In Discussion

Interpolation family criteria

Subgroup EV meeting

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Interpolation family criteria
(N)OVC-HEV (Japanese proposal/Pune)

(a) Type of internal combustion engine: fuel type, combustion type, engine displacement, full-load characteristics, engine technology, and charging system shall be identical, but also other engine subsystems or characteristics that have a non-negligible influence on CO2 under WLTP conditions;
(b) Operation strategy of all CO2-influencing components within the powertrain;
(c) Transmission type (e.g. manual, automatic, CVT);
(d) n/v ratios (engine rotational speed divided by vehicle speed). This requirement shall be considered fulfilled if, for all transmission ratios concerned, the difference with respect to the transmission ratios of the most commonly installed transmission type is within 8 per cent;
(e) Number of powered axles;

In addition above, the following specifications/characteristics shall be identical for NOVC-HEV and OVC-HEV.
(f) Hybrid system configuration
(g) Battery specifications (type, voltage, output)
(h) Rcdc value (OVC-HEV)
(i) Motor specification (type, voltage, output)
(j) Inverter specifications

Note1) criteria for CO2 range:
Vehicle_L&H tests : whichever smaller 20g/km or 20% of Vehicle_H Vehicle_L&M&H tests : within 30g/km

Note2) n/v ratios : unique description is necessary for CVT/HEV

Interpolation family criteria

OVC-HEV and NOVC-HEV (new proposal)

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a) Type of internal combustion engine: fuel type, combustion type, engine displacement, full-load characteristics, engine technology, and charging system shall be identical, but also other engine subsystems or characteristics that have a non-negligible influence on CO2 under WLTP conditions;
b) Operation strategy of all CO2-influencing components within the powertrain;
c) Transmission type (e.g. manual, automatic, CVT);
d) n/v ratios → description is necessary (*Note2) n/v ratios : unique description is necessary for CVT/HEV)*
e) Number of permanently powered axles;

In addition above, the following specifications/characteristics shall be identical for NOVC-HEV and OVC-HEV.

f) Type and amount of *permanently used* electric machines (UN R85): construction type (asynchronous/ synchronous / ...), kind of cooling (air, coolant, ...);
g) Type of traction battery (as described in UN R100/2 type, capacity, nominal voltage, nominal power, kind of cooling (water/air));
i) Type of electric converter between electric machine and traction battery, between traction battery and low voltage power supply and between recharge-plug-in and traction battery

Criteria for CO2 range:

Vehicle_L&H tests : whichever smaller 20g/km or 20% of Vehicle_H
Vehicle_L&M&H tests: within 30g/km

Concerning (h) Rcdc value (OVC-HEV): ACEA is working on a solution to exclude this point from the family criteria list

Interpolation family criteria

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PEV(Japanese proposal/Pune)

Family criteria for PEV

(a) motor type (e.g. UN R85) Other software or characteristics that have a non-negligible influence on energy consumption and electric range shall be identical.

(b) battery type (e.g. Energy density for battery pack [Wh/kg]) Other software or characteristics that have a non-negligible influence on energy consumption and electric range shall be identical.

(c) transmission type (e.g. manual, automatic, CVT);

(d) n/v ratios (motor rotational speed divided by vehicle speed). This requirement shall be considered fulfilled if, for all transmission ratios concerned, the difference with respect to the transmission ratios of the most commonly installed transmission type is within 8 per cent;

(e) number of powered axles;

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PEV(ACEA new proposal)

Unless vehicles are identical with respect to the following electric powertrain/electric machine/transmission characteristics, they shall not be considered to be part of the same vehicle family for PEVs:

a. Type and amount of permanently used electric machines (UN R85): construction type (asynchronous/ synchronous / ...), kind of cooling (air, coolant, ...);
b. Type of traction battery (as described in UN R100/2 type, capacity, nominal voltage, nominal power, kind of cooling (water/air));
c. Transmission type (e.g. manual, automatic, CVT);
d. Number of permanently powered axles;
e. Type of electric converter between electric machine and traction battery, between traction battery and low voltage power supply and between recharge-plug-in and traction battery
f. Operation strategy of all components influencing the electric energy consumption within the powertrain; gear shift strategy shall not be considered in this point with respect to point g.
g. n/v ratio