

	1		2		3		4		5		6		7		8	
	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B
Reference train noise Lmax	78.0 dB(A)	0.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)
Speed of reference source	80.0 kph	0.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph
Distance of reference source	25.0 m	0.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m
Length of train (L)	68.0 m	0.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m
Lmax (ref) to SEL (ref)																
D = d/L	0.4	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
10 log(L/V)	-0.7 dB(A)	0.0 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)
SEL	83.3 dB(A)	0.0 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)
Input parameters:																
Horizontal distance (perpendicular distance)	40.3 m	0.0 m	62.8 m	66.8 m	62.8 m	66.8 m	62.8 m	66.8 m	61.3 m	65.8 m	62.8 m	66.5 m	65.8 m	70.3 m	67.3 m	73.3 m
Railway Head	21.2 mPD	0.0 mPD	23.3 mPD	22.1 mPD	26.1 mPD	26.2 mPD	25.7 mPD	25.6 mPD	24.6 mPD	24.6 mPD	23.8 mPD	23.8 mPD	23.3 mPD	23.2 mPD	22.5 mPD	22.4 mPD
Effective Source Height	0.9 m	0.0 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m
Source height	22.7 mPD	0.0 mPD	24.2 mPD	23.0 mPD	27.0 mPD	27.1 mPD	26.6 mPD	26.5 mPD	25.5 mPD	25.5 mPD	24.7 mPD	24.7 mPD	24.2 mPD	24.1 mPD	23.4 mPD	23.3 mPD
Receiver height	40.7 mPD	0.0 mPD	40.7 mPD	40.7 mPD	40.7 mPD	40.7 mPD	40.7 mPD	40.7 mPD	40.7 mPD	40.7 mPD	40.7 mPD	40.7 mPD	40.7 mPD	40.7 mPD	40.7 mPD	40.7 mPD
Height difference between receiver and source	18.6 m	0.0 m	16.5 m	17.7 m	13.7 m	13.6 m	14.1 m	14.2 m	15.2 m	15.2 m	16.0 m	16.0 m	16.5 m	16.5 m	17.4 m	17.4 m
Slant distance between receiver and source, (d)	44.4 m	0.0 m	64.9 m	69.1 m	64.2 m	68.1 m	64.3 m	68.2 m	63.1 m	67.5 m	64.8 m	68.4 m	67.8 m	72.2 m	69.5 m	75.3 m
Angle of view (θ)	1.0 degree	0.0 degree	4.5 degree	4.5 degree	25.0 degree	25.0 degree	33.0 degree	33.0 degree	27.0 degree	27.0 degree	25.0 degree	25.0 degree	16.5 degree	16.5 degree	10.5 degree	10.5 degree
Train speed (V)	70.0 kph	0.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph
Distance correction	-2.5 dB(A)	0.0 dB(A)	-4.1 dB(A)	-4.4 dB(A)	-4.1 dB(A)	-4.4 dB(A)	-4.1 dB(A)	-4.4 dB(A)	-4.0 dB(A)	-4.3 dB(A)	-4.1 dB(A)	-4.4 dB(A)	-4.3 dB(A)	-4.6 dB(A)	-4.4 dB(A)	-4.8 dB(A)
Angle-of-view correction	-22.6 dB(A)	0.0 dB(A)	-16.0 dB(A)	-16.0 dB(A)	-8.6 dB(A)	-8.6 dB(A)	-7.4 dB(A)	-7.4 dB(A)	-8.2 dB(A)	-8.2 dB(A)	-8.6 dB(A)	-8.6 dB(A)	-10.4 dB(A)	-12.3 dB(A)	-12.3 dB(A)	-12.3 dB(A)
Speed correction	-1.2 dB(A)	0.0 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)
Points and crossing	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)
poor track	3.0 dB(A)	0.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)
Barrier correction	-2.3 dB(A)	0.0 dB(A)	-4.3 dB(A)	0.0 dB(A)	-4.4 dB(A)	0.0 dB(A)	-4.3 dB(A)	-0.2 dB(A)	-4.3 dB(A)	0.0 dB(A)	-4.3 dB(A)	0.0 dB(A)	-4.3 dB(A)	0.0 dB(A)	-4.3 dB(A)	0.0 dB(A)
SEL (corrected)	57.7 dB(A)	0.0 dB(A)	60.7 dB(A)	64.7 dB(A)	68.1 dB(A)	72.2 dB(A)	69.3 dB(A)	73.2 dB(A)	68.6 dB(A)	72.6 dB(A)	68.2 dB(A)	72.2 dB(A)	66.1 dB(A)	70.1 dB(A)	64.1 dB(A)	68.0 dB(A)
SEL to Leq																
Number of trains on each track in 30 mins (N)	15.0	0.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
T = 1800s	1800.0 s	0.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s
Correction for Train Frequency	-20.8 dB(A)	0.0 dB(A)	-20.8 dB(A)	-20.8 dB(A)	-20.8 dB(A)	-20.8 dB(A)	-20.8 dB(A)	-20.8 dB(A)	-20.8 dB(A)	-20.8 dB(A)	-20.8 dB(A)	-20.8 dB(A)	-20.8 dB(A)	-20.8 dB(A)	-20.8 dB(A)	-20.8 dB(A)
Facade correction	2.5 dB(A)	0.0 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)
Re-radiated Noise	4.0 dB(A)	0.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)
Leq of each train direction	43.4 dB(A)	0.0 dB(A)	46.4 dB(A)	50.4 dB(A)	53.8 dB(A)	57.9 dB(A)	55.0 dB(A)	58.9 dB(A)	54.3 dB(A)	58.3 dB(A)	53.9 dB(A)	57.9 dB(A)	51.9 dB(A)	55.8 dB(A)	49.8 dB(A)	53.7 dB(A)
Leq of each segment	43.4 dB(A)		51.9 dB(A)		59.3 dB(A)		60.4 dB(A)		59.7 dB(A)		59.3 dB(A)		57.3 dB(A)		55.2 dB(A)	
Total Leq			66.8 dB(A)													
Lmax Calculation																
Actual Distance	298.3 m	0.0 m	241.3 m	272.8 m	164.8 m	178.3 m	86.8 m	94.3 m	62.0 m	80.8 m	58.3 m	64.3 m	73.3 m	79.3 m	88.3 m	94.3 m
Slant Distance	298.8 m	0.0 m	241.8 m	273.3 m	165.3 m	178.8 m	87.9 m	95.3 m	63.8 m	82.2 m	60.4 m	66.2 m	75.1 m	81.0 m	89.9 m	95.8 m
Distance correction	-21.5 dB(A)	0.0 dB(A)	-19.7 dB(A)	-20.8 dB(A)	-16.4 dB(A)	-17.1 dB(A)	-10.9 dB(A)	-11.6 dB(A)	-4.1 dB(A)	-10.3 dB(A)	-3.9 dB(A)	-4.2 dB(A)	-9.6 dB(A)	-10.2 dB(A)	-11.1 dB(A)	-11.7 dB(A)
Speed correction	-1.7 dB(A)	0.0 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)
Points and crossing	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)
poor track	3.0 dB(A)	0.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)
Barrier correction	-2.3 dB(A)	0.0 dB(A)	-4.3 dB(A)	0.0 dB(A)	-4.4 dB(A)	0.0 dB(A)	-4.3 dB(A)	-0.2 dB(A)	-4.3 dB(A)	0.0 dB(A)	-4.3 dB(A)	0.0 dB(A)	-4.3 dB(A)	0.0 dB(A)	-4.3 dB(A)	0.0 dB(A)
Facade correction	2.5 dB(A)	0.0 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)
Re-radiated Noise	4.0 dB(A)	0.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)
Lmax of each train direction	61.9 dB(A)	0.0 dB(A)	61.8 dB(A)	65.0 dB(A)	65.0 dB(A)	68.7 dB(A)	70.5 dB(A)	73.9 dB(A)	77.4 dB(A)	75.4 dB(A)	77.7 dB(A)	81.5 dB(A)	71.9 dB(A)	75.6 dB(A)	70.4 dB(A)	74.1 dB(A)
Lmax of S/B track			77.7 dB(A)													
Lmax of N/B track			81.5 dB(A)													
Lmax, combined (distance corrected)			83.0 dB(A)													
Zone of the NSR	Illuminated	N/A	Shadow	Illuminated	Shadow	Illuminated	Shadow	Illuminated	Shadow	Illuminated	Shadow	Illuminated	Shadow	Illuminated	Shadow	Illuminated
Horizontal distance from centreline to receiver	42.0 m	0.0 m	64.5 m	68.5 m	64.5 m	68.5 m	64.5 m	68.5 m	63.0 m	67.5 m	64.5 m	68.3 m	67.5 m	72.0 m	69.0 m	75.0 m
Parapet height	2.0 m	0.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m
Noise barrier height (above parapet)	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m
Overall height (with barrier)	2.0 m	0.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m
Source height	0.9 m	0.0 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m
Railway head height	0.56 m	0.00 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m
Railway head to parapet	2.05 m	0.00 m	2.05 m	7.30 m	2.05 m	7.30 m	2.05 m	6.55 m	2.05 m	6.55 m	2.05 m	6.55 m	2.05 m	6.55 m	2.05 m	6.55 m
Centreline to railway head	0.8 m	0.0 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m
Parapet to receiver	38.2 m	0.0 m	60.7 m	59.5 m	60.7 m	59.5 m	60.7 m	60.2 m	59.2 m	59.2 m	60.7 m	60.0 m	63.7 m	63.7 m	65.2 m	66.7 m
Height of effective barrier	0.5 m	0.0 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m
Height of barrier (mPD)	22.6 m	0.0 m	24.8 m	23.6 m	27.6 m	27.6 m	27.1 m	27.0 m	26.0 m	26.0 m	25.2 m	25.2 m	24.7 m	24.7 m	23.9 m	23.9 m
a	2.1 m	0.0 m	2.1 m	7.3 m	2.1 m	7.3 m	2.1 m	6.6 m	2.1 m	6.6 m	2.1 m	6.6 m	2.1 m	6.6 m	2.1 m	6.6 m
b	43.2 m	0.0 m	63.7 m	62.8 m	63.1 m	61.9 m	63.2 m	62.7 m	62.0 m	62.0 m	63.6 m	62.9 m	66.6 m	66.7 m	68.3 m	69.8 m
c	45.3 m	0.0 m	65.8 m	70.0 m	65.2 m	69.1 m	65.3 m	69.2 m	64.1 m	68.5 m	65.7 m	69.4 m	68.8 m	73.1 m	70.4 m	76.3 m
Path difference (a+b-c)	0.031 m	0.000 m	0.000 m	0.134 m	0.002 m	0.064 m	0.002 m	0.056 m	0.000 m	0.073 m	0.000 m	0.082 m	0.000 m	0.077 m	0.000 m	

	1		2		3		4		5		6	
	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B
Reference train noise Lmax	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)
Speed of reference source	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph
Distance of reference source	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m
Length of train (L)	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m
Lmax (ref) to SEL (ref)												
D = d/L	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
10 log(L/V)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)
-10Log(4D/(4D^2+1)+2tan^-1(1/2D))+10.5	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)
SEL	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)
Input parameters:												
Horizontal distance (perpendicular distance)	92.8 m	104.8 m	64.3 m	75.5 m	40.3 m	53.8 m	26.8 m	37.3 m	18.5 m	22.5 m	18.5 m	22.5 m
Railway Head	23.3 mPD	23.2 mPD	21.6 mPD	21.9 mPD	20.9 mPD	21.2 mPD	20.3 mPD	20.4 mPD	20.0 mPD	20.0 mPD	20.1 mPD	20.1 mPD
Effective Source Height	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m
Source height	24.2 mPD	24.1 mPD	22.5 mPD	22.8 mPD	21.8 mPD	22.1 mPD	21.2 mPD	21.3 mPD	20.9 mPD	20.9 mPD	21.0 mPD	21.0 mPD
Receiver height	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD
Height difference between receiver and source	11.3 m	11.4 m	13.0 m	12.7 m	13.7 m	13.4 m	14.3 m	14.2 m	14.6 m	14.6 m	14.5 m	14.5 m
Slant distance between receiver and source, (d)	93.4 m	105.4 m	65.5 m	76.6 m	42.5 m	55.4 m	30.3 m	39.9 m	23.5 m	26.8 m	23.5 m	26.8 m
Angle of view (θ)	4.0 degree	4.0 degree	3.5 degree	3.5 degree	3.0 degree	3.0 degree	3.0 degree	3.0 degree	6.0 degree	6.0 degree	17.0 degree	17.0 degree
Train speed (V)	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	75.0 kph	70.0 kph	75.0 kph	70.0 kph	70.0 kph	70.0 kph
Distance correction	-5.7 dB(A)	-6.2 dB(A)	-4.2 dB(A)	-4.9 dB(A)	-2.3 dB(A)	-3.5 dB(A)	-0.8 dB(A)	-2.0 dB(A)	0.3 dB(A)	-0.3 dB(A)	0.3 dB(A)	-0.3 dB(A)
Angle-of-view correction	-16.5 dB(A)	-16.5 dB(A)	-17.1 dB(A)	-17.1 dB(A)	-17.8 dB(A)	-17.8 dB(A)	-17.8 dB(A)	-17.8 dB(A)	-14.8 dB(A)	-14.8 dB(A)	-10.2 dB(A)	-10.2 dB(A)
Speed correction	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)
Points and crossing	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)
poor track	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)
Barrier correction	-5.3 dB(A)	-4.2 dB(A)	-4.5 dB(A)	-3.3 dB(A)	-4.0 dB(A)	0.0 dB(A)	-0.4 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)
SEL (corrected)	57.6 dB(A)	58.1 dB(A)	59.4 dB(A)	59.8 dB(A)	61.0 dB(A)	63.9 dB(A)	66.7 dB(A)	65.3 dB(A)	71.2 dB(A)	70.0 dB(A)	75.1 dB(A)	75.2 dB(A)
SEL to Leq												
Number of trains on each track in 30 mins (N)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
T = 1800s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s
Correction for Train Frequency	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)
Facade correction	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)
Re-radiated Noise	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)
Leq of each train direction	40.6 dB(A)	41.1 dB(A)	42.3 dB(A)	42.8 dB(A)	44.0 dB(A)	46.9 dB(A)	49.7 dB(A)	48.3 dB(A)	54.2 dB(A)	53.0 dB(A)	58.1 dB(A)	58.2 dB(A)
Leq of each segment	43.9 dB(A)		45.6 dB(A)		48.7 dB(A)		52.1 dB(A)		56.7 dB(A)		61.1 dB(A)	
Total Leq			71.1 dB(A)									
Lmax Calculation												
Actual Distance	245.8 m	253.3 m	202.3 m	215.8 m	166.3 m	182.8 m	133.3 m	151.3 m	92.8 m	112.3 m	50.8 m	62.8 m
Slant Distance	246.0 m	253.5 m	202.7 m	216.1 m	166.8 m	183.2 m	134.0 m	151.9 m	93.9 m	113.2 m	52.8 m	64.4 m
Distance correction	-19.9 dB(A)	-20.1 dB(A)	-18.2 dB(A)	-18.7 dB(A)	-16.5 dB(A)	-17.3 dB(A)	-14.6 dB(A)	-15.5 dB(A)	-11.5 dB(A)	-13.1 dB(A)	-3.2 dB(A)	-4.1 dB(A)
Speed correction	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-0.8 dB(A)	-1.7 dB(A)	-0.8 dB(A)	-1.7 dB(A)	-1.7 dB(A)	-0.8 dB(A)
Points and crossing	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)
poor track	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)
Barrier correction	-5.3 dB(A)	-4.2 dB(A)	-4.5 dB(A)	-3.3 dB(A)	-4.0 dB(A)	0.0 dB(A)	-0.4 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)
Facade correction	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)
Re-radiated Noise	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)
Lmax of each train direction	60.6 dB(A)	61.4 dB(A)	63.1 dB(A)	63.7 dB(A)	65.3 dB(A)	68.5 dB(A)	71.7 dB(A)	70.1 dB(A)	75.2 dB(A)	72.6 dB(A)	82.5 dB(A)	82.5 dB(A)
Lmax of S/B track			85.0 dB(A)									
Lmax of N/B track			85.4 dB(A)									
Lmax, combined (distance corrected)			88.2 dB(A)									
Horizontal distance from centreline to receiver	94.5 m	106.5 m	66.0 m	77.3 m	42.0 m	55.5 m	28.5 m	39.0 m	20.3 m	24.3 m	20.3 m	24.3 m
Parapet height	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m
Noise barrier height (above parapet)	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m
Overall height (with barrier)	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m
Source height	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m
Railway head height	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m
Railway head to parapet	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	5.80 m
Centreline to railway head	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m
Parapet to receiver	90.7 m	99.0 m	62.2 m	69.7 m	38.2 m	48.0 m	24.7 m	31.5 m	16.5 m	16.7 m	16.5 m	16.7 m
Height of effective barrier	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m
Height of barrier (mPD)	24.7 m	24.7 m	23.1 m	23.4 m	22.4 m	22.6 m	21.7 m	21.8 m	21.5 m	21.4 m	21.6 m	21.5 m
a	2.1 m	5.8 m	2.1 m	5.8 m	2.1 m	5.8 m	2.1 m	5.8 m	2.1 m	5.8 m	2.1 m	5.8 m
b	92.3 m	100.5 m	64.4 m	71.7 m	41.3 m	50.6 m	29.2 m	35.2 m	22.4 m	22.6 m	22.3 m	22.5 m
c	94.4 m	106.4 m	66.5 m	77.5 m	43.5 m	56.4 m	31.2 m	40.8 m	24.3 m	27.7 m	24.3 m	27.6 m
Path difference (a+b-c)	0.020 m	0.001 m	0.004 m	0.016 m	0.004 m	0.071 m	0.054 m	0.234 m	0.168 m	0.764 m	0.166 m	0.754 m
Barrier correction (absolute)	5.3 dB(A)	4.2 dB(A)	4.5 dB(A)	3.3 dB(A)	4.5 dB(A)	0.0 dB(A)	0.4 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)
Slope of a =	0.3	0.1	0.3	0.1	0.3	0.1	0.3	0.1	0.3	0.1	0.3	0.1
Slope of b =	0.1	0.1	0.2	0.2	0.3	0.3	0.6	0.4	0.9	0.8	0.8	0.8
Zone of the NSR	Shadow	Illuminated	Shadow	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated

	7		8		9		10			11			12	
	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	N/B	S/B	S/B	N/B	S/B	N/B
Reference train noise Lmax	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)
Speed of reference source	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph
Distance of reference source	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m
Length of train (L)	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m
Lmax (ref) to SEL (ref)														
D = d/L	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
10 log(L/V)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)
-10Log(4D/(4D^2+1)+2tan^-1(1/2D))+10.5	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)	6.0 dB(A)
SEL	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)
Input parameters:														
Horizontal distance (perpendicular distance)	18.5 m	22.5 m	18.5 m	22.5 m	17.8 m	20.8 m	10.3 m	23.3	23.3	23.3	23.3	13.3 m	13.3 m	0.0 m
Railway Head	20.2 mPD	20.2 mPD	20.4 mPD	20.4 mPD	20.5 mPD	20.6 mPD	20.9 mPD	20.9	20.9	20.7	20.7	21.0 mPD	21.1 mPD	0.0 mPD
Effective Source Height	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9	0.9	0.9	0.9	0.9 m	0.9 m	0.0 m
Source height	21.1 mPD	21.1 mPD	21.3 mPD	21.3 mPD	21.4 mPD	21.5 mPD	21.8 mPD	21.8	21.8	21.6	21.6	21.9 mPD	22.0 mPD	0.0 mPD
Receiver height	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD	35.5 mPD	35.5	35.5	35.5	35.5	35.5 mPD	35.5 mPD	0.0 mPD
Height difference between receiver and source	14.4 m	14.4 m	14.2 m	14.2 m	14.1 m	14.0 m	13.7 m	13.7	13.7	13.9	13.9	13.6 m	13.5 m	0.0 m
Slant distance between receiver and source, (d)	23.4 m	26.7 m	23.3 m	26.6 m	22.6 m	24.0 m	17.1 m	27.0	27.0	27.1	27.1	19.0 m	19.0 m	0.0 m
Angle of view (θ)	43.0 degree	43.0 degree	84.0 degree	84.0 degree	10.5 degree	10.5 degree	1.5 degree	0.3	1.0	0.3	1.0	1.0 degree	0.5 degree	0.0 degree
Train speed (V)	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	75.0 kph	75.0 kph	70.0	70.0	70.0	70.0	70.0 kph	60.0 kph	70.0 kph
Distance correction	0.3 dB(A)	-0.3 dB(A)	0.3 dB(A)	-0.3 dB(A)	0.4 dB(A)	0.0 dB(A)	1.6 dB(A)	-0.3	-0.3	-0.3	-0.3	1.2 dB(A)	1.2 dB(A)	0.0 dB(A)
Angle-of-view correction	-6.2 dB(A)	-6.2 dB(A)	-3.3 dB(A)	-3.3 dB(A)	-12.3 dB(A)	-12.3 dB(A)	-20.8 dB(A)	-27.8	-22.6	-27.8	-22.6	-22.6 dB(A)	-25.6 dB(A)	0.0 dB(A)
Speed correction	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-0.6 dB(A)	-1.2	-1.2	-1.2	-1.2	-1.2 dB(A)	-2.5 dB(A)	0.0 dB(A)
Points and crossing	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0	0.0	0.0	0.0	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)
poor track	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0	3.0	3.0	3.0	3.0 dB(A)	3.0 dB(A)	0.0 dB(A)
Barrier correction	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0	0.0	0.0	0.0	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)
SEL (corrected)	79.2 dB(A)	79.2 dB(A)	82.1 dB(A)	82.1 dB(A)	73.2 dB(A)	73.4 dB(A)	66.6 dB(A)	57.0	62.2	57.0	62.2	63.8 dB(A)	59.4 dB(A)	0.0 dB(A)
SEL to Leq														
Number of trains on each track in 30 mins (N)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	0.0
T = 1800s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0	1800.0	1800.0	1800.0	1800.0 s	1800.0 s	0.0 s
Correction for Train Frequency	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5	-23.5	-23.5	-23.5	-23.5 dB(A)	-23.5 dB(A)	0.0 dB(A)
Facade correction	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5	2.5	2.5	2.5	2.5 dB(A)	2.5 dB(A)	0.0 dB(A)
Re-radiated Noise	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0	4.0	4.0	4.0	4.0 dB(A)	4.0 dB(A)	0.0 dB(A)
Leq of each train direction	62.2 dB(A)	62.2 dB(A)	65.1 dB(A)	65.1 dB(A)	56.2 dB(A)	56.4 dB(A)	49.6 dB(A)	40.0	45.2	40.0	45.2	46.7 dB(A)	42.4 dB(A)	0.0 dB(A)
Leq of each segment	65.2 dB(A)		68.1 dB(A)		59.3 dB(A)		50.5 dB(A)		43.3		43.3		42.4 dB(A)	
Total Leq														
Lmax Calculation														
Actual Distance	26.0 m	30.5 m	28.3 m	34.3 m	86.8 m	103.3 m	133.3 m	163.3	211.3	223.3	275.8	238.3 m	253.3 m	0.0 m
Slant Distance	29.7 m	33.7 m	31.6 m	37.1 m	87.9 m	104.2 m	134.0 m	163.8	211.7	223.7	276.1	238.6 m	253.6 m	0.0 m
Distance correction	-23.5 dB(A)	-1.3 dB(A)	-23.5 dB(A)	-1.7 dB(A)	-10.9 dB(A)	-12.4 dB(A)	-14.6 dB(A)	-16.3	-18.6	-19.0	-20.9	-19.6 dB(A)	-20.1 dB(A)	0.0 dB(A)
Speed correction	-1.7 dB(A)	-0.8 dB(A)	-1.7 dB(A)	-0.8 dB(A)	-1.7 dB(A)	-0.8 dB(A)	-0.8 dB(A)	-1.7	-1.7	-1.7	-1.7	-1.7 dB(A)	-3.7 dB(A)	0.0 dB(A)
Points and crossing	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0	0.0	0.0	0.0	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)
poor track	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0	3.0	3.0	3.0	3.0 dB(A)	3.0 dB(A)	0.0 dB(A)
Barrier correction	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0	-6.8	0.0	0.0	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)
Facade correction	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5	2.5	2.5	2.5	2.5 dB(A)	2.5 dB(A)	0.0 dB(A)
Re-radiated Noise	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0	4.0	4.0	4.0	4.0 dB(A)	4.0 dB(A)	0.0 dB(A)
Lmax of each train direction	85.0 dB(A)	85.4 dB(A)	84.7 dB(A)	84.9 dB(A)	74.8 dB(A)	74.3 dB(A)	72.1 dB(A)	69.4	60.4	66.7	64.9	66.2 dB(A)	63.6 dB(A)	0.0 dB(A)
Lmax of S/B track														
Lmax of N/B track														
Lmax, combined (distance corrected)														
Horizontal distance from centreline to receiver	20.3 m	24.3 m	20.3 m	24.3 m	19.5 m	22.5 m	12.0 m	25.0	25.0	25.0	25.0	15.0 m	15.0 m	0.0 m
Parapet height	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0	2.0	2.0	2.0	2.0 m	2.0 m	0.0 m
Noise barrier height (above parapet)	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0	0.0	0.0	0.0	0.0 m	0.0 m	0.0 m
Overall height (with barrier)	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0	2.0	2.0	2.0	2.0 m	2.0 m	0.0 m
Source height	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9	0.9	0.9	0.9	0.9 m	0.9 m	0.0 m
Railway head height	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56	0.56	0.56	0.56	0.56 m	0.56 m	0.00 m
Railway head to parapet	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	2.05	2.05	2.05	2.05	2.05 m	2.05 m	0.00 m
Centreline to railway head	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8	0.8	0.8	0.8	0.8 m	0.8 m	0.0 m
Parapet to receiver	16.5 m	16.7 m	16.5 m	16.7 m	15.7 m	15.0 m	8.2 m	21.2	21.2	21.2	21.2	11.2 m	11.2 m	0.0 m
Height of effective barrier	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5	0.5	0.5	0.5	0.5 m	0.5 m	0.0 m
Height of barrier (mPD)	21.7 m	21.7 m	21.8 m	21.8 m	22.0 m	22.0 m	22.3 m	22.3	22.3	22.2	22.2	22.5 m	22.5 m	0.0 m
a	2.1 m	5.8 m	2.1 m	5.8 m	2.1 m	5.8 m	2.1 m	2.1	2.1	2.1	2.1	2.1 m	2.1 m	0.0 m
b	22.3 m	22.5 m	22.2 m	22.4 m	21.5 m	20.9 m	16.1 m	25.8	25.8	25.9	25.9	17.9 m	17.8 m	0.0 m
c	24.2 m	27.5 m	24.1 m	27.5 m	23.4 m	25.9 m	17.7 m	27.9	27.9	27.9	27.9	19.7 m	19.7 m	0.0 m
Path difference (a+b-c)	0.163 m	0.741 m	0.159 m	0.729 m	0.170 m	0.829 m	0.449 m	0.076	0.076	0.078	0.078	0.293 m	0.291 m	0.000 m
Barrier correction (absolute)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0	0.0	0.0	0.0	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)
Slope of a =	0.3	0.1	0.3	0.1	0.3	0.1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.0
Slope of b =	0.8	0.8	0.8	0.8	0.9	0.9	1.6	0.6	0.6	0.6	0.6	1.2	1.2	0.0
Zone of the NSR	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	Illuminated	N/A

	1a		1b		2		3		4		5		6		7		8		
	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	S/B	N/B	
Reference train noise Lmax	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	78.0 dB(A)	
Speed of reference source	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	80.0 kph	
Distance of reference source	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	25.0 m	
Length of train (L)	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	68.0 m	
Lmax (ref) to SEL (ref)																			
D = d/L	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
10 log(L/V)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	-0.7 dB(A)	
SEL	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	83.3 dB(A)	
Input parameters:																			
Horizontal distance (perpendicular distance)	34.3 m	38.8 m	34.3 m	38.8 m	34.3 m	38.8 m	35.8 m	39.5 m	35.1 m	38.1 m	32.8 m	32.1 m	32.8 m	28.3 m	32.8 m	31.3 m	29.8 m	0.0 m	
Railway Head	20.2 mPD	20.2 mPD	20.4 mPD	20.4 mPD	20.6 mPD	20.6 mPD	20.7 mPD	20.7 mPD	20.8 mPD	20.8 mPD	20.8 mPD	20.6 mPD	20.9 mPD	20.6 mPD	20.9 mPD	21.1 mPD	21.1 mPD	21.1 mPD	0.0 mPD
Effective Source Height	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.0 m
Source height	21.1 mPD	21.1 mPD	21.3 mPD	21.3 mPD	21.5 mPD	21.5 mPD	21.6 mPD	21.6 mPD	21.7 mPD	21.7 mPD	21.7 mPD	21.5 mPD	21.8 mPD	21.5 mPD	21.8 mPD	22.0 mPD	22.0 mPD	22.0 mPD	0.0 mPD
Receiver height	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	26.4 mPD	0.0 mPD
Height difference between receiver and source	5.3 m	5.3 m	5.1 m	5.1 m	4.9 m	4.9 m	4.8 m	4.9 m	4.7 m	4.7 m	4.7 m	4.9 m	4.6 m	4.9 m	4.6 m	4.4 m	4.4 m	4.4 m	0.0 m
Slant distance between receiver and source, (d)	34.7 m	39.1 m	34.6 m	39.1 m	34.6 m	39.1 m	36.1 m	39.9 m	35.4 m	39.3 m	33.1 m	32.4 m	33.1 m	28.7 m	33.1 m	31.6 m	30.1 m	30.1 m	0.0 m
Angle of view (θ)	5.0 degree	5.0 degree	14.0 degree	14.0 degree	41.0 degree	41.0 degree	36.0 degree	36.0 degree	30.0 degree	30.0 degree	9.0 degree	9.0 degree	3.0 degree	3.0 degree	4.5 degree	4.5 degree	4.5 degree	0.0 degree	
Train speed (V)	70.0 kph	75.0 kph	70.0 kph	75.0 kph	70.0 kph	75.0 kph	70.0 kph	75.0 kph	70.0 kph	75.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	70.0 kph	60.0 kph	0.0 kph	
Distance correction	-1.4 dB(A)	-1.9 dB(A)	-1.4 dB(A)	-1.9 dB(A)	-1.4 dB(A)	-1.9 dB(A)	-1.6 dB(A)	-2.0 dB(A)	-1.5 dB(A)	-1.9 dB(A)	-1.2 dB(A)	-1.1 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-1.0 dB(A)	-0.8 dB(A)	0.0 dB(A)	
Angle-of-view correction	-15.6 dB(A)	-15.6 dB(A)	-11.1 dB(A)	-6.4 dB(A)	-7.0 dB(A)	-6.4 dB(A)	-7.0 dB(A)	-7.0 dB(A)	-7.8 dB(A)	-7.8 dB(A)	-13.0 dB(A)	-13.0 dB(A)	-17.8 dB(A)	-17.8 dB(A)	-16.0 dB(A)	-16.0 dB(A)	-16.0 dB(A)	-16.0 dB(A)	
Speed correction	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-0.6 dB(A)	-1.2 dB(A)	-0.6 dB(A)	
Points and crossing	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	
poor track	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	
Barrier correction	-4.9 dB(A)	-3.9 dB(A)	-5.0 dB(A)	-4.0 dB(A)	-5.0 dB(A)	-4.1 dB(A)	-5.1 dB(A)	-4.1 dB(A)	-5.1 dB(A)	-4.1 dB(A)	-5.1 dB(A)	-4.9 dB(A)	-5.1 dB(A)	-4.8 dB(A)	-5.1 dB(A)	-5.1 dB(A)	-5.0 dB(A)	-4.0 dB(A)	
SEL (corrected)	63.2 dB(A)	64.3 dB(A)	67.6 dB(A)	68.7 dB(A)	72.2 dB(A)	73.3 dB(A)	71.4 dB(A)	72.6 dB(A)	70.7 dB(A)	72.0 dB(A)	65.8 dB(A)	66.0 dB(A)	61.0 dB(A)	62.0 dB(A)	62.8 dB(A)	63.0 dB(A)	62.0 dB(A)	62.0 dB(A)	
SEL to Leq																			
Number of trains on each track in 30 mins (N)	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
T = 1800s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	1800.0 s	
Correction for Train Frequency	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	-23.5 dB(A)	
Facade correction	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	
Re-radiated Noise	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	
Leq of each train direction	46.2 dB(A)	47.3 dB(A)	50.6 dB(A)	51.7 dB(A)	55.2 dB(A)	56.3 dB(A)	54.4 dB(A)	55.6 dB(A)	53.7 dB(A)	55.0 dB(A)	48.8 dB(A)	49.0 dB(A)	44.0 dB(A)	45.0 dB(A)	45.8 dB(A)	46.0 dB(A)	44.9 dB(A)	45.0 dB(A)	
Leq of each segment	49.8 dB(A)		54.2 dB(A)		58.8 dB(A)		58.0 dB(A)		57.4 dB(A)		51.9 dB(A)		47.5 dB(A)		48.9 dB(A)		44.9 dB(A)		
Total Leq			64.2 dB(A)																
Lmax Calculation																			
Actual Distance	154.3 m	169.3 m	94.3 m	103.3 m	48.5 m	53.8 m	35.8 m	38.8 m	46.3 m	52.3 m	68.8 m	82.3 m	83.8 m	106.3 m	100.3 m	139.3 m	132.5 m	0.0 m	
Slant Distance	154.3 m	169.3 m	94.4 m	103.4 m	48.7 m	54.0 m	36.1 m	39.1 m	46.5 m	52.5 m	68.9 m	82.4 m	83.9 m	106.4 m	100.4 m	139.3 m	132.6 m	0.0 m	
Distance correction	-15.9 dB(A)	-16.6 dB(A)	-11.5 dB(A)	-12.3 dB(A)	-2.9 dB(A)	-3.3 dB(A)	-1.6 dB(A)	-1.9 dB(A)	-2.7 dB(A)	-3.2 dB(A)	-8.8 dB(A)	-10.4 dB(A)	-10.5 dB(A)	-12.6 dB(A)	-12.1 dB(A)	-14.9 dB(A)	-14.5 dB(A)	0.0 dB(A)	
Speed correction	-1.7 dB(A)	-0.8 dB(A)	-1.7 dB(A)	-0.8 dB(A)	-1.7 dB(A)	-0.8 dB(A)	-1.7 dB(A)	-0.8 dB(A)	-1.7 dB(A)	-0.8 dB(A)	-1.7 dB(A)	-0.8 dB(A)	-1.7 dB(A)	-0.8 dB(A)	-1.7 dB(A)	-0.8 dB(A)	-1.7 dB(A)	-0.8 dB(A)	
Points and crossing	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	0.0 dB(A)	
poor track	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	3.0 dB(A)	
Barrier correction	-4.9 dB(A)	-3.9 dB(A)	-5.0 dB(A)	-4.0 dB(A)	-5.0 dB(A)	-4.1 dB(A)	-5.1 dB(A)	-4.1 dB(A)	-5.1 dB(A)	-4.1 dB(A)	-5.1 dB(A)	-4.9 dB(A)	-5.1 dB(A)	-4.8 dB(A)	-5.1 dB(A)	-5.1 dB(A)	-5.0 dB(A)	-4.0 dB(A)	
Facade correction	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	2.5 dB(A)	
Re-radiated Noise	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	4.0 dB(A)	
Lmax of each train direction	65.0 dB(A)	66.1 dB(A)	69.2 dB(A)	70.3 dB(A)	77.8 dB(A)	79.2 dB(A)	79.0 dB(A)	80.6 dB(A)	77.9 dB(A)	79.3 dB(A)	71.9 dB(A)	70.5 dB(A)	70.2 dB(A)	68.4 dB(A)	68.6 dB(A)	65.8 dB(A)	64.3 dB(A)	64.0 dB(A)	
Lmax of S/B track			79.0 dB(A)																
Lmax of N/B track			80.6 dB(A)																
Lmax, combined (distance corrected)			82.9 dB(A)																
Horizontal distance from centreline to receiver	36.0 m	40.5 m	36.0 m	40.5 m	36.0 m	40.5 m	37.5 m	41.3 m	36.8 m	39.8 m	34.5 m	33.8 m	34.5 m	30.0 m	34.5 m	33.0 m	31.5 m	0.0 m	
Parapet height	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	
Noise barrier height (above parapet)	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	0.0 m	
Overall height (with barrier)	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	2.0 m	
Source height	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	0.9 m	
Railway head height	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	0.56 m	
Railway head to parapet	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	5.80 m	2.05 m	0.00 m	
Centreline to railway head	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	0.8 m	
Parapet to receiver	32.2 m	33.0 m	32.2 m	33.0 m	32.2 m	33.0 m	33.7 m	33.7 m	33.0 m	32.3 m	30.7 m	30.0 m	30.7 m	26.2 m	30.7 m	29.2 m	27.7 m	0.0 m	
Height of effective barrier	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	0.5 m	
Height of barrier (mPD)	21.7 m	21.6 m	21.8 m	21.8 m	22.0 m	22.0 m	22.1 m	22.1 m	22.2 m	22.2 m	22.3 m	22.2 m	22.3 m	22.1 m	22.4 m	22.5 m			