

Japan Proposal for ANNEX2
of Battery Durability GTR
@EVE55

26. April.2022

Data acquisition issues in ANNEX 2

Quoted and revised from EVE-54-02e_rev_Japan proposal for ANNEX2

9. Last charged by more than 50 percent SOC swing on [Date]

It is difficult to record the date. In general, **CAN typically has no date information**. If a vehicle doesn't have a cell phone connection, a vehicle can't get it. IG-ON time and/or distance from Last charged can be calculated.

10. Maximum, minimum, average ambient temperature the vehicle was exposed to **during its life time**.

Maximum, minimum and average ambient temperature during IG-ON can be calculated, but "life time" is difficult. **If IG-OFF is included in this calculation, it is technically impossible or very difficult.**

The Japan proposal which can cope with above issues will be presented at EVE in April 2022.

J1979 Information (OBD standard of SAE) Revisions

1. In California, ACC2 regulations (including ZEV) after 26 MY are under discussion and CCR 1969* of ACC2 refers to J1979 -3, which is under discussion. (*California Code of Regulations, Section 1969)
2. The proposal and discussion of J 1979 -3 at SAE started from current conventional specification for ICE toward a "completely new revision" which will also cover ZEV or All electrified vehicles.
3. Any new input or read requirements added to EVE-GTR should also be included in J1979 -3.

Proposed DIDs



9. Last charged by more than 50 percent SOC swing on [Date]

JSAE will propose DID indicated below to SAE.

Date is not available in most case, and use-case of this data is to confirm when last charged by more than 50 percent SOC swing happened.

#	Name	Byte	MIN/MAX	LSB	DISP	DID
	Elapsed time since Last charged by more than 50 percent SOC swing	2	0...65535 day	1 day	xxxxxx day	0xXX / 0xF4XX

In the case of On-Board SOCE more than [xx] days old from the time of ISC implementation day, it is considered that the latest degradation is not reflected, and the pre-conditioning can be conducted before ISC.

GTR22 needs to be amended at any opportunity.

10. Maximum, minimum, average ambient temperature the vehicle was exposed to during its lifetime

JSAE will propose DID indicated below to SAE

Module are only capable to capture AAT **while PSA ON.**

AAT: Ambient Air Temperature

PSA: Propulsion system Active

Pos	Name	Byte	MIN/MAX	LSB	DISP	DID
A	Maximum ambient temperature (Lifetime)	1	-40...215 deg C	1 deg C with -40 deg C offset	xxxxxx deg C	0xXX / 0xF8XX
B	Minimum ambient temperature (Lifetime)	1	-40...215 deg C	1 deg C with -40 deg C offset	xxxxxx deg C	0xXX / 0xF8XX
C	Average ambient temperature (Lifetime)	1	-40...215 deg C	1 deg C with -40 deg C offset	xxxxxx deg C	0xXX / 0xF8XX

Measuring the temperatures during IG OFF is difficult, data is recorded only when the Propulsion system is active during lifetime. 3

current

Annex 2

Values to be read from vehicles:

1. On board SOCE value
2. On board SOCR value
3. Odometer (in km)
4. Date of manufacture of the vehicle
5. Total distance (sum of the distance driven and the virtual distance) [km], if applicable
6. Percentage of virtual distance [in per cent], if applicable
7. Worst case certified energy consumption of PART B family [Wh/km], if applicable
8. Total discharge energy in V2X [Wh], if applicable
9. Last charged by more than 50 per cent SOC swing on [Date]
10. Maximum, minimum, average ambient temperature* the vehicle was exposed to during its lifetime

Note: * ambient temperature to be read as daily averages

Propose to amend

Annex 2

Values to be read from vehicles:

1. On board SOCE value
2. On board SOCR value
3. Odometer (in km)
4. Date of manufacture of the vehicle
5. Total distance (sum of the distance driven and the virtual distance) [km], if applicable
6. Percentage of virtual distance [in per cent], if applicable
7. Worst case certified energy consumption of PART B family [Wh/km], if applicable
8. Total discharge energy in V2X [Wh], if applicable
9. **Elapsed time since** last charged by more than 50 per cent SOC swing on [**Day**]
10. Maximum, minimum, average ambient temperature* the vehicle was exposed to during its lifetime

Note: * ambient temperature to be read as daily averages

APPENDIX

§ 1962.5 Data Standardization Requirements for 2026 and Subsequent Model Year Light-Duty Zero Emission Vehicles

(a) Applicability. These procedures shall apply to California certified 2026 and subsequent model year zero-emission light-duty vehicles sold in California pursuant to Health and Safety Code section 43102.

(b) Definitions: The following definitions are applicable to this section:

“Grid energy”, for the purposes of tracking grid energy parameters in subsection (c)(4)(D), means all energy into the battery while connected to grid power (e.g., plugged-in). Grid energy shall not include electrical losses between the grid and the battery (e.g., from on-board charger inefficiency) or energy directly used by the vehicle without first going into the battery (e.g., electricity utilized directly from before or after the on-board charger to power on-vehicle devices for cabin conditioning, charging control, etc.).

(c) Standardization Requirements

(1) Reference Documents: The following SAE International and International Organization for Standardization (ISO) documents are incorporated by reference into this regulation:

(A) SAE J1962: SAE J1962 “Diagnostic Connector”, September 2015 (SAE J1962).

(B) SAE J1978 “OBD II Scan Tool - Equivalent to ISO/DIS 15031-4:December 14, 2001”, April 2002 (SAE J1978).

(C) SAE J1979 “E/E Diagnostic Test Modes”, August 2014 (SAE J1979).

(i) SAE J1979-DA, “Digital Annex of E/E Diagnostic Test Modes”, April 2021.

(ii) SAE J1979-2, “E/E Diagnostic Test Modes: OBD on UDS”, April 2021 (SAE J1979-2)

(iii) [TBD e.g., J1979-3? NOTE: CARB is aware of and tracking work by industry to develop a ZEV specific version of J1979 and/or to include a second protocol option such as Internet Protocol (Ethernet) and is still evaluating whether such options will be developed in time or included as possible options.]

Refer to SAE-J1979

(4) Required Functions: The following standardized functions shall be implemented in accordance with the specifications in SAE J1979-2 to allow for access to the required information by a scan tool meeting SAE J1978 specifications:

(A) Data Stream: The following signals shall be made available on demand through the standardized data link connector in accordance with SAE J1979-2 specifications. The actual signal value shall always be used instead of a default or limp home value.

(i) For all vehicles:

- a. vehicle speed, absolute accelerator pedal position, time elapsed since start of trip, odometer reading, distance traveled since fault memory last cleared, and number of propulsion system active trips since fault memory last cleared
- b. high voltage battery pack: state of charge, state of health, distance since state of health last updated or reset, maximum cell voltage, minimum cell voltage, battery system voltage, cumulative battery system current for the last 1 second, cumulative battery system energy (i.e., power via voltage times current) consumption for the last 1 second
- c. actual rate of charge occurring (i.e., kilowatt rate of grid energy into vehicle from off-board source), maximum rate of charge vehicle can accept in its current state (e.g., given the current state of the vehicle, battery, ambient temperature, etc.)