

## Proposal for an amendment to UN Regulation No. 115 (LPG and CNG retrofit systems)

Changes are made on bold characters and/or via strikethroughs.

### I. Proposal

*Annex 1A-Addendum and Annex 1B-Addendum*, amend to read:

#### "Annex 1A – Addendum

### Addendum to the communication concerning a type of LPG retrofit equipment pursuant to Regulation No. 115

(Approval No. .... Extension No. ....)

1. Vehicles on which the retrofit equipment has been tested:

<i>Vehicle No.</i>	<i>1</i>	<i>2</i>	<i>n</i>
Make:			
Type:			
Category:			
<b>Engine type:</b>			
Emission <del>limits</del> level:			
Power:			
Pollution control system type:			

~~1.1.2.~~ Test results:

~~Ratio  $CO_{2CNG} / CO_{2petrol}$ :~~ .....

~~Ratio  $Power_{CNG} / Power_{petrol (or diesel)}$ :~~ .....

<i>Vehicle No.</i>	<i>Petrol (or diesel)<sup>‡</sup></i>					<i>LPG</i>				
	<i>Power (kW)</i>	<i>CO<sup>‡</sup> (g/km)</i>	<i>HC<sup>‡</sup> (g/km)</i>	<i>NO<sub>x</sub><sup>‡</sup> (g/km)</i>	<i>CO<sub>2</sub><sup>‡1</sup> (g/km)</i>	<i>Power (kW)</i>	<i>CO<sup>‡</sup> (g/km)</i>	<i>HC<sup>‡</sup> (g/km)</i>	<i>NO<sub>x</sub> (g/km)</i>	<i>CO<sub>2</sub><sup>‡1</sup> (g/km)</i>
1										
2										
n										

<sup>‡</sup> ~~Strike out what does not apply.~~

<sup>‡1</sup> Applicable to vehicles of category M<sub>1</sub> and N<sub>1</sub> only.

<sup>‡</sup> ~~Applicable only to parent vehicles~~

2. **Ratios:**
  - 2.1. **Ratio CO<sub>2</sub>: CO<sub>2</sub> LPG/CO<sub>2</sub> petrol:** .....
  - 2.2. **Ratio Power: LPG/Power petrol:** .....
3. **List of vehicles type(s) for which the retrofit equipment type is qualified:**

	<i>Vehicle type</i>	<i>Engine type</i>	<i>Power (kW)</i>
<b>1</b>			
<b>2</b>			
<b>3</b>			
<b>n</b>			

## Annex 1B – Addendum

### Addendum to the communication concerning a type of CNG retrofit equipment pursuant to Regulation No. 115

(Approval No. .... Extension No. ....)

1. Vehicles on which the retrofit equipment has been tested:

<i>Vehicle No.</i>	<i>1</i>	<i>2</i>	<i>n</i>
Make:			
Type:			
Category:			
<b>Engine type:</b>			
Emission <del>limits</del> level:			
Power:			
Pollution control system type:			

#### 1.1.2. Test results:

~~Ratio CO<sub>2</sub>CNG / CO<sub>2</sub>petrol<sup>2</sup>:~~ .....

~~Ratio PowerCNG / Powerpetrol (or diesel):~~ .....

<i>Vehicle No.</i>	<i>Petrol (or diesel)<sup>1</sup></i>					<i>CNG</i>				
	<i>Power (kW)</i>	<i>CO<sup>2</sup> (g/km)</i>	<i>HC<sup>3</sup> (g/km)</i>	<i>NO<sub>x</sub><sup>3</sup> (g/km)</i>	<i>CO<sub>2</sub><sup>21</sup> (g/km)</i>	<i>Power (kW)</i>	<i>CO<sup>2</sup> (g/km)</i>	<i>HC<sup>3</sup> (g/km)</i>	<i>NO<sub>x</sub> (g/km)</i>	<i>CO<sub>2</sub><sup>21</sup> (g/km)</i>
1										
2										
n										

<sup>1</sup> ~~Strike out what does not apply.~~

<sup>2 1</sup> Applicable to vehicles of category M<sub>1</sub> and N<sub>1</sub> only.

<sup>3</sup> ~~Applicable only to parent vehicles~~

2. **Ratios:**
  - 2.1. **Ratio CO<sub>2</sub>: CO<sub>2</sub> CNG/CO<sub>2</sub> petrol:** .....
  - 2.2. **Ratio Power: CNG/Power petrol:** .....
3. **List of vehicles type(s) for which the retrofit equipment type is qualified:**

	<i>Vehicle type</i>	<i>Engine type</i>	<i>Power (kW)</i>
<b>1</b>			
<b>2</b>			
<b>3</b>			
<b>n</b>			

..

## II. Justification

1. The proposed amendment is aimed at simplifying the communication model of approval.
2. As regards vehicle types for which the retrofit system is qualified (i.e. other than parent vehicles), the current model requires the communication of a calculated CO<sub>2</sub> factor as well as of the specific CO<sub>2</sub> emissions in gas mode.
3. Since the specific CO<sub>2</sub> emissions in gas mode are calculated applying the CO<sub>2</sub> factor to the “original” emissions in petrol mode, the communication of only the CO<sub>2</sub> factor is sufficient to establish the CO<sub>2</sub> emissions in gas mode of any vehicle type, when required.
4. For this reason, it is proposed to eliminate the communication of the CO<sub>2</sub> emission and power figures of each specific vehicle, leaving this only for the tested (parent) ones.
5. This would relieve the retrofit system manufacturer of knowing in advance the original CO<sub>2</sub> emissions of all qualified vehicles or of asking for an extension of approval when (frequently) a new model or variant of the same vehicle (i.e. with a different CO<sub>2</sub> figure) is put into the market.
6. For instance, in Contracting Parties where CO<sub>2</sub> emissions in gas mode of a vehicle retrofitted in accordance with UN Regulation No. 115 are required to be published, at the moment of “conversion” registration the administration can easily calculate the CO<sub>2</sub> emissions in gas mode multiplying the CO<sub>2</sub> factor for that specific vehicle (published in UN Regulations No. 115 communication model) by the original petrol CO<sub>2</sub> emissions (see COC).

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