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Each notice in the Government Gazette has a unique reference number that appears in parentheses at the end of the notice and can be used as a reference for that notice (for example, (n2019-14)).

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To submit a notice for gazettal, see the Gazette page.

MID-COAST COUNCIL

Roads Act 1993

DEDICATION OF LAND AS PUBLIC ROAD

NOTICE is hereby given pursuant to Section 10 of the Roads Act 1993, that the land described in the Schedule below is dedicated to the public as road.

SCHEDULE

Lot 1 DP1000648
Lot 1 DP1064439
Lot 2 DP1064439
Lot 1 DP1068026
Lot 2 DP1068026
Lot 47 DP1121355
Lot 48 DP1121355
Lot 49 DP1121355
Lot 50 DP1121355
Lot 9 DP1226651
Lot 10 DP1226651
Lot 12 DP1236026
Lot 6 DP1239667
Lot 8 DP1239667
Lot 12 DP1239667
Lot 16 DP1249322
Lot 20 DP1249322
Lot 11 DP1260418
Lot 13 DP1260418
Lot 2 DP1283614

ADRIAN PANUCCIO, General Manager, Mid-Coast Council, 2 Biripi Way TAREE NSW 2430.

MARINE SAFETY ACT 1998

MARINE NOTICE

Section 12(2)

REGULATION OF VESSELS – EXCLUSION ZONE

Location

Clarence River, Seelands, adjacent to the Big River Holiday and Ski Park

Duration

- 8:00am to 4:30pm – Saturday 10 June 2023
- 8:00am to 4:30pm – Sunday 11 June 2023

Detail

Water ski races will be conducted on the navigable waters of Clarence River, Seelands – as specified above.

An **EXCLUSION ZONE** is specified during the event, which will be marked by buoys at the location specified above.

Unauthorised vessels and persons are strictly prohibited from entering the Exclusion Zone, which will be patrolled by Maritime and Police vessels.

Transit lane

Provision may be made (where necessary) for a control vessel to authorise local vessel traffic to pass safely through the Exclusion Zone via a ‘transit lane’.

Penalties may apply (section 12(5) – *Marine Safety Act 1998*).

For full details visit the Transport for NSW website – <https://www.nsw.gov.au/driving-boating-and-transport/using-waterways/restrictions-and-closures/marine-notices>

Marine Notice: NH2346

Date: 6 June 2023



Andre Uljee

A/ Manager Waterway Operations North

Delegate

Greater Hume Shire Council

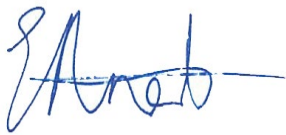
Section 38b Roads Act 1993

Proposed Road Closure

Notice is hereby given, under section 38b of Roads Act 1993 Greater Hume Shire Council proposes to close the Council public road listed below:

The section of unused road separating Lot 53 DP 753735 from Lot 1 DP 171815, Lot B DP 975054, Lot 73 DP 753764 Schoff Road Culcairn. Upon closure of the road, Council intends to sell the land to adjoining land owner.

Dated 06 June 2023

A handwritten signature in blue ink, appearing to read 'E. Arnold', with a horizontal line extending to the right.

Evelyn Arnold
General Manager
Greater Hume Shire Council



Transport
for NSW

ROAD TRANSPORT (VEHICLE REGISTRATION) REGULATION 2017

ORDER

Clause 64, 65 and 85

I, Paul Duignan, Director Vehicle Safety, a delegate of Transport for NSW, pursuant to clauses 64, 65 and 85 of the *Road Transport (Vehicle Registration) Regulation 2017*, by this Order, declare the Interim NSW Vehicle Emissions Test Procedure (version 1.0) to be a ***Transport for NSW standard compliance specification*** as a means to demonstrate compliance with the applicable standards in relation to emissions testing for light vehicles as required for the certification of individually constructed vehicles and applicable modified production vehicles.

Dated 1 June 2023

A handwritten signature in black ink, appearing to read 'Paul Duignan', positioned above a horizontal line.

Paul Duignan
Director Vehicle Safety
Transport for NSW

Explanatory Note:

Clauses 64 and 85 of the Regulation provide that a light vehicle or modification to a light vehicle is taken to comply with the applicable vehicle standards if the vehicle complies with a TfNSW standard compliance specification.

Clause 65 of the Regulation provides that TfNSW may publish guidance material on how a person may demonstrate that a vehicle complies with the applicable vehicle standards.

The Dictionary to the Regulation provides that a TfNSW standard compliance specification is to be made by order published in the Gazette.

Transport for NSW

Standard Compliance Specification

Interim NSW Vehicle Emissions Test Procedure for Modified and Individually Constructed Vehicles

Version 1.0 | MAY 2023

Disclaimer

This document is intended for use as guidance material ONLY on how to establish that a light motor vehicle complies with the engine emission standards requirements made for it under the Road Transport (Vehicle Registration) Regulation 2017 (the Regulation).

Transport for NSW (TfNSW) makes no warranties or representations in relation to this document, including (without limitation) the accuracy or completeness of the information or advice it provides.

By referring to this document, the user accepts and understands that TfNSW is not liable for any loss or damage, howsoever caused including, but not limited to, any alleged negligence of TfNSW incurred in connection with this document whether by act or omission, or as a result of any use or reliance placed upon the information and advice it provides.

Part A

1 Scope

This document described types of emissions tests that are acceptable for registration purposes in NSW as an alternative to the IM240 test until such time as Vehicle Standards Bulletin No.14 ([VSB.14](#)) National Code of Practice for Light Vehicle Construction and Modification is revised to include alternative engine exhaust emission test procedures.

These interim emissions test procedures apply to certain modified light motor vehicle, certain imported vehicles and Individually Constructed Vehicles (ICV).

See [VSI.06 Light Vehicle Modifications](#) for further information on minor and significant modifications related to engine related modifications.

2 Introduction and Legal Framework

Each NSW registered vehicle (including those that have been modified) must meet the mandatory vehicle standards requirements under the Road Transport (Vehicle Registration) Regulation 2017 (the Regulation), including the applicable Australian Design Rules (ADRs).

This Standard Compliance Specification is made under clause 64(2)(a) of the Regulation for registered light vehicles, clause 65 for ICV, and clause 85 for certification purposes.

Each vehicle modification (whether or not listed in the gazetted Vehicle Certification Scheme Declaration of Modification or Class of Modification Order 2013, ie the Order) has the potential to adversely affect one or more ADRs and make the vehicle unsafe. Unless exempted by TfNSW or where an affected ADR does not apply to that vehicle, a modification affecting an applicable ADR requires assessment and certification by a Vehicle Safety and Compliance Certification Scheme (VSCCS) Licenced Certifier before the vehicle can be registered.

This Emissions Test Procedure may be utilised to demonstrate that a modified light vehicle or an ICV complies with the applicable vehicle standards.

3 Preface

Australian Design Rules (ADRs)

The ADRs are construction and performance requirements for road vehicles, ie motor vehicles and trailers intended for use in road transport. These ADRs have been developed by the Commonwealth Government and adopted under national and state transport legislation for the purpose of:

- Reducing the possibility of vehicle crashes occurring through such measures as advanced braking and lighting systems, windscreen washers, wipers and demisters, tyre selection, safety rims and rear vision mirrors.
- Mitigating the effects of vehicle crashes that do occur, through occupant protection measures as improved seats and seatbelts, air bags, energy absorbing steering columns and instrument panels, anti-burst door latches and head restraints.
- Reducing undesirable environmental effects by limiting the vehicle noise and pollutants emitted.

State Regulation

NSW transport regulations requires each vehicle manufactured or provided for use in road transport on or after particular dates (ie their Date of Manufacture or DoM) to meet the requirements of relevant ADRs and continue to comply with those ADRs or later versions of those ADRs.

Schedule 2 of the Regulation sets mandatory vehicle standards requirements for the construction and performance of road vehicles (motor vehicles, trailers and combinations that are registered for use on roads or road-related areas). In addition to adopting the ADRs, Schedule 2 also incorporates various adopted standards (ie international and Australian standards for components such as seatbelts, glazing materials and trailer couplings, etc).

The mandatory vehicle standards requirements set by Schedule 2 are intended to:

- Promote, throughout the life of motor vehicles, trailers and combinations, their safe use and efficiency and protection of the environment; and
- Reduce the cost of transport administration.

When modifications to a vehicle are determined to be significant, the vehicle will require a compliance certificate issued by a VSCCS Licensed Certifier in order to be registered.

4 Certification Requirements

Before modifying a vehicle, it must be considered that **some modifications may require certification. Vehicle Standards Information (VSI) No. 6** is a guide for vehicle owners and modifiers to determine **what modifications** to vehicles up to and including 4.5 tonnes gross vehicle mass **require certification** under the Vehicle Safety Compliance Certification Scheme (VSCCS).

[VSI No.6 Light vehicle modifications](#)

VSI No. 6 is intended to clarify technical content of the Vehicle Safety Compliance Certification Scheme Declaration of Modification or Class of Modification Order 2013 (the Order). It provides examples and tips when modifying a light vehicle, and assists in determining whether a modified vehicle requires certification, and specific information on certification requirements for replacement engines and engine modifications. VSI No. 6 should be read in conjunction with the Order.

The following modifications are exceptions to the requirements of the Order and do not require certification:

- (a) Replacement of parts or components by identical parts or components.
- (b) Replacement of parts or components with parts or components with equivalent functional performance.
- (c) Use of optional parts or components as prescribed by the vehicle's manufacturer.

The examples of modifications 'requiring' or 'not requiring' certification provided in VSI No. 6 do not cover all situations. It is recommended to **seek advice** regarding the impact any modifications may have on a vehicle's continuing compliance with ADRs and the Regulation before undertaking them. It is advisable to contact Transport for NSW Technical Enquiries or a VSCCS Licensed Certifier for more information in case of any doubt about whether or not an intended vehicle modification/s may require certification.

5 Competence of Licensed Certifiers

TfNSW has assessed the competencies of persons registered as licensed certifiers. The contact details and areas of competence for each VSCCS Licensed Certifier is published on the TfNSW's website in [VSCCS Bulletin No. 1 Licensed Certifiers](#).

Only a VSCCS Licensed Certifier identified as being competent in engine, fuel and exhaust systems can be engaged in assessing and certifying a vehicle with modifications to, or which affect, its noise or engine emission systems.

6 Evidence of Compliance

Licensed certifiers must maintain evidence and make it available to support every statement of compliance as part of the VSCCS certification process. Evidence must include:

- Evidence of equipment calibration
- Data readouts
- Detailed bill of materials of components fitted
- Detailed photographs that clearly and unambiguously show the modification
- Aftermarket component manufacturer information (component performance documentation) if applicable (see the procedure for VSCCS licensed certifiers "Using manufacturers approved aftermarket components in modified light vehicles" for your reference)
- Completed checklist as per Appendix F

The equipment must be capable of recording the relevant test data to facilitate verification and audit.

Part B

Test Procedure

1. Test Requirements

Engine exhaust emissions testing shall be applied to all petrol, liquified petroleum (LPG) and natural gas (CNG and LNG) fuelled light vehicles with spark ignition (SI) engines. These test requirements do not apply to vehicles fitted with two-stroke engines or diesel-fuelled, Compression Ignition (CI) engines.

The type of emissions test required depends on the vehicle's date of manufacture (DoM), ie its date of Australian compliance (or its build date, if the vehicle was built and used overseas before being imported and first registered in Australia), as follows:

Vehicles to be checked	Description
For all vehicles	1. Visual inspection (see Part B section 4) 2. Visual smoke test (see Part B section 5)
In addition to the above checks:	
ADR.37/00 vehicles	1. OBD/Engine control system check (see Part B section 6)
ADR.37/01 and later vehicles	1. OBD/Engine control system check (see Part B section 6) 2. Two speed idle test (see Part B section 7)

The following tests methods will be accepted as alternatives to the 2-speed idle test.

- a. Lambda: (see Appendix C)
- b. RG240: (see Appendix C)
- c. IM240: (see Appendix C)

2. Required Equipment

1. Scan Tool suitable for vehicle being tested (see Appendix E).
2. Tachometer providing engine speed in RPM (if required).
3. Non-contact thermometer to check catalytic convertor function and to check engine coolant and/or oil temperature.
4. Exhaust Gas Analyser – A non-dispersive, infrared gas analyser is required to measure the concentration of Carbon Monoxide (CO) and Hydrocarbons (HC) in the vehicle's exhaust gases. A 5-gas analyser (see Appendix D) can be used for this purpose (ie using a suitable gas probe inserted into the exhaust pipe) and must be:
 - a. Calibrated within the preceding 12 months by being zeroed with dry nitrogen or air containing less than 10 ppm CO, or 6 ppm HC (equivalent carbon response), as applicable and,
 - b. Spanned with a CO or HC mixture, as applicable, which will result in a response equivalent to but not less than 70% of the full-scale deflection for each gas, and
 - c. Zeroed and spanned using a secondary electronic or mechanical system prior to each measurement.
5. A provision to log and record engine parameters (engine speed and temperatures, etc), ECU and ODB codes and test results (this likely will be done by the Exhaust Gas Analyser or the ScanTool).

3. Preconditioning

As a general precaution, it is advised to check that the vehicle has enough engine oil, the coolant level is correctly topped-up and there is enough fuel to carry out the test. Any known defect that may impact on the emissions test must be rectified in advance of the test appointment. Wherever possible vehicles should arrive to be tested with the engine at its normal operating temperature.

Before carrying out the test, confirm that the engine is at its normal operating temperature by observing the vehicle's water temperature gauge or by using a non-contact temperature gauge. If the water or oil temperature cannot be measured (eg in the case of a dry sump), check that either:

- a) the radiator cooling fan had cut in, or
- b) the top engine to radiator coolant hose is hot (measure this using a non-contact thermometer).

If the vehicle is equipped with a manual choke, the choke must be off.

For vehicles equipped with manual transmission, testing **MUST** be conducted with the gear lever in the 'neutral' position and with the clutch engaged.

For vehicles equipped with automatic transmission, testing **MUST** be conducted with the gear selector will be in either the 'neutral' or 'park' position. Both instances shall have the handbrake applied.

4. Visual Inspection (for all vehicles)

4.1 Check for Exhaust and Fuel Leaks

Ensure that there are no fuel leaks and there are no visible or audible leaks in the exhaust system.

4.2 Check engine systems and components

Each vehicle requiring an emissions test must be inspected to ensure that the original equipment manufacturer (OEM) engine emission components, that were installed at the time of manufacture are present and functional in all instances. If OEM engine emission components are replaced by aftermarket components, information from the aftermarket manufacturer must be provided showing that the aftermarket component has the same performance than the OEM component (see the procedure for VSCCS licensed certifiers "Using manufacturers approved aftermarket components in modified light vehicles" for your reference).

NOTE: contact the vehicle's manufacturer for advice if these components are not detailed in the vehicle's workshop manual.

Emission-control related components include, but are not limited to, PCV or positive crankcase ventilation systems, EGR or exhaust gas recirculation, FEE or fuel evaporative emissions systems (including carbon filters) and exhaust after treatment devices (eg catalytic converters and particulate traps, etc) and sensors such as O₂ or Lambda sensors.

Component wiring and hoses/pipes connecting the various components to the engine must also be checked as they are often missing, damaged, by-passed or disconnected. Also ensure that a suitable OEM or equivalent fuel filler cap is fitted that is properly secured and sealed (emergency-type fuel caps and fuel caps with damaged or missing seals are unacceptable).

A vehicle will fail if these components are missing, disconnected, damaged or inoperative.

4.3 Catalytic Converters

Inspect exhaust system for presence of a catalyst converter. As its efficiency is affected by exhaust temperature it should be installed as close as possible to the engine unless an OEM

exhaust system is utilised in which case the original position of the catalytic converters can be maintained. If an engine has more than one independent exhaust system fitted (eg some V8 and V6 engines, etc), a catalytic converter is required to be present in each exhaust system.

A catalytic converter may be a new or used OEM component, or an aftermarket universal or direct fit equivalent product that provides the same performance (the aftermarket component manufacturer shall provide this [information](#)).

Using a contact or non-contact thermometer measure the surface temperature of the catalytic convertor(s) at a position not covered by a heat shield that is as close as possible ($\leq 50\text{mm}$) to the inlet and outlet of the catalytic converter.

Deduct the inlet value from the outlet value, a differential temperature of 40° Celsius or higher indicates a catalytic reaction is occurring and is acceptable (outlet temp should be higher than the inlet temp).

NOTE: *A lower temperature differential indicates a defective or inoperative catalytic converter that must be replaced before the vehicle can be further tested.*

4.4 Check Closed Loop Engine Management and Catalyst Monitoring Systems

Closed loop engine management systems are generally used on vehicles built from 1997.

Catalyst Monitoring Systems are commonly found on (OBDII/EOBD) vehicles built from 2006. These are a further development of the closed loop systems and incorporate one or more O₂ sensors, adjacent to (usually one before and one after) a vehicle's catalytic convertors.

Check the O₂ sensor(s) are fitted and there are no defeat devices (commonly known as Check Engine Light Eliminators) fitted between an O₂ sensor and that sensor's mounting flange in the exhaust.

NOTE: *A CEL Eliminator is a spacer that is inserted into the flange and the oxygen sensor is inserted into it. This device is designed to reposition the O₂ sensor out of the hot exhaust gases just far enough to prevent it triggering the MIL/CEL signal showing a catalytic converter was removed or is inoperative.*

Locate electrical circuit for each O₂ sensor fitted and check for the circuit hasn't been modified or had a defeat/eliminator device fitted (this device may be an intermediate plug-in, crimped or soldered length of cable and/or additional electronic components inserted, between the original (ie unmodified) wiring harness and a rear O₂ sensor). These defeat/eliminator devices are designed to alter the electrical signal generated by the O₂ sensors and prevent a fault code being stored and to prevent the vehicle's Malfunction Indicator or Check Engine Lamp from illuminating.

NOTE: *The sensor circuit must be restored to original and (if found to be fitted) a defeat/eliminator device must be removed before the vehicle can be further tested.*

5. Visual Smoke Test (for all vehicles)

Once the preconditioning items have been completed:

1. Increase engine speed to between 2500 to 3000 rpm or half the maximum engine speed if this is lower.
2. Maintain that engine speed for approximately 20 seconds, then allow the engine to return to its normal idle speed.
3. Once the engine speed has stabilised, check the smoke emitted from the tailpipe.

If the exhaust is emitting dense blue or clearly visible black smoke, apply the abbreviated NSW EPA Test Method 31 (TM-31) also known as the 10 second smoke rule (see Appendix B).

6. OBD/Engine control system check

All vehicles originally fitted with an electronic engine control unit (ECU) by their manufacturers, must be checked for fault codes or unset readiness monitors (ie warning lamps, etc) on OBDII or EOBD equipped vehicles. (ADR.79/01 onwards for petrol fuelled vehicles).

A vehicle built to ADR.79/01 or later must also be checked (ie using an suitable OBD reader) to ensure that its originally fitted ECU functions are within OEM specifications. If it has been modified (ie flashed, chipped or reprogrammed) or replaced by an aftermarket product, then an IM240 or RG240 test must be conducted (see Appendix C, and Appendix A for the acceptable limits).

NOTE: *this requirement is made under ADRs 79/01, 79/02, 79/03 and 79/04.*

For vehicle featuring a Malfunction Indicator Lamp (MIL) or Check Engine Light (CEL), check to confirm that it is functioning correctly, by switching the ignition key or starting device from "lock" or "off" to "on" and confirming that the MIL/CEL illuminates during the readiness self-test function, then extinguishes.

With the engine started, check that the MIL/CEL remains extinguished.

NOTE: *A system fault is indicated if the MIL/CEL fails to illuminate then extinguish or if it fails to extinguish.*

Using a scan tool, each fault code or monitor related to the engine or emissions related components must be noted, then cleared and re-checked to confirm that an indicated fault code is no longer present. In some cases, for OBDII and EOBD equipped vehicles, it may be necessary to drive the vehicle using its manufacturer's recommended driving procedures (ie drive cycle) to re-set and display/show fault codes and messages.

7. Two Speed (ie Low and High Speed) Idle Test

Each 2 speed idle test of a motor vehicle must be conducted in the following manner, using the Required Equipment (see Part B section 2).

For each vehicle:

1. Ensure the preconditioning items have been completed.
2. Insert the inlet end of a sampling probe into the exhaust pipe to a depth of between 35 and 50 centimetres from the discharge end of the exhaust pipe.

NOTE: *1. If required for the purposes of testing, the exhaust pipe may be temporarily extended by attaching an extension piece, to the discharge outlet, which is sealed at the connection point, to prevent introduction of dilution air into the exhaust.*

2. If the motor vehicle is equipped with more than one exhaust pipe, measure the exhaust gas concentration in each exhaust pipe - the maximum value to be recorded is the sum of the concentrations measured divided by the number of pipes

1. The **low speed idle** test:

- a. (without operating the accelerator pedal) ensure the engine is running at its manufacturer's recommended idle speed; and
- b. 60 seconds after the probe has been inserted into the exhaust pipe, record the maximum value of the concentration of CO (in % vol) and the THC (in ppm) over a period of 30 to 60 seconds.

2. The **high speed idle** test:

- a. Operating the accelerator pedal, raise the engine speed until it can be stabilised within the range of 2500 to 3000 rpm
- b. 60 seconds after the probe has been inserted into the exhaust, record the maximum value of the concentration of CO (in % vol) and the THC (in ppm) over a period of 30 to 60 seconds.

3. Compare the recorded results to the limits table (See Appendix A)
4. If any of the exhaust limits are exceeded, the test may be repeated once, if the limits are again exceeded on the second test, the vehicle shall fail the test.

Limits Table (2-speed idle test limits):

ADR	DoM	CO idle	HC idle	CO high idle	HC high idle	Lambda
ADR.37/01	1997 - 2002	0.5%	300ppm	0.2%	100ppm	1.0 ±0.05
ADR.79/00 or later	2003 - current	0.2%	75ppm	0.1%	40ppm	1.0 ±0.05

ADR Emission Limit (IM240/RG240 test limits)

ADR	DoM	CO g/km	HC g/km	NOx g/km	Lambda
ADR.37/01	Jan 1997	2.1	0.26	0.63	1.0 +/-0.05
ADR.79/00 (Euro 2)	Jan 2003	2.2	0.28	0.22	1.0 +/-0.05
ADR.79/01 (Euro 3)	Jan 2006	2.3	0.20	0.15	1.0 +/-0.05
ADR.79/02 (Euro 4)	July 2008	1.0	0.1	0.08	1.0 +/-0.05
ADR.79/03 (Euro 5)	Nov 2013	1.0	0.1	0.06	1.0 +/-0.05
ADR.79/04 (Euro 6)	Nov 2016				

The following extract reflects the NSW EPA's TM-31 as of the issue date of this document.

Observation procedure for excessive air impurities: visible emissions from mobile sources

When an observer is determining whether a vehicle is being used in breach of the clause limiting visible emissions, the following principles apply:

- The observer must be satisfied that the vehicle generating the visible emissions is correctly identified.
- The observer must be satisfied that the emissions are visible not just because of heat or the condensation of water vapour.
- The emissions must be continuously visible for more than 10 seconds.

The following details of the observation must be recorded:

- length of time in seconds that the visible emissions were observed
- registration number of the motor vehicle under observation
- type of motor vehicle under observation
- colour and darkness, in the opinion of the observer, of the air impurities emitted
- location, date and approximate time of day that the observation was made.

For all test procedures:

1. Apply the parking brake.
2. Select NEUTRAL OR PARK (if the vehicle is equipped with an automatic transmission).
3. Select NEUTRAL (if the vehicle is equipped with a manual transmission).
4. (If fitted with manually operated choke) – ensure it is in the OFF position.
5. Start the engine and ensure it is operating at its (specified) normal operating temperature.

Lambda check (for all vehicle post 1972)

A lambda check may be used as an alternative to the Idle and 2 speed idle tests.

A wide band Lambda meter with data logging capability is required for this test. Real time data/live data recordings of the test results should be provided as part of the test results.

When conducting the Lambda check, it is a requirement to drive the vehicle on the road and to engage certain driving conditions that can confirm that the fuel control closed loop system is controlling the fuel trim within the specified Lambda limits of 1.0 ± 0.05 .

The attachment of the sampling probe may also vary depending on the type of Lambda meter used and must be as per the equipment manufacturers procedures.

NOTE: a Lambda value of 1.0 represents the optimum air/fuel ratio of 14.6:1 that's required to ensure complete combustion.

IM240/RG240 Test (alternative test for all vehicles)

IM240 (NSW) test specifications can be provided if required.

RG240 test may also be accepted as an alternative to idle and 2 speed idle tests. An RG240 test can be performed using repair grade dynamometer and a 5-gas analyser, provided that the IM240 (NSW) Test Specification, vehicle inertia loading, drive cycle and gear change points are used.

NOTE: a 5 gas analyser is required to assess levels of Nitrous Oxides (NOx) in a vehicle's exhaust stream.

Emission limits for IM240/RG240 test are those defined in the relevant ADR's for CO, HC and NOx and are to be measured in g/km.

A graphical display of the scan tool live data showing the emissions (CO, HC and NOx) against speed for over the 240 second drive cycle and the total sum of each emission per km, shall be provided as part of the test report.

4/5 Gas analyser

A non-dispersive infrared (NDIR) exhaust gas analyser (ie the *instrument*) shall be used to sample the concentrations of *HC* (hexane), *CO* (Carbon Monoxide), *NOx* (Nitrous Oxide), *O₂* (Oxygen) and *CO₂* (Carbon Dioxide) present in a vehicle's exhaust gas.

Exhaust Gas Sample Rate and Accuracy of Sample Taken

The exhaust gas analyser shall be capable of measuring concentrations of exhaust gases at least once every second and providing this data in an electronic output format.

The exhaust gas analyser shall provide an accurate accounting of the actual exhaust gas produced during the test, taking into consideration the individual channel accuracies, repeatability's, interference effects, sample transport times, and analyser response times.

Calibration

The *instrument* shall be calibrated at least every 12 months by being zeroed with dry nitrogen which contains less than 10ppm *CO*, or 6ppm total *HC* [equivalent carbon response], as applicable, and spanned with a *CO* or total *HC* mixture, as applicable, which will result in a response equivalent to not less than 70% of the full scale deflection.

The *instrument* must also be zeroed and spanned using a secondary electronic or mechanical system prior to each measurement.

Hydrocarbon (HC) Analysis

The *instrument* shall be capable of sampling *HC* concentrations ranging from 0 to 9999ppm.

- Up to 2000ppm, the instrument shall have an accuracy of $\pm 3\%$ of point or 4ppm, whichever is greater.
- Between 2001 and 5000ppm, it shall have an accuracy of at least $\pm 5\%$ of point.
- Between 5001 and 9999ppm, it shall have an accuracy of at least $\pm 10\%$ of point.

The repeatability of the recorded *HC* results shall be:

- Up to 1400ppm, shall be 2% of point or 3ppm absolute, whichever is greater.
- Between 1401 and 2000ppm, shall be 3% of point.

Nitrous Oxide (NOx) Analysis

The *instrument* shall be capable of sampling *NOx* concentrations ranging from 0 to 5000ppm.

- Up to 4000 ppm, it shall have an accuracy of $\pm 4\%$ or 25 ppm, whichever is greater.
- From 4001ppm to 5000ppm, it shall have an accuracy of at least $\pm 8\%$.

The repeatability of the recorded *NOx* results shall be 3% of point or 20 ppm, whichever is greater.

Oxygen (O₂) Analysis

The *instrument* shall be capable of sampling *O₂* concentrations ranging from 0 to 25.0% with an accuracy of at least 5% of point or $\pm 0.1\%$, whichever is greater.

The repeatability of the recorded *O₂* results shall be 3% of point or 0.1%, whichever is greater.

Carbon Monoxide (CO) Analysis

The *instrument* shall be capable of sampling CO concentrations ranging from 0 to 14.0%.

- Up to 10.00%, it shall have an accuracy of within $\pm 3\%$ of point or 0.02%, whichever is greater.
- Between 10.01% and 14.00%, it shall have an accuracy of at least $\pm 5\%$ of point.

The repeatability of the recorded CO results shall be:

- Up to 7.00% CO, shall be 2% of point or 0.02% CO absolute, whichever is greater.
- From 7.00% to 10.00% CO, the repeatability shall be 3% of point.

Carbon Dioxide (CO₂) Analysis

The *instrument* shall be capable of sampling CO₂ concentrations ranging from 0 to 18.0%.

- Up to 16.00%, it shall have an accuracy of $\pm 0.3\%$.
- Between 16.01% and 18.00%, it shall have an accuracy of at least $\pm 0.5\%$.

The repeatability of the recorded CO₂ results shall be:

- Up to 10.0% - 2% of point or 0.1% CO₂ absolute, whichever is greater.
- From 10.1% to 16.0% - 3% of point.

A Scan Tool or On-board Diagnostics (OBD) code reader (ie the *Instrument*) complying with ISO 15765-4:2005 *Road vehicles Diagnostics on Controller Area Networks (CAN) Part 4: Requirements for emissions-related systems* (or a later version of that standard) is required to record and display engine fault codes.

Whereas an *OBDI* device is usually vehicle specific, a generic *ODBII* tool can be used to check vehicle/engine fault codes and usually list emissions information on multiple vehicles.

The *instrument* shall incorporate the hardware, adaptors and software necessary to access a vehicle's onboard diagnostic system, (ie *OBDI* and/or *ODBII*), to record its engine speed and recover its stored fault codes using a standard *OBD* data link. As a minimum, the *Instrument* must:

- Provide live data
- Record, display and erase engine codes
- Check/Test a vehicle's:
 - battery status/performance
 - on-board monitor system
 - O₂ or *Lambda* sensor
 - EVAP system (the ability to draw fuel vapour into the engine for combustion)
- Record and display:
 - engine speed/RPM
 - coolant temperature
 - air-fuel (ie *Lambda*) ratio
 - engine emission related fault codes

Emissions testing check list

This check list provides a record that the vehicle identified in this document has been tested as described in “Interim NSW emissions test procedure for Modified and Individually Constructed vehicles (ICV)”.

Vehicle, VSCCS Licensed Certifier and Testing Facility details

Vehicle make:	Vehicle model:	Date of manufacture:
VIN (if applicable):	Vehicle chassis no. (if applicable):	Engine Number:
VSCCS Licensed Certifier:	Emissions Testing Facility:	

Visual inspection (See Section 4 of Part B - Test Procedure)

	Yes	No
Exhaust leaks checked with satisfactory inspection results (see section 4.1)	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Leaks checked with satisfactory inspection results (see section 4.1)	<input type="checkbox"/>	<input type="checkbox"/>
Engine system components checked with satisfactory inspection results (see sections 4.2 to 4.4)	<input type="checkbox"/>	<input type="checkbox"/>
Smoke test performed with satisfactory inspection results (see section 5 and Appendix B of Part B)	<input type="checkbox"/>	<input type="checkbox"/>
OBD/Engine control system checked with satisfactory results (see section 6 and Appendix E)	<input type="checkbox"/>	<input type="checkbox"/>

Note: If the answer to any question is “No”, the modification cannot be certified under this Interim NSW Emissions Test Procedure.

Emissions test

Test equipment calibration (see Appendix D)

List equipment and calibration dates:

Model _____

Serial Number _____

Last calibration date* _____

*provide photo as part of certification evidence

Select answers as appropriate for the test performed:

	Yes	No
Low and High Speed Idle test (see section 7):		
• Engine Speed: _____		
• Engine Temperature (see section 3): _____		
• ECU and OBD codes print outs, screen captures or photos available	<input type="checkbox"/>	<input type="checkbox"/>
• Are the test results within the limits in the table in Appendix A of this procedure?	<input type="checkbox"/>	<input type="checkbox"/>
OR		

Lambda Test (see Appendix C of Part B)

- Satisfactory real time data/live data recordings of the test results available?
- Are the test results within the limits in the table in Appendix A of this procedure?

OR

IM 240/RG 240 (see Appendix C of Part B)

- Screen capture of the live data graphical display (emissions/speed) and total sum of each emission/km
- Are the test results within the limits in the table in Appendix A of this procedure?

Note: If the answer to any question is “No”, the modification cannot be certified under this Interim NSW Emissions Test Procedure.

Signature: _____

Date: _____

Certifiers License Number: _____

Record keeping:

This document needs to be completed, filed, and kept for future audit purposes along with all the accompanying evidence requested in this checklist for at least 7 years, and make it available to support every statement of compliance as part of the VSCCS certification process. Evidence must include:

- Evidence of equipment calibration
- Data readouts including photo evidence of engine speed and engine temperature
- Detailed bill of materials of components fitted
- Aftermarket component manufacturer information (component performance) if applicable
- Detailed photographs that clearly and unambiguously show the modification