

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: P928190

Luminaire Tested: DFN2DIP-HX4F0-040D090US927-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928190
REPORT IS A COMBINATION OF REPORTS P900910 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D090US927-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

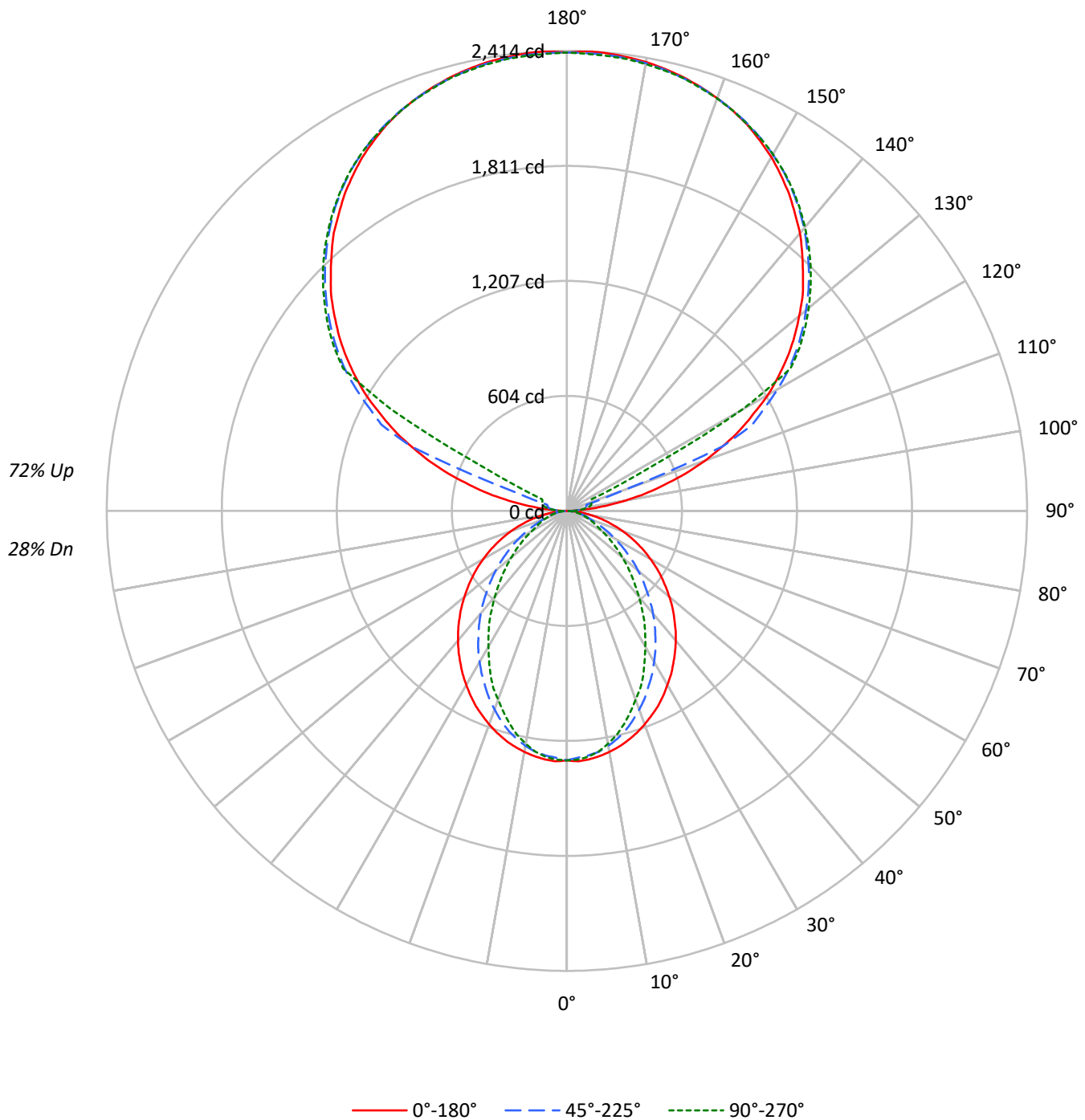
Lumens per Lamp: N/A
Luminaire Lumens: 9749.5 lumens
Efficiency: N/A
Efficacy: 96.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

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	102	102	102	102	91	91	91	91	71	71	71	53	53	53	36	36	36
1	93	89	85	82	83	80	77	74	62	60	59	46	45	44	32	31	31
2	85	78	72	67	76	70	65	61	55	52	49	41	39	37	28	27	26
3	78	69	62	56	69	62	56	51	49	45	41	37	34	32	25	24	22
4	71	61	53	48	63	55	48	44	43	39	35	33	30	27	23	21	20
5	65	54	47	41	58	49	42	37	39	34	30	29	26	24	21	19	17
6	60	49	41	35	54	44	37	32	35	30	27	27	23	21	19	17	15
7	55	44	36	31	49	40	33	28	32	27	23	24	21	18	17	15	14
8	51	40	32	27	46	36	30	25	29	24	21	22	19	16	16	14	12
9	48	36	29	24	43	33	27	22	26	22	19	20	17	15	15	13	11
10	45	33	26	22	40	30	24	20	24	20	17	19	16	13	14	12	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	974	974	974
5°	975	958	964
10°	966	940	933
15°	952	909	884
20°	935	866	825
25°	917	818	768
30°	893	769	695
35°	869	716	631
40°	845	661	557
45°	817	601	491
50°	788	539	426
55°	758	474	363
60°	723	406	299
65°	683	336	269
70°	635	271	244
75°	574	239	222
80°	485	201	193
85°	339	135	145

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°	122.7	1.3
10°-20°	336.9	3.5
20°-30°	473.0	4.9
30°-40°	515.5	5.3
40°-50°	473.8	4.9
50°-60°	372.1	3.8
60°-70°	242.2	2.5
70°-80°	124.7	1.3
80°-90°	36.1	0.4
90°-100°	79.3	0.8
100°-110°	295.7	3.0
110°-120°	784.2	8.0
120°-130°	1300.7	13.3
130°-140°	1381.7	14.2
140°-150°	1284.1	13.2
150°-160°	1032.4	10.6
160°-170°	665.2	6.8
170°-180°	229.0	2.3
0°-30°	932.5	9.6
0°-40°	1448.1	14.9
0°-60°	2294.1	23.5
0°-90°	2697.0	27.7
90°-120°	1159.3	11.9
90°-150°	5125.8	52.6
90°-180°	7052.0	72.3
0°-180°	9749.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1309	1309	1309	1309	1309	
5°	1309	1303	1288	1299	1295	124
15°	1245	1232	1192	1170	1158	351
25°	1130	1092	1014	966	948	520
35°	974	914	809	735	708	610
45°	796	717	592	508	480	615
55°	606	513	385	314	292	541
65°	409	313	206	166	162	405
75°	218	135	95	86	85	231
85°	51	26	22	22	22	58
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°	1309.3	1309.3	1309.3	1309.3	1309.3
2.5°	1315.3	1309.3	1296.3	1308.2	1305.8
5°	1309.3	1303.4	1288.0	1298.6	1295.2
7.5°	1298.6	1291.6	1275.0	1279.6	1273.8
10°	1284.5	1276.1	1252.5	1248.8	1241.9
12.5°	1266.7	1256.0	1224.0	1216.9	1203.8
15°	1245.3	1232.3	1192.0	1169.5	1157.7
17.5°	1220.5	1201.5	1151.6	1125.7	1106.7
20°	1192.0	1168.3	1109.0	1079.5	1053.4
22.5°	1161.2	1134.0	1065.2	1024.9	1007.3
25°	1130.4	1092.5	1014.2	965.8	947.9
27.5°	1093.8	1053.4	966.9	911.2	883.9
30°	1054.6	1009.5	914.7	854.3	822.3
32.5°	1016.7	962.1	865.0	793.9	764.2
35°	974.1	913.6	809.3	734.7	708.5
37.5°	932.6	867.3	757.2	675.3	645.8
40°	888.7	817.7	702.7	618.6	587.7
42.5°	843.6	767.8	648.2	560.4	530.9
45°	796.3	716.8	592.5	508.3	479.9
47.5°	751.3	667.2	539.2	455.0	428.9
50°	701.5	617.4	487.0	405.2	380.4
52.5°	652.8	564.0	437.3	359.0	336.5
55°	605.5	513.1	385.1	314.0	291.5
57.5°	556.9	462.1	338.9	272.5	253.6
60°	507.1	412.3	290.3	229.9	211.0
62.5°	458.6	363.8	248.8	192.0	182.6
65°	408.8	312.8	206.2	165.9	162.3
67.5°	361.5	265.4	165.9	145.7	142.2
70°	311.7	219.2	137.4	125.6	120.8
72.5°	264.3	176.5	114.9	105.5	103.1
75°	218.0	135.0	94.8	86.5	85.4
77.5°	171.9	95.9	74.7	69.9	67.5
80°	129.1	68.7	56.8	52.2	52.2
82.5°	90.1	46.3	39.1	36.7	36.7
85°	50.9	26.1	22.5	22.5	22.5
87.5°	19.0	9.4	9.4	8.3	8.3
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	4.49	5.17	5.62	6.29	7.85	0.46	1.14	1.60	2.26	3.82
	3H	6.16	6.76	7.30	7.89	9.47	1.64	2.25	2.78	3.38	4.95
	4H	6.76	7.33	7.91	8.46	10.04	2.09	2.66	3.24	3.79	5.37
	6H	7.17	7.70	8.33	8.83	10.43	2.40	2.93	3.56	4.06	5.65
	8H	7.30	7.80	8.46	8.95	10.53	2.49	2.99	3.65	4.14	5.72
	12H	7.35	7.83	8.52	8.97	10.58	2.53	3.00	3.69	4.14	5.75
4H	2H	4.49	5.06	5.65	6.19	7.77	1.04	1.61	2.20	2.74	4.32
	3H	6.31	6.78	7.47	7.94	9.53	2.38	2.86	3.54	4.01	5.60
	4H	6.99	7.43	8.16	8.58	10.19	2.92	3.36	4.09	4.51	6.12
	6H	7.50	7.88	8.67	9.04	10.65	3.34	3.71	4.50	4.88	6.48
	8H	7.67	8.02	8.84	9.18	10.80	3.46	3.81	4.63	4.97	6.59
	12H	7.76	8.08	8.95	9.25	10.87	3.52	3.84	4.71	5.01	6.63
8H	4H	6.95	7.30	8.12	8.46	10.08	3.19	3.54	4.36	4.70	6.32
	6H	7.51	7.80	8.70	9.00	10.62	3.71	4.00	4.90	5.20	6.81
	8H	7.73	7.98	8.92	9.16	10.80	3.90	4.15	5.09	5.33	6.97
	12H	7.86	8.08	9.06	9.26	10.93	4.01	4.23	5.21	5.41	7.08
12H	4H	6.90	7.21	8.08	8.38	10.01	3.19	3.51	4.37	4.68	6.30
	6H	7.49	7.74	8.68	8.92	10.55	3.76	4.01	4.95	5.19	6.82
	8H	7.70	7.92	8.90	9.10	10.77	3.96	4.18	5.16	5.36	7.03

END OF REPORT