

Scenario A1: Tug Boat Operated in Zone A

Grab Dredger Operated in Zone B

Case 1 - Tug Boat in operation only

NSR 1		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Prince											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	A	110	2	113	176	-52.9	-0.2	0	62.9	63

NSR 2		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	A	110	2	113	107	-48.6	-0.1	0	67.3	67

NSR 3		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	A	110	2	113	247	-55.8	-0.2	0	59.9	60

NSR 4		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	A	110	2	113	60	-43.5	-0.1	0	72.4	72

NSR 5		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	A	110	2	113	61	-43.7	-0.1	0	72.3	72

Case 2 - Derrick Barge and Grab Dredger in operation only

NSR 1		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Prince											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	176	-52.9	-0.2	0	53.9	58
Grab Dredger	CNP 063	B	112	1	112	340	-58.6	-0.3	0	56.1	

NSR 2		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	107	-48.6	-0.1	0	58.3	62
Grab Dredger	CNP 063	B	112	1	112	218	-54.7	-0.2	0	60.0	

NSR 3		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	247	-55.8	-0.2	0	50.9	65
Grab Dredger	CNP 063	B	112	1	112	125	-49.9	-0.1	0	65.0	

NSR 4		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	60	-43.5	-0.1	0	63.4	65
Grab Dredger	CNP 063	B	112	1	112	205	-54.2	-0.2	0	60.6	

NSR 5		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	61	-43.7	-0.1	0	63.3	65
Grab Dredger	CNP 063	B	112	1	112	223	-54.9	-0.2	0	59.8	

Definition of terms:

- C-dis - noise correction due to distance attenuation, dB(A)
- C-atm - the air absorption correction, dB(A) (Air Absorption = 0.1 dB(A)/100m at 20°C, 70% RH for 250 Hz noise) [ISO 9613-1:1993 Part 1]
- C-bar - noise reduction due to barrier effect, dB(A)
- CNL_{PME} - the predicted noise level at NSR resulted from respective PME, dB(A)
- CNL_{All} - the predicted noise level at NSR resulted from from all PME items, dB(A)

Scenario A2: Tug Boat Operated in Zone A

Grab Dredger Operated in Zone C

Case 1 - Tug Boat in operation only

NSR 1		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Prince											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	A	110	2	113	176	-52.9	-0.2	0	62.9	63

NSR 2		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	A	110	2	113	107	-48.6	-0.1	0	67.3	67

NSR 3		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	A	110	2	113	247	-55.8	-0.2	0	59.9	60

NSR 4		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	A	110	2	113	60	-43.5	-0.1	0	72.4	72

NSR 5		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	A	110	2	113	61	-43.7	-0.1	0	72.3	72

Case 2 - Derrick Barge and Grab Dredger in operation only

NSR 1		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Prince											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	176	-52.9	-0.2	0	53.9	56
Grab Dredger	CNP 063	C	112	1	112	480	-61.6	-0.5	0	52.9	

NSR 2		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	107	-48.6	-0.1	0	58.3	60
Grab Dredger	CNP 063	C	112	1	112	340	-58.6	-0.3	0	56.1	

NSR 3		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	247	-55.8	-0.2	0	50.9	69
Grab Dredger	CNP 063	C	112	1	112	82	-46.3	-0.1	0	68.7	

NSR 4		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	60	-43.5	-0.1	0	63.4	64
Grab Dredger	CNP 063	C	112	1	112	335	-58.5	-0.3	0	56.2	

NSR 5		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	61	-43.7	-0.1	0	63.3	64
Grab Dredger	CNP 063	C	112	1	112	382	-59.6	-0.4	0	55.0	

Definition of terms:

- C-dis - noise correction due to distance attenuation, dB(A)
- C-atm - the air absorption correction, dB(A) (Air Absorption = 0.1 dB(A)/100m at 20°C, 70% RH for 250 Hz noise) [ISO 9613-1:1993 Part 1]
- C-bar - noise reduction due to barrier effect, dB(A)
- CNL_{PME} - the predicted noise level at NSR resulted from respective PME, dB(A)
- CNL_{All} - the predicted noise level at NSR resulted from from all PME items, dB(A)

Scenario B1: Tug Boat Operated in Zone B Grab Dredger Operated in Zone B

Case 1 - Tug Boat in operation only

NSR 1		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Prince											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	B	110	2	113	340	-58.6	-0.3	0	57.1	57

NSR 2		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	B	110	2	113	218	-54.7	-0.2	0	61.0	61

NSR 3		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	B	110	2	113	125	-49.9	-0.1	0	66.0	66

NSR 4		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	B	110	2	113	205	-54.2	-0.2	0	61.6	62

NSR 5		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	B	110	2	113	223	-54.9	-0.2	0	60.8	61

Case 2 - Derrick Barge and Grab Dredger in operation only

NSR 1		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Prince											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	176	-52.9	-0.2	0	53.9	58
Grab Dredger	CNP 063	B	112	1	112	340	-58.6	-0.3	0	56.1	

NSR 2		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	107	-48.6	-0.1	0	58.3	62
Grab Dredger	CNP 063	B	112	1	112	218	-54.7	-0.2	0	60.0	

NSR 3		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	247	-55.8	-0.2	0	50.9	65
Grab Dredger	CNP 063	B	112	1	112	125	-49.9	-0.1	0	65.0	

NSR 4		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	60	-43.5	-0.1	0	63.4	65
Grab Dredger	CNP 063	B	112	1	112	205	-54.2	-0.2	0	60.6	

NSR 5		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	61	-43.7	-0.1	0	63.3	65
Grab Dredger	CNP 063	B	112	1	112	223	-54.9	-0.2	0	59.8	

Definition of terms:

- C-dis - noise correction due to distance attenuation, dB(A)
- C-atm - the air absorption correction, dB(A) (Air Absorption = 0.1 dB(A)/100m at 20°C, 70% RH for 250 Hz noise) [ISO 9613-1:1993 Part 1]
- C-bar - noise reduction due to barrier effect, dB(A)
- CNL_{PME} - the predicted noise level at NSR resulted from respective PME, dB(A)
- CNL_{All} - the predicted noise level at NSR resulted from from all PME items, dB(A)

Scenario B2:

Tug Boat Operated in Zone B

Grab Dredger Operated in Zone C

Case 1 - Tug Boat in operation only

NSR 1		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Prince											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	B	110	2	113	340	-58.6	-0.3	0	57.1	57

NSR 2		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	B	110	2	113	218	-54.7	-0.2	0	61.0	61

NSR 3		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	B	110	2	113	125	-49.9	-0.1	0	66.0	66

NSR 4		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	B	110	2	113	205	-54.2	-0.2	0	61.6	62

NSR 5		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	B	110	2	113	223	-54.9	-0.2	0	60.8	61

Case 2 - Derrick Barge and Grab Dredger in operation only

NSR 1		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Prince											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
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Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
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NSR 3		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
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NSR 4		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	60	-43.5	-0.1	0	63.4	64
Grab Dredger	CNP 063	C	112	1	112	335	-58.5	-0.3	0	56.2	

NSR 5		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	61	-43.7	-0.1	0	63.3	64
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- C-bar - noise reduction due to barrier effect, dB(A)
- CNL_{PME} - the predicted noise level at NSR resulted from respective PME, dB(A)
- CNL_{All} - the predicted noise level at NSR resulted from from all PME items, dB(A)

Scenario C1: Tug Boat Operated in Zone C

Grab Dredger Operated in Zone B

Case 1 - Tug Boat in operation only

NSR 1		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Prince											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	C	110	2	113	480	-61.6	-0.5	0	53.9	54

NSR 2		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	C	110	2	113	340	-58.6	-0.3	0	57.1	57

NSR 3		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	C	110	2	113	82	-46.3	-0.1	0	69.7	70

NSR 4		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	C	110	2	113	335	-58.5	-0.3	0	57.2	57

NSR 5		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	C	110	2	113	382	-59.6	-0.4	0	56.0	56

Case 2 - Derrick Barge and Grab Dredger in operation only

NSR 1		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Prince											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	176	-52.9	-0.2	0	53.9	58
Grab Dredger	CNP 063	B	112	1	112	340	-58.6	-0.3	0	56.1	

NSR 2		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	107	-48.6	-0.1	0	58.3	62
Grab Dredger	CNP 063	B	112	1	112	218	-54.7	-0.2	0	60.0	

NSR 3		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	247	-55.8	-0.2	0	50.9	65
Grab Dredger	CNP 063	B	112	1	112	125	-49.9	-0.1	0	65.0	

NSR 4		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	60	-43.5	-0.1	0	63.4	65
Grab Dredger	CNP 063	B	112	1	112	205	-54.2	-0.2	0	60.6	

NSR 5		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	61	-43.7	-0.1	0	63.3	65
Grab Dredger	CNP 063	B	112	1	112	223	-54.9	-0.2	0	59.8	

Definition of terms:

- C-dis - noise correction due to distance attenuation, dB(A)
- C-atm - the air absorption correction, dB(A) (Air Absorption = 0.1 dB(A)/100m at 20°C, 70% RH for 250 Hz noise) [ISO 9613-1:1993 Part 1]
- C-bar - noise reduction due to barrier effect, dB(A)
- CNL_{PME} - the predicted noise level at NSR resulted from respective PME, dB(A)
- CNL_{All} - the predicted noise level at NSR resulted from from all PME items, dB(A)

Scenario C2: Tug Boat Operated in Zone C

Grab Dredger Operated in Zone C

Case 1 - Tug Boat in operation only

NSR 1		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Prince											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	C	110	2	113	480	-61.6	-0.5	0	53.9	54

NSR 2		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	C	110	2	113	340	-58.6	-0.3	0	57.1	57

NSR 3		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	C	110	2	113	82	-46.3	-0.1	0	69.7	70

NSR 4		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	C	110	2	113	335	-58.5	-0.3	0	57.2	57

NSR 5		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Tug Boat	CNP 221	C	110	2	113	382	-59.6	-0.4	0	56.0	56

Case 2 - Derrick Barge and Grab Dredger in operation only

NSR 1		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Prince											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	176	-52.9	-0.2	0	53.9	56
Grab Dredger	CNP 063	C	112	1	112	480	-61.6	-0.5	0	52.9	

NSR 2		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	107	-48.6	-0.1	0	58.3	60
Grab Dredger	CNP 063	C	112	1	112	340	-58.6	-0.3	0	56.1	

NSR 3		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	247	-55.8	-0.2	0	50.9	69
Grab Dredger	CNP 063	C	112	1	112	82	-46.3	-0.1	0	68.7	

NSR 4		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo Gateway											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	60	-43.5	-0.1	0	63.4	64
Grab Dredger	CNP 063	C	112	1	112	335	-58.5	-0.3	0	56.2	

NSR 5		Noise Limit:		75 dB(A)		Day time (0700-1900)					
Marco Polo HK											
Plant Item	ID	Work Zone	SWL, dB(A)	No. of Plant	Total SWL, dB(A)	Notional Distance, m	Correction, dB(A)			PNL _{PME} , dB(A)	PNL _{All} , dB(A)
							C-dis	C-atm	C-bar		
Derrick Lighter	CNP 061	A	104	1	104	61	-43.7	-0.1	0	63.3	64
Grab Dredger	CNP 063	C	112	1	112	382	-59.6	-0.4	0	55.0	

Definition of terms:

- C-dis - noise correction due to distance attenuation, dB(A)
- C-atm - the air absorption correction, dB(A) (Air Absorption = 0.1 dB(A)/100m at 20°C, 70% RH for 250 Hz noise) [ISO 9613-1:1993 Part 1]
- C-bar - noise reduction due to barrier effect, dB(A)
- CNL_{PME} - the predicted noise level at NSR resulted from respective PME, dB(A)
- CNL_{All} - the predicted noise level at NSR resulted from from all PME items, dB(A)