

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: P921809

Luminaire Tested: DFN2DIP-HX4F0-050D080US940-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921809
REPORT IS A COMBINATION OF REPORTS P899374 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D080US940-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

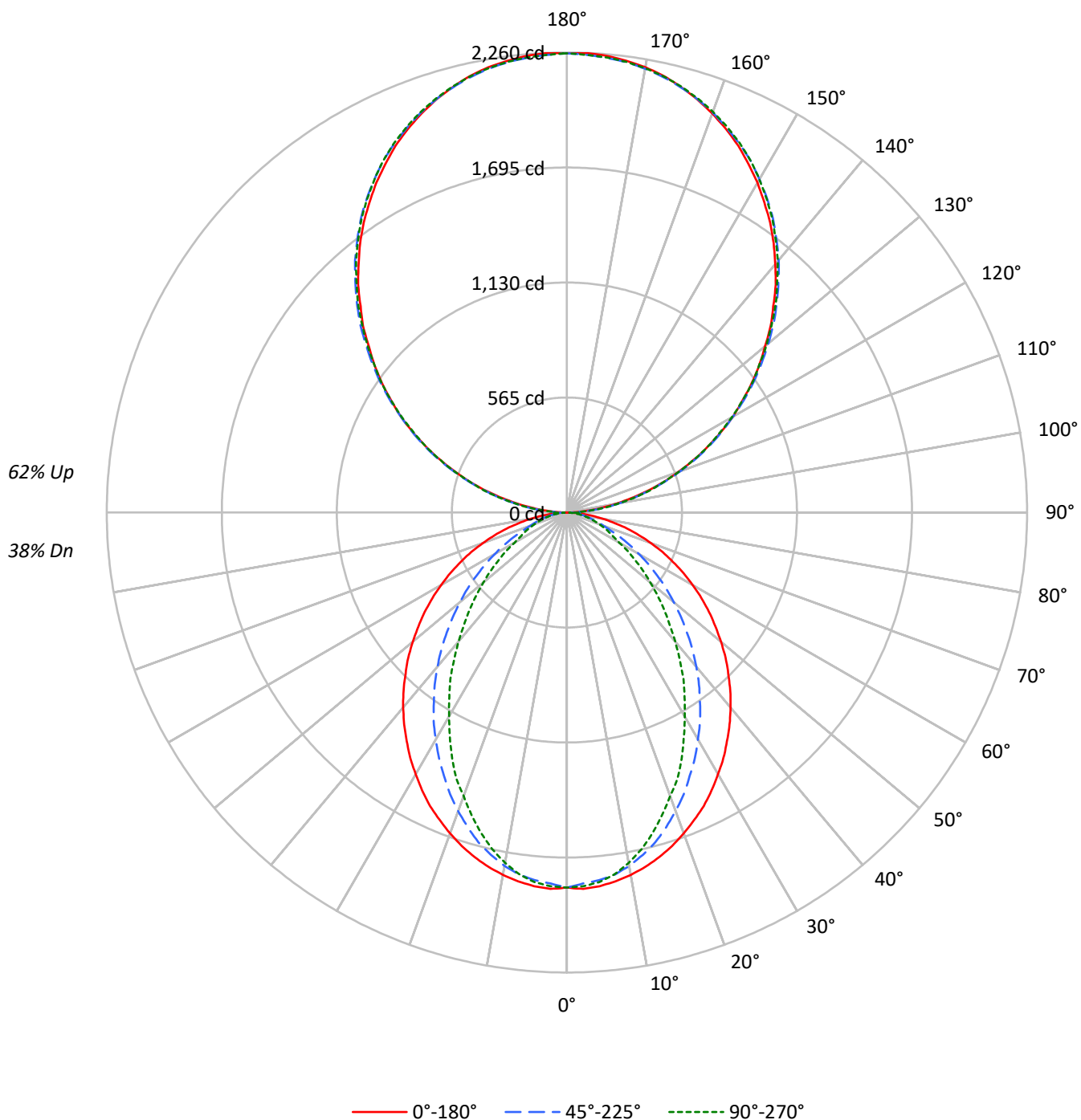
Lumens per Lamp: N/A
Luminaire Lumens: 10103.1 lumens
Efficiency: N/A
Efficacy: 113.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 89
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
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	104	104	104	104	95	95	95	95	76	76	76	60	60	60	45	45	45
1	95	91	88	84	86	83	80	77	67	65	63	53	52	50	40	39	38
2	87	80	74	69	79	73	68	64	59	56	53	47	45	43	36	34	33
3	80	71	64	58	72	64	58	54	53	48	45	42	39	37	32	30	28
4	73	63	55	49	66	57	51	46	47	42	39	38	34	32	29	27	25
5	67	56	48	42	61	51	44	39	42	37	33	34	30	28	26	24	22
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	24	21	19
7	57	45	38	32	52	42	35	30	35	30	26	28	24	22	22	19	17
8	53	41	34	29	48	38	31	27	32	27	23	26	22	19	20	18	16
9	49	38	30	26	45	35	28	24	29	24	21	24	20	17	19	16	14
10	46	35	28	23	42	32	26	21	27	22	19	22	18	16	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1370	1370	1370
5°	1372	1349	1357
10°	1359	1322	1313
15°	1340	1279	1245
20°	1316	1219	1161
25°	1291	1151	1080
30°	1257	1082	978
35°	1223	1008	888
40°	1190	931	784
45°	1150	845	691
50°	1110	759	599
55°	1067	667	511
60°	1018	571	421
65°	962	473	379
70°	893	381	343
75°	808	336	312
80°	683	283	271
85°	478	190	204

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1701 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.7	1.7
10°-20°	474.1	4.7
20°-30°	665.6	6.6
30°-40°	725.6	7.2
40°-50°	666.9	6.6
50°-60°	523.7	5.2
60°-70°	340.9	3.4
70°-80°	175.5	1.7
80°-90°	51.2	0.5
90°-100°	139.6	1.4
100°-110°	443.6	4.4
110°-120°	759.1	7.5
120°-130°	998.3	9.9
130°-140°	1120.6	11.1
140°-150°	1098.9	10.9
150°-160°	921.8	9.1
160°-170°	611.3	6.1
170°-180°	213.7	2.1
0°-30°	1312.4	13.0
0°-40°	2038.0	20.2
0°-60°	3228.6	32.0
0°-90°	3796.2	37.6
90°-120°	1342.3	13.3
90°-150°	4560.1	45.1
90°-180°	6307.0	62.4
0°-180°	10103.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1843	1843	1843	1843	1843	
5°	1843	1834	1813	1828	1823	175
15°	1753	1734	1678	1646	1629	494
25°	1591	1538	1427	1359	1334	732
35°	1371	1286	1139	1034	997	858
45°	1121	1009	834	715	675	865
55°	852	722	542	442	410	761
65°	575	440	290	234	228	570
75°	307	190	133	122	120	324
85°	72	37	32	32	32	82
90°	2	24	67	63	65	10
95°	99	118	122	122	118	111
105°	410	415	419	422	422	432
115°	762	773	769	767	762	753
125°	1108	1125	1120	1113	1111	990
135°	1433	1454	1458	1456	1451	1108
145°	1740	1754	1764	1766	1759	1087
155°	1990	1995	2001	2010	2004	916
165°	2164	2162	2162	2176	2166	611
175°	2252	2247	2242	2256	2244	214
180°	2256	2256	2256	2256	2256	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1842.7	1842.7	1842.7	1842.7	1842.7
2.5°	1851.0	1842.7	1824.4	1841.1	1837.7
5°	1842.7	1834.4	1812.7	1827.6	1822.7
7.5°	1827.6	1817.8	1794.4	1801.0	1792.6
10°	1807.7	1796.0	1762.7	1757.7	1747.7
12.5°	1782.7	1767.7	1722.6	1712.7	1694.2
15°	1752.7	1734.3	1677.7	1646.0	1629.3
17.5°	1717.6	1691.0	1620.9	1584.2	1557.5
20°	1677.7	1644.2	1560.8	1519.3	1482.5
22.5°	1634.3	1595.9	1499.1	1442.5	1417.6
25°	1590.9	1537.5	1427.4	1359.1	1334.0
27.5°	1539.3	1482.5	1360.8	1282.4	1244.0
30°	1484.3	1420.8	1287.4	1202.4	1157.3
32.5°	1430.8	1354.1	1217.5	1117.3	1075.6
35°	1370.8	1285.8	1139.1	1033.9	997.2
37.5°	1312.4	1220.7	1065.7	950.5	908.9
40°	1250.7	1150.8	988.8	870.5	827.2
42.5°	1187.4	1080.7	912.2	788.7	747.2
45°	1120.7	1008.9	833.8	715.3	675.3
47.5°	1057.3	939.0	758.8	640.3	603.7
50°	987.3	868.9	685.5	570.2	535.4
52.5°	918.8	793.7	615.4	505.3	473.7
55°	852.1	722.0	541.9	441.9	410.3
57.5°	783.8	650.4	477.0	383.6	356.9
60°	713.7	580.3	408.5	323.6	296.9
62.5°	645.4	512.0	350.2	270.2	256.9
65°	575.3	440.2	290.2	233.5	228.5
67.5°	508.6	373.5	233.5	205.1	200.1
70°	438.6	308.5	193.4	176.7	170.0
72.5°	371.9	248.4	161.8	148.5	145.1
75°	306.8	190.0	133.4	121.7	120.1
77.5°	241.8	135.0	105.1	98.4	95.0
80°	181.7	96.8	80.0	73.4	73.4
82.5°	126.7	65.1	55.0	51.6	51.6
85°	71.7	36.6	31.7	31.7	31.7
87.5°	26.8	13.3	13.3	11.7	11.7
90°	2.1	24.5	66.7	62.6	64.6
92.5°	42.2	57.2	59.2	61.2	61.2
95°	99.3	118.3	121.7	121.7	118.3
97.5°	165.3	183.0	190.5	190.5	190.5
100°	241.5	257.1	262.5	262.5	260.5
102.5°	321.7	333.3	340.7	342.8	340.7
105°	409.5	414.9	419.0	422.4	422.4
107.5°	496.5	504.7	504.7	506.0	496.5
110°	580.9	591.7	591.7	591.7	586.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	672.0	683.6	681.5	676.1	672.0
115°	761.8	772.7	769.3	767.2	761.8
117.5°	850.9	865.9	856.3	850.9	845.4
120°	940.7	955.6	940.7	940.7	934.5
122.5°	1022.3	1041.3	1031.8	1026.4	1022.3
125°	1108.0	1125.0	1119.5	1113.4	1111.4
127.5°	1191.7	1212.7	1205.2	1197.1	1191.7
130°	1269.9	1294.3	1290.9	1286.9	1279.4
132.5°	1357.6	1376.6	1378.0	1368.5	1363.1
135°	1433.1	1454.2	1458.3	1456.3	1450.8
137.5°	1517.4	1534.5	1537.8	1536.5	1528.3
140°	1591.6	1608.6	1618.1	1618.1	1610.6
142.5°	1667.8	1684.8	1690.2	1692.3	1684.8
145°	1739.9	1753.5	1764.3	1766.4	1758.9
147.5°	1804.5	1821.5	1829.6	1833.1	1825.6
150°	1871.2	1882.7	1890.2	1896.3	1890.2
152.5°	1930.3	1941.9	1951.4	1958.9	1951.4
155°	1989.5	1994.9	2001.1	2010.5	2004.5
157.5°	2040.5	2044.6	2048.0	2061.5	2052.1
160°	2086.1	2090.2	2092.2	2103.7	2095.6
162.5°	2128.2	2128.2	2130.3	2143.2	2133.7
165°	2164.3	2162.2	2162.2	2175.9	2166.3
167.5°	2196.9	2190.8	2190.8	2204.4	2194.9
170°	2221.4	2216.0	2213.9	2227.6	2216.0
172.5°	2238.5	2233.0	2231.0	2244.5	2233.0
175°	2252.0	2246.6	2242.5	2256.1	2244.5
177.5°	2259.5	2254.1	2250.0	2261.6	2250.0
180°	2256.1	2256.1	2256.1	2256.1	2256.1

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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	6.96	7.70	8.02	8.76	10.20	2.93	3.67	3.99	4.73	6.17
	3H	8.63	9.29	9.70	10.36	11.82	4.11	4.77	5.19	5.84	7.30
	4H	9.23	9.86	10.32	10.93	12.40	4.56	5.19	5.64	6.26	7.72
	6H	9.65	10.23	10.74	11.30	12.78	4.88	5.45	5.97	6.53	8.01
	8H	9.77	10.32	10.87	11.41	12.88	4.97	5.51	6.06	6.60	8.08
	12H	9.83	10.35	10.93	11.44	12.93	5.01	5.53	6.11	6.61	8.11
4H	2H	6.96	7.59	8.05	8.66	10.13	3.51	4.14	4.60	5.21	6.68
	3H	8.79	9.31	9.88	10.41	11.88	4.86	5.38	5.95	6.48	7.96
	4H	9.47	9.95	10.58	11.04	12.54	5.40	5.88	6.51	6.97	8.47
	6H	9.99	10.39	11.09	11.51	13.00	5.82	6.23	6.93	7.34	8.83
	8H	10.16	10.54	11.27	11.65	13.15	5.95	6.33	7.06	7.43	8.94
	12H	10.25	10.60	11.38	11.71	13.23	6.01	6.35	7.14	7.47	8.98
8H	4H	9.44	9.82	10.55	10.92	12.43	5.68	6.06	6.79	7.16	8.67
	6H	10.00	10.31	11.13	11.46	12.97	6.19	6.51	7.33	7.66	9.16
	8H	10.22	10.49	11.35	11.62	13.14	6.39	6.66	7.52	7.79	9.31
	12H	10.35	10.59	11.49	11.72	13.28	6.50	6.75	7.64	7.87	9.43
12H	4H	9.38	9.73	10.51	10.85	12.36	5.68	6.02	6.80	7.14	8.65
	6H	9.98	10.25	11.11	11.38	12.90	6.24	6.52	7.38	7.65	9.17
	8H	10.19	10.43	11.33	11.56	13.12	6.45	6.69	7.59	7.82	9.38

END OF REPORT