

Date: May 11, 2006

James Pak
Carbonic Heat / Ondolia
2915 Vail Avenue
Commerce, CA 90040 Phone: 323-887-9800
Fax: 323-887-9876

Dear Mr. Pak,

This is to confirm that Intertek Testing Services has completed our evaluation of your heating pads models CFH120-C3 & CFH240-C2.

Enclosed is one copy of the Listing Report for your records. A copy of this Report will be sent to the ETL Field Representative for use at the time of the Initial Plant Inspection. Please be advised that distribution of copies to the manufacturer(s) is your responsibility.

If you are not enrolled in Intertek Follow-up Service Program for the ETL Mark, you should have received (under separate cover) information and forms which detail the steps which must be completed in order to apply the ETL mark to your product. If you have not received this information or you have any questions concerning this process, please contact Barb Fritts at (607) 758-6355.

Please note: You are only authorized to apply the ETL Listing or other certification marks to heating pads models CFH120-C3 & CFH240-C2 after a valid signed Authorization to Mark has been received from Intertek.

Your continued interest in Intertek services is appreciated. Please contact us if you have questions.

Sincerely,



Calvin Luong
Project Engineer

cc: Certification & Surveillance Services Office, Cortland, NY USA

RECOGNIZED COMPONENT REPORT INTERTEK TESTING SERVICES NA INC.

27611 La Paz Road Suite C.

Laguna Niguel, CA 92677

Job No. 3096726-108
3104035-108
3118130-108
2007076

Issued: 5/11/06
Revised: 5/15/2007
Page 1 of 16

REPORT NO. 3096726LAX-001a

INSPECTION, TESTS AND EVALUATION
OF A
HEATING PANEL

RENDERED TO

CARBONIC HEAT/ONDOLIA
COMMERCE, CA

GENERAL: This Report gives the results of the inspection, tests and evaluation of a heating panel for compliance with applicable requirements of the Standard for Safety Electric Radiant Heating Panels and Heating Panel Sets, (ANSI/UL 1693, 2nd Ed. issued 7/19/02) & Standard for Safety Radiant Space Heating Panels, Panels Sets, and Systems General Instruction No. 1 (CSA C22.2 No. 217-M89). This investigation was authorized by James B. Pak. The investigation was begun on 4/11/06 and completed on 4/24/06. A production-line sample in good condition was provided by the client on 4/1/06 and tested at local Intertek address. Similar model CH120240-W20, production line sample in good condition was provided by client on 4/29/2007 and tested from 4/30/2007 to 5/3/2007 at Intertek, Laguna Niguel, CA.

Standard for Safety Electric Radiant Heating Panels and Heating Panel Sets, (ANSI/UL 1693, 2nd Ed. issued 7/19/02) & Standard for Safety Radiant Space Heating Panels, Panels Sets, and Systems General Instruction No. 1 (CSA C22.2 No. 217-M89)

Applicant: Carbonic Heat/Ondolia
2915 Vail Avenue
Commerce, CA 90040 USA

*Manufacturer: Carbonic Heat Korea Co., Ltd.
3, 52 Block, 440-2, Nonhyun-dong, Namdong-gu, Incheon,
Korea

Contact: Mr. James Pak
Phone: 323-887-9800
Fax: 323-887-9876

Contact: Kenny Seo
Phone: 82-32-822-8300(Office), 82-11-6736-3303(cell)
Fax: 82-32-822-8301

An independent organization testing for safety, performance, and certification.

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Intertek Testing Services NA Inc





Report No. 3096726LAX-001a
Carbonic Heat/Ondolia

Page 2

Issued: 5/11/06

<u>Report Composition:</u>	<u>Numbering</u>
Cover	1
Revisions	2
Main Report	3-13
Illustrations	NA
Markings	8 & 14
Components Requiring Yearly Testing	15 & 16
Total Number of Pages	16

REVISION SUMMARY - The following changes have been made to this Report:

<u>Date/Project #</u>	<u>Project Reviewer</u>	<u>Page</u>	<u>Item</u>	<u>Description of Change</u>
9/8/06 / 3104035-108	J. Cheng	All	-	The entire report format has been changed to a Recognized Component report. Conditions of Acceptability has been included to report for the covered product. Minor technical change with no testing. C. Luong
5/3/2007 3118130	 _____ Calvin Luong	1, 3, 4, 11, 12, 13, 14	“ * “	New model CH120240-W20 was added to the report which is similar to previously listed. Photos of film (Pad) and controller were added to the report. Placed Mr. before contact name.  _____ Jolly Sharma
5/15/2007 2007076	 _____ C. Luong	1, 2	“ * “	Change of Manufacturing address and contact information.  _____ J.Sharma

PRODUCT DESCRIPTION

*PRODUCT COVERED

Heating Panels, models CFH120-C3 & CFH240-C2. Heating panel, model CH120240-W20.

PRODUCT DESCRIPTION

The product covered in this report is a permanently connected heating panel. Heating device is a flexible heating pad that is intended to be installed underneath the floor. Radiant heat from pad heats the floor surface. An insulator material is intended to be placed between the heating pad and the bottom floor surface. Heating device is provided with an approved temperature controller.

*MODEL SIMILARITY

The 115V and 240V heating pads are constructional the same. Same materials are used; only difference in voltage. Model CH120240-W20 is similar to CFH120-C3 & CFH240-C2. Model CH120240-W20 is added with PET polyester non flammable lining with listed dual voltage (120/240V) controller.

CONDITIONS OF ACCEPTABILITY

The products covered in this Report are incomplete in construction features or limited in performance capabilities and are intended for use and evaluation with other products. Consideration should be given to the following when the component is used in or with another product.

1. The heating pad shall be provided with an approved temperature controller and thermostat when installed in end application. Thermostat shall have a temperature control range 40 to 104°F (5 to 40°C).
2. When installed in end application heating pad shall be provided with a heater panel insulator. Insulator shall have a flame rating of HB.
3. Conductor used for connection of heating pad in end application shall be approved type, minimum 12AWG, VW-1

ELECTRICAL RATINGS

<u>Product</u>	<u>Voltage</u>	<u>Current/Power</u>	<u>Frequency</u>
CFH120-C3	120V	1.9A/sq.m	60Hz
CFH240-C2	205-240V	1.05A/sq.m	60Hz
*CH120240-W20	120-240V	1.9A-1.05A/sq.m	60Hz

TEST PERFORMANCE NO. 1

A representative sample of the product was tested in accordance with the Standard for Safety Electric Radiant Heating Panels and Heating Panel Sets, (ANSI/UL 1693, 2nd Ed. issued 7/19/02) & Standard for Safety Radiant Space Heating Panels, Panels Sets, and Systems General Instruction No. 1 (CSA C22.2 No. 217-M89).

<u>Test Description</u>	<u>ANSI/UL 1693/CSA No. 217-M89</u>
Input current	17/6.2
Temperature	19/6.12
Dielectric strength (dry) Aging	22/6.14
Dielectric strength (wet)	23/6.6.3
Cold bend	24/6.9
Mechanical strength	25/6.11
Scratch	26/-
Cold crease	-/6.10

Results of the tests indicate the specimens conform to applicable test criteria.

TEST PERFORMANCE NO. 2

Following tests were performed for Model CH120240-W20

<u>Test Description</u>	<u>ANSI/UL 1693/CSA No. 217-M89</u>
Input current	17/6.2
Temperature	19/6.12
Dielectric strength	22/6.14

Results of the tests indicate the specimens conform to applicable test criteria.

CONCLUSION

A representative sample of the product covered by this report has been evaluated and found to comply with the applicable requirements of the Standard for Safety Electric Radiant Heating Panels and Heating Panel Sets, (ANSI/UL 1693, 2nd Ed. issued 7/19/02) & Standard for Safety Radiant Space Heating Panels, Panels Sets, and Systems General Instruction No. 1 (CSA C22.2 No. 217-M89). The product is incomplete in construction features or limited in performance capabilities and intended for use and evaluation in other complete products.

Report prepared by:

Signature on original file

Calvin Luong
Project Engineer

Report reviewed by:

Signature on original file

Jim Cheng
Engineering Team Leader

GENERAL INFORMATION

The Applicant and Manufacturer have agreed to produce, test and label ETL Listed products in accordance with the requirements of this Report. The Manufacturer has also agreed to notify Intertek and to request authorization prior to using alternate parts, components or materials.

COMPONENTS

Components used shall be those itemized in this Intertek report covering the product, including any amendments and/or revisions.

LISTING MARK

The ETL Listing mark applied to the products shall either be separable in form, such as labels purchased from Intertek, or on a product nameplate or other media only as specifically authorized by Intertek. Use of the mark is subject to the control of Intertek.

MANUFACTURING AND PRODUCTION TESTS

Manufacturing and Production Tests shall be performed as required in this Report.

FOLLOW-UP SERVICE

Periodic unannounced audits of the manufacturing facility shall be scheduled by Intertek. An audit report shall be issued after each visit. Special attention will be given to the following:

1. Conformance of the manufactured product to the descriptions in this Report.
2. Conformance of the use of the ETL mark with the requirements of this Report and the Certification Agreement.
3. Manufacturing changes.
4. Performance of specified Manufacturing and Production Tests.

In the event that the Intertek representative identifies non-conformance(s) to any provision of this Report, the Applicant shall take one or more of the following actions:

1. Correct the non-conformance.
2. Remove the ETL Mark from non-conforming product.
3. Contact the issuing product safety evaluation center for instructions.

GENERAL REQUIREMENTS AND DEFINITIONS

Recognized Component – A component part, which has been previously evaluated by an accredited certification body with restrictions and must be evaluated as part of the basic product considering the restrictions as specified by the Conditions of Acceptability.

Listed Component – A component part, which has been previously Listed or Certified by an accredited Certification Organization with no restrictions and is used in the intended application within its ratings.

Unlisted Component – A part that has not been previously evaluated to the appropriate designated component standard. It may also be a listed or recognized component that is being used outside of its evaluated Listing or component recognition.

Critical Component – An essential part, material, subassembly, system, software, or accessory of a product that has a direct bearing on the product's conformance to applicable requirements of the product standard.

Construction Details - For specific construction details, reference should be made to the following photographs and descriptions. All dimensions are approximate unless specified as exact or within a tolerance. In addition to the specific construction details described in this Report, the following general requirements may also apply as applicable.

1. **Spacing** - In primary circuits, minimum spacing are maintained through air and over surfaces of insulating material between current-carrying parts of opposite polarity and between current-carrying parts and dead-metal parts.
2. **Mechanical Assembly** - Components such as switches, fuseholders, connectors, wiring terminals and display lamps are mounted and prevented from shifting or rotating by the use of lockwashers, starwashers, or other mounting format that prevents turning of the component.
3. **Corrosion Protection** – NA. No metal parts provided
4. **Grounding** – NA. No metal parts provided
5. **Internal Wiring** – NA none provided
6. **Accessibility of Live Parts** - All uninsulated live parts in primary circuitry are housed within heating pad, constructed with no openings

7. Markings – The product is marked on a component labeling system as follows:
- manufacturer's name,
 - model number,
 - date of manufacturer,
 - electrical ratings (volts, amps, frequency)
 - a statement “SEE INSTALLATION INSTRUCTIONS & VOIR LA NOTICE D’INSTALLATION
 - RADIANT FLOOR HEATING PANEL

The following markings shall be provided on an adhesive label:

-ELECTRIC WIRING AND HEATING PANELS CONTAINED BELOW THE FLOOR. DO NOT PENETRATE FLOOR WITH NAILS, SCREWS, OR SIMILAR DEVICES & AVERTISSEMENT: LE PLANCHER CONTIENT DES CABLES ELECTRIQUES ET DES PANNEAUX RAYONNANTS. NE PAS ENFORCER DE CLOUS, VIS OU AUTRES OBJECTS SEMBLABLES DANS LES PLANCHER

8. Installation, Operating and Safety Instructions - Instructions for installation and use of this product shall be provided with each unit. The manual shall specifically alert the user of potential risk of personal injury or health hazards. The important safety instructions shall be permanent part of the manual and separate in format from other instructions that may be provided, and shall appear before the operating instructions in the manual.

The following marking information shall be provided:

-THIS EQUIPMENT SHALL BE INSTALLED ONLY BY QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE APPARATUS AND THE HAZARDS INVOLVED & ATTENTION: CONFIER L’INSTALLATION DE CE MATERIAL A UN PERSONNEL QUALIFIE, QUI CONNAIT BIEN L’APPAREIL ET LES RISQUES INHERENTS

-THE INSTALLATION OF THE HEATING PANEL SYSTEM SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF ALL AUTHORITIES HAVING JURISDICTION & CE SYSTEM DE PANNEAUX CHAUFFANTE DOIT ETRE INSTALLE CONFOREMENT AUX EXIGENCES DE TOUS LES POUVOIRS DE REGLEMENTATION

MANUFACTURING AND PRODUCTION TESTS

The manufacturer agrees to conduct the following Manufacturing and Production Tests as specified:

Required Tests

No manufacturing or production line tests are required.

CORRELATION PAGE FOR MULTIPLE LISTINGS

MULTIPLE LISTING

The following products which are identical to those identified in the index except for model number and participant name are authorized to bear the ETL label under provisions of the Intertek Multiple Listing Program

MULTIPLE LISTEE None

BASIC LISTEE

MANUFACTURER

PRODUCT

**MULTIPLE LISTEE
MODEL NO.** _____

**BASIC LISTEE
MODEL NO.** _____

**BASIC LISTEE
ORDER NO.** _____

Heating panel

*PHOTO NO. 1 & 2



1

*Model: CH120240-W20

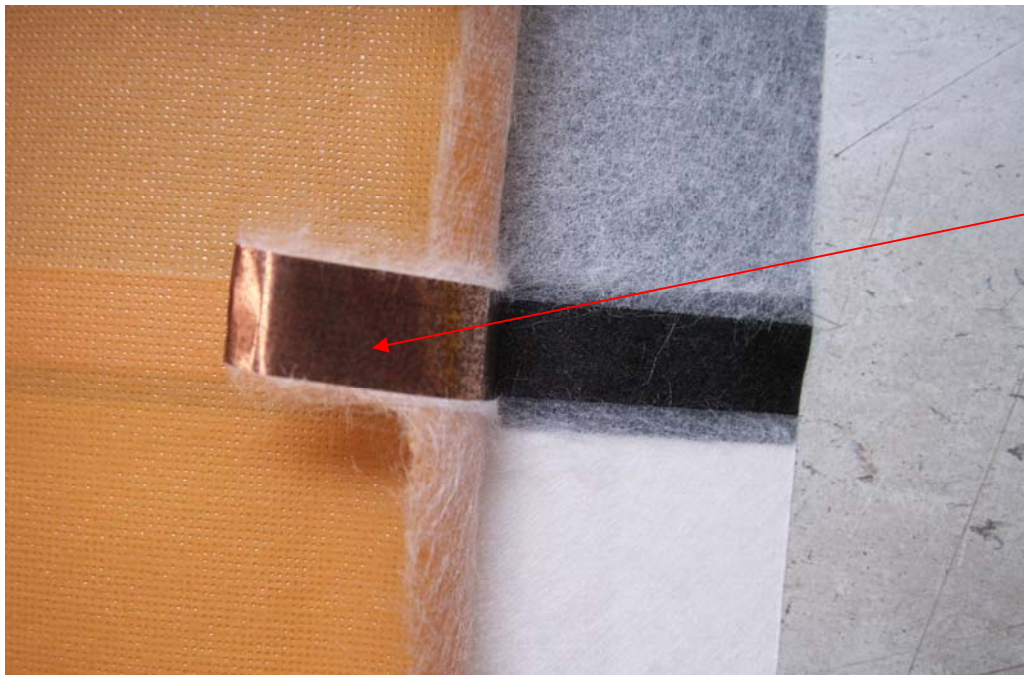


4

3

Heating panel

*PHOTO NO. 3 & 4



*Controller (Thermostat)



Heating Panel

*PHOTO NO. 1- 4

*General -Photo 1 & 2 shows an overall view of the heating panel sheet. Photos 3 & 4 show the internal view of the heating panel and controller (thermostat).

Item

1. Heating film- Recognized Component. Manufactured by Samsung Total Petrochemicals. B220 A T5mm Foam PE Flame class HB. This material is located on the top and bottom section of the heating pad.
2. Copper strip- Minimum thickness of 0.012” with maximum width of 0.47”. Lined over carbon heating film. The copper strip is located between the bottom heating film and the inner carbon heating film. Each heating section has copper strips spaced apart approximately 2.3” from each other.
3. *Heating film (Pad) – Recognized Component, Manufacture by Carbonic Heat/d.b.a Ondolia Korea, Polyester fabric, Carbon core material paste with copper strip of 80µm thickness, PET Film lining, SR-70 Non Flammable VTM- 0/110µm.
4. *Connection wires – Listed Component, Manufactured by Southwire, rated: oil resistance, 600V, 90° C.
5. *Controller (thermostat) – Listed component, Manufactured by Raychem, rated: 120/240V, 16A, 50/60Hz,

Water Pump

Evaluation of Unlisted Components

Because unlisted components are uncontrolled, and they do not fall under a third party follow up program, Intertek may require these components to be tested and/or evaluated at least once annually, more often for certain components, as part of the independent certification process. The unlisted components in the table below require testing and/or evaluation as indicated.

Note to Intertek Follow Up Inspector: The Component Evaluation Center, CEC, will notify you in writing when these components must be selected and sent to the CEC for re-evaluation

Ship the samples to: Intertek Testing Services
Component Evaluation Center
3933 US Route 11
Cortland, NY 13045
USA

Sample Disposition: Due to the destructive nature of the testing, all samples will be discarded at the conclusion of testing unless, the manufacturer specifically requests the return of the samples. The request for return **must** accompany the initial component shipment.

The Unlisted Components covered by this report are shown in the following Table:

Photo No.	Item No.	Component Description	Manufacturer	Catalog No.	Frequency *	Qty**	Send to CEC (YES or NO)	Required Action ***

* Quarterly, semi-annual, annual.

** note: Indicate any samples not available and provide the anticipated date that the component will be available.

*** Required Action (select one of the three):
 Visual
 Partial
 Full Evaluation

Note:

Visual means the quarterly verification of the description of the unlisted component in the report is sufficient for Certification.