

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: P921761

Luminaire Tested: DFN2DIP-HX3F0-090D030US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921761
REPORT IS A COMBINATION OF REPORTS P900734 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D030US940-RLLONL
Description: 3 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

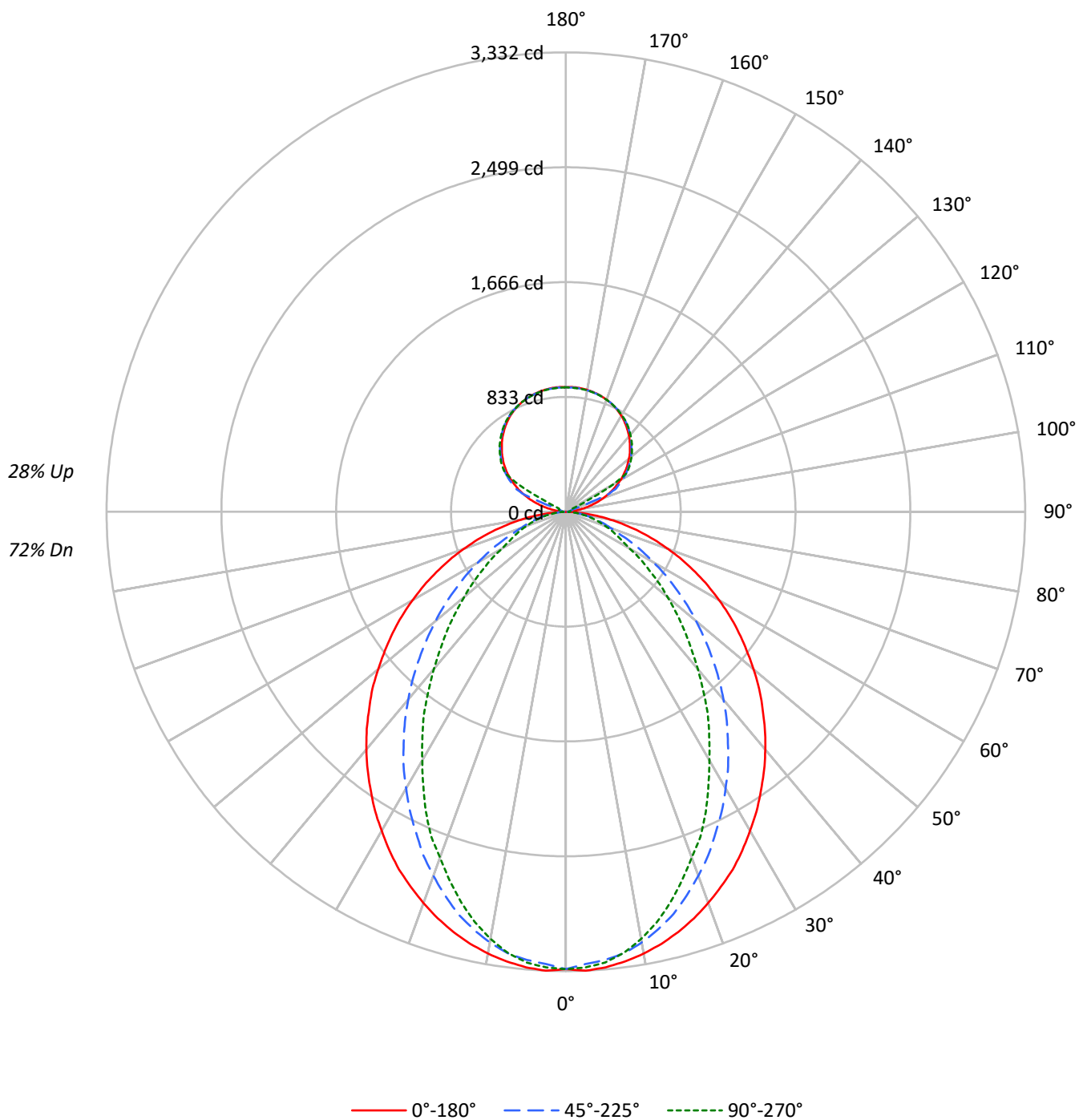
Lumens per Lamp: N/A
Luminaire Lumens: 9470.0 lumens
Efficiency: N/A
Efficacy: 81.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 115.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P921761

CATALOG NUMBER: DFN2DIP-HX3F0-090D030US940-RLLONL

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	112	112	112	112	107	107	107	107	96	96	96	86	86	86	76	76	76
1	103	99	95	92	98	94	91	88	85	82	80	76	75	73	69	67	66
2	95	87	81	76	90	83	78	73	75	71	68	68	65	62	61	59	57
3	87	78	70	65	82	74	67	62	67	62	58	61	57	53	55	52	49
4	80	69	61	55	76	66	59	54	60	54	50	55	50	46	50	46	43
5	74	62	54	48	70	59	52	47	54	48	44	50	45	41	45	41	38
6	68	56	48	42	65	54	46	41	49	43	39	45	40	36	41	37	34
7	63	51	43	38	60	49	42	36	45	39	34	41	36	32	38	34	30
8	59	47	39	34	56	45	38	33	41	35	31	38	33	29	35	31	27
9	55	43	35	30	52	41	34	30	38	32	28	35	30	26	32	28	25
10	52	40	32	28	49	38	31	27	35	29	25	33	28	24	30	26	23

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3842	3842	3842
5°	3847	3779	3803
10°	3807	3702	3677
15°	3753	3577	3484
20°	3682	3406	3248
25°	3609	3214	3019
30°	3512	3018	2731
35°	3416	2808	2477
40°	3319	2590	2187
45°	3207	2349	1924
50°	3090	2107	1667
55°	2968	1847	1420
60°	2827	1577	1167
65°	2664	1302	1048
70°	2467	1045	945
75°	2219	916	855
80°	1860	760	735
85°	1270	495	540

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3207 cd/sqm

TEST NUMBER: P921761

CATALOG NUMBER: DFN2DIP-HX3F0-090D030US940-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	310.9	3.3
10°-20°	853.4	9.0
20°-30°	1198.1	12.7
30°-40°	1306.0	13.8
40°-50°	1200.4	12.7
50°-60°	942.7	10.0
60°-70°	613.6	6.5
70°-80°	315.9	3.3
80°-90°	82.2	0.9
90°-100°	29.8	0.3
100°-110°	111.0	1.2
110°-120°	294.3	3.1
120°-130°	488.2	5.2
130°-140°	518.5	5.5
140°-150°	481.9	5.1
150°-160°	387.5	4.1
160°-170°	249.7	2.6
170°-180°	85.9	0.9
0°-30°	2362.4	24.9
0°-40°	3668.4	38.7
0°-60°	5811.5	61.4
0°-90°	6823.2	72.1
90°-120°	435.1	4.6
90°-150°	1923.7	20.3
90°-180°	2647.0	28.0
0°-180°	9470.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3317	3317	3317	3317	3317	
5°	3317	3302	3263	3290	3281	315
15°	3155	3122	3020	2963	2933	889
25°	2864	2768	2570	2446	2401	1317
35°	2468	2314	2050	1861	1795	1544
45°	2017	1816	1501	1288	1216	1558
55°	1534	1300	975	796	738	1371
65°	1036	792	522	420	411	1027
75°	552	342	240	219	216	584
85°	129	66	57	57	57	148
90°	1	8	13	16	18	9
95°	42	21	25	29	28	50
105°	199	218	40	47	50	212
115°	376	387	403	101	54	370
125°	531	540	552	557	559	474
135°	657	668	674	680	679	508
145°	762	762	773	777	774	477
155°	840	834	841	845	840	387
165°	884	881	883	887	883	250
175°	905	900	902	906	900	86
180°	903	903	903	903	903	

TEST NUMBER: P921761

CATALOG NUMBER: DFN2DIP-HX3F0-090D030US940-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3316.9	3316.9	3316.9	3316.9	3316.9
2.5°	3331.9	3316.9	3283.7	3314.0	3308.0
5°	3316.9	3301.9	3262.8	3289.8	3280.9
7.5°	3289.8	3272.0	3230.0	3241.7	3226.7
10°	3253.9	3232.8	3173.0	3163.7	3145.9
12.5°	3208.9	3181.9	3100.7	3082.8	3049.6
15°	3154.8	3121.7	3019.8	2962.7	2932.8
17.5°	3091.7	3043.7	2917.5	2851.6	2803.5
20°	3019.8	2959.6	2809.5	2734.7	2668.4
22.5°	2941.8	2872.6	2698.4	2596.5	2551.6
25°	2863.7	2767.5	2569.5	2446.5	2401.3
27.5°	2770.7	2668.4	2449.4	2308.3	2239.2
30°	2671.7	2557.3	2317.2	2164.4	2083.1
32.5°	2575.4	2437.2	2191.4	2011.2	1936.0
35°	2467.5	2314.3	2050.3	1861.2	1794.9
37.5°	2362.4	2197.2	1918.2	1710.8	1636.0
40°	2251.3	2071.4	1779.9	1566.9	1488.9
42.5°	2137.3	1945.3	1642.0	1419.8	1344.9
45°	2017.2	1816.0	1500.9	1287.5	1215.6
47.5°	1903.2	1690.1	1365.9	1152.5	1086.6
50°	1777.1	1564.0	1233.8	1026.4	963.7
52.5°	1653.9	1428.7	1107.7	909.5	852.6
55°	1533.7	1299.7	975.4	795.6	738.5
57.5°	1410.9	1170.7	858.6	690.5	642.4
60°	1284.7	1044.5	735.4	582.5	534.4
62.5°	1161.8	921.7	630.3	486.3	462.4
65°	1035.6	792.4	522.3	420.4	411.2
67.5°	915.6	672.3	420.4	369.1	360.2
70°	789.5	555.4	348.1	318.2	306.0
72.5°	669.4	447.1	291.1	267.2	261.2
75°	552.2	342.1	240.1	219.1	216.2
77.5°	435.3	243.0	189.1	177.1	171.0
80°	327.1	174.2	143.9	132.2	132.2
82.5°	228.0	117.2	99.1	93.0	93.0
85°	128.9	65.9	57.0	57.0	57.0
87.5°	48.1	23.9	23.9	21.0	21.0
90°	0.6	7.8	13.0	16.4	17.6
92.5°	16.4	13.7	15.7	17.0	17.6
95°	42.4	20.9	25.4	28.8	28.1
97.5°	76.4	22.9	33.3	35.3	35.9
100°	115.7	26.1	37.3	42.4	43.8
102.5°	158.7	157.5	38.5	45.7	47.7
105°	198.6	218.2	39.9	47.0	49.7
107.5°	245.0	261.3	41.2	48.3	51.0
110°	289.4	303.1	114.3	49.0	51.6



TEST NUMBER: P921761

CATALOG NUMBER: DFN2DIP-HX3F0-090D030US940-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	331.3	343.0	331.9	50.3	52.3
115°	375.6	386.7	403.1	100.6	53.6
117.5°	414.2	427.2	438.4	344.9	173.8
120°	457.3	467.1	478.8	486.7	398.5
122.5°	493.8	504.4	517.5	521.3	522.0
125°	531.1	539.6	552.1	556.6	558.6
127.5°	565.1	574.2	584.1	590.6	591.2
130°	597.1	607.6	614.7	621.9	621.3
132.5°	629.7	638.3	645.4	651.3	650.7
135°	657.2	667.7	673.5	680.1	678.8
137.5°	685.9	693.8	700.3	706.9	704.9
140°	714.0	719.3	726.4	732.3	729.1
142.5°	737.6	742.2	750.6	755.8	752.6
145°	762.4	761.7	772.8	777.4	774.1
147.5°	783.9	781.9	793.1	796.3	793.7
150°	804.9	800.3	810.7	814.6	811.4
152.5°	822.4	817.3	827.1	831.0	826.4
155°	839.5	833.7	841.4	845.3	840.2
157.5°	853.2	848.0	853.9	858.4	853.2
160°	865.0	861.0	865.0	868.9	864.2
162.5°	875.4	871.5	874.8	879.3	873.4
165°	884.5	880.7	882.6	887.2	882.6
167.5°	891.7	887.8	889.7	894.4	888.5
170°	897.6	893.7	895.0	899.6	893.7
172.5°	901.5	897.6	898.9	903.5	897.6
175°	904.7	900.2	901.5	906.1	899.6
177.5°	906.1	901.5	902.2	906.8	900.9
180°	902.9	902.9	902.9	902.9	902.9

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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	13.63	14.68	14.38	15.45	16.37	9.61	10.66	10.36	11.42	12.34
	3H	15.32	16.26	16.08	17.03	17.98	10.81	11.75	11.57	12.52	13.47
	4H	15.93	16.82	16.71	17.60	18.56	11.27	12.15	12.05	12.93	13.90
	6H	16.36	17.17	17.15	17.97	18.94	11.59	12.41	12.39	13.20	14.18
	8H	16.49	17.26	17.29	18.07	19.05	11.69	12.46	12.49	13.28	14.25
	12H	16.55	17.29	17.36	18.10	19.10	11.74	12.48	12.55	13.28	14.29
4H	2H	13.68	14.56	14.46	15.34	16.31	10.23	11.11	11.01	11.89	12.86
	3H	15.52	16.25	16.31	17.07	18.05	11.59	12.32	12.39	13.14	14.12
	4H	16.21	16.88	17.02	17.70	18.70	12.14	12.81	12.95	13.63	14.64
	6H	16.73	17.30	17.56	18.15	19.16	12.57	13.14	13.40	13.99	15.00
	8H	16.90	17.44	17.74	18.28	19.31	12.70	13.24	13.53	14.08	15.10
	12H	17.00	17.49	17.86	18.35	19.38	12.77	13.25	13.62	14.11	15.14
8H	4H	16.19	16.73	17.02	17.57	18.59	12.43	12.97	13.27	13.81	14.84
	6H	16.76	17.20	17.62	18.08	19.11	12.95	13.40	13.81	14.28	15.30
	8H	16.97	17.36	17.84	18.24	19.28	13.14	13.54	14.01	14.41	15.46
	12H	17.11	17.46	17.98	18.33	19.43	13.27	13.61	14.14	14.48	15.58
12H	4H	16.15	16.64	17.00	17.50	18.53	12.45	12.93	13.30	13.79	14.82
	6H	16.73	17.13	17.60	18.00	19.05	13.00	13.40	13.87	14.27	15.32
	8H	16.96	17.31	17.83	18.17	19.27	13.22	13.57	14.09	14.43	15.53

END OF REPORT