

Recommended Application Format for Certification of Off-highway Motorcycles and All-terrain Vehicles

To expedite review of your application for certification, the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (CARB) strongly recommend that you adopt the standardized application format presented in this Guidance. While other formats may be acceptable, they may result in longer EPA/CARB review time.

The recommend application format is based on the requirements specified in 40 CFR §1051 (published on November 8, 2002 and are subject to change through future regulatory amendments) and corresponding CARB's Standards and Test Procedures (CaSTP). In this guidance, citations to 40 CFR §1051 shall also mean references to the corresponding CaSTP for the same requirements unless noted otherwise.

*Please note that EPA and CARB regulations differ in certain requirements (e.g., definition of ATV, alternate useful life, alternate test schedules, assigned DFs, emission standards and measurement units, etc.) For vehicles intended for sale in California, manufacturers must obtain separate certification from CARB. For these vehicles, the term "EPA/CARB" as used throughout this guidance document shall mean that any applicable certification requirements and agency action must be **separately but concurrently** addressed to and ruled on by EPA and CARB.*

July 21, 2004

Certification and Compliance Division
Office of Transportation and Air Quality
U.S. EPA

California Air Resources Board

Recommended Application Format

Part A. Common Information

Part B. Individual Engine Family Application

1. Request for Certification
2. Correspondence and Communications
3. Data Summary Sheet (DSS)
4. 40 CFR §1051.205 (a) to (s) Application Requirements
5. Averaging, Banking, and Trading (ABT) Requirements, if any.
6. Additional California Requirements (reserved)

Part A. Common Information (to be submitted with your **first** application for a new model year and must be updated when changes occur before and after certification)

You may submit certain information which is common to more than one engine family (EF) in Part A, rather than in Part B for an individual EF's application. If you do so, you may reference the information rather than submit it within Part B application. We have made suggestions, in each section of Part B below, of information that can usually be submitted as common information.

Part B. Individual Engine Family Application (to be submitted for **each** engine family for a new model year and must be updated when changes occur before and after certification)

1. Request for Certification

The request for an EPA certificate and/or CARB Executive Order (EO) should contain the following information:

- Manufacturer's legal name
- Name of the engine family that you intend to apply for a certificate/EO
- All applicable vehicle categories (see Part B.4(a)) within the EF.
- Statements that the EF complies with all applicable EPA/CARB regulations
- Primary certification contact for questions: name, title, phone and email addresses.
- Signature of an authorized company representative.

Advice for Submittal:

- Organize the above information as a cover letter. *Note: CARB requires an original signed cover letter to be submitted in paper format.*
- Identify your company's primary certification contact by "For questions call..."
- In general, you should plan for at least 30 days for EPA/CARB to review and issue a certificate/Executive Order from the time a complete application is submitted. However, if you have a special need for an expedited review, please indicate in the letter.

2. Correspondence and Communications

Information to be Included:

- Names, titles, phone numbers, fax numbers, e-mail addresses and areas of responsibility of all persons authorized to be in contact with EPA/CARB compliance staff. **At least one U.S. contact must be provided.**
- Dedicated Email address (one per company) for EPA to send certificates and any other official documents.
- U.S. mail address where EPA may mail official document if Email is not appropriate path.
- U.S. mail address where CARB will mail official documents, if different than above.

Advice for Submittal:

- Supply complete list of contacts in Part A.
- Create a dedicated email address to receive your certificate. We strongly recommend that you use the format [certificate@\[company\].com](mailto:certificate@[company].com) for your company to receive certificates and any other official documents.

3. Data Summary Sheet (DSS)

The Data Summary Sheet (DSS) (See Guidance 2, Attachment 1: DSS) is the printout summary of data that you entered into the EPA/CARB database for this engine family prior to preparing this application (A separate guidance regarding submitting data into EPA/CARB database will be provided when the database is ready). The DSS is comprised of the following sections:

- 1: General Information
- 2: EPA/CARB Emission Standards and Certification Levels
- 3: Engine Family Description
- 4: Exhaust Emission Control Information
- 5: Exhaust Emission Data Vehicle and Test Data
- 6: Permeation Emissions Control and Test Data
7. Models Covered

Including the DSS in the application not only reduces submission of redundant information that is required in other sections of Part B but also provides manufacturer another chance to review the data entered into EPA/CARB database.

[Note: Before the planned EPA/CARB database is fully functional, manufacturers may need to fill out the DSS.]

4. 40 CFR §1051.205 (a) to (s) Application Requirements

(a) Engine Family (EF) Description (Ref: 40 CFR §1051.205(a))

Describe the engine family's specifications and other basic parameters of the vehicle design. List the type of fuel you intend to use to certify the engine family. List vehicle configurations and model names that are included in the engine family.

Information to be included:

- Engine family name
- All applicable EPA/CARB vehicle categories within the EF:
 - **ATV.A** (all-terrain vehicle meeting CARB's 13 CCR 2411 definition and EPA's 40 CFR §1051.801 All-Terrain Vehicle (1) definition);
 - **ATV.B*** (all-terrain vehicle meeting EPA's 40 CFR §1051.801 All-Terrain Vehicle (1) and (2) definition but not CARB's 13 CCR 2411 definition);
 - **OFMC** (off-highway motorcycle);
 - **ENG** (engine-only certification, see 40 CFR §1051.20; not allowed under CARB regulations); or
 - **UTV** (off-road utility vehicles covered by 40 CFR §1051.1 (a)(4))*
- Any new technology applied
- Fuel type(s) (operating fuel(s)): gasoline, liquefied petroleum gas (LPG), methanol, or natural gas (NG), etc.
- The EF's specifications:
 - engine type, combustion cycle, displacement(s), rated power and torque, the number and arrangement of cylinders, appropriate bore diameter, and other basic vehicle parameters
 - engine cooling medium (air, water, oil, etc)
 - fuel system configuration, use SAE J1930 abbreviations:
 - ❖ CARB - Carburetion
 - ❖ TBI - throttle body fuel injection
 - ❖ MFI – multi-port fuel injection
 - ❖ SFI - sequential MFI
 - ❖ DGI - direct gasoline injection
 - ❖ AIR - secondary air injection
 - ❖ PAIR - pulsed AIR, etc.
 - method of air aspiration (natural, turbo charge, supercharge, etc.)
- Models covered (commercial model names, not manufacturer's model code names)

Advice for Submittal:

- Reference the appropriate sections on DSS for information required above.
- *Alternatively, manufacturers may choose to provide two tables, one for the models for CARB certification and the other for EPA certification.*

** to be certified under CARB SORE or LSIE regulations*

(b) Emission Control Systems and Auxiliary Emission Control Devices (AECD) (Ref: 40 CFR §1051.205(b))

Explain how the emission-control systems operate:

- (1) Describe in detail all the system components for controlling exhaust emissions, including auxiliary emission-control devices and all fuel-system components you will install on any production or test vehicle or engine. Explain why any auxiliary emission-control devices are not defeat devices (see 40 CFR §1051.115(f)). Do not include detailed calibrations for components unless we request them.
- (2) Describe the permeation emission controls.

For Exhaust Emission Control:Information to be Included:

- The detailed description of your catalyst converters (type, number, location, arrangement (i.e., parallel or series)*, volume, compositions, etc)
- The number, location, arrangement (i.e., parallel or series)* and type of the sensors, if any
- Brief description of fuel-system
- Brief description of Exhaust Gas Recirculation (EGR) as applicable
- Brief description of air injection system as applicable
- Brief description of any other exhaust emission control system
- Part numbers of emission related component (part numbers as stamped on the component, not the stock or inventory numbers)

* Use prefix “2” and suffix “(2)” to designate parallel and series arrangements, respectively (e.g., 2OC means two oxidizing catalytic converters in a parallel arrangement; O2S(2) means two oxygen sensors in a series arrangement, one before and one after the catalytic converter).

Advice for Submittal:

- You may reference the appropriate sections in the DSS for some information required above.
- You may organize the emission related part data in a table format.
- You may use schematics to illustrate control devices or strategies, if applicable.
- You may place any general descriptions or schematics in Part A.
- If you consider any of the catalyst information (volume, composition or ratio of the precious metals, etc.) to be confidential, create a code, such as “catalyst A” in a public file (name it FOI_[EF name].pdf) of the application and describe the catalyst associated with the code in the confidential copy (with name CBI_[EF name].pdf). Both files must be submitted to EPA/CARB.

For Evaporative/Permeation Emission Controls (Ref: 40 CFR §1051.245)Information to be Included:

- Permeation family or group name, if any.
- Fuel tank(s): material, wall thickness, total inside surface area and treatment approach/control technology.
- Fuel lines: material, wall thickness, total inside surface area and control technology.
- Detailed description of any other means or strategies used to prevent permeation emissions.

- Description of crankcase emission control.

Advice for Submittal:

- You may reference the appropriate DSS sections for the information required above.
- Use schematics to illustrate crankcase, tanks or hoses emissions controls as applicable, and place any common descriptions or schematics in Part A.
- For permeation emission control devices that are used in multiple engine families, you may reference a complete list of breakdown of your permeation emission control devices or strategies in Part A, rather than re-describe them within each application for an individual engine family.

Auxiliary Emission Control Devices (AECD):

Information to be Included:

All AECDs installed on any applicable vehicles including the sensed and controlled parameters. A detailed justification for each AECD which results in a reduction in effectiveness of the emission control system and rationale why the AECD is not a defeat device as defined under 40 CFR §1051.115(f).

Advice for Submittal:

- You may make a table, such as below, to list all AECDs, sensors, sensed and controlled parameters and justifications involved in the engine family:

AECD	Sensed Parameter	Sensor	Controlled Parameters				Justification/Rationale
			Volt High	Volt Low			

- You may reference a complete breakdown list of AECD tables for a model year in Part A rather than re-describe them with each engine family.
- If you consider any of the AECD information to be confidential, create a code in the public copy of the application and describe the confidential information associated with the code in the confidential copy. As mentioned above, both copies must be submitted to EPA/CARB.

(c) Emission Data Vehicle/Engine (EDV) Description (Ref: 40 CFR §1051.205(c))

Describe the vehicles or engines you selected for testing to satisfy the certification requirements and the reasons for selecting them.

Information to be Included:

- Manufacturer’s explanation for EDV selection (including justifications that the selected EDV meets the selection requirements under both EPA/CARB regulations, e.g. justify why a federal vehicle model selected for EDV for the EF meets CARB requirements; or,

vice versa, why a California vehicle model selected for EDV for the EF meets EPA requirements)

- Data type (new, carryover, or carry across)
- EDV ID (Vehicle Identification Number (VIN) or manufacturer's ID)
- EDV configuration
- EDV model name
- EDV rated horsepower @ rpm and rated torque@rpm
- EDV displacement
- EDV transmission type
- EDV N/V
- EDV curb mass
- EIM
- Road Load (nt)
- Test number
- Test fuel
- Exhaust emission control systems
- Maintenance performed

Advice for Submittal:

- You may place a complete breakdown of your EDV information for a model year in Part A and refer the page number of Part A in this section.
- You may reference the appropriate DSS sections for test vehicle/engine information requested above.

(d) Alternate or Special Test Procedure Description (Ref: 40 CFR §1051.205(d), 235 & 501)

Describe any special or alternate test procedures and/or special test equipment you used.

Please note advanced EPA/CARB approvals are required before taking action.

Information to be Included:

Description of all EPA/CARB-approved special or alternate test procedures, special test equipment, durability procedures or driving schedules you used for exhaust or permeation emission tests.

Advice for Submittal:

- Include a copy of EPA's and CARB's approvals in the application when a special or alternate test procedures and/or special test equipment is used; or,
- Reference the EPA's and/or ARB's approval numbers here, if any.

(e) Durability Test Procedure Description (Ref: 40 CFR §1051.205(e) and 40 CFR §1051.520)

Describe how you operated the test vehicle or engine prior to testing, including the duty cycle and the minimum testing distance or minimum numbers of engine operating hours

to stabilize the emission levels, number of tests conducted and any scheduled maintenance you performed.

Please note, advanced EPA and CARB approvals are required prior to use of any special or alternate test procedures and/or special test equipment.

Exhaust Emissions Durability Procedures (40 CFR §1051.520):

Note: EPA-designated small-volume manufacturers (SVMs) may request to use EPA's assigned deterioration factors (DFs) instead of performing durability tests. California regulations and test procedures require durability demonstration for every EF but, unlike EPA's, do not provide for the use of assigned DFs. SVMs should discuss with assigned CARB staff to obtain advance CARB approval on how CARB's durability requirements will be met before any certification tests are conducted. Failure to do this can significantly delay CARB certification and/or result in a denial of the manufacturer's certification request.

Information to be Included:

- Deterioration Factor (DF) data type (new, carryover, [carry-across](#), or EPA assigned DFs for SVMs)
- If your durability data vehicle (DDV) is different than EDV (in certain carryover or carry-across cases), please provide the same information as required in Part B.4(c) for the DDV.
- Description of the durability procedure: mileage accumulation procedure, minimum and total testing distance/hours, number of tests conducted, emission levels from each test and any scheduled maintenance performed.

Advice for Submittal:

- Provide the durability procedure descriptions in Part A and place a reference in this section.
- Reference appropriate Section(s) on DSS for deterioration factors and test results.
- If new durability data is not provided, explain the reason and identify the source of data.
- Provide durability data and information in a table format.

Permeation Emissions Durability Procedures (40 CFR §1051.515(c)):

Information to be Included:

- Specifications of durability tanks/hoses
- Specifications of a canister(s), if any
- Description of any modifications made to EPA standardized procedure, if any.

Advice for Submittal:

- Provide the durability procedure descriptions in Part A. Then provide a reference in this section.
- Reference the DSS.B6 for all deterioration factors.
- If new durability data is not provided, explain the reason and identify the source of data.

(f) Test Fuel Specifications (Ref: 40 CFR §1051.205(f))

List the specifications of the test fuels to show that they fall within the required ranges

Information to be Included:

- Lists of the test fuel specifications for both exhaust and permeation emissions.

Advice for Submittal:

- List the test fuel specifications for both exhaust and permeation emissions side-by-side with the required range as specified in the applicable regulations.
- Place the above comparison lists in Part A and reference them in this Section.

(g) Useful Life of the Engine Family (Ref: 40 CFR §1051.205(g))

Specify the useful life of the engine family.

For EPA certification, in general the **minimum** useful life is 10,000 kilometers, 5 years, or 1,000 hours, whichever comes first. Five years should be used when the vehicle is not equipped with an odometer or hour meter.

For CARB, the useful life is fixed at 5 years/10,000 km; any other useful life, such as 1000 hours or any other alternative use full life that may be permitted under EPA regulations, is not allowed for California certification. Therefore, vehicle models intended to be certified for California-only or 50 states must comply with CARB useful life requirement.

(h) Maintenance and User Instructions (Ref: 40 CFR §1051.205(h) and 40 CFR §1051.125)

Provide the proposed maintenance and use instructions for the ultimate buyer of each new vehicle of this engine family as specified in 40 CFR §1051.125.

Information to be Included:

- Critical-emission related maintenance
- Recommend additional maintenance
- Special maintenance
- Non-critical-emission related maintenance
- Maintenance that is not emission-related
- Emission related part number summary form and sources for parts and repairs

Advice for Submittal:

- Make a table to list all parts that are emission related, with sources for parts and repairs.
- Provide us with the Owner's Manual for the new vehicles/engines when available. Submit the final ones in hardcopy.

(i) Emission-Related Installation Instructions (Ref: 40 CFR §1051.205(i) and 40 CFR §1051.130)

Information to be Included:

The proposed emission-related installation instructions for each model covered by this application, if you sell engines for someone else to install in a recreational vehicle (see 40 CFR §1051.130).

Advice for Submittal:

- **Discuss with EPA/CARB in advance on any issues raised on emission related installation instructions.**
- You may reference a complete breakdown of emission-related installation instructions for a model year in Part A and place a reference page number here.

(j) Vehicle/ Engine Emission Control Information (VECI) Label (Ref: 40 CFR 1051.205(j))

Propose an emission control information label.

Information to be Included:

- As specified in 40 CFR §1051.135 (c).

Advice for Submittal:

- **Discuss with EPA/CARB in advance if you propose any changes other than specified in 40 CFR §1051.135 (c).**
- Present a photocopy of the VECI label in the **same size** as the actual label.
- You may reference a complete set of photocopies of the labels for a model year in Part A.

(k) Emission Data (Ref: 40 CFR §1051.205(k))

Present emission data to show that you meet emission standards.

Information to be Included:

- Exhaust emission data for HC, NO_x, HC+NO_x and CO before and after applying deterioration factors, as specified in 40 CFR §1051.205(k)(1).
- Permeation emission test data for HC before and after applying deterioration factors, as specified in 40 CFR §1051.205(k)(2).

Advice for Submittal:

- Reference appropriate DSS section(s) for information requested.
- If new emission data is not provided in certain cases such as existing emission data carry-over, carry-across, or certify by design (Ref. 40 CFR §1051.235 & 245), explain the reason and identify the sources of data.

(l) All Test Results (Ref: 40 CFR §1051.205(l))

Report all test results, including those from invalid tests or from any nonstandard tests (such as measurements based on exhaust concentrations in parts per million). The records of all test results should include a description of test parameters and special test procedures that are applicable to the vehicles/engines covered by the certificate of conformity.

Information to be Included:

- All test results and calculations
- EDV preparation and starting procedures
- Service accumulation and emission stabilizing procedures
- Driving schedule/duty circles
- Shift schedules (list EPA/CARB shift schedule number and shift speeds)
- Dyno loading information (roadload coefficients, as appropriate; indexed by the vehicle characteristics (models, equivalent inertia mass (EIM), etc.)
- Permeation testing parameters
- Special test procedures, if any
- Special test equipment, if any

Advice for Submittal:

- Upon request, submit copies of raw test logs and any other raw records used in certification testing, including testing dates, numbers and distances, raw emissions data and calculations, and a description of all maintenance performed during a test.
- Keep all certification test related records on file for at least 5 model years.

(m) Deterioration Factors (DFs) (Ref: 40 CFR §1051.205(m))

Identify the engine family's deterioration factors and describe how you developed them. Present any emission test data you used for this.

Please note, separate DF calculations and DF(s) for EPA certificate and California EO may be required, due to EPA/CARB regulations differ in the following:

- (a) definition of DFs (EPA: additive for without aftertreatment and multiplicative for with aftertreatment; CARB: multiplicative in all cases); and*
- (b) possible different useful lives (EPA: minimum 10,000 km/1,000 hours/5 years, alternatives may be allowed. CARB: 10000 km in all cases).*

Information to be Included:

- List exhaust DFs for HC, NO_x, CO.
- List permeation DFs of HC for fuel tanks and fuel hoses separately.
- Provide all emission test data that are used for developing the above DFs.
- Describe how the DFs were developed, if an alternative durability procedure is applied.

Advice for Submittal:

- **Obtain advanced approvals from EPA/CARB for any alternative durability procedure.**
- Reference appropriate DSS section(s) for information required above.
- Provide any general information in Part A.

(n) Adjustable Operating Parameters and Other Adjustments (Ref: 40 CFR §1051.205(n))

Describe all adjustable operating parameters and other adjustments.

Information to be Included (Ref: 40 CFR §1051.115 (c) and (d)):

- The nominal or recommended setting.
- The intended physically adjustable range, including production tolerances if they affect the range.
- The limits or stops used to establish adjustable ranges.
- The air-fuel ratios or jet chart specified in 40 CFR §1051.115(d).

Advice for Submittal:

- Organize the above required information by a table, such as below, when appropriate:

Adjustable Parameters	Nominal Setting	Adjustable Range	Tamper Resistance Method	Approval Reference

- You may reference a complete breakdown of adjustable operating parameters for a model year in the Part A - Common Information and place reference # number here.

(o) Statement of Compliance – Test Vehicles (Ref: 40 CFR §1051.205(o))

State that you operated your test vehicles or engines according to the specified procedures and test parameters using the fuels described in the application to show you meet the requirements of this part. *Separate statements are required referencing EPA and CARB procedures and requirements respectively.*

Advice for Submittal:

- Provide the required compliance statement in your cover letter.

(p) Statement of Compliance – Engine Family (Ref: 40 CFR §1051.205(p))

State unconditionally that all the vehicles (and/or engines) in the engine family comply with the requirements of this part, other referenced parts, and the Clean Air Act. *Separate statements are required referencing EPA and CARB regulations, test procedures and related requirements respectively.*

Advice for Submittal:

- Provide the required compliance statement in your cover letter.

(q) Projected U.S./California Sales (Ref: 40 CFR §1051.205(q))

Include estimates of U.S.-directed production volumes

Information to be Included:

- A list of projected US sales for each model of the engine family.
- Organize the data in a table, such as:

Model Name	U.S Sales Number			Note
	Calif.	49 States	Total	

- Note competition model sales, if included in the FEL.
- Projected sales may be considered confidential. If you wish confidential treatment of these projected sales, submit the sales information only in the CBI copy of your application.

(r) Emission Sampling Method (Ref: 40 CFR §1051.205(r))

Upon request by the EPA/CARB, manufacturers must show us how to modify your production (customer) vehicles to measure emissions in the field (see 40 CFR §1051.115 (b)).

(s) Other Information (40 CFR §1051.205(s))

Information to be Included:

- Phase-in plan for the **first model year** of the phase-in (*Not applicable to CARB.*)
- Copy of your application fee filing form (*Not applicable to CARB.*)
- Copy of a CARB EO, if apply for “California-only” certificate (*Not applicable to CARB.*)
- Any additional information that you may consider to help us to evaluate your application

Advice for Submittal

- Organize the phase-in sales data in such a way to show projected compliance with any applicable implementation schedules or minimum sales requirements. The plan should indicate which EFs are part of the phase-in requirements and which are not. The plan should also include the rate of compliance and a determination that the phase-in implementation schedule will be met.
- Indicate competition vehicle sales involved in the FELs, if any.
- Place the phase-in compliance plan in Part A.
- Projected sales may be considered confidential. If you wish confidential treatment of these projected sales, submit an additional CBI copy of your application with the sales figures, and place a reference to the CBI in the public copy.

5. Averaging, Banking, and Trading Requirements (40 CFR §1051.701-735), if Required

You need to provide information requested in this section only if you chose to take corporate emissions averaging, and/or banking, and/or trading options to certify to a manufacturer specified engine Family Emission Limit (FEL) based on 40 CFR §1051.701-735, or CARB designated standards.

CARB regulations allow averaging, but not banking or trading. The use of banked or purchased credits are not allowed in a CARB averaging compliance plan. CARB sales, not 50-state sales, must be used in the CARB averaging compliance plan. A separate CARB compliance plan is required.

Information to be included:

- A statement of your belief that your corporate average emission levels will comply with the applicable standards.
- Detailed calculations of average emission levels and credits balance based on projected production (see sample format attached).

Advice for Submittal and record keeping:

- You may reference your statement and a complete breakdown of ABT plan for a model year in the Part A for common information and place reference # number here.
- Projected sales may be considered confidential. If you wish confidential treatment of these projected sales, submit an additional CBI copy of your application with the sales figures, and place a reference to the CBI in the public copy.
- You are required to maintain organized paper records containing at least the following for **three years** from the due date for the end-of-model year report:
 - Model years and EFs involved.
 - Family Emission Limits (FEL)/CARB designated standards.
 - Useful life for individual EFs.
 - Projected U.S.-directed production volume for the model year.
 - Projected California-directed production volume for the model year.
 - Actual U.S.-directed production volume for the model year.
 - Actual California-directed production volume for the model year.
- You are required to submit detailed calculations of the average emission levels and credits balance based on actual production within 120 days of the end of your model year.

6. Additional California Information (Reserved)

Attachments:

1. DSS Template
2. Sample of ABT forms
3. Sample Application (to be developed after receiving feedback from manufacturers for this draft)