Recent Developments in IMO and ISO

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International Maritime Organization (IMO)

- The International Maritime Organization, a Specialized United Nations Agency, in charge of maritime issues.
- Established in 1958, and based in London.
- Member States:171. Associate Members: 3. IGOs: 65. NGOs: 77.
- Adopted SOLAS, MARPOL, BWMC, etc, and responsible for more than 50 conventions.

IMO functions

International Maritime Organization (IMO)

Conference of Parties of a Convention, General Assembly, Council, Committees, Sub-Committees

■Negotiate, Finalise and Adopt various Convention texts.

■Develop and Adopt Guidelines (mandatory or voluntary), which assist the implementation of each Convention.

Participate in IMO meetings **with voting right**

Member States | Member States | Member States | Member States

Participate in IMO meetings with observer/consultative status, but **without voting right**

IGOs, NGOs

NGOs are required to demonstrate its capabilities and to receive the approval by the IMO Council.

Main outcomes at MSC 96

The 96th session(MSC 96) was held on 11 - 20 May 2016.

Main outcomes:

- Construction rules were verified as conforming to goal-based standards (GBS).
- Cyber security - interim guidelines was approved.
- Passenger ship regulations on damage stability - amendments were approved.

Construction rules verified as conforming to goal-based standards (GBS)

Background

MSC 87 adopted the relevant instruments, including SOLAS amendments, of GBS to prevent large scale accidents such as breakage of large oil-tankers

Application & Requirement

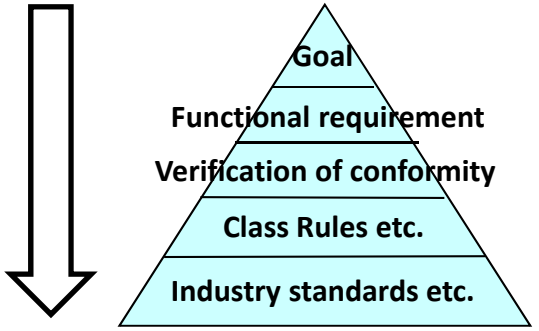
Construction rules applied to **oil-tankers and bulk carriers of 150m in length and above**, for which the building contract is placed on or after 1 July 2016, shall conform to GBS.

- **Construction rules conforming to GBS required to be verified by 1 July 2016.**

Breakage of MV Prestige (Nov. 2002)

What is the GBS (Goal-Based Standards)?

GBS is the top-down regulatory approach in which the "Goals" to be met and "Functional requirements" which are criteria to be satisfied in order to conform to the goals are established by the Organization, and consequently specific class rules to achieve the functional requirements are also required.
IMO defines the Goal that "ship shall be designed and constructed for a specified design life to be safe and environmental friendly", and establishes fifteen functional requirements with respect to design life, structural strength, fatigue life and protection against corrosion etc.



Verification of conformity of each classification society's rules by IMO.

- In December 2013, IACS and its associated twelve classification societies submitted each construction rules including IACS common structural rule (CSR) to IMO for verification of conformity.
- **At MSC 96, the Committee decided that the current construction rules used by IACS and its associated twelve class societies were verified as conforming to GBS.**

Cyber security - interim guidelines

Back ground

- Introduction of cyber systems has been proceeding in maritime field in line with recent developments of Information Technology (IT).
- On the other hand, it was reported that cyber attacks to vulnerabilities of cyber systems are occurred on the land basis. Accordingly it is required to consider cyber security measures for similar threats in the maritime field.

Outcome of discussion

- MSC 96 made a discussion on this matter based on two draft guidelines proposals, by BIMCO and US et al, and then concluded and approved the interim guidelines which are voluntary and include background information, functional elements and best practices for effective maritime cyber risk management.

Key elements of interim guidelines

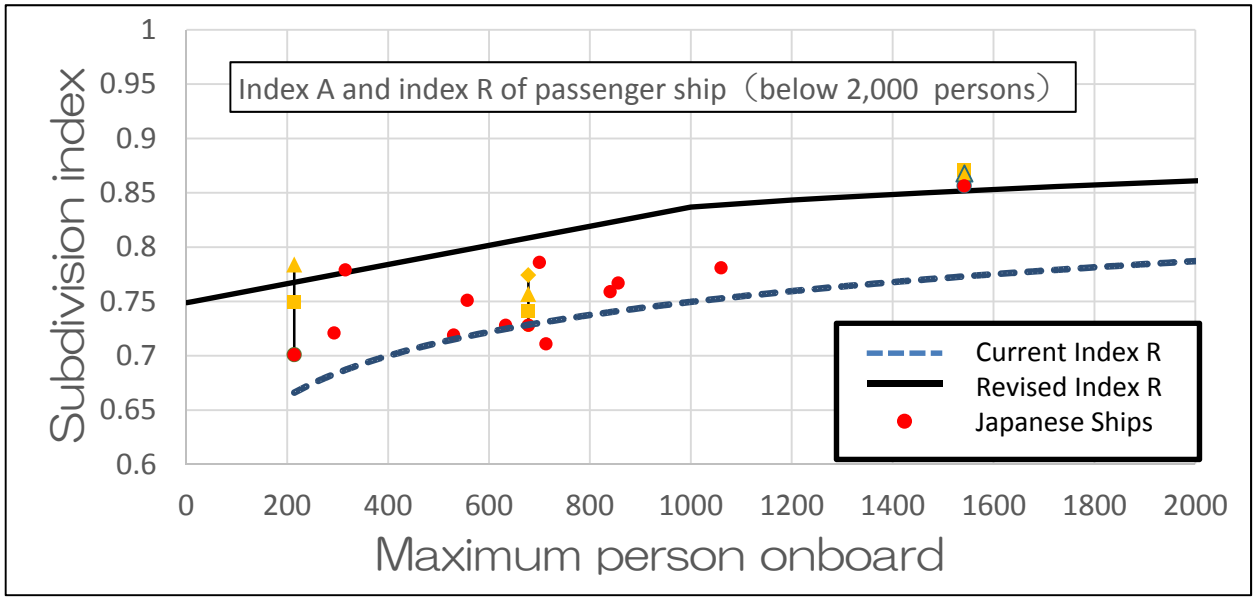
Identify: Develop cyber risk management and identify the systems etc. that, when disrupted, pose risks to ship operations.
Protect: Implement risk control processes and measures and ensure continuity of shipping operations.
Detect: Develop and implement activities necessary to detect a cyber event.
Respond: Develop and implement activities and plans to provide resilience and to restore necessary systems impaired due to a cyberevent.
Recover: Identify measures to back-up and restore cyber systems necessary for shipping operations impacted by a cyberevent.

Passenger ships – Damage stability

Discussion in IMO

1. In response to Costa Concordia incident, IMO recognizes the necessity of enhancement of damage stability requirement for passenger ships.
2. At SDC 3 in January 2016, revised “required subdivision index (index R)” was developed as a compromise amongst several proposals and then it was agreed.
3. At MSC 96 in May 2016, the Committee approved amendment to SOLAS Ch.II-1 ,including the revised “required subdivision index (index R)”.
4. The amendment to SOLAS Ch.II-1 is to be adopted at MSC 97 in November 2016 with the aim of entry into force in 2020.

MV “Costa Concordia” incident (Jan. 2012)



- “Attained subdivision index (Index A)“ is probability of survival in case of flooding which is total value of probabilities of survival of all flooding cases.
- “Required subdivision index (index R)” is required probability of survival of ship.

Modification proposal on index R for passenger ships

MLIT
Ministry of Land, Infrastructure, Transport and Tourism

Background

- As an aftermath of Costa Concordia accident in 2012, International Maritime Organization (IMO) has considered strengthening of damage stability standards (required subdivision index R) for passenger ships.
- The draft amendments to the International Convention for the Safety of Life at Sea (SOLAS) to strengthen the requirements of damage stability for passenger ships will be adopted at the 97th session of the Maritime Safety Committee (MSC 97), which will be held during November 21-25, 2016 in London.

Costa Concordia accident in 2012

Views of Japan, et al.

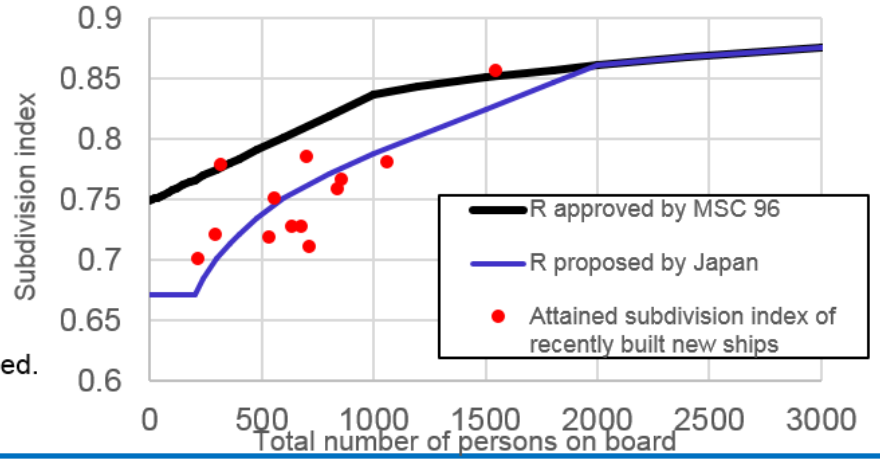
- Any fatal accident caused by insufficient damage stability have not recently reported as far as ships built in 2009 or after which comply the current damage stability requirements are concerned.
- Cost benefit assessment conducted by Japan showed that the draft amendments would not be cost-effective for small passenger ships.

Influence of increasing of required subdivision index R

- Alteration of ship design would be needed. However, it would cause problems such as un-fitness of positions between ramp ways or embarkation passage ways and port facilities, increasing of light weight of ships which leads to increasing of emission of GHG, etc.
- Reduction of the number of persons onboard would be needed. However, the reduction would be significant, such as from 1,050 to 370 or from 850 to 200.

Proposal to MSC 97

- Japan, et al. have developed a modified formula for the required subdivision index R.
- In light of the data of the attained subdivision index A of recently built new ships in Japan, the modified formula would be practical.
- Your support to the submission is necessary.



Subdivision index is the probability that a ship does not capsize after flooded.
Attained subdivision A must be larger than Required subdivision index R

Main outcomes at MEPC 70

The 70th session(MEPC 70) was held on 24 - 28 October 2016.

Main outcomes:

- Adoption of *mandatory* data collection system of fuel consumption (DCS).
- Initial EEDI Review was completed, and 20% reduction rates for Phase2 (2020-24) are retained, except for Ro/Ro and Ro-Pax, both of which are subject for further consideration.
- Minimum Propulsion Power Guidelines will be discussed for revision at MEPC 71 next May.
- Roadmap for developing a Comprehensive Strategy for Reduction of GHG emissions from ships – was agreed. The Initial Strategy is to be adopted in 2018, with a view to revision in 2023.
- Global cap of sulphur contents (0.5%) starts in Year 2020. For Nox Tier III, the Baltic Sea and Noth Sea were approved for new ECAs.
- Ballast Water Management Convention will enter into force on 8 September 2017.

Data Collection System of fuel Consumption

Ships

International voyage
5000 GT or more

- Amend SEEMP to incorporate ship-specific data collection methodology
- Collect the following annual data and report these to Flag States or RO
  - Fuel consumption
  - Distance sailed
  - Hours
- IMO identification number, GT, NT, DWT, Engine power, etc also to be reported

Annual data

Statement of Compliance

Flag State or RO

- Verify the amended SEEMP
- Receive the data from ships
- Issue Statement of Compliance

Report

IMO

Ship fuel consumption database

- Receive the data globally from Flag State and RO, and make available the report to MEPC.

Accurate energy efficiency data in actual sea conditions may be gathered for the first time ever!

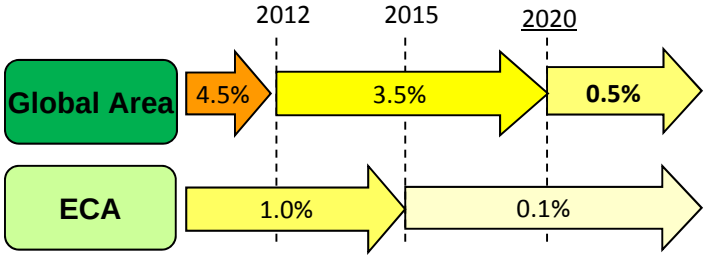
Expected Schedule

October 2016	Adoption of amended MARPOL Annex VI at MEPC70
March 2018	Entry into force. Verification of SEEMP may start.
January 2019	Start Data collection for the first year
March 2020	First reporting from ships to Flag States or RO
July 2020	First reporting from Flag states or RO to IMO

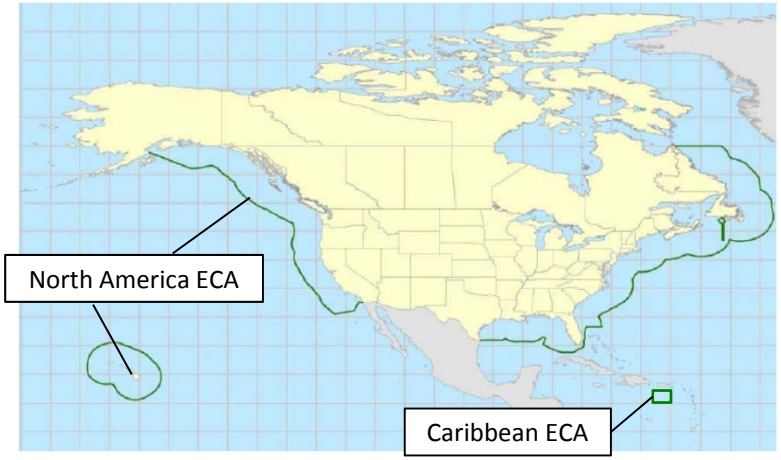
Sulphur content limits within fuel oil

Sulphur content limits within fuel oil under MARPOL Annex VI

- The limitation values are to become more stringent on a step by step basis, in Global area and Emission Control Area: ECA (North America, Caribbean, North Sea and Baltic Sea) respectively.
- **Implementation schedule of 0.5% limit in global area was discussed at MEPC 70 and decided as 2020, based on the IMO report on fuel availability.**
- As alternative means for burning fuel oils of less than 0.5%, installation of scrubbers or operation of LNG fuel ships could be made globally.



North America, Caribbean ECA

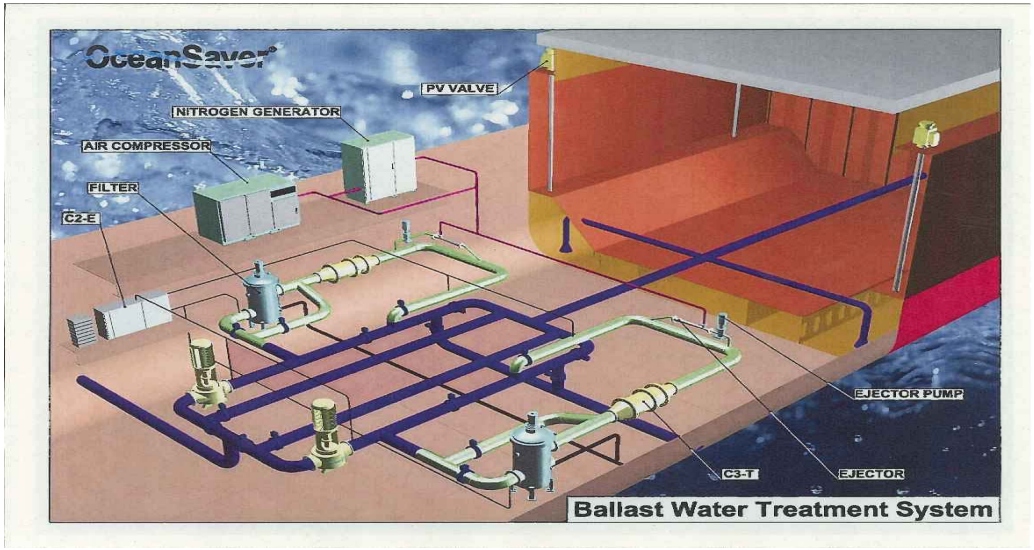


North Sea, Baltic Sea ECA

Ballast Water Management Convention

- Condition for entry into force was met by ratification by Finland, and accordingly BWM Convention takes into effect on 8 September 2017.
- At IMO General Assembly meeting in 2013, it was adopted that the installation timings of ballast water management systems for existing ships be set at those at the first renewal survey of IOPP certificate after the entry into force of BWM Convention. Proposals to relax further this deadline were made at MEPC 70, and a final decision is to be made at MEPC 71 in May 2017. On whichever the decision is, it is expected that a significant amount of installation works for existing ships will be emerged for some years after its entry into force.

Installation work of BWMS for retrofitting



Example of the BWMS

ISO/TC8

- Majority of ISO standards for the maritime industry has been dealt with in TC8, Ships and marine technology.
- Total number of published ISO standards related to the TC8 and its SCs are 295 so far.
- Participating countries (P-member countries) are 21 including China, India, Japan and Republic of Korea.
- Observing countries (O-member countries) are 28 including Indonesia, Malaysia, Thailand and Viet Nam.

Structure of ISO/TC8

Ships and marine technology (TC 8)
Chairman: Dr. Yanqing Li (China)
Vice Chairman: Mr. Robin Townsend (UK)
Secretariat: China and Germany

- Life saving and fire protection (TC8/SC1)
- Marine environmental (TC8/SC2)
- Piping and machinery (TC8/SC3)
- Outfitting and deck machinery (TC8/SC4)
- Navigation and ship operations (TC8/SC6)
- Inland navigation vessels (TC8/SC7)
- Ship design (TC8/SC8)
- Intermodal and Short Sea Shipping (TC8/SC11)
- Ships and marine technology - Large yachts (TC8/SC12)
- Marine technology (TC8/SC13)

- Special offshore structures and support vessels (TC8/WG3)
- Anti-piracy (TC8/WG4)
- Maintenance of 28000 Series Without 28007 and 28005 (TC8/WG5)
- ISO 30001 Draft and Maintenance of 30006 and 30007 (TC8/WG6)
- ISO 28005 Maintenance (TC8/WG7)
- Liquid and gas fueled vessels (TC8/WG8)
- Polar (Arctic/Antarctic) regions (TC8/WG9)
- Smart Shipping (TC8/WG10) — Renewal
- Dredgers (TC8/WG11)
- Aquatic Nuisance Species (TC8/WG12) — NEW

Several key ISO Standards under development for shipbuilders

1. Measurement, evaluation and reporting of vibration with regard to habitability on ships
2. Measurement of changes in hull and propeller performance
3. Model test method for propeller cavitation noise evaluation in ship design
4. Ship–shore open platform for Ship IoT

1. Measurement, evaluation and reporting of vibration with regard to habitability on ships

What is this standard for?

To quantify vibration with regard to habitability on board ships with intended voyages of 24 hours or more

What is written?

Instrumentation and the procedure of measurement, analysis specifications, and guideline values for evaluation

Which value to be cared?

Overall frequency-weighted r.m.s. vibration values in the frequency range 1 Hz to 80 Hz are given as guideline values for different occupied spaces on ships

ISO 6954:2000

Pairs of lower and upper values

To represent the range of commonly accepted vibration magnitude

Under the initiative of DNV/GL, revision work started in 2014, and will be finished soon.

ISO/FDIS 20283-5 (Expected to be published as ISO 20283-5 in early 2017)

One maximum value only

To give clearer indication when this standard is referred to in commercial contracts

ISO 20283-5 will supersede ISO 6954:2000

Is the maximum values appropriate to common merchant ship designs?

New proposal (ISO21984) made by JSTRA cooperation with SAJ and ASEF is at present for subject to NP voting by 2 December 2016.

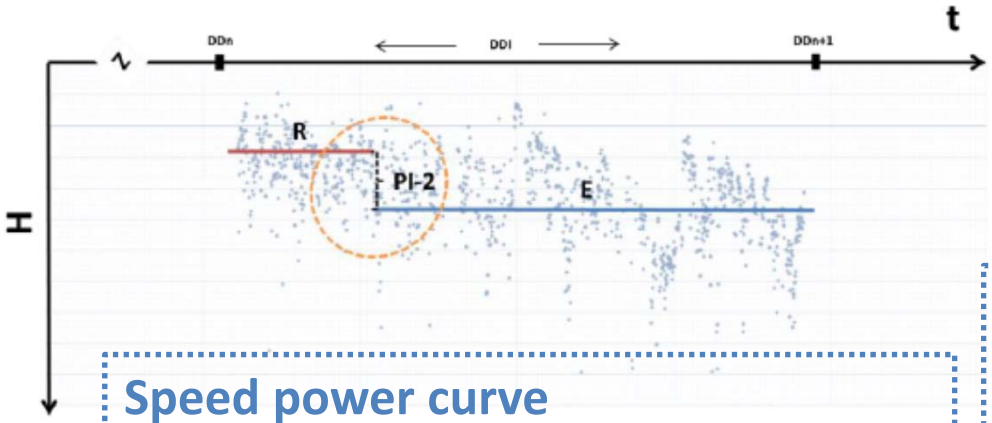
This is to give supplementary for users to construct these merchant ships

2. Measurement of changes in hull and propeller performance

What is the aim of this standard?

- To prescribe practical methods for measuring changes in ship specific hull and propeller performance
- To define a set of relevant performance indicators for hull and propeller maintenance, repair and retrofit activities
- BUT, not for comparing the performance of ships of different types and sizes (including sister ships)
- ALSO not to be used in a regulatory framework

Proposed by Jotun (Norway) in 2013 and intensively discussed in ISO/TC8/SC2/WG7



Engine power

Either shaft power or brake power is equally used for calculation

Uncertainty

Uncertainty of performance indicators are calculated as ±0.3% for a year comparison and ± 0.5% for 3 months

Speed power curve

Speed loss (%) is defined by speed power curves and its procedures are described in detail with the assistance of SAJ

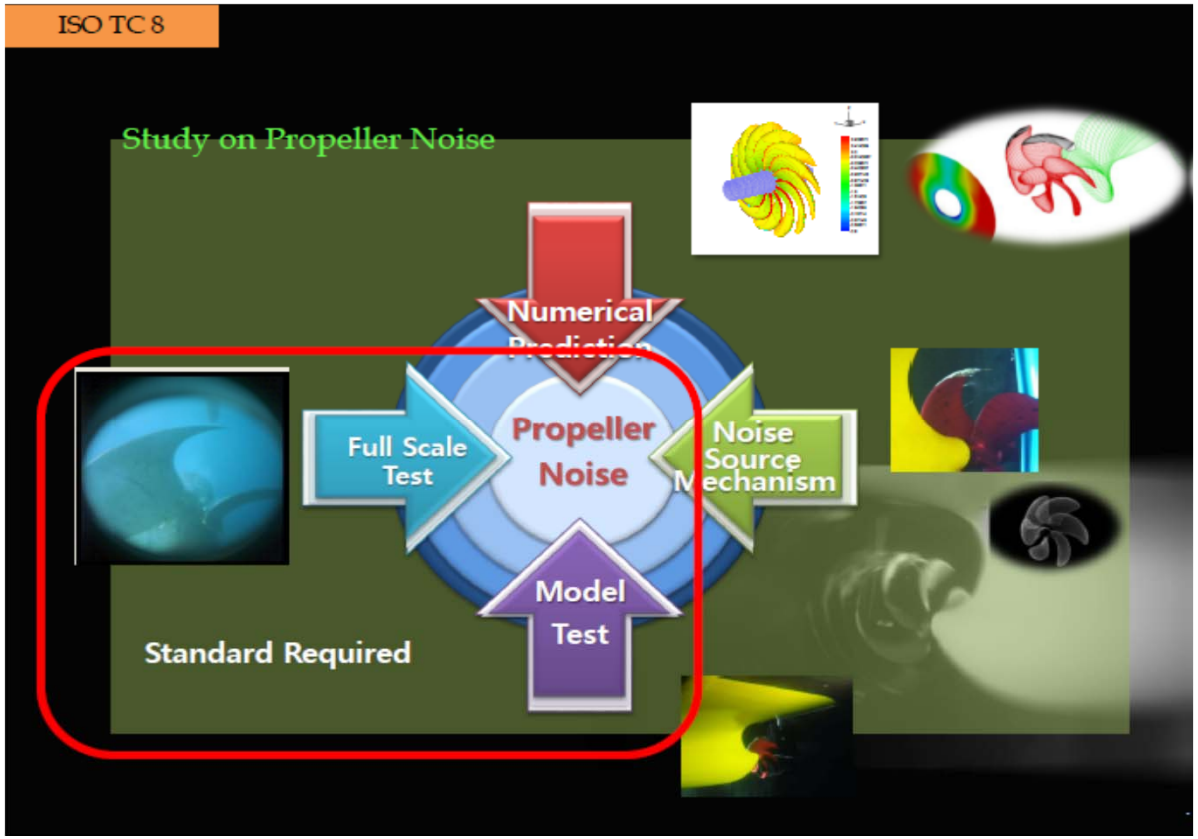
ISO 19030 Part 1 - 3 to be published soon

3. Model test method for propeller cavitation noise evaluation in ship design

Under development!

What is the aim of this standard (ISO 20233)?

- To specify a model test method for propeller cavitation noise evaluation in ship design.
- To describe the test set-up and conditions to reproduce the cavitation patterns of the ship based on the similarity laws between the model and the ship.
- To evaluate noise in full scale, utilizing empirical formula accompanied with experimental / computational methods such as CFD can be one option.



Contents of ISO20233

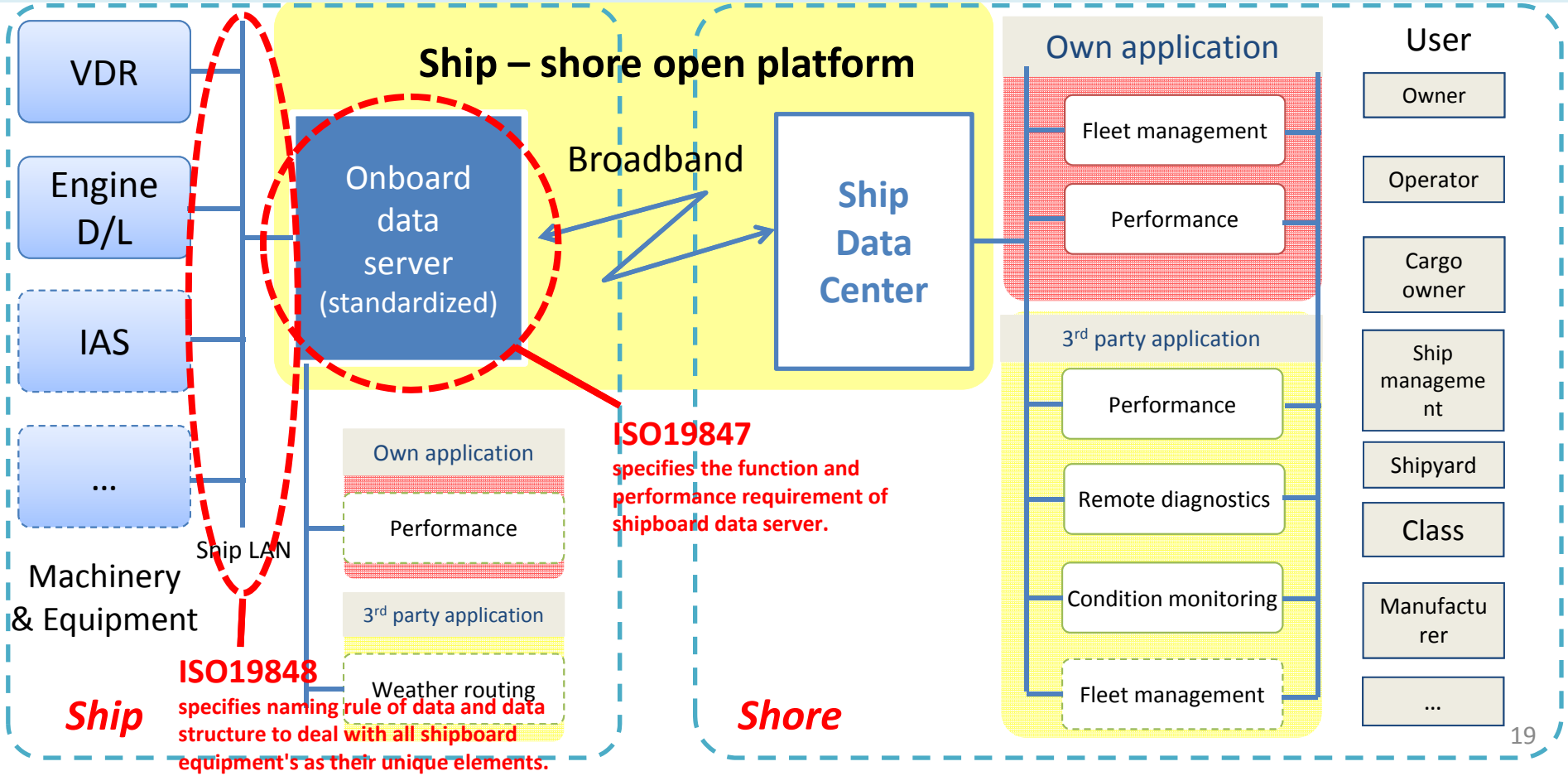
1 Scope
2 Normative references
3 Terms and definitions
4 Model test setup and conditions
5 instrumentation
6 Noise measurement procedure
7 Post processing and scaling
8 Uncertainty
Annex A (informative) Wake extrapolation methods
Annex B (informative) Uncertainty assessments
Bibliography

4. Ship–shore open platform for Ship IoT

Under development!

What is the aim of these standards (ISO19847 and ISO 19848)?

- To support IoT application services to access ship equipment data easily and enhance more application services development.
- To provide good security and access control to enhance cooperation with industry partners for utilizing Ship IoT data.
- To utilize IoT application services to achieve optimum ship operation in terms of safety and energy efficiency.



THANK YOU FOR YOUR ATTENTION.