



1. Customer

- Name : ENERGY KOREA INC.
- Address : 1048-1, Yongjeong-ri, Ganghwa-eup, Ganghwa-gun, Incheon, KOREA
- Date of Receipt : 2011. 03. 23

2. Use of Test Report : Quality Assessment

3. Product(s) : Far Infrared Radiation Heating Panel for Ceiling

- Type Designation(s) : SR-20
- Serial No(s). : Not applicable

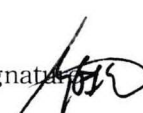

4. Date(s) of Test Performance : 2011. 03. 23 ~ 2011. 03. 24

5. Test Item(s)/Method(s) : IEC 60529: 2001 / IP55 (Category 2)

6. Test Environment

- Temperature : (19 ± 3) °C
- Relative Humidity : (35 ± 5) % R.H.

7. Test Result : Pass

Conformation	Tested by Name H. I. Sok Signature 	Approved by Technical Manager Name J. H. Choi Signature 
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2011. 04. 26

The head of Korea Electrical Safety Corporation Safety Test Center



This is certified that the above mentioned products have been tested for the sample provided by customer and forbid the use except for original purpose.

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338-1, Yeonghwa Dong, Jangan Gu, Suwon City, Gyeonggi Do, 440-819, Korea

TEST DATA

IEC 60529: 2001



Safety Test Center

Report No.: STC-B11-078-02 Customer: ENERGY KOREA INC.
Page No.: 2 / 7 Product: Far Infrared Radiation Heating Panel for Ceiling
Model: SR-20

1. Test Environment

- Temperature: (19 ± 3) °C, Relative Humidity: (35 ± 5) % R.H.
- Location: Dust Chamber, IP Water Test Lab.

2. List of Used Equipment

Equipment	Description	Manufacturer	Model	Serial No.	Calibration Valid Until
A-74-01	Dust Chamber	PTL	P14	5040172	2011. 07. 15
A-75-04	Jet Nozzle	ED & D	JET-03	W0750119	2012. 03. 21
B-01-01	Stop Watch	Time Art	PC-80A	TPST002	2011. 10. 14
B-03-03	Tape Measure	HIBO	-	-	2011. 05. 26

3. Test Date

Date of receipt of test item.....:	2011. 03. 23
Date(s) of performance test.....:	2011. 03. 23 ~ 2011. 03. 24

4. Test Condition: IP55 (Category 2)

5. Test Result: Pass

1) Dust Test

Test results for dust protection (first characteristic numeral 5)
Description of test:
1. Degree of protection. Ingress of dust is not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety
2. Category for enclosure; <input type="checkbox"/> Category 1 <input checked="" type="checkbox"/> Category 2 <input type="checkbox"/> Category 1 and Category 2
3. Testing method: - The talcum powder used shall be able to pass through a square-meshed sieve the nominal wire diameter of which is 50 µm and the nominal width between wires was 75 µm. - The amount of talcum powder was 2 kg per cubic meter of the chamber volume. - The amount of talcum powder to be used is 2 kg per cubic metre of the test chamber volume. Category 1

TEST DATA

IEC 60529: 2001



Safety Test Center

Report No.: STC-B11-078-02 Customer: ENERGY KOREA INC.
Page No.: 3 / 7 Product: Far Infrared Radiation Heating Panel for Ceiling
Model: SR-20

- If an extraction rate of 40 to 60 volumes per hour is obtained the duration of the test is 2 h.
- If, with a maximum depression of 2 kPa (20 mbar), the extraction rate is less than 40 volumes per hour, the test is continued until 80 volumes have been drawn through, or a period of 8 h has elapsed.

Category 2

- The enclosure under test is supported in its normal operating position inside the test chamber, but is not connected to a vacuum pump. Any drain-hole normally open shall be left open for the duration of the test. The test shall be continued for a period of 8 h

4. Test conditions

The enclosure shall be deemed category 1 unless the relevant product standard for the equipment specifies that the enclosure is category 2

5. Acceptance conditions

The protection is satisfactory if, on inspection, talcum powder has not accumulated in a quantity or location such that, as with any other kind of dust, it could interfere with the correct operation of the equipment or impair safety. Except for special cases to be clearly specified in the relevant product standard, no dust shall deposit where it could lead to tracking along the creepage distances.

6. Test result: Pass

2) Water Test

Test results for water protection (second characteristic numeral 5)

Description of test

1. Degree of protection.

Water from projected by a nozzle against the enclosure from any direction shall have no harmful effect

2. Testing method:

- The test was made by spraying the enclosure from all practicable directions with a stream of water from a standard test nozzle
- Nozzle internal diameter: 6.3 mm
- Delivery rate: 12.5 L/min \pm 5 %
- Water pressure: to be adjusted to achieve the specified delivery rate
- Test duration per square metre of enclosure surface area likely to be sprayed: 1 min
- Minimum test duration: 3 min
- Distance from the nozzle to the enclosure surface: between 2,5 m and 3 m

3. Acceptance conditions:

Dielectric strength test: N/A

TEST DATA

IEC 60529: 2001



Safety Test Center

Report No.: STC-B11-078-02 Customer: ENERGY KOREA INC.
Page No.: 4 / 7 Product: Far Infrared Radiation Heating Panel for Ceiling
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It shall not;

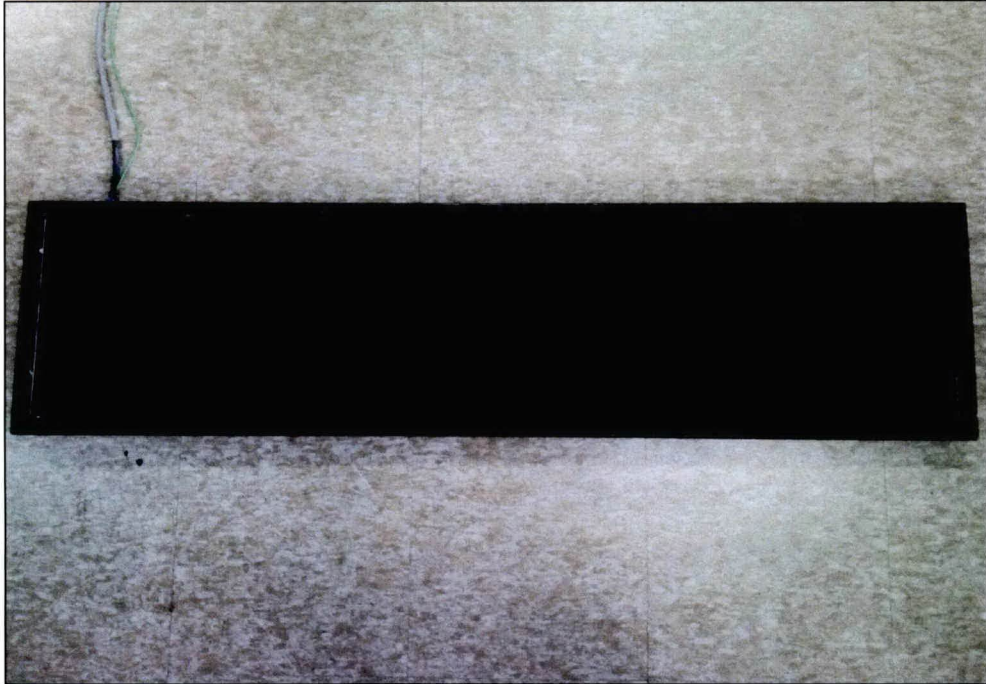
- be sufficient to interfere with the correct operation of the equipment or impair safety;
- deposit on insulation parts where it could lead to tracking along the creepage distances;
- reach live parts or windings not designed to operate when wet;
- accumulate near the cable end or enter the cable if any.

4. Test result: Pass

Photo Documentation

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Customer: 주에너지코리아(ENERGY KOREA INC.)
Product: 천장형 원격외선 복사난방 패널(Far Infrared Radiation Heating Panel for Ceiling)
Model: SR-20



[SR-20]

1. Test Condition (IP Test)

- IP Code: IP55
- 1) Dust test for first characteristic numeral 5
 - Duration of time: 8 h
- 2) Water test for second characteristic numeral 5 with the 6.3 mm nozzle
 - Internal diameter of the nozzle: 6.3 mm
 - Delivery rate: 12.5 L/min
 - Duration of time: 3 min

2. Applicant & Model

- ENERGY KOREA INC.
- Far Infrared Radiation Heating Panel for Ceiling (SR-20)

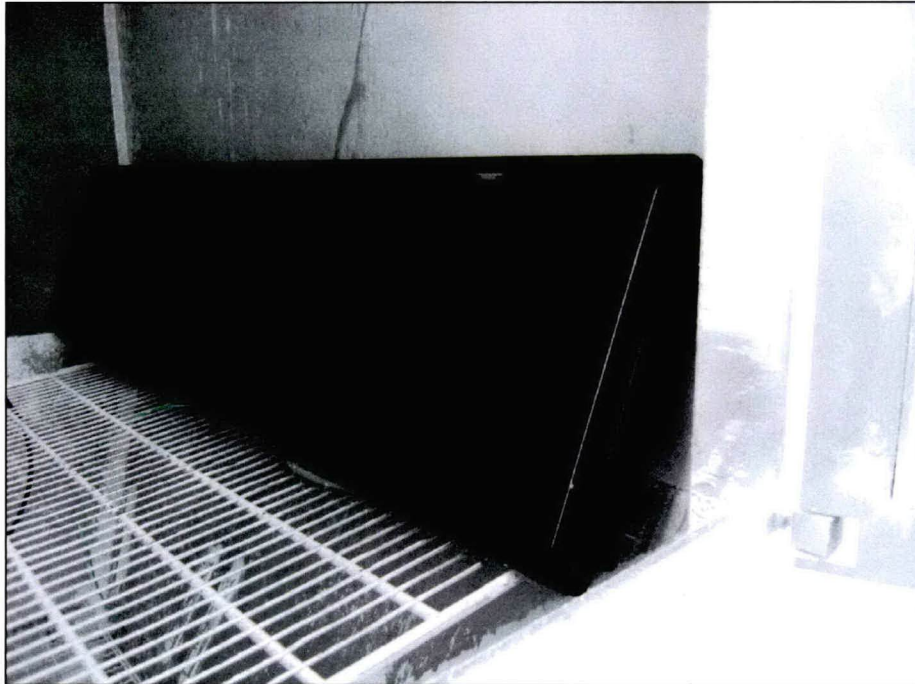
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3. Test Figure

1) Dust Test



[Before Test]



[After Test]

Photo Documentation

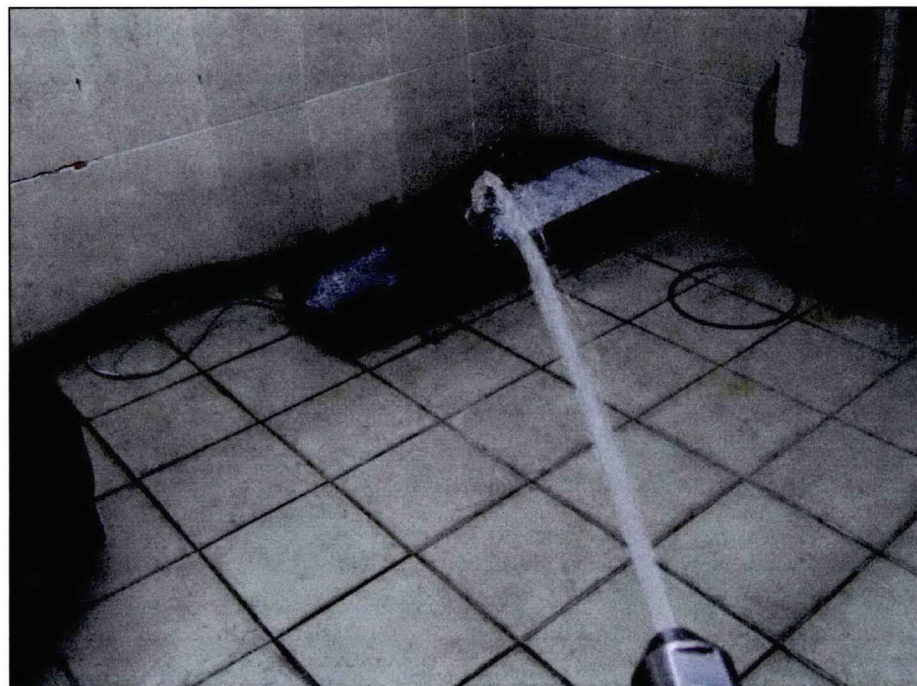
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2) Water Test



[Before Test]



[During Test]