NATIONAL VEHICLE AND FUEL EMISSIONS LABORATORY
ANN ARBOR, MI 48105

February 24, 2025

IACD-2025-01 (HD On-Highway CI and SI Engines, LDV)

SUBJECT: Approval of Alternate Test Procedure

Dear Manufacturer:

The provisions of 40 CFR Part 1065 (§1065.12) allow manufacturers to request approval from the Agency to use alternate procedures for demonstrating compliance with emission standards. To qualify for use of an alternate procedure, the petitioner must demonstrate that the alternate procedure is consistently and reliably at least as accurate and repeatable as the specified procedure. This request can be made by anyone, including manufacturers of engines or manufacturers of test equipment. The purpose of this letter is to provide notification that EPA has approved an alternate system at the request of Horiba Instruments, Inc. (Horiba), consistent with 40 CFR 1065.12(b).

Horiba approached EPA in January of 2024 in order to initiate discussions regarding their intent to seek alternate system approval to measure NO and NO2 using their infrared laser absorption modulation (IRLAM) technology. During calendar year 2024, Horiba engaged EPA in several discussions and submitted a final proposal on December 12, 2024.

The final proposal package, submitted December 12, 2024, provided a detailed explanation of the theoretical basis for IRLAM technology, a comprehensive technical description of the implementation of IRLAM and an explanation of how the technology enables compliance with §1065 and all applicable standard setting parts. The proposal package also included supporting data. This data included the results of an evaluation plan executed during 2024 that included engine and vehicle testing at Original Equipment Manufacturer (OEM) laboratories. Measurements in those laboratories compared results of IRLAM measurements with those of currently approved chemiluminescent systems and demonstrated that the variance between the IRLAM system and instruments using 40 CFR part 1065 measurement principles is not statistically significant.

Based on the information supplied in the application package, EPA has determined that the requirements of 40 CFR 1065.12 have been met. Therefore, EPA has granted alternate system approval for the Horiba IRLAM technology for the measurement of oxides of nitrogen (NO and NO2). This approval is subject to the following conditions:

- The approval is limited to utilizing HORIBA IRLAM analyzers for measurement of NO and NO2 species in heavy-duty engine and light-duty vehicle certification testing for Model Years 2025 through and including 2032
- The approval includes both laboratory and field testing
- The approval includes Compression-Ignition and Spark-Ignition Heavy-Duty On-Highway Engines certified to the requirements of 40 CFR parts 86 and 1036
- The approval includes Light-Duty On-Highway Vehicles certified to the requirements of 40 CFR part 86

If you have any questions, please contact Allen Duncan at 734-214-4815 or duncan.allen@epa.gov.

Sincerely,

Byron Bunker, Director
Implementation, Analysis and Compliance Division
Office of Transportation and Air Quality