Commission Implementing Decision (EU) 2018/1876 of 29 November 2018 on the approval of the technology used in 12 Volt efficient alternators for use in conventional combustion engine powered light commercial vehicles as an innovative technology for reducing CO2 emissions from light commercial vehicles pursuant to Regulation (EU) No 510/2011 of the European Parliament and of the Council (Text with EEA relevance)

COMMISSION IMPLEMENTING DECISION (EU) 2018/1876

of 29 November 2018

on the approval of the technology used in 12 Volt efficient alternators for use in conventional combustion engine powered light commercial vehicles as an innovative technology for reducing CO_2 emissions from light commercial vehicles pursuant to Regulation (EU) No 510/2011 of the European Parliament and of the Council

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 510/2011 of the European Parliament and of the Council of 11 May 2011 setting emission performance standards for new light commercial vehicles as part of the Union's integrated approach to reduce CO_2 emissions from light-duty vehicles[(1)], and in particular Article 12(4) thereof,

Whereas:

(1) On 22 December 2017, the supplier Mitsubishi Electric Corporation (MELCO), represented in the Union by MELCO Electric Automotive Europe B.V., submitted an application for the approval of the MELCO GXi alternator for N_1 vehicles as an eco-innovation. The application has been assessed in accordance with Article 12 of Regulation (EU) No 510/2011 and Commission Implementing Regulation (EU) No 427/2014[(2)].

(2) The information provided in the application demonstrates that the conditions and the criteria referred to in Article 12 of Regulation (EU) No 510/2011 and in Articles 2 and 4 of Implementing Regulation (EU) No 427/2014 have been met. As a consequence, the MELCO GXi alternator applied to N_1 vehicles should be approved as an eco-innovation.

(3) By Implementing Decisions 2013/341/EU[(3)], 2014/465/EU[(4)], (EU) 2015/158[(5)], (EU) 2015/295[(6)], (EU) 2015/2280[(7)] and (EU) 2016/588[(8)], the Commission has approved six applications concerning technologies that contribute to improving the efficiency of alternators for vehicles of category M_1. Based on the experience gained from the assessment of those applications as well as the information contained in the MELCO Electric Automotive Europe B.V. application giving rise to this Decision, it has been satisfactorily and conclusively demonstrated that the MELCO GXi alternator for vehicles of category N_1, it being a 12 Volt (12 V) alternator with a minimum efficiency

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ranging from 73,4 % to 74,2 %, depending on the powertrain, meets the eligibility criteria referred to in Article 12 of Regulation (EU) No 510/2011 and in Implementing Regulation (EU) No 427/2014, and that it provides a reduction in CO_2 emissions of at least 1 g CO_2/km compared to a baseline alternator with an efficiency of 67 %.

(4) It is therefore appropriate to provide manufacturers with the possibility to apply to an approval authority within the meaning of Directive 2007/46/EC of the European Parliament and of the Council[9] for the certification of the CO_2 savings from vehicles fitted with 12 V efficient alternators that meet those conditions. In order to ensure that only CO_2 savings for vehicles equipped with alternators that are compliant with those conditions are certified, manufacturers should be required to provide to the type approval authority a verification report from an independent verification body confirming the compliance together with the application for certification.

(5) If the type approval authority finds that the 12 V alternator does not satisfy the conditions laid down in this Decision, the application for certification of the savings should be rejected.

(6) It is appropriate to approve the testing methodology for determining the CO_2 savings from 12 V efficient alternators.

(7) In order to determine the CO_2 savings of a vehicle equipped with a 12 V efficient alternator, it is necessary to establish the baseline technology against which the efficiency of the alternator should be assessed. On the basis of the experience gained, it is appropriate to consider a 12 V alternator with 67 % efficiency as an appropriate baseline technology.

(8) The CO_2 savings of a vehicle equipped with a 12 V efficient alternator may be partially demonstrated by means of the test referred to in Annex XII to Commission Regulation (EC) No 692/2008[10]. It is therefore necessary to ensure that this partial coverage is taken into account in the testing methodology for CO_2 savings from vehicles fitted with 12 V efficient alternators.

(9) In order to facilitate a wider deployment of 12 V efficient alternators in new vehicles, a manufacturer should also have the possibility to apply for the certification of the CO_2 savings for vehicles equipped with several 12 V efficient alternators by a single certification application. It is however appropriate to ensure that where this possibility is used a mechanism is applied that incentivises the deployment of only those alternators that offer the highest efficiency.

(10) For the purposes of determining the general eco-innovation code to be used in the relevant type approval documents in accordance with Annexes I, VIII and IX to Directive 2007/46/EC, the individual code to be used for the innovative technology should be specified,

HAS ADOPTED THIS DECISION:

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Article 1

Approval

The technology used in the MELCO GXi alternator for category N_1 vehicles is approved as an innovative technology within the meaning of Article 12 of Regulation (EU) No 510/2011.

Article 2

Application for certification of CO_2 savings

1 A manufacturer may apply for certification of the CO_2 savings from one or several 12 Volt (V) efficient alternators intended for use in N_1 vehicles, provided that each alternator is a component used solely to charge the vehicle battery and to power the electrical system of the vehicle when its combustion engine is running and complies with either of the following conditions:

a where the mass of the 12 V efficient alternator does not exceed the mass of the baseline alternator of 7 kg, the efficiency of the alternator, determined in accordance with the Annex, shall be at least:

(i) 73,8 % for petrol-fuelled vehicles;

(ii) 73,4 % for petrol turbo-fuelled vehicles;

(iii) 74,2 % for diesel-fuelled vehicles;

b where the mass of the 12 V efficient alternator exceeds the mass of the baseline alternator of 7 kg, the vehicle fitted with this alternator shall meet the minimum reduction threshold of 1 g CO_2/km specified in Article 9(1)(a) of Implementing Regulation (EU) No 427/2014; that reduction shall be determined taking into account the extra mass according to Formula 10 set out in the Annex to this Decision; the extra mass shall be verified and confirmed in the verification report to be submitted to the type approval authority together with the application for certifications.

2 An application for the certification of the savings from one or several efficient alternators shall be accompanied by an independent verification report certifying that the alternator or alternators comply with the conditions set out in paragraph 1, and verifying and confirming the mass of the alternator.

3 The type approval authority shall reject the application for certification if it finds that the alternator or alternators do not comply with the conditions set out in paragraph 1.

Article 3

Certification of CO_2 savings

1 The reduction in CO_2 emissions from the use of an efficient alternator referred to in Article 2(1) shall be determined using the methodology set out in the Annex.

2 Where a manufacturer applies for the certification of the CO_2 savings from one vehicle version fitted with more than one efficient alternator referred to in Article 2(1), the type approval authority shall determine which of the alternators tested delivers the lowest CO_2 savings,

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and record the lowest value in the relevant type approval documentation. That value shall be indicated in the certificate of conformity in accordance with Article 11(2) of Implementing Regulation (EU) No 427/2014.

Article 4

Eco-innovation code

The eco-innovation code No 24 shall be entered into the type approval documentation where reference is made to this Decision in accordance with Article 11(1) of Implementing Regulation (EU) No 427/2014.

Article 5

Entry into force

This Decision shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

Done at Brussels, 29 November 2018.

For the Commission

The President

Jean-Claude JUNCKER

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ANNEX

METHODOLOGY TO DETERMINE THE CO_2 SAVINGS OF A 12 V EFFICIENT ALTERNATOR FOR CONVENTIONAL COMBUSTION ENGINE POWERED N1 VEHICLES

1. Introduction

In order to determine the CO_2 savings that can be attributed to the use of an efficient alternator in an N1 vehicle, it is necessary to specify the following:

(1) The testing conditions;

(2) The test equipment;

(3) The determination of the efficiency of the efficient alternator and the baseline alternator;

(4) The calculation of the CO_2 savings;

(5) The calculation of the statistical error.

Symbols, parameters and units

Latin symbols

C_{CO_2}	— CO_2 savings [g CO_2/km]
CO_2	— Carbon dioxide
CF	— Conversion factor (l/100 km) - (g CO_2/km) [gCO_2/l] as defined in Table 3
h	— Frequency as defined in Table 1
I	— Current intensity at which the measurement shall be carried out [A]
m	— Number of measurements of the sample
M	— Torque [Nm]
n	— Rotational frequency [min^{-1}] as defined in Table 1
P	— Power [W]
$S_{\eta_{EI}}$	— Standard deviation of the eco-innovative alternator efficiency [%]
$S_{\eta\,\overline{EI}}$	— Standard deviation of the eco-innovative alternator efficiency mean [%]
$S_{C_{CO_2}}$	— Standard deviation of the total CO_2 savings [g CO_2/km]
U	— Test voltage at which the measurement shall be carried out [V]
v	— Mean driving speed of the New European Driving Cycle (NEDC) [km/h]
V_{Pe}	— Consumption of effective power [l/kWh] as defined in Table 2
$\frac{\delta C_{CO_2}}{\delta \eta_{EI}}$	— Sensitivity of calculated CO_2 savings related to the efficiency of the eco-innovative alternator

Greek symbols

Δ	— Difference
η	— Baseline alternator efficiency [%]
η_{EI}	— Efficient alternator efficiency [%]
$\bar{\eta}_{EI_i}$	— Mean of the eco-innovative alternator efficiency at operating point i [%]

Subscripts

Index (i) refers to operating point

Index (j) refers to measurement of the sample