

IALA Guideline No. 1034

On the

Certification of Marine Aids to Navigation Products

Edition 2

December 2005

Edition 1 – December 2003



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Document Revisions

Revisions to the IALA Document are to be noted in the table prior to the issue of a revised document.

Date	Page / Section Revised	Requirement for Revision
October 2005	Document amended to include reference to Certification Templates	Certification Templates developed to assist in the process.

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Policy and principles

The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) has introduced a procedure for the use of an IALA Conformity Mark on products manufactured by Industrial Members that conform to the relevant Manufacturers Product Data Sheet (MPDS) and appropriate IALA documentation. This Guideline is detailed with respect to policy and procedures in Part 1 of this Guideline and Part 2 with respect to Product Certification Templates. Once the manufacturer has completed a Product Certification Template it is recognized as the Manufacturers Product Data Sheet (MPDS) referred to in this Guideline.

The procedure is based primarily on the principle that participating Industrial Members have a Quality Management System (QMS) that is accredited to the standards of the relevant sections of the ISO 9000 Series and is described in Section 2 of these Guidelines. Where the Quality Assurance methods of an Industrial Member is not accredited to either the ISO 9000 series, alternative product certification procedures are described in Section 3 of these Guidelines.

Participation by IALA Industrial Members in the product certification procedure is voluntary and those Industrial Members that participate in the procedure need not necessarily apply it to all of their products.

The product certification procedure is intended to assist National Members that have not established their own inspection and approval system, when assessing or purchasing Aids to Navigation products.

1. PROCEDURE FOR THE USE WITH QUALITY ASSURANCE METHODS ACCREDITED TO RELEVANT ISO STANDARDS

1.1 GENERAL

The procedure for the certification of products described in this Part applies to those Industrial Members that have a Quality Management System (QMS) accredited to the standards of the relevant sections of either the ISO 9000 Series.

The conformity assessment is based upon the MPDS and applicable IALA Recommendations and IALA Guidelines. Products for which a valid Declaration of Conformity has been made by the manufacturer, and recognised by IALA, may be marked with the IALA Conformity Mark. A Flow Chart of the Procedure is provided at Figure 1.

1.2 RESPONSIBILITIES

1.2.1 IALA

1.2.1.1 *To ensure that the procedure operates for the benefit of National and Industrial Members of the Association.*

1.2.1.2 *To prepare and approve appropriate IALA Recommendations and Guidelines including the Product Certification Templates.*

1.2.1.3 *On receipt of an application from an Industrial Member for a product to be Certified in accordance with these Guidelines, to:*

- a) assess the information provided on the Quality Assurance method used by the Company, decide whether the procedure described in Chapter 2 of these Guidelines is applicable or whether the procedure described in Chapter 3 is to be used; and notify the Industrial Member accordingly;
- b) notify the Industrial Member of the IALA Recommendations and Guidelines that relate to the performance and standard of the product;

In addition, if the procedure described in Chapter 2 of these Guidelines is applicable:

- c) on receipt assess the Industrial Member's "Declaration of Conformity" to ensure that all the IALA requirements are included in the Declaration;
- d) on completion of the process, notify the Industrial Member that the IALA Conformity Mark may be used on the product and of the Unique Number that is to be included in the Mark.

1.2.1.4 *To maintain lists of all products for which Type Test Certificates and Declarations of Conformity has been issued.*

1.2.2 ACCREDITATION AUTHORITY USED BY THE INDUSTRIAL MEMBER

- 1.2.2.1 *To ensure that the product for which certification is required and the relevant requirements of IALA for the product are incorporated in the Accreditation Procedure of the Company.*
- 1.2.2.2 *To issue a Type Test Certificate on completion of the Type Approval Phase under the procedure currently in use at the Company.*
- 1.2.2.3 *To issue a Certificate of Conformity on completion of the Product Certification Procedure under the process currently in use at the Company.*
- 1.2.2.4 *To undertake periodical audits of the manufacturers Quality Management System.*

1.2.3 MANUFACTURERS

- 1.2.3.1 *To apply to IALA for assessment of the product. The application should include the details that are, or will be, given in the Manufacturers Product Data Sheet, information on the Quality Management System in use at the site where the product is being, or will be, manufactured and the IALA Recommendations and Guidelines that have been taken into account during the design of the product.*
- 1.2.3.2 *To ensure that the QMS documentation includes the product and all relevant IALA requirements.*
- 1.2.3.3 *On completion of any necessary testing and audit by the QMS or the Accreditation Authority, to forward to IALA a “Declaration of Conformity” for the product. An example of the format of a “Declaration of Conformity” is given in paragraph 4.*
- 1.2.3.4 *To ensure that the IALA Conformity Mark complies with the guidance given in paragraph 5 and is used only in respect of the product described in the relevant Declaration of Conformity.*
- 1.2.3.5 *To ensure that the products continue to be designed and manufactured to the standard that was assessed in accordance with this procedure.*

1.3 PRODUCT CERTIFICATION TEMPLATES

Product templates identify parameters that should be tested and the standards against which each parameter should be tested to enable a comprehensive evaluation of products.

Product Certification Templates can be found in Part 2 of this Guideline. The Templates include the following sections:

- Ref. No. – for each parameter that should be stated by the manufacturer.
- Parameter category – parameters are typically grouped in the following Categories: Operational, Safety, Electrical, Physical, Environmental, Service, Disposal.
- Parameter – describes items that should be stated by the manufacturer
- Measured Value – the value of the parameter as measured using the specified test method as provided by the manufacturer.
- Test Method – method recommended by IALA to measure the parameters, where none is mentioned the manufacturer should state the test method used, preferably with reference to international or national standards.
- Comments – may contain information on relevant standards where no international standards have been identified

The Templates quote international standards. If an IALA Product Certification Authority (IALA-PCA) wishes to use an alternative standard, it is the responsibility of the IALA-PCA to confirm that the standard used conforms to the IALA quoted standard.

1.4 FORMAT OF A “DECLARATION OF CONFORMITY”

The format of a Declaration of Conformity should be based on the following example. However, the Declaration need not be identical to the example editorially, but should contain similar information.

Declaration of Conformity	
Trade Name of Manufacturer:	
Description and identity of product:	
Address of Manufacturer:	
Telephone No:	
Telefax No:	
E-Mail address:	
Website:	
This product complies with the details given in Manufacturers Product Data Sheet No. and with the following IALA Recommendations and Guidelines:	
IALA Recommendation No	on....., dated
IALA Guidelines No	on, dated..... ;
IALA Guidelines No	on, dated..... .
Signed	Date
(A Senior Manager of the manufacturer's QMS)	

Figure 1 – Example of a Declaration of Conformity

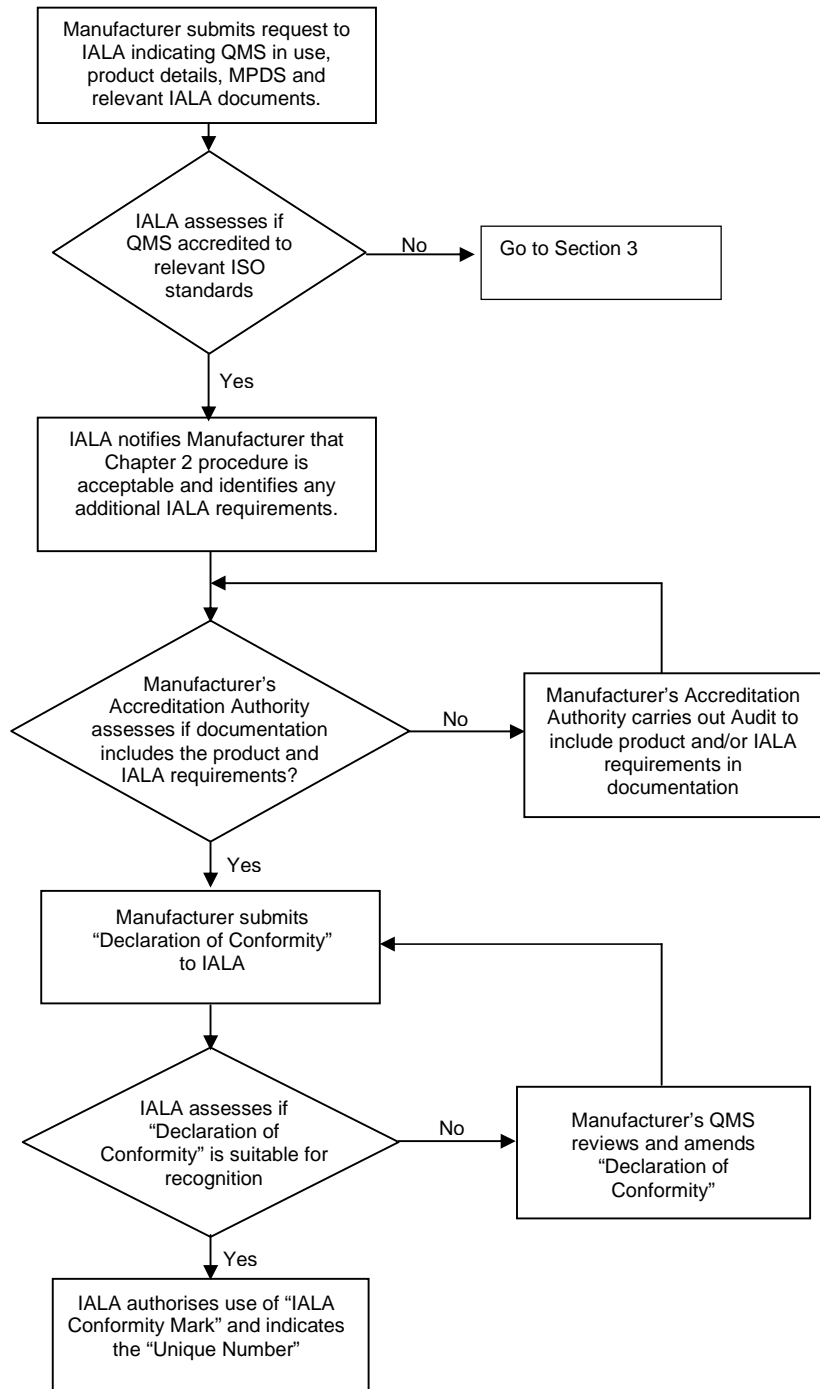


Figure 2 – Flow Chart for Procedure for use with Quality Assurance Methods Accredited Relevant to ISO Standards.

1.5 DESCRIPTION AND USE OF THE IALA CONFORMITY MARK

The IALA Conformity Mark comprises the official IALA logo, a unique number as determined by IALA and the date on which the relevant Declaration of Conformity or Certificate of Conformity was issued. The unique number should comprise of two or three initials that identify the Industrial Member concerned, followed by a number not normally exceeding three figures that identify the specific product concerned.

The use of the IALA Conformity Mark indicates that the product has been manufactured in conformity with a Quality Assurance system to the standards of either the ISO 9000; or, under the supervision of an IALA Approved Classification Society.

Where the specifications concerned do not impose specific dimensions, the IALA logo should have a height in the order of 25 mm and width in the order of 12.5 mm. Use of larger or smaller sizes should be agreed with IALA and should retain the same proportions.

The IALA Conformity Mark should be affixed to the product or to its data plate. However, where this is not possible or not warranted on account of the nature of the product, it may be affixed to the packaging, if any, and to the accompanying documents, where the specifications concerned provides for such documents.

When applied to a product, the IALA Conformity Mark should be visible, legible and indelible.

When the manufacturer uses the marking in any documentation, the unique number shall accompany it.

The manufacturer is responsible for the proper use of the IALA Conformity Mark.

The IALA Conformity Mark is to be the only marking which certifies that industrial products conform to the IALA Product Certification Procedure.



Figure 3 – Example of an IALA Conformity Mark

2. PROCEDURE FOR USE WITH QUALITY ASSURANCE METHODS NOT ACCREDITED TO ISO STANDARDS

2.1 GENERAL

The procedure for the certification of products described in this Part applies to those Industrial Members that do not have a Quality Management System (QMS) accredited to the standards of the relevant sections of the ISO 9000 Series.

The following abbreviations are used in this procedure:

“IALA-ACS”	A Classification Society approved by IALA under the process described in Annex 1 to carry out product certification in accordance with the procedure set out in this document.
“IALA-CNM”	A National Member, as described by the Constitution of IALA, that has the equivalent facilities and expertise as a Classification Society and is approved by IALA under the process described in Annex 1 to carry out product certification in accordance with the procedure set out in this document.
“IALA-PAT”	A Product Assessment Template prepared by IALA describing requirements for the operational performance of the product taking into account environmental conditions and component specification which may be required to meet the operational performance requirements. The template will include reference to the appropriate IALA Recommendations, the IALA Guidelines and the MPDS.
“IALA-PCA”	The IALA Product Certification Authority and may be either an IALA-ACS or an IALA-CNM.

The conformity assessment will be based upon the MPDS and applicable IALA Recommendations and IALA Guidelines.

Products for which a valid Certificate of Conformity is held by the manufacturer may be marked with the IALA Conformity Mark.

Manufacturers that are not accredited to the relevant ISO standards may have their own QMS. However, some manufacturers may not employ any methods of Quality Assurance. This part of the procedure allows for both situations and the overall quality assessment becomes the responsibility of the IALA-PCA.

2.2 RESPONSIBILITIES

2.2.1 IALA

2.2.1.1 *To ensure that the procedure operates for the benefit of National and Industrial Members of the Association.*

2.2.1.2 *To approve IALA-ACS to undertake the conformity assessments.*

2.2.1.3 *To maintain and publish a list of the IALA-ACS and IALA-CNM.*

2.2.1.4 *To prepare and approve appropriate IALA Recommendations and Guidelines including the Product Certification Templates.*

2.2.1.5 *2.1.5 On receipt of an application from an Industrial Member for a product to be Certified in accordance with these Guidelines:*

- a) assess the information provided on the Quality Assurance method used by the Company, decide whether the procedure described in Chapter 2 of these Guidelines is applicable or whether the procedure described in Chapter 3 is to be used and notify the Industrial Member accordingly;
- b) notify the Industrial Member of the IALA Recommendations and Guidelines that relate to the performance and standard of the product; and,
- c) notify the Industry Member of the Unique Number to be used on the IALA Conformity Mark on completion of the Certification Process.

2.2.1.6 *To provide to the IALA-PCA nominated by the manufacturer, assessment instructions and an IALA-PAT for use during the assessment of each product.*

2.2.1.7 *To maintain lists of all products for which Type Test Certificates and Certificates of Conformity has been issued.*

2.2.2 IALA PCA

- 2.2.2.1 *To provide a unified service to all participating IALA Industrial Members*
- 2.2.2.2 *On receipt of an IALA-PAT, and an associated application from the manufacturer, to carry out the appropriate conformity assessment.*
- 2.2.2.3 *To request from the manufacturer only the technical documentation that is required solely for the purpose of the conformity assessment and to ensure the confidentiality of all information received in the course of the service.*
- 2.2.2.4 *To issue reports or certificates, as appropriate, on satisfactory completion of the conformity assessment.*
- 2.2.2.5 *To establish an appeals procedure for use when the equipment is assessed as not conforming to the IALA-PAT.*
- 2.2.2.6 *To issue a Type Test Certificate on completion of the Type Approval Phase.*
- 2.2.2.7 *To issue a Certificate of Conformity on completion of the process*
- 2.2.2.8 *To undertake periodical audits of the manufacturers quality management system.*
- 2.2.2.9 *To be responsible for all aspects of any part of a conformity assessment that is sub-contracted. In this regard, to ensure that only one level of sub-contracting takes place and that any sub-contracting is limited to a minor part of the complete assessment.*

2.2.3 MANUFACTURERS

- 2.2.3.1 *To apply to IALA for assessment of the product. The application should the details that are, or will be, given in the Manufacturers Product Data Sheet, information on the Quality Management System in use at the site where the product is being, or will be, manufactured and the IALA Recommendations and Guidelines that have been taken into account during the design of the product.*
- 2.2.3.2 *On receipt of the IALA-PAT, to apply to the selected IALA-PCA for the assessment to be undertaken.*
- 2.2.3.3 *To provide the IALA-PCA with such technical documentation as is necessary for the product to be assessed for conformity.*
- 2.2.3.4 *To allow the IALA-PCA access for inspection and surveillance purposes to the locations of manufacture, inspection, testing, and storage.*
- 2.2.3.5 *To ensure that the IALA Conformity Mark complies with the guidance given in Section 4 of Chapter 2 of these Guidelines and is used only in relation to a product for which a Certificate of Conformity is held.*
- 2.2.3.6 *To ensure that the products continue to be designed and manufactured to the standard that was assessed in accordance with this procedure.*

2.3 PROCEDURE FOR USE WITH MANUFACTURER'S OWN QMS

2.3.1 GENERAL

Where a manufacturer has its own QMS, the IALA-PCA will audit the manufacturers system to assess that it ensures a satisfactory method of testing prototype equipment and monitors that the production techniques maintain a satisfactory standard of product. The IALA-PCS will also carry out periodic audits for the purpose of monitoring the manufacturers QMS.

The manufacturer's quality management system must be documented in a systematic and orderly manner in the form of written policies, procedures and instructions addressing the

production of the product and its final inspection and testing. It must contain in particular an adequate description of:

- The quality objectives and the organisational structure, responsibilities and powers of the management with regard to product quality;
- The examinations and tests that will be carried out after manufacture;
- The means to monitor the effective operation of the quality system, and;
- Quality records, such as inspection reports and test data, calibration data, qualification reports of the personnel concerned, etc.

The IALA-PCA will review the manufacturer's production quality system documentation and assess it to ensure that manufactured products will remain in conformity with the product to be certified. Random inspection and tests may be witnessed by the IALA-PCA where considered necessary to verify the effectiveness of the quality scheme.

A Certificate of Type Approval and Certificate of Conformity will be issued on the authority of the IALA-PCA for the products on completion of the initial review, using the process documented in the manufacturer's QMS. One copy of each certificate will be forwarded to the IALA-PCA and one copy of the Certificate of Conformity to IALA.

Subsequent visits, or audits, will be made periodically to ensure the manufacturer's QMS continues to ensure that manufactured products remains in conformity with the type approved product.

The manufacturer is required to keep IALA fully informed of any intended updating of the Quality Management System so that changes in the Conformity Procedure in use can be changed can be reviewed and changed if necessary.

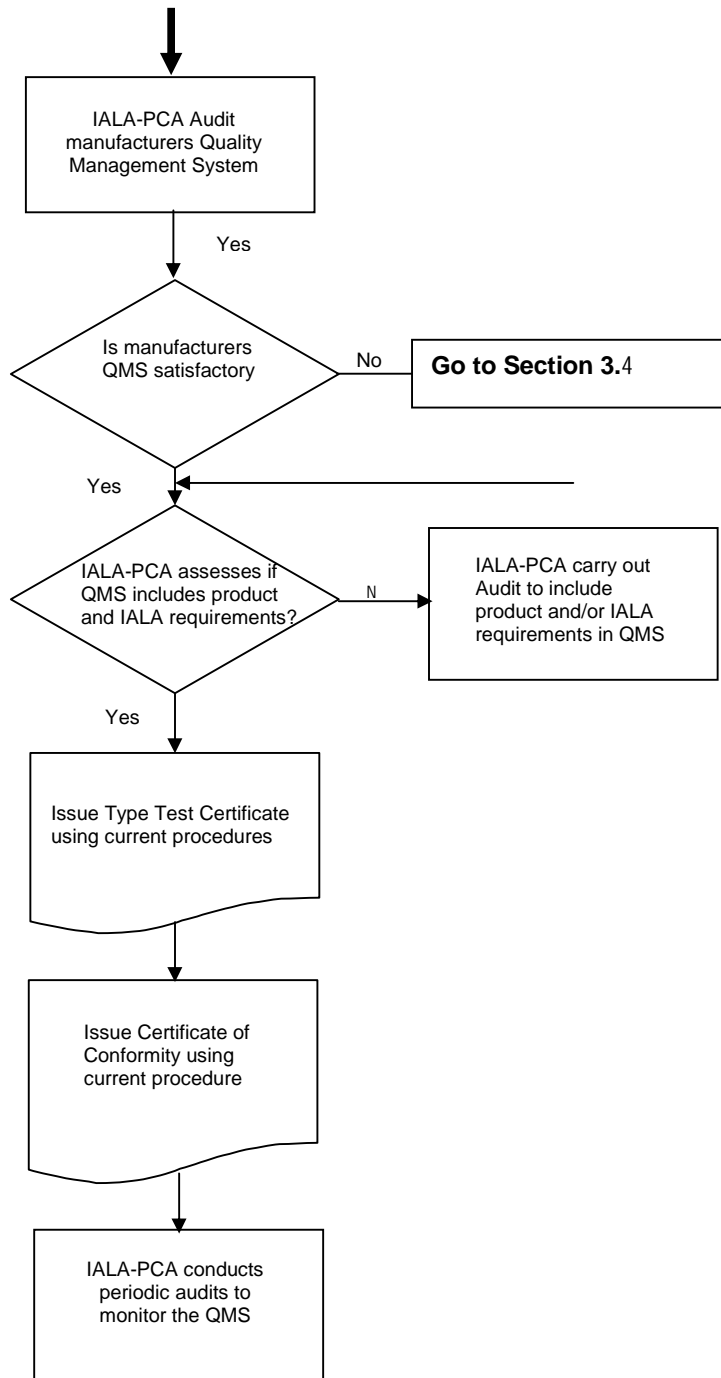


Figure 4 Flow Chart for Procedure for use with manufacturers own QMS

2.4 PROCEDURE FOR USE WHEN THE MANUFACTURER HAS NO DOCUMENTED QUALITY MANAGEMENT SYSTEM IN PLACE.

2.4.1 GENERAL

Where the manufacturer has no documented quality assurance system in place, the IALA – PCA will conduct or witness all prototype tests on the product and verify the products manufactured by inspecting and testing each product, or each batch of products by statistical methods. The procedures for the Type Approval Phase and the Product Surveillance Phase for this process are given in sections 3 and 4 respectively of this Chapter of these Guidelines.

On obtaining the agreement of IALA, the manufacturer should apply to the IALA-PCA of its choice for the conformity assessment to be carried out. The technical documentation submitted to the IALA-PCA in support of the application must be sufficient to allow verification of the product's conformity against the design criteria. It must, as far as relevant for such assessment, cover the design, manufacture and operation of the product.

The conformity assessment is composed of two phases, the Product Type Approval phase and the Production Surveillance phase. Each phase may be either assessed separately or concurrently. A certificate will be issued on satisfactory completion of each phase.

An application for a conformity assessment of a phase can only be submitted to one IALA-PCA. However, the manufacturer does not have to use the same IALA-PCA for both phases of the assessment.

An IALA-PCA will recognise a valid Certification issued by another IALA-PCA provided it is verified as meeting the specific product requirements.

The applicant must place at the disposal of the IALA-PCA specimen(s) for inspection and testing which represents the range of manufactured product(s) being certified except where the sample is a prototype. The IALA-PCA may request further specimens if required to complete the certification programme.

2.4.2 PRODUCT TYPE APPROVAL PHASE

The typical minimum documentation required to be submitted must be sufficient to allow the product to be assessed against the design criteria is listed below.

- An Application Form.
- Description of the product
- Details of the installation, commissioning, maintenance and operation. (Note: this may be the user manual.)
- Detailed drawing(s) of the product.
- The applicable IALA Recommendation, Guideline, Approved Technical Specification or Manufacturers Product Data Sheets as necessary.
- Proposed Test Procedure for confirmation and agreement.
- Proposed location and dates of testing.

After review of the documentation and test procedures the selected IALA-PCA and the manufacturer will agree the arrangements for testing the product. Tests are to be witnessed by an IALA-PCA representative.

On completion of testing the manufacturer should submit the test report for final review and issue of the Type Test Certificate. (Note: the test report must be in an acceptable format and include; test location details, unique identifier, date of test, numbering of pages and be signed by the testing authority.)

Where the equipment meets the provisions of the IALA Requirements, a Type Test Certificate will be issued to the manufacturer by the IALA-PCA. The Type Test Certificate will contain the name and address of the manufacturer, conclusions of the examination, and conditions for its validity and the necessary data for identification of the approved type of product.

A list of the relevant technical documentation used in the approval will be annexed to the Type Test Certificate.

One copy of the approval documentation and the certificate, of certificates, issued will be kept by IALA-PCA and another copy will be forwarded to IALA.

The manufacturer must inform the IALA-PCA that issued the type approval certificate of all modifications to the approved product. These will be reviewed and where such changes may affect the conformity with the IALA-PAT the product will be inspected tested for acceptance of the changes and certified. Depending on the degree of modification, the approval may be in the form of an extension to the original certificate or a new type approval certificate.

If the manufacturer is denied a type approval certificate, the IALA-PCA must provide detailed reasons for such denial.

2.4.3 PRODUCT SURVEILLANCE PHASE

The IALA-PCA verifies the manufactured products by inspection and testing of every product or by statistical verification. The statistical method is where the product is presented as homogeneous batches or lots from which random samples are chosen for inspection and testing for acceptance of the lot. An appropriate international standard should be used to ascertain the random number of product samples chosen.¹

A Certificate of Conformity will be issued by the IALA-PCA for all accepted products. Products accepted in batches or lots may be covered by one certificate. One copy of the certificate will be kept by IALA-PCA and another copy will be forwarded to IALA.

If a product or lot is rejected, the manufacturer must take appropriate measures to prevent those products from being supplied to the market.

Where frequent rejections of lots occur, the IALA-PCA may suspend the statistical verification and conduct individual product inspections. Once satisfactory evidence is obtained that the problem is resolved, statistical verification may be resumed.

The manufacturer may affix the IALA Conformity Mark to each approved product for which a valid Certificate of Conformity is held.

¹ e.g. BS6001 (ISO2859) Sample procedures for inspection by attributes

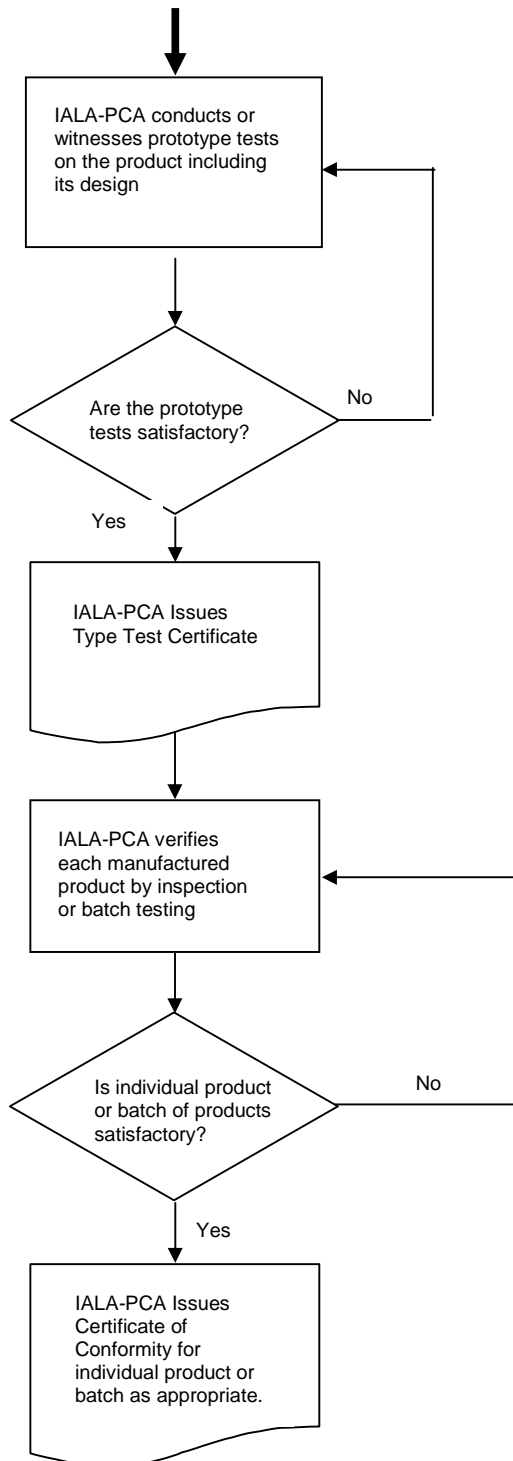


Figure 5 Flow Chart of Procedure for use when manufacturer has no document Quality management System in Place

ANNEX 1 - Appointment of IALA Approved Classification Societies

A Classification Society may be approved by IALA to perform assessments for the certification of Marine Aids to Navigation products on its behalf subject to compliance with the following minimum conditions for which the Classification Society should submit complete information and substantiation.

1. GENERAL

The relative size, structure, experience and capability of the Classification Society to perform assessments of Marine Aids to Navigation should be demonstrated.

The Classification Society should be able to document extensive experience in assessing the design, construction, installation and operation of Marine Aids to Navigation equipment and, as applicable, manufacturer's quality management systems.

1.1 Specific Provisions

For the purpose of being approved to perform certification services of marine aids to navigation products which require the ability to review applicable engineering designs, drawings, calculations and similar technical information and to conduct field survey and inspection to ascertain the degree of compliance of electrical and mechanical systems and components with such technical criteria, the following should apply:

1. The Classification Society should provide for the publication and systematic maintenance of rules and/or regulations in the English language for the design, construction and certification of marine aids to navigation products as well as the provision of an adequate research capability to ensure appropriate updating of the published criteria.
2. The Classification Society should allow participation in the development of its rules and/or regulations by representatives of IALA.
3. The Classification Society should have:
 - A significant technical, managerial and support staff, catering also for capability of developing and maintaining rules and/or regulations; and
 - A qualified professional staff to provide the required service representing an adequate geographical coverage and local representation as required.
4. The Classification Society should be governed by the principles of ethical behaviour, which should be contained in a Code of Ethics and as such recognise the inherent responsibility associated with a delegation of authority to include assurance as to the adequate performance of services as well as the confidentiality of related information as appropriate.
5. The Classification Society should demonstrate its technical, administrative and managerial competence and its capacity to ensure the provision of quality services in a timely fashion.
6. The Classification Society should be prepared to provide relevant information to IALA.
7. The Classification Society's management should define and document its policy and objectives for, and commitment to, quality and ensure that this policy is understood, implemented and maintained at all levels in the Classification Society.

8. The Classification Society should develop, implement and maintain an effective internal quality system based on appropriate parts of internationally recognised quality standards no less effective than ISO 9000 series, and which, *inter alia*, ensures that:
- the Classification Society’s rules and/or regulations are established and maintained in a systematic manner;
 - the Classification Society’s rules and/or regulations are complied with;
 - the requirements of the certification work, for which the Classification Society is authorised, are satisfied;
 - the responsibilities, authorities and interrelation of personnel whose work affects the quality of the Classification Society’s services are defined and documented;
 - all work is carried out under controlled conditions;
 - a supervisory system is in place that monitors the actions and work carried out by the Classification Society;
 - a system for qualification of surveyors and continuous updating of their knowledge is implemented;
 - records are maintained, demonstrating achievement of the required standards in the items covered by the services performed as well as the effective operation of the quality system; and
 - a comprehensive system of planned and documented internal audits of the quality-related activities in all locations is implemented.
9. The classification society should be subject to certification of its quality system by an independent body of auditors recognised by IALA.

1.2 Additional Considerations

For the purpose of performing certification services for marine aids to navigation products which require the ability to assess by audit and similar inspection of the relevant manufacturer’s quality management system attributes, the following should, in addition, apply:

1. The provision and application of proper procedures to assess the degree of compliance of the applicable quality management system;
2. The provision of a systematic training and qualification regime for its professional personnel engaged in the quality management system certification process to ensure proficiency in the applicable quality and management criteria as well as adequate knowledge of the technical and operational aspects of manufacturers safety management; and,
3. The means of assessing through the use of qualified professional staff the application and maintenance of manufacturers quality management systems.

Annex 2 – Product Templates

A Series of Templates have been prepared to assist in the Certification Process. If a template is required for a product that does not appear here, please contact the IALA Secretariat stating:

- Industrial member name / number
- Product for which template is required

In addition, if a product specification sheet can be provided at the time of the request, it will facilitate the development. Development will occur at the next scheduled EEP Committee meeting, and the template will be approved in consultation with the Chairman, Vice-Chairman of the Committee and the Secretary General. This process is as approved by IALA Council, Session 37.

PRODUCT CERTIFICATION TEMPLATE – Lanterns for buoys and light-beacons, including enclosed rotating beacons

Purpose

Product templates identify parameters that should be tested and the standards against which each parameter should be tested to enable a comprehensive evaluation of products.

Scope

The template is applicable for lanterns used on buoys and light beacons including rotating beacons, powered via external power supplies or via integrated solar power supplies.

Applicable IALA Recommendations and Guidelines

1. IALA Recommendation E-122 (2001) (or latest edition) ‘Photometry of Marine Aids to Navigation Signal Lights’
2. IALA Recommendation E-200-1 (2005), (or latest edition) Part 1 – Colour
3. IALA Guideline 1038 (Dec. 2004) (or latest edition) for Ambient Light Levels At which ATON Lights Should Switch On and Off.

Test Standards

The Templates quote international standards. If an IALA Product Certification Authority (IALA-PCA) wishes to use an alternative standard, it is the responsibility of the IALA-PCA to confirm that the standard used conforms to the IALA quoted standard. Where no test standard is mentioned the manufacturer should state the test standard used, preferably with reference to international or national standards.

Product Certification Template – Lanterns for buoys and light-beacons, including enclosed rotating beacons

Product Type / Manufacturer Reference Number: _____

Ref. No	Parameter category	Parameter	Value		Test Method	Comments
			Specified	Measured		
1	Optical					
1.1		Effective luminous intensity			IALA Recommendation E-122 (2001) 'Photometry of Marine Aids to Navigation Signal Lights'	For LEDs the effective luminous intensity varies depending on duty cycle
1.2		Flash duration and flash shape (LED lights included)			IALA Recommendation E-122 (2001) 'Photometry of Marine Aids to Navigation Signal Lights'	Time between points of 50% peak intensity. Define stability of rotation for a rotating beacon. For LED define frequency modulation of light, intensity profile of the flash
1.3		Horizontal beam uniformity (omnidirectional light) or horizontal divergence (range lights and rotating beacons)			IALA Recommendation E-122 (2001) 'Photometry of Marine Aids to Navigation Signal Lights'	For omnidirectional lights , state maximum variation from the mean intensity over any angle in the horizontal plane. For range lights and rotating beacons for the horizontal beam, state the horizontal divergences at 50% and 10% of peak intensity.
1.4		Vertical divergence			IALA Recommendation E-122 (2001) 'Photometry of Marine Aids to Navigation Signal Lights'	From the vertical beam, state the vertical divergences at 50% and 10% of peak intensity as referenced in IALA Recommendation E-122 (2001)

* Where no test standard is mentioned the manufacturer should state the test standard used, preferably with reference to international or national standards.

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Ref. No	Parameter category	Parameter	Value		Test Method	Comments
			Specified	Measured		
1.5		Signal colour			IALA Recommendation E-122	Colour boundaries and colour shift (for LED, variation with duty cycle) in the regions as defined in IALA Recommendation E-200-1, Part 1 - Colour
1.6		Nominal range				IALA Recommendation for the notation of luminous intensity and range of lights. (1966) IALA Recommendation for a definition of the Nominal Daytime Range of Maritime Signal Lights Intended for the Guidance of shipping by day (1974) State applicable atmospheric transmission factor
2	Electrical – externally sourced					
2.1		Power supply normal and extreme voltage			IEC 60945 section 7	State voltage tolerance
2.2		Power consumption				
2.3		Reverse polarity circuit protection			IEC 60945 section 7.2	
2.4		Power supply and control and monitoring terminations /connectors				Define connector and/or terminal type

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Ref. No	Parameter category	Parameter	Value		Test Method	Comments
			Specified	Measured		
3	Control					
3.1		Daylight control				Lux level and switching range, reference to IALA Guide To Ambient Light Levels At Which ATON Lights Should Switch On And Off.(No. 1038)
3.2		Monitoring				State parameters being monitored
3.3		Programming				State parameters that can be programmed
3.4		Light source regulation				State the accuracy of voltage regulation to light source in %
4	Physical					
4.1		Maximum Height				
4.2		Maximum Diameter				
4.3		Maximum Weight				
4.4		Focal Height				
4.5		Materials				State the material for the lantern and lens and UV protection
4.6		Ingress Protection				Define applicable IP number to EN60529
4.7		Description of lantern mounting hole pattern				
5	Environmental					

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Ref. No	Parameter category	Parameter	Value		Test Method	Comments
			Specified	Measured		
5.1		Temperature – operational and storage			Manufacturer to state the test standard	State the operational and storage temperature range
5.2		Humidity – operational and storage			IEC 60945 section 8.3; IEC 60068-2-3	JIS C 5024; MIL-STD-202G-103B
5.3		Salt air and sea water spray				MIL-STD-202G-101E
5.4		Shock and vibration				JIS C 0911; MIL-STD-202G-201A/202D
5.5		Electromagnetic interference				
6	Service					
6.1		Maintenance free period				
6.2		Rework at stated service intervals				
6.3		Assured Service life of all components				
7	Disposal					
7.1		Obligatory and recommended disposal method				IALA guideline 1036 – Environmental Considerations in Aids to Navigation Engineering

PRODUCT CERTIFICATION TEMPLATE – PV Solar Modules

Purpose

Product templates identify parameters that should be tested and the standards against which each parameter should be tested to enable a comprehensive evaluation of products.

Scope

The template is applicable for PV solar Modules.

Test Standards

The Templates quote international standards. If an IALA Product Certification Authority (IALA-PCA) wishes to use an alternative standard, it is the responsibility of the IALA-PCA to confirm that the standard used conforms to the IALA quoted standard. Where no test standard is mentioned the manufacturer should state the test standard used, preferably with reference to international or national standards.

Product Certification Template – PV Solar Modules

Product Type / Manufacturer Reference Number: _____

Ref. No	Parameter category	Parameter	Value		Test Method	Comments
			Specified	Measured		
1.	Electrical					
1.1		Peak Power at end of design life				State voltage tolerance
1.2		Voltage at Peak Power			IEC 61215	
1.3		Current at Peak Power			IEC 61215	
1.4		Short circuit current			IEC 61215	Define connector and/or terminal type
1.5		Open circuit voltage			IEC 61215	
1.6		Temperature coefficient at short circuit current.			IEC 61215	
1.7		Temperature coefficient at open circuit voltage.			IEC 61215	
1.8		Solar cell type				State type e.g. mono-crystalline, poly crystalline
2.	Physical					
2.1		Dimensions				
2.2		Weight				
2.3		Methods of fixing				
2.4		Terminations				

* Where no test standard is mentioned the manufacturer should state the test standard used, preferably with reference to international or national standards.

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Ref. No	Parameter category	Parameter	Value		Test Method	Comments
			Specified	Measured		
2.5		Module Materials				Construction materials
2.6		Frame Material				
2.7		Finish of frame material				
2.8		MTTF				
2.9		Ingress Protection				Define applicable IP number to EN60529
2.10		Withstanding of hail and icing			IEC 61215	
3	Environmental					
3.1		Temperature – operational and storage				
3.2		Humidity – operational and storage			IEC 60945 section 8.3; IEC 60068-2-3	JIS C 5024; MIL-STD-202G-103B
3.3		Immersion			IEC 60945 section 8.9	JIS C 0920; MIL-STD-202G-104A
3.4		Salt air and sea water spray			IEC 60945 section 8.12	MIL-STD-202G-101E
4	Service					
4.1		Maintenance free period				
4.2		Rework at stated intervals possible				
4.3		Assured service life of all components				
5	Disposal					
5.1		Obligatory and recommended disposal method				IALA guideline 1036 – Environmental Considerations in Aids to Navigation Engineering

PRODUCT CERTIFICATION TEMPLATE – Buoy Moorings

Purpose

Product templates identify parameters that should be tested and the standards against which each parameter should be tested to enable a comprehensive evaluation of products.

Scope

The template is applicable only to Buoy moorings and its components. It is not including all kinds of buoys, lanterns and power supplies.

Applicable IALA Recommendations and Guidelines

1. Recommendations E 107 on the design of normal moorings – 1998 (or latest edition)

Test Standards

The Templates quote international standards. If an IALA Product Certification Authority (IALA-PCA) wishes to use an alternative standard, it is the responsibility of the IALA-PCA to confirm that the standard used conforms to the IALA quoted standard. Where no test standard is mentioned the manufacturer should state the test standard used, preferably with reference to international or national standards.

Product Certification Template – buoy mooring systems and components

Product Type / Manufacturer Reference Number: _____

Ref. No	Parameter category	Parameter	Value		Test Method	Comments
			Specified	Measured		
1	Mooring chain, Shackle, Swivel, Swivel hook					
1.1	Physical				Recommendations E 107 on the design of normal moorings - 1998	Practical notes on the use of mooring chains for floating AtoN – 1989 Manufacturer to state process DIN 5683 – Round steel link chains - Buoy chains for anchoring of buoys; (Part 1 is in Draft format)
1.1.1		Length/ Dimensions				DIN 5683-1 Draft – 2003 + 5683-2 - 1966
1.1.2		Material Quality				DIN 5683-1 Draft – 2003; DIN EN 10025 – 2005
1.1.3		Testing				In addition DIN 685-3 2001 (Round steel link chains, tested – Part 3 Test; Part 4 Marking, test certificate) / DIN-EN 10204 – 2005 DIN 5683-1 Draft – 2003 + 5683-2 - 1966
1.1.4		Marking (in case of bad batch that need to be addressed with special safety precautions)				DIN 5683

* Where no test standard is mentioned the manufacturer should state the test standard used, preferably with reference to international or national standards.

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Ref. No	Parameter category	Parameter	Value		Test Method	Comments
			Specified	Measured		
2	Mooring sinker/block					
2.1.	Physical					Practical notes on the use of mooring chains for floating AtoN - 1989
2.1.1		Material (concrete)				Concrete mix design, pull-out-test, slump-test DIN 1045-2 / DIN EN 206-1
2.1.2		Material (cast iron)				Manufacturer to state standard
2.1.3		Material of Mooring eye				Refer to Mooring chain
2.1.4		Dimensions				
3	Disposal					
3.1		Obligatory and recommended disposal method.				IALA guideline 1036 – Environmental Considerations in Aids to Navigation Engineering