Annex 8 - Appendix 6

Shorten test procedure for PEV

1. General

This appendix describes the Shorten Test Procedure (STP) which determines All-electric range (AER).

This is accomplished by measuring: (1) the DC energy consumption for each cycle phase, and (2) the battery's useable DC energy content (UBE).

1. Test procedure

The STP consists of 2 sequences of WLTC phases (S1,S2) and constant-speed driving cycles (CSCM,CSCE).

**CSC**M

**L11**

**M11**

**H11**

**Ex11**

**L12**

**M12**

**CSCE**

**L21**

**M21**

**H21**

**Ex21**

**L22**

**M22**

S2

S1

dM

dE

S1,S2: Low + Middle + High + Extra High + Low + Middle of WLTC

At the option of the Contracting Party, the Extra High phase may be excluded

CSCM,CSCE: Constant speed cycle

Constant speed = [100] km/h with Extra High phase

= [80] km/h without Extra High phase

Distance of CSCM,CSCE ( dM, dE ) :

dM  = AER – dS1 – dS2 – dE

dE = 5km

Manufacture shall declare the dM prior to the test. Actual distance of dE driven during test must be

3km < dE < 15km

3.Calculations

3.1Phase Scaling Factors

The phase scaling factors determine the contribution of each phase’s energy consumption value to the total energy consumption for a given drive cycle type.

Phase Scaling Factor : K[phase]\_i

The subscript “i” is the phase run order within a given phase type. ex.: KLow11, KHigh22

KLow i, KMiddle i are calculated according to the equations in 3.2 of this annex.

KHigh i = KEx. high i = 0.5

3.2 Consecutive Cycle Procedure equivalent Low & Middle Phase Factors







Where Edc[phase]\_i is phase discharge energy measured in DC W-h.

UBE is the useable battery energy defined as total DC discharge energy



3.3　All-electric range, AER



Where ECdc[Phase]\_i is DC energy consumption for the phase and D[Phase]\_i is the driven distance for the phase.

The total DC energy consumption for each drive cycle is calculated by summing the product of the phase scaling factor and the respective DC discharge energy consumption for all phases of a given cycle type.



The Low discharge energy consumption, using the CCP-equivalent scaling factors is then



The Middle discharge energy consumption, using the CCP-equivalent scaling factors is then



The High phase discharge energy consumption, using the generic scaling factors is then



The Extra-high phase discharge energy consumption, using the generic scaling factors is then



The full WLTC discharge energy consumption, using the generic scaling factors is then





The Low range is then



The Middle range is then



The High range is then



The Extra-high range is then



All Electric range is then

