

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: P928510

Luminaire Tested: DFN2DIP-HX4F0-040D080US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928510
REPORT IS A COMBINATION OF REPORTS P900892 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D080US930-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

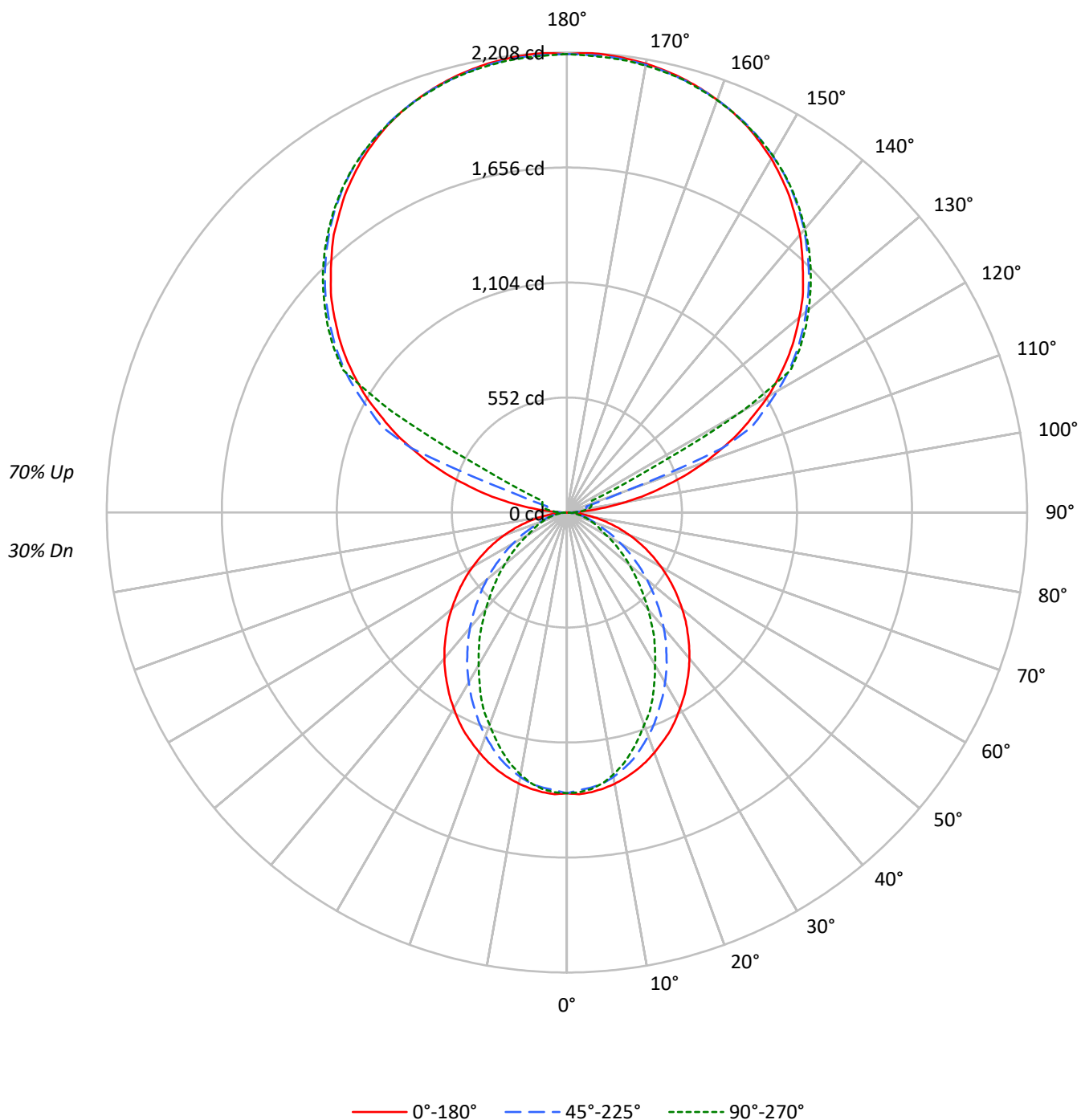
Lumens per Lamp: N/A
Luminaire Lumens: 9225.9 lumens
Efficiency: N/A
Efficacy: 100.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 91.6
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	92	92	92	92	72	72	72	54	54	54	38	38	38
1	94	90	86	83	84	81	77	75	64	62	60	48	47	46	34	33	32
2	85	78	73	68	76	71	66	62	56	53	50	43	40	39	30	29	28
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	25	24
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21
5	66	55	47	41	59	49	43	38	40	35	31	30	27	25	22	20	18
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15
8	52	40	33	28	46	36	30	25	29	25	21	23	20	17	17	15	13
9	48	37	29	25	43	33	27	23	27	22	19	21	18	15	16	13	12
10	45	33	27	22	40	30	24	20	25	20	17	20	16	14	14	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1002	1002	1002
5°	1004	986	992
10°	994	967	960
15°	980	935	910
20°	962	891	849
25°	944	842	790
30°	919	791	715
35°	895	737	649
40°	870	681	573
45°	841	618	505
50°	811	555	438
55°	781	488	374
60°	744	417	308
65°	703	346	277
70°	653	279	251
75°	590	246	228
80°	499	206	198
85°	349	138	149

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1132 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	126.3	1.4
10°-20°	346.7	3.8
20°-30°	486.7	5.3
30°-40°	530.5	5.8
40°-50°	487.6	5.3
50°-60°	382.9	4.2
60°-70°	249.3	2.7
70°-80°	128.3	1.4
80°-90°	36.6	0.4
90°-100°	72.6	0.8
100°-110°	270.5	2.9
110°-120°	717.4	7.8
120°-130°	1189.8	12.9
130°-140°	1263.8	13.7
140°-150°	1174.6	12.7
150°-160°	944.4	10.2
160°-170°	608.5	6.6
170°-180°	209.4	2.3
0°-30°	959.6	10.4
0°-40°	1490.1	16.2
0°-60°	2360.7	25.6
0°-90°	2774.9	30.1
90°-120°	1060.4	11.5
90°-150°	4688.7	50.8
90°-180°	6451.0	69.9
0°-180°	9225.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1347	1347	1347	1347	1347	
5°	1347	1341	1325	1336	1333	128
15°	1282	1268	1227	1204	1191	361
25°	1163	1124	1044	994	975	535
35°	1002	940	833	756	729	627
45°	819	738	610	523	494	633
55°	623	528	396	323	300	557
65°	421	322	212	171	167	417
75°	224	139	98	89	88	237
85°	52	27	23	23	23	60
90°	2	19	32	40	43	9
95°	103	51	62	70	68	122
105°	484	532	97	115	121	517
115°	916	942	982	245	131	901
125°	1294	1315	1345	1357	1361	1154
135°	1602	1627	1642	1658	1654	1237
145°	1858	1856	1884	1895	1887	1162
155°	2046	2032	2051	2060	2048	943
165°	2156	2146	2151	2162	2151	609
175°	2205	2194	2197	2208	2192	210
180°	2200	2200	2200	2200	2200	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1347.4	1347.4	1347.4	1347.4	1347.4
2.5°	1353.5	1347.4	1333.9	1346.2	1343.7
5°	1347.4	1341.2	1325.4	1336.4	1332.8
7.5°	1336.4	1329.1	1312.1	1316.8	1310.8
10°	1321.8	1313.2	1288.8	1285.1	1277.9
12.5°	1303.5	1292.5	1259.5	1252.2	1238.8
15°	1281.5	1268.1	1226.7	1203.5	1191.4
17.5°	1255.9	1236.4	1185.1	1158.4	1138.8
20°	1226.7	1202.2	1141.2	1110.8	1083.9
22.5°	1195.0	1166.9	1096.1	1054.7	1036.5
25°	1163.2	1124.2	1043.7	993.8	975.4
27.5°	1125.5	1083.9	995.0	937.7	909.5
30°	1085.3	1038.8	941.2	879.1	846.2
32.5°	1046.2	990.1	890.1	817.0	786.4
35°	1002.4	940.1	832.8	756.0	729.1
37.5°	959.7	892.5	779.1	695.0	664.6
40°	914.5	841.4	723.1	636.5	604.8
42.5°	868.1	790.1	667.0	576.7	546.3
45°	819.4	737.7	609.7	523.1	493.8
47.5°	773.1	686.6	554.9	468.2	441.4
50°	721.8	635.3	501.1	417.0	391.4
52.5°	671.8	580.4	450.0	369.4	346.3
55°	623.1	528.0	396.3	323.1	300.0
57.5°	573.1	475.6	348.7	280.4	261.0
60°	521.8	424.3	298.7	236.6	217.1
62.5°	472.0	374.4	256.0	197.6	187.9
65°	420.7	321.8	212.1	170.7	167.0
67.5°	372.0	273.1	170.7	150.0	146.3
70°	320.7	225.6	141.4	129.3	124.3
72.5°	272.0	181.7	118.3	108.6	106.1
75°	224.3	139.0	97.6	89.0	87.9
77.5°	176.9	98.7	76.9	72.0	69.4
80°	132.8	70.7	58.4	53.7	53.7
82.5°	92.7	47.6	40.3	37.7	37.7
85°	52.4	26.8	23.1	23.1	23.1
87.5°	19.6	9.7	9.7	8.6	8.6
90°	1.5	19.1	31.8	39.9	43.0
92.5°	39.9	33.5	38.2	41.4	43.0
95°	103.4	50.9	62.0	70.2	68.5
97.5°	186.2	55.7	81.1	86.1	87.5
100°	281.9	63.7	90.8	103.4	106.6
102.5°	386.9	383.8	94.0	111.3	116.3
105°	484.0	531.9	97.1	114.6	121.0
107.5°	597.1	636.8	100.4	117.8	124.2
110°	705.5	738.7	278.7	119.5	125.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	807.3	835.9	808.9	122.5	127.5
115°	915.5	942.5	982.4	245.2	130.6
117.5°	1009.5	1041.2	1068.5	840.6	423.6
120°	1114.6	1138.4	1167.2	1186.2	971.2
122.5°	1203.6	1229.2	1261.1	1270.6	1272.3
125°	1294.4	1315.2	1345.4	1356.6	1361.3
127.5°	1377.2	1399.5	1423.6	1439.4	1440.9
130°	1455.3	1480.8	1498.2	1515.8	1514.3
132.5°	1534.9	1555.7	1573.1	1587.5	1585.9
135°	1601.8	1627.3	1641.5	1657.6	1654.4
137.5°	1671.8	1690.9	1706.9	1722.8	1718.1
140°	1740.2	1753.1	1770.5	1784.8	1776.9
142.5°	1797.7	1808.8	1829.4	1842.1	1834.2
145°	1858.2	1856.5	1883.5	1894.7	1886.7
147.5°	1910.6	1905.9	1932.9	1940.8	1934.6
150°	1961.6	1950.5	1976.0	1985.4	1977.5
152.5°	2004.6	1991.9	2015.7	2025.4	2014.2
155°	2046.0	2031.8	2050.9	2060.3	2047.7
157.5°	2079.4	2066.8	2081.1	2092.3	2079.4
160°	2108.2	2098.5	2108.2	2117.6	2106.4
162.5°	2133.5	2124.1	2132.0	2143.1	2128.8
165°	2155.8	2146.4	2151.1	2162.2	2151.1
167.5°	2173.4	2163.7	2168.6	2179.8	2165.5
170°	2187.8	2178.1	2181.3	2192.5	2178.1
172.5°	2197.2	2187.8	2191.0	2202.1	2187.8
175°	2205.1	2194.0	2197.2	2208.3	2192.5
177.5°	2208.3	2197.2	2198.9	2210.0	2195.7
180°	2200.4	2200.4	2200.4	2200.4	2200.4

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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	4.93	5.62	6.05	6.73	8.26	0.91	1.60	2.02	2.70	4.23
	3H	6.60	7.22	7.73	8.33	9.88	2.09	2.70	3.21	3.82	5.37
	4H	7.20	7.79	8.34	8.91	10.46	2.53	3.12	3.67	4.23	5.79
	6H	7.62	8.16	8.76	9.28	10.84	2.85	3.38	3.99	4.50	6.07
	8H	7.74	8.25	8.89	9.39	10.95	2.93	3.45	4.08	4.58	6.14
	12H	7.80	8.29	8.95	9.41	10.99	2.97	3.46	4.12	4.59	6.17
4H	2H	4.93	5.52	6.08	6.64	8.19	1.48	2.07	2.63	3.19	4.74
	3H	6.75	7.24	7.90	8.38	9.95	2.82	3.31	3.97	4.45	6.02
	4H	7.44	7.89	8.59	9.02	10.60	3.37	3.82	4.52	4.95	6.53
	6H	7.95	8.33	9.10	9.49	11.06	3.78	4.16	4.94	5.32	6.90
	8H	8.12	8.48	9.28	9.62	11.22	3.91	4.27	5.06	5.41	7.00
	12H	8.21	8.53	9.38	9.69	11.29	3.97	4.29	5.14	5.45	7.05
8H	4H	7.40	7.76	8.55	8.90	10.49	3.64	4.00	4.79	5.14	6.74
	6H	7.96	8.25	9.13	9.44	11.03	4.15	4.45	5.33	5.64	7.23
	8H	8.18	8.43	9.36	9.60	11.21	4.35	4.60	5.53	5.77	7.38
	12H	8.31	8.54	9.49	9.70	11.34	4.46	4.69	5.64	5.85	7.49
12H	4H	7.34	7.67	8.51	8.82	10.42	3.64	3.96	4.81	5.12	6.72
	6H	7.93	8.19	9.11	9.36	10.97	4.20	4.46	5.38	5.63	7.24
	8H	8.15	8.38	9.33	9.54	11.18	4.41	4.63	5.59	5.80	7.44

END OF REPORT