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APPENDIX A TO SUBPART B OF PART 53—  
OPTIONAL FORMS FOR REPORTING  
TEST RESULTS

TABLE B-5—SYMBOLS AND ABBREVIATIONS

$B_L$	Analyzer reading at specified <i>LDL</i> concentration.
$B_0$	Analyzer reading at 0 concentration for <i>LDL</i> test.
<i>DM</i>	Digital meter.
$C_{max}$	Maximum analyzer reading during 12ZD test.
$C_{min}$	Minimum analyzer reading during 12ZD test.
$i$	Subscript indicating the $i$ -th quantity in a series.
<i>IE</i>	Interference equivalent.
$L_1$	First analyzer zero reading for 24ZD test.
$L_2$	Second analyzer zero reading for 24ZD test.
$M_n$	Average of $P_1 \dots P_6$ for the $n$ -th test day.
$M_n$	Adjusted span reading at 20 percent of <i>URL</i> on the $n$ -th test day.
<i>MSD</i>	Span drift at 20 percent of <i>URL</i> .
$n$	Subscript indicating the test day number.
$P$	Analyzer reading for precision test.

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TABLE B-5—SYMBOLS AND ABBREVIATIONS—  
Continued

$P_i$	The $i$ -th analyzer reading for precision test.
$P_{20}$	Precision at 20 percent of <i>URL</i> .
$P_{80}$	Precision at 80 percent of <i>URL</i> .
$R$	Analyzer reading of pollutant alone for <i>IE</i> test.
$R_i$	Analyzer reading with interferent added for <i>IE</i> test.
$r_i$	The $i$ -th <i>DM</i> reading for noise test.
$S$	Standard deviation of noise readings.
$S_0$	Noise value ( $S$ ) measured at 0 concentration.
$S_{80}$	Noise value ( $S$ ) measured at 80 percent of <i>URL</i> .
$S_n$	Average of $P_7 \dots P_{12}$ for the $n$ -th test day.
$S'_n$	Adjusted span reading at 80 percent of <i>URL</i> on the $n$ -th test day.
<i>URL</i>	Upper range limit.
<i>USD</i>	Span drift at 80 percent of <i>URL</i> .
$Z$	Average of $L_1$ and $L_2$ .
$Z_n$	Average of $L_1$ and $L_2$ on the $n$ -th test day.
$Z_n$	Adjusted zero reading on the $n$ -th test day.
<i>ZD</i>	Zero drift.
12ZD	12-hour zero drift.
24ZD	24-hour zero drift.

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Applicant \_\_\_\_\_ Date \_\_\_\_\_

Test No. \_\_\_\_\_

Analyzer \_\_\_\_\_ Range \_\_\_\_\_

READING NUMBER (i)	TIME	0% of URL		80% of URL	
		DM READING	$r_i$ , ppm	DM READING	$r_i$ , ppm
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
$\sum_{i=1}^{25} r_i$					
$\sum_{i=1}^{25} r_i^2$					
S			$S_0 =$		$S_{80} =$

Figure B-2. Form for noise data.

Applicant _____		Range _____														
Analyzer _____		TEST NUMBER														
TEST PARAMETER	READING OR CALCULATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LOWER DETECTABLE LIMIT	$B_2$															
	$B_L$															
	$LDL = B_L - B_2$															
INTERFERENCE EQUIVALENT	$R_1$															
	$R_{11}$															
	$IE_1 = R_{11} \cdot R_1$															
	$R_2$															
	$R_{12}$															
2	$IE_2 = R_{12} \cdot R_2$															
	$R_3$															
	$R_{13}$															
3	$IE_3 = R_{13} \cdot R_3$															
	$R_4$															
	$R_{14}$															
4	$IE_4 = R_{14} \cdot R_4$															
	$R_5$															
	$R_{15}$															
5	$IE_5 = R_{15} \cdot R_5$															
	TOTAL	$IE_T = \sum_{i=1}^n IE_i$														

Figure B-3. Form for data and calculations for lower detectable limit and interference equivalent.

Applicant \_\_\_\_\_  
 Analyzer \_\_\_\_\_ Range \_\_\_\_\_

TEST DAY (m)	DATE	ANALYZER READING, ppm	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
P <sub>1</sub>																		
P <sub>2</sub>																		
P <sub>3</sub>																		
P <sub>4</sub>																		
P <sub>5</sub>																		
P <sub>6</sub>																		
$\sum_{i=1}^6 P_i^2$																		
P <sub>7</sub>																		
P <sub>8</sub>																		
P <sub>9</sub>																		
P <sub>10</sub>																		
P <sub>11</sub>																		
P <sub>12</sub>																		
$\sum_{i=7}^{12} P_i^2$																		
L <sub>1</sub>																		
L <sub>2</sub>																		
Z <sub>i</sub>																		
M <sub>i</sub>																		
S <sub>i</sub>																		
C <sub>max</sub>																		
C <sub>min</sub>																		

Figure B-4. Form recording data for drift and precision.

Applicant		Range														
Analyzer		n - th TEST DAY														
TEST PARAMETER	CALCULATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Zero drift	12ZD = $C_{max} - C_{min}$															
	$Z = \frac{1}{2}(L_1 + L_2)$															
24 hour	24ZD = $Z_n - Z_{n-1}$															
	24ZD <sub>n</sub> = $Z_n - Z'_{n-1}$															
20% URL	$M_n = \frac{1}{6} \sum_{i=1}^6 P_i$															
	$MSD_n = \frac{M_n - M_{n-1}}{M_{n-1}} \times 100\%$															
	$MSD_n = \frac{M'_n - M'_{n-1}}{M'_{n-1}} \times 100\%$															
Span drift	$S_n = \frac{1}{6} \sum_{i=7}^{12} P_i$															
	$USD_n = \frac{S_n - S_{n-1}}{S_{n-1}} \times 100\%$															
80% URL	$USD_n = \frac{S'_n - S'_{n-1}}{S'_{n-1}} \times 100\%$															
	$P_{20} = \sqrt{\frac{1}{5} \left[ \sum_{i=1}^6 P_i^2 - \frac{1}{6} \left( \sum_{i=1}^6 P_i \right)^2 \right]}$															
Precision	$P_{80} = \sqrt{\frac{1}{5} \left[ \sum_{i=7}^{12} P_i^2 - \frac{1}{6} \left( \sum_{i=7}^{12} P_i \right)^2 \right]}$															

Figure B-5. Form for calculating zero drift, span drift and precision.

Applicant _____		Analyst _____															
Analyzer _____		Range _____															
PERFORMANCE PARAMETER	Table B-1 spec.	TEST										No. of test failures					
NOISE, ppm	0% URL (S <sub>0</sub> )	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
	80% URL (S <sub>80</sub> )																
LDL (must be 2 × noise)																	
INTER-FERENCE EQUIV. ALENT, ppm	IE <sub>1</sub>																
	IE <sub>2</sub>																
	IE <sub>3</sub>																
	IE <sub>4</sub>																
	IE <sub>5</sub>																
TOTAL (IE <sub>T</sub> )																	
ZERO DRIFT, ppm	12 hour (1ZZD)																
	24 hour (2AZD)																
SPAN DRIFT, %	20% URL (MSD)																
	80% URL (USD)																
LAG TIME, min																	
RISE TIME, min																	
FALL TIME, min																	
PRECISION, ppm	20% URL (P <sub>20</sub> )																
	80% URL (P <sub>80</sub> )																

<sup>a</sup>Compare each test LDL reading with the corresponding noise measurements. LDL reading must exceed the 0% URL noise value by a factor of 2 to pass the test for LDL.

Figure B-6. Form for summary of test results.

[40 FR 7049, Feb. 18, 1975, as amended at 40 FR 18169, Apr. 25, 1975]

**Subpart C—Procedures for Determining Comparability Between Candidate Methods and Reference Methods**

SOURCE: 71 FR 61278, Oct. 17, 2006, unless otherwise noted.

**§ 53.30 General provisions.**

(a) *Determination of comparability.* The test procedures prescribed in this subpart shall be used to determine if a candidate method is comparable to a reference method when both methods measure pollutant concentrations in