

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: P928188

Luminaire Tested: DFN2DIP-HX4F0-040D090US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928188
REPORT IS A COMBINATION OF REPORTS P900909 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D090US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

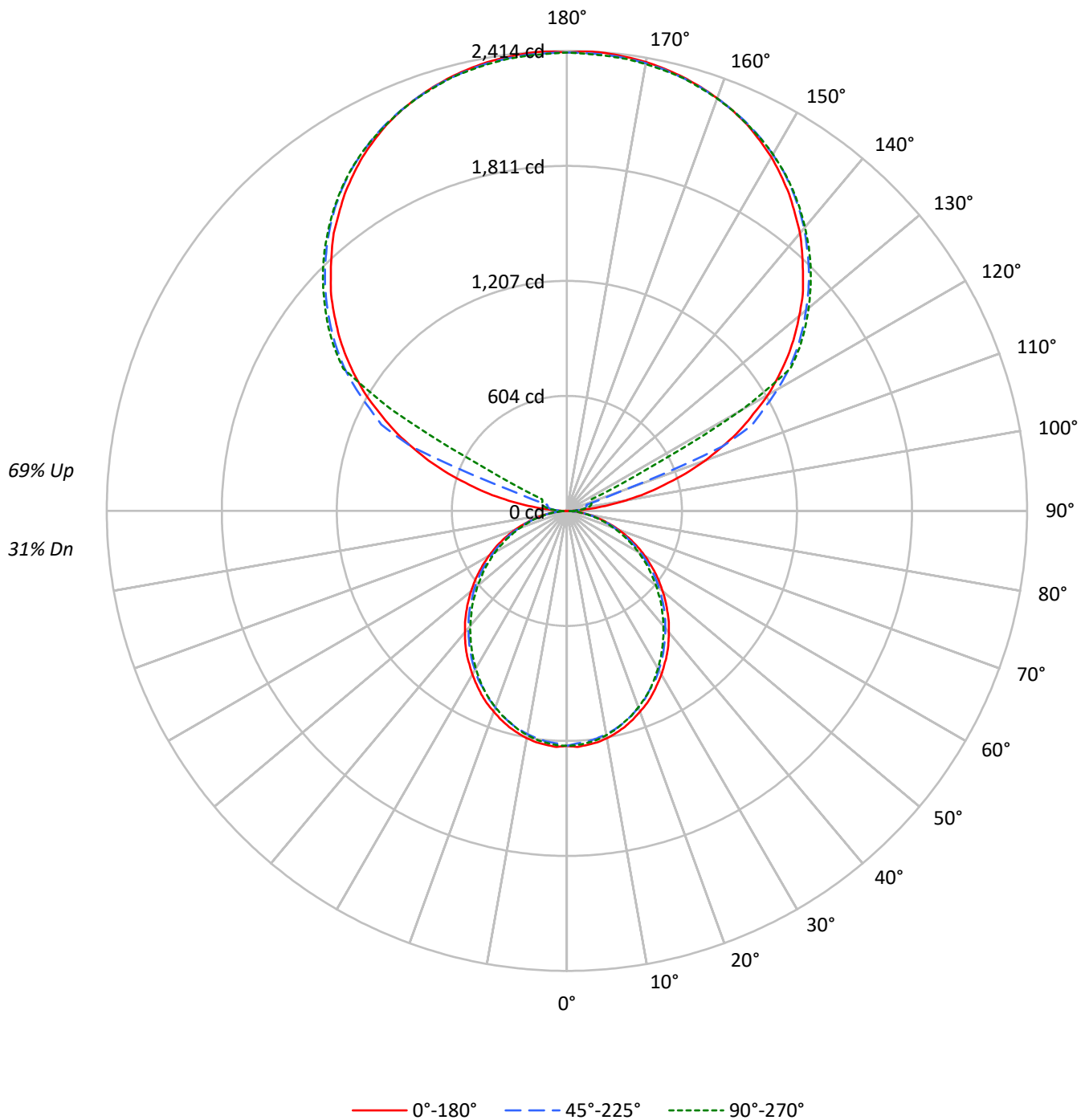
Lumens per Lamp: N/A
Luminaire Lumens: 10193.0 lumens
Efficiency: N/A
Efficacy: 100.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 101.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
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	92	92	92	92	73	73	73	55	55	55	38	38	38
1	93	89	86	82	84	80	77	74	64	61	59	48	47	46	34	33	32
2	85	78	72	67	76	70	65	61	56	52	49	42	40	38	30	29	27
3	78	68	61	56	69	62	56	51	49	45	41	37	35	32	26	25	23
4	71	60	53	47	63	55	48	43	44	39	35	33	30	27	24	22	20
5	65	54	46	40	58	49	42	37	39	34	30	30	26	24	21	19	17
6	60	48	40	35	53	44	37	32	35	30	26	27	23	21	19	17	15
7	55	43	36	30	49	39	33	28	32	27	23	24	21	18	18	15	14
8	51	39	32	27	46	36	29	24	29	24	20	22	19	16	16	14	12
9	47	36	28	24	43	32	26	22	26	21	18	20	17	14	15	13	11
10	44	33	26	21	40	30	23	19	24	19	16	19	15	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	917	917	917
5°	918	904	910
10°	911	892	898
15°	897	877	878
20°	879	857	859
25°	861	833	836
30°	839	810	807
35°	818	783	777
40°	792	756	747
45°	765	729	718
50°	737	701	683
55°	707	668	651
60°	673	629	615
65°	636	589	572
70°	589	540	526
75°	524	481	484
80°	446	406	403
85°	323	277	268

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1235 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	116.0	1.1
10°-20°	326.4	3.2
20°-30°	479.7	4.7
30°-40°	557.2	5.5
40°-50°	556.5	5.5
50°-60°	485.2	4.8
60°-70°	358.7	3.5
70°-80°	202.9	2.0
80°-90°	57.8	0.6
90°-100°	79.3	0.8
100°-110°	295.7	2.9
110°-120°	784.2	7.7
120°-130°	1300.7	12.8
130°-140°	1381.7	13.6
140°-150°	1284.1	12.6
150°-160°	1032.4	10.1
160°-170°	665.2	6.5
170°-180°	229.0	2.2
0°-30°	922.2	9.0
0°-40°	1479.4	14.5
0°-60°	2521.1	24.7
0°-90°	3140.6	30.8
90°-120°	1159.3	11.4
90°-150°	5125.8	50.3
90°-180°	7052.0	69.2
0°-180°	10193.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1233	1233	1233	1233	1233	
5°	1233	1228	1215	1224	1222	117
15°	1173	1166	1151	1156	1150	330
25°	1062	1053	1032	1035	1032	489
35°	916	904	886	878	872	572
45°	746	737	720	706	702	575
55°	564	557	543	529	523	504
65°	381	373	362	351	345	376
75°	199	197	191	184	186	213
85°	48	47	46	43	42	54
90°	2	21	35	44	47	9
95°	113	56	68	77	75	134
105°	529	582	106	125	132	565
115°	1001	1030	1074	268	143	985
125°	1415	1438	1471	1483	1488	1262
135°	1751	1779	1795	1812	1809	1353
145°	2032	2030	2059	2071	2063	1271
155°	2237	2221	2242	2252	2239	1031
165°	2357	2346	2352	2364	2352	666
175°	2411	2399	2402	2414	2397	229
180°	2406	2406	2406	2406	2406	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1232.7	1232.7	1232.7	1232.7	1232.7
2.5°	1239.9	1233.9	1220.9	1232.7	1230.5
5°	1232.7	1228.0	1214.9	1224.4	1222.1
7.5°	1224.4	1217.3	1204.2	1213.8	1211.4
10°	1211.4	1203.1	1189.0	1198.4	1194.8
12.5°	1193.5	1186.5	1172.3	1178.3	1175.8
15°	1173.4	1166.4	1150.9	1155.7	1149.8
17.5°	1148.6	1141.5	1126.1	1131.9	1126.1
20°	1121.2	1114.2	1097.6	1101.1	1096.5
22.5°	1094.1	1083.4	1067.9	1067.9	1065.6
25°	1062.0	1052.6	1032.5	1034.7	1032.5
27.5°	1026.4	1018.1	1002.8	999.3	993.4
30°	991.0	981.4	963.7	960.1	955.4
32.5°	953.0	946.0	927.0	919.8	915.0
35°	916.3	904.5	885.5	878.3	872.4
37.5°	874.8	864.1	845.1	836.8	830.9
40°	832.2	822.6	803.6	793.0	788.3
42.5°	790.7	781.1	762.2	750.3	743.2
45°	745.6	737.4	719.5	706.5	701.7
47.5°	701.7	693.4	674.5	661.4	654.4
50°	655.5	649.5	633.0	616.3	610.4
52.5°	610.4	602.2	586.8	573.7	565.4
55°	564.3	557.1	542.9	528.7	522.8
57.5°	518.0	512.1	496.6	482.4	477.7
60°	471.7	467.0	450.5	437.4	433.9
62.5°	426.7	418.4	406.6	394.7	390.0
65°	380.6	373.3	361.5	350.9	345.0
67.5°	333.1	327.1	316.6	308.2	303.5
70°	289.2	284.5	273.8	265.5	260.8
72.5°	244.3	239.4	233.6	225.2	221.7
75°	199.1	196.8	190.8	183.7	186.1
77.5°	158.8	154.0	151.7	148.1	144.6
80°	118.6	117.3	114.9	111.4	109.1
82.5°	80.6	80.6	79.5	74.7	74.7
85°	48.5	47.4	46.3	42.6	41.5
87.5°	21.4	19.0	16.6	13.1	11.8
90°	1.7	20.9	34.7	43.6	46.9
92.5°	43.6	36.6	41.7	45.3	46.9
95°	113.1	55.6	67.8	76.7	74.8
97.5°	203.6	61.0	88.7	94.0	95.7
100°	308.2	69.7	99.2	113.1	116.6
102.5°	422.9	419.6	102.7	121.7	127.1
105°	529.1	581.5	106.2	125.3	132.3
107.5°	652.8	696.2	109.8	128.8	135.8
110°	771.2	807.6	304.7	130.6	137.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	882.6	913.8	884.3	133.9	139.3
115°	1000.9	1030.4	1074.0	268.1	142.8
117.5°	1103.6	1138.3	1168.0	919.0	463.0
120°	1218.5	1244.5	1276.0	1296.8	1061.8
122.5°	1315.9	1343.8	1378.7	1389.0	1390.9
125°	1415.1	1437.8	1470.9	1483.1	1488.2
127.5°	1505.6	1530.0	1556.3	1573.6	1575.3
130°	1591.0	1618.9	1637.9	1657.1	1655.5
132.5°	1678.0	1700.7	1719.7	1735.5	1733.8
135°	1751.2	1779.1	1794.6	1812.2	1808.7
137.5°	1827.7	1848.5	1866.1	1883.5	1878.3
140°	1902.5	1916.6	1935.6	1951.3	1942.6
142.5°	1965.3	1977.5	2000.0	2013.9	2005.3
145°	2031.5	2029.6	2059.2	2071.4	2062.7
147.5°	2088.7	2083.6	2113.1	2121.8	2115.0
150°	2144.6	2132.4	2160.3	2170.6	2161.9
152.5°	2191.5	2177.6	2203.7	2214.2	2202.0
155°	2236.8	2221.2	2242.1	2252.4	2238.6
157.5°	2273.4	2259.5	2275.2	2287.4	2273.4
160°	2304.7	2294.2	2304.7	2315.1	2302.9
162.5°	2332.4	2322.1	2330.8	2343.0	2327.3
165°	2356.8	2346.5	2351.7	2363.9	2351.7
167.5°	2376.1	2365.5	2370.9	2383.0	2367.4
170°	2391.8	2381.2	2384.7	2396.9	2381.2
172.5°	2402.1	2391.8	2395.2	2407.4	2391.8
175°	2410.8	2398.6	2402.1	2414.3	2396.9
177.5°	2414.3	2402.1	2404.0	2416.2	2400.5
180°	2405.6	2405.6	2405.6	2405.6	2405.6

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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	4.87	5.58	5.97	6.68	8.20	4.43	5.15	5.54	6.25	7.77
	3H	6.52	7.15	7.63	8.26	9.80	6.04	6.68	7.16	7.79	9.33
	4H	7.10	7.70	8.22	8.81	10.36	6.62	7.23	7.75	8.34	9.88
	6H	7.49	8.05	8.62	9.16	10.72	7.01	7.57	8.15	8.68	10.24
	8H	7.59	8.12	8.73	9.25	10.80	7.12	7.65	8.25	8.77	10.32
	12H	7.63	8.14	8.77	9.26	10.83	7.15	7.66	8.29	8.78	10.35
4H	2H	5.31	5.92	6.44	7.03	8.57	4.96	5.57	6.10	6.68	8.23
	3H	7.16	7.67	8.30	8.81	10.36	6.77	7.28	7.91	8.41	9.97
	4H	7.87	8.34	9.01	9.46	11.04	7.47	7.93	8.61	9.06	10.63
	6H	8.38	8.78	9.53	9.93	11.49	7.97	8.37	9.12	9.52	11.08
	8H	8.53	8.90	9.67	10.04	11.62	8.11	8.49	9.26	9.63	11.21
	12H	8.59	8.93	9.76	10.08	11.67	8.17	8.51	9.33	9.66	11.25
8H	4H	8.06	8.43	9.20	9.57	11.15	7.70	8.07	8.84	9.21	10.79
	6H	8.68	8.99	9.85	10.17	11.75	8.32	8.63	9.49	9.81	11.39
	8H	8.90	9.17	10.08	10.33	11.93	8.53	8.80	9.71	9.96	11.56
	12H	9.03	9.26	10.21	10.42	12.06	8.64	8.88	9.82	10.04	11.67
12H	4H	8.04	8.37	9.20	9.53	11.11	7.68	8.02	8.85	9.17	10.76
	6H	8.71	8.98	9.89	10.14	11.74	8.36	8.63	9.53	9.79	11.39
	8H	8.95	9.18	10.12	10.34	11.98	8.59	8.83	9.77	9.99	11.62

END OF REPORT