Determination of Marine Traffic Noise Assessment Area Boundary

Marine Traffic Noise Level at a reference distance of 25m

The $L_{eq,\ 1hr}$ at 25m for ferry maneuvering/ yacht passby events are projected from site noise measurement results as shown in **TableA1** and **Table A2**.

Table A1: $L_{eq\ 1hr}$ calculation for a receiver at 25m for TCE (Daytime and Evening time)

					Correction, dB(A)				
Event Type	**Maximum SEL at measurement distance, dB(A)**	**Measurement distance, m**	**No. of Vessels**	**Time, s[3]**	**Time**	**No.**	**Facade**	**Dist.**	**$L_{eq,\ 1hr}$ at 25m, dB(A)**
Ferry maneuvering	84.8	10	2[1]	3600	-36	3	3	-4	50.8
Yacht – passby	79.1	50	6[2]	3600	-36	7.8	3	3	56.9
								Overall $L_{eq,\ 1hr}$ at 25m	57.9

Note;
[1] According to the operation schedule from ferry service provider, there are maximum 2 ferries per hour at Tung Chung Pier and thus 2 events per hour
[2] Number of vessels for the proposed marine was confirmed by Marine Department.
[3] 1 hour = 3600s

Table A2: $L_{eq\ 1hr}$ calculation for a receiver at 25m for TCW (Daytime and Evening time)

					Correction, dB(A)				
Event Type	**Maximum SEL at measurement distance, dB(A)**	**Measurement distance, m**	**No. of Vessels**	**Time, s[2]**	**Time**	**No.**	**Facade**	**Dist.**	**$L_{eq,\ 1hr}$ at 25m, dB(A)**
Ferry maneuvering	84.8	100	2[1]	3600	-36	3	3	-4	50.8
								Overall $L_{eq,\ 1hr}$ at 25m	50.8

Note;
[1] According to the operation schedule from ferry service provider, there are maximum 2 ferries per hour at Tung Chung Pier and thus 2 events per hour
[2] 1 hour = 3600s

Table A3: $L_{eq\ 1hr}$ calculation for a receiver at 25m for TCE and TCW (Nighttime)

					Correction, dB(A)				
Event Type	**Maximum SEL at measurement distance, dB(A)**	**Measurement distance, m**	**No. of Vessels**	**Time, s[2]**	**Time**	**No.**	**Facade**	**Dist.**	**$L_{eq,\ 1hr}$ at 25m, dB(A)**
Ferry maneuvering	84.8	100	2[1]	3600	-36	3	3	-4	50.8
								Overall $L_{eq,\ 1hr}$ at 25m	50.8

Note;
[1] According to the operation schedule from ferry service provider, there are maximum 2 ferries per hour at Tung Chung Pier and thus 2 events per hour
[2] 1 hour = 3600s

Marine Traffic Noise Assessment Area Boundary

The cumulative impact of the marine vessels shall achieve the noise criteria adopted in approved EIA report (AEIAR-070/2003) for the Proposed Joint User Complex and Wholesale Fish Market at Area 44, Tuen Mun. It considered the predicted noise level as unlikely to cause any disturbance and nuisance when it is below the prevailing noise level.

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Table A3: Prevailing noise level and criteria for TCE and TCW

Area	**Prevailing Noise Levels[1], dB(A)**			**Criteria, Prevailing Noise Levels -10 dB, dB(A)**		
	Day[2]	**Evening[2]**	**Night[2]**	**Day[2]**	**Evening[2]**	**Night[2]**
Tung Chung Development Ferry Pier (PNM-1)	59	59	53	49	49	43
Tung Chung West Representative location: Yat Tung Estate – Facing Yu Tung Road (PNM-6)	54	52	48	44	42	38

Notes:
[1] Measurements conducted in February and March 2012.
[2] Day: 0700 to 1900 hours, Evening: 1900 to 2300 hours, Night: 2300 – 0700 hours.

The required distance for the cumulative marine noise to attenuate below the criteria, i.e. the marine traffic noise assessment area boundary is then calculated by applying distance attenuation as shown in **Table A4**.

$$L_{eq\ NSR} = L_{eq\ 1hr\ at\ 25m} - DC$$

where

$$DC = 10*\log(d/25)$$

Table A4: Marine traffic noise assessment area boundary D_E

Area	**Time Period**	**Criteria, PNL – 10 dB(A)**	**$L_{eq\ 1hr\ at\ 25m}$, dB(A)**	**Marine traffic noise assessment area boundary, D_E, m**
TCE	Day & Evening	49	57.9	192
	Nighttime	43	50.8	151
TCW	Day & Evening	42	50.8	191
	Nighttime	38	50.8	479