



**LISTING REPORT  
INTERTEK TESTING SERVICES NA INC.**

**1950 EVERGREEN BLVD, SUITE 100**

**DULUTH, GA 30096**

Job No. 3115295  
3115295SVN

3/9/2007  
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Revised: 06/28/2015

REPORT NO. 3115295ATL-001

**INSPECTION, TESTS AND EVALUATION  
OF  
UNDER-FLOOR HEATING SYSTEM  
RENDERED TO**

**ELECTRO PLASTICS, INC.  
MARYLAND HEIGHTS, MO**

**GENERAL:** This Report gives the results of the inspection, tests and evaluation of the Under-Floor Heating System for compliance with applicable requirements of the Standard for Electric Radiant Heating Panels and Heating Panel Sets (UL 1693, 2nd Ed. Dated July 19, 2002). This investigation was authorized by P. O. # 9155 dated 7/24/06. The investigation was begun on 8/9/06 and completed on 8/12/06. Production-line samples in good condition were provided by the client on 8/9/06 and tested at Intertek's Duluth, GA facility. This report also replaced Report # 568120 and 3102200ATL-001.

Electric Radiant Heating Panels and Heating Panel Sets  
**\*UL 1693 – 3<sup>rd</sup> edition, 2010 with revisions through and including October 14, 2011**

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**Manufacturer:** Same as applicant  
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**Intertek Testing Services NA Inc.**

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<u>Report Composition:</u>	<u>Numbering</u>
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REVISION SUMMARY - The following changes have been made to this Report:

<u>Date/Project #</u>	<u>Project Handler</u>	<u>Reviewer</u>	<u>Page</u>	<u>Item</u>	<u>Description of Change</u>
6/12/07 – n/a	C Jaeger <i>CJ</i>	H Hasan <i>H</i>	Cover, 4,5	Standard	Removed Canadian standard
08/31/09 3188317 ATL	B. Hannah <i>BH</i>	H. Hasan <i>H</i>	1	---	Changed client information from 4406 St. Vincent Ave., St. Louis, MO 63119 USA, Ph. (314) 781-2121, Fx (314) 781-2131 to 11147 Dorsett Road, Maryland Heights, MO 63043, Ph. (314) 426-3555, Fx. (314) 426-3556. Changed logo from Intertek – ETL SEMKO to Interek.
			3	---	Added 208V to electrical ratings. This is based on pre-existing tap on transformer currently used.
			20	1b	Added 208V tap to transformer.
			20	1c	Added 2.5A, 3A, and 5A current rating to Input Breaker.
			20	1d	Added alternate circuit board by Siemens. Same ratings as Iten Industries.
			20	1e	Added alternate Lugs by Molex. Same ratings as Volta.
			20	1f	Added alternate Lugs by Molex. Same ratings as Connector Mfg.
			20	1g	Added alternate Output Fuse by Snap Action. Same ratings as Bussman.
11/09/2010 3115295SVN	<i>Aileen Cronin</i> Aileen Cronin	<i>Aileen Cronin for</i> John Knecht	1,2	(*)	Administrative SUN update to UL 1693 from 2 <sup>nd</sup> edition, dated July 19, 2002 to 3 <sup>rd</sup> edition with revisions through and including September 13, 2010. Product listed not affected.

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06/28/2015	S. Haque	P. Sedor	1, 2	---	Standard update from UL 1693, 3 <sup>rd</sup> Ed., 2010 with revisions through and including September 13, 2010 to UL 1693, 3 <sup>rd</sup> Ed., 2010 with revisions through and including October 14, 2011; addition of new models
G102055334 ATL	<i>SH</i>	<i>PS</i>	3	---	Removed model 34-2-XXW; revised model nomenclatures from 30-2-XXW, 23-2-XXW, 15-2-XXW, 7-2-XXW to EP-30-XXW, EP-23-XXW, EP-15-XXW, EP-7-XXW respectively; added new models: LEP-30-33W, LEP-30-120W, and GLEP-30; added controller model EPI-210; added electrical ratings for the new models
			4	---	Added Test Performance 2 for the new models
			5	---	Added Conclusion 2
			9, 10	---	Added product line test requirements for new models
			12	1	Changed model designation from 23-2-XXW to EP-23-XXW
			13	2	Changed model designation from 7-2-XXW, 15-2-XXW, 23-2-XX, 30-2-XXW to EP-7-XXW, EP-15-XXW, EP-23-XXW, EP-30-XXW respectively
			14	1	Changed model designation from 30-2-XXW, 23-2-XXW, 15-2-XXW, 7-2-XXW to EP-30-XXW, EP-23-XXW, EP-15-XXW, EP-7-XXW respectively; removed model 34-2-XXW
			22a	13, 14 & 15	Added photos of the new models (Step Heating Elements)
			22b	16 & 17	Added photos of the controller for new models
			22c	18 & 19	Added photos of the thermostat
			22d	20	Added photo of the sensor
			22e	1, 2 & 3	Added component information for the Step Heating Element
			22f	1 to 11	Added component information for the Controller
			22g	1 & 2	Added component information for the Thermostat
			26a	1	Added marking information for Step Heating Element
			26b	1 to 6	Added required information of the Instruction manual
			27	1	Added revised instruction for all models
			28	2	Removed Illustration 2 for Wiring Diagram because it is contained inside the revised Illustration 1 on page 27.
			29a	3	Added Rating Label/Name Plate of the Controller EPI-210

**PRODUCT DESCRIPTION**

**PRODUCT COVERED**

Under-Floor Heating System; cat. nos. EP-30-XXW, EP-23-XXW, EP-15-XXW, EP-7-XXW, where XX is specific wattage per meter length

Step Heating Element, models: LEP-30-33W, LEP-30-120W, and GLEP-30 (optional)

Controller, model: EPI-210

**PRODUCT DESCRIPTION**

The product covered by this report is a radiant (PTC) heating panel set system, for indoor or outdoor use, to be installed under floors. It is intended to be mounted on top of a base, and then covered with an overlay of concrete or poured masonry or covered with a finished floor, (tile, wood, carpet, etc.). The system consists of flexible heater sheets formed of electrically conductive polyethylene. The heaters receive their power from a low voltage (less than 30 volts) transformer.

The product can also be installed in roofs, walls, or other surfaces and then covered with a finished material.

The system comes with an optional electronic thermostat STEP Touch. The heater product is suitable for use with Healthier Choice polyurethane carpet cushions that are Fire Retardant in accordance with DOC-FF-170 for radiant panels.

**MODEL SIMILARITY**

All models are similar except for overall width and length of the heating sheets. Model GLEP-30 (optional) has a ground conductor.

**ELECTRICAL RATINGS**

<u>Product</u>	<u>Voltage</u>	<u>Max. Current</u>	<u>Frequency</u>	<u>Wattage</u>	<u>Phase</u>
all	120V	-	60Hz	1500W or (Maximum rating of transformer)	1
	208V		60	1500W or (Maximum rating of transformer)	1
	240V		50/60	1500W or (Maximum rating of transformer)	1
	277V		60	1500W or (Maximum rating of transformer)	1
LEP-30-33W (element)	120 V	20 A	50/60Hz	31 watt/meter @ 20 °C, max 2400 Watt element max 30 x 8000 cm	1
LEP-30-120W (element)	230 V	20 A	50/60Hz	115 watt/meter @ 20 °C, max. 4600 Watt, element max. 30 x 4000 cm.	1
EPI-210 (controller)	120/230 V	25 A	50/60Hz	--	1

### **TEST PERFORMANCE NO. 1**

A representative sample of the product was tested in accordance with the Standard for Electric Radiant Heating Panels and Heating Panel Sets (UL-1693, 2nd Ed. Dated July 19, 2002).

The following tests were performed:

<u>Test Description</u>	<u>Clause (UL1693)/CSA 130-03</u>
Input	17/6.2.3
Normal Temperature	19/6.2.5
Dielectric Voltage-Withstand	22-23/6.2.1
Cold Bend	24/6.2.9
Mechanical Abuse	25/6.2.10
Scratch	26/6.2.8
Concrete	27/-
Horizontal Burn	28/6.2.14

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

### **TEST PERFORMANCE NO. 2**

A representative sample of the product LEP-30-120W with controller EPI-210 was tested in accordance with the Standard for Electric Radiant Heating Panels and Heating Panel Sets (UL-1693, 3<sup>rd</sup> Ed. 2010, Rev. October 14, 2011).

The following tests were performed:

<u>Test Description</u>	<u>Clause (UL 1693)</u>
Input	17
Normal Temperature	19
Dielectric Voltage-Withstand	22-23
Ground Bond (Controller)	15
Note: Due to similarity of the heating elements, tests performed Cold Bend, Mechanical Abuse, Scratch, Concrete, Horizontal Burn in the previous section are accepted.	

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