

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: P928238

Luminaire Tested: DFN2DIP-HX4F0-050D120US927-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928238
REPORT IS A COMBINATION OF REPORTS P900966 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D120US927-RLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

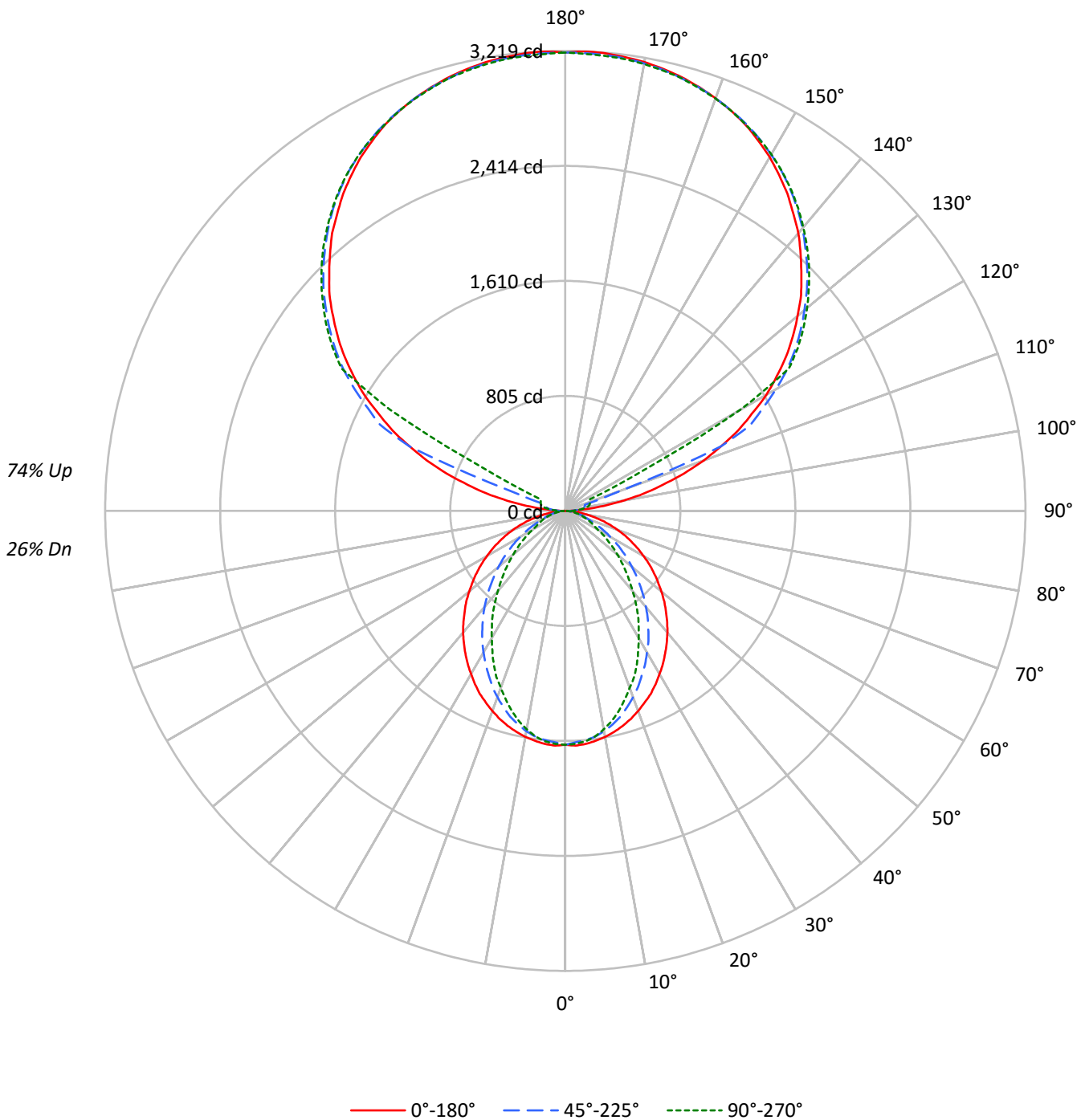
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12775.0 lumens
Efficiency: N/A
Efficacy: 91.5 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): 139.6
Input Voltage (V):
Input Current (A_{in}): 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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	102	102	102	102	91	91	91	91	70	70	70	52	52	52	34	34	34	26			26
1	93	89	85	82	83	79	76	74	62	60	58	46	44	43	31	30	29	23			23
2	85	78	72	67	75	70	65	61	54	51	48	40	38	36	27	26	25	19			19
3	77	68	62	56	69	61	56	51	48	44	41	36	33	31	24	23	22	17			17
4	71	61	53	47	63	54	48	43	43	38	35	32	29	27	22	20	19	15			15
5	65	54	46	41	58	49	42	37	38	34	30	29	26	23	20	18	17	13			13
6	60	48	41	35	53	44	37	32	35	30	26	26	23	20	18	16	15	11			11
7	55	44	36	31	49	39	33	28	31	27	23	24	20	18	17	15	13	10			10
8	51	39	32	27	46	36	29	25	28	24	20	22	18	16	15	13	12	9			9
9	48	36	29	24	42	33	26	22	26	21	18	20	17	14	14	12	11	8			8
10	44	33	26	21	40	30	24	20	24	19	16	18	15	13	13	11	10	8			8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1217	1217	1217
5°	1219	1198	1205
10°	1207	1174	1166
15°	1191	1136	1106
20°	1169	1082	1031
25°	1146	1022	959
30°	1116	961	868
35°	1087	895	788
40°	1057	827	697
45°	1022	751	613
50°	986	674	532
55°	948	592	454
60°	904	507	374
65°	854	420	337
70°	794	339	305
75°	717	299	277
80°	607	251	241
85°	425	168	181

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1648 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	153.4	1.2
10°-20°	421.1	3.3
20°-30°	591.2	4.6
30°-40°	644.4	5.0
40°-50°	592.3	4.6
50°-60°	465.2	3.6
60°-70°	302.8	2.4
70°-80°	155.9	1.2
80°-90°	45.4	0.4
90°-100°	105.8	0.8
100°-110°	394.3	3.1
110°-120°	1045.7	8.2
120°-130°	1734.3	13.6
130°-140°	1842.3	14.4
140°-150°	1712.2	13.4
150°-160°	1376.5	10.8
160°-170°	887.0	6.9
170°-180°	305.3	2.4
0°-30°	1165.7	9.1
0°-40°	1810.1	14.2
0°-60°	2867.6	22.4
0°-90°	3371.7	26.4
90°-120°	1545.7	12.1
90°-150°	6834.5	53.5
90°-180°	9403.0	73.6
0°-180°	12775.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1637	1637	1637	1637	1637	
5°	1637	1629	1610	1623	1619	155
15°	1557	1540	1490	1462	1447	439
25°	1413	1366	1268	1207	1185	650
35°	1218	1142	1012	918	886	762
45°	995	896	741	635	600	769
55°	757	641	481	392	364	676
65°	511	391	258	207	203	507
75°	272	169	118	108	107	288
85°	64	33	28	28	28	73
90°	2	28	46	58	63	12
95°	151	74	90	102	100	179
105°	706	775	142	167	176	754
115°	1334	1374	1432	357	190	1314
125°	1887	1917	1961	1978	1984	1683
135°	2335	2372	2393	2416	2412	1804
145°	2709	2706	2746	2762	2750	1694
155°	2982	2962	2990	3003	2985	1374
165°	3142	3129	3136	3152	3136	888
175°	3214	3198	3203	3219	3196	306
180°	3208	3208	3208	3208	3208	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1636.7	1636.7	1636.7	1636.7	1636.7
2.5°	1644.0	1636.7	1620.4	1635.2	1632.2
5°	1636.7	1629.3	1610.0	1623.3	1618.9
7.5°	1623.3	1614.5	1593.7	1599.6	1592.2
10°	1605.5	1595.2	1565.6	1561.1	1552.2
12.5°	1583.4	1570.1	1530.0	1521.2	1504.8
15°	1556.7	1540.4	1490.1	1462.0	1447.1
17.5°	1525.6	1501.9	1439.6	1407.1	1383.3
20°	1490.1	1460.4	1386.3	1349.4	1316.7
22.5°	1451.6	1417.4	1331.5	1281.2	1259.0
25°	1413.0	1365.6	1267.8	1207.2	1184.8
27.5°	1367.2	1316.7	1208.6	1139.0	1104.9
30°	1318.3	1261.9	1143.4	1067.9	1027.9
32.5°	1270.8	1202.7	1081.3	992.4	955.3
35°	1217.5	1142.0	1011.7	918.3	885.7
37.5°	1165.7	1084.2	946.5	844.2	807.3
40°	1110.9	1022.1	878.2	773.2	734.7
42.5°	1054.6	959.8	810.2	700.5	663.6
45°	995.4	896.1	740.6	635.3	599.8
47.5°	939.1	834.0	674.0	568.7	536.2
50°	876.9	771.7	608.8	506.5	475.5
52.5°	816.1	705.0	546.6	448.8	420.7
55°	756.8	641.3	481.3	392.5	364.4
57.5°	696.2	577.7	423.6	340.7	317.0
60°	633.9	515.4	362.8	287.4	263.7
62.5°	573.2	454.8	311.0	240.0	228.2
65°	511.0	391.0	257.7	207.4	202.9
67.5°	451.8	331.8	207.4	182.2	177.7
70°	389.6	274.0	171.8	157.0	151.0
72.5°	330.3	220.7	143.7	131.9	128.9
75°	272.5	168.8	118.5	108.1	106.7
77.5°	214.8	119.9	93.4	87.4	84.3
80°	161.4	85.9	71.0	65.2	65.2
82.5°	112.5	57.8	48.9	45.9	45.9
85°	63.7	32.6	28.1	28.1	28.1
87.5°	23.8	11.8	11.8	10.4	10.4
90°	2.2	27.8	46.3	58.1	62.6
92.5°	58.1	48.8	55.7	60.4	62.6
95°	150.7	74.1	90.4	102.2	99.8
97.5°	271.5	81.3	118.2	125.4	127.6
100°	410.9	92.9	132.3	150.7	155.5
102.5°	563.9	559.5	136.9	162.4	169.5
105°	705.5	775.3	141.7	167.0	176.4
107.5°	870.3	928.2	146.4	171.7	181.1
110°	1028.3	1076.8	406.2	174.2	183.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1176.8	1218.4	1179.1	178.6	185.7
115°	1334.4	1373.9	1432.0	357.4	190.5
117.5°	1471.5	1517.8	1557.5	1225.3	617.4
120°	1624.7	1659.4	1701.3	1729.2	1415.8
122.5°	1754.5	1791.7	1838.3	1852.1	1854.5
125°	1886.8	1917.1	1961.2	1977.5	1984.4
127.5°	2007.5	2040.0	2075.0	2098.2	2100.4
130°	2121.3	2158.5	2183.9	2209.5	2207.3
132.5°	2237.3	2267.7	2293.0	2314.0	2311.8
135°	2334.9	2372.1	2392.8	2416.2	2411.6
137.5°	2436.9	2464.7	2488.1	2511.3	2504.4
140°	2536.7	2555.4	2580.7	2601.7	2590.2
142.5°	2620.4	2636.7	2666.7	2685.2	2673.6
145°	2708.6	2706.2	2745.5	2761.9	2750.2
147.5°	2785.0	2778.1	2817.5	2829.1	2820.0
150°	2859.4	2843.1	2880.3	2894.1	2882.6
152.5°	2921.9	2903.5	2938.2	2952.3	2936.0
155°	2982.3	2961.6	2989.5	3003.3	2984.8
157.5°	3031.1	3012.6	3033.6	3049.8	3031.1
160°	3073.0	3058.9	3073.0	3086.7	3070.5
162.5°	3109.9	3096.2	3107.7	3124.0	3103.1
165°	3142.4	3128.6	3135.5	3151.8	3135.5
167.5°	3168.1	3154.0	3161.2	3177.4	3156.5
170°	3189.0	3175.0	3179.6	3195.9	3175.0
172.5°	3202.8	3189.0	3193.7	3210.0	3189.0
175°	3214.3	3198.1	3202.8	3219.1	3195.9
177.5°	3219.1	3202.8	3205.3	3221.5	3200.6
180°	3207.5	3207.5	3207.5	3207.5	3207.5



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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	5.08	5.75	6.22	6.87	8.45	1.05	1.72	2.19	2.85	4.42
	3H	6.74	7.34	7.89	8.48	10.07	2.23	2.83	3.38	3.96	5.55
	4H	7.34	7.91	8.50	9.05	10.64	2.67	3.24	3.83	4.38	5.97
	6H	7.76	8.28	8.92	9.42	11.02	2.99	3.51	4.15	4.65	6.25
	8H	7.88	8.38	9.05	9.53	11.13	3.07	3.57	4.24	4.72	6.32
	12H	7.94	8.41	9.11	9.56	11.18	3.11	3.58	4.28	4.73	6.35
4H	2H	5.07	5.64	6.24	6.78	8.37	1.63	2.19	2.79	3.33	4.92
	3H	6.89	7.36	8.06	8.53	10.13	2.96	3.44	4.13	4.60	6.20
	4H	7.58	8.01	8.75	9.16	10.79	3.51	3.94	4.68	5.09	6.72
	6H	8.08	8.46	9.26	9.63	11.24	3.92	4.29	5.09	5.46	7.08
	8H	8.26	8.60	9.43	9.77	11.40	4.04	4.39	5.22	5.56	7.19
	12H	8.35	8.66	9.54	9.84	11.47	4.10	4.42	5.29	5.59	7.23
8H	4H	7.53	7.88	8.71	9.04	10.68	3.77	4.12	4.95	5.29	6.92
	6H	8.09	8.38	9.29	9.59	11.22	4.29	4.57	5.48	5.78	7.41
	8H	8.31	8.56	9.51	9.74	11.39	4.48	4.73	5.68	5.91	7.56
	12H	8.44	8.66	9.65	9.84	11.53	4.59	4.81	5.80	6.00	7.68
12H	4H	7.48	7.79	8.67	8.97	10.60	3.77	4.09	4.96	5.26	6.90
	6H	8.07	8.32	9.27	9.50	11.15	4.34	4.59	5.54	5.77	7.42
	8H	8.28	8.50	9.49	9.68	11.37	4.54	4.76	5.75	5.94	7.63