

on a carbon number basis of one ( $C_1$ ). For example, if you use a  $C_3H_8$  span gas of concentration 200  $\mu\text{mol/mol}$ , span the FID to respond with a value of 600  $\mu\text{mol/mol}$ .

(5) Zero the FID. Note that FID zero and span balance gases may be any combination of purified air or purified nitrogen that meets the specifications of §1065.750. We recommend FID analyzer zero and span gases that contain approximately the flow-weighted mean concentration of  $O_2$  expected during testing.

(6) Span the FID with the  $C_3H_8$  span gas that you selected under paragraph (a)(1) of this section.

(7) Introduce at the inlet of the FID analyzer the alcohol/carbonyl calibration gas that you selected under paragraph (a)(2) of this section.

(8) Allow time for the analyzer response to stabilize. Stabilization time may include time to purge the analyzer and to account for its response.

(9) While the analyzer measures the alcohol/carbonyl concentration, record 30 seconds of sampled data. Calculate the arithmetic mean of these values.

(10) Divide the mean measured concentration by the recorded span concentration of the alcohol/carbonyl calibration gas. The result is the FID analyzer's response factor for alcohol/carbonyl,  $RF_{MeOH}$ .

(b) Alcohol/carbonyl calibration gases must remain within  $\pm 2\%$  of the labeled concentration. You must demonstrate the stability based on a quarterly measurement procedure with a precision of  $\pm 2\%$  percent or another method that we approve. Your measurement procedure may incorporate multiple measurements. If the true concentration of the gas changes deviates by more than  $\pm 2\%$ , but less than  $\pm 10\%$ , the gas may be relabeled with the new concentration.

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#### § 1065.850 Calculations.

Use the calculations specified in §1065.665 to determine THCE or NMHCE.

### Subpart J—Field Testing and Portable Emission Measurement Systems

#### § 1065.901 Applicability.

(a) *Field testing.* This subpart specifies procedures for field-testing engines to determine brake-specific emissions using portable emission measurement systems (PEMS). These procedures are designed primarily for in-field measurements of engines that remain installed in vehicles or equipment in the field. Field-test procedures apply to your engines only as specified in the standard-setting part.

(b) *Laboratory testing.* You may use PEMS for any testing in a laboratory or similar environment without restriction or prior approval if the PEMS meets all applicable specifications for laboratory testing. You may also use PEMS for any testing in a laboratory or similar environment if we approve it in advance, subject to the following provisions:

(1) Follow the laboratory test procedures specified in this part 1065, according to §1065.905(e).

(2) Do not apply any PEMS-related field-testing adjustments or measurement allowances to laboratory emission results or standards.

(3) Do not use PEMS for laboratory measurements if it prevents you from demonstrating compliance with the applicable standards. Some of the PEMS requirements in this part 1065 are less stringent than the corresponding laboratory requirements. Depending on actual PEMS performance, you might therefore need to account for some additional measurement uncertainty when using PEMS for laboratory testing. If we ask, you must show us by engineering analysis that any additional measurement uncertainty due to your use of PEMS for laboratory testing is offset by the extent to which your engine's emissions are below the applicable standards. For example, you might show that PEMS versus laboratory uncertainty represents 5% of the standard, but your engine's deteriorated emissions are at least 20% below the standard for each pollutant.

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