

F.No. 7(02)/2019-NAB-II(Auto)
Government of India
Ministry of Heavy Industries & Public Enterprises
Department of Heavy Industry

Dated the 28th May 2019

To

All Testing Agencies notified for Phase-II of FAME Scheme.

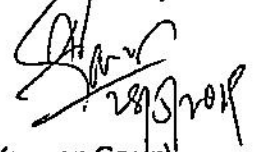
Subject : Guidelines for FAME II Eligibility Assessment Procedure.

Sir/Madam,

In continuation of the operational guidelines for Delivery of Demand Incentive under FAME India Scheme Phase-II issued vide this Department's Letter No. 21(48)/NAB/DIDM/FAME/PHASE-II/2019 dated 22nd March 2019 and subsequent instructions issued vide letter of even number dated 29th March 2019, 3rd April 2019 & 29th April 2019 about Phased Manufacturing Programme (PMP) for xEV Parts for eligibility under FAME India Scheme Phase-II, the undersigned is further directed to forward "Guidelines for FAME-II Eligibility Assessment Procedure", as per ANNEXURE, to be adopted by all notified Testing Agencies for issuance of eligibility certificate under Phase-II of FAME India Scheme.

2. This has approval of the competent authority.

Yours faithfully



(Ajay Kumar Gaur)

Under Secretary to Govt. of India

Tel.No. 23061340

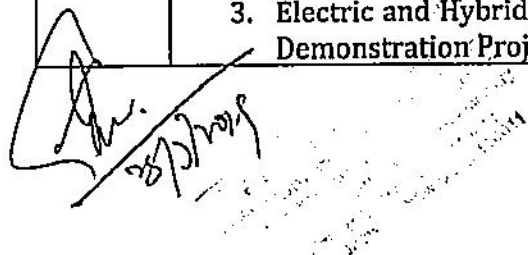
Email : ak.gaur@nic.in

Encl : As Above.

अजय कुमार गौर / AJAY KUMAR GAUR
अवर सचिव / Under Secretary
भारी उद्योग एवं सार्वजनिक उद्योग मंत्रालय
Ministry of Heavy Industries & Public Enterprises
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लक्ष्मी भवन, नई दिल्ली-110011
Laxmi Bhawan, New Delhi-110011

Guidelines for FAME II Eligibility Assessment Procedure

1.0	Applicability:
	<p>This procedure shall be applicable for assessment of vehicle model / variant(s) for eligibility and applicability of demand incentives announced by Government of India under FAME India Scheme Phase II.</p> <p>This assessment procedure shall be applicable only to vehicle model/ variant(s) which fall under the purview of Central Motor Vehicle Rules 1989 (CMVR) and covered under FAME India Scheme Phase II.</p>
2.0	Procedure:
2.1	<p>In the case of vehicle model / variant(s) qualifying under criteria specified in clause 1.0, the vehicle manufacturer shall apply to test agencies notified under Rule 126 of CMVR, 1989 for assessment as per this procedure.</p> <p>The application can be made along with application for type approval of the concerned vehicle model / variant(s) or as a stand-alone application for assessment as per this procedure.</p> <p>Further, the applicant shall furnish following details along with the application:</p> <ul style="list-style-type: none"> • Minimum "Ex- Showroom Price" of the vehicle model / variant(s), • "Ex-Factory price" of the vehicle model / variant(s), • Localization content, as per the guidelines for "Phased Manufacturing Programme for xEV Parts" dated 29th March 2019 issued by DHI as amended/revised from time to time. • Three years comprehensive warranty of the vehicle model / variant(s), including battery, • Facilities for after sales service, and • For e-3W(L5), e-4W(M1) and e-Bus: Fitment of suitable monitoring device to know the mileage of vehicles to determine the total fuel savings on real time basis. <p>The concerned test agency shall verify the application for eligibility of xEV for initial qualification for demand incentive.</p> <p>Further to satisfactory completion of initial qualification as above, the concerned test agency shall conduct the technical assessment for performance and efficiency criteria for compliance to the requirements of Annexure I and Annexure II of S.O 1472(E) dated 28th March 2019 and any other notification issued from time to time.</p>
2.1.1	Compliance to CMVR:
2.1.1.1	<p>The vehicle model/ variant(s) shall comply with the applicable regulations as per CMVR, 1989, as amended from time to time, as. For this purpose, the vehicle model/variant(s) shall be Type Approved as per following standards:</p> <ol style="list-style-type: none"> 1. Battery Electric Vehicles: AIS 049 2. Hybrid Electric Vehicles of M and N categories: AIS 102 or AIS 137 as applicable 3. Electric and Hybrid Electric Vehicles introduced in market for Pilot / Demonstration Projects intended for Government Scheme : AIS 131



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2.1.2	Assessment of Technology Functions as per Annexure I and Performance & Eligibility Criteria as per Annexure II as notified under S.O 1472(E) dated 28.03.2019 and any other notification as notified by DHI from time to time.
2.1.2.1	The following technologies provided in xEVs shall deem to qualify subject to compliance to the below mentioned requirements:
(a)	<p>Advanced Battery - The traction battery fitted in the xEVs, shall meet the requirements as per the Annexure -I of S.O 1472(E) dated 28.03.2019.</p> <p>The specific energy density in Wh/kg and cycle life in number of cycles (at 25 °C, 0.3C rate and 80% DoD) shall be verified from the published data sheet of the battery cell manufacturer submitted by the vehicle manufacturer.</p>
(b)	<p>Electric Regenerative Braking - The vehicle fitted with Regenerative Braking system shall meet the braking requirements as specified in standards in CMVR, 1989 as applicable and amended from time to time.</p> <p>The regenerative braking function i.e. generation of electric energy during vehicle braking shall be verified by means of monitoring reversal of current flow i.e. from motor inverter to battery.</p>
(c)	<p>Engine Start-Stop - During driving cycle applicable as per Clause 2.1.2.2(d), there shall be at least one event wherein during vehicle driving, the engine stops automatically and again starts automatically when operating conditions as defined by the vehicle manufacturer are met with.</p> <p>The engine stop / start condition shall be determined either by using a RPM sensor feed or using a CO₂ versus time plot.</p>
(d)	<p>Motor Drive (for SHEV/ PHEV/ REEV) - During the driving cycle applicable as per Clause 2.1.2.2(d), there shall be at least one event wherein the vehicle is running and following conditions are met simultaneously -</p> <ol style="list-style-type: none"> The CO₂ trace versus time plot or the RPM sensor feed indicates the engine shut-off condition; and The battery current versus time plot indicates the battery discharging condition.
Note:	The measurement of CO ₂ shall be done using real time emission measurement system and the battery discharge condition shall be ascertained from measurement of current drawn from battery using current transducers specified in AIS 102 or AIS 137.
2.1.2.2	The xEV shall deem to qualify to the performance & efficiency criteria subject to compliance to the requirements of Annexure II of S.O 1472(E) dated 28.03.2019 and any other notification as notified by DHI from time to time. Test agency shall follow test procedure as given below:
(a)	<p>Electric Range: For PHEV/ REEV and BEV the electric range measurement shall be done as per AIS 102 or AIS 137 and AIS 040, as applicable and notified in CMVR, 1989 and as amended from time to time, respectively.</p> <p>The test report shall specify the measured value in comparison with the target specified for relevant vehicle category.</p>
(b)	<p>Electric Energy Consumption: The electrical energy consumption measurement shall be done for all BEVs as per AIS 039 as applicable and notified in CMVR, 1989 and as amended from time to time.</p>

Signature
Date

	<p>Energy consumption to be measured as follows. In case of -</p> <ol style="list-style-type: none"> 1. Off-board DC charger: energy consumption shall be measured after the charger and in between charger and vehicle. 2. On-board charger/ Portable charger (supplied with vehicle): energy consumption shall be measured between electricity mains outlet and on-board charger/ Portable charger. <p>The test report shall specify the measured value in comparison with the target specified for relevant vehicle categories.</p>
(c)	<p>Minimum - Maximum Speed and Minimum Acceleration Measurement</p> <p>- The measurement shall be carried out in Gross vehicle weight condition, as declared by the manufacturer, on Chassis Dynamometer. Dynamometer setting shall be as prescribed in the MoRTH/CMVR/TAP/115-116 document or AIS 137, as applicable and amended from time to time.</p> <p>The test vehicle shall be able to navigate the driving cycle (within the tolerance) based on the driving cycle, IDC for e-2W/e-3W Wheeler and MIDC for e-4W, to ascertain the requirements of minimum-maximum speed and minimum acceleration for the respective vehicle category.</p> <p>Alternatively, the test may be carried on test track as per mutual agreement between the test agency and the OEM.</p> <p>For e-Buses, measurement shall be carried out on Chassis dynamometer or on test track as per the mutual agreement between the test agency and the OEM.</p> <p>During the test, battery state of charge shall be within 40%-60%.</p>
(d)	<p>Fuel Consumption (for SHEV / PHEV / REEV) - The fuel consumption measurement shall be done for Hybrid Electric Vehicles as per Standard / procedure specified in AIS 102 or AIS 137 as applicable.</p> <p>The test report for fuel consumption test shall specify the measured fuel consumption value (Gasoline fuel equivalent in L/100km) in comparison with the targets specified for relevant vehicle category.</p>
2.1.2.3	<p>Determination of Demand Incentive:</p> <p>Based on the satisfactory initial qualification and compliance to technology functions and performance and eligibility criteria, the test agency shall carry out measurement of energy content of traction battery as per following test procedure, for determining demand incentive.</p>
2.1.2.3.1	<p>Energy content of the traction battery: For determining demand incentive, the energy content of the traction battery (i.e. rated battery capacity) used in the electric or hybrid electric vehicle, in terms of "kWh" shall be measured as per the test procedure specified in the standard ISO 12405-4, 2018 edition at room temperature (RT) as specified in the standard.</p> <p>If the battery capacity (C/3 capacity for high energy battery and 1C capacity for high power battery) measured during the testing differs more than $\pm 5\%$</p>

	<p>from the manufacturer's declared specification, then the measured battery capacity during the test shall be considered as rated battery capacity for determining demand incentive. If the battery capacity (C/3 capacity for high energy battery and 1C capacity for high power battery) measured during the testing is within $\pm 5\%$ of the manufacturer's declared specification, then the manufacturer's declared battery capacity shall be considered as rated battery capacity for determining demand incentive.</p> <p>This value shall be rounded to first decimal place and reported in kWh.</p>
	<p>Demand incentive amount shall be calculated as follows:</p> <p>a) e-Buses: Energy content in kWh x INR 20,000</p> <p>The amount of demand incentive for e-buses shall further be subject to competitive bidding amongst original equipment manufacturers (OEMs) conducted by public sector transport undertakings for intra-city, inter-city or inter-state e-buses based on OPEX model with overall upper cap of 40% ex-showroom price of e-bus.</p> <p>b) all other xEVs: Energy content in kWh x INR 10,000</p> <p>The demand incentive shall be subject to upper cap limit of 20% of ex-showroom price of the vehicle.</p>
3.0	Application for Eligibility Assessment
3.1	For Vehicle Models Already Type Approved:
3.1.1	In case of the vehicle model/variant(s), for which eligibility assessment is required, is already type approved as per provisions of CMVR, the vehicle manufacturer shall submit to test agency an application enclosing copies of homologation certificate and homologation test reports required for assessment as per Clause 2.0.
3.1.2	The test agency shall determine the adequacy of documents submitted by vehicle manufacturer. In case, additional testing or audit is required for assessment of certain parameters, the test agency shall conduct the required tests/audits.
3.1.3	Once the information on all relevant parameters is obtained (as per clause 3.1.1 and/ or 3.1.2), the test agency shall issue an "Eligibility Assessment Report" to vehicle manufacturer. This report shall contain information on vehicle performance with respect to all applicable parameters as notified from time to time.
3.2	For New Type Approval along with Eligibility Assessment:
3.2.1	<p>In case of vehicle model/variant(s) for which new Type Approval is required, the vehicle manufacturer shall along with application for Type Approval request test agency to conduct assessment for eligibility as per Clause 2.0.</p> <p>The vehicle manufacturer shall submit to test agency the technical specifications as per AIS 007 and other relevant document / declaration / affidavit (if any).</p>
3.2.2	After successful completion of Type Approval and assessment as per Clause 2.0, the test agency shall issue a Type Approval Certificate and an "Eligibility Assessment Report" to vehicle manufacturer.

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