



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.

Version 2 An annex at the end of the document provides the version history
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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 vehicle sub-group (sg).

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,Y}																						
ET _{Y,sg}																						
class 2																						
class 3																						
class 4																						
class 5																						



Y

'Reporting period of the year Y', as defined in Article 2(1)(36) of the Directive, means the period from 1 July of the year Y to 30 June of the year Y+1



RET_{sg,Y}

Target factor, in accordance with point 5.1.1 of Annex I to Regulation (EU) 2019/1242, as referred to in the 'emission reduction trajectory' definition of the Directive

$$Y \leq 2030 \quad RET_{sg,Y} = (1 - rf_{sg,uY}) + (rf_{sg,uY} - rf_{sg,lY}) \times (uY - Y) / (uY - lY)$$

rf_{sg} are the CO₂ emissions reduction targets set in point 4.3 of Annex I of Regulation (EU) 2019/1242

lY, uY are the values for the lower year and upper year in the set {2019, 2025, 2030, 2035, 2040}

$$Y > 2030 \quad RET_{sg,Y} = 0.7$$



ET_{sg,Y}

'emission reduction trajectory' of a vehicle group, as defined in Article 2(1)(37) of the Directive

$$ET_{sg,Y} = RET_{sg,Y} \times rCO_{2sg}$$



Cl. 2 and 3

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



LEV

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



ZEV

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

Reference CO₂ emission values

Annex of Commission Implementing Regulation (EU) 2025/2335, as amended by Commission Implementing Regulation (EU) 2025/2545

Reference CO₂ emissions referred to in Article 11(1), second subparagraph, of Regulation (EU) 2019/1242 (i=0, non-adjusted) and adjusted reference CO₂ emissions (i=1, adjusted) for certain vehicle subgroups, referred to in Article 11(2), point (a), and in point 2 of Annex II to that Regulation, in g/t·km:

Sub-group (sg)	Reference CO ₂ emissions in respective reporting periods	
	Reporting periods of the year 2019 and onwards	Reporting periods of the year 2025 and onwards
	<i>i</i> = 0	<i>i</i> = 1
	(non-adjusted)	(adjusted)
	<i>rCO</i> _{2sg,0} in g/tkm	<i>rCO</i> _{2sg,1} in g/tkm
4-UD	307.23	299.57
4-RD	197.16	195.77
4-LH	105.96	103.32
5-RD	84.00	83.53
5-LH	56.60	55.02
9-RD	110.98	110.56
9-LH	65.16	63.47
10-RD	83.26	82.75
10-LH	58.26	56.84

Note:

The application of the adjusted values under the Directive is the reporting period commencing after the date of application of the act based on Article 11(2) of Regulation (EU) 2019/1242. See definition of 'emission reduction trajectory' in Article 2(1)(37) of the Directive.

Sub-group 4-UD

Reference CO2 emissions (non-adjusted) 307.23

Reference CO2 emissions (adjusted) 299.57

This table shows the thresholds that are currently applicable.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,Y}	100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	79.4%	73.8%	68.2%	62.6%	57.0%	70.0%									
ET _{sg,Y}	307.230	299.549	291.869	284.188	276.507	268.826	261.146	237.859	221.083	204.307	187.531	170.755	209.699									
class 2	291.869	284.572	277.275	269.978	262.682	255.385	248.088	225.966	210.029	194.091	178.154	162.217	199.214									
class 3	282.652	275.585	268.519	261.453	254.386	247.320	240.254	218.830	203.396	187.962	172.528	157.095	192.923									
class 4	153.615							149.785														
class 5	(0)																					

This table shows the thresholds considering Commission proposal COM/2025/589, which will only be applicable once the proposal is adopted.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,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%	70.0%									
ET _{sg,y}	307.230	299.549	291.869	284.188	276.507	268.826	261.146	245.647	236.660	227.673	218.686	209.699	209.699									
class 2	291.869	284.572	277.275	269.978	262.682	255.385	248.088	233.365	224.827	216.290	207.752	199.214	199.214									
class 3	282.652	275.585	268.519	261.453	254.386	247.320	240.254	225.996	217.727	209.459	201.191	192.923	192.923									
class 4	153.615							149.785														
class 5	(0)																					

Sub-group 4-RD

Reference CO2 emissions (non-adjusted) 197.16

Reference CO2 emissions (adjusted) 195.77

This table shows the thresholds that are currently applicable.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,y}	100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	79.4%	73.8%	68.2%	62.6%	57.0%	70.0%									
ET _{sg,y}	197.160	192.231	187.302	182.373	177.444	172.515	167.586	155.441	144.478	133.515	122.552	111.589	137.039									
class 2	187.302	182.619	177.937	173.254	168.572	163.889	159.207	147.669	137.254	126.839	116.424	106.009	130.187									
class 3	181.387	176.853	172.318	167.783	163.248	158.714	154.179	143.006	132.920	122.834	112.748	102.662	126.076									
class 4	98.580							97.885														
class 5	(0)																					

This table shows the thresholds considering Commission proposal COM/2025/589, which will only be applicable once the proposal is adopted.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,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%	70.0%									
ET _{sg,y}	197.160	192.231	187.302	182.373	177.444	172.515	167.586	160.531	154.658	148.785	142.912	137.039	137.039									
class 2	187.302	182.619	177.937	173.254	168.572	163.889	159.207	152.505	146.925	141.346	135.766	130.187	130.187									
class 3	181.387	176.853	172.318	167.783	163.248	158.714	154.179	147.689	142.286	136.882	131.479	126.076	126.076									
class 4	98.580							97.885														
class 5	(0)																					

Sub-group 4-LH

Reference CO2 emissions (non-adjusted) 105.96

Reference CO2 emissions (adjusted) 103.32

This table shows the thresholds that are currently applicable.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
RET _{sg,y}	100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	79.4%	73.8%	68.2%	62.6%	57.0%	70.0%										
ET _{sg,y}	105.960	103.311	100.662	98.013	95.364	92.715	90.066	82.036	76.250	70.464	64.678	58.892	72.324										
class 2	100.662	98.145	95.629	93.112	90.596	88.079	85.563	77.934	72.438	66.941	61.444	55.948	68.708										
class 3	97.483	95.046	92.609	90.172	87.735	85.298	82.861	75.473	70.150	64.827	59.504	54.181	66.538										
class 4	52.980							51.660															
class 5	(0)																						

This table shows the thresholds considering Commission proposal COM/2025/589, which will only be applicable once the proposal is adopted.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
RET _{sg,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%	70.0%										
ET _{sg,y}	105.960	103.311	100.662	98.013	95.364	92.715	90.066	84.722	81.623	78.523	75.424	72.324	72.324										
class 2	100.662	98.145	95.629	93.112	90.596	88.079	85.563	80.486	77.542	74.597	71.652	68.708	68.708										
class 3	97.483	95.046	92.609	90.172	87.735	85.298	82.861	77.945	75.093	72.241	69.390	66.538	66.538										
class 4	52.980							51.660															
class 5	(0)																						

Sub-group 5-RD

Reference CO2 emissions (non-adjusted) 84.00

Reference CO2 emissions (adjusted) 83.53

This table shows the thresholds that are currently applicable.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,y}	100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	79.4%	73.8%	68.2%	62.6%	57.0%	70.0%									
ET _{sg,y}	84.000	81.900	79.800	77.700	75.600	73.500	71.400	66.323	61.645	56.967	52.290	47.612	58.471									
class 2	79.800	77.805	75.810	73.815	71.820	69.825	67.830	63.007	58.563	54.119	49.675	45.231	55.547									
class 3	77.280	75.348	73.416	71.484	69.552	67.620	65.688	61.017	56.714	52.410	48.107	43.803	53.793									
class 4	42.000							41.765														
class 5	(0)																					

This table shows the thresholds considering Commission proposal COM/2025/589, which will only be applicable once the proposal is adopted.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,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%	70.0%									
ET _{sg,y}	84.000	81.900	79.800	77.700	75.600	73.500	71.400	68.495	65.989	63.483	60.977	58.471	58.471									
class 2	79.800	77.805	75.810	73.815	71.820	69.825	67.830	65.070	62.689	60.309	57.928	55.547	55.547									
class 3	77.280	75.348	73.416	71.484	69.552	67.620	65.688	63.015	60.710	58.404	56.099	53.793	53.793									
class 4	42.000							41.765														
class 5	(0)																					

Sub-group 5-LH

Reference CO2 emissions (non-adjusted) 56.60

Reference CO2 emissions (adjusted) 55.02

This table shows the thresholds that are currently applicable.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,Y}	100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	79.4%	73.8%	68.2%	62.6%	57.0%	70.0%									
ET _{sg,Y}	56.600	55.185	53.770	52.355	50.940	49.525	48.110	43.686	40.605	37.524	34.443	31.361	38.514									
class 2	53.770	52.426	51.082	49.737	48.393	47.049	45.705	41.502	38.575	35.647	32.720	29.793	36.588									
class 3	52.072	50.770	49.468	48.167	46.865	45.563	44.261	40.191	37.356	34.522	31.687	28.852	35.433									
class 4	28.300							27.510														
class 5	(0)																					

This table shows the thresholds considering Commission proposal COM/2025/589, which will only be applicable once the proposal is adopted.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,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%	70.0%									
ET _{sg,y}	56.600	55.185	53.770	52.355	50.940	49.525	48.110	45.116	43.466	41.815	40.165	38.514	38.514									
class 2	53.770	52.426	51.082	49.737	48.393	47.049	45.705	42.861	41.293	39.724	38.156	36.588	36.588									
class 3	52.072	50.770	49.468	48.167	46.865	45.563	44.261	41.507	39.989	38.470	36.951	35.433	35.433									
class 4	28.300							27.510														
class 5	(0)																					

Sub-group 9-RD

Reference CO2 emissions (non-adjusted) 110.98

Reference CO2 emissions (adjusted) 110.56

This table shows the thresholds that are currently applicable.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,y}	100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	79.4%	73.8%	68.2%	62.6%	57.0%	70.0%									
ET _{sg,y}	110.980	108.206	105.431	102.657	99.882	97.108	94.333	87.785	81.593	75.402	69.211	63.019	77.392									
class 2	105.431	102.795	100.159	97.524	94.888	92.252	89.616	83.395	77.514	71.632	65.750	59.868	73.522									
class 3	102.102	99.549	96.997	94.444	91.891	89.339	86.786	80.762	75.066	69.370	63.674	57.978	71.201									
class 4	55.490							55.280														
class 5	(0)																					

This table shows the thresholds considering Commission proposal COM/2025/589, which will only be applicable once the proposal is adopted.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,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%	70.0%									
ET _{sg,y}	110.980	108.206	105.431	102.657	99.882	97.108	94.333	90.659	87.342	84.026	80.709	77.392	77.392									
class 2	105.431	102.795	100.159	97.524	94.888	92.252	89.616	86.126	82.975	79.824	76.673	73.522	73.522									
class 3	102.102	99.549	96.997	94.444	91.891	89.339	86.786	83.406	80.355	77.304	74.252	71.201	71.201									
class 4	55.490							55.280														
class 5	(0)																					

Sub-group 9-LH

Reference CO2 emissions (non-adjusted) 65.16

Reference CO2 emissions (adjusted) 63.47

This table shows the thresholds that are currently applicable.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
RET _{sg,Y}	100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	79.4%	73.8%	68.2%	62.6%	57.0%	70.0%										
ET _{sg,Y}	65.160	63.531	61.902	60.273	58.644	57.015	55.386	50.395	46.841	43.287	39.732	36.178	44.429										
class 2	61.902	60.354	58.807	57.259	55.712	54.164	52.617	47.875	44.499	41.122	37.746	34.369	42.208										
class 3	59.947	58.449	56.950	55.451	53.952	52.454	50.955	46.364	43.094	39.824	36.554	33.284	40.875										
class 4	32.580							31.735															
class 5	(0)																						

This table shows the thresholds considering Commission proposal COM/2025/589, which will only be applicable once the proposal is adopted.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
RET _{sg,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%	70.0%										
ET _{sg,y}	65.160	63.531	61.902	60.273	58.644	57.015	55.386	52.045	50.141	48.237	46.333	44.429	44.429										
class 2	61.902	60.354	58.807	57.259	55.712	54.164	52.617	49.443	47.634	45.825	44.016	42.208	42.208										
class 3	59.947	58.449	56.950	55.451	53.952	52.454	50.955	47.882	46.130	44.378	42.626	40.875	40.875										
class 4	32.580							31.735															
class 5	(0)																						

Sub-group 10-RD

Reference CO2 emissions (non-adjusted) 83.26

Reference CO2 emissions (adjusted) 82.75

This table shows the thresholds that are currently applicable.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
RET _{sg,Y}	100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	79.4%	73.8%	68.2%	62.6%	57.0%	70.0%										
ET _{sg,Y}	83.260	81.179	79.097	77.016	74.934	72.853	70.771	65.704	61.070	56.436	51.802	47.168	57.925										
class 2	79.097	77.120	75.142	73.165	71.187	69.210	67.232	62.418	58.016	53.614	49.211	44.809	55.029										
class 3	76.599	74.684	72.769	70.854	68.939	67.024	65.109	60.447	56.184	51.921	47.657	43.394	53.291										
class 4	41.630							41.375															
class 5	(0)																						

This table shows the thresholds considering Commission proposal COM/2025/589, which will only be applicable once the proposal is adopted.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
RET _{sg,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%	70.0%										
ET _{sg,y}	83.260	81.179	79.097	77.016	74.934	72.853	70.771	67.855	65.373	62.890	60.408	57.925	57.925										
class 2	79.097	77.120	75.142	73.165	71.187	69.210	67.232	64.462	62.104	59.746	57.387	55.029	55.029										
class 3	76.599	74.684	72.769	70.854	68.939	67.024	65.109	62.427	60.143	57.859	55.575	53.291	53.291										
class 4	41.630							41.375															
class 5	(0)																						

Sub-group 10-LH

Reference CO2 emissions (non-adjusted) 58.26

Reference CO2 emissions (adjusted) 56.84

This table shows the thresholds that are currently applicable.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,Y}	100.0%	97.5%	95.0%	92.5%	90.0%	87.5%	85.0%	79.4%	73.8%	68.2%	62.6%	57.0%	70.0%									
ET _{sg,Y}	58.260	56.804	55.347	53.891	52.434	50.978	49.521	45.131	41.948	38.765	35.582	32.399	39.788									
class 2	55.347	53.963	52.580	51.196	49.812	48.429	47.045	42.874	39.851	36.827	33.803	30.779	37.799									
class 3	53.599	52.259	50.919	49.579	48.239	46.899	45.559	41.520	38.592	35.664	32.735	29.807	36.605									
class 4	29.130							28.420														
class 5	(0)																					

This table shows the thresholds considering Commission proposal COM/2025/589, which will only be applicable once the proposal is adopted.

Y	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
RET _{sg,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%	70.0%									
ET _{sg,y}	58.260	56.804	55.347	53.891	52.434	50.978	49.521	46.609	44.904	43.198	41.493	39.788	39.788									
class 2	55.347	53.963	52.580	51.196	49.812	48.429	47.045	44.278	42.658	41.038	39.419	37.799	37.799									
class 3	53.599	52.259	50.919	49.579	48.239	46.899	45.559	42.880	41.311	39.743	38.174	36.605	36.605									
class 4	29.130							28.420														
class 5	(0)																					

Annex

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)
Version 2	16/12/2025	The document is updated to take into account: - the changes introduced by Regulation (EU) 2024/1610, amending Regulation (EU) 2019/1242, notably the 43% target set for 2030; - the adjustment of the reference CO₂ emissions set in Commission Implementing Regulation (EU) 2025/2545. The document also shows the effect of the legal corrections proposed in Commission proposal COM/2025/589, once/if it is adopted.