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ENVIRONMENTAL NOISE MEASUREMENTS ON INTERSTATE 57 DURING AND AFTER TRUCK STRIKE

JUNE 1974

OFFICE OF NOISE ABATEMENT AND CONTROL

Washington, D.C. 20460

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5 50/9-74-010

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by

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Report Prepared under Agreement between Environmental Protection Agency, Office of Noise Abatement and Control and Construction Engineering Research Laboratory of the U.S. Department of the Army

FOREWORD

The nationwide independent truck drivers' strike of February 1974, afforded a unique opportunity to ascertain the noise impact of trucks on highway noise. For an approximate one-week period beginning February 1, truck traffic—a major contributant to highway noise—was curtailed as between 100,000 and 200,000 independent truckers went on strike.

In response to the impending strike, EPA's Office of Noise Abatement and Control sought the collection of data during and after the strike in order to quantify the impact of truck traffic to overall highway noise. EPA assigned the task to the Construction Engineering Research Laboratory (CERL) of the U. S. Army Corps of Engineers. Acting under interagency agreement with EPA, CERL measured highway noise along Interstate 57 between Champaign and Rantoul, Illinois. Data collection, which began February 1, lasted two weeks thus including approximately equal periods of strike and poststrike (i.e. normal) conditions.

To permit the calculation of day, night, and day-night equivalent energy sound levels, noise data, classified according to level, were collected daily at 7 am and 10 pm. With the assistance of the State of Illinois Highway Office, traffic count data were simultaneously collected.

FINDINGS

Although data were limited, a very definite increase in equivalent sound level and traffic flow were observed for the period of February 9 to 11 (the post-strike period). The increase, which was 4dB for the day-night level, is

believed to be caused by the truck contribution to the noise environmental for the following reasons:

1. The increase in night level was greater than that for daytime level. Trucks constitute a higher percentage of nightime traffic than daytime traffic.
2. The statistical distributions show a larger increase for higher energy levels after strike settlement than do the middle or lower levels. This contribution would come primarily from trucks.

While it is realized that more quantitative results would have required a well planned comprehensive monitoring program, this rather small program has illustrated that trucks significantly impact on highway noise. Because of its importance, EPA is pleased to make the following CERL report available to the public.

Alvin F. Meyer, Jr.
Deputy Assistant Administrator
for Noise Control Programs

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ENVIRONMENTAL NOISE MEASUREMENTS ON INTERSTATE 57 DURING AND AFTER TRUCK STRIKE

BACKGROUND

Environmental noise has been shown to be an adverse factor in the health and welfare of our society. Vehicle noise, and notably truck noise, is considered a major source of environmental noise. The recent truck strike of February 1974 with its corresponding decrease in truck traffic on interstate highways offered a unique opportunity for correlating truck traffic with environmental noise.

PURPOSE

The purpose of these measurements was to measure the "environment noise" near Interstate 57 in Illinois both during and after the truck strike in order to, if possible, correlate the decreased truck traffic with the decreased level of environmental noise.

SCOPE

Measurements were made of the acoustical distribution of the A-weighted noise level at a rural location along Interstate 57 between Champaign and Rantoul, Illinois, for a continuous period of 14 days. Simultaneous measurements were made of the traffic flow on the two sides of the freeway.

PROCEDURE

Two B&K Model 166 Environmental Noise Classifiers were used. One was set for the range 45 to 75 dBA, and the other was set for the range 70 to 100 dBA. A single microphone with wind screen on a tripod at an elevation of 1.2 meters above the ground surface (B&K Model 4117) simultaneously fed the

two classifiers. Electric power was brought to the classifiers over a 230-meter extension cord which was run from the nearest structure. The traffic measurement units were the standard unit used by the State of Illinois, Department of Transportation. Both the traffic counters and the classifiers were checked and read at 7:00 a.m. and 10:00 p.m. of each day, including weekends. Calibration was performed on the classifiers during each checking period, using a suitable single frequency calibrator.

SITE

The general location of the site is shown in Figure 1. It is approximately midway between Champaign and Rantoul, Illinois on the east side of Interstate 57. The northernmost corner of the State of Illinois truck and snow plow compound was used to house the equipment in a secure area. Figure 2 is a more detailed rendering of the actual site. It should be noted that the area in which the equipment and microphone was placed was a park-like setting and that the closest highway equipment was more than 110 meters from the measurement microphone. The microphone itself was located 20 meters from the center of the nearest line of traffic. Figure 2 also shows the general distances for the interstate highway.

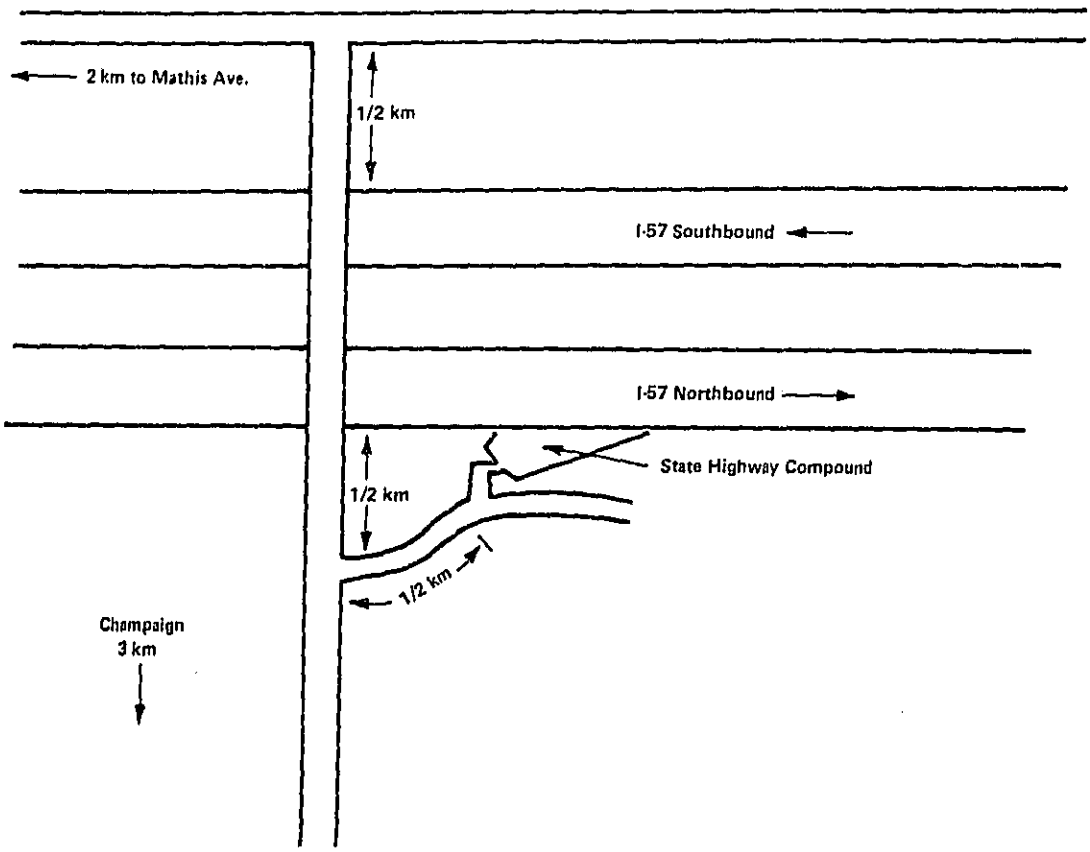


Figure 1. General Site Plan

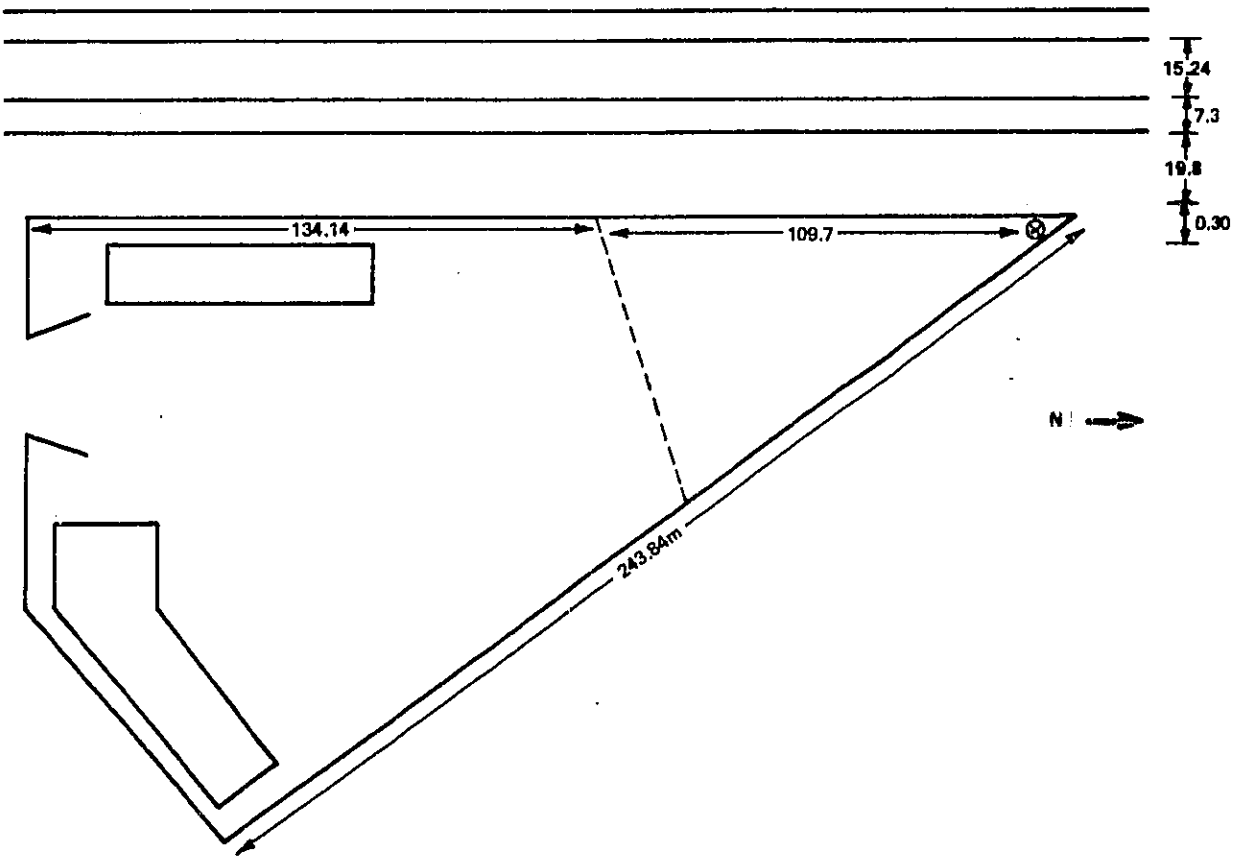


Figure 2. Detailed Site Plan

DATA

The following is a compilation by days of the raw and reduced date. For each day, the raw data during the daytime period (7 a.m. to 10 p.m.) and the raw data during the nightime period (10 p.m. to 7 a.m.) is given. The traffic count during the day and night and the calculated L_{eq} during the day and night are shown along with L_{dn} for that day. Following this information for each day and night is a graph of the levels recorded on the statistical distribution analyzers. Due to the weather, traffic counts could not be made during the entire period. Light snow and its associated snow plowing precluded the use of rubber tube sensors across the highway surface during plowing. Thus, traffic count data is available only for a few days shortly after the beginning of the measurement period (as soon as we were able to obtain equipment from the state) and during the end of the measurement period (it snowed during the middle of the measurement period).

Data Window Legend

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. _____ Date _____ Time _____

41-45			
45-47	47-50	50-52	52-55
55-57	57-60	60-62	62-65
65-67	67-70	70-72	72-and above

45 dBA _____ minutes

70-72	72-75	75-77	77-80
80-82	82-85	85-87	87-90
90-92	92-95	95-97	97 and above

70 dBA _____ minutes

Wind Direction _____

Wind Speed _____

Temperature _____

Weather Conditions _____

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

L_{eq} _____

L_{dn} _____

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 1 Date 1Feb74 Time 2205

0.0			
0.0	1.8	8.4	36.0
24.1	42.9	22.2	36.3
17.2	21.5	8.7	15.3

45 dBA 232.8 minutes

10.2	8.6	2.0	4.1
1.4	1.2	0.3	0.1
0.0	0.0	0.0	0.0

70 dBA 232.8 minutes

Wind Direction NE

Wind Speed 10-14

Temperature 32

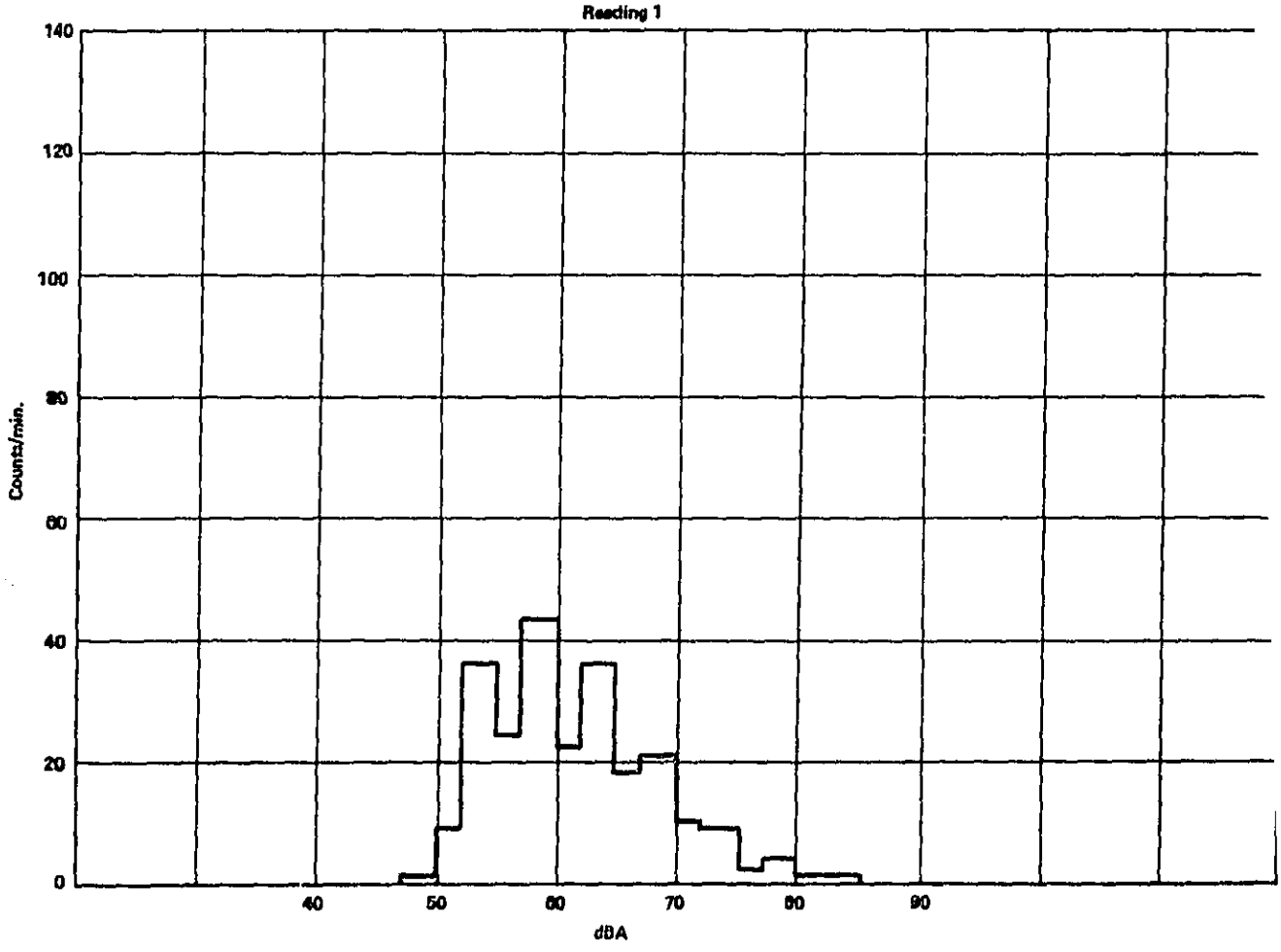
Weather Conditions Clear

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

L_{eq} 68.60

L_{dn} _____


Reading 1
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 2 Date 2 Feb 74 Time 0656

97.6			
2.3	69.3	50.0	90.0
52.0	60.8	23.4	31.6
14.2	16.9	7.3	19.2

45 dBA 526.3 minutes

8.4	8.8	2.3	5.6
2.1	1.7	0.2	0.1
0.0	0.1	0.0	0.1

70 dBA 526.3 minutes

Wind Direction _____

Wind Speed _____

Temperature _____

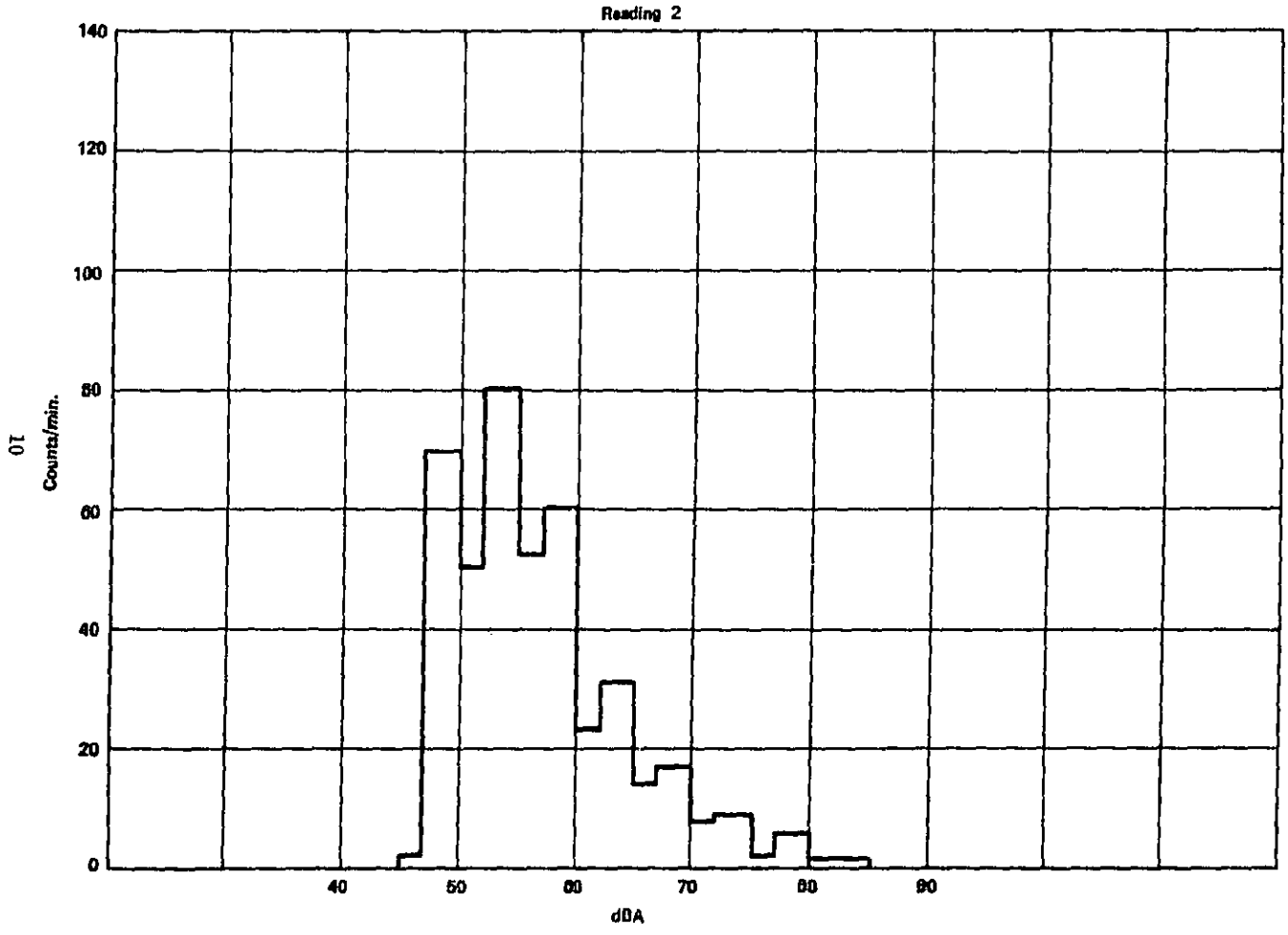
Weather Conditions _____

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

L_{eq} 66.15

L_{dn} _____


Reading 2
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 3 Date 2 Feb 74 Time 2157

12.9			
18.8	77.2	76.0	126.9
81.3	139.5	66.2	111.7
57.7	66.9	239	37.6

65 dBA 901.4 minutes

29.2	21.2	4.2	9.0
3.2	3.6	0.7	0.3
0.1	0.1	0.0	0.0

70 dBA 901.4 minutes

Wind Direction NE

Wind Speed 3-5

Temperature 31

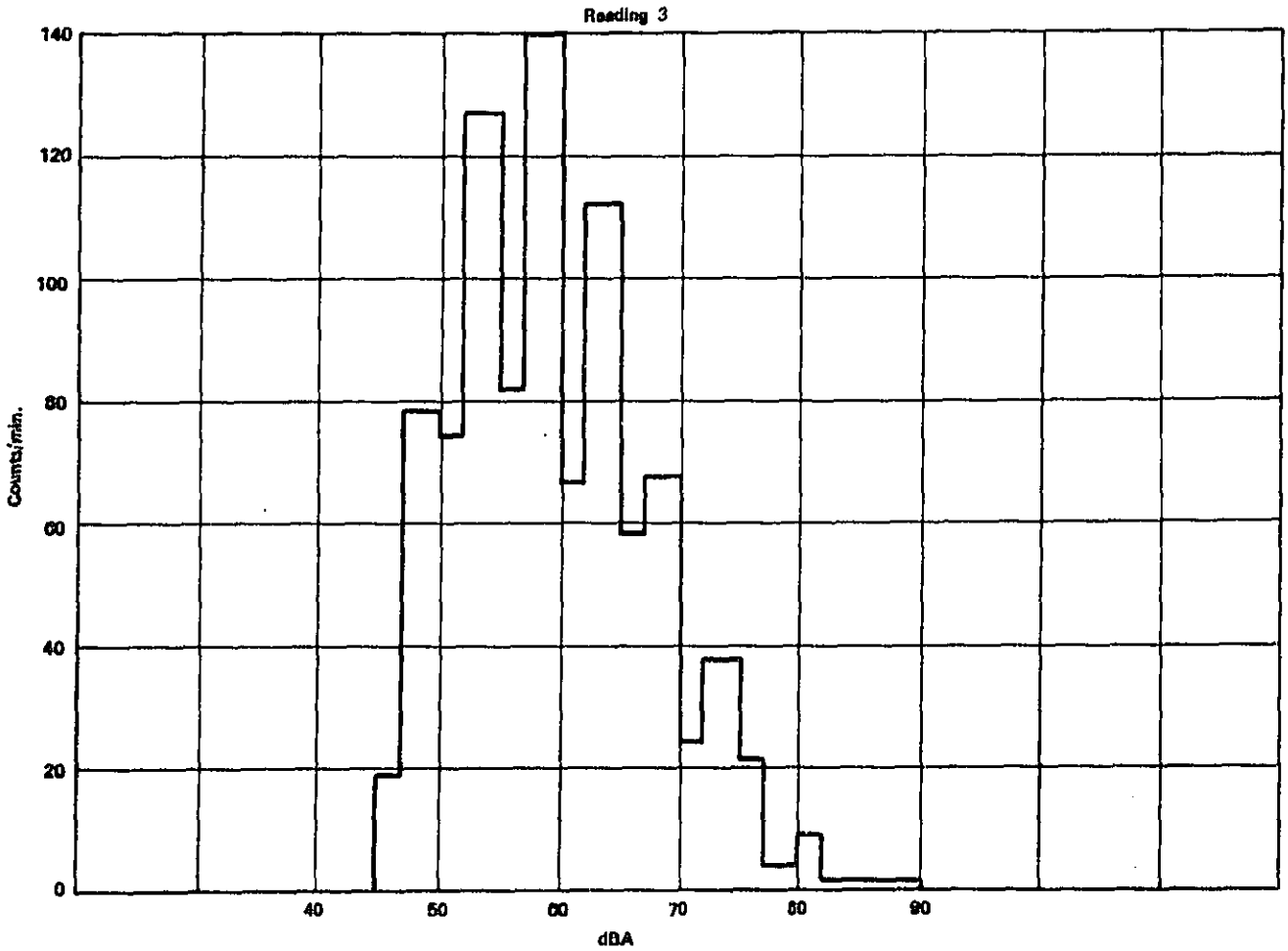
Weather Conditions Clear

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

L_{eq} 67.30

L_{dn} _____


Reading 3
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 4 Date 3 Feb 74 Time 0700

0.6			
5.8	9.0	8.0	11.9
4.6	5.1	2.3	3.8
2.0	2.3	1.1	1.9

45 dBA 58.8 minutes

1.0	0.8	0.3	0.7
0.2	0.2	0.1	0.0
0.0	0.0	0.0	0.0

70 dBA 58.8 minutes

Wind Direction _____

Wind Speed _____

Temperature _____

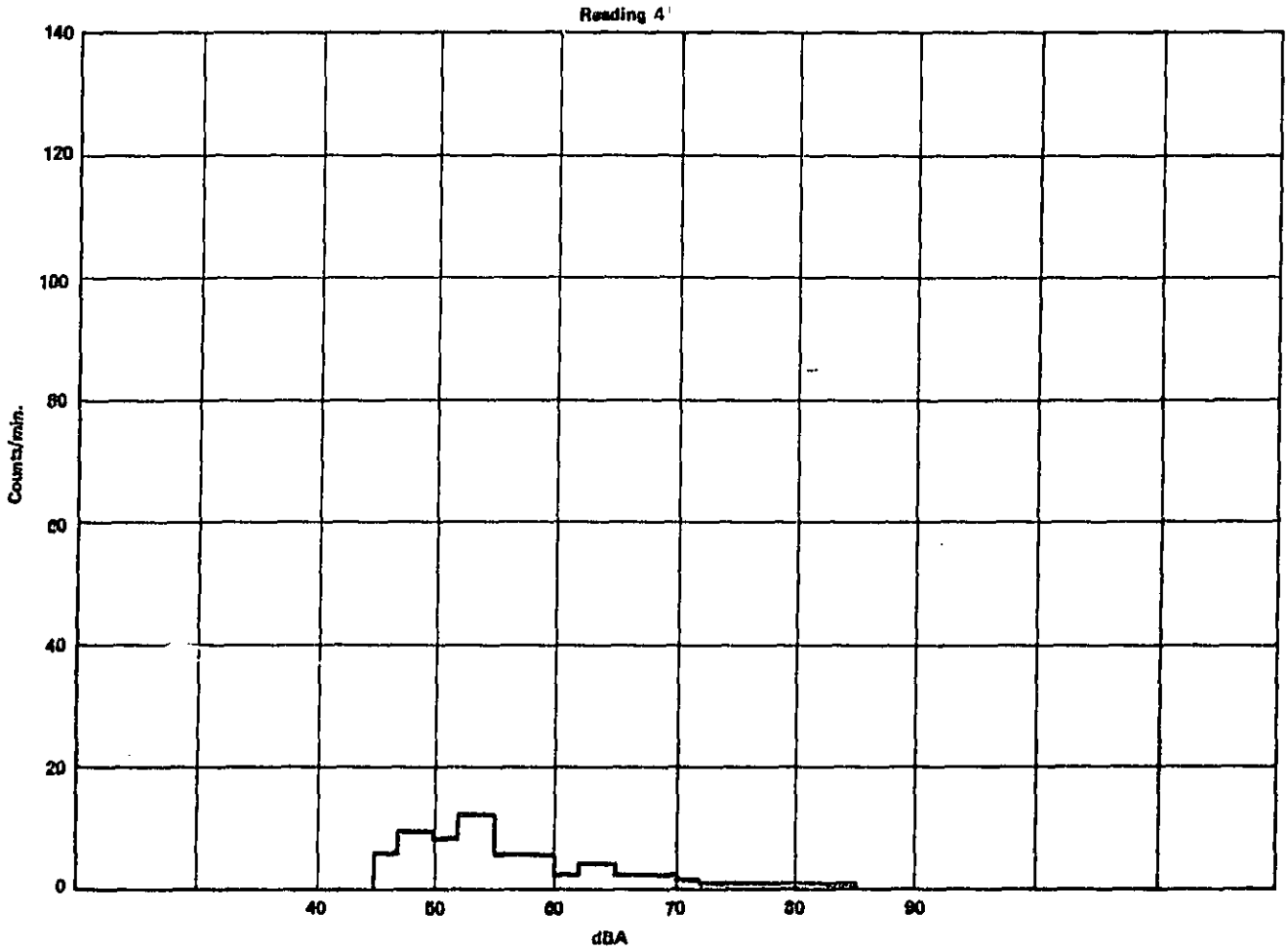
Weather Conditions _____

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

L_{eq} Y

L_{dn} _____


Reading 4
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 5 Date 3 Feb 74 Time 2154

0.0			
1.8	10.6	23.0	69.5
43.1	84.3	49.2	95.6
50.1	69.4	29.5	39.5

65 dBA 565.3 minutes

34.3	26.4	4.9	7.3
1.9	2.3	0.6	0.3
0.0	0.0	0.1	0.0

70 dBA 565.3 minutes

Wind Direction NNW

Wind Speed 8-10

Temperature 19

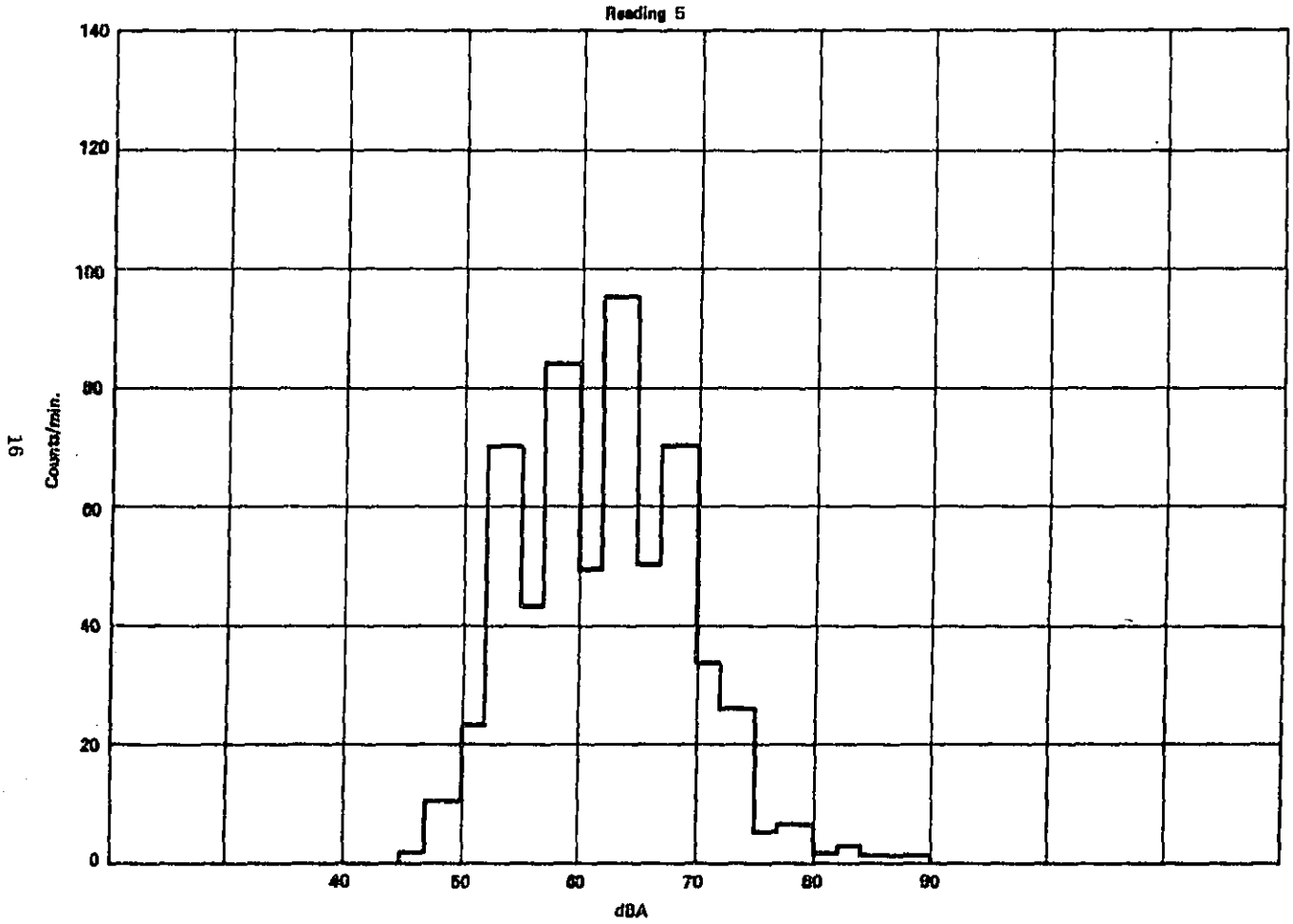
Weather Conditions Clear

Raw Vehicle Count Northbound ———

Raw Vehicle Count Southbound ———

L_{eq} 68.85

L_{dn} 74.42


Reading 5
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 6 Date 4Feb74 Time 0656

0.0			
3.3	48.6	82.0	173.4
36.2	46.7	19.0	35.3
14.7	19.2	10.0	23.8

48 dBA 511.4 minutes

10.1	9.7	2.5	5.5
2.5	3.1	1.0	0.5
0.1	0.0	0.0	0.1

70 dBA 511.4 minutes

Wind Direction 14

Wind Speed 8-11

Temperature 14

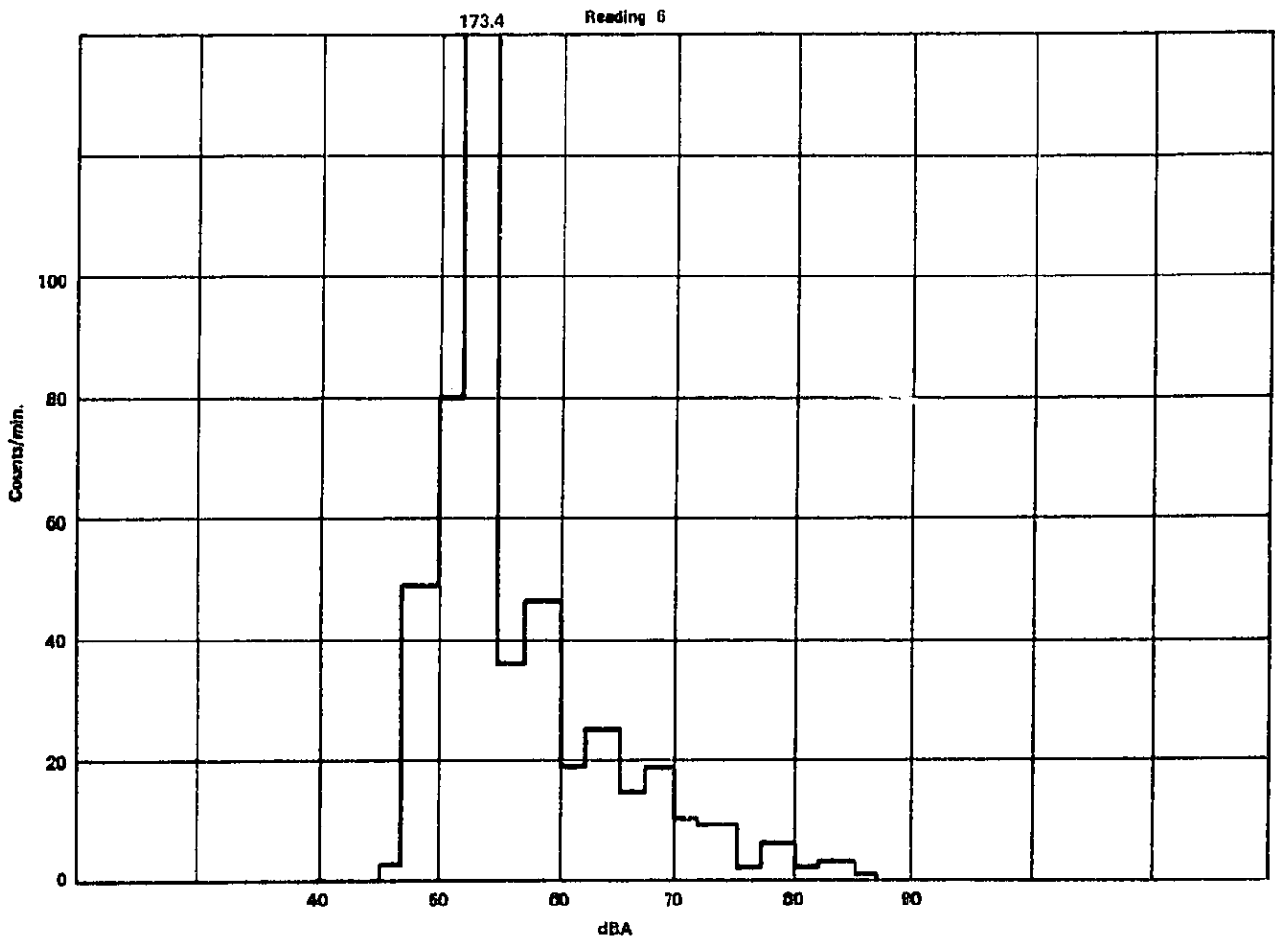
Weather Conditions Clear

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

L_{eq} 67.85

L_{dn} 74.92


173.4
Reading 6
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 7 Date 4Feb74 Time 2152

18.1			
18.7	64.7	109.0	121.9
60.7	100.5	49.4	95.2
49.7	71.2	31.6	62.9

40 dBA 858.8 minutes

34.5	31.7	6.8	15.0
5.4	6.4	2.0	0.7
0.0	0.0	0.1	0.1

70 dBA 858.8 minutes

Wind Direction ESE

Wind Speed 6-8

Temperature 22

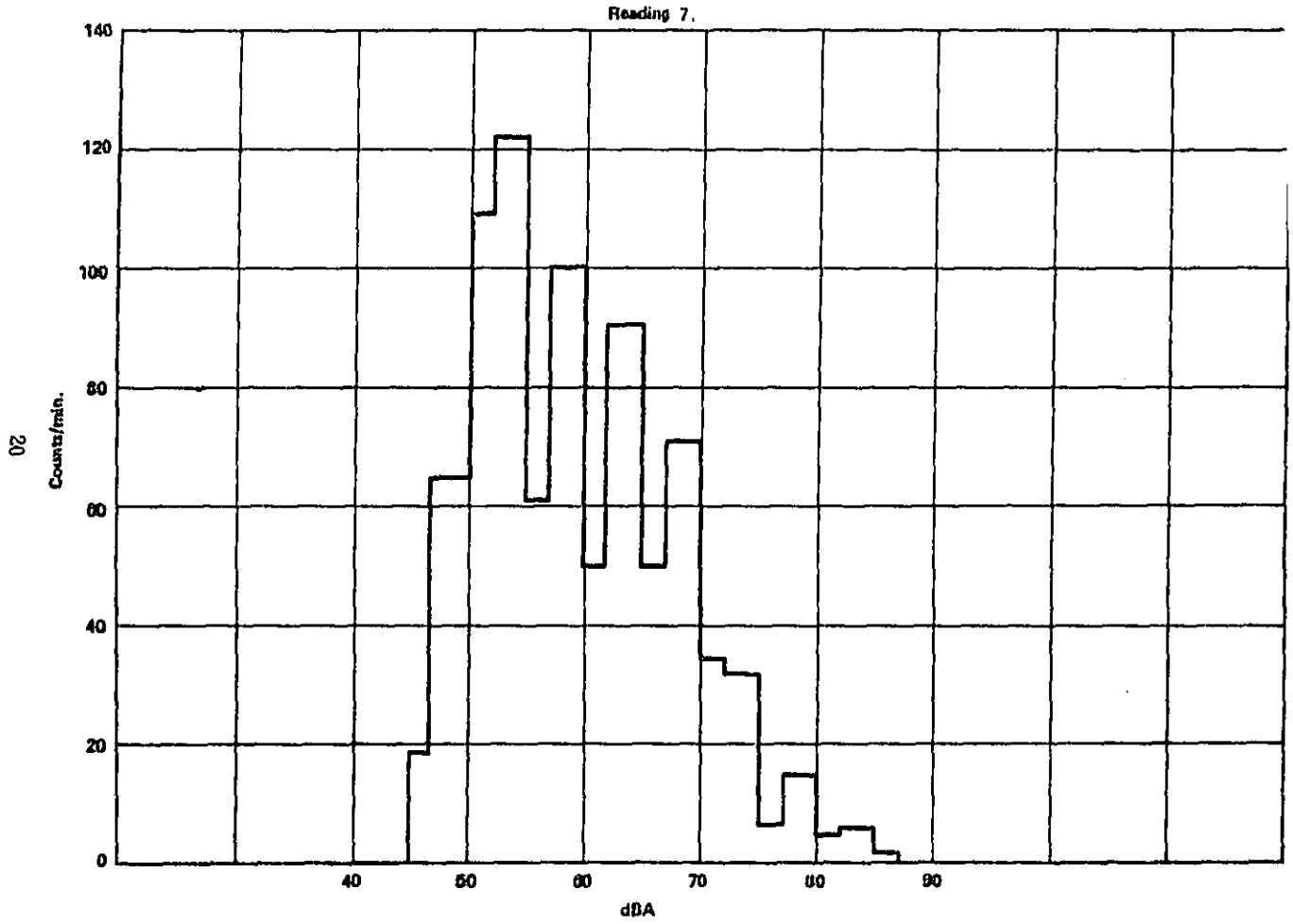
Weather Conditions Clear

New Vehicle Count Northbound _____

New Vehicle Count Southbound _____

L_{eq} 49.33

L_{dn} 72.36


Reading 7.
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 8 Date 5Feb74 Time 0700

0.9			
20.1	79.9	76.0	87.6
20.7	24.4	7.7	11.4
4.9	4.9	2.2	7.3

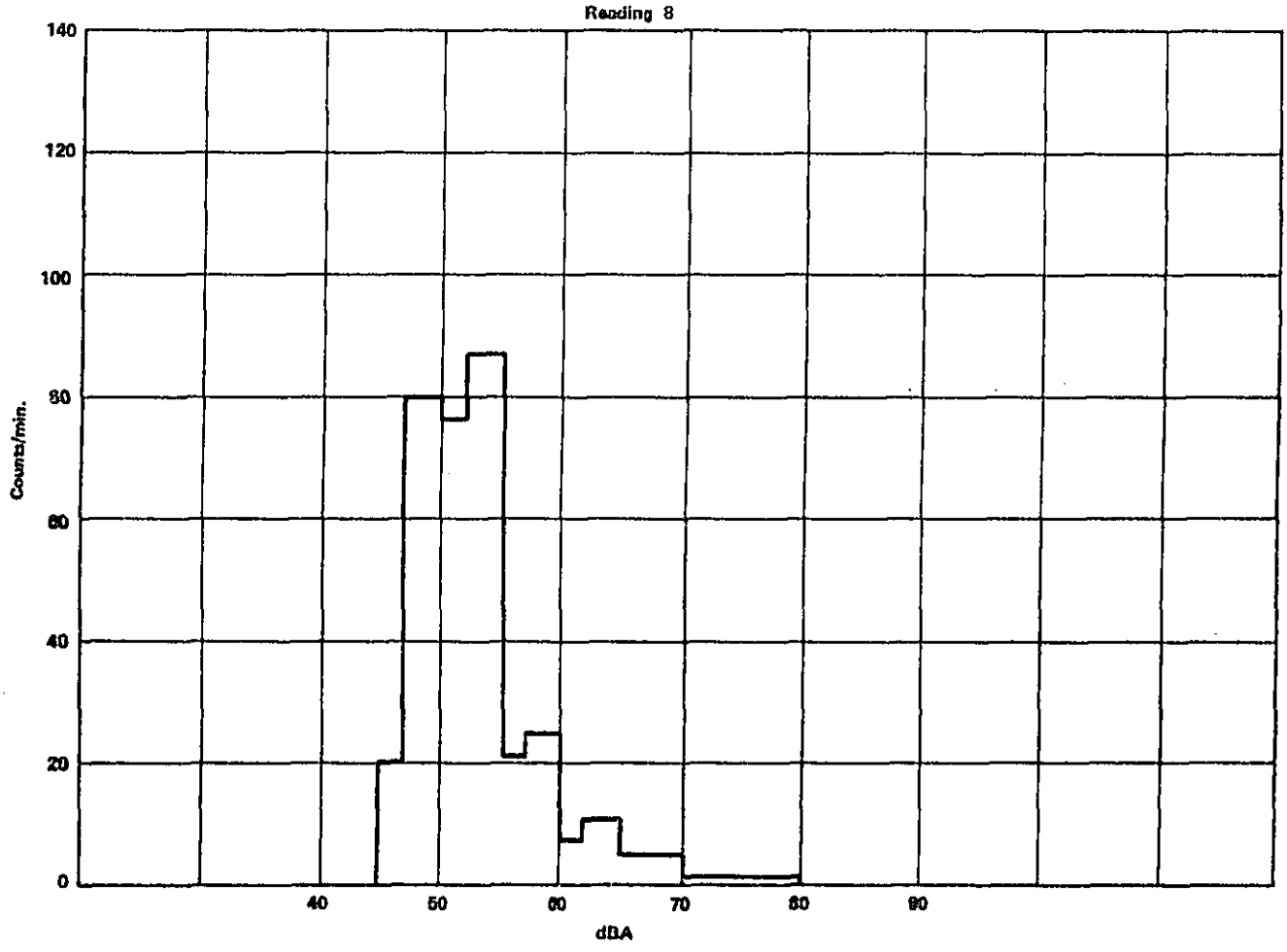
45 dBA 349.3 minutes

2.0	1.9	0.6	2.8
1.5	1.2	0.3	0.1
0.0	0.1	0.1	0.0

70 dBA 349.3 minutes

Wind Direction ESE
Wind Speed 12-16
Temperature 21
Weather Conditions Clear

Raw Vehicle Count Northbound ———
Raw Vehicle Count Southbound ———
L_{eq} 66.90
L_{dn} 72.36


Reading 8
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 9 Date 5 Feb 74 Time 2156

8.2			
12.8	50.7	48.0	77.7
41.4	58.7	24.1	40.9
21.2	22.5	8.3	17.3

45 dBA 433.8 minutes

10.2	75	1.6	5.0
2.3	2.2	0.5	0.1
0.1	0.0	0.0	0.0

70 dBA 433.8 minutes

Wind Direction ESE

Wind Speed 7-9

Temperature 30

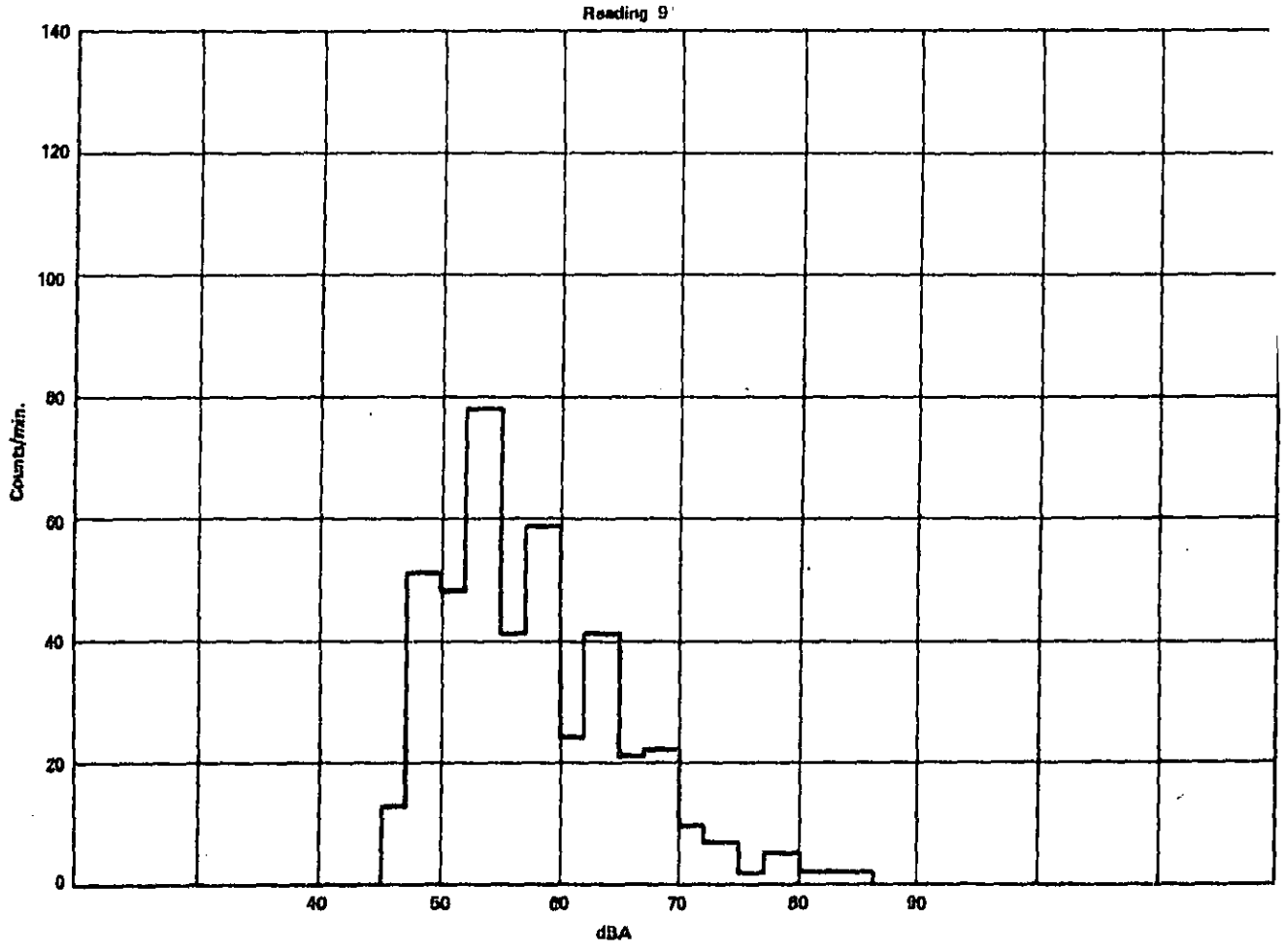
Weather Conditions Clear

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

L_{eq} 67.28

L_{dn} _____


Reading 9
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 10 Date 6 Feb 74 Time 0659

150.1			
505	83.0	54.8	62.0
32.9	42.2	15.3	25.6
11.8	13.1	5.3	15.9

45 dBA 532.5 minutes

0.1	5.4	1.4	5.4
2.5	2.4	0.4	0.3
0.1	0.0	0.0	0.0

50 dBA 532.5 minutes

Wind Direction ———

Wind Speed ———

Temperature 31

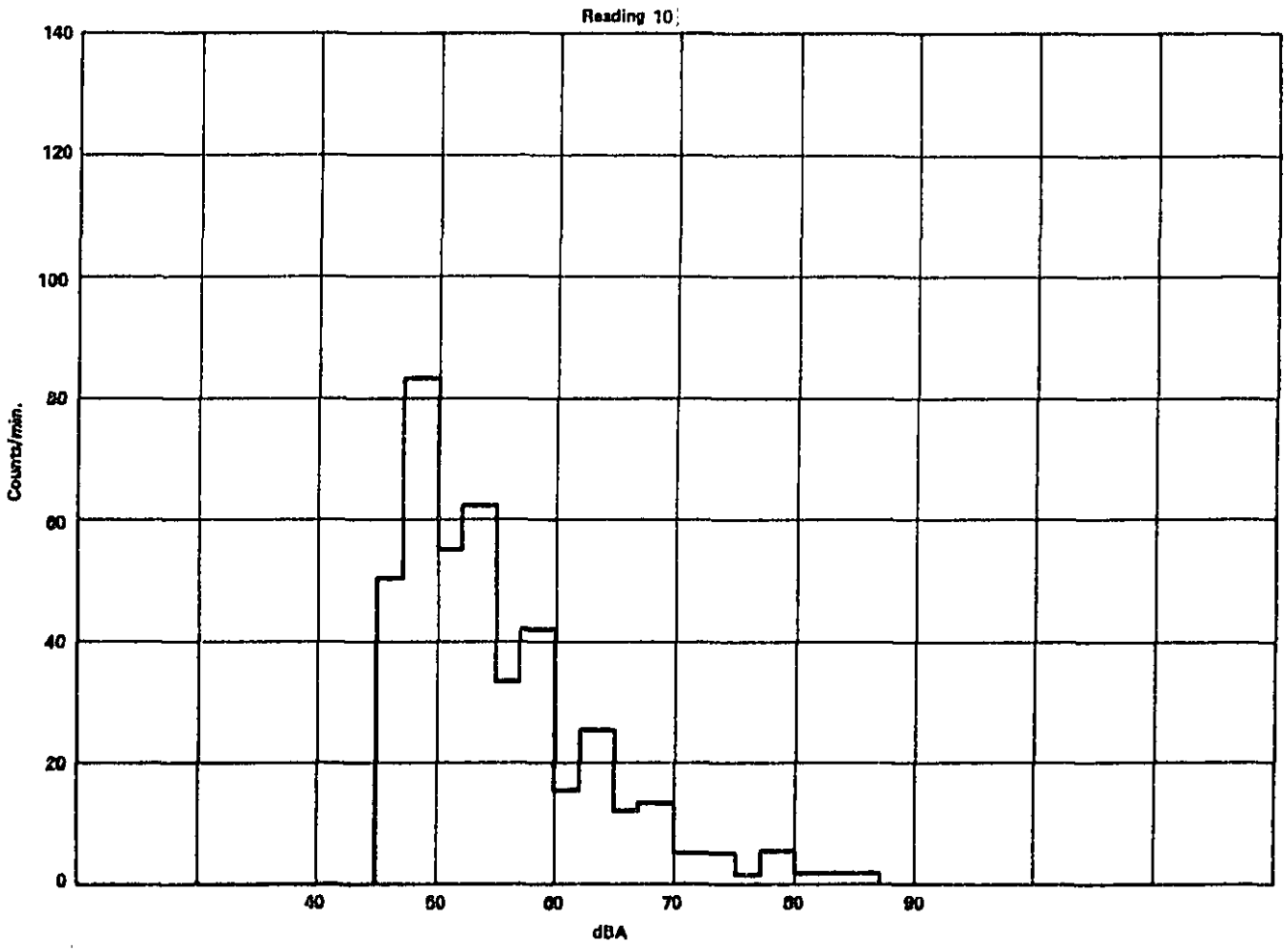
Weather Conditions Rain

Raw Vehicle Count Northbound 584

Raw Vehicle Count Southbound 557

L_{eq} 65.30

L_{dn} ———


Reading 10
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 11 Date 7 Feb 74 Time 1310

1.1			
6.5	21.3	60.0	29.3
39.3	67.4	33.1	55.4
28.7	37.3	17.0	38.4

45 dBA 431.1 minutes

19.9	19.1	4.4	11.6
4.0	3.7	1.1	0.5
0.1	0.1	0.1	0.0

70 dBA 431.1 minutes

Wind Direction NNE

Wind Speed 6-7

Temperature 18

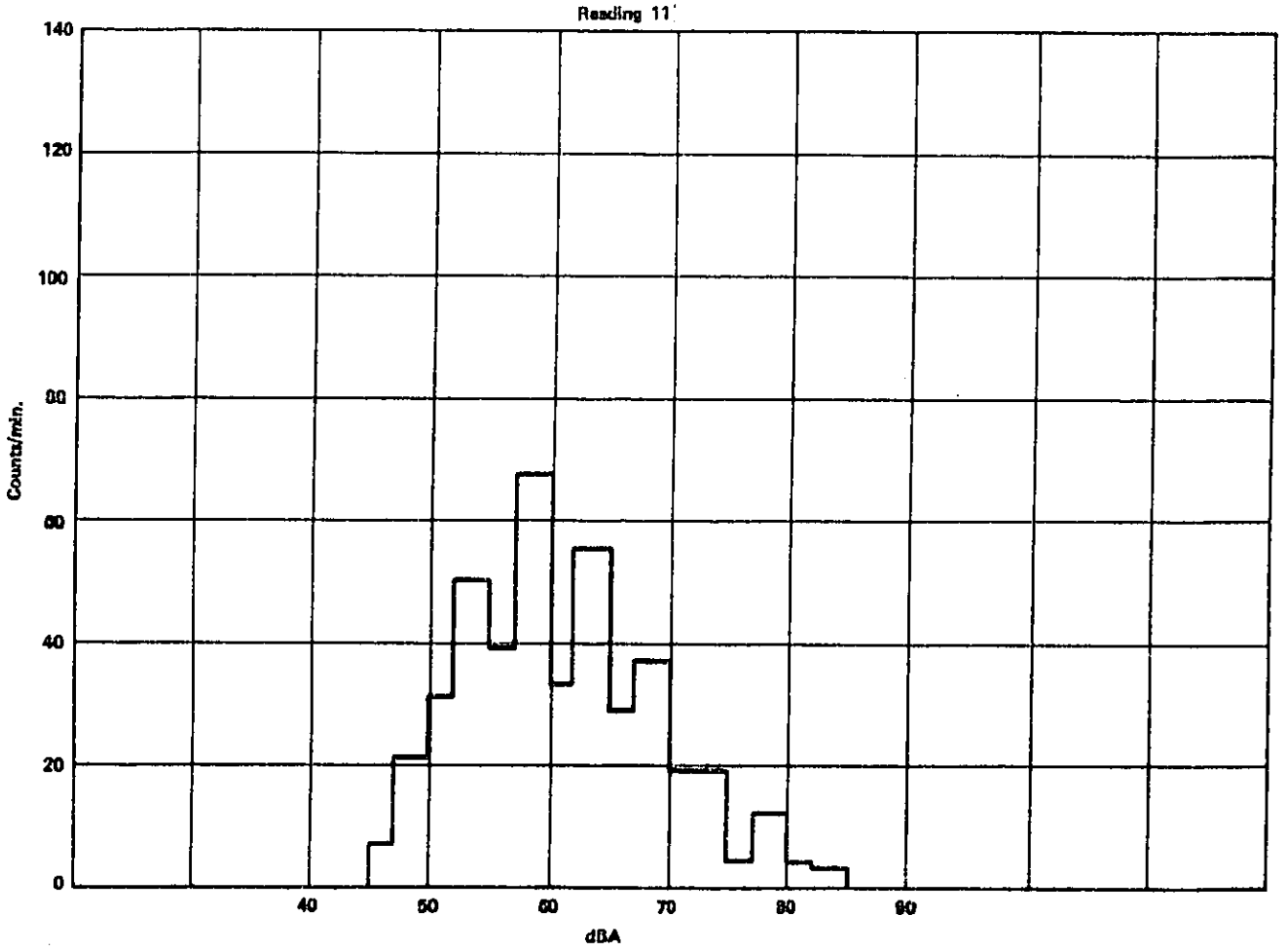
Weather Conditions Freezing Rain

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

L_{eq} _____

L_{dn} _____


Reading 11
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 12 Date 7 Feb 74 Time 2220

25.8			
11.5	31.6	130.0	77.0
70.3	121.6	52.2	114.7
57.7	76.4	35.1	87.1

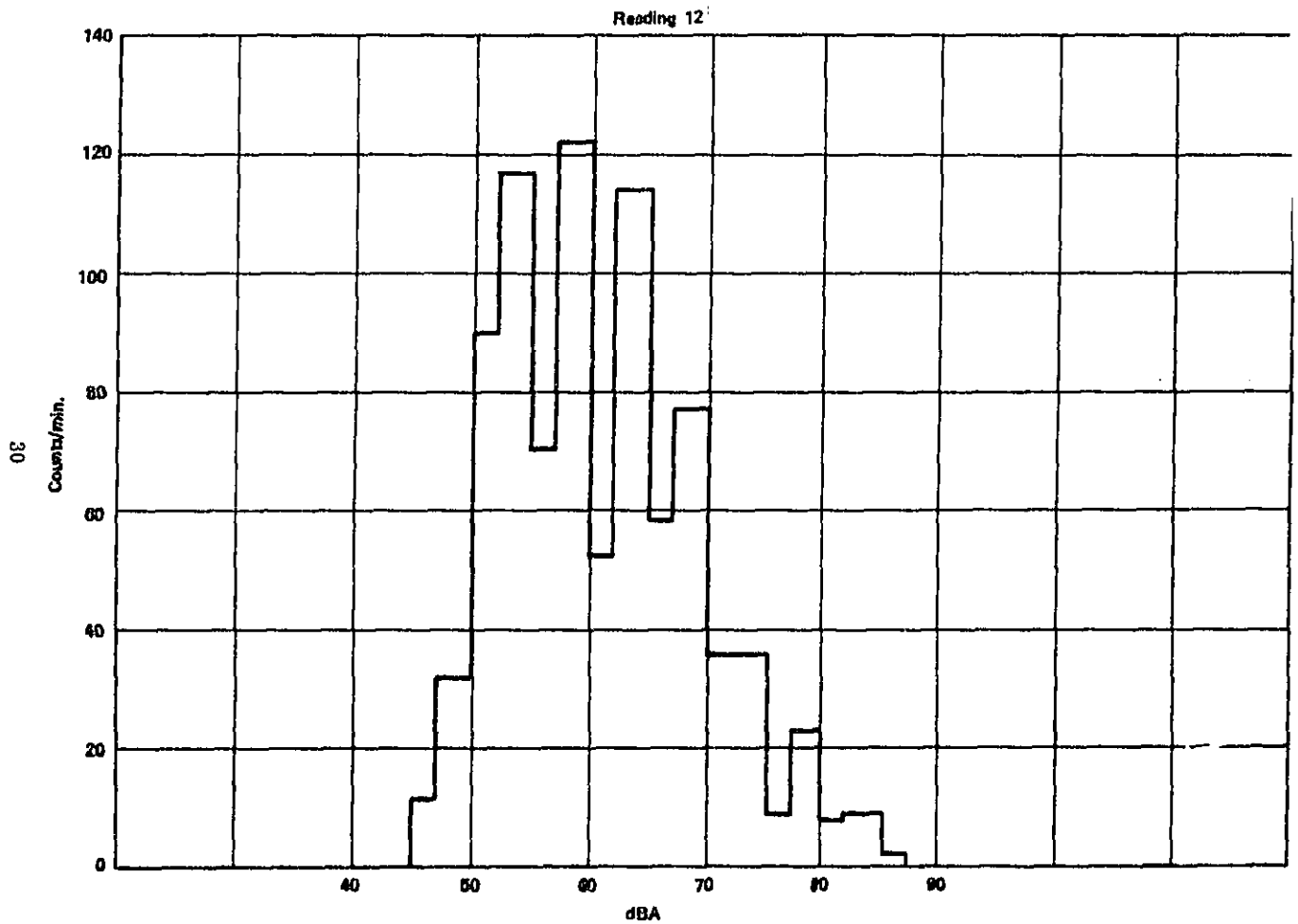
48 dBA | 894.1 | minutes

36.7	36.6	9.3	23.8
8.4	9.0	2.2	0.9
0.1	0.1	0.1	0.0

78 dBA | 894.1 | minutes

Wind Direction NE
Wind Speed 6-8
Temperature 18
Weather Conditions Clear

Raw Vehicle Count Northbound _____
Raw Vehicle Count Southbound _____
L_{eq} 70.43
L_{dn} 75.64


Reading 12
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 13 Date 8Feb71 Time 0727

152.6			
22.7	39.6	51.2	62.0
28.4	41.3	17.3	37.0
18.5	24.2	11.3	31.1

45 dBA 538.9 minutes

11.9	11.8	3.4	9.6
3.9	3.1	0.6	0.3
0.0	0.0	0.1	0.0

70 dBA 538.9 minutes

Wind Direction NNE

Wind Speed 5-6

Temperature 15

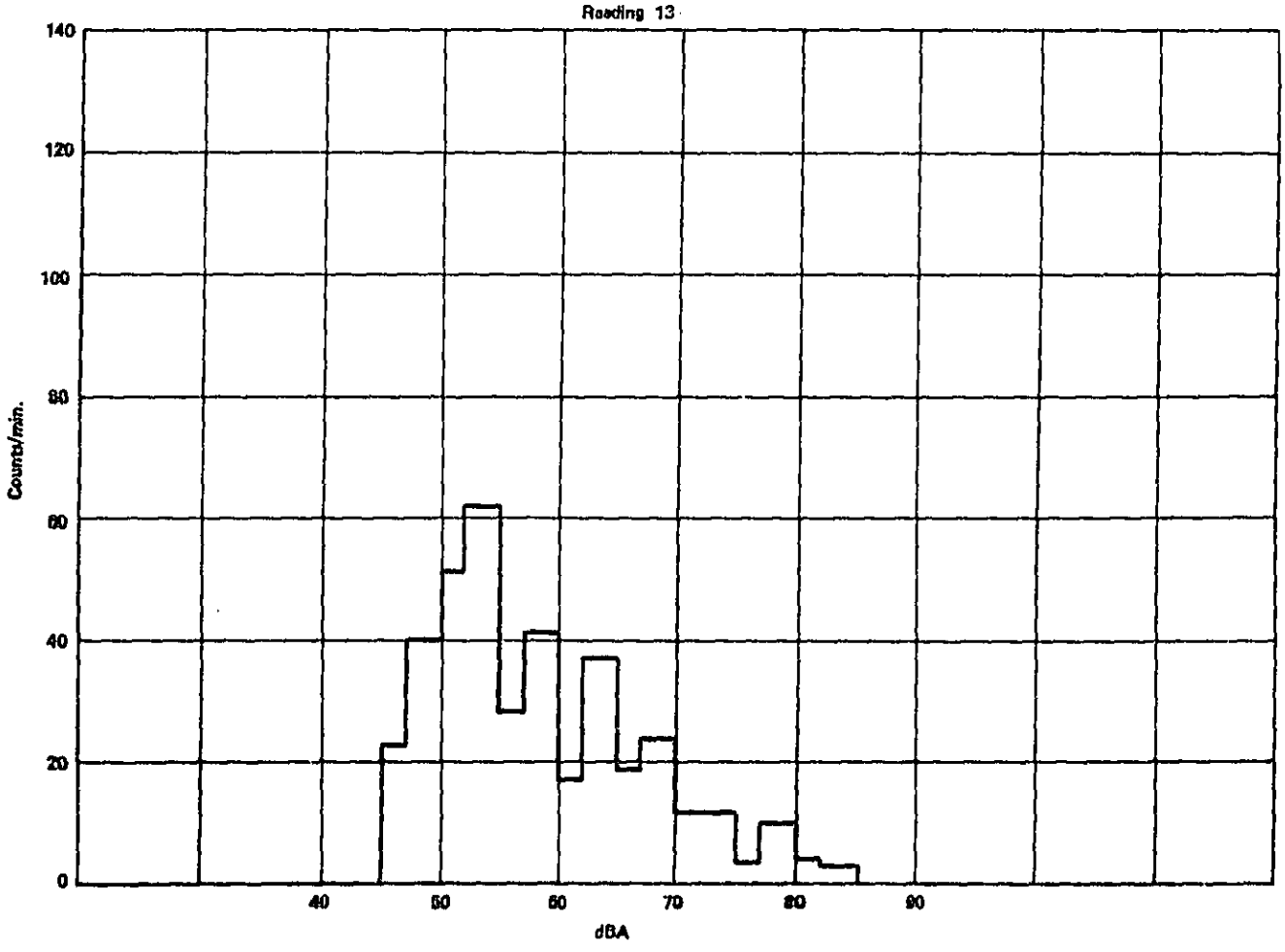
Weather Conditions Clear

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

L_{eq} 68.34

L_{da} 75.64


Reading 13
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 14 Date 8Feb74 Time 2147

5.8

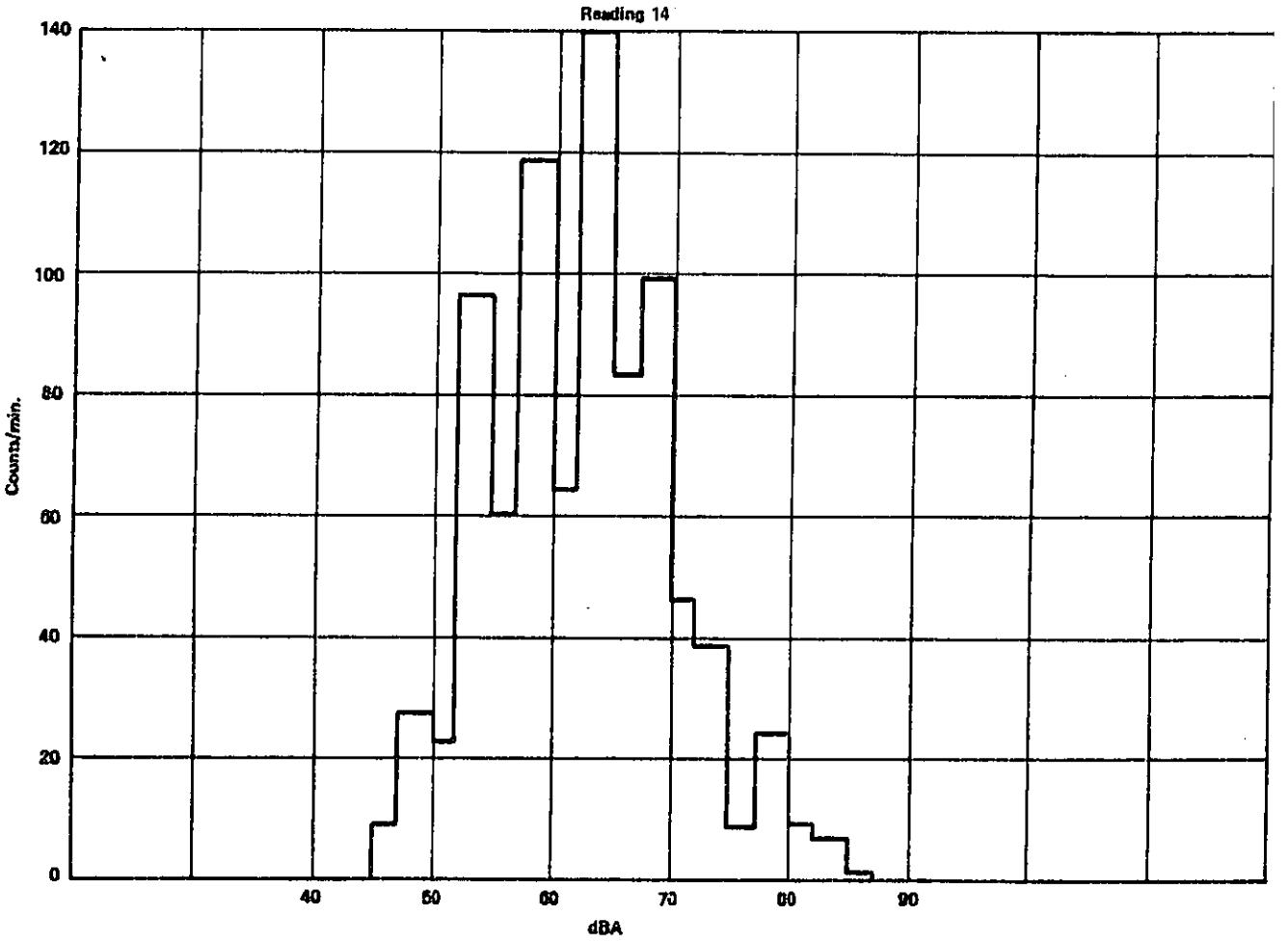
8.5	27.3	22.1	96.0
59.8	117.8	64.1	140.4
82.6	98.1	40.1	93.1

45 dBA 852.7 minutes

45.8	38.4	9.2	23.9
9.0	7.3	1.2	0.6
0.0	0.0	0.1	0.1

70 dBA 852.7 minutes

Wind Direction	NE	Raw Vehicle Count Northbound	4483
Wind Speed	4.6	Raw Vehicle Count Southbound	4984
Temperature	19	L_{eq}	70.26
Weather Conditions	Clear	L_{dn}	73.75


Reading 14
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 15 Date 9 Feb 74 Time 0707

154.4

21.6	41.3	36.0	93.8
33.6	45.4	18.0	41.2
18.0	20.7	8.0	21.5

45 dBA 555.4 minutes

8.7	9.3	2.4	6.6
2.3	1.9	0.5	0.3
0.1	0.0	0.0	0.1

70 dBA 555.4 minutes

Wind Direction 0

Wind Speed 0

Temperature 22

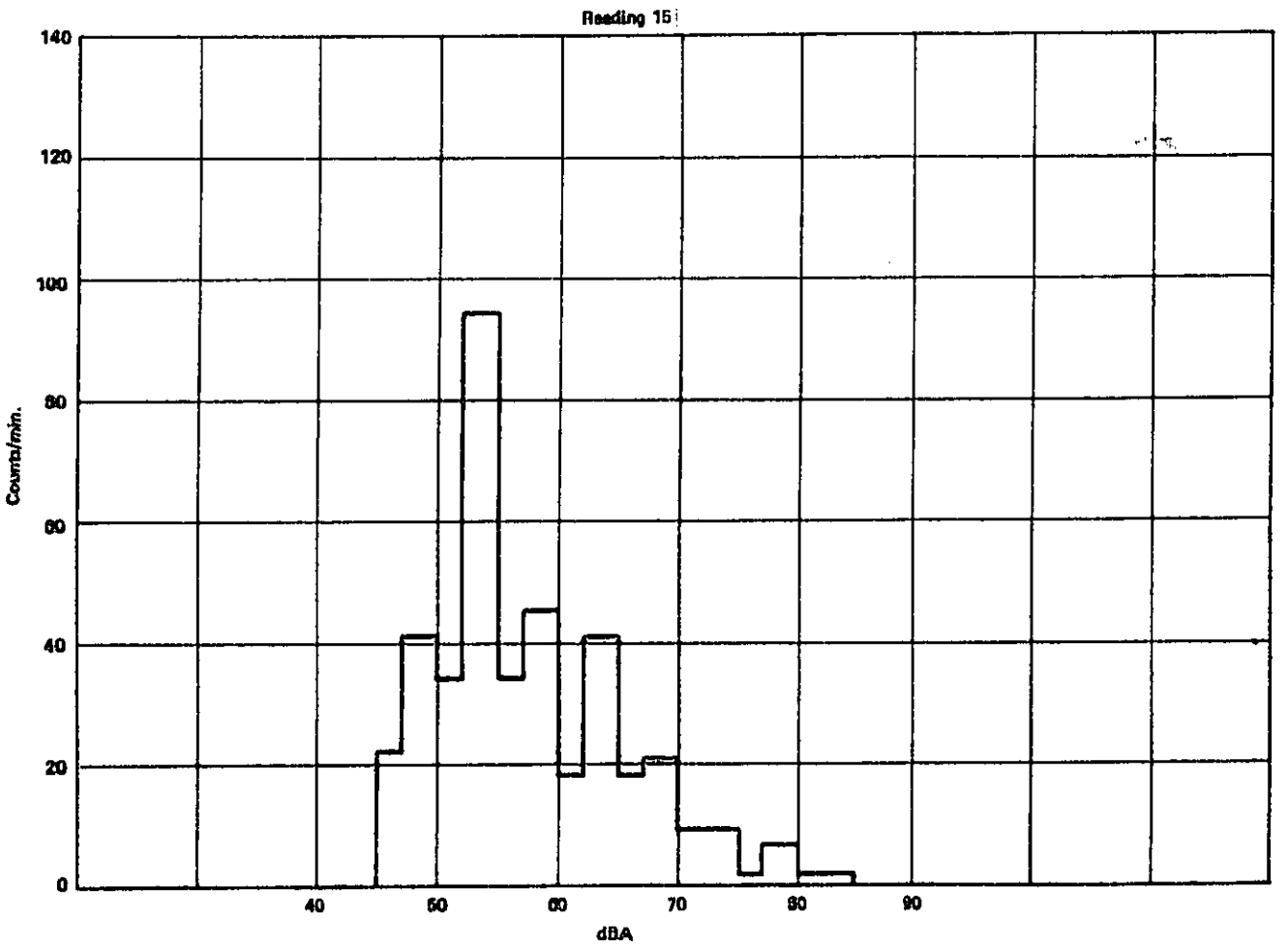
Weather Conditions Clear

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

L_{eq} 66.59

L_{dn} 73.75


Reading 15
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 16 Date 9Feb74 Time 2154

53.0			
23.1	62.8	86.8	132.0
81.6	119.3	51.8	103.8
53.9	55.0	19.5	35.6

45 dBA 881.6 minutes

22.5	17.7	3.7	9.5
3.7	3.4	0.6	0.3
0.1	0.0	0.0	0.0

70 dBA 881.6 minutes

Wind Direction 0

Wind Speed 0

Temperature 32

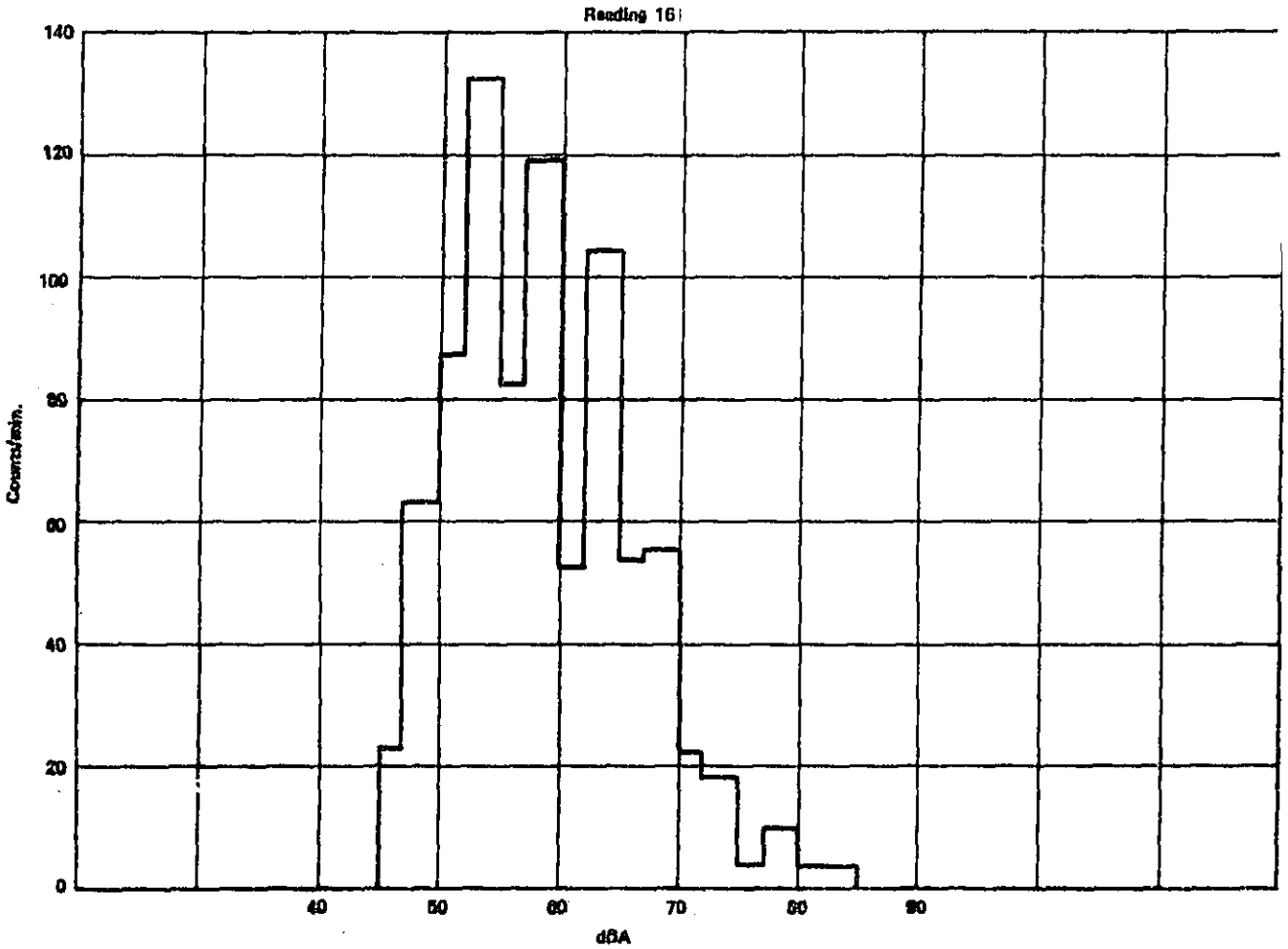
Weather Conditions Clear

Raw Vehicle Count Northbound 3657

Raw Vehicle Count Southbound 4191

L_{eq} 66.91

L_{dn} 71.35


Reading 16
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 17 Date 10-6-74 Time 0658

168.7

34.8	52.9	50.0	97.6
25.7	34.3	12.5	25.4
10.9	11.7	3.4	8.2

45 dBA 536.7 minutes

4.0	3.0	0.9	2.2
1.2	1.1	0.2	0.1
0.0	0.0	0.1	0.0

70 dBA 536.7 minutes

Wind Direction SW

Wind Speed 10-12

Temperature 28

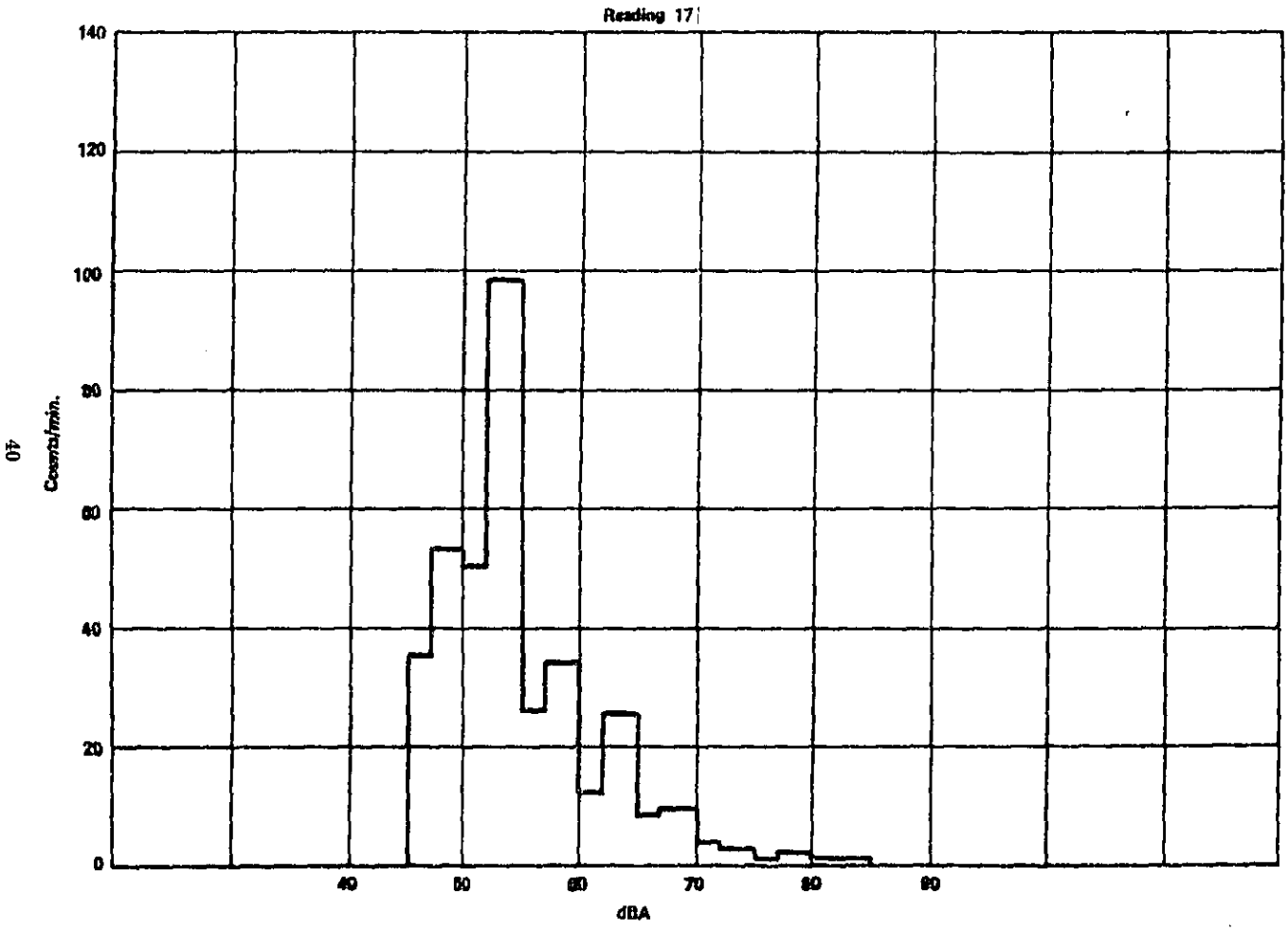
Weather Conditions Clear

Raw Vehicle Count Northbound 631

Raw Vehicle Count Southbound 448

L_{eq} 64.51

L_{dn} 71.35


Reading 17
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 18 Date 10Feb74 Time 2220

0.0			
10.9	28.5	58.1	78.0
50.9	80.6	41.6	70.6
40.0	39.9	21.3	24.6

45 dBA 535.7 minutes

19.6	12.9	2.5	6.6
2.6	2.6	0.8	1.4
9.1	0.0	1.4	1.0

70 dBA 635.7 minutes

Wind Direction NNW

Wind Speed 10-12

Temperature 16

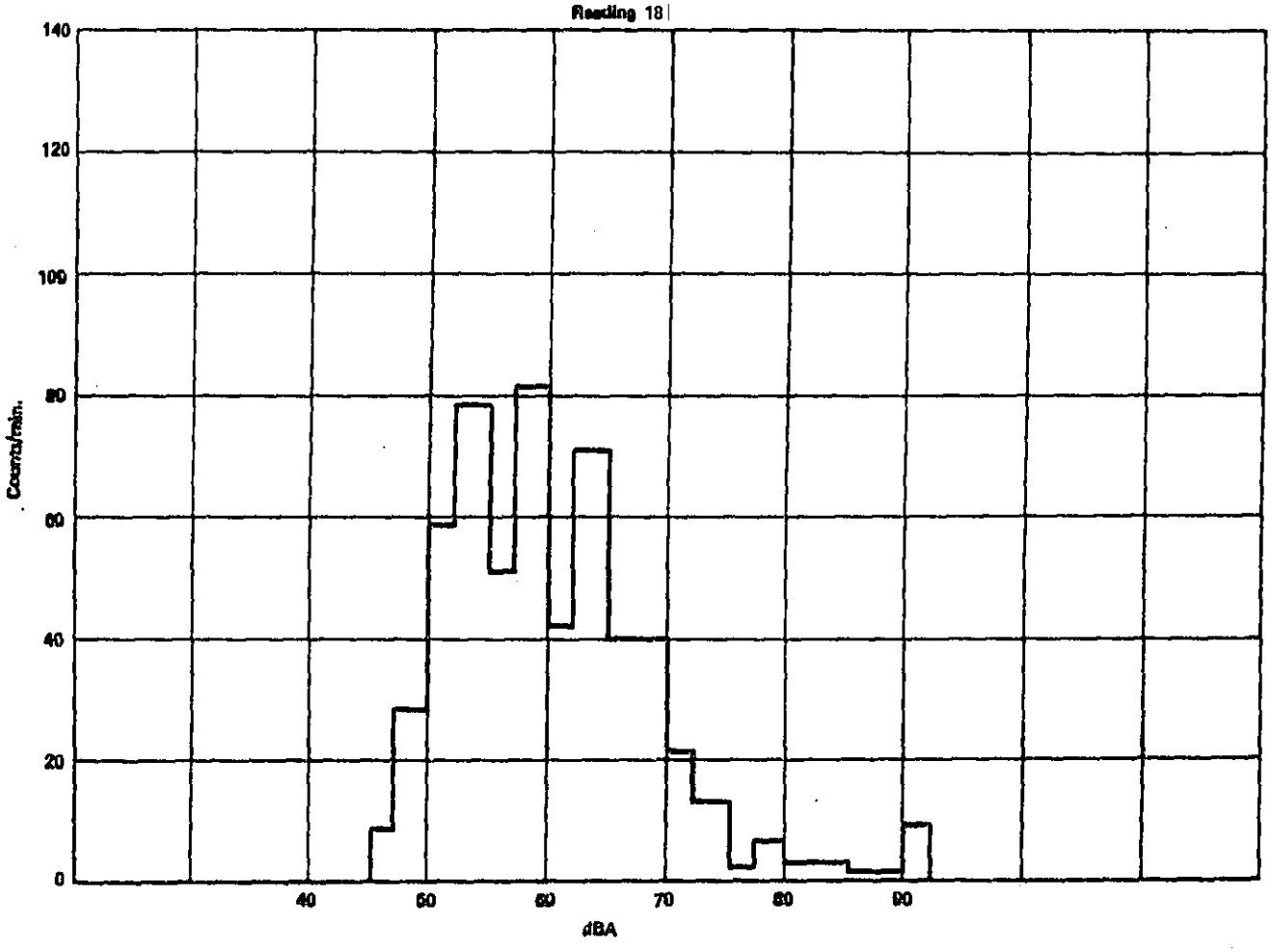
Weather Conditions Clear

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

L_{eq} 75.96

L_{dn} 78.54


Reading 18
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 19 Date 11/6/74 Time 0707

71.3			
18.0	36.2	54.7	85.0
26.7	43.8	18.2	38.6
17.4	24.4	13.8	46.6

45 dBA 505.6 minutes

12.6	15.1	4.9	12.7
5.3	6.8	2.0	1.0
0.0	0.1	0.2	0.0

70 dBA 505.6 minutes

Wind Direction 0

Wind Speed 0

Temperature 15

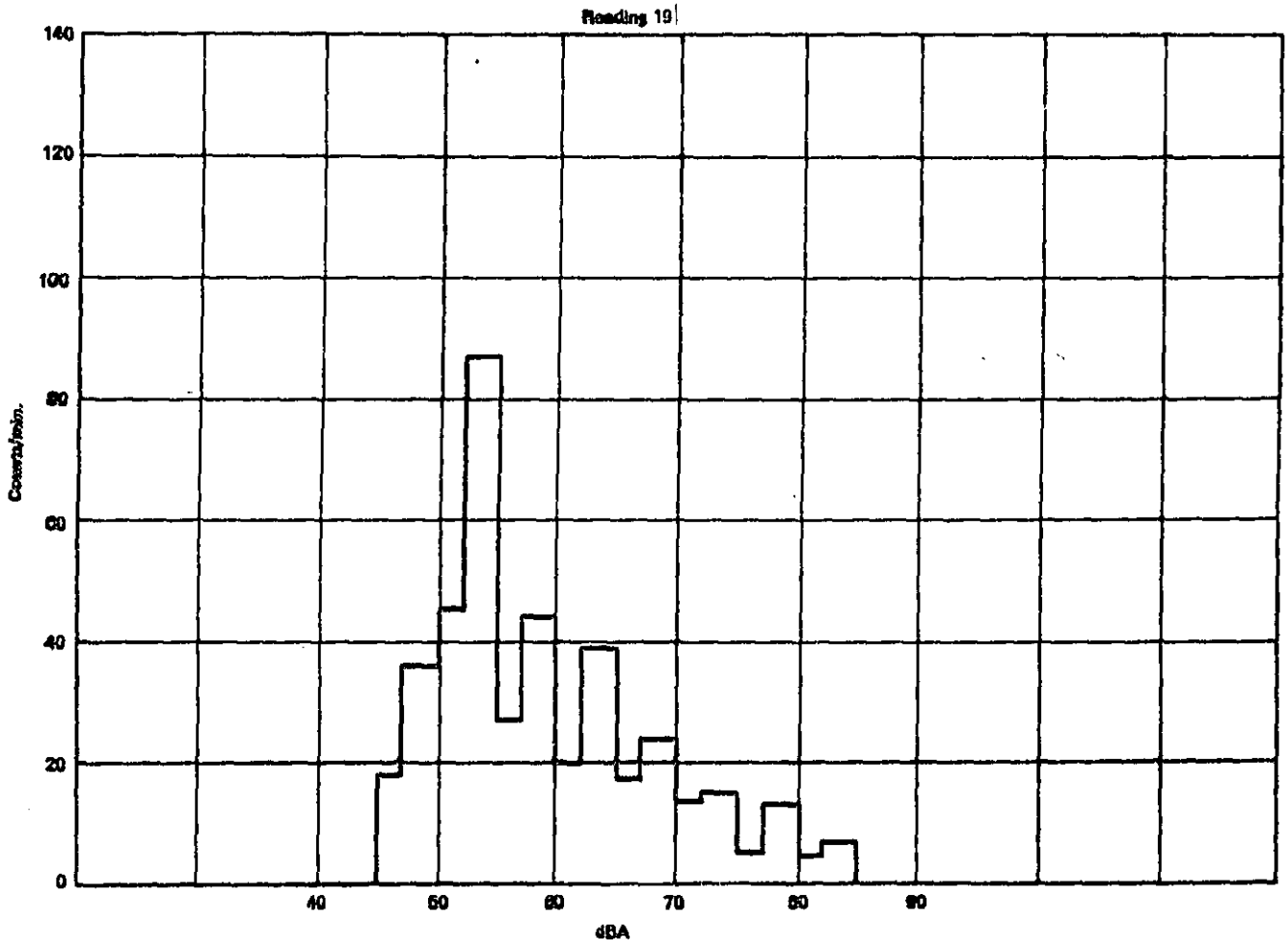
Weather Conditions Clear

Raw Vehicle Count Northbound 1196

Raw Vehicle Count Southbound 1200

L_{eq} 71.25

L_{dn} 78.69


Reading 19
140
120
100
80
60
40
20
0
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 20 Date 11Feb74 Time 2147

0.0			
6.2	26.4	20.0	10.5
70.9	132.9	73.1	132.1
78.5	97.6	42.1	79.6

45 dBA 872.1 minutes

47.0	37.6	8.4	21.4
9.1	8.2	1.9	0.7
0.0	0.1	0.1	0.0

10 dBA 872.1 minutes

Wind Direction SSW

Wind Speed 9-10

Temperature 33

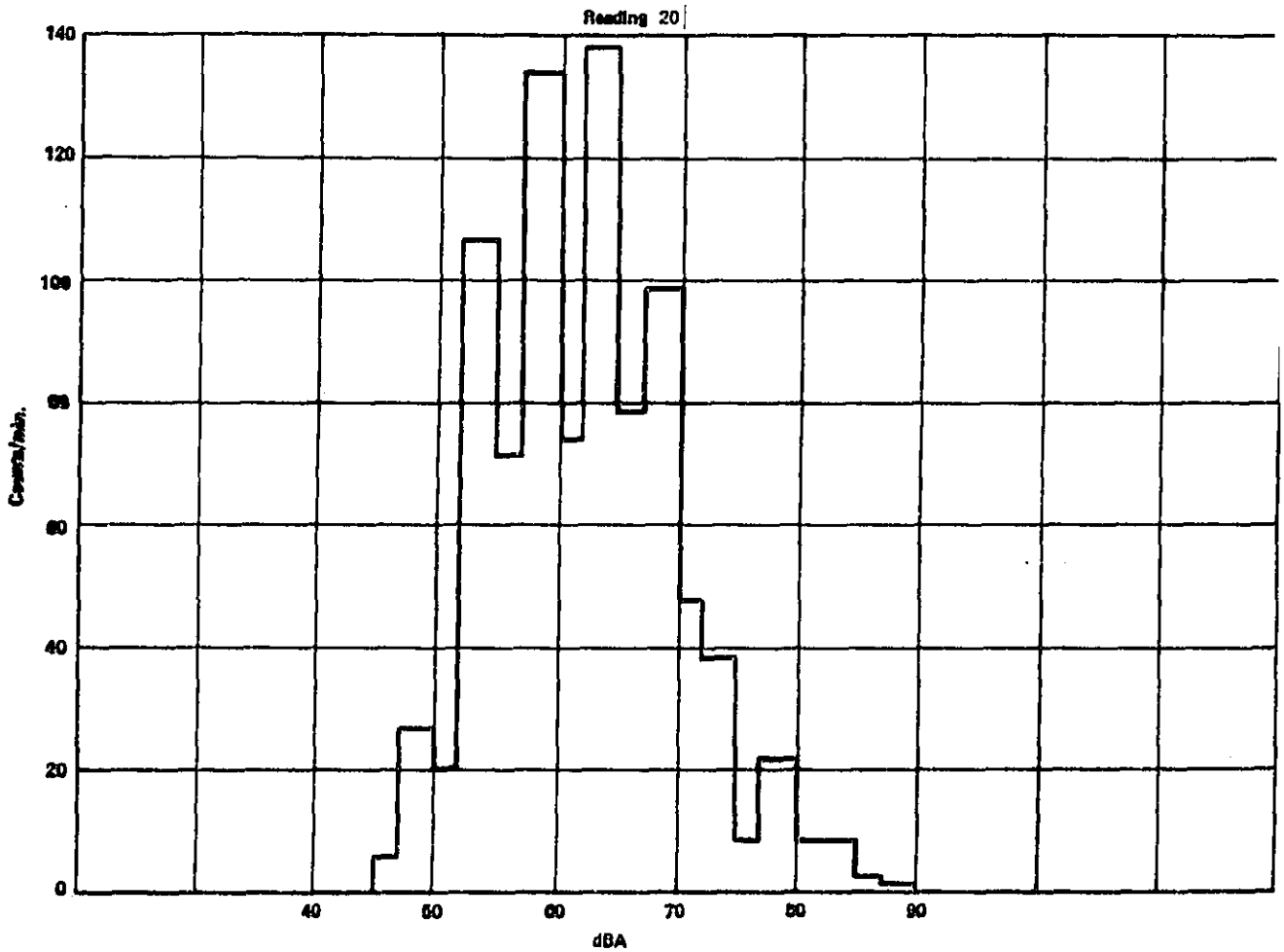
Weather Conditions Clear

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

L_{eq} 70.37

L_{dn} _____


Reading 20
140
120
100
80
60
40
20
0
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 21 Date 13Feb74 Time 0720

25.4			
100	340	24.2	60.0
37.0	66.4	33.7	67.9
36.5	53.2	29.1	71.8

48 dBA 634.2 minutes

29.6	32.5	7.2	18.3
6.6	8.3	2.4	1.3
0.0	0.1	0.1	0.1

78 dBA 554.2 minutes

Wind Direction S

Wind Speed 4-5

Temperature 31

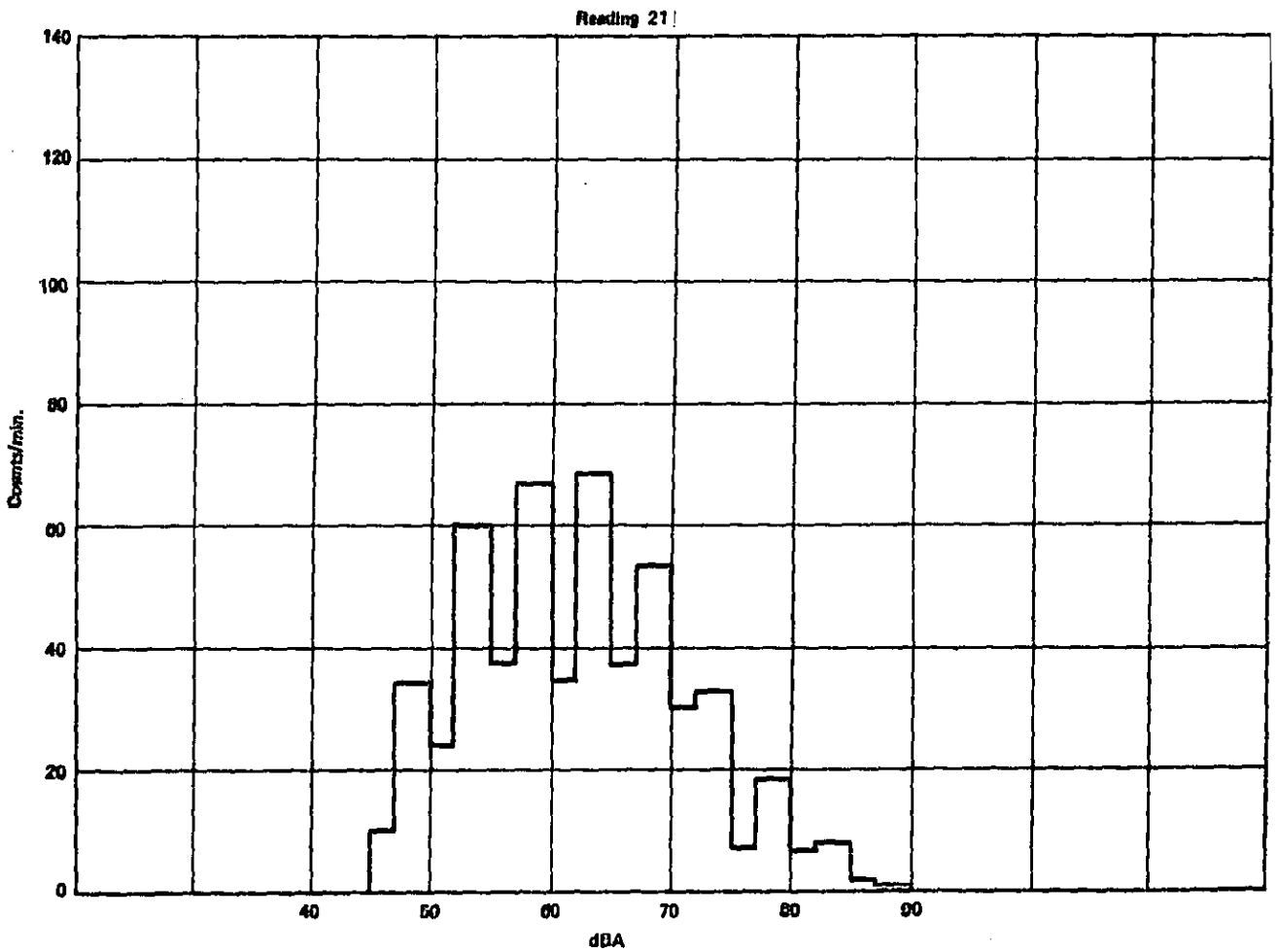
Weather Conditions Clear

Raw Vehicle Count Northbound 1365

Raw Vehicle Count Southbound 1284

L_{eq} 71.94

L_{dn} _____


Reading 21
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 22 Date 13Feb71 Time 2132

80			
7.5	39.1	56.7	42.5
47.6	119.2	82.6	91.2
93.4	103.8	58.5	104.2

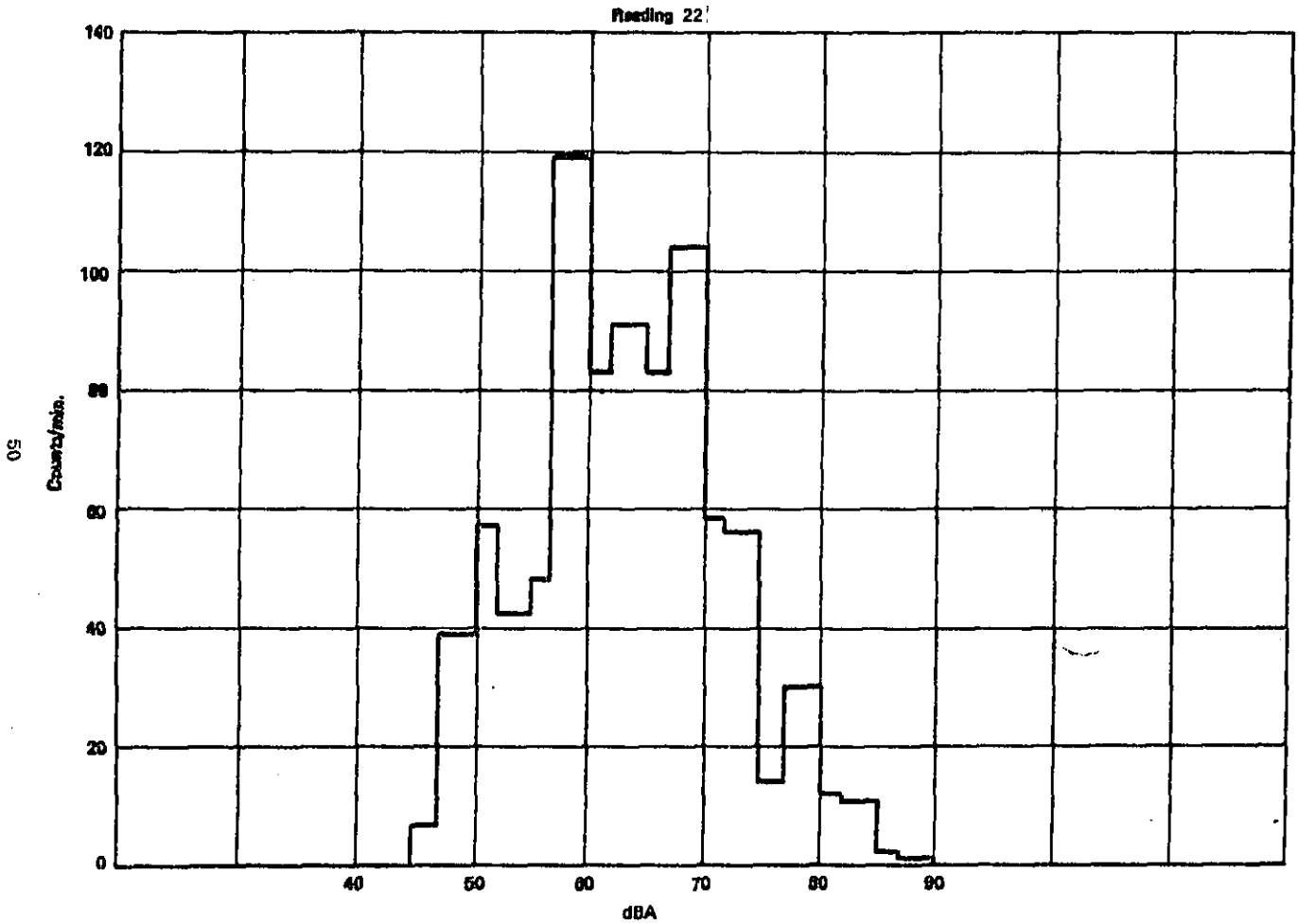
65 dBA 846.1 minutes

58.6	56.1	13.9	30.2
12.3	11.2	2.0	1.1
0.1	0.1	0.1	0.1

70 dBA 846.1 minutes

Wind Direction NNE
Wind Speed 8-10
Temperature 31
Weather Conditions Clear

Raw Vehicle Count Northbound 4214
Raw Vehicle Count Southbound 4697
L_{eq} 71.72
L_{dn} 77.80


Reading 22
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 23 Date 14 Feb 74 Time 0715

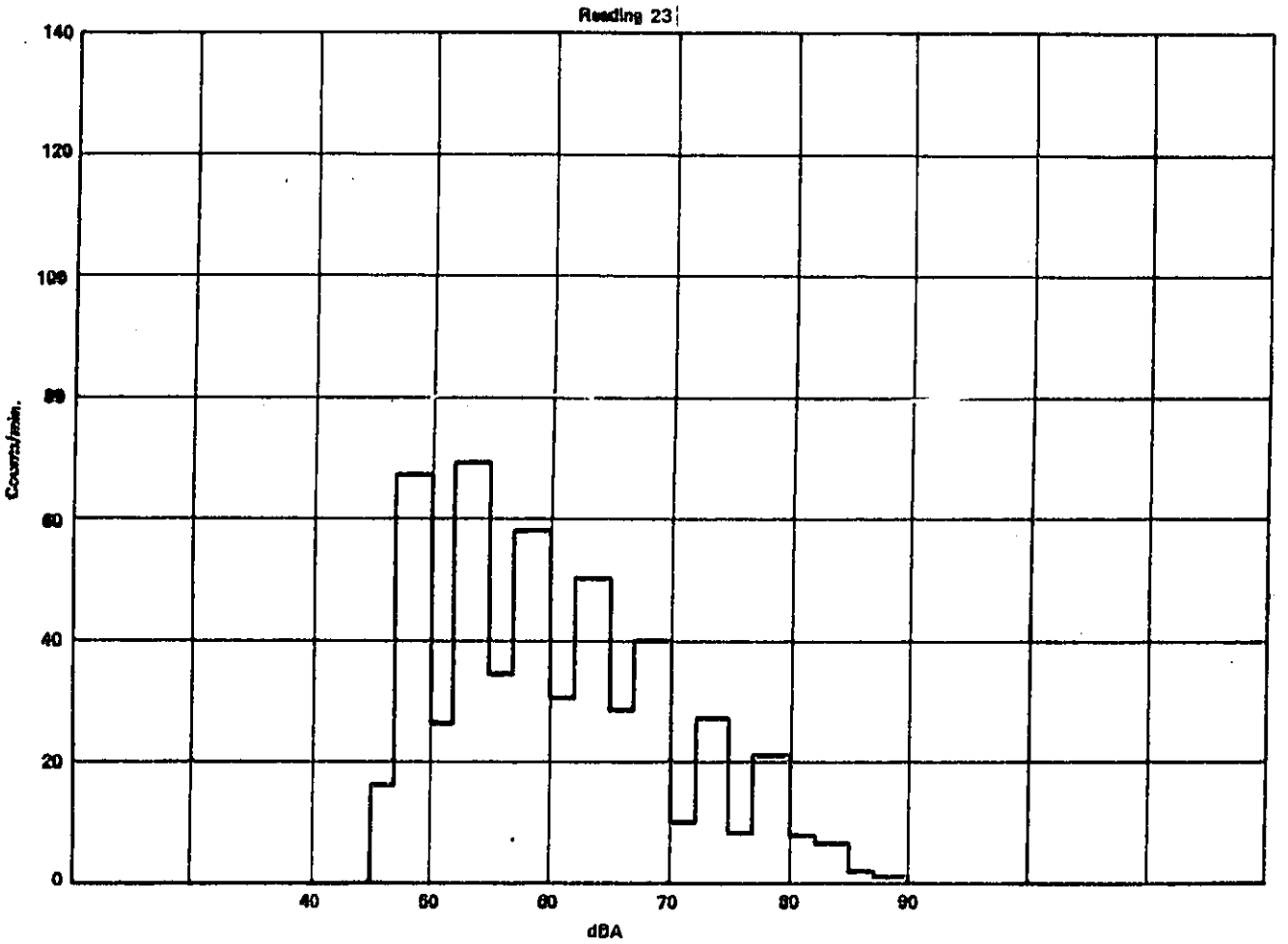
50.9			
25.9	66.7	15.5	72.4
34.1	58.2	30.3	49.3
27.9	40.2	25.0	69.5

45 dBA 575.5 minutes

10.1	26.9	7.5	20.9
8.5	7.5	1.6	0.9
0.2	0.1	0.0	0.1

70 dBA 575.5 minutes

Wind Direction	NNE	Raw Vehicle Count Northbound	1451
Wind Speed	4-7	Raw Vehicle Count Southbound	1409
Temperature	27	L_{eq}	71.33
Weather Conditions	Clear	L_{dn}	77.80


Reading 23
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 24 Date 14 Feb 74 Time 2201

0.0			
9.5	40.7	25.5	92.0
66.6	123.1	68.4	112.1
74.3	96.8	50.2	107.6

45 dBA 878.3 minutes

48.8	50.0	11.6	30.7
11.4	9.8	1.6	0.8
0.2	0.1	0.0	0.0

70 dBA 878.3 minutes

Wind Direction NNE

Wind Speed 6-10

Temperature 27

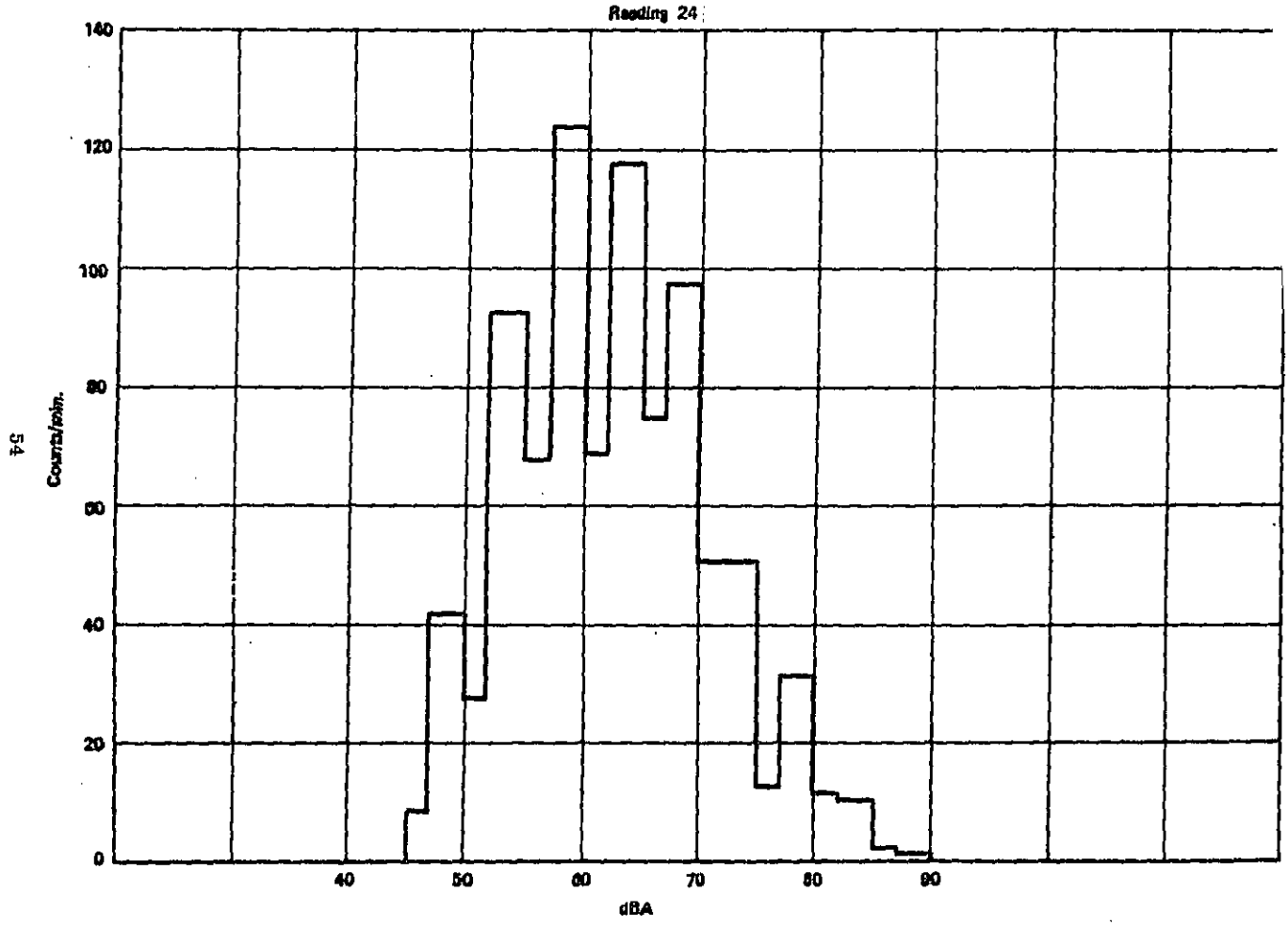
Weather Conditions Clear

Raw Vehicle Count Northbound 4547

Raw Vehicle Count Southbound 4851

L_{eq} 71.04

L_{dn} 77.23


Reading 24
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 25 Date 15 Feb 74 Time 0714

58.2			
22.0	62.0	35.2	65.0
26.2	55.1	27.0	50.9
28.2	38.8	20.3	54.8

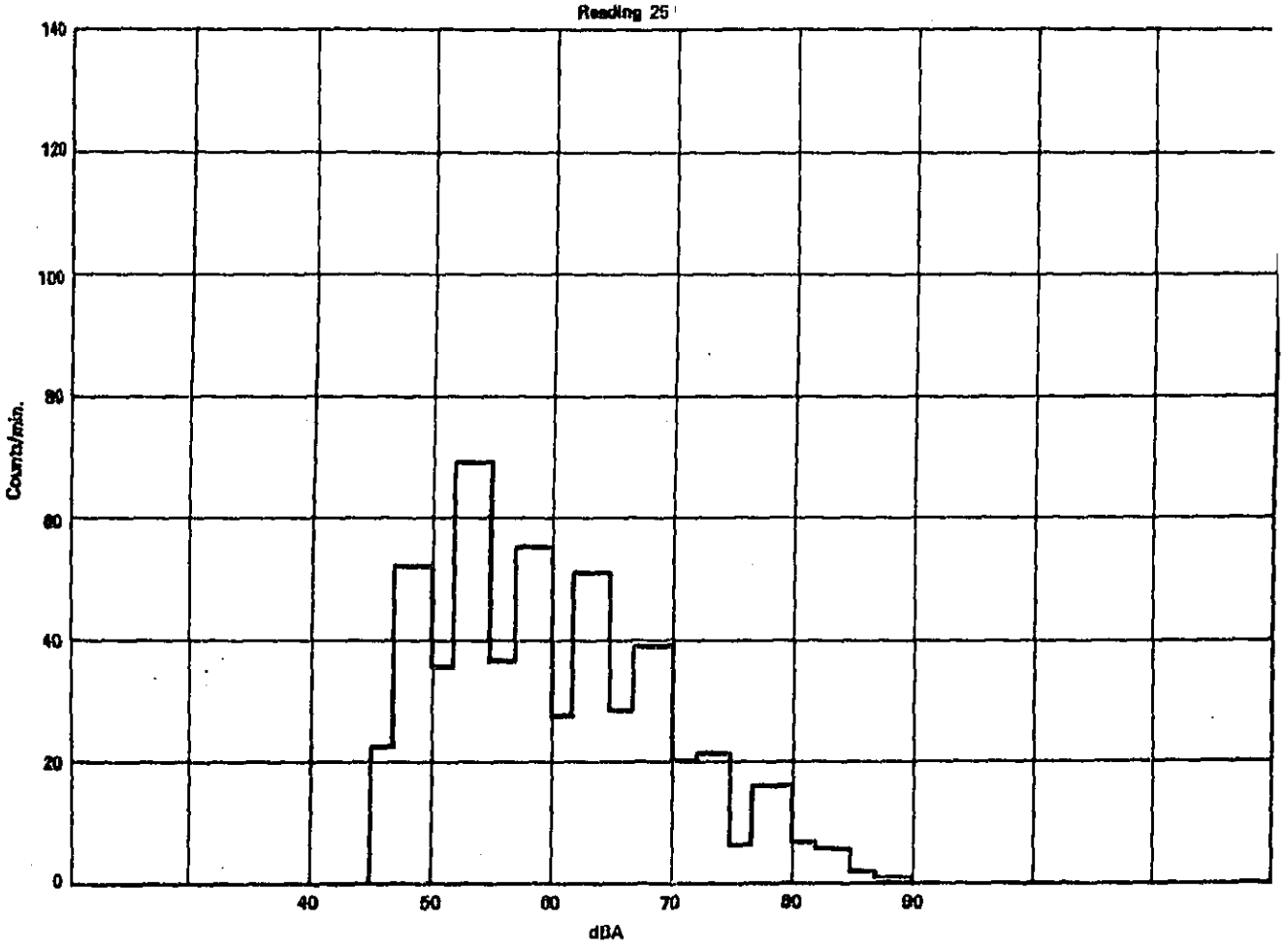
45 dBA 547.7 minutes

20.2	21.0	5.8	14.3
7.0	6.4	1.2	0.8
0.2	0.1	0.0	0.1

75 dBA 547.7 minutes

Wind Direction NNE
Wind Speed 3-5
Temperature 29
Weather Conditions Clear

Raw Vehicle Count Northbound 1474
Raw Vehicle Count Southbound 1634
L_{eq} 70.78
L_{dn} 77.23


Reading 25
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

LEVERETT ROAD VEHICLE MEASUREMENTS

Test No. 26 Date 15 Feb 74 Time 1415

0.3			
7.9	41.9	30.0	63.0
37.7	54.7	27.4	51.7
29.2	31.6	12.3	35.0

46 dBA 1125.1 minutes

14.1	12.6	3.4	11.3
5.2	3.9	0.6	0.5
0.0	0.0	0.0	0.0

70 dBA 425.1 minutes

Wind Direction _____

Wind Speed _____

Temperature _____

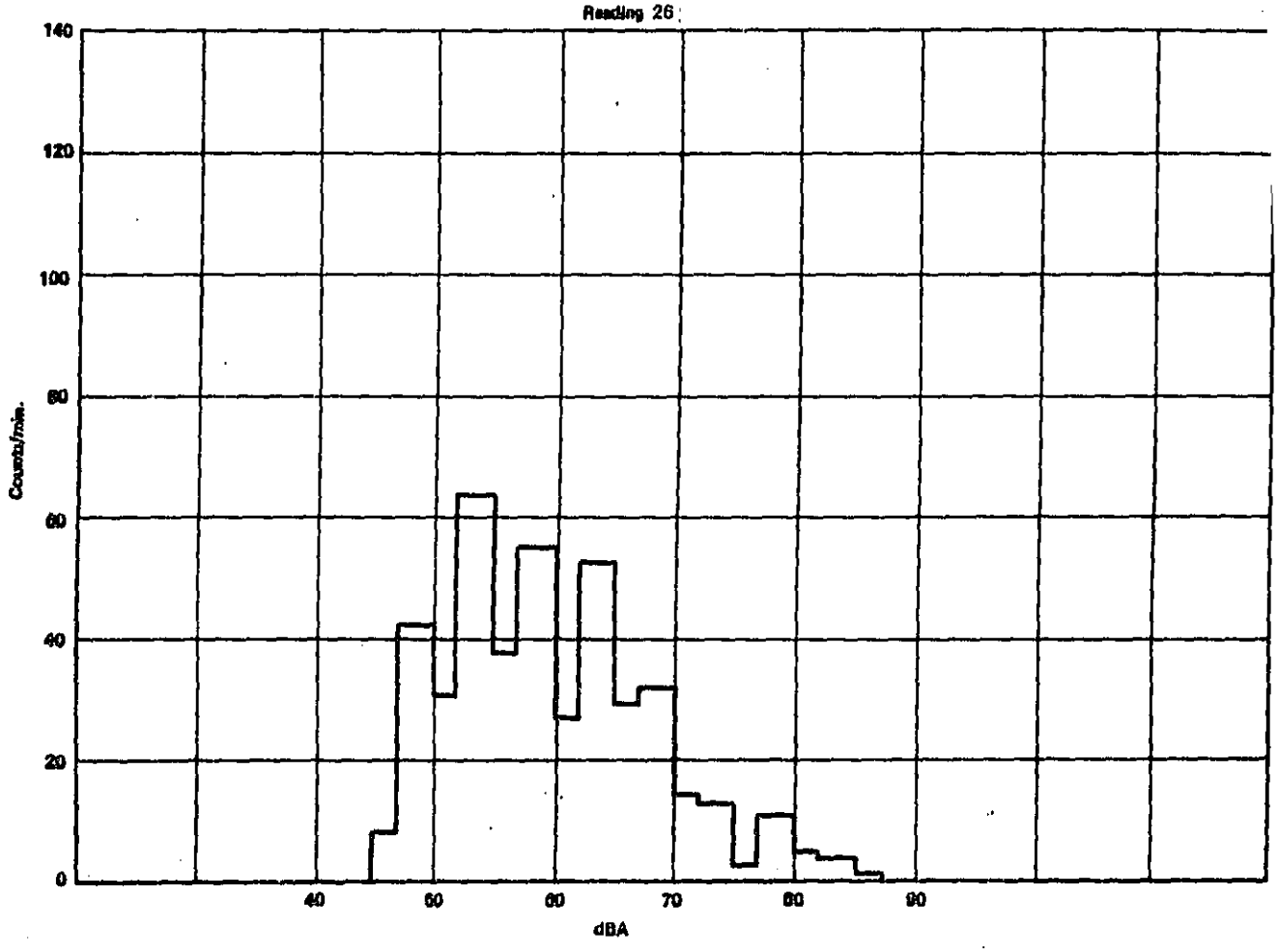
Weather Conditions _____

Raw Vehicle Count Northbound _____

Raw Vehicle Count Southbound _____

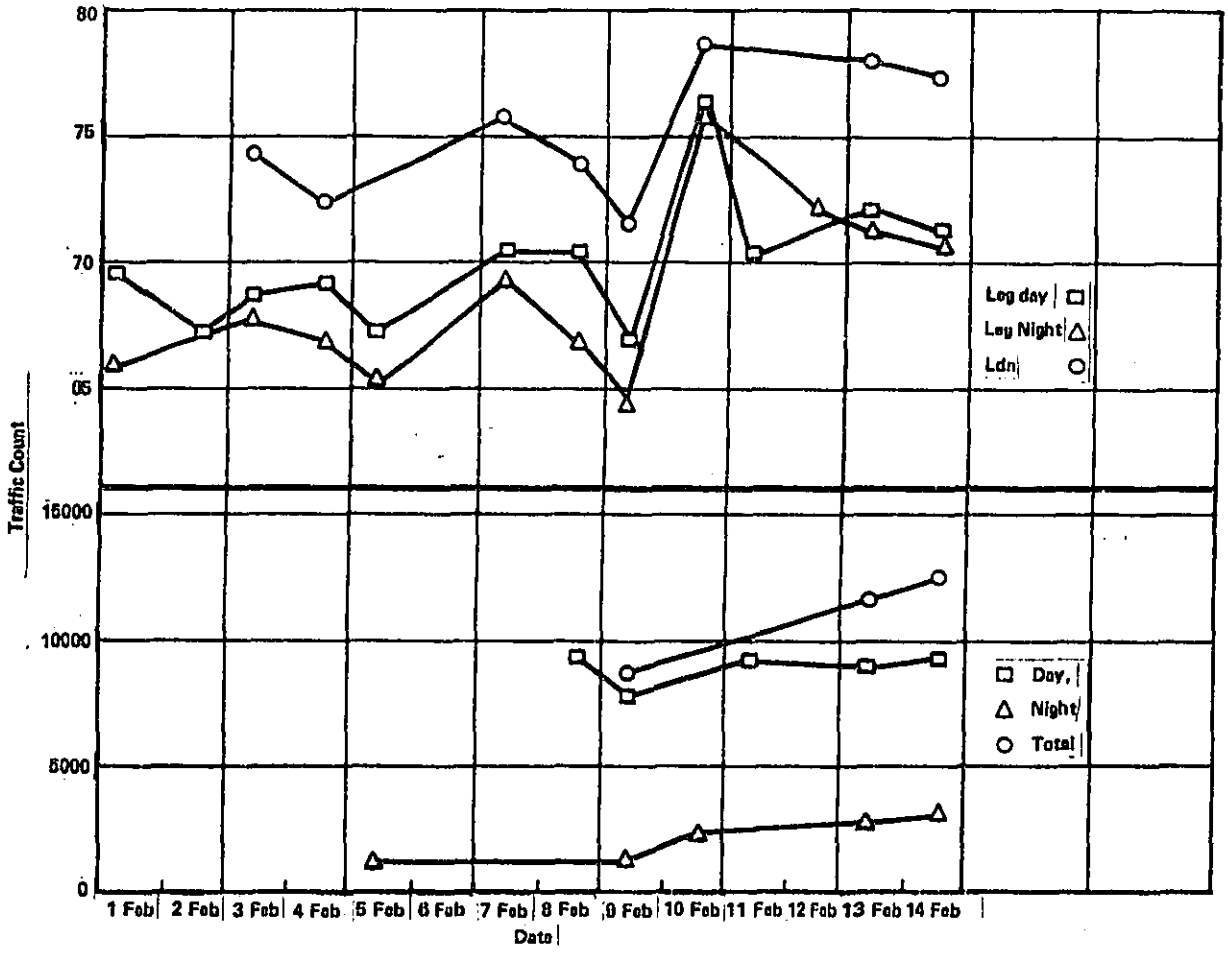
L_{eq} 49.77

L_{dn} _____


Reading 26
140
120
100
80
60
40
20
0
Counts/min.
40
50
60
70
80
90
dBA

RESULTS

The results are shown on the following graph and corresponding chart. By dates, the L_{eq} per day and night and the L_{dn} are plotted along with the traffic measured in the near lane by day, by night, and total traffic. The raw data traffic measurements show that the flow is more or less equal in the two directions, so the total traffic, including the far lanes, can be considered double the traffic flow information given in the graph and chart.


80
75
70
65
16000
10000
5000
0
Traffic Count
1 Feb
2 Feb
3 Feb
4 Feb
5 Feb
6 Feb
7 Feb
8 Feb
9 Feb
10 Feb
11 Feb
12 Feb
13 Feb
14 Feb
Date
Leg day
Leg Night
Ldn
Day
Night
Total

Date	Traffic Flow (Day)	Traffic Flow (Night)	L_{eq} (Day)	Leq (Night)	L_{dn}
1 Feb			68.60	66.15	
2 Feb			67.30		
3 Feb			68.85	67.85	74.42
4 Feb			69.33	66.90	72.36
5 Feb		1266	67.28	65.30	
6 Feb					
7 Feb			70.43	68.34	75.64
8 Feb	9467		70.26	66.59	73.75
9 Feb	7848	1079	66.91	64.51	71.35
10 Feb		2396	75.96	71.25	78.54
11 Feb	9285		70.37		
12 Feb				71.94	
13 Feb	8911	2860	71.72	71.33	77.80
14 Feb	9398	3108	71.04	70.78	77.23

Summary Results of Traffic Flow and Noise Level

BIBLIOGRAPHIC DATA SHEET	1. Report No. 550/9-74-010	2.	3. Recipient's Accession No.
4. Title and Subtitle Environmental Noise Measurements on Interstate 57 During and After Truck Strike			5. Report Date June 1974 6.
7. Author(s) P.D. Schomer and B.L. Homans			8. Performing Organization Rept. No.
9. Performing Organization Name and Address Construction Engineering Research Laboratory U.S. Department of the Army			10. Project/Task/Work Unit No. 11. Contract/Grant No.
12. Sponsoring Organization Name and Address Environmental Protection Agency Office of Noise Abatement and Control Crystal Mall #2, 1921 Jefferson Davis Highway Arlington, Virginia 20460			13. Type of Report & Period Covered Final 14.

15. Supplementary Notes

16. Abstracts

Noise and traffic-count data were recorded and analyzed during and immediately after a nationwide stike of independent truckers. This report presents statistical noise levels, equivalent sound level (L_{eq}), and day-night level (L_{dn}) for a two-week data-gathering period. From these results, it is possible to infer the truck contribution to highway noise.

17. Key Words and Document Analysis. 17a. Descriptors

TRUCK NOISE, HIGHWAY NOISE, L_{dn}, L_{eq}

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group

18. Availability Statement	19. Security Class (This Report) UNCLASSIFIED X	21. No. of Pages
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FORM NTIS-35 (10-70)

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