

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions  
(formerly Eaton)

Brand: FAIL-SAFE

Report Number: 4287

Luminaire Tested: **HCS-150-S**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: 4287  
Test Lab:  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: HCS-150-S  
Description: FAIL-SAFE CEILING MOUNT 150HPS  
Light Source: S55(LU150/55 16000 LUMENS  
Ballast/Driver: -

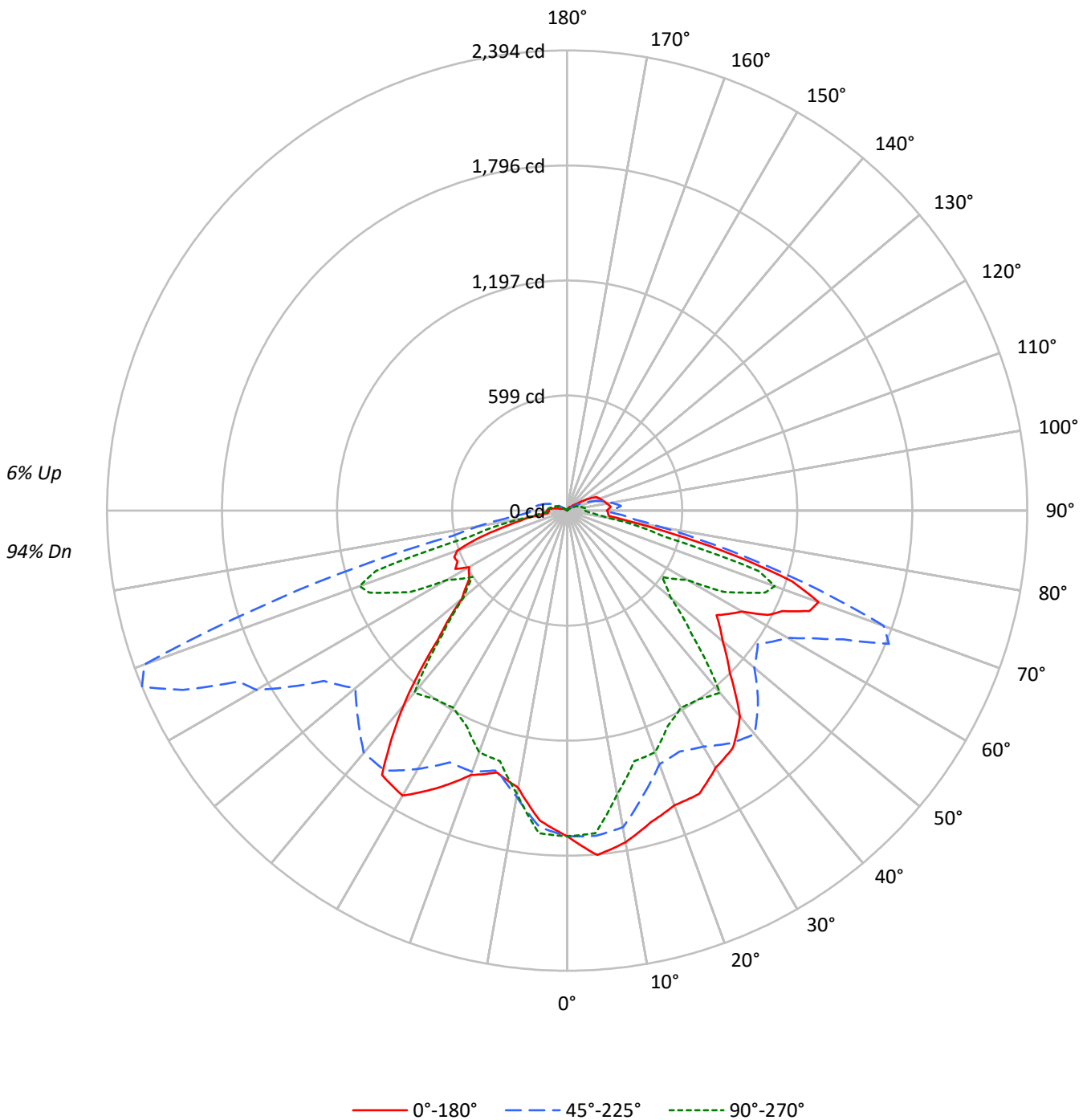
**Summary**

Lumens per Lamp: 16000 (1 lamp)  
Luminaire Lumens: 7242.7 lumens  
Efficiency: 45.3%  
Efficacy: 48.3 lumens/watt  
Spacing Criteria (0/90/45): 1.43 / 1.04 / 1.55  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
CIE Type: Direct

Input Watts (W): 150  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT

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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20					20	
RC	80					70					50					30					10	0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	53	53	53	53	52	52	52	52	49	49	49	46	46	46	44	44	44	42				42
1	47	45	42	40	46	43	41	39	41	39	37	38	37	35	36	35	34	33				33
2	42	37	34	30	40	36	33	30	34	31	29	32	30	28	30	28	27	25				25
3	38	32	28	24	36	31	27	24	29	26	23	27	25	22	26	23	21	20				20
4	34	28	23	20	33	27	23	19	25	22	19	24	21	18	23	20	18	16				16
5	31	24	20	16	30	24	19	16	22	19	16	21	18	15	20	17	15	14				14
6	28	22	17	14	27	21	17	14	20	16	14	19	16	13	18	15	13	12				12
7	26	20	15	12	25	19	15	12	18	14	12	17	14	11	16	13	11	10				10
8	24	18	14	11	24	17	13	11	16	13	10	16	12	10	15	12	10	9				9
9	23	16	12	10	22	16	12	9	15	12	9	14	11	9	14	11	9	8				8
10	21	15	11	9	21	15	11	9	14	11	8	13	10	8	13	10	8	7				7

**AVERAGE LUMINANCE (cd/sqm):**

	0°	90°	180°
0°	18232	18232	18232
5°	19433	18204	17493
10°	19148	16379	16004
15°	18713	15035	15721
20°	18686	15329	16772
25°	19310	14690	18903
30°	19204	14709	21281
35°	19780	15730	22067
40°	19651	17380	18611
45°	18223	14053	14449
50°	17685	11767	11973
55°	17813	11284	11671
60°	22617	15539	12680
65°	31503	25712	16013
70°	43796	36167	19141
75°	37542	21705	15038
80°	20716	13247	12056
85°	26392	14882	13190



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

Zone	Lumens	% Fixture	% Lamp		0°	45°	90°	135°	180°	Flux
0°-10°	156.3	2.2	1.0	0°	1694	1694	1694	1694	1694	
10°-20°	416.9	5.8	2.6	5°	1798	1698	1685	1652	1619	169
20°-30°	661.8	9.1	4.1	15°	1679	1531	1349	1398	1411	476
30°-40°	889.8	12.3	5.6	25°	1626	1383	1237	1445	1592	743
40°-50°	916.4	12.7	5.7	35°	1505	1478	1197	1652	1679	934
50°-60°	928.1	12.8	5.8	45°	1197	1404	923	1538	949	936
60°-70°	1495.6	20.6	9.3	55°	949	1211	601	1545	622	898
70°-80°	1060.2	14.6	6.6	65°	1237	1585	1010	2207	629	1243
80°-90°	265.3	3.7	1.7	75°	903	1010	522	1115	362	938
90°-100°	198.4	2.7	1.2	85°	214	294	120	241	107	193
100°-110°	143.3	2.0	0.9	90°	207	227	93	194	107	116
110°-120°	82.2	1.1	0.5	95°	227	281	100	181	93	175
120°-130°	29.9	0.4	0.2	105°	194	188	74	127	33	207
130°-140°	4.5	0.1	0.0	115°	167	93	53	79	27	146
140°-150°	0.2	0.0	0.0	125°	60	33	20	20	0	71
150°-160°	0.1	0.0	0.0	135°	27	0	0	0	0	26
160°-170°	0.0	0.0	0.0	145°	20	0	0	0	0	13
170°-180°	0.0	0.0	0.0	155°	14	0	0	0	0	6
0°-30°	1234.9	17.1	7.7	165°	0	0	0	0	0	1
0°-40°	2124.7	29.3	13.3	175°	0	0	0	0	0	0
0°-60°	3969.2	54.8	24.8	180°	0	0	0	0	0	
0°-90°	6790.2	93.8	42.4							
90°-120°	423.8	5.9	2.6							
90°-150°	458.5	6.3	2.9							
90°-180°	459.0	6.3	2.9							
0°-180°	7242.7	100.0	45.3							



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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	15°	25°	35°	45°	55°	65°	75°	90°	105°
0°	1693.8	1693.8	1693.8	1693.8	1693.8	1693.8	1693.8	1693.8	1693.8	1693.8	1693.8
5°	1798.5	1765.6	1719.0	1739.6	1705.3	1698.5	1698.5	1705.3	1691.6	1684.8	1638.2
10°	1751.9	1719.0	1719.0	1698.5	1672.4	1672.4	1651.9	1612.2	1551.9	1498.5	1471.1
15°	1679.3	1665.6	1645.0	1638.2	1584.8	1531.4	1457.4	1410.8	1364.3	1349.2	1331.4
20°	1631.3	1605.3	1605.3	1584.8	1477.9	1404.0	1357.4	1338.2	1338.2	1338.2	1324.5
25°	1625.9	1584.8	1612.2	1577.9	1471.1	1383.4	1331.4	1290.3	1284.8	1236.9	1236.9
30°	1545.1	1524.5	1545.1	1558.8	1457.4	1417.7	1317.7	1271.1	1223.2	1183.4	1204.0
35°	1505.3	1477.9	1484.8	1505.3	1491.6	1477.9	1371.1	1243.7	1188.9	1197.1	1228.6
40°	1398.5	1357.4	1377.9	1383.4	1551.9	1517.7	1331.4	1236.9	1183.4	1236.9	1157.4
45°	1197.1	1183.4	1204.0	1257.4	1391.6	1404.0	1262.9	1076.6	990.3	923.2	969.8
50°	1056.1	1023.2	1069.8	1217.7	1243.7	1271.1	1097.2	889.0	782.1	702.7	728.7
55°	949.2	916.3	1016.3	1210.8	1228.6	1210.8	997.2	762.9	635.6	601.3	608.2
60°	1050.6	1009.5	1290.3	1551.9	1512.2	1324.5	1097.2	782.1	721.8	721.8	809.5
62.5°	1176.6	1164.3	1946.4	2053.2	1886.1	1438.2	1157.4	835.5	842.4	916.3	889.0
65°	1236.9	1271.1	2468.3	2501.1	2106.6	1584.8	1243.7	895.8	976.6	1009.5	895.8
67.5°	1364.3	1431.4	3270.9	2902.5	2327.2	1812.2	1371.1	1056.1	1097.2	1115.0	942.4
70°	1391.6	1357.4	3531.2	2888.8	2334.0	1751.9	1438.2	1130.0	1130.0	1149.2	889.0
72.5°	1228.6	1223.2	3217.5	2508.0	1772.4	1371.1	1250.6	1030.0	1069.8	1043.7	642.4
75°	902.7	936.9	2535.4	1906.7	1304.0	1009.5	835.5	709.5	721.8	521.9	501.3
77.5°	568.4	515.0	1331.4	1236.9	816.4	715.0	547.9	428.7	428.7	387.6	273.9
80°	334.2	354.8	715.0	769.8	628.7	494.5	394.5	280.8	260.2	213.7	194.5
82.5°	220.5	200.0	475.3	482.1	394.5	354.8	260.2	194.5	174.0	153.4	141.1
85°	213.7	194.5	441.1	415.0	361.6	294.5	213.7	167.1	141.1	120.5	113.7
87.5°	213.7	194.5	408.2	313.7	260.2	227.4	187.7	153.4	134.2	100.0	93.1
90°	206.8	194.5	387.6	319.1	267.1	227.4	194.5	153.4	127.4	93.1	93.1
95°	227.4	206.8	334.2	334.2	308.2	280.8	227.4	167.1	134.2	100.0	120.5
105°	194.5	180.8	234.2	254.8	194.5	187.7	153.4	127.4	100.0	74.0	93.1
115°	167.1	134.2	174.0	153.4	100.0	93.1	86.3	93.1	67.1	53.4	67.1
125°	60.3	39.7	27.4	27.4	27.4	32.9	32.9	27.4	20.5	20.5	13.7
135°	27.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	20.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	13.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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**CANDELA DISTRIBUTION (continued):**

	115°	125°	135°	145°	155°	165°	175°	180°
0°	1693.8	1693.8	1693.8	1693.8	1693.8	1693.8	1693.8	1693.8
5°	1651.9	1651.9	1651.9	1612.2	1605.3	1612.2	1584.8	1619.0
10°	1491.6	1512.2	1512.2	1491.6	1498.5	1498.5	1491.6	1464.2
15°	1349.2	1371.1	1398.5	1417.7	1417.7	1431.4	1417.7	1410.8
20°	1371.1	1391.6	1445.1	1438.2	1464.2	1471.1	1464.2	1464.2
25°	1284.8	1343.7	1445.1	1558.8	1571.1	1598.5	1584.8	1591.6
30°	1278.0	1383.4	1551.9	1651.9	1705.3	1679.3	1698.5	1712.2
35°	1297.1	1445.1	1651.9	1679.3	1625.9	1558.8	1645.0	1679.3
40°	1284.8	1545.1	1645.0	1565.6	1391.6	1324.5	1317.7	1324.5
45°	1149.2	1451.9	1538.2	1364.3	1157.4	969.8	923.2	949.2
50°	1009.5	1343.7	1438.2	1284.8	1076.6	849.2	721.8	715.0
55°	883.5	1331.4	1545.1	1417.7	1130.0	809.5	635.6	621.9
60°	983.5	1625.9	1865.6	1732.7	1343.7	1050.6	647.9	589.0
62.5°	990.3	1658.7	1925.8	1960.1	1705.3	1558.8	682.1	656.1
65°	1023.2	1651.9	2206.6	2166.9	2160.1	1772.4	635.6	628.7
67.5°	1115.0	1638.2	2394.3	2227.2	2194.3	1932.7	621.9	635.6
70°	1090.3	1531.4	2340.9	2213.5	1953.2	2106.6	621.9	608.2
72.5°	936.9	1349.2	1691.6	1645.0	1598.5	1545.1	482.1	494.5
75°	673.9	849.2	1115.0	1136.9	983.5	969.8	361.6	361.6
77.5°	434.2	589.0	608.2	689.0	601.3	521.9	254.8	254.8
80°	273.9	380.8	468.4	454.8	454.8	327.4	187.7	194.5
82.5°	194.5	286.3	327.4	334.2	341.1	260.2	100.0	100.0
85°	153.4	206.8	241.1	227.4	301.3	234.2	100.0	106.8
87.5°	127.4	167.1	194.5	194.5	241.1	206.8	93.1	93.1
90°	127.4	167.1	194.5	187.7	227.4	206.8	100.0	106.8
95°	141.1	167.1	180.8	153.4	180.8	167.1	86.3	93.1
105°	113.7	113.7	127.4	106.8	113.7	79.4	32.9	32.9
115°	86.3	106.8	79.4	74.0	79.4	46.6	27.4	27.4
125°	27.4	27.4	20.5	13.7	13.7	6.8	0.0	0.0
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
145°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
155°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
165°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
175°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)