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Harmonic Distortion for Ship Electrical Distribution

System including Harmonic Filters and Requirements

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اعوجاج هارمونیک، شامل فیلترهای هارمونیک، برای

سیستم توزیع برق کشتی و الزامات آن

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**All respectful ICS' Customers/ Surveyors
With Gratitude,**

Accordingly, the requirement which has been introduced by IACS (UR E24) to monitor and record the harmonic distortion levels occurring within the ship's electrical power system has been sent as technical information.

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- What is the use of harmonic filter?

Three-phase harmonic filters are shunt elements that are used in power systems for decreasing voltage distortion and for power factor correction. Nonlinear elements such as power electronic converters generate harmonic currents or harmonic voltages, which are injected into power system.

- Purpose

In order to detect deterioration in the harmonic filters at an early stage, a new requirement has been introduced by IACS (UR E24) to monitor and record the harmonic distortion levels occurring within the ship's electrical power system. Early detection of any deterioration of harmonic filter components would minimize the risk of catastrophic failure occurring that could be dangerous both for persons (fatalities and injuries) and for the ship (blackout, fire or explosion). Therefore, it is essential to carry out regular harmonic distortion measurements, to detect an incipient failure and allow corrective actions to be taken.

For vessels where harmonic filters are fitted, the harmonic distortion level is to be measured annually under seagoing conditions and after any modification to the electrical distribution system or associated consumers.

Vessels contracted for construction on or **after 1 July 2017** are to be equipped with means to continuously monitor the level of harmonic distortion.

Vessels contracted for construction **before 1 July 2017** that are not equipped with facilities to continuously monitor the level of harmonic distortion may use temporarily installed measurement equipment. This equipment, used under seagoing conditions by suitably qualified and trained personnel, is to be able to monitor the harmonic distortion on the main bus bars when the greatest amount of distortion is occurring

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