

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: P913699

Luminaire Tested: DFN2DIP-HX4F0-090D090US927-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913699
REPORT IS A COMBINATION OF REPORTS P899400 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D090US927-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

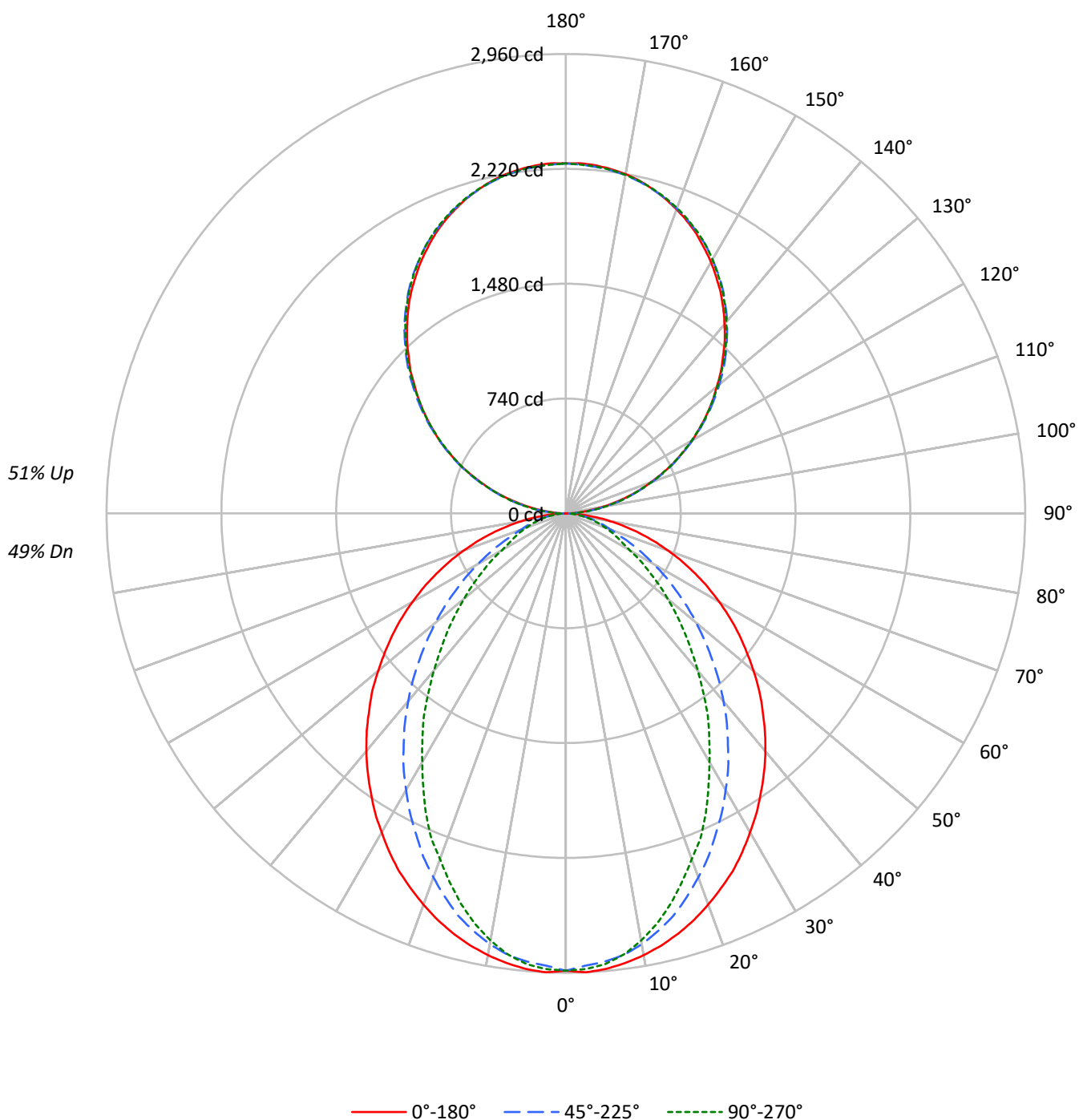
Lumens per Lamp: N/A
Luminaire Lumens: 12369.9 lumens
Efficiency: N/A
Efficacy: 88.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 139.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
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	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2191	2191	2191
5°	2195	2156	2170
10°	2173	2114	2100
15°	2143	2045	1991
20°	2104	1949	1857
25°	2064	1841	1727
30°	2009	1730	1563
35°	1956	1611	1419
40°	1902	1488	1254
45°	1840	1352	1104
50°	1774	1214	958
55°	1707	1067	818
60°	1628	913	673
65°	1538	756	606
70°	1429	610	549
75°	1292	538	499
80°	1093	452	433
85°	763	303	326

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1840 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.2	2.2
10°-20°	758.1	6.1
20°-30°	1064.4	8.6
30°-40°	1160.3	9.4
40°-50°	1066.4	8.6
50°-60°	837.5	6.8
60°-70°	545.1	4.4
70°-80°	280.6	2.3
80°-90°	78.0	0.6
90°-100°	139.5	1.1
100°-110°	443.3	3.6
110°-120°	758.7	6.1
120°-130°	997.8	8.1
130°-140°	1120.0	9.1
140°-150°	1098.2	8.9
150°-160°	921.3	7.4
160°-170°	611.0	4.9
170°-180°	213.5	1.7
0°-30°	2098.7	17.0
0°-40°	3258.9	26.3
0°-60°	5162.8	41.7
0°-90°	6066.6	49.0
90°-120°	1341.5	10.8
90°-150°	4557.5	36.8
90°-180°	6303.0	51.0
0°-180°	12369.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2947	2947	2947	2947	2947	
5°	2947	2933	2899	2923	2915	279
15°	2803	2773	2683	2632	2606	790
25°	2544	2459	2283	2173	2133	1170
35°	2192	2056	1822	1653	1595	1372
45°	1792	1613	1333	1144	1080	1384
55°	1363	1155	867	707	656	1218
65°	920	704	464	373	365	912
75°	491	304	213	195	192	519
85°	114	58	51	51	51	132
90°	2	24	67	62	65	12
95°	99	118	122	122	118	110
105°	409	415	419	422	422	432
115°	761	772	769	767	761	753
125°	1107	1124	1119	1113	1111	990
135°	1432	1453	1458	1455	1450	1107
145°	1739	1752	1763	1765	1758	1086
155°	1988	1994	2000	2009	2003	915
165°	2163	2161	2161	2175	2165	610
175°	2251	2245	2241	2255	2243	214
180°	2255	2255	2255	2255	2255	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2946.7	2946.7	2946.7	2946.7	2946.7
2.5°	2960.0	2946.7	2917.2	2944.1	2938.8
5°	2946.7	2933.4	2898.6	2922.6	2914.7
7.5°	2922.6	2906.8	2869.4	2879.9	2866.6
10°	2890.7	2872.0	2818.8	2810.6	2794.7
12.5°	2850.7	2826.7	2754.6	2738.7	2709.3
15°	2802.7	2773.3	2682.7	2632.0	2605.5
17.5°	2746.7	2704.0	2591.9	2533.3	2490.6
20°	2682.7	2629.2	2495.9	2429.5	2370.6
22.5°	2613.4	2552.0	2397.2	2306.7	2266.8
25°	2544.1	2458.6	2282.7	2173.4	2133.3
27.5°	2461.5	2370.6	2176.0	2050.6	1989.2
30°	2373.5	2271.9	2058.6	1922.8	1850.6
32.5°	2288.0	2165.2	1946.8	1786.7	1719.9
35°	2192.1	2056.0	1821.5	1653.4	1594.6
37.5°	2098.7	1951.9	1704.1	1519.9	1453.4
40°	2000.0	1840.2	1581.3	1392.0	1322.7
42.5°	1898.7	1728.1	1458.7	1261.3	1194.8
45°	1792.1	1613.3	1333.4	1143.8	1079.9
47.5°	1690.8	1501.5	1213.5	1023.9	965.4
50°	1578.7	1389.4	1096.1	911.9	856.1
52.5°	1469.3	1269.2	984.0	808.0	757.4
55°	1362.6	1154.6	866.6	706.8	656.1
57.5°	1253.4	1040.1	762.8	613.4	570.7
60°	1141.3	928.0	653.3	517.5	474.8
62.5°	1032.1	818.8	559.9	432.1	410.8
65°	920.0	703.9	464.0	373.4	365.3
67.5°	813.4	597.2	373.4	327.9	320.0
70°	701.4	493.4	309.3	282.7	271.9
72.5°	594.7	397.2	258.6	237.3	232.0
75°	490.6	303.9	213.3	194.6	192.1
77.5°	386.7	215.9	168.0	157.3	151.9
80°	290.6	154.8	127.9	117.4	117.4
82.5°	202.6	104.1	88.0	82.6	82.6
85°	114.5	58.5	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	2.1	24.5	66.6	62.5	64.6
92.5°	42.1	57.1	59.2	61.2	61.2
95°	99.3	118.3	121.7	121.7	118.3
97.5°	165.2	182.8	190.4	190.4	190.4
100°	241.3	257.0	262.4	262.4	260.4
102.5°	321.5	333.1	340.6	342.6	340.6
105°	409.2	414.6	418.7	422.2	422.2
107.5°	496.2	504.4	504.4	505.7	496.2
110°	580.5	591.4	591.4	591.4	586.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	671.6	683.2	681.1	675.7	671.6
115°	761.4	772.2	768.8	766.8	761.4
117.5°	850.4	865.4	855.9	850.4	844.9
120°	940.2	955.1	940.2	940.2	934.0
122.5°	1021.7	1040.8	1031.3	1025.8	1021.7
125°	1107.4	1124.3	1119.0	1112.8	1110.8
127.5°	1191.0	1212.0	1204.6	1196.4	1191.0
130°	1269.2	1293.6	1290.2	1286.1	1278.7
132.5°	1356.8	1375.9	1377.2	1367.7	1362.3
135°	1432.3	1453.3	1457.5	1455.4	1450.0
137.5°	1516.6	1533.6	1537.0	1535.6	1527.5
140°	1590.7	1607.7	1617.2	1617.2	1609.7
142.5°	1666.8	1683.8	1689.2	1691.3	1683.8
145°	1738.9	1752.5	1763.3	1765.4	1757.9
147.5°	1803.5	1820.4	1828.6	1832.0	1824.6
150°	1870.1	1881.7	1889.1	1895.2	1889.1
152.5°	1929.2	1940.8	1950.3	1957.8	1950.3
155°	1988.4	1993.8	1999.9	2009.4	2003.3
157.5°	2039.3	2043.4	2046.8	2060.4	2050.9
160°	2084.9	2089.0	2091.0	2102.5	2094.4
162.5°	2127.0	2127.0	2129.1	2142.0	2132.5
165°	2163.1	2161.0	2161.0	2174.6	2165.1
167.5°	2195.7	2189.6	2189.6	2203.1	2193.6
170°	2220.2	2214.7	2212.7	2226.3	2214.7
172.5°	2237.1	2231.7	2229.7	2243.3	2231.7
175°	2250.7	2245.3	2241.2	2254.9	2243.3
177.5°	2258.2	2252.8	2248.7	2260.3	2248.7
180°	2254.9	2254.9	2254.9	2254.9	2254.9

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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	9.78	10.60	10.75	11.59	12.87	5.75	6.58	6.73	7.56	8.85
	3H	11.46	12.19	12.44	13.19	14.49	6.94	7.68	7.93	8.67	9.98
	4H	12.07	12.76	13.06	13.76	15.08	7.40	8.09	8.39	9.09	10.40
	6H	12.49	13.13	13.50	14.13	15.46	7.72	8.36	8.72	9.36	10.69
	8H	12.62	13.23	13.63	14.24	15.57	7.81	8.42	8.82	9.43	10.76
	12H	12.68	13.26	13.70	14.27	15.62	7.85	8.43	8.87	9.44	10.79
4H	2H	9.80	10.49	10.80	11.49	12.81	6.35	7.04	7.35	8.04	9.36
	3H	11.63	12.21	12.64	13.23	14.56	7.70	8.28	8.71	9.30	10.63
	4H	12.32	12.85	13.34	13.87	15.22	8.25	8.78	9.27	9.79	11.15
	6H	12.84	13.29	13.87	14.33	15.68	8.67	9.12	9.70	10.16	11.51
	8H	13.01	13.44	14.04	14.47	15.83	8.80	9.22	9.83	10.26	11.62
	12H	13.11	13.49	14.16	14.54	15.91	8.87	9.25	9.91	10.30	11.67
8H	4H	12.29	12.71	13.32	13.74	15.11	8.53	8.95	9.56	9.99	11.35
	6H	12.86	13.21	13.91	14.28	15.64	9.05	9.40	10.10	10.47	11.84
	8H	13.07	13.38	14.14	14.44	15.82	9.24	9.55	10.30	10.61	11.99
	12H	13.21	13.48	14.28	14.54	15.96	9.36	9.63	10.43	10.69	12.11
12H	4H	12.24	12.62	13.29	13.67	15.04	8.53	8.92	9.58	9.96	11.33
	6H	12.83	13.14	13.89	14.20	15.58	9.10	9.41	10.16	10.47	11.85
	8H	13.05	13.32	14.12	14.38	15.80	9.31	9.58	10.38	10.64	12.06