

# 船舶能耗数据收集管理办法

## Regulation on Data Collection for Energy Consumption of Ships

The translation is not official version, all content is only as reference for whom concern.

### 第一章 总 则

#### Chapter 1 General Provision

**第一条** 为做好船舶能耗数据收集管理工作，推进船舶节能减排，保护大气环境，根据《中华人民共和国船舶及其有关作业活动污染海洋环境防治管理规定》和我国加入的有关国际公约的规定，制定本办法。

Article 1 This Regulation lays down rules for the collection of ship energy consumption data, in order to promote the reduction of CO<sub>2</sub> emissions, in accordance with *Regulation of People's Republic of China on the Prevention and Control of Marine Environment Pollution Caused by Ships and Their activities* and related international conventions which China has acceded to.

**第二条** 本办法适用于进出我国港口的 400 总吨及以上或者主推进动力装置 750 千瓦及以上的船舶。

军事船舶、渔船不适用本办法。

Article 2 This Regulation applies to ships, entering or leaving the ports in China, of 400 gross tonnage and above or

powered by main propulsion machinery of 750 kW propulsion power and above.

This Regulation does not apply to warships or fishing ships.

**第三条** 中华人民共和国海事局（以下称中国海事局）负责全国船舶能耗数据汇总和信息管理工作。

各级海事管理机构按照职责具体负责本辖区船舶能耗数据收集、报告管理和现场监督检查工作。

中国海事局授权的船舶检验机构（以下称船舶检验机构），具体负责中国籍国际航行船舶能效管理计划（第二部分）的审核、数据核实工作。

Article 3 Maritime Safety Administration of People's Republic of China (China MSA) is responsible for ship energy consumption data aggregation and information management.

Branches of China MSA are responsible for supervision and inspection of data collection and report in respective districts.

Organizations duly authorized by China MSA (the authorized organizations) are responsible for audit of part 2 of Ship Energy Efficiency Management Plan (SEEMP) and data verification regarding international navigation ships flying the flag of China.

**第四条** 船舶应当按照本办法规定的船舶能耗数据收集和报告要求，填报《船舶能耗数据报告表格》（附件）。

Article 4 Ships shall submit *Data Report Format for the Energy Consumption of Ships* in compliance with this Regulation.

## **第二章 数据收集和报告** **Chapter 2 Data Collection and Report**

**第五条** 海船应当在办理出港报告或者出口岸手续时向海事管理机构报告上一航次的船舶能耗数据。

Article 5 Seagoing ships shall report energy consumption data of last voyage to MSA before leaving a port.

**第六条** 符合以下情形之一的海船可以采用月度报告代替航次报告：

（一）在固定水域范围内航行且单航次的航行时间不超过 4 小时的船舶；

（二）在固定航线航行且单航次的航行时间不超过 24 小时的船舶。

Article 6 A seagoing ship could submit monthly report to MSA instead of voyage report if it is subject to one of the following conditions:

(1) sailing in fixed region and the time underway per voyage is 4 hours or less; or

(2) sailing on fixed route and the time underway per voyage is 12 hours or less.

**第七条** 拟采用月度报告的海船应当在船舶日志或者专用记录簿中记录每日或者每一航次的船舶能耗数据，并于每

月 10 日前固定向其中一个挂靠港口所在地的分支海事管理机构报告上一自然月的汇总数据。

接到月度报告的分支海事管理机构认为船舶符合本办法第六条规定的情形的，应当接收报告并通知该船其他挂靠港所在地的分支海事管理机构。

Article 7 A seagoing ship which plans to submit a monthly report shall record the energy consumption data daily or of each voyage on logbook or specified record book. Such ship shall report the aggregated data of last calendar month to the fixed branch of China MSA of related port of call before the 10th of each month.

The branch of China MSA which received the report shall determine whether the ship is in line with Article 6. If so, the branch of China MSA shall accept the report and inform other related branches of China MSA.

**第八条** 内河船应当在船舶日志或者专用记录簿中记录每日或者每一航次的船舶能耗数据，并于每年 4 月 1 日前向船籍港海事管理机构报告上一日历年的汇总数据。

Article 8 Inland ships shall record the energy consumption data daily or of each voyage on logbook or specified record book. Those ships shall report the aggregated data of last calendar year to the branch of China MSA of port of registry before 1 April of each year.

**第九条** 船舶如使用专用记录簿记录相关数据，该记录

簿应在使用完毕后在船上保存至少 1 年，以备海事管理机构核实检查。

Article 9 If a specified record book is used for data recording, this book shall be kept on board the ship for a period of 1 year after the last entry has been made and be readily available for verification and inspection.

**第十条** 船舶应当通过海事信息平台报告本章要求的相关数据。

Article 10 Ships shall report the required data via maritime information platform maintained by China MSA.

### **第三章 国际航行船舶附加要求**

#### **Chapter 3 Additional Requirements for International Navigation Ships**

**第十一条** 本章适用于 5000 总吨及以上的中国籍国际航行船舶（以下简称国际航行船舶）。

除转换船旗、船舶所有人或者船舶经营人的情形外，本章所指的报告期为日历年，从每年 1 月 1 日至 12 月 31 日。

Article 11 This Chapter applies to international navigation ships flying the flag of China of 5000 gross tonnage and above (the international ships).

Except for the events of transfer of a ship from one Administration to another or change from one company to another, report period in this chapter means calendar year, i.e. the period from 1 January until 31 December.

**第十二条** 国际航行船舶应当向船舶检验机构提交《船舶能效管理计划》，船舶检验机构应当对《船舶能效管理计划》第二部分是否符合公约要求予以审核；通过审核的，船舶检验机构应当签发符合性确认书。

Article 12 The international ships shall submit SEEMP to the authorized organizations for audit. If the SEEMP is in compliance with Convention, the authorized organizations shall issue a Conformation of Compliance.

**第十三条** 国际航行船舶应当收集、记录船舶能耗数据，并于每年4月1日前向船舶检验机构报告上一报告期的数据。

Article 13 The international ships shall collect and record energy consumption data and reported the data of last report period to the authorized organizations before 1 April of each year.

**第十四条** 国际航行船舶在报告期内由中国籍转为外国籍的，应当在国籍转换之日起3个月内，报告国籍转换日之前的船舶能耗数据。

国际航行船舶在报告期内由外国籍转为中国籍的，应当在次年4月1日前报告自国籍转换日起收集的船舶能耗数据。

Article 14 In the event of transfer of a ship from the flag of China to another, the ship shall report the data collected before the day of completion of the transfer in 3 months.

In the event of transfer of a ship from another flag to the flag of China, the ship shall report the data collected since the

day of completion of the transfer before 1 April of next year.

**第十五条** 国际航行船舶在报告期内转换船舶所有人或者船舶经营人的，应当于转换之日起3个月内报告转换前的船舶能耗数据，并于次年4月1日前报告转换后的船舶能耗数据。

Article 15 In the event of change of a ship from one company to another, the ship shall report the data collected before the day of completion of the change in 3 months and report the data collected since the day of completion of the change before 1 April of next year.

**第十六条** 船舶检验机构应当对船舶能耗数据进行核实，经核实符合实际情况的，应当向船舶签发符合声明。

Article 16 The authorized organizations shall verify ship energy consumption data. A Statement of Compliance related to fuel oil consumption reporting shall be issued if the data is reported in accordance with this Regulation.

**第十七条** 船舶检验机构应当在每年5月1日前向中国海事局报送国际航行船舶能耗数据。

Article 17 The authorized organizations shall report the data of the international ships to China MSA before 1 May of each year.

## **第四章 监督管理**

### **Chapter 4 Supervision and Inspection**

**第十八条** 海事管理机构应当对本辖区内船舶能耗数据收集、报告行为实施监督检查。

Article 18 Branches of China MSA shall supervise and inspect the collection and report of ship energy consumption data in respective districts.

**第十九条** 中国海事局应当定期对船舶检验机构相关文书审核、数据核实以及证书签发工作开展评估检查。

Article 19 China MSA shall inspect the work of the authorized organizations on SEEMP audit, data verification and certification at regular intervals.

**第二十条** 海事管理机构在监督检查中发现采用月度报告的船舶不符合第六条规定的，应当督促其依照本办法办理航次报告，并将相关情况通报其他相关海事管理机构。

Article 20 If branches of China MSA find a ship which has submitted a monthly report is not in line with Article 6, they should urge the ship to submit voyage report according to this Regulation and inform the related branches of China MSA

## **第五章 附 则**

### **Chapter 5 Supplementary Provisions**

**第二十一条** 航次，是指船舶在相邻两次靠泊期间的航行、停泊和作业，以上一次靠泊时间为起点，本次靠泊时间为终点。

船舶能耗数据，是指与船舶能源消耗有关的船舶基本信



息、运输活动数据以及燃料消耗数据。

Article 21 Voyage means sailing, berth and operation of a ship during two contiguous ports of call, starting with the time of last berth and ending with the time of this berth.

Ship energy consumption data means information related to energy consumption of a ship, including ship particulars, data on transport work and fuel consumption.

**第二十二条** 本办法自 2019 年 1 月 1 日起施行。

Article 22 This Regulation shall enter into force on 1 January 2019.

# 附件

## ANNEX

### 船舶能耗数据报告表格

#### Data Report Format for the Energy Consumption of Ships

填报单位: Name of ship

检验机构: Authorized Organization

报告周期: Report period

航次报 voyage report

上一停靠港口: Last port of call: 年 月 日 时 yy/mm/dd/hh

本次停靠港口: This port of call 年 月 日 时 yy/mm/dd/hh

年报/月报 annual report /monthly report

年 月 日~年 月 日 yy/mm/dd/hh~yy/mm/dd/hh

船舶在报告期内是否发生船舶转换船旗、所有人或经营人的情形

**Whether the following events are occurred during the report period:**

转换船旗 The transfer of a ship from one Administration to another

转换所有人或经营人 A change from one Company to another 不适用 N/A

序号 Number	填报项目 Items	填报内容 Contents	备注 Notes
一、船舶基本信息 Ship Particulars			
1.	船名 Name of ship		
2.	公司名 Name of company		
3.	船舶识别信息 IMO number		根据船舶实际情况填写
4.	船旗国 Flag state		
5.	船舶类型 Category of ship		
6.	船舶种类 Ship type		
7.	建造时间 Year of construction		
8.	总吨 Gross tonnage		
9.	净吨 Net tonnage		
10.	载重吨 Deadweight tonnage		适用时填写 if applicable
11.	集装箱箱位量 (TEU)		适用时填写 if applicable
12.	船舶能效设计指数 EEDI		EEDI, 适用时填写 if applicable

13.	冰级 Ice class		适用时填写 if applicable
14.	设计航速 (节) Designed speed (kn)		适用时填写 if applicable
15.	额定功率 (kW) Power output(rated power)	主机额定功率 Main propulsion	
		副机额定功率 Auxiliary engine (s)	
		锅炉额定功率 Boiler (s)	
二、运输活动数据 data on transport work			
16.	周转量 Transport Work	Cargos(kt•nmile)货物周转量 (千吨•海里)	
17.		TEUs(TEU•nmile)集装箱周转量 (TEU•海里)	
18.		Passengers(person•nmile)客运周转量 (人•海里)	
19.	航行距离 (海里) Distance travelled(nm)		
20.	航行时间 (小时) Hours underway (h)		
21.	营运时间 (小时) Operation hours (h)		

续表 continued table

序号 Number	填报项目 Items		填报内容 Contents	备注 Notes
三、船舶能耗数据 fuel consumption data				
22.	船用燃料消耗 Fuel consumption	燃料 1 Fuel 1	燃料种类 Fuel type	
			数量 (吨) Volume in metric tonnes	
			收集方法 Methods used for collecting data	
		燃料 2 Fuel 2	燃料种类 Fuel type	
			数量 (吨) Volume in metric tonnes	
			收集方法 Methods used for collecting data	
		.....	燃料种类 Fuel type	

			数量 (吨) Volume in metric tonnes		
			收集方法 Methods used for collecting data		
23.	岸电消耗量 (千瓦时) Shore power consumption (kW•h)				
24.	其他能源消耗 Other fuel consumption	其他能源 1 Other fuel 1	能源种类 Fuel type		
			消耗量 Volume of consumption		
		.....	能源种类 Fuel type		
			消耗量 Volume of consumption		
25.	是否使用尾气处理装置 Whether to use an scrubber				

单位负责人: Captain:  
contact:

统计负责人: Person to

填表人: Reporter:

联系电话: Tel:

## 表格填写相关要求及说明 Instructions and interpretations

### 一、总体要求 General requirements

1、报告周期为选择性填写，航次报填写第一栏，年报/月报填写第二栏。

1、The report period is optional. Select the box of voyage report or annual/monthly report.

2、对于不适用的项目，用“N/A”标记。

2、If not applicable, note "N/A".

3、对于按月报或者年报进行报告的船舶，如果某一航次跨越两个报告期，则该航次的数据均应计入航次结束时的报告期。

3、For those ships reporting on an annual or month basis, in the case of a voyage that extends across the data reporting periods, the data should be allocated to the report period in which the voyage finished.

### 二、船舶基本信息 Ship particulars

4、船名包括船舶的中文名和英文名，有英文名时应同时填写英文名。In case of a ship owns a Chinese name as well as an English name, both of which should be provided.

5、公司名填写负责数据收集和报告的船舶所有人或经营人全称。The name of company should be the full name of the owner or the manager of the ship.

6、对于国际航行船舶，船舶识别信息填报 IMO 编号，即船舶根据国际海事组织第 A.1078(28) 号决议通过的《国际海事组织船舶识别号计划》所分配的特有标识码；

对于其他船舶，船舶识别信息填报船舶识别号，即依照《中华人民共和国船舶登记条例》在中国登记的船舶，按照《中华人民共和国船舶识别号管理规定》取得的用于永久识别船舶的唯一编码。

6、The IMO number should be in accordance with the IMO Ship Identification Number Scheme, adopted by the Organization by resolution A.1078(28).

7、船旗国填写船舶在报告期内所持有的船籍。

7、Flag State refers to the State whose flag the ship is entitled to fly during the report period.

8、船舶类型包括国际航行船舶、国内航行海船、内河船三类。船舶在固定水域范围内航行且单次航行时间不超过 4 小时的，以及船舶在固定定线航行且单次航行时间不超过 24 小时的，应当以适当形式注明。

8、The category of ship includes seagoing ships engaged in international voyages, seagoing ships engaged in domestic voyages, and inland ships. Ships sailing in a fixed region and the time underway per voyage is 4 hours or less, or ships sailing on fixed route and the time underway per voyage is 12 hours or less, shall be noted appropriately.

9、船舶种类包括散货船、气体运输船、液货船、集装箱船、杂货船、冷藏船、兼用船、滚装货船（车辆运输船）、滚装货船、客船、客滚船等。

9、The ship type includes bulk carrier, Gas carrier, Tanker, Container ship, General cargo ship, Refrigerated cargo ship, Combination carrier, Passenger ship, Ro-Ro cargo ships (vehicle carrier), Ro-Ro cargo ships, Ro-Ro Passenger ship, LNG carrier, Cruise passenger ship.

10、建造时间是指签订建造合同的时间。若没有建造合同，指已安放龙骨或处于类似建造阶段的时间。建造时间填写 6 位有效数字，前 4 位为年份，后 2 位为月份，如 200602 表示 2006 年 2 月。

10、The year of construction means the year in which the building contract of the ship was placed. In the absence of a building contract, it should be the year in which the keel of which is laid or which is at a similar stage of construction. Year of construction should be filled in 6 figures, i.e. 200602 indicates Feb, 2006.

11、总吨根据船舶证书确定。

11、The gross tonnage should be calculated in accordance with the International Convention on Tonnage Measurement of Ships, 1969.

12、净吨根据船舶证书确定。

12、The net tonnage should be calculated in accordance with the International Convention on Tonnage Measurement of Ships, 1969.

13、载重吨系指在相对密度为  $1025 \text{ kg/m}^3$  水中的船舶夏季装载吃水和空载吃水排水量的吨位差值。夏季装载吃水应按照主管机关或其授权组织认证的稳性手册中载明的最大夏季吃水。载重吨根据船舶证书确定，单位为吨（t）。

13、The deadweight tonnage means the difference in tonnes between the displacement of a ship in water of relative density of  $1025 \text{ kg/m}^3$  at the summer load draught and the lightweight of the ship. The summer load draught should be taken as the maximum summer draught as certified in the stability booklet approved by the Administration or an organization recognized by it.

14、集装箱箱位量由集装箱船填写，根据船舶证书确定。

14、TEU applies to container ship, which should be in accordance with its certificate.

15、船舶能效设计指数（EEDI）根据船舶《国际能效证书（IEE 证书）》附件中的“达到的能效设计指数”确定。

15、EEDI should be calculated in accordance with the 2014 Guidelines on the method of calculation of the attained Energy Efficiency Design Index (EEDI) for new ships, as amended, adopted by resolution MEPC 245(66). If not applicable, note "N/A".

16、冰级根据《极地水域营运船舶国际规则》中的定义确定。

16、Ice class should be consistent with the definition set out in the International Code for ships operating in polar waters (Polar Code), adopted by resolutions MEPC.264(68) and MSC.385(94)).

17、设计航速为满载排水量时的最大持续航速，单位为节（kn）。

17、The designed speed is the maximum sustained speed (kn) when a ship is at the load draught.

18、主机、副机和锅炉额定功率是指往复式内燃机主机、副机和锅炉铭牌上标注的最大连续输出功率，单位为千瓦（kW）。

18、Power output (rated power) of main and auxiliary reciprocating internal combustion engines(to be stated in kW). Rated power means the maximum continuous rated power as specified on the nameplate of the engine.

### 三、运输活动数据 Data on transport work

19、航行距离、航行时间、营运时间、客货周转量主要根据船舶航海日志、轮机日志、油类记录簿及航次报告等进行收集。

19、The data on distance traveled, hours underway, operation hours and transport work should be collected from ship's log book, engine logbook, oil record book and reports on a voyages basis, etc.

20、客货周转量是指船舶载运的客货运输量（或折算运输量）与对应运输距离的乘积。

20、The transport work means the product of the cargo carried (or its proxy) by ships and the distance transported.

21、客货运输量或折算运输量按下列方法统计：

(1) 对于散货船、气体运输船、液货船、杂货船、冷藏船、兼用船、滚装货船（车辆运输船）和滚装货船，为所载货物总质量，单位为吨（t）；

(2) 对于集装箱船，为所载运集装箱标准箱数量（TEU）；

(3) 对于混装集装箱及其它货物的船舶，为所载运集装箱质量与其他货物质量的总和，单位为吨（t）。

(4) 对于客船（包括客滚船），为实际乘客数量（人），实际乘客数量难以统计时以额定载客人数代替；

(5) 在无法获得箱货实际质量的情况下，一个重载标准箱（TEU）可按 10t 折算，一个空载 TEU 可按 2t 折算。

21、In general, cargo mass or work done is expressed as follows:

(1) for dry cargo carriers, liquid tankers, gas tankers, ro-ro cargo ships and general cargo ships, metric tonnes (t) of the cargo carried should be used;

(2) for containerships carrying solely containers, number of containers (TEU) should be used;

(3) for ships carrying a combination of containers and other cargoes, metric tonnes (t) of the TUE plus metric tonnes (t) of other cargoes should be applied;

(4) for passenger ships, including ro-ro passenger ships, number of passengers should be used; in case of the actual number of passengers are unavailable, the rated seating capacity should be used as a proxy;

(5) in some particular cases, for example, the metric tonnes of the TEUs or cargoes are unavailable, a TEU mass of 10 t could be applied for loaded TEUs and 2 t for empty TEUs.

22、航行距离是指载于航海日志的船舶在航状态下依靠自有动力相对于地的实际航行距离，单位为海里（nmile）。

22、The distance travelled means distance travelled over ground while the ship is underway under its own propulsion, which is recorded in the log-book.

23、航行时间是指船舶自起运港离开码头泊位、锚地或浮筒，当解掉最后一根缆绳或起好船锚时，至到达港靠好码头泊位、锚地或浮筒，系妥第一根缆绳或抛下第一个船锚时止的时间，为船舶在航状态下依靠自有动力航行时间，单位为小时（h）。

23、The hours underway (h) should be an aggregated duration while the ship is underway under its own propulsion

24、营运时间是指船舶技术状况完好可以从事运输工作的时间，包括航行时间、停泊时间、其他工作时间。船舶带货修理等仍然从事运输生产的情形应计入营运时间，单位为小时（h）。

24、Operation hours refers to the time (h) when the ship is in good condition and can be engaged in transportation work. Operation hours includes sailing time, anchoring time and other duration of operating activities. In case of a ship repairing with goods, it should be allocated into operation hours.

#### 四、船舶能耗数据 Fuel consumption data

25、船用燃料种类填报分类标识，具体分类标识见下表：

25、The category of fuel should be filled in its classifying label as follows:

分类标识 Classifying label	燃料名称 Category of fuel	说明 Notes
1	重燃油（HFO）Heavy Fuel Oil(HFO)	ISO 8217 Grades RME through RMK 等同于 ISO 8217 RME 级至 RMK
1.1	硫含量高于0.5% m/m the sulfur content is more than 0.5% m/m	



1.2	硫含量高于0.1% m/m, 但不高于0.5% m/m the sulfur content is more than 0.1% m/m, but no more than 0.5% m/m	
1.3	硫含量不高于0.1% m/m the sulfur content is no more than 0.1% m/m	
2	轻燃油 (LFO) Light Fuel Oil(LFO)	ISO 8217 Grades RMA through RMD 等同于 ISO 8217 RMA 级至 RMD
2.1	硫含量高于0.5% m/m the sulfur content is more than 0.5% m/m	
2.2	硫含量高于0.1% m/m, 但不高于0.5% m/m the sulfur content is more than 0.1% m/m, but no more than 0.5%	
2.3	硫含量不高于0.1% m/m the sulfur content is no more than 0.1% m/m	
3	柴油/汽油 (MDO/MGO) Diesel/Gas Oil	ISO 8217 Grades DMX through DMB 等同于 ISO 8217 DMX 级至 DMB
4	液化石油气 (丙烷) Liquefied Petroleum Gas (LPG Propane)	
5	液化石油气 (丁烷) Liquefied Petroleum Gas (LPG Butane)	
6	液化天然气 Liquefied Natural Gas (LNG)	
7	甲醇Methanol	
8	乙醇Ethanol	
9	其他Other	

26、船用燃料消耗数量包括但不限于主机、副机、燃气轮机、锅炉及惰性气体发生器等全部用能设备的燃料消耗重量，单位为吨 (t)。

26、 Fuel consumption should include all the fuel consumed on board including but not limited to the fuel consumed by the main engines, auxiliary engines, gas turbines, boilers and inert gas generators.

27、船用燃料消耗的收集方法主要有以下三种 (详见附录):

- (1) 燃油舱测量法，代码为 A;
- (2) 加油签收单 (BDNs) 加总法，代码为 B;
- (3) 燃油消耗流量计法，代码为 C。

27、 Method used to measure fuel consumption includes:

- (1) method using bunker fuel oil tank monitoring
- (2) method using BDNs;
- (3) method using flow meters;

船用燃料收集方法仅填报代码。如果采用两种以上的方法，可同时填报，但作为临时替代手段的收集方法不需填报。在同一个报告期内，船舶应当尽量采用相同的方法对船用燃料消耗数据进行收集。如确有必要改变数据收集方法，应当做出必要的记录和说明。

In case of two or more methods were used, all of the methods should be recorded, unless the method was used as a temporary measure. During one reporting period, ship shall monitor data using one single method as far as possible. If necessary, ship is allowed to change method after recording and explaining.

岸电消耗量是指停泊靠港时消耗的岸电电量，根据船上电能计量器具显示的用电量进行统计，单位为千瓦时（kW•h）。

28、The shore power consumption means the shore power consumed by the ship when mooring along the dock, it shall be recorded according to its electricity meter.

附录:

**APPENDIX:**

**船用燃料消耗量的收集方法**

**METHODOLOGY FOR COLLECTING DATA ON FUEL  
CONSUMPTION**

方法 A. 燃油舱测量法

Method A: using bunker fuel oil tank monitoring on board

通过量油尺、声呐、自动化系统等，连续测量燃油舱来获取燃油消耗量，从而确定报告期内的船用燃料消耗总量，并按公式（1）计算。

This method is based on fuel tank readings for all fuel tanks on-board. Fuel tank readings shall be carried out by appropriate methods such as automated systems, soundings and dip tapes. The basic expression for this method is defined as:

$$Q = Q_1 + Q_2 + Q_3 + \dots + Q_n \dots\dots\dots(1)$$

式中:

Where:

$Q_1$ 、 $Q_2$ 、 $Q_3$ ——报告期内第 1 次、第 2 次和第 3 次通过燃油舱测量获得的燃油消耗量，单位为吨（t）；

$Q_1$ 、 $Q_2$ 、 $Q_3$  are the consumption volume (tonnes) measured for the first, second and third time using bunker fuel oil tank monitoring on board during the reporting period;

$Q_n$ ——报告期内第 n 次燃油舱测量得的燃油消耗量，单位为吨（t）；

$Q_n$  is the consumption volume (tonnes) measured for the Nth time using bunker fuel oil tank monitoring on board during the reporting period;

n——报告期内燃油舱测量总次数。

n is the total times conducting bunker fuel oil tank monitoring during the reporting period.

原则上，应当在每天以及每次加装或驳出燃油时进行燃油舱测量，并在船舶到港或其他可行情况下，对燃油舱测量数据进行校正。如果采用了密度、温度等修正，应当保留证明文件。测量数据概要和燃油消耗记录应当保留在船。

The tank readings will normally occur daily when the ship is at sea and each time the ship is bunkering or de-bunkering. Any corrections, e.g. density, temperature, if applied, should be documented. The summary of monitoring data containing records of measured fuel oil consumption should be available on board.

注：使用气体燃料的船舶不适用该方法。

Note: this method shall not be used when gas is used as a fuel.

### 方法 B. 加油签收单 (BDNs) 加总法

#### Method B: BDN and periodic stock-takes of fuel tanks

这种方法是基于加油签收单 (BDNs)，对报告期内的燃油加装量进行加总，加上前一个报告期的盘存燃油量，再减去燃油驳出量和结转至下一报告期的燃油消耗量，来确定燃油消耗总量，按公式 (2) 计算。

This method is based on the quantity and type of fuel as defined on the BDN combined with periodic stock-takes of fuel tanks based on tank readings. The fuel at the beginning of the period, plus deliveries, minus fuel available at the end of the period and de-bunkered fuel between the beginning of the period and the end of the period together constitute the fuel consumed over the period. The basic expression for this method is defined as:

$$Q = Q_b + Q_d - Q_c - Q_e \dots\dots\dots(2)$$

式中：

Where:

$Q_b$ ——报告期初的燃油舱存量，单位为吨 (t)；

$Q_b$  is the volume of fuel (tonnes) at the beginning of the period;

$Q_d$ ——加油签收单 (BDNs) 记载的加油量，单位为吨 (t)；

$Q_d$  is volume of deliveries recorded by the BDNs;

$Q_c$ ——油类记录簿记载的燃油驳出量，单位为吨 (t)；

$Q_c$  is the volume of de-bunkered fuel recorded by the oil record book;

$Q_e$ ——报告期末的燃油舱存量，单位为吨（t）。

$Q_e$  is the volume of fuel available at the end of the period.

加油签收单（BDNs）须在船上保存至少 3 年。

The BDN is to be retained on board for three years after the delivery of the bunker fuel and is to be readily available.

为确定舱内燃油余量在报告期前后的差异，应在报告期开始和结束时进行燃油舱测量。任何用于最终区分燃油舱存油量的补充数据应保留书面证明。

The periodic stock-take of fuel tanks on-board is based on fuel tank readings. It uses tank tables relevant to each fuel tank to determine the volume at the time of the fuel tank reading.

燃料驳出量应与油类记录簿中的记载相符。

The amount of any fuel oil offloaded should be based on the records of the ship's oil record book;

如果船舶按航次收集数据，且航次跨越不同报告期的，则所收集的数据应计入航次结束时间所在的报告期。

In the case of a voyage that extends across the data report period, the data should be allocated to the report period in which the voyage finished.

如果船上无加油签收单（BDNs），不适用此方法；如船载货物（如液化天然气）用作燃料时，此方法不能单独使用。

This method shall not be used when BDN are not available on board of ships, especially when cargo is used as a fuel, for example, liquefied natural gas (LNG) boil-off.

### 方法 C.燃油消耗流量计法

#### Method C: using flow meters

这种方法基于船舶燃料流量计读数，通过连续读取船舶所有用能设备船用燃料消耗量，对其加总获得报告期内船用燃料消耗总量，按公式（3）计算。

This method determines the annual total amount of fuel oil consumption by measuring fuel oil flows on board by using flow meters. Total fuel oil consumption may be the sum of daily fuel oil consumption data of all relevant fuel oil consuming processes on board measured by flow meters. The basic expression for this method is defined as:

$$Q = Q_{d1} + Q_{d2} + Q_{d3} + \dots + Q_{dn} \dots\dots\dots(3)$$

式中:

Where:

$Q_{d1}$ 、 $Q_{d2}$ 、 $Q_{d3}$ ——报告期内第 1 次、第 2 次和第 3 次使用船舶燃料流量计测得的船用燃料消耗量, 单位为吨 (t) ;

$Q_{d1}$ 、 $Q_{d2}$ 、 $Q_{d3}$  are the volume of fuel monitored using flow meters for the first, second and third time during the reporting period.

$Q_{dn}$ ——报告期内第 n 次使用船舶燃料流量计测得的船用燃料消耗量(t)。

$Q_{dn}$  is the *consumption volume (tonnes) measured for the Nth time using flow meters during the reporting period;*

原则上, 应在每天以及每次加装或驳出燃油时记录船舶用能设备的流量计读数并计算船用燃料日消耗量, 并在船舶到港或其他可行情况下, 对流量计测量数据进行校正。

Reading of the flow meters normally should be recorded daily and each time the ship is bunkering or de-bunkering. Any corrections, e.g. arrival at port or other circumstances if applicable, should be documented.

如果某些用能设备未配备船用燃料流量计或所配备的流量计发生故障, 应采用其他替代方法进行数据收集。对于所采用的任何替代方法, 以及对流量计所进行的校正和保养, 应如实记录, 并将记录保留在船上。

In case of the breakdown of flow meters, manual tank readings or other alternative methods will be conducted instead. Any alternative methods, corrections or maintenance should be documented, and be available on board.