

24 June 2014

---

## Agreement

### **Concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions\***

(Revision 2, including the amendments which entered into force on 16 October 1995)

---

#### **Addendum 114 – Regulation No. 115**

#### **Revision 1 - Amendment 1**

Supplement 6 to the original version of the Regulation – Date of entry into force: 10 June 2014

#### **Uniform provisions concerning the approval of:**

- I. Specific LPG (liquefied petroleum gases) retrofit systems to be installed in motor vehicles for the use of LPG in their propulsion system**
- II. Specific CNG (compressed natural gas) retrofit systems to be installed in motor vehicles for the use of CNG in their propulsion system**



**UNITED NATIONS**

---

\* Former title of the Agreement: Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958.

*Annex 6A,*

*Paragraph 2.,* amend to read:

"2. Calculation of the LPG energy ratio

The fuel consumption value shall be calculated from the emissions of hydrocarbons, carbon monoxide, and carbon dioxide determined from the measurement results assuming that only LPG is burned during the test.

The LPG ratio of the energy consumed in the cycle is then determined as follows:

$$G_{LPG} = M_{LPG} * 10000 / (FC_{norm} * dist * d)$$

Where:

$G_{LPG}$ : the LPG energy ratio (%);

$M_{LPG}$ : the LPG mass consumed during the cycle (kg);

$FC_{norm}$ : the fuel consumption (l/100 km) calculated in accordance with paragraph 1.4.3. (b) of Annex 6 to Regulation No. 101. If applicable, the correction factor cf in the equation used to determine  $FC_{norm}$  shall be calculated using the H/C ratio of the gaseous fuel;

dist: distance travelled during the cycle (km);

d: density  $d=0.538\text{kg/liter.}$ "

*Annex 6B,*

*Paragraph 2.,* amend to read:

"2. Calculation of the CNG energy ratio

The fuel consumption value shall be calculated from the emissions of hydrocarbons, carbon monoxide, and carbon dioxide determined from the measurement results assuming that only CNG is burned during the test.

The CNG ratio of the energy consumed in the cycle is then determined as follows:

$$G_{CNG} = M_{CNG} * cf * 10000 / (FC_{norm} * dist * d)$$

Where:

$G_{CNG}$ : the CNG energy ratio (%);

$M_{CNG}$ : the CNG mass consumed during the cycle (kg);

$FC_{norm}$ : the fuel consumption ( $\text{m}^3/100\text{ km}$ ) calculated in accordance with paragraph 1.4.3. (c) of Annex 6 to Regulation No. 101;

dist: distance travelled during the cycle (km);

d: density  $d=0.654\text{kg/m}^3$ ;

cf: correction factor, assuming the following values:

cf = 1 in case of G20 reference fuel;

cf = 0.78 in case of G25 reference fuel."

---