

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: P907915

Luminaire Tested: DFN2DIP-HX2F0-040D020US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907915
REPORT IS A COMBINATION OF REPORTS P900675 AND P897595
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-040D020US840-FLONL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

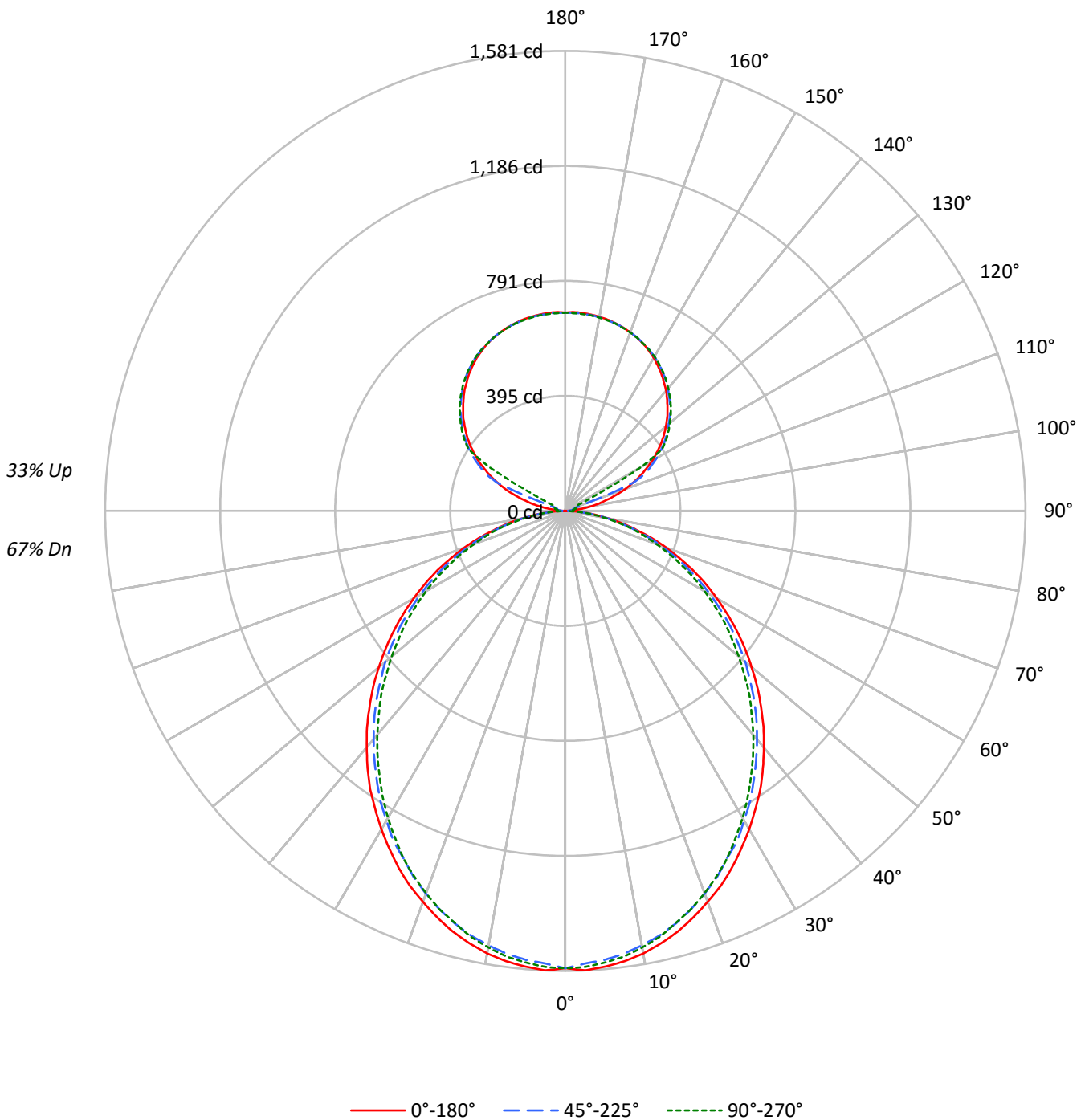
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5998.6 lumens
Efficiency: N/A
Efficacy: 116.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 51.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P907915
CATALOG NUMBER: DFN2DIP-HX2F0-040D020US840-FLLONL

Luminous Intensity Polar Plot





TEST NUMBER: P907915

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US840-FLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				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	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71	67	67	67	67
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60	56	56	56	56
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51	47	47	47	47
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43	40	40	40	40
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37	34	34	34	34
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33	30	30	30	30
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29	26	26	26	26
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26	23	23	23	23
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23	21	21	21	21
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21	19	19	19	19
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19	17	17	17	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3703	3703	3703
5°	3703	3643	3669
10°	3668	3585	3613
15°	3608	3517	3529
20°	3529	3427	3443
25°	3450	3320	3344
30°	3353	3220	3221
35°	3261	3103	3091
40°	3149	2985	2966
45°	3036	2867	2839
50°	2912	2742	2692
55°	2783	2598	2555
60°	2636	2428	2398
65°	2474	2250	2214
70°	2269	2034	2013
75°	1988	1775	1819
80°	1645	1444	1469
85°	1117	907	908

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3036 cd/sqm



TEST NUMBER: P907915

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US840-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	2.5
10°-20°	416.2	6.9
20°-30°	611.7	10.2
30°-40°	710.5	11.8
40°-50°	709.6	11.8
50°-60°	618.7	10.3
60°-70°	457.4	7.6
70°-80°	258.8	4.3
80°-90°	69.5	1.2
90°-100°	22.5	0.4
100°-110°	83.8	1.4
110°-120°	222.2	3.7
120°-130°	368.6	6.1
130°-140°	391.5	6.5
140°-150°	363.9	6.1
150°-160°	292.5	4.9
160°-170°	188.5	3.1
170°-180°	64.9	1.1
0°-30°	1175.9	19.6
0°-40°	1886.3	31.4
0°-60°	3214.6	53.6
0°-90°	4000.3	66.7
90°-120°	328.5	5.5
90°-150°	1452.4	24.2
90°-180°	1998.0	33.3
0°-180°	5998.6	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°	0	6	10	12	13	6
95°	32	16	19	22	21	38
105°	150	165	30	35	38	160
115°	284	292	304	76	40	279
125°	401	407	417	420	422	358
135°	496	504	508	514	512	383
145°	576	575	584	587	584	360
155°	634	629	635	638	634	292
165°	668	665	666	670	666	189
175°	683	680	681	684	679	65
180°	682	682	682	682	682	



TEST NUMBER: P907915

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US840-FLLONL

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°	0.5	6.0	9.8	12.3	13.3
92.5°	12.3	10.4	11.8	12.8	13.3
95°	32.0	15.8	19.2	21.7	21.2
97.5°	57.7	17.3	25.1	26.7	27.2
100°	87.4	19.7	28.1	32.0	33.0
102.5°	119.9	118.9	29.1	34.5	36.1
105°	150.0	164.7	30.1	35.4	37.5
107.5°	185.0	197.2	31.1	36.5	38.5
110°	218.5	228.8	86.3	37.1	39.0



TEST NUMBER: P907915

CATALOG NUMBER: DFN2DIP-HX2F0-040D020US840-FLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	250.0	258.9	250.5	38.0	39.5
115°	283.6	292.0	304.4	75.9	40.5
117.5°	312.7	322.6	330.9	260.4	131.2
120°	345.3	352.6	361.5	367.5	300.8
122.5°	372.8	380.7	390.6	393.5	394.2
125°	401.0	407.4	416.8	420.2	421.7
127.5°	426.7	433.5	441.0	445.9	446.4
130°	450.8	458.7	464.1	469.6	469.1
132.5°	475.4	481.9	487.3	491.7	491.3
135°	496.2	504.1	508.5	513.5	512.5
137.5°	517.9	523.8	528.8	533.7	532.2
140°	539.1	543.1	548.5	552.9	550.5
142.5°	556.8	560.4	566.7	570.7	568.2
145°	575.6	575.1	583.5	586.9	584.5
147.5°	591.9	590.4	598.7	601.2	599.3
150°	607.6	604.2	612.1	615.0	612.6
152.5°	621.0	617.0	624.4	627.4	623.9
155°	633.8	629.3	635.3	638.2	634.3
157.5°	644.2	640.3	644.7	648.1	644.2
160°	653.1	650.1	653.1	656.0	652.6
162.5°	660.9	657.9	660.5	663.9	659.4
165°	667.8	664.9	666.3	669.8	666.3
167.5°	673.3	670.2	671.8	675.3	670.8
170°	677.7	674.7	675.7	679.1	674.7
172.5°	680.6	677.7	678.7	682.2	677.7
175°	683.1	679.6	680.6	684.1	679.1
177.5°	684.1	680.6	681.2	684.6	680.1
180°	681.7	681.7	681.7	681.7	681.7



TEST NUMBER: P907915
 CATALOG NUMBER: DFN2DIP-HX2F0-040D020US840-FLLONL

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	13.10	14.13	13.90	14.95	15.96	12.67	13.71	13.47	14.53	15.54
	3H	14.74	15.67	15.56	16.51	17.55	14.28	15.21	15.10	16.04	17.08
	4H	15.32	16.20	16.15	17.04	18.09	14.86	15.74	15.69	16.58	17.63
	6H	15.71	16.52	16.55	17.37	18.43	15.25	16.06	16.10	16.91	17.97
	8H	15.81	16.58	16.66	17.45	18.51	15.35	16.13	16.21	16.99	18.06
	12H	15.86	16.59	16.71	17.45	18.54	15.40	16.13	16.25	16.99	18.08
4H	2H	13.57	14.45	14.40	15.29	16.34	13.23	14.11	14.06	14.95	16.00
	3H	15.42	16.15	16.27	17.03	18.09	15.04	15.77	15.88	16.64	17.71
	4H	16.12	16.79	16.98	17.66	18.75	15.73	16.40	16.59	17.27	18.36
	6H	16.62	17.20	17.50	18.10	19.19	16.23	16.81	17.10	17.70	18.80
	8H	16.77	17.31	17.64	18.19	19.30	16.37	16.91	17.25	17.80	18.91
	12H	16.84	17.32	17.73	18.23	19.35	16.43	16.92	17.33	17.83	18.94
8H	4H	16.32	16.86	17.20	17.75	18.86	15.97	16.51	16.85	17.40	18.51
	6H	16.93	17.38	17.84	18.31	19.42	16.58	17.03	17.48	17.96	19.07
	8H	17.14	17.53	18.05	18.46	19.58	16.78	17.18	17.70	18.10	19.23
	12H	17.26	17.61	18.18	18.53	19.70	16.89	17.24	17.81	18.16	19.34
12H	4H	16.31	16.80	17.21	17.71	18.82	15.97	16.46	16.87	17.36	18.48
	6H	16.96	17.35	17.87	18.28	19.41	16.62	17.01	17.53	17.94	19.06
	8H	17.19	17.54	18.11	18.45	19.63	16.84	17.19	17.76	18.11	19.29