

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: P904493

Luminaire Tested: DFN2DIP-TR3F0-080D030US830-RLONL

Issue Date: 11/21/2024

**Test Information**

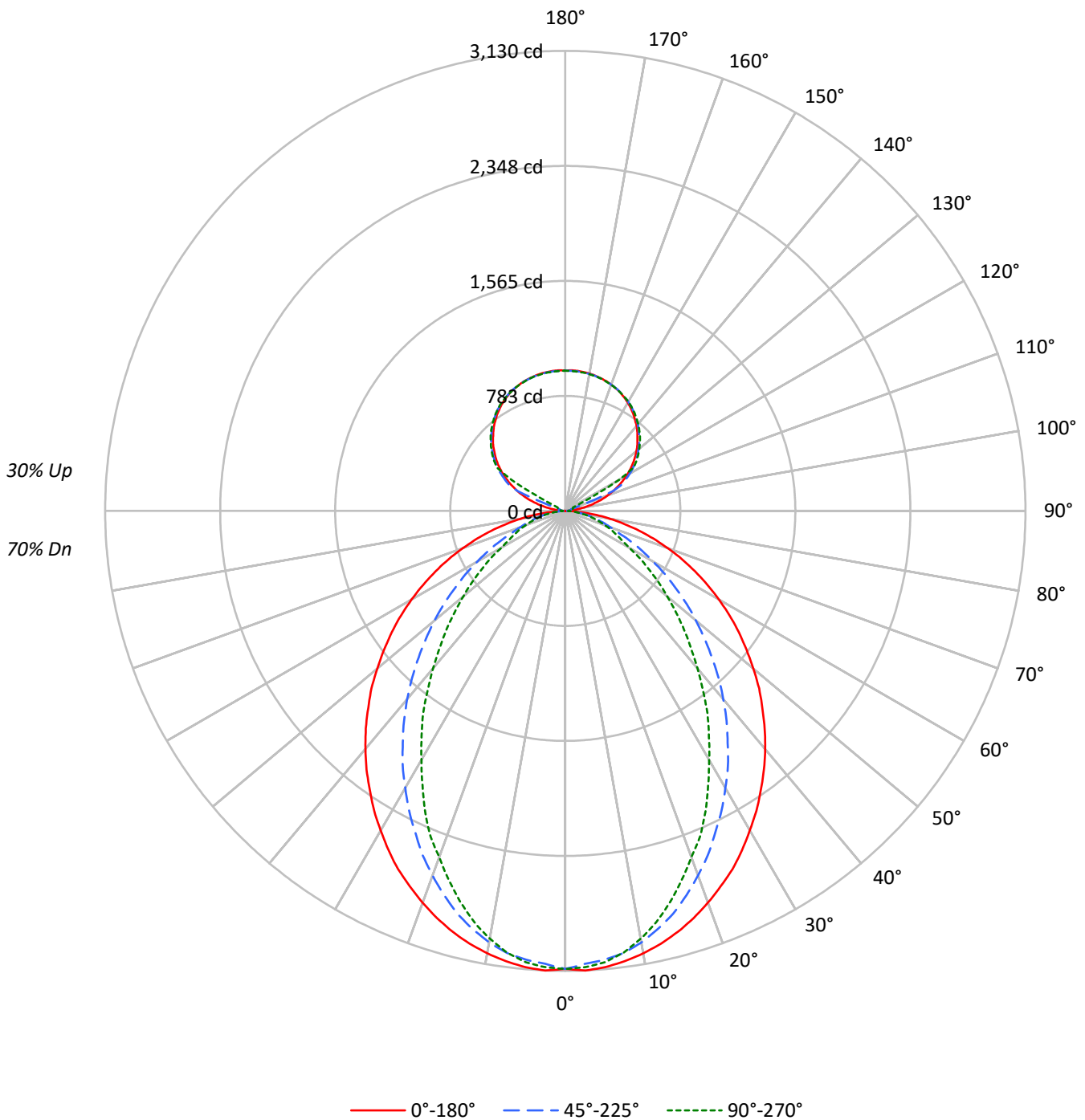
Test Method: LM-79-2019  
Report Number: P904493  
REPORT IS A COMBINATION OF REPORTS P901802 AND P898751  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-TR3F0-080D030US830-RLLONL  
Description: 3 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9208.7 lumens  
Efficiency: N/A  
Efficacy: 88.9 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16  
Luminous Opening: Rectangular w/ Sides (W: 2.74' x L: 3.16' x H: 0.1')  
CIE Type: Semi-Direct  
  
Input Watts (W): 103.6  
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

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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			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	112	112	112	112	106	106	106	106	94	94	94	84	84	84	74	74	74	74	74	74	70
1	103	99	95	92	97	93	90	87	84	81	79	75	73	71	67	65	64	64	64	64	60
2	94	87	81	76	89	83	77	73	74	70	67	67	63	61	59	57	55	55	55	55	51
3	86	77	70	64	82	73	67	62	66	61	57	59	55	52	53	50	48	48	48	48	44
4	79	69	61	55	75	65	58	53	59	54	49	53	49	45	48	45	42	42	42	42	39
5	73	62	54	48	69	59	52	46	53	47	43	48	44	40	44	40	37	37	37	37	34
6	68	56	48	42	64	53	46	41	49	42	38	44	39	35	40	36	33	33	33	33	30
7	63	51	43	37	60	49	41	36	44	38	34	40	35	32	37	32	29	29	29	29	27
8	59	46	39	33	56	44	37	32	41	35	30	37	32	28	34	30	27	27	27	27	24
9	55	43	35	30	52	41	34	29	37	32	27	34	29	26	31	27	24	24	24	24	22
10	51	39	32	27	49	38	31	26	35	29	25	32	27	24	29	25	22	22	22	22	20

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	3883	3883	3883
5°	3887	3818	3844
10°	3847	3740	3716
15°	3792	3613	3520
20°	3719	3440	3281
25°	3646	3246	3050
30°	3547	3048	2758
35°	3450	2835	2501
40°	3352	2615	2208
45°	3238	2371	1942
50°	3119	2125	1682
55°	2995	1863	1433
60°	2852	1589	1177
65°	2687	1311	1056
70°	2486	1052	952
75°	2234	920	861
80°	1869	762	738
85°	1272	493	539

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 3238 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	292.1	3.2
10°-20°	801.8	8.7
20°-30°	1125.7	12.2
30°-40°	1227.1	13.3
40°-50°	1127.8	12.2
50°-60°	885.7	9.6
60°-70°	576.5	6.3
70°-80°	296.8	3.2
80°-90°	77.4	0.8
90°-100°	31.5	0.3
100°-110°	117.3	1.3
110°-120°	311.1	3.4
120°-130°	516.0	5.6
130°-140°	548.1	6.0
140°-150°	509.4	5.5
150°-160°	409.6	4.4
160°-170°	263.9	2.9
170°-180°	90.8	1.0
0°-30°	2219.6	24.1
0°-40°	3446.7	37.4
0°-60°	5460.2	59.3
0°-90°	6411.0	69.6
90°-120°	459.9	5.0
90°-150°	2033.4	22.1
90°-180°	2798.0	30.4
0°-180°	9208.7	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3116	3116	3116	3116	3116	
5°	3116	3102	3066	3091	3083	296
15°	2964	2933	2837	2784	2756	835
25°	2691	2600	2414	2299	2256	1237
35°	2318	2174	1926	1749	1686	1451
45°	1895	1706	1410	1210	1142	1464
55°	1441	1221	916	747	694	1288
65°	973	744	491	395	386	965
75°	519	321	226	206	203	549
85°	121	62	54	54	54	139
90°	1	8	14	17	19	9
95°	45	22	27	30	30	53
105°	210	231	42	50	52	224
115°	397	409	426	106	57	391
125°	561	570	584	588	590	501
135°	695	706	712	719	718	537
145°	806	805	817	822	818	504
155°	887	881	889	894	888	409
165°	935	931	933	938	933	264
175°	956	952	953	958	951	91
180°	954	954	954	954	954	



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**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	3116.4	3116.4	3116.4	3116.4	3116.4
2.5°	3130.5	3116.4	3085.3	3113.7	3108.0
5°	3116.4	3102.4	3065.5	3091.0	3082.6
7.5°	3091.0	3074.2	3034.7	3045.8	3031.7
10°	3057.1	3037.4	2981.2	2972.5	2955.7
12.5°	3015.0	2989.6	2913.2	2896.4	2865.3
15°	2964.1	2933.0	2837.2	2783.7	2755.5
17.5°	2904.8	2859.7	2741.2	2679.3	2634.0
20°	2837.2	2780.7	2639.8	2569.5	2507.2
22.5°	2763.9	2699.0	2535.3	2439.6	2397.4
25°	2690.6	2600.3	2414.1	2298.7	2256.2
27.5°	2603.2	2507.2	2301.3	2168.8	2103.8
30°	2510.2	2402.7	2177.2	2033.5	1957.2
32.5°	2419.8	2290.0	2059.0	1889.6	1819.0
35°	2318.4	2174.4	1926.4	1748.7	1686.4
37.5°	2219.6	2064.4	1802.2	1607.4	1537.1
40°	2115.3	1946.2	1672.4	1472.2	1398.8
42.5°	2008.1	1827.7	1542.8	1334.0	1263.6
45°	1895.3	1706.2	1410.2	1209.8	1142.2
47.5°	1788.2	1588.0	1283.4	1082.9	1021.0
50°	1669.6	1469.5	1159.2	964.4	905.4
52.5°	1553.9	1342.3	1040.7	854.6	801.1
55°	1441.1	1221.2	916.5	747.4	693.9
57.5°	1325.6	1099.9	806.7	648.8	603.5
60°	1207.0	981.5	690.9	547.2	502.1
62.5°	1091.6	865.9	592.2	456.9	434.5
65°	973.1	744.4	490.7	395.0	386.3
67.5°	860.3	631.7	395.0	346.8	338.5
70°	741.8	521.9	327.1	298.9	287.6
72.5°	629.0	420.1	273.5	251.1	245.3
75°	518.9	321.4	225.6	205.9	203.2
77.5°	409.1	228.3	177.8	166.4	160.7
80°	307.3	163.7	135.3	124.1	124.1
82.5°	214.2	110.1	93.0	87.4	87.4
85°	121.2	61.9	53.5	53.5	53.5
87.5°	45.1	22.4	22.4	19.8	19.8
90°	0.7	8.3	13.8	17.3	18.6
92.5°	17.3	14.5	16.6	18.0	18.6
95°	44.9	22.1	26.9	30.4	29.7
97.5°	80.8	24.2	35.2	37.3	38.0
100°	122.2	27.6	39.4	44.9	46.3
102.5°	167.8	166.5	40.7	48.3	50.4
105°	209.9	230.6	42.1	49.7	52.5
107.5°	258.9	276.2	43.5	51.1	53.9
110°	305.9	320.4	120.8	51.8	54.6



TEST NUMBER: P904493

CATALOG NUMBER: DFN2DIP-TR3F0-080D030US830-RLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	350.2	362.5	350.8	53.2	55.2
115°	397.0	408.8	426.0	106.3	56.6
117.5°	437.8	451.6	463.4	364.6	183.7
120°	483.3	493.7	506.1	514.4	421.2
122.5°	522.0	533.1	547.0	551.0	551.8
125°	561.4	570.3	583.5	588.3	590.4
127.5°	597.3	606.9	617.4	624.2	624.9
130°	631.1	642.2	649.8	657.3	656.8
132.5°	665.6	674.7	682.2	688.4	687.8
135°	694.7	705.8	711.9	718.9	717.5
137.5°	725.0	733.3	740.3	747.2	745.1
140°	754.7	760.3	767.8	774.0	770.6
142.5°	779.7	784.5	793.4	798.9	795.5
145°	805.9	805.1	816.9	821.7	818.2
147.5°	828.6	826.5	838.3	841.7	839.0
150°	850.7	845.9	857.0	861.0	857.6
152.5°	869.3	863.8	874.2	878.4	873.5
155°	887.3	881.2	889.4	893.5	888.1
157.5°	901.8	896.4	902.6	907.4	901.8
160°	914.3	910.1	914.3	918.4	913.5
162.5°	925.3	921.1	924.6	929.4	923.2
165°	934.9	930.9	932.9	937.7	932.9
167.5°	942.5	938.4	940.5	945.4	939.1
170°	948.8	944.6	946.0	950.8	944.6
172.5°	952.9	948.8	950.2	955.0	948.8
175°	956.3	951.5	952.9	957.7	950.8
177.5°	957.7	952.9	953.7	958.5	952.3
180°	954.3	954.3	954.3	954.3	954.3



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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	13.47	14.49	14.25	15.29	16.25	9.45	10.47	10.22	11.26	12.23
	3H	15.15	16.07	15.94	16.87	17.86	10.65	11.56	11.44	12.36	13.36
	4H	15.77	16.63	16.57	17.44	18.44	11.10	11.96	11.91	12.77	13.78
	6H	16.19	16.98	17.01	17.80	18.82	11.43	12.22	12.25	13.04	14.06
	8H	16.32	17.07	17.15	17.91	18.93	11.52	12.28	12.35	13.11	14.13
	12H	16.38	17.10	17.21	17.93	18.97	11.57	12.29	12.40	13.12	14.16
4H	2H	13.51	14.37	14.32	15.18	16.19	10.06	10.92	10.87	11.73	12.74
	3H	15.35	16.06	16.17	16.91	17.93	11.42	12.14	12.25	12.98	14.00
	4H	16.04	16.69	16.88	17.53	18.58	11.97	12.62	12.81	13.47	14.52
	6H	16.56	17.12	17.41	17.98	19.04	12.40	12.96	13.25	13.82	14.88
	8H	16.73	17.25	17.59	18.12	19.18	12.53	13.05	13.38	13.91	14.98
	12H	16.83	17.30	17.70	18.18	19.25	12.60	13.07	13.47	13.95	15.02
8H	4H	16.02	16.54	16.88	17.41	18.47	12.26	12.79	13.12	13.65	14.71
	6H	16.58	17.02	17.47	17.92	18.99	12.78	13.21	13.66	14.12	15.18
	8H	16.79	17.18	17.69	18.08	19.16	12.97	13.35	13.86	14.25	15.33
	12H	16.93	17.27	17.83	18.16	19.30	13.09	13.43	13.98	14.32	15.45
12H	4H	15.98	16.45	16.86	17.33	18.40	12.27	12.74	13.15	13.63	14.70
	6H	16.56	16.94	17.45	17.84	18.92	12.83	13.21	13.72	14.11	15.19
	8H	16.78	17.12	17.68	18.01	19.15	13.04	13.38	13.94	14.27	15.41