4th Asian Shipbuilding Form

China shipbuilding and new request of protection against noise on board ships

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1. Introduction

- Noise on board ships is not only harmful to health of crew and passengers in ships, but also disturbing to communication and navigation systems.
- IMO(International Maritime Organization) issued the resolution A.468(XII) on noise levels limits on board ships in 1981.
- 27 member countries of EU submitted File MSC83/25/13 to MSC83 Meeting in 2007

1. Introduction

- They postulated to set up new items of protection against noise in ships for promoting control of ship noise level and implementation of the new items compulsorily, and the proposal will be discussed in meeting DE53 holding in 2010.

1. Introduction

- Comparing to the resolution A.468(XII), noise levels limits on board ships in the proposal DE53/10 are listed in the following table.

Noise Level Limits		
	Resolution A.468（XII）	Proposal DE53/10
Machinery spaces(continuously manned)	90dB(A)	85dB(A)
Machinery spaces (not continuously manned)	110dB(A)	105dB(A)
Machinery control rooms	75dB(A)	70dB(A)
Workshops	85dB(A)	80dB(A)
Listening posts, navigation bridge	70dB(A)	70dB(A)
Cabins and hospitals	60dB(A)	55dB(A)
Mess rooms	65dB(A)	65dB(A)
Recreation rooms	65dB(A)	65dB(A)
Open recreation areas	75dB(A)	70dB(A)
Sound Insulation Limits		
Cabin to cabin	la>30 dB	la>35 dB
Mess rooms to cabins and hospital	la>45dB	

1. Introduction

- From the above table it can be seen that for most of areas in ships the revised noise level limits have be reduced by 5 dB, and sound insulation limits have be raised by 5 dB.
- Referring to the resolution A.468（XII）,China has established standards on noise control about marine ships and channel boats, such as GB5979-86 and CCS-1，2，3.The proposal DE53/10 may influence the development of Chinese shipbuilding .

2. Noise on board Chinese ships and attitude for new IMO/ DE request

According to the measured results of noise on board ships, most of large ships built by national shipbuilding companies can satisfy the requirement on noise limits in the proposal DE53/10 ,except that 55dB(A) in the accommodation is difficult to achieved.

2. Noise on board Chinese ships and attitude for new IMO/ DE request

The original 60dB(A) is suggested to be kept in the new proposal. And the new codes on noise limits should be applied to new-built ships after the new codes is put into effect.

3.Ship acoustic design and techniques of noise control in China

- Ship noise control is a systemic engineering ,which requires the all-round control on noise source and propagation paths. Enough attention should be paid on the design stage as well as in the manufacturing process.

3.Ship acoustic design and techniques of noise control in China

- During the design stage, low noise machinery and power plants should be adopted, and propeller should be well-designed so as to delay occurrence of cavitation.
- The layout of compartments should be reasonable so that cabins having higher requirement for low noise level were located far away from the noise sources, such as diesel engine and the stern part of a ship.

3.Ship acoustic design and techniques of noise control in China

- Noisy machinery should be installed resiliently using one-stage or two-stage insulating of vibration.
- On the inner surfaces of the cabin wall sound-absorbing material can be layed , and silencers can be installed in the inlet and outlet of ventilating systems.

3.Ship acoustic design and techniques of noise control in China

- In order to obtain low noise level, a number of calculations could be performed to predict noise level in some typical cabins above the main diesel engine installation and at various decks. If the calculated results are not satisfactory, more measures to reduce noise should be considered.

4. Conclusion

- As a whole the Proposal DE53/10 is acceptable, but some noise limits seem to be too strict and should be loosened. Ship noise control as a systemic engineering should be considered through the design stage and the manufacturing process.