

ASTM E 648-10e1
Standard Test Method for Critical Radiant
Flux of Floor-Covering Systems Using a
Radiant Heat Energy Source

TEST REPORT

Client:	Beynon Sports Surfaces, Inc.
Address:	16 Alt Road Hunt Valley, MD 21030
Report No:	16110-112656
Sample Received:	March 18, 2012
Test Date:	March 20, 2012
Sample Conditioning:	70.0±5.0°F and 50±5% relative humidity
Sample Identification:	BSS-300 System
Description:	BSS-300 System <i>The sample was adhered to a 0.25" thick cement board with a noncombustible adhesive.</i>

Test Overview

This procedure provides a way of measuring *critical radiant flux* (the level of incident radiant heat energy on a floor covering system at the most distant flame-out point, reported as W/cm²) of horizontally mounted floor-covering systems exposed to a flaming ignition source while being exposed to radiant heat energy from a panel with approximately a 30° angle from the horizontal. The radiant flux ranges from 1.08 W/cm² at the 100mm mark to 0.10 W/cm² at the 900mm mark.

Test Procedure

At least three specimens shall be tested. The specimens are conditioned at 70.0 ± 5.0°F and a relative humidity of 50±5% for a minimum of 48 hours. Following the ASTM E 648-10e1 calibration procedures, the first specimen was then loaded into the test chamber. After a 5 minute pre-heat time, the pilot flame was placed on top of the specimen at the 0 mm mark. This pilot flame is to remain in contact with the specimen for 5 minutes, then removed. If the specimen does not propagate flame during the 5 minute pilot flame contact, then the test is terminated. For specimens that do propagate flame, the test is continued until the flame goes out. The distance to the farthest flame-out point is noted, which is then used to determine the critical radiant flux, based on a radiant heat energy flux profile curve of the apparatus obtained during calibration.

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Test Results

Specimen	1	2	3
Maximum Distance (mm)	634	610	615
Time to Max. Distance (min.)	91.2	97.6	95.3
Critical Radiant Flux (W/cm ²)	0.49	0.48	0.47
Time to All Flame Out (min.)	93.5	101.2	98.6

Observations (min)

Run No.	Melting	Ignition	Blisters	Smoking	Dripping
1	4.9	5.0	3.8	3.7	5.2
2	4.9	5.0	4.0	3.7	5.2
3	4.9	5.0	3.8	3.7	5.2

The average critical flux was 0.48 W/cm² and the standard deviation was 0.01

The coefficient of variation was 4.36

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