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Electronic submission to: <http://www.arb.ca.gov/lispub/comm/bclist.php>

Dear California Air Resources Board (CARB):

American Honda Motor Company, Inc. (AHM) appreciates the opportunity to provide comments on CARB's Notice of Public Availability of Modified Text regarding Plug-In Hybrid Electric Vehicle Test Procedure Amendments published on August 28, 2009.

#### ATTACHMENT 1

### § 1962.1. Zero-Emission Vehicle Standards for 2009 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

#### Section (c)(3)(A) Calculation of Zero-Emission VMT Allowance

<i>Range</i>	<i>Zero-emission VMT Allowance</i>
$EAER_u < 10 \text{ miles}$	0.0
$EAER_u \geq 10 \text{ miles}$ and $R_{cda} = 10 \text{ miles to } 40 \text{ miles}$	$EAER_u \times (1 - UFR_{R_{cda}})/11.028$
$R_{cda} > 40 \text{ miles}$	$EAER_{u40}/29.63$

The urban equivalent all-electric range ( $EAER_u$ ) and ~~urban charge depletion~~ ~~depleting actual range actual~~ ( $R_{cda}$ ) shall be determined in accordance with sections ~~F.11 and F.3.2.1~~ F.5.5, respectively, of the "California Exhaust Emission Standards and Test Procedures for 2009 and Subsequent Model Zero-Emission Vehicles, ~~and 2001 and Subsequent Model~~ Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.1(h). The utility factor (UF) based on the charge ~~depletion~~ ~~depleting actual range actual~~ ( $R_{cda}$ ) shall be determined according to SAE J2841 ~~Prop D# 2009~~ March 2009.

#### Honda comment:

As American Honda pointed out in the January 19, 2009 written comment to CARB prior to the January 23, 2009 Board Hearing, the "**Rcda >40 miles**" in the left column of the Zero-Emission

VMT Allowance Table should be replaced with “**EAER<sub>u</sub> > 40**” miles and delete “**R<sub>cda</sub>=10 miles to 40 miles**” to maintain consistency as shown below:

<i>Range</i>	<i>Zero-emission VMT Allowance</i>
$EAER_u < 10 \text{ miles}$	0.0
$EAER_u \geq 10 \text{ miles}$ and <del><math>R_{cda} = 10 \text{ miles to } 40 \text{ miles}</math></del>	$EAER_u \times (1 - UFR_{R_{cda}})/11.028$
<del><math>EAER_u</math></del> <del><math>R_{cda}</math></del> $> 40 \text{ miles}$	$EAER_{u40}/29.63$

## ATTACHMENT 2

1. Page 4 of the Notice of Public Availability of Modified Text states.....

Section D.2.11 – ARB is requesting information to be reported for certification to clarify how the vehicle and battery break-in periods were determined by the manufacturer. Previously it was only implied that manufacturers supply battery break-in information, because this information was contained in section E.2 and F.2 of the test procedures. Now it is required for certification. **This information will be information for understanding in-use battery durability.**

Section E.2 states...

**2. Vehicle and Battery Break-In Period.** A manufacturer shall use good engineering judgment in determining the proper stabilized emissions mileage test point and report same according to the requirements of section D.2.11 above.

Section F.2 states...

**2. Vehicle and Battery Break-In Period.**  
A manufacturer shall use good engineering judgment in determining the proper stabilized emissions mileage test point and report same according to the requirements of section D.2.11 above.

Honda comment:

Both Sections E.2 and F.2 clearly state that the Vehicle and Battery Break-In Period means the “**proper stabilized emissions mileage test point and...**”; **how does this relate to the phrase “This information will be information for understanding in-use battery durability” as described on Page 4 of the Notice of Public Availability of Modified Text?**

2. Page 8 of the Notice of Public Availability of Modified Text states.....

21. Section F.5.4.3 – (change in testing requirement) This statement clarifies how emissions will be calculated **if charge capable HEVs have no charge depleting hot cycles.**

Revised Section 5.4.3 in Attachment 2 states....

**5.4.3 Urban Charge Depleting Range Test.**

(i) At the end of the cold soak period, the vehicle shall be placed or pushed onto a dynamometer and operated through the Continuous Urban Test Schedule until the SOC Net Change Tolerances (specified in section F.10 of these test procedures) that indicate charge sustaining operation are met for two consecutive UDDSs, or a single UDDS if data is provided showing that charge sustaining operation can consistently be maintained in one UDDS. **If there are no charge depleting hot start cycles, then use the next hot start cycle** (after the cold start cycle) in the test sequence for the purpose of determining hot start emissions. For this case (no charge depleting hot start cycle), the manufacturer may **optionally add one additional hot start cycle.**

**Honda comment:**

In the case there is no charge depleting hot start cycle, **Honda proposes using the Hot Start UDDS emissions results from the Charge-Sustaining Test** in the Charge Depleting Range Test sequence for the purpose of determining hot start emissions.

This proposal ensures level playing field and more repeatable hot start emissions; since a 10-to-30 minute hot soak time between every two UDDSs is permitted in the regulation for test facilities that can not perform the Continuous Urban Test Schedule, the hot start cycle emissions level could vary depending on the duration of hot soak time preceding the hot start cycle. On the other hand, in the Charge-Sustaining test sequence, the hot start cycle is preceded only with a consistent 10-minute hot soak time (not a 10 to 30 minute range), and hence ensures level playing field and emissions repeatability.

***Honda proposed regulatory text revision –***

**5.4.3 Urban Charge Depleting Range Test.**

(i) At the end of the cold soak period, the vehicle shall be placed or pushed, onto a dynamometer and operated through the Continuous Urban Test Schedule until the SOC Net Change Tolerances (specified in section F.10 of these test procedures) that indicate charge sustaining operation are met for two consecutive UDDSs, or a single UDDS if data is provided showing that charge sustaining operation can consistently be maintained in one UDDS. If there are no charge depleting hot start cycles, then use the **next** hot start cycle ~~(after the cold start cycle)~~ in **the Urban Charge-Sustaining Emission** test sequence for the purpose of determining hot start emissions. ~~For this case (no charge depleting hot start cycle), the manufacturer may optionally add one additional hot start cycle.~~

3. If the proposal in Section F.5.4.3 described above is accepted by CARB, then Sections **F.5.5.1 and F.5.6.1** for Gaseous and Particulate emissions, respectively, shall also be revised to reflect this change.

Please feel free to contact me at 734-222-5965 if you have any questions regarding the comments. Thank you very much.

Best regards,

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