SSS Calculation Result for Fixed Plant at NSR Un-mitigated

		Shur	nting		Long	Train Id	dling in	Shed	Sh	uttle Idli	ing outs	ide	(	Crane O	peration	1		Car W	ashing		Loc	o Shunt	ting + ld	ling		То	tal	
NSR	Leq, day	Leq, night	Leq, 24h	Lmax																								
	dBA	dBA	dBA	dBA																								
SS2	38.4	36.6	37.9	41.8	24.5	24.5	24.5	24.5	26.2	-	24.4	26.2	23.8	-	22.0	23.8	39.0	-	37.3	39.0	40.6	-	38.6	68.1	44	37	43	68
SS4	41.1	39.3	40.6	46.0	24.7	24.7	24.7	24.7	26.9		25.2	26.9	18.1	1	16.3	18.1	41.5	1	39.7	41.5	43.7		41.8	64.4	47	39	46	64
SS5	46.2	44.4	45.7	49.5	32.4	32.4	32.4	32.4	38.4	-	36.7	38.4	26.6	1	24.8	26.6	36.2	ı	34.5	36.2	44.9	-	42.1	71.0	49	45	48	71
SS6	44.3	42.5	43.7	49.4	32.9	32.9	32.9	32.9	38.0	-	36.3	38.0	27.5	ı	25.7	27.5	33.5	ı	31.8	33.5	42.6	-	39.6	68.2	47	43	46	68
SS7	43.1	41.4	42.6	53.8	33.7	33.7	33.7	33.7	42.3	-	40.5	42.3	30.4	ı	28.7	30.4	16.8	ı	15.0	16.8	29.9	-	27.0	57.9	46	42	45	58
SS10	41.0	39.2	40.5	51.7	32.2	32.2	32.2	32.2	39.0	-	37.2	39.0	30.2	-	28.4	30.2	29.4	-	27.6	29.4	36.4	-	28.0	56.5	45	40	43	56
SS11a	38.0	36.2	37.5	47.5	33.9	33.9	33.9	33.9	20.8	-	19.1	20.8	26.5	-	24.7	26.5	39.5	1	37.7	39.5	54.3	-	50.0	79.9	55	38	51	80
SS12	31.1	29.3	30.6	43.2	31.0	31.0	31.0	31.0	36.5	-	34.7	36.5	29.7	-	27.9	29.7	14.0	-	12.3	14.0	36.5	-	27.4	54.4	41	33	38	54
SS14	46.5	44.7	46.0	52.2	35.0	35.0	35.0	35.0	42.2	-	40.4	42.2	29.7	-	27.9	29.7	32.7	-	30.9	32.7	43.8	-	40.3	71.0	50	45	48	71
SS15	46.5	44.7	46.0	55.6	35.8	35.8	35.8	35.8	43.2	-	41.4	43.2	30.8	-	29.0	30.8	22.3	-	20.5	22.3	42.6	-	40.3	69.5	49	45	48	70

### **SEL Reference for SSS Calculation**

		100m	15m	15m
		setback	setback	setback
			XRL short	XRL long
		WR train	train	train
		length =	length =	length =
	Assumed	200m	213.5m	427m
SSS Event	Speed	SEL(ref)	SEL(ref)	SEL(ref)
	km/h	dBA	dBA	dBA
Shunting	25	68	76.5	79.5

Remark 1: SEL of shunting are at low speed for short train. Data collected by MTRC West Rail Pat Heung noise measurement.

Remark 2: Reference level of idle train inside shed refers to spreadsheet "Idle Lw".

## Leq Reference for SSS Calculation

	Setback	Leq
SSS Event	m	dBA
2 Trains Idle in Shed	-	60
2 Trains Idle outdoor	9	52
1 Train Wash	14	62

Ref: Noise measurement result at Pat Heung West Rail Depot Maintenance Shed on 23 Jan 2009 by Wilkinson Murray.

# SWL Reference for SSS Calculation

	SWL	Height
SSS Event	dBA	m
Crane Operation	95	2

SSS Event	Train Type	Train Length		aximum hou of train in S	•		Max 30 minutes volume of in SSS (V/30min)  Day Night 24					
		m	Day	Night	24hr	Day	Night	24hr				
Shunting (double	Short Train	213.5	2	-	1	1	-	1				
movement)	Long Train	427	2	2	2	1	1	1				
Idle outdoor	Short Train	213.5	2	-	1	1	-	1				
Idle in Shed	Long Train	427	2	2	2	1	1	1				

Remark: Shunting of one train set would be regarded as two movements.

## SSS Calculation of Sound Power Level for Idling Trains in Maintenance Shed

### SPL of Two Sets of Idling Train at Gate & Louvre

Leq

dBA 60

Lw: Sound Power Level dB re 10<sup>-12</sup> W SPL (or Lp): Sound Pressure Level dB re  $20\mu Pa$ S: Surface area

Ref: Noise measurement result at Pat Heung West Rail Depot Maintenance Shed on 23 Jan 2009 by Wilkinson Murray.

#### Total Lw for Two Sets Trains at Gate of Shed

Door Width	Door Height	no. of Door	S	Lw
W	Н	n	WxHxn	
m	m		sq m	dBA
4	6.5	4	104.0	80.2

### Total Lw for Two Sets Trains at One Set of Side Window of Shed

		no. of		
Window	Window	Window for		
Width	Height	one set	S	Lw
W	Н	n	WxHxn	
m	m		sq m	dBA
2.6	0.86	8	17.9	72.5

Remark: Windows on side wall of shed are divided into seven sets. Each set contains 2 X 4 pieces of windows.

### Total Lw for Two Sets Trains at One Set of Roof Louvre of Shed

		no. of		
Louvre	Louvre	Louvre for		
Width	Length	one set	S	Lw
W	L	n	WxLxn	
m	m		sq m	dBA
2.4	7.8	6	112.3	80.5

Remark: Roof louvre of shed are divided into seven sets. Each set contains six pieces of louvre.

### Ancillary Table for SSS Calculation

## Angle Correction Factor for angle between shed gate direction to NSR

Angle	Loss	Gradient
Degree	dB	dB/degree
0	0	0.111
45	5	0.078
90	8.5	0.144
135	15	0.200
165	21	0.200

SSS Calculation a	t NSR SS	5	Un-n	nitigat	ed															
NSR SS5	No. of Storey	Ground Level mPD 17.3	Hr m 7.5	ASR B			Result:	Leq, day Leq, night	Shunti ng 46.2 44.4	Idle in shed 32.4 32.4	Idle outside 38.4	<b>Crane</b> 26.6	Wash 36.2	<b>Total</b> 47.4 44.7	Criteria Leq 52 45	Status OK OK				
								Leq, 24hr Lmax	45.7 49.5	32.4 32.4	36.7 38.4	24.8 26.6	34.5 36.2	46.7 49.5						
Shunting	NIGHT				Remark:	plus 10log(2 At NSR,	2) is for convertin											At NSR, incl fa		
					for 30min	no shield											Wheel	çade	1	
	Segment	Hor D	Angle		SEL	Leq	Shield	Track Level	Hb	Dsb	Dbr	Hs	D	Р	A barrier	IL barrier	Squeal	Leq, night	Lmax	Shadow zo
Track 1 Long Train	1	m 146	<b>Deg</b> 29.2	<b>15m</b> 79.5	<b>NSR</b> 61.8	NSR 29.2	-	mPD 15	m	<b>m</b> 146	m	m	m 146.3	<b>m</b> 9.5	0.0	0.0	<b>dB</b> 0	32.2	NSR 46.5	-
- U	2	146	58.4	79.5	64.8	32.2	-	15		146			146.3	9.5	0.0	0.0	0	35.2	49.5	-
	3a 3b	146 146	18.5 6.5	79.5 79.5	59.8 55.2	27.2 22.6	-	15 15		146 146			146.3 146.3	9.5 9.5	0.0	0.0	6 0	36.2 25.6	44.5 40.0	-
	3c	146	19.9	79.5	60.1	27.5	-	15		146	-		146.3	9.5	0.0	0.0	6	36.5	44.8	-
Track 2 Long Train	1	119 182	9.3 23.1	79.5 79.5	57.7 59.8	25.1 27.2		15 15		119 182	-		119.4 182.3	9.4 9.5	0.0	0.0	6	34.1 30.2	42.6 44.3	-
	2	182	58.4	79.5	63.8	31.2	-	15		182	-		182.3	9.5	0.0	0.0	0	34.2	48.3	-
	3a 3b	182 182	12.2 26	79.5 79.5	57.0 60.3	24.4 27.7		15 15		182 182	-		182.3 182.3	9.5 9.5	0.0	0.0	6	27.4 36.7	41.5 44.8	-
	3c	218	6.7	79.5	53.6	21.0	-	15		218			218.2	9.6	0.0	0.0	0	24.0	37.9	-
	4a 4b	123 123	7.3 2	79.5 79.5	56.5 50.9	23.9 18.3		15 15		123 123	-		123.4 123.4	9.4	0.0	0.0	6 0	32.9 21.3	41.4 35.7	-
							eters and remark		please re		e bottom	of spread								
	At NSR, incl																			
	façade Leq, night	Lmax													+			+		
		NSR																		
Move to shunting track Return to stabling track	42.2 40.5	49.5 48.3																		
	At NSR, incl fa Night time	<i>'</i>	Noise crite	eria																
			Leq,			Lmay														
	Leq Total		night	Status		Lmax NSR														
	44.4		45	OK		49.5														
Idling in Shed	NIGHT																			
_				Directi on		At NSR, no shield												At NSR, incl fa çade	1	
			Exit	Correct										_	1					- ·
		Hor D m	Angle Deg	ion	Lw	Leq NSR	Shield	Track Level mPD	Hb m	Dsb m	Dbr m	Hs m	D m	P m	A barrier	IL barrier		Leq, night		Shadow zo
at Gate		211	108.6		80.2	14.5	-	15		211			211.2	9.6	0.0	0.0		17.5		-
at Side Window 1 at Side Window 2		189 188		0	72.5 72.5	19.0 19.0		15 15		189 188	-		189.3 188.3	9.5 9.5	0.0	0.0		22.0 22.0		-
at Side Window 3		208	-	0	72.5	18.2	-	15		208			208.2	9.6	0.0	0.0		21.2		-
at Side Window 4 at Side Window 5		244 290		0	72.5 72.5	16.8 15.3		15 15		244 290	-		244.2	9.6	0.0	0.0		19.8 18.3		-
at Side Window 6		341	-	0	72.5	13.9	-	15		341			341.1	9.7	0.0	0.0		16.9		-
at Side Window 7 at Roof Louvre 1		397 203		<u>0</u> 6	72.5 80.5	12.5 20.4		15 15		397 203	-		397.1 203.2	9.7 9.6	0.0	0.0		15.5 23.4		-
at Roof Louvre 2		202	-	6	80.5	20.4	-	15		202			202.2	9.6	0.0	0.0		23.4		-
at Roof Louvre 3 at Roof Louvre 4		221 255	-	6	80.5 80.5	19.6 18.4		15 15		221 255	-		221.2 255.2	9.6	0.0	0.0		22.6 21.4		-
at Roof Louvre 5		299		6	80.5	17.0	-	15		299	-		299.2	9.6	0.0	0.0		20.0		-
at Roof Louvre 6 at Roof Louvre 7		349 404		6	80.5 80.5	15.6 14.4	-	15 15		349 404	-		349.1 404.1	9.7 9.7	0.0	0.0		18.6 17.4		-
at Nooi Louvie 7		404			00.0	14.4				704			404.1	5.7	0.0	0.0		17.4		
	At NSR, incl fa		Noise crite	ria																
		1,	Leq,																	
	Leq Total		night	Status		Lmax NSR														
	32.4		45	OK		32.4														
Idling outside	Day																			
•						ALNOD														
						At NSR, no shield,												At NSR, incl fa	1	
		Hor D	Angle	Leq	for 30min	1hr Leq	Shield	Track Level	Hb	Dsb	Dbr	Hs	D	P	A barrier	IL barrier		çade Leq, night		Shadow zo
		m	Deg	9m	NSR	NSR		mPD	m	m	m	m	m	m						5305W ZC
Short Train		147	64.5	52	35.4	35.4	-	15		147			147.3	9.5	0.0	0.0		38.4		-
Others	Day						I	1												
						At NSR,														
					for 30mir	no shield,												At NSR, incl fa	1	
		Hor D	Leq	Lw	Leq	Leq	Shield	Track Level	Hb	Dsb	Dbr	Hs	D	Р	A barrier	IL barrier		Leq, night		Shadow zo
Crane		m 263	14m	95	NSR 38.6	NSR 38.6	Mainten' Shed	mPD 15	m 11.15	<b>m</b> 20	m 243	<b>m</b> 1.5	<b>m</b> 263.1	<b>m</b> 2.1	15.0	15.0		26.6		Yes
Car Wash		385	62	55	33.2	33.2	-	15	11.10	385		1.0	385.1	9.7	0.0	0.0		36.2		-
	Legend: Hr: Height of h	ighest fla-	at roos.	er .				Remark for E (1): plus 3dB is	•		m short to	ain to I	on train							
	Hr: Height of h		1	-I				(1): plus 3dB is (2): distance a												
	Angle: Angle o	of View						(3): SEL conve	ersion to I	Leq: Leq:	= SEL + 1	0 log V -	35.6 ref: F	TA Guidanc	e Manual Table	5-2 Rail vehicle	e;			
	Hb: Height of b			source t	o barrier			plus 10log(2) is (4): Barrier effe												
								(5): Ref: Trans						1						
	Dbr: Horizonta							(C), T ·	ub-4	ha -!! :	noti-	and the second	had	o of all the time	~					
	Dbr: Horizonta Hs: Height of r D: Direct path	noise source						(6): To check v (7): Direction of							-	orrection for roc	of louvre to N	SR.		
	Hs: Height of r	noise source nce=Shielde	ed path -						correction quation fo	factor for	angle be	tween sh	ned exit dire e from soun	ection to NS nd power in t	R or direction c free field.	orrection for roc	of louvre to N	SR.		

	t NSR SS	14	Un-n	nitigat	ed															
NSR SS14	No. of Storey	Ground Level mPD	Hr m 7.5	ASR			Result:	Leq, day	Shunti ng 46.5 44.7	Idle in shed 35.0 35.0	Idle outside 42.2	<b>Crane</b> 29.7	<b>Wash</b> 32.7	<b>Total</b> 48.3 45.2	Criteria Leq 49	Status OK OK				
								Leq, 24hr Lmax	46.0 52.2	35.0 35.0	40.4 42.2	27.9 29.7	30.9 32.7	47.4 52.2						
Shunting	NIGHT				Remark:	plus 10log(2	2) is for convertin											At NSR, incl fa		
					for 30min	no shield											Wheel	çade		
	Segment	Hor D	Angle	SEL 15m	SEL NSR	Leq NSR	Shield	Track Level mPD	Hb m	Dsb m	Dbr m	Hs m	D m	P m	A barrier	IL barrier	Squeal dB	Leq, night	Lmax NSR	Shadow zone?
Frack 1 Long Train	1	<b>m</b> 92	<b>Deg</b> 63.8	79.5	67.2	34.6	-	15	m	92	m	m	92.5	9.0	0.0	0.0	0	37.6	52.2	-
	2a 2b	92	63.8 10.2	79.5 79.5	67.2 59.2	34.6 26.6	-	15 15		92			92.5 92.5	9.0	0.0	0.0	0 6	37.6 35.6	52.2 44.2	-
	2c	92 92	2.5	79.5	53.1	20.5	-	15		92 92	-		92.5	9.0	0.0	0.0	0	23.5	38.1	-
	3a 3b	170 170	8.7 3.5	79.5 79.5	55.8 51.9	23.2 19.3	-	15 15		170 170	-		170.3 170.3	9.2	0.0	0.0	6	32.2 22.3	40.4 36.5	-
	3c	170	2.7	79.5	50.8	18.2	-	15		170			170.3	9.2	0.0	0.0	6	27.2	35.4	-
rack 2 Long Train	3d 1	64 128	1.1 56.2	79.5 79.5	51.1 65.2	18.5 32.6	-	15 15		64 128			64.7 128.4	9.1	0.0	0.0	0	21.5 35.6	36.2 50.0	-
	2	128	65.3	79.5	65.8	33.2	-	15		128			128.4	9.1	0.0	0.0	0	36.2	50.7	-
	3a 3b	196 196	17.6 3.8	79.5 79.5	58.3 51.6	25.7 19.0		15 15		196 196	-		196.2 196.2	9.3	0.0	0.0	6 0	34.7 22.0	42.7 36.0	-
	3c	196	4.2	79.5	52.1	19.5	-	15		196			196.2	9.3	0.0	0.0	6	28.5	36.5	-
	3d	64	1.6	79.5 Remark	52.7 : For legen	20.1	eters and remark	15 of for equations.	please re	64 fers to the	e bottom o	of spread	64.7 dsheet "SS2	8.8	0.0	0.0	0	23.1	37.8	-
					- Contragan															
	At NSR, incl																			
	façade																			
	Leq, night	Lmax NSR																		
Move to shunting track	42.5	52.2																		
Return to stabling track	40.7	50.7																		
i	At NSR, incl fa	çade																		
	Night time	N	loise crite	eria																
	Leq			Status		Lmax														
	Total 44.7		47	OK		NSR 52.2														
Idling in Shed	NIGHT																			
idinig iii oned	Mon			Directi		At NSR,												At NSR, incl fa		
			Exit	Correct		no shield												çade		
		Hor D m	Angle Deg	ion	Lw	Leq NSR	Shield	Track Level mPD	Hb m	Dsb m	Dbr m	Hs m	D m	P m	A barrier	IL barrier		Leq, night		Shadow zone?
at Gate		205	134.7		80.2	11.0	-	15		205			205.2	9.3	0.0	0.0		14.0		
at Side Window 1 at Side Window 2		173 140		0	72.5 72.5	19.8 21.6		15 15		173 140			173.3 140.3	9.2	0.0	0.0		22.8 24.6		-
at Side Window 3		133	-	0	72.5	22.0	-	15		133			133.3	9.2	0.0	0.0		25.0		-
at Side Window 4 at Side Window 5		155 196		0	72.5 72.5	20.7		15 15		155 196			155.3 196.2	9.2	0.0	0.0		23.7		-
at Side Window 6		248	-	0	72.5	16.6	-	15		248			248.2	9.3	0.0	0.0		19.6		-
at Side Window 7 at Roof Louvre 1		304 184		6	72.5 80.5	14.9 21.2		15 15		304 184			304.1 184.2	9.4	0.0	0.0		17.9 24.2		
at Roof Louvre 2		153	-	6	80.5	22.8	-	15		153			153.3	9.2	0.0	0.0		25.8		-
at Roof Louvre 3 at Roof Louvre 4		147 167		6	80.5 80.5	23.2		15 15		147 167			147.3 167.3	9.2	0.0	0.0		26.2 25.1		-
at Roof Louvre 5		206	-	6	80.5	20.2	-	15		206			206.2	9.3	0.0	0.0		23.2		
at Roof Louvre 6 at Roof Louvre 7		256 311		6	80.5 80.5	18.3 16.6		15 15		256 311			256.2 311.1	9.3	0.0	0.0		21.3 19.6		-
	At NSR, incl fa Night time		loise crite	eria																
	Leq		Leq,	Status		Lmax														
	Total		Ingili			NSR														
	35.0		47	OK		35.0														
Idling outside	Day																			
						At NSR,														
					for 30min	no shield, 1hr												At NSR, incl fa çade		
		Hor D	Angle		Leq	Leq	Shield	Track Level	Hb	Dsb	Dbr	Hs	D	Р	A barrier	IL barrier		Leq, night		Shadow zone?
Short Train		<b>m</b> 93	<b>Deg</b> 97.7	<b>9m</b> 52	<b>NSR</b> 39.2	NSR 39.2	-	mPD 15	m	<b>m</b> 93	m	m	<b>m</b> 93.5	<b>m</b> 9.0	0.0	0.0		42.2		-
Others	Day																			
						At NSR, no shield,												At NSR, incl fa		
				1	for 30min	1hr												çade		<u> </u>
		Hor D m	Leq 14m	Lw	Leq NSR	Leq NSR	Shield	Track Level mPD	Hb m	Dsb m	Dbr m	Hs m	D m	P m	A barrier	IL barrier		Leq, night		Shadow zone?
rane		184		95	41.7	41.7	Mainten' Shed	15	11.15	19	165	1.5	184.2	2.1	15.0	15.0		29.7		Yes
		445	62		32.0	32.0	Vent Build	15	6.45	125	320	3	445.0	0.0	2.3	2.3		32.7		Yes
								Remark for E	quations	:										
Car Wash	Legend:						. —		•		n short tra	ain to lon	g train.					1		
I	Hr: Height of hi			er							lo of vite	adi	ont							
Car Wash		tal distance		er				(2): distance at	ttenuatior	n and ang				ΓΑ Guidanc	e Manual Table	5-2 Rail vehicle	·;			
Car Wash	Hr: Height of hi Hor D: Horizon Angle: Angle o Hb: Height of b	tal distance f View arrier or shi	ield					(2): distance at (3): SEL conve plus 10log(2) is	ttenuation ersion to l s to conve	n and ang _eq: Leq : ert Leq(30	= SEL + 1 Omin) to L	0 log V - eq(1hr).	35.6 ref: FT	ΓA Guidanc	e Manual Table	5-2 Rail vehicle	);			
Car Wash	Hr: Height of hi Hor D: Horizon Angle: Angle o	tal distance f View arrier or shi I distance fi	ield rom noise	e source t				(2): distance at	ttenuation ersion to L s to conve ect, ref: F	n and ang Leq: Leq : ert Leq(30 TA Guida	= SEL + 1 Omin) to L Ince Man	0 log V - eq(1hr). ual, Table	35.6 ref: F1		e Manual Table	5-2 Rail vehicle	);			
Car Wash	Hr: Height of hi Hor D: Horizon Angle: Angle o Hb: Height of b Dsb: Horizonta Dbr: Horizontal Hs: Height of n	tal distance f View arrier or shi I distance fr distance fr oise source	ield rom noise om barrie	e source t				(2): distance at (3): SEL conve plus 10log(2) is (4): Barrier effe (5): Ref: Trans (6): To check v	ttenuation ersion to L s to conve ect, ref: F eportation whether th	n and ang Leq: Leq : ert Leq(30 TA Guida Noise Re ne direct p	= SEL + 1 Omin) to L Ince Manu eference E Dath ray is	0 log V - eq(1hr). ual, Table Book equ under s	35.6 ref: F1 e 6-9. lation 15.21 hadow zone	e of shieldin	g.					
Car Wash	Hr: Height of hi Hor D: Horizon Angle: Angle o Hb: Height of b Dsb: Horizonta Dbr: Horizonta	tal distance f View earrier or shi I distance fr distance fr oise source	ield rom noise om barrie	e source t				(2): distance at (3): SEL conve plus 10log(2) is (4): Barrier effe (5): Ref: Trans (6): To check v	ttenuation ersion to I is to conve ect, ref: F eportation whether the correction	n and ang Leq: Leq: ert Leq(30 TA Guida Noise Re ne direct p factor for	SEL + 1 Omin) to L Ince Manuelerence E Doubth ray is angle be	0 log V - eq(1hr). ual, Table Book equ under s tween sh	35.6 ref: F1 e 6-9. lation 15.21 hadow zone ned exit dire	e of shieldin	g. R or direction c	5-2 Rail vehicle		SR.		

Marie   Mari	SSS Calculation a	t NSR SS	15	Un-n	nitigat	ted														
Method   M			Ground							Shunti	ldle in	ldle				Criteria				
Mathematical   Math			Level		ASR			Result:		ng	shed	outside		_		Leq				
Mathematical Registration	SS15				В			A44 0020							-					
Mathematical part		3	17	7.5	В			After 0030						_	-	47	UK			
Part	01											43.2	30.8	22.3	55.6					
The continue of the continue o	Snunting	NIGHT				Remark:		2) is for convertin	g of Leq(30min	to Leq(1	hr).								At NSR, incl fa	
Mathematic   Mat						for 30min	no shield											Wheel	çade	
The control of the co		Segment	Hor D					Shield					Hs		Р	A barrier	IL barrier	Squeal	Leq, night	Shadow zone?
The content of the	Frack 1 Long Train	1						_		m		m	m			0.0	0.0		40.0	
Marting tame   1	Track I Long Train							-												-
The content of the								-												-
The content of the	Track 2 Long Train							-				-						-		-
March   Marc			-									-				_				-
Property					Remark	k: For legen	d of parame	eters and remark	for equations,	please re	fers to the	e bottom	of spread	dsheet "S	S2".					
Copy																				
Control   Cont																				
Section   Sect																				
Section   Sect																				
March   Marc																				
Company   Comp																				
Company   Comp																				
Company   Comp																				
March   Marc																				
Leg																				
Month of M																				
The material properties of the content of the conte																				
A Section   Continue																				
Margine   Marg	return to stabiling track		00.0																	
Leg				1																
Lega		Night time	ľ	_	eria															
March   Marc					Status	3														
Mining in Sheef				47	OK															
Property		44.7		47	OK		33.0													
March   Marc	Idling in Shed	NIGHT																		
Hor   Feet   Cornect   Leg.						1	-													
March   Marc														_	_					0
at Galler   221   13.08   60.0   0.02   5.5   15.5   15.5   15.5   15.5   17.5					ion	Lw	1	Shield								A barrier	IL barrier		Leq, night	Shadow zone?
at 86e Window 2	at Gate				16.8	80.2		-								0.0	0.0		11.5	-
at Bide Windows   160			-	-								-								-
## at the witness of the series of the serie			-									-								-
at Side Mindows   211			-	-																-
at Side Microsoft    1				-		_														-
at Root Louves 1   190    -   6			-			_						-		_						-
at Roof Louwey 4   132    6   60   60   52   21   15   152   152   152   152   152   153   02   0.0   0.0   27.1				-				-												-
at Roet Louves 6   139    6				-		_						-								-
at Roof Leaver 6   29						_								_						-
## AINSR, rior logade  AIN	at Roof Louvre 5		172	-		80.5			15		172			172.3					24.8	-
At NSR, and laqued  At NSR, and laqued  At NSR, and laqued  At NSR, and laqued  Leq   Leq   Injert   State   Leq   Injert   State   Injert   Injert			-	-								-								-
Night Image	at Roof Louvie 7		2/3	1	0	80.5	17.0	-	15		2/3			2/3.2	9.3	0.0	0.0		20.8	-
Leq																				
Leq   Night   State   Night   State   Night		Night time	١		eria															
March   Marc		Leq			Status	3	Lmax													
Marting outside   Day				47	OK															
At NSR, incline		35.8		4/	OK		35.8													
No	Idling outside	Day											ı							
No							At NSP													
Hor D   Angle   Leq   Leq   Leq   Shield   Track Level   Hb   Dsb   Dr   Hs   Ds   Dr   Hs   Ds   P   A barrier   IL barrier   Leq, night   Is   Shield   Is   Shield   Is   Is   Is   Is   Is   Is   Is   I						4	no shield,													
Short Train   Post   9m   NSR   NS			Hor D	Angle	Lea	_		Shield	Track Level	Hb	Dsb	Dbr	Hs	D	P	A barrier	IL barrier			Shadow zone?
Column						<u> </u>	-													
At NSR, no shield, for 30min 1hr	Short Train		78	102.1	52	40.2	40.2	-	15		78			78.6	8.9	0.0	0.0		43.2	-
At NSR, incl fa cade    Hor D   Leq   Lw   Leq   Shield   Track Level   Hb   Dsb   Dbr   Hs   D   P   A barrier   IL barrier   Leq, night   Shield   Shield	Others	Dav																		
At NSR, incl face   Care   C																				
Hor D   Leq   Lw   Leq   Leq   Shield   Track Level   Hb   Dsb   Dbr   Hs   D   P   A barrier   Leq, night   Shield																			At NSR, incl fa	
Mainten   NSR							1hr		_							_			çade	
Crane					Lw	-		Shield		_						A barrier	IL barrier		Leq, night	Shadow zone?
A77   62   31.4   31.4   Vent Build   15   12.45   161   316   3   477.0   0.2   12.1   12.1   22.3	Crane			1-4111	95		+	Mainten' Shed		1						15.0	15.0		30.8	 Yes
Hr: Height of highest floor at receiver  (1): plus 3dB is to adjust SEL from short train to long train.  Hor D: Horizontal distance  (2): distance attenuation and angle of view adjustment.  Angle: Angle of View  (3): SEL conversion to Leq: Leq = SEL + 10 log V -35.6 ref: FTA Guidance Manual Table 5-2 Rail vehicle;  Hb: Height of barrier or shield  (4): Barrier effect, ref: FTA Guidance Manual, Table 6-9.  Dbr: Horizontal distance from barrier to receiver  (5): Ref: Transportation Noise Reference Book equation 15.21  Hs: Height of noise source  (6): To check whether the direct path ray is under shadow zone of shielding.				62		_	+	-				-							_	Yes
Hr: Height of highest floor at receiver  (1): plus 3dB is to adjust SEL from short train to long train.  Hor D: Horizontal distance  (2): distance attenuation and angle of view adjustment.  Angle: Angle of View  Angle: Angle of View  (3): SEL conversion to Leq: Leq = SEL + 10 log V -35.6 ref: FTA Guidance Manual Table 5-2 Rail vehicle;  Hb: Height of barrier or shield  Dsb: Horizontal distance from noise source to barrier  (4): Barrier effect, ref: FTA Guidance Manual, Table 6-9.  Dbr: Horizontal distance from barrier to receiver  (5): Ref: Transportation Noise Reference Book equation 15.21  Hs: Height of noise source  (6): To check whether the direct path ray is under shadow zone of shielding.					1	1								1						
Hr: Height of highest floor at receiver  (1): plus 3dB is to adjust SEL from short train to long train.  Hor D: Horizontal distance  (2): distance attenuation and angle of view adjustment.  Angle: Angle of View  (3): SEL conversion to Leq: Leq = SEL + 10 log V -35.6 ref: FTA Guidance Manual Table 5-2 Rail vehicle;  Hb: Height of barrier or shield  (4): Barrier effect, ref: FTA Guidance Manual, Table 6-9.  Dbr: Horizontal distance from hosize source to barrier  (5): Ref: Transportation Noise Reference Book equation 15.21  Hs: Height of noise source  (6): To check whether the direct path ray is under shadow zone of shielding.																				
Hor D: Horizontal distance (2): distance attenuation and angle of view adjustment.  Angle: Angle of View (3): SEL conversion to Leq: Leq = SEL + 10 log V -35.6 ref: FTA Guidance Manual Table 5-2 Rail vehicle;  Hb: Height of barrier or shield plus 10log(2) is to convert Leq(30min) to Leq(1hr).  Dsb: Horizontal distance from noise source to barrier (4): Barrier effect, ref: FTA Guidance Manual, Table 6-9.  Dbr: Horizontal distance from barrier to receiver (5): Ref: Transportation Noise Reference Book equation 15.21  Hs: Height of noise source (6): To check whether the direct path ray is under shadow zone of shielding.		Legend:							Remark for E	quations	:									
Angle: Angle of View  (3): SEL conversion to Leq: Leq = SEL + 10 log V -35.6 ref: FTA Guidance Manual Table 5-2 Rail vehicle;  (4): Barrier effect, ref: FTA Guidance Manual Table 5-2 Rail vehicle;  (5): Ref: TTA Guidance Manual Table 5-2 Rail vehicle;  (4): Barrier effect, ref: FTA Guidance Manual, Table 6-9.  (5): Ref: TTA Guidance Manual, Table 6-9.  (6): To check whether the direct path ray is under shadow zone of shielding.			-		er															
Hb: Height of barrier or shield plus 10log(2) is to convert Leq(30min) to Leq(1hr).  Dsb: Horizontal distance from noise source to barrier (4): Barrier effect, ref: FTA Guidance Manual, Table 6-9.  Dbr: Horizontal distance from barrier to receiver (5): Ref: Transportation Noise Reference Book equation 15.21  Hs: Height of noise source (6): To check whether the direct path ray is under shadow zone of shielding.				<b>U</b>											 FTA Guidance	e Manual Table	e 5-2 Rail vehic	le ;		
Dbr: Horizontal distance from barrier to receiver (5): Ref: Transportation Noise Reference Book equation 15.21 Hs: Height of noise source (6): To check whether the direct path ray is under shadow zone of shielding.		Hb: Height of I	arrier or sh						plus 10log(2) is	s to conve	ert Leq(30	0min) to L	.eq(1hr).							
Hs: Height of noise source (6): To check whether the direct path ray is under shadow zone of shielding.									` '						24					
					er to rece	eiver			1 1							a.				
		D: Direct path							(7): Direction of	correction	factor fo	r angle be	tween sl	hed exit di	irection to NS	R or direction o	correction for ro	of louvre to N	SR.	
P: Path difference=Shielded path - D  (8): general equation for calculating sound pressure from sound power in free field.					D															
A barrier: Barrier attenuation (dB) (9): Wheel Squeal is added to the required segments, such as turnout and curve.  IL barrier: Barrier loss (dB)				1					(9): Wheel Squ	ueal is ad	ded to the	e required	segmer	nts, such a	as turnout and	curve.				

## **SEL Reference for SSS Calculation**

	Reference Train	Assumed	15m setback
	Length	Speed	SEL(ref)
SSS Event	m	km/h	dBA
Loco	1 car	25	85

Remark: SEL of loco running are at low speed. Data collected by MTRC Pat Heung noise measurement.

		aximum hou of train in S	•	Max 30 minutes volume of train in SSS (V/30min)					
SSS Event	Day	Night	24hr	Day	Night	24hr			
Loco launch/arrive	-	4	4 in 24hr	-	2	2 in 24hr			
Loco shunting	4	-	3	2	-	2			
Loco idling in loco shed	1	0	1hr in 24hr	1	0	1hr in 24hr			

## SSS Calculation of Sound Power Level for Idling Loco in Loco Shed

### SPL of One Car of Idling Loco at Gate & Louvre

Leq dBA

78

Lw: Sound Power Level dB re 10<sup>-12</sup> W SPL (or Lp): Sound Pressure Level dB re  $20\mu Pa$ S: Surface area

Ref: Noise measurement result at Pat Heung West Rail Depot Maintenance Shed on 23 Jan 2009 by Wilkinson Murray.

#### Total Lw for One Car Loco at Gate of Shed

Door Width	Door Height	no. of Door	S	Lw
W	Н	n	WxHxn	
m	m		sq m	dBA
11	6.7	1	73.7	96.7

#### Total Lw for One Car Loco at Side Louvre of Shed

Louvre	Louvre	no. of		
Width	Height	Louvre	S	Lw
W	Н	n	WxHxn	
m	m		sq m	dBA
6	1	1	6.0	85.8

#### Total Lw for One Car Loco at Roof Louvre of Shed

Louvre		no. of		
Diameter	Louvre Area	Louvre	S	Lw
Dia	S	n	sxn	
m	sq m		sq m	dBA
1.5	1.8	14	24.7	91.9

### Ancillary Table for SSS Calculation

## Angle Correction Factor for angle between shed gate direction to NSR

_	<i>.</i> g.c		rer ungre neet
	Angle	Loss	Gradient
	Degree	dB	dB/degree
	0	0	0.111
	45	5	0.078
	90	8.5	0.144
ĺ	135	15	0.200
ĺ	165	21	0.200

							_			,									T T
SSS Calculation	at NSR SS	5		Un-m	nitigate	ed													
NSR		Ground																	
NOK	No. of	Level	Hr	ASR															
SS5	Storey	mPD	m																
	3	17.3	7.5	В															
Loco launch / Arrive	e NIGHT			_	Remark:		2) is for converting	g of Leq(30min)	to Leq(1	lhr).			_			,			, , ,
					for 20min	At NSR,												At NSR, incl fa	
					101 3011111	no shield											Wheel	çade	
	Segment	Hor D	Angle	SEL	SEL	Leq	Shield	Track Level	Hb	Dsb	Dbr	Hs	D	P	A barrier	IL barrier	Squeal	Leq, night	Shadow zone?
		m	Deg	15m	NSR	NSR		mPD	m	m	m	m	m	m			dB		
Loco	1a	244	61.3	85	71.2	38.6	Mainten' Shed	15	11.15	30	214	3	244.1	1.0	15.0	15.0	0	26.6	Yes
	1b	244	15.5	85	65.2	32.7	Mainten' Shed	15	11.15	30	214	3	244.1	1.0	15.0	15.0	6	26.7	Yes
	2	238	45.7	85	70.1	37.5	-	15		238	_		238.2	9.6	0.0	0.0	0	40.5	-
	3	123	6	85	64.1	31.5	-	15		123			123.4	9.4	0.0	0.0	6	40.5	-
				Remark	: For legen	d of param	eters and remark	for equations, p	olease re	fers to the	e bottom	of sprea	adsheet "S	S2".					
	At NSR, incl fa	l cade			1									1	1			+	
	Night time	1	oise crite	eria			1								1			1	
	. agra umo	1	Leq,		1														
	Leq	ASR	night	Status		Lmax		Lmax											
	Total					15m	Hor D	NSR											
	43.7	В	50	OK		86	238	71.0											
Loco Idling																			
Loco laling				Directi		At NSR,												At NSR, incl fa	
				on		no shield												çade	
			Exit	Correct															
		Hor D	Angle	ion	Lw	Leq	Shield	Track Level	Hb	Dsb	Dbr	Hs	D	Р	A barrier	IL barrier		Leq, night	Shadow zone?
		m	Deg	0.0	20.7	NSR		mPD	m	m	m	m	m	m	0.0			20.7	
at Gate		271	62.1	6.3	96.7	33.7	-	15		271	-		271.2	9.6	0.0	0.0		36.7	-
at Side Louvre at Roof Louvre		282	-	6	85.8 91.9	28.8		15 15		282 288	-		282.2	9.6 9.6	0.0	0.0		31.8 31.7	-
at Roof Louvie		288	-	6	91.9	20.7	-	15		200			200.2	9.0	0.0	0.0		31.7	-
	At NSR, incl fa	ncade													1			1	
	Total	,			1										1			1	
	Leq,	Leq,	Leq,																
	day	night		Lmax															
	38.8	-	25.0	38.8															
					1		1	<b>.</b>							1			+	
	Legend:	ighoot floor	nt rossi:	0.5	1			Remark for Ed			lo of wise	, adimet	ment	-	1			+	
	Hr: Height of h		1	er				(1): distance at plus 10log(2) is						nt two onde					
i .								(2): SEL conve							Manual Table	5-2 Rail vehic	Α.		
		'		1	1									- 1A Guidante	, wandar rable	. 5-2 IVAII VEHICI	,	+	
	Angle: Angle o		eld					plus 10log(2) is	to conve				.	1		1	I	1	
	Hb: Height of b	oarrier or shi		e source t	to barrier			plus 10log(2) is					le 6-9						
	Hb: Height of b	oarrier or shi al distance fr	om noise					(3): Barrier effe	ct, ref: F	TA Guida	nce Man	ual, Tab		one of shieldin	a.				
	Hb: Height of b Dsb: Horizonta Dbr: Horizonta	oarrier or shi al distance fr Il distance fro	om noise om barrie					(3): Barrier effe (4): To check w	ect, ref: F	TA Guida ne direct p	nce Man oath ray is	ual, Tab s under	shadow zo		g.				
	Hb: Height of b Dsb: Horizonta Dbr: Horizonta Hs: Height of r	parrier or shi al distance fr al distance fro noise source	om noise om barrie					(3): Barrier effe (4): To check w (5): Loco distar	ect, ref: F hether th	TA Guida ne direct p stment: 20	nce Man path ray is log (D1/	ual, Tab s under 'D2) adju	shadow zo usted to po	oint source.		correction for ro	of louvre to N	SR.	
	Hb: Height of b Dsb: Horizonta Dbr: Horizonta Hs: Height of r D: Direct path	parrier or shi al distance fr Il distance fro noise source	om noise om barrie	er to rece				(3): Barrier effe (4): To check w (5): Loco distar (6): Direction co	ect, ref: F hether th nce adjus orrection	TA Guida ne direct p stment: 20 factor fo	nce Man bath ray is log (D1/ rangle be	ual, Tab s under 'D2) adju etween s	shadow zo usted to po shed exit di	oint source. irection to NS	R or direction c	correction for ro	of louvre to N	SR.	
	Hb: Height of b Dsb: Horizonta Dbr: Horizonta Hs: Height of r	parrier or shi al distance fro al distance fro noise source noce=Shielde	om noise om barrie ed path -	er to rece				(3): Barrier effe (4): To check w (5): Loco distar	ect, ref: F hether th nce adjus orrection	TA Guida ne direct p stment: 20 factor fo	nce Man bath ray is log (D1/ rangle be	ual, Tab s under 'D2) adju etween s	shadow zo usted to po shed exit di	oint source. irection to NS	R or direction c	orrection for ro	of louvre to N	SR.	

				1										Т		1	T		
SSS Calculation	at NSR SS	14		Un-m	itigate	d													
NSR	No. of	Ground Level	Hr	ASR															
2011																			
SS14	Storey 3	mPD 17	m 7.5	В															
	3	17	7.5																
Loco launch / Arrive	e NIGHT				Remark:	olus 10log(2	2) is for convertin	a of Lea(30min)	to Lea(1	hr).								<u> </u>	
						At NSR,		J										At NSR, incl fa	
					for 30min	no shield												çade	
	Segment	Hor D	Angle	SEL	SEL	Leq	Shield	Track Level	Hb	Dsb	Dbr	Hs	D	Р	A barrier	IL barrier	Wheel Squeal	Leq, night	Shadow zone?
	- Cogc.ii	m	Deg	15m	NSR	NSR	00.0	mPD	m	m	m	m	m	m	71 2411101	12 2411101	dB	204,g	Gilden Zelle.
Loco	1a	190	84.1	85	73.7	41.1	Mainten' Shed	15	11.15	30	160	3	190.1	1.0	15.0	15.0	0	29.1	Yes
	1b	181	21	85	67.9	35.3	Mainten' Shed	15	11.15	21	160	3	181.1	1.4	15.0	15.0	6	29.3	Yes
	2a	220	29	85	68.4	35.8	-	15		220			220.2	9.3	0.0	0.0	0	38.8	-
	2b	220	5.3	85	61.0	28.4	-	15		220			220.2	9.3	0.0	0.0	6	37.4	-
				Remark	: For legen	d of param	eters and remark	for equations,	olease ref	ers to the	bottom	of sprea	idsheet "S	S2".					
	At NSR, incl fa	ıçade																	
	Night time	ŕ	oise crite	eria															
		_	Leq,	_		_													
	Leq	ASR	night	Status		Lmax		Lmax											
	Total	В	50	OK		15m	Hor D	NSR	abiald by	, manintan	l ah a d								
	41.7	В	50	OK		86 86	190 239	51.9 71.0	shield by no shield		snea								
						80	239	71.0	Total	1									
Loco Idling							1					I				ı	l .		
				Directi on		At NSR, no shield												At NSR, incl fa çade	
			Exit	Correct		TIO SITICIO												çado	
		Hor D	Angle	ion	Lw	Leq	Shield	Track Level	Hb	Dsb	Dbr	Hs	D	P	A barrier	IL barrier		Leq, night	Shadow zone?
		m	Deg			NSR		mPD	m	m	m	m	m	m					
at Gate		275	42.3	4.7	96.7	35.2	-	15		275			275.2	9.3	0.0	0.0		38.2	-
at Side Louvre		296	-	0	85.8	28.4	-	15 45		296			296.2	9.3	0.0	0.0		31.4	-
at Roof Louvre		300	-	6	91.9	28.4	-	15		300			300.2	9.3	0.0	0.0		31.4	•
															1				
	At NSR, incl fa	ıçade																	
	Total														<u> </u>				
	Leq,	Leq,	Leq,																
	day	night	24h										1	Ì		1	1	1	
		night -		39.7															
	day																		
	day 39.7							Remark for Ec	quations										
	day	-	25.9	39.7				Remark for Ec			le of view	adjustr	ment.						
	day 39.7 Legend:	ighest floor	25.9 at receive	39.7				(1): distance at plus 10log(2) is	tenuation for one s	and ang	ks train h	aving a	loco car a						
	Legend: Hr: Height of h Hor D: Horizon Angle: Angle: A	ighest floor antal distance	25.9	39.7				(1): distance at plus 10log(2) is (2): SEL conve	tenuation for one s rsion to L	and ang set of wor .eq: Leq =	ks train h SEL + 1	aving a	loco car a -35.6 ref:		e Manual Table	5-2 Rail vehicl	e;		
	Legend: Hr: Height of h Hor D: Horizon Angle: Angle: C	ighest floor attal distance of View parrier or shi	at receive	39.7				(1): distance at plus 10log(2) is (2): SEL conve plus 10log(2) is	tenuation for one s rsion to L to conve	and ang set of wor eq: Leq = ert Leq(30	ks train h SEL + 1 min) to L	naving a 0 log V .eq(1hr).	loco car a -35.6 ref:		e Manual Table	5-2 Rail vehicl	e;		
	Legend: Hr: Height of h Hor D: Horizon Angle: Angle: G Hb: Height of l Dsb: Horizonta	ighest floor and distance of View parrier or shi	at receive	39.7	o barrier			(1): distance at plus 10log(2) is (2): SEL conve plus 10log(2) is (3): Barrier effe	tenuation for one s rsion to L to conve	and ang set of wor eq: Leq = ert Leq(30 TA Guida	ks train h SEL + 1 min) to L nce Man	naving a 0 log V .eq(1hr). ual, Tab	loco car a -35.6 ref: le 6-9.	FTA Guidance		5-2 Rail vehicl	e ;		
	Legend: Hr: Height of h Hor D: Horizon Angle: Angle: Angle: Obb: Horizonta	ighest floor and distance of View parrier or shill distance from the distance for the distance from th	at receive	39.7	o barrier			(1): distance at plus 10log(2) is (2): SEL conve plus 10log(2) is (3): Barrier effe (4): To check w	tenuation for one s rsion to L to conve ect, ref: F	and ang set of wor eq: Leq = ert Leq(30 TA Guida se direct p	ks train he SEL + 10 min) to Lender Mane Mane math ray is	naving a l 0 log V .eq(1hr). ual, Tab s under s	loco car a -35.6 ref: le 6-9. shadow zo	FTA Guidance		5-2 Rail vehicl	e;		
	Legend: Hr: Height of h Hor D: Horizon Angle: Angle: G Hb: Height of l Dsb: Horizonta Dbr: Horizonta Hs: Height of l	ighest floor antal distance of View parrier or shial distance from the light of the	at receive	39.7	o barrier			(1): distance at plus 10log(2) is (2): SEL converse plus 10log(2) is (3): Barrier effe (4): To check w (5): Loco distant	tenuation for one sersion to L for converte to converte the converte t	and ang set of wor eq: Leq = ert Leq(30 TA Guida se direct p tment: 20	rks train h = SEL + 1 Imin) to L nce Man path ray is I log (D1/	naving a l 0 log V .eq(1hr). ual, Tab s under s D2) adju	loco car a -35.6 ref:  le 6-9. shadow zo usted to po	FTA Guidance ne of shieldin int source.	g.			CD CD	
	Legend: Hr: Height of h Hor D: Horizon Angle: Angle of Hb: Height of l Dsb: Horizonta Dbr: Horizonta Hs: Height of l D: Direct path	ighest floor of tall distance of View parrier or shial distance from the distance from the source of	at receive	39.7	o barrier			(1): distance at plus 10log(2) is (2): SEL converglus 10log(2) is (3): Barrier effe (4): To check v (5): Loco distant (6): Direction c	tenuation for one sersion to L for converted, ref: Forhether the concertion	and ang set of wor .eq: Leq = ert Leq(30 TA Guida se direct p tment: 20 factor for	rks train h SEL + 1 Omin) to L nce Man path ray is log (D1/ angle be	naving a l 0 log V leq(1hr). ual, Tab s under : D2) adju	loco car a -35.6 ref: . ble 6-9. shadow zo usted to po	FTA Guidance ne of shieldin int source. rection to NS	g. R or direction c	5-2 Rail vehicl		SR.	
	Legend: Hr: Height of h Hor D: Horizon Angle: Angle: G Hb: Height of l Dsb: Horizonta Dbr: Horizonta Hs: Height of l	ighest floor antal distance of View parrier or shial distance from the distance from the source of t	at receive	39.7	o barrier			(1): distance at plus 10log(2) is (2): SEL converse plus 10log(2) is (3): Barrier effe (4): To check w (5): Loco distant	tenuation for one sersion to L for converted, ref: Forhether the concertion	and ang set of wor .eq: Leq = ert Leq(30 TA Guida se direct p tment: 20 factor for	rks train h SEL + 1 Omin) to L nce Man path ray is log (D1/ angle be	naving a l 0 log V leq(1hr). ual, Tab s under : D2) adju	loco car a -35.6 ref: . ble 6-9. shadow zo usted to po	FTA Guidance ne of shieldin int source. rection to NS	g. R or direction c			SR.	

			1	1			1	1	1	T			1	1				1	
SSS Calculation	at NSR SS	15		Un-m	nitigate	d													
NSR	No. of	Ground Level	Hr	ASR															
SS15	Storey	mPD	m																
	3	15.7	7.5	В															
Loco launch / Arrive	NIGHT				Pomork:	nluc 10log/	2) is for converting	a of Log/20min	) to Log(1	lbr\									
Loco launchi / Annve	NIGHT		1		Remark.	At NSR,	2) is for converting	y or Leq(somin	) to Leq(1			1	1					At NSR, incl fa	
					for 30min	no shield												çade	
																	Wheel		
	Segment	Hor D	Angle		SEL	Leq	Shield	Track Level		Dsb	Dbr	Hs	D	P	A barrier	IL barrier	Squeal	Leq, night	Shadow zone?
		m	Deg	15m	NSR	NSR		mPD	m	m	m	m	m	m			dB		
Loco	1a	168	96.6	85	74.8	42.2	Mainten' Shed	15	11.15	23	145	3	168.1	1.4	15.0	15.0	0	30.2	Yes
	1b	168	17.1	85	67.3	34.7	Mainten' Shed	15	11.15	23	145	3	168.1	1.4	15.0	15.0	6	28.7	Yes
	2a 2b	220 220	19.1 8.1	85 85	66.6 62.9	34.0 30.3	- :	15 15		220 220	-		220.2	8.0 8.0	0.0	0.0	6	37.0 39.3	-
	20	220	0.1		_		eters and remark		nlease re		e hottom	of spres		l	0.0	0.0	0	39.3	
				Keman	t. I of legen	or param	Cicis and remain	Tor equations,	picase ie	1013 10 111	Dottom	Or Spree	dancer o	02 .					
						1													
	At NSR, incl fa	açade																	
	Night time	ſ	loise crite	eria															
			Leq,																
	Leq	ASR	night	Status		Lmax		Lmax											
	Total					15m	Hor D	NSR											
	41.9	В	50	OK		86	159	53.5		y mainter	n' shed								
						86	281	69.5	no shield	d									
								69.5	Total										
Loco Idling																			
Loco laining				Directi	1	At NSR,												At NSR, incl fa	
				on		no shield												çade	
			Exit	Correct															
		Hor D	Angle	ion	Lw	Leq	Shield	Track Level		Dsb	Dbr	Hs	D	Р	A barrier	IL barrier		Leq, night	Shadow zone?
		m	Deg	0.0	00.7	NSR		mPD	m	m	m	m	m	m	40.0	10.0		05.7	
at Gate		288	34.6	3.8	96.7	35.6	Mainten' Shed	15	11.15	69	219	4.7	288.0	0.3	12.9	12.9		25.7	Yes
at Side Louvre		312		0	85.8	27.9		15 15		312 316	-		312.1	8.1	0.0	0.0		30.9	-
at Roof Louvre		316	-	6	91.9	27.9	•	15		316			316.1	8.1	0.0	0.0		30.9	-
	At NSR, incl fa	acade				1					1								
	Total	,	+																
	Leq,	Leq,	Leq,																
	day	night		Lmax															
	34.5	-	20.7	34.5															
			1	1															
	Legend:							Remark for E											
	Hr: Height of h			er				(1): distance a											
	Hor D: Horizon		9					plus 10log(2) is							Manuel Tell	F O Dalleration	la .		
	Angle: Angle of		iold		+			(2): SEL conve						r i A Guidance	e ivianuai Table	5-2 Rail vehic	ie;		
	Hb: Height of I			o course t	to barrier			plus 10log(2) is (3): Barrier effe											
	Dsb: Horizonta					1		(4): To check v						no of chieldi-	2				
	Dbr: Horizonta Hs: Height of r			o rece	ivei			(4): To check ( (5): Loco dista							y.				
	D: Direct path	1	,					(6): Direction of							R or direction of	correction for ro	of louvre to N	SR	
<u> </u>	P: Path differe		ed nath -	D				(7): general ed								onection for fo	OI IOUVIE IO N	OIX.	
1																			
				Ĭ				(1). goneral co	dation for	Carcalati	ling sound	procou	1						
	A barrier: Barr			Ĭ				(7). general ee	dation for	Calculati	ing sound	product							