

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: | | | |
| Engine type: | | | |
| Emission limits level: | | | |
| Power: | | | |
| Pollution control system type: | | | |

~~1.1.2.~~ Test results:

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

~~Ratio~~ $Power_{CNG} / Power_{petrol (or diesel)}^3$:

| <i>Vehicle No.</i> | <i>Petrol (or diesel)¹</i> | | | | | <i>LPG</i> | | | | |
|--------------------|---------------------------------------|------------------------------|------------------------------|--|---|-------------------|------------------------------|------------------------------|------------------------------|---|
| | <i>Power (kW)</i> | <i>CO² (g/km)</i> | <i>HC² (g/km)</i> | <i>NO_x² (g/km)</i> | <i>CO₂²¹ (g/km)</i> | <i>Power (kW)</i> | <i>CO² (g/km)</i> | <i>HC² (g/km)</i> | <i>NO_x (g/km)</i> | <i>CO₂²¹ (g/km)</i> |
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| n | | | | | | | | | | |

¹ Strike out what does not apply.

²¹ Applicable to vehicles of category M₁ and N₁ only.

³ Applicable only to parent vehicles

2. **Ratios:**
- 2.1. **Ratio CO₂: CO₂ LPG/CO₂ 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> |
|----------|---------------------|--------------------|-------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| n | | | |

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: | | | |
| Engine type: | | | |
| Emission limits level: | | | |
| Power: | | | |
| Pollution control system type: | | | |

- 1.1.2. Test results:

Ratio CO₂CNG / CO₂petrol¹:

Ratio Power_{CNG} / Power_{petrol (or diesel)}²:

| <i>Vehicle No.</i> | <i>Petrol (or diesel)¹</i> | | | | | <i>CNG</i> | | | | |
|--------------------|---------------------------------------|------------------------------|------------------------------|--|---|-------------------|------------------------------|------------------------------|------------------------------|---|
| | <i>Power (kW)</i> | <i>CO² (g/km)</i> | <i>HC² (g/km)</i> | <i>NO_x² (g/km)</i> | <i>CO₂²¹ (g/km)</i> | <i>Power (kW)</i> | <i>CO² (g/km)</i> | <i>HC² (g/km)</i> | <i>NO_x (g/km)</i> | <i>CO₂²¹ (g/km)</i> |
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| n | | | | | | | | | | |

¹ ~~Strike out what does not apply.~~

²¹ Applicable to vehicles of category M₁ and N₁ only.

³ ~~Applicable only to parent vehicles~~

2. **Ratios:**
 - 2.1. **Ratio CO₂: CO₂ CNG/CO₂ 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> |
|----------|---------------------|--------------------|-------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| n | | | |

"

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 CO₂ factor as well as of the specific CO₂ emissions in gas mode.
3. Since the specific CO₂ emissions in gas mode are calculated applying the CO₂ factor to the “original” emissions in petrol mode, the communication of only the CO₂ factor is sufficient to establish the CO₂ emissions in gas mode of any vehicle type, when required.
4. For this reason, it is proposed to eliminate the communication of the CO₂ 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 CO₂ 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 CO₂ figure) is put into the market.
6. For instance, in Contracting Parties where CO₂ 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 CO₂ emissions in gas mode multiplying the CO₂ factor for that specific vehicle (published in UN Regulations No. 115 communication model) by the original petrol CO₂ emissions (see COC).
