

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: P902422

Luminaire Tested: DFN2DIP-HX2F0-020D030US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902422
REPORT IS A COMBINATION OF REPORTS P899161 AND P896039
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX2F0-020D030US830-FLLFLL
Description: 2 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

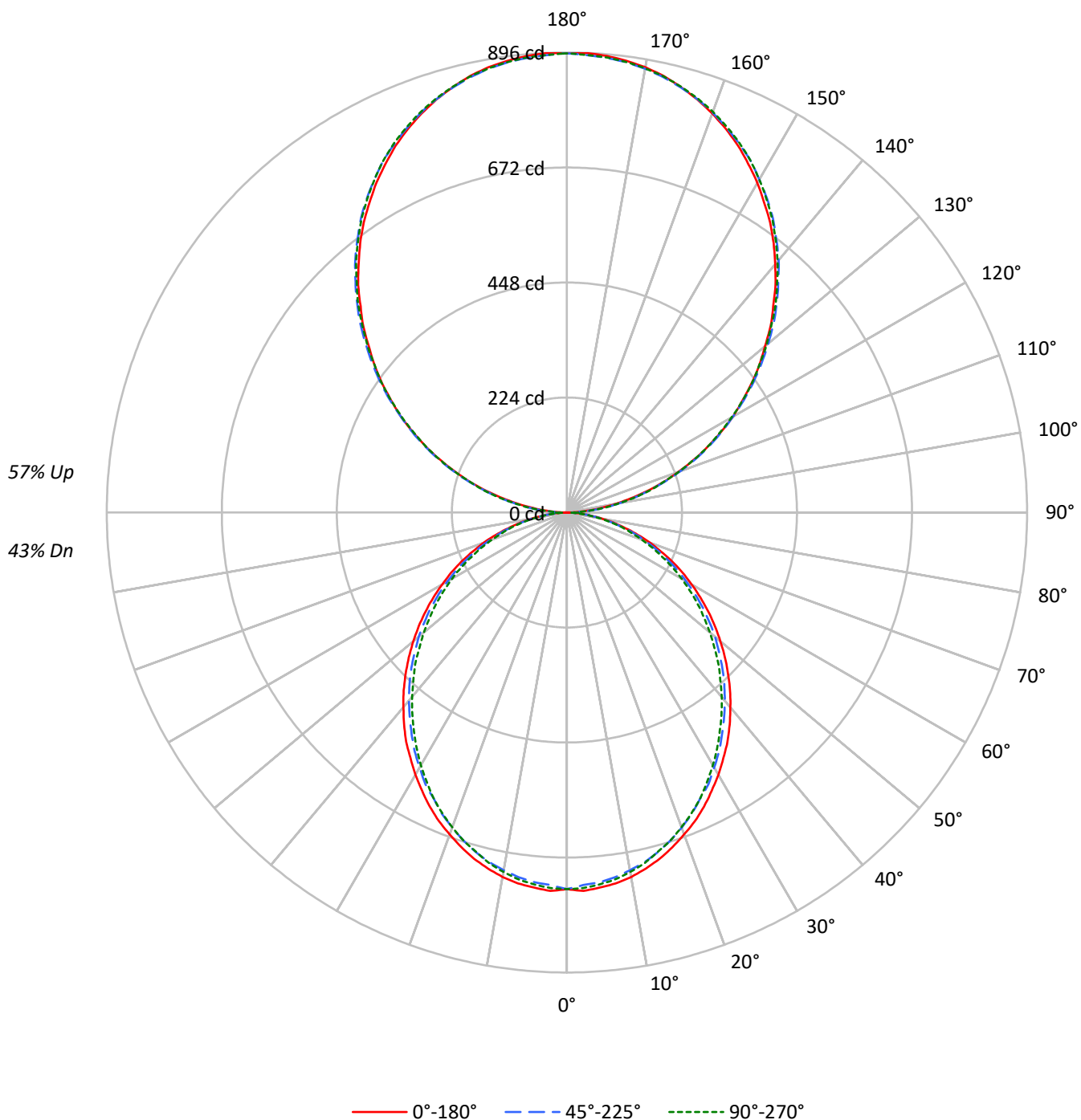
Lumens per Lamp: N/A
Luminaire Lumens: 4368.7 lumens
Efficiency: N/A
Efficacy: 118.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 1.99' x L: 2.3' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 37
Input Voltage (V): 120
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

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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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	44	43	42
2	88	80	74	69	80	73	68	64	61	57	54	49	47	44	38	37	35
3	80	70	63	57	73	65	58	53	54	49	45	44	40	37	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	30	28	26
5	67	56	47	42	61	51	44	39	43	37	33	35	31	28	27	25	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	29	24	21	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1728	1728	1728
5°	1728	1700	1712
10°	1712	1673	1686
15°	1683	1641	1647
20°	1647	1599	1606
25°	1610	1549	1560
30°	1565	1502	1503
35°	1522	1448	1442
40°	1469	1393	1384
45°	1417	1338	1325
50°	1359	1279	1256
55°	1298	1212	1192
60°	1230	1133	1119
65°	1154	1050	1033
70°	1059	949	939
75°	928	828	849
80°	768	674	684
85°	520	423	424

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1417 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	69.0	1.6
10°-20°	194.2	4.4
20°-30°	285.5	6.5
30°-40°	331.5	7.6
40°-50°	331.1	7.6
50°-60°	288.7	6.6
60°-70°	213.4	4.9
70°-80°	120.8	2.8
80°-90°	34.4	0.8
90°-100°	55.3	1.3
100°-110°	175.8	4.0
110°-120°	300.9	6.9
120°-130°	395.7	9.1
130°-140°	444.2	10.2
140°-150°	435.6	10.0
150°-160°	365.4	8.4
160°-170°	242.3	5.5
170°-180°	84.7	1.9
0°-30°	548.7	12.6
0°-40°	880.3	20.2
0°-60°	1500.2	34.3
0°-90°	1868.8	42.8
90°-120°	532.1	12.2
90°-150°	1807.5	41.4
90°-180°	2500.0	57.2
0°-180°	4368.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	734	734	734	734	734	
5°	734	731	723	729	727	70
15°	698	694	685	688	684	197
25°	632	626	614	616	614	291
35°	545	538	527	523	519	340
45°	444	439	428	420	418	342
55°	336	332	323	315	311	300
65°	226	222	215	209	205	224
75°	118	117	114	109	111	126
85°	29	28	28	25	25	32
90°	1	10	26	25	26	4
95°	39	47	48	48	47	44
105°	162	164	166	167	167	171
115°	302	306	305	304	302	299
125°	439	446	444	441	440	392
135°	568	576	578	577	575	439
145°	690	695	699	700	697	431
155°	789	791	793	797	795	363
165°	858	857	857	862	859	242
175°	893	890	889	894	890	85
180°	894	894	894	894	894	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	733.5	733.5	733.5	733.5	733.5
2.5°	737.7	734.2	726.4	733.5	732.2
5°	733.5	730.8	722.9	728.6	727.2
7.5°	728.6	724.3	716.6	722.3	720.9
10°	720.9	716.0	707.5	713.0	711.0
12.5°	710.2	706.1	697.6	701.1	699.6
15°	698.2	694.1	684.9	687.7	684.2
17.5°	683.4	679.3	670.1	673.5	670.1
20°	667.2	663.0	653.1	655.3	652.4
22.5°	651.0	644.7	635.5	635.5	634.0
25°	632.0	626.3	614.3	615.7	614.3
27.5°	610.8	605.9	596.7	594.6	591.1
30°	589.7	584.0	573.4	571.4	568.4
32.5°	567.0	562.9	551.6	547.3	544.5
35°	545.3	538.2	526.9	522.6	519.1
37.5°	520.6	514.2	502.8	497.9	494.4
40°	495.1	489.5	478.2	471.9	469.0
42.5°	470.4	464.8	453.6	446.5	442.2
45°	443.7	438.8	428.1	420.4	417.5
47.5°	417.5	412.6	401.3	393.5	389.4
50°	390.0	386.5	376.6	366.7	363.3
52.5°	363.3	358.3	349.1	341.4	336.5
55°	335.7	331.5	323.0	314.6	311.0
57.5°	308.2	304.7	295.5	287.1	284.2
60°	280.7	278.0	268.1	260.2	258.2
62.5°	253.9	248.9	242.0	234.9	232.1
65°	226.4	222.2	215.2	208.8	205.3
67.5°	198.2	194.6	188.3	183.4	180.6
70°	172.1	169.3	162.9	158.0	155.2
72.5°	145.3	142.5	138.9	134.0	132.0
75°	118.5	117.2	113.5	109.3	110.7
77.5°	94.5	91.7	90.2	88.1	86.1
80°	70.6	69.8	68.4	66.3	64.8
82.5°	48.0	48.0	47.3	44.5	44.5
85°	28.8	28.2	27.5	25.4	24.7
87.5°	12.7	11.3	9.9	7.8	7.1
90°	0.8	9.7	26.4	24.8	25.6
92.5°	16.7	22.6	23.5	24.2	24.2
95°	39.4	46.9	48.3	48.3	46.9
97.5°	65.5	72.5	75.5	75.5	75.5
100°	95.7	101.9	104.1	104.1	103.3
102.5°	127.5	132.1	135.1	135.9	135.1
105°	162.3	164.5	166.1	167.4	167.4
107.5°	196.8	200.0	200.0	200.6	196.8
110°	230.3	234.6	234.6	234.6	232.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	266.4	271.0	270.1	268.0	266.4
115°	302.0	306.2	304.9	304.2	302.0
117.5°	337.2	343.2	339.4	337.2	335.1
120°	372.9	378.8	372.9	372.9	370.4
122.5°	405.2	412.7	409.0	406.8	405.2
125°	439.2	445.9	443.7	441.3	440.5
127.5°	472.3	480.7	477.8	474.5	472.3
130°	503.3	513.0	511.7	510.1	507.1
132.5°	538.1	545.6	546.2	542.4	540.3
135°	568.1	576.4	578.1	577.2	575.0
137.5°	601.4	608.2	609.5	609.1	605.8
140°	630.8	637.6	641.4	641.4	638.4
142.5°	661.1	667.8	670.0	670.8	667.8
145°	689.7	695.0	699.4	700.1	697.2
147.5°	715.3	722.0	725.2	726.6	723.6
150°	741.7	746.3	749.2	751.7	749.2
152.5°	765.2	769.7	773.5	776.5	773.5
155°	788.6	790.7	793.1	796.9	794.6
157.5°	808.8	810.4	811.8	817.2	813.4
160°	826.9	828.5	829.3	833.9	830.7
162.5°	843.6	843.6	844.4	849.5	845.7
165°	857.9	857.1	857.1	862.4	858.7
167.5°	870.8	868.4	868.4	873.7	870.0
170°	880.5	878.4	877.6	883.0	878.4
172.5°	887.2	885.1	884.3	889.7	885.1
175°	892.7	890.5	888.9	894.3	889.7
177.5°	895.6	893.4	891.8	896.5	891.8
180°	894.3	894.3	894.3	894.3	894.3

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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	8.33	9.13	9.34	10.15	11.52	7.91	8.71	8.92	9.73	11.10
	3H	9.96	10.67	10.98	11.71	13.10	9.50	10.22	10.52	11.25	12.64
	4H	10.53	11.21	11.57	12.24	13.64	10.07	10.75	11.11	11.78	13.18
	6H	10.90	11.53	11.95	12.57	13.98	10.44	11.07	11.49	12.11	13.52
	8H	11.00	11.59	12.05	12.65	14.06	10.54	11.13	11.59	12.19	13.60
	12H	11.03	11.60	12.09	12.65	14.08	10.57	11.14	11.63	12.19	13.62
4H	2H	8.77	9.45	9.82	10.49	11.89	8.43	9.11	9.48	10.15	11.55
	3H	10.60	11.17	11.66	12.23	13.65	10.22	10.79	11.27	11.85	13.26
	4H	11.30	11.81	12.36	12.87	14.30	10.90	11.42	11.96	12.48	13.91
	6H	11.78	12.23	12.85	13.31	14.74	11.39	11.83	12.46	12.91	14.34
	8H	11.92	12.34	12.99	13.41	14.85	11.52	11.94	12.59	13.01	14.45
	12H	11.98	12.36	13.07	13.44	14.89	11.57	11.95	12.66	13.04	14.49
8H	4H	11.48	11.89	12.55	12.96	14.41	11.12	11.54	12.19	12.61	14.06
	6H	12.07	12.42	13.17	13.53	14.97	11.72	12.07	12.82	13.18	14.62
	8H	12.28	12.58	13.38	13.68	15.14	11.92	12.23	13.02	13.32	14.78
	12H	12.39	12.66	13.49	13.75	15.25	12.02	12.29	13.13	13.38	14.88
12H	4H	11.46	11.83	12.54	12.92	14.37	11.11	11.49	12.20	12.58	14.02
	6H	12.10	12.40	13.20	13.50	14.96	11.76	12.06	12.86	13.16	14.62
	8H	12.32	12.59	13.42	13.68	15.18	11.97	12.24	13.08	13.33	14.83