

**Marine Navigation - TIM of Marine Vessels**

Ferry/ Barge Type <sup>[1]</sup>	Time-in-mode (hours) <sup>[2]</sup>			
	Fairway Cruise <sup>[3]</sup>	Slow Cruise	Maneuvering	Hotelling
Ferry (From Macau to Hong Kong) (per ferry)	0.019	0.020	0.015	0.500
Ferry (From Hong Kong to Macau) (per ferry)	0.023	0.015	0.015	0.500
Ferry (From PRD to Hong Kong) (per ferry)	0.003	0.030	0.030	0.380
Ferry (From Hong Kong to PRD) (per ferry)	0.017	0.020	0.020	0.380
CKAS Barge A (per day)	0.000	0.000	6.500	3.000
CKAS Barge B (per day)	0.000	0.000	6.500	3.000
CKAS Barge C (per day)	0.000	0.000	11.000	2.500
CKAS Barge D (per day)	0.000	0.000	11.000	2.500

Note:

[1] The time-in-mode of the Ferry is reference from EPD's Study on Marine Vessels Emissions Inventory.

The time-in-mode of the Barge is provided from the operator

[2] Fairway Cruise: Vessel Speed - Over 12 knots (As advised by fast ferry captain, the maximum speed within 500m of airport is 15 knots) (15 knots are adopted)(Detail refer to Appendix 5.3.12-4)

Slow Cruise: Vessel Speed - 8 to 12 knots (12 knots is adopted)(Detail refer to Appendix 5.3.12-4)

Maneuvering: Vessel Speed - 1 to 8 knots (8 knots is adopted)(Detail refer to Appendix 5.3.12-4)

Hotelling: Vessel Speed - below 1 knot

Conversion Factor from Knots to m/s is 0.5144

[3] Fairway Cruise Time within 500m of the airport boundary is calculated by the speed of vessel of different modes and the fairway distance (1200m) observed by site survey

For example (Ferry (From Macau to Hong Kong)) :

Distance travelled by Fairway Cruise Mode = Total Fairway Distance - Distance travelled by Slow Cruise Mode - Distance travelled by the Maneuvering Mode

= 1200 - ((12 x 0.5144) x (0.02 x 60 x 60)) - ((8 x 0.5144) x (0.015 x 60 x 60))

= 1200 - 370 - 125 = 533 m

Fairway Cruise Time = Fairway Cruise Distance / Fairway Cruise Speed

= 533 / ((15 x 0.5144) x 60 x 60)

= 0.019 hr