GUIDELINES CHANGE NOTICE No.1

Part 4 Special Equipment and Systems

GUIDELINES FOR CERTIFICATION OF LOADING COMPUTER SYSTEM

Volume 1

April 2023

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Foreword

This Guidelines Change Notice (GCN) No.1 gives new additions and amandments to the “Guidelines for Certification of Loading Computer System (Pt.4, Vol.1), Edition 2021” along with the effective dates from which these changes are applicable.

Amendments to the preceding Edition are marked by strikethrough, red color, and expanded text. These new additions and amendments are to be read in conjunction with the requirements given in the Edition 2021 of the Guidelines.

The summary of current amendments for each section including the implementation date are indicated in *Table 1 - Amendments Incorporates in This Notice.*

This GCN is available to be downloaded at www.bki.co.id. Once downloaded, this GCN will be uncontrolled copy. Please check the latest version on the website.

Further queries or comments concerning this Rules are welcomed through communication to BKI Head Office.

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Guidelines Changes Notice No. 1 – April 2023

Table 1 – Amendments Incorporates in This Notice

These amendments will come into force from 1st July 2023 unless specify otherwise below

Paragraph	Title/Subject	Status/Remark
Section 1 – Loading Computer System		
D.1	Note	Deleted reference for IACS Interpretation
F.2.5.1	Note	Add new note for explanatory notes to SOLAS II-1 Regulation 5.4 (resolution MSC.429(98)/Rev.1 and Rev.2) / IACS UI 297

Section 1 Loading Computer System

D. Types of Stability Software

1. Four types of calculation performed by the stability software are acceptable depending upon a ships's stability requirements:

- Type 1:

  Software calculating intact stability only (for Ships not required to meet a damage stability criterion)

- Type 2:

  Software calculating intact stability and checking damage stability on basis of a limit curve (e.g. for Ships applicable to SOLAS Part B-1 damage stability calculations, etc.) or checking all the stability requirements (intact and damage stability) on the basis of a limit curve.

- Type 3:

  Software calculating intact stability and damage stability by direct application of pre-programmed damage cases based on the relevant Conventions or Codes for each loading condition (for some tankers etc.)

- Type 4

  Software calculating damage stability associated with an actual loading condition and actual flooding case, using direct application of user defined damage, for the purpose of providing operational information for safe return to port (SRtP).

Damage stability of both Type 3 and Type 4 stability software shall be based on a hull form model, that is, directly calculated from a full three-dimensional geometric model.

(IACS UR L5.3)

Note:

For an oil tanker, chemical tanker or gas carrier, if damage stability limit curves are not available in the approved stability documentation, Type 3 Stability Software shall be installed and used for the on board Computer. If damage stability limit curves are available in the approved stability documentation, Type 2 Stability Software may be installed and used for the on board Computer. Regardless of the Type of Stability Software installed and used for the on board Computer, the stability Software shall be subject to the examination and ship specific acceptance by BKI.

~~(IACS Interpretation)~~

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F. Acceptable Tolerances

2. With regard to Stability

2.5. Programs which use hull form models

2.5.1. Programs which use hull form models as their basis for stability calculations, shall have tolerances for the printouts of basic calculated data established against either data from the approved stability information or data obtained using the approval authority's model. Acceptable tolerances shall be in accordance with Table 1.2

(IACS UR L5.5.2)

Table 1.2. Acceptable Tolerance for stability Aspect

Hull Form Dependent	
Displacement	+/- 2%
Longitudinal center of buoyancy (LCB), from AP	+/- 1% / 50 cm
Vertical center of buoyancy (VCB)	+/- 1% / 5 cm
Transverse center of buoyancy(TCB)	+/- 0.5% of B / 5 cm
Longitudinal center of flotation (LCF), from AP	+/- 1% / 50 cm
Moment to trim 1 cm	+/- 2%
Transverse metacentric height	+/- 1% / 5 cm
Longitudinal metacentric height	+/- 1% / 50 cm
Cross curves of stability	+/- 5 cm
Compartment dependent	
Volume or deadweight	+/- 2%
Longitudinal center of gravity (LCG), from AP	+/- 1% / 50 cm
Vertical centre of gravity (VCG)	+/- 1% / 5 cm
Transverse center of gravity (TCG)	+/- 0.5% of B / 5 cm
Free surface moment (FSM)	+/- 2%
Shifting moment	+/- 5%
Level of contents	+/- 2%
Trim and stability	
Draughts (forward, aft, mean)	+/- 1% / 5 cm
GMt (both solid and corrected for free surfaces)	+/- 1% / 5 cm
GZ values	+/- 5% / 5 cm
Down-flooding angle	+/- 2°
Equilibrium angles	+/- 1°
Distance from WL to unprotected and weathertight openings, or other relevant point, if applicable	+/- 5% / 5 cm
Areas under righting arm curve	+/- 5% / 0,0012mrad

Notes :

1. *Deviation in % = {(base value-applicant's value)/base value} *100*

   Where the "base value" may be from the approved stability information or BKI computer model

2. *When applying the tolerances in Table 1.2 having two values, the allowable tolerance is the greater of the two values.*

3. *Where differences in calculation methodology exist between the programs used in the comparison, this may be a basis for accepting deviations greater than that specified in Table 1.2 provided a software examination is carried out in sufficient detail to clearly document that such differences are technically justifiable.*

4. *Deviation from these tolerances shall not be accepted unless BKI considers that there is a satisfactory explanation for the difference and that it is clearly evident from BKI's stability calculations that the deviation does not impact compliance with the required stability criteria for the ship under consideration*

(IACS UR L5 Table 1)

Note:

Explanatory Notes to SOLAS II-1 Regulation 5.4 (resolution MSC.429(98)/Rev.1 and Rev.2) read as follows:

1) *When alterations are made to a ship in service that result in calculable differences in the lightship properties, a detailed weights and centres of gravity calculation to adjust the lightship properties should be carried out. If the adjusted lightship displacement or longitudinal centre of gravity, when compared to the approved values, exceeds one of the deviation limits specified in regulation 5.5, the ship should be re-inclined. In addition, if the adjusted lightship vertical centre of gravity, when compared to the approved value, exceeds 1%, the ship should be re-inclined. The lightship transverse centre of gravity is not subject to a deviation limit.*

2) *When a ship does not exceed the deviation limits specified in explanatory note 1) above, amended stability information should be provided to the master using the new calculated lightship properties if any of the following deviations from the approved values are exceeded:*

   1 1% of the lightship displacement; or

   2 0.5% of L for the longitudinal centre of gravity; or

   3 0.5% of the vertical centre of gravity.

   However, in cases when these deviation limits are not exceeded, it is not necessary to amend the stability information supplied to the master.

Amendment of stability information in conjunction with alterations of lightship properties

1. *If the lightweight calculation, regardless of keel laying date, shows a deviation in lightweight mass, or the longitudinal or vertical position of the centre of gravity:*

   a) *beyond any of the tolerance limits specified in the explanatory note 1) to Regulation 5.4 of MSC.429(98)/Rev.1 and Rev.2, then the ship should be re-inclined and the stability information, as defined above, should be updated to reflect the lightship properties derived from the inclining test and approved;*

   b) *within the tolerance limits specified in the explanatory note 1) and any of the deviations specified in the explanatory note 2) to Regulation 5.4 of MSC.429(98)/Rev.1 and Rev.2 is exceeded, then the stability information should be updated to reflect the lightship properties derived from the lightweight calculation and approved; or*

   c) *within the tolerance limits specified in the explanatory note 2) to Regulation 5.4 of MSC.429(98)/Rev.1 and Rev.2, then a copy of the endorsed lightweight calculation report should be provided onboard for future reference with no further amendments required to the stability information.*

   However, even if addition, removal or relocation of any weight results in lightship properties being within tolerable limits, that deviation of lightship properties should be noted in the onboard stability information and applied for all future references and stability/loading calculations.

2. *A summary of point 1 is provided in the following table. Where stability information is to be updated, it shall be approved and provided to the Master with instruction that it should now be used for all stability calculations.*

   (IACS UI SC297)

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