

6.2. Calculation Procedure for /U NG/biomethane- and FC- vehicles:

6.2.1. "Nominal" Range:

The calculation of a nominal driving range ($R_{nominal}$) in km considering tank capacity according manufacturer specification (C_{Tank}) in kg over the average energy consumption values in kg/100km from laboratory measurements in default- ($FC_{WLTC_cold_def}$), warm- ($FC_{WLTC_warm_def}$) and BAB-cycle, conducted in GNT_WLTC+~~...~~ described in the following formula:

$$R_{nominal} = \frac{C_{Tank}}{1/3 \times (EC_{WLTC_def} + EC_{WLTC_warm} + BAB)} \times 100 \text{ [km]}$$

6.2.2. "Real-World" Range:

The calculation of a real world driving range ($R_{real\ world}$) in km considering tank capacity according manufacturer specification (C_{Tank}) in kg over the average energy consumption values in kg/100km from PEMS-measurement in default- ($FC_{PEMS,def}$), eco- ($FC_{PEMS,eco}$) and heavy-condition ($FC_{PEMS,heavy}$), conducted in **GNT_PEMS+~~...~~** s described in the following formula:

$$R_{real\ world} = \frac{C_{Tank}}{1/3 \times (FC_{PEMS+cold} + FC_{PEMS,eco} + FC_{PEMS,heavy})} \times 100 \text{ [km]}$$

6.2.3. "Worst-Case" Real-World Driving Range:

The calculation of the worst case driving range ($R_{worst\ case}$) is described, taking the lowest driving range from the calculated ranges based on the energy consumption (in kg/100km) from the laboratory tests BAB (FC_{BAB} , GNT_WLTC+~~...~~) WLTC in cold ambient conditions ($FC_{WLTC,CAT}$, GNT_WLTC+~~...~~) and the gas consumption in IP (IP_{IP}) (IP_{IP})^Δ up to $U_{EdzWD} = z_{d} \times W_{PE}$

$$4_{\text{»»}} = \frac{C_{Tank}}{FC_{BAB}} \times 100 \text{ [km]}$$

$$4_{\text{¼,}} = \frac{C_{Tank}}{FC_{WLTC,CAT}} \times 100 \text{ [km]}$$

$$4_{\text{¾,}} = \frac{C_{Tank}}{FC_{IP}} \times 100 \text{ [km]}$$

$$4_{\text{e}} = \min (4_{\text{»»}}, 4_{\text{¼,}}, 4_{\text{¾,}})$$

6.3. Calculation Procedure for LPG- vehicles:

6.3.1. "Nominal" Range:

The calculation of a nominal driving range ($R_{nominal}$) in km considering tank capacity according manufacturer specification (V_{Tank}) in litres over the average energy consumption values in l/100km from laboratory measurement in WLTC default- ($FC_{WLTC_cold_def}$), warm- ($FC_{WLTC_warm_def}$) and BAB-cycle, conducted in **GNT_WLTC+_Test_Procedure**, is described in the following formula:

$$R_{nominal} = \frac{V_{Tank}}{\frac{1}{4} \times (EC_{WLTC_def} + EC_{WLTC_warm} + BAB + EC_{WLTC_def_rep})} \times 100 \text{ [km]}$$

6.3.2. "Real-World" Range:

The calculation of a real world driving range ($R_{real\ world}$) in km considering tank capacity according manufacturer specification (V_{Tank}) in liters over the average fuel consumption values in l/100km from PEMS-measurement in default- ($FC_{PEMS,def}$), eco- ($FC_{PEMS,eco}$) and heavy-condition ($FC_{PEMS,heavy}$), conducted in **GNT_PEMS+_WG**, is described in the following formula:

$$R_{real\ world} = \frac{V_{Tank}}{\frac{1}{4} \times (FC_{PEMS+cold} + FC_{PEMS+cold_rep} + FC_{PEMS,eco} + FC_{PEMS,heavy})} \times 100 \text{ [km]}$$

6.3.3. "Worst-Case" Real-World Driving Range:

The calculation of the worst case driving range ($R_{worst\ case}$) is described, taking the lowest driving range from the calculated ranges based on the fuel consumption (in l/100km) from the laboratory tests BAB (FC_{BAB} , **GNT_WLTC+_WG**), WLTC in cold ambient conditions ($FC_{WLTC,CAT}$, **GNT_WLTC+_CAT**) and the fuel consumption in l/100km from PEMS measurement in heavy-conditions ($FC_{PEMS,heavy}$, **GNT_PEMS+_WG**):

$$R_{BAB} = \frac{V_{Tank}}{FC_{BAB}} \times 100 \text{ [km]}$$

$$R_{WLTC,CAT} = \frac{V_{Tank}}{FC_{WLTC,CAT}} \times 100 \text{ [km]}$$

$$R_{PEMS,heavy} = \frac{V_{Tank}}{FC_{PEMS,heavy}} \times 100 \text{ [km]}$$

$$R_{worst\ case} = \min (R_{BAB} , R_{WLTC,CAT} , R_{PEMS,heavy}) \text{ [km]}$$