

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: P902564

Luminaire Tested: DFN2DIP-HX3F0-040D090US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902564
REPORT IS A COMBINATION OF REPORTS P899287 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-040D090US830-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

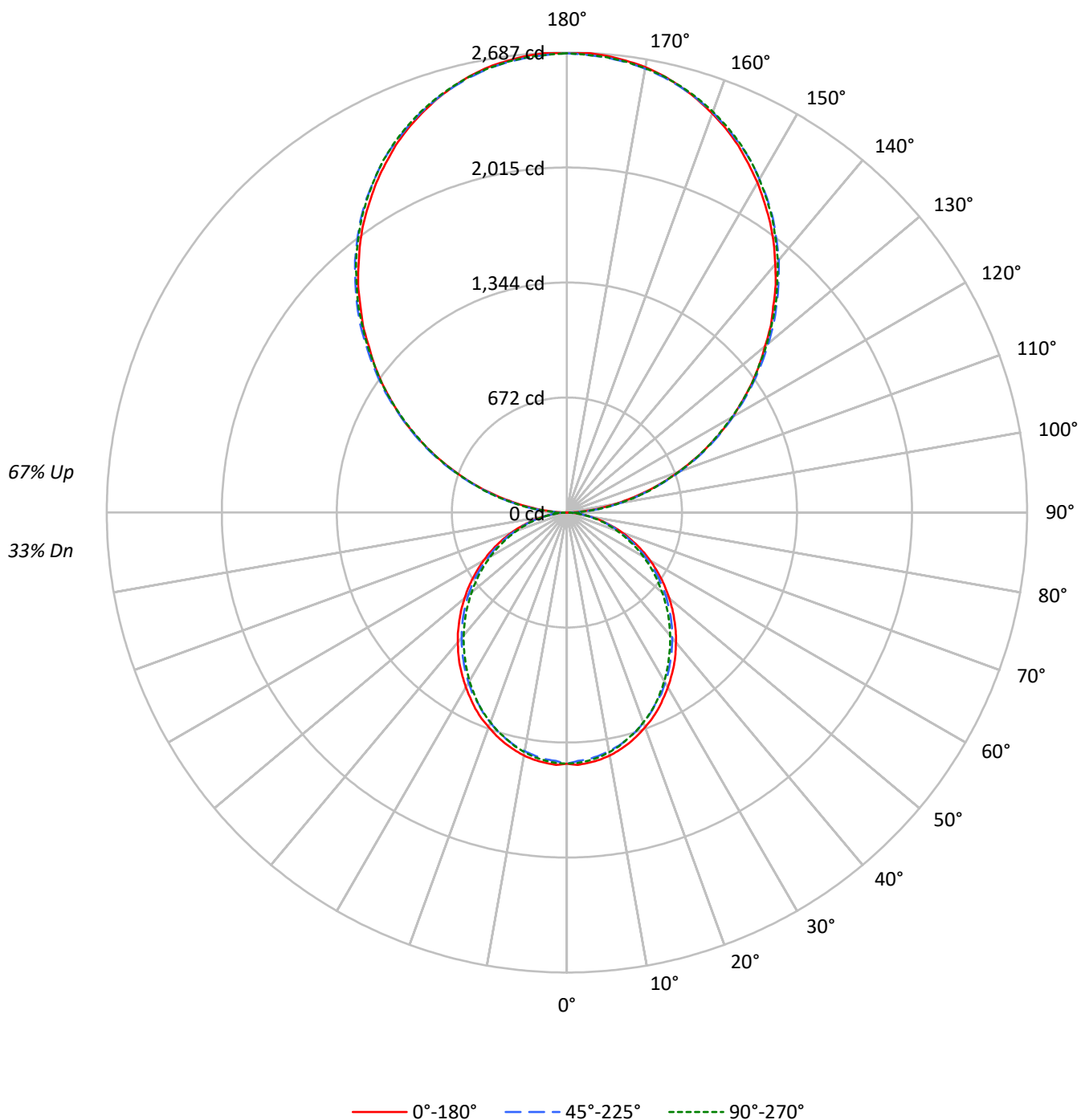
Lumens per Lamp: N/A
Luminaire Lumens: 11239.8 lumens
Efficiency: N/A
Efficacy: 106.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 105.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	48	47	36	35	34
2	86	78	72	67	77	71	66	62	57	53	50	44	41	39	32	30	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	43	44	40	36	34	31	28	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	18
6	60	48	41	35	54	44	37	32	36	31	27	28	24	21	20	18	16
7	56	44	36	30	50	40	33	28	32	27	23	25	22	19	19	16	14
8	51	39	32	27	46	36	29	25	29	24	21	23	19	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	18	21	18	15	16	13	12
10	45	33	26	21	40	30	24	20	25	20	17	19	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1699	1699	1699
5°	1701	1674	1686
10°	1687	1651	1662
15°	1661	1622	1626
20°	1627	1583	1588
25°	1593	1537	1545
30°	1550	1494	1490
35°	1510	1443	1433
40°	1460	1392	1378
45°	1410	1340	1321
50°	1356	1286	1256
55°	1300	1224	1196
60°	1235	1149	1127
65°	1165	1072	1046
70°	1076	978	958
75°	952	866	876
80°	802	722	722
85°	569	477	468

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°	138.1	1.2
10°-20°	388.5	3.5
20°-30°	570.9	5.1
30°-40°	663.1	5.9
40°-50°	662.3	5.9
50°-60°	577.5	5.1
60°-70°	426.9	3.8
70°-80°	241.5	2.1
80°-90°	71.4	0.6
90°-100°	166.0	1.5
100°-110°	527.5	4.7
110°-120°	902.7	8.0
120°-130°	1187.2	10.6
130°-140°	1332.5	11.9
140°-150°	1306.7	11.6
150°-160°	1096.1	9.8
160°-170°	726.9	6.5
170°-180°	254.1	2.3
0°-30°	1097.5	9.8
0°-40°	1760.6	15.7
0°-60°	3000.3	26.7
0°-90°	3740.1	33.3
90°-120°	1596.2	14.2
90°-150°	5422.6	48.2
90°-180°	7500.0	66.7
0°-180°	11239.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1467	1467	1467	1467	1467	
5°	1467	1461	1446	1457	1454	139
15°	1396	1388	1370	1375	1368	393
25°	1264	1253	1229	1231	1229	582
35°	1090	1076	1054	1045	1038	681
45°	887	878	856	841	835	685
55°	672	663	646	629	622	600
65°	453	444	430	418	411	448
75°	237	234	227	219	222	253
85°	58	56	55	51	49	64
90°	2	29	79	74	77	11
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°	1467.0	1467.0	1467.0	1467.0	1467.0
2.5°	1475.5	1468.5	1452.9	1467.0	1464.3
5°	1467.0	1461.4	1445.9	1457.1	1454.4
7.5°	1457.1	1448.7	1433.1	1444.5	1441.7
10°	1441.7	1431.8	1414.9	1426.2	1421.9
12.5°	1420.4	1412.0	1395.2	1402.2	1399.3
15°	1396.5	1388.1	1369.7	1375.4	1368.4
17.5°	1366.9	1358.5	1340.1	1347.1	1340.1
20°	1334.4	1326.0	1306.3	1310.4	1304.9
22.5°	1302.0	1289.3	1270.9	1270.9	1268.1
25°	1263.9	1252.6	1228.7	1231.4	1228.7
27.5°	1221.5	1211.6	1193.4	1189.2	1182.2
30°	1179.3	1168.0	1146.9	1142.6	1137.0
32.5°	1134.2	1125.8	1103.2	1094.7	1088.9
35°	1090.4	1076.4	1053.8	1045.3	1038.2
37.5°	1041.0	1028.3	1005.7	995.9	988.8
40°	990.3	978.9	956.3	943.8	938.1
42.5°	940.9	929.5	907.1	892.9	884.5
45°	887.3	877.5	856.2	840.8	835.1
47.5°	835.1	825.2	802.7	787.1	778.7
50°	780.0	773.0	753.3	733.5	726.4
52.5°	726.4	716.6	698.3	682.8	672.9
55°	671.6	663.0	646.1	629.1	622.2
57.5°	616.4	609.4	591.0	574.1	568.4
60°	561.4	555.8	536.1	520.6	516.3
62.5°	507.8	497.9	483.9	469.8	464.1
65°	452.9	444.3	430.3	417.5	410.6
67.5°	396.4	389.3	376.7	366.8	361.2
70°	344.2	338.6	325.8	315.9	310.4
72.5°	290.7	284.9	278.0	268.1	263.8
75°	237.0	234.2	227.1	218.7	221.5
77.5°	189.0	183.3	180.5	176.3	172.1
80°	141.1	139.6	136.8	132.6	129.8
82.5°	96.0	96.0	94.6	88.9	88.9
85°	57.8	56.5	55.0	50.7	49.4
87.5°	25.4	22.6	19.8	15.6	14.0
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	7.28	8.01	8.37	9.10	10.59	6.85	7.58	7.94	8.67	10.16
	3H	8.92	9.58	10.02	10.67	12.18	8.46	9.11	9.55	10.20	11.71
	4H	9.50	10.12	10.61	11.22	12.73	9.03	9.65	10.14	10.75	12.26
	6H	9.89	10.46	11.00	11.56	13.08	9.42	9.99	10.53	11.09	12.61
	8H	9.99	10.53	11.11	11.64	13.16	9.52	10.06	10.64	11.17	12.69
	12H	10.03	10.54	11.15	11.65	13.19	9.55	10.07	10.68	11.18	12.72
4H	2H	7.72	8.34	8.84	9.44	10.96	7.38	8.00	8.50	9.10	10.61
	3H	9.57	10.09	10.69	11.21	12.74	9.18	9.70	10.30	10.82	12.35
	4H	10.27	10.75	11.40	11.86	13.41	9.87	10.35	11.00	11.46	13.01
	6H	10.77	11.18	11.90	12.32	13.86	10.37	10.78	11.50	11.91	13.45
	8H	10.92	11.30	12.05	12.42	13.98	10.51	10.89	11.64	12.02	13.57
	12H	10.98	11.32	12.13	12.46	14.02	10.56	10.91	11.71	12.05	13.61
8H	4H	10.45	10.84	11.59	11.96	13.52	10.10	10.48	11.23	11.61	13.16
	6H	11.07	11.39	12.22	12.56	14.11	10.71	11.03	11.87	12.20	13.75
	8H	11.29	11.56	12.44	12.71	14.28	10.92	11.20	12.08	12.35	13.92
	12H	11.41	11.65	12.57	12.79	14.40	11.03	11.27	12.19	12.41	14.02
12H	4H	10.43	10.78	11.58	11.92	13.48	10.08	10.43	11.23	11.57	13.13
	6H	11.10	11.37	12.26	12.52	14.10	10.75	11.03	11.91	12.18	13.75
	8H	11.33	11.57	12.49	12.72	14.32	10.98	11.22	12.14	12.36	13.97