UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CENTER FOR ENVIRONMENTAL MEASUREMENTS & MODELING
AIR METHODS & CHARACTERIZATION DIVISION (MD-D205-03)
Research Triangle Park, NC 27711

Office of
Research and Development

LIST OF DESIGNATED REFERENCE AND EQUIVALENT METHODS

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(www.epa.gov/ttn/amtic/criteria.html)

These methods for measuring ambient concentrations of specified air pollutants have been designated as "reference methods" or "equivalent methods" in accordance with Title 40, Part 53 of the Code of Federal Regulations (40 CFR Part 53). Subject to any limitations (e.g., operating range or temperature range) specified in the applicable designation, each method is acceptable for use in state or local air quality surveillance systems under 40 CFR Part 58 unless the applicable designation is subsequently canceled. Automated methods for pollutants other than PM_{10} are acceptable for use only at shelter temperatures between 20°C and 30°C and line voltages between 105 and 125 volts unless wider limits are specified in the method description.

Prospective users of the methods listed should note (1) that each method must be used in strict accordance with its associated operation or instruction manual and with applicable quality assurance procedures, and (2) that modification of a method by its vendor or user may cause the pertinent designation to be inapplicable to the method as modified. (See Section 2.8 of Appendix C, 40 CFR Part 58 for approval of modifications to any of these methods by users.)

Further information concerning particular designations may be found in the *Federal Register* notice cited for each method or by writing to the Center for Environmental Measurements and Modeling, Air Methods and Characterization Division (MD-D205-03), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711. Technical information concerning the methods should be obtained by contacting the source listed for each method. Source addresses are listed at the end of the listing of methods, except for the addresses for lead method sources, which are given with the method. New analyzers or PM_{10} samplers sold as reference or equivalent methods must carry a label or sticker identifying them as designated methods. For analyzers or PM_{10} samplers sold prior to the designation of a method with the same or similar model number, the model number does not necessarily identify an analyzer or sampler as a designated method. Consult the manufacturer or seller to determine if a previously sold analyzer or sampler can be considered a designated method or if it can be upgraded to designation status. Analyzer users who experience operational or other difficulties with a designated analyzer or sampler and are unable to resolve the problem directly with the instrument manufacturer may contact EPA (preferably in writing) at the above address for assistance.

This list will be revised as necessary to reflect any new designations, modifications of existing designations, or any cancellation of a designation currently in effect. The most current revision of the list will be available for inspection at EPA's Regional Offices, and copies may be obtained at the Internet site identified above or by writing to the Center for Environmental Measurements and Modeling at the address specified above.

Most Recent Designations

Designation Number	Applicant	Instrument Series	Summary of Designation	Effective Date
RFSA-1120-257	Kentek Inc.	Mezus 110 UV fluorescence FRM SO_2 Analyzer	New designation of SO_2 Analyzer	March, 2021
EQPM-0121-258	Focused Photonics Inc	BPM-200 β-ray PM_{10} FEM monitor	New designation of PM_{10} Analyzer	March, 2021

Most Recent Modifications of Existing Designations

Designation Number	Applicant	Instrument Series	Summary of Modification	Effective Date
EQSA-0495-100	Teledyne API	N100 Series SO_2 FEM Analyzer	Addition of model N100	May, 2021

Particulate Matter – PM_{10}

Andersen Model RAAS10-100 PM_{10} Single Channel PM_{10} Sampler
Manual Reference Method: RFPS-0699-130
"Andersen Instruments, Incorporated Model RAAS10-100 Single Channel Reference Method PM_{10} Sampler," with RAAS-10 PM_{10} inlet or the louvered inlet specified in 40 CFR 50 Appendix L, Figs. L-2 thru L-19, configured as a PM_{10} reference method, and operated for a continuous 24-hour sample period at a flow rate of 16.67 Lpm, and in accordance with the Model RAAS105-100 Operator's Manual and with the requirements and sample collection filters specified in 40 CFR Part 50, Appendix J.
Federal Register: Vol. 64, page 33481, 06/23/1999

Andersen Model RAAS10-200 PM_{10} Single Channel PM_{10} Audit Sampler
Manual Reference Method: RFPS-0699-131
"Andersen Instruments, Incorporated Model RAAS10-200 Single Channel Reference Method PM_{10} Audit Sampler," with RAAS-10 PM_{10} inlet or the louvered inlet specified in 40 CFR 50 Appendix L, Figs. L-2 thru L-19, configured as a PM_{10} reference method, and operated for a continuous 24-hour sample period at a flow rate of 16.67 Lpm, and in accordance with the Model RAAS105-200 Operator's Manual and with the requirements and sample collection filters specified in 40 CFR Part 50, Appendix J.
Federal Register: Vol. 64, page 33481, 06/23/1999

Andersen Model RAAS10-300 PM_{10} Multi Channel PM_{10} Sampler
Manual Reference Method: RFPS-0699-132
"Andersen Instruments, Incorporated Model RAAS10-300 Multi Channel Sequential Reference Method PM_{10} Sampler," with RAAS-10 PM_{10} inlet or the louvered inlet specified in 40 CFR 50 Appendix L, Figs. L-2 thru L-19, configured as a PM_{10} reference method, and operated for a continuous 24-hour sample period at a flow rate of 16.67 Lpm, and in accordance with the Model RAAS105-300 Operator's Manual and with the requirements and sample collection filters specified in 40 CFR Part 50, Appendix J.
Federal Register: Vol. 64, page 33481, 06/23/1999

BGI Incorporated Model PQ100 Air Sampler
Manual Reference Method: RFPS-1298-124
"BGI Incorporated or Mesa Laboratories Incorporated Model PQ100 Air Sampler," with BGI 16.7 Inlet Kit or the louvered inlet specified in 40 CFR 50 Appendix L, Figs. L-2 thru L-19, configured as a PM_{10} reference method, for a continuous 24-hour sample period at a flow rate of 16.7 Lpm, with original firmware version 6.X and lower or new firmware 2.0.0.0. or higher, operated in accordance with the original Model PQ100 Instruction Manual or manual revision Version 7.0, as appropriate, and with the requirements specified in 40 CFR Part 50, Appendix J, using either the original or the newer PQ200-type filter cassettes, and with or without the optional Solar Panel Power Supply.
Federal Register: Vol. 63, page 69625, 12/17/1998
Latest modification: 01/2009; 6/2015; 5/2016; 10/2020

BGI Incorporated Model PQ200 Air Sampler
Manual Reference Method: RFPS-1298-125
"BGI Incorporated or Mesa Laboratories Incorporated Model PQ200 Air Sampler," with "flat plate" PM_{10} inlet or the louvered inlet specified in 40 CFR 50 Appendix L, Figs. L-2 thru L-19, configured as a PM_{10} reference method, and operated with firmware version 6V001 or earlier, for a continuous 24-hour sample period in accordance with the Model PQ200 Instruction Manual and with the requirements specified in 40 CFR Part 50, Appendix J, and with or without the optional Solar Panel Power Supply.
Federal Register: Vol. 63, page 69625, 12/17/1998
Latest modification: 6/2015; 5/2018; 10/2020

DKK-TOA Models FPM-222/222C, FPM223/223C, and DUB-222(S)/223(S) PM_{10} Monitor
Automated Equivalent Method: EQPM-0905-156
"DKK-TOA Models FPM-222, FPM-222C, FPM-223, FPM-223C, DUB-222(S), and DUB-223(S) Particulate Monitor," for monitoring PM_{10} in Ambient Air (beta attenuation monitor), configured for PM_{10}, with Firmware Version DUB4-658355, Corrected Slope Factor (FACT SLOPE) set to 1.232, Corrected Zero Value (FACT ZERO) set to 1.8, and with or without any of the following options: Auto Check and Serial Recorder.
Federal Register: Vol. 70, page 56684, 09/28/2005

Ecotech Model 3000 PM_{10} High Volume Air Sampler
Manual Reference Method: RFPS-0706-162
"Ecotech Pty. Ltd. Model 3000 PM_{10} High Volume Air Sampler," configured with the Ecotech PM_{10} Size-Selective Inlet (SSI)(P-ECO-HVS3000-02), with the flow rate set to 1.13 m^3/min (67.8 m^3/hour).
Federal Register: Vol. 71, page 42089, 07/25/2006

Environnement S.A. or ENVEA Model MP101M PM_{10} Monitor
Automated Equivalent Method: EQPM-0404-151
"Environnement S.A. or ENVEA Model MP101M PM_{10} Beta Gauge Monitor," configured with the louvered PM_{10} inlet specified in 40 CFR 50 Appendix L or its flat-topped predecessor version and one of the three optional temperature-regulated sampling tubes (RST), and operated with the sample flow rate set to 1.00 m^3/h and in accordance with the Ambient Air Continuous Particulate Monitor Model MP101M operation manual. With or without optional ESTEL analog inputs/outputs and touchscreen user interface, serial link: 1 RS-232/422; USB port; Ethernet port (TCP/IP). This designation applies to PM_{10} measurements only. [2]
Federal Register: Vol. 69, page 18569, 4/8/2004
Latest modification: 9/2017, 8/2020

Focused Photonics Inc. BPM-200 PM_{10} Monitor
Automated Equivalent Method: EQPM-0121-258
"Focused Photonics Inc. BPM-200 PM_{10} Monitor" operated in the following concentration ranges: 0-1 mg/m^3, 0-2 mg/m^3, 0-5 mg/m^3, or 0-10 mg/m^3, analyzing ambient conditions temperatures between -30°C to 50°C while the monitor can operate in a conditioned space between 0°C to 50°C. The unit is operated for 24-hour average measurements, with the FPI P/N 1010500687 EPA PM_{10} inlet, glass fiber filter tape with axial inner diameter of 41mm (1360700223), the 220VAC 50Hz power supply, the FPI P/N 1010500688 Atmospheric Temperature Unit, the 1010500920 Air heating unit for maintaining moisture at about 35% and no ΔT control, the FPI P/N 1360600229 filter, the FPI P/N 1010500303 internal calibration device, 1041000215 Main Board, 1010503229 Interface board display. Instrument must be operated in accordance with the appropriate instrument manual and with software (firmware) version AQMSPlus.P005.V01A.US001.
Federal Register: Vol. 86, pages 12682-12683, 03/04/2021

Graseby Andersen/GMW Model 1200 High-Volume Air Sampler
Manual Reference Method: RFPS-1287-063
"Sierra-Andersen or General Metal Works Model 1200 PM_{10} High-Volume Air Sampler System," consisting of a Sierra-Andersen or General Metal Works Model 1200 PM_{10} Size-Selective Inlet and any of the high-volume air samplers identified as SAUV-10H, SAUV-11H, GMW-IP-10, GMW-IP-10-70, GMW-IP-10-801, or GMW-IP-10-8000, which include the following components: Anodized aluminum high-volume shelter with either acrylonitrile butadiene styrene plastic filter holder and motor/blower housing or stainless steel filter holder and phenolic plastic motor/blower housing; 0.6 hp motor/blower; pressure transducer flow recorder; either an electronic mass flow controller or a volumetric flow controller; either a digital timer/programmer, seven-day mechanical timer, six-day timer/programmer, or solid-state timer/programmer; elapsed time indicator; and filter cartridge.
Federal Register: Vol. 52, page 45684, 12/01/1987 and Vol. 53, page 1062, 01/15/1988

Particulate Matter – $PM_{2.5}$

Andersen Model RAAS2.5-200 $PM_{2.5}$ Ambient Audit Air Sampler
Manual Reference Method: RFPS-0299-128
"Andersen Instruments, Incorporated Model RAAS2.5-200 $PM_{2.5}$ Audit Sampler," configured as a $PM_{2.5}$ reference method and operated with software (firmware) version 4B, 5.0.1 - 6.09, 6.0A, or 6.0B, for a continuous 24-hour sample period at a flow rate of 16.67 liters/minute, and in accordance with the Model RAAS2.5-200 Operator's Manual and with the requirements and sample collection filters specified in 40 CFR Part 50, Appendix L.
Federal Register: Vol. 64, page 12167, 03/11/1999

BGI Inc. Models PQ200 or PQ200A $PM_{2.5}$ Ambient Fine Particle Sampler
Manual Reference Method: RFPS-0498-116
"BGI Incorporated or Mesa Laboratories Incorporated Models PQ200 and PQ200A $PM_{2.5}$ Ambient Fine Particle Sampler," operated with firmware version 3.88, 3.89R, 3.91, 3.91R, 5.62, and 6V001, for a continuous 24-hour sample period, in accordance with the Model PQ200/PQ200A Instruction Manual and with the requirements and sample collection filters specified in 40 CFR Part 50, Appendix L, and with or without the optional Solar Power Supply or the optional dual-filter cassette (P/N F-21/6) and associated lower impactor housing (P/N B2027), where the upper filter is used for $PM_{2.5}$. The Model PQ200A is described as a portable audit sampler and includes a set of three carrying cases.
Federal Register: Vol. 63, page 18911, 04/16/1998
Latest modification: 6/2015; 06/2016; 12/2016; 5/2018; 10/2020

BGI Inc. Models PQ200-VSCC™ or PQ200A-VSCC™ $PM_{2.5}$ Sampler
Manual Reference Method: RFPS-0498-116 *or* Manual Equivalent Method: EQPM-0202-142
"BGI Incorporated or Mesa Laboratories Incorporated Models PQ200-VSCC™ or PQ200A-VSCC™ $PM_{2.5}$ Ambient Fine Particle Sampler," configured with a BGI Very Sharp Cut Cyclone (VSCC™) particle size separator and operated with firmware version 3.88, 3.89R, 3.91, 3.91R, 5.62, and 6V001, for a continuous 24-hour sample period, in accordance with the Model PQ200/PQ200A Instruction Manual and VSCC™ supplemental manual and with the requirements and sample collection filters specified in 40 CFR Part 50, Appendix L, and with or without the optional Solar Power Supply or the optional dual-filter cassette (P/N F-21/6) and associated lower impactor housing (P/N B2027), where the upper filter is used for $PM_{2.5}$. The Model PQ200A VSCC™ is described as a portable audit sampler and includes a set of three carrying cases.
Federal Register: Vol. 67, page 15567, 04/02/2002
Latest modification: 6/2015; 06/2016; 12/2016; 5/2018; 10/2020

Environnement S.A. or ENVEA Model MP101M $PM_{2.5}$ Monitor
Automated Equivalent Method: EQPM-1013-211
"Environnement S.A. or ENVEA Model MP101M PM2.5 Beta Attenuation Monitor" using a glass fiber filter tape roll, operated at a sample flow rate of 16.67 liters/min for 24-hour average measurements of $PM_{2.5}$, configured with the standard EPA PM10 inlet (meeting 40 CFR 50 Appendix L specifications) associated with a BGI Very Sharp Cut Cyclone (VSCC™) particle size separator and using a temperature regulated sampling tube with ambient meteorological sensor. With or without optional ESTEL analog inputs/outputs and touchscreen interface, serial link: 1 RS-232/422; USB port; Ethernet port (TCP/IP). Instrument must be operated in accordance with the Ambient Air Continuous Particulate Monitor Model MP101M operation manual. This designation applies to $PM_{2.5}$ measurements only.
Federal Register: Vol. 78, page 67360, 11/12/2013
Latest modification: 9/2017, 8/2020

Graseby Andersen Model RAAS2.5-100 $PM_{2.5}$ Ambient Air Sampler
Manual Reference Method: RFPS-0598-119
"Graseby Andersen Model RAAS2.5-100 $PM_{2.5}$ Ambient Air Sampler," operated with software version 4B, 5.0.1 - 6.09, 6.0A, or 6.0B, configured for "Single 2.5" operation, for a continuous 24-hour sample period at a flow rate of 16.67 liters/minute, and in accordance with the Model RAAS2.5-100 Operator's Manual and with the requirements and sample collection filters specified in 40 CFR Part 50, Appendix L.
Federal Register: Vol. 63, page 31991, 06/11/1998

Environnement S.A. or ENVEA SANOA Multigas Longpath Monitoring System
Automated Equivalent Method: EQSA-0400-138
"Environnement S.A. or ENVEA Model SANOA Multigas Longpath Air Quality Monitoring System," consisting of a receiver, one or more projectors, interface unit, a user-provided control unit computer running the SANOA VisionAIR software, and associated incidental equipment; configured for measuring SO_2, with the temperature control and internal calibration cell options installed, operated with a measurement range of 0 to 0.5 ppm, over an installed monitoring path length of between 27 and 500 meters, within an ambient air temperature range of -30 to +45°C, with a measurement (integrating) time of 180 seconds, and with or without external temperature and barometric pressure sensors or any of the following options: external (meteo) input connection, series 1M bus connection, OGR type projector, analog outputs.
Federal Register: Vol. 65, page 26603, 05/08/2000
Latest Modifications: 08/2020

Focused Photonics Inc. (FPI) Model AQMS-500 SO_2 Analyzer
Automated Reference Method: RFSA-1219-255
"Focused Photonics Inc. AQMS-500 SO_2 Analyzer" Ultraviolet Fluorescence (UVF) analyzer operated in the range of 0–0.5 ppm, with 5 µm, 47 mm diameter Teflon® (PTFE) filter installed, operated at temperatures between 20°C and 30°C, at nominal input line voltage of 220±10% VAC and frequency of 50 Hz, at a nominal sampling flow rate of 800±80 cc/min, and operated according to the FPI AQMS-500 User Manual.
Federal Register: Vol. 85, page 5958, 2/3/2020

Horiba Models APSA-360, APSA-360-CE, or APSA-360A-CE SO_2 Monitors
Automated Equivalent Method: EQSA-0197-114
"Horiba Instruments, Inc. Models APSA-360, APSA-360-CE or APSA-360A-CE Ambient Sulfur Dioxide Monitor," operated with a full scale range of 0 - 0.50 ppm, at any temperature in the range of 5°C to 40°C, with a Line Setting of "MEASURE," an Analog Output Setting of "MOMENTARY VALUE", and with or without any of the following options:[2] 1) Rack Mounting Plate and Side Rails, 2) RS-232 Communications Port, and 3) Internal zero gas and span gas generator.
"Horiba Instruments, Inc. Model APSA-360A-CE Ambient Sulfur Dioxide Monitor," operated with one of the following measurement ranges: 0-0.05 ppm, 0-0.1 ppm, 0-0.2 ppm, 0-0.5 ppm or 0-1.0 ppm; with selectable time constants from 10 to 300 seconds; at any temperature in the range of 5°C to 40°C; and with or without the optional internal zero gas and span gas generator.
Federal Register: Vol. 62, page 6968, 02/14/97; Vol. 63, page 31992, 06/11/1998

Horiba Model APSA-370 Ambient SO_2 Monitor
Automated Equivalent Method: EQSA-0506-159
"Horiba Instruments Incorporated Model APSA-370 Ambient SO_2 Monitor," operated with a full scale fixed measurement range of 0 - 0.50 ppm, with the automatic range switching off, at any environmental temperature in the range of 20°C to 30°C.[2]
Federal Register: Vol. 71, page 25587, 05/01/2006

KENTEK Inc. Model MEZUS 110 SO_2 Analyzer
Automated Equivalent Method: RFSA-1120-257
"KENTEK Inc. Model MEZUS 110 SO_2 Analyzer," UV fluorescence analyzer operated in a range of 0–0.5 ppm, with 0.5 µm, 47 mm diameter Teflon® filter installed, operated at temperatures between 20°C and 30°C, at a nominal sampling flow rate of 800 cc/min, using a 5 minute averaging time, with either 105VAC-125VAC or 200VAC-240VAC input power options installed, 280-watt power consumption, equipped with 7 inch LCD touch screen display, and operated according to the KENTEK Inc. Model Mezus 110 Sulfur Dioxide Analyzer User's Instruction Manual.
Federal Register: Vol. 86, pages 12682-12683, 03/04/2021

Lear Siegler Model AM2020 SO_2 Monitor
Automated Equivalent Method: EQSA-0486-049
"Lear Siegler Model AM2020 Ambient SO_2 Monitor," operated on a range of either 0-0.5 or 0-1.0 ppm, at a wavelength of 299.5 nm, with a 5 minute integration period, over any 10°C temperature range between 20°C and 45°C, with or without the automatic zero and span correction feature.
Federal Register: Vol. 45, page 79574, 12/01/1980; Vol. 46, page 9997, 01/30/1981

Environnement S.A. or ENVEA Model O_3 42e UV Ozone Analyzer
Automated Equivalent Method: EQOA-0515-225
"Environnement S.A. or ENVEA Model O3 42e UV Photometric Ozone Analyzer," operated in a range of 0–0.5 ppm in an environment of 0–35 °C, with a Teflon sample inlet filter, with automatic temperature and pressure compensation, with a flow-rate of 1 Lpm and with zero/span external solenoid valve.
Federal Register: Vol. 80, page 32114, 6/05/2015
Latest Modifications: 08/2020

Focused Photonics Inc. (FPI) Model AQMS-300 O_3 Analyzer
Automated Equivalent Method: EQOA-0719-253
"Focused Photonics Inc. AQMS-300 O_3 Analyzer" UV photometric analyzer operated the range of 0–0.5 ppm, with 5 µm, 47 mm diameter Teflon®(PTFE) filter installed, operated at temperatures between 20°C and 30°C, at nominal input line voltage of 220±10% VAC and frequency of 50 Hz, at a nominal sampling flow rate of 800±80 cc/min, and operated according to the FPI AQMS-300 User Manual.
Federal Register: Vol. 84, page 44299, 8/23/2019

Horiba Instruments Models APOA-360 or APOA-360-CE Ozone Monitor
Automated Equivalent Method: EQOA-0196-112
"Horiba Instruments, Inc. Model APOA-360 or APOA-360-CE Ambient Ozone Monitor," operated with a full scale range of 0 - 0.50 ppm, at any temperature in the range of 10°C to 40°C, with a Line Setting of "MEASURE," and an Analog Output of "MOMENTARY VALUE," and with or without any of the following options:[2] 1) Rack Mounting Plate and Side Rails 2) RS-232 Communications Port, and 3) Optional Internal Zero/Span Check
Federal Register: Vol. 61, page 11404, 03/20/1996

Horiba Instruments Model APOA-370 Ozone Monitor
Automated Equivalent Method: EQOA-0506-160
"Horiba Instruments Incorporated APOA-370 Ambient O_3 Monitor," standard specification, operated with a full-scale fixed measurement range of 0 - 0.5 ppm, with the automatic range switching off, at any temperature in the range of 20 to 30°C.[2]
Federal Register: Vol. 71, page 25587, 05/01/2006

KENTEK Inc. MEZUS 410 O_3 Analyzer
Automated Equivalent Method: EQOA-0219-251
"KENTEK Inc. Model MEZUS 410 O_3 Analyzer," UV photometric analyzer operated in a range of 0–0.5 ppm, with 0.5 µm, 47 mm diameter Teflon® filter installed, operated at temperatures between 20°C and 30°C, with temperature and pressure compensation, at a nominal sampling flow rate of 800 cc/min, using a 5 minute averaging time, with either 105VAC-125VAC or 200VAC-240VAC input power options installed, 230-watt power consumption, equipped with 7 inch LCD touch screen display, and operated according to the KENTEK Inc. Model Mezus 410 Ozone Analyzer User's Instruction Manual.
Federal Register: Vol. 84, page 11973, 03/29/2019

McMillan (MEC) Models 1100-1, 1100-2, and 1100-3 Ozone Meters
"MEC Model 1100-1 Ozone Meter," Automated Reference Method: RFOA-1076-014
"MEC Model 1100-2 Ozone Meter," Automated Reference Method: RFOA-1076-015
"MEC Model 1100-3 Ozone Meter,' Automated Reference Method: RFOA-1076-016
Operated on a 0-0.5 ppm range, with or without any of the following options: 0011 Rack Mounting Ears; 0026 Alarm Set Feature; 0012 Instrument Bail; 0033 Local-Remote Sample; Zero, Span Kit Blend Feature; 0016 Chassis Slide Kit; 0040 Ethylene/CO_2.
Federal Register: Vol. 41, page 46647, 10/22/1976; Vol. 42, page 30235, 06/13/1977

Meloy Model OA325-2R Ozone Analyzer
Automated Reference Method: RFOA-1075-003
"Meloy Model OA325-2R Ozone Analyzer," operated with a scale range of 0-0.5 ppm, with or without any of the following options: 0-4 Output Booster Amplifier; 0-18 Rack Mount Conversion; 0-18A Rack Mount Conversion.
Federal Register: Vol. 40, page 54856, 11/26/1975

Environnement S. A. or ENVEA Model AC32M NO_2 Analyzer
Automated Reference Method: RFNA-0202-146
"Environnement S. A. Model AC32M Chemiluminescent Nitrogen Oxides Analyzer," operated with a full scale range of 0 - 500 ppb, at any temperature in the range of 10°C to 35°C, with a 5-micron PTFE sample particulate filter, with response time setting 11 (automatic response time), and with or without the following option: Internal permeation oven.
Federal Register: Vol. 67, page 15567, 04/02/2002
Latest Modifications: 08/2020

Environnement S.A. or ENVEA SANOA Multigas Longpath Monitoring System
Automated Reference Method: EQNA-0400-139
"Environnement S.A. or ENVEA Model SANOA Multigas Longpath Air Quality Monitoring System," consisting of a receiver, one or more projectors, interface unit, a user-provided control unit computer running the SANOA VisionAIR software, and associated incidental equipment; configured for measuring NO_2, with the temperature control and internal calibration cell options installed, operated with a measurement range of 0 to 0.5 ppm, over an installed monitoring path length of between 27 and 500 meters, within an ambient air temperature range of -30 to +45°C, with a measurement (integrating) time of 180 seconds, and with or without external temperature and barometric pressure sensors or any of the following options: external (meteo) input connection, series 1M bus connection, OGR type projector, analog outputs.
Federal Register: Vol. 65, page 26603, 05/08/2000
Latest Modifications: 08/2020

Environnement S.A. or ENVEA Model AS32M Nitrogen Dioxide Analyzer
Automated Equivalent Method: EQNA-1013-210
"Environnement S.A. or ENVEA Model AS32M cavity attenuated phase shift spectroscopy Nitrogen Dioxide Analyzer", operated on any full scale range between 0-500 ppb and 0-1000 ppb, at any ambient temperature in the range of 20°C to 30°C, with automatic response time ON, set to 11, in accordance with the associated instrument manual; with sample particulate filter; zero gas inlet and zero check enabled; sample permeation dryer. Serial link: 2 RS-232; USB port; Ethernet port (TCP/IP); onboard html web server and, with or without any of the following options: internal permeation bench; ESTEL analog inputs/outputs.
Federal Register: Vol. 78, page 67360, 11/12/2013
Latest Modifications: 08/2020

Focused Photonics Inc. Model AQMS-600 Nitric Oxides Analyzer
Automated Reference Method: RFNA-0819-254
"Focused Photonics Inc. Model AQMS-600 Chemiluminescent Nitric Oxides Analyzer," operated with a measurement range of 0-0.5 ppm, equipped with a 1-micron, 47mm diameter Teflon®(PTFE) sample inlet filter, at any temperature in the range of 20°C to 30°C, with Molybdenum NO_x converter operating at 315°C, at a nominal sample flow rate of 500±50 cc/min, with an ozone flow rate of 80±10% cc/min, at nominal input line voltage of 220±10% VAC and frequency of 50 Hz. Analyzer operated and maintained in accordance with the Model AQMS-600 Nitric Oxides Analyzer User Manual.
Federal Register: Vol. 84, page 50833, 9/26/2019

Horiba Instruments Models APNA-360 or APNA-360-CE NO-NO_2-NO_X Monitor
Automated Reference Method: RFNA-0196-111
"Horiba Instruments, Inc. Models APNA-360 or APNA-360-CE Ambient NO-NO_2-NO_X Monitor," operated with a full scale range of 0 - 0.50 or 0 - 1.0 ppm, at any temperature in the range of 10°C to 40°C, with a Line Setting of "MEASURE", and an Analog Output of "MOMENTARY VALUE", and with or without the following options:[2] 1) Rack Mounting Plate and Side Rails 2) RS-232 Communications Port.
Federal Register: Vol. 61, page 11404, 03/20/1996

Horiba Instruments Model APNA-370 NO_2 Monitor
Automated Reference Method: RFNA-0506-157
"Horiba Instruments Incorporated Model APNA-370 Ambient NO_x Monitor," standard specification, operated with a full scale fixed measurement range of 0 - 0.50 ppm with the automatic range switching off, at any ambient temperature in the range of 20°C to 30°C, and with a 0.3 micrometer sample particulate filter installed.[2]
Federal Register: Vol. 71, page 25587, 05/01/2006