

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P902540

Luminaire Tested: DFN2DIP-HX3F0-030D090US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902540
REPORT IS A COMBINATION OF REPORTS P899285 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-030D090US830-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

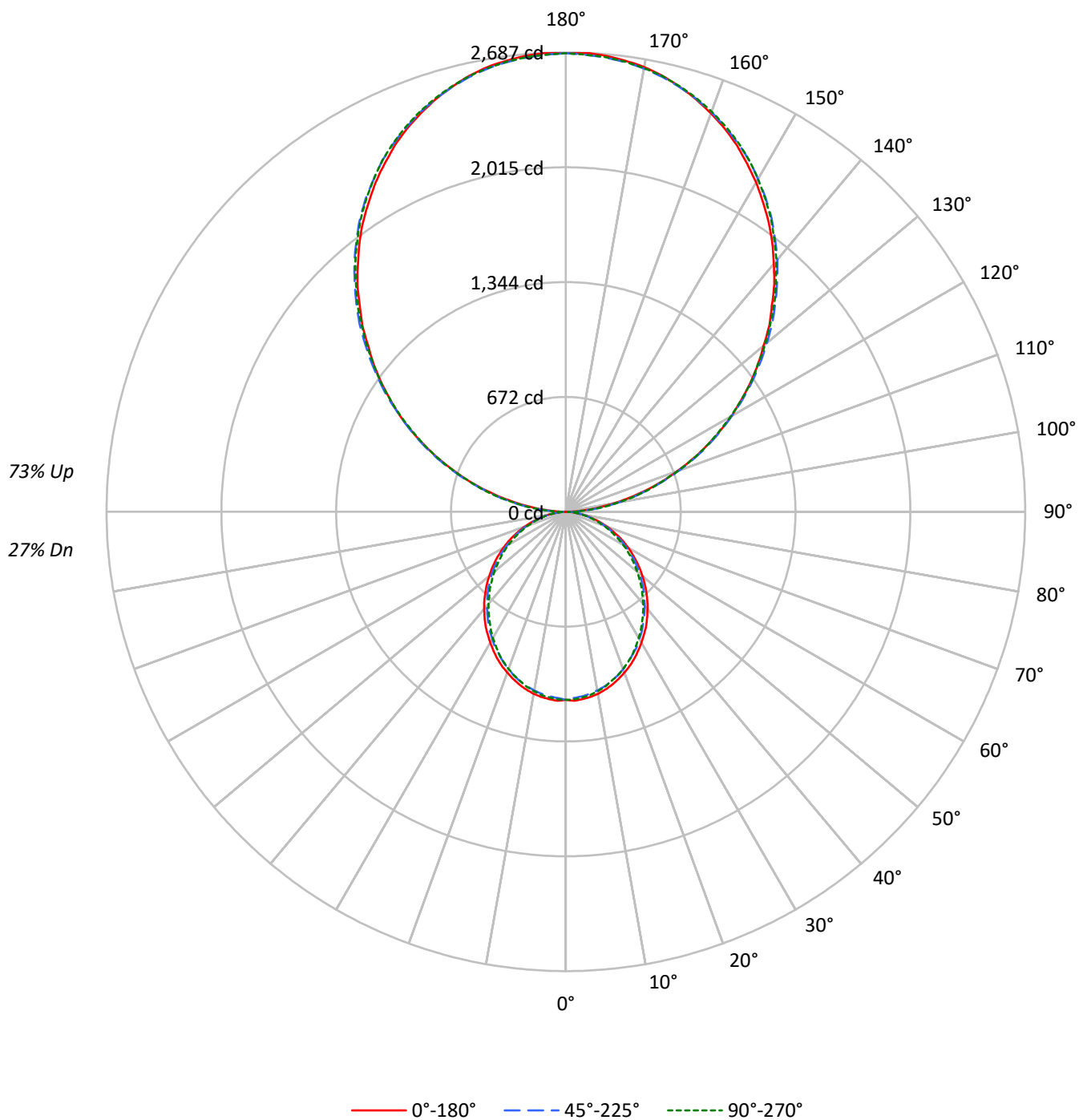
Lumens per Lamp: N/A
Luminaire Lumens: 10306.7 lumens
Efficiency: N/A
Efficacy: 108.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 94.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	102	102	102	102	91	91	91	91	71	71	71	52	52	52	35	35	35
1	93	88	85	81	83	79	76	73	62	60	58	46	44	43	31	30	30
2	84	77	71	66	75	69	64	60	54	51	48	40	38	36	27	26	25
3	77	68	61	55	68	61	55	50	48	44	40	35	33	30	24	23	21
4	70	60	52	47	62	54	47	42	42	38	34	32	29	26	22	20	18
5	64	53	45	40	57	48	41	36	38	33	29	28	25	22	19	17	16
6	59	48	40	34	53	43	36	31	34	29	25	25	22	20	18	16	14
7	55	43	35	30	49	39	32	27	31	26	22	23	20	17	16	14	12
8	51	39	31	26	45	35	28	24	28	23	20	21	18	15	15	13	11
9	47	35	28	23	42	32	26	21	25	21	17	19	16	14	14	11	10
10	44	32	25	21	39	29	23	19	23	19	16	18	15	12	13	10	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1274	1274	1274
5°	1276	1256	1264
10°	1265	1238	1247
15°	1246	1217	1219
20°	1220	1188	1191
25°	1195	1153	1159
30°	1163	1120	1118
35°	1132	1082	1074
40°	1095	1044	1033
45°	1058	1005	991
50°	1017	965	942
55°	975	918	897
60°	926	862	846
65°	874	804	785
70°	807	734	719
75°	714	649	657
80°	602	541	541
85°	428	358	351

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2524 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	103.6	1.0
10°-20°	291.4	2.8
20°-30°	428.2	4.2
30°-40°	497.3	4.8
40°-50°	496.7	4.8
50°-60°	433.1	4.2
60°-70°	320.2	3.1
70°-80°	181.1	1.8
80°-90°	55.4	0.5
90°-100°	166.0	1.6
100°-110°	527.5	5.1
110°-120°	902.7	8.8
120°-130°	1187.2	11.5
130°-140°	1332.5	12.9
140°-150°	1306.7	12.7
150°-160°	1096.1	10.6
160°-170°	726.9	7.1
170°-180°	254.1	2.5
0°-30°	823.1	8.0
0°-40°	1320.4	12.8
0°-60°	2250.3	21.8
0°-90°	2807.0	27.2
90°-120°	1596.2	15.5
90°-150°	5422.6	52.6
90°-180°	7500.0	72.8
0°-180°	10306.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1100	1100	1100	1100	1100	
5°	1100	1096	1084	1093	1091	104
15°	1047	1041	1027	1032	1026	295
25°	948	940	922	924	922	436
35°	818	807	790	784	779	511
45°	666	658	642	631	626	514
55°	504	497	485	472	467	450
65°	340	333	323	313	308	336
75°	178	176	170	164	166	190
85°	43	42	41	38	37	48
90°	2	29	79	74	77	10
95°	118	141	145	145	141	131
105°	487	493	498	502	502	514
115°	906	919	915	912	906	896
125°	1318	1338	1331	1324	1322	1177
135°	1704	1729	1734	1732	1725	1317
145°	2069	2085	2098	2100	2092	1293
155°	2366	2372	2380	2391	2384	1089
165°	2574	2571	2571	2587	2576	726
175°	2678	2671	2667	2683	2669	254
180°	2683	2683	2683	2683	2683	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1100.2	1100.2	1100.2	1100.2	1100.2
2.5°	1106.6	1101.4	1089.7	1100.2	1098.3
5°	1100.2	1096.1	1084.4	1092.9	1090.8
7.5°	1092.9	1086.6	1074.9	1083.5	1081.3
10°	1081.3	1073.8	1061.2	1069.6	1066.5
12.5°	1065.4	1059.0	1046.4	1051.6	1049.5
15°	1047.4	1041.1	1027.3	1031.5	1026.2
17.5°	1025.1	1018.9	1005.0	1010.3	1005.0
20°	1000.8	994.5	979.7	982.8	978.6
22.5°	976.6	967.0	953.2	953.2	951.0
25°	947.9	939.5	921.5	923.6	921.5
27.5°	916.2	908.7	895.0	891.9	886.6
30°	884.5	876.0	860.2	857.0	852.7
32.5°	850.6	844.3	827.4	821.0	816.7
35°	817.8	807.3	790.3	783.9	778.6
37.5°	780.8	771.3	754.3	746.9	741.6
40°	742.7	734.2	717.3	707.8	703.6
42.5°	705.7	697.2	680.3	669.7	663.4
45°	665.5	658.1	642.2	630.6	626.3
47.5°	626.3	619.0	602.0	590.3	584.0
50°	585.0	579.8	565.0	550.2	544.9
52.5°	544.9	537.4	523.8	512.1	504.6
55°	503.7	497.3	484.6	471.9	466.7
57.5°	462.3	457.0	443.3	430.6	426.3
60°	421.0	416.9	402.1	390.4	387.3
62.5°	380.9	373.4	362.9	352.3	348.1
65°	339.7	333.3	322.7	313.2	307.9
67.5°	297.4	292.0	282.5	275.1	270.9
70°	258.2	253.9	244.4	237.0	232.8
72.5°	218.0	213.7	208.4	201.0	197.9
75°	177.7	175.7	170.3	164.0	166.2
77.5°	141.8	137.5	135.3	132.2	129.1
80°	105.8	104.7	102.5	99.4	97.4
82.5°	71.9	71.9	71.0	66.6	66.6
85°	43.4	42.3	41.3	38.1	37.0
87.5°	19.0	17.0	14.8	11.7	10.6
90°	2.5	29.1	79.3	74.4	76.8
92.5°	50.1	68.0	70.4	72.8	72.8
95°	118.1	140.7	144.8	144.8	140.7
97.5°	196.5	217.5	226.5	226.5	226.5
100°	287.1	305.8	312.2	312.2	309.8
102.5°	382.6	396.3	405.2	407.6	405.2
105°	486.9	493.3	498.2	502.3	502.3
107.5°	590.4	600.1	600.1	601.7	590.4
110°	690.7	703.7	703.7	703.7	697.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	799.1	812.8	810.4	804.0	799.1
115°	905.9	918.8	914.7	912.4	905.9
117.5°	1011.8	1029.6	1018.3	1011.8	1005.3
120°	1118.6	1136.3	1118.6	1118.6	1111.3
122.5°	1215.6	1238.3	1227.0	1220.5	1215.6
125°	1317.6	1337.8	1331.3	1324.0	1321.6
127.5°	1417.0	1442.1	1433.2	1423.5	1417.0
130°	1510.0	1539.2	1535.1	1530.2	1521.4
132.5°	1614.4	1637.0	1638.6	1627.3	1620.9
135°	1704.1	1729.2	1734.1	1731.6	1725.2
137.5°	1804.4	1824.7	1828.7	1827.1	1817.4
140°	1892.6	1912.8	1924.1	1924.1	1915.2
142.5°	1983.2	2003.4	2009.9	2012.3	2003.4
145°	2069.0	2085.1	2098.0	2100.5	2091.6
147.5°	2145.8	2166.0	2175.7	2179.7	2170.9
150°	2225.1	2238.8	2247.7	2254.9	2247.7
152.5°	2295.4	2309.1	2320.4	2329.4	2320.4
155°	2365.8	2372.2	2379.5	2390.9	2383.6
157.5°	2426.4	2431.3	2435.3	2451.5	2440.1
160°	2480.6	2485.5	2487.9	2501.6	2491.9
162.5°	2530.7	2530.7	2533.2	2548.5	2537.2
165°	2573.6	2571.2	2571.2	2587.4	2576.1
167.5°	2612.4	2605.2	2605.2	2621.3	2610.0
170°	2641.6	2635.1	2632.7	2648.8	2635.1
172.5°	2661.7	2655.3	2652.9	2669.1	2655.3
175°	2678.0	2671.4	2666.6	2682.9	2669.1
177.5°	2686.8	2680.4	2675.5	2689.3	2675.5
180°	2682.9	2682.9	2682.9	2682.9	2682.9

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	5.46	6.15	6.59	7.27	8.83	5.03	5.72	6.16	6.84	8.41
	3H	7.10	7.72	8.24	8.85	10.43	6.63	7.25	7.77	8.38	9.96
	4H	7.67	8.26	8.82	9.39	10.97	7.21	7.79	8.35	8.92	10.51
	6H	8.06	8.60	9.21	9.73	11.33	7.59	8.13	8.75	9.26	10.86
	8H	8.15	8.67	9.31	9.82	11.40	7.69	8.20	8.85	9.35	10.94
	12H	8.19	8.68	9.36	9.82	11.43	7.72	8.21	8.88	9.35	10.96
4H	2H	5.90	6.48	7.05	7.61	9.20	5.56	6.14	6.71	7.27	8.86
	3H	7.74	8.23	8.90	9.38	10.98	7.35	7.84	8.51	8.99	10.59
	4H	8.44	8.89	9.60	10.04	11.65	8.04	8.49	9.20	9.63	11.25
	6H	8.94	9.32	10.11	10.49	12.10	8.53	8.92	9.70	10.09	11.69
	8H	9.08	9.44	10.25	10.60	12.22	8.67	9.03	9.84	10.19	11.81
	12H	9.14	9.47	10.32	10.64	12.26	8.72	9.05	9.91	10.22	11.85
8H	4H	8.62	8.98	9.79	10.14	11.76	8.26	8.62	9.43	9.78	11.40
	6H	9.23	9.53	10.42	10.73	12.35	8.87	9.17	10.06	10.37	11.99
	8H	9.45	9.71	10.64	10.89	12.52	9.08	9.34	10.28	10.52	12.16
	12H	9.57	9.79	10.76	10.97	12.64	9.19	9.41	10.38	10.59	12.26
12H	4H	8.60	8.92	9.78	10.09	11.72	8.25	8.57	9.43	9.74	11.37
	6H	9.26	9.52	10.45	10.70	12.34	8.91	9.17	10.11	10.35	11.99
	8H	9.49	9.72	10.68	10.89	12.56	9.13	9.36	10.33	10.54	12.21