The Directive 2014/90/EU on Marine Equipment (MED) applies to equipment to be placed on board EU-flagged ships. Furthermore, IMO Resolution MSC.302(87) addresses the adoption of a performance standard for Bridge Alert Management (BAM) – this resolution is added as a requirement in MED. However, there is still no test standard in place covering BAM compliance of equipment.

This news describes DNV GL’s interpretation of requirements for BAM compliance.

Background

The following regulations are relevant in this context:

- Directive 2014/90/EU on Marine Equipment Directive (MED) applies to equipment to be placed on board EU ships for which approval (certification) is required.
- IMO Resolution MSC.302(87) addresses the adoption of performance standards for Bridge Alert Management (BAM). This resolution is now introduced as requirement for navigation equipment in MED; see also below.

The technical requirements applicable to a specific type of equipment are specified in implementing acts to the Marine Equipment Directive, issued by the EU as implementing regulations.

The first regulation (EU) 2017-306 entered into force on 16 March 2017. The introduction to section 4 for Navigation Equipment in this regulation states that Resolution MSC.302(87) shall be considered, as applicable, for all navigation equipment. MSC.302(87) has been added as a performance requirement in column 2 of the table in section 4 for most of the equipment listed.

However, no further information or guidance is given in MED or the implementing regulation as to which parts of MSC.302(87) the navigation equipment is expected to comply with.

Furthermore, for the testing standard IEC 62923-1 Bridge Alert Management, operational and performance requirements,
methods of testing and required test results is still under development with a CDV (Committee Draft for Vote) status as per July 2017. It is expected to be issued at the end of 2017 or early 2018.

This news has therefore been prepared to describe DNV GL's interpretation of BAM compliant equipment, and the remainder of this document is in an appendix, which is divided into two parts:

1. Scope for assessment of BAM compliance (based on MSC.302[87])
2. DNV GL's recommended approach to verification of BAM compliance

Recommendations

As there is still no approved testing standard for Bridge Alert Management (BAM) for navigation equipment, DNV GL approval will be based on the procedure specified in the second part of the appendix of this news.

Appendix

- Scope for assessment of BAM compliance (see page 3)
- DNV GL’S approach to verification of BAM compliance (see page 4)

References

- IMO Resolution MSC.302(87) – Adaptation of performance standards from Bridge Alert Management
- IEC 62288 (2014) – Presentation of navigation-related information on shipborne navigational displays – General requirements, methods of testing and required test results

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Appendix 1

SCOPE FOR ASSESSMENT OF BAM COMPLIANCE

Bridge Alert Management in MSC.302(87)

Bridge Alert Management is described in MSC.302(87) as a concept whose purpose is to enhance the handling, distribution and presentation of alerts on the bridge. It further harmonizes the priority, classification, handling, distribution and presentation of alerts to enable the bridge team to devote its full attention to safe operations and to immediately identify any alert situation requiring action to maintain the safe operation of the ship.

The performance standard consists of four parts, Modules A to D:

- Module A - Presentation and handling of alerts on the bridge
- Module B - Central alert management (CAM) functionality
- Module C - Interfacing
- Module D - System and equipment documentation

As Modules A to D describe the full BAM concept, including Central Alert Management (CAM), DNV GL’s interpretation is that only Module A and Module C are considered relevant for equipment interfacing with CAM. More details to Modules A and C is described in the following:

BAM-compliant equipment

BAM compliance is only relevant for equipment that is capable of issuing alerts. To be considered BAM-compliant, equipment should include the correct application and presentation of that stated below, as applicable to the type of equipment:

- Priorities of alerts
  - Alarms
  - Warnings
  - Cautions

- Categories of alerts
  - Category A alerts
  - Category B alerts

- State of alerts
  - Active – unacknowledged
  - Active – silenced
  - Active – acknowledged
  - Active – responsibility transferred
  - Rectified – unacknowledged
  - Active
  - Normal

The status of alerts shall be presented per Table 2 of IEC 62288 (2014). If icons are used, these shall be presented as defined in Annex F of IEC 62288 (2014).

- Interface
  - An interface per IEC 61162-1 (2016) for reporting alerts shall support the following messages:
    - ALF, ALC, ACN, ARC and HBT

The protocol and state diagram for alert-related communication is defined in Annex J of IEC 61924-2 (2012).

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1 The alerts required for a type of equipment are stated in the individual performance and testing standards. Manufacturers may define proprietary alerts in addition. The priorities and categories of alerts to be supported will hence differ for different equipment, but shall follow the criteria and definitions in MSC.302(87).

2 Refer to Annex C of IEC 61924-2 for examples of the classification of alerts defined in existing individual IMO performance standards. Individual equipment standards may require additional alerts to be provided, refer for instance to Annex D of IEC 61174 (2015).

3 Implementing regulation (EU) 2017-306 refers to IEC 61162-1 (2010). ALF, ALC, ACN, ARC and HBT were first defined in IEC 61924-2 (2012) and are now included in IEC 61162-1 (2016). References are therefore made to this version of the standard.

4 Some individual testing standards do not specify any interface for alerts, or specify an interface based on ALR and ACK. As MSC.302(87) takes precedence over conflicting requirements in individual performance standards, support for ALF, ALC, ACN, ARC and HBT is considered to be mandatory for BAM-compliant equipment.
Appendix 2

DNV GL’S APPROACH TO VERIFICATION OF BAM COMPLIANCE

Documentation to be submitted for review

- List of alerts for the equipment.
- The list of alerts shall include the Alert Identifier, Title, Description (if provided), Category and Priority for all alerts to be provided by the equipment. The NMEA talker ID applied for alert communication should be included.
- List of IEC 61162-1 messages that are supported.
- User and installation manuals.

Tests/checks to be carried out on equipment

The following tests/checks are to be carried out on the equipment:

- Inspection of the manufacturer’s documentation (i.e. alert list) to verify that alerts comply with criteria for the classification and categorization of alerts as per definitions in MSC.302(87) and IEC 62288 (2014), and that the alert Title and Description are appropriately formatted using simple unambiguous language providing a clear meaning.
- Verification of the receipt and sending of ALF, ALC, ACN, ARC, HBT messages according to IEC 61162-1 (2016), including the correct use of and response to all message data fields. Refer to B.4.9.1 and B.4.9.2 for check items and examples of test documentation (tables B.4 through B.10).
- Verification of the protocol for alert-related communication, including the state diagram in Annex J of IEC 61924-2 (2012). Protocol tests are to include the following cases, as applicable to the equipment:
  - All alert categories (e.g. category A, category B)
  - All alert priorities (e.g. alarm, warning, caution)
  - All alert state transitions (V, S, A, O, U, N)
  Note: The remote silencing of alerts shall include verification that an audible signal starts again after 30 seconds if the alert is not acknowledged. Repeated attempts to silence the alert should not prevent the recurrence of the audible signal, but repeated silencing is allowed unless otherwise specified in the individual performance standards (e.g. TCS).
  - Alert instance and revision counter
  - Alert escalation of unacknowledged warnings and the correct use of the escalation counter
  Note: Warnings may be escalated to warnings or alarms after a selectable time period not exceeding 5 mins.
  - Attempt to remotely acknowledge a category A alarm and warning
- Verification of the correct presentation of alerts in accordance with IEC 62288 (2014).
  Two of each of the available alerts of priority alarms, warnings and cautions are to be chosen at random for the test.
- Verification of the alert presentation vs the description in the list of alerts.

Note: The Title and Description should be listed in the format as transmitted in ALF to CAM.