Annex 7: Determination of the Dutch energy efficiency rating system - Annex 4 of the Dutch decree no. 2000/0317/NL

Annex 4 to the Decree on energy consumption labelling for passenger cars

Annex 4

1. Determining the energy efficiency rating

The energy efficiency rating of a new model of passenger car is determined on the basis of the relative energy economy of the car according to the following table:

Energy efficiency rating	Relative energy economy %
A	relative energy economy < -20%
B	-20 < = relative energy economy < -10%
C	-10 <= relative energy economy < 0%
D	0 <= relative energy economy < 10%
E	10 <= relative energy economy < 20%
F	20 <= relative energy economy < 30%
G	30 <= relative energy economy

When determining the energy efficiency rating, the relative energy economy is expressed as a percentage, and not rounded off. If different variants or versions are grouped together under a single model, the energy efficiency rating to be indicated for the model must be based on the least energy-efficient variant or version within that group. The relative energy economy is to be calculated using the following six steps:

1. Calculation of the average length using the regression formula for the length:

$$\text{length}_{ave.} = C_{1,\,length} + C_{2,\,length} \text{ x width} + C_{3,\,length} \text{ x } [\text{width}]^2$$

2. Calculation of the corrected length x width:

$$(\text{length x width})_{cor.} = [0.7 \text{ x length} + 0.3 \text{ length}_{ave.}] \text{ x width}$$

3A. Verification of the area of application of the regression formula for the average CO_2 emission for petrol-powered cars

If: $(\text{length x width})_{cor.} < -0.5 \text{ x } C_{2,\,petrol} / C_{3,\,petrol}$
Then: $(\text{length x width})_{cor.} = -0.5 \text{ x } C_{2,\,petrol} / C_{3,\,petrol}$

3B. Verification of the area of application of the regression formula for the average CO_2 emission for diesel-powered cars

If: $(\text{length x width})_{cor.} < -0.5 \text{ x } C_{2,\,diesel} / C_{3,\,diesel}$
Then: $(\text{length x width})_{cor.} = -0.5 \text{ x } C_{2,\,diesel} / C_{3,\,diesel}$

4A. Calculation of the average CO_2 emission by means of the regression formula for petrol-powered cars

$$CO_2 \text{ emission }_{ave.} = C_{1, petrol} + C_{2, petrol} \times [(\text{length} \times \text{width})_{cor.}] + C_{3, petrol} \times [(\text{length} \times \text{width})_{cor.}]^2$$

4B. Calculation of the average CO_2 emission by means of the regression formula for diesel-powered cars

$$CO_2 \text{ emission }_{ave.} = C_{1, diesel} + C_{2, diesel} \times [(\text{length} \times \text{width})_{cor.}] + C_{3, diesel} \times [(\text{length} \times \text{width})_{cor.}]^2$$

5A. Calculation of reference CO_2 emission for labelling of petrol-powered cars:

$$CO_2 \text{ emission }_{.ref} = 0.75 \times CO_2 \text{ emission }_{ave.} + 0.25 \times CO_2 \text{ emission }_{total\ ave.\ petrol}$$

5B. Calculation of reference CO_2 emission for labelling of diesel-powered cars:

$$CO_2 \text{ emission }_{.ref} = 0.75 \times CO_2 \text{ emission }_{ave.} + 0.25 \times CO_2 \text{ emission }_{total\ ave.\ diesel}$$

6. Calculation of relative energy economy

$$\text{Relative energy economy} = [CO_2 \text{ emission} - CO_2 \text{ emission }_{.ref}] / CO_2 \text{ emission }_{.ref} \times 100\%$$

Cars which have been converted after manufacture to an LPG or natural gas system have undergone the test as per Directive 80/1268/EEC for petrol-powered cars and for this reason are regarded as petrol-powered cars.

The <u>length</u> to be used when applying the formulae is the minimum length for the variant of the car, as set out in the EC type-approval formula appended as Annex I to Directive 70/156/EEC. The length is measured according to Directive 92/21/EEC.

The <u>width</u> to be used when applying the formulae is the minimum width for the variant of the car, as set out in the EC type-approval formula appended as Annex I to Directive 70/156/EEC. The width is measured according to Directive 92/21/EEC.

The figures for the length and width are to be expressed in metres accurate to three decimal places. The figure for the specific CO_2 emission must be expressed in gram/km, rounded to the nearest whole number.

II. Determining constants and values for the purposes of the calculation

The constants $C_{1, length}$, $C_{2, length}$, $C_{3, length}$, $C_{1, petrol}$, $C_{2, petrol}$, $C_{3, petrol}$, $C_{1, diesel}$, $C_{2, diesel}$, $C_{2, diesel}$ are calculated using the least squares method. The number of cars of each version which has been sold is taken into account for this purpose.

The values for $CO_2 \text{ emission }_{total\ ave.\ petrol}$ and $CO_2 \text{ emission }_{total\ ave.\ diesel}$ relate to the average CO_2 emission of new passenger cars powered by petrol and diesel respectively.

The constants and values are calculated on the basis of the data for CO_2 emission, length, width and number of new passenger cars sold during the period of 12 months between July and end June prior to the calendar year to which the constants and values apply.

The constants and values worked out for this 12-month period must be corrected for the expected increase or decrease in the average CO_2 emission during the period of 1.5 years between the 12 months for which the constants and values are determined and the calendar year to which the constants and values apply. This correction is carried out by applying a percentage increase or reduction to the constants and values calculated for the period from July to end June of the previous year, for petrol and diesel separately. These percentages which are rounded to one-tenth of a percentage point, are partly determined on the basis of the average increase or decrease in the average CO_2 emission for the third calendar year as compared with the fourth calendar year and for the second calendar year as compared with the third calendar year prior to the calendar year to which the constants apply.