

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: P908159

Luminaire Tested: DFN2DIP-HX4F0-040D120US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P908159
REPORT IS A COMBINATION OF REPORTS P899444 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-040D120US840-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

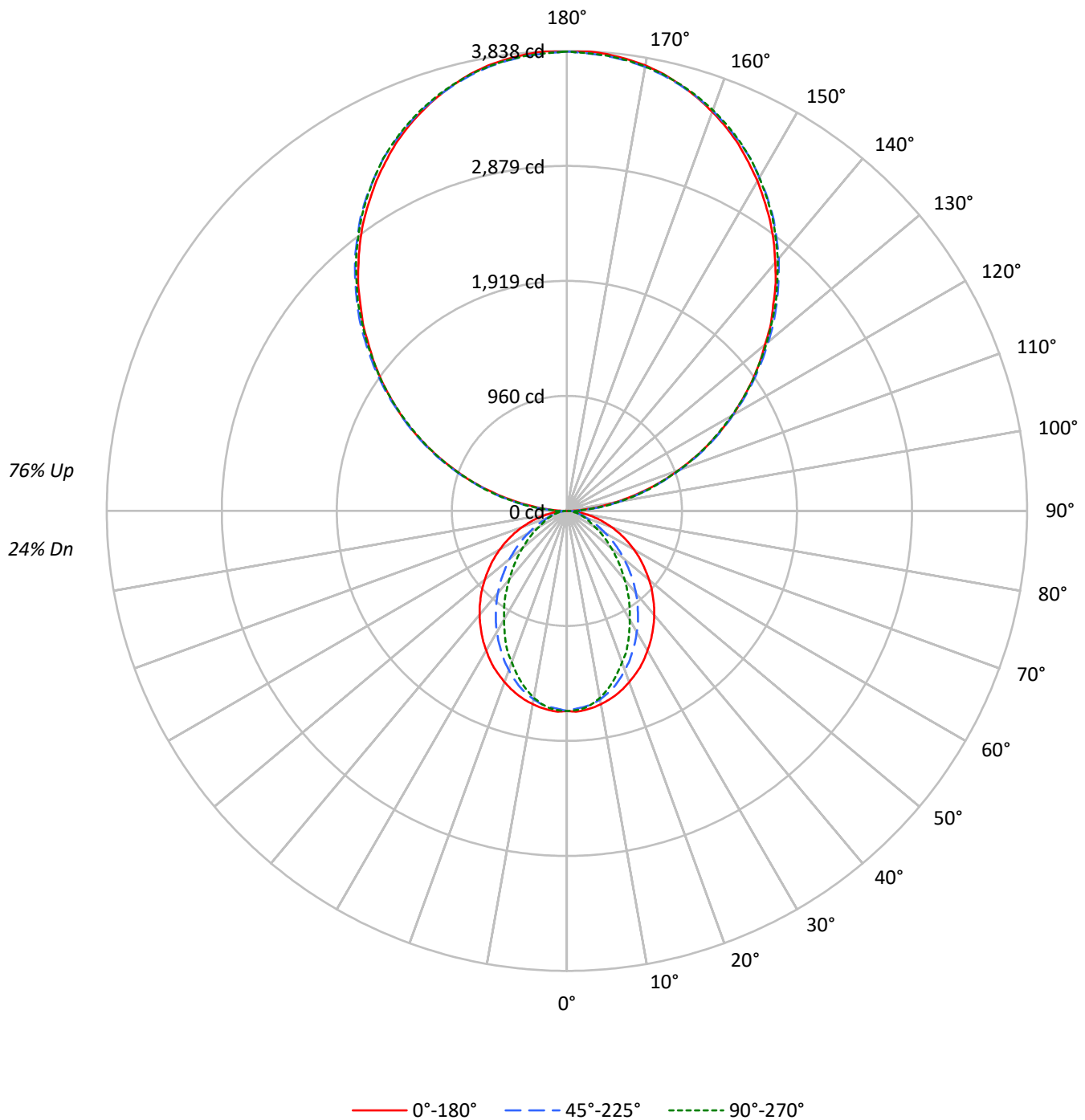
Lumens per Lamp: N/A
Luminaire Lumens: 14158.3 lumens
Efficiency: N/A
Efficacy: 132.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 106.5
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

TEST NUMBER: P908159

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US840-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P908159

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US840-RLFL

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	101	101	101	101	90	90	90	90	69	69	69	50	50	50	33	33	33
1	92	88	85	81	82	79	76	73	61	59	57	44	43	42	29	28	28
2	84	77	71	67	75	69	64	60	53	50	47	39	37	35	26	25	24
3	77	68	61	56	68	61	55	50	47	43	40	35	32	30	23	22	20
4	70	60	53	47	62	54	48	43	42	38	34	31	28	26	21	19	18
5	64	54	46	40	57	48	42	37	38	33	29	28	25	22	19	17	16
6	59	48	40	35	53	43	37	32	34	29	26	25	22	20	17	15	14
7	55	43	36	30	49	39	32	28	31	26	23	23	20	17	16	14	12
8	51	39	32	27	45	35	29	24	28	23	20	21	18	16	14	12	11
9	47	36	29	24	42	32	26	22	25	21	18	19	16	14	13	11	10
10	44	33	26	21	39	29	23	19	23	19	16	18	15	13	12	10	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1241	1241	1241
5°	1243	1222	1230
10°	1231	1198	1190
15°	1214	1158	1128
20°	1192	1104	1052
25°	1169	1043	979
30°	1138	980	886
35°	1108	913	804
40°	1078	843	711
45°	1042	766	626
50°	1005	688	543
55°	967	604	463
60°	922	517	381
65°	871	428	343
70°	810	346	311
75°	732	305	283
80°	619	256	246
85°	433	172	185

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2891 cd/sqm

TEST NUMBER: P908159

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US840-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	156.5	1.1
10°-20°	429.5	3.0
20°-30°	603.0	4.3
30°-40°	657.4	4.6
40°-50°	604.2	4.3
50°-60°	474.5	3.4
60°-70°	308.9	2.2
70°-80°	159.0	1.1
80°-90°	51.5	0.4
90°-100°	237.2	1.7
100°-110°	753.5	5.3
110°-120°	1289.5	9.1
120°-130°	1696.0	12.0
130°-140°	1903.6	13.4
140°-150°	1866.7	13.2
150°-160°	1565.9	11.1
160°-170°	1038.5	7.3
170°-180°	363.0	2.6
0°-30°	1189.0	8.4
0°-40°	1846.4	13.0
0°-60°	2925.1	20.7
0°-90°	3444.4	24.3
90°-120°	2280.2	16.1
90°-150°	7746.5	54.7
90°-180°	10714.0	75.7
0°-180°	14158.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1670	1670	1670	1670	1670	
5°	1670	1662	1642	1656	1651	158
15°	1588	1571	1520	1491	1476	447
25°	1441	1393	1293	1231	1209	663
35°	1242	1165	1032	937	903	777
45°	1015	914	756	648	612	784
55°	772	654	491	400	372	690
65°	521	399	263	212	207	517
75°	278	172	121	110	109	294
85°	65	33	29	29	29	75
90°	3	42	113	106	110	14
95°	169	201	207	207	201	188
105°	696	705	712	718	718	734
115°	1294	1313	1307	1303	1294	1280
125°	1882	1911	1902	1892	1888	1682
135°	2434	2470	2477	2474	2465	1882
145°	2956	2979	2997	3001	2988	1847
155°	3380	3389	3399	3416	3405	1556
165°	3677	3673	3673	3696	3680	1037
175°	3826	3816	3810	3832	3813	363
180°	3832	3832	3832	3832	3832	

TEST NUMBER: P908159

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US840-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1669.5	1669.5	1669.5	1669.5	1669.5
2.5°	1677.1	1669.5	1652.8	1668.1	1665.0
5°	1669.5	1661.9	1642.2	1655.9	1651.4
7.5°	1655.9	1646.9	1625.8	1631.6	1624.2
10°	1637.8	1627.2	1597.0	1592.4	1583.5
12.5°	1615.2	1601.5	1560.6	1551.7	1535.0
15°	1587.9	1571.2	1519.9	1491.3	1476.2
17.5°	1556.2	1532.0	1468.4	1435.3	1411.1
20°	1519.9	1489.7	1414.1	1376.4	1343.1
22.5°	1480.7	1445.9	1358.2	1306.9	1284.3
25°	1441.4	1393.0	1293.2	1231.4	1208.6
27.5°	1394.6	1343.1	1232.8	1161.9	1127.0
30°	1344.7	1287.2	1166.3	1089.3	1048.5
32.5°	1296.4	1226.8	1103.0	1012.3	974.4
35°	1242.0	1164.9	1032.0	936.8	903.4
37.5°	1189.1	1105.9	965.4	861.1	823.4
40°	1133.2	1042.6	896.0	788.7	749.4
42.5°	1075.7	979.1	826.5	714.6	676.9
45°	1015.3	914.0	755.5	648.1	611.9
47.5°	958.0	850.7	687.5	580.2	546.9
50°	894.4	787.2	621.0	516.6	485.0
52.5°	832.4	719.1	557.5	457.8	429.1
55°	772.0	654.2	491.0	400.4	371.7
57.5°	710.1	589.3	432.1	347.5	323.4
60°	646.6	525.7	370.1	293.2	269.0
62.5°	584.8	463.9	317.2	244.8	232.8
65°	521.3	398.8	262.9	211.6	206.9
67.5°	460.9	338.4	211.6	185.8	181.3
70°	397.4	279.5	175.2	160.2	154.0
72.5°	337.0	225.1	146.5	134.5	131.5
75°	277.9	172.2	120.9	110.3	108.9
77.5°	219.1	122.3	95.2	89.2	86.0
80°	164.6	87.7	72.4	66.6	66.6
82.5°	114.8	59.0	49.9	46.8	46.8
85°	64.9	33.2	28.7	28.7	28.7
87.5°	24.2	12.0	12.0	10.6	10.6
90°	3.4	41.6	113.2	106.3	109.8
92.5°	71.6	97.0	100.5	104.0	104.0
95°	168.6	201.1	206.8	206.8	201.1
97.5°	280.7	310.8	323.6	323.6	323.6
100°	410.2	436.8	446.0	446.0	442.5
102.5°	546.5	566.1	578.9	582.4	578.9
105°	695.6	704.8	711.8	717.5	717.5
107.5°	843.4	857.4	857.4	859.6	843.4
110°	986.7	1005.2	1005.2	1005.2	996.0

TEST NUMBER: P908159

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US840-RLFL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1141.6	1161.2	1157.7	1148.5	1141.6
115°	1294.0	1312.6	1306.8	1303.3	1294.0
117.5°	1445.4	1470.9	1454.7	1445.4	1436.2
120°	1598.0	1623.4	1598.0	1598.0	1587.6
122.5°	1736.7	1769.0	1752.8	1743.5	1736.7
125°	1882.2	1911.1	1901.9	1891.5	1887.9
127.5°	2024.4	2060.1	2047.4	2033.6	2024.4
130°	2157.2	2198.8	2193.0	2186.1	2173.3
132.5°	2306.2	2338.6	2340.9	2324.7	2315.5
135°	2434.5	2470.3	2477.3	2473.8	2464.6
137.5°	2577.8	2606.7	2612.4	2610.1	2596.3
140°	2703.7	2732.6	2748.8	2748.8	2736.0
142.5°	2833.2	2862.1	2871.2	2874.7	2862.1
145°	2955.6	2978.7	2997.2	3000.7	2988.0
147.5°	3065.3	3094.2	3108.2	3113.9	3101.2
150°	3178.7	3198.2	3211.0	3221.4	3211.0
152.5°	3279.1	3298.7	3315.0	3327.7	3315.0
155°	3379.6	3388.9	3399.3	3415.5	3405.1
157.5°	3466.4	3473.2	3479.0	3502.1	3486.0
160°	3543.7	3550.7	3554.1	3573.8	3559.9
162.5°	3615.3	3615.3	3618.9	3640.8	3624.6
165°	3676.6	3673.2	3673.2	3696.2	3680.1
167.5°	3732.1	3721.7	3721.7	3744.8	3728.6
170°	3773.7	3764.4	3760.9	3784.1	3764.4
172.5°	3802.5	3793.3	3789.8	3812.9	3793.3
175°	3825.7	3816.4	3809.5	3832.5	3812.9
177.5°	3838.4	3829.1	3822.1	3841.8	3822.1
180°	3832.5	3832.5	3832.5	3832.5	3832.5

TEST NUMBER: P908159

CATALOG NUMBER: DFN2DIP-HX4F0-040D120US840-RLFL

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	4.81	5.47	5.97	6.61	8.21	0.79	1.44	1.94	2.58	4.18
	3H	6.48	7.07	7.64	8.21	9.83	1.96	2.55	3.13	3.70	5.31
	4H	7.08	7.64	8.25	8.79	10.40	2.41	2.97	3.58	4.11	5.73
	6H	7.49	8.01	8.67	9.16	10.78	2.72	3.23	3.90	4.38	6.01
	8H	7.62	8.10	8.80	9.27	10.89	2.81	3.30	3.99	4.46	6.08
	12H	7.67	8.13	8.86	9.29	10.93	2.85	3.31	4.03	4.47	6.11
4H	2H	4.81	5.37	5.99	6.52	8.13	1.36	1.92	2.54	3.07	4.68
	3H	6.63	7.09	7.81	8.26	9.89	2.70	3.16	3.88	4.34	5.96
	4H	7.31	7.74	8.50	8.90	10.55	3.24	3.67	4.42	4.83	6.48
	6H	7.82	8.18	9.01	9.37	11.00	3.65	4.02	4.84	5.20	6.84
	8H	7.99	8.33	9.18	9.51	11.16	3.78	4.12	4.97	5.30	6.95
	12H	8.08	8.39	9.28	9.57	11.23	3.84	4.15	5.04	5.33	6.99
8H	4H	7.27	7.61	8.45	8.78	10.44	3.51	3.85	4.70	5.02	6.68
	6H	7.83	8.11	9.03	9.33	10.98	4.02	4.30	5.23	5.52	7.17
	8H	8.04	8.29	9.26	9.48	11.15	4.22	4.46	5.43	5.65	7.33
	12H	8.18	8.39	9.39	9.58	11.29	4.33	4.54	5.54	5.73	7.44
12H	4H	7.21	7.52	8.41	8.71	10.36	3.51	3.82	4.71	5.00	6.66
	6H	7.80	8.05	9.01	9.24	10.91	4.07	4.32	5.28	5.51	7.18
	8H	8.02	8.23	9.23	9.42	11.13	4.28	4.49	5.49	5.68	7.39