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of the resulting measured fluorometric concentration for the active filter is less than 5 percent.

(5) Determine the quantity of material collected on the active filter using a calibrated fluorometer. Record the mass of fluorometric material for the active filter as $M_{active\ (i)}$ where i = the active channel number.

(6) Determine the quantity of material collected on each no-flow filter using a calibrated fluorometer. Record the mass of fluorometric material on each no-flow filter as $M_{no\text{-}flow}$.

(7) Using 0.01 N NaOH, wash the surfaces of the added component or components which contact the aerosol flow. Determine the quantity of material collected using a calibrated fluorometer. Record the mass of fluorometric material collected in the wash as M_{wash}.

(8) Calculate the aerosol transport as:

EQUATION 29

$$T_{(i)} = \frac{M_{active}}{M_{active+}M_{wash+}\sum M_{no\text{-}flow}} \text{ x } 100\%$$

where:

i = the active channel number.

(9) Repeat paragraphs (f)(1) through (8) of this section for each channel, making each channel in turn the exclusive active channel.

(g) *Test results.* The candidate Class I sampler passes the aerosol transport test if $T_{(i)}$ is at least 97 percent for each channel.

[62 FR 38799, July 18, 1997, as amended at 71 FR 61293, Oct. 17, 2006]

TABLE E–1 TO SUBPART E OF PART 53—SUMMARY OF TEST REQUIREMENTS FOR REFERENCE AND CLASS I EQUIVALENT METHODS FOR $PM_{2.5}$ AND $PM_{10-2.5}$

Subpart E procedure	Performance test	Performance specification	Test conditions	Part 50, appendix L reference
§ 53.52 Sample leak check test.	Sampler leak check facility.	External leakage: 80 mL/min, max. Internal leakage: 80 mL/min, max.	Controlled leak flow rate of 80 mL/min.	Sec. 7.4.6.
§ 53.53 Base flow rate test.	Sample flow rate 1. Mean 2. Regulation 3. Meas accuracy 4. CV accuracy 5. Cut-off	1. 16.67 ± 5%, L/min 2. 2%, max 3. 2%, max 4. 0.3% max 5. Flow rate cut-off if flow rate deviates more than 10% from design flow rate for >60 ± 30 seconds.	(a) 6-hour normal operational test plus flow rate cut-off test. (b) Normal conditions (c) Additional 55 mm Hg pressure drop to simulate loaded filter. (d) Variable flow restriction used for cut-off test.	Sec. 7.4.1. Sec. 7.4.2. Sec. 7.4.3. Sec. 7.4.4. Sec. 7.4.5.
§ 53.54 Power interruption test.	Sample flow rate 1. Mean 2. Regulation 3. Meas. accuracy 4. CV accuracy 5. Occurrence time of power interruptions. 6. Elapsed sample time 7. Sample volume	1. 16.67 ± 5%, L/min 2. 2%, max 3. 2%, max 4. 0.3% max 5. ± 2 min if >60 seconds. 6. ± 20 seconds 7. ± 2%, max	(a) 6-hour normal operational test. (b) Nominal conditions (c) Additional 55 mm Hg pressure drop to simulate loaded filter. (d) 6 power interruptions of various durations.	Sec. 7.4.1. Sec. 7.4.2. Sec. 7.4.3. Sec. 7.4.5. Sec. 7.4.12. Sec. 7.4.13. Sec. 7.4.15.4. Sec. 7.4.15.5.
§ 53.55 Temperature and line voltage test.	Sample flow rate 1. Mean 2. Regulation 3. Meas. accuracy 4. CV accuracy 5. Temperature meas. accuracy. 6. Proper operation.	1. 16.67 ± 5%, L/min 2. 2%, max 3. 2%, max 4. 0.3% max 5. 2 °C	(a) 6-hour normal operational test. (b) Normal conditions (c) Additional 55 mm Hg pressure drop to simulate loaded filter. (d) Ambient temperature at −20 and +40 °C. (e) Line voltage: 105 Vac to 125 Vac.	Sec. 7.4.1. Sec. 7.4.2. Sec. 7.4.3. Sec. 7.4.5. Sec. 7.4.8. Sec. 7.4.15.1.

Subpart E procedure	Performance test	Performance specification	Test conditions	Part 50, appendix L reference
§ 53.56 Barometric pressure effect test.	Sample flow rate ..... 1. Mean ..... 2. Regulation ..... 3. Meas. accuracy ..... 4. CV accuracy ..... 5. Pressure meas. accuracy. 6. Proper operation.	1. 16.67 ± 5%, L/min ..... 2. 2%, max ..... 3. 2%, max ..... 4. 0.3% max ..... 5. 10 mm Hg	(a) 6-hour normal operational test. (b) Normal conditions ..... (c) Additional 55 mm Hg pressure drop to simulate loaded filter. (d) Barometric pressure at 600 and 800 mm Hg.	Sec. 7.4.1. Sec. 7.4.2. Sec. 7.4.3. Sec. 7.4.5. Sec. 7.4.9.
§ 53.57 Filter temperature control test.	1. Filter temp. meas. accuracy. 2. Ambient temp. meas. accuracy. 3. Filter temp. control accuracy, sampling and non-sampling.	1. 2 °C ..... 2. 2 °C ..... 3. Not more than 5 °C above ambient temp. for more than 30 min.	(a) 4-hour simulated solar radiation, sampling. (b) 4-hour simulated solar radiation, non-sampling. (c) Solar flux of 1000 ± 50 W/m^2.	Sec. 7.4.8. Sec. 7.4.10. Sec. 7.4.11.
§ 53.58 Field precision test.	1. Measurement precision. 2. Storage deposition test for sequential samplers.	1. P_j < 2 μg/m^3 or RP_j < 5%. 2. 50 μg max. average weight gain/blank filter.	(a) 3 collocated samplers at 1 site for at least 10 days. (b) $PM_{2.5}$ conc. > 3 μg/m^3 ... (c) 24- or 48-hour samples (d) 5- or 10-day storage period for inactive stored filters.	Sec. 5.1. Sec. 7.3.5. Sec. 8. Sec. 9. Sec. 10.
The Following Requirement Is Applicable to Class I Candidate Equivalent Methods Only				
§ 53.59 Aerosol transport test.	Aerosol transport	97%, min. for all channels..	Determine aerosol transport through any new or modified components with respect to the reference method sampler before the filter for each channel.	

[72 FR 32208, June 12, 2007]

TABLE E–2 TO SUBPART E OF PART 53—SPECTRAL ENERGY DISTRIBUTION AND PERMITTED TOLERANCE FOR CONDUCTING RADIATIVE TESTS

Characteristic	Spectral Region			
	Ultraviolet		Visible	Infrared
Bandwidth (μm)	0.28 to 0.32	0.32 to 0.40	0.40 to 0.78	0.78 to 3.00
Irradiance (W/m^2)	5	56	450 to 550	439
Allowed Tolerance	±35%	±25%	±10%	±10%

[62 FR 38799, July 18, 1997; 63 FR 7714, Feb. 17, 1998]

FIGURE E–1 TO SUBPART E OF PART 53—DESIGNATION TESTING CHECKLIST

DESIGNATION TESTING CHECKLIST

Auditee _____ Auditor signature _____ Date _____

Compliance Status: Y = Yes N = No NA = Not applicable/Not available				
Verification			Verified by Direct Observation of Process or of Documented Evidence: Performance, Design or Application Spec. Corresponding to Sections of 40 CFR Part 53 or 40 CFR Part 50, Appendix L	Verification Comments (Includes documentation of who, what, where, when, why) (Doc. #, Rev. #, Rev. Date)
Y	N	NA		
			Performance Specification Tests Sample flow rate coefficient of variation (§ 53.53) (L–7.4.3)	
			Filter temperature control (sampling) (§ 53.57) (L–7.4.10)	