

FUEL TAX CREDIT FOR HEAVY DIESEL VEHICLES: GUIDELINES FOR SATISFYING ENVIRONMENTAL CRITERIA

Required Elements for DT80 Test Facilities seeking Registration under Criterion 3 (Revision 4)¹

1. INTRODUCTION

Under the new fuel tax credit which applies from 1 July 2006, a vehicle must satisfy one of four environmental criteria to be eligible for a fuel tax credit. The details of these criteria are set out in *Fuel Tax Credit for Heavy Diesel Vehicles: Guidelines for Satisfying Environmental Criteria* (the Guidelines) which can be found at www.infrastructure.gov.au.

Under Criterion 3 of the environmental criteria set out in the Guidelines, a vehicle which meets Rule 147A of the *Australian Vehicle Standards Rules 1999* is eligible for the fuel tax credit. Rule 147A incorporates an emissions test known as the “DT80” test, and vehicles must pass the relevant limits in that test to meet Rule 147A. The test procedure is specified in [Rule 147A](#) of Schedule 1 to *National Transport Commission (Road Transport Legislation — Vehicle Standards) Amendment Regulations (No. 1)*.

For the purposes of the fuel tax credit, the Australian Taxation Office determines what evidence is required to satisfy the requirements of Rule 147A (the DT80 test). The Department of Infrastructure, Transport, Cities and Regional Development (the Department) is assisting the Tax Office by providing assessments of the capability of test facilities to undertake the DT80 test, and listing those facilities that it considers to meet the assessment requirements on the Department’s website.

The Tax Office has indicated that a facility registered on the Department’s website as a DT80 test facility will be recognised by the Tax Office for the purposes of the fuel tax credit.

This document sets out the minimum required elements a test facility must satisfy in order to be registered. It also sets out the process for seeking registration.

Notes:

This document only relates to registration of testing facilities for the purposes of the fuel tax credit, and has no other purpose.

This document is not directly relevant to claimants for the fuel tax credit. It is for organisations seeking registration of their test facility as a DT80 for the purposes of the fuel tax credit.

¹ Revision 4 updates the Department’s name to the Department of Infrastructure, Transport, Cities and Regional Development and the responsible branch to Land Transport Policy.

2. REQUIRED ELEMENTS

The required elements focus on the minimum standards for the dynamometer, emissions analysis and data management systems necessary to enable the proper conduct of the DT80 test.

For a test facility to be registered for the purposes of the fuel tax credit under Criterion 3, it must contain Required Elements 1-3 as set out below.

Element 1 – Dynamometer System

The DT80 test shall be conducted on a chassis dynamometer system which:

- (a) can undertake a full throttle transient DT80 cycle (as described in [Rule 147A](#)) for the vehicle being tested;
- (b) provides for vehicle speed measurement and display, to an accuracy of $\pm 1\%$ of actual speed;
- (c) provides internal steady state accuracy of $\pm 1\%$ of calculated required tractive load over ambient temperatures of $2^{\circ}\text{C} - 40^{\circ}\text{C}$;
- (d) provides a T95 response time of 3 seconds or less;
- (e) provides inertial loading as required by the DT80 protocol at speeds >15 km/h;
- (f) compensates for aerodynamic drag, rolling resistance and other parasitic losses; (g) corrects for ambient temperature, humidity and air density;
- (h) provides torque measurement accuracy of better than 1% full scale; (i) maintains roller speed within ± 10 km/h through gear changes;
- (j) restricts overshoot upon initial acceleration of rollers from rest;
- (k) incorporates a driver control panel for remote operation of critical functions from driver's seat, including and controls for start test and stop test;
- (l) incorporates an emergency system override function;
- (m) is able to communicate speed, load and status signals to enable the driver to undertake the test in accordance with the DT80 procedure; and
- (n) is integrated with the gas and particulate analysis system to initiate the start and finish of sampling and measurement, and generate emission results without the need for post-test processing.

Element 2 – Emissions Measurement System

The emissions measurement system used for the DT80 test shall:

- (a) be integrated with the dynamometer system specified in Element 1;
- (b) have a data averaging interval of 1 second for all equipment;
- (c) provide emissions data sampling output $\geq 5\text{Hz}$;
- (d) measure oxides of nitrogen (from a diluted and conditioned sample) with an accuracy of $\pm 30\text{ppm}$ over the range 0-1000ppm and $\pm 5\%$ over the range 1001-5000ppm;
- (e) measure particulate matter (from diluted sample) as TSP or PM 10 with an accuracy of $\pm 10\%$ on a real time continuous basis over a range of 0-1000 mg/m^3 actual exhaust concentration at a sample temperature of $< 51.7^\circ\text{C}$;
- (f) measure opacity (from raw exhaust gas sample) with an accuracy of $\pm 1\%$ over a range of 0-100% opacity;
- (g) measure flow rate with an accuracy of $\pm 5\%$;
- (h) measure ambient temperature with an accuracy of $\pm 1^\circ\text{C}$ over a range of 0-50 $^\circ\text{C}$; (i) measure ambient humidity with an accuracy of $\pm 5\%$ over a range of 0-100%;
- (j) compensate/correct for ambient humidity and temperature; (k) compensate for exhaust gas transport times and delays;
- (l) provide on-line calibration of the analytical system;
- (m) provide an exhaust sample collection and conditioning system that is optimised to accommodate the exhaust temperature and flow rate, and emission concentration, for the vehicle being tested. The system must also provide adequate conditioning of the exhaust gas to eliminate water in the sample stream and reduce temperatures to enable PM to be sampled at $< 51.7^\circ\text{C}$; and
- (n) utilise materials and equipment compatible with the exhaust from diesel fuelled vehicles.

Element 3 – Data Management and Storage System

The data management system used for the DT80 test shall:

- (a) be integrated with the dynamometer and emissions measurement system in Elements 1 and 2;
- (b) record the following items for each test:
 - date, time, location and operator,
 - emissions analyser calibration data,
 - vehicle input data, include test mass tractive load corrections and identifying information,
 - dynamometer data on a second by second basis (load, speed, distance), and
 - test data on a second by second basis from which a mass emission test result in g/km/t can be generated;
- (c) display, store and report all data in SI units;
- (d) provide a system for electronic backup of test data to local and remote media;
- (e) incorporate a quality control system which ensures calibrations are carried out in accordance with manufacturers' specifications and which provides records consistent with normal audit requirements; and
- (f) print a test report containing at least the following items:
 - registered business name, ABN and address of test facility;
 - registration number, make, model, GVM rating and date of manufacture² of the tested vehicle;
 - date and location of test;
 - the final calculated NO_x and PM results in g/km/t;
 - the final calculated opacity results in %;
 - a statement of pass or fail for each emission compared to the emission limits specified in Rule 147A; and
 - the signature of test facility operator confirming that the test was conducted in accordance with the requirements of Rule 147A in Schedule 1 to *National Transport Commission (Road Transport Legislation – Vehicle Standards) Amendment Regulations (No. 1)*.

² "Date of manufacture" as described in Rule 147A.

3. SEEKING REGISTRATION / ENQUIRIES

Operators of test facilities which satisfy the Required Elements 1-3 outlined above, and who wish to have their facility registered for the purposes of conducting a DT80 test under Criterion 3 of *Fuel Tax Credit for Heavy Diesel Vehicles: Guidelines for Satisfying Environmental Criteria*, need to sign and submit the attached [Application for Registration](#) form, plus relevant attachments, to the Department of Infrastructure, Transport, Cities and Regional Development (the Department).

The Department will assess the application against the Required Elements, and if the facility is assessed as meeting the required elements, the applicant will be notified in writing by the Department. The facility's name and contact details, together with the vehicle range it is able to test, will then be listed on the Department's website as a registered test facility for the purposes of conducting the DT80 test under Criterion 3.

If the facility is assessed as not meeting the required elements, the Department will notify the applicant detailing the reasons for non-compliance.

If you have any enquiries regarding the required elements or registration procedures please forward them to fuelcredit@infrastructure.gov.au.

APPLICANT DETAILS

Please complete the details of the organisation responsible for the test facility seeking registration.

Name of Person Making Application	
Position	
Full Legal Name of Test Facility Owner/Operator	
ACN (if applicable)	
ABN (if applicable)	
Address	
Phone	
Email	
Fax	
Web	

COMPLIANCE WITH REQUIRED ELEMENTS

To be registered with the Department of Infrastructure and Regional Development under Criterion 3 the test facility must satisfy Required Elements 1-3. Please complete each of the tables below to confirm your compliance with the Required Elements by:

- marking the “yes/no” options where indicated;
- providing details of the equipment and its capability as requested; and
- attaching copies of the manufacturer’s specifications where requested.

Element 1 – Dynamometer System

Is the dynamometer capable of undertaking a full throttle transient DT80 test (as described in Rule 147A of the <i>Australian Vehicle Standards Rules 1999</i>) ?	Yes/No
Does the dynamometer satisfy all the specifications set out in Element 1 ?	Yes/No
Specify the range of vehicles (by type, minimum and maximum GVM, and engine power) for which the dynamometer is able to conduct a DT80 test in accordance with the requirements of Element 1:	
Specify the make and model of dynamometer to be used for the DT80 test:	
Attach a copy of the dynamometer’s specifications from the manufacturer, highlighting its compliance with the specifications in Element 1	

Element 2 – Emissions Measurement System

Is the emissions measurement system integrated with the dynamometer system specified in Element 1 ?	Yes/No
Is the emissions measurement system capable of measuring emissions of oxides of nitrogen, particulate matter and opacity in the manner and to the degree of accuracy specified in Element 2 ?	Yes/No
Specify the make(s) and model(s) of the emissions analysers to be used for the DT80 test: NOx Analyser: PM Analyser: Opacity analyser:	
Does the emissions analysis system provide an exhaust sample collection and conditioning system meeting the performance requirements of Element 2(m) ?	Yes/No
Attach a copy of the emissions analyser specifications from the manufacturer, highlighting their compliance with the specifications in Element 2.	

Element 3 – Data Management and Storage System

Is the data management system integrated with the systems in Elements 1 and 2 so that post-test processing of data is not required?	Yes/No
Does the system, when conducting a DT80 test, record and provide a test report for all of the information specified in Element 3, in the units specified?	Yes/No
Does the system have an automated electronic backup of test data?	Yes/No
Does the system incorporate quality assurance procedures consistent with Element 3(e)?	Yes/No

SUBMITTING THE APPLICATION

Please forward the completed application form, including attachments, to:

General Manager

Land Transport Policy

Surface Transport Policy Division

Department of Infrastructure, Transport, Cities and Regional Development

GPO Box 594

CANBERRA ACT 2601

For enquiries please email: fuelcredit@infrastructure.gov.au