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Our ref LTA/VAC/V30.000.000/5
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The President
Motor Traders Association of Singapore
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The President
Automobile Importer & Exporter Association, Singapore
(Fax: 6746 1555)

The President
Singapore Vehicle Traders Association
(Fax: 6258 5811)

All Motor Vehicle Dealers / Importers

All Electronic Service Agents

Dear Sir / Madam

DETERMINATION OF CO₂ EMISSIONS AND FUEL/ELECTRIC ENERGY CONSUMPTION VALUES FOR PLUG-IN HYBRID ELECTRIC VEHICLES UNDER WLTP EUROPE AND WLTP JAPAN

1. We refer to our earlier circular (LTA/VAC/V30.000.000/4) dated 16 July 2020 announcing that from **1 August 2020**, the Land Transport Authority (LTA) would accept the CO₂ emissions and fuel/electric energy consumption test results of vehicles obtained using the Worldwide harmonised Light vehicles Test Procedure (WLTP¹).
2. For the purposes of the Vehicular Emissions Scheme (VES), the Fuel Economy Labelling Scheme (FELS) and the upcoming Commercial Vehicle Emissions Scheme (CVES), the determination of the CO₂ emissions and fuel/electric energy consumption values for a Plug-in Hybrid Electric Vehicle (PHEV) will be determined in accordance with the relevant directives and regulations in Europe and Japan.

¹ WLTP Europe (EU) 2017/1151 & WLTP Japan (TRIAS 08-002-02)

Determination of CO₂ emission values

3. The methodology for calculating the CO₂ emission values for a PHEV under WLTP Europe / WLTP Japan for VES, FELS or CVES is as follows:

Equivalent CO₂ emission of a PHEV = (Weighted electric energy consumption of the electric power train X an Emission Factor² of 0.4) + (Weighted CO₂ emission of the internal combustion engine)

WLTP Europe

4. For a PHEV tested under the WLTP Europe (i.e. EU Regulation 2017/1151), the following values will be used to determine its CO₂ emissions and fuel/electric energy consumption:

- **CO₂ emissions:** Weighted, Combined CO₂ emissions
- **Fuel consumption:** Weighted, Combined Fuel consumption
- **Electric energy consumption:** Combined, Final Value EC_{AC, weighted}

WLTP Japan

5. Unlike WLTP Europe, WLTP Japan (i.e. TRIAS 08-002-02) does not require weighted values to determine the vehicle's CO₂ emissions and fuel/electric energy consumption. Instead, for a PHEV tested under the WLTP Japan, the **final values (WLTC Mode) for the 'Charge Sustaining' test³** will be used to determine its CO₂ emissions and fuel/electric energy consumption. The values will have to be converted to *l/100km* for fuel consumption and *Wh/km* for electric energy consumption respectively.

6. Please inform your members of the above. Should you have any enquiry or require any assistance on the matter, you may contact Mr Han Hang Kwang on DID: 6553 5263 or Mr Garlice Kwek on DID: 6553 5164.

7. Thank you.

Yours sincerely



Tan Zhi Chiang
Deputy Director, Vehicle Approval & Control
Vehicle Services Group

² The Emission Factor is fixed at 0.4g CO₂/Wh of electricity till 31 December 2020

³ These values are the official values relied on during type-approval in Japan and are recognised by Japan's Ministry of Land, Infrastructure, Transport and Tourism.