

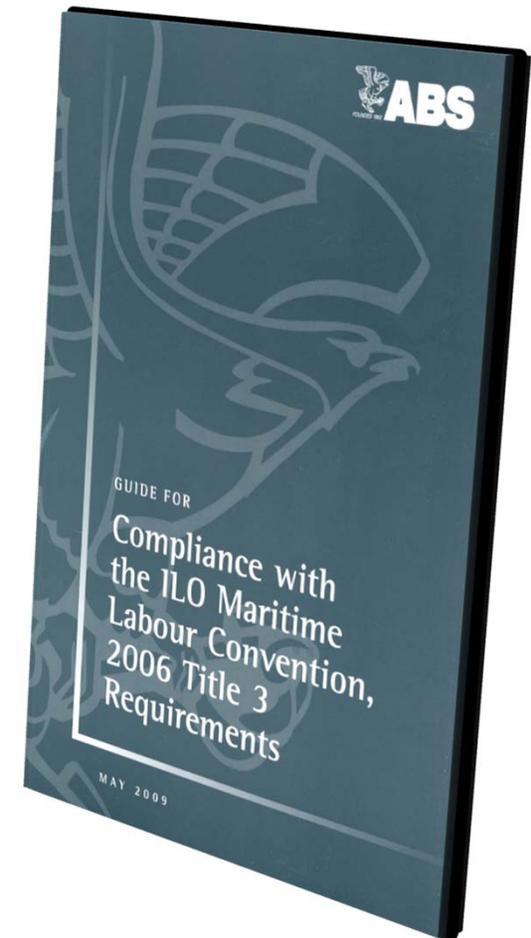


ABS

MLC-ACCOM Notation

Overview of the Guide

- Focuses on five categories of design:
 - Accommodations
 - Vibration
 - Noise
 - Indoor climatic variables
 - Lighting
- Provides the criteria and methodology for obtaining an **MLC-ACCOM** notation



Overview of the Guide

- Does not address managerial or procedural issues (e.g., management system requirements)
- Based on ABS' interpretation of the intent of the ILO MLC 2006 Part A & Part B requirements and on what ABS considers satisfactory compliance with these requirements
- Provides specific criteria for compliance with Part A's subjective (qualitative) requirements

HAB vs. MLC-ACCOM

- HAB
 - Intended to improve crew task performance, safety, habitability and the higher HAB+ and HAB++ levels to increase the quality of life.
 - Accommodation Area Criteria
 - Applicable to accommodation areas and spaces directly connected to Accommodation spaces
 - Ambient Environmental Criteria
 - Applicable to accommodation areas and enclosed workspaces where crew members are present 20 min or more as well as deck areas for lighting
- MLC-ACCOM
 - Intended for safety and health conservation and to provide a habitable environment
 - Accommodation Design and Ambient Environment criteria applicable only to accommodation block (cabins, mess areas, recreational areas, sanitary spaces and laundry)

MLC 2006 vs. MLC-ACCOM

ILO MLC 2006, Title 3	MLC-ACCOM notation
<p>Provides considerable flexibility with the application of the concept of substantial equivalence to the requirements in Part A, as well as flexibility arising from the inclusion of many formerly mandatory requirements in the non-mandatory Guidelines in Part B of the MLC, 2006, Code, which nevertheless must be given due consideration.</p>	<p>Considers all items included in ILO MLC 2006, Title 3, Part A (Mandatory Requirements) and in addition, all items in Part B (Guidelines) are treated as requirements stipulating full compliance. In addition, the MLC-ACCOM notation includes some of additional requirements (beyond what is required by Part A & Part B of ILO MLC 2006).</p>
<p>Contains several vaguely worded requirements relating to ventilation, heating, lighting, vibration & noise providing no quantitative requirements</p>	<p>Provides specific criteria (which are based on international standards) for compliance with ILO MLC 2006 subjective (qualitative) requirements</p>

Accommodations Criteria

- Criteria provided for the following:
 - Berthing
 - Food service
 - Sanitary spaces
 - Recreation
 - Laundry
- Appendix 3 of the Guide contains a list of 87 items to be satisfied which relate to the requirements of Title 3 of the MLC



Accommodations Criteria (Example)

APPENDIX 3 Accommodations Criteria

Instructions: For the **MLC-ACCOM** notation, the requirements under “Meets **MLC-ACCOM** Requirements” must be met. The “General” accommodations criteria is applicable to all Title accommodations areas.

Accommodations Criteria – General		
<i>MLC Requirement</i>	<i>Requirement</i>	<i>Meets MLC-ACCOM Requirements</i>
A3.1.6(a)	<i>There shall be adequate headroom in all seafarer accommodation; the minimum permitted headroom in all seafarer accommodation where full and free movement is necessary shall be not less than 203 centimeters (80 in.); the competent authority may permit some limited reduction in headroom in any space, or part of any space, in such accommodation where it is satisfied that such reduction: is reasonable; and will not result in discomfort to the seafarers;</i>	<input type="checkbox"/>
A3.1.6(b)	<i>The accommodations shall be adequately insulated (insulation relating to noise and indoor climatic variables are addressed in Section 4, “Noise”, and Section 5, “Indoor Climate”)</i>	<input type="checkbox"/>

Vibration Related MLC Requirements

- Regulation A3.1.6(h) states: “accommodation facilities shall meet the requirements in Regulation 4.3,...with respect to preventing the risk of exposure to **hazardous levels of noise and vibration...**”

Note: Reg. 4.3 – Health and safety protection and accident prevention; the purpose is to verify that seafarers’ work environment on board ships promotes occupational safety and health



Vibration Related MLC Requirements

- Regulation 4.3 physical design and arrangement aspects include:
 - A4.3.1(b) “reasonable precautions to prevent occupational accidents, injuries and diseases on board ship, including measures to reduce and prevent the risk of exposure to harmful levels of ambient factors”
 - A4.3.4 “Compliance with the requirements of applicable international instruments on the acceptable levels of exposure to workplace hazards on board ships and on the development and implementation of ships’ occupational safety and health policies and programs shall be considered as meeting the requirements of this Convention.’

MLC-ACCOM Vibration Criteria

- Criteria selected to provide an acceptable level of exposure to vibration
- Limit potential vibration interference with work tasks
- Promote the seafarers living and working conditions
- Vibration limits based on currently available standards and research
- Evaluated using ISO 6954-2000

Maximum Weighted Root-Mean-Square Acceleration Level

Notation	Frequency Range	Acceleration Measurement	Maximum RMS Level	
			Transit Conditions	Dynamic Positioning Conditions
MLC-ACCOM MLC-ACCOM(SPS) MLC-ACCOM(WB)	1 - 80 Hz	a_w	214 mm/s ² (6.0 mm/s)	286 mm/s ² (8.0 mm/s)

Noise Related MLC Requirements

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MLC-ACCOM Noise Criteria

- Criteria based on IMO Resolution MSC.337(91): *Code on noise levels on board ships.*

Noise Criteria

<i>Space</i>	<i>Noise Limit dB(A) Maximum ($< 10,000$ GT)</i>	<i>Noise Limit dB(A) Maximum ($\geq 10,000$ GT)</i>
Accommodation Spaces		
Cabins and hospitals	60	55
Mess rooms	65	60
Recreation room	65	60
Open recreation areas	75	75
Offices	65	60
Service Spaces		
Galleys, without food processing equipment operating	75	75
Serveries and pantries	75	75

Indoor Climate Related Requirements

- A3.1.6(b) states: “accommodations shall be **adequately** insulated”
- A3.1.7(a) states: “sleeping rooms ...mess rooms shall be **adequately** ventilated”



Indoor Climate Related Requirements

- A3.1.7(b) states: “ships, except those regularly engaged in trade where temperate climatic conditions do not require this, shall be equipped with **air conditioning for seafarer accommodation**”
- Regulation A3.1.7(c) states: “**adequate heat** through an appropriate heating system shall be provided, except in ships exclusively on voyages in tropical climates”



MLC-ACCOM Indoor Climate Criteria

- Criteria based on:
 - ANSI/ASHRAE 55a
 - ISO 7726

Summary of Indoor Climate Requirements

<i>Item</i>	<i>Requirement or Criterion</i>
Air Temperature	Air temperature between Winter or Summer: 20 to 27°C (68 to 80°F)
Relative Humidity	A range from 30% minimum to 70% maximum
Air Velocity	Not to exceed 30 meters-per-minute or 100 feet-per-minute (0.5 m/s or 1.7 ft/s)
Air Exchange Rate	The rate of air change for enclosed spaces shall be at least six (6) complete changes-per-hour.

Lighting Related MLC Requirements

- A3.1.6(g) states: “**proper lighting** and sufficient drainage shall be provided”
- A3.1.8 states: “sleeping rooms and mess rooms **shall be lit by natural light** and provided with **adequate artificial light.**”



MLC-ACCOM Lighting Criteria

- Criteria based on:
 - ISO 8995:2000
- Criteria appropriate to meet adequate artificial lighting requirements

Lighting Criteria

<i>Space</i>	<i>Illuminance Level in Lux</i>	<i>Space</i>	<i>Illuminance Level in Lux</i>
<i>Entrances and Passageways</i>			
Interior Walkways, Passageways, Stairways and Access Ways	100	Exterior Walkways, Passageways, Stairways and Access Ways (night)	100
<i>Cabins, Staterooms, and Sanitary Spaces</i>			
General Lighting	150	Bath/Showers (General Lighting)	200
Reading and Writing (Desk and/or Bunk Light)	500	All other Areas within Sanitary Space (e.g., Toilets, Change Room)	200
Mirrors (Personal Grooming)	500	Light During Sleep Periods	<30

ABS MLC-ACCOM Guide Revision (Sept. 2014)

- From 1 Notation to 3 Notations
 - **MLC-ACCOM**
 - **MLC-ACCOM** – for vessels complying with the criteria contained in this Guide relating to Regulation 3.1 of the ILO MLC
 - **MLC-ACCOM(SPS)**
 - **MLC-ACCOM(SPS)** – for special purpose vessels obtaining the ABS **SPS** notation
 - **MLC-ACCOM(WB)**
 - The **MLC-ACCOM(WB)** notation applies to non-SPS vessels (e.g., offshore/platform support vessels, tow boats, anchor handling vessels, etc.) wanting to demonstrate compliance with the ILO MLC with consideration given to specific flag State ILO MLC guidance, as applicable.

ABS MLC-ACCOM Guide Revision (Sept. 2014)

- Whole-body Vibration
 - Updated references to reflect the latest versions of each
 - Added velocity requirements associated with the acceleration criteria
 - Power output changed from 80% of the MCR to contractual service conditions or at least 40% power on thrusters
 - Changed criteria for the selection of spaces where measurements are to be conducted, to be consistent with the requirements from the HAB Guides
 - Added Table for the requirements of the number of measurement positions, dependent upon the size of the space

ABS MLC-ACCOM Guide Revision (Sept. 2014)

- Noise

- Criteria updated to reflect the new IMO Code on Noise (IMO Res. MSC.337(91))
- Added new requirements for noise insulation (reflective of new IMO Code)
- The airborne sound insulation properties for bulkheads and decks within the accommodation shall comply at least with the following weighted sound reduction index (R_w) according to ISO Standard 717-1:1996 as amended (1:2006), part 1:

Cabin to cabin	$R_w = 35$
<u>Messrooms, recreation rooms, public spaces and entertainment areas to cabins and hospitals</u>	$R_w = 45$
<u>Corridor to cabin</u>	$R_w = 30$
<u>Cabin to cabin with communicating door</u>	$R_w = 30$

- The airborne sound insulation properties shall be determined by laboratory tests in accordance with ISO 10140-2:2010

ABS MLC-ACCOM Guide Revision (Sept. 2014)

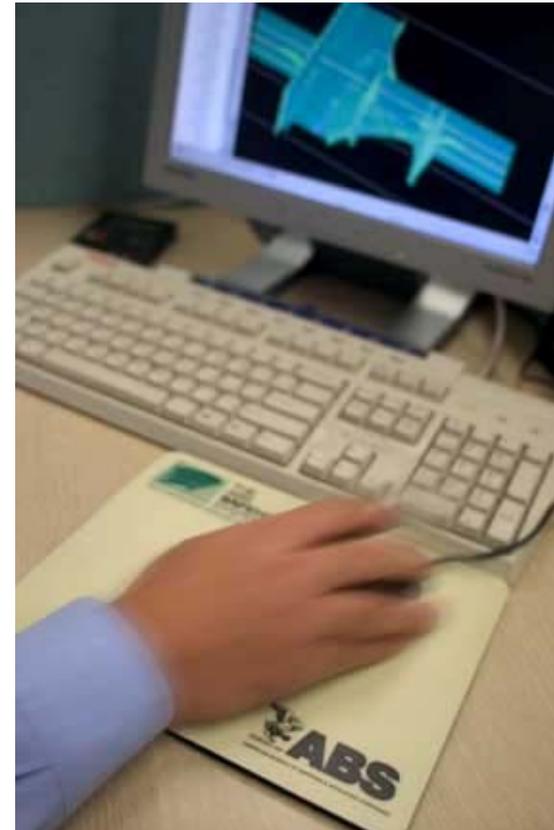
- Indoor Climate
 - Added requirement for testing of air velocity
 - Provided additional clarification for testing of indoor climate while in port
- Lighting
 - Removal of IESNA RP-12 as referenced document
 - Updated lighting requirements to reflect the latest industry standards
 - Included subjective evaluation of glare
 - Included provision for port testing
 - Included new table for distribution of measurement positions
 - Clarification of general areas versus corridor measurements / data analysis

Obtaining an MLC-ACCOM Notation

- For vessels requesting the **MLC-ACCOM** notation, the vessel must meet all the appropriate criteria across the various categories contained in this Guide
- For the **MLC-ACCOM(SPS)** notation, vessels must be awarded (or in the process of being awarded) the ABS Classification Notation of **SPS** and meet all the appropriate criteria in this Guide considering the allowances permitted for special purpose ships as provided in the ILO MLC
- The **MLC-ACCOM(WB)** notation applies to non-SPS vessels (e.g., offshore/platform support vessels, tow boats, anchor handling vessels, etc.) wanting to demonstrate compliance with the ILO MLC with consideration given to specific flag State ILO MLC guidance, as applicable

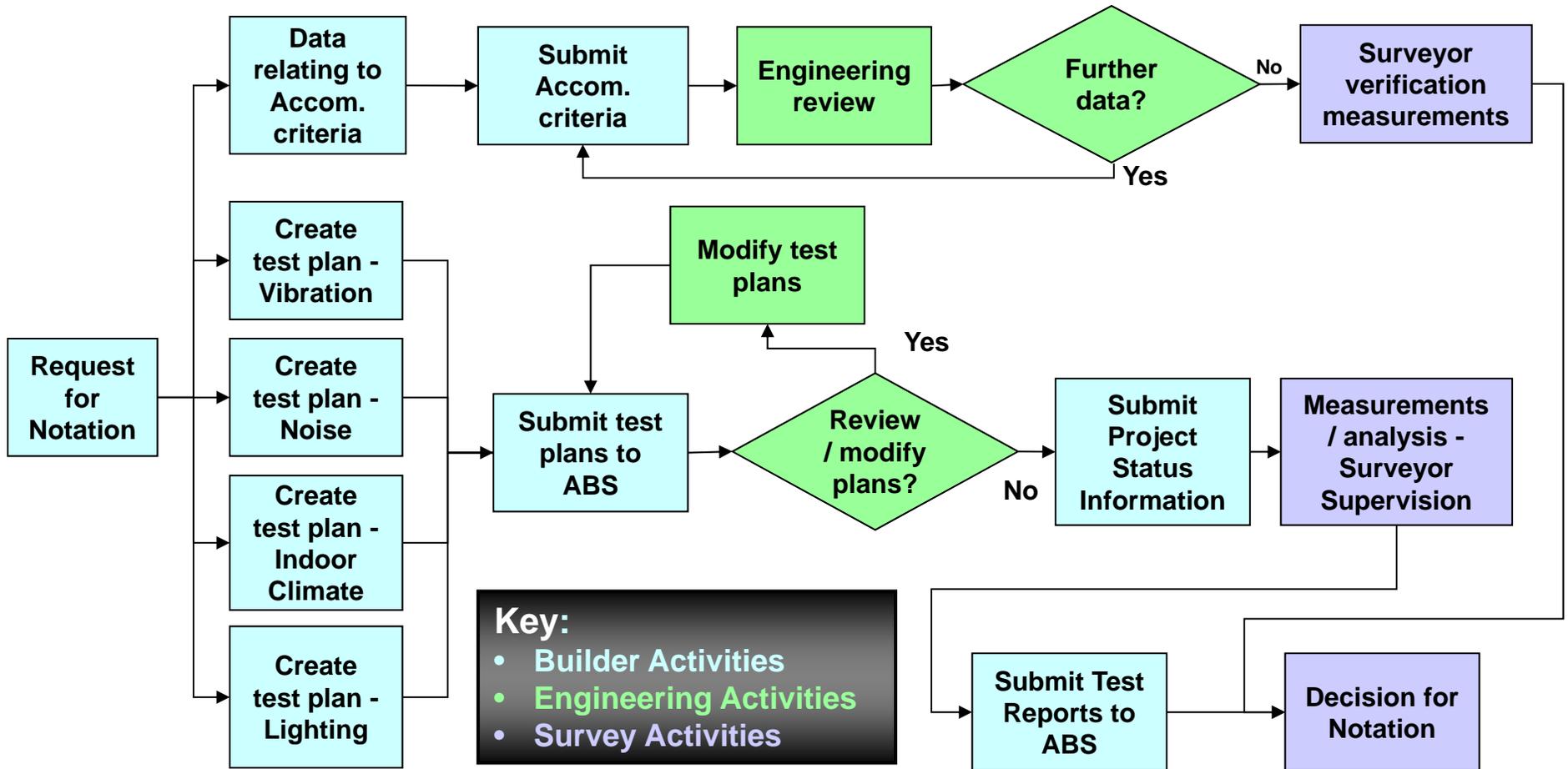
Obtaining an MLC-ACCOM Notation

- ABS Engineering Review
 - Review accommodation drawings and ambient environmental test plans
- ABS Surveyor Verification
 - Verify accommodation construction
 - Witness ambient environmental testing
- Ambient Environmental Testing
 - Testing performed by habitability testing specialist, in accordance with the approved test plans
 - Test reports – subject to ABS review and retain as part of ship's official documentation



Vessel shall be operational, inclusive of all equipment and furnishing, prior to scheduling accommodation verification or ambient environmental testing

ABS MLC-ACCOM Notation Process





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