LAMPIRAN V

PERHITUNGAN TINGKAT KEBISINGAN

Data tingkat kebisingan tanpa perlakuan di dalam ruang kelas per-menit setiap kereta api melintas:

NO	Jam	Waktu	Tingkat Kebisingan dB (A)											Leq 1 Menit
		Menit/Detik	1	2	3	4	5	6	7	8	9	10	11	12	
7	08.00 Pagi Hari	Menit 7	65,3	65,3	81,4	69	76,3	73,4	78	73,5	62,3	58,6	56,1	43,9	67,07
3	12.00 Siang Hari	Menit 3	31	37,7	29,8	34,5	45	66,3	43,5	48	56,6	76,3	77,3	73,1	65,30
7	16.00 Sore Hari	Menit 7	85,4	72,8	73,9	74,9	66,5	53,5	48,2	51,3	48,2	44,2	44	41,2	68,52

Contoh perhitungan:

Leq menit ke-7 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.65,3}$+ $10^{0,1.65,3}$+$10^{0,1.81,4}$ + $10^{0,1.69}$ + $10^{0,1.76,3}$ + $10^{0,1.73,4}$ + $10^{0,1.78}$ + $10^{0,1.73,5}$ + $10^{0,1.62,3}$ + $10^{0,1.58,6}$ + $10^{0,1.56,1}$ + $10^{0,1.43,9}$)*5))

= 67,07 dB

Leq menit ke-3 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.31}$+ $10^{0,1.37,7}$+$10^{0,1.29,8}$ + $10^{0,1.34,5}$ + $10^{0,1.45}$ + $10^{0,1.66,3}$ + $10^{0,1.43,5}$ + $10^{0,1.48}$ + $10^{0,1.56,6}$ + $10^{0,1.76,3}$ + $10^{0,1.77,3}$ + $10^{0,1.73,1}$)*5))

= 65,30 dB

Leq menit ke-7 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 (($10^{0,1.85,4}$+ $10^{0,1.72,8}$+$10^{0,1.73,9}$ + $10^{0,1.74,9}$ + $10^{0,1.66,5}$ + $10^{0,1.53,5}$ + $10^{0,1.48,2}$ + $10^{0,1.51,3}$ + $10^{0,1.48,2}$ + $10^{0,1.44,2}$ + $10^{0,1.44}$ + $10^{0,1.41,2}$)*5))

= 65,30 dB

Data tingkat kebisingan tanpa perlakuan di luar ruang kelas per-menit setiap kereta api melintas:

NO	Jam	Waktu	Tingkat Kebisingan dB (A)												Leq 1 Menit
		Menit/Detik	1	2	3	4	5	6	7	8	9	10	11	12	
7	08.00 Pagi Hari	Menit 7	69,8	69,3	69,9	70,1	73,3	80,3	86,6	80,5	79,2	73,5	62	69,9	71,72
3	12.00 Siang Hari	Menit 3	48,1	47,4	48,3	45,2	44,3	47,4	56	62	51,3	56,4	68,6	88,5	77,72
7	16.00 Sore Hari	Menit 7	78,5	89,4	79,2	76,5	75,5	76,6	60,1	49,9	50,5	47,5	43,5	45,5	72,83

Contoh perhitungan:

Leq menit ke-7 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 (($10^{0,1.69,8}$+ $10^{0,1.69,3}$+$10^{0,1.69,9}$ + $10^{0,1.70,1}$ + $10^{0,1.73,3}$ + $10^{0,1.80,3}$ + $10^{0,1.86,6}$ + $10^{0,1.80,5}$ + $10^{0,1.79,2}$ + $10^{0,1.73,5}$ + $10^{0,1.62}$ + $10^{0,1.69,9}$)*5))

= 71,72 dB

Leq menit ke-3 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.48,1}$+ $10^{0,1.47,4}$+$10^{0,1.48,3}$ + $10^{0,1.45,2}$ + $10^{0,1.44,3}$ + $10^{0,1.47,4}$ + $10^{0,1.56}$ + $10^{0,1.62}$ + $10^{0,1.51,3}$ + $10^{0,1.56,4}$ + $10^{0,1.68,6}$ + $10^{0,1.88,5}$)*5))

= 77,72 dB

Leq menit ke-7 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.78,5}$+ $10^{0,1.89,4}$+$10^{0,1.79,2}$ + $10^{0,1.76,5}$ + $10^{0,1.75,5}$ + $10^{0,1.76,6}$ + $10^{0,1.60,1}$ + $10^{0,1.49,9}$ + $10^{0,1.50,5}$ + $10^{0,1.47,5}$ + $10^{0,1.43,5}$ + $10^{0,1.45,5}$)*5))

= 72,83 dB

Data tingkat kebisingan dengan perlakuan *styrofoam* 2 cm di dalam ruang kelas per-menit setiap kereta api melintas:

NO	Jam	Waktu	Tingkat Kebisingan dB (A)												Leq 1 Menit
		Menit/Detik	1	2	3	4	5	6	7	8	9	10	11	12	
5	08.00 Pagi Hari	Menit 5	67,6	68,2	64,5	49,7	41,2	38,3	36,5	39,8	37	37,1	43,2	38,2	54,09
1	12.00 Siang Hari	Menit 1	46,6	44,4	47,1	48,8	43,8	48	53,6	64,4	65,9	66,8	62,8	54,6	54,06
7	16.00 Sore Hari	Menit 7	24,7	35,4	32,3	26,9	28,9	27,8	25,8	31,3	30,1	50,4	65,1	64,8	54,88

Contoh perhitungan:

Leq menit ke-5 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.67,6}$+ $10^{0,1.68,2}$+$10^{0,1.64,5}$ + $10^{0,1.49,7}$ + $10^{0,1.41,2}$ + $10^{0,1.38,3}$ + $10^{0,1.36,5}$ + $10^{0,1.39,8}$ + $10^{0,1.37}$ + $10^{0,1.37,1}$ + $10^{0,1.43,2}$ + $10^{0,1.38,2}$)*5))

= 54,09 dB

Leq menit ke-1 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.46,6}$+ $10^{0,1.44,4}$+$10^{0,1.47,1}$ + $10^{0,1.48,8}$ + $10^{0,1.43,8}$ + $10^{0,1.48}$ + $10^{0,1.53,6}$ + $10^{0,1.64,4}$ + $10^{0,1.65,9}$ + $10^{0,1.66,8}$ + $10^{0,1.62,8}$ + $10^{0,1.54,6}$)*5))

= 54,06 dB

Leq menit ke-7 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.24,7}$+ $10^{0,1.35,4}$+$10^{0,1.32,3}$ + $10^{0,1.26,9}$ + $10^{0,1.28,9}$ + $10^{0,1.27,8}$ + $10^{0,1.25,8}$ + $10^{0,1.31,3}$ + $10^{0,1.30,1}$ + $10^{0,1.50,4}$ + $10^{0,1.65,1}$ + $10^{0,1.64,8}$)*5))

= 54,88 dB

Data tingkat kebisingan dengan perlakuan *styrofoam* 2 cm di luar ruang kelas per-menit setiap kereta api melintas:

NO	Jam	Waktu	Tingkat Kebisingan dB (A)												Leq 1 Menit
		Menit/Detik	1	2	3	4	5	6	7	8	9	10	11	12	
5	08.00 Pagi Hari	Menit 5	65,7	78,1	72,9	74,8	66,4	52	49,6	48,8	48,4	48,2	47,5	49,1	63,13
1	12.00 Siang Hari	Menit 1	50,9	54	56,3	57,8	50,1	63,6	65,9	68,1	71,9	73,8	70,6	62,8	60,95
7	16.00 Sore Hari	Menit 7	43,1	45,2	42,2	43,5	45	45,6	47,4	43,6	49,2	61	75,9	75,1	65,28

Contoh perhitungan:

Leq menit ke-5 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.65,7}$+ $10^{0,1.78,1}$+$10^{0,1.72,9}$ + $10^{0,1.74,8}$ + $10^{0,1.66,4}$ + $10^{0,1.52}$ + $10^{0,1.49,6}$ + $10^{0,1.48,8}$ + $10^{0,1.48,4}$ + $10^{0,1.48,2}$ + $10^{0,1.47,5}$ + $10^{0,1.49,1}$)*5))

= 63,13 dB

Leq menit ke-1 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.50,9}$+ $10^{0,1.54}$+$10^{0,1.56,3}$ + $10^{0,1.57,8}$ + $10^{0,1.50,1}$ + $10^{0,1.63,6}$ + $10^{0,1.65,9}$ + $10^{0,1.68,1}$ + $10^{0,1.71,9}$ + $10^{0,1.73,8}$ + $10^{0,1.70,6}$ + $10^{0,1.62,8}$)*5))

= 60,95 dB

Leq menit ke-7 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.43,1}$+ $10^{0,1.45,2}$+$10^{0,1.42,4}$ + $10^{0,1.43,5}$ + $10^{0,1.45}$ + $10^{0,1.45,6}$ + $10^{0,1.47,4}$ + $10^{0,1.43,6}$ + $10^{0,1.49,2}$ + $10^{0,1.61}$ + $10^{0,1.75,9}$ + $10^{0,1.75,1}$)*5))

= 65,28 dB

Data tingkat kebisingan dengan perlakuan *styrofoam* 4 cm di dalam ruang kelas per-menit setiap kereta api melintas:

NO	Jam	Waktu	Tingkat Kebisingan dB (A)												Leq 1 Menit
		Menit/Detik	1	2	3	4	5	6	7	8	9	10	11	12	
8	08.00 Pagi Hari	Menit 8	31,4	23,9	34	35,2	21,5	22,4	23,7	26,4	27	25,3	22,5	20,9	22,25
2	12.00 Siang Hari	Menit 2	33,6	29,1	38,5	36,5	34,3	35,1	35,5	35,8	36,7	36,9	34,1	30,2	28,78
3	16.00 Sore Hari	Menit 3	28,9	29,1	30,6	30	29,8	37,8	29,5	28,6	28,3	26,7	24,6	26,8	24,30

Contoh perhitungan:

Leq menit ke-8 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.31,4}$+ $10^{0,1.23,9}$+$10^{0,1.34}$ + $10^{0,1.35,2}$ + $10^{0,1.21,5}$ + $10^{0,1.22,4}$ + $10^{0,1.23,7}$ + $10^{0,1.26,4}$ + $10^{0,1.27}$ + $10^{0,1.25,3}$ + $10^{0,1.22,5}$ + $10^{0,1.20,9}$)*5))

= 22,25 dB

Leq menit ke-2 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.33,6}$+ $10^{0,1.29,1}$+$10^{0,1.38,5}$ + $10^{0,1.36,5}$ + $10^{0,1.34,3}$ + $10^{0,1.35,1}$ + $10^{0,1.35,5}$ + $10^{0,1.35,8}$ + $10^{0,1.36,7}$ + $10^{0,1.36,9}$ + $10^{0,1.34,1}$ + $10^{0,1.30,2}$)*5))

= 28,78 dB

Leq menit ke-3 = 10 log (1/60 ($(10^{0,1.L1}$+ $10^{0,1.L2}$ + ... +$10^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ($(10^{0,1.28,9}$+ $10^{0,1.29,1}$+$10^{0,1.30,6}$ + $10^{0,1.30}$ + $10^{0,1.29,8}$ + $10^{0,1.37,8}$ + $10^{0,1.29,5}$ + $10^{0,1.28,6}$ + $10^{0,1.28,3}$ + $10^{0,1.26,7}$ + $10^{0,1.24,6}$ + $10^{0,1.26,8}$)*5))

= 24,30 dB

Data tingkat kebisingan dengan perlakuan *styrofoam* 4 cm di luar ruang kelas per-menit setiap kereta api melintas:

NO	Jam	Waktu	Tingkat Kebisingan dB (A)												Leq 1 Menit
		Menit/Detik	1	2	3	4	5	6	7	8	9	10	11	12	
8	08.00 Pagi Hari	Menit 8	67,8	57,1	62,7	60,6	51,3	58	55,6	54,7	50,4	49,8	49	49,5	52,90
2	12.00 Siang Hari	Menit 2	65,2	64,4	78,8	75,1	70,8	68	68,9	68,8	72,5	78,7	70,6	60,4	66,32
3	16.00 Sore Hari	Menit 3	72,3	72,9	76,5	76	75,9	81	76	66,8	65,9	60,6	56,4	60,8	67,56

Contoh perhitungan:

Leq menit ke-8 = 10 log (1/60 ((10$^{0,1.L1}$+ 10$^{0,1.L2}$ + ... +10$^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ((10$^{0,1.67,8}$+ 10$^{0,1.57,1}$+10$^{0,1.62,7}$ + 10$^{0,1.60,6}$ + 10$^{0,1.51,3}$ + 10$^{0,1.58}$ + 10$^{0,1.55,6}$ + 10$^{0,1.54,7}$ + 10$^{0,1.50,4}$ + 10$^{0,1.49,8}$ + 10$^{0,1.49}$ + 10$^{0,1.49,5}$)*5))

= 52,90 dB

Leq menit ke-2 = 10 log (1/60 ((10$^{0,1.L1}$+ 10$^{0,1.L2}$ + ... +10$^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ((10$^{0,1.65,2}$+ 10$^{0,1.64,4}$+10$^{0,1.78,8}$ + 10$^{0,1.75,1}$ + 10$^{0,1.70,8}$ + 10$^{0,1.68}$ + 10$^{0,1.68,9}$ + 10$^{0,1.68,8}$ + 10$^{0,1.72,5}$ + 10$^{0,1.78,7}$ + 10$^{0,1.70,6}$ + 10$^{0,1.60,4}$)*5))

= 66,32 dB

Leq menit ke-3 = 10 log (1/60 ((10$^{0,1.L1}$+ 10$^{0,1.L2}$ + ... +10$^{0,1.L12}$)*5)) dB (A)

= 10 log (1/60 ((10$^{0,1.72,3}$+ 10$^{0,1.72,9}$+10$^{0,1.76,5}$ + 10$^{0,1.76}$ + 10$^{0,1.75,9}$ + 10$^{0,1.81}$ + 10$^{0,1.76}$ + 10$^{0,1.66,86}$ + 10$^{0,1.65,9}$ + 10$^{0,1.60,6}$ + 10$^{0,1.56,4}$ + 10$^{0,1.60,8}$)*5))

= 67,56 dB