

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: P902539

Luminaire Tested: DFN2DIP-HX3F0-030D080US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902539
REPORT IS A COMBINATION OF REPORTS P899272 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-030D080US830-RLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

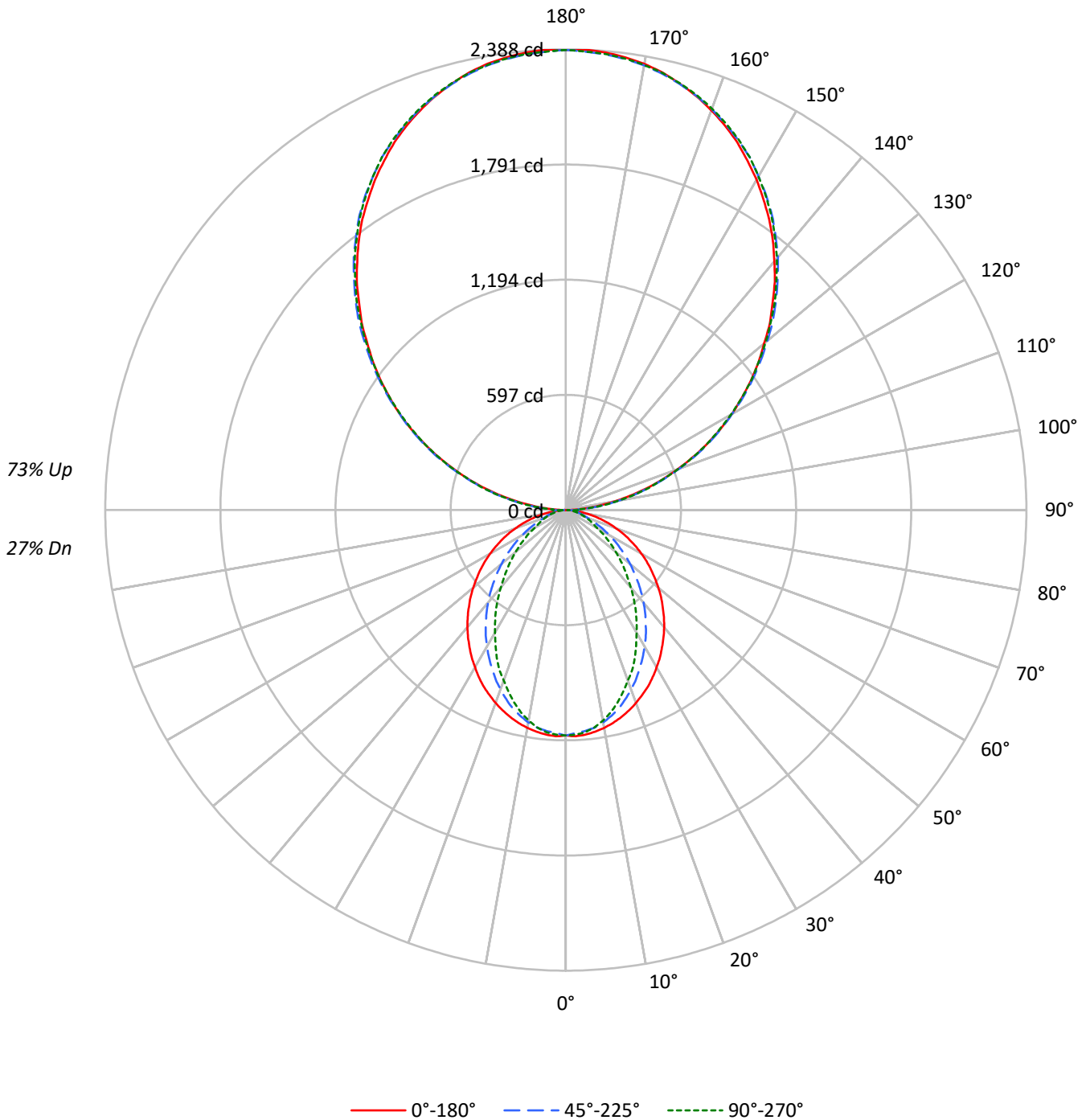
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 9076.7 lumens
Efficiency: N/A
Efficacy: 106.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 85
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

TEST NUMBER: P902539
CATALOG NUMBER: DFN2DIP-HX3F0-030D080US830-RLLFLL

Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	102	102	102	102	91	91	91	91	70	70	70	52	52	52	35	35	35	27				27
1	93	89	85	82	83	79	76	74	62	60	58	46	44	43	31	30	30	23				23
2	85	78	72	67	75	70	65	61	54	51	48	40	38	37	27	26	25	20				20
3	77	68	62	56	69	61	56	51	48	44	41	36	33	31	25	23	22	17				17
4	71	61	53	48	63	54	48	43	43	38	35	32	29	27	22	20	19	15				15
5	65	54	46	41	58	49	42	37	38	34	30	29	26	23	20	18	17	13				13
6	60	48	41	35	53	44	37	32	35	30	26	26	23	20	18	16	15	11				11
7	55	44	36	31	49	39	33	28	31	27	23	24	21	18	17	15	13	10				10
8	51	39	32	27	46	36	29	25	28	24	20	22	18	16	15	13	12	9				9
9	48	36	29	24	42	33	26	22	26	21	18	20	17	14	14	12	11	8				8
10	44	33	26	21	40	30	24	20	24	19	16	18	15	13	13	11	10	8				8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1354	1354	1354
5°	1355	1331	1340
10°	1341	1304	1296
15°	1322	1260	1228
20°	1297	1200	1144
25°	1272	1132	1064
30°	1237	1063	962
35°	1204	989	873
40°	1169	913	770
45°	1130	828	678
50°	1089	742	587
55°	1046	651	500
60°	996	556	411
65°	939	459	369
70°	869	368	333
75°	781	323	301
80°	656	268	259
85°	447	174	190

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2244 cd/sqm



TEST NUMBER: P902539

CATALOG NUMBER: DFN2DIP-HX3F0-030D080US830-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	109.5	1.2
10°-20°	300.7	3.3
20°-30°	422.1	4.7
30°-40°	460.2	5.1
40°-50°	422.9	4.7
50°-60°	332.2	3.7
60°-70°	216.2	2.4
70°-80°	111.3	1.2
80°-90°	35.2	0.4
90°-100°	147.6	1.6
100°-110°	468.9	5.2
110°-120°	802.4	8.8
120°-130°	1055.3	11.6
130°-140°	1184.5	13.0
140°-150°	1161.5	12.8
150°-160°	974.4	10.7
160°-170°	646.2	7.1
170°-180°	225.9	2.5
0°-30°	832.3	9.2
0°-40°	1292.5	14.2
0°-60°	2047.6	22.6
0°-90°	2410.3	26.6
90°-120°	1418.8	15.6
90°-150°	4820.1	53.1
90°-180°	6666.0	73.4
0°-180°	9076.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1169	1169	1169	1169	1169	
5°	1169	1163	1150	1159	1156	111
15°	1112	1100	1064	1044	1033	313
25°	1009	975	905	862	846	464
35°	869	815	722	656	632	544
45°	711	640	529	454	428	549
55°	540	458	344	280	260	483
65°	365	279	184	148	145	362
75°	194	121	85	77	76	206
85°	45	23	20	20	20	52
90°	2	26	70	66	68	9
95°	105	125	129	129	125	117
105°	433	439	443	446	446	457
115°	805	817	813	811	805	796
125°	1171	1189	1183	1177	1175	1047
135°	1515	1537	1541	1539	1534	1171
145°	1839	1853	1865	1867	1859	1149
155°	2103	2109	2115	2125	2119	968
165°	2288	2286	2286	2300	2290	645
175°	2380	2375	2370	2385	2372	226
180°	2385	2385	2385	2385	2385	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1168.7	1168.7	1168.7	1168.7	1168.7
2.5°	1173.9	1168.7	1157.0	1167.6	1165.5
5°	1168.7	1163.4	1149.6	1159.1	1155.9
7.5°	1159.1	1152.8	1138.0	1142.2	1136.9
10°	1146.4	1139.1	1117.9	1114.7	1108.4
12.5°	1130.6	1121.1	1092.5	1086.2	1074.5
15°	1111.5	1099.9	1063.9	1043.9	1033.3
17.5°	1089.3	1072.4	1027.9	1004.8	987.8
20°	1063.9	1042.7	989.9	963.6	940.2
22.5°	1036.5	1012.1	950.7	914.8	899.0
25°	1009.0	975.1	905.3	862.0	846.0
27.5°	976.2	940.2	863.0	813.3	788.9
30°	941.3	901.1	816.4	762.6	734.0
32.5°	907.4	858.8	772.1	708.6	682.1
35°	869.4	815.4	722.4	655.7	632.4
37.5°	832.4	774.1	675.8	602.8	576.5
40°	793.2	729.8	627.2	552.0	524.6
42.5°	753.0	685.4	578.5	500.2	473.8
45°	710.8	639.8	528.9	453.6	428.3
47.5°	670.5	595.5	481.3	406.0	382.9
50°	626.1	551.0	434.7	361.7	339.5
52.5°	582.7	503.4	390.3	320.5	300.4
55°	540.4	457.9	343.7	280.3	260.2
57.5°	497.1	412.5	302.6	243.3	226.3
60°	452.6	368.1	259.1	205.2	188.3
62.5°	409.3	324.7	222.1	171.4	163.0
65°	364.9	279.2	184.0	148.1	144.9
67.5°	322.6	236.9	148.1	130.1	126.9
70°	278.1	195.7	122.6	112.1	107.8
72.5°	235.8	157.5	102.5	94.2	92.0
75°	194.5	120.6	84.6	77.2	76.2
77.5°	153.4	85.6	66.6	62.4	60.2
80°	115.3	61.4	50.7	46.6	46.6
82.5°	80.3	41.3	34.9	32.8	32.8
85°	45.4	23.2	20.1	20.1	20.1
87.5°	17.0	8.4	8.4	7.4	7.4
90°	2.2	25.9	70.5	66.2	68.3
92.5°	44.6	60.4	62.6	64.7	64.7
95°	105.0	125.1	128.7	128.7	125.1
97.5°	174.7	193.4	201.3	201.3	201.3
100°	255.2	271.7	277.5	277.5	275.3
102.5°	340.1	352.3	360.1	362.3	360.1
105°	432.8	438.6	442.9	446.5	446.5
107.5°	524.8	533.5	533.5	534.9	524.8
110°	614.0	625.5	625.5	625.5	619.7



TEST NUMBER: P902539

CATALOG NUMBER: DFN2DIP-HX3F0-030D080US830-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	710.3	722.6	720.4	714.6	710.3
115°	805.2	816.7	813.1	811.0	805.2
117.5°	899.4	915.2	905.1	899.4	893.6
120°	994.3	1010.1	994.3	994.3	987.8
122.5°	1080.5	1100.7	1090.6	1084.9	1080.5
125°	1171.1	1189.1	1183.4	1176.9	1174.8
127.5°	1259.6	1281.9	1273.9	1265.4	1259.6
130°	1342.3	1368.1	1364.5	1360.3	1352.4
132.5°	1435.0	1455.1	1456.6	1446.5	1440.8
135°	1514.8	1537.1	1541.4	1539.3	1533.5
137.5°	1603.9	1621.9	1625.5	1624.1	1615.4
140°	1682.3	1700.3	1710.3	1710.3	1702.4
142.5°	1762.8	1780.8	1786.6	1788.8	1780.8
145°	1839.1	1853.4	1864.9	1867.1	1859.2
147.5°	1907.3	1925.3	1933.9	1937.6	1929.7
150°	1977.8	1990.0	1997.9	2004.4	1997.9
152.5°	2040.3	2052.6	2062.7	2070.6	2062.7
155°	2102.9	2108.7	2115.2	2125.2	2118.7
157.5°	2156.8	2161.2	2164.7	2179.1	2169.1
160°	2205.0	2209.3	2211.5	2223.6	2215.1
162.5°	2249.6	2249.6	2251.7	2265.4	2255.3
165°	2287.6	2285.5	2285.5	2299.9	2289.8
167.5°	2322.1	2315.7	2315.7	2330.1	2320.0
170°	2348.1	2342.3	2340.1	2354.6	2342.3
172.5°	2366.1	2360.3	2358.1	2372.5	2360.3
175°	2380.4	2374.6	2370.3	2384.7	2372.5
177.5°	2388.3	2382.6	2378.2	2390.5	2378.2
180°	2384.7	2384.7	2384.7	2384.7	2384.7



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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	5.42	6.09	6.56	7.22	8.79	1.40	2.07	2.54	3.20	4.77
	3H	7.08	7.68	8.23	8.81	10.40	2.57	3.17	3.72	4.30	5.89
	4H	7.68	8.24	8.83	9.38	10.97	3.01	3.58	4.17	4.71	6.31
	6H	8.08	8.61	9.25	9.74	11.35	3.32	3.84	4.48	4.98	6.58
	8H	8.20	8.70	9.37	9.85	11.45	3.40	3.90	4.57	5.05	6.65
	12H	8.25	8.73	9.42	9.87	11.49	3.44	3.91	4.61	5.06	6.68
4H	2H	5.42	5.99	6.58	7.12	8.72	1.97	2.54	3.13	3.67	5.27
	3H	7.23	7.70	8.39	8.86	10.46	3.30	3.77	4.47	4.93	6.54
	4H	7.90	8.34	9.08	9.49	11.11	3.84	4.27	5.01	5.42	7.05
	6H	8.40	8.78	9.58	9.95	11.56	4.24	4.62	5.42	5.79	7.40
	8H	8.57	8.92	9.75	10.08	11.71	4.37	4.71	5.54	5.88	7.51
	12H	8.65	8.97	9.84	10.14	11.78	4.42	4.74	5.61	5.91	7.55
8H	4H	7.86	8.21	9.03	9.37	11.00	4.10	4.45	5.28	5.61	7.24
	6H	8.41	8.70	9.61	9.90	11.53	4.61	4.89	5.80	6.10	7.73
	8H	8.62	8.87	9.82	10.06	11.70	4.79	5.04	5.99	6.23	7.88
	12H	8.75	8.97	9.95	10.15	11.83	4.90	5.12	6.11	6.30	7.98
12H	4H	7.80	8.12	8.99	9.29	10.93	4.10	4.41	5.29	5.59	7.22
	6H	8.39	8.64	9.59	9.82	11.47	4.65	4.90	5.85	6.09	7.74
	8H	8.59	8.81	9.80	9.99	11.67	4.85	5.07	6.06	6.25	7.93