

# Comments and/or Recommendations regarding to The Revision of GTR22

prepared by JAPAN

60th EVE IWG  
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# General Comments

- ✓ Japan is not able to contribute to provide the technical evidence for category2 MPR since our technical study and market experience is quite limited.
- Regarding “GTR22 proposed changes for vs2.docx” , Japan follows EVE IWG decision except the definition of V2X <below>

3.19. "V2X" means the use of the traction batteries to cover external power and energy demand, such as V2G (Vehicle-to-Grid) for grid stabilization by utilising traction batteries, V2H (Vehicle-to-Home) for utilizing traction batteries as residential storage for local optimisation or emergency power sources in times of power failure, and V2L (Vehicle-to-Load, only connected loads are supplied) for use in times of power failure and/or outdoor activity in normal times, or on-board power delivery when the vehicle is stationary for Category 2 vehicles.

# Japan Proposal: Revision of additional text and the verification process of on board V2X

## Revision of additional text

### Original;

or on-board power delivery when the vehicle is stationary for Category 2 vehicles.

### Proposal

or on-board power delivery **which is used for purposes(\*) other than vehicle traction** for Category 2 vehicles.

*\*note: Electric refrigerator truck , luxury small Electric bus , Electric cement mixer truck, Electric aerial ladder truck, etc...*



W/High-spec.A/C  
& refrigerators



Only stationary usage

Some equipment, such as electric cement mixer, will always use large amounts of power from batteries, therefore there is no reason to limit V2X addition when the vehicle is stationary.

## Verification process of on board V2X

**The accuracy of the amount of discharge energy\* for V2X purposes must be ensured.**

\*The amount of V2X energy used in the calculation of virtual mileages is calculated on-board, but the validation procedure for the on-board values is not described.

=>

1. Add requirement for verification of V2X power supply vs. on-board V2X to Part A (threshold: [5]%)
2. Provide an Exemption/Waiver for the verification of V2X for OEM/authority to reduce burden.

## <Consideration>

There is a loophole concern. It might be possible to select arbitrarily large on-board V2X value to increase the distance and to mitigate MPR. Therefore, **verification of the on-board V2X is necessary**, Since it is inefficient to check the entire number of vehicles, it is appropriate to consider **a waiver provision**.

Part A is based on the premise of WLTC driving, and it is not possible to verify the amount of V2X. Verification by the additional equipment with electric load is necessary.

## Proposal; Verification process of on board V2X

ISC Part B is conducted, and data shall be reported to the authorities every year. If the Part B family fails the MPR without virtual mileage but complies with the MPR with virtual mileage "V2X Accuracy Verification" should be conducted at next Part A timing.

6.4. Part B: Verification of Battery Durability ←

6.4.1. Frequency of verifications ←

Data shall be collected yearly by the authorities from a statistically adequate sample of vehicles within the same battery durability family. The decision on the number of the vehicles in the sample may be taken by the responsible authority based on risk assessment methodology, but in principle should not be less than 500. ←

6.3. Part A: Verification of SOCR/SOCE monitors ←

6.3.1. Frequency of verifications ←

The manufacturer shall complete the procedure for in-use verification for Part A with a frequency agreed with the authorities, until 5 or 8 years as defined in paragraph 5.2. after the last vehicle of each monitor family is sold and report the results of the verification to the authorities. The authorities may decide to proceed with their own verification of Part A, at a frequency and magnitude based on risk assessment, or request more information from the manufacturers. With the agreement of all Contracting Parties involved, the verification of Part A for vehicles in the same monitor family may be combined between different Contracting Parties. In such cases the relevant Contracting Parties shall be considered as a single authority for the purposes of this verification. ←

# Proposal ; Waiver conditions for V2X verification at Part A timing

1. Two data analyses are conducted in Part B to determine whether to verify the accuracy of on-board V2X.

Part B (2: SOCE, 4: Date of manufacture of the vehicle = years, **5: Total distance**)

Part B' (2: SOCE, 4: Date of manufacture of the vehicle = years, **3: Odometer** )

2. Decide whether to verify the accuracy of V2X or not in the next Part A, depending on **whether the result of Part B' "satisfies" or "does not satisfy" the MPR.**

Case 1) The ratio of **Part B' satisfying MPR is more than 90%** in the total number of annual samples.  
⇒ **No V2X verification test is required** because the MPR is satisfied without virtual distance by V2X.

Case 2) In the total annual sample size  
**Less than 90% of Part B' satisfies the MPR, and  
Part B satisfies the MPR more than 90%**

There is a risk that Part B results may be affected by the accuracy of on-board V2X.

⇒ **at the next Part A timing, the above Family vehicles will conduct additional V2X verification test.**

## 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 [Days]↵
10. Maximum, minimum, average battery pack temperature the battery experienced during its lifetime↵

# V2X Verification Loophole Concerns and Remedies

Multiple Part B families can exist in a Part A family

< Loophole >

- 1) Intentionally manipulate the on-board V2X algorithm only for the Part B family (B1).  
(For the purpose of relaxing the regulation value)
- 2) Part A and V2X verification test will be conducted with another Part B family (B2,3)

<Solutions>

V2X verification test shall be conducted in the vehicle group of the relevant Part B family basis(B1).  
The basic procedure of the V2X verification method will be proposed in the future.

