



ABS

TYPE APPROVAL PROGRAM

CERTIFICATE NUMBER TO816756-X

PLANT LOCATION Mississauga, Ontario

ABS OFFICE ABS Toronto

CERTIFICATE OF Manufacturing Assessment

This is to Certify that a representative of this Bureau did, at the request of **Mirus International Inc.**

Attend their facilities at the location noted above, in order to carry out an audit of their facilities and associated quality assurance and quality control procedures. The facility is considered capable of consistently manufacturing;

Harmonic Filters

in compliance with their ABS Product Design Assessment Certificates and the designated standards defined therein. The product listed on their current Product Design Assessment Certificates are eligible to be placed on this Bureau's *List of Type Approved Products*, subject to annual facility audits by a representative of this Bureau, and renewal of this Certificate after five (5) years.

ISSUE DATE 19-Jun-07

EXPIRATION DATE 19-Jun-12

SURVEYOR'S SIGNATURE *Dan Oldford*
Dan Oldford

FIRST ANNUAL ENDORSEMENT *Dan Oldford* Date: 11 July 2008

SECOND ANNUAL ENDORSEMENT _____ Date: _____

THIRD ANNUAL ENDORSEMENT _____ Date: _____

FOURTH ANNUAL ENDORSEMENT _____ Date: _____

AB257 (03-04)

Note: This certificate evidences compliance with one or more of the Rules, Guides, standards, or other criteria of American Bureau of Shipping; or a statutory, industrial, or manufacturer's standard, and is issued solely for the use of the Bureau, its committees, its clients, or other authorized entities. This certificate is governed by the terms and conditions on the reverse side hereof.



CERTIFICATE NUMBER

06-HS147934A/1-PDA

DATE

06 August 2007

ABS TECHNICAL OFFICE

Houston SED - Ship Systems

CERTIFICATE OF Design Assessment

This is to Certify that a representative of this Bureau did, at the request of

MIRUS INTERNATIONAL INC

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate. It will remain valid as noted below or until the Rules or specifications used in the assessment are revised (whichever occurs first).

PRODUCT: Filters, Harmonic

MODEL: AUHF (Advanced Universal Harmonic Filter)

ABS RULE: 2007 Steel Vessel Rules 1-1-4/7.7, 4-8-3 / 1.11, 4-8-3 / Table 2.

OTHER STANDARD: UL File No.: E213266 dated 02 Aug 05, Revised 13 Jul 07 ; CSA Certificate No.: 1585646 dated 29 April 2005.;

AMERICAN BUREAU OF SHIPPING

Hans P. Haendler

Engineering Type Approval Co-ordinator



CERTIFICATE NUMBER

06-HS147934B-PDA

DATE

08 August 2006

ABS TECHNICAL OFFICE
Houston SED - Ship Systems

CERTIFICATE OF Design Assessment

This is to Certify that a representative of this Bureau did, at the request of
MIRUS INTERNATIONAL INC

assess design plans and data for the below listed product. This assessment is a representation by the Bureau as to the degree of compliance the design exhibits with applicable sections of the Rules. This assessment does not waive unit certification or classification procedures required by ABS Rules for products to be installed in ABS classed vessels or facilities. This certificate, by itself, does not reflect that the product is Type Approved. The scope and limitations of this assessment are detailed on the pages attached to this certificate. It will remain valid as noted below or until the Rules or specifications used in the assessment are revised (whichever occurs first).

PRODUCT: Filters, Harmonic

MODEL: SUHF (Single Phase Universal Harmonic Filter)

ABS RULE: 2006 Steel Vessel Rules 1-1-4/7.7, 4-8-3 / 1.11., 4-8-3 / Table 2.

OTHER STANDARD: ULC File No.: E213266 dated 22 August, 2005; CSA Certificate No.: 1657386 dated 15 April 2005.;

AMERICAN BUREAU OF SHIPPING

Hans P. Haendler

Engineering Type Approval Co-ordinator



Confirmation of Type Approval

This is to certify that, pursuant to the Rules of American Bureau of Shipping (ABS), on 11/APR/2008 the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) and a valid Product Design Assessment (PDA) for the below listed product, entitling the product to type approval. The validity of the Manufacturing Assessment is dependent on satisfactory audits as required by the Rules. The Product Design Assessment is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

For Date of ABS Rules used for evaluation; Please refer to the ABS Rules below.

This Confirmation of Product Type Approval is valid as of the date shown above for the below listed product.

ABS makes no representations regarding type approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that the Client has full responsibility for continued compliance with the evaluation standard, whether the standard is an ABS Rule or a non-ABS Rule. As specified in the ABS Rules, Unit Certification may be required in addition to Product Type Approval. Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

MIRUS International Inc.

Model Name(s): AUHF (Advanced Universal Harmonic Filter)

Presented to:

MIRUS International Inc.
6805 Invader Cres., Unit #12
Mississauga
Ontario L5T 2K6
Canada

Intended Service:

The device is mainly used in the treatment of all major harmonics generated by variable speed drives and other three phase rectifier loads.

Description:

Harmonic filter, Lineator, for the use with UL listed adjustable speed drives, 3500 HP maximum, 690 VAC maximum.

Ratings:

5 HP - 3500 HP; 240 VAC, 480 VAC, 600 VAC, 690 VAC; Inductor Insulation Class 220° C maximum; NEMA-1 (5 HP to 125 HP); NEMA-3R (150 HP to 3500 HP)

Service Restrictions:

Unit Certification is not required for this product. If the manufacturer or purchaser's request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined. Unit Certification is not required for this product when used for essential services. The equipment is for non hazardous areas. To be used where the elevation is less than or equal to 3300 ft (1000m) above sea level. The type of enclosure would be dependant on the place where used and in accordance with Table 2 in 4-8-3 of the SVR.

Comments:

Ratings based on UL Report File No. E213266

Notes / Documentation:

This Product Design Assessment (PDA) is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

Term of Validity:

This Design Assessment Certificate number 06-HS147934A/1-PDA, dated 06/Aug/2007 will expire on 05/Aug/2012 or at an earlier date should there be

alterations to the product's design or changes to the referenced ABS Rules and other specifications, which affect the product. Product use on or after 1 January 2008, will be subject to compliance with the ABS Rules or specifications in effect when the vessel, MODU or facility is contracted. The product's acceptability on board ABS-classed vessels or facilities is defined in the service restrictions of this certificate.

ABS Rules:

2007 Steel Vessel Rules 1-1-4/7.7, 4-8-3 / 1.11, 4-8-3 / Table 2.

National Standards:**International Standards:**

UL File No.: E213266 dated 02 Aug 05, Revised 13 Jul 07 ; CSA Certificate No.: 1585646 dated 29 April 2005.

Government Authority:**EUMED:****Others:**

Manager, ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.



Confirmation of Type Approval

This is to certify that, pursuant to the Rules of American Bureau of Shipping (ABS), on 11/APR/2008 the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) and a valid Product Design Assessment (PDA) for the below listed product, entitling the product to type approval. The validity of the Manufacturing Assessment is dependent on satisfactory audits as required by the Rules. The Product Design Assessment is valid only for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

For Date of ABS Rules used for evaluation; Please refer to the ABS Rules below.

This Confirmation of Product Type Approval is valid as of the date shown above for the below listed product.

ABS makes no representations regarding type approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that the Client has full responsibility for continued compliance with the evaluation standard, whether the standard is an ABS Rule or a non-ABS Rule. As specified in the ABS Rules, Unit Certification may be required in addition to Product Type Approval. Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

MIRUS International Inc.

Model Name(s): SUHF (Single Phase Universal Harmonic Filter)

Presented to:

MIRUS International Inc.
6805 Invader Cres., Unit #12
Mississauga
Ontario L5T 2K6
Canada

Intended Service:

The device is mainly used in the treatment of all major harmonics generated by variable speed drives and other single phase rectifier loads.

Description:

The Lineator 1Q3, see attached "pdf"

Ratings:

5 - 150 HP, for details see Technical Data attached "pdf" dated 23 February 2005. Inductor Insulation Class 220 degrees Centigrade maximum. Capacitor rating 70 degrees Centigrade maximum. Nema 2 (5 HP to 15 HP), NEMA 3R (20 HP to 150 HP)

Service Restrictions:

Unit Certification is not required for this product when used for essential services. The equipment is for non hazardous areas. To be used where the elevation is less than 3300 ft (1000m) above sea level. The type of enclosure would be dependant on the place where used and in accordance with Table 2 in 4-8-3 of the SVR.

Comments:

None

Notes / Documentation:

Term of Validity:

Certificate 06-HS147934B-PDA, dated 08/Aug/2006 is valid for 5 years from date of issue or until the applicable Rules or standards are revised (whichever occurs first). Product use on or after 1 January 2007, will be subject to compliance with the ABS Rules or specifications in effect when the vessel, MODU or facility is contracted.

ABS Rules:

2006 Steel Vessel Rules 1-1-4/7.7, 4-8-3 / 1.11., 4-8-3 / Table 2.

National Standards:

International Standards: ULC File No.: E213266 dated 22 August, 2005; CSA Certificate No.: 1657386 dated 15 April 2005.

Government Authority:
EUMED:
Others:



Manager, ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.