

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: P908156

Luminaire Tested: DFN2DIP-HX4F0-040D110US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908156
REPORT IS A COMBINATION OF REPORTS P899425 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D110US840-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

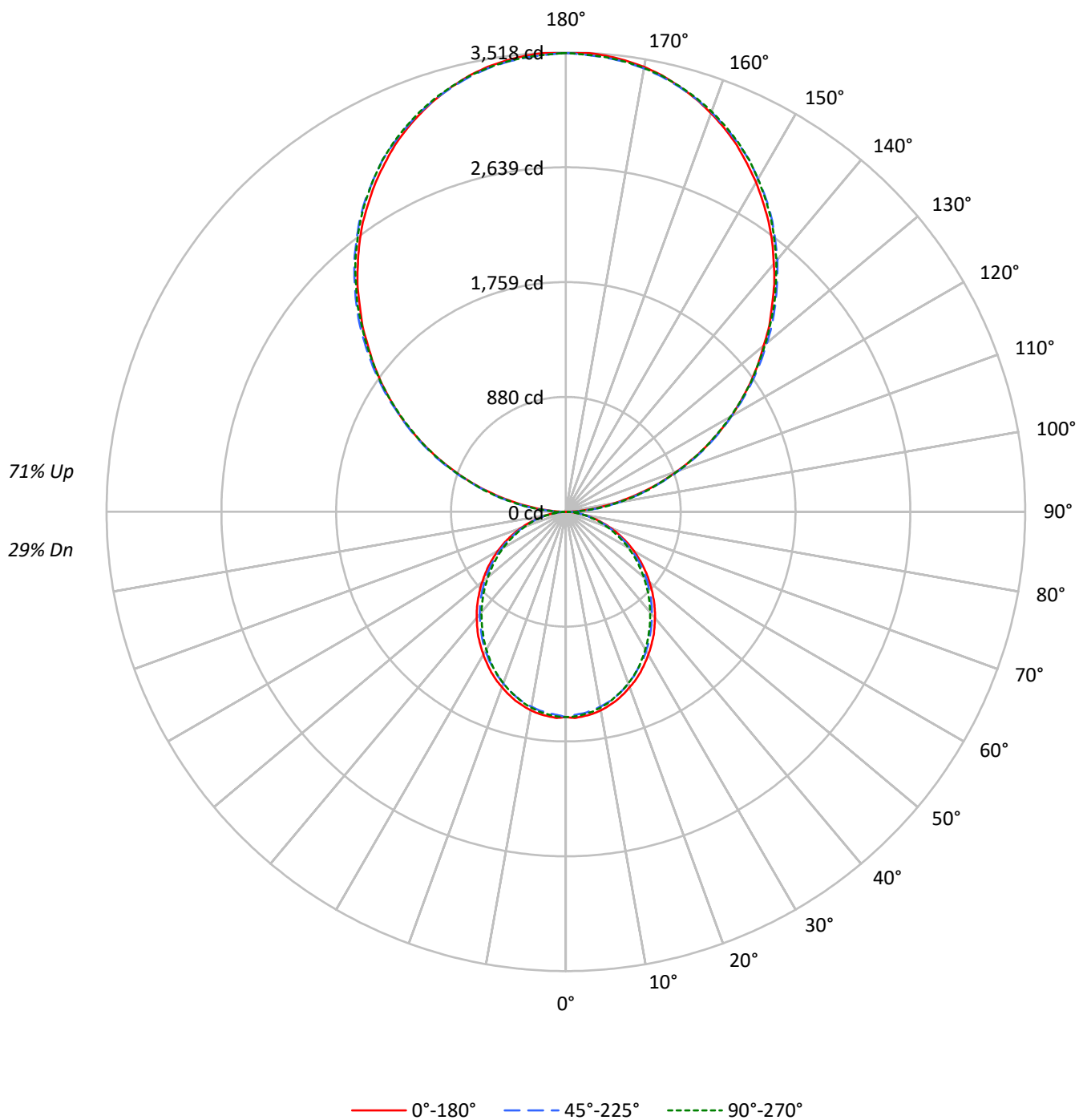
Lumens per Lamp: N/A
Luminaire Lumens: 13830.1 lumens
Efficiency: N/A
Efficacy: 140.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 98.5
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	37	37	37
1	93	89	85	82	83	80	77	74	63	61	59	47	46	44	32	32	31
2	85	78	72	67	76	70	65	60	55	51	48	41	39	37	29	27	26
3	77	68	61	55	69	61	55	50	48	44	41	36	34	31	25	24	22
4	71	60	53	47	63	54	48	43	43	38	35	32	29	27	23	21	19
5	65	53	46	40	58	48	41	36	38	33	30	29	26	23	20	18	17
6	59	48	40	34	53	43	36	31	34	29	26	26	23	20	18	16	15
7	55	43	35	30	49	39	32	27	31	26	23	24	20	18	17	15	13
8	51	39	31	26	45	35	29	24	28	23	20	22	18	16	15	13	12
9	47	35	28	23	42	32	26	21	26	21	18	20	16	14	14	12	10
10	44	32	25	21	39	29	23	19	24	19	16	18	15	13	13	11	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1169	1169	1169
5°	1171	1152	1160
10°	1161	1137	1145
15°	1144	1119	1120
20°	1121	1093	1095
25°	1098	1062	1066
30°	1070	1033	1029
35°	1043	999	990
40°	1009	964	953
45°	976	930	915
50°	939	894	871
55°	901	852	831
60°	858	802	784
65°	811	751	730
70°	751	688	671
75°	668	614	617
80°	569	518	513
85°	413	353	341

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2649 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	1.1
10°-20°	416.2	3.0
20°-30°	611.7	4.4
30°-40°	710.5	5.1
40°-50°	709.6	5.1
50°-60°	618.7	4.5
60°-70°	457.4	3.3
70°-80°	258.8	1.9
80°-90°	78.3	0.6
90°-100°	217.4	1.6
100°-110°	690.8	5.0
110°-120°	1182.1	8.5
120°-130°	1554.6	11.2
130°-140°	1745.0	12.6
140°-150°	1711.2	12.4
150°-160°	1435.4	10.4
160°-170°	951.9	6.9
170°-180°	332.7	2.4
0°-30°	1175.9	8.5
0°-40°	1886.3	13.6
0°-60°	3214.6	23.2
0°-90°	4009.0	29.0
90°-120°	2090.2	15.1
90°-150°	7101.0	51.3
90°-180°	9821.0	71.0
0°-180°	13830.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1572	1566	1549	1561	1558	149
15°	1496	1487	1468	1474	1466	421
25°	1354	1342	1316	1319	1316	623
35°	1168	1153	1129	1120	1112	730
45°	951	940	917	901	895	734
55°	720	710	692	674	667	643
65°	485	476	461	447	440	480
75°	254	251	243	234	237	271
85°	62	60	59	54	53	69
90°	3	38	104	98	101	14
95°	155	184	190	190	184	172
105°	638	646	652	658	658	673
115°	1186	1203	1198	1195	1186	1173
125°	1725	1752	1743	1734	1731	1542
135°	2232	2264	2271	2268	2259	1725
145°	2709	2730	2747	2751	2739	1693
155°	3098	3106	3116	3131	3121	1426
165°	3370	3367	3367	3388	3373	951
175°	3507	3498	3492	3513	3495	333
180°	3513	3513	3513	3513	3513	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1571.8	1571.8	1571.8	1571.8	1571.8
2.5°	1580.9	1573.4	1556.7	1571.8	1568.9
5°	1571.8	1565.8	1549.1	1561.2	1558.3
7.5°	1561.2	1552.2	1535.5	1547.7	1544.7
10°	1544.7	1534.1	1516.0	1528.0	1523.5
12.5°	1521.9	1512.9	1494.8	1502.4	1499.2
15°	1496.2	1487.2	1467.5	1473.6	1466.1
17.5°	1464.5	1455.5	1435.8	1443.3	1435.8
20°	1429.7	1420.7	1399.6	1404.0	1398.2
22.5°	1395.0	1381.4	1361.7	1361.7	1358.7
25°	1354.1	1342.1	1316.5	1319.4	1316.5
27.5°	1308.8	1298.2	1278.7	1274.1	1266.7
30°	1263.5	1251.4	1228.8	1224.3	1218.2
32.5°	1215.2	1206.2	1181.9	1172.9	1166.7
35°	1168.3	1153.3	1129.0	1119.9	1112.4
37.5°	1115.4	1101.8	1077.5	1067.0	1059.4
40°	1061.1	1048.8	1024.6	1011.2	1005.1
42.5°	1008.1	995.9	971.9	956.6	947.7
45°	950.7	940.2	917.4	900.9	894.7
47.5°	894.7	884.1	860.0	843.3	834.4
50°	835.8	828.2	807.1	785.9	778.3
52.5°	778.3	767.8	748.2	731.5	720.9
55°	719.5	710.3	692.3	674.1	666.6
57.5°	660.5	653.0	633.2	615.1	609.0
60°	601.5	595.5	574.4	557.7	553.2
62.5°	544.1	533.5	518.5	503.3	497.3
65°	485.2	476.1	461.0	447.4	439.9
67.5°	424.7	417.1	403.6	393.0	387.0
70°	368.8	362.7	349.1	338.5	332.5
72.5°	311.4	305.3	297.8	287.2	282.7
75°	253.9	251.0	243.3	234.3	237.3
77.5°	202.5	196.4	193.4	188.8	184.4
80°	151.2	149.6	146.5	142.1	139.1
82.5°	102.8	102.8	101.4	95.2	95.2
85°	61.9	60.5	59.0	54.3	52.9
87.5°	27.3	24.2	21.2	16.7	15.0
90°	3.1	38.2	103.8	97.5	100.6
92.5°	65.6	89.0	92.1	95.3	95.3
95°	154.6	184.3	189.6	189.6	184.3
97.5°	257.4	284.9	296.6	296.6	296.6
100°	376.0	400.3	408.8	408.8	405.7
102.5°	501.0	519.0	530.7	533.8	530.7
105°	637.6	646.1	652.5	657.7	657.7
107.5°	773.2	785.9	785.9	788.0	773.2
110°	904.5	921.5	921.5	921.5	913.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1046.4	1064.4	1061.3	1052.8	1046.4
115°	1186.3	1203.2	1197.9	1194.8	1186.3
117.5°	1325.0	1348.3	1333.4	1325.0	1316.6
120°	1464.8	1488.1	1464.8	1464.8	1455.3
122.5°	1592.0	1621.5	1606.7	1598.2	1592.0
125°	1725.4	1751.8	1743.3	1733.8	1730.6
127.5°	1855.6	1888.4	1876.8	1864.1	1855.6
130°	1977.4	2015.6	2010.2	2003.9	1992.3
132.5°	2114.1	2143.7	2145.9	2131.0	2122.5
135°	2231.6	2264.4	2270.8	2267.7	2259.2
137.5°	2363.0	2389.4	2394.7	2392.6	2380.0
140°	2478.4	2504.9	2519.7	2519.7	2508.1
142.5°	2597.1	2623.5	2632.0	2635.1	2623.5
145°	2709.3	2730.5	2747.4	2750.6	2739.0
147.5°	2810.0	2836.4	2849.1	2854.4	2842.8
150°	2913.8	2931.7	2943.4	2952.9	2943.4
152.5°	3005.9	3023.8	3038.7	3050.4	3038.7
155°	3098.1	3106.4	3116.0	3130.9	3121.3
157.5°	3177.4	3183.8	3189.1	3210.3	3195.4
160°	3248.4	3254.8	3257.9	3276.0	3263.3
162.5°	3314.1	3314.1	3317.3	3337.4	3322.6
165°	3370.2	3367.0	3367.0	3388.2	3373.4
167.5°	3421.0	3411.5	3411.5	3432.7	3417.9
170°	3459.2	3450.7	3447.6	3468.7	3450.7
172.5°	3485.7	3477.2	3474.0	3495.2	3477.2
175°	3506.9	3498.4	3492.0	3513.2	3495.2
177.5°	3518.5	3510.0	3503.6	3521.7	3503.6
180°	3513.2	3513.2	3513.2	3513.2	3513.2

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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	5.46	6.16	6.58	7.27	8.81	5.02	5.72	6.14	6.84	8.38
	3H	7.11	7.73	8.23	8.85	10.41	6.63	7.26	7.76	8.38	9.94
	4H	7.69	8.28	8.82	9.40	10.97	7.21	7.81	8.35	8.93	10.49
	6H	8.08	8.63	9.22	9.75	11.33	7.60	8.15	8.75	9.27	10.85
	8H	8.18	8.70	9.33	9.84	11.41	7.70	8.22	8.85	9.36	10.93
	12H	8.22	8.72	9.37	9.85	11.44	7.74	8.24	8.89	9.37	10.96
4H	2H	5.90	6.49	7.04	7.62	9.18	5.55	6.15	6.70	7.27	8.84
	3H	7.75	8.25	8.90	9.40	10.97	7.36	7.86	8.51	9.00	10.58
	4H	8.46	8.92	9.61	10.05	11.65	8.05	8.51	9.21	9.65	11.24
	6H	8.97	9.36	10.12	10.52	12.10	8.56	8.95	9.71	10.11	11.69
	8H	9.11	9.48	10.27	10.63	12.23	8.70	9.07	9.86	10.22	11.82
	12H	9.18	9.51	10.35	10.67	12.28	8.76	9.09	9.93	10.25	11.86
8H	4H	8.64	9.01	9.80	10.16	11.76	8.28	8.65	9.44	9.80	11.40
	6H	9.27	9.57	10.45	10.76	12.36	8.91	9.21	10.08	10.40	12.00
	8H	9.49	9.75	10.67	10.92	12.54	9.12	9.38	10.30	10.55	12.17
	12H	9.61	9.85	10.80	11.01	12.67	9.23	9.46	10.42	10.63	12.28
12H	4H	8.62	8.95	9.80	10.12	11.72	8.27	8.60	9.44	9.76	11.37
	6H	9.30	9.56	10.48	10.73	12.35	8.95	9.21	10.13	10.38	12.00
	8H	9.53	9.77	10.72	10.93	12.59	9.18	9.41	10.36	10.58	12.23

END OF REPORT