' means a heavy-duty vehicle without an internal combustion engine, or with an internal combustion engine that emits less than 1 g CO2/kWh as determined in accordance with Regulation (EC) No 595/2009 and its implementing measures, or which emits less than 1 g CO2/km as determined in accordance with Regulation (EC) No 715/2007 of the European Parliament and of the Council (16) and its implementing measures'

Annex II

This annex provides the version history of this document and a list of all changes

Version 1.0	08/11/2022	First publication of the document
Version 1.1	01/02/2023	Changes to integrate comments from the German national authorities on: - The definition of thresholds for classes 2 and 3; - The rounding of decimal values. (ref. move.ddg2.c.1(2023)1096555)