

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: P913736

Luminaire Tested: DFN2DIP-HX4F0-110D100US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913736
REPORT IS A COMBINATION OF REPORTS P899421 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D100US927-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

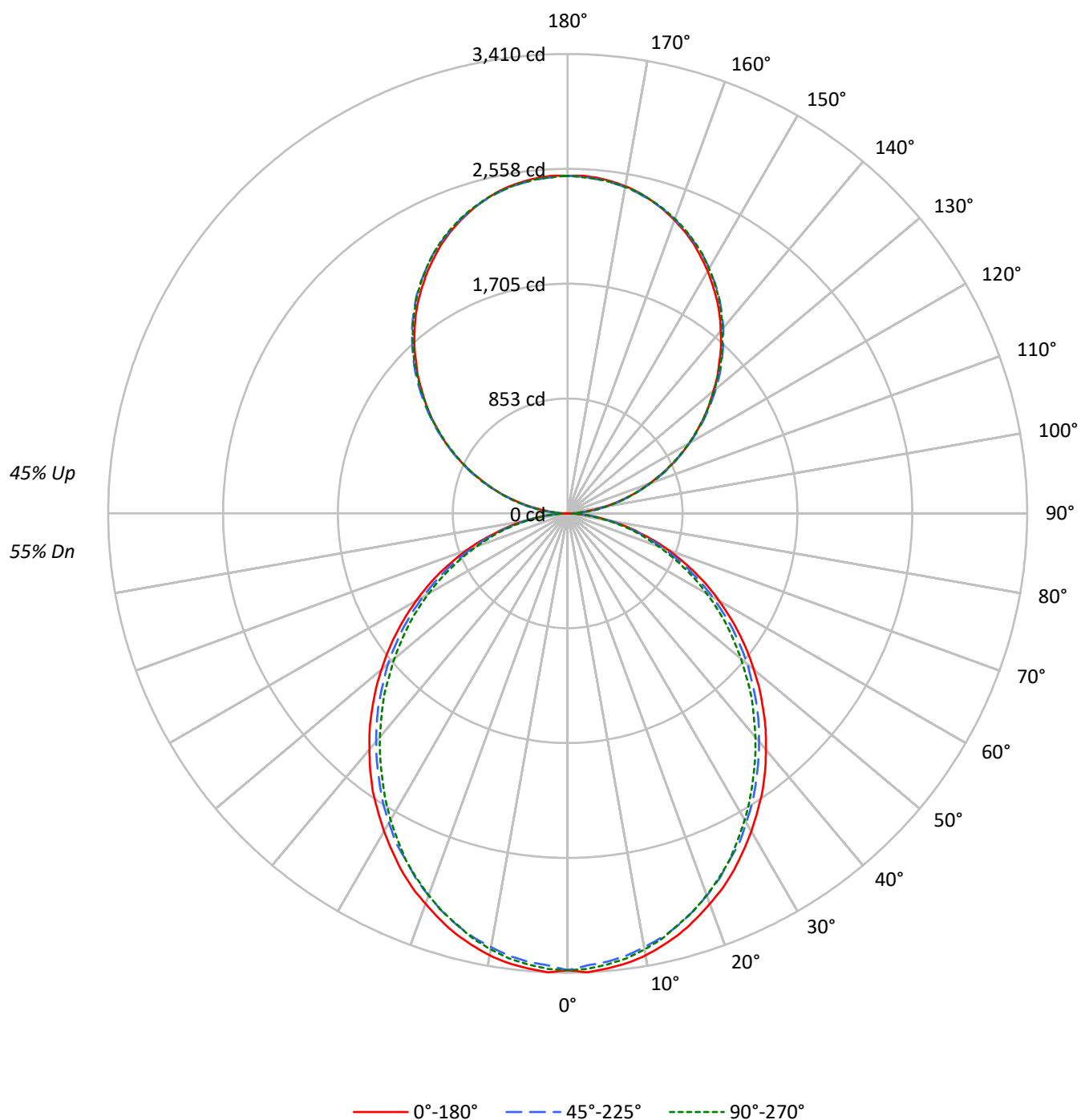
Lumens per Lamp: N/A
Luminaire Lumens: 15637.7 lumens
Efficiency: N/A
Efficacy: 92.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 170
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61
1	99	95	91	87	92	88	85	82	76	73	71	64	63	61	54	53	51
2	90	83	76	71	83	77	72	67	66	62	59	56	53	51	47	45	43
3	82	73	65	59	76	68	61	56	58	53	49	50	46	43	42	39	37
4	75	64	56	50	70	60	53	47	52	46	42	45	40	37	38	34	32
5	69	57	49	43	64	54	46	41	47	41	36	40	36	32	34	30	28
6	64	51	43	37	59	48	41	36	42	36	32	36	32	28	31	27	24
7	59	47	38	33	55	44	36	31	38	32	28	33	28	25	28	24	22
8	55	42	34	29	51	40	33	28	35	29	25	30	26	22	26	22	19
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2521	2521	2521
5°	2525	2486	2503
10°	2505	2453	2469
15°	2468	2413	2416
20°	2419	2357	2362
25°	2370	2290	2300
30°	2308	2228	2220
35°	2249	2155	2136
40°	2177	2080	2056
45°	2105	2006	1974
50°	2026	1928	1879
55°	1944	1838	1792
60°	1851	1731	1692
65°	1750	1620	1574
70°	1621	1485	1447
75°	1442	1323	1331
80°	1227	1118	1107
85°	891	762	737

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2105 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	319.1	2.0
10°-20°	897.9	5.7
20°-30°	1319.6	8.4
30°-40°	1532.6	9.8
40°-50°	1530.7	9.8
50°-60°	1334.7	8.5
60°-70°	986.7	6.3
70°-80°	558.2	3.6
80°-90°	154.4	1.0
90°-100°	155.0	1.0
100°-110°	492.6	3.2
110°-120°	843.0	5.4
120°-130°	1108.6	7.1
130°-140°	1244.4	8.0
140°-150°	1220.3	7.8
150°-160°	1023.6	6.5
160°-170°	678.9	4.3
170°-180°	237.3	1.5
0°-30°	2536.6	16.2
0°-40°	4069.2	26.0
0°-60°	6934.6	44.3
0°-90°	8634.0	55.2
90°-120°	1490.6	9.5
90°-150°	5063.9	32.4
90°-180°	7004.0	44.8
0°-180°	15637.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3391	3391	3391	3391	3391	
5°	3391	3378	3342	3368	3362	322
15°	3228	3208	3166	3179	3163	909
25°	2921	2895	2840	2846	2840	1344
35°	2520	2488	2436	2416	2400	1574
45°	2051	2028	1979	1943	1930	1583
55°	1552	1532	1493	1454	1438	1388
65°	1047	1027	994	965	949	1035
75°	548	541	525	505	512	585
85°	134	130	127	117	114	149
90°	2	27	74	70	72	15
95°	110	131	135	135	131	123
105°	455	461	465	469	469	480
115°	846	858	854	852	846	837
125°	1230	1249	1243	1236	1234	1100
135°	1591	1615	1619	1617	1611	1230
145°	1932	1947	1959	1962	1953	1207
155°	2209	2215	2222	2233	2226	1017
165°	2403	2401	2401	2416	2406	678
175°	2501	2495	2490	2505	2492	238
180°	2505	2505	2505	2505	2505	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3390.7	3390.7	3390.7	3390.7	3390.7
2.5°	3410.3	3394.1	3358.1	3390.7	3384.4
5°	3390.7	3377.9	3341.9	3367.8	3361.6
7.5°	3367.8	3348.5	3312.5	3338.8	3332.2
10°	3332.2	3309.3	3270.3	3296.2	3286.5
12.5°	3283.1	3263.7	3224.7	3240.9	3234.3
15°	3227.7	3208.3	3165.8	3178.9	3162.7
17.5°	3159.2	3139.9	3097.3	3113.6	3097.3
20°	3084.2	3064.8	3019.2	3028.8	3016.1
22.5°	3009.5	2980.0	2937.5	2937.5	2930.9
25°	2921.2	2895.3	2840.0	2846.2	2840.0
27.5°	2823.3	2800.5	2758.3	2748.6	2732.4
30°	2725.8	2699.5	2650.7	2641.1	2627.9
32.5°	2621.3	2602.0	2549.7	2530.0	2516.8
35°	2520.3	2487.8	2435.6	2415.8	2399.6
37.5°	2406.2	2376.8	2324.6	2301.7	2285.4
40°	2288.9	2262.6	2210.4	2181.4	2168.2
42.5°	2174.8	2148.5	2096.6	2063.7	2044.4
45°	2051.0	2028.1	1978.9	1943.4	1930.2
47.5°	1930.2	1907.4	1855.1	1819.2	1799.8
50°	1802.9	1786.7	1741.0	1695.3	1679.1
52.5°	1679.1	1656.2	1614.1	1578.0	1555.2
55°	1552.1	1532.4	1493.3	1454.2	1438.0
57.5°	1424.8	1408.6	1366.0	1326.9	1313.8
60°	1297.5	1284.8	1239.1	1203.1	1193.4
62.5°	1173.7	1150.9	1118.3	1085.8	1072.7
65°	1046.7	1027.0	994.5	965.1	948.9
67.5°	916.3	899.8	870.7	847.9	834.7
70°	795.6	782.4	753.0	730.2	717.4
72.5°	671.8	658.6	642.4	619.6	609.8
75°	547.6	541.4	524.7	505.4	512.0
77.5°	436.9	423.7	417.2	407.5	397.8
80°	326.2	322.7	316.2	306.5	299.9
82.5°	221.7	221.7	218.6	205.5	205.5
85°	133.6	130.4	127.3	117.2	114.2
87.5°	58.8	52.2	45.6	36.0	32.5
90°	2.3	27.2	74.0	69.5	71.8
92.5°	46.8	63.5	65.8	68.0	68.0
95°	110.3	131.4	135.2	135.2	131.4
97.5°	183.5	203.2	211.5	211.5	211.5
100°	268.2	285.5	291.5	291.5	289.3
102.5°	357.3	370.1	378.4	380.6	378.4
105°	454.7	460.7	465.2	469.1	469.1
107.5°	551.4	560.5	560.5	562.0	551.4
110°	645.1	657.1	657.1	657.1	651.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	746.2	759.1	756.8	750.8	746.2
115°	846.0	858.0	854.3	852.0	846.0
117.5°	944.9	961.5	950.9	944.9	938.8
120°	1044.6	1061.2	1044.6	1044.6	1037.8
122.5°	1135.2	1156.3	1145.8	1139.8	1135.2
125°	1230.4	1249.3	1243.2	1236.4	1234.2
127.5°	1323.3	1346.7	1338.4	1329.4	1323.3
130°	1410.2	1437.3	1433.6	1429.0	1420.8
132.5°	1507.6	1528.8	1530.3	1519.7	1513.6
135°	1591.4	1614.9	1619.4	1617.2	1611.1
137.5°	1685.1	1704.0	1707.8	1706.3	1697.2
140°	1767.4	1786.3	1796.9	1796.9	1788.6
142.5°	1852.0	1870.9	1876.9	1879.2	1870.9
145°	1932.1	1947.2	1959.3	1961.5	1953.2
147.5°	2003.8	2022.8	2031.8	2035.6	2027.3
150°	2077.9	2090.7	2099.0	2105.8	2099.0
152.5°	2143.6	2156.4	2167.0	2175.3	2167.0
155°	2209.3	2215.3	2222.1	2232.7	2225.9
157.5°	2266.0	2270.5	2274.3	2289.3	2278.8
160°	2316.6	2321.1	2323.3	2336.1	2327.1
162.5°	2363.4	2363.4	2365.6	2379.9	2369.4
165°	2403.4	2401.1	2401.1	2416.2	2405.7
167.5°	2439.7	2432.9	2432.9	2448.0	2437.4
170°	2466.9	2460.8	2458.5	2473.7	2460.8
172.5°	2485.7	2479.7	2477.4	2492.5	2479.7
175°	2500.8	2494.8	2490.3	2505.4	2492.5
177.5°	2509.2	2503.1	2498.5	2511.4	2498.5
180°	2505.4	2505.4	2505.4	2505.4	2505.4

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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	10.95	11.86	11.86	12.79	13.99	10.52	11.43	11.43	12.36	13.56
	3H	12.62	13.43	13.54	14.37	15.59	12.14	12.96	13.07	13.90	15.12
	4H	13.21	13.98	14.15	14.92	16.15	12.73	13.51	13.67	14.45	15.68
	6H	13.61	14.32	14.56	15.27	16.51	13.14	13.85	14.08	14.80	16.04
	8H	13.72	14.40	14.67	15.36	16.60	13.24	13.92	14.20	14.89	16.13
	12H	13.77	14.41	14.73	15.37	16.64	13.29	13.93	14.25	14.89	16.16
4H	2H	11.42	12.19	12.36	13.14	14.37	11.08	11.85	12.02	12.79	14.02
	3H	13.29	13.94	14.25	14.91	16.15	12.90	13.54	13.85	14.52	15.76
	4H	14.01	14.60	14.97	15.57	16.83	13.60	14.19	14.57	15.16	16.43
	6H	14.53	15.04	15.50	16.03	17.29	14.12	14.63	15.09	15.62	16.88
	8H	14.68	15.15	15.66	16.14	17.42	14.27	14.74	15.24	15.73	17.01
	12H	14.76	15.18	15.75	16.19	17.47	14.33	14.76	15.33	15.76	17.05
8H	4H	14.21	14.69	15.19	15.67	16.95	13.85	14.32	14.83	15.31	16.59
	6H	14.85	15.24	15.85	16.27	17.54	14.48	14.88	15.49	15.90	17.18
	8H	15.07	15.41	16.08	16.43	17.73	14.70	15.04	15.71	16.06	17.36
	12H	15.20	15.51	16.22	16.52	17.86	14.82	15.12	15.83	16.13	17.47
12H	4H	14.20	14.63	15.20	15.63	16.92	13.85	14.28	14.84	15.28	16.56
	6H	14.88	15.22	15.89	16.24	17.54	14.52	14.87	15.54	15.89	17.18
	8H	15.12	15.43	16.14	16.44	17.78	14.76	15.07	15.78	16.08	17.42

END OF REPORT